



# FCC SAR TEST REPORT

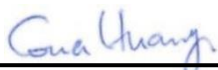
FCC ID : B94HNI29CPK  
Equipment : Notebook Computer  
Brand Name : HP  
Model Name : HSN-I29C  
Applicant : HP Inc.  
1501 Page Mill Road, Palo  
Alto CA 94304 USA  
Standard : FCC 47 CFR Part 2 (2.1093)  
ANSI/IEEE C95.1-1992  
IEEE 1528-2013

Fibocom L860-GL tested inside of HP Notebook.

The product was received on Mar 18, 2019 and testing was started from Apr. 01, 2019 and completed on Apr. 10, 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 variant report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.



Approved by: Cona Huang / Deputy Manager

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## History of this test report

| Report No.  | Version | Description             | Issued Date  |
|-------------|---------|-------------------------|--------------|
| FA912412-01 | 01      | Initial issue of report | May 20, 2019 |
|             |         |                         |              |
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## 1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for HP Inc., Notebook Computer, HSN-I29C, are as follows.

| Equipment Class  | Frequency Band   | Highest SAR Summary  | Highest Simultaneous Transmission<br>1g SAR (W/kg) |
|------------------|------------------|----------------------|----------------------------------------------------|
|                  |                  | Body                 |                                                    |
|                  |                  | 1g SAR (W/kg)        |                                                    |
| Licensed         | WCDMA II         | 1.16                 | 1.59                                               |
|                  | WCDMA IV         | 1.08                 |                                                    |
|                  | WCDMA V          | 0.79                 |                                                    |
|                  | LTE Band 7       | 0.55                 |                                                    |
|                  | LTE Band 12 / 17 | 0.93                 |                                                    |
|                  | LTE Band 13      | 0.93                 |                                                    |
|                  | LTE Band 14      | 0.99                 |                                                    |
|                  | LTE Band 2 / 25  | 1.14                 |                                                    |
|                  | LTE Band 5 / 26  | 0.57                 |                                                    |
|                  | LTE Band 30      | 1.14                 |                                                    |
|                  | LTE Band 38 / 41 | 0.65                 |                                                    |
|                  | LTE Band 4 / 66  | 1.04                 |                                                    |
| Date of Testing: |                  | 2019/4/1 ~ 2019/4/10 |                                                    |

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) 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 616217 D04 SAR for laptop and tablets v01r02
- 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

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

#### **3.1 General Information**

| Product Feature & Specification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Equipment Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Notebook Computer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Brand Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | HP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Model Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | HSN-I29C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| FCC ID                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | B94HNI29CPK                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Integrated WWAN Module                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Brand Name: Fibocom<br>Model Name: L860-GL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Integrated NFC Module                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Brand Name: WNC<br>Model Name: XRAV-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| S/N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 00085000QF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Wireless Technology and Frequency Range                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 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 13: 779.5 MHz ~ 784.5 MHz<br>LTE Band 14: 790.5 MHz ~ 795.5 MHz<br>LTE Band 17: 706.5 MHz ~ 713.5 MHz<br>LTE Band 25: 1850.7 MHz ~ 1914.3 MHz<br>LTE Band 26: 814.7 MHz ~ 848.3 MHz<br>LTE Band 30: 2307.5 MHz ~ 2312.5 MHz<br>LTE Band 38: 2572.5 MHz ~ 2617.5 MHz<br>LTE Band 41: 2498.5 MHz ~ 2687.5 MHz<br>LTE Band 66: 1710.7 MHz ~ 1779.3 MHz<br>NFC: 13.56 MHz |
| Mode                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | RMC 12.2Kbps<br>HSDPA<br>HSUPA<br>DC-HSDPA<br>LTE: QPSK, 16QAM, 64QAM<br>NFC: ASK                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Remark:</b><br>1. The Intel AX200D2WL WLAN/BT module is also integrated in this host, the 2.4GHz/5 GHz WLAN and Bluetooth SAR results are referenced from the report of FCC: B94-AX200D2LZ (SAR Report No. FA 912412-03), and these SAR results are also used to perform simultaneous transmission analysis.<br>2. This device is convertible type notebook PC, and there have Laptop and Tablet two usage way, when end user is used different mode which the device will according current mode to limit different maximum power. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

| WLAN Module Information                 |                                                                                                                                                                                                                                             |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Equipment Name                          | WLAN Module                                                                                                                                                                                                                                 |
| Brand Name                              | HP                                                                                                                                                                                                                                          |
| Model Name                              | AX200D2WL                                                                                                                                                                                                                                   |
| Wireless Technology and Frequency Range | WLAN 2.4GHz Band: 2412 MHz ~ 2472 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 |
| Mode                                    | WLAN: 802.11a/b/g/n/ac/ax HT20/HT40/VHT20/VHT40/VHT80/VHT160/HE20/HE40/HE80/HE160<br>Bluetooth BR/EDR/LE                                                                                                                                    |

| WWAN Antenna Information                                           |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                  |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|--------------------------------------------------------------------|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Manufacturer                                                       | Ant. Type | Peak Gain                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Manufacturer                                                     | Ant. Type | Peak Gain                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 1<br>INPAQ Main<br>6036B0215701<br>(WA-P-LTE12-02-008)<br>NB Mode  | Couple    | B1 (1920-1980):-5.51<br>B2 (1850~1910):-5.17<br>B3 (1710~1785):-4.69<br>B4 (1710~1785):-4.69<br>B5 (824-849):-3.61<br>B7 (2570-2620):-4.57<br>B8 (880-915):-4.28<br>B12 (746-756):-5.09<br>B13 (746-756):-5.09<br>B17 (746-756):-5.09<br>B28 (746-756):-5.09<br>B20 (824-849):-3.61<br>B25 (1850~1910):-5.17<br>B26 (824-849):-3.61<br>B30 (2300~2400):-4.11<br>B38 (2570-2620):-4.57<br>B40 (2300~2400):-4.11<br>B41 (2496-2690):-4.57<br>B66 (1710~1785):-4.69 | 2<br>INPAQ Aux.<br>6036B0215801<br>(WA-P-LTE8-02-024)<br>NB Mode | Couple    | B1 (2110-2170):-7.25<br>B2 (1930-1990):-6.6<br>B3 (1805-1880):-6.04<br>B4 (1805-1880):-6.04<br>B5 (869-894):-5.54<br>B7 (2570-2620):-5<br>B8 (925-960):-6.75<br>B12 (746-756):-5.51<br>B13 (746-756):-5.51<br>B17(746-756):-5.51<br>B28 (746-756):-5.51<br>B20 (869-894):-5.54<br>B25 (1930-1990):-6.6<br>B26 (869-894):-5.54<br>B30 (2300~2400):-6.3<br>B40 (2300~2400):-6.3<br>B38 (2570-2620):-5<br>B41 (2496-2690):-5<br>B66 (1805-1880):-6.04              |
| Manufacturer                                                       | Ant. Type | Peak Gain                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Manufacturer                                                     | Ant. Type | Peak Gain                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 1<br>INPAQ Main<br>16036B0215701<br>(WA-P-LTE12-02-008)<br>TB Mode | Couple    | B1 (1920-1980):-5.15<br>B2 (1850~1910):-5.36<br>B3 (1710~1785):-5.19<br>B4 (1710~1785):-5.19<br>B5 (824-849):-7.3<br>B7 (2570-2620):-4.1<br>B8 (880-915):-6.38<br>B12 (746-756):-5.53<br>B13 (746-756):-5.53<br>B17 (746-756):-5.53<br>B28 (746-756):-5.53<br>B20 (824-849):-7.3<br>B25 (1850~1910):-5.36<br>B26 (824-849):-7.3<br>B30 (2300~2400):-3.26<br>B38 (2570-2620):-4.1<br>B40 (2300~2400):-3.26<br>B41 (2496-2690):-4.1<br>B66 (1710~1785):-5.19       | 2<br>INPAQ Aux.<br>6036B0215801<br>(WA-P-LTE8-02-024)<br>TB Mode | Couple    | B1 (2110-2170):-8.41<br>B2 (1930-1990):-7.81<br>B3 (1805-1880):-5.81<br>B4 (1805-1880):-5.81<br>B5 (869-894):-7.41<br>B7 (2570-2620):-5.62<br>B8 (925-960):-9.65<br>B12 (746-756):-7.69<br>B13 (746-756):-7.69<br>B17(746-756):-7.69<br>B28 (746-756):-7.69<br>B20 (869-894):-7.41<br>B25 (1930-1990):-7.81<br>B26 (869-894):-7.41<br>B30 (2300~2400):-6.55<br>B38 (2570-2620):-5.62<br>B40 (2300~2400):-6.55<br>B41 (2496-2690):-5.62<br>B66 (1805-1880):-5.81 |



### 3.2 General LTE SAR Test and Reporting Considerations

| Summarized necessary items addressed in KDB 941225 D05 v02r05 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                               |         |       |        |        |          |        |
|---------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|---------|-------|--------|--------|----------|--------|
| FCC ID                                                        |  | B94HNI29CPK                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                               |         |       |        |        |          |        |
| Equipment Name                                                |  | Notebook Computer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                               |         |       |        |        |          |        |
| 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 13: 779.5 MHz ~ 784.5 MHz<br>LTE Band 14: 790.5 MHz ~ 795.5 MHz<br>LTE Band 17: 706.5 MHz ~ 713.5 MHz<br>LTE Band 25: 1850.7 MHz ~ 1914.3 MHz<br>LTE Band 26: 814.7 MHz ~ 848.3 MHz<br>LTE Band 30: 2307.5 MHz ~ 2312.5 MHz<br>LTE Band 38: 2572.5 MHz ~ 2617.5 MHz<br>LTE Band 41: 2498.5 MHz ~ 2687.5 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 13: 5MHz, 10MHz<br>LTE Band 14: 5MHz, 10MHz<br>LTE Band 17: 5MHz, 10MHz<br>LTE Band 25:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz<br>LTE Band 26:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz<br>LTE Band 30: 5MHz, 10MHz<br>LTE Band 38: 5MHz, 10MHz, 15MHz, 20MHz<br>LTE Band 41: 5MHz, 10MHz, 15MHz, 20MHz<br>LTE Band 66:1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz |                                                               |         |       |        |        |          |        |
| uplink modulations used                                       |  | QPSK / 16QAM / 64QAM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                               |         |       |        |        |          |        |
| LTE Voice / Data requirements                                 |  | Data only                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                               |         |       |        |        |          |        |
| LTE MPR permanently built-in by design                        |  | Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                               |         |       |        |        |          |        |
|                                                               |  | Modulation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Channel bandwidth / Transmission bandwidth (N <sub>RB</sub> ) |         |       |        |        | MPR (dB) |        |
|                                                               |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 1.4 MHz                                                       | 3.0 MHz | 5 MHz | 10 MHz | 15 MHz |          | 20 MHz |
|                                                               |  | QPSK                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | > 5                                                           | > 4     | > 8   | > 12   | > 16   | > 18     | ≤ 1    |
|                                                               |  | 16 QAM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | ≤ 5                                                           | ≤ 4     | ≤ 8   | ≤ 12   | ≤ 16   | ≤ 18     | ≤ 1    |
|                                                               |  | 16 QAM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | > 5                                                           | > 4     | > 8   | > 12   | > 16   | > 18     | ≤ 2    |
|                                                               |  | 64 QAM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | ≤ 5                                                           | ≤ 4     | ≤ 8   | ≤ 12   | ≤ 16   | ≤ 18     | ≤ 2    |
|                                                               |  | 64 QAM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | > 5                                                           | > 4     | > 8   | > 12   | > 16   | > 18     | ≤ 3    |
|                                                               |  | 256 QAM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | ≥ 1                                                           |         |       |        |        | ≤ 5      |        |
| LTE A-MPR                                                     |  | In the base station simulator configuration, Network Setting value is set to NS_01 to disable A-MPR during SAR testing and the LTE SAR tests was transmitting on all TTI frames (Maximum TTI)                                                                                                                                                                                                                                                                                                                                                                                                            |                                                               |         |       |        |        |          |        |
| Spectrum plots for RB configuration                           |  | A properly configured base station simulator was used for the SAR and power measurement; therefore, spectrum plots for each RB allocation and offset configuration are not included in the SAR report.                                                                                                                                                                                                                                                                                                                                                                                                   |                                                               |         |       |        |        |          |        |
| Power reduction applied to satisfy SAR compliance             |  | Yes, Gravity sensor and Hall                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                               |         |       |        |        |          |        |
| 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                |  | This device supports maximum of 5 carriers in the downlink. Additional following LTE Release features are not supported: Relay, HetNet, Enhanced MIMO, eICI, WiFi Offloading, MDH, eMBMA, Cross-Carrier Scheduling, Enhanced SC-FDMA.                                                                                                                                                                                                                                                                                                                                                                    |                                                               |         |       |        |        |          |        |

| Transmission (H, M, L) channel numbers and frequencies in each LTE band |                   |             |                  |             |                  |             |                  |             |                  |             |                  |             |  |  |
|-------------------------------------------------------------------------|-------------------|-------------|------------------|-------------|------------------|-------------|------------------|-------------|------------------|-------------|------------------|-------------|--|--|
| LTE Band 2                                                              |                   |             |                  |             |                  |             |                  |             |                  |             |                  |             |  |  |
|                                                                         | Bandwidth 1.4 MHz |             | Bandwidth 3 MHz  |             | Bandwidth 5 MHz  |             | Bandwidth 10 MHz |             | Bandwidth 15 MHz |             | Bandwidth 20 MHz |             |  |  |
|                                                                         | Ch. #             | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) |  |  |
| L                                                                       | 18607             | 1850.7      | 18615            | 1851.5      | 18625            | 1852.5      | 18650            | 1855        | 18675            | 1857.5      | 18700            | 1860        |  |  |
| M                                                                       | 18900             | 1880        | 18900            | 1880        | 18900            | 1880        | 18900            | 1880        | 18900            | 1880        | 18900            | 1880        |  |  |
| H                                                                       | 19193             | 1909.3      | 19185            | 1908.5      | 19175            | 1907.5      | 19150            | 1905        | 19125            | 1902.5      | 19100            | 1900        |  |  |
| LTE Band 4                                                              |                   |             |                  |             |                  |             |                  |             |                  |             |                  |             |  |  |
|                                                                         | Bandwidth 1.4 MHz |             | Bandwidth 3 MHz  |             | Bandwidth 5 MHz  |             | Bandwidth 10 MHz |             | Bandwidth 15 MHz |             | Bandwidth 20 MHz |             |  |  |
|                                                                         | Ch. #             | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) |  |  |
| L                                                                       | 19957             | 1710.7      | 19965            | 1711.5      | 19975            | 1712.5      | 20000            | 1715        | 20025            | 1717.5      | 20050            | 1720        |  |  |
| M                                                                       | 20175             | 1732.5      | 20175            | 1732.5      | 20175            | 1732.5      | 20175            | 1732.5      | 20175            | 1732.5      | 20175            | 1732.5      |  |  |
| H                                                                       | 20393             | 1754.3      | 20385            | 1753.5      | 20375            | 1752.5      | 20350            | 1750        | 20325            | 1747.5      | 20300            | 1745        |  |  |
| LTE Band 5                                                              |                   |             |                  |             |                  |             |                  |             |                  |             |                  |             |  |  |
|                                                                         | Bandwidth 1.4 MHz |             | Bandwidth 3 MHz  |             | Bandwidth 5 MHz  |             | Bandwidth 10 MHz |             |                  |             |                  |             |  |  |
|                                                                         | Ch. #             | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) | 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) | 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) | 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 13                                                             |                   |             |                  |             |                  |             |                  |             |                  |             |                  |             |  |  |
|                                                                         | Bandwidth 5 MHz   |             |                  |             | Bandwidth 10 MHz |             |                  |             |                  |             |                  |             |  |  |
|                                                                         | Channel #         |             | Freq.(MHz)       |             | Channel #        |             | Freq.(MHz)       |             |                  |             |                  |             |  |  |
| L                                                                       | 23205             |             | 779.5            |             | 23230            |             | 782              |             |                  |             |                  |             |  |  |
| M                                                                       | 23230             |             | 782              |             |                  |             |                  |             |                  |             |                  |             |  |  |
| H                                                                       | 23255             |             | 784.5            |             |                  |             |                  |             |                  |             |                  |             |  |  |
| LTE Band 14                                                             |                   |             |                  |             |                  |             |                  |             |                  |             |                  |             |  |  |
|                                                                         | Bandwidth 5 MHz   |             |                  |             | Bandwidth 10 MHz |             |                  |             |                  |             |                  |             |  |  |
|                                                                         | Channel #         |             | Channel #        |             | Channel #        |             | Freq.(MHz)       |             |                  |             |                  |             |  |  |
| L                                                                       | 23305             |             | 790.5            |             | 23330            |             | 793              |             |                  |             |                  |             |  |  |
| M                                                                       | 23330             |             | 793              |             |                  |             |                  |             |                  |             |                  |             |  |  |
| H                                                                       | 23355             |             | 795.5            |             |                  |             |                  |             |                  |             |                  |             |  |  |
| 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 25 |                   |             |                  |             |                  |                  |                  |             |                  |             |                  |             |
|-------------|-------------------|-------------|------------------|-------------|------------------|------------------|------------------|-------------|------------------|-------------|------------------|-------------|
|             | 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           | 26047             | 1850.7      | 26055            | 1851.5      | 26065            | 1852.5           | 26090            | 1855        | 26115            | 1857.5      | 26140            | 1860        |
| M           | 26340             | 1880        | 26340            | 1880        | 26340            | 1880             | 26340            | 1880        | 26340            | 1880        | 26340            | 1880        |
| H           | 26683             | 1914.3      | 26675            | 1913.5      | 26665            | 1912.5           | 26640            | 1910        | 26615            | 1907.5      | 26590            | 1905        |
| LTE Band 26 |                   |             |                  |             |                  |                  |                  |             |                  |             |                  |             |
|             | Bandwidth 1.4 MHz |             | Bandwidth 3 MHz  |             | Bandwidth 5 MHz  |                  | Bandwidth 10 MHz |             | Bandwidth 15 MHz |             |                  |             |
|             | Ch. #             | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz)      | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) | Ch. #            | Freq. (MHz) |
| L           | 26697             | 814.7       | 26705            | 815.5       | 26715            | 816.5            | 26740            | 819         | 26765            | 821.5       |                  |             |
| M           | 26865             | 831.5       | 26865            | 831.5       | 26865            | 831.5            | 26865            | 831.5       | 26865            | 831.5       |                  |             |
| H           | 27033             | 848.3       | 27025            | 847.5       | 27015            | 846.5            | 26990            | 844         | 26965            | 841.5       |                  |             |
| LTE Band 30 |                   |             |                  |             |                  |                  |                  |             |                  |             |                  |             |
|             | Bandwidth 5 MHz   |             |                  |             |                  | Bandwidth 10 MHz |                  |             |                  |             |                  |             |
|             | Channel #         |             |                  | Freq.(MHz)  |                  | Channel #        |                  |             |                  | Freq.(MHz)  |                  |             |
|             | 27685             |             |                  | 2307.5      |                  | 27710            |                  |             |                  | 2310        |                  |             |
| 27710       |                   |             | 2310             |             |                  |                  |                  |             |                  |             |                  |             |
| 27735       |                   |             | 2312.5           |             |                  |                  |                  |             |                  |             |                  |             |
| LTE Band 38 |                   |             |                  |             |                  |                  |                  |             |                  |             |                  |             |
|             | 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           | 37775             | 2572.5      | 37800            | 2575        | 37825            | 2577.5           | 37850            | 2580        |                  |             |                  |             |
| M           | 38000             | 2595        | 38000            | 2595        | 38000            | 2595             | 38000            | 2595        |                  |             |                  |             |
| H           | 38225             | 2617.5      | 38200            | 2615        | 38175            | 2612.5           | 38150            | 2610        |                  |             |                  |             |
| LTE Band 41 |                   |             |                  |             |                  |                  |                  |             |                  |             |                  |             |
|             | 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           | 39675             | 2498.5      | 39700            | 2501        | 39725            | 2503.5           | 39750            | 2506        |                  |             |                  |             |
| L<br>M      | 40148             | 2545.8      | 40160            | 2547        | 40173            | 2548.3           | 40185            | 2549.5      |                  |             |                  |             |
| M           | 40620             | 2593        | 40620            | 2593        | 40620            | 2593             | 40620            | 2593        |                  |             |                  |             |
| H<br>M      | 41093             | 2640.3      | 41080            | 2639        | 41068            | 2637.8           | 41055            | 2636.5      |                  |             |                  |             |
| H           | 41565             | 2687.5      | 41540            | 2685        | 41515            | 2682.5           | 41490            | 2680        |                  |             |                  |             |
| 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. Sensor Triggering angle and power verification

### General Note:

1. This device is convertible type notebook PC, and there have Laptop and Tablet two usage way, when end user is used different mode which the device will according current mode to limit different maximum power and the power verification in different usage mode was following below step:

#### For Lid close mode change to Tablet mode

Step 1: The device is in lid close mode, and then opens the screen rotate in 3 degree step until change to Laptop mode

Step 2: then the screen rotate back by at least 5 until the power is returned to lid close power table

Step 3: Again rotate the screen to laptop mode, but in 1 degree steps rotate the screen to the laptop mode until it is at least 5 mm past the triggering point.

Step 3: then move in 3 degree step until change to tablet power level (Reduce Power mode)

Step 4: the same procedure step 1 to Step 3 is used for Laptop mode until change to Tablet mode

Step 5: When Lid angle converting different configure there has +/- 5 degree tolerance.

The procedures will accord step1 to step4 to verify the operation of the triggering mechanism whether it is within this tolerance range.

#### For Tablet mode until change to Lid close mode

The process is then reversed by rotate the screen from tablet mode change to lid close mode according to steps 1) to 4), to check triggering release

| when the screen angle is from 0 degree to 360 degree |          |             |             |             |              |              |              |              |              |              |              |              |              |
|------------------------------------------------------|----------|-------------|-------------|-------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Screen angle (degree)                                | Wireless | UMTS        |             |             | LTE          |              |              |              |              |              |              |              |              |
|                                                      | Band     | B2          | B4          | B5          | B2/25        | B4/66        | B5/26        | B7           | B12/17       | B13          | B14          | B30          | B38/41       |
|                                                      | Mode     | RMC12.2Kbps | RMC12.2Kbps | RMC12.2Kbps | 20M_QPSK_1_0 | 20M_QPSK_1_0 | 15M_QPSK_1_0 | 20M_QPSK_1_0 | 10M_QPSK_1_0 | 10M_QPSK_1_0 | 10M_QPSK_1_0 | 10M_QPSK_1_0 | 20M_QPSK_1_0 |
| Non-Notebook                                         | 360      | 17.38       | 18.42       | 22.45       | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41        |
|                                                      | 350      | 17.38       | 18.42       | 22.45       | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41        |
|                                                      | 340      | 17.38       | 18.42       | 22.45       | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41        |
|                                                      | 330      | 17.38       | 18.42       | 22.45       | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41        |
|                                                      | 320      | 17.38       | 18.42       | 22.45       | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41        |
|                                                      | 310      | 17.38       | 18.42       | 22.45       | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41        |
|                                                      | 300      | 17.38       | 18.42       | 22.45       | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41        |
|                                                      | 290      | 17.38       | 18.42       | 22.45       | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41        |
|                                                      | 280      | 17.38       | 18.42       | 22.45       | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41        |
|                                                      | 270      | 17.38       | 18.42       | 22.45       | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41        |
|                                                      | 260      | 17.38       | 18.42       | 22.45       | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41        |
|                                                      | 250      | 17.38       | 18.42       | 22.45       | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41        |
|                                                      | 240      | 17.38       | 18.42       | 22.45       | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41        |
|                                                      | 230      | 17.38       | 18.42       | 22.45       | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41        |
|                                                      | 220      | 17.38       | 18.42       | 22.45       | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41        |
|                                                      | 210      | 17.38       | 18.42       | 22.45       | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41        |
|                                                      | 200      | 17.38       | 18.42       | 22.45       | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41        |
|                                                      | 190      | 17.38       | 18.42       | 22.45       | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41        |
|                                                      | 180      | 17.38       | 18.42       | 22.45       | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41        |
|                                                      | 170      | 17.38       | 18.42       | 22.45       | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41        |
|                                                      | 160      | 17.38       | 18.42       | 22.45       | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41        |
|                                                      | 150      | 17.38       | 18.42       | 22.45       | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41        |
|                                                      | 140      | 17.38       | 18.42       | 22.45       | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41        |
|                                                      | 135      | 17.38       | 18.42       | 22.45       | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41        |
|                                                      | 134      | 17.38       | 18.42       | 22.45       | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41        |
|                                                      | 133      | 17.38       | 18.42       | 22.45       | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41        |
|                                                      | 132      | 17.38       | 18.42       | 22.45       | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41        |
|                                                      | 131      | 17.38       | 18.42       | 22.45       | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41        |
|                                                      | 130      | 17.38       | 18.42       | 22.45       | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41        |
| Notebook                                             | 129      | 24.28       | 24.02       | 24.39       | 23.25        | 23.72        | 24.62        | 23.75        | 23.72        | 23.19        | 22.98        | 23.81        | 24.31        |
|                                                      | 128      | 24.28       | 24.02       | 24.39       | 23.25        | 23.72        | 24.62        | 23.75        | 23.72        | 23.19        | 22.98        | 23.81        | 24.31        |
|                                                      | 127      | 24.28       | 24.02       | 24.39       | 23.25        | 23.72        | 24.62        | 23.75        | 23.72        | 23.19        | 22.98        | 23.81        | 24.31        |
|                                                      | 126      | 24.28       | 24.02       | 24.39       | 23.25        | 23.72        | 24.62        | 23.75        | 23.72        | 23.19        | 22.98        | 23.81        | 24.31        |
|                                                      | 125      | 24.28       | 24.02       | 24.39       | 23.25        | 23.72        | 24.62        | 23.75        | 23.72        | 23.19        | 22.98        | 23.81        | 24.31        |
|                                                      | 120      | 24.28       | 24.02       | 24.39       | 23.25        | 23.72        | 24.62        | 23.75        | 23.72        | 23.19        | 22.98        | 23.81        | 24.31        |
|                                                      | 110      | 24.28       | 24.02       | 24.39       | 23.25        | 23.72        | 24.62        | 23.75        | 23.72        | 23.19        | 22.98        | 23.81        | 24.31        |



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|              |                                      |     |       |       |       |       |       |       |       |       |       |       |       |       |
|--------------|--------------------------------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| SPORTON LAB. | Lid Open                             | 100 | 24.28 | 24.02 | 24.39 | 23.25 | 23.72 | 24.62 | 23.75 | 23.72 | 23.19 | 22.98 | 23.81 | 24.31 |
|              |                                      | 90  | 24.28 | 24.02 | 24.39 | 23.25 | 23.72 | 24.62 | 23.75 | 23.72 | 23.19 | 22.98 | 23.81 | 24.31 |
|              |                                      | 80  | 24.28 | 24.02 | 24.39 | 23.25 | 23.72 | 24.62 | 23.75 | 23.72 | 23.19 | 22.98 | 23.81 | 24.31 |
|              |                                      | 70  | 24.28 | 24.02 | 24.39 | 23.25 | 23.72 | 24.62 | 23.75 | 23.72 | 23.19 | 22.98 | 23.81 | 24.31 |
|              |                                      | 60  | 24.28 | 24.02 | 24.39 | 23.25 | 23.72 | 24.62 | 23.75 | 23.72 | 23.19 | 22.98 | 23.81 | 24.31 |
|              |                                      | 50  | 24.28 | 24.02 | 24.39 | 23.25 | 23.72 | 24.62 | 23.75 | 23.72 | 23.19 | 22.98 | 23.81 | 24.31 |
|              |                                      | 40  | 24.28 | 24.02 | 24.39 | 23.25 | 23.72 | 24.62 | 23.75 | 23.72 | 23.19 | 22.98 | 23.81 | 24.31 |
|              |                                      | 39  | 24.28 | 24.02 | 24.39 | 23.25 | 23.72 | 24.62 | 23.75 | 23.72 | 23.19 | 22.98 | 23.81 | 24.31 |
|              |                                      | 38  | 24.28 | 24.02 | 24.39 | 23.25 | 23.72 | 24.62 | 23.75 | 23.72 | 23.19 | 22.98 | 23.81 | 24.31 |
|              |                                      | 37  | 24.28 | 24.02 | 24.39 | 23.25 | 23.72 | 24.62 | 23.75 | 23.72 | 23.19 | 22.98 | 23.81 | 24.31 |
|              |                                      | 36  | 24.28 | 24.02 | 24.39 | 23.25 | 23.72 | 24.62 | 23.75 | 23.72 | 23.19 | 22.98 | 23.81 | 24.31 |
|              |                                      | 35  | 24.28 | 24.02 | 24.39 | 23.25 | 23.72 | 24.62 | 23.75 | 23.72 | 23.19 | 22.98 | 23.81 | 24.31 |
|              | Lid Close                            | 34  | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA    |
|              |                                      | 33  | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA    |
|              |                                      | 32  | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA    |
|              |                                      | 31  | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA    |
|              |                                      | 30  | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA    |
|              |                                      | 20  | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA    |
|              |                                      | 10  | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA    |
|              |                                      | 0   | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA    | NA    |
|              | Stand<br>(Screen<br>orientation =0°) | 349 | 17.38 | 18.42 | 22.45 | 17.43 | 18.44 | 22.01 | 16.66 | 23.52 | 23.19 | 21.79 | 18.97 | 22.41 |
|              |                                      | 348 | 17.38 | 18.42 | 22.45 | 17.43 | 18.44 | 22.01 | 16.66 | 23.52 | 23.19 | 21.79 | 18.97 | 22.41 |
|              |                                      | 347 | 17.38 | 18.42 | 22.45 | 17.43 | 18.44 | 22.01 | 16.66 | 23.52 | 23.19 | 21.79 | 18.97 | 22.41 |
|              |                                      | 346 | 17.38 | 18.42 | 22.45 | 17.43 | 18.44 | 22.01 | 16.66 | 23.52 | 23.19 | 21.79 | 18.97 | 22.41 |
|              |                                      | 345 | 17.38 | 18.42 | 22.45 | 17.43 | 18.44 | 22.01 | 16.66 | 23.52 | 23.19 | 21.79 | 18.97 | 22.41 |
|              |                                      | 344 | 24.28 | 24.02 | 24.39 | 23.25 | 23.72 | 24.62 | 23.75 | 23.72 | 23.19 | 22.98 | 23.81 | 24.31 |
|              |                                      | 343 | 24.28 | 24.02 | 24.39 | 23.25 | 23.72 | 24.62 | 23.75 | 23.72 | 23.19 | 22.98 | 23.81 | 24.31 |
|              |                                      | 342 | 24.28 | 24.02 | 24.39 | 23.25 | 23.72 | 24.62 | 23.75 | 23.72 | 23.19 | 22.98 | 23.81 | 24.31 |
|              |                                      | 341 | 24.28 | 24.02 | 24.39 | 23.25 | 23.72 | 24.62 | 23.75 | 23.72 | 23.19 | 22.98 | 23.81 | 24.31 |
|              |                                      | 340 | 24.28 | 24.02 | 24.39 | 23.25 | 23.72 | 24.62 | 23.75 | 23.72 | 23.19 | 22.98 | 23.81 | 24.31 |
|              |                                      | 330 | 24.28 | 24.02 | 24.39 | 23.25 | 23.72 | 24.62 | 23.75 | 23.72 | 23.19 | 22.98 | 23.81 | 24.31 |
|              |                                      | 320 | 24.28 | 24.02 | 24.39 | 23.25 | 23.72 | 24.62 | 23.75 | 23.72 | 23.19 | 22.98 | 23.81 | 24.31 |
|              |                                      | 310 | 24.28 | 24.02 | 24.39 | 23.25 | 23.72 | 24.62 | 23.75 | 23.72 | 23.19 | 22.98 | 23.81 | 24.31 |
|              |                                      | 300 | 24.28 | 24.02 | 24.39 | 23.25 | 23.72 | 24.62 | 23.75 | 23.72 | 23.19 | 22.98 | 23.81 | 24.31 |
|              |                                      | 290 | 24.28 | 24.02 | 24.39 | 23.25 | 23.72 | 24.62 | 23.75 | 23.72 | 23.19 | 22.98 | 23.81 | 24.31 |
|              |                                      | 280 | 24.28 | 24.02 | 24.39 | 23.25 | 23.72 | 24.62 | 23.75 | 23.72 | 23.19 | 22.98 | 23.81 | 24.31 |
|              |                                      | 270 | 24.28 | 24.02 | 24.39 | 23.25 | 23.72 | 24.62 | 23.75 | 23.72 | 23.19 | 22.98 | 23.81 | 24.31 |
|              |                                      | 260 | 24.28 | 24.02 | 24.39 | 23.25 | 23.72 | 24.62 | 23.75 | 23.72 | 23.19 | 22.98 | 23.81 | 24.31 |
|              |                                      | 250 | 24.28 | 24.02 | 24.39 | 23.25 | 23.72 | 24.62 | 23.75 | 23.72 | 23.19 | 22.98 | 23.81 | 24.31 |
|              |                                      | 240 | 24.28 | 24.02 | 24.39 | 23.25 | 23.72 | 24.62 | 23.75 | 23.72 | 23.19 | 22.98 | 23.81 | 24.31 |
|              |                                      | 230 | 24.28 | 24.02 | 24.39 | 23.25 | 23.72 | 24.62 | 23.75 | 23.72 | 23.19 | 22.98 | 23.81 | 24.31 |
|              |                                      | 220 | 24.28 | 24.02 | 24.39 | 23.25 | 23.72 | 24.62 | 23.75 | 23.72 | 23.19 | 22.98 | 23.81 | 24.31 |
|              |                                      | 210 | 24.28 | 24.02 | 24.39 | 23.25 | 23.72 | 24.62 | 23.75 | 23.72 | 23.19 | 22.98 | 23.81 | 24.31 |
|              |                                      | 204 | 24.28 | 24.02 | 24.39 | 23.25 | 23.72 | 24.62 | 23.75 | 23.72 | 23.19 | 22.98 | 23.81 | 24.31 |
|              |                                      | 203 | 24.28 | 24.02 | 24.39 | 23.25 | 23.72 | 24.62 | 23.75 | 23.72 | 23.19 | 22.98 | 23.81 | 24.31 |
|              |                                      | 202 | 24.28 | 24.02 | 24.39 | 23.25 | 23.72 | 24.62 | 23.75 | 23.72 | 23.19 | 22.98 | 23.81 | 24.31 |
|              |                                      | 201 | 24.28 | 24.02 | 24.39 | 23.25 | 23.72 | 24.62 | 23.75 | 23.72 | 23.19 | 22.98 | 23.81 | 24.31 |
|              |                                      | 200 | 24.28 | 24.02 | 24.39 | 23.25 | 23.72 | 24.62 | 23.75 | 23.72 | 23.19 | 22.98 | 23.81 | 24.31 |
|              |                                      | 199 | 17.38 | 18.42 | 22.45 | 17.43 | 18.44 | 22.01 | 16.66 | 23.52 | 23.19 | 21.79 | 18.97 | 22.41 |
|              |                                      | 198 | 17.38 | 18.42 | 22.45 | 17.43 | 18.44 | 22.01 | 16.66 | 23.52 | 23.19 | 21.79 | 18.97 | 22.41 |
|              |                                      | 197 | 17.38 | 18.42 | 22.45 | 17.43 | 18.44 | 22.01 | 16.66 | 23.52 | 23.19 | 21.79 | 18.97 | 22.41 |
|              |                                      | 196 | 17.38 | 18.42 | 22.45 | 17.43 | 18.44 | 22.01 | 16.66 | 23.52 | 23.19 | 21.79 | 18.97 | 22.41 |
|              |                                      | 195 | 17.38 | 18.42 | 22.45 | 17.43 | 18.44 | 22.01 | 16.66 | 23.52 | 23.19 | 21.79 | 18.97 | 22.41 |



| when the screen angle is from 0 degree to 360 degree |              |     |             |             |             |              |              |              |              |              |              |              |              |              |       |
|------------------------------------------------------|--------------|-----|-------------|-------------|-------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-------|
| Screen angle (degree)                                | Wireless     |     | UMTS        |             |             | LTE          |              |              |              |              |              |              |              |              |       |
|                                                      | Band         |     | B2          | B4          | B5          | B2/25        | B4/66        | B5/26        | B7           | B12/17       | B13          | B14          | B30          | B38/41       |       |
|                                                      | Mode         |     | RMC12.2Kbps | RMC12.2Kbps | RMC12.2Kbps | 20M_QPSK_1_0 | 20M_QPSK_1_0 | 15M_QPSK_1_0 | 20M_QPSK_1_0 | 10M_QPSK_1_0 | 10M_QPSK_1_0 | 10M_QPSK_1_0 | 10M_QPSK_1_0 | 20M_QPSK_1_0 |       |
|                                                      |              |     |             |             |             |              |              |              |              |              |              |              |              |              |       |
| Lid Close                                            | 0            |     | NA          | NA          | NA          | NA           | NA           | NA           | NA           | NA           | NA           | NA           | NA           | NA           |       |
|                                                      | 10           |     | NA          | NA          | NA          | NA           | NA           | NA           | NA           | NA           | NA           | NA           | NA           | NA           |       |
|                                                      | 20           |     | NA          | NA          | NA          | NA           | NA           | NA           | NA           | NA           | NA           | NA           | NA           | NA           |       |
|                                                      | 30           |     | NA          | NA          | NA          | NA           | NA           | NA           | NA           | NA           | NA           | NA           | NA           | NA           |       |
|                                                      | 31           |     | NA          | NA          | NA          | NA           | NA           | NA           | NA           | NA           | NA           | NA           | NA           | NA           |       |
|                                                      | 32           |     | NA          | NA          | NA          | NA           | NA           | NA           | NA           | NA           | NA           | NA           | NA           | NA           |       |
|                                                      | 33           |     | NA          | NA          | NA          | NA           | NA           | NA           | NA           | NA           | NA           | NA           | NA           | NA           |       |
|                                                      | 34           |     | NA          | NA          | NA          | NA           | NA           | NA           | NA           | NA           | NA           | NA           | NA           | NA           |       |
|                                                      | 35           |     | 24.28       | 24.02       | 24.39       | 23.25        | 23.72        | 24.62        | 23.75        | 23.72        | 23.19        | 22.98        | 23.81        | 24.31        |       |
|                                                      | 36           |     | 24.28       | 24.02       | 24.39       | 23.25        | 23.72        | 24.62        | 23.75        | 23.72        | 23.19        | 22.98        | 23.81        | 24.31        |       |
|                                                      | 37           |     | 24.28       | 24.02       | 24.39       | 23.25        | 23.72        | 24.62        | 23.75        | 23.72        | 23.19        | 22.98        | 23.81        | 24.31        |       |
|                                                      | 38           |     | 24.28       | 24.02       | 24.39       | 23.25        | 23.72        | 24.62        | 23.75        | 23.72        | 23.19        | 22.98        | 23.81        | 24.31        |       |
|                                                      | 39           |     | 24.28       | 24.02       | 24.39       | 23.25        | 23.72        | 24.62        | 23.75        | 23.72        | 23.19        | 22.98        | 23.81        | 24.31        |       |
|                                                      | 40           |     | 24.28       | 24.02       | 24.39       | 23.25        | 23.72        | 24.62        | 23.75        | 23.72        | 23.19        | 22.98        | 23.81        | 24.31        |       |
|                                                      | 50           |     | 24.28       | 24.02       | 24.39       | 23.25        | 23.72        | 24.62        | 23.75        | 23.72        | 23.19        | 22.98        | 23.81        | 24.31        |       |
|                                                      | 60           |     | 24.28       | 24.02       | 24.39       | 23.25        | 23.72        | 24.62        | 23.75        | 23.72        | 23.19        | 22.98        | 23.81        | 24.31        |       |
|                                                      | 70           |     | 24.28       | 24.02       | 24.39       | 23.25        | 23.72        | 24.62        | 23.75        | 23.72        | 23.19        | 22.98        | 23.81        | 24.31        |       |
|                                                      | 80           |     | 24.28       | 24.02       | 24.39       | 23.25        | 23.72        | 24.62        | 23.75        | 23.72        | 23.19        | 22.98        | 23.81        | 24.31        |       |
|                                                      | 90           |     | 24.28       | 24.02       | 24.39       | 23.25        | 23.72        | 24.62        | 23.75        | 23.72        | 23.19        | 22.98        | 23.81        | 24.31        |       |
|                                                      | 100          |     | 24.28       | 24.02       | 24.39       | 23.25        | 23.72        | 24.62        | 23.75        | 23.72        | 23.19        | 22.98        | 23.81        | 24.31        |       |
|                                                      | 110          |     | 24.28       | 24.02       | 24.39       | 23.25        | 23.72        | 24.62        | 23.75        | 23.72        | 23.19        | 22.98        | 23.81        | 24.31        |       |
|                                                      | 120          |     | 24.28       | 24.02       | 24.39       | 23.25        | 23.72        | 24.62        | 23.75        | 23.72        | 23.19        | 22.98        | 23.81        | 24.31        |       |
|                                                      | 125          |     | 24.28       | 24.02       | 24.39       | 23.25        | 23.72        | 24.62        | 23.75        | 23.72        | 23.19        | 22.98        | 23.81        | 24.31        |       |
|                                                      | 126          |     | 24.28       | 24.02       | 24.39       | 23.25        | 23.72        | 24.62        | 23.75        | 23.72        | 23.19        | 22.98        | 23.81        | 24.31        |       |
|                                                      | 127          |     | 24.28       | 24.02       | 24.39       | 23.25        | 23.72        | 24.62        | 23.75        | 23.72        | 23.19        | 22.98        | 23.81        | 24.31        |       |
|                                                      | 128          |     | 24.28       | 24.02       | 24.39       | 23.25        | 23.72        | 24.62        | 23.75        | 23.72        | 23.19        | 22.98        | 23.81        | 24.31        |       |
|                                                      | 129          |     | 24.28       | 24.02       | 24.39       | 23.25        | 23.72        | 24.62        | 23.75        | 23.72        | 23.19        | 22.98        | 23.81        | 24.31        |       |
|                                                      | Non-notebook | 130 |             | 17.38       | 18.42       | 22.45        | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41 |
|                                                      |              | 131 |             | 17.38       | 18.42       | 22.45        | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41 |
|                                                      |              | 132 |             | 17.38       | 18.42       | 22.45        | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41 |
|                                                      |              | 133 |             | 17.38       | 18.42       | 22.45        | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41 |
|                                                      |              | 134 |             | 17.38       | 18.42       | 22.45        | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41 |
|                                                      |              | 135 |             | 17.38       | 18.42       | 22.45        | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41 |
|                                                      |              | 140 |             | 17.38       | 18.42       | 22.45        | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41 |
|                                                      |              | 150 |             | 17.38       | 18.42       | 22.45        | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41 |
|                                                      |              | 160 |             | 17.38       | 18.42       | 22.45        | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41 |
| 170                                                  |              |     | 17.38       | 18.42       | 22.45       | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41        |       |
| 180                                                  |              |     | 17.38       | 18.42       | 22.45       | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41        |       |
| 190                                                  |              |     | 17.38       | 18.42       | 22.45       | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41        |       |
| 200                                                  |              |     | 17.38       | 18.42       | 22.45       | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41        |       |
| 210                                                  |              |     | 17.38       | 18.42       | 22.45       | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41        |       |
| 220                                                  |              |     | 17.38       | 18.42       | 22.45       | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41        |       |
| 230                                                  |              |     | 17.38       | 18.42       | 22.45       | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41        |       |
| 240                                                  |              |     | 17.38       | 18.42       | 22.45       | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41        |       |
| 250                                                  |              |     | 17.38       | 18.42       | 22.45       | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41        |       |
| 260                                                  |              |     | 17.38       | 18.42       | 22.45       | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41        |       |
| 270                                                  |              |     | 17.38       | 18.42       | 22.45       | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41        |       |
| 280                                                  |              |     | 17.38       | 18.42       | 22.45       | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41        |       |
| 290                                                  |              |     | 17.38       | 18.42       | 22.45       | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41        |       |
| 300                                                  |              |     | 17.38       | 18.42       | 22.45       | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41        |       |
| 310                                                  |              |     | 17.38       | 18.42       | 22.45       | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41        |       |
| 320                                                  |              |     | 17.38       | 18.42       | 22.45       | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41        |       |
| 330                                                  |              |     | 17.38       | 18.42       | 22.45       | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41        |       |
| 340                                                  |              |     | 17.38       | 18.42       | 22.45       | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41        |       |
| 350                                                  |              |     | 17.38       | 18.42       | 22.45       | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41        |       |
| 360                                                  |              |     | 17.38       | 18.42       | 22.45       | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41        |       |
| Stand (Screen orientation =0°)                       |              | 195 |             | 17.38       | 18.42       | 22.45        | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41 |
|                                                      |              | 196 |             | 17.38       | 18.42       | 22.45        | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41 |
|                                                      |              | 197 |             | 17.38       | 18.42       | 22.45        | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41 |
|                                                      |              | 198 |             | 17.38       | 18.42       | 22.45        | 17.43        | 18.44        | 22.01        | 16.66        | 23.52        | 23.19        | 21.79        | 18.97        | 22.41 |



# FCC SAR TEST REPORT

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|     |       |       |       |       |       |       |       |       |       |       |       |       |
|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 198 | 17.38 | 18.42 | 22.45 | 17.43 | 18.44 | 22.01 | 16.66 | 23.52 | 23.19 | 21.79 | 18.97 | 22.41 |
| 199 | 17.38 | 18.42 | 22.45 | 17.43 | 18.44 | 22.01 | 16.66 | 23.52 | 23.19 | 21.79 | 18.97 | 22.41 |
| 200 | 24.28 | 24.02 | 24.39 | 23.25 | 23.72 | 24.62 | 23.75 | 23.72 | 23.19 | 22.98 | 23.81 | 24.31 |
| 201 | 24.28 | 24.02 | 24.39 | 23.25 | 23.72 | 24.62 | 23.75 | 23.72 | 23.19 | 22.98 | 23.81 | 24.31 |
| 202 | 24.28 | 24.02 | 24.39 | 23.25 | 23.72 | 24.62 | 23.75 | 23.72 | 23.19 | 22.98 | 23.81 | 24.31 |
| 203 | 24.28 | 24.02 | 24.39 | 23.25 | 23.72 | 24.62 | 23.75 | 23.72 | 23.19 | 22.98 | 23.81 | 24.31 |
| 204 | 24.28 | 24.02 | 24.39 | 23.25 | 23.72 | 24.62 | 23.75 | 23.72 | 23.19 | 22.98 | 23.81 | 24.31 |
| 210 | 24.28 | 24.02 | 24.39 | 23.25 | 23.72 | 24.62 | 23.75 | 23.72 | 23.19 | 22.98 | 23.81 | 24.31 |
| 220 | 24.28 | 24.02 | 24.39 | 23.25 | 23.72 | 24.62 | 23.75 | 23.72 | 23.19 | 22.98 | 23.81 | 24.31 |
| 230 | 24.28 | 24.02 | 24.39 | 23.25 | 23.72 | 24.62 | 23.75 | 23.72 | 23.19 | 22.98 | 23.81 | 24.31 |
| 240 | 24.28 | 24.02 | 24.39 | 23.25 | 23.72 | 24.62 | 23.75 | 23.72 | 23.19 | 22.98 | 23.81 | 24.31 |
| 250 | 24.28 | 24.02 | 24.39 | 23.25 | 23.72 | 24.62 | 23.75 | 23.72 | 23.19 | 22.98 | 23.81 | 24.31 |
| 260 | 24.28 | 24.02 | 24.39 | 23.25 | 23.72 | 24.62 | 23.75 | 23.72 | 23.19 | 22.98 | 23.81 | 24.31 |
| 270 | 24.28 | 24.02 | 24.39 | 23.25 | 23.72 | 24.62 | 23.75 | 23.72 | 23.19 | 22.98 | 23.81 | 24.31 |
| 280 | 24.28 | 24.02 | 24.39 | 23.25 | 23.72 | 24.62 | 23.75 | 23.72 | 23.19 | 22.98 | 23.81 | 24.31 |
| 290 | 24.28 | 24.02 | 24.39 | 23.25 | 23.72 | 24.62 | 23.75 | 23.72 | 23.19 | 22.98 | 23.81 | 24.31 |
| 300 | 24.28 | 24.02 | 24.39 | 23.25 | 23.72 | 24.62 | 23.75 | 23.72 | 23.19 | 22.98 | 23.81 | 24.31 |
| 310 | 24.28 | 24.02 | 24.39 | 23.25 | 23.72 | 24.62 | 23.75 | 23.72 | 23.19 | 22.98 | 23.81 | 24.31 |
| 320 | 24.28 | 24.02 | 24.39 | 23.25 | 23.72 | 24.62 | 23.75 | 23.72 | 23.19 | 22.98 | 23.81 | 24.31 |
| 330 | 24.28 | 24.02 | 24.39 | 23.25 | 23.72 | 24.62 | 23.75 | 23.72 | 23.19 | 22.98 | 23.81 | 24.31 |
| 340 | 24.28 | 24.02 | 24.39 | 23.25 | 23.72 | 24.62 | 23.75 | 23.72 | 23.19 | 22.98 | 23.81 | 24.31 |
| 341 | 24.28 | 24.02 | 24.39 | 23.25 | 23.72 | 24.62 | 23.75 | 23.72 | 23.19 | 22.98 | 23.81 | 24.31 |
| 342 | 24.28 | 24.02 | 24.39 | 23.25 | 23.72 | 24.62 | 23.75 | 23.72 | 23.19 | 22.98 | 23.81 | 24.31 |
| 343 | 24.28 | 24.02 | 24.39 | 23.25 | 23.72 | 24.62 | 23.75 | 23.72 | 23.19 | 22.98 | 23.81 | 24.31 |
| 344 | 24.28 | 24.02 | 24.39 | 23.25 | 23.72 | 24.62 | 23.75 | 23.72 | 23.19 | 22.98 | 23.81 | 24.31 |
| 345 | 17.38 | 18.42 | 22.45 | 17.43 | 18.44 | 22.01 | 16.66 | 23.52 | 23.19 | 21.79 | 18.97 | 22.41 |
| 346 | 17.38 | 18.42 | 22.45 | 17.43 | 18.44 | 22.01 | 16.66 | 23.52 | 23.19 | 21.79 | 18.97 | 22.41 |
| 347 | 17.38 | 18.42 | 22.45 | 17.43 | 18.44 | 22.01 | 16.66 | 23.52 | 23.19 | 21.79 | 18.97 | 22.41 |
| 348 | 17.38 | 18.42 | 22.45 | 17.43 | 18.44 | 22.01 | 16.66 | 23.52 | 23.19 | 21.79 | 18.97 | 22.41 |
| 349 | 17.38 | 18.42 | 22.45 | 17.43 | 18.44 | 22.01 | 16.66 | 23.52 | 23.19 | 21.79 | 18.97 | 22.41 |

## **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 (ρ). The equation description is as below:

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

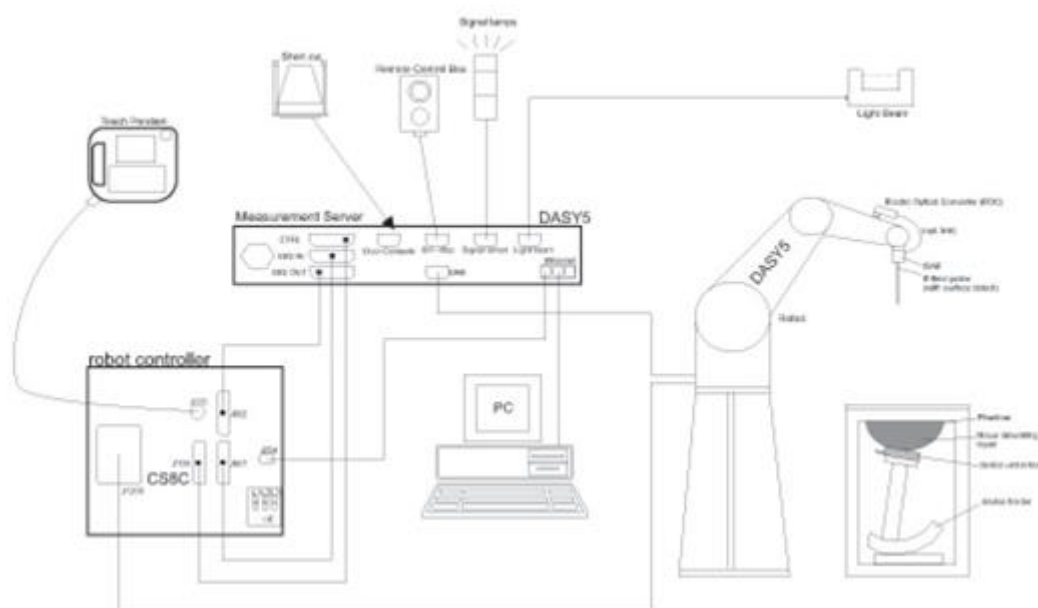
SAR is expressed in units of Watts per kilogram (W/kg)

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

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

## 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 DASY measurement software, the power reference measurement and power drift measurement procedures are used for monitoring the power drift of EUT during SAR test. Both these procedures measure the field at a specified reference position before and after the SAR testing. The software will calculate the field difference in dB. If the power drifts more than 5%, the SAR will be retested.

## 9. Test Equipment List

| Manufacturer  | Name of Equipment               | Type/Model      | Serial Number | Calibration   |               |
|---------------|---------------------------------|-----------------|---------------|---------------|---------------|
|               |                                 |                 |               | Last Cal.     | Due Date      |
| SPEAG         | 750MHz System Validation Kit    | D750V3          | 1012          | Sep. 05, 2018 | Sep. 04, 2019 |
| SPEAG         | 835MHz System Validation Kit    | D835V2          | 4d167         | Mar. 08, 2019 | Mar. 07, 2020 |
| SPEAG         | 1750MHz System Validation Kit   | D1750V2         | 1068          | Nov. 19, 2018 | Nov. 18, 2019 |
| SPEAG         | 1900MHz System Validation Kit   | D1900V2         | 5d041         | Sep. 11, 2018 | Sep. 10, 2019 |
| SPEAG         | 2300MHz System Validation Kit   | D2300V2         | 1006          | Jan. 28, 2019 | Jan. 27, 2020 |
| SPEAG         | 2600MHz System Validation Kit   | D2600V2         | 1008          | Aug. 31, 2018 | Aug. 30, 2019 |
| SPEAG         | Data Acquisition Electronics    | DAE3            | 495           | May. 24, 2018 | May. 23, 2019 |
| SPEAG         | Data Acquisition Electronics    | DAE4            | 854           | Jun. 14, 2018 | Jun. 13, 2019 |
| SPEAG         | Data Acquisition Electronics    | DAE4            | 1399          | Nov. 16, 2018 | Nov. 15, 2019 |
| SPEAG         | Dosimetric E-Field Probe        | EX3DV4          | 3728          | Jan. 15, 2019 | Jan. 14, 2020 |
| SPEAG         | Dosimetric E-Field Probe        | EX3DV4          | 3931          | Sep. 27, 2018 | Sep. 26, 2019 |
| SPEAG         | Dosimetric E-Field Probe        | EX3DV4          | 7306          | Jul. 26, 2018 | Jul. 25, 2019 |
| RCPTWN        | Thermometer                     | HTC-1           | TM685-1       | Nov. 12, 2018 | Nov. 11, 2019 |
| RCPTWN        | Thermometer                     | HTC-1           | TM560-2       | Nov. 12, 2018 | Nov. 11, 2019 |
| Anritsu       | Radio Communication Analyzer    | MT8821C         | 6201341950    | Apr. 17, 2018 | Apr. 16, 2019 |
| Agilent       | Wireless Communication Test Set | E5515C          | MY50266977    | May. 21, 2018 | May. 20, 2019 |
| SPEAG         | Device Holder                   | N/A             | N/A           | N/A           | N/A           |
| Anritsu       | Signal Generator                | MG3710A         | 6201502524    | Dec. 11, 2018 | Dec. 10, 2019 |
| 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 | 3169          | Sep. 11, 2018 | Sep. 10, 2019 |
| Anritsu       | Power Meter                     | ML2495A         | 1419002       | May. 18, 2018 | May. 17, 2019 |
| Anritsu       | Power Sensor                    | MA2411B         | 1339124       | May. 18, 2018 | May. 17, 2019 |
| Anritsu       | Power Meter                     | ML2495A         | 1240001       | Sep. 13, 2018 | Sep. 12, 2019 |
| Anritsu       | Power Sensor                    | MA2411B         | 1207349       | Sep. 13, 2018 | Sep. 12, 2019 |
| Agilent       | Spectrum Analyzer               | E4408B          | MY44211028    | Aug. 28, 2018 | Aug. 27, 2019 |
| Anritsu       | Spectrum Analyzer               | MS2830A         | 6201396378    | Jun. 23, 2018 | Jun. 22, 2019 |
| Mini-Circuits | Power Amplifier                 | ZVE-8G+         | 070501814     | Oct. 08, 2018 | Oct. 07, 2019 |
| Mini-Circuits | Power Amplifier                 | ZVE-8G+         | 6382          | Aug. 09, 2018 | Aug. 08, 2019 |
| ATM           | Dual Directional Coupler        | C122H-10        | P610410z-02   | Note 1        |               |
| Woken         | Attenuator 1                    | WK0602-XX       | N/A           | Note 1        |               |
| PE            | Attenuator 2                    | PE7005-10       | N/A           | Note 1        |               |
| PE            | Attenuator 3                    | PE7005- 3       | N/A           | Note 1        |               |

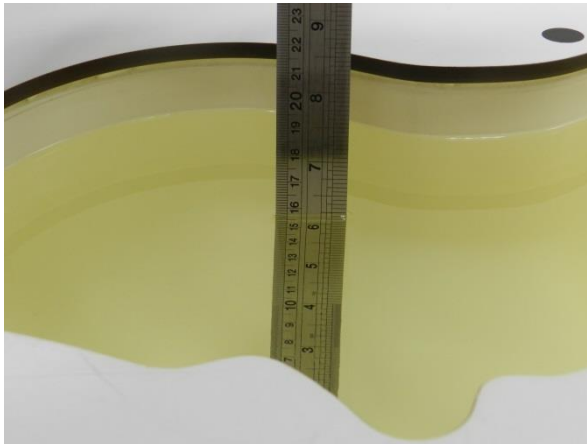
**General Note:**

1. Prior to system verification and validation, the path loss from the signal generator to the system check source and the power meter, which includes the amplifier, cable, attenuator and directional coupler, was measured by the network analyzer. The reading of the power meter was offset by the path loss difference between the path to the power meter and the path to the system check source to monitor the actual power level fed to the system check source.

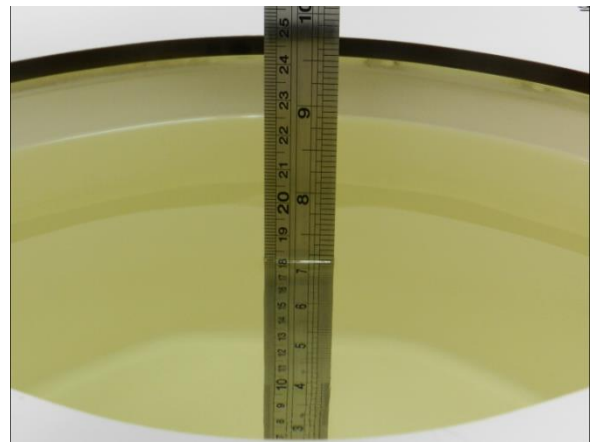
## **10. System Verification**

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

### Simulating Liquid for 5GHz, Manufactured by SPEAG

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

### <Tissue Dielectric Parameter Check Results>

| Frequency (MHz) | Tissue Type | Liquid Temp. (°C) | Conductivity ( $\sigma$ ) | Permittivity ( $\epsilon_r$ ) | Conductivity Target ( $\sigma$ ) | Permittivity Target ( $\epsilon_r$ ) | Delta ( $\sigma$ ) (%) | Delta ( $\epsilon_r$ ) (%) | Limit (%) | Date      |
|-----------------|-------------|-------------------|---------------------------|-------------------------------|----------------------------------|--------------------------------------|------------------------|----------------------------|-----------|-----------|
| 750             | MSL         | 22.6              | 0.970                     | 53.491                        | 0.96                             | 55.50                                | 1.04                   | -3.62                      | ±5        | 2019/4/2  |
| 750             | MSL         | 22.5              | 0.959                     | 54.675                        | 0.96                             | 55.50                                | -0.10                  | -1.49                      | ±5        | 2019/4/9  |
| 835             | MSL         | 22.6              | 0.980                     | 54.028                        | 0.97                             | 55.20                                | 1.03                   | -2.12                      | ±5        | 2019/4/2  |
| 835             | MSL         | 22.7              | 0.967                     | 55.102                        | 0.97                             | 55.20                                | -0.31                  | -0.18                      | ±5        | 2019/4/8  |
| 1750            | MSL         | 22.5              | 1.489                     | 54.653                        | 1.49                             | 53.40                                | -0.07                  | 2.35                       | ±5        | 2019/4/1  |
| 1900            | MSL         | 22.5              | 1.573                     | 53.528                        | 1.52                             | 53.30                                | 3.49                   | 0.43                       | ±5        | 2019/4/1  |
| 1900            | MSL         | 22.5              | 1.520                     | 51.945                        | 1.52                             | 53.30                                | 0.00                   | -2.54                      | ±5        | 2019/4/9  |
| 2300            | MSL         | 22.5              | 1.829                     | 53.665                        | 1.81                             | 52.90                                | 1.05                   | 1.45                       | ±5        | 2019/4/3  |
| 2600            | MSL         | 22.6              | 2.140                     | 51.642                        | 2.16                             | 52.50                                | -0.93                  | -1.63                      | ±5        | 2019/4/3  |
| 2600            | MSL         | 22.6              | 2.140                     | 51.642                        | 2.16                             | 52.50                                | -0.93                  | -1.63                      | ±5        | 2019/4/3  |
| 2600            | MSL         | 22.5              | 2.225                     | 52.563                        | 2.16                             | 52.50                                | 3.01                   | 0.12                       | ±5        | 2019/4/10 |
| 2600            | MSL         | 22.5              | 2.225                     | 52.563                        | 2.16                             | 52.50                                | 3.01                   | 0.12                       | ±5        | 2019/4/10 |

### 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) | Tissue Type | Input Power (mW) | Dipole S/N    | Probe S/N       | DAE S/N     | Measured 1g SAR (W/kg) | Targeted 1g SAR (W/kg) | Normalized 1g SAR (W/kg) | Deviation (%) |
|-----------|-----------------|-------------|------------------|---------------|-----------------|-------------|------------------------|------------------------|--------------------------|---------------|
| 2019/4/2  | 750             | MSL         | 250              | D750V3-1012   | EX3DV4 - SN7306 | DAE3 Sn495  | 2.31                   | 8.76                   | 9.24                     | 5.48          |
| 2019/4/9  | 750             | MSL         | 250              | D750V3-1012   | EX3DV4 - SN3728 | DAE4 Sn854  | 2.23                   | 8.76                   | 8.92                     | 1.83          |
| 2019/4/2  | 835             | MSL         | 250              | D835V2-4d167  | EX3DV4 - SN7306 | DAE3 Sn495  | 2.58                   | 9.77                   | 10.32                    | 5.63          |
| 2019/4/8  | 835             | MSL         | 250              | D835V2-4d167  | EX3DV4 - SN3728 | DAE4 Sn854  | 2.30                   | 9.77                   | 9.2                      | -5.83         |
| 2019/4/1  | 1750            | MSL         | 250              | D1750V2-1068  | EX3DV4 - SN7306 | DAE3 Sn495  | 9.46                   | 37.00                  | 37.84                    | 2.27          |
| 2019/4/1  | 1900            | MSL         | 250              | D1900V2-5d041 | EX3DV4 - SN7306 | DAE3 Sn495  | 9.92                   | 40.20                  | 39.68                    | -1.29         |
| 2019/4/9  | 1900            | MSL         | 250              | D1900V2-5d041 | EX3DV4 - SN3728 | DAE4 Sn854  | 9.65                   | 40.20                  | 38.6                     | -3.98         |
| 2019/4/3  | 2300            | MSL         | 250              | D2300V2-1006  | EX3DV4 - SN3931 | DAE4 Sn1399 | 12.20                  | 47.20                  | 48.8                     | 3.39          |
| 2019/4/3  | 2600            | MSL         | 250              | D2600V2-1008  | EX3DV4 - SN7306 | DAE3 Sn495  | 13.20                  | 55.30                  | 52.8                     | -4.52         |
| 2019/4/3  | 2600            | MSL         | 250              | D2600V2-1008  | EX3DV4 - SN3931 | DAE4 Sn1399 | 13.60                  | 55.30                  | 54.4                     | -1.63         |
| 2019/4/10 | 2600            | MSL         | 250              | D2600V2-1008  | EX3DV4 - SN3931 | DAE4 Sn1399 | 14.10                  | 55.30                  | 56.4                     | 1.99          |
| 2019/4/10 | 2600            | MSL         | 250              | D2600V2-1008  | EX3DV4 - SN3728 | DAE4 Sn854  | 14.20                  | 55.30                  | 56.8                     | 2.71          |

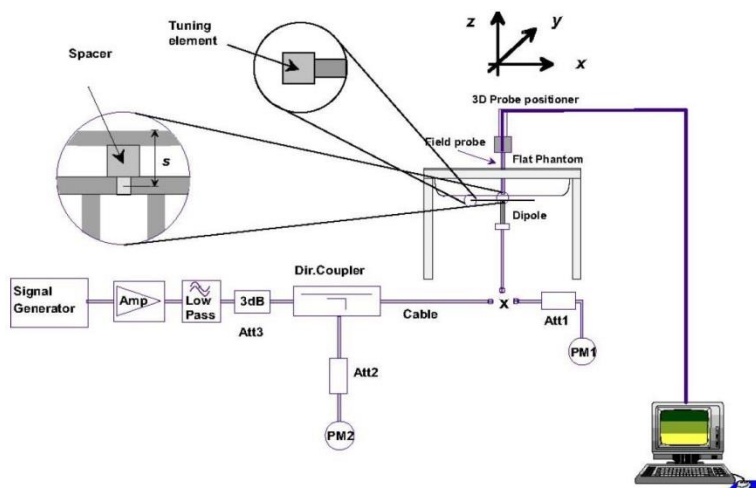


Fig 8.3.1 System Performance Check Setup



Fig 8.3.2 Setup Photo

## 11. RF Exposure Positions

### 11.1 SAR Testing for Tablet

This device can be used also in full sized tablet exposure conditions, due to its size. Per FCC KDB 616217, the back surface and edges of the tablet should be tested for SAR compliance with the tablet touching the phantom. The SAR exclusion threshold in KDB 447498 D01v06 can be applied to determine SAR test exclusion for adjacent edge configurations. The closest distance from the antenna to an adjacent tablet edge is used to determine if SAR testing is required for the adjacent edges, with the adjacent edge positioned against the phantom and the edge containing the antenna positioned perpendicular to the phantom.

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

### **<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                  |

**Note 1:**  $\Delta_{ACK}$ ,  $\Delta_{NACK}$  and  $\Delta_{CQI} = 30/15$  with  $\beta_{hs} = 30/15 * \beta_c$ .

**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,  $\Delta_{ACK}$  and  $\Delta_{NACK} = 30/15$  with  $\beta_{hs} = 30/15 * \beta_c$ , and  $\Delta_{CQI} = 24/15$  with  $\beta_{hs} = 24/15 * \beta_c$ .

**Note 3:** CM = 1 for  $\beta_c/\beta_d = 12/15$ ,  $\beta_{hs}/\beta_c = 24/15$ . For all other combinations of DPDCH, 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.

**Note 4:** For subtest 2 the  $\beta_c/\beta_d$  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  $\beta_c = 11/15$  and  $\beta_d = 15/15$ .

### **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**

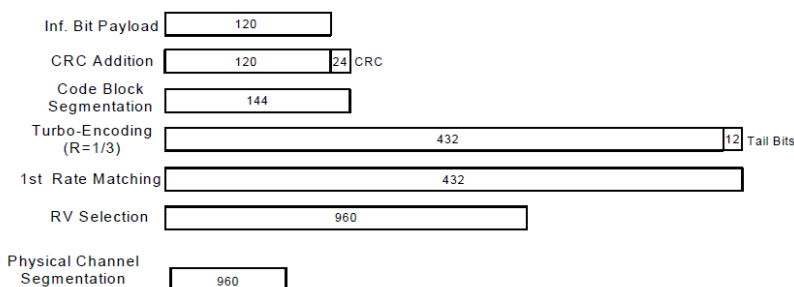
**DC-HSDPA 3GPP release 8 Setup Configuration:**

- 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.

**<Notebook Power>**

| 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     | RMC 12.2Kbps       | 23.78    | 24.28 | 23.97  | 24.50               | 23.92    | 23.95  | 24.02  | 24.50               | 23.56   | 23.91 | 24.39 | 24.50               |
| 3GPP Rel 6      | HSDPA Subtest-1    | 23.65    | 24.00 | 23.85  | 24.00               | 23.95    | 23.86  | 24.00  | 24.00               | 23.48   | 23.90 | 24.37 | 24.50               |
| 3GPP Rel 6      | HSDPA Subtest-2    | 22.59    | 22.95 | 22.76  | 24.00               | 22.91    | 22.79  | 23.00  | 24.00               | 22.49   | 22.92 | 23.36 | 24.50               |
| 3GPP Rel 6      | HSDPA Subtest-3    | 22.05    | 22.42 | 22.25  | 23.50               | 22.42    | 22.33  | 22.50  | 23.50               | 21.99   | 22.44 | 22.83 | 24.00               |
| 3GPP Rel 6      | HSDPA Subtest-4    | 21.80    | 22.28 | 21.98  | 23.50               | 22.14    | 22.02  | 22.30  | 23.50               | 21.74   | 22.16 | 22.52 | 24.00               |
| 3GPP Rel 8      | DC-HSDPA Subtest-1 | 23.63    | 23.98 | 23.82  | 24.00               | 23.92    | 23.84  | 23.88  | 24.00               | 23.45   | 23.88 | 24.33 | 24.50               |
| 3GPP Rel 8      | DC-HSDPA Subtest-2 | 22.58    | 22.93 | 22.74  | 24.00               | 22.89    | 22.76  | 22.98  | 24.00               | 22.46   | 22.89 | 23.34 | 24.50               |
| 3GPP Rel 8      | DC-HSDPA Subtest-3 | 22.03    | 22.40 | 22.23  | 23.50               | 22.40    | 22.30  | 22.45  | 23.50               | 21.95   | 22.42 | 22.81 | 24.00               |
| 3GPP Rel 8      | DC-HSDPA Subtest-4 | 21.82    | 22.26 | 21.95  | 23.50               | 22.12    | 22.01  | 22.25  | 23.50               | 21.72   | 22.15 | 22.49 | 24.00               |
| 3GPP Rel 6      | HSUPA Subtest-1    | 22.56    | 23.00 | 22.74  | 24.00               | 22.76    | 22.82  | 22.77  | 24.00               | 22.46   | 22.89 | 23.29 | 24.50               |
| 3GPP Rel 6      | HSUPA Subtest-2    | 20.28    | 20.67 | 20.42  | 22.00               | 20.66    | 20.75  | 20.84  | 22.00               | 20.33   | 20.68 | 21.06 | 22.50               |
| 3GPP Rel 6      | HSUPA Subtest-3    | 21.04    | 21.47 | 21.18  | 23.00               | 21.35    | 21.53  | 21.64  | 23.00               | 20.99   | 21.38 | 21.74 | 23.50               |
| 3GPP Rel 6      | HSUPA Subtest-4    | 20.55    | 20.97 | 20.62  | 22.00               | 20.88    | 20.87  | 20.82  | 22.00               | 20.54   | 20.94 | 21.30 | 22.50               |
| 3GPP Rel 6      | HSUPA Subtest-5    | 22.50    | 23.00 | 22.60  | 24.00               | 22.85    | 22.77  | 22.76  | 24.00               | 22.50   | 22.90 | 23.30 | 24.50               |

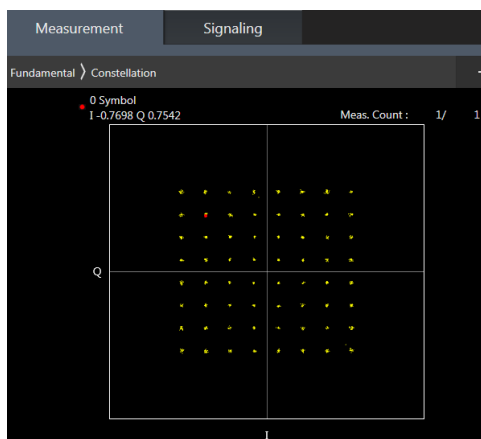
**<Tablet Power>**

| 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     | RMC 12.2Kbps       | 17.28    | 17.38 | 17.42  | 17.50               | 18.29    | 18.38  | 18.42  | 18.50               | 22.03   | 22.41 | 22.45 | 22.50               |
| 3GPP Rel 6      | HSDPA Subtest-1    | 16.70    | 17.20 | 16.95  | 17.50               | 18.36    | 18.25  | 18.37  | 18.50               | 22.05   | 22.35 | 22.44 | 22.50               |
| 3GPP Rel 6      | HSDPA Subtest-2    | 16.62    | 17.12 | 16.86  | 17.50               | 18.29    | 18.18  | 18.31  | 18.50               | 22.06   | 22.05 | 22.44 | 22.50               |
| 3GPP Rel 6      | HSDPA Subtest-3    | 16.59    | 17.00 | 16.92  | 17.00               | 18.28    | 18.19  | 18.28  | 18.00               | 21.61   | 22.00 | 21.92 | 22.00               |
| 3GPP Rel 6      | HSDPA Subtest-4    | 16.69    | 16.66 | 16.90  | 17.00               | 18.23    | 18.08  | 18.25  | 18.00               | 21.62   | 21.84 | 21.86 | 22.00               |
| 3GPP Rel 8      | DC-HSDPA Subtest-1 | 16.68    | 17.18 | 16.92  | 17.50               | 18.33    | 18.23  | 18.24  | 18.50               | 22.03   | 22.36 | 22.44 | 22.50               |
| 3GPP Rel 8      | DC-HSDPA Subtest-2 | 16.59    | 17.09 | 16.84  | 17.50               | 18.26    | 18.16  | 18.24  | 18.50               | 22.04   | 22.34 | 22.41 | 22.50               |
| 3GPP Rel 8      | DC-HSDPA Subtest-3 | 16.58    | 16.68 | 16.89  | 17.00               | 18.24    | 18.17  | 18.23  | 18.00               | 21.59   | 22.00 | 21.96 | 22.00               |
| 3GPP Rel 8      | DC-HSDPA Subtest-4 | 16.68    | 16.63 | 16.86  | 17.00               | 18.21    | 18.06  | 18.21  | 18.00               | 21.34   | 21.88 | 21.18 | 22.00               |
| 3GPP Rel 6      | HSUPA Subtest-1    | 16.50    | 16.75 | 16.60  | 17.00               | 18.26    | 18.19  | 18.20  | 18.50               | 21.61   | 22.35 | 22.43 | 22.50               |
| 3GPP Rel 6      | HSUPA Subtest-2    | 16.62    | 16.75 | 16.87  | 15.00               | 18.19    | 18.13  | 18.25  | 16.50               | 19.68   | 20.26 | 20.36 | 20.50               |
| 3GPP Rel 6      | HSUPA Subtest-3    | 16.60    | 16.65 | 16.81  | 16.00               | 18.28    | 18.12  | 18.22  | 17.50               | 20.62   | 20.97 | 20.57 | 21.50               |
| 3GPP Rel 6      | HSUPA Subtest-4    | 16.59    | 16.68 | 16.85  | 15.00               | 18.15    | 18.06  | 18.23  | 16.50               | 19.95   | 20.25 | 19.78 | 20.50               |
| 3GPP Rel 6      | HSUPA Subtest-5    | 16.70    | 16.68 | 17.00  | 17.00               | 18.00    | 18.10  | 18.20  | 18.50               | 22.10   | 22.40 | 21.90 | 22.50               |

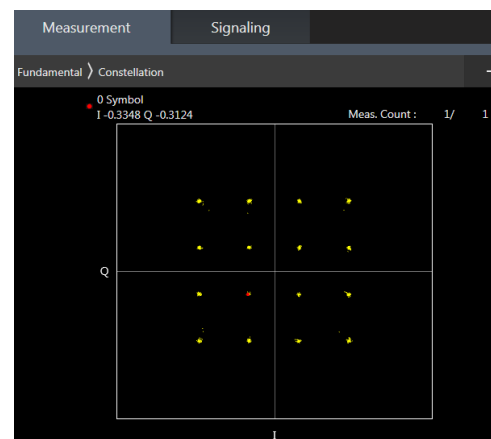
### <LTE Conducted Power>

#### General Note:

1. Anritsu MT8821C base station simulator was used to setup the connection with EUT; the frequency band, channel bandwidth, RB allocation configuration, modulation type are set in the base station simulator to configure EUT transmitting at maximum power and at different configurations which are requested to be reported to FCC, for conducted power measurement and SAR testing.
2. Per KDB 941225 D05v02r05, when a properly configured base station simulator is used for the SAR and power measurements, spectrum plots for each RB allocation and offset configuration is not required.
3. Per KDB 941225 D05v02r05, start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
4. Per KDB 941225 D05v02r05, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
5. Per KDB 941225 D05v02r05, For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are  $\leq 0.8$  W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is  $> 1.45$  W/kg, the remaining required test channels must also be tested.
6. Per KDB 941225 D05v02r05, 16QAM output power for each RB allocation configuration is  $>$  not  $\frac{1}{2}$  dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is  $\leq 1.45$  W/kg; Per KDB 941225 D05v02r05, 16QAM SAR testing is not required.
7. Per KDB 941225 D05v02r05, Smaller bandwidth output power for each RB allocation configuration is  $>$  not  $\frac{1}{2}$  dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is  $\leq 1.45$  W/kg; Per KDB 941225 D05v02r05, smaller bandwidth SAR testing is not required.
8. For LTEB12 / B26the 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 2/4/5/17/38 SAR test was covered by Band 25/66/26/12/41; 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**



**<Notebook Power>**

**<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         | 23.06                    | 23.46                       | 23.25                     | 24                     | 0           |
| 20              | QPSK       | 1       | 49        | 22.96                    | 23.36                       | 23.19                     |                        |             |
| 20              | QPSK       | 1       | 99        | 23.02                    | 23.21                       | 23.02                     |                        |             |
| 20              | QPSK       | 50      | 0         | 22.20                    | 22.33                       | 22.24                     | 23                     | 1           |
| 20              | QPSK       | 50      | 24        | 22.03                    | 22.32                       | 22.18                     |                        |             |
| 20              | QPSK       | 50      | 50        | 22.12                    | 22.32                       | 22.18                     |                        |             |
| 20              | QPSK       | 100     | 0         | 22.09                    | 22.46                       | 22.26                     | 23                     | 1           |
| 20              | 16QAM      | 1       | 0         | 22.38                    | 22.67                       | 22.36                     |                        |             |
| 20              | 16QAM      | 1       | 49        | 22.35                    | 22.60                       | 22.48                     |                        |             |
| 20              | 16QAM      | 1       | 99        | 22.52                    | 22.50                       | 22.20                     | 22                     | 2           |
| 20              | 16QAM      | 50      | 0         | 21.06                    | 21.26                       | 21.15                     |                        |             |
| 20              | 16QAM      | 50      | 24        | 21.10                    | 21.37                       | 21.23                     |                        |             |
| 20              | 16QAM      | 50      | 50        | 21.19                    | 21.36                       | 21.25                     | 22                     | 2           |
| 20              | 16QAM      | 100     | 0         | 21.12                    | 21.48                       | 21.27                     |                        |             |
| 20              | 64QAM      | 1       | 0         | 21.39                    | 21.58                       | 21.39                     |                        |             |
| 20              | 64QAM      | 1       | 49        | 21.31                    | 21.56                       | 21.44                     | 22                     | 2           |
| 20              | 64QAM      | 1       | 99        | 21.48                    | 21.46                       | 21.26                     |                        |             |
| 20              | 64QAM      | 50      | 0         | 20.11                    | 20.26                       | 20.15                     |                        |             |
| 20              | 64QAM      | 50      | 24        | 20.12                    | 20.34                       | 20.23                     | 21                     | 3           |
| 20              | 64QAM      | 50      | 50        | 20.23                    | 20.34                       | 20.25                     |                        |             |
| 20              | 64QAM      | 100     | 0         | 20.15                    | 20.44                       | 20.25                     |                        |             |
| Channel         |            |         |           | 18675                    | 18900                       | 19125                     |                        |             |
| Frequency (MHz) |            |         |           | 1857.5                   | 1880                        | 1902.5                    |                        |             |
| 15              | QPSK       | 1       | 0         | 23.12                    | 23.40                       | 23.14                     | 24                     | 0           |
| 15              | QPSK       | 1       | 37        | 23.05                    | 23.41                       | 23.24                     |                        |             |
| 15              | QPSK       | 1       | 74        | 23.19                    | 23.33                       | 23.00                     |                        |             |
| 15              | QPSK       | 36      | 0         | 22.08                    | 22.37                       | 22.22                     | 23                     | 1           |
| 15              | QPSK       | 36      | 20        | 22.07                    | 22.52                       | 22.26                     |                        |             |
| 15              | QPSK       | 36      | 39        | 22.11                    | 22.42                       | 22.22                     |                        |             |
| 15              | QPSK       | 75      | 0         | 22.09                    | 22.56                       | 22.30                     | 23                     | 1           |
| 15              | 16QAM      | 1       | 0         | 22.38                    | 22.66                       | 22.40                     |                        |             |
| 15              | 16QAM      | 1       | 37        | 22.25                    | 22.77                       | 22.50                     |                        |             |
| 15              | 16QAM      | 1       | 74        | 22.45                    | 22.55                       | 22.16                     | 22                     | 2           |
| 15              | 16QAM      | 36      | 0         | 21.12                    | 21.40                       | 21.31                     |                        |             |
| 15              | 16QAM      | 36      | 20        | 21.11                    | 21.54                       | 21.32                     |                        |             |
| 15              | 16QAM      | 36      | 39        | 21.14                    | 21.45                       | 21.24                     | 22                     | 2           |
| 15              | 16QAM      | 75      | 0         | 21.10                    | 21.54                       | 21.32                     |                        |             |
| 15              | 64QAM      | 1       | 0         | 21.30                    | 21.61                       | 21.36                     |                        |             |
| 15              | 64QAM      | 1       | 37        | 21.24                    | 21.72                       | 21.49                     | 22                     | 2           |
| 15              | 64QAM      | 1       | 74        | 21.40                    | 21.55                       | 21.30                     |                        |             |
| 15              | 64QAM      | 36      | 0         | 20.09                    | 20.43                       | 20.32                     |                        |             |
| 15              | 64QAM      | 36      | 20        | 20.07                    | 20.53                       | 20.34                     | 21                     | 3           |
| 15              | 64QAM      | 36      | 39        | 20.08                    | 20.44                       | 20.27                     |                        |             |
| 15              | 64QAM      | 75      | 0         | 20.04                    | 20.50                       | 20.32                     |                        |             |

| Channel         |       |    |    | 18650  | 18900 | 19150  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
|-----------------|-------|----|----|--------|-------|--------|------------------------|-------------|
| Frequency (MHz) |       |    |    | 1855   | 1880  | 1905   |                        |             |
| 10              | QPSK  | 1  | 0  | 23.16  | 23.34 | 23.24  | 24                     | 0           |
| 10              | QPSK  | 1  | 25 | 23.03  | 23.39 | 23.23  |                        |             |
| 10              | QPSK  | 1  | 49 | 23.11  | 23.40 | 22.95  |                        |             |
| 10              | QPSK  | 25 | 0  | 22.12  | 22.37 | 22.26  | 23                     | 1           |
| 10              | QPSK  | 25 | 12 | 22.09  | 22.43 | 22.27  |                        |             |
| 10              | QPSK  | 25 | 25 | 22.08  | 22.49 | 22.21  |                        |             |
| 10              | QPSK  | 50 | 0  | 22.09  | 22.48 | 22.24  |                        |             |
| 10              | 16QAM | 1  | 0  | 22.45  | 22.60 | 22.52  | 23                     | 1           |
| 10              | 16QAM | 1  | 25 | 22.30  | 22.71 | 22.47  |                        |             |
| 10              | 16QAM | 1  | 49 | 22.39  | 22.69 | 22.18  |                        |             |
| 10              | 16QAM | 25 | 0  | 21.19  | 21.43 | 21.35  | 22                     | 2           |
| 10              | 16QAM | 25 | 12 | 21.17  | 21.49 | 21.36  |                        |             |
| 10              | 16QAM | 25 | 25 | 21.16  | 21.55 | 21.25  |                        |             |
| 10              | 16QAM | 50 | 0  | 21.13  | 21.54 | 21.31  |                        |             |
| 10              | 64QAM | 1  | 0  | 21.44  | 21.56 | 21.49  | 22                     | 2           |
| 10              | 64QAM | 1  | 25 | 21.31  | 21.68 | 21.45  |                        |             |
| 10              | 64QAM | 1  | 49 | 21.36  | 21.66 | 21.32  |                        |             |
| 10              | 64QAM | 25 | 0  | 20.19  | 20.43 | 20.36  | 21                     | 3           |
| 10              | 64QAM | 25 | 12 | 20.17  | 20.49 | 20.36  |                        |             |
| 10              | 64QAM | 25 | 25 | 20.16  | 20.51 | 20.28  |                        |             |
| 10              | 64QAM | 50 | 0  | 20.13  | 20.51 | 20.33  |                        |             |
| Channel         |       |    |    | 18625  | 18900 | 19175  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 1852.5 | 1880  | 1907.5 |                        |             |
| 5               | QPSK  | 1  | 0  | 23.45  | 23.45 | 23.36  | 24                     | 0           |
| 5               | QPSK  | 1  | 12 | 23.40  | 23.45 | 23.45  |                        |             |
| 5               | QPSK  | 1  | 24 | 23.38  | 23.34 | 23.28  |                        |             |
| 5               | QPSK  | 12 | 0  | 22.62  | 22.83 | 22.67  | 23                     | 1           |
| 5               | QPSK  | 12 | 7  | 22.53  | 22.89 | 22.65  |                        |             |
| 5               | QPSK  | 12 | 13 | 22.51  | 22.89 | 22.63  |                        |             |
| 5               | QPSK  | 25 | 0  | 22.50  | 22.87 | 22.66  |                        |             |
| 5               | 16QAM | 1  | 0  | 22.69  | 22.88 | 22.83  | 23                     | 1           |
| 5               | 16QAM | 1  | 12 | 22.61  | 22.98 | 22.70  |                        |             |
| 5               | 16QAM | 1  | 24 | 22.59  | 22.97 | 22.51  |                        |             |
| 5               | 16QAM | 12 | 0  | 21.68  | 21.89 | 21.69  | 22                     | 2           |
| 5               | 16QAM | 12 | 7  | 21.59  | 21.91 | 21.67  |                        |             |
| 5               | 16QAM | 12 | 13 | 21.59  | 21.91 | 21.65  |                        |             |
| 5               | 16QAM | 25 | 0  | 21.58  | 21.91 | 21.67  |                        |             |
| 5               | 64QAM | 1  | 0  | 21.72  | 21.82 | 21.83  | 22                     | 2           |
| 5               | 64QAM | 1  | 12 | 21.59  | 21.98 | 21.71  |                        |             |
| 5               | 64QAM | 1  | 24 | 21.65  | 21.97 | 21.62  |                        |             |
| 5               | 64QAM | 12 | 0  | 20.71  | 20.94 | 20.78  | 21                     | 3           |
| 5               | 64QAM | 12 | 7  | 20.64  | 21.00 | 20.77  |                        |             |
| 5               | 64QAM | 12 | 13 | 20.69  | 20.99 | 20.76  |                        |             |
| 5               | 64QAM | 25 | 0  | 20.66  | 20.95 | 20.73  |                        |             |

| Channel         |       |    |    | 18615  | 18900 | 19185  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
|-----------------|-------|----|----|--------|-------|--------|------------------------|-------------|
| Frequency (MHz) |       |    |    | 1851.5 | 1880  | 1908.5 |                        |             |
| 3               | QPSK  | 1  | 0  | 23.30  | 23.42 | 23.32  | 24                     | 0           |
| 3               | QPSK  | 1  | 8  | 23.30  | 23.28 | 23.38  |                        |             |
| 3               | QPSK  | 1  | 14 | 23.26  | 23.18 | 23.23  |                        |             |
| 3               | QPSK  | 8  | 0  | 22.52  | 22.65 | 22.50  | 23                     | 1           |
| 3               | QPSK  | 8  | 4  | 22.38  | 22.69 | 22.47  |                        |             |
| 3               | QPSK  | 8  | 7  | 22.36  | 22.87 | 22.58  |                        |             |
| 3               | QPSK  | 15 | 0  | 22.36  | 22.67 | 22.59  |                        |             |
| 3               | 16QAM | 1  | 0  | 22.62  | 22.88 | 22.69  | 23                     | 1           |
| 3               | 16QAM | 1  | 8  | 22.57  | 22.87 | 22.62  |                        |             |
| 3               | 16QAM | 1  | 14 | 22.51  | 22.83 | 22.45  |                        |             |
| 3               | 16QAM | 8  | 0  | 21.65  | 21.84 | 21.49  | 22                     | 2           |
| 3               | 16QAM | 8  | 4  | 21.40  | 21.83 | 21.64  |                        |             |
| 3               | 16QAM | 8  | 7  | 21.47  | 21.90 | 21.45  |                        |             |
| 3               | 16QAM | 15 | 0  | 21.45  | 21.71 | 21.63  |                        |             |
| 3               | 64QAM | 1  | 0  | 21.64  | 21.62 | 21.76  | 22                     | 2           |
| 3               | 64QAM | 1  | 8  | 21.41  | 21.89 | 21.56  |                        |             |
| 3               | 64QAM | 1  | 14 | 21.47  | 21.95 | 21.54  |                        |             |
| 3               | 64QAM | 8  | 0  | 20.59  | 20.84 | 20.75  | 21                     | 3           |
| 3               | 64QAM | 8  | 4  | 20.57  | 20.81 | 20.76  |                        |             |
| 3               | 64QAM | 8  | 7  | 20.67  | 20.95 | 20.63  |                        |             |
| 3               | 64QAM | 15 | 0  | 20.59  | 20.78 | 20.62  |                        |             |
| Channel         |       |    |    | 18607  | 18900 | 19193  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 1850.7 | 1880  | 1909.3 |                        |             |
| 1.4             | QPSK  | 1  | 0  | 23.23  | 23.37 | 23.31  | 24                     | 0           |
| 1.4             | QPSK  | 1  | 3  | 23.23  | 23.20 | 23.31  |                        |             |
| 1.4             | QPSK  | 1  | 5  | 23.18  | 23.11 | 23.19  |                        |             |
| 1.4             | QPSK  | 3  | 0  | 23.28  | 23.36 | 23.26  |                        |             |
| 1.4             | QPSK  | 3  | 1  | 23.25  | 23.28 | 23.34  |                        |             |
| 1.4             | QPSK  | 3  | 3  | 23.25  | 23.08 | 23.15  |                        |             |
| 1.4             | QPSK  | 6  | 0  | 22.52  | 22.80 | 22.60  | 23                     | 1           |
| 1.4             | 16QAM | 1  | 0  | 22.50  | 22.88 | 22.62  | 23                     | 1           |
| 1.4             | 16QAM | 1  | 3  | 22.50  | 22.88 | 22.54  |                        |             |
| 1.4             | 16QAM | 1  | 5  | 22.43  | 22.78 | 22.60  |                        |             |
| 1.4             | 16QAM | 3  | 0  | 22.58  | 22.76 | 22.67  |                        |             |
| 1.4             | 16QAM | 3  | 1  | 22.46  | 22.80 | 22.61  |                        |             |
| 1.4             | 16QAM | 3  | 3  | 22.43  | 22.84 | 22.56  |                        |             |
| 1.4             | 16QAM | 6  | 0  | 21.63  | 21.89 | 21.67  | 22                     | 2           |
| 1.4             | 64QAM | 1  | 0  | 21.50  | 21.81 | 21.59  | 22                     | 2           |
| 1.4             | 64QAM | 1  | 3  | 21.52  | 21.91 | 21.64  |                        |             |
| 1.4             | 64QAM | 1  | 5  | 21.53  | 21.85 | 21.65  |                        |             |
| 1.4             | 64QAM | 3  | 0  | 21.63  | 21.81 | 21.83  |                        |             |
| 1.4             | 64QAM | 3  | 1  | 21.51  | 21.93 | 21.69  |                        |             |
| 1.4             | 64QAM | 3  | 3  | 21.60  | 21.89 | 21.56  |                        |             |
| 1.4             | 64QAM | 6  | 0  | 20.61  | 20.89 | 20.78  | 21                     | 3           |

**<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                  |                     |          |
| Frequency (MHz) |            |         |           | 1720                  | 1732.5                   | 1745                   |                     |          |
| 20              | QPSK       | 1       | 0         | 23.20                 | 23.13                    | 23.29                  |                     |          |
| 20              | QPSK       | 1       | 49        | 23.16                 | 23.13                    | 23.42                  | 24                  | 0        |
| 20              | QPSK       | 1       | 99        | 23.28                 | 23.29                    | 23.52                  |                     |          |
| 20              | QPSK       | 50      | 0         | 22.20                 | 22.20                    | 22.45                  |                     |          |
| 20              | QPSK       | 50      | 24        | 22.09                 | 22.13                    | 22.42                  | 23                  | 1        |
| 20              | QPSK       | 50      | 50        | 21.98                 | 22.19                    | 22.42                  |                     |          |
| 20              | QPSK       | 100     | 0         | 22.11                 | 22.21                    | 22.45                  |                     |          |
| 20              | 16QAM      | 1       | 0         | 22.61                 | 22.51                    | 22.68                  | 23                  | 1        |
| 20              | 16QAM      | 1       | 49        | 22.54                 | 22.53                    | 22.74                  |                     |          |
| 20              | 16QAM      | 1       | 99        | 22.43                 | 22.62                    | 22.81                  |                     |          |
| 20              | 16QAM      | 50      | 0         | 21.26                 | 21.19                    | 21.46                  | 22                  | 2        |
| 20              | 16QAM      | 50      | 24        | 21.15                 | 21.22                    | 21.50                  |                     |          |
| 20              | 16QAM      | 50      | 50        | 21.03                 | 21.28                    | 21.51                  |                     |          |
| 20              | 16QAM      | 100     | 0         | 21.15                 | 21.27                    | 21.51                  | 22                  | 2        |
| 20              | 64QAM      | 1       | 0         | 21.55                 | 21.56                    | 21.72                  |                     |          |
| 20              | 64QAM      | 1       | 49        | 21.47                 | 21.50                    | 21.81                  |                     |          |
| 20              | 64QAM      | 1       | 99        | 21.29                 | 21.68                    | 21.83                  | 21                  | 3        |
| 20              | 64QAM      | 50      | 0         | 20.23                 | 20.26                    | 20.49                  |                     |          |
| 20              | 64QAM      | 50      | 24        | 20.10                 | 20.28                    | 20.54                  |                     |          |
| 20              | 64QAM      | 50      | 50        | 20.01                 | 20.30                    | 20.53                  | 21                  | 3        |
| 20              | 64QAM      | 100     | 0         | 20.10                 | 20.29                    | 20.53                  |                     |          |
| Channel         |            |         |           | 20025                 | 20175                    | 20325                  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 1717.5                | 1732.5                   | 1747.5                 |                     |          |
| 15              | QPSK       | 1       | 0         | 23.23                 | 23.08                    | 23.42                  |                     |          |
| 15              | QPSK       | 1       | 37        | 23.33                 | 23.23                    | 23.51                  | 24                  | 0        |
| 15              | QPSK       | 1       | 74        | 23.10                 | 23.36                    | 23.50                  |                     |          |
| 15              | QPSK       | 36      | 0         | 22.23                 | 22.15                    | 22.43                  | 23                  | 1        |
| 15              | QPSK       | 36      | 20        | 22.22                 | 22.19                    | 22.43                  |                     |          |
| 15              | QPSK       | 36      | 39        | 22.10                 | 22.22                    | 22.41                  |                     |          |
| 15              | QPSK       | 75      | 0         | 22.22                 | 22.22                    | 22.45                  | 23                  | 1        |
| 15              | 16QAM      | 1       | 0         | 22.58                 | 22.38                    | 22.73                  |                     |          |
| 15              | 16QAM      | 1       | 37        | 22.66                 | 22.53                    | 22.78                  |                     |          |
| 15              | 16QAM      | 1       | 74        | 22.45                 | 22.68                    | 22.82                  | 22                  | 2        |
| 15              | 16QAM      | 36      | 0         | 21.32                 | 21.18                    | 21.53                  |                     |          |
| 15              | 16QAM      | 36      | 20        | 21.30                 | 21.24                    | 21.54                  |                     |          |
| 15              | 16QAM      | 36      | 39        | 21.22                 | 21.30                    | 21.52                  | 22                  | 2        |
| 15              | 16QAM      | 75      | 0         | 21.27                 | 21.23                    | 21.51                  |                     |          |
| 15              | 64QAM      | 1       | 0         | 21.61                 | 21.30                    | 21.72                  |                     |          |
| 15              | 64QAM      | 1       | 37        | 21.64                 | 21.49                    | 21.83                  | 22                  | 2        |
| 15              | 64QAM      | 1       | 74        | 21.39                 | 21.59                    | 21.80                  |                     |          |
| 15              | 64QAM      | 36      | 0         | 20.33                 | 20.22                    | 20.56                  |                     |          |
| 15              | 64QAM      | 36      | 20        | 20.32                 | 20.27                    | 20.58                  | 21                  | 3        |
| 15              | 64QAM      | 36      | 39        | 20.22                 | 20.30                    | 20.56                  |                     |          |
| 15              | 64QAM      | 75      | 0         | 20.27                 | 20.25                    | 20.52                  |                     |          |

| Channel         |       |    |    | 20000  | 20175  | 20350  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
|-----------------|-------|----|----|--------|--------|--------|------------------------|-------------|
| Frequency (MHz) |       |    |    | 1715   | 1732.5 | 1750   |                        |             |
| 10              | QPSK  | 1  | 0  | 23.23  | 23.21  | 23.51  | 24                     | 0           |
| 10              | QPSK  | 1  | 25 | 23.29  | 23.21  | 23.48  |                        |             |
| 10              | QPSK  | 1  | 49 | 23.19  | 23.30  | 23.43  |                        |             |
| 10              | QPSK  | 25 | 0  | 22.25  | 22.21  | 22.46  | 23                     | 1           |
| 10              | QPSK  | 25 | 12 | 22.24  | 22.19  | 22.44  |                        |             |
| 10              | QPSK  | 25 | 25 | 22.23  | 22.19  | 22.44  |                        |             |
| 10              | QPSK  | 50 | 0  | 22.24  | 22.18  | 22.44  |                        |             |
| 10              | 16QAM | 1  | 0  | 22.62  | 22.54  | 22.80  | 23                     | 1           |
| 10              | 16QAM | 1  | 25 | 22.69  | 22.52  | 22.82  |                        |             |
| 10              | 16QAM | 1  | 49 | 22.67  | 22.63  | 22.90  |                        |             |
| 10              | 16QAM | 25 | 0  | 21.38  | 21.31  | 21.62  | 22                     | 2           |
| 10              | 16QAM | 25 | 12 | 21.37  | 21.29  | 21.61  |                        |             |
| 10              | 16QAM | 25 | 25 | 21.35  | 21.27  | 21.61  |                        |             |
| 10              | 16QAM | 50 | 0  | 21.29  | 21.25  | 21.54  |                        |             |
| 10              | 64QAM | 1  | 0  | 21.53  | 21.49  | 21.86  | 22                     | 2           |
| 10              | 64QAM | 1  | 25 | 21.61  | 21.53  | 21.83  |                        |             |
| 10              | 64QAM | 1  | 49 | 21.63  | 21.60  | 21.86  |                        |             |
| 10              | 64QAM | 25 | 0  | 20.40  | 20.33  | 20.64  | 21                     | 3           |
| 10              | 64QAM | 25 | 12 | 20.39  | 20.31  | 20.63  |                        |             |
| 10              | 64QAM | 25 | 25 | 20.36  | 20.31  | 20.63  |                        |             |
| 10              | 64QAM | 50 | 0  | 20.32  | 20.28  | 20.58  |                        |             |
| Channel         |       |    |    | 19975  | 20175  | 20375  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 1712.5 | 1732.5 | 1752.5 |                        |             |
| 5               | QPSK  | 1  | 0  | 23.33  | 23.31  | 23.48  | 24                     | 0           |
| 5               | QPSK  | 1  | 12 | 23.35  | 23.31  | 23.48  |                        |             |
| 5               | QPSK  | 1  | 24 | 23.39  | 23.34  | 23.48  |                        |             |
| 5               | QPSK  | 12 | 0  | 22.35  | 22.42  | 22.55  | 23                     | 1           |
| 5               | QPSK  | 12 | 7  | 22.41  | 22.41  | 22.55  |                        |             |
| 5               | QPSK  | 12 | 13 | 22.42  | 22.41  | 22.55  |                        |             |
| 5               | QPSK  | 25 | 0  | 22.40  | 22.39  | 22.52  |                        |             |
| 5               | 16QAM | 1  | 0  | 22.62  | 22.66  | 22.83  | 23                     | 1           |
| 5               | 16QAM | 1  | 12 | 22.75  | 22.62  | 22.84  |                        |             |
| 5               | 16QAM | 1  | 24 | 22.72  | 22.65  | 22.87  |                        |             |
| 5               | 16QAM | 12 | 0  | 21.52  | 21.52  | 21.70  | 22                     | 2           |
| 5               | 16QAM | 12 | 7  | 21.56  | 21.52  | 21.69  |                        |             |
| 5               | 16QAM | 12 | 13 | 21.55  | 21.50  | 21.70  |                        |             |
| 5               | 16QAM | 25 | 0  | 21.51  | 21.48  | 21.65  |                        |             |
| 5               | 64QAM | 1  | 0  | 21.65  | 21.67  | 21.82  | 22                     | 2           |
| 5               | 64QAM | 1  | 12 | 21.63  | 21.61  | 21.82  |                        |             |
| 5               | 64QAM | 1  | 24 | 21.70  | 21.58  | 21.78  |                        |             |
| 5               | 64QAM | 12 | 0  | 20.57  | 20.62  | 20.73  | 21                     | 3           |
| 5               | 64QAM | 12 | 7  | 20.67  | 20.64  | 20.74  |                        |             |
| 5               | 64QAM | 12 | 13 | 20.66  | 20.66  | 20.74  |                        |             |
| 5               | 64QAM | 25 | 0  | 20.61  | 20.61  | 20.69  |                        |             |

| Channel         |       |    |    | 19965  | 20175  | 20385  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
|-----------------|-------|----|----|--------|--------|--------|------------------------|-------------|
| Frequency (MHz) |       |    |    | 1711.5 | 1732.5 | 1753.5 |                        |             |
| 3               | QPSK  | 1  | 0  | 23.23  | 23.24  | 23.45  | 24                     | 0           |
| 3               | QPSK  | 1  | 8  | 23.26  | 23.21  | 23.45  |                        |             |
| 3               | QPSK  | 1  | 14 | 23.29  | 23.33  | 23.40  |                        |             |
| 3               | QPSK  | 8  | 0  | 22.30  | 22.32  | 22.46  | 23                     | 1           |
| 3               | QPSK  | 8  | 4  | 22.31  | 22.37  | 22.45  |                        |             |
| 3               | QPSK  | 8  | 7  | 22.37  | 22.41  | 22.53  |                        |             |
| 3               | QPSK  | 15 | 0  | 22.35  | 22.39  | 22.46  |                        |             |
| 3               | 16QAM | 1  | 0  | 22.58  | 22.57  | 22.82  | 23                     | 1           |
| 3               | 16QAM | 1  | 8  | 22.68  | 22.57  | 22.83  |                        |             |
| 3               | 16QAM | 1  | 14 | 22.68  | 22.60  | 22.77  |                        |             |
| 3               | 16QAM | 8  | 0  | 21.49  | 21.43  | 21.66  | 22                     | 2           |
| 3               | 16QAM | 8  | 4  | 21.46  | 21.43  | 21.62  |                        |             |
| 3               | 16QAM | 8  | 7  | 21.51  | 21.43  | 21.68  |                        |             |
| 3               | 16QAM | 15 | 0  | 21.41  | 21.47  | 21.59  |                        |             |
| 3               | 64QAM | 1  | 0  | 21.62  | 21.57  | 21.73  | 22                     | 2           |
| 3               | 64QAM | 1  | 8  | 21.63  | 21.56  | 21.79  |                        |             |
| 3               | 64QAM | 1  | 14 | 21.69  | 21.51  | 21.78  |                        |             |
| 3               | 64QAM | 8  | 0  | 20.52  | 20.58  | 20.63  | 21                     | 3           |
| 3               | 64QAM | 8  | 4  | 20.59  | 20.54  | 20.73  |                        |             |
| 3               | 64QAM | 8  | 7  | 20.61  | 20.56  | 20.64  |                        |             |
| 3               | 64QAM | 15 | 0  | 20.58  | 20.61  | 20.67  |                        |             |
| 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  | 23.29  | 23.24  | 23.44  | 24                     | 0           |
| 1.4             | QPSK  | 1  | 3  | 23.34  | 23.29  | 23.41  |                        |             |
| 1.4             | QPSK  | 1  | 5  | 23.34  | 23.27  | 23.40  |                        |             |
| 1.4             | QPSK  | 3  | 0  | 23.26  | 23.31  | 23.43  |                        |             |
| 1.4             | QPSK  | 3  | 1  | 23.28  | 23.31  | 23.47  |                        |             |
| 1.4             | QPSK  | 3  | 3  | 23.34  | 23.25  | 23.48  |                        |             |
| 1.4             | QPSK  | 6  | 0  | 22.38  | 22.34  | 22.53  | 23                     | 1           |
| 1.4             | 16QAM | 1  | 0  | 22.60  | 22.59  | 22.83  | 23                     | 1           |
| 1.4             | 16QAM | 1  | 3  | 22.65  | 22.55  | 22.79  |                        |             |
| 1.4             | 16QAM | 1  | 5  | 22.68  | 22.56  | 22.87  |                        |             |
| 1.4             | 16QAM | 3  | 0  | 22.60  | 22.57  | 22.81  |                        |             |
| 1.4             | 16QAM | 3  | 1  | 22.74  | 22.54  | 22.83  |                        |             |
| 1.4             | 16QAM | 3  | 3  | 22.69  | 22.57  | 22.82  |                        |             |
| 1.4             | 16QAM | 6  | 0  | 21.52  | 21.46  | 21.67  | 22                     | 2           |
| 1.4             | 64QAM | 1  | 0  | 21.55  | 21.65  | 21.74  | 22                     | 2           |
| 1.4             | 64QAM | 1  | 3  | 21.58  | 21.60  | 21.73  |                        |             |
| 1.4             | 64QAM | 1  | 5  | 21.69  | 21.57  | 21.78  |                        |             |
| 1.4             | 64QAM | 3  | 0  | 21.65  | 21.60  | 21.74  |                        |             |
| 1.4             | 64QAM | 3  | 1  | 21.54  | 21.56  | 21.81  |                        |             |
| 1.4             | 64QAM | 3  | 3  | 21.63  | 21.49  | 21.78  |                        |             |
| 1.4             | 64QAM | 6  | 0  | 20.60  | 20.55  | 20.68  | 21                     | 3           |

**<LTE Band 5>**

| BW [MHz]        | Modulation | RB Size | RB Offset | Power Low Ch. / Freq. | Power Middle Ch. / Freq. | Power High Ch. / Freq. | Tune-up limit (dBm) | MPR (dB) |
|-----------------|------------|---------|-----------|-----------------------|--------------------------|------------------------|---------------------|----------|
| Channel         |            |         |           | 20450                 | 20525                    | 20600                  |                     |          |
| Frequency (MHz) |            |         |           | 829                   | 836.5                    | 844                    |                     |          |
| 10              | QPSK       | 1       | 0         | 23.65                 | 23.92                    | 24.28                  | 25                  | 0        |
| 10              | QPSK       | 1       | 25        | 23.80                 | 24.18                    | 24.53                  |                     |          |
| 10              | QPSK       | 1       | 49        | 23.91                 | 24.32                    | 24.60                  |                     |          |
| 10              | QPSK       | 25      | 0         | 22.74                 | 23.00                    | 23.40                  | 24                  | 1        |
| 10              | QPSK       | 25      | 12        | 22.80                 | 23.13                    | 23.62                  |                     |          |
| 10              | QPSK       | 25      | 25        | 22.87                 | 23.24                    | 23.70                  |                     |          |
| 10              | QPSK       | 50      | 0         | 22.81                 | 23.15                    | 23.60                  |                     |          |
| 10              | 16QAM      | 1       | 0         | 23.00                 | 23.05                    | 23.44                  | 24                  | 1        |
| 10              | 16QAM      | 1       | 25        | 23.18                 | 23.40                    | 23.71                  |                     |          |
| 10              | 16QAM      | 1       | 49        | 23.31                 | 23.59                    | 23.81                  |                     |          |
| 10              | 16QAM      | 25      | 0         | 21.81                 | 22.10                    | 22.50                  | 23                  | 2        |
| 10              | 16QAM      | 25      | 12        | 21.88                 | 22.24                    | 22.71                  |                     |          |
| 10              | 16QAM      | 25      | 25        | 21.97                 | 22.33                    | 22.78                  |                     |          |
| 10              | 16QAM      | 50      | 0         | 21.86                 | 22.18                    | 22.68                  |                     |          |
| 10              | 64QAM      | 1       | 0         | 21.95                 | 22.13                    | 22.44                  | 23                  | 2        |
| 10              | 64QAM      | 1       | 25        | 22.05                 | 22.32                    | 22.77                  |                     |          |
| 10              | 64QAM      | 1       | 49        | 22.19                 | 22.61                    | 22.86                  |                     |          |
| 10              | 64QAM      | 25      | 0         | 20.84                 | 21.13                    | 21.50                  | 22                  | 3        |
| 10              | 64QAM      | 25      | 12        | 20.90                 | 21.21                    | 21.72                  |                     |          |
| 10              | 64QAM      | 25      | 25        | 20.98                 | 21.35                    | 21.75                  |                     |          |
| 10              | 64QAM      | 50      | 0         | 20.86                 | 21.18                    | 21.69                  |                     |          |
| Channel         |            |         |           | 20425                 | 20525                    | 20625                  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 826.5                 | 836.5                    | 846.5                  |                     |          |
| 5               | QPSK       | 1       | 0         | 23.60                 | 23.98                    | 24.50                  | 25                  | 0        |
| 5               | QPSK       | 1       | 12        | 23.68                 | 24.08                    | 24.55                  |                     |          |
| 5               | QPSK       | 1       | 24        | 23.77                 | 24.20                    | 24.59                  |                     |          |
| 5               | QPSK       | 12      | 0         | 22.75                 | 23.12                    | 23.72                  | 24                  | 1        |
| 5               | QPSK       | 12      | 7         | 22.78                 | 23.19                    | 23.68                  |                     |          |
| 5               | QPSK       | 12      | 13        | 22.82                 | 23.23                    | 23.70                  |                     |          |
| 5               | QPSK       | 25      | 0         | 22.77                 | 23.18                    | 23.70                  |                     |          |
| 5               | 16QAM      | 1       | 0         | 22.87                 | 23.28                    | 23.74                  | 24                  | 1        |
| 5               | 16QAM      | 1       | 12        | 22.87                 | 23.35                    | 23.84                  |                     |          |
| 5               | 16QAM      | 1       | 24        | 23.09                 | 23.51                    | 23.74                  |                     |          |
| 5               | 16QAM      | 12      | 0         | 21.80                 | 22.24                    | 22.82                  | 23                  | 2        |
| 5               | 16QAM      | 12      | 7         | 21.87                 | 22.29                    | 22.70                  |                     |          |
| 5               | 16QAM      | 12      | 13        | 21.90                 | 22.32                    | 22.80                  |                     |          |
| 5               | 16QAM      | 25      | 0         | 21.84                 | 22.30                    | 22.77                  |                     |          |
| 5               | 64QAM      | 1       | 0         | 21.84                 | 22.23                    | 22.72                  | 23                  | 2        |
| 5               | 64QAM      | 1       | 12        | 21.92                 | 22.33                    | 22.79                  |                     |          |
| 5               | 64QAM      | 1       | 24        | 22.07                 | 22.42                    | 22.71                  |                     |          |
| 5               | 64QAM      | 12      | 0         | 20.84                 | 21.22                    | 21.83                  | 22                  | 3        |
| 5               | 64QAM      | 12      | 7         | 20.88                 | 21.27                    | 21.77                  |                     |          |
| 5               | 64QAM      | 12      | 13        | 20.92                 | 21.29                    | 21.75                  |                     |          |
| 5               | 64QAM      | 25      | 0         | 20.85                 | 21.27                    | 21.75                  |                     |          |

| Channel         |       |    |    | 20415 | 20525 | 20635 | Tune-up limit<br>(dBm) | MPR<br>(dB) |
|-----------------|-------|----|----|-------|-------|-------|------------------------|-------------|
| Frequency (MHz) |       |    |    | 825.5 | 836.5 | 847.5 |                        |             |
| 3               | QPSK  | 1  | 0  | 23.47 | 23.91 | 24.40 | 25                     | 0           |
| 3               | QPSK  | 1  | 8  | 23.55 | 24.01 | 24.42 |                        |             |
| 3               | QPSK  | 1  | 14 | 23.58 | 23.94 | 24.16 |                        |             |
| 3               | QPSK  | 8  | 0  | 22.52 | 22.91 | 23.39 | 24                     | 1           |
| 3               | QPSK  | 8  | 4  | 22.56 | 22.98 | 23.40 |                        |             |
| 3               | QPSK  | 8  | 7  | 22.63 | 23.03 | 23.40 |                        |             |
| 3               | QPSK  | 15 | 0  | 22.57 | 22.98 | 23.41 |                        |             |
| 3               | 16QAM | 1  | 0  | 22.84 | 23.17 | 23.46 | 24                     | 1           |
| 3               | 16QAM | 1  | 8  | 22.84 | 23.19 | 23.52 |                        |             |
| 3               | 16QAM | 1  | 14 | 22.87 | 23.12 | 23.42 |                        |             |
| 3               | 16QAM | 8  | 0  | 21.58 | 21.95 | 22.39 | 23                     | 2           |
| 3               | 16QAM | 8  | 4  | 21.60 | 22.02 | 22.41 |                        |             |
| 3               | 16QAM | 8  | 7  | 21.68 | 22.08 | 22.40 |                        |             |
| 3               | 16QAM | 15 | 0  | 21.59 | 22.02 | 22.40 |                        |             |
| 3               | 64QAM | 1  | 0  | 21.68 | 22.09 | 22.53 | 23                     | 2           |
| 3               | 64QAM | 1  | 8  | 21.81 | 22.15 | 22.59 |                        |             |
| 3               | 64QAM | 1  | 14 | 21.78 | 22.11 | 22.45 |                        |             |
| 3               | 64QAM | 8  | 0  | 20.56 | 20.95 | 21.40 | 22                     | 3           |
| 3               | 64QAM | 8  | 4  | 20.57 | 21.00 | 21.35 |                        |             |
| 3               | 64QAM | 8  | 7  | 20.69 | 20.96 | 21.33 |                        |             |
| 3               | 64QAM | 15 | 0  | 20.57 | 20.90 | 21.32 |                        |             |
| 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  | 23.44 | 23.98 | 24.38 | 25                     | 0           |
| 1.4             | QPSK  | 1  | 3  | 23.42 | 23.94 | 24.34 |                        |             |
| 1.4             | QPSK  | 1  | 5  | 23.50 | 23.99 | 24.32 |                        |             |
| 1.4             | QPSK  | 3  | 0  | 23.44 | 23.97 | 24.36 |                        |             |
| 1.4             | QPSK  | 3  | 1  | 23.42 | 23.95 | 24.35 |                        |             |
| 1.4             | QPSK  | 3  | 3  | 23.42 | 23.96 | 24.33 |                        |             |
| 1.4             | QPSK  | 6  | 0  | 22.43 | 22.98 | 23.39 | 24                     | 1           |
| 1.4             | 16QAM | 1  | 0  | 22.75 | 23.14 | 23.62 | 24                     | 1           |
| 1.4             | 16QAM | 1  | 3  | 22.59 | 23.25 | 23.55 |                        |             |
| 1.4             | 16QAM | 1  | 5  | 22.72 | 23.07 | 23.61 |                        |             |
| 1.4             | 16QAM | 3  | 0  | 22.56 | 22.99 | 23.46 |                        |             |
| 1.4             | 16QAM | 3  | 1  | 22.52 | 22.96 | 23.46 |                        |             |
| 1.4             | 16QAM | 3  | 3  | 22.51 | 22.94 | 23.47 |                        |             |
| 1.4             | 16QAM | 6  | 0  | 21.45 | 22.04 | 22.44 | 23                     | 2           |
| 1.4             | 64QAM | 1  | 0  | 21.62 | 22.12 | 22.72 | 23                     | 2           |
| 1.4             | 64QAM | 1  | 3  | 21.73 | 22.12 | 22.61 |                        |             |
| 1.4             | 64QAM | 1  | 5  | 21.71 | 22.25 | 22.55 |                        |             |
| 1.4             | 64QAM | 3  | 0  | 21.59 | 22.07 | 22.52 |                        |             |
| 1.4             | 64QAM | 3  | 1  | 21.57 | 22.10 | 22.55 |                        |             |
| 1.4             | 64QAM | 3  | 3  | 21.62 | 22.09 | 22.50 |                        |             |
| 1.4             | 64QAM | 6  | 0  | 20.45 | 21.04 | 21.38 | 22                     | 3           |

**<LTE Band 7>**

| 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         |            |         |           | 20850                 | 21100                    | 21350                  |                     |          |
| Frequency (MHz) |            |         |           | 2510                  | 2535                     | 2560                   |                     |          |
| 20              | QPSK       | 1       | 0         | 23.36                 | 23.04                    | 23.14                  | 24                  | 0        |
| 20              | QPSK       | 1       | 49        | 23.31                 | 23.19                    | 23.26                  |                     |          |
| 20              | QPSK       | 1       | 99        | 23.43                 | 23.27                    | 23.75                  |                     |          |
| 20              | QPSK       | 50      | 0         | 22.25                 | 22.10                    | 22.15                  | 23                  | 1        |
| 20              | QPSK       | 50      | 24        | 22.27                 | 22.20                    | 22.27                  |                     |          |
| 20              | QPSK       | 50      | 50        | 22.32                 | 22.26                    | 22.41                  |                     |          |
| 20              | QPSK       | 100     | 0         | 22.29                 | 22.18                    | 22.30                  |                     |          |
| 20              | 16QAM      | 1       | 0         | 22.71                 | 22.44                    | 22.57                  | 23                  | 1        |
| 20              | 16QAM      | 1       | 49        | 22.67                 | 22.55                    | 22.62                  |                     |          |
| 20              | 16QAM      | 1       | 99        | 22.61                 | 22.60                    | 23.00                  |                     |          |
| 20              | 16QAM      | 50      | 0         | 21.39                 | 21.16                    | 21.23                  | 22                  | 2        |
| 20              | 16QAM      | 50      | 24        | 21.32                 | 21.24                    | 21.32                  |                     |          |
| 20              | 16QAM      | 50      | 50        | 21.28                 | 21.20                    | 21.47                  |                     |          |
| 20              | 16QAM      | 100     | 0         | 21.34                 | 21.22                    | 21.36                  |                     |          |
| 20              | 64QAM      | 1       | 0         | 21.64                 | 21.35                    | 21.48                  | 22                  | 2        |
| 20              | 64QAM      | 1       | 49        | 21.55                 | 21.45                    | 21.56                  |                     |          |
| 20              | 64QAM      | 1       | 99        | 21.51                 | 21.51                    | 21.98                  |                     |          |
| 20              | 64QAM      | 50      | 0         | 20.41                 | 20.18                    | 20.22                  | 21                  | 3        |
| 20              | 64QAM      | 50      | 24        | 20.35                 | 20.25                    | 20.34                  |                     |          |
| 20              | 64QAM      | 50      | 50        | 20.29                 | 20.20                    | 20.49                  |                     |          |
| 20              | 64QAM      | 100     | 0         | 20.35                 | 20.20                    | 20.36                  |                     |          |
| Channel         |            |         |           | 20825                 | 21100                    | 21375                  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 2507.5                | 2535                     | 2562.5                 |                     |          |
| 15              | QPSK       | 1       | 0         | 23.34                 | 23.00                    | 23.18                  | 24                  | 0        |
| 15              | QPSK       | 1       | 37        | 23.34                 | 23.11                    | 23.34                  |                     |          |
| 15              | QPSK       | 1       | 74        | 23.28                 | 23.19                    | 23.74                  |                     |          |
| 15              | QPSK       | 36      | 0         | 22.41                 | 22.09                    | 22.23                  | 23                  | 1        |
| 15              | QPSK       | 36      | 20        | 22.34                 | 22.14                    | 22.34                  |                     |          |
| 15              | QPSK       | 36      | 39        | 22.25                 | 22.12                    | 22.52                  |                     |          |
| 15              | QPSK       | 75      | 0         | 22.34                 | 22.15                    | 22.35                  |                     |          |
| 15              | 16QAM      | 1       | 0         | 22.73                 | 22.39                    | 22.59                  | 23                  | 1        |
| 15              | 16QAM      | 1       | 37        | 22.66                 | 22.47                    | 22.71                  |                     |          |
| 15              | 16QAM      | 1       | 74        | 22.66                 | 22.52                    | 22.80                  |                     |          |
| 15              | 16QAM      | 36      | 0         | 21.41                 | 21.16                    | 21.30                  | 22                  | 2        |
| 15              | 16QAM      | 36      | 20        | 21.37                 | 21.20                    | 21.42                  |                     |          |
| 15              | 16QAM      | 36      | 39        | 21.31                 | 21.17                    | 21.60                  |                     |          |
| 15              | 16QAM      | 75      | 0         | 21.35                 | 21.19                    | 21.41                  |                     |          |
| 15              | 64QAM      | 1       | 0         | 21.60                 | 21.29                    | 21.49                  | 22                  | 2        |
| 15              | 64QAM      | 1       | 37        | 21.61                 | 21.39                    | 21.61                  |                     |          |
| 15              | 64QAM      | 1       | 74        | 21.56                 | 21.43                    | 21.94                  |                     |          |
| 15              | 64QAM      | 36      | 0         | 20.45                 | 20.18                    | 20.31                  | 21                  | 3        |
| 15              | 64QAM      | 36      | 20        | 20.39                 | 20.20                    | 20.41                  |                     |          |
| 15              | 64QAM      | 36      | 39        | 20.33                 | 20.15                    | 20.61                  |                     |          |
| 15              | 64QAM      | 75      | 0         | 20.37                 | 20.18                    | 20.40                  |                     |          |

| Channel         |       |    |    | 20800  | 21100 | 21400  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
|-----------------|-------|----|----|--------|-------|--------|------------------------|-------------|
| Frequency (MHz) |       |    |    | 2505   | 2535  | 2565   |                        |             |
| 10              | QPSK  | 1  | 0  | 23.28  | 23.09 | 23.21  | 24                     | 0           |
| 10              | QPSK  | 1  | 25 | 23.26  | 23.07 | 23.36  |                        |             |
| 10              | QPSK  | 1  | 49 | 23.26  | 23.10 | 23.66  |                        |             |
| 10              | QPSK  | 25 | 0  | 22.28  | 22.08 | 22.24  | 23                     | 1           |
| 10              | QPSK  | 25 | 12 | 22.25  | 22.10 | 22.30  |                        |             |
| 10              | QPSK  | 25 | 25 | 22.24  | 22.09 | 22.52  |                        |             |
| 10              | QPSK  | 50 | 0  | 22.27  | 22.06 | 22.40  | 23                     | 1           |
| 10              | 16QAM | 1  | 0  | 22.69  | 22.36 | 22.54  |                        |             |
| 10              | 16QAM | 1  | 25 | 22.62  | 22.37 | 22.69  |                        |             |
| 10              | 16QAM | 1  | 49 | 22.62  | 22.41 | 22.95  | 22                     | 2           |
| 10              | 16QAM | 25 | 0  | 21.36  | 21.17 | 21.33  |                        |             |
| 10              | 16QAM | 25 | 12 | 21.35  | 21.16 | 21.42  |                        |             |
| 10              | 16QAM | 25 | 25 | 21.34  | 21.16 | 21.61  | 22                     | 2           |
| 10              | 16QAM | 50 | 0  | 21.37  | 21.12 | 21.45  |                        |             |
| 10              | 64QAM | 1  | 0  | 21.61  | 21.35 | 21.52  |                        |             |
| 10              | 64QAM | 1  | 25 | 21.60  | 21.32 | 21.69  | 22                     | 2           |
| 10              | 64QAM | 1  | 49 | 21.57  | 21.35 | 21.93  |                        |             |
| 10              | 64QAM | 25 | 0  | 20.42  | 20.18 | 20.37  |                        |             |
| 10              | 64QAM | 25 | 12 | 20.37  | 20.18 | 20.44  | 21                     | 3           |
| 10              | 64QAM | 25 | 25 | 20.35  | 20.18 | 20.64  |                        |             |
| 10              | 64QAM | 50 | 0  | 20.39  | 20.15 | 20.52  |                        |             |
| Channel         |       |    |    | 20775  | 21100 | 21425  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 2502.5 | 2535  | 2567.5 |                        |             |
| 5               | QPSK  | 1  | 0  | 23.38  | 23.17 | 23.43  | 24                     | 0           |
| 5               | QPSK  | 1  | 12 | 23.37  | 23.10 | 23.62  |                        |             |
| 5               | QPSK  | 1  | 24 | 23.35  | 23.18 | 23.73  |                        |             |
| 5               | QPSK  | 12 | 0  | 22.24  | 22.02 | 22.37  | 23                     | 1           |
| 5               | QPSK  | 12 | 7  | 22.26  | 21.98 | 22.45  |                        |             |
| 5               | QPSK  | 12 | 13 | 22.29  | 22.00 | 22.55  |                        |             |
| 5               | QPSK  | 25 | 0  | 22.28  | 21.99 | 22.47  | 23                     | 1           |
| 5               | 16QAM | 1  | 0  | 22.74  | 22.52 | 22.77  |                        |             |
| 5               | 16QAM | 1  | 12 | 22.76  | 22.43 | 22.90  |                        |             |
| 5               | 16QAM | 1  | 24 | 22.74  | 22.47 | 22.82  | 22                     | 2           |
| 5               | 16QAM | 12 | 0  | 21.28  | 21.03 | 21.41  |                        |             |
| 5               | 16QAM | 12 | 7  | 21.28  | 20.99 | 21.50  |                        |             |
| 5               | 16QAM | 12 | 13 | 21.28  | 20.99 | 21.56  | 22                     | 2           |
| 5               | 16QAM | 25 | 0  | 21.25  | 20.97 | 21.46  |                        |             |
| 5               | 64QAM | 1  | 0  | 21.73  | 21.41 | 21.67  |                        |             |
| 5               | 64QAM | 1  | 12 | 21.64  | 21.35 | 21.81  | 22                     | 2           |
| 5               | 64QAM | 1  | 24 | 21.67  | 21.39 | 21.97  |                        |             |
| 5               | 64QAM | 12 | 0  | 20.36  | 20.08 | 20.53  |                        |             |
| 5               | 64QAM | 12 | 7  | 20.38  | 20.00 | 20.62  | 21                     | 3           |
| 5               | 64QAM | 12 | 13 | 20.40  | 20.03 | 20.69  |                        |             |
| 5               | 64QAM | 25 | 0  | 20.35  | 19.99 | 20.57  |                        |             |



**<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         | 23.72                 | 23.48                    | 23.52                  | 24                  | 0        |
| 10              | QPSK       | 1       | 25        | 23.50                 | 23.55                    | 23.26                  |                     |          |
| 10              | QPSK       | 1       | 49        | 23.58                 | 23.35                    | 23.16                  |                     |          |
| 10              | QPSK       | 25      | 0         | 22.65                 | 22.56                    | 22.43                  | 23                  | 1        |
| 10              | QPSK       | 25      | 12        | 22.60                 | 22.54                    | 22.36                  |                     |          |
| 10              | QPSK       | 25      | 25        | 22.61                 | 22.47                    | 22.22                  |                     |          |
| 10              | QPSK       | 50      | 0         | 22.51                 | 22.54                    | 22.29                  | 23                  | 1        |
| 10              | 16QAM      | 1       | 0         | 22.83                 | 22.73                    | 22.82                  |                     |          |
| 10              | 16QAM      | 1       | 25        | 22.75                 | 22.84                    | 22.55                  |                     |          |
| 10              | 16QAM      | 1       | 49        | 22.85                 | 22.64                    | 22.42                  | 22                  | 2        |
| 10              | 16QAM      | 25      | 0         | 21.72                 | 21.54                    | 21.54                  |                     |          |
| 10              | 16QAM      | 25      | 12        | 21.66                 | 21.63                    | 21.47                  |                     |          |
| 10              | 16QAM      | 25      | 25        | 21.69                 | 21.60                    | 21.30                  | 22                  | 2        |
| 10              | 16QAM      | 50      | 0         | 21.56                 | 21.58                    | 21.34                  |                     |          |
| 10              | 64QAM      | 1       | 0         | 21.84                 | 21.70                    | 21.81                  | 22                  | 2        |
| 10              | 64QAM      | 1       | 25        | 21.75                 | 21.79                    | 21.52                  |                     |          |
| 10              | 64QAM      | 1       | 49        | 21.80                 | 21.61                    | 21.40                  |                     |          |
| 10              | 64QAM      | 25      | 0         | 20.68                 | 20.53                    | 20.54                  | 21                  | 3        |
| 10              | 64QAM      | 25      | 12        | 20.63                 | 20.62                    | 20.47                  |                     |          |
| 10              | 64QAM      | 25      | 25        | 20.66                 | 20.59                    | 20.30                  |                     |          |
| 10              | 64QAM      | 50      | 0         | 20.55                 | 20.57                    | 20.33                  |                     |          |
| Channel         |            |         |           | 23035                 | 23095                    | 23155                  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 701.5                 | 707.5                    | 713.5                  |                     |          |
| 5               | QPSK       | 1       | 0         | 23.68                 | 23.57                    | 23.35                  | 24                  | 0        |
| 5               | QPSK       | 1       | 12        | 23.69                 | 23.64                    | 23.27                  |                     |          |
| 5               | QPSK       | 1       | 24        | 23.71                 | 23.60                    | 23.22                  |                     |          |
| 5               | QPSK       | 12      | 0         | 22.80                 | 22.75                    | 22.41                  | 23                  | 1        |
| 5               | QPSK       | 12      | 7         | 22.83                 | 22.74                    | 22.38                  |                     |          |
| 5               | QPSK       | 12      | 13        | 22.86                 | 22.67                    | 22.33                  |                     |          |
| 5               | QPSK       | 25      | 0         | 22.83                 | 22.73                    | 22.38                  | 23                  | 1        |
| 5               | 16QAM      | 1       | 0         | 22.93                 | 22.84                    | 22.66                  |                     |          |
| 5               | 16QAM      | 1       | 12        | 22.93                 | 22.94                    | 22.57                  |                     |          |
| 5               | 16QAM      | 1       | 24        | 22.97                 | 22.91                    | 22.47                  | 22                  | 2        |
| 5               | 16QAM      | 12      | 0         | 21.86                 | 21.82                    | 21.49                  |                     |          |
| 5               | 16QAM      | 12      | 7         | 21.91                 | 21.84                    | 21.43                  |                     |          |
| 5               | 16QAM      | 12      | 13        | 21.94                 | 21.78                    | 21.39                  | 22                  | 2        |
| 5               | 16QAM      | 25      | 0         | 21.93                 | 21.82                    | 21.44                  |                     |          |
| 5               | 64QAM      | 1       | 0         | 21.91                 | 21.83                    | 21.65                  |                     |          |
| 5               | 64QAM      | 1       | 12        | 21.92                 | 21.84                    | 21.56                  | 22                  | 2        |
| 5               | 64QAM      | 1       | 24        | 21.94                 | 21.85                    | 21.46                  |                     |          |
| 5               | 64QAM      | 12      | 0         | 20.84                 | 20.84                    | 20.50                  |                     |          |
| 5               | 64QAM      | 12      | 7         | 20.88                 | 20.84                    | 20.44                  | 21                  | 3        |
| 5               | 64QAM      | 12      | 13        | 20.91                 | 20.79                    | 20.40                  |                     |          |
| 5               | 64QAM      | 25      | 0         | 20.87                 | 20.83                    | 20.43                  |                     |          |

| Channel         |       |    |    | 23025 | 23095 | 23165 | Tune-up limit<br>(dBm) | MPR<br>(dB) |
|-----------------|-------|----|----|-------|-------|-------|------------------------|-------------|
| Frequency (MHz) |       |    |    | 700.5 | 707.5 | 714.5 |                        |             |
| 3               | QPSK  | 1  | 0  | 23.65 | 23.49 | 23.32 | 24                     | 0           |
| 3               | QPSK  | 1  | 8  | 23.66 | 23.56 | 23.27 |                        |             |
| 3               | QPSK  | 1  | 14 | 23.61 | 23.59 | 23.13 |                        |             |
| 3               | QPSK  | 8  | 0  | 22.71 | 22.70 | 22.35 | 23                     | 1           |
| 3               | QPSK  | 8  | 4  | 22.79 | 22.67 | 22.34 |                        |             |
| 3               | QPSK  | 8  | 7  | 22.85 | 22.59 | 22.31 |                        |             |
| 3               | QPSK  | 15 | 0  | 22.79 | 22.71 | 22.33 |                        |             |
| 3               | 16QAM | 1  | 0  | 22.90 | 22.83 | 22.61 | 23                     | 1           |
| 3               | 16QAM | 1  | 8  | 22.89 | 22.89 | 22.52 |                        |             |
| 3               | 16QAM | 1  | 14 | 22.96 | 22.89 | 22.39 |                        |             |
| 3               | 16QAM | 8  | 0  | 21.86 | 21.82 | 21.46 | 22                     | 2           |
| 3               | 16QAM | 8  | 4  | 21.84 | 21.75 | 21.41 |                        |             |
| 3               | 16QAM | 8  | 7  | 21.88 | 21.70 | 21.34 |                        |             |
| 3               | 16QAM | 15 | 0  | 21.90 | 21.78 | 21.44 |                        |             |
| 3               | 64QAM | 1  | 0  | 21.85 | 21.80 | 21.65 | 22                     | 2           |
| 3               | 64QAM | 1  | 8  | 21.86 | 21.84 | 21.52 |                        |             |
| 3               | 64QAM | 1  | 14 | 21.92 | 21.80 | 21.40 |                        |             |
| 3               | 64QAM | 8  | 0  | 20.77 | 20.79 | 20.40 | 21                     | 3           |
| 3               | 64QAM | 8  | 4  | 20.83 | 20.75 | 20.44 |                        |             |
| 3               | 64QAM | 8  | 7  | 20.81 | 20.70 | 20.34 |                        |             |
| 3               | 64QAM | 15 | 0  | 20.85 | 20.77 | 20.33 |                        |             |
| 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  | 23.61 | 23.57 | 23.35 | 24                     | 0           |
| 1.4             | QPSK  | 1  | 3  | 23.65 | 23.55 | 23.18 |                        |             |
| 1.4             | QPSK  | 1  | 5  | 23.62 | 23.50 | 23.19 |                        |             |
| 1.4             | QPSK  | 3  | 0  | 23.62 | 23.57 | 23.29 |                        |             |
| 1.4             | QPSK  | 3  | 1  | 23.60 | 23.57 | 23.26 |                        |             |
| 1.4             | QPSK  | 3  | 3  | 23.60 | 23.54 | 23.17 |                        |             |
| 1.4             | QPSK  | 6  | 0  | 22.73 | 22.68 | 22.39 | 23                     | 1           |
| 1.4             | 16QAM | 1  | 0  | 22.82 | 22.64 | 22.37 | 23                     | 1           |
| 1.4             | 16QAM | 1  | 3  | 22.79 | 22.63 | 22.26 |                        |             |
| 1.4             | 16QAM | 1  | 5  | 22.73 | 22.72 | 22.33 |                        |             |
| 1.4             | 16QAM | 3  | 0  | 22.75 | 22.71 | 22.40 |                        |             |
| 1.4             | 16QAM | 3  | 1  | 22.76 | 22.65 | 22.38 |                        |             |
| 1.4             | 16QAM | 3  | 3  | 22.86 | 22.66 | 22.30 |                        |             |
| 1.4             | 16QAM | 6  | 0  | 21.83 | 21.77 | 21.40 | 22                     | 2           |
| 1.4             | 64QAM | 1  | 0  | 21.76 | 21.73 | 21.31 | 22                     | 2           |
| 1.4             | 64QAM | 1  | 3  | 21.82 | 21.68 | 21.27 |                        |             |
| 1.4             | 64QAM | 1  | 5  | 21.86 | 21.74 | 21.34 |                        |             |
| 1.4             | 64QAM | 3  | 0  | 21.84 | 21.71 | 21.56 |                        |             |
| 1.4             | 64QAM | 3  | 1  | 21.86 | 21.82 | 21.43 |                        |             |
| 1.4             | 64QAM | 3  | 3  | 21.86 | 21.71 | 21.35 |                        |             |
| 1.4             | 64QAM | 6  | 0  | 20.73 | 20.79 | 20.39 | 21                     | 3           |

**<LTE Band 13>**

| 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         |            |         |           | 23230                 |                          |                        |                     |          |
| Frequency (MHz) |            |         |           | 782                   |                          |                        |                     |          |
| 10              | QPSK       | 1       | 0         |                       | 23.19                    |                        | 24                  | 0        |
| 10              | QPSK       | 1       | 25        |                       | 22.94                    |                        |                     |          |
| 10              | QPSK       | 1       | 49        |                       | 23.07                    |                        |                     |          |
| 10              | QPSK       | 25      | 0         |                       | 22.09                    |                        | 23                  | 1        |
| 10              | QPSK       | 25      | 12        |                       | 22.05                    |                        |                     |          |
| 10              | QPSK       | 25      | 25        |                       | 22.08                    |                        |                     |          |
| 10              | QPSK       | 50      | 0         |                       | 21.97                    |                        | 23                  | 1        |
| 10              | 16QAM      | 1       | 0         |                       | 22.40                    |                        |                     |          |
| 10              | 16QAM      | 1       | 25        |                       | 22.27                    |                        |                     |          |
| 10              | 16QAM      | 1       | 49        |                       | 22.48                    |                        | 22                  | 2        |
| 10              | 16QAM      | 25      | 0         |                       | 21.21                    |                        |                     |          |
| 10              | 16QAM      | 25      | 12        |                       | 21.17                    |                        |                     |          |
| 10              | 16QAM      | 25      | 25        |                       | 21.14                    |                        | 22                  | 2        |
| 10              | 16QAM      | 50      | 0         |                       | 21.05                    |                        |                     |          |
| 10              | 64QAM      | 1       | 0         |                       | 21.36                    |                        |                     |          |
| 10              | 64QAM      | 1       | 25        |                       | 21.13                    |                        | 22                  | 2        |
| 10              | 64QAM      | 1       | 49        |                       | 21.36                    |                        |                     |          |
| 10              | 64QAM      | 25      | 0         |                       | 20.19                    |                        | 21                  | 3        |
| 10              | 64QAM      | 25      | 12        |                       | 20.18                    |                        |                     |          |
| 10              | 64QAM      | 25      | 25        |                       | 20.17                    |                        |                     |          |
| 10              | 64QAM      | 50      | 0         |                       | 20.05                    |                        |                     |          |
| Channel         |            |         |           | 23205                 | 23230                    | 23255                  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 779.5                 | 782                      | 784.5                  |                     |          |
| 5               | QPSK       | 1       | 0         | 23.15                 | 23.08                    | 22.98                  | 24                  | 0        |
| 5               | QPSK       | 1       | 12        | 23.08                 | 22.97                    | 23.08                  |                     |          |
| 5               | QPSK       | 1       | 24        | 23.07                 | 23.09                    | 23.07                  |                     |          |
| 5               | QPSK       | 12      | 0         | 22.04                 | 22.04                    | 22.07                  | 23                  | 1        |
| 5               | QPSK       | 12      | 7         | 22.02                 | 21.90                    | 22.04                  |                     |          |
| 5               | QPSK       | 12      | 13        | 22.05                 | 22.07                    | 21.96                  |                     |          |
| 5               | QPSK       | 25      | 0         | 22.05                 | 21.92                    | 22.05                  | 23                  | 1        |
| 5               | 16QAM      | 1       | 0         | 22.49                 | 22.44                    | 22.27                  |                     |          |
| 5               | 16QAM      | 1       | 12        | 22.48                 | 22.27                    | 22.40                  |                     |          |
| 5               | 16QAM      | 1       | 24        | 22.38                 | 22.41                    | 22.50                  | 22                  | 2        |
| 5               | 16QAM      | 12      | 0         | 21.13                 | 21.16                    | 21.07                  |                     |          |
| 5               | 16QAM      | 12      | 7         | 21.14                 | 20.97                    | 21.06                  |                     |          |
| 5               | 16QAM      | 12      | 13        | 21.19                 | 21.08                    | 21.00                  | 22                  | 2        |
| 5               | 16QAM      | 25      | 0         | 21.11                 | 20.97                    | 21.05                  |                     |          |
| 5               | 64QAM      | 1       | 0         | 21.49                 | 21.34                    | 21.18                  |                     |          |
| 5               | 64QAM      | 1       | 12        | 21.37                 | 21.22                    | 21.31                  | 22                  | 2        |
| 5               | 64QAM      | 1       | 24        | 21.28                 | 21.31                    | 21.38                  |                     |          |
| 5               | 64QAM      | 12      | 0         | 20.12                 | 20.08                    | 20.11                  |                     |          |
| 5               | 64QAM      | 12      | 7         | 20.11                 | 19.93                    | 20.13                  | 21                  | 3        |
| 5               | 64QAM      | 12      | 13        | 20.10                 | 20.12                    | 20.07                  |                     |          |
| 5               | 64QAM      | 25      | 0         | 20.13                 | 19.97                    | 20.06                  |                     |          |

**<LTE Band 14>**

| 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         |            |         |           | 23330                 |                          |                        |                     |          |
| Frequency (MHz) |            |         |           | 793                   |                          |                        |                     |          |
| 10              | QPSK       | 1       | 0         |                       | 22.98                    |                        | 24                  | 0        |
| 10              | QPSK       | 1       | 25        |                       | 22.75                    |                        |                     |          |
| 10              | QPSK       | 1       | 49        |                       | 22.88                    |                        |                     |          |
| 10              | QPSK       | 25      | 0         |                       | 21.93                    |                        | 23                  | 1        |
| 10              | QPSK       | 25      | 12        |                       | 21.85                    |                        |                     |          |
| 10              | QPSK       | 25      | 25        |                       | 21.85                    |                        |                     |          |
| 10              | QPSK       | 50      | 0         |                       | 21.73                    |                        | 23                  | 1        |
| 10              | 16QAM      | 1       | 0         |                       | 22.27                    |                        |                     |          |
| 10              | 16QAM      | 1       | 25        |                       | 21.97                    |                        |                     |          |
| 10              | 16QAM      | 1       | 49        |                       | 22.15                    |                        | 22                  | 2        |
| 10              | 16QAM      | 25      | 0         |                       | 21.01                    |                        |                     |          |
| 10              | 16QAM      | 25      | 12        |                       | 20.91                    |                        |                     |          |
| 10              | 16QAM      | 25      | 25        |                       | 20.90                    |                        | 22                  | 2        |
| 10              | 16QAM      | 50      | 0         |                       | 20.81                    |                        |                     |          |
| 10              | 64QAM      | 1       | 0         |                       | 21.11                    |                        |                     |          |
| 10              | 64QAM      | 1       | 25        |                       | 20.87                    |                        | 22                  | 2        |
| 10              | 64QAM      | 1       | 49        |                       | 21.02                    |                        |                     |          |
| 10              | 64QAM      | 25      | 0         |                       | 19.75                    |                        | 21                  | 3        |
| 10              | 64QAM      | 25      | 12        |                       | 19.67                    |                        |                     |          |
| 10              | 64QAM      | 25      | 25        |                       | 19.71                    |                        |                     |          |
| 10              | 64QAM      | 50      | 0         |                       | 19.66                    |                        |                     |          |
| Channel         |            |         |           | 23305                 | 23330                    | 23355                  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 790.5                 | 793                      | 795.5                  |                     |          |
| 5               | QPSK       | 1       | 0         | 22.93                 | 22.93                    | 22.82                  | 24                  | 0        |
| 5               | QPSK       | 1       | 12        | 22.91                 | 22.77                    | 22.87                  |                     |          |
| 5               | QPSK       | 1       | 24        | 22.86                 | 22.88                    | 22.89                  |                     |          |
| 5               | QPSK       | 12      | 0         | 21.90                 | 21.83                    | 21.86                  | 23                  | 1        |
| 5               | QPSK       | 12      | 7         | 21.87                 | 21.75                    | 21.85                  |                     |          |
| 5               | QPSK       | 12      | 13        | 21.80                 | 21.83                    | 21.87                  |                     |          |
| 5               | QPSK       | 25      | 0         | 21.88                 | 21.76                    | 21.87                  | 23                  | 1        |
| 5               | 16QAM      | 1       | 0         | 22.27                 | 22.19                    | 22.10                  |                     |          |
| 5               | 16QAM      | 1       | 12        | 22.18                 | 22.03                    | 22.17                  |                     |          |
| 5               | 16QAM      | 1       | 24        | 22.11                 | 22.14                    | 22.16                  | 22                  | 2        |
| 5               | 16QAM      | 12      | 0         | 20.96                 | 20.83                    | 20.88                  |                     |          |
| 5               | 16QAM      | 12      | 7         | 20.92                 | 20.77                    | 20.88                  |                     |          |
| 5               | 16QAM      | 12      | 13        | 20.84                 | 20.88                    | 20.90                  | 22                  | 2        |
| 5               | 16QAM      | 25      | 0         | 20.93                 | 20.79                    | 20.88                  |                     |          |
| 5               | 64QAM      | 1       | 0         | 21.22                 | 21.14                    | 21.02                  |                     |          |
| 5               | 64QAM      | 1       | 12        | 21.12                 | 21.01                    | 21.05                  | 22                  | 2        |
| 5               | 64QAM      | 1       | 24        | 21.06                 | 21.06                    | 21.04                  |                     |          |
| 5               | 64QAM      | 12      | 0         | 19.71                 | 19.60                    | 19.67                  |                     |          |
| 5               | 64QAM      | 12      | 7         | 19.66                 | 19.59                    | 19.72                  | 21                  | 3        |
| 5               | 64QAM      | 12      | 13        | 19.60                 | 19.68                    | 19.76                  |                     |          |
| 5               | 64QAM      | 25      | 0         | 19.70                 | 19.59                    | 19.71                  |                     |          |



**<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         | 23.60                 | 23.68                    | 23.67                  | 24                  | 0        |
| 10              | QPSK       | 1       | 25        | 23.55                 | 23.55                    | 23.50                  |                     |          |
| 10              | QPSK       | 1       | 49        | 23.42                 | 23.31                    | 23.41                  |                     |          |
| 10              | QPSK       | 25      | 0         | 22.67                 | 22.68                    | 22.66                  | 23                  | 1        |
| 10              | QPSK       | 25      | 12        | 22.65                 | 22.61                    | 22.59                  |                     |          |
| 10              | QPSK       | 25      | 25        | 22.52                 | 22.44                    | 22.46                  |                     |          |
| 10              | QPSK       | 50      | 0         | 22.47                 | 22.57                    | 22.53                  | 23                  | 1        |
| 10              | 16QAM      | 1       | 0         | 22.94                 | 22.94                    | 22.96                  |                     |          |
| 10              | 16QAM      | 1       | 25        | 22.98                 | 22.89                    | 22.82                  |                     |          |
| 10              | 16QAM      | 1       | 49        | 22.71                 | 22.66                    | 22.69                  | 22                  | 2        |
| 10              | 16QAM      | 25      | 0         | 21.81                 | 21.82                    | 21.78                  |                     |          |
| 10              | 16QAM      | 25      | 12        | 21.77                 | 21.75                    | 21.71                  |                     |          |
| 10              | 16QAM      | 25      | 25        | 21.64                 | 21.58                    | 21.54                  | 22                  | 2        |
| 10              | 16QAM      | 50      | 0         | 21.69                 | 21.62                    | 21.57                  |                     |          |
| 10              | 64QAM      | 1       | 0         | 21.93                 | 21.90                    | 21.95                  |                     |          |
| 10              | 64QAM      | 1       | 25        | 21.88                 | 21.85                    | 21.76                  | 22                  | 2        |
| 10              | 64QAM      | 1       | 49        | 21.66                 | 21.63                    | 21.65                  |                     |          |
| 10              | 64QAM      | 25      | 0         | 20.77                 | 20.77                    | 20.75                  |                     |          |
| 10              | 64QAM      | 25      | 12        | 20.74                 | 20.73                    | 20.69                  | 21                  | 3        |
| 10              | 64QAM      | 25      | 25        | 20.57                 | 20.56                    | 20.54                  |                     |          |
| 10              | 64QAM      | 50      | 0         | 20.69                 | 20.60                    | 20.56                  |                     |          |
| Channel         |            |         |           | 23755                 | 23790                    | 23825                  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 706.5                 | 710                      | 713.5                  |                     |          |
| 5               | QPSK       | 1       | 0         | 23.63                 | 23.64                    | 23.48                  | 24                  | 0        |
| 5               | QPSK       | 1       | 12        | 23.56                 | 23.58                    | 23.41                  |                     |          |
| 5               | QPSK       | 1       | 24        | 23.62                 | 23.48                    | 23.31                  |                     |          |
| 5               | QPSK       | 12      | 0         | 22.79                 | 22.74                    | 22.53                  | 23                  | 1        |
| 5               | QPSK       | 12      | 7         | 22.86                 | 22.66                    | 22.50                  |                     |          |
| 5               | QPSK       | 12      | 13        | 22.87                 | 22.61                    | 22.45                  |                     |          |
| 5               | QPSK       | 25      | 0         | 22.85                 | 22.67                    | 22.49                  | 23                  | 1        |
| 5               | 16QAM      | 1       | 0         | 22.91                 | 22.92                    | 22.78                  |                     |          |
| 5               | 16QAM      | 1       | 12        | 22.95                 | 22.90                    | 22.67                  |                     |          |
| 5               | 16QAM      | 1       | 24        | 23.00                 | 22.79                    | 22.59                  | 22                  | 2        |
| 5               | 16QAM      | 12      | 0         | 21.86                 | 21.84                    | 21.63                  |                     |          |
| 5               | 16QAM      | 12      | 7         | 21.93                 | 21.78                    | 21.56                  |                     |          |
| 5               | 16QAM      | 12      | 13        | 21.96                 | 21.70                    | 21.49                  | 22                  | 2        |
| 5               | 16QAM      | 25      | 0         | 21.92                 | 21.77                    | 21.57                  |                     |          |
| 5               | 64QAM      | 1       | 0         | 21.93                 | 21.99                    | 21.73                  |                     |          |
| 5               | 64QAM      | 1       | 12        | 21.90                 | 21.83                    | 21.62                  | 22                  | 2        |
| 5               | 64QAM      | 1       | 24        | 21.96                 | 21.75                    | 21.53                  |                     |          |
| 5               | 64QAM      | 12      | 0         | 20.89                 | 20.83                    | 20.62                  |                     |          |
| 5               | 64QAM      | 12      | 7         | 20.96                 | 20.77                    | 20.56                  | 21                  | 3        |
| 5               | 64QAM      | 12      | 13        | 20.96                 | 20.68                    | 20.50                  |                     |          |
| 5               | 64QAM      | 25      | 0         | 20.93                 | 20.77                    | 20.56                  |                     |          |

**<LTE Band 25>**

| 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         |            |         |           | 26140                 | 26340                    | 26590                  |                     |          |
| Frequency (MHz) |            |         |           | 1860                  | 1880                     | 1905                   |                     |          |
| 20              | QPSK       | 1       | 0         | 23.10                 | 23.25                    | 23.17                  | 24                  | 0        |
| 20              | QPSK       | 1       | 49        | 23.06                 | 23.24                    | 23.02                  |                     |          |
| 20              | QPSK       | 1       | 99        | 23.05                 | 23.20                    | 23.15                  |                     |          |
| 20              | QPSK       | 50      | 0         | 22.31                 | 22.42                    | 22.25                  | 23                  | 1        |
| 20              | QPSK       | 50      | 24        | 22.19                 | 22.39                    | 22.21                  |                     |          |
| 20              | QPSK       | 50      | 50        | 22.19                 | 22.40                    | 22.12                  |                     |          |
| 20              | QPSK       | 100     | 0         | 22.21                 | 22.41                    | 22.33                  |                     |          |
| 20              | 16QAM      | 1       | 0         | 22.47                 | 22.47                    | 22.40                  | 23                  | 1        |
| 20              | 16QAM      | 1       | 49        | 22.42                 | 22.62                    | 22.60                  |                     |          |
| 20              | 16QAM      | 1       | 99        | 22.44                 | 22.56                    | 22.46                  |                     |          |
| 20              | 16QAM      | 50      | 0         | 21.34                 | 21.40                    | 21.36                  | 22                  | 2        |
| 20              | 16QAM      | 50      | 24        | 21.26                 | 21.41                    | 21.38                  |                     |          |
| 20              | 16QAM      | 50      | 50        | 21.25                 | 21.42                    | 21.19                  |                     |          |
| 20              | 16QAM      | 100     | 0         | 21.25                 | 21.41                    | 21.38                  |                     |          |
| 20              | 64QAM      | 1       | 0         | 21.40                 | 21.49                    | 21.44                  | 22                  | 2        |
| 20              | 64QAM      | 1       | 49        | 21.37                 | 21.60                    | 21.57                  |                     |          |
| 20              | 64QAM      | 1       | 99        | 21.45                 | 21.56                    | 21.45                  |                     |          |
| 20              | 64QAM      | 50      | 0         | 20.37                 | 20.42                    | 20.35                  | 21                  | 3        |
| 20              | 64QAM      | 50      | 24        | 20.29                 | 20.41                    | 20.37                  |                     |          |
| 20              | 64QAM      | 50      | 50        | 20.28                 | 20.42                    | 20.18                  |                     |          |
| 20              | 64QAM      | 100     | 0         | 20.26                 | 20.41                    | 20.36                  |                     |          |
| Channel         |            |         |           | 26115                 | 26340                    | 26615                  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 1857.5                | 1880                     | 1907.5                 |                     |          |
| 15              | QPSK       | 1       | 0         | 22.95                 | 23.02                    | 23.01                  | 24                  | 0        |
| 15              | QPSK       | 1       | 37        | 23.06                 | 23.18                    | 23.04                  |                     |          |
| 15              | QPSK       | 1       | 74        | 23.00                 | 23.18                    | 23.09                  |                     |          |
| 15              | QPSK       | 36      | 0         | 22.16                 | 22.25                    | 22.22                  | 23                  | 1        |
| 15              | QPSK       | 36      | 20        | 22.12                 | 22.29                    | 22.15                  |                     |          |
| 15              | QPSK       | 36      | 39        | 22.08                 | 22.30                    | 22.08                  |                     |          |
| 15              | QPSK       | 75      | 0         | 22.08                 | 22.28                    | 22.16                  |                     |          |
| 15              | 16QAM      | 1       | 0         | 22.28                 | 22.38                    | 22.32                  | 23                  | 1        |
| 15              | 16QAM      | 1       | 37        | 22.30                 | 22.54                    | 22.31                  |                     |          |
| 15              | 16QAM      | 1       | 74        | 22.28                 | 22.46                    | 22.36                  |                     |          |
| 15              | 16QAM      | 36      | 0         | 21.20                 | 21.33                    | 21.28                  | 22                  | 2        |
| 15              | 16QAM      | 36      | 20        | 21.15                 | 21.36                    | 21.18                  |                     |          |
| 15              | 16QAM      | 36      | 39        | 21.11                 | 21.36                    | 21.11                  |                     |          |
| 15              | 16QAM      | 75      | 0         | 21.11                 | 21.34                    | 21.20                  |                     |          |
| 15              | 64QAM      | 1       | 0         | 21.22                 | 21.43                    | 21.32                  | 22                  | 2        |
| 15              | 64QAM      | 1       | 37        | 21.26                 | 21.54                    | 21.28                  |                     |          |
| 15              | 64QAM      | 1       | 74        | 21.28                 | 21.44                    | 21.36                  |                     |          |
| 15              | 64QAM      | 36      | 0         | 20.18                 | 20.39                    | 20.30                  | 21                  | 3        |
| 15              | 64QAM      | 36      | 20        | 20.16                 | 20.40                    | 20.22                  |                     |          |
| 15              | 64QAM      | 36      | 39        | 20.14                 | 20.39                    | 20.15                  |                     |          |
| 15              | 64QAM      | 75      | 0         | 20.11                 | 20.36                    | 20.21                  |                     |          |

| Channel         |       |    |    | 26090  | 26340 | 26640  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
|-----------------|-------|----|----|--------|-------|--------|------------------------|-------------|
| Frequency (MHz) |       |    |    | 1855   | 1880  | 1910   |                        |             |
| 10              | QPSK  | 1  | 0  | 23.06  | 23.22 | 23.12  | 24                     | 0           |
| 10              | QPSK  | 1  | 25 | 23.15  | 23.21 | 23.08  |                        |             |
| 10              | QPSK  | 1  | 49 | 23.19  | 23.24 | 23.21  |                        |             |
| 10              | QPSK  | 25 | 0  | 22.22  | 22.37 | 22.32  | 23                     | 1           |
| 10              | QPSK  | 25 | 12 | 22.25  | 22.37 | 22.20  |                        |             |
| 10              | QPSK  | 25 | 25 | 22.21  | 22.39 | 22.28  |                        |             |
| 10              | QPSK  | 50 | 0  | 22.28  | 22.39 | 22.21  |                        |             |
| 10              | 16QAM | 1  | 0  | 22.46  | 22.71 | 22.73  | 23                     | 1           |
| 10              | 16QAM | 1  | 25 | 22.57  | 22.68 | 22.49  |                        |             |
| 10              | 16QAM | 1  | 49 | 22.49  | 22.68 | 22.58  |                        |             |
| 10              | 16QAM | 25 | 0  | 21.34  | 21.50 | 21.41  | 22                     | 2           |
| 10              | 16QAM | 25 | 12 | 21.36  | 21.50 | 21.28  |                        |             |
| 10              | 16QAM | 25 | 25 | 21.30  | 21.51 | 21.37  |                        |             |
| 10              | 16QAM | 50 | 0  | 21.33  | 21.48 | 21.32  |                        |             |
| 10              | 64QAM | 1  | 0  | 21.36  | 21.71 | 21.69  | 22                     | 2           |
| 10              | 64QAM | 1  | 25 | 21.48  | 21.69 | 21.46  |                        |             |
| 10              | 64QAM | 1  | 49 | 21.46  | 21.67 | 21.62  |                        |             |
| 10              | 64QAM | 25 | 0  | 20.35  | 20.56 | 20.45  | 21                     | 3           |
| 10              | 64QAM | 25 | 12 | 20.40  | 20.54 | 20.33  |                        |             |
| 10              | 64QAM | 25 | 25 | 20.36  | 20.53 | 20.42  |                        |             |
| 10              | 64QAM | 50 | 0  | 20.38  | 20.52 | 20.38  |                        |             |
| Channel         |       |    |    | 26065  | 26340 | 26665  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 1852.5 | 1880  | 1912.5 |                        |             |
| 5               | QPSK  | 1  | 0  | 23.02  | 23.17 | 22.98  | 24                     | 0           |
| 5               | QPSK  | 1  | 12 | 23.11  | 23.20 | 23.00  |                        |             |
| 5               | QPSK  | 1  | 24 | 23.17  | 23.16 | 23.23  |                        |             |
| 5               | QPSK  | 12 | 0  | 21.99  | 22.28 | 22.02  | 23                     | 1           |
| 5               | QPSK  | 12 | 7  | 22.08  | 22.27 | 22.05  |                        |             |
| 5               | QPSK  | 12 | 13 | 22.11  | 22.29 | 22.14  |                        |             |
| 5               | QPSK  | 25 | 0  | 22.10  | 22.29 | 22.09  |                        |             |
| 5               | 16QAM | 1  | 0  | 22.35  | 22.60 | 22.23  | 23                     | 1           |
| 5               | 16QAM | 1  | 12 | 22.46  | 22.62 | 22.28  |                        |             |
| 5               | 16QAM | 1  | 24 | 22.46  | 22.70 | 22.50  |                        |             |
| 5               | 16QAM | 12 | 0  | 21.05  | 21.34 | 21.03  | 22                     | 2           |
| 5               | 16QAM | 12 | 7  | 21.12  | 21.32 | 21.09  |                        |             |
| 5               | 16QAM | 12 | 13 | 21.15  | 21.31 | 21.16  |                        |             |
| 5               | 16QAM | 25 | 0  | 21.12  | 21.30 | 21.09  |                        |             |
| 5               | 64QAM | 1  | 0  | 21.31  | 21.57 | 21.23  | 22                     | 2           |
| 5               | 64QAM | 1  | 12 | 21.45  | 21.57 | 21.34  |                        |             |
| 5               | 64QAM | 1  | 24 | 21.42  | 21.61 | 21.51  |                        |             |
| 5               | 64QAM | 12 | 0  | 20.09  | 20.39 | 20.08  | 21                     | 3           |
| 5               | 64QAM | 12 | 7  | 20.14  | 20.40 | 20.11  |                        |             |
| 5               | 64QAM | 12 | 13 | 20.15  | 20.39 | 20.17  |                        |             |
| 5               | 64QAM | 25 | 0  | 20.13  | 20.39 | 20.09  |                        |             |

| Channel         |       |    |    | 26055  | 26340 | 26675  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
|-----------------|-------|----|----|--------|-------|--------|------------------------|-------------|
| Frequency (MHz) |       |    |    | 1851.5 | 1880  | 1913.5 |                        |             |
| 3               | QPSK  | 1  | 0  | 22.97  | 23.11 | 22.91  | 24                     | 0           |
| 3               | QPSK  | 1  | 8  | 23.03  | 23.20 | 22.95  |                        |             |
| 3               | QPSK  | 1  | 14 | 23.11  | 23.15 | 23.23  |                        |             |
| 3               | QPSK  | 8  | 0  | 21.93  | 22.18 | 21.98  | 23                     | 1           |
| 3               | QPSK  | 8  | 4  | 22.02  | 22.19 | 22.04  |                        |             |
| 3               | QPSK  | 8  | 7  | 22.06  | 22.21 | 22.05  |                        |             |
| 3               | QPSK  | 15 | 0  | 22.10  | 22.22 | 21.99  |                        |             |
| 3               | 16QAM | 1  | 0  | 22.32  | 22.59 | 22.19  | 23                     | 1           |
| 3               | 16QAM | 1  | 8  | 22.39  | 22.55 | 22.20  |                        |             |
| 3               | 16QAM | 1  | 14 | 22.45  | 22.68 | 22.50  |                        |             |
| 3               | 16QAM | 8  | 0  | 21.00  | 21.34 | 20.94  | 22                     | 2           |
| 3               | 16QAM | 8  | 4  | 21.10  | 21.30 | 21.00  |                        |             |
| 3               | 16QAM | 8  | 7  | 21.14  | 21.26 | 21.13  |                        |             |
| 3               | 16QAM | 15 | 0  | 21.09  | 21.22 | 21.09  |                        |             |
| 3               | 64QAM | 1  | 0  | 21.29  | 21.51 | 21.15  | 22                     | 2           |
| 3               | 64QAM | 1  | 8  | 21.37  | 21.50 | 21.34  |                        |             |
| 3               | 64QAM | 1  | 14 | 21.40  | 21.60 | 21.43  |                        |             |
| 3               | 64QAM | 8  | 0  | 20.06  | 20.38 | 19.99  | 21                     | 3           |
| 3               | 64QAM | 8  | 4  | 20.05  | 20.40 | 20.07  |                        |             |
| 3               | 64QAM | 8  | 7  | 20.11  | 20.38 | 20.08  |                        |             |
| 3               | 64QAM | 15 | 0  | 20.10  | 20.34 | 20.02  |                        |             |
| Channel         |       |    |    | 26047  | 26340 | 26683  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 1850.7 | 1880  | 1914.3 |                        |             |
| 1.4             | QPSK  | 1  | 0  | 22.96  | 23.14 | 22.88  | 24                     | 0           |
| 1.4             | QPSK  | 1  | 3  | 23.05  | 23.10 | 22.98  |                        |             |
| 1.4             | QPSK  | 1  | 5  | 23.10  | 23.11 | 23.18  |                        |             |
| 1.4             | QPSK  | 3  | 0  | 23.01  | 23.12 | 22.97  |                        |             |
| 1.4             | QPSK  | 3  | 1  | 23.02  | 23.18 | 22.94  |                        |             |
| 1.4             | QPSK  | 3  | 3  | 23.10  | 23.14 | 23.21  |                        |             |
| 1.4             | QPSK  | 6  | 0  | 22.05  | 22.22 | 22.04  | 23                     | 1           |
| 1.4             | 16QAM | 1  | 0  | 22.35  | 22.57 | 22.15  | 23                     | 1           |
| 1.4             | 16QAM | 1  | 3  | 22.39  | 22.52 | 22.21  |                        |             |
| 1.4             | 16QAM | 1  | 5  | 22.03  | 22.28 | 22.09  |                        |             |
| 1.4             | 16QAM | 3  | 0  | 22.25  | 22.53 | 22.16  |                        |             |
| 1.4             | 16QAM | 3  | 1  | 22.36  | 22.55 | 22.27  |                        |             |
| 1.4             | 16QAM | 3  | 3  | 22.33  | 22.48 | 22.10  |                        |             |
| 1.4             | 16QAM | 6  | 0  | 20.96  | 21.33 | 20.93  | 22                     | 2           |
| 1.4             | 64QAM | 1  | 0  | 21.02  | 21.25 | 20.96  | 22                     | 2           |
| 1.4             | 64QAM | 1  | 3  | 21.10  | 21.19 | 21.03  |                        |             |
| 1.4             | 64QAM | 1  | 5  | 21.02  | 21.12 | 21.03  |                        |             |
| 1.4             | 64QAM | 3  | 0  | 21.23  | 21.42 | 21.12  |                        |             |
| 1.4             | 64QAM | 3  | 1  | 21.28  | 21.47 | 21.31  |                        |             |
| 1.4             | 64QAM | 3  | 3  | 21.39  | 21.51 | 21.43  |                        |             |
| 1.4             | 64QAM | 6  | 0  | 19.97  | 20.40 | 20.02  | 21                     | 3           |



**<LTE Band 26>**

| 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         |            |         |           | 26765                 | 26865                    | 26965                  | 25                  | 0        |
| Frequency (MHz) |            |         |           | 821.5                 | 831.5                    | 841.5                  |                     |          |
| 15              | QPSK       | 1       | 0         | 23.64                 | 23.68                    | 24.01                  |                     |          |
| 15              | QPSK       | 1       | 37        | 23.62                 | 23.90                    | 24.38                  | 24                  | 1        |
| 15              | QPSK       | 1       | 74        | 23.79                 | 24.17                    | 24.62                  |                     |          |
| 15              | QPSK       | 36      | 0         | 22.62                 | 22.75                    | 23.16                  |                     |          |
| 15              | QPSK       | 36      | 20        | 22.60                 | 22.85                    | 23.39                  |                     |          |
| 15              | QPSK       | 36      | 39        | 22.66                 | 23.03                    | 23.68                  | 24                  | 1        |
| 15              | QPSK       | 75      | 0         | 22.63                 | 22.93                    | 23.44                  |                     |          |
| 15              | 16QAM      | 1       | 0         | 22.91                 | 22.89                    | 23.33                  |                     |          |
| 15              | 16QAM      | 1       | 37        | 22.93                 | 23.16                    | 23.60                  |                     |          |
| 15              | 16QAM      | 1       | 74        | 23.04                 | 23.46                    | 23.80                  | 23                  | 2        |
| 15              | 16QAM      | 36      | 0         | 21.72                 | 21.81                    | 22.22                  |                     |          |
| 15              | 16QAM      | 36      | 20        | 21.65                 | 21.93                    | 22.42                  |                     |          |
| 15              | 16QAM      | 36      | 39        | 21.71                 | 22.10                    | 22.73                  |                     |          |
| 15              | 16QAM      | 75      | 0         | 21.65                 | 21.95                    | 22.42                  | 23                  | 2        |
| 15              | 64QAM      | 1       | 0         | 21.93                 | 21.88                    | 22.13                  |                     |          |
| 15              | 64QAM      | 1       | 37        | 21.87                 | 22.17                    | 22.56                  |                     |          |
| 15              | 64QAM      | 1       | 74        | 22.07                 | 22.41                    | 22.83                  |                     |          |
| 15              | 64QAM      | 36      | 0         | 20.69                 | 20.81                    | 21.23                  | 22                  | 3        |
| 15              | 64QAM      | 36      | 20        | 20.67                 | 20.94                    | 21.47                  |                     |          |
| 15              | 64QAM      | 36      | 39        | 20.70                 | 21.13                    | 21.75                  |                     |          |
| 15              | 64QAM      | 75      | 0         | 20.64                 | 20.96                    | 21.45                  |                     |          |
| Channel         |            |         |           | 26740                 | 26865                    | 26990                  | 25                  | 0        |
| Frequency (MHz) |            |         |           | 819                   | 831.5                    | 844                    |                     |          |
| 10              | QPSK       | 1       | 0         | 23.62                 | 23.82                    | 24.27                  |                     |          |
| 10              | QPSK       | 1       | 25        | 23.64                 | 23.89                    | 24.52                  | 24                  | 1        |
| 10              | QPSK       | 1       | 49        | 23.67                 | 24.06                    | 24.54                  |                     |          |
| 10              | QPSK       | 25      | 0         | 22.66                 | 22.81                    | 23.43                  |                     |          |
| 10              | QPSK       | 25      | 12        | 22.64                 | 22.87                    | 23.63                  |                     |          |
| 10              | QPSK       | 25      | 25        | 22.62                 | 22.93                    | 23.69                  | 24                  | 1        |
| 10              | QPSK       | 50      | 0         | 22.63                 | 22.88                    | 23.61                  |                     |          |
| 10              | 16QAM      | 1       | 0         | 22.98                 | 23.11                    | 23.49                  |                     |          |
| 10              | 16QAM      | 1       | 25        | 23.04                 | 23.17                    | 23.77                  |                     |          |
| 10              | 16QAM      | 1       | 49        | 22.96                 | 23.36                    | 23.70                  | 23                  | 2        |
| 10              | 16QAM      | 25      | 0         | 21.77                 | 21.90                    | 22.50                  |                     |          |
| 10              | 16QAM      | 25      | 12        | 21.72                 | 22.00                    | 22.69                  |                     |          |
| 10              | 16QAM      | 25      | 25        | 21.70                 | 22.04                    | 22.76                  |                     |          |
| 10              | 16QAM      | 50      | 0         | 21.66                 | 21.94                    | 22.68                  | 23                  | 2        |
| 10              | 64QAM      | 1       | 0         | 21.84                 | 22.08                    | 22.47                  |                     |          |
| 10              | 64QAM      | 1       | 25        | 21.85                 | 22.17                    | 22.75                  |                     |          |
| 10              | 64QAM      | 1       | 49        | 21.93                 | 22.27                    | 22.92                  |                     |          |
| 10              | 64QAM      | 25      | 0         | 20.75                 | 20.91                    | 21.53                  | 22                  | 3        |
| 10              | 64QAM      | 25      | 12        | 20.71                 | 21.00                    | 21.66                  |                     |          |
| 10              | 64QAM      | 25      | 25        | 20.72                 | 21.02                    | 21.77                  |                     |          |
| 10              | 64QAM      | 50      | 0         | 20.68                 | 20.96                    | 21.67                  |                     |          |

| Channel         |       |    |    | 26715 | 26865 | 27015 | Tune-up limit<br>(dBm) | MPR<br>(dB) |
|-----------------|-------|----|----|-------|-------|-------|------------------------|-------------|
| Frequency (MHz) |       |    |    | 816.5 | 831.5 | 846.5 |                        |             |
| 5               | QPSK  | 1  | 0  | 23.56 | 23.79 | 24.48 | 25                     | 0           |
| 5               | QPSK  | 1  | 12 | 23.61 | 23.83 | 24.59 |                        |             |
| 5               | QPSK  | 1  | 24 | 23.57 | 23.95 | 24.54 |                        |             |
| 5               | QPSK  | 12 | 0  | 22.62 | 22.92 | 23.73 | 24                     | 1           |
| 5               | QPSK  | 12 | 7  | 22.68 | 22.95 | 23.69 |                        |             |
| 5               | QPSK  | 12 | 13 | 22.68 | 23.01 | 23.71 |                        |             |
| 5               | QPSK  | 25 | 0  | 22.68 | 22.92 | 23.71 | 24                     | 1           |
| 5               | 16QAM | 1  | 0  | 22.93 | 23.10 | 23.74 |                        |             |
| 5               | 16QAM | 1  | 12 | 22.95 | 23.02 | 23.79 |                        |             |
| 5               | 16QAM | 1  | 24 | 22.87 | 23.10 | 23.77 | 23                     | 2           |
| 5               | 16QAM | 12 | 0  | 21.72 | 22.05 | 22.81 |                        |             |
| 5               | 16QAM | 12 | 7  | 21.77 | 22.05 | 22.73 |                        |             |
| 5               | 16QAM | 12 | 13 | 21.77 | 22.13 | 22.83 | 23                     | 2           |
| 5               | 16QAM | 25 | 0  | 21.74 | 22.04 | 22.78 |                        |             |
| 5               | 64QAM | 1  | 0  | 21.84 | 21.95 | 22.70 |                        |             |
| 5               | 64QAM | 1  | 12 | 21.73 | 22.13 | 22.74 | 23                     | 2           |
| 5               | 64QAM | 1  | 24 | 21.81 | 22.21 | 22.83 |                        |             |
| 5               | 64QAM | 12 | 0  | 20.75 | 21.05 | 21.78 |                        |             |
| 5               | 64QAM | 12 | 7  | 20.75 | 21.07 | 21.76 | 22                     | 3           |
| 5               | 64QAM | 12 | 13 | 20.75 | 21.12 | 21.77 |                        |             |
| 5               | 64QAM | 25 | 0  | 20.76 | 21.05 | 21.76 |                        |             |
| Channel         |       |    |    | 26705 | 26865 | 27025 | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 815.5 | 831.5 | 847.5 |                        |             |
| 3               | QPSK  | 1  | 0  | 23.30 | 23.58 | 24.38 | 25                     | 0           |
| 3               | QPSK  | 1  | 8  | 23.28 | 23.65 | 24.46 |                        |             |
| 3               | QPSK  | 1  | 14 | 23.33 | 23.70 | 24.32 |                        |             |
| 3               | QPSK  | 8  | 0  | 22.35 | 22.68 | 23.45 | 24                     | 1           |
| 3               | QPSK  | 8  | 4  | 22.34 | 22.72 | 23.45 |                        |             |
| 3               | QPSK  | 8  | 7  | 22.41 | 22.72 | 23.44 |                        |             |
| 3               | QPSK  | 15 | 0  | 22.34 | 22.71 | 23.46 | 24                     | 1           |
| 3               | 16QAM | 1  | 0  | 22.58 | 22.92 | 23.57 |                        |             |
| 3               | 16QAM | 1  | 8  | 22.52 | 22.87 | 23.63 |                        |             |
| 3               | 16QAM | 1  | 14 | 22.64 | 23.03 | 23.43 | 23                     | 2           |
| 3               | 16QAM | 8  | 0  | 21.39 | 21.77 | 22.45 |                        |             |
| 3               | 16QAM | 8  | 4  | 21.35 | 21.77 | 22.51 |                        |             |
| 3               | 16QAM | 8  | 7  | 21.45 | 21.75 | 22.45 | 23                     | 2           |
| 3               | 16QAM | 15 | 0  | 21.32 | 21.75 | 22.44 |                        |             |
| 3               | 64QAM | 1  | 0  | 21.50 | 21.93 | 22.52 |                        |             |
| 3               | 64QAM | 1  | 8  | 21.57 | 21.97 | 22.62 | 23                     | 2           |
| 3               | 64QAM | 1  | 14 | 21.52 | 21.97 | 22.53 |                        |             |
| 3               | 64QAM | 8  | 0  | 20.32 | 20.74 | 21.45 |                        |             |
| 3               | 64QAM | 8  | 4  | 20.37 | 20.77 | 21.49 | 22                     | 3           |
| 3               | 64QAM | 8  | 7  | 20.41 | 20.80 | 21.47 |                        |             |
| 3               | 64QAM | 15 | 0  | 20.29 | 20.73 | 21.48 |                        |             |



# FCC SAR TEST REPORT

Report No. : FA912412-01

| Channel         |       |   |   | 26697 | 26865 | 27033 | Tune-up limit<br>(dBm) | MPR<br>(dB) |
|-----------------|-------|---|---|-------|-------|-------|------------------------|-------------|
| Frequency (MHz) |       |   |   | 814.7 | 831.5 | 848.3 |                        |             |
| 1.4             | QPSK  | 1 | 0 | 23.42 | 23.74 | 24.50 | 25                     | 0           |
| 1.4             | QPSK  | 1 | 3 | 23.37 | 23.69 | 24.42 |                        |             |
| 1.4             | QPSK  | 1 | 5 | 23.39 | 23.75 | 24.34 |                        |             |
| 1.4             | QPSK  | 3 | 0 | 23.37 | 23.73 | 24.39 |                        |             |
| 1.4             | QPSK  | 3 | 1 | 23.36 | 23.72 | 24.39 |                        |             |
| 1.4             | QPSK  | 3 | 3 | 23.36 | 23.71 | 24.37 |                        |             |
| 1.4             | QPSK  | 6 | 0 | 22.39 | 22.73 | 23.46 | 24                     | 1           |
| 1.4             | 16QAM | 1 | 0 | 22.69 | 23.04 | 23.66 | 24                     | 1           |
| 1.4             | 16QAM | 1 | 3 | 22.70 | 23.01 | 23.58 |                        |             |
| 1.4             | 16QAM | 1 | 5 | 22.68 | 23.00 | 23.57 |                        |             |
| 1.4             | 16QAM | 3 | 0 | 22.44 | 22.79 | 23.47 |                        |             |
| 1.4             | 16QAM | 3 | 1 | 22.43 | 22.85 | 23.43 |                        |             |
| 1.4             | 16QAM | 3 | 3 | 22.50 | 22.77 | 23.37 |                        |             |
| 1.4             | 16QAM | 6 | 0 | 21.43 | 21.78 | 22.43 | 23                     | 2           |
| 1.4             | 64QAM | 1 | 0 | 21.59 | 21.97 | 22.71 | 23                     | 2           |
| 1.4             | 64QAM | 1 | 3 | 21.50 | 21.89 | 22.58 |                        |             |
| 1.4             | 64QAM | 1 | 5 | 21.60 | 21.98 | 22.57 |                        |             |
| 1.4             | 64QAM | 3 | 0 | 21.55 | 21.87 | 22.55 |                        |             |
| 1.4             | 64QAM | 3 | 1 | 21.39 | 21.85 | 22.52 |                        |             |
| 1.4             | 64QAM | 3 | 3 | 21.50 | 21.90 | 22.50 |                        |             |
| 1.4             | 64QAM | 6 | 0 | 20.39 | 20.81 | 21.40 | 22                     | 3           |

**<LTE Band 30>**

| 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         |            |         |           | 27710                 |                          |                        |                     |          |
| Frequency (MHz) |            |         |           | 2310                  |                          |                        |                     |          |
| 10              | QPSK       | 1       | 0         |                       | 23.81                    |                        | 24                  | 0        |
| 10              | QPSK       | 1       | 25        |                       | 23.69                    |                        |                     |          |
| 10              | QPSK       | 1       | 49        |                       | 23.80                    |                        |                     |          |
| 10              | QPSK       | 25      | 0         |                       | 22.56                    |                        | 23                  | 1        |
| 10              | QPSK       | 25      | 12        |                       | 22.50                    |                        |                     |          |
| 10              | QPSK       | 25      | 25        |                       | 22.55                    |                        |                     |          |
| 10              | QPSK       | 50      | 0         |                       | 22.69                    |                        | 23                  | 1        |
| 10              | 16QAM      | 1       | 0         |                       | 22.89                    |                        |                     |          |
| 10              | 16QAM      | 1       | 25        |                       | 22.88                    |                        |                     |          |
| 10              | 16QAM      | 1       | 49        |                       | 22.99                    |                        | 22                  | 2        |
| 10              | 16QAM      | 25      | 0         |                       | 21.70                    |                        |                     |          |
| 10              | 16QAM      | 25      | 12        |                       | 21.73                    |                        |                     |          |
| 10              | 16QAM      | 25      | 25        |                       | 21.71                    |                        | 22                  | 2        |
| 10              | 16QAM      | 50      | 0         |                       | 21.78                    |                        |                     |          |
| 10              | 64QAM      | 1       | 0         |                       | 21.88                    |                        |                     |          |
| 10              | 64QAM      | 1       | 25        |                       | 21.79                    |                        | 22                  | 2        |
| 10              | 64QAM      | 1       | 49        |                       | 21.91                    |                        |                     |          |
| 10              | 64QAM      | 25      | 0         |                       | 20.66                    |                        | 21                  | 3        |
| 10              | 64QAM      | 25      | 12        |                       | 20.74                    |                        |                     |          |
| 10              | 64QAM      | 25      | 25        |                       | 20.72                    |                        |                     |          |
| 10              | 64QAM      | 50      | 0         |                       | 20.82                    |                        |                     |          |
| Channel         |            |         |           | 27685                 | 27710                    | 27735                  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 2307.5                | 2310                     | 2312.5                 |                     |          |
| 5               | QPSK       | 1       | 0         | 23.67                 | 23.54                    | 23.78                  | 24                  | 0        |
| 5               | QPSK       | 1       | 12        | 23.54                 | 23.69                    | 23.73                  |                     |          |
| 5               | QPSK       | 1       | 24        | 23.61                 | 23.61                    | 23.69                  |                     |          |
| 5               | QPSK       | 12      | 0         | 22.55                 | 22.47                    | 22.70                  | 23                  | 1        |
| 5               | QPSK       | 12      | 7         | 22.39                 | 22.55                    | 22.59                  |                     |          |
| 5               | QPSK       | 12      | 13        | 22.41                 | 22.65                    | 22.67                  |                     |          |
| 5               | QPSK       | 25      | 0         | 22.41                 | 22.57                    | 22.60                  | 23                  | 1        |
| 5               | 16QAM      | 1       | 0         | 22.88                 | 22.73                    | 22.94                  |                     |          |
| 5               | 16QAM      | 1       | 12        | 22.73                 | 22.87                    | 22.92                  |                     |          |
| 5               | 16QAM      | 1       | 24        | 22.76                 | 22.79                    | 22.90                  | 22                  | 2        |
| 5               | 16QAM      | 12      | 0         | 21.63                 | 21.55                    | 21.79                  |                     |          |
| 5               | 16QAM      | 12      | 7         | 21.51                 | 21.62                    | 21.65                  |                     |          |
| 5               | 16QAM      | 12      | 13        | 21.52                 | 21.72                    | 21.74                  | 22                  | 2        |
| 5               | 16QAM      | 25      | 0         | 21.48                 | 21.58                    | 21.61                  |                     |          |
| 5               | 64QAM      | 1       | 0         | 21.86                 | 21.76                    | 21.89                  |                     |          |
| 5               | 64QAM      | 1       | 12        | 21.72                 | 21.81                    | 21.86                  | 22                  | 2        |
| 5               | 64QAM      | 1       | 24        | 21.72                 | 21.82                    | 21.78                  |                     |          |
| 5               | 64QAM      | 12      | 0         | 20.69                 | 20.58                    | 20.80                  |                     |          |
| 5               | 64QAM      | 12      | 7         | 20.51                 | 20.66                    | 20.69                  | 21                  | 3        |
| 5               | 64QAM      | 12      | 13        | 20.50                 | 20.76                    | 20.79                  |                     |          |
| 5               | 64QAM      | 25      | 0         | 20.45                 | 20.60                    | 20.62                  |                     |          |



**<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         | 23.24                 | 23.54                    | 23.72                  | 24                  | 0        |
| 20              | QPSK       | 1       | 49        | 23.22                 | 23.46                    | 23.58                  |                     |          |
| 20              | QPSK       | 1       | 99        | 23.15                 | 23.51                    | 23.54                  |                     |          |
| 20              | QPSK       | 50      | 0         | 22.29                 | 22.50                    | 22.54                  | 23                  | 1        |
| 20              | QPSK       | 50      | 24        | 22.17                 | 22.46                    | 22.47                  |                     |          |
| 20              | QPSK       | 50      | 50        | 22.08                 | 22.46                    | 22.48                  |                     |          |
| 20              | QPSK       | 100     | 0         | 22.20                 | 22.48                    | 22.65                  |                     |          |
| 20              | 16QAM      | 1       | 0         | 22.59                 | 22.74                    | 22.94                  | 23                  | 1        |
| 20              | 16QAM      | 1       | 49        | 22.57                 | 22.76                    | 22.91                  |                     |          |
| 20              | 16QAM      | 1       | 99        | 22.56                 | 22.85                    | 22.87                  |                     |          |
| 20              | 16QAM      | 50      | 0         | 21.32                 | 21.46                    | 21.58                  | 22                  | 2        |
| 20              | 16QAM      | 50      | 24        | 21.23                 | 21.50                    | 21.59                  |                     |          |
| 20              | 16QAM      | 50      | 50        | 21.12                 | 21.50                    | 21.51                  |                     |          |
| 20              | 16QAM      | 100     | 0         | 21.24                 | 21.51                    | 21.63                  |                     |          |
| 20              | 64QAM      | 1       | 0         | 21.61                 | 21.71                    | 21.84                  | 22                  | 2        |
| 20              | 64QAM      | 1       | 49        | 21.55                 | 21.76                    | 21.78                  |                     |          |
| 20              | 64QAM      | 1       | 99        | 21.41                 | 21.81                    | 21.78                  |                     |          |
| 20              | 64QAM      | 50      | 0         | 20.31                 | 20.47                    | 20.61                  | 21                  | 3        |
| 20              | 64QAM      | 50      | 24        | 20.20                 | 20.53                    | 20.60                  |                     |          |
| 20              | 64QAM      | 50      | 50        | 20.11                 | 20.51                    | 20.52                  |                     |          |
| 20              | 64QAM      | 100     | 0         | 20.18                 | 20.54                    | 20.62                  |                     |          |
| Channel         |            |         |           | 132047                | 132322                   | 132597                 |                     |          |
| Frequency (MHz) |            |         |           | 1717.5                | 1745                     | 1772.5                 |                     |          |
| 15              | QPSK       | 1       | 0         | 23.10                 | 23.29                    | 23.48                  | 24                  | 0        |
| 15              | QPSK       | 1       | 37        | 23.23                 | 23.42                    | 23.46                  |                     |          |
| 15              | QPSK       | 1       | 74        | 23.00                 | 23.43                    | 23.47                  |                     |          |
| 15              | QPSK       | 36      | 0         | 22.14                 | 22.32                    | 22.51                  | 23                  | 1        |
| 15              | QPSK       | 36      | 20        | 22.14                 | 22.40                    | 22.43                  |                     |          |
| 15              | QPSK       | 36      | 39        | 22.03                 | 22.39                    | 22.40                  |                     |          |
| 15              | QPSK       | 75      | 0         | 22.16                 | 22.42                    | 22.48                  |                     |          |
| 15              | 16QAM      | 1       | 0         | 22.40                 | 22.65                    | 22.78                  | 23                  | 1        |
| 15              | 16QAM      | 1       | 37        | 22.60                 | 22.75                    | 22.74                  |                     |          |
| 15              | 16QAM      | 1       | 74        | 22.37                 | 22.76                    | 22.82                  |                     |          |
| 15              | 16QAM      | 36      | 0         | 21.27                 | 21.40                    | 21.54                  | 22                  | 2        |
| 15              | 16QAM      | 36      | 20        | 21.24                 | 21.47                    | 21.47                  |                     |          |
| 15              | 16QAM      | 36      | 39        | 21.18                 | 21.48                    | 21.47                  |                     |          |
| 15              | 16QAM      | 75      | 0         | 21.22                 | 21.47                    | 21.49                  |                     |          |
| 15              | 64QAM      | 1       | 0         | 21.49                 | 21.59                    | 21.73                  | 22                  | 2        |
| 15              | 64QAM      | 1       | 37        | 21.53                 | 21.73                    | 21.69                  |                     |          |
| 15              | 64QAM      | 1       | 74        | 21.33                 | 21.76                    | 21.71                  |                     |          |
| 15              | 64QAM      | 36      | 0         | 20.29                 | 20.45                    | 20.60                  | 21                  | 3        |
| 15              | 64QAM      | 36      | 20        | 20.26                 | 20.52                    | 20.51                  |                     |          |
| 15              | 64QAM      | 36      | 39        | 20.15                 | 20.50                    | 20.50                  |                     |          |
| 15              | 64QAM      | 75      | 0         | 20.24                 | 20.49                    | 20.52                  |                     |          |

| Channel         |       |    |    | 132022 | 132322 | 132622 | Tune-up limit<br>(dBm) | MPR<br>(dB) |
|-----------------|-------|----|----|--------|--------|--------|------------------------|-------------|
| Frequency (MHz) |       |    |    | 1715   | 1745   | 1775   |                        |             |
| 10              | QPSK  | 1  | 0  | 23.48  | 23.45  | 23.67  | 24                     | 0           |
| 10              | QPSK  | 1  | 25 | 23.55  | 23.52  | 23.64  |                        |             |
| 10              | QPSK  | 1  | 49 | 23.50  | 23.57  | 23.62  |                        |             |
| 10              | QPSK  | 25 | 0  | 22.52  | 22.51  | 22.67  | 23                     | 1           |
| 10              | QPSK  | 25 | 12 | 22.51  | 22.52  | 22.66  |                        |             |
| 10              | QPSK  | 25 | 25 | 22.50  | 22.54  | 22.65  |                        |             |
| 10              | QPSK  | 50 | 0  | 22.51  | 22.53  | 22.66  | 23                     | 1           |
| 10              | 16QAM | 1  | 0  | 22.84  | 22.81  | 22.78  |                        |             |
| 10              | 16QAM | 1  | 25 | 22.93  | 22.88  | 22.67  |                        |             |
| 10              | 16QAM | 1  | 49 | 22.85  | 22.93  | 22.75  | 22                     | 2           |
| 10              | 16QAM | 25 | 0  | 21.62  | 21.66  | 21.76  |                        |             |
| 10              | 16QAM | 25 | 12 | 21.61  | 21.67  | 21.76  |                        |             |
| 10              | 16QAM | 25 | 25 | 21.58  | 21.69  | 21.76  | 22                     | 2           |
| 10              | 16QAM | 50 | 0  | 21.53  | 21.64  | 21.72  |                        |             |
| 10              | 64QAM | 1  | 0  | 21.82  | 21.83  | 21.72  |                        |             |
| 10              | 64QAM | 1  | 25 | 21.82  | 21.93  | 21.65  | 22                     | 2           |
| 10              | 64QAM | 1  | 49 | 21.77  | 21.95  | 21.73  |                        |             |
| 10              | 64QAM | 25 | 0  | 20.62  | 20.72  | 20.80  |                        |             |
| 10              | 64QAM | 25 | 12 | 20.59  | 20.73  | 20.78  | 21                     | 3           |
| 10              | 64QAM | 25 | 25 | 20.59  | 20.73  | 20.79  |                        |             |
| 10              | 64QAM | 50 | 0  | 20.52  | 20.68  | 20.75  |                        |             |
| Channel         |       |    |    | 131997 | 132322 | 132647 | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 1712.5 | 1745   | 1777.5 |                        |             |
| 5               | QPSK  | 1  | 0  | 23.46  | 23.65  | 23.48  | 24                     | 0           |
| 5               | QPSK  | 1  | 12 | 23.52  | 23.63  | 23.45  |                        |             |
| 5               | QPSK  | 1  | 24 | 23.57  | 23.65  | 23.54  |                        |             |
| 5               | QPSK  | 12 | 0  | 22.57  | 22.88  | 22.89  | 23                     | 1           |
| 5               | QPSK  | 12 | 7  | 22.64  | 22.88  | 22.88  |                        |             |
| 5               | QPSK  | 12 | 13 | 22.64  | 22.88  | 22.95  |                        |             |
| 5               | QPSK  | 25 | 0  | 22.61  | 22.85  | 22.86  | 23                     | 1           |
| 5               | 16QAM | 1  | 0  | 22.76  | 22.72  | 22.79  |                        |             |
| 5               | 16QAM | 1  | 12 | 22.83  | 22.72  | 22.74  |                        |             |
| 5               | 16QAM | 1  | 24 | 22.88  | 22.71  | 22.82  | 22                     | 2           |
| 5               | 16QAM | 12 | 0  | 21.73  | 21.71  | 21.69  |                        |             |
| 5               | 16QAM | 12 | 7  | 21.76  | 21.72  | 21.67  |                        |             |
| 5               | 16QAM | 12 | 13 | 21.76  | 21.71  | 21.73  | 22                     | 2           |
| 5               | 16QAM | 25 | 0  | 21.70  | 21.96  | 21.94  |                        |             |
| 5               | 64QAM | 1  | 0  | 21.79  | 21.77  | 21.73  |                        |             |
| 5               | 64QAM | 1  | 12 | 21.84  | 21.74  | 21.70  | 22                     | 2           |
| 5               | 64QAM | 1  | 24 | 21.83  | 21.78  | 21.78  |                        |             |
| 5               | 64QAM | 12 | 0  | 20.70  | 20.75  | 20.72  |                        |             |
| 5               | 64QAM | 12 | 7  | 20.76  | 20.75  | 20.71  | 21                     | 3           |
| 5               | 64QAM | 12 | 13 | 20.74  | 20.73  | 20.75  |                        |             |
| 5               | 64QAM | 25 | 0  | 20.72  | 20.98  | 20.97  |                        |             |

| Channel         |       |    |    | 131987 | 132322 | 132657 | Tune-up limit<br>(dBm) | MPR<br>(dB) |
|-----------------|-------|----|----|--------|--------|--------|------------------------|-------------|
| Frequency (MHz) |       |    |    | 1711.5 | 1745   | 1778.5 |                        |             |
| 3               | QPSK  | 1  | 0  | 23.41  | 23.44  | 23.58  | 24                     | 0           |
| 3               | QPSK  | 1  | 8  | 23.53  | 23.49  | 23.61  |                        |             |
| 3               | QPSK  | 1  | 14 | 23.41  | 23.52  | 23.54  |                        |             |
| 3               | QPSK  | 8  | 0  | 22.49  | 22.50  | 22.66  | 23                     | 1           |
| 3               | QPSK  | 8  | 4  | 22.42  | 22.44  | 22.59  |                        |             |
| 3               | QPSK  | 8  | 7  | 22.48  | 22.54  | 22.63  |                        |             |
| 3               | QPSK  | 15 | 0  | 22.49  | 22.48  | 22.64  |                        |             |
| 3               | 16QAM | 1  | 0  | 22.77  | 22.76  | 22.69  | 23                     | 1           |
| 3               | 16QAM | 1  | 8  | 22.89  | 22.82  | 22.60  |                        |             |
| 3               | 16QAM | 1  | 14 | 22.78  | 22.84  | 22.75  |                        |             |
| 3               | 16QAM | 8  | 0  | 21.56  | 21.59  | 21.70  | 22                     | 2           |
| 3               | 16QAM | 8  | 4  | 21.55  | 21.61  | 21.69  |                        |             |
| 3               | 16QAM | 8  | 7  | 21.48  | 21.59  | 21.66  |                        |             |
| 3               | 16QAM | 15 | 0  | 21.51  | 21.57  | 21.70  |                        |             |
| 3               | 64QAM | 1  | 0  | 21.80  | 21.76  | 21.65  | 22                     | 2           |
| 3               | 64QAM | 1  | 8  | 21.74  | 21.92  | 21.56  |                        |             |
| 3               | 64QAM | 1  | 14 | 21.68  | 21.94  | 21.71  |                        |             |
| 3               | 64QAM | 8  | 0  | 20.57  | 20.64  | 20.78  | 21                     | 3           |
| 3               | 64QAM | 8  | 4  | 20.56  | 20.66  | 20.74  |                        |             |
| 3               | 64QAM | 8  | 7  | 20.55  | 20.63  | 20.77  |                        |             |
| 3               | 64QAM | 15 | 0  | 20.44  | 20.65  | 20.71  |                        |             |
| Channel         |       |    |    | 131979 | 132322 | 132665 | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 1710.7 | 1745   | 1779.3 |                        |             |
| 1.4             | QPSK  | 1  | 0  | 23.46  | 23.65  | 23.46  | 24                     | 0           |
| 1.4             | QPSK  | 1  | 3  | 23.47  | 23.54  | 23.37  |                        |             |
| 1.4             | QPSK  | 1  | 5  | 23.50  | 23.62  | 23.44  |                        |             |
| 1.4             | QPSK  | 3  | 0  | 23.44  | 23.64  | 23.43  |                        |             |
| 1.4             | QPSK  | 3  | 1  | 23.44  | 23.57  | 23.36  |                        |             |
| 1.4             | QPSK  | 3  | 3  | 23.56  | 23.60  | 23.44  |                        |             |
| 1.4             | QPSK  | 6  | 0  | 22.54  | 22.83  | 22.82  | 23                     | 1           |
| 1.4             | 16QAM | 1  | 0  | 22.64  | 22.84  | 22.85  | 23                     | 1           |
| 1.4             | 16QAM | 1  | 3  | 22.63  | 22.85  | 22.94  |                        |             |
| 1.4             | 16QAM | 1  | 5  | 22.57  | 22.88  | 22.81  |                        |             |
| 1.4             | 16QAM | 3  | 0  | 22.55  | 22.86  | 22.81  |                        |             |
| 1.4             | 16QAM | 3  | 1  | 22.56  | 22.78  | 22.85  |                        |             |
| 1.4             | 16QAM | 3  | 3  | 22.57  | 22.88  | 22.81  |                        |             |
| 1.4             | 16QAM | 6  | 0  | 21.69  | 21.88  | 21.46  | 22                     | 2           |
| 1.4             | 64QAM | 1  | 0  | 21.42  | 21.56  | 21.58  | 22                     | 2           |
| 1.4             | 64QAM | 1  | 3  | 21.73  | 21.67  | 21.61  |                        |             |
| 1.4             | 64QAM | 1  | 5  | 21.72  | 21.87  | 21.55  |                        |             |
| 1.4             | 64QAM | 3  | 0  | 21.42  | 21.56  | 21.58  |                        |             |
| 1.4             | 64QAM | 3  | 1  | 21.49  | 21.51  | 21.66  |                        |             |
| 1.4             | 64QAM | 3  | 3  | 21.74  | 21.70  | 21.57  |                        |             |
| 1.4             | 64QAM | 6  | 0  | 20.70  | 20.63  | 20.72  | 21                     | 3           |

**<Tablet Power>**
**<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         | 17.08                    | 17.39                       | 17.09                     | 17.5                   | 0           |
| 20              | QPSK       | 1       | 49        | 17.09                    | 17.04                       | 17.13                     |                        |             |
| 20              | QPSK       | 1       | 99        | 17.03                    | 17.05                       | 17.00                     |                        |             |
| 20              | QPSK       | 50      | 0         | 17.01                    | 17.05                       | 16.98                     | 17.5                   | 0           |
| 20              | QPSK       | 50      | 24        | 16.98                    | 16.95                       | 16.83                     |                        |             |
| 20              | QPSK       | 50      | 50        | 16.95                    | 16.92                       | 16.76                     |                        |             |
| 20              | QPSK       | 100     | 0         | 16.78                    | 16.89                       | 16.82                     | 17.5                   | 0           |
| 20              | 16QAM      | 1       | 0         | 17.25                    | 17.30                       | 17.10                     |                        |             |
| 20              | 16QAM      | 1       | 49        | 17.19                    | 17.38                       | 17.16                     |                        |             |
| 20              | 16QAM      | 1       | 99        | 17.02                    | 17.37                       | 17.05                     | 17.5                   | 0           |
| 20              | 16QAM      | 50      | 0         | 16.68                    | 16.85                       | 17.05                     |                        |             |
| 20              | 16QAM      | 50      | 24        | 16.68                    | 16.63                       | 17.04                     |                        |             |
| 20              | 16QAM      | 50      | 50        | 16.94                    | 16.99                       | 17.05                     | 17.5                   | 0           |
| 20              | 16QAM      | 100     | 0         | 16.90                    | 16.97                       | 17.09                     |                        |             |
| 20              | 64QAM      | 1       | 0         | 16.94                    | 17.00                       | 17.16                     |                        |             |
| 20              | 64QAM      | 1       | 49        | 16.61                    | 17.26                       | 17.27                     | 17.5                   | 0           |
| 20              | 64QAM      | 1       | 99        | 16.74                    | 16.75                       | 16.95                     |                        |             |
| 20              | 64QAM      | 50      | 0         | 16.92                    | 16.87                       | 16.95                     | 17.5                   | 0           |
| 20              | 64QAM      | 50      | 24        | 16.75                    | 16.72                       | 16.75                     |                        |             |
| 20              | 64QAM      | 50      | 50        | 16.59                    | 16.59                       | 16.78                     |                        |             |
| 20              | 64QAM      | 100     | 0         | 16.83                    | 17.06                       | 16.97                     |                        |             |
| Channel         |            |         |           | 18675                    | 18900                       | 19125                     |                        |             |
| Frequency (MHz) |            |         |           | 1857.5                   | 1880                        | 1902.5                    |                        |             |
| 15              | QPSK       | 1       | 0         | 17.03                    | 17.29                       | 17.05                     | 17.5                   | 0           |
| 15              | QPSK       | 1       | 37        | 17.03                    | 16.95                       | 17.13                     |                        |             |
| 15              | QPSK       | 1       | 74        | 17.03                    | 16.99                       | 16.94                     |                        |             |
| 15              | QPSK       | 36      | 0         | 17.00                    | 16.98                       | 16.97                     | 17.5                   | 0           |
| 15              | QPSK       | 36      | 20        | 16.90                    | 16.93                       | 16.75                     |                        |             |
| 15              | QPSK       | 36      | 39        | 16.90                    | 16.85                       | 16.73                     |                        |             |
| 15              | QPSK       | 75      | 0         | 16.69                    | 16.87                       | 16.75                     | 17.5                   | 0           |
| 15              | 16QAM      | 1       | 0         | 17.24                    | 17.28                       | 17.00                     |                        |             |
| 15              | 16QAM      | 1       | 37        | 17.16                    | 17.32                       | 17.12                     |                        |             |
| 15              | 16QAM      | 1       | 74        | 16.94                    | 17.29                       | 17.05                     | 17.5                   | 0           |
| 15              | 16QAM      | 36      | 0         | 16.63                    | 16.76                       | 16.95                     |                        |             |
| 15              | 16QAM      | 36      | 20        | 16.58                    | 16.58                       | 16.98                     |                        |             |
| 15              | 16QAM      | 36      | 39        | 16.90                    | 16.90                       | 17.00                     | 17.5                   | 0           |
| 15              | 16QAM      | 75      | 0         | 16.90                    | 16.87                       | 17.05                     |                        |             |
| 15              | 64QAM      | 1       | 0         | 16.93                    | 16.92                       | 17.06                     |                        |             |
| 15              | 64QAM      | 1       | 37        | 16.53                    | 17.18                       | 17.25                     | 17.5                   | 0           |
| 15              | 64QAM      | 1       | 74        | 16.73                    | 16.70                       | 16.94                     |                        |             |
| 15              | 64QAM      | 36      | 0         | 16.92                    | 16.84                       | 16.89                     |                        |             |
| 15              | 64QAM      | 36      | 20        | 16.74                    | 16.72                       | 16.66                     | 17.5                   | 0           |
| 15              | 64QAM      | 36      | 39        | 16.52                    | 16.53                       | 16.75                     |                        |             |
| 15              | 64QAM      | 75      | 0         | 16.80                    | 17.03                       | 16.95                     |                        |             |

| Channel         |       |    |    | 18650  | 18900 | 19150  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
|-----------------|-------|----|----|--------|-------|--------|------------------------|-------------|
| Frequency (MHz) |       |    |    | 1855   | 1880  | 1905   |                        |             |
| 10              | QPSK  | 1  | 0  | 17.02  | 17.25 | 17.09  | 17.5                   | 0           |
| 10              | QPSK  | 1  | 25 | 16.99  | 16.94 | 17.05  |                        |             |
| 10              | QPSK  | 1  | 49 | 16.98  | 17.02 | 16.90  |                        |             |
| 10              | QPSK  | 25 | 0  | 16.93  | 16.97 | 16.93  | 17.5                   | 0           |
| 10              | QPSK  | 25 | 12 | 16.91  | 16.85 | 16.82  |                        |             |
| 10              | QPSK  | 25 | 25 | 16.93  | 16.84 | 16.67  |                        |             |
| 10              | QPSK  | 50 | 0  | 16.75  | 16.84 | 16.81  |                        |             |
| 10              | 16QAM | 1  | 0  | 17.22  | 17.27 | 17.08  | 17.5                   | 0           |
| 10              | 16QAM | 1  | 25 | 17.14  | 17.32 | 17.07  |                        |             |
| 10              | 16QAM | 1  | 49 | 16.97  | 17.27 | 17.04  |                        |             |
| 10              | 16QAM | 25 | 0  | 16.63  | 16.85 | 16.99  | 17.5                   | 0           |
| 10              | 16QAM | 25 | 12 | 16.65  | 16.53 | 16.94  |                        |             |
| 10              | 16QAM | 25 | 25 | 16.92  | 16.94 | 17.01  |                        |             |
| 10              | 16QAM | 50 | 0  | 16.88  | 16.91 | 17.03  |                        |             |
| 10              | 64QAM | 1  | 0  | 16.88  | 16.92 | 17.09  | 17.5                   | 0           |
| 10              | 64QAM | 1  | 25 | 16.56  | 17.16 | 17.25  |                        |             |
| 10              | 64QAM | 1  | 49 | 16.74  | 16.72 | 16.87  |                        |             |
| 10              | 64QAM | 25 | 0  | 16.89  | 16.80 | 16.87  | 17.5                   | 0           |
| 10              | 64QAM | 25 | 12 | 16.67  | 16.72 | 16.67  |                        |             |
| 10              | 64QAM | 25 | 25 | 16.53  | 16.58 | 16.74  |                        |             |
| 10              | 64QAM | 50 | 0  | 16.81  | 17.04 | 16.94  |                        |             |
| Channel         |       |    |    | 18625  | 18900 | 19175  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 1852.5 | 1880  | 1907.5 |                        |             |
| 5               | QPSK  | 1  | 0  | 17.00  | 17.31 | 17.01  | 17.5                   | 0           |
| 5               | QPSK  | 1  | 12 | 17.02  | 17.02 | 17.04  |                        |             |
| 5               | QPSK  | 1  | 24 | 16.99  | 17.03 | 16.97  |                        |             |
| 5               | QPSK  | 12 | 0  | 16.98  | 17.05 | 16.92  | 17.5                   | 0           |
| 5               | QPSK  | 12 | 7  | 16.88  | 16.93 | 16.81  |                        |             |
| 5               | QPSK  | 12 | 13 | 16.86  | 16.91 | 16.72  |                        |             |
| 5               | QPSK  | 25 | 0  | 16.73  | 16.81 | 16.74  |                        |             |
| 5               | 16QAM | 1  | 0  | 17.23  | 17.24 | 17.00  | 17.5                   | 0           |
| 5               | 16QAM | 1  | 12 | 17.10  | 17.29 | 17.10  |                        |             |
| 5               | 16QAM | 1  | 24 | 16.97  | 17.37 | 17.04  |                        |             |
| 5               | 16QAM | 12 | 0  | 16.62  | 16.84 | 16.99  | 17.5                   | 0           |
| 5               | 16QAM | 12 | 7  | 16.68  | 16.57 | 17.04  |                        |             |
| 5               | 16QAM | 12 | 13 | 16.94  | 16.92 | 16.98  |                        |             |
| 5               | 16QAM | 25 | 0  | 16.84  | 16.89 | 17.01  |                        |             |
| 5               | 64QAM | 1  | 0  | 16.92  | 16.90 | 17.06  | 17.5                   | 0           |
| 5               | 64QAM | 1  | 12 | 16.59  | 17.20 | 17.25  |                        |             |
| 5               | 64QAM | 1  | 24 | 16.71  | 16.67 | 16.86  |                        |             |
| 5               | 64QAM | 12 | 0  | 16.84  | 16.85 | 16.86  | 17.5                   | 0           |
| 5               | 64QAM | 12 | 7  | 16.71  | 16.71 | 16.72  |                        |             |
| 5               | 64QAM | 12 | 13 | 16.50  | 16.57 | 16.68  |                        |             |
| 5               | 64QAM | 25 | 0  | 16.74  | 16.99 | 16.88  |                        |             |

| Channel         |       |    |    | 18615  | 18900 | 19185  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
|-----------------|-------|----|----|--------|-------|--------|------------------------|-------------|
| Frequency (MHz) |       |    |    | 1851.5 | 1880  | 1908.5 |                        |             |
| 3               | QPSK  | 1  | 0  | 17.01  | 17.24 | 17.04  | 17.5                   | 0           |
| 3               | QPSK  | 1  | 8  | 17.04  | 16.94 | 17.08  |                        |             |
| 3               | QPSK  | 1  | 14 | 16.96  | 17.03 | 16.99  |                        |             |
| 3               | QPSK  | 8  | 0  | 16.94  | 17.01 | 16.95  | 17.5                   | 0           |
| 3               | QPSK  | 8  | 4  | 16.95  | 16.89 | 16.80  |                        |             |
| 3               | QPSK  | 8  | 7  | 16.88  | 16.91 | 16.73  |                        |             |
| 3               | QPSK  | 15 | 0  | 16.68  | 16.81 | 16.77  |                        |             |
| 3               | 16QAM | 1  | 0  | 17.24  | 17.23 | 17.00  | 17.5                   | 0           |
| 3               | 16QAM | 1  | 8  | 17.13  | 17.33 | 17.06  |                        |             |
| 3               | 16QAM | 1  | 14 | 17.02  | 17.31 | 16.96  |                        |             |
| 3               | 16QAM | 8  | 0  | 16.68  | 16.78 | 17.05  | 17.5                   | 0           |
| 3               | 16QAM | 8  | 4  | 16.58  | 16.54 | 17.04  |                        |             |
| 3               | 16QAM | 8  | 7  | 16.89  | 16.90 | 16.96  |                        |             |
| 3               | 16QAM | 15 | 0  | 16.80  | 16.91 | 17.01  |                        |             |
| 3               | 64QAM | 1  | 0  | 16.91  | 16.90 | 17.15  | 17.5                   | 0           |
| 3               | 64QAM | 1  | 8  | 16.55  | 17.16 | 17.26  |                        |             |
| 3               | 64QAM | 1  | 14 | 16.70  | 16.66 | 16.85  |                        |             |
| 3               | 64QAM | 8  | 0  | 16.85  | 16.81 | 16.90  | 17.5                   | 0           |
| 3               | 64QAM | 8  | 4  | 16.71  | 16.67 | 16.74  |                        |             |
| 3               | 64QAM | 8  | 7  | 16.50  | 16.55 | 16.74  |                        |             |
| 3               | 64QAM | 15 | 0  | 16.74  | 17.06 | 16.88  |                        |             |
| Channel         |       |    |    | 18607  | 18900 | 19193  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 1850.7 | 1880  | 1909.3 |                        |             |
| 1.4             | QPSK  | 1  | 0  | 17.03  | 17.27 | 17.04  | 17.5                   | 0           |
| 1.4             | QPSK  | 1  | 3  | 17.01  | 16.97 | 17.03  |                        |             |
| 1.4             | QPSK  | 1  | 5  | 16.94  | 17.02 | 16.94  |                        |             |
| 1.4             | QPSK  | 3  | 0  | 16.98  | 16.98 | 16.94  |                        |             |
| 1.4             | QPSK  | 3  | 1  | 16.95  | 16.89 | 16.75  |                        |             |
| 1.4             | QPSK  | 3  | 3  | 16.91  | 16.86 | 16.74  |                        |             |
| 1.4             | QPSK  | 6  | 0  | 16.68  | 16.89 | 16.77  | 17.5                   | 0           |
| 1.4             | 16QAM | 1  | 0  | 17.15  | 17.27 | 17.07  | 17.5                   | 0           |
| 1.4             | 16QAM | 1  | 3  | 17.11  | 17.33 | 17.11  |                        |             |
| 1.4             | 16QAM | 1  | 5  | 16.94  | 17.32 | 16.95  |                        |             |
| 1.4             | 16QAM | 3  | 0  | 16.61  | 16.75 | 16.97  |                        |             |
| 1.4             | 16QAM | 3  | 1  | 16.61  | 16.53 | 16.97  |                        |             |
| 1.4             | 16QAM | 3  | 3  | 16.91  | 16.91 | 17.04  |                        |             |
| 1.4             | 16QAM | 6  | 0  | 16.86  | 16.97 | 17.01  | 17.5                   | 0           |
| 1.4             | 64QAM | 1  | 0  | 16.90  | 16.94 | 17.13  | 17.5                   | 0           |
| 1.4             | 64QAM | 1  | 3  | 16.57  | 17.21 | 17.27  |                        |             |
| 1.4             | 64QAM | 1  | 5  | 16.64  | 16.68 | 16.88  |                        |             |
| 1.4             | 64QAM | 3  | 0  | 16.83  | 16.77 | 16.95  |                        |             |
| 1.4             | 64QAM | 3  | 1  | 16.71  | 16.71 | 16.67  |                        |             |
| 1.4             | 64QAM | 3  | 3  | 16.58  | 16.59 | 16.75  |                        |             |
| 1.4             | 64QAM | 6  | 0  | 16.82  | 17.04 | 16.87  | 17.5                   | 0           |

**<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                  | 18.5                | 0        |
| Frequency (MHz) |            |         |           | 1720                  | 1732.5                   | 1745                   |                     |          |
| 20              | QPSK       | 1       | 0         | 18.33                 | 18.47                    | 18.11                  | 18.5                | 0        |
| 20              | QPSK       | 1       | 49        | 18.12                 | 18.26                    | 18.10                  |                     |          |
| 20              | QPSK       | 1       | 99        | 18.05                 | 18.08                    | 18.06                  |                     |          |
| 20              | QPSK       | 50      | 0         | 18.19                 | 18.21                    | 18.45                  | 18.5                | 0        |
| 20              | QPSK       | 50      | 24        | 18.14                 | 18.13                    | 18.42                  |                     |          |
| 20              | QPSK       | 50      | 50        | 18.03                 | 18.35                    | 18.44                  |                     |          |
| 20              | QPSK       | 100     | 0         | 18.10                 | 18.22                    | 18.41                  | 18.5                | 0        |
| 20              | 16QAM      | 1       | 0         | 18.11                 | 18.05                    | 18.43                  |                     |          |
| 20              | 16QAM      | 1       | 49        | 18.28                 | 18.04                    | 18.28                  |                     |          |
| 20              | 16QAM      | 1       | 99        | 18.18                 | 18.39                    | 18.20                  | 18.5                | 0        |
| 20              | 16QAM      | 50      | 0         | 18.30                 | 18.17                    | 18.36                  |                     |          |
| 20              | 16QAM      | 50      | 24        | 18.14                 | 18.26                    | 18.46                  |                     |          |
| 20              | 16QAM      | 50      | 50        | 18.09                 | 18.26                    | 18.03                  | 18.5                | 0        |
| 20              | 16QAM      | 100     | 0         | 18.20                 | 18.35                    | 18.39                  |                     |          |
| 20              | 64QAM      | 1       | 0         | 18.18                 | 18.16                    | 18.28                  |                     |          |
| 20              | 64QAM      | 1       | 49        | 18.14                 | 18.08                    | 18.37                  | 18.5                | 0        |
| 20              | 64QAM      | 1       | 99        | 18.07                 | 18.37                    | 18.35                  |                     |          |
| 20              | 64QAM      | 50      | 0         | 18.06                 | 18.18                    | 18.31                  |                     |          |
| 20              | 64QAM      | 50      | 24        | 18.02                 | 18.16                    | 18.21                  | 18.5                | 0        |
| 20              | 64QAM      | 50      | 50        | 18.27                 | 18.02                    | 18.22                  |                     |          |
| 20              | 64QAM      | 100     | 0         | 18.13                 | 18.30                    | 18.13                  |                     |          |
| Channel         |            |         |           | 20025                 | 20175                    | 20325                  | 18.5                | 0        |
| Frequency (MHz) |            |         |           | 1717.5                | 1732.5                   | 1747.5                 |                     |          |
| 15              | QPSK       | 1       | 0         | 18.27                 | 18.44                    | 18.01                  | 18.5                | 0        |
| 15              | QPSK       | 1       | 37        | 18.12                 | 18.19                    | 18.04                  |                     |          |
| 15              | QPSK       | 1       | 74        | 18.00                 | 18.07                    | 17.98                  |                     |          |
| 15              | QPSK       | 36      | 0         | 18.19                 | 18.12                    | 18.44                  | 18.5                | 0        |
| 15              | QPSK       | 36      | 20        | 18.04                 | 18.10                    | 18.36                  |                     |          |
| 15              | QPSK       | 36      | 39        | 18.01                 | 18.32                    | 18.41                  |                     |          |
| 15              | QPSK       | 75      | 0         | 18.08                 | 18.22                    | 18.31                  | 18.5                | 0        |
| 15              | 16QAM      | 1       | 0         | 18.05                 | 18.05                    | 18.36                  |                     |          |
| 15              | 16QAM      | 1       | 37        | 18.26                 | 17.99                    | 18.23                  |                     |          |
| 15              | 16QAM      | 1       | 74        | 18.13                 | 18.35                    | 18.15                  | 18.5                | 0        |
| 15              | 16QAM      | 36      | 0         | 18.30                 | 18.11                    | 18.30                  |                     |          |
| 15              | 16QAM      | 36      | 20        | 18.09                 | 18.18                    | 18.40                  |                     |          |
| 15              | 16QAM      | 36      | 39        | 18.04                 | 18.16                    | 17.94                  | 18.5                | 0        |
| 15              | 16QAM      | 75      | 0         | 18.12                 | 18.26                    | 18.34                  |                     |          |
| 15              | 64QAM      | 1       | 0         | 18.16                 | 18.14                    | 18.27                  |                     |          |
| 15              | 64QAM      | 1       | 37        | 18.11                 | 18.04                    | 18.30                  | 18.5                | 0        |
| 15              | 64QAM      | 1       | 74        | 18.05                 | 18.35                    | 18.35                  |                     |          |
| 15              | 64QAM      | 36      | 0         | 17.96                 | 18.15                    | 18.24                  |                     |          |
| 15              | 64QAM      | 36      | 20        | 17.92                 | 18.13                    | 18.11                  | 18.5                | 0        |
| 15              | 64QAM      | 36      | 39        | 18.21                 | 17.93                    | 18.19                  |                     |          |
| 15              | 64QAM      | 75      | 0         | 18.03                 | 18.27                    | 18.07                  |                     |          |

| Channel         |       |    |    | 20000  | 20175  | 20350  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
|-----------------|-------|----|----|--------|--------|--------|------------------------|-------------|
| Frequency (MHz) |       |    |    | 1715   | 1732.5 | 1750   |                        |             |
| 10              | QPSK  | 1  | 0  | 18.24  | 18.38  | 18.10  | 18.5                   | 0           |
| 10              | QPSK  | 1  | 25 | 18.04  | 18.25  | 18.07  |                        |             |
| 10              | QPSK  | 1  | 49 | 17.96  | 18.05  | 17.97  |                        |             |
| 10              | QPSK  | 25 | 0  | 18.13  | 18.12  | 18.41  | 18.5                   | 0           |
| 10              | QPSK  | 25 | 12 | 18.05  | 18.13  | 18.34  |                        |             |
| 10              | QPSK  | 25 | 25 | 17.99  | 18.26  | 18.37  |                        |             |
| 10              | QPSK  | 50 | 0  | 18.04  | 18.14  | 18.35  |                        |             |
| 10              | 16QAM | 1  | 0  | 18.05  | 17.95  | 18.33  | 18.5                   | 0           |
| 10              | 16QAM | 1  | 25 | 18.26  | 18.03  | 18.23  |                        |             |
| 10              | 16QAM | 1  | 49 | 18.16  | 18.32  | 18.17  |                        |             |
| 10              | 16QAM | 25 | 0  | 18.28  | 18.11  | 18.36  | 18.5                   | 0           |
| 10              | 16QAM | 25 | 12 | 18.08  | 18.26  | 18.40  |                        |             |
| 10              | 16QAM | 25 | 25 | 18.09  | 18.17  | 18.02  |                        |             |
| 10              | 16QAM | 50 | 0  | 18.12  | 18.26  | 18.33  |                        |             |
| 10              | 64QAM | 1  | 0  | 18.13  | 18.07  | 18.18  | 18.5                   | 0           |
| 10              | 64QAM | 1  | 25 | 18.07  | 18.05  | 18.35  |                        |             |
| 10              | 64QAM | 1  | 49 | 17.98  | 18.34  | 18.31  |                        |             |
| 10              | 64QAM | 25 | 0  | 18.00  | 18.18  | 18.30  | 18.5                   | 0           |
| 10              | 64QAM | 25 | 12 | 17.93  | 18.10  | 18.13  |                        |             |
| 10              | 64QAM | 25 | 25 | 18.21  | 18.00  | 18.15  |                        |             |
| 10              | 64QAM | 50 | 0  | 18.09  | 18.20  | 18.03  |                        |             |
| Channel         |       |    |    | 19975  | 20175  | 20375  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 1712.5 | 1732.5 | 1752.5 |                        |             |
| 5               | QPSK  | 1  | 0  | 18.25  | 18.39  | 18.09  | 18.5                   | 0           |
| 5               | QPSK  | 1  | 12 | 18.11  | 18.22  | 18.10  |                        |             |
| 5               | QPSK  | 1  | 24 | 17.96  | 18.00  | 18.01  |                        |             |
| 5               | QPSK  | 12 | 0  | 18.09  | 18.21  | 18.41  | 18.5                   | 0           |
| 5               | QPSK  | 12 | 7  | 18.06  | 18.13  | 18.32  |                        |             |
| 5               | QPSK  | 12 | 13 | 17.95  | 18.27  | 18.34  |                        |             |
| 5               | QPSK  | 25 | 0  | 18.07  | 18.14  | 18.35  |                        |             |
| 5               | 16QAM | 1  | 0  | 18.10  | 17.95  | 18.37  | 18.5                   | 0           |
| 5               | 16QAM | 1  | 12 | 18.25  | 18.00  | 18.26  |                        |             |
| 5               | 16QAM | 1  | 24 | 18.08  | 18.34  | 18.10  |                        |             |
| 5               | 16QAM | 12 | 0  | 18.26  | 18.09  | 18.29  | 18.5                   | 0           |
| 5               | 16QAM | 12 | 7  | 18.07  | 18.23  | 18.37  |                        |             |
| 5               | 16QAM | 12 | 13 | 18.04  | 18.21  | 18.02  |                        |             |
| 5               | 16QAM | 25 | 0  | 18.10  | 18.30  | 18.30  |                        |             |
| 5               | 64QAM | 1  | 0  | 18.09  | 18.06  | 18.26  | 18.5                   | 0           |
| 5               | 64QAM | 1  | 12 | 18.05  | 18.02  | 18.27  |                        |             |
| 5               | 64QAM | 1  | 24 | 18.05  | 18.33  | 18.33  |                        |             |
| 5               | 64QAM | 12 | 0  | 18.06  | 18.15  | 18.31  | 18.5                   | 0           |
| 5               | 64QAM | 12 | 7  | 18.00  | 18.12  | 18.18  |                        |             |
| 5               | 64QAM | 12 | 13 | 18.17  | 18.02  | 18.22  |                        |             |
| 5               | 64QAM | 25 | 0  | 18.04  | 18.25  | 18.07  |                        |             |

| Channel         |       |    |    | 19965  | 20175  | 20385  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
|-----------------|-------|----|----|--------|--------|--------|------------------------|-------------|
| Frequency (MHz) |       |    |    | 1711.5 | 1732.5 | 1753.5 |                        |             |
| 3               | QPSK  | 1  | 0  | 18.23  | 18.37  | 18.07  | 18.5                   | 0           |
| 3               | QPSK  | 1  | 8  | 18.06  | 18.19  | 18.05  |                        |             |
| 3               | QPSK  | 1  | 14 | 18.01  | 18.06  | 18.01  |                        |             |
| 3               | QPSK  | 8  | 0  | 18.09  | 18.14  | 18.38  | 18.5                   | 0           |
| 3               | QPSK  | 8  | 4  | 18.13  | 18.10  | 18.32  |                        |             |
| 3               | QPSK  | 8  | 7  | 18.00  | 18.34  | 18.34  |                        |             |
| 3               | QPSK  | 15 | 0  | 18.06  | 18.20  | 18.31  |                        |             |
| 3               | 16QAM | 1  | 0  | 18.09  | 17.97  | 18.43  | 18.5                   | 0           |
| 3               | 16QAM | 1  | 8  | 18.26  | 18.01  | 18.19  |                        |             |
| 3               | 16QAM | 1  | 14 | 18.13  | 18.33  | 18.14  |                        |             |
| 3               | 16QAM | 8  | 0  | 18.22  | 18.11  | 18.27  | 18.5                   | 0           |
| 3               | 16QAM | 8  | 4  | 18.10  | 18.24  | 18.38  |                        |             |
| 3               | 16QAM | 8  | 7  | 17.99  | 18.17  | 17.96  |                        |             |
| 3               | 16QAM | 15 | 0  | 18.20  | 18.29  | 18.29  |                        |             |
| 3               | 64QAM | 1  | 0  | 18.11  | 18.10  | 18.25  | 18.5                   | 0           |
| 3               | 64QAM | 1  | 8  | 18.13  | 18.08  | 18.28  |                        |             |
| 3               | 64QAM | 1  | 14 | 18.00  | 18.30  | 18.35  |                        |             |
| 3               | 64QAM | 8  | 0  | 18.03  | 18.15  | 18.31  | 18.5                   | 0           |
| 3               | 64QAM | 8  | 4  | 17.95  | 18.09  | 18.21  |                        |             |
| 3               | 64QAM | 8  | 7  | 18.23  | 17.93  | 18.21  |                        |             |
| 3               | 64QAM | 15 | 0  | 18.09  | 18.25  | 18.05  |                        |             |
| 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  | 18.25  | 18.45  | 18.01  | 18.5                   | 0           |
| 1.4             | QPSK  | 1  | 3  | 18.10  | 18.25  | 18.06  |                        |             |
| 1.4             | QPSK  | 1  | 5  | 18.03  | 18.05  | 18.05  |                        |             |
| 1.4             | QPSK  | 3  | 0  | 18.13  | 18.15  | 18.37  |                        |             |
| 1.4             | QPSK  | 3  | 1  | 18.04  | 18.12  | 18.42  |                        |             |
| 1.4             | QPSK  | 3  | 3  | 18.00  | 18.25  | 18.43  |                        |             |
| 1.4             | QPSK  | 6  | 0  | 18.08  | 18.19  | 18.35  | 18.5                   | 0           |
| 1.4             | 16QAM | 1  | 0  | 18.04  | 18.05  | 18.35  | 18.5                   | 0           |
| 1.4             | 16QAM | 1  | 3  | 18.18  | 18.01  | 18.20  |                        |             |
| 1.4             | 16QAM | 1  | 5  | 18.13  | 18.39  | 18.16  |                        |             |
| 1.4             | 16QAM | 3  | 0  | 18.28  | 18.15  | 18.28  |                        |             |
| 1.4             | 16QAM | 3  | 1  | 18.13  | 18.22  | 18.39  |                        |             |
| 1.4             | 16QAM | 3  | 3  | 18.05  | 18.23  | 18.00  |                        |             |
| 1.4             | 16QAM | 6  | 0  | 18.13  | 18.35  | 18.29  | 18.5                   | 0           |
| 1.4             | 64QAM | 1  | 0  | 18.11  | 18.12  | 18.25  | 18.5                   | 0           |
| 1.4             | 64QAM | 1  | 3  | 18.07  | 18.02  | 18.37  |                        |             |
| 1.4             | 64QAM | 1  | 5  | 17.99  | 18.29  | 18.27  |                        |             |
| 1.4             | 64QAM | 3  | 0  | 17.99  | 18.15  | 18.29  |                        |             |
| 1.4             | 64QAM | 3  | 1  | 17.97  | 18.11  | 18.13  |                        |             |
| 1.4             | 64QAM | 3  | 3  | 18.25  | 18.02  | 18.13  |                        |             |
| 1.4             | 64QAM | 6  | 0  | 18.08  | 18.23  | 18.13  | 18.5                   | 0           |

**<LTE Band 5>**

| BW [MHz]        | Modulation | RB Size | RB Offset | Power Low Ch. / Freq. | Power Middle Ch. / Freq. | Power High Ch. / Freq. | Tune-up limit (dBm) | MPR (dB) |
|-----------------|------------|---------|-----------|-----------------------|--------------------------|------------------------|---------------------|----------|
| Channel         |            |         |           | 20450                 | 20525                    | 20600                  |                     |          |
| Frequency (MHz) |            |         |           | 829                   | 836.5                    | 844                    |                     |          |
| 10              | QPSK       | 1       | 0         | 22.22                 | 22.27                    | 22.47                  | 22.5                | 0        |
| 10              | QPSK       | 1       | 25        | 22.06                 | 22.14                    | 22.34                  |                     |          |
| 10              | QPSK       | 1       | 49        | 22.01                 | 22.16                    | 22.20                  |                     |          |
| 10              | QPSK       | 25      | 0         | 21.96                 | 22.22                    | 22.15                  | 22.5                | 0        |
| 10              | QPSK       | 25      | 12        | 22.01                 | 22.34                    | 22.35                  |                     |          |
| 10              | QPSK       | 25      | 25        | 22.09                 | 22.46                    | 22.30                  |                     |          |
| 10              | QPSK       | 50      | 0         | 22.01                 | 22.34                    | 22.34                  |                     |          |
| 10              | 16QAM      | 1       | 0         | 22.14                 | 22.02                    | 22.30                  | 22.5                | 0        |
| 10              | 16QAM      | 1       | 25        | 22.08                 | 22.15                    | 22.15                  |                     |          |
| 10              | 16QAM      | 1       | 49        | 22.00                 | 22.03                    | 22.18                  |                     |          |
| 10              | 16QAM      | 25      | 0         | 21.03                 | 21.34                    | 21.74                  | 22.5                | 0        |
| 10              | 16QAM      | 25      | 12        | 21.12                 | 21.45                    | 21.93                  |                     |          |
| 10              | 16QAM      | 25      | 25        | 21.19                 | 21.56                    | 22.01                  |                     |          |
| 10              | 16QAM      | 50      | 0         | 21.08                 | 21.39                    | 21.90                  |                     |          |
| 10              | 64QAM      | 1       | 0         | 21.16                 | 21.42                    | 21.73                  | 22.5                | 0        |
| 10              | 64QAM      | 1       | 25        | 21.33                 | 21.48                    | 22.02                  |                     |          |
| 10              | 64QAM      | 1       | 49        | 21.36                 | 21.75                    | 21.98                  |                     |          |
| 10              | 64QAM      | 25      | 0         | 20.53                 | 20.79                    | 20.67                  | 22.5                | 0        |
| 10              | 64QAM      | 25      | 12        | 20.59                 | 20.93                    | 20.87                  |                     |          |
| 10              | 64QAM      | 25      | 25        | 20.69                 | 20.50                    | 20.93                  |                     |          |
| 10              | 64QAM      | 50      | 0         | 20.66                 | 20.96                    | 20.84                  |                     |          |
| Channel         |            |         |           | 20425                 | 20525                    | 20625                  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 826.5                 | 836.5                    | 846.5                  |                     |          |
| 5               | QPSK       | 1       | 0         | 22.12                 | 22.24                    | 22.44                  | 22.5                | 0        |
| 5               | QPSK       | 1       | 12        | 21.96                 | 22.14                    | 22.29                  |                     |          |
| 5               | QPSK       | 1       | 24        | 21.94                 | 22.08                    | 22.19                  |                     |          |
| 5               | QPSK       | 12      | 0         | 21.96                 | 22.12                    | 22.07                  | 22.5                | 0        |
| 5               | QPSK       | 12      | 7         | 21.96                 | 22.26                    | 22.30                  |                     |          |
| 5               | QPSK       | 12      | 13        | 22.00                 | 22.37                    | 22.30                  |                     |          |
| 5               | QPSK       | 25      | 0         | 21.95                 | 22.24                    | 22.32                  |                     |          |
| 5               | 16QAM      | 1       | 0         | 22.11                 | 21.92                    | 22.30                  | 22.5                | 0        |
| 5               | 16QAM      | 1       | 12        | 22.03                 | 22.09                    | 22.13                  |                     |          |
| 5               | 16QAM      | 1       | 24        | 22.02                 | 21.99                    | 22.09                  |                     |          |
| 5               | 16QAM      | 12      | 0         | 20.95                 | 21.24                    | 21.64                  | 22.5                | 0        |
| 5               | 16QAM      | 12      | 7         | 21.02                 | 21.39                    | 21.84                  |                     |          |
| 5               | 16QAM      | 12      | 13        | 21.12                 | 21.47                    | 21.96                  |                     |          |
| 5               | 16QAM      | 25      | 0         | 21.06                 | 21.33                    | 21.83                  |                     |          |
| 5               | 64QAM      | 1       | 0         | 21.15                 | 21.32                    | 21.66                  | 22.5                | 0        |
| 5               | 64QAM      | 1       | 12        | 21.26                 | 21.48                    | 22.01                  |                     |          |
| 5               | 64QAM      | 1       | 24        | 21.31                 | 21.68                    | 21.95                  |                     |          |
| 5               | 64QAM      | 12      | 0         | 20.57                 | 20.73                    | 20.61                  | 22.5                | 0        |
| 5               | 64QAM      | 12      | 7         | 20.51                 | 20.88                    | 20.81                  |                     |          |
| 5               | 64QAM      | 12      | 13        | 20.64                 | 20.51                    | 20.88                  |                     |          |
| 5               | 64QAM      | 25      | 0         | 20.66                 | 20.96                    | 20.81                  |                     |          |

| Channel         |       |    |    | 20415 | 20525 | 20635 | Tune-up limit<br>(dBm) | MPR<br>(dB) |
|-----------------|-------|----|----|-------|-------|-------|------------------------|-------------|
| Frequency (MHz) |       |    |    | 825.5 | 836.5 | 847.5 |                        |             |
| 3               | QPSK  | 1  | 0  | 22.19 | 22.17 | 22.47 | 22.5                   | 0           |
| 3               | QPSK  | 1  | 8  | 22.05 | 22.04 | 22.32 |                        |             |
| 3               | QPSK  | 1  | 14 | 21.97 | 22.06 | 22.12 |                        |             |
| 3               | QPSK  | 8  | 0  | 21.95 | 22.21 | 22.11 | 22.5                   | 0           |
| 3               | QPSK  | 8  | 4  | 21.97 | 22.31 | 22.35 |                        |             |
| 3               | QPSK  | 8  | 7  | 22.01 | 22.41 | 22.25 |                        |             |
| 3               | QPSK  | 15 | 0  | 22.01 | 22.26 | 22.29 |                        |             |
| 3               | 16QAM | 1  | 0  | 22.12 | 21.97 | 22.30 | 22.5                   | 0           |
| 3               | 16QAM | 1  | 8  | 22.03 | 22.10 | 22.08 |                        |             |
| 3               | 16QAM | 1  | 14 | 22.06 | 22.01 | 22.10 |                        |             |
| 3               | 16QAM | 8  | 0  | 20.97 | 21.28 | 21.65 | 22.5                   | 0           |
| 3               | 16QAM | 8  | 4  | 21.11 | 21.42 | 21.93 |                        |             |
| 3               | 16QAM | 8  | 7  | 21.13 | 21.53 | 21.91 |                        |             |
| 3               | 16QAM | 15 | 0  | 20.99 | 21.32 | 21.81 |                        |             |
| 3               | 64QAM | 1  | 0  | 21.13 | 21.38 | 21.70 | 22.5                   | 0           |
| 3               | 64QAM | 1  | 8  | 21.30 | 21.46 | 22.00 |                        |             |
| 3               | 64QAM | 1  | 14 | 21.29 | 21.73 | 21.94 |                        |             |
| 3               | 64QAM | 8  | 0  | 20.56 | 20.73 | 20.65 | 22.5                   | 0           |
| 3               | 64QAM | 8  | 4  | 20.51 | 20.85 | 20.80 |                        |             |
| 3               | 64QAM | 8  | 7  | 20.64 | 20.52 | 20.87 |                        |             |
| 3               | 64QAM | 15 | 0  | 20.58 | 20.94 | 20.76 |                        |             |
| 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  | 22.21 | 22.19 | 22.37 | 22.5                   | 0           |
| 1.4             | QPSK  | 1  | 3  | 22.01 | 22.14 | 22.27 |                        |             |
| 1.4             | QPSK  | 1  | 5  | 21.99 | 22.14 | 22.17 |                        |             |
| 1.4             | QPSK  | 3  | 0  | 21.94 | 22.14 | 22.12 |                        |             |
| 1.4             | QPSK  | 3  | 1  | 21.95 | 22.30 | 22.30 |                        |             |
| 1.4             | QPSK  | 3  | 3  | 22.03 | 22.36 | 22.30 |                        |             |
| 1.4             | QPSK  | 6  | 0  | 21.95 | 22.24 | 22.26 | 22.5                   | 0           |
| 1.4             | 16QAM | 1  | 0  | 22.09 | 21.95 | 22.21 | 22.5                   | 0           |
| 1.4             | 16QAM | 1  | 3  | 22.05 | 22.15 | 22.11 |                        |             |
| 1.4             | 16QAM | 1  | 5  | 22.06 | 22.01 | 22.15 |                        |             |
| 1.4             | 16QAM | 3  | 0  | 20.95 | 21.27 | 21.72 |                        |             |
| 1.4             | 16QAM | 3  | 1  | 21.04 | 21.36 | 21.83 |                        |             |
| 1.4             | 16QAM | 3  | 3  | 21.18 | 21.54 | 21.97 |                        |             |
| 1.4             | 16QAM | 6  | 0  | 21.05 | 21.30 | 21.84 | 22.5                   | 0           |
| 1.4             | 64QAM | 1  | 0  | 21.16 | 21.39 | 21.70 | 22.5                   | 0           |
| 1.4             | 64QAM | 1  | 3  | 21.27 | 21.41 | 21.95 |                        |             |
| 1.4             | 64QAM | 1  | 5  | 21.29 | 21.65 | 21.97 |                        |             |
| 1.4             | 64QAM | 3  | 0  | 20.52 | 20.75 | 20.63 |                        |             |
| 1.4             | 64QAM | 3  | 1  | 20.54 | 20.87 | 20.83 |                        |             |
| 1.4             | 64QAM | 3  | 3  | 20.63 | 20.51 | 20.86 |                        |             |
| 1.4             | 64QAM | 6  | 0  | 20.59 | 20.86 | 20.75 | 22.5                   | 0           |

**<LTE Band 7>**

| 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         |            |         |           | 20850                 | 21100                    | 21350                  |                     |          |
| Frequency (MHz) |            |         |           | 2510                  | 2535                     | 2560                   |                     |          |
| 20              | QPSK       | 1       | 0         | 16.89                 | 16.56                    | 16.77                  | 17                  | 0        |
| 20              | QPSK       | 1       | 49        | 16.69                 | 16.42                    | 16.67                  |                     |          |
| 20              | QPSK       | 1       | 99        | 16.50                 | 16.43                    | 16.66                  |                     |          |
| 20              | QPSK       | 50      | 0         | 16.81                 | 16.52                    | 16.56                  | 17                  | 0        |
| 20              | QPSK       | 50      | 24        | 16.73                 | 16.57                    | 16.71                  |                     |          |
| 20              | QPSK       | 50      | 50        | 16.60                 | 16.46                    | 16.79                  |                     |          |
| 20              | QPSK       | 100     | 0         | 16.75                 | 16.55                    | 16.64                  | 17                  | 0        |
| 20              | 16QAM      | 1       | 0         | 16.36                 | 16.40                    | 16.45                  |                     |          |
| 20              | 16QAM      | 1       | 49        | 16.08                 | 16.36                    | 16.47                  |                     |          |
| 20              | 16QAM      | 1       | 99        | 16.03                 | 16.48                    | 16.54                  | 17                  | 0        |
| 20              | 16QAM      | 50      | 0         | 16.47                 | 16.19                    | 16.21                  |                     |          |
| 20              | 16QAM      | 50      | 24        | 16.34                 | 16.24                    | 16.35                  |                     |          |
| 20              | 16QAM      | 50      | 50        | 16.46                 | 16.20                    | 16.44                  | 17                  | 0        |
| 20              | 16QAM      | 100     | 0         | 16.43                 | 16.20                    | 16.38                  |                     |          |
| 20              | 64QAM      | 1       | 0         | 16.32                 | 16.22                    | 16.20                  |                     |          |
| 20              | 64QAM      | 1       | 49        | 16.29                 | 16.32                    | 16.23                  | 17                  | 0        |
| 20              | 64QAM      | 1       | 99        | 16.34                 | 16.29                    | 16.21                  |                     |          |
| 20              | 64QAM      | 50      | 0         | 16.39                 | 16.19                    | 16.22                  |                     |          |
| 20              | 64QAM      | 50      | 24        | 16.30                 | 16.26                    | 16.27                  | 17                  | 0        |
| 20              | 64QAM      | 50      | 50        | 16.18                 | 16.05                    | 16.07                  |                     |          |
| 20              | 64QAM      | 100     | 0         | 16.33                 | 16.05                    | 16.09                  |                     |          |
| Channel         |            |         |           | 20825                 | 21100                    | 21375                  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 2507.5                | 2535                     | 2562.5                 |                     |          |
| 15              | QPSK       | 1       | 0         | 16.81                 | 16.51                    | 16.72                  | 17                  | 0        |
| 15              | QPSK       | 1       | 37        | 16.69                 | 16.42                    | 16.59                  |                     |          |
| 15              | QPSK       | 1       | 74        | 16.49                 | 16.43                    | 16.64                  |                     |          |
| 15              | QPSK       | 36      | 0         | 16.71                 | 16.50                    | 16.46                  | 17                  | 0        |
| 15              | QPSK       | 36      | 20        | 16.65                 | 16.50                    | 16.71                  |                     |          |
| 15              | QPSK       | 36      | 39        | 16.57                 | 16.41                    | 16.79                  |                     |          |
| 15              | QPSK       | 75      | 0         | 16.67                 | 16.45                    | 16.55                  | 17                  | 0        |
| 15              | 16QAM      | 1       | 0         | 16.34                 | 16.35                    | 16.40                  |                     |          |
| 15              | 16QAM      | 1       | 37        | 16.02                 | 16.28                    | 16.42                  |                     |          |
| 15              | 16QAM      | 1       | 74        | 15.93                 | 16.43                    | 16.47                  | 17                  | 0        |
| 15              | 16QAM      | 36      | 0         | 16.40                 | 16.16                    | 16.12                  |                     |          |
| 15              | 16QAM      | 36      | 20        | 16.30                 | 16.15                    | 16.29                  |                     |          |
| 15              | 16QAM      | 36      | 39        | 16.45                 | 16.15                    | 16.34                  | 17                  | 0        |
| 15              | 16QAM      | 75      | 0         | 16.40                 | 16.18                    | 16.29                  |                     |          |
| 15              | 64QAM      | 1       | 0         | 16.30                 | 16.12                    | 16.10                  |                     |          |
| 15              | 64QAM      | 1       | 37        | 16.24                 | 16.24                    | 16.23                  | 17                  | 0        |
| 15              | 64QAM      | 1       | 74        | 16.33                 | 16.29                    | 16.16                  |                     |          |
| 15              | 64QAM      | 36      | 0         | 16.33                 | 16.18                    | 16.16                  |                     |          |
| 15              | 64QAM      | 36      | 20        | 16.28                 | 16.24                    | 16.22                  | 17                  | 0        |
| 15              | 64QAM      | 36      | 39        | 16.11                 | 15.95                    | 16.02                  |                     |          |
| 15              | 64QAM      | 75      | 0         | 16.29                 | 15.96                    | 16.06                  |                     |          |

| Channel         |       |    |    | 20800  | 21100 | 21400  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
|-----------------|-------|----|----|--------|-------|--------|------------------------|-------------|
| Frequency (MHz) |       |    |    | 2505   | 2535  | 2565   |                        |             |
| 10              | QPSK  | 1  | 0  | 16.88  | 16.51 | 16.72  | 17                     | 0           |
| 10              | QPSK  | 1  | 25 | 16.65  | 16.39 | 16.66  |                        |             |
| 10              | QPSK  | 1  | 49 | 16.43  | 16.39 | 16.62  |                        |             |
| 10              | QPSK  | 25 | 0  | 16.79  | 16.51 | 16.49  | 17                     | 0           |
| 10              | QPSK  | 25 | 12 | 16.66  | 16.52 | 16.70  |                        |             |
| 10              | QPSK  | 25 | 25 | 16.58  | 16.38 | 16.76  |                        |             |
| 10              | QPSK  | 50 | 0  | 16.74  | 16.52 | 16.62  |                        |             |
| 10              | 16QAM | 1  | 0  | 16.29  | 16.35 | 16.39  | 17                     | 0           |
| 10              | 16QAM | 1  | 25 | 16.06  | 16.35 | 16.46  |                        |             |
| 10              | 16QAM | 1  | 49 | 15.94  | 16.44 | 16.52  |                        |             |
| 10              | 16QAM | 25 | 0  | 16.44  | 16.11 | 16.19  | 17                     | 0           |
| 10              | 16QAM | 25 | 12 | 16.31  | 16.22 | 16.28  |                        |             |
| 10              | 16QAM | 25 | 25 | 16.41  | 16.12 | 16.39  |                        |             |
| 10              | 16QAM | 50 | 0  | 16.38  | 16.17 | 16.37  |                        |             |
| 10              | 64QAM | 1  | 0  | 16.29  | 16.16 | 16.15  | 17                     | 0           |
| 10              | 64QAM | 1  | 25 | 16.24  | 16.23 | 16.23  |                        |             |
| 10              | 64QAM | 1  | 49 | 16.30  | 16.26 | 16.19  |                        |             |
| 10              | 64QAM | 25 | 0  | 16.29  | 16.17 | 16.16  | 17                     | 0           |
| 10              | 64QAM | 25 | 12 | 16.27  | 16.20 | 16.21  |                        |             |
| 10              | 64QAM | 25 | 25 | 16.16  | 15.99 | 16.01  |                        |             |
| 10              | 64QAM | 50 | 0  | 16.30  | 16.03 | 16.09  |                        |             |
| Channel         |       |    |    | 20775  | 21100 | 21425  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 2502.5 | 2535  | 2567.5 |                        |             |
| 5               | QPSK  | 1  | 0  | 16.84  | 16.55 | 16.70  | 17                     | 0           |
| 5               | QPSK  | 1  | 12 | 16.66  | 16.39 | 16.62  |                        |             |
| 5               | QPSK  | 1  | 24 | 16.49  | 16.33 | 16.66  |                        |             |
| 5               | QPSK  | 12 | 0  | 16.71  | 16.42 | 16.56  | 17                     | 0           |
| 5               | QPSK  | 12 | 7  | 16.67  | 16.51 | 16.66  |                        |             |
| 5               | QPSK  | 12 | 13 | 16.57  | 16.38 | 16.73  |                        |             |
| 5               | QPSK  | 25 | 0  | 16.68  | 16.50 | 16.54  |                        |             |
| 5               | 16QAM | 1  | 0  | 16.34  | 16.35 | 16.36  | 17                     | 0           |
| 5               | 16QAM | 1  | 12 | 16.06  | 16.31 | 16.40  |                        |             |
| 5               | 16QAM | 1  | 24 | 16.03  | 16.40 | 16.46  |                        |             |
| 5               | 16QAM | 12 | 0  | 16.37  | 16.18 | 16.21  | 17                     | 0           |
| 5               | 16QAM | 12 | 7  | 16.34  | 16.21 | 16.33  |                        |             |
| 5               | 16QAM | 12 | 13 | 16.41  | 16.19 | 16.39  |                        |             |
| 5               | 16QAM | 25 | 0  | 16.39  | 16.17 | 16.35  |                        |             |
| 5               | 64QAM | 1  | 0  | 16.28  | 16.15 | 16.20  | 17                     | 0           |
| 5               | 64QAM | 1  | 12 | 16.21  | 16.31 | 16.22  |                        |             |
| 5               | 64QAM | 1  | 24 | 16.27  | 16.21 | 16.17  |                        |             |
| 5               | 64QAM | 12 | 0  | 16.39  | 16.17 | 16.20  | 17                     | 0           |
| 5               | 64QAM | 12 | 7  | 16.26  | 16.19 | 16.19  |                        |             |
| 5               | 64QAM | 12 | 13 | 16.17  | 16.01 | 16.03  |                        |             |
| 5               | 64QAM | 25 | 0  | 16.28  | 16.05 | 16.00  |                        |             |

**<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         | 20.80                 | 20.82                    | 20.98                  | 21                  | 0        |
| 10              | QPSK       | 1       | 25        | 20.66                 | 20.64                    | 20.68                  |                     |          |
| 10              | QPSK       | 1       | 49        | 20.58                 | 20.62                    | 20.42                  |                     |          |
| 10              | QPSK       | 25      | 0         | 20.54                 | 20.43                    | 20.23                  | 21                  | 0        |
| 10              | QPSK       | 25      | 12        | 20.48                 | 20.44                    | 20.44                  |                     |          |
| 10              | QPSK       | 25      | 25        | 20.51                 | 20.49                    | 20.42                  |                     |          |
| 10              | QPSK       | 50      | 0         | 20.48                 | 20.39                    | 20.26                  |                     |          |
| 10              | 16QAM      | 1       | 0         | 20.51                 | 20.46                    | 20.38                  | 21                  | 0        |
| 10              | 16QAM      | 1       | 25        | 20.64                 | 20.40                    | 20.51                  |                     |          |
| 10              | 16QAM      | 1       | 49        | 20.70                 | 20.41                    | 20.62                  |                     |          |
| 10              | 16QAM      | 25      | 0         | 20.45                 | 20.63                    | 20.42                  | 21                  | 0        |
| 10              | 16QAM      | 25      | 12        | 20.42                 | 20.62                    | 20.36                  |                     |          |
| 10              | 16QAM      | 25      | 25        | 20.65                 | 20.68                    | 20.54                  |                     |          |
| 10              | 16QAM      | 50      | 0         | 20.64                 | 20.61                    | 20.33                  |                     |          |
| 10              | 64QAM      | 1       | 0         | 20.41                 | 20.60                    | 20.40                  | 21                  | 0        |
| 10              | 64QAM      | 1       | 25        | 20.85                 | 20.47                    | 20.46                  |                     |          |
| 10              | 64QAM      | 1       | 49        | 20.76                 | 20.85                    | 20.53                  |                     |          |
| 10              | 64QAM      | 25      | 0         | 20.79                 | 20.52                    | 20.40                  | 21                  | 0        |
| 10              | 64QAM      | 25      | 12        | 20.70                 | 20.60                    | 20.63                  |                     |          |
| 10              | 64QAM      | 25      | 25        | 20.63                 | 20.64                    | 20.51                  |                     |          |
| 10              | 64QAM      | 50      | 0         | 20.67                 | 20.60                    | 20.30                  |                     |          |
| Channel         |            |         |           | 20.54                 | 20.59                    | 20.39                  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 701.5                 | 707.5                    | 713.5                  |                     |          |
| 5               | QPSK       | 1       | 0         | 20.70                 | 20.78                    | 20.77                  | 21                  | 0        |
| 5               | QPSK       | 1       | 12        | 20.57                 | 20.54                    | 20.63                  |                     |          |
| 5               | QPSK       | 1       | 24        | 20.48                 | 20.55                    | 20.33                  |                     |          |
| 5               | QPSK       | 12      | 0         | 20.47                 | 20.38                    | 20.17                  | 21                  | 0        |
| 5               | QPSK       | 12      | 7         | 20.41                 | 20.42                    | 20.40                  |                     |          |
| 5               | QPSK       | 12      | 13        | 20.42                 | 20.40                    | 20.34                  |                     |          |
| 5               | QPSK       | 25      | 0         | 20.45                 | 20.32                    | 20.16                  |                     |          |
| 5               | 16QAM      | 1       | 0         | 20.46                 | 20.43                    | 20.33                  | 21                  | 0        |
| 5               | 16QAM      | 1       | 12        | 20.59                 | 20.34                    | 20.46                  |                     |          |
| 5               | 16QAM      | 1       | 24        | 20.70                 | 20.40                    | 20.56                  |                     |          |
| 5               | 16QAM      | 12      | 0         | 20.44                 | 20.57                    | 20.39                  | 21                  | 0        |
| 5               | 16QAM      | 12      | 7         | 20.39                 | 20.58                    | 20.36                  |                     |          |
| 5               | 16QAM      | 12      | 13        | 20.65                 | 20.64                    | 20.47                  |                     |          |
| 5               | 16QAM      | 25      | 0         | 20.57                 | 20.55                    | 20.26                  |                     |          |
| 5               | 64QAM      | 1       | 0         | 20.40                 | 20.50                    | 20.34                  | 21                  | 0        |
| 5               | 64QAM      | 1       | 12        | 20.75                 | 20.38                    | 20.36                  |                     |          |
| 5               | 64QAM      | 1       | 24        | 20.71                 | 20.79                    | 20.48                  |                     |          |
| 5               | 64QAM      | 12      | 0         | 20.76                 | 20.42                    | 20.37                  | 21                  | 0        |
| 5               | 64QAM      | 12      | 7         | 20.66                 | 20.57                    | 20.55                  |                     |          |
| 5               | 64QAM      | 12      | 13        | 20.60                 | 20.64                    | 20.42                  |                     |          |
| 5               | 64QAM      | 25      | 0         | 20.63                 | 20.52                    | 20.22                  |                     |          |

| Channel         |       |    |    | 23025 | 23095 | 23165 | Tune-up limit<br>(dBm) | MPR<br>(dB) |
|-----------------|-------|----|----|-------|-------|-------|------------------------|-------------|
| Frequency (MHz) |       |    |    | 700.5 | 707.5 | 714.5 |                        |             |
| 3               | QPSK  | 1  | 0  | 20.72 | 20.79 | 20.92 | 21                     | 0           |
| 3               | QPSK  | 1  | 8  | 20.57 | 20.61 | 20.59 |                        |             |
| 3               | QPSK  | 1  | 14 | 20.49 | 20.52 | 20.36 |                        |             |
| 3               | QPSK  | 8  | 0  | 20.49 | 20.40 | 20.17 | 21                     | 0           |
| 3               | QPSK  | 8  | 4  | 20.43 | 20.42 | 20.34 |                        |             |
| 3               | QPSK  | 8  | 7  | 20.47 | 20.49 | 20.38 |                        |             |
| 3               | QPSK  | 15 | 0  | 20.44 | 20.35 | 20.17 |                        |             |
| 3               | 16QAM | 1  | 0  | 20.49 | 20.40 | 20.37 | 21                     | 0           |
| 3               | 16QAM | 1  | 8  | 20.54 | 20.37 | 20.41 |                        |             |
| 3               | 16QAM | 1  | 14 | 20.65 | 20.41 | 20.52 |                        |             |
| 3               | 16QAM | 8  | 0  | 20.39 | 20.57 | 20.41 | 21                     | 0           |
| 3               | 16QAM | 8  | 4  | 20.41 | 20.60 | 20.31 |                        |             |
| 3               | 16QAM | 8  | 7  | 20.65 | 20.62 | 20.44 |                        |             |
| 3               | 16QAM | 15 | 0  | 20.64 | 20.57 | 20.26 |                        |             |
| 3               | 64QAM | 1  | 0  | 20.39 | 20.55 | 20.34 | 21                     | 0           |
| 3               | 64QAM | 1  | 8  | 20.83 | 20.44 | 20.42 |                        |             |
| 3               | 64QAM | 1  | 14 | 20.69 | 20.83 | 20.45 |                        |             |
| 3               | 64QAM | 8  | 0  | 20.79 | 20.48 | 20.37 | 21                     | 0           |
| 3               | 64QAM | 8  | 4  | 20.68 | 20.55 | 20.54 |                        |             |
| 3               | 64QAM | 8  | 7  | 20.57 | 20.60 | 20.41 |                        |             |
| 3               | 64QAM | 15 | 0  | 20.60 | 20.58 | 20.20 |                        |             |
| 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  | 20.79 | 20.74 | 20.88 | 21                     | 0           |
| 1.4             | QPSK  | 1  | 3  | 20.66 | 20.58 | 20.61 |                        |             |
| 1.4             | QPSK  | 1  | 5  | 20.50 | 20.60 | 20.37 |                        |             |
| 1.4             | QPSK  | 3  | 0  | 20.46 | 20.38 | 20.15 |                        |             |
| 1.4             | QPSK  | 3  | 1  | 20.42 | 20.37 | 20.36 |                        |             |
| 1.4             | QPSK  | 3  | 3  | 20.51 | 20.43 | 20.37 |                        |             |
| 1.4             | QPSK  | 6  | 0  | 20.48 | 20.33 | 20.20 | 21                     | 0           |
| 1.4             | 16QAM | 1  | 0  | 20.44 | 20.44 | 20.29 | 21                     | 0           |
| 1.4             | 16QAM | 1  | 3  | 20.56 | 20.36 | 20.45 |                        |             |
| 1.4             | 16QAM | 1  | 5  | 20.63 | 20.34 | 20.60 |                        |             |
| 1.4             | 16QAM | 3  | 0  | 20.43 | 20.54 | 20.36 |                        |             |
| 1.4             | 16QAM | 3  | 1  | 20.34 | 20.58 | 20.35 |                        |             |
| 1.4             | 16QAM | 3  | 3  | 20.60 | 20.65 | 20.51 |                        |             |
| 1.4             | 16QAM | 6  | 0  | 20.64 | 20.58 | 20.23 | 21                     | 0           |
| 1.4             | 64QAM | 1  | 0  | 20.35 | 20.53 | 20.34 | 21                     | 0           |
| 1.4             | 64QAM | 1  | 3  | 20.85 | 20.39 | 20.45 |                        |             |
| 1.4             | 64QAM | 1  | 5  | 20.69 | 20.80 | 20.48 |                        |             |
| 1.4             | 64QAM | 3  | 0  | 20.70 | 20.51 | 20.33 |                        |             |
| 1.4             | 64QAM | 3  | 1  | 20.68 | 20.54 | 20.61 |                        |             |
| 1.4             | 64QAM | 3  | 3  | 20.57 | 20.57 | 20.44 |                        |             |
| 1.4             | 64QAM | 6  | 0  | 20.63 | 20.56 | 20.27 | 21                     | 0           |

**<LTE Band 13>**

| 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         |            |         |           | 23230                 |                          |                        |                     |          |
| Frequency (MHz) |            |         |           | 782                   |                          |                        |                     |          |
| 10              | QPSK       | 1       | 0         |                       | 22.50                    |                        | 22.5                | 0        |
| 10              | QPSK       | 1       | 25        |                       | 22.36                    |                        |                     |          |
| 10              | QPSK       | 1       | 49        |                       | 22.46                    |                        |                     |          |
| 10              | QPSK       | 25      | 0         |                       | 22.04                    |                        | 22.5                | 0        |
| 10              | QPSK       | 25      | 12        |                       | 21.99                    |                        |                     |          |
| 10              | QPSK       | 25      | 25        |                       | 22.01                    |                        |                     |          |
| 10              | QPSK       | 50      | 0         |                       | 21.91                    |                        | 22.5                | 0        |
| 10              | 16QAM      | 1       | 0         |                       | 22.38                    |                        |                     |          |
| 10              | 16QAM      | 1       | 25        |                       | 22.05                    |                        |                     |          |
| 10              | 16QAM      | 1       | 49        |                       | 22.31                    |                        | 21.5                | 1        |
| 10              | 16QAM      | 25      | 0         |                       | 21.18                    |                        |                     |          |
| 10              | 16QAM      | 25      | 12        |                       | 21.14                    |                        |                     |          |
| 10              | 16QAM      | 25      | 25        |                       | 21.07                    |                        | 21.5                | 1        |
| 10              | 16QAM      | 50      | 0         |                       | 20.99                    |                        |                     |          |
| 10              | 64QAM      | 1       | 0         |                       | 21.40                    |                        |                     |          |
| 10              | 64QAM      | 1       | 25        |                       | 21.12                    |                        | 21.5                | 1        |
| 10              | 64QAM      | 1       | 49        |                       | 21.20                    |                        |                     |          |
| 10              | 64QAM      | 25      | 0         |                       | 20.15                    |                        | 20.5                | 2        |
| 10              | 64QAM      | 25      | 12        |                       | 20.04                    |                        |                     |          |
| 10              | 64QAM      | 25      | 25        |                       | 20.04                    |                        |                     |          |
| 10              | 64QAM      | 50      | 0         |                       | 20.05                    |                        |                     |          |
| Channel         |            |         |           | 23205                 | 23230                    | 23255                  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 779.5                 | 782                      | 784.5                  |                     |          |
| 5               | QPSK       | 1       | 0         | 22.46                 | 22.37                    | 22.27                  | 22.5                | 0        |
| 5               | QPSK       | 1       | 12        | 22.33                 | 22.24                    | 22.35                  |                     |          |
| 5               | QPSK       | 1       | 24        | 22.30                 | 22.32                    | 22.36                  |                     |          |
| 5               | QPSK       | 12      | 0         | 21.82                 | 21.85                    | 21.87                  | 22.5                | 0        |
| 5               | QPSK       | 12      | 7         | 21.78                 | 21.69                    | 21.84                  |                     |          |
| 5               | QPSK       | 12      | 13        | 21.81                 | 21.85                    | 21.77                  |                     |          |
| 5               | QPSK       | 25      | 0         | 21.81                 | 21.71                    | 21.86                  | 22.5                | 0        |
| 5               | 16QAM      | 1       | 0         | 22.27                 | 22.34                    | 22.11                  |                     |          |
| 5               | 16QAM      | 1       | 12        | 22.19                 | 21.99                    | 22.15                  |                     |          |
| 5               | 16QAM      | 1       | 24        | 22.13                 | 21.98                    | 22.23                  | 21.5                | 1        |
| 5               | 16QAM      | 12      | 0         | 20.93                 | 20.97                    | 20.88                  |                     |          |
| 5               | 16QAM      | 12      | 7         | 20.92                 | 20.78                    | 20.87                  |                     |          |
| 5               | 16QAM      | 12      | 13        | 20.95                 | 20.84                    | 20.80                  | 21.5                | 1        |
| 5               | 16QAM      | 25      | 0         | 20.90                 | 20.74                    | 20.84                  |                     |          |
| 5               | 64QAM      | 1       | 0         | 21.33                 | 21.10                    | 21.01                  |                     |          |
| 5               | 64QAM      | 1       | 12        | 20.99                 | 21.08                    | 21.11                  | 21.5                | 1        |
| 5               | 64QAM      | 1       | 24        | 20.99                 | 21.03                    | 21.20                  |                     |          |
| 5               | 64QAM      | 12      | 0         | 19.88                 | 19.83                    | 19.87                  | 20.5                | 2        |
| 5               | 64QAM      | 12      | 7         | 19.82                 | 19.70                    | 19.87                  |                     |          |
| 5               | 64QAM      | 12      | 13        | 19.83                 | 19.84                    | 19.85                  |                     |          |
| 5               | 64QAM      | 25      | 0         | 19.85                 | 19.71                    | 19.81                  |                     |          |



**<LTE Band 14>**

| 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         |            |         |           | 23330                    |                             |                           |                        |             |
| Frequency (MHz) |            |         |           | 793                      |                             |                           |                        |             |
| 10              | QPSK       | 1       | 0         |                          | 21.79                       |                           | 22                     | 0           |
| 10              | QPSK       | 1       | 25        |                          | 21.43                       |                           |                        |             |
| 10              | QPSK       | 1       | 49        |                          | 21.49                       |                           |                        |             |
| 10              | QPSK       | 25      | 0         |                          | 21.67                       |                           | 22                     | 0           |
| 10              | QPSK       | 25      | 12        |                          | 21.57                       |                           |                        |             |
| 10              | QPSK       | 25      | 25        |                          | 21.56                       |                           |                        |             |
| 10              | QPSK       | 50      | 0         |                          | 21.46                       |                           | 22                     | 0           |
| 10              | 16QAM      | 1       | 0         |                          | 21.78                       |                           |                        |             |
| 10              | 16QAM      | 1       | 25        |                          | 21.72                       |                           |                        |             |
| 10              | 16QAM      | 1       | 49        |                          | 21.69                       |                           | 22                     | 0           |
| 10              | 16QAM      | 25      | 0         |                          | 20.76                       |                           |                        |             |
| 10              | 16QAM      | 25      | 12        |                          | 20.63                       |                           |                        |             |
| 10              | 16QAM      | 25      | 25        |                          | 20.64                       |                           | 22                     | 0           |
| 10              | 16QAM      | 50      | 0         |                          | 20.55                       |                           |                        |             |
| 10              | 64QAM      | 1       | 0         |                          | 20.92                       |                           |                        |             |
| 10              | 64QAM      | 1       | 25        |                          | 20.57                       |                           | 22                     | 0           |
| 10              | 64QAM      | 1       | 49        |                          | 20.71                       |                           |                        |             |
| 10              | 64QAM      | 25      | 0         |                          | 19.45                       |                           |                        |             |
| 10              | 64QAM      | 25      | 12        |                          | 19.36                       |                           | 21                     | 1           |
| 10              | 64QAM      | 25      | 25        |                          | 19.41                       |                           |                        |             |
| 10              | 64QAM      | 50      | 0         |                          | 19.37                       |                           |                        |             |
| Channel         |            |         |           | 23305                    | 23330                       | 23355                     | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |            |         |           | 790.5                    | 793                         | 795.5                     |                        |             |
| 5               | QPSK       | 1       | 0         | 21.58                    | 21.53                       | 21.42                     | 22                     | 0           |
| 5               | QPSK       | 1       | 12        | 21.50                    | 21.34                       | 21.45                     |                        |             |
| 5               | QPSK       | 1       | 24        | 21.43                    | 21.42                       | 21.46                     |                        |             |
| 5               | QPSK       | 12      | 0         | 21.47                    | 21.40                       | 21.45                     | 22                     | 0           |
| 5               | QPSK       | 12      | 7         | 21.44                    | 21.33                       | 21.42                     |                        |             |
| 5               | QPSK       | 12      | 13        | 21.36                    | 21.41                       | 21.45                     |                        |             |
| 5               | QPSK       | 25      | 0         | 21.46                    | 21.34                       | 21.47                     | 22                     | 0           |
| 5               | 16QAM      | 1       | 0         | 21.70                    | 21.73                       | 21.58                     |                        |             |
| 5               | 16QAM      | 1       | 12        | 21.76                    | 21.74                       | 21.70                     |                        |             |
| 5               | 16QAM      | 1       | 24        | 21.69                    | 21.71                       | 21.77                     | 22                     | 0           |
| 5               | 16QAM      | 12      | 0         | 20.57                    | 20.42                       | 20.48                     |                        |             |
| 5               | 16QAM      | 12      | 7         | 20.46                    | 20.34                       | 20.47                     |                        |             |
| 5               | 16QAM      | 12      | 13        | 20.38                    | 20.46                       | 20.49                     | 22                     | 0           |
| 5               | 16QAM      | 25      | 0         | 20.50                    | 20.34                       | 20.47                     |                        |             |
| 5               | 64QAM      | 1       | 0         | 21.78                    | 21.64                       | 21.47                     |                        |             |
| 5               | 64QAM      | 1       | 12        | 21.65                    | 21.53                       | 21.67                     | 22                     | 0           |
| 5               | 64QAM      | 1       | 24        | 21.63                    | 21.64                       | 21.59                     |                        |             |
| 5               | 64QAM      | 12      | 0         | 20.53                    | 20.40                       | 20.44                     |                        |             |
| 5               | 64QAM      | 12      | 7         | 20.48                    | 20.33                       | 20.45                     | 21                     | 1           |
| 5               | 64QAM      | 12      | 13        | 20.39                    | 20.40                       | 20.45                     |                        |             |
| 5               | 64QAM      | 25      | 0         | 20.50                    | 20.32                       | 20.46                     |                        |             |

**<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                  | 21                  | 0        |
| Frequency (MHz) |            |         |           | 709                   | 710                      | 711                    |                     |          |
| 10              | QPSK       | 1       | 0         | 20.85                 | 20.85                    | 20.88                  |                     |          |
| 10              | QPSK       | 1       | 25        | 20.73                 | 20.78                    | 20.60                  | 21                  | 0        |
| 10              | QPSK       | 1       | 49        | 20.46                 | 20.41                    | 20.31                  |                     |          |
| 10              | QPSK       | 25      | 0         | 20.66                 | 20.64                    | 20.73                  |                     |          |
| 10              | QPSK       | 25      | 12        | 20.75                 | 20.71                    | 20.62                  | 21                  | 0        |
| 10              | QPSK       | 25      | 25        | 20.57                 | 20.56                    | 20.44                  |                     |          |
| 10              | QPSK       | 50      | 0         | 20.74                 | 20.66                    | 20.56                  |                     |          |
| 10              | 16QAM      | 1       | 0         | 20.71                 | 20.64                    | 20.61                  | 21                  | 0        |
| 10              | 16QAM      | 1       | 25        | 20.59                 | 20.40                    | 20.42                  |                     |          |
| 10              | 16QAM      | 1       | 49        | 20.20                 | 20.29                    | 20.28                  |                     |          |
| 10              | 16QAM      | 25      | 0         | 20.45                 | 20.46                    | 20.42                  | 21                  | 0        |
| 10              | 16QAM      | 25      | 12        | 20.43                 | 20.42                    | 20.31                  |                     |          |
| 10              | 16QAM      | 25      | 25        | 20.24                 | 20.19                    | 20.15                  |                     |          |
| 10              | 16QAM      | 50      | 0         | 20.34                 | 20.32                    | 20.18                  | 21                  | 0        |
| 10              | 64QAM      | 1       | 0         | 20.59                 | 20.65                    | 20.74                  |                     |          |
| 10              | 64QAM      | 1       | 25        | 20.49                 | 20.48                    | 20.36                  |                     |          |
| 10              | 64QAM      | 1       | 49        | 20.19                 | 20.14                    | 20.12                  | 21                  | 0        |
| 10              | 64QAM      | 25      | 0         | 20.51                 | 20.49                    | 20.39                  |                     |          |
| 10              | 64QAM      | 25      | 12        | 20.40                 | 20.41                    | 20.29                  |                     |          |
| 10              | 64QAM      | 25      | 25        | 20.22                 | 20.16                    | 20.09                  | 21                  | 0        |
| 10              | 64QAM      | 50      | 0         | 20.34                 | 20.27                    | 20.17                  |                     |          |
| Channel         |            |         |           | 23755                 | 23790                    | 23825                  | 21                  | 0        |
| Frequency (MHz) |            |         |           | 706.5                 | 710                      | 713.5                  |                     |          |
| 5               | QPSK       | 1       | 0         | 20.85                 | 20.80                    | 20.84                  |                     |          |
| 5               | QPSK       | 1       | 12        | 20.64                 | 20.74                    | 20.57                  | 21                  | 0        |
| 5               | QPSK       | 1       | 24        | 20.44                 | 20.34                    | 20.24                  |                     |          |
| 5               | QPSK       | 12      | 0         | 20.65                 | 20.57                    | 20.70                  | 21                  | 0        |
| 5               | QPSK       | 12      | 7         | 20.73                 | 20.62                    | 20.53                  |                     |          |
| 5               | QPSK       | 12      | 13        | 20.48                 | 20.55                    | 20.35                  |                     |          |
| 5               | QPSK       | 25      | 0         | 20.71                 | 20.62                    | 20.52                  | 21                  | 0        |
| 5               | 16QAM      | 1       | 0         | 20.66                 | 20.61                    | 20.52                  |                     |          |
| 5               | 16QAM      | 1       | 12        | 20.52                 | 20.39                    | 20.41                  |                     |          |
| 5               | 16QAM      | 1       | 24        | 20.10                 | 20.29                    | 20.19                  | 21                  | 0        |
| 5               | 16QAM      | 12      | 0         | 20.35                 | 20.41                    | 20.42                  |                     |          |
| 5               | 16QAM      | 12      | 7         | 20.36                 | 20.38                    | 20.23                  |                     |          |
| 5               | 16QAM      | 12      | 13        | 20.14                 | 20.14                    | 20.08                  | 21                  | 0        |
| 5               | 16QAM      | 25      | 0         | 20.29                 | 20.24                    | 20.16                  |                     |          |
| 5               | 64QAM      | 1       | 0         | 20.50                 | 20.56                    | 20.67                  |                     |          |
| 5               | 64QAM      | 1       | 12        | 20.42                 | 20.44                    | 20.32                  | 21                  | 0        |
| 5               | 64QAM      | 1       | 24        | 20.12                 | 20.14                    | 20.02                  |                     |          |
| 5               | 64QAM      | 12      | 0         | 20.47                 | 20.40                    | 20.39                  |                     |          |
| 5               | 64QAM      | 12      | 7         | 20.33                 | 20.34                    | 20.28                  | 21                  | 0        |
| 5               | 64QAM      | 12      | 13        | 20.14                 | 20.10                    | 20.01                  |                     |          |
| 5               | 64QAM      | 25      | 0         | 20.30                 | 20.23                    | 20.08                  |                     |          |

**<LTE Band 25>**

| 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         |            |         |           | 26140                 | 26340                    | 26590                  |                     |          |
| Frequency (MHz) |            |         |           | 1860                  | 1880                     | 1905                   |                     |          |
| 20              | QPSK       | 1       | 0         | 17.35                 | 17.43                    | 17.32                  | 17.5                | 0        |
| 20              | QPSK       | 1       | 49        | 17.06                 | 17.08                    | 17.04                  |                     |          |
| 20              | QPSK       | 1       | 99        | 17.27                 | 17.13                    | 17.03                  |                     |          |
| 20              | QPSK       | 50      | 0         | 17.09                 | 17.13                    | 17.01                  | 17.5                | 0        |
| 20              | QPSK       | 50      | 24        | 17.07                 | 17.13                    | 17.07                  |                     |          |
| 20              | QPSK       | 50      | 50        | 17.13                 | 17.17                    | 16.93                  |                     |          |
| 20              | QPSK       | 100     | 0         | 17.09                 | 17.17                    | 17.11                  | 17.5                | 0        |
| 20              | 16QAM      | 1       | 0         | 17.33                 | 17.39                    | 17.19                  |                     |          |
| 20              | 16QAM      | 1       | 49        | 17.29                 | 17.39                    | 17.27                  |                     |          |
| 20              | 16QAM      | 1       | 99        | 17.41                 | 17.24                    | 17.38                  | 17.5                | 0        |
| 20              | 16QAM      | 50      | 0         | 17.12                 | 17.21                    | 17.08                  |                     |          |
| 20              | 16QAM      | 50      | 24        | 17.10                 | 17.20                    | 17.12                  |                     |          |
| 20              | 16QAM      | 50      | 50        | 17.20                 | 17.22                    | 17.00                  | 17.5                | 0        |
| 20              | 16QAM      | 100     | 0         | 17.13                 | 17.21                    | 17.18                  |                     |          |
| 20              | 64QAM      | 1       | 0         | 17.03                 | 17.28                    | 17.02                  |                     |          |
| 20              | 64QAM      | 1       | 49        | 17.15                 | 17.32                    | 17.13                  | 17.5                | 0        |
| 20              | 64QAM      | 1       | 99        | 17.29                 | 17.26                    | 17.21                  |                     |          |
| 20              | 64QAM      | 50      | 0         | 17.01                 | 17.18                    | 16.88                  |                     |          |
| 20              | 64QAM      | 50      | 24        | 17.15                 | 17.23                    | 17.13                  | 17.5                | 0        |
| 20              | 64QAM      | 50      | 50        | 17.27                 | 17.20                    | 17.26                  |                     |          |
| 20              | 64QAM      | 100     | 0         | 16.98                 | 17.17                    | 16.96                  |                     |          |
| Channel         |            |         |           | 26115                 | 26340                    | 26615                  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 1857.5                | 1880                     | 1907.5                 |                     |          |
| 15              | QPSK       | 1       | 0         | 17.31                 | 17.41                    | 17.22                  | 17.5                | 0        |
| 15              | QPSK       | 1       | 37        | 17.00                 | 16.99                    | 16.99                  |                     |          |
| 15              | QPSK       | 1       | 74        | 17.23                 | 17.12                    | 16.99                  |                     |          |
| 15              | QPSK       | 36      | 0         | 17.01                 | 17.05                    | 17.00                  | 17.5                | 0        |
| 15              | QPSK       | 36      | 20        | 16.98                 | 17.10                    | 17.06                  |                     |          |
| 15              | QPSK       | 36      | 39        | 17.13                 | 17.14                    | 16.91                  |                     |          |
| 15              | QPSK       | 75      | 0         | 17.03                 | 17.14                    | 17.11                  | 17.5                | 0        |
| 15              | 16QAM      | 1       | 0         | 17.29                 | 17.32                    | 17.19                  |                     |          |
| 15              | 16QAM      | 1       | 37        | 17.21                 | 17.35                    | 17.22                  |                     |          |
| 15              | 16QAM      | 1       | 74        | 17.41                 | 17.20                    | 17.33                  | 17.5                | 0        |
| 15              | 16QAM      | 36      | 0         | 17.08                 | 17.15                    | 16.99                  |                     |          |
| 15              | 16QAM      | 36      | 20        | 17.08                 | 17.11                    | 17.05                  |                     |          |
| 15              | 16QAM      | 36      | 39        | 17.19                 | 17.21                    | 16.99                  | 17.5                | 0        |
| 15              | 16QAM      | 75      | 0         | 17.11                 | 17.12                    | 17.09                  |                     |          |
| 15              | 64QAM      | 1       | 0         | 16.95                 | 17.19                    | 17.00                  |                     |          |
| 15              | 64QAM      | 1       | 37        | 17.07                 | 17.32                    | 17.11                  | 17.5                | 0        |
| 15              | 64QAM      | 1       | 74        | 17.22                 | 17.26                    | 17.14                  |                     |          |
| 15              | 64QAM      | 36      | 0         | 16.97                 | 17.16                    | 16.93                  |                     |          |
| 15              | 64QAM      | 36      | 20        | 17.13                 | 17.19                    | 17.04                  | 17.5                | 0        |
| 15              | 64QAM      | 36      | 39        | 17.18                 | 17.14                    | 17.19                  |                     |          |
| 15              | 64QAM      | 75      | 0         | 16.89                 | 17.11                    | 16.88                  |                     |          |

| Channel         |       |    |    | 26090  | 26340 | 26640  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
|-----------------|-------|----|----|--------|-------|--------|------------------------|-------------|
| Frequency (MHz) |       |    |    | 1855   | 1880  | 1910   |                        |             |
| 10              | QPSK  | 1  | 0  | 17.28  | 17.33 | 17.26  | 17.5                   | 0           |
| 10              | QPSK  | 1  | 25 | 16.97  | 17.03 | 16.95  |                        |             |
| 10              | QPSK  | 1  | 49 | 17.22  | 17.13 | 16.95  |                        |             |
| 10              | QPSK  | 25 | 0  | 17.08  | 17.05 | 16.99  | 17.5                   | 0           |
| 10              | QPSK  | 25 | 12 | 17.00  | 17.11 | 17.07  |                        |             |
| 10              | QPSK  | 25 | 25 | 17.11  | 17.16 | 16.84  |                        |             |
| 10              | QPSK  | 50 | 0  | 17.08  | 17.17 | 17.09  | 17.5                   | 0           |
| 10              | 16QAM | 1  | 0  | 17.23  | 17.34 | 17.13  |                        |             |
| 10              | 16QAM | 1  | 25 | 17.21  | 17.30 | 17.19  |                        |             |
| 10              | 16QAM | 1  | 49 | 17.33  | 17.16 | 17.29  | 17.5                   | 0           |
| 10              | 16QAM | 25 | 0  | 17.11  | 17.18 | 17.03  |                        |             |
| 10              | 16QAM | 25 | 12 | 17.02  | 17.18 | 17.10  |                        |             |
| 10              | 16QAM | 25 | 25 | 17.20  | 17.20 | 17.41  | 17.5                   | 0           |
| 10              | 16QAM | 50 | 0  | 17.07  | 17.11 | 17.15  |                        |             |
| 10              | 64QAM | 1  | 0  | 17.00  | 17.18 | 16.93  |                        |             |
| 10              | 64QAM | 1  | 25 | 17.09  | 17.27 | 17.08  | 17.5                   | 0           |
| 10              | 64QAM | 1  | 49 | 17.20  | 17.24 | 17.20  |                        |             |
| 10              | 64QAM | 25 | 0  | 16.96  | 17.09 | 16.96  |                        |             |
| 10              | 64QAM | 25 | 12 | 17.10  | 17.23 | 17.04  | 17.5                   | 0           |
| 10              | 64QAM | 25 | 25 | 17.23  | 17.14 | 17.17  |                        |             |
| 10              | 64QAM | 50 | 0  | 16.90  | 17.16 | 16.87  |                        |             |
| Channel         |       |    |    | 26065  | 26340 | 26665  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 1852.5 | 1880  | 1912.5 |                        |             |
| 5               | QPSK  | 1  | 0  | 17.35  | 17.37 | 17.27  | 17.5                   | 0           |
| 5               | QPSK  | 1  | 12 | 16.97  | 17.03 | 17.00  |                        |             |
| 5               | QPSK  | 1  | 24 | 17.18  | 17.05 | 16.97  |                        |             |
| 5               | QPSK  | 12 | 0  | 17.05  | 17.06 | 16.96  | 17.5                   | 0           |
| 5               | QPSK  | 12 | 7  | 17.02  | 17.11 | 17.05  |                        |             |
| 5               | QPSK  | 12 | 13 | 17.07  | 17.14 | 16.83  |                        |             |
| 5               | QPSK  | 25 | 0  | 17.04  | 17.09 | 17.02  | 17.5                   | 0           |
| 5               | 16QAM | 1  | 0  | 17.33  | 17.30 | 17.13  |                        |             |
| 5               | 16QAM | 1  | 12 | 17.23  | 17.33 | 17.23  |                        |             |
| 5               | 16QAM | 1  | 24 | 17.38  | 17.21 | 17.37  | 17.5                   | 0           |
| 5               | 16QAM | 12 | 0  | 17.08  | 17.16 | 17.05  |                        |             |
| 5               | 16QAM | 12 | 7  | 17.10  | 17.19 | 17.08  |                        |             |
| 5               | 16QAM | 12 | 13 | 17.10  | 17.19 | 16.96  | 17.5                   | 0           |
| 5               | 16QAM | 25 | 0  | 17.12  | 17.18 | 17.13  |                        |             |
| 5               | 64QAM | 1  | 0  | 16.94  | 17.25 | 17.02  |                        |             |
| 5               | 64QAM | 1  | 12 | 17.15  | 17.23 | 17.04  | 17.5                   | 0           |
| 5               | 64QAM | 1  | 24 | 17.22  | 17.25 | 17.17  |                        |             |
| 5               | 64QAM | 12 | 0  | 16.96  | 17.12 | 17.41  |                        |             |
| 5               | 64QAM | 12 | 7  | 17.06  | 17.19 | 17.06  | 17.5                   | 0           |
| 5               | 64QAM | 12 | 13 | 17.21  | 17.10 | 17.16  |                        |             |
| 5               | 64QAM | 25 | 0  | 16.88  | 17.14 | 16.94  |                        |             |

| Channel         |       |    |    | 26055  | 26340 | 26675  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
|-----------------|-------|----|----|--------|-------|--------|------------------------|-------------|
| Frequency (MHz) |       |    |    | 1851.5 | 1880  | 1913.5 |                        |             |
| 3               | QPSK  | 1  | 0  | 17.32  | 17.41 | 17.30  | 17.5                   | 0           |
| 3               | QPSK  | 1  | 8  | 17.03  | 17.03 | 16.96  |                        |             |
| 3               | QPSK  | 1  | 14 | 17.19  | 17.04 | 16.98  |                        |             |
| 3               | QPSK  | 8  | 0  | 17.02  | 17.10 | 16.91  | 17.5                   | 0           |
| 3               | QPSK  | 8  | 4  | 16.99  | 17.03 | 17.04  |                        |             |
| 3               | QPSK  | 8  | 7  | 17.07  | 17.17 | 16.88  |                        |             |
| 3               | QPSK  | 15 | 0  | 17.00  | 17.09 | 17.10  |                        |             |
| 3               | 16QAM | 1  | 0  | 17.24  | 17.33 | 17.17  | 17.5                   | 0           |
| 3               | 16QAM | 1  | 8  | 17.25  | 17.39 | 17.27  |                        |             |
| 3               | 16QAM | 1  | 14 | 17.34  | 17.20 | 17.37  |                        |             |
| 3               | 16QAM | 8  | 0  | 17.09  | 17.20 | 16.99  | 17.5                   | 0           |
| 3               | 16QAM | 8  | 4  | 17.06  | 17.13 | 17.06  |                        |             |
| 3               | 16QAM | 8  | 7  | 17.15  | 17.19 | 17.41  |                        |             |
| 3               | 16QAM | 15 | 0  | 17.13  | 17.13 | 17.12  |                        |             |
| 3               | 64QAM | 1  | 0  | 17.02  | 17.25 | 16.98  | 17.5                   | 0           |
| 3               | 64QAM | 1  | 8  | 17.13  | 17.32 | 17.04  |                        |             |
| 3               | 64QAM | 1  | 14 | 17.25  | 17.18 | 17.12  |                        |             |
| 3               | 64QAM | 8  | 0  | 16.95  | 17.15 | 16.94  | 17.5                   | 0           |
| 3               | 64QAM | 8  | 4  | 17.05  | 17.18 | 17.06  |                        |             |
| 3               | 64QAM | 8  | 7  | 17.26  | 17.18 | 17.20  |                        |             |
| 3               | 64QAM | 15 | 0  | 16.93  | 17.08 | 16.95  |                        |             |
| Channel         |       |    |    | 26047  | 26340 | 26683  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 1850.7 | 1880  | 1914.3 |                        |             |
| 1.4             | QPSK  | 1  | 0  | 17.32  | 17.37 | 17.32  | 17.5                   | 0           |
| 1.4             | QPSK  | 1  | 3  | 16.99  | 17.06 | 17.01  |                        |             |
| 1.4             | QPSK  | 1  | 5  | 17.26  | 17.11 | 16.97  |                        |             |
| 1.4             | QPSK  | 3  | 0  | 17.00  | 17.10 | 16.94  |                        |             |
| 1.4             | QPSK  | 3  | 1  | 17.01  | 17.12 | 17.07  |                        |             |
| 1.4             | QPSK  | 3  | 3  | 17.06  | 17.14 | 16.92  |                        |             |
| 1.4             | QPSK  | 6  | 0  | 17.09  | 17.07 | 17.11  | 17.5                   | 0           |
| 1.4             | 16QAM | 1  | 0  | 17.29  | 17.29 | 17.18  | 17.5                   | 0           |
| 1.4             | 16QAM | 1  | 3  | 17.20  | 17.31 | 17.24  |                        |             |
| 1.4             | 16QAM | 1  | 5  | 17.40  | 17.17 | 17.38  |                        |             |
| 1.4             | 16QAM | 3  | 0  | 17.11  | 17.13 | 17.04  |                        |             |
| 1.4             | 16QAM | 3  | 1  | 17.03  | 17.14 | 17.10  |                        |             |
| 1.4             | 16QAM | 3  | 3  | 17.13  | 17.14 | 17.40  |                        |             |
| 1.4             | 16QAM | 6  | 0  | 17.04  | 17.12 | 17.10  | 17.5                   | 0           |
| 1.4             | 64QAM | 1  | 0  | 16.97  | 17.24 | 17.02  | 17.5                   | 0           |
| 1.4             | 64QAM | 1  | 3  | 17.13  | 17.31 | 17.04  |                        |             |
| 1.4             | 64QAM | 1  | 5  | 17.28  | 17.20 | 17.14  |                        |             |
| 1.4             | 64QAM | 3  | 0  | 16.92  | 17.08 | 17.41  |                        |             |
| 1.4             | 64QAM | 3  | 1  | 17.12  | 17.19 | 17.05  |                        |             |
| 1.4             | 64QAM | 3  | 3  | 17.18  | 17.20 | 17.19  |                        |             |
| 1.4             | 64QAM | 6  | 0  | 16.96  | 17.09 | 16.94  | 17.5                   | 0           |



**<LTE Band 26>**

| 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         |            |         |           | 26765                 | 26865                    | 26965                  |                     |          |
| Frequency (MHz) |            |         |           | 821.5                 | 831.5                    | 841.5                  |                     |          |
| 15              | QPSK       | 1       | 0         | 22.26                 | 22.47                    | 22.20                  | 22.5                | 0        |
| 15              | QPSK       | 1       | 37        | 22.12                 | 22.40                    | 22.08                  |                     |          |
| 15              | QPSK       | 1       | 74        | 22.17                 | 22.17                    | 22.01                  |                     |          |
| 15              | QPSK       | 36      | 0         | 22.13                 | 22.31                    | 22.40                  | 22.5                | 0        |
| 15              | QPSK       | 36      | 20        | 22.09                 | 22.39                    | 22.10                  |                     |          |
| 15              | QPSK       | 36      | 39        | 22.08                 | 22.43                    | 22.00                  |                     |          |
| 15              | QPSK       | 75      | 0         | 22.09                 | 22.40                    | 22.10                  | 22.5                | 0        |
| 15              | 16QAM      | 1       | 0         | 22.11                 | 22.22                    | 22.01                  |                     |          |
| 15              | 16QAM      | 1       | 37        | 22.31                 | 22.34                    | 22.01                  |                     |          |
| 15              | 16QAM      | 1       | 74        | 22.33                 | 22.35                    | 22.03                  | 22                  | 0.5      |
| 15              | 16QAM      | 36      | 0         | 21.75                 | 21.89                    | 21.99                  |                     |          |
| 15              | 16QAM      | 36      | 20        | 21.74                 | 21.97                    | 21.98                  |                     |          |
| 15              | 16QAM      | 36      | 39        | 21.69                 | 21.92                    | 21.75                  | 22                  | 0.5      |
| 15              | 16QAM      | 75      | 0         | 21.65                 | 21.92                    | 21.67                  |                     |          |
| 15              | 64QAM      | 1       | 0         | 21.75                 | 21.62                    | 21.88                  |                     |          |
| 15              | 64QAM      | 1       | 37        | 21.87                 | 21.74                    | 21.72                  | 22                  | 0.5      |
| 15              | 64QAM      | 1       | 74        | 21.90                 | 21.89                    | 21.85                  |                     |          |
| 15              | 64QAM      | 36      | 0         | 20.73                 | 20.88                    | 21.47                  | 21.5                | 1        |
| 15              | 64QAM      | 36      | 20        | 20.70                 | 20.98                    | 20.70                  |                     |          |
| 15              | 64QAM      | 36      | 39        | 20.66                 | 21.01                    | 20.73                  |                     |          |
| 15              | 64QAM      | 75      | 0         | 20.65                 | 20.94                    | 20.64                  |                     |          |
| Channel         |            |         |           | 26740                 | 26865                    | 26990                  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 819                   | 831.5                    | 844                    |                     |          |
| 10              | QPSK       | 1       | 0         | 22.22                 | 22.45                    | 22.10                  | 22.5                | 0        |
| 10              | QPSK       | 1       | 25        | 22.12                 | 22.40                    | 21.98                  |                     |          |
| 10              | QPSK       | 1       | 49        | 22.13                 | 22.14                    | 21.95                  |                     |          |
| 10              | QPSK       | 25      | 0         | 22.03                 | 22.28                    | 22.40                  | 22.5                | 0        |
| 10              | QPSK       | 25      | 12        | 22.08                 | 22.38                    | 22.00                  |                     |          |
| 10              | QPSK       | 25      | 25        | 21.98                 | 22.33                    | 21.91                  |                     |          |
| 10              | QPSK       | 50      | 0         | 22.04                 | 22.40                    | 22.07                  | 22.5                | 0        |
| 10              | 16QAM      | 1       | 0         | 22.04                 | 22.14                    | 22.01                  |                     |          |
| 10              | 16QAM      | 1       | 25        | 22.21                 | 22.27                    | 21.93                  |                     |          |
| 10              | 16QAM      | 1       | 49        | 22.32                 | 22.31                    | 22.01                  | 22                  | 0.5      |
| 10              | 16QAM      | 25      | 0         | 21.65                 | 21.87                    | 21.98                  |                     |          |
| 10              | 16QAM      | 25      | 12        | 21.74                 | 21.93                    | 21.92                  |                     |          |
| 10              | 16QAM      | 25      | 25        | 21.69                 | 21.83                    | 21.65                  | 22                  | 0.5      |
| 10              | 16QAM      | 50      | 0         | 21.57                 | 21.90                    | 21.64                  |                     |          |
| 10              | 64QAM      | 1       | 0         | 21.70                 | 21.57                    | 21.82                  |                     |          |
| 10              | 64QAM      | 1       | 25        | 21.83                 | 21.71                    | 21.68                  | 21.5                | 1        |
| 10              | 64QAM      | 1       | 49        | 21.85                 | 21.87                    | 21.82                  |                     |          |
| 10              | 64QAM      | 25      | 0         | 20.68                 | 20.87                    | 21.43                  |                     |          |
| 10              | 64QAM      | 25      | 12        | 20.67                 | 20.92                    | 20.70                  | 21.5                | 1        |
| 10              | 64QAM      | 25      | 25        | 20.63                 | 20.91                    | 20.69                  |                     |          |
| 10              | 64QAM      | 50      | 0         | 20.57                 | 20.89                    | 20.58                  |                     |          |

| Channel         |       |    |    | 26715 | 26865 | 27015 | Tune-up limit<br>(dBm) | MPR<br>(dB) |
|-----------------|-------|----|----|-------|-------|-------|------------------------|-------------|
| Frequency (MHz) |       |    |    | 816.5 | 831.5 | 846.5 |                        |             |
| 5               | QPSK  | 1  | 0  | 22.25 | 22.46 | 22.18 | 22.5                   | 0           |
| 5               | QPSK  | 1  | 12 | 22.03 | 22.40 | 22.02 |                        |             |
| 5               | QPSK  | 1  | 24 | 22.15 | 22.07 | 22.01 |                        |             |
| 5               | QPSK  | 12 | 0  | 22.06 | 22.24 | 22.37 | 22.5                   | 0           |
| 5               | QPSK  | 12 | 7  | 21.99 | 22.37 | 22.01 |                        |             |
| 5               | QPSK  | 12 | 13 | 22.08 | 22.38 | 21.95 |                        |             |
| 5               | QPSK  | 25 | 0  | 22.09 | 22.40 | 22.09 |                        |             |
| 5               | 16QAM | 1  | 0  | 22.04 | 22.21 | 21.99 | 22.5                   | 0           |
| 5               | 16QAM | 1  | 12 | 22.27 | 22.27 | 21.94 |                        |             |
| 5               | 16QAM | 1  | 24 | 22.30 | 22.34 | 21.94 |                        |             |
| 5               | 16QAM | 12 | 0  | 21.72 | 21.84 | 21.98 | 22                     | 0.5         |
| 5               | 16QAM | 12 | 7  | 21.68 | 21.93 | 21.95 |                        |             |
| 5               | 16QAM | 12 | 13 | 21.64 | 21.91 | 21.74 |                        |             |
| 5               | 16QAM | 25 | 0  | 21.60 | 21.88 | 21.61 |                        |             |
| 5               | 64QAM | 1  | 0  | 21.69 | 21.54 | 21.82 | 22                     | 0.5         |
| 5               | 64QAM | 1  | 12 | 21.83 | 21.64 | 21.63 |                        |             |
| 5               | 64QAM | 1  | 24 | 21.82 | 21.84 | 21.82 |                        |             |
| 5               | 64QAM | 12 | 0  | 20.69 | 20.79 | 21.38 | 21.5                   | 1           |
| 5               | 64QAM | 12 | 7  | 20.67 | 20.98 | 20.62 |                        |             |
| 5               | 64QAM | 12 | 13 | 20.61 | 20.96 | 20.63 |                        |             |
| 5               | 64QAM | 25 | 0  | 20.63 | 20.86 | 20.64 |                        |             |
| Channel         |       |    |    | 26705 | 26865 | 27025 | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 815.5 | 831.5 | 847.5 |                        |             |
| 3               | QPSK  | 1  | 0  | 22.23 | 22.46 | 22.18 | 22.5                   | 0           |
| 3               | QPSK  | 1  | 8  | 22.10 | 22.34 | 22.07 |                        |             |
| 3               | QPSK  | 1  | 14 | 22.17 | 22.08 | 22.01 |                        |             |
| 3               | QPSK  | 8  | 0  | 22.05 | 22.31 | 22.32 | 22.5                   | 0           |
| 3               | QPSK  | 8  | 4  | 22.01 | 22.33 | 22.07 |                        |             |
| 3               | QPSK  | 8  | 7  | 22.01 | 22.35 | 21.93 |                        |             |
| 3               | QPSK  | 15 | 0  | 22.04 | 22.30 | 22.04 |                        |             |
| 3               | 16QAM | 1  | 0  | 22.05 | 22.21 | 21.98 | 22.5                   | 0           |
| 3               | 16QAM | 1  | 8  | 22.25 | 22.32 | 21.95 |                        |             |
| 3               | 16QAM | 1  | 14 | 22.27 | 22.27 | 21.96 |                        |             |
| 3               | 16QAM | 8  | 0  | 21.66 | 21.79 | 21.92 | 22                     | 0.5         |
| 3               | 16QAM | 8  | 4  | 21.70 | 21.88 | 21.96 |                        |             |
| 3               | 16QAM | 8  | 7  | 21.63 | 21.87 | 21.73 |                        |             |
| 3               | 16QAM | 15 | 0  | 21.58 | 21.89 | 21.59 |                        |             |
| 3               | 64QAM | 1  | 0  | 21.73 | 21.56 | 21.82 | 22                     | 0.5         |
| 3               | 64QAM | 1  | 8  | 21.77 | 21.67 | 21.69 |                        |             |
| 3               | 64QAM | 1  | 14 | 21.83 | 21.82 | 21.77 |                        |             |
| 3               | 64QAM | 8  | 0  | 20.70 | 20.87 | 21.44 | 21.5                   | 1           |
| 3               | 64QAM | 8  | 4  | 20.66 | 20.90 | 20.69 |                        |             |
| 3               | 64QAM | 8  | 7  | 20.56 | 20.94 | 20.73 |                        |             |
| 3               | 64QAM | 15 | 0  | 20.65 | 20.84 | 20.63 |                        |             |



| Channel         |       |   |   | 26697 | 26865 | 27033 | Tune-up limit<br>(dBm) | MPR<br>(dB) |
|-----------------|-------|---|---|-------|-------|-------|------------------------|-------------|
| Frequency (MHz) |       |   |   | 814.7 | 831.5 | 848.3 |                        |             |
| 1.4             | QPSK  | 1 | 0 | 22.16 | 22.46 | 22.19 | 22.5                   | 0           |
| 1.4             | QPSK  | 1 | 3 | 22.03 | 22.40 | 22.04 |                        |             |
| 1.4             | QPSK  | 1 | 5 | 22.13 | 22.07 | 21.99 |                        |             |
| 1.4             | QPSK  | 3 | 0 | 22.11 | 22.30 | 22.38 |                        |             |
| 1.4             | QPSK  | 3 | 1 | 22.06 | 22.30 | 22.03 |                        |             |
| 1.4             | QPSK  | 3 | 3 | 22.01 | 22.33 | 21.98 |                        |             |
| 1.4             | QPSK  | 6 | 0 | 22.05 | 22.32 | 22.03 | 22.5                   | 0           |
| 1.4             | 16QAM | 1 | 0 | 22.06 | 22.16 | 21.91 | 22.5                   | 0           |
| 1.4             | 16QAM | 1 | 3 | 22.21 | 22.25 | 21.92 |                        |             |
| 1.4             | 16QAM | 1 | 5 | 22.25 | 22.29 | 22.03 |                        |             |
| 1.4             | 16QAM | 3 | 0 | 21.70 | 21.81 | 21.96 |                        |             |
| 1.4             | 16QAM | 3 | 1 | 21.70 | 21.91 | 21.96 |                        |             |
| 1.4             | 16QAM | 3 | 3 | 21.66 | 21.92 | 21.70 |                        |             |
| 1.4             | 16QAM | 6 | 0 | 21.62 | 21.86 | 21.64 | 22                     | 0.5         |
| 1.4             | 64QAM | 1 | 0 | 21.73 | 21.60 | 21.88 | 22                     | 0.5         |
| 1.4             | 64QAM | 1 | 3 | 21.85 | 21.71 | 21.68 |                        |             |
| 1.4             | 64QAM | 1 | 5 | 21.80 | 21.81 | 21.81 |                        |             |
| 1.4             | 64QAM | 3 | 0 | 20.66 | 20.79 | 21.45 |                        |             |
| 1.4             | 64QAM | 3 | 1 | 20.69 | 20.95 | 20.63 |                        |             |
| 1.4             | 64QAM | 3 | 3 | 20.64 | 20.99 | 20.73 |                        |             |
| 1.4             | 64QAM | 6 | 0 | 20.59 | 20.91 | 20.57 | 21.5                   | 1           |

**<LTE Band 30>**

| 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         |            |         |           | 27710                 |                          |                        |                     |          |
| Frequency (MHz) |            |         |           | 2310                  |                          |                        |                     |          |
| 10              | QPSK       | 1       | 0         |                       | 18.97                    |                        | 19                  | 0        |
| 10              | QPSK       | 1       | 25        |                       | 18.88                    |                        |                     |          |
| 10              | QPSK       | 1       | 49        |                       | 18.87                    |                        |                     |          |
| 10              | QPSK       | 25      | 0         |                       | 18.67                    |                        | 19                  | 0        |
| 10              | QPSK       | 25      | 12        |                       | 18.63                    |                        |                     |          |
| 10              | QPSK       | 25      | 25        |                       | 18.62                    |                        |                     |          |
| 10              | QPSK       | 50      | 0         |                       | 18.74                    |                        | 19                  | 0        |
| 10              | 16QAM      | 1       | 0         |                       | 18.79                    |                        |                     |          |
| 10              | 16QAM      | 1       | 25        |                       | 18.73                    |                        |                     |          |
| 10              | 16QAM      | 1       | 49        |                       | 18.79                    |                        | 19                  | 0        |
| 10              | 16QAM      | 25      | 0         |                       | 18.79                    |                        |                     |          |
| 10              | 16QAM      | 25      | 12        |                       | 18.77                    |                        |                     |          |
| 10              | 16QAM      | 25      | 25        |                       | 18.73                    |                        | 19                  | 0        |
| 10              | 16QAM      | 50      | 0         |                       | 18.82                    |                        |                     |          |
| 10              | 64QAM      | 1       | 0         |                       | 18.78                    |                        |                     |          |
| 10              | 64QAM      | 1       | 25        |                       | 18.74                    |                        | 19                  | 0        |
| 10              | 64QAM      | 1       | 49        |                       | 18.87                    |                        |                     |          |
| 10              | 64QAM      | 25      | 0         |                       | 18.71                    |                        |                     |          |
| 10              | 64QAM      | 25      | 12        |                       | 18.80                    |                        | 19                  | 0        |
| 10              | 64QAM      | 25      | 25        |                       | 18.74                    |                        |                     |          |
| 10              | 64QAM      | 50      | 0         |                       | 18.84                    |                        |                     |          |
| Channel         |            |         |           | 27685                 | 27710                    | 27735                  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 2307.5                | 2310                     | 2312.5                 |                     |          |
| 5               | QPSK       | 1       | 0         | 18.92                 | 18.95                    | 18.96                  | 19                  | 0        |
| 5               | QPSK       | 1       | 12        | 18.88                 | 18.86                    | 18.83                  |                     |          |
| 5               | QPSK       | 1       | 24        | 18.78                 | 18.87                    | 18.80                  |                     |          |
| 5               | QPSK       | 12      | 0         | 18.59                 | 18.65                    | 18.57                  | 19                  | 0        |
| 5               | QPSK       | 12      | 7         | 18.58                 | 18.57                    | 18.53                  |                     |          |
| 5               | QPSK       | 12      | 13        | 18.52                 | 18.52                    | 18.58                  |                     |          |
| 5               | QPSK       | 25      | 0         | 18.70                 | 18.70                    | 18.71                  | 19                  | 0        |
| 5               | 16QAM      | 1       | 0         | 18.71                 | 18.73                    | 18.75                  |                     |          |
| 5               | 16QAM      | 1       | 12        | 18.67                 | 18.70                    | 18.73                  |                     |          |
| 5               | 16QAM      | 1       | 24        | 18.75                 | 18.78                    | 18.76                  | 19                  | 0        |
| 5               | 16QAM      | 12      | 0         | 18.79                 | 18.75                    | 18.69                  |                     |          |
| 5               | 16QAM      | 12      | 7         | 18.73                 | 18.69                    | 18.69                  |                     |          |
| 5               | 16QAM      | 12      | 13        | 18.63                 | 18.69                    | 18.65                  | 19                  | 0        |
| 5               | 16QAM      | 25      | 0         | 18.74                 | 18.78                    | 18.73                  |                     |          |
| 5               | 64QAM      | 1       | 0         | 18.73                 | 18.71                    | 18.70                  |                     |          |
| 5               | 64QAM      | 1       | 12        | 18.71                 | 18.70                    | 18.69                  | 19                  | 0        |
| 5               | 64QAM      | 1       | 24        | 18.82                 | 18.78                    | 18.81                  |                     |          |
| 5               | 64QAM      | 12      | 0         | 18.66                 | 18.62                    | 18.71                  |                     |          |
| 5               | 64QAM      | 12      | 7         | 18.75                 | 18.71                    | 18.71                  | 19                  | 0        |
| 5               | 64QAM      | 12      | 13        | 18.64                 | 18.71                    | 18.72                  |                     |          |
| 5               | 64QAM      | 25      | 0         | 18.76                 | 18.74                    | 18.84                  |                     |          |

**<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                 | 18.5                | 0        |
| Frequency (MHz) |            |         |           | 1720                  | 1745                     | 1770                   |                     |          |
| 20              | QPSK       | 1       | 0         | 18.39                 | 18.43                    | 18.44                  | 18.5                | 0        |
| 20              | QPSK       | 1       | 49        | 18.20                 | 18.27                    | 18.32                  |                     |          |
| 20              | QPSK       | 1       | 99        | 18.00                 | 18.39                    | 18.38                  |                     |          |
| 20              | QPSK       | 50      | 0         | 18.21                 | 18.21                    | 18.23                  | 18.5                | 0        |
| 20              | QPSK       | 50      | 24        | 18.16                 | 18.17                    | 18.19                  |                     |          |
| 20              | QPSK       | 50      | 50        | 18.11                 | 18.15                    | 18.17                  |                     |          |
| 20              | QPSK       | 100     | 0         | 18.11                 | 18.21                    | 18.31                  | 18.5                | 0        |
| 20              | 16QAM      | 1       | 0         | 18.24                 | 18.14                    | 18.13                  |                     |          |
| 20              | 16QAM      | 1       | 49        | 18.07                 | 18.37                    | 18.30                  |                     |          |
| 20              | 16QAM      | 1       | 99        | 18.10                 | 18.34                    | 18.32                  | 18.5                | 0        |
| 20              | 16QAM      | 50      | 0         | 18.29                 | 18.24                    | 18.05                  |                     |          |
| 20              | 16QAM      | 50      | 24        | 18.21                 | 18.03                    | 18.05                  |                     |          |
| 20              | 16QAM      | 50      | 50        | 18.13                 | 18.07                    | 18.03                  | 18.5                | 0        |
| 20              | 16QAM      | 100     | 0         | 18.22                 | 18.02                    | 18.12                  |                     |          |
| 20              | 64QAM      | 1       | 0         | 18.01                 | 18.07                    | 18.36                  |                     |          |
| 20              | 64QAM      | 1       | 49        | 18.05                 | 18.31                    | 18.20                  | 18.5                | 0        |
| 20              | 64QAM      | 1       | 99        | 18.36                 | 18.37                    | 18.26                  |                     |          |
| 20              | 64QAM      | 50      | 0         | 18.31                 | 18.34                    | 18.36                  |                     |          |
| 20              | 64QAM      | 50      | 24        | 18.25                 | 18.05                    | 18.10                  | 18.5                | 0        |
| 20              | 64QAM      | 50      | 50        | 18.14                 | 18.08                    | 18.03                  |                     |          |
| 20              | 64QAM      | 100     | 0         | 18.19                 | 18.05                    | 18.13                  |                     |          |
| Channel         |            |         |           | 132047                | 132322                   | 132597                 | 18.5                | 0        |
| Frequency (MHz) |            |         |           | 1717.5                | 1745                     | 1772.5                 |                     |          |
| 15              | QPSK       | 1       | 0         | 18.30                 | 18.38                    | 18.41                  | 18.5                | 0        |
| 15              | QPSK       | 1       | 37        | 18.11                 | 18.18                    | 18.25                  |                     |          |
| 15              | QPSK       | 1       | 74        | 18.00                 | 18.39                    | 18.31                  |                     |          |
| 15              | QPSK       | 36      | 0         | 17.94                 | 17.94                    | 18.21                  | 18.5                | 0        |
| 15              | QPSK       | 36      | 20        | 18.29                 | 18.14                    | 18.22                  |                     |          |
| 15              | QPSK       | 36      | 39        | 18.24                 | 18.13                    | 18.09                  |                     |          |
| 15              | QPSK       | 75      | 0         | 18.10                 | 18.13                    | 18.26                  | 18.5                | 0        |
| 15              | 16QAM      | 1       | 0         | 18.17                 | 18.06                    | 18.12                  |                     |          |
| 15              | 16QAM      | 1       | 37        | 18.07                 | 18.33                    | 18.21                  |                     |          |
| 15              | 16QAM      | 1       | 74        | 18.09                 | 18.25                    | 18.30                  | 18.5                | 0        |
| 15              | 16QAM      | 36      | 0         | 18.19                 | 18.20                    | 17.95                  |                     |          |
| 15              | 16QAM      | 36      | 20        | 18.19                 | 17.96                    | 18.03                  |                     |          |
| 15              | 16QAM      | 36      | 39        | 18.07                 | 18.03                    | 17.94                  | 18.5                | 0        |
| 15              | 16QAM      | 75      | 0         | 18.17                 | 17.96                    | 18.04                  |                     |          |
| 15              | 64QAM      | 1       | 0         | 17.99                 | 18.06                    | 18.35                  |                     |          |
| 15              | 64QAM      | 1       | 37        | 17.96                 | 18.23                    | 18.12                  | 18.5                | 0        |
| 15              | 64QAM      | 1       | 74        | 18.33                 | 18.37                    | 18.19                  |                     |          |
| 15              | 64QAM      | 36      | 0         | 18.28                 | 18.25                    | 18.32                  |                     |          |
| 15              | 64QAM      | 36      | 20        | 18.15                 | 18.02                    | 18.07                  | 18.5                | 0        |
| 15              | 64QAM      | 36      | 39        | 18.09                 | 17.98                    | 18.03                  |                     |          |
| 15              | 64QAM      | 75      | 0         | 18.11                 | 17.98                    | 18.06                  |                     |          |

| Channel         |       |    |    | 132022 | 132322 | 132622 | Tune-up limit<br>(dBm) | MPR<br>(dB) |
|-----------------|-------|----|----|--------|--------|--------|------------------------|-------------|
| Frequency (MHz) |       |    |    | 1715   | 1745   | 1775   |                        |             |
| 10              | QPSK  | 1  | 0  | 18.29  | 18.35  | 18.41  | 18.5                   | 0           |
| 10              | QPSK  | 1  | 25 | 18.17  | 18.24  | 18.30  |                        |             |
| 10              | QPSK  | 1  | 49 | 17.98  | 18.38  | 18.36  |                        |             |
| 10              | QPSK  | 25 | 0  | 17.96  | 17.95  | 18.18  | 18.5                   | 0           |
| 10              | QPSK  | 25 | 12 | 18.26  | 18.07  | 18.22  |                        |             |
| 10              | QPSK  | 25 | 25 | 18.28  | 18.21  | 18.14  |                        |             |
| 10              | QPSK  | 50 | 0  | 18.04  | 18.17  | 18.25  |                        |             |
| 10              | 16QAM | 1  | 0  | 18.20  | 18.07  | 18.05  | 18.5                   | 0           |
| 10              | 16QAM | 1  | 25 | 18.01  | 18.31  | 18.29  |                        |             |
| 10              | 16QAM | 1  | 49 | 18.05  | 18.29  | 18.31  |                        |             |
| 10              | 16QAM | 25 | 0  | 18.20  | 18.14  | 17.99  | 18.5                   | 0           |
| 10              | 16QAM | 25 | 12 | 18.21  | 17.94  | 18.03  |                        |             |
| 10              | 16QAM | 25 | 25 | 18.06  | 18.00  | 18.02  |                        |             |
| 10              | 16QAM | 50 | 0  | 18.19  | 18.02  | 18.04  |                        |             |
| 10              | 64QAM | 1  | 0  | 17.99  | 18.01  | 18.28  | 18.5                   | 0           |
| 10              | 64QAM | 1  | 25 | 17.99  | 18.21  | 18.10  |                        |             |
| 10              | 64QAM | 1  | 49 | 18.27  | 18.37  | 18.22  |                        |             |
| 10              | 64QAM | 25 | 0  | 18.27  | 18.31  | 18.36  | 18.5                   | 0           |
| 10              | 64QAM | 25 | 12 | 18.19  | 18.05  | 18.00  |                        |             |
| 10              | 64QAM | 25 | 25 | 18.10  | 17.98  | 17.94  |                        |             |
| 10              | 64QAM | 50 | 0  | 18.19  | 17.99  | 18.12  |                        |             |
| Channel         |       |    |    | 131997 | 132322 | 132647 | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 1712.5 | 1745   | 1777.5 |                        |             |
| 5               | QPSK  | 1  | 0  | 18.32  | 18.37  | 18.38  | 18.5                   | 0           |
| 5               | QPSK  | 1  | 12 | 18.12  | 18.17  | 18.27  |                        |             |
| 5               | QPSK  | 1  | 24 | 17.91  | 18.34  | 18.32  |                        |             |
| 5               | QPSK  | 12 | 0  | 17.97  | 17.96  | 18.20  | 18.5                   | 0           |
| 5               | QPSK  | 12 | 7  | 18.29  | 18.16  | 18.18  |                        |             |
| 5               | QPSK  | 12 | 13 | 18.29  | 18.17  | 18.13  |                        |             |
| 5               | QPSK  | 25 | 0  | 18.10  | 18.13  | 18.31  |                        |             |
| 5               | 16QAM | 1  | 0  | 18.24  | 18.04  | 18.13  | 18.5                   | 0           |
| 5               | 16QAM | 1  | 12 | 18.07  | 18.30  | 18.30  |                        |             |
| 5               | 16QAM | 1  | 24 | 18.07  | 18.31  | 18.22  |                        |             |
| 5               | 16QAM | 12 | 0  | 18.24  | 18.23  | 17.98  | 18.5                   | 0           |
| 5               | 16QAM | 12 | 7  | 18.19  | 18.00  | 17.98  |                        |             |
| 5               | 16QAM | 12 | 13 | 18.03  | 18.02  | 17.94  |                        |             |
| 5               | 16QAM | 25 | 0  | 18.17  | 17.99  | 18.12  |                        |             |
| 5               | 64QAM | 1  | 0  | 17.93  | 17.98  | 18.29  | 18.5                   | 0           |
| 5               | 64QAM | 1  | 12 | 17.96  | 18.23  | 18.19  |                        |             |
| 5               | 64QAM | 1  | 24 | 18.27  | 18.31  | 18.18  |                        |             |
| 5               | 64QAM | 12 | 0  | 18.24  | 18.26  | 18.32  | 18.5                   | 0           |
| 5               | 64QAM | 12 | 7  | 18.17  | 17.99  | 18.03  |                        |             |
| 5               | 64QAM | 12 | 13 | 18.12  | 18.02  | 17.93  |                        |             |
| 5               | 64QAM | 25 | 0  | 18.17  | 17.98  | 18.12  |                        |             |

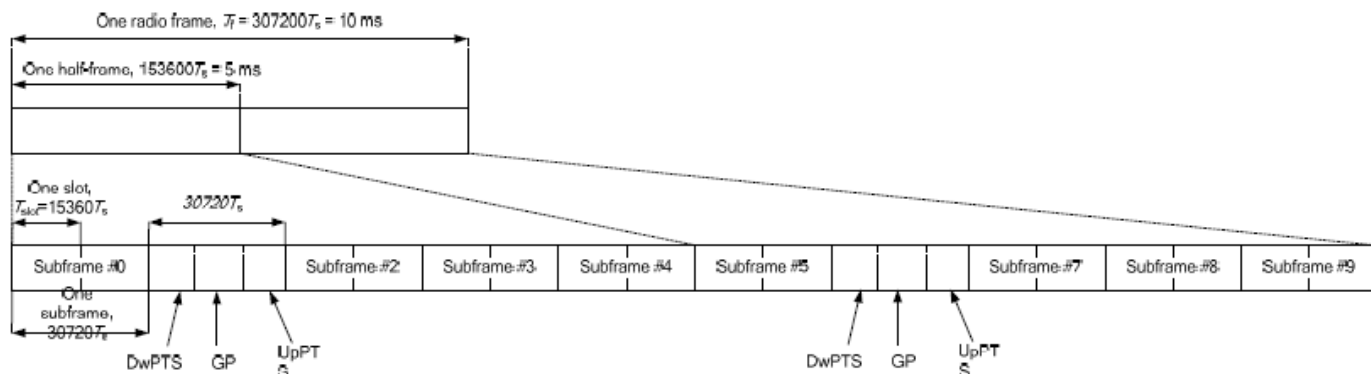
| Channel         |       |    |    | 131987 | 132322 | 132657 | Tune-up limit<br>(dBm) | MPR<br>(dB) |
|-----------------|-------|----|----|--------|--------|--------|------------------------|-------------|
| Frequency (MHz) |       |    |    | 1711.5 | 1745   | 1778.5 |                        |             |
| 3               | QPSK  | 1  | 0  | 18.39  | 18.37  | 18.42  | 18.5                   | 0           |
| 3               | QPSK  | 1  | 8  | 18.10  | 18.22  | 18.30  |                        |             |
| 3               | QPSK  | 1  | 14 | 17.93  | 18.37  | 18.29  |                        |             |
| 3               | QPSK  | 8  | 0  | 17.98  | 17.93  | 18.13  | 18.5                   | 0           |
| 3               | QPSK  | 8  | 4  | 18.29  | 18.14  | 18.20  |                        |             |
| 3               | QPSK  | 8  | 7  | 18.24  | 18.18  | 18.09  |                        |             |
| 3               | QPSK  | 15 | 0  | 18.03  | 18.13  | 18.28  |                        |             |
| 3               | 16QAM | 1  | 0  | 18.16  | 18.05  | 18.05  | 18.5                   | 0           |
| 3               | 16QAM | 1  | 8  | 18.02  | 18.35  | 18.24  |                        |             |
| 3               | 16QAM | 1  | 14 | 18.01  | 18.24  | 18.28  |                        |             |
| 3               | 16QAM | 8  | 0  | 18.25  | 18.17  | 17.95  | 18.5                   | 0           |
| 3               | 16QAM | 8  | 4  | 18.20  | 18.03  | 17.97  |                        |             |
| 3               | 16QAM | 8  | 7  | 18.07  | 18.05  | 17.98  |                        |             |
| 3               | 16QAM | 15 | 0  | 18.22  | 17.94  | 18.08  |                        |             |
| 3               | 64QAM | 1  | 0  | 18.01  | 18.04  | 18.30  | 18.5                   | 0           |
| 3               | 64QAM | 1  | 8  | 17.98  | 18.30  | 18.10  |                        |             |
| 3               | 64QAM | 1  | 14 | 18.33  | 18.29  | 18.17  |                        |             |
| 3               | 64QAM | 8  | 0  | 18.24  | 18.29  | 18.33  | 18.5                   | 0           |
| 3               | 64QAM | 8  | 4  | 18.22  | 18.04  | 18.10  |                        |             |
| 3               | 64QAM | 8  | 7  | 18.09  | 18.00  | 18.00  |                        |             |
| 3               | 64QAM | 15 | 0  | 18.16  | 18.02  | 18.08  |                        |             |
| Channel         |       |    |    | 131979 | 132322 | 132665 | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 1710.7 | 1745   | 1779.3 |                        |             |
| 1.4             | QPSK  | 1  | 0  | 18.29  | 18.40  | 18.42  | 18.5                   | 0           |
| 1.4             | QPSK  | 1  | 3  | 18.11  | 18.17  | 18.28  |                        |             |
| 1.4             | QPSK  | 1  | 5  | 17.99  | 18.33  | 18.37  |                        |             |
| 1.4             | QPSK  | 3  | 0  | 18.03  | 17.97  | 18.16  |                        |             |
| 1.4             | QPSK  | 3  | 1  | 18.27  | 18.12  | 18.23  |                        |             |
| 1.4             | QPSK  | 3  | 3  | 18.25  | 18.15  | 18.16  |                        |             |
| 1.4             | QPSK  | 6  | 0  | 18.02  | 18.20  | 18.24  | 18.5                   | 0           |
| 1.4             | 16QAM | 1  | 0  | 18.18  | 18.13  | 18.09  | 18.5                   | 0           |
| 1.4             | 16QAM | 1  | 3  | 18.03  | 18.29  | 18.30  |                        |             |
| 1.4             | 16QAM | 1  | 5  | 18.01  | 18.27  | 18.31  |                        |             |
| 1.4             | 16QAM | 3  | 0  | 18.20  | 18.14  | 18.00  |                        |             |
| 1.4             | 16QAM | 3  | 1  | 18.12  | 17.97  | 18.01  |                        |             |
| 1.4             | 16QAM | 3  | 3  | 18.07  | 17.98  | 17.96  |                        |             |
| 1.4             | 16QAM | 6  | 0  | 18.17  | 17.97  | 18.03  | 18.5                   | 0           |
| 1.4             | 64QAM | 1  | 0  | 17.99  | 18.04  | 18.28  | 18.5                   | 0           |
| 1.4             | 64QAM | 1  | 3  | 18.01  | 18.22  | 18.14  |                        |             |
| 1.4             | 64QAM | 1  | 5  | 18.27  | 18.31  | 18.20  |                        |             |
| 1.4             | 64QAM | 3  | 0  | 18.26  | 18.26  | 18.30  |                        |             |
| 1.4             | 64QAM | 3  | 1  | 18.18  | 18.00  | 18.03  |                        |             |
| 1.4             | 64QAM | 3  | 3  | 18.06  | 18.08  | 17.94  |                        |             |
| 1.4             | 64QAM | 6  | 0  | 18.11  | 18.03  | 18.06  | 18.5                   | 0           |

**<TDD LTE SAR Measurement>**

TDD LTE configuration setup for SAR measurement

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

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



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

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

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

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

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

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

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

The highest duty factor is resulted from:

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

**<Notebook Power>**
**<LTE Band 38>**

| 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         |            |         |           | 37850                    | 38000                       | 38150                     |                        |             |
| Frequency (MHz) |            |         |           | 2580                     | 2595                        | 2610                      |                        |             |
| 20              | QPSK       | 1       | 0         | 23.40                    | 23.43                       | 23.48                     | 24                     | 0           |
| 20              | QPSK       | 1       | 49        | 23.36                    | 23.37                       | 23.47                     |                        |             |
| 20              | QPSK       | 1       | 99        | 23.34                    | 23.34                       | 23.44                     |                        |             |
| 20              | QPSK       | 50      | 0         | 22.40                    | 22.50                       | 22.51                     | 23                     | 1           |
| 20              | QPSK       | 50      | 24        | 22.35                    | 22.43                       | 22.49                     |                        |             |
| 20              | QPSK       | 50      | 50        | 22.38                    | 22.46                       | 22.44                     |                        |             |
| 20              | QPSK       | 100     | 0         | 22.39                    | 22.44                       | 22.52                     | 23                     | 1           |
| 20              | 16QAM      | 1       | 0         | 22.21                    | 22.50                       | 22.10                     |                        |             |
| 20              | 16QAM      | 1       | 49        | 22.17                    | 22.26                       | 22.00                     |                        |             |
| 20              | 16QAM      | 1       | 99        | 22.38                    | 22.11                       | 22.43                     | 22                     | 2           |
| 20              | 16QAM      | 50      | 0         | 21.31                    | 21.38                       | 21.53                     |                        |             |
| 20              | 16QAM      | 50      | 24        | 21.35                    | 21.45                       | 21.50                     |                        |             |
| 20              | 16QAM      | 50      | 50        | 21.34                    | 21.51                       | 21.55                     | 22                     | 2           |
| 20              | 16QAM      | 100     | 0         | 21.38                    | 21.43                       | 21.44                     |                        |             |
| 20              | 64QAM      | 1       | 0         | 21.35                    | 21.50                       | 21.54                     |                        |             |
| 20              | 64QAM      | 1       | 49        | 21.35                    | 21.13                       | 21.60                     | 22                     | 2           |
| 20              | 64QAM      | 1       | 99        | 21.50                    | 21.29                       | 21.24                     |                        |             |
| 20              | 64QAM      | 50      | 0         | 20.42                    | 20.29                       | 20.41                     |                        |             |
| 20              | 64QAM      | 50      | 24        | 20.36                    | 20.38                       | 20.46                     | 21                     | 3           |
| 20              | 64QAM      | 50      | 50        | 20.38                    | 20.45                       | 20.47                     |                        |             |
| 20              | 64QAM      | 100     | 0         | 20.31                    | 20.36                       | 20.48                     |                        |             |
| Channel         |            |         |           | 37825                    | 38000                       | 38175                     |                        |             |
| Frequency (MHz) |            |         |           | 2577.5                   | 2595                        | 2612.5                    |                        |             |
| 15              | QPSK       | 1       | 0         | 23.31                    | 23.38                       | 23.43                     | 24                     | 0           |
| 15              | QPSK       | 1       | 37        | 23.24                    | 23.36                       | 23.42                     |                        |             |
| 15              | QPSK       | 1       | 74        | 23.36                    | 23.47                       | 23.45                     |                        |             |
| 15              | QPSK       | 36      | 0         | 22.29                    | 22.44                       | 22.44                     | 23                     | 1           |
| 15              | QPSK       | 36      | 20        | 22.33                    | 22.46                       | 22.48                     |                        |             |
| 15              | QPSK       | 36      | 39        | 22.30                    | 22.44                       | 22.49                     |                        |             |
| 15              | QPSK       | 75      | 0         | 22.30                    | 22.44                       | 22.51                     | 23                     | 1           |
| 15              | 16QAM      | 1       | 0         | 22.47                    | 22.01                       | 22.22                     |                        |             |
| 15              | 16QAM      | 1       | 37        | 22.11                    | 22.20                       | 22.27                     |                        |             |
| 15              | 16QAM      | 1       | 74        | 22.28                    | 22.61                       | 22.41                     | 22                     | 2           |
| 15              | 16QAM      | 36      | 0         | 21.26                    | 21.53                       | 21.49                     |                        |             |
| 15              | 16QAM      | 36      | 20        | 21.36                    | 21.50                       | 21.53                     |                        |             |
| 15              | 16QAM      | 36      | 39        | 21.37                    | 21.56                       | 21.66                     | 22                     | 2           |
| 15              | 16QAM      | 75      | 0         | 21.35                    | 21.40                       | 21.54                     |                        |             |
| 15              | 64QAM      | 1       | 0         | 21.67                    | 21.49                       | 21.09                     |                        |             |
| 15              | 64QAM      | 1       | 37        | 21.22                    | 21.21                       | 21.63                     | 22                     | 2           |
| 15              | 64QAM      | 1       | 74        | 21.28                    | 21.57                       | 21.12                     |                        |             |
| 15              | 64QAM      | 36      | 0         | 20.34                    | 20.47                       | 20.51                     |                        |             |
| 15              | 64QAM      | 36      | 20        | 20.34                    | 20.48                       | 20.56                     | 21                     | 3           |
| 15              | 64QAM      | 36      | 39        | 20.34                    | 20.53                       | 20.66                     |                        |             |
| 15              | 64QAM      | 75      | 0         | 20.28                    | 20.47                       | 20.55                     |                        |             |

| Channel         |       |    |    | 37800  | 38000 | 38200  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
|-----------------|-------|----|----|--------|-------|--------|------------------------|-------------|
| Frequency (MHz) |       |    |    | 2575   | 2595  | 2615   |                        |             |
| 10              | QPSK  | 1  | 0  | 23.33  | 23.15 | 23.26  | 24                     | 0           |
| 10              | QPSK  | 1  | 25 | 23.28  | 23.26 | 23.30  |                        |             |
| 10              | QPSK  | 1  | 49 | 23.35  | 23.22 | 23.25  |                        |             |
| 10              | QPSK  | 25 | 0  | 22.40  | 22.26 | 22.33  | 23                     | 1           |
| 10              | QPSK  | 25 | 12 | 22.39  | 22.25 | 22.35  |                        |             |
| 10              | QPSK  | 25 | 25 | 22.42  | 22.28 | 22.41  |                        |             |
| 10              | QPSK  | 50 | 0  | 22.33  | 22.20 | 22.35  | 23                     | 1           |
| 10              | 16QAM | 1  | 0  | 22.09  | 22.06 | 22.12  |                        |             |
| 10              | 16QAM | 1  | 25 | 22.67  | 22.12 | 22.19  |                        |             |
| 10              | 16QAM | 1  | 49 | 22.48  | 22.17 | 22.27  | 22                     | 2           |
| 10              | 16QAM | 25 | 0  | 21.42  | 21.37 | 21.38  |                        |             |
| 10              | 16QAM | 25 | 12 | 21.44  | 21.41 | 21.55  |                        |             |
| 10              | 16QAM | 25 | 25 | 21.44  | 21.30 | 21.45  | 22                     | 2           |
| 10              | 16QAM | 50 | 0  | 21.32  | 21.26 | 21.33  |                        |             |
| 10              | 64QAM | 1  | 0  | 21.43  | 21.26 | 21.21  |                        |             |
| 10              | 64QAM | 1  | 25 | 21.46  | 21.26 | 21.32  | 22                     | 2           |
| 10              | 64QAM | 1  | 49 | 21.25  | 21.03 | 21.07  |                        |             |
| 10              | 64QAM | 25 | 0  | 20.43  | 20.29 | 20.44  |                        |             |
| 10              | 64QAM | 25 | 12 | 20.40  | 20.30 | 20.33  | 21                     | 3           |
| 10              | 64QAM | 25 | 25 | 20.33  | 20.38 | 20.59  |                        |             |
| 10              | 64QAM | 50 | 0  | 20.27  | 20.22 | 20.35  |                        |             |
| Channel         |       |    |    | 37775  | 38000 | 38225  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 2572.5 | 2595  | 2617.5 |                        |             |
| 5               | QPSK  | 1  | 0  | 23.42  | 23.27 | 23.33  | 24                     | 0           |
| 5               | QPSK  | 1  | 12 | 23.35  | 23.46 | 23.45  |                        |             |
| 5               | QPSK  | 1  | 24 | 23.45  | 23.26 | 23.36  |                        |             |
| 5               | QPSK  | 12 | 0  | 22.43  | 22.41 | 22.55  | 23                     | 1           |
| 5               | QPSK  | 12 | 7  | 22.41  | 22.39 | 22.60  |                        |             |
| 5               | QPSK  | 12 | 13 | 22.44  | 22.41 | 22.56  |                        |             |
| 5               | QPSK  | 25 | 0  | 22.44  | 22.41 | 22.61  | 23                     | 1           |
| 5               | 16QAM | 1  | 0  | 22.31  | 22.32 | 22.52  |                        |             |
| 5               | 16QAM | 1  | 12 | 22.18  | 22.30 | 22.47  |                        |             |
| 5               | 16QAM | 1  | 24 | 22.26  | 22.28 | 22.66  | 22                     | 2           |
| 5               | 16QAM | 12 | 0  | 21.32  | 21.31 | 21.59  |                        |             |
| 5               | 16QAM | 12 | 7  | 21.42  | 21.31 | 21.61  |                        |             |
| 5               | 16QAM | 12 | 13 | 21.32  | 21.41 | 21.62  | 22                     | 2           |
| 5               | 16QAM | 25 | 0  | 21.40  | 21.40 | 21.59  |                        |             |
| 5               | 64QAM | 1  | 0  | 21.26  | 21.30 | 21.29  |                        |             |
| 5               | 64QAM | 1  | 12 | 21.28  | 21.30 | 21.52  | 22                     | 2           |
| 5               | 64QAM | 1  | 24 | 21.27  | 21.37 | 21.83  |                        |             |
| 5               | 64QAM | 12 | 0  | 20.54  | 20.44 | 20.70  |                        |             |
| 5               | 64QAM | 12 | 7  | 20.53  | 20.40 | 20.72  | 21                     | 3           |
| 5               | 64QAM | 12 | 13 | 20.55  | 20.37 | 20.76  |                        |             |
| 5               | 64QAM | 25 | 0  | 20.38  | 20.43 | 20.66  |                        |             |

**<LTE Band 41>**

| BW [MHz]        | Modulation | RB Size | RB Offset | Power Low Ch. / Freq. | Power Low Middle Ch. / Freq. | Power Middle Ch. / Freq. | Power High Middle Ch. / Freq. | Power High Ch. / Freq. | Tune-up limit (dBm) | MPR (dB) |
|-----------------|------------|---------|-----------|-----------------------|------------------------------|--------------------------|-------------------------------|------------------------|---------------------|----------|
| Channel         |            |         |           | 39750                 | 40185                        | 40620                    | 41055                         | 41490                  |                     |          |
| Frequency (MHz) |            |         |           | 2506                  | 2549.5                       | 2593                     | 2636.5                        | 2680                   |                     |          |
| 20              | QPSK       | 1       | 0         | 23.67                 | 23.80                        | 23.33                    | 23.15                         | 24.31                  | 25                  | 0        |
| 20              | QPSK       | 1       | 49        | 23.63                 | 24.08                        | 23.22                    | 23.00                         | 24.26                  |                     |          |
| 20              | QPSK       | 1       | 99        | 23.73                 | 24.16                        | 23.29                    | 23.02                         | 24.30                  |                     |          |
| 20              | QPSK       | 50      | 0         | 22.74                 | 22.93                        | 22.29                    | 22.08                         | 23.35                  | 24                  | 1        |
| 20              | QPSK       | 50      | 24        | 22.70                 | 23.06                        | 22.25                    | 22.04                         | 23.33                  |                     |          |
| 20              | QPSK       | 50      | 50        | 22.71                 | 23.09                        | 22.23                    | 22.06                         | 23.31                  |                     |          |
| 20              | QPSK       | 100     | 0         | 22.73                 | 23.04                        | 22.24                    | 22.06                         | 23.33                  | 24                  | 1        |
| 20              | 16QAM      | 1       | 0         | 22.68                 | 23.22                        | 22.51                    | 22.38                         | 23.58                  |                     |          |
| 20              | 16QAM      | 1       | 49        | 22.83                 | 23.28                        | 22.41                    | 22.11                         | 23.45                  |                     |          |
| 20              | 16QAM      | 1       | 99        | 22.89                 | 23.40                        | 22.30                    | 22.18                         | 23.53                  | 23                  | 2        |
| 20              | 16QAM      | 50      | 0         | 21.82                 | 21.94                        | 21.24                    | 21.13                         | 22.38                  |                     |          |
| 20              | 16QAM      | 50      | 24        | 21.76                 | 22.06                        | 21.19                    | 21.10                         | 22.36                  |                     |          |
| 20              | 16QAM      | 50      | 50        | 21.77                 | 22.13                        | 21.17                    | 21.01                         | 22.34                  | 23                  | 2        |
| 20              | 16QAM      | 100     | 0         | 21.75                 | 22.04                        | 21.18                    | 21.00                         | 22.32                  |                     |          |
| 20              | 64QAM      | 1       | 0         | 21.80                 | 22.18                        | 21.43                    | 21.30                         | 22.58                  |                     |          |
| 20              | 64QAM      | 1       | 49        | 21.71                 | 22.33                        | 21.31                    | 21.05                         | 22.60                  | 23                  | 2        |
| 20              | 64QAM      | 1       | 99        | 21.68                 | 22.43                        | 21.33                    | 21.28                         | 22.64                  |                     |          |
| 20              | 64QAM      | 50      | 0         | 20.70                 | 20.85                        | 20.15                    | 20.29                         | 21.45                  |                     |          |
| 20              | 64QAM      | 50      | 24        | 20.71                 | 20.99                        | 20.11                    | 20.18                         | 21.40                  | 22                  | 3        |
| 20              | 64QAM      | 50      | 50        | 20.72                 | 21.11                        | 20.11                    | 20.15                         | 21.38                  |                     |          |
| 20              | 64QAM      | 100     | 0         | 20.79                 | 21.07                        | 20.09                    | 20.12                         | 21.38                  |                     |          |
| Channel         |            |         |           | 39725                 | 40173                        | 40620                    | 41068                         | 41515                  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 2503.5                | 2548.3                       | 2593                     | 2637.8                        | 2682.5                 |                     |          |
| 15              | QPSK       | 1       | 0         | 23.76                 | 23.73                        | 23.27                    | 23.23                         | 24.19                  | 25                  | 0        |
| 15              | QPSK       | 1       | 37        | 23.65                 | 23.88                        | 23.15                    | 23.08                         | 24.21                  |                     |          |
| 15              | QPSK       | 1       | 74        | 23.66                 | 23.97                        | 23.22                    | 23.08                         | 24.10                  |                     |          |
| 15              | QPSK       | 36      | 0         | 22.70                 | 22.78                        | 22.28                    | 22.13                         | 23.17                  | 24                  | 1        |
| 15              | QPSK       | 36      | 20        | 22.68                 | 22.86                        | 22.18                    | 22.11                         | 23.22                  |                     |          |
| 15              | QPSK       | 36      | 39        | 22.65                 | 22.92                        | 22.14                    | 22.10                         | 23.16                  |                     |          |
| 15              | QPSK       | 75      | 0         | 22.67                 | 22.87                        | 22.14                    | 22.10                         | 23.23                  | 24                  | 1        |
| 15              | 16QAM      | 1       | 0         | 22.64                 | 22.82                        | 22.45                    | 22.10                         | 23.12                  |                     |          |
| 15              | 16QAM      | 1       | 37        | 22.61                 | 22.89                        | 22.37                    | 22.02                         | 23.31                  |                     |          |
| 15              | 16QAM      | 1       | 74        | 22.74                 | 23.04                        | 22.30                    | 22.04                         | 23.18                  | 23                  | 2        |
| 15              | 16QAM      | 36      | 0         | 21.81                 | 21.91                        | 21.20                    | 21.18                         | 22.31                  |                     |          |
| 15              | 16QAM      | 36      | 20        | 21.77                 | 21.98                        | 21.13                    | 21.11                         | 22.31                  |                     |          |
| 15              | 16QAM      | 36      | 39        | 21.75                 | 22.08                        | 21.16                    | 21.05                         | 22.30                  | 23                  | 2        |
| 15              | 16QAM      | 75      | 0         | 21.71                 | 21.97                        | 21.15                    | 21.04                         | 22.23                  |                     |          |
| 15              | 64QAM      | 1       | 0         | 21.87                 | 21.84                        | 21.40                    | 21.05                         | 22.25                  |                     |          |
| 15              | 64QAM      | 1       | 37        | 21.88                 | 21.89                        | 21.29                    | 21.08                         | 22.27                  | 23                  | 2        |
| 15              | 64QAM      | 1       | 74        | 21.84                 | 22.05                        | 21.32                    | 21.03                         | 22.22                  |                     |          |
| 15              | 64QAM      | 36      | 0         | 20.76                 | 20.88                        | 20.15                    | 20.25                         | 21.39                  |                     |          |
| 15              | 64QAM      | 36      | 20        | 20.75                 | 20.96                        | 20.01                    | 20.18                         | 21.39                  | 22                  | 3        |
| 15              | 64QAM      | 36      | 39        | 20.73                 | 20.96                        | 20.07                    | 20.18                         | 21.35                  |                     |          |
| 15              | 64QAM      | 75      | 0         | 20.72                 | 20.91                        | 20.02                    | 20.15                         | 21.35                  |                     |          |

| Channel         |       |    |    | 39700  | 40160  | 40620 | 41080   | 41540  | Tune-up<br>limit<br>(dBm) | MPR<br>(dB) |
|-----------------|-------|----|----|--------|--------|-------|---------|--------|---------------------------|-------------|
| Frequency (MHz) |       |    |    | 2501   | 2547   | 2593  | 2639    | 2685   |                           |             |
| 10              | QPSK  | 1  | 0  | 23.75  | 23.91  | 23.33 | 23.20   | 24.30  | 25                        | 0           |
| 10              | QPSK  | 1  | 25 | 23.79  | 23.97  | 23.13 | 23.17   | 24.26  |                           |             |
| 10              | QPSK  | 1  | 49 | 23.78  | 24.09  | 23.23 | 23.17   | 24.20  |                           |             |
| 10              | QPSK  | 25 | 0  | 22.89  | 23.00  | 22.26 | 22.26   | 23.26  | 24                        | 1           |
| 10              | QPSK  | 25 | 12 | 22.88  | 23.07  | 22.15 | 22.27   | 23.23  |                           |             |
| 10              | QPSK  | 25 | 25 | 22.89  | 23.16  | 22.23 | 22.28   | 23.25  |                           |             |
| 10              | QPSK  | 50 | 0  | 22.86  | 23.03  | 22.20 | 22.23   | 23.29  | 24                        | 1           |
| 10              | 16QAM | 1  | 0  | 22.85  | 23.00  | 22.46 | 22.25   | 23.55  |                           |             |
| 10              | 16QAM | 1  | 25 | 22.95  | 23.04  | 22.39 | 22.17   | 23.41  |                           |             |
| 10              | 16QAM | 1  | 49 | 22.91  | 23.30  | 22.29 | 22.28   | 23.53  | 23                        | 2           |
| 10              | 16QAM | 25 | 0  | 22.03  | 22.14  | 21.18 | 21.32   | 22.30  |                           |             |
| 10              | 16QAM | 25 | 12 | 22.04  | 22.23  | 21.10 | 21.34   | 22.29  |                           |             |
| 10              | 16QAM | 25 | 25 | 22.05  | 22.25  | 21.10 | 21.33   | 22.26  | 23                        | 2           |
| 10              | 16QAM | 50 | 0  | 21.99  | 22.11  | 21.18 | 21.29   | 22.25  |                           |             |
| 10              | 64QAM | 1  | 0  | 21.94  | 22.09  | 21.34 | 21.32   | 22.49  |                           |             |
| 10              | 64QAM | 1  | 25 | 22.03  | 22.28  | 21.30 | 21.11   | 22.54  | 23                        | 2           |
| 10              | 64QAM | 1  | 49 | 21.95  | 22.35  | 21.29 | 21.36   | 22.61  |                           |             |
| 10              | 64QAM | 25 | 0  | 20.67  | 20.77  | 20.11 | 20.29   | 21.45  |                           |             |
| 10              | 64QAM | 25 | 12 | 20.62  | 20.98  | 20.05 | 20.24   | 21.38  | 22                        | 3           |
| 10              | 64QAM | 25 | 25 | 20.71  | 21.05  | 20.10 | 20.19   | 21.30  |                           |             |
| 10              | 64QAM | 50 | 0  | 20.74  | 21.02  | 20.02 | 20.16   | 21.32  |                           |             |
| Channel         |       |    |    | 39675  | 40148  | 40620 | 41093   | 41565  | Tune-up<br>limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 2498.5 | 2545.8 | 2593  | 2640.30 | 2687.5 |                           |             |
| 5               | QPSK  | 1  | 0  | 23.74  | 23.81  | 23.32 | 23.20   | 24.23  | 25                        | 0           |
| 5               | QPSK  | 1  | 12 | 23.76  | 23.96  | 23.04 | 23.14   | 24.21  |                           |             |
| 5               | QPSK  | 1  | 24 | 23.76  | 24.00  | 23.23 | 23.10   | 24.10  |                           |             |
| 5               | QPSK  | 12 | 0  | 22.84  | 23.00  | 22.16 | 22.20   | 23.23  | 24                        | 1           |
| 5               | QPSK  | 12 | 7  | 22.78  | 23.04  | 22.05 | 22.21   | 23.20  |                           |             |
| 5               | QPSK  | 12 | 13 | 22.80  | 23.07  | 22.16 | 22.25   | 23.23  |                           |             |
| 5               | QPSK  | 25 | 0  | 22.85  | 22.94  | 22.10 | 22.20   | 23.25  | 24                        | 1           |
| 5               | 16QAM | 1  | 0  | 22.78  | 22.99  | 22.41 | 22.20   | 23.50  |                           |             |
| 5               | 16QAM | 1  | 12 | 22.94  | 23.02  | 22.34 | 22.09   | 23.41  |                           |             |
| 5               | 16QAM | 1  | 24 | 22.88  | 23.22  | 22.25 | 22.26   | 23.51  | 23                        | 2           |
| 5               | 16QAM | 12 | 0  | 21.97  | 22.10  | 21.13 | 21.32   | 22.22  |                           |             |
| 5               | 16QAM | 12 | 7  | 21.94  | 22.14  | 21.03 | 21.32   | 22.23  |                           |             |
| 5               | 16QAM | 12 | 13 | 21.95  | 22.15  | 21.01 | 21.27   | 22.18  | 23                        | 2           |
| 5               | 16QAM | 25 | 0  | 21.91  | 22.03  | 21.09 | 21.28   | 22.18  |                           |             |
| 5               | 64QAM | 1  | 0  | 21.86  | 22.07  | 21.25 | 21.31   | 22.40  |                           |             |
| 5               | 64QAM | 1  | 12 | 22.01  | 22.27  | 21.24 | 21.08   | 22.45  | 23                        | 2           |
| 5               | 64QAM | 1  | 24 | 21.88  | 22.32  | 21.28 | 21.30   | 22.55  |                           |             |
| 5               | 64QAM | 12 | 0  | 20.63  | 20.72  | 20.02 | 20.26   | 21.38  |                           |             |
| 5               | 64QAM | 12 | 7  | 20.60  | 20.95  | 20.08 | 20.19   | 21.30  | 22                        | 3           |
| 5               | 64QAM | 12 | 13 | 20.71  | 21.01  | 20.00 | 20.14   | 21.27  |                           |             |
| 5               | 64QAM | 25 | 0  | 20.70  | 20.92  | 20.10 | 20.07   | 21.30  |                           |             |

**<Tablet Power>**
**<LTE Band 38>**

| 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         |            |         |           | 37850                    | 38000                       | 38150                     |                        |             |
| Frequency (MHz) |            |         |           | 2580                     | 2595                        | 2610                      |                        |             |
| 20              | QPSK       | 1       | 0         | 22.42                    | 22.49                       | 22.38                     | 22.5                   | 0           |
| 20              | QPSK       | 1       | 49        | 22.32                    | 22.39                       | 22.35                     |                        |             |
| 20              | QPSK       | 1       | 99        | 22.33                    | 22.24                       | 22.30                     |                        |             |
| 20              | QPSK       | 50      | 0         | 22.27                    | 22.32                       | 22.28                     | 22.5                   | 0           |
| 20              | QPSK       | 50      | 24        | 22.22                    | 22.31                       | 22.26                     |                        |             |
| 20              | QPSK       | 50      | 50        | 22.28                    | 22.28                       | 22.24                     |                        |             |
| 20              | QPSK       | 100     | 0         | 22.18                    | 22.15                       | 22.29                     | 22.5                   | 0           |
| 20              | 16QAM      | 1       | 0         | 21.42                    | 21.36                       | 21.39                     |                        |             |
| 20              | 16QAM      | 1       | 49        | 21.33                    | 21.35                       | 21.29                     |                        |             |
| 20              | 16QAM      | 1       | 99        | 21.42                    | 21.36                       | 21.37                     | 22.5                   | 0           |
| 20              | 16QAM      | 50      | 0         | 21.33                    | 21.31                       | 21.31                     |                        |             |
| 20              | 16QAM      | 50      | 24        | 21.34                    | 21.31                       | 21.30                     |                        |             |
| 20              | 16QAM      | 50      | 50        | 21.37                    | 21.35                       | 21.35                     | 22.5                   | 0           |
| 20              | 16QAM      | 100     | 0         | 21.29                    | 21.34                       | 21.33                     |                        |             |
| 20              | 64QAM      | 1       | 0         | 20.90                    | 20.93                       | 20.87                     |                        |             |
| 20              | 64QAM      | 1       | 49        | 20.81                    | 20.91                       | 20.82                     | 22.5                   | 0           |
| 20              | 64QAM      | 1       | 99        | 20.80                    | 20.86                       | 20.79                     |                        |             |
| 20              | 64QAM      | 50      | 0         | 20.82                    | 20.89                       | 20.87                     |                        |             |
| 20              | 64QAM      | 50      | 24        | 20.75                    | 20.70                       | 20.85                     | 22.5                   | 0           |
| 20              | 64QAM      | 50      | 50        | 20.69                    | 20.79                       | 20.78                     |                        |             |
| 20              | 64QAM      | 100     | 0         | 20.63                    | 20.88                       | 20.74                     |                        |             |
| Channel         |            |         |           | 37825                    | 38000                       | 38175                     |                        |             |
| Frequency (MHz) |            |         |           | 2577.5                   | 2595                        | 2612.5                    |                        |             |
| 15              | QPSK       | 1       | 0         | 22.35                    | 22.43                       | 22.37                     | 22.5                   | 0           |
| 15              | QPSK       | 1       | 37        | 22.30                    | 22.34                       | 22.28                     |                        |             |
| 15              | QPSK       | 1       | 74        | 22.30                    | 22.22                       | 22.25                     |                        |             |
| 15              | QPSK       | 36      | 0         | 22.18                    | 22.27                       | 22.25                     | 22.5                   | 0           |
| 15              | QPSK       | 36      | 20        | 22.12                    | 22.31                       | 22.26                     |                        |             |
| 15              | QPSK       | 36      | 39        | 22.22                    | 22.28                       | 22.18                     |                        |             |
| 15              | QPSK       | 75      | 0         | 22.14                    | 22.07                       | 22.28                     | 22.5                   | 0           |
| 15              | 16QAM      | 1       | 0         | 21.34                    | 21.35                       | 21.29                     |                        |             |
| 15              | 16QAM      | 1       | 37        | 21.31                    | 21.27                       | 21.20                     |                        |             |
| 15              | 16QAM      | 1       | 74        | 21.36                    | 21.34                       | 21.37                     | 22.5                   | 0           |
| 15              | 16QAM      | 36      | 0         | 21.32                    | 21.30                       | 21.30                     |                        |             |
| 15              | 16QAM      | 36      | 20        | 21.27                    | 21.28                       | 21.24                     |                        |             |
| 15              | 16QAM      | 36      | 39        | 21.34                    | 21.32                       | 21.34                     | 22.5                   | 0           |
| 15              | 16QAM      | 75      | 0         | 21.26                    | 21.32                       | 21.33                     |                        |             |
| 15              | 64QAM      | 1       | 0         | 20.82                    | 20.85                       | 20.87                     |                        |             |
| 15              | 64QAM      | 1       | 37        | 20.73                    | 20.90                       | 20.75                     | 22.5                   | 0           |
| 15              | 64QAM      | 1       | 74        | 20.75                    | 20.85                       | 20.72                     |                        |             |
| 15              | 64QAM      | 36      | 0         | 20.78                    | 20.88                       | 20.86                     |                        |             |
| 15              | 64QAM      | 36      | 20        | 20.75                    | 20.69                       | 20.77                     | 22.5                   | 0           |
| 15              | 64QAM      | 36      | 39        | 20.64                    | 20.72                       | 20.71                     |                        |             |
| 15              | 64QAM      | 75      | 0         | 20.53                    | 20.86                       | 20.70                     |                        |             |

| Channel         |       |    |    | 37800  | 38000 | 38200  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
|-----------------|-------|----|----|--------|-------|--------|------------------------|-------------|
| Frequency (MHz) |       |    |    | 2575   | 2595  | 2615   |                        |             |
| 10              | QPSK  | 1  | 0  | 22.25  | 22.41 | 22.37  | 22.5                   | 0           |
| 10              | QPSK  | 1  | 25 | 22.23  | 22.31 | 22.21  |                        |             |
| 10              | QPSK  | 1  | 49 | 22.14  | 22.12 | 22.20  |                        |             |
| 10              | QPSK  | 25 | 0  | 22.17  | 22.15 | 22.26  | 22.5                   | 0           |
| 10              | QPSK  | 25 | 12 | 22.13  | 22.28 | 22.18  |                        |             |
| 10              | QPSK  | 25 | 25 | 22.17  | 22.20 | 22.14  |                        |             |
| 10              | QPSK  | 50 | 0  | 22.07  | 22.01 | 22.20  | 22.5                   | 0           |
| 10              | 16QAM | 1  | 0  | 21.28  | 21.24 | 21.30  |                        |             |
| 10              | 16QAM | 1  | 25 | 21.23  | 21.20 | 21.19  |                        |             |
| 10              | 16QAM | 1  | 49 | 21.35  | 21.20 | 21.22  | 22.5                   | 0           |
| 10              | 16QAM | 25 | 0  | 21.25  | 21.17 | 21.18  |                        |             |
| 10              | 16QAM | 25 | 12 | 21.20  | 21.18 | 21.22  |                        |             |
| 10              | 16QAM | 25 | 25 | 21.29  | 21.26 | 21.33  | 22.5                   | 0           |
| 10              | 16QAM | 50 | 0  | 21.15  | 21.14 | 21.22  |                        |             |
| 10              | 64QAM | 1  | 0  | 20.84  | 20.87 | 20.75  |                        |             |
| 10              | 64QAM | 1  | 25 | 20.65  | 20.80 | 20.70  | 22.5                   | 0           |
| 10              | 64QAM | 1  | 49 | 20.66  | 20.77 | 20.64  |                        |             |
| 10              | 64QAM | 25 | 0  | 20.82  | 20.79 | 20.74  |                        |             |
| 10              | 64QAM | 25 | 12 | 20.60  | 20.54 | 20.76  | 22.5                   | 0           |
| 10              | 64QAM | 25 | 25 | 20.58  | 20.66 | 20.58  |                        |             |
| 10              | 64QAM | 50 | 0  | 20.60  | 20.79 | 20.71  |                        |             |
| Channel         |       |    |    | 37775  | 38000 | 38225  | Tune-up limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 2572.5 | 2595  | 2617.5 |                        |             |
| 5               | QPSK  | 1  | 0  | 22.21  | 22.35 | 22.31  | 22.5                   | 0           |
| 5               | QPSK  | 1  | 12 | 22.14  | 22.25 | 22.20  |                        |             |
| 5               | QPSK  | 1  | 24 | 22.05  | 22.12 | 22.16  |                        |             |
| 5               | QPSK  | 12 | 0  | 22.17  | 22.07 | 22.23  | 22.5                   | 0           |
| 5               | QPSK  | 12 | 7  | 22.08  | 22.24 | 22.09  |                        |             |
| 5               | QPSK  | 12 | 13 | 22.13  | 22.16 | 22.08  |                        |             |
| 5               | QPSK  | 25 | 0  | 22.00  | 21.94 | 22.15  | 22.5                   | 0           |
| 5               | 16QAM | 1  | 0  | 21.22  | 21.23 | 21.29  |                        |             |
| 5               | 16QAM | 1  | 12 | 21.19  | 21.10 | 21.15  |                        |             |
| 5               | 16QAM | 1  | 24 | 21.34  | 21.10 | 21.20  | 22.5                   | 0           |
| 5               | 16QAM | 12 | 0  | 21.20  | 21.09 | 21.16  |                        |             |
| 5               | 16QAM | 12 | 7  | 21.19  | 21.10 | 21.22  |                        |             |
| 5               | 16QAM | 12 | 13 | 21.20  | 21.17 | 21.28  | 22.5                   | 0           |
| 5               | 16QAM | 25 | 0  | 21.06  | 21.11 | 21.13  |                        |             |
| 5               | 64QAM | 1  | 0  | 20.84  | 20.86 | 20.74  |                        |             |
| 5               | 64QAM | 1  | 12 | 20.57  | 20.78 | 20.62  | 22.5                   | 0           |
| 5               | 64QAM | 1  | 24 | 20.57  | 20.70 | 20.63  |                        |             |
| 5               | 64QAM | 12 | 0  | 20.74  | 20.74 | 20.65  |                        |             |
| 5               | 64QAM | 12 | 7  | 20.56  | 20.55 | 20.74  | 22.5                   | 0           |
| 5               | 64QAM | 12 | 13 | 20.51  | 20.66 | 20.51  |                        |             |
| 5               | 64QAM | 25 | 0  | 20.54  | 20.69 | 20.67  |                        |             |

**<LTE Band 41>**

| BW [MHz]        | Modulation | RB Size | RB Offset | Power Low Ch. / Freq. | Power Low Middle Ch. / Freq. | Power Middle Ch. / Freq. | Power High Middle Ch. / Freq. | Power High Ch. / Freq. | Tune-up limit (dBm) | MPR (dB) |
|-----------------|------------|---------|-----------|-----------------------|------------------------------|--------------------------|-------------------------------|------------------------|---------------------|----------|
| Channel         |            |         |           | 39750                 | 40185                        | 40620                    | 41055                         | 41490                  |                     |          |
| Frequency (MHz) |            |         |           | 2506                  | 2549.5                       | 2593                     | 2636.5                        | 2680                   |                     |          |
| 20              | QPSK       | 1       | 0         | 22.23                 | 22.36                        | 22.43                    | 22.40                         | 22.41                  | 22.5                | 0        |
| 20              | QPSK       | 1       | 49        | 22.13                 | 22.13                        | 22.33                    | 22.34                         | 22.31                  |                     |          |
| 20              | QPSK       | 1       | 99        | 22.19                 | 22.14                        | 22.26                    | 22.31                         | 22.14                  |                     |          |
| 20              | QPSK       | 50      | 0         | 21.23                 | 21.37                        | 21.41                    | 21.37                         | 21.35                  | 22.5                | 0        |
| 20              | QPSK       | 50      | 24        | 21.11                 | 21.27                        | 21.33                    | 21.24                         | 21.33                  |                     |          |
| 20              | QPSK       | 50      | 50        | 21.19                 | 21.29                        | 21.32                    | 21.25                         | 21.33                  |                     |          |
| 20              | QPSK       | 100     | 0         | 21.21                 | 21.32                        | 21.35                    | 21.26                         | 21.30                  | 22.5                | 0        |
| 20              | 16QAM      | 1       | 0         | 21.37                 | 21.36                        | 21.47                    | 21.32                         | 21.42                  |                     |          |
| 20              | 16QAM      | 1       | 49        | 21.37                 | 21.44                        | 21.36                    | 21.41                         | 21.46                  |                     |          |
| 20              | 16QAM      | 1       | 99        | 21.42                 | 21.49                        | 21.35                    | 21.45                         | 21.48                  | 22.5                | 0        |
| 20              | 16QAM      | 50      | 0         | 21.39                 | 21.36                        | 21.37                    | 21.37                         | 21.40                  |                     |          |
| 20              | 16QAM      | 50      | 24        | 21.37                 | 21.13                        | 21.34                    | 21.26                         | 21.38                  |                     |          |
| 20              | 16QAM      | 50      | 50        | 21.36                 | 21.16                        | 21.32                    | 21.28                         | 21.36                  | 22.5                | 0        |
| 20              | 16QAM      | 100     | 0         | 20.99                 | 21.09                        | 21.32                    | 21.24                         | 21.38                  |                     |          |
| 20              | 64QAM      | 1       | 0         | 21.21                 | 21.25                        | 21.49                    | 21.22                         | 21.37                  |                     |          |
| 20              | 64QAM      | 1       | 49        | 21.11                 | 21.35                        | 21.41                    | 21.49                         | 21.30                  | 22.5                | 0        |
| 20              | 64QAM      | 1       | 99        | 21.36                 | 21.42                        | 21.28                    | 21.50                         | 21.46                  |                     |          |
| 20              | 64QAM      | 50      | 0         | 20.80                 | 20.99                        | 20.83                    | 20.86                         | 20.90                  |                     |          |
| 20              | 64QAM      | 50      | 24        | 20.81                 | 20.99                        | 20.79                    | 20.75                         | 20.88                  | 22.5                | 0        |
| 20              | 64QAM      | 50      | 50        | 20.79                 | 20.83                        | 20.77                    | 20.76                         | 20.90                  |                     |          |
| 20              | 64QAM      | 100     | 0         | 20.75                 | 20.54                        | 20.80                    | 20.69                         | 20.90                  |                     |          |
| Channel         |            |         |           | 39725                 | 40173                        | 40620                    | 41068                         | 41515                  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 2503.5                | 2548.3                       | 2593                     | 2637.8                        | 2682.5                 |                     |          |
| 15              | QPSK       | 1       | 0         | 22.15                 | 22.32                        | 22.42                    | 22.30                         | 22.39                  | 22.5                | 0        |
| 15              | QPSK       | 1       | 37        | 22.13                 | 22.06                        | 22.31                    | 22.28                         | 22.25                  |                     |          |
| 15              | QPSK       | 1       | 74        | 22.18                 | 22.13                        | 22.17                    | 22.25                         | 22.08                  |                     |          |
| 15              | QPSK       | 36      | 0         | 21.36                 | 21.29                        | 21.34                    | 21.31                         | 21.44                  | 22.5                | 0        |
| 15              | QPSK       | 36      | 20        | 21.06                 | 21.43                        | 21.31                    | 21.23                         | 21.23                  |                     |          |
| 15              | QPSK       | 36      | 39        | 21.17                 | 21.37                        | 21.25                    | 21.16                         | 21.30                  |                     |          |
| 15              | QPSK       | 75      | 0         | 21.12                 | 21.40                        | 21.34                    | 21.26                         | 21.29                  | 22.5                | 0        |
| 15              | 16QAM      | 1       | 0         | 21.37                 | 21.31                        | 21.44                    | 21.28                         | 21.37                  |                     |          |
| 15              | 16QAM      | 1       | 37        | 21.35                 | 21.37                        | 21.31                    | 21.35                         | 21.37                  |                     |          |
| 15              | 16QAM      | 1       | 74        | 21.41                 | 21.46                        | 21.32                    | 21.45                         | 21.40                  | 22.5                | 0        |
| 15              | 16QAM      | 36      | 0         | 21.32                 | 21.26                        | 21.36                    | 21.30                         | 21.30                  |                     |          |
| 15              | 16QAM      | 36      | 20        | 21.28                 | 21.09                        | 21.28                    | 21.24                         | 21.36                  |                     |          |
| 15              | 16QAM      | 36      | 39        | 21.29                 | 21.09                        | 21.24                    | 21.23                         | 21.27                  | 22.5                | 0        |
| 15              | 16QAM      | 75      | 0         | 20.98                 | 21.08                        | 21.23                    | 21.23                         | 21.33                  |                     |          |
| 15              | 64QAM      | 1       | 0         | 21.17                 | 21.20                        | 21.48                    | 21.13                         | 21.27                  |                     |          |
| 15              | 64QAM      | 1       | 37        | 21.07                 | 21.33                        | 21.37                    | 21.39                         | 21.21                  | 22.5                | 0        |
| 15              | 64QAM      | 1       | 74        | 21.35                 | 21.40                        | 21.20                    | 21.35                         | 21.45                  |                     |          |
| 15              | 64QAM      | 36      | 0         | 20.75                 | 20.92                        | 20.75                    | 20.80                         | 20.85                  |                     |          |
| 15              | 64QAM      | 36      | 20        | 20.73                 | 20.96                        | 20.79                    | 20.72                         | 20.84                  | 22.5                | 0        |
| 15              | 64QAM      | 36      | 39        | 20.70                 | 20.75                        | 20.73                    | 20.66                         | 20.90                  |                     |          |
| 15              | 64QAM      | 75      | 0         | 20.66                 | 20.56                        | 20.79                    | 20.68                         | 20.90                  |                     |          |

| Channel         |       |    |    | 39700  | 40160  | 40620 | 41080   | 41540  | Tune-up limit (dBm) | MPR (dB) |
|-----------------|-------|----|----|--------|--------|-------|---------|--------|---------------------|----------|
| Frequency (MHz) |       |    |    | 2501   | 2547   | 2593  | 2639    | 2685   |                     |          |
| 10              | QPSK  | 1  | 0  | 22.19  | 22.26  | 22.38 | 22.36   | 22.36  | 22.5                | 0        |
| 10              | QPSK  | 1  | 25 | 22.13  | 22.12  | 22.27 | 22.25   | 22.25  |                     |          |
| 10              | QPSK  | 1  | 49 | 22.14  | 22.07  | 22.20 | 22.21   | 22.10  |                     |          |
| 10              | QPSK  | 25 | 0  | 21.41  | 21.35  | 21.32 | 21.30   | 21.45  | 22.5                | 0        |
| 10              | QPSK  | 25 | 12 | 21.05  | 21.38  | 21.32 | 21.24   | 21.24  |                     |          |
| 10              | QPSK  | 25 | 25 | 21.17  | 21.38  | 21.27 | 21.21   | 21.25  |                     |          |
| 10              | QPSK  | 50 | 0  | 21.04  | 21.37  | 21.35 | 21.16   | 21.34  | 22.5                | 0        |
| 10              | 16QAM | 1  | 0  | 21.28  | 21.35  | 21.40 | 21.23   | 21.36  |                     |          |
| 10              | 16QAM | 1  | 25 | 21.34  | 21.34  | 21.31 | 21.32   | 21.40  |                     |          |
| 10              | 16QAM | 1  | 49 | 21.32  | 21.40  | 21.34 | 21.40   | 21.40  | 22.5                | 0        |
| 10              | 16QAM | 25 | 0  | 21.32  | 21.29  | 21.37 | 21.29   | 21.33  |                     |          |
| 10              | 16QAM | 25 | 12 | 21.28  | 21.04  | 21.33 | 21.17   | 21.33  |                     |          |
| 10              | 16QAM | 25 | 25 | 21.35  | 21.12  | 21.29 | 21.26   | 21.29  | 22.5                | 0        |
| 10              | 16QAM | 50 | 0  | 20.90  | 21.04  | 21.30 | 21.17   | 21.29  |                     |          |
| 10              | 64QAM | 1  | 0  | 21.17  | 21.21  | 21.46 | 21.14   | 21.28  |                     |          |
| 10              | 64QAM | 1  | 25 | 21.10  | 21.30  | 21.35 | 21.40   | 21.28  | 22.5                | 0        |
| 10              | 64QAM | 1  | 49 | 21.32  | 21.32  | 21.22 | 21.49   | 21.45  |                     |          |
| 10              | 64QAM | 25 | 0  | 20.72  | 20.90  | 20.75 | 20.79   | 20.82  |                     |          |
| 10              | 64QAM | 25 | 12 | 20.63  | 20.86  | 20.72 | 20.65   | 20.78  | 22.5                | 0        |
| 10              | 64QAM | 25 | 25 | 20.67  | 20.72  | 20.64 | 20.57   | 20.89  |                     |          |
| 10              | 64QAM | 50 | 0  | 20.58  | 20.51  | 20.78 | 20.66   | 20.89  |                     |          |
| Channel         |       |    |    | 39675  | 40148  | 40620 | 41093   | 41565  | Tune-up limit (dBm) | MPR (dB) |
| Frequency (MHz) |       |    |    | 2498.5 | 2545.8 | 2593  | 2640.30 | 2687.5 |                     |          |
| 5               | QPSK  | 1  | 0  | 22.18  | 22.32  | 22.42 | 22.34   | 22.31  | 22.5                | 0        |
| 5               | QPSK  | 1  | 12 | 22.13  | 22.06  | 22.27 | 22.24   | 22.24  |                     |          |
| 5               | QPSK  | 1  | 24 | 22.12  | 22.08  | 22.16 | 22.21   | 22.07  |                     |          |
| 5               | QPSK  | 12 | 0  | 21.38  | 21.31  | 21.27 | 21.37   | 21.41  | 22.5                | 0        |
| 5               | QPSK  | 12 | 7  | 21.11  | 21.45  | 21.28 | 21.14   | 21.30  |                     |          |
| 5               | QPSK  | 12 | 13 | 21.11  | 21.35  | 21.22 | 21.19   | 21.32  |                     |          |
| 5               | QPSK  | 25 | 0  | 21.09  | 21.41  | 21.26 | 21.22   | 21.34  | 22.5                | 0        |
| 5               | 16QAM | 1  | 0  | 21.31  | 21.27  | 21.46 | 21.28   | 21.39  |                     |          |
| 5               | 16QAM | 1  | 12 | 21.30  | 21.43  | 21.33 | 21.39   | 21.46  |                     |          |
| 5               | 16QAM | 1  | 24 | 21.32  | 21.44  | 21.33 | 21.42   | 21.42  | 22.5                | 0        |
| 5               | 16QAM | 12 | 0  | 21.32  | 21.32  | 21.28 | 21.31   | 21.30  |                     |          |
| 5               | 16QAM | 12 | 7  | 21.31  | 21.08  | 21.25 | 21.17   | 21.36  |                     |          |
| 5               | 16QAM | 12 | 13 | 21.30  | 21.14  | 21.28 | 21.18   | 21.27  | 22.5                | 0        |
| 5               | 16QAM | 25 | 0  | 20.95  | 21.02  | 21.28 | 21.21   | 21.36  |                     |          |
| 5               | 64QAM | 1  | 0  | 21.21  | 21.19  | 21.49 | 21.16   | 21.35  |                     |          |
| 5               | 64QAM | 1  | 12 | 21.06  | 21.26  | 21.32 | 21.49   | 21.29  | 22.5                | 0        |
| 5               | 64QAM | 1  | 24 | 21.36  | 21.36  | 21.19 | 21.46   | 21.37  |                     |          |
| 5               | 64QAM | 12 | 0  | 20.70  | 20.80  | 20.75 | 20.72   | 20.82  |                     |          |
| 5               | 64QAM | 12 | 7  | 20.63  | 20.81  | 20.62 | 20.62   | 20.77  | 22.5                | 0        |
| 5               | 64QAM | 12 | 13 | 20.58  | 20.63  | 20.62 | 20.52   | 20.79  |                     |          |
| 5               | 64QAM | 25 | 0  | 20.58  | 20.58  | 20.72 | 20.57   | 20.84  |                     |          |

**<LTE Carrier Aggregation combinations>**
**General Note:**

1. This device supports Carrier Aggregation on downlink only for inter and intra band, Uplink CA is not supported. For the device supports combination bands and configurations are according to 3GPP.
2. In applying the existing power measurement procedure of KDB 941225 D05A for DL CA SAR test exclusion, only the subset with the largest number of combinations of the frequency band and CCs in each row need consideration, and that configurations require power measurement should be highlighted in the below table.
3. Only LTE Band 29A is limited to Scell.

| 2CC Downlink Carrier Aggregation |             |                                 | 3CC Downlink Carrier Aggregation |             |                                 | 4CC Downlink Carrier Aggregation |                |                                 |
|----------------------------------|-------------|---------------------------------|----------------------------------|-------------|---------------------------------|----------------------------------|----------------|---------------------------------|
| Number                           | Combination | Covered by Measurement Superset | Number                           | Combination | Covered by Measurement Superset | Number                           | Combination    | Covered by Measurement Superset |
| 1                                | 2A-4A       | 49                              | 49                               | 2A-4A-4A    |                                 | 108                              | 2A-2A-5A-66A   | 142                             |
| 2                                | 2A-5A       | 50                              | 50                               | 2A-4A-5A    |                                 | 109                              | 2A-2A-12A-30A  |                                 |
| 3                                | 2A-12A      | 51                              | 51                               | 2A-4A-12A   |                                 | 110                              | 2A-2A-12A-66A  |                                 |
| 4                                | 2A-13A      | 52                              | 52                               | 2A-4A-13A   |                                 | 111                              | 2A-12A-30A-66A |                                 |
| 5                                | 2A-14A      | 58                              | 53                               | 2A-5A-30A   | 112                             | 112                              | 2A-5A-30A-66A  |                                 |
| 6                                | 2A-29A      | 55                              | 54                               | 2A-12A-30A  | 111                             | 113                              | 2A-2A-13A-66A  |                                 |
| 7                                | 2A-30A      | 55                              | 55                               | 2A-29A-30A  |                                 | 114                              | 2A-5A-66A-66A  | 143                             |
| 8                                | 2A-66A      | 56                              | 56                               | 2A-5A-66A   | 112                             | 115                              | 2A-5B-30A      | 142                             |
| 9                                | 4A-5A       | 50                              | 57                               | 2A-13A-66A  | 113                             | 116                              | 2A-5B-66A      | 143                             |
| 10                               | 4A-12A      | 51                              | 58                               | 2A-14A-30A  | 121                             | 117                              | 2A-5A-66B      | 143                             |
| 11                               | 4A-13A      | 52                              | 59                               | 2A-14A-66A  | 121                             | 118                              | 2A-12A-66A-66A |                                 |
| 12                               | 4A-29A      | 64                              | 60                               | 2A-30A-66A  | 121                             | 119                              | 2A-13A-66A-66A |                                 |
| 13                               | 4A-30A      | 64                              | 61                               | 2A-66A-66A  | 118                             | 120                              | 2A-13A-66B     |                                 |
| 14                               | 5A-30A      | 62                              | 62                               | 4A-5A-30A   |                                 | 121                              | 2A-14A-30A-66A |                                 |
| 15                               | 5A-66A      | 77                              | 63                               | 4A-12A-30A  |                                 | 122                              | 5A-30A-66A-66A | 142                             |
| 16                               | 12A-30A     | 54                              | 64                               | 4A-29A-30A  |                                 | 123                              | 5B-30A-66A     | 142                             |
| 17                               | 13A-66A     | 57                              | 65                               | 2A-2A-5A    | 108                             | 124                              | 5B-66A-66A     | 143                             |
| 18                               | 14A-30A     | 58                              | 66                               | 2A-2A-12A   | 109                             | 125                              | 25A-41D        |                                 |
| 19                               | 14A-66A     | 59                              | 67                               | 2A-2A-13A   | 113                             | 126                              | 41A-41D        | 144                             |
| 20                               | 29A-30A     | 55                              | 68                               | 2A-2A-30A   | 109                             | 127                              | 41C-41C        | 144                             |
| 21                               | 2A-2A       | 65                              | 69                               | 2A-2A-66A   | 110                             | 128                              | 2A-5A-46C      | 145                             |
| 22                               | 4A-4A       | 70                              | 70                               | 4A-4A-5A    |                                 | 129                              | 2A-13A-46C     | 146                             |
| 23                               | 7A-7A       |                                 | 71                               | 4A-4A-12A   |                                 | 130                              | 2A-46A-46A-66A | 147                             |
| 24                               | 25A-25A     |                                 | 72                               | 4A-4A-13A   |                                 | 131                              | 2A-46A-46C     | 155                             |
| 25                               | 25A-26A     |                                 | 73                               | 13A-66A-66A | 119                             | 132                              | 4A-46A-46C     | 148                             |
| 26                               | 25A-41A     | 125                             | 74                               | 14A-30A-66A | 121                             | 133                              | 5A-46C-66A     | 149                             |
| 27                               | 26A-41A     | 81                              | 75                               | 2A-5B       | 115                             | 134                              | 5A-46D         | 150                             |
| 28                               | 41A-41A     | 126                             | 76                               | 2A-66C      |                                 | 135                              | 13A-46C-66A    | 151                             |
| 29                               | 66A-66A     | 73                              | 77                               | 5A-66A-66A  | 122                             | 136                              | 13A-46D        | 151                             |
| 30                               | 2C          |                                 | 78                               | 5B-30A      | 115                             | 137                              | 66A-46C-46A    |                                 |
| 31                               | 5B          |                                 | 79                               | 5B-66A      | 116                             | 138                              | 66A-46D        |                                 |
| 32                               | 7C          |                                 | 80                               | 25A-41C     | 125                             | 139                              | 2A-46C-66A     | 147                             |
| 33                               | 41C         | 84                              | 81                               | 26A-41C     |                                 | 140                              | 2A-46D         | 154                             |
| 34                               | 66C         |                                 | 82                               | 41A-41C     | 126                             | 141                              | 4A-46D         | 148                             |
| 35                               | 2A-46A      | 85                              | 83                               | 66A-66C     |                                 |                                  |                |                                 |
| 36                               | 4A-46A      | 90                              | 84                               | 41D         |                                 |                                  |                |                                 |
| 37                               | 7A-46A      |                                 | 85                               | 2A-5A-46A   | 145                             |                                  |                |                                 |
| 38                               | 13A-46A     | 93                              | 86                               | 2A-13A-46A  | 146                             |                                  |                |                                 |
| 39                               | 25A-46A     |                                 | 87                               | 2A-46A-46A  | 130                             |                                  |                |                                 |
| 40                               | 41A-46A     |                                 | 88                               | 2A-46A-66A  | 130                             | 5CC Downlink Carrier Aggregation |                |                                 |
| 41                               | 46A-66A     | 88                              | 89                               | 2A-46C      | 131                             |                                  |                |                                 |
| 42                               | 5A-46A      | 85                              | 90                               | 4A-46A-46A  | 148                             | Number                           | Combination    | Covered by Measurement Superset |
| 43                               | 5A-7A       |                                 | 91                               | 4A-46C      | 132                             | 142                              | 2A-5B-30A-66A  |                                 |
| 44                               |             |                                 | 92                               | 5A-46A-66A  | 149                             | 143                              | 2A-5B-66A-66A  |                                 |
| 45                               | 12A-66A     | 102                             | 93                               | 13A-46A-66A | 151                             | 144                              | 41C-41D        |                                 |
| 46                               | 29A-66A     | 105                             | 94                               | 13A-46C     | 136                             | 145                              | 2A-5A-46D      |                                 |
| 47                               | 30A-66A     | 106                             | 95                               | 66A-46A-46A | 137                             | 146                              | 2A-13A-46D     |                                 |
| 48                               | 66B         | 34                              | 96                               | 5A-46C      | 150                             | 147                              | 2A-46D-66A     |                                 |
|                                  |             |                                 | 97                               | 2A-12A-66A  | 118                             | 148                              | 4A-46A-46D     |                                 |
|                                  |             |                                 | 98                               | 2A-66B      | 117                             | 149                              | 5A-46D-66A     |                                 |
|                                  |             |                                 | 99                               | 5A-30A-66A  | 112                             | 150                              | 5A-46E         |                                 |
|                                  |             |                                 | 100                              | 5A-66B      | 117                             | 151                              | 13A-46D-66A    |                                 |
|                                  |             |                                 | 101                              | 12A-30A-66A | 111                             | 152                              | 13A-46E        |                                 |
|                                  |             |                                 | 102                              | 12A-66A-66A | 118                             | 153                              | 46A-46D-66A    | B46 RX Only                     |
|                                  |             |                                 | 103                              | 13A-66B     | 120                             | 154                              | 2A-2A-46D      |                                 |
|                                  |             |                                 | 104                              | 29A-30A-66A | B29 RX Only                     | 155                              | 2A-46A-46D     |                                 |
|                                  |             |                                 | 105                              | 29A-66A-66A | B29 RX Only                     | 156                              | 2A-46C-46C     |                                 |
|                                  |             |                                 | 106                              | 30A-66A-66A | 122                             | 157                              | 2A-46E         |                                 |
|                                  |             |                                 | 107                              | 46C-66A     | 133                             | 158                              | 46C-46C-66A    | B46 RX Only                     |
|                                  |             |                                 |                                  |             |                                 | 159                              | 46D-66A-66A    | B46 RX Only                     |
|                                  |             |                                 |                                  |             |                                 | 160                              | 46E-66A        | B46 RX Only                     |

**<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 |                | 5A (4x4 MIMO) -7A      | 5        | 10       | 844            | 20600      | QPSK | 1      | 49           | 7        | 20       | 2655           | 3100       | 24.53                  | 24.60                 |
|            |                | 7A (4x4 MIMO) -46A     | 7        | 20       | 2560           | 21350      | QPSK | 1      | 99           | 46       | 20       | 5537.5         | 50665      | 23.73                  | 23.75                 |
|            |                | 25A-26A                | 25       | 20       | 1880           | 26340      | QPSK | 1      | 0            | 26       | 15       | 876.5          | 8865       | 23.17                  | 23.25                 |
|            |                | 25A-41A (4x4 MIMO)     | 25       | 20       | 1880           | 26340      | QPSK | 1      | 0            | 41       | 20       | 2593           | 40620      | 23.15                  | 23.25                 |
|            |                | 25A-46A                | 25       | 20       | 1880           | 26340      | QPSK | 1      | 0            | 46       | 20       | 5537.5         | 50665      | 23.22                  | 23.25                 |
|            |                | 41A (4x4 MIMO) -46A    | 41       | 20       | 2680           | 41490      | QPSK | 1      | 0            | 46       | 20       | 5537.5         | 50665      | 24.24                  | 24.31                 |
| Intra-Band | Non-Contiguous | 7A (4x4 MIMO) -7A      | 7        | 20       | 2560           | 21350      | QPSK | 1      | 99           | 7        | 20       | 2630           | 2850       | 23.69                  | 23.75                 |
|            |                | 25A-25A                | 25       | 20       | 1880           | 26340      | QPSK | 1      | 0            | 25       | 20       | 1985           | 8590       | 23.20                  | 23.25                 |
|            | Contiguous     | 2C (4x4 MIMO)          | 2        | 20       | 1880           | 18900      | QPSK | 1      | 0            | 2        | 20       | 1979.8         | 1098       | 23.39                  | 23.46                 |
|            |                | 5B                     | 5        | 10       | 844            | 20600      | QPSK | 1      | 49           | 5        | 10       | 891.4          | 2624       | 24.55                  | 24.60                 |
|            |                | 7C (4x4 MIMO)          | 7        | 20       | 2560           | 21350      | QPSK | 1      | 99           | 7        | 20       | 2674.8         | 3298       | 23.71                  | 23.75                 |
|            |                | 66C                    | 66       | 20       | 1770           | 132572     | QPSK | 1      | 0            | 66       | 20       | 2150.2         | 66838      | 23.64                  | 23.72                 |

**<Three Carrier power verification>**

| Configure  |                       | CA Configuration (BCS) | PCC      |          |                |            |      |        | SCC          |          |          |                | SCC2       |          |          |                | Power      |                        |                       |
|------------|-----------------------|------------------------|----------|----------|----------------|------------|------|--------|--------------|----------|----------|----------------|------------|----------|----------|----------------|------------|------------------------|-----------------------|
|            |                       |                        | LTE Band | BW (MHz) | UL Freq. (MHz) | UL Channel | Mod. | UL# RB | UL RB Offset | LTE Band | BW (MHz) | DL Freq. (MHz) | DL Channel | LTE Band | BW (MHz) | DL Freq. (MHz) | DL Channel | With CA Tx.Power (dBm) | W/O CA Tx.Power (dBm) |
| Inter-Band | 2A-4A (4x4 MIMO)-4A   |                        | 2        | 20       | 1880           | 18900      | QPSK | 1      | 0            | 4        | 20       | 2132.5         | 2175       | 4        | 20       | 2300           | 2145       | 23.42                  | 23.46                 |
|            | 2A-4A (4x4 MIMO)-5A   |                        | 2        | 20       | 1880           | 18900      | QPSK | 1      | 0            | 4        | 20       | 2132.5         | 2175       | 5        | 10       | 881.5          | 2525       | 23.39                  | 23.46                 |
|            | 2A-4A (4x4 MIMO)-12A  |                        | 2        | 20       | 1880           | 18900      | QPSK | 1      | 0            | 4        | 20       | 2132.5         | 2175       | 12       | 10       | 737.5          | 5095       | 23.40                  | 23.46                 |
|            | 2A-4A (4x4 MIMO)-13A  |                        | 2        | 20       | 1880           | 18900      | QPSK | 1      | 0            | 4        | 20       | 2132.5         | 2175       | 13       | 10       | 751            | 5230       | 23.35                  | 23.46                 |
|            | 2A-29A-30A (4x4 MIMO) |                        | 2        | 20       | 1880           | 18900      | QPSK | 1      | 0            | 29       | 10       | 722.5          | 9715       | 30       | 10       | 2355           | 9820       | 23.33                  | 23.46                 |
|            | 2A-66C (4x4 MIMO)     |                        | 2        | 20       | 1880           | 18900      | QPSK | 1      | 0            | 66       | 20       | 2155           | 66886      | 66       | 20       | 2174.8         | 67084      | 23.38                  | 23.46                 |
|            | 4A (4x4 MIMO)-4A-5A   |                        | 4        | 20       | 1745           | 20300      | QPSK | 1      | 99           | 4        | 20       | 2300           | 2145       | 5        | 10       | 881.5          | 2525       | 23.45                  | 23.52                 |
|            | 4A (4x4 MIMO)-4A-12A  |                        | 4        | 20       | 1745           | 20300      | QPSK | 1      | 99           | 4        | 20       | 2300           | 2145       | 12       | 10       | 737.5          | 5095       | 23.47                  | 23.52                 |
|            | 4A (4x4 MIMO)-4A-13A  |                        | 4        | 20       | 1745           | 20300      | QPSK | 1      | 99           | 4        | 20       | 2300           | 2145       | 13       | 10       | 751            | 5230       | 23.43                  | 23.52                 |
|            | 4A-5A-30A (4x4 MIMO)  |                        | 4        | 20       | 1745           | 20300      | QPSK | 1      | 99           | 5        | 10       | 881.5          | 2525       | 30       | 10       | 2355           | 9820       | 23.50                  | 23.52                 |
|            | 4A-12A-30A (4x4 MIMO) |                        | 4        | 20       | 1745           | 20300      | QPSK | 1      | 99           | 12       | 10       | 737.5          | 5095       | 30       | 10       | 2355           | 9820       | 23.49                  | 23.52                 |
|            | 4A-29A-30A (4x4 MIMO) |                        | 4        | 20       | 1745           | 20300      | QPSK | 1      | 99           | 29       | 10       | 722.5          | 9715       | 30       | 10       | 2197.5         | 67311      | 23.41                  | 23.52                 |
|            | 26A-41C (4x4 MIMO)    |                        | 26       | 15       | 841.5          | 26965      | QPSK | 1      | 74           | 41       | 20       | 2593           | 40620      | 41       | 20       | 2612.3         | 40818      | 24.60                  | 24.62                 |
|            | 66A (4x4 MIMO)-66C    |                        | 66       | 20       | 1770           | 132572     | QPSK | 1      | 0            | 66       | 20       | 2155           | 66886      | 66       | 20       | 2174.8         | 67084      | 23.68                  | 23.72                 |
| Intra-Band | Contiguous            | 41D                    | 41       | 20       | 2680           | 41490      | QPSK | 1      | 0            | 41       | 20       | 2660.8         | 41292      | 41       | 20       | 2640.4         | 41094      | 24.27                  | 24.31                 |

**<Four Carrier power verification>**

| Configure  | CA Configuration (BCS) | PCC      |          |                |            |      |        |              | SCC1     |          |                |            | SCC2     |          |                |            | SCC3     |          |                |            | Power                  |                       |
|------------|------------------------|----------|----------|----------------|------------|------|--------|--------------|----------|----------|----------------|------------|----------|----------|----------------|------------|----------|----------|----------------|------------|------------------------|-----------------------|
|            |                        | LTE Band | BW (MHz) | UL Freq. (MHz) | UL Channel | Mod. | UL# RB | UL RB Offset | LTE Band | BW (MHz) | DL Freq. (MHz) | DL Channel | LTE Band | BW (MHz) | DL Freq. (MHz) | DL Channel | LTE Band | BW (MHz) | DL Freq. (MHz) | DL Channel | With CA Tx.Power (dBm) | W/O CA Tx.Power (dBm) |
| Inter-Band | 2A-2A-12A-30A          | 2        | 20       | 1880           | 18900      | QPSK | 1      | 0            | 2        | 20       | 1960           | 900        | 12       | 10       | 737.5          | 5095       | 30       | 10       | 2355           | 9820       | 23.41                  | 23.46                 |
|            | 2A-2A-12A-66A          | 2        | 20       | 1880           | 18900      | QPSK | 1      | 0            | 2        | 20       | 1960           | 900        | 12       | 10       | 737.5          | 5095       | 66       | 20       | 2155           | 66886      | 23.44                  | 23.46                 |
|            | 2A-2A-13A-66A          | 2        | 20       | 1880           | 18900      | QPSK | 1      | 0            | 2        | 20       | 1960           | 900        | 13       | 10       | 751            | 5230       | 66       | 20       | 2155           | 66886      | 23.40                  | 23.46                 |
|            | 2A-5A-30A-66A          | 2        | 20       | 1880           | 18900      | QPSK | 1      | 0            | 5        | 10       | 881.5          | 2525       | 30       | 10       | 2355           | 9820       | 66       | 20       | 2155           | 66886      | 23.43                  | 23.46                 |
|            | 2A-12A-30A-66A         | 2        | 20       | 1880           | 18900      | QPSK | 1      | 0            | 12       | 10       | 737.5          | 5095       | 30       | 10       | 2355           | 9820       | 60       | 20       | 2155           | 66886      | 23.36                  | 23.46                 |
|            | 2A-12A-66A-66A         | 2        | 20       | 1880           | 18900      | QPSK | 1      | 0            | 12       | 10       | 737.5          | 5095       | 66       | 20       | 2155           | 66886      | 60       | 20       | 2190           | 67236      | 23.38                  | 23.46                 |
|            | 2A (4x4 MIMO)-13A-46C  | 2        | 20       | 1880           | 18900      | QPSK | 1      | 0            | 13       | 10       | 751            | 5230       | 46       | 20       | 5537.5         | 50665      | 46       | 20       | 5557.3         | 50863      | 23.36                  | 23.46                 |
|            | 2A-13A-66A-66A         | 2        | 20       | 1880           | 18900      | QPSK | 1      | 0            | 13       | 10       | 751            | 5230       | 66       | 20       | 2155           | 66886      | 60       | 20       | 2190           | 67236      | 23.39                  | 23.46                 |
|            | 2A (4x4 MIMO)-13A-66B  | 2        | 20       | 1880           | 18900      | QPSK | 1      | 0            | 13       | 10       | 751            | 5230       | 66       | 15       | 2155           | 66886      | 66       | 5        | 2164.3         | 66979      | 23.34                  | 23.46                 |
|            | 2A-14A-30A-66A         | 2        | 20       | 1880           | 18900      | QPSK | 1      | 0            | 14       | 10       | 763            | 5330       | 30       | 10       | 2355           | 9820       | 66       | 20       | 2155           | 66886      | 23.30                  | 23.46                 |
|            | 25A-41D                | 25       | 20       | 1880           | 26340      | QPSK | 1      | 0            | 41       | 20       | 2593           | 40620      | 41       | 20       | 2612.8         | 40818      | 41       | 20       | 2632.6         | 41016      | 23.32                  | 23.46                 |
|            | 66A-46C-46A            | 66       | 20       | 1770           | 132572     | QPSK | 1      | 0            | 46       | 20       | 5537.5         | 50665      | 46       | 20       | 5557.3         | 50863      | 46       | 20       | 5915           | 54440      | 23.69                  | 23.72                 |
|            | 66A-46D                | 66       | 20       | 1770           | 132572     | QPSK | 1      | 0            | 46       | 20       | 5537.5         | 50665      | 46       | 20       | 5557.3         | 50863      | 46       | 20       | 5577.1         | 51061      | 23.66                  | 23.72                 |

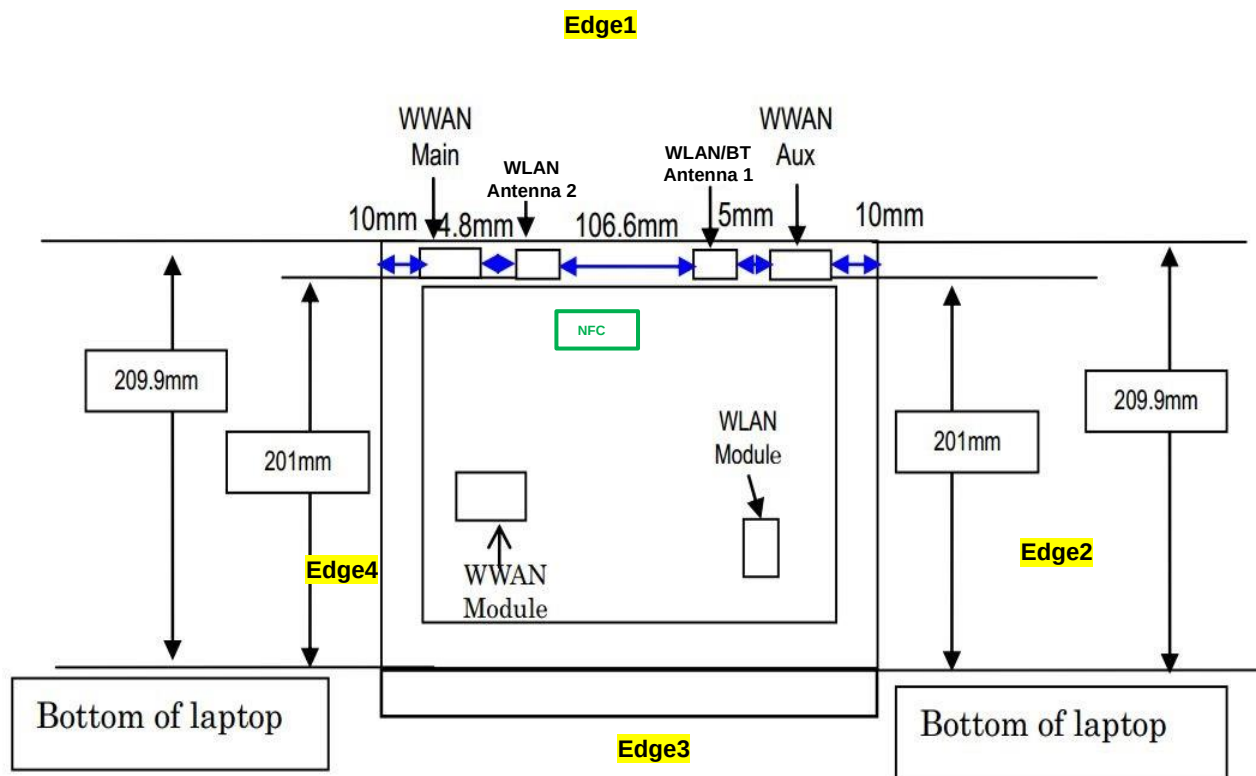


**<Five Carrier power verification>**

| Configure  | CA Configuration (BCS) | PCC      |          |                |            |      |     |              | SCC1     |          |                |            | SCC2     |          |                |            | SCC3     |          |                |            | SCC4     |          |                |            | Power                  |                       |
|------------|------------------------|----------|----------|----------------|------------|------|-----|--------------|----------|----------|----------------|------------|----------|----------|----------------|------------|----------|----------|----------------|------------|----------|----------|----------------|------------|------------------------|-----------------------|
|            |                        | LTE Band | BW (MHz) | UL Freq. (MHz) | UL Channel | Mod. | UL# | UL RB Offset | LTE Band | BW (MHz) | DL Freq. (MHz) | DL Channel | LTE Band | BW (MHz) | DL Freq. (MHz) | DL Channel | LTE Band | BW (MHz) | DL Freq. (MHz) | DL Channel | LTE Band | BW (MHz) | DL Freq. (MHz) | DL Channel | With CA Tx.Power (dBm) | W/O CA Tx.Power (dBm) |
| Inter-Band | 2A-2A-46D              | 2        | 20       | 1880           | 18900      | QPSK | 1   | 0            | 2        | 20       | 1960           | 900        | 46       | 20       | 5537.5         | 50665      | 46       | 20       | 5557.3         | 50863      | 46       | 20       | 5577.1         | 51061      | 23.40                  | 23.46                 |
|            | 2A-5A-46D              | 2        | 20       | 1880           | 18900      | QPSK | 1   | 0            | 5        | 10       | 881.5          | 2525       | 46       | 20       | 5537.5         | 50665      | 46       | 20       | 5557.3         | 50863      | 46       | 20       | 5577.1         | 51061      | 23.38                  | 23.46                 |
|            | 2A-5B-30A-66A          | 2        | 20       | 1880           | 18900      | QPSK | 1   | 0            | 5        | 10       | 881.5          | 2525       | 5        | 10       | 891.4          | 2624       | 30       | 10       | 2355           | 9820       | 66       | 20       | 2155           | 66886      | 23.46                  | 23.46                 |
|            | 2A-5B-66A-66A          | 2        | 20       | 1880           | 18900      | QPSK | 1   | 0            | 5        | 10       | 881.5          | 2525       | 5        | 10       | 891.4          | 2624       | 66       | 20       | 2155           | 66886      | 66       | 20       | 2190           | 67236      | 23.45                  | 23.46                 |
|            | 2A-13A-46D             | 2        | 20       | 1880           | 18900      | QPSK | 1   | 0            | 13       | 10       | 751            | 5230       | 46       | 20       | 5537.5         | 50665      | 46       | 20       | 5557.3         | 50863      | 46       | 20       | 5577.1         | 51061      | 23.36                  | 23.46                 |
|            | 2A-46A-46D             | 2        | 20       | 1880           | 18900      | QPSK | 1   | 0            | 46       | 20       | 5537.5         | 50665      | 46       | 20       | 5915           | 54440      | 46       | 20       | 5895.2         | 54242      | 46       | 20       | 5785.4         | 54044      | 23.42                  | 23.46                 |
|            | 2A-46C-46C             | 2        | 20       | 1880           | 18900      | QPSK | 1   | 0            | 46       | 20       | 5537.5         | 50665      | 46       | 20       | 5557.3         | 50863      | 46       | 20       | 5915           | 54440      | 46       | 20       | 5895.2         | 54242      | 23.44                  | 23.46                 |
|            | 2A-46D-66A             | 2        | 20       | 1880           | 18900      | QPSK | 1   | 0            | 46       | 20       | 5537.5         | 50665      | 46       | 20       | 5557.3         | 50863      | 46       | 20       | 5577.1         | 51061      | 66       | 20       | 2155           | 66886      | 23.43                  | 23.46                 |
|            | 2A-46E                 | 2        | 20       | 1880           | 18900      | QPSK | 1   | 0            | 46       | 20       | 5537.5         | 50665      | 46       | 20       | 5557.3         | 50863      | 46       | 20       | 5577.1         | 51061      | 46       | 20       | 5596.9         | 51259      | 23.37                  | 23.46                 |
|            | 4A-46A-46D             | 4        | 20       | 1745           | 20300      | QPSK | 1   | 99           | 46       | 20       | 5537.5         | 50665      | 46       | 20       | 5915           | 54440      | 46       | 20       | 5895.2         | 54242      | 46       | 20       | 5785.4         | 54044      | 23.51                  | 23.52                 |
|            | 5A-46D-66A             | 5        | 10       | 844            | 20600      | QPSK | 1   | 49           | 46       | 20       | 5537.5         | 50665      | 46       | 20       | 5557.3         | 50863      | 46       | 20       | 5577.1         | 51061      | 66       | 20       | 2155           | 66886      | 24.55                  | 24.60                 |
|            | 5A-46E                 | 5        | 10       | 844            | 20600      | QPSK | 1   | 49           | 46       | 20       | 5537.5         | 50665      | 46       | 20       | 5557.3         | 50863      | 46       | 20       | 5577.1         | 51061      | 46       | 20       | 5596.9         | 51259      | 24.60                  | 24.60                 |
|            | 13A-46D-66A            | 13       | 10       | 782            | 23230      | QPSK | 1   | 0            | 46       | 20       | 5537.5         | 50665      | 46       | 20       | 5557.3         | 50863      | 46       | 20       | 5577.1         | 51061      | 66       | 20       | 2155           | 66886      | 23.15                  | 23.19                 |
|            | 13A-46E                | 13       | 10       | 782            | 23230      | QPSK | 1   | 0            | 46       | 20       | 5537.5         | 50665      | 46       | 20       | 5557.3         | 50863      | 46       | 20       | 5577.1         | 51061      | 46       | 20       | 5596.9         | 51259      | 23.11                  | 23.19                 |
|            | 41C-41D                | 41       | 20       | 2680           | 41490      | QPSK | 1   | 0            | 41       | 20       | 2569.3         | 40383      | 41       | 20       | 2680           | 41490      | 41       | 20       | 2660.2         | 41292      | 41       | 20       | 2640.4         | 41094      | 24.24                  | 24.31                 |

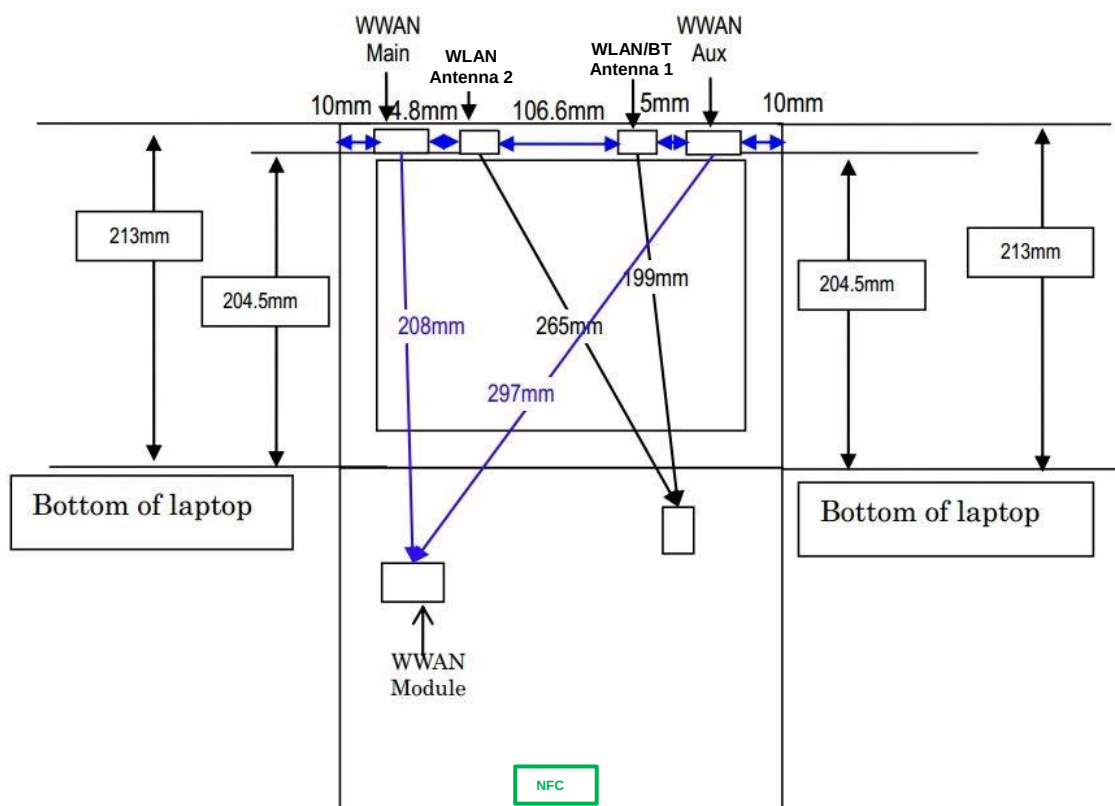
### 13. Antenna Location

<For Tablet Mode>



Front View

<For Laptop Mode>



The separation distance for antenna to edge :

| Antenna           | To Edge1<br>(mm) | To Edge2<br>(mm) | To Edge3<br>(mm) | To Edge4<br>(mm) | To Bottom of<br>Laptop<br>(mm) |
|-------------------|------------------|------------------|------------------|------------------|--------------------------------|
| WWAN Main         | <5               | 245.8            | 204.5            | 10               | 204.5                          |
| WLAN Antenna 2    | <5               | 203.6            | 204.5            | 65               | 204.5                          |
| WLAN/BT Antenna 1 | <5               | 55               | 204.5            | 217.6            | 204.5                          |



## &lt;SAR test exclusion table&gt;

## General Note:

- The below table, when the distance is < 50 mm exclusion threshold is "Ratio", when the distance is > 50 mm exclusion threshold is "mW"
- Maximum power is the source-based time-average power and represents the maximum RF output power among production units
- Per KDB 447498 D01v06, for larger devices, the test separation distance of adjacent edge configuration is determined by the closest separation between the antenna and the user.
- Per KDB 447498 D01v06, standalone SAR test exclusion threshold is applied; If the test separation distance is < 5mm, 5mm is used to determine SAR exclusion threshold.
- Per KDB 447498 D01v06, the 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at *test separation distances* ≤ 50 mm are determined by:  

$$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0 \text{ for 1-g SAR and } \leq 7.5 \text{ for 10-g extremity SAR}$$
  - f(GHz) is the RF channel transmit frequency in GHz
  - Power and distance are rounded to the nearest mW and mm before calculation
  - The result is rounded to one decimal place for comparison
- Per KDB 447498 D01v06, at 100 MHz to 6 GHz and for *test separation distances* > 50 mm, the SAR test exclusion threshold is determined according to the following
  - [Threshold at 50 mm in step 1) + (test separation distance - 50 mm) · (f(MHz)/150)] mW, at 100 MHz to 1500 MHz
  - [Threshold at 50 mm in step 1) + (test separation distance - 50 mm) · 10] mW at > 1500 MHz and ≤ 6 GHz

## &lt;For Tablet Mode&gt;

| Exposure Position | Wireless Interface       | WCDMA Band V | WCDMA Band IV | WCDMA Band II | LTE Band 12 | LTE Band 17 | LTE Band 14 | LTE Band 13 | LTE Band 5 | LTE Band 26 | LTE Band 4 | LTE Band 66 | LTE Band 2 | LTE Band 25 | LTE Band 30 | LTE Band 7 | LTE Band 38 | LTE Band 41 |
|-------------------|--------------------------|--------------|---------------|---------------|-------------|-------------|-------------|-------------|------------|-------------|------------|-------------|------------|-------------|-------------|------------|-------------|-------------|
| Exposure Position | Calculated Frequency     | 846MHz       | 1750MHz       | 1907MHz       | 715MHz      | 713MHz      | 793MHz      | 784MHz      | 848MHz     | 848MHz      | 1754MHz    | 1779MHz     | 1909MHz    | 1914MHz     | 2312MHz     | 2567MHz    | 2617MHz     | 2687MHz     |
|                   | Maximum power (dBm)      | 22.5         | 18.5          | 17.5          | 21          | 21          | 22          | 22.5        | 22.5       | 22.5        | 18.5       | 18.5        | 17.5       | 17.5        | 19          | 17         | 22.5        | 22.5        |
|                   | Maximum rated power (mW) | 178.0        | 71.0          | 56.0          | 126.0       | 126.0       | 158.0       | 178.0       | 178.0      | 178.0       | 71.0       | 71.0        | 56.0       | 56.0        | 79.0        | 50.0       | 178.0       | 178.0       |
| Bottom Face       | Separation distance (mm) | 5.0          |               |               |             |             |             |             |            |             |            |             |            |             |             |            |             |             |
|                   | exclusion threshold      | 32.7         | 18.8          | 15.5          | 21.3        | 21.3        | 28.0        | 31.5        | 32.8       | 32.8        | 18.8       | 18.9        | 15.5       | 15.5        | 24.0        | 16.0       | 57.6        | 58.4        |
|                   | Testing required?        | Yes          | Yes           | Yes           | Yes         | Yes         | Yes         | Yes         | Yes        | Yes         | Yes        | Yes         | Yes        | Yes         | Yes         | Yes        | Yes         | Yes         |
| Edge 1            | Separation distance (mm) | 5.0          |               |               |             |             |             |             |            |             |            |             |            |             |             |            |             |             |
|                   | exclusion threshold      | 32.7         | 18.8          | 15.5          | 21.3        | 21.3        | 28.0        | 31.5        | 32.8       | 32.8        | 18.8       | 18.9        | 15.5       | 15.5        | 24.0        | 16.0       | 57.6        | 58.4        |
|                   | Testing required?        | Yes          | Yes           | Yes           | Yes         | Yes         | Yes         | Yes         | Yes        | Yes         | Yes        | Yes         | Yes        | Yes         | Yes         | Yes        | Yes         | Yes         |
| Edge 2            | Separation distance (mm) | 245.8        |               |               |             |             |             |             |            |             |            |             |            |             |             |            |             |             |
|                   | exclusion threshold      | 1267.0       | 2071.0        | 2067.0        | 1111.0      | 1108.0      | 1193.0      | 1193.0      | 1270.0     | 1270.0      | 2071.0     | 2070.0      | 2067.0     | 2066.0      | 2057.0      | 2052.0     | 2051.0      | 2050.0      |
|                   | Testing required?        | No           | No            | No            | No          | No          | No          | No          | No         | No          | No         | No          | No         | No          | No          | No         | No          | No          |
| Edge 3            | Separation distance (mm) | 204.5        |               |               |             |             |             |             |            |             |            |             |            |             |             |            |             |             |
|                   | exclusion threshold      | 1034.0       | 1658.0        | 1654.0        | 914.0       | 912.0       | 977.0       | 977.0       | 1036.0     | 1036.0      | 1658.0     | 1657.0      | 1654.0     | 1653.0      | 1644.0      | 1639.0     | 1638.0      | 1637.0      |
|                   | Testing required?        | No           | No            | No            | No          | No          | No          | No          | No         | No          | No         | No          | No         | No          | No          | No         | No          | No          |
| Edge 4            | Separation distance (mm) | 10.0         |               |               |             |             |             |             |            |             |            |             |            |             |             |            |             |             |
|                   | exclusion threshold      | 16.4         | 9.4           | 7.7           | 10.7        | 10.6        | 14.0        | 15.8        | 16.4       | 16.4        | 9.4        | 9.5         | 7.7        | 7.8         | 12.0        | 8.0        | 28.8        | 29.2        |
|                   | Testing required?        | Yes          | Yes           | Yes           | Yes         | Yes         | Yes         | Yes         | Yes        | Yes         | Yes        | Yes         | Yes        | Yes         | Yes         | Yes        | Yes         | Yes         |

## &lt;For Laptop Mode&gt;

| Exposure Position | Wireless Interface       | WCDMA Band V | WCDMA Band IV | WCDMA Band II | LTE Band 12 | LTE Band 17 | LTE Band 14 | LTE Band 13 | LTE Band 5 | LTE Band 26 | LTE Band 4 | LTE Band 66 | LTE Band 2 | LTE Band 25 | LTE Band 30 | LTE Band 7 | LTE Band 38 | LTE Band 41 |
|-------------------|--------------------------|--------------|---------------|---------------|-------------|-------------|-------------|-------------|------------|-------------|------------|-------------|------------|-------------|-------------|------------|-------------|-------------|
| Exposure Position | Calculated Frequency     | 846MHz       | 1750MHz       | 1907MHz       | 715MHz      | 713MHz      | 793MHz      | 784MHz      | 848MHz     | 848MHz      | 1754MHz    | 1779MHz     | 1909MHz    | 1914MHz     | 2312MHz     | 2567MHz    | 2617MHz     | 2687MHz     |
|                   | Maximum power (dBm)      | 24.5         | 24.5          | 24.5          | 24          | 24          | 24          | 24          | 25         | 25          | 24         | 24          | 24         | 24          | 24          | 24         | 24          | 25          |
|                   | Maximum rated power (mW) | 282.0        | 282.0         | 282.0         | 251.0       | 251.0       | 251.0       | 251.0       | 316.0      | 316.0       | 251.0      | 251.0       | 251.0      | 251.0       | 251.0       | 251.0      | 251.0       | 316.0       |
| Bottom of Laptop  | Separation distance (mm) | 204.5        |               |               |             |             |             |             |            |             |            |             |            |             |             |            |             |             |
|                   | exclusion threshold      | 1034.0       | 1658.0        | 1654.0        | 914.0       | 912.0       | 977.0       | 977.0       | 1036.0     | 1036.0      | 1658.0     | 1657.0      | 1654.0     | 1653.0      | 1644.0      | 1639.0     | 1638.0      | 1637.0      |
|                   | Testing required?        | No           | No            | No            | No          | No          | No          | No          | No         | No          | No         | No          | No         | No          | No          | No         | No          | No          |

## 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
  - e. For TDD LTE SAR measurement, the duty cycle 1:1.59 (62.9 %) was used perform testing and considering the theoretical duty cycle of 63.3% for extended cyclic prefix in the uplink, and the theoretical duty cycle of 62.9% for normal cyclic prefix in uplink, a scaling factor of extended cyclic prefix  $63.3\%/62.9\% = 1.006$  is applied to scale-up the measured SAR result. The Reported TDD LTE SAR = measured SAR (W/kg)\* Tune-up Scaling Factor\* scaling factor for extended cyclic prefix.
2. Per KDB 447498 D01v06, for each exposure position, testing of other required channels within the operating mode of a frequency band is not required when the reported 1-g or 10-g SAR for the mid-band or highest output power channel is:
  - $\leq 0.8$  W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is  $\leq 100$  MHz
  - $\leq 0.6$  W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz
  - $\leq 0.4$  W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is  $\geq 200$  MHz
3. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is  $\geq 0.8$ W/kg.

### 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  $\leq 1/4$  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  $1/4$  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  $> \text{not } 1/2$  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  $> \text{not } 1/2$  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 / B26 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 2/4/5/17/38 SAR test was covered by Band 25/66/26/12/41; according to TCB workshop, SAR test for overlapping LTE bands can be reduced if
  - a. The maximum output power, including tolerance, for the smaller band is  $\leq$  the larger band to qualify for the SAR test exclusion.
  - b. The channel bandwidth and other operating parameters for the smaller band are fully supported by the larger band.

## 14.1 Body SAR

### <WCDMA SAR>

| Plot No. | Band     | Mode         | Test Position | Gap (mm) | Configure | 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 | Edge 1        | 0mm      | Tablet    | 9538 | 1907.6      | 17.42               | 17.50               | 1.019                  | 0.01             | 0.534                  | 0.544                  |
|          | WCDMA II | RMC 12.2Kbps | Edge 4        | 0mm      | Tablet    | 9262 | 1852.4      | 17.28               | 17.50               | 1.052                  | -0.14            | 0.848                  | 0.892                  |
| 01       | WCDMA II | RMC 12.2Kbps | Edge 4        | 0mm      | Tablet    | 9400 | 1880        | 17.38               | 17.50               | 1.028                  | -0.13            | 1.130                  | 1.162                  |
|          | WCDMA II | RMC 12.2Kbps | Edge 4        | 0mm      | Tablet    | 9538 | 1907.6      | 17.42               | 17.50               | 1.019                  | -0.11            | 1.010                  | 1.029                  |
|          | WCDMA II | RMC 12.2Kbps | Bottom Face   | 0mm      | Tablet    | 9538 | 1907.6      | 17.42               | 17.50               | 1.019                  | 0.03             | 0.046                  | 0.047                  |
|          | WCDMA IV | RMC 12.2Kbps | Edge 1        | 0mm      | Tablet    | 1513 | 1752.6      | 18.42               | 18.50               | 1.019                  | 0.01             | 0.717                  | 0.730                  |
|          | WCDMA IV | RMC 12.2Kbps | Edge 4        | 0mm      | Tablet    | 1312 | 1712.4      | 18.29               | 18.50               | 1.050                  | -0.14            | 1.010                  | 1.060                  |
|          | WCDMA IV | RMC 12.2Kbps | Edge 4        | 0mm      | Tablet    | 1413 | 1732.6      | 18.38               | 18.50               | 1.028                  | -0.19            | 1.040                  | 1.069                  |
| 02       | WCDMA IV | RMC 12.2Kbps | Edge 4        | 0mm      | Tablet    | 1513 | 1752.6      | 18.42               | 18.50               | 1.019                  | -0.15            | 1.060                  | 1.080                  |
|          | WCDMA IV | RMC 12.2Kbps | Bottom Face   | 0mm      | Tablet    | 1513 | 1752.6      | 18.42               | 18.50               | 1.019                  | 0.04             | 0.078                  | 0.079                  |
|          | WCDMA V  | RMC 12.2Kbps | Edge 1        | 0mm      | Tablet    | 4233 | 846.6       | 22.45               | 22.50               | 1.012                  | -0.14            | 0.409                  | 0.414                  |
| 03       | WCDMA V  | RMC 12.2Kbps | Edge 4        | 0mm      | Tablet    | 4132 | 826.4       | 22.03               | 22.50               | 1.114                  | -0.15            | 0.712                  | 0.793                  |
|          | WCDMA V  | RMC 12.2Kbps | Edge 4        | 0mm      | Tablet    | 4182 | 836.4       | 22.41               | 22.50               | 1.021                  | 0.01             | 0.695                  | 0.710                  |
|          | WCDMA V  | RMC 12.2Kbps | Edge 4        | 0mm      | Tablet    | 4233 | 846.6       | 22.45               | 22.50               | 1.012                  | 0.01             | 0.631                  | 0.638                  |
|          | WCDMA V  | RMC 12.2Kbps | Bottom Face   | 0mm      | Tablet    | 4233 | 846.6       | 22.45               | 22.50               | 1.012                  | -0.03            | 0.097                  | 0.098                  |

### <FDD LTE SAR>

| Plot No. | Band        | BW (MHz) | Modulation | RB Size | RB offset | Test Position | Gap (mm) | Configure | 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         | Edge 1        | 0mm      | Tablet    | 20850 | 2510        | 16.89               | 17.00               | 1.026                  | -0.03            | 0.418                  | 0.429                  |
| 04       | LTE Band 7  | 20M      | QPSK       | 50      | 0         | Edge 1        | 0mm      | Tablet    | 20850 | 2510        | 16.81               | 17.00               | 1.045                  | 0.17             | 0.527                  | 0.551                  |
|          | LTE Band 7  | 20M      | QPSK       | 50      | 0         | Edge 1        | 0mm      | Tablet    | 21100 | 2535        | 16.52               | 17.00               | 1.117                  | -0.08            | 0.485                  | 0.542                  |
|          | LTE Band 7  | 20M      | QPSK       | 50      | 0         | Edge 1        | 0mm      | Tablet    | 21350 | 2560        | 16.56               | 17.00               | 1.107                  | -0.13            | 0.473                  | 0.523                  |
|          | LTE Band 7  | 20M      | QPSK       | 1       | 0         | Edge 4        | 0mm      | Tablet    | 20850 | 2510        | 16.89               | 17.00               | 1.026                  | 0.05             | 0.316                  | 0.324                  |
|          | LTE Band 7  | 20M      | QPSK       | 50      | 0         | Edge 4        | 0mm      | Tablet    | 20850 | 2510        | 16.81               | 17.00               | 1.045                  | -0.02            | 0.261                  | 0.273                  |
|          | LTE Band 7  | 20M      | QPSK       | 1       | 0         | Bottom Face   | 0mm      | Tablet    | 20850 | 2510        | 16.89               | 17.00               | 1.026                  | -0.01            | 0.077                  | 0.079                  |
|          | LTE Band 7  | 20M      | QPSK       | 50      | 0         | Bottom Face   | 0mm      | Tablet    | 20850 | 2510        | 16.81               | 17.00               | 1.045                  | 0.06             | 0.072                  | 0.075                  |
|          | LTE Band 12 | 10M      | QPSK       | 1       | 0         | Edge 1        | 0mm      | Tablet    | 23095 | 707.5       | 20.82               | 21.00               | 1.042                  | -0.09            | 0.682                  | 0.711                  |
|          | LTE Band 12 | 10M      | QPSK       | 25      | 25        | Edge 1        | 0mm      | Tablet    | 23095 | 707.5       | 20.49               | 21.00               | 1.125                  | -0.06            | 0.632                  | 0.711                  |
| 05       | LTE Band 12 | 10M      | QPSK       | 1       | 0         | Edge 4        | 0mm      | Tablet    | 23095 | 707.5       | 20.82               | 21.00               | 1.042                  | -0.18            | 0.888                  | 0.926                  |
|          | LTE Band 12 | 10M      | QPSK       | 25      | 25        | Edge 4        | 0mm      | Tablet    | 23095 | 707.5       | 20.49               | 21.00               | 1.125                  | -0.15            | 0.797                  | 0.896                  |
|          | LTE Band 12 | 10M      | QPSK       | 50      | 0         | Edge 4        | 0mm      | Tablet    | 23095 | 707.5       | 20.39               | 21.00               | 1.151                  | -0.1             | 0.772                  | 0.888                  |
|          | LTE Band 12 | 10M      | QPSK       | 1       | 0         | Bottom Face   | 0mm      | Tablet    | 23095 | 707.5       | 20.82               | 21.00               | 1.042                  | -0.03            | 0.269                  | 0.280                  |
|          | LTE Band 12 | 10M      | QPSK       | 25      | 25        | Bottom Face   | 0mm      | Tablet    | 23095 | 707.5       | 20.49               | 21.00               | 1.125                  | 0.02             | 0.245                  | 0.276                  |



| Plot No. | Band        | BW (MHz) | Modulation | RB Size | RB offset | Test Position | Gap (mm) | Configure | 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 13 | 10M      | QPSK       | 1       | 0         | Edge 1        | 0mm      | Tablet    | 23230 | 782         | 22.50               | 22.50               | 1.000                  | -0.08            | 0.821                  | 0.821                  |
|          | LTE Band 13 | 10M      | QPSK       | 25      | 0         | Edge 1        | 0mm      | Tablet    | 23230 | 782         | 22.04               | 22.50               | 1.112                  | -0.02            | 0.720                  | 0.800                  |
|          | LTE Band 13 | 10M      | QPSK       | 50      | 0         | Edge 1        | 0mm      | Tablet    | 23230 | 782         | 21.91               | 22.50               | 1.146                  | -0.15            | 0.708                  | 0.811                  |
| 06       | LTE Band 13 | 10M      | QPSK       | 1       | 0         | Edge 4        | 0mm      | Tablet    | 23230 | 782         | 22.50               | 22.50               | 1.000                  | -0.11            | 0.929                  | 0.929                  |
|          | LTE Band 13 | 10M      | QPSK       | 25      | 0         | Edge 4        | 0mm      | Tablet    | 23230 | 782         | 22.04               | 22.50               | 1.112                  | -0.11            | 0.826                  | 0.918                  |
|          | LTE Band 13 | 10M      | QPSK       | 50      | 0         | Edge 4        | 0mm      | Tablet    | 23230 | 782         | 21.91               | 22.50               | 1.146                  | -0.14            | 0.802                  | 0.919                  |
|          | LTE Band 13 | 10M      | QPSK       | 1       | 0         | Bottom Face   | 0mm      | Tablet    | 23230 | 782         | 22.50               | 22.50               | 1.000                  | 0.03             | 0.273                  | 0.273                  |
|          | LTE Band 13 | 10M      | QPSK       | 25      | 0         | Bottom Face   | 0mm      | Tablet    | 23230 | 782         | 22.04               | 22.50               | 1.112                  | -0.01            | 0.244                  | 0.271                  |
|          | LTE Band 14 | 10M      | QPSK       | 1       | 0         | Edge 1        | 0mm      | Tablet    | 23330 | 793         | 21.79               | 22.00               | 1.050                  | -0.04            | 0.630                  | 0.661                  |
|          | LTE Band 14 | 10M      | QPSK       | 25      | 0         | Edge 1        | 0mm      | Tablet    | 23330 | 793         | 21.67               | 22.00               | 1.079                  | -0.15            | 0.613                  | 0.661                  |
| 07       | LTE Band 14 | 10M      | QPSK       | 1       | 0         | Edge 4        | 0mm      | Tablet    | 23330 | 793         | 21.79               | 22.00               | 1.050                  | 0.14             | 0.942                  | 0.989                  |
|          | LTE Band 14 | 10M      | QPSK       | 25      | 0         | Edge 4        | 0mm      | Tablet    | 23330 | 793         | 21.67               | 22.00               | 1.079                  | -0.1             | 0.767                  | 0.828                  |
|          | LTE Band 14 | 10M      | QPSK       | 50      | 0         | Edge 4        | 0mm      | Tablet    | 23330 | 793         | 21.46               | 22.00               | 1.132                  | -0.04            | 0.746                  | 0.845                  |
|          | LTE Band 14 | 10M      | QPSK       | 1       | 0         | Bottom Face   | 0mm      | Tablet    | 23330 | 793         | 21.79               | 22.00               | 1.050                  | 0.01             | 0.234                  | 0.246                  |
|          | LTE Band 14 | 10M      | QPSK       | 25      | 0         | Bottom Face   | 0mm      | Tablet    | 23330 | 793         | 21.67               | 22.00               | 1.079                  | 0.13             | 0.211                  | 0.228                  |
|          | LTE Band 25 | 20M      | QPSK       | 1       | 0         | Edge 1        | 0mm      | Tablet    | 26340 | 1880        | 17.43               | 17.50               | 1.016                  | 0.08             | 0.670                  | 0.681                  |
|          | LTE Band 25 | 20M      | QPSK       | 50      | 50        | Edge 1        | 0mm      | Tablet    | 26340 | 1880        | 17.17               | 17.50               | 1.079                  | 0.08             | 0.677                  | 0.730                  |
| 08       | LTE Band 25 | 20M      | QPSK       | 1       | 0         | Edge 4        | 0mm      | Tablet    | 26340 | 1880        | 17.43               | 17.50               | 1.016                  | -0.14            | 1.120                  | 1.138                  |
|          | LTE Band 25 | 20M      | QPSK       | 1       | 0         | Edge 4        | 0mm      | Tablet    | 26140 | 1860        | 17.35               | 17.50               | 1.035                  | -0.12            | 0.932                  | 0.965                  |
|          | LTE Band 25 | 20M      | QPSK       | 1       | 0         | Edge 4        | 0mm      | Tablet    | 26590 | 1905        | 17.32               | 17.50               | 1.042                  | -0.01            | 0.995                  | 1.037                  |
|          | LTE Band 25 | 20M      | QPSK       | 50      | 50        | Edge 4        | 0mm      | Tablet    | 26340 | 1880        | 17.17               | 17.50               | 1.079                  | -0.14            | 1.020                  | 1.101                  |
|          | LTE Band 25 | 20M      | QPSK       | 50      | 50        | Edge 4        | 0mm      | Tablet    | 26140 | 1860        | 17.13               | 17.50               | 1.089                  | -0.06            | 1.050                  | 1.143                  |
|          | LTE Band 25 | 20M      | QPSK       | 50      | 24        | Edge 4        | 0mm      | Tablet    | 26590 | 1905        | 17.07               | 17.50               | 1.104                  | 0.04             | 0.824                  | 0.910                  |
|          | LTE Band 25 | 20M      | QPSK       | 100     | 0         | Edge 4        | 0mm      | Tablet    | 26340 | 1880        | 17.17               | 17.50               | 1.079                  | -0.11            | 1.040                  | 1.122                  |
|          | LTE Band 25 | 20M      | QPSK       | 1       | 0         | Bottom Face   | 0mm      | Tablet    | 26340 | 1880        | 17.43               | 17.50               | 1.016                  | 0.03             | 0.041                  | 0.042                  |
|          | LTE Band 25 | 20M      | QPSK       | 50      | 50        | Bottom Face   | 0mm      | Tablet    | 26340 | 1880        | 17.17               | 17.50               | 1.079                  | -0.15            | 0.038                  | 0.041                  |
|          | LTE Band 26 | 15M      | QPSK       | 1       | 0         | Edge 1        | 0mm      | Tablet    | 26865 | 831.5       | 22.47               | 22.50               | 1.007                  | 0.05             | 0.463                  | 0.466                  |
|          | LTE Band 26 | 15M      | QPSK       | 36      | 39        | Edge 1        | 0mm      | Tablet    | 26865 | 831.5       | 22.43               | 22.50               | 1.016                  | 0.1              | 0.537                  | 0.546                  |
| 09       | LTE Band 26 | 15M      | QPSK       | 1       | 0         | Edge 4        | 0mm      | Tablet    | 26865 | 831.5       | 22.47               | 22.50               | 1.007                  | -0.17            | 0.563                  | 0.567                  |
|          | LTE Band 26 | 15M      | QPSK       | 36      | 39        | Edge 4        | 0mm      | Tablet    | 26865 | 831.5       | 22.43               | 22.50               | 1.016                  | -0.14            | 0.544                  | 0.553                  |
|          | LTE Band 26 | 15M      | QPSK       | 1       | 0         | Bottom Face   | 0mm      | Tablet    | 26865 | 831.5       | 22.47               | 22.50               | 1.007                  | 0.02             | 0.124                  | 0.125                  |
|          | LTE Band 26 | 15M      | QPSK       | 36      | 39        | Bottom Face   | 0mm      | Tablet    | 26865 | 831.5       | 22.43               | 22.50               | 1.016                  | -0.07            | 0.111                  | 0.113                  |

| Plot No. | Band        | BW (MHz) | Modulation | RB Size | RB offset | Test Position | Gap (mm) | Configure | 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 30 | 10M      | QPSK       | 1       | 0         | Edge 1        | 0mm      | Tablet    | 27710  | 2310        | 18.97               | 19.00               | 1.007                  | -0.16            | 0.841                  | 0.847                  |
|          | LTE Band 30 | 10M      | QPSK       | 25      | 0         | Edge 1        | 0mm      | Tablet    | 27710  | 2310        | 18.67               | 19.00               | 1.079                  | -0.09            | 0.785                  | 0.847                  |
| 10       | LTE Band 30 | 10M      | QPSK       | 1       | 0         | Edge 4        | 0mm      | Tablet    | 27710  | 2310        | 18.97               | 19.00               | 1.007                  | -0.08            | 1.130                  | 1.138                  |
|          | LTE Band 30 | 10M      | QPSK       | 25      | 0         | Edge 4        | 0mm      | Tablet    | 27710  | 2310        | 18.67               | 19.00               | 1.079                  | -0.13            | 1.020                  | 1.101                  |
|          | LTE Band 30 | 10M      | QPSK       | 50      | 0         | Edge 4        | 0mm      | Tablet    | 27710  | 2310        | 18.74               | 19.00               | 1.062                  | -0.16            | 1.040                  | 1.104                  |
|          | LTE Band 30 | 10M      | QPSK       | 1       | 0         | Bottom Face   | 0mm      | Tablet    | 27710  | 2310        | 18.97               | 19.00               | 1.007                  | 0.15             | 0.071                  | 0.071                  |
|          | LTE Band 30 | 10M      | QPSK       | 25      | 0         | Bottom Face   | 0mm      | Tablet    | 27710  | 2310        | 18.67               | 19.00               | 1.079                  | 0.06             | 0.040                  | 0.043                  |
|          | LTE Band 66 | 20M      | QPSK       | 1       | 0         | Edge 1        | 0mm      | Tablet    | 132572 | 1770        | 18.44               | 18.50               | 1.014                  | 0.18             | 0.384                  | 0.389                  |
|          | LTE Band 66 | 20M      | QPSK       | 50      | 0         | Edge 1        | 0mm      | Tablet    | 132572 | 1770        | 18.23               | 18.50               | 1.064                  | -0.13            | 0.391                  | 0.377                  |
|          | LTE Band 66 | 20M      | QPSK       | 1       | 0         | Edge 4        | 0mm      | Tablet    | 132572 | 1770        | 18.44               | 18.50               | 1.014                  | -0.17            | 0.817                  | 0.828                  |
|          | LTE Band 66 | 20M      | QPSK       | 1       | 0         | Edge 4        | 0mm      | Tablet    | 132072 | 1720        | 18.39               | 18.50               | 1.026                  | -0.12            | 0.806                  | 0.827                  |
|          | LTE Band 66 | 20M      | QPSK       | 1       | 0         | Edge 4        | 0mm      | Tablet    | 132322 | 1745        | 18.43               | 18.50               | 1.016                  | -0.06            | 0.883                  | 0.897                  |
| 11       | LTE Band 66 | 20M      | QPSK       | 50      | 0         | Edge 4        | 0mm      | Tablet    | 132572 | 1770        | 18.23               | 18.50               | 1.064                  | -0.12            | 0.979                  | 1.042                  |
|          | LTE Band 66 | 20M      | QPSK       | 50      | 0         | Edge 4        | 0mm      | Tablet    | 132322 | 1745        | 18.21               | 18.50               | 1.069                  | -0.04            | 0.941                  | 1.006                  |
|          | LTE Band 66 | 20M      | QPSK       | 50      | 0         | Edge 4        | 0mm      | Tablet    | 132072 | 1720        | 18.21               | 18.50               | 1.069                  | -0.09            | 0.914                  | 0.977                  |
|          | LTE Band 66 | 20M      | QPSK       | 100     | 0         | Edge 4        | 0mm      | Tablet    | 132572 | 1770        | 18.31               | 18.50               | 1.045                  | -0.16            | 0.962                  | 1.005                  |
|          | LTE Band 66 | 20M      | QPSK       | 1       | 0         | Bottom Face   | 0mm      | Tablet    | 132572 | 1770        | 18.44               | 18.50               | 1.014                  | 0.1              | 0.043                  | 0.044                  |
|          | LTE Band 66 | 20M      | QPSK       | 50      | 0         | Bottom Face   | 0mm      | Tablet    | 132572 | 1770        | 18.23               | 18.50               | 1.064                  | 0.01             | 0.035                  | 0.037                  |

**<TDD LTE SAR>**

| Plot No. | Band        | BW (MHz) | Modulation | RB Size | RB offset | Test Position | Gap (mm) | Battery   | Configure | Ch.   | Freq. (MHz) | Average Power (dBm) | Tune-Up Limit (dBm) | Tune-up Scaling Factor | Duty Cycle % | Duty Cycle Scaling Factor | Power Drift (dB) | Measured 1g SAR (W/kg) | Reported 1g SAR (W/kg) |
|----------|-------------|----------|------------|---------|-----------|---------------|----------|-----------|-----------|-------|-------------|---------------------|---------------------|------------------------|--------------|---------------------------|------------------|------------------------|------------------------|
|          | LTE Band 41 | 20M      | QPSK       | 1       | 0         | Edge 1        | 0mm      | Battery 1 | Tablet    | 40620 | 2593        | 22.43               | 22.50               | 1.016                  | 62.9         | 1.006                     | 0.12             | 0.415                  | 0.424                  |
|          | LTE Band 41 | 20M      | QPSK       | 50      | 0         | Edge 1        | 0mm      | Battery 1 | Tablet    | 40620 | 2593        | 21.41               | 22.50               | 1.285                  | 62.9         | 1.006                     | 0.05             | 0.329                  | 0.425                  |
|          | LTE Band 41 | 20M      | QPSK       | 50      | 0         | Edge 1        | 0mm      | Battery 1 | Tablet    | 39750 | 2506        | 21.23               | 22.50               | 1.340                  | 62.9         | 1.006                     | 0.02             | 0.317                  | 0.427                  |
| 12       | LTE Band 41 | 20M      | QPSK       | 50      | 0         | Edge 1        | 0mm      | Battery 1 | Tablet    | 40185 | 2549.5      | 21.37               | 22.50               | 1.297                  | 62.9         | 1.006                     | -0.19            | 0.495                  | 0.646                  |
|          | LTE Band 41 | 20M      | QPSK       | 50      | 0         | Edge 1        | 0mm      | Battery 1 | Tablet    | 41055 | 2636.5      | 21.37               | 22.50               | 1.297                  | 62.9         | 1.006                     | 0.1              | 0.371                  | 0.484                  |
|          | LTE Band 41 | 20M      | QPSK       | 50      | 0         | Edge 1        | 0mm      | Battery 1 | Tablet    | 41490 | 2680        | 21.35               | 22.50               | 1.303                  | 62.9         | 1.006                     | 0                | 0.352                  | 0.461                  |
|          | LTE Band 41 | 20M      | QPSK       | 1       | 0         | Edge 4        | 0mm      | Battery 1 | Tablet    | 40620 | 2593        | 22.43               | 22.50               | 1.016                  | 62.9         | 1.006                     | 0.13             | 0.097                  | 0.099                  |
|          | LTE Band 41 | 20M      | QPSK       | 50      | 0         | Edge 4        | 0mm      | Battery 1 | Tablet    | 40620 | 2593        | 21.41               | 22.50               | 1.285                  | 62.9         | 1.006                     | 0.18             | 0.083                  | 0.107                  |
|          | LTE Band 41 | 20M      | QPSK       | 1       | 0         | Bottom Face   | 0mm      | Battery 1 | Tablet    | 40620 | 2593        | 22.43               | 22.50               | 1.016                  | 62.9         | 1.006                     | 0.15             | 0.064                  | 0.065                  |
|          | LTE Band 41 | 20M      | QPSK       | 50      | 0         | Bottom Face   | 0mm      | Battery 1 | Tablet    | 40620 | 2593        | 21.41               | 22.50               | 1.285                  | 62.9         | 1.006                     | -0.11            | 0.052                  | 0.067                  |

## 14.2 Repeated SAR Measurement

| No. | Band        | Mode         | Test Position | Gap (mm) | Configure | Ch.   | Freq. (MHz) | Average Power (dBm) | Tune-Up Limit (dBm) | Tune-up Scaling Factor | Power Drift (dB) | Measured 1g SAR (W/kg) | Ratio | Reported 1g SAR (W/kg) |
|-----|-------------|--------------|---------------|----------|-----------|-------|-------------|---------------------|---------------------|------------------------|------------------|------------------------|-------|------------------------|
| 1st | WCDMA II    | RMC 12.2Kbps | Edge 4        | 0mm      | Tablet    | 9400  | 1880        | 17.38               | 17.50               | 1.028                  | -0.13            | 1.130                  | -     | 1.162                  |
| 2nd | WCDMA II    | RMC 12.2Kbps | Edge 4        | 0mm      | Tablet    | 9400  | 1880        | 17.38               | 17.50               | 1.028                  | -0.14            | 1.070                  | 1.06  | 1.100                  |
| 1st | WCDMA IV    | RMC 12.2Kbps | Edge 4        | 0mm      | Tablet    | 1513  | 1752.6      | 18.42               | 18.50               | 1.019                  | -0.15            | 1.060                  | -     | 1.080                  |
| 2nd | WCDMA IV    | RMC 12.2Kbps | Edge 4        | 0mm      | Tablet    | 1513  | 1752.6      | 18.42               | 18.50               | 1.019                  | -0.12            | 1.050                  | 1.01  | 1.070                  |
| 1st | LTE Band 14 | 10M_QPSK_1_0 | Edge 4        | 0mm      | Tablet    | 23330 | 793         | 21.79               | 22.00               | 1.050                  | 0.14             | 0.942                  | -     | 0.989                  |
| 2nd | LTE Band 14 | 10M_QPSK_1_0 | Edge 4        | 0mm      | Tablet    | 23330 | 793         | 21.79               | 22.00               | 1.050                  | -0.15            | 0.941                  | 1.00  | 0.988                  |
| 1st | LTE Band 30 | 10M_QPSK_1_0 | Edge 4        | 0mm      | Tablet    | 27710 | 2310        | 18.97               | 19.00               | 1.007                  | -0.08            | 1.130                  | -     | 1.138                  |
| 2nd | LTE Band 30 | 10M_QPSK_1_0 | Edge 4        | 0mm      | Tablet    | 27710 | 2310        | 18.97               | 19.00               | 1.007                  | 0.05             | 1.080                  | 1.05  | 1.087                  |

**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. The ratio is the difference in percentage between original and repeated *measured SAR*.
4. All measurement SAR result is scaled-up to account for tune-up tolerance and is compliant.

## **15. Simultaneous Transmission Analysis**

| NO. | Simultaneous Transmission Configurations                   | Body |
|-----|------------------------------------------------------------|------|
| 1.  | WWAN + 2.4GHz WLAN ANT 1 + 2.4GHz WLAN ANT 2               | Yes  |
| 2.  | WWAN + 5GHz WLAN ANT 1 + 5GHz WLAN ANT 2                   | Yes  |
| 3.  | WWAN + 2.4GHz WLAN ANT 2+ Bluetooth ANT 1                  | Yes  |
| 4.  | WWAN + 5GHz WLAN ANT 2 + Bluetooth ANT 1                   | Yes  |
| 5.  | WWAN + 5GHz WLAN ANT 1 + 5GHz WLAN ANT 2 + Bluetooth ANT 1 | Yes  |

### **General Note:**

1. WLAN and Bluetooth share the same antenna 1, and cannot transmit simultaneously.
2. All licensed modes share the same antenna part 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 and test position.
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  $\text{SPLSR} \leq 0.04$ , simultaneously transmission SAR measurement is not necessary.
  - iv) Simultaneously transmission SAR measurement, and the reported multi-band SAR  $< 1.6\text{W/kg}$ .
  - v) The SPLSR calculated results please refer to section 15.2.

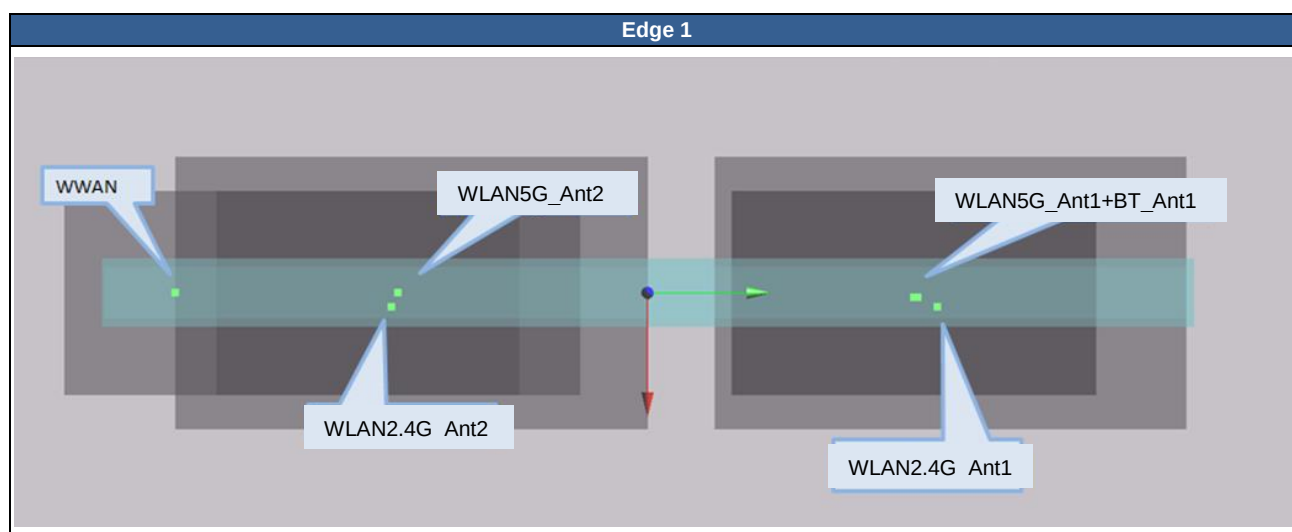
**15.1 Body Exposure Conditions**

| WWAN Band |                | Exposure Position  | 1                   | 2                       | 3                       | 4                     | 5                     | 6                  | 1+2+3<br>Summed<br>1g SAR<br>(W/kg) | 1+4+5<br>Summed<br>1g SAR<br>(W/kg) | 1+2+6<br>Summed<br>1g SAR<br>(W/kg) | 1+4+6<br>Summed<br>1g SAR<br>(W/kg) | 1+4+5+6<br>Summed<br>1g SAR<br>(W/kg) | SPLSR | Case No |
|-----------|----------------|--------------------|---------------------|-------------------------|-------------------------|-----------------------|-----------------------|--------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|---------------------------------------|-------|---------|
|           |                |                    | WWAN                | 2.4GHz<br>WLAN<br>Ant 2 | 2.4GHz<br>WLAN<br>Ant 1 | 5GHz<br>WLAN<br>Ant 2 | 5GHz<br>WLAN<br>Ant 1 | Bluetooth<br>Ant 1 |                                     |                                     |                                     |                                     |                                       |       |         |
|           |                |                    | 1g<br>SAR<br>(W/kg) | 1g<br>SAR<br>(W/kg)     | 1g<br>SAR<br>(W/kg)     | 1g<br>SAR<br>(W/kg)   | 1g<br>SAR<br>(W/kg)   | 1g SAR<br>(W/kg)   |                                     |                                     |                                     |                                     |                                       |       |         |
| WCDMA     | WCDMA<br>II    | Bottom Face at 0mm | 0.047               | 0.179                   | 0.220                   | 0.226                 | 0.328                 | 0.029              | 0.446                               | 0.601                               | 0.255                               | 0.302                               | 0.630                                 |       |         |
|           |                | Edge 1 at 0mm      | 0.544               | 0.608                   | 0.798                   | 0.528                 | 0.772                 | 0.135              | 1.950                               | 1.844                               | 1.287                               | 1.207                               | 1.979                                 | 0.02  | Case 1  |
|           |                | Edge 4 at 0mm      | 1.162               |                         |                         |                       |                       |                    | 1.162                               | 1.162                               | 1.162                               | 1.162                               | 1.162                                 |       |         |
|           | WCDMA<br>IV    | Bottom Face at 0mm | 0.079               | 0.179                   | 0.220                   | 0.226                 | 0.328                 | 0.029              | 0.478                               | 0.633                               | 0.287                               | 0.334                               | 0.662                                 |       |         |
|           |                | Edge 1 at 0mm      | 0.730               | 0.608                   | 0.798                   | 0.528                 | 0.772                 | 0.135              | 2.136                               | 2.030                               | 1.473                               | 1.393                               | 2.165                                 | 0.02  | Case 2  |
|           |                | Edge 4 at 0mm      | 1.080               |                         |                         |                       |                       |                    | 1.080                               | 1.080                               | 1.080                               | 1.080                               | 1.080                                 |       |         |
|           | WCDMA<br>V     | Bottom Face at 0mm | 0.098               | 0.179                   | 0.220                   | 0.226                 | 0.328                 | 0.029              | 0.497                               | 0.652                               | 0.306                               | 0.353                               | 0.681                                 |       |         |
|           |                | Edge 1 at 0mm      | 0.414               | 0.608                   | 0.798                   | 0.528                 | 0.772                 | 0.135              | 1.820                               | 1.714                               | 1.157                               | 1.077                               | 1.849                                 | 0.02  | Case 3  |
|           |                | Edge 4 at 0mm      | 0.793               |                         |                         |                       |                       |                    | 0.793                               | 0.793                               | 0.793                               | 0.793                               | 0.793                                 |       |         |
| LTE       | LTE<br>Band 7  | Bottom Face at 0mm | 0.079               | 0.179                   | 0.220                   | 0.226                 | 0.328                 | 0.029              | 0.478                               | 0.633                               | 0.287                               | 0.334                               | 0.662                                 |       |         |
|           |                | Edge 1 at 0mm      | 0.551               | 0.608                   | 0.798                   | 0.528                 | 0.772                 | 0.135              | 1.957                               | 1.851                               | 1.294                               | 1.214                               | 1.986                                 | 0.03  | Case 4  |
|           |                | Edge 4 at 0mm      | 0.324               |                         |                         |                       |                       |                    | 0.324                               | 0.324                               | 0.324                               | 0.324                               | 0.324                                 |       |         |
|           | LTE<br>Band 12 | Bottom Face at 0mm | 0.280               | 0.179                   | 0.220                   | 0.226                 | 0.328                 | 0.029              | 0.679                               | 0.834                               | 0.488                               | 0.535                               | 0.863                                 |       |         |
|           |                | Edge 1 at 0mm      | 0.711               | 0.608                   | 0.798                   | 0.528                 | 0.772                 | 0.135              | 2.117                               | 2.011                               | 1.454                               | 1.374                               | 2.146                                 | 0.03  | Case 5  |
|           |                | Edge 4 at 0mm      | 0.926               |                         |                         |                       |                       |                    | 0.926                               | 0.926                               | 0.926                               | 0.926                               | 0.926                                 |       |         |
|           | LTE<br>Band 13 | Bottom Face at 0mm | 0.273               | 0.179                   | 0.220                   | 0.226                 | 0.328                 | 0.029              | 0.672                               | 0.827                               | 0.481                               | 0.528                               | 0.856                                 |       |         |
|           |                | Edge 1 at 0mm      | 0.821               | 0.608                   | 0.798                   | 0.528                 | 0.772                 | 0.135              | 2.227                               | 2.121                               | 1.564                               | 1.484                               | 2.256                                 | 0.03  | Case 6  |
|           |                | Edge 4 at 0mm      | 0.929               |                         |                         |                       |                       |                    | 0.929                               | 0.929                               | 0.929                               | 0.929                               | 0.929                                 |       |         |
|           | LTE<br>Band 14 | Bottom Face at 0mm | 0.246               | 0.179                   | 0.220                   | 0.226                 | 0.328                 | 0.029              | 0.645                               | 0.800                               | 0.454                               | 0.501                               | 0.829                                 |       |         |
|           |                | Edge 1 at 0mm      | 0.661               | 0.608                   | 0.798                   | 0.528                 | 0.772                 | 0.135              | 2.067                               | 1.961                               | 1.404                               | 1.324                               | 2.096                                 | 0.02  | Case 7  |
|           |                | Edge 4 at 0mm      | 0.989               |                         |                         |                       |                       |                    | 0.989                               | 0.989                               | 0.989                               | 0.989                               | 0.989                                 |       |         |
|           | LTE<br>Band 25 | Bottom Face at 0mm | 0.042               | 0.179                   | 0.220                   | 0.226                 | 0.328                 | 0.029              | 0.441                               | 0.596                               | 0.250                               | 0.297                               | 0.625                                 |       |         |
|           |                | Edge 1 at 0mm      | 0.730               | 0.608                   | 0.798                   | 0.528                 | 0.772                 | 0.135              | 2.136                               | 2.030                               | 1.473                               | 1.393                               | 2.165                                 | 0.02  | Case 8  |
|           |                | Edge 4 at 0mm      | 1.138               |                         |                         |                       |                       |                    | 1.138                               | 1.138                               | 1.138                               | 1.138                               | 1.138                                 |       |         |
|           | LTE<br>Band 26 | Bottom Face at 0mm | 0.125               | 0.179                   | 0.220                   | 0.226                 | 0.328                 | 0.029              | 0.524                               | 0.679                               | 0.333                               | 0.380                               | 0.708                                 |       |         |
|           |                | Edge 1 at 0mm      | 0.546               | 0.608                   | 0.798                   | 0.528                 | 0.772                 | 0.135              | 1.952                               | 1.846                               | 1.289                               | 1.209                               | 1.981                                 | 0.02  | Case 9  |
|           |                | Edge 4 at 0mm      | 0.567               |                         |                         |                       |                       |                    | 0.567                               | 0.567                               | 0.567                               | 0.567                               | 0.567                                 |       |         |
|           | LTE<br>Band 30 | Bottom Face at 0mm | 0.071               | 0.179                   | 0.220                   | 0.226                 | 0.328                 | 0.029              | 0.470                               | 0.625                               | 0.279                               | 0.326                               | 0.654                                 |       |         |
|           |                | Edge 1 at 0mm      | 0.847               | 0.608                   | 0.798                   | 0.528                 | 0.772                 | 0.135              | 2.253                               | 2.147                               | 1.590                               | 1.510                               | 2.282                                 | 0.03  | Case 10 |
|           |                | Edge 4 at 0mm      | 1.138               |                         |                         |                       |                       |                    | 1.138                               | 1.138                               | 1.138                               | 1.138                               | 1.138                                 |       |         |
|           | LTE<br>Band 41 | Bottom Face at 0mm | 0.067               | 0.179                   | 0.220                   | 0.226                 | 0.328                 | 0.029              | 0.466                               | 0.621                               | 0.275                               | 0.322                               | 0.650                                 |       |         |
|           |                | Edge 1 at 0mm      | 0.646               | 0.608                   | 0.798                   | 0.528                 | 0.772                 | 0.135              | 2.052                               | 1.946                               | 1.389                               | 1.309                               | 2.081                                 | 0.03  | Case 11 |
|           |                | Edge 4 at 0mm      | 0.107               |                         |                         |                       |                       |                    | 0.107                               | 0.107                               | 0.107                               | 0.107                               | 0.107                                 |       |         |
|           | LTE<br>Band 66 | Bottom Face at 0mm | 0.044               | 0.179                   | 0.220                   | 0.226                 | 0.328                 | 0.029              | 0.443                               | 0.598                               | 0.252                               | 0.299                               | 0.627                                 |       |         |
|           |                | Edge 1 at 0mm      | 0.389               | 0.608                   | 0.798                   | 0.528                 | 0.772                 | 0.135              | 1.795                               | 1.689                               | 1.132                               | 1.052                               | 1.824                                 | 0.01  | Case 12 |
|           |                | Edge 4 at 0mm      | 1.042               |                         |                         |                       |                       |                    | 1.042                               | 1.042                               | 1.042                               | 1.042                               | 1.042                                 |       |         |

## 15.2 SPLSR Evaluation and Analysis

### General Note:

1.  $SPLSR = (SAR_1 + SAR_2)^{1.5} / (\text{min. separation distance, mm})$ . If  $SPLSR \leq 0.04$ , 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.
3. Simultaneous transmission SAR test exclusion is determined for each operating configuration and exposure condition according to the reported standalone SAR of each applicable simultaneously transmitting antenna. When the sum of 1-g or 10-g SAR of all simultaneously transmitting antennas in an operating mode and exposure condition combination is within the SAR limit, SAR test exclusion applies to that simultaneous transmission configuration. Therefore, the adjacent transmit antennas will be summed first, and then the SPLSR calculation will be evaluated with the farther transmitted antennas.



|        | Band               | Position | SAR (W/kg) | Gap  | SAR peak location (mm) |       |       | 3D distance (mm) | Summed SAR (W/kg) | SPLSR Results | Simultaneous SAR |
|--------|--------------------|----------|------------|------|------------------------|-------|-------|------------------|-------------------|---------------|------------------|
|        |                    |          |            | (mm) | X                      | Y     | Z     |                  |                   |               |                  |
| Case 1 | WCDMA II           | Edge 1   | 0.544      | 0mm  | -6.1                   | -148  | 1.42  | 79.6             | 1.15              | 0.02          | Not required     |
|        | 2.4G_Ant 2         |          | 0.608      | 0mm  | 3                      | -69   | -2.5  |                  |                   |               |                  |
|        | WCDMA II           | Edge 1   | 0.544      | 0mm  | -6.1                   | -148  | 1.42  | 224.5            | 1.34              | 0.01          | Not required     |
|        | 2.4G_Ant 1         |          | 0.798      | 0mm  | 4.2                    | 76.2  | -2.04 |                  |                   |               |                  |
|        | 2.4G_Ant 2         | Edge 1   | 0.608      | 0mm  | 3                      | -69   | -2.5  | 145.2            | 1.41              | 0.01          | Not required     |
|        | 2.4G_Ant 1         |          | 0.798      | 0mm  | 4.2                    | 76.2  | -2.04 |                  |                   |               |                  |
|        | WCDMA II           | Edge 1   | 0.544      | 0mm  | -6.1                   | -148  | 1.42  | 78.1             | 1.07              | 0.01          | Not required     |
|        | 5G_Ant 2           |          | 0.528      | 0mm  | 1.6                    | -70.4 | -2    |                  |                   |               |                  |
|        | WCDMA II           | Edge 1   | 0.544      | 0mm  | -6.1                   | -148  | 1.42  | 223.3            | 1.45              | 0.01          | Not required     |
|        | 5G_Ant 1+ BT_Ant 1 |          | 0.907      | 0mm  | 4.2                    | 75    | -2.11 |                  |                   |               |                  |
|        | 5G_Ant 2           | Edge 1   | 0.528      | 0mm  | 1.6                    | -70.4 | -2    | 145.4            | 1.44              | 0.01          | Not required     |
|        | 5G_Ant 1+ BT_Ant 1 |          | 0.907      | 0mm  | 4.2                    | 75    | -2.11 |                  |                   |               |                  |

|        | Band               | Position | SAR (W/kg) | Gap (mm) | SAR peak location (mm) |        |       | 3D distance (mm) | Summed SAR (W/kg) | SPLSR Results | Simultaneous SAR |
|--------|--------------------|----------|------------|----------|------------------------|--------|-------|------------------|-------------------|---------------|------------------|
|        |                    |          |            |          | X                      | Y      | Z     |                  |                   |               |                  |
| Case 2 | WCDMA IV           | Edge 1   | 0.73       | 0mm      | -3                     | -143.5 | -0.08 | 74.8             | 1.34              | 0.02          | Not required     |
|        | 2.4G_Ant 2         |          | 0.608      | 0mm      | 3                      | -69    | -2.5  |                  |                   |               |                  |
|        | WCDMA IV           | Edge 1   | 0.73       | 0mm      | -3                     | -143.5 | -0.08 | 219.8            | 1.53              | 0.01          | Not required     |
|        | 2.4G_Ant 1         |          | 0.798      | 0mm      | 4.2                    | 76.2   | -2.04 |                  |                   |               |                  |
|        | 2.4G_Ant 2         | Edge 1   | 0.608      | 0mm      | 3                      | -69    | -2.5  | 145.2            | 1.41              | 0.01          | Not required     |
|        | 2.4G_Ant 1         |          | 0.798      | 0mm      | 4.2                    | 76.2   | -2.04 |                  |                   |               |                  |
|        | WCDMA IV           | Edge 1   | 0.73       | 0mm      | -3                     | -143.5 | -0.08 | 73.3             | 1.26              | 0.02          | Not required     |
|        | 5G_Ant 2           |          | 0.528      | 0mm      | 1.6                    | -70.4  | -2    |                  |                   |               |                  |
|        | WCDMA IV           | Edge 1   | 0.73       | 0mm      | -3                     | -143.5 | -0.08 | 218.6            | 1.64              | 0.01          | Not required     |
|        | 5G_Ant 1+ BT_Ant 1 |          | 0.907      | 0mm      | 4.2                    | 75     | -2.11 |                  |                   |               |                  |
|        | 5G_Ant 2           | Edge 1   | 0.528      | 0mm      | 1.6                    | -70.4  | -2    | 145.4            | 1.44              | 0.01          | Not required     |
|        | 5G_Ant 1+ BT_Ant 1 |          | 0.907      | 0mm      | 4.2                    | 75     | -2.11 |                  |                   |               |                  |

|        | 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 3 | WCDMA V            | Edge 1   | 0.414      | 0mm      | 4.8                    | -135.5 | -0.21 | 66.6             | 1.02              | 0.02          | Not required     |
|        | 2.4G_Ant 2         |          | 0.608      | 0mm      | 3                      | -69    | -2.5  |                  |                   |               |                  |
|        | WCDMA V            | Edge 1   | 0.414      | 0mm      | 4.8                    | -135.5 | -0.21 | 211.7            | 1.21              | 0.01          | Not required     |
|        | 2.4G_Ant 1         |          | 0.798      | 0mm      | 4.2                    | 76.2   | -2.04 |                  |                   |               |                  |
|        | 2.4G_Ant 2         | Edge 1   | 0.608      | 0mm      | 3                      | -69    | -2.5  | 145.2            | 1.41              | 0.01          | Not required     |
|        | 2.4G_Ant 1         |          | 0.798      | 0mm      | 4.2                    | 76.2   | -2.04 |                  |                   |               |                  |
|        | WCDMA V            | Edge 1   | 0.414      | 0mm      | 4.8                    | -135.5 | -0.21 | 65.2             | 0.94              | 0.01          | Not required     |
|        | 5G_Ant 2           |          | 0.528      | 0mm      | 1.6                    | -70.4  | -2    |                  |                   |               |                  |
|        | WCDMA V            | Edge 1   | 0.414      | 0mm      | 4.8                    | -135.5 | -0.21 | 210.5            | 1.32              | 0.01          | Not required     |
|        | 5G_Ant 1+ BT_Ant 1 |          | 0.907      | 0mm      | 4.2                    | 75     | -2.11 |                  |                   |               |                  |
|        | 5G_Ant 2           | Edge 1   | 0.528      | 0mm      | 1.6                    | -70.4  | -2    | 145.4            | 1.44              | 0.01          | Not required     |
|        | 5G_Ant 1+ BT_Ant 1 |          | 0.907      | 0mm      | 4.2                    | 75     | -2.11 |                  |                   |               |                  |

|        | 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 4 | LTE B7             | Edge 1   | 0.551      | 0mm      | 0.2                    | -114.8 | 0.14  | 46.0             | 1.16              | 0.03          | Not required     |
|        | 2.4G_Ant 2         |          | 0.608      | 0mm      | 3                      | -69    | -2.5  |                  |                   |               |                  |
|        | LTE B7             | Edge 1   | 0.551      | 0mm      | 0.2                    | -114.8 | 0.14  | 191.1            | 1.35              | 0.01          | Not required     |
|        | 2.4G_Ant 1         |          | 0.798      | 0mm      | 4.2                    | 76.2   | -2.04 |                  |                   |               |                  |
|        | 2.4G_Ant 2         | Edge 1   | 0.608      | 0mm      | 3                      | -69    | -2.5  | 145.2            | 1.41              | 0.01          | Not required     |
|        | 2.4G_Ant 1         |          | 0.798      | 0mm      | 4.2                    | 76.2   | -2.04 |                  |                   |               |                  |
|        | LTE B7             | Edge 1   | 0.551      | 0mm      | 0.2                    | -114.8 | 0.14  | 44.5             | 1.08              | 0.03          | Not required     |
|        | 5G_Ant 2           |          | 0.528      | 0mm      | 1.6                    | -70.4  | -2    |                  |                   |               |                  |
|        | LTE B7             | Edge 1   | 0.551      | 0mm      | 0.2                    | -114.8 | 0.14  | 189.9            | 1.46              | 0.01          | Not required     |
|        | 5G_Ant 1+ BT_Ant 1 |          | 0.907      | 0mm      | 4.2                    | 75     | -2.11 |                  |                   |               |                  |
|        | 5G_Ant 2           | Edge 1   | 0.528      | 0mm      | 1.6                    | -70.4  | -2    | 145.4            | 1.44              | 0.01          | Not required     |
|        | 5G_Ant 1+ BT_Ant 1 |          | 0.907      | 0mm      | 4.2                    | 75     | -2.11 |                  |                   |               |                  |

|        | 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 5 | LTE B12            | Edge 1   | 0.711      | 0mm      | 6.4                    | -127.5 | -0.05 | 58.6             | 1.32              | 0.03          | Not required     |
|        | 2.4G_Ant 2         |          | 0.608      | 0mm      | 3                      | -69    | -2.5  |                  |                   |               |                  |
|        | LTE B12            | Edge 1   | 0.711      | 0mm      | 6.4                    | -127.5 | -0.05 | 203.7            | 1.51              | 0.01          | Not required     |
|        | 2.4G_Ant 1         |          | 0.798      | 0mm      | 4.2                    | 76.2   | -2.04 |                  |                   |               |                  |
|        | 2.4G_Ant 2         | Edge 1   | 0.608      | 0mm      | 3                      | -69    | -2.5  | 145.2            | 1.41              | 0.01          | Not required     |
|        | 2.4G_Ant 1         |          | 0.798      | 0mm      | 4.2                    | 76.2   | -2.04 |                  |                   |               |                  |
|        | LTE B12            | Edge 1   | 0.711      | 0mm      | 6.4                    | -127.5 | -0.05 | 57.3             | 1.24              | 0.02          | Not required     |
|        | 5G_Ant 2           |          | 0.528      | 0mm      | 1.6                    | -70.4  | -2    |                  |                   |               |                  |
|        | LTE B12            | Edge 1   | 0.711      | 0mm      | 6.4                    | -127.5 | -0.05 | 202.5            | 1.62              | 0.01          | Not required     |
|        | 5G_Ant 1+ BT_Ant 1 |          | 0.907      | 0mm      | 4.2                    | 75     | -2.11 |                  |                   |               |                  |
|        | 5G_Ant 2           | Edge 1   | 0.528      | 0mm      | 1.6                    | -70.4  | -2    | 145.4            | 1.44              | 0.01          | Not required     |
|        | 5G_Ant 1+ BT_Ant 1 |          | 0.907      | 0mm      | 4.2                    | 75     | -2.11 |                  |                   |               |                  |

|        | 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 6 | LTE B13            | Edge 1   | 0.821      | 0mm      | 6.4                    | -127.5 | -0.1  | 58.6             | 1.43              | 0.03          | Not required     |
|        | 2.4G_Ant 2         |          | 0.608      | 0mm      | 3                      | -69    | -2.5  |                  |                   |               |                  |
|        | LTE B13            | Edge 1   | 0.821      | 0mm      | 6.4                    | -127.5 | -0.1  | 203.7            | 1.62              | 0.01          | Not required     |
|        | 2.4G_Ant 1         |          | 0.798      | 0mm      | 4.2                    | 76.2   | -2.04 |                  |                   |               |                  |
|        | 2.4G_Ant 2         | Edge 1   | 0.608      | 0mm      | 3                      | -69    | -2.5  | 145.2            | 1.41              | 0.01          | Not required     |
|        | 2.4G_Ant 1         |          | 0.798      | 0mm      | 4.2                    | 76.2   | -2.04 |                  |                   |               |                  |
|        | LTE B13            | Edge 1   | 0.821      | 0mm      | 6.4                    | -127.5 | -0.1  | 57.3             | 1.35              | 0.03          | Not required     |
|        | 5G_Ant 2           |          | 0.528      | 0mm      | 1.6                    | -70.4  | -2    |                  |                   |               |                  |
|        | LTE B13            | Edge 1   | 0.821      | 0mm      | 6.4                    | -127.5 | -0.1  | 202.5            | 1.73              | 0.01          | Not required     |
|        | 5G_Ant 1+ BT_Ant 1 |          | 0.907      | 0mm      | 4.2                    | 75     | -2.11 |                  |                   |               |                  |
|        | 5G_Ant 2           | Edge 1   | 0.528      | 0mm      | 1.6                    | -70.4  | -2    | 145.4            | 1.44              | 0.01          | Not required     |
|        | 5G_Ant 1+ BT_Ant 1 |          | 0.907      | 0mm      | 4.2                    | 75     | -2.11 |                  |                   |               |                  |

|        | 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 7 | LTE B14            | Edge 1   | 0.661      | 0mm      | 4.8                    | -129.1 | -0.14 | 60.2             | 1.27              | 0.02          | Not required     |
|        | 2.4G_Ant 2         |          | 0.608      | 0mm      | 3                      | -69    | -2.5  |                  |                   |               |                  |
|        | LTE B14            | Edge 1   | 0.661      | 0mm      | 4.8                    | -129.1 | -0.14 | 205.3            | 1.46              | 0.01          | Not required     |
|        | 2.4G_Ant 1         |          | 0.798      | 0mm      | 4.2                    | 76.2   | -2.04 |                  |                   |               |                  |
|        | 2.4G_Ant 2         | Edge 1   | 0.608      | 0mm      | 3                      | -69    | -2.5  | 145.2            | 1.41              | 0.01          | Not required     |
|        | 2.4G_Ant 1         |          | 0.798      | 0mm      | 4.2                    | 76.2   | -2.04 |                  |                   |               |                  |
|        | LTE B14            | Edge 1   | 0.661      | 0mm      | 4.8                    | -129.1 | -0.14 | 58.8             | 1.19              | 0.02          | Not required     |
|        | 5G_Ant 2           |          | 0.528      | 0mm      | 1.6                    | -70.4  | -2    |                  |                   |               |                  |
|        | LTE B14            | Edge 1   | 0.661      | 0mm      | 4.8                    | -129.1 | -0.14 | 204.1            | 1.57              | 0.01          | Not required     |
|        | 5G_Ant 1+ BT_Ant 1 |          | 0.907      | 0mm      | 4.2                    | 75     | -2.11 |                  |                   |               |                  |
|        | 5G_Ant 2           | Edge 1   | 0.528      | 0mm      | 1.6                    | -70.4  | -2    | 145.4            | 1.44              | 0.01          | Not required     |
|        | 5G_Ant 1+ BT_Ant 1 |          | 0.907      | 0mm      | 4.2                    | 75     | -2.11 |                  |                   |               |                  |

|        | 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 8 | LTE B25            | Edge 1   | 0.73       | 0mm      | 8                      | -144  | 0.55  | 75.2             | 1.34              | 0.02          | Not required     |
|        | 2.4G_Ant 2         |          | 0.608      | 0mm      | 3                      | -69   | -2.5  |                  |                   |               |                  |
|        | LTE B25            | Edge 1   | 0.73       | 0mm      | 8                      | -144  | 0.55  | 220.2            | 1.53              | 0.01          | Not required     |
|        | 2.4G_Ant 1         |          | 0.798      | 0mm      | 4.2                    | 76.2  | -2.04 |                  |                   |               |                  |
|        | 2.4G_Ant 2         | Edge 1   | 0.608      | 0mm      | 3                      | -69   | -2.5  | 145.2            | 1.41              | 0.01          | Not required     |
|        | 2.4G_Ant 1         |          | 0.798      | 0mm      | 4.2                    | 76.2  | -2.04 |                  |                   |               |                  |
|        | LTE B25            | Edge 1   | 0.73       | 0mm      | 8                      | -144  | 0.55  | 73.9             | 1.26              | 0.02          | Not required     |
|        | 5G_Ant 2           |          | 0.528      | 0mm      | 1.6                    | -70.4 | -2    |                  |                   |               |                  |
|        | LTE B25            | Edge 1   | 0.73       | 0mm      | 8                      | -144  | 0.55  | 219.0            | 1.64              | 0.01          | Not required     |
|        | 5G_Ant 1+ BT_Ant 1 |          | 0.907      | 0mm      | 4.2                    | 75    | -2.11 |                  |                   |               |                  |
|        | 5G_Ant 1           | Edge 1   | 0.528      | 0mm      | 1.6                    | -70.4 | -2    | 145.4            | 1.44              | 0.01          | Not required     |
|        | 5G_Ant 1+ BT_Ant 1 |          | 0.907      | 0mm      | 4.2                    | 75    | -2.11 |                  |                   |               |                  |

|        | 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 9 | LTE B26            | Edge 1   | 0.546      | 0mm      | 13.5                   | -138.5 | 0.14  | 70.3             | 1.15              | 0.02          | Not required     |
|        | 2.4G_Ant 2         |          | 0.608      | 0mm      | 3                      | -69    | -2.5  |                  |                   |               |                  |
|        | LTE B26            | Edge 1   | 0.546      | 0mm      | 13.5                   | -138.5 | 0.14  | 214.9            | 1.34              | 0.01          | Not required     |
|        | 2.4G_Ant 1         |          | 0.798      | 0mm      | 4.2                    | 76.2   | -2.04 |                  |                   |               |                  |
|        | 2.4G_Ant 2         | Edge 1   | 0.608      | 0mm      | 3                      | -69    | -2.5  | 145.2            | 1.41              | 0.01          | Not required     |
|        | 2.4G_Ant 1         |          | 0.798      | 0mm      | 4.2                    | 76.2   | -2.04 |                  |                   |               |                  |
|        | LTE B26            | Edge 1   | 0.546      | 0mm      | 13.5                   | -138.5 | 0.14  | 69.2             | 1.07              | 0.02          | Not required     |
|        | 5G_Ant 2           |          | 0.528      | 0mm      | 1.6                    | -70.4  | -2    |                  |                   |               |                  |
|        | LTE B26            | Edge 1   | 0.546      | 0mm      | 13.5                   | -138.5 | 0.14  | 213.7            | 1.45              | 0.01          | Not required     |
|        | 5G_Ant 1+ BT_Ant 1 |          | 0.907      | 0mm      | 4.2                    | 75     | -2.11 |                  |                   |               |                  |
|        | 5G_Ant 2           | Edge 1   | 0.528      | 0mm      | 1.6                    | -70.4  | -2    | 145.4            | 1.44              | 0.01          | Not required     |
|        | 5G_Ant 1+ BT_Ant 1 |          | 0.907      | 0mm      | 4.2                    | 75     | -2.11 |                  |                   |               |                  |

|         | 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 10 | LTE B30            | Edge 1   | 0.852      | 0mm      | 4.8                    | -128.8 | 0.29  | 59.9             | 1.46              | 0.03          | Not required     |
|         | 2.4G_Ant 2         |          | 0.608      | 0mm      | 3                      | -69    | -2.5  |                  |                   |               |                  |
|         | LTE B30            | Edge 1   | 0.852      | 0mm      | 4.8                    | -128.8 | 0.29  | 205.0            | 1.65              | 0.01          | Not required     |
|         | 2.4G_Ant 1         |          | 0.798      | 0mm      | 4.2                    | 76.2   | -2.04 |                  |                   |               |                  |
|         | 2.4G_Ant 2         | Edge 1   | 0.608      | 0mm      | 3                      | -69    | -2.5  | 145.2            | 1.41              | 0.01          | Not required     |
|         | 2.4G_Ant 1         |          | 0.798      | 0mm      | 4.2                    | 76.2   | -2.04 |                  |                   |               |                  |
|         | LTE B30            | Edge 1   | 0.852      | 0mm      | 4.8                    | -128.8 | 0.29  | 58.5             | 1.38              | 0.03          | Not required     |
|         | 5G_Ant 2           |          | 0.528      | 0mm      | 1.6                    | -70.4  | -2    |                  |                   |               |                  |
|         | LTE B30            | Edge 1   | 0.852      | 0mm      | 4.8                    | -128.8 | 0.29  | 203.8            | 1.76              | 0.01          | Not required     |
|         | 5G_Ant 1+ BT_Ant 1 |          | 0.907      | 0mm      | 4.2                    | 75     | -2.11 |                  |                   |               |                  |
|         | 5G_Ant 2           | Edge 1   | 0.528      | 0mm      | 1.6                    | -70.4  | -2    | 145.4            | 1.44              | 0.01          | Not required     |
|         | 5G_Ant 1+ BT_Ant 1 |          | 0.907      | 0mm      | 4.2                    | 75     | -2.11 |                  |                   |               |                  |

|         | 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 B41            | Edge 1   | 0.646      | 0mm      | 0.6                    | -113.2 | -2.92 | 44.3             | 1.25              | 0.03          | Not required     |
|         | 2.4G_Ant 2         |          | 0.608      | 0mm      | 3                      | -69    | -2.5  |                  |                   |               |                  |
|         | LTE B41            | Edge 1   | 0.646      | 0mm      | 0.6                    | -113.2 | -2.92 | 189.4            | 1.44              | 0.01          | Not required     |
|         | 2.4G_Ant 1         |          | 0.798      | 0mm      | 4.2                    | 76.2   | -2.04 |                  |                   |               |                  |
|         | 2.4G_Ant 2         | Edge 1   | 0.608      | 0mm      | 3                      | -69    | -2.5  | 145.2            | 1.41              | 0.01          | Not required     |
|         | 2.4G_Ant 1         |          | 0.798      | 0mm      | 4.2                    | 76.2   | -2.04 |                  |                   |               |                  |
|         | LTE B41            | Edge 1   | 0.646      | 0mm      | 0.6                    | -113.2 | -2.92 | 42.8             | 1.17              | 0.03          | Not required     |
|         | 5G_Ant 2           |          | 0.528      | 0mm      | 1.6                    | -70.4  | -2    |                  |                   |               |                  |
|         | LTE B41            | Edge 1   | 0.646      | 0mm      | 0.6                    | -113.2 | -2.92 | 188.2            | 1.55              | 0.01          | Not required     |
|         | 5G_Ant 1+ BT_Ant 1 |          | 0.907      | 0mm      | 4.2                    | 75     | -2.11 |                  |                   |               |                  |
|         | 5G_Ant 2           | Edge 1   | 0.528      | 0mm      | 1.6                    | -70.4  | -2    | 145.4            | 1.44              | 0.01          | Not required     |
|         | 5G_Ant 1+ BT_Ant 1 |          | 0.907      | 0mm      | 4.2                    | 75     | -2.11 |                  |                   |               |                  |

|         | 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 12 | LTE B66            | Edge 1   | 0.389      | 0mm      | 9.3                    | -135.9 | 0.39  | 67.3             | 1.00              | 0.01          | Not required     |
|         | 2.4G_Ant 2         |          | 0.608      | 0mm      | 3                      | -69    | -2.5  |                  |                   |               |                  |
|         | LTE B66            | Edge 1   | 0.389      | 0mm      | 9.3                    | -135.9 | 0.39  | 212.2            | 1.19              | 0.01          | Not required     |
|         | 2.4G_Ant 1         |          | 0.798      | 0mm      | 4.2                    | 76.2   | -2.04 |                  |                   |               |                  |
|         | 2.4G_Ant 2         | Edge 1   | 0.608      | 0mm      | 3                      | -69    | -2.5  | 145.2            | 1.41              | 0.01          | Not required     |
|         | 2.4G_Ant 1         |          | 0.798      | 0mm      | 4.2                    | 76.2   | -2.04 |                  |                   |               |                  |
|         | LTE B66            | Edge 1   | 0.389      | 0mm      | 9.3                    | -135.9 | 0.39  | 66.0             | 0.92              | 0.01          | Not required     |
|         | 5G_Ant 2           |          | 0.528      | 0mm      | 1.6                    | -70.4  | -2    |                  |                   |               |                  |
|         | LTE B66            | Edge 1   | 0.389      | 0mm      | 9.3                    | -135.9 | 0.39  | 211.0            | 1.30              | 0.01          | Not required     |
|         | 5G_Ant 1+ BT_Ant 1 |          | 0.907      | 0mm      | 4.2                    | 75     | -2.11 |                  |                   |               |                  |
|         | 5G_Ant 2           | Edge 1   | 0.528      | 0mm      | 1.6                    | -70.4  | -2    | 145.4            | 1.44              | 0.01          | Not required     |
|         | 5G_Ant 1+ BT_Ant 1 |          | 0.907      | 0mm      | 4.2                    | 75     | -2.11 |                  |                   |               |                  |

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## **16. Uncertainty Assessment**

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

## **17. References**

- [1] FCC 47 CFR Part 2 "Frequency Allocations and Radio Treaty Matters; General Rules and Regulations"
- [2] ANSI/IEEE Std. C95.1-1992, "IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz", September 1992
- [3] IEEE Std. 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", Sep 2013
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- [5] FCC KDB 447498 D01 v06, "Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies", Oct 2015
- [6] 41225 D01 v03r01, "3G SAR MEAUREMENT PROCEDURES", Oct 2015
- [7] FCC KDB 941225 D05 v02r05, "SAR Evaluation Considerations for LTE Devices", Dec 2015
- [8] FCC KDB 941225 D05A v01r02, "Rel. 10 LTE SAR Test Guidance and KDB Inquiries", Oct 2015
- [9] FCC KDB 941225 D06 v02r01, "SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities", Oct 2015.
- [10] FCC KDB 616217 D04 v01r02, "SAR Evaluation Considerations for Laptop, Notebook, Netbook and Tablet Computers", Oct 2015
- [11] FCC KDB 865664 D01 v01r04, "SAR Measurement Requirements for 100 MHz to 6 GHz", Aug 2015.
- [12] FCC KDB 865664 D02 v01r02, "RF Exposure Compliance Reporting and Documentation Considerations" Oct 2015.