



# FCC SAR Test Report

**APPLICANT** : Lenovo (Shanghai) Electronics Technology Co., Ltd.  
**EQUIPMENT** : Portable Tablet Computer  
**BRAND NAME** : lenovo  
**MODEL NAME** : YOGA Tablet 2-1050L  
**FCC ID** : O57YT21050L  
**STANDARD** : FCC 47 CFR Part 2 (2.1093)  
ANSI/IEEE C95.1-1992  
IEEE 1528-2003

We, SPORTON INTERNATIONAL (XI'AN) INC., would like to declare that the tested sample has been evaluated in accordance with the procedures and had been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL (XI'AN) INC., the test report shall not be reproduced except in full.

Reviewed by: Eric Huang / Deputy Manager

Approved by: Jones Tsai / Manager



**SPORTON INTERNATIONAL (XI'AN) INC.**

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## Revision History

| REPORT NO. | VERSION | DESCRIPTION             | ISSUED DATE   |
|------------|---------|-------------------------|---------------|
| FA462001   | Rev. 01 | Initial issue of report | Aug. 08, 2014 |
|            |         |                         |               |
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## **1. Statement of Compliance**

The maximum results of Specific Absorption Rate (SAR) found during testing for **Lenovo (Shanghai) Electronics Technology Co., Ltd., Portable Tablet Computer, YOGA Tablet 2-1050L** are as follows.

| Equipment Class  | Frequency Band   | Operating Mode | Highest SAR Summary           |                                      |
|------------------|------------------|----------------|-------------------------------|--------------------------------------|
|                  |                  |                | Body 1g SAR (W/kg)            | Simultaneous Transmission SAR (W/kg) |
| PCB              | GSM850           | Data           | 1.21                          | 1.59                                 |
|                  | GSM1900          | Data           | 1.32                          |                                      |
|                  | WCDMA Band V     | Data           | 0.54                          |                                      |
|                  | WCDMA Band IV    | Data           | 1.37                          |                                      |
|                  | WCDMA Band II    | Data           | 1.35                          |                                      |
|                  | LTE Band 5       | Data           | 0.37                          |                                      |
|                  | LTE Band 4       | Data           | 1.21                          |                                      |
|                  | LTE Band 2       | Data           | 1.31                          |                                      |
|                  | LTE Band 7       | Data           | <b>1.39</b>                   |                                      |
| DTS              | WLAN 2.4GHz Band | Data           | 0.85                          | 1.58                                 |
| NII              | WLAN 5.2GHz Band | Data           | 1.37                          | 1.59                                 |
|                  | WLAN 5.8GHz Band | Data           | 0.31                          |                                      |
| DSS              | Bluetooth        | Data           |                               | 1.59                                 |
| Date of Testing: |                  |                | Jul. 08, 2014 ~ Jul. 17, 2014 |                                      |

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 1528-2003.



## **2. Administration Data**

| Testing Laboratory |                                                                                                                                         |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| Test Site          | SPORTON INTERNATIONAL (XI'AN) INC.                                                                                                      |
| Test Site Location | 1F, Building A3, No. 39 Chuangye Rd., Xi'an Hi-tech Zone, Shanxi Province, P. R. C.<br>TEL: +86-029-8860-8767<br>FAX: +86-029-8860-8791 |
| Applicant          |                                                                                                                                         |
| Company Name       | Lenovo (Shanghai) Electronics Technology Co., Ltd.                                                                                      |
| Address            | No. 68 Building, 199 Fenju Road, Wai Gao Qiao FTZ, Shanghai, China                                                                      |
| Manufacturer       |                                                                                                                                         |
| Company Name       | Lenovo PC HK Limited                                                                                                                    |
| Address            | 23/F, Lincoln House, Taikoo Place 979 King's Road, Quarry Bay, Hong Kong                                                                |
| Factory 1          |                                                                                                                                         |
| Company Name       | LENOVO MOBILE COMMUNICATION TECHNOLOGY CO LTD                                                                                           |
| Address            | NO.999 QISHAN NORTH 2ND ROAD, INFORMATION & OPTOELECTRONICS PARK, TORCH HIGH TECH, XIAMEN FUJIAN 361009, CHINA                          |
| Factory 2          |                                                                                                                                         |
| Company Name       | LENOVO MOBILE COMMUNICATION (WUHAN) CO LTD                                                                                              |
| Address            | 19 GAOXIN 4TH RD EAST LAKE HIGH-TECH, ZONE WUHAN HUBEI 430205, CHINA                                                                    |

## **3. Guidance Standard**

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 1528-2003
- FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r03
- FCC KDB 865664 D02 SAR Reporting v01r01
- FCC KDB 447498 D01 General RF Exposure Guidance v05r02
- FCC KDB 248227 D01 SAR meas for 802 11abg v01r02
- FCC KDB 616217 D04 SAR for laptop and tablets v01r01
- FCC KDB 941225 D01 SAR test for 3G devices v02
- FCC KDB 941225 D02 HSPA and 1x Advanced v02r02
- FCC KDB 941225 D03 SAR Test Reduction GSM GPRS EDGE v01
- FCC KDB 941225 D05 SAR for LTE Devices v02r03

## 4. Equipment Under Test (EUT)

### 4.1 General Information

| Product Feature & Specification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Equipment Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Portable Tablet Computer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Brand Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | lenovo                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Model Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | YOGA Tablet 2-1050L                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| FCC ID                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | O57YT21050L                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| IMEI Code                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 865021020006334                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Wireless Technology and Frequency Range                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | GSM850: 824.2 MHz ~ 848.8 MHz<br>GSM1900: 1850.2 MHz ~ 1909.8 MHz<br>WCDMA Band V: 826.4 MHz ~ 846.6 MHz<br>WCDMA Band IV: 1712.4 MHz ~ 1752.6 MHz<br>WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz<br>LTE Band 5: 824.7 MHz ~ 848.3 MHz<br>LTE Band 4: 1710.7 MHz ~ 1754.3 MHz<br>LTE Band 2: 1850.7 MHz ~ 1909.3 MHz<br>LTE Band 7: 2502.5 MHz ~ 2567.5 MHz<br>WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz<br>WLAN 5.2GHz Band: 5180 MHz ~ 5240 MHz<br>WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz<br>Bluetooth: 2402 MHz ~ 2480 MHz |
| Mode                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <ul style="list-style-type: none"> <li>• GPRS/EGPRS</li> <li>• RMC 12.2Kbps</li> <li>• HSDPA</li> <li>• HSUPA</li> <li>• DC-HSDPA</li> <li>• HSPA+ (Downlink Only)</li> <li>• LTE</li> <li>• 802.11a/b/g/n (HT20/HT40)</li> <li>• Bluetooth v3.0+EDR, Bluetooth v4.0 LE</li> </ul>                                                                                                                                                                                                                                  |
| HW Version                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Lenovopad YOGA Tablet 2-1050L                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| SW Version                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | YOGA Tablet 2-1050L-140623                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| EUT Stage                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Production Unit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Remark:</b> <ol style="list-style-type: none"> <li>1. This device has no voice function.</li> <li>2. This device 2.4GHz/5.8GHz WLAN supports hotspot operation and WIFI Direct (Group Client /Group Owner) and WLAN 5.2GHz supports WiFi Direct (Group Client).</li> <li>3. This device supports GRPS/EGPRS mode up to multi-slot class33.</li> <li>4. There are two types of EUT sample 1 and sample 2, the differences between two samples is only different supplier for Battery/EMMC/Panel/Touch panel/front and back camera. For SAR test, only perform sample 1 for all test, since the test result is not affected by the changes for sample 2.</li> </ol> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

## 4.2 Maximum Tune-up Limit

| Mode                    | Burst average power (dBm) |                    |                 |                    |
|-------------------------|---------------------------|--------------------|-----------------|--------------------|
|                         | GSM 850                   |                    | GSM 1900        |                    |
|                         | Full power mode           | Reduced power mode | Full power mode | Reduced power mode |
| GPRS (GMSK, 1 Tx slot)  | 33.0                      | 29.0               | 30.5            | 21.0               |
| GPRS (GMSK, 2 Tx slots) | 33.0                      | 29.0               | 29.0            | 21.0               |
| GPRS (GMSK, 3 Tx slots) | 32.0                      | 28.0               | 28.0            | 20.0               |
| GPRS (GMSK, 4 Tx slots) | 30.5                      | 26.5               | 26.5            | 18.5               |
| EDGE (8PSK, 1 Tx slot)  | 27.0                      | 24.0               | 26.5            | 18.0               |
| EDGE (8PSK, 2 Tx slots) | 27.0                      | 24.0               | 26.5            | 18.0               |
| EDGE (8PSK, 3 Tx slots) | 26.0                      | 23.5               | 25.5            | 17.0               |
| EDGE (8PSK, 4 Tx slots) | 25.0                      | 22.0               | 24.5            | 16.0               |

| Mode               | Average power (dBm) |                    |                 |                    |                 |                    |
|--------------------|---------------------|--------------------|-----------------|--------------------|-----------------|--------------------|
|                    | WCDMA Band V        |                    | WCDMA Band IV   |                    | WCDMA Band II   |                    |
|                    | Full power mode     | Reduced power mode | Full power mode | Reduced power mode | Full power mode | Reduced power mode |
| RMC 12.2Kbps       | 24.0                | 18.5               | 24.0            | 14.0               | 23.0            | 13.5               |
| HSDPA Subtest-1    | 23.0                | 17.5               | 23.0            | 13.5               | 22.0            | 12.5               |
| HSDPA Subtest-2    | 23.0                | 17.5               | 23.0            | 13.5               | 22.0            | 12.5               |
| HSDPA Subtest-3    | 23.0                | 17.5               | 23.0            | 13.5               | 22.0            | 12.5               |
| HSDPA Subtest-4    | 23.0                | 17.5               | 23.0            | 13.5               | 22.0            | 12.5               |
| DC-HSDPA Subtest-1 | 23.0                | 17.5               | 23.0            | 13.5               | 22.0            | 12.5               |
| DC-HSDPA Subtest-2 | 23.0                | 17.5               | 23.0            | 13.5               | 22.0            | 12.5               |
| DC-HSDPA Subtest-3 | 23.0                | 17.5               | 23.0            | 13.5               | 22.0            | 12.5               |
| DC-HSDPA Subtest-4 | 23.0                | 17.5               | 23.0            | 13.0               | 22.0            | 12.5               |
| HSUPA Subtest-1    | 21.5                | 15.0               | 22.0            | 12.0               | 23.0            | 13.0               |
| HSUPA Subtest-2    | 20.0                | 13.5               | 20.5            | 11.0               | 21.0            | 11.5               |
| HSUPA Subtest-3    | 21.0                | 15.0               | 21.5            | 12.0               | 22.0            | 12.0               |
| HSUPA Subtest-4    | 20.5                | 13.5               | 20.5            | 11.0               | 21.5            | 11.5               |
| HSUPA Subtest-5    | 21.5                | 15.0               | 22.5            | 13.0               | 23.0            | 13.0               |

| LTE Band 5          |          |         |     |                 |                    |
|---------------------|----------|---------|-----|-----------------|--------------------|
| Average Power (dBm) |          |         |     |                 |                    |
| Modulation          | BW (MHz) | RB size | MPR | Full power mode | Reduced power mode |
| QPSK                | 10       | ≤ 12    | 0   | 23.0            | 17.0               |
| QPSK                | 10       | > 12    | 0-1 | 22.0            | 16.5               |
| 16QAM               | 10       | ≤ 12    | 0-1 | 22.0            | 16.5               |
| 16QAM               | 10       | > 12    | 0-2 | 21.0            | 15.5               |
| QPSK                | 5        | ≤ 8     | 0   | 23.0            | 17.0               |
| QPSK                | 5        | > 8     | 0-1 | 22.0            | 16.5               |
| 16QAM               | 5        | ≤ 8     | 0-1 | 22.0            | 16.5               |
| 16QAM               | 5        | > 8     | 0-2 | 21.0            | 15.5               |
| QPSK                | 3        | ≤ 4     | 0   | 23.0            | 17.0               |
| QPSK                | 3        | > 4     | 0-1 | 22.0            | 16.5               |
| 16QAM               | 3        | ≤ 4     | 0-1 | 22.0            | 16.5               |
| 16QAM               | 3        | > 4     | 0-2 | 21.0            | 15.5               |
| QPSK                | 1.4      | ≤ 5     | 0   | 23.0            | 17.0               |
| QPSK                | 1.4      | > 5     | 0-1 | 22.0            | 16.5               |
| 16QAM               | 1.4      | ≤ 5     | 0-1 | 22.0            | 16.5               |
| 16QAM               | 1.4      | > 5     | 0-2 | 21.0            | 15.5               |

| LTE Band 4          |          |         |     |                 |                    |
|---------------------|----------|---------|-----|-----------------|--------------------|
| Average Power (dBm) |          |         |     |                 |                    |
| Modulation          | BW (MHz) | RB size | MPR | Full power mode | Reduced power mode |
| QPSK                | 20       | ≤ 18    | 0   | 23.0            | 14.0               |
| QPSK                | 20       | > 18    | 0-1 | 22.0            | 13.0               |
| 16QAM               | 20       | ≤ 18    | 0-1 | 22.0            | 13.0               |
| 16QAM               | 20       | > 18    | 0-2 | 21.0            | 12.0               |
| QPSK                | 15       | ≤ 16    | 0   | 23.0            | 14.0               |
| QPSK                | 15       | > 16    | 0-1 | 22.0            | 13.0               |
| 16QAM               | 15       | ≤ 16    | 0-1 | 22.0            | 13.0               |
| 16QAM               | 15       | > 16    | 0-2 | 21.0            | 12.0               |
| QPSK                | 10       | ≤ 12    | 0   | 23.0            | 14.0               |
| QPSK                | 10       | > 12    | 0-1 | 22.0            | 13.0               |
| 16QAM               | 10       | ≤ 12    | 0-1 | 22.0            | 13.0               |
| 16QAM               | 10       | > 12    | 0-2 | 21.0            | 12.0               |
| QPSK                | 5        | ≤ 8     | 0   | 23.0            | 14.0               |
| QPSK                | 5        | > 8     | 0-1 | 22.0            | 13.0               |
| 16QAM               | 5        | ≤ 8     | 0-1 | 22.0            | 13.0               |
| 16QAM               | 5        | > 8     | 0-2 | 21.0            | 12.0               |
| QPSK                | 3        | ≤ 4     | 0   | 23.0            | 14.0               |
| QPSK                | 3        | > 4     | 0-1 | 22.0            | 13.0               |
| 16QAM               | 3        | ≤ 4     | 0-1 | 22.0            | 13.0               |
| 16QAM               | 3        | > 4     | 0-2 | 21.0            | 12.0               |
| QPSK                | 1.4      | ≤ 5     | 0   | 23.0            | 14.0               |
| QPSK                | 1.4      | > 5     | 0-1 | 22.0            | 13.0               |
| 16QAM               | 1.4      | ≤ 5     | 0-1 | 22.0            | 13.0               |
| 16QAM               | 1.4      | > 5     | 0-2 | 21.0            | 12.0               |

| LTE Band 2          |          |         |     |                 |                    |
|---------------------|----------|---------|-----|-----------------|--------------------|
| Average Power (dBm) |          |         |     |                 |                    |
| Modulation          | BW (MHz) | RB size | MPR | Full power mode | Reduced power mode |
| QPSK                | 20       | ≤ 18    | 0   | 23.0            | 14.0               |
| QPSK                | 20       | > 18    | 0-1 | 22.0            | 13.0               |
| 16QAM               | 20       | ≤ 18    | 0-1 | 22.0            | 13.0               |
| 16QAM               | 20       | > 18    | 0-2 | 21.5            | 12.0               |
| QPSK                | 15       | ≤ 16    | 0   | 23.0            | 14.0               |
| QPSK                | 15       | > 16    | 0-1 | 22.0            | 13.0               |
| 16QAM               | 15       | ≤ 16    | 0-1 | 22.0            | 13.0               |
| 16QAM               | 15       | > 16    | 0-2 | 21.5            | 12.0               |
| QPSK                | 10       | ≤ 12    | 0   | 23.0            | 14.0               |
| QPSK                | 10       | > 12    | 0-1 | 22.0            | 13.0               |
| 16QAM               | 10       | ≤ 12    | 0-1 | 22.0            | 13.0               |
| 16QAM               | 10       | > 12    | 0-2 | 21.5            | 12.0               |
| QPSK                | 5        | ≤ 8     | 0   | 23.0            | 14.0               |
| QPSK                | 5        | > 8     | 0-1 | 22.0            | 13.0               |
| 16QAM               | 5        | ≤ 8     | 0-1 | 22.0            | 13.0               |
| 16QAM               | 5        | > 8     | 0-2 | 21.5            | 12.0               |
| QPSK                | 3        | ≤ 4     | 0   | 23.0            | 14.0               |
| QPSK                | 3        | > 4     | 0-1 | 22.0            | 13.0               |
| 16QAM               | 3        | ≤ 4     | 0-1 | 22.0            | 13.0               |
| 16QAM               | 3        | > 4     | 0-2 | 21.5            | 12.0               |
| QPSK                | 1.4      | ≤ 5     | 0   | 23.0            | 14.0               |
| QPSK                | 1.4      | > 5     | 0-1 | 22.0            | 13.0               |
| 16QAM               | 1.4      | ≤ 5     | 0-1 | 22.0            | 13.0               |
| 16QAM               | 1.4      | > 5     | 0-2 | 21.5            | 12.0               |

| LTE Band 7          |          |         |     |                 |                    |
|---------------------|----------|---------|-----|-----------------|--------------------|
| Average Power (dBm) |          |         |     |                 |                    |
| Modulation          | BW (MHz) | RB size | MPR | Full power mode | Reduced power mode |
| QPSK                | 20       | ≤ 18    | 0   | 22.0            | 13.0               |
| QPSK                | 20       | > 18    | 0-1 | 21.0            | 12.0               |
| 16QAM               | 20       | ≤ 18    | 0-1 | 21.5            | 12.0               |
| 16QAM               | 20       | > 18    | 0-2 | 20.0            | 11.0               |
| QPSK                | 15       | ≤ 16    | 0   | 22.0            | 13.0               |
| QPSK                | 15       | > 16    | 0-1 | 21.0            | 12.0               |
| 16QAM               | 15       | ≤ 16    | 0-1 | 21.5            | 12.0               |
| 16QAM               | 15       | > 16    | 0-2 | 20.0            | 11.0               |
| QPSK                | 10       | ≤ 12    | 0   | 22.0            | 13.0               |
| QPSK                | 10       | > 12    | 0-1 | 21.0            | 12.0               |
| 16QAM               | 10       | ≤ 12    | 0-1 | 21.5            | 12.0               |
| 16QAM               | 10       | > 12    | 0-2 | 20.0            | 11.0               |
| QPSK                | 5        | ≤ 8     | 0   | 22.0            | 13.0               |
| QPSK                | 5        | > 8     | 0-1 | 21.0            | 12.0               |
| 16QAM               | 5        | ≤ 8     | 0-1 | 21.5            | 12.0               |
| 16QAM               | 5        | > 8     | 0-2 | 20.0            | 11.0               |

| Mode                 |              |                   | Maximum Average Power (dBm) |      |
|----------------------|--------------|-------------------|-----------------------------|------|
| 2.4GHz               | 802.11b      | Chain Port 0      | 16.0                        |      |
|                      |              | Chain Port 1      | 16.5                        |      |
|                      | 802.11g      | Chain Port 0      | 9.0                         |      |
|                      |              | Chain Port 1      | 13.5                        |      |
|                      | 802.11n HT20 | Chain Port 0      | 11.5                        |      |
|                      |              | Chain Port 1      | 11.5                        |      |
|                      |              | Chain Port 0+1(0) | 9.0                         |      |
|                      |              | Chain Port 0+1(1) | 9.0                         |      |
|                      |              | Chain Port 0+1    | 12.0                        |      |
|                      | 802.11n HT40 | Chain Port 0      | 9.5                         |      |
|                      |              | Chain Port 1      | 10.5                        |      |
|                      |              | Chain Port 0+1(0) | 7.5                         |      |
|                      |              | Chain Port 0+1(1) | 7.5                         |      |
|                      |              | Chain Port 0+1    | 10.5                        |      |
| 5.2GHz               | 802.11a      | Chain Port 0      | CH 36                       | 10.0 |
|                      |              |                   | CH 40                       | 10.0 |
|                      |              |                   | CH 44                       | 10.0 |
|                      |              |                   | CH 48                       | 10.5 |
|                      |              | Chain Port 1      |                             | 10.5 |
|                      | 802.11n HT20 | Chain Port 0      |                             | 10.0 |
|                      |              | Chain Port 1      |                             | 10.5 |
|                      |              | Chain Port 0+1(0) |                             | 7.0  |
|                      |              | Chain Port 0+1(1) |                             | 7.0  |
|                      |              | Chain Port 0+1    |                             | 10.5 |
|                      | 802.11n HT40 | Chain Port 0      |                             | 9.5  |
|                      |              | Chain Port 1      |                             | 9.5  |
|                      |              | Chain Port 0+1(0) |                             | 7.0  |
|                      |              | Chain Port 0+1(1) |                             | 7.0  |
| Chain Port 0+1       |              | 10.0              |                             |      |
| 5.8GHz               | 802.11a      | Chain Port 0      |                             | 11.0 |
|                      |              | Chain Port 1      |                             | 11.5 |
|                      | 802.11n HT20 | Chain Port 0      |                             | 11.0 |
|                      |              | Chain Port 1      |                             | 10.5 |
|                      |              | Chain Port 0+1(0) |                             | 8.0  |
|                      |              | Chain Port 0+1(1) |                             | 7.5  |
|                      |              | Chain Port 0+1    |                             | 11.0 |
|                      | 802.11n HT40 | Chain Port 0      |                             | 10.5 |
|                      |              | Chain Port 1      |                             | 10.5 |
|                      |              | Chain Port 0+1(0) |                             | 7.5  |
| Chain Port 0+1(1)    |              | 7.5               |                             |      |
| Bluetooth v3.0 + EDR |              |                   | 9.5                         |      |
| Bluetooth v4.0 LE    |              |                   | 7.5                         |      |

### 4.3 General LTE SAR Test and Reporting Considerations

| Summarized necessary items addressed in KDB 941225 D05 v02r03  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |         |       |        |        |        |          |                                                                |  |  |  |  |  |  |  |            |                                                 |  |  |  |  |  |          |         |         |       |        |        |        |      |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |
|----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|-------|--------|--------|--------|----------|----------------------------------------------------------------|--|--|--|--|--|--|--|------------|-------------------------------------------------|--|--|--|--|--|----------|---------|---------|-------|--------|--------|--------|------|-----|-----|-----|------|------|------|-----|--------|-----|-----|-----|------|------|------|-----|--------|-----|-----|-----|------|------|------|-----|
| FCC ID                                                         | O57YT21050L                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |         |       |        |        |        |          |                                                                |  |  |  |  |  |  |  |            |                                                 |  |  |  |  |  |          |         |         |       |        |        |        |      |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |
| Equipment Name                                                 | Portable Tablet Computer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |         |       |        |        |        |          |                                                                |  |  |  |  |  |  |  |            |                                                 |  |  |  |  |  |          |         |         |       |        |        |        |      |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |
| Operating Frequency Range of each LTE transmission band        | LTE Band 5: 824.7 MHz ~ 848.3 MHz<br>LTE Band 4: 1710.7 MHz ~ 1754.3 MHz<br>LTE Band 2: 1850.7 MHz ~ 1909.3 MHz<br>LTE Band 7: 2502.5 MHz ~ 2567.5 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |         |       |        |        |        |          |                                                                |  |  |  |  |  |  |  |            |                                                 |  |  |  |  |  |          |         |         |       |        |        |        |      |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |
| Channel Bandwidth                                              | 1.4MHz, 3MHz, 5MHz, 10MHz (LTE Band 5)<br>1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz (LTE Band 2/4)<br>5MHz, 10MHz, 15MHz, 20MHz (LTE Band 7)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |         |       |        |        |        |          |                                                                |  |  |  |  |  |  |  |            |                                                 |  |  |  |  |  |          |         |         |       |        |        |        |      |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |
| uplink modulations used                                        | QPSK and 16QAM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |         |       |        |        |        |          |                                                                |  |  |  |  |  |  |  |            |                                                 |  |  |  |  |  |          |         |         |       |        |        |        |      |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |
| LTE Voice / Data requirements                                  | Data only                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |         |       |        |        |        |          |                                                                |  |  |  |  |  |  |  |            |                                                 |  |  |  |  |  |          |         |         |       |        |        |        |      |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |
| LTE MPR permanently built-in by design                         | <table><tr><th colspan="8">Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3</th></tr><tr><th rowspan="2">Modulation</th><th colspan="6">Channel bandwidth / Transmission bandwidth (RB)</th><th rowspan="2">MPR (dB)</th></tr><tr><th>1.4 MHz</th><th>3.0 MHz</th><th>5 MHz</th><th>10 MHz</th><th>15 MHz</th><th>20 MHz</th></tr><tr><td>QPSK</td><td>&gt; 5</td><td>&gt; 4</td><td>&gt; 8</td><td>&gt; 12</td><td>&gt; 16</td><td>&gt; 18</td><td>≤ 1</td></tr><tr><td>16 QAM</td><td>≤ 5</td><td>≤ 4</td><td>≤ 8</td><td>≤ 12</td><td>≤ 16</td><td>≤ 18</td><td>≤ 1</td></tr><tr><td>16 QAM</td><td>&gt; 5</td><td>&gt; 4</td><td>&gt; 8</td><td>&gt; 12</td><td>&gt; 16</td><td>&gt; 18</td><td>≤ 2</td></tr></table> |         |       |        |        |        |          | Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3 |  |  |  |  |  |  |  | Modulation | Channel bandwidth / Transmission bandwidth (RB) |  |  |  |  |  | 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 |
| Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |         |       |        |        |        |          |                                                                |  |  |  |  |  |  |  |            |                                                 |  |  |  |  |  |          |         |         |       |        |        |        |      |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |
| Modulation                                                     | Channel bandwidth / Transmission bandwidth (RB)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |         |       |        |        |        | 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      |                                                                |  |  |  |  |  |  |  |            |                                                 |  |  |  |  |  |          |         |         |       |        |        |        |      |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |
| 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, proximity sensor.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |         |       |        |        |        |          |                                                                |  |  |  |  |  |  |  |            |                                                 |  |  |  |  |  |          |         |         |       |        |        |        |      |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |        |     |     |     |      |      |      |     |

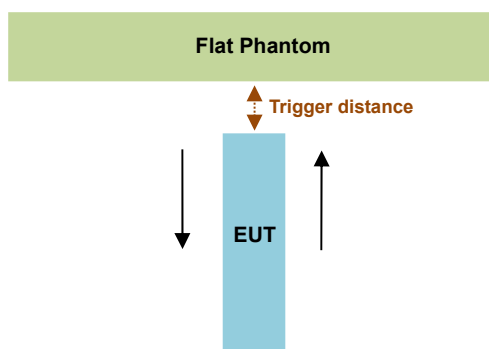
| Transmission (H, M, L) channel numbers and frequencies in each LTE band |                   |             |                  |             |                  |             |                  |             |                  |             |                  |             |  |
|-------------------------------------------------------------------------|-------------------|-------------|------------------|-------------|------------------|-------------|------------------|-------------|------------------|-------------|------------------|-------------|--|
| 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       | 20525            | 836.5       |                  |             |  |
| H                                                                       | 20643             | 848.3       | 20635            | 847.5       | 20625            | 846.5       | 20600            | 844         |                  |             |                  |             |  |
| 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 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 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        | 21100            | 2535        |                  |             |  |
| H                                                                       | 21425             | 2567.5      | 21400            | 2565        | 21375            | 2562.5      | 21350            | 2560        |                  |             |                  |             |  |

## 5. Proximity Sensor Triggering Test

### <Proximity Sensor Triggering Distance (KDB 616217 D04 section 6.2)>:

Proximity sensor triggering distance testing was performed according to the procedures outlined in KDB 616217 D04 section 6.2, and EUT moving further away from the flat phantom and EUT moving toward the flat phantom were both assessed. The details are illustrated in the exhibit "P-Sensor operational description", and the shortest triggering distances were reported and used for SAR assessment.

In the preliminary triggering distance testing, the tissue-equivalent medium for different frequency bands were used for verification; no other frequency bands tissue-equivalent medium was found to result in shortest triggering distance than that for 1900MHz, and the tissue-equivalent medium for 1900MHz was used for formal proximity sensor triggering testing.



| Proximity Sensor Trigger Distance (mm) |             |        |
|----------------------------------------|-------------|--------|
| Position                               | Bottom Face | Edge 4 |
| Minimum                                | 15          | 14     |

**<Proximity Sensor Triggering Coverage (KDB 616217 D04 section 6.3)>:**

If a sensor is spatially offset from the antenna(s), it is necessary to verify sensor triggering for conditions where the antenna is next to the user but the sensor is laterally further away to ensure sensor coverage is sufficient for reducing the power to maintain compliance. For p-sensor coverage testing, the device is moved and “along the direction of maximum antenna and sensor offset”.

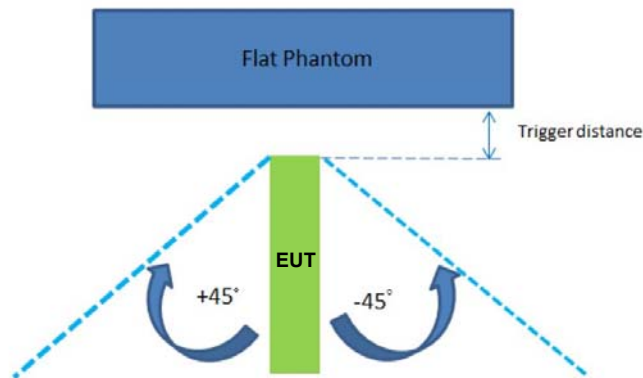
Illustrated in the internal photo exhibit, although the sensor is spatially offset, there is no trigger condition where the antenna is next to the user but the sensor is laterally further away, therefore proximity sensor coverage testing is not required.

This procedure is not required because antenna and sensor are collocated and the peak SAR location is overlapping with the sensor.

**<Tablet Tilt angle influences to proximity sensor triggering (KDB 616217 D04 section 6.4)>:**

The influence of table tilt angles to proximity sensor triggering was determined by positioning each tablet edge that contains a transmitting antenna, perpendicular to the flat phantom, at 13 mm separation.

Rotating the tablet around the edge next to the phantom in  $\leq 10^\circ$  increments until the tablet is  $\pm 45^\circ$  from the vertical position at  $0^\circ$ , and the maximum output power remains in the reduced mode.



| The Sensor Trigger Distance (mm) |        |
|----------------------------------|--------|
| Position                         | Edge 4 |
| Minimum                          | 14     |

**<Proximity sensor power reduction>**

| Exposure Position / wireless mode       | Bottom Face <sup>(1)</sup> | Edge 1 | Edge 2 | Edge 3 | Edge 4 <sup>(1)</sup> |
|-----------------------------------------|----------------------------|--------|--------|--------|-----------------------|
| GSM850 GPRS (GMSK 1 Tx slot) - CS1      | 4 dB                       | 0 dB   | 0 dB   | 0 dB   | 4 dB                  |
| GSM850 GPRS (GMSK 2 Tx slots) - CS1     | 4 dB                       | 0 dB   | 0 dB   | 0 dB   | 4 dB                  |
| GSM850 GPRS (GMSK 3 Tx slots) - CS1     | 4 dB                       | 0 dB   | 0 dB   | 0 dB   | 4 dB                  |
| GSM850 GPRS (GMSK 4 Tx slots) - CS1     | 4 dB                       | 0 dB   | 0 dB   | 0 dB   | 4 dB                  |
| GSM850 EDGE (8PSK 1 Tx slot) - MCS5     | 3 dB                       | 0 dB   | 0 dB   | 0 dB   | 3 dB                  |
| GSM850 EDGE (8PSK 2 Tx slots) - MCS5    | 3 dB                       | 0 dB   | 0 dB   | 0 dB   | 3 dB                  |
| GSM850 EDGE (8PSK 3 Tx slots) - MCS5    | 2.5 dB                     | 0 dB   | 0 dB   | 0 dB   | 2.5 dB                |
| GSM850 EDGE (8PSK 4 Tx slots) - MCS5    | 3 dB                       | 0 dB   | 0 dB   | 0 dB   | 3 dB                  |
| GSM1900 GPRS (GMSK 1 Tx slot) - CS1     | 9.5 dB                     | 0 dB   | 0 dB   | 0 dB   | 9.5 dB                |
| GSM1900 GPRS (GMSK 2 Tx slots) - CS1    | 8 dB                       | 0 dB   | 0 dB   | 0 dB   | 8 dB                  |
| SM1900 GPRS (GMSK 3 Tx slots) - CS1     | 8 dB                       | 0 dB   | 0 dB   | 0 dB   | 8 dB                  |
| SM1900 GPRS (GMSK 4 Tx slots) - CS1     | 8 dB                       | 0 dB   | 0 dB   | 0 dB   | 8 dB                  |
| GSM1900 EDGE (8PSK 1 Tx slot) - MCS5    | 8.5 dB                     | 0 dB   | 0 dB   | 0 dB   | 8.5 dB                |
| GSM1900 EDGE (8PSK 2 Tx slots) - MCS5   | 8.5 dB                     | 0 dB   | 0 dB   | 0 dB   | 8.5 dB                |
| GSM1900 EDGE (8PSK 3 Tx slots) - MCS5   | 8.5 dB                     | 0 dB   | 0 dB   | 0 dB   | 8.5 dB                |
| GSM1900 EDGE (8PSK 4 Tx slots) - MCS5   | 8.5 dB                     | 0 dB   | 0 dB   | 0 dB   | 8.5 dB                |
| WCDMA Band V RMC 12.2kbps               | 5.5 dB                     | 0 dB   | 0 dB   | 0 dB   | 5.5 dB                |
| WCDMA Band II RMC 12.2kbps              | 9.5 dB                     | 0 dB   | 0 dB   | 0 dB   | 9.5 dB                |
| WCDMA Band IV RMC 12.2kbps              | 10.0 dB                    | 0 dB   | 0 dB   | 0 dB   | 10.0 dB               |
| LTE Band 5 (BW10,RB Size 1,RB Offset 0) | 6 dB                       | 0 dB   | 0 dB   | 0 dB   | 6 dB                  |
| LTE Band 4 (BW20,RB Size 1,RB Offset 0) | 9 dB                       | 0 dB   | 0 dB   | 0 dB   | 9 dB                  |
| LTE Band 2 (BW20,RB Size 1,RB Offset 0) | 9 dB                       | 0 dB   | 0 dB   | 0 dB   | 9 dB                  |
| LTE Band 7 (BW20,RB Size 1,RB Offset 0) | 9 dB                       | 0 dB   | 0 dB   | 0 dB   | 9 dB                  |

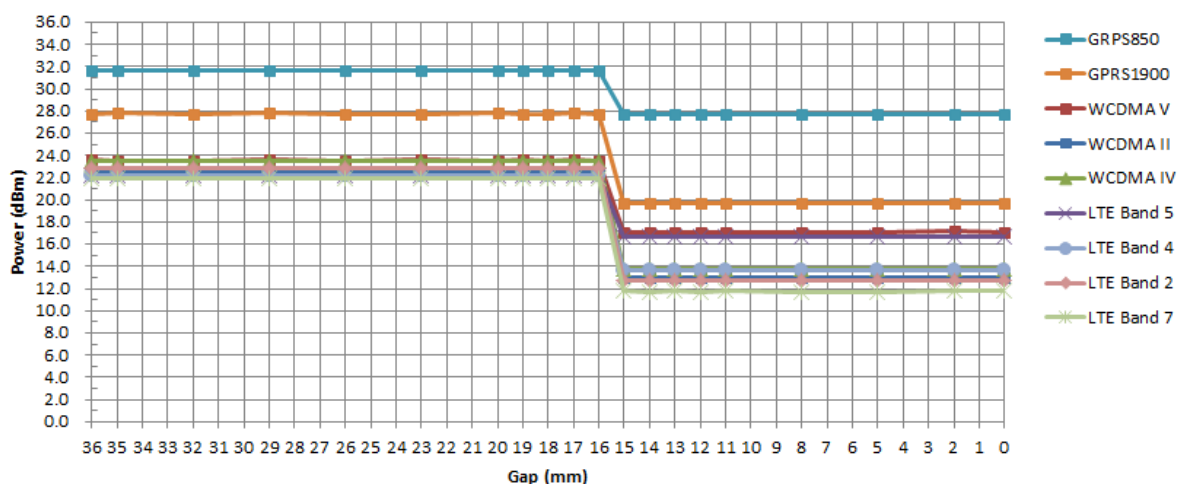
**Remark:**

- <sup>(1)</sup>: Reduced maximum limit applied by activation of proximity sensor.
- Power reduction is not applicable for WLAN and Bluetooth.
- Tests were performed in accordance with KDB 616217 D04 section 6.1, 6.2, 6.3, 6.4 and 6.5 and compliant results are shown and described in exhibit "P-Sensor operational description".
- For verification of compliance of power reduction scheme, additional SAR testing with EUT transmitting at full RF power at a conservative trigger distance was performed:
  - Bottom Face: 12 mm
  - Edge4: 12 mm

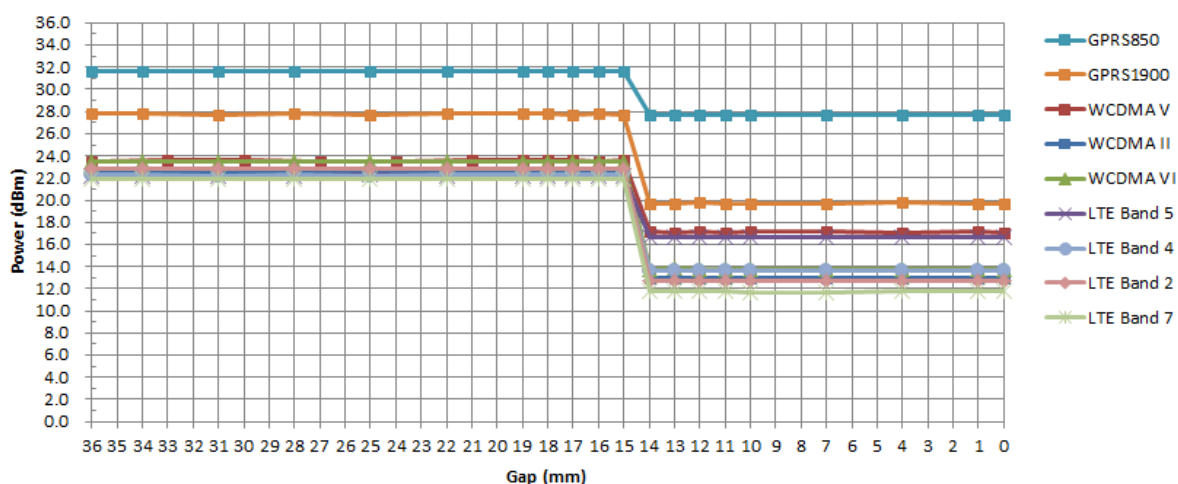
<Power Measurement during Sensor Trigger distance testing>

| Band/Mode                               | Ch #  | Measured power reduction (dBm) |                   | Reduction Levels (dB) |
|-----------------------------------------|-------|--------------------------------|-------------------|-----------------------|
|                                         |       | w/o power back-off             | w/ power back-off |                       |
| GSM850 GPRS (GMSK 3 Tx slots)           | 189   | 31.67                          | 27.74             | 3.93                  |
| GSM1900 GPRS (GMSK 3 Tx slots)          | 661   | 27.78                          | 19.74             | 8.04                  |
| WCDMA Band V RMC 12.2kbps               | 4182  | 23.57                          | 17.10             | 6.47                  |
| WCDMA Band II RMC 12.2kbps              | 9400  | 22.59                          | 13.01             | 9.58                  |
| WCDMA Band IV RMC 12.2kbps              | 1413  | 23.45                          | 13.80             | 9.65                  |
| LTE Band 5 (BW10,RB Size 1,RB Offset 0) | 20525 | 22.24                          | 16.69             | 5.55                  |
| LTE Band 4 (BW20,RB Size 1,RB Offset 0) | 20175 | 22.25                          | 13.66             | 8.59                  |
| LTE Band 2 (BW20,RB Size 1,RB Offset 0) | 18900 | 22.86                          | 12.72             | 10.14                 |
| LTE Band 7 (BW20,RB Size 1,RB Offset 0) | 21100 | 21.94                          | 11.74             | 10.20                 |

Bottom Face



Edge4





## 6. RF Exposure Limits

### 6.1 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.

### 6.2 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                            |

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.

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

### **7.1 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.

### **7.2 SAR Definition**

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

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

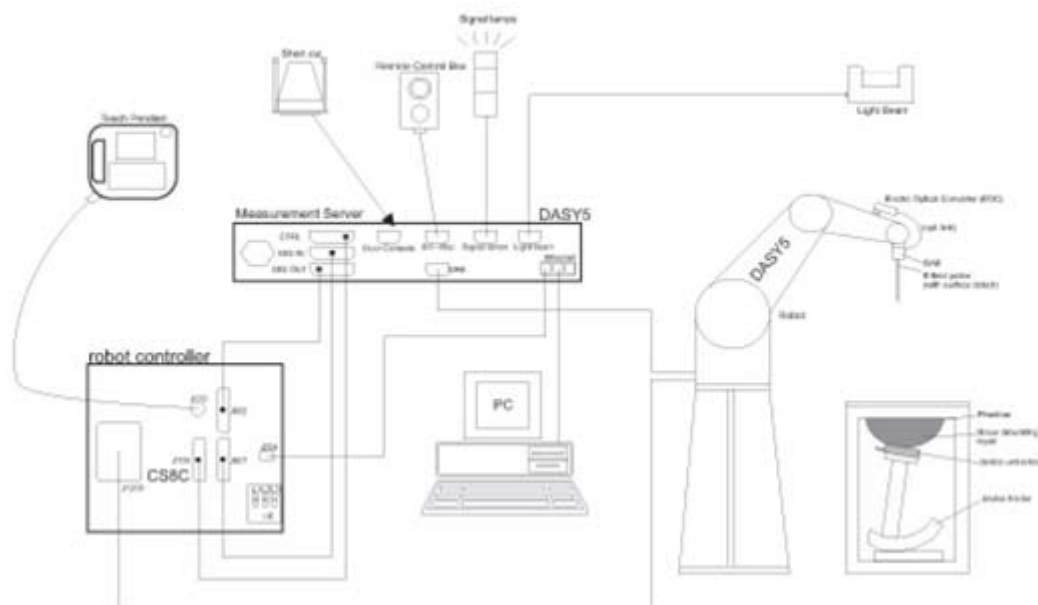
SAR is expressed in units of Watts per kilogram (W/kg)

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

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

## 8. 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.

## **9. 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

### **9.1 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

## 9.2 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.

## 9.3 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 D01v01r03 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. |                                                        |

## 9.4 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 D01v01r03 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. |                                           |                                                                                             |                                                      |                                                                               |

## 9.5 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.

## 9.6 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.



## 10. Test Equipment List

| Manufacturer  | Name of Equipment               | Type/Model    | Serial Number | Calibration   |               |
|---------------|---------------------------------|---------------|---------------|---------------|---------------|
|               |                                 |               |               | Last Cal.     | Due Date      |
| SPEAG         | 835MHz System Validation Kit    | D835V2        | 4d151         | Mar. 25, 2013 | Mar. 23, 2015 |
| SPEAG         | 1750MHz System Validation Kit   | D1750V2       | 1090          | Mar. 27, 2013 | Mar. 25, 2015 |
| SPEAG         | 1900MHz System Validation Kit   | D1900V2       | 5d170         | Mar. 27, 2013 | Mar. 25, 2015 |
| SPEAG         | 2450MHz System Validation Kit   | D2450V2       | 908           | Mar. 26, 2013 | Mar. 24, 2015 |
| SPEAG         | 2600MHz System Validation Kit   | D2600V2       | 1061          | Mar. 26, 2013 | Mar. 24, 2015 |
| SPEAG         | 5000MHz System Validation Kit   | D5GHV2        | 1006          | Sep. 23, 2013 | Sep. 22, 2014 |
| SPEAG         | Data Acquisition Electronics    | DAE4          | 1358          | Apr. 30, 2014 | Apr. 29, 2015 |
| SPEAG         | Data Acquisition Electronics    | DAE4          | 1210          | May 19, 2014  | May 18, 2015  |
| SPEAG         | Dosimetric E-Field Probe        | EX3DV4        | 3911          | Apr. 22, 2014 | Apr. 21, 2015 |
| SPEAG         | Dosimetric E-Field Probe        | EX3DV4        | 3857          | May 23, 2014  | May 22, 2015  |
| SPEAG         | Phone Positioner                | N/A           | N/A           | NCR           | NCR           |
| SPEAG         | ELI5 Phantom                    | QD OVA 002 AA | TP-1201       | NCR           | NCR           |
| SPEAG         | ELI4 Phantom                    | QD OVA 001 BB | 1079          | NCR           | NCR           |
| Agilent       | Wireless Communication Test Set | E5515C        | MY52102600    | Dec. 30, 2013 | Dec. 29, 2014 |
| Agilent       | Wireless Communication Test Set | E5515C        | MY50266977    | May 06, 2014  | May 05, 2015  |
| Anritsu       | Radio communication analyzer    | MT8820C       | 6201074235    | Nov. 05, 2013 | Nov. 04, 2014 |
| Agilent       | ENA Series Network Analyzer     | E5071C        | MY46111157    | Dec. 30, 2013 | Dec. 29, 2014 |
| Agilent       | Dielectric Probe Kit            | 85070E        | MY44300475    | NCR           | NCR           |
| R&S           | Signal Generator                | N5181A        | MY50145381    | Jan. 04, 2014 | Jan. 03, 2015 |
| Anritsu       | Power Sensor                    | MA2411B       | 0917070       | Feb. 27, 2014 | Feb. 26, 2015 |
| Anritsu       | Power Meter                     | ML2495A       | 1005002       | Feb. 27, 2014 | Feb. 26, 2015 |
| ARRA          | Power Divider                   | A3200-2       | N/A           | NA            | NA            |
| R&S           | Spectrum Analyzer               | FSP7          | 101045        | Dec. 30, 2013 | Dec. 29, 2014 |
| Agilent       | Dual Directional Coupler        | 778D          | 50422         | Note 1        |               |
| Woken         | Attenuator                      | WK0602-XX     | N/A           | Note 1        |               |
| PE            | Attenuator                      | PE7005-10     | N/A           | Note 1        |               |
| PE            | Attenuator                      | PE7005- 3     | N/A           | Note 1        |               |
| AR            | Power Amplifier                 | 5S1G4M2       | 0328767       | Note 1        |               |
| Mini-Circuits | Power Amplifier                 | ZVE-3W        | 162601250     | Note 1        |               |
| Mini-Circuits | Power Amplifier                 | ZHL-42W+      | 13440021344   | Note 1        |               |

### General Note:

1. Prior to system verification and validation, the path loss from the signal generator to the system check source and the power meter, which includes the amplifier, cable, attenuator and directional coupler, was measured by the network analyzer. The reading of the power meter was offset by the path loss difference between the path to the power meter and the path to the system check source to monitor the actual power level fed to the system check source.
2. Referring to KDB 865664 D01v01r03, the dipole calibration interval can be extended to 3 years with justification. The dipoles are also not physically damaged, or repaired during the interval.
3. The justification data of dipole D835V2, SN: 4d151, D1750V2, SN: 1090, D1900V2, SN: 5d170, D2450V2, SN: 908 and D2600V2, SN: 1061 can be found in appendix C. The return loss is < -20dB, within 20% of prior calibration, the impedance is within 5 ohm of prior calibration.

## 11. System Verification

### 11.1 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 Body         |           |           |               |          |               |          |                           |                               |
| 835              | 50.8      | 48.2      | 0             | 0.9      | 0.1           | 0        | 0.97                      | 55.2                          |
| 1750             | 70.2      | 0         | 0             | 0.4      | 0             | 29.4     | 1.49                      | 53.4                          |
| 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          |
|-----------------|-------------|-------------------|---------------------------|-------------------------------|----------------------------------|--------------------------------------|------------------------|----------------------------|-----------|---------------|
| 835             | Body        | 22.5              | 0.971                     | 56.000                        | 0.97                             | 55.20                                | 0.10                   | 1.45                       | ±5        | Jul. 09, 2014 |
| 1750            | Body        | 22.5              | 1.522                     | 54.439                        | 1.49                             | 53.40                                | 2.15                   | 1.95                       | ±5        | Jul. 08, 2014 |
| 1900            | Body        | 22.6              | 1.535                     | 54.565                        | 1.52                             | 53.30                                | 0.99                   | 2.37                       | ±5        | Jul. 08, 2014 |
| 2450            | Body        | 22.7              | 1.983                     | 51.159                        | 1.95                             | 52.70                                | 1.69                   | -2.92                      | ±5        | Jul. 17, 2014 |
| 2600            | Body        | 22.5              | 2.165                     | 53.823                        | 2.16                             | 52.5                                 | 0.23                   | 2.52                       | ±5        | Jul. 08, 2014 |
| 5200            | Body        | 22.4              | 5.297                     | 49.185                        | 5.30                             | 49.00                                | -0.06                  | 0.38                       | ±5        | Jul. 11, 2014 |
| 5800            | Body        | 22.3              | 6.127                     | 47.784                        | 6.00                             | 48.20                                | 2.12                   | -0.86                      | ±5        | Jul. 16, 2014 |

### 11.2 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 SAR (W/kg) | Targeted SAR (W/kg) | Normalized SAR (W/kg) | Deviation (%) |
|---------------|-----------------|-------------|------------------|------------|-----------|---------|---------------------|---------------------|-----------------------|---------------|
| Jul. 09, 2014 | 835             | Body        | 250              | 4d151      | 3911      | 1358    | 2.33                | 9.43                | 9.32                  | -1.17         |
| Jul. 08, 2014 | 1750            | Body        | 250              | 1090       | 3911      | 1358    | 9.06                | 38.10               | 36.24                 | -4.88         |
| Jul. 08, 2014 | 1900            | Body        | 250              | 5d170      | 3911      | 1358    | 10.10               | 41.20               | 40.4                  | -1.94         |
| Jul. 17, 2014 | 2450            | Body        | 250              | 908        | 3911      | 1358    | 13.60               | 50.40               | 54.4                  | 7.94          |
| Jul. 08, 2014 | 2600            | Body        | 250              | 1061       | 3911      | 1358    | 14.10               | 55.60               | 56.4                  | 1.44          |
| Jul. 11, 2014 | 5200            | Body        | 100              | 1006       | 3857      | 1210    | 7.45                | 71.50               | 74.5                  | 4.20          |
| Jul. 16, 2014 | 5800            | Body        | 100              | 1006       | 3857      | 1210    | 7.20                | 72.30               | 72.0                  | -0.41         |

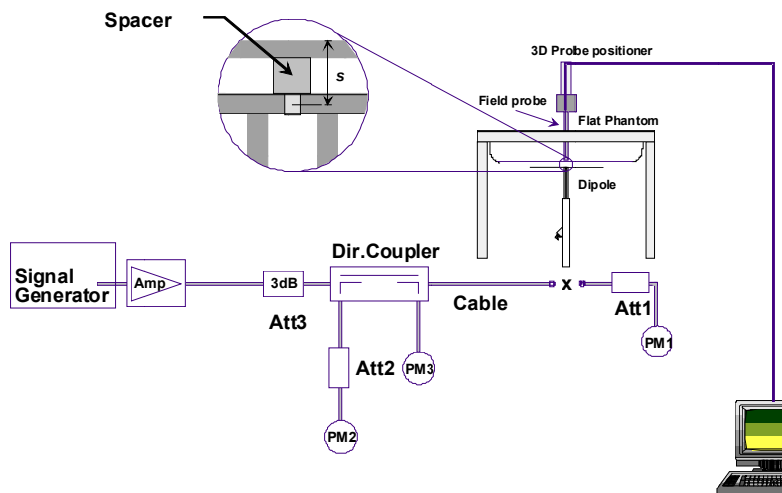


**Fig 8.3.1 System Performance Check Setup**



**Fig 8.3.2 Setup Photo**

### **11.3 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 D01v05r02 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.

This EUT was tested in five different positions. They are bottom-face of tablet PC, Edge1, Edge2, Edge3 and Edge4. EUT has proximity sensor function, it would be on bottom-face and Edge4 active, the sensor trigger distance is 1.2cm, EUT transmitting full power in normal mode was performed. Additional the surface of EUT is touching with phantom 0 cm for bottom-face and Edge4 with reduce power, Edge1, Edge2 and Edge 3 with full power were performed.

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

### <GSM Conducted Power>

#### General Note:

1. Per KDB 447498 D01v05r02, the maximum output power channel is used for SAR testing and for further SAR test reduction.
2. For body SAR testing was following KDB 941225 D03v01, the GPRS 3Tx slots modes were selected when EUT operating without power back-off and operating with power back-off, according to the highest frame average output power.

#### Maximum Average RF Power (Proximity Sensor Inactive)

| Band GSM850                    | Burst Average Power (dBm) |       |        | Tune-up | Frame-Average Power (dBm) |       |        | Tune-up |
|--------------------------------|---------------------------|-------|--------|---------|---------------------------|-------|--------|---------|
| TX Channel                     | 128                       | 189   | 251    | Limit   | 128                       | 189   | 251    | Limit   |
| Frequency (MHz)                | 824.2                     | 836.4 | 848.8  | (dBm)   | 824.2                     | 836.4 | 848.8  | (dBm)   |
| GPRS (GMSK, 1 Tx slot) – CS1   | 32.41                     | 32.55 | 32.58  | 33.0    | 23.41                     | 23.55 | 23.58  | 24      |
| GPRS (GMSK, 2 Tx slots) – CS1  | 32.31                     | 32.42 | 32.54  | 33.0    | 26.31                     | 26.42 | 26.54  | 27      |
| GPRS (GMSK, 3 Tx slots) – CS1  | 31.56                     | 31.67 | 31.74  | 32.0    | 27.30                     | 27.41 | 27.48  | 27.74   |
| GPRS (GMSK, 4 Tx slots) – CS1  | 30.19                     | 30.27 | 30.32  | 30.5    | 27.19                     | 27.27 | 27.32  | 27.5    |
| EDGE (8PSK, 1 Tx slot) – MCS5  | 26.54                     | 26.49 | 26.53  | 27.0    | 17.54                     | 17.49 | 17.53  | 18      |
| EDGE (8PSK, 2 Tx slots) – MCS5 | 26.53                     | 26.48 | 26.52  | 27.0    | 20.53                     | 20.48 | 20.52  | 21      |
| EDGE (8PSK, 3 Tx slots) – MCS5 | 25.74                     | 25.68 | 25.67  | 26.0    | 21.48                     | 21.42 | 21.41  | 21.74   |
| EDGE (8PSK, 4 Tx slots) – MCS5 | 24.65                     | 24.62 | 24.66  | 25.0    | 21.65                     | 21.62 | 21.66  | 22      |
| Band GSM1900                   | Burst Average Power (dBm) |       |        | Tune-up | Frame-Average Power (dBm) |       |        | Tune-up |
| TX Channel                     | 512                       | 661   | 810    | Limit   | 512                       | 661   | 810    | Limit   |
| Frequency (MHz)                | 1850.2                    | 1880  | 1909.8 | (dBm)   | 1850.2                    | 1880  | 1909.8 | (dBm)   |
| GPRS (GMSK, 1 Tx slot) – CS1   | 30.24                     | 30.11 | 30.02  | 30.5    | 21.24                     | 21.11 | 21.02  | 21.5    |
| GPRS (GMSK, 2 Tx slots) – CS1  | 28.86                     | 28.82 | 28.80  | 29.0    | 22.86                     | 22.82 | 22.80  | 23      |
| GPRS (GMSK, 3 Tx slots) – CS1  | 27.81                     | 27.78 | 27.76  | 28.0    | 23.55                     | 23.52 | 23.50  | 23.74   |
| GPRS (GMSK, 4 Tx slots) – CS1  | 26.42                     | 26.38 | 26.34  | 26.5    | 23.42                     | 23.38 | 23.34  | 23.5    |
| EDGE (8PSK, 1 Tx slot) – MCS5  | 25.65                     | 25.74 | 25.98  | 26.5    | 16.65                     | 16.74 | 16.98  | 17.5    |
| EDGE (8PSK, 2 Tx slots) – MCS5 | 25.61                     | 25.73 | 25.96  | 26.5    | 19.61                     | 19.73 | 19.96  | 20.5    |
| EDGE (8PSK, 3 Tx slots) – MCS5 | 24.77                     | 24.94 | 25.19  | 25.5    | 20.51                     | 20.68 | 20.93  | 21.24   |
| EDGE (8PSK, 4 Tx slots) – MCS5 | 23.62                     | 23.77 | 24.03  | 24.5    | 20.62                     | 20.77 | 21.03  | 21.5    |

Remark: The frame-averaged power is linearly scaled the maximum burst averaged power over 8 time slots.

The calculated method are shown as below:

Frame-averaged power = Maximum burst averaged power (1 Tx Slot) - 9 dB

Frame-averaged power = Maximum burst averaged power (2 Tx Slots) - 6 dB

Frame-averaged power = Maximum burst averaged power (3 Tx Slots) - 4.26 dB

Frame-averaged power = Maximum burst averaged power (4 Tx Slots) - 3 dB

**Reduced Average RF Power (Proximity Sensor Active)**

| Band GSM850                    | Burst Average Power (dBm) |       |              | Tune-up | Frame-Average Power (dBm) |       |              | Tune-up |
|--------------------------------|---------------------------|-------|--------------|---------|---------------------------|-------|--------------|---------|
| TX Channel                     | 128                       | 189   | 251          | Limit   | 128                       | 189   | 251          | Limit   |
| Frequency (MHz)                | 824.2                     | 836.4 | 848.8        | (dBm)   | 824.2                     | 836.4 | 848.8        | (dBm)   |
| GPRS (GMSK, 1 Tx slot) – CS1   | 28.56                     | 28.60 | <b>28.63</b> | 29.0    | 19.56                     | 19.60 | 19.63        | 20      |
| GPRS (GMSK, 2 Tx slots) – CS1  | 28.56                     | 28.61 | 28.56        | 29.0    | 22.56                     | 22.61 | 22.56        | 23      |
| GPRS (GMSK, 3 Tx slots) – CS1  | 27.71                     | 27.74 | 27.86        | 28.0    | 23.45                     | 23.48 | <b>23.60</b> | 23.74   |
| GPRS (GMSK, 4 Tx slots) – CS1  | 26.36                     | 26.41 | 26.46        | 26.5    | 23.36                     | 23.41 | 23.46        | 23.5    |
| EDGE (8PSK, 1 Tx slot) – MCS5  | 23.66                     | 23.56 | 23.66        | 24.0    | 14.66                     | 14.56 | 14.66        | 15      |
| EDGE (8PSK, 2 Tx slots) – MCS5 | 23.73                     | 23.57 | 23.71        | 24.0    | 17.73                     | 17.57 | 17.71        | 18      |
| EDGE (8PSK, 3 Tx slots) – MCS5 | 22.96                     | 22.82 | 22.91        | 23.5    | 18.70                     | 18.56 | 18.65        | 19.24   |
| EDGE (8PSK, 4 Tx slots) – MCS5 | 21.72                     | 21.60 | 21.71        | 22.0    | 18.72                     | 18.60 | 18.71        | 19      |
| Band GSM1900                   | Burst Average Power (dBm) |       |              | Tune-up | Frame-Average Power (dBm) |       |              | Tune-up |
| TX Channel                     | 512                       | 661   | 810          | Limit   | 512                       | 661   | 810          | Limit   |
| Frequency (MHz)                | 1850.2                    | 1880  | 1909.8       | (dBm)   | 1850.2                    | 1880  | 1909.8       | (dBm)   |
| GPRS (GMSK, 1 Tx slot) – CS1   | <b>20.80</b>              | 20.60 | 20.53        | 21.0    | 11.80                     | 11.60 | 11.53        | 12      |
| GPRS (GMSK, 2 Tx slots) – CS1  | 20.77                     | 20.61 | 20.54        | 21.0    | 14.77                     | 14.61 | 14.54        | 15      |
| GPRS (GMSK, 3 Tx slots) – CS1  | 19.97                     | 19.74 | 19.70        | 20.0    | <b>15.71</b>              | 15.48 | 15.44        | 15.74   |
| GPRS (GMSK, 4 Tx slots) – CS1  | 18.42                     | 18.35 | 18.28        | 18.5    | 15.42                     | 15.35 | 15.28        | 15.5    |
| EDGE (8PSK, 1 Tx slot) – MCS5  | 17.31                     | 17.49 | 17.62        | 18.0    | 8.31                      | 8.49  | 8.62         | 9       |
| EDGE (8PSK, 2 Tx slots) – MCS5 | 17.32                     | 17.51 | 17.63        | 18.0    | 11.32                     | 11.51 | 11.63        | 12      |
| EDGE (8PSK, 3 Tx slots) – MCS5 | 16.54                     | 16.65 | 16.80        | 17.0    | 12.28                     | 12.39 | 12.54        | 12.74   |
| EDGE (8PSK, 4 Tx slots) – MCS5 | 15.40                     | 15.52 | 15.67        | 16.0    | 12.40                     | 12.52 | 12.67        | 13      |

Remark: The frame-averaged power is linearly scaled the maximum burst averaged power over 8 time slots.

The calculated method are shown as below:

Frame-averaged power = Maximum burst averaged power (1 Tx Slot) - 9 dB

Frame-averaged power = Maximum burst averaged power (2 Tx Slots) - 6 dB

Frame-averaged power = Maximum burst averaged power (3 Tx Slots) - 4.26 dB

Frame-averaged power = Maximum burst averaged power (4 Tx Slots) - 3 dB

**<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 D01 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 DPDCCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.

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 | $\beta_c$         | $\beta_d$         | $\beta_d$<br>(SF) | $\beta_c/\beta_d$ | $\beta_{HS}$<br>(Note 1) | $\beta_{ec}$ | $\beta_{ed}$<br>(Note 5)<br>(Note 6)           | $\beta_{ed}$<br>(SF) | $\beta_{ed}$<br>(Codes) | CM<br>(dB)<br>(Note 2) | MPR<br>(dB)<br>(Note 2) | AG<br>Index<br>(Note 6) | E-TFCI |
|----------|-------------------|-------------------|-------------------|-------------------|--------------------------|--------------|------------------------------------------------|----------------------|-------------------------|------------------------|-------------------------|-------------------------|--------|
| 1        | 11/15<br>(Note 3) | 15/15<br>(Note 3) | 64                | 11/15<br>(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<br>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<br>(Note 4) | 15/15<br>(Note 4) | 64                | 15/15<br>(Note 4) | 30/15                    | 24/15        | 134/15                                         | 4                    | 1                       | 1.0                    | 0.0                     | 21                      | 81     |

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

Note 2: CM = 1 for  $\beta_c/\beta_d = 12/15$ ,  $\beta_{HS}/\beta_c = 24/15$ . 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: For subtest 5 the  $\beta_c/\beta_d$  ratio of 15/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to  $\beta_c = 14/15$  and  $\beta_d = 15/15$ .

Note 5: 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 6:  $\beta_{ed}$  can not be set directly, it is set by Absolute Grant Value.

**Setup Configuration**

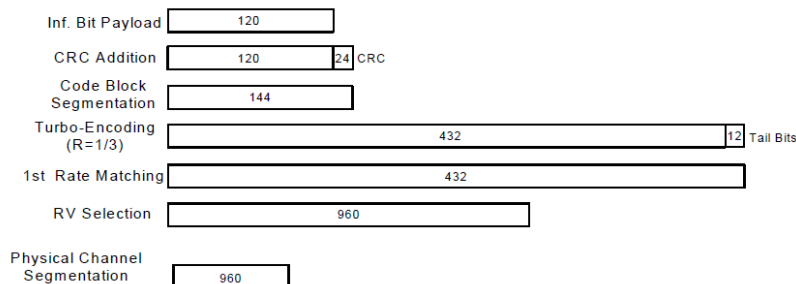
**DC-HSDPA 3GPP release 8 Setup Configuration:**

- 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 Factor 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:**

Per KDB 941225 D02v02r02, RMC 12.2kbps setting is used to evaluate SAR when EUT operating without power back-off and operating with power back-off. If HSDPA/HSUPA/DC-HSDPA output power is < 0.25dB higher than RMC, or reported SAR with RMC 12.2kbps setting is  $\leq 1.2\text{W/kg}$ , HSDPA/HSUPA/DC-HSDPA SAR evaluation can be excluded.

**Maximum Average RF Power (Proximity Sensor Inactive)**

| Band            |             |                    | WCDMA Band V |              |       |                           | WCDMA Band II |       |              |                           |
|-----------------|-------------|--------------------|--------------|--------------|-------|---------------------------|---------------|-------|--------------|---------------------------|
| Tx Channel      |             |                    | 4132         | 4182         | 4233  | Tune-up<br>Limit<br>(dBm) | 9262          | 9400  | 9538         | Tune-up<br>Limit<br>(dBm) |
| Rx Channel      |             |                    | 4357         | 4407         | 4458  |                           | 9662          | 9800  | 9938         |                           |
| Frequency (MHz) |             |                    | 826.4        | 836.4        | 846.6 |                           | 1852.4        | 1880  | 1907.6       |                           |
| MPR (dB)        | 3GPP Rel 99 | RMC 12.2Kbps       | 23.38        | <b>23.57</b> | 23.55 | 24.0                      | 22.61         | 22.59 | <b>22.69</b> | 23.0                      |
| 0               | 3GPP Rel 6  | HSDPA Subtest-1    | 22.48        | 22.64        | 22.59 | 23.0                      | 21.58         | 21.51 | 21.62        | 22.0                      |
| 0               | 3GPP Rel 6  | HSDPA Subtest-2    | 22.56        | 22.71        | 22.68 | 23.0                      | 21.77         | 21.76 | 21.85        | 22.0                      |
| 0.5             | 3GPP Rel 6  | HSDPA Subtest-3    | 22.48        | 22.60        | 22.56 | 23.0                      | 21.75         | 21.72 | 21.83        | 22.0                      |
| 0.5             | 3GPP Rel 6  | HSDPA Subtest-4    | 22.30        | 22.42        | 22.40 | 23.0                      | 21.76         | 21.74 | 21.81        | 22.0                      |
| 0               | 3GPP Rel 8  | DC-HSDPA Subtest-1 | 22.38        | 22.59        | 22.57 | 23.0                      | 21.39         | 21.51 | 21.50        | 22.0                      |
| 0               | 3GPP Rel 8  | DC-HSDPA Subtest-2 | 22.47        | 22.58        | 22.66 | 23.0                      | 21.70         | 21.61 | 21.83        | 22.0                      |
| 0.5             | 3GPP Rel 8  | DC-HSDPA Subtest-3 | 22.30        | 22.58        | 22.50 | 23.0                      | 21.63         | 21.55 | 21.73        | 22.0                      |
| 0.5             | 3GPP Rel 8  | DC-HSDPA Subtest-4 | 22.21        | 22.34        | 22.28 | 23.0                      | 21.72         | 21.69 | 21.70        | 22.0                      |
| 0               | 3GPP Rel 6  | HSUPA Subtest-1    | 21.45        | 21.36        | 21.01 | 21.5                      | 22.14         | 22.37 | 22.68        | 23.0                      |
| 2               | 3GPP Rel 6  | HSUPA Subtest-2    | 19.67        | 19.57        | 19.20 | 20.0                      | 20.28         | 20.52 | 20.85        | 21.0                      |
| 1               | 3GPP Rel 6  | HSUPA Subtest-3    | 20.72        | 20.63        | 20.28 | 21.0                      | 21.35         | 21.59 | 21.91        | 22.0                      |
| 2               | 3GPP Rel 6  | HSUPA Subtest-4    | 19.95        | 19.80        | 19.53 | 20.5                      | 20.55         | 20.81 | 21.10        | 21.5                      |
| 0               | 3GPP Rel 6  | HSUPA Subtest-5    | 21.42        | 21.33        | 20.99 | 21.5                      | 22.02         | 22.32 | 22.59        | 23.0                      |

| Band            |             |                    | WCDMA Band IV |        |              |                           |
|-----------------|-------------|--------------------|---------------|--------|--------------|---------------------------|
| Tx Channel      |             |                    | 1312          | 1413   | 1513         | Tune-up<br>Limit<br>(dBm) |
| Rx Channel      |             |                    | 1537          | 1638   | 1738         |                           |
| Frequency (MHz) |             |                    | 1712.4        | 1732.6 | 1752.6       |                           |
| MPR (dB)        | 3GPP Rel 99 | RMC 12.2Kbps       | 23.48         | 23.45  | <b>23.52</b> | 24.0                      |
| 0               | 3GPP Rel 6  | HSDPA Subtest-1    | 22.45         | 22.44  | 22.48        | 23.0                      |
| 0               | 3GPP Rel 6  | HSDPA Subtest-2    | 22.68         | 22.65  | 22.72        | 23.0                      |
| 0.5             | 3GPP Rel 6  | HSDPA Subtest-3    | 22.61         | 22.56  | 22.65        | 23.0                      |
| 0.5             | 3GPP Rel 6  | HSDPA Subtest-4    | 22.35         | 22.30  | 22.41        | 23.0                      |
| 0               | 3GPP Rel 8  | DC-HSDPA Subtest-1 | 22.35         | 22.37  | 22.28        | 23.00                     |
| 0               | 3GPP Rel 8  | DC-HSDPA Subtest-2 | 22.62         | 22.63  | 22.70        | 23.00                     |
| 0.5             | 3GPP Rel 8  | DC-HSDPA Subtest-3 | 22.54         | 22.55  | 22.58        | 23.00                     |
| 0.5             | 3GPP Rel 8  | DC-HSDPA Subtest-4 | 22.27         | 22.28  | 22.21        | 23.00                     |
| 0               | 3GPP Rel 6  | HSUPA Subtest-1    | 21.45         | 21.41  | 21.48        | 22.0                      |
| 2               | 3GPP Rel 6  | HSUPA Subtest-2    | 19.65         | 19.86  | 20.00        | 20.5                      |
| 1               | 3GPP Rel 6  | HSUPA Subtest-3    | 20.96         | 20.93  | 21.00        | 21.5                      |
| 2               | 3GPP Rel 6  | HSUPA Subtest-4    | 19.86         | 19.84  | 20.05        | 20.5                      |
| 0               | 3GPP Rel 6  | HSUPA Subtest-5    | 22.02         | 21.96  | 22.08        | 22.5                      |



**Reduced Average RF Power (Proximity Sensor Active)**

| Band            |             |                    | WCDMA Band V |       |       |                           | WCDMA Band II |       |        |                           |
|-----------------|-------------|--------------------|--------------|-------|-------|---------------------------|---------------|-------|--------|---------------------------|
| Tx Channel      |             |                    | 4132         | 4182  | 4233  | Tune-up<br>Limit<br>(dBm) | 9262          | 9400  | 9538   | Tune-up<br>Limit<br>(dBm) |
| Rx Channel      |             |                    | 4357         | 4407  | 4458  |                           | 9662          | 9800  | 9938   |                           |
| Frequency (MHz) |             |                    | 826.4        | 836.4 | 846.6 |                           | 1852.4        | 1880  | 1907.6 |                           |
| MPR (dB)        | 3GPP Rel 99 | RMC 12.2Kbps       | 17.03        | 17.10 | 17.08 | 18.5                      | 12.98         | 13.01 | 13.00  | 13.5                      |
| 0               | 3GPP Rel 6  | HSDPA Subtest-1    | 16.99        | 17.06 | 17.05 | 17.5                      | 12.15         | 12.17 | 12.11  | 12.5                      |
| 0               | 3GPP Rel 6  | HSDPA Subtest-2    | 17.03        | 17.07 | 17.06 | 17.5                      | 12.15         | 12.18 | 12.12  | 12.5                      |
| 0.5             | 3GPP Rel 6  | HSDPA Subtest-3    | 17.06        | 17.09 | 17.08 | 17.5                      | 12.09         | 12.13 | 12.10  | 12.5                      |
| 0.5             | 3GPP Rel 6  | HSDPA Subtest-4    | 17.07        | 17.08 | 17.09 | 17.5                      | 12.01         | 12.08 | 12.03  | 12.5                      |
| 0               | 3GPP Rel 8  | DC-HSDPA Subtest-1 | 16.85        | 16.99 | 16.96 | 17.5                      | 11.99         | 12.15 | 12.01  | 12.5                      |
| 0               | 3GPP Rel 8  | DC-HSDPA Subtest-2 | 16.99        | 16.95 | 16.99 | 17.5                      | 12.00         | 12.16 | 11.96  | 12.5                      |
| 0.5             | 3GPP Rel 8  | DC-HSDPA Subtest-3 | 17.02        | 16.91 | 16.95 | 17.5                      | 11.98         | 12.10 | 11.96  | 12.5                      |
| 0.5             | 3GPP Rel 8  | DC-HSDPA Subtest-4 | 16.95        | 16.99 | 17.07 | 17.5                      | 11.81         | 12.02 | 11.85  | 12.5                      |
| 0               | 3GPP Rel 6  | HSUPA Subtest-1    | 14.90        | 14.81 | 14.52 | 15.0                      | 12.54         | 12.58 | 12.64  | 13.0                      |
| 2               | 3GPP Rel 6  | HSUPA Subtest-2    | 13.18        | 13.18 | 12.65 | 13.5                      | 10.88         | 11.12 | 11.37  | 11.5                      |
| 1               | 3GPP Rel 6  | HSUPA Subtest-3    | 14.51        | 14.23 | 13.86 | 15.0                      | 11.75         | 11.65 | 11.78  | 12.0                      |
| 2               | 3GPP Rel 6  | HSUPA Subtest-4    | 13.15        | 13.25 | 13.08 | 13.5                      | 11.03         | 11.21 | 11.38  | 11.5                      |
| 0               | 3GPP Rel 6  | HSUPA Subtest-5    | 14.91        | 14.82 | 14.45 | 15.0                      | 12.72         | 12.81 | 12.80  | 13.0                      |

| Band            |             |                    | WCDMA Band IV |        |        |                           |
|-----------------|-------------|--------------------|---------------|--------|--------|---------------------------|
| Tx Channel      |             |                    | 1312          | 1413   | 1513   | Tune-up<br>Limit<br>(dBm) |
| Rx Channel      |             |                    | 1537          | 1638   | 1738   |                           |
| Frequency (MHz) |             |                    | 1712.4        | 1732.6 | 1752.6 |                           |
| MPR (dB)        | 3GPP Rel 99 | RMC 12.2Kbps       | 13.80         | 13.80  | 13.85  | 14.0                      |
| 0               | 3GPP Rel 6  | HSDPA Subtest-1    | 13.07         | 13.04  | 13.11  | 13.5                      |
| 0               | 3GPP Rel 6  | HSDPA Subtest-2    | 13.04         | 13.03  | 13.12  | 13.5                      |
| 0.5             | 3GPP Rel 6  | HSDPA Subtest-3    | 12.93         | 12.91  | 13.01  | 13.5                      |
| 0.5             | 3GPP Rel 6  | HSDPA Subtest-4    | 12.90         | 12.86  | 12.92  | 13.5                      |
| 0               | 3GPP Rel 8  | DC-HSDPA Subtest-1 | 12.93         | 12.95  | 13.11  | 13.5                      |
| 0               | 3GPP Rel 8  | DC-HSDPA Subtest-2 | 12.91         | 12.16  | 13.05  | 13.5                      |
| 0.5             | 3GPP Rel 8  | DC-HSDPA Subtest-3 | 12.77         | 12.71  | 13.00  | 13.5                      |
| 0.5             | 3GPP Rel 8  | DC-HSDPA Subtest-4 | 12.82         | 12.81  | 12.89  | 13.0                      |
| 0               | 3GPP Rel 6  | HSUPA Subtest-1    | 11.92         | 11.89  | 11.88  | 12.0                      |
| 2               | 3GPP Rel 6  | HSUPA Subtest-2    | 10.16         | 10.38  | 10.45  | 11.0                      |
| 1               | 3GPP Rel 6  | HSUPA Subtest-3    | 11.45         | 11.48  | 11.52  | 12.0                      |
| 2               | 3GPP Rel 6  | HSUPA Subtest-4    | 10.36         | 10.38  | 10.48  | 11.0                      |
| 0               | 3GPP Rel 6  | HSUPA Subtest-5    | 12.51         | 12.48  | 12.49  | 13.0                      |

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

1. Anritsu MT8820C base station simulator was used to setup the connection with EUT; the frequency band, channel bandwidth, RB allocation configuration, modulation type are set in the base station simulator to configure EUT transmitting at maximum power and at different configurations which are requested to be reported to FCC, for conducted power measurement and SAR testing.
2. Per KDB 941225 D05v02r03, 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 D05v02r03, 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 D05v02r03, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
5. Per KDB 941225 D05v02r03, 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 D05v02r03, 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 D05v02r03, 16QAM SAR testing is not required.
7. Per KDB 941225 D05v02r03, 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 D05v02r03, smaller bandwidth SAR testing is not required.
8. Tests were performed when EUT operating without power back-off and operating with power back-off in accordance with general note 3, 4, 5, 6, 7 above.

**Maximum Average RF Power (Proximity Sensor Inactive)**
**<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                  | 23.0                | 0        |
| Frequency (MHz) |            |         |           | 829                   | 836.5                    | 844                    |                     |          |
| 10              | QPSK       | 1       | 0         | 22.19                 | 22.24                    | 22.01                  |                     |          |
| 10              | QPSK       | 1       | 24        | 22.03                 | 22.06                    | 21.88                  | 22.0                | 0-1      |
| 10              | QPSK       | 1       | 49        | 22.03                 | 21.54                    | 21.70                  |                     |          |
| 10              | QPSK       | 25      | 0         | 21.42                 | 21.15                    | 20.95                  |                     |          |
| 10              | QPSK       | 25      | 12        | 21.29                 | 21.06                    | 20.84                  | 22.0                | 0-1      |
| 10              | QPSK       | 25      | 24        | 21.23                 | 20.93                    | 20.82                  |                     |          |
| 10              | QPSK       | 50      | 0         | 21.28                 | 20.84                    | 20.81                  |                     |          |
| 10              | 16QAM      | 1       | 0         | 21.21                 | 21.26                    | 21.15                  | 22.0                | 0-1      |
| 10              | 16QAM      | 1       | 24        | 21.46                 | 21.22                    | 21.03                  |                     |          |
| 10              | 16QAM      | 1       | 49        | 21.67                 | 21.35                    | 21.08                  |                     |          |
| 10              | 16QAM      | 25      | 0         | 20.53                 | 20.62                    | 20.35                  | 21.0                | 0-2      |
| 10              | 16QAM      | 25      | 12        | 20.42                 | 20.58                    | 20.34                  |                     |          |
| 10              | 16QAM      | 25      | 24        | 20.48                 | 20.54                    | 20.35                  |                     |          |
| 10              | 16QAM      | 50      | 0         | 20.53                 | 20.35                    | 20.36                  | 21.0                | 0-2      |
| Channel         |            |         |           | 20425                 | 20525                    | 20625                  |                     |          |
| Frequency (MHz) |            |         |           | 826.5                 | 836.5                    | 846.5                  |                     |          |
| 5               | QPSK       | 1       | 0         | 22.24                 | 22.06                    | 21.82                  | 23.0                | 0        |
| 5               | QPSK       | 1       | 12        | 22.15                 | 21.96                    | 21.77                  |                     |          |
| 5               | QPSK       | 1       | 24        | 22.18                 | 22.00                    | 21.76                  |                     |          |
| 5               | QPSK       | 12      | 0         | 21.27                 | 21.15                    | 20.87                  | 22.0                | 0-1      |
| 5               | QPSK       | 12      | 6         | 21.25                 | 21.12                    | 20.75                  |                     |          |
| 5               | QPSK       | 12      | 11        | 21.25                 | 21.22                    | 20.62                  |                     |          |
| 5               | QPSK       | 25      | 0         | 21.28                 | 21.07                    | 20.86                  | 22.0                | 0-1      |
| 5               | 16QAM      | 1       | 0         | 21.48                 | 21.55                    | 21.03                  |                     |          |
| 5               | 16QAM      | 1       | 12        | 21.35                 | 21.22                    | 20.92                  |                     |          |
| 5               | 16QAM      | 1       | 24        | 21.33                 | 21.14                    | 21.16                  | 21.0                | 0-2      |
| 5               | 16QAM      | 12      | 0         | 20.44                 | 20.63                    | 20.31                  |                     |          |
| 5               | 16QAM      | 12      | 6         | 20.29                 | 20.38                    | 20.31                  |                     |          |
| 5               | 16QAM      | 12      | 11        | 20.34                 | 20.51                    | 20.45                  | 21.0                | 0-2      |
| 5               | 16QAM      | 25      | 0         | 20.39                 | 20.40                    | 20.02                  |                     |          |



| Channel         |       |    |    | 20415 | 20525 | 20635 | Tune up Limit (dBm) | MPR (dB)        |
|-----------------|-------|----|----|-------|-------|-------|---------------------|-----------------|
| Frequency (MHz) |       |    |    | 825.5 | 836.5 | 847.5 |                     |                 |
| 3               | QPSK  | 1  | 0  | 22.03 | 22.01 | 21.82 | 23.0                | 0               |
| 3               | QPSK  | 1  | 7  | 22.01 | 21.98 | 21.79 |                     |                 |
| 3               | QPSK  | 1  | 14 | 22.25 | 21.93 | 21.73 |                     |                 |
| 3               | QPSK  | 8  | 0  | 21.38 | 21.16 | 20.95 | 22.0                | 0-1             |
| 3               | QPSK  | 8  | 4  | 21.28 | 21.12 | 20.85 |                     |                 |
| 3               | QPSK  | 8  | 7  | 21.27 | 21.08 | 20.86 |                     |                 |
| 3               | QPSK  | 15 | 0  | 21.29 | 21.13 | 20.82 | 22.0                | 0-1             |
| 3               | 16QAM | 1  | 0  | 21.66 | 21.41 | 21.01 |                     |                 |
| 3               | 16QAM | 1  | 7  | 21.64 | 21.39 | 21.00 |                     |                 |
| 3               | 16QAM | 1  | 14 | 21.06 | 21.14 | 20.94 | 21.0                | 0-2             |
| 3               | 16QAM | 8  | 0  | 20.48 | 20.38 | 20.34 |                     |                 |
| 3               | 16QAM | 8  | 4  | 20.48 | 20.62 | 20.39 |                     |                 |
| 3               | 16QAM | 8  | 7  | 20.57 | 20.42 | 20.36 | 21.0                | 0-2             |
| 3               | 16QAM | 15 | 0  | 20.35 | 20.42 | 19.94 |                     |                 |
| Channel         |       |    |    | 20407 | 20525 | 20643 | Tune up Limit (dBm) | Target MPR (dB) |
| Frequency (MHz) |       |    |    | 824.7 | 836.5 | 848.3 |                     |                 |
| 1.4             | QPSK  | 1  | 0  | 22.22 | 22.04 | 21.67 | 23.0                | 0               |
| 1.4             | QPSK  | 1  | 2  | 22.14 | 22.06 | 21.73 |                     |                 |
| 1.4             | QPSK  | 1  | 5  | 22.23 | 22.11 | 21.85 |                     |                 |
| 1.4             | QPSK  | 3  | 0  | 22.17 | 22.06 | 21.74 |                     |                 |
| 1.4             | QPSK  | 3  | 1  | 22.15 | 22.07 | 21.76 |                     |                 |
| 1.4             | QPSK  | 3  | 2  | 22.08 | 22.05 | 21.84 | 22.0                | 0-1             |
| 1.4             | QPSK  | 6  | 0  | 21.25 | 21.16 | 20.83 |                     |                 |
| 1.4             | 16QAM | 1  | 0  | 21.51 | 21.49 | 20.99 | 22.0                | 0-1             |
| 1.4             | 16QAM | 1  | 2  | 21.74 | 21.45 | 20.97 |                     |                 |
| 1.4             | 16QAM | 1  | 5  | 21.85 | 21.32 | 20.78 |                     |                 |
| 1.4             | 16QAM | 3  | 0  | 21.29 | 21.34 | 20.95 |                     |                 |
| 1.4             | 16QAM | 3  | 1  | 21.32 | 21.29 | 20.83 |                     |                 |
| 1.4             | 16QAM | 3  | 2  | 21.34 | 21.08 | 20.95 | 21.0                | 0-2             |
| 1.4             | 16QAM | 6  | 0  | 20.46 | 20.34 | 20.07 |                     |                 |



**<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         | 22.23                 | 22.25                    | 22.03                  | 23.0                | 0        |
| 20              | QPSK       | 1       | 49        | 21.73                 | 21.81                    | 21.96                  |                     |          |
| 20              | QPSK       | 1       | 99        | 21.64                 | 21.64                    | 21.51                  |                     |          |
| 20              | QPSK       | 50      | 0         | 21.31                 | 21.29                    | 21.32                  | 22.0                | 0-1      |
| 20              | QPSK       | 50      | 24        | 21.11                 | 20.96                    | 21.02                  |                     |          |
| 20              | QPSK       | 50      | 49        | 20.98                 | 20.93                    | 20.88                  |                     |          |
| 20              | QPSK       | 100     | 0         | 21.18                 | 21.04                    | 21.11                  | 22.0                | 0-1      |
| 20              | 16QAM      | 1       | 0         | 21.89                 | 21.86                    | 21.89                  |                     |          |
| 20              | 16QAM      | 1       | 49        | 21.69                 | 21.06                    | 20.94                  |                     |          |
| 20              | 16QAM      | 1       | 99        | 21.22                 | 21.04                    | 21.26                  | 21.0                | 0-2      |
| 20              | 16QAM      | 50      | 0         | 20.64                 | 20.48                    | 20.46                  |                     |          |
| 20              | 16QAM      | 50      | 24        | 20.38                 | 20.21                    | 20.21                  |                     |          |
| 20              | 16QAM      | 50      | 49        | 20.31                 | 19.99                    | 20.15                  | 21.0                | 0-2      |
| 20              | 16QAM      | 100     | 0         | 20.36                 | 20.29                    | 20.32                  |                     |          |
| Channel         |            |         |           | 20025                 | 20175                    | 20325                  | Tune up Limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 1717.5                | 1732.5                   | 1747.5                 |                     |          |
| 15              | QPSK       | 1       | 0         | 22.22                 | 22.21                    | 22.22                  | 23.0                | 0        |
| 15              | QPSK       | 1       | 37        | 21.88                 | 21.76                    | 21.67                  |                     |          |
| 15              | QPSK       | 1       | 74        | 21.78                 | 21.75                    | 21.72                  |                     |          |
| 15              | QPSK       | 36      | 0         | 21.39                 | 21.36                    | 21.33                  | 22.0                | 0-1      |
| 15              | QPSK       | 36      | 18        | 21.23                 | 21.17                    | 21.04                  |                     |          |
| 15              | QPSK       | 36      | 37        | 21.19                 | 21.08                    | 21.05                  |                     |          |
| 15              | QPSK       | 75      | 0         | 21.22                 | 21.21                    | 21.20                  | 22.0                | 0-1      |
| 15              | 16QAM      | 1       | 0         | 21.82                 | 21.78                    | 21.95                  |                     |          |
| 15              | 16QAM      | 1       | 37        | 21.55                 | 21.36                    | 21.85                  |                     |          |
| 15              | 16QAM      | 1       | 74        | 21.21                 | 21.29                    | 21.17                  | 21.0                | 0-2      |
| 15              | 16QAM      | 36      | 0         | 20.47                 | 20.62                    | 20.42                  |                     |          |
| 15              | 16QAM      | 36      | 18        | 20.39                 | 20.31                    | 20.31                  |                     |          |
| 15              | 16QAM      | 36      | 37        | 20.34                 | 20.33                    | 20.25                  | 21.0                | 0-2      |
| 15              | 16QAM      | 75      | 0         | 20.47                 | 20.25                    | 20.29                  |                     |          |
| Channel         |            |         |           | 20000                 | 20175                    | 20350                  | Tune up Limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 1715                  | 1732.5                   | 1750                   |                     |          |
| 10              | QPSK       | 1       | 0         | 22.08                 | 22.06                    | 22.31                  | 23.0                | 0        |
| 10              | QPSK       | 1       | 24        | 22.05                 | 22.04                    | 21.94                  |                     |          |
| 10              | QPSK       | 1       | 49        | 21.87                 | 21.61                    | 21.86                  |                     |          |
| 10              | QPSK       | 25      | 0         | 21.30                 | 21.20                    | 21.24                  | 22.0                | 0-1      |
| 10              | QPSK       | 25      | 12        | 21.24                 | 21.04                    | 20.98                  |                     |          |
| 10              | QPSK       | 25      | 24        | 21.12                 | 20.95                    | 20.99                  |                     |          |
| 10              | QPSK       | 50      | 0         | 21.13                 | 21.09                    | 21.09                  | 22.0                | 0-1      |
| 10              | 16QAM      | 1       | 0         | 21.82                 | 21.72                    | 21.57                  |                     |          |
| 10              | 16QAM      | 1       | 24        | 21.80                 | 21.53                    | 21.78                  |                     |          |
| 10              | 16QAM      | 1       | 49        | 21.56                 | 21.35                    | 21.10                  | 21.0                | 0-2      |
| 10              | 16QAM      | 25      | 0         | 20.41                 | 20.38                    | 20.49                  |                     |          |
| 10              | 16QAM      | 25      | 12        | 20.31                 | 20.22                    | 20.20                  |                     |          |
| 10              | 16QAM      | 25      | 24        | 20.28                 | 20.25                    | 20.33                  | 21.0                | 0-2      |
| 10              | 16QAM      | 50      | 0         | 20.47                 | 20.34                    | 20.34                  |                     |          |



| Channel         |       |    |    | 19975  | 20175  | 20375  | Tune up Limit (dBm) | MPR (dB) |
|-----------------|-------|----|----|--------|--------|--------|---------------------|----------|
| Frequency (MHz) |       |    |    | 1712.5 | 1732.5 | 1752.5 |                     |          |
| 5               | QPSK  | 1  | 0  | 22.11  | 22.12  | 21.84  | 23.0                | 0        |
| 5               | QPSK  | 1  | 12 | 22.01  | 22.03  | 21.77  |                     |          |
| 5               | QPSK  | 1  | 24 | 22.06  | 21.87  | 21.79  |                     |          |
| 5               | QPSK  | 12 | 0  | 21.21  | 21.21  | 21.14  | 22.0                | 0-1      |
| 5               | QPSK  | 12 | 6  | 21.20  | 21.00  | 21.09  |                     |          |
| 5               | QPSK  | 12 | 11 | 21.28  | 21.03  | 21.04  |                     |          |
| 5               | QPSK  | 25 | 0  | 21.21  | 21.07  | 21.07  |                     |          |
| 5               | 16QAM | 1  | 0  | 21.79  | 21.55  | 21.27  | 22.0                | 0-1      |
| 5               | 16QAM | 1  | 12 | 21.19  | 21.34  | 21.37  |                     |          |
| 5               | 16QAM | 1  | 24 | 21.66  | 21.49  | 20.93  |                     |          |
| 5               | 16QAM | 12 | 0  | 20.39  | 20.35  | 20.25  | 21.0                | 0-2      |
| 5               | 16QAM | 12 | 6  | 20.41  | 20.40  | 20.21  |                     |          |
| 5               | 16QAM | 12 | 11 | 20.39  | 20.34  | 20.23  |                     |          |
| 5               | 16QAM | 25 | 0  | 20.34  | 20.25  | 20.27  |                     |          |
| Channel         |       |    |    | 19965  | 20175  | 20385  | Tune up Limit (dBm) | MPR (dB) |
| Frequency (MHz) |       |    |    | 1711.5 | 1732.5 | 1753.5 |                     |          |
| 3               | QPSK  | 1  | 0  | 22.17  | 21.94  | 22.00  | 23.0                | 0        |
| 3               | QPSK  | 1  | 7  | 22.09  | 21.91  | 21.93  |                     |          |
| 3               | QPSK  | 1  | 14 | 21.95  | 21.99  | 21.71  |                     |          |
| 3               | QPSK  | 8  | 0  | 21.21  | 21.15  | 21.06  | 22.0                | 0-1      |
| 3               | QPSK  | 8  | 4  | 21.18  | 21.07  | 21.00  |                     |          |
| 3               | QPSK  | 8  | 7  | 21.13  | 21.05  | 20.94  |                     |          |
| 3               | QPSK  | 15 | 0  | 21.17  | 21.02  | 21.00  |                     |          |
| 3               | 16QAM | 1  | 0  | 21.65  | 21.36  | 21.55  | 22.0                | 0-1      |
| 3               | 16QAM | 1  | 7  | 21.60  | 21.36  | 21.34  |                     |          |
| 3               | 16QAM | 1  | 14 | 21.46  | 21.51  | 21.20  |                     |          |
| 3               | 16QAM | 8  | 0  | 20.51  | 20.30  | 20.34  | 21.0                | 0-2      |
| 3               | 16QAM | 8  | 4  | 20.46  | 20.16  | 20.25  |                     |          |
| 3               | 16QAM | 8  | 7  | 20.55  | 20.41  | 20.23  |                     |          |
| 3               | 16QAM | 15 | 0  | 20.54  | 20.54  | 20.24  |                     |          |
| Channel         |       |    |    | 19957  | 20175  | 20393  | Tune up Limit (dBm) | MPR (dB) |
| Frequency (MHz) |       |    |    | 1710.7 | 1732.5 | 1754.3 |                     |          |
| 1.4             | QPSK  | 1  | 0  | 22.04  | 21.96  | 21.88  | 23.0                | 0        |
| 1.4             | QPSK  | 1  | 2  | 22.00  | 21.88  | 21.92  |                     |          |
| 1.4             | QPSK  | 1  | 5  | 22.02  | 21.92  | 21.88  |                     |          |
| 1.4             | QPSK  | 3  | 0  | 22.04  | 22.05  | 21.86  |                     |          |
| 1.4             | QPSK  | 3  | 1  | 22.03  | 21.94  | 21.85  |                     |          |
| 1.4             | QPSK  | 3  | 2  | 22.07  | 21.91  | 21.89  |                     |          |
| 1.4             | QPSK  | 6  | 0  | 21.17  | 21.10  | 21.02  | 22.0                | 0-1      |
| 1.4             | 16QAM | 1  | 0  | 21.67  | 21.11  | 21.02  | 22.0                | 0-1      |
| 1.4             | 16QAM | 1  | 2  | 21.53  | 21.67  | 21.28  |                     |          |
| 1.4             | 16QAM | 1  | 5  | 21.73  | 21.31  | 21.49  |                     |          |
| 1.4             | 16QAM | 3  | 0  | 21.41  | 21.33  | 21.23  |                     |          |
| 1.4             | 16QAM | 3  | 1  | 21.39  | 21.08  | 21.28  |                     |          |
| 1.4             | 16QAM | 3  | 2  | 21.42  | 21.27  | 21.08  |                     |          |
| 1.4             | 16QAM | 6  | 0  | 20.54  | 20.30  | 20.40  | 21.0                | 0-2      |



**<LTE Band 2>**

| 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         |            |         |           | 18700                 | 18900                    | 19100                  |                     |          |
| Frequency (MHz) |            |         |           | 1860                  | 1880                     | 1900                   |                     |          |
| 20              | QPSK       | 1       | 0         | 22.88                 | 22.86                    | 22.98                  |                     |          |
| 20              | QPSK       | 1       | 49        | 22.21                 | 22.27                    | 22.43                  | 23.0                | 0        |
| 20              | QPSK       | 1       | 99        | 22.45                 | 22.35                    | 22.49                  |                     |          |
| 20              | QPSK       | 50      | 0         | 21.48                 | 21.59                    | 21.78                  |                     |          |
| 20              | QPSK       | 50      | 24        | 21.33                 | 21.47                    | 21.46                  | 22.0                | 0-1      |
| 20              | QPSK       | 50      | 49        | 21.37                 | 21.41                    | 21.36                  |                     |          |
| 20              | QPSK       | 100     | 0         | 21.37                 | 21.50                    | 21.59                  |                     |          |
| 20              | 16QAM      | 1       | 0         | 21.97                 | 21.94                    | 21.95                  | 22.0                | 0-1      |
| 20              | 16QAM      | 1       | 49        | 21.60                 | 21.73                    | 21.76                  |                     |          |
| 20              | 16QAM      | 1       | 99        | 21.81                 | 21.45                    | 21.76                  |                     |          |
| 20              | 16QAM      | 50      | 0         | 20.75                 | 21.05                    | 20.96                  | 21.5                | 0-2      |
| 20              | 16QAM      | 50      | 24        | 20.82                 | 20.81                    | 20.81                  |                     |          |
| 20              | 16QAM      | 50      | 49        | 20.84                 | 20.71                    | 20.91                  |                     |          |
| 20              | 16QAM      | 100     | 0         | 20.69                 | 20.78                    | 20.93                  |                     |          |
| Channel         |            |         |           | 18675                 | 18900                    | 19125                  | Tune up Limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 1857.5                | 1880                     | 1902.5                 |                     |          |
| 15              | QPSK       | 1       | 0         | 22.86                 | 22.77                    | 22.94                  | 23.0                | 0        |
| 15              | QPSK       | 1       | 37        | 22.26                 | 22.29                    | 22.36                  |                     |          |
| 15              | QPSK       | 1       | 74        | 22.46                 | 22.39                    | 22.37                  |                     |          |
| 15              | QPSK       | 36      | 0         | 21.63                 | 21.67                    | 21.69                  | 22.0                | 0-1      |
| 15              | QPSK       | 36      | 18        | 21.39                 | 21.51                    | 21.50                  |                     |          |
| 15              | QPSK       | 36      | 37        | 21.43                 | 21.58                    | 21.40                  |                     |          |
| 15              | QPSK       | 75      | 0         | 21.56                 | 21.56                    | 21.57                  |                     |          |
| 15              | 16QAM      | 1       | 0         | 21.87                 | 21.89                    | 21.92                  | 22.0                | 0-1      |
| 15              | 16QAM      | 1       | 37        | 21.42                 | 21.47                    | 21.77                  |                     |          |
| 15              | 16QAM      | 1       | 74        | 21.69                 | 21.54                    | 21.63                  |                     |          |
| 15              | 16QAM      | 36      | 0         | 20.79                 | 20.67                    | 20.88                  | 21.5                | 0-2      |
| 15              | 16QAM      | 36      | 18        | 20.76                 | 20.69                    | 20.86                  |                     |          |
| 15              | 16QAM      | 36      | 37        | 20.85                 | 20.62                    | 20.83                  |                     |          |
| 15              | 16QAM      | 75      | 0         | 20.71                 | 20.73                    | 20.94                  |                     |          |
| Channel         |            |         |           | 18650                 | 18900                    | 19150                  | Tune up Limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 1855                  | 1880                     | 1905                   |                     |          |
| 10              | QPSK       | 1       | 0         | 22.61                 | 22.66                    | 22.77                  | 23.0                | 0        |
| 10              | QPSK       | 1       | 24        | 22.28                 | 22.45                    | 22.42                  |                     |          |
| 10              | QPSK       | 1       | 49        | 22.33                 | 22.36                    | 22.28                  |                     |          |
| 10              | QPSK       | 25      | 0         | 21.36                 | 21.57                    | 21.54                  | 22.0                | 0-1      |
| 10              | QPSK       | 25      | 12        | 21.19                 | 21.49                    | 21.48                  |                     |          |
| 10              | QPSK       | 25      | 24        | 21.38                 | 21.49                    | 21.42                  |                     |          |
| 10              | QPSK       | 50      | 0         | 21.31                 | 21.52                    | 21.42                  |                     |          |
| 10              | 16QAM      | 1       | 0         | 21.98                 | 21.85                    | 21.89                  | 22.0                | 0-1      |
| 10              | 16QAM      | 1       | 24        | 21.59                 | 21.74                    | 21.67                  |                     |          |
| 10              | 16QAM      | 1       | 49        | 21.50                 | 21.65                    | 21.59                  |                     |          |
| 10              | 16QAM      | 25      | 0         | 20.67                 | 20.80                    | 20.71                  | 21.5                | 0-2      |
| 10              | 16QAM      | 25      | 12        | 20.48                 | 20.67                    | 20.60                  |                     |          |
| 10              | 16QAM      | 25      | 24        | 20.43                 | 20.54                    | 20.72                  |                     |          |
| 10              | 16QAM      | 50      | 0         | 20.58                 | 20.70                    | 20.60                  |                     |          |



| Channel         |       |    |    | 18625  | 18900 | 19175  | Tune up Limit (dBm) | MPR (dB) |
|-----------------|-------|----|----|--------|-------|--------|---------------------|----------|
| Frequency (MHz) |       |    |    | 1852.5 | 1880  | 1907.5 |                     |          |
| 5               | QPSK  | 1  | 0  | 22.38  | 22.58 | 22.54  | 23.0                | 0        |
| 5               | QPSK  | 1  | 12 | 22.35  | 22.45 | 22.37  |                     |          |
| 5               | QPSK  | 1  | 24 | 22.29  | 22.48 | 22.17  |                     |          |
| 5               | QPSK  | 12 | 0  | 21.33  | 21.57 | 21.48  | 22.0                | 0-1      |
| 5               | QPSK  | 12 | 6  | 21.24  | 21.50 | 21.46  |                     |          |
| 5               | QPSK  | 12 | 11 | 21.23  | 21.48 | 21.42  |                     |          |
| 5               | QPSK  | 25 | 0  | 21.28  | 21.45 | 21.42  |                     |          |
| 5               | 16QAM | 1  | 0  | 21.36  | 21.78 | 21.71  | 22.0                | 0-1      |
| 5               | 16QAM | 1  | 12 | 21.85  | 21.95 | 21.65  |                     |          |
| 5               | 16QAM | 1  | 24 | 21.44  | 21.84 | 21.19  |                     |          |
| 5               | 16QAM | 12 | 0  | 20.49  | 20.68 | 20.58  | 21.5                | 0-2      |
| 5               | 16QAM | 12 | 6  | 20.60  | 20.57 | 20.49  |                     |          |
| 5               | 16QAM | 12 | 11 | 20.53  | 20.61 | 20.52  |                     |          |
| 5               | 16QAM | 25 | 0  | 20.45  | 20.66 | 20.60  |                     |          |
| Channel         |       |    |    | 18615  | 18900 | 19185  | Tune up Limit (dBm) | MPR (dB) |
| Frequency (MHz) |       |    |    | 1851.5 | 1880  | 1908.5 |                     |          |
| 3               | QPSK  | 1  | 0  | 22.42  | 22.59 | 22.35  | 23.0                | 0        |
| 3               | QPSK  | 1  | 7  | 22.23  | 22.40 | 22.27  |                     |          |
| 3               | QPSK  | 1  | 14 | 22.36  | 22.54 | 22.28  |                     |          |
| 3               | QPSK  | 8  | 0  | 21.32  | 21.50 | 21.42  | 22.0                | 0-1      |
| 3               | QPSK  | 8  | 4  | 21.32  | 21.46 | 21.34  |                     |          |
| 3               | QPSK  | 8  | 7  | 21.20  | 21.47 | 21.34  |                     |          |
| 3               | QPSK  | 15 | 0  | 21.33  | 21.48 | 21.23  |                     |          |
| 3               | 16QAM | 1  | 0  | 21.58  | 21.71 | 21.88  | 22.0                | 0-1      |
| 3               | 16QAM | 1  | 7  | 21.73  | 21.66 | 21.53  |                     |          |
| 3               | 16QAM | 1  | 14 | 21.37  | 21.83 | 21.10  |                     |          |
| 3               | 16QAM | 8  | 0  | 20.43  | 20.70 | 20.65  | 21.5                | 0-2      |
| 3               | 16QAM | 8  | 4  | 20.41  | 20.57 | 20.57  |                     |          |
| 3               | 16QAM | 8  | 7  | 20.52  | 20.75 | 20.55  |                     |          |
| 3               | 16QAM | 15 | 0  | 20.51  | 20.68 | 20.48  |                     |          |
| Channel         |       |    |    | 18607  | 18900 | 19193  | Tune up Limit (dBm) | MPR (dB) |
| Frequency (MHz) |       |    |    | 1850.7 | 1880  | 1909.3 |                     |          |
| 1.4             | QPSK  | 1  | 0  | 22.39  | 22.48 | 22.29  | 23.0                | 0        |
| 1.4             | QPSK  | 1  | 2  | 22.34  | 22.42 | 22.35  |                     |          |
| 1.4             | QPSK  | 1  | 5  | 22.29  | 22.48 | 22.28  |                     |          |
| 1.4             | QPSK  | 3  | 0  | 22.50  | 22.49 | 22.35  |                     |          |
| 1.4             | QPSK  | 3  | 1  | 22.43  | 22.55 | 22.43  |                     |          |
| 1.4             | QPSK  | 3  | 2  | 22.45  | 22.61 | 22.35  | 22.0                | 0-1      |
| 1.4             | QPSK  | 6  | 0  | 21.24  | 21.40 | 21.39  |                     |          |
| 1.4             | 16QAM | 1  | 0  | 21.47  | 21.74 | 21.87  | 22.0                | 0-1      |
| 1.4             | 16QAM | 1  | 2  | 21.96  | 21.72 | 21.77  |                     |          |
| 1.4             | 16QAM | 1  | 5  | 21.41  | 21.89 | 21.46  |                     |          |
| 1.4             | 16QAM | 3  | 0  | 21.50  | 21.64 | 21.43  |                     |          |
| 1.4             | 16QAM | 3  | 1  | 21.53  | 21.65 | 21.47  |                     |          |
| 1.4             | 16QAM | 3  | 2  | 21.33  | 21.42 | 21.44  |                     |          |
| 1.4             | 16QAM | 6  | 0  | 20.48  | 20.74 | 20.63  | 21.5                | 0-2      |

**<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         | 21.90                 | 21.94                    | 21.95                  |                     |          |
| 20              | QPSK       | 1       | 49        | 21.36                 | 21.46                    | 21.43                  | 22.0                | 0        |
| 20              | QPSK       | 1       | 99        | 21.38                 | 21.30                    | 21.48                  |                     |          |
| 20              | QPSK       | 50      | 0         | 20.85                 | 20.86                    | 20.88                  |                     |          |
| 20              | QPSK       | 50      | 24        | 20.75                 | 20.75                    | 20.75                  | 21.0                | 0-1      |
| 20              | QPSK       | 50      | 49        | 20.79                 | 20.79                    | 20.77                  |                     |          |
| 20              | QPSK       | 100     | 0         | 20.74                 | 20.71                    | 20.76                  |                     |          |
| 20              | 16QAM      | 1       | 0         | 21.19                 | 21.13                    | 20.93                  | 21.5                | 0-1      |
| 20              | 16QAM      | 1       | 49        | 20.78                 | 21.12                    | 20.77                  |                     |          |
| 20              | 16QAM      | 1       | 99        | 20.91                 | 20.75                    | 20.75                  |                     |          |
| 20              | 16QAM      | 50      | 0         | 19.73                 | 19.80                    | 19.65                  | 20.0                | 0-2      |
| 20              | 16QAM      | 50      | 24        | 19.42                 | 19.59                    | 19.58                  |                     |          |
| 20              | 16QAM      | 50      | 49        | 19.57                 | 19.48                    | 19.44                  |                     |          |
| 20              | 16QAM      | 100     | 0         | 19.64                 | 19.68                    | 19.56                  |                     |          |
| Channel         |            |         |           | 20825                 | 21100                    | 21375                  | Tune up Limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 2507.5                | 2535                     | 2562.5                 |                     |          |
| 15              | QPSK       | 1       | 0         | 21.74                 | 21.73                    | 21.77                  | 22.0                | 0        |
| 15              | QPSK       | 1       | 37        | 21.43                 | 21.41                    | 21.37                  |                     |          |
| 15              | QPSK       | 1       | 74        | 21.57                 | 21.37                    | 21.40                  |                     |          |
| 15              | QPSK       | 36      | 0         | 20.80                 | 20.78                    | 20.74                  | 21.0                | 0-1      |
| 15              | QPSK       | 36      | 18        | 20.65                 | 20.62                    | 20.64                  |                     |          |
| 15              | QPSK       | 36      | 37        | 20.67                 | 20.59                    | 20.63                  |                     |          |
| 15              | QPSK       | 75      | 0         | 20.78                 | 20.66                    | 20.71                  |                     |          |
| 15              | 16QAM      | 1       | 0         | 21.35                 | 21.12                    | 21.09                  | 21.5                | 0-1      |
| 15              | 16QAM      | 1       | 37        | 20.94                 | 20.80                    | 20.81                  |                     |          |
| 15              | 16QAM      | 1       | 74        | 20.87                 | 20.93                    | 20.87                  |                     |          |
| 15              | 16QAM      | 36      | 0         | 19.87                 | 19.81                    | 19.68                  | 20.0                | 0-2      |
| 15              | 16QAM      | 36      | 18        | 19.57                 | 19.50                    | 19.61                  |                     |          |
| 15              | 16QAM      | 36      | 37        | 19.56                 | 19.51                    | 19.58                  |                     |          |
| 15              | 16QAM      | 75      | 0         | 19.82                 | 19.63                    | 19.53                  |                     |          |

| Channel         |       |    |    | 20800  | 21100 | 21400  | Tune up<br>Limit<br>(dBm) | MPR<br>(dB) |
|-----------------|-------|----|----|--------|-------|--------|---------------------------|-------------|
| Frequency (MHz) |       |    |    | 2505   | 2535  | 2565   |                           |             |
| 10              | QPSK  | 1  | 0  | 21.65  | 21.71 | 21.54  | 22.0                      | 0           |
| 10              | QPSK  | 1  | 24 | 21.45  | 21.54 | 21.48  |                           |             |
| 10              | QPSK  | 1  | 49 | 21.46  | 21.49 | 21.52  |                           |             |
| 10              | QPSK  | 25 | 0  | 20.55  | 20.72 | 20.64  | 21.0                      | 0-1         |
| 10              | QPSK  | 25 | 12 | 20.45  | 20.51 | 20.59  |                           |             |
| 10              | QPSK  | 25 | 24 | 20.48  | 20.54 | 20.55  |                           |             |
| 10              | QPSK  | 50 | 0  | 20.58  | 20.60 | 20.69  | 21.5                      | 0-1         |
| 10              | 16QAM | 1  | 0  | 21.00  | 21.32 | 21.36  |                           |             |
| 10              | 16QAM | 1  | 24 | 20.97  | 21.07 | 21.12  |                           |             |
| 10              | 16QAM | 1  | 49 | 20.99  | 20.95 | 20.79  | 20.0                      | 0-2         |
| 10              | 16QAM | 25 | 0  | 19.49  | 19.58 | 19.74  |                           |             |
| 10              | 16QAM | 25 | 12 | 19.43  | 19.53 | 19.52  |                           |             |
| 10              | 16QAM | 25 | 24 | 19.47  | 19.50 | 19.60  | 20.0                      | 0-2         |
| 10              | 16QAM | 50 | 0  | 19.56  | 19.53 | 19.65  |                           |             |
| Channel         |       |    |    | 20775  | 21100 | 21425  | Tune up<br>Limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 2502.5 | 2535  | 2567.5 |                           |             |
| 5               | QPSK  | 1  | 0  | 21.48  | 21.54 | 21.58  | 22.0                      | 0           |
| 5               | QPSK  | 1  | 12 | 21.40  | 21.49 | 21.49  |                           |             |
| 5               | QPSK  | 1  | 24 | 21.47  | 21.46 | 21.42  |                           |             |
| 5               | QPSK  | 12 | 0  | 20.63  | 20.57 | 20.59  | 21.0                      | 0-1         |
| 5               | QPSK  | 12 | 6  | 20.45  | 20.51 | 20.55  |                           |             |
| 5               | QPSK  | 12 | 11 | 20.44  | 20.53 | 20.54  |                           |             |
| 5               | QPSK  | 25 | 0  | 20.47  | 20.51 | 20.54  | 21.5                      | 0-1         |
| 5               | 16QAM | 1  | 0  | 20.96  | 21.17 | 20.99  |                           |             |
| 5               | 16QAM | 1  | 12 | 20.79  | 21.14 | 20.93  |                           |             |
| 5               | 16QAM | 1  | 24 | 20.63  | 20.98 | 20.76  | 20.0                      | 0-2         |
| 5               | 16QAM | 12 | 0  | 19.67  | 19.63 | 19.58  |                           |             |
| 5               | 16QAM | 12 | 6  | 19.52  | 19.54 | 19.54  |                           |             |
| 5               | 16QAM | 12 | 11 | 19.53  | 19.45 | 19.54  | 20.0                      | 0-2         |
| 5               | 16QAM | 25 | 0  | 19.49  | 19.49 | 19.61  |                           |             |

**Reduced Average RF Power (Proximity Sensor Active)**
**<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         | 16.68                 | 16.69                    | 16.59                  |                     |          |
| 10              | QPSK       | 1       | 24        | 16.67                 | 16.62                    | 16.33                  | 17.0                | 0        |
| 10              | QPSK       | 1       | 49        | 16.59                 | 16.27                    | 16.16                  |                     |          |
| 10              | QPSK       | 25      | 0         | 15.82                 | 15.77                    | 15.42                  |                     |          |
| 10              | QPSK       | 25      | 12        | 15.87                 | 15.62                    | 15.43                  | 16.5                | 0-1      |
| 10              | QPSK       | 25      | 24        | 15.85                 | 15.53                    | 15.23                  |                     |          |
| 10              | QPSK       | 50      | 0         | 15.84                 | 15.66                    | 15.44                  |                     |          |
| 10              | 16QAM      | 1       | 0         | 16.29                 | 15.69                    | 15.94                  | 16.5                | 0-1      |
| 10              | 16QAM      | 1       | 24        | 16.07                 | 15.68                    | 15.90                  |                     |          |
| 10              | 16QAM      | 1       | 49        | 16.11                 | 15.40                    | 15.60                  |                     |          |
| 10              | 16QAM      | 25      | 0         | 14.91                 | 15.10                    | 14.95                  | 15.5                | 0-2      |
| 10              | 16QAM      | 25      | 12        | 14.83                 | 14.99                    | 14.94                  |                     |          |
| 10              | 16QAM      | 25      | 24        | 14.86                 | 15.01                    | 14.92                  |                     |          |
| 10              | 16QAM      | 50      | 0         | 14.98                 | 14.79                    | 14.53                  |                     |          |
| Channel         |            |         |           | 20425                 | 20525                    | 20625                  | Tune up Limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 826.5                 | 836.5                    | 846.5                  |                     |          |
| 5               | QPSK       | 1       | 0         | 16.75                 | 16.63                    | 16.35                  |                     |          |
| 5               | QPSK       | 1       | 12        | 16.72                 | 16.62                    | 16.34                  | 17.0                | 0        |
| 5               | QPSK       | 1       | 24        | 16.65                 | 16.48                    | 16.17                  |                     |          |
| 5               | QPSK       | 12      | 0         | 15.87                 | 15.74                    | 15.39                  |                     |          |
| 5               | QPSK       | 12      | 6         | 15.82                 | 15.59                    | 15.39                  | 16.5                | 0-1      |
| 5               | QPSK       | 12      | 11        | 15.85                 | 15.66                    | 15.35                  |                     |          |
| 5               | QPSK       | 25      | 0         | 15.84                 | 15.60                    | 15.31                  |                     |          |
| 5               | 16QAM      | 1       | 0         | 16.31                 | 16.09                    | 15.64                  | 16.5                | 0-1      |
| 5               | 16QAM      | 1       | 12        | 16.26                 | 15.91                    | 15.61                  |                     |          |
| 5               | 16QAM      | 1       | 24        | 15.66                 | 16.08                    | 15.49                  |                     |          |
| 5               | 16QAM      | 12      | 0         | 14.94                 | 14.93                    | 14.96                  | 15.5                | 0-2      |
| 5               | 16QAM      | 12      | 6         | 14.93                 | 14.95                    | 14.94                  |                     |          |
| 5               | 16QAM      | 12      | 11        | 14.87                 | 14.93                    | 14.95                  |                     |          |
| 5               | 16QAM      | 25      | 0         | 14.86                 | 14.67                    | 14.42                  |                     |          |



| Channel         |       |    |    | 20415 | 20525 | 20635 | Tune up<br>Limit<br>(dBm) | MPR<br>(dB)        |
|-----------------|-------|----|----|-------|-------|-------|---------------------------|--------------------|
| Frequency (MHz) |       |    |    | 825.5 | 836.5 | 847.5 |                           |                    |
| 3               | QPSK  | 1  | 0  | 16.72 | 16.61 | 16.35 | 17.0                      | 0                  |
| 3               | QPSK  | 1  | 7  | 16.61 | 16.59 | 16.32 |                           |                    |
| 3               | QPSK  | 1  | 14 | 16.71 | 16.45 | 16.26 |                           |                    |
| 3               | QPSK  | 8  | 0  | 15.83 | 15.75 | 15.37 | 16.5                      | 0-1                |
| 3               | QPSK  | 8  | 4  | 15.85 | 15.64 | 15.29 |                           |                    |
| 3               | QPSK  | 8  | 7  | 15.85 | 15.66 | 15.36 |                           |                    |
| 3               | QPSK  | 15 | 0  | 15.83 | 15.64 | 15.39 | 16.5                      | 0-1                |
| 3               | 16QAM | 1  | 0  | 16.21 | 16.19 | 16.03 |                           |                    |
| 3               | 16QAM | 1  | 7  | 16.10 | 15.94 | 16.02 |                           |                    |
| 3               | 16QAM | 1  | 14 | 15.99 | 16.18 | 15.58 | 15.5                      | 0-2                |
| 3               | 16QAM | 8  | 0  | 14.97 | 14.96 | 14.92 |                           |                    |
| 3               | 16QAM | 8  | 4  | 14.78 | 14.96 | 14.85 |                           |                    |
| 3               | 16QAM | 8  | 7  | 15.03 | 14.98 | 14.65 | 15.5                      | 0-2                |
| 3               | 16QAM | 15 | 0  | 14.98 | 14.85 | 14.53 |                           |                    |
| Channel         |       |    |    | 20407 | 20525 | 20643 | Tune up<br>Limit<br>(dBm) | Target MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 824.7 | 836.5 | 848.3 |                           |                    |
| 1.4             | QPSK  | 1  | 0  | 16.83 | 16.75 | 16.39 | 17.0                      | 0                  |
| 1.4             | QPSK  | 1  | 2  | 16.71 | 16.53 | 16.36 |                           |                    |
| 1.4             | QPSK  | 1  | 5  | 16.82 | 16.57 | 16.37 |                           |                    |
| 1.4             | QPSK  | 3  | 0  | 16.71 | 16.55 | 16.38 | 16.5                      | 0-1                |
| 1.4             | QPSK  | 3  | 1  | 16.79 | 16.72 | 16.26 |                           |                    |
| 1.4             | QPSK  | 3  | 2  | 16.81 | 16.56 | 16.38 |                           |                    |
| 1.4             | QPSK  | 6  | 0  | 15.80 | 15.68 | 15.37 | 16.5                      | 0-1                |
| 1.4             | 16QAM | 1  | 0  | 16.05 | 16.01 | 16.03 |                           |                    |
| 1.4             | 16QAM | 1  | 2  | 16.04 | 15.97 | 16.02 |                           |                    |
| 1.4             | 16QAM | 1  | 5  | 16.00 | 15.86 | 15.94 | 16.5                      | 0-1                |
| 1.4             | 16QAM | 3  | 0  | 15.91 | 15.75 | 15.56 |                           |                    |
| 1.4             | 16QAM | 3  | 1  | 15.66 | 15.54 | 15.49 |                           |                    |
| 1.4             | 16QAM | 3  | 2  | 15.96 | 15.90 | 15.23 | 15.5                      | 0-2                |
| 1.4             | 16QAM | 6  | 0  | 14.92 | 14.71 | 14.48 |                           |                    |



**<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         | 13.71                 | 13.66                    | 13.67                  | 14.0                | 0        |
| 20              | QPSK       | 1       | 49        | 13.32                 | 13.14                    | 13.20                  |                     |          |
| 20              | QPSK       | 1       | 99        | 13.11                 | 13.11                    | 13.01                  |                     |          |
| 20              | QPSK       | 50      | 0         | 12.54                 | 12.41                    | 12.42                  | 13.0                | 0-1      |
| 20              | QPSK       | 50      | 24        | 12.30                 | 12.21                    | 12.16                  |                     |          |
| 20              | QPSK       | 50      | 49        | 12.19                 | 12.07                    | 12.05                  |                     |          |
| 20              | QPSK       | 100     | 0         | 12.29                 | 12.28                    | 12.18                  | 13.0                | 0-1      |
| 20              | 16QAM      | 1       | 0         | 12.87                 | 12.88                    | 12.74                  |                     |          |
| 20              | 16QAM      | 1       | 49        | 12.33                 | 12.75                    | 12.31                  |                     |          |
| 20              | 16QAM      | 1       | 99        | 12.14                 | 12.10                    | 12.33                  | 12.0                | 0-2      |
| 20              | 16QAM      | 50      | 0         | 11.60                 | 11.57                    | 11.54                  |                     |          |
| 20              | 16QAM      | 50      | 24        | 11.39                 | 11.38                    | 11.21                  |                     |          |
| 20              | 16QAM      | 50      | 49        | 11.29                 | 11.20                    | 11.18                  | 12.0                | 0-2      |
| 20              | 16QAM      | 100     | 0         | 11.46                 | 11.44                    | 11.33                  |                     |          |
| Channel         |            |         |           | 20025                 | 20175                    | 20325                  | Tune up Limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 1717.5                | 1732.5                   | 1747.5                 |                     |          |
| 15              | QPSK       | 1       | 0         | 13.78                 | 13.74                    | 13.76                  | 14.0                | 0        |
| 15              | QPSK       | 1       | 37        | 13.37                 | 13.25                    | 13.27                  |                     |          |
| 15              | QPSK       | 1       | 74        | 13.25                 | 13.16                    | 13.19                  |                     |          |
| 15              | QPSK       | 36      | 0         | 12.58                 | 12.49                    | 12.46                  | 13.0                | 0-1      |
| 15              | QPSK       | 36      | 18        | 12.33                 | 12.31                    | 12.19                  |                     |          |
| 15              | QPSK       | 36      | 37        | 12.25                 | 12.16                    | 12.18                  |                     |          |
| 15              | QPSK       | 75      | 0         | 12.37                 | 12.35                    | 12.28                  | 13.0                | 0-1      |
| 15              | 16QAM      | 1       | 0         | 12.88                 | 12.77                    | 12.95                  |                     |          |
| 15              | 16QAM      | 1       | 37        | 12.57                 | 12.54                    | 12.48                  |                     |          |
| 15              | 16QAM      | 1       | 74        | 12.37                 | 12.34                    | 12.24                  | 12.0                | 0-2      |
| 15              | 16QAM      | 36      | 0         | 11.65                 | 11.69                    | 11.61                  |                     |          |
| 15              | 16QAM      | 36      | 18        | 11.53                 | 11.39                    | 11.31                  |                     |          |
| 15              | 16QAM      | 36      | 37        | 11.39                 | 11.36                    | 11.35                  | 12.0                | 0-2      |
| 15              | 16QAM      | 75      | 0         | 11.45                 | 11.52                    | 11.36                  |                     |          |
| Channel         |            |         |           | 20000                 | 20175                    | 20350                  | Tune up Limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 1715                  | 1732.5                   | 1750                   |                     |          |
| 10              | QPSK       | 1       | 0         | 13.74                 | 13.59                    | 13.56                  | 14.0                | 0        |
| 10              | QPSK       | 1       | 24        | 13.45                 | 13.33                    | 13.41                  |                     |          |
| 10              | QPSK       | 1       | 49        | 13.33                 | 13.25                    | 13.17                  |                     |          |
| 10              | QPSK       | 25      | 0         | 12.39                 | 12.34                    | 12.32                  | 13.0                | 0-1      |
| 10              | QPSK       | 25      | 12        | 12.29                 | 12.24                    | 12.10                  |                     |          |
| 10              | QPSK       | 25      | 24        | 12.22                 | 12.16                    | 12.12                  |                     |          |
| 10              | QPSK       | 50      | 0         | 12.34                 | 12.27                    | 12.22                  | 13.0                | 0-1      |
| 10              | 16QAM      | 1       | 0         | 12.88                 | 12.78                    | 12.95                  |                     |          |
| 10              | 16QAM      | 1       | 24        | 12.65                 | 12.67                    | 12.38                  |                     |          |
| 10              | 16QAM      | 1       | 49        | 12.83                 | 12.85                    | 12.16                  | 12.0                | 0-2      |
| 10              | 16QAM      | 25      | 0         | 11.48                 | 11.54                    | 11.46                  |                     |          |
| 10              | 16QAM      | 25      | 12        | 11.41                 | 11.39                    | 11.36                  |                     |          |
| 10              | 16QAM      | 25      | 24        | 11.33                 | 11.18                    | 11.34                  | 12.0                | 0-2      |
| 10              | 16QAM      | 50      | 0         | 11.44                 | 11.41                    | 11.37                  |                     |          |

| Channel         |       |    |    | 19975  | 20175  | 20375  | Tune up Limit (dBm) | MPR (dB) |
|-----------------|-------|----|----|--------|--------|--------|---------------------|----------|
| Frequency (MHz) |       |    |    | 1712.5 | 1732.5 | 1752.5 |                     |          |
| 5               | QPSK  | 1  | 0  | 13.63  | 13.51  | 13.35  | 14.0                | 0        |
| 5               | QPSK  | 1  | 12 | 13.46  | 13.32  | 13.29  |                     |          |
| 5               | QPSK  | 1  | 24 | 13.45  | 13.41  | 13.20  |                     |          |
| 5               | QPSK  | 12 | 0  | 12.40  | 12.28  | 12.15  | 13.0                | 0-1      |
| 5               | QPSK  | 12 | 6  | 12.39  | 12.15  | 12.17  |                     |          |
| 5               | QPSK  | 12 | 11 | 12.35  | 12.18  | 12.16  |                     |          |
| 5               | QPSK  | 25 | 0  | 12.41  | 12.17  | 12.19  |                     |          |
| 5               | 16QAM | 1  | 0  | 12.87  | 12.62  | 12.51  | 13.0                | 0-1      |
| 5               | 16QAM | 1  | 12 | 12.78  | 12.54  | 12.44  |                     |          |
| 5               | 16QAM | 1  | 24 | 12.23  | 12.86  | 12.30  |                     |          |
| 5               | 16QAM | 12 | 0  | 11.60  | 11.47  | 11.31  | 12.0                | 0-2      |
| 5               | 16QAM | 12 | 6  | 11.40  | 11.40  | 11.30  |                     |          |
| 5               | 16QAM | 12 | 11 | 11.48  | 11.35  | 11.27  |                     |          |
| 5               | 16QAM | 25 | 0  | 11.47  | 11.46  | 11.30  |                     |          |
| Channel         |       |    |    | 19965  | 20175  | 20385  | Tune up Limit (dBm) | MPR (dB) |
| Frequency (MHz) |       |    |    | 1711.5 | 1732.5 | 1753.5 |                     |          |
| 3               | QPSK  | 1  | 0  | 13.58  | 13.57  | 13.37  | 14.0                | 0        |
| 3               | QPSK  | 1  | 7  | 13.47  | 13.40  | 13.23  |                     |          |
| 3               | QPSK  | 1  | 14 | 13.42  | 13.42  | 13.23  |                     |          |
| 3               | QPSK  | 8  | 0  | 12.38  | 12.30  | 12.18  | 13.0                | 0-1      |
| 3               | QPSK  | 8  | 4  | 12.35  | 12.19  | 12.13  |                     |          |
| 3               | QPSK  | 8  | 7  | 12.32  | 12.19  | 12.12  |                     |          |
| 3               | QPSK  | 15 | 0  | 12.35  | 12.24  | 12.15  |                     |          |
| 3               | 16QAM | 1  | 0  | 12.41  | 12.80  | 12.23  | 13.0                | 0-1      |
| 3               | 16QAM | 1  | 7  | 12.84  | 12.47  | 12.84  |                     |          |
| 3               | 16QAM | 1  | 14 | 12.59  | 12.93  | 12.28  |                     |          |
| 3               | 16QAM | 8  | 0  | 11.67  | 11.49  | 11.41  | 12.0                | 0-2      |
| 3               | 16QAM | 8  | 4  | 11.41  | 11.38  | 11.38  |                     |          |
| 3               | 16QAM | 8  | 7  | 11.58  | 11.30  | 11.38  |                     |          |
| 3               | 16QAM | 15 | 0  | 11.50  | 11.53  | 11.39  |                     |          |
| Channel         |       |    |    | 19957  | 20175  | 20393  | Tune up Limit (dBm) | MPR (dB) |
| Frequency (MHz) |       |    |    | 1710.7 | 1732.5 | 1754.3 |                     |          |
| 1.4             | QPSK  | 1  | 0  | 13.47  | 13.41  | 13.21  | 14.0                | 0        |
| 1.4             | QPSK  | 1  | 2  | 13.49  | 13.33  | 13.24  |                     |          |
| 1.4             | QPSK  | 1  | 5  | 13.35  | 13.37  | 13.26  |                     |          |
| 1.4             | QPSK  | 3  | 0  | 13.63  | 13.38  | 13.29  |                     |          |
| 1.4             | QPSK  | 3  | 1  | 13.49  | 13.34  | 13.24  |                     |          |
| 1.4             | QPSK  | 3  | 2  | 13.45  | 13.32  | 13.25  |                     |          |
| 1.4             | QPSK  | 6  | 0  | 12.34  | 12.28  | 12.15  | 13.0                | 0-1      |
| 1.4             | 16QAM | 1  | 0  | 12.65  | 12.93  | 12.73  | 13.0                | 0-1      |
| 1.4             | 16QAM | 1  | 2  | 12.91  | 12.57  | 12.79  |                     |          |
| 1.4             | 16QAM | 1  | 5  | 12.65  | 12.47  | 12.60  |                     |          |
| 1.4             | 16QAM | 3  | 0  | 12.50  | 12.36  | 12.07  |                     |          |
| 1.4             | 16QAM | 3  | 1  | 12.23  | 12.38  | 12.43  |                     |          |
| 1.4             | 16QAM | 3  | 2  | 12.51  | 12.33  | 12.41  |                     |          |
| 1.4             | 16QAM | 6  | 0  | 11.60  | 11.58  | 11.27  | 12.0                | 0-2      |

**<LTE Band 2>**

| 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         |            |         |           | 18700                 | 18900                    | 19100                  |                     |          |
| Frequency (MHz) |            |         |           | 1860                  | 1880                     | 1900                   |                     |          |
| 20              | QPSK       | 1       | 0         | 12.80                 | 12.72                    | 12.96                  |                     |          |
| 20              | QPSK       | 1       | 49        | 12.42                 | 12.48                    | 12.55                  | 14.0                | 0        |
| 20              | QPSK       | 1       | 99        | 12.19                 | 12.22                    | 12.08                  |                     |          |
| 20              | QPSK       | 50      | 0         | 11.67                 | 11.65                    | 11.94                  |                     |          |
| 20              | QPSK       | 50      | 24        | 11.45                 | 11.46                    | 11.64                  | 13.0                | 0-1      |
| 20              | QPSK       | 50      | 49        | 11.33                 | 11.48                    | 11.58                  |                     |          |
| 20              | QPSK       | 100     | 0         | 11.56                 | 11.57                    | 11.73                  |                     |          |
| 20              | 16QAM      | 1       | 0         | 11.75                 | 11.95                    | 12.57                  | 13.0                | 0-1      |
| 20              | 16QAM      | 1       | 49        | 11.50                 | 11.62                    | 11.79                  |                     |          |
| 20              | 16QAM      | 1       | 99        | 11.44                 | 11.66                    | 11.47                  |                     |          |
| 20              | 16QAM      | 50      | 0         | 10.65                 | 10.66                    | 10.93                  | 12.0                | 0-2      |
| 20              | 16QAM      | 50      | 24        | 10.35                 | 10.51                    | 10.66                  |                     |          |
| 20              | 16QAM      | 50      | 49        | 10.36                 | 10.43                    | 10.53                  |                     |          |
| 20              | 16QAM      | 100     | 0         | 10.41                 | 10.59                    | 10.75                  |                     |          |
| Channel         |            |         |           | 18675                 | 18900                    | 19125                  | Tune up Limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 1857.5                | 1880                     | 1902.5                 |                     |          |
| 15              | QPSK       | 1       | 0         | 12.84                 | 12.60                    | 13.03                  |                     |          |
| 15              | QPSK       | 1       | 37        | 12.32                 | 12.57                    | 12.70                  | 14.0                | 0        |
| 15              | QPSK       | 1       | 74        | 12.29                 | 12.26                    | 12.45                  |                     |          |
| 15              | QPSK       | 36      | 0         | 11.71                 | 11.69                    | 11.89                  |                     |          |
| 15              | QPSK       | 36      | 18        | 11.46                 | 11.56                    | 11.72                  | 13.0                | 0-1      |
| 15              | QPSK       | 36      | 37        | 11.46                 | 11.51                    | 11.60                  |                     |          |
| 15              | QPSK       | 75      | 0         | 11.61                 | 11.61                    | 11.67                  |                     |          |
| 15              | 16QAM      | 1       | 0         | 12.18                 | 12.27                    | 12.67                  | 13.0                | 0-1      |
| 15              | 16QAM      | 1       | 37        | 11.80                 | 12.25                    | 12.11                  |                     |          |
| 15              | 16QAM      | 1       | 74        | 11.45                 | 11.71                    | 11.47                  |                     |          |
| 15              | 16QAM      | 36      | 0         | 10.65                 | 10.73                    | 10.81                  | 12.0                | 0-2      |
| 15              | 16QAM      | 36      | 18        | 10.48                 | 10.57                    | 10.52                  |                     |          |
| 15              | 16QAM      | 36      | 37        | 10.54                 | 10.51                    | 10.63                  |                     |          |
| 15              | 16QAM      | 75      | 0         | 10.62                 | 10.57                    | 10.69                  |                     |          |
| Channel         |            |         |           | 18650                 | 18900                    | 19150                  | Tune up Limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 1855                  | 1880                     | 1905                   |                     |          |
| 10              | QPSK       | 1       | 0         | 12.61                 | 12.79                    | 12.97                  |                     |          |
| 10              | QPSK       | 1       | 24        | 12.44                 | 12.56                    | 12.70                  | 14.0                | 0        |
| 10              | QPSK       | 1       | 49        | 12.26                 | 12.62                    | 12.46                  |                     |          |
| 10              | QPSK       | 25      | 0         | 11.62                 | 11.65                    | 11.78                  |                     |          |
| 10              | QPSK       | 25      | 12        | 11.43                 | 11.62                    | 11.59                  | 13.0                | 0-1      |
| 10              | QPSK       | 25      | 24        | 11.37                 | 11.54                    | 11.52                  |                     |          |
| 10              | QPSK       | 50      | 0         | 11.48                 | 11.66                    | 11.62                  |                     |          |
| 10              | 16QAM      | 1       | 0         | 12.08                 | 11.92                    | 12.38                  | 13.0                | 0-1      |
| 10              | 16QAM      | 1       | 24        | 11.76                 | 11.78                    | 12.15                  |                     |          |
| 10              | 16QAM      | 1       | 49        | 11.61                 | 11.76                    | 11.69                  |                     |          |
| 10              | 16QAM      | 25      | 0         | 10.57                 | 10.80                    | 10.79                  | 12.0                | 0-2      |
| 10              | 16QAM      | 25      | 12        | 10.48                 | 10.53                    | 10.70                  |                     |          |
| 10              | 16QAM      | 25      | 24        | 10.43                 | 10.64                    | 10.70                  |                     |          |
| 10              | 16QAM      | 50      | 0         | 10.42                 | 10.72                    | 10.65                  |                     |          |



| Channel         |       |    |    | 18625  | 18900 | 19175  | Tune up Limit (dBm) | MPR (dB) |
|-----------------|-------|----|----|--------|-------|--------|---------------------|----------|
| Frequency (MHz) |       |    |    | 1852.5 | 1880  | 1907.5 |                     |          |
| 5               | QPSK  | 1  | 0  | 12.55  | 12.61 | 12.59  | 14.0                | 0        |
| 5               | QPSK  | 1  | 12 | 12.53  | 12.53 | 12.65  |                     |          |
| 5               | QPSK  | 1  | 24 | 12.45  | 12.47 | 12.33  |                     |          |
| 5               | QPSK  | 12 | 0  | 11.45  | 11.55 | 11.65  | 13.0                | 0-1      |
| 5               | QPSK  | 12 | 6  | 11.44  | 11.58 | 11.56  |                     |          |
| 5               | QPSK  | 12 | 11 | 11.37  | 11.71 | 11.55  |                     |          |
| 5               | QPSK  | 25 | 0  | 11.42  | 11.53 | 11.55  |                     |          |
| 5               | 16QAM | 1  | 0  | 11.72  | 11.64 | 11.96  | 13.0                | 0-1      |
| 5               | 16QAM | 1  | 12 | 11.93  | 12.34 | 12.29  |                     |          |
| 5               | 16QAM | 1  | 24 | 11.69  | 11.79 | 11.97  |                     |          |
| 5               | 16QAM | 12 | 0  | 10.50  | 10.67 | 10.62  | 12.0                | 0-2      |
| 5               | 16QAM | 12 | 6  | 10.45  | 10.53 | 10.65  |                     |          |
| 5               | 16QAM | 12 | 11 | 10.46  | 10.37 | 10.53  |                     |          |
| 5               | 16QAM | 25 | 0  | 10.47  | 10.62 | 10.62  |                     |          |
| Channel         |       |    |    | 18615  | 18900 | 19185  | Tune up Limit (dBm) | MPR (dB) |
| Frequency (MHz) |       |    |    | 1851.5 | 1880  | 1908.5 |                     |          |
| 3               | QPSK  | 1  | 0  | 12.52  | 12.61 | 12.54  | 14.0                | 0        |
| 3               | QPSK  | 1  | 7  | 12.33  | 12.64 | 12.58  |                     |          |
| 3               | QPSK  | 1  | 14 | 12.52  | 12.62 | 12.54  |                     |          |
| 3               | QPSK  | 8  | 0  | 11.36  | 11.56 | 11.50  | 13.0                | 0-1      |
| 3               | QPSK  | 8  | 4  | 11.43  | 11.65 | 11.55  |                     |          |
| 3               | QPSK  | 8  | 7  | 11.42  | 11.57 | 11.50  |                     |          |
| 3               | QPSK  | 15 | 0  | 11.45  | 11.52 | 11.51  |                     |          |
| 3               | 16QAM | 1  | 0  | 12.18  | 11.81 | 12.28  | 13.0                | 0-1      |
| 3               | 16QAM | 1  | 7  | 11.72  | 11.88 | 11.91  |                     |          |
| 3               | 16QAM | 1  | 14 | 11.63  | 12.00 | 12.01  |                     |          |
| 3               | 16QAM | 8  | 0  | 10.44  | 10.64 | 10.61  | 12.0                | 0-2      |
| 3               | 16QAM | 8  | 4  | 10.40  | 10.47 | 10.59  |                     |          |
| 3               | 16QAM | 8  | 7  | 10.58  | 10.67 | 10.55  |                     |          |
| 3               | 16QAM | 15 | 0  | 10.62  | 10.85 | 10.49  |                     |          |
| Channel         |       |    |    | 18607  | 18900 | 19193  | Tune up Limit (dBm) | MPR (dB) |
| Frequency (MHz) |       |    |    | 1850.7 | 1880  | 1909.3 |                     |          |
| 1.4             | QPSK  | 1  | 0  | 12.42  | 12.41 | 12.42  | 14.0                | 0        |
| 1.4             | QPSK  | 1  | 2  | 12.62  | 12.51 | 12.41  |                     |          |
| 1.4             | QPSK  | 1  | 5  | 12.48  | 12.48 | 12.46  |                     |          |
| 1.4             | QPSK  | 3  | 0  | 12.49  | 12.61 | 12.35  |                     |          |
| 1.4             | QPSK  | 3  | 1  | 12.36  | 12.47 | 12.49  |                     |          |
| 1.4             | QPSK  | 3  | 2  | 12.49  | 12.54 | 12.48  |                     |          |
| 1.4             | QPSK  | 6  | 0  | 11.41  | 11.63 | 11.51  | 13.0                | 0-1      |
| 1.4             | 16QAM | 1  | 0  | 11.88  | 11.87 | 11.87  | 13.0                | 0-1      |
| 1.4             | 16QAM | 1  | 2  | 11.51  | 12.13 | 11.66  |                     |          |
| 1.4             | 16QAM | 1  | 5  | 11.88  | 11.81 | 11.80  |                     |          |
| 1.4             | 16QAM | 3  | 0  | 11.54  | 11.69 | 11.72  |                     |          |
| 1.4             | 16QAM | 3  | 1  | 11.44  | 11.76 | 11.58  |                     |          |
| 1.4             | 16QAM | 3  | 2  | 11.65  | 11.79 | 11.71  |                     |          |
| 1.4             | 16QAM | 6  | 0  | 10.68  | 10.63 | 10.63  | 12.0                | 0-2      |

**<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         | 12.05                 | 11.74                    | 11.87                  |                     |          |
| 20              | QPSK       | 1       | 49        | 11.41                 | 11.27                    | 11.42                  | 13.0                | 0        |
| 20              | QPSK       | 1       | 99        | 11.54                 | 11.25                    | 11.28                  |                     |          |
| 20              | QPSK       | 50      | 0         | 11.00                 | 10.78                    | 10.82                  |                     |          |
| 20              | QPSK       | 50      | 24        | 10.65                 | 10.49                    | 10.59                  | 12.0                | 0-1      |
| 20              | QPSK       | 50      | 49        | 10.62                 | 10.51                    | 10.56                  |                     |          |
| 20              | QPSK       | 100     | 0         | 10.71                 | 10.67                    | 10.65                  |                     |          |
| 20              | 16QAM      | 1       | 0         | 11.40                 | 11.32                    | 11.12                  | 12.0                | 0-1      |
| 20              | 16QAM      | 1       | 49        | 10.98                 | 10.99                    | 10.37                  |                     |          |
| 20              | 16QAM      | 1       | 99        | 11.27                 | 10.47                    | 10.68                  |                     |          |
| 20              | 16QAM      | 50      | 0         | 10.00                 | 9.84                     | 9.85                   | 11.0                | 0-2      |
| 20              | 16QAM      | 50      | 24        | 9.66                  | 9.47                     | 9.65                   |                     |          |
| 20              | 16QAM      | 50      | 49        | 9.66                  | 9.51                     | 9.47                   |                     |          |
| 20              | 16QAM      | 100     | 0         | 9.84                  | 9.61                     | 9.65                   |                     |          |
| Channel         |            |         |           | 20825                 | 21100                    | 21375                  | Tune up Limit (dBm) | MPR (dB) |
| Frequency (MHz) |            |         |           | 2507.5                | 2535                     | 2562.5                 |                     |          |
| 15              | QPSK       | 1       | 0         | 12.02                 | 11.73                    | 11.85                  |                     |          |
| 15              | QPSK       | 1       | 37        | 11.42                 | 11.28                    | 11.50                  | 13.0                | 0        |
| 15              | QPSK       | 1       | 74        | 11.63                 | 11.57                    | 11.56                  |                     |          |
| 15              | QPSK       | 36      | 0         | 10.78                 | 10.92                    | 10.77                  |                     |          |
| 15              | QPSK       | 36      | 18        | 10.67                 | 10.60                    | 10.60                  | 12.0                | 0-1      |
| 15              | QPSK       | 36      | 37        | 10.66                 | 10.67                    | 10.56                  |                     |          |
| 15              | QPSK       | 75      | 0         | 10.77                 | 10.73                    | 10.71                  |                     |          |
| 15              | 16QAM      | 1       | 0         | 11.57                 | 11.33                    | 11.24                  | 12.0                | 0-1      |
| 15              | 16QAM      | 1       | 37        | 11.08                 | 10.79                    | 10.76                  |                     |          |
| 15              | 16QAM      | 1       | 74        | 10.96                 | 11.28                    | 11.00                  |                     |          |
| 15              | 16QAM      | 36      | 0         | 9.90                  | 9.78                     | 9.76                   | 11.0                | 0-2      |
| 15              | 16QAM      | 36      | 18        | 9.63                  | 9.62                     | 9.61                   |                     |          |
| 15              | 16QAM      | 36      | 37        | 9.68                  | 9.66                     | 9.55                   |                     |          |
| 15              | 16QAM      | 75      | 0         | 9.87                  | 9.78                     | 9.68                   |                     |          |

| Channel         |       |    |    | 20800  | 21100 | 21400  | Tune up<br>Limit<br>(dBm) | MPR<br>(dB) |
|-----------------|-------|----|----|--------|-------|--------|---------------------------|-------------|
| Frequency (MHz) |       |    |    | 2505   | 2535  | 2565   |                           |             |
| 10              | QPSK  | 1  | 0  | 11.80  | 11.82 | 11.81  | 13.0                      | 0           |
| 10              | QPSK  | 1  | 24 | 11.56  | 11.47 | 11.46  |                           |             |
| 10              | QPSK  | 1  | 49 | 11.52  | 11.56 | 11.40  |                           |             |
| 10              | QPSK  | 25 | 0  | 10.69  | 10.69 | 10.72  | 12.0                      | 0-1         |
| 10              | QPSK  | 25 | 12 | 10.51  | 10.50 | 10.56  |                           |             |
| 10              | QPSK  | 25 | 24 | 10.59  | 10.57 | 10.56  |                           |             |
| 10              | QPSK  | 50 | 0  | 10.51  | 10.53 | 10.60  | 12.0                      | 0-1         |
| 10              | 16QAM | 1  | 0  | 10.86  | 11.09 | 11.07  |                           |             |
| 10              | 16QAM | 1  | 24 | 10.82  | 10.74 | 10.74  |                           |             |
| 10              | 16QAM | 1  | 49 | 10.76  | 10.78 | 10.85  | 11.0                      | 0-2         |
| 10              | 16QAM | 25 | 0  | 9.68   | 9.59  | 9.66   |                           |             |
| 10              | 16QAM | 25 | 12 | 9.64   | 9.54  | 9.65   |                           |             |
| 10              | 16QAM | 25 | 24 | 9.72   | 9.58  | 9.60   | 11.0                      | 0-2         |
| 10              | 16QAM | 50 | 0  | 9.67   | 9.52  | 9.62   |                           |             |
| Channel         |       |    |    | 20775  | 21100 | 21425  | Tune up<br>Limit<br>(dBm) | MPR<br>(dB) |
| Frequency (MHz) |       |    |    | 2502.5 | 2535  | 2567.5 |                           |             |
| 5               | QPSK  | 1  | 0  | 11.70  | 11.41 | 11.36  | 13.0                      | 0           |
| 5               | QPSK  | 1  | 12 | 11.40  | 11.48 | 11.35  |                           |             |
| 5               | QPSK  | 1  | 24 | 11.60  | 11.33 | 11.46  |                           |             |
| 5               | QPSK  | 12 | 0  | 10.60  | 10.60 | 10.60  | 12.0                      | 0-1         |
| 5               | QPSK  | 12 | 6  | 10.62  | 10.55 | 10.58  |                           |             |
| 5               | QPSK  | 12 | 11 | 10.60  | 10.46 | 10.57  |                           |             |
| 5               | QPSK  | 25 | 0  | 10.52  | 10.57 | 10.62  | 12.0                      | 0-1         |
| 5               | 16QAM | 1  | 0  | 11.39  | 11.26 | 10.86  |                           |             |
| 5               | 16QAM | 1  | 12 | 10.98  | 10.82 | 10.83  |                           |             |
| 5               | 16QAM | 1  | 24 | 10.74  | 10.63 | 11.00  | 11.0                      | 0-2         |
| 5               | 16QAM | 12 | 0  | 9.61   | 9.67  | 9.73   |                           |             |
| 5               | 16QAM | 12 | 6  | 9.65   | 9.49  | 9.53   |                           |             |
| 5               | 16QAM | 12 | 11 | 9.61   | 9.70  | 9.58   | 11.0                      | 0-2         |
| 5               | 16QAM | 25 | 0  | 9.62   | 9.59  | 9.64   |                           |             |

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

1. Per KDB 248227, SAR for MIMO was measured with both transmitting simultaneously and was evaluated in dependently of SISO operation.
2. For SAR testing was performed on single antenna RF power in SISO mode is larger or equal to the single antenna RF power in MIMO mode, and for RF exposure assessment of MIMO mode simultaneous transmission exclusion analysis was performed with SAR test results of each antenna in SISO mode.
3. For 2.4GHz WLAN SISO SAR testing, highest average RF output power channel for the lowest data rate for 802.11b were selected for SAR evaluation. 802.11g/n HT20/HT40 were not investigated since the average output powers over all channels and data rates were not more than 0.25 dB higher than the tested channel in the lowest data rate of 802.11b mode.
4. For 2.4GHz WLAN MIMO SAR testing, highest average RF output power channel for the lowest data rate for 802.11n HT20 were selected for SAR evaluation. 802.11n HT40 were not investigated since the average output powers over all channels and data rates were not more than 0.25 dB higher than the tested channel in the lowest data rate of 802.11n HT20 mode.
5. For 5GHz WLAN SISO SAR testing, highest average RF output power channel for the lowest data rate for 802.11a were selected for SAR evaluation. 802.11n HT20/HT40 modes were not investigated since the average output powers over all channels and data rates were not more than 0.25 dB higher than the tested channel in the lowest data rate of 802.11a mode.
6. For 5GHz WLAN MIMO SAR testing, highest average RF output power channel for the lowest data rate for 802.11n HT20 were selected for SAR evaluation. 802.11n HT40 modes were not investigated since the average output powers over all channels and data rates were not more than 0.25 dB higher than the tested channel in the lowest data rate of 802.11n HT20 mode.

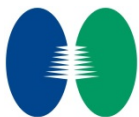
**<WLAN 2.4GHz>**

| WLAN 2.4GHz 802.11b Average Power (dBm) |                    |               |                    |                     |       |         |        | Tune up<br>Limit<br>(dBm) |
|-----------------------------------------|--------------------|---------------|--------------------|---------------------|-------|---------|--------|---------------------------|
| Power vs. Channel                       |                    |               |                    | Power vs. Data Rate |       |         |        |                           |
| Channel                                 | Frequency<br>(MHz) | Chain<br>Port | Data Rate<br>1Mbps | Channel             | 2Mbps | 5.5Mbps | 11Mbps |                           |
| CH 01                                   | 2412               | 0             | 15.70              | CH 01               | 15.54 | 15.57   | 15.55  | 16.0                      |
| CH 06                                   | 2437               | 0             | 14.98              |                     |       |         |        |                           |
| CH 11                                   | 2462               | 0             | 14.89              |                     |       |         |        |                           |
| CH 01                                   | 2412               | 1             | 16.10              | CH 01               | 16.04 | 16.06   | 16.02  | 16.5                      |
| CH 06                                   | 2437               | 1             | 15.54              |                     |       |         |        |                           |
| CH 11                                   | 2462               | 1             | 15.31              |                     |       |         |        |                           |

| WLAN 2.4GHz 802.11g Average Power (dBm) |                 |            |           |                     |       |        |        |        |        |        |        | Tune up Limit (dBm) |
|-----------------------------------------|-----------------|------------|-----------|---------------------|-------|--------|--------|--------|--------|--------|--------|---------------------|
| Power vs. Channel                       |                 |            |           | Power vs. Data Rate |       |        |        |        |        |        |        |                     |
| Channel                                 | Frequency (MHz) | Chain Port | Data Rate | Channel             | 9Mbps | 12Mbps | 18Mbps | 24Mbps | 36Mbps | 48Mbps | 54Mbps |                     |
|                                         |                 |            | 6Mbps     |                     |       |        |        |        |        |        |        |                     |
| CH 01                                   | 2412            | 0          | 8.91      | CH 01               | 8.87  | 8.75   | 8.73   | 8.83   | 8.87   | 8.89   | 8.79   | 9.0                 |
| CH 06                                   | 2437            | 0          | 8.75      |                     |       |        |        |        |        |        |        |                     |
| CH 11                                   | 2462            | 0          | 8.69      |                     |       |        |        |        |        |        |        |                     |
| CH 01                                   | 2412            | 1          | 13.32     | CH 01               | 13.25 | 13.14  | 13.19  | 13.26  | 13.21  | 13.21  | 13.10  | 13.5                |
| CH 06                                   | 2437            | 1          | 13.12     |                     |       |        |        |        |        |        |        |                     |
| CH 11                                   | 2462            | 1          | 13.05     |                     |       |        |        |        |        |        |        |                     |

| WLAN 2.4GHz 802.11n HT20 Average Power (dBm) |                 |            |                |                     |       |       |       |       |       |       |       | Tune up Limit (dBm) |
|----------------------------------------------|-----------------|------------|----------------|---------------------|-------|-------|-------|-------|-------|-------|-------|---------------------|
| Power vs. Channel                            |                 |            |                | Power vs. MCS Index |       |       |       |       |       |       |       |                     |
| Channel                                      | Frequency (MHz) | Chain Port | MCS Index MCS0 | Channel             | MCS1  | MCS2  | MCS3  | MCS4  | MCS5  | MCS6  | MCS7  |                     |
| CH 01                                        | 2412            | 0          | 11.37          | CH 01               | 11.29 | 11.29 | 11.23 | 11.30 | 11.32 | 11.29 | 10.96 | 11.5                |
| CH 06                                        | 2437            | 0          | 11.21          |                     |       |       |       |       |       |       |       |                     |
| CH 11                                        | 2462            | 0          | 11.23          |                     |       |       |       |       |       |       |       |                     |
| CH 01                                        | 2412            | 1          | 11.19          | CH 01               | 11.03 | 10.98 | 10.94 | 10.94 | 10.91 | 10.87 | 10.84 | 11.5                |
| CH 06                                        | 2437            | 1          | 10.96          |                     |       |       |       |       |       |       |       |                     |
| CH 11                                        | 2462            | 1          | 10.90          |                     |       |       |       |       |       |       |       |                     |
| Channel                                      | Frequency (MHz) | Chain Port | MCS Index MCS8 | Channel             | MCS9  | MCS10 | MCS11 | MCS12 | MCS13 | MCS14 | MCS15 | Tune up Limit (dBm) |
| CH 01                                        | 2412            | 0+1(0)     | 8.73           | CH 01               | 8.50  | 8.50  | 8.47  | 8.66  | 8.65  | 8.63  | 8.60  | 9.0                 |
| CH 06                                        | 2437            | 0+1(0)     | 8.29           |                     |       |       |       |       |       |       |       |                     |
| CH 11                                        | 2462            | 0+1(0)     | 8.26           |                     |       |       |       |       |       |       |       |                     |
| CH 01                                        | 2412            | 0+1(1)     | 8.74           | CH 01               | 8.73  | 8.50  | 8.60  | 8.60  | 8.73  | 8.29  | 8.57  | 9.0                 |
| CH 06                                        | 2437            | 0+1(1)     | 8.29           |                     |       |       |       |       |       |       |       |                     |
| CH 11                                        | 2462            | 0+1(1)     | 8.40           |                     |       |       |       |       |       |       |       |                     |
| CH 01                                        | 2412            | 0+1        | 11.74          | CH 01               | 11.63 | 11.51 | 11.55 | 11.64 | 11.70 | 11.47 | 11.60 | 12.0                |
| CH 06                                        | 2437            | 0+1        | 11.30          |                     |       |       |       |       |       |       |       |                     |
| CH 11                                        | 2462            | 0+1        | 11.34          |                     |       |       |       |       |       |       |       |                     |

| WLAN 2.4GHz 802.11n HT40 Average Power (dBm) |                 |            |                |                     |      |       |       |       |       |       |       | Tune up Limit (dBm) |
|----------------------------------------------|-----------------|------------|----------------|---------------------|------|-------|-------|-------|-------|-------|-------|---------------------|
| Power vs. Channel                            |                 |            |                | Power vs. MCS Index |      |       |       |       |       |       |       |                     |
| Channel                                      | Frequency (MHz) | Chain Port | MCS Index MCS0 | Channel             | MCS1 | MCS2  | MCS3  | MCS4  | MCS5  | MCS6  | MCS7  |                     |
| CH 03                                        | 2422            | 0          | 8.82           | CH 09               | 9.30 | 9.25  | 9.14  | 9.26  | 9.30  | 9.32  | 8.99  | 9.5                 |
| CH 06                                        | 2437            | 0          | 8.78           |                     |      |       |       |       |       |       |       |                     |
| CH 09                                        | 2452            | 0          | 9.40           |                     |      |       |       |       |       |       |       |                     |
| CH 03                                        | 2422            | 1          | 9.27           | CH 09               | 9.80 | 9.69  | 9.58  | 9.84  | 9.70  | 9.67  | 9.66  | 10.5                |
| CH 06                                        | 2437            | 1          | 8.98           |                     |      |       |       |       |       |       |       |                     |
| CH 09                                        | 2452            | 1          | 9.91           |                     |      |       |       |       |       |       |       |                     |
| Channel                                      | Frequency (MHz) | Chain Port | MCS Index MCS8 | Channel             | MCS9 | MCS10 | MCS11 | MCS12 | MCS13 | MCS14 | MCS15 | Tune up Limit (dBm) |
| CH 03                                        | 2422            | 0+1(0)     | 6.21           | CH 09               | 6.91 | 6.82  | 6.88  | 6.99  | 7.00  | 6.89  | 6.95  | 7.5                 |
| CH 06                                        | 2437            | 0+1(0)     | 6.04           |                     |      |       |       |       |       |       |       |                     |
| CH 09                                        | 2452            | 0+1(0)     | 7.05           |                     |      |       |       |       |       |       |       |                     |
| CH 03                                        | 2422            | 0+1(1)     | 6.31           | CH 09               | 6.92 | 6.92  | 6.78  | 6.94  | 6.92  | 6.96  | 6.97  | 7.5                 |
| CH 06                                        | 2437            | 0+1(1)     | 6.18           |                     |      |       |       |       |       |       |       |                     |
| CH 09                                        | 2452            | 0+1(1)     | 6.99           |                     |      |       |       |       |       |       |       |                     |
| CH 03                                        | 2422            | 0+1        | 9.27           | CH 09               | 9.93 | 9.88  | 9.84  | 9.97  | 9.97  | 9.93  | 9.97  | 10.5                |
| CH 06                                        | 2437            | 0+1        | 9.12           |                     |      |       |       |       |       |       |       |                     |
| CH 09                                        | 2452            | 0+1        | 10.03          |                     |      |       |       |       |       |       |       |                     |



**<5GHz WLAN>**

| WLAN 5GHz 802.11a Average Power (dBm) |                 |            |                 |                     |       |        |        |        |        |        |        |                     |
|---------------------------------------|-----------------|------------|-----------------|---------------------|-------|--------|--------|--------|--------|--------|--------|---------------------|
| Power vs. Channel                     |                 |            |                 | Power vs. Data Rate |       |        |        |        |        |        |        | Tune up Limit (dBm) |
| Channel                               | Frequency (MHz) | Chain Port | Data Rate 6Mbps | Channel             | 9Mbps | 12Mbps | 18Mbps | 24Mbps | 36Mbps | 48Mbps | 54Mbps |                     |
| CH 36                                 | 5180            | 0          | 9.43            | CH 48               | 9.76  | 9.69   | 9.71   | 9.79   | 9.74   | 9.65   | 9.70   | 10.0                |
| CH 40                                 | 5200            | 0          | 9.12            |                     |       |        |        |        |        |        |        | 10.0                |
| CH 44                                 | 5220            | 0          | 9.63            |                     |       |        |        |        |        |        |        | 10.0                |
| CH 48                                 | 5240            | 0          | 10.26           |                     |       |        |        |        |        |        |        | 10.5                |
| CH 149                                | 5745            | 0          | 10.68           | CH 165              | 10.76 | 10.76  | 10.65  | 10.68  | 10.79  | 10.76  | 10.71  | 11.0                |
| CH 153                                | 5765            | 0          | 10.32           |                     |       |        |        |        |        |        |        |                     |
| CH 157                                | 5785            | 0          | 9.70            |                     |       |        |        |        |        |        |        |                     |
| CH 161                                | 5805            | 0          | 9.53            |                     |       |        |        |        |        |        |        |                     |
| CH 165                                | 5825            | 0          | 10.81           |                     |       |        |        |        |        |        |        |                     |
| CH 36                                 | 5180            | 1          | 10.00           | CH 36               | 9.97  | 9.89   | 9.96   | 9.92   | 9.92   | 9.93   | 9.97   | 10.5                |
| CH 40                                 | 5200            | 1          | 8.74            |                     |       |        |        |        |        |        |        |                     |
| CH 44                                 | 5220            | 1          | 9.91            |                     |       |        |        |        |        |        |        |                     |
| CH 48                                 | 5240            | 1          | 9.99            |                     |       |        |        |        |        |        |        |                     |
| CH 149                                | 5745            | 1          | 10.52           | CH 157              | 10.73 | 10.56  | 10.55  | 10.63  | 10.66  | 10.61  | 10.49  | 11.5                |
| CH 153                                | 5765            | 1          | 10.24           |                     |       |        |        |        |        |        |        |                     |
| CH 157                                | 5785            | 1          | 10.87           |                     |       |        |        |        |        |        |        |                     |
| CH 161                                | 5805            | 1          | 10.32           |                     |       |        |        |        |        |        |        |                     |
| CH 165                                | 5825            | 1          | 10.47           |                     |       |        |        |        |        |        |        |                     |

| WLAN 5GHz 802.11n HT20 Average Power (dBm) |                 |            |                   |                     |       |       |       |       |       |       |       |                     |
|--------------------------------------------|-----------------|------------|-------------------|---------------------|-------|-------|-------|-------|-------|-------|-------|---------------------|
| Power vs. Channel                          |                 |            |                   | Power vs. MCS Index |       |       |       |       |       |       |       | Tune up Limit (dBm) |
| Channel                                    | Frequency (MHz) | Chain Port | MCS Index<br>MCS0 | Channel             | MCS1  | MCS2  | MCS3  | MCS4  | MCS5  | MCS6  | MCS7  |                     |
| CH 36                                      | 5180            | 0          | 9.54              | CH 48               | 9.65  | 9.75  | 9.71  | 9.73  | 9.60  | 9.67  | 9.74  | 10.0                |
| CH 40                                      | 5200            | 0          | 9.39              |                     |       |       |       |       |       |       |       |                     |
| CH 44                                      | 5220            | 0          | 9.74              |                     |       |       |       |       |       |       |       |                     |
| CH 48                                      | 5240            | 0          | 9.76              |                     |       |       |       |       |       |       |       |                     |
| CH 149                                     | 5745            | 0          | 10.46             | CH 149              | 10.36 | 10.30 | 10.28 | 10.39 | 10.37 | 10.31 | 10.17 | 11.0                |
| CH 153                                     | 5765            | 0          | 10.14             |                     |       |       |       |       |       |       |       |                     |
| CH 157                                     | 5785            | 0          | 10.29             |                     |       |       |       |       |       |       |       |                     |
| CH 161                                     | 5805            | 0          | 10.06             |                     |       |       |       |       |       |       |       |                     |
| CH 165                                     | 5825            | 0          | 10.30             |                     |       |       |       |       |       |       |       |                     |
| CH 36                                      | 5180            | 1          | 9.87              | CH 48               | 9.90  | 9.91  | 9.89  | 9.88  | 9.87  | 9.89  | 9.91  | 10.5                |
| CH 40                                      | 5200            | 1          | 9.28              |                     |       |       |       |       |       |       |       |                     |
| CH 44                                      | 5220            | 1          | 9.89              |                     |       |       |       |       |       |       |       |                     |
| CH 48                                      | 5240            | 1          | 9.92              |                     |       |       |       |       |       |       |       |                     |
| CH 149                                     | 5745            | 1          | 9.65              | CH 157              | 10.02 | 9.89  | 9.78  | 9.80  | 9.96  | 9.78  | 9.53  | 10.5                |
| CH 153                                     | 5765            | 1          | 9.34              |                     |       |       |       |       |       |       |       |                     |
| CH 157                                     | 5785            | 1          | 10.18             |                     |       |       |       |       |       |       |       |                     |
| CH 161                                     | 5805            | 1          | 9.39              |                     |       |       |       |       |       |       |       |                     |
| CH 165                                     | 5825            | 1          | 9.54              |                     |       |       |       |       |       |       |       |                     |
| Channel                                    | Frequency (MHz) | Chain Port | MCS Index<br>MCS8 | Channel             | MCS9  | MCS10 | MCS11 | MCS12 | MCS13 | MCS14 | MCS15 | Tune up Limit (dBm) |
| CH 36                                      | 5180            | 0+1(0)     | 6.90              | CH 36               | 6.69  | 6.38  | 5.21  | 5.52  | 5.29  | 5.41  | 5.44  | 7.0                 |
| CH 40                                      | 5200            | 0+1(0)     | 5.51              |                     |       |       |       |       |       |       |       |                     |
| CH 44                                      | 5220            | 0+1(0)     | 6.45              |                     |       |       |       |       |       |       |       |                     |
| CH 48                                      | 5240            | 0+1(0)     | 5.85              |                     |       |       |       |       |       |       |       |                     |
| CH 149                                     | 5745            | 0+1(0)     | 7.73              | CH 165              | 7.82  | 7.76  | 7.54  | 7.77  | 7.79  | 7.80  | 7.64  | 8.0                 |
| CH 153                                     | 5765            | 0+1(0)     | 7.60              |                     |       |       |       |       |       |       |       |                     |
| CH 157                                     | 5785            | 0+1(0)     | 7.78              |                     |       |       |       |       |       |       |       |                     |
| CH 161                                     | 5805            | 0+1(0)     | 7.72              |                     |       |       |       |       |       |       |       |                     |
| CH 165                                     | 5825            | 0+1(0)     | 7.91              |                     |       |       |       |       |       |       |       |                     |
| CH 36                                      | 5180            | 0+1(1)     | 6.95              | CH 36               | 6.48  | 6.76  | 5.64  | 5.73  | 5.81  | 5.62  | 5.88  | 7.0                 |
| CH 40                                      | 5200            | 0+1(1)     | 5.76              |                     |       |       |       |       |       |       |       |                     |
| CH 44                                      | 5220            | 0+1(1)     | 6.43              |                     |       |       |       |       |       |       |       |                     |
| CH 48                                      | 5240            | 0+1(1)     | 6.11              |                     |       |       |       |       |       |       |       |                     |
| CH 149                                     | 5745            | 0+1(1)     | 7.11              | CH 165              | 6.55  | 6.67  | 6.43  | 6.52  | 6.45  | 6.76  | 6.32  | 7.5                 |
| CH 153                                     | 5765            | 0+1(1)     | 6.92              |                     |       |       |       |       |       |       |       |                     |
| CH 157                                     | 5785            | 0+1(1)     | 7.08              |                     |       |       |       |       |       |       |       |                     |
| CH 161                                     | 5805            | 0+1(1)     | 6.83              |                     |       |       |       |       |       |       |       |                     |
| CH 165                                     | 5825            | 0+1(1)     | 7.15              |                     |       |       |       |       |       |       |       |                     |
| CH 36                                      | 5180            | 0+1        | 9.94              | CH 36               | 9.60  | 9.58  | 8.44  | 8.64  | 8.57  | 8.53  | 8.67  | 10.5                |
| CH 40                                      | 5200            | 0+1        | 8.65              |                     |       |       |       |       |       |       |       |                     |
| CH 44                                      | 5220            | 0+1        | 9.45              |                     |       |       |       |       |       |       |       |                     |
| CH 48                                      | 5240            | 0+1        | 8.99              |                     |       |       |       |       |       |       |       |                     |
| CH 149                                     | 5745            | 0+1        | 10.44             | CH 165              | 10.24 | 10.26 | 10.03 | 10.20 | 10.19 | 10.32 | 10.04 | 11.0                |
| CH 153                                     | 5765            | 0+1        | 10.28             |                     |       |       |       |       |       |       |       |                     |
| CH 157                                     | 5785            | 0+1        | 10.45             |                     |       |       |       |       |       |       |       |                     |
| CH 161                                     | 5805            | 0+1        | 10.31             |                     |       |       |       |       |       |       |       |                     |
| CH 165                                     | 5825            | 0+1        | 10.56             |                     |       |       |       |       |       |       |       |                     |

| WLAN 5GHz 802.11n HT40 Average Power (dBm) |                 |            |                |                     |       |       |       |       |       |       |       | Tune up Limit (dBm) |
|--------------------------------------------|-----------------|------------|----------------|---------------------|-------|-------|-------|-------|-------|-------|-------|---------------------|
| Power vs. Channel                          |                 |            |                | Power vs. MCS Index |       |       |       |       |       |       |       |                     |
| Channel                                    | Frequency (MHz) | Chain Port | MCS Index MCS0 | Channel             | MCS1  | MCS2  | MCS3  | MCS4  | MCS5  | MCS6  | MCS7  |                     |
| CH 38                                      | 5190            | 0          | 9.37           | CH 46               | 9.15  | 9.09  | 9.05  | 8.78  | 8.61  | 8.67  | 8.66  | 9.5                 |
| CH 46                                      | 5230            | 0          | 9.41           |                     |       |       |       |       |       |       |       |                     |
| CH 151                                     | 5755            | 0          | 9.91           | CH 159              | 10.06 | 9.99  | 9.95  | 9.99  | 10.11 | 10.16 | 9.93  | 10.5                |
| CH 159                                     | 5795            | 0          | 10.19          |                     |       |       |       |       |       |       |       |                     |
| CH 38                                      | 5190            | 1          | 9.45           | CH 38               | 9.33  | 9.30  | 9.12  | 9.03  | 8.83  | 9.09  | 8.67  | 9.5                 |
| CH 46                                      | 5230            | 1          | 9.42           |                     |       |       |       |       |       |       |       |                     |
| CH 151                                     | 5755            | 1          | 10.08          | CH 151              | 9.91  | 9.79  | 9.75  | 9.85  | 9.96  | 9.84  | 9.72  | 10.5                |
| CH 159                                     | 5795            | 1          | 9.96           |                     |       |       |       |       |       |       |       |                     |
| Channel                                    | Frequency (MHz) | Chain Port | MCS Index MCS8 | Channel             | MCS9  | MCS10 | MCS11 | MCS12 | MCS13 | MCS14 | MCS15 | Tune up Limit (dBm) |
| CH 38                                      | 5190            | 0+1(0)     | 6.50           | CH 38               | 6.05  | 5.94  | 5.78  | 5.97  | 5.86  | 5.87  | 5.96  | 7.0                 |
| CH 46                                      | 5230            | 0+1(0)     | 6.28           |                     |       |       |       |       |       |       |       |                     |
| CH 151                                     | 5755            | 0+1(0)     | 6.85           | CH 159              | 7.09  | 6.67  | 6.68  | 6.45  | 6.46  | 6.47  | 6.32  | 7.5                 |
| CH 159                                     | 5795            | 0+1(0)     | 7.40           |                     |       |       |       |       |       |       |       |                     |
| CH 38                                      | 5190            | 0+1(1)     | 6.45           | CH 38               | 6.24  | 6.09  | 5.94  | 6.13  | 6.03  | 6.07  | 5.78  | 7.0                 |
| CH 46                                      | 5230            | 0+1(1)     | 6.21           |                     |       |       |       |       |       |       |       |                     |
| CH 151                                     | 5755            | 0+1(1)     | 7.03           | CH 159              | 7.04  | 6.82  | 6.71  | 6.68  | 6.63  | 6.62  | 6.32  | 7.5                 |
| CH 159                                     | 5795            | 0+1(1)     | 7.21           |                     |       |       |       |       |       |       |       |                     |
| CH 38                                      | 5190            | 0+1        | 9.49           | CH 38               | 9.16  | 9.03  | 8.87  | 9.06  | 8.96  | 8.98  | 8.88  | 10.0                |
| CH 46                                      | 5230            | 0+1        | 9.26           |                     |       |       |       |       |       |       |       |                     |
| CH 151                                     | 5755            | 0+1        | 9.95           | CH 159              | 10.07 | 9.76  | 9.71  | 9.58  | 9.56  | 9.56  | 9.33  | 10.5                |
| CH 159                                     | 5795            | 0+1        | 10.32          |                     |       |       |       |       |       |       |       |                     |

### **13. Bluetooth Exclusions Applied**

| Mode Band        | Average power(dBm) |                   |
|------------------|--------------------|-------------------|
|                  | Bluetooth v3.0+EDR | Bluetooth v4.0 LE |
| 2.4GHz Bluetooth | 9.5                | 7.5               |

**Note:**

1. Per KDB 447498 D01v05r02, 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:

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$  for

1-g SAR and ≤ 7.5 for 10-g extremity SAR

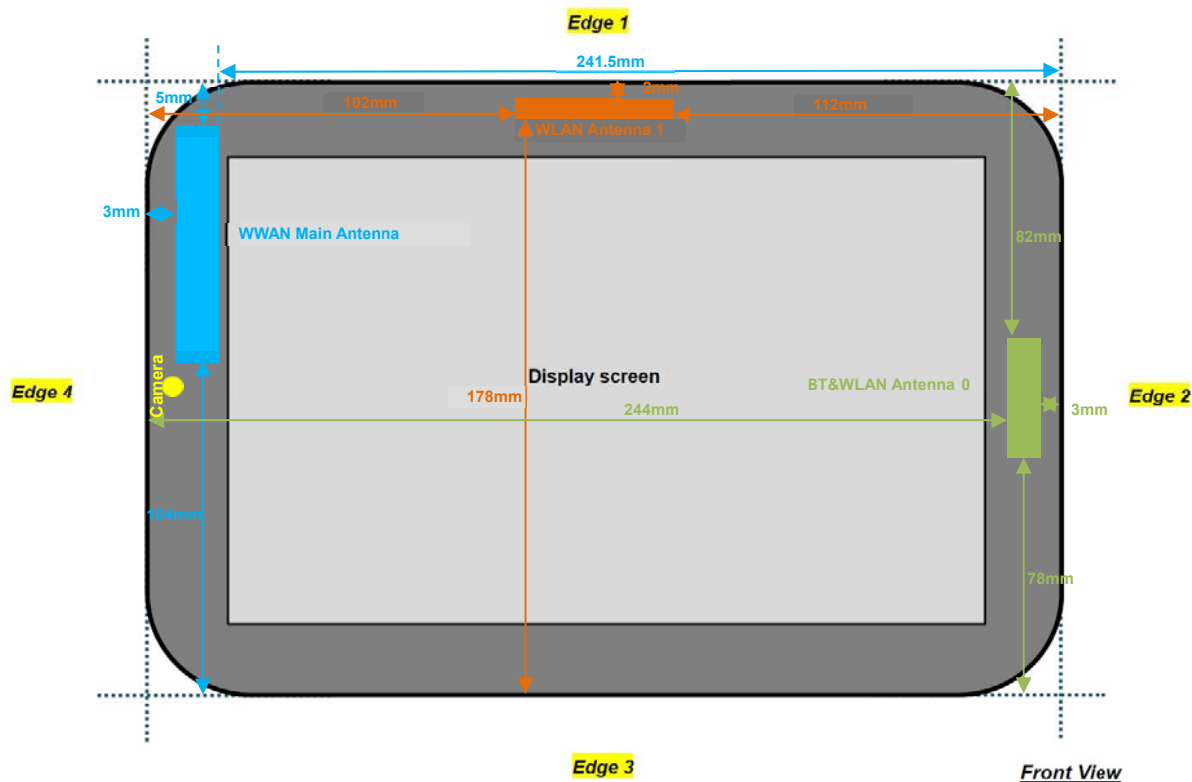
- f(GHz) is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison

| Bluetooth Max Power (dBm) | Separation Distance (mm) | Frequency (GHz) | Exclusion Thresholds |
|---------------------------|--------------------------|-----------------|----------------------|
| 9.5                       | 0                        | 2.48            | 2.8                  |

**Note:**

Per KDB 447498 D01v05r02, when the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion. The test exclusion threshold is 2.8 which is ≤ 3, SAR testing is not required.

## 14. Antenna Location



### <Transmission configuration>

| Wireless Interface            | SISO Mode            |                      | MIMO Mode              |
|-------------------------------|----------------------|----------------------|------------------------|
|                               | Antenna 0<br><Tx/Rx> | Antenna 1<br><Tx/Rx> | Antenna 0+1<br><Tx/Rx> |
| Bluetooth                     | yes                  |                      |                        |
| WLAN 2.4GHz 802.11b/g         | yes                  | yes                  |                        |
| WLAN 2.4GHz 802.11n HT20/HT40 | yes                  | yes                  | yes                    |
| WLAN 5GHz 802.11a             | yes                  | yes                  |                        |
| WLAN 5GHz 802.11n HT20/HT40   | yes                  | yes                  | yes                    |

**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 D01v05r02, 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 D01v05r02, 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 D01v05r02, 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:  

$$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$$
 for 1-g SAR and ≤ 7.5 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 D01v05r02, 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

**SAR test exclusion table distance is ≤ 50mm**

| Exposure Position | Wireless Interface          | GPRS850<br>3 Tx slots | GPRS1900<br>3 Tx slots | WCDMA<br>Band V | WCDMA<br>Band IV | WCDMA<br>Band II | LTE<br>Band 5 | LTE<br>Band 4 | LTE<br>Band 2 | LTE<br>Band 7 |
|-------------------|-----------------------------|-----------------------|------------------------|-----------------|------------------|------------------|---------------|---------------|---------------|---------------|
|                   | Calculated Frequency (MHz)  | 848.8                 | 1909.8                 | 846.6           | 1752.6           | 1907.6           | 848.3         | 1754.3        | 1909.3        | 2567.5        |
|                   | Tune-up Maximum power (dBm) | 27.74                 | 23.74                  | 24              | 24               | 23               | 23            | 23            | 23            | 22            |
| Bottom Face       | Antenna to user (mm)        | 0                     |                        |                 |                  |                  |               |               |               |               |
|                   | SAR exclusion threshold     | 109                   | 65                     | 46              | 66               | 55               | 37            | 53            | 55            | 51            |
|                   | SAR testing required?       | Yes                   | Yes                    | Yes             | Yes              | Yes              | Yes           | Yes           | Yes           | Yes           |
| Edge 1            | Antenna to user (mm)        | 5                     |                        |                 |                  |                  |               |               |               |               |
|                   | SAR exclusion threshold     | 109                   | 65                     | 46              | 66               | 55               | 37            | 53            | 55            | 51            |
|                   | SAR testing required?       | Yes                   | Yes                    | Yes             | Yes              | Yes              | Yes           | Yes           | Yes           | Yes           |
| Edge 4            | Antenna to user (mm)        | 3                     |                        |                 |                  |                  |               |               |               |               |
|                   | SAR exclusion threshold     | 109                   | 109                    | 109             | 109              | 109              | 109           | 109           | 109           | 109           |
|                   | SAR testing required?       | Yes                   | Yes                    | Yes             | Yes              | Yes              | Yes           | Yes           | Yes           | Yes           |

| Exposure Position | Wireless Interface          | WLAN<br>2.4GHz<br>802.11b<br>Ant.0 | WLAN<br>5.2GHz<br>802.11a<br>Ant.0 | WLAN<br>5.8GHz<br>802.11a<br>Ant.0 | WLAN<br>2.4GHz<br>802.11b<br>Ant.1 | WLAN<br>5.2GHz<br>802.11a<br>Ant.1 | WLAN<br>5.8GHz<br>802.11a<br>Ant.1 |
|-------------------|-----------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|
|                   | Calculated Frequency (MHz)  | 2462                               | 5240                               | 5825                               | 2462                               | 5240                               | 5825                               |
|                   | Tune-up Maximum power (dBm) | 16.0                               | 10.5                               | 11.0                               | 16.5                               | 10.5                               | 11.5                               |
| Bottom Face       | Antenna to user (mm)        | 0                                  |                                    |                                    | 0                                  |                                    |                                    |
|                   | SAR exclusion threshold     | 13                                 | 5                                  | 6                                  | 14                                 | 5                                  | 7                                  |
|                   | SAR testing required?       | Yes                                | Yes                                | Yes                                | Yes                                | Yes                                | Yes                                |
| Edge 1            | Antenna to user (mm)        |                                    |                                    |                                    | 2                                  |                                    |                                    |
|                   | SAR exclusion threshold     |                                    |                                    |                                    | 14                                 | 5                                  | 7                                  |
|                   | SAR testing required?       |                                    |                                    |                                    | Yes                                | Yes                                | Yes                                |
| Edge 2            | Antenna to user (mm)        | 3                                  |                                    |                                    |                                    |                                    |                                    |
|                   | SAR exclusion threshold     | 13                                 | 5                                  | 6                                  |                                    |                                    |                                    |
|                   | SAR testing required?       | Yes                                | Yes                                | Yes                                |                                    |                                    |                                    |

**SAR test exclusion table distance is > 50mm**

| Exposure Position | Wireless Interface               | GPRS850<br>3 Tx slots | GPRS1900<br>3 Tx slots | WCDMA<br>Band V | WCDMA<br>Band IV | WCDMA<br>Band II | LTE<br>Band 5 | LTE<br>Band 4 | LTE<br>Band 2 | LTE<br>Band 7 |
|-------------------|----------------------------------|-----------------------|------------------------|-----------------|------------------|------------------|---------------|---------------|---------------|---------------|
|                   | Calculated Frequency (MHz)       | 848.8                 | 1909.8                 | 846.6           | 1752.6           | 1907.6           | 848.3         | 1754.3        | 1909.3        | 2567.5        |
|                   | Tune-up Maximum power (dBm)      | 27.74                 | 23.74                  | 24              | 24               | 23               | 23            | 23            | 23            | 22            |
|                   | Tune-up Maximum rated power (mW) | 594                   | 237                    | 251             | 251              | 200              | 200           | 200           | 200           | 158           |
| Edge 2            | Antenna to user (mm)             | 241.5                 |                        |                 |                  |                  |               |               |               |               |
|                   | SAR exclusion threshold (mW)     | 1246                  | 2024                   | 1243            | 2028             | 2024             | 1246          | 2028          | 2024          | 2009          |
|                   | SAR testing required?            | No                    | No                     | No              | No               | No               | No            | No            | No            | No            |
| Edge 3            | Antenna to user (mm)             | 104                   |                        |                 |                  |                  |               |               |               |               |
|                   | SAR exclusion threshold (mW)     | 468                   | 649                    | 468             | 653              | 649              | 468           | 653           | 649           | 634           |
|                   | SAR testing required?            | Yes                   | No                     | No              | No               | No               | No            | No            | No            | No            |

| Exposure Position | Wireless Interface               | WLAN<br>2.4GHz<br>802.11b<br>Ant.0 | WLAN<br>5.2GHz<br>802.11a<br>Ant.0 | WLAN<br>5.8GHz<br>802.11a<br>Ant.0 | WLAN<br>2.4GHz<br>802.11b<br>Ant.1 | WLAN<br>5.2GHz<br>802.11a<br>Ant.1 | WLAN<br>5.8GHz<br>802.11a<br>Ant.1 |
|-------------------|----------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|
|                   | Calculated Frequency (MHz)       | 2462                               | 5240                               | 5825                               | 2462                               | 5240                               | 5825                               |
|                   | Tune-up Maximum power (dBm)      | 16.0                               | 10.5                               | 11.0                               | 16.5                               | 10.5                               | 11.5                               |
|                   | Tune-up Maximum rated power (mW) | 40                                 | 11                                 | 13                                 | 45                                 | 11                                 | 14                                 |
| Edge 1            | Antenna to user (mm)             | 82                                 |                                    |                                    |                                    |                                    |                                    |
|                   | SAR exclusion threshold          | 416                                | 386                                | 382                                |                                    |                                    |                                    |
|                   | SAR testing required?            | No                                 | No                                 | No                                 |                                    |                                    |                                    |
| Edge 2            | Antenna to user (mm)             |                                    |                                    |                                    |                                    |                                    | 112                                |
|                   | SAR exclusion threshold          |                                    |                                    |                                    | 716                                | 686                                | 682                                |
|                   | SAR testing required?            |                                    |                                    |                                    | No                                 | No                                 | No                                 |
| Edge 3            | Antenna to user (mm)             | 78                                 |                                    |                                    |                                    |                                    | 178                                |
|                   | SAR exclusion threshold          | 376                                | 346                                | 342                                | 1376                               | 1346                               | 1342                               |
|                   | SAR testing required?            | No                                 | No                                 | No                                 | No                                 | No                                 | No                                 |
| Edge 4            | Antenna to user (mm)             | 244                                |                                    |                                    |                                    |                                    | 102                                |
|                   | SAR exclusion threshold          | 2036                               | 2006                               | 2002                               | 616                                | 586                                | 582                                |
|                   | SAR testing required?            | No                                 | No                                 | No                                 | No                                 | No                                 | No                                 |

## 15. SAR Test Results

### General Note:

1. Per KDB 447498 D01v05r02, 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: Reported SAR(W/kg)= Measured SAR(W/kg)\* Duty Cycle scaling factor \* Tune-up scaling factor
2. Per KDB 447498 D01v05r02, 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. For body SAR testing was following KDB 941225 D03v01, the GPRS 3Tx slots modes was selected when EUT operating without power back-off, the GPRS 3Tx slots modes was selected when EUT operating with power back-off, according to the highest source-based time-averaged output power.
4. Per KDB 941225 D02v02r02, RMC 12.2kbps setting is used to evaluate SAR when EUT operating without power back-off and operating with power back-off. If HSDPA/HSUPA/DC-HSDPA output power is  $< 0.25$ dB higher than RMC, or reported SAR with RMC 12.2kbps setting is  $\leq 1.2$ W/kg, HSDPA/HSUPA/DC-HSDPA SAR evaluation can be excluded.
5. Anritsu MT8820C base station simulator was used to setup the connection with EUT; the frequency band, channel bandwidth, RB allocation configuration, modulation type are set in the base station simulator to configure EUT transmitting at maximum power and at different configurations which are requested to be reported to FCC, for conducted power measurement and SAR testing.
6. Per KDB 941225 D05v02r03, 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.
7. Per KDB 941225 D05v02r03, 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.
8. Per KDB 941225 D05v02r03, 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.
9. Per KDB 941225 D05v02r03, 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.
10. Per KDB 941225 D05v02r03, 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 D05v02r03, 16QAM SAR testing is not required.
11. Per KDB 941225 D05v02r03, 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 D05v02r03, smaller bandwidth SAR testing is not required.
12. LTE SAR tests were performed when EUT operating without power back-off and operating with power back-off in accordance with general note 6, 7, 8, 9, 10, 11 above.
13. For the exposure positions that proximity sensor power reduction is applied for SAR compliance, additional SAR testing with EUT transmitting full power in normal mode was performed; 1.2cm for bottom face and edge4.
14. Curved region diagram of the device according to the test setup photo (exterior radius dimension supplied by customer), X=4.80mm, Y=1.49mm, Z=2.08mm and complied X>Z, Y<Z, Per KDB 616217 D04v01r01, curved SAR evaluation can be excluded.
15. This device 2.4GHz/5.8GHz WLAN supports hotspot operation and WIFI Direct (Group Client /Group Owner) and WLAN 5.2GHz supports WiFi Direct (Group Client).



## 15.1 Body SAR

### <GSM SAR>

| Plot No. | Band    | Mode              | Test Position | Gap (cm) | Power Back-off | Ch. | Freq. (MHz) | Average Power (dBm) | Tune-Up Limit (dBm) | Tune-up Scaling Factor | Power Drift (dB) | Measured 1g SAR (W/kg) | Reported 1g SAR (W/kg) |
|----------|---------|-------------------|---------------|----------|----------------|-----|-------------|---------------------|---------------------|------------------------|------------------|------------------------|------------------------|
| #01      | GSM850  | GPRS (3 Tx slots) | Bottom Face   | 0        | On             | 251 | 848.8       | 27.86               | 28.00               | 1.033                  | 0.06             | 1.170                  | <b>1.208</b>           |
|          | GSM850  | GPRS (3 Tx slots) | Edge 1        | 0        | Off            | 251 | 848.8       | 31.74               | 32.00               | 1.062                  | -0.11            | 0.376                  | 0.399                  |
|          | GSM850  | GPRS (3 Tx slots) | Edge 3        | 0        | Off            | 251 | 848.8       | 31.74               | 32.00               | 1.062                  | 0.03             | 0.133                  | 0.141                  |
|          | GSM850  | GPRS (3 Tx slots) | Edge 4        | 0        | On             | 251 | 848.8       | 27.86               | 28.00               | 1.033                  | -0.04            | 0.298                  | 0.308                  |
|          | GSM850  | GPRS (3 Tx slots) | Bottom Face   | 1.2      | Off            | 251 | 848.8       | 31.74               | 32.00               | 1.062                  | 0.15             | 0.416                  | 0.442                  |
|          | GSM850  | GPRS (3 Tx slots) | Edge 4        | 1.2      | Off            | 251 | 848.8       | 31.74               | 32.00               | 1.062                  | -0.11            | 0.199                  | 0.211                  |
|          | GSM850  | GPRS (3 Tx slots) | Bottom Face   | 0        | On             | 128 | 824.2       | 27.71               | 28.00               | 1.069                  | 0.07             | 0.978                  | 1.046                  |
|          | GSM850  | GPRS (3 Tx slots) | Bottom Face   | 0        | On             | 189 | 836.4       | 27.74               | 28.00               | 1.062                  | 0.06             | 1.110                  | 1.178                  |
|          | GSM1900 | GPRS (3 Tx slots) | Bottom Face   | 0        | On             | 512 | 1850.2      | 19.97               | 20.00               | 1.007                  | 0.09             | 0.938                  | 0.945                  |
|          | GSM1900 | GPRS (3 Tx slots) | Edge 1        | 0        | Off            | 512 | 1850.2      | 27.81               | 28.00               | 1.045                  | -0.01            | 1.200                  | 1.254                  |
|          | GSM1900 | GPRS (3 Tx slots) | Edge 4        | 0        | On             | 512 | 1850.2      | 19.97               | 20.00               | 1.007                  | 0.15             | 0.472                  | 0.475                  |
|          | GSM1900 | GPRS (3 Tx slots) | Bottom Face   | 1.2      | Off            | 512 | 1850.2      | 27.81               | 28.00               | 1.045                  | 0.03             | 0.571                  | 0.597                  |
|          | GSM1900 | GPRS (3 Tx slots) | Edge 4        | 1.2      | Off            | 512 | 1850.2      | 27.81               | 28.00               | 1.045                  | -0.03            | 0.087                  | 0.091                  |
|          | GSM1900 | GPRS (3 Tx slots) | Bottom Face   | 0        | On             | 661 | 1880        | 19.74               | 20.00               | 1.062                  | 0.02             | 0.941                  | 0.999                  |
|          | GSM1900 | GPRS (3 Tx slots) | Bottom Face   | 0        | On             | 810 | 1909.8      | 19.70               | 20.00               | 1.072                  | -0.06            | 0.930                  | 0.997                  |
|          | GSM1900 | GPRS (3 Tx slots) | Edge 1        | 0        | Off            | 661 | 1880        | 27.78               | 28.00               | 1.052                  | -0.18            | 1.220                  | 1.283                  |
| #02      | GSM1900 | GPRS (3 Tx slots) | Edge 1        | 0        | Off            | 810 | 1909.8      | 27.76               | 28.00               | 1.057                  | -0.18            | 1.250                  | <b>1.321</b>           |

### <WCDMA SAR>

| Plot No. | Band          | Mode         | Test Position | Gap (cm) | Power Back-off | Ch.  | Freq. (MHz) | Average Power (dBm) | Tune-Up Limit (dBm) | Tune-up Scaling Factor | Power Drift (dB) | Measured 1g SAR (W/kg) | Reported 1g SAR (W/kg) |
|----------|---------------|--------------|---------------|----------|----------------|------|-------------|---------------------|---------------------|------------------------|------------------|------------------------|------------------------|
| #03      | WCDMA Band V  | RMC 12.2Kbps | Bottom Face   | 0        | On             | 4182 | 836.4       | 17.10               | 18.50               | 1.380                  | 0.07             | 0.389                  | <b>0.537</b>           |
|          | WCDMA Band V  | RMC 12.2Kbps | Edge 1        | 0        | Off            | 4182 | 836.4       | 23.57               | 24.00               | 1.104                  | -0.09            | 0.140                  | 0.155                  |
|          | WCDMA Band V  | RMC 12.2Kbps | Edge 4        | 0        | On             | 4182 | 836.4       | 17.10               | 18.50               | 1.380                  | -0.05            | 0.087                  | 0.120                  |
|          | WCDMA Band V  | RMC 12.2Kbps | Bottom Face   | 1.2      | Off            | 4182 | 836.4       | 23.57               | 24.00               | 1.104                  | 0.07             | 0.220                  | 0.243                  |
|          | WCDMA Band V  | RMC 12.2Kbps | Edge 4        | 1.2      | Off            | 4182 | 836.4       | 23.57               | 24.00               | 1.104                  | -0.16            | 0.077                  | 0.085                  |
| #04      | WCDMA Band IV | RMC 12.2Kbps | Bottom Face   | 0        | On             | 1513 | 1752.6      | 13.85               | 14.00               | 1.035                  | 0.08             | 1.320                  | <b>1.366</b>           |
|          | WCDMA Band IV | RMC 12.2Kbps | Edge 1        | 0        | Off            | 1513 | 1752.6      | 23.52               | 24.00               | 1.117                  | -0.04            | 0.949                  | 1.060                  |
|          | WCDMA Band IV | RMC 12.2Kbps | Edge 4        | 0        | On             | 1513 | 1752.6      | 13.85               | 14.00               | 1.035                  | 0.04             | 0.721                  | 0.746                  |
|          | WCDMA Band IV | RMC 12.2Kbps | Bottom Face   | 1.2      | Off            | 1513 | 1752.6      | 23.52               | 24.00               | 1.117                  | -0.08            | 0.787                  | 0.879                  |
|          | WCDMA Band IV | RMC 12.2Kbps | Edge 4        | 1.2      | Off            | 1513 | 1752.6      | 23.52               | 24.00               | 1.117                  | -0.02            | 0.808                  | 0.902                  |
|          | WCDMA Band IV | RMC 12.2Kbps | Bottom Face   | 0        | On             | 1312 | 1712.4      | 13.80               | 14.00               | 1.047                  | 0.09             | 1.200                  | 1.257                  |
|          | WCDMA Band IV | RMC 12.2Kbps | Bottom Face   | 0        | On             | 1413 | 1732.6      | 13.80               | 14.00               | 1.047                  | 0.04             | 1.270                  | 1.330                  |
|          | WCDMA Band IV | RMC 12.2Kbps | Edge 1        | 0        | Off            | 1312 | 1712.4      | 23.48               | 24.00               | 1.127                  | -0.09            | 0.738                  | 0.832                  |
|          | WCDMA Band IV | RMC 12.2Kbps | Edge 1        | 0        | Off            | 1413 | 1732.6      | 23.45               | 24.00               | 1.135                  | -0.10            | 0.868                  | 0.985                  |
|          | WCDMA Band IV | RMC 12.2Kbps | Bottom Face   | 1.2      | Off            | 1312 | 1712.4      | 23.48               | 24.00               | 1.127                  | -0.06            | 0.741                  | 0.835                  |
|          | WCDMA Band IV | RMC 12.2Kbps | Bottom Face   | 1.2      | Off            | 1413 | 1732.6      | 23.45               | 24.00               | 1.135                  | -0.02            | 0.744                  | 0.844                  |
|          | WCDMA Band IV | RMC 12.2Kbps | Edge 4        | 1.2      | Off            | 1312 | 1712.4      | 23.48               | 24.00               | 1.127                  | -0.01            | 0.781                  | 0.880                  |
|          | WCDMA Band IV | RMC 12.2Kbps | Edge 4        | 1.2      | Off            | 1413 | 1732.6      | 23.45               | 24.00               | 1.135                  | -0.01            | 0.792                  | 0.899                  |
|          | WCDMA Band II | RMC 12.2Kbps | Bottom Face   | 0        | On             | 9400 | 1907.6      | 13.01               | 13.50               | 1.119                  | -0.06            | 0.394                  | 0.441                  |
| #05      | WCDMA Band II | RMC 12.2Kbps | Edge 1        | 0        | Off            | 9538 | 1907.6      | 22.69               | 23.00               | 1.074                  | -0.01            | 1.260                  | <b>1.353</b>           |
|          | WCDMA Band II | RMC 12.2Kbps | Edge 4        | 0        | On             | 9400 | 1907.6      | 13.01               | 13.50               | 1.119                  | 0.18             | 0.198                  | 0.222                  |
|          | WCDMA Band II | RMC 12.2Kbps | Bottom Face   | 1.2      | Off            | 9538 | 1907.6      | 22.69               | 23.00               | 1.074                  | -0.02            | 0.476                  | 0.511                  |
|          | WCDMA Band II | RMC 12.2Kbps | Edge 4        | 1.2      | Off            | 9538 | 1907.6      | 22.69               | 23.00               | 1.074                  | -0.19            | 0.470                  | 0.505                  |
|          | WCDMA Band II | RMC 12.2Kbps | Edge 1        | 0        | Off            | 9262 | 1852.4      | 22.61               | 23.00               | 1.094                  | -0.04            | 1.110                  | 1.214                  |
|          | WCDMA Band II | RMC 12.2Kbps | Edge 1        | 0        | Off            | 9400 | 1880        | 22.59               | 23.00               | 1.099                  | -0.19            | 1.160                  | 1.275                  |



**<LTE SAR>**

| Plot No. | Band       | BW (MHz) | RB Size | RB offset | Modulation | Test Position | Gap (cm) | Power Back-off | Ch.   | Freq. (MHz) | Average Power (dBm) | Tune-Up Limit (dBm) | Tune-up Scaling Factor | Power Drift (dB) | Measured 1g SAR (W/kg) | Reported 1g SAR (W/kg) |
|----------|------------|----------|---------|-----------|------------|---------------|----------|----------------|-------|-------------|---------------------|---------------------|------------------------|------------------|------------------------|------------------------|
| #06      | LTE Band 5 | 10M      | 1       | 0         | QPSK       | Bottom Face   | 0        | On             | 20525 | 836.5       | 16.69               | 17.00               | 1.074                  | 0.07             | 0.345                  | <b>0.371</b>           |
|          | LTE Band 5 | 10M      | 1       | 0         | QPSK       | Edge 1        | 0        | Off            | 20525 | 836.5       | 22.24               | 23.00               | 1.191                  | 0.03             | 0.097                  | 0.116                  |
|          | LTE Band 5 | 10M      | 1       | 0         | QPSK       | Edge 4        | 0        | On             | 20525 | 836.5       | 16.69               | 17.00               | 1.074                  | -0.1             | 0.079                  | 0.085                  |
|          | LTE Band 5 | 10M      | 1       | 0         | QPSK       | Bottom Face   | 1.2      | Off            | 20525 | 836.5       | 22.24               | 23.00               | 1.191                  | 0.09             | 0.107                  | 0.127                  |
|          | LTE Band 5 | 10M      | 1       | 0         | QPSK       | Edge 4        | 1.2      | Off            | 20525 | 836.5       | 22.24               | 23.00               | 1.191                  | -0.04            | 0.049                  | 0.058                  |
|          | LTE Band 5 | 10M      | 25      | 12        | QPSK       | Bottom Face   | 0        | On             | 20450 | 829         | 15.87               | 16.50               | 1.156                  | 0.08             | 0.260                  | 0.301                  |
|          | LTE Band 5 | 10M      | 25      | 0         | QPSK       | Edge 1        | 0        | Off            | 20450 | 829         | 21.42               | 22.00               | 1.143                  | -0.06            | 0.073                  | 0.083                  |
|          | LTE Band 5 | 10M      | 25      | 12        | QPSK       | Edge 4        | 0        | On             | 20450 | 829         | 15.87               | 16.50               | 1.156                  | 0.03             | 0.057                  | 0.066                  |
|          | LTE Band 5 | 10M      | 25      | 0         | QPSK       | Bottom Face   | 1.2      | Off            | 20450 | 829         | 21.42               | 22.00               | 1.143                  | 0.08             | 0.078                  | 0.089                  |
|          | LTE Band 5 | 10M      | 25      | 0         | QPSK       | Edge 4        | 1.2      | Off            | 20450 | 829         | 21.42               | 22.00               | 1.143                  | -0.01            | 0.037                  | 0.042                  |
|          | LTE Band 4 | 20M      | 1       | 0         | QPSK       | Bottom Face   | 0        | On             | 20050 | 1720        | 13.71               | 14.00               | 1.069                  | 0.01             | 1.090                  | 1.165                  |
|          | LTE Band 4 | 20M      | 1       | 0         | QPSK       | Edge 1        | 0        | Off            | 20175 | 1732.5      | 22.25               | 23.00               | 1.189                  | -0.03            | 0.519                  | 0.617                  |
|          | LTE Band 4 | 20M      | 1       | 0         | QPSK       | Edge 4        | 0        | On             | 20050 | 1720        | 13.71               | 14.00               | 1.069                  | 0.15             | 0.636                  | 0.680                  |
|          | LTE Band 4 | 20M      | 1       | 0         | QPSK       | Bottom Face   | 1.2      | Off            | 20175 | 1732.5      | 22.25               | 23.00               | 1.189                  | -0.02            | 0.526                  | 0.625                  |
|          | LTE Band 4 | 20M      | 1       | 0         | QPSK       | Edge 4        | 1.2      | Off            | 20175 | 1732.5      | 22.25               | 23.00               | 1.189                  | 0.09             | 0.555                  | 0.660                  |
|          | LTE Band 4 | 20M      | 1       | 0         | QPSK       | Bottom Face   | 0        | On             | 20175 | 1732.5      | 13.66               | 14.00               | 1.081                  | 0.03             | 1.080                  | 1.168                  |
| #07      | LTE Band 4 | 20M      | 1       | 0         | QPSK       | Bottom Face   | 0        | On             | 20300 | 1745        | 13.67               | 14.00               | 1.079                  | 0.07             | 1.120                  | <b>1.208</b>           |
|          | LTE Band 4 | 20M      | 50      | 0         | QPSK       | Bottom Face   | 0        | On             | 20050 | 1720        | 12.54               | 13.00               | 1.112                  | 0.09             | 0.896                  | 0.996                  |
|          | LTE Band 4 | 20M      | 50      | 0         | QPSK       | Edge 1        | 0        | Off            | 20300 | 1745        | 21.32               | 22.00               | 1.169                  | 0.05             | 0.562                  | 0.657                  |
|          | LTE Band 4 | 20M      | 50      | 0         | QPSK       | Edge 4        | 0        | On             | 20050 | 1720        | 12.54               | 13.00               | 1.112                  | 0.16             | 0.534                  | 0.594                  |
|          | LTE Band 4 | 20M      | 50      | 0         | QPSK       | Bottom Face   | 1.2      | Off            | 20300 | 1745        | 21.32               | 22.00               | 1.169                  | -0.1             | 0.441                  | 0.516                  |
|          | LTE Band 4 | 20M      | 50      | 0         | QPSK       | Edge 4        | 1.2      | Off            | 20300 | 1745        | 21.32               | 22.00               | 1.169                  | 0.1              | 0.455                  | 0.532                  |
|          | LTE Band 4 | 20M      | 50      | 0         | QPSK       | Bottom Face   | 0        | On             | 20175 | 1732.5      | 12.41               | 13.00               | 1.146                  | 0.01             | 0.954                  | 1.093                  |
|          | LTE Band 4 | 20M      | 50      | 0         | QPSK       | Bottom Face   | 0        | On             | 20300 | 1745        | 12.42               | 13.00               | 1.143                  | 0.04             | 0.992                  | 1.134                  |
|          | LTE Band 4 | 20M      | 100     | 0         | QPSK       | Bottom Face   | 0        | On             | 20050 | 1720        | 12.29               | 13.00               | 1.178                  | 0.03             | 0.909                  | 1.070                  |
|          | LTE Band 4 | 20M      | 100     | 0         | QPSK       | Edge 1        | 0        | Off            | 20300 | 1745        | 21.18               | 22.00               | 1.208                  | -0.01            | 0.564                  | 0.681                  |
|          | LTE Band 4 | 20M      | 100     | 0         | QPSK       | Edge 4        | 0        | On             | 20050 | 1720        | 12.29               | 13.00               | 1.178                  | -0.07            | 0.518                  | 0.610                  |
|          | LTE Band 4 | 20M      | 100     | 0         | QPSK       | Bottom Face   | 1.2      | Off            | 20300 | 1745        | 21.18               | 22.00               | 1.208                  | -0.13            | 0.426                  | 0.515                  |
|          | LTE Band 4 | 20M      | 100     | 0         | QPSK       | Edge 4        | 1.2      | Off            | 20300 | 1745        | 21.18               | 22.00               | 1.208                  | 0.02             | 0.435                  | 0.525                  |



| Plot No. | Band       | BW (MHz) | RB Size | RB offset | Modulation | Test Position | Gap (cm) | Power Back-off | Ch.   | Freq. (MHz) | Average Power (dBm) | Tune-Up Limit (dBm) | Tune-up Scaling Factor | Power Drift (dB) | Measured 1g SAR (W/kg) | Reported 1g SAR (W/kg) |
|----------|------------|----------|---------|-----------|------------|---------------|----------|----------------|-------|-------------|---------------------|---------------------|------------------------|------------------|------------------------|------------------------|
|          | LTE Band 2 | 20M      | 1       | 0         | QPSK       | Bottom Face   | 0        | On             | 19100 | 1900        | 12.96               | 14.00               | 1.271                  | -0.09            | 0.378                  | 0.480                  |
|          | LTE Band 2 | 20M      | 1       | 0         | QPSK       | Edge 1        | 0        | Off            | 19100 | 1900        | 22.98               | 23.00               | 1.005                  | -0.16            | 1.240                  | 1.246                  |
|          | LTE Band 2 | 20M      | 1       | 0         | QPSK       | Edge 4        | 0        | On             | 19100 | 1900        | 12.96               | 14.00               | 1.271                  | -0.01            | 0.205                  | 0.260                  |
|          | LTE Band 2 | 20M      | 1       | 0         | QPSK       | Bottom Face   | 1.2      | Off            | 19100 | 1900        | 22.98               | 23.00               | 1.005                  | -0.04            | 0.458                  | 0.460                  |
|          | LTE Band 2 | 20M      | 1       | 0         | QPSK       | Edge 4        | 1.2      | Off            | 19100 | 1900        | 22.98               | 23.00               | 1.005                  | -0.15            | 0.490                  | 0.492                  |
|          | LTE Band 2 | 20M      | 1       | 0         | QPSK       | Edge 1        | 0        | Off            | 18700 | 1860        | 22.88               | 23.00               | 1.028                  | -0.12            | 1.130                  | 1.162                  |
| #08      | LTE Band 2 | 20M      | 1       | 0         | QPSK       | Edge 1        | 0        | Off            | 18900 | 1880        | 22.86               | 23.00               | 1.033                  | -0.12            | 1.270                  | <b>1.312</b>           |
|          | LTE Band 2 | 20M      | 50      | 0         | QPSK       | Bottom Face   | 0        | On             | 19100 | 1900        | 11.94               | 13.00               | 1.276                  | 0.09             | 0.313                  | 0.400                  |
|          | LTE Band 2 | 20M      | 50      | 0         | QPSK       | Edge 1        | 0        | Off            | 19100 | 1900        | 21.78               | 22.00               | 1.052                  | -0.16            | 1.030                  | 1.084                  |
|          | LTE Band 2 | 20M      | 50      | 0         | QPSK       | Edge 4        | 0        | On             | 19100 | 1900        | 11.94               | 13.00               | 1.276                  | 0.01             | 0.160                  | 0.204                  |
|          | LTE Band 2 | 20M      | 50      | 0         | QPSK       | Bottom Face   | 1.2      | Off            | 19100 | 1900        | 21.78               | 22.00               | 1.052                  | -0.09            | 0.369                  | 0.388                  |
|          | LTE Band 2 | 20M      | 50      | 0         | QPSK       | Edge 4        | 1.2      | Off            | 19100 | 1900        | 21.78               | 22.00               | 1.052                  | -0.02            | 0.392                  | 0.412                  |
|          | LTE Band 2 | 20M      | 50      | 0         | QPSK       | Edge 1        | 0        | Off            | 18700 | 1860        | 21.48               | 22.00               | 1.127                  | -0.1             | 0.914                  | 1.030                  |
|          | LTE Band 2 | 20M      | 50      | 0         | QPSK       | Edge 1        | 0        | Off            | 18900 | 1880        | 21.59               | 22.00               | 1.099                  | -0.07            | 0.972                  | 1.068                  |
|          | LTE Band 2 | 20M      | 100     | 0         | QPSK       | Bottom Face   | 0        | On             | 19100 | 1900        | 11.73               | 13.00               | 1.340                  | 0.02             | 0.301                  | 0.403                  |
|          | LTE Band 2 | 20M      | 100     | 0         | QPSK       | Edge 1        | 0        | Off            | 19100 | 1900        | 21.59               | 22.00               | 1.099                  | -0.11            | 0.986                  | 1.084                  |
|          | LTE Band 2 | 20M      | 100     | 0         | QPSK       | Edge 4        | 0        | On             | 19100 | 1900        | 11.73               | 13.00               | 1.340                  | 0.03             | 0.148                  | 0.198                  |
|          | LTE Band 2 | 20M      | 100     | 0         | QPSK       | Bottom Face   | 1.2      | Off            | 19100 | 1900        | 21.59               | 22.00               | 1.099                  | 0.02             | 0.350                  | 0.385                  |
|          | LTE Band 2 | 20M      | 100     | 0         | QPSK       | Edge 4        | 1.2      | Off            | 19100 | 1900        | 21.59               | 22.00               | 1.099                  | -0.15            | 0.375                  | 0.412                  |
|          | LTE Band 7 | 20M      | 1       | 0         | QPSK       | Bottom Face   | 0        | On             | 20850 | 2510        | 12.05               | 13.00               | 1.245                  | 0.15             | 0.626                  | 0.779                  |
| #09      | LTE Band 7 | 20M      | 1       | 0         | QPSK       | Edge 1        | 0        | Off            | 21350 | 2560        | 21.95               | 22.00               | 1.012                  | -0.02            | 1.370                  | <b>1.386</b>           |
|          | LTE Band 7 | 20M      | 1       | 0         | QPSK       | Edge 4        | 0        | On             | 20850 | 2510        | 12.05               | 13.00               | 1.245                  | -0.01            | 0.387                  | 0.482                  |
|          | LTE Band 7 | 20M      | 1       | 0         | QPSK       | Bottom Face   | 1.2      | Off            | 21350 | 2560        | 21.95               | 22.00               | 1.012                  | 0.02             | 0.424                  | 0.429                  |
|          | LTE Band 7 | 20M      | 1       | 0         | QPSK       | Edge 4        | 1.2      | Off            | 21350 | 2560        | 21.95               | 22.00               | 1.012                  | -0.01            | 0.424                  | 0.429                  |
|          | LTE Band 7 | 20M      | 1       | 0         | QPSK       | Edge 1        | 0        | Off            | 20850 | 2510        | 21.90               | 22.00               | 1.023                  | -0.08            | 1.250                  | 1.279                  |
|          | LTE Band 7 | 20M      | 1       | 0         | QPSK       | Edge 1        | 0        | Off            | 21100 | 2535        | 21.94               | 22.00               | 1.014                  | 0.09             | 1.270                  | 1.288                  |
|          | LTE Band 7 | 20M      | 50      | 0         | QPSK       | Bottom Face   | 0        | On             | 20850 | 2510        | 11.00               | 12.00               | 1.259                  | 0.04             | 0.473                  | 0.595                  |
|          | LTE Band 7 | 20M      | 50      | 0         | QPSK       | Edge 1        | 0        | Off            | 21350 | 2560        | 20.88               | 21.00               | 1.028                  | -0.05            | 1.180                  | 1.213                  |
|          | LTE Band 7 | 20M      | 50      | 0         | QPSK       | Edge 4        | 0        | On             | 20850 | 2510        | 11.00               | 12.00               | 1.259                  | -0.14            | 0.266                  | 0.335                  |
|          | LTE Band 7 | 20M      | 50      | 0         | QPSK       | Bottom Face   | 1.2      | Off            | 21350 | 2560        | 20.88               | 21.00               | 1.028                  | -0.08            | 0.380                  | 0.391                  |
|          | LTE Band 7 | 20M      | 50      | 0         | QPSK       | Edge 4        | 1.2      | Off            | 21350 | 2560        | 20.88               | 21.00               | 1.028                  | -0.08            | 0.348                  | 0.358                  |
|          | LTE Band 7 | 20M      | 50      | 0         | QPSK       | Edge 1        | 0        | Off            | 20850 | 2510        | 20.85               | 21.00               | 1.035                  | 0.02             | 1.140                  | 1.180                  |
|          | LTE Band 7 | 20M      | 50      | 0         | QPSK       | Edge 1        | 0        | Off            | 21100 | 2535        | 20.86               | 21.00               | 1.033                  | 0.04             | 1.090                  | 1.126                  |
|          | LTE Band 7 | 20M      | 100     | 0         | QPSK       | Bottom Face   | 0        | On             | 20850 | 2510        | 10.71               | 12.00               | 1.346                  | 0.07             | 0.459                  | 0.618                  |
|          | LTE Band 7 | 20M      | 100     | 0         | QPSK       | Edge 1        | 0        | Off            | 21350 | 2560        | 20.76               | 21.00               | 1.057                  | -0.04            | 1.110                  | 1.173                  |
|          | LTE Band 7 | 20M      | 100     | 0         | QPSK       | Edge 4        | 0        | On             | 20850 | 2510        | 10.71               | 12.00               | 1.346                  | -0.04            | 0.254                  | 0.342                  |
|          | LTE Band 7 | 20M      | 100     | 0         | QPSK       | Bottom Face   | 1.2      | Off            | 21350 | 2560        | 20.76               | 21.00               | 1.057                  | 0.06             | 0.362                  | 0.383                  |
|          | LTE Band 7 | 20M      | 100     | 0         | QPSK       | Edge 4        | 1.2      | Off            | 21350 | 2560        | 20.76               | 21.00               | 1.057                  | -0.03            | 0.344                  | 0.364                  |



**<DTS WLAN SAR>**

| Plot No. | Band        | Mode              | Test Position | Gap (cm) | Ant.    | 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) |
|----------|-------------|-------------------|---------------|----------|---------|-----|-------------|---------------------|---------------------|------------------------|--------------|---------------------------|------------------|------------------------|------------------------|
| #10      | WLAN 2.4GHz | 802.11b 1Mbps     | Bottom Face   | 0        | Ant.0   | 1   | 2412        | 15.70               | 16.00               | 1.072                  | 100          | 1.000                     | 0.04             | 0.790                  | <b>0.847</b>           |
|          | WLAN 2.4GHz | 802.11b 1Mbps     | Edge 2        | 0        | Ant.0   | 1   | 2412        | 15.70               | 16.00               | 1.072                  | 100          | 1.000                     | -0.09            | 0.549                  | 0.588                  |
|          | WLAN 2.4GHz | 802.11b 1Mbps     | Bottom Face   | 0        | Ant.0   | 6   | 2437        | 14.98               | 16.00               | 1.265                  | 100          | 1.000                     | 0.04             | 0.592                  | 0.749                  |
|          | WLAN 2.4GHz | 802.11b 1Mbps     | Bottom Face   | 0        | Ant.0   | 11  | 2462        | 14.89               | 16.00               | 1.291                  | 100          | 1.000                     | 0.07             | 0.631                  | 0.815                  |
|          | WLAN 2.4GHz | 802.11b 1Mbps     | Bottom Face   | 0        | Ant.1   | 1   | 2412        | 16.10               | 16.50               | 1.096                  | 100          | 1.000                     | 0.06             | 0.604                  | 0.662                  |
|          | WLAN 2.4GHz | 802.11b 1Mbps     | Edge 1        | 0        | Ant.1   | 1   | 2412        | 16.10               | 16.50               | 1.096                  | 100          | 1.000                     | -0.02            | 0.203                  | 0.223                  |
|          | WLAN 2.4GHz | 802.11n HT20 MCS8 | Bottom Face   | 0        | Ant.0+1 | 1   | 2412        | 11.74               | 12.00               | 1.062                  | 90.88        | 1.100                     | 0.05             | 0.126                  | 0.147                  |
|          | WLAN 2.4GHz | 802.11n HT20 MCS8 | Edge 1        | 0        | Ant.0+1 | 1   | 2412        | 11.74               | 12.00               | 1.062                  | 90.88        | 1.100                     | 0.03             | 0.011                  | 0.013                  |
|          | WLAN 2.4GHz | 802.11n HT20 MCS8 | Edge 2        | 0        | Ant.0+1 | 1   | 2412        | 11.74               | 12.00               | 1.062                  | 90.88        | 1.100                     | 0.09             | 0.089                  | 0.104                  |

**<UNII WLAN SAR>**

| Plot No. | Band        | Mode              | Test Position | Gap (cm) | Ant.    | 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) |
|----------|-------------|-------------------|---------------|----------|---------|-----|-------------|---------------------|---------------------|------------------------|--------------|---------------------------|------------------|------------------------|------------------------|
|          | WLAN 5.2GHz | 802.11a 6Mbps     | Bottom Face   | 0        | Ant.0   | 48  | 5240        | 10.26               | 10.5                | 1.057                  | 95.83        | 1.044                     | -0.02            | 0.610                  | 0.673                  |
|          | WLAN 5.2GHz | 802.11a 6Mbps     | Edge2         | 0        | Ant.0   | 48  | 5240        | 10.26               | 10.5                | 1.057                  | 95.83        | 1.044                     | 0.18             | 0.884                  | 0.975                  |
| #11      | WLAN 5.2GHz | 802.11a 6Mbps     | Edge2         | 0        | Ant.0   | 36  | 5180        | 9.43                | 10                  | 1.140                  | 95.83        | 1.044                     | -0.05            | 1.150                  | <b>1.369</b>           |
|          | WLAN 5.2GHz | 802.11a 6Mbps     | Bottom Face   | 0        | Ant.1   | 36  | 5180        | 10                  | 10.5                | 1.122                  | 95.48        | 1.047                     | -0.1             | 0.799                  | 0.939                  |
|          | WLAN 5.2GHz | 802.11a 6Mbps     | Edge1         | 0        | Ant.1   | 36  | 5180        | 10                  | 10.5                | 1.122                  | 95.48        | 1.047                     | -0.06            | 0.484                  | 0.569                  |
|          | WLAN 5.2GHz | 802.11a 6Mbps     | Bottom Face   | 0        | Ant.1   | 48  | 5240        | 9.99                | 10.5                | 1.125                  | 95.48        | 1.047                     | -0.1             | 0.842                  | 0.991                  |
|          | WLAN 5.2GHz | 802.11n HT20 MCS8 | Bottom Face   | 0        | Ant.0+1 | 36  | 5180        | 9.94                | 10.5                | 1.138                  | 90.98        | 1.099                     | -0.12            | 0.199                  | 0.249                  |
|          | WLAN 5.2GHz | 802.11n HT20 MCS8 | Edge1         | 0        | Ant.0+1 | 36  | 5180        | 9.94                | 10.5                | 1.138                  | 90.98        | 1.099                     | -0.14            | 0.124                  | 0.155                  |
|          | WLAN 5.2GHz | 802.11n HT20 MCS8 | Edge2         | 0        | Ant.0+1 | 36  | 5180        | 9.94                | 10.5                | 1.138                  | 90.98        | 1.099                     | -0.19            | 0.364                  | 0.455                  |
|          | WLAN 5.8GHz | 802.11a 6Mbps     | Bottom Face   | 0        | Ant.0   | 165 | 5825        | 10.81               | 11                  | 1.045                  | 95.83        | 1.044                     | -0.08            | 0.272                  | 0.297                  |
|          | WLAN 5.8GHz | 802.11a 6Mbps     | Edge2         | 0        | Ant.0   | 165 | 5825        | 10.81               | 11                  | 1.045                  | 95.83        | 1.044                     | -0.12            | 0.262                  | 0.286                  |
|          | WLAN 5.8GHz | 802.11a 6Mbps     | Bottom Face   | 0        | Ant.1   | 157 | 5785        | 10.87               | 11.5                | 1.156                  | 95.48        | 1.047                     | -0.11            | 0.215                  | 0.260                  |
| #12      | WLAN 5.8GHz | 802.11a 6Mbps     | Edge1         | 0        | Ant.1   | 157 | 5785        | 10.87               | 11.5                | 1.156                  | 95.48        | 1.047                     | -0.1             | 0.255                  | <b>0.309</b>           |
|          | WLAN 5.8GHz | 802.11n HT20 MCS8 | Bottom Face   | 0        | Ant.0+1 | 165 | 5825        | 10.56               | 11                  | 1.107                  | 90.98        | 1.099                     | -0.07            | 0.215                  | 0.261                  |
|          | WLAN 5.8GHz | 802.11n HT20 MCS8 | Edge1         | 0        | Ant.0+1 | 165 | 5825        | 10.56               | 11                  | 1.107                  | 90.98        | 1.099                     | -0.03            | 0.097                  | 0.118                  |
|          | WLAN 5.8GHz | 802.11n HT20 MCS8 | Edge2         | 0        | Ant.0+1 | 165 | 5825        | 10.56               | 11                  | 1.107                  | 90.98        | 1.099                     | -0.02            | 0.246                  | 0.299                  |



## 15.2 Repeated SAR Measurement

| No. | Band          | BW (MHz) | RB Size | RB offset | Modulation        | Test Position | Gap (cm) | Power Back-off /Ant. | 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 | GSM850        | -        | -       | -         | GPRS (3 Tx slots) | Bottom Face   | 0        | On                   | 251   | 848.8       | 27.86               | 28.00               | 1.033                  | 0.06             | 1.170                  | 1     | 1.208                  |
| 2nd | GSM850        | -        | -       | -         | GPRS (3 Tx slots) | Bottom Face   | 0        | On                   | 251   | 848.8       | 27.86               | 28.00               | 1.033                  | 0.05             | 1.150                  | 1.017 | 1.188                  |
| 1st | WCDMA Band IV | -        | -       | -         | RMC12.2K          | Bottom Face   | 0        | On                   | 1513  | 1752.6      | 13.85               | 14.00               | 1.035                  | 0.08             | 1.320                  | 1     | 1.366                  |
| 2nd | WCDMA Band IV | -        | -       | -         | RMC12.2K          | Bottom Face   | 0        | On                   | 1513  | 1752.6      | 13.85               | 14.00               | 1.035                  | 0.01             | 1.280                  | 1.031 | 1.325                  |
| 1st | LTE Band 2    | 20M      | 1       | 0         | QPSK              | Edge 1        | 0        | Off                  | 18900 | 1880        | 22.86               | 23.00               | 1.033                  | -0.12            | 1.270                  | 1     | 1.312                  |
| 2nd | LTE Band 2    | 20M      | 1       | 0         | QPSK              | Edge 1        | 0        | Off                  | 18900 | 1880        | 22.86               | 23.00               | 1.033                  | -0.02            | 1.250                  | 1.016 | 1.291                  |
| 1st | LTE Band 7    | 20M      | 1       | 0         | QPSK              | Edge 1        | 0        | Off                  | 21350 | 2560        | 21.95               | 22.00               | 1.012                  | -0.02            | 1.370                  | 1     | 1.386                  |
| 2nd | LTE Band 7    | 20M      | 1       | 0         | QPSK              | Edge 1        | 0        | Off                  | 21350 | 2560        | 21.95               | 22.00               | 1.012                  | -0.02            | 1.360                  | 1.007 | 1.376                  |
| 1st | WLAN 5.2GHz   | -        | -       | -         | 802.11a 6Mbps     | Edge2         | 0        | Ant.0                | 36    | 5180        | 9.43                | 10                  | 1.140                  | -0.05            | 1.150                  | 1     | 1.369                  |
| 2nd | WLAN 5.2GHz   | -        | -       | -         | 802.11a 6Mbps     | Edge2         | 0        | Ant.0                | 36    | 5180        | 9.43                | 10                  | 1.140                  | -0.07            | 1.120                  | 1.027 | 1.333                  |

### General Note:

1. Per KDB 865664 D01v01r03, for each frequency band, repeated SAR measurement is required only when the measured SAR is  $\geq 0.8$ W/kg.
2. Per KDB 865664 D01v01r03, 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.

## 16. Simultaneous Transmission Analysis

| NO  | Simultaneous Transmission Configurations | Tablet | Note                |
|-----|------------------------------------------|--------|---------------------|
|     |                                          | Body   |                     |
| 1.  | GPRS/EDGE(data) + WLAN2.4GHz(data) SISO  | Yes    | 2.4GHz Hotspot      |
| 2.  | WCDMA(data) + WLAN2.4GHz(data) SISO      | Yes    | 2.4GHz Hotspot      |
| 3.  | LTE(data) + WLAN2.4GHz(data) SISO        | Yes    | 2.4GHz Hotspot      |
| 4.  | GPRS/EDGE(data) + WLAN2.4GHz(data) MIMO  | Yes    | 2.4GHz Hotspot      |
| 5.  | WCDMA(data) + WLAN2.4GHz(data) MIMO      | Yes    | 2.4GHz Hotspot      |
| 6.  | LTE(data) + WLAN2.4GHz(data) MIMO        | Yes    | 2.4GHz Hotspot      |
| 7.  | GPRS/EDGE(data) + WLAN5GHz(data) SISO    | Yes    | WiFi Direct         |
| 8.  | WCDMA(data) + WLAN5GHz(data) SISO        | Yes    | WiFi Direct         |
| 9.  | LTE(data) + WLAN5GHz(data) SISO          | Yes    | WiFi Direct         |
| 10. | GPRS/EDGE(data) + WLAN5GHz(data) MIMO    | Yes    | WiFi Direct         |
| 11. | WCDMA(data) + WLAN5GHz(data) MIMO        | Yes    | WiFi Direct         |
| 12. | LTE(data) + WLAN5GHz(data) MIMO          | Yes    | WiFi Direct         |
| 13. | GPRS/EDGE(data) + Bluetooth(data)        | Yes    | Bluetooth Tethering |
| 14. | WCDMA(data) + Bluetooth(data)            | Yes    | Bluetooth Tethering |
| 15. | LTE(data) + Bluetooth(data)              | Yes    | Bluetooth Tethering |

### General Note:

- This device 2.4GHz/5.8GHz WLAN supports hotspot operation and WIFI Direct (Group Client / Group Owner) and WLAN 5.2GHz supports WiFi Direct (Group Client).
- EUT will choose each GSM, WCDMA and LTE according to the network signal condition; therefore, they will not operate simultaneously at any moment.
- Bluetooth and WLAN Antenna 0 share the same antenna, and cannot transmit simultaneously. And Bluetooth also cannot transmit simultaneously with WLAN Antenna 1.
- 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.
- The worst case 5 GHz WLAN reported SAR for each configuration was used for SAR summation, regardless of whether the WLAN channel has WiFi Direct and Hotspot capability. Therefore, the following summations represent the absolute worst cases for simultaneous transmission with 5 GHz WLAN.
- For simultaneous transmission analysis for exposure position of edge4 1.2cm and bottom face 1.2cm, WLAN SAR tested at 0mm separation is worse and the test data is used for conservative SAR summation.
- The reported SAR summation is calculated based on the same configuration and test position.
- Per KDB 447498 D01v05r02, simultaneous transmission SAR is compliant if,
  - Scalar SAR summation  $< 1.6\text{W/kg}$ .
  - $\text{SPLSR} = (\text{SAR}_1 + \text{SAR}_2)^{1.5} / (\min. \text{separation distance, mm})$ , and the peak separation distance is determined from the square root of  $[(x_1-x_2)^2 + (y_1-y_2)^2 + (z_1-z_2)^2]$ , where  $(x_1, y_1, z_1)$  and  $(x_2, y_2, z_2)$  are the coordinates of the extrapolated peak SAR locations in the zoom scan.
  - If  $\text{SPLSR} \leq 0.04$ , simultaneously transmission SAR measurement is not necessary.
  - Simultaneously transmission SAR measurement, and the reported multi-band SAR  $< 1.6\text{W/kg}$ .
- For simultaneous transmission analysis, Bluetooth SAR is estimated per KDB 447498 D01v05r02 based on the formula below.
  - $(\text{max. power of channel, including tune-up tolerance, mW}) / (\min. \text{test separation distance, mm}) \cdot [\sqrt{f(\text{GHz})} / x] \text{ W/kg}$  for test separation distances  $\leq 50 \text{ mm}$ ; where  $x = 7.5$  for 1-g SAR, and  $x = 18.75$  for 10-g SAR.
  - 0.4 W/kg for 1-g SAR and 1.0 W/kg for 10-g SAR, when the test separation distances is  $> 50 \text{ mm}$ .
  - If the test separation distance (antenna-user) is  $< 5\text{mm}$ , 5mm is used for excluded SAR calculation.
  - In this report, 50mm separation is applied to conservatively estimate SAR value for separation distance  $> 50\text{mm}$ .

| Max Power | Exposure Position             | Bottom Face | Bottom Face | Edge 1 | Edge 3 | Edge 4 | Edge 4 |
|-----------|-------------------------------|-------------|-------------|--------|--------|--------|--------|
|           | Test separation (mm)          | 0           | 12          | 0      | 0      | 0      | 12     |
| 9.5 dBm   | Antenna to user distance (mm) | 0           | 12          | 82     | 78     | 244    | 256    |
|           | Estimated SAR (W/kg)          | 0.378       | 0.157       | 0.038  | 0.038  | 0.038  | 0.038  |

**16.1 Tablet Body Exposure Conditions**
**<WWAN PCB + WLAN (Antenna 0) DTS>**

| WWAN Band |         | Exposure Position    | WWAN PCB<br>Max.<br>WWAN SAR<br>(W/kg) | WLAN DTS<br>Max.<br>WLAN SAR<br>(W/kg) | Summed<br>SAR<br>(W/kg) | SPLSR       | Case No   |
|-----------|---------|----------------------|----------------------------------------|----------------------------------------|-------------------------|-------------|-----------|
| GSM       | GSM850  | Bottom Face at 1.2cm | 0.442                                  | 0.847                                  | 1.29                    |             |           |
|           |         | Edge4 at 1.2cm       | 0.211                                  |                                        | 0.21                    |             |           |
|           |         | Bottom Face at 0cm   | 1.208                                  | 0.847                                  | <b>2.06</b>             | <b>0.01</b> | <b>#1</b> |
|           |         | Edge1 at 0cm         | 0.399                                  |                                        | 0.40                    |             |           |
|           |         | Edge2 at 0cm         |                                        | 0.588                                  | 0.59                    |             |           |
|           |         | Edge3 at 0cm         | 0.141                                  |                                        | 0.14                    |             |           |
|           |         | Edge4 at 0cm         | 0.308                                  |                                        | 0.31                    |             |           |
|           | GSM1900 | Bottom Face at 1.2cm | 0.597                                  | 0.847                                  | 1.44                    |             |           |
|           |         | Edge4 at 1.2cm       | 0.091                                  |                                        | 0.09                    |             |           |
|           |         | Bottom Face at 0cm   | 0.999                                  | 0.847                                  | <b>1.85</b>             | <b>0.01</b> | <b>#2</b> |
|           |         | Edge1 at 0cm         | 1.321                                  |                                        | 1.32                    |             |           |
|           |         | Edge2 at 0cm         |                                        | 0.588                                  | 0.59                    |             |           |
|           |         | Edge4 at 0cm         | 0.475                                  |                                        | 0.48                    |             |           |
| WCMDA     | Band V  | Bottom Face at 1.2cm | 0.243                                  | 0.847                                  | 1.09                    |             |           |
|           |         | Edge4 at 1.2cm       | 0.085                                  |                                        | 0.09                    |             |           |
|           |         | Bottom Face at 0cm   | 0.537                                  | 0.847                                  | 1.38                    |             |           |
|           |         | Edge1 at 0cm         | 0.155                                  |                                        | 0.16                    |             |           |
|           |         | Edge2 at 0cm         |                                        | 0.588                                  | 0.59                    |             |           |
|           | Band IV | Edge4 at 0cm         | 0.120                                  |                                        | 0.12                    |             |           |
|           |         | Bottom Face at 1.2cm | 0.879                                  | 0.847                                  | <b>1.73</b>             | <b>0.01</b> | <b>#3</b> |
|           |         | Edge4 at 1.2cm       | 0.902                                  |                                        | 0.90                    |             |           |
|           |         | Bottom Face at 0cm   | 1.366                                  | 0.847                                  | <b>2.21</b>             | <b>0.01</b> | <b>#4</b> |
|           |         | Edge1 at 0cm         | 1.060                                  |                                        | 1.06                    |             |           |
|           |         | Edge2 at 0cm         |                                        | 0.588                                  | 0.59                    |             |           |
|           | Band II | Edge4 at 0cm         | 0.746                                  |                                        | 0.75                    |             |           |
|           |         | Bottom Face at 1.2cm | 0.511                                  | 0.847                                  | 1.36                    |             |           |
|           |         | Edge4 at 1.2cm       | 0.505                                  |                                        | 0.51                    |             |           |
|           |         | Bottom Face at 0cm   | 0.441                                  | 0.847                                  | 1.29                    |             |           |
|           |         | Edge1 at 0cm         | 1.353                                  |                                        | 1.35                    |             |           |
|           |         | Edge2 at 0cm         |                                        | 0.588                                  | 0.59                    |             |           |
|           |         | Edge4 at 0cm         | 0.222                                  |                                        | 0.22                    |             |           |

| WWAN Band |        | Exposure Position    | WWAN PCB<br>Max.<br>WWAN SAR<br>(W/kg) | WLAN DTS<br>Max.<br>WLAN SAR<br>(W/kg) | Summed<br>SAR<br>(W/kg) | SPLSR       | Case No   |
|-----------|--------|----------------------|----------------------------------------|----------------------------------------|-------------------------|-------------|-----------|
| LTE       | Band 5 | Bottom Face at 1.2cm | 0.127                                  | 0.847                                  | 0.97                    |             |           |
|           |        | Edge4 at 1.2cm       | 0.058                                  |                                        | 0.06                    |             |           |
|           |        | Bottom Face at 0cm   | 0.371                                  | 0.847                                  | 1.22                    |             |           |
|           |        | Edge1 at 0cm         | 0.116                                  |                                        | 0.12                    |             |           |
|           |        | Edge2 at 0cm         |                                        | 0.588                                  | 0.59                    |             |           |
|           |        | Edge4 at 0cm         | 0.085                                  |                                        | 0.09                    |             |           |
|           | Band 4 | Bottom Face at 1.2cm | 0.625                                  | 0.847                                  | 1.47                    |             |           |
|           |        | Edge4 at 1.2cm       | 0.660                                  |                                        | 0.66                    |             |           |
|           |        | Bottom Face at 0cm   | 1.208                                  | 0.847                                  | <b>2.06</b>             | <b>0.01</b> | <b>#5</b> |
|           |        | Edge1 at 0cm         | 0.681                                  |                                        | 0.68                    |             |           |
|           |        | Edge2 at 0cm         |                                        | 0.588                                  | 0.59                    |             |           |
|           |        | Edge4 at 0cm         | 0.680                                  |                                        | 0.68                    |             |           |
|           | Band 2 | Bottom Face at 1.2cm | 0.460                                  | 0.847                                  | 1.31                    |             |           |
|           |        | Edge4 at 1.2cm       | 0.492                                  |                                        | 0.49                    |             |           |
|           |        | Bottom Face at 0cm   | 0.480                                  | 0.847                                  | 1.33                    |             |           |
|           |        | Edge1 at 0cm         | 1.312                                  |                                        | 1.31                    |             |           |
|           |        | Edge2 at 0cm         |                                        | 0.588                                  | 0.59                    |             |           |
|           |        | Edge4 at 0cm         | 0.260                                  |                                        | 0.26                    |             |           |
|           | Band 7 | Bottom Face at 1.2cm | 0.429                                  | 0.847                                  | 1.28                    |             |           |
|           |        | Edge4 at 1.2cm       | 0.429                                  |                                        | 0.43                    |             |           |
|           |        | Bottom Face at 0cm   | 0.779                                  | 0.847                                  | <b>1.63</b>             | <b>0.01</b> | <b>#6</b> |
|           |        | Edge1 at 0cm         | 1.386                                  |                                        | 1.39                    |             |           |
|           |        | Edge2 at 0cm         |                                        | 0.588                                  | 0.59                    |             |           |
|           |        | Edge4 at 0cm         | 0.482                                  |                                        | 0.48                    |             |           |

**<WWAN PCB + WLAN (Antenna 1) DTS>**

| WWAN Band |         | Exposure Position    | WWAN PCB<br>Max.<br>WWAN SAR<br>(W/kg) | WLAN DTS<br>Max.<br>WLAN SAR<br>(W/kg) | Summed<br>SAR<br>(W/kg) | SPLSR       | Case No   |
|-----------|---------|----------------------|----------------------------------------|----------------------------------------|-------------------------|-------------|-----------|
| GSM       | GSM850  | Bottom Face at 1.2cm | 0.442                                  | 0.662                                  | 1.10                    |             |           |
|           |         | Edge4 at 1.2cm       | 0.211                                  |                                        | 0.21                    |             |           |
|           |         | Bottom Face at 0cm   | 1.208                                  | 0.662                                  | <b>1.87</b>             | <b>0.02</b> | <b>#7</b> |
|           |         | Edge1 at 0cm         | 0.399                                  | 0.223                                  | 0.62                    |             |           |
|           |         | Edge3 at 0cm         | 0.141                                  |                                        | 0.14                    |             |           |
|           |         | Edge4 at 0cm         | 0.308                                  |                                        | 0.31                    |             |           |
|           | GSM1900 | Bottom Face at 1.2cm | 0.597                                  | 0.662                                  | 1.26                    |             |           |
|           |         | Edge4 at 1.2cm       | 0.091                                  |                                        | 0.09                    |             |           |
|           |         | Bottom Face at 0cm   | 0.999                                  | 0.662                                  | <b>1.66</b>             | <b>0.02</b> | <b>#8</b> |
|           |         | Edge1 at 0cm         | 1.321                                  | 0.223                                  | 1.54                    |             |           |
| WCMDA     | Band V  | Bottom Face at 1.2cm | 0.243                                  | 0.662                                  | 0.91                    |             |           |
|           |         | Edge4 at 1.2cm       | 0.085                                  |                                        | 0.09                    |             |           |
|           |         | Bottom Face at 0cm   | 0.537                                  | 0.662                                  | 1.20                    |             |           |
|           |         | Edge1 at 0cm         | 0.155                                  | 0.223                                  | 0.38                    |             |           |
|           |         | Edge4 at 0cm         | 0.120                                  |                                        | 0.12                    |             |           |
|           | Band IV | Bottom Face at 1.2cm | 0.879                                  | 0.662                                  | 1.54                    |             |           |
|           |         | Edge4 at 1.2cm       | 0.902                                  |                                        | 0.90                    |             |           |
|           |         | Bottom Face at 0cm   | 1.366                                  | 0.662                                  | <b>2.03</b>             | <b>0.02</b> | <b>#9</b> |
|           |         | Edge1 at 0cm         | 1.060                                  | 0.223                                  | 1.28                    |             |           |
|           |         | Edge4 at 0cm         | 0.746                                  |                                        | 0.75                    |             |           |
|           | Band II | Bottom Face at 1.2cm | 0.511                                  | 0.662                                  | 1.17                    |             |           |
|           |         | Edge4 at 1.2cm       | 0.505                                  |                                        | 0.51                    |             |           |
|           |         | Bottom Face at 0cm   | 0.441                                  | 0.662                                  | 1.10                    |             |           |
|           |         | Edge1 at 0cm         | 1.353                                  | 0.223                                  | <b>1.58</b>             |             |           |
|           |         | Edge4 at 0cm         | 0.222                                  |                                        | 0.22                    |             |           |

| WWAN Band |        | Exposure Position    | WWAN PCB<br>Max.<br>WWAN SAR<br>(W/kg) | WLAN DTS<br>Max.<br>WLAN SAR<br>(W/kg) | Summed<br>SAR<br>(W/kg) | SPLSR       | Case No    |
|-----------|--------|----------------------|----------------------------------------|----------------------------------------|-------------------------|-------------|------------|
| LTE       | Band 5 | Bottom Face at 1.2cm | 0.127                                  | 0.662                                  | 0.79                    |             |            |
|           |        | Edge4 at 1.2cm       | 0.058                                  |                                        | 0.06                    |             |            |
|           |        | Bottom Face at 0cm   | 0.371                                  | 0.662                                  | 1.03                    |             |            |
|           |        | Edge1 at 0cm         | 0.116                                  | 0.223                                  | 0.34                    |             |            |
|           |        | Edge4 at 0cm         | 0.085                                  |                                        | 0.09                    |             |            |
|           | Band 4 | Bottom Face at 1.2cm | 0.625                                  | 0.662                                  | 1.29                    |             |            |
|           |        | Edge4 at 1.2cm       | 0.660                                  |                                        | 0.66                    |             |            |
|           |        | Bottom Face at 0cm   | 1.208                                  | 0.662                                  | <b>1.87</b>             | <b>0.02</b> | <b>#10</b> |
|           |        | Edge1 at 0cm         | 0.681                                  | 0.223                                  | 0.90                    |             |            |
|           |        | Edge4 at 0cm         | 0.680                                  |                                        | 0.68                    |             |            |
|           | Band 2 | Bottom Face at 1.2cm | 0.460                                  | 0.662                                  | 1.12                    |             |            |
|           |        | Edge4 at 1.2cm       | 0.492                                  |                                        | 0.49                    |             |            |
|           |        | Bottom Face at 0cm   | 0.480                                  | 0.662                                  | 1.14                    |             |            |
|           |        | Edge1 at 0cm         | 1.312                                  | 0.223                                  | 1.54                    |             |            |
|           |        | Edge4 at 0cm         | 0.260                                  |                                        | 0.26                    |             |            |
|           | Band 7 | Bottom Face at 1.2cm | 0.429                                  | 0.662                                  | 1.09                    |             |            |
|           |        | Edge4 at 1.2cm       | 0.429                                  |                                        | 0.43                    |             |            |
|           |        | Bottom Face at 0cm   | 0.779                                  | 0.662                                  | 1.44                    |             |            |
|           |        | Edge1 at 0cm         | 1.386                                  | 0.223                                  | <b>1.61</b>             | <b>0.03</b> | <b>#11</b> |
|           |        | Edge4 at 0cm         | 0.482                                  |                                        | 0.48                    |             |            |

**<WWAN PCB + WLAN (Antenna 0+1) DTS>**

| WWAN Band |         | Exposure Position    | WWAN PCB<br>Max.<br>WWAN SAR<br>(W/kg) | WLAN DTS<br>Max.<br>WLAN SAR<br>(W/kg) | Summed<br>SAR<br>(W/kg) | SPLSR | Case No |
|-----------|---------|----------------------|----------------------------------------|----------------------------------------|-------------------------|-------|---------|
| GSM       | GSM850  | Bottom Face at 1.2cm | 0.442                                  | 0.147                                  | 0.59                    |       |         |
|           |         | Edge4 at 1.2cm       | 0.211                                  |                                        | 0.21                    |       |         |
|           |         | Bottom Face at 0cm   | 1.208                                  | 0.147                                  | 1.36                    |       |         |
|           |         | Edge1 at 0cm         | 0.399                                  | 0.013                                  | 0.41                    |       |         |
|           |         | Edge2 at 0cm         |                                        | 0.104                                  | 0.10                    |       |         |
|           |         | Edge3 at 0cm         | 0.141                                  |                                        | 0.14                    |       |         |
|           |         | Edge4 at 0cm         | 0.308                                  |                                        | 0.31                    |       |         |
|           | GSM1900 | Bottom Face at 1.2cm | 0.597                                  | 0.147                                  | 0.74                    |       |         |
|           |         | Edge4 at 1.2cm       | 0.091                                  |                                        | 0.09                    |       |         |
|           |         | Bottom Face at 0cm   | 0.999                                  | 0.147                                  | 1.15                    |       |         |
|           |         | Edge1 at 0cm         | 1.321                                  | 0.013                                  | 1.33                    |       |         |
|           |         | Edge2 at 0cm         |                                        | 0.104                                  | 0.10                    |       |         |
|           |         | Edge4 at 0cm         | 0.475                                  |                                        | 0.48                    |       |         |
| WCMDA     | Band V  | Bottom Face at 1.2cm | 0.243                                  | 0.147                                  | 0.39                    |       |         |
|           |         | Edge4 at 1.2cm       | 0.085                                  |                                        | 0.09                    |       |         |
|           |         | Bottom Face at 0cm   | 0.537                                  | 0.147                                  | 0.68                    |       |         |
|           |         | Edge1 at 0cm         | 0.155                                  | 0.013                                  | 0.17                    |       |         |
|           |         | Edge2 at 0cm         |                                        | 0.104                                  | 0.10                    |       |         |
|           |         | Edge4 at 0cm         | 0.120                                  |                                        | 0.12                    |       |         |
|           | Band IV | Bottom Face at 1.2cm | 0.879                                  | 0.147                                  | 1.03                    |       |         |
|           |         | Edge4 at 1.2cm       | 0.902                                  |                                        | 0.90                    |       |         |
|           |         | Bottom Face at 0cm   | 1.366                                  | 0.147                                  | 1.51                    |       |         |
|           |         | Edge1 at 0cm         | 1.060                                  | 0.013                                  | 1.07                    |       |         |
|           |         | Edge2 at 0cm         |                                        | 0.104                                  | 0.10                    |       |         |
|           |         | Edge4 at 0cm         | 0.746                                  |                                        | 0.75                    |       |         |
|           | Band II | Bottom Face at 1.2cm | 0.511                                  | 0.147                                  | 0.66                    |       |         |
|           |         | Edge4 at 1.2cm       | 0.505                                  |                                        | 0.51                    |       |         |
|           |         | Bottom Face at 0cm   | 0.441                                  | 0.147                                  | 0.59                    |       |         |
|           |         | Edge1 at 0cm         | 1.353                                  | 0.013                                  | 1.37                    |       |         |
|           |         | Edge2 at 0cm         |                                        | 0.104                                  | 0.10                    |       |         |
|           |         | Edge4 at 0cm         | 0.222                                  |                                        | 0.22                    |       |         |

| WWAN Band |        | Exposure Position    | WWAN PCB<br>Max.<br>WWAN SAR<br>(W/kg) | WLAN DTS<br>Max.<br>WLAN SAR<br>(W/kg) | Summed<br>SAR<br>(W/kg) | SPLSR | Case No |
|-----------|--------|----------------------|----------------------------------------|----------------------------------------|-------------------------|-------|---------|
| LTE       | Band 5 | Bottom Face at 1.2cm | 0.127                                  | 0.147                                  | 0.27                    |       |         |
|           |        | Edge4 at 1.2cm       | 0.058                                  |                                        | 0.06                    |       |         |
|           |        | Bottom Face at 0cm   | 0.371                                  | 0.147                                  | 0.52                    |       |         |
|           |        | Edge1 at 0cm         | 0.116                                  | 0.013                                  | 0.13                    |       |         |
|           |        | Edge2 at 0cm         |                                        | 0.104                                  | 0.10                    |       |         |
|           |        | Edge4 at 0cm         | 0.085                                  |                                        | 0.09                    |       |         |
|           | Band 4 | Bottom Face at 1.2cm | 0.625                                  | 0.147                                  | 0.77                    |       |         |
|           |        | Edge4 at 1.2cm       | 0.660                                  |                                        | 0.66                    |       |         |
|           |        | Bottom Face at 0cm   | 1.208                                  | 0.147                                  | 1.36                    |       |         |
|           |        | Edge1 at 0cm         | 0.681                                  | 0.013                                  | 0.69                    |       |         |
|           |        | Edge2 at 0cm         |                                        | 0.104                                  | 0.10                    |       |         |
|           |        | Edge4 at 0cm         | 0.680                                  |                                        | 0.68                    |       |         |
|           | Band 2 | Bottom Face at 1.2cm | 0.460                                  | 0.147                                  | 0.61                    |       |         |
|           |        | Edge4 at 1.2cm       | 0.492                                  |                                        | 0.49                    |       |         |
|           |        | Bottom Face at 0cm   | 0.480                                  | 0.147                                  | 0.63                    |       |         |
|           |        | Edge1 at 0cm         | 1.312                                  | 0.013                                  | 1.33                    |       |         |
|           |        | Edge2 at 0cm         |                                        | 0.104                                  | 0.10                    |       |         |
|           |        | Edge4 at 0cm         | 0.260                                  |                                        | 0.26                    |       |         |
|           | Band 7 | Bottom Face at 1.2cm | 0.429                                  | 0.147                                  | 0.58                    |       |         |
|           |        | Edge4 at 1.2cm       | 0.429                                  |                                        | 0.43                    |       |         |
|           |        | Bottom Face at 0cm   | 0.779                                  | 0.147                                  | 0.93                    |       |         |
|           |        | Edge1 at 0cm         | 1.386                                  | 0.013                                  | 1.40                    |       |         |
|           |        | Edge2 at 0cm         |                                        | 0.104                                  | 0.10                    |       |         |
|           |        | Edge4 at 0cm         | 0.482                                  |                                        | 0.48                    |       |         |

**<WWAN PCB + WLAN (Antenna 0) NII>**

| WWAN Band |         | Exposure Position    | WWAN PCB<br>Max.<br>WWAN SAR<br>(W/kg) | WLAN NII<br>Max.<br>WLAN SAR<br>(W/kg) | Summed<br>SAR<br>(W/kg) | SPLSR       | Case No    |
|-----------|---------|----------------------|----------------------------------------|----------------------------------------|-------------------------|-------------|------------|
| GSM       | GSM850  | Bottom Face at 1.2cm | 0.442                                  | 0.673                                  | 1.12                    |             |            |
|           |         | Edge4 at 1.2cm       | 0.211                                  |                                        | 0.21                    |             |            |
|           |         | Bottom Face at 0cm   | 1.208                                  | 0.673                                  | <b>1.88</b>             | <b>0.01</b> | <b>#12</b> |
|           |         | Edge1 at 0cm         | 0.399                                  |                                        | 0.40                    |             |            |
|           |         | Edge2 at 0cm         |                                        | 1.369                                  | 1.37                    |             |            |
|           |         | Edge3 at 0cm         | 0.141                                  |                                        | 0.14                    |             |            |
|           |         | Edge4 at 0cm         | 0.308                                  |                                        | 0.31                    |             |            |
|           | GSM1900 | Bottom Face at 1.2cm | 0.597                                  | 0.673                                  | 1.27                    |             |            |
|           |         | Edge4 at 1.2cm       | 0.091                                  |                                        | 0.09                    |             |            |
|           |         | Bottom Face at 0cm   | 0.999                                  | 0.673                                  | <b>1.67</b>             | <b>0.01</b> | <b>#13</b> |
|           |         | Edge1 at 0cm         | 1.321                                  |                                        | 1.32                    |             |            |
|           |         | Edge2 at 0cm         |                                        | 1.369                                  | 1.37                    |             |            |
|           |         | Edge4 at 0cm         | 0.475                                  |                                        | 0.48                    |             |            |
| WCMDA     | Band V  | Bottom Face at 1.2cm | 0.243                                  | 0.673                                  | 0.92                    |             |            |
|           |         | Edge4 at 1.2cm       | 0.085                                  |                                        | 0.09                    |             |            |
|           |         | Bottom Face at 0cm   | 0.537                                  | 0.673                                  | 1.21                    |             |            |
|           |         | Edge1 at 0cm         | 0.155                                  |                                        | 0.16                    |             |            |
|           |         | Edge2 at 0cm         |                                        | 1.369                                  | 1.37                    |             |            |
|           |         | Edge4 at 0cm         | 0.120                                  |                                        | 0.12                    |             |            |
|           | Band IV | Bottom Face at 1.2cm | 0.879                                  | 0.673                                  | 1.55                    |             |            |
|           |         | Edge4 at 1.2cm       | 0.902                                  |                                        | 0.90                    |             |            |
|           |         | Bottom Face at 0cm   | 1.366                                  | 0.673                                  | <b>2.04</b>             | <b>0.01</b> | <b>#14</b> |
|           |         | Edge1 at 0cm         | 1.060                                  |                                        | 1.06                    |             |            |
|           |         | Edge2 at 0cm         |                                        | 1.369                                  | 1.37                    |             |            |
|           |         | Edge4 at 0cm         | 0.746                                  |                                        | 0.75                    |             |            |
|           | Band II | Bottom Face at 1.2cm | 0.511                                  | 0.673                                  | 1.18                    |             |            |
|           |         | Edge4 at 1.2cm       | 0.505                                  |                                        | 0.51                    |             |            |
|           |         | Bottom Face at 0cm   | 0.441                                  | 0.673                                  | 1.11                    |             |            |
|           |         | Edge1 at 0cm         | 1.353                                  |                                        | 1.35                    |             |            |
|           |         | Edge2 at 0cm         |                                        | 1.369                                  | 1.37                    |             |            |
|           |         | Edge4 at 0cm         | 0.222                                  |                                        | 0.22                    |             |            |

| WWAN Band |        | Exposure Position    | WWAN PCB<br>Max.<br>WWAN SAR<br>(W/kg) | WLAN NII<br>Max.<br>WLAN SAR<br>(W/kg) | Summed<br>SAR<br>(W/kg) | SPLSR       | Case No    |
|-----------|--------|----------------------|----------------------------------------|----------------------------------------|-------------------------|-------------|------------|
| LTE       | Band 5 | Bottom Face at 1.2cm | 0.127                                  | 0.673                                  | 0.80                    |             |            |
|           |        | Edge4 at 1.2cm       | 0.058                                  |                                        | 0.06                    |             |            |
|           |        | Bottom Face at 0cm   | 0.371                                  | 0.673                                  | 1.04                    |             |            |
|           |        | Edge1 at 0cm         | 0.116                                  |                                        | 0.12                    |             |            |
|           |        | Edge2 at 0cm         |                                        | 1.369                                  | 1.37                    |             |            |
|           |        | Edge4 at 0cm         | 0.085                                  |                                        | 0.09                    |             |            |
|           | Band 4 | Bottom Face at 1.2cm | 0.625                                  | 0.673                                  | 1.30                    |             |            |
|           |        | Edge4 at 1.2cm       | 0.660                                  |                                        | 0.66                    |             |            |
|           |        | Bottom Face at 0cm   | 1.208                                  | 0.673                                  | <b>1.88</b>             | <b>0.01</b> | <b>#15</b> |
|           |        | Edge1 at 0cm         | 0.681                                  |                                        | 0.68                    |             |            |
|           |        | Edge2 at 0cm         |                                        | 1.369                                  | 1.37                    |             |            |
|           |        | Edge4 at 0cm         | 0.680                                  |                                        | 0.68                    |             |            |
|           | Band 2 | Bottom Face at 1.2cm | 0.460                                  | 0.673                                  | 1.13                    |             |            |
|           |        | Edge4 at 1.2cm       | 0.492                                  |                                        | 0.49                    |             |            |
|           |        | Bottom Face at 0cm   | 0.480                                  | 0.673                                  | 1.15                    |             |            |
|           |        | Edge1 at 0cm         | 1.312                                  |                                        | 1.31                    |             |            |
|           |        | Edge2 at 0cm         |                                        | 1.369                                  | 1.37                    |             |            |
|           |        | Edge4 at 0cm         | 0.260                                  |                                        | 0.26                    |             |            |
|           | Band 7 | Bottom Face at 1.2cm | 0.429                                  | 0.673                                  | 1.10                    |             |            |
|           |        | Edge4 at 1.2cm       | 0.429                                  |                                        | 0.43                    |             |            |
|           |        | Bottom Face at 0cm   | 0.779                                  | 0.673                                  | 1.45                    |             |            |
|           |        | Edge1 at 0cm         | 1.386                                  |                                        | 1.39                    |             |            |
|           |        | Edge2 at 0cm         |                                        | 1.369                                  | 1.37                    |             |            |
|           |        | Edge4 at 0cm         | 0.482                                  |                                        | 0.48                    |             |            |

**<WWAN PCB + WLAN (Antenna 1) NII>**

| WWAN Band |         | Exposure Position    | WWAN PCB<br>Max.<br>WWAN SAR<br>(W/kg) | WLAN NII<br>Max.<br>WLAN SAR<br>(W/kg) | Summed<br>SAR<br>(W/kg) | SPLSR       | Case No    |
|-----------|---------|----------------------|----------------------------------------|----------------------------------------|-------------------------|-------------|------------|
| GSM       | GSM850  | Bottom Face at 1.2cm | 0.442                                  | 0.991                                  | 1.43                    |             |            |
|           |         | Edge4 at 1.2cm       | 0.211                                  |                                        | 0.21                    |             |            |
|           |         | Bottom Face at 0cm   | 1.208                                  | 0.991                                  | <b>2.20</b>             | <b>0.02</b> | <b>#16</b> |
|           |         | Edge1 at 0cm         | 0.399                                  | 0.569                                  | 0.97                    |             |            |
|           |         | Edge3 at 0cm         | 0.141                                  |                                        | 0.14                    |             |            |
|           |         | Edge4 at 0cm         | 0.308                                  |                                        | 0.31                    |             |            |
|           | GSM1900 | Bottom Face at 1.2cm | 0.597                                  | 0.991                                  | <b>1.59</b>             |             |            |
|           |         | Edge4 at 1.2cm       | 0.091                                  |                                        | 0.09                    |             |            |
|           |         | Bottom Face at 0cm   | 0.999                                  | 0.991                                  | <b>1.99</b>             | <b>0.02</b> | <b>#17</b> |
|           |         | Edge1 at 0cm         | 1.321                                  | 0.569                                  | <b>1.89</b>             | <b>0.03</b> | <b>#18</b> |
| WCMDA     | Band V  | Edge4 at 0cm         | 0.475                                  |                                        | 0.48                    |             |            |
|           |         | Bottom Face at 1.2cm | 0.243                                  | 0.991                                  | 1.23                    |             |            |
|           |         | Edge4 at 1.2cm       | 0.085                                  |                                        | 0.09                    |             |            |
|           |         | Bottom Face at 0cm   | 0.537                                  | 0.991                                  | 1.53                    |             |            |
|           |         | Edge1 at 0cm         | 0.155                                  | 0.569                                  | 0.72                    |             |            |
|           | Band IV | Edge4 at 0cm         | 0.120                                  |                                        | 0.12                    |             |            |
|           |         | Bottom Face at 1.2cm | 0.879                                  | 0.991                                  | <b>1.87</b>             | <b>0.02</b> | <b>#19</b> |
|           |         | Edge4 at 1.2cm       | 0.902                                  |                                        | 0.90                    |             |            |
|           |         | Bottom Face at 0cm   | 1.366                                  | 0.991                                  | <b>2.36</b>             | <b>0.03</b> | <b>#20</b> |
|           |         | Edge1 at 0cm         | 1.060                                  | 0.569                                  | <b>1.63</b>             | <b>0.03</b> | <b>#21</b> |
|           | Band II | Edge4 at 0cm         | 0.746                                  |                                        | 0.75                    |             |            |
|           |         | Bottom Face at 1.2cm | 0.511                                  | 0.991                                  | 1.50                    |             |            |
|           |         | Edge4 at 1.2cm       | 0.505                                  |                                        | 0.51                    |             |            |
|           |         | Bottom Face at 0cm   | 0.441                                  | 0.991                                  | 1.43                    |             |            |
|           |         | Edge1 at 0cm         | 1.353                                  | 0.569                                  | <b>1.92</b>             | <b>0.03</b> | <b>#22</b> |
|           |         | Edge4 at 0cm         | 0.222                                  |                                        | 0.22                    |             |            |

| WWAN Band |        | Exposure Position    | WWAN PCB<br>Max.<br>WWAN SAR<br>(W/kg) | WLAN NII<br>Max.<br>WLAN SAR<br>(W/kg) | Summed<br>SAR<br>(W/kg) | SPLSR       | Case No    |
|-----------|--------|----------------------|----------------------------------------|----------------------------------------|-------------------------|-------------|------------|
| LTE       | Band 5 | Bottom Face at 1.2cm | 0.127                                  | 0.991                                  | 1.12                    |             |            |
|           |        | Edge4 at 1.2cm       | 0.058                                  |                                        | 0.06                    |             |            |
|           |        | Bottom Face at 0cm   | 0.371                                  | 0.991                                  | 1.36                    |             |            |
|           |        | Edge1 at 0cm         | 0.116                                  | 0.569                                  | 0.69                    |             |            |
|           |        | Edge4 at 0cm         | 0.085                                  |                                        | 0.09                    |             |            |
|           | Band 4 | Bottom Face at 1.2cm | 0.625                                  | 0.991                                  | <b>1.62</b>             | <b>0.01</b> | <b>#23</b> |
|           |        | Edge4 at 1.2cm       | 0.660                                  |                                        | 0.66                    |             |            |
|           |        | Bottom Face at 0cm   | 1.208                                  | 0.991                                  | <b>2.20</b>             | <b>0.02</b> | <b>#24</b> |
|           |        | Edge1 at 0cm         | 0.681                                  | 0.569                                  | 1.25                    |             |            |
|           |        | Edge4 at 0cm         | 0.680                                  |                                        | 0.68                    |             |            |
|           | Band 2 | Bottom Face at 1.2cm | 0.460                                  | 0.991                                  | 1.45                    |             |            |
|           |        | Edge4 at 1.2cm       | 0.492                                  |                                        | 0.49                    |             |            |
|           |        | Bottom Face at 0cm   | 0.480                                  | 0.991                                  | 1.47                    |             |            |
|           |        | Edge1 at 0cm         | 1.312                                  | 0.569                                  | <b>1.88</b>             | <b>0.02</b> | <b>#25</b> |
|           |        | Edge4 at 0cm         | 0.260                                  |                                        | 0.26                    |             |            |
|           | Band 7 | Bottom Face at 1.2cm | 0.429                                  | 0.991                                  | 1.42                    |             |            |
|           |        | Edge4 at 1.2cm       | 0.429                                  |                                        | 0.43                    |             |            |
|           |        | Bottom Face at 0cm   | 0.779                                  | 0.991                                  | <b>1.77</b>             | <b>0.02</b> | <b>#26</b> |
|           |        | Edge1 at 0cm         | 1.386                                  | 0.569                                  | <b>1.96</b>             | <b>0.02</b> | <b>#27</b> |
|           |        | Edge4 at 0cm         | 0.482                                  |                                        | 0.48                    |             |            |

**<WWAN PCB + WLAN (Antenna 0+1) NII>**

| WWAN Band |         | Exposure Position    | WWAN PCB<br>Max.<br>WWAN SAR<br>(W/kg) | WLAN NII<br>Max.<br>WLAN SAR<br>(W/kg) | Summed<br>SAR<br>(W/kg) | SPLSR       | Case No    |
|-----------|---------|----------------------|----------------------------------------|----------------------------------------|-------------------------|-------------|------------|
| GSM       | GSM850  | Bottom Face at 1.2cm | 0.442                                  | 0.261                                  | 0.70                    |             |            |
|           |         | Edge4 at 1.2cm       | 0.211                                  |                                        | 0.21                    |             |            |
|           |         | Bottom Face at 0cm   | 1.208                                  | 0.261                                  | 1.47                    |             |            |
|           |         | Edge1 at 0cm         | 0.399                                  | 0.155                                  | 0.55                    |             |            |
|           |         | Edge2 at 0cm         |                                        | 0.455                                  | 0.46                    |             |            |
|           |         | Edge3 at 0cm         | 0.141                                  |                                        | 0.14                    |             |            |
|           |         | Edge4 at 0cm         | 0.308                                  |                                        | 0.31                    |             |            |
|           | GSM1900 | Bottom Face at 1.2cm | 0.597                                  | 0.261                                  | 0.86                    |             |            |
|           |         | Edge4 at 1.2cm       | 0.091                                  |                                        | 0.09                    |             |            |
|           |         | Bottom Face at 0cm   | 0.999                                  | 0.261                                  | 1.26                    |             |            |
|           |         | Edge1 at 0cm         | 1.321                                  | 0.155                                  | 1.48                    |             |            |
|           |         | Edge2 at 0cm         |                                        | 0.455                                  | 0.46                    |             |            |
|           |         | Edge4 at 0cm         | 0.475                                  |                                        | 0.48                    |             |            |
| WCMDA     | Band V  | Bottom Face at 1.2cm | 0.243                                  | 0.261                                  | 0.50                    |             |            |
|           |         | Edge4 at 1.2cm       | 0.085                                  |                                        | 0.09                    |             |            |
|           |         | Bottom Face at 0cm   | 0.537                                  | 0.261                                  | 0.80                    |             |            |
|           |         | Edge1 at 0cm         | 0.155                                  | 0.155                                  | 0.31                    |             |            |
|           |         | Edge2 at 0cm         |                                        | 0.455                                  | 0.46                    |             |            |
|           |         | Edge4 at 0cm         | 0.120                                  |                                        | 0.12                    |             |            |
|           | Band IV | Bottom Face at 1.2cm | 0.879                                  | 0.261                                  | 1.14                    |             |            |
|           |         | Edge4 at 1.2cm       | 0.902                                  |                                        | 0.90                    |             |            |
|           |         | Bottom Face at 0cm   | 1.366                                  | 0.261                                  | <b>1.63</b>             | <b>0.01</b> | <b>#28</b> |
|           |         | Edge1 at 0cm         | 1.060                                  | 0.155                                  | 1.22                    |             |            |
|           |         | Edge2 at 0cm         |                                        | 0.455                                  | 0.46                    |             |            |
|           |         | Edge4 at 0cm         | 0.746                                  |                                        | 0.75                    |             |            |
|           | Band II | Bottom Face at 1.2cm | 0.511                                  | 0.261                                  | 0.77                    |             |            |
|           |         | Edge4 at 1.2cm       | 0.505                                  |                                        | 0.51                    |             |            |
|           |         | Bottom Face at 0cm   | 0.441                                  | 0.261                                  | 0.70                    |             |            |
|           |         | Edge1 at 0cm         | 1.353                                  | 0.155                                  | 1.51                    |             |            |
|           |         | Edge2 at 0cm         |                                        | 0.455                                  | 0.46                    |             |            |
|           |         | Edge4 at 0cm         | 0.222                                  |                                        | 0.22                    |             |            |

| WWAN Band |        | Exposure Position    | WWAN PCB<br>Max.<br>WWAN SAR<br>(W/kg) | WLAN NII<br>Max.<br>WLAN SAR<br>(W/kg) | Summed<br>SAR<br>(W/kg) | SPLSR | Case No |
|-----------|--------|----------------------|----------------------------------------|----------------------------------------|-------------------------|-------|---------|
| LTE       | Band 5 | Bottom Face at 1.2cm | 0.127                                  | 0.261                                  | 0.39                    |       |         |
|           |        | Edge4 at 1.2cm       | 0.058                                  |                                        | 0.06                    |       |         |
|           |        | Bottom Face at 0cm   | 0.371                                  | 0.261                                  | 0.63                    |       |         |
|           |        | Edge1 at 0cm         | 0.116                                  | 0.155                                  | 0.27                    |       |         |
|           |        | Edge2 at 0cm         |                                        | 0.455                                  | 0.46                    |       |         |
|           |        | Edge4 at 0cm         | 0.085                                  |                                        | 0.09                    |       |         |
|           | Band 4 | Bottom Face at 1.2cm | 0.625                                  | 0.261                                  | 0.89                    |       |         |
|           |        | Edge4 at 1.2cm       | 0.660                                  |                                        | 0.66                    |       |         |
|           |        | Bottom Face at 0cm   | 1.208                                  | 0.261                                  | 1.47                    |       |         |
|           |        | Edge1 at 0cm         | 0.681                                  | 0.155                                  | 0.84                    |       |         |
|           |        | Edge2 at 0cm         |                                        | 0.455                                  | 0.46                    |       |         |
|           |        | Edge4 at 0cm         | 0.680                                  |                                        | 0.68                    |       |         |
|           | Band 2 | Bottom Face at 1.2cm | 0.460                                  | 0.261                                  | 0.72                    |       |         |
|           |        | Edge4 at 1.2cm       | 0.492                                  |                                        | 0.49                    |       |         |
|           |        | Bottom Face at 0cm   | 0.480                                  | 0.261                                  | 0.74                    |       |         |
|           |        | Edge1 at 0cm         | 1.312                                  | 0.155                                  | 1.47                    |       |         |
|           |        | Edge2 at 0cm         |                                        | 0.455                                  | 0.46                    |       |         |
|           |        | Edge4 at 0cm         | 0.260                                  |                                        | 0.26                    |       |         |
|           | Band 7 | Bottom Face at 1.2cm | 0.429                                  | 0.261                                  | 0.69                    |       |         |
|           |        | Edge4 at 1.2cm       | 0.429                                  |                                        | 0.43                    |       |         |
|           |        | Bottom Face at 0cm   | 0.779                                  | 0.261                                  | 1.04                    |       |         |
|           |        | Edge1 at 0cm         | 1.386                                  | 0.155                                  | 1.54                    |       |         |
|           |        | Edge2 at 0cm         |                                        | 0.455                                  | 0.46                    |       |         |
|           |        | Edge4 at 0cm         | 0.482                                  |                                        | 0.48                    |       |         |

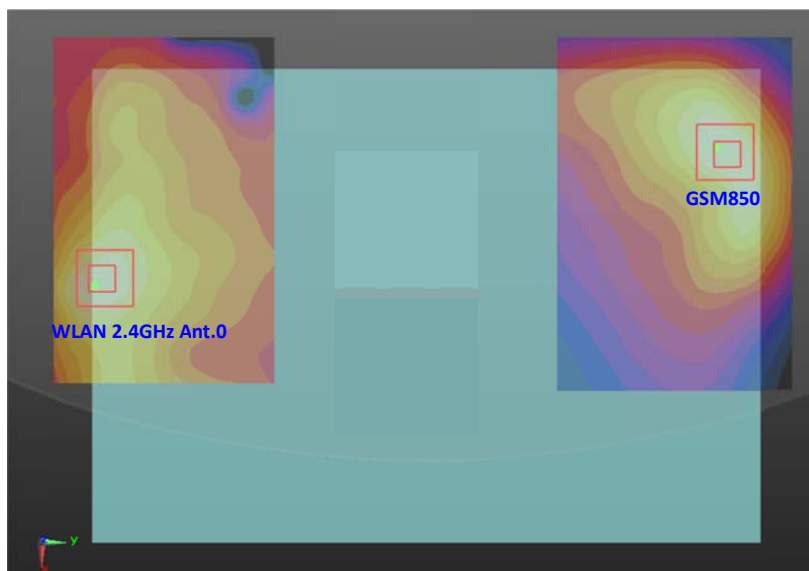
**<WWAN PCB + Bluetooth DSS>**

| WWAN Band |         | Exposure Position    | WWAN PCB<br>Max.<br>WWAN SAR<br>(W/kg) | Bluetooth DSS<br>Max.<br>WLAN SAR<br>(W/kg) | Summed<br>SAR<br>(W/kg) | SPLSR | Case No |
|-----------|---------|----------------------|----------------------------------------|---------------------------------------------|-------------------------|-------|---------|
| GSM       | GSM850  | Bottom Face at 1.2cm | 0.442                                  | 0.157                                       | 0.60                    |       |         |
|           |         | Edge4 at 1.2cm       | 0.211                                  | 0.038                                       | 0.25                    |       |         |
|           |         | Bottom Face at 0cm   | 1.208                                  | 0.378                                       | 1.59                    |       |         |
|           |         | Edge1 at 0cm         | 0.399                                  | 0.038                                       | 0.44                    |       |         |
|           |         | Edge3 at 0cm         | 0.141                                  | 0.038                                       | 0.18                    |       |         |
|           |         | Edge4 at 0cm         | 0.308                                  | 0.038                                       | 0.35                    |       |         |
|           | GSM1900 | Bottom Face at 1.2cm | 0.597                                  | 0.157                                       | 0.75                    |       |         |
|           |         | Edge4 at 1.2cm       | 0.091                                  | 0.038                                       | 0.13                    |       |         |
|           |         | Bottom Face at 0cm   | 0.999                                  | 0.378                                       | 1.38                    |       |         |
|           |         | Edge1 at 0cm         | 1.321                                  | 0.038                                       | 1.36                    |       |         |
| WCMDA     | Band V  | Bottom Face at 1.2cm | 0.243                                  | 0.157                                       | 0.40                    |       |         |
|           |         | Edge4 at 1.2cm       | 0.085                                  | 0.038                                       | 0.12                    |       |         |
|           |         | Bottom Face at 0cm   | 0.537                                  | 0.378                                       | 0.92                    |       |         |
|           |         | Edge1 at 0cm         | 0.155                                  | 0.038                                       | 0.19                    |       |         |
|           |         | Edge4 at 0cm         | 0.120                                  | 0.038                                       | 0.16                    |       |         |
|           | Band IV | Bottom Face at 1.2cm | 0.879                                  | 0.157                                       | 1.04                    |       |         |
|           |         | Edge4 at 1.2cm       | 0.902                                  | 0.038                                       | 0.94                    |       |         |
|           |         | Bottom Face at 0cm   | 1.366                                  | 0.378                                       | 1.74                    | 0.01  | #29     |
|           |         | Edge1 at 0cm         | 1.060                                  | 0.038                                       | 1.10                    |       |         |
|           |         | Edge4 at 0cm         | 0.746                                  | 0.038                                       | 0.78                    |       |         |
|           | Band II | Bottom Face at 1.2cm | 0.511                                  | 0.157                                       | 0.67                    |       |         |
|           |         | Edge4 at 1.2cm       | 0.505                                  | 0.038                                       | 0.54                    |       |         |
|           |         | Bottom Face at 0cm   | 0.441                                  | 0.378                                       | 0.82                    |       |         |
|           |         | Edge1 at 0cm         | 1.353                                  | 0.038                                       | 1.39                    |       |         |
|           |         | Edge4 at 0cm         | 0.222                                  | 0.038                                       | 0.26                    |       |         |

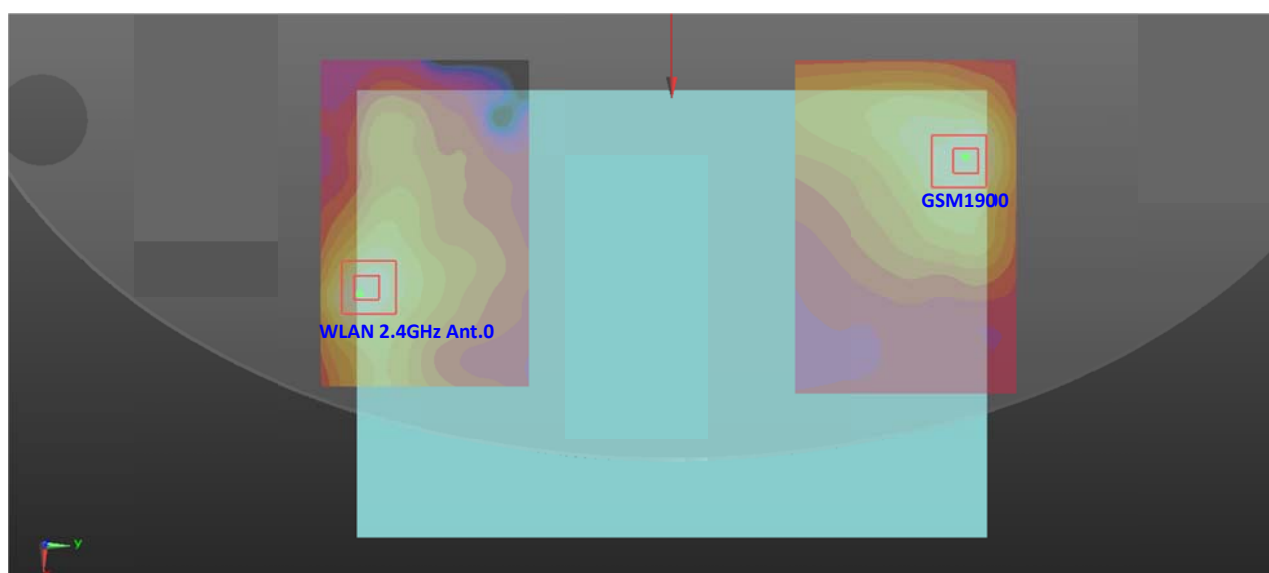
| WWAN Band |        | Exposure Position    | WWAN PCB<br>Max.<br>WWAN SAR<br>(W/kg) | Bluetooth DSS<br>Max.<br>WLAN SAR<br>(W/kg) | Summed<br>SAR<br>(W/kg) | SPLSR | Case No |
|-----------|--------|----------------------|----------------------------------------|---------------------------------------------|-------------------------|-------|---------|
| LTE       | Band 5 | Bottom Face at 1.2cm | 0.127                                  | 0.157                                       | 0.28                    |       |         |
|           |        | Edge4 at 1.2cm       | 0.058                                  | 0.038                                       | 0.10                    |       |         |
|           |        | Bottom Face at 0cm   | 0.371                                  | 0.378                                       | 0.75                    |       |         |
|           |        | Edge1 at 0cm         | 0.116                                  | 0.038                                       | 0.15                    |       |         |
|           |        | Edge4 at 0cm         | 0.085                                  | 0.038                                       | 0.12                    |       |         |
|           | Band 4 | Bottom Face at 1.2cm | 0.625                                  | 0.157                                       | 0.78                    |       |         |
|           |        | Edge4 at 1.2cm       | 0.660                                  | 0.038                                       | 0.70                    |       |         |
|           |        | Bottom Face at 0cm   | 1.208                                  | 0.378                                       | 1.59                    |       |         |
|           |        | Edge1 at 0cm         | 0.681                                  | 0.038                                       | 0.72                    |       |         |
|           |        | Edge4 at 0cm         | 0.680                                  | 0.038                                       | 0.72                    |       |         |
|           | Band 2 | Bottom Face at 1.2cm | 0.460                                  | 0.157                                       | 0.62                    |       |         |
|           |        | Edge4 at 1.2cm       | 0.492                                  | 0.038                                       | 0.53                    |       |         |
|           |        | Bottom Face at 0cm   | 0.480                                  | 0.378                                       | 0.86                    |       |         |
|           |        | Edge1 at 0cm         | 1.312                                  | 0.038                                       | 1.35                    |       |         |
|           |        | Edge4 at 0cm         | 0.260                                  | 0.038                                       | 0.30                    |       |         |
|           | Band 7 | Bottom Face at 1.2cm | 0.429                                  | 0.157                                       | 0.59                    |       |         |
|           |        | Edge4 at 1.2cm       | 0.429                                  | 0.038                                       | 0.47                    |       |         |
|           |        | Bottom Face at 0cm   | 0.779                                  | 0.378                                       | 1.16                    |       |         |
|           |        | Edge1 at 0cm         | 1.386                                  | 0.038                                       | 1.42                    |       |         |
|           |        | Edge4 at 0cm         | 0.482                                  | 0.038                                       | 0.52                    |       |         |

## 16.2 SPLSR Evaluation and Analysis

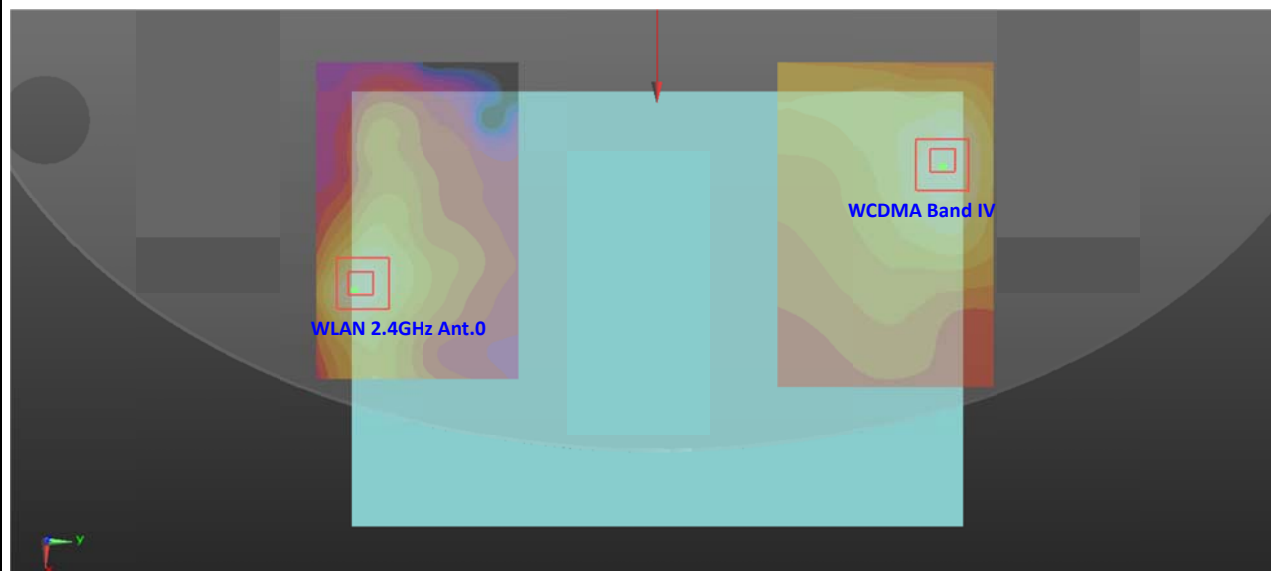
| Case No #1  | Band              | SAR (W/kg) | Gap (cm) | SAR peak location (m) |        |        | 3D distance (mm) | Pair SAR sum (W/kg) | SPLSR | Simultaneous SAR |
|-------------|-------------------|------------|----------|-----------------------|--------|--------|------------------|---------------------|-------|------------------|
| Position    |                   |            |          | X                     | Y      | Z      |                  |                     |       |                  |
| Bottom Face | GSM850            | 1.208      | 0        | 0.071                 | 0.113  | -0.18  | 245.0            | 2.06                | 0.01  | Not required     |
|             | WLAN 2.4GHz Ant.0 | 0.847      | 0        | 0.125                 | -0.126 | -0.179 |                  |                     |       |                  |



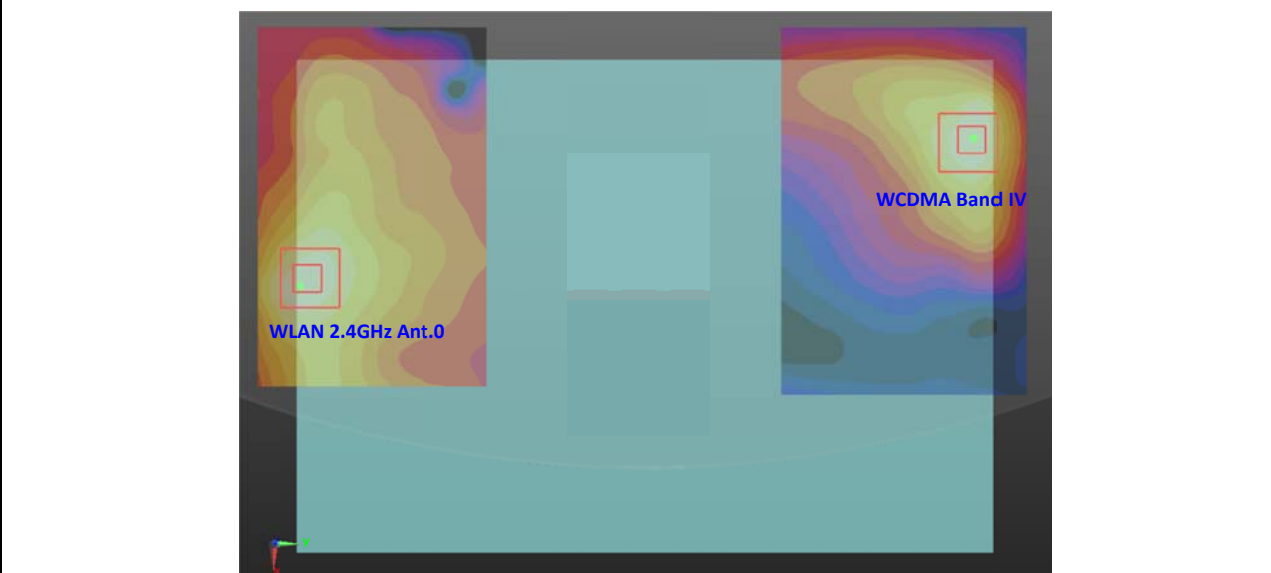
| Case No #2  | Band              | SAR (W/kg) | Gap (cm) | SAR peak location (m) |        |        | 3D distance (mm) | Pair SAR sum (W/kg) | SPLSR | Simultaneous SAR |
|-------------|-------------------|------------|----------|-----------------------|--------|--------|------------------|---------------------|-------|------------------|
| Position    |                   |            |          | X                     | Y      | Z      |                  |                     |       |                  |
| Bottom Face | GSM1900           | 0.999      | 0        | 0.068                 | 0.12   | -0.179 | 252.5            | 1.85                | 0.01  | Not required     |
|             | WLAN 2.4GHz Ant.0 | 0.847      | 0        | 0.125                 | -0.126 | -0.179 |                  |                     |       |                  |



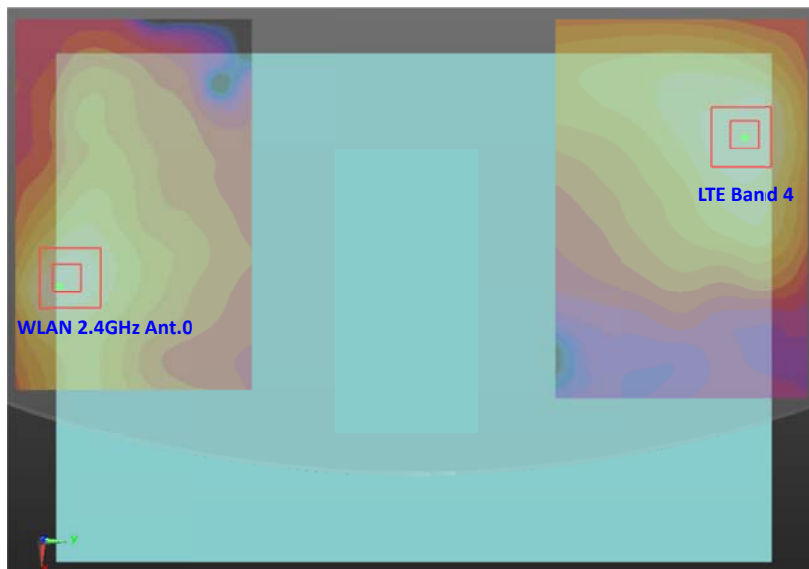
| Case No<br>#3 | Band              | SAR<br>(W/kg) | Gap<br>(cm) | SAR peak location (m) |        |        | 3D distance<br>(mm) | Pair SAR<br>sum (W/kg) | SPLSR | Simultaneous<br>SAR |
|---------------|-------------------|---------------|-------------|-----------------------|--------|--------|---------------------|------------------------|-------|---------------------|
| Position      |                   |               |             | X                     | Y      | Z      |                     |                        |       |                     |
| Bottom Face   | WCDMA Band IV     | 0.879         | 1.2         | 0.0725                | 0.12   | -0.179 | 251.5               | 1.73                   | 0.01  | Not required        |
|               | WLAN 2.4GHz Ant.0 | 0.847         | 0           | 0.125                 | -0.126 | -0.179 |                     |                        |       |                     |



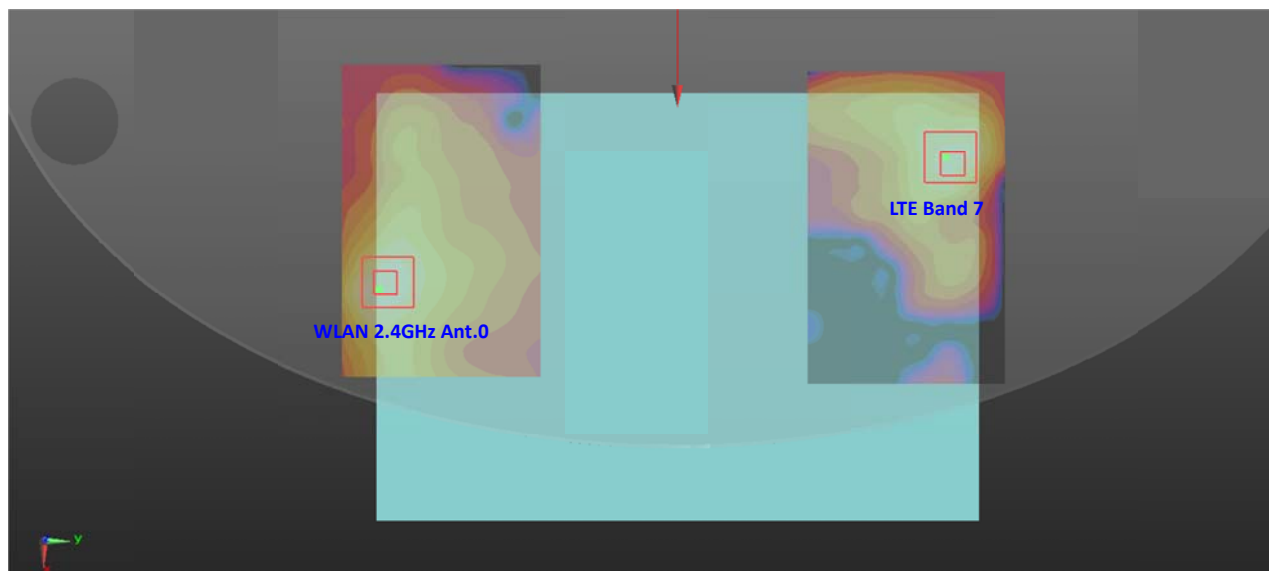
| Case No<br>#4 | Band              | SAR<br>(W/kg) | Gap<br>(cm) | SAR peak location (m) |        |        | 3D distance<br>(mm) | Pair SAR<br>sum (W/kg) | SPLSR | Simultaneous<br>SAR |
|---------------|-------------------|---------------|-------------|-----------------------|--------|--------|---------------------|------------------------|-------|---------------------|
| Position      |                   |               |             | X                     | Y      | Z      |                     |                        |       |                     |
| Bottom Face   | WCDMA Band IV     | 1.366         | 0           | 0.0695                | 0.122  | -0.179 | 254.1               | 2.21                   | 0.01  | Not required        |
|               | WLAN 2.4GHz Ant.0 | 0.847         | 0           | 0.125                 | -0.126 | -0.179 |                     |                        |       |                     |



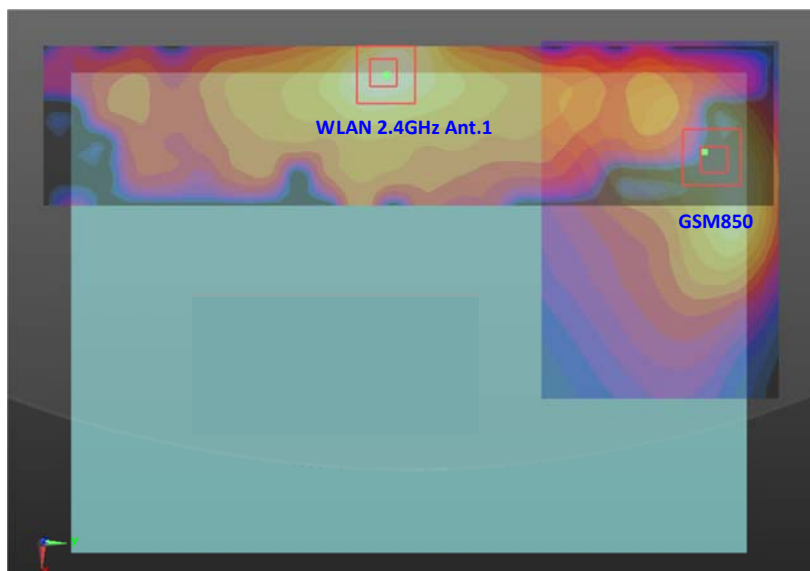
| Case No<br>#5 | Band              | SAR<br>(W/kg) | Gap<br>(cm) | SAR peak location (m) |        |        | 3D distance<br>(mm) | Pair SAR<br>sum (W/kg) | SPLSR | Simultaneous<br>SAR |
|---------------|-------------------|---------------|-------------|-----------------------|--------|--------|---------------------|------------------------|-------|---------------------|
| Position      |                   |               |             | X                     | Y      | Z      |                     |                        |       |                     |
| Bottom Face   | LTE Band 4        | 1.208         | 0           | 0.071                 | 0.119  | -0.179 | 250.9               | 2.06                   | 0.01  | Not required        |
|               | WLAN 2.4GHz Ant.0 | 0.847         | 0           | 0.125                 | -0.126 | -0.179 |                     |                        |       |                     |



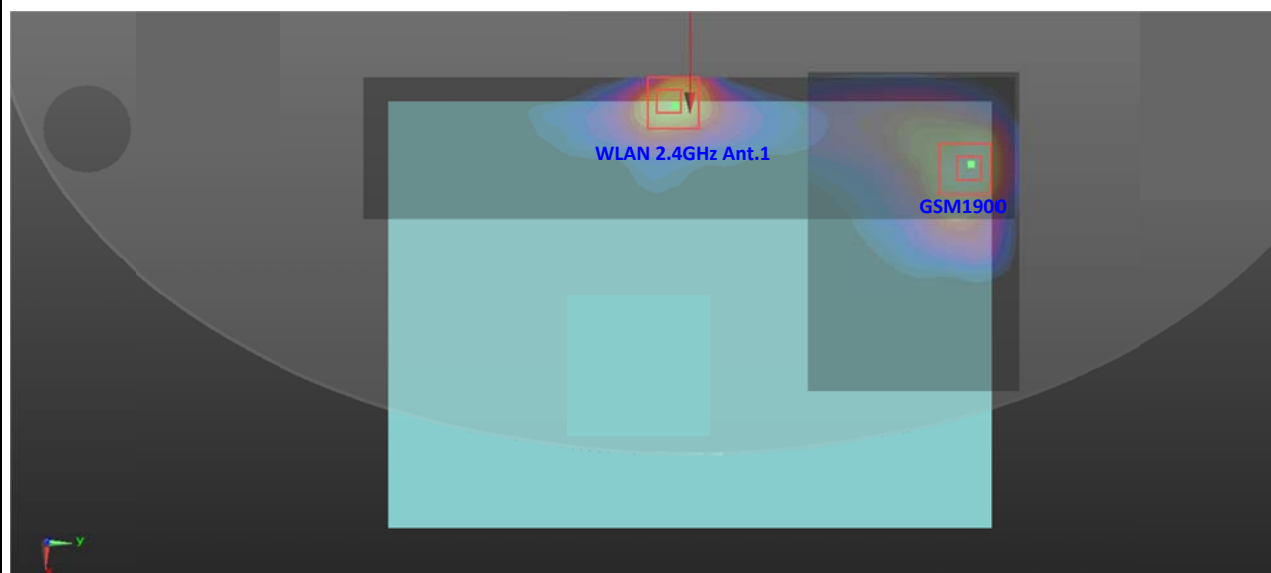
| Case No<br>#6 | Band              | SAR<br>(W/kg) | Gap<br>(cm) | SAR peak location (m) |        |        | 3D distance<br>(mm) | Pair SAR<br>sum (W/kg) | SPLSR | Simultaneous<br>SAR |
|---------------|-------------------|---------------|-------------|-----------------------|--------|--------|---------------------|------------------------|-------|---------------------|
| Position      |                   |               |             | X                     | Y      | Z      |                     |                        |       |                     |
| Bottom Face   | LTE Band 7        | 0.779         | 0           | 0.074                 | 0.114  | -0.179 | 245.4               | 1.63                   | 0.01  | Not required        |
|               | WLAN 2.4GHz Ant.0 | 0.847         | 0           | 0.125                 | -0.126 | -0.179 |                     |                        |       |                     |



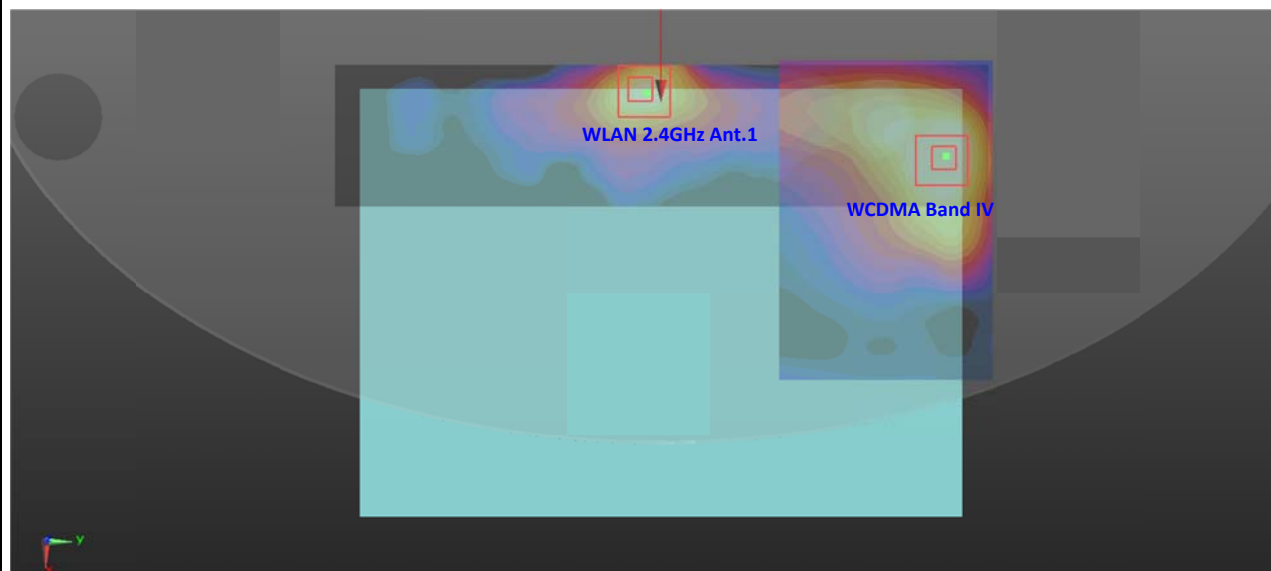
| Case No<br>#7 | Band              | SAR<br>(W/kg) | Gap<br>(cm) | SAR peak location (m) |        |        | 3D distance<br>(mm) | Pair SAR<br>sum (W/kg) | SPLSR | Simultaneous<br>SAR |
|---------------|-------------------|---------------|-------------|-----------------------|--------|--------|---------------------|------------------------|-------|---------------------|
| Position      |                   |               |             | X                     | Y      | Z      |                     |                        |       |                     |
| Bottom Face   | GSM850            | 1.208         | 0           | 0.071                 | 0.113  | -0.18  | 126.9               | 1.87                   | 0.02  | Not required        |
|               | WLAN 2.4GHz Ant.1 | 0.662         | 0           | 0.044                 | -0.011 | -0.181 |                     |                        |       |                     |



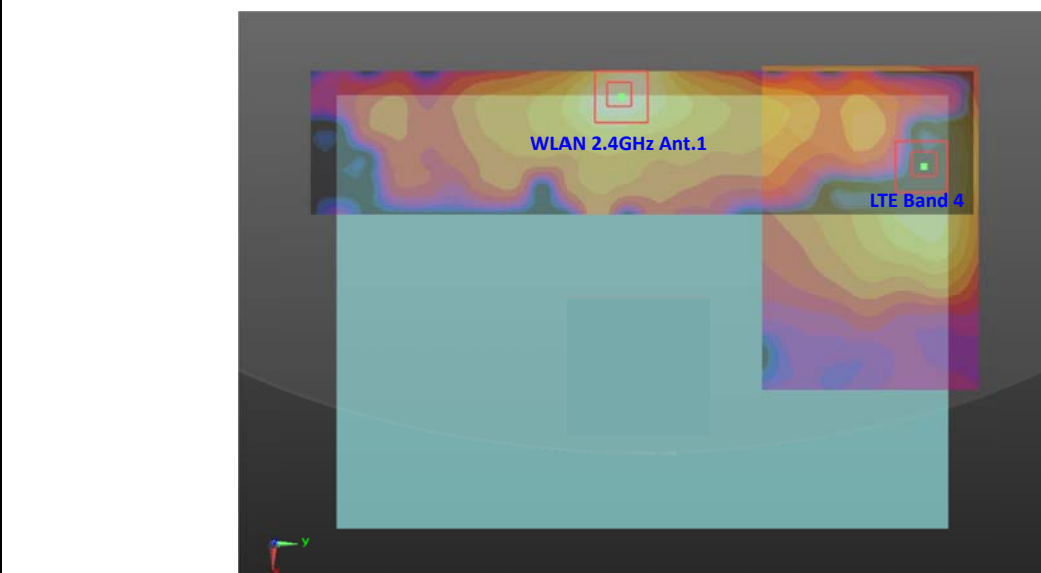
| Case No<br>#8 | Band              | SAR<br>(W/kg) | Gap<br>(cm) | SAR peak location (m) |        |        | 3D distance<br>(mm) | Pair SAR<br>sum (W/kg) | SPLSR | Simultaneous<br>SAR |
|---------------|-------------------|---------------|-------------|-----------------------|--------|--------|---------------------|------------------------|-------|---------------------|
| Position      |                   |               |             | X                     | Y      | Z      |                     |                        |       |                     |
| Bottom Face   | GSM1900           | 0.999         | 0           | 0.068                 | 0.12   | -0.179 | 133.2               | 1.66                   | 0.02  | Not required        |
|               | WLAN 2.4GHz Ant.1 | 0.662         | 0           | 0.044                 | -0.011 | -0.181 |                     |                        |       |                     |



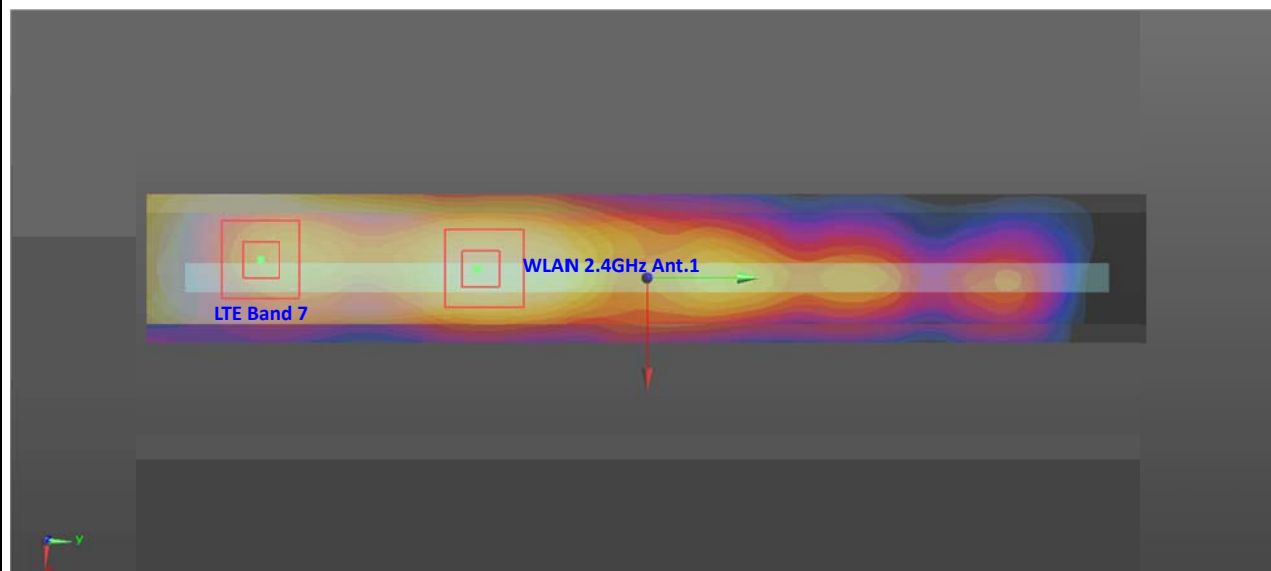
| Case No<br>#9 | Band              | SAR<br>(W/kg) | Gap<br>(cm) | SAR peak location (m) |        |        | 3D distance<br>(mm) | Pair SAR<br>sum (W/kg) | SPLSR | Simultaneous<br>SAR |
|---------------|-------------------|---------------|-------------|-----------------------|--------|--------|---------------------|------------------------|-------|---------------------|
| Position      |                   |               |             | X                     | Y      | Z      |                     |                        |       |                     |
| Bottom Face   | WCDMA Band IV     | 1.366         | 0           | 0.0695                | 0.122  | -0.179 | 135.4               | 2.03                   | 0.02  | Not required        |
|               | WLAN 2.4GHz Ant.1 | 0.662         | 0           | 0.044                 | -0.011 | -0.181 |                     |                        |       |                     |



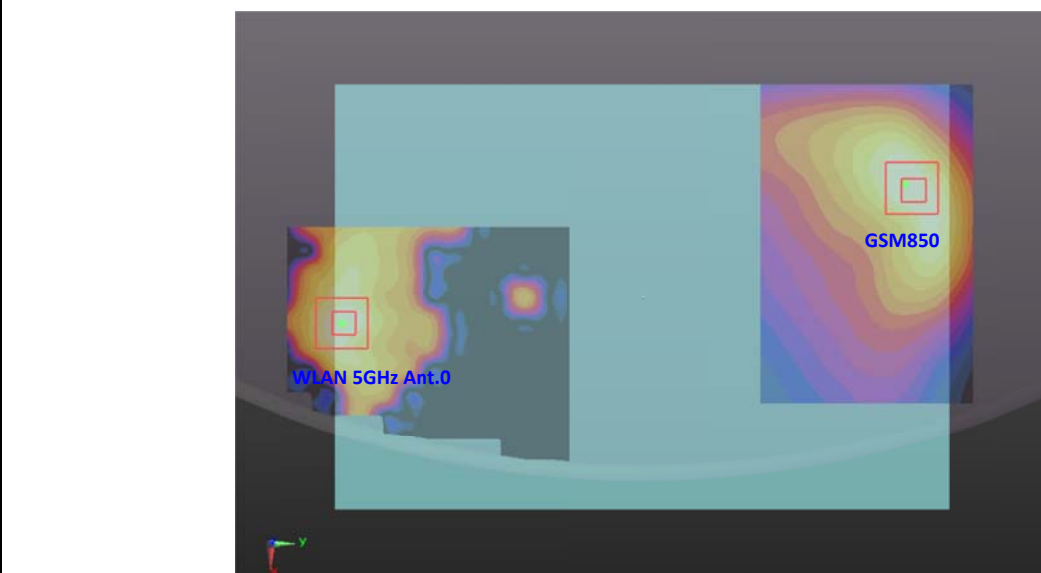
| Case No<br>#10 | Band              | SAR<br>(W/kg) | Gap<br>(cm) | SAR peak location (m) |        |        | 3D distance<br>(mm) | Pair SAR<br>sum (W/kg) | SPLSR | Simultaneous<br>SAR |
|----------------|-------------------|---------------|-------------|-----------------------|--------|--------|---------------------|------------------------|-------|---------------------|
| Position       |                   |               |             | X                     | Y      | Z      |                     |                        |       |                     |
| Bottom Face    | LTE Band 4        | 1.208         | 0           | 0.071                 | 0.119  | -0.179 | 132.8               | 1.87                   | 0.02  | Not required        |
|                | WLAN 2.4GHz Ant.1 | 0.662         | 0           | 0.044                 | -0.011 | -0.181 |                     |                        |       |                     |



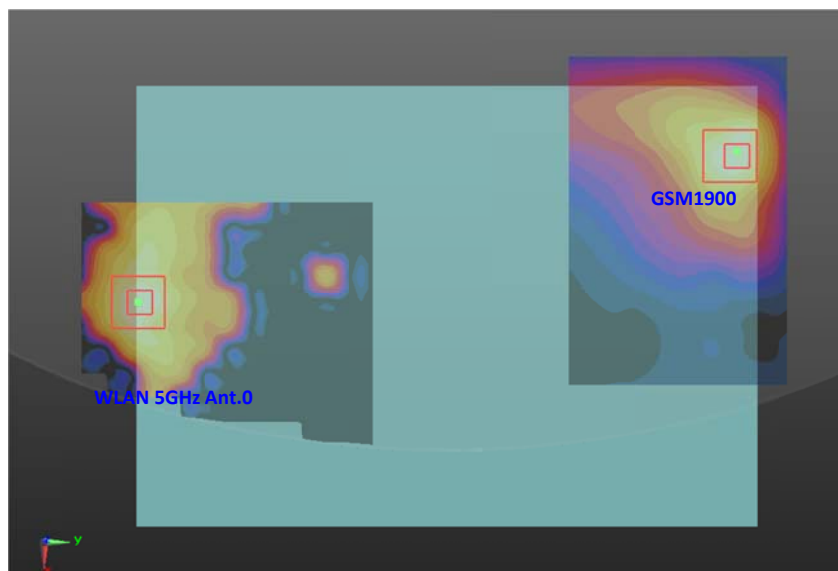
| Case No<br>#11 | Band              | SAR<br>(W/kg) | Gap<br>(cm) | SAR peak location (m) |         |        | 3D distance<br>(mm) | Pair SAR<br>sum (W/kg) | SPLSR | Simultaneous<br>SAR |
|----------------|-------------------|---------------|-------------|-----------------------|---------|--------|---------------------|------------------------|-------|---------------------|
|                |                   |               |             | X                     | Y       | Z      |                     |                        |       |                     |
| Edge 1         | LTE Band 7        | 1.386         | 0           | -0.005                | -0.107  | -0.18  | 60.3                | 1.61                   | 0.03  | Not required        |
|                | WLAN 2.4GHz Ant.1 | 0.223         | 0           | -0.0024               | -0.0468 | -0.181 |                     |                        |       |                     |



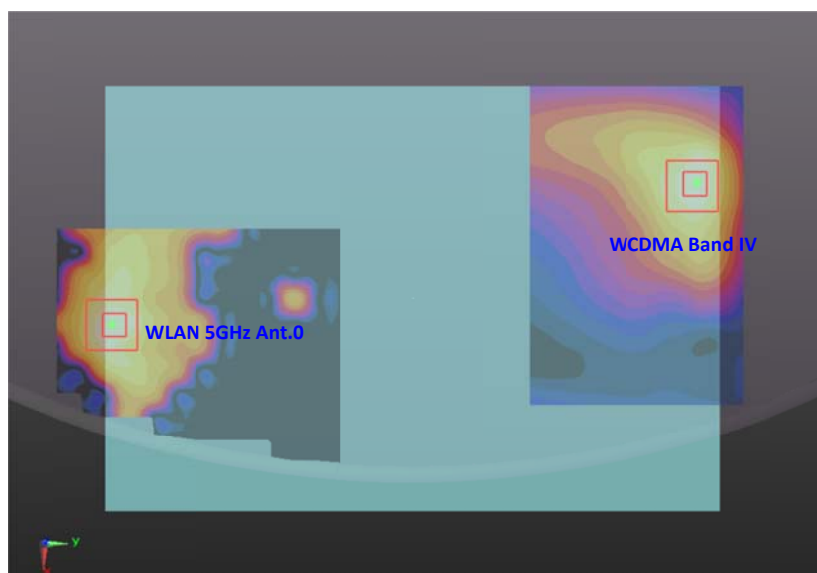
| Case No<br>#12 | Band            | SAR<br>(W/kg) | Gap<br>(cm) | SAR peak location (m) |        |        | 3D distance<br>(mm) | Pair SAR<br>sum (W/kg) | SPLSR | Simultaneous<br>SAR |
|----------------|-----------------|---------------|-------------|-----------------------|--------|--------|---------------------|------------------------|-------|---------------------|
|                |                 |               |             | X                     | Y      | Z      |                     |                        |       |                     |
| Bottom Face    | GSM850          | 1.208         | 0           | 0.071                 | 0.113  | -0.18  | 246.0               | 1.88                   | 0.01  | Not required        |
|                | WLAN 5GHz Ant.0 | 0.673         | 0           | 0.133                 | -0.125 | -0.176 |                     |                        |       |                     |



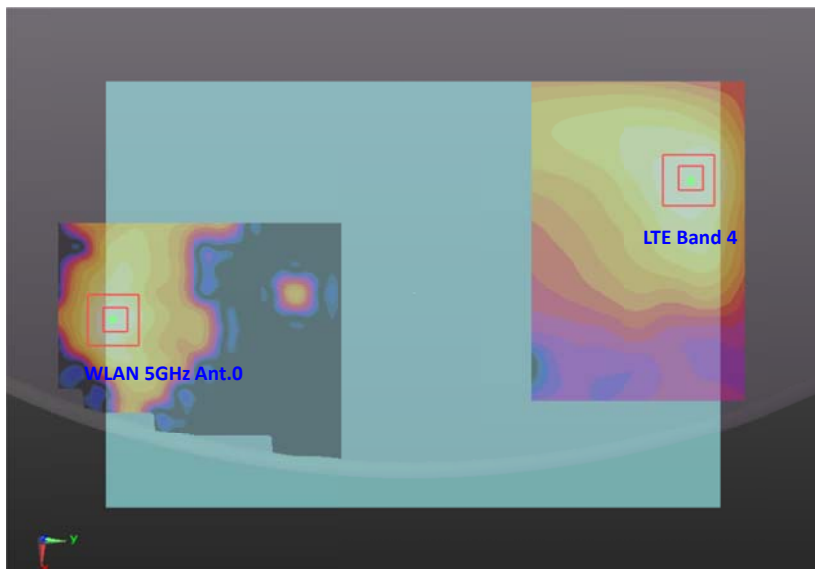
| Case No<br>#13 | Band            | SAR<br>(W/kg) | Gap<br>(cm) | SAR peak location (m) |        |        | 3D distance<br>(mm) | Pair SAR<br>sum (W/kg) | SPLSR | Simultaneous<br>SAR |
|----------------|-----------------|---------------|-------------|-----------------------|--------|--------|---------------------|------------------------|-------|---------------------|
| Position       |                 |               |             | X                     | Y      | Z      |                     |                        |       |                     |
| Bottom Face    | GSM1900         | 0.999         | 0           | 0.068                 | 0.12   | -0.179 | 253.5               | 1.67                   | 0.01  | Not required        |
|                | WLAN 5GHz Ant.0 | 0.673         | 0           | 0.133                 | -0.125 | -0.176 |                     |                        |       |                     |



| Case No<br>#14 | Band            | SAR<br>(W/kg) | Gap<br>(cm) | SAR peak location (m) |        |        | 3D distance<br>(mm) | Pair SAR<br>sum (W/kg) | SPLSR | Simultaneous<br>SAR |
|----------------|-----------------|---------------|-------------|-----------------------|--------|--------|---------------------|------------------------|-------|---------------------|
| Position       |                 |               |             | X                     | Y      | Z      |                     |                        |       |                     |
| Bottom Face    | WCDMA Band IV   | 1.366         | 0           | 0.0695                | 0.122  | -0.179 | 255.0               | 2.04                   | 0.01  | Not required        |
|                | WLAN 5GHz Ant.0 | 0.673         | 0           | 0.133                 | -0.125 | -0.176 |                     |                        |       |                     |



| Case No #15 | Band            | SAR (W/kg) | Gap (cm) | SAR peak location (m) |        |        | 3D distance (mm) | Pair SAR sum (W/kg) | SPLSR | Simultaneous SAR |
|-------------|-----------------|------------|----------|-----------------------|--------|--------|------------------|---------------------|-------|------------------|
| Position    |                 |            |          | X                     | Y      | Z      |                  |                     |       |                  |
| Bottom Face | LTE Band 4      | 1.208      | 0        | 0.071                 | 0.119  | -0.179 | 251.8            | 1.88                | 0.01  | Not required     |
|             | WLAN 5GHz Ant.0 | 0.673      | 0        | 0.133                 | -0.125 | -0.176 |                  |                     |       |                  |



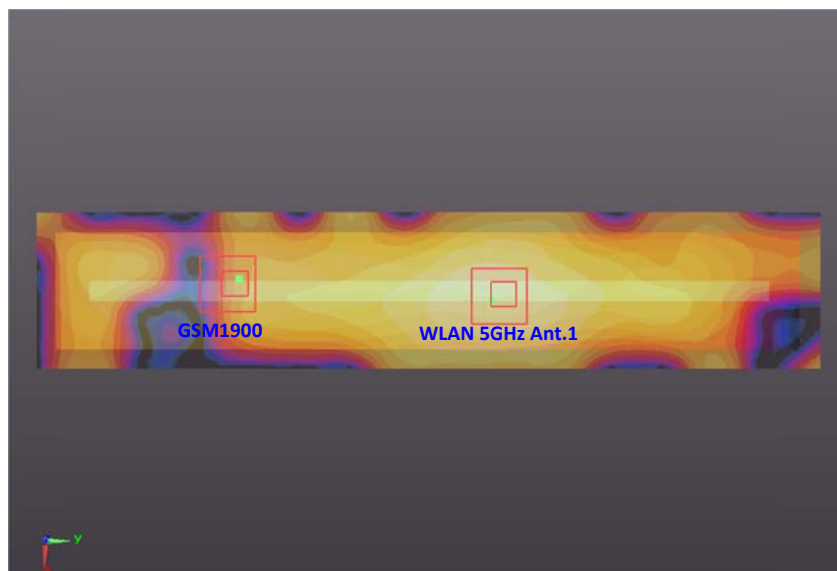
| Case No #16 | Band            | SAR (W/kg) | Gap (cm) | SAR peak location (m) |        |        | 3D distance (mm) | Pair SAR sum (W/kg) | SPLSR | Simultaneous SAR |
|-------------|-----------------|------------|----------|-----------------------|--------|--------|------------------|---------------------|-------|------------------|
| Position    |                 |            |          | X                     | Y      | Z      |                  |                     |       |                  |
| Bottom Face | GSM850          | 1.208      | 0        | 0.071                 | 0.113  | -0.18  | 130.5            | 2.20                | 0.02  | Not required     |
|             | WLAN 5GHz Ant.1 | 0.991      | 0        | 0.046                 | -0.015 | -0.177 |                  |                     |       |                  |



| Case No<br>#17 | Band            | SAR<br>(W/kg) | Gap<br>(cm) | SAR peak location (m) |        |        | 3D distance<br>(mm) | Pair SAR<br>sum (W/kg) | SPLSR | Simultaneous<br>SAR |
|----------------|-----------------|---------------|-------------|-----------------------|--------|--------|---------------------|------------------------|-------|---------------------|
| Position       |                 |               |             | X                     | Y      | Z      |                     |                        |       |                     |
| Bottom Face    | GSM1900         | 0.999         | 0           | 0.068                 | 0.12   | -0.179 | 136.8               | 1.99                   | 0.02  | Not required        |
|                | WLAN 5GHz Ant.1 | 0.991         | 0           | 0.046                 | -0.015 | -0.177 |                     |                        |       |                     |



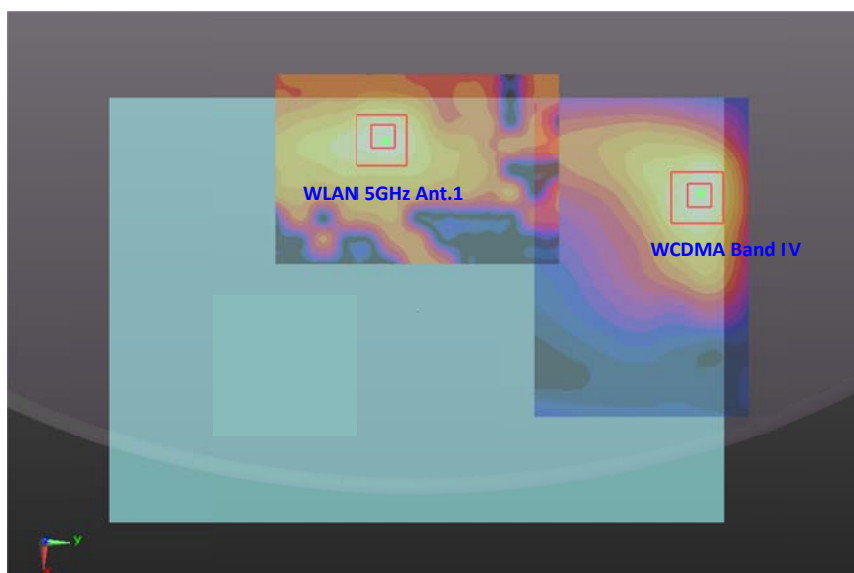
| Case No<br>#18 | Band            | SAR<br>(W/kg) | Gap<br>(cm) | SAR peak location (m) |         |        | 3D distance<br>(mm) | Pair SAR<br>sum (W/kg) | SPLSR | Simultaneous<br>SAR |
|----------------|-----------------|---------------|-------------|-----------------------|---------|--------|---------------------|------------------------|-------|---------------------|
| Position       |                 |               |             | X                     | Y       | Z      |                     |                        |       |                     |
| Edge 1         | GSM1900         | 1.321         | 0           | -0.0055               | -0.0715 | -0.18  | 81.9                | 1.89                   | 0.03  | Not required        |
|                | WLAN 5GHz Ant.1 | 0.569         | 0           | 0.002                 | 0.01    | -0.177 |                     |                        |       |                     |



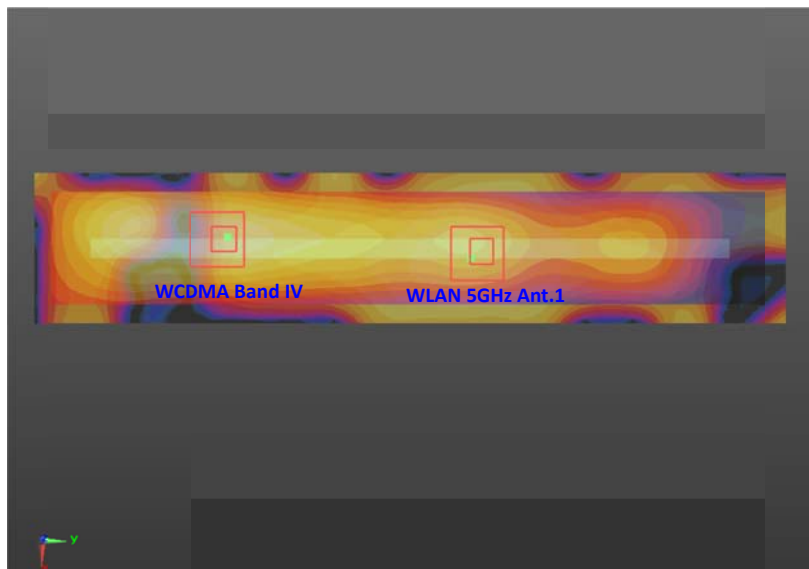
| Case No<br>#19 | Band            | SAR<br>(W/kg) | Gap<br>(cm) | SAR peak location (m) |        |        | 3D distance<br>(mm) | Pair SAR<br>sum (W/kg) | SPLSR | Simultaneous<br>SAR |
|----------------|-----------------|---------------|-------------|-----------------------|--------|--------|---------------------|------------------------|-------|---------------------|
| Position       |                 |               |             | X                     | Y      | Z      |                     |                        |       |                     |
| Bottom Face    | WCDMA Band IV   | 0.879         | 1.2         | 0.0725                | 0.12   | -0.179 | 137.6               | 1.87                   | 0.02  | Not required        |
|                | WLAN 5GHz Ant.1 | 0.991         | 0           | 0.046                 | -0.015 | -0.177 |                     |                        |       |                     |



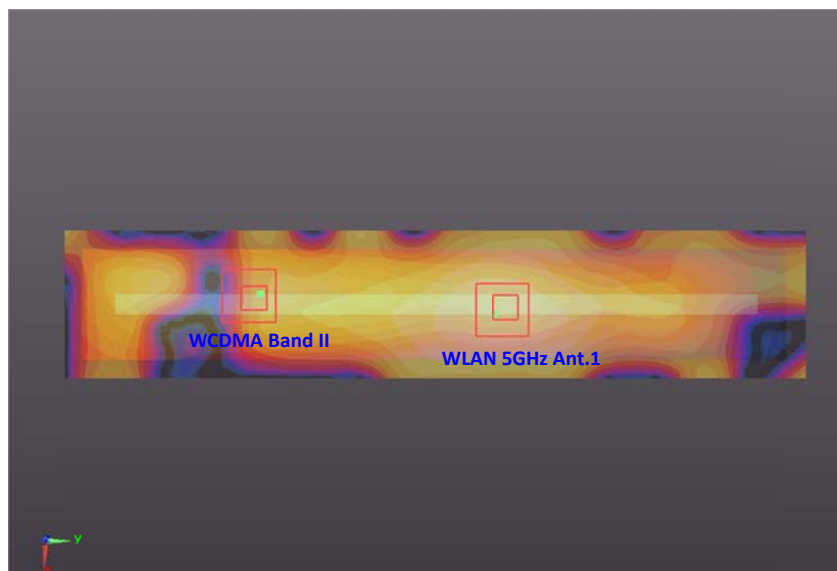
| Case No<br>#20 | Band            | SAR<br>(W/kg) | Gap<br>(cm) | SAR peak location (m) |        |        | 3D distance<br>(mm) | Pair SAR<br>sum (W/kg) | SPLSR | Simultaneous<br>SAR |
|----------------|-----------------|---------------|-------------|-----------------------|--------|--------|---------------------|------------------------|-------|---------------------|
| Position       |                 |               |             | X                     | Y      | Z      |                     |                        |       |                     |
| Bottom Face    | WCDMA Band IV   | 1.366         | 0           | 0.0695                | 0.122  | -0.179 | 139.0               | 2.36                   | 0.03  | Not required        |
|                | WLAN 5GHz Ant.1 | 0.991         | 0           | 0.046                 | -0.015 | -0.177 |                     |                        |       |                     |



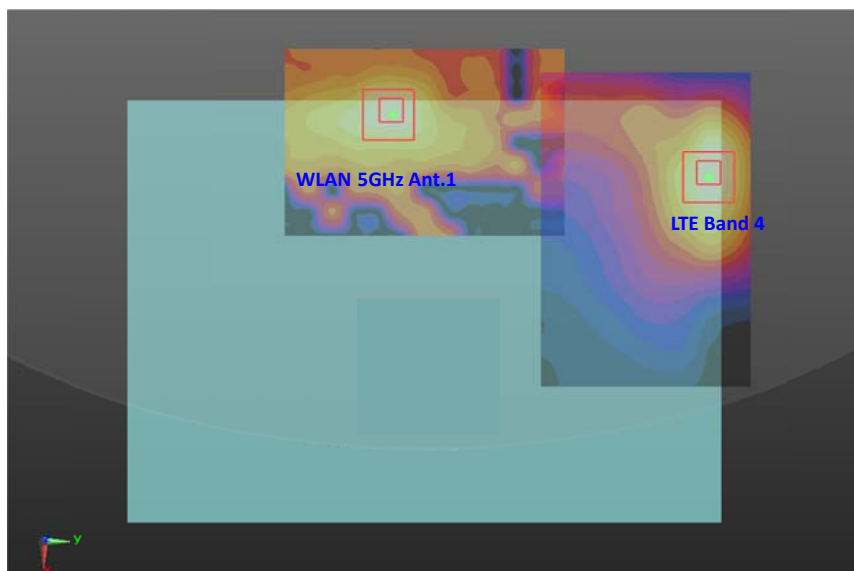
| Case No #21 | Band            | SAR (W/kg) | Gap (cm) | SAR peak location (m) |         |        | 3D distance (mm) | Pair SAR sum (W/kg) | SPLSR | Simultaneous SAR |
|-------------|-----------------|------------|----------|-----------------------|---------|--------|------------------|---------------------|-------|------------------|
| Position    |                 |            |          | X                     | Y       | Z      |                  |                     |       |                  |
| Edge 1      | WCDMA Band IV   | 1.06       | 0        | -0.0055               | -0.0715 | -0.18  | 81.9             | 1.63                | 0.03  | Not required     |
|             | WLAN 5GHz Ant.1 | 0.569      | 0        | 0.002                 | 0.01    | -0.177 |                  |                     |       |                  |



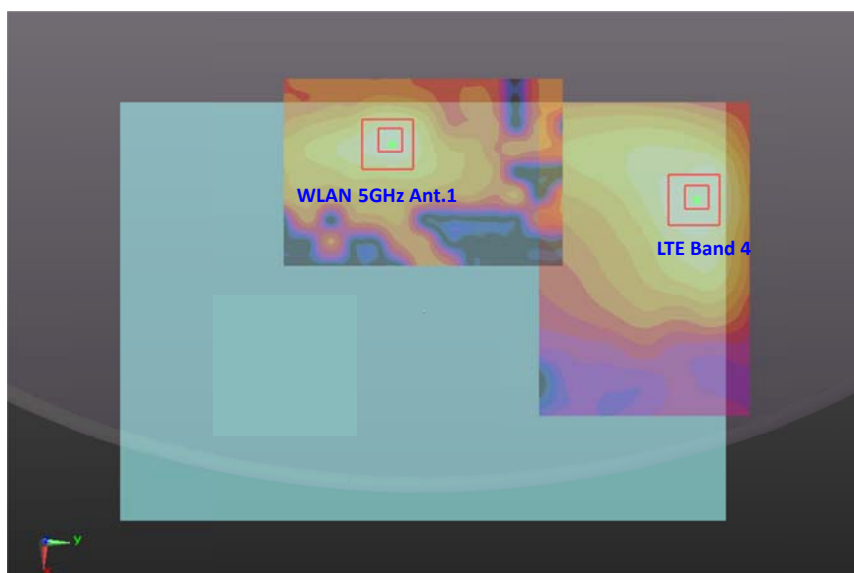
| Case No #22 | Band            | SAR (W/kg) | Gap (cm) | SAR peak location (m) |       |        | 3D distance (mm) | Pair SAR sum (W/kg) | SPLSR | Simultaneous SAR |
|-------------|-----------------|------------|----------|-----------------------|-------|--------|------------------|---------------------|-------|------------------|
| Position    |                 |            |          | X                     | Y     | Z      |                  |                     |       |                  |
| Edge 1      | WCDMA Band II   | 1.353      | 0        | -0.0055               | -0.07 | -0.18  | 80.4             | 1.92                | 0.03  | Not required     |
|             | WLAN 5GHz Ant.1 | 0.569      | 0        | 0.002                 | 0.01  | -0.177 |                  |                     |       |                  |



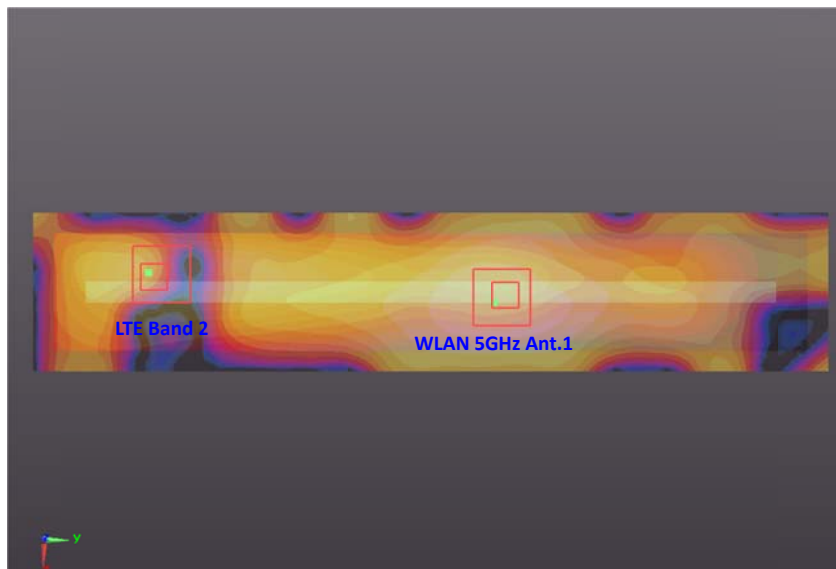
| Case No<br>#23 | Band            | SAR<br>(W/kg) | Gap<br>(cm) | SAR peak location (m) |        |        | 3D distance<br>(mm) | Pair SAR<br>sum (W/kg) | SPLSR | Simultaneous<br>SAR |
|----------------|-----------------|---------------|-------------|-----------------------|--------|--------|---------------------|------------------------|-------|---------------------|
| Position       |                 |               |             | X                     | Y      | Z      |                     |                        |       |                     |
| Bottom Face    | LTE Band 4      | 0.625         | 1.2         | 0.074                 | 0.123  | -0.179 | 140.8               | 1.62                   | 0.01  | Not required        |
|                | WLAN 5GHz Ant.1 | 0.991         | 0           | 0.046                 | -0.015 | -0.177 |                     |                        |       |                     |



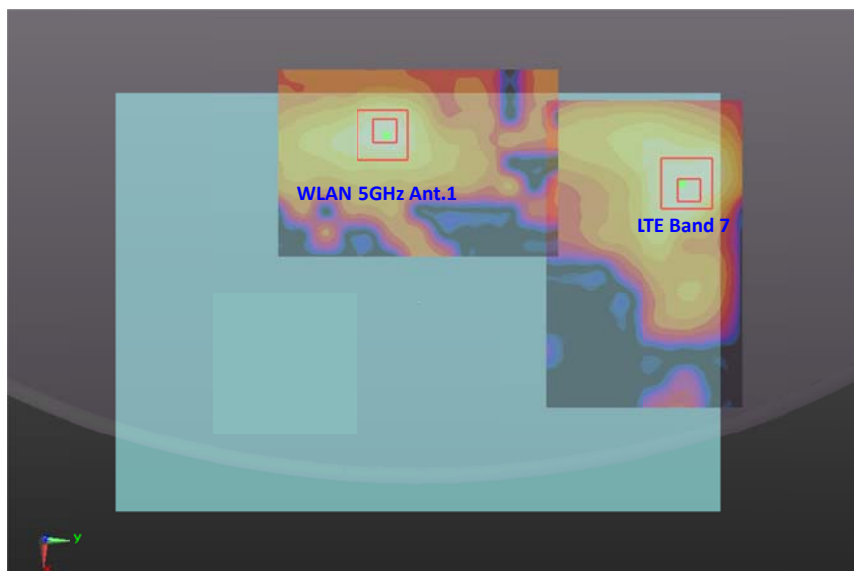
| Case No<br>#24 | Band            | SAR<br>(W/kg) | Gap<br>(cm) | SAR peak location (m) |        |        | 3D distance<br>(mm) | Pair SAR<br>sum (W/kg) | SPLSR | Simultaneous<br>SAR |
|----------------|-----------------|---------------|-------------|-----------------------|--------|--------|---------------------|------------------------|-------|---------------------|
| Position       |                 |               |             | X                     | Y      | Z      |                     |                        |       |                     |
| Bottom Face    | LTE Band 4      | 1.208         | 0           | 0.071                 | 0.119  | -0.179 | 136.3               | 2.20                   | 0.02  | Not required        |
|                | WLAN 5GHz Ant.1 | 0.991         | 0           | 0.046                 | -0.015 | -0.177 |                     |                        |       |                     |



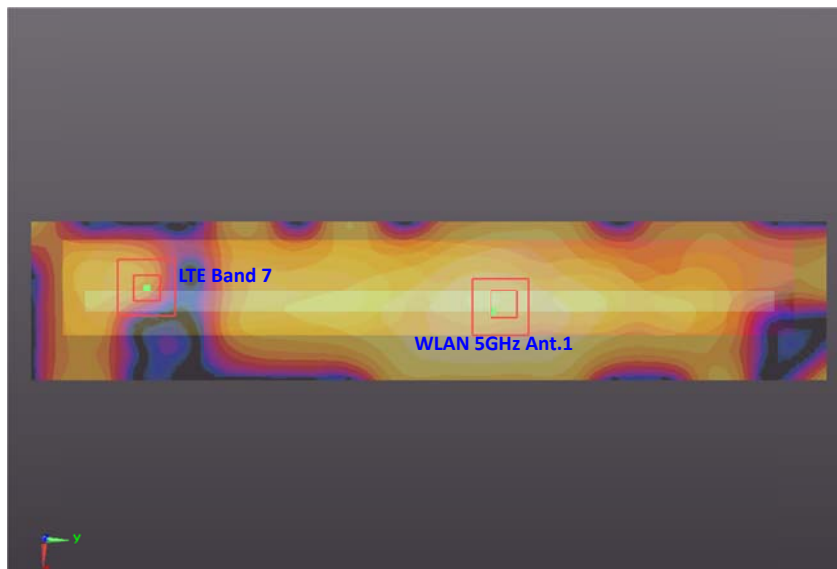
| Case No<br>#25 | Band            | SAR<br>(W/kg) | Gap<br>(cm) | SAR peak location (m) |        |        | 3D distance<br>(mm) | Pair SAR<br>sum (W/kg) | SPLSR | Simultaneous<br>SAR |
|----------------|-----------------|---------------|-------------|-----------------------|--------|--------|---------------------|------------------------|-------|---------------------|
|                |                 |               |             | X                     | Y      | Z      |                     |                        |       |                     |
| Edge 1         | LTE Band 2      | 1.312         | 0           | -0.0085               | -0.106 | -0.18  | 116.5               | 1.88                   | 0.02  | Not required        |
|                | WLAN 5GHz Ant.1 | 0.569         | 0           | 0.002                 | 0.01   | -0.177 |                     |                        |       |                     |



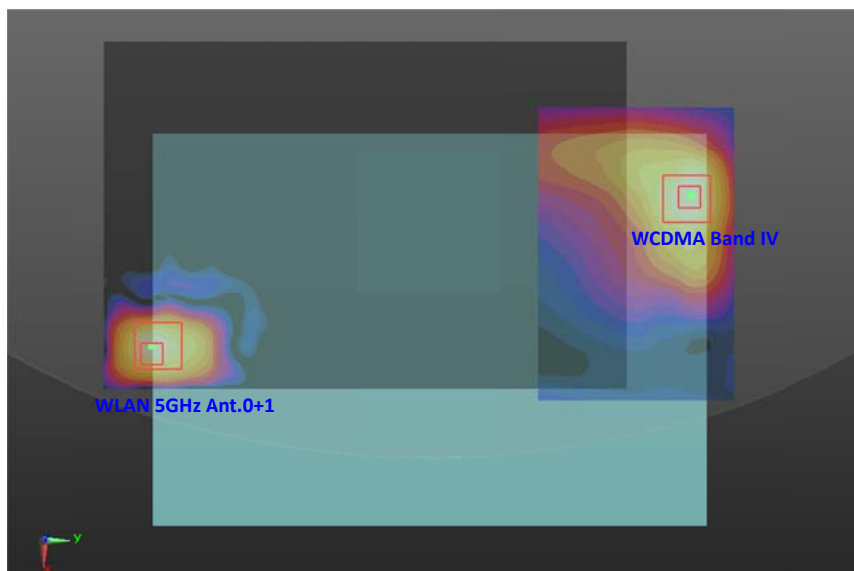
| Case No<br>#26 | Band            | SAR<br>(W/kg) | Gap<br>(cm) | SAR peak location (m) |        |        | 3D distance<br>(mm) | Pair SAR<br>sum (W/kg) | SPLSR | Simultaneous<br>SAR |
|----------------|-----------------|---------------|-------------|-----------------------|--------|--------|---------------------|------------------------|-------|---------------------|
|                |                 |               |             | X                     | Y      | Z      |                     |                        |       |                     |
| Bottom Face    | LTE Band 7      | 0.779         | 0           | 0.074                 | 0.114  | -0.179 | 132.0               | 1.77                   | 0.02  | Not required        |
|                | WLAN 5GHz Ant.1 | 0.991         | 0           | 0.046                 | -0.015 | -0.177 |                     |                        |       |                     |



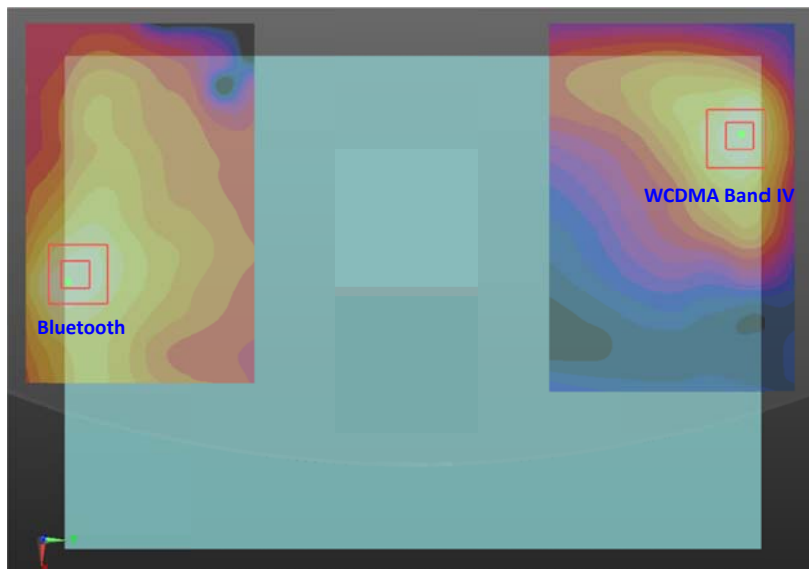
| Case No<br>#27 | Band            | SAR<br>(W/kg) | Gap<br>(cm) | SAR peak location (m) |        |        | 3D distance<br>(mm) | Pair SAR<br>sum (W/kg) | SPLSR | Simultaneous<br>SAR |
|----------------|-----------------|---------------|-------------|-----------------------|--------|--------|---------------------|------------------------|-------|---------------------|
| Position       |                 |               |             | X                     | Y      | Z      |                     |                        |       |                     |
| Edge 1         | LTE Band 7      | 1.386         | 0           | -0.005                | -0.107 | -0.18  | 117.2               | 1.96                   | 0.02  | Not required        |
|                | WLAN 5GHz Ant.1 | 0.569         | 0           | 0.002                 | 0.01   | -0.177 |                     |                        |       |                     |



| Case No<br>#28 | Band              | SAR<br>(W/kg) | Gap<br>(cm) | SAR peak location (m) |        |        | 3D distance<br>(mm) | Pair SAR<br>sum (W/kg) | SPLSR | Simultaneous<br>SAR |
|----------------|-------------------|---------------|-------------|-----------------------|--------|--------|---------------------|------------------------|-------|---------------------|
| Position       |                   |               |             | X                     | Y      | Z      |                     |                        |       |                     |
| Bottom Face    | WCDMA Band IV     | 1.366         | 0           | 0.0695                | 0.122  | -0.179 | 258.4               | 1.63                   | 0.01  | Not required        |
|                | WLAN 5GHz Ant.0+1 | 0.261         | 0           | 0.142                 | -0.126 | -0.176 |                     |                        |       |                     |



| Case No<br>#29 | Band          | SAR<br>(W/kg) | Gap<br>(cm) | SAR peak location (m) |        |        | 3D distance<br>(mm) | Pair SAR<br>sum (W/kg) | SPLSR | Simultaneous<br>SAR |
|----------------|---------------|---------------|-------------|-----------------------|--------|--------|---------------------|------------------------|-------|---------------------|
| Position       |               |               |             | X                     | Y      | Z      |                     |                        |       |                     |
| Bottom Face    | WCDMA Band IV | 1.366         | 0           | 0.0695                | 0.122  | -0.179 | 254.1               | 1.74                   | 0.01  | Not required        |
|                | Bluetooth     | 0.378         | 0           | 0.125                 | -0.126 | -0.179 |                     |                        |       |                     |


**General Note:**

1.  $SPLSR = (SAR_1 + SAR_2)^{1.5} / (min. \text{ separation distance, mm})$ . If  $SPLSR \leq 0.04$ , simultaneously transmission SAR measurement is not necessary.
2. For SPLSR calculation Bluetooth SAR peak position is estimated using WLAN 2.4GHz Ant. 0 peak location, due to the WLAN and Bluetooth shares the same RF trace to the same antenna, and the operational frequency range is the same.

**Test Engineer :** Fulu Hu and Kat Yin

## 17. Uncertainty Assessment

The component of uncertainty may generally be categorized according to the methods used to evaluate them. The evaluation of uncertainty by the statistical analysis of a series of observations is termed a Type A evaluation of uncertainty. The evaluation of uncertainty by means other than the statistical analysis of a series of observation is termed a Type B evaluation of uncertainty. Each component of uncertainty, however evaluated, is represented by an estimated standard deviation, termed standard uncertainty, which is determined by the positive square root of the estimated variance.

A Type A evaluation of standard uncertainty may be based on any valid statistical method for treating data. This includes calculating the standard deviation of the mean of a series of independent observations; using the method of least squares to fit a curve to the data in order to estimate the parameter of the curve and their standard deviations; or carrying out an analysis of variance in order to identify and quantify random effects in certain kinds of measurement.

A type B evaluation of standard uncertainty is typically based on scientific judgment using all of the relevant information available. These may include previous measurement data, experience, and knowledge of the behavior and properties of relevant materials and instruments, manufacture's specification, data provided in calibration reports and uncertainties assigned to reference data taken from handbooks. Broadly speaking, the uncertainty is either obtained from an outdoor source or obtained from an assumed distribution, such as the normal distribution, rectangular or triangular distributions indicated in table below.

| Uncertainty Distributions          | Normal                     | Rectangular   | Triangular    | U-Shape       |
|------------------------------------|----------------------------|---------------|---------------|---------------|
| Multi-plying Factor <sup>(a)</sup> | 1/ $\kappa$ <sup>(b)</sup> | 1/ $\sqrt{3}$ | 1/ $\sqrt{6}$ | 1/ $\sqrt{2}$ |

(a) standard uncertainty is determined as the product of the multiplying factor and the estimated range of variations in the measured quantity

(b)  $\kappa$  is the coverage factor

**Table 17.1. Standard Uncertainty for Assumed Distribution**

The combined standard uncertainty of the measurement result represents the estimated standard deviation of the result. It is obtained by combining the individual standard uncertainties of both Type A and Type B evaluation using the usual "root-sum-squares" (RSS) methods of combining standard deviations by taking the positive square root of the estimated variances.

Expanded uncertainty is a measure of uncertainty that defines an interval about the measurement result within which the measured value is confidently believed to lie. It is obtained by multiplying the combined standard uncertainty by a coverage factor. Typically, the coverage factor ranges from 2 to 3. Using a coverage factor allows the true value of a measured quantity to be specified with a defined probability within the specified uncertainty range. For purpose of this document, a coverage factor two is used, which corresponds to confidence interval of about 95 %. The DASY uncertainty Budget is shown in the following tables.

| Error Description                    | Uncertainty Value (±%) | Probability Distribution | Divisor | Ci (1g) | Ci (10g) | Standard Uncertainty (1g) | Standard Uncertainty (10g) |
|--------------------------------------|------------------------|--------------------------|---------|---------|----------|---------------------------|----------------------------|
| <b>Measurement System</b>            |                        |                          |         |         |          |                           |                            |
| Probe Calibration                    | 6.0                    | Normal                   | 1       | 1       | 1        | ± 6.0 %                   | ± 6.0 %                    |
| Axial Isotropy                       | 4.7                    | Rectangular              | √3      | 0.7     | 0.7      | ± 1.9 %                   | ± 1.9 %                    |
| Hemispherical Isotropy               | 9.6                    | Rectangular              | √3      | 0.7     | 0.7      | ± 3.9 %                   | ± 3.9 %                    |
| Boundary Effects                     | 1.0                    | Rectangular              | √3      | 1       | 1        | ± 0.6 %                   | ± 0.6 %                    |
| Linearity                            | 4.7                    | Rectangular              | √3      | 1       | 1        | ± 2.7 %                   | ± 2.7 %                    |
| System Detection Limits              | 1.0                    | Rectangular              | √3      | 1       | 1        | ± 0.6 %                   | ± 0.6 %                    |
| Readout Electronics                  | 0.3                    | Normal                   | 1       | 1       | 1        | ± 0.3 %                   | ± 0.3 %                    |
| Response Time                        | 0.8                    | Rectangular              | √3      | 1       | 1        | ± 0.5 %                   | ± 0.5 %                    |
| Integration Time                     | 2.6                    | Rectangular              | √3      | 1       | 1        | ± 1.5 %                   | ± 1.5 %                    |
| RF Ambient Noise                     | 3.0                    | Rectangular              | √3      | 1       | 1        | ± 1.7 %                   | ± 1.7 %                    |
| RF Ambient Reflections               | 3.0                    | Rectangular              | √3      | 1       | 1        | ± 1.7 %                   | ± 1.7 %                    |
| Probe Positioner                     | 0.4                    | Rectangular              | √3      | 1       | 1        | ± 0.2 %                   | ± 0.2 %                    |
| Probe Positioning                    | 2.9                    | Rectangular              | √3      | 1       | 1        | ± 1.7 %                   | ± 1.7 %                    |
| Max. SAR Eval.                       | 1.0                    | Rectangular              | √3      | 1       | 1        | ± 0.6 %                   | ± 0.6 %                    |
| <b>Test Sample Related</b>           |                        |                          |         |         |          |                           |                            |
| Device Positioning                   | 2.9                    | Normal                   | 1       | 1       | 1        | ± 2.9 %                   | ± 2.9 %                    |
| Device Holder                        | 3.6                    | Normal                   | 1       | 1       | 1        | ± 3.6 %                   | ± 3.6 %                    |
| Power Drift                          | 5.0                    | Rectangular              | √3      | 1       | 1        | ± 2.9 %                   | ± 2.9 %                    |
| <b>Phantom and Setup</b>             |                        |                          |         |         |          |                           |                            |
| Phantom Uncertainty                  | 4.0                    | Rectangular              | √3      | 1       | 1        | ± 2.3 %                   | ± 2.3 %                    |
| Liquid Conductivity (Target)         | 5.0                    | Rectangular              | √3      | 0.64    | 0.43     | ± 1.8 %                   | ± 1.2 %                    |
| Liquid Conductivity (Meas.)          | 2.5                    | Normal                   | 1       | 0.64    | 0.43     | ± 1.6 %                   | ± 1.1 %                    |
| Liquid Permittivity (Target)         | 5.0                    | Rectangular              | √3      | 0.6     | 0.49     | ± 1.7 %                   | ± 1.4 %                    |
| Liquid Permittivity (Meas.)          | 2.5                    | Normal                   | 1       | 0.6     | 0.49     | ± 1.5 %                   | ± 1.2 %                    |
| <b>Combined Standard Uncertainty</b> |                        |                          |         |         |          | ± 11.0 %                  | ± 10.8 %                   |
| <b>Coverage Factor for 95 %</b>      |                        |                          |         |         |          | K=2                       |                            |
| <b>Expanded Uncertainty</b>          |                        |                          |         |         |          | ± 22.0 %                  | ± 21.5 %                   |

**Table 17.2. Uncertainty Budget for frequency range 300 MHz to 3 GHz**

| Error Description                    | Uncertainty Value (±%) | Probability Distribution | Divisor | Ci (1g) | Ci (10g) | Standard Uncertainty (1g) | Standard Uncertainty (10g) |
|--------------------------------------|------------------------|--------------------------|---------|---------|----------|---------------------------|----------------------------|
| <b>Measurement System</b>            |                        |                          |         |         |          |                           |                            |
| Probe Calibration                    | 6.55                   | Normal                   | 1       | 1       | 1        | ± 6.55 %                  | ± 6.55 %                   |
| Axial Isotropy                       | 4.7                    | Rectangular              | √3      | 0.7     | 0.7      | ± 1.9 %                   | ± 1.9 %                    |
| Hemispherical Isotropy               | 9.6                    | Rectangular              | √3      | 0.7     | 0.7      | ± 3.9 %                   | ± 3.9 %                    |
| Boundary Effects                     | 2.0                    | Rectangular              | √3      | 1       | 1        | ± 1.2 %                   | ± 1.2 %                    |
| Linearity                            | 4.7                    | Rectangular              | √3      | 1       | 1        | ± 2.7 %                   | ± 2.7 %                    |
| System Detection Limits              | 1.0                    | Rectangular              | √3      | 1       | 1        | ± 0.6 %                   | ± 0.6 %                    |
| Readout Electronics                  | 0.3                    | Normal                   | 1       | 1       | 1        | ± 0.3 %                   | ± 0.3 %                    |
| Response Time                        | 0.8                    | Rectangular              | √3      | 1       | 1        | ± 0.5 %                   | ± 0.5 %                    |
| Integration Time                     | 2.6                    | Rectangular              | √3      | 1       | 1        | ± 1.5 %                   | ± 1.5 %                    |
| RF Ambient Noise                     | 3.0                    | Rectangular              | √3      | 1       | 1        | ± 1.7 %                   | ± 1.7 %                    |
| RF Ambient Reflections               | 3.0                    | Rectangular              | √3      | 1       | 1        | ± 1.7 %                   | ± 1.7 %                    |
| Probe Positioner                     | 0.8                    | Rectangular              | √3      | 1       | 1        | ± 0.5 %                   | ± 0.5 %                    |
| Probe Positioning                    | 9.9                    | Rectangular              | √3      | 1       | 1        | ± 5.7 %                   | ± 5.7 %                    |
| Max. SAR Eval.                       | 4.0                    | Rectangular              | √3      | 1       | 1        | ± 2.3 %                   | ± 2.3 %                    |
| <b>Test Sample Related</b>           |                        |                          |         |         |          |                           |                            |
| Device Positioning                   | 2.9                    | Normal                   | 1       | 1       | 1        | ± 2.9 %                   | ± 2.9 %                    |
| Device Holder                        | 3.6                    | Normal                   | 1       | 1       | 1        | ± 3.6 %                   | ± 3.6 %                    |
| Power Drift                          | 5.0                    | Rectangular              | √3      | 1       | 1        | ± 2.9 %                   | ± 2.9 %                    |
| <b>Phantom and Setup</b>             |                        |                          |         |         |          |                           |                            |
| Phantom Uncertainty                  | 4.0                    | Rectangular              | √3      | 1       | 1        | ± 2.3 %                   | ± 2.3 %                    |
| Liquid Conductivity (Target)         | 5.0                    | Rectangular              | √3      | 0.64    | 0.43     | ± 1.8 %                   | ± 1.2 %                    |
| Liquid Conductivity (Meas.)          | 2.5                    | Normal                   | 1       | 0.64    | 0.43     | ± 1.6 %                   | ± 1.1 %                    |
| Liquid Permittivity (Target)         | 5.0                    | Rectangular              | √3      | 0.6     | 0.49     | ± 1.7 %                   | ± 1.4 %                    |
| Liquid Permittivity (Meas.)          | 2.5                    | Normal                   | 1       | 0.6     | 0.49     | ± 1.5 %                   | ± 1.2 %                    |
| <b>Combined Standard Uncertainty</b> |                        |                          |         |         |          | ± 12.8 %                  | ± 12.6 %                   |
| <b>Coverage Factor for 95 %</b>      |                        |                          |         |         |          | K=2                       |                            |
| <b>Expanded Uncertainty</b>          |                        |                          |         |         |          | ± 25.6 %                  | ± 25.2 %                   |

**Table 17.3. Uncertainty Budget for frequency range 3 GHz to 6 GHz**

## **18. 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. 1528-2003, "Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
- [4] SPEAG DASY System Handbook
- [5] FCC KDB 865664 D01 v01r03, "SAR Measurement Requirements for 100 MHz to 6 GHz", February 2014.
- [6] FCC KDB 865664 D02 v01r01, "RF Exposure Compliance Reporting and Documentation Considerations" May 2013.
- [7] FCC KDB 447498 D01 v05r02, "Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies", February 2014.
- [8] FCC KDB 248227 D01 v01r02, "SAR Measurement Procedures for 802.11 a/b/g Transmitters", May 2007.
- [9] FCC KDB 616217 D04 v01r01, "SAR Evaluation Considerations for Laptop, Notebook, Netbook and Tablet Computers", May 2013.
- [10] FCC KDB 941225 D01 v02, "SAR Measurement Procedures for 3G Devices – CDMA 2000 / Ev-Do / WCDMA / HSDPA / HSPA", October 2007.
- [11] FCC KDB 941225 D02 v02r02, "SAR Guidance for HSPA, HSPA+, DC-HSDPA and 1x-Advanced", May 2013.
- [12] FCC KDB 941225 D03 v01, "Recommended SAR Test Reduction Procedures for GSM / GPRS / EDGE", December 2008.
- [13] FCC KDB 941225 D05 v02r03, "SAR Evaluation Considerations for LTE Devices", December 2013.



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## ***Appendix A. Plots of System Performance Check***

The plots are shown as follows.

## System Check\_Body\_835MHz\_140709

### DUT: D835V2 - SN: 4d151

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium: MSL\_835\_140709 Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.971 \text{ S/m}$ ;  $\epsilon_r = 56$ ;  $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature :  $23.5^\circ\text{C}$ ; Liquid Temperature :  $22.5^\circ\text{C}$

DASY5 Configuration:

- Probe: EX3DV4 - SN3911; ConvF(10.02, 10.02, 10.02); Calibrated: 2014/4/22;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1358; Calibrated: 2014/4/30
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1201
- Measurement SW: DASY52, Version 52.8 (5); SEMCAD X Version 14.6.8 (7028)

**Pin=250mW/Area Scan (61x61x1):** Interpolated grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) =  $2.52 \text{ W/kg}$

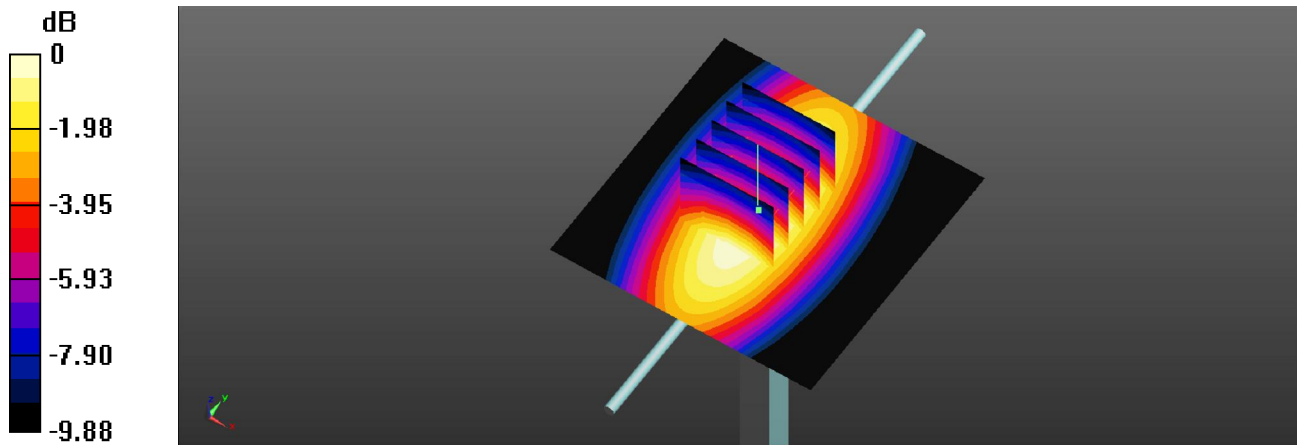
**Pin=250mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value =  $50.506 \text{ V/m}$ ; Power Drift =  $-0.06 \text{ dB}$

Peak SAR (extrapolated) =  $3.40 \text{ W/kg}$

**SAR(1 g) =  $2.33 \text{ W/kg}$ ; SAR(10 g) =  $1.55 \text{ W/kg}$**

Maximum value of SAR (measured) =  $2.49 \text{ W/kg}$



0 dB =  $2.49 \text{ W/kg}$

## System Check\_Body\_1750MHz\_140708

### DUT: D1750V2 -SN: 1090

Communication System: CW; Frequency: 1750 MHz; Duty Cycle: 1:1

Medium: MSL\_1750\_140708 Medium parameters used:  $f = 1750$  MHz;  $\sigma = 1.522$  S/m;  $\epsilon_r = 54.439$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.5 °C ; Liquid Temperature : 22.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3911; ConvF(8.11, 8.11, 8.11); Calibrated: 2014/4/22;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1358; Calibrated: 2014/4/30
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1201
- Measurement SW: DASY52, Version 52.8 (5); SEMCAD X Version 14.6.8 (7028)

**Pin=250mW/Area Scan (61x61x1):** Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 12.2 W/kg

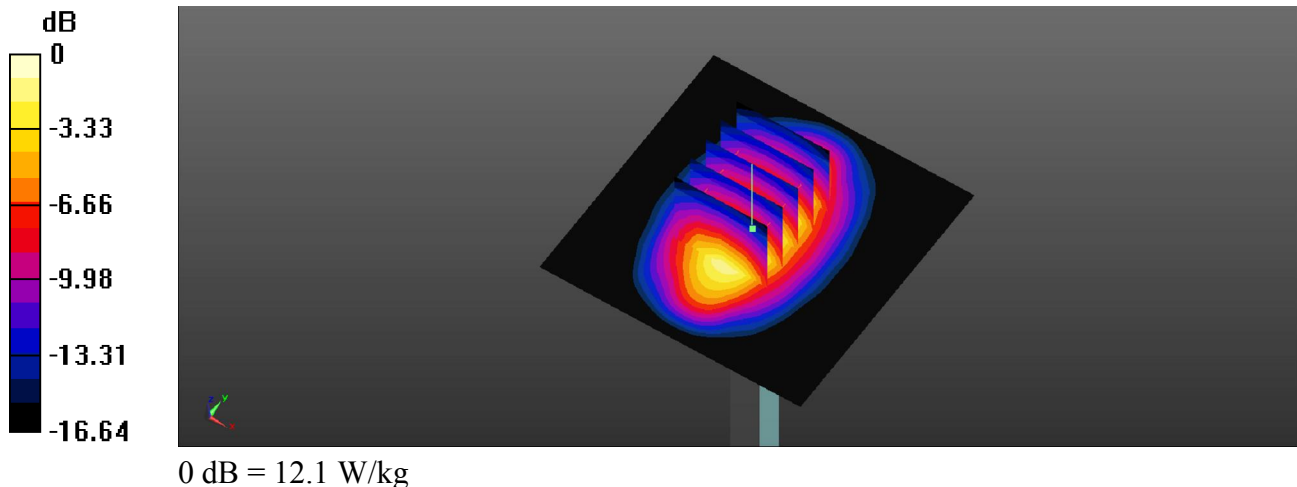
**Pin=250mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 90.316 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 15.1 W/kg

**SAR(1 g) = 9.06 W/kg; SAR(10 g) = 4.61 W/kg**

Maximum value of SAR (measured) = 12.1 W/kg



## System Check\_Body\_1900MHz\_140708

### DUT: D1900V2 - SN: 5d170

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: MSL\_1900\_140708 Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.535$  S/m;  $\epsilon_r = 54.565$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.5 °C ; Liquid Temperature : 22.6 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3911; ConvF(7.83, 7.83, 7.83); Calibrated: 2014/4/22;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1358; Calibrated: 2014/4/30
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1201
- Measurement SW: DASY52, Version 52.8 (5); SEMCAD X Version 14.6.8 (7028)

**Pin=250mW/Area Scan (61x61x1):** Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 14.2 W/kg

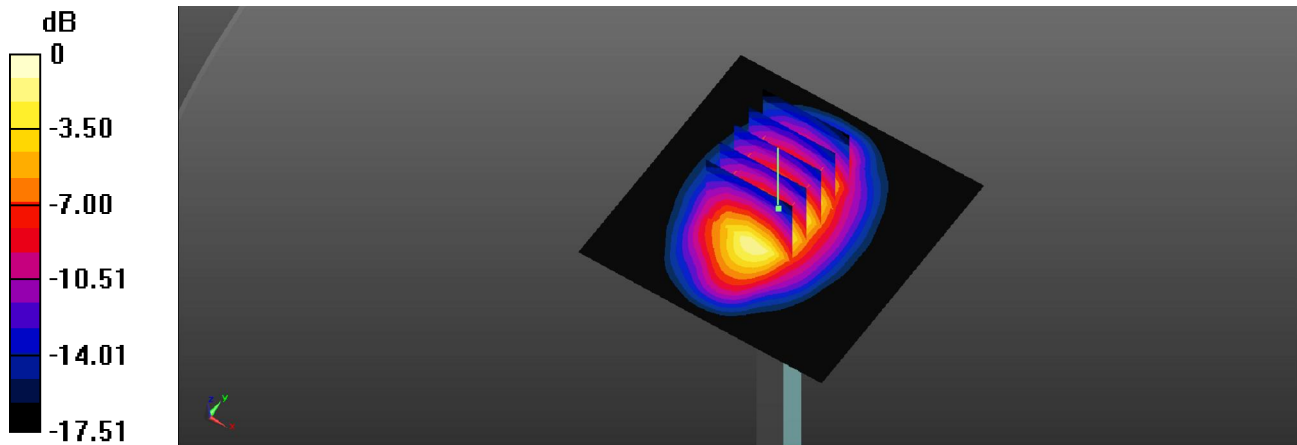
**Pin=250mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 83.879 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 17.9 W/kg

**SAR(1 g) = 10.1 W/kg; SAR(10 g) = 5.34 W/kg**

Maximum value of SAR (measured) = 14.2 W/kg



0 dB = 14.2 W/kg

## System Check\_Body\_2450MHz\_140717

### DUT: D2450V2 - SN: 908

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: MSL\_2450\_140717 Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.983$  S/m;  $\epsilon_r = 51.159$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.5 °C; Liquid Temperature : 22.7 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3911; ConvF(7.32, 7.32, 7.32); Calibrated: 2014/4/22;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1358; Calibrated: 2014/4/30
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1201
- Measurement SW: DASY52, Version 52.8 (5); SEMCAD X Version 14.6.8 (7028)

**Pin=250mW/Area Scan (81x81x1):** Interpolated grid: dx=12mm, dy=12mm

Maximum value of SAR (interpolated) = 20.4 W/kg

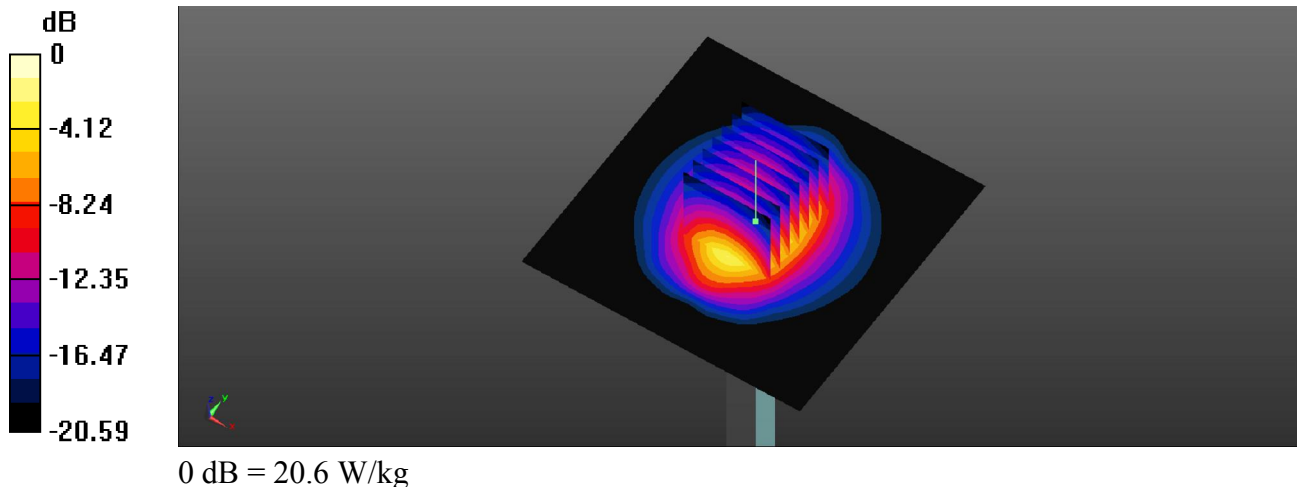
**Pin=250mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 88.996 V/m; Power Drift = -0.15 dB

Peak SAR (extrapolated) = 27.4 W/kg

**SAR(1 g) = 13.6 W/kg; SAR(10 g) = 6.4 W/kg**

Maximum value of SAR (measured) = 20.6 W/kg



## System Check\_Body\_2600MHz\_140708

### DUT: D2600V2 -SN: 1061

Communication System: CW; Frequency: 2600 MHz; Duty Cycle: 1:1

Medium: MSL\_2600\_140708 Medium parameters used:  $f = 2600$  MHz;  $\sigma = 2.165$  S/m;  $\epsilon_r = 53.823$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.5 °C ; Liquid Temperature : 22.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3911; ConvF(7.09, 7.09, 7.09); Calibrated: 2014/4/22;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1358; Calibrated: 2014/4/30
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1201
- Measurement SW: DASY52, Version 52.8 (5); SEMCAD X Version 14.6.8 (7028)

**Pin=250mW/Area Scan (81x81x1):** Interpolated grid: dx=12mm, dy=12mm

Maximum value of SAR (interpolated) = 21.6 W/kg

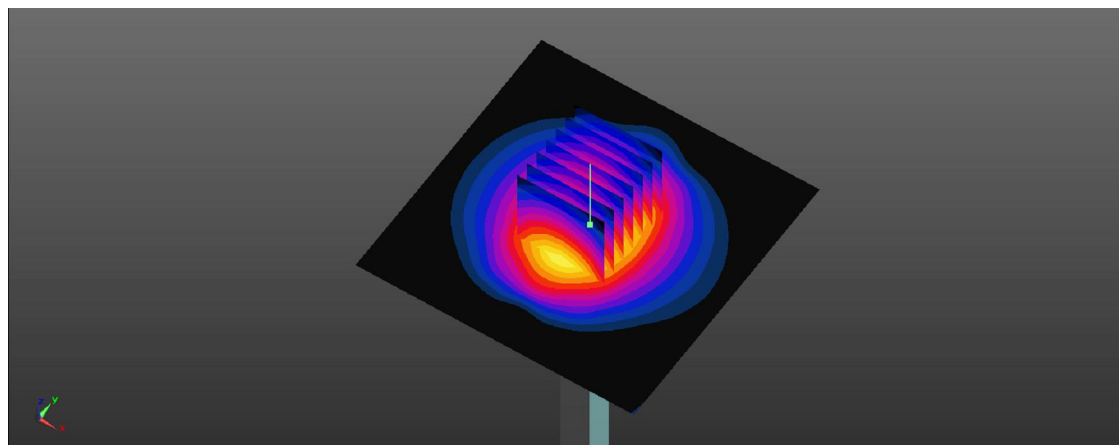
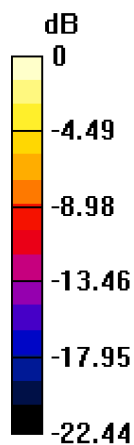
**Pin=250mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 86.348 V/m; Power Drift = -0.13 dB

Peak SAR (extrapolated) = 29.8 W/kg

**SAR(1 g) = 14.1 W/kg; SAR(10 g) = 6.32 W/kg**

Maximum value of SAR (measured) = 22.0 W/kg



0 dB = 22.0 W/kg

**System Check\_Body\_5200MHz\_140711****DUT: D5GHzV2 - SN: 1006**

Communication System: CW; Frequency: 5200 MHz; Duty Cycle: 1:1

Medium: MSL\_5000\_140711 Medium parameters used:  $f = 5200$  MHz;  $\sigma = 5.297$  mho/m;  $\epsilon_r =$

49.185;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.5 °C ; Liquid Temperature : 22.4 °C

**DASY5 Configuration:**

- Probe: EX3DV4 - SN3857; ConvF(4.54, 4.54, 4.54); Calibrated: 2014.05.23
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2014.05.19
- Phantom: SAM3; Type: SAM; Serial: TP-1079
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.4.5 (3634)

**Pin=100mW/Area Scan (71x71x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 17.673 mW/g

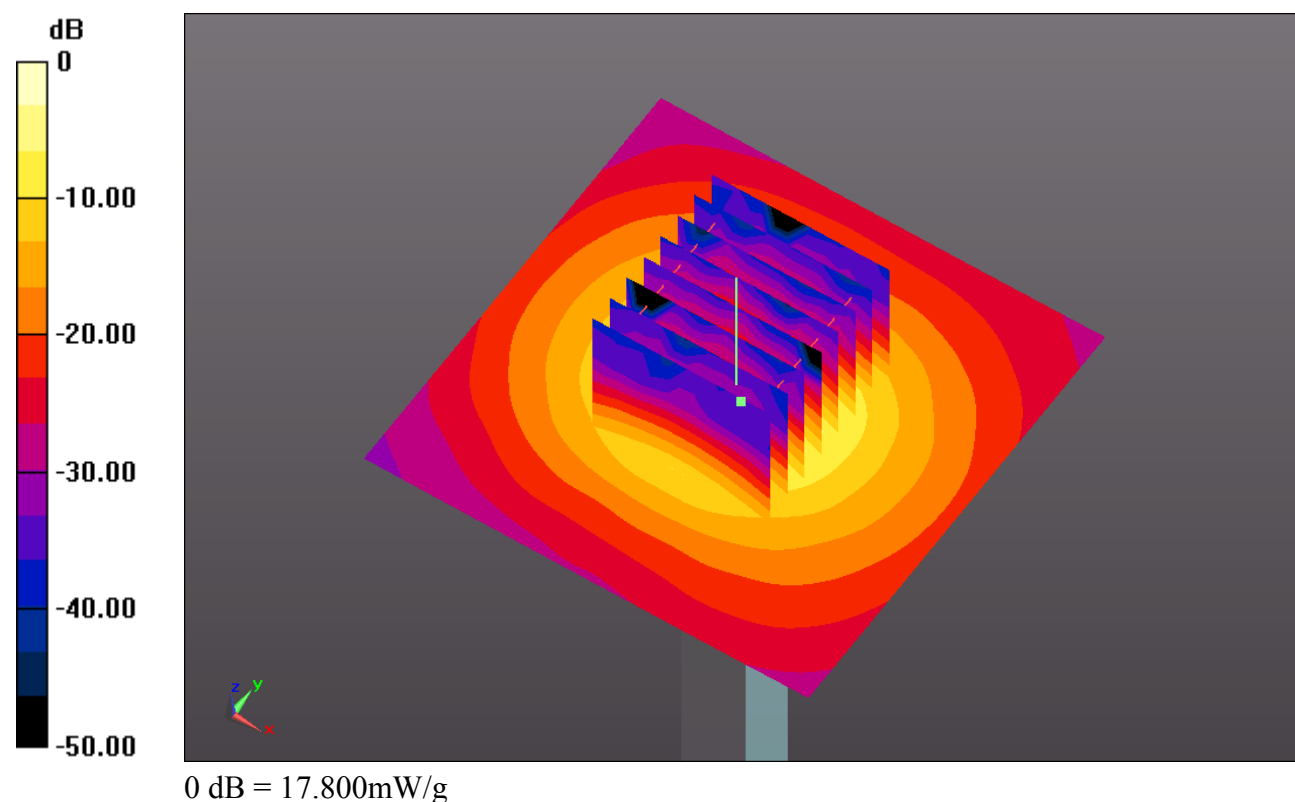
**Pin=100mW/Zoom Scan (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 40.883 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 30.713 W/kg

**SAR(1 g) = 7.45 mW/g; SAR(10 g) = 2.1 mW/g**

Maximum value of SAR (measured) = 17.804 mW/g



**System Check\_Body\_5800MHz\_140716****DUT: D5GHzV2 - SN: 1006**

Communication System: CW; Frequency: 5800 MHz; Duty Cycle: 1:1

Medium: MSL\_5000\_140716 Medium parameters used:  $f = 5800$  MHz;  $\sigma = 6.127$  mho/m;  $\epsilon_r =$

47.784;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.1 °C ; Liquid Temperature : 22.3 °C

**DASY5 Configuration:**

- Probe: EX3DV4 - SN3857; ConvF(4.21, 4.21, 4.21); Calibrated: 2014.05.23
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2014.05.19
- Phantom: SAM3; Type: SAM; Serial: TP-1079
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.4.5 (3634)

**Pin=100mW/Area Scan (71x71x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 17.784 mW/g

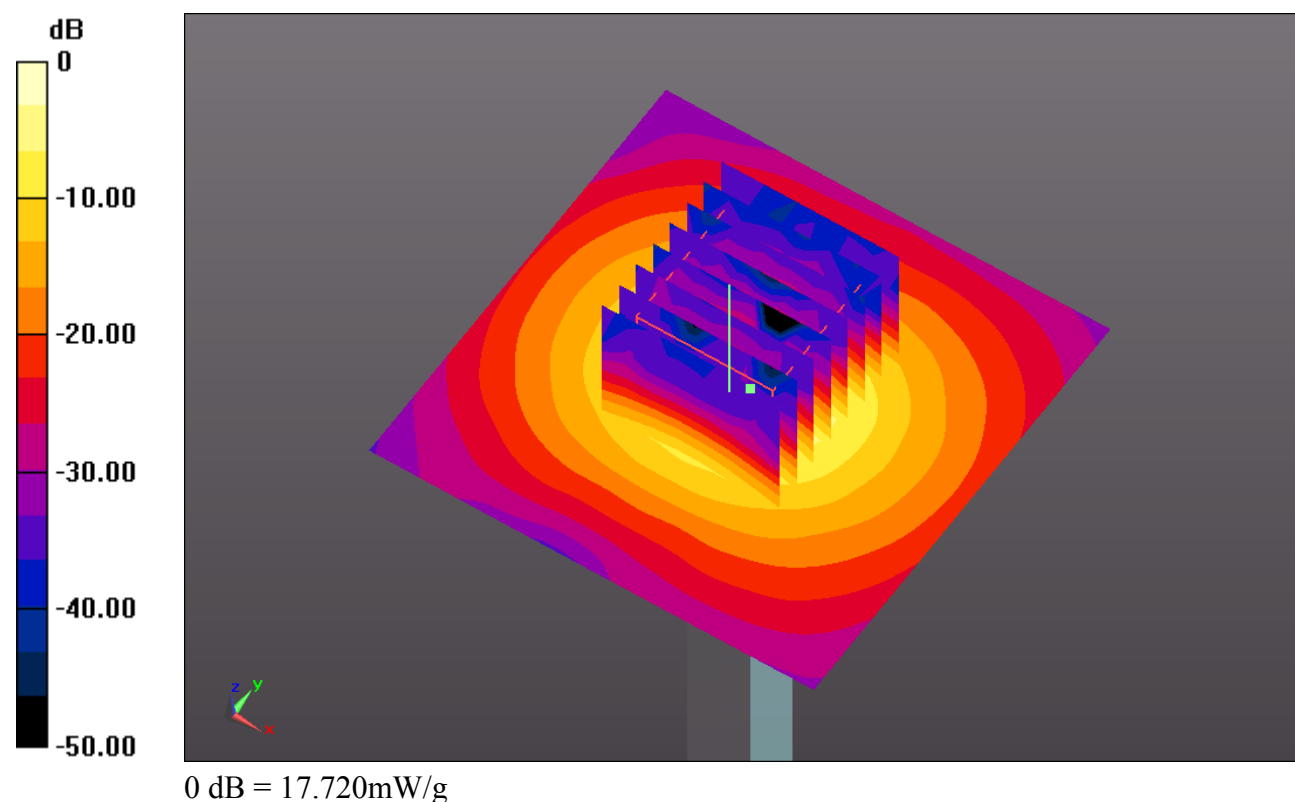
**Pin=100mW/Zoom Scan (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 36.544 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 32.619 W/kg

**SAR(1 g) = 7.2 mW/g; SAR(10 g) = 2.01 mW/g**

Maximum value of SAR (measured) = 17.720 mW/g





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## ***Appendix B. Plots of High SAR Measurement***

The plots are shown as follows.

**#01 GSM850\_GPRS(GMSK 3 Tx slots)\_Bottom Face\_0cm\_Ch251\_sensor on**

Communication System: GPRS (GMSK 3 Tx slots); Frequency: 848.8 MHz; Duty Cycle: 1:2.77

Medium: MSL\_835\_140709 Medium parameters used:  $f = 848.8$  MHz;  $\sigma = 0.983$  S/m;  $\epsilon_r = 55.871$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.5 °C; Liquid Temperature : 22.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3911; ConvF(10.02, 10.02, 10.02); Calibrated: 2014/4/22;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1358; Calibrated: 2014/4/30
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1201
- Measurement SW: DASY52, Version 52.8 (5); SEMCAD X Version 14.6.8 (7028)

**Ch251/Area Scan (91x61x1):** Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.48 W/kg

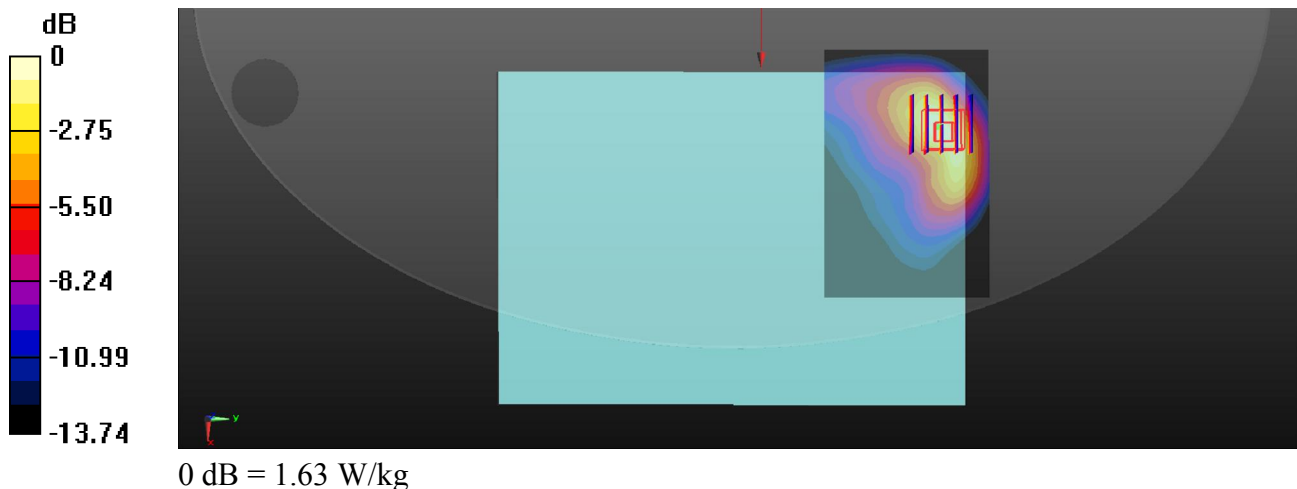
**Ch251/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 2.282 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 2.13 W/kg

**SAR(1 g) = 1.17 W/kg; SAR(10 g) = 0.663 W/kg**

Maximum value of SAR (measured) = 1.63 W/kg



**#02 GSM1900\_GPRS(GMSK 3 Tx slots)\_Edge 1\_0cm\_Ch810\_sensor off**

Communication System: GPRS (GMSK 3 Tx slots); Frequency: 1909.8 MHz; Duty Cycle: 1:2.77  
Medium: MSL\_1900\_140708 Medium parameters used:  $f = 1909.8$  MHz;  $\sigma = 1.544$  S/m;  $\epsilon_r = 54.546$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Ambient Temperature : 23.5 °C; Liquid Temperature : 22.6 °C

**DASY5 Configuration:**

- Probe: EX3DV4 - SN3911; ConvF(7.83, 7.83, 7.83); Calibrated: 2014/4/22;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1358; Calibrated: 2014/4/30
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1201
- Measurement SW: DASY52, Version 52.8 (5); SEMCAD X Version 14.6.8 (7028)

**Ch810/Area Scan (31x191x1):** Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.78 W/kg

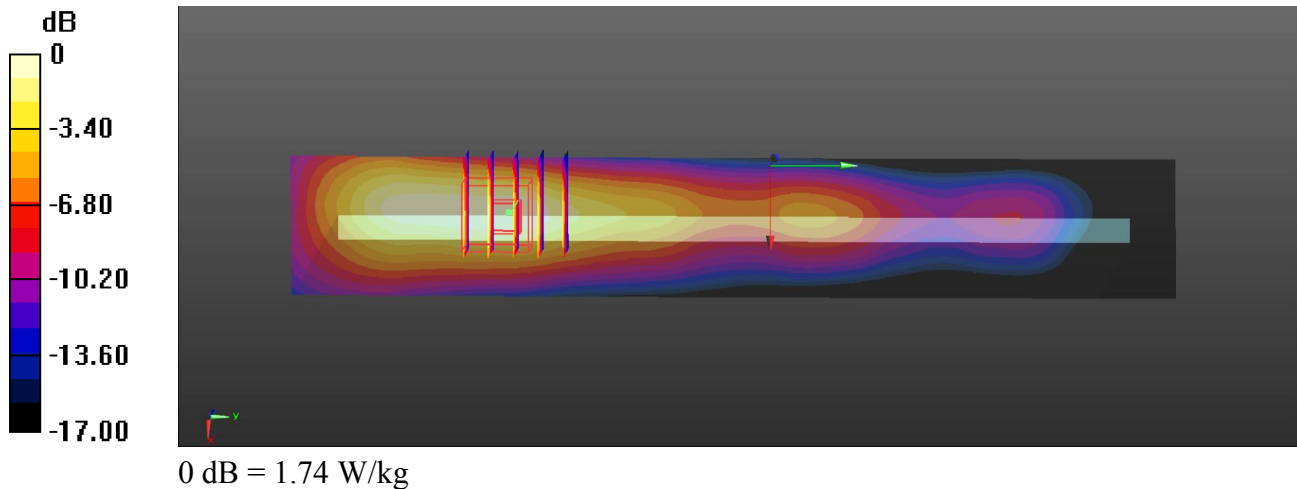
**Ch810/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 15.638 V/m; Power Drift = -0.18 dB

Peak SAR (extrapolated) = 2.31 W/kg

**SAR(1 g) = 1.25 W/kg; SAR(10 g) = 0.749 W/kg**

Maximum value of SAR (measured) = 1.74 W/kg



### #03 WCDMA Band V\_RMC 12.2k\_Bottom Face\_0cm\_Ch4182\_sensor on

Communication System: WCDMA ; Frequency: 836.4 MHz; Duty Cycle: 1:1

Medium: MSL\_835\_140709 Medium parameters used:  $f = 836.4$  MHz;  $\sigma = 0.972$  S/m;  $\epsilon_r = 55.991$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.5 °C ; Liquid Temperature : 22.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3911; ConvF(10.02, 10.02, 10.02); Calibrated: 2014/4/22;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1358; Calibrated: 2014/4/30
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1201
- Measurement SW: DASY52, Version 52.8 (5); SEMCAD X Version 14.6.8 (7028)

**Ch4182/Area Scan (91x61x1):** Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.548 W/kg

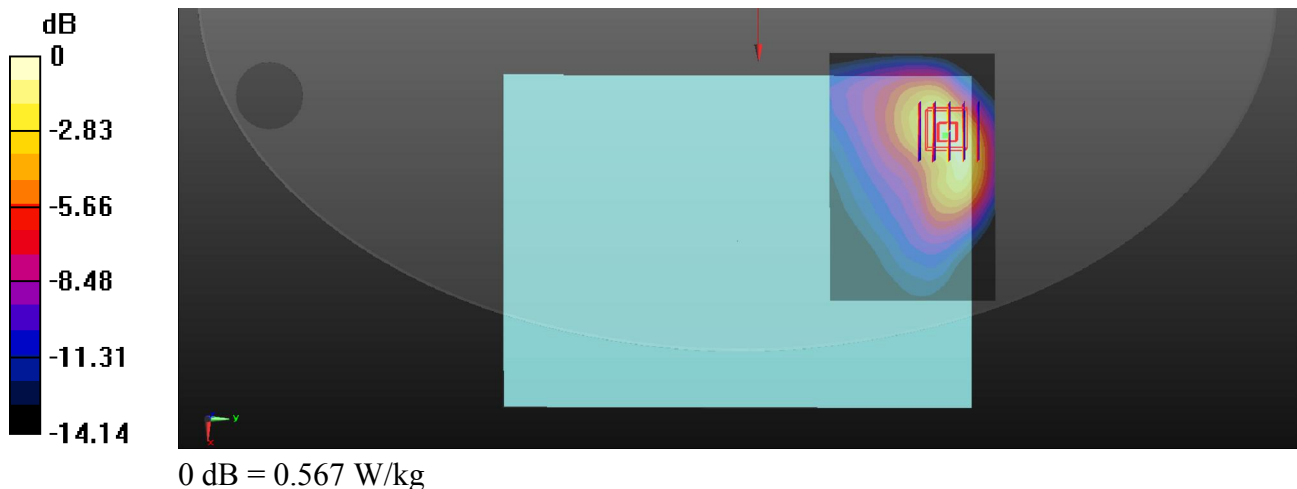
**Ch4182/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 1.945 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 0.731 W/kg

**SAR(1 g) = 0.389 W/kg; SAR(10 g) = 0.215 W/kg**

Maximum value of SAR (measured) = 0.567 W/kg



# **#04 WCDMA Band IV\_RMC 12.2k\_Bottom Face\_0cm\_Ch1513\_sensor on**

Communication System: WCDMA ; Frequency: 1752.6 MHz;Duty Cycle: 1:1

Medium: MSL\_1750\_140708 Medium parameters used:  $f = 1752.6$  MHz;  $\sigma = 1.525$  S/m;  $\epsilon_r = 54.433$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.5 °C ; Liquid Temperature : 22.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3911; ConvF(8.11, 8.11, 8.11); Calibrated: 2014/4/22;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1358; Calibrated: 2014/4/30
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1201
- Measurement SW: DASY52, Version 52.8 (5); SEMCAD X Version 14.6.8 (7028)

**Ch1513/Area Scan (91x61x1):** Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.85 W/kg

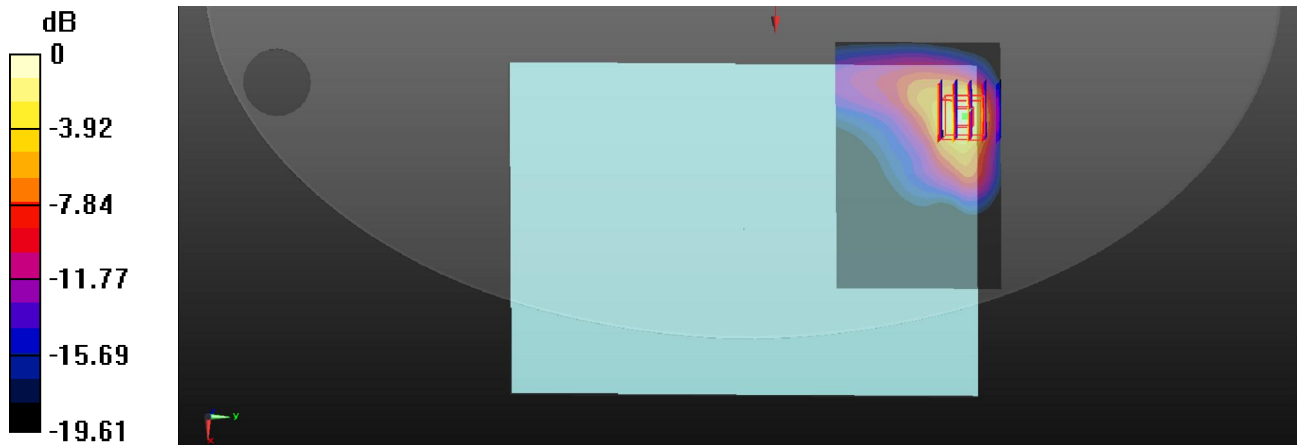
**Ch1513/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 1.844 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 2.89 W/kg

**SAR(1 g) = 1.32 W/kg; SAR(10 g) = 0.611 W/kg**

Maximum value of SAR (measured) = 2.14 W/kg



0 dB = 2.14 W/kg

# **#05 WCDMA Band II\_RMC 12.2K\_Edge 1\_0cm\_Ch9538\_sensor off**

Communication System: WCDMA ; Frequency: 1907.6 MHz;Duty Cycle: 1:1

Medium: MSL\_1900\_140708 Medium parameters used:  $f = 1907.6$  MHz;  $\sigma = 1.542$  S/m;  $\epsilon_r = 54.552$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.5 °C; Liquid Temperature : 22.6 °C

## DASY5 Configuration:

- Probe: EX3DV4 - SN3911; ConvF(7.83, 7.83, 7.83); Calibrated: 2014/4/22;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1358; Calibrated: 2014/4/30
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1201
- Measurement SW: DASY52, Version 52.8 (5); SEMCAD X Version 14.6.8 (7028)

**Ch9538/Area Scan (31x191x1):** Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.69 W/kg

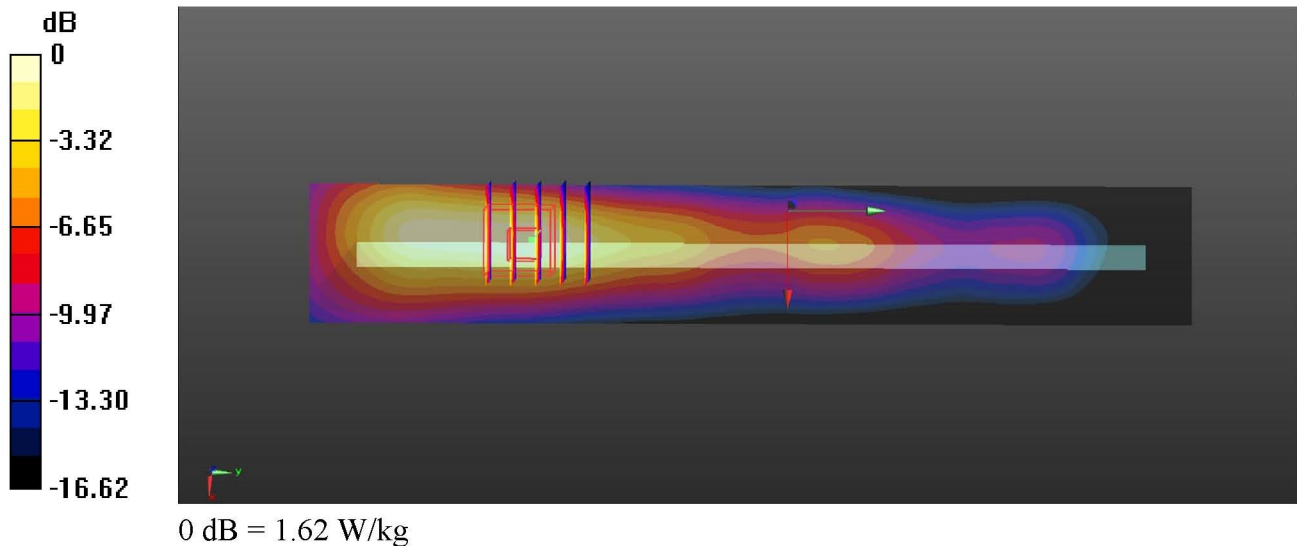
**Ch9538/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 14.547 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 2.18 W/kg

**SAR(1 g) = 1.26 W/kg; SAR(10 g) = 0.686 W/kg**

Maximum value of SAR (measured) = 1.62 W/kg



**#06 LTE Band 5\_QPSK\_10M(1,0)\_Bottom Face\_0cm\_Ch20525\_sensor on**

Communication System: LTE; Frequency: 836.5 MHz; Duty Cycle: 1:1

Medium: MSL\_835\_140709 Medium parameters used:  $f = 836.5$  MHz;  $\sigma = 0.972$  S/m;  $\epsilon_r = 55.99$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.5 °C ; Liquid Temperature : 22.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3911; ConvF(10.02, 10.02, 10.02); Calibrated: 2014/4/22;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1358; Calibrated: 2014/4/30
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1201
- Measurement SW: DASY52, Version 52.8 (5); SEMCAD X Version 14.6.8 (7028)

**Ch20525/Area Scan (91x61x1):** Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.432 W/kg

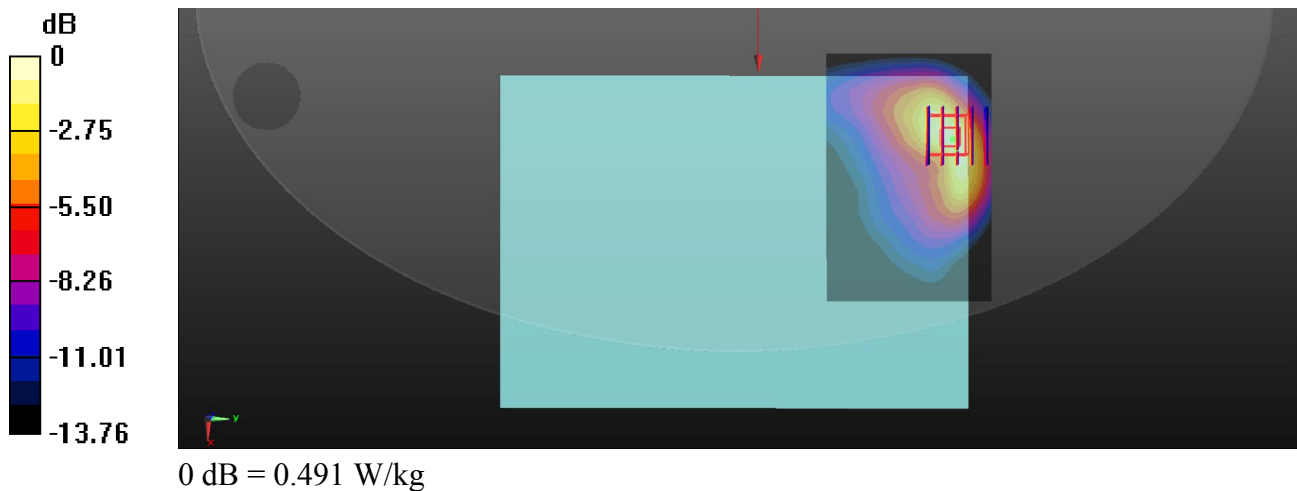
**Ch20525/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 1.750 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 0.630 W/kg

**SAR(1 g) = 0.345 W/kg; SAR(10 g) = 0.196 W/kg**

Maximum value of SAR (measured) = 0.491 W/kg



**#07 LTE Band 4\_QPSK\_20M(1,0)\_Bottom Face\_0cm\_Ch20300\_sensor on**

Communication System: LTE; Frequency: 1745 MHz; Duty Cycle: 1:1

Medium: MSL\_1750\_140708 Medium parameters used:  $f = 1745$  MHz;  $\sigma = 1.516$  S/m;  $\epsilon_r = 54.446$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.5 °C; Liquid Temperature : 22.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3911; ConvF(8.11, 8.11, 8.11); Calibrated: 2014/4/22;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1358; Calibrated: 2014/4/30
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1201
- Measurement SW: DASY52, Version 52.8 (5); SEMCAD X Version 14.6.8 (7028)

**Ch20300/Area Scan (91x61x1):** Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.32 W/kg

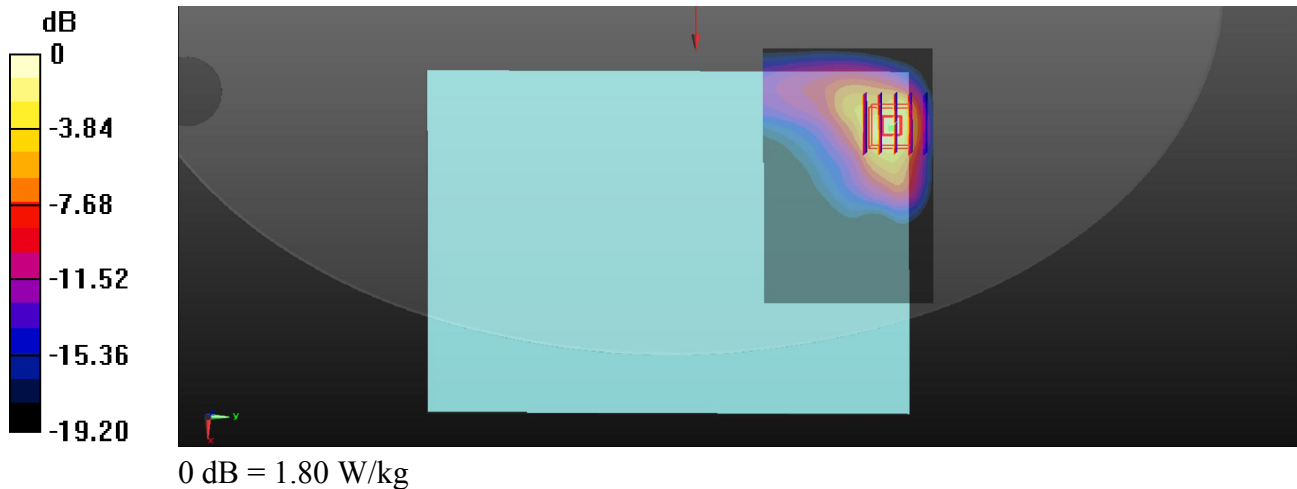
**Ch20300/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 1.138 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 2.35 W/kg

**SAR(1 g) = 1.12 W/kg; SAR(10 g) = 0.519 W/kg**

Maximum value of SAR (measured) = 1.80 W/kg



# **#08 LTE Band 2\_QPSK\_20M(1,0)\_Edge 1\_0cm\_Ch18900\_sensor off**

Communication System: LTE; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: MSL\_1900\_140708 Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.513$  S/m;  $\epsilon_r = 54.594$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.5 °C ; Liquid Temperature : 22.6 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3911; ConvF(7.83, 7.83, 7.83); Calibrated: 2014/4/22;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1358; Calibrated: 2014/4/30
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1201
- Measurement SW: DASY52, Version 52.8 (5); SEMCAD X Version 14.6.8 (7028)

**Ch18900/Area Scan (31x191x1):** Interpolated grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.73 W/kg

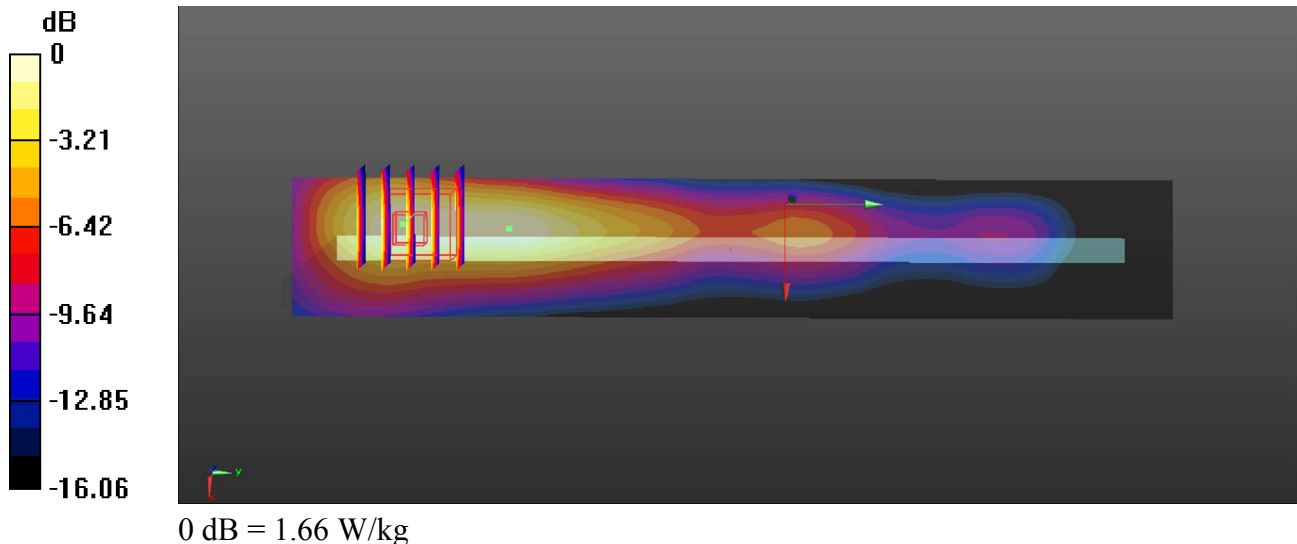
**Ch18900/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 13.331 V/m; Power Drift = -0.12 dB

Peak SAR (extrapolated) = 2.18 W/kg

**SAR(1 g) = 1.27 W/kg; SAR(10 g) = 0.708 W/kg**

Maximum value of SAR (measured) = 1.66 W/kg



# **#09 LTE Band 7\_QPSK\_20M(1,0)\_Edge 1\_0cm\_Ch21350\_sensor off**

Communication System: LTE; Frequency: 2560 MHz; Duty Cycle: 1:1

Medium: MSL\_2600\_140708 Medium parameters used:  $f = 2560$  MHz;  $\sigma = 2.114$  S/m;  $\epsilon_r = 53.782$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.5 °C ; Liquid Temperature : 22.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3911; ConvF(7.09, 7.09, 7.09); Calibrated: 2014/4/22;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1358; Calibrated: 2014/4/30
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1201
- Measurement SW: DASY52, Version 52.8 (5); SEMCAD X Version 14.6.8 (7028)

**Ch21350/Area Scan (31x231x1):** Interpolated grid: dx=12mm, dy=12mm

Maximum value of SAR (interpolated) = 1.84 W/kg

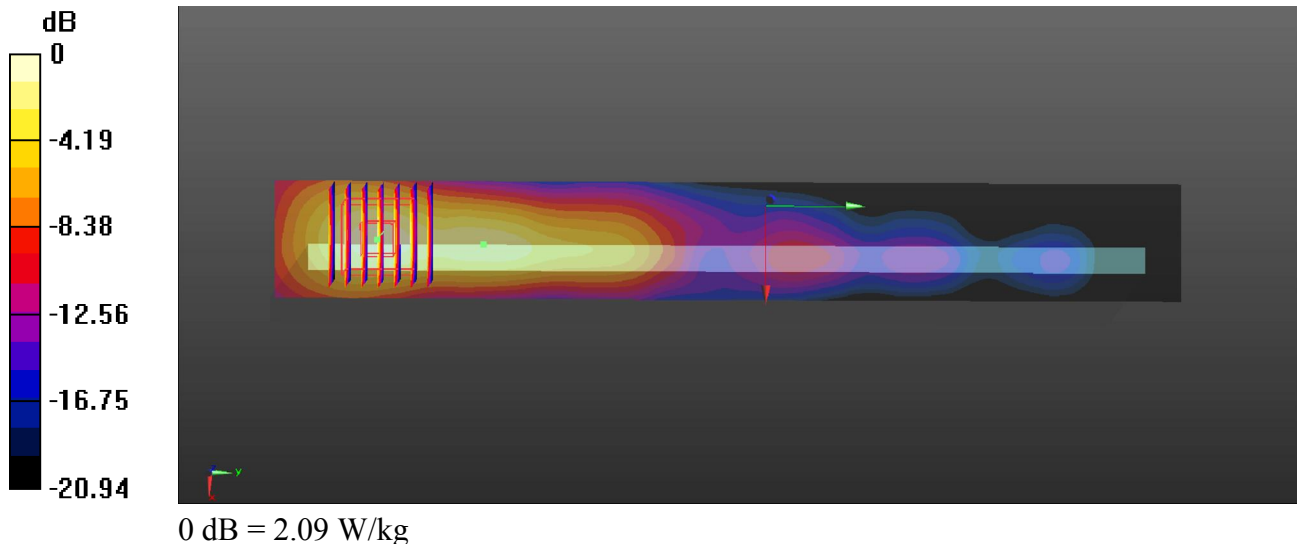
**Ch21350/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 4.552 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 2.73 W/kg

**SAR(1 g) = 1.37 W/kg; SAR(10 g) = 0.646 W/kg**

Maximum value of SAR (measured) = 2.09 W/kg



# **#10 WLAN 2.4GHz\_802.11b 1Mbps\_Bottom Face\_0cm\_Ch1\_Ant.0**

Communication System: 802.11b; Frequency: 2412 MHz; Duty Cycle: 1:1

Medium: MSL\_2450\_140717 Medium parameters used:  $f = 2412$  MHz;  $\sigma = 1.932$  S/m;  $\epsilon_r = 51.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.5 °C; Liquid Temperature : 22.7 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3911; ConvF(7.32, 7.32, 7.32); Calibrated: 2014/4/22;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1358; Calibrated: 2014/4/30
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1201
- Measurement SW: DASY52, Version 52.8 (5); SEMCAD X Version 14.6.8 (7028)

**Ch1/Area Scan (111x71x1):** Interpolated grid: dx=12mm, dy=12mm

Maximum value of SAR (interpolated) = 1.28 W/kg

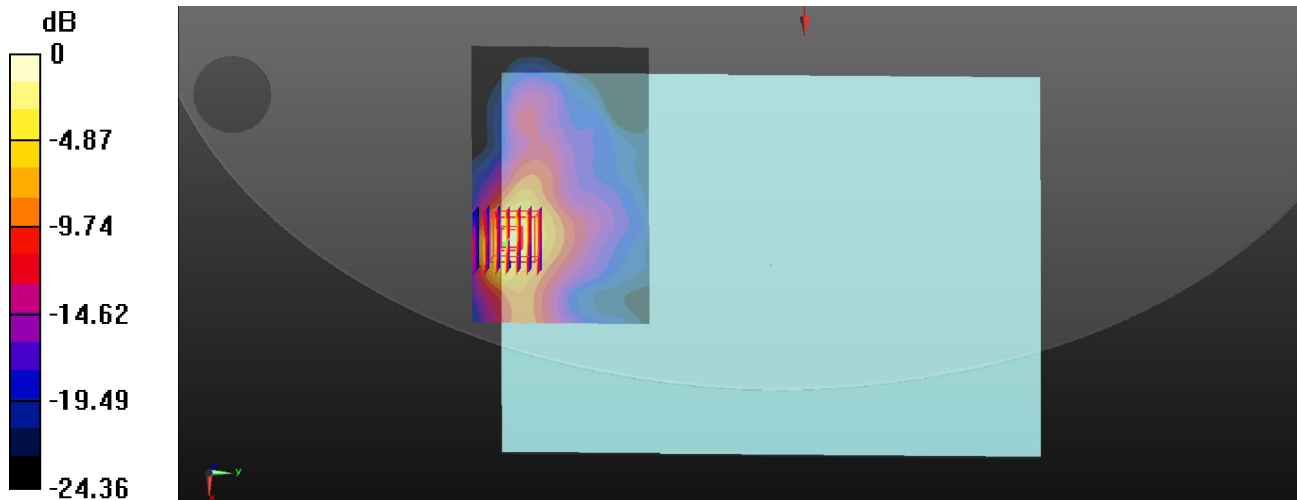
**Ch1/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 0.442 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 1.88 W/kg

**SAR(1 g) = 0.790 W/kg; SAR(10 g) = 0.331 W/kg**

Maximum value of SAR (measured) = 1.29 W/kg



0 dB = 1.29 W/kg

**#11\_WLAN 5.2GHz \_802.11a\_6Mbps\_Edge2 0cm\_Ch36\_Ant.0**

Communication System: WIFI (0); Frequency: 5180 MHz; Duty Cycle: 1:1.044

Medium: MSL\_5000\_150711 Medium parameters used:  $f = 5180$  MHz;  $\sigma = 5.268$  mho/m;  $\epsilon_r =$

49.23;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.5 °C; Liquid Temperature : 22.4 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3857; ConvF(4.54, 4.54, 4.54); Calibrated: 2014.05.23
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2014.05.19
- Phantom: SAM3; Type: SAM; Serial: TP-1079
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.4.5 (3634)

**Ch36/Area Scan (51x201x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 2.532 mW/g

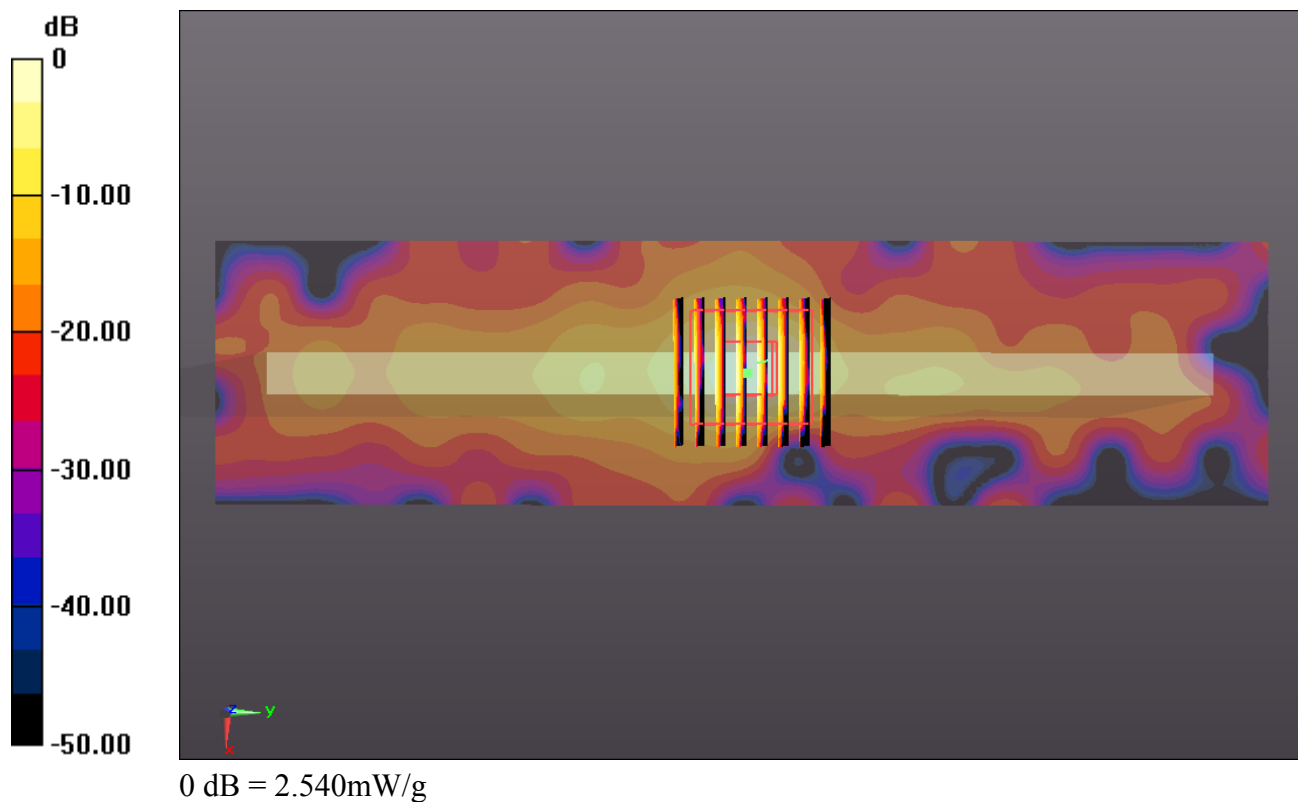
**Ch36/Zoom Scan (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 17.286 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 4.000 W/kg

**SAR(1 g) = 1.15 mW/g; SAR(10 g) = 0.294 mW/g**

Maximum value of SAR (measured) = 2.536 mW/g



**#12\_WLAN 5.8GHz \_802.11a\_6Mbps\_6M\_Edge1 0cm\_Ch157\_Ant.1**

Communication System: WIFI (0); Frequency: 5785 MHz; Duty Cycle: 1:1.047

Medium: MSL\_5000\_150716 Medium parameters used:  $f = 5785$  MHz;  $\sigma = 6.11$  mho/m;  $\epsilon_r =$

47.844;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.1 °C; Liquid Temperature : 22.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3857; ConvF(4.21, 4.21, 4.21); Calibrated: 2014.05.23
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1210; Calibrated: 2014.05.19
- Phantom: SAM3; Type: SAM; Serial: TP-1079
- Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.4.5 (3634)

**Ch157/Area Scan (61x301x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.107 mW/g

**Ch157/Zoom Scan (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 8.662 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 0.994 W/kg

**SAR(1 g) = 0.255 mW/g; SAR(10 g) = 0.058 mW/g**

Maximum value of SAR (measured) = 0.686 mW/g

