



# SAR TEST REPORT

|                      |                               |
|----------------------|-------------------------------|
| <b>Product Name</b>  | Smart Phone                   |
| <b>Model Name</b>    | HUAWEI GRA-L09                |
| <b>FCC ID</b>        | QISGRA-L09                    |
| <b>Applicant</b>     | Huawei Technologies Co., Ltd. |
| <b>Manufacturer</b>  | Huawei Technologies Co., Ltd. |
| <b>Date of issue</b> | April 3, 2015                 |

**TA Technology (Shanghai) Co., Ltd.**

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**Test Report**

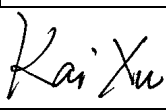
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**GENERAL SUMMARY**

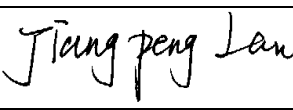
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|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Reference Standard(s)</b> | <p><b>FCC 47CFR §2.1093</b> Radiofrequency Radiation Exposure Evaluation: Portable Devices</p> <p><b>ANSI C95.1- 1992:</b> Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz.(IEEE Std C95.1-1991)</p> <p><b>IEEE Std 1528™-2003:</b> IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques.</p> <p><b>IEEE Std 1528a-2005:</b> IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques.</p> <p><b>KDB 865664 D01 SAR measurement 100 MHz to 6 GHz v01r03:</b> SAR Measurement Requirements for 100 MHz to 6 GHz</p> <p><b>KDB 447498 D01 Mobile Portable RF Exposure v05r02:</b> Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies</p> <p><b>KDB 648474 D04 Handset SAR v01r02:</b> SAR Evaluation Considerations for Wireless Handsets.</p> <p><b>KDB 941225 D01 SAR test for 3G devices v03:</b> SAR Measurement Procedures CDMA 20001x RTT, 1x Ev-Do, WCDMA, HSDPA/HSPA</p> <p><b>KDB 941225 D05 SAR for LTE Devices v02r03</b> SAR Test Considerations for LTE Handsets and Data Modems</p> <p><b>KDB 941225 D06 Hotspot Mode SAR v02:</b> SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities</p> <p><b>KDB 248227 D01 SAR meas for 802 11 a b g v01r02:</b> SAR Measurement Procedures for 802.11a/b/g Transmitters.</p> |
| <b>Conclusion</b>            | <p>This portable wireless equipment has been measured in all cases requested by the relevant standards. Test results in Chapter 7 of this test report are below limits specified in the relevant standards for the tested bands only.</p> <p>General Judgment: <b>Pass</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Comment</b>               | <p>The test result only responds to the measured sample.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

Approved by



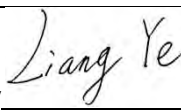
Kai Xu  
Director

Revised by



Jiangpeng Lan  
SAR Manager

Performed by



Liang Ye  
SAR Engineer

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## 1. General Information

### 1.1. Notes of the Test Report

**TA Technology (Shanghai) Co., Ltd.** has obtained the accreditation of China National Accreditation Service for Conformity Assessment (CNAS), and accreditation number: L2264.

**TA Technology (Shanghai) Co., Ltd.** guarantees the reliability of the data presented in this test report, which is the results of measurements and tests performed for the items under test on the date and under the conditions stated in this test report and is based on the knowledge and technical facilities available at TA Technology (Shanghai) Co., Ltd. at the time of execution of the test.

**TA Technology (Shanghai) Co., Ltd.** is liable to the client for the maintenance by its personnel of the confidentiality of all information related to the items under test and the results of the test. The sample under test was selected by the Client. This report only refers to the item that has undergone the test.

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of **TA Technology (Shanghai) Co., Ltd.**

If the electronic report is inconsistent with the printed one, it should be subject to the latter.

### 1.2. Testing Laboratory

Company: TA Technology (Shanghai) Co., Ltd.  
Address: No.145, Jintang Rd, Tangzhen Industry Park, Pudong Shanghai, China  
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### 1.3. Applicant Information

Company: Huawei Technologies Co., Ltd.  
Address: Administration Building, Headquarters of Huawei Technologies Co., Ltd.,  
Bantian, Longgang District  
Shenzhen  
518129  
P.R.China

### 1.4. Manufacturer Information

Company: Huawei Technologies Co., Ltd.  
Address: Administration Building, Headquarters of Huawei Technologies Co., Ltd.,  
Bantian, Longgang District  
Shenzhen  
518129  
P.R.China

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### 1.5. Information of EUT

#### General Information

|                                   |                                                                                                                                                        |           |
|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Device Type:                      | Portable Device                                                                                                                                        |           |
| Exposure Category:                | Uncontrolled Environment / General Population                                                                                                          |           |
| State of Sample:                  | Prototype Unit                                                                                                                                         |           |
| Product IMEI:                     | 8666950200148817                                                                                                                                       |           |
| Hardware Version:                 | HL2UGRACEM                                                                                                                                             |           |
| Software Version:                 | GRA-L09V100R1001C900B022                                                                                                                               |           |
| Antenna Type:                     | Internal Antenna                                                                                                                                       |           |
| Device Operating Configurations : |                                                                                                                                                        |           |
| Test Mode(s):                     | GSM 850/GSM 1900;<br>UMTS Band II/UMTS Band IV/UMTS Band V;<br>LTE FDD Band 2/4/5/7/12/17/25/26;<br>802.11b/g/n HT20/HT40;<br>Bluetooth/Bluetooth 4.1; |           |
| Test Modulation:                  | (GSM)GMSK; (UMTS)QPSK, (LTE) QPSK, 16QAM; (WiFi)CCK                                                                                                    |           |
| Device Class:                     | B                                                                                                                                                      |           |
| HSDPA UE Category:                | 10                                                                                                                                                     |           |
| HSUPA UE Category:                | 6                                                                                                                                                      |           |
| DC-HSDPA UE Category:             | 24                                                                                                                                                     |           |
| HSPA+ UE Downlink Category:       | 14                                                                                                                                                     |           |
| LTE UE Category:                  | 4                                                                                                                                                      |           |
| GPRS Multislot Class(12):         | Max Number of Timeslots in Uplink                                                                                                                      | 4         |
|                                   | Max Number of Timeslots in Downlink                                                                                                                    | 4         |
|                                   | Max Total Timeslot                                                                                                                                     | 5         |
| EGPRS Multislot Class(12):        | Max Number of Timeslots in Uplink                                                                                                                      | 4         |
|                                   | Max Number of Timeslots in Downlink                                                                                                                    | 4         |
|                                   | Max Total Timeslot                                                                                                                                     | 5         |
| Operating Frequency Range(s):     | Mode                                                                                                                                                   | Tx (MHz)  |
|                                   | GSM 850                                                                                                                                                | 824 - 849 |
|                                   | GSM 1900                                                                                                                                               | 1850-1910 |
|                                   | UMTS Band II                                                                                                                                           | 1850-1910 |
|                                   | UMTS Band IV                                                                                                                                           | 1710–1755 |
|                                   | UMTS Band V                                                                                                                                            | 824 - 849 |
|                                   | LTE FDD 2                                                                                                                                              | 1850-1910 |
|                                   | LTE FDD 4                                                                                                                                              | 1710–1755 |



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|              |                                        |             |
|--------------|----------------------------------------|-------------|
|              | LTE FDD 5                              | 824 - 849   |
|              | LTE FDD 7                              | 2500-2570   |
|              | LTE FDD 12                             | 699-716     |
|              | LTE FDD 17                             | 704-716     |
|              | LTE FDD 25                             | 1850-1915   |
|              | LTE FDD 26                             | 814-849     |
|              | Bluetooth/ Bluetooth 4.1               | 2400-2483.5 |
|              | WiFi                                   | 2400-2483.5 |
| Power Class: | GSM 850: 4                             |             |
|              | GSM 1900: 1                            |             |
|              | UMTS Band II/IV/V: 3                   |             |
|              | LTE FDD 2/4/5/7/12/17/25/26: 3         |             |
| Power Level  | GSM 850: level 5                       |             |
|              | GSM 1900: level 0                      |             |
|              | UMTS Band II/IV/V: all up bits         |             |
|              | LTE FDD 2/4/5/7/12/17/25/26: max power |             |

### Auxiliary Equipment Details

| Name      | Model       | Manufacturer                  | SN |
|-----------|-------------|-------------------------------|----|
| Battery 1 | HB3447A9EBW | Huawei Technologies Co., Ltd. | /  |
| Battery 2 | HB3447A9EBW | Huawei Technologies Co., Ltd. | /  |

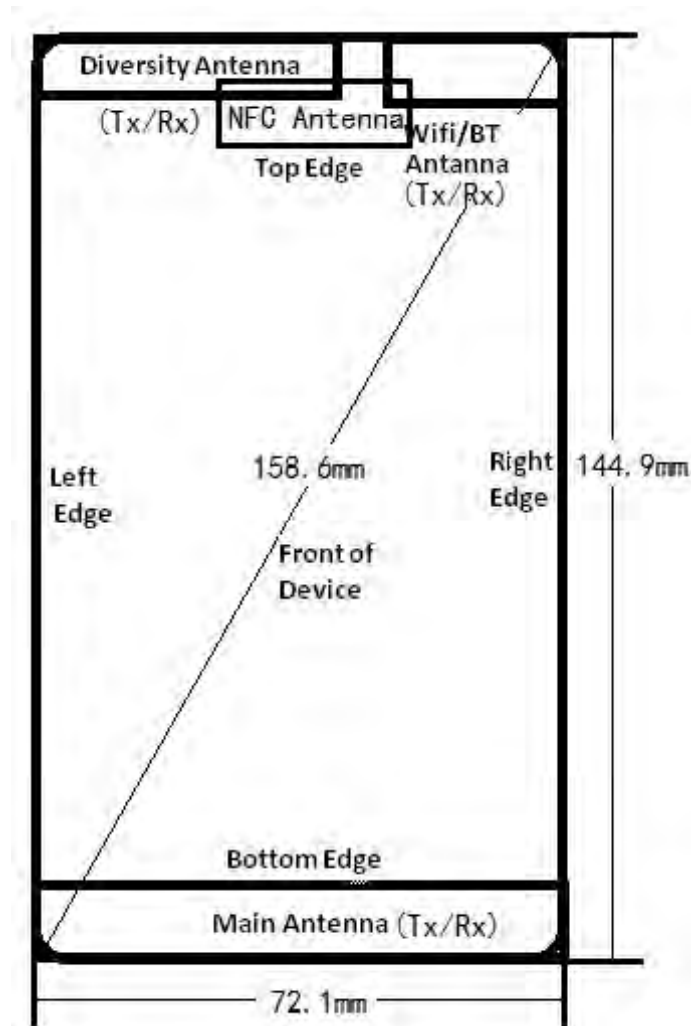
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### 1.6. EUT Antenna Locations



Note:

The device has NFC operation. The NFC antenna is integrated onto the Battery cover. The SAR tests were performed with the Battery cover. Phones with built-in NFC functions do not require separate SAR testing and can generally be tested according to the SAR measurement procedures normally required for the phone. Influences of the hardware introduced by the built-in NFC functions are inherently considered through testing of the other transmitters that require SAR.

Exact antenna separation distance are shown in the table

| Antenna                       | Left side to edge (mm) | Right side to edge (mm) | Top side to edge (mm) | Bottom side to edge (mm) |
|-------------------------------|------------------------|-------------------------|-----------------------|--------------------------|
| Main Antenna (Antenna 2)      | 0                      | 0                       | 133.5                 | 0                        |
| Diversity Antenna (Antenna 1) | 0                      | 33.3                    | 0                     | 141.1                    |
| WIFI/BT Antenna               | 47.1                   | 0                       | 0                     | 141.1                    |

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Note: When the antenna-to-edge distance is greater than 2.5cm, such position does not need to be tested.

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### 1.7. The Maximum Reported SAR<sub>1g</sub>

#### Head SAR Configuration

| Antenna       | Mode         | Test Position | Channel /Frequency(MHz) | Limit SAR <sub>1g</sub> 1.6 W/kg  |                                   |
|---------------|--------------|---------------|-------------------------|-----------------------------------|-----------------------------------|
|               |              |               |                         | Measured SAR <sub>1g</sub> (W/kg) | Reported SAR <sub>1g</sub> (W/kg) |
| Antenna 1     | GSM 850      | Right Cheek   | 128/824.2               | 1.030                             | 1.282                             |
|               | GSM 1900     | Right Cheek   | 810/1909.8              | 0.966                             | 1.148                             |
|               | UMTS Band II | Right Cheek   | 9400/1880               | 0.494                             | 0.609                             |
|               | UMTS Band IV | Right Cheek   | 1413/1732.6             | 0.967                             | 1.168                             |
|               | UMTS Band V  | Left Tilt     | 4183/836.6              | 0.645                             | 0.842                             |
|               | LTE Band 2   | Right Cheek   | 19100/1900              | 1.090                             | 1.407                             |
|               | LTE Band 4   | Right Cheek   | 20300/1745              | 0.937                             | 1.261                             |
|               | LTE Band 5   | Right Cheek   | 20450/829               | 0.817                             | 0.938                             |
|               | LTE Band 7   | Right Cheek   | 21350/2560              | 0.971                             | 1.347                             |
|               | LTE Band 12  | Right Cheek   | 23060/704               | 0.616                             | 0.913                             |
|               | LTE Band 17  | Right Cheek   | 23790/710               | 0.519                             | 0.667                             |
|               | LTE Band 25  | Right Cheek   | 26590/1905              | 0.875                             | 0.944                             |
|               | LTE Band 26  | Left Tilt     | 26965/841.5             | 0.857                             | 0.916                             |
| Antenna 2     | GSM 850      | Right Cheek   | 190/836.6               | 0.234                             | 0.281                             |
|               | GSM 1900     | Left Cheek    | 661/1880                | 0.364                             | 0.520                             |
|               | UMTS Band II | Left Cheek    | 9400/1880               | 0.551                             | 0.683                             |
|               | UMTS Band IV | Left Cheek    | 1413/1732.6             | 0.788                             | 0.961                             |
|               | UMTS Band V  | Right Cheek   | 4183/836.6              | 0.262                             | 0.346                             |
|               | LTE Band 2   | Left Cheek    | 19100/1900              | 0.538                             | 0.641                             |
|               | LTE Band 4   | Left Cheek    | 20175/1732.5            | 0.636                             | 0.836                             |
|               | LTE Band 5   | Right Cheek   | 20600/844               | 0.261                             | 0.294                             |
|               | LTE Band 7   | Left Cheek    | 21350/2560              | 0.577                             | 0.769                             |
|               | LTE Band 12  | Right Cheek   | 23095/707.5             | 0.046                             | 0.059                             |
|               | LTE Band 17  | Right Cheek   | 23790/710               | 0.054                             | 0.067                             |
|               | LTE Band 25  | Left Cheek    | 26590/1905              | 0.752                             | 0.817                             |
|               | LTE Band 26  | Right Cheek   | 26865/831.5             | 0.207                             | 0.211                             |
| WiFi(802.11b) |              | Left Tilt     | 1/2412                  | 0.780                             | 0.942                             |

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### Body Worn Configuration

| Antenna       | Mode         | Test Position | Channel /Frequency(MHz) | Limit SAR <sub>1g</sub> 1.6 W/kg  |                                   |
|---------------|--------------|---------------|-------------------------|-----------------------------------|-----------------------------------|
|               |              |               |                         | Measured SAR <sub>1g</sub> (W/kg) | Reported SAR <sub>1g</sub> (W/kg) |
| Antenna 1     | GSM 850      | Front Side    | 190/836.6               | 0.096                             | 0.114                             |
|               | GSM 1900     | Front Side    | 661/1880                | 0.065                             | 0.091                             |
|               | UMTS Band II | Back Side     | 9400/1880               | 0.078                             | 0.096                             |
|               | UMTS Band IV | Back Side     | 1413/1732.6             | 0.064                             | 0.078                             |
|               | UMTS Band V  | Back Side     | 4183/836.6              | 0.056                             | 0.072                             |
|               | LTE Band 2   | Back Side     | 19100/1900              | 0.062                             | 0.078                             |
|               | LTE Band 4   | Back Side     | 20175/1732.5            | 0.058                             | 0.076                             |
|               | LTE Band 5   | Front Side    | 20600/844               | 0.048                             | 0.054                             |
|               | LTE Band 7   | Front Side    | 21350/2560              | 0.057                             | 0.076                             |
|               | LTE Band 12  | Back Side     | 23095/707.5             | 0.029                             | 0.037                             |
|               | LTE Band 17  | Front Side    | 23790/710               | 0.078                             | 0.100                             |
|               | LTE Band 25  | Front Side    | 26590/1905              | 0.070                             | 0.076                             |
|               | LTE Band 26  | Front Side    | 26865/831.5             | 0.157                             | 0.179                             |
|               |              |               |                         |                                   |                                   |
| Antenna 2     | GSM 850      | Back Side     | 190/836.6               | 0.340                             | 0.409                             |
|               | GSM 1900     | Back Side     | 810/1909.8              | 1.030                             | 1.233                             |
|               | UMTS Band II | Back Side     | 9262/1852.4             | 0.759                             | 1.017                             |
|               | UMTS Band IV | Back Side     | 1413/1732.6             | 0.446                             | 0.544                             |
|               | UMTS Band V  | Back Side     | 4183/836.6              | 0.128                             | 0.169                             |
|               | LTE Band 2   | Back Side     | 19100/1900              | 0.793                             | 1.005                             |
|               | LTE Band 4   | Back Side     | 20175/1732.5            | 0.416                             | 0.547                             |
|               | LTE Band 5   | Back Side     | 20600/844               | 0.138                             | 0.156                             |
|               | LTE Band 7   | Front Side    | 21350/2560              | 0.326                             | 0.435                             |
|               | LTE Band 12  | Back Side     | 23095/707.5             | 0.069                             | 0.088                             |
|               | LTE Band 17  | Back Side     | 23790/710               | 0.053                             | 0.066                             |
|               | LTE Band 25  | Back Side     | 26590/1905              | 0.415                             | 0.451                             |
|               | LTE Band 26  | Back Side     | 26865/831.5             | 0.126                             | 0.128                             |
|               |              |               |                         |                                   |                                   |
| WiFi(802.11b) |              | Back Side     | 1/2412                  | 0.078                             | 0.094                             |

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### Hotspot Configuration

| Antenna       | Mode         | Test Position | Channel /Frequency(MHz) | Limit SAR <sub>1g</sub> 1.6 W/kg  |                                   |
|---------------|--------------|---------------|-------------------------|-----------------------------------|-----------------------------------|
|               |              |               |                         | Measured SAR <sub>1g</sub> (W/kg) | Reported SAR <sub>1g</sub> (W/kg) |
| Antenna 1     | GSM 850      | Front Side    | 190/836.6               | 0.211                             | 0.217                             |
|               | GSM 1900     | Left Edge     | 661/1880                | 0.200                             | 0.237                             |
|               | UMTS Band II | Left Edge     | 9400/1880               | 0.178                             | 0.219                             |
|               | UMTS Band IV | Left Edge     | 1413/1732.6             | 0.198                             | 0.239                             |
|               | UMTS Band V  | Top Edge      | 4183/836.6              | 0.165                             | 0.216                             |
|               | LTE Band 2   | Left Edge     | 19100/1900              | 0.186                             | 0.234                             |
|               | LTE Band 4   | Left Edge     | 20175/1732.5            | 0.153                             | 0.200                             |
|               | LTE Band 5   | Top Edge      | 20600/844               | 0.177                             | 0.198                             |
|               | LTE Band 7   | Left Edge     | 20850/2510              | 0.221                             | 0.280                             |
|               | LTE Band 12  | Back Side     | 23095/707.5             | 0.053                             | 0.068                             |
|               | LTE Band 17  | Back Side     | 23790/710               | 0.164                             | 0.211                             |
|               | LTE Band 25  | Left Edge     | 26590/1905              | 0.176                             | 0.190                             |
|               | LTE Band 26  | Front Side    | 26865/831.5             | 0.310                             | 0.314                             |
|               |              |               |                         |                                   |                                   |
| Antenna 2     | GSM 850      | Back Side     | 190/836.6               | 0.415                             | 0.431                             |
|               | GSM 1900     | Back Side     | 810/1909.8              | 1.200                             | 1.257                             |
|               | UMTS Band II | Bottom Edge   | 9262/1852.4             | 0.949                             | 1.423                             |
|               | UMTS Band IV | Bottom Edge   | 1513/1752.6             | 1.100                             | 1.360                             |
|               | UMTS Band V  | Back Side     | 4183/836.6              | 0.281                             | 0.370                             |
|               | LTE Band 2   | Back Side     | 19100/1900              | 0.711                             | 0.901                             |
|               | LTE Band 4   | Back Side     | 20175/1732.5            | 0.654                             | 0.866                             |
|               | LTE Band 5   | Back Side     | 20600/844               | 0.316                             | 0.356                             |
|               | LTE Band 7   | Front Side    | 21350/2560              | 0.399                             | 0.479                             |
|               | LTE Band 12  | Back Side     | 23095/707.5             | 0.114                             | 0.147                             |
|               | LTE Band 17  | Right Edge    | 23790/710               | 0.106                             | 0.137                             |
|               | LTE Band 25  | Back Side     | 26590/1905              | 1.050                             | 1.280                             |
|               | LTE Band 26  | Back Side     | 26865/831.5             | 0.249                             | 0.281                             |
|               |              |               |                         |                                   |                                   |
| WiFi(802.11b) |              | Back Side     | 1/2412                  | 0.152                             | 0.184                             |

### 1.8. Test Date

The test performed from March 9, 2015 to March 30, 2015.

## **2. SAR Measurements System Configuration**

### **2.1. SAR Measurement Set-up**

The DASY5 system for performing compliance tests consists of the following items:

- A standard high precision 6-axis robot (Stäubli RX family) with controller and software. An arm extension for accommodating the data acquisition electronics (DAE).
- A dosimetric probe, i.e. an isotropic E-field probe optimized and calibrated for usage in tissue simulating liquid. The probe is equipped with an optical surface detector system.
- A data acquisition electronic (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.
- A unit to operate the optical surface detector which is connected to the EOC.
- The Electro-Optical Coupler (EOC) performs the conversion from the optical into a digital electric signal of the DAE. The EOC is connected to the DASY5 measurement server.
- The DASY5 measurement server, which performs all real-time data evaluation for field measurements and surface detection, controls robot movements and handles safety operation. A computer operating Windows 2003
- DASY5 software and SEMCAD data evaluation software.
- Remote control with teach panel and additional circuitry for robot safety such as warning lamps, etc.
- The generic twin phantom enabling the testing of left-hand and right-hand usage.
- The device holder for handheld mobile phones.
- Tissue simulating liquid mixed according to the given recipes.
- System validation dipoles allowing to validate the proper functioning of the system.

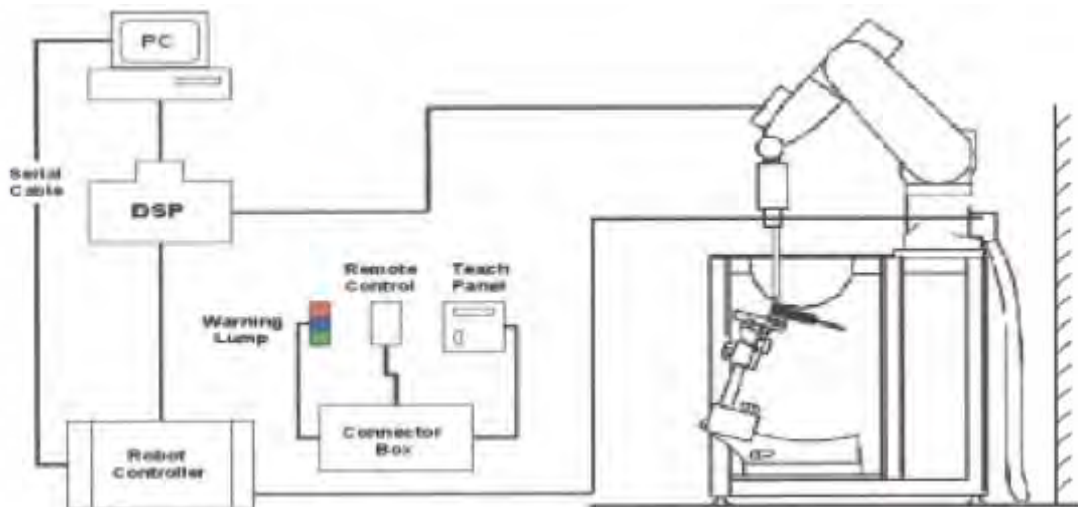


**Figure 1 SAR Lab Test Measurement Set-up**

## 2.2. DASY5 E-field Probe System

The SAR measurements were conducted with the dosimetric probe EX3DV4(manufactured by SPEAG), designed in the classical triangular configuration and optimized for dosimetric evaluation.

### 2.2.1. EX3DV4 Probe Specification

|               |                                                                                                                                                                                                               |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Construction  | Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)                                                         |
| Calibration   | ISO/IEC 17025 calibration service available                                                                                                                                                                   |
| Frequency     | 10 MHz to > 6 GHz<br>Linearity: $\pm 0.2$ dB<br>(30 MHz to 6 GHz)                                                                                                                                             |
| Directivity   | $\pm 0.3$ dB in HSL (rotation around probe axis) $\pm 0.5$ dB in tissue material (rotation normal to probe axis)                                                                                              |
| Dynamic Range | 10 $\mu$ W/g to > 100 mW/g Linearity:<br><br>$\pm 0.2$ dB (noise: typically < 1 $\mu$ W/g)                                                                                                                    |
| Dimensions    | Overall length: 330 mm (Tip: 20 mm)<br>Tip diameter: 2.5 mm (Body: 12 mm)<br>Typical distance from probe tip to dipole centers: 1 mm                                                                          |
| Application   | High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields).<br>Only probe which enables compliance testing for frequencies up to 6 GHz with precision of better 30%. |



Figure 2.EX3DV4 E-field Probe



Figure 3. EX3DV4 E-field probe



### 2.2.2. E-field Probe Calibration

Each probe is calibrated according to a dosimetric assessment procedure with accuracy better than  $\pm 10\%$ . The spherical isotropy was evaluated and found to be better than  $\pm 0.25\text{dB}$ . The sensitivity parameters (NormX, NormY, NormZ), the diode compression parameter (DCP) and the conversion factor (ConvF) of the probe are tested.

The free space E-field from amplified probe outputs is determined in a test chamber. This is performed in a TEM cell for frequencies below 1 GHz, and in a wave guide above 1 GHz for free space. For the free space calibration, the probe is placed in the volumetric center of the cavity and at the proper orientation with the field. The probe is then rotated 360 degrees.

E-field temperature correlation calibration is performed in a flat phantom filled with the appropriate simulated brain tissue. The measured free space E-field in the medium correlates to temperature rise in a dielectric medium. For temperature correlation calibration a RF transparent thermistor-based temperature probe is used in conjunction with the E-field probe.

$$\text{SAR} = C \frac{\Delta T}{\Delta t}$$

Where:  $\Delta t$  = Exposure time (30 seconds),  
 $C$  = Heat capacity of tissue (brain or muscle),  
 $\Delta T$  = Temperature increase due to RF exposure.  
Or

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

Where:  
 $\sigma$  = Simulated tissue conductivity,  
 $\rho$  = Tissue density ( $\text{kg/m}^3$ ).

## 2.3. Other Test Equipment

### 2.3.1. Device Holder for Transmitters

The DASY device holder is designed to cope with the different positions given in the standard.

It has two scales for device rotation (with respect to the body axis) and device inclination (with respect to the line between the ear reference points). The rotation centers for both scales is the ear reference point (ERP). Thus the device needs no repositioning when changing the angles. The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the influence of the clamp on the test results could thus be lowered.



**Figure 4 Device Holder**

### 2.3.2. Phantom

The Generic Twin Phantom is constructed of a fiberglass shell integrated in a wooden Figure. The shape of the shell is based on data from an anatomical study designed to determine the maximum exposure in at least 90% of all users. It enables the dosimetric evaluation of left and right hand phone usage as well as body mounted usage at the flat phantom region. A cover prevents the evaporation of the liquid. Reference markings on the Phantom allow the complete setup of all predefined phantom positions and measurement grids by manually teaching three points in the robot.

|                 |                                                   |
|-----------------|---------------------------------------------------|
| Shell Thickness | 2±0.1 mm                                          |
| Filling Volume  | Approx. 20 liters                                 |
| Dimensions      | 810 x 1000 x 500 mm (H x L x W) Available Special |



**Figure 5 Generic Twin Phantom**

### 2.4. Scanning Procedure

The DASY5 installation includes predefined files with recommended procedures for measurements and validation. They are read-only document files and destined as fully defined but unmeasured masks. All test positions (head or body-worn) are tested with the same configuration of test steps differing only in the grid definition for the different test positions.

- The “reference” and “drift” measurements are located at the beginning and end of the batch process. They measure the field drift at one single point in the liquid over the complete procedure. The indicated drift is mainly the variation of the DUT's output power and should vary max.  $\pm 5\%$ .
- The “surface check” measurement tests the optical surface detection system of the DASY5 system by repeatedly detecting the surface with the optical and mechanical surface detector and comparing the results. The output gives the detecting heights of both systems, the difference between the two systems and the standard deviation of the detection repeatability. Air bubbles or refraction in the liquid due to separation of the sugar-water mixture gives poor repeatability (above  $\pm 0.1\text{mm}$ ). To prevent wrong results tests are only executed when the liquid is free of air bubbles. The difference between the optical surface detection and the actual surface depends on the probe and is specified with each probe. (It does not depend on the surface reflectivity or the probe angle to the surface within  $\pm 30^\circ$ .)
- Area Scan  
The Area Scan is used as a fast scan in two dimensions to find the area of high field values before running a detailed measurement around the hot spot. Before starting the area scan a grid

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spacing is set according to FCC KDB Publication 865664. During scan the distance of the probe to the phantom remains unchanged.

After finishing area scan, the field maxima within a range of 2 dB will be ascertained.

- **Zoom Scan**

After the maximum interpolated values were calculated between the points in the cube, the SAR was averaged over the spatial volume (1g or 10g) using a 3D-Spline interpolation algorithm. The 3D-spline is composed of three one-dimensional splines with the “Not a knot” condition (in x, y, and z directions). The volume was then integrated with the trapezoidal algorithm.

- **Spatial Peak Detection**

The procedure for spatial peak SAR evaluation has been implemented and can determine values of masses of 1g and 10g, as well as for user-specific masses. The DASY5 system allows evaluations that combine measured data and robot positions, such as:

- maximum search
- extrapolation
- boundary correction
- peak search for averaged SAR

During a maximum search, global and local maxima searches are automatically performed in 2-D after each Area Scan measurement with at least 6 measurement points. It is based on the evaluation of the local SAR gradient calculated by the Quadratic Shepard's method. The algorithm will find the global maximum and all local maxima within -2 dB of the global maxima for all SAR distributions.

Extrapolation routines are used to obtain SAR values between the lowest measurement points and the inner phantom surface. The extrapolation distance is determined by the surface detection distance and the probe sensor offset. Several measurements at different distances are necessary for the extrapolation. Extrapolation routines require at least 10 measurement points in 3-D space. They are used in the Zoom Scan to obtain SAR values between the lowest measurement points and the inner phantom surface. The routine uses the modified Quadratic Shepard's method for extrapolation.

- A Z-axis scan measures the total SAR value at the x-and y-position of the maximum SAR value found during the cube scan. The probe is moved away in z-direction from the bottom of the SAM phantom in 5mm steps.

**Table 1: Area and Zoom Scan Resolutions per FCC KDB Publication 865664 D01**

| Frequency | Maximum Area Scan Resolution (mm)<br>( $\Delta x_{\text{area}}, \Delta y_{\text{area}}$ ) | Maximum Zoom Scan Resolution (mm)<br>( $\Delta x_{\text{zoom}}, \Delta y_{\text{zoom}}$ ) | Maximum Zoom Scan Spatial Resolution (mm)<br>$\Delta z_{\text{zoom}}(n)$ | Minimum Zoom Scan Volume (mm)<br>(x,y,z) |
|-----------|-------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|------------------------------------------|
| ≤ 2 GHz   | ≤ 15                                                                                      | ≤ 8                                                                                       | ≤ 5                                                                      | ≥ 30                                     |
| 2-3 GHz   | ≤ 12                                                                                      | ≤ 5                                                                                       | ≤ 5                                                                      | ≥ 30                                     |
| 3-4 GHz   | ≤ 12                                                                                      | ≤ 5                                                                                       | ≤ 4                                                                      | ≥ 28                                     |
| 4-5 GHz   | ≤ 10                                                                                      | ≤ 4                                                                                       | ≤ 3                                                                      | ≥ 25                                     |
| 5-6 GHz   | ≤ 10                                                                                      | ≤ 4                                                                                       | ≤ 2                                                                      | ≥ 22                                     |

## **2.5. Data Storage and Evaluation**

### **2.5.1. Data Storage**

The DASY5 software stores the acquired data from the data acquisition electronics as raw data (in microvolt readings from the probe sensors), together with all necessary software parameters for the data evaluation (probe calibration data, liquid parameters and device frequency and modulation data) in measurement files with the extension “.DAE4”. The software evaluates the desired unit and format for output each time the data is visualized or exported. This allows verification of the complete software setup even after the measurement and allows correction of incorrect parameter settings. For example, if a measurement has been performed with a wrong crest factor parameter in the device setup, the parameter can be corrected afterwards and the data can be re-evaluated.

The measured data can be visualized or exported in different units or formats, depending on the selected probe type ([V/m], [A/m], [°C], [mW/g], [mW/cm<sup>2</sup>], [dBrel], etc.). Some of these units are not available in certain situations or show meaningless results, e.g., a SAR output in a lossless media will always be zero. Raw data can also be exported to perform the evaluation with other software packages.

### **2.5.2. Data Evaluation by SEMCAD**

The SEMCAD software automatically executes the following procedures to calculate the field units from the microvolt readings at the probe connector. The parameters used in the evaluation are stored in the configuration modules of the software:

|                    |                           |                                                                         |
|--------------------|---------------------------|-------------------------------------------------------------------------|
| Probe parameters:  | - Sensitivity             | Norm <sub>i</sub> , a <sub>i0</sub> , a <sub>i1</sub> , a <sub>i2</sub> |
|                    | - Conversion factor       | ConvF <sub>i</sub>                                                      |
|                    | - Diode compression point | Dcp <sub>i</sub>                                                        |
| Device parameters: | - Frequency               | f                                                                       |
|                    | - Crest factor            | cf                                                                      |
| Media parameters:  | - Conductivity            |                                                                         |
|                    | - Density                 |                                                                         |

These parameters must be set correctly in the software. They can be found in the component documents or they can be imported into the software from the configuration files issued for the DASY5 components. In the direct measuring mode of the multimeter option, the parameters of the actual system setup are used. In the scan visualization and export modes, the parameters stored in the corresponding document files are used.

The first step of the evaluation is a linearization of the filtered input signal to account for the compression characteristics of the detector diode. The compensation depends on the input signal, the diode type and the DC-transmission factor from the diode to the evaluation electronics.

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If the exciting field is pulsed, the crest factor of the signal must be known to correctly compensate for peak power. The formula for each channel can be given as:

$$V_i = U_i + U_i^2 \cdot c f / d c p_i$$

With  $V_i$  = compensated signal of channel i (i = x, y, z)

$U_i$  = input signal of channel i (i = x, y, z)

$cf$  = crest factor of exciting field (DASY parameter)

$dcp_i$  = diode compression point (DASY parameter)

From the compensated input signals the primary field data for each channel can be evaluated:

E-field probes:  $E_i = (V_i / Norm_i \cdot ConvF)^{1/2}$

H-field probes:  $H_i = (V_i)^{1/2} \cdot (a_{i0} + a_{i1} f + a_{i2} f^2) / f$

With  $V_i$  = compensated signal of channel i (i = x, y, z)

$Norm_i$  = sensor sensitivity of channel i (i = x, y, z)  
[mV/(V/m)<sup>2</sup>] for E-field Probes

$ConvF$  = sensitivity enhancement in solution

$a_{ij}$  = sensor sensitivity factors for H-field probes

$f$  = carrier frequency [GHz]

$E_i$  = electric field strength of channel i in V/m

$H_i$  = magnetic field strength of channel i in A/m

The RSS value of the field components gives the total field strength (Hermitian magnitude):

$$E_{tot} = (E_x^2 + E_y^2 + E_z^2)^{1/2}$$

The primary field data are used to calculate the derived field units.

$$SAR = (E_{tot})^2 \cdot \sigma / (\rho \cdot 1000)$$

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with **SAR** = local specific absorption rate in mW/g

**$E_{tot}$**  = total field strength in V/m

**$\sigma$**  = conductivity in [mho/m] or [Siemens/m]

**$\rho$**  = equivalent tissue density in g/cm<sup>3</sup>

Note that the density is normally set to 1 (or 1.06), to account for actual brain density rather than the density of the simulation liquid. The power flow density is calculated assuming the excitation field to be a free space field.

$$P_{pwe} = E_{tot}^2 / 3770 \quad \text{or} \quad P_{pwe} = H_{tot}^2 \cdot 37.7$$

with  **$P_{pwe}$**  = equivalent power density of a plane wave in mW/cm<sup>2</sup>

**$E_{tot}$**  = total electric field strength in V/m

**$H_{tot}$**  = total magnetic field strength in A/m

### 3. Laboratory Environment

**Table 2: The Requirements of the Ambient Conditions**

|                                                                                                 |                           |
|-------------------------------------------------------------------------------------------------|---------------------------|
| Temperature                                                                                     | Min. = 18°C, Max. = 25 °C |
| Relative humidity                                                                               | Min. = 30%, Max. = 70%    |
| Ground system resistance                                                                        | < 0.5 $\Omega$            |
| Ambient noise is checked and found very low and in compliance with requirement of standards.    |                           |
| Reflection of surrounding objects is minimized and in compliance with requirement of standards. |                           |

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### 4. Tissue-equivalent Liquid

#### 4.1. Tissue-equivalent Liquid Ingredients

The liquid is consisted of water, salt, Glycol, Sugar, Preventol and Cellulose. The liquid has previously been proven to be suited for worst-case. The table 3 and table 4 show the detail solution. It's satisfying the latest tissue dielectric parameters requirements proposed by the KDB 865664 D01.

**Table 3: Composition of the Head Tissue Equivalent Matter**

| MIXTURE%                              | FREQUENCY(Brain) 750MHz                |
|---------------------------------------|----------------------------------------|
| Water                                 | 41.448                                 |
| Sugar                                 | 56                                     |
| Salt                                  | 1.452                                  |
| Preventol                             | 0.1                                    |
| Cellulose                             | 1.0                                    |
| Dielectric Parameters<br>Target Value | f=750MHz $\epsilon=41.9$ $\sigma=0.89$ |

| MIXTURE%                              | FREQUENCY(Brain) 835MHz               |
|---------------------------------------|---------------------------------------|
| Water                                 | 41.45                                 |
| Sugar                                 | 56                                    |
| Salt                                  | 1.45                                  |
| Preventol                             | 0.1                                   |
| Cellulose                             | 1.0                                   |
| Dielectric Parameters<br>Target Value | f=835MHz $\epsilon=41.5$ $\sigma=0.9$ |

| MIXTURE%                              | FREQUENCY(Brain) 1750MHz                |
|---------------------------------------|-----------------------------------------|
| Water                                 | 55.24                                   |
| Glycol                                | 44.45                                   |
| Salt                                  | 0.31                                    |
| Dielectric Parameters<br>Target Value | f=1750MHz $\epsilon=40.1$ $\sigma=1.37$ |

| MIXTURE%                              | FREQUENCY(Brain) 1900MHz                |
|---------------------------------------|-----------------------------------------|
| Water                                 | 55.242                                  |
| Glycol monobutyl                      | 44.452                                  |
| Salt                                  | 0.306                                   |
| Dielectric Parameters<br>Target Value | f=1900MHz $\epsilon=40.0$ $\sigma=1.40$ |

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| MIXTURE%                              | FREQUENCY(Brain) 2450MHz                |
|---------------------------------------|-----------------------------------------|
| Water                                 | 62.7                                    |
| Glycol                                | 36.8                                    |
| Salt                                  | 0.5                                     |
| Dielectric Parameters<br>Target Value | f=2450MHz $\epsilon=39.2$ $\sigma=1.80$ |

| MIXTURE%                              | FREQUENCY(Brain) 2600MHz                |
|---------------------------------------|-----------------------------------------|
| Water                                 | 55.242                                  |
| Glycol                                | 44.452                                  |
| Salt                                  | 0.306                                   |
| Dielectric Parameters<br>Target Value | f=2600MHz $\epsilon=39.0$ $\sigma=1.96$ |

**Table 4: Composition of the Body Tissue Equivalent Matter**

| MIXTURE%                              | FREQUENCY(Body) 750MHz                 |
|---------------------------------------|----------------------------------------|
| Water                                 | 52.49                                  |
| Sugar                                 | 45                                     |
| Salt                                  | 1.41                                   |
| Preventol                             | 0.1                                    |
| Cellulose                             | 1.0                                    |
| Dielectric Parameters<br>Target Value | f=750MHz $\epsilon=55.5$ $\sigma=0.96$ |

| MIXTURE%                              | FREQUENCY(Body) 835MHz                 |
|---------------------------------------|----------------------------------------|
| Water                                 | 52.5                                   |
| Sugar                                 | 45                                     |
| Salt                                  | 1.4                                    |
| Preventol                             | 0.1                                    |
| Cellulose                             | 1.0                                    |
| Dielectric Parameters<br>Target Value | f=835MHz $\epsilon=55.2$ $\sigma=0.97$ |

| MIXTURE%                              | FREQUENCY(Body) 1750MHz                 |
|---------------------------------------|-----------------------------------------|
| Water                                 | 69.91                                   |
| Glycol                                | 29.97                                   |
| Salt                                  | 0.12                                    |
| Dielectric Parameters<br>Target Value | f=1750MHz $\epsilon=53.4$ $\sigma=1.49$ |



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| MIXTURE%                              | FREQUENCY (Body) 1900MHz                |
|---------------------------------------|-----------------------------------------|
| Water                                 | 69.91                                   |
| Glycol monobutyl                      | 29.96                                   |
| Salt                                  | 0.13                                    |
| Dielectric Parameters<br>Target Value | f=1900MHz $\epsilon=53.3$ $\sigma=1.52$ |

| MIXTURE%                              | FREQUENCY(Body) 2450MHz                 |
|---------------------------------------|-----------------------------------------|
| Water                                 | 73.2                                    |
| Glycol                                | 26.7                                    |
| Salt                                  | 0.1                                     |
| Dielectric Parameters<br>Target Value | f=2450MHz $\epsilon=52.7$ $\sigma=1.95$ |

| MIXTURE%                              | FREQUENCY (Body) 2600MHz                |
|---------------------------------------|-----------------------------------------|
| Water                                 | 72.6                                    |
| Glycol monobutyl                      | 27.3                                    |
| Salt                                  | 0.1                                     |
| Dielectric Parameters<br>Target Value | f=2600MHz $\epsilon=52.5$ $\sigma=2.16$ |

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### 4.2. Tissue-equivalent Liquid Properties

Table 5: Dielectric Performance of Tissue Simulating Liquid

| Frequency         | Test Date | Temp<br>℃ | Measured Dielectric<br>Parameters |                      | Target Dielectric<br>Parameters |                      | Limit<br>(Within ±5%)   |                     |
|-------------------|-----------|-----------|-----------------------------------|----------------------|---------------------------------|----------------------|-------------------------|---------------------|
|                   |           |           | $\epsilon_r$                      | $\sigma(\text{s/m})$ | $\epsilon_r$                    | $\sigma(\text{s/m})$ | Dev<br>$\epsilon_r(\%)$ | Dev<br>$\sigma(\%)$ |
| 750MHz<br>(head)  | 2015-3-15 | 21.5      | 42.0                              | 0.91                 | 41.9                            | 0.89                 | 0.24                    | 2.25                |
| 835MHz<br>(head)  | 2015-3-11 | 21.5      | 41.4                              | 0.93                 | 41.5                            | 0.90                 | -0.24                   | 3.33                |
|                   | 2015-3-28 | 21.5      | 41.5                              | 0.91                 | 41.5                            | 0.90                 | 0.00                    | 1.11                |
| 1750MHz<br>(head) | 2015-3-12 | 21.5      | 39.7                              | 1.32                 | 40.1                            | 1.37                 | -1.00                   | -3.65               |
| 1900MHz<br>(head) | 2015-3-17 | 21.5      | 39.6                              | 1.43                 | 40.0                            | 1.40                 | -1.00                   | 2.14                |
|                   | 2015-3-27 | 21.5      | 39.7                              | 1.40                 | 40.0                            | 1.40                 | -0.75                   | 0.00                |
| 2450MHz<br>(head) | 2015-3-25 | 21.5      | 38.6                              | 1.81                 | 39.2                            | 1.80                 | -1.53                   | 0.56                |
| 2600MHz<br>(head) | 2015-3-9  | 21.5      | 38.6                              | 1.98                 | 39.0                            | 1.96                 | -1.03                   | 1.02                |
| 750MHz<br>(body)  | 2015-3-13 | 21.5      | 54.3                              | 0.97                 | 55.5                            | 0.96                 | -2.16                   | 1.04                |
|                   | 2015-3-14 | 21.5      | 54.5                              | 0.96                 | 55.5                            | 0.96                 | -1.80                   | 0.00                |
| 835MHz<br>(body)  | 2015-3-10 | 21.5      | 55.9                              | 0.99                 | 55.2                            | 0.97                 | 1.27                    | 2.06                |
|                   | 2015-3-18 | 21.5      | 56.1                              | 0.97                 | 55.2                            | 0.97                 | 1.63                    | 0.00                |
|                   | 2015-3-19 | 21.5      | 56.2                              | 0.97                 | 55.2                            | 0.97                 | 1.81                    | 0.00                |
| 1750MHz<br>(body) | 2015-3-23 | 21.5      | 52.9                              | 1.47                 | 53.4                            | 1.49                 | -0.94                   | -1.34               |
|                   | 2015-3-30 | 21.5      | 53.1                              | 1.45                 | 53.4                            | 1.49                 | -0.56                   | -2.68               |
| 1900MHz<br>(body) | 2015-3-24 | 21.5      | 52.5                              | 1.52                 | 53.3                            | 1.52                 | -1.50                   | 0.00                |
|                   | 2015-3-21 | 21.5      | 52.5                              | 1.51                 | 53.3                            | 1.52                 | -1.50                   | -0.66               |
|                   | 2015-3-26 | 21.5      | 52.7                              | 1.49                 | 53.3                            | 1.52                 | -1.13                   | -1.97               |
| 2450MHz<br>(body) | 2015-3-25 | 21.5      | 52.1                              | 1.99                 | 52.7                            | 1.95                 | -1.14                   | 2.05                |
| 2600MHz<br>(body) | 2015-3-9  | 21.5      | 52.3                              | 2.20                 | 52.5                            | 2.16                 | -0.38                   | 1.85                |

## 5. System Check

### 5.1. Description of System Check

The manufacturer calibrates the probes annually. Dielectric parameters of the tissue simulates were measured every day using the dielectric probe kit and the network analyzer. A system check measurement was made following the determination of the dielectric parameters of the simulates, using the dipole validation kit. A power level of 250 mW was supplied to the dipole antenna, which was placed under the flat section of the twin SAM phantom. The system check results (dielectric parameters and SAR values) are given in the table 6 and table 7.

System check results have to be equal or near the values determined during dipole calibration with the relevant liquids and test system ( $\pm 10\%$ ).

System check is performed regularly on all frequency bands where tests are performed with the DASY5 system.

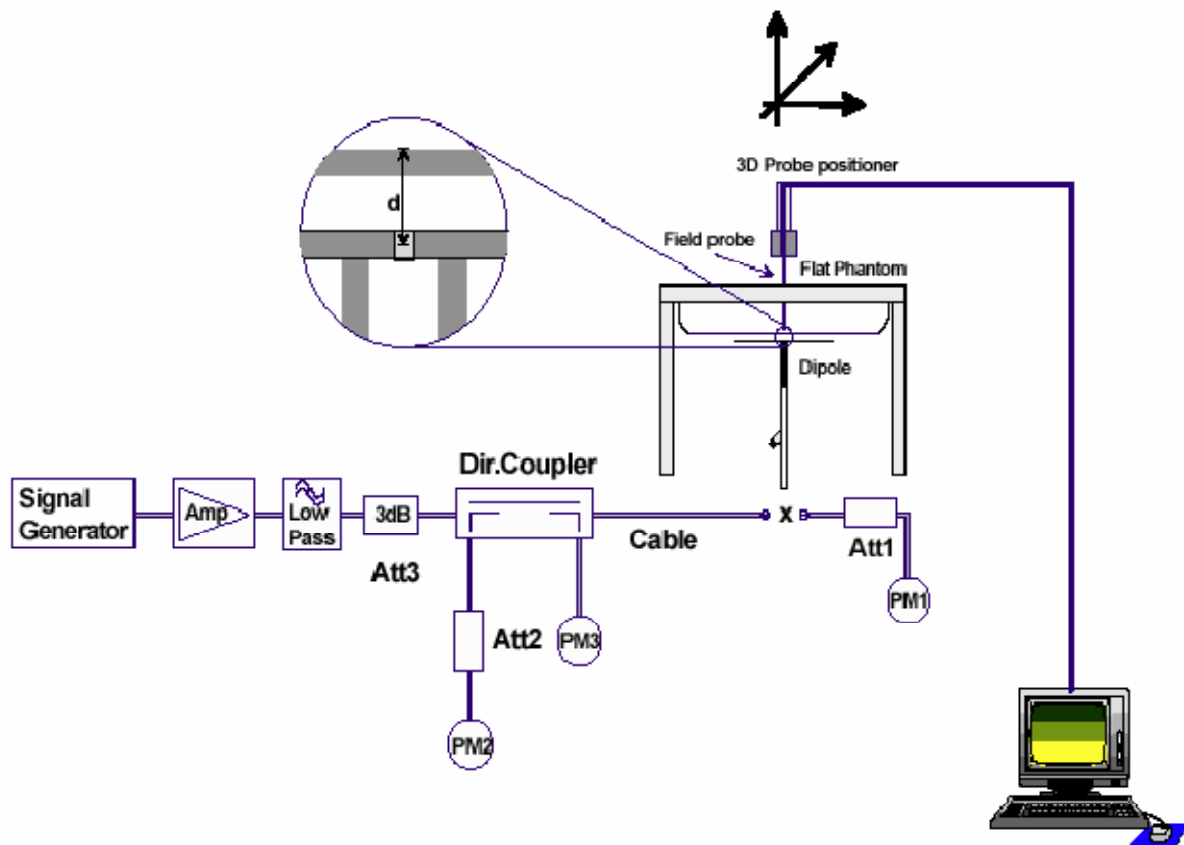


Figure 6 System Check Set-up

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### Justification for Extended SAR Dipole Calibrations

Usage of SAR dipoles calibrated less than 3 years ago but more than 1 year ago were confirmed in maintaining return loss ( $< -20$  dB, within 20% of prior calibration) and impedance (within 5 ohm from prior calibration) requirements per extended calibrations in KDB 865664 D01:

| Dipole D1750V2 SN: 1033 |                 |            |                        |                |
|-------------------------|-----------------|------------|------------------------|----------------|
| Head Liquid             |                 |            |                        |                |
| Date of Measurement     | Return Loss(dB) | $\Delta$ % | Impedance ( $\Omega$ ) | $\Delta\Omega$ |
| 1/26/2014               | -41.9           | /          | 50.5                   | /              |
| 1/25/2015               | -40.6           | 3.1%       | 52.4                   | 1.9 $\Omega$   |
| Body Liquid             |                 |            |                        |                |
| Date of Measurement     | Return Loss(dB) | $\Delta$ % | Impedance ( $\Omega$ ) | $\Delta\Omega$ |
| 1/26/2014               | -24.3           | /          | 45.8                   | /              |
| 1/25/2015               | -23.5           | 3.3%       | 48.5                   | 2.7 $\Omega$   |

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### 5.2. System Check Results

**Table 6: System Check in Head Tissue Simulating Liquid**

| Frequency                                                                                                | Test Date | Dielectric Parameters |        | 250mW Measured SAR <sub>1g</sub> | 1W Normalized SAR <sub>1g</sub> | 1W Target SAR <sub>1g</sub> | Limit (±10% Deviation) |
|----------------------------------------------------------------------------------------------------------|-----------|-----------------------|--------|----------------------------------|---------------------------------|-----------------------------|------------------------|
|                                                                                                          |           | ε <sub>r</sub>        | σ(s/m) | (W/kg)                           |                                 |                             |                        |
| 750MHz                                                                                                   | 2015-3-15 | 42.0                  | 0.91   | 2.13                             | 8.52                            | 8.31                        | 2.53                   |
| 835MHz                                                                                                   | 2015-3-11 | 41.4                  | 0.93   | 2.44                             | 9.76                            | 9.54                        | 2.31                   |
|                                                                                                          | 2015-3-28 | 41.5                  | 0.91   | 2.46                             | 9.84                            | 9.54                        | 3.14                   |
| 1750MHz                                                                                                  | 2015-3-12 | 39.7                  | 1.32   | 8.95                             | 35.80                           | 37.20                       | -3.76                  |
| 1900MHz                                                                                                  | 2015-3-17 | 39.6                  | 1.43   | 9.48                             | 37.92                           | 39.20                       | -3.27                  |
|                                                                                                          | 2015-3-27 | 39.7                  | 1.40   | 9.59                             | 38.36                           | 39.20                       | -2.14                  |
| 2450MHz                                                                                                  | 2015-3-25 | 38.6                  | 1.81   | 13.70                            | 54.80                           | 52.50                       | 4.38                   |
| 2600MHz                                                                                                  | 2015-3-9  | 38.6                  | 1.98   | 13.90                            | 55.60                           | 56.90                       | -2.28                  |
| Note: 1. The graph results see ANNEX B.<br>2. Target Values used derive from the calibration certificate |           |                       |        |                                  |                                 |                             |                        |

**Table 7: System Check in Body Tissue Simulating Liquid**

| Frequency | Test Date | Dielectric Parameters |        | 250mW Measured SAR <sub>1g</sub> | 1W Normalized SAR <sub>1g</sub> | 1W Target SAR <sub>1g</sub> | Limit (±10% Deviation) |
|-----------|-----------|-----------------------|--------|----------------------------------|---------------------------------|-----------------------------|------------------------|
|           |           | ε <sub>r</sub>        | σ(s/m) | (W/kg)                           |                                 |                             |                        |
| 750MHz    | 2015-3-13 | 54.3                  | 0.97   | 2.22                             | 8.88                            | 8.75                        | 1.49                   |
|           | 2015-3-14 | 54.5                  | 0.96   | 2.17                             | 8.68                            | 8.75                        | -0.80                  |
| 835MHz    | 2015-3-10 | 55.9                  | 0.99   | 2.41                             | 9.64                            | 9.54                        | 1.05                   |
|           | 2015-3-18 | 56.1                  | 0.97   | 2.46                             | 9.84                            | 9.54                        | 3.14                   |
|           | 2015-3-19 | 56.2                  | 0.97   | 2.49                             | 9.96                            | 9.54                        | 4.40                   |
| 1750MHz   | 2015-3-23 | 52.9                  | 1.47   | 9.24                             | 36.96                           | 38.80                       | -4.74                  |
|           | 2015-3-30 | 53.1                  | 1.45   | 9.27                             | 37.08                           | 38.80                       | -4.43                  |
| 1900MHz   | 2015-3-24 | 52.5                  | 1.52   | 9.93                             | 39.72                           | 40.00                       | -0.70                  |
|           | 2015-3-21 | 52.5                  | 1.51   | 9.82                             | 39.28                           | 40.00                       | -1.80                  |
|           | 2015-3-26 | 52.7                  | 1.49   | 9.83                             | 39.32                           | 40.00                       | -1.70                  |

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|                                                                                                          |           |      |      |       |       |       |       |
|----------------------------------------------------------------------------------------------------------|-----------|------|------|-------|-------|-------|-------|
| <b>2450MHz</b>                                                                                           | 2015-3-25 | 52.1 | 1.99 | 12.50 | 50.00 | 52.40 | -4.58 |
| <b>2600MHz</b>                                                                                           | 2015-3-9  | 52.3 | 2.20 | 13.50 | 54.00 | 56.40 | -4.26 |
| Note: 1. The graph results see ANNEX B.<br>2. Target Values used derive from the calibration certificate |           |      |      |       |       |       |       |

## **6. Operational Conditions during Test**

### **6.1. General Description of Test Procedures**

A communication link is set up with a System Simulator (SS) by air link, and a call is established. The EUT is commanded to operate at maximum transmitting power.

Connection to the EUT is established via air interface with CMW 500, and the EUT is set to maximum output power by CMW 500. The EUT battery must be fully charged and checked periodically during the test to as certain uniform power output. The antenna connected to the output of the base station simulator shall be placed at least 50 cm away from the EUT. The signal transmitted by the simulator to the antenna feeding point shall be lower than the output power level of the EUT by at least 30 dB.

### **6.2. Test Positions**

#### **6.2.1. Against Phantom Head**

Measurements were made in “cheek” and “tilt” positions on both the left hand and right hand sides of the phantom.

The positions used in the measurements were according to IEEE 1528 - 2003 "IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate(SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques".

#### **6.2.2. Body Worn Configuration**

Body-worn operating configurations should be tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in normal use configurations.

Body-worn operating configurations are tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in a normal use configuration. Per FCC KDB Publication 648474 D04, Body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in FCC KDB Publication 447498 D01 should be used to test for body-worn accessory SAR compliance, without a headset connected to it. This enables the test results for such configuration to be compatible with that required for hotspot mode when the body-worn accessory test separation distance is greater than or equal to that required for hotspot mode, when applicable. When the reported SAR for a body-worn accessory, measured without a headset connected to the handset, is  $> 1.2$  W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset.

Accessories for Body-worn operation configurations are divided into two categories: those that do not contain metallic components and those that do contain metallic components. When multiple accessories that do not contain metallic components are supplied with the device, the device is tested with only the accessory that dictates the closest spacing to the body. Then multiple accessories that contain metallic components are tested with the device with each accessory. If

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multiple accessories share an identical metallic component (i.e. the same metallic belt-clip used with different holsters with no other metallic components) only the accessory that dictates the closest spacing to the body is tested.

Body-worn accessories may not always be supplied or available as options for some devices intended to be authorized for body-worn use. In this case, a test configuration with a separation distance between the back of the device and the flat phantom is used. Test position spacing was documented. Transmitters that are designed to operate in front of a person's face, as in push-to-talk configurations, are tested for SAR compliance with the front of the device positioned to face the flat phantom in head fluid. For devices that are carried next to the body such as a shoulder, waist or chest-worn transmitters, SAR compliance is tested with the accessories, including headsets and microphones, attached to the device and positioned against a flat phantom in a normal use configuration.



### **6.3. Measurement Variability**

Per FCC KDB Publication 865664 D01, SAR measurement variability was assessed for each frequency band, which was determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements. When both head and body tissue-equivalent media were required for SAR measurements in a frequency band, the variability measurement procedures were applied to the tissue medium with the highest measured SAR, using the highest measured SAR configuration for that tissue-equivalent medium. These additional measurements were repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device was returned to ambient conditions (normal room temperature) with the battery fully charged before it was re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results.

SAR Measurement Variability was assessed using the following procedures for each frequency band:

- 1) When the original highest measured SAR is  $\geq 0.80$  W/kg, the measurement was repeated once.
- 2) A second repeated measurement was performed only if the ratio of largest to smallest SAR for the original and first repeated measurements was  $> 1.20$  or when the original or repeated measurement was  $\geq 1.45$  W/kg (~ 10% from the 1-g SAR limit).
- 3) A third repeated measurement was performed only if the original, first or second repeated measurement was  $\geq 1.5$  W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is  $> 1.20$ .
- 4) Repeated measurements are not required when the original highest measured SAR is  $< 0.80$  W/kg

The same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds.

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### 6.4. Power Reduction

#### Antenna 1

| Config.              | Mode     | GSM 850 | GSM 1900 | UMT S B2 | UMT S B4 | UMT S B5 | LTE B2 | LTE B4 | LTE B5 | LTE B7 | LTE B25 | LTE B26 | LTE B12 | LTE B17 |
|----------------------|----------|---------|----------|----------|----------|----------|--------|--------|--------|--------|---------|---------|---------|---------|
| Power Reduction (dB) | WiFi off | 0       | 0        | 0        | 0        | 0        | 0      | 0      | 0      | 0      | 0       | 0       | 0       | 0       |
|                      | WiFi on  | 2.5     | 1        | 4        | 3        | 3.5      | 4.5    | 3      | 4.5    | 5.5    | 5       | 4.5     | 4.5     | 4.5     |

#### Antenna 2

| Config.              | Mode        | GSM 850 | GSM 1900 | UMT S B2 | UMT S B4 | UMT S B5 | LTE B2 | LTE B4 | LTE B5 | LTE B7 | LTE B25 | LTE B26 | LTE B12 | LTE B17 |
|----------------------|-------------|---------|----------|----------|----------|----------|--------|--------|--------|--------|---------|---------|---------|---------|
| Power Reduction (dB) | Hotspot off | 0       | 0        | 0        | 0        | 0        | 0      | 0      | 0      | 0      | 0       | 0       | 0       | 0       |
|                      | Hotspot on  | 0       | 1        | 2.5      | 1.5      | 0        | 4.5    | 1      | 0      | 0.5    | 4       | 0       | 0       | 0       |

Note: The device uses a single fixed level of power reduction through static table look-up for SAR compliance and it is triggered by a single event or operation:

- 1) A fixed level power reduction is applied for some frequency bands when hotspot mode becomes active. When the hotspot is disabled, the power value will be recovered.
- 2) A fixed level power reduction is applied for some frequency bands when simultaneously transmitting with WiFi antenna. The standalone SAR compliance still uses the standalone SAR results tested at the maximum output power level without any power reduction.

#### Tune up

##### Antenna 1(Wi-Fi off)

**GSM/GPRS850 (GMSK ) :**

1TXslot:32.5 dBm [-1dB~~+0.8dB]

2TXslot:29.5 dBm [-2.0dB~~+1.0dB]

3TXslot:28 dBm [-2.0dB~~+1.0dB]

4TXslot:26.5 dBm [-2.0dB~~+1.0dB]

**EDGE850 (8PSK ) :**

1TXslot: 26.5 dBm [-2dB~~+1.0dB]

2TXslot: 24.5 dBm [-2.0dB~~+1dB]

3TXslot: 22.5 dBm [-2.5dB~~+1.0dB]

4TXslot: 20.5 dBm [-2.5dB~~+1dB]

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EDGE850 (GMSK) :

1TXslot:32.5 dBm [-1dB~~+1dB]

2TXslot:29.5 dBm [-2dB~~+1dB]

3TXslot:28 dBm [-2dB~~+1dB]

4TXslot:26.5 dBm [-2dB~~+1dB]

**PCS/GPRS1900 (GMSK) :**

1TXslot:29.5 dBm [-1dB~~+1dB]

2TXslot:26.5 dBm [-2dB~~+1.0dB]

3TXslot:25 dBm [-2dB~~+1dB]

4TXslot:23.5 dBm [-2dB~~+1.0dB]

EDGE1900 (8PSK) :

1TXslot: 25.5 dBm [-2.0dB~~+1dB]

2TXslot: 23.5 dBm [-2.0dB~~+1dB]

3TXslot:21.5 dBm [-2.5dB~~+1dB]

4TXslot: 19.5 dBm [-2.5dB~~+1dB]

EDGE1900 (GMSK) :

1TXslot:29.5 dBm [-1dB~~+1dB]

2TXslot:26.5 dBm [-2dB~~+1.0dB]

3TXslot:25 dBm [-2dB~~+1dB]

4TXslot:23.5 dBm [-2dB~~+1.0dB]

### **WCDMA Band II**

Output power of range:

WCDMA: 23 dBm [-1dB~~+1dB]

HSDPA:

case1: 22.5dBm [-2dB~~+1dB]

case2: 21 dBm [-2dB~~+1dB]

case3: 20.5 dBm [-2dB~~+1dB]

case4: 20.5 dBm [-2dB~~+1dB]

HSUPA:

case1:20.5dBm [-2dB~~+1dB]

case2:19 dBm [-2dB~~+1dB]

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case3:21.5 dBm [-2dB~~+1dB]

case4:19 dBm [-2dB~~+1dB]

case5: 22dBm [-2dB~~+1dB]

### WCDMA Band IV

Output power of range:

WCDMA: 23.5 dBm [-1dB~~+1dB]

HSDPA:

case1: 22.5dBm [-2dB~~+1dB]

case2: 21 dBm [-2dB~~+1dB]

case3: 21.5 dBm [-2dB~~+1dB]

case4: 21.5 dBm [-2dB~~+1dB]

HSUPA:

case1:20.5dBm [-2dB~~+1dB]

case2:19 dBm [-2dB~~+1dB]

case3:21.5 dBm [-2dB~~+1dB]

case4:19 dBm [-2dB~~+1dB]

case5: 22dBm [-2dB~~+1dB]

### WCDMA Band V

Output power of range:

WCDMA: 23.5 dBm [-1dB~~+1dB]

HSDPA:

case1: 22.5dBm [-2dB~~+1dB]

case2: 22 dBm [-2dB~~+1dB]

case3: 21.5 dBm [-2dB~~+1dB]

case4: 21.5 dBm [-2dB~~+1dB]

HSUPA:

case1:21dBm [-2dB~~+1dB]

case2:20 dBm [-2dB~~+1dB]

case3:21.5 dBm [-2dB~~+1dB]

case4:20 dBm [-2dB~~+1dB]

case5: 22dBm [-2dB~~+1dB]

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### LTE Band II

| LTE_B2 | Channel bandwidth / Transmission bandwidth configuration [RB] |       |       |        |        |        | Power (dBm)    |
|--------|---------------------------------------------------------------|-------|-------|--------|--------|--------|----------------|
|        | 1.4 MHz                                                       | 3 MHz | 5 MHz | 10 MHz | 15 MHz | 20 MHz |                |
| QPSK   | 1                                                             | 1     | 1     | 1      | 1      | 1      | 22.5+1/-2.5 dB |
| QPSK   | ≤ 5                                                           | ≤ 4   | ≤ 8   | ≤ 12   | ≤ 16   | ≤ 18   | 22.5+1/-2.5 dB |
| QPSK   | > 5                                                           | > 4   | > 8   | > 12   | > 16   | > 18   | 21.5+1/-2.5 dB |
| 16 QAM | 1                                                             | 1     | 1     | 1      | 1      | 1      | 21.5+1/-2.5 dB |
| 16 QAM | ≤ 5                                                           | ≤ 4   | ≤ 8   | ≤ 12   | ≤ 16   | ≤ 18   | 21.5+1/-2.5 dB |
| 16 QAM | > 5                                                           | > 4   | > 8   | > 12   | > 16   | > 18   | 20.5+1/-2.5 dB |

### LTE Band 4

Output power of range:

| LTE_B4 | Channel bandwidth / Transmission bandwidth configuration [RB] |       |       |        |        |        | Power (dBm)    |
|--------|---------------------------------------------------------------|-------|-------|--------|--------|--------|----------------|
|        | 1.4 MHz                                                       | 3 MHz | 5 MHz | 10 MHz | 15 MHz | 20 MHz |                |
| QPSK   | 1                                                             | 1     | 1     | 1      | 1      | 1      | 22.5+1/-2.5 dB |
| QPSK   | ≤ 5                                                           | ≤ 4   | ≤ 8   | ≤ 12   | ≤ 16   | ≤ 18   | 22.5+1/-2.5 dB |
| QPSK   | > 5                                                           | > 4   | > 8   | > 12   | > 16   | > 18   | 21.5+1/-2.5 dB |
| 16 QAM | ≤ 5                                                           | ≤ 4   | ≤ 8   | ≤ 12   | ≤ 16   | ≤ 18   | 21.5+1/-2.5 dB |
| 16 QAM | > 5                                                           | > 4   | > 8   | > 12   | > 16   | > 18   | 20.5+1/-2.5 dB |

### LTE Band 5

| LTE_B5 | Channel bandwidth / Transmission bandwidth configuration [RB] |       |       |        |  |  | Power (dBm)  |
|--------|---------------------------------------------------------------|-------|-------|--------|--|--|--------------|
|        | 1.4 MHz                                                       | 3 MHz | 5 MHz | 10 MHz |  |  |              |
| QPSK   | 1                                                             | 1     | 1     | 1      |  |  | 23+1/-2.5 dB |
| QPSK   | ≤ 5                                                           | ≤ 4   | ≤ 8   | ≤ 12   |  |  | 23+1/-2.5 dB |
| QPSK   | > 5                                                           | > 4   | > 8   | > 12   |  |  | 22+1/-2.5 dB |
| 16 QAM | ≤ 5                                                           | ≤ 4   | ≤ 8   | ≤ 12   |  |  | 22+1/-2.5 dB |
| 16 QAM | > 5                                                           | > 4   | > 8   | > 12   |  |  | 21+1/-2.5 dB |

### LTE Band 7

| LTE_B7 | Channel bandwidth / Transmission bandwidth configuration [RB] |  |       |        |        |        | Power (dBm)  |
|--------|---------------------------------------------------------------|--|-------|--------|--------|--------|--------------|
|        |                                                               |  | 5 MHz | 10 MHz | 15 MHz | 20 MHz |              |
| QPSK   |                                                               |  | 1     | 1      | 1      | 1      | 23+1/-2.5 dB |

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|        |  |  |          |           |           |           |              |
|--------|--|--|----------|-----------|-----------|-----------|--------------|
| QPSK   |  |  | $\leq 8$ | $\leq 12$ | $\leq 16$ | $\leq 18$ | 23+1/-2.5 dB |
| QPSK   |  |  | $> 8$    | $> 12$    | $> 16$    | $> 18$    | 22+1/-2.5 dB |
| 16 QAM |  |  | 1        | 1         | 1         | 1         | 22+1/-2.5 dB |
| 16 QAM |  |  | $\leq 8$ | $\leq 12$ | $\leq 16$ | $\leq 18$ | 22+1/-2.5 dB |
| 16 QAM |  |  | $> 8$    | $> 12$    | $> 16$    | $> 18$    | 21+1/-2.5 dB |

### LTE Band 12

| LTE_B12 | Channel bandwidth / Transmission bandwidth configuration [RB] |          |          |           |  |  | Power (dBm)  |
|---------|---------------------------------------------------------------|----------|----------|-----------|--|--|--------------|
|         | 1.4 MHz                                                       | 3 MHz    | 5 MHz    | 10 MHz    |  |  |              |
| QPSK    | 1                                                             | 1        | 1        | 1         |  |  | 23+1/-2.5 dB |
| QPSK    | $\leq 5$                                                      | $\leq 4$ | $\leq 8$ | $\leq 12$ |  |  | 23+1/-2.5 dB |
| QPSK    | $> 5$                                                         | $> 4$    | $> 8$    | $> 12$    |  |  | 22+1/-2.5 dB |
| 16 QAM  | $\leq 5$                                                      | $\leq 4$ | $\leq 8$ | $\leq 12$ |  |  | 22+1/-2.5 dB |
| 16 QAM  | $> 5$                                                         | $> 4$    | $> 8$    | $> 12$    |  |  | 21+1/-2.5 dB |

### LTE Band 17

| LTE_B17 | Channel bandwidth / Transmission bandwidth configuration [RB] |          |          |           |  |  | Power (dBm)  |
|---------|---------------------------------------------------------------|----------|----------|-----------|--|--|--------------|
|         | 1.4 MHz                                                       | 3 MHz    | 5 MHz    | 10 MHz    |  |  |              |
| QPSK    | 1                                                             | 1        | 1        | 1         |  |  | 23+1/-2.5 dB |
| QPSK    | $\leq 5$                                                      | $\leq 4$ | $\leq 8$ | $\leq 12$ |  |  | 23+1/-2.5 dB |
| QPSK    | $> 5$                                                         | $> 4$    | $> 8$    | $> 12$    |  |  | 22+1/-2.5 dB |
| 16 QAM  | $\leq 5$                                                      | $\leq 4$ | $\leq 8$ | $\leq 12$ |  |  | 22+1/-2.5 dB |
| 16 QAM  | $> 5$                                                         | $> 4$    | $> 8$    | $> 12$    |  |  | 21+1/-2.5 dB |

### LTE Band 25

| LTE_B25 | Channel bandwidth / Transmission bandwidth configuration [RB] |          |          |           |           |           | Power (dBm)    |
|---------|---------------------------------------------------------------|----------|----------|-----------|-----------|-----------|----------------|
|         | 1.4 MHz                                                       | 3 MHz    | 5 MHz    | 10 MHz    | 15 MHz    | 20 MHz    |                |
| QPSK    | 1                                                             | 1        | 1        | 1         | 1         | 1         | 22.5+1/-2.5 dB |
| QPSK    | $\leq 5$                                                      | $\leq 4$ | $\leq 8$ | $\leq 12$ | $\leq 16$ | $\leq 18$ | 22.5+1/-2.5 dB |
| QPSK    | $> 5$                                                         | $> 4$    | $> 8$    | $> 12$    | $> 16$    | $> 18$    | 21.5+1/-2.5 dB |
| 16 QAM  | $\leq 5$                                                      | $\leq 4$ | $\leq 8$ | $\leq 12$ | $\leq 16$ | $\leq 18$ | 21.5+1/-2.5 dB |
| 16 QAM  | $> 5$                                                         | $> 4$    | $> 8$    | $> 12$    | $> 16$    | $> 18$    | 20.5+1/-2.5 dB |

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### LTE Band 26

| LTE_B26 | Channel bandwidth / Transmission bandwidth configuration [RB] |       |       |        |        |  | Power (dBm)  |
|---------|---------------------------------------------------------------|-------|-------|--------|--------|--|--------------|
|         | 1.4 MHz                                                       | 3 MHz | 5 MHz | 10 MHz | 15 MHz |  |              |
| QPSK    | 1                                                             | 1     | 1     | 1      | 1      |  | 23+1/-2.5 dB |
| QPSK    | ≤ 5                                                           | ≤ 4   | ≤ 8   | ≤ 12   | ≤ 16   |  | 23+1/-2.5 dB |
| QPSK    | > 5                                                           | > 4   | > 8   | > 12   | > 16   |  | 22+1/-2.5 dB |
| 16 QAM  | ≤ 5                                                           | ≤ 4   | ≤ 8   | ≤ 12   | ≤ 16   |  | 22+1/-2.5 dB |
| 16 QAM  | > 5                                                           | > 4   | > 8   | > 12   | > 16   |  | 21+1/-2.5 dB |

### Antenna 1(Wi-Fi on)

#### GSM/GPRS850 (GMSK ) :

1TXslot:30 dBm [-1dB~~+0.8dB]

2TXslot:27 dBm [-2.0dB~~+1.0dB]

3TXslot:25.5 dBm [-2.0dB~~+1.0dB]

4TXslot:24 dBm [-2.0dB~~+1.0dB]

#### EDGE850 (8PSK ) :

1TXslot: 24 dBm [-2dB~~+1.0dB]

2TXslot: 22 dBm [-2.0dB~~+1dB]

3TXslot: 20 dBm [-2.5dB~~+1.0dB]

4TXslot: 18 dBm [-2.5dB~~+1dB]

#### EDGE850 (GMSK ) :

1TXslot:30 dBm [-1dB~~+1dB]

2TXslot:27 dBm [-2dB~~+1dB]

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3TXslot:25.5 dBm [-2dB~~+1dB]

4TXslot:24 dBm [-2dB~~+1dB]

### PCS/GPRS1900 (GMSK) :

1TXslot:28.5 dBm [-1dB~~+1dB]

2TXslot:25.5 dBm [-2dB~~+1dB]

3TXslot:24.5 dBm [-2dB~~+1dB]

4TXslot:22.5 dBm [-2dB~~+1dB]

### EDGE1900 (8PSK) :

1TXslot: 24.5 dBm [-2.0dB~~+1dB]

2TXslot: 22.5 dBm [-2.0dB~~+1dB]

3TXslot:20.5 dBm [-2.5dB~~+1dB]

4TXslot: 18.5 dBm [-2.5dB~~+1dB]

### EDGE1900 (GMSK) :

1TXslot:28.5 dBm [-1dB~~+1dB]

2TXslot:25.5 dBm [-2dB~~+1.0dB]

3TXslot:24 dBm [-2dB~~+1dB]

4TXslot:22.5 dBm [-2dB~~+1.0dB]

### WCDMA Band II

WCDMA: 19 dBm [-1dB~~+1dB]

#### HSDPA:

case1: 18.5dBm [-2dB~~+1dB]

case2: 17 dBm [-2dB~~+1dB]

case3: 16.5 dBm [-2dB~~+1dB]

case4: 16.5 dBm [-2dB~~+1dB]

#### HSUPA:

case1:16.5dBm [-2dB~~+1dB]

case2:15 dBm [-2dB~~+1dB]

case3:17.5 dBm [-2dB~~+1dB]

case4:15 dBm [-2dB~~+1dB]

case5: 18 dBm [-2dB~~+1dB]

### WCDMA Band IV



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WCDMA: 20.5 dBm [-1dB~~+1dB]

HSDPA:

case1: 19.5dBm [-2dB~~+1dB]

case2: 18 dBm [-2dB~~+1dB]

case3: 18.5 dBm [-2dB~~+1dB]

case4: 18.5 dBm [-2dB~~+1dB]

HSUPA:

case1:17.5dBm [-2dB~~+1dB]

case2:16 dBm [-2dB~~+1dB]

case3:19.5 dBm [-2dB~~+1dB]

case4:16 dBm [-2dB~~+1dB]

case5: 19 dBm [-2dB~~+1dB]

### WCDMA Band V

WCDMA: 20 dBm [-1dB~~+1dB]

HSDPA:

case1: 19 dBm [-2dB~~+1dB]

case2: 18.5 dBm [-2dB~~+1dB]

case3: 18 dBm [-2dB~~+1dB]

case4: 18 dBm [-2dB~~+1dB]

HSUPA:

case1:17.5 dBm [-2dB~~+1dB]

case2:16.5 dBm [-2dB~~+1dB]

case3:18 dBm [-2dB~~+1dB]

case4:16.5 dBm [-2dB~~+1dB]

case5: 18.5 dBm [-2dB~~+1dB]

### LTE Band 2

| LTE_B2 | Channel bandwidth / Transmission bandwidth configuration [RB] |       |       |        |        |        | Power (dBm)  |
|--------|---------------------------------------------------------------|-------|-------|--------|--------|--------|--------------|
|        | 1.4 MHz                                                       | 3 MHz | 5 MHz | 10 MHz | 15 MHz | 20 MHz |              |
| QPSK   | 1                                                             | 1     | 1     | 1      | 1      | 1      | 18+1/-2.5 dB |
| QPSK   | ≤ 5                                                           | ≤ 4   | ≤ 8   | ≤ 12   | ≤ 16   | ≤ 18   | 18+1/-2.5 dB |

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|        |     |     |     |      |      |      |              |
|--------|-----|-----|-----|------|------|------|--------------|
| QPSK   | > 5 | > 4 | > 8 | > 12 | > 16 | > 18 | 17+1/-2.5 dB |
| 16 QAM | 1   | 1   | 1   | 1    | 1    | 1    | 17+1/-2.5 dB |
| 16 QAM | ≤ 5 | ≤ 4 | ≤ 8 | ≤ 12 | ≤ 16 | ≤ 18 | 17+1/-2.5 dB |
| 16 QAM | > 5 | > 4 | > 8 | > 12 | > 16 | > 18 | 16+1/-2.5 dB |

### LTE Band 4

| LTE_B4 | Channel bandwidth / Transmission bandwidth configuration [RB] |       |       |        |        |        | Power (dBm)    |
|--------|---------------------------------------------------------------|-------|-------|--------|--------|--------|----------------|
|        | 1.4 MHz                                                       | 3 MHz | 5 MHz | 10 MHz | 15 MHz | 20 MHz |                |
| QPSK   | 1                                                             | 1     | 1     | 1      | 1      | 1      | 19.5+1/-2.5 dB |
| QPSK   | ≤ 5                                                           | ≤ 4   | ≤ 8   | ≤ 12   | ≤ 16   | ≤ 18   | 19.5+1/-2.5 dB |
| QPSK   | > 5                                                           | > 4   | > 8   | > 12   | > 16   | > 18   | 18.5+1/-2.5 dB |
| 16 QAM | ≤ 5                                                           | ≤ 4   | ≤ 8   | ≤ 12   | ≤ 16   | ≤ 18   | 18.5+1/-2.5 dB |
| 16 QAM | > 5                                                           | > 4   | > 8   | > 12   | > 16   | > 18   | 17.5+1/-2.5 dB |

### LTE Band 5

| LTE_B5 | Channel bandwidth / Transmission bandwidth configuration [RB] |       |       |        |  |  | Power (dBm)    |
|--------|---------------------------------------------------------------|-------|-------|--------|--|--|----------------|
|        | 1.4 MHz                                                       | 3 MHz | 5 MHz | 10 MHz |  |  |                |
| QPSK   | 1                                                             | 1     | 1     | 1      |  |  | 18.5+1/-2.5 dB |
| QPSK   | ≤ 5                                                           | ≤ 4   | ≤ 8   | ≤ 12   |  |  | 18.5+1/-2.5 dB |
| QPSK   | > 5                                                           | > 4   | > 8   | > 12   |  |  | 17.5+1/-2.5 dB |
| 16 QAM | ≤ 5                                                           | ≤ 4   | ≤ 8   | ≤ 12   |  |  | 17.5+1/-2.5 dB |
| 16 QAM | > 5                                                           | > 4   | > 8   | > 12   |  |  | 16.5+1/-2.5 dB |

### LTE Band 7

| LTE_B7 | Channel bandwidth / Transmission bandwidth configuration [RB] |  |       |        |        |        | Power (dBm)    |
|--------|---------------------------------------------------------------|--|-------|--------|--------|--------|----------------|
|        |                                                               |  | 5 MHz | 10 MHz | 15 MHz | 20 MHz |                |
| QPSK   |                                                               |  | 1     | 1      | 1      | 1      | 17.5+1/-2.5 dB |
| QPSK   |                                                               |  | ≤ 8   | ≤ 12   | ≤ 16   | ≤ 18   | 17.5+1/-2.5 dB |
| QPSK   |                                                               |  | > 8   | > 12   | > 16   | > 18   | 16.5+1/-2.5 dB |
| 16 QAM |                                                               |  | 1     | 1      | 1      | 1      | 16.5+1/-2.5 dB |
| 16 QAM |                                                               |  | ≤ 8   | ≤ 12   | ≤ 16   | ≤ 18   | 16.5+1/-2.5 dB |
| 16 QAM |                                                               |  | > 8   | > 12   | > 16   | > 18   | 15.5+1/-2.5 dB |

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### LTE Band 12

| LTE_B12 | Channel bandwidth / Transmission bandwidth configuration [RB] |       |       |        |  |  | Power (dBm)    |
|---------|---------------------------------------------------------------|-------|-------|--------|--|--|----------------|
|         | 1.4 MHz                                                       | 3 MHz | 5 MHz | 10 MHz |  |  |                |
| QPSK    | 1                                                             | 1     | 1     | 1      |  |  | 18.5+1/-2.5 dB |
| QPSK    | ≤ 5                                                           | ≤ 4   | ≤ 8   | ≤ 12   |  |  | 18.5+1/-2.5 dB |
| QPSK    | > 5                                                           | > 4   | > 8   | > 12   |  |  | 17.5+1/-2.5 dB |
| 16 QAM  | ≤ 5                                                           | ≤ 4   | ≤ 8   | ≤ 12   |  |  | 17.5+1/-2.5 dB |
| 16 QAM  | > 5                                                           | > 4   | > 8   | > 12   |  |  | 16.5+1/-2.5 dB |

### LTE Band 17

| LTE_B17 | Channel bandwidth / Transmission bandwidth configuration [RB] |       |       |        |  |  | Power (dBm)    |
|---------|---------------------------------------------------------------|-------|-------|--------|--|--|----------------|
|         | 1.4 MHz                                                       | 3 MHz | 5 MHz | 10 MHz |  |  |                |
| QPSK    | 1                                                             | 1     | 1     | 1      |  |  | 18.5+1/-2.5 dB |
| QPSK    | ≤ 5                                                           | ≤ 4   | ≤ 8   | ≤ 12   |  |  | 18.5+1/-2.5 dB |
| QPSK    | > 5                                                           | > 4   | > 8   | > 12   |  |  | 17.5+1/-2.5 dB |
| 16 QAM  | ≤ 5                                                           | ≤ 4   | ≤ 8   | ≤ 12   |  |  | 17.5+1/-2.5 dB |
| 16 QAM  | > 5                                                           | > 4   | > 8   | > 12   |  |  | 16.5+1/-2.5 dB |

### LTE Band 25

| LTE_B25 | Channel bandwidth / Transmission bandwidth configuration [RB] |       |       |        |        |        | Power (dBm)    |
|---------|---------------------------------------------------------------|-------|-------|--------|--------|--------|----------------|
|         | 1.4 MHz                                                       | 3 MHz | 5 MHz | 10 MHz | 15 MHz | 20 MHz |                |
| QPSK    | 1                                                             | 1     | 1     | 1      | 1      | 1      | 17.5+1/-2.5 dB |
| QPSK    | ≤ 5                                                           | ≤ 4   | ≤ 8   | ≤ 12   | ≤ 16   | ≤ 18   | 17.5+1/-2.5 dB |
| QPSK    | > 5                                                           | > 4   | > 8   | > 12   | > 16   | > 18   | 16.5+1/-2.5 dB |
| 16 QAM  | ≤ 5                                                           | ≤ 4   | ≤ 8   | ≤ 12   | ≤ 16   | ≤ 18   | 16.5+1/-2.5 dB |
| 16 QAM  | > 5                                                           | > 4   | > 8   | > 12   | > 16   | > 18   | 15.5+1/-2.5 dB |

### LTE Band 26

| LTE_B26 | Channel bandwidth / Transmission bandwidth configuration [RB] |   |   |    |    |  | Power (dBm) |
|---------|---------------------------------------------------------------|---|---|----|----|--|-------------|
|         | 1.4                                                           | 3 | 5 | 10 | 15 |  |             |

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|        | MHz | MHz | MHz | MHz  | MHz  |  |                |
|--------|-----|-----|-----|------|------|--|----------------|
| QPSK   | 1   | 1   | 1   | 1    | 1    |  | 18.5+1/-2.5 dB |
| QPSK   | ≤ 5 | ≤ 4 | ≤ 8 | ≤ 12 | ≤ 16 |  | 18.5+1/-2.5 dB |
| QPSK   | > 5 | > 4 | > 8 | > 12 | > 16 |  | 17.5+1/-2.5 dB |
| 16 QAM | ≤ 5 | ≤ 4 | ≤ 8 | ≤ 12 | ≤ 16 |  | 17.5+1/-2.5 dB |
| 16 QAM | > 5 | > 4 | > 8 | > 12 | > 16 |  | 16.5+1/-2.5 dB |

**Antenna 2(Hotspot off)**

**GSM/GPRS850 (GMSK ) :**

1TXslot:32.5 dBm [-1dB~~+0.8dB]

2TXslot:29.5 dBm [-2.0dB~~+1.0dB]

3TXslot:28 dBm [-2.0dB~~+1.0dB]

4TXslot:26.5 dBm [-2.0dB~~+1.0dB]

**EDGE850 (8PSK ) :**

1TXslot: 26.5 dBm [-2dB~~+1.0dB]

2TXslot: 24.5 dBm [-2.0dB~~+1dB]

3TXslot: 22.5 dBm [-2.5dB~~+1.0dB]

4TXslot: 20.5 dBm [-2.5dB~~+1dB]

**EDGE850 (GMSK ) :**

1TXslot:32.5 dBm [-1dB~~+1dB]

2TXslot:29.5 dBm [-2dB~~+1dB]

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3TXslot:28 dBm [-2dB~~+1dB]

4TXslot:26.5 dBm [-2dB~~+1dB]

**PCS/GPRS1900 (GMSK) :**

1TXslot:29.5 dBm [-1dB~~+1dB]

2TXslot:26.5 dBm [-2dB~~+1.0dB]

3TXslot:25 dBm [-2dB~~+1dB]

4TXslot:23.5 dBm [-2dB~~+1.0dB]

**EDGE1900 (8PSK) :**

1TXslot: 25.5 dBm [-2.0dB~~+1dB]

2TXslot: 23.5 dBm [-2.0dB~~+1dB]

3TXslot:21.5 dBm [-2.5dB~~+1dB]

4TXslot: 19.5 dBm [-2.5dB~~+1dB]

**EDGE1900 (GMSK) :**

1TXslot:29.5 dBm [-1dB~~+1dB]

2TXslot:26.5 dBm [-2dB~~+1.0dB]

3TXslot:25 dBm [-2dB~~+1dB]

4TXslot:23.5 dBm [-2dB~~+1.0dB]

**WCDMA Band II**

WCDMA: 23 dBm [-1dB~~+1dB]

**HSDPA:**

case1: 22.5dBm [-2dB~~+1dB]

case2: 21 dBm [-2dB~~+1dB]

case3: 20.5 dBm [-2dB~~+1dB]

case4: 20.5 dBm [-2dB~~+1dB]

**HSUPA:**

case1:20.5dBm [-2dB~~+1dB]

case2:19 dBm [-2dB~~+1dB]

case3:21.5 dBm [-2dB~~+1dB]

case4:19 dBm [-2dB~~+1dB]

case5: 22dBm [-2dB~~+1dB]

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### WCDMA Band IV

WCDMA: 23.5 dBm [-1dB~~+1dB]

HSDPA:

case1: 22.5dBm [-2dB~~+1dB]

case2: 21 dBm [-2dB~~+1dB]

case3: 21.5 dBm [-2dB~~+1dB]

case4: 21.5 dBm [-2dB~~+1dB]

HSUPA:

case1:20.5dBm [-2dB~~+1dB]

case2:19 dBm [-2dB~~+1dB]

case3:21.5 dBm [-2dB~~+1dB]

case4:19 dBm [-2dB~~+1dB]

case5: 22dBm [-2dB~~+1dB]

### WCDMA Band V

WCDMA: 23.5 dBm [-1dB~~+1dB]

HSDPA:

case1: 22.5dBm [-2dB~~+1dB]

case2: 22 dBm [-2dB~~+1dB]

case3: 21.5 dBm [-2dB~~+1dB]

case4: 21.5 dBm [-2dB~~+1dB]

HSUPA:

case1:21dBm [-2dB~~+1dB]

case2:20 dBm [-2dB~~+1dB]

case3:21.5 dBm [-2dB~~+1dB]

case4:20 dBm [-2dB~~+1dB]

case5: 22dBm [-2dB~~+1dB]

### LTE Band 2

| LTE_B2 | Channel bandwidth / Transmission bandwidth configuration [RB] |       |       |        |        |        | Power (dBm) |
|--------|---------------------------------------------------------------|-------|-------|--------|--------|--------|-------------|
|        | 1.4 MHz                                                       | 3 MHz | 5 MHz | 10 MHz | 15 MHz | 20 MHz |             |

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|        |     |     |     |      |      |      |                |
|--------|-----|-----|-----|------|------|------|----------------|
| QPSK   | 1   | 1   | 1   | 1    | 1    | 1    | 22.5+1/-2.5 dB |
| QPSK   | ≤ 5 | ≤ 4 | ≤ 8 | ≤ 12 | ≤ 16 | ≤ 18 | 22.5+1/-2.5 dB |
| QPSK   | > 5 | > 4 | > 8 | > 12 | > 16 | > 18 | 21.5+1/-2.5 dB |
| 16 QAM | 1   | 1   | 1   | 1    | 1    | 1    | 21.5+1/-2.5 dB |
| 16 QAM | ≤ 5 | ≤ 4 | ≤ 8 | ≤ 12 | ≤ 16 | ≤ 18 | 21.5+1/-2.5 dB |
| 16 QAM | > 5 | > 4 | > 8 | > 12 | > 16 | > 18 | 20.5+1/-2.5 dB |

### LTE Band 4

| LTE_B4 | Channel bandwidth / Transmission bandwidth configuration [RB] |       |       |        |        |        | Power (dBm)    |
|--------|---------------------------------------------------------------|-------|-------|--------|--------|--------|----------------|
|        | 1.4 MHz                                                       | 3 MHz | 5 MHz | 10 MHz | 15 MHz | 20 MHz |                |
| QPSK   | 1                                                             | 1     | 1     | 1      | 1      | 1      | 22.5+1/-2.5 dB |
| QPSK   | ≤ 5                                                           | ≤ 4   | ≤ 8   | ≤ 12   | ≤ 16   | ≤ 18   | 22.5+1/-2.5 dB |
| QPSK   | > 5                                                           | > 4   | > 8   | > 12   | > 16   | > 18   | 21.5+1/-2.5 dB |
| 16 QAM | ≤ 5                                                           | ≤ 4   | ≤ 8   | ≤ 12   | ≤ 16   | ≤ 18   | 21.5+1/-2.5 dB |
| 16 QAM | > 5                                                           | > 4   | > 8   | > 12   | > 16   | > 18   | 20.5+1/-2.5 dB |

### LTE Band 5

| LTE_B5 | Channel bandwidth / Transmission bandwidth configuration [RB] |       |       |        |  |  | Power (dBm)  |
|--------|---------------------------------------------------------------|-------|-------|--------|--|--|--------------|
|        | 1.4 MHz                                                       | 3 MHz | 5 MHz | 10 MHz |  |  |              |
| QPSK   | 1                                                             | 1     | 1     | 1      |  |  | 23+1/-2.5 dB |
| QPSK   | ≤ 5                                                           | ≤ 4   | ≤ 8   | ≤ 12   |  |  | 23+1/-2.5 dB |
| QPSK   | > 5                                                           | > 4   | > 8   | > 12   |  |  | 22+1/-2.5 dB |
| 16 QAM | ≤ 5                                                           | ≤ 4   | ≤ 8   | ≤ 12   |  |  | 22+1/-2.5 dB |
| 16 QAM | > 5                                                           | > 4   | > 8   | > 12   |  |  | 21+1/-2.5 dB |

### LTE Band 7

| LTE_B7 | Channel bandwidth / Transmission bandwidth configuration [RB] |  |       |        |        |        | Power (dBm)  |
|--------|---------------------------------------------------------------|--|-------|--------|--------|--------|--------------|
|        |                                                               |  | 5 MHz | 10 MHz | 15 MHz | 20 MHz |              |
| QPSK   |                                                               |  | 1     | 1      | 1      | 1      | 23+1/-2.5 dB |
| QPSK   |                                                               |  | ≤ 8   | ≤ 12   | ≤ 16   | ≤ 18   | 23+1/-2.5 dB |

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|--------|--|--|-----|------|------|------|--------------|
| QPSK   |  |  | > 8 | > 12 | > 16 | > 18 | 22+1/-2.5 dB |
| 16 QAM |  |  | 1   | 1    | 1    | 1    | 22+1/-2.5 dB |
| 16 QAM |  |  | ≤ 8 | ≤ 12 | ≤ 16 | ≤ 18 | 22+1/-2.5 dB |
| 16 QAM |  |  | > 8 | > 12 | > 16 | > 18 | 21+1/-2.5 dB |

### LTE Band 12

| LTE_B12 | Channel bandwidth / Transmission bandwidth configuration [RB] |       |       |        |  |  | Power (dBm)  |
|---------|---------------------------------------------------------------|-------|-------|--------|--|--|--------------|
|         | 1.4 MHz                                                       | 3 MHz | 5 MHz | 10 MHz |  |  |              |
| QPSK    | 1                                                             | 1     | 1     | 1      |  |  | 23+1/-2.5 dB |
| QPSK    | ≤ 5                                                           | ≤ 4   | ≤ 8   | ≤ 12   |  |  | 23+1/-2.5 dB |
| QPSK    | > 5                                                           | > 4   | > 8   | > 12   |  |  | 22+1/-2.5 dB |
| 16 QAM  | ≤ 5                                                           | ≤ 4   | ≤ 8   | ≤ 12   |  |  | 22+1/-2.5 dB |
| 16 QAM  | > 5                                                           | > 4   | > 8   | > 12   |  |  | 21+1/-2.5 dB |

### LTE Band 17

| LTE_B17 | Channel bandwidth / Transmission bandwidth configuration [RB] |       |       |        |  |  | Power (dBm)  |
|---------|---------------------------------------------------------------|-------|-------|--------|--|--|--------------|
|         | 1.4 MHz                                                       | 3 MHz | 5 MHz | 10 MHz |  |  |              |
| QPSK    | 1                                                             | 1     | 1     | 1      |  |  | 23+1/-2.5 dB |
| QPSK    | ≤ 5                                                           | ≤ 4   | ≤ 8   | ≤ 12   |  |  | 23+1/-2.5 dB |
| QPSK    | > 5                                                           | > 4   | > 8   | > 12   |  |  | 22+1/-2.5 dB |
| 16 QAM  | ≤ 5                                                           | ≤ 4   | ≤ 8   | ≤ 12   |  |  | 22+1/-2.5 dB |
| 16 QAM  | > 5                                                           | > 4   | > 8   | > 12   |  |  | 21+1/-2.5 dB |

### LTE Band 25

| LTE_B25 | Channel bandwidth / Transmission bandwidth configuration [RB] |       |       |        |        |        | Power (dBm)    |
|---------|---------------------------------------------------------------|-------|-------|--------|--------|--------|----------------|
|         | 1.4 MHz                                                       | 3 MHz | 5 MHz | 10 MHz | 15 MHz | 20 MHz |                |
| QPSK    | 1                                                             | 1     | 1     | 1      | 1      | 1      | 22.5+1/-2.5 dB |
| QPSK    | ≤ 5                                                           | ≤ 4   | ≤ 8   | ≤ 12   | ≤ 16   | ≤ 18   | 22.5+1/-2.5 dB |



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|        |     |     |     |      |      |      |                |
|--------|-----|-----|-----|------|------|------|----------------|
| QPSK   | > 5 | > 4 | > 8 | > 12 | > 16 | > 18 | 21.5+1/-2.5 dB |
| 16 QAM | ≤ 5 | ≤ 4 | ≤ 8 | ≤ 12 | ≤ 16 | ≤ 18 | 21.5+1/-2.5 dB |
| 16 QAM | > 5 | > 4 | > 8 | > 12 | > 16 | > 18 | 20.5+1/-2.5 dB |

### LTE Band 26

| LTE_B26 | Channel bandwidth / Transmission bandwidth configuration [RB] |       |       |        |        |  | Power (dBm)  |
|---------|---------------------------------------------------------------|-------|-------|--------|--------|--|--------------|
|         | 1.4 MHz                                                       | 3 MHz | 5 MHz | 10 MHz | 15 MHz |  |              |
| QPSK    | 1                                                             | 1     | 1     | 1      | 1      |  | 23+1/-2.5 dB |
| QPSK    | ≤ 5                                                           | ≤ 4   | ≤ 8   | ≤ 12   | ≤ 16   |  | 23+1/-2.5 dB |
| QPSK    | > 5                                                           | > 4   | > 8   | > 12   | > 16   |  | 22+1/-2.5 dB |
| 16 QAM  | ≤ 5                                                           | ≤ 4   | ≤ 8   | ≤ 12   | ≤ 16   |  | 22+1/-2.5 dB |
| 16 QAM  | > 5                                                           | > 4   | > 8   | > 12   | > 16   |  | 21+1/-2.5 dB |

### Bluetooth

BT Average Power: ≤10dBm

### WiFi

WiFi Average Power:

802.11b: 15dBm [-1.5dB~~+1.0dB]

802.11g: 14dBm [-1.5dB~~+1.0dB]

802.11n: 12dBm[-1.5dB~~+1.0dB]

### Antenna 2(Hotspot on)

**GSM/GPRS850 (GMSK ) :**

1TXslot:32.5 dBm [-1dB~~+0.8dB]

2TXslot:29.5 dBm [-2.0dB~~+1.0dB]

3TXslot:28 dBm [-2.0dB~~+1.0dB]

4TXslot:26.5 dBm [-2.0dB~~+1.0dB]

**EDGE850 (8PSK ) :**

1TXslot: 26.5 dBm [-2dB~~+1.0dB]

2TXslot: 24.5 dBm [-2.0dB~~+1dB]

3TXslot: 22.5 dBm [-2.5dB~~+1.0dB]

4TXslot: 20.5 dBm [-2.5dB~~+1dB]

**EDGE850 (GMSK ) :**

1TXslot:32.5 dBm [-1dB~~+1dB]

2TXslot:29.5 dBm [-2dB~~+1dB]

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3TXslot:28 dBm [-2dB~~+1dB]

4TXslot:26.5 dBm [-2dB~~+1dB]

### PCS/GPRS1900 (GMSK) :

1TXslot:28.5 dBm [-1dB~~+1dB]

2TXslot:25.5 dBm [-2dB~~+1dB]

3TXslot:24.5 dBm [-2dB~~+1dB]

4TXslot:22.5 dBm [-2dB~~+1dB]

### EDGE1900 (8PSK) :

1TXslot: 24.5 dBm [-2.0dB~~+1dB]

2TXslot: 22.5 dBm [-2.0dB~~+1dB]

3TXslot:20.5 dBm [-2.5dB~~+1dB]

4TXslot: 18.5 dBm [-2.5dB~~+1dB]

### EDGE1900 (GMSK) :

1TXslot:28.5 dBm [-1dB~~+1dB]

2TXslot:25.5 dBm [-2dB~~+1.0dB]

3TXslot:24 dBm [-2dB~~+1dB]

4TXslot:22.5 dBm [-2dB~~+1.0dB]

### WCDMA Band II

WCDMA: 21 dBm [-1dB~~+1dB]

HSDPA:

case1: 20dBm [-2dB~~+1dB]

case2: 18.5 dBm [-2dB~~+1dB]

case3: 18 dBm [-2dB~~+1dB]

case4: 18 dBm [-2dB~~+1dB]

HSUPA:

case1:18dBm [-2dB~~+1dB]

case2:16.5 dBm [-2dB~~+1dB]

case3:19 dBm [-2dB~~+1dB]

case4:16.5 dBm [-2dB~~+1dB]

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case5: 19.5dBm [-2dB~~+1dB]

### WCDMA Band IV

WCDMA: 22 dBm [-1dB~~+1dB]

HSDPA:

case1: 21dBm [-2dB~~+1dB]

case2: 19.5 dBm [-2dB~~+1dB]

case3: 20 dBm [-2dB~~+1dB]

case4: 20 dBm [-2dB~~+1dB]

HSUPA:

case1:19dBm [-2dB~~+1dB]

case2:17.5 dBm [-2dB~~+1dB]

case3:20 dBm [-2dB~~+1dB]

case4:17.5 dBm [-2dB~~+1dB]

case5: 20.5dBm [-2dB~~+1dB]

### WCDMA Band V

WCDMA: 23.5 dBm [-1dB~~+1dB]

HSDPA:

case1: 22.5dBm [-2dB~~+1dB]

case2: 22 dBm [-2dB~~+1dB]

case3: 21.5 dBm [-2dB~~+1dB]

case4: 21.5 dBm [-2dB~~+1dB]

HSUPA:

case1:21dBm [-2dB~~+1dB]

case2:20 dBm [-2dB~~+1dB]

case3:21.5 dBm [-2dB~~+1dB]

case4:20 dBm [-2dB~~+1dB]

case5: 22dBm [-2dB~~+1dB]

### LTE Band 2

| LTE_B2 | Channel bandwidth / Transmission bandwidth | Power (dBm) |
|--------|--------------------------------------------|-------------|
|--------|--------------------------------------------|-------------|

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|        | configuration [RB] |          |          |           |           |           |              |
|--------|--------------------|----------|----------|-----------|-----------|-----------|--------------|
|        | 1.4<br>MHz         | 3<br>MHz | 5<br>MHz | 10<br>MHz | 15<br>MHz | 20<br>MHz |              |
| QPSK   | 1                  | 1        | 1        | 1         | 1         | 1         | 18+1/-2.5 dB |
| QPSK   | ≤ 5                | ≤ 4      | ≤ 8      | ≤ 12      | ≤ 16      | ≤ 18      | 18+1/-2.5 dB |
| QPSK   | > 5                | > 4      | > 8      | > 12      | > 16      | > 18      | 17+1/-2.5 dB |
| 16 QAM | 1                  | 1        | 1        | 1         | 1         | 1         | 17+1/-2.5 dB |
| 16 QAM | ≤ 5                | ≤ 4      | ≤ 8      | ≤ 12      | ≤ 16      | ≤ 18      | 17+1/-2.5 dB |
| 16 QAM | > 5                | > 4      | > 8      | > 12      | > 16      | > 18      | 16+1/-2.5 dB |

### LTE Band 4

| LTE_B4 | Channel bandwidth / Transmission bandwidth<br>configuration [RB] |          |          |           |           |           | Power (dBm)    |
|--------|------------------------------------------------------------------|----------|----------|-----------|-----------|-----------|----------------|
|        | 1.4<br>MHz                                                       | 3<br>MHz | 5<br>MHz | 10<br>MHz | 15<br>MHz | 20<br>MHz |                |
| QPSK   | 1                                                                | 1        | 1        | 1         | 1         | 1         | 21.5+1/-2.5 dB |
| QPSK   | ≤ 5                                                              | ≤ 4      | ≤ 8      | ≤ 12      | ≤ 16      | ≤ 18      | 21.5+1/-2.5 dB |
| QPSK   | > 5                                                              | > 4      | > 8      | > 12      | > 16      | > 18      | 20.5+1/-2.5 dB |
| 16 QAM | ≤ 5                                                              | ≤ 4      | ≤ 8      | ≤ 12      | ≤ 16      | ≤ 18      | 20.5+1/-2.5 dB |
| 16 QAM | > 5                                                              | > 4      | > 8      | > 12      | > 16      | > 18      | 19.5+1/-2.5 dB |

### LTE Band 5

| LTE_B5 | Channel bandwidth / Transmission bandwidth<br>configuration [RB] |          |          |           |  |  | Power (dBm)  |
|--------|------------------------------------------------------------------|----------|----------|-----------|--|--|--------------|
|        | 1.4<br>MHz                                                       | 3<br>MHz | 5<br>MHz | 10<br>MHz |  |  |              |
| QPSK   | 1                                                                | 1        | 1        | 1         |  |  | 23+1/-2.5 dB |
| QPSK   | ≤ 5                                                              | ≤ 4      | ≤ 8      | ≤ 12      |  |  | 23+1/-2.5 dB |
| QPSK   | > 5                                                              | > 4      | > 8      | > 12      |  |  | 22+1/-2.5 dB |
| 16 QAM | ≤ 5                                                              | ≤ 4      | ≤ 8      | ≤ 12      |  |  | 22+1/-2.5 dB |
| 16 QAM | > 5                                                              | > 4      | > 8      | > 12      |  |  | 21+1/-2.5 dB |

### LTE Band 7

| LTE_B7 | Channel bandwidth / Transmission bandwidth<br>configuration [RB] |  |   |    |    |    | Power (dBm) |
|--------|------------------------------------------------------------------|--|---|----|----|----|-------------|
|        |                                                                  |  | 5 | 10 | 15 | 20 |             |

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|        |  |  | MHz | MHz  | MHz  | MHz  |              |
|--------|--|--|-----|------|------|------|--------------|
| QPSK   |  |  | 1   | 1    | 1    | 1    | 22+1/-2.5 dB |
| QPSK   |  |  | ≤ 8 | ≤ 12 | ≤ 16 | ≤ 18 | 22+1/-2.5 dB |
| QPSK   |  |  | > 8 | > 12 | > 16 | > 18 | 21+1/-2.5 dB |
| 16 QAM |  |  | 1   | 1    | 1    | 1    | 21+1/-2.5 dB |
| 16 QAM |  |  | ≤ 8 | ≤ 12 | ≤ 16 | ≤ 18 | 21+1/-2.5 dB |
| 16 QAM |  |  | > 8 | > 12 | > 16 | > 18 | 20+1/-2.5 dB |

### LTE Band 12

| LTE_B12 | Channel bandwidth / Transmission bandwidth configuration [RB] |       |       |        |  |  | Power (dBm)  |
|---------|---------------------------------------------------------------|-------|-------|--------|--|--|--------------|
|         | 1.4 MHz                                                       | 3 MHz | 5 MHz | 10 MHz |  |  |              |
| QPSK    | 1                                                             | 1     | 1     | 1      |  |  | 23+1/-2.5 dB |
| QPSK    | ≤ 5                                                           | ≤ 4   | ≤ 8   | ≤ 12   |  |  | 23+1/-2.5 dB |
| QPSK    | > 5                                                           | > 4   | > 8   | > 12   |  |  | 22+1/-2.5 dB |
| 16 QAM  | ≤ 5                                                           | ≤ 4   | ≤ 8   | ≤ 12   |  |  | 22+1/-2.5 dB |
| 16 QAM  | > 5                                                           | > 4   | > 8   | > 12   |  |  | 21+1/-2.5 dB |

### LTE Band 17

| LTE_B17 | Channel bandwidth / Transmission bandwidth configuration [RB] |       |       |        |  |  | Power (dBm)  |
|---------|---------------------------------------------------------------|-------|-------|--------|--|--|--------------|
|         | 1.4 MHz                                                       | 3 MHz | 5 MHz | 10 MHz |  |  |              |
| QPSK    | 1                                                             | 1     | 1     | 1      |  |  | 23+1/-2.5 dB |
| QPSK    | ≤ 5                                                           | ≤ 4   | ≤ 8   | ≤ 12   |  |  | 23+1/-2.5 dB |
| QPSK    | > 5                                                           | > 4   | > 8   | > 12   |  |  | 22+1/-2.5 dB |
| 16 QAM  | ≤ 5                                                           | ≤ 4   | ≤ 8   | ≤ 12   |  |  | 22+1/-2.5 dB |
| 16 QAM  | > 5                                                           | > 4   | > 8   | > 12   |  |  | 21+1/-2.5 dB |

### LTE Band 25

| LTE_B25 | Channel bandwidth / Transmission bandwidth configuration [RB] |       |       |        |        |        | Power (dBm)    |
|---------|---------------------------------------------------------------|-------|-------|--------|--------|--------|----------------|
|         | 1.4 MHz                                                       | 3 MHz | 5 MHz | 10 MHz | 15 MHz | 20 MHz |                |
| QPSK    | 1                                                             | 1     | 1     | 1      | 1      | 1      | 18.5+1/-2.5 dB |

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|        |     |     |     |      |      |      |                |
|--------|-----|-----|-----|------|------|------|----------------|
| QPSK   | ≤ 5 | ≤ 4 | ≤ 8 | ≤ 12 | ≤ 16 | ≤ 18 | 18.5+1/-2.5 dB |
| QPSK   | > 5 | > 4 | > 8 | > 12 | > 16 | > 18 | 17.5+1/-2.5 dB |
| 16 QAM | ≤ 5 | ≤ 4 | ≤ 8 | ≤ 12 | ≤ 16 | ≤ 18 | 17.5+1/-2.5 dB |
| 16 QAM | > 5 | > 4 | > 8 | > 12 | > 16 | > 18 | 16.5+1/-2.5 dB |

### LTE Band 26

| LTE_B26 | Channel bandwidth / Transmission bandwidth configuration [RB] |       |       |        |        |  | Power (dBm)  |
|---------|---------------------------------------------------------------|-------|-------|--------|--------|--|--------------|
|         | 1.4 MHz                                                       | 3 MHz | 5 MHz | 10 MHz | 15 MHz |  |              |
| QPSK    | 1                                                             | 1     | 1     | 1      | 1      |  | 23+1/-2.5 dB |
| QPSK    | ≤ 5                                                           | ≤ 4   | ≤ 8   | ≤ 12   | ≤ 16   |  | 23+1/-2.5 dB |
| QPSK    | > 5                                                           | > 4   | > 8   | > 12   | > 16   |  | 22+1/-2.5 dB |
| 16 QAM  | ≤ 5                                                           | ≤ 4   | ≤ 8   | ≤ 12   | ≤ 16   |  | 22+1/-2.5 dB |
| 16 QAM  | > 5                                                           | > 4   | > 8   | > 12   | > 16   |  | 21+1/-2.5 dB |

### Bluetooth

BT Average Power: ≤10dBm

### WiFi

WiFi Average Power:

802.11b: 15dBm [-1.5dB~~+1.0dB]

802.11g: 14dBm [-1.5dB~~+1.0dB]

802.11n: 12dBm[-1.5dB~~+1.0dB]

## **6.5. Test Configuration**

### **6.5.1. GSM Test Configuration**

SAR tests for GSM 850 and GSM 1900, a communication link is set up with a System Simulator (SS) by air link. Using E5515C the power level is set to “5” for GSM 850, set to “0” for GSM 1900. Since the GPRS class is 12 for this EUT, it has at most 4 timeslots in uplink and at most 4 timeslots in downlink, the maximum total timeslots is 5. the EGPRS class is 12 for this EUT, it has at most 4 timeslots in uplink and at most 4 timeslots in downlink, the maximum total timeslots is 5.

When SAR tests for EGPRS mode is necessary, GMSK modulation should be used to minimize SAR measurement error due to higher peak-to-average power (PAR) ratios inherent in 8-PSK.

According to specification 3GPP TS 51.010, the maximum power of the GSM can do the power reduction for the multi-slot. The allowed power reduction in the multi-slot configuration is as following:

Output power of reductions:

**Table 8: The allowed power reduction in the multi-slot configuration**

| <b>Number of timeslots in uplink assignment</b> | <b>Permissible nominal reduction of maximum output power,(dB)</b> |
|-------------------------------------------------|-------------------------------------------------------------------|
| 1                                               | 0                                                                 |
| 2                                               | 0 to 3,0                                                          |
| 3                                               | 1,8 to 4,8                                                        |
| 4                                               | 3,0 to 6,0                                                        |

## **6.5.2. UMTS Test Configuration**

### **6.5.2.1. 3G SAR Test Reduction Procedure**

In the following procedures, the mode tested for SAR is referred to as the primary mode. The equivalent modes considered for SAR test reduction are denoted as secondary modes. Both primary and secondary modes must be in the same frequency band. When the maximum output power and tune-up tolerance specified for production units in a secondary mode is  $\leq \frac{1}{4}$  dB higher than the primary mode or when the highest reported SAR of the primary mode is scaled by the ratio of specified maximum output power and tune-up tolerance of secondary to primary mode and the adjusted SAR is  $\leq 1.2$  W/kg, SAR measurement is not required for the secondary mode.<sup>3</sup> This is referred to as the 3G SAR test reduction procedure in the following SAR test guidance, where the primary mode is identified in the applicable wireless mode test procedures and the secondary mode is wireless mode being considered for SAR test reduction by that procedure. When the 3G SAR test reduction procedure is not satisfied, it is identified as “otherwise” in the applicable procedures; SAR measurement is required for the secondary mode.

### **6.5.2.2. Output power Verification**

Maximum output power is verified on the high, middle and low channels according to procedures described in section 5.2 of 3GPP TS 34.121, using the appropriate RMC or AMR with TPC (transmit power control) set to all “1’s” for WCDMA/HSDPA or by applying the required inner loop power control procedures to maintain maximum output power while HSUPA is active. Results for all applicable physical channel configurations (DPCCH, DPDCHn and spreading codes, HSDPA, HSPA) are required in the SAR report. All configurations that are not supported by the handset or cannot be measured due to technical or equipment limitations must be clearly identified.

### **6.5.2.3. Head SAR**

SAR for next to the ear head exposure is measured using a 12.2 kbps RMC with TPC bits configured to all “1’s”. The 3G SAR test reduction procedure is applied to AMR configurations with 12.2 kbps RMC as the primary mode. Otherwise, SAR is measured for 12.2 kbps AMR in 3.4 kbps SRB (signaling radio bearer) using the highest reported SAR configuration in 12.2 kbps RMC for head exposure.

### **6.5.2.4. Body-Worn Accessory SAR**

SAR for body-worn accessory configurations is measured using a 12.2 kbps RMC with TPC bits configured to all “1’s”. The 3G SAR test reduction procedure is applied to other spreading codes and multiple DPDCHn configurations supported by the handset with 12.2 kbps RMC as the primary mode. Otherwise, SAR is measured using an applicable RMC configuration with the corresponding spreading code or DPDCHn, for the highest reported body-worn accessory exposure SAR configuration in 12.2 kbps RMC. When more than 2 DPDCHn are supported by the handset, it may be necessary to configure additional DPDCHn using FTM (Factory Test Mode) or other chipset based test approaches with parameters similar to those used in 384 kbps and 768 kbps RMC.

### **6.5.2.5. Handsets with Release 5 HSDPA**

The 3G SAR test reduction procedure is applied to HSDPA body-worn accessory configurations with



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12.2 kbps RMC as the primary mode. Otherwise, SAR is measured for HSDPA using the HSDPA body SAR procedures in the "Release 5 HSDPA Data Devices" section of this document, for the highest reported SAR body-worn accessory exposure configuration in 12.2 kbps RMC. Handsets with both HSDPA and HSUPA are tested according to Release 6 HSPA test procedures.

HSDPA should be configured according to the UE category of a test device. The number of HSDSCH/ HS-PDSCHs, HARQ processes, minimum inter-TTI interval, transport block sizes and RV coding sequence are defined by the H-set. To maintain a consistent test configuration and stable transmission conditions, QPSK is used in the H-set for SAR testing. HS-DPCCH should be configured with a CQI feedback cycle of 4 ms with a CQI repetition factor of 2 to maintain a constant rate of active CQI slots. DPCCH and DPDCH gain factors ( $\beta_c$ ,  $\beta_d$ ), and HS-DPCCH power offset parameters ( $\Delta_{ACK}$ ,  $\Delta_{NACK}$ ,  $\Delta_{CQI}$ ) should be set according to values indicated in the Table below. The CQI value is determined by the UE category, transport block size, number of HS-PDSCHs and modulation used in the H-set.

**Table 9: Subtests for UMTS Release 5 HSDPA**

| Sub-set                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | $\beta_c$         | $\beta_d$         | $\beta_d$<br>(SF) | $\beta_c/\beta_d$ | $\beta_{hs}$<br>(note 1, note 2) | CM(dB)<br>(note 3) | MPR(dB) |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-------------------|-------------------|-------------------|----------------------------------|--------------------|---------|
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 2/15              | 15/15             | 64                | 2/15              | 4/15                             | 0.0                | 0.0     |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 12/15<br>(note 4) | 15/15<br>(note 4) | 64                | 12/15<br>(note 4) | 24/15                            | 1.0                | 0.0     |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 15/15             | 8/15              | 64                | 15/8              | 30/15                            | 1.5                | 0.5     |
| 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 15/15             | 4/15              | 64                | 15/4              | 30/15                            | 1.5                | 0.5     |
| <p>Note1: <math>\Delta_{ACK}</math>, <math>\Delta_{NACK}</math> and <math>\Delta_{CQI} = 8</math>    <math>\beta_{hs} = \beta_{hs}/\beta_c = 30/15</math>    <math>\beta_{hs} = 30/15 * \beta_c</math></p> <p>Note2: CM=1 for <math>\beta_c/\beta_d = 12/15</math>, <math>\beta_{hs}/\beta_c = 24/15</math>.</p> <p>Note3: For subtest 2 the <math>\beta_c/\beta_d</math> ratio of 12/15 for the TFC during the measurement period(TF1,TF0) is achieved by setting the signaled gain factors for the reference TFC (TFC1,TF1) to <math>\beta_c=11/15</math> and <math>\beta_d=15/15</math>.</p> |                   |                   |                   |                   |                                  |                    |         |

### 6.5.3. HSUPA Test Configuration

The 3G SAR test reduction procedure is applied to HSPA (HSUPA/HSDPA with RMC) body-worn accessory configurations with 12.2 kbps RMC as the primary mode. Otherwise, SAR is measured for HSPA using the HSPA body SAR procedures in the "Release 6 HSPA Data Devices" section of this document, for the highest reported body-worn accessory exposure SAR configuration in 12.2 kbps RMC. When VOIP is applicable for next to the ear head exposure in HSPA, the 3G SAR test reduction procedure is applied to HSPA with 12.2 kbps RMC as the primary mode; otherwise, the same HSPA configuration used for body-worn accessory measurements is tested for next to the ear head exposure.

Due to inner loop power control requirements in HSPA, a communication test set is required for output power and SAR tests. The 12.2 kbps RMC, FRC H-set 1 and E-DCH configurations for HSPA are configured according to the  $\beta$  values indicated in Table 2 and other applicable procedures described in the 'WCDMA Handset' and 'Release 5 HSDPA Data Devices' sections of this document

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**Table 10: Sub-Test 5 Setup for Release 6 HSUPA**

| Sub-set | $\beta_c$            | $\beta_d$            | $\beta_d$<br>(SF) | $\beta_c/\beta_d$    | $\beta_{hs}^{(1)}$ | $\beta_{ec}$ | $\beta_{ed}$                                   | $\beta_{ed}$<br>(SF) | $\beta_{ed}$<br>(codes) | CM<br>(2)<br>(dB) | MPR<br>(dB) | AG <sup>(4)</sup><br>Index | E-TFCI |
|---------|----------------------|----------------------|-------------------|----------------------|--------------------|--------------|------------------------------------------------|----------------------|-------------------------|-------------------|-------------|----------------------------|--------|
| 1       | 11/15 <sup>(3)</sup> | 15/15 <sup>(3)</sup> | 64                | 11/15 <sup>(3)</sup> | 22/15              | 209/225      | 1039/225                                       | 4                    | 1                       | 1.0               | 0.0         | 20                         | 75     |
| 2       | 6/15                 | 15/15                | 64                | 6/15                 | 12/15              | 12/15        | 94/75                                          | 4                    | 1                       | 3.0               | 2.0         | 12                         | 67     |
| 3       | 15/15                | 9/15                 | 64                | 15/9                 | 30/15              | 30/15        | $\beta_{ed1}$ : 47/15<br>$\beta_{ed2}$ : 47/15 | 4                    | 2                       | 2.0               | 1.0         | 15                         | 92     |
| 4       | 2/15                 | 15/15                | 64                | 2/15                 | 4/15               | 2/15         | 56/75                                          | 4                    | 1                       | 3.0               | 2.0         | 17                         | 71     |
| 5       | 15/15 <sup>(4)</sup> | 15/15 <sup>(4)</sup> | 64                | 15/15 <sup>(4)</sup> | 30/15              | 24/15        | 134/15                                         | 4                    | 1                       | 1.0               | 0.0         | 21                         | 81     |

Note 1:  $\Delta_{ACK}$ ,  $\Delta_{NACK}$  and  $\Delta_{CQI} = 8 \Leftrightarrow A_{hs} = \beta_{hs}/\beta_c = 30/15 \Leftrightarrow \beta_{hs} = 30/15 * \beta_c$ .

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 signaled 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 signaled gain factors for the reference TFC (TF1, TF1) to  $\beta_c = 14/15$  and  $\beta_d = 15/15$ .

Note 5: Testing UE using E-DPDCH Physical Layer category 1 Sub-test 3 is not required according to TS 25.306 Figure 5.1g.

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

**Table 11: HSUPA UE category**

| UE<br>E-DCH<br>Category | Maximum<br>E-DCH<br>Codes<br>Transmitted | Number<br>of HARQ<br>Processes | E-<br>DCH<br>TTI<br>(ms) | Minimum<br>Spreading<br>Factor | Maximum<br>E-DCH<br>Transport<br>Block Bits | Max<br>Rate<br>(Mbps) |
|-------------------------|------------------------------------------|--------------------------------|--------------------------|--------------------------------|---------------------------------------------|-----------------------|
| 1                       | 1                                        | 4                              | 10                       | 4                              | 7110                                        | 0.7296                |
| 2                       | 2                                        | 8                              | 2                        | 4                              | 2798                                        | 1.4592                |
|                         | 2                                        | 4                              | 10                       | 4                              | 14484                                       |                       |
| 3                       | 2                                        | 4                              | 10                       | 4                              | 14484                                       | 1.4592                |
| 4                       | 2                                        | 8                              | 2                        | 2                              | 5772                                        | 2.9185                |
|                         | 2                                        | 4                              | 10                       | 2                              | 20000                                       | 2.00                  |
| 5                       | 2                                        | 4                              | 10                       | 2                              | 20000                                       | 2.00                  |
| 6<br>(No DPDCH)         | 4                                        | 8                              | 2                        | 2 SF2 & 2 SF4                  | 11484                                       | 5.76                  |
|                         | 4                                        | 4                              | 10                       |                                | 20000                                       | 2.00                  |
| 7<br>(No DPDCH)         | 4                                        | 8                              | 2                        | 2 SF2 & 2 SF4                  | 22996                                       | ?                     |
|                         | 4                                        | 4                              | 10                       |                                | 20000                                       | ?                     |

NOTE: When 4 codes are transmitted in parallel, two codes shall be transmitted with SF2 and two with SF4.  
 UE Categories 1 to 6 supports QPSK only. UE Category 7 supports QPSK and 16QAM.  
 (TS25.306-7.3.0)

#### **6.5.3.1. HSPA, HSPA+ and DC-HSDPA Test Configuration**

measurement is required for HSPA, HSPA+ or DC-HSDPA, a KDB inquiry is required to confirm that the wireless mode configurations in the test setup have remained stable throughout the SAR measurements.<sup>35</sup> Without prior KDB confirmation to determine the SAR results are acceptable, a PBA is required for TCB approval.

SAR test exclusion for HSPA, HSPA+ and DC-HSDPA is determined according to the following:

1) The HSPA procedures are applied to configure 3GPP Rel. 6 HSPA devices in the required sub-test mode(s) to determine SAR test exclusion.

2) SAR is required for Rel. 7 HSPA+ when SAR is required for Rel. 6 HSPA; otherwise, the 3G SAR test reduction procedure is applied to (uplink) HSPA+ with 12.2 kbps RMC as the primary mode.<sup>36</sup> Power is measured for HSPA+ that supports uplink 16 QAM according to configurations in Table C.11.1.4 of 3GPP TS 34.121-1 to determine SAR test reduction.

3) SAR is required for Rel. 8 DC-HSDPA when SAR is required for Rel. 5 HSDPA; otherwise, the 3G SAR test reduction procedure is applied to DC-HSDPA with 12.2 kbps RMC as the primary mode. Power is measured for DC-HSDPA according to the H-Set 12, FRC configuration in Table C.8.1.12 of 3GPP TS 34.121-1 to determine SAR test reduction. A primary and a secondary serving HS-DSCH Cell are required to perform the power measurement and for the results to be acceptable.

4) Regardless of whether a PBA is required, the following information must be verified and included in the SAR report for devices supporting HSPA, HSPA+ or DC-HSDPA: a) The output power measurement results and applicable release version(s) of 3GPP TS 34.121.

i) Power measurement difficulties due to test equipment setup or availability must be resolved between the grantee and its test lab.

b) The power measurement results are in agreement with the individual device implementation and specifications. When Enhanced MPR (E-MPR) applies, the normal MPR targets may be modified according to the Cubic Metric (CM) measured by the device, which must be taken into consideration.

c) The UE category, operating parameters, such as the  $\beta$  and  $\Delta$  values used to configure the device for testing, power setback procedures described in 3GPP TS 34.121 for the power measurements, and HSPA/HSPA+ channel conditions (active and stable) for the entire duration of the measurement according to the required E-TFCI and AG index values.

5) When SAR measurement is required, the test configurations, procedures and power measurement results must be clearly described to confirm that the required test parameters are used, including E-TFCI and AG index stability and output power conditions.

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**Table 12: HS-DSCH UE category**

**Table 5.1a: FDD HS-DSCH physical layer categories**

| HS-DSCH category      | Maximum number of HS-DSCH codes received | Minimum inter-TTI interval | Maximum number of bits of an HS-DSCH transport block received within an HS-DSCH TTI<br>NOTE 1 | Total number of soft channel bits | Supported modulations without MIMO operation or dual cell operation | Supported modulations with MIMO operation and without dual cell operation | Supported modulations with dual cell operation     |
|-----------------------|------------------------------------------|----------------------------|-----------------------------------------------------------------------------------------------|-----------------------------------|---------------------------------------------------------------------|---------------------------------------------------------------------------|----------------------------------------------------|
| Category 1            | 5                                        | 3                          | 7298                                                                                          | 19200                             | QPSK, 16QAM                                                         | Not applicable (MIMO not supported)                                       | Not applicable (dual cell operation not supported) |
| Category 2            | 5                                        | 3                          | 7298                                                                                          | 28800                             |                                                                     |                                                                           |                                                    |
| Category 3            | 5                                        | 2                          | 7298                                                                                          | 28800                             |                                                                     |                                                                           |                                                    |
| Category 4            | 5                                        | 2                          | 7298                                                                                          | 38400                             |                                                                     |                                                                           |                                                    |
| Category 5            | 5                                        | 1                          | 7298                                                                                          | 57600                             |                                                                     |                                                                           |                                                    |
| Category 6            | 5                                        | 1                          | 7298                                                                                          | 67200                             |                                                                     |                                                                           |                                                    |
| Category 7            | 10                                       | 1                          | 14411                                                                                         | 115200                            |                                                                     |                                                                           |                                                    |
| Category 8            | 10                                       | 1                          | 14411                                                                                         | 134400                            |                                                                     |                                                                           |                                                    |
| Category 9            | 15                                       | 1                          | 20251                                                                                         | 172800                            |                                                                     |                                                                           |                                                    |
| Category 10           | 15                                       | 1                          | 27952                                                                                         | 172800                            |                                                                     |                                                                           |                                                    |
| Category 11           | 5                                        | 2                          | 3630                                                                                          | 14400                             | QPSK                                                                |                                                                           |                                                    |
| Category 12           | 5                                        | 1                          | 3630                                                                                          | 28800                             |                                                                     |                                                                           |                                                    |
| Category 13           | 15                                       | 1                          | 35280                                                                                         | 259200                            | QPSK, 16QAM, 64QAM                                                  |                                                                           |                                                    |
| Category 14           | 15                                       | 1                          | 42192                                                                                         | 259200                            |                                                                     |                                                                           |                                                    |
| Category 15           | 15                                       | 1                          | 23370                                                                                         | 345600                            | QPSK, 16QAM                                                         |                                                                           |                                                    |
| Category 16           | 15                                       | 1                          | 27952                                                                                         | 345600                            |                                                                     |                                                                           |                                                    |
| Category 17<br>NOTE 2 | 15                                       | 1                          | 35280                                                                                         | 259200                            | QPSK, 16QAM, 64QAM                                                  | –                                                                         |                                                    |
|                       |                                          |                            | 23370                                                                                         | 345600                            | –                                                                   | QPSK, 16QAM                                                               |                                                    |
| Category 18<br>NOTE 3 | 15                                       | 1                          | 42192                                                                                         | 259200                            | QPSK, 16QAM, 64QAM                                                  | –                                                                         |                                                    |
|                       |                                          |                            | 27952                                                                                         | 345600                            | –                                                                   | QPSK, 16QAM                                                               |                                                    |
| Category 19           | 15                                       | 1                          | 35280                                                                                         | 518400                            | QPSK, 16QAM, 64QAM                                                  |                                                                           |                                                    |
| Category 20           | 15                                       | 1                          | 42192                                                                                         | 518400                            |                                                                     |                                                                           |                                                    |
| Category 21           | 15                                       | 1                          | 23370                                                                                         | 345600                            | -                                                                   | -                                                                         | QPSK, 16QAM                                        |
| Category 22           | 15                                       | 1                          | 27952                                                                                         | 345600                            |                                                                     |                                                                           | QPSK, 16QAM, 64QAM                                 |
| Category 23           | 15                                       | 1                          | 35280                                                                                         | 518400                            |                                                                     |                                                                           |                                                    |
| Category 24           | 15                                       | 1                          | 42192                                                                                         | 518400                            |                                                                     |                                                                           |                                                    |

### 6.5.4. LTE Test Configuration

LTE modes were tested according to FCC KDB 941225 D05 publication. Please see notes after the tabulated SAR data for required test configurations. Establishing connections with base station simulators ensure a consistent means for testing SAR and are recommended for evaluating SAR [4]. The R&S CMW500 was used for LTE output power measurements and SAR testing. Max power control was used so the UE transmits with maximum output power during SAR testing. SAR must be measured with the maximum TTI (transmit time interval) supported by the device in each LTE configuration.

### A) Spectrum Plots for RB Configurations

A properly configured base station simulator was used for SAR tests and power measurements. Therefore, spectrum plots for RB configurations were not required to be included in this report.

#### **B)MPR**

MPR is permanently implemented for this device by the manufacturer. The specific manufacturer target MPR is indicated alongside the SAR results. MPR is enabled for this device, according to 3GPP TS36.101 Section 6.2.3 – 6.2.5 under Table 6.2.3-1.

#### **C)A-MPR**

A-MPR (Additional MPR) has been disabled for all SAR tests by setting NS=01 on the base station simulator.

#### **D) Largest channel bandwidth standalone SAR test requirements**

##### **1) QPSK with 1 RB allocation**

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. When the reported SAR is  $\leq 0.8$  W/kg, testing of the remaining RB offset configurations and required test channels is not required for 1 RB allocation; otherwise, SAR is required for the remaining required test channels and only for the RB offset configuration with the highest output power for that channel. When the reported SAR of a required test channel is  $> 1.45$  W/kg, SAR is required for all three RB offset configurations for that required test channel.

##### **2) QPSK with 50% RB allocation**

The procedures required for 1 RB allocation in 1) are applied to measure the SAR for QPSK with 50% RB allocation.

##### **3) QPSK with 100% RB allocation**

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 in 1) and 2) are  $\leq 0.8$  W/kg. Otherwise, SAR is measured for the highest output power channel and if the reported SAR is  $> 1.45$  W/kg, the remaining required test channels must also be tested.

##### **4) Higher order modulations**

For each modulation besides QPSK; e.g., 16-QAM, 64-QAM, apply the QPSK procedures in above sections to determine the QAM configurations that may need SAR measurement. For each configuration identified as required for testing, SAR is required only when the highest maximum output power for the configuration in the higher order modulation is  $> \frac{1}{2}$  dB higher than the same configuration in QPSK or when the reported SAR for the QPSK configuration is  $> 1.45$  W/kg.

#### **E) Other channel bandwidth standalone SAR test requirements**

For the other channel bandwidths used by the device in a frequency band, apply all the procedures required for the largest channel bandwidth in section A) to determine the channels and RB configurations that need SAR testing and only measure SAR when the highest maximum output power of a configuration requiring testing in the smaller channel bandwidth is  $> \frac{1}{2}$  dB higher than the equivalent channel configurations in the largest channel bandwidth configuration or the *reported* SAR of a configuration for the largest channel bandwidth is  $> 1.45$  W/kg.

#### **6.5.5. WiFi Test Configuration**

For WLAN SAR testing, WLAN engineering testing software installed on the DUT can provide continuous transmitting RF signal. The Tx power is set to 15 for 802.11 b mode by software. This RF signal utilized in SAR measurement has almost 100% duty cycle and its crest factor is 1.

For the 802.11b/g/n SAR tests, a communication link is set up with the test mode software for WiFi mode test. During the test, at the each test frequency channel, the EUT is operated at the RF continuous emission mode. Each channel should be tested at the lowest data rate. Testing at higher data rates is not required when the maximum average output power is less than 0.25dB higher than those measured at the lowest data rate.

802.11b/g/n operating modes are tested independently according to the service requirements in each frequency band. 802.11b/g/n modes are tested on the maximum average output channel; SAR is not required for 802.11g/n channels when the maximum average output power is less than 0.25dB higher than that measured on the corresponding 802.11b channels.

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## 7. Test Results

### 7.1. Conducted Power Results

**Table 13: Conducted Power Measurement Results**  
**Antenna 1**

| GSM 850<br>(WiFi Off)  |          | Burst Conducted Power(dBm) |           |           | /       | Average power(dBm)     |              |              |
|------------------------|----------|----------------------------|-----------|-----------|---------|------------------------|--------------|--------------|
|                        |          | Channel/Frequency(MHz)     |           |           |         | Channel/Frequency(MHz) |              |              |
|                        |          | 128/824.2                  | 190/836.6 | 251/848.8 |         | 128/824.2              | 190/836.6    | 251/848.8    |
| GSM                    |          | 32.35                      | 32.52     | 32.43     | -9.03dB | 23.32                  | 23.49        | 23.40        |
| GPRS<br>(GMSK)         | 1Txslot  | 32.32                      | 32.44     | 32.37     | -9.03dB | 23.29                  | 23.41        | 23.34        |
|                        | 2Txslots | 30.24                      | 30.37     | 30.29     | -6.02dB | <b>24.22</b>           | <b>24.35</b> | <b>24.27</b> |
|                        | 3Txslots | 28.25                      | 28.36     | 28.33     | -4.26dB | 23.99                  | 24.10        | 24.07        |
|                        | 4Txslots | 26.21                      | 26.39     | 26.26     | -3.01dB | 23.20                  | 23.38        | 23.25        |
| EGPRS<br>(GMSK)        | 1Txslot  | 32.29                      | 32.52     | 32.40     | -9.03dB | 23.26                  | 23.49        | 23.37        |
|                        | 2Txslots | 30.22                      | 30.44     | 30.30     | -6.02dB | <b>24.20</b>           | <b>24.42</b> | <b>24.28</b> |
|                        | 3Txslots | 28.04                      | 28.16     | 28.25     | -4.26dB | 23.78                  | 23.90        | 23.99        |
|                        | 4Txslots | 26.74                      | 26.87     | 26.99     | -3.01dB | 23.73                  | 23.86        | 23.98        |
| EGPRS<br>(8PSK)        | 1Txslot  | 26.28                      | 26.50     | 26.37     | -9.03dB | 17.25                  | 17.47        | 17.34        |
|                        | 2Txslots | 23.84                      | 23.99     | 24.53     | -6.02dB | 17.82                  | 17.97        | 18.51        |
|                        | 3Txslots | 22.08                      | 22.19     | 22.41     | -4.26dB | 17.82                  | 17.93        | 18.15        |
|                        | 4Txslots | 20.72                      | 20.77     | 20.60     | -3.01dB | 17.71                  | 17.76        | 17.59        |
| GSM 850<br>(WiFi On)   |          | Burst Conducted Power(dBm) |           |           | /       | Average power(dBm)     |              |              |
|                        |          | Channel/Frequency(MHz)     |           |           |         | Channel/Frequency(MHz) |              |              |
|                        |          | 128/824.2                  | 190/836.6 | 251/848.8 |         | 128/824.2              | 190/836.6    | 251/848.8    |
| GSM                    |          | 30.15                      | 30.62     | 30.23     | -9.03dB | 21.12                  | 21.59        | 21.20        |
| GPRS<br>(GMSK)         | 1Txslot  | 30.13                      | 30.25     | 30.17     | -9.03dB | 21.10                  | 21.22        | 21.14        |
|                        | 2Txslots | 27.74                      | 27.87     | 27.79     | -6.02dB | <b>21.72</b>           | <b>21.85</b> | <b>21.77</b> |
|                        | 3Txslots | 25.75                      | 25.86     | 25.83     | -4.26dB | 21.49                  | 21.60        | 21.57        |
|                        | 4Txslots | 24.21                      | 24.39     | 24.26     | -3.01dB | 23.20                  | 23.38        | 23.25        |
| EGPRS<br>(GMSK)        | 1Txslot  | 30.09                      | 30.31     | 30.18     | -9.03dB | 21.06                  | 21.28        | 21.15        |
|                        | 2Txslots | 27.62                      | 27.84     | 27.70     | -6.02dB | <b>21.60</b>           | <b>21.82</b> | <b>21.68</b> |
|                        | 3Txslots | 25.84                      | 25.96     | 25.93     | -4.26dB | 21.58                  | 21.70        | 21.67        |
|                        | 4Txslots | 24.54                      | 24.67     | 24.67     | -3.01dB | 21.53                  | 21.66        | 21.66        |
| EGPRS<br>(8PSK)        | 1Txslot  | 24.08                      | 24.30     | 24.17     | -9.03dB | 15.05                  | 15.27        | 15.14        |
|                        | 2Txslots | 21.64                      | 21.79     | 22.33     | -6.02dB | 15.62                  | 15.77        | 16.31        |
|                        | 3Txslots | 19.88                      | 19.99     | 20.21     | -4.26dB | 15.62                  | 15.73        | 15.95        |
|                        | 4Txslots | 18.52                      | 18.57     | 18.40     | -3.01dB | 15.51                  | 15.56        | 15.39        |
| GSM 1900<br>(WiFi Off) |          | Burst Conducted Power(dBm) |           |           | /       | Average power(dBm)     |              |              |
|                        |          | Channel/Frequency(MHz)     |           |           |         | Channel/Frequency(MHz) |              |              |

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|                               |          | 512/1850.2                        | 661/1880 | 810/1909.8 |          | 512/1850.2                        | 661/1880     | 810/1909.8   |
|-------------------------------|----------|-----------------------------------|----------|------------|----------|-----------------------------------|--------------|--------------|
| GSM                           |          | 29.16                             | 28.99    | 29.75      | -9.03dB  | 20.13                             | 19.96        | 20.72        |
| GPRS<br>(GMSK)                | 1Txslot  | 29.13                             | 28.95    | 29.72      | -9.03dB  | 20.10                             | 19.92        | 20.69        |
|                               | 2Txslots | 26.82                             | 26.92    | 27.43      | -6.02dB  | 20.80                             | 20.90        | 21.41        |
|                               | 3Txslots | 25.19                             | 25.26    | 25.76      | -4.26dB  | <b>20.93</b>                      | <b>21.00</b> | <b>21.50</b> |
|                               | 4Txslots | 23.15                             | 23.00    | 23.80      | -3.01dB  | 20.14                             | 19.99        | 20.79        |
| EGPRS<br>(GMSK)               | 1Txslot  | 29.16                             | 28.93    | 29.76      | -9.03dB  | 20.13                             | 19.90        | 20.73        |
|                               | 2Txslots | 27.25                             | 27.02    | 27.48      | -6.02dB  | 21.23                             | 21.00        | 21.46        |
|                               | 3Txslots | 25.51                             | 25.29    | 25.81      | -4.26dB  | <b>21.25</b>                      | <b>21.03</b> | <b>21.55</b> |
|                               | 4Txslots | 23.54                             | 23.47    | 23.64      | -3.01dB  | 20.53                             | 20.46        | 20.63        |
| EGPRS<br>(8PSK)               | 1Txslot  | 25.51                             | 25.87    | 26.42      | -9.03dB  | 16.48                             | 16.84        | 17.39        |
|                               | 2Txslots | 23.29                             | 23.56    | 23.68      | -6.02dB  | 17.27                             | 17.54        | 17.66        |
|                               | 3Txslots | 21.67                             | 21.81    | 21.96      | -4.26dB  | 17.41                             | 17.55        | 17.70        |
|                               | 4Txslots | 19.91                             | 19.95    | 20.04      | -3.01dB  | 16.90                             | 16.94        | 17.03        |
| <b>GSM 1900<br/>(WiFi On)</b> |          | <b>Burst Conducted Power(dBm)</b> |          |            | <b>/</b> | <b>Burst Conducted Power(dBm)</b> |              |              |
|                               |          | Channel/Frequency(MHz)            |          |            |          | Channel/Frequency(MHz)            |              |              |
|                               |          | 512/1850.2                        | 661/1880 | 810/1909.8 |          | 512/1850.2                        | 661/1880     | 810/1909.8   |
| GSM                           |          | 28.16                             | 27.99    | 28.75      | -9.03dB  | 19.13                             | 18.96        | 19.72        |
| GPRS<br>(GMSK)                | 1Txslot  | 28.13                             | 27.95    | 28.72      | -9.03dB  | 19.10                             | 18.92        | 19.69        |
|                               | 2Txslots | 25.82                             | 25.92    | 26.13      | -6.02dB  | 19.80                             | 19.90        | 20.11        |
|                               | 3Txslots | 24.19                             | 24.26    | 24.76      | -4.26dB  | <b>19.93</b>                      | <b>20.00</b> | <b>20.50</b> |
|                               | 4Txslots | 22.15                             | 22.00    | 22.80      | -3.01dB  | 19.14                             | 18.99        | 19.79        |
| EGPRS<br>(GMSK)               | 1Txslot  | 28.16                             | 27.93    | 28.76      | -9.03dB  | 19.13                             | 18.90        | 19.73        |
|                               | 2Txslots | 25.25                             | 25.02    | 25.48      | -6.02dB  | 19.23                             | 19.00        | 19.46        |
|                               | 3Txslots | 24.51                             | 24.29    | 24.55      | -4.26dB  | <b>20.25</b>                      | <b>20.03</b> | <b>20.29</b> |
|                               | 4Txslots | 22.54                             | 22.47    | 22.64      | -3.01dB  | 19.53                             | 19.46        | 19.63        |
| EGPRS<br>(8PSK)               | 1Txslot  | 24.51                             | 24.87    | 24.88      | -9.03dB  | 15.48                             | 15.84        | 15.85        |
|                               | 2Txslots | 22.29                             | 22.56    | 22.68      | -6.02dB  | 16.27                             | 16.54        | 16.66        |
|                               | 3Txslots | 20.67                             | 20.81    | 20.78      | -4.26dB  | 16.41                             | 16.55        | 16.52        |
|                               | 4Txslots | 18.91                             | 18.95    | 18.93      | -3.01dB  | 15.90                             | 15.94        | 15.92        |

Note:

### 1) Division Factors

To average the power, the division factor is as follows:

1Txslot = 1 transmit time slot out of 8 time slots

=> conducted power divided by (8/1) => -9.03 dB

2Txslots = 2 transmit time slots out of 8 time slots

=> conducted power divided by (8/2) => -6.02 dB

3Txslots = 3 transmit time slots out of 8 time slots

=> conducted power divided by (8/3) => -4.26 dB

4Txslots = 4 transmit time slots out of 8 time slots

=> conducted power divided by (8/4) => -3.01 dB



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### 2) Average power numbers

The maximum power numbers are marks in bold.

| UMTS Band II<br>(WiFi Off) |              | Conducted Power (dBm)  |           |             |
|----------------------------|--------------|------------------------|-----------|-------------|
|                            |              | Channel/Frequency(MHz) |           |             |
|                            |              | 9262/1852.4            | 9400/1880 | 9538/1907.6 |
| <b>RMC</b>                 | 12.2kbps RMC | 22.76                  | 23.09     | 23.21       |
|                            | 64kbps RMC   | 22.66                  | 22.99     | 22.18       |
|                            | 144kbps RMC  | 22.20                  | 22.55     | 22.66       |
|                            | 384kbps RMC  | 22.26                  | 22.49     | 22.71       |
| <b>HSDPA</b>               | Sub - Test 1 | 22.58                  | 22.89     | 23.07       |
|                            | Sub - Test 2 | 21.52                  | 21.87     | 21.92       |
|                            | Sub - Test 3 | 21.05                  | 21.37     | 21.50       |
|                            | Sub - Test 4 | 20.89                  | 21.21     | 21.45       |
| <b>HSUPA</b>               | Sub - Test 1 | 21.18                  | 21.46     | 21.43       |
|                            | Sub - Test 2 | 19.26                  | 19.74     | 19.65       |
|                            | Sub - Test 3 | 21.01                  | 21.36     | 21.12       |
|                            | Sub - Test 4 | 19.49                  | 19.94     | 19.80       |
|                            | Sub - Test 5 | 21.70                  | 22.14     | 22.18       |
| <b>DC-HSDPA</b>            | Sub - Test 1 | 22.26                  | 22.57     | 22.75       |
|                            | Sub - Test 2 | 21.00                  | 21.35     | 21.50       |
|                            | Sub - Test 3 | 20.83                  | 21.15     | 21.23       |
|                            | Sub - Test 4 | 20.87                  | 21.19     | 21.15       |
| UMTS Band II<br>(WiFi On)  |              | Conducted Power (dBm)  |           |             |
|                            |              | Channel/Frequency(MHz) |           |             |
|                            |              | 9262/1852.4            | 9400/1880 | 9538/1907.6 |
| <b>RMC</b>                 | 12.2kbps RMC | 18.96                  | 19.29     | 19.21       |
|                            | 64kbps RMC   | 18.86                  | 19.19     | 18.38       |
|                            | 144kbps RMC  | 18.40                  | 18.75     | 18.86       |
|                            | 384kbps RMC  | 18.46                  | 18.69     | 18.91       |
| <b>HSDPA</b>               | Sub - Test 1 | 18.68                  | 18.99     | 19.17       |
|                            | Sub - Test 2 | 17.32                  | 17.67     | 17.72       |
|                            | Sub - Test 3 | 16.85                  | 17.17     | 17.30       |
|                            | Sub - Test 4 | 16.69                  | 17.01     | 17.25       |
| <b>HSUPA</b>               | Sub - Test 1 | 17.18                  | 17.46     | 17.43       |
|                            | Sub - Test 2 | 15.26                  | 15.74     | 15.65       |
|                            | Sub - Test 3 | 17.01                  | 17.36     | 17.12       |
|                            | Sub - Test 4 | 15.49                  | 15.94     | 15.80       |
|                            | Sub - Test 5 | 17.70                  | 18.14     | 18.18       |

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|                                    |              |                              |             |             |
|------------------------------------|--------------|------------------------------|-------------|-------------|
| <b>DC-HSDPA</b>                    | Sub - Test 1 | 18.26                        | 18.57       | 18.75       |
|                                    | Sub - Test 2 | 17.00                        | 17.35       | 17.50       |
|                                    | Sub - Test 3 | 16.83                        | 17.15       | 17.23       |
|                                    | Sub - Test 4 | 16.87                        | 17.19       | 17.15       |
| <b>UMTS Band IV<br/>(WiFi Off)</b> |              | <b>Conducted Power (dBm)</b> |             |             |
|                                    |              | Channel/Frequency(MHz)       |             |             |
|                                    |              | 1312/1712.4                  | 1413/1732.6 | 1513/1752.6 |
| <b>RMC</b>                         | 12.2kbps RMC | 23.42                        | 23.68       | 23.63       |
|                                    | 64kbps RMC   | 22.63                        | 22.94       | 22.96       |
|                                    | 144kbps RMC  | 22.61                        | 22.93       | 22.94       |
|                                    | 384kbps RMC  | 22.70                        | 22.57       | 22.59       |
| <b>HSDPA</b>                       | Sub - Test 1 | 23.31                        | 23.17       | 23.16       |
|                                    | Sub - Test 2 | 21.78                        | 21.62       | 21.60       |
|                                    | Sub - Test 3 | 21.74                        | 21.64       | 21.63       |
|                                    | Sub - Test 4 | 21.87                        | 21.72       | 21.73       |
| <b>HSUPA</b>                       | Sub - Test 1 | 21.43                        | 21.20       | 21.36       |
|                                    | Sub - Test 2 | 19.60                        | 19.83       | 19.98       |
|                                    | Sub - Test 3 | 20.66                        | 20.38       | 20.58       |
|                                    | Sub - Test 4 | 19.59                        | 19.99       | 19.89       |
|                                    | Sub - Test 5 | 21.48                        | 21.26       | 21.40       |
| <b>DC-HSDPA</b>                    | Sub - Test 1 | 21.99                        | 21.85       | 21.84       |
|                                    | Sub - Test 2 | 21.96                        | 21.80       | 21.78       |
|                                    | Sub - Test 3 | 21.82                        | 21.72       | 21.71       |
|                                    | Sub - Test 4 | 21.85                        | 21.70       | 21.71       |
| <b>UMTS Band IV<br/>(WiFi On)</b>  |              | <b>Conducted Power (dBm)</b> |             |             |
|                                    |              | Channel/Frequency(MHz)       |             |             |
|                                    |              | 1312/1712.4                  | 1413/1732.6 | 1513/1752.6 |
| <b>RMC</b>                         | 12.2kbps RMC | 20.92                        | 21.18       | 21.13       |
|                                    | 64kbps RMC   | 20.13                        | 20.44       | 20.46       |
|                                    | 144kbps RMC  | 20.11                        | 20.43       | 20.44       |
|                                    | 384kbps RMC  | 20.20                        | 20.07       | 20.09       |
| <b>HSDPA</b>                       | Sub - Test 1 | 20.31                        | 20.17       | 20.16       |
|                                    | Sub - Test 2 | 18.78                        | 18.62       | 18.60       |
|                                    | Sub - Test 3 | 18.74                        | 18.64       | 18.63       |
|                                    | Sub - Test 4 | 18.87                        | 18.72       | 18.73       |
| <b>HSUPA</b>                       | Sub - Test 1 | 18.43                        | 18.20       | 18.36       |
|                                    | Sub - Test 2 | 16.60                        | 16.83       | 16.75       |
|                                    | Sub - Test 3 | 18.86                        | 18.58       | 18.78       |
|                                    | Sub - Test 4 | 16.59                        | 16.76       | 16.89       |

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|                                   |              |                              |            |            |
|-----------------------------------|--------------|------------------------------|------------|------------|
|                                   | Sub - Test 5 | 18.48                        | 18.26      | 18.40      |
| <b>DC-HSDPA</b>                   | Sub - Test 1 | 19.99                        | 19.85      | 19.84      |
|                                   | Sub - Test 2 | 18.96                        | 18.80      | 18.78      |
|                                   | Sub - Test 3 | 18.82                        | 18.72      | 18.71      |
|                                   | Sub - Test 4 | 18.85                        | 18.70      | 18.71      |
| <b>UMTS Band V<br/>(WiFi Off)</b> |              | <b>Conducted Power (dBm)</b> |            |            |
|                                   |              | Channel/Frequency(MHz)       |            |            |
|                                   |              | 4132/826.4                   | 4183/836.6 | 4233/846.6 |
| <b>RMC</b>                        | 12.2kbps RMC | 23.57                        | 23.34      | 23.38      |
|                                   | 64kbps RMC   | 22.98                        | 22.79      | 22.82      |
|                                   | 144kbps RMC  | 22.33                        | 22.38      | 22.46      |
|                                   | 384kbps RMC  | 23.01                        | 22.79      | 22.88      |
| <b>HSDPA</b>                      | Sub - Test 1 | 23.31                        | 23.17      | 23.16      |
|                                   | Sub - Test 2 | 22.28                        | 22.12      | 22.10      |
|                                   | Sub - Test 3 | 22.14                        | 22.04      | 21.73      |
|                                   | Sub - Test 4 | 22.17                        | 22.02      | 22.03      |
| <b>HSUPA</b>                      | Sub - Test 1 | 21.63                        | 21.40      | 21.56      |
|                                   | Sub - Test 2 | 20.10                        | 20.93      | 20.08      |
|                                   | Sub - Test 3 | 21.46                        | 21.38      | 21.48      |
|                                   | Sub - Test 4 | 20.87                        | 20.77      | 20.91      |
|                                   | Sub - Test 5 | 22.48                        | 22.26      | 22.40      |
| <b>DC-HSDPA</b>                   | Sub - Test 1 | 22.96                        | 22.84      | 22.81      |
|                                   | Sub - Test 2 | 22.93                        | 22.75      | 22.75      |
|                                   | Sub - Test 3 | 22.31                        | 22.19      | 22.16      |
|                                   | Sub - Test 4 | 22.32                        | 22.17      | 22.18      |
| <b>UMTS Band V<br/>(WiFi On)</b>  |              | <b>Conducted Power (dBm)</b> |            |            |
|                                   |              | Channel/Frequency(MHz)       |            |            |
|                                   |              | 4132/826.4                   | 4132/826.4 | 4132/826.4 |
| <b>RMC</b>                        | 12.2kbps RMC | 20.57                        | 20.41      | 20.43      |
|                                   | 64kbps RMC   | 19.98                        | 19.79      | 19.82      |
|                                   | 144kbps RMC  | 19.33                        | 19.38      | 19.46      |
|                                   | 384kbps RMC  | 20.01                        | 19.79      | 19.88      |
| <b>HSDPA</b>                      | Sub - Test 1 | 19.81                        | 19.67      | 19.66      |
|                                   | Sub - Test 2 | 18.78                        | 18.62      | 18.60      |
|                                   | Sub - Test 3 | 18.64                        | 18.54      | 18.23      |
|                                   | Sub - Test 4 | 18.67                        | 18.52      | 18.53      |
| <b>HSUPA</b>                      | Sub - Test 1 | 18.13                        | 17.90      | 18.06      |
|                                   | Sub - Test 2 | 16.60                        | 17.43      | 16.58      |
|                                   | Sub - Test 3 | 17.96                        | 17.88      | 17.98      |

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|          |              |       |       |       |
|----------|--------------|-------|-------|-------|
|          | Sub - Test 4 | 17.37 | 17.27 | 17.41 |
|          | Sub - Test 5 | 18.98 | 18.76 | 18.90 |
| DC-HSDPA | Sub - Test 1 | 19.46 | 19.34 | 19.31 |
|          | Sub - Test 2 | 19.43 | 19.25 | 19.25 |
|          | Sub - Test 3 | 18.81 | 18.69 | 18.66 |
|          | Sub - Test 4 | 18.82 | 18.67 | 18.68 |

| LTE FDD Band 2<br>(WiFi Off) |            |         |           | Conducted Power(dBm)   |            |              |
|------------------------------|------------|---------|-----------|------------------------|------------|--------------|
| Bandwidth                    | Modulation | RB size | RB offset | Channel/Frequency(MHz) |            |              |
|                              |            |         |           | 18607/1850.7           | 18900/1880 | 19193/1909.3 |
| 1.4MHz                       | QPSK       | 1       | 0         | 22.04                  | 22.39      | 22.26        |
|                              |            | 1       | 2         | 22.17                  | 21.97      | 22.77        |
|                              |            | 1       | 5         | 22.17                  | 21.90      | 22.12        |
|                              |            | 3       | 0         | 21.11                  | 21.04      | 21.50        |
|                              |            | 3       | 2         | 21.11                  | 20.81      | 21.50        |
|                              |            | 3       | 3         | 21.00                  | 20.70      | 21.48        |
|                              |            | 6       | 0         | 21.17                  | 20.81      | 21.43        |
|                              | 16QAM      | 1       | 0         | 22.07                  | 22.19      | 22.31        |
|                              |            | 1       | 2         | 21.66                  | 21.79      | 21.91        |
|                              |            | 1       | 5         | 21.66                  | 21.77      | 21.88        |
|                              |            | 3       | 0         | 20.90                  | 21.03      | 21.13        |
|                              |            | 3       | 2         | 20.56                  | 20.67      | 20.79        |
|                              |            | 3       | 3         | 20.43                  | 20.57      | 20.67        |
|                              |            | 6       | 0         | 19.65                  | 19.77      | 19.89        |
| Bandwidth                    | Modulation | RB size | RB offset | Channel/Frequency(MHz) |            |              |
|                              |            |         |           | 18615/1851.5           | 18900/1880 | 19185/1908.5 |
| 3MHz                         | QPSK       | 1       | 0         | 22.20                  | 22.55      | 22.42        |
|                              |            | 1       | 7         | 22.33                  | 22.13      | 22.93        |
|                              |            | 1       | 14        | 22.33                  | 22.06      | 22.28        |
|                              |            | 8       | 0         | 22.16                  | 22.09      | 22.55        |
|                              |            | 8       | 4         | 22.16                  | 21.86      | 22.55        |
|                              |            | 8       | 7         | 22.05                  | 21.75      | 22.53        |
|                              |            | 15      | 0         | 21.33                  | 20.97      | 21.59        |
|                              | 16QAM      | 1       | 0         | 21.51                  | 21.63      | 21.75        |
|                              |            | 1       | 7         | 21.10                  | 21.23      | 21.35        |
|                              |            | 1       | 14        | 21.10                  | 21.21      | 21.32        |
|                              |            | 8       | 0         | 21.06                  | 21.19      | 21.29        |
|                              |            | 8       | 4         | 20.72                  | 20.83      | 20.95        |
|                              |            | 8       | 7         | 20.59                  | 20.73      | 20.83        |
|                              |            | 15      | 0         | 19.81                  | 19.93      | 20.05        |
| Bandwidth                    | Modulation | RB size | RB offset | Channel/Frequency(MHz) |            |              |

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|           |            |         |           |                        |            |              |
|-----------|------------|---------|-----------|------------------------|------------|--------------|
|           |            |         |           | 18625/1852.5           | 18900/1880 | 19175/1907.5 |
| 5MHz      | QPSK       | 1       | 0         | 22.17                  | 22.52      | 22.39        |
|           |            | 1       | 13        | 22.30                  | 22.10      | 22.90        |
|           |            | 1       | 24        | 22.30                  | 22.03      | 22.25        |
|           |            | 12      | 0         | 21.24                  | 21.17      | 21.63        |
|           |            | 12      | 6         | 21.24                  | 20.94      | 21.63        |
|           |            | 12      | 13        | 21.13                  | 20.83      | 21.61        |
|           |            | 25      | 0         | 21.30                  | 20.94      | 21.56        |
|           | 16QAM      | 1       | 0         | 22.20                  | 22.32      | 22.44        |
|           |            | 1       | 13        | 21.79                  | 21.92      | 22.04        |
|           |            | 1       | 24        | 21.79                  | 21.90      | 22.01        |
|           |            | 12      | 0         | 21.03                  | 21.16      | 21.26        |
|           |            | 12      | 6         | 20.69                  | 20.80      | 20.92        |
|           |            | 12      | 13        | 20.56                  | 20.70      | 20.80        |
|           |            | 25      | 0         | 19.78                  | 19.90      | 20.02        |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |            |              |
|           |            |         |           | 18650/1855             | 18900/1880 | 19150/1905   |
| 10MHz     | QPSK       | 1       | 0         | 22.18                  | 22.53      | 22.40        |
|           |            | 1       | 25        | 22.31                  | 22.11      | 22.91        |
|           |            | 1       | 49        | 22.31                  | 22.04      | 22.26        |
|           |            | 25      | 0         | 21.25                  | 21.18      | 21.64        |
|           |            | 25      | 13        | 21.25                  | 20.95      | 21.64        |
|           |            | 25      | 25        | 21.14                  | 20.84      | 21.62        |
|           |            | 50      | 0         | 21.31                  | 20.95      | 21.57        |
|           | 16QAM      | 1       | 0         | 22.21                  | 22.33      | 22.45        |
|           |            | 1       | 25        | 21.80                  | 21.93      | 22.05        |
|           |            | 1       | 49        | 21.80                  | 21.91      | 22.02        |
|           |            | 25      | 0         | 21.04                  | 21.17      | 21.27        |
|           |            | 25      | 13        | 20.70                  | 20.81      | 20.93        |
|           |            | 25      | 25        | 20.57                  | 20.71      | 20.81        |
|           |            | 50      | 0         | 19.79                  | 19.91      | 20.03        |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |            |              |
|           |            |         |           | 18675/1857.5           | 18900/1880 | 19125/1902.5 |
| 15MHz     | QPSK       | 1       | 0         | 22.15                  | 22.50      | 22.37        |
|           |            | 1       | 38        | 22.28                  | 22.08      | 22.88        |
|           |            | 1       | 74        | 22.28                  | 22.01      | 22.23        |
|           |            | 36      | 0         | 21.22                  | 21.15      | 21.61        |
|           |            | 36      | 18        | 21.22                  | 20.92      | 21.61        |
|           |            | 36      | 39        | 21.11                  | 20.81      | 21.59        |
|           |            | 75      | 0         | 21.28                  | 20.92      | 21.54        |
|           | 16QAM      | 1       | 0         | 22.18                  | 22.30      | 22.42        |
|           |            | 1       | 38        | 21.77                  | 21.90      | 22.02        |
|           |            | 1       | 74        | 21.77                  | 21.88      | 21.99        |
|           |            | 36      | 0         | 21.01                  | 21.14      | 21.24        |

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|           |            | 36      | 18        | 20.67                  | 20.78      | 20.90      |
|-----------|------------|---------|-----------|------------------------|------------|------------|
|           |            | 36      | 39        | 20.54                  | 20.68      | 20.78      |
|           |            | 75      | 0         | 19.76                  | 19.88      | 20.00      |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |            |            |
|           |            |         |           | 18700/1860             | 18900/1880 | 19100/1900 |
| 20MHz     | QPSK       | 1       | 0         | 22.04                  | 22.77      | 22.26      |
|           |            | 1       | 50        | 22.17                  | 21.97      | 22.39      |
|           |            | 1       | 99        | 22.37                  | 21.90      | 22.12      |
|           |            | 50      | 0         | 21.11                  | 21.49      | 21.50      |
|           |            | 50      | 25        | 21.21                  | 20.81      | 21.05      |
|           |            | 50      | 50        | 21.00                  | 20.70      | 21.48      |
|           |            | 100     | 0         | 21.17                  | 20.81      | 21.43      |
|           | 16QAM      | 1       | 0         | 22.07                  | 22.19      | 22.31      |
|           |            | 1       | 50        | 21.66                  | 21.79      | 21.91      |
|           |            | 1       | 99        | 21.66                  | 21.77      | 21.88      |
|           |            | 50      | 0         | 20.90                  | 21.03      | 21.13      |
|           |            | 50      | 25        | 20.56                  | 20.67      | 20.79      |
|           |            | 50      | 50        | 20.43                  | 20.57      | 20.67      |
|           |            | 100     | 0         | 19.65                  | 19.77      | 19.89      |

| LTE FDD Band 2<br>(WiFi On) |            |         |           | Conducted Power(dBm)   |            |              |
|-----------------------------|------------|---------|-----------|------------------------|------------|--------------|
| Bandwidth                   | Modulation | RB size | RB offset | Channel/Frequency(MHz) |            |              |
|                             |            |         |           | 18607/1850.7           | 18900/1880 | 19193/1909.3 |
| 1.4MHz                      | QPSK       | 1       | 0         | 17.56                  | 17.91      | 17.78        |
|                             |            | 1       | 2         | 17.68                  | 17.48      | 18.28        |
|                             |            | 1       | 5         | 17.67                  | 17.40      | 17.62        |
|                             |            | 3       | 0         | 16.60                  | 16.53      | 16.99        |
|                             |            | 3       | 2         | 16.59                  | 16.29      | 16.98        |
|                             |            | 3       | 3         | 16.47                  | 16.17      | 16.95        |
|                             |            | 6       | 0         | 16.66                  | 16.30      | 16.92        |
|                             | 16QAM      | 1       | 0         | 17.55                  | 17.67      | 17.79        |
|                             |            | 1       | 2         | 17.13                  | 17.26      | 17.38        |
|                             |            | 1       | 5         | 17.18                  | 17.29      | 17.40        |
|                             |            | 3       | 0         | 16.41                  | 16.54      | 16.64        |
|                             |            | 3       | 2         | 16.06                  | 16.17      | 16.29        |
|                             |            | 3       | 3         | 15.92                  | 16.06      | 16.16        |
|                             |            | 6       | 0         | 15.13                  | 15.25      | 15.37        |
| Bandwidth                   | Modulation | RB size | RB offset | Channel/Frequency(MHz) |            |              |
|                             |            |         |           | 18615/1851.5           | 18900/1880 | 19185/1908.5 |
| 3MHz                        | QPSK       | 1       | 0         | 17.72                  | 18.07      | 17.94        |

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|                  |            |         |           |                        |            |              |
|------------------|------------|---------|-----------|------------------------|------------|--------------|
|                  |            | 1       | 7         | 17.84                  | 17.64      | 18.44        |
|                  |            | 1       | 14        | 17.83                  | 17.56      | 17.78        |
|                  |            | 8       | 0         | 17.65                  | 17.58      | 18.04        |
|                  |            | 8       | 4         | 17.64                  | 17.34      | 18.03        |
|                  |            | 8       | 7         | 17.52                  | 17.22      | 18.00        |
|                  |            | 15      | 0         | 16.82                  | 16.46      | 17.08        |
|                  | 16QAM      | 1       | 0         | 16.99                  | 17.11      | 17.23        |
|                  |            | 1       | 7         | 16.57                  | 16.70      | 16.82        |
|                  |            | 1       | 14        | 16.62                  | 16.73      | 16.84        |
|                  |            | 8       | 0         | 16.57                  | 16.70      | 16.80        |
|                  |            | 8       | 4         | 16.22                  | 16.33      | 16.45        |
|                  |            | 8       | 7         | 16.08                  | 16.22      | 16.32        |
|                  |            | 15      | 0         | 15.29                  | 15.41      | 15.53        |
| <b>Bandwidth</b> | Modulation | RB size | RB offset | Channel/Frequency(MHz) |            |              |
|                  |            |         |           | 18625/1852.5           | 18900/1880 | 19175/1907.5 |
| <b>5MHz</b>      | QPSK       | 1       | 0         | 17.69                  | 18.04      | 17.91        |
|                  |            | 1       | 13        | 17.81                  | 17.61      | 18.41        |
|                  |            | 1       | 24        | 17.80                  | 17.53      | 17.75        |
|                  |            | 12      | 0         | 16.73                  | 16.66      | 17.12        |
|                  |            | 12      | 6         | 16.72                  | 16.42      | 17.11        |
|                  |            | 12      | 13        | 16.60                  | 16.30      | 17.08        |
|                  |            | 25      | 0         | 16.79                  | 16.43      | 17.05        |
|                  | 16QAM      | 1       | 0         | 17.68                  | 17.80      | 17.92        |
|                  |            | 1       | 13        | 17.26                  | 17.39      | 17.51        |
|                  |            | 1       | 24        | 17.31                  | 17.42      | 17.53        |
|                  |            | 12      | 0         | 16.54                  | 16.67      | 16.77        |
|                  |            | 12      | 6         | 16.19                  | 16.30      | 16.42        |
|                  |            | 12      | 13        | 16.05                  | 16.19      | 16.29        |
|                  |            | 25      | 0         | 15.26                  | 15.38      | 15.50        |
| <b>Bandwidth</b> | Modulation | RB size | RB offset | Channel/Frequency(MHz) |            |              |
|                  |            |         |           | 18650/1855             | 18900/1880 | 19150/1905   |
| <b>10MHz</b>     | QPSK       | 1       | 0         | 17.70                  | 18.05      | 17.92        |
|                  |            | 1       | 25        | 17.82                  | 17.62      | 18.42        |
|                  |            | 1       | 49        | 17.81                  | 17.54      | 17.76        |
|                  |            | 25      | 0         | 16.74                  | 16.67      | 17.13        |
|                  |            | 25      | 13        | 16.73                  | 16.43      | 17.12        |
|                  |            | 25      | 25        | 16.61                  | 16.31      | 17.09        |
|                  |            | 50      | 0         | 16.80                  | 16.44      | 17.06        |
|                  | 16QAM      | 1       | 0         | 17.69                  | 17.81      | 17.93        |
|                  |            | 1       | 25        | 17.27                  | 17.40      | 17.52        |
|                  |            | 1       | 49        | 17.32                  | 17.43      | 17.54        |
|                  |            | 25      | 0         | 16.55                  | 16.68      | 16.78        |
|                  |            | 25      | 13        | 16.20                  | 16.31      | 16.43        |
|                  |            | 25      | 25        | 16.06                  | 16.20      | 16.30        |

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|           |            | 50      | 0         | 15.27                  | 15.39      | 15.51        |
|-----------|------------|---------|-----------|------------------------|------------|--------------|
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |            |              |
|           |            |         |           | 18675/1857.5           | 18900/1880 | 19125/1902.5 |
| 15MHz     | QPSK       | 1       | 0         | 17.67                  | 18.02      | 17.89        |
|           |            | 1       | 38        | 17.79                  | 17.59      | 18.39        |
|           |            | 1       | 74        | 17.78                  | 17.51      | 17.73        |
|           |            | 36      | 0         | 16.71                  | 16.64      | 17.10        |
|           |            | 36      | 18        | 16.70                  | 16.40      | 17.09        |
|           |            | 36      | 39        | 16.58                  | 16.28      | 17.06        |
|           |            | 75      | 0         | 16.77                  | 16.41      | 17.03        |
|           | 16QAM      | 1       | 0         | 17.66                  | 17.78      | 17.90        |
|           |            | 1       | 38        | 17.24                  | 17.37      | 17.49        |
|           |            | 1       | 74        | 17.29                  | 17.40      | 17.51        |
|           |            | 36      | 0         | 16.52                  | 16.65      | 16.75        |
|           |            | 36      | 18        | 16.17                  | 16.28      | 16.40        |
|           |            | 36      | 39        | 16.03                  | 16.17      | 16.27        |
|           |            | 75      | 0         | 15.24                  | 15.36      | 15.48        |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |            |              |
|           |            |         |           | 18700/1860             | 18900/1880 | 19100/1900   |
| 20MHz     | QPSK       | 1       | 0         | 17.54                  | 18.27      | 17.76        |
|           |            | 1       | 50        | 17.67                  | 17.47      | 17.89        |
|           |            | 1       | 99        | 17.87                  | 17.40      | 17.62        |
|           |            | 50      | 0         | 16.61                  | 16.99      | 17.00        |
|           |            | 50      | 25        | 16.71                  | 16.31      | 16.55        |
|           |            | 50      | 50        | 16.50                  | 16.20      | 16.98        |
|           |            | 100     | 0         | 16.67                  | 16.31      | 16.93        |
|           | 16QAM      | 1       | 0         | 17.57                  | 17.69      | 17.81        |
|           |            | 1       | 50        | 17.16                  | 17.29      | 17.41        |
|           |            | 1       | 99        | 17.16                  | 17.27      | 17.38        |
|           |            | 50      | 0         | 16.40                  | 16.53      | 16.63        |
|           |            | 50      | 25        | 16.06                  | 16.17      | 16.29        |
|           |            | 50      | 50        | 15.93                  | 16.07      | 16.17        |
|           |            | 100     | 0         | 15.15                  | 15.27      | 15.39        |

| LTE FDD Band 4<br>(WiFi Off) |            |         |           | Conducted Power(dBm)   |              |              |
|------------------------------|------------|---------|-----------|------------------------|--------------|--------------|
| Bandwidth                    | Modulation | RB size | RB offset | Channel/Frequency(MHz) |              |              |
|                              |            |         |           | 19957/1710.7           | 20175/1732.5 | 20393/1754.3 |
| 1.4MHz                       | QPSK       | 1       | 0         | 21.83                  | 22.51        | 22.38        |
|                              |            | 1       | 2         | 21.71                  | 22.16        | 22.01        |
|                              |            | 1       | 5         | 21.49                  | 22.08        | 22.32        |
|                              |            | 3       | 0         | 21.77                  | 22.43        | 21.94        |



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|                  |            |         |           |                        |              |              |
|------------------|------------|---------|-----------|------------------------|--------------|--------------|
|                  |            | 3       | 2         | 22.13                  | 22.22        | 21.95        |
|                  |            | 3       | 3         | 22.34                  | 22.02        | 21.96        |
|                  |            | 6       | 0         | 21.04                  | 21.39        | 21.00        |
|                  | 16QAM      | 1       | 0         | 21.16                  | 21.03        | 20.96        |
|                  |            | 1       | 2         | 20.76                  | 20.65        | 20.58        |
|                  |            | 1       | 5         | 20.81                  | 20.69        | 20.60        |
|                  |            | 3       | 0         | 20.40                  | 20.30        | 20.20        |
|                  |            | 3       | 2         | 20.93                  | 20.81        | 20.73        |
|                  |            | 3       | 3         | 20.89                  | 20.80        | 20.70        |
|                  |            | 6       | 0         | 20.92                  | 20.81        | 20.73        |
| <b>Bandwidth</b> | Modulation | RB size | RB offset | Channel/Frequency(MHz) |              |              |
|                  |            |         |           | 19965/1711.5           | 20175/1732.5 | 20385/1753.5 |
| <b>3MHz</b>      | QPSK       | 1       | 0         | 21.80                  | 22.48        | 22.35        |
|                  |            | 1       | 13        | 21.68                  | 22.13        | 21.98        |
|                  |            | 1       | 24        | 21.46                  | 22.05        | 22.29        |
|                  |            | 12      | 0         | 21.28                  | 21.94        | 21.45        |
|                  |            | 12      | 6         | 21.64                  | 21.73        | 21.46        |
|                  |            | 12      | 13        | 21.85                  | 21.53        | 21.47        |
|                  |            | 25      | 0         | 21.13                  | 21.48        | 21.09        |
|                  | 16QAM      | 1       | 0         | 21.63                  | 21.50        | 21.43        |
|                  |            | 1       | 13        | 21.23                  | 21.12        | 21.05        |
|                  |            | 1       | 24        | 21.28                  | 21.16        | 21.07        |
|                  |            | 12      | 0         | 20.37                  | 20.27        | 20.17        |
|                  |            | 12      | 6         | 21.40                  | 21.28        | 21.20        |
|                  |            | 12      | 13        | 21.36                  | 21.27        | 21.17        |
|                  |            | 25      | 0         | 21.39                  | 21.28        | 21.20        |
| <b>Bandwidth</b> | Modulation | RB size | RB offset | Channel/Frequency(MHz) |              |              |
|                  |            |         |           | 19975/1712.5           | 20175/1732.5 | 20375/1752.5 |
| <b>5MHz</b>      | QPSK       | 1       | 0         | 21.81                  | 22.49        | 22.36        |
|                  |            | 1       | 13        | 21.69                  | 22.14        | 21.99        |
|                  |            | 1       | 24        | 21.47                  | 22.06        | 22.30        |
|                  |            | 12      | 0         | 20.79                  | 21.45        | 20.96        |
|                  |            | 12      | 6         | 21.15                  | 21.24        | 20.97        |
|                  |            | 12      | 13        | 21.36                  | 21.04        | 20.98        |
|                  |            | 25      | 0         | 21.14                  | 21.49        | 21.10        |
|                  | 16QAM      | 1       | 0         | 21.64                  | 21.51        | 21.44        |
|                  |            | 1       | 13        | 21.24                  | 21.13        | 21.06        |
|                  |            | 1       | 24        | 21.29                  | 21.17        | 21.08        |
|                  |            | 12      | 0         | 20.38                  | 20.28        | 20.18        |
|                  |            | 12      | 6         | 21.41                  | 21.29        | 21.21        |
|                  |            | 12      | 13        | 21.37                  | 21.28        | 21.18        |
|                  |            | 25      | 0         | 21.40                  | 21.29        | 21.21        |
| <b>Bandwidth</b> | Modulation | RB size | RB offset | Channel/Frequency(MHz) |              |              |
|                  |            |         |           | 20000/1715             | 20175/1732.5 | 20350/1750   |

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|           |            |         |           |                        |              |              |
|-----------|------------|---------|-----------|------------------------|--------------|--------------|
| 10MHz     | QPSK       | 1       | 0         | 21.77                  | 22.45        | 22.32        |
|           |            | 1       | 25        | 21.65                  | 22.10        | 21.95        |
|           |            | 1       | 49        | 21.43                  | 22.02        | 22.26        |
|           |            | 25      | 0         | 20.75                  | 21.41        | 20.92        |
|           |            | 25      | 13        | 21.11                  | 21.20        | 20.93        |
|           |            | 25      | 25        | 21.32                  | 21.00        | 20.94        |
|           |            | 50      | 0         | 21.10                  | 21.45        | 21.06        |
|           | 16QAM      | 1       | 0         | 21.60                  | 21.47        | 21.40        |
|           |            | 1       | 25        | 21.20                  | 21.09        | 21.02        |
|           |            | 1       | 49        | 21.25                  | 21.13        | 21.04        |
|           |            | 25      | 0         | 20.34                  | 20.24        | 20.14        |
|           |            | 25      | 13        | 21.37                  | 21.25        | 21.17        |
|           |            | 25      | 25        | 21.33                  | 21.24        | 21.14        |
|           |            | 50      | 0         | 21.36                  | 21.25        | 21.17        |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |              |              |
|           |            |         |           | 20025/1717.5           | 20175/1732.5 | 20325/1747.5 |
| 15MHz     | QPSK       | 1       | 0         | 21.79                  | 22.47        | 22.34        |
|           |            | 1       | 38        | 21.67                  | 22.12        | 21.97        |
|           |            | 1       | 74        | 21.45                  | 22.04        | 22.28        |
|           |            | 36      | 0         | 20.77                  | 21.43        | 20.94        |
|           |            | 36      | 18        | 21.13                  | 21.22        | 20.95        |
|           |            | 36      | 39        | 21.34                  | 21.02        | 20.96        |
|           |            | 75      | 0         | 21.12                  | 21.47        | 21.08        |
|           | 16QAM      | 1       | 0         | 21.62                  | 21.49        | 21.42        |
|           |            | 1       | 38        | 21.22                  | 21.11        | 21.04        |
|           |            | 1       | 74        | 21.27                  | 21.15        | 21.06        |
|           |            | 36      | 0         | 20.36                  | 20.26        | 20.16        |
|           |            | 36      | 18        | 21.39                  | 21.27        | 21.19        |
|           |            | 36      | 39        | 21.35                  | 21.26        | 21.16        |
|           |            | 75      | 0         | 21.38                  | 21.27        | 21.19        |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |              |              |
|           |            |         |           | 20050/1720             | 20175/1732.5 | 20300/1745   |
| 20MHz     | QPSK       | 1       | 0         | 21.66                  | 22.34        | 22.21        |
|           |            | 1       | 50        | 21.54                  | 21.99        | 21.84        |
|           |            | 1       | 99        | 21.32                  | 21.91        | 22.15        |
|           |            | 50      | 0         | 20.64                  | 21.30        | 20.81        |
|           |            | 50      | 25        | 21.00                  | 21.09        | 20.82        |
|           |            | 50      | 50        | 21.21                  | 20.89        | 20.83        |
|           |            | 100     | 0         | 20.99                  | 21.34        | 20.95        |
|           | 16QAM      | 1       | 0         | 21.49                  | 21.36        | 21.29        |
|           |            | 1       | 50        | 21.09                  | 20.98        | 20.91        |
|           |            | 1       | 99        | 21.14                  | 21.02        | 20.93        |
|           |            | 50      | 0         | 20.23                  | 20.13        | 20.03        |

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|  |  |     |    |       |       |       |
|--|--|-----|----|-------|-------|-------|
|  |  | 50  | 25 | 21.26 | 21.14 | 21.06 |
|  |  | 50  | 50 | 21.22 | 21.13 | 21.03 |
|  |  | 100 | 0  | 21.25 | 21.14 | 21.06 |

| LTE FDD Band 4<br>(WiFi On) |            |         |           | Conducted Power(dBm)   |              |              |
|-----------------------------|------------|---------|-----------|------------------------|--------------|--------------|
| Bandwidth                   | Modulation | RB size | RB offset | Channel/Frequency(MHz) |              |              |
|                             |            |         |           | 19957/1710.7           | 20175/1732.5 | 20393/1754.3 |
| 1.4MHz                      | QPSK       | 1       | 0         | 18.85                  | 19.53        | 19.40        |
|                             |            | 1       | 2         | 18.72                  | 19.17        | 19.02        |
|                             |            | 1       | 5         | 18.49                  | 19.08        | 19.32        |
|                             |            | 3       | 0         | 18.76                  | 19.42        | 18.93        |
|                             |            | 3       | 2         | 19.11                  | 19.20        | 18.93        |
|                             |            | 3       | 3         | 19.31                  | 18.99        | 18.93        |
|                             |            | 6       | 0         | 18.03                  | 18.38        | 17.99        |
|                             | 16QAM      | 1       | 0         | 18.14                  | 18.01        | 17.94        |
|                             |            | 1       | 2         | 17.73                  | 17.62        | 17.55        |
|                             |            | 1       | 5         | 17.83                  | 17.71        | 17.62        |
|                             |            | 3       | 0         | 17.41                  | 17.31        | 17.21        |
|                             |            | 3       | 2         | 17.93                  | 17.81        | 17.73        |
|                             |            | 3       | 3         | 17.88                  | 17.79        | 17.69        |
|                             |            | 6       | 0         | 17.90                  | 17.79        | 17.71        |
| Bandwidth                   | Modulation | RB size | RB offset | Channel/Frequency(MHz) |              |              |
|                             |            |         |           | 19965/1711.5           | 20175/1732.5 | 20385/1753.5 |
| 3MHz                        | QPSK       | 1       | 0         | 18.82                  | 19.50        | 19.37        |
|                             |            | 1       | 13        | 18.69                  | 19.14        | 18.99        |
|                             |            | 1       | 24        | 18.46                  | 19.05        | 19.29        |
|                             |            | 12      | 0         | 18.27                  | 18.93        | 18.44        |
|                             |            | 12      | 6         | 18.62                  | 18.71        | 18.44        |
|                             |            | 12      | 13        | 18.82                  | 18.50        | 18.44        |
|                             |            | 25      | 0         | 18.12                  | 18.47        | 18.08        |
|                             | 16QAM      | 1       | 0         | 18.61                  | 18.48        | 18.41        |
|                             |            | 1       | 13        | 18.20                  | 18.09        | 18.02        |
|                             |            | 1       | 24        | 18.30                  | 18.18        | 18.09        |
|                             |            | 12      | 0         | 17.38                  | 17.28        | 17.18        |
|                             |            | 12      | 6         | 18.40                  | 18.28        | 18.20        |
|                             |            | 12      | 13        | 18.35                  | 18.26        | 18.16        |
|                             |            | 25      | 0         | 18.37                  | 18.26        | 18.18        |
| Bandwidth                   | Modulation | RB size | RB offset | Channel/Frequency(MHz) |              |              |
|                             |            |         |           | 19975/1712.5           | 20175/1732.5 | 20375/1752.5 |
| 5MHz                        | QPSK       | 1       | 0         | 18.83                  | 19.51        | 19.38        |

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|                  |            |         |           |                        |              |              |
|------------------|------------|---------|-----------|------------------------|--------------|--------------|
|                  |            | 1       | 13        | 18.70                  | 19.15        | 19.00        |
|                  |            | 1       | 24        | 18.47                  | 19.06        | 19.30        |
|                  |            | 12      | 0         | 17.78                  | 18.44        | 17.95        |
|                  |            | 12      | 6         | 18.13                  | 18.22        | 17.95        |
|                  |            | 12      | 13        | 18.33                  | 18.01        | 17.95        |
|                  |            | 25      | 0         | 18.13                  | 18.48        | 18.09        |
|                  | 16QAM      | 1       | 0         | 18.62                  | 18.49        | 18.42        |
|                  |            | 1       | 13        | 18.21                  | 18.10        | 18.03        |
|                  |            | 1       | 24        | 18.31                  | 18.19        | 18.10        |
|                  |            | 12      | 0         | 17.39                  | 17.29        | 17.19        |
|                  |            | 12      | 6         | 18.41                  | 18.29        | 18.21        |
|                  |            | 12      | 13        | 18.36                  | 18.27        | 18.17        |
|                  |            | 25      | 0         | 18.38                  | 18.27        | 18.19        |
| <b>Bandwidth</b> | Modulation | RB size | RB offset | Channel/Frequency(MHz) |              |              |
|                  |            |         |           | 20000/1715             | 20175/1732.5 | 20350/1750   |
| <b>10MHz</b>     | QPSK       | 1       | 0         | 18.79                  | 19.47        | 19.34        |
|                  |            | 1       | 25        | 18.66                  | 19.11        | 18.96        |
|                  |            | 1       | 49        | 18.43                  | 19.02        | 19.26        |
|                  |            | 25      | 0         | 17.74                  | 18.40        | 17.91        |
|                  |            | 25      | 13        | 18.09                  | 18.18        | 17.91        |
|                  |            | 25      | 25        | 18.29                  | 17.97        | 17.91        |
|                  |            | 50      | 0         | 18.09                  | 18.44        | 18.05        |
|                  | 16QAM      | 1       | 0         | 18.58                  | 18.45        | 18.38        |
|                  |            | 1       | 25        | 18.17                  | 18.06        | 17.99        |
|                  |            | 1       | 49        | 18.27                  | 18.15        | 18.06        |
|                  |            | 25      | 0         | 17.35                  | 17.25        | 17.15        |
|                  |            | 25      | 13        | 18.37                  | 18.25        | 18.17        |
|                  |            | 25      | 25        | 18.32                  | 18.23        | 18.13        |
|                  |            | 50      | 0         | 18.34                  | 18.23        | 18.15        |
| <b>Bandwidth</b> | Modulation | RB size | RB offset | Channel/Frequency(MHz) |              |              |
|                  |            |         |           | 20025/1717.5           | 20175/1732.5 | 20325/1747.5 |
| <b>15MHz</b>     | QPSK       | 1       | 0         | 18.81                  | 19.49        | 19.36        |
|                  |            | 1       | 38        | 18.68                  | 19.13        | 18.98        |
|                  |            | 1       | 74        | 18.45                  | 19.04        | 19.28        |
|                  |            | 36      | 0         | 17.76                  | 18.42        | 17.93        |
|                  |            | 36      | 18        | 18.11                  | 18.20        | 17.93        |
|                  |            | 36      | 39        | 18.31                  | 17.99        | 17.93        |
|                  |            | 75      | 0         | 18.11                  | 18.46        | 18.07        |
|                  | 16QAM      | 1       | 0         | 18.60                  | 18.47        | 18.40        |
|                  |            | 1       | 38        | 18.19                  | 18.08        | 18.01        |
|                  |            | 1       | 74        | 18.29                  | 18.17        | 18.08        |
|                  |            | 36      | 0         | 17.37                  | 17.27        | 17.17        |
|                  |            | 36      | 18        | 18.39                  | 18.27        | 18.19        |
|                  |            | 36      | 39        | 18.34                  | 18.25        | 18.15        |

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|           |            | 75      | 0         | 18.36                  | 18.25        | 18.17      |
|-----------|------------|---------|-----------|------------------------|--------------|------------|
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |              |            |
|           |            |         |           | 20050/1720             | 20175/1732.5 | 20300/1745 |
| 20MHz     | QPSK       | 1       | 0         | 18.66                  | 19.34        | 19.21      |
|           |            | 1       | 50        | 18.54                  | 18.99        | 18.84      |
|           |            | 1       | 99        | 18.32                  | 18.91        | 19.15      |
|           |            | 50      | 0         | 17.64                  | 18.30        | 17.81      |
|           |            | 50      | 25        | 18.00                  | 18.09        | 17.82      |
|           |            | 50      | 50        | 18.21                  | 17.89        | 17.83      |
|           |            | 100     | 0         | 17.99                  | 18.34        | 17.95      |
|           | 16QAM      | 1       | 0         | 18.49                  | 18.36        | 18.29      |
|           |            | 1       | 50        | 18.09                  | 17.98        | 17.91      |
|           |            | 1       | 99        | 18.14                  | 18.02        | 17.93      |
|           |            | 50      | 0         | 17.23                  | 17.13        | 17.03      |
|           |            | 50      | 25        | 18.26                  | 18.14        | 18.06      |
|           |            | 50      | 50        | 18.22                  | 18.13        | 18.03      |
|           |            | 100     | 0         | 18.25                  | 18.14        | 18.06      |

| LTE FDD Band 5<br>(WiFi Off) |            |         |           | Conducted Power(dBm)   |             |             |
|------------------------------|------------|---------|-----------|------------------------|-------------|-------------|
| Bandwidth                    | Modulation | RB size | RB offset | Channel/Frequency(MHz) |             |             |
|                              |            |         |           | 20407/824.7            | 20525/836.5 | 20643/848.3 |
| 1.4MHz                       | QPSK       | 1       | 0         | 23.02                  | 22.82       | 23.26       |
|                              |            | 1       | 2         | 23.52                  | 23.26       | 23.62       |
|                              |            | 1       | 5         | 23.08                  | 23.55       | 23.02       |
|                              |            | 3       | 0         | 23.04                  | 22.57       | 23.11       |
|                              |            | 3       | 2         | 22.98                  | 22.66       | 23.03       |
|                              |            | 3       | 3         | 22.86                  | 22.76       | 22.91       |
|                              |            | 6       | 0         | 22.06                  | 21.93       | 22.13       |
|                              | 16QAM      | 1       | 0         | 22.18                  | 21.92       | 22.55       |
|                              |            | 1       | 2         | 22.68                  | 22.45       | 22.78       |
|                              |            | 1       | 5         | 22.22                  | 22.78       | 22.11       |
|                              |            | 3       | 0         | 21.30                  | 20.86       | 21.13       |
|                              |            | 3       | 2         | 21.38                  | 21.06       | 21.28       |
|                              |            | 3       | 3         | 21.11                  | 21.07       | 21.14       |
|                              |            | 6       | 0         | 21.86                  | 21.77       | 21.78       |
| Bandwidth                    | Modulation | RB size | RB offset | Channel/Frequency(MHz) |             |             |
|                              |            |         |           | 20415/825.5            | 20525/836.5 | 20635/847.5 |
| 3MHz                         | QPSK       | 1       | 0         | 23.01                  | 22.81       | 23.25       |
|                              |            | 1       | 13        | 23.51                  | 23.25       | 23.61       |
|                              |            | 1       | 24        | 23.07                  | 23.54       | 23.01       |
|                              |            | 12      | 0         | 23.09                  | 22.62       | 23.16       |

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|                  |            |         |           |                        |             |             |
|------------------|------------|---------|-----------|------------------------|-------------|-------------|
|                  |            | 12      | 6         | 23.03                  | 22.71       | 23.08       |
|                  |            | 12      | 13        | 22.91                  | 22.81       | 22.96       |
|                  |            | 25      | 0         | 22.05                  | 21.91       | 22.12       |
|                  | 16QAM      | 1       | 0         | 22.16                  | 21.91       | 22.54       |
|                  |            | 1       | 13        | 22.67                  | 22.44       | 22.77       |
|                  |            | 1       | 24        | 22.21                  | 22.77       | 22.10       |
|                  |            | 12      | 0         | 21.29                  | 20.85       | 21.12       |
|                  |            | 12      | 6         | 21.37                  | 21.04       | 21.27       |
|                  |            | 12      | 13        | 21.10                  | 21.06       | 21.13       |
|                  |            | 25      | 0         | 21.92                  | 21.82       | 21.83       |
| <b>Bandwidth</b> | Modulation | RB size | RB offset | Channel/Frequency(MHz) |             |             |
|                  |            |         |           | 20425/826.5            | 20525/836.5 | 20625/846.5 |
| <b>5MHz</b>      | QPSK       | 1       | 0         | 23.03                  | 22.82       | 23.27       |
|                  |            | 1       | 13        | 23.53                  | 23.26       | 23.63       |
|                  |            | 1       | 24        | 23.09                  | 23.55       | 23.03       |
|                  |            | 12      | 0         | 22.25                  | 21.77       | 22.32       |
|                  |            | 12      | 6         | 22.19                  | 21.86       | 22.24       |
|                  |            | 12      | 13        | 22.06                  | 21.96       | 22.12       |
|                  |            | 25      | 0         | 22.07                  | 21.93       | 22.14       |
|                  | 16QAM      | 1       | 0         | 22.19                  | 21.92       | 22.56       |
|                  |            | 1       | 13        | 22.69                  | 22.45       | 22.79       |
|                  |            | 1       | 24        | 22.23                  | 22.78       | 22.12       |
|                  |            | 12      | 0         | 21.31                  | 20.86       | 21.14       |
|                  |            | 12      | 6         | 21.39                  | 21.06       | 21.29       |
|                  |            | 12      | 13        | 21.12                  | 21.07       | 21.15       |
|                  |            | 25      | 0         | 21.08                  | 20.97       | 20.99       |
| <b>Bandwidth</b> | Modulation | RB size | RB offset | Channel/Frequency(MHz) |             |             |
|                  |            |         |           | 20450/829              | 20525/836.5 | 20600/844   |
| <b>10MHz</b>     | QPSK       | 1       | 0         | 22.90                  | 22.70       | 23.15       |
|                  |            | 1       | 25        | 23.40                  | 23.14       | 23.51       |
|                  |            | 1       | 49        | 22.96                  | 23.44       | 22.91       |
|                  |            | 25      | 0         | 22.12                  | 21.65       | 22.19       |
|                  |            | 25      | 13        | 22.06                  | 21.74       | 22.12       |
|                  |            | 25      | 25        | 21.94                  | 21.84       | 21.99       |
|                  |            | 50      | 0         | 21.94                  | 21.81       | 22.02       |
|                  | 16QAM      | 1       | 0         | 22.06                  | 21.80       | 22.43       |
|                  |            | 1       | 25        | 22.57                  | 22.34       | 22.67       |
|                  |            | 1       | 49        | 22.11                  | 22.66       | 21.99       |
|                  |            | 25      | 0         | 21.18                  | 20.74       | 21.01       |
|                  |            | 25      | 13        | 21.27                  | 20.94       | 21.16       |
|                  |            | 25      | 25        | 20.99                  | 20.96       | 21.02       |
|                  |            | 50      | 0         | 20.95                  | 20.86       | 20.86       |

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| LTE FDD Band 5<br>(WiFi On) |            |         |           | Conducted Power(dBm)   |             |             |
|-----------------------------|------------|---------|-----------|------------------------|-------------|-------------|
| Bandwidth                   | Modulation | RB size | RB offset | Channel/Frequency(MHz) |             |             |
|                             |            |         |           | 20407/824.7            | 20525/836.5 | 20643/848.3 |
| 1.4MHz                      | QPSK       | 1       | 0         | 18.54                  | 18.34       | 18.78       |
|                             |            | 1       | 2         | 19.03                  | 18.77       | 19.13       |
|                             |            | 1       | 5         | 18.58                  | 19.05       | 18.52       |
|                             |            | 3       | 0         | 18.53                  | 18.06       | 18.60       |
|                             |            | 3       | 2         | 18.46                  | 18.14       | 18.51       |
|                             |            | 3       | 3         | 18.33                  | 18.23       | 18.38       |
|                             |            | 6       | 0         | 17.55                  | 17.42       | 17.62       |
|                             | 16QAM      | 1       | 0         | 17.66                  | 17.40       | 18.03       |
|                             |            | 1       | 2         | 18.15                  | 17.92       | 18.25       |
|                             |            | 1       | 5         | 17.74                  | 18.30       | 17.63       |
|                             |            | 3       | 0         | 16.81                  | 16.37       | 16.64       |
|                             |            | 3       | 2         | 16.88                  | 16.56       | 16.78       |
|                             |            | 3       | 3         | 16.60                  | 16.56       | 16.63       |
|                             |            | 6       | 0         | 17.34                  | 17.25       | 17.26       |
| Bandwidth                   | Modulation | RB size | RB offset | Channel/Frequency(MHz) |             |             |
|                             |            |         |           | 20415/825.5            | 20525/836.5 | 20635/847.5 |
| 3MHz                        | QPSK       | 1       | 0         | 18.53                  | 18.33       | 18.77       |
|                             |            | 1       | 13        | 19.02                  | 18.76       | 19.12       |
|                             |            | 1       | 24        | 18.57                  | 19.04       | 18.51       |
|                             |            | 12      | 0         | 18.58                  | 18.11       | 18.65       |
|                             |            | 12      | 6         | 18.51                  | 18.19       | 18.56       |
|                             |            | 12      | 13        | 18.38                  | 18.28       | 18.43       |
|                             |            | 25      | 0         | 17.54                  | 17.40       | 17.61       |
|                             | 16QAM      | 1       | 0         | 17.64                  | 17.39       | 18.02       |
|                             |            | 1       | 13        | 18.14                  | 17.91       | 18.24       |
|                             |            | 1       | 24        | 17.73                  | 18.29       | 17.62       |
|                             |            | 12      | 0         | 16.80                  | 16.36       | 16.63       |
|                             |            | 12      | 6         | 16.87                  | 16.54       | 16.77       |
|                             |            | 12      | 13        | 16.59                  | 16.55       | 16.62       |
|                             |            | 25      | 0         | 17.40                  | 17.30       | 17.31       |
| Bandwidth                   | Modulation | RB size | RB offset | Channel/Frequency(MHz) |             |             |
|                             |            |         |           | 20425/826.5            | 20525/836.5 | 20625/846.5 |
| 5MHz                        | QPSK       | 1       | 0         | 18.55                  | 18.34       | 18.79       |
|                             |            | 1       | 13        | 19.04                  | 18.77       | 19.14       |
|                             |            | 1       | 24        | 18.59                  | 19.05       | 18.53       |
|                             |            | 12      | 0         | 17.74                  | 17.26       | 17.81       |
|                             |            | 12      | 6         | 17.67                  | 17.34       | 17.72       |
|                             |            | 12      | 13        | 17.53                  | 17.43       | 17.59       |

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|           | 16QAM      | 25      | 0         | 17.56                  | 17.42       | 17.63     |
|-----------|------------|---------|-----------|------------------------|-------------|-----------|
|           |            | 1       | 0         | 17.67                  | 17.40       | 18.04     |
|           |            | 1       | 13        | 18.16                  | 17.92       | 18.26     |
|           |            | 1       | 24        | 17.75                  | 18.30       | 17.64     |
|           |            | 12      | 0         | 16.82                  | 16.37       | 16.65     |
|           |            | 12      | 6         | 16.89                  | 16.56       | 16.79     |
|           |            | 12      | 13        | 16.61                  | 16.56       | 16.64     |
|           |            | 25      | 0         | 16.56                  | 16.45       | 16.47     |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |             |           |
|           |            |         |           | 20450/829              | 20525/836.5 | 20600/844 |
| 10MHz     | QPSK       | 1       | 0         | 18.40                  | 18.20       | 18.65     |
|           |            | 1       | 25        | 18.90                  | 18.64       | 19.01     |
|           |            | 1       | 49        | 18.46                  | 18.94       | 18.41     |
|           |            | 25      | 0         | 17.62                  | 17.15       | 17.69     |
|           |            | 25      | 13        | 17.56                  | 17.24       | 17.62     |
|           |            | 25      | 25        | 17.44                  | 17.34       | 17.49     |
|           |            | 50      | 0         | 17.44                  | 17.31       | 17.52     |
|           | 16QAM      | 1       | 0         | 17.56                  | 17.30       | 17.93     |
|           |            | 1       | 25        | 18.07                  | 17.84       | 18.17     |
|           |            | 1       | 49        | 17.61                  | 18.16       | 17.49     |
|           |            | 25      | 0         | 16.68                  | 16.24       | 16.51     |
|           |            | 25      | 13        | 16.77                  | 16.44       | 16.66     |
|           |            | 25      | 25        | 16.49                  | 16.46       | 16.52     |
|           |            | 50      | 0         | 16.45                  | 16.36       | 16.36     |

| LTE FDD Band 7<br>(WiFi Off) |            |         |           | Conducted Power(dBm)   |            |              |
|------------------------------|------------|---------|-----------|------------------------|------------|--------------|
| Bandwidth                    | Modulation | RB size | RB offset | Channel/Frequency(MHz) |            |              |
|                              |            |         |           | 20775/2502.5           | 21100/2535 | 21425/2567.5 |
| 5MHz                         | QPSK       | 1       | 0         | 22.25                  | 22.64      | 22.88        |
|                              |            | 1       | 13        | 22.87                  | 22.81      | 22.81        |
|                              |            | 1       | 24        | 22.76                  | 22.75      | 22.55        |
|                              |            | 12      | 0         | 21.69                  | 21.88      | 21.68        |
|                              |            | 12      | 6         | 21.75                  | 21.88      | 21.66        |
|                              |            | 12      | 13        | 22.07                  | 21.88      | 21.66        |
|                              |            | 25      | 0         | 21.80                  | 21.85      | 21.61        |
|                              | 16QAM      | 1       | 0         | 21.91                  | 21.94      | 21.72        |
|                              |            | 1       | 13        | 21.89                  | 21.95      | 21.72        |
|                              |            | 1       | 24        | 21.91                  | 21.96      | 21.71        |
|                              |            | 12      | 0         | 20.80                  | 20.86      | 20.61        |
|                              |            | 12      | 6         | 20.80                  | 20.84      | 20.61        |
|                              |            | 12      | 13        | 20.79                  | 20.86      | 20.61        |



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|           |            | 25      | 0         | 20.70                  | 20.75      | 20.52        |
|-----------|------------|---------|-----------|------------------------|------------|--------------|
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |            |              |
|           |            |         |           | 20800/2505             | 21100/2535 | 21400/2565   |
| 10MHz     | QPSK       | 1       | 0         | 22.26                  | 22.65      | 22.89        |
|           |            | 1       | 25        | 22.88                  | 22.82      | 22.82        |
|           |            | 1       | 49        | 22.77                  | 22.76      | 22.56        |
|           |            | 25      | 0         | 21.70                  | 21.88      | 21.68        |
|           |            | 25      | 13        | 21.76                  | 21.89      | 21.66        |
|           |            | 25      | 25        | 22.07                  | 21.88      | 21.67        |
|           |            | 50      | 0         | 21.80                  | 21.86      | 21.61        |
|           | 16QAM      | 1       | 0         | 21.91                  | 21.95      | 21.72        |
|           |            | 1       | 25        | 21.90                  | 21.95      | 21.73        |
|           |            | 1       | 49        | 21.92                  | 21.96      | 21.72        |
|           |            | 25      | 0         | 20.80                  | 20.87      | 20.61        |
|           |            | 25      | 13        | 20.80                  | 20.85      | 20.61        |
|           |            | 25      | 25        | 20.79                  | 20.87      | 20.61        |
|           |            | 50      | 0         | 20.70                  | 20.75      | 20.52        |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |            |              |
|           |            |         |           | 20825/2507.5           | 21100/2535 | 21375/2562.5 |
| 15MHz     | QPSK       | 1       | 0         | 22.27                  | 22.66      | 22.90        |
|           |            | 1       | 38        | 22.89                  | 22.83      | 22.83        |
|           |            | 1       | 74        | 22.78                  | 22.77      | 22.57        |
|           |            | 36      | 0         | 21.71                  | 21.90      | 21.70        |
|           |            | 36      | 18        | 21.77                  | 21.91      | 21.68        |
|           |            | 36      | 39        | 22.09                  | 21.90      | 21.68        |
|           |            | 75      | 0         | 21.82                  | 21.87      | 21.63        |
|           | 16QAM      | 1       | 0         | 21.93                  | 21.97      | 21.74        |
|           |            | 1       | 38        | 21.91                  | 21.97      | 21.74        |
|           |            | 1       | 74        | 21.94                  | 21.98      | 21.74        |
|           |            | 36      | 0         | 20.82                  | 20.88      | 20.63        |
|           |            | 36      | 18        | 20.82                  | 20.86      | 20.63        |
|           |            | 36      | 39        | 20.81                  | 20.88      | 20.63        |
|           |            | 75      | 0         | 20.72                  | 20.77      | 20.54        |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |            |              |
|           |            |         |           | 20850/2510             | 21100/2535 | 21350/2560   |
| 20MHz     | QPSK       | 1       | 0         | 22.15                  | 22.54      | 22.78        |
|           |            | 1       | 50        | 22.77                  | 22.71      | 22.71        |
|           |            | 1       | 99        | 22.66                  | 22.65      | 22.45        |
|           |            | 50      | 0         | 21.59                  | 21.77      | 21.58        |
|           |            | 50      | 25        | 21.65                  | 21.78      | 21.56        |
|           |            | 50      | 50        | 21.97                  | 21.77      | 21.56        |
|           |            | 100     | 0         | 21.70                  | 21.75      | 21.51        |
|           | 16QAM      | 1       | 0         | 21.81                  | 21.84      | 21.62        |

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|  |  |     |    |       |       |       |
|--|--|-----|----|-------|-------|-------|
|  |  | 1   | 50 | 21.79 | 21.84 | 21.62 |
|  |  | 1   | 99 | 21.81 | 21.85 | 21.61 |
|  |  | 50  | 0  | 20.70 | 20.76 | 20.51 |
|  |  | 50  | 25 | 20.70 | 20.74 | 20.51 |
|  |  | 50  | 50 | 20.69 | 20.76 | 20.51 |
|  |  | 100 | 0  | 20.60 | 20.65 | 20.42 |

| LTE FDD Band 7<br>(WiFi On) |            |         |           | Conducted Power(dBm)   |            |              |
|-----------------------------|------------|---------|-----------|------------------------|------------|--------------|
| Bandwidth                   | Modulation | RB size | RB offset | Channel/Frequency(MHz) |            |              |
|                             |            |         |           | 20775/2502.5           | 21100/2535 | 21425/2567.5 |
| 5MHz                        | QPSK       | 1       | 0         | 18.77                  | 19.16      | 19.40        |
|                             |            | 1       | 13        | 19.38                  | 19.32      | 19.32        |
|                             |            | 1       | 24        | 19.26                  | 19.25      | 19.05        |
|                             |            | 12      | 0         | 18.18                  | 18.37      | 18.17        |
|                             |            | 12      | 6         | 18.23                  | 18.36      | 18.14        |
|                             |            | 12      | 13        | 18.54                  | 18.35      | 18.13        |
|                             |            | 25      | 0         | 18.29                  | 18.34      | 18.10        |
|                             | 16QAM      | 1       | 0         | 18.39                  | 18.42      | 18.20        |
|                             |            | 1       | 13        | 18.36                  | 18.42      | 18.19        |
|                             |            | 1       | 24        | 18.43                  | 18.48      | 18.23        |
|                             |            | 12      | 0         | 17.31                  | 17.37      | 17.12        |
|                             |            | 12      | 6         | 17.30                  | 17.34      | 17.11        |
|                             |            | 12      | 13        | 17.28                  | 17.35      | 17.10        |
|                             |            | 25      | 0         | 17.18                  | 17.23      | 17.00        |
| Bandwidth                   | Modulation | RB size | RB offset | Channel/Frequency(MHz) |            |              |
|                             |            |         |           | 20800/2505             | 21100/2535 | 21400/2565   |
| 10MHz                       | QPSK       | 1       | 0         | 18.78                  | 19.17      | 19.41        |
|                             |            | 1       | 25        | 19.39                  | 19.33      | 19.33        |
|                             |            | 1       | 49        | 19.27                  | 19.26      | 19.06        |
|                             |            | 25      | 0         | 18.19                  | 18.37      | 18.17        |
|                             |            | 25      | 13        | 18.24                  | 18.37      | 18.14        |
|                             |            | 25      | 25        | 18.54                  | 18.35      | 18.14        |
|                             |            | 50      | 0         | 18.29                  | 18.35      | 18.10        |
|                             | 16QAM      | 1       | 0         | 18.39                  | 18.43      | 18.20        |
|                             |            | 1       | 25        | 18.37                  | 18.42      | 18.20        |
|                             |            | 1       | 49        | 18.44                  | 18.48      | 18.24        |
|                             |            | 25      | 0         | 17.31                  | 17.38      | 17.12        |
|                             |            | 25      | 13        | 17.30                  | 17.35      | 17.11        |
|                             |            | 25      | 25        | 17.28                  | 17.36      | 17.10        |
|                             |            | 50      | 0         | 17.18                  | 17.23      | 17.00        |
| Bandwidth                   | Modulation | RB size | RB offset | Channel/Frequency(MHz) |            |              |

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|           |            |         |           | 20825/2507.5           | 21100/2535 | 21375/2562.5 |
|-----------|------------|---------|-----------|------------------------|------------|--------------|
| 15MHz     | QPSK       | 1       | 0         | 18.79                  | 19.18      | 19.42        |
|           |            | 1       | 38        | 19.40                  | 19.34      | 19.34        |
|           |            | 1       | 74        | 19.28                  | 19.27      | 19.07        |
|           |            | 36      | 0         | 18.20                  | 18.39      | 18.19        |
|           |            | 36      | 18        | 18.25                  | 18.39      | 18.16        |
|           |            | 36      | 39        | 18.56                  | 18.37      | 18.15        |
|           |            | 75      | 0         | 18.31                  | 18.36      | 18.12        |
|           | 16QAM      | 1       | 0         | 18.41                  | 18.45      | 18.22        |
|           |            | 1       | 38        | 18.38                  | 18.44      | 18.21        |
|           |            | 1       | 74        | 18.46                  | 18.50      | 18.26        |
|           |            | 36      | 0         | 17.33                  | 17.39      | 17.14        |
|           |            | 36      | 18        | 17.32                  | 17.36      | 17.13        |
|           |            | 36      | 39        | 17.30                  | 17.37      | 17.12        |
|           |            | 75      | 0         | 17.20                  | 17.25      | 17.02        |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |            |              |
|           |            |         |           | 20850/2510             | 21100/2535 | 21350/2560   |
| 20MHz     | QPSK       | 1       | 0         | 16.65                  | 17.04      | 17.28        |
|           |            | 1       | 50        | 17.27                  | 17.21      | 17.21        |
|           |            | 1       | 99        | 17.16                  | 17.15      | 16.95        |
|           |            | 50      | 0         | 16.09                  | 16.27      | 16.08        |
|           |            | 50      | 25        | 16.15                  | 16.28      | 16.06        |
|           |            | 50      | 50        | 16.47                  | 16.27      | 16.06        |
|           |            | 100     | 0         | 16.20                  | 16.25      | 16.01        |
|           | 16QAM      | 1       | 0         | 16.31                  | 16.34      | 16.12        |
|           |            | 1       | 50        | 16.29                  | 16.34      | 16.12        |
|           |            | 1       | 99        | 16.31                  | 16.35      | 16.11        |
|           |            | 50      | 0         | 15.20                  | 15.26      | 15.01        |
|           |            | 50      | 25        | 15.20                  | 15.24      | 15.01        |
|           |            | 50      | 50        | 15.19                  | 15.26      | 15.01        |
|           |            | 100     | 0         | 15.10                  | 15.15      | 14.92        |

| LTE FDD Band 12<br>(WiFi Off) |            |         |           | Conducted Power(dBm)   |             |             |
|-------------------------------|------------|---------|-----------|------------------------|-------------|-------------|
| Bandwidth                     | Modulation | RB size | RB offset | Channel/Frequency(MHz) |             |             |
|                               |            |         |           | 23017/699.7            | 23095/707.5 | 23173/715.3 |
| 1.4MHz                        | QPSK       | 1       | 0         | 22.35                  | 22.55       | 22.53       |
|                               |            | 1       | 2         | 22.82                  | 22.96       | 22.90       |
|                               |            | 1       | 5         | 22.61                  | 22.78       | 22.54       |
|                               |            | 3       | 0         | 21.32                  | 21.37       | 21.44       |
|                               |            | 3       | 2         | 21.27                  | 21.55       | 21.52       |
|                               |            | 3       | 3         | 21.19                  | 21.28       | 21.38       |

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|           |            |         |           |                        |             |             |
|-----------|------------|---------|-----------|------------------------|-------------|-------------|
|           |            | 6       | 0         | 21.19                  | 21.18       | 21.25       |
|           |            | 1       | 0         | 22.13                  | 22.38       | 22.37       |
|           |            | 1       | 2         | 22.68                  | 22.82       | 22.72       |
|           |            | 1       | 5         | 22.43                  | 22.59       | 22.39       |
|           |            | 3       | 0         | 21.17                  | 21.21       | 21.20       |
|           |            | 3       | 2         | 21.05                  | 21.41       | 21.39       |
|           |            | 3       | 3         | 21.05                  | 21.02       | 21.21       |
|           |            | 6       | 0         | 21.00                  | 21.04       | 21.10       |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |             |             |
|           |            |         |           | 23025/700.5            | 23095/707.5 | 23165/714.5 |
| 3MHz      | QPSK       | 1       | 0         | 22.34                  | 22.52       | 22.52       |
|           |            | 1       | 7         | 22.81                  | 22.95       | 22.89       |
|           |            | 1       | 14        | 22.58                  | 22.77       | 22.53       |
|           |            | 8       | 0         | 21.31                  | 21.36       | 21.42       |
|           |            | 8       | 4         | 21.26                  | 21.53       | 21.51       |
|           |            | 8       | 7         | 21.18                  | 21.27       | 21.35       |
|           |            | 15      | 0         | 21.16                  | 21.17       | 21.24       |
|           | 16QAM      | 1       | 0         | 22.14                  | 22.41       | 22.38       |
|           |            | 1       | 7         | 22.70                  | 22.83       | 22.73       |
|           |            | 1       | 14        | 22.44                  | 22.61       | 22.40       |
|           |            | 8       | 0         | 21.18                  | 21.22       | 21.23       |
|           |            | 8       | 4         | 21.08                  | 21.42       | 21.40       |
|           |            | 8       | 7         | 21.06                  | 21.05       | 21.22       |
|           |            | 15      | 0         | 21.02                  | 21.05       | 21.11       |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |             |             |
|           |            |         |           | 23035/701.5            | 23095/707.5 | 23155/713.5 |
| 5MHz      | QPSK       | 1       | 0         | 22.31                  | 22.51       | 22.51       |
|           |            | 1       | 13        | 22.80                  | 22.94       | 22.87       |
|           |            | 1       | 24        | 22.57                  | 22.75       | 22.52       |
|           |            | 12      | 0         | 21.30                  | 21.35       | 21.39       |
|           |            | 12      | 6         | 21.23                  | 21.52       | 21.50       |
|           |            | 12      | 13        | 21.17                  | 21.24       | 21.34       |
|           |            | 25      | 0         | 21.14                  | 21.16       | 21.23       |
|           | 16QAM      | 1       | 0         | 22.17                  | 22.42       | 22.39       |
|           |            | 1       | 13        | 22.71                  | 22.84       | 22.75       |
|           |            | 1       | 24        | 22.45                  | 22.63       | 22.41       |
|           |            | 12      | 0         | 21.19                  | 21.23       | 21.26       |
|           |            | 12      | 6         | 21.11                  | 21.43       | 21.41       |
|           |            | 12      | 13        | 21.07                  | 21.08       | 21.23       |
|           |            | 25      | 0         | 21.04                  | 21.06       | 21.12       |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |             |             |
|           |            |         |           | 23060/704              | 23095/707.5 | 23130/711   |
| 10MHz     | QPSK       | 1       | 0         | 22.30                  | 22.50       | 22.49       |

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|  |       |    |    |       |       |       |
|--|-------|----|----|-------|-------|-------|
|  |       | 1  | 25 | 22.79 | 22.93 | 22.86 |
|  |       | 1  | 49 | 22.54 | 22.73 | 22.51 |
|  |       | 25 | 0  | 21.29 | 21.34 | 21.36 |
|  |       | 25 | 13 | 21.22 | 21.51 | 21.49 |
|  |       | 25 | 25 | 21.16 | 21.21 | 21.33 |
|  |       | 50 | 0  | 21.13 | 21.15 | 21.22 |
|  | 16QAM | 1  | 0  | 22.20 | 22.43 | 22.40 |
|  |       | 1  | 25 | 22.72 | 22.85 | 22.77 |
|  |       | 1  | 49 | 22.46 | 22.65 | 22.42 |
|  |       | 25 | 0  | 21.20 | 21.24 | 21.29 |
|  |       | 25 | 13 | 21.14 | 21.44 | 21.42 |
|  |       | 25 | 25 | 21.08 | 21.11 | 21.24 |
|  |       | 50 | 0  | 21.06 | 21.07 | 21.13 |

| LTE FDD Band 12<br>(WiFi On) |            |         |           | Conducted Power(dBm)   |             |             |
|------------------------------|------------|---------|-----------|------------------------|-------------|-------------|
| Bandwidth                    | Modulation | RB size | RB offset | Channel/Frequency(MHz) |             |             |
|                              |            |         |           | 23017/699.7            | 23095/707.5 | 23173/715.3 |
| 1.4MHz                       | QPSK       | 1       | 0         | 17.87                  | 18.07       | 18.05       |
|                              |            | 1       | 2         | 18.33                  | 18.47       | 18.41       |
|                              |            | 1       | 5         | 18.11                  | 18.28       | 18.04       |
|                              |            | 3       | 0         | 16.81                  | 16.86       | 16.93       |
|                              |            | 3       | 2         | 16.75                  | 17.03       | 17.00       |
|                              |            | 3       | 3         | 16.66                  | 16.75       | 16.85       |
|                              |            | 6       | 0         | 16.68                  | 16.67       | 16.74       |
|                              | 16QAM      | 1       | 0         | 17.61                  | 17.86       | 17.85       |
|                              |            | 1       | 2         | 18.15                  | 18.29       | 18.19       |
|                              |            | 1       | 5         | 17.95                  | 18.11       | 17.91       |
|                              |            | 3       | 0         | 16.68                  | 16.72       | 16.71       |
|                              |            | 3       | 2         | 16.55                  | 16.91       | 16.89       |
|                              |            | 3       | 3         | 16.54                  | 16.51       | 16.70       |
|                              |            | 6       | 0         | 16.48                  | 16.52       | 16.58       |
| Bandwidth                    | Modulation | RB size | RB offset | Channel/Frequency(MHz) |             |             |
|                              |            |         |           | 23025/700.5            | 23095/707.5 | 23165/714.5 |
| 3MHz                         | QPSK       | 1       | 0         | 17.86                  | 18.04       | 18.04       |
|                              |            | 1       | 7         | 18.32                  | 18.46       | 18.40       |
|                              |            | 1       | 14        | 18.08                  | 18.27       | 18.03       |
|                              |            | 8       | 0         | 16.80                  | 16.85       | 16.91       |
|                              |            | 8       | 4         | 16.74                  | 17.01       | 16.99       |
|                              |            | 8       | 7         | 16.65                  | 16.74       | 16.82       |
|                              |            | 15      | 0         | 16.65                  | 16.66       | 16.73       |
|                              | 16QAM      | 1       | 0         | 17.62                  | 17.89       | 17.86       |

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|           |            | 1       | 7         | 18.17                  | 18.30       | 18.20       |
|-----------|------------|---------|-----------|------------------------|-------------|-------------|
|           |            | 1       | 14        | 17.96                  | 18.13       | 17.92       |
|           |            | 8       | 0         | 16.69                  | 16.73       | 16.74       |
|           |            | 8       | 4         | 16.58                  | 16.92       | 16.90       |
|           |            | 8       | 7         | 16.55                  | 16.54       | 16.71       |
|           |            | 15      | 0         | 16.50                  | 16.53       | 16.59       |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |             |             |
|           |            |         |           | 23035/701.5            | 23095/707.5 | 23155/713.5 |
| 5MHz      | QPSK       | 1       | 0         | 17.83                  | 18.03       | 18.03       |
|           |            | 1       | 13        | 18.31                  | 18.45       | 18.38       |
|           |            | 1       | 24        | 18.07                  | 18.25       | 18.02       |
|           |            | 12      | 0         | 16.79                  | 16.84       | 16.88       |
|           |            | 12      | 6         | 16.71                  | 17.00       | 16.98       |
|           |            | 12      | 13        | 16.64                  | 16.71       | 16.81       |
|           |            | 25      | 0         | 16.63                  | 16.65       | 16.72       |
|           | 16QAM      | 1       | 0         | 17.65                  | 17.90       | 17.87       |
|           |            | 1       | 13        | 18.18                  | 18.31       | 18.22       |
|           |            | 1       | 24        | 17.97                  | 18.15       | 17.93       |
|           |            | 12      | 0         | 16.70                  | 16.74       | 16.77       |
|           |            | 12      | 6         | 16.61                  | 16.93       | 16.91       |
|           |            | 12      | 13        | 16.56                  | 16.57       | 16.72       |
|           |            | 25      | 0         | 16.52                  | 16.54       | 16.60       |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |             |             |
|           |            |         |           | 23060/704              | 23095/707.5 | 23130/711   |
| 10MHz     | QPSK       | 1       | 0         | 17.80                  | 18.00       | 17.99       |
|           |            | 1       | 25        | 18.29                  | 18.43       | 18.36       |
|           |            | 1       | 49        | 18.04                  | 18.23       | 18.01       |
|           |            | 25      | 0         | 16.79                  | 16.84       | 16.86       |
|           |            | 25      | 13        | 16.72                  | 17.01       | 16.99       |
|           |            | 25      | 25        | 16.66                  | 16.71       | 16.83       |
|           |            | 50      | 0         | 16.63                  | 16.65       | 16.72       |
|           | 16QAM      | 1       | 0         | 17.70                  | 17.93       | 17.90       |
|           |            | 1       | 25        | 18.22                  | 18.35       | 18.27       |
|           |            | 1       | 49        | 17.96                  | 18.15       | 17.92       |
|           |            | 25      | 0         | 16.70                  | 16.74       | 16.79       |
|           |            | 25      | 13        | 16.64                  | 16.94       | 16.92       |
|           |            | 25      | 25        | 16.58                  | 16.61       | 16.74       |
|           |            | 50      | 0         | 16.56                  | 16.57       | 16.63       |

| LTE FDD Band 17<br>(WiFi Off) |            |         |           | Conducted Power(dBm)   |           |             |
|-------------------------------|------------|---------|-----------|------------------------|-----------|-------------|
| Bandwidth                     | Modulation | RB size | RB offset | Channel/Frequency(MHz) |           |             |
|                               |            |         |           | 23755/706.5            | 23790/710 | 23825/713.5 |

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| 5MHz      | QPSK       | 1       | 0         | 22.51                  | 22.51     | 22.61     |
|-----------|------------|---------|-----------|------------------------|-----------|-----------|
|           |            | 1       | 13        | 23.07                  | 23.06     | 22.95     |
|           |            | 1       | 24        | 22.91                  | 22.86     | 22.64     |
|           |            | 12      | 0         | 21.54                  | 21.56     | 21.35     |
|           |            | 12      | 6         | 21.54                  | 21.51     | 21.62     |
|           |            | 12      | 13        | 21.50                  | 21.92     | 21.90     |
|           |            | 25      | 0         | 21.53                  | 21.53     | 21.51     |
|           | 16QAM      | 1       | 0         | 21.45                  | 21.45     | 21.26     |
|           |            | 1       | 13        | 21.41                  | 21.40     | 21.53     |
|           |            | 1       | 24        | 21.41                  | 21.81     | 21.78     |
|           |            | 12      | 0         | 21.43                  | 21.43     | 21.41     |
|           |            | 12      | 6         | 21.42                  | 21.41     | 21.54     |
|           |            | 12      | 13        | 21.39                  | 21.82     | 21.78     |
|           |            | 25      | 0         | 21.39                  | 21.52     | 21.60     |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |           |           |
|           |            |         |           | 23780/709              | 23790/710 | 23800/711 |
| 10MHz     | QPSK       | 1       | 0         | 22.50                  | 22.49     | 22.58     |
|           |            | 1       | 25        | 23.04                  | 23.05     | 22.94     |
|           |            | 1       | 49        | 22.90                  | 22.85     | 22.63     |
|           |            | 25      | 0         | 21.53                  | 21.55     | 21.34     |
|           |            | 25      | 13        | 21.52                  | 21.50     | 21.61     |
|           |            | 25      | 25        | 21.49                  | 21.91     | 21.87     |
|           |            | 50      | 0         | 21.52                  | 21.51     | 21.50     |
|           | 16QAM      | 1       | 0         | 21.44                  | 21.44     | 21.25     |
|           |            | 1       | 25        | 21.40                  | 21.39     | 21.52     |
|           |            | 1       | 49        | 21.40                  | 21.80     | 21.77     |
|           |            | 25      | 0         | 21.42                  | 21.42     | 21.40     |
|           |            | 25      | 13        | 21.41                  | 21.39     | 21.51     |
|           |            | 25      | 25        | 21.38                  | 21.81     | 21.77     |
|           |            | 50      | 0         | 21.37                  | 21.51     | 21.57     |

| LTE FDD Band 17<br>(WiFi On) |            |         |           | Conducted Power(dBm)   |           |             |
|------------------------------|------------|---------|-----------|------------------------|-----------|-------------|
| Bandwidth                    | Modulation | RB size | RB offset | Channel/Frequency(MHz) |           |             |
|                              |            |         |           | 23755/706.5            | 23790/710 | 23825/713.5 |
| 5MHz                         | QPSK       | 1       | 0         | 18.03                  | 18.03     | 18.13       |
|                              |            | 1       | 13        | 18.58                  | 18.57     | 18.46       |
|                              |            | 1       | 24        | 18.41                  | 18.36     | 18.14       |
|                              |            | 12      | 0         | 17.03                  | 17.05     | 16.84       |
|                              |            | 12      | 6         | 17.02                  | 16.99     | 17.10       |
|                              |            | 12      | 13        | 16.97                  | 17.39     | 17.37       |
|                              |            | 25      | 0         | 17.02                  | 17.02     | 17.00       |
|                              | 16QAM      | 1       | 0         | 16.93                  | 16.93     | 16.74       |

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|           |            | 1       | 13        | 16.88                  | 16.87     | 17.00     |
|-----------|------------|---------|-----------|------------------------|-----------|-----------|
|           |            | 1       | 24        | 16.93                  | 17.33     | 17.30     |
|           |            | 12      | 0         | 16.94                  | 16.94     | 16.92     |
|           |            | 12      | 6         | 16.92                  | 16.91     | 17.04     |
|           |            | 12      | 13        | 16.88                  | 17.31     | 17.27     |
|           |            | 25      | 0         | 16.87                  | 17.00     | 17.08     |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |           |           |
|           |            |         |           | 23780/709              | 23790/710 | 23800/711 |
| 10MHz     | QPSK       | 1       | 0         | 18.00                  | 17.99     | 18.08     |
|           |            | 1       | 25        | 18.55                  | 18.55     | 18.44     |
|           |            | 1       | 49        | 18.40                  | 18.35     | 18.13     |
|           |            | 25      | 0         | 17.03                  | 17.05     | 16.84     |
|           |            | 25      | 13        | 17.02                  | 17.00     | 17.11     |
|           |            | 25      | 25        | 16.99                  | 17.41     | 17.37     |
|           |            | 50      | 0         | 17.02                  | 17.01     | 17.00     |
|           | 16QAM      | 1       | 0         | 16.94                  | 16.94     | 16.75     |
|           |            | 1       | 25        | 16.90                  | 16.89     | 17.02     |
|           |            | 1       | 49        | 16.90                  | 17.30     | 17.27     |
|           |            | 25      | 0         | 16.92                  | 16.92     | 16.90     |
|           |            | 25      | 13        | 16.91                  | 16.89     | 17.01     |
|           |            | 25      | 25        | 16.88                  | 17.31     | 17.27     |
|           |            | 50      | 0         | 16.87                  | 17.01     | 17.07     |

| LTE FDD Band 25<br>(WiFi Off) |            |         |           | Conducted Power(dBm)   |              |              |
|-------------------------------|------------|---------|-----------|------------------------|--------------|--------------|
| Bandwidth                     | Modulation | RB size | RB offset | Channel/Frequency(MHz) |              |              |
|                               |            |         |           | 26047/1850.7           | 26365/1882.5 | 26683/1914.3 |
| 1.4MHz                        | QPSK       | 1       | 0         | 22.30                  | 22.55        | 23.22        |
|                               |            | 1       | 2         | 22.51                  | 21.84        | 22.81        |
|                               |            | 1       | 5         | 22.89                  | 22.37        | 22.18        |
|                               |            | 3       | 0         | 21.33                  | 21.29        | 22.17        |
|                               |            | 3       | 2         | 21.29                  | 20.89        | 21.45        |
|                               |            | 3       | 3         | 21.71                  | 20.95        | 21.94        |
|                               |            | 6       | 0         | 21.61                  | 21.72        | 21.20        |
|                               | 16QAM      | 1       | 0         | 21.34                  | 21.87        | 22.30        |
|                               |            | 1       | 2         | 21.48                  | 21.13        | 21.81        |
|                               |            | 1       | 5         | 21.96                  | 21.68        | 21.37        |
|                               |            | 3       | 0         | 20.32                  | 20.05        | 20.92        |
|                               |            | 3       | 2         | 20.23                  | 19.95        | 20.44        |
|                               |            | 3       | 3         | 20.77                  | 20.35        | 20.61        |
|                               |            | 6       | 0         | 20.57                  | 20.20        | 20.66        |
| Bandwidth                     | Modulation | RB size | RB offset | Channel/Frequency(MHz) |              |              |



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|           |            |         |           | 26055/1851.5           | 26365/1882.5 | 26675/1913.5 |
|-----------|------------|---------|-----------|------------------------|--------------|--------------|
| 3MHz      | QPSK       | 1       | 0         | 22.28                  | 22.53        | 23.21        |
|           |            | 1       | 13        | 22.50                  | 21.82        | 22.80        |
|           |            | 1       | 24        | 22.87                  | 22.36        | 22.16        |
|           |            | 12      | 0         | 21.32                  | 21.28        | 22.16        |
|           |            | 12      | 6         | 21.28                  | 20.88        | 21.44        |
|           |            | 12      | 13        | 21.69                  | 20.94        | 21.93        |
|           |            | 25      | 0         | 21.60                  | 21.70        | 21.19        |
|           | 16QAM      | 1       | 0         | 21.33                  | 21.86        | 22.28        |
|           |            | 1       | 13        | 21.47                  | 21.12        | 21.80        |
|           |            | 1       | 24        | 21.95                  | 21.67        | 21.36        |
|           |            | 12      | 0         | 20.31                  | 20.04        | 20.91        |
|           |            | 12      | 6         | 20.22                  | 19.94        | 20.43        |
|           |            | 12      | 13        | 20.75                  | 20.34        | 20.60        |
|           |            | 25      | 0         | 20.56                  | 20.19        | 20.65        |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |              |              |
|           |            |         |           | 26065/1852.5           | 26365/1882.5 | 26665/1912.5 |
| 5MHz      | QPSK       | 1       | 0         | 22.27                  | 22.52        | 23.20        |
|           |            | 1       | 13        | 22.49                  | 21.81        | 22.79        |
|           |            | 1       | 24        | 22.86                  | 22.34        | 22.15        |
|           |            | 12      | 0         | 21.30                  | 21.27        | 22.14        |
|           |            | 12      | 6         | 21.27                  | 20.87        | 21.43        |
|           |            | 12      | 13        | 21.68                  | 20.93        | 21.92        |
|           |            | 25      | 0         | 21.59                  | 21.69        | 21.18        |
|           | 16QAM      | 1       | 0         | 21.32                  | 21.85        | 22.27        |
|           |            | 1       | 13        | 21.46                  | 21.11        | 21.79        |
|           |            | 1       | 24        | 21.94                  | 21.66        | 21.35        |
|           |            | 12      | 0         | 20.30                  | 20.02        | 20.90        |
|           |            | 12      | 6         | 20.21                  | 19.93        | 20.42        |
|           |            | 12      | 13        | 20.74                  | 20.33        | 20.59        |
|           |            | 25      | 0         | 20.54                  | 20.18        | 20.63        |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |              |              |
|           |            |         |           | 26090/1855             | 26365/1882.5 | 26640/1910   |
| 10MHz     | QPSK       | 1       | 0         | 22.25                  | 22.51        | 23.18        |
|           |            | 1       | 25        | 22.48                  | 21.80        | 22.78        |
|           |            | 1       | 49        | 22.85                  | 22.33        | 22.14        |
|           |            | 25      | 0         | 21.29                  | 21.25        | 22.13        |
|           |            | 25      | 13        | 21.26                  | 20.86        | 21.42        |
|           |            | 25      | 25        | 21.67                  | 20.92        | 21.91        |
|           |            | 50      | 0         | 21.58                  | 21.68        | 21.16        |
|           | 16QAM      | 1       | 0         | 21.31                  | 21.84        | 22.26        |
|           |            | 1       | 25        | 21.45                  | 21.10        | 21.78        |
|           |            | 1       | 49        | 21.93                  | 21.65        | 21.34        |
|           |            | 25      | 0         | 20.28                  | 20.01        | 20.89        |

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|           |            | 25      | 13        | 20.20                  | 19.92        | 20.41        |
|-----------|------------|---------|-----------|------------------------|--------------|--------------|
|           |            | 25      | 25        | 20.73                  | 20.32        | 20.58        |
|           |            | 50      | 0         | 20.53                  | 20.16        | 20.62        |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |              |              |
|           |            |         |           | 26115/1857.5           | 26365/1882.5 | 26615/1907.5 |
| 15MHz     | QPSK       | 1       | 0         | 22.25                  | 22.51        | 23.18        |
|           |            | 1       | 25        | 22.47                  | 21.80        | 22.78        |
|           |            | 1       | 49        | 22.85                  | 22.33        | 22.14        |
|           |            | 25      | 0         | 21.29                  | 21.24        | 22.13        |
|           |            | 25      | 13        | 21.25                  | 20.86        | 21.42        |
|           |            | 25      | 25        | 21.67                  | 20.92        | 21.91        |
|           |            | 50      | 0         | 21.58                  | 21.68        | 21.15        |
|           | 16QAM      | 1       | 0         | 21.31                  | 21.84        | 22.26        |
|           |            | 1       | 25        | 21.45                  | 21.10        | 21.78        |
|           |            | 1       | 49        | 21.93                  | 21.64        | 21.34        |
|           |            | 25      | 0         | 20.27                  | 20.01        | 20.89        |
|           |            | 25      | 13        | 20.20                  | 19.92        | 20.41        |
|           |            | 25      | 25        | 20.72                  | 20.32        | 20.57        |
|           |            | 50      | 0         | 20.53                  | 20.15        | 20.62        |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |              |              |
|           |            |         |           | 26140/1860             | 26365/1882.5 | 26590/1905   |
| 20MHz     | QPSK       | 1       | 0         | 22.24                  | 22.50        | 23.17        |
|           |            | 1       | 50        | 22.46                  | 21.79        | 22.77        |
|           |            | 1       | 99        | 22.84                  | 22.32        | 22.13        |
|           |            | 50      | 0         | 21.28                  | 21.23        | 22.12        |
|           |            | 50      | 25        | 21.24                  | 20.85        | 21.41        |
|           |            | 50      | 50        | 21.66                  | 20.91        | 21.90        |
|           |            | 100     | 0         | 21.57                  | 21.14        | 21.67        |
|           | 16QAM      | 1       | 0         | 21.30                  | 21.83        | 22.25        |
|           |            | 1       | 50        | 21.44                  | 21.09        | 21.77        |
|           |            | 1       | 99        | 21.92                  | 21.63        | 21.33        |
|           |            | 50      | 0         | 20.26                  | 20.00        | 20.88        |
|           |            | 50      | 25        | 20.19                  | 19.91        | 20.40        |
|           |            | 50      | 50        | 20.71                  | 20.31        | 20.56        |
|           |            | 100     | 0         | 20.52                  | 20.14        | 20.61        |

| LTE FDD Band 25<br>(WiFi On) |            |         |           | Conducted Power(dBm)   |              |              |
|------------------------------|------------|---------|-----------|------------------------|--------------|--------------|
| Bandwidth                    | Modulation | RB size | RB offset | Channel/Frequency(MHz) |              |              |
|                              |            |         |           | 26047/1850.7           | 26365/1882.5 | 26683/1914.3 |
| 1.4MHz                       | QPSK       | 1       | 0         | 17.32                  | 17.57        | 18.24        |
|                              |            | 1       | 2         | 17.52                  | 16.85        | 17.82        |
|                              |            | 1       | 5         | 17.89                  | 17.37        | 17.18        |

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|                  |            |         |           |                        |              |              |
|------------------|------------|---------|-----------|------------------------|--------------|--------------|
|                  |            | 3       | 0         | 16.32                  | 16.28        | 17.16        |
|                  |            | 3       | 2         | 16.27                  | 15.87        | 16.43        |
|                  |            | 3       | 3         | 16.68                  | 15.92        | 16.91        |
|                  |            | 6       | 0         | 16.60                  | 16.71        | 16.19        |
|                  | 16QAM      | 1       | 0         | 16.32                  | 16.85        | 17.28        |
|                  |            | 1       | 2         | 16.45                  | 16.10        | 16.78        |
|                  |            | 1       | 5         | 16.98                  | 16.70        | 16.39        |
|                  |            | 3       | 0         | 15.33                  | 15.06        | 15.93        |
|                  |            | 3       | 2         | 15.23                  | 14.95        | 15.44        |
|                  |            | 3       | 3         | 15.76                  | 15.34        | 15.60        |
|                  |            | 6       | 0         | 15.55                  | 15.18        | 15.64        |
|                  |            |         |           |                        |              |              |
| <b>Bandwidth</b> | Modulation | RB size | RB offset | Channel/Frequency(MHz) |              |              |
|                  |            |         |           | 26055/1851.5           | 26365/1882.5 | 26675/1913.5 |
| <b>3MHz</b>      | QPSK       | 1       | 0         | 17.30                  | 17.55        | 18.23        |
|                  |            | 1       | 13        | 17.51                  | 16.83        | 17.81        |
|                  |            | 1       | 24        | 17.87                  | 17.36        | 17.16        |
|                  |            | 12      | 0         | 16.31                  | 16.27        | 17.15        |
|                  |            | 12      | 6         | 16.26                  | 15.86        | 16.42        |
|                  |            | 12      | 13        | 16.66                  | 15.91        | 16.90        |
|                  |            | 25      | 0         | 16.59                  | 16.69        | 16.18        |
|                  | 16QAM      | 1       | 0         | 16.31                  | 16.84        | 17.26        |
|                  |            | 1       | 13        | 16.44                  | 16.09        | 16.77        |
|                  |            | 1       | 24        | 16.97                  | 16.69        | 16.38        |
|                  |            | 12      | 0         | 15.32                  | 15.05        | 15.92        |
|                  |            | 12      | 6         | 15.22                  | 14.94        | 15.43        |
|                  |            | 12      | 13        | 15.74                  | 15.33        | 15.59        |
|                  |            | 25      | 0         | 15.54                  | 15.17        | 15.63        |
| <b>Bandwidth</b> | Modulation | RB size | RB offset | Channel/Frequency(MHz) |              |              |
|                  |            |         |           | 26065/1852.5           | 26365/1882.5 | 26665/1912.5 |
| <b>5MHz</b>      | QPSK       | 1       | 0         | 17.29                  | 17.54        | 18.22        |
|                  |            | 1       | 13        | 17.50                  | 16.82        | 17.80        |
|                  |            | 1       | 24        | 17.86                  | 17.34        | 17.15        |
|                  |            | 12      | 0         | 16.29                  | 16.26        | 17.13        |
|                  |            | 12      | 6         | 16.25                  | 15.85        | 16.41        |
|                  |            | 12      | 13        | 16.65                  | 15.90        | 16.89        |
|                  |            | 25      | 0         | 16.58                  | 16.68        | 16.17        |
|                  | 16QAM      | 1       | 0         | 16.30                  | 16.83        | 17.25        |
|                  |            | 1       | 13        | 16.43                  | 16.08        | 16.76        |
|                  |            | 1       | 24        | 16.96                  | 16.68        | 16.37        |
|                  |            | 12      | 0         | 15.31                  | 15.03        | 15.91        |
|                  |            | 12      | 6         | 15.21                  | 14.93        | 15.42        |
|                  |            | 12      | 13        | 15.73                  | 15.32        | 15.58        |
|                  |            | 25      | 0         | 15.52                  | 15.16        | 15.61        |
| <b>Bandwidth</b> | Modulation | RB      | RB offset | Channel/Frequency(MHz) |              |              |

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|           |            | size    |           | 26090/1855             | 26365/1882.5 | 26640/1910   |
|-----------|------------|---------|-----------|------------------------|--------------|--------------|
| 10MHz     | QPSK       | 1       | 0         | 17.27                  | 17.53        | 18.20        |
|           |            | 1       | 25        | 17.49                  | 16.81        | 17.79        |
|           |            | 1       | 49        | 17.85                  | 17.33        | 17.14        |
|           |            | 25      | 0         | 16.28                  | 16.24        | 17.12        |
|           |            | 25      | 13        | 16.24                  | 15.84        | 16.40        |
|           |            | 25      | 25        | 16.64                  | 15.89        | 16.88        |
|           |            | 50      | 0         | 16.57                  | 16.67        | 16.15        |
|           | 16QAM      | 1       | 0         | 16.29                  | 16.82        | 17.24        |
|           |            | 1       | 25        | 16.42                  | 16.07        | 16.75        |
|           |            | 1       | 49        | 16.95                  | 16.67        | 16.36        |
|           |            | 25      | 0         | 15.29                  | 15.02        | 15.90        |
|           |            | 25      | 13        | 15.20                  | 14.92        | 15.41        |
|           |            | 25      | 25        | 15.72                  | 15.31        | 15.57        |
|           |            | 50      | 0         | 15.51                  | 15.14        | 15.60        |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |              |              |
|           |            |         |           | 26115/1857.5           | 26365/1882.5 | 26615/1907.5 |
| 15MHz     | QPSK       | 1       | 0         | 17.27                  | 17.53        | 18.20        |
|           |            | 1       | 25        | 17.48                  | 16.81        | 17.79        |
|           |            | 1       | 49        | 17.85                  | 17.33        | 17.14        |
|           |            | 25      | 0         | 16.28                  | 16.23        | 17.12        |
|           |            | 25      | 13        | 16.23                  | 15.84        | 16.40        |
|           |            | 25      | 25        | 16.64                  | 15.89        | 16.88        |
|           |            | 50      | 0         | 16.57                  | 16.67        | 16.14        |
|           | 16QAM      | 1       | 0         | 16.29                  | 16.82        | 17.24        |
|           |            | 1       | 25        | 16.42                  | 16.07        | 16.75        |
|           |            | 1       | 49        | 16.95                  | 16.66        | 16.36        |
|           |            | 25      | 0         | 15.28                  | 15.02        | 15.90        |
|           |            | 25      | 13        | 15.20                  | 14.92        | 15.41        |
|           |            | 25      | 25        | 15.71                  | 15.31        | 15.56        |
|           |            | 50      | 0         | 15.51                  | 15.13        | 15.60        |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |              |              |
|           |            |         |           | 26140/1860             | 26365/1882.5 | 26590/1905   |
| 20MHz     | QPSK       | 1       | 0         | 17.24                  | 17.50        | 18.17        |
|           |            | 1       | 50        | 17.46                  | 16.79        | 17.77        |
|           |            | 1       | 99        | 17.84                  | 17.32        | 17.13        |
|           |            | 50      | 0         | 16.28                  | 16.23        | 17.12        |
|           |            | 50      | 25        | 16.24                  | 15.85        | 16.41        |
|           |            | 50      | 50        | 16.66                  | 15.91        | 16.90        |
|           |            | 100     | 0         | 16.57                  | 16.14        | 16.67        |
|           | 16QAM      | 1       | 0         | 16.30                  | 16.83        | 17.25        |
|           |            | 1       | 50        | 16.44                  | 16.09        | 16.77        |
|           |            | 1       | 99        | 16.92                  | 16.63        | 16.33        |

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|  |  |     |    |       |       |       |
|--|--|-----|----|-------|-------|-------|
|  |  | 50  | 0  | 15.26 | 15.00 | 15.88 |
|  |  | 50  | 25 | 15.19 | 14.91 | 15.40 |
|  |  | 50  | 50 | 15.71 | 15.31 | 15.56 |
|  |  | 100 | 0  | 15.52 | 15.14 | 15.61 |

| LTE FDD Band 26<br>(WiFi Off) |            |         |           | Conducted Power(dBm)   |             |             |
|-------------------------------|------------|---------|-----------|------------------------|-------------|-------------|
| Bandwidth                     | Modulation | RB size | RB offset | Channel/Frequency(MHz) |             |             |
|                               |            |         |           | 26697/814.7            | 26865/831.5 | 27033/848.3 |
| 1.4MHz                        | QPSK       | 1       | 0         | 23.48                  | 23.90       | 23.25       |
|                               |            | 1       | 2         | 23.97                  | 23.33       | 23.77       |
|                               |            | 1       | 5         | 23.20                  | 23.36       | 23.02       |
|                               |            | 3       | 0         | 22.12                  | 22.30       | 22.34       |
|                               |            | 3       | 2         | 22.10                  | 22.35       | 22.55       |
|                               |            | 3       | 3         | 22.36                  | 22.19       | 22.35       |
|                               |            | 6       | 0         | 22.19                  | 22.21       | 22.35       |
|                               | 16QAM      | 1       | 0         | 22.42                  | 22.64       | 22.63       |
|                               |            | 1       | 2         | 22.93                  | 22.39       | 22.09       |
|                               |            | 1       | 5         | 22.16                  | 22.43       | 22.45       |
|                               |            | 3       | 0         | 22.11                  | 21.21       | 21.42       |
|                               |            | 3       | 2         | 22.52                  | 21.22       | 21.61       |
|                               |            | 3       | 3         | 22.33                  | 21.20       | 21.40       |
|                               |            | 6       | 0         | 22.23                  | 21.20       | 21.41       |
| Bandwidth                     | Modulation | RB size | RB offset | Channel/Frequency(MHz) |             |             |
|                               |            |         |           | 26705/815.5            | 26865/831.5 | 27025/847.5 |
| 3MHz                          | QPSK       | 1       | 0         | 23.47                  | 23.99       | 23.24       |
|                               |            | 1       | 13        | 23.96                  | 23.32       | 23.76       |
|                               |            | 1       | 24        | 23.19                  | 23.35       | 23.01       |
|                               |            | 12      | 0         | 22.10                  | 22.29       | 22.33       |
|                               |            | 12      | 6         | 22.09                  | 22.34       | 22.54       |
|                               |            | 12      | 13        | 22.35                  | 22.18       | 22.34       |
|                               |            | 25      | 0         | 22.18                  | 22.19       | 22.34       |
|                               | 16QAM      | 1       | 0         | 22.41                  | 22.63       | 22.62       |
|                               |            | 1       | 13        | 22.92                  | 22.38       | 22.08       |
|                               |            | 1       | 24        | 22.15                  | 22.42       | 22.44       |
|                               |            | 12      | 0         | 22.10                  | 21.20       | 21.41       |
|                               |            | 12      | 6         | 22.50                  | 21.21       | 21.60       |
|                               |            | 12      | 13        | 22.32                  | 21.19       | 21.39       |
|                               |            | 25      | 0         | 22.22                  | 21.19       | 21.40       |
| Bandwidth                     | Modulation | RB size | RB offset | Channel/Frequency(MHz) |             |             |
|                               |            |         |           | 26715/816.5            | 26865/831.5 | 27015/846.5 |
| 5MHz                          | QPSK       | 1       | 0         | 23.46                  | 23.98       | 23.22       |
|                               |            | 1       | 13        | 23.94                  | 23.31       | 23.75       |

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|                  |            |         |           |                        |             |             |
|------------------|------------|---------|-----------|------------------------|-------------|-------------|
|                  |            | 1       | 24        | 23.18                  | 23.34       | 23.00       |
|                  |            | 12      | 0         | 22.09                  | 22.28       | 22.32       |
|                  |            | 12      | 6         | 22.08                  | 22.33       | 22.53       |
|                  |            | 12      | 13        | 22.34                  | 22.17       | 22.33       |
|                  |            | 25      | 0         | 22.17                  | 22.18       | 22.33       |
|                  | 16QAM      | 1       | 0         | 22.40                  | 22.62       | 22.60       |
|                  |            | 1       | 13        | 22.91                  | 22.37       | 22.07       |
|                  |            | 1       | 24        | 22.14                  | 22.40       | 22.43       |
|                  |            | 12      | 0         | 22.09                  | 21.19       | 21.40       |
|                  |            | 12      | 6         | 22.49                  | 21.20       | 21.59       |
|                  |            | 12      | 13        | 22.31                  | 21.18       | 21.37       |
|                  |            | 25      | 0         | 22.20                  | 21.18       | 21.39       |
| <b>Bandwidth</b> | Modulation | RB size | RB offset | Channel/Frequency(MHz) |             |             |
|                  |            |         |           | 26750/820              | 26865/831.5 | 26990/844   |
| <b>10MHz</b>     | QPSK       | 1       | 0         | 23.45                  | 23.97       | 23.21       |
|                  |            | 1       | 25        | 23.92                  | 23.30       | 23.73       |
|                  |            | 1       | 49        | 23.17                  | 23.32       | 22.99       |
|                  |            | 25      | 0         | 22.08                  | 22.27       | 22.31       |
|                  |            | 25      | 13        | 22.07                  | 22.32       | 22.52       |
|                  |            | 25      | 25        | 22.33                  | 22.16       | 22.32       |
|                  |            | 50      | 0         | 22.16                  | 22.17       | 22.32       |
|                  | 16QAM      | 1       | 0         | 22.39                  | 22.61       | 22.59       |
|                  |            | 1       | 25        | 22.90                  | 22.36       | 22.06       |
|                  |            | 1       | 49        | 22.12                  | 22.39       | 22.42       |
|                  |            | 25      | 0         | 22.08                  | 21.18       | 21.39       |
|                  |            | 25      | 13        | 22.48                  | 21.18       | 21.58       |
|                  |            | 25      | 25        | 22.30                  | 21.17       | 21.35       |
|                  |            | 50      | 0         | 22.19                  | 21.17       | 21.38       |
| <b>Bandwidth</b> | Modulation | RB size | RB offset | Channel/Frequency(MHz) |             |             |
|                  |            |         |           | 26775/822.5            | 26865/831.5 | 26965/841.5 |
| <b>15MHz</b>     | QPSK       | 1       | 0         | 23.44                  | 23.95       | 23.20       |
|                  |            | 1       | 38        | 23.91                  | 23.29       | 23.71       |
|                  |            | 1       | 74        | 23.15                  | 23.31       | 22.98       |
|                  |            | 36      | 0         | 22.07                  | 22.26       | 22.30       |
|                  |            | 36      | 18        | 22.06                  | 22.31       | 22.51       |
|                  |            | 36      | 39        | 22.32                  | 22.15       | 22.31       |
|                  |            | 75      | 0         | 22.15                  | 22.16       | 22.31       |
|                  | 16QAM      | 1       | 0         | 22.37                  | 22.60       | 22.58       |
|                  |            | 1       | 38        | 22.89                  | 22.34       | 22.04       |
|                  |            | 1       | 74        | 22.11                  | 22.38       | 22.41       |
|                  |            | 36      | 0         | 21.07                  | 21.16       | 21.38       |
|                  |            | 36      | 18        | 21.47                  | 21.17       | 21.57       |
|                  |            | 36      | 39        | 21.29                  | 21.16       | 21.34       |

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|--|--|----|---|-------|-------|-------|
|  |  | 75 | 0 | 21.17 | 21.16 | 21.37 |
|--|--|----|---|-------|-------|-------|

| LTE FDD Band 26<br>(WiFi On) |            |         |           | Conducted Power(dBm)   |             |             |
|------------------------------|------------|---------|-----------|------------------------|-------------|-------------|
| Bandwidth                    | Modulation | RB size | RB offset | Channel/Frequency(MHz) |             |             |
|                              |            |         |           | 26697/814.7            | 26865/831.5 | 27033/848.3 |
| 1.4MHz                       | QPSK       | 1       | 0         | 19.00                  | 19.42       | 18.77       |
|                              |            | 1       | 2         | 19.48                  | 18.84       | 19.28       |
|                              |            | 1       | 5         | 18.70                  | 18.86       | 18.52       |
|                              |            | 3       | 0         | 17.61                  | 17.79       | 17.83       |
|                              |            | 3       | 2         | 17.58                  | 17.83       | 18.03       |
|                              |            | 3       | 3         | 17.83                  | 17.66       | 17.82       |
|                              | 16QAM      | 6       | 0         | 17.68                  | 17.70       | 17.84       |
|                              |            | 1       | 0         | 17.90                  | 18.12       | 18.11       |
|                              |            | 1       | 2         | 18.40                  | 17.86       | 17.56       |
|                              |            | 1       | 5         | 17.68                  | 17.95       | 17.97       |
|                              |            | 3       | 0         | 17.62                  | 16.72       | 16.93       |
|                              |            | 3       | 2         | 18.02                  | 16.72       | 17.11       |
|                              |            | 3       | 3         | 17.82                  | 16.69       | 16.89       |
|                              |            | 6       | 0         | 17.71                  | 16.68       | 16.89       |
| Bandwidth                    | Modulation | RB size | RB offset | Channel/Frequency(MHz) |             |             |
|                              |            |         |           | 26705/815.5            | 26865/831.5 | 27025/847.5 |
| 3MHz                         | QPSK       | 1       | 0         | 18.99                  | 19.51       | 18.76       |
|                              |            | 1       | 13        | 19.47                  | 18.83       | 19.27       |
|                              |            | 1       | 24        | 18.69                  | 18.85       | 18.51       |
|                              |            | 12      | 0         | 17.59                  | 17.78       | 17.82       |
|                              |            | 12      | 6         | 17.57                  | 17.82       | 18.02       |
|                              |            | 12      | 13        | 17.82                  | 17.65       | 17.81       |
|                              |            | 25      | 0         | 17.67                  | 17.68       | 17.83       |
|                              | 16QAM      | 1       | 0         | 17.89                  | 18.11       | 18.10       |
|                              |            | 1       | 13        | 18.39                  | 17.85       | 17.55       |
|                              |            | 1       | 24        | 17.67                  | 17.94       | 17.96       |
|                              |            | 12      | 0         | 17.61                  | 16.71       | 16.92       |
|                              |            | 12      | 6         | 18.00                  | 16.71       | 17.10       |
|                              |            | 12      | 13        | 17.81                  | 16.68       | 16.88       |
|                              |            | 25      | 0         | 17.70                  | 16.67       | 16.88       |
| Bandwidth                    | Modulation | RB size | RB offset | Channel/Frequency(MHz) |             |             |
|                              |            |         |           | 26715/816.5            | 26865/831.5 | 27015/846.5 |
| 5MHz                         | QPSK       | 1       | 0         | 18.98                  | 19.50       | 18.74       |
|                              |            | 1       | 13        | 19.45                  | 18.82       | 19.26       |
|                              |            | 1       | 24        | 18.68                  | 18.84       | 18.50       |
|                              |            | 12      | 0         | 17.58                  | 17.77       | 17.81       |
|                              |            | 12      | 6         | 17.56                  | 17.81       | 18.01       |

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|           |            | 12      | 13        | 17.81                  | 17.64       | 17.80       |
|-----------|------------|---------|-----------|------------------------|-------------|-------------|
|           |            | 25      | 0         | 17.66                  | 17.67       | 17.82       |
|           | 16QAM      | 1       | 0         | 17.88                  | 18.10       | 18.08       |
|           |            | 1       | 13        | 18.38                  | 17.84       | 17.54       |
|           |            | 1       | 24        | 17.66                  | 17.92       | 17.95       |
|           |            | 12      | 0         | 17.60                  | 16.70       | 16.91       |
|           |            | 12      | 6         | 17.99                  | 16.70       | 17.09       |
|           |            | 12      | 13        | 17.80                  | 16.67       | 16.86       |
|           |            | 25      | 0         | 17.68                  | 16.66       | 16.87       |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |             |             |
|           |            |         |           | 26750/820              | 26865/831.5 | 26990/844   |
| 10MHz     | QPSK       | 1       | 0         | 18.97                  | 19.49       | 18.73       |
|           |            | 1       | 25        | 19.43                  | 18.81       | 19.24       |
|           |            | 1       | 49        | 18.67                  | 18.82       | 18.49       |
|           |            | 25      | 0         | 17.57                  | 17.76       | 17.80       |
|           |            | 25      | 13        | 17.55                  | 17.80       | 18.00       |
|           |            | 25      | 25        | 17.80                  | 17.63       | 17.79       |
|           |            | 50      | 0         | 17.65                  | 17.66       | 17.81       |
|           | 16QAM      | 1       | 0         | 17.87                  | 18.09       | 18.07       |
|           |            | 1       | 25        | 18.37                  | 17.83       | 17.53       |
|           |            | 1       | 49        | 17.64                  | 17.91       | 17.94       |
|           |            | 25      | 0         | 17.59                  | 16.69       | 16.90       |
|           |            | 25      | 13        | 17.98                  | 16.68       | 17.08       |
|           |            | 25      | 25        | 17.79                  | 16.66       | 16.84       |
|           |            | 50      | 0         | 17.67                  | 16.65       | 16.86       |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |             |             |
|           |            |         |           | 26775/822.5            | 26865/831.5 | 26965/841.5 |
| 15MHz     | QPSK       | 1       | 0         | 18.44                  | 18.95       | 18.20       |
|           |            | 1       | 38        | 18.91                  | 18.29       | 18.71       |
|           |            | 1       | 74        | 18.15                  | 18.31       | 17.98       |
|           |            | 36      | 0         | 17.57                  | 17.76       | 17.80       |
|           |            | 36      | 18        | 17.56                  | 17.81       | 17.92       |
|           |            | 36      | 39        | 17.82                  | 17.65       | 17.81       |
|           |            | 75      | 0         | 17.65                  | 17.66       | 17.77       |
|           | 16QAM      | 1       | 0         | 17.37                  | 17.60       | 17.58       |
|           |            | 1       | 38        | 17.89                  | 17.34       | 17.04       |
|           |            | 1       | 74        | 17.11                  | 17.38       | 17.41       |
|           |            | 36      | 0         | 16.57                  | 16.66       | 16.88       |
|           |            | 36      | 18        | 16.97                  | 16.67       | 17.07       |
|           |            | 36      | 39        | 16.79                  | 16.66       | 16.84       |
|           |            | 75      | 0         | 16.67                  | 16.66       | 16.87       |



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### Antenna 2

| GSM 850                     |          | Burst Conducted Power(dBm) |           |            | /       | Average power(dBm)         |              |              |
|-----------------------------|----------|----------------------------|-----------|------------|---------|----------------------------|--------------|--------------|
|                             |          | Channel/Frequency(MHz)     |           |            |         | Channel/Frequency(MHz)     |              |              |
|                             |          | 128/824.2                  | 190/836.6 | 251/848.8  |         | 128/824.2                  | 190/836.6    | 251/848.8    |
| GSM                         |          | 32.32                      | 32.50     | 32.40      | -9.03dB | 23.29                      | 23.47        | 23.37        |
| GPRS<br>(GMSK)              | 1Txslot  | 32.29                      | 32.42     | 32.34      | -9.03dB | 23.26                      | 23.39        | 23.31        |
|                             | 2Txslots | 30.21                      | 30.34     | 30.26      | -6.02dB | <b>24.19</b>               | <b>24.32</b> | <b>24.24</b> |
|                             | 3Txslots | 28.23                      | 28.33     | 28.29      | -4.26dB | 23.97                      | 24.07        | 24.03        |
|                             | 4Txslots | 26.18                      | 26.36     | 26.23      | -3.01dB | 23.17                      | 23.35        | 23.22        |
| EGPRS<br>(GMSK)             | 1Txslot  | 32.26                      | 32.50     | 32.37      | -9.03dB | 23.23                      | 23.47        | 23.34        |
|                             | 2Txslots | 30.19                      | 30.41     | 30.27      | -6.02dB | <b>24.17</b>               | <b>24.39</b> | <b>24.25</b> |
|                             | 3Txslots | 28.02                      | 28.13     | 28.21      | -4.26dB | 23.76                      | 23.87        | 23.95        |
|                             | 4Txslots | 26.71                      | 26.84     | 26.96      | -3.01dB | 23.70                      | 23.83        | 23.95        |
| EGPRS<br>(8PSK)             | 1Txslot  | 26.22                      | 26.46     | 26.31      | -9.03dB | 17.19                      | 17.43        | 17.28        |
|                             | 2Txslots | 23.78                      | 23.93     | 24.47      | -6.02dB | 17.76                      | 17.91        | 18.45        |
|                             | 3Txslots | 22.04                      | 22.13     | 22.33      | -4.26dB | 17.78                      | 17.87        | 18.07        |
|                             | 4Txslots | 20.66                      | 20.71     | 20.54      | -3.01dB | 17.65                      | 17.70        | 17.53        |
| GSM 1900<br>(Hotspot Close) |          | Burst Conducted Power(dBm) |           |            | /       | Average power(dBm)         |              |              |
|                             |          | Channel/Frequency(MHz)     |           |            |         | Channel/Frequency(MHz)     |              |              |
|                             |          | 512/1850.2                 | 661/1880  | 810/1909.8 |         | 512/1850.2                 | 661/1880     | 810/1909.8   |
| GSM                         |          | 29.13                      | 28.95     | 29.72      | -9.03dB | 20.10                      | 19.92        | 20.69        |
| GPRS<br>(GMSK)              | 1Txslot  | 29.10                      | 28.93     | 29.69      | -9.03dB | 20.07                      | 19.90        | 20.66        |
|                             | 2Txslots | 26.79                      | 26.89     | 27.40      | -6.02dB | 20.77                      | 20.87        | 21.38        |
|                             | 3Txslots | 25.17                      | 25.23     | 25.72      | -4.26dB | <b>20.91</b>               | <b>20.97</b> | <b>21.46</b> |
|                             | 4Txslots | 23.12                      | 22.97     | 23.77      | -3.01dB | 20.11                      | 19.96        | 20.76        |
| EGPRS<br>(GMSK)             | 1Txslot  | 29.13                      | 28.91     | 29.73      | -9.03dB | 20.10                      | 19.88        | 20.70        |
|                             | 2Txslots | 27.22                      | 26.98     | 27.45      | -6.02dB | 21.20                      | 20.96        | 21.43        |
|                             | 3Txslots | 25.49                      | 25.26     | 25.77      | -4.26dB | <b>21.23</b>               | <b>21.00</b> | <b>21.51</b> |
|                             | 4Txslots | 23.51                      | 23.44     | 23.61      | -3.01dB | 20.50                      | 20.43        | 20.60        |
| EGPRS<br>(8PSK)             | 1Txslot  | 25.48                      | 25.85     | 26.49      | -9.03dB | 16.45                      | 16.82        | 17.46        |
|                             | 2Txslots | 23.26                      | 23.52     | 23.65      | -6.02dB | 17.24                      | 17.50        | 17.63        |
|                             | 3Txslots | 21.65                      | 21.78     | 21.92      | -4.26dB | 17.39                      | 17.52        | 17.66        |
|                             | 4Txslots | 19.88                      | 19.92     | 20.01      | -3.01dB | 16.87                      | 16.91        | 17.00        |
| GSM 1900<br>(Hotspot Open)  |          | Burst Conducted Power(dBm) |           |            | /       | Burst Conducted Power(dBm) |              |              |
|                             |          | Channel/Frequency(MHz)     |           |            |         | Channel/Frequency(MHz)     |              |              |
|                             |          | 512/1850.2                 | 661/1880  | 810/1909.8 |         | 512/1850.2                 | 661/1880     | 810/1909.8   |
| GSM                         |          | 28.12                      | 27.93     | 28.74      | -9.03dB | 19.09                      | 18.90        | 19.71        |
| GPRS<br>(GMSK)              | 1Txslot  | 28.09                      | 27.97     | 28.67      | -9.03dB | 19.06                      | 18.94        | 19.64        |
|                             | 2Txslots | 25.76                      | 25.82     | 26.45      | -6.02dB | 19.74                      | 19.80        | 20.43        |
|                             | 3Txslots | 24.14                      | 24.06     | 24.80      | -4.26dB | <b>19.88</b>               | <b>19.80</b> | <b>20.54</b> |

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|                 |          |       |       |       |         |              |              |              |
|-----------------|----------|-------|-------|-------|---------|--------------|--------------|--------------|
|                 | 4Txslots | 22.08 | 21.96 | 22.78 | -3.01dB | 19.07        | 18.95        | 19.77        |
| EGPRS<br>(GMSK) | 1Txslot  | 28.12 | 27.89 | 28.77 | -9.03dB | 19.09        | 18.86        | 19.74        |
|                 | 2Txslots | 26.24 | 25.93 | 26.41 | -6.02dB | 20.22        | 19.91        | 20.39        |
|                 | 3Txslots | 24.49 | 24.26 | 24.77 | -4.26dB | <b>20.23</b> | <b>20.00</b> | <b>20.51</b> |
|                 | 4Txslots | 22.51 | 22.44 | 22.61 | -3.01dB | 19.50        | 19.43        | 19.60        |
| EGPRS<br>(8PSK) | 1Txslot  | 24.45 | 24.89 | 25.45 | -9.03dB | 15.42        | 15.86        | 16.42        |
|                 | 2Txslots | 22.39 | 22.47 | 22.66 | -6.02dB | 16.37        | 16.45        | 16.64        |
|                 | 3Txslots | 20.65 | 20.78 | 20.92 | -4.26dB | 16.39        | 16.52        | 16.66        |
|                 | 4Txslots | 18.88 | 18.92 | 19.01 | -3.01dB | 15.87        | 15.91        | 16.00        |

Note:

### 2) Division Factors

To average the power, the division factor is as follows:

1Txslot = 1 transmit time slot out of 8 time slots

=> conducted power divided by (8/1) => -9.03 dB

2Txslots = 2 transmit time slots out of 8 time slots

=> conducted power divided by (8/2) => -6.02 dB

3Txslots = 3 transmit time slots out of 8 time slots

=> conducted power divided by (8/3) => -4.26 dB

4Txslots = 4 transmit time slots out of 8 time slots

=> conducted power divided by (8/4) => -3.01 dB

### 2) Average power numbers

The maximum power numbers are marks in bold.

| UMTS Band II<br>(Hotspot Close) |              | Conducted Power (dBm)  |           |             |
|---------------------------------|--------------|------------------------|-----------|-------------|
|                                 |              | Channel/Frequency(MHz) |           |             |
|                                 |              | 9262/1852.4            | 9400/1880 | 9538/1907.6 |
| RMC                             | 12.2kbps RMC | 22.73                  | 23.07     | 23.18       |
|                                 | 64kbps RMC   | 22.63                  | 22.95     | 22.15       |
|                                 | 144kbps RMC  | 22.18                  | 22.52     | 22.62       |
|                                 | 384kbps RMC  | 22.23                  | 22.46     | 22.68       |
| HSDPA                           | Sub - Test 1 | 22.55                  | 22.87     | 23.04       |
|                                 | Sub - Test 2 | 21.49                  | 21.83     | 21.99       |
|                                 | Sub - Test 3 | 21.03                  | 21.34     | 21.46       |
|                                 | Sub - Test 4 | 20.86                  | 21.18     | 21.42       |
| HSUPA                           | Sub - Test 1 | 21.21                  | 21.48     | 21.46       |
|                                 | Sub - Test 2 | 20.29                  | 20.78     | 20.68       |
|                                 | Sub - Test 3 | 21.03                  | 21.39     | 21.16       |
|                                 | Sub - Test 4 | 19.52                  | 20.07     | 19.83       |
|                                 | Sub - Test 5 | 21.67                  | 22.11     | 22.15       |

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|                                         |              |                              |             |             |
|-----------------------------------------|--------------|------------------------------|-------------|-------------|
| <b>DC-HSDPA</b>                         | Sub - Test 1 | 22.23                        | 22.55       | 22.72       |
|                                         | Sub - Test 2 | 22.17                        | 22.51       | 22.67       |
|                                         | Sub - Test 3 | 22.01                        | 22.32       | 22.57       |
|                                         | Sub - Test 4 | 22.04                        | 22.36       | 22.60       |
| <b>UMTS Band II<br/>(Hotspot Open)</b>  |              | <b>Conducted Power (dBm)</b> |             |             |
|                                         |              | Channel/Frequency(MHz)       |             |             |
|                                         |              | 9262/1852.4                  | 9400/1880   | 9538/1907.6 |
| <b>RMC</b>                              | 12.2kbps RMC | 20.24                        | 20.58       | 20.69       |
|                                         | 64kbps RMC   | 20.14                        | 20.46       | 20.46       |
|                                         | 144kbps RMC  | 20.06                        | 20.03       | 20.13       |
|                                         | 384kbps RMC  | 20.07                        | 20.09       | 20.19       |
| <b>HSDPA</b>                            | Sub - Test 1 | 22.55                        | 22.87       | 23.04       |
|                                         | Sub - Test 2 | 21.49                        | 21.83       | 21.99       |
|                                         | Sub - Test 3 | 21.03                        | 21.34       | 21.46       |
|                                         | Sub - Test 4 | 20.86                        | 21.18       | 21.42       |
| <b>HSUPA</b>                            | Sub - Test 1 | 18.73                        | 19.00       | 18.98       |
|                                         | Sub - Test 2 | 17.81                        | 18.30       | 18.20       |
|                                         | Sub - Test 3 | 18.55                        | 18.91       | 18.68       |
|                                         | Sub - Test 4 | 17.04                        | 17.59       | 17.35       |
|                                         | Sub - Test 5 | 19.19                        | 19.63       | 19.67       |
| <b>DC-HSDPA</b>                         | Sub - Test 1 | 19.77                        | 20.09       | 20.26       |
|                                         | Sub - Test 2 | 19.71                        | 20.05       | 20.21       |
|                                         | Sub - Test 3 | 19.55                        | 19.86       | 20.11       |
|                                         | Sub - Test 4 | 19.58                        | 19.90       | 20.14       |
| <b>UMTS Band IV<br/>(Hotspot Close)</b> |              | <b>Conducted Power (dBm)</b> |             |             |
|                                         |              | Channel/Frequency(MHz)       |             |             |
|                                         |              | 1312/1712.4                  | 1413/1732.6 | 1513/1752.6 |
| <b>RMC</b>                              | 12.2kbps RMC | 23.36                        | 23.64       | 23.57       |
|                                         | 64kbps RMC   | 22.57                        | 22.86       | 22.90       |
|                                         | 144kbps RMC  | 22.57                        | 22.87       | 22.86       |
|                                         | 384kbps RMC  | 22.64                        | 22.51       | 22.53       |
| <b>HSDPA</b>                            | Sub - Test 1 | 23.28                        | 23.15       | 23.13       |
|                                         | Sub - Test 2 | 21.75                        | 21.58       | 21.57       |
|                                         | Sub - Test 3 | 21.72                        | 21.61       | 21.59       |
|                                         | Sub - Test 4 | 21.84                        | 21.69       | 21.70       |
| <b>HSUPA</b>                            | Sub - Test 1 | 21.40                        | 21.18       | 21.33       |
|                                         | Sub - Test 2 | 19.97                        | 19.79       | 19.95       |
|                                         | Sub - Test 3 | 20.64                        | 20.35       | 20.54       |
|                                         | Sub - Test 4 | 19.56                        | 19.96       | 19.86       |

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|                                        |              |                              |             |             |
|----------------------------------------|--------------|------------------------------|-------------|-------------|
|                                        | Sub - Test 5 | 21.46                        | 21.23       | 21.36       |
| <b>DC-HSDPA</b>                        | Sub - Test 1 | 21.96                        | 21.83       | 21.81       |
|                                        | Sub - Test 2 | 21.93                        | 21.76       | 21.75       |
|                                        | Sub - Test 3 | 21.80                        | 21.69       | 21.67       |
|                                        | Sub - Test 4 | 21.82                        | 21.67       | 21.68       |
| <b>UMTS Band IV<br/>(Hotspot Open)</b> |              | <b>Conducted Power (dBm)</b> |             |             |
|                                        |              | Channel/Frequency(MHz)       |             |             |
|                                        |              | 1312/1712.4                  | 1413/1732.6 | 1513/1752.6 |
| <b>RMC</b>                             | 12.2kbps RMC | 21.87                        | 22.15       | 22.08       |
|                                        | 64kbps RMC   | 21.08                        | 21.37       | 21.41       |
|                                        | 144kbps RMC  | 21.08                        | 21.38       | 21.37       |
|                                        | 384kbps RMC  | 21.15                        | 21.02       | 21.04       |
| <b>HSDPA</b>                           | Sub - Test 1 | 21.80                        | 21.67       | 21.65       |
|                                        | Sub - Test 2 | 20.27                        | 20.10       | 20.09       |
|                                        | Sub - Test 3 | 20.24                        | 20.13       | 20.11       |
|                                        | Sub - Test 4 | 20.36                        | 20.21       | 20.22       |
| <b>HSUPA</b>                           | Sub - Test 1 | 19.90                        | 19.68       | 19.83       |
|                                        | Sub - Test 2 | 18.47                        | 18.29       | 18.45       |
|                                        | Sub - Test 3 | 19.14                        | 18.85       | 19.04       |
|                                        | Sub - Test 4 | 18.06                        | 18.46       | 18.36       |
|                                        | Sub - Test 5 | 19.96                        | 19.73       | 19.86       |
| <b>DC-HSDPA</b>                        | Sub - Test 1 | 20.49                        | 20.36       | 20.34       |
|                                        | Sub - Test 2 | 20.46                        | 20.29       | 20.28       |
|                                        | Sub - Test 3 | 20.33                        | 20.22       | 20.20       |
|                                        | Sub - Test 4 | 20.35                        | 20.20       | 20.21       |
| <b>UMTS Band V</b>                     |              | <b>Conducted Power (dBm)</b> |             |             |
|                                        |              | Channel/Frequency(MHz)       |             |             |
|                                        |              | 4132/826.4                   | 4183/836.6  | 4233/846.6  |
| <b>RMC</b>                             | 12.2kbps RMC | 23.51                        | 23.30       | 23.32       |
|                                        | 64kbps RMC   | 22.92                        | 22.71       | 22.76       |
|                                        | 144kbps RMC  | 22.29                        | 22.32       | 22.38       |
|                                        | 384kbps RMC  | 22.95                        | 22.73       | 22.82       |
| <b>HSDPA</b>                           | Sub - Test 1 | 23.28                        | 23.15       | 23.13       |
|                                        | Sub - Test 2 | 22.25                        | 22.08       | 22.07       |
|                                        | Sub - Test 3 | 22.12                        | 22.01       | 21.69       |
|                                        | Sub - Test 4 | 22.14                        | 21.99       | 22.00       |
| <b>HSUPA</b>                           | Sub - Test 1 | 21.60                        | 21.38       | 21.53       |
|                                        | Sub - Test 2 | 20.07                        | 20.89       | 20.05       |
|                                        | Sub - Test 3 | 21.64                        | 21.35       | 21.54       |

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|          |              |       |       |       |
|----------|--------------|-------|-------|-------|
|          | Sub - Test 4 | 20.84 | 20.74 | 20.88 |
|          | Sub - Test 5 | 22.46 | 22.23 | 22.36 |
| DC-HSDPA | Sub - Test 1 | 22.99 | 22.86 | 22.84 |
|          | Sub - Test 2 | 22.96 | 22.79 | 22.78 |
|          | Sub - Test 3 | 22.83 | 22.72 | 22.70 |
|          | Sub - Test 4 | 22.85 | 22.70 | 22.71 |

| LTE FDD Band 2<br>(Hotspot Close) |            |         |           | Conducted Power(dBm)   |            |              |
|-----------------------------------|------------|---------|-----------|------------------------|------------|--------------|
| Bandwidth                         | Modulation | RB size | RB offset | Channel/Frequency(MHz) |            |              |
|                                   |            |         |           | 18607/1850.7           | 18900/1880 | 19193/1909.3 |
| 1.4MHz                            | QPSK       | 1       | 0         | 22.01                  | 22.37      | 22.23        |
|                                   |            | 1       | 2         | 22.14                  | 21.93      | 22.74        |
|                                   |            | 1       | 5         | 22.15                  | 21.87      | 22.08        |
|                                   |            | 3       | 0         | 21.08                  | 21.01      | 21.47        |
|                                   |            | 3       | 2         | 21.09                  | 20.78      | 21.46        |
|                                   |            | 3       | 3         | 20.97                  | 20.68      | 21.45        |
|                                   |            | 6       | 0         | 21.15                  | 20.77      | 21.40        |
|                                   | 16QAM      | 1       | 0         | 22.04                  | 22.16      | 22.27        |
|                                   |            | 1       | 2         | 21.64                  | 21.76      | 21.87        |
|                                   |            | 1       | 5         | 21.62                  | 21.74      | 21.85        |
|                                   |            | 3       | 0         | 20.87                  | 20.99      | 21.10        |
|                                   |            | 3       | 2         | 20.53                  | 20.65      | 20.76        |
|                                   |            | 3       | 3         | 20.41                  | 20.53      | 20.64        |
|                                   |            | 6       | 0         | 19.62                  | 19.74      | 19.85        |
| Bandwidth                         | Modulation | RB size | RB offset | Channel/Frequency(MHz) |            |              |
|                                   |            |         |           | 18615/1851.5           | 18900/1880 | 19185/1908.5 |
| 3MHz                              | QPSK       | 1       | 0         | 22.17                  | 22.53      | 22.39        |
|                                   |            | 1       | 7         | 22.30                  | 22.09      | 22.90        |
|                                   |            | 1       | 14        | 22.31                  | 22.03      | 22.24        |
|                                   |            | 8       | 0         | 22.13                  | 22.06      | 22.52        |
|                                   |            | 8       | 4         | 22.14                  | 21.83      | 22.51        |
|                                   |            | 8       | 7         | 22.02                  | 21.73      | 22.50        |
|                                   |            | 15      | 0         | 21.31                  | 20.93      | 21.56        |
|                                   | 16QAM      | 1       | 0         | 21.48                  | 21.60      | 21.71        |
|                                   |            | 1       | 7         | 21.08                  | 21.20      | 21.31        |
|                                   |            | 1       | 14        | 21.06                  | 21.18      | 21.29        |
|                                   |            | 8       | 0         | 21.03                  | 21.15      | 21.26        |
|                                   |            | 8       | 4         | 20.69                  | 20.81      | 20.92        |
|                                   |            | 8       | 7         | 20.57                  | 20.69      | 20.80        |
|                                   |            | 15      | 0         | 19.78                  | 19.90      | 20.01        |

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| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |            |              |
|-----------|------------|---------|-----------|------------------------|------------|--------------|
|           |            |         |           | 18625/1852.5           | 18900/1880 | 19175/1907.5 |
| 5MHz      | QPSK       | 1       | 0         | 22.14                  | 22.50      | 22.36        |
|           |            | 1       | 13        | 22.27                  | 22.06      | 22.87        |
|           |            | 1       | 24        | 22.28                  | 22.00      | 22.21        |
|           |            | 12      | 0         | 21.21                  | 21.14      | 21.60        |
|           |            | 12      | 6         | 21.22                  | 20.91      | 21.59        |
|           |            | 12      | 13        | 21.10                  | 20.81      | 21.58        |
|           |            | 25      | 0         | 21.28                  | 20.90      | 21.53        |
|           | 16QAM      | 1       | 0         | 22.17                  | 22.29      | 22.40        |
|           |            | 1       | 13        | 21.77                  | 21.89      | 22.00        |
|           |            | 1       | 24        | 21.75                  | 21.87      | 21.98        |
|           |            | 12      | 0         | 21.00                  | 21.12      | 21.23        |
|           |            | 12      | 6         | 20.66                  | 20.78      | 20.89        |
|           |            | 12      | 13        | 20.54                  | 20.66      | 20.77        |
|           |            | 25      | 0         | 19.75                  | 19.87      | 19.98        |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |            |              |
|           |            |         |           | 18650/1855             | 18900/1880 | 19150/1905   |
| 10MHz     | QPSK       | 1       | 0         | 22.15                  | 22.51      | 22.37        |
|           |            | 1       | 25        | 22.28                  | 22.07      | 22.88        |
|           |            | 1       | 49        | 22.29                  | 22.01      | 22.22        |
|           |            | 25      | 0         | 21.22                  | 21.15      | 21.61        |
|           |            | 25      | 13        | 21.23                  | 20.92      | 21.60        |
|           |            | 25      | 25        | 21.11                  | 20.82      | 21.59        |
|           |            | 50      | 0         | 21.29                  | 20.91      | 21.54        |
|           | 16QAM      | 1       | 0         | 22.18                  | 22.30      | 22.41        |
|           |            | 1       | 25        | 21.78                  | 21.90      | 22.01        |
|           |            | 1       | 49        | 21.76                  | 21.88      | 21.99        |
|           |            | 25      | 0         | 21.01                  | 21.13      | 21.24        |
|           |            | 25      | 13        | 20.67                  | 20.79      | 20.90        |
|           |            | 25      | 25        | 20.55                  | 20.67      | 20.78        |
|           |            | 50      | 0         | 19.76                  | 19.88      | 19.99        |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |            |              |
|           |            |         |           | 18675/1857.5           | 18900/1880 | 19125/1902.5 |
| 15MHz     | QPSK       | 1       | 0         | 22.12                  | 22.48      | 22.34        |
|           |            | 1       | 38        | 22.25                  | 22.04      | 22.85        |
|           |            | 1       | 74        | 22.26                  | 21.98      | 22.19        |
|           |            | 36      | 0         | 21.19                  | 21.12      | 21.58        |
|           |            | 36      | 18        | 21.20                  | 20.89      | 21.57        |
|           |            | 36      | 39        | 21.08                  | 20.79      | 21.56        |
|           |            | 75      | 0         | 21.26                  | 20.88      | 21.51        |
|           | 16QAM      | 1       | 0         | 22.15                  | 22.27      | 22.38        |
|           |            | 1       | 38        | 21.75                  | 21.87      | 21.98        |
|           |            | 1       | 74        | 21.73                  | 21.85      | 21.96        |

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|           |            | 36      | 0         | 20.98                  | 21.10      | 21.21      |
|-----------|------------|---------|-----------|------------------------|------------|------------|
|           |            | 36      | 18        | 20.64                  | 20.76      | 20.87      |
|           |            | 36      | 39        | 20.52                  | 20.64      | 20.75      |
|           |            | 75      | 0         | 19.73                  | 19.85      | 19.96      |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |            |            |
|           |            |         |           | 18700/1860             | 18900/1880 | 19100/1900 |
| 20MHz     | QPSK       | 1       | 0         | 22.01                  | 22.37      | 22.23      |
|           |            | 1       | 50        | 22.14                  | 21.93      | 22.74      |
|           |            | 1       | 99        | 22.15                  | 21.87      | 22.08      |
|           |            | 50      | 0         | 21.08                  | 21.46      | 21.47      |
|           |            | 50      | 25        | 21.09                  | 20.78      | 21.01      |
|           |            | 50      | 50        | 20.97                  | 20.68      | 21.45      |
|           |            | 100     | 0         | 21.15                  | 20.77      | 21.40      |
|           | 16QAM      | 1       | 0         | 22.04                  | 22.16      | 22.27      |
|           |            | 1       | 50        | 21.64                  | 21.76      | 21.87      |
|           |            | 1       | 99        | 21.62                  | 21.74      | 21.85      |
|           |            | 50      | 0         | 20.87                  | 20.99      | 21.10      |
|           |            | 50      | 25        | 20.53                  | 20.65      | 20.76      |
|           |            | 50      | 50        | 20.41                  | 20.53      | 20.64      |
|           |            | 100     | 0         | 19.62                  | 19.74      | 19.85      |

| LTE FDD Band 2<br>(Hotspot Open) |            |         |           | Conducted Power(dBm)   |            |              |
|----------------------------------|------------|---------|-----------|------------------------|------------|--------------|
| Bandwidth                        | Modulation | RB size | RB offset | Channel/Frequency(MHz) |            |              |
|                                  |            |         |           | 18607/1850.7           | 18900/1880 | 19193/1909.3 |
| 1.4MHz                           | QPSK       | 1       | 0         | 17.50                  | 17.86      | 17.72        |
|                                  |            | 1       | 2         | 17.62                  | 17.41      | 18.22        |
|                                  |            | 1       | 5         | 17.62                  | 17.34      | 17.55        |
|                                  |            | 3       | 0         | 16.54                  | 16.47      | 16.93        |
|                                  |            | 3       | 2         | 16.55                  | 16.24      | 16.92        |
|                                  |            | 3       | 3         | 16.42                  | 16.13      | 16.90        |
|                                  |            | 6       | 0         | 16.59                  | 16.21      | 16.84        |
|                                  | 16QAM      | 1       | 0         | 17.47                  | 17.59      | 17.70        |
|                                  |            | 1       | 2         | 17.06                  | 17.18      | 17.29        |
|                                  |            | 1       | 5         | 17.11                  | 17.23      | 17.34        |
|                                  |            | 3       | 0         | 16.35                  | 16.47      | 16.58        |
|                                  |            | 3       | 2         | 16.00                  | 16.12      | 16.23        |
|                                  |            | 3       | 3         | 15.87                  | 15.99      | 16.10        |
|                                  |            | 6       | 0         | 15.10                  | 15.22      | 15.33        |

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| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |            |              |
|-----------|------------|---------|-----------|------------------------|------------|--------------|
|           |            |         |           | 18615/1851.5           | 18900/1880 | 19185/1908.5 |
| 3MHz      | QPSK       | 1       | 0         | 17.62                  | 17.98      | 17.84        |
|           |            | 1       | 7         | 17.74                  | 17.53      | 18.34        |
|           |            | 1       | 14        | 17.74                  | 17.46      | 17.67        |
|           |            | 8       | 0         | 17.55                  | 17.48      | 17.94        |
|           |            | 8       | 4         | 17.63                  | 17.32      | 18.00        |
|           |            | 8       | 7         | 17.50                  | 17.21      | 17.98        |
|           |            | 15      | 0         | 16.78                  | 16.40      | 17.03        |
|           | 16QAM      | 1       | 0         | 16.94                  | 17.06      | 17.17        |
|           |            | 1       | 7         | 16.56                  | 16.68      | 16.79        |
|           |            | 1       | 14        | 16.53                  | 16.65      | 16.76        |
|           |            | 8       | 0         | 16.49                  | 16.61      | 16.72        |
|           |            | 8       | 4         | 16.14                  | 16.26      | 16.37        |
|           |            | 8       | 7         | 16.01                  | 16.13      | 16.24        |
|           |            | 15      | 0         | 15.21                  | 15.33      | 15.44        |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |            |              |
|           |            |         |           | 18625/1852.5           | 18900/1880 | 19175/1907.5 |
| 5MHz      | QPSK       | 1       | 0         | 17.61                  | 17.97      | 17.83        |
|           |            | 1       | 13        | 17.73                  | 17.52      | 18.33        |
|           |            | 1       | 24        | 17.77                  | 17.49      | 17.70        |
|           |            | 12      | 0         | 16.69                  | 16.62      | 17.08        |
|           |            | 12      | 6         | 16.69                  | 16.38      | 17.06        |
|           |            | 12      | 13        | 16.59                  | 16.30      | 17.07        |
|           |            | 25      | 0         | 16.76                  | 16.38      | 17.01        |
|           | 16QAM      | 1       | 0         | 17.64                  | 17.76      | 17.87        |
|           |            | 1       | 13        | 17.23                  | 17.35      | 17.46        |
|           |            | 1       | 24        | 17.17                  | 17.29      | 17.40        |
|           |            | 12      | 0         | 16.41                  | 16.53      | 16.64        |
|           |            | 12      | 6         | 16.06                  | 16.18      | 16.29        |
|           |            | 12      | 13        | 16.03                  | 16.15      | 16.26        |
|           |            | 25      | 0         | 15.23                  | 15.35      | 15.46        |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |            |              |
|           |            |         |           | 18650/1855             | 18900/1880 | 19150/1905   |
| 10MHz     | QPSK       | 1       | 0         | 17.61                  | 17.97      | 17.83        |
|           |            | 1       | 25        | 17.73                  | 17.52      | 18.33        |
|           |            | 1       | 49        | 17.73                  | 17.45      | 17.66        |
|           |            | 25      | 0         | 16.65                  | 16.58      | 17.04        |
|           |            | 25      | 13        | 16.65                  | 16.34      | 17.02        |
|           |            | 25      | 25        | 16.52                  | 16.23      | 17.00        |
|           |            | 50      | 0         | 16.69                  | 16.31      | 16.94        |
|           | 16QAM      | 1       | 0         | 17.68                  | 17.80      | 17.91        |
|           |            | 1       | 25        | 17.27                  | 17.39      | 17.50        |
|           |            | 1       | 49        | 17.24                  | 17.36      | 17.47        |



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|           |            | 25      | 0         | 16.48                  | 16.60      | 16.71        |
|-----------|------------|---------|-----------|------------------------|------------|--------------|
|           |            | 25      | 13        | 16.13                  | 16.25      | 16.36        |
|           |            | 25      | 25        | 16.00                  | 16.12      | 16.23        |
|           |            | 50      | 0         | 15.20                  | 15.32      | 15.43        |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |            |              |
|           |            |         |           | 18675/1857.5           | 18900/1880 | 19125/1902.5 |
| 15MHz     | QPSK       | 1       | 0         | 17.59                  | 17.95      | 17.81        |
|           |            | 1       | 38        | 17.71                  | 17.50      | 18.31        |
|           |            | 1       | 74        | 17.76                  | 17.48      | 17.69        |
|           |            | 36      | 0         | 16.68                  | 16.61      | 17.07        |
|           |            | 36      | 18        | 16.68                  | 16.37      | 17.05        |
|           |            | 36      | 39        | 16.55                  | 16.26      | 17.03        |
|           |            | 75      | 0         | 16.72                  | 16.34      | 16.97        |
|           | 16QAM      | 1       | 0         | 17.60                  | 17.72      | 17.83        |
|           |            | 1       | 38        | 17.19                  | 17.31      | 17.42        |
|           |            | 1       | 74        | 17.16                  | 17.28      | 17.39        |
|           |            | 36      | 0         | 16.40                  | 16.52      | 16.63        |
|           |            | 36      | 18        | 16.11                  | 16.23      | 16.34        |
|           |            | 36      | 39        | 15.98                  | 16.10      | 16.21        |
|           |            | 75      | 0         | 15.18                  | 15.30      | 15.41        |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |            |              |
|           |            |         |           | 18700/1860             | 18900/1880 | 19100/1900   |
| 20MHz     | QPSK       | 1       | 0         | 17.48                  | 17.84      | 17.70        |
|           |            | 1       | 50        | 17.60                  | 17.39      | 18.20        |
|           |            | 1       | 99        | 17.61                  | 17.32      | 17.53        |
|           |            | 50      | 0         | 16.56                  | 16.95      | 16.97        |
|           |            | 50      | 25        | 16.58                  | 16.27      | 16.51        |
|           |            | 50      | 50        | 16.45                  | 16.16      | 16.93        |
|           |            | 100     | 0         | 16.62                  | 16.24      | 16.87        |
|           | 16QAM      | 1       | 0         | 17.50                  | 17.62      | 17.73        |
|           |            | 1       | 50        | 17.09                  | 17.21      | 17.32        |
|           |            | 1       | 99        | 17.06                  | 17.18      | 17.29        |
|           |            | 50      | 0         | 16.34                  | 16.46      | 16.57        |
|           |            | 50      | 25        | 15.99                  | 16.11      | 16.22        |
|           |            | 50      | 50        | 15.86                  | 15.98      | 16.09        |
|           |            | 100     | 0         | 15.06                  | 15.18      | 15.29        |

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| LTE FDD Band 4<br>(Hotspot Close) |            |         |           | Conducted Power(dBm)   |              |              |
|-----------------------------------|------------|---------|-----------|------------------------|--------------|--------------|
| Bandwidth                         | Modulation | RB size | RB offset | Channel/Frequency(MHz) |              |              |
|                                   |            |         |           | 19957/1710.7           | 20175/1732.5 | 20393/1754.3 |
| 1.4MHz                            | QPSK       | 1       | 0         | 21.80                  | 22.48        | 22.35        |
|                                   |            | 1       | 2         | 21.68                  | 22.13        | 21.98        |
|                                   |            | 1       | 5         | 21.46                  | 22.05        | 22.29        |
|                                   |            | 3       | 0         | 21.74                  | 22.40        | 21.91        |
|                                   |            | 3       | 2         | 22.10                  | 22.19        | 21.92        |
|                                   |            | 3       | 3         | 22.31                  | 21.99        | 21.93        |
|                                   |            | 6       | 0         | 21.01                  | 21.36        | 20.97        |
|                                   | 16QAM      | 1       | 0         | 21.12                  | 21.01        | 20.92        |
|                                   |            | 1       | 2         | 20.74                  | 20.63        | 20.54        |
|                                   |            | 1       | 5         | 20.77                  | 20.66        | 20.57        |
|                                   |            | 3       | 0         | 20.37                  | 20.26        | 20.17        |
|                                   |            | 3       | 2         | 20.90                  | 20.79        | 20.70        |
|                                   |            | 3       | 3         | 20.87                  | 20.76        | 20.67        |
|                                   |            | 6       | 0         | 20.89                  | 20.78        | 20.69        |
| Bandwidth                         | Modulation | RB size | RB offset | Channel/Frequency(MHz) |              |              |
|                                   |            |         |           | 19965/1711.5           | 20175/1732.5 | 20385/1753.5 |
| 3MHz                              | QPSK       | 1       | 0         | 21.77                  | 22.45        | 22.32        |
|                                   |            | 1       | 13        | 21.65                  | 22.10        | 21.95        |
|                                   |            | 1       | 24        | 21.43                  | 22.02        | 22.26        |
|                                   |            | 12      | 0         | 21.25                  | 21.91        | 21.42        |
|                                   |            | 12      | 6         | 21.61                  | 21.70        | 21.43        |
|                                   |            | 12      | 13        | 21.82                  | 21.50        | 21.44        |
|                                   |            | 25      | 0         | 21.10                  | 21.45        | 21.06        |
|                                   | 16QAM      | 1       | 0         | 21.59                  | 21.48        | 21.39        |
|                                   |            | 1       | 13        | 21.21                  | 21.10        | 21.01        |
|                                   |            | 1       | 24        | 21.24                  | 21.13        | 21.04        |
|                                   |            | 12      | 0         | 20.34                  | 20.23        | 20.14        |
|                                   |            | 12      | 6         | 21.37                  | 21.26        | 21.17        |
|                                   |            | 12      | 13        | 21.34                  | 21.23        | 21.14        |
|                                   |            | 25      | 0         | 21.36                  | 21.25        | 21.16        |
| Bandwidth                         | Modulation | RB size | RB offset | Channel/Frequency(MHz) |              |              |
|                                   |            |         |           | 19975/1712.5           | 20175/1732.5 | 20375/1752.5 |
| 5MHz                              | QPSK       | 1       | 0         | 21.78                  | 22.46        | 22.33        |
|                                   |            | 1       | 13        | 21.66                  | 22.11        | 21.96        |
|                                   |            | 1       | 24        | 21.44                  | 22.03        | 22.27        |
|                                   |            | 12      | 0         | 20.76                  | 21.42        | 20.93        |
|                                   |            | 12      | 6         | 21.12                  | 21.21        | 20.94        |
|                                   |            | 12      | 13        | 21.33                  | 21.01        | 20.95        |

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|           |            | 25      | 0         | 21.11                  | 21.46        | 21.07        |
|-----------|------------|---------|-----------|------------------------|--------------|--------------|
|           | 16QAM      | 1       | 0         | 21.60                  | 21.49        | 21.40        |
|           |            | 1       | 13        | 21.22                  | 21.11        | 21.02        |
|           |            | 1       | 24        | 21.25                  | 21.14        | 21.05        |
|           |            | 12      | 0         | 20.35                  | 20.24        | 20.15        |
|           |            | 12      | 6         | 21.38                  | 21.27        | 21.18        |
|           |            | 12      | 13        | 21.35                  | 21.24        | 21.15        |
|           |            | 25      | 0         | 21.37                  | 21.26        | 21.17        |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |              |              |
|           |            |         |           | 20000/1715             | 20175/1732.5 | 20350/1750   |
| 10MHz     | QPSK       | 1       | 0         | 21.74                  | 22.42        | 22.29        |
|           |            | 1       | 25        | 21.62                  | 22.07        | 21.92        |
|           |            | 1       | 49        | 21.40                  | 21.99        | 22.23        |
|           |            | 25      | 0         | 20.72                  | 21.38        | 20.89        |
|           |            | 25      | 13        | 21.08                  | 21.17        | 20.90        |
|           |            | 25      | 25        | 21.29                  | 20.97        | 20.91        |
|           |            | 50      | 0         | 21.07                  | 21.42        | 21.03        |
|           | 16QAM      | 1       | 0         | 21.56                  | 21.45        | 21.36        |
|           |            | 1       | 25        | 21.18                  | 21.07        | 20.98        |
|           |            | 1       | 49        | 21.21                  | 21.10        | 21.01        |
|           |            | 25      | 0         | 20.31                  | 20.20        | 20.11        |
|           |            | 25      | 13        | 21.34                  | 21.23        | 21.14        |
|           |            | 25      | 25        | 21.31                  | 21.20        | 21.11        |
|           |            | 50      | 0         | 21.33                  | 21.22        | 21.13        |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |              |              |
|           |            |         |           | 20025/1717.5           | 20175/1732.5 | 20325/1747.5 |
| 15MHz     | QPSK       | 1       | 0         | 21.76                  | 22.44        | 22.31        |
|           |            | 1       | 38        | 21.64                  | 22.09        | 21.94        |
|           |            | 1       | 74        | 21.42                  | 22.01        | 22.25        |
|           |            | 36      | 0         | 20.74                  | 21.40        | 20.91        |
|           |            | 36      | 18        | 21.10                  | 21.19        | 20.92        |
|           |            | 36      | 39        | 21.31                  | 20.99        | 20.93        |
|           |            | 75      | 0         | 21.09                  | 21.44        | 21.05        |
|           | 16QAM      | 1       | 0         | 21.58                  | 21.47        | 21.38        |
|           |            | 1       | 38        | 21.20                  | 21.09        | 21.00        |
|           |            | 1       | 74        | 21.23                  | 21.12        | 21.03        |
|           |            | 36      | 0         | 20.33                  | 20.22        | 20.13        |
|           |            | 36      | 18        | 21.36                  | 21.25        | 21.16        |
|           |            | 36      | 39        | 21.33                  | 21.22        | 21.13        |
|           |            | 75      | 0         | 21.35                  | 21.24        | 21.15        |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |              |              |
|           |            |         |           | 20050/1720             | 20175/1732.5 | 20300/1745   |
| 20MHz     | QPSK       | 1       | 0         | 21.63                  | 22.31        | 22.18        |

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|  |       |     |    |       |       |       |
|--|-------|-----|----|-------|-------|-------|
|  |       | 1   | 50 | 21.51 | 21.96 | 21.81 |
|  |       | 1   | 99 | 21.29 | 21.88 | 22.12 |
|  |       | 50  | 0  | 20.61 | 21.27 | 20.78 |
|  |       | 50  | 25 | 20.97 | 21.06 | 20.79 |
|  |       | 50  | 50 | 21.18 | 20.86 | 20.80 |
|  |       | 100 | 0  | 20.96 | 21.31 | 20.92 |
|  | 16QAM | 1   | 0  | 21.45 | 21.34 | 21.25 |
|  |       | 1   | 50 | 21.07 | 20.96 | 20.87 |
|  |       | 1   | 99 | 21.10 | 20.99 | 20.90 |
|  |       | 50  | 0  | 20.20 | 20.09 | 20.00 |
|  |       | 50  | 25 | 21.23 | 21.12 | 21.03 |
|  |       | 50  | 50 | 21.20 | 21.09 | 21.00 |
|  |       | 100 | 0  | 21.22 | 21.11 | 21.02 |

| LTE FDD Band 4<br>(Hotspot Open) |            |         |           | Conducted Power(dBm)   |              |              |
|----------------------------------|------------|---------|-----------|------------------------|--------------|--------------|
| Bandwidth                        | Modulation | RB size | RB offset | Channel/Frequency(MHz) |              |              |
|                                  |            |         |           | 19957/1710.7           | 20175/1732.5 | 20393/1754.3 |
| 1.4MHz                           | QPSK       | 1       | 0         | 20.79                  | 21.47        | 21.34        |
|                                  |            | 1       | 2         | 20.66                  | 21.11        | 20.96        |
|                                  |            | 1       | 5         | 20.43                  | 21.02        | 21.26        |
|                                  |            | 3       | 0         | 20.70                  | 21.36        | 20.87        |
|                                  |            | 3       | 2         | 21.06                  | 21.15        | 20.88        |
|                                  |            | 3       | 3         | 21.26                  | 20.94        | 20.88        |
|                                  |            | 6       | 0         | 19.95                  | 20.30        | 19.91        |
|                                  | 16QAM      | 1       | 0         | 20.05                  | 19.94        | 19.85        |
|                                  |            | 1       | 2         | 19.66                  | 19.55        | 19.46        |
|                                  |            | 1       | 5         | 19.76                  | 19.65        | 19.56        |
|                                  |            | 3       | 0         | 19.35                  | 19.24        | 19.15        |
|                                  |            | 3       | 2         | 19.87                  | 19.76        | 19.67        |
|                                  |            | 3       | 3         | 19.83                  | 19.72        | 19.63        |
|                                  |            | 6       | 0         | 19.87                  | 19.76        | 19.67        |
| Bandwidth                        | Modulation | RB size | RB offset | Channel/Frequency(MHz) |              |              |
|                                  |            |         |           | 19965/1711.5           | 20175/1732.5 | 20385/1753.5 |
| 3MHz                             | QPSK       | 1       | 0         | 20.72                  | 21.40        | 21.27        |
|                                  |            | 1       | 13        | 20.59                  | 21.04        | 20.89        |
|                                  |            | 1       | 24        | 20.36                  | 20.95        | 21.19        |
|                                  |            | 12      | 0         | 20.17                  | 20.83        | 20.34        |
|                                  |            | 12      | 6         | 20.60                  | 20.69        | 20.42        |
|                                  |            | 12      | 13        | 20.80                  | 20.48        | 20.42        |
|                                  |            | 25      | 0         | 20.07                  | 20.42        | 20.03        |

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|           |            | 1       | 0         | 20.55                  | 20.44        | 20.35        |
|-----------|------------|---------|-----------|------------------------|--------------|--------------|
|           |            | 1       | 13        | 20.19                  | 20.08        | 19.99        |
|           |            | 1       | 24        | 20.21                  | 20.10        | 20.01        |
|           | 16QAM      | 12      | 0         | 19.30                  | 19.19        | 19.10        |
|           |            | 12      | 6         | 20.32                  | 20.21        | 20.12        |
|           |            | 12      | 13        | 20.28                  | 20.17        | 20.08        |
|           |            | 25      | 0         | 20.29                  | 20.18        | 20.09        |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |              |              |
|           |            |         |           | 19975/1712.5           | 20175/1732.5 | 20375/1752.5 |
| 5MHz      | QPSK       | 1       | 0         | 20.75                  | 21.43        | 21.30        |
|           |            | 1       | 13        | 20.62                  | 21.07        | 20.92        |
|           |            | 1       | 24        | 20.43                  | 21.02        | 21.26        |
|           |            | 12      | 0         | 19.74                  | 20.40        | 19.91        |
|           |            | 12      | 6         | 20.09                  | 20.18        | 19.91        |
|           |            | 12      | 13        | 20.32                  | 20.00        | 19.94        |
|           |            | 25      | 0         | 20.09                  | 20.44        | 20.05        |
|           | 16QAM      | 1       | 0         | 20.57                  | 20.46        | 20.37        |
|           |            | 1       | 13        | 20.18                  | 20.07        | 19.98        |
|           |            | 1       | 24        | 20.17                  | 20.06        | 19.97        |
|           |            | 12      | 0         | 19.26                  | 19.15        | 19.06        |
|           |            | 12      | 6         | 20.28                  | 20.17        | 20.08        |
|           |            | 12      | 13        | 20.34                  | 20.23        | 20.14        |
|           |            | 25      | 0         | 20.35                  | 20.24        | 20.15        |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |              |              |
|           |            |         |           | 20000/1715             | 20175/1732.5 | 20350/1750   |
| 10MHz     | QPSK       | 1       | 0         | 20.70                  | 21.38        | 21.25        |
|           |            | 1       | 25        | 20.57                  | 21.02        | 20.87        |
|           |            | 1       | 49        | 20.34                  | 20.93        | 21.17        |
|           |            | 25      | 0         | 19.65                  | 20.31        | 19.82        |
|           |            | 25      | 13        | 20.00                  | 20.09        | 19.82        |
|           |            | 25      | 25        | 20.20                  | 19.88        | 19.82        |
|           |            | 50      | 0         | 19.97                  | 20.32        | 19.93        |
|           | 16QAM      | 1       | 0         | 20.56                  | 20.45        | 20.36        |
|           |            | 1       | 25        | 20.17                  | 20.06        | 19.97        |
|           |            | 1       | 49        | 20.19                  | 20.08        | 19.99        |
|           |            | 25      | 0         | 19.28                  | 19.17        | 19.08        |
|           |            | 25      | 13        | 20.30                  | 20.19        | 20.10        |
|           |            | 25      | 25        | 20.26                  | 20.15        | 20.06        |
|           |            | 50      | 0         | 20.27                  | 20.16        | 20.07        |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |              |              |
|           |            |         |           | 20025/1717.5           | 20175/1732.5 | 20325/1747.5 |
| 15MHz     | QPSK       | 1       | 0         | 20.73                  | 21.41        | 21.28        |
|           |            | 1       | 38        | 20.60                  | 21.05        | 20.90        |
|           |            | 1       | 74        | 20.42                  | 21.01        | 21.25        |

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|       |           |            |         |           |                        |              |            |
|-------|-----------|------------|---------|-----------|------------------------|--------------|------------|
|       |           | 36         | 0       | 19.73     | 20.39                  | 19.90        |            |
|       |           | 36         | 18      | 20.08     | 20.17                  | 19.90        |            |
|       |           | 36         | 39      | 20.28     | 19.96                  | 19.90        |            |
|       |           | 75         | 0       | 20.05     | 20.40                  | 20.01        |            |
|       | 16QAM     | 1          | 0       | 20.53     | 20.42                  | 20.33        |            |
|       |           | 1          | 38      | 20.14     | 20.03                  | 19.94        |            |
|       |           | 1          | 74      | 20.16     | 20.05                  | 19.96        |            |
|       |           | 36         | 0       | 19.25     | 19.14                  | 19.05        |            |
|       |           | 36         | 18      | 20.33     | 20.22                  | 20.13        |            |
|       |           | 36         | 39      | 20.29     | 20.18                  | 20.09        |            |
|       |           | 75         | 0       | 20.30     | 20.19                  | 20.10        |            |
|       | Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |              |            |
|       |           |            |         |           | 20050/1720             | 20175/1732.5 | 20300/1745 |
| 20MHz | QPSK      | 1          | 0       | 20.60     | 21.28                  | 21.15        |            |
|       |           | 1          | 50      | 20.47     | 20.92                  | 20.77        |            |
|       |           | 1          | 99      | 20.24     | 20.83                  | 21.07        |            |
|       |           | 50         | 0       | 19.61     | 20.27                  | 19.76        |            |
|       |           | 50         | 25      | 19.96     | 20.05                  | 19.79        |            |
|       |           | 50         | 50      | 20.16     | 19.84                  | 19.88        |            |
|       |           | 100        | 0       | 19.93     | 20.28                  | 19.89        |            |
|       | 16QAM     | 1          | 0       | 20.41     | 20.30                  | 20.21        |            |
|       |           | 1          | 50      | 20.02     | 19.91                  | 19.82        |            |
|       |           | 1          | 99      | 20.04     | 19.93                  | 19.84        |            |
|       |           | 50         | 0       | 19.17     | 19.06                  | 18.97        |            |
|       |           | 50         | 25      | 20.19     | 20.08                  | 19.99        |            |
|       |           | 50         | 50      | 20.15     | 20.04                  | 19.95        |            |
|       |           | 100        | 0       | 20.16     | 20.05                  | 19.96        |            |

| LTE FDD Band 5 |            |         |           | Conducted Power(dBm)   |             |             |
|----------------|------------|---------|-----------|------------------------|-------------|-------------|
| Bandwidth      | Modulation | RB size | RB offset | Channel/Frequency(MHz) |             |             |
|                |            |         |           | 20407/824.7            | 20525/836.5 | 20643/848.3 |
| <b>1.4MHz</b>  | QPSK       | 1       | 0         | 22.99                  | 22.79       | 23.23       |
|                |            | 1       | 2         | 23.49                  | 23.23       | 23.59       |
|                |            | 1       | 5         | 23.05                  | 23.52       | 22.99       |
|                |            | 3       | 0         | 23.01                  | 22.54       | 23.08       |
|                |            | 3       | 2         | 22.95                  | 22.63       | 23.00       |
|                |            | 3       | 3         | 22.83                  | 22.73       | 22.88       |
|                |            | 6       | 0         | 22.03                  | 21.90       | 22.10       |
|                | 16QAM      | 1       | 0         | 22.14                  | 21.90       | 22.51       |
|                |            | 1       | 2         | 22.66                  | 22.43       | 22.74       |
|                |            | 1       | 5         | 22.18                  | 22.75       | 22.08       |

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|           |            | 3       | 0         | 21.27                  | 20.82       | 21.10       |
|-----------|------------|---------|-----------|------------------------|-------------|-------------|
|           |            | 3       | 2         | 21.35                  | 21.04       | 21.25       |
|           |            | 3       | 3         | 21.09                  | 21.03       | 21.11       |
|           |            | 6       | 0         | 21.83                  | 21.74       | 21.74       |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |             |             |
|           |            |         |           | 20415/825.5            | 20525/836.5 | 20635/847.5 |
| 3MHz      | QPSK       | 1       | 0         | 22.98                  | 22.78       | 23.22       |
|           |            | 1       | 13        | 23.48                  | 23.22       | 23.58       |
|           |            | 1       | 24        | 23.04                  | 23.51       | 22.98       |
|           |            | 12      | 0         | 23.06                  | 22.59       | 23.13       |
|           |            | 12      | 6         | 23.00                  | 22.68       | 23.05       |
|           |            | 12      | 13        | 22.88                  | 22.78       | 22.93       |
|           |            | 25      | 0         | 22.02                  | 21.88       | 22.09       |
|           | 16QAM      | 1       | 0         | 22.12                  | 21.89       | 22.50       |
|           |            | 1       | 13        | 22.65                  | 22.42       | 22.73       |
|           |            | 1       | 24        | 22.17                  | 22.74       | 22.07       |
|           |            | 12      | 0         | 21.26                  | 20.81       | 21.09       |
|           |            | 12      | 6         | 21.34                  | 21.02       | 21.24       |
|           |            | 12      | 13        | 21.08                  | 21.02       | 21.10       |
|           |            | 25      | 0         | 21.89                  | 21.79       | 21.79       |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |             |             |
|           |            |         |           | 20425/826.5            | 20525/836.5 | 20625/846.5 |
| 5MHz      | QPSK       | 1       | 0         | 23.00                  | 22.79       | 23.24       |
|           |            | 1       | 13        | 23.50                  | 23.23       | 23.60       |
|           |            | 1       | 24        | 23.06                  | 23.52       | 23.00       |
|           |            | 12      | 0         | 22.22                  | 21.74       | 22.29       |
|           |            | 12      | 6         | 22.16                  | 21.83       | 22.21       |
|           |            | 12      | 13        | 22.03                  | 21.93       | 22.09       |
|           |            | 25      | 0         | 22.04                  | 21.90       | 22.11       |
|           | 16QAM      | 1       | 0         | 22.15                  | 21.90       | 22.52       |
|           |            | 1       | 13        | 22.67                  | 22.43       | 22.75       |
|           |            | 1       | 24        | 22.19                  | 22.75       | 22.09       |
|           |            | 12      | 0         | 21.28                  | 20.82       | 21.11       |
|           |            | 12      | 6         | 21.36                  | 21.04       | 21.26       |
|           |            | 12      | 13        | 21.10                  | 21.03       | 21.12       |
|           |            | 25      | 0         | 21.05                  | 20.94       | 20.95       |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |             |             |
|           |            |         |           | 20450/829              | 20525/836.5 | 20600/844   |
| 10MHz     | QPSK       | 1       | 0         | 22.87                  | 22.67       | 23.12       |
|           |            | 1       | 25        | 23.37                  | 23.11       | 23.48       |
|           |            | 1       | 49        | 22.93                  | 23.41       | 22.88       |
|           |            | 25      | 0         | 22.09                  | 21.62       | 22.16       |
|           |            | 25      | 13        | 22.03                  | 21.71       | 22.09       |

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|  |       |    |    |       |       |       |
|--|-------|----|----|-------|-------|-------|
|  |       | 25 | 25 | 21.91 | 21.81 | 21.96 |
|  |       | 50 | 0  | 21.91 | 21.78 | 21.99 |
|  | 16QAM | 1  | 0  | 22.02 | 21.78 | 22.39 |
|  |       | 1  | 25 | 22.55 | 22.32 | 22.63 |
|  |       | 1  | 49 | 22.07 | 22.63 | 21.96 |
|  |       | 25 | 0  | 21.15 | 20.70 | 20.98 |
|  |       | 25 | 13 | 21.24 | 20.92 | 21.13 |
|  |       | 25 | 25 | 20.97 | 20.92 | 20.99 |
|  |       | 50 | 0  | 20.92 | 20.83 | 20.82 |

| LTE FDD Band 7<br>(Hotspot Close) |            |         |           | Conducted Power(dBm)   |            |              |
|-----------------------------------|------------|---------|-----------|------------------------|------------|--------------|
| Bandwidth                         | Modulation | RB size | RB offset | Channel/Frequency(MHz) |            |              |
|                                   |            |         |           | 20775/2502.5           | 21100/2535 | 21425/2567.5 |
| 5MHz                              | QPSK       | 1       | 0         | 22.22                  | 22.61      | 22.85        |
|                                   |            | 1       | 13        | 22.84                  | 22.78      | 22.78        |
|                                   |            | 1       | 24        | 22.73                  | 22.72      | 22.52        |
|                                   |            | 12      | 0         | 21.66                  | 21.85      | 21.65        |
|                                   |            | 12      | 6         | 21.72                  | 21.85      | 21.63        |
|                                   |            | 12      | 13        | 22.04                  | 21.85      | 21.63        |
|                                   |            | 25      | 0         | 21.77                  | 21.82      | 21.58        |
|                                   | 16QAM      | 1       | 0         | 21.87                  | 21.92      | 21.68        |
|                                   |            | 1       | 13        | 21.87                  | 21.93      | 21.68        |
|                                   |            | 1       | 24        | 21.87                  | 21.93      | 21.68        |
|                                   |            | 12      | 0         | 20.77                  | 20.82      | 20.58        |
|                                   |            | 12      | 6         | 20.77                  | 20.82      | 20.58        |
|                                   |            | 12      | 13        | 20.77                  | 20.82      | 20.58        |
|                                   |            | 25      | 0         | 20.67                  | 20.72      | 20.48        |
| Bandwidth                         | Modulation | RB size | RB offset | Channel/Frequency(MHz) |            |              |
|                                   |            |         |           | 20800/2505             | 21100/2535 | 21400/2565   |
| 10MHz                             | QPSK       | 1       | 0         | 22.23                  | 22.62      | 22.86        |
|                                   |            | 1       | 25        | 22.85                  | 22.79      | 22.79        |
|                                   |            | 1       | 49        | 22.74                  | 22.73      | 22.53        |
|                                   |            | 25      | 0         | 21.67                  | 21.85      | 21.65        |
|                                   |            | 25      | 13        | 21.73                  | 21.86      | 21.63        |
|                                   |            | 25      | 25        | 22.04                  | 21.85      | 21.64        |
|                                   |            | 50      | 0         | 21.77                  | 21.83      | 21.58        |
|                                   | 16QAM      | 1       | 0         | 21.87                  | 21.93      | 21.68        |
|                                   |            | 1       | 25        | 21.88                  | 21.93      | 21.69        |
|                                   |            | 1       | 49        | 21.88                  | 21.93      | 21.69        |
|                                   |            | 25      | 0         | 20.77                  | 20.83      | 20.58        |



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|           |            | 25      | 13        | 20.77                  | 20.83      | 20.58        |
|-----------|------------|---------|-----------|------------------------|------------|--------------|
|           |            | 25      | 25        | 20.77                  | 20.83      | 20.58        |
|           |            | 50      | 0         | 20.67                  | 20.72      | 20.48        |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |            |              |
|           |            |         |           | 20825/2507.5           | 21100/2535 | 21375/2562.5 |
| 15MHz     | QPSK       | 1       | 0         | 22.24                  | 22.63      | 22.87        |
|           |            | 1       | 38        | 22.86                  | 22.80      | 22.80        |
|           |            | 1       | 74        | 22.75                  | 22.74      | 22.54        |
|           |            | 36      | 0         | 21.68                  | 21.87      | 21.67        |
|           |            | 36      | 18        | 21.74                  | 21.88      | 21.65        |
|           |            | 36      | 39        | 22.06                  | 21.87      | 21.65        |
|           |            | 75      | 0         | 21.79                  | 21.84      | 21.60        |
|           | 16QAM      | 1       | 0         | 21.89                  | 21.95      | 21.70        |
|           |            | 1       | 38        | 21.89                  | 21.95      | 21.70        |
|           |            | 1       | 74        | 21.90                  | 21.95      | 21.71        |
|           |            | 36      | 0         | 20.79                  | 20.84      | 20.60        |
|           |            | 36      | 18        | 20.79                  | 20.84      | 20.60        |
|           |            | 36      | 39        | 20.79                  | 20.84      | 20.60        |
|           |            | 75      | 0         | 20.69                  | 20.74      | 20.50        |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |            |              |
|           |            |         |           | 20850/2510             | 21100/2535 | 21350/2560   |
| 20MHz     | QPSK       | 1       | 0         | 22.12                  | 22.51      | 22.75        |
|           |            | 1       | 50        | 22.74                  | 22.68      | 22.68        |
|           |            | 1       | 99        | 22.63                  | 22.62      | 22.42        |
|           |            | 50      | 0         | 21.56                  | 21.74      | 21.55        |
|           |            | 50      | 25        | 21.62                  | 21.75      | 21.53        |
|           |            | 50      | 50        | 21.94                  | 21.74      | 21.53        |
|           |            | 100     | 0         | 21.67                  | 21.72      | 21.48        |
|           | 16QAM      | 1       | 0         | 21.77                  | 21.82      | 21.58        |
|           |            | 1       | 50        | 21.77                  | 21.82      | 21.58        |
|           |            | 1       | 99        | 21.77                  | 21.82      | 21.58        |
|           |            | 50      | 0         | 20.67                  | 20.72      | 20.48        |
|           |            | 50      | 25        | 20.67                  | 20.72      | 20.48        |
|           |            | 50      | 50        | 20.67                  | 20.72      | 20.48        |
|           |            | 100     | 0         | 20.57                  | 20.62      | 20.38        |

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| LTE FDD Band 7<br>(Hotspot Open) |            |         |           | Conducted Power(dBm)   |            |              |
|----------------------------------|------------|---------|-----------|------------------------|------------|--------------|
| Bandwidth                        | Modulation | RB size | RB offset | Channel/Frequency(MHz) |            |              |
|                                  |            |         |           | 20775/2502.5           | 21100/2535 | 21425/2567.5 |
| 5MHz                             | QPSK       | 1       | 0         | 21.71                  | 22.10      | 22.34        |
|                                  |            | 1       | 13        | 22.32                  | 22.26      | 22.26        |
|                                  |            | 1       | 24        | 22.20                  | 22.19      | 21.99        |
|                                  |            | 12      | 0         | 21.12                  | 21.31      | 21.11        |
|                                  |            | 12      | 6         | 21.18                  | 21.31      | 21.09        |
|                                  |            | 12      | 13        | 21.49                  | 21.30      | 21.08        |
|                                  |            | 25      | 0         | 21.21                  | 21.26      | 21.02        |
|                                  | 16QAM      | 1       | 0         | 21.30                  | 21.35      | 21.11        |
|                                  |            | 1       | 13        | 21.29                  | 21.35      | 21.10        |
|                                  |            | 1       | 24        | 21.36                  | 21.42      | 21.17        |
|                                  |            | 12      | 0         | 20.25                  | 20.30      | 20.06        |
|                                  |            | 12      | 6         | 20.24                  | 20.29      | 20.05        |
|                                  |            | 12      | 13        | 20.23                  | 20.28      | 20.04        |
|                                  |            | 25      | 0         | 20.15                  | 20.20      | 19.96        |
| Bandwidth                        | Modulation | RB size | RB offset | Channel/Frequency(MHz) |            |              |
|                                  |            |         |           | 20800/2505             | 21100/2535 | 21400/2565   |
| 10MHz                            | QPSK       | 1       | 0         | 21.68                  | 22.07      | 22.31        |
|                                  |            | 1       | 25        | 22.29                  | 22.23      | 22.23        |
|                                  |            | 1       | 49        | 22.17                  | 22.16      | 21.96        |
|                                  |            | 25      | 0         | 21.09                  | 21.27      | 21.07        |
|                                  |            | 25      | 13        | 21.22                  | 21.35      | 21.12        |
|                                  |            | 25      | 25        | 21.52                  | 21.33      | 21.12        |
|                                  |            | 50      | 0         | 21.24                  | 21.30      | 21.05        |
|                                  | 16QAM      | 1       | 0         | 21.33                  | 21.39      | 21.14        |
|                                  |            | 1       | 25        | 21.36                  | 21.41      | 21.17        |
|                                  |            | 1       | 49        | 21.35                  | 21.40      | 21.16        |
|                                  |            | 25      | 0         | 20.23                  | 20.29      | 20.04        |
|                                  |            | 25      | 13        | 20.22                  | 20.28      | 20.03        |
|                                  |            | 25      | 25        | 20.21                  | 20.27      | 20.02        |
|                                  |            | 50      | 0         | 20.10                  | 20.15      | 19.91        |
| Bandwidth                        | Modulation | RB size | RB offset | Channel/Frequency(MHz) |            |              |
|                                  |            |         |           | 20825/2507.5           | 21100/2535 | 21375/2562.5 |
| 15MHz                            | QPSK       | 1       | 0         | 21.71                  | 22.10      | 22.34        |
|                                  |            | 1       | 38        | 22.32                  | 22.26      | 22.26        |
|                                  |            | 1       | 74        | 22.24                  | 22.23      | 22.03        |
|                                  |            | 36      | 0         | 21.16                  | 21.35      | 21.15        |
|                                  |            | 36      | 18        | 21.21                  | 21.35      | 21.12        |
|                                  |            | 36      | 39        | 21.55                  | 21.36      | 21.14        |

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|           | 16QAM      | 75      | 0         | 21.27                  | 21.32      | 21.08      |
|-----------|------------|---------|-----------|------------------------|------------|------------|
|           |            | 1       | 0         | 21.36                  | 21.42      | 21.17      |
|           |            | 1       | 38        | 21.35                  | 21.41      | 21.16      |
|           |            | 1       | 74        | 21.32                  | 21.37      | 21.13      |
|           |            | 36      | 0         | 20.20                  | 20.25      | 20.01      |
|           |            | 36      | 18        | 20.19                  | 20.24      | 20.00      |
|           |            | 36      | 39        | 20.28                  | 20.33      | 20.09      |
|           |            | 75      | 0         | 20.17                  | 20.22      | 19.98      |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |            |            |
|           |            |         |           | 20850/2510             | 21100/2535 | 21350/2560 |
| 20MHz     | QPSK       | 1       | 0         | 21.58                  | 21.97      | 22.21      |
|           |            | 1       | 50        | 22.19                  | 22.13      | 22.13      |
|           |            | 1       | 99        | 22.07                  | 22.06      | 21.86      |
|           |            | 50      | 0         | 20.99                  | 21.17      | 20.98      |
|           |            | 50      | 25        | 21.04                  | 21.18      | 20.95      |
|           |            | 50      | 50        | 21.35                  | 21.15      | 20.94      |
|           |            | 100     | 0         | 21.07                  | 21.12      | 20.88      |
|           | 16QAM      | 1       | 0         | 21.27                  | 21.32      | 21.08      |
|           |            | 1       | 50        | 21.26                  | 21.31      | 21.07      |
|           |            | 1       | 99        | 21.25                  | 21.30      | 21.06      |
|           |            | 50      | 0         | 20.14                  | 20.19      | 19.95      |
|           |            | 50      | 25        | 20.13                  | 20.18      | 19.94      |
|           |            | 50      | 50        | 20.12                  | 20.17      | 19.93      |
|           |            | 100     | 0         | 20.01                  | 20.06      | 19.82      |

| LTE FDD Band 12 |            |         |           | Conducted Power(dBm)   |             |             |
|-----------------|------------|---------|-----------|------------------------|-------------|-------------|
| Bandwidth       | Modulation | RB size | RB offset | Channel/Frequency(MHz) |             |             |
|                 |            |         |           | 23017/699.7            | 23095/707.5 | 23173/715.3 |
| 1.4MHz          | QPSK       | 1       | 0         | 22.32                  | 22.52       | 22.50       |
|                 |            | 1       | 2         | 22.79                  | 22.93       | 22.87       |
|                 |            | 1       | 5         | 22.58                  | 22.75       | 22.51       |
|                 |            | 3       | 0         | 21.29                  | 21.34       | 21.41       |
|                 |            | 3       | 2         | 21.24                  | 21.52       | 21.49       |
|                 |            | 3       | 3         | 21.16                  | 21.25       | 21.35       |
|                 |            | 6       | 0         | 21.16                  | 21.15       | 21.22       |
|                 | 16QAM      | 1       | 0         | -22.17                 | -22.40      | -22.41      |
|                 |            | 1       | 2         | -22.70                 | -22.84      | -22.76      |
|                 |            | 1       | 5         | -22.47                 | -22.62      | -22.42      |
|                 |            | 3       | 0         | -21.20                 | -21.25      | -21.23      |
|                 |            | 3       | 2         | -21.08                 | -21.43      | -21.42      |
|                 |            | 3       | 3         | -21.07                 | -21.06      | -21.24      |
|                 |            | 6       | 0         | -21.03                 | -21.07      | -21.14      |

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| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |             |             |
|-----------|------------|---------|-----------|------------------------|-------------|-------------|
|           |            |         |           | 23025/700.5            | 23095/707.5 | 23165/714.5 |
| 3MHz      | QPSK       | 1       | 0         | 22.31                  | 22.49       | 22.49       |
|           |            | 1       | 7         | 22.78                  | 22.92       | 22.86       |
|           |            | 1       | 14        | 22.55                  | 22.74       | 22.50       |
|           |            | 8       | 0         | 21.28                  | 21.33       | 21.39       |
|           |            | 8       | 4         | 21.23                  | 21.50       | 21.48       |
|           |            | 8       | 7         | 21.15                  | 21.24       | 21.32       |
|           |            | 15      | 0         | 21.13                  | 21.14       | 21.21       |
|           | 16QAM      | 1       | 0         | -22.18                 | -22.43      | -22.42      |
|           |            | 1       | 7         | -22.72                 | -22.85      | -22.77      |
|           |            | 1       | 14        | -22.48                 | -22.64      | -22.43      |
|           |            | 8       | 0         | -21.21                 | -21.26      | -21.26      |
|           |            | 8       | 4         | -21.11                 | -21.44      | -21.43      |
|           |            | 8       | 7         | -21.08                 | -21.09      | -21.25      |
|           |            | 15      | 0         | -21.05                 | -21.08      | -21.15      |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |             |             |
|           |            |         |           | 23035/701.5            | 23095/707.5 | 23155/713.5 |
| 5MHz      | QPSK       | 1       | 0         | 22.28                  | 22.48       | 22.48       |
|           |            | 1       | 13        | 22.77                  | 22.91       | 22.84       |
|           |            | 1       | 24        | 22.54                  | 22.72       | 22.49       |
|           |            | 12      | 0         | 21.27                  | 21.32       | 21.36       |
|           |            | 12      | 6         | 21.20                  | 21.49       | 21.47       |
|           |            | 12      | 13        | 21.14                  | 21.21       | 21.31       |
|           |            | 25      | 0         | 21.11                  | 21.13       | 21.20       |
|           | 16QAM      | 1       | 0         | -22.21                 | -22.44      | -22.43      |
|           |            | 1       | 13        | -22.73                 | -22.86      | -22.79      |
|           |            | 1       | 24        | -22.49                 | -22.66      | -22.44      |
|           |            | 12      | 0         | -21.22                 | -21.27      | -21.29      |
|           |            | 12      | 6         | -21.14                 | -21.45      | -21.44      |
|           |            | 12      | 13        | -21.09                 | -21.12      | -21.26      |
|           |            | 25      | 0         | -21.07                 | -21.09      | -21.16      |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |             |             |
|           |            |         |           | 23060/704              | 23095/707.5 | 23130/711   |
| 10MHz     | QPSK       | 1       | 0         | 22.27                  | 22.47       | 22.46       |
|           |            | 1       | 25        | 22.76                  | 22.90       | 22.83       |
|           |            | 1       | 49        | 22.51                  | 22.70       | 22.48       |
|           |            | 25      | 0         | 21.26                  | 21.31       | 21.33       |
|           |            | 25      | 13        | 21.19                  | 21.48       | 21.46       |
|           |            | 25      | 25        | 21.13                  | 21.18       | 21.30       |
|           |            | 50      | 0         | 21.10                  | 21.12       | 21.19       |
|           | 16QAM      | 1       | 0         | -22.24                 | -22.45      | -22.44      |
|           |            | 1       | 25        | -22.74                 | -22.87      | -22.81      |

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|  |  |    |    |        |        |        |
|--|--|----|----|--------|--------|--------|
|  |  | 1  | 49 | -22.50 | -22.68 | -22.45 |
|  |  | 25 | 0  | -21.23 | -21.28 | -21.32 |
|  |  | 25 | 13 | -21.17 | -21.46 | -21.45 |
|  |  | 25 | 25 | -21.10 | -21.15 | -21.27 |
|  |  | 50 | 0  | -21.09 | -21.10 | -21.17 |

| LTE FDD Band 17 |            |         |           | Conducted Power(dBm)   |           |             |
|-----------------|------------|---------|-----------|------------------------|-----------|-------------|
| Bandwidth       | Modulation | RB size | RB offset | Channel/Frequency(MHz) |           |             |
|                 |            |         |           | 23755/706.5            | 23790/710 | 23825/713.5 |
| 5MHz            | QPSK       | 1       | 0         | 22.48                  | 22.48     | 22.58       |
|                 |            | 1       | 13        | 23.04                  | 23.03     | 22.92       |
|                 |            | 1       | 24        | 22.88                  | 22.83     | 22.61       |
|                 |            | 12      | 0         | 21.51                  | 21.53     | 21.32       |
|                 |            | 12      | 6         | 21.51                  | 21.48     | 21.59       |
|                 |            | 12      | 13        | 21.47                  | 21.89     | 21.87       |
|                 |            | 25      | 0         | 21.50                  | 21.50     | 21.48       |
|                 | 16QAM      | 1       | 0         | 21.41                  | 21.43     | 21.22       |
|                 |            | 1       | 13        | 21.39                  | 21.38     | 21.49       |
|                 |            | 1       | 24        | 21.37                  | 21.78     | 21.75       |
|                 |            | 12      | 0         | 21.40                  | 21.39     | 21.38       |
|                 |            | 12      | 6         | 21.39                  | 21.39     | 21.51       |
|                 |            | 12      | 13        | 21.37                  | 21.78     | 21.75       |
|                 |            | 25      | 0         | 21.36                  | 21.49     | 21.56       |
| Bandwidth       | Modulation | RB size | RB offset | Channel/Frequency(MHz) |           |             |
|                 |            |         |           | 23780/709              | 23790/710 | 23800/711   |
| 10MHz           | QPSK       | 1       | 0         | 22.47                  | 22.46     | 22.55       |
|                 |            | 1       | 25        | 23.02                  | 23.02     | 22.91       |
|                 |            | 1       | 49        | 22.87                  | 22.82     | 22.60       |
|                 |            | 25      | 0         | 21.50                  | 21.52     | 21.31       |
|                 |            | 25      | 13        | 21.49                  | 21.47     | 21.58       |
|                 |            | 25      | 25        | 21.46                  | 21.88     | 21.84       |
|                 |            | 50      | 0         | 21.49                  | 21.48     | 21.47       |
|                 | 16QAM      | 1       | 0         | 21.40                  | 21.42     | 21.21       |
|                 |            | 1       | 25        | 21.38                  | 21.37     | 21.48       |
|                 |            | 1       | 49        | 21.36                  | 21.77     | 21.74       |
|                 |            | 25      | 0         | 21.39                  | 21.38     | 21.37       |
|                 |            | 25      | 13        | 21.38                  | 21.37     | 21.48       |
|                 |            | 25      | 25        | 21.36                  | 21.77     | 21.74       |
|                 |            | 50      | 0         | 21.34                  | 21.48     | 21.53       |

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| LTE FDD Band 25<br>(Hotspot Close) |            |         |           | Conducted Power(dBm)   |              |              |
|------------------------------------|------------|---------|-----------|------------------------|--------------|--------------|
| Bandwidth                          | Modulation | RB size | RB offset | Channel/Frequency(MHz) |              |              |
|                                    |            |         |           | 26047/1850.7           | 26365/1882.5 | 26683/1914.3 |
| 1.4MHz                             | QPSK       | 1       | 0         | 22.27                  | 22.52        | 23.19        |
|                                    |            | 1       | 2         | 22.48                  | 21.81        | 22.78        |
|                                    |            | 1       | 5         | 22.86                  | 22.34        | 22.15        |
|                                    |            | 3       | 0         | 21.30                  | 21.26        | 22.14        |
|                                    |            | 3       | 2         | 21.26                  | 20.86        | 21.42        |
|                                    |            | 3       | 3         | 21.68                  | 20.92        | 21.91        |
|                                    |            | 6       | 0         | 21.58                  | 21.69        | 21.17        |
|                                    | 16QAM      | 1       | 0         | 21.30                  | 21.85        | 22.26        |
|                                    |            | 1       | 2         | 21.46                  | 21.11        | 21.77        |
|                                    |            | 1       | 5         | 21.92                  | 21.65        | 21.34        |
|                                    |            | 3       | 0         | 20.29                  | 20.01        | 20.89        |
|                                    |            | 3       | 2         | 20.20                  | 19.93        | 20.41        |
|                                    |            | 3       | 3         | 20.75                  | 20.31        | 20.58        |
|                                    |            | 6       | 0         | 20.54                  | 20.17        | 20.62        |
| Bandwidth                          | Modulation | RB size | RB offset | Channel/Frequency(MHz) |              |              |
|                                    |            |         |           | 26055/1851.5           | 26365/1882.5 | 26675/1913.5 |
| 3MHz                               | QPSK       | 1       | 0         | 22.25                  | 22.50        | 23.18        |
|                                    |            | 1       | 13        | 22.47                  | 21.79        | 22.77        |
|                                    |            | 1       | 24        | 22.84                  | 22.33        | 22.13        |
|                                    |            | 12      | 0         | 21.29                  | 21.25        | 22.13        |
|                                    |            | 12      | 6         | 21.25                  | 20.85        | 21.41        |
|                                    |            | 12      | 13        | 21.66                  | 20.91        | 21.90        |
|                                    |            | 25      | 0         | 21.57                  | 21.67        | 21.16        |
|                                    | 16QAM      | 1       | 0         | 21.29                  | 21.84        | 22.24        |
|                                    |            | 1       | 13        | 21.45                  | 21.10        | 21.76        |
|                                    |            | 1       | 24        | 21.91                  | 21.64        | 21.33        |
|                                    |            | 12      | 0         | 20.28                  | 20.00        | 20.88        |
|                                    |            | 12      | 6         | 20.19                  | 19.92        | 20.40        |
|                                    |            | 12      | 13        | 20.73                  | 20.30        | 20.57        |
|                                    |            | 25      | 0         | 20.53                  | 20.16        | 20.61        |
| Bandwidth                          | Modulation | RB size | RB offset | Channel/Frequency(MHz) |              |              |
|                                    |            |         |           | 26065/1852.5           | 26365/1882.5 | 26665/1912.5 |
| 5MHz                               | QPSK       | 1       | 0         | 22.24                  | 22.49        | 23.17        |
|                                    |            | 1       | 13        | 22.46                  | 21.78        | 22.76        |
|                                    |            | 1       | 24        | 22.83                  | 22.31        | 22.12        |
|                                    |            | 12      | 0         | 21.27                  | 21.24        | 22.11        |
|                                    |            | 12      | 6         | 21.24                  | 20.84        | 21.40        |
|                                    |            | 12      | 13        | 21.65                  | 20.90        | 21.89        |

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|           |            | 25      | 0         | 21.56                  | 21.66        | 21.15        |
|-----------|------------|---------|-----------|------------------------|--------------|--------------|
|           | 16QAM      | 1       | 0         | 21.28                  | 21.83        | 22.23        |
|           |            | 1       | 13        | 21.44                  | 21.09        | 21.75        |
|           |            | 1       | 24        | 21.90                  | 21.63        | 21.32        |
|           |            | 12      | 0         | 20.27                  | 19.98        | 20.87        |
|           |            | 12      | 6         | 20.18                  | 19.91        | 20.39        |
|           |            | 12      | 13        | 20.72                  | 20.29        | 20.56        |
|           |            | 25      | 0         | 20.51                  | 20.15        | 20.59        |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |              |              |
|           |            |         |           | 26090/1855             | 26365/1882.5 | 26640/1910   |
| 10MHz     | QPSK       | 1       | 0         | 22.22                  | 22.48        | 23.15        |
|           |            | 1       | 25        | 22.45                  | 21.77        | 22.75        |
|           |            | 1       | 49        | 22.82                  | 22.30        | 22.11        |
|           |            | 25      | 0         | 21.26                  | 21.22        | 22.10        |
|           |            | 25      | 13        | 21.23                  | 20.83        | 21.39        |
|           |            | 25      | 25        | 21.64                  | 20.89        | 21.88        |
|           |            | 50      | 0         | 21.55                  | 21.65        | 21.13        |
|           | 16QAM      | 1       | 0         | 21.27                  | 21.82        | 22.22        |
|           |            | 1       | 25        | 21.43                  | 21.08        | 21.74        |
|           |            | 1       | 49        | 21.89                  | 21.62        | 21.31        |
|           |            | 25      | 0         | 20.25                  | 19.97        | 20.86        |
|           |            | 25      | 13        | 20.17                  | 19.90        | 20.38        |
|           |            | 25      | 25        | 20.71                  | 20.28        | 20.55        |
|           |            | 50      | 0         | 20.50                  | 20.13        | 20.58        |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |              |              |
|           |            |         |           | 26115/1857.5           | 26365/1882.5 | 26615/1907.5 |
| 15MHz     | QPSK       | 1       | 0         | 22.22                  | 22.48        | 23.15        |
|           |            | 1       | 25        | 22.44                  | 21.77        | 22.75        |
|           |            | 1       | 49        | 22.82                  | 22.30        | 22.11        |
|           |            | 25      | 0         | 21.26                  | 21.21        | 22.10        |
|           |            | 25      | 13        | 21.22                  | 20.83        | 21.39        |
|           |            | 25      | 25        | 21.64                  | 20.89        | 21.88        |
|           |            | 50      | 0         | 21.55                  | 21.65        | 21.12        |
|           | 16QAM      | 1       | 0         | 21.27                  | 21.82        | 22.22        |
|           |            | 1       | 25        | 21.43                  | 21.08        | 21.74        |
|           |            | 1       | 49        | 21.89                  | 21.61        | 21.31        |
|           |            | 25      | 0         | 20.24                  | 19.97        | 20.86        |
|           |            | 25      | 13        | 20.17                  | 19.90        | 20.38        |
|           |            | 25      | 25        | 20.70                  | 20.28        | 20.54        |
|           |            | 50      | 0         | 20.50                  | 20.12        | 20.58        |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |              |              |
|           |            |         |           | 26140/1860             | 26365/1882.5 | 26590/1905   |
| 20MHz     | QPSK       | 1       | 0         | 22.21                  | 22.47        | 23.14        |

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|  |       |     |    |       |       |       |
|--|-------|-----|----|-------|-------|-------|
|  |       | 1   | 50 | 22.43 | 21.76 | 22.74 |
|  |       | 1   | 99 | 22.81 | 22.29 | 22.10 |
|  |       | 50  | 0  | 21.25 | 21.20 | 22.09 |
|  |       | 50  | 25 | 21.21 | 20.82 | 21.38 |
|  |       | 50  | 50 | 21.63 | 20.88 | 21.87 |
|  |       | 100 | 0  | 21.54 | 21.11 | 21.64 |
|  | 16QAM | 1   | 0  | 21.26 | 21.81 | 22.21 |
|  |       | 1   | 50 | 21.42 | 21.07 | 21.73 |
|  |       | 1   | 99 | 21.88 | 21.60 | 21.30 |
|  |       | 50  | 0  | 20.23 | 19.96 | 20.85 |
|  |       | 50  | 25 | 20.16 | 19.89 | 20.37 |
|  |       | 50  | 50 | 20.69 | 20.27 | 20.53 |
|  |       | 100 | 0  | 20.49 | 20.11 | 20.57 |

| LTE FDD Band 25<br>(Hotspot Open) |            |         |           | Conducted Power(dBm)   |              |              |
|-----------------------------------|------------|---------|-----------|------------------------|--------------|--------------|
| Bandwidth                         | Modulation | RB size | RB offset | Channel/Frequency(MHz) |              |              |
|                                   |            |         |           | 26047/1850.7           | 26365/1882.5 | 26683/1914.3 |
| 1.4MHz                            | QPSK       | 1       | 0         | 17.79                  | 18.04        | 18.71        |
|                                   |            | 1       | 2         | 18.00                  | 17.33        | 18.30        |
|                                   |            | 1       | 5         | 18.38                  | 17.86        | 17.67        |
|                                   |            | 3       | 0         | 16.79                  | 16.75        | 17.63        |
|                                   |            | 3       | 2         | 16.76                  | 16.36        | 16.92        |
|                                   |            | 3       | 3         | 17.18                  | 16.42        | 17.41        |
|                                   |            | 6       | 0         | 17.05                  | 17.16        | 16.64        |
|                                   | 16QAM      | 1       | 0         | 16.77                  | 17.32        | 17.73        |
|                                   |            | 1       | 2         | 16.93                  | 16.58        | 17.24        |
|                                   |            | 1       | 5         | 17.43                  | 17.16        | 16.85        |
|                                   |            | 3       | 0         | 15.80                  | 15.52        | 16.40        |
|                                   |            | 3       | 2         | 15.71                  | 15.44        | 15.92        |
|                                   |            | 3       | 3         | 16.26                  | 15.82        | 16.09        |
|                                   |            | 6       | 0         | 16.08                  | 15.71        | 16.16        |
| Bandwidth                         | Modulation | RB size | RB offset | Channel/Frequency(MHz) |              |              |
|                                   |            |         |           | 26055/1851.5           | 26365/1882.5 | 26675/1913.5 |
| 3MHz                              | QPSK       | 1       | 0         | 17.73                  | 17.98        | 18.66        |
|                                   |            | 1       | 13        | 17.95                  | 17.27        | 18.25        |
|                                   |            | 1       | 24        | 18.32                  | 17.81        | 17.61        |
|                                   |            | 12      | 0         | 16.74                  | 16.70        | 17.58        |
|                                   |            | 12      | 6         | 16.78                  | 16.38        | 16.94        |
|                                   |            | 12      | 13        | 17.19                  | 16.44        | 17.43        |
|                                   |            | 25      | 0         | 17.07                  | 17.17        | 16.66        |



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|           |            | 1       | 0         | 16.79                  | 17.34        | 17.74        |
|-----------|------------|---------|-----------|------------------------|--------------|--------------|
|           |            | 1       | 13        | 16.98                  | 16.63        | 17.29        |
|           |            | 1       | 24        | 17.40                  | 17.13        | 16.82        |
|           | 16QAM      | 12      | 0         | 15.77                  | 15.49        | 16.37        |
|           |            | 12      | 6         | 15.68                  | 15.41        | 15.89        |
|           |            | 12      | 13        | 16.22                  | 15.79        | 16.06        |
|           |            | 25      | 0         | 16.02                  | 15.65        | 16.10        |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |              |              |
|           |            |         |           | 26065/1852.5           | 26365/1882.5 | 26665/1912.5 |
| 5MHz      | QPSK       | 1       | 0         | 17.74                  | 17.99        | 18.67        |
|           |            | 1       | 13        | 17.96                  | 17.28        | 18.26        |
|           |            | 1       | 24        | 18.37                  | 17.85        | 17.66        |
|           |            | 12      | 0         | 16.78                  | 16.75        | 17.62        |
|           |            | 12      | 6         | 16.75                  | 16.35        | 16.91        |
|           |            | 12      | 13        | 17.19                  | 16.44        | 17.43        |
|           |            | 25      | 0         | 17.07                  | 17.17        | 16.66        |
|           | 16QAM      | 1       | 0         | 16.79                  | 17.34        | 17.74        |
|           |            | 1       | 13        | 16.95                  | 16.60        | 17.26        |
|           |            | 1       | 24        | 17.34                  | 17.07        | 16.76        |
|           |            | 12      | 0         | 15.71                  | 15.42        | 16.31        |
|           |            | 12      | 6         | 15.62                  | 15.35        | 15.83        |
|           |            | 12      | 13        | 16.26                  | 15.83        | 16.10        |
|           |            | 25      | 0         | 16.05                  | 15.69        | 16.13        |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |              |              |
|           |            |         |           | 26090/1855             | 26365/1882.5 | 26640/1910   |
| 10MHz     | QPSK       | 1       | 0         | 17.71                  | 17.97        | 18.64        |
|           |            | 1       | 25        | 17.94                  | 17.26        | 18.24        |
|           |            | 1       | 49        | 18.31                  | 17.79        | 17.60        |
|           |            | 25      | 0         | 16.72                  | 16.68        | 17.56        |
|           |            | 25      | 13        | 16.69                  | 16.29        | 16.85        |
|           |            | 25      | 25        | 17.10                  | 16.35        | 17.34        |
|           |            | 50      | 0         | 16.98                  | 17.08        | 16.56        |
|           | 16QAM      | 1       | 0         | 16.81                  | 17.36        | 17.76        |
|           |            | 1       | 25        | 16.97                  | 16.62        | 17.28        |
|           |            | 1       | 49        | 17.39                  | 17.12        | 16.81        |
|           |            | 25      | 0         | 15.75                  | 15.47        | 16.36        |
|           |            | 25      | 13        | 15.67                  | 15.40        | 15.88        |
|           |            | 25      | 25        | 16.21                  | 15.78        | 16.05        |
|           |            | 50      | 0         | 16.00                  | 15.63        | 16.08        |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |              |              |
|           |            |         |           | 26115/1857.5           | 26365/1882.5 | 26615/1907.5 |
| 15MHz     | QPSK       | 1       | 0         | 17.71                  | 17.97        | 18.64        |
|           |            | 1       | 25        | 17.93                  | 17.26        | 18.24        |
|           |            | 1       | 49        | 18.31                  | 17.79        | 17.60        |

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|                  |            |         |           |                        |              |            |
|------------------|------------|---------|-----------|------------------------|--------------|------------|
|                  |            | 25      | 0         | 16.72                  | 16.67        | 17.56      |
|                  |            | 25      | 13        | 16.68                  | 16.29        | 16.85      |
|                  |            | 25      | 25        | 17.10                  | 16.35        | 17.34      |
|                  |            | 50      | 0         | 16.98                  | 17.08        | 16.55      |
|                  | 16QAM      | 1       | 0         | 16.81                  | 17.36        | 17.76      |
|                  |            | 1       | 25        | 16.97                  | 16.62        | 17.28      |
|                  |            | 1       | 49        | 17.39                  | 17.11        | 16.81      |
|                  |            | 25      | 0         | 15.74                  | 15.47        | 16.36      |
|                  |            | 25      | 13        | 15.67                  | 15.40        | 15.88      |
|                  |            | 25      | 25        | 16.20                  | 15.78        | 16.04      |
|                  |            | 50      | 0         | 16.00                  | 15.62        | 16.08      |
|                  |            |         |           |                        |              |            |
| <b>Bandwidth</b> | Modulation | RB size | RB offset | Channel/Frequency(MHz) |              |            |
|                  |            |         |           | 26140/1860             | 26365/1882.5 | 26590/1905 |
| <b>20MHz</b>     | QPSK       | 1       | 0         | 17.71                  | 17.97        | 18.64      |
|                  |            | 1       | 50        | 17.93                  | 17.26        | 18.24      |
|                  |            | 1       | 99        | 18.36                  | 17.84        | 17.65      |
|                  |            | 50      | 0         | 16.77                  | 16.72        | 17.61      |
|                  |            | 50      | 25        | 16.73                  | 16.34        | 16.90      |
|                  |            | 50      | 50        | 17.15                  | 16.40        | 17.39      |
|                  |            | 100     | 0         | 17.03                  | 16.60        | 17.13      |
|                  | 16QAM      | 1       | 0         | 16.75                  | 17.30        | 17.70      |
|                  |            | 1       | 50        | 16.91                  | 16.56        | 17.22      |
|                  |            | 1       | 99        | 17.33                  | 17.05        | 16.75      |
|                  |            | 50      | 0         | 15.68                  | 15.41        | 16.30      |
|                  |            | 50      | 25        | 15.67                  | 15.40        | 15.88      |
|                  |            | 50      | 50        | 16.20                  | 15.78        | 16.04      |
|                  |            | 100     | 0         | 16.00                  | 15.62        | 16.08      |

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| LTE FDD Band 26 |            |         |           | Conducted Power(dBm)   |             |             |
|-----------------|------------|---------|-----------|------------------------|-------------|-------------|
| Bandwidth       | Modulation | RB size | RB offset | Channel/Frequency(MHz) |             |             |
|                 |            |         |           | 26697/814.7            | 26865/831.5 | 27033/848.3 |
| 1.4MHz          | QPSK       | 1       | 0         | 23.45                  | 23.97       | 23.22       |
|                 |            | 1       | 2         | 23.94                  | 23.30       | 23.74       |
|                 |            | 1       | 5         | 23.17                  | 23.33       | 22.99       |
|                 |            | 3       | 0         | 22.09                  | 22.27       | 22.31       |
|                 |            | 3       | 2         | 22.07                  | 22.32       | 22.52       |
|                 |            | 3       | 3         | 22.33                  | 22.16       | 22.32       |
|                 |            | 6       | 0         | 22.16                  | 22.18       | 22.32       |
|                 | 16QAM      | 1       | 0         | 22.36                  | 22.61       | 22.57       |
|                 |            | 1       | 2         | 22.90                  | 22.35       | 22.41       |
|                 |            | 1       | 5         | 22.10                  | 22.38       | 22.41       |
|                 |            | 3       | 0         | 21.07                  | 21.15       | 21.38       |
|                 |            | 3       | 2         | 21.47                  | 21.18       | 21.57       |
|                 |            | 3       | 3         | 21.30                  | 21.15       | 21.34       |
|                 |            | 6       | 0         | 21.17                  | 21.16       | 21.36       |
| Bandwidth       | Modulation | RB size | RB offset | Channel/Frequency(MHz) |             |             |
|                 |            |         |           | 26705/815.5            | 26865/831.5 | 27025/847.5 |
| 3MHz            | QPSK       | 1       | 0         | 23.44                  | 23.96       | 23.21       |
|                 |            | 1       | 13        | 23.93                  | 23.29       | 23.73       |
|                 |            | 1       | 24        | 23.16                  | 23.32       | 22.98       |
|                 |            | 12      | 0         | 22.07                  | 22.26       | 22.30       |
|                 |            | 12      | 6         | 22.06                  | 22.31       | 22.51       |
|                 |            | 12      | 13        | 22.32                  | 22.15       | 22.31       |
|                 |            | 25      | 0         | 22.15                  | 22.16       | 22.31       |
|                 | 16QAM      | 1       | 0         | 22.35                  | 22.60       | 22.56       |
|                 |            | 1       | 13        | 22.89                  | 22.34       | 22.40       |
|                 |            | 1       | 24        | 22.09                  | 22.37       | 22.40       |
|                 |            | 12      | 0         | 21.06                  | 21.14       | 21.37       |
|                 |            | 12      | 6         | 21.46                  | 21.17       | 21.56       |
|                 |            | 12      | 13        | 21.29                  | 21.14       | 21.33       |
|                 |            | 25      | 0         | 21.16                  | 21.15       | 21.35       |
| Bandwidth       | Modulation | RB size | RB offset | Channel/Frequency(MHz) |             |             |
|                 |            |         |           | 26715/816.5            | 26865/831.5 | 27015/846.5 |
| 5MHz            | QPSK       | 1       | 0         | 23.43                  | 23.95       | 23.19       |
|                 |            | 1       | 13        | 23.91                  | 23.28       | 23.72       |
|                 |            | 1       | 24        | 23.15                  | 23.31       | 22.97       |
|                 |            | 12      | 0         | 22.06                  | 22.25       | 22.29       |
|                 |            | 12      | 6         | 22.05                  | 22.30       | 22.50       |
|                 |            | 12      | 13        | 22.31                  | 22.14       | 22.30       |
|                 |            | 25      | 0         | 22.14                  | 22.15       | 22.30       |

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|           |            | 1       | 0         | 22.34                  | 22.59       | 22.55       |
|-----------|------------|---------|-----------|------------------------|-------------|-------------|
|           |            | 1       | 13        | 22.88                  | 22.33       | 22.39       |
|           |            | 1       | 24        | 22.08                  | 22.36       | 22.39       |
|           | 16QAM      | 12      | 0         | 21.05                  | 21.13       | 21.36       |
|           |            | 12      | 6         | 21.45                  | 21.16       | 21.55       |
|           |            | 12      | 13        | 21.28                  | 21.13       | 21.32       |
|           |            | 25      | 0         | 21.15                  | 21.14       | 21.34       |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |             |             |
|           |            |         |           | 26750/820              | 26865/831.5 | 26990/844   |
| 10MHz     | QPSK       | 1       | 0         | 23.42                  | 23.94       | 23.18       |
|           |            | 1       | 25        | 23.89                  | 23.27       | 23.70       |
|           |            | 1       | 49        | 23.14                  | 23.29       | 22.96       |
|           |            | 25      | 0         | 22.05                  | 22.24       | 22.28       |
|           |            | 25      | 13        | 22.04                  | 22.29       | 22.49       |
|           |            | 25      | 25        | 22.30                  | 22.13       | 22.29       |
|           |            | 50      | 0         | 22.13                  | 22.14       | 22.29       |
|           | 16QAM      | 1       | 0         | 22.32                  | 22.57       | 22.53       |
|           |            | 1       | 25        | 22.86                  | 22.31       | 22.37       |
|           |            | 1       | 49        | 22.06                  | 22.34       | 22.37       |
|           |            | 25      | 0         | 21.03                  | 21.11       | 21.34       |
|           |            | 25      | 13        | 21.43                  | 21.14       | 21.53       |
|           |            | 25      | 25        | 21.26                  | 21.11       | 21.30       |
|           |            | 50      | 0         | 21.13                  | 21.12       | 21.32       |
| Bandwidth | Modulation | RB size | RB offset | Channel/Frequency(MHz) |             |             |
|           |            |         |           | 26775/822.5            | 26865/831.5 | 26965/841.5 |
| 15MHz     | QPSK       | 1       | 0         | 23.41                  | 23.92       | 23.17       |
|           |            | 1       | 38        | 23.88                  | 23.26       | 23.68       |
|           |            | 1       | 74        | 23.12                  | 23.28       | 22.95       |
|           |            | 36      | 0         | 22.04                  | 22.23       | 22.27       |
|           |            | 36      | 18        | 22.03                  | 22.28       | 22.48       |
|           |            | 36      | 39        | 22.29                  | 22.12       | 22.28       |
|           |            | 75      | 0         | 22.12                  | 22.13       | 22.28       |
|           | 16QAM      | 1       | 0         | 22.33                  | 22.58       | 22.54       |
|           |            | 1       | 38        | 22.87                  | 22.32       | 22.38       |
|           |            | 1       | 74        | 22.07                  | 22.35       | 22.38       |
|           |            | 36      | 0         | 21.04                  | 21.12       | 21.35       |
|           |            | 36      | 18        | 21.44                  | 21.15       | 21.54       |
|           |            | 36      | 39        | 21.27                  | 21.12       | 21.31       |
|           |            | 75      | 0         | 21.14                  | 21.13       | 21.33       |

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| BT            | AV Power (dBm)         |         |         |
|---------------|------------------------|---------|---------|
|               | Channel/Frequency(MHz) |         |         |
|               | 0/2402                 | 39/2441 | 78/2480 |
| GFSK          | 7.50                   | 8.20    | 8.10    |
| $\pi/4$ DQPSK | 5.20                   | 6.30    | 5.70    |
| 8DPSK         | 4.90                   | 6.10    | 5.50    |
| BT LE         | 0/2402                 | 19/2440 | 39/2480 |
| Test Results  | -0.33                  | -0.22   | -0.11   |

| Mode    | Channel/<br>Frequency(MHz) | Data rate<br>(Mbps) | AV Power (dBm) |
|---------|----------------------------|---------------------|----------------|
| 802.11b | 1/2412                     | 1                   | 15.18          |
|         |                            | 2                   | 15.02          |
|         |                            | 5.5                 | 14.26          |
|         |                            | 11                  | 14.22          |
|         | 6/2437                     | 1                   | 14.91          |
|         |                            | 2                   | 14.69          |
|         |                            | 5.5                 | 13.85          |
|         |                            | 11                  | 14.01          |
|         | 11/2462                    | 1                   | 15.08          |
|         |                            | 2                   | 15.14          |
|         |                            | 5.5                 | 14.57          |
|         |                            | 11                  | 14.37          |
| 802.11g | 1/2412                     | 6                   | 14.14          |
|         |                            | 9                   | 14.12          |
|         |                            | 12                  | 14.11          |
|         |                            | 18                  | 14.11          |
|         |                            | 24                  | 14.09          |
|         |                            | 36                  | 14.09          |
|         |                            | 48                  | 14.09          |
|         |                            | 54                  | 14.08          |
|         | 6/2437                     | 6                   | 14.20          |
|         |                            | 9                   | 14.22          |
|         |                            | 12                  | 14.26          |
|         |                            | 18                  | 14.25          |
|         |                            | 24                  | 14.24          |
|         |                            | 36                  | 14.25          |
|         |                            | 48                  | 14.25          |

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|              |         |      |       |
|--------------|---------|------|-------|
|              |         | 54   | 14.26 |
|              | 11/2462 | 6    | 13.81 |
|              |         | 9    | 13.78 |
|              |         | 12   | 13.82 |
|              |         | 18   | 13.77 |
|              |         | 24   | 13.83 |
|              |         | 36   | 13.89 |
|              |         | 48   | 13.76 |
|              |         | 54   | 13.82 |
| 802.11n HT20 | 1/2412  | MCS0 | 12.39 |
|              |         | MCS1 | 12.35 |
|              |         | MCS2 | 12.36 |
|              |         | MCS3 | 12.00 |
|              |         | MCS4 | 12.14 |
|              |         | MCS5 | 12.13 |
|              |         | MCS6 | 12.12 |
|              |         | MCS7 | 12.13 |
|              | 6/2437  | MCS0 | 12.30 |
|              |         | MCS1 | 12.40 |
|              |         | MCS2 | 12.50 |
|              |         | MCS3 | 12.50 |
|              |         | MCS4 | 12.50 |
|              |         | MCS5 | 12.49 |
|              |         | MCS6 | 12.37 |
|              |         | MCS7 | 12.45 |
|              | 11/2462 | MCS0 | 11.89 |
|              |         | MCS1 | 11.88 |
|              |         | MCS2 | 11.86 |
|              |         | MCS3 | 11.87 |
|              |         | MCS4 | 11.86 |
|              |         | MCS5 | 11.85 |
|              |         | MCS6 | 11.82 |
|              |         | MCS7 | 11.83 |
| 802.11n HT40 | 3/2422  | MCS0 | 12.39 |
|              |         | MCS1 | 12.35 |
|              |         | MCS2 | 12.36 |
|              |         | MCS3 | 12.36 |
|              |         | MCS4 | 12.37 |
|              |         | MCS5 | 12.40 |
|              |         | MCS6 | 12.43 |
|              |         | MCS7 | 12.49 |
|              | 6/2437  | MCS0 | 12.56 |
|              |         | MCS1 | 12.55 |

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|  |        |      |       |
|--|--------|------|-------|
|  |        | MCS2 | 12.61 |
|  |        | MCS3 | 12.63 |
|  |        | MCS4 | 12.64 |
|  |        | MCS5 | 12.65 |
|  |        | MCS6 | 12.57 |
|  |        | MCS7 | 12.57 |
|  | 9/2452 | MCS0 | 12.26 |
|  |        | MCS1 | 12.28 |
|  |        | MCS2 | 12.25 |
|  |        | MCS3 | 12.23 |
|  |        | MCS4 | 12.33 |
|  |        | MCS5 | 12.29 |
|  |        | MCS6 | 12.31 |
|  |        | MCS7 | 12.28 |

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**7.2. Standalone SAR Test Exclusion Considerations**

Per FCC KDB 447498 D01, the SAR exclusion threshold for distances <50mm is defined by the following equation:

$$\frac{(\text{max. power of channel, including tune-up tolerance, mW})}{(\text{min. test separation distance, mm})} * \sqrt{\text{Frequency (GHz)}} \leq 3.0$$

| Band           | Configuration | Frequency (MHz) | Maximum Power (dBm) | Separation Distance (mm) | Calculation Result | SAR Exclusion Thresholds | Standalone SAR |
|----------------|---------------|-----------------|---------------------|--------------------------|--------------------|--------------------------|----------------|
| Bluetooth      | Body          | 2480            | 10                  | 15                       | 1.05               | 3.0                      | No             |
| Wifi<br>2.4GHz | Head          | 2462            | 16                  | 5                        | 12.49              | 3.0                      | Yes            |
|                | Body          | 2462            | 16                  | 15                       | 4.16               | 3.0                      | Yes            |



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**Table 14: SAR Values [GSM 850 (GSM/GPRS/EGPRS)]**

| Test Position                                              | Channel/<br>Frequency<br>(MHz) | Time slot | Duty Cycle | Maximum Allowed Power (dBm) | Conducted Power (dBm) | Drift<br>± 0.21dB | Limit SAR <sub>1g</sub> 1.6 W/kg  |                |                                   |               |
|------------------------------------------------------------|--------------------------------|-----------|------------|-----------------------------|-----------------------|-------------------|-----------------------------------|----------------|-----------------------------------|---------------|
|                                                            |                                |           |            |                             |                       | Drift (dB)        | Measured SAR <sub>1g</sub> (W/kg) | Scaling Factor | Reported SAR <sub>1g</sub> (W/kg) | Graph Results |
| Test Position of Head                                      |                                |           |            |                             |                       |                   |                                   |                |                                   |               |
| Left/Cheek                                                 | 190/836.6                      | GSM       | 1:8.3      | 33.30                       | 32.52                 | 0.074             | 0.663                             | 1.20           | 0.793                             | /             |
| Left/Tilt                                                  | 190/836.6                      | GSM       | 1:8.3      | 33.30                       | 32.52                 | 0.040             | 0.633                             | 1.20           | 0.758                             | /             |
| Right/Cheek                                                | 251/848.8                      | GSM       | 1:8.3      | 33.30                       | 32.43                 | 0.080             | 0.876                             | 1.22           | 1.070                             | /             |
|                                                            | 190/836.6                      | GSM       | 1:8.3      | 33.30                       | 32.52                 | 0.040             | 0.973                             | 1.20           | 1.164                             | /             |
|                                                            | 128/824.2                      | GSM       | 1:8.3      | 33.30                       | 32.35                 | 0.022             | 1.030                             | 1.24           | 1.282                             | Figure.27     |
| Right/Tilt                                                 | 251/848.8                      | GSM       | 1:8.3      | 33.30                       | 32.43                 | 0.050             | 0.847                             | 1.22           | 1.035                             | /             |
|                                                            | 190/836.6                      | GSM       | 1:8.3      | 33.30                       | 32.52                 | 0.040             | 0.948                             | 1.20           | 1.135                             | /             |
|                                                            | 128/824.2                      | GSM       | 1:8.3      | 33.30                       | 32.35                 | 0.040             | 0.951                             | 1.24           | 1.184                             | /             |
| Worst position of Head With Battery 2                      |                                |           |            |                             |                       |                   |                                   |                |                                   |               |
| Right/Cheek                                                | 128/824.2                      | GSM       | 1:8.3      | 33.30                       | 32.35                 | 0.020             | 0.963                             | 1.24           | 1.198                             | /             |
| Test Position of Head (WiFi on)                            |                                |           |            |                             |                       |                   |                                   |                |                                   |               |
| Left/Cheek                                                 | 190/836.6                      | GSM       | 1:8.3      | 30.80                       | 30.62                 | 0.049             | 0.498                             | 1.04           | 0.519                             | /             |
| Left/Tilt                                                  | 190/836.6                      | GSM       | 1:8.3      | 30.80                       | 30.62                 | -0.010            | 0.626                             | 1.04           | 0.652                             | /             |
| Worst Case Position of Head (1 <sup>st</sup> Repeated SAR) |                                |           |            |                             |                       |                   |                                   |                |                                   |               |
| Right/Cheek                                                | 128/824.2                      | GSM       | 1:8.3      | 33.30                       | 32.35                 | 0.120             | 0.948                             | 1.24           | 1.180                             | /             |
| Test position of Body-worn (Distance 15mm)                 |                                |           |            |                             |                       |                   |                                   |                |                                   |               |
| Back Side                                                  | 190/836.6                      | GSM       | 1:8.3      | 33.30                       | 32.52                 | -0.044            | 0.084                             | 1.20           | 0.101                             | /             |
| Front Side                                                 | 190/836.6                      | GSM       | 1:8.3      | 33.30                       | 32.52                 | 0.074             | 0.096                             | 1.20           | 0.114                             | Figure.28     |
| Test position of Hotspot (Distance 10mm)                   |                                |           |            |                             |                       |                   |                                   |                |                                   |               |
| Back Side                                                  | 190/836.6                      | 2Txslots  | 1:4.15     | 30.50                       | 30.37                 | -0.027            | 0.155                             | 1.03           | 0.160                             | /             |
| Front Side                                                 | 190/836.6                      | 2Txslots  | 1:4.15     | 30.50                       | 30.37                 | -0.038            | 0.202                             | 1.03           | 0.208                             | /             |
| Left Edge                                                  | 190/836.6                      | 2Txslots  | 1:4.15     | 30.50                       | 30.37                 | 0.050             | 0.088                             | 1.03           | 0.091                             | /             |
| Right Edge                                                 | 190/836.6                      | 2Txslots  | 1:4.15     | 30.50                       | 30.37                 | -0.034            | 0.019                             | 1.03           | 0.020                             | /             |
| Top Edge                                                   | 190/836.6                      | 2Txslots  | 1:4.15     | 30.50                       | 30.37                 | -0.038            | 0.172                             | 1.03           | 0.177                             | /             |
| Bottom Edge                                                | NA                             | NA        | NA         | NA                          | NA                    | NA                | NA                                | NA             | NA                                | NA            |
| Worst Case Position of Body with EGPRS (Distance 10mm)     |                                |           |            |                             |                       |                   |                                   |                |                                   |               |
| Front Side                                                 | 190/836.6                      | 2Txslots  | 1:4.15     | 30.50                       | 30.44                 | -0.042            | 0.213                             | 1.01           | 0.216                             | Figure.29     |
| Worst case test Position With Battery 2 (Distance 10mm)    |                                |           |            |                             |                       |                   |                                   |                |                                   |               |
| Front Side                                                 | 190/836.6                      | 2Txslots  | 1:4.15     | 30.50                       | 30.37                 | 0.023             | 0.211                             | 1.03           | 0.217                             | /             |

Note: 1.The value with blue color is the maximum SAR Value of each test band.

2. When multiple slots are used, SAR should be tested to account for the maximum source-based time-averaged output power.

3. Per FCC KDB Publication 648474 D04, SAR was evaluated without a headset connected to the device. Since the reported SAR was ≤ 1.2 W/kg, no additional SAR evaluations using a headset cable were required.

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**Table 15: SAR Measurement Variability Results [GSM 850(GSM/GPRS/EGPRS)]**

| Test Position | Channel/<br>Frequency<br>(MHz) | Measured<br>SAR (1g) | 1 <sup>st</sup> Repeated<br>SAR (1g) | Ratio | 2 <sup>nd</sup><br>Repeated<br>SAR (1g) | 3 <sup>rd</sup> Repeated<br>SAR (1g) |
|---------------|--------------------------------|----------------------|--------------------------------------|-------|-----------------------------------------|--------------------------------------|
| Right/Cheek   | 128/824.2                      | 1.030                | 0.948                                | 1.09  | N/A                                     | N/A                                  |

Note: 1) When the original highest measured SAR is  $\geq 0.80$  W/kg, the measurement was repeated once.

2) A second repeated measurement was performed only if the ratio of largest to smallest SAR for the original and first repeated measurements was  $> 1.20$  or when the original or repeated measurement was  $\geq 1.45$  W/kg ( $\sim 10\%$  from the 1-g SAR limit).

3) A third repeated measurement was performed only if the original, first or second repeated measurement was  $\geq 1.5$  W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is  $> 1.20$ .

4) Repeated measurements are not required when the original highest measured SAR is  $< 0.80$  W/kg

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| Test Position                                                                                                                                                                                                 | Channel/<br>Frequency<br>(MHz) | Time slot | Duty Cycle | Maximum Allowed Power (dBm) | Conducted Power (dBm) | Drift<br>± 0.21dB | Limit SAR <sub>1g</sub> 1.6 W/kg  |                |                                   |               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|-----------|------------|-----------------------------|-----------------------|-------------------|-----------------------------------|----------------|-----------------------------------|---------------|
|                                                                                                                                                                                                               |                                |           |            |                             |                       | Drift (dB)        | Measured SAR <sub>1g</sub> (W/kg) | Scaling Factor | Reported SAR <sub>1g</sub> (W/kg) | Graph Results |
| Test Position of Head                                                                                                                                                                                         |                                |           |            |                             |                       |                   |                                   |                |                                   |               |
| Left/Cheek                                                                                                                                                                                                    | 661/1880                       | GSM       | 1:8.3      | 30.50                       | 28.99                 | 0.080             | 0.147                             | 1.42           | 0.208                             | /             |
| Left/Tilt                                                                                                                                                                                                     | 661/1880                       | GSM       | 1:8.3      | 30.50                       | 28.99                 | 0.100             | 0.223                             | 1.42           | 0.316                             | /             |
| Right/Cheek                                                                                                                                                                                                   | 810/1909.8                     | GSM       | 1:8.3      | 30.50                       | 29.75                 | 0.030             | 0.964                             | 1.19           | 1.146                             | /             |
|                                                                                                                                                                                                               | 661/1880                       | GSM       | 1:8.3      | 30.50                       | 28.99                 | 0.070             | 0.703                             | 1.42           | 0.995                             | /             |
|                                                                                                                                                                                                               | 512/1850.2                     | GSM       | 1:8.3      | 30.50                       | 29.16                 | 0.080             | 0.586                             | 1.36           | 0.798                             | /             |
| Right/Tilt                                                                                                                                                                                                    | 810/1909.8                     | GSM       | 1:8.3      | 30.50                       | 29.75                 | 0.200             | 0.817                             | 1.19           | 0.971                             | /             |
|                                                                                                                                                                                                               | 661/1880                       | GSM       | 1:8.3      | 30.50                       | 28.99                 | -0.030            | 0.616                             | 1.42           | 0.872                             | /             |
|                                                                                                                                                                                                               | 512/1850.2                     | GSM       | 1:8.3      | 30.50                       | 29.16                 | 0.020             | 0.573                             | 1.36           | 0.780                             | /             |
| Worst position of Head With Battery 2                                                                                                                                                                         |                                |           |            |                             |                       |                   |                                   |                |                                   |               |
| Right/Cheek                                                                                                                                                                                                   | 810/1909.8                     | GSM       | 1:8.3      | 30.50                       | 29.75                 | 0.040             | 0.966                             | 1.19           | 1.148                             | Figure.30     |
| Worst Case Position of Head (1 <sup>st</sup> Repeated SAR)                                                                                                                                                    |                                |           |            |                             |                       |                   |                                   |                |                                   |               |
| Right/Cheek                                                                                                                                                                                                   | 810/1909.8                     | GSM       | 1:8.3      | 30.50                       | 29.75                 | 0.070             | 0.898                             | 1.19           | 1.067                             | /             |
| Test position of Body-worn (Distance 15mm)                                                                                                                                                                    |                                |           |            |                             |                       |                   |                                   |                |                                   |               |
| Back Side                                                                                                                                                                                                     | 661/1880                       | GSM       | 1:8.3      | 30.50                       | 28.99                 | 0.150             | 0.058                             | 1.42           | 0.082                             | /             |
| Front Side                                                                                                                                                                                                    | 661/1880                       | GSM       | 1:8.3      | 30.50                       | 28.99                 | 0.144             | 0.065                             | 1.42           | 0.091                             | Figure.31     |
| Test position of Hotspot (Distance 10mm)                                                                                                                                                                      |                                |           |            |                             |                       |                   |                                   |                |                                   |               |
| Back Side                                                                                                                                                                                                     | 661/1880                       | 3Txslots  | 1:4.15     | 26.00                       | 25.26                 | 0.058             | 0.097                             | 1.19           | 0.115                             | /             |
| Front Side                                                                                                                                                                                                    | 661/1880                       | 3Txslots  | 1:4.15     | 26.00                       | 25.26                 | 0.059             | 0.081                             | 1.19           | 0.096                             | /             |
| Left Edge                                                                                                                                                                                                     | 661/1880                       | 3Txslots  | 1:4.15     | 26.00                       | 25.26                 | -0.060            | 0.168                             | 1.19           | 0.199                             | /             |
| Right Edge                                                                                                                                                                                                    | 661/1880                       | 3Txslots  | 1:4.15     | 26.00                       | 25.26                 | 0.050             | 0.025                             | 1.19           | 0.029                             | /             |
| Top Edge                                                                                                                                                                                                      | 661/1880                       | 3Txslots  | 1:4.15     | 26.00                       | 25.26                 | 0.032             | 0.014                             | 1.19           | 0.017                             | /             |
| Bottom Edge                                                                                                                                                                                                   | NA                             | NA        | NA         | NA                          | NA                    | NA                | NA                                | NA             | NA                                | NA            |
| Worst Case Position of Body with EGPRS (Distance 10mm)                                                                                                                                                        |                                |           |            |                             |                       |                   |                                   |                |                                   |               |
| Left Edge                                                                                                                                                                                                     | 661/1880                       | 3Txslots  | 1:4.15     | 26.00                       | 25.29                 | -0.040            | 0.172                             | 1.18           | 0.203                             | /             |
| Worst case test Position With Battery 2 (Distance 10mm)                                                                                                                                                       |                                |           |            |                             |                       |                   |                                   |                |                                   |               |
| Left Edge                                                                                                                                                                                                     | 661/1880                       | 3Txslots  | 1:4.15     | 26.00                       | 25.26                 | 0.020             | 0.200                             | 1.19           | 0.237                             | Figure.32     |
| Note: 1.The value with blue color is the maximum SAR Value of each test band.                                                                                                                                 |                                |           |            |                             |                       |                   |                                   |                |                                   |               |
| 2. When multiple slots are used, SAR should be tested to account for the maximum source-based time-averaged output power.                                                                                     |                                |           |            |                             |                       |                   |                                   |                |                                   |               |
| 3. Per FCC KDB Publication 648474 D04, SAR was evaluated without a headset connected to the device. Since the reported SAR was ≤ 1.2 W/kg, no additional SAR evaluations using a headset cable were required. |                                |           |            |                             |                       |                   |                                   |                |                                   |               |

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**Table 17: SAR Measurement Variability Results [GSM 1900(GSM/GPRS/EGPRS)]**

| Test Position | Channel/<br>Frequency<br>(MHz) | Measured<br>SAR (1g) | 1 <sup>st</sup> Repeated<br>SAR (1g) | Ratio | 2 <sup>nd</sup><br>Repeated<br>SAR (1g) | 3 <sup>rd</sup> Repeated<br>SAR (1g) |
|---------------|--------------------------------|----------------------|--------------------------------------|-------|-----------------------------------------|--------------------------------------|
| Right/Cheek   | 810/1909.8                     | 0.966                | 0.898                                | 1.08  | N/A                                     | N/A                                  |

Note: 1) When the original highest measured SAR is  $\geq 0.80$  W/kg, the measurement was repeated once.

2) A second repeated measurement was performed only if the ratio of largest to smallest SAR for the original and first repeated measurements was  $> 1.20$  or when the original or repeated measurement was  $\geq 1.45$  W/kg ( $\sim 10\%$  from the 1-g SAR limit).

3) A third repeated measurement was performed only if the original, first or second repeated measurement was  $\geq 1.5$  W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is  $> 1.20$ .

4) Repeated measurements are not required when the original highest measured SAR is  $< 0.80$  W/kg

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### 7.3.3. UMTS Band II (Antenna 1)

**Table 18: SAR Values [UMTS Band II (WCDMA/HSDPA/HSUPA)]**

| Test Position                                         | Channel/<br>Frequency<br>(MHz) | Channel Type | Duty Cycle | Maximum Allowed Power (dBm) | Conducted Power (dBm) | Drift<br>± 0.21dB | Limit SAR <sub>1g</sub> 1.6 W/kg  |                |                                   |               |
|-------------------------------------------------------|--------------------------------|--------------|------------|-----------------------------|-----------------------|-------------------|-----------------------------------|----------------|-----------------------------------|---------------|
|                                                       |                                |              |            |                             |                       | Drift (dB)        | Measured SAR <sub>1g</sub> (W/kg) | Scaling Factor | Reported SAR <sub>1g</sub> (W/kg) | Graph Results |
| Test Position of Head                                 |                                |              |            |                             |                       |                   |                                   |                |                                   |               |
| Left/Cheek                                            | 9400/1880                      | RMC 12.2K    | 1:1        | 24.00                       | 23.09                 | -0.010            | 0.149                             | 1.23           | 0.184                             | /             |
| Left/Tilt                                             | 9400/1880                      | RMC 12.2K    | 1:1        | 24.00                       | 23.09                 | 0.190             | 0.174                             | 1.23           | 0.215                             | /             |
| Right/Cheek                                           | 9400/1880                      | RMC 12.2K    | 1:1        | 24.00                       | 23.09                 | 0.040             | 0.494                             | 1.23           | 0.609                             | Figure.33     |
| Right/Tilt                                            | 9400/1880                      | RMC 12.2K    | 1:1        | 24.00                       | 23.09                 | 0.060             | 0.493                             | 1.23           | 0.608                             | /             |
| Worst position of Head with Battery 2                 |                                |              |            |                             |                       |                   |                                   |                |                                   |               |
| Right/Cheek                                           | 9400/1880                      | RMC 12.2K    | 1:1        | 24.00                       | 23.09                 | 0.044             | 0.407                             | 1.23           | 0.502                             | /             |
| Test position of Body-worn (Distance 15mm)            |                                |              |            |                             |                       |                   |                                   |                |                                   |               |
| Back Side                                             | 9400/1880                      | RMC 12.2K    | 1:1        | 24.00                       | 23.09                 | 0.026             | 0.078                             | 1.23           | 0.096                             | Figure.34     |
| Front Side                                            | 9400/1880                      | RMC 12.2K    | 1:1        | 24.00                       | 23.09                 | 0.037             | 0.066                             | 1.23           | 0.082                             | /             |
| Test position of Hotspot (Distance 10mm)              |                                |              |            |                             |                       |                   |                                   |                |                                   |               |
| Back Side                                             | 9400/1880                      | RMC 12.2K    | 1:1        | 24.00                       | 23.09                 | 0.026             | 0.078                             | 1.23           | 0.096                             | /             |
| Front Side                                            | 9400/1880                      | RMC 12.2K    | 1:1        | 24.00                       | 23.09                 | 0.037             | 0.066                             | 1.23           | 0.082                             | /             |
| Left Edge                                             | 9400/1880                      | RMC 12.2K    | 1:1        | 24.00                       | 23.09                 | 0.020             | 0.147                             | 1.23           | 0.181                             | /             |
| Right Edge                                            | 9400/1880                      | RMC 12.2K    | 1:1        | 24.00                       | 23.09                 | 0.045             | 0.011                             | 1.23           | 0.014                             | /             |
| Top Edge                                              | 9400/1880                      | RMC 12.2K    | 1:1        | 24.00                       | 23.09                 | -0.150            | 0.094                             | 1.23           | 0.116                             | /             |
| Bottom Edge                                           | NA                             | NA           | NA         | NA                          | NA                    | NA                | NA                                | NA             | NA                                | NA            |
| Worst position of Body with Battery 2 (Distance 10mm) |                                |              |            |                             |                       |                   |                                   |                |                                   |               |
| Left Edge                                             | 9400/1880                      | RMC 12.2K    | 1:1        | 24.00                       | 23.09                 | 0.020             | 0.178                             | 1.23           | 0.219                             | Figure.35     |

Note: 1.The value with blue color is the maximum SAR Value of each test band.

2. When the maximum output power and tune-up tolerance specified for production units in a secondary mode is  $\leq \frac{1}{4}$  dB higher than the primary mode or when the highest reported SAR of the primary mode is scaled by the ratio of specified maximum output power and tune-up tolerance of secondary to primary mode and the adjusted SAR is  $\leq 1.2$  W/kg, SAR measurement is not required for the secondary mode

3. Per FCC KDB Publication 648474 D04, SAR was evaluated without a headset connected to the device. Since the reported SAR was  $\leq 1.2$  W/kg, no additional SAR evaluations using a headset cable were required.

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### 7.3.4. UMTS Band IV (Antenna 1)

**Table 19: SAR Values [UMTS Band IV (WCDMA/HSDPA/HSUPA)]**

| Test Position                                              | Channel/<br>Frequency<br>(MHz) | Channel Type | Duty Cycle | Maximum Allowed Power (dBm) | Conducted Power (dBm) | Drift<br>± 0.21dB | Limit SAR <sub>1g</sub> 1.6 W/kg  |                |                                   |               |
|------------------------------------------------------------|--------------------------------|--------------|------------|-----------------------------|-----------------------|-------------------|-----------------------------------|----------------|-----------------------------------|---------------|
|                                                            |                                |              |            |                             |                       | Drift (dB)        | Measured SAR <sub>1g</sub> (W/kg) | Scaling Factor | Reported SAR <sub>1g</sub> (W/kg) | Graph Results |
| Test Position of Head                                      |                                |              |            |                             |                       |                   |                                   |                |                                   |               |
| Left/Cheek                                                 | 1413/1732.6                    | RMC 12.2K    | 1:1        | 24.50                       | 23.68                 | 0.110             | 0.476                             | 1.21           | 0.575                             | /             |
| Left/Tilt                                                  | 1413/1732.6                    | RMC 12.2K    | 1:1        | 24.50                       | 23.68                 | 0.070             | 0.273                             | 1.21           | 0.330                             | /             |
| Right/Cheek                                                | 1513/1752.6                    | RMC 12.2K    | 1:1        | 24.50                       | 23.63                 | -0.010            | 0.905                             | 1.22           | 1.106                             | /             |
|                                                            | 1413/1732.6                    | RMC 12.2K    | 1:1        | 24.50                       | 23.68                 | 0.043             | 0.967                             | 1.21           | 1.168                             | Figure.36     |
|                                                            | 1312/1712.4                    | RMC 12.2K    | 1:1        | 24.50                       | 23.42                 | 0.030             | 0.835                             | 1.28           | 1.071                             | /             |
| Right/Tilt                                                 | 1513/1752.6                    | RMC 12.2K    | 1:1        | 24.50                       | 23.63                 | 0.080             | 0.681                             | 1.22           | 0.832                             | /             |
|                                                            | 1413/1732.6                    | RMC 12.2K    | 1:1        | 24.50                       | 23.68                 | 0.050             | 0.669                             | 1.21           | 0.808                             | /             |
|                                                            | 1312/1712.4                    | RMC 12.2K    | 1:1        | 24.50                       | 23.42                 | 0.013             | 0.612                             | 1.28           | 0.785                             | /             |
| Worst position of Head with Battery 2                      |                                |              |            |                             |                       |                   |                                   |                |                                   |               |
| Right/Cheek                                                | 1413/1732.6                    | RMC 12.2K    | 1:1        | 24.50                       | 23.68                 | 0.022             | 0.931                             | 1.21           | 1.124                             | /             |
| Worst Case Position of Head (1 <sup>st</sup> Repeated SAR) |                                |              |            |                             |                       |                   |                                   |                |                                   |               |
| Right/Cheek                                                | 1413/1732.6                    | RMC 12.2K    | 1:1        | 24.50                       | 23.68                 | 0.040             | 0.916                             | 1.21           | 1.106                             | /             |
| Test position of Body-worn (Distance 15mm)                 |                                |              |            |                             |                       |                   |                                   |                |                                   |               |
| Back Side                                                  | 1413/1732.6                    | RMC 12.2K    | 1:1        | 24.50                       | 23.68                 | 0.167             | 0.064                             | 1.21           | 0.078                             | Figure.37     |
| Front Side                                                 | 1413/1732.6                    | RMC 12.2K    | 1:1        | 24.50                       | 23.68                 | 0.045             | 0.058                             | 1.21           | 0.070                             | /             |
| Test position of Hotspot (Distance 10mm)                   |                                |              |            |                             |                       |                   |                                   |                |                                   |               |
| Back Side                                                  | 1413/1732.6                    | RMC 12.2K    | 1:1        | 24.50                       | 23.68                 | 0.022             | 0.183                             | 1.21           | 0.221                             | /             |
| Front Side                                                 | 1413/1732.6                    | RMC 12.2K    | 1:1        | 24.50                       | 23.68                 | 0.026             | 0.153                             | 1.21           | 0.185                             | /             |
| Left Edge                                                  | 1413/1732.6                    | RMC 12.2K    | 1:1        | 24.50                       | 23.68                 | -0.032            | 0.198                             | 1.21           | 0.239                             | Figure.38     |
| Right Edge                                                 | 1413/1732.6                    | RMC 12.2K    | 1:1        | 24.50                       | 23.68                 | 0.134             | 0.025                             | 1.21           | 0.031                             | /             |
| Top Edge                                                   | 1513/1752.6                    | RMC 12.2K    | 1:1        | 24.50                       | 23.68                 | 0.024             | 0.196                             | 1.21           | 0.237                             | /             |
| Bottom Edge                                                | NA                             | NA           | NA         | NA                          | NA                    | NA                | NA                                | NA             | NA                                | NA            |
| Worst position of Body with Battery 2 (Distance 10mm)      |                                |              |            |                             |                       |                   |                                   |                |                                   |               |
| Left Edge                                                  | 1413/1732.6                    | RMC 12.2K    | 1:1        | 24.50                       | 23.68                 | -0.080            | 0.165                             | 1.21           | 0.199                             | /             |

Note: 1. The value with blue color is the maximum SAR Value of each test band.

2. When the maximum output power and tune-up tolerance specified for production units in a secondary mode is  $\leq \frac{1}{4}$  dB higher than the primary mode or when the highest reported SAR of the primary mode is scaled by the ratio of specified maximum output power and tune-up tolerance of secondary to primary mode and the adjusted SAR is  $\leq 1.2$  W/kg, SAR measurement is not required for the secondary mode

3. Per FCC KDB Publication 648474 D04, SAR was evaluated without a headset connected to the device. Since the reported SAR was  $\leq 1.2$  W/kg, no additional SAR evaluations using a headset cable were required.

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4) Repeated measurements are not required when the original highest measured SAR is  $< 0.80 \text{ W/kg}$

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### 7.3.5. UMTS Band V (Antenna 1)

**Table 21: SAR Values [UMTS Band V (WCDMA/HSDPA/HSUPA)]**

| Test Position                                         | Channel/<br>Frequency<br>(MHz) | Channel Type | Duty Cycle | Maximum Allowed Power (dBm) | Conducted Power (dBm) | Drift<br>± 0.21dB | Limit SAR <sub>1g</sub> 1.6 W/kg  |                |                                   |               |
|-------------------------------------------------------|--------------------------------|--------------|------------|-----------------------------|-----------------------|-------------------|-----------------------------------|----------------|-----------------------------------|---------------|
|                                                       |                                |              |            |                             |                       | Drift (dB)        | Measured SAR <sub>1g</sub> (W/kg) | Scaling Factor | Reported SAR <sub>1g</sub> (W/kg) | Graph Results |
| Test Position of Head                                 |                                |              |            |                             |                       |                   |                                   |                |                                   |               |
| Left/Cheek                                            | 4183/836.6                     | RMC 12.2K    | 1:1        | 24.50                       | 23.34                 | -0.030            | 0.422                             | 1.31           | 0.551                             | /             |
| Left/Tilt                                             | 4233/846.6                     | RMC 12.2K    | 1:1        | 24.50                       | 23.38                 | 0.010             | 0.439                             | 1.29           | 0.568                             | /             |
|                                                       | 4183/836.6                     | RMC 12.2K    | 1:1        | 24.50                       | 23.34                 | 0.049             | 0.645                             | 1.31           | 0.842                             | Figure.39     |
|                                                       | 4132/826.4                     | RMC 12.2K    | 1:1        | 24.50                       | 23.57                 | 0.070             | 0.447                             | 1.24           | 0.554                             | /             |
| Right/Cheek                                           | 4183/836.6                     | RMC 12.2K    | 1:1        | 24.50                       | 23.34                 | -0.010            | 0.549                             | 1.31           | 0.717                             | /             |
| Right/Tilt                                            | 4183/836.6                     | RMC 12.2K    | 1:1        | 24.50                       | 23.34                 | 0.080             | 0.612                             | 1.31           | 0.799                             | /             |
| Worst position of Head with Battery 2                 |                                |              |            |                             |                       |                   |                                   |                |                                   |               |
| Left/Tilt                                             | 4183/836.6                     | RMC 12.2K    | 1:1        | 24.50                       | 23.34                 | 0.040             | 0.428                             | 1.31           | 0.559                             | /             |
| Test Position of Head (WiFi on)                       |                                |              |            |                             |                       |                   |                                   |                |                                   |               |
| Left/Tilt                                             | 4183/836.6                     | RMC 12.2K    | 1:1        | 21.00                       | 20.41                 | -0.010            | 0.565                             | 1.15           | 0.647                             | /             |
| Test position of Body-worn (Distance 15mm)            |                                |              |            |                             |                       |                   |                                   |                |                                   |               |
| Back Side                                             | 4183/836.6                     | RMC 12.2K    | 1:1        | 24.50                       | 23.34                 | -0.050            | 0.056                             | 1.31           | 0.072                             | Figure.40     |
| Front Side                                            | 4183/836.6                     | RMC 12.2K    | 1:1        | 24.50                       | 23.34                 | 0.042             | 0.051                             | 1.31           | 0.066                             | /             |
| Test position of Hotspot (Distance 10mm)              |                                |              |            |                             |                       |                   |                                   |                |                                   |               |
| Back Side                                             | 4183/836.6                     | RMC 12.2K    | 1:1        | 24.50                       | 23.34                 | 0.063             | 0.119                             | 1.31           | 0.155                             | /             |
| Front Side                                            | 4183/836.6                     | RMC 12.2K    | 1:1        | 24.50                       | 23.34                 | -0.081            | 0.130                             | 1.31           | 0.170                             | /             |
| Left Edge                                             | 4183/836.6                     | RMC 12.2K    | 1:1        | 24.50                       | 23.34                 | 0.030             | 0.048                             | 1.31           | 0.063                             | /             |
| Right Edge                                            | 4183/836.6                     | RMC 12.2K    | 1:1        | 24.50                       | 23.34                 | -0.051            | 0.008                             | 1.31           | 0.010                             | /             |
| Top Edge                                              | 4183/836.6                     | RMC 12.2K    | 1:1        | 24.50                       | 23.34                 | -0.038            | 0.165                             | 1.31           | 0.216                             | Figure.41     |
| Bottom Edge                                           | NA                             | NA           | NA         | NA                          | NA                    | NA                | NA                                | NA             | NA                                | NA            |
| Worst position of Body with Battery 2 (Distance 10mm) |                                |              |            |                             |                       |                   |                                   |                |                                   |               |
| Top Edge                                              | 4183/836.6                     | RMC 12.2K    | 1:1        | 24.50                       | 23.34                 | -0.034            | 0.132                             | 1.31           | 0.172                             | /             |

Note: 1. The value with blue color is the maximum SAR Value of each test band.

2. When the maximum output power and tune-up tolerance specified for production units in a secondary mode is  $\leq \frac{1}{4}$  dB higher than the primary mode or when the highest reported SAR of the primary mode is scaled by the ratio of specified maximum output power and tune-up tolerance of secondary to primary mode and the adjusted SAR is  $\leq 1.2$  W/kg, SAR measurement is not required for the secondary mode

3. Per FCC KDB Publication 648474 D04, SAR was evaluated without a headset connected to the device. Since the reported SAR was  $\leq 1.2$  W/kg, no additional SAR evaluations using a headset cable were required.



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| Test Position                                                                 | Channel/<br>Frequency (MHz) | RB Offset  | Maximum Allowed Power (dBm) | Conducted Power (dBm) | Drift<br>±<br>0.21dB | Limit SAR <sub>1g</sub> 1.6 W/kg  |                |                                   |               |
|-------------------------------------------------------------------------------|-----------------------------|------------|-----------------------------|-----------------------|----------------------|-----------------------------------|----------------|-----------------------------------|---------------|
|                                                                               |                             |            |                             |                       | Drift (dB)           | Measured SAR <sub>1g</sub> (W/kg) | Scaling Factor | Reported SAR <sub>1g</sub> (W/kg) | Graph Results |
| Test Position of Head (QPSK)                                                  |                             |            |                             |                       |                      |                                   |                |                                   |               |
| Left/Cheek                                                                    | 18900/1880                  | 1RB, 0%    | 23.50                       | 22.77                 | 0.120                | 0.183                             | 1.18           | 0.216                             | /             |
| Left/Tilt                                                                     | 18900/1880                  | 1RB, 0%    | 23.50                       | 22.77                 | 0.070                | 0.201                             | 1.18           | 0.238                             | /             |
| Right/Cheek                                                                   | 19100/1900                  | 1RB, 50%   | 23.50                       | 22.39                 | 0.030                | 1.020                             | 1.29           | 1.317                             | /             |
|                                                                               | 18900/1880                  | 1RB, 0%    | 23.50                       | 22.77                 | 0.049                | 0.740                             | 1.18           | 0.875                             | /             |
|                                                                               | 18700/1860                  | 1RB, 99%   | 23.50                       | 22.37                 | 0.060                | 0.745                             | 1.30           | 0.966                             | /             |
| Right/Tilt                                                                    | 18900/1880                  | 1RB, 0%    | 23.50                       | 22.77                 | 0.020                | 0.555                             | 1.18           | 0.657                             | /             |
| Left/Cheek                                                                    | 19100/1900                  | 50%RB, 0%  | 22.50                       | 21.50                 | 0.080                | 0.260                             | 1.26           | 0.327                             | /             |
| Left/Tilt                                                                     | 19100/1900                  | 50%RB, 0%  | 22.50                       | 21.50                 | 0.100                | 0.264                             | 1.26           | 0.332                             | /             |
| Right/Cheek                                                                   | 19100/1900                  | 50%RB, 0%  | 22.50                       | 21.50                 | 0.050                | 0.948                             | 1.26           | 1.193                             | /             |
|                                                                               | 18900/1880                  | 50%RB, 0%  | 22.50                       | 21.49                 | 0.080                | 0.546                             | 1.26           | 0.689                             | /             |
|                                                                               | 18700/1860                  | 50%RB, 50% | 22.50                       | 21.21                 | 0.060                | 0.800                             | 1.35           | 1.077                             | /             |
| Right/Tilt                                                                    | 19100/1900                  | 50%RB, 0%  | 22.50                       | 21.50                 | -0.040               | 0.741                             | 1.26           | 0.933                             | /             |
|                                                                               | 18900/1880                  | 50%RB, 0%  | 22.50                       | 21.49                 | 0.047                | 0.425                             | 1.26           | 0.536                             | /             |
|                                                                               | 18700/1860                  | 50%RB, 50% | 22.50                       | 21.21                 | 0.050                | 0.636                             | 1.35           | 0.856                             | /             |
| Right/Cheek                                                                   | 19100/1900                  | 100%RB, 0% | 22.50                       | 21.43                 | 0.040                | 0.816                             | 1.28           | 1.044                             | /             |
| Right/Tilt                                                                    | 19100/1900                  | 100%RB, 0% | 22.50                       | 21.43                 | -0.110               | 0.412                             | 1.28           | 0.527                             | /             |
| Worst position of Head for Battery 2 (QPSK)                                   |                             |            |                             |                       |                      |                                   |                |                                   |               |
| Right/Cheek                                                                   | 19100/1900                  | 1RB, 50%   | 23.50                       | 22.39                 | 0.040                | 1.030                             | 1.29           | 1.330                             | /             |
| Worst Case Position of Head for 1 <sup>st</sup> Repeated SAR(QPSK)            |                             |            |                             |                       |                      |                                   |                |                                   |               |
| Right/Cheek                                                                   | 19100/1900                  | 1RB, 50%   | 23.50                       | 22.39                 | 0.090                | 1.090                             | 1.29           | 1.407                             | Figure.42     |
| Note: 1.The value with blue color is the maximum SAR Value of each test band. |                             |            |                             |                       |                      |                                   |                |                                   |               |

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| Test Position                                                                  | Channel/<br>Frequency<br>(MHz) | RB Offset | Maximum<br>Allowed<br>Power<br>(dBm) | Conducted<br>Power<br>(dBm) | Drift<br>±<br>0.21dB | Limit SAR <sub>1g</sub> 1.6 W/kg        |                   |                                         |                  |
|--------------------------------------------------------------------------------|--------------------------------|-----------|--------------------------------------|-----------------------------|----------------------|-----------------------------------------|-------------------|-----------------------------------------|------------------|
|                                                                                |                                |           |                                      |                             | Drift<br>(dB)        | Measured<br>SAR <sub>1g</sub><br>(W/kg) | Scaling<br>Factor | Reported<br>SAR <sub>1g</sub><br>(W/kg) | Graph<br>Results |
| Test position of Body-worn (QPSK, Distance 15mm)                               |                                |           |                                      |                             |                      |                                         |                   |                                         |                  |
| Back Side                                                                      | 18900/1880                     | 1RB, 0%   | 23.50                                | 22.77                       | 0.030                | 0.058                                   | 1.18              | 0.069                                   | /                |
| Front Side                                                                     | 18900/1880                     | 1RB, 0%   | 23.50                                | 22.77                       | 0.170                | 0.049                                   | 1.18              | 0.058                                   | /                |
| Back Side                                                                      | 19100/1900                     | 50%RB, 0% | 22.50                                | 21.50                       | 0.021                | 0.062                                   | 1.26              | 0.078                                   | Figure.43        |
| Front Side                                                                     | 19100/1900                     | 50%RB, 0% | 22.50                                | 21.50                       | 0.071                | 0.059                                   | 1.26              | 0.074                                   | /                |
| Test position of Hotspot (QPSK, Distance 10mm)                                 |                                |           |                                      |                             |                      |                                         |                   |                                         |                  |
| Back Side                                                                      | 18900/1880                     | 1RB, 0%   | 23.50                                | 22.77                       | 0.150                | 0.137                                   | 1.18              | 0.162                                   | /                |
| Front Side                                                                     | 18900/1880                     | 1RB, 0%   | 23.50                                | 22.77                       | 0.049                | 0.112                                   | 1.18              | 0.133                                   | /                |
| Left Edge                                                                      | 18900/1880                     | 1RB, 0%   | 23.50                                | 22.77                       | 0.020                | 0.134                                   | 1.18              | 0.159                                   | /                |
| Right Edge                                                                     | 18900/1880                     | 1RB, 0%   | 23.50                                | 22.77                       | 0.074                | 0.006                                   | 1.18              | 0.007                                   | /                |
| Top Edge                                                                       | 18900/1880                     | 1RB, 0%   | 23.50                                | 22.77                       | 0.100                | 0.139                                   | 1.18              | 0.164                                   | /                |
| Bottom Edge                                                                    | 18900/1880                     | 1RB, 0%   | NA                                   | NA                          | NA                   | NA                                      | NA                | NA                                      | NA               |
| Back Side                                                                      | 19100/1900                     | 50%RB, 0% | 22.50                                | 21.50                       | 0.052                | 0.145                                   | 1.26              | 0.183                                   | /                |
| Front Side                                                                     | 19100/1900                     | 50%RB, 0% | 22.50                                | 21.50                       | 0.051                | 0.123                                   | 1.26              | 0.155                                   | /                |
| Left Edge                                                                      | 19100/1900                     | 50%RB, 0% | 22.50                                | 21.50                       | -0.010               | 0.186                                   | 1.26              | 0.234                                   | Figure.44        |
| Right Edge                                                                     | 19100/1900                     | 50%RB, 0% | 22.50                                | 21.50                       | -0.040               | 0.012                                   | 1.26              | 0.014                                   | /                |
| Top Edge                                                                       | 19100/1900                     | 50%RB, 0% | 22.50                                | 21.50                       | -0.090               | 0.178                                   | 1.26              | 0.224                                   | /                |
| Bottom Edge                                                                    | 19100/1900                     | 50%RB, 0% | NA                                   | NA                          | NA                   | NA                                      | NA                | NA                                      | NA               |
| Worst position of Body with Battery 2 (QPSK, Distance 10mm)                    |                                |           |                                      |                             |                      |                                         |                   |                                         |                  |
| Left Edge                                                                      | 19100/1900                     | 50%RB, 0% | 22.50                                | 21.50                       | 0.030                | 0.185                                   | 1.26              | 0.233                                   | /                |
| Note: 1. The value with blue color is the maximum SAR Value of each test band. |                                |           |                                      |                             |                      |                                         |                   |                                         |                  |

**Table 23: SAR Measurement Variability Results [LTE Band II]**

| Test Position | Channel/<br>Frequency<br>(MHz) | Measured<br>SAR (1g) | 1 <sup>st</sup> Repeated<br>SAR (1g) | Ratio | 2 <sup>nd</sup><br>Repeated<br>SAR (1g) | 3 <sup>rd</sup> Repeated<br>SAR (1g) |
|---------------|--------------------------------|----------------------|--------------------------------------|-------|-----------------------------------------|--------------------------------------|
| Right/Cheek   | 19100/1900                     | 1.020                | 1.090                                | 1.07  | N/A                                     | N/A                                  |

Note: 1) When the original highest measured SAR is  $\geq 0.80$  W/kg, the measurement was repeated once.

2) A second repeated measurement was performed only if the ratio of largest to smallest SAR for the original and first repeated measurements was  $> 1.20$  or when the original or repeated measurement was  $\geq 1.45$  W/kg (~ 10% from the 1-g SAR limit).

3) A third repeated measurement was performed only if the original, first or second repeated measurement was  $\geq 1.5$  W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is  $> 1.20$ .

4) Repeated measurements are not required when the original highest measured SAR is  $< 0.80$  W/kg

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| Test Position                                                                  | Channel/<br>Frequency<br>(MHz) | RB Offset  | Maximum<br>Allowed<br>Power<br>(dBm) | Conducted<br>Power<br>(dBm) | Drift<br>±<br>0.21dB | Limit SAR <sub>1g</sub> 1.6 W/kg        |                   |                                         |                  |
|--------------------------------------------------------------------------------|--------------------------------|------------|--------------------------------------|-----------------------------|----------------------|-----------------------------------------|-------------------|-----------------------------------------|------------------|
|                                                                                |                                |            |                                      |                             | Drift<br>(dB)        | Measured<br>SAR <sub>1g</sub><br>(W/kg) | Scaling<br>Factor | Reported<br>SAR <sub>1g</sub><br>(W/kg) | Graph<br>Results |
| Test Position of Head (QPSK, 1RB)                                              |                                |            |                                      |                             |                      |                                         |                   |                                         |                  |
| Left/Cheek                                                                     | 20175/1732.5                   | 1RB, 0%    | 23.50                                | 22.34                       | 0.030                | 0.317                                   | 1.31              | 0.414                                   | /                |
| Left/Tilt                                                                      | 20175/1732.5                   | 1RB, 0%    | 23.50                                | 22.34                       | 0.180                | 0.197                                   | 1.31              | 0.257                                   | /                |
| Right/Cheek                                                                    | 20300/1745                     | 1RB, 0%    | 23.50                                | 22.21                       | 0.050                | 0.835                                   | 1.35              | 1.124                                   | /                |
|                                                                                | 20175/1732.5                   | 1RB, 0%    | 23.50                                | 22.34                       | -0.020               | 0.730                                   | 1.31              | 0.954                                   | /                |
|                                                                                | 20050/1720                     | 1RB, 0%    | 23.50                                | 21.66                       | 0.060                | 0.657                                   | 1.53              | 1.004                                   | /                |
| Right/Tilt                                                                     | 20175/1732.5                   | 1RB, 0%    | 23.50                                | 22.34                       | 0.050                | 0.513                                   | 1.31              | 0.670                                   | /                |
| Left/Cheek                                                                     | 20175/1732.5                   | 50%RB, 0%  | 22.50                                | 21.30                       | -0.070               | 0.320                                   | 1.32              | 0.422                                   | /                |
| Left/Tilt                                                                      | 20175/1732.5                   | 50%RB, 0%  | 22.50                                | 21.30                       | 0.120                | 0.192                                   | 1.32              | 0.253                                   | /                |
| Right/Cheek                                                                    | 20300/1745                     | 50%RB, 99% | 22.50                                | 20.83                       | 0.070                | 0.634                                   | 1.47              | 0.931                                   | /                |
|                                                                                | 20175/1732.5                   | 50%RB, 0%  | 22.50                                | 21.30                       | 0.050                | 0.749                                   | 1.32              | 0.987                                   | /                |
|                                                                                | 20050/1720                     | 50%RB, 99% | 22.50                                | 21.21                       | 0.080                | 0.608                                   | 1.35              | 0.818                                   | /                |
| Right/Tilt                                                                     | 20175/1732.5                   | 50%RB, 0%  | 22.50                                | 21.30                       | 0.030                | 0.532                                   | 1.32              | 0.701                                   | /                |
| Right/Cheek                                                                    | 20175/1732.5                   | 100%RB, 0% | 22.50                                | 21.34                       | 0.030                | 0.754                                   | 1.31              | 0.985                                   | /                |
| Worst position of Head for Battery 2 (QPSK)                                    |                                |            |                                      |                             |                      |                                         |                   |                                         |                  |
| Right/Cheek                                                                    | 20300/1745                     | 1RB, 0%    | 23.50                                | 22.21                       | 0.057                | 0.937                                   | 1.35              | 1.261                                   | Figure.45        |
| Worst Case Position of Head for 1 <sup>st</sup> Repeated SAR                   |                                |            |                                      |                             |                      |                                         |                   |                                         |                  |
| Right/Cheek                                                                    | 20300/1745                     | 1RB, 0%    | 23.50                                | 22.21                       | 0.030                | 0.753                                   | 1.35              | 1.013                                   | /                |
| Note: 1. The value with blue color is the maximum SAR Value of each test band. |                                |            |                                      |                             |                      |                                         |                   |                                         |                  |

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| Test Position                                                                  | Channel/<br>Frequency (MHz) | RB Offset | Maximum Allowed Power (dBm) | Conducted Power (dBm) | Drift<br>±<br>0.21dB | Limit SAR <sub>1g</sub> 1.6 W/kg  |                |                                   |               |
|--------------------------------------------------------------------------------|-----------------------------|-----------|-----------------------------|-----------------------|----------------------|-----------------------------------|----------------|-----------------------------------|---------------|
|                                                                                |                             |           |                             |                       | Drift (dB)           | Measured SAR <sub>1g</sub> (W/kg) | Scaling Factor | Reported SAR <sub>1g</sub> (W/kg) | Graph Results |
| Test position of Body-worn (QPSK, Distance 15mm)                               |                             |           |                             |                       |                      |                                   |                |                                   |               |
| Back Side                                                                      | 20175/1732.5                | 1RB, 0%   | 23.50                       | 22.34                 | 0.020                | 0.058                             | 1.31           | 0.076                             | Figure.46     |
| Front Side                                                                     | 20175/1732.5                | 1RB, 0%   | 23.50                       | 22.34                 | 0.093                | 0.051                             | 1.31           | 0.067                             | /             |
| Back Side                                                                      | 20175/1732.5                | 50%RB, 0% | 22.50                       | 21.30                 | 0.138                | 0.044                             | 1.32           | 0.058                             | /             |
| Front Side                                                                     | 20175/1732.5                | 50%RB, 0% | 22.50                       | 21.30                 | 0.086                | 0.038                             | 1.32           | 0.050                             | /             |
| Test position of Hotspot (QPSK, Distance 10mm)                                 |                             |           |                             |                       |                      |                                   |                |                                   |               |
| Back Side                                                                      | 20175/1732.5                | 1RB, 0%   | 23.50                       | 22.34                 | 0.080                | 0.138                             | 1.31           | 0.180                             | /             |
| Front Side                                                                     | 20175/1732.5                | 1RB, 0%   | 23.50                       | 22.34                 | 0.120                | 0.113                             | 1.31           | 0.148                             | /             |
| Left Edge                                                                      | 20175/1732.5                | 1RB, 0%   | 23.50                       | 22.34                 | -0.070               | 0.153                             | 1.31           | 0.200                             | Figure.47     |
| Right Edge                                                                     | 20175/1732.5                | 1RB, 0%   | 23.50                       | 22.34                 | 0.038                | 0.017                             | 1.31           | 0.022                             | /             |
| Top Edge                                                                       | 20175/1732.5                | 1RB, 0%   | 23.50                       | 22.34                 | -0.090               | 0.134                             | 1.31           | 0.175                             | /             |
| Bottom Edge                                                                    | 20175/1732.5                | 1RB, 0%   | NA                          | NA                    | NA                   | NA                                | NA             | NA                                | NA            |
| Back Side                                                                      | 20175/1732.5                | 50%RB, 0% | 22.50                       | 21.30                 | 0.110                | 0.126                             | 1.32           | 0.170                             | /             |
| Front Side                                                                     | 20175/1732.5                | 50%RB, 0% | 22.50                       | 21.30                 | 0.051                | 0.105                             | 1.32           | 0.138                             | /             |
| Left Edge                                                                      | 20175/1732.5                | 50%RB, 0% | 22.50                       | 21.30                 | 0.030                | 0.146                             | 1.32           | 0.192                             | /             |
| Right Edge                                                                     | 20175/1732.5                | 50%RB, 0% | 22.50                       | 21.30                 | 0.052                | 0.018                             | 1.32           | 0.023                             | /             |
| Top Edge                                                                       | 20175/1732.5                | 50%RB, 0% | 22.50                       | 21.30                 | -0.090               | 0.129                             | 1.32           | 0.170                             | /             |
| Bottom Edge                                                                    | 20175/1732.5                | 50%RB, 0% | NA                          | NA                    | NA                   | NA                                | NA             | NA                                | NA            |
| Worst position of Body with Battery 2 (QPSK, Distance 10mm)                    |                             |           |                             |                       |                      |                                   |                |                                   |               |
| Left Edge                                                                      | 20175/1732.5                | 1RB, 0%   | 23.50                       | 22.34                 | 0.100                | 0.134                             | 1.31           | 0.175                             | /             |
| Note: 1. The value with blue color is the maximum SAR Value of each test band. |                             |           |                             |                       |                      |                                   |                |                                   |               |

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| Test Position                                                                 | Channel/<br>Frequency<br>(MHz) | RB Offset  | Maximum<br>Allowed<br>Power<br>(dBm) | Conducted<br>Power<br>(dBm) | Drift<br>±<br>0.21dB | Limit SAR <sub>1g</sub> 1.6 W/kg        |                   |                                         |                  |
|-------------------------------------------------------------------------------|--------------------------------|------------|--------------------------------------|-----------------------------|----------------------|-----------------------------------------|-------------------|-----------------------------------------|------------------|
|                                                                               |                                |            |                                      |                             | Drift<br>(dB)        | Measured<br>SAR <sub>1g</sub><br>(W/kg) | Scaling<br>Factor | Reported<br>SAR <sub>1g</sub><br>(W/kg) | Graph<br>Results |
| Test Position of Head (QPSK)                                                  |                                |            |                                      |                             |                      |                                         |                   |                                         |                  |
| Left/Cheek                                                                    | 20600/844                      | 1RB, 50%   | 24.00                                | 23.51                       | 0.061                | 0.531                                   | 1.12              | 0.594                                   | /                |
| Left/Tilt                                                                     | 20600/844                      | 1RB, 50%   | 24.00                                | 23.51                       | 0.180                | 0.484                                   | 1.12              | 0.542                                   | /                |
| Right/Cheek                                                                   | 20600/844                      | 1RB, 50%   | 24.00                                | 23.51                       | 0.031                | 0.796                                   | 1.12              | 0.891                                   | /                |
|                                                                               | 20525/836.5                    | 1RB, 99%   | 24.00                                | 23.44                       | -0.026               | 0.695                                   | 1.14              | 0.791                                   | /                |
|                                                                               | 20450/829                      | 1RB, 50%   | 24.00                                | 23.40                       | 0.020                | 0.817                                   | 1.15              | 0.938                                   | Figure.48        |
| Right/Tilt                                                                    | 20600/844                      | 1RB, 50%   | 24.00                                | 23.51                       | 0.100                | 0.724                                   | 1.12              | 0.810                                   | /                |
|                                                                               | 20525/836.5                    | 1RB, 99%   | 24.00                                | 23.44                       | 0.070                | 0.615                                   | 1.14              | 0.700                                   | /                |
|                                                                               | 20450/829                      | 1RB, 50%   | 24.00                                | 23.40                       | -0.130               | 0.703                                   | 1.15              | 0.807                                   | /                |
| Left/Cheek                                                                    | 20600/844                      | 50%RB, 0%  | 23.00                                | 22.19                       | 0.090                | 0.476                                   | 1.21              | 0.574                                   | /                |
| Left/Tilt                                                                     | 20600/844                      | 50%RB, 0%  | 23.00                                | 22.19                       | 0.020                | 0.424                                   | 1.21              | 0.511                                   | /                |
| Right/Cheek                                                                   | 20600/844                      | 50%RB, 0%  | 23.00                                | 22.19                       | 0.020                | 0.681                                   | 1.21              | 0.821                                   | /                |
|                                                                               | 20525/836.5                    | 50%RB, 99% | 23.00                                | 21.84                       | 0.120                | 0.559                                   | 1.31              | 0.730                                   | /                |
|                                                                               | 20450/829                      | 50%RB, 0%  | 23.00                                | 22.12                       | 0.120                | 0.720                                   | 1.22              | 0.882                                   | /                |
| Right/Tilt                                                                    | 20600/844                      | 50%RB, 0%  | 23.00                                | 22.19                       | 0.090                | 0.625                                   | 1.21              | 0.753                                   | /                |
| Right/Cheek                                                                   | 20600/844                      | 100%RB, 0% | 23.00                                | 22.02                       | 0.080                | 0.462                                   | 1.25              | 0.579                                   | /                |
| Right/Tilt                                                                    | 20600/844                      | 100%RB, 0% | 23.00                                | 22.02                       | 0.058                | 0.210                                   | 1.25              | 0.263                                   | /                |
| Worst position of Head for Battery 2 (QPSK)                                   |                                |            |                                      |                             |                      |                                         |                   |                                         |                  |
| Right/Cheek                                                                   | 20450/829                      | 1RB, 50%   | 24.00                                | 23.40                       | 0.042                | 0.696                                   | 1.15              | 0.799                                   | /                |
| Worst Case Position of Head for 1 <sup>st</sup> Repeated SAR                  |                                |            |                                      |                             |                      |                                         |                   |                                         |                  |
| Right/Cheek                                                                   | 20450/829                      | 1RB, 50%   | 24.00                                | 23.40                       | 0.070                | 0.771                                   | 1.15              | 0.885                                   | /                |
| Note: 1.The value with blue color is the maximum SAR Value of each test band. |                                |            |                                      |                             |                      |                                         |                   |                                         |                  |

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Table 26: SAR Measurement Variability Results [LTE Band V]

| Test Position | Channel/<br>Frequency<br>(MHz) | Measured<br>SAR (1g) | 1 <sup>st</sup> Repeated<br>SAR (1g) | Ratio | 2 <sup>nd</sup><br>Repeated<br>SAR (1g) | 3 <sup>rd</sup> Repeated<br>SAR (1g) |
|---------------|--------------------------------|----------------------|--------------------------------------|-------|-----------------------------------------|--------------------------------------|
| Right/Cheek   | 20450/829                      | 0.817                | 0.771                                | 1.06  | N/A                                     | N/A                                  |

Note: 1) When the original highest measured SAR is  $\geq 0.80$  W/kg, the measurement was repeated once.

2) A second repeated measurement was performed only if the ratio of largest to smallest SAR for the original and first repeated measurements was  $> 1.20$  or when the original or repeated measurement was  $\geq 1.45$  W/kg ( $\sim 10\%$  from the 1-g SAR limit).

3) A third repeated measurement was performed only if the original, first or second repeated measurement was  $\geq 1.5$  W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is  $> 1.20$ .

4) Repeated measurements are not required when the original highest measured SAR is  $< 0.80$  W/kg

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| Test Position                                                                 | Channel/<br>Frequency<br>(MHz) | RB Offset  | Maximum<br>Allowed<br>Power<br>(dBm) | Conducted<br>Power<br>(dBm) | Drift<br>±<br>0.21dB | Limit SAR <sub>1g</sub> 1.6 W/kg        |                   |                                         |                  |
|-------------------------------------------------------------------------------|--------------------------------|------------|--------------------------------------|-----------------------------|----------------------|-----------------------------------------|-------------------|-----------------------------------------|------------------|
|                                                                               |                                |            |                                      |                             | Drift<br>(dB)        | Measured<br>SAR <sub>1g</sub><br>(W/kg) | Scaling<br>Factor | Reported<br>SAR <sub>1g</sub><br>(W/kg) | Graph<br>Results |
| Test Position of Head (QPSK)                                                  |                                |            |                                      |                             |                      |                                         |                   |                                         |                  |
| Left/Cheek                                                                    | 21350/2560                     | 1RB, 0%    | 24.00                                | 22.78                       | -0.055               | 0.282                                   | 1.32              | 0.373                                   | /                |
| Left/Tilt                                                                     | 21350/2560                     | 1RB, 0%    | 24.00                                | 22.78                       | 0.040                | 0.289                                   | 1.32              | 0.383                                   | /                |
| Right/Cheek                                                                   | 21350/2560                     | 1RB, 0%    | 24.00                                | 22.78                       | -0.030               | 0.819                                   | 1.32              | 1.085                                   | /                |
|                                                                               | 21100/2535                     | 1RB, 50%   | 24.00                                | 22.71                       | 0.100                | 0.830                                   | 1.35              | 1.117                                   | /                |
|                                                                               | 20850/2510                     | 1RB, 50%   | 24.00                                | 22.77                       | 0.170                | 0.713                                   | 1.33              | 0.946                                   | /                |
| Right/Tilt                                                                    | 21350/2560                     | 1RB, 0%    | 24.00                                | 22.78                       | 0.020                | 0.860                                   | 1.32              | 1.139                                   | /                |
|                                                                               | 21100/2535                     | 1RB, 50%   | 24.00                                | 22.71                       | 0.150                | 0.851                                   | 1.35              | 1.145                                   | /                |
|                                                                               | 20850/2510                     | 1RB, 50%   | 24.00                                | 22.77                       | 0.039                | 0.848                                   | 1.33              | 1.126                                   | /                |
| Left/Cheek                                                                    | 20850/2510                     | 50%RB, 99% | 23.00                                | 21.97                       | 0.090                | 0.295                                   | 1.27              | 0.374                                   | /                |
| Left/Tilt                                                                     | 20850/2510                     | 50%RB, 99% | 23.00                                | 21.97                       | 0.007                | 0.290                                   | 1.27              | 0.368                                   | /                |
| Right/Cheek                                                                   | 21350/2560                     | 50%RB, 0%  | 23.00                                | 21.58                       | 0.150                | 0.953                                   | 1.39              | 1.322                                   | /                |
|                                                                               | 21100/2535                     | 50%RB, 50% | 23.00                                | 21.78                       | 0.150                | 0.987                                   | 1.32              | 1.307                                   | /                |
|                                                                               | 20850/2510                     | 50%RB, 99% | 23.00                                | 21.97                       | 0.130                | 1.030                                   | 1.27              | 1.306                                   | Figure.51        |
| Right/Tilt                                                                    | 21350/2560                     | 50%RB, 0%  | 23.00                                | 21.58                       | 0.190                | 0.837                                   | 1.39              | 1.161                                   | /                |
|                                                                               | 21100/2535                     | 50%RB, 50% | 23.00                                | 21.78                       | 0.120                | 0.847                                   | 1.32              | 1.122                                   | /                |
|                                                                               | 20850/2510                     | 50%RB, 99% | 23.00                                | 21.97                       | 0.050                | 0.880                                   | 1.27              | 1.116                                   | /                |
| Right/Cheek                                                                   | 21100/2535                     | 100%RB, 0% | 23.00                                | 21.75                       | 0.050                | 0.819                                   | 1.33              | 1.092                                   | /                |
| Right/Tilt                                                                    | 21100/2535                     | 100%RB, 0% | 23.00                                | 21.75                       | 0.108                | 0.651                                   | 1.33              | 0.868                                   | /                |
| Worst position of Head for Battery 2 (QPSK)                                   |                                |            |                                      |                             |                      |                                         |                   |                                         |                  |
| Right/Cheek                                                                   | 21350/2560                     | 50%RB, 0%  | 23.00                                | 21.58                       | 0.030                | 0.971                                   | 1.39              | 1.347                                   | /                |
| Worst Case Position of Head for 1 <sup>st</sup> Repeated SAR                  |                                |            |                                      |                             |                      |                                         |                   |                                         |                  |
| Right/Cheek                                                                   | 20850/2510                     | 50%RB, 99% | 23.00                                | 21.97                       | 0.030                | 0.945                                   | 1.27              | 1.198                                   | /                |
| Note: 1.The value with blue color is the maximum SAR Value of each test band. |                                |            |                                      |                             |                      |                                         |                   |                                         |                  |

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**Table 28: SAR Measurement Variability Results [LTE Band VII]**

- Note: 1) When the original highest measured SAR is  $\geq 0.80$  W/kg, the measurement was repeated once.
- 2) A second repeated measurement was performed only if the ratio of largest to smallest SAR for the original and first repeated measurements was  $> 1.20$  or when the original or repeated measurement was  $\geq 1.45$  W/kg ( $\sim 10\%$  from the 1-g SAR limit).
- 3) A third repeated measurement was performed only if the original, first or second repeated measurement was  $\geq 1.5$  W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is  $> 1.20$ .
- 4) Repeated measurements are not required when the original highest measured SAR is  $< 0.80$  W/kg



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| Test Position                                | Channel/<br>Frequency<br>(MHz) | RB Offset | Maximum<br>Allowed<br>Power<br>(dBm) | Conducted<br>Power<br>(dBm) | Drift<br>±<br>0.21dB | Limit SAR <sub>1g</sub> 1.6 W/kg        |                   |                                         |                  |
|----------------------------------------------|--------------------------------|-----------|--------------------------------------|-----------------------------|----------------------|-----------------------------------------|-------------------|-----------------------------------------|------------------|
|                                              |                                |           |                                      |                             | Drift<br>(dB)        | Measured<br>SAR <sub>1g</sub><br>(W/kg) | Scaling<br>Factor | Reported<br>SAR <sub>1g</sub><br>(W/kg) | Graph<br>Results |
| Test Position of Head (QPSK)                 |                                |           |                                      |                             |                      |                                         |                   |                                         |                  |
| Left/Cheek                                   | 23095/707.5                    | 1RB,50%   | 24.00                                | 22.93                       | -0.010               | 0.415                                   | 1.28              | 0.531                                   | /                |
| Left/Tilt                                    | 23095/707.5                    | 1RB,50%   | 24.00                                | 22.93                       | 0.020                | 0.291                                   | 1.28              | 0.372                                   | /                |
| Right/Cheek                                  | 23095/707.5                    | 1RB,50%   | 24.00                                | 22.93                       | 0.060                | 0.517                                   | 1.28              | 0.661                                   | /                |
| Right/Tilt                                   | 23095/707.5                    | 1RB,50%   | 24.00                                | 22.93                       | 0.000                | 0.450                                   | 1.28              | 0.576                                   | /                |
| Left/Cheek                                   | 23095/707.5                    | 50%RB,50% | 23.00                                | 21.51                       | 0.073                | 0.462                                   | 1.41              | 0.651                                   | /                |
| Left/Tilt                                    | 23095/707.5                    | 50%RB,50% | 23.00                                | 21.51                       | 0.029                | 0.333                                   | 1.41              | 0.469                                   | /                |
| Right/Cheek                                  | 23130/711                      | 50%RB,50% | 23.00                                | 21.49                       | 0.023                | 0.413                                   | 1.42              | 0.585                                   | /                |
|                                              | 23095/707.5                    | 50%RB,50% | 23.00                                | 21.51                       | 0.040                | 0.602                                   | 1.41              | 0.848                                   | /                |
|                                              | 23060/704                      | 50%RB,0%  | 23.00                                | 21.29                       | 0.020                | 0.616                                   | 1.48              | 0.913                                   | Figure.54        |
| Right/Tilt                                   | 23095/707.5                    | 50%RB,50% | 23.00                                | 21.51                       | 0.030                | 0.485                                   | 1.41              | 0.684                                   | /                |
| Right/Cheek                                  | 23130/711                      | 100%RB,0% | 23.00                                | 21.22                       | -0.200               | 0.480                                   | 1.51              | 0.723                                   | /                |
| Worst position of Head with Battery 2 (QPSK) |                                |           |                                      |                             |                      |                                         |                   |                                         |                  |
| Right/Cheek                                  | 23060/704                      | 50%RB,0%  | 23.00                                | 21.29                       | 0.040                | 0.501                                   | 1.48              | 0.743                                   | /                |

Note: 1. The value with blue color is the maximum SAR Value of each test band.

## Test Report

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| Test Position                                                                  | Channel/<br>Frequency<br>(MHz) | RB Offset | Maximum<br>Allowed<br>Power<br>(dBm) | Conducted<br>Power<br>(dBm) | Drift<br>±<br>0.21dB | Limit SAR <sub>1g</sub> 1.6 W/kg        |                   |                                         |                  |
|--------------------------------------------------------------------------------|--------------------------------|-----------|--------------------------------------|-----------------------------|----------------------|-----------------------------------------|-------------------|-----------------------------------------|------------------|
|                                                                                |                                |           |                                      |                             | Drift<br>(dB)        | Measured<br>SAR <sub>1g</sub><br>(W/kg) | Scaling<br>Factor | Reported<br>SAR <sub>1g</sub><br>(W/kg) | Graph<br>Results |
| Test position of Body-worn (QPSK, Distance 15mm)                               |                                |           |                                      |                             |                      |                                         |                   |                                         |                  |
| Back Side                                                                      | 23095/707.5                    | 1RB,50%   | 24.00                                | 22.93                       | 0.111                | 0.029                                   | 1.28              | 0.037                                   | Figure.55        |
| Front Side                                                                     | 23095/707.5                    | 1RB,50%   | 24.00                                | 22.93                       | 0.010                | 0.023                                   | 1.28              | 0.029                                   | /                |
| Back Side                                                                      | 23095/707.5                    | 50%RB,50% | 23.00                                | 21.51                       | 0.028                | 0.024                                   | 1.41              | 0.034                                   | /                |
| Front Side                                                                     | 23095/707.5                    | 50%RB,50% | 23.00                                | 21.51                       | 0.152                | 0.017                                   | 1.41              | 0.025                                   | /                |
| Test position of Hotspot (QPSK, Distance 10mm)                                 |                                |           |                                      |                             |                      |                                         |                   |                                         |                  |
| Back Side                                                                      | 23095/707.5                    | 1RB,50%   | 24.00                                | 22.93                       | 0.174                | 0.053                                   | 1.28              | 0.068                                   | Figure.56        |
| Front Side                                                                     | 23095/707.5                    | 1RB,50%   | 24.00                                | 22.93                       | 0.105                | 0.033                                   | 1.28              | 0.042                                   | /                |
| Left Edge                                                                      | 23095/707.5                    | 1RB,50%   | 24.00                                | 22.93                       | -0.035               | 0.034                                   | 1.28              | 0.043                                   | /                |
| Right Edge                                                                     | 23095/707.5                    | 1RB,50%   | 24.00                                | 22.93                       | 0.120                | 0.021                                   | 1.28              | 0.027                                   | /                |
| Top Edge                                                                       | 23095/707.5                    | 1RB,50%   | 24.00                                | 22.93                       | 0.160                | 0.044                                   | 1.28              | 0.056                                   | /                |
| Bottom Edge                                                                    | 23095/707.5                    | 1RB,50%   | NA                                   | NA                          | NA                   | NA                                      | NA                | NA                                      | NA               |
| Back Side                                                                      | 23095/707.5                    | 50%RB,50% | 23.00                                | 21.51                       | 0.062                | 0.040                                   | 1.41              | 0.057                                   | /                |
| Front Side                                                                     | 23095/707.5                    | 50%RB,50% | 23.00                                | 21.51                       | 0.010                | 0.032                                   | 1.41              | 0.046                                   | /                |
| Left Edge                                                                      | 23095/707.5                    | 50%RB,50% | 23.00                                | 21.51                       | 0.028                | 0.043                                   | 1.41              | 0.061                                   | /                |
| Right Edge                                                                     | 23095/707.5                    | 50%RB,50% | 23.00                                | 21.51                       | 0.150                | 0.019                                   | 1.41              | 0.027                                   | /                |
| Top Edge                                                                       | 23095/707.5                    | 50%RB,50% | 23.00                                | 21.51                       | 0.098                | 0.045                                   | 1.41              | 0.063                                   | /                |
| Bottom Edge                                                                    | 23095/707.5                    | 50%RB,50% | NA                                   | NA                          | NA                   | NA                                      | NA                | NA                                      | NA               |
| Worst position of Body with Battery 2 (QPSK, Distance 10mm)                    |                                |           |                                      |                             |                      |                                         |                   |                                         |                  |
| Back Side                                                                      | 23095/707.5                    | 1RB,50%   | 24.00                                | 22.93                       | 0.043                | 0.039                                   | 1.28              | 0.050                                   | /                |
| Note: 1. The value with blue color is the maximum SAR Value of each test band. |                                |           |                                      |                             |                      |                                         |                   |                                         |                  |

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| Test Position                                                                 | Channel/<br>Frequency<br>(MHz) | RB Offset | Maximum<br>Allowed<br>Power<br>(dBm) | Conducted<br>Power<br>(dBm) | Drift<br>±<br>0.21dB | Limit SAR <sub>1g</sub> 1.6 W/kg        |                   |                                         |                  |
|-------------------------------------------------------------------------------|--------------------------------|-----------|--------------------------------------|-----------------------------|----------------------|-----------------------------------------|-------------------|-----------------------------------------|------------------|
|                                                                               |                                |           |                                      |                             | Drift<br>(dB)        | Measured<br>SAR <sub>1g</sub><br>(W/kg) | Scaling<br>Factor | Reported<br>SAR <sub>1g</sub><br>(W/kg) | Graph<br>Results |
| Test Position of Head (QPSK)                                                  |                                |           |                                      |                             |                      |                                         |                   |                                         |                  |
| Left/Cheek                                                                    | 23790/710                      | 1RB,50%   | 24.00                                | 23.05                       | -0.110               | 0.326                                   | 1.24              | 0.406                                   | /                |
| Left/Tilt                                                                     | 23790/710                      | 1RB,50%   | 24.00                                | 23.05                       | -0.020               | 0.369                                   | 1.24              | 0.459                                   | /                |
| Right/Cheek                                                                   | 23790/710                      | 1RB,50%   | 24.00                                | 23.05                       | 0.050                | 0.422                                   | 1.24              | 0.525                                   | /                |
| Right/Tilt                                                                    | 23790/710                      | 1RB,50%   | 24.00                                | 23.05                       | 0.040                | 0.383                                   | 1.24              | 0.477                                   | /                |
| Left/Cheek                                                                    | 23790/710                      | 50%RB,99% | 23.00                                | 21.91                       | 0.000                | 0.374                                   | 1.29              | 0.481                                   | /                |
| Left/Tilt                                                                     | 23790/710                      | 50%RB,99% | 23.00                                | 21.91                       | -0.050               | 0.416                                   | 1.29              | 0.535                                   | /                |
| Right/Cheek                                                                   | 23790/710                      | 50%RB,99% | 23.00                                | 21.91                       | -0.020               | 0.481                                   | 1.29              | 0.618                                   | /                |
| Right/Tilt                                                                    | 23790/710                      | 50%RB,99% | 23.00                                | 21.91                       | 0.028                | 0.460                                   | 1.29              | 0.591                                   | /                |
| Worst position of Head with Battery 2 (QPSK)                                  |                                |           |                                      |                             |                      |                                         |                   |                                         |                  |
| Right/Cheek                                                                   | 23790/710                      | 50%RB,99% | 23.00                                | 21.91                       | -0.060               | 0.519                                   | 1.29              | 0.667                                   | Figure.57        |
| Note: 1.The value with blue color is the maximum SAR Value of each test band. |                                |           |                                      |                             |                      |                                         |                   |                                         |                  |

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| Test Position                                                                  | Channel/<br>Frequency (MHz) | RB Offset | Maximum Allowed Power (dBm) | Conducted Power (dBm) | Drift<br>±<br>0.21dB | Limit SAR <sub>1g</sub> 1.6 W/kg  |                |                                   |               |
|--------------------------------------------------------------------------------|-----------------------------|-----------|-----------------------------|-----------------------|----------------------|-----------------------------------|----------------|-----------------------------------|---------------|
|                                                                                |                             |           |                             |                       | Drift (dB)           | Measured SAR <sub>1g</sub> (W/kg) | Scaling Factor | Reported SAR <sub>1g</sub> (W/kg) | Graph Results |
| Test position of Body-worn (QPSK, Distance 15mm)                               |                             |           |                             |                       |                      |                                   |                |                                   |               |
| Back Side                                                                      | 23790/7110                  | 1RB, 50%  | 24.00                       | 23.05                 | -0.035               | 0.059                             | 1.24           | 0.073                             | /             |
| Front Side                                                                     | 23790/7110                  | 1RB, 50%  | 24.00                       | 23.05                 | -0.070               | 0.061                             | 1.24           | 0.076                             | /             |
| Back Side                                                                      | 23790/7110                  | 50%RB,99% | 23.00                       | 21.91                 | 0.010                | 0.077                             | 1.29           | 0.099                             | /             |
| Front Side                                                                     | 23790/7110                  | 50%RB,99% | 23.00                       | 21.91                 | 0.090                | 0.078                             | 1.29           | 0.100                             | Figure.58     |
| Test position of Hotspot (QPSK, Distance 10mm)                                 |                             |           |                             |                       |                      |                                   |                |                                   |               |
| Back Side                                                                      | 23790/7110                  | 1RB, 50%  | 24.00                       | 23.05                 | 0.030                | 0.147                             | 1.24           | 0.183                             | /             |
| Front Side                                                                     | 23790/7110                  | 1RB, 50%  | 24.00                       | 23.05                 | -0.100               | 0.120                             | 1.24           | 0.149                             | /             |
| Left Edge                                                                      | 23790/7110                  | 1RB, 50%  | 24.00                       | 23.05                 | 0.180                | 0.064                             | 1.24           | 0.079                             | /             |
| Right Edge                                                                     | 23790/7110                  | 1RB, 50%  | 24.00                       | 23.05                 | 0.024                | 0.023                             | 1.24           | 0.028                             | /             |
| Top Edge                                                                       | 23790/7110                  | 1RB, 50%  | 24.00                       | 23.05                 | 0.089                | 0.038                             | 1.24           | 0.047                             | /             |
| Bottom Edge                                                                    | 23790/7110                  | 1RB, 50%  | NA                          | NA                    | NA                   | NA                                | NA             | NA                                | NA            |
| Back Side                                                                      | 23790/7110                  | 50%RB,99% | 23.00                       | 21.91                 | 0.010                | 0.160                             | 1.29           | 0.206                             | /             |
| Front Side                                                                     | 23790/7110                  | 50%RB,99% | 23.00                       | 21.91                 | 0.080                | 0.152                             | 1.29           | 0.195                             | /             |
| Left Edge                                                                      | 23790/7110                  | 50%RB,99% | 23.00                       | 21.91                 | -0.020               | 0.075                             | 1.29           | 0.097                             | /             |
| Right Edge                                                                     | 23790/7110                  | 50%RB,99% | 23.00                       | 21.91                 | 0.035                | 0.029                             | 1.29           | 0.037                             | /             |
| Top Edge                                                                       | 23790/7110                  | 50%RB,99% | 23.00                       | 21.91                 | 0.022                | 0.107                             | 1.29           | 0.138                             | /             |
| Bottom Edge                                                                    | 23790/7110                  | 50%RB,99% | NA                          | NA                    | NA                   | NA                                | NA             | NA                                | NA            |
| Worst position of Body with Battery 2 (QPSK, Distance 10mm)                    |                             |           |                             |                       |                      |                                   |                |                                   |               |
| Back Side                                                                      | 23790/7110                  | 50%RB,99% | 23.00                       | 21.91                 | 0.030                | 0.164                             | 1.29           | 0.211                             | Figure.59     |
| Note: 1. The value with blue color is the maximum SAR Value of each test band. |                             |           |                             |                       |                      |                                   |                |                                   |               |

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| Test Position                                                                  | Channel/<br>Frequency<br>(MHz) | RB Offset | Maximum<br>Allowed<br>Power<br>(dBm) | Conducted<br>Power<br>(dBm) | Drift<br>±<br>0.21dB | Limit SAR <sub>1g</sub> 1.6 W/kg        |                   |                                         |                  |
|--------------------------------------------------------------------------------|--------------------------------|-----------|--------------------------------------|-----------------------------|----------------------|-----------------------------------------|-------------------|-----------------------------------------|------------------|
|                                                                                |                                |           |                                      |                             | Drift<br>(dB)        | Measured<br>SAR <sub>1g</sub><br>(W/kg) | Scaling<br>Factor | Reported<br>SAR <sub>1g</sub><br>(W/kg) | Graph<br>Results |
| Test Position of Head (QPSK)                                                   |                                |           |                                      |                             |                      |                                         |                   |                                         |                  |
| Left/Cheek                                                                     | 26590/1905                     | 1RB, 0%   | 23.50                                | 23.17                       | 0.010                | 0.245                                   | 1.08              | 0.264                                   | /                |
| Left/Tilt                                                                      | 26590/1905                     | 1RB, 0%   | 23.50                                | 23.17                       | 0.130                | 0.227                                   | 1.08              | 0.245                                   | /                |
| Right/Cheek                                                                    | 26590/1905                     | 1RB, 0%   | 23.50                                | 23.17                       | 0.080                | 0.848                                   | 1.08              | 0.915                                   | /                |
|                                                                                | 26365/1882.5                   | 1RB, 0%   | 23.50                                | 22.50                       | 0.028                | 0.446                                   | 1.26              | 0.561                                   | /                |
|                                                                                | 26140/1860                     | 1RB, 99%  | 23.50                                | 22.84                       | -0.021               | 0.545                                   | 1.16              | 0.634                                   | /                |
| Right/Tilt                                                                     | 26590/1905                     | 1RB, 0%   | 23.50                                | 23.17                       | 0.070                | 0.768                                   | 1.08              | 0.829                                   | /                |
|                                                                                | 26365/1882.5                   | 1RB, 0%   | 23.50                                | 22.50                       | -0.064               | 0.359                                   | 1.26              | 0.452                                   | /                |
|                                                                                | 26140/1860                     | 1RB, 99%  | 23.50                                | 22.84                       | 0.020                | 0.313                                   | 1.16              | 0.364                                   | /                |
| Left/Cheek                                                                     | 26590/1905                     | 50%RB,0%  | 22.50                                | 22.12                       | 0.060                | 0.229                                   | 1.09              | 0.250                                   | /                |
| Left/Tilt                                                                      | 26590/1905                     | 50%RB,0%  | 22.50                                | 22.12                       | 0.050                | 0.210                                   | 1.09              | 0.229                                   | /                |
| Right/Cheek                                                                    | 26590/1905                     | 50%RB,0%  | 22.50                                | 22.12                       | 0.110                | 0.726                                   | 1.09              | 0.792                                   | /                |
| Right/Tilt                                                                     | 26590/1905                     | 50%RB,0%  | 22.50                                | 22.12                       | 0.025                | 0.647                                   | 1.09              | 0.706                                   | /                |
| Right/Cheek                                                                    | 26590/1905                     | 100%RB,0% | 22.50                                | 21.67                       | 0.052                | 0.647                                   | 1.21              | 0.783                                   | /                |
| Right/Tilt                                                                     | 26590/1905                     | 100%RB,0% | 22.50                                | 21.67                       | 0.109                | 0.548                                   | 1.21              | 0.663                                   | /                |
| Worst position of Head with Battery 2 (QPSK)                                   |                                |           |                                      |                             |                      |                                         |                   |                                         |                  |
| Right/Cheek                                                                    | 26590/1905                     | 1RB, 0%   | 23.50                                | 23.17                       | 0.020                | 0.875                                   | 1.08              | 0.944                                   | Figure.60        |
| Worst Case Position of Head for 1 <sup>st</sup> Repeated SAR                   |                                |           |                                      |                             |                      |                                         |                   |                                         |                  |
| Right/Cheek                                                                    | 26590/1905                     | 1RB, 0%   | 23.50                                | 23.17                       | -0.070               | 0.743                                   | 1.08              | 0.802                                   | /                |
| Note: 1. The value with blue color is the maximum SAR Value of each test band. |                                |           |                                      |                             |                      |                                         |                   |                                         |                  |

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| Test Position                                               | Channel/<br>Frequency (MHz) | RB Offset | Maximum Allowed Power (dBm) | Conducted Power (dBm) | Drift<br>±<br>0.21dB | Limit SAR <sub>1g</sub> 1.6 W/kg  |                |                                   |               |
|-------------------------------------------------------------|-----------------------------|-----------|-----------------------------|-----------------------|----------------------|-----------------------------------|----------------|-----------------------------------|---------------|
|                                                             |                             |           |                             |                       | Drift (dB)           | Measured SAR <sub>1g</sub> (W/kg) | Scaling Factor | Reported SAR <sub>1g</sub> (W/kg) | Graph Results |
| Test position of Body-worn (QPSK, Distance 15mm)            |                             |           |                             |                       |                      |                                   |                |                                   |               |
| Back Side                                                   | 26590/1905                  | 1RB, 0%   | 23.50                       | 23.17                 | 0.010                | 0.065                             | 1.08           | 0.070                             | /             |
| Front Side                                                  | 26590/1905                  | 1RB, 0%   | 23.50                       | 23.17                 | 0.028                | 0.070                             | 1.08           | 0.076                             | Figure.61     |
| Back Side                                                   | 26590/1905                  | 50%RB, 0% | 22.50                       | 22.12                 | -0.160               | 0.046                             | 1.09           | 0.050                             | /             |
| Front Side                                                  | 26590/1905                  | 50%RB, 0% | 22.50                       | 22.12                 | 0.143                | 0.049                             | 1.09           | 0.053                             | /             |
| Test position of Hotspot (QPSK, Distance 10mm)              |                             |           |                             |                       |                      |                                   |                |                                   |               |
| Back Side                                                   | 26590/1905                  | 1RB, 0%   | 23.50                       | 23.17                 | 0.026                | 0.136                             | 1.08           | 0.147                             | /             |
| Front Side                                                  | 26590/1905                  | 1RB, 0%   | 23.50                       | 23.17                 | 0.036                | 0.107                             | 1.08           | 0.115                             | /             |
| Left Edge                                                   | 26590/1905                  | 1RB, 0%   | 23.50                       | 23.17                 | 0.010                | 0.176                             | 1.08           | 0.190                             | Figure.62     |
| Right Edge                                                  | 26590/1905                  | 1RB, 0%   | 23.50                       | 23.17                 | 0.094                | 0.013                             | 1.08           | 0.014                             | /             |
| Top Edge                                                    | 26590/1905                  | 1RB, 0%   | 23.50                       | 23.17                 | -0.090               | 0.143                             | 1.08           | 0.154                             | /             |
| Bottom Edge                                                 | 26590/1905                  | 1RB, 0%   | NA                          | NA                    | NA                   | NA                                | NA             | NA                                | NA            |
| Back Side                                                   | 26590/1905                  | 50%RB, 0% | 22.50                       | 22.12                 | 0.140                | 0.107                             | 1.09           | 0.117                             | /             |
| Front Side                                                  | 26590/1905                  | 50%RB, 0% | 22.50                       | 22.12                 | 0.054                | 0.102                             | 1.09           | 0.111                             | /             |
| Left Edge                                                   | 26590/1905                  | 50%RB, 0% | 22.50                       | 22.12                 | 0.020                | 0.168                             | 1.09           | 0.183                             | /             |
| Right Edge                                                  | 26590/1905                  | 50%RB, 0% | 22.50                       | 22.12                 | 0.047                | 0.009                             | 1.09           | 0.010                             | /             |
| Top Edge                                                    | 26590/1905                  | 50%RB, 0% | 22.50                       | 22.12                 | -0.042               | 0.142                             | 1.09           | 0.155                             | /             |
| Bottom Edge                                                 | 26590/1905                  | 50%RB, 0% | NA                          | NA                    | NA                   | NA                                | NA             | NA                                | NA            |
| Worst position of Body with Battery 2 (QPSK, Distance 10mm) |                             |           |                             |                       |                      |                                   |                |                                   |               |
| Left Edge                                                   | 26590/1905                  | 1RB, 0%   | 23.50                       | 23.17                 | 0.110                | 0.154                             | 1.08           | 0.166                             | /             |

Note: 1. The value with blue color is the maximum SAR Value of each test band.

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| Test Position                                                                 | Channel/<br>Frequency<br>(MHz) | RB Offset  | Maximum<br>Allowed<br>Power<br>(dBm) | Conducted<br>Power<br>(dBm) | Drift<br>±<br>0.21dB | Limit SAR <sub>1g</sub> 1.6 W/kg        |                   |                                         |                  |
|-------------------------------------------------------------------------------|--------------------------------|------------|--------------------------------------|-----------------------------|----------------------|-----------------------------------------|-------------------|-----------------------------------------|------------------|
|                                                                               |                                |            |                                      |                             | Drift<br>(dB)        | Measured<br>SAR <sub>1g</sub><br>(W/kg) | Scaling<br>Factor | Reported<br>SAR <sub>1g</sub><br>(W/kg) | Graph<br>Results |
| Test Position of Head (QPSK, 1RB)                                             |                                |            |                                      |                             |                      |                                         |                   |                                         |                  |
| Left/Cheek                                                                    | 26865/831.5                    | 1RB, 0%    | 24.00                                | 23.95                       | 0.040                | 0.757                                   | 1.01              | 0.766                                   | /                |
| Left/Tilt                                                                     | 26965/841.5                    | 1RB, 50%   | 24.00                                | 23.71                       | -0.020               | 0.818                                   | 1.07              | 0.874                                   | /                |
|                                                                               | 26865/831.5                    | 1RB, 0%    | 24.00                                | 23.95                       | -0.030               | 0.854                                   | 1.01              | 0.864                                   | /                |
|                                                                               | 26775/822.5                    | 1RB, 50%   | 24.00                                | 23.91                       | -0.120               | 0.787                                   | 1.02              | 0.803                                   | /                |
| Right/Cheek                                                                   | 26965/841.5                    | 1RB, 50%   | 24.00                                | 23.71                       | -0.100               | 0.725                                   | 1.07              | 0.775                                   | /                |
|                                                                               | 26865/831.5                    | 1RB, 0%    | 24.00                                | 23.95                       | 0.070                | 0.810                                   | 1.01              | 0.819                                   | /                |
|                                                                               | 26775/822.5                    | 1RB, 50%   | 24.00                                | 23.91                       | 0.050                | 0.785                                   | 1.02              | 0.801                                   | /                |
| Right/Tilt                                                                    | 26965/841.5                    | 1RB, 50%   | 24.00                                | 23.71                       | -0.076               | 0.594                                   | 1.07              | 0.635                                   | /                |
|                                                                               | 26865/831.5                    | 1RB, 0%    | 24.00                                | 23.95                       | 0.070                | 0.830                                   | 1.01              | 0.840                                   | /                |
|                                                                               | 26775/822.5                    | 1RB, 50%   | 24.00                                | 23.91                       | 0.060                | 0.645                                   | 1.02              | 0.659                                   | /                |
| Left/Cheek                                                                    | 26965/841.5                    | 50%RB, 50% | 23.00                                | 22.51                       | 0.000                | 0.577                                   | 1.12              | 0.646                                   | /                |
| Left/Tilt                                                                     | 26965/841.5                    | 50%RB, 50% | 23.00                                | 22.51                       | 0.040                | 0.683                                   | 1.12              | 0.765                                   | /                |
| Right/Cheek                                                                   | 26965/841.5                    | 50%RB, 50% | 23.00                                | 22.51                       | 0.020                | 0.645                                   | 1.12              | 0.722                                   | /                |
| Right/Tilt                                                                    | 26965/841.5                    | 50%RB, 50% | 23.00                                | 22.51                       | 0.120                | 0.669                                   | 1.12              | 0.749                                   | /                |
| Left/Tilt                                                                     | 26965/841.5                    | 100%RB, 0% | 23.00                                | 22.31                       | 0.026                | 0.676                                   | 1.17              | 0.792                                   | /                |
| Right/Cheek                                                                   | 26965/841.5                    | 100%RB, 0% | 23.00                                | 22.31                       | 0.100                | 0.208                                   | 1.17              | 0.244                                   | /                |
| Right/Tilt                                                                    | 26965/841.5                    | 100%RB, 0% | 23.00                                | 22.31                       | 0.050                | 0.166                                   | 1.17              | 0.195                                   | /                |
| Worst position of Head with Battery 2 (QPSK)                                  |                                |            |                                      |                             |                      |                                         |                   |                                         |                  |
| Left/Tilt                                                                     | 26965/841.5                    | 1RB, 50%   | 24.00                                | 23.71                       | 0.080                | 0.857                                   | 1.07              | 0.916                                   | Figure.63        |
| Worst Case Position of Head (1 <sup>st</sup> Repeated SAR)                    |                                |            |                                      |                             |                      |                                         |                   |                                         |                  |
| Left/Tilt                                                                     | 26965/841.5                    | 1RB, 50%   | 24.00                                | 23.71                       | 0.102                | 0.785                                   | 1.07              | 0.839                                   | /                |
| Test Position of Head (QPSK, WiFi on)                                         |                                |            |                                      |                             |                      |                                         |                   |                                         |                  |
| Left/Cheek                                                                    | 26865/831.5                    | 1RB, 0%    | 19.50                                | 18.95                       | 0.023                | 0.423                                   | 1.14              | 0.480                                   | /                |
| Left/Tilt                                                                     | 26965/841.5                    | 1RB, 50%   | 19.50                                | 18.71                       | 0.069                | 0.418                                   | 1.20              | 0.501                                   | /                |
|                                                                               | 26865/831.5                    | 1RB, 0%    | 19.50                                | 18.95                       | -0.040               | 0.464                                   | 1.14              | 0.527                                   | /                |
|                                                                               | 26775/822.5                    | 1RB, 50%   | 19.50                                | 18.91                       | 0.010                | 0.436                                   | 1.15              | 0.499                                   | /                |
| Left/Tilt                                                                     | 26965/841.5                    | 50%RB, 50% | 18.50                                | 17.92                       | 0.170                | 0.358                                   | 1.14              | 0.409                                   | /                |
| Left/Tilt                                                                     | 26965/841.5                    | 100%RB, 0% | 18.50                                | 17.77                       | 0.034                | 0.365                                   | 1.18              | 0.432                                   | /                |
| Note: 1.The value with blue color is the maximum SAR Value of each test band. |                                |            |                                      |                             |                      |                                         |                   |                                         |                  |

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| Test Position                                                                 | Channel/<br>Frequency (MHz) | RB Offset  | Maximum Allowed Power (dBm) | Conducted Power (dBm) | Drift<br>±<br>0.21dB | Limit SAR <sub>1g</sub> 1.6 W/kg  |                |                                   |               |
|-------------------------------------------------------------------------------|-----------------------------|------------|-----------------------------|-----------------------|----------------------|-----------------------------------|----------------|-----------------------------------|---------------|
|                                                                               |                             |            |                             |                       | Drift (dB)           | Measured SAR <sub>1g</sub> (W/kg) | Scaling Factor | Reported SAR <sub>1g</sub> (W/kg) | Graph Results |
| Test position of Body-worn (QPSK, Distance 15mm)                              |                             |            |                             |                       |                      |                                   |                |                                   |               |
| Back Side                                                                     | 26865/831.5                 | 1RB, 0%    | 24.00                       | 23.95                 | -0.030               | 0.138                             | 1.01           | 0.140                             | /             |
| Front Side                                                                    | 26865/831.5                 | 1RB, 0%    | 24.00                       | 23.95                 | -0.043               | 0.157                             | 1.14           | 0.179                             | Figure.64     |
| Back Side                                                                     | 26965/841.5                 | 50%RB, 50% | 23.00                       | 22.51                 | 0.080                | 0.138                             | 1.12           | 0.154                             | /             |
| Front Side                                                                    | 26965/841.5                 | 50%RB, 50% | 23.00                       | 22.51                 | 0.070                | 0.136                             | 1.12           | 0.152                             | /             |
| Test position of Hotspot (QPSK, Distance 10mm)                                |                             |            |                             |                       |                      |                                   |                |                                   |               |
| Back Side                                                                     | 26865/831.5                 | 1RB, 0%    | 24.00                       | 23.95                 | 0.010                | 0.248                             | 1.01           | 0.251                             | /             |
| Front Side                                                                    | 26865/831.5                 | 1RB, 0%    | 24.00                       | 23.95                 | 0.130                | 0.249                             | 1.14           | 0.284                             | /             |
| Left Edge                                                                     | 26865/831.5                 | 1RB, 0%    | 24.00                       | 23.95                 | 0.070                | 0.106                             | 1.01           | 0.107                             | /             |
| Right Edge                                                                    | 26865/831.5                 | 1RB, 0%    | 24.00                       | 23.95                 | 0.044                | 0.021                             | 1.01           | 0.021                             | /             |
| Top Edge                                                                      | 26865/831.5                 | 1RB, 0%    | 24.00                       | 23.95                 | 0.070                | 0.193                             | 1.01           | 0.195                             | /             |
| Bottom Edge                                                                   | 26865/831.5                 | 1RB, 0%    | NA                          | NA                    | NA                   | NA                                | NA             | NA                                | NA            |
| Back Side                                                                     | 26965/841.5                 | 50%RB, 50% | 23.00                       | 22.51                 | 0.070                | 0.207                             | 1.12           | 0.232                             | /             |
| Front Side                                                                    | 26965/841.5                 | 50%RB, 50% | 23.00                       | 22.51                 | 0.080                | 0.210                             | 1.12           | 0.235                             | /             |
| Left Edge                                                                     | 26965/841.5                 | 50%RB, 50% | 23.00                       | 22.51                 | 0.160                | 0.104                             | 1.12           | 0.116                             | /             |
| Right Edge                                                                    | 26965/841.5                 | 50%RB, 50% | 23.00                       | 22.51                 | -0.010               | 0.029                             | 1.12           | 0.033                             | /             |
| Top Edge                                                                      | 26965/841.5                 | 50%RB, 50% | 23.00                       | 22.51                 | 0.030                | 0.176                             | 1.12           | 0.197                             | /             |
| Bottom Edge                                                                   | 26965/841.5                 | 50%RB, 50% | NA                          | NA                    | NA                   | NA                                | NA             | NA                                | NA            |
| Worst position of Body with Battery 2 (QPSK, Distance 10mm)                   |                             |            |                             |                       |                      |                                   |                |                                   |               |
| Front Side                                                                    | 26865/831.5                 | 1RB, 0%    | 24.00                       | 23.95                 | 0.080                | 0.310                             | 1.01           | 0.314                             | Figure.65     |
| Note: 1.The value with blue color is the maximum SAR Value of each test band. |                             |            |                             |                       |                      |                                   |                |                                   |               |



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| Test Position                                                                                                                                                                                                                                                                                                                                                                                                               | Channel/<br>Frequency (MHz) | Time slot | Duty Cycle | Maximum Allowed Power (dBm) | Conducted Power (dBm) | Drift<br>± 0.21dB | Limit SAR <sub>1g</sub> 1.6 W/kg  |                |                                   |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|-----------|------------|-----------------------------|-----------------------|-------------------|-----------------------------------|----------------|-----------------------------------|---------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                             |                             |           |            |                             |                       | Drift (dB)        | Measured SAR <sub>1g</sub> (W/kg) | Scaling Factor | Reported SAR <sub>1g</sub> (W/kg) | Graph Results |
| Test Position of Head                                                                                                                                                                                                                                                                                                                                                                                                       |                             |           |            |                             |                       |                   |                                   |                |                                   |               |
| Left/Cheek                                                                                                                                                                                                                                                                                                                                                                                                                  | 190/836.6                   | GSM       | 1:8.3      | 33.30                       | 32.50                 | -0.030            | 0.135                             | 1.20           | 0.162                             | /             |
| Left/Tilt                                                                                                                                                                                                                                                                                                                                                                                                                   | 190/836.6                   | GSM       | 1:8.3      | 33.30                       | 32.50                 | 0.160             | 0.070                             | 1.20           | 0.085                             | /             |
| Right/Cheek                                                                                                                                                                                                                                                                                                                                                                                                                 | 190/836.6                   | GSM       | 1:8.3      | 33.30                       | 32.50                 | 0.177             | 0.234                             | 1.20           | 0.281                             | Figure.66     |
| Right/Tilt                                                                                                                                                                                                                                                                                                                                                                                                                  | 190/836.6                   | GSM       | 1:8.3      | 33.30                       | 32.50                 | -0.060            | 0.091                             | 1.20           | 0.109                             | /             |
| Worst case test Position With Battery 2                                                                                                                                                                                                                                                                                                                                                                                     |                             |           |            |                             |                       |                   |                                   |                |                                   |               |
| Right/Cheek                                                                                                                                                                                                                                                                                                                                                                                                                 | 190/836.6                   | GSM       | 1:8.3      | 33.30                       | 32.50                 | 0.028             | 0.226                             | 1.20           | 0.272                             | /             |
| Test position of Body-worn (Distance 15mm)                                                                                                                                                                                                                                                                                                                                                                                  |                             |           |            |                             |                       |                   |                                   |                |                                   |               |
| Back Side                                                                                                                                                                                                                                                                                                                                                                                                                   | 190/836.6                   | GSM       | 1:8.3      | 33.30                       | 32.50                 | 0.010             | 0.340                             | 1.20           | 0.409                             | Figure.67     |
| Front Side                                                                                                                                                                                                                                                                                                                                                                                                                  | 190/836.6                   | GSM       | 1:8.3      | 33.30                       | 32.50                 | -0.050            | 0.205                             | 1.20           | 0.246                             | /             |
| Test position of Hotspot (Distance 10mm)                                                                                                                                                                                                                                                                                                                                                                                    |                             |           |            |                             |                       |                   |                                   |                |                                   |               |
| Back Side                                                                                                                                                                                                                                                                                                                                                                                                                   | 190/836.6                   | 2Txslots  | 1:4.15     | 30.50                       | 30.34                 | -0.006            | 0.393                             | 1.04           | 0.408                             | /             |
| Front Side                                                                                                                                                                                                                                                                                                                                                                                                                  | 190/836.6                   | 2Txslots  | 1:4.15     | 30.50                       | 30.34                 | 0.041             | 0.251                             | 1.04           | 0.260                             | /             |
| Left Edge                                                                                                                                                                                                                                                                                                                                                                                                                   | 190/836.6                   | 2Txslots  | 1:4.15     | 30.50                       | 30.34                 | -0.043            | 0.168                             | 1.04           | 0.174                             | /             |
| Right Edge                                                                                                                                                                                                                                                                                                                                                                                                                  | 190/836.6                   | 2Txslots  | 1:4.15     | 30.50                       | 30.34                 | 0.084             | 0.279                             | 1.04           | 0.289                             | /             |
| Top Edge                                                                                                                                                                                                                                                                                                                                                                                                                    | NA                          | NA        | NA         | NA                          | NA                    | NA                | NA                                | NA             | NA                                | NA            |
| Bottom Edge                                                                                                                                                                                                                                                                                                                                                                                                                 | 190/836.6                   | 2Txslots  | 1:4.15     | 30.50                       | 30.34                 | 0.026             | 0.143                             | 1.04           | 0.148                             | /             |
| Worst Case Position of Body with EGPRS (Distance 10mm)                                                                                                                                                                                                                                                                                                                                                                      |                             |           |            |                             |                       |                   |                                   |                |                                   |               |
| Back Side                                                                                                                                                                                                                                                                                                                                                                                                                   | 190/836.6                   | 2Txslots  | 1:4.15     | 30.50                       | 30.41                 | -0.070            | 0.415                             | 1.02           | 0.424                             | /             |
| Worst case test Position With Battery 2 (Distance 10mm)                                                                                                                                                                                                                                                                                                                                                                     |                             |           |            |                             |                       |                   |                                   |                |                                   |               |
| Back Side                                                                                                                                                                                                                                                                                                                                                                                                                   | 190/836.6                   | 2Txslots  | 1:4.15     | 30.50                       | 30.34                 | -0.029            | 0.415                             | 1.04           | 0.431                             | Figure.68     |
| Note: 1.The value with blue color is the maximum SAR Value of each test band.<br>2. When multiple slots are used, SAR should be tested to account for the maximum source-based time-averaged output power.<br>3. Per FCC KDB Publication 648474 D04, SAR was evaluated without a headset connected to the device. Since the reported SAR was ≤ 1.2 W/kg, no additional SAR evaluations using a headset cable were required. |                             |           |            |                             |                       |                   |                                   |                |                                   |               |

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| Test Position                                                             | Channel/<br>Frequency<br>(MHz) | Time slot | Duty Cycle | Maximum Allowed Power (dBm) | Conducted Power (dBm) | Drift<br>± 0.21dB | Limit SAR <sub>1g</sub> 1.6 W/kg  |                |                                   |               |
|---------------------------------------------------------------------------|--------------------------------|-----------|------------|-----------------------------|-----------------------|-------------------|-----------------------------------|----------------|-----------------------------------|---------------|
|                                                                           |                                |           |            |                             |                       | Drift (dB)        | Measured SAR <sub>1g</sub> (W/kg) | Scaling Factor | Reported SAR <sub>1g</sub> (W/kg) | Graph Results |
| Test Position of Head                                                     |                                |           |            |                             |                       |                   |                                   |                |                                   |               |
| Left/Cheek                                                                | 661/1880                       | GSM       | 1:8.3      | 30.50                       | 28.95                 | -0.110            | 0.364                             | 1.43           | 0.520                             | Figure.69     |
| Left/Tilt                                                                 | 661/1880                       | GSM       | 1:8.3      | 30.50                       | 28.95                 | -0.097            | 0.132                             | 1.43           | 0.189                             | /             |
| Right/Cheek                                                               | 661/1880                       | GSM       | 1:8.3      | 30.50                       | 28.95                 | 0.117             | 0.148                             | 1.43           | 0.211                             | /             |
| Right/Tilt                                                                | 661/1880                       | GSM       | 1:8.3      | 30.50                       | 28.95                 | -0.100            | 0.120                             | 1.43           | 0.171                             | /             |
| Worst case test Position With Battery 2                                   |                                |           |            |                             |                       |                   |                                   |                |                                   |               |
| Left/Cheek                                                                | 661/1880                       | GSM       | 1:8.3      | 30.50                       | 28.95                 | 0.099             | 0.335                             | 1.43           | 0.479                             | /             |
| Test position of Body-worn (Distance 15mm)                                |                                |           |            |                             |                       |                   |                                   |                |                                   |               |
| Back Side                                                                 | 810/1909.8                     | GSM       | 1:8.3      | 30.50                       | 29.72                 | 0.020             | 1.030                             | 1.20           | 1.233                             | Figure.70     |
|                                                                           | 661/1880                       | GSM       | 1:8.3      | 30.50                       | 28.95                 | -0.029            | 0.806                             | 1.43           | 1.152                             | /             |
|                                                                           | 512/1850.2                     | GSM       | 1:8.3      | 30.50                       | 29.13                 | -0.080            | 0.731                             | 1.37           | 1.002                             | /             |
| Front Side                                                                | 661/1880                       | GSM       | 1:8.3      | 30.50                       | 28.95                 | 0.021             | 0.555                             | 1.43           | 0.793                             | /             |
| Worst case test Position With Earphone (Distance 15mm)                    |                                |           |            |                             |                       |                   |                                   |                |                                   |               |
| Back Side                                                                 | 810/1909.8                     | GSM       | 1:8.3      | 30.50                       | 29.72                 | -0.110            | 0.960                             | 1.20           | 1.149                             | /             |
| Test position of Hotspot (Distance 10mm)                                  |                                |           |            |                             |                       |                   |                                   |                |                                   |               |
| Back Side                                                                 | 810/1909.8                     | 3Txslots  | 1:2.77     | 25.00                       | 24.80                 | -0.050            | 1.200                             | 1.05           | 1.257                             | Figure.71     |
|                                                                           | 661/1880                       | 3Txslots  | 1:2.77     | 25.00                       | 24.06                 | 0.170             | 0.944                             | 1.24           | 1.172                             | /             |
|                                                                           | 512/1850.2                     | 3Txslots  | 1:2.77     | 25.00                       | 24.14                 | 0.130             | 0.859                             | 1.22           | 1.047                             | /             |
| Front Side                                                                | 661/1880                       | 3Txslots  | 1:2.77     | 25.00                       | 24.06                 | 0.040             | 0.634                             | 1.24           | 0.787                             | /             |
| Left Edge                                                                 | 661/1880                       | 3Txslots  | 1:2.77     | 25.00                       | 24.06                 | 0.078             | 0.257                             | 1.24           | 0.319                             | /             |
| Right Edge                                                                | 661/1880                       | 3Txslots  | 1:2.77     | 25.00                       | 24.06                 | 0.028             | 0.105                             | 1.24           | 0.130                             | /             |
| Top Edge                                                                  | NA                             | NA        | NA         | NA                          | NA                    | NA                | NA                                | NA             | NA                                | NA            |
| Bottom Edge                                                               | 810/1909.8                     | 3Txslots  | 1:2.77     | 25.00                       | 24.80                 | 0.090             | 0.889                             | 1.05           | 0.931                             | /             |
|                                                                           | 661/1880                       | 3Txslots  | 1:2.77     | 25.00                       | 24.06                 | 0.190             | 0.871                             | 1.24           | 1.081                             | /             |
|                                                                           | 512/1850.2                     | 3Txslots  | 1:2.77     | 25.00                       | 24.14                 | -0.020            | 0.786                             | 1.22           | 0.958                             | /             |
| Worst Case Position of Body with EGPRS (Distance 10mm)                    |                                |           |            |                             |                       |                   |                                   |                |                                   |               |
| Back Side                                                                 | 810/1909.8                     | 3Txslots  | 1:2.77     | 25.00                       | 24.77                 | -0.100            | 0.767                             | 1.05           | 0.809                             | /             |
| Worst case test Position With Battery 2 (Distance 10mm)                   |                                |           |            |                             |                       |                   |                                   |                |                                   |               |
| Back Side                                                                 | 810/1909.8                     | 3Txslots  | 1:2.77     | 25.00                       | 24.80                 | -0.080            | 1.090                             | 1.05           | 1.141                             | /             |
| Worst Case Position of Body (1 <sup>st</sup> Repeated SAR, Distance 10mm) |                                |           |            |                             |                       |                   |                                   |                |                                   |               |

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|           |            |          |        |       |       |        |       |      |       |   |
|-----------|------------|----------|--------|-------|-------|--------|-------|------|-------|---|
| Back Side | 810/1909.8 | 3Txslots | 1:2.77 | 25.00 | 24.80 | -0.100 | 1.100 | 1.05 | 1.152 | / |
|-----------|------------|----------|--------|-------|-------|--------|-------|------|-------|---|

Note: 1. The value with blue color is the maximum SAR Value of each test band.

2. When multiple slots are used, SAR should be tested to account for the maximum source-based time-averaged output power.
3. Per FCC KDB Publication 648474 D04, SAR was evaluated without a headset connected to the device. Since the reported SAR was  $\leq 1.2$  W/kg, no additional SAR evaluations using a headset cable were required.

**Table 35: SAR Measurement Variability Results [GSM 1900(GSM/GPRS/EGPRS)]**

| Test Position | Channel/<br>Frequency<br>(MHz) | Measured<br>SAR (1g) | 1 <sup>st</sup> Repeated<br>SAR (1g) | Ratio | 2 <sup>nd</sup><br>Repeated<br>SAR (1g) | 3 <sup>rd</sup> Repeated<br>SAR (1g) |
|---------------|--------------------------------|----------------------|--------------------------------------|-------|-----------------------------------------|--------------------------------------|
| Back Side     | 810/1909.8                     | 1.200                | 1.100                                | 1.09  | N/A                                     | N/A                                  |

Note: 1) When the original highest measured SAR is  $\geq 0.80$  W/kg, the measurement was repeated once.

2) A second repeated measurement was performed only if the ratio of largest to smallest SAR for the original and first repeated measurements was  $> 1.20$  or when the original or repeated measurement was  $\geq 1.45$  W/kg (~ 10% from the 1-g SAR limit).

3) A third repeated measurement was performed only if the original, first or second repeated measurement was  $\geq 1.5$  W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is  $> 1.20$ .

4) Repeated measurements are not required when the original highest measured SAR is  $< 0.80$  W/kg

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### 7.3.16. UMTS Band II (Antenna 2)

**Table 36: SAR Values [UMTS Band II (WCDMA/HSDPA/HSUPA)]**

| Test Position                                                             | Channel/<br>Frequency<br>(MHz) | Channel Type | Duty Cycle | Maximum Allowed Power (dBm) | Conducted Power (dBm) | Drift<br>± 0.21dB | Limit SAR <sub>1g</sub> 1.6 W/kg  |                |                                   |               |
|---------------------------------------------------------------------------|--------------------------------|--------------|------------|-----------------------------|-----------------------|-------------------|-----------------------------------|----------------|-----------------------------------|---------------|
|                                                                           |                                |              |            |                             |                       | Drift (dB)        | Measured SAR <sub>1g</sub> (W/kg) | Scaling Factor | Reported SAR <sub>1g</sub> (W/kg) | Graph Results |
| Test Position of Head                                                     |                                |              |            |                             |                       |                   |                                   |                |                                   |               |
| Left/Cheek                                                                | 9400/1880                      | RMC 12.2K    | 1:1        | 24.00                       | 23.07                 | 0.036             | 0.547                             | 1.24           | 0.678                             | /             |
| Left/Tilt                                                                 | 9400/1880                      | RMC 12.2K    | 1:1        | 24.00                       | 23.07                 | -0.063            | 0.180                             | 1.24           | 0.223                             | /             |
| Right/Cheek                                                               | 9400/1880                      | RMC 12.2K    | 1:1        | 24.00                       | 23.07                 | -0.036            | 0.196                             | 1.24           | 0.243                             | /             |
| Right/Tilt                                                                | 9400/1880                      | RMC 12.2K    | 1:1        | 24.00                       | 23.07                 | 0.120             | 0.171                             | 1.24           | 0.212                             | /             |
| Worst position of Head with Battery 2                                     |                                |              |            |                             |                       |                   |                                   |                |                                   |               |
| Left/Cheek                                                                | 9400/1880                      | RMC 12.2K    | 1:1        | 24.00                       | 23.07                 | 0.102             | 0.551                             | 1.24           | 0.683                             | Figure.72     |
| Test Position of Body-worn (Distance 15mm)                                |                                |              |            |                             |                       |                   |                                   |                |                                   |               |
| Back Side                                                                 | 9538/1907.6                    | RMC 12.2K    | 1:1        | 24.00                       | 23.18                 | -0.100            | 0.808                             | 1.21           | 0.976                             | Figure.73     |
|                                                                           | 9400/1880                      | RMC 12.2K    | 1:1        | 24.00                       | 23.07                 | -0.180            | 0.806                             | 1.24           | 0.998                             | /             |
|                                                                           | 9262/1852.4                    | RMC 12.2K    | 1:1        | 24.00                       | 22.73                 | -0.070            | 0.759                             | 1.34           | 1.017                             | /             |
| Front Side                                                                | 9400/1880                      | RMC 12.2K    | 1:1        | 24.00                       | 23.07                 | 0.170             | 0.575                             | 1.24           | 0.712                             | /             |
| Test position of Hotspot (Distance 10mm)                                  |                                |              |            |                             |                       |                   |                                   |                |                                   |               |
| Back Side                                                                 | 9538/1907.6                    | RMC 12.2K    | 1:1        | 22.00                       | 20.69                 | 0.027             | 0.914                             | 1.35           | 1.236                             | /             |
|                                                                           | 9400/1880                      | RMC 12.2K    | 1:1        | 22.00                       | 20.58                 | 0.044             | 0.927                             | 1.39           | 1.286                             | /             |
|                                                                           | 9262/1852.4                    | RMC 12.2K    | 1:1        | 22.00                       | 20.24                 | 0.025             | 0.880                             | 1.50           | 1.320                             | /             |
| Front Side                                                                | 9538/1907.6                    | RMC 12.2K    | 1:1        | 22.00                       | 20.69                 | 0.090             | 0.459                             | 1.35           | 0.621                             | /             |
|                                                                           | 9400/1880                      | RMC 12.2K    | 1:1        | 22.00                       | 20.58                 | 0.056             | 0.641                             | 1.39           | 0.889                             | /             |
|                                                                           | 9262/1852.4                    | RMC 12.2K    | 1:1        | 22.00                       | 20.24                 | 0.038             | 0.649                             | 1.50           | 0.973                             | /             |
| Left Edge                                                                 | 9400/1880                      | RMC 12.2K    | 1:1        | 22.00                       | 20.58                 | -0.140            | 0.218                             | 1.39           | 0.302                             | /             |
| Right Edge                                                                | 9400/1880                      | RMC 12.2K    | 1:1        | 22.00                       | 20.58                 | 0.030             | 0.046                             | 1.39           | 0.063                             | /             |
| Top Edge                                                                  | NA                             | NA           | NA         | NA                          | NA                    | NA                | NA                                | NA             | NA                                | NA            |
| Bottom Edge                                                               | 9538/1907.6                    | RMC 12.2K    | 1:1        | 22.00                       | 20.69                 | 0.060             | 0.795                             | 1.35           | 1.075                             | /             |
|                                                                           | 9400/1880                      | RMC 12.2K    | 1:1        | 22.00                       | 20.58                 | -0.021            | 0.928                             | 1.39           | 1.287                             | /             |
|                                                                           | 9262/1852.4                    | RMC 12.2K    | 1:1        | 22.00                       | 20.24                 | 0.030             | 0.949                             | 1.50           | 1.423                             | Figure.74     |
| Worst position of Body with Battery 2 (Distance 10mm)                     |                                |              |            |                             |                       |                   |                                   |                |                                   |               |
| Bottom Edge                                                               | 9262/1852.4                    | RMC 12.2K    | 1:1        | 22.00                       | 20.24                 | 0.080             | 0.772                             | 1.50           | 1.158                             | /             |
| Worst Case Position of Body (1 <sup>st</sup> Repeated SAR, Distance 10mm) |                                |              |            |                             |                       |                   |                                   |                |                                   |               |
| Bottom Edge                                                               | 9262/1852.4                    | RMC 12.2K    | 1:1        | 22.00                       | 20.24                 | -0.021            | 0.906                             | 1.50           | 1.359                             | /             |

Note: 1. The value with blue color is the maximum SAR Value of each test band.

2. When the maximum output power and tune-up tolerance specified for production units in a secondary mode is  $\leq \frac{1}{4}$  dB higher than the primary mode or when the highest reported SAR of the primary mode is scaled by the ratio of specified maximum output

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3. Per FCC KDB Publication 648474 D04, SAR was evaluated without a headset connected to the device. Since the reported SAR was  $\leq 1.2$  W/kg, no additional SAR evaluations using a headset cable were required.

[illegible]

| Test Position | Channel/<br>Frequency<br>(MHz) | Measured<br>SAR (1g) | 1 <sup>st</sup> Repeated<br>SAR (1g) | Ratio | 2 <sup>nd</sup><br>Repeated<br>SAR (1g) | 3 <sup>rd</sup> Repeated<br>SAR (1g) |
|---------------|--------------------------------|----------------------|--------------------------------------|-------|-----------------------------------------|--------------------------------------|
| Bottom Edge   | 9262/1852.4                    | 0.949                | 0.906                                | 1.05  | N/A                                     | N/A                                  |

Note: 1) When the original highest measured SAR is  $\geq 0.80$  W/kg, the measurement was repeated once.

2) A second repeated measurement was performed only if the ratio of largest to smallest SAR for the original and first repeated measurements was  $> 1.20$  or when the original or repeated measurement was  $\geq 1.45$  W/kg ( $\sim 10\%$  from the 1-g SAR limit).

3) A third repeated measurement was performed only if the original, first or second repeated measurement was  $\geq 1.5$  W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is  $> 1.20$ .

4) Repeated measurements are not required when the original highest measured SAR is  $< 0.80$  W/kg

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### 7.3.17. UMTS Band IV (Antenna 2)

**Table 39: SAR Values [UMTS Band IV (WCDMA/HSDPA/HSUPA)]**

| Test Position                                                             | Channel/<br>Frequency<br>(MHz) | Channel Type | Duty Cycle | Maximum Allowed Power (dBm) | Conducted Power (dBm) | Drift<br>± 0.21dB | Limit SAR <sub>1g</sub> 1.6 W/kg  |                |                                   |               |
|---------------------------------------------------------------------------|--------------------------------|--------------|------------|-----------------------------|-----------------------|-------------------|-----------------------------------|----------------|-----------------------------------|---------------|
|                                                                           |                                |              |            |                             |                       | Drift (dB)        | Measured SAR <sub>1g</sub> (W/kg) | Scaling Factor | Reported SAR <sub>1g</sub> (W/kg) | Graph Results |
| Test Position of Head                                                     |                                |              |            |                             |                       |                   |                                   |                |                                   |               |
| Left/Cheek                                                                | 1513/1752.6                    | RMC 12.2K    | 1:1        | 24.50                       | 23.57                 | 0.130             | 0.565                             | 1.24           | 0.700                             | /             |
|                                                                           | 1413/1732.6                    | RMC 12.2K    | 1:1        | 24.50                       | 23.64                 | 0.033             | 0.670                             | 1.22           | 0.817                             |               |
|                                                                           | 1312/1712.4                    | RMC 12.2K    | 1:1        | 24.50                       | 23.36                 | 0.036             | 0.394                             | 1.30           | 0.512                             |               |
| Left/Tilt                                                                 | 1413/1732.6                    | RMC 12.2K    | 1:1        | 24.50                       | 23.64                 | -0.050            | 0.227                             | 1.22           | 0.277                             | /             |
| Right/Cheek                                                               | 1413/1732.6                    | RMC 12.2K    | 1:1        | 24.50                       | 23.64                 | -0.160            | 0.331                             | 1.22           | 0.403                             | /             |
| Right/Tilt                                                                | 1413/1732.6                    | RMC 12.2K    | 1:1        | 24.50                       | 23.64                 | 0.070             | 0.314                             | 1.22           | 0.383                             | /             |
| Worst position of Head with Battery 2                                     |                                |              |            |                             |                       |                   |                                   |                |                                   |               |
| Left/Cheek                                                                | 1413/1732.6                    | RMC 12.2K    | 1:1        | 24.50                       | 23.64                 | 0.034             | 0.788                             | 1.22           | 0.961                             | Figure.75     |
| Test Position of Body-worn (Distance 15mm)                                |                                |              |            |                             |                       |                   |                                   |                |                                   |               |
| Back Side                                                                 | 1413/1732.6                    | RMC 12.2K    | 1:1        | 24.50                       | 23.64                 | -0.050            | 0.446                             | 1.22           | 0.544                             | Figure.76     |
| Front Side                                                                | 1413/1732.6                    | RMC 12.2K    | 1:1        | 24.50                       | 23.64                 | -0.023            | 0.337                             | 1.22           | 0.411                             | /             |
| Test position of Hotspot (Distance 10mm)                                  |                                |              |            |                             |                       |                   |                                   |                |                                   |               |
| Back Side                                                                 | 1413/1732.6                    | RMC 12.2K    | 1:1        | 23.00                       | 22.15                 | -0.021            | 0.611                             | 1.22           | 0.743                             | /             |
| Front Side                                                                | 1413/1732.6                    | RMC 12.2K    | 1:1        | 23.00                       | 22.15                 | -0.130            | 0.496                             | 1.22           | 0.603                             | /             |
| Left Edge                                                                 | 1413/1732.6                    | RMC 12.2K    | 1:1        | 23.00                       | 22.15                 | -0.100            | 0.392                             | 1.22           | 0.477                             | /             |
| Right Edge                                                                | 1413/1732.6                    | RMC 12.2K    | 1:1        | 23.00                       | 22.15                 | 0.064             | 0.054                             | 1.22           | 0.066                             | /             |
| Top Edge                                                                  | NA                             | NA           | NA         | NA                          | NA                    | NA                | NA                                | NA             | NA                                | NA            |
| Bottom Edge                                                               | 1513/1752.6                    | RMC 12.2K    | 1:1        | 23.00                       | 22.08                 | -0.050            | 1.030                             | 1.24           | 1.273                             | /             |
|                                                                           | 1413/1732.6                    | RMC 12.2K    | 1:1        | 23.00                       | 22.15                 | 0.037             | 0.855                             | 1.22           | 1.040                             | /             |
|                                                                           | 1312/1712.4                    | RMC 12.2K    | 1:1        | 23.00                       | 21.87                 | -0.030            | 0.544                             | 1.30           | 0.706                             | /             |
| Worst position of Body with Battery 2 (Distance 10mm)                     |                                |              |            |                             |                       |                   |                                   |                |                                   |               |
| Bottom Edge                                                               | 1513/1752.6                    | RMC 12.2K    | 1:1        | 23.00                       | 22.08                 | -0.030            | 1.100                             | 1.24           | 1.360                             | Figure.77     |
| Worst Case Position of Body (1 <sup>st</sup> Repeated SAR, Distance 10mm) |                                |              |            |                             |                       |                   |                                   |                |                                   |               |
| Bottom Edge                                                               | 1513/1752.6                    | RMC 12.2K    | 1:1        | 23.00                       | 22.08                 | -0.041            | 0.984                             | 1.24           | 1.216                             | /             |

Note: 1. The value with blue color is the maximum SAR Value of each test band.

2. When the maximum output power and tune-up tolerance specified for production units in a secondary mode is  $\leq \frac{1}{4}$  dB higher than the primary mode or when the highest reported SAR of the primary mode is scaled by the ratio of specified maximum output power and tune-up tolerance of secondary to primary mode and the adjusted SAR is  $\leq 1.2$  W/kg, SAR measurement is not required for the secondary mode

3. Per FCC KDB Publication 648474 D04, SAR was evaluated without a headset connected to the device. Since the reported SAR was  $\leq 1.2$  W/kg, no additional SAR evaluations using a headset cable were required.

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[illegible]

| Test Position | Channel/<br>Frequency<br>(MHz) | Measured<br>SAR (1g) | 1 <sup>st</sup> Repeated<br>SAR (1g) | Ratio | 2 <sup>nd</sup><br>Repeated<br>SAR (1g) | 3 <sup>rd</sup> Repeated<br>SAR (1g) |
|---------------|--------------------------------|----------------------|--------------------------------------|-------|-----------------------------------------|--------------------------------------|
| Bottom Edge   | 1513/1752.6                    | 1.100                | 0.984                                | 1.12  | N/A                                     | N/A                                  |

Note: 1) When the original highest measured SAR is  $\geq 0.80$  W/kg, the measurement was repeated once.

2) A second repeated measurement was performed only if the ratio of largest to smallest SAR for the original and first repeated measurements was  $> 1.20$  or when the original or repeated measurement was  $\geq 1.45$  W/kg ( $\sim 10\%$  from the 1-g SAR limit).

3) A third repeated measurement was performed only if the original, first or second repeated measurement was  $\geq 1.5$  W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is  $> 1.20$ .

4) Repeated measurements are not required when the original highest measured SAR is  $< 0.80$  W/kg

# TA Technology (Shanghai) Co., Ltd.

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### 7.3.18. UMTS Band V (Antenna 2)

**Table 42: SAR Values [UMTS Band V (WCDMA/HSDPA/HSUPA)]**

| Test Position                                         | Channel/<br>Frequency<br>(MHz) | Channel Type | Duty Cycle | Maximum Allowed Power (dBm) | Conducted Power (dBm) | Drift<br>± 0.21dB | Limit SAR <sub>1g</sub> 1.6 W/kg  |                |                                   |               |
|-------------------------------------------------------|--------------------------------|--------------|------------|-----------------------------|-----------------------|-------------------|-----------------------------------|----------------|-----------------------------------|---------------|
|                                                       |                                |              |            |                             |                       | Drift (dB)        | Measured SAR <sub>1g</sub> (W/kg) | Scaling Factor | Reported SAR <sub>1g</sub> (W/kg) | Graph Results |
| Test Position of Head                                 |                                |              |            |                             |                       |                   |                                   |                |                                   |               |
| Left/Cheek                                            | 4183/836.6                     | RMC 12.2K    | 1:1        | 24.50                       | 23.30                 | 0.114             | 0.206                             | 1.32           | 0.272                             | /             |
| Left/Tilt                                             | 4183/836.6                     | RMC 12.2K    | 1:1        | 24.50                       | 23.30                 | 0.035             | 0.129                             | 1.32           | 0.170                             | /             |
| Right/Cheek                                           | 4183/836.6                     | RMC 12.2K    | 1:1        | 24.50                       | 23.30                 | -0.028            | 0.262                             | 1.32           | 0.346                             | Figure.78     |
| Right/Tilt                                            | 4183/836.6                     | RMC 12.2K    | 1:1        | 24.50                       | 23.30                 | -0.048            | 0.142                             | 1.32           | 0.187                             | /             |
| Worst position of Head with Battery 2                 |                                |              |            |                             |                       |                   |                                   |                |                                   |               |
| Right/Cheek                                           | 4183/836.6                     | RMC 12.2K    | 1:1        | 24.50                       | 23.30                 | 0.031             | 0.255                             | 1.32           | 0.336                             | /             |
| Test position of Body-worn (Distance 15mm)            |                                |              |            |                             |                       |                   |                                   |                |                                   |               |
| Back Side                                             | 4183/836.6                     | RMC 12.2K    | 1:1        | 24.50                       | 23.30                 | -0.187            | 0.128                             | 1.32           | 0.169                             | Figure.79     |
| Front Side                                            | 4183/836.6                     | RMC 12.2K    | 1:1        | 24.50                       | 23.30                 | 0.073             | 0.120                             | 1.32           | 0.158                             | /             |
| Test position of Hotspot (Distance 10mm)              |                                |              |            |                             |                       |                   |                                   |                |                                   |               |
| Back Side                                             | 4183/836.6                     | RMC 12.2K    | 1:1        | 24.50                       | 23.30                 | -0.010            | 0.281                             | 1.32           | 0.370                             | Figure.80     |
| Front Side                                            | 4183/836.6                     | RMC 12.2K    | 1:1        | 24.50                       | 23.30                 | -0.080            | 0.202                             | 1.32           | 0.266                             | /             |
| Left Edge                                             | 4183/836.6                     | RMC 12.2K    | 1:1        | 24.50                       | 23.30                 | -0.088            | 0.107                             | 1.32           | 0.141                             | /             |
| Right Edge                                            | 4183/836.6                     | RMC 12.2K    | 1:1        | 24.50                       | 23.30                 | -0.095            | 0.269                             | 1.32           | 0.355                             | /             |
| Top Edge                                              | NA                             | NA           | NA         | NA                          | NA                    | NA                | NA                                | NA             | NA                                | NA            |
| Bottom Edge                                           | 4183/836.6                     | RMC 12.2K    | 1:1        | 24.50                       | 23.30                 | -0.103            | 0.137                             | 1.32           | 0.181                             | /             |
| Worst position of Body with Battery 2 (Distance 10mm) |                                |              |            |                             |                       |                   |                                   |                |                                   |               |
| Back Side                                             | 4183/836.6                     | RMC 12.2K    | 1:1        | 24.50                       | 23.30                 | -0.052            | 0.158                             | 1.32           | 0.208                             | /             |

Note: 1. The value with blue color is the maximum SAR Value of each test band.

2. When the maximum output power and tune-up tolerance specified for production units in a secondary mode is  $\leq \frac{1}{4}$  dB higher than the primary mode or when the highest reported SAR of the primary mode is scaled by the ratio of specified maximum output power and tune-up tolerance of secondary to primary mode and the adjusted SAR is  $\leq 1.2$  W/kg, SAR measurement is not required for the secondary mode

3. Per FCC KDB Publication 648474 D04, SAR was evaluated without a headset connected to the device. Since the reported SAR was  $\leq 1.2$  W/kg, no additional SAR evaluations using a headset cable were required.



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| Test Position                                | Channel/<br>Frequency<br>(MHz) | RB Offset | Maximum<br>Allowed<br>Power<br>(dBm) | Conducted<br>Power<br>(dBm) | Drift<br>±<br>0.21dB | Limit SAR <sub>1g</sub> 1.6 W/kg        |                   |                                         |                  |
|----------------------------------------------|--------------------------------|-----------|--------------------------------------|-----------------------------|----------------------|-----------------------------------------|-------------------|-----------------------------------------|------------------|
|                                              |                                |           |                                      |                             | Drift<br>(dB)        | Measured<br>SAR <sub>1g</sub><br>(W/kg) | Scaling<br>Factor | Reported<br>SAR <sub>1g</sub><br>(W/kg) | Graph<br>Results |
| Test Position of Head (QPSK)                 |                                |           |                                      |                             |                      |                                         |                   |                                         |                  |
| Left/Cheek                                   | 19100/1900                     | 1RB,50%   | 23.50                                | 22.74                       | 0.028                | 0.538                                   | 1.19              | 0.641                                   | Figure.81        |
| Left/Tilt                                    | 19100/1900                     | 1RB,50%   | 23.50                                | 22.74                       | -0.090               | 0.204                                   | 1.19              | 0.243                                   | /                |
| Right/Cheek                                  | 19100/1900                     | 1RB,50%   | 23.50                                | 22.74                       | -0.049               | 0.204                                   | 1.19              | 0.243                                   | /                |
| Right/Tilt                                   | 19100/1900                     | 1RB,50%   | 23.50                                | 22.74                       | 0.029                | 0.141                                   | 1.19              | 0.168                                   | /                |
| Left/Cheek                                   | 19100/1900                     | 50%RB,0%  | 22.50                                | 21.47                       | -0.060               | 0.496                                   | 1.27              | 0.629                                   | /                |
| Left/Tilt                                    | 19100/1900                     | 50%RB,0%  | 22.50                                | 21.47                       | -0.046               | 0.193                                   | 1.27              | 0.245                                   | /                |
| Right/Cheek                                  | 19100/1900                     | 50%RB,0%  | 22.50                                | 21.47                       | -0.032               | 0.229                                   | 1.27              | 0.290                                   | /                |
| Right/Tilt                                   | 19100/1900                     | 50%RB,0%  | 22.50                                | 21.47                       | 0.030                | 0.156                                   | 1.27              | 0.198                                   | /                |
| Worst position of Head with Battery 2 (QPSK) |                                |           |                                      |                             |                      |                                         |                   |                                         |                  |
| Left/Cheek                                   | 19100/1900                     | 1RB,50%   | 23.50                                | 22.74                       | 0.044                | 0.499                                   | 1.19              | 0.594                                   | /                |

Note: 1. The value with blue color is the maximum SAR Value of each test band.

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| Test Position                                                                 | Channel/<br>Frequency<br>(MHz) | RB Offset | Maximum<br>Allowed<br>Power<br>(dBm) | Conducted<br>Power<br>(dBm) | Drift<br>±<br>0.21dB | Limit SAR <sub>1g</sub> 1.6 W/kg        |                   |                                         |                  |
|-------------------------------------------------------------------------------|--------------------------------|-----------|--------------------------------------|-----------------------------|----------------------|-----------------------------------------|-------------------|-----------------------------------------|------------------|
|                                                                               |                                |           |                                      |                             | Drift<br>(dB)        | Measured<br>SAR <sub>1g</sub><br>(W/kg) | Scaling<br>Factor | Reported<br>SAR <sub>1g</sub><br>(W/kg) | Graph<br>Results |
| Test case position of Body-worn (QPSK, Distance 15mm)                         |                                |           |                                      |                             |                      |                                         |                   |                                         |                  |
| Back Side                                                                     | 19100/1900                     | 1RB,50%   | 23.50                                | 22.74                       | -0.030               | 0.760                                   | 1.19              | 0.905                                   | /                |
|                                                                               | 18900/1880                     | 1RB,0%    | 23.50                                | 22.37                       | 0.050                | 0.563                                   | 1.30              | 0.730                                   | /                |
|                                                                               | 18700/1860                     | 1RB,99%   | 23.50                                | 22.15                       | 0.050                | 0.594                                   | 1.36              | 0.811                                   | /                |
| Front Side                                                                    | 19100/1900                     | 1RB,50%   | 23.50                                | 22.74                       | 0.180                | 0.495                                   | 1.19              | 0.590                                   | /                |
| Back Side                                                                     | 19100/1900                     | 50%RB,0%  | 22.50                                | 21.47                       | -0.140               | 0.793                                   | 1.27              | 1.005                                   | Figure.82        |
|                                                                               | 18900/1880                     | 50%RB,0%  | 22.50                                | 21.01                       | -0.090               | 0.378                                   | 1.41              | 0.533                                   | /                |
|                                                                               | 18700/1860                     | 50%RB,50% | 22.50                                | 21.09                       | -0.160               | 0.655                                   | 1.38              | 0.906                                   | /                |
| Front Side                                                                    | 19100/1900                     | 50%RB,0%  | 22.50                                | 21.47                       | 0.090                | 0.493                                   | 1.27              | 0.625                                   | /                |
| Test position of Hotspot (QPSK, Distance 10mm)                                |                                |           |                                      |                             |                      |                                         |                   |                                         |                  |
| Back Side                                                                     | 19100/1900                     | 1RB,50%   | 19.00                                | 18.20                       | 0.066                | 0.736                                   | 1.20              | 0.885                                   | Figure.83        |
|                                                                               | 18900/1880                     | 1RB,0%    | 19.00                                | 17.84                       | 0.135                | 0.487                                   | 1.31              | 0.636                                   | /                |
|                                                                               | 18700/1860                     | 1RB,99%   | 19.00                                | 17.61                       | 0.063                | 0.513                                   | 1.38              | 0.707                                   | /                |
| Front Side                                                                    | 19100/1900                     | 1RB,50%   | 19.00                                | 18.20                       | 0.154                | 0.135                                   | 1.20              | 0.162                                   | /                |
| Left Edge                                                                     | 19100/1900                     | 1RB,50%   | 19.00                                | 18.20                       | -0.150               | 0.180                                   | 1.20              | 0.216                                   | /                |
| Right Edge                                                                    | 19100/1900                     | 1RB,50%   | 19.00                                | 18.20                       | 0.023                | 0.053                                   | 1.20              | 0.064                                   | /                |
| Top Edge                                                                      | 19100/1900                     | 1RB,50%   | NA                                   | NA                          | NA                   | NA                                      | NA                | NA                                      | NA               |
| Bottom Edge                                                                   | 19100/1900                     | 1RB,50%   | 19.00                                | 18.20                       | 0.070                | 0.707                                   | 1.20              | 0.850                                   | /                |
|                                                                               | 18900/1880                     | 1RB,0%    | 19.00                                | 17.84                       | 0.010                | 0.400                                   | 1.31              | 0.522                                   | /                |
|                                                                               | 18700/1860                     | 1RB,99%   | 19.00                                | 17.61                       | 0.030                | 0.423                                   | 1.38              | 0.583                                   | /                |
| Back Side                                                                     | 19100/1900                     | 50%RB,0%  | 18.00                                | 16.97                       | 0.042                | 0.707                                   | 1.27              | 0.896                                   | /                |
|                                                                               | 18900/1880                     | 50%RB,0%  | 18.00                                | 16.95                       | 0.101                | 0.342                                   | 1.27              | 0.436                                   | /                |
|                                                                               | 18700/18160                    | 50%RB,50% | 18.00                                | 16.58                       | 0.084                | 0.538                                   | 1.39              | 0.746                                   | /                |
| Front Side                                                                    | 19100/1900                     | 50%RB,0%  | 18.00                                | 16.97                       | 0.097                | 0.150                                   | 1.27              | 0.190                                   | /                |
| Left Edge                                                                     | 19100/1900                     | 50%RB,0%  | 18.00                                | 16.97                       | 0.010                | 0.187                                   | 1.27              | 0.237                                   | /                |
| Right Edge                                                                    | 19100/1900                     | 50%RB,0%  | 18.00                                | 16.97                       | 0.032                | 0.031                                   | 1.27              | 0.039                                   | /                |
| Top Edge                                                                      | 19100/1900                     | 50%RB,0%  | NA                                   | NA                          | NA                   | NA                                      | NA                | NA                                      | NA               |
| Bottom Edge                                                                   | 19100/1900                     | 50%RB,0%  | 18.00                                | 16.97                       | 0.020                | 0.559                                   | 1.27              | 0.709                                   | /                |
| Back Side                                                                     | 19100/1900                     | 100%RB,0% | 18.00                                | 16.87                       | 0.042                | 0.693                                   | 1.30              | 0.899                                   | /                |
| Bottom Edge                                                                   | 19100/1900                     | 100%RB,0% | 18.00                                | 16.87                       | 0.030                | 0.441                                   | 1.30              | 0.572                                   | /                |
| Worst position of Body with Battery 2 (QPSK, Distance 10mm)                   |                                |           |                                      |                             |                      |                                         |                   |                                         |                  |
| Back Side                                                                     | 19100/1900                     | 50%RB,0%  | 22.50                                | 21.47                       | 0.040                | 0.711                                   | 1.27              | 0.901                                   | /                |
| Note: 1.The value with blue color is the maximum SAR Value of each test band. |                                |           |                                      |                             |                      |                                         |                   |                                         |                  |

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| Test Position                                     | Channel/<br>Frequency<br>(MHz) | RB Offset  | Maximum<br>Allowed<br>Power<br>(dBm) | Conducted<br>Power<br>(dBm) | Drift<br>±<br>0.21dB | Limit SAR <sub>1g</sub> 1.6 W/kg        |                   |                                         |                  |
|---------------------------------------------------|--------------------------------|------------|--------------------------------------|-----------------------------|----------------------|-----------------------------------------|-------------------|-----------------------------------------|------------------|
|                                                   |                                |            |                                      |                             | Drift<br>(dB)        | Measured<br>SAR <sub>1g</sub><br>(W/kg) | Scaling<br>Factor | Reported<br>SAR <sub>1g</sub><br>(W/kg) | Graph<br>Results |
| Test Position of Head (QPSK)                      |                                |            |                                      |                             |                      |                                         |                   |                                         |                  |
| Left/Cheek                                        | 20175/1732.5                   | 1RB, 0%    | 23.5                                 | 22.31                       | 0.060                | 0.603                                   | 1.32              | 0.793                                   | /                |
| Left/Tilt                                         | 20175/1732.5                   | 1RB, 0%    | 23.5                                 | 22.31                       | 0.070                | 0.188                                   | 1.32              | 0.247                                   | /                |
| Right/Cheek                                       | 20175/1732.5                   | 1RB, 0%    | 23.5                                 | 22.31                       | -0.040               | 0.250                                   | 1.32              | 0.329                                   | /                |
| Right/Tilt                                        | 20175/1732.5                   | 1RB, 0%    | 23.5                                 | 22.31                       | 0.038                | 0.237                                   | 1.32              | 0.312                                   | /                |
| Left/Cheek                                        | 20175/1732.5                   | 50%RB, 0%  | 22.50                                | 21.27                       | 0.057                | 0.418                                   | 1.33              | 0.555                                   | /                |
| Left/Tilt                                         | 20175/1732.5                   | 50%RB, 0%  | 22.50                                | 21.27                       | -0.040               | 0.129                                   | 1.33              | 0.171                                   | /                |
| Right/Cheek                                       | 20175/1732.5                   | 50%RB, 0%  | 22.50                                | 21.27                       | 0.048                | 0.186                                   | 1.33              | 0.247                                   | /                |
| Right/Tilt                                        | 20175/1732.5                   | 50%RB, 0%  | 22.50                                | 21.27                       | 0.050                | 0.173                                   | 1.33              | 0.230                                   | /                |
| Left/Cheek                                        | 20175/1732.5                   | 100%RB, 0% | 22.50                                | 21.31                       | 0.058                | 0.316                                   | 1.32              | 0.416                                   | /                |
| Worst position of Head with Battery 2 (QPSK, 1RB) |                                |            |                                      |                             |                      |                                         |                   |                                         |                  |
| Left/Cheek                                        | 20175/1732.5                   | 1RB, 0%    | 23.5                                 | 22.31                       | 0.120                | 0.636                                   | 1.32              | 0.836                                   | Figure.84        |

Note: 1. The value with blue color is the maximum SAR Value of each test band.

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| Test Position                                                                 | Channel/<br>Frequency<br>(MHz) | RB Offset  | Maximum<br>Allowed<br>Power<br>(dBm) | Conducted<br>Power<br>(dBm) | Drift<br>±<br>0.21dB | Limit SAR <sub>1g</sub> 1.6 W/kg        |                   |                                         |                  |
|-------------------------------------------------------------------------------|--------------------------------|------------|--------------------------------------|-----------------------------|----------------------|-----------------------------------------|-------------------|-----------------------------------------|------------------|
|                                                                               |                                |            |                                      |                             | Drift<br>(dB)        | Measured<br>SAR <sub>1g</sub><br>(W/kg) | Scaling<br>Factor | Reported<br>SAR <sub>1g</sub><br>(W/kg) | Graph<br>Results |
| Test case position of Body-worn (QPSK, Distance 15mm)                         |                                |            |                                      |                             |                      |                                         |                   |                                         |                  |
| Back Side                                                                     | 20175/1732.5                   | 1RB, 0%    | 23.50                                | 22.31                       | 0.021                | 0.416                                   | 1.32              | 0.547                                   | Figure.85        |
| Front Side                                                                    | 20175/1732.5                   | 1RB, 0%    | 23.50                                | 22.31                       | 0.040                | 0.363                                   | 1.32              | 0.477                                   | /                |
| Back Side                                                                     | 20175/1732.5                   | 50%RB, 0%  | 22.50                                | 21.27                       | -0.022               | 0.332                                   | 1.33              | 0.441                                   | /                |
| Front Side                                                                    | 20175/1732.5                   | 50%RB, 0%  | 22.50                                | 21.27                       | 0.100                | 0.256                                   | 1.33              | 0.340                                   | /                |
| Test position of Hotspot (QPSK, Distance 10mm)                                |                                |            |                                      |                             |                      |                                         |                   |                                         |                  |
| Back Side                                                                     | 20300/1745                     | 1RB, 0%    | 22.50                                | 21.15                       | -0.027               | 0.609                                   | 1.36              | 0.831                                   | /                |
|                                                                               | 20175/1732.5                   | 1RB, 0%    | 22.50                                | 21.28                       | 0.021                | 0.654                                   | 1.32              | 0.866                                   | Figure.86        |
|                                                                               | 20050/1720                     | 1RB, 0%    | 22.50                                | 20.60                       | -0.060               | 0.461                                   | 1.55              | 0.714                                   | /                |
| Front Side                                                                    | 20175/1732.5                   | 1RB, 0%    | 22.50                                | 21.28                       | 0.100                | 0.390                                   | 1.32              | 0.516                                   | /                |
| Left Edge                                                                     | 20175/1732.5                   | 1RB, 0%    | 22.50                                | 21.28                       | -0.060               | 0.279                                   | 1.32              | 0.369                                   | /                |
| Right Edge                                                                    | 20175/1732.5                   | 1RB, 0%    | 22.50                                | 21.28                       | 0.160                | 0.027                                   | 1.32              | 0.036                                   | /                |
| Top Edge                                                                      | NA                             | 1RB, 0%    | NA                                   | NA                          | NA                   | NA                                      | NA                | NA                                      | NA               |
| Bottom Edge                                                                   | 20300/1745                     | 1RB, 0%    | 22.50                                | 21.15                       | 0.100                | 0.619                                   | 1.36              | 0.845                                   | /                |
|                                                                               | 20175/1732.5                   | 1RB, 0%    | 22.50                                | 21.28                       | -0.090               | 0.610                                   | 1.32              | 0.808                                   | /                |
|                                                                               | 20050/1720                     | 1RB, 0%    | 22.50                                | 20.60                       | -0.040               | 0.497                                   | 1.55              | 0.770                                   | /                |
| Back Side                                                                     | 20175/1732.5                   | 50%RB, 0%  | 21.50                                | 20.27                       | 0.170                | 0.542                                   | 1.33              | 0.665                                   | /                |
| Front Side                                                                    | 20175/1732.5                   | 50%RB, 0%  | 21.50                                | 20.27                       | 0.034                | 0.337                                   | 1.33              | 0.447                                   | /                |
| Left Edge                                                                     | 20175/1732.5                   | 50%RB, 0%  | 21.50                                | 20.27                       | -0.100               | 0.244                                   | 1.33              | 0.324                                   | /                |
| Right Edge                                                                    | 20175/1732.5                   | 50%RB, 0%  | 21.50                                | 20.27                       | 0.100                | 0.028                                   | 1.33              | 0.037                                   | /                |
| Top Edge                                                                      | NA                             | 50%RB, 0%  | NA                                   | NA                          | NA                   | NA                                      | NA                | NA                                      | NA               |
| Bottom Edge                                                                   | 20175/1732.5                   | 50%RB, 0%  | 21.50                                | 20.27                       | -0.040               | 0.501                                   | 1.33              | 0.665                                   | /                |
| Back Side                                                                     | 20175/1732.5                   | 100%RB, 0% | 21.50                                | 20.28                       | -0.060               | 0.468                                   | 1.32              | 0.620                                   | /                |
| Bottom Edge                                                                   | 20175/1732.5                   | 100%RB, 0% | 21.50                                | 20.28                       | 0.010                | 0.387                                   | 1.32              | 0.513                                   | /                |
| Worst position of Body with Battery 2 (QPSK, Distance 10mm)                   |                                |            |                                      |                             |                      |                                         |                   |                                         |                  |
| Back Side                                                                     | 20175/1732.5                   | 1RB, 0%    | 22.50                                | 21.28                       | 0.042                | 0.613                                   | 1.32              | 0.812                                   | /                |
| Note: 1.The value with blue color is the maximum SAR Value of each test band. |                                |            |                                      |                             |                      |                                         |                   |                                         |                  |

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| Test Position                                                                 | Channel/<br>Frequency<br>(MHz) | RB Offset | Maximum<br>Allowed<br>Power<br>(dBm) | Conducted<br>Power<br>(dBm) | Drift<br>±<br>0.21dB | Limit SAR <sub>1g</sub> 1.6 W/kg        |                   |                                         |                  |
|-------------------------------------------------------------------------------|--------------------------------|-----------|--------------------------------------|-----------------------------|----------------------|-----------------------------------------|-------------------|-----------------------------------------|------------------|
|                                                                               |                                |           |                                      |                             | Drift<br>(dB)        | Measured<br>SAR <sub>1g</sub><br>(W/kg) | Scaling<br>Factor | Reported<br>SAR <sub>1g</sub><br>(W/kg) | Graph<br>Results |
| Test Position of Head (QPSK)                                                  |                                |           |                                      |                             |                      |                                         |                   |                                         |                  |
| Left/Cheek                                                                    | 20600/844                      | 1RB, 50%  | 24.00                                | 23.48                       | 0.031                | 0.108                                   | 1.13              | 0.122                                   | /                |
| Left/Tilt                                                                     | 20600/844                      | 1RB, 50%  | 24.00                                | 23.48                       | -0.073               | 0.063                                   | 1.13              | 0.071                                   | /                |
| Right/Cheek                                                                   | 20600/844                      | 1RB, 50%  | 24.00                                | 23.48                       | -0.028               | 0.261                                   | 1.13              | 0.294                                   | Figure.87        |
| Right/Tilt                                                                    | 20600/844                      | 1RB, 50%  | 24.00                                | 23.48                       | -0.390               | 0.094                                   | 1.13              | 0.106                                   | /                |
| Left/Cheek                                                                    | 20600/844                      | 50%RB,0%  | 23.00                                | 22.16                       | 0.130                | 0.064                                   | 1.21              | 0.077                                   | /                |
| Left/Tilt                                                                     | 20600/844                      | 50%RB,0%  | 23.00                                | 22.16                       | 0.135                | 0.038                                   | 1.21              | 0.046                                   | /                |
| Right/Cheek                                                                   | 20600/844                      | 50%RB,0%  | 23.00                                | 22.16                       | 0.027                | 0.177                                   | 1.21              | 0.215                                   | /                |
| Right/Tilt                                                                    | 20600/844                      | 50%RB,0%  | 23.00                                | 22.16                       | 0.128                | 0.068                                   | 1.21              | 0.083                                   | /                |
| Worst position of Head with Battery 2 (QPSK)                                  |                                |           |                                      |                             |                      |                                         |                   |                                         |                  |
| Right/Cheek                                                                   | 20600/844                      | 1RB, 50%  | 24.00                                | 23.48                       | -0.021               | 0.157                                   | 1.13              | 0.177                                   | /                |
| Note: 1.The value with blue color is the maximum SAR Value of each test band. |                                |           |                                      |                             |                      |                                         |                   |                                         |                  |

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| Test Position                                                                  | Channel/<br>Frequency (MHz) | RB Offset | Maximum Allowed Power (dBm) | Conducted Power (dBm) | Drift ± 0.21dB | Limit SAR <sub>1g</sub> 1.6 W/kg  |                |                                   |               |
|--------------------------------------------------------------------------------|-----------------------------|-----------|-----------------------------|-----------------------|----------------|-----------------------------------|----------------|-----------------------------------|---------------|
|                                                                                |                             |           |                             |                       | Drift (dB)     | Measured SAR <sub>1g</sub> (W/kg) | Scaling Factor | Reported SAR <sub>1g</sub> (W/kg) | Graph Results |
| Test position of Body-worn (QPSK, Distance 15mm)                               |                             |           |                             |                       |                |                                   |                |                                   |               |
| Back Side                                                                      | 20600/844                   | 1RB, 50%  | 24.00                       | 23.48                 | 0.016          | 0.138                             | 1.13           | 0.156                             | Figure.88     |
| Front Side                                                                     | 20600/844                   | 1RB, 50%  | 24.00                       | 23.48                 | -0.016         | 0.133                             | 1.13           | 0.150                             | /             |
| Back Side                                                                      | 20600/844                   | 50%RB,0%  | 23.00                       | 22.16                 | 0.123          | 0.100                             | 1.21           | 0.121                             | /             |
| Front Side                                                                     | 20600/844                   | 50%RB,0%  | 23.00                       | 22.16                 | 0.068          | 0.094                             | 1.21           | 0.115                             | /             |
| Test position of Hotspot (QPSK, Distance 10mm)                                 |                             |           |                             |                       |                |                                   |                |                                   |               |
| Back Side                                                                      | 20600/844                   | 1RB, 50%  | 24.00                       | 23.48                 | -0.024         | 0.316                             | 1.13           | 0.356                             | Figure.89     |
| Front Side                                                                     | 20600/844                   | 1RB, 50%  | 24.00                       | 23.48                 | -0.106         | 0.212                             | 1.13           | 0.239                             | /             |
| Left Edge                                                                      | 20600/844                   | 1RB, 50%  | 24.00                       | 23.48                 | 0.047          | 0.126                             | 1.13           | 0.142                             | /             |
| Right Edge                                                                     | 20600/844                   | 1RB, 50%  | 24.00                       | 23.48                 | 0.024          | 0.219                             | 1.13           | 0.247                             | /             |
| Top Edge                                                                       | 20600/844                   | 1RB, 50%  | NA                          | NA                    | NA             | NA                                | NA             | NA                                | NA            |
| Bottom Edge                                                                    | 20600/844                   | 1RB, 50%  | 24.00                       | 23.48                 | 0.008          | 0.151                             | 1.13           | 0.170                             | /             |
| Back Side                                                                      | 20600/844                   | 50%RB,0%  | 23.00                       | 22.16                 | 0.056          | 0.203                             | 1.21           | 0.246                             | /             |
| Front Side                                                                     | 20600/844                   | 50%RB,0%  | 23.00                       | 22.16                 | 0.101          | 0.150                             | 1.21           | 0.182                             | /             |
| Left Edge                                                                      | 20600/844                   | 50%RB,0%  | 23.00                       | 22.16                 | 0.011          | 0.048                             | 1.21           | 0.058                             | /             |
| Right Edge                                                                     | 20600/844                   | 50%RB,0%  | 23.00                       | 22.16                 | 0.067          | 0.160                             | 1.21           | 0.194                             | /             |
| Top Edge                                                                       | 20600/844                   | 50%RB,0%  | NA                          | NA                    | NA             | NA                                | NA             | NA                                | NA            |
| Bottom Edge                                                                    | 20600/844                   | 50%RB,0%  | 23.00                       | 22.16                 | 0.024          | 0.108                             | 1.21           | 0.131                             | /             |
| Worst position of Body with Battery 2 (QPSK, Distance 10mm)                    |                             |           |                             |                       |                |                                   |                |                                   |               |
| Back Side                                                                      | 20600/844                   | 1RB, 50%  | 24.00                       | 23.48                 | 0.114          | 0.216                             | 1.13           | 0.243                             | /             |
| Note: 1. The value with blue color is the maximum SAR Value of each test band. |                             |           |                             |                       |                |                                   |                |                                   |               |

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| Test Position                                | Channel/<br>Frequency<br>(MHz) | RB Offset | Maximum<br>Allowed<br>Power<br>(dBm) | Conducted<br>Power<br>(dBm) | Drift<br>$\pm$<br>0.21dB | Limit SAR <sub>1g</sub> 1.6 W/kg        |                   |                                         |                  |
|----------------------------------------------|--------------------------------|-----------|--------------------------------------|-----------------------------|--------------------------|-----------------------------------------|-------------------|-----------------------------------------|------------------|
|                                              |                                |           |                                      |                             | Drift<br>(dB)            | Measured<br>SAR <sub>1g</sub><br>(W/kg) | Scaling<br>Factor | Reported<br>SAR <sub>1g</sub><br>(W/kg) | Graph<br>Results |
| Test Position of Head (QPSK)                 |                                |           |                                      |                             |                          |                                         |                   |                                         |                  |
| Left/Cheek                                   | 21350/2560                     | 1RB, 0%   | 24.00                                | 22.75                       | 0.133                    | 0.232                                   | 1.33              | 0.309                                   | /                |
| Left/Tilt                                    | 21350/2560                     | 1RB, 0%   | 24.00                                | 22.75                       | 0.074                    | 0.245                                   | 1.33              | 0.327                                   | /                |
| Right/Cheek                                  | 21350/2560                     | 1RB, 0%   | 24.00                                | 22.75                       | 0.187                    | 0.564                                   | 1.33              | 0.752                                   | /                |
| Right/Tilt                                   | 21350/2560                     | 1RB, 0%   | 24.00                                | 22.75                       | 0.050                    | 0.184                                   | 1.33              | 0.245                                   | /                |
| Left/Cheek                                   | 20850/2510                     | 50%RB,99% | 23.00                                | 21.94                       | 0.033                    | 0.206                                   | 1.28              | 0.263                                   | /                |
| Left/Tilt                                    | 20850/2510                     | 50%RB,99% | 23.00                                | 21.94                       | 0.050                    | 0.266                                   | 1.28              | 0.340                                   | /                |
| Right/Cheek                                  | 20850/2510                     | 50%RB,99% | 23.00                                | 21.94                       | 0.025                    | 0.450                                   | 1.28              | 0.575                                   | /                |
| Right/Tilt                                   | 20850/2510                     | 50%RB,99% | 23.00                                | 21.94                       | 0.059                    | 0.166                                   | 1.28              | 0.212                                   | /                |
| Worst position of Head with Battery 2 (QPSK) |                                |           |                                      |                             |                          |                                         |                   |                                         |                  |
| Left/Cheek                                   | 21350/2560                     | 1RB, 0%   | 24.00                                | 22.75                       | 0.176                    | 0.577                                   | 1.33              | 0.769                                   | Figure.90        |

Note: 1. The value with blue color is the maximum SAR Value of each test band.

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| Test Position                                                                  | Channel/<br>Frequency (MHz) | RB Offset | Maximum Allowed Power (dBm) | Conducted Power (dBm) | Drift<br>±<br>0.21dB | Limit SAR <sub>1g</sub> 1.6 W/kg  |                |                                   |               |
|--------------------------------------------------------------------------------|-----------------------------|-----------|-----------------------------|-----------------------|----------------------|-----------------------------------|----------------|-----------------------------------|---------------|
|                                                                                |                             |           |                             |                       | Drift (dB)           | Measured SAR <sub>1g</sub> (W/kg) | Scaling Factor | Reported SAR <sub>1g</sub> (W/kg) | Graph Results |
| Test case position of Body-worn (QPSK, Distance 15mm)                          |                             |           |                             |                       |                      |                                   |                |                                   |               |
| Back Side                                                                      | 21350/2560                  | 1RB, 0%   | 24.00                       | 22.75                 | 0.140                | 0.273                             | 1.33           | 0.364                             | /             |
| Front Side                                                                     | 21350/2560                  | 1RB, 0%   | 24.00                       | 22.75                 | -0.020               | 0.326                             | 1.33           | 0.435                             | Figure.91     |
| Back Side                                                                      | 20850/2510                  | 50%RB,99% | 23.00                       | 21.94                 | 0.040                | 0.215                             | 1.28           | 0.275                             | /             |
| Front Side                                                                     | 20850/2510                  | 50%RB,99% | 23.00                       | 21.94                 | 0.010                | 0.275                             | 1.28           | 0.351                             | /             |
| Test position of Hotspot (QPSK, Distance 10mm)                                 |                             |           |                             |                       |                      |                                   |                |                                   |               |
| Back Side                                                                      | 21350/2560                  | 1RB, 0%   | 23.00                       | 22.21                 | 0.029                | 0.349                             | 1.20           | 0.419                             | /             |
| Front Side                                                                     | 21350/2560                  | 1RB, 0%   | 23.00                       | 22.21                 | 0.050                | 0.399                             | 1.20           | 0.479                             | Figure.92     |
| Left Edge                                                                      | 21350/2560                  | 1RB, 0%   | 23.00                       | 22.21                 | 0.125                | 0.010                             | 1.20           | 0.012                             | /             |
| Right Edge                                                                     | 21350/2560                  | 1RB, 0%   | 23.00                       | 22.21                 | 0.060                | 0.358                             | 1.20           | 0.429                             | /             |
| Top Edge                                                                       | 21350/2560                  | 1RB, 0%   | NA                          | NA                    | NA                   | NA                                | NA             | NA                                | NA            |
| Bottom Edge                                                                    | 21350/2560                  | 1RB, 0%   | 23.00                       | 22.21                 | 0.054                | 0.026                             | 1.20           | 0.032                             | /             |
| Back Side                                                                      | 20850/2510                  | 50%RB,99% | 22.00                       | 21.35                 | 0.050                | 0.328                             | 1.16           | 0.381                             | /             |
| Front Side                                                                     | 20850/2510                  | 50%RB,99% | 22.00                       | 21.35                 | 0.080                | 0.374                             | 1.16           | 0.434                             | /             |
| Left Edge                                                                      | 20850/2510                  | 50%RB,99% | 22.00                       | 21.35                 | 0.069                | 0.013                             | 1.16           | 0.015                             | /             |
| Right Edge                                                                     | 20850/2510                  | 50%RB,99% | 22.00                       | 21.35                 | 0.023                | 0.335                             | 1.16           | 0.389                             | /             |
| Top Edge                                                                       | 20850/2510                  | 50%RB,99% | NA                          | NA                    | NA                   | NA                                | NA             | NA                                | NA            |
| Bottom Edge                                                                    | 20850/2510                  | 50%RB,99% | 22.00                       | 21.35                 | 0.039                | 0.022                             | 1.16           | 0.026                             | /             |
| Worst position of Body with Battery 2 (QPSK, Distance 10mm)                    |                             |           |                             |                       |                      |                                   |                |                                   |               |
| Front Side                                                                     | 21350/2560                  | 1RB, 0%   | 23.00                       | 22.21                 | 0.010                | 0.360                             | 1.20           | 0.432                             | /             |
| Note: 1. The value with blue color is the maximum SAR Value of each test band. |                             |           |                             |                       |                      |                                   |                |                                   |               |



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| Test Position                                | Channel/<br>Frequency<br>(MHz) | RB Offset | Maximum<br>Allowed<br>Power<br>(dBm) | Conducted<br>Power<br>(dBm) | Drift<br>±<br>0.21dB | Limit SAR <sub>1g</sub> 1.6 W/kg        |                   |                                         |                  |
|----------------------------------------------|--------------------------------|-----------|--------------------------------------|-----------------------------|----------------------|-----------------------------------------|-------------------|-----------------------------------------|------------------|
|                                              |                                |           |                                      |                             | Drift<br>(dB)        | Measured<br>SAR <sub>1g</sub><br>(W/kg) | Scaling<br>Factor | Reported<br>SAR <sub>1g</sub><br>(W/kg) | Graph<br>Results |
| Test Position of Head (QPSK)                 |                                |           |                                      |                             |                      |                                         |                   |                                         |                  |
| Left/Cheek                                   | 23095/707.5                    | 1RB, 50%  | 24.00                                | 22.90                       | 0.058                | 0.025                                   | 1.29              | 0.033                                   | /                |
| Left/Tilt                                    | 23095/707.5                    | 1RB, 50%  | 24.00                                | 22.90                       | -0.044               | 0.019                                   | 1.29              | 0.025                                   | /                |
| Right/Cheek                                  | 23095/707.5                    | 1RB, 50%  | 24.00                                | 22.90                       | -0.121               | 0.043                                   | 1.29              | 0.055                                   | /                |
| Right/Tilt                                   | 23095/707.5                    | 1RB, 50%  | 24.00                                | 22.90                       | -0.199               | 0.024                                   | 1.29              | 0.031                                   | /                |
| Left/Cheek                                   | 23095/707.5                    | 50%RB,50% | 23.00                                | 21.48                       | -0.058               | 0.019                                   | 1.42              | 0.027                                   | /                |
| Left/Tilt                                    | 23095/707.5                    | 50%RB,50% | 23.00                                | 21.48                       | -0.092               | 0.016                                   | 1.42              | 0.022                                   | /                |
| Right/Cheek                                  | 23095/707.5                    | 50%RB,50% | 23.00                                | 21.48                       | -0.043               | 0.031                                   | 1.42              | 0.044                                   | /                |
| Right/Tilt                                   | 23095/707.5                    | 50%RB,50% | 23.00                                | 21.48                       | -0.136               | 0.018                                   | 1.42              | 0.026                                   | /                |
| Worst position of Head with Battery 2 (QPSK) |                                |           |                                      |                             |                      |                                         |                   |                                         |                  |
| Right/Cheek                                  | 23095/707.5                    | 1RB, 50%  | 24.00                                | 22.90                       | -0.094               | 0.046                                   | 1.29              | 0.059                                   | Figure.93        |

Note: 1. The value with blue color is the maximum SAR Value of each test band.

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| Test Position                                                                  | Channel/<br>Frequency (MHz) | RB Offset | Maximum Allowed Power (dBm) | Conducted Power (dBm) | Drift<br>±<br>0.21dB | Limit SAR <sub>1g</sub> 1.6 W/kg  |                |                                   |               |
|--------------------------------------------------------------------------------|-----------------------------|-----------|-----------------------------|-----------------------|----------------------|-----------------------------------|----------------|-----------------------------------|---------------|
|                                                                                |                             |           |                             |                       | Drift (dB)           | Measured SAR <sub>1g</sub> (W/kg) | Scaling Factor | Reported SAR <sub>1g</sub> (W/kg) | Graph Results |
| Test position of Body-worn (QPSK, Distance 15mm)                               |                             |           |                             |                       |                      |                                   |                |                                   |               |
| Back Side                                                                      | 23095/707.5                 | 1RB, 50%  | 24.00                       | 22.90                 | 0.044                | 0.069                             | 1.29           | 0.088                             | Figure.94     |
| Front Side                                                                     | 23095/707.5                 | 1RB, 50%  | 24.00                       | 22.90                 | -0.048               | 0.031                             | 1.29           | 0.040                             | /             |
| Back Side                                                                      | 23095/707.5                 | 50%RB,50% | 23.00                       | 21.48                 | -0.162               | 0.044                             | 1.42           | 0.063                             | /             |
| Front Side                                                                     | 23095/707.5                 | 50%RB,50% | 23.00                       | 21.48                 | 0.022                | 0.025                             | 1.42           | 0.036                             | /             |
| Test position of Hotspot (QPSK, Distance 10mm)                                 |                             |           |                             |                       |                      |                                   |                |                                   |               |
| Back Side                                                                      | 23095/707.5                 | 1RB, 50%  | 24.00                       | 22.90                 | 0.031                | 0.108                             | 1.29           | 0.139                             | /             |
| Front Side                                                                     | 23095/707.5                 | 1RB, 50%  | 24.00                       | 22.90                 | 0.049                | 0.044                             | 1.29           | 0.057                             | /             |
| Left Edge                                                                      | 23095/707.5                 | 1RB, 50%  | 24.00                       | 22.90                 | -0.049               | 0.030                             | 1.29           | 0.039                             | /             |
| Right Edge                                                                     | 23095/707.5                 | 1RB, 50%  | 24.00                       | 22.90                 | 0.124                | 0.078                             | 1.29           | 0.100                             | /             |
| Top Edge                                                                       | 23095/707.5                 | 1RB, 50%  | NA                          | NA                    | NA                   | NA                                | NA             | NA                                | NA            |
| Bottom Edge                                                                    | 23095/707.5                 | 1RB, 50%  | 24.00                       | 22.90                 | -0.061               | 0.046                             | 1.29           | 0.059                             | /             |
| Back Side                                                                      | 23095/707.5                 | 50%RB,50% | 23.00                       | 21.48                 | 0.026                | 0.092                             | 1.42           | 0.131                             | /             |
| Front Side                                                                     | 23095/707.5                 | 50%RB,50% | 23.00                       | 21.48                 | -0.020               | 0.042                             | 1.42           | 0.059                             | /             |
| Left Edge                                                                      | 23095/707.5                 | 50%RB,50% | 23.00                       | 21.48                 | 0.035                | 0.032                             | 1.42           | 0.045                             | /             |
| Right Edge                                                                     | 23095/707.5                 | 50%RB,50% | 23.00                       | 21.48                 | 0.027                | 0.052                             | 1.42           | 0.073                             | /             |
| Top Edge                                                                       | 23095/707.5                 | 50%RB,50% | NA                          | NA                    | NA                   | NA                                | NA             | NA                                | NA            |
| Bottom Edge                                                                    | 23095/707.5                 | 50%RB,50% | 23.00                       | 21.48                 | -0.071               | 0.045                             | 1.42           | 0.063                             | /             |
| Worst position of Body with Battery 2 (QPSK, Distance 10mm)                    |                             |           |                             |                       |                      |                                   |                |                                   |               |
| Back Side                                                                      | 23095/707.5                 | 1RB, 50%  | 24.00                       | 22.90                 | -0.052               | 0.114                             | 1.29           | 0.147                             | Figure.95     |
| Note: 1. The value with blue color is the maximum SAR Value of each test band. |                             |           |                             |                       |                      |                                   |                |                                   |               |

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| Test Position                                | Channel/<br>Frequency<br>(MHz) | RB Offset | Maximum<br>Allowed<br>Power<br>(dBm) | Conducted<br>Power<br>(dBm) | Drift<br>±<br>0.21dB | Limit SAR <sub>1g</sub> 1.6 W/kg        |                   |                                         |                  |
|----------------------------------------------|--------------------------------|-----------|--------------------------------------|-----------------------------|----------------------|-----------------------------------------|-------------------|-----------------------------------------|------------------|
|                                              |                                |           |                                      |                             | Drift<br>(dB)        | Measured<br>SAR <sub>1g</sub><br>(W/kg) | Scaling<br>Factor | Reported<br>SAR <sub>1g</sub><br>(W/kg) | Graph<br>Results |
| Test Position of Head (QPSK)                 |                                |           |                                      |                             |                      |                                         |                   |                                         |                  |
| Left/Cheek                                   | 23790/710                      | 1RB, 50%  | 24.00                                | 23.02                       | -0.158               | 0.026                                   | 1.25              | 0.032                                   | /                |
| Left/Tilt                                    | 23790/710                      | 1RB, 50%  | 24.00                                | 23.02                       | -0.027               | 0.014                                   | 1.25              | 0.018                                   | /                |
| Right/Cheek                                  | 23790/710                      | 1RB, 50%  | 24.00                                | 23.02                       | -0.020               | 0.054                                   | 1.25              | 0.067                                   | Figure.96        |
| Right/Tilt                                   | 23790/710                      | 1RB, 50%  | 24.00                                | 23.02                       | -0.047               | 0.012                                   | 1.25              | 0.015                                   | /                |
| Left/Cheek                                   | 23790/710                      | 50%RB,50% | 23.00                                | 21.88                       | -0.075               | 0.029                                   | 1.30              | 0.038                                   | /                |
| Left/Tilt                                    | 23790/710                      | 50%RB,50% | 23.00                                | 21.88                       | 0.075                | 0.020                                   | 1.30              | 0.026                                   | /                |
| Right/Cheek                                  | 23790/710                      | 50%RB,50% | 23.00                                | 21.88                       | -0.037               | 0.043                                   | 1.30              | 0.056                                   | /                |
| Right/Tilt                                   | 23790/710                      | 50%RB,50% | 23.00                                | 21.88                       | 0.023                | 0.022                                   | 1.30              | 0.028                                   | /                |
| Worst position of Head with Battery 2 (QPSK) |                                |           |                                      |                             |                      |                                         |                   |                                         |                  |
| Right/Cheek                                  | 23790/710                      | 1RB, 50%  | 24.00                                | 23.02                       | 0.058                | 0.034                                   | 1.25              | 0.042                                   | /                |

Note: 1. The value with blue color is the maximum SAR Value of each test band.

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| Test Position                                                                  | Channel/<br>Frequency (MHz) | RB Offset | Maximum Allowed Power (dBm) | Conducted Power (dBm) | Drift<br>±<br>0.21dB | Limit SAR <sub>1g</sub> 1.6 W/kg  |                |                                   |               |
|--------------------------------------------------------------------------------|-----------------------------|-----------|-----------------------------|-----------------------|----------------------|-----------------------------------|----------------|-----------------------------------|---------------|
|                                                                                |                             |           |                             |                       | Drift (dB)           | Measured SAR <sub>1g</sub> (W/kg) | Scaling Factor | Reported SAR <sub>1g</sub> (W/kg) | Graph Results |
| Test position of Body-worn (QPSK, Distance 15mm)                               |                             |           |                             |                       |                      |                                   |                |                                   |               |
| Back Side                                                                      | 23790/710                   | 1RB, 50%  | 24.00                       | 23.02                 | 0.032                | 0.053                             | 1.25           | 0.066                             | Figure.97     |
| Front Side                                                                     | 23790/710                   | 1RB, 50%  | 24.00                       | 23.02                 | -0.109               | 0.031                             | 1.25           | 0.039                             | /             |
| Back Side                                                                      | 23790/710                   | 50%RB,50% | 23.00                       | 21.88                 | -0.034               | 0.039                             | 1.30           | 0.050                             | /             |
| Front Side                                                                     | 23790/710                   | 50%RB,50% | 23.00                       | 21.88                 | -0.051               | 0.023                             | 1.30           | 0.030                             | /             |
| Test position of Hotspot (QPSK, Distance 10mm)                                 |                             |           |                             |                       |                      |                                   |                |                                   |               |
| Back Side                                                                      | 23790/710                   | 1RB, 50%  | 24.00                       | 23.02                 | 0.043                | 0.093                             | 1.25           | 0.116                             | /             |
| Front Side                                                                     | 23790/710                   | 1RB, 50%  | 24.00                       | 23.02                 | 0.124                | 0.061                             | 1.25           | 0.077                             | /             |
| Left Edge                                                                      | 23790/710                   | 1RB, 50%  | 24.00                       | 23.02                 | 0.029                | 0.064                             | 1.25           | 0.080                             | /             |
| Right Edge                                                                     | 23790/710                   | 1RB, 50%  | 24.00                       | 23.02                 | 0.014                | 0.089                             | 1.25           | 0.112                             | /             |
| Top Edge                                                                       | 23790/710                   | 1RB, 50%  | NA                          | NA                    | NA                   | NA                                | NA             | NA                                | NA            |
| Bottom Edge                                                                    | 23790/710                   | 1RB, 50%  | 24.00                       | 23.02                 | -0.098               | 0.038                             | 1.25           | 0.048                             | /             |
| Back Side                                                                      | 23790/710                   | 50%RB,50% | 23.00                       | 21.88                 | 0.014                | 0.097                             | 1.30           | 0.126                             | /             |
| Front Side                                                                     | 23790/710                   | 50%RB,50% | 23.00                       | 21.88                 | -0.020               | 0.069                             | 1.30           | 0.089                             | /             |
| Left Edge                                                                      | 23790/710                   | 50%RB,50% | 23.00                       | 21.88                 | -0.163               | 0.067                             | 1.30           | 0.087                             | /             |
| Right Edge                                                                     | 23790/710                   | 50%RB,50% | 23.00                       | 21.88                 | -0.026               | 0.106                             | 1.30           | 0.137                             | Figure.98     |
| Top Edge                                                                       | 23790/710                   | 50%RB,50% | NA                          | NA                    | NA                   | NA                                | NA             | NA                                | NA            |
| Bottom Edge                                                                    | 23790/710                   | 50%RB,50% | 23.00                       | 21.88                 | -0.004               | 0.044                             | 1.30           | 0.056                             | /             |
| Worst position of Body with Battery 2 (QPSK, 1RB, Distance 10mm)               |                             |           |                             |                       |                      |                                   |                |                                   |               |
| Right Edge                                                                     | 23790/710                   | 50%RB,50% | 23.00                       | 21.88                 | -0.055               | 0.074                             | 1.30           | 0.096                             | /             |
| Note: 1. The value with blue color is the maximum SAR Value of each test band. |                             |           |                             |                       |                      |                                   |                |                                   |               |

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| Test Position                                     | Channel/<br>Frequency<br>(MHz) | RB Offset | Maximum<br>Allowed<br>Power<br>(dBm) | Conducted<br>Power<br>(dBm) | Drift<br>±<br>0.21dB | Limit SAR <sub>1g</sub> 1.6 W/kg        |                   |                                         |                  |
|---------------------------------------------------|--------------------------------|-----------|--------------------------------------|-----------------------------|----------------------|-----------------------------------------|-------------------|-----------------------------------------|------------------|
|                                                   |                                |           |                                      |                             | Drift<br>(dB)        | Measured<br>SAR <sub>1g</sub><br>(W/kg) | Scaling<br>Factor | Reported<br>SAR <sub>1g</sub><br>(W/kg) | Graph<br>Results |
| Test Position of Head (QPSK)                      |                                |           |                                      |                             |                      |                                         |                   |                                         |                  |
| Left/Cheek                                        | 26590/1905                     | 1RB, 0%   | 23.50                                | 23.14                       | 0.085                | 0.752                                   | 1.09              | 0.817                                   | Figure.99        |
|                                                   | 26365/1882.5                   | 1RB, 0%   | 23.50                                | 22.47                       | 0.058                | 0.346                                   | 1.27              | 0.438                                   | /                |
|                                                   | 26140/1860                     | 1RB, 99%  | 23.50                                | 22.81                       | 0.040                | 0.485                                   | 1.17              | 0.569                                   | /                |
| Left/Tilt                                         | 26590/1905                     | 1RB, 0%   | 23.50                                | 23.14                       | -0.068               | 0.221                                   | 1.09              | 0.240                                   | /                |
| Right/Cheek                                       | 26590/1905                     | 1RB, 0%   | 23.50                                | 23.14                       | 0.030                | 0.335                                   | 1.09              | 0.364                                   | /                |
| Right/Tilt                                        | 26590/1905                     | 1RB, 0%   | 23.50                                | 23.14                       | 0.090                | 0.205                                   | 1.09              | 0.223                                   | /                |
| Left/Cheek                                        | 26590/1905                     | 50%RB,0%  | 22.50                                | 22.09                       | -0.121               | 0.502                                   | 1.10              | 0.552                                   | /                |
| Left/Tilt                                         | 26590/1905                     | 50%RB,0%  | 22.50                                | 22.09                       | 0.032                | 0.143                                   | 1.10              | 0.157                                   | /                |
| Right/Cheek                                       | 26590/1905                     | 50%RB,0%  | 22.50                                | 22.09                       | 0.060                | 0.225                                   | 1.10              | 0.247                                   | /                |
| Right/Tilt                                        | 26590/1905                     | 50%RB,0%  | 22.50                                | 22.09                       | 0.160                | 0.130                                   | 1.10              | 0.143                                   | /                |
| Left/Cheek                                        | 26590/1905                     | 100%RB,0% | 22.50                                | 21.64                       | 0.055                | 0.344                                   | 1.22              | 0.419                                   | /                |
| Worst position of Head with Battery 2 (QPSK, 1RB) |                                |           |                                      |                             |                      |                                         |                   |                                         |                  |
| Left/Cheek                                        | 26590/1905                     | 1RB, 0%   | 23.50                                | 23.14                       | 0.024                | 0.612                                   | 1.09              | 0.665                                   | /                |

Note: 1. The value with blue color is the maximum SAR Value of each test band.

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| Test Position                                                                  | Channel/<br>Frequency<br>(MHz) | RB Offset | Maximum<br>Allowed<br>Power<br>(dBm) | Conducted<br>Power<br>(dBm) | Drift<br>±<br>0.21dB | Limit SAR <sub>1g</sub> 1.6 W/kg        |                   |                                         |                  |
|--------------------------------------------------------------------------------|--------------------------------|-----------|--------------------------------------|-----------------------------|----------------------|-----------------------------------------|-------------------|-----------------------------------------|------------------|
|                                                                                |                                |           |                                      |                             | Drift<br>(dB)        | Measured<br>SAR <sub>1g</sub><br>(W/kg) | Scaling<br>Factor | Reported<br>SAR <sub>1g</sub><br>(W/kg) | Graph<br>Results |
| Test case position of Body-worn (QPSK, Distance 15mm)                          |                                |           |                                      |                             |                      |                                         |                   |                                         |                  |
| Back Side                                                                      | 26590/1905                     | 1RB, 0%   | 23.50                                | 23.14                       | 0.040                | 0.415                                   | 1.09              | 0.451                                   | Figure.100       |
| Front Side                                                                     | 26590/1905                     | 1RB, 0%   | 23.50                                | 23.14                       | 0.190                | 0.259                                   | 1.09              | 0.281                                   | /                |
| Back Side                                                                      | 26590/1905                     | 50%RB,0%  | 22.50                                | 22.09                       | 0.031                | 0.298                                   | 1.10              | 0.328                                   | /                |
| Front Side                                                                     | 26590/1905                     | 50%RB,0%  | 22.50                                | 22.09                       | 0.045                | 0.176                                   | 1.10              | 0.194                                   | /                |
| Test position of Hotspot (QPSK, Distance 10mm)                                 |                                |           |                                      |                             |                      |                                         |                   |                                         |                  |
| Back Side                                                                      | 26590/1905                     | 1RB, 0%   | 19.50                                | 18.64                       | 0.020                | 1.050                                   | 1.22              | 1.280                                   | Figure.101       |
|                                                                                | 26365/1882.5                   | 1RB, 0%   | 19.50                                | 17.97                       | -0.010               | 0.632                                   | 1.42              | 0.898                                   | /                |
|                                                                                | 26140/1860                     | 1RB, 99%  | 19.50                                | 18.36                       | 0.031                | 0.791                                   | 1.30              | 1.029                                   | /                |
| Front Side                                                                     | 26590/1905                     | 1RB, 0%   | 19.50                                | 18.64                       | 0.074                | 0.390                                   | 1.22              | 0.475                                   | /                |
| Left Edge                                                                      | 26590/1905                     | 1RB, 0%   | 19.50                                | 18.64                       | -0.030               | 0.289                                   | 1.22              | 0.352                                   | /                |
| Right Edge                                                                     | 26590/1905                     | 1RB, 0%   | 19.50                                | 18.64                       | 0.047                | 0.067                                   | 1.22              | 0.081                                   | /                |
| Top Edge                                                                       | 26590/1905                     | 1RB, 0%   | NA                                   | NA                          | NA                   | NA                                      | NA                | NA                                      | NA               |
| Bottom Edge                                                                    | 26590/1905                     | 1RB, 0%   | 19.50                                | 18.64                       | 0.000                | 0.691                                   | 1.22              | 0.842                                   | /                |
|                                                                                | 26365/1882.5                   | 1RB, 0%   | 19.50                                | 17.97                       | -0.070               | 0.381                                   | 1.42              | 0.542                                   | /                |
|                                                                                | 26140/1860                     | 1RB, 99%  | 19.50                                | 18.36                       | -0.020               | 0.520                                   | 1.30              | 0.676                                   | /                |
| Back Side                                                                      | 26590/1905                     | 50%RB,0%  | 18.50                                | 17.61                       | 0.042                | 0.766                                   | 1.23              | 0.941                                   | /                |
|                                                                                | 26365/1882.5                   | 50%RB,0%  | 18.50                                | 16.72                       | 0.084                | 0.395                                   | 1.51              | 0.595                                   | /                |
|                                                                                | 26140/1860                     | 50%RB,99% | 18.50                                | 17.15                       | 0.100                | 0.656                                   | 1.37              | 0.896                                   | /                |
| Front Side                                                                     | 26590/1905                     | 50%RB,0%  | 18.50                                | 17.61                       | 0.041                | 0.328                                   | 1.23              | 0.403                                   | /                |
| Left Edge                                                                      | 26590/1905                     | 50%RB,0%  | 18.50                                | 17.61                       | -0.040               | 0.201                                   | 1.23              | 0.247                                   | /                |
| Right Edge                                                                     | 26590/1905                     | 50%RB,0%  | 18.50                                | 17.61                       | 0.033                | 0.077                                   | 1.23              | 0.094                                   | /                |
| Top Edge                                                                       | 26590/1905                     | 50%RB,0%  | NA                                   | NA                          | NA                   | NA                                      | NA                | NA                                      | NA               |
| Bottom Edge                                                                    | 26590/1905                     | 50%RB,0%  | 18.50                                | 17.61                       | 0.028                | 0.493                                   | 1.23              | 0.605                                   | /                |
| Back Side                                                                      | 26590/1905                     | 100%RB,0% | 18.50                                | 17.13                       | 0.074                | 0.381                                   | 1.37              | 0.522                                   | /                |
| Bottom Edge                                                                    | 26590/1905                     | 100%RB,0% | 18.50                                | 17.13                       | -0.020               | 0.545                                   | 1.37              | 0.747                                   | /                |
| Worst position of Body with Battery 2 (QPSK, Distance 10mm)                    |                                |           |                                      |                             |                      |                                         |                   |                                         |                  |
| Back Side                                                                      | 26590/1905                     | 1RB, 0%   | 19.50                                | 18.64                       | 0.025                | 0.928                                   | 1.22              | 1.131                                   | /                |
| Worst Case Position of Body (1 <sup>st</sup> Repeated SAR, Distance 10mm)      |                                |           |                                      |                             |                      |                                         |                   |                                         |                  |
| Back Side                                                                      | 26590/1905                     | 1RB, 0%   | 19.50                                | 18.64                       | 0.038                | 0.944                                   | 1.22              | 1.150                                   | /                |
| Note: 1. The value with blue color is the maximum SAR Value of each test band. |                                |           |                                      |                             |                      |                                         |                   |                                         |                  |

Note: 1. The value with blue color is the maximum SAR Value of each test band.

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**Table 50: SAR Measurement Variability Results [LTE Band 25/20MHz]**

| Test Position | Channel/<br>Frequency<br>(MHz) | Measured<br>SAR (1g) | 1 <sup>st</sup> Repeated<br>SAR (1g) | Ratio | 2 <sup>nd</sup><br>Repeated<br>SAR (1g) | 3 <sup>rd</sup> Repeated<br>SAR (1g) |
|---------------|--------------------------------|----------------------|--------------------------------------|-------|-----------------------------------------|--------------------------------------|
| Back Side     | 26590/1905                     | 1.050                | 0.944                                | 1.11  | N/A                                     | N/A                                  |

Note: 1) When the original highest measured SAR is  $\geq 0.80$  W/kg, the measurement was repeated once.

2) A second repeated measurement was performed only if the ratio of largest to smallest SAR for the original and first repeated measurements was  $> 1.20$  or when the original or repeated measurement was  $\geq 1.45$  W/kg (~ 10% from the 1-g SAR limit).

3) A third repeated measurement was performed only if the original, first or second repeated measurement was  $\geq 1.5$  W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is  $> 1.20$ .

4) Repeated measurements are not required when the original highest measured SAR is  $< 0.80$  W/kg

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| Test Position                                                                 | Channel/<br>Frequency<br>(MHz) | RB Offset | Maximum<br>Allowed<br>Power<br>(dBm) | Conducted<br>Power<br>(dBm) | Drift<br>±<br>0.21dB | Limit SAR <sub>1g</sub> 1.6 W/kg        |                   |                                         |                  |
|-------------------------------------------------------------------------------|--------------------------------|-----------|--------------------------------------|-----------------------------|----------------------|-----------------------------------------|-------------------|-----------------------------------------|------------------|
|                                                                               |                                |           |                                      |                             | Drift<br>(dB)        | Measured<br>SAR <sub>1g</sub><br>(W/kg) | Scaling<br>Factor | Reported<br>SAR <sub>1g</sub><br>(W/kg) | Graph<br>Results |
| Test Position of Head (QPSK)                                                  |                                |           |                                      |                             |                      |                                         |                   |                                         |                  |
| Left/Cheek                                                                    | 26865/831.5                    | 1RB, 0%   | 24.00                                | 23.92                       | 0.178                | 0.148                                   | 1.02              | 0.151                                   | /                |
| Left/Tilt                                                                     | 26865/831.5                    | 1RB, 0%   | 24.00                                | 23.92                       | -0.051               | 0.087                                   | 1.02              | 0.089                                   | /                |
| Right/Cheek                                                                   | 26865/831.5                    | 1RB, 0%   | 24.00                                | 23.92                       | 0.056                | 0.207                                   | 1.02              | 0.211                                   | Figure.102       |
| Right/Tilt                                                                    | 26865/831.5                    | 1RB, 0%   | 24.00                                | 23.92                       | -0.042               | 0.103                                   | 1.02              | 0.105                                   | /                |
| Left/Cheek                                                                    | 26965/841.5                    | 50%RB,50% | 23.00                                | 22.48                       | -0.094               | 0.100                                   | 1.13              | 0.112                                   | /                |
| Left/Tilt                                                                     | 26965/841.5                    | 50%RB,50% | 23.00                                | 22.48                       | 0.015                | 0.076                                   | 1.13              | 0.086                                   | /                |
| Right/Cheek                                                                   | 26965/841.5                    | 50%RB,50% | 23.00                                | 22.48                       | -0.077               | 0.170                                   | 1.13              | 0.192                                   | /                |
| Right/Tilt                                                                    | 26965/841.5                    | 50%RB,50% | 23.00                                | 22.48                       | -0.087               | 0.069                                   | 1.13              | 0.078                                   | /                |
| Worst position of Head with Battery 2 (QPSK)                                  |                                |           |                                      |                             |                      |                                         |                   |                                         |                  |
| Right/Cheek                                                                   | 26865/831.5                    | 1RB, 0%   | 24.00                                | 23.92                       | 0.156                | 0.207                                   | 1.02              | 0.211                                   | /                |
| Note: 1.The value with blue color is the maximum SAR Value of each test band. |                                |           |                                      |                             |                      |                                         |                   |                                         |                  |



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| Test Position                                                                 | Channel/<br>Frequency<br>(MHz) | RB Offset | Maximum<br>Allowed<br>Power<br>(dBm) | Conducted<br>Power<br>(dBm) | Drift<br>±<br>0.21dB | Limit SAR <sub>1g</sub> 1.6 W/kg        |                   |                                         |                  |
|-------------------------------------------------------------------------------|--------------------------------|-----------|--------------------------------------|-----------------------------|----------------------|-----------------------------------------|-------------------|-----------------------------------------|------------------|
|                                                                               |                                |           |                                      |                             | Drift<br>(dB)        | Measured<br>SAR <sub>1g</sub><br>(W/kg) | Scaling<br>Factor | Reported<br>SAR <sub>1g</sub><br>(W/kg) | Graph<br>Results |
| Test position of Body-worn (QPSK, Distance 15mm)                              |                                |           |                                      |                             |                      |                                         |                   |                                         |                  |
| Back Side                                                                     | 26865/831.5                    | 1RB, 0%   | 24.00                                | 23.92                       | 0.047                | 0.126                                   | 1.02              | 0.128                                   | Figure.103       |
| Front Side                                                                    | 26865/831.5                    | 1RB, 0%   | 24.00                                | 23.92                       | -0.031               | 0.116                                   | 1.02              | 0.118                                   | /                |
| Back Side                                                                     | 26965/841.5                    | 50%RB,50% | 23.00                                | 22.48                       | -0.053               | 0.102                                   | 1.13              | 0.115                                   | /                |
| Front Side                                                                    | 26965/841.5                    | 50%RB,50% | 23.00                                | 22.48                       | -0.095               | 0.096                                   | 1.13              | 0.108                                   | /                |
| Test position of Hotspot (QPSK, 1RB, Distance 10mm)                           |                                |           |                                      |                             |                      |                                         |                   |                                         |                  |
| Back Side                                                                     | 26865/831.5                    | 1RB, 0%   | 24.00                                | 23.92                       | 0.174                | 0.201                                   | 1.02              | 0.205                                   | /                |
| Front Side                                                                    | 26865/831.5                    | 1RB, 0%   | 24.00                                | 23.92                       | 0.139                | 0.113                                   | 1.14              | 0.129                                   | /                |
| Left Edge                                                                     | 26865/831.5                    | 1RB, 0%   | 24.00                                | 23.92                       | -0.054               | 0.025                                   | 1.02              | 0.025                                   | /                |
| Right Edge                                                                    | 26865/831.5                    | 1RB, 0%   | 24.00                                | 23.92                       | 0.034                | 0.134                                   | 1.02              | 0.137                                   | /                |
| Top Edge                                                                      | 26865/831.5                    | 1RB, 0%   | NA                                   | NA                          | NA                   | NA                                      | NA                | NA                                      | NA               |
| Bottom<br>Edge                                                                | 26865/831.5                    | 1RB, 0%   | 24.00                                | 23.92                       | 0.026                | 0.070                                   | 1.02              | 0.071                                   | /                |
| Back Side                                                                     | 26965/841.5                    | 50%RB,50% | 23.00                                | 22.48                       | -0.017               | 0.197                                   | 1.13              | 0.222                                   | /                |
| Front Side                                                                    | 26965/841.5                    | 50%RB,50% | 23.00                                | 22.48                       | 0.048                | 0.107                                   | 1.13              | 0.121                                   | /                |
| Left Edge                                                                     | 26965/841.5                    | 50%RB,50% | 23.00                                | 22.48                       | 0.002                | 0.163                                   | 1.13              | 0.184                                   | /                |
| Right Edge                                                                    | 26965/841.5                    | 50%RB,50% | 23.00                                | 22.48                       | 0.022                | 0.035                                   | 1.13              | 0.039                                   | /                |
| Top Edge                                                                      | 26965/841.5                    | 50%RB,50% | NA                                   | NA                          | NA                   | NA                                      | NA                | NA                                      | NA               |
| Bottom<br>Edge                                                                | 26965/841.5                    | 50%RB,50% | 23.00                                | 22.48                       | -0.041               | 0.027                                   | 1.13              | 0.030                                   | /                |
| Worst position of Body with Battery 2 (QPSK, Distance 10mm)                   |                                |           |                                      |                             |                      |                                         |                   |                                         |                  |
| Back Side                                                                     | 26865/831.5                    | 50%RB,50% | 23.00                                | 22.48                       | -0.061               | 0.249                                   | 1.13              | 0.281                                   | Figure.104       |
| Note: 1.The value with blue color is the maximum SAR Value of each test band. |                                |           |                                      |                             |                      |                                         |                   |                                         |                  |

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| Test Position                                           | Channel/<br>Frequency<br>(MHz) | Service | Duty Cycle | Maximum<br>Allowed<br>Power<br>(dBm) | Conducted<br>Power<br>(dBm) | Drift<br>±<br>0.21dB | Limit of SAR 1.6 W/kg                   |                   |                                         |                  |
|---------------------------------------------------------|--------------------------------|---------|------------|--------------------------------------|-----------------------------|----------------------|-----------------------------------------|-------------------|-----------------------------------------|------------------|
|                                                         |                                |         |            |                                      |                             | Drift<br>(dB)        | Measured<br>SAR <sub>1g</sub><br>(W/kg) | Scaling<br>Factor | Reported<br>SAR <sub>1g</sub><br>(W/kg) | Graph<br>Results |
| Test Position of Head                                   |                                |         |            |                                      |                             |                      |                                         |                   |                                         |                  |
| Left/Cheek                                              | 11/2462                        | DSSS    | 1:1        | 16.00                                | 15.08                       | 0.110                | 0.690                                   | 1.24              | 0.853                                   | /                |
|                                                         | 6/2437                         | DSSS    | 1:1        | 16.00                                | 14.91                       | 0.046                | 0.537                                   | 1.29              | 0.690                                   | /                |
|                                                         | 1/2412                         | DSSS    | 1:1        | 16.00                                | 15.18                       | 0.057                | 0.724                                   | 1.21              | 0.874                                   | Figure.105       |
| Left/Tilt                                               | 11/2462                        | DSSS    | 1:1        | 16.00                                | 15.08                       | 0.028                | 0.695                                   | 1.24              | 0.859                                   | /                |
|                                                         | 6/2437                         | DSSS    | 1:1        | 16.00                                | 14.91                       | 0.050                | 0.633                                   | 1.29              | 0.814                                   | /                |
|                                                         | 1/2412                         | DSSS    | 1:1        | 16.00                                | 15.18                       | 0.028                | 0.780                                   | 1.21              | 0.942                                   | Figure.106       |
| Right/Cheek                                             | 1/2412                         | DSSS    | 1:1        | 16.00                                | 15.18                       | -0.030               | 0.156                                   | 1.21              | 0.188                                   | /                |
| Right/Tilt                                              | 1/2412                         | DSSS    | 1:1        | 16.00                                | 15.18                       | 0.090                | 0.169                                   | 1.21              | 0.204                                   | /                |
| Worst case test Position With Battery 2                 |                                |         |            |                                      |                             |                      |                                         |                   |                                         |                  |
| Left/Tilt                                               | 1/2412                         | DSSS    | 1:1        | 16.00                                | 15.18                       | -0.060               | 0.468                                   | 1.21              | 0.565                                   | /                |
| Test position of Body-worn (Distance 15mm)              |                                |         |            |                                      |                             |                      |                                         |                   |                                         |                  |
| Back Side                                               | 1/2412                         | DSSS    | 1:1        | 16.00                                | 15.18                       | 0.050                | 0.078                                   | 1.21              | 0.094                                   | Figure.107       |
| Front Side                                              | 1/2412                         | DSSS    | 1:1        | 16.00                                | 15.18                       | 0.118                | 0.051                                   | 1.21              | 0.062                                   | /                |
| Test position of Hotspot (Distance 10mm)                |                                |         |            |                                      |                             |                      |                                         |                   |                                         |                  |
| Back Side                                               | 1/2412                         | DSSS    | 1:1        | 16.00                                | 15.18                       | 0.060                | 0.138                                   | 1.21              | 0.167                                   | /                |
| Front Side                                              | 1/2412                         | DSSS    | 1:1        | 16.00                                | 15.18                       | 0.037                | 0.095                                   | 1.21              | 0.115                                   | /                |
| Left Edge                                               | NA                             | NA      | NA         | NA                                   | NA                          | NA                   | NA                                      | NA                | NA                                      | NA               |
| Right Edge                                              | 1/2412                         | DSSS    | 1:1        | 16.00                                | 15.18                       | -0.070               | 0.131                                   | 1.21              | 0.158                                   | /                |
| Top Edge                                                | 1/2412                         | DSSS    | 1:1        | 16.00                                | 15.18                       | 0.029                | 0.103                                   | 1.21              | 0.124                                   | /                |
| Bottom Edge                                             | NA                             | NA      | NA         | NA                                   | NA                          | NA                   | NA                                      | NA                | NA                                      | NA               |
| Worst case test Position With Battery 2 (Distance 10mm) |                                |         |            |                                      |                             |                      |                                         |                   |                                         |                  |
| Back Side                                               | 1/2412                         | DSSS    | 1:1        | 16.00                                | 15.18                       | 0.036                | 0.152                                   | 1.21              | 0.184                                   | Figure.108       |

Note: 1. The value with blue color is the maximum SAR Value of each test band.

2. KDB 248227-SAR is not required for 802.11g/n channels when the maximum average output power is less than ¼ dB higher than measured on the corresponding 802.11b channels.

3. Per FCC KDB Publication 648474 D04, SAR was evaluated without a headset connected to the device. Since the reported SAR was ≤ 1.2 W/kg, no additional SAR evaluations using a headset cable were required.

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### 7.4. Simultaneous Transmission Conditions

| Air-Interface  | Band (MHz)   | Type  | SimultaneousTransmissions                                 | Voice Over Digital Transport (Data) |
|----------------|--------------|-------|-----------------------------------------------------------|-------------------------------------|
| GSM            | 850          | Voice | Yes                                                       | NA                                  |
|                | 1900         | Voice | GPRS, EGPRS, BT or WiFi                                   |                                     |
|                | GPRS         | Data  | Yes                                                       | NA                                  |
|                | EGPRS        | Data  | GSM, BT or WiFi                                           |                                     |
| WCDMA          | UMTS Band II | Voice | Yes<br>BT or WiFi                                         | NA                                  |
|                | UMTS Band IV | Voice |                                                           |                                     |
|                | UMTS Band V  | Voice |                                                           |                                     |
|                | RMC          | Data  | Yes<br>BT or WiFi                                         | NA                                  |
|                | HSDPA        | Data  |                                                           |                                     |
|                | HSUPA        | Data  |                                                           |                                     |
|                | DC-HSDPA     | Data  |                                                           |                                     |
| LTE            | Band 2       | Data  | Yes<br>BT or WiFi                                         | NA                                  |
|                | Band 4       | Data  |                                                           |                                     |
|                | Band 5       | Data  |                                                           |                                     |
|                | Band 7       | Data  |                                                           |                                     |
|                | Band 12      | Data  |                                                           |                                     |
|                | Band17       | Data  |                                                           |                                     |
|                | Band 25      | Data  |                                                           |                                     |
|                | Band 26      | Data  |                                                           |                                     |
| WiFi           | 2450         | Data  | Yes<br>GSM, GPRS, EGPRS, RMC, HSDPA, HSUPA, DC-HSDPA, LTE | Yes                                 |
| Bluetooth (BT) | 2450         | Data  | Yes<br>GSM, GPRS, EGPRS, RMC, HSDPA, HSUPA, DC-HSDPA, LTE | NA                                  |

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When standalone SAR is not required to be measured per FCC KDB 447498 D01, the following equation must be used to estimate the standalone 1g SAR for simultaneous transmission assessment involving that transmitter.

$$\text{Estimated SAR} = \frac{(\text{max. power of channel, including tune-up tolerance, mW})}{(\text{min. test separation distance, mm})} * \frac{\sqrt{f \text{ (GHz)}}}{7.5}$$

| Band      | Configuration | Frequency (MHz) | Maximum Power (dBm) | Separation Distance (mm) | Estimated SAR (W/kg) |
|-----------|---------------|-----------------|---------------------|--------------------------|----------------------|
| Bluetooth | Body          | 2480            | 10                  | 15                       | 0.140                |

Per FCC KDB 447498 D01, simultaneous transmission SAR test exclusion may be applied when the sum of the 1-g SAR for all the simultaneous transmitting antennas in a specific a physical test configuration is  $\leq 1.6$  W/kg. When the sum is greater than the SAR limit, SAR test exclusion is determined by the SAR to peak location separation ratio.

$$\text{Ratio} = \frac{(\text{SAR}_1 + \text{SAR}_2)^{1.5}}{(\text{peak location separation, mm})} < 0.04$$

### Antenna 1 & Antenna 2 Mode

Antenna 1 and Antenna 2 cannot transmit simultaneously.

### WiFi & BT Mode

BT and WiFi antenna cannot transmit simultaneously.

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### About BT and GSM/UMTS/LTE Antenna 1

| SAR <sub>1g</sub><br>(W/kg)<br>Test Position | GSM<br>850 | GSM<br>1900 | UMTS<br>Band<br>II | UMTS<br>Band<br>IV | UMTS<br>Band<br>V | LTE<br>2 | LTE<br>4 | LTE<br>5 | LTE<br>7 | LTE<br>12 | LTE<br>17 | LTE<br>25 | LTE<br>26    | BT           | MAX.<br>ΣSAR <sub>1g</sub> | Peak<br>location<br>separation<br>ratio |
|----------------------------------------------|------------|-------------|--------------------|--------------------|-------------------|----------|----------|----------|----------|-----------|-----------|-----------|--------------|--------------|----------------------------|-----------------------------------------|
| Back Side(15mm)                              | 0.101      | 0.082       | 0.096              | 0.078              | 0.072             | 0.078    | 0.076    | 0.046    | 0.075    | 0.037     | 0.099     | 0.070     | <b>0.154</b> | <b>0.140</b> | 0.294                      | NA                                      |
| Front Side(15mm)                             | 0.114      | 0.091       | 0.082              | 0.070              | 0.066             | 0.074    | 0.067    | 0.054    | 0.076    | 0.029     | 0.100     | 0.076     | <b>0.179</b> | <b>0.140</b> | <b>0.319</b>               | NA                                      |

Note: 1.The value with blue color is the maximum ΣSAR<sub>1g</sub> Value.  
2. MAX. ΣSAR<sub>1g</sub> =Unlicensed SAR<sub>MAX</sub> +Licensed SAR<sub>MAX</sub>

MAX. ΣSAR<sub>1g</sub> = 0.319 W/kg <1.6 W/kg, so the Simultaneous transimition SAR with volum scan are not required for BT and GSM/UMTS/LTE antenna 1.

### About WiFi and GSM/UMTS/LTE Antenna 1

| SAR <sub>1g</sub><br>(W/kg)<br>Test Position | GSM<br>850   | GSM<br>1900 | UMTS<br>Band<br>II | UMTS<br>Band<br>IV | UMTS<br>Band<br>V | LTE<br>2     | LTE<br>4 | LTE<br>5 | LTE<br>7     | LTE<br>12    | LTE<br>17    | LTE<br>25 | LTE<br>26    | WiFi         | MAX.<br>ΣSAR <sub>1g</sub> | Peak<br>location<br>separation<br>ratio |
|----------------------------------------------|--------------|-------------|--------------------|--------------------|-------------------|--------------|----------|----------|--------------|--------------|--------------|-----------|--------------|--------------|----------------------------|-----------------------------------------|
| Left, Touch                                  | 0.519        | 0.208       | 0.184              | 0.575              | 0.551             | 0.327        | 0.422    | 0.594    | 0.374        | <b>0.651</b> | 0.481        | 0.264     | 0.480        | <b>0.874</b> | 1.525                      | NA                                      |
| Left, Tilt                                   | <b>0.652</b> | 0.316       | 0.215              | 0.330              | 0.647             | 0.332        | 0.257    | 0.542    | 0.383        | 0.469        | 0.535        | 0.245     | 0.527        | <b>0.942</b> | 1.594                      | NA                                      |
| Right, Touch                                 | 1.282        | 1.148       | 0.609              | 1.168              | 0.717             | <b>1.407</b> | 1.261    | 0.938    | 1.322        | 0.913        | 0.667        | 0.944     | 0.819        | <b>0.188</b> | <b>1.595</b>               | NA                                      |
| Right, Tilt                                  | <b>1.184</b> | 0.971       | 0.608              | 0.832              | 0.799             | 0.933        | 0.701    | 0.810    | 1.161        | 0.684        | 0.591        | 0.829     | 0.840        | <b>0.204</b> | 1.388                      | NA                                      |
| Back Side(15mm)                              | 0.101        | 0.082       | 0.096              | 0.078              | 0.072             | 0.078        | 0.076    | 0.046    | 0.075        | 0.037        | 0.099        | 0.070     | <b>0.154</b> | <b>0.094</b> | 0.248                      | NA                                      |
| Front Side(15mm)                             | 0.114        | 0.091       | 0.082              | 0.070              | 0.066             | 0.074        | 0.067    | 0.054    | 0.076        | 0.029        | 0.100        | 0.076     | <b>0.179</b> | <b>0.062</b> | 0.241                      | NA                                      |
| Back Side(10mm)                              | 0.160        | 0.115       | 0.096              | 0.221              | 0.155             | 0.183        | 0.180    | 0.196    | 0.243        | 0.068        | 0.211        | 0.147     | <b>0.251</b> | <b>0.184</b> | 0.435                      | NA                                      |
| Front Side(10mm)                             | 0.217        | 0.096       | 0.082              | 0.185              | 0.170             | 0.155        | 0.148    | 0.195    | 0.248        | 0.046        | 0.195        | 0.115     | <b>0.314</b> | <b>0.115</b> | 0.429                      | NA                                      |
| Left Edge(10mm)                              | 0.091        | 0.237       | 0.219              | 0.239              | 0.063             | 0.234        | 0.200    | 0.106    | <b>0.280</b> | 0.061        | 0.097        | 0.190     | 0.116        | NA           | 0.280                      | NA                                      |
| Right Edge(10mm)                             | 0.020        | 0.029       | 0.014              | 0.031              | 0.010             | 0.014        | 0.023    | 0.029    | 0.018        | 0.027        | <b>0.037</b> | 0.014     | 0.033        | <b>0.158</b> | 0.195                      | NA                                      |
| Top Edge(10mm)                               | 0.177        | 0.017       | 0.116              | <b>0.237</b>       | 0.216             | 0.224        | 0.175    | 0.212    | 0.114        | 0.063        | 0.138        | 0.155     | 0.197        | <b>0.124</b> | 0.361                      | NA                                      |
| Bottom Edge(10mm)                            | NA           | NA          | NA                 | NA                 | NA                | NA           | NA       | NA       | NA           | NA           | NA           | NA        | NA           | NA           | NA                         | NA                                      |

Note: 1.The value with blue color is the maximum ΣSAR<sub>1g</sub> Value.  
2. MAX. ΣSAR<sub>1g</sub> =Unlicensed SAR<sub>MAX</sub> +Licensed SAR<sub>MAX</sub>

MAX. ΣSAR<sub>1g</sub> = 1.595 W/kg <1.6 W/kg, so the Simultaneous transimition SAR with volum scan are not required for WiFi and GSM/UMTS/LTE Antenna 1.

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### About BT and GSM/UMTS/LTE Antenna 2

| SAR <sub>1g</sub><br>(W/kg)<br>Test Position | GSM<br>850 | GSM<br>1900  | UMTS<br>Band<br>II | UMTS<br>Band<br>IV | UMTS<br>Band<br>V | LTE<br>2 | LTE<br>4 | LTE<br>5 | LTE<br>7 | LTE<br>12 | LTE<br>17 | LTE<br>25 | LTE<br>26 | BT           | MAX.<br>ΣSAR <sub>1g</sub> | Peak<br>location<br>separation<br>ratio |
|----------------------------------------------|------------|--------------|--------------------|--------------------|-------------------|----------|----------|----------|----------|-----------|-----------|-----------|-----------|--------------|----------------------------|-----------------------------------------|
| Back Side(15mm)                              | 0.409      | <b>1.233</b> | 1.017              | 0.544              | 0.169             | 1.005    | 0.547    | 0.156    | 0.364    | 0.088     | 0.066     | 0.451     | 0.128     | <b>0.140</b> | <b>1.373</b>               | NA                                      |
| Front Side(15mm)                             | 0.246      | <b>0.793</b> | 0.712              | 0.411              | 0.158             | 0.625    | 0.477    | 0.150    | 0.435    | 0.040     | 0.039     | 0.281     | 0.118     | <b>0.140</b> | 0.933                      | NA                                      |

Note: 1.The value with blue color is the maximum ΣSAR<sub>1g</sub> Value.

2. MAX. ΣSAR<sub>1g</sub> =Unlicensed SAR<sub>MAX</sub> +Licensed SAR<sub>MAX</sub>

MAX. ΣSAR<sub>1g</sub> = 1.373 W/kg <1.6 W/kg, so the Simultaneous transimition SAR with volum scan are not required for BT and GSM/UMTS/LTE antenna.

### About WiFi and GSM/UMTS/LTE Antenna 2

| SAR <sub>1g</sub><br>(W/kg)<br>Test Position | GSM<br>850 | GSM<br>1900  | UMTS<br>Band<br>II | UMTS<br>Band<br>IV | UMTS<br>Band<br>V | LTE<br>2 | LTE<br>4 | LTE<br>5 | LTE<br>7     | LTE<br>12 | LTE<br>17 | LTE<br>25 | LTE<br>26 | WiFi         | MAX.<br>ΣSAR <sub>1g</sub> | Peak<br>location<br>separation<br>ratio |
|----------------------------------------------|------------|--------------|--------------------|--------------------|-------------------|----------|----------|----------|--------------|-----------|-----------|-----------|-----------|--------------|----------------------------|-----------------------------------------|
| Left, Touch                                  | 0.162      | 0.520        | 0.683              | <b>0.961</b>       | 0.272             | 0.641    | 0.836    | 0.122    | 0.309        | 0.033     | 0.038     | 0.817     | 0.151     | <b>0.874</b> | <b>1.835</b>               | Yes                                     |
| Left, Tilt                                   | 0.085      | 0.189        | 0.223              | 0.277              | 0.170             | 0.245    | 0.247    | 0.071    | <b>0.340</b> | 0.025     | 0.026     | 0.240     | 0.089     | <b>0.942</b> | 1.282                      | NA                                      |
| Right, Touch                                 | 0.281      | 0.211        | 0.243              | 0.403              | 0.346             | 0.290    | 0.329    | 0.294    | <b>0.769</b> | 0.059     | 0.067     | 0.364     | 0.211     | <b>0.188</b> | 0.957                      | NA                                      |
| Right, Tilt                                  | 0.109      | 0.171        | 0.212              | <b>0.383</b>       | 0.187             | 0.198    | 0.312    | 0.106    | 0.245        | 0.031     | 0.028     | 0.223     | 0.105     | <b>0.204</b> | 0.587                      | NA                                      |
| Back Side(15mm)                              | 0.409      | <b>1.233</b> | 1.017              | 0.544              | 0.169             | 1.005    | 0.547    | 0.156    | 0.364        | 0.088     | 0.066     | 0.451     | 0.128     | <b>0.094</b> | 1.327                      | NA                                      |
| Front Side(15mm)                             | 0.246      | <b>0.793</b> | 0.712              | 0.411              | 0.158             | 0.625    | 0.477    | 0.150    | 0.435        | 0.040     | 0.039     | 0.281     | 0.118     | <b>0.062</b> | 0.855                      | NA                                      |
| Back Side(10mm)                              | 0.431      | 1.257        | <b>1.320</b>       | 0.743              | 0.370             | 0.901    | 0.866    | 0.356    | 0.419        | 0.147     | 0.126     | 1.280     | 0.281     | <b>0.184</b> | 1.504                      | NA                                      |
| Front Side(10mm)                             | 0.260      | 0.787        | <b>0.973</b>       | 0.603              | 0.266             | 0.190    | 0.516    | 0.239    | 0.479        | 0.059     | 0.089     | 0.475     | 0.129     | <b>0.115</b> | 1.088                      | NA                                      |
| Left Edge(10mm)                              | 0.174      | 0.319        | 0.302              | <b>0.477</b>       | 0.141             | 0.237    | 0.369    | 0.142    | 0.015        | 0.045     | 0.087     | 0.352     | 0.184     | NA           | 0.477                      | NA                                      |
| Right Edge(10mm)                             | 0.289      | 0.130        | 0.063              | 0.066              | 0.355             | 0.064    | 0.037    | 0.247    | <b>0.429</b> | 0.100     | 0.137     | 0.094     | 0.137     | <b>0.158</b> | 0.587                      | NA                                      |
| Top Edge(10mm)                               | NA         | NA           | NA                 | NA                 | NA                | NA       | NA       | NA       | NA           | NA        | NA        | NA        | NA        | <b>0.124</b> | 0.124                      | NA                                      |
| Bottom Edge(10mm)                            | 0.148      | 1.081        | <b>1.423</b>       | 1.360              | 0.181             | 0.850    | 0.845    | 0.170    | 0.032        | 0.063     | 0.056     | 0.842     | 0.071     | NA           | 1.423                      | NA                                      |

Note: 1.The value with blue color is the maximum ΣSAR<sub>1g</sub> Value.

2. MAX. ΣSAR<sub>1g</sub> =Unlicensed SAR<sub>MAX</sub> +Licensed SAR<sub>MAX</sub>

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### Simultaneous Transmission for test position of Left Touch

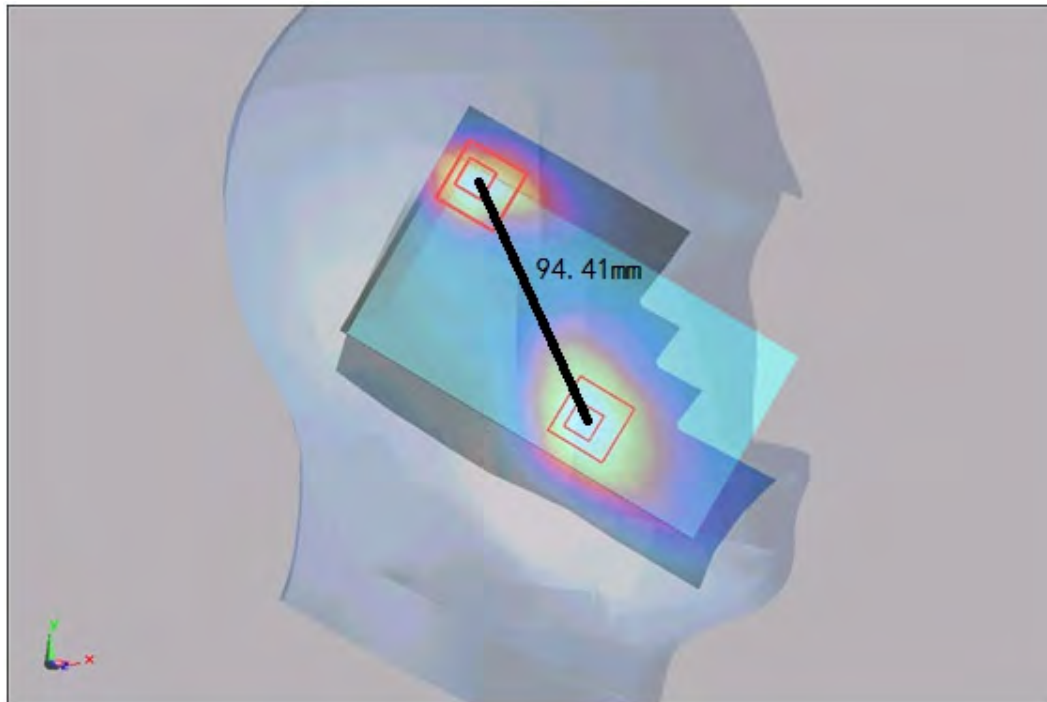
| SAR <sub>1g</sub><br>(W/kg) | GSM<br>850 | GSM<br>1900 | UMTS<br>Band<br>II | UMTS<br>Band<br>IV | UMTS<br>Band<br>V | LTE<br>2 | LTE<br>4 | LTE<br>5 | LTE<br>7 | LTE<br>12 | LTE<br>17 | LTE<br>25 | LTE<br>26 | WiFi         | MAX.<br>$\Sigma$ SAR <sub>1g</sub> | Peak<br>location<br>separation<br>ratio |
|-----------------------------|------------|-------------|--------------------|--------------------|-------------------|----------|----------|----------|----------|-----------|-----------|-----------|-----------|--------------|------------------------------------|-----------------------------------------|
| Test Position               |            |             |                    |                    |                   |          |          |          |          |           |           |           |           |              |                                    |                                         |
| Left, Touch                 | 0.162      | /           | /                  | /                  | /                 | /        | /        | /        | /        | /         | /         | /         | /         | <b>0.874</b> | 1.036                              | NA                                      |
|                             | /          | 0.520       | /                  | /                  | /                 | /        | /        | /        | /        | /         | /         | /         | /         | <b>0.874</b> | 1.394                              | NA                                      |
|                             | /          | /           | 0.683              | /                  | /                 | /        | /        | /        | /        | /         | /         | /         | /         | <b>0.874</b> | 1.557                              | NA                                      |
|                             | /          | /           | /                  | 0.961              | /                 | /        | /        | /        | /        | /         | /         | /         | /         | <b>0.874</b> | 1.835                              | Yes                                     |
|                             | /          | /           | /                  | /                  | 0.272             | /        | /        | /        | /        | /         | /         | /         | /         | <b>0.874</b> | 1.146                              | NA                                      |
|                             | /          | /           | /                  | /                  | /                 | 0.641    | /        | /        | /        | /         | /         | /         | /         | <b>0.874</b> | 1.515                              | NA                                      |
|                             | /          | /           | /                  | /                  | /                 | /        | 0.836    | /        | /        | /         | /         | /         | /         | <b>0.874</b> | 1.710                              | Yes                                     |
|                             | /          | /           | /                  | /                  | /                 | /        | /        | 0.122    | /        | /         | /         | /         | /         | <b>0.874</b> | 0.996                              | NA                                      |
|                             | /          | /           | /                  | /                  | /                 | /        | /        | /        | 0.309    | /         | /         | /         | /         | <b>0.874</b> | 1.183                              | NA                                      |
|                             | /          | /           | /                  | /                  | /                 | /        | /        | /        | /        | 0.033     | /         | /         | /         | <b>0.874</b> | 0.907                              | NA                                      |
|                             | /          | /           | /                  | /                  | /                 | /        | /        | /        | /        | /         | 0.038     | /         | /         | <b>0.874</b> | 0.912                              | NA                                      |
|                             | /          | /           | /                  | /                  | /                 | /        | /        | /        | /        | /         | /         | 0.817     | /         | <b>0.874</b> | 1.691                              | Yes                                     |
|                             | /          | /           | /                  | /                  | /                 | /        | /        | /        | /        | /         | /         | /         | 0.151     | <b>0.874</b> | 1.025                              | NA                                      |

#### ● Pair Simultaneous Transmission for UMTS Band IV and WiFi

The position SAR<sub>UMTS Band IV</sub> is ( $x_1=73.75$ ,  $y_1=251.4$ ,  $z_1=-171.5$ ),

The position SAR<sub>Max.WiFi</sub> is( $x_2=31.89$ ,  $y_2=336$ ,  $z_2=-173.4$ )

so the distance between the SAR<sub>Max. UMTS Band IV</sub> and SAR<sub>Max.WiFi</sub> is 94.41mm.



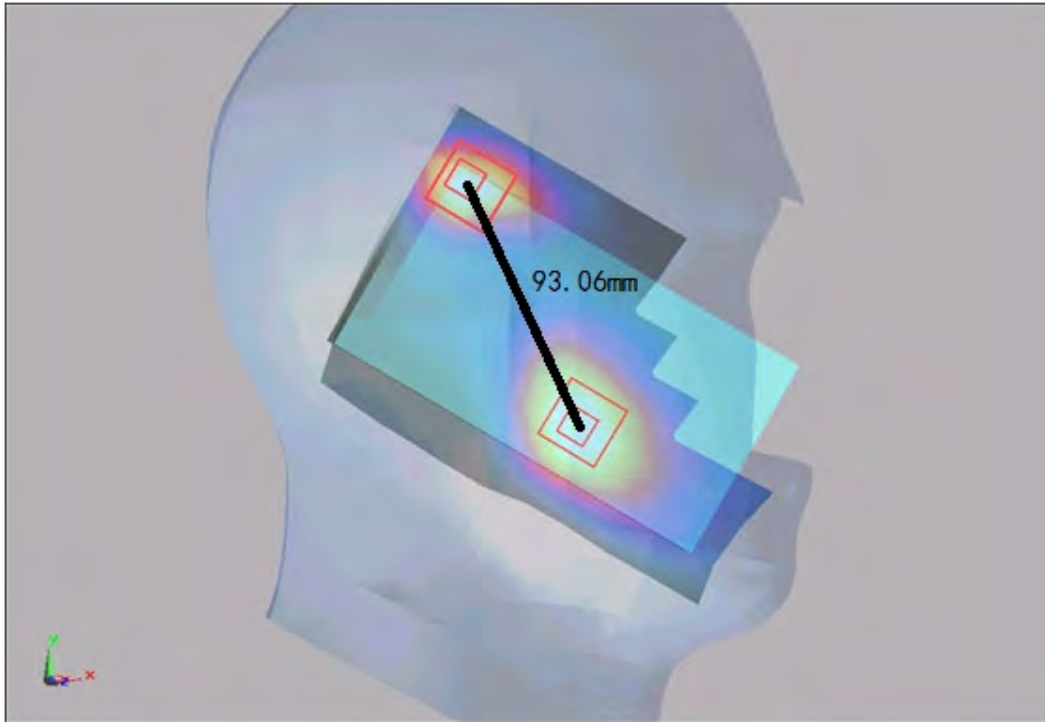
The peak location separation ratio is  $0.026 < 0.04$ , so the Simultaneous transmission SAR with volume scan are not required for WiFi and UMTS Band IV antenna.

- **Pair Simultaneous Transmission for LTE 4 and WiFi**

The position  $SAR_{UMTS\ LTE\ 4}$  is  $(x_1= 72.33, y_1= 252.2, z_1= -171.6)$ ,

The position  $SAR_{Max.WiFi}$  is  $(x_2= 31.89, y_2= 336, z_2= -173.4)$

so the distance between the  $SAR_{Max.LTE\ 4}$  and  $SAR_{Max.WiFi}$  is 93.06mm.



The peak location separation ratio is  $0.024 < 0.04$ , so the Simultaneous transmission SAR with volumetric scan are not required for WiFi and LTE 4 antenna.

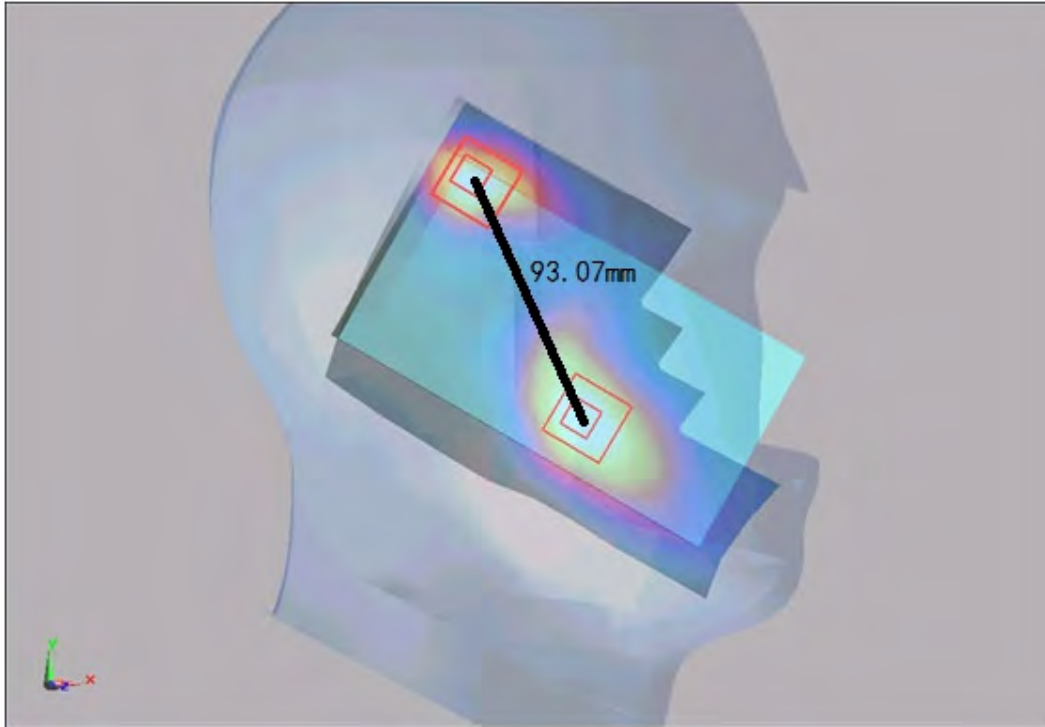


- **Pair Simultaneous Transmission for LTE 25 and WiFi**

The position  $SAR_{UMTS\ LTE\ 25}$  is ( $x_1= 72.34, y_1= 252.2, z_1= -171.6$ ),

The position  $SAR_{Max.WiFi}$  is( $x_2= 31.89, y_2= 336, z_2= -173.4$ )

so the distance between the  $SAR_{Max.LTE\ 25}$  and  $SAR_{Max.WiFi}$  is 93.07mm.



The peak location separation ratio is  $0.023 < 0.04$ , so the Simultaneous transmission SAR with volumetric scan are not required for WiFi and LTE 25 antenna.

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| No.                 | source                                                                           | Type | Uncertainty Value (%) | Probability Distribution | k  | c <sub>i</sub> | Standard Uncertainty u' <sub>i</sub> (%) | Degree of freedom V <sub>eff</sub> or v <sub>i</sub> |
|---------------------|----------------------------------------------------------------------------------|------|-----------------------|--------------------------|----|----------------|------------------------------------------|------------------------------------------------------|
| 1                   | System repetivity                                                                | A    | 0.5                   | N                        | 1  | 1              | 0.5                                      | 9                                                    |
| Measurement system  |                                                                                  |      |                       |                          |    |                |                                          |                                                      |
| 2                   | -probe calibration                                                               | B    | 6.0                   | N                        | 1  | 1              | 6.0                                      | ∞                                                    |
| 3                   | -axial isotropy of the probe                                                     | B    | 4.7                   | R                        | √3 | √0.5           | 1.9                                      | ∞                                                    |
| 4                   | - Hemispherical isotropy of the probe                                            | B    | 9.4                   | R                        | √3 | √0.5           | 3.9                                      | ∞                                                    |
| 5                   | -boundary effect                                                                 | B    | 1.9                   | R                        | √3 | 1              | 1.1                                      | ∞                                                    |
| 6                   | -probe linearity                                                                 | B    | 4.7                   | R                        | √3 | 1              | 2.7                                      | ∞                                                    |
| 7                   | - System detection limits                                                        | B    | 1.0                   | R                        | √3 | 1              | 0.6                                      | ∞                                                    |
| 8                   | -readout Electronics                                                             | B    | 1.0                   | N                        | 1  | 1              | 1.0                                      | ∞                                                    |
| 9                   | -response time                                                                   | B    | 0.8                   | R                        | √3 | 1              | 0.5                                      | ∞                                                    |
| 10                  | -integration time                                                                | B    | 4.3                   | R                        | √3 | 1              | 2.5                                      | ∞                                                    |
| 11                  | -RF Ambient noise                                                                | B    | 3.0                   | R                        | √3 | 1              | 1.7                                      | ∞                                                    |
| 12                  | -RF Ambient Conditions                                                           | B    | 3.0                   | R                        | √3 | 1              | 1.7                                      | ∞                                                    |
| 13                  | -Probe Positioner Mechanical Tolerance                                           | B    | 0.4                   | R                        | √3 | 1              | 0.2                                      | ∞                                                    |
| 14                  | -Probe Positioning with respect to Phantom Shell                                 | B    | 2.9                   | R                        | √3 | 1              | 1.7                                      | ∞                                                    |
| 15                  | -Extrapolation, interpolation and Integration Algorithms for Max. SAR Evaluation | B    | 3.9                   | R                        | √3 | 1              | 2.3                                      | ∞                                                    |
| Test sample Related |                                                                                  |      |                       |                          |    |                |                                          |                                                      |
| 16                  | -Test Sample Positioning                                                         | A    | 2.9                   | N                        | 1  | 1              | 2.9                                      | 71                                                   |
| 17                  | -Device Holder Uncertainty                                                       | A    | 4.1                   | N                        | 1  | 1              | 4.1                                      | 5                                                    |
| 18                  | - Power drift                                                                    | B    | 5.0                   | R                        | √3 | 1              | 2.9                                      | ∞                                                    |
| Physical parameter  |                                                                                  |      |                       |                          |    |                |                                          |                                                      |

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|                                                    |                                                                              |                                             |     |   |            |      |       |          |
|----------------------------------------------------|------------------------------------------------------------------------------|---------------------------------------------|-----|---|------------|------|-------|----------|
| 19                                                 | -phantom Uncertainty                                                         | B                                           | 4.0 | R | $\sqrt{3}$ | 1    | 2.3   | $\infty$ |
| 20                                                 | Algorithm for correcting SAR for deviations in permittivity and conductivity | B                                           | 1.9 | N | 1          | 0.84 | 0.9   | $\infty$ |
| 21                                                 | -Liquid conductivity (measurement uncertainty)                               | B                                           | 2.5 | N | 1          | 0.71 | 1.8   | 9        |
| 22                                                 | -Liquid permittivity (measurement uncertainty)                               | B                                           | 2.5 | N | 1          | 0.26 | 0.7   | 9        |
| 23                                                 | -Liquid conductivity -temperature uncertainty                                | B                                           | 1.7 | R | $\sqrt{3}$ | 0.71 | 0.7   | $\infty$ |
| 24                                                 | -Liquid permittivity -temperature uncertainty                                | B                                           | 0.3 | R | $\sqrt{3}$ | 0.26 | 0.05  | $\infty$ |
| Combined standard uncertainty                      |                                                                              | $u_c' = \sqrt{\sum_{i=1}^{24} c_i^2 u_i^2}$ |     |   |            |      | 11.34 |          |
| Expanded uncertainty (confidence interval of 95 %) |                                                                              | $u_e = 2u_c$                                |     | N | k=2        |      | 22.68 |          |

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### 9. Main Test Instruments

**Table 53: List of Main Instruments**

| No. | Name                                | Type           | Serial Number | Calibration Date         | Expiration Time | Valid Period |
|-----|-------------------------------------|----------------|---------------|--------------------------|-----------------|--------------|
| 01  | Network analyzer                    | E5071B         | MY42404014    | 2014-05-26               | 2015-05-25      | 1 year       |
| 02  | Dielectric Probe Kit                | Agilent 85070E | US44020115    | No Calibration Requested |                 |              |
| 03  | Power meter                         | Agilent E4417A | GB41291714    | 2015-03-08               | 2016-03-07      | 1 year       |
| 04  | Power sensor                        | Agilent N8481H | MY50350004    | 2014-09-24               | 2015-09-23      | 1 year       |
| 05  | Power sensor                        | E9327A         | US40441622    | 2015-01-02               | 2016-01-01      | 1 year       |
| 06  | Signal Generator                    | HP 8341B       | 2730A00804    | 2014-09-02               | 2015-09-01      | 1 year       |
| 07  | Dual directional coupler            | 778D-012       | 50519         | 2015-03-02               | 2016-03-01      | 1 year       |
| 08  | Dual directional coupler            | 777D           | 50146         | 2015-03-02               | 2016-03-01      | 1 year       |
| 09  | Amplifier                           | IXA-020        | 0401          | No Calibration Requested |                 |              |
| 10  | Wideband radio communication tester | CMW 500        | 113645        | 2014-09-28               | 2015-09-27      | 1 year       |
| 11  | E-field Probe                       | EX3DV4         | 3677          | 2015-01-30               | 2016-01-29      | 1 year       |
| 12  | DAE                                 | DAE4           | 1291          | 2014-11-14               | 2015-11-13      | 1 year       |
| 13  | Validation Kit 750MHz               | D750V3         | 1017          | 2014-08-28               | 2017-08-27      | 3 years      |
| 14  | Validation Kit 835MHz               | D835V2         | 4d020         | 2014-08-28               | 2017-08-27      | 3 years      |
| 15  | Validation Kit 1750MHz              | D1750V2        | 1033          | 2014-01-26               | 2017-01-25      | 3 years      |
| 16  | Validation Kit 1900MHz              | D1900V2        | 5d060         | 2014-09-01               | 2017-08-31      | 3 years      |
| 17  | Validation Kit 2450MHz              | D2450V2        | 786           | 2014-09-01               | 2017-08-31      | 3 years      |
| 18  | Validation Kit 2600MHz              | D2600V2        | 1025          | 2014-12-08               | 2017-12-07      | 3 years      |
| 19  | Temperature Probe                   | JM222          | AA1009129     | 2015-03-02               | 2016-03-01      | 1 year       |
| 20  | Hygrothermograph                    | WS-1           | 64591         | 2014-09-25               | 2015-09-24      | 1 year       |

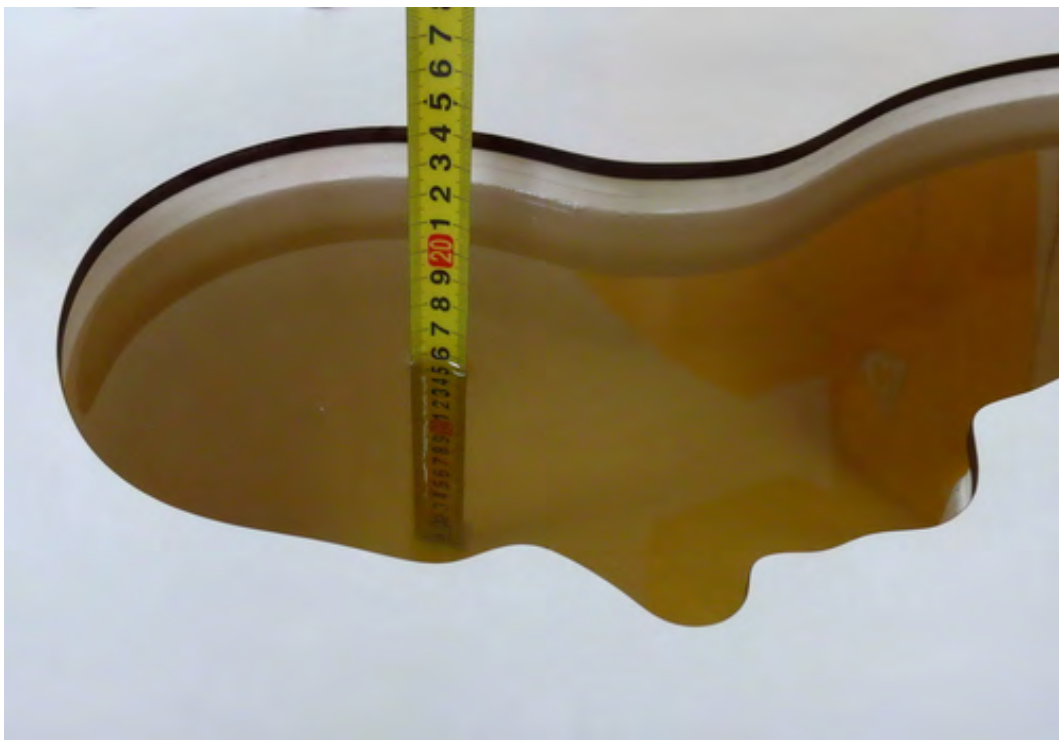
\*\*\*\*\*END OF REPORT \*\*\*\*\*

## ANNEX A: Test Layout





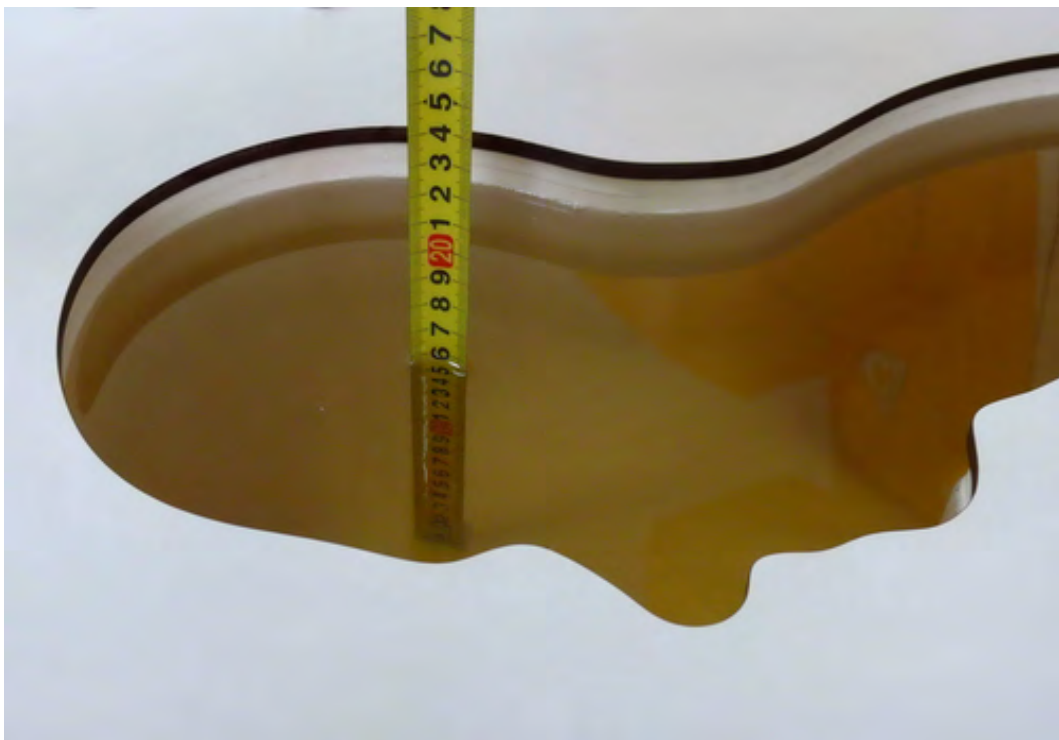
Picture 1: Liquid depth in the flat Phantom (750MHz, 15.4cm depth)



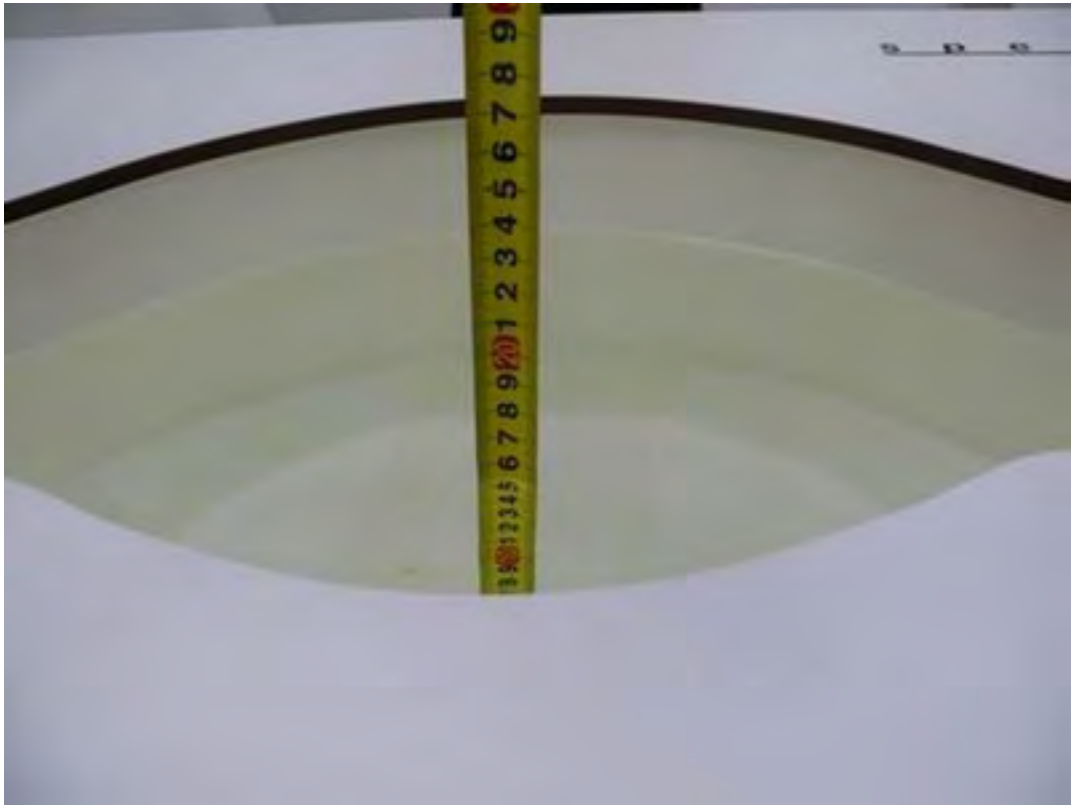
Picture 2: Liquid depth in the head Phantom (750MHz, 15.3cm depth)



Picture 3: Liquid depth in the flat Phantom (835MHz, 15.4cm depth)



Picture 4: Liquid depth in the head Phantom (835MHz, 15.3cm depth)

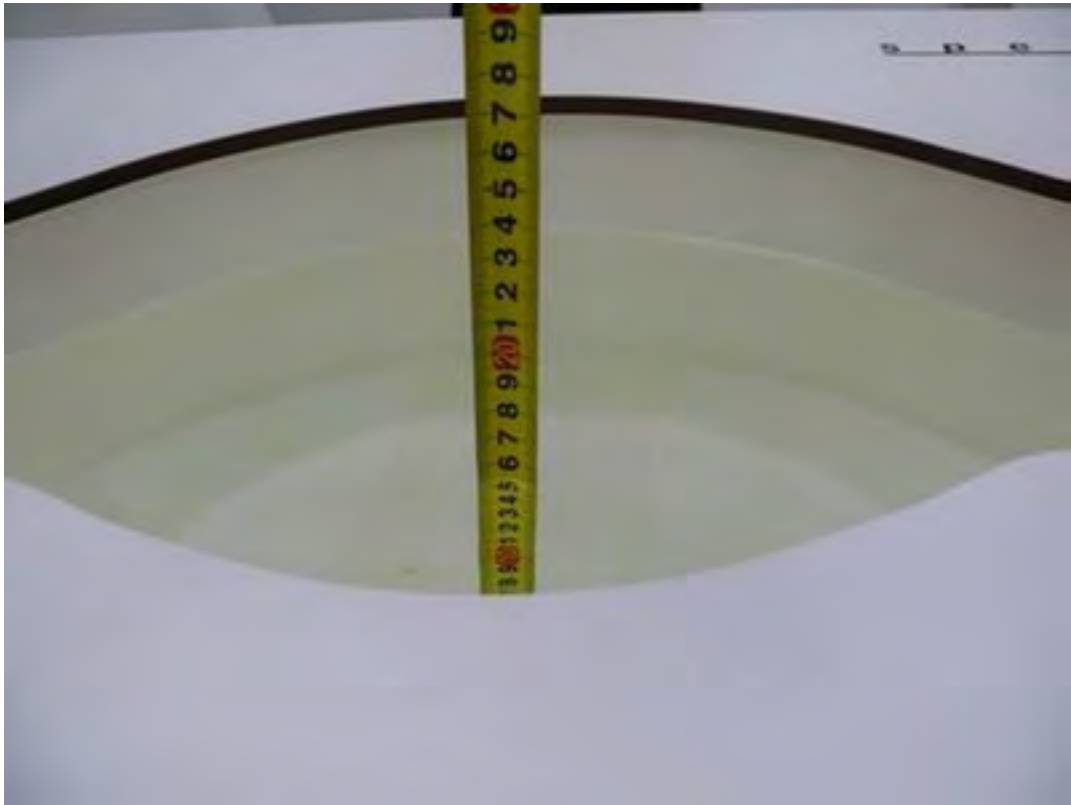


Picture 5: Liquid depth in the flat Phantom (1750 MHz, 15.2cm depth)



Picture 6: liquid depth in the head Phantom (1750 MHz, 15.3cm depth)

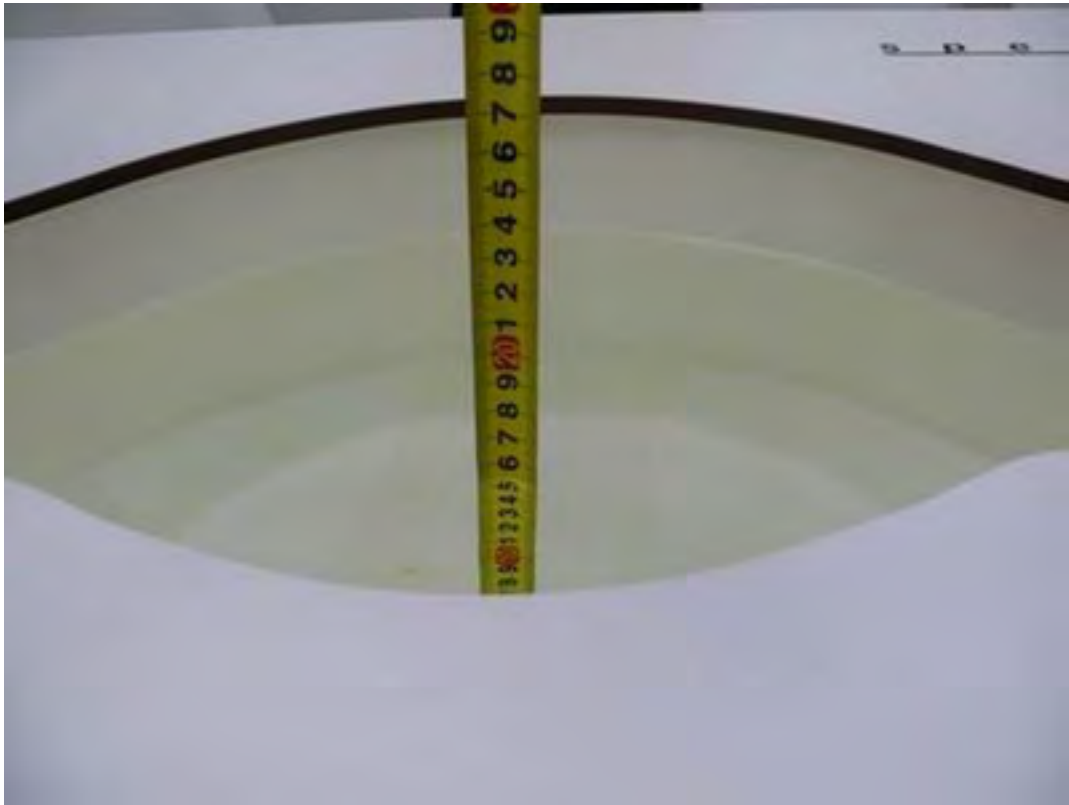




Picture 7: Liquid depth in the flat Phantom (1900 MHz, 15.2cm depth)



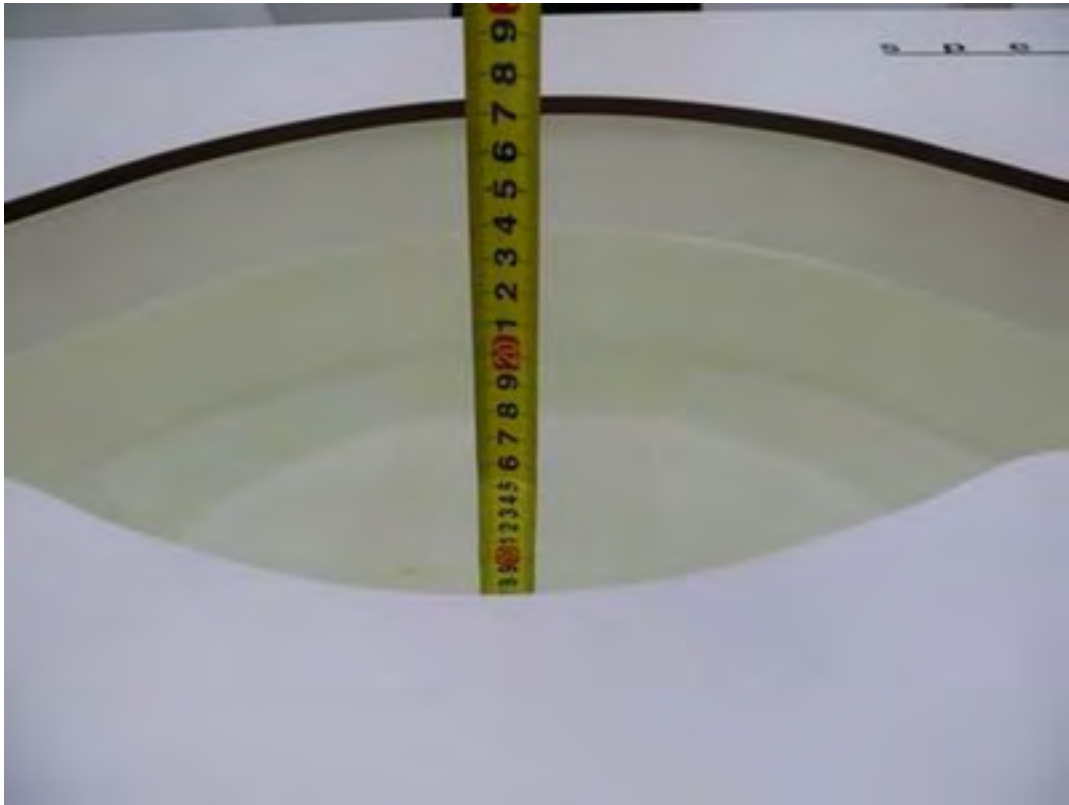
Picture 8: liquid depth in the head Phantom (1900 MHz, 15.3cm depth)



Picture 9: Liquid depth in the flat Phantom (2450 MHz, 15.3cm depth)



Picture 10: Liquid depth in the head Phantom (2450 MHz, 15.4cm depth)



Picture 11: Liquid depth in the flat Phantom (2600 MHz, 15.3cm depth)



Picture 12: Liquid depth in the head Phantom (2600 MHz, 15.4cm depth)

## ANNEX B: System Check Results

### System Performance Check at 750 MHz Head TSL

**DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 - SN: 1017**

Date: 3/15/2015

Communication System: CW (0); Frequency: 750 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 750 \text{ MHz}$ ;  $\sigma = 0.91 \text{ S/m}$ ;  $\epsilon_r = 42.0$ ;  $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature:  $22.3^\circ\text{C}$       Liquid Temperature:  $21.5^\circ\text{C}$

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.79, 9.79, 9.79); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**d=15mm, Pin=250mW/Area Scan (41x121x1):** Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) =  $2.29 \text{ W/kg}$

**d=15mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value =  $50.653 \text{ V/m}$ ; Power Drift =  $-0.08 \text{ dB}$

Peak SAR (extrapolated) =  $3.16 \text{ W/kg}$

**SAR(1 g) =  $2.13 \text{ W/kg}$ ; SAR(10 g) =  $1.41 \text{ W/kg}$**

Maximum value of SAR (measured) =  $2.29 \text{ W/kg}$

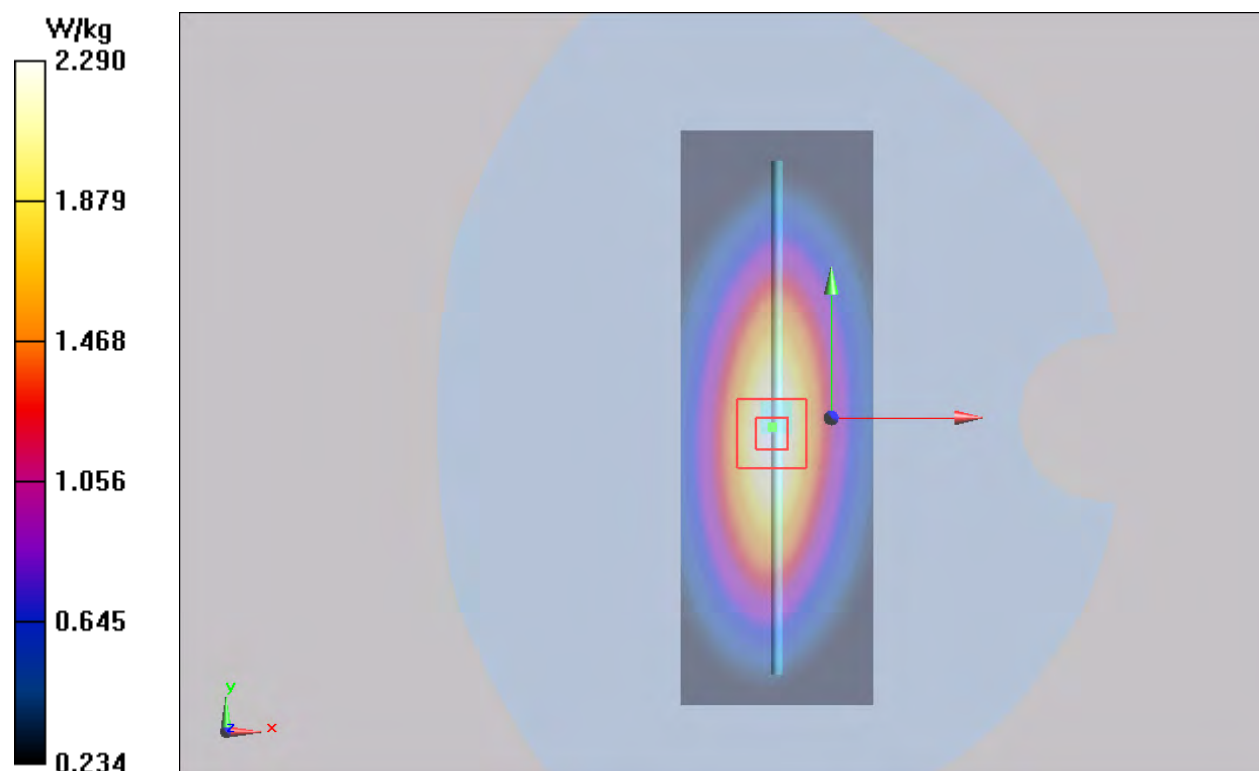


Figure 7 System Performance Check 750MHz 250mW

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### System Performance Check at 750 MHz Body TSL

**DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 - SN: 1017**

Date: 3/13/2015

Communication System: CW (0); Frequency: 750 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 750$  MHz;  $\sigma = 0.97$  S/m;  $\epsilon_r = 54.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.53, 9.53, 9.53); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**d=15mm, Pin=250mW/Area Scan (41x121x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 2.36 W/kg

**d=15mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 48.998 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 3.24 W/kg

**SAR(1 g) = 2.22 W/kg; SAR(10 g) = 1.49 W/kg**

Maximum value of SAR (measured) = 2.39 W/kg

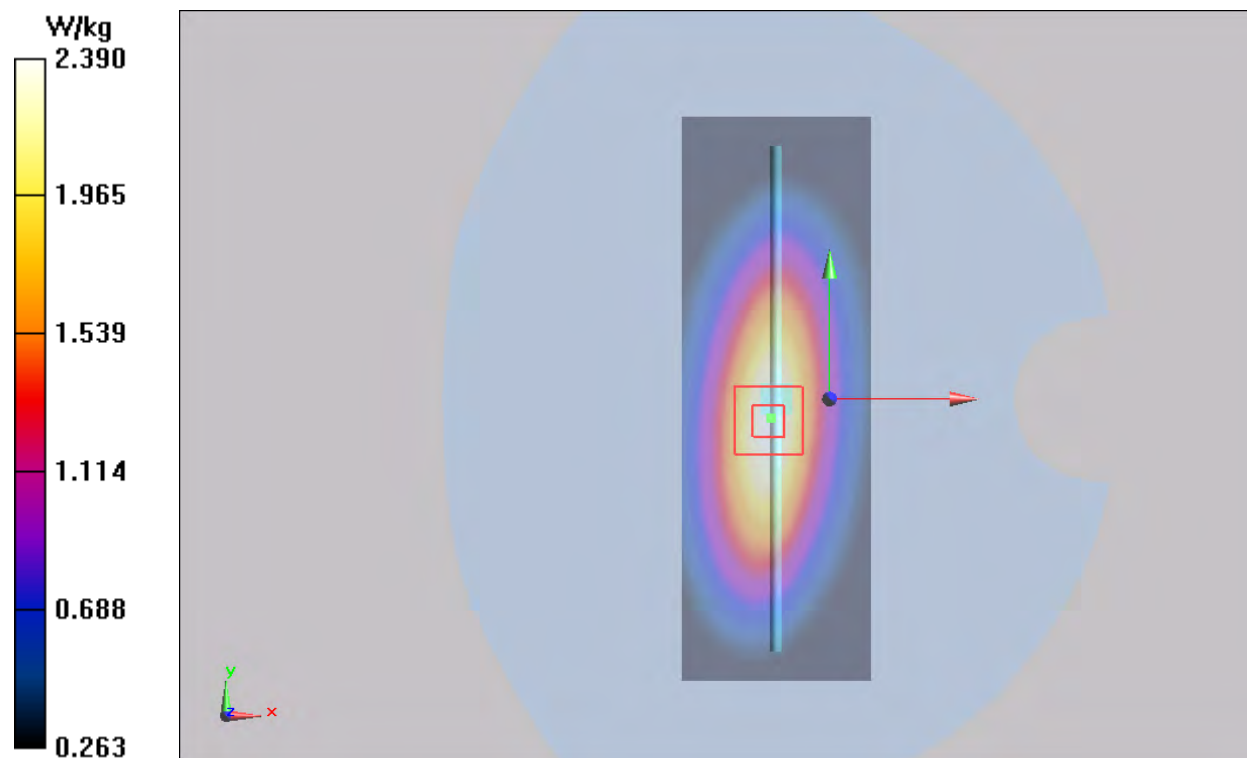


Figure 8 System Performance Check 750MHz 250mW

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### System Performance Check at 750 MHz Body TSL

**DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 - SN: 1017**

Date: 3/14/2015

Communication System: CW (0); Frequency: 750 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 750 \text{ MHz}$ ;  $\sigma = 0.96 \text{ S/m}$ ;  $\epsilon_r = 54.5$ ;  $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature:  $22.3^\circ\text{C}$  Liquid Temperature:  $21.5^\circ\text{C}$

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.53, 9.53, 9.53); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**d=15mm, Pin=250mW/Area Scan (41x121x1):** Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) =  $2.36 \text{ W/kg}$

**d=15mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value =  $48.998 \text{ V/m}$ ; Power Drift =  $0.09 \text{ dB}$

Peak SAR (extrapolated) =  $3.24 \text{ W/kg}$

**SAR(1 g) =  $2.17 \text{ W/kg}$ ; SAR(10 g) =  $1.46 \text{ W/kg}$**

Maximum value of SAR (measured) =  $2.365 \text{ W/kg}$

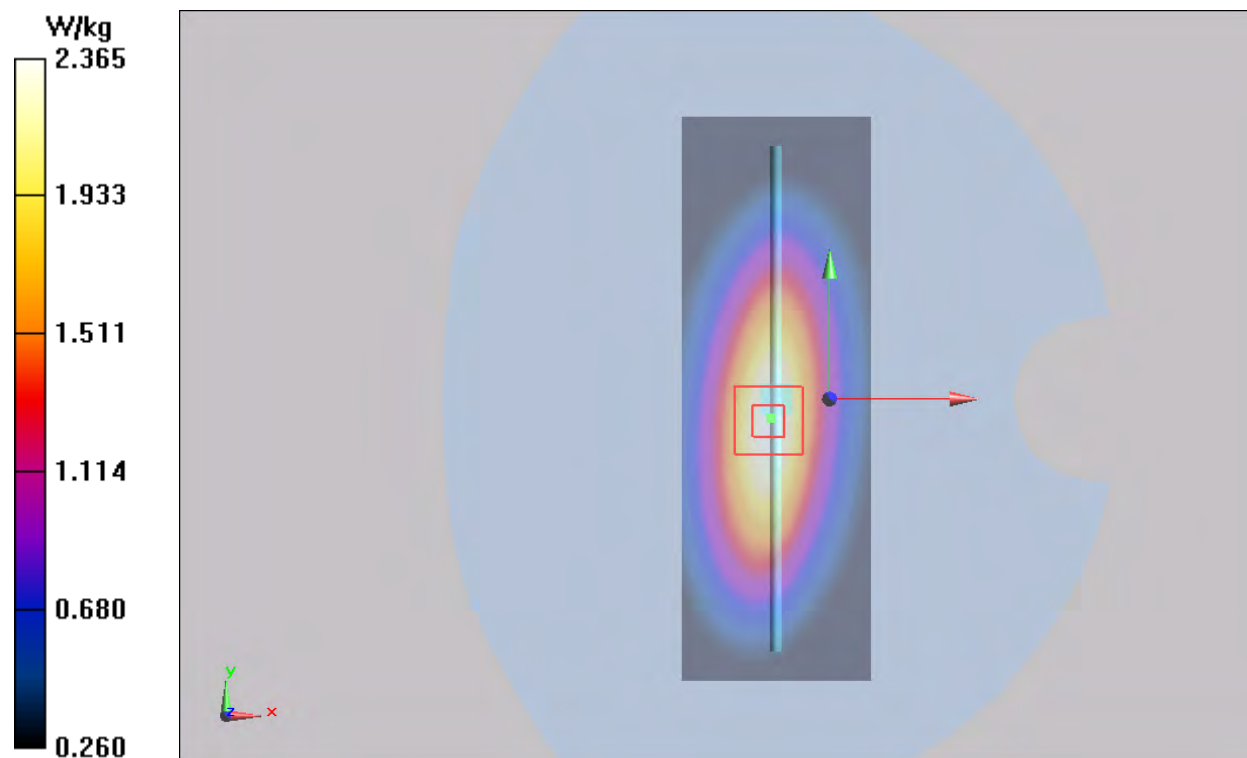


Figure 9 System Performance Check 750MHz 250mW



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### System Performance Check at 835 MHz Head TSL

**DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d020**

Date: 3/11/2015

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

Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.93 \text{ mho/m}$ ;  $\epsilon_r = 41.4$ ;  $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature:  $22.3^\circ\text{C}$       Liquid Temperature:  $21.5^\circ\text{C}$

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.30, 9.30, 9.30); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**d=15mm, Pin=250mW/Area Scan (41x121x1):** Measurement grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) =  $2.64 \text{ mW/g}$

**d=15mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value =  $54.4 \text{ V/m}$ ; Power Drift =  $-0.076 \text{ dB}$

Peak SAR (extrapolated) =  $3.67 \text{ W/kg}$

**SAR(1 g) =  $2.44 \text{ mW/g}$ ; SAR(10 g) =  $1.6 \text{ mW/g}$**

Maximum value of SAR (measured) =  $2.64 \text{ mW/g}$

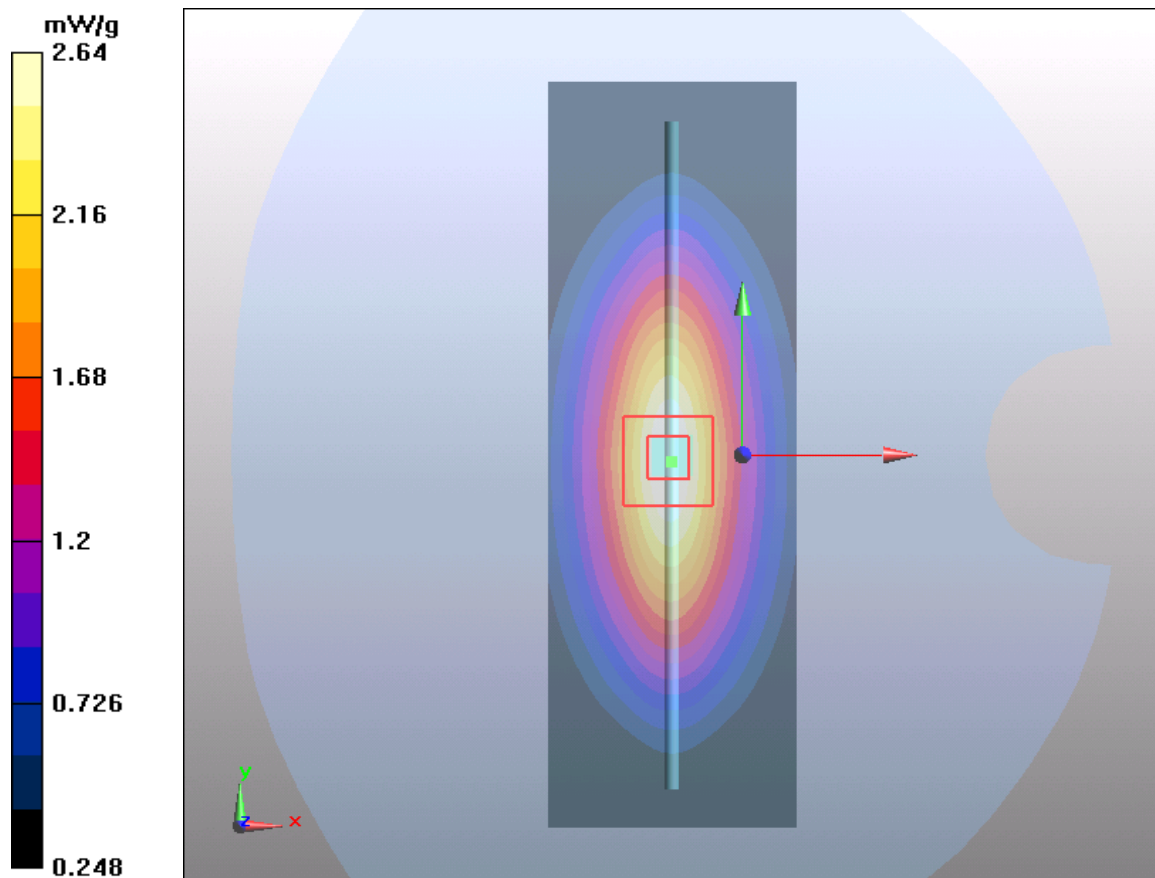


Figure 10 System Performance Check 835MHz 250mW

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### System Performance Check at 835 MHz Head TSL

**DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d020**

Date: 3/28/2015

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

Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.91 \text{ mho/m}$ ;  $\epsilon_r = 41.5$ ;  $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature:  $22.3^\circ\text{C}$       Liquid Temperature:  $21.5^\circ\text{C}$

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.30, 9.30, 9.30); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**d=15mm, Pin=250mW/Area Scan (41x121x1):** Measurement grid:  $dx=1.500\text{mm}$ ,  $dy=1.500\text{mm}$

Maximum value of SAR (interpolated) =  $2.71 \text{ mW/g}$

**d=15mm, Pin=250mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value =  $55.2 \text{ V/m}$ ; Power Drift =  $-0.011 \text{ dB}$

Peak SAR (extrapolated) =  $3.79 \text{ W/kg}$

**SAR(1 g) =  $2.46 \text{ mW/g}$ ; SAR(10 g) =  $1.58 \text{ mW/g}$**

Maximum value of SAR (measured) =  $2.66 \text{ mW/g}$

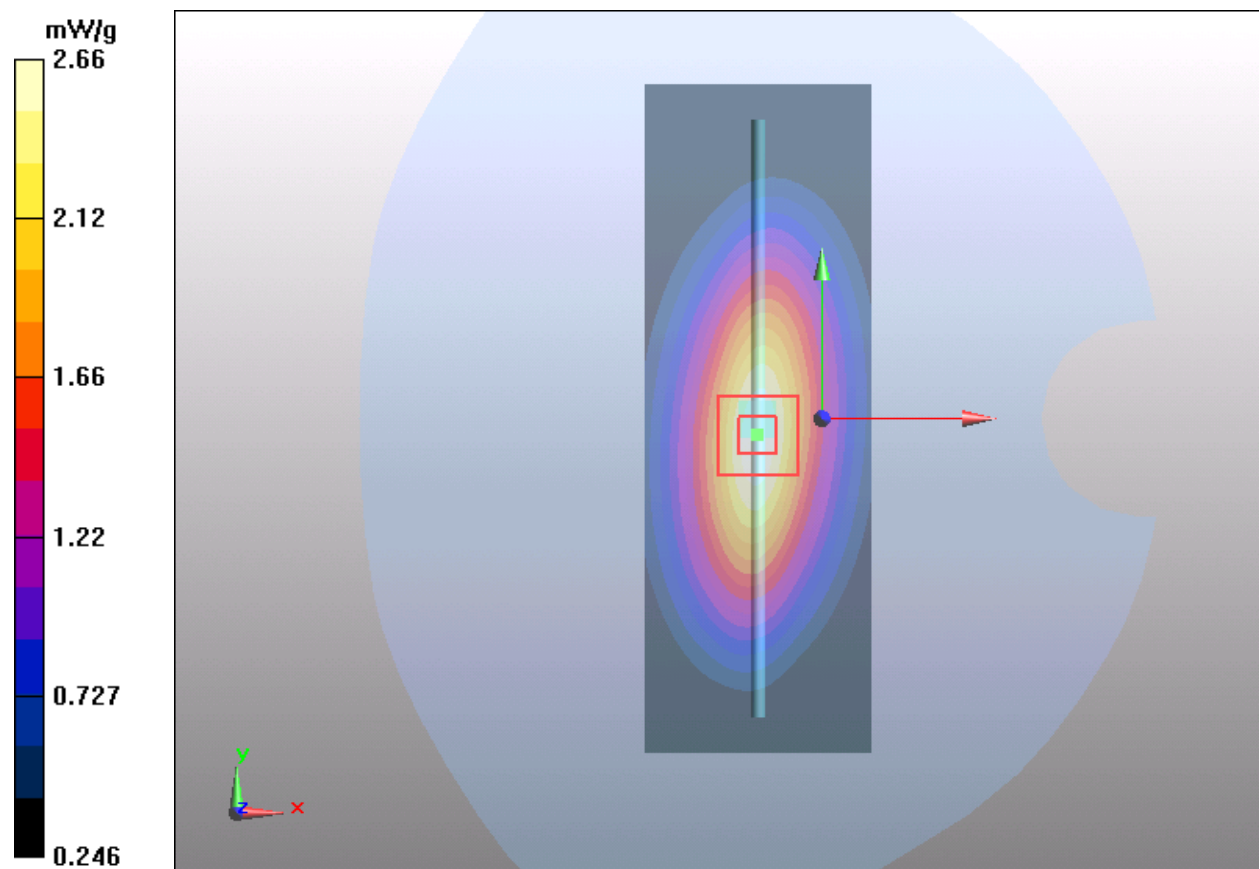


Figure 11 System Performance Check 835MHz 250mW



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### System Performance Check at 835 MHz Body TSL

**DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d020**

Date: 3/10/2015

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

Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.99 \text{ mho/m}$ ;  $\epsilon_r = 55.9$ ;  $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature:  $22.3^\circ\text{C}$       Liquid Temperature:  $21.5^\circ\text{C}$

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.45, 9.45, 9.45); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**d=15mm, Pin=250mW/Area Scan (41x121x1):** Measurement grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) =  $2.58 \text{ mW/g}$

**d=15mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value =  $51.9 \text{ V/m}$ ; Power Drift =  $-0.058 \text{ dB}$

Peak SAR (extrapolated) =  $3.5 \text{ W/kg}$

**SAR(1 g) =  $2.41 \text{ mW/g}$ ; SAR(10 g) =  $1.6 \text{ mW/g}$**

Maximum value of SAR (measured) =  $2.6 \text{ mW/g}$

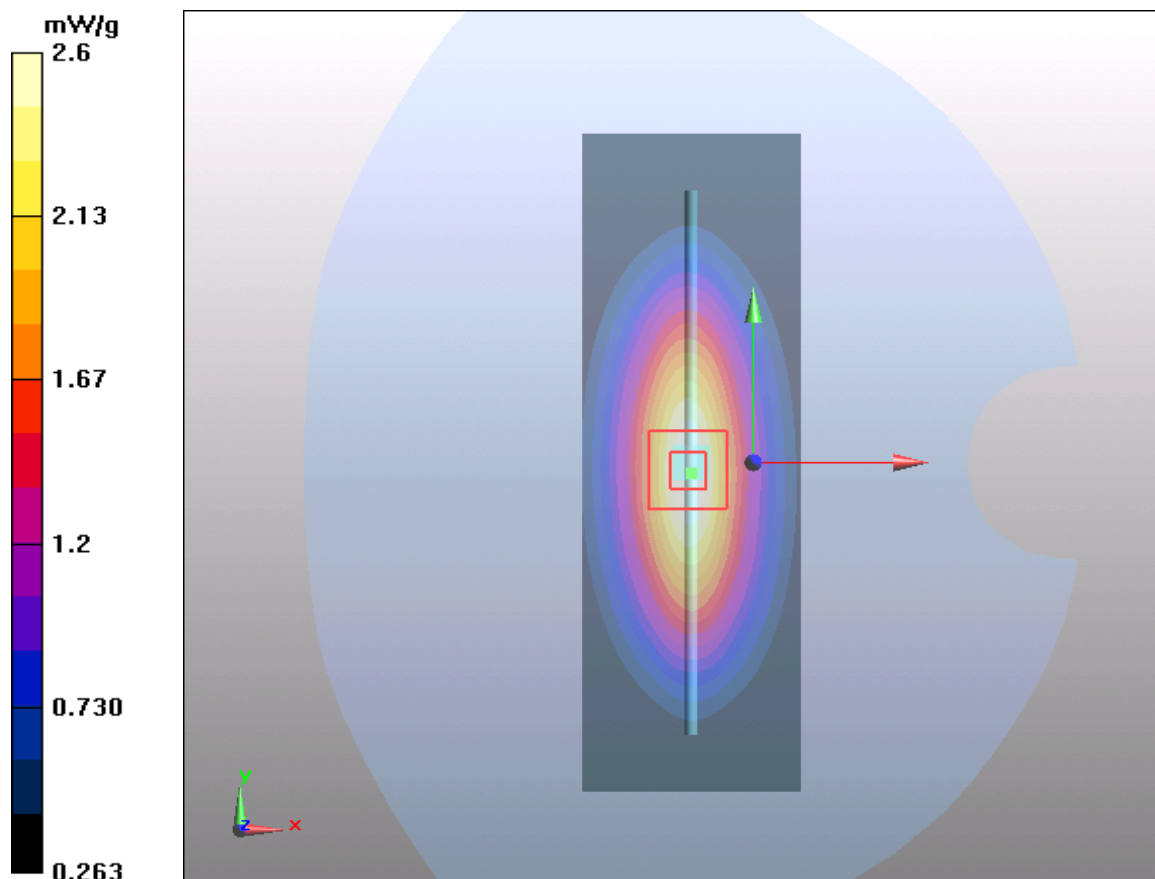


Figure 12 System Performance Check 835MHz 250mW

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### System Performance Check at 835 MHz Body TSL

**DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d020**

Date: 3/18/2015

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

Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.97 \text{ mho/m}$ ;  $\epsilon_r = 56.1$ ;  $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature:  $22.3^\circ\text{C}$       Liquid Temperature:  $21.5^\circ\text{C}$

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.45, 9.45, 9.45); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

**d=15mm, Pin=250mW/Area Scan (41x121x1):** Measurement grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) =  $2.61 \text{ mW/g}$

**d=15mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value =  $52.09 \text{ V/m}$ ; Power Drift =  $-0.11 \text{ dB}$

Peak SAR (extrapolated) =  $3.48 \text{ W/kg}$

**SAR(1 g) =  $2.46 \text{ mW/g}$ ; SAR(10 g) =  $1.67 \text{ mW/g}$**

Maximum value of SAR (measured) =  $2.73 \text{ mW/g}$

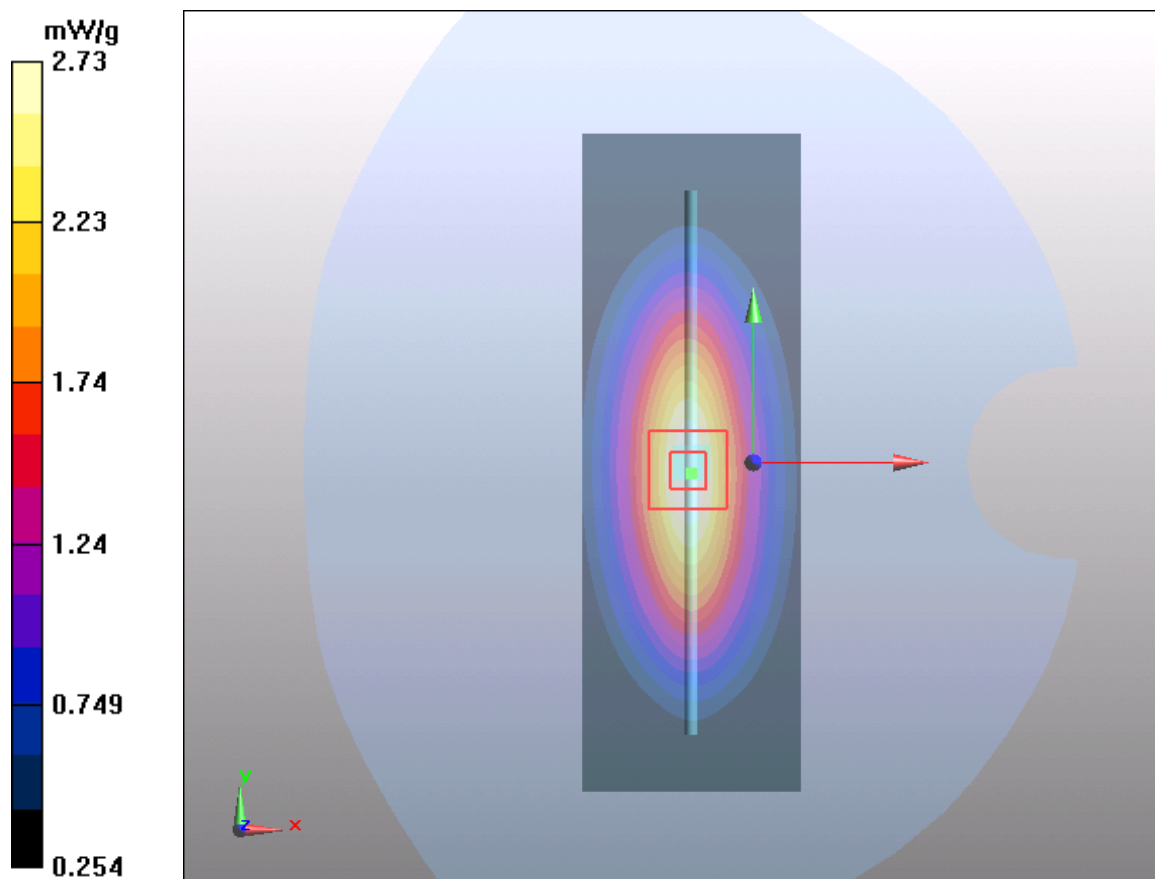


Figure 13 System Performance Check 835MHz 250mW

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### System Performance Check at 835 MHz Body TSL

**DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d020**

Date: 3/19/2015

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

Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.97 \text{ mho/m}$ ;  $\epsilon_r = 56.2$ ;  $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature:  $22.3^\circ\text{C}$       Liquid Temperature:  $21.5^\circ\text{C}$

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.45, 9.45, 9.45); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

**d=15mm, Pin=250mW/Area Scan (41x121x1):** Measurement grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) =  $2.61 \text{ mW/g}$

**d=15mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value =  $52.09 \text{ V/m}$ ; Power Drift =  $-0.036 \text{ dB}$

Peak SAR (extrapolated) =  $3.48 \text{ W/kg}$

**SAR(1 g) =  $2.49 \text{ mW/g}$ ; SAR(10 g) =  $1.72 \text{ mW/g}$**

Maximum value of SAR (measured) =  $2.79 \text{ mW/g}$

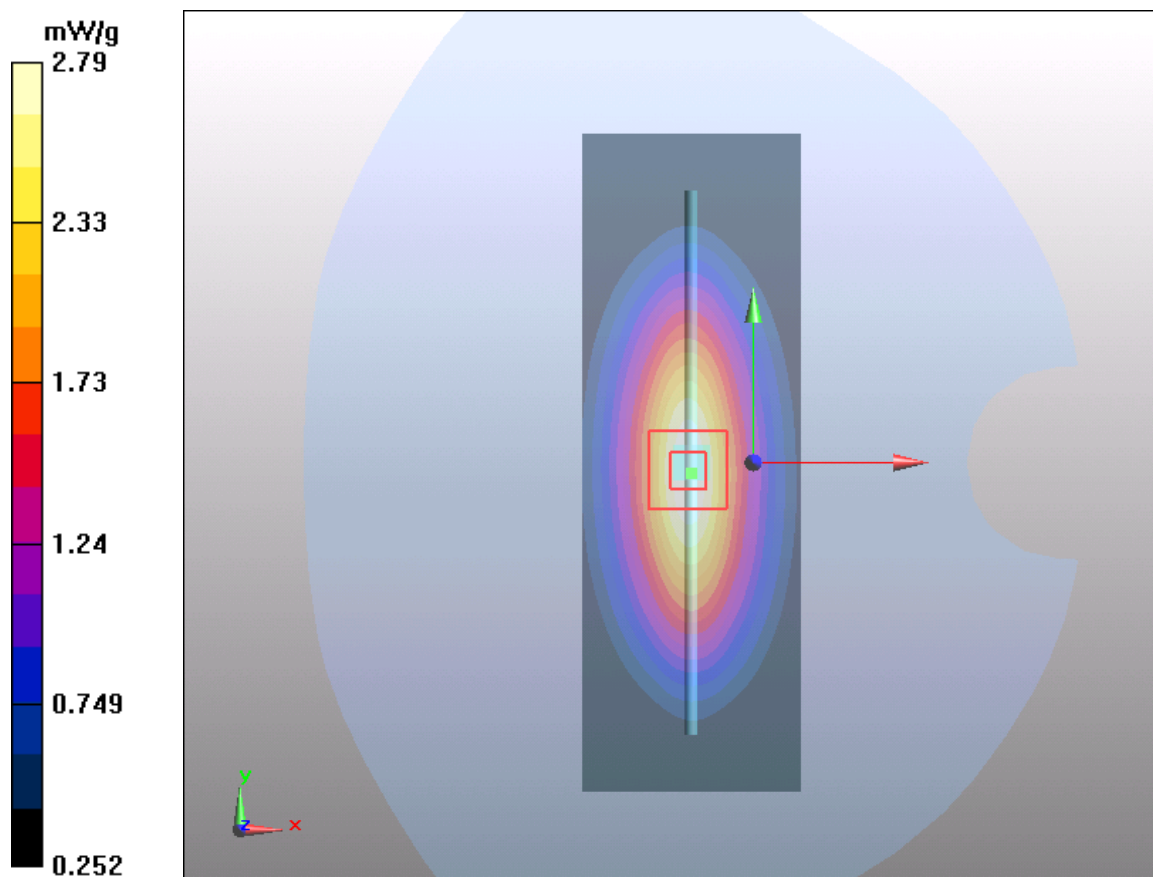


Figure 14 System Performance Check 835MHz 250mW

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### System Performance Check at 1750 MHz Head TSL

**DUT: Dipole 1750 MHz; Type: D1750V2; Serial: D1750V2 - SN: 1033**

Date: 3/12/2015

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

Medium parameters used:  $f = 1750$  MHz;  $\sigma = 1.32$  mho/m;  $\epsilon_r = 39.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(8.02, 8.02, 8.02); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM2; Type: SAM; Serial: TP-1524

Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**d=10mm, Pin=250mW/Area Scan (51x81x1):** Measurement grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 9.78 mW/g

**d=10mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 80 V/m; Power Drift = 0.075 dB

Peak SAR (extrapolated) = 15.5 W/kg

**SAR(1 g) = 8.95 mW/g; SAR(10 g) = 4.5 mW/g**

Maximum value of SAR (measured) = 9.46 mW/g

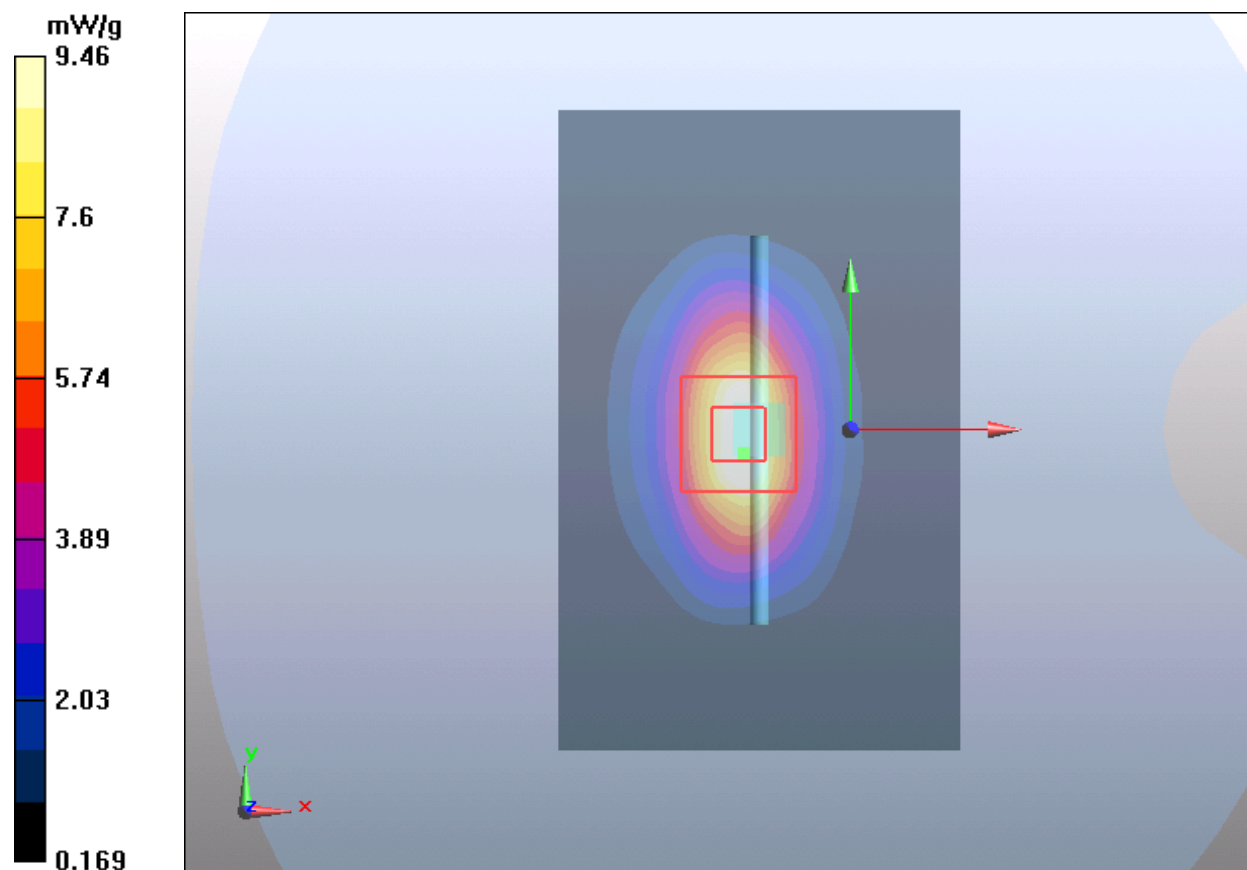


Figure 15 System Performance Check 1750MHz 250mW

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### System Performance Check at 1750 MHz Body TSL

**DUT: Dipole 1750 MHz; Type: D1750V2; Serial: D1750V2 - SN: 1033**

Date: 3/23/2015

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

Medium parameters used:  $f = 1750$  MHz;  $\sigma = 1.47$  mho/m;  $\epsilon_r = 52.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.7 °C

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.74, 7.74, 7.74); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM2; Type: SAM; Serial: TP-1524

Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**d=10mm, Pin=250mW/Area Scan (51x81x1):** Measurement grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 10.6 mW/g

**d=10mm, Pin=250mW/Area Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 77.7 V/m; Power Drift = 0.097 dB

Peak SAR (extrapolated) = 16.8 W/kg

**SAR(1 g) = 9.24 mW/g; SAR(10 g) = 4.9 mW/g**

Maximum value of SAR (measured) = 10.3 mW/g

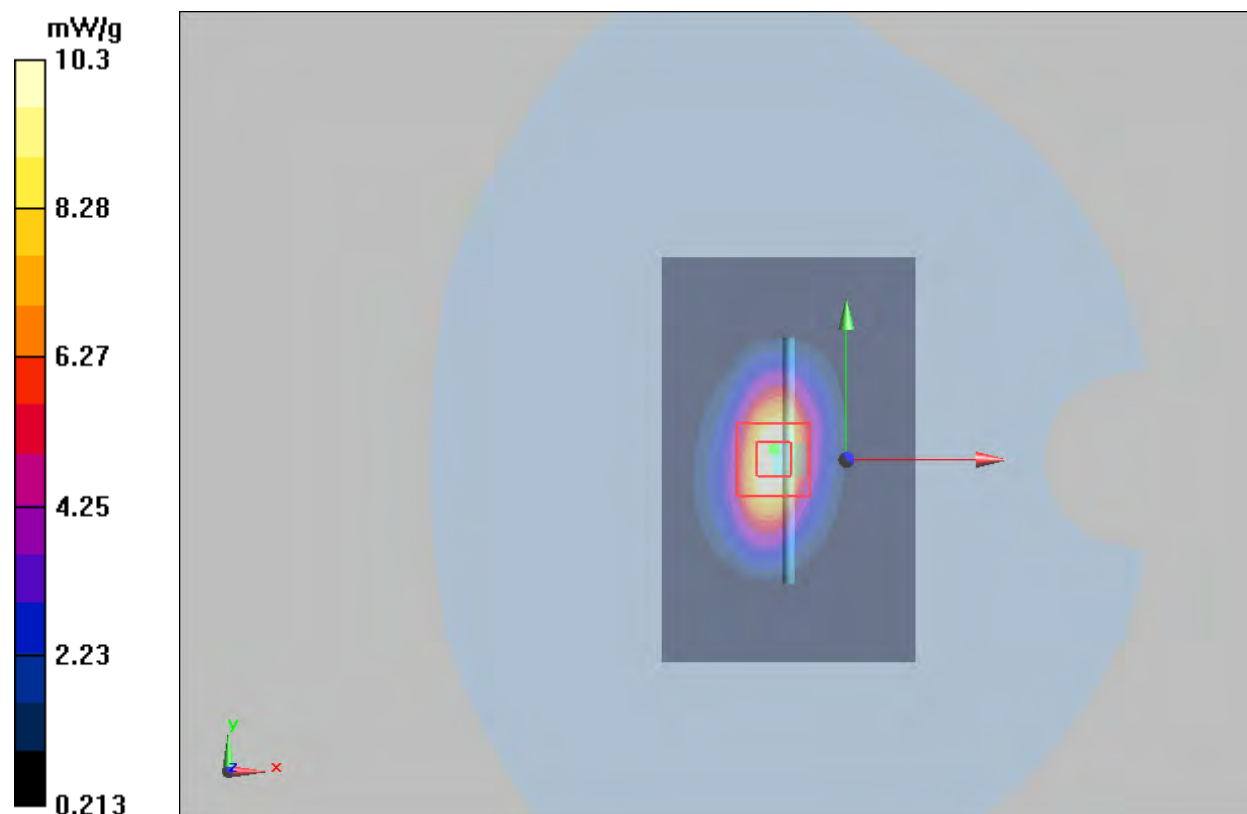


Figure 16 System Performance Check 1750MHz 250mW

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### System Performance Check at 1750 MHz Body TSL

**DUT: Dipole 1750 MHz; Type: D1750V2; Serial: D1750V2 - SN: 1033**

Date: 3/30/2015

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

Medium parameters used:  $f = 1750$  MHz;  $\sigma = 1.45$  mho/m;  $\epsilon_r = 53.1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.7 °C

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.74, 7.74, 7.74); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM2; Type: SAM; Serial: TP-1524

Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**d=10mm, Pin=250mW/Area Scan (51x81x1):** Measurement grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 10.6 mW/g

**d=10mm, Pin=250mW/Area Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 77.7 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 16.8 W/kg

**SAR(1 g) = 9.27 mW/g; SAR(10 g) = 4.95 mW/g**

Maximum value of SAR (measured) = 10.8 mW/g

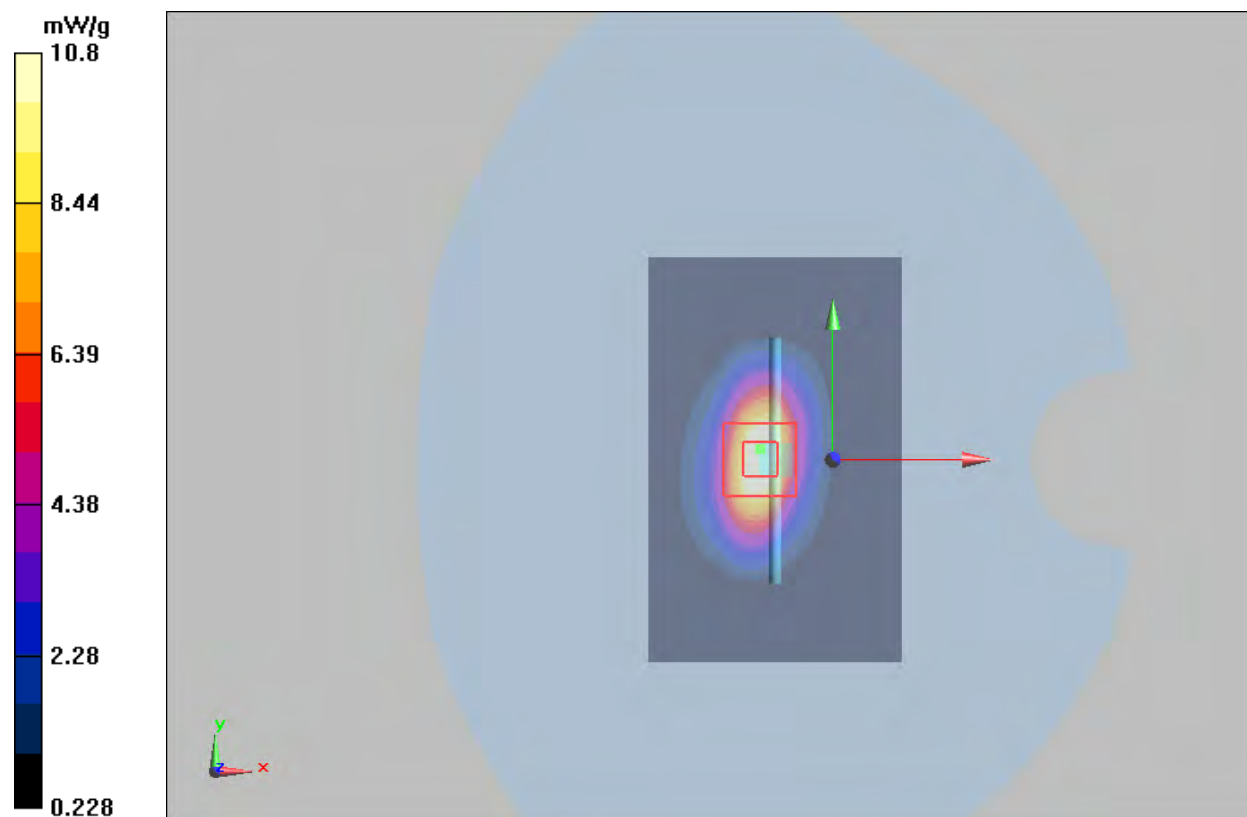


Figure 17 System Performance Check 1750MHz 250mW



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### System Performance Check at 1900 MHz Head TSL

**DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d060**

Date: 3/17/2015

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

Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.43$  mho/m;  $\epsilon_r = 39.6$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.94, 7.94, 7.94); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM2; Type: SAM; Serial: TP-1524

Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**d=10mm, Pin=250mW/Area Scan (41x71x1):** Measurement grid: dx=1.500 mm, dy=1.500 mm  
Maximum value of SAR (interpolated) = 11.3 mW/g

**d=10mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 85.5 V/m; Power Drift = 0.028 dB

Peak SAR (extrapolated) = 17.8 W/kg

**SAR(1 g) = 9.48 mW/g; SAR(10 g) = 4.9 mW/g**

Maximum value of SAR (measured) = 10.7 mW/g

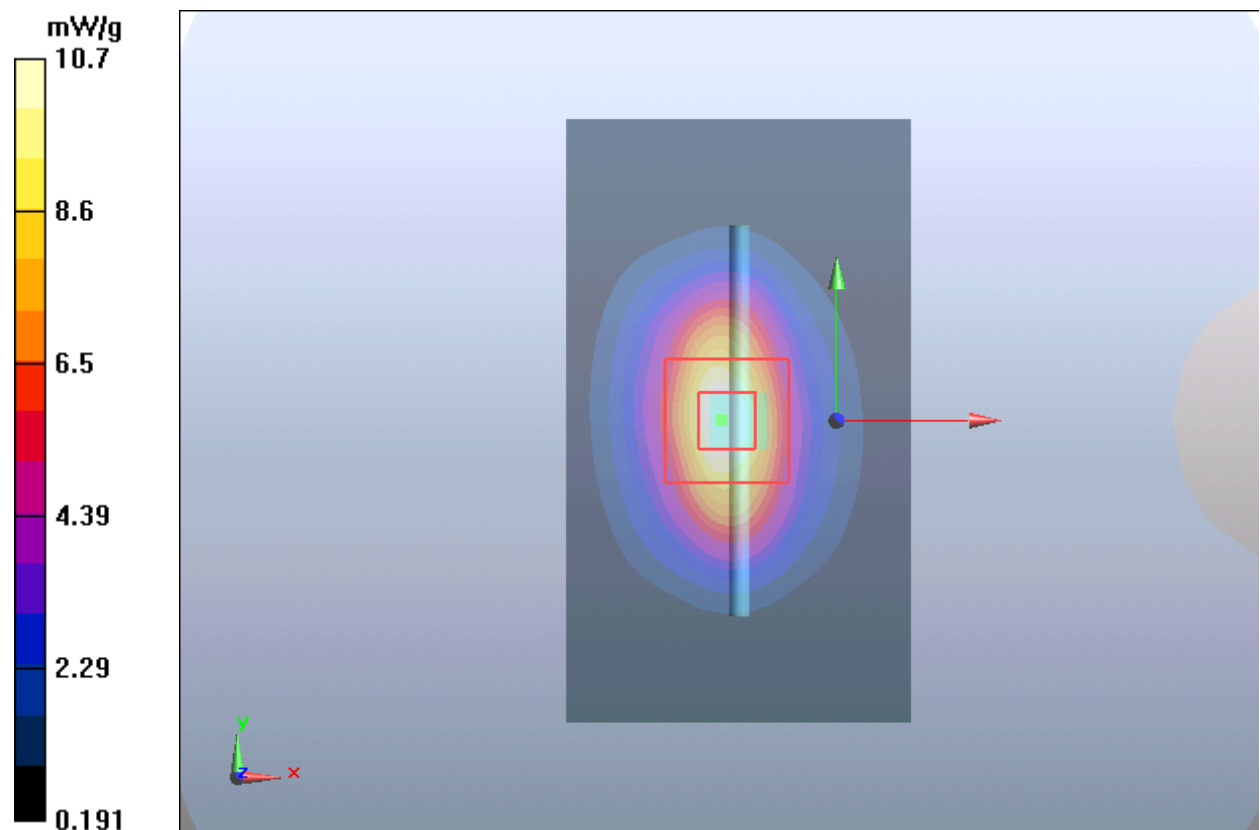


Figure 18 System Performance Check 1900MHz 250mW

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### System Performance Check at 1900 MHz Head TSL

**DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d060**

Date: 3/27/2015

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

Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.40$  mho/m;  $\epsilon_r = 39.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.94, 7.94, 7.94); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM2; Type: SAM; Serial: TP-1524

Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**d=10mm, Pin=250mW/Area Scan (41x71x1):** Measurement grid: dx=1.500mm, dy=1.500mm

Maximum value of SAR (interpolated) = 12.9 mW/g

**d=10mm, Pin=250mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 87.8 V/m; Power Drift = 0.041 dB

Peak SAR (extrapolated) = 20.1 W/kg

**SAR(1 g) = 9.59 mW/g; SAR(10 g) = 5.09 mW/g**

Maximum value of SAR (measured) = 11.12 mW/g

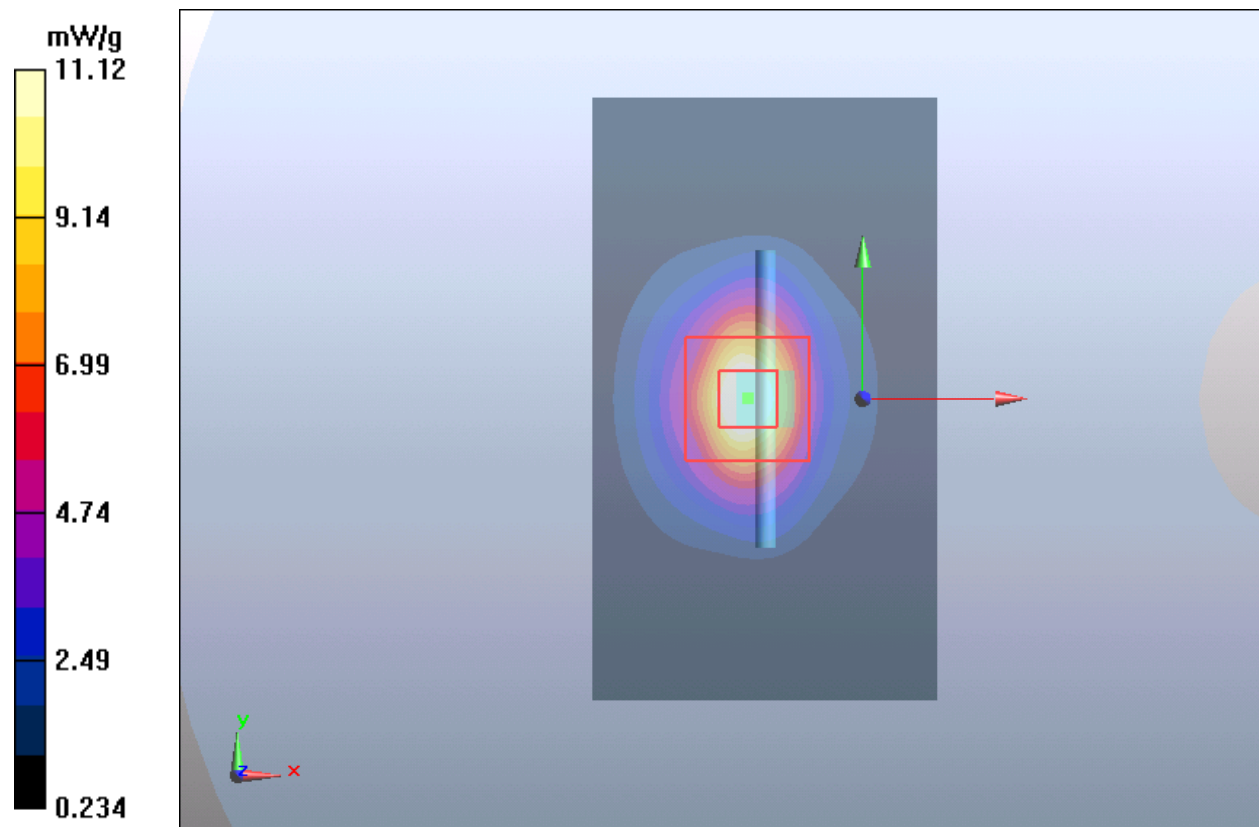


Figure 19 System Performance Check 1900MHz 250mW



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### System Performance Check at 1900 MHz Body TSL

**DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d060**

Date: 3/21/2015

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

Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.52$  mho/m;  $\epsilon_r = 52.5$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.57, 7.57, 7.57); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM2; Type: SAM; Serial: TP-1524

Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**d=10mm, Pin=250mW/Area Scan (41x71x1):** Measurement grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 12.2 mW/g

**d=10mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 82.3 V/m; Power Drift = 0.068 dB

Peak SAR (extrapolated) = 17.8 W/kg

**SAR(1 g) = 9.93 mW/g; SAR(10 g) = 5.25 mW/g**

Maximum value of SAR (measured) = 11.3 mW/g

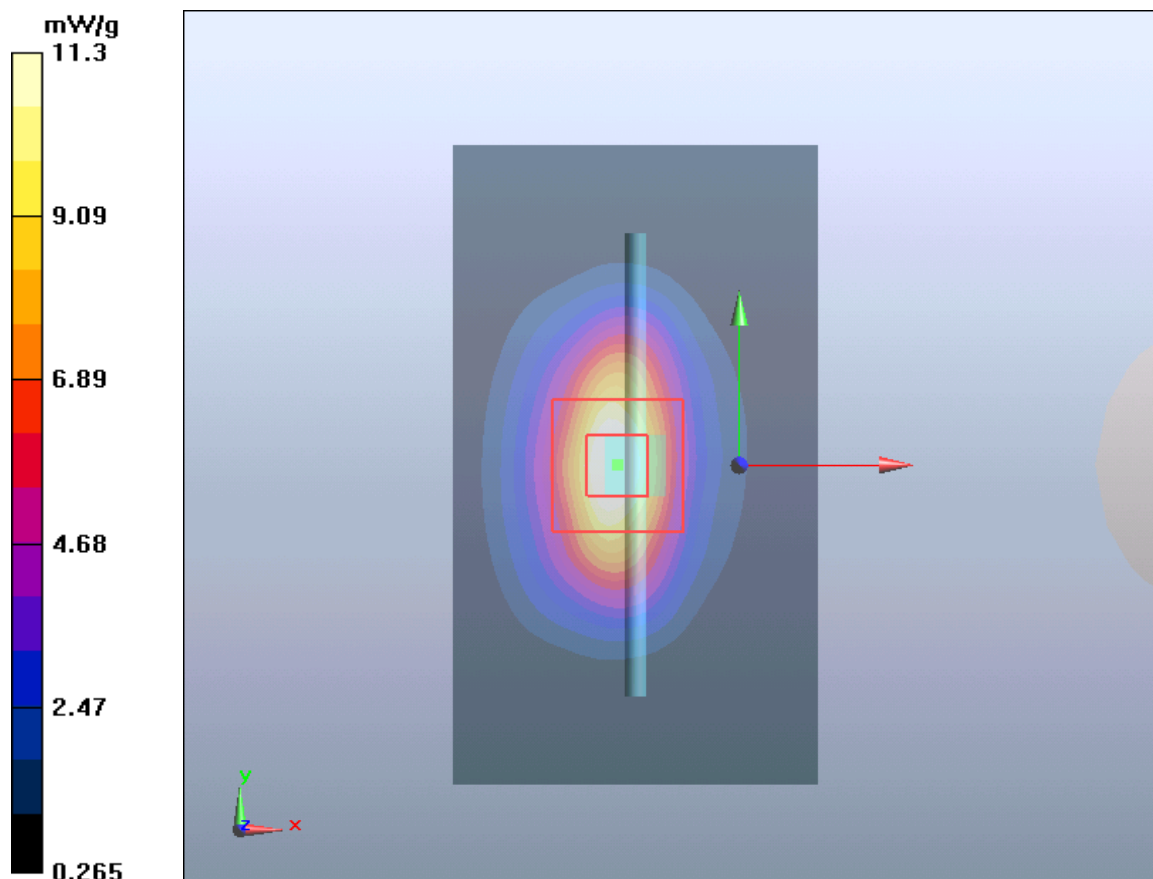


Figure 20 System Performance Check 1900MHz 250mW

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### System Performance Check at 1900 MHz Body TSL

**DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d060**

Date: 3/24/2015

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

Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.51$  mho/m;  $\epsilon_r = 52.5$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.57, 7.57, 7.57); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM2; Type: SAM; Serial: TP-1524

Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**d=10mm, Pin=250mW/Area Scan (41x71x1):** Measurement grid: dx=1.500 mm, dy=1.500 mm  
Maximum value of SAR (interpolated) = 11.9 mW/g

**d=10mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 80.8 V/m; Power Drift = -0.063 dB

Peak SAR (extrapolated) = 17.6 W/kg

**SAR(1 g) = 9.82 mW/g; SAR(10 g) = 5.2 mW/g**

Maximum value of SAR (measured) = 11 mW/g

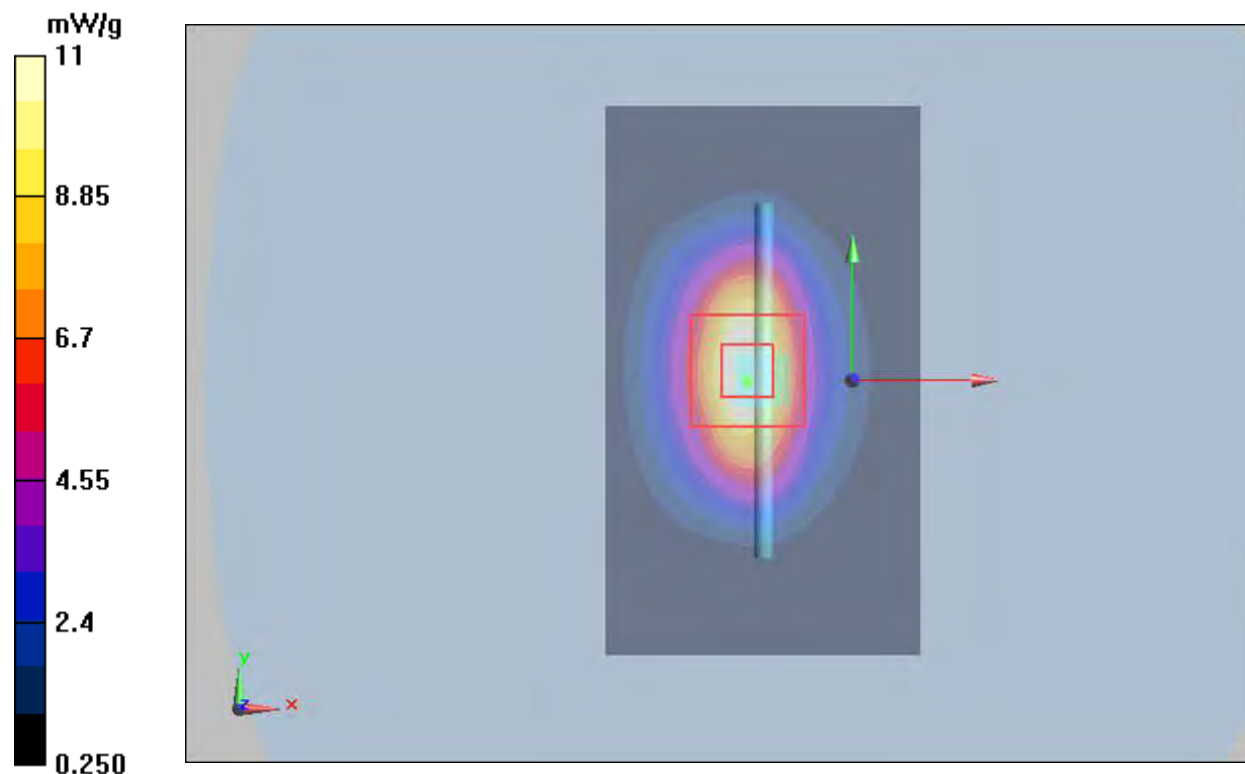


Figure 21 System Performance Check 1900MHz 250mW

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### System Performance Check at 1900 MHz Body TSL

**DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d060**

Date: 3/26/2015

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

Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.49$  mho/m;  $\epsilon_r = 52.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.57, 7.57, 7.57); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM2; Type: SAM; Serial: TP-1524

Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**d=10mm, Pin=250mW/Area Scan (41x71x1):** Measurement grid: dx=1.500 mm, dy=1.500 mm  
Maximum value of SAR (interpolated) = 11.9 mW/g

**d=10mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 80.8 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 17.6 W/kg

**SAR(1 g) = 9.83 mW/g; SAR(10 g) = 5.2 mW/g**

Maximum value of SAR (measured) = 11.52 mW/g

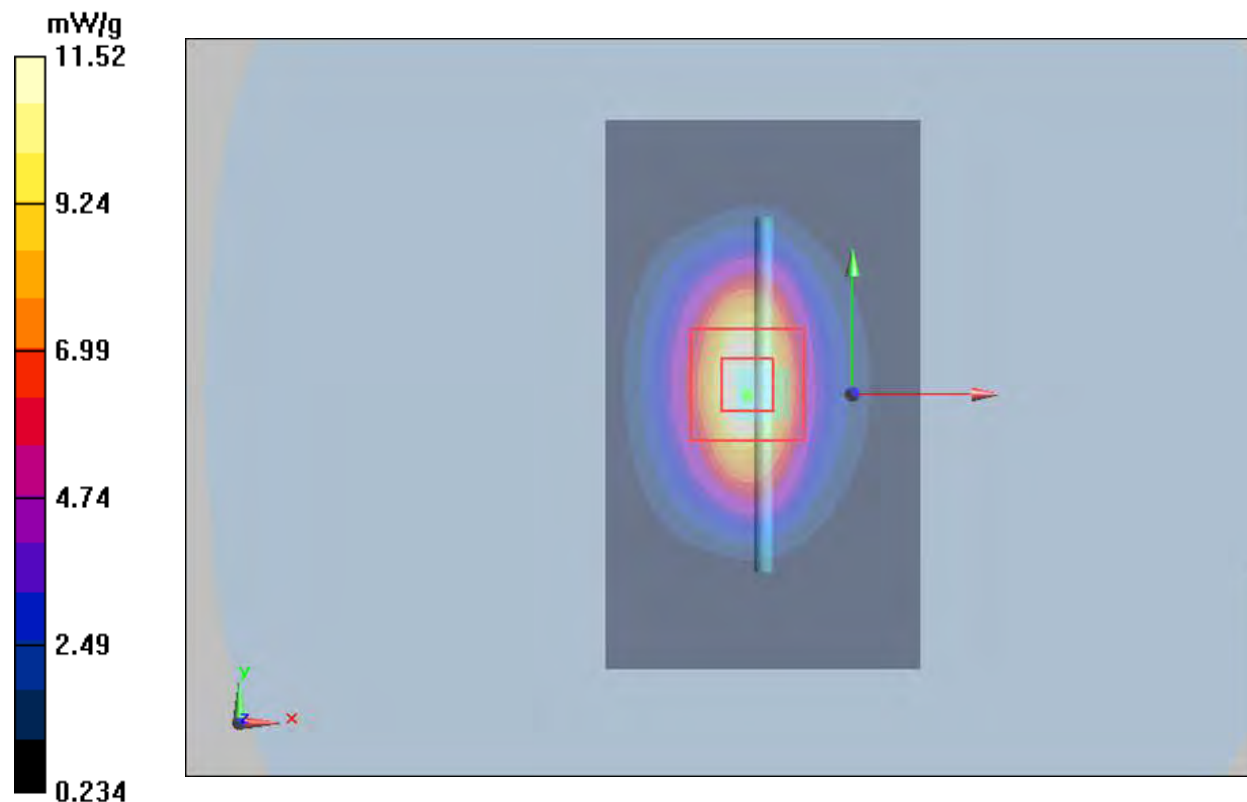


Figure 22 System Performance Check 1900MHz 250mW

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### System Performance Check at 2450 MHz Head TSL

**DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 786**

Date: 3/25/2015

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

Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.81$  mho/m;  $\epsilon_r = 38.6$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.22, 7.22, 7.22); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM2; Type: SAM; Serial: TP-1524

Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**d=10mm, Pin=250mW/Area Scan (41x71x1):** Measurement grid: dx=1.200 mm, dy=1.200 mm  
Maximum value of SAR (interpolated) = 18.2 mW/g

**d=10mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 88.8 V/m; Power Drift = 0.075 dB

Peak SAR (extrapolated) = 30 W/kg

**SAR(1 g) = 13.7 mW/g; SAR(10 g) = 6.22 mW/g**

Maximum value of SAR (measured) = 15.9 mW/g

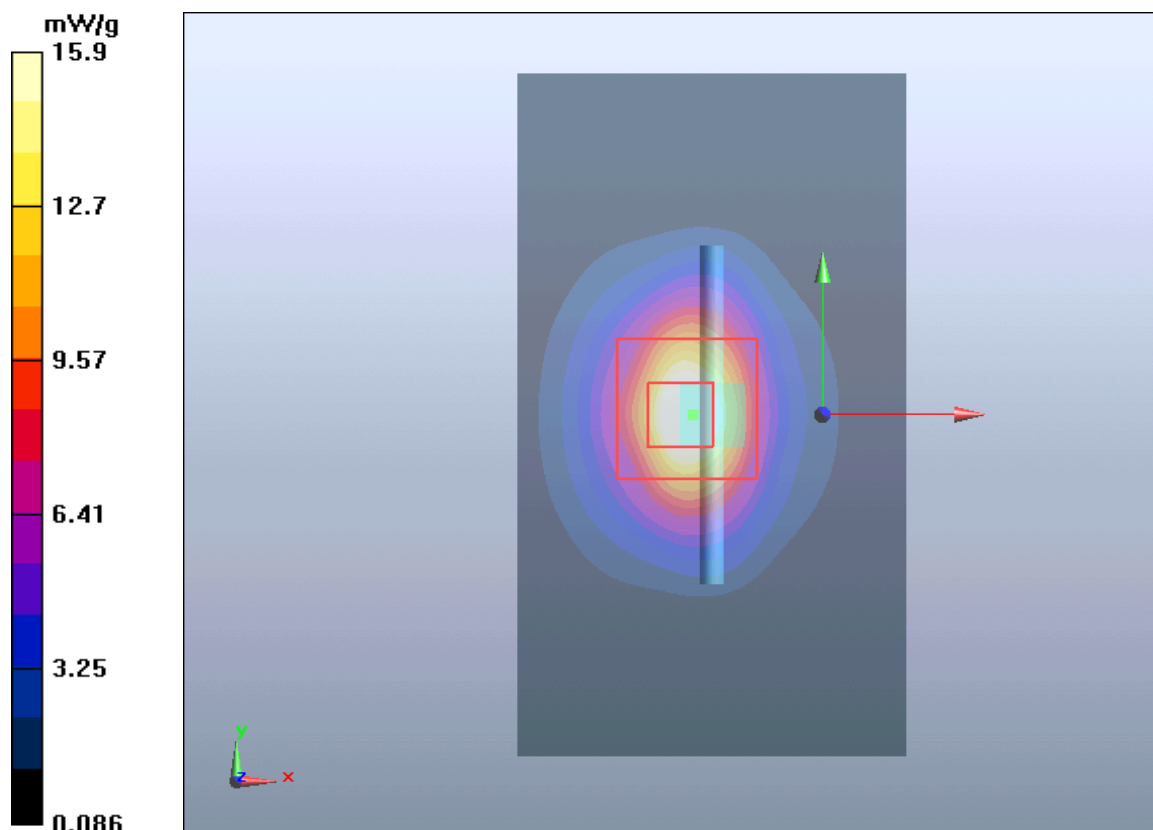


Figure 23 System Performance Check 2450MHz 250mW

# TA Technology (Shanghai) Co., Ltd.

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### System Performance Check at 2450 MHz Body TSL

**DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 786**

Date: 3/25/2015

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

Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.99$  mho/m;  $\epsilon_r = 52.1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.42, 7.42, 7.42); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM2; Type: SAM; Serial: TP-1524

Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**d=10mm, Pin=250mW/Area Scan (41x71x1):** Measurement grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 16 mW/g

**d=10mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 81.2 V/m; Power Drift = 0.003 dB

Peak SAR (extrapolated) = 25.4 W/kg

**SAR(1 g) = 12.5 mW/g; SAR(10 g) = 6.20 mW/g**

Maximum value of SAR (measured) = 14.4 mW/g

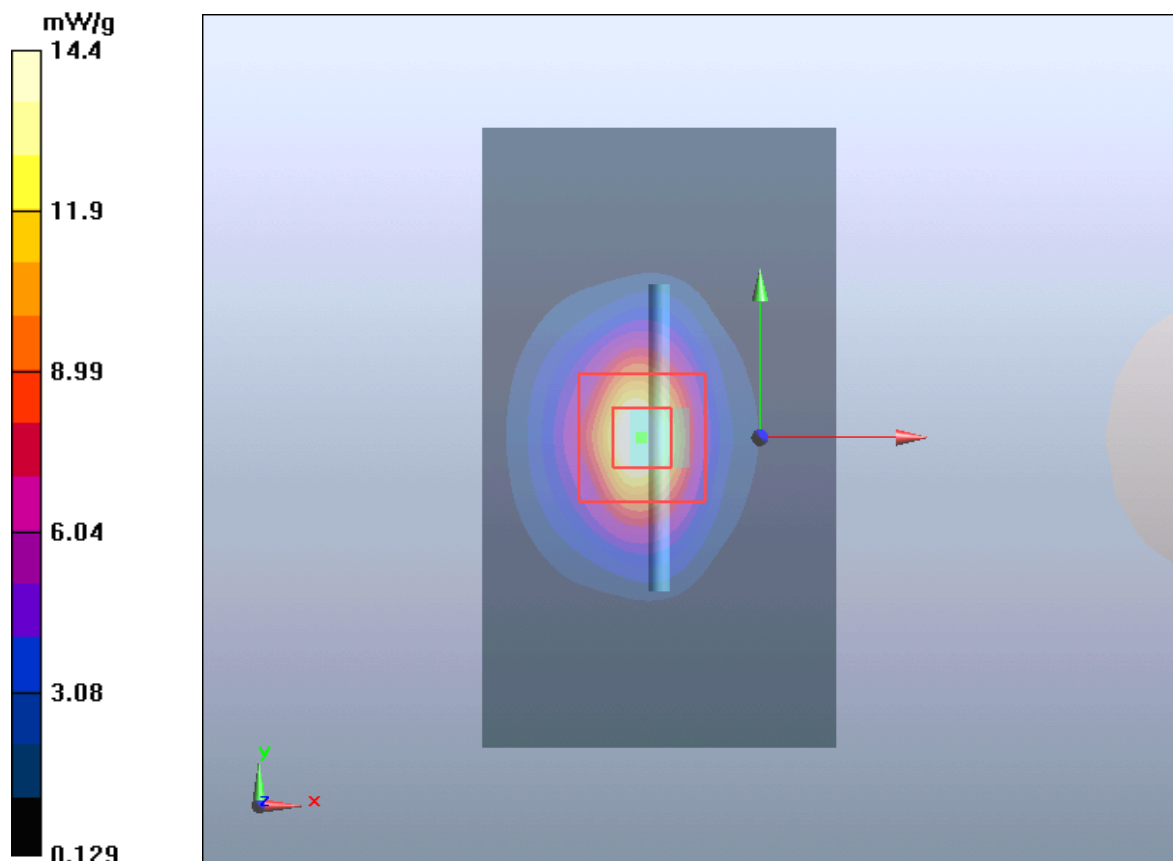


Figure 24 System Performance Check 2450MHz 250mW

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### System Performance Check at 2600 MHz Head TSL

**DUT: Dipole 2600 MHz; Type: D2600V2; Serial: D2600V2 - SN: 1025**

Date: 3/9/2015

Communication System: CW; Frequency: 2600 MHz

Medium parameters used:  $f = 2600$  MHz;  $\sigma = 1.98$  mho/m;  $\epsilon_r = 38.6$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(6.94, 6.94, 6.94); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**d=10mm, Pin=250mW/Area Scan (41x71x1):** Measurement grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 17.439 mW/g

**d=10mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 87.998 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 31.858 W/kg

**SAR(1 g) = 13.9 mW/g; SAR(10 g) = 6.07 mW/g**

Maximum value of SAR (measured) = 15.617 mW/g

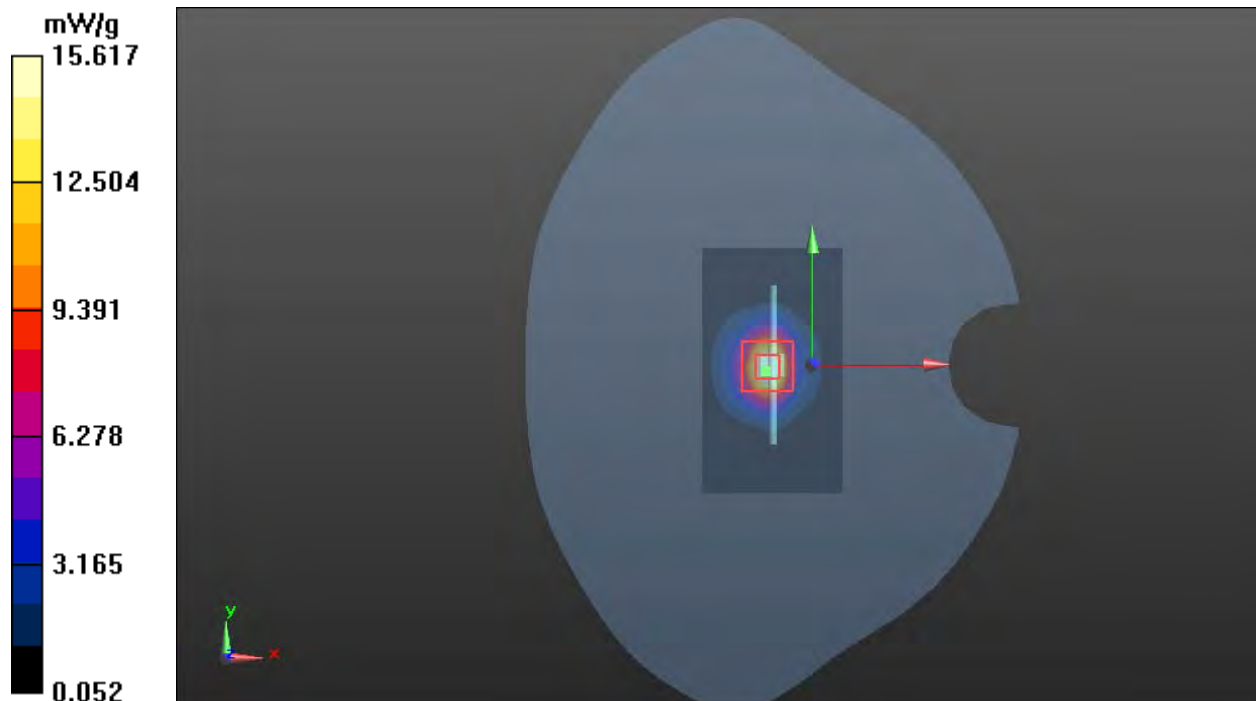


Figure 25 System Performance Check 2600MHz 250mW

# TA Technology (Shanghai) Co., Ltd.

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### System Performance Check at 2600 MHz Body TSL

**DUT: Dipole 2600 MHz; Type: D2600V2; Serial: D2600V2 - SN: 1025**

Date: 3/9/2015

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

Medium parameters used:  $f = 2600$  MHz;  $\sigma = 2.20$  mho/m;  $\epsilon_r = 52.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.29, 7.29, 7.29); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**d=10mm, Pin=250mW /Area Scan (41x71x1):** Measurement grid: dx=1.200 mm, dy=1.200 mm  
Maximum value of SAR (interpolated) = 17.7 mW/g

**d=10mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 74 V/m; Power Drift = -0.0027 dB

Peak SAR (extrapolated) = 28.5 W/kg

**SAR(1 g) = 13.5 mW/g; SAR(10 g) = 5.99 mW/g**

Maximum value of SAR (measured) = 15.7 mW/g

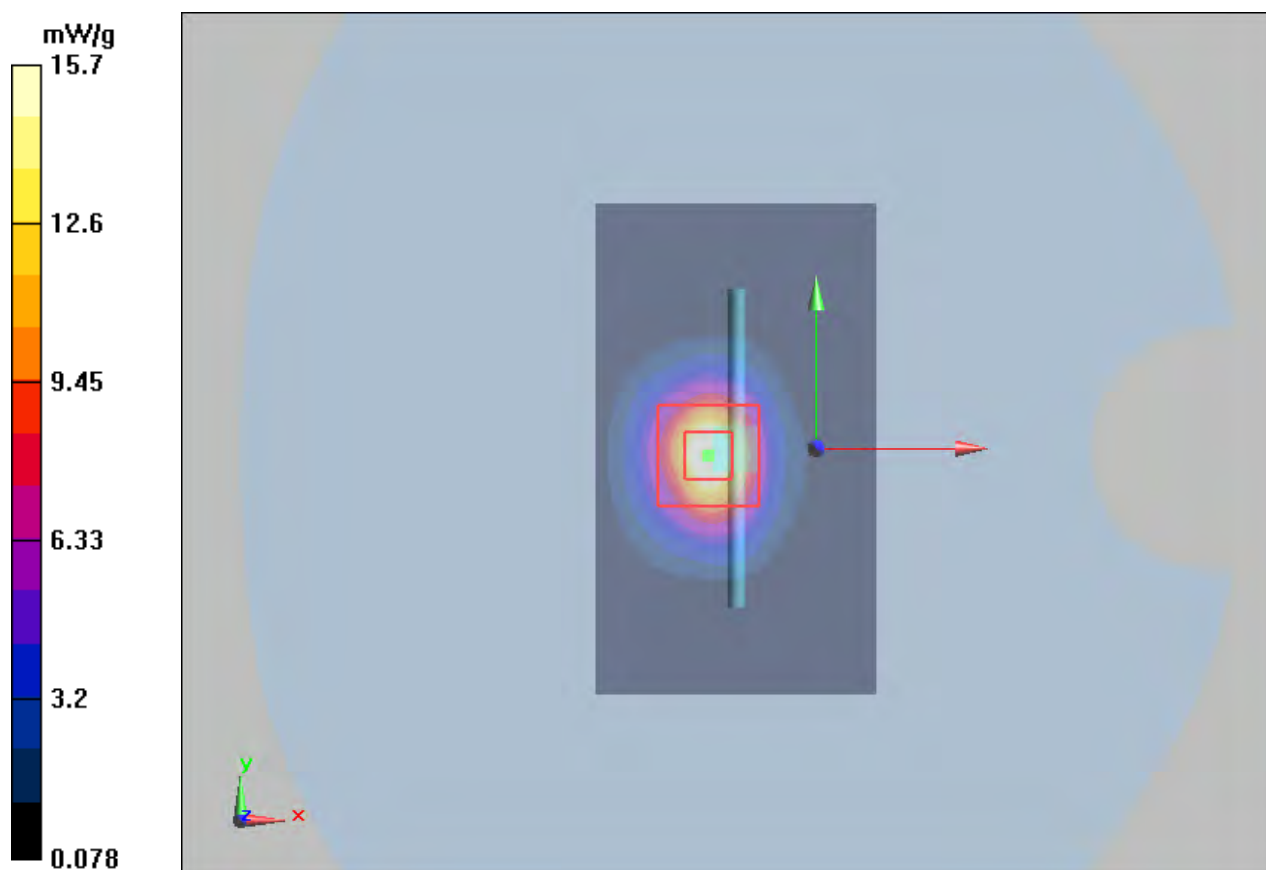


Figure 26 System Performance Check 2600MHz 250mW



## ANNEX C: Highest Graph Results

### ANNEX C1: Antenna 1

#### GSM 850 Right Cheek Low (Battery 1)

Date: 3/28/2015

Communication System: UID 0, GSM (0); Frequency: 824.2 MHz; Duty Cycle: 1:8.30042

Medium parameters used (interpolated):  $f = 824.2$  MHz;  $\sigma = 0.919$  S/m;  $\epsilon_r = 41.459$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Right Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.30, 9.30, 9.30); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Right Cheek Low/Area Scan (71x111x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.15 W/kg

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

Reference Value = 18.28 V/m; Power Drift = 0.022 dB

Peak SAR (extrapolated) = 2.27 W/kg

**SAR(1 g) = 1.03 W/kg; SAR(10 g) = 0.527 W/kg**

Maximum value of SAR (measured) = 1.06 W/kg

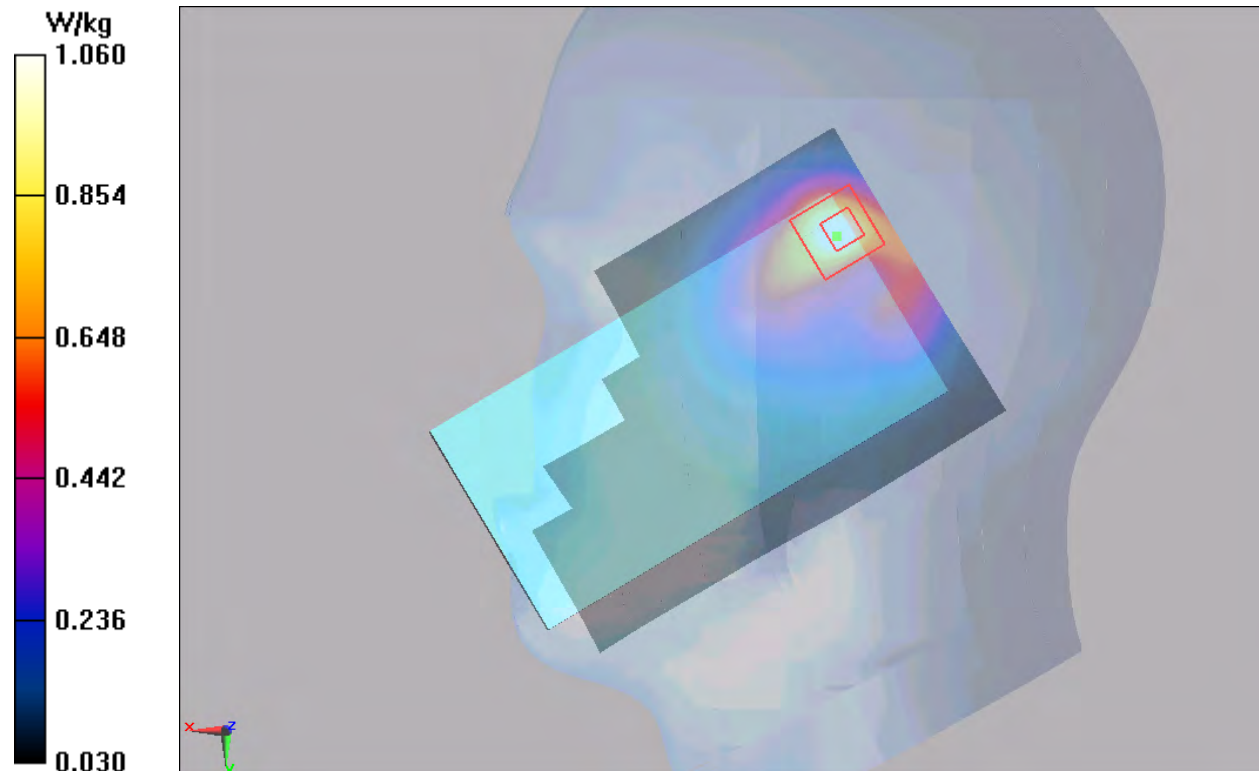


Figure 27 Right Hand Touch Cheek GSM 850 Channel 128



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### GSM 850 Front Side Middle (Battery 1, Distance 15mm)

Date: 3/19/2015

Communication System: GSM850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 837$  MHz;  $\sigma = 1$  mho/m;  $\epsilon_r = 54.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.45, 9.45, 9.45); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 11; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY5, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Front Side Middle/Area Scan (61x111x1):** Measurement grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.098 mW/g

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

Reference Value = 8.06 V/m; Power Drift = 0.074 dB

Peak SAR (extrapolated) = 0.147 W/kg

**SAR(1 g) = 0.096 mW/g; SAR(10 g) = 0.060 mW/g**

Maximum value of SAR (measured) = 0.103 mW/g

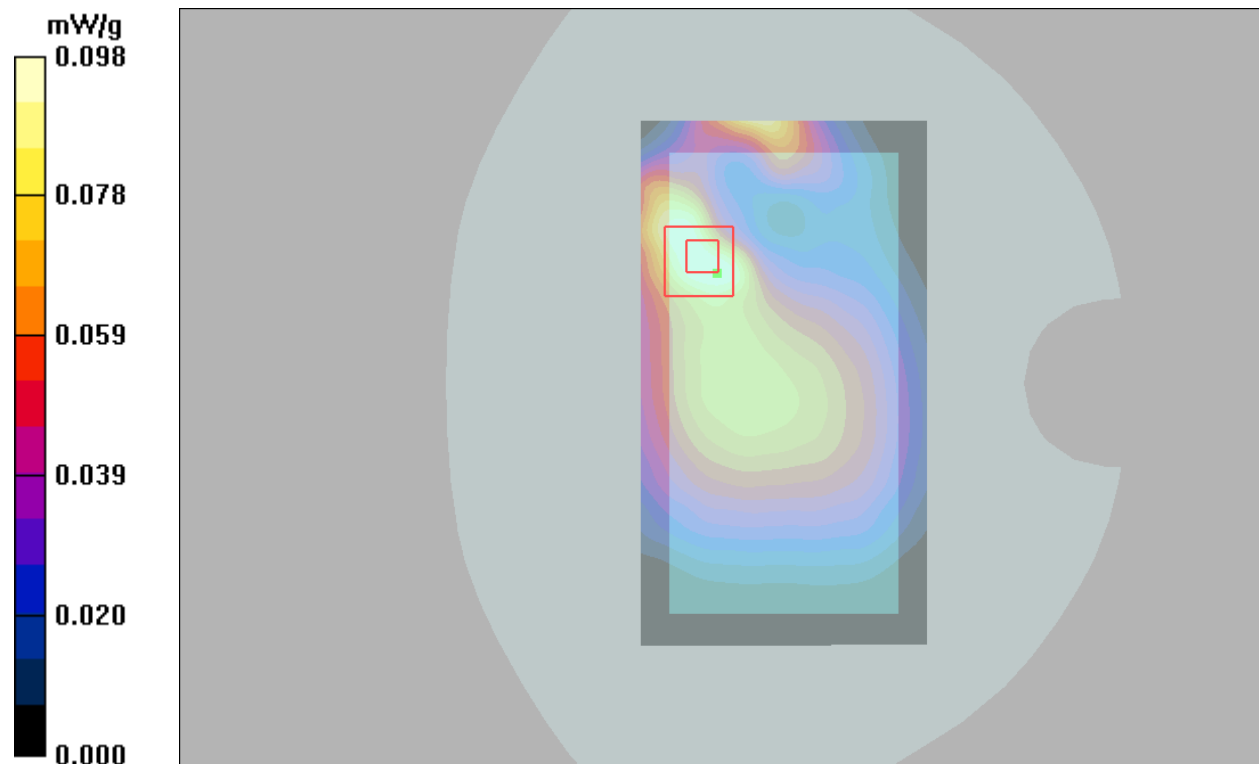


Figure 28 Body, Front Side, GSM 850 Channel 190

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**GSM 850 EGPRS (2Txslots) Front Side Middle (Battery 1, Distance 10mm)**

Date: 3/19/2015

Communication System: GSM850 + EGPRS(2Up); Frequency: 836.6 MHz; Duty Cycle: 1:4.15

Medium parameters used:  $f = 837 \text{ MHz}$ ;  $\sigma = 1 \text{ mho/m}$ ;  $\epsilon_r = 54.9$ ;  $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature:  $22.3 \text{ }^\circ\text{C}$       Liquid Temperature:  $21.5^\circ\text{C}$

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.45, 9.45, 9.45); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Front Side Middle/Area Scan (61x111x1):** Measurement grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) =  $0.247 \text{ mW/g}$

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

Reference Value =  $8.46 \text{ V/m}$ ; Power Drift =  $-0.042 \text{ dB}$

Peak SAR (extrapolated) =  $0.377 \text{ W/kg}$

**SAR(1 g) =  $0.213 \text{ mW/g}$ ; SAR(10 g) =  $0.095 \text{ mW/g}$**

Maximum value of SAR (measured) =  $0.242 \text{ mW/g}$

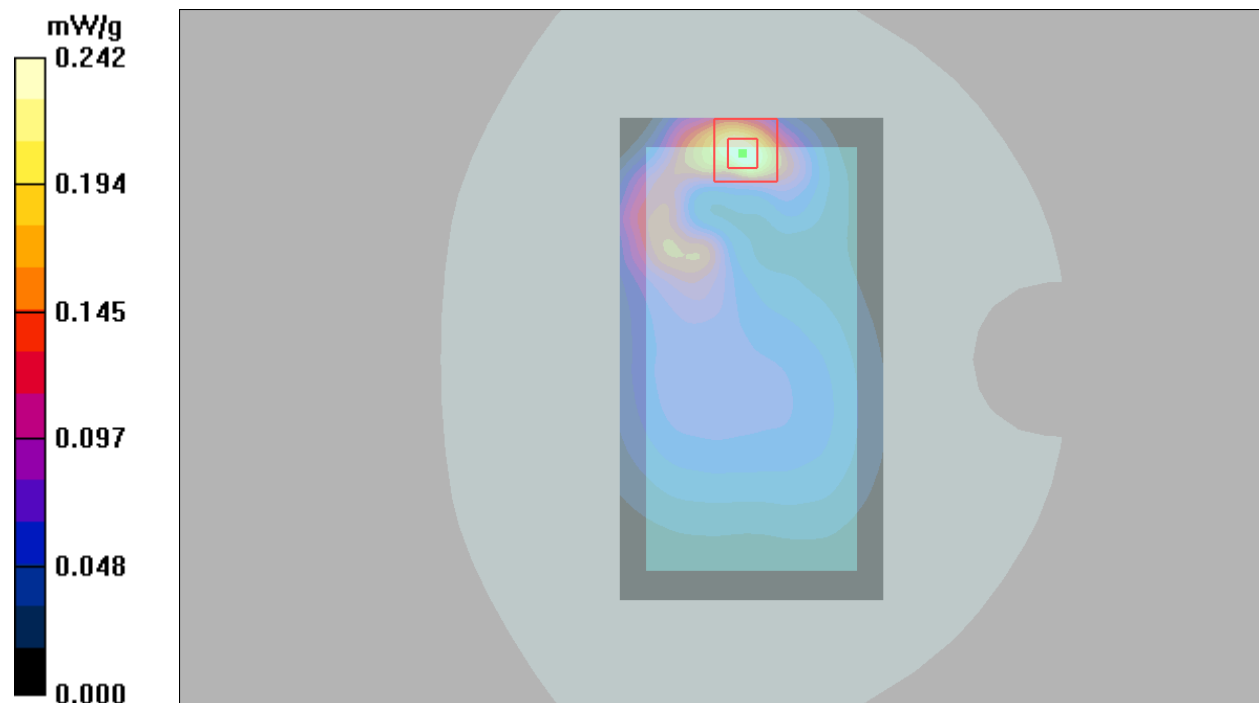


Figure 29 Body, Front Side, GSM 850 EGPRS (2Txslots) Channel 190

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### GSM 1900 Right Cheek High (Battery 2)

Date: 3/27/2015

Communication System: UID 0, GSM (0); Frequency: 1909.8 MHz; Duty Cycle: 1:8.30042

Medium parameters used:  $f = 1910$  MHz;  $\sigma = 1.44$  S/m;  $\epsilon_r = 39.607$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Right Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.94, 7.94, 7.94); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 2; Type: SAM; Serial:

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Right Cheek High/Area Scan (71x111x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.06 W/kg

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

Reference Value = 17.36 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 1.92 W/kg

**SAR(1 g) = 0.966 W/kg; SAR(10 g) = 0.491 W/kg**

Maximum value of SAR (measured) = 1.09 W/kg

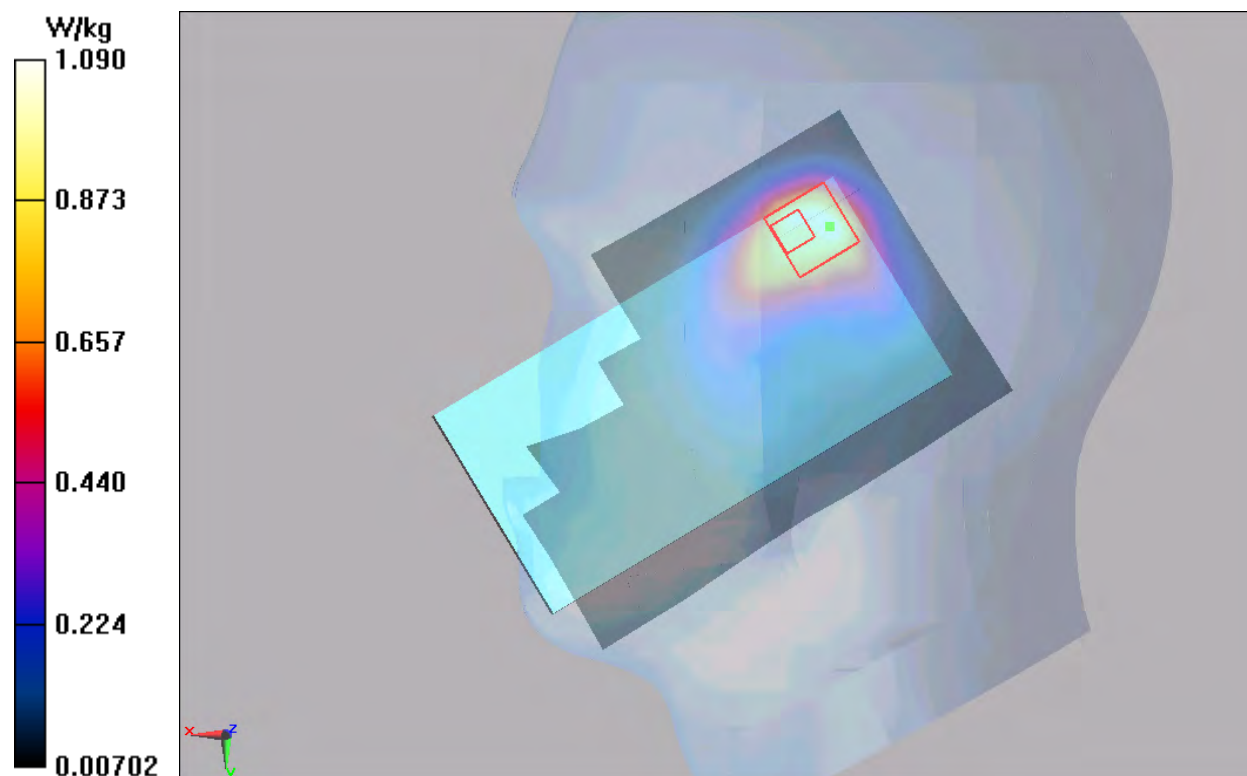


Figure 30 Right Hand Touch Cheek GSM 1900 Channel 810

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**GSM 1900 Front Side Middle (Battery 1, Distance 15mm)**

Date: 3/21/2015

Communication System: UID 0, GSM (0); Frequency: 1880 MHz; Duty Cycle: 1:8.30042

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.5$  S/m;  $\epsilon_r = 52.509$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.57, 7.57, 7.57); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Front side Middle/Area Scan (71x111x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.0692 W/kg

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

Reference Value = 3.164 V/m; Power Drift = 0.144 dB

Peak SAR (extrapolated) = 0.0960 W/kg

**SAR(1 g) = 0.065 W/kg; SAR(10 g) = 0.041 W/kg**

Maximum value of SAR (measured) = 0.0685 W/kg

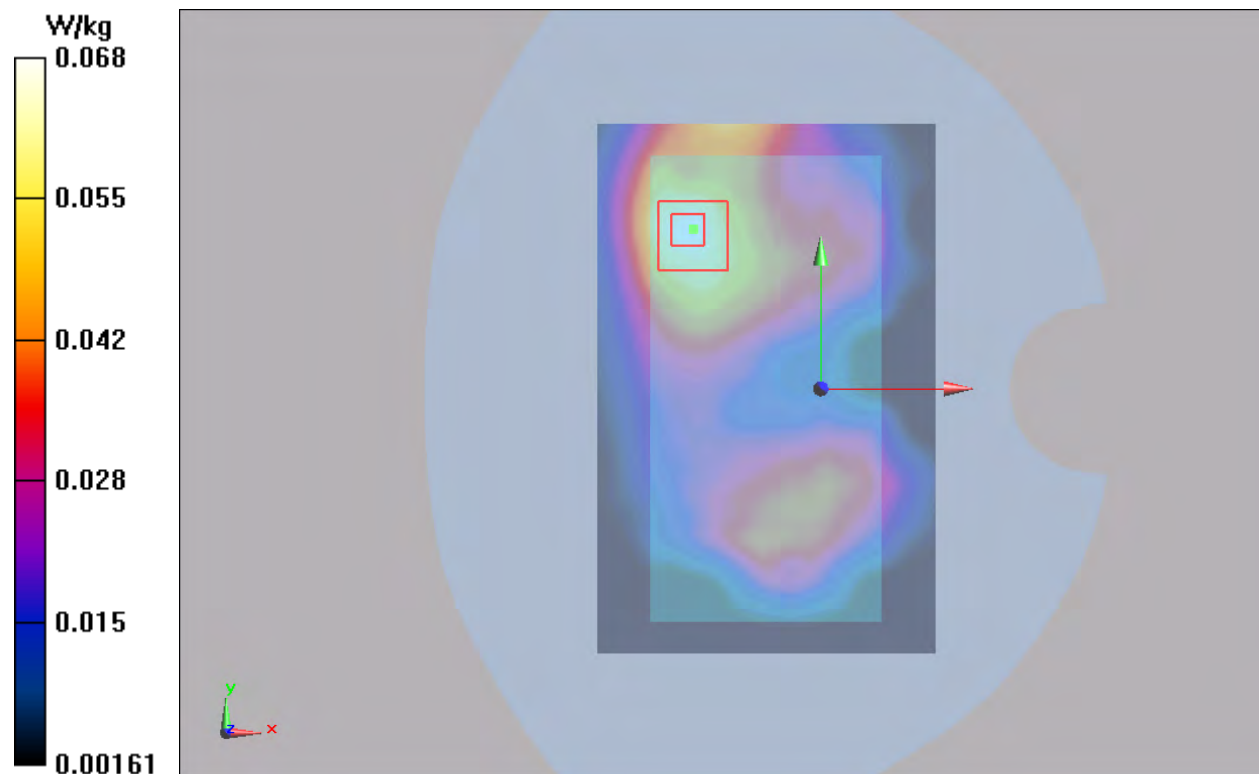


Figure 31 Body, Front Side, GSM 1900 Channel 661

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**GSM 1900 GPRS (3Txslots) Left Edge Middle (Battery 2, Distance 10mm)**

Date: 3/21/2015

Communication System: UID 0, GPRS 3TX (0); Frequency: 1909.8 MHz; Duty Cycle: 1:2.76694

Medium parameters used:  $f = 1910$  MHz;  $\sigma = 1.532$  S/m;  $\epsilon_r = 52.459$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.57, 7.57, 7.57); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 2; Type: SAM; Serial:

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Left Edge High/Area Scan (51x171x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.222 W/kg

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

Reference Value = 9.147 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.331 W/kg

**SAR(1 g) = 0.200 W/kg; SAR(10 g) = 0.112 W/kg**

Maximum value of SAR (measured) = 0.201 W/kg

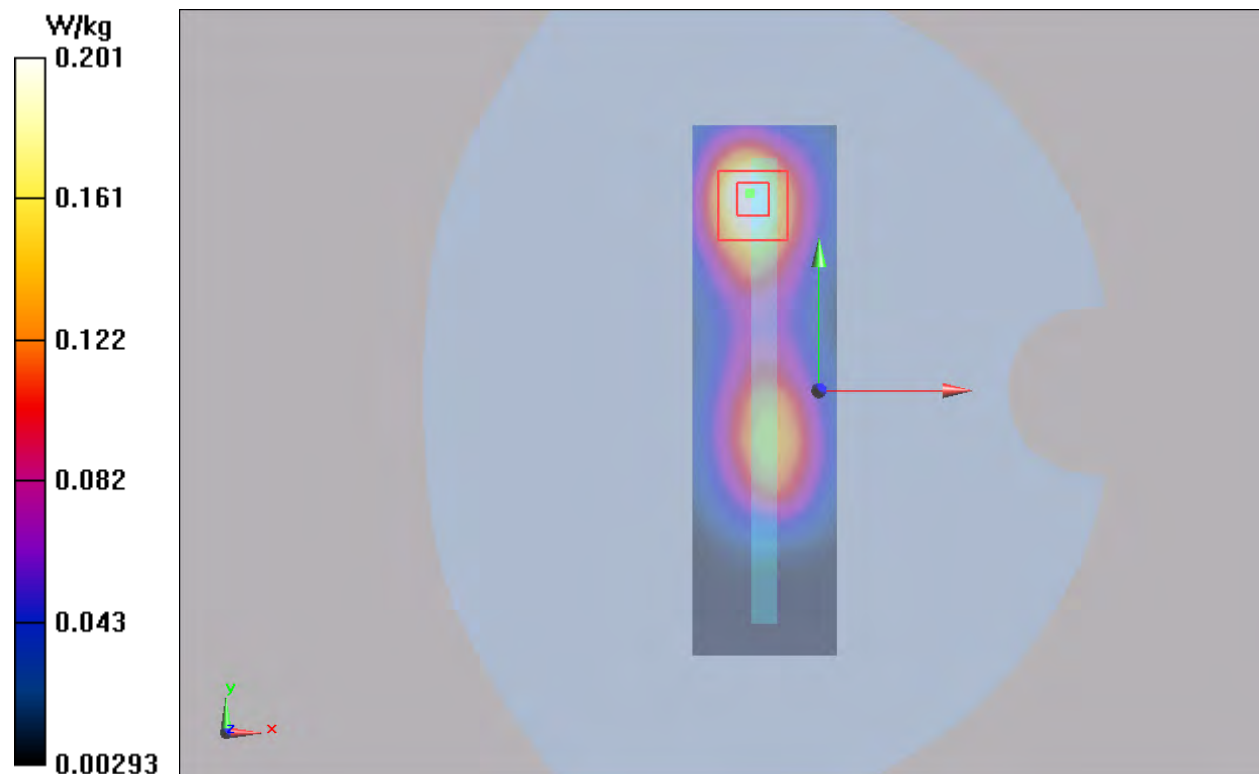


Figure 32 Body, Left Edge, GSM 1900 GPRS (3Txslots) Channel 661

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### UMTS Band II Right Cheek Middle (Battery 1)

Date: 3/27/2015

Communication System: UID 0, WCDMA (0); Frequency: 1880 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.413$  S/m;  $\epsilon_r = 39.689$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Right Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.94, 7.94, 7.94); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 2; Type: SAM; Serial:

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Right Cheek Middle/Area Scan (71x111x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.574 W/kg

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

Reference Value = 13.01 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.991 W/kg

**SAR(1 g) = 0.494 W/kg; SAR(10 g) = 0.255 W/kg**

Maximum value of SAR (measured) = 0.558 W/kg

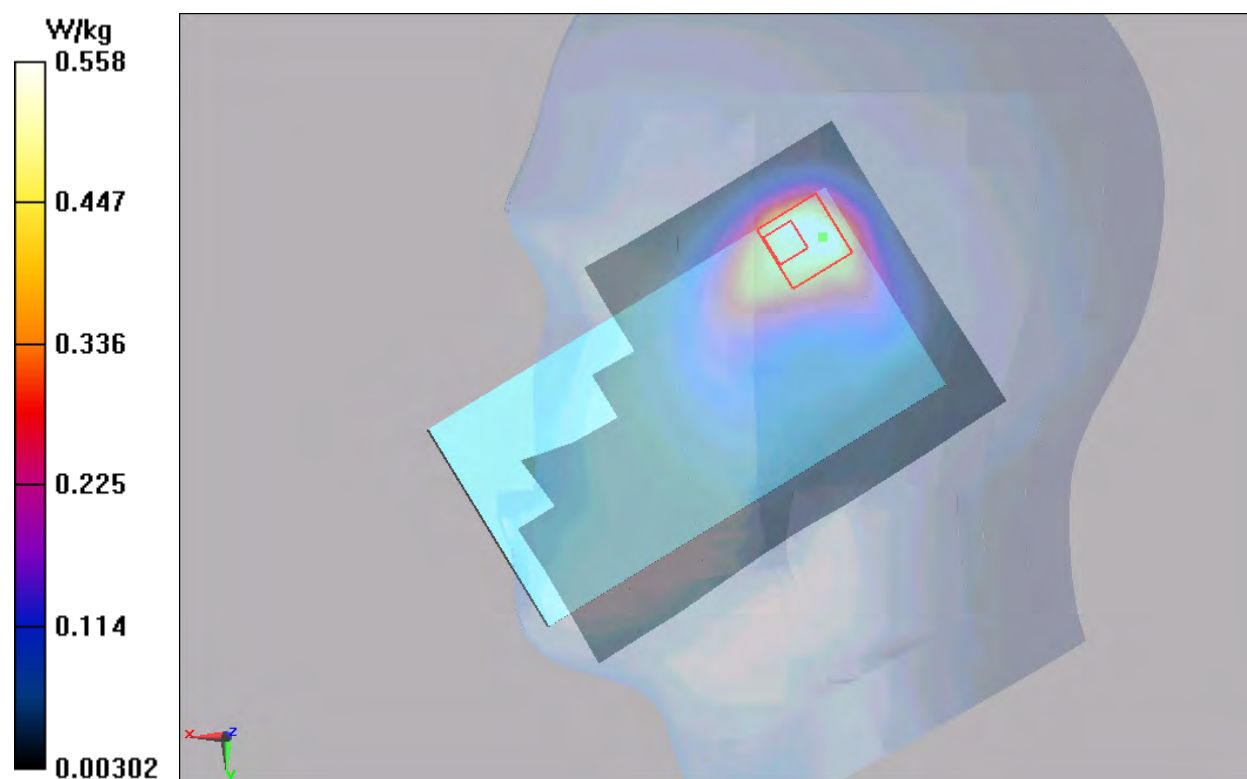


Figure 33 Right Hand Touch Cheek UMTS Band II Channel 9400

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### UMTS Band II Back Side Middle (Battery 1, Distance 15mm)

Date: 3/21/2015

Communication System: UID 0, WCDMA (0); Frequency: 1880 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.5$  S/m;  $\epsilon_r = 52.509$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.57, 7.57, 7.57); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Back side Middle/Area Scan (71x111x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.0849 W/kg

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

Reference Value = 3.944 V/m; Power Drift = 0.026 dB

Peak SAR (extrapolated) = 0.140 W/kg

**SAR(1 g) = 0.078 W/kg; SAR(10 g) = 0.041 W/kg**

Maximum value of SAR (measured) = 0.0814 W/kg

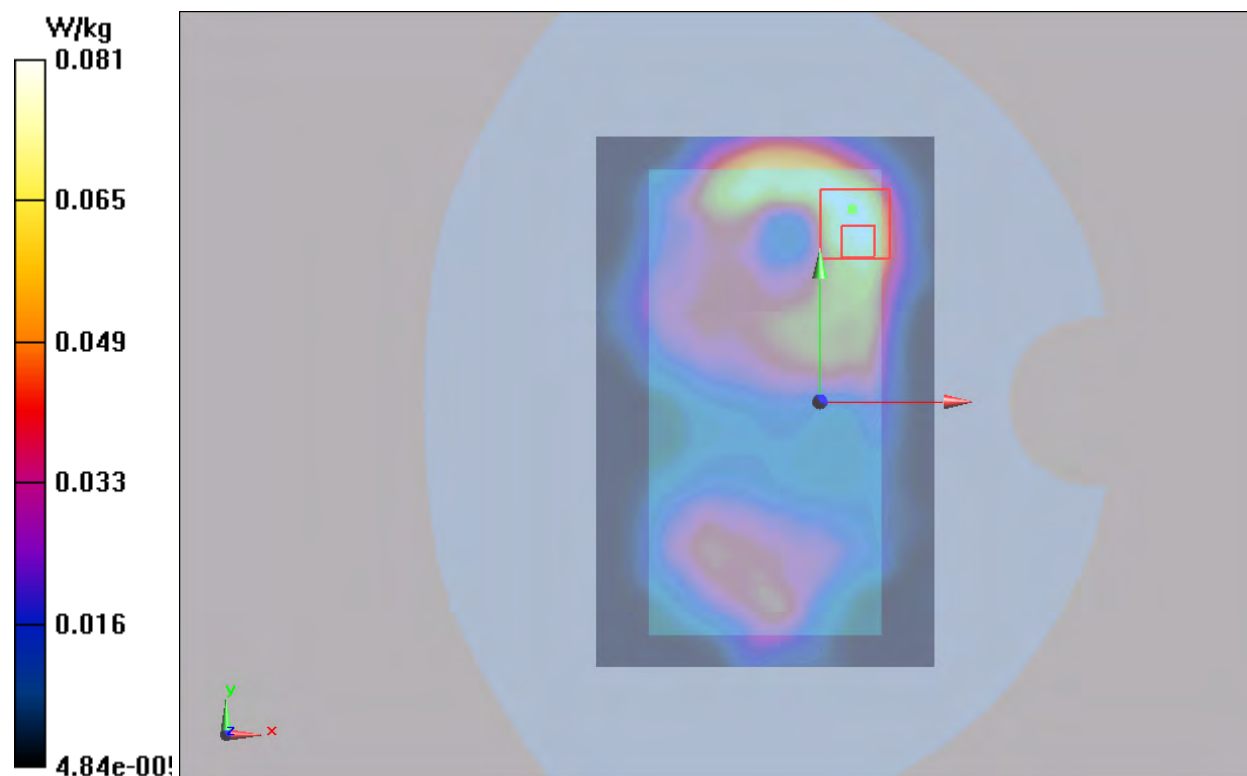


Figure 34 Body, Back Side, UMTS Band II Channel 9400



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### UMTS Band II Left Edge Middle (Battery 2, Distance 10mm)

Date: 3/21/2015

Communication System: UID 0, WCDMA (0); Frequency: 1880 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.5$  S/m;  $\epsilon_r = 52.509$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.57, 7.57, 7.57); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 2; Type: SAM; Serial:

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Left Edge Middle/Area Scan (51x171x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.196 W/kg

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

Reference Value = 10.50 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.292 W/kg

**SAR(1 g) = 0.178 W/kg; SAR(10 g) = 0.100 W/kg**

Maximum value of SAR (measured) = 0.175 W/kg

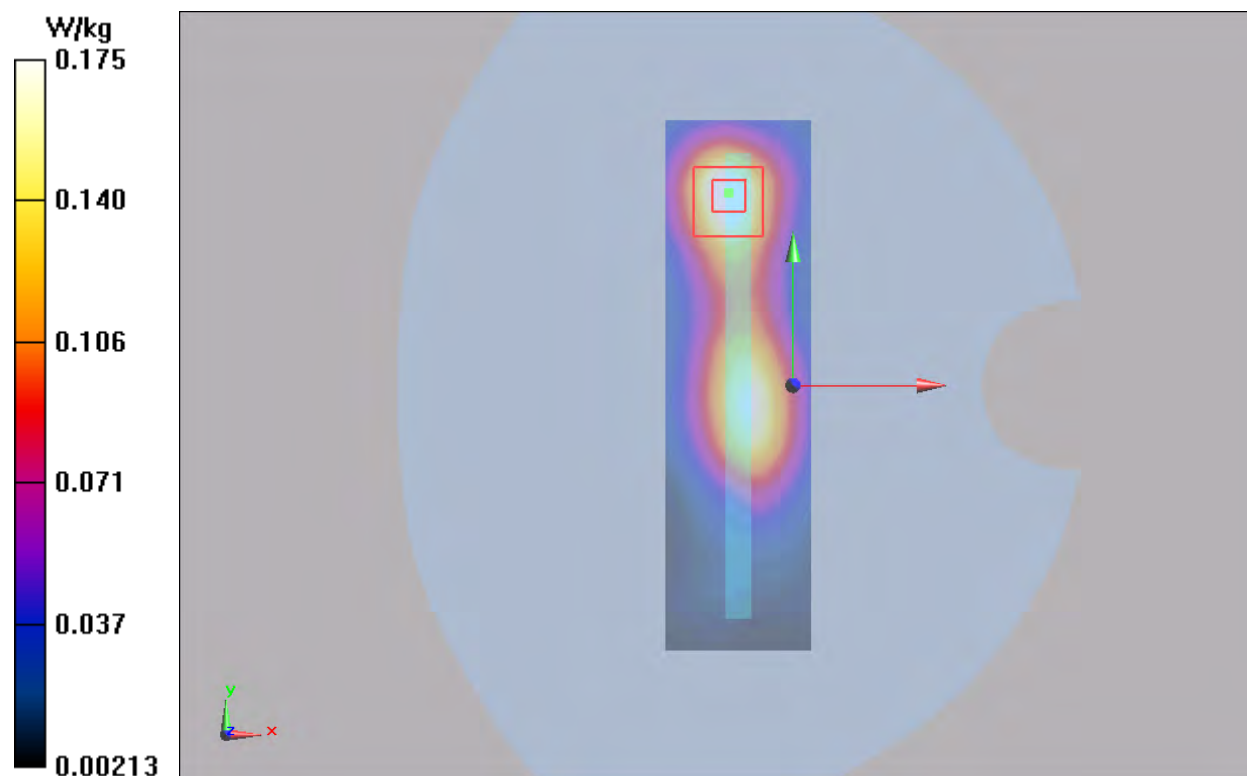


Figure 35 Body, Left Edge, UMTS Band II Channel 9400



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**UMTS Band IV Right Cheek Middle (Battery 1)**

Date: 3/12/2015

Communication System: UID 0, WCDMA (0); Frequency: 1732.6 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 1733$  MHz;  $\sigma = 1.306$  S/m;  $\epsilon_r = 39.731$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Right Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(8.02, 8.02, 8.02); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 2; Type: SAM; Serial:

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Right Cheek Middle/Area Scan (71x111x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.04 W/kg

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

Reference Value = 18.03 V/m; Power Drift = 0.043 dB

Peak SAR (extrapolated) = 2.05 W/kg

**SAR(1 g) = 0.967 W/kg; SAR(10 g) = 0.480 W/kg**

Maximum value of SAR (measured) = 1.08 W/kg

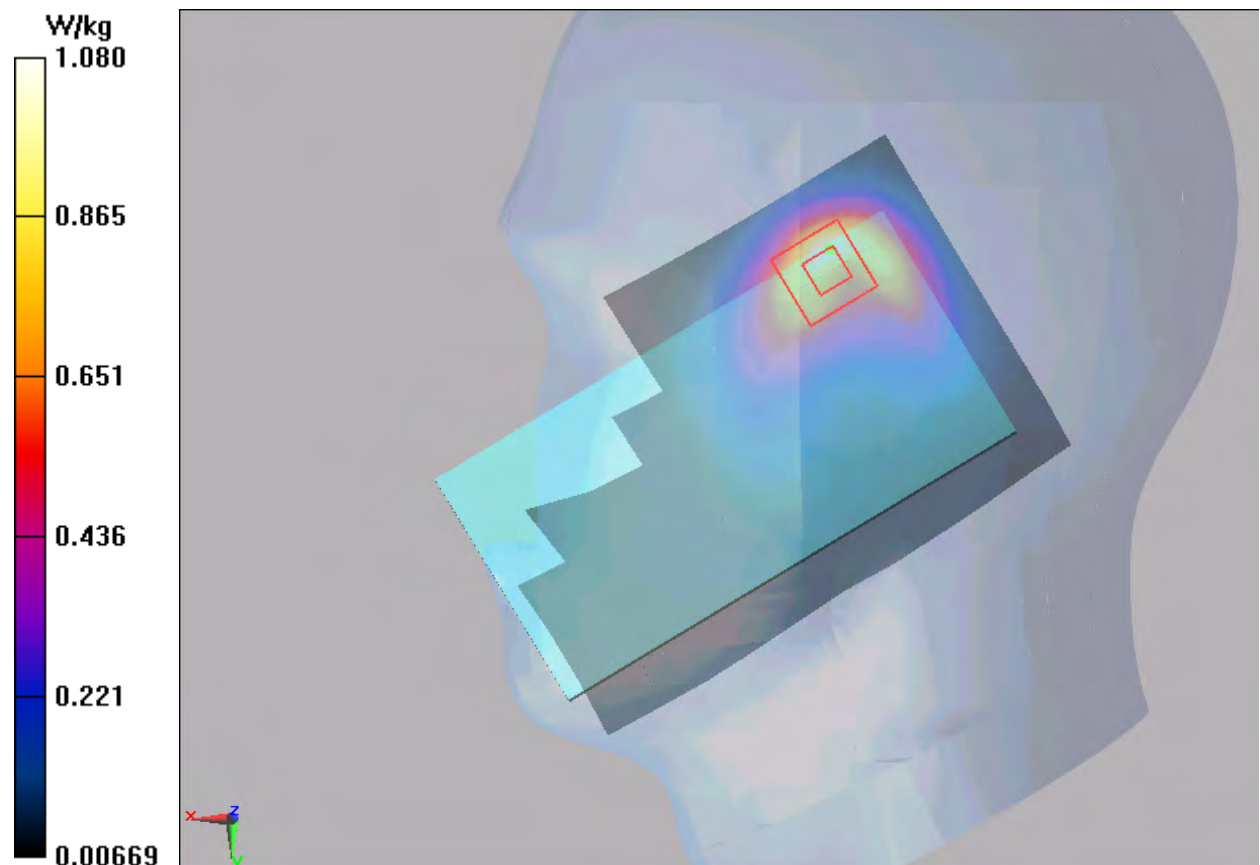


Figure 36 Right Hand Touch Cheek UMTS Band IV Channel 1413

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**UMTS Band IV Back Side Middle (Battery 1, Distance 15mm)**

Date: 3/30/2015

Communication System: UID 0, WCDMA (0); Frequency: 1732.6 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 1733$  MHz;  $\sigma = 1.489$  S/m;  $\epsilon_r = 52.919$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.74, 7.74, 7.74); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Back side Middle/Area Scan (71x111x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.0651 W/kg

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

Reference Value = 2.193 V/m; Power Drift = 0.167 dB

Peak SAR (extrapolated) = 0.0970 W/kg

**SAR(1 g) = 0.064 W/kg; SAR(10 g) = 0.039 W/kg**

Maximum value of SAR (measured) = 0.0672 W/kg

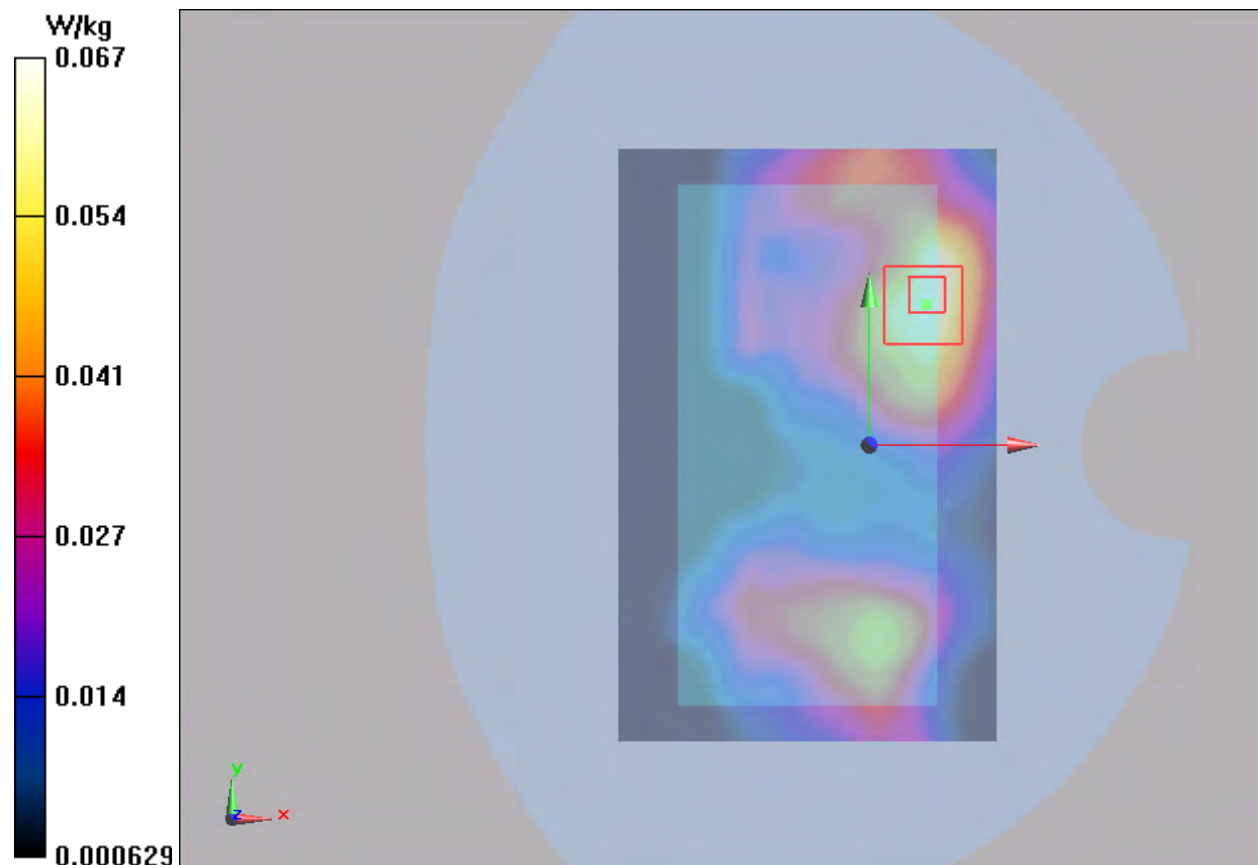


Figure 37 Body, Back Side, UMTS Band IV Channel 1413

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**UMTS Band IV Left Edge Middle (Battery 1, Distance 10mm)**

Date: 3/30/2015

Communication System: UID 0, WCDMA (0); Frequency: 1732.6 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 1733$  MHz;  $\sigma = 1.489$  S/m;  $\epsilon_r = 52.919$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.74, 7.74, 7.74); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 2; Type: SAM; Serial:

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Left Edge Middle/Area Scan (51x171x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.206 W/kg

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

Reference Value = 10.68 V/m; Power Drift = -0.032 dB

Peak SAR (extrapolated) = 0.324 W/kg

**SAR(1 g) = 0.198 W/kg; SAR(10 g) = 0.115 W/kg**

Maximum value of SAR (measured) = 0.198 W/kg

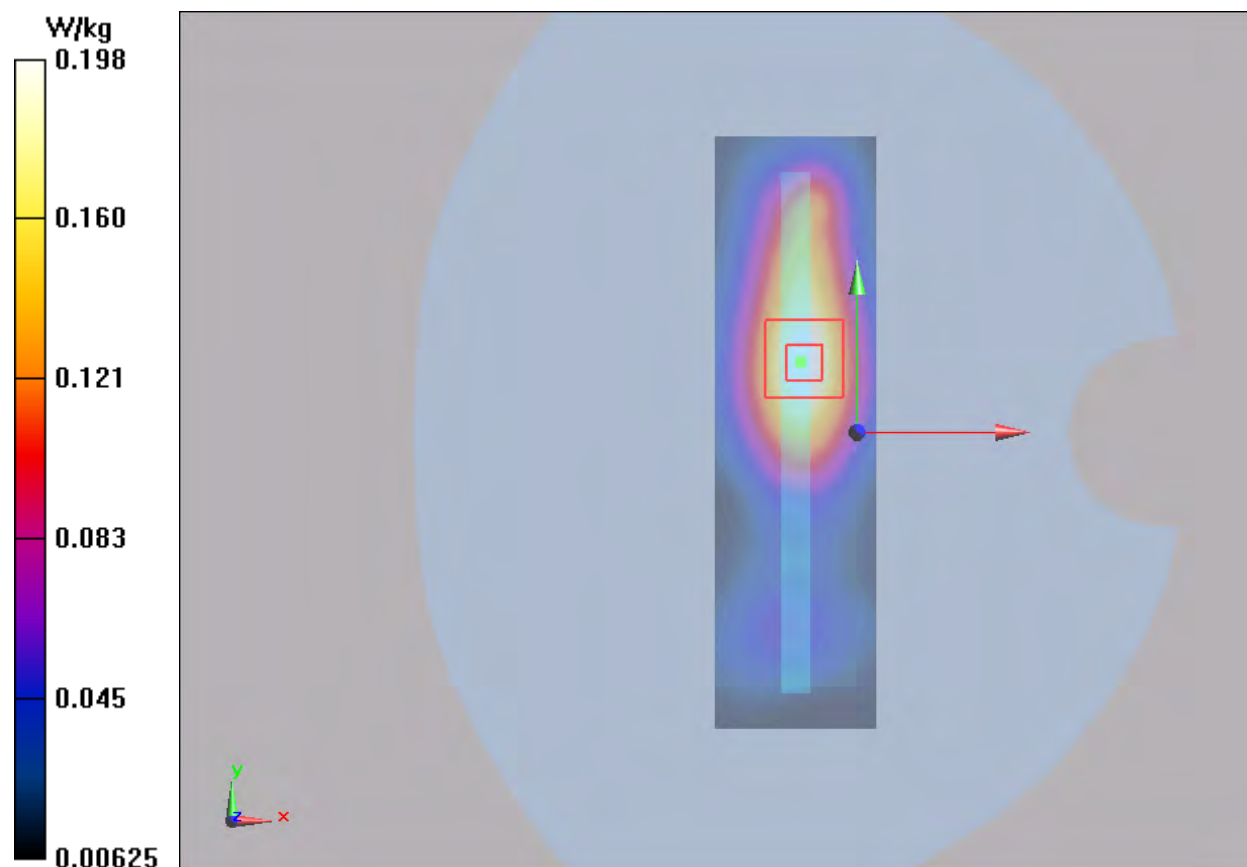


Figure 38 Body, Left Edge, UMTS Band IV Channel 1413

### UMTS Band V Left Tilt Middle (Battery 1)

Date: 3/28/2015

Communication System: UID 0, WCDMA (0); Frequency: 836.6 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.932$  S/m;  $\epsilon_r = 41.357$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Left Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.30, 9.30, 9.30); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Left Tilt Middle/Area Scan (71x111x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.737 W/kg

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

Reference Value = 25.46 V/m; Power Drift = 0.049 dB

Peak SAR (extrapolated) = 1.33 W/kg

**SAR(1 g) = 0.645 W/kg; SAR(10 g) = 0.337 W/kg**

Maximum value of SAR (measured) = 0.659 W/kg

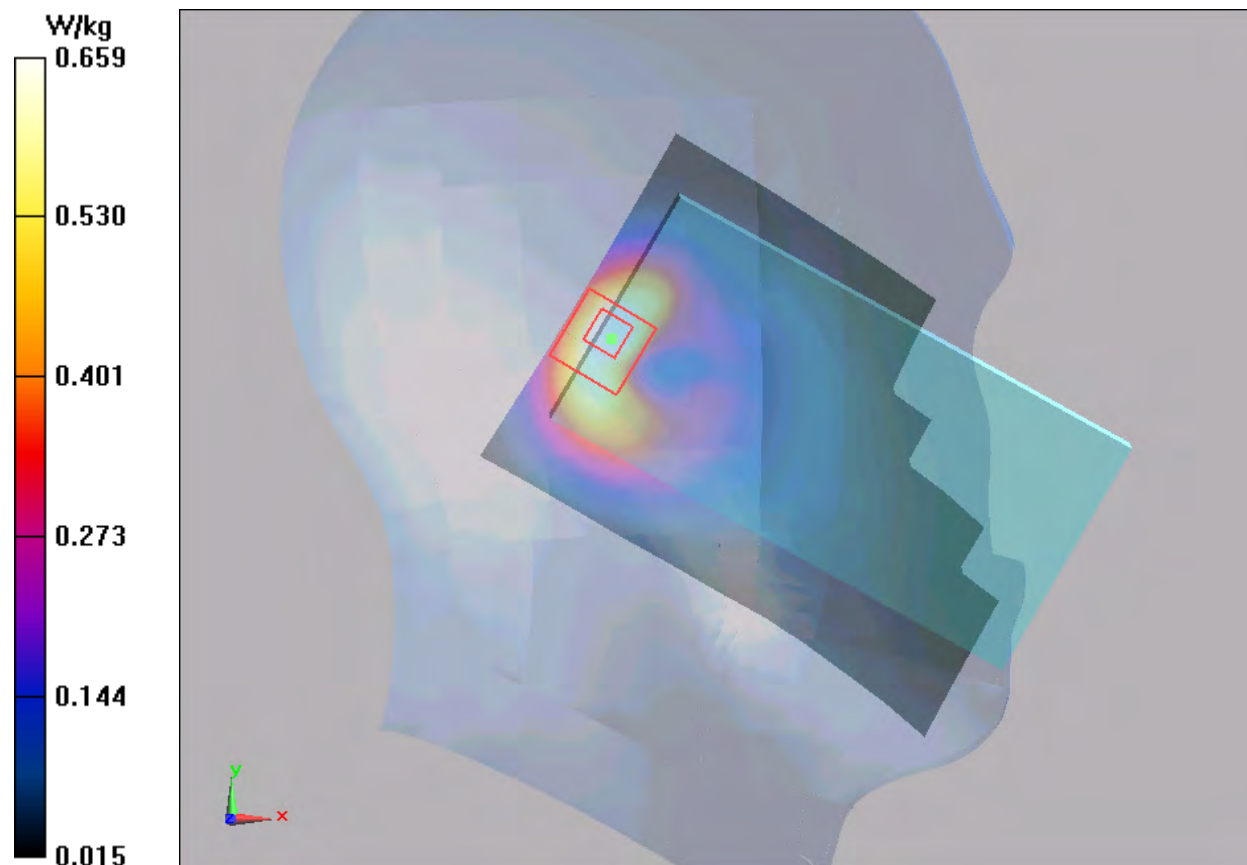


Figure 39 Left Hand Tilt 15° UMTS Band V Channel 4183

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### UMTS Band V Back Side Middle (Battery 1, Distance 15mm)

Date: 3/19/2015

Communication System: WCDMA Band V; Frequency: 836.6 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 837$  MHz;  $\sigma = 1$  mho/m;  $\epsilon_r = 54.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.45, 9.45, 9.45); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 11; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY5, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Back Side Middle/Area Scan (61x111x1):** Measurement grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.081 mW/g

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

Reference Value = 7.47 V/m; Power Drift = -0.050 dB

Peak SAR (extrapolated) = 0.084 W/kg

**SAR(1 g) = 0.056 mW/g; SAR(10 g) = 0.033 mW/g**

Maximum value of SAR (measured) = 0.061 mW/g

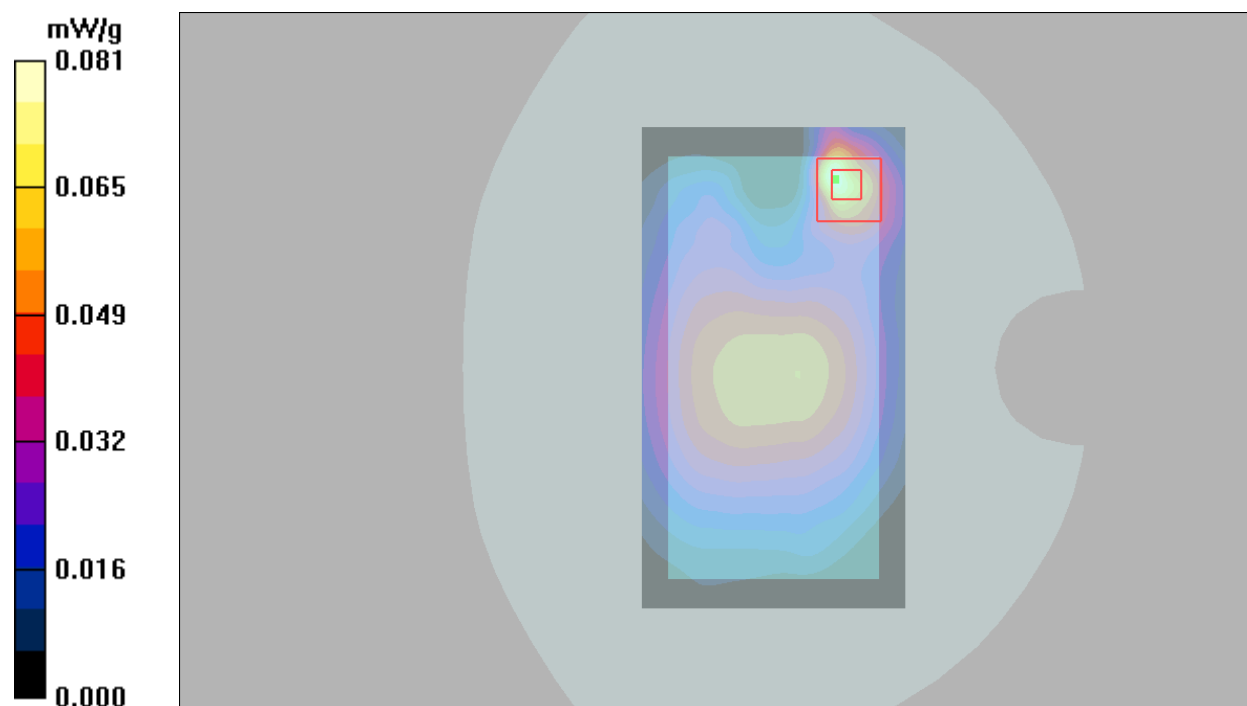


Figure 40 Body, Back Side, UMTS Band V Channel 4183

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### UMTS Band V Top Edge Middle (Battery 1, Distance 10mm)

Date: 3/19/2015

Communication System: WCDMA Band V; Frequency: 836.6 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 837$  MHz;  $\sigma = 1$  mho/m;  $\epsilon_r = 54.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.45, 9.45, 9.45); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 11; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Top Edge Middle/Area Scan (51x171x1):** Measurement grid: dx=1.000mm, dy=1.000mm

Maximum value of SAR (interpolated) = 0.229 mW/g

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

Reference Value = 12.6 V/m; Power Drift = -0.038 dB

Peak SAR (extrapolated) = 0.317 W/kg

**SAR(1 g) = 0.165 mW/g; SAR(10 g) = 0.081 mW/g**

Maximum value of SAR (measured) = 0.182 mW/g

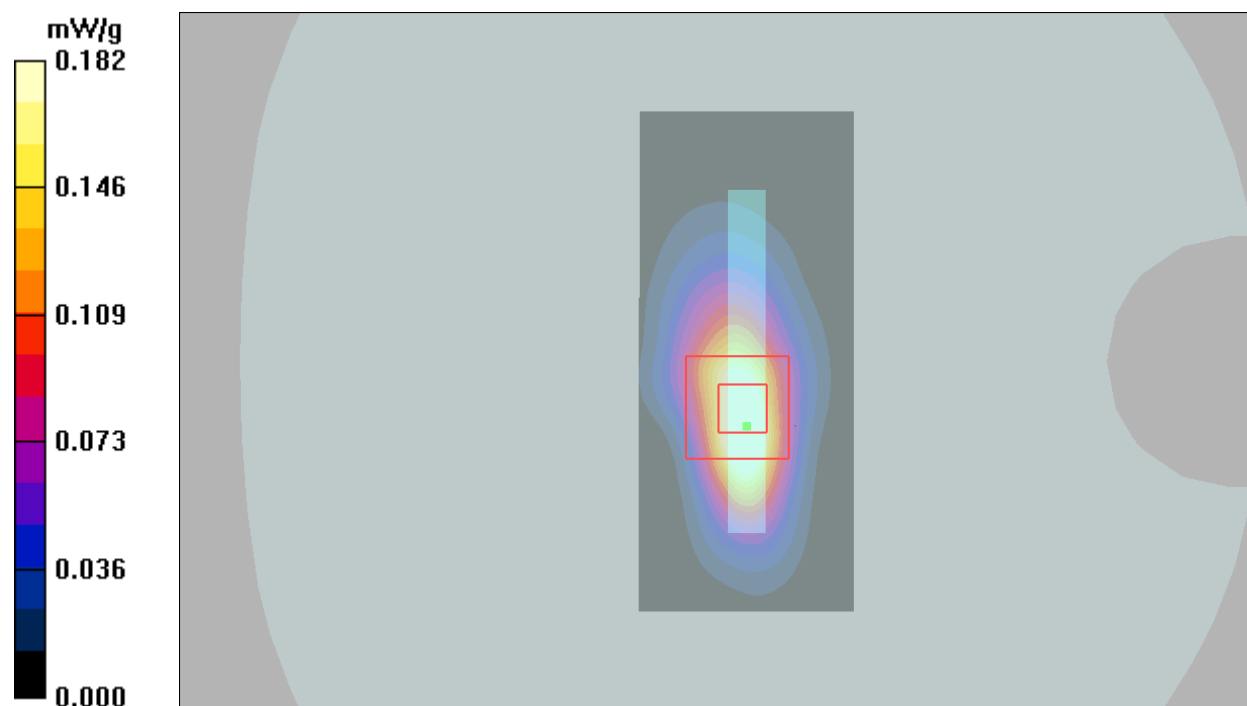


Figure 41 Body, Top Edge, UMTS Band V Channel 4183

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**LTE Band 2 1RB Right Cheek High (1<sup>st</sup> Repeated SAR)**

Date: 3/27/2015

Communication System: UID 0, LTE (0); Frequency: 1900 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.431$  S/m;  $\epsilon_r = 39.602$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Right Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.94, 7.94, 7.94); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 2; Type: SAM; Serial:

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Right Cheek High/Area Scan (71x111x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.21 W/kg

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

Reference Value = 17.60 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 2.10 W/kg

**SAR(1 g) = 1.09 W/kg; SAR(10 g) = 0.578 W/kg**

Maximum value of SAR (measured) = 1.23 W/kg

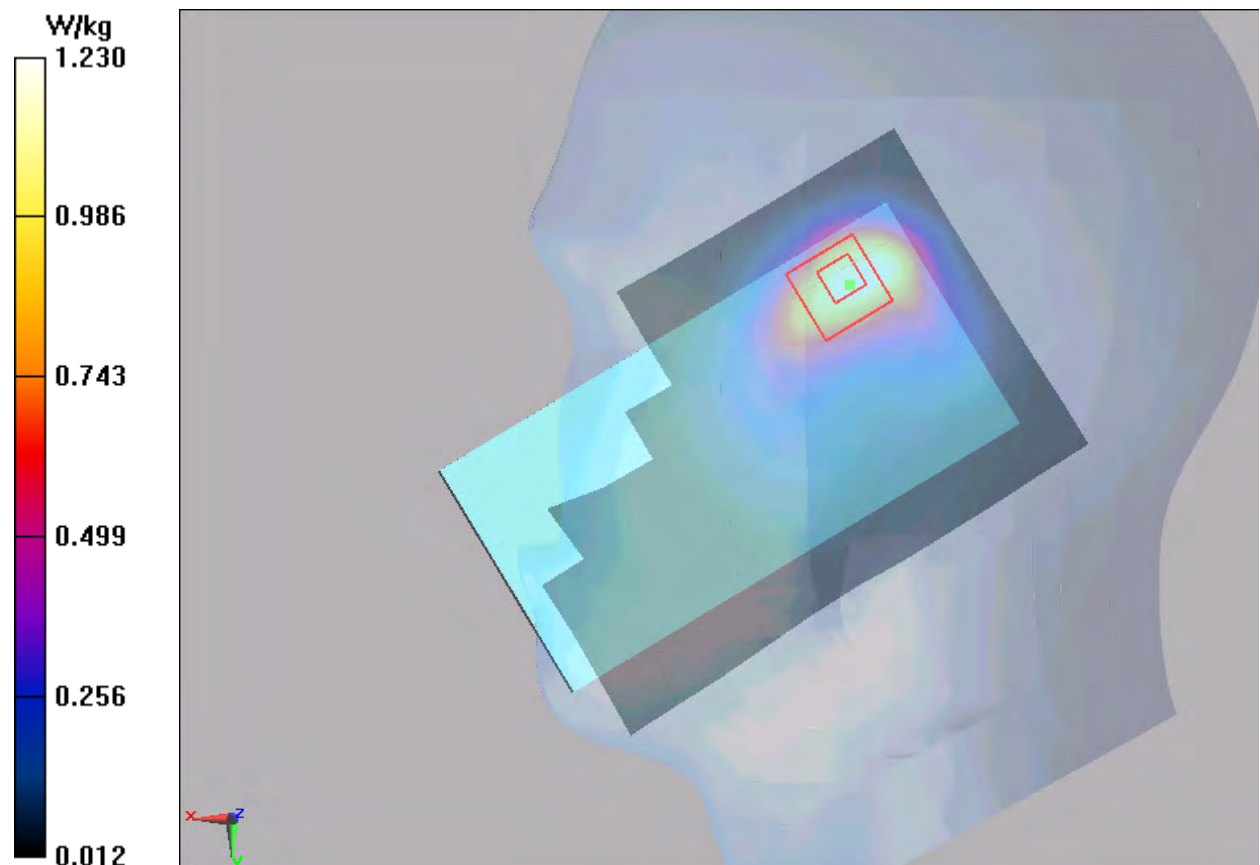


Figure 42 Right Hand Touch Cheek LTE Band 2 1RB Channel 19100



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**LTE Band 2 50%RB Back Side High (Battery 1, Distance 15mm)**

Date: 3/26/2015

Communication System: UID 0, LTE (0); Frequency: 1900 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.522$  S/m;  $\epsilon_r = 52.463$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.57, 7.57, 7.57); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Back side High/Area Scan (71x111x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.0698 W/kg

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

Reference Value = 2.775 V/m; Power Drift = 0.021 dB

Peak SAR (extrapolated) = 0.0910 W/kg

**SAR(1 g) = 0.062 W/kg; SAR(10 g) = 0.040 W/kg**

Maximum value of SAR (measured) = 0.0653 W/kg

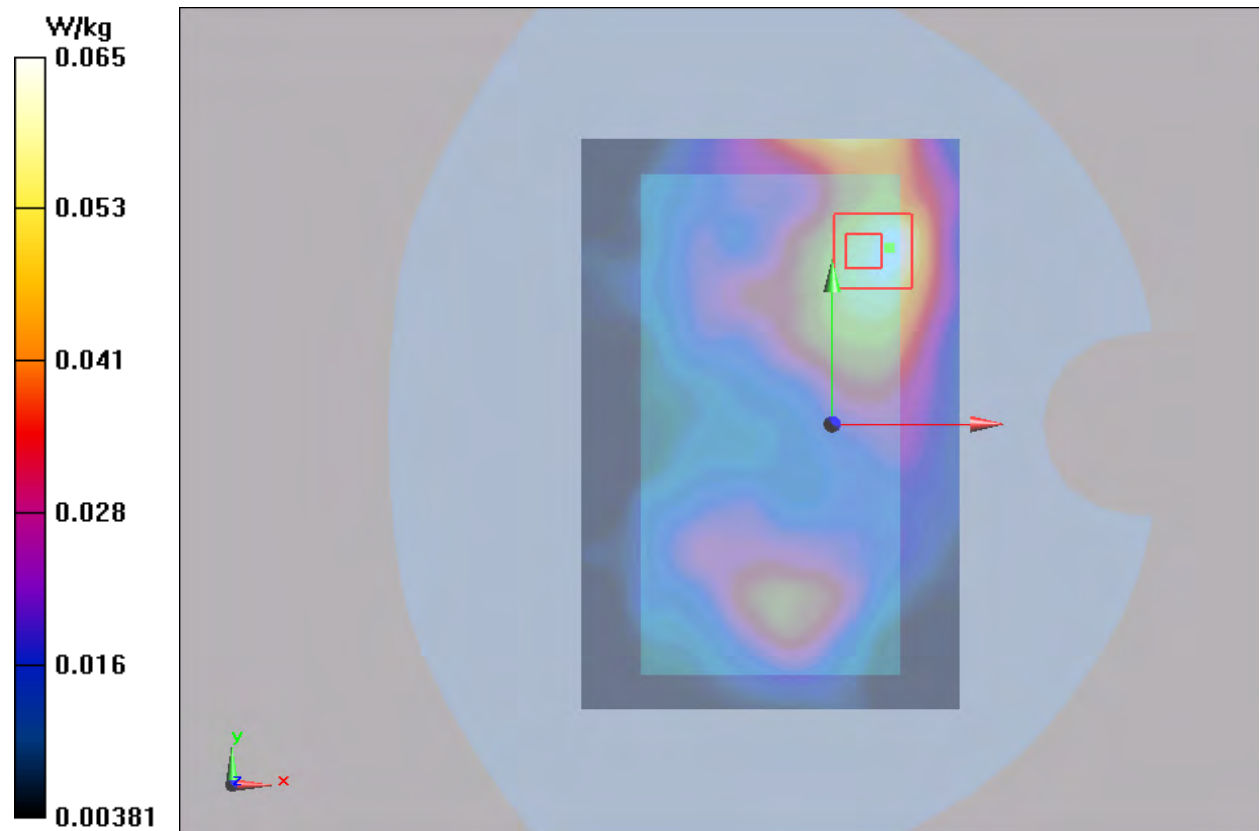


Figure 43 Body, Back Side, LTE Band 2 50%RB Channel 19100



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### LTE Band 2 50%RB Left Edge High (Battery 1, Distance 10mm)

Date: 3/26/2015

Communication System: UID 0, LTE (0); Frequency: 1900 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.522$  S/m;  $\epsilon_r = 52.463$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.57, 7.57, 7.57); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 2; Type: SAM; Serial:

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Left Edge High/Area Scan (51x171x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.203 W/kg

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

Reference Value = 8.006 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.307 W/kg

**SAR(1 g) = 0.186 W/kg; SAR(10 g) = 0.105 W/kg**

Maximum value of SAR (measured) = 0.187 W/kg

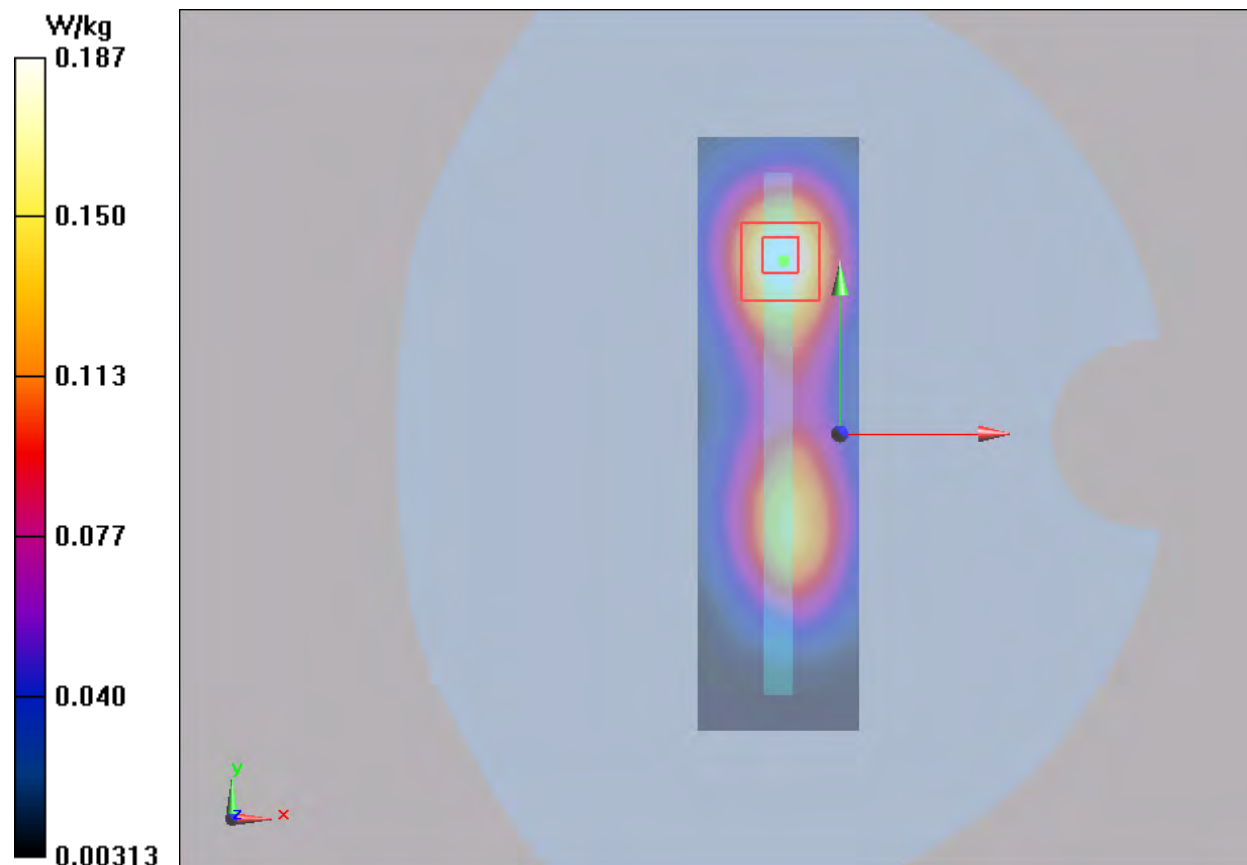


Figure 44 Body, Left Edge, LTE Band 2 50%RB Channel 19100

### LTE Band 4 1RB Right Cheek High (Battery 2)

Date: 3/12/2015

Communication System: UID 0, LTE (0); Frequency: 1745 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 1745$  MHz;  $\sigma = 1.315$  S/m;  $\epsilon_r = 39.688$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Right Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(8.02, 8.02, 8.02); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 2; Type: SAM; Serial:

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Right Cheek High/Area Scan (71x111x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.948 W/kg

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

Reference Value = 17.10 V/m; Power Drift = 0.057 dB

Peak SAR (extrapolated) = 1.99 W/kg

**SAR(1 g) = 0.937 W/kg; SAR(10 g) = 0.464 W/kg**

Maximum value of SAR (measured) = 1.01 W/kg

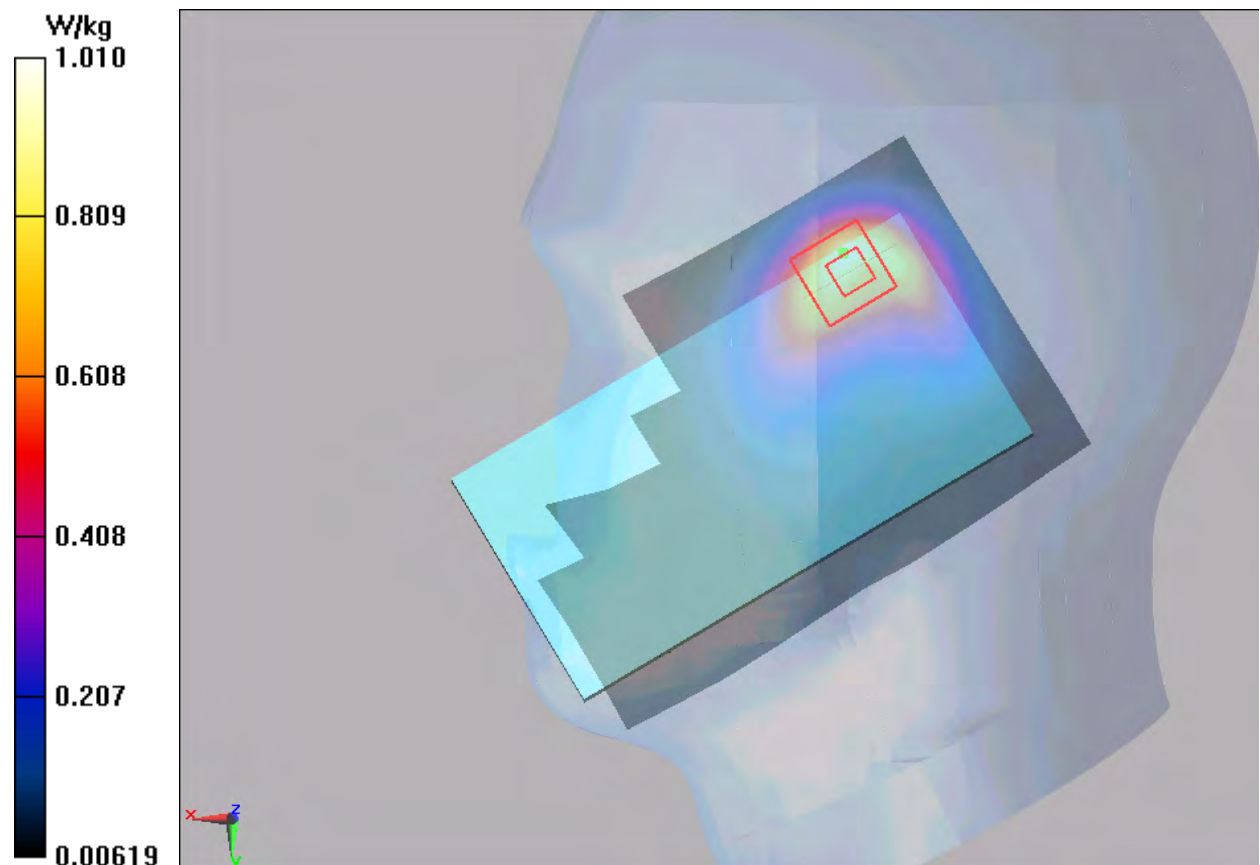


Figure 45 Right Hand Touch Cheek LTE Band 4 1RB Channel 20300

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**LTE Band 4 1RB Back Side Middle (Battery 1, Distance 15mm)**

Date: 3/30/2015

Communication System: UID 0, LTE (0); Frequency: 1732.5 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated):  $f = 1732.5$  MHz;  $\sigma = 1.488$  S/m;  $\epsilon_r = 52.928$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.74, 7.74, 7.74); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Back side Middle/Area Scan (71x111x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.0650 W/kg

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

Reference Value = 2.945 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.0860 W/kg

**SAR(1 g) = 0.058 W/kg; SAR(10 g) = 0.038 W/kg**

Maximum value of SAR (measured) = 0.0625 W/kg

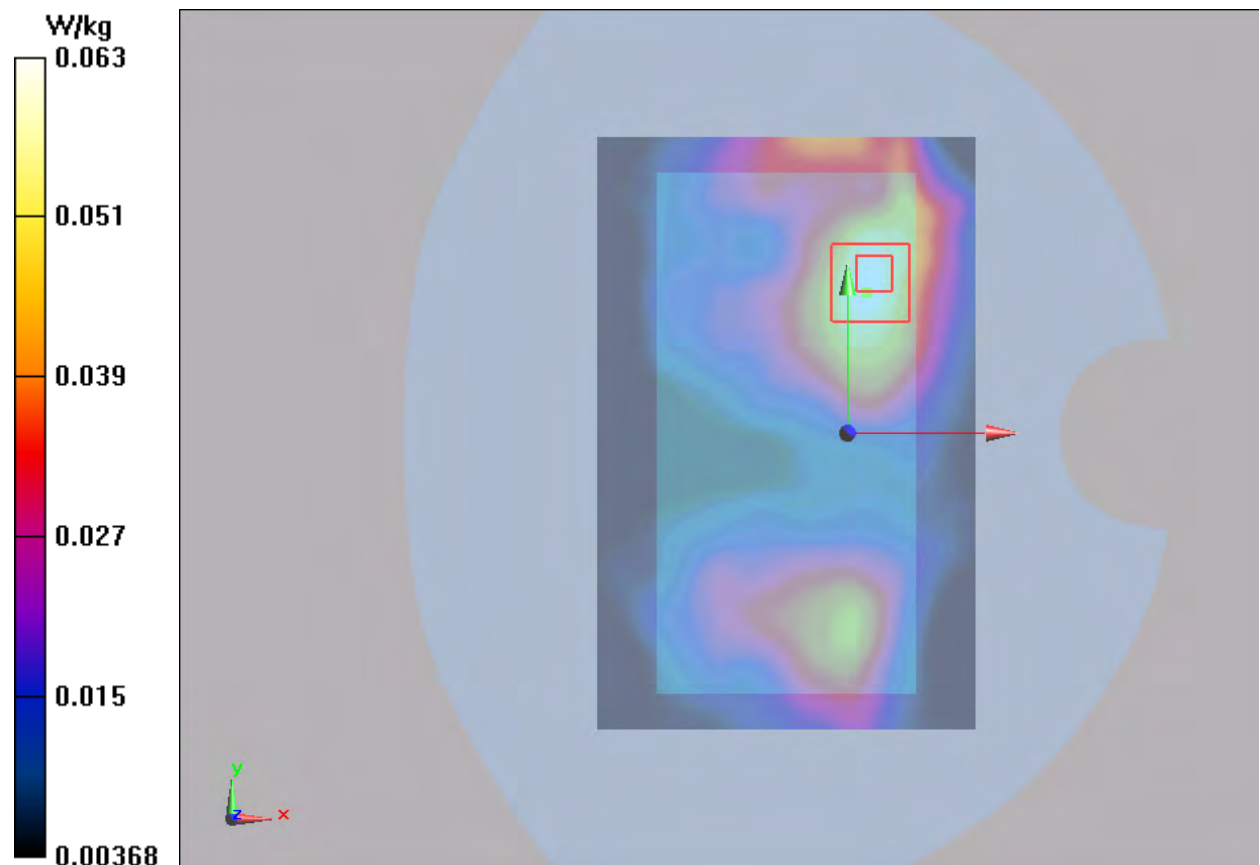


Figure 46 Body, Back Side, LTE Band 2 1RB Channel 20175

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### LTE Band 4 1RB Left Edge Middle (Battery 1, Distance 10mm)

Date: 3/30/2015

Communication System: UID 0, LTE (0); Frequency: 1732.5 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated):  $f = 1732.5$  MHz;  $\sigma = 1.488$  S/m;  $\epsilon_r = 52.928$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.74, 7.74, 7.74); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 2; Type: SAM; Serial:

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Left Edge Middle/Area Scan (51x171x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.170 W/kg

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

Reference Value = 8.680 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 0.243 W/kg

**SAR(1 g) = 0.153 W/kg; SAR(10 g) = 0.089 W/kg**

Maximum value of SAR (measured) = 0.153 W/kg

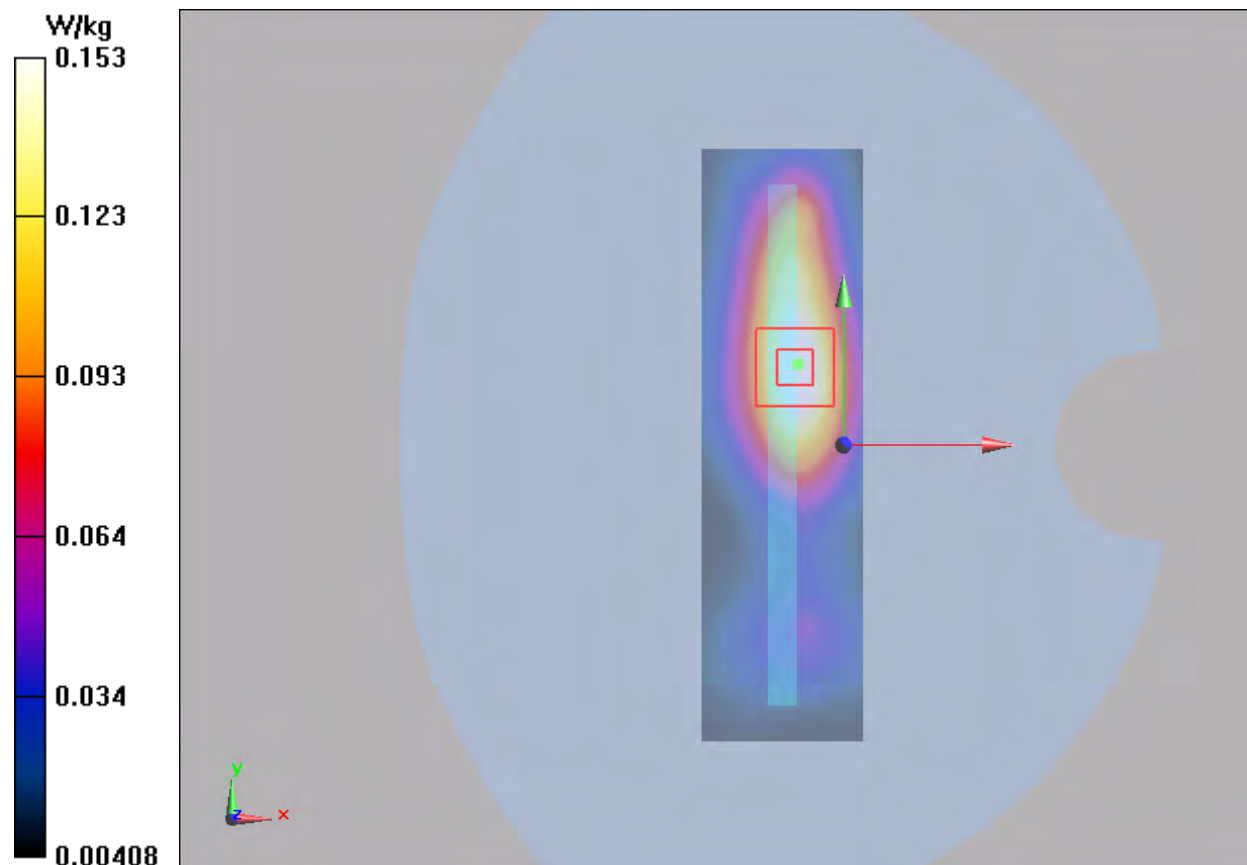


Figure 47 Body, Left Edge, LTE Band 4 1RB Channel 20175

### LTE Band 5 1RB Right Cheek Low (Battery 1)

Date: 3/28/2015

Communication System: UID 0, LTE (0); Frequency: 829 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 829 \text{ MHz}$ ;  $\sigma = 0.924 \text{ S/m}$ ;  $\epsilon_r = 41.415$ ;  $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature:  $22.3^\circ\text{C}$       Liquid Temperature:  $21.5^\circ\text{C}$

Phantom section: Right Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.30, 9.30, 9.30); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Right Cheek Low/Area Scan (71x111x1):** Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) =  $0.934 \text{ W/kg}$

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

Reference Value =  $17.32 \text{ V/m}$ ; Power Drift =  $0.02 \text{ dB}$

Peak SAR (extrapolated) =  $1.79 \text{ W/kg}$

**SAR(1 g) =  $0.817 \text{ W/kg}$ ; SAR(10 g) =  $0.424 \text{ W/kg}$**

Maximum value of SAR (measured) =  $0.837 \text{ W/kg}$

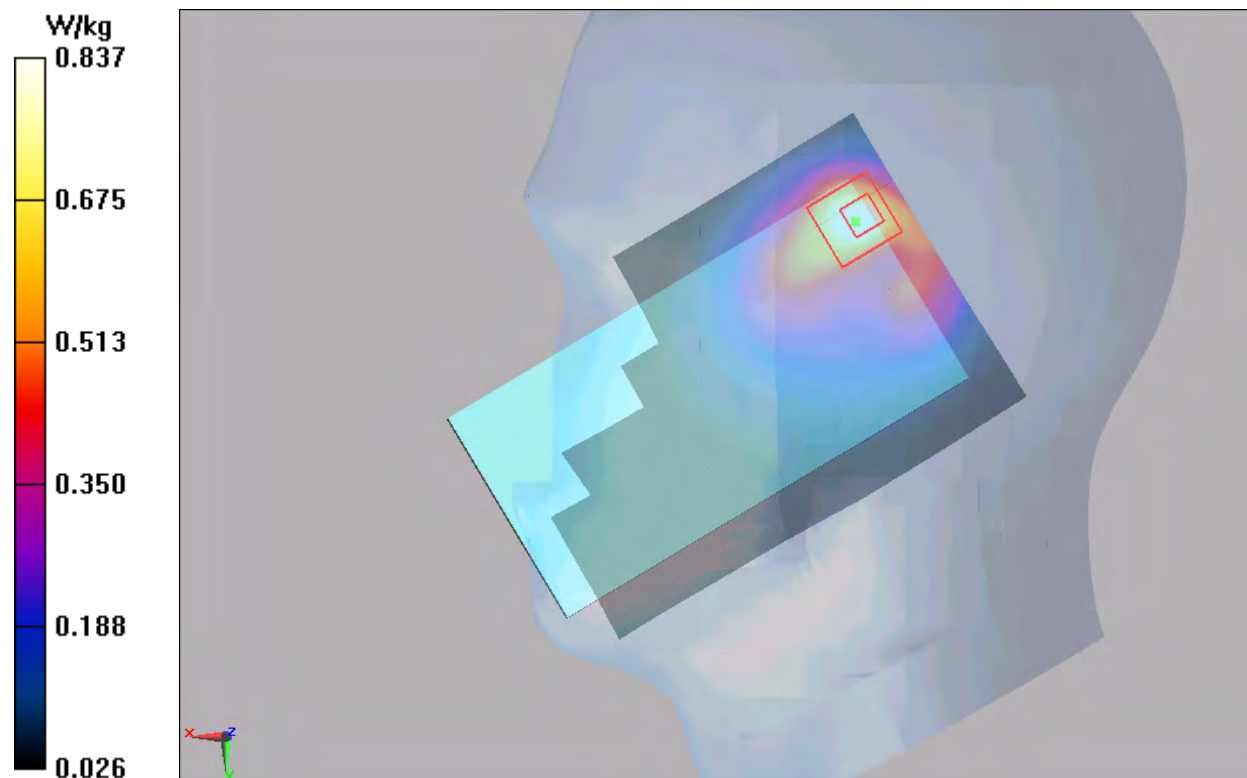


Figure 48 Right Hand Touch Cheek LTE Band 5 1RB Channel 20450

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### LTE Band 5 1RB Front Side High (Battery 1, Distance 15mm)

Date: 3/18/2015

Communication System: LTE Band 5; Frequency: 844 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 844 \text{ MHz}$ ;  $\sigma = 1.01 \text{ mho/m}$ ;  $\epsilon_r = 55$ ;  $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature:  $22.3^\circ\text{C}$       Liquid Temperature:  $21.5^\circ\text{C}$

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.45, 9.45, 9.45); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 11; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY5, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Front Side High/Area Scan (61x111x1):** Measurement grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) =  $0.050 \text{ mW/g}$

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

Reference Value =  $6.71 \text{ V/m}$ ; Power Drift =  $0.144 \text{ dB}$

Peak SAR (extrapolated) =  $0.071 \text{ W/kg}$

**SAR(1 g) =  $0.048 \text{ mW/g}$ ; SAR(10 g) =  $0.036 \text{ mW/g}$**

Maximum value of SAR (measured) =  $0.051 \text{ mW/g}$

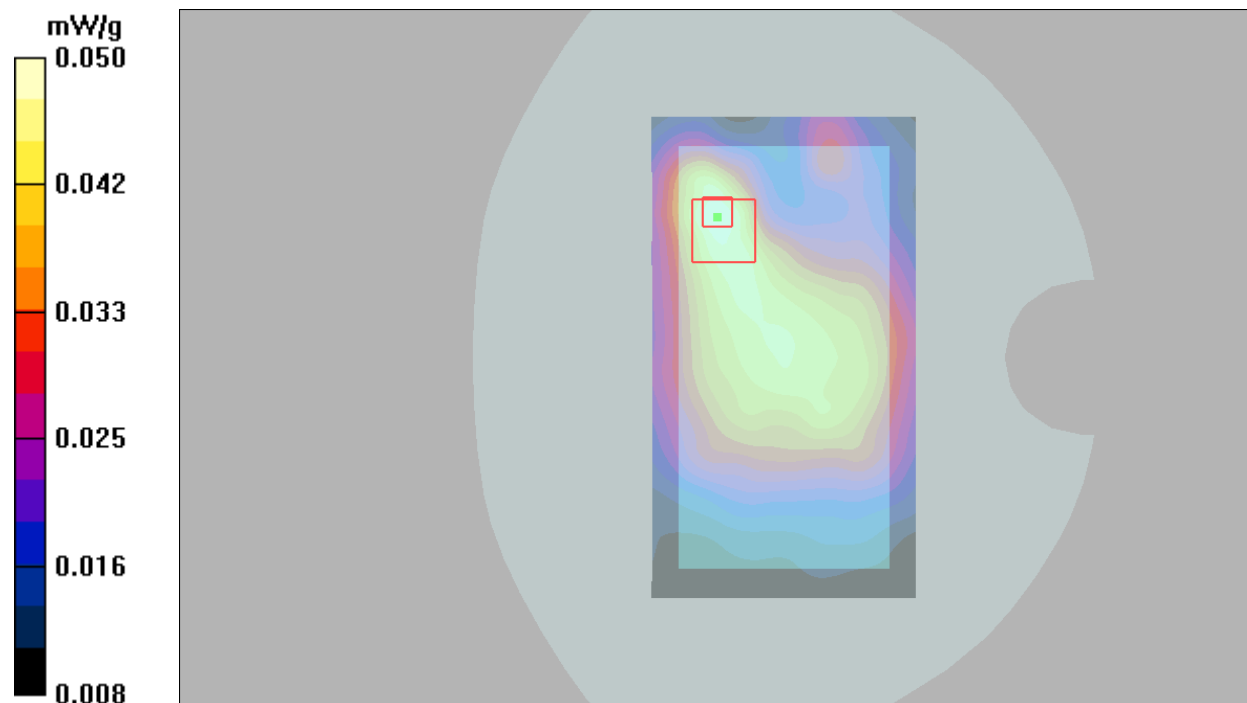


Figure 49 Body, Front Side, LTE Band 5 1RB Channel 20600

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**LTE Band 5 1RB Top Edge High (Battery 1, Distance 10mm)**

Date: 3/18/2015

Communication System: UID 0, LTE (0); Frequency: 844 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 844 \text{ MHz}$ ;  $\sigma = 1.001 \text{ S/m}$ ;  $\epsilon_r = 55.801$ ;  $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature:  $22.3^\circ\text{C}$       Liquid Temperature:  $21.5^\circ\text{C}$

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.45, 9.45, 9.45); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Top Edge High/Area Scan (51x111x1):** Interpolated grid:  $dx=1.000 \text{ mm}$ ,  $dy=1.000 \text{ mm}$

Maximum value of SAR (interpolated) =  $0.193 \text{ W/kg}$

**Top Edge High/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value =  $12.37 \text{ V/m}$ ; Power Drift =  $-0.07 \text{ dB}$

Peak SAR (extrapolated) =  $0.340 \text{ W/kg}$

**SAR(1 g) =  $0.177 \text{ W/kg}$ ; SAR(10 g) =  $0.087 \text{ W/kg}$**

Maximum value of SAR (measured) =  $0.166 \text{ W/kg}$

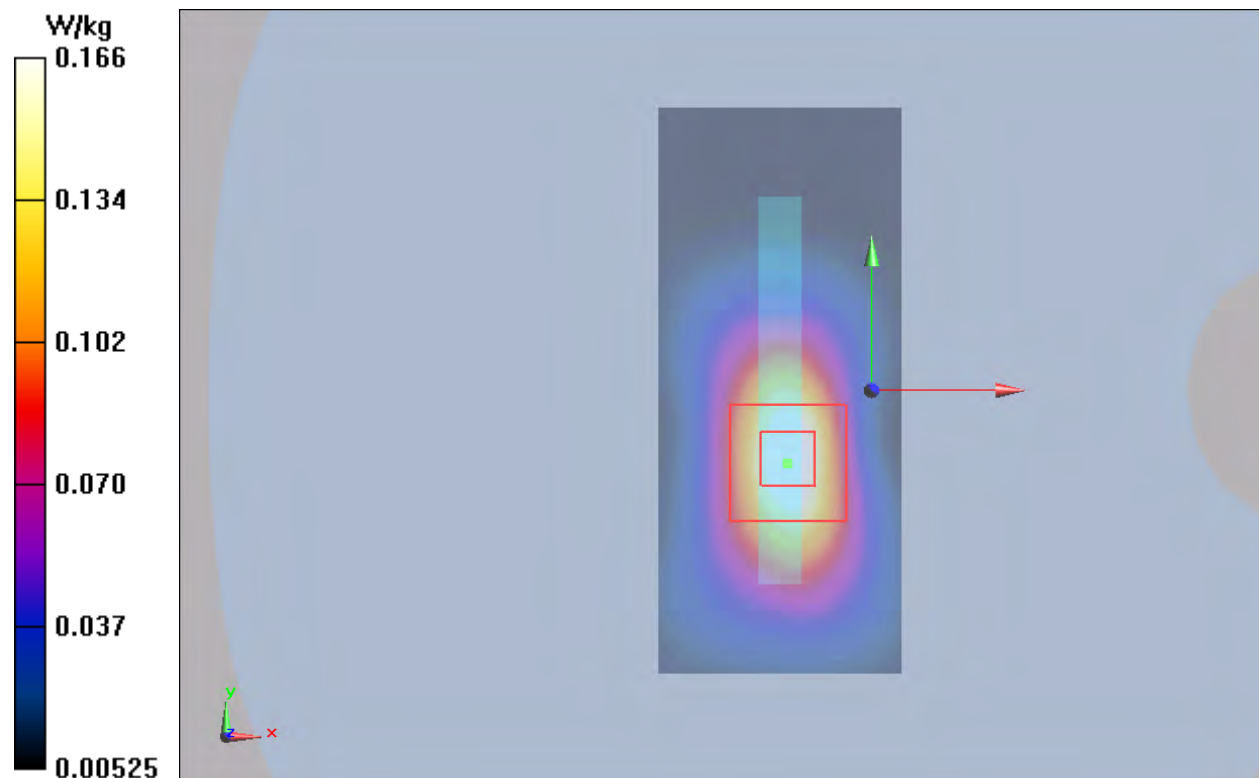


Figure 50 Body, Top Edge, LTE Band 5 1RB Channel 20600



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### LTE Band 7 50%RB Right Cheek Low (Battery 2)

Date: 3/9/2015

Communication System: UID 0, LTE (0); Frequency: 2510 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 2510$  MHz;  $\sigma = 1.889$  S/m;  $\epsilon_r = 38.958$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Right Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.22, 7.22, 7.22); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 2; Type: SAM; Serial:

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Right Cheek Low/Area Scan (91x141x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 1.07 W/kg

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

Reference Value = 9.125 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 2.38 W/kg

**SAR(1 g) = 1.03 W/kg; SAR(10 g) = 0.487 W/kg**

Maximum value of SAR (measured) = 1.15 W/kg

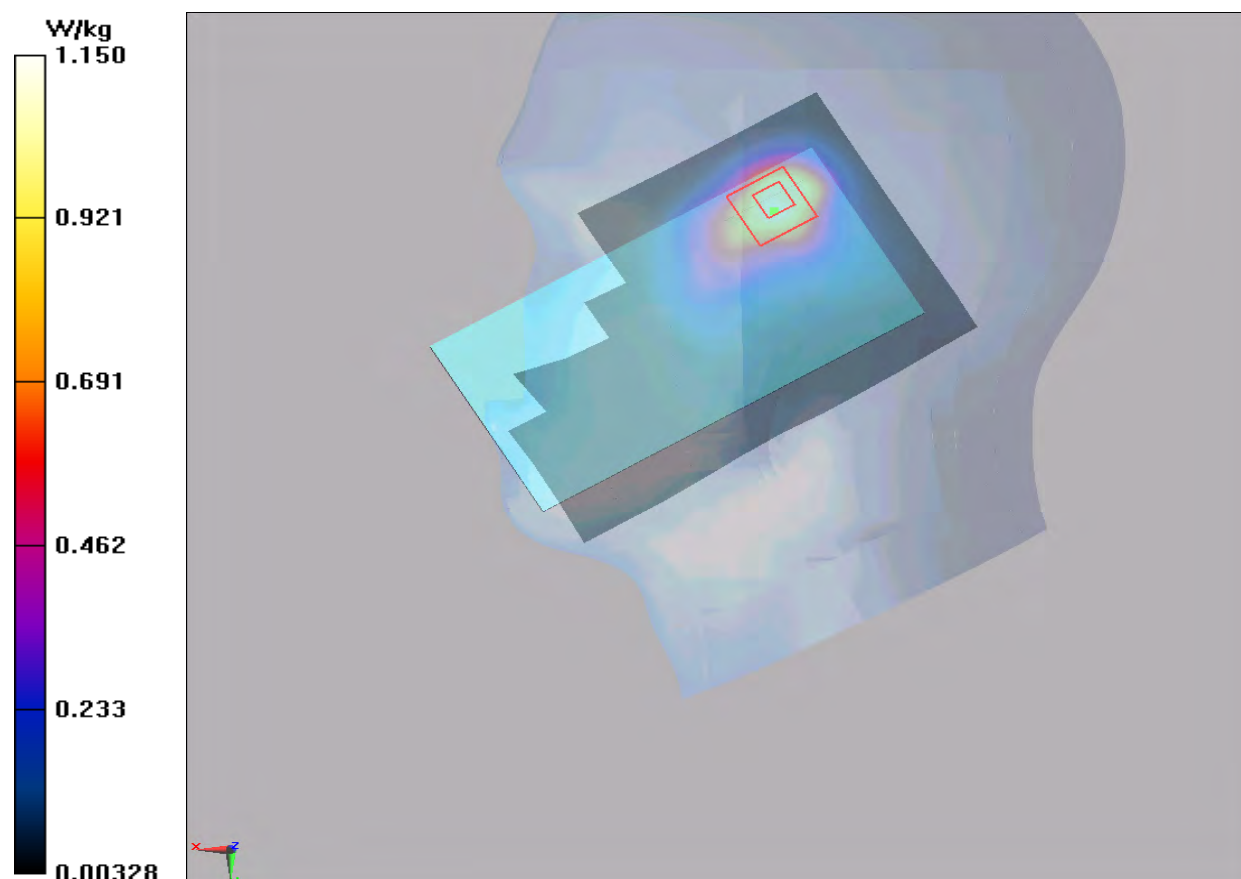


Figure 51 Right Hand Touch Cheek LTE Band 7 50%RB Channel 20850



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**LTE Band 7 1RB Front Side High (Battery 1, Distance 15mm)**

Date: 3/9/2015

Communication System: UID 0, LTE (0); Frequency: 2560 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 2560$  MHz;  $\sigma = 2.151$  S/m;  $\epsilon_r = 52.442$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.29, 7.29, 7.29); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Front side High/Area Scan (91x141x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.0580 W/kg

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

Reference Value = 3.625 V/m; Power Drift = 0.100 dB

Peak SAR (extrapolated) = 0.0990 W/kg

**SAR(1 g) = 0.057 W/kg; SAR(10 g) = 0.034 W/kg**

Maximum value of SAR (measured) = 0.0603 W/kg

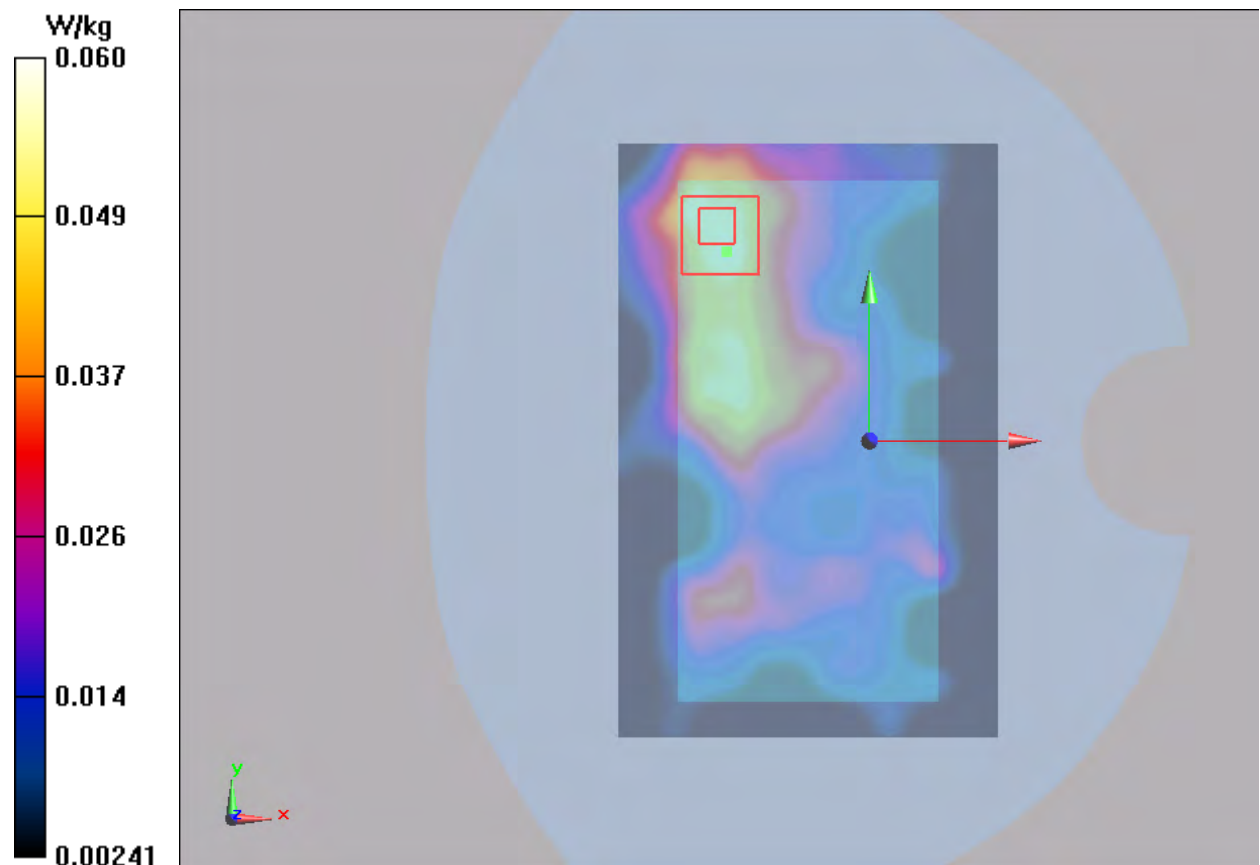


Figure 52 Body, Front Side, LTE Band 7 1RB Channel 21350

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### LTE Band 7 50%RB Left Edge Low (Battery 1, Distance 10mm)

Date: 3/9/2015

Communication System: UID 0, LTE (0); Frequency: 2510 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 2510$  MHz;  $\sigma = 2.093$  S/m;  $\epsilon_r = 52.611$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.29, 7.29, 7.29); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 2; Type: SAM; Serial:

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Left Edge Low/Area Scan (51x171x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.246 W/kg

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

Reference Value = 8.732 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 0.392 W/kg

**SAR(1 g) = 0.221 W/kg; SAR(10 g) = 0.115 W/kg**

Maximum value of SAR (measured) = 0.212 W/kg

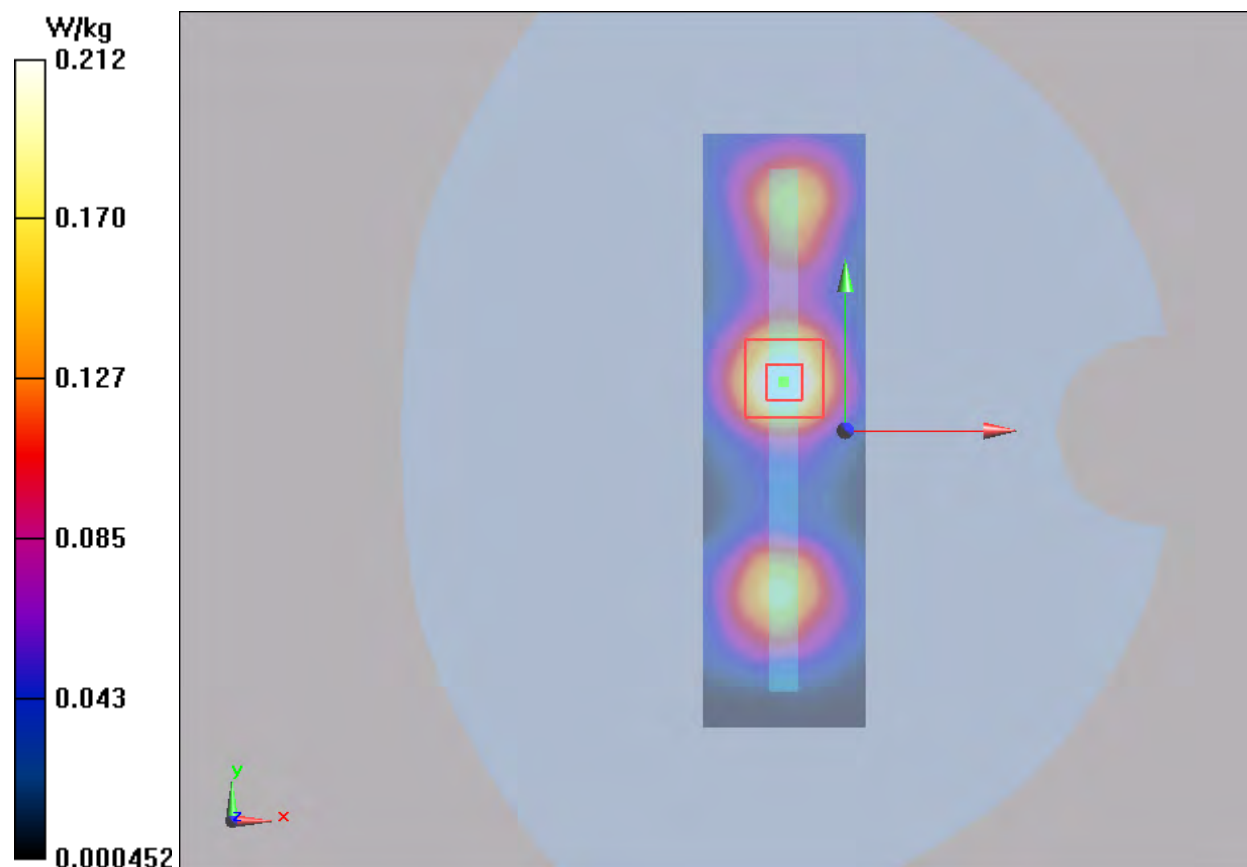


Figure 53 Body, Left Edge, LTE Band 7 1RB Channel 20850

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### LTE Band 12 1RB Right Cheek Low (Battery 1)

Date: 3/15/2015

Communication System: UID 0, LTE (0); Frequency: 704 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 704 \text{ MHz}$ ;  $\sigma = 0.865 \text{ S/m}$ ;  $\epsilon_r = 42.628$ ;  $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature:  $22.3^\circ\text{C}$  Liquid Temperature:  $21.5^\circ\text{C}$

Phantom section: Right Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.79, 9.79, 9.79); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Right Cheek Low/Area Scan (71x111x1):** Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) =  $0.690 \text{ W/kg}$

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

Reference Value =  $16.98 \text{ V/m}$ ; Power Drift =  $0.02 \text{ dB}$

Peak SAR (extrapolated) =  $1.37 \text{ W/kg}$

**SAR(1 g) =  $0.616 \text{ W/kg}$ ; SAR(10 g) =  $0.317 \text{ W/kg}$**

Maximum value of SAR (measured) =  $0.647 \text{ W/kg}$

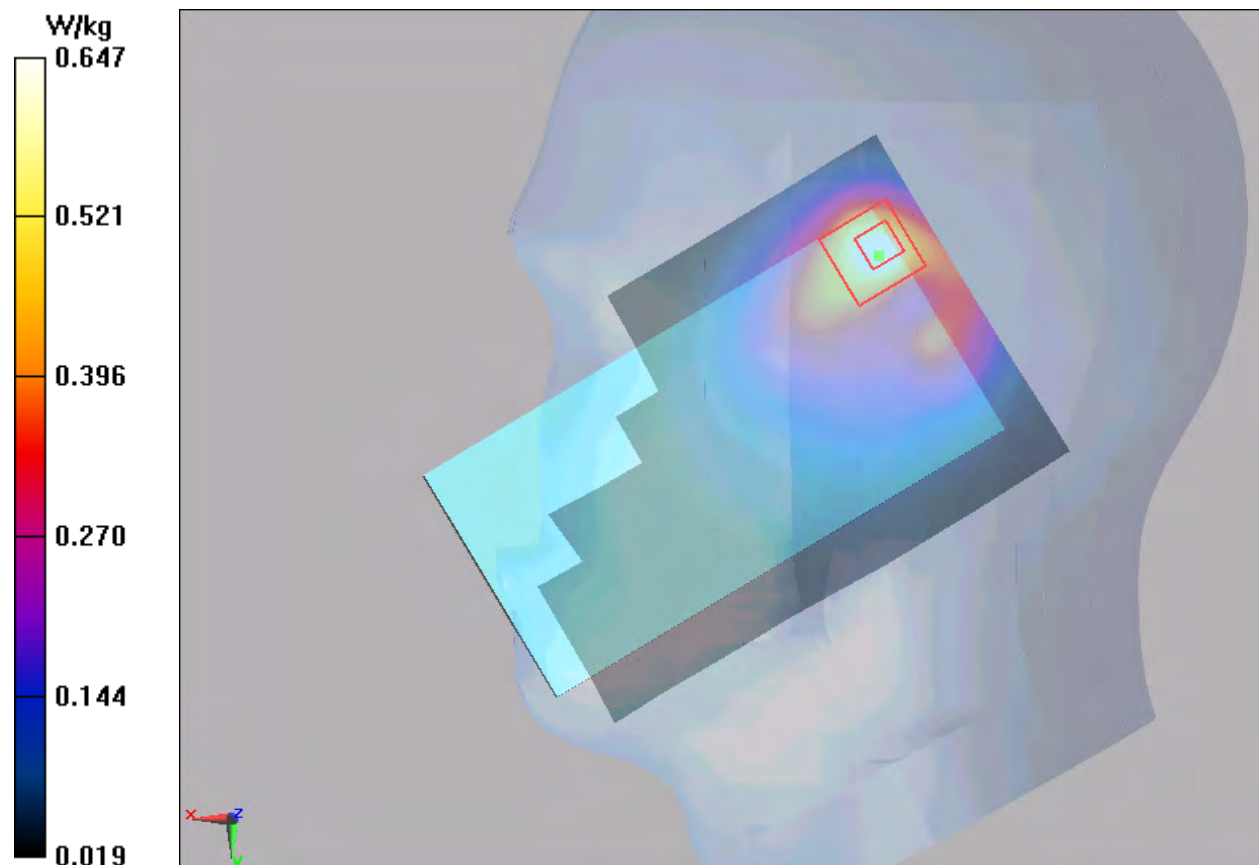


Figure 54 Right Hand Touch Cheek LTE Band 12 1RB Channel 23060

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### LTE Band 12 1RB Back Side Middle (Battery 1, Distance 15mm)

Date: 3/13/2015

Communication System: LTE Band 12; Frequency: 707.5 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 800$  MHz;  $\sigma = 0.967$  mho/m;  $\epsilon_r = 55.5$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.53, 9.53, 9.53); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 11; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY5, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Back Side Middle/Area Scan (61x111x1):** Measurement grid: dx=1.500 mm, dy=1.500 mm  
Maximum value of SAR (interpolated) = 0.030 mW/g

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

Reference Value = 5.00 V/m; Power Drift = 0.111 dB

Peak SAR (extrapolated) = 0.044 W/kg

**SAR(1 g) = 0.029 mW/g; SAR(10 g) = 0.023 mW/g**

Maximum value of SAR (measured) = 0.030 mW/g

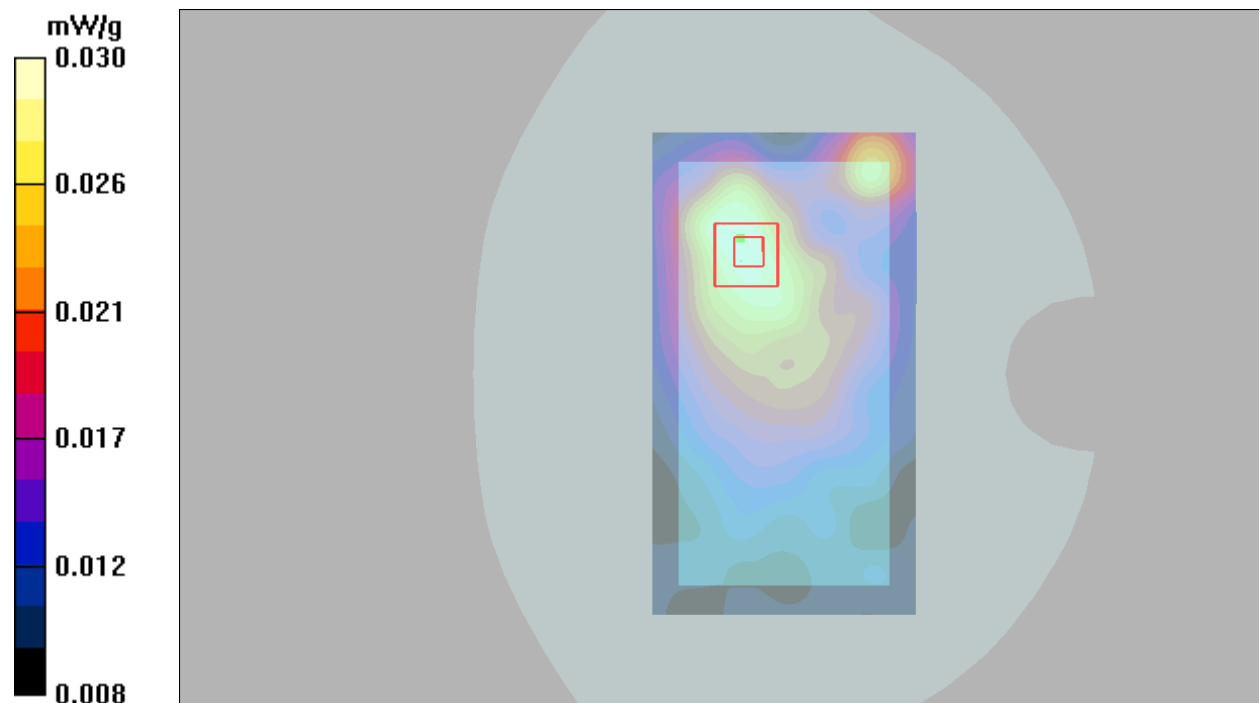


Figure 55 Body, Back Side, LTE Band 12 1RB Channel 23095

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**LTE Band 12 1RB Back Side Middle (Battery 1, Distance 10mm)**

Date: 3/13/2015

Communication System: LTE Band 12; Frequency: 707.5 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 800$  MHz;  $\sigma = 0.967$  mho/m;  $\epsilon_r = 55.5$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.53, 9.53, 9.53); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 11; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY5, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Back Side Middle/Area Scan (61x111x1):** Measurement grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.056 mW/g

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

Reference Value = 5.08 V/m; Power Drift = 0.174 dB

Peak SAR (extrapolated) = 0.099 W/kg

**SAR(1 g) = 0.053 mW/g; SAR(10 g) = 0.032 mW/g**

Maximum value of SAR (measured) = 0.057 mW/g

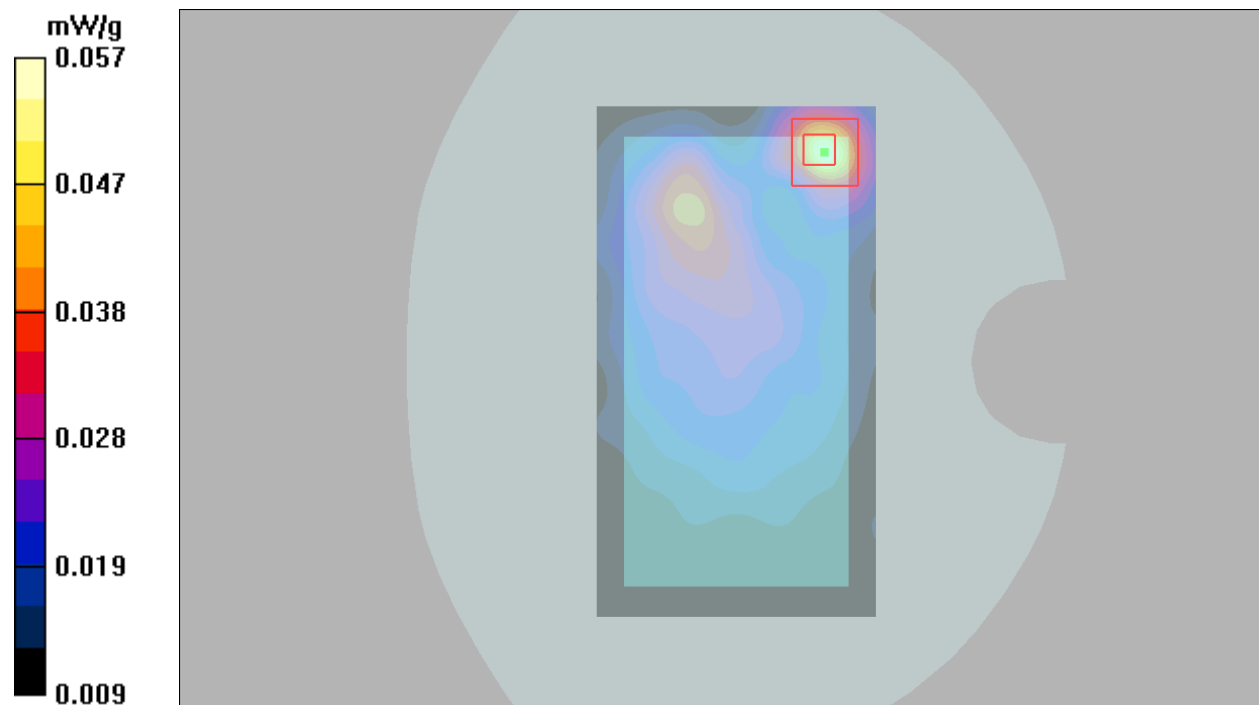


Figure 56 Body, Back Side, LTE Band 12 1RB Channel 23095

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**LTE Band 17 50%RB Right Cheek Middle (Battery 2)**

Date: 3/15/2015

Communication System: UID 0, LTE (0); Frequency: 710 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 710 \text{ MHz}$ ;  $\sigma = 0.87 \text{ S/m}$ ;  $\epsilon_r = 42.553$ ;  $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature:  $22.3^\circ\text{C}$       Liquid Temperature:  $21.5^\circ\text{C}$

Phantom section: Right Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.79, 9.79, 9.79); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Right Cheek Middle/Area Scan (71x111x1):** Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) =  $0.633 \text{ W/kg}$

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

Reference Value =  $14.39 \text{ V/m}$ ; Power Drift =  $-0.06 \text{ dB}$

Peak SAR (extrapolated) =  $1.16 \text{ W/kg}$

**SAR(1 g) =  $0.519 \text{ W/kg}$ ; SAR(10 g) =  $0.269 \text{ W/kg}$**

Maximum value of SAR (measured) =  $0.510 \text{ W/kg}$

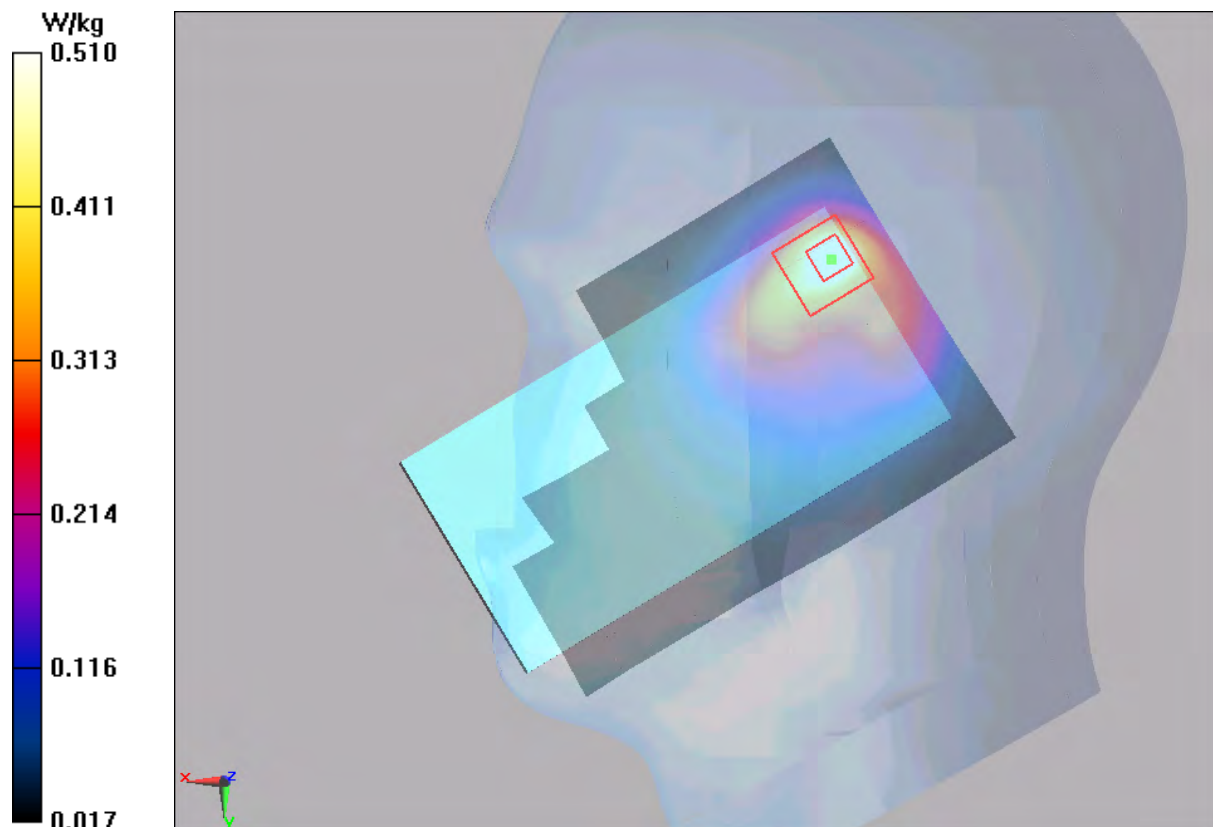


Figure 57 Right Hand Touch Cheek LTE Band 17 50%RB Channel 23790

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**LTE Band 17 50%RB Front Side Middle (Battery1, Distance 15mm)**

Date: 3/13/2015

Communication System: UID 0, LTE (0); Frequency: 710 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 710 \text{ MHz}$ ;  $\sigma = 0.931 \text{ S/m}$ ;  $\epsilon_r = 54.734$ ;  $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature:  $22.3^\circ\text{C}$       Liquid Temperature:  $21.5^\circ\text{C}$

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.53, 9.53, 9.53); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Front side Middle/Area Scan (71x111x1):** Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) =  $0.0841 \text{ W/kg}$

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

Reference Value =  $7.927 \text{ V/m}$ ; Power Drift =  $0.09 \text{ dB}$

Peak SAR (extrapolated) =  $0.127 \text{ W/kg}$

**SAR(1 g) =  $0.078 \text{ W/kg}$ ; SAR(10 g) =  $0.048 \text{ W/kg}$**

Maximum value of SAR (measured) =  $0.0822 \text{ W/kg}$

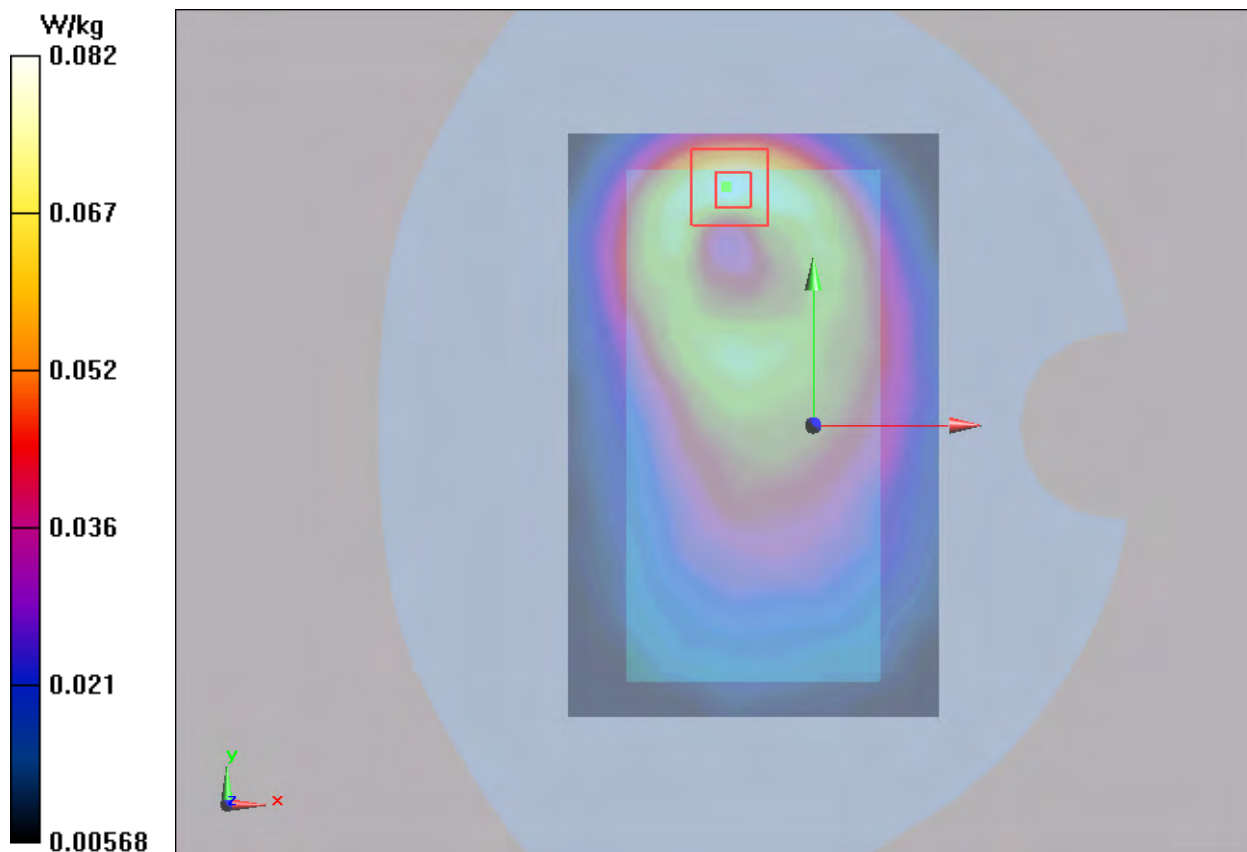


Figure 58 Body, Front Side, LTE Band 17 50%RB Channel 23790



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### LTE Band 17 50%RB Back Side Middle (Battery 2, Distance 10mm)

Date: 3/13/2015

Communication System: UID 0, LTE (0); Frequency: 710 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 710 \text{ MHz}$ ;  $\sigma = 0.931 \text{ S/m}$ ;  $\epsilon_r = 54.734$ ;  $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature:  $22.3^\circ\text{C}$       Liquid Temperature:  $21.5^\circ\text{C}$

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.53, 9.53, 9.53); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Back Side Middle/Area Scan (71x111x1):** Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) =  $0.174 \text{ W/kg}$

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

Reference Value =  $5.480 \text{ V/m}$ ; Power Drift =  $0.030 \text{ dB}$

Peak SAR (extrapolated) =  $0.274 \text{ W/kg}$

**SAR(1 g) =  $0.164 \text{ W/kg}$ ; SAR(10 g) =  $0.094 \text{ W/kg}$**

Maximum value of SAR (measured) =  $0.178 \text{ W/kg}$

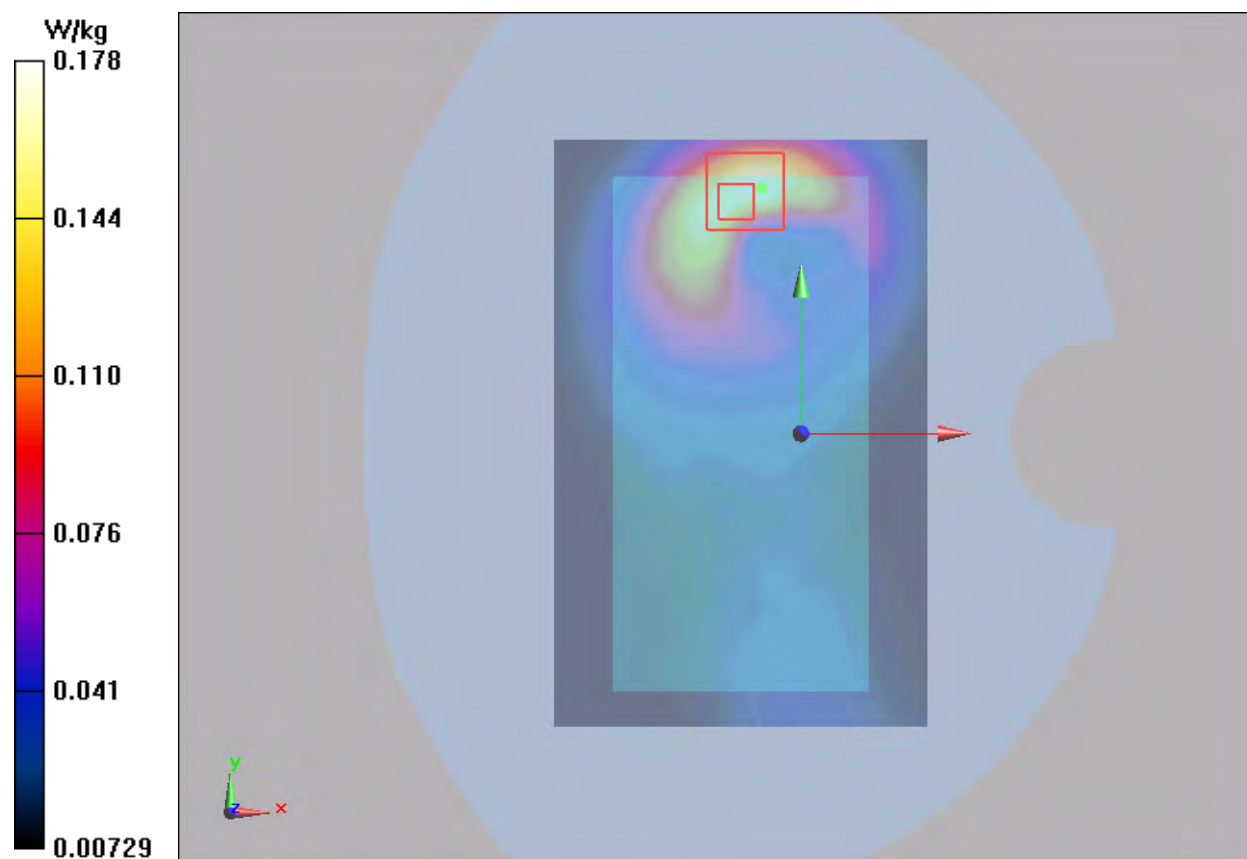


Figure 59 Body, Back Side, LTE Band 17 50%RB Channel 23790



### LTE Band 25 1RB Right Cheek High (Battery 2)

Date: 3/27/2015

Communication System: UID 0, LTE (0); Frequency: 1905 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 1905$  MHz;  $\sigma = 1.436$  S/m;  $\epsilon_r = 39.583$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Right Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.94, 7.94, 7.94); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 2; Type: SAM; Serial:

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Right Cheek High/Area Scan (71x111x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.927 W/kg

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

Reference Value = 15.60 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 1.68 W/kg

**SAR(1 g) = 0.875 W/kg; SAR(10 g) = 0.452 W/kg**

Maximum value of SAR (measured) = 0.991 W/kg

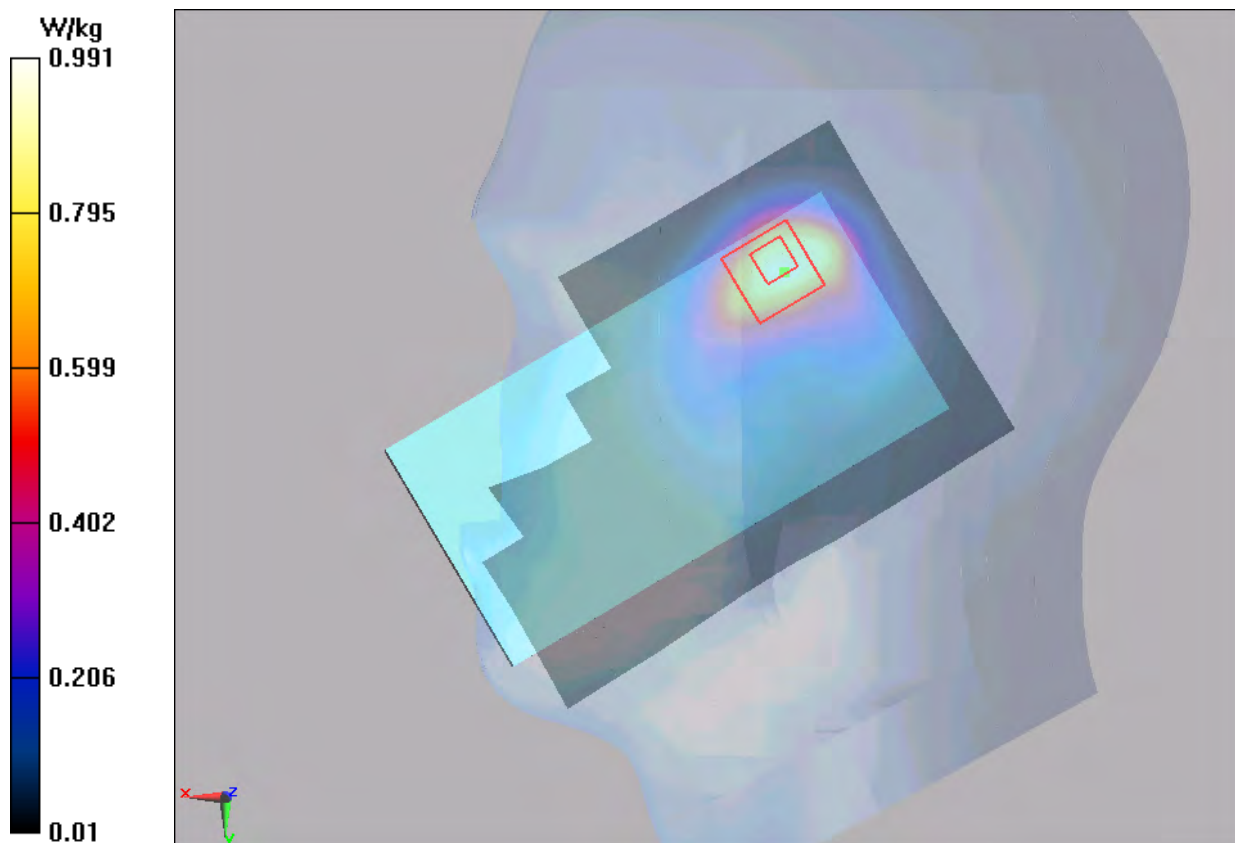


Figure 60 Right Hand Touch Cheek LTE Band 25 1RB Channel 26590

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### LTE Band 25 1RB Front Side High (Battery 1, Distance 15mm)

Date: 3/21/2015

Communication System: UID 0, LTE (0); Frequency: 1905 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 1905$  MHz;  $\sigma = 1.529$  S/m;  $\epsilon_r = 53.065$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.57, 7.57, 7.57); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Front side High/Area Scan (71x111x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.0721 W/kg

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

Reference Value = 4.084 V/m; Power Drift = 0.028 dB

Peak SAR (extrapolated) = 0.102 W/kg

**SAR(1 g) = 0.070 W/kg; SAR(10 g) = 0.047 W/kg**

Maximum value of SAR (measured) = 0.0728 W/kg

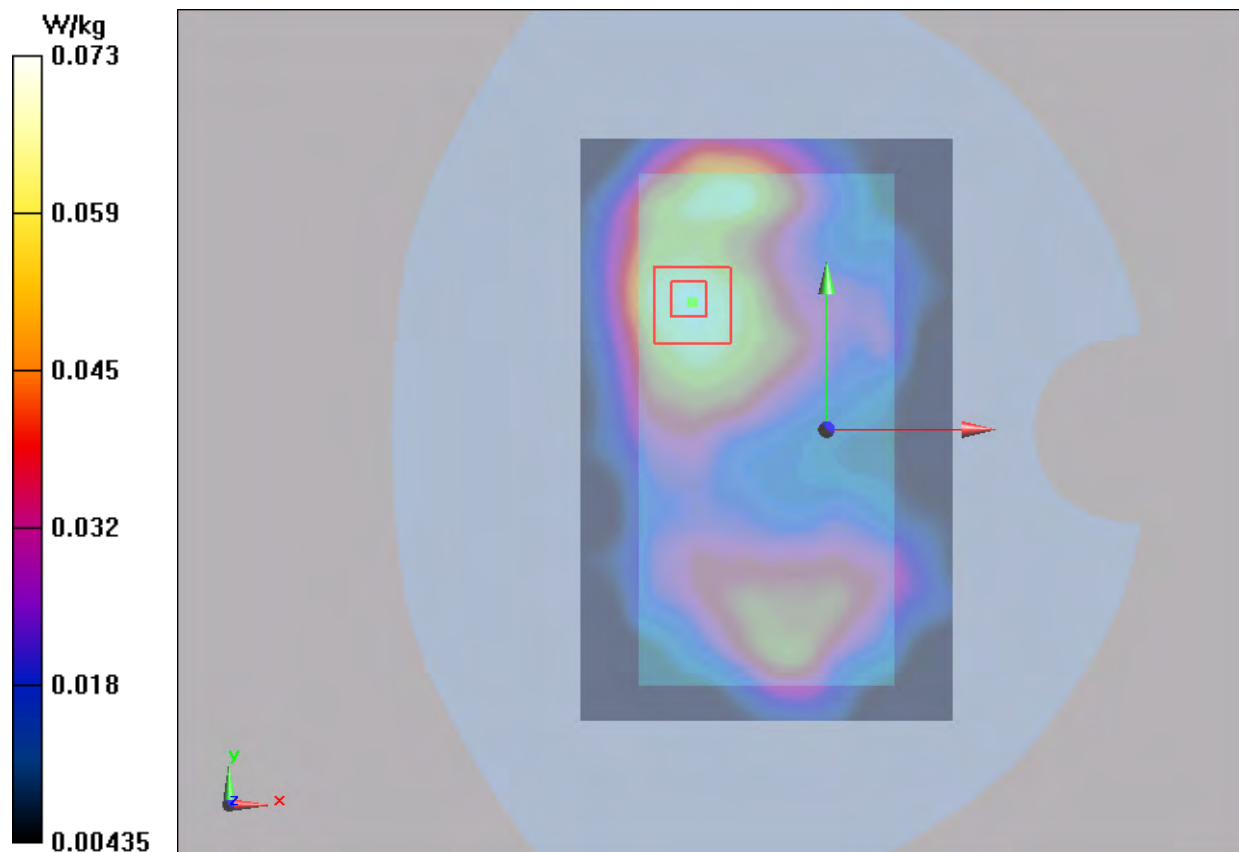


Figure 61 Body, Front Side, LTE Band 25 1RB Channel 26590

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**LTE Band 25 1RB Left Edge High (Battery 1, Distance 10mm)**

Date: 3/21/2015

Communication System: UID 0, LTE (0); Frequency: 1905 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 1905$  MHz;  $\sigma = 1.529$  S/m;  $\epsilon_r = 53.065$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.57, 7.57, 7.57); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 2; Type: SAM; Serial:

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Left Edge High/Area Scan (51x171x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.192 W/kg

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

Reference Value = 7.643 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.283 W/kg

**SAR(1 g) = 0.176 W/kg; SAR(10 g) = 0.102 W/kg**

Maximum value of SAR (measured) = 0.174 W/kg

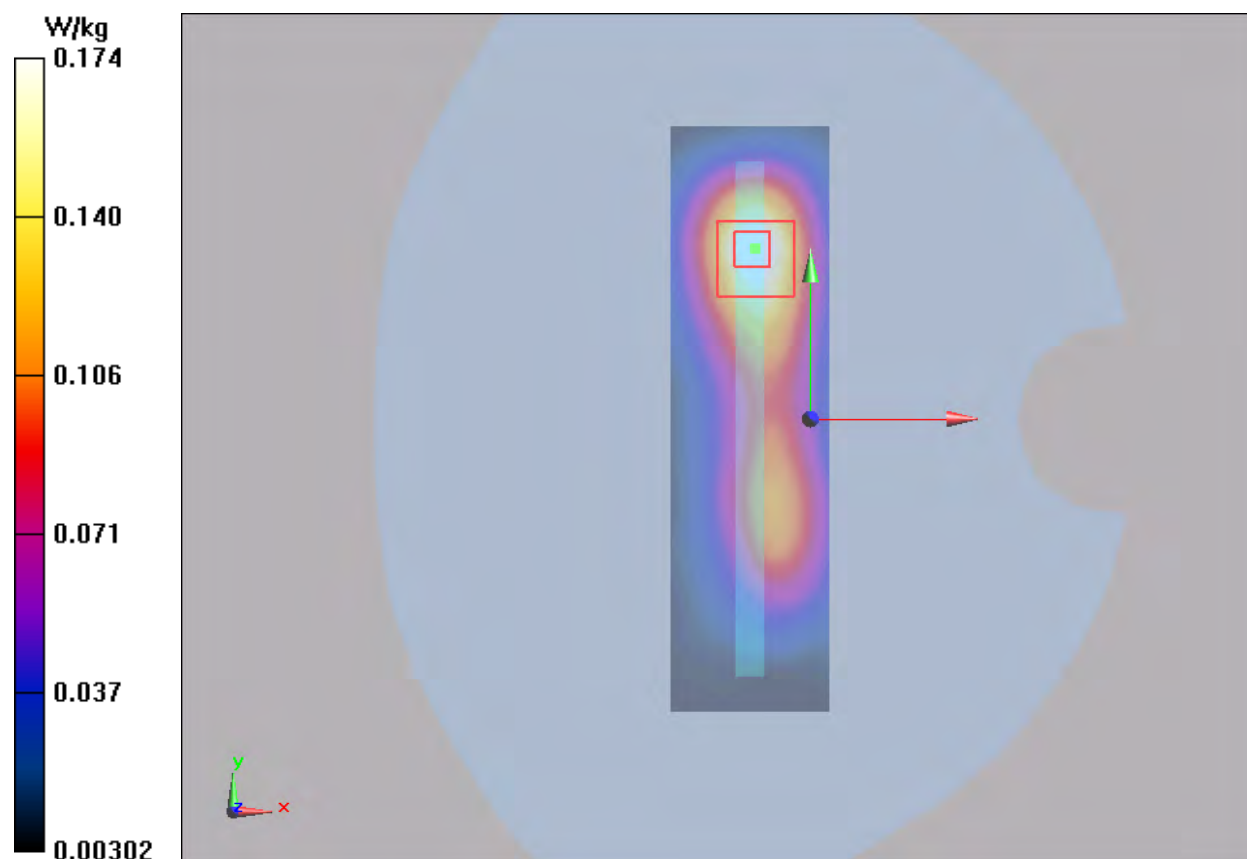


Figure 62 Body, Left Edge, LTE Band 25 1RB Channel 26590

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### LTE Band 26 50%RB Left Tilt High (Battery 2)

Date: 3/28/2015

Communication System: UID 0, LTE (0); Frequency: 841.5 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated):  $f = 841.5$  MHz;  $\sigma = 0.936$  S/m;  $\epsilon_r = 41.326$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Left Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.30, 9.30, 9.30); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Left Tilt High/Area Scan (71x111x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.927 W/kg

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

Reference Value = 31.04 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 2.01 W/kg

**SAR(1 g) = 0.857 W/kg; SAR(10 g) = 0.406 W/kg**

Maximum value of SAR (measured) = 0.959 W/kg

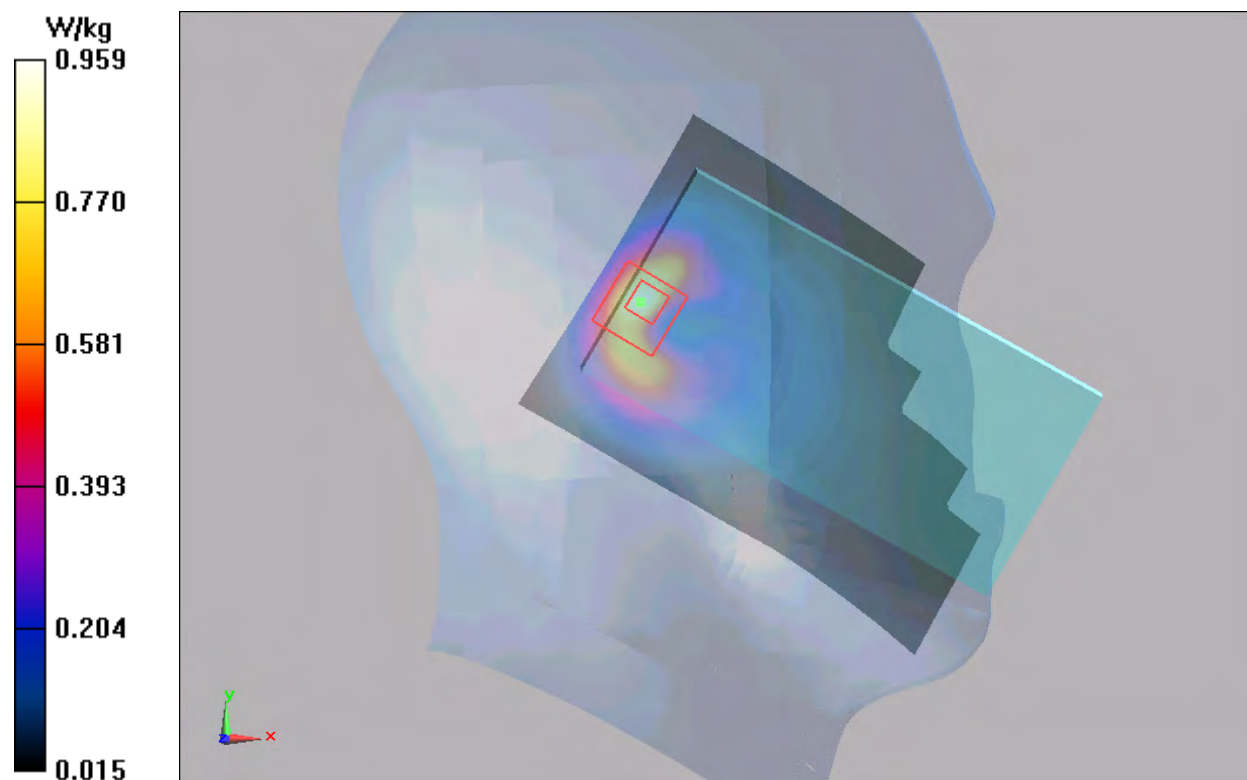


Figure 63 Left Hand Tilt 15° LTE Band 26 50%RB Channel 26965

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**LTE Band 26 1RB Front Side Middle (Battery 1, Distance 15mm)**

Date: 3/19/2015

Communication System: UID 0, LTE (0); Frequency: 831.5 MHz; Duty Cycle: 1:1.57943

Medium parameters used (interpolated):  $f = 831.5$  MHz;  $\sigma = 0.986$  S/m;  $\epsilon_r = 55.913$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.45, 9.45, 9.45); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Front Side Middle/Area Scan (71x111x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.168 W/kg

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

Reference Value = 11.68 V/m; Power Drift = -0.043 dB

Peak SAR (extrapolated) = 0.199 W/kg

**SAR(1 g) = 0.157 W/kg; SAR(10 g) = 0.118 W/kg**

Maximum value of SAR (measured) = 0.165 W/kg

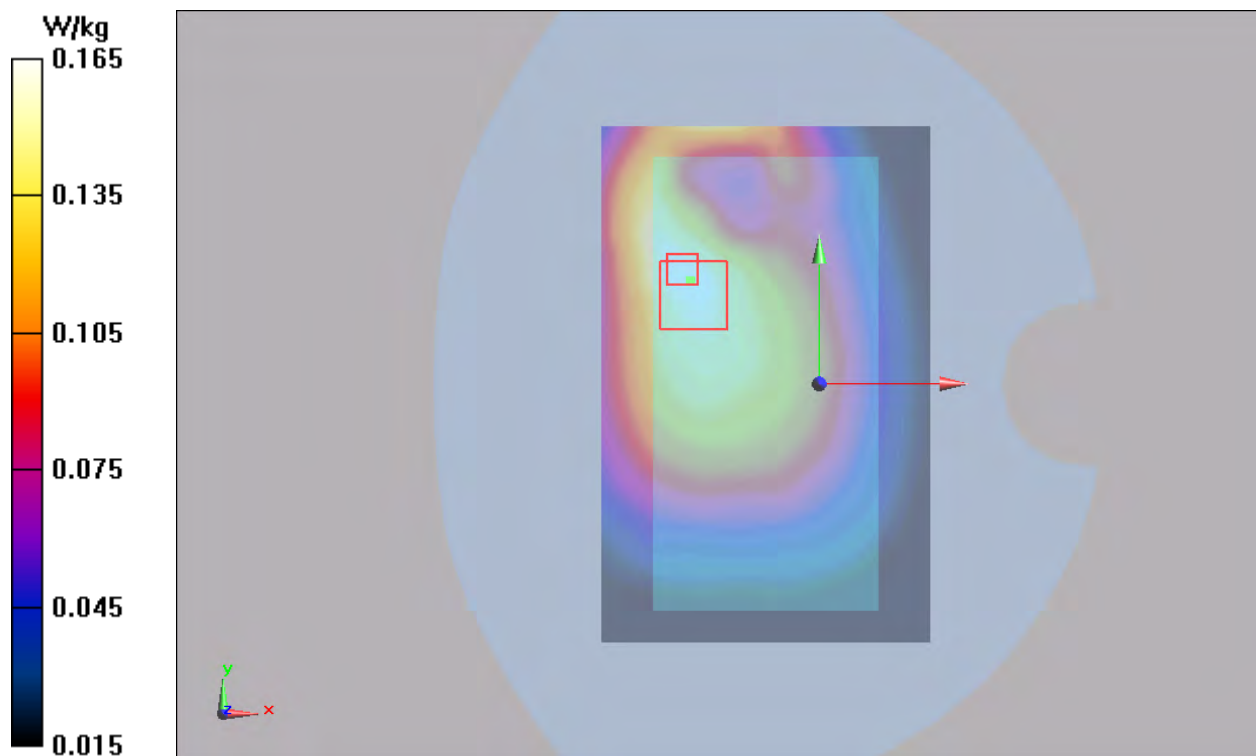


Figure 64 Body, Front Side, LTE Band 26 1RB Channel 26865

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### LTE Band 26 1RB Front Side Middle (Battery 2, Distance 10mm)

Date: 3/19/2015

Communication System: UID 0, LTE (0); Frequency: 831.5 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated):  $f = 831.5$  MHz;  $\sigma = 0.986$  S/m;  $\epsilon_r = 55.913$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.45, 9.45, 9.45); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Front Side Middle/Area Scan (71x111x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.339 W/kg

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

Reference Value = 10.60 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 0.553 W/kg

**SAR(1 g) = 0.310 W/kg; SAR(10 g) = 0.174 W/kg**

Maximum value of SAR (measured) = 0.331 W/kg

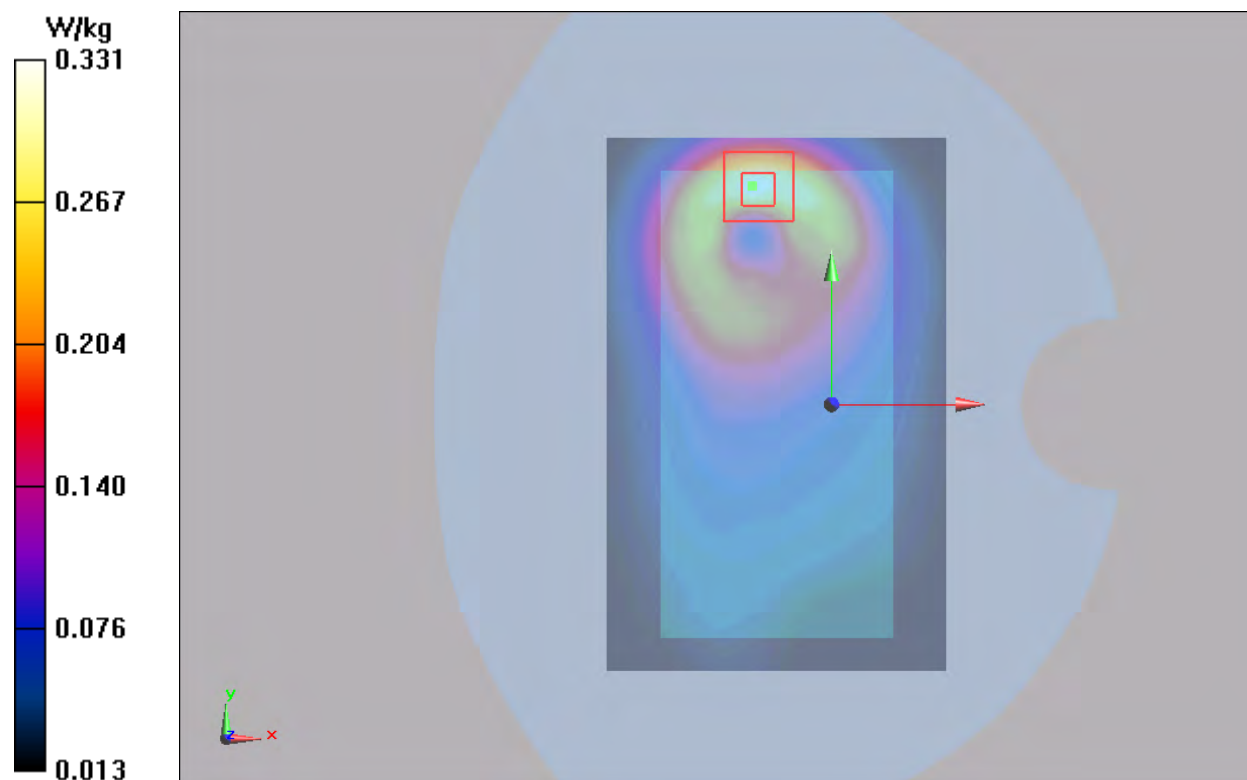


Figure 65 Body, Front Side, LTE Band 26 1RB Channel 26865



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### ANNEX C2: Antenna 2

#### GSM 850 Right Cheek Middle (Battery 1)

Date: 3/11/2015

Communication System: GSM850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.923$  mho/m;  $\epsilon_r = 40.1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Right Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.30, 9.30, 9.30); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 11; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY5, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Right Cheek Middle/Area Scan (61x111x1):** Measurement grid: dx=1.500mm, dy=1.500mm

Maximum value of SAR (interpolated) = 0.249 mW/g

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

Reference Value = 6.15 V/m; Power Drift = 0.177 dB

Peak SAR (extrapolated) = 0.330 W/kg

**SAR(1 g) = 0.234 mW/g; SAR(10 g) = 0.169 mW/g**

Maximum value of SAR (measured) = 0.249 mW/g

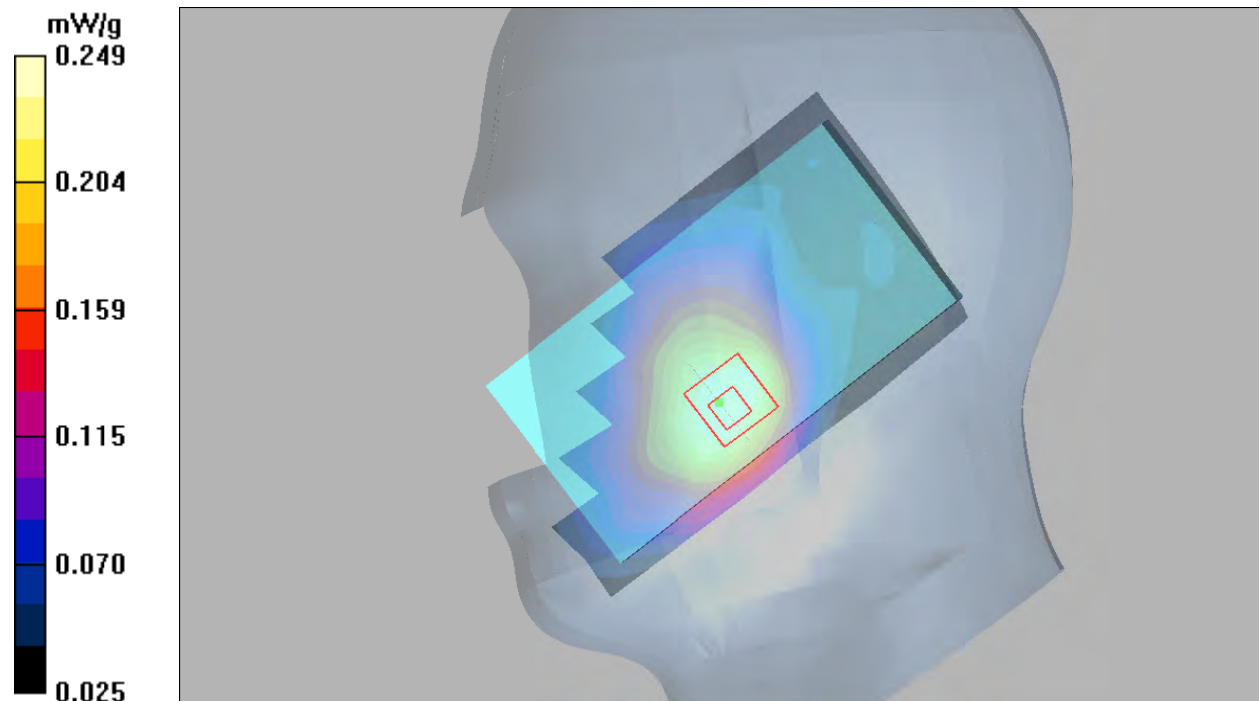


Figure 66 Right Hand Touch Cheek GSM 850 Channel 190

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### GSM 850 Back Side Middle (Battery 1, Distance 15mm)

Date: 3/10/2015

Communication System: UID 0, GSM (0); Frequency: 836.6 MHz; Duty Cycle: 1:8.30042

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.992$  S/m;  $\epsilon_r = 55.882$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.45, 9.45, 9.45); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Back Side Middle/Area Scan (71x111x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.363 W/kg

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

Reference Value = 16.99 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.436 W/kg

**SAR(1 g) = 0.340 W/kg; SAR(10 g) = 0.249 W/kg**

Maximum value of SAR (measured) = 0.358 W/kg

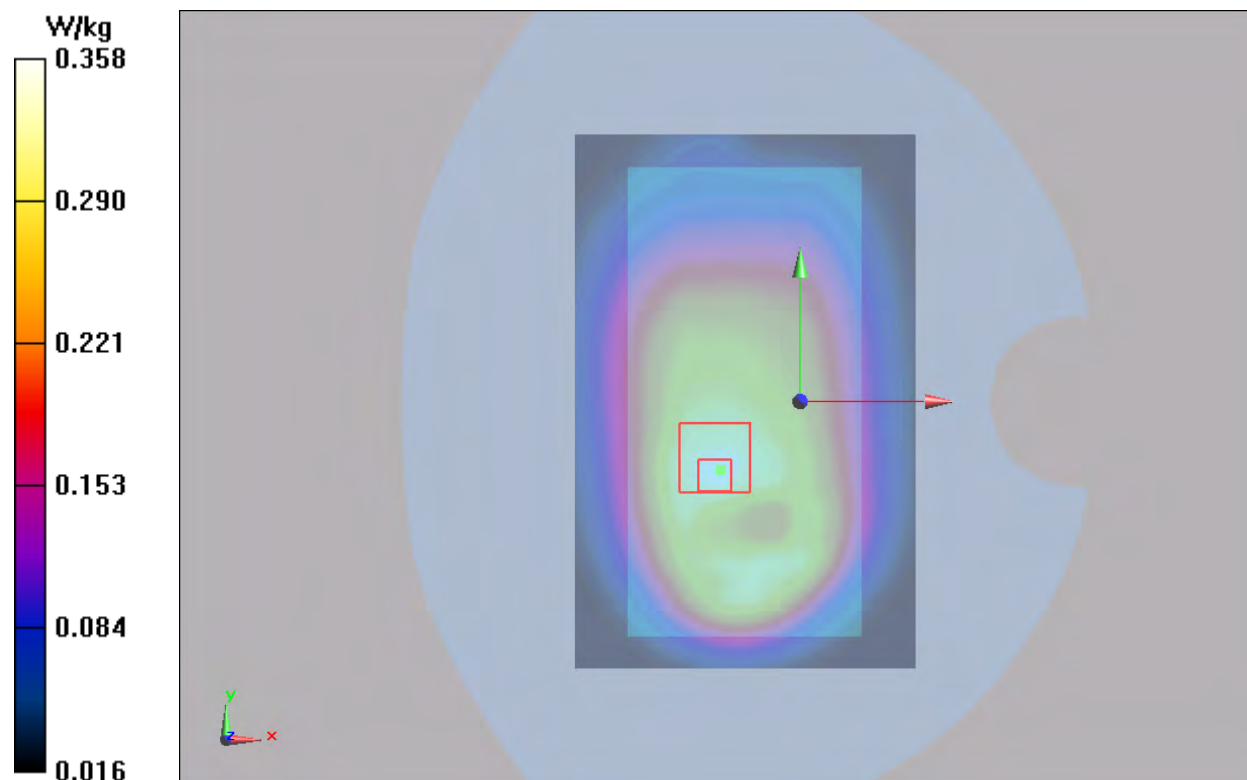


Figure 67 Body, Back Side, GSM 850 Channel 190



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### GSM 850 GPRS (2Txslots) Back Side Middle (Battery 2, Distance 10mm)

Date: 3/10/2015

Communication System: GSM850 + GPRS(2Up); Frequency: 836.6 MHz; Duty Cycle: 1:4.15

Medium parameters used:  $f = 837 \text{ MHz}$ ;  $\sigma = 1 \text{ mho/m}$ ;  $\epsilon_r = 54.9$ ;  $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature:  $22.3^\circ\text{C}$  Liquid Temperature:  $21.5^\circ\text{C}$

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.45, 9.45, 9.45); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 11; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY5, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Back Side Middle/Area Scan (61x111x1):** Measurement grid:  $dx=1.500\text{mm}$ ,  $dy=1.500\text{mm}$

Maximum value of SAR (interpolated) =  $0.424 \text{ mW/g}$

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

Reference Value =  $17.4 \text{ V/m}$ ; Power Drift =  $-0.029 \text{ dB}$

Peak SAR (extrapolated) =  $0.545 \text{ W/kg}$

**SAR(1 g) =  $0.415 \text{ mW/g}$ ; SAR(10 g) =  $0.299 \text{ mW/g}$**

Maximum value of SAR (measured) =  $0.430 \text{ mW/g}$

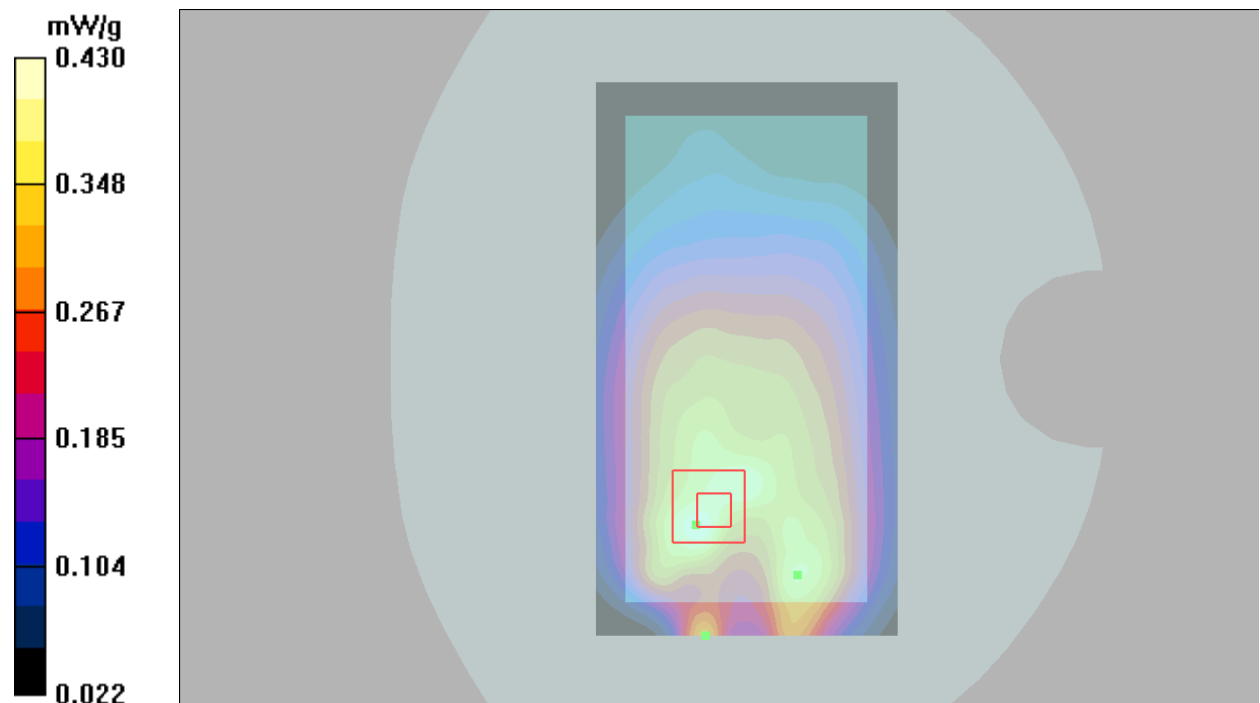


Figure 68 Body, Back Side, GSM 850 GPRS (2Txslots) Channel 190

### GSM 1900 Left Cheek Middle (Battery 1)

Date: 3/17/2015

Communication System: UID 0, GSM (0); Frequency: 1880 MHz; Duty Cycle: 1:8.30042

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.413$  S/m;  $\epsilon_r = 39.689$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Left Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.94, 7.94, 7.94); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Left Cheek Middle/Area Scan (71x111x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.427 W/kg

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

Reference Value = 5.462 V/m; Power Drift = -0.11 dB

Peak SAR (extrapolated) = 0.569 W/kg

**SAR(1 g) = 0.364 W/kg; SAR(10 g) = 0.223 W/kg**

Maximum value of SAR (measured) = 0.377 W/kg

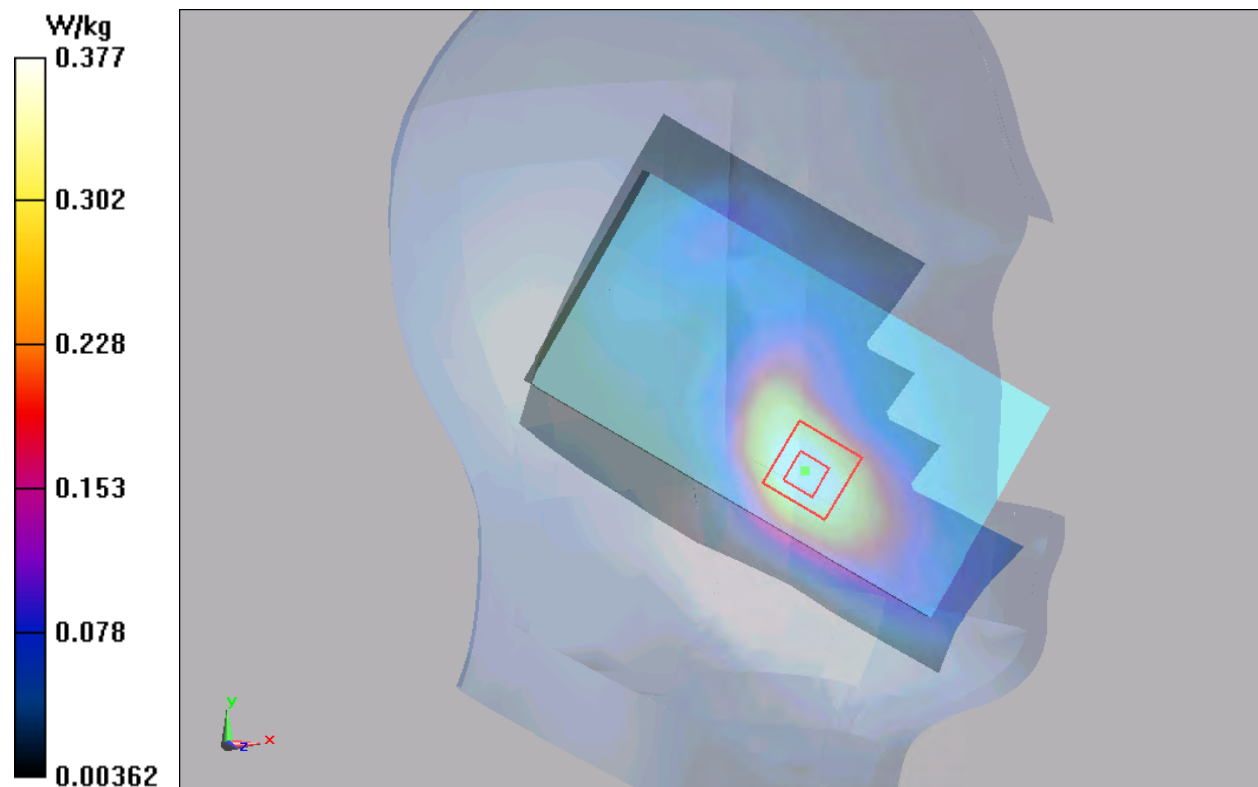


Figure 69 Left Hand Touch Cheek GSM 1900 Channel 661

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**GSM 1900 Back Side High (Battery 1, Distance 15mm)**

Date: 3/24/2015

Communication System: UID 0, GSM (0); Frequency: 1909.8 MHz; Duty Cycle: 1:8.30042

Medium parameters used:  $f = 1910$  MHz;  $\sigma = 1.532$  S/m;  $\epsilon_r = 52.459$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.57, 7.57, 7.57); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Back Side High/Area Scan (71x111x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.933 W/kg

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

Reference Value = 5.562 V/m; Power Drift = 0.020 dB

Peak SAR (extrapolated) = 1.91 W/kg

**SAR(1 g) = 1.03 W/kg; SAR(10 g) = 0.485 W/kg**

Maximum value of SAR (measured) = 1.13 W/kg

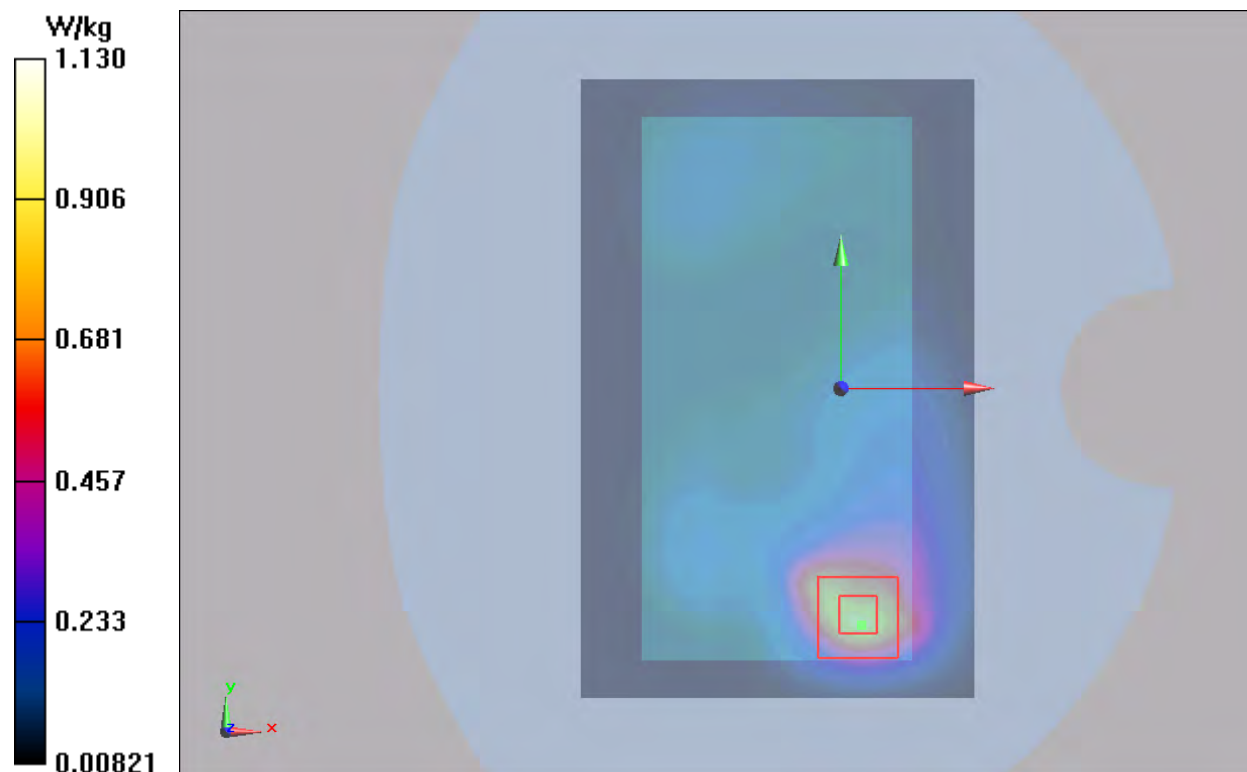


Figure 70 Body, Back Side, GSM 1900 Channel 810

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**GSM 1900 GPRS (3Txslots) Back Side High (Battery 1, Distance 10mm)**

Date: 3/24/2015

Communication System: UID 0, GPRS 3TX (0); Frequency: 1909.8 MHz; Duty Cycle: 1:2.76694

Medium parameters used:  $f = 1910$  MHz;  $\sigma = 1.532$  S/m;  $\epsilon_r = 52.459$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.57, 7.57, 7.57); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Back Side High/Area Scan (71x111x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.44 W/kg

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

Reference Value = 6.816 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 2.29 W/kg

**SAR(1 g) = 1.2 W/kg; SAR(10 g) = 0.578 W/kg**

Maximum value of SAR (measured) = 1.17 W/kg

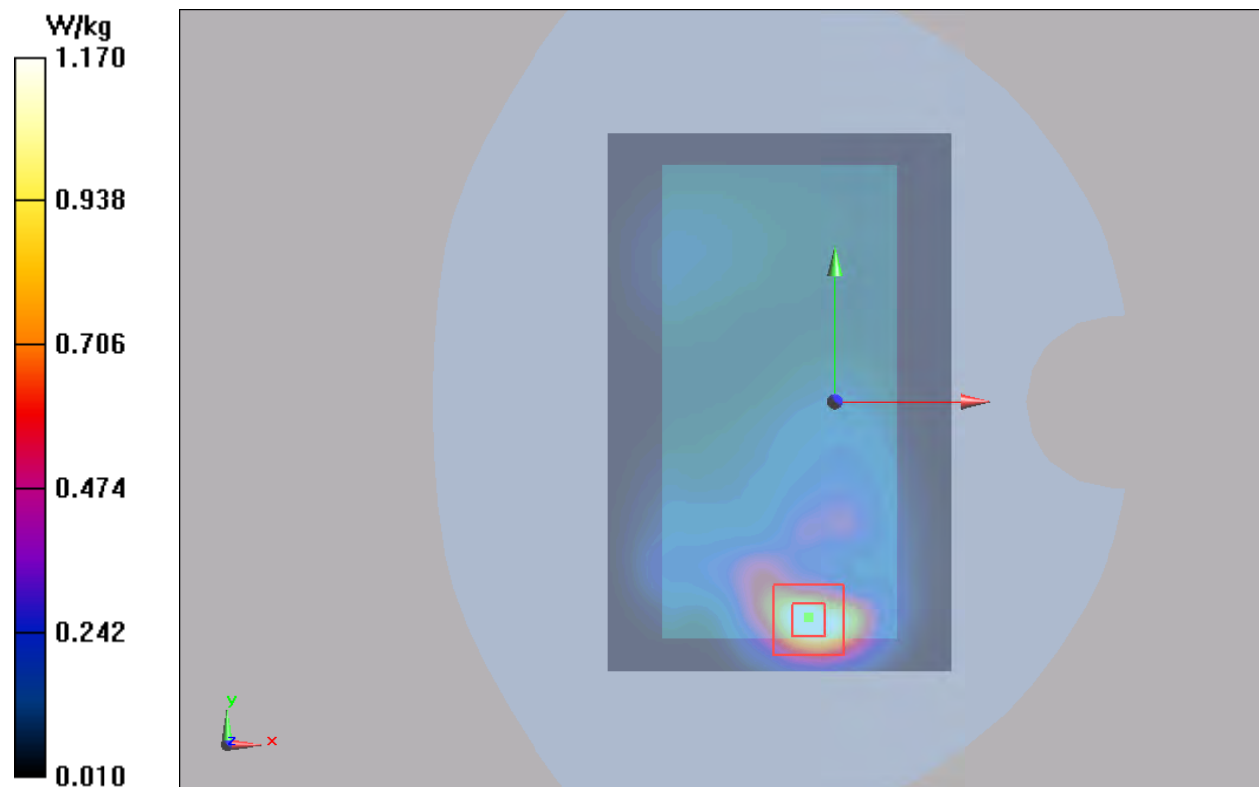


Figure 71 Body, Back Side, GSM 1900 GPRS (3Txslots) Channel 810

### UMTS Band II Left Cheek Middle (Battery 2)

Date: 3/17/2015

Communication System: UID 0, WCDMA (0); Frequency: 1880 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.413$  S/m;  $\epsilon_r = 39.689$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Left Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.94, 7.94, 7.94); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Left Cheek Middle/Area Scan (71x111x1):** Interpolated grid:  $dx=1.500$  mm,  $dy=1.500$  mm

Maximum value of SAR (interpolated) = 0.636 W/kg

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

Reference Value = 5.688 V/m; Power Drift = 0.102 dB

Peak SAR (extrapolated) = 0.865 W/kg

**SAR(1 g) = 0.551 W/kg; SAR(10 g) = 0.337 W/kg**

Maximum value of SAR (measured) = 0.561 W/kg

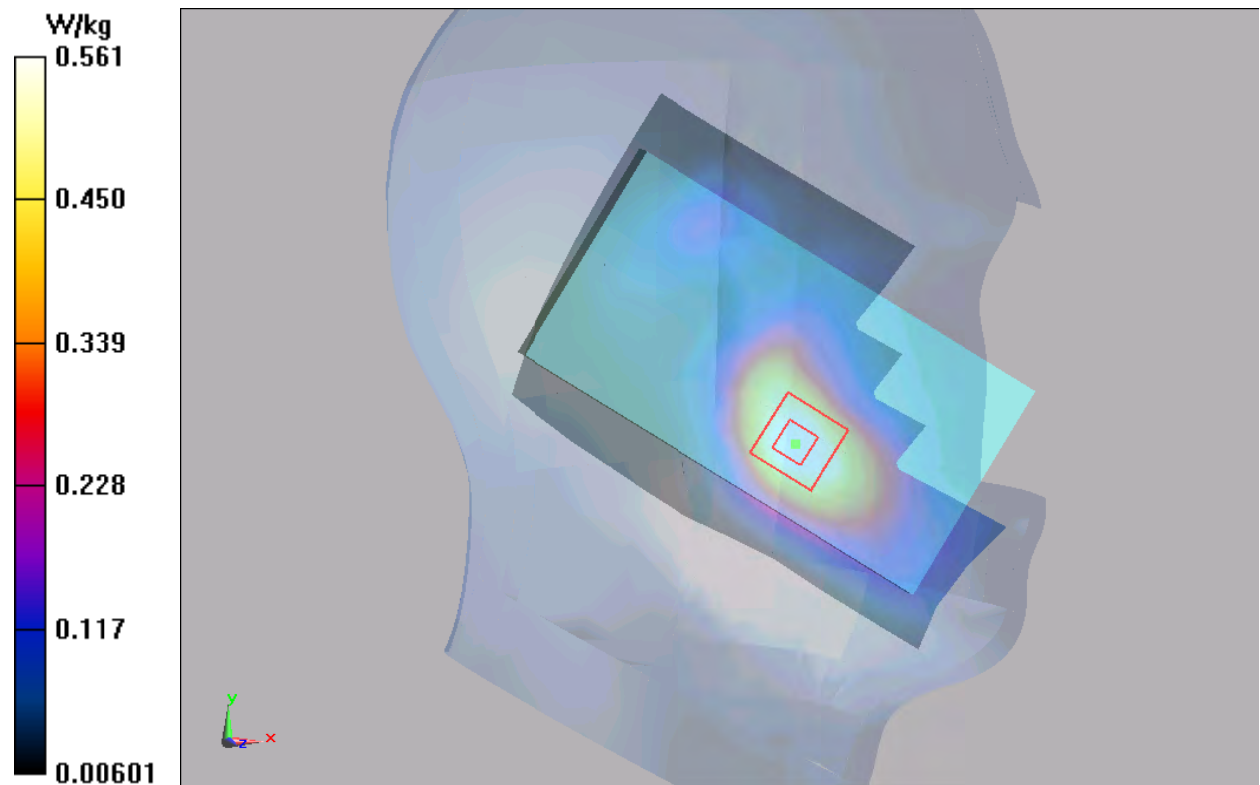


Figure 72 Left Hand Touch Cheek UMTS Band II Channel 9400

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**UMTS Band II Back Side High (Battery 1, Distance 15mm)**

Date: 3/24/2015

Communication System: UID 0, WCDMA (0); Frequency: 1907.6 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 1908$  MHz;  $\sigma = 1.528$  S/m;  $\epsilon_r = 52.463$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.57, 7.57, 7.57); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Back Side High/Area Scan (71x111x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.859 W/kg

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

Reference Value = 6.362 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 1.43 W/kg

**SAR(1 g) = 0.808 W/kg; SAR(10 g) = 0.420 W/kg**

Maximum value of SAR (measured) = 0.850 W/kg

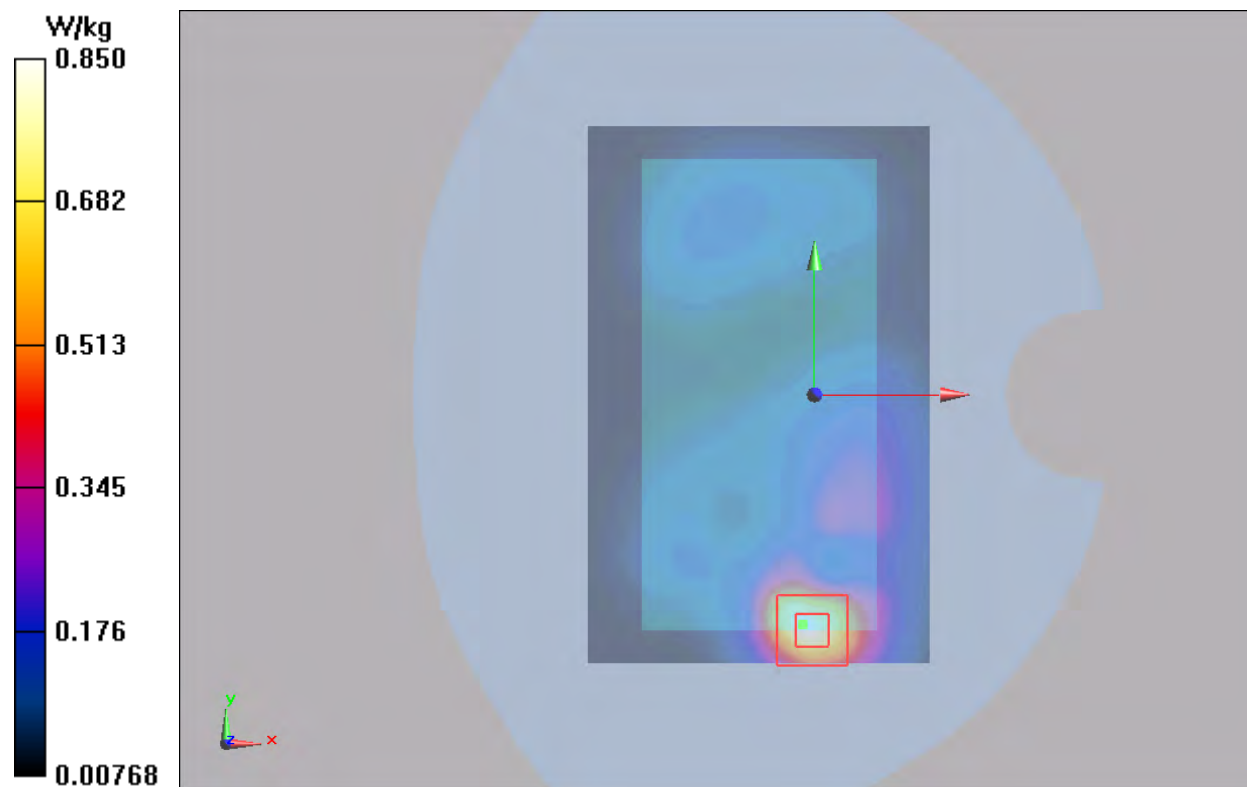


Figure 73 Body, Back Side, UMTS Band II Channel 9538

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**UMTS Band II Bottom Edge Low (Battery 1, Distance 10mm)**

Date: 3/24/2015

Communication System: UID 0, WCDMA (0); Frequency: 1852.4 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated):  $f = 1852.4$  MHz;  $\sigma = 1.476$  S/m;  $\epsilon_r = 52.546$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.57, 7.57, 7.57); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Bottom Edge Low/Area Scan (51x111x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 1.13 W/kg

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

Reference Value = 24.61 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 1.67 W/kg

**SAR(1 g) = 0.949 W/kg; SAR(10 g) = 0.484 W/kg**

Maximum value of SAR (measured) = 0.851 W/kg

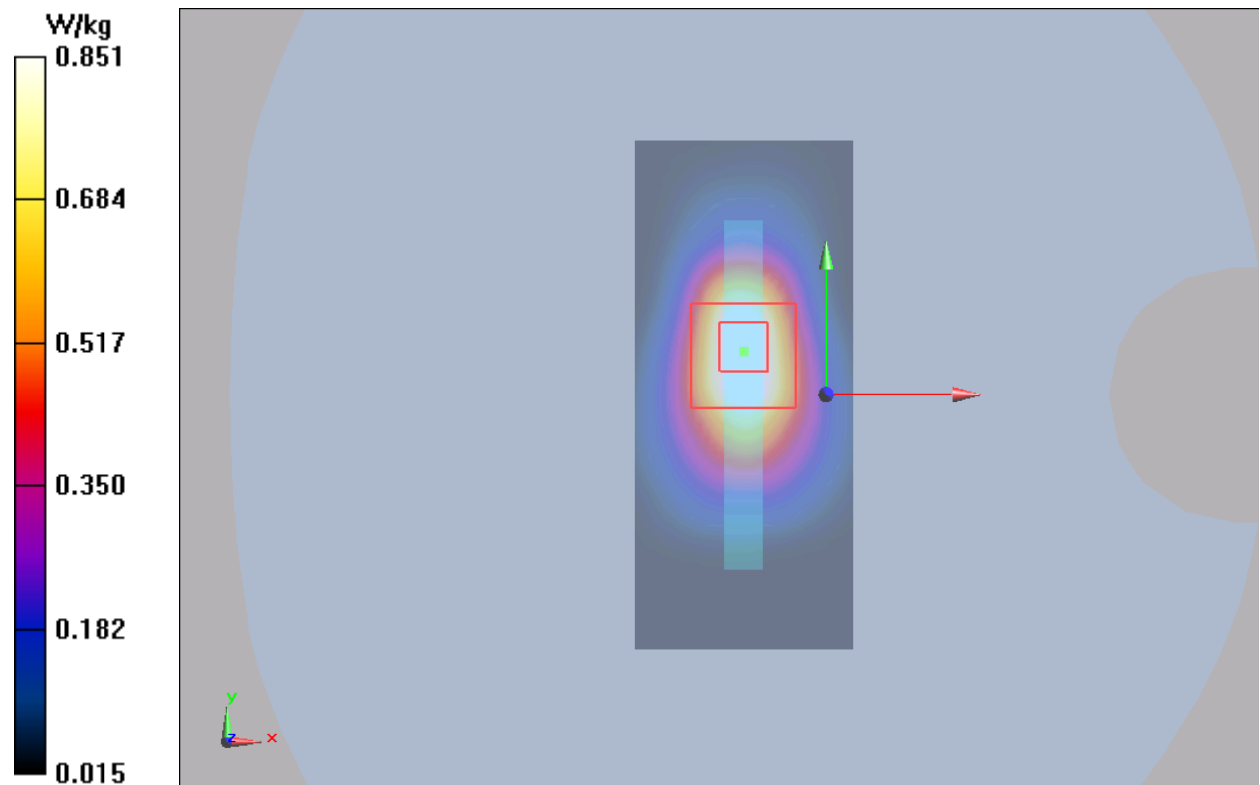


Figure 74 Body, Bottom Edge, UMTS Band II Channel 9262



### UMTS Band IV Left Cheek Middle (Battery 2)

Date: 3/12/2015

Communication System: UID 0, WCDMA (0); Frequency: 1732.6 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 1733$  MHz;  $\sigma = 1.306$  S/m;  $\epsilon_r = 39.731$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Left Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(8.02, 8.02, 8.02); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Left Cheek Middle/Area Scan (71x111x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.907 W/kg

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

Reference Value = 7.326 V/m; Power Drift = 0.034 dB

Peak SAR (extrapolated) = 1.21 W/kg

**SAR(1 g) = 0.788 W/kg; SAR(10 g) = 0.486 W/kg**

Maximum value of SAR (measured) = 0.830 W/kg

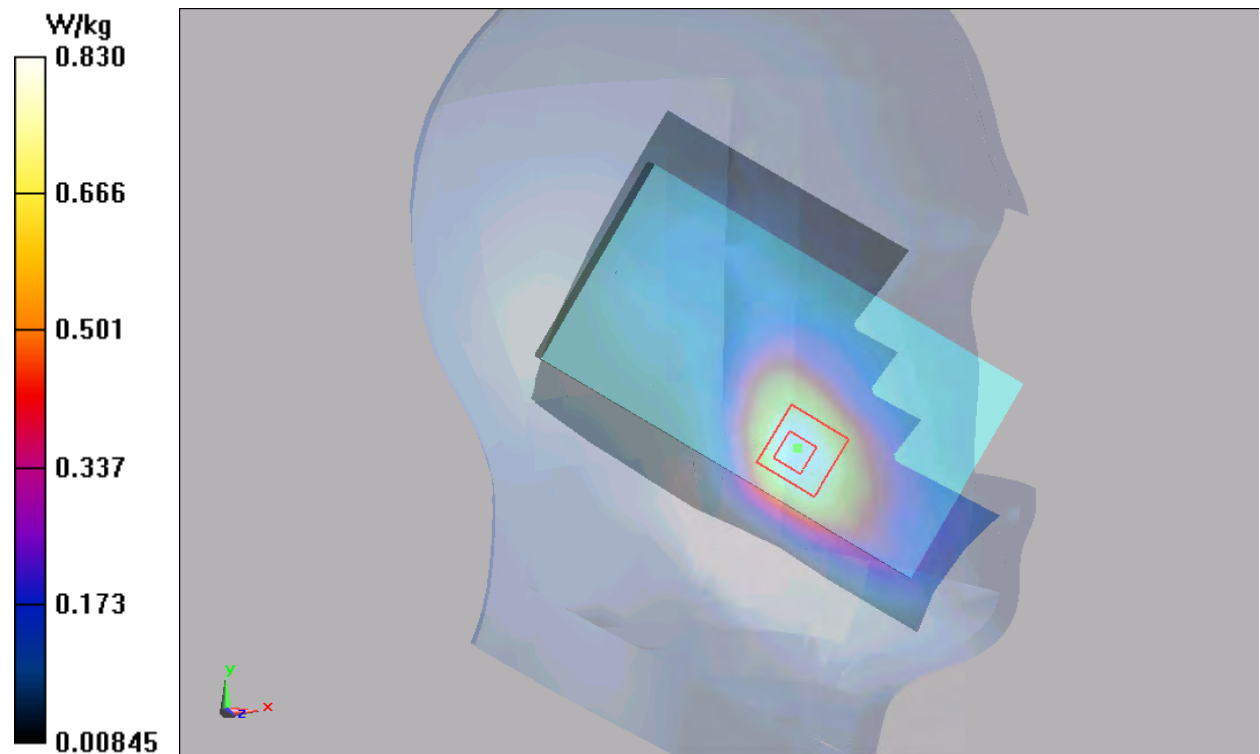


Figure 75 Left Hand Touch Cheek UMTS Band IV Channel 1413



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**UMTS Band IV Back Side Middle (Battery 1, Distance 15mm)**

Date: 3/23/2015

Communication System: UID 0, WCDMA (0); Frequency: 1732.6 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 1733$  MHz;  $\sigma = 1.489$  S/m;  $\epsilon_r = 52.919$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.74, 7.74, 7.74); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Back Side Middle/Area Scan (71x111x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.493 W/kg

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

Reference Value = 5.832 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 0.752 W/kg

**SAR(1 g) = 0.446 W/kg; SAR(10 g) = 0.253 W/kg**

Maximum value of SAR (measured) = 0.454 W/kg

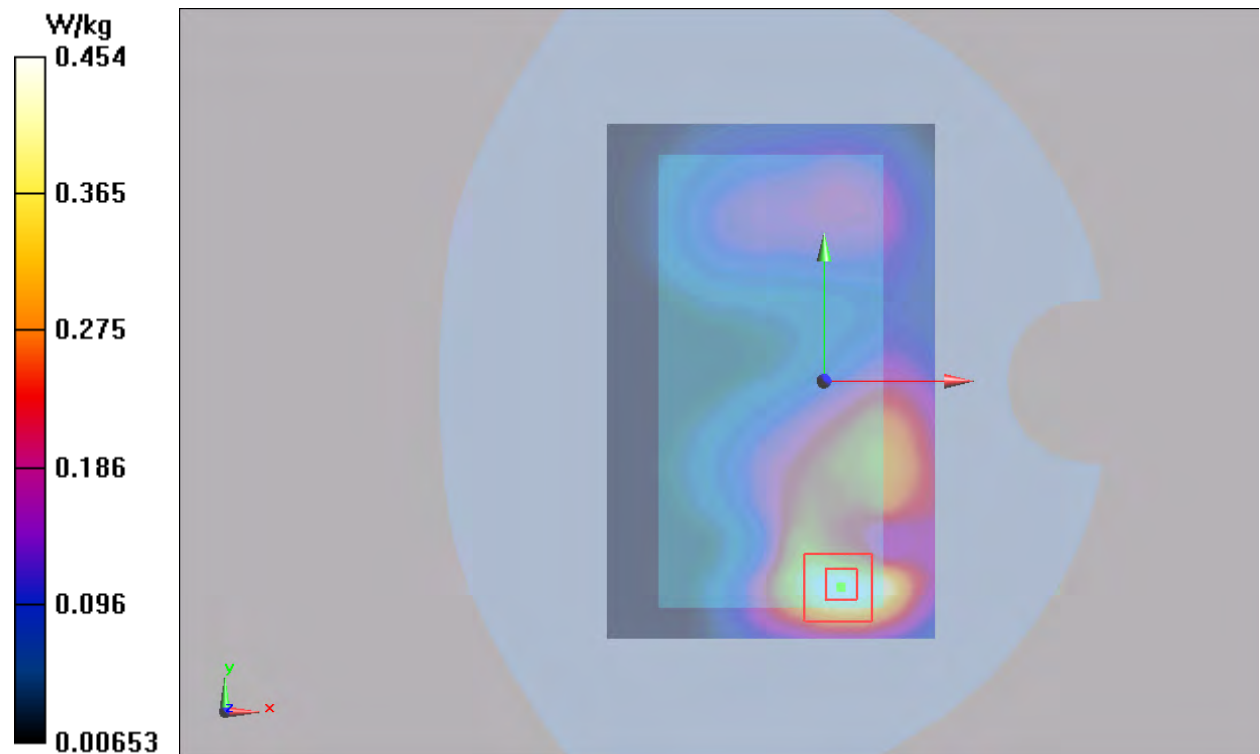


Figure 76 Body, Back Side, UMTS Band IV Channel 1413

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**UMTS Band IV Bottom Edge High (Battery 2, Distance 10mm)**

Date: 3/23/2015

Communication System: UID 0, WCDMA (0); Frequency: 1752.6 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 1753$  MHz;  $\sigma = 1.507$  S/m;  $\epsilon_r = 52.874$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.74, 7.74, 7.74); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Bottom Edge High/Area Scan (51x111x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 1.27 W/kg

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

Reference Value = 27.96 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 1.96 W/kg

**SAR(1 g) = 1.1 W/kg; SAR(10 g) = 0.571 W/kg**

Maximum value of SAR (measured) = 1.06 W/kg

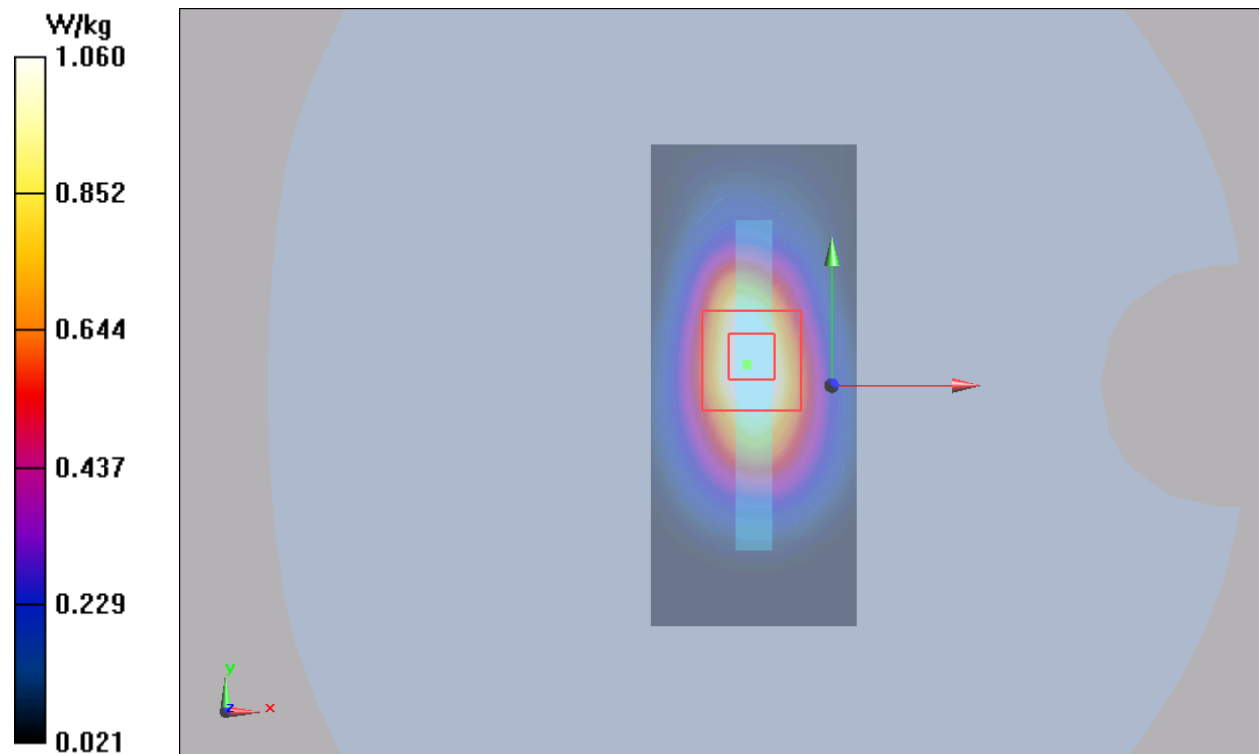


Figure 77 Body, Bottom Edge, UMTS Band IV Channel 1513

### UMTS Band V Right Cheek Middle (Battery 1)

Date: 3/11/2015

Communication System: WCDMA Band V; Frequency: 836.6 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.923$  mho/m;  $\epsilon_r = 40.1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Right Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.30, 9.30, 9.30); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 11; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY5, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Right Cheek Middle/Area Scan (61x111x1):** Measurement grid: dx=1.500mm, dy=1.500mm  
Maximum value of SAR (interpolated) = 0.284 mW/g

**Right Cheek Middle/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 7.45 V/m; Power Drift = -0.028 dB  
Peak SAR (extrapolated) = 0.351 W/kg

**SAR(1 g) = 0.262 mW/g; SAR(10 g) = 0.196 mW/g**

Maximum value of SAR (measured) = 0.273 mW/g

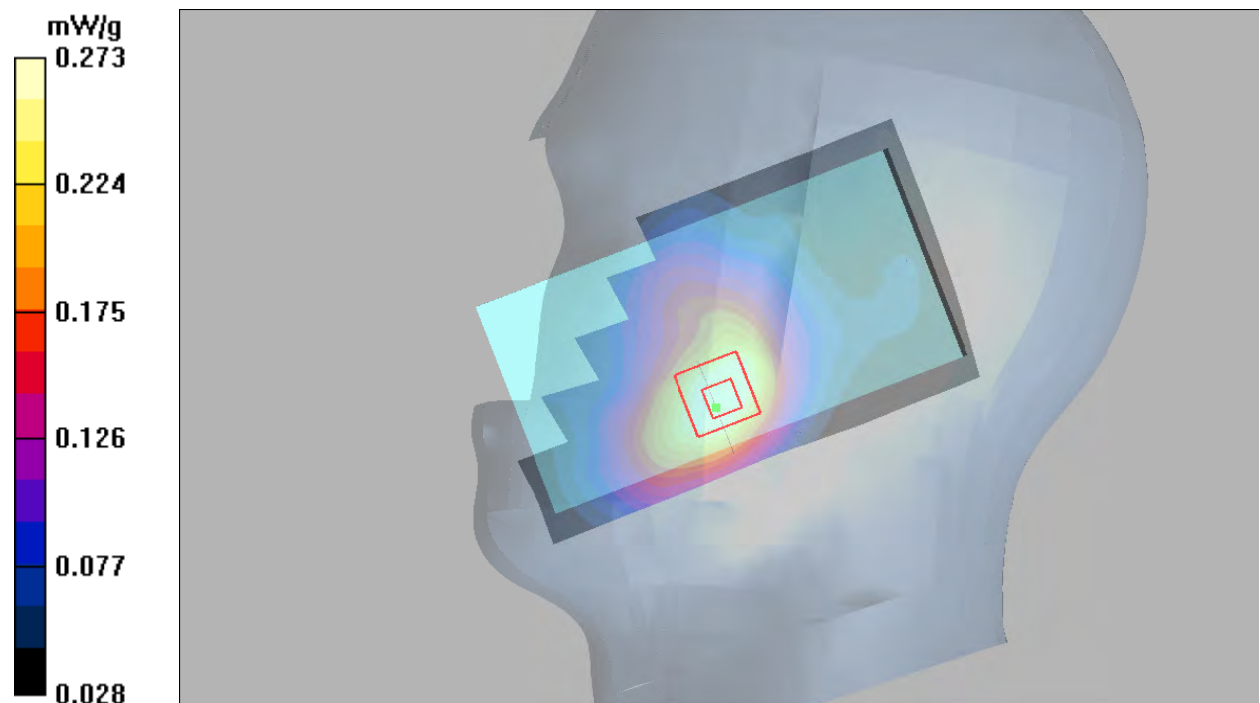


Figure 78 Right Hand Touch Cheek UMTS Band V Channel 4183

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### UMTS Band V Back Side Middle (Battery 1, Distance 15mm)

Date: 3/18/2015

Communication System: WCDMA Band V; Frequency: 836.6 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 837$  MHz;  $\sigma = 1$  mho/m;  $\epsilon_r = 54.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.45, 9.45, 9.45); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 11; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY5, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Back Side Middle/Area Scan (61x111x1):** Measurement grid: dx=1.500 mm, dy=1.500 mm  
Maximum value of SAR (interpolated) = 0.135 mW/g

**Back Side Middle/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 11.7 V/m; Power Drift = -0.187 dB  
Peak SAR (extrapolated) = 0.162 W/kg

**SAR(1 g) = 0.128 mW/g; SAR(10 g) = 0.099 mW/g**

Maximum value of SAR (measured) = 0.133 mW/g

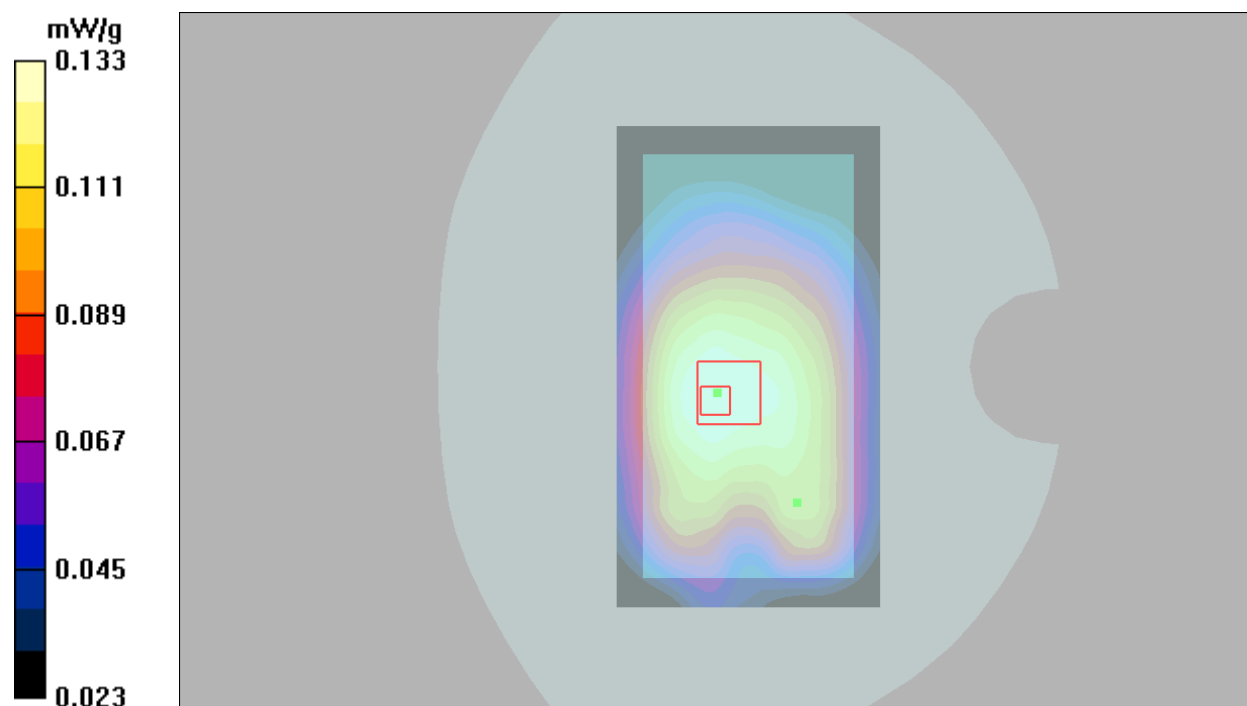


Figure 79 Body, Back Side, UMTS Band V Channel 4183

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**UMTS Band V Back Side Middle (Battery 1, Distance 10mm)**

Date: 3/18/2015

Communication System: UID 0, WCDMA (0); Frequency: 836.6 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.992$  S/m;  $\epsilon_r = 55.882$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.45, 9.45, 9.45); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Back Side Middle/Area Scan (71x111x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.312 W/kg

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

Reference Value = 13.88 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.497 W/kg

**SAR(1 g) = 0.281 W/kg; SAR(10 g) = 0.160 W/kg**

Maximum value of SAR (measured) = 0.302 W/kg

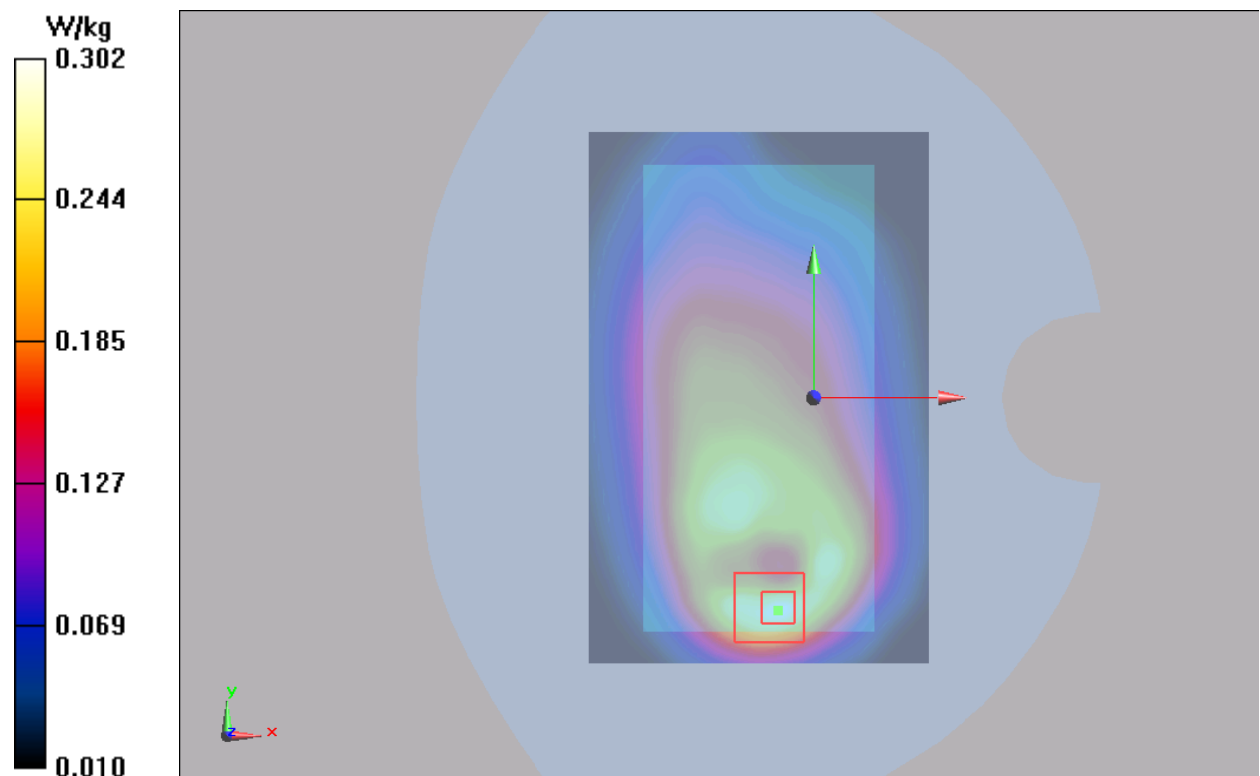


Figure 80 Body, Back Side, UMTS Band V Channel 4183

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### LTE Band 2 1RB Left Cheek High (Battery 1)

Date: 3/17/2015

Communication System: UID 0, LTE (0); Frequency: 1900 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.431$  S/m;  $\epsilon_r = 39.602$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Left Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.94, 7.94, 7.94); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Left Cheek Middle/Area Scan (71x111x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.625 W/kg

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

Reference Value = 6.023 V/m; Power Drift = 0.028 dB

Peak SAR (extrapolated) = 0.840 W/kg

**SAR(1 g) = 0.538 W/kg; SAR(10 g) = 0.330 W/kg**

Maximum value of SAR (measured) = 0.552 W/kg

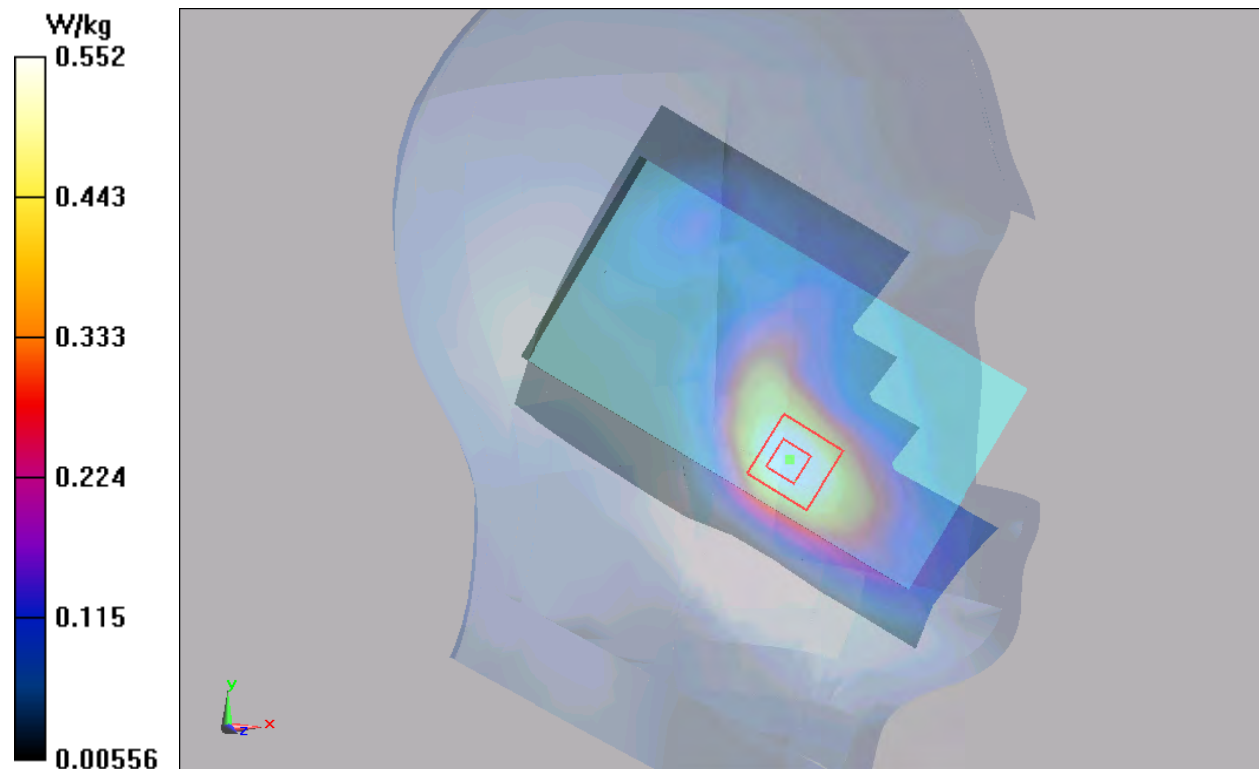


Figure 81 Left Hand Touch Cheek LTE Band 2 1RB Channel 19100

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**LTE Band 2 50%RB Back Side High (Battery 1, Distance 15mm)**

Date: 3/24/2015

Communication System: UID 0, LTE (0); Frequency: 1900 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.522$  S/m;  $\epsilon_r = 52.463$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.57, 7.57, 7.57); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Back Side High/Area Scan (71x111x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.846 W/kg

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

Reference Value = 6.310 V/m; Power Drift = -0.14 dB

Peak SAR (extrapolated) = 1.41 W/kg

**SAR(1 g) = 0.793 W/kg; SAR(10 g) = 0.408 W/kg**

Maximum value of SAR (measured) = 0.770 W/kg

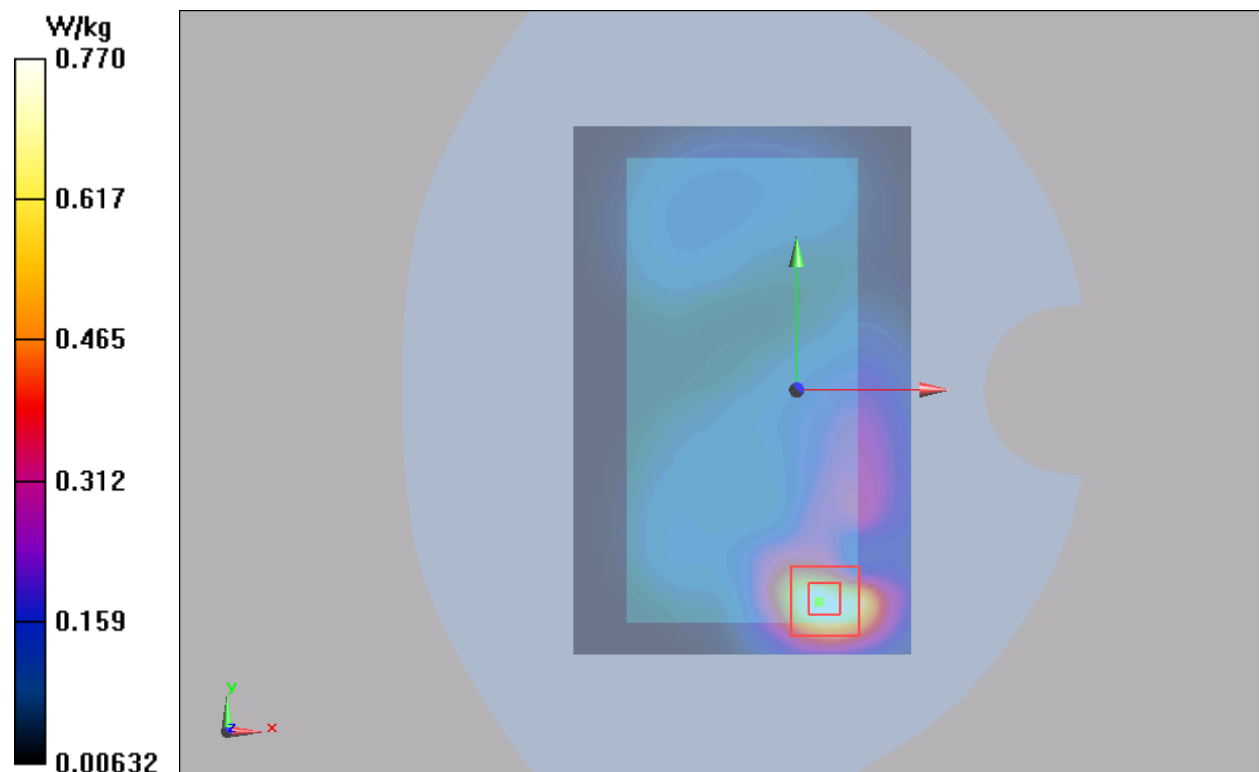


Figure 82 Body, Back Side, LTE Band 2 50%RB Channel 19100

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### LTE Band 2 1RB Back Side High (Battery 1, Distance 10mm)

Date: 3/24/2015

Communication System: UID 0, LTE (0); Frequency: 1900 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.524$  S/m;  $\epsilon_r = 53.079$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.57, 7.57, 7.57); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Back Side High/Area Scan (71x111x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.790 W/kg

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

Reference Value = 4.272 V/m; Power Drift = 0.066 dB

Peak SAR (extrapolated) = 1.39 W/kg

**SAR(1 g) = 0.736 W/kg; SAR(10 g) = 0.357 W/kg**

Maximum value of SAR (measured) = 0.713 W/kg

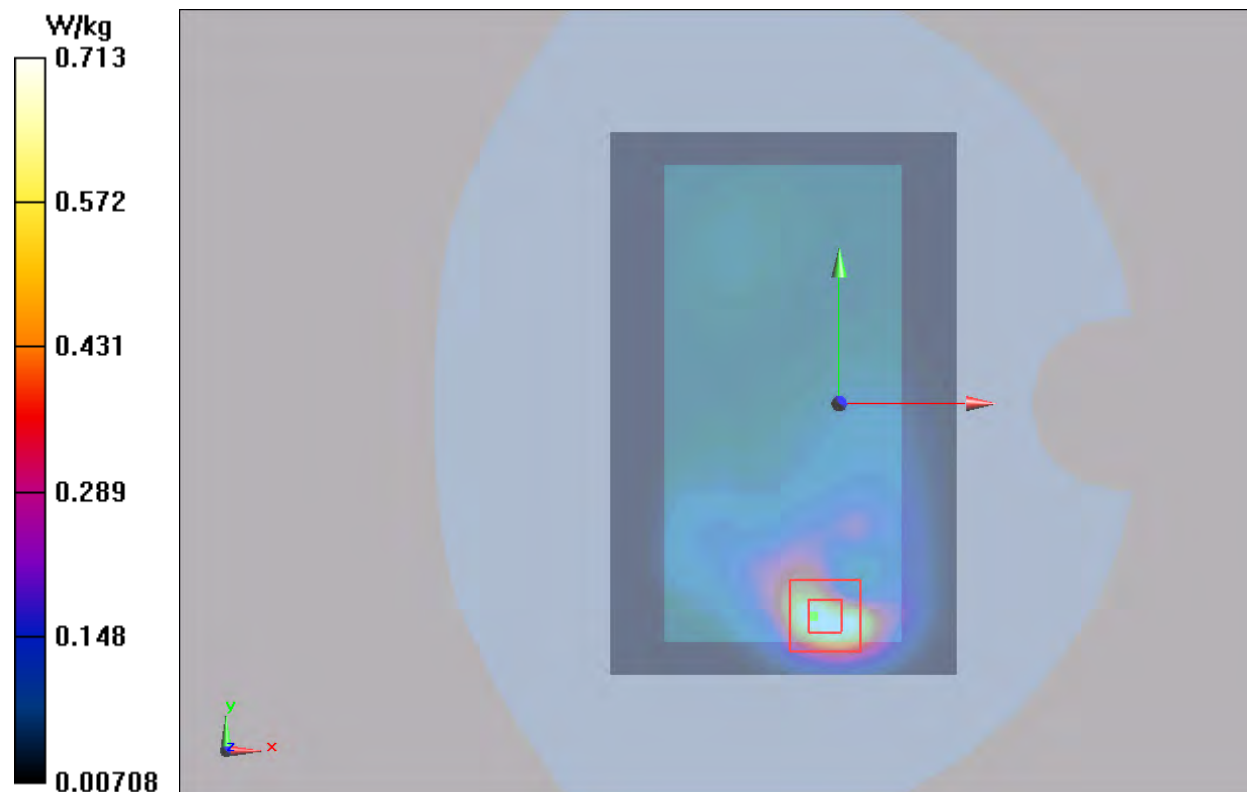


Figure 83 Body, Back Side, LTE Band 2 1RB Channel 19100



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**LTE Band 4 1RB Left Cheek Middle (Battery 2)**

Date: 3/12/2015

Communication System: UID 0, LTE (0); Frequency: 1732.5 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated):  $f = 1732.5$  MHz;  $\sigma = 1.305$  S/m;  $\epsilon_r = 39.699$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Left Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(8.02, 8.02, 8.02); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Left Cheek Middle/Area Scan (71x111x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.725 W/kg

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

Reference Value = 7.010 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 0.979 W/kg

**SAR(1 g) = 0.636 W/kg; SAR(10 g) = 0.393 W/kg**

Maximum value of SAR (measured) = 0.645 W/kg

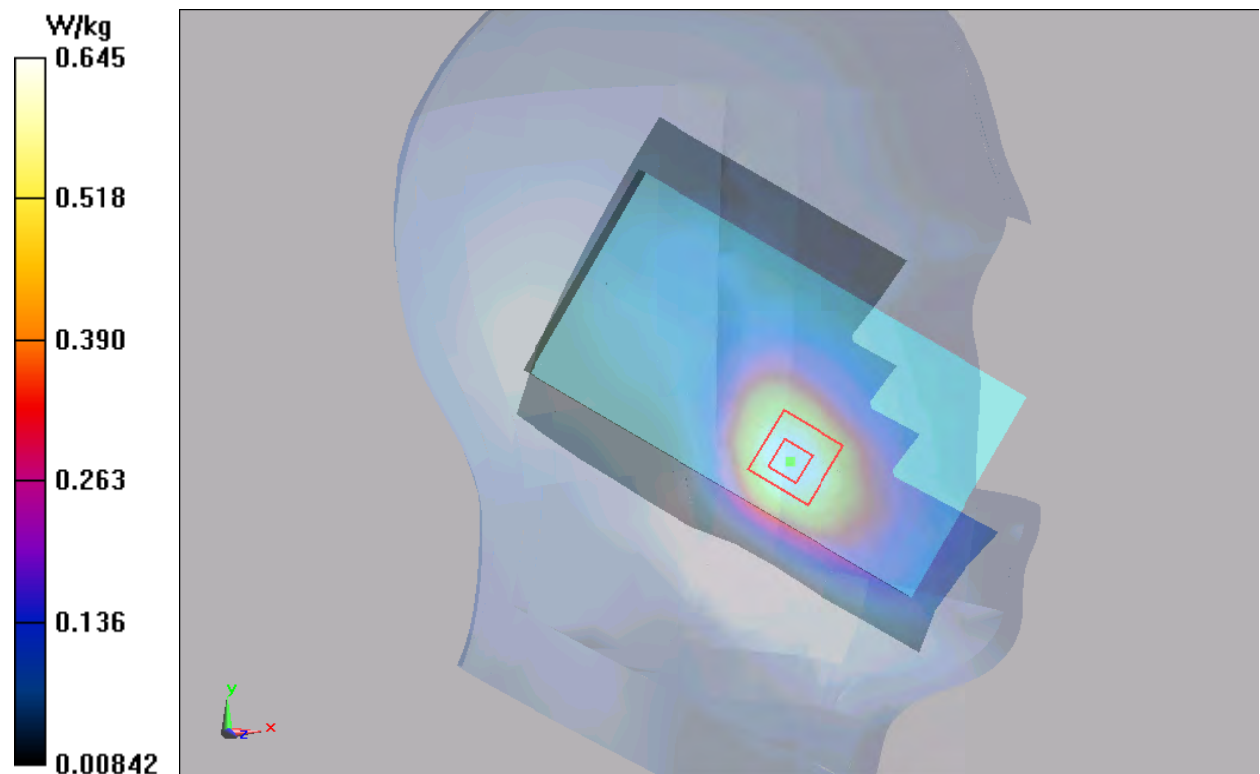


Figure 84 Left Hand Touch Cheek LTE Band 4 1RB Channel 20175

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**LTE Band 4 1RB Back Side Middle (Battery 1, Distance 15mm)**

Date: 3/23/2015

Communication System: UID 0, LTE (0); Frequency: 1732.5 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated):  $f = 1732.5$  MHz;  $\sigma = 1.488$  S/m;  $\epsilon_r = 52.928$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.74, 7.74, 7.74); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Back Side Middle/Area Scan (71x111x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.439 W/kg

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

Reference Value = 4.431 V/m; Power Drift = 0.021 dB

Peak SAR (extrapolated) = 0.692 W/kg

**SAR(1 g) = 0.416 W/kg; SAR(10 g) = 0.239 W/kg**

Maximum value of SAR (measured) = 0.459 W/kg

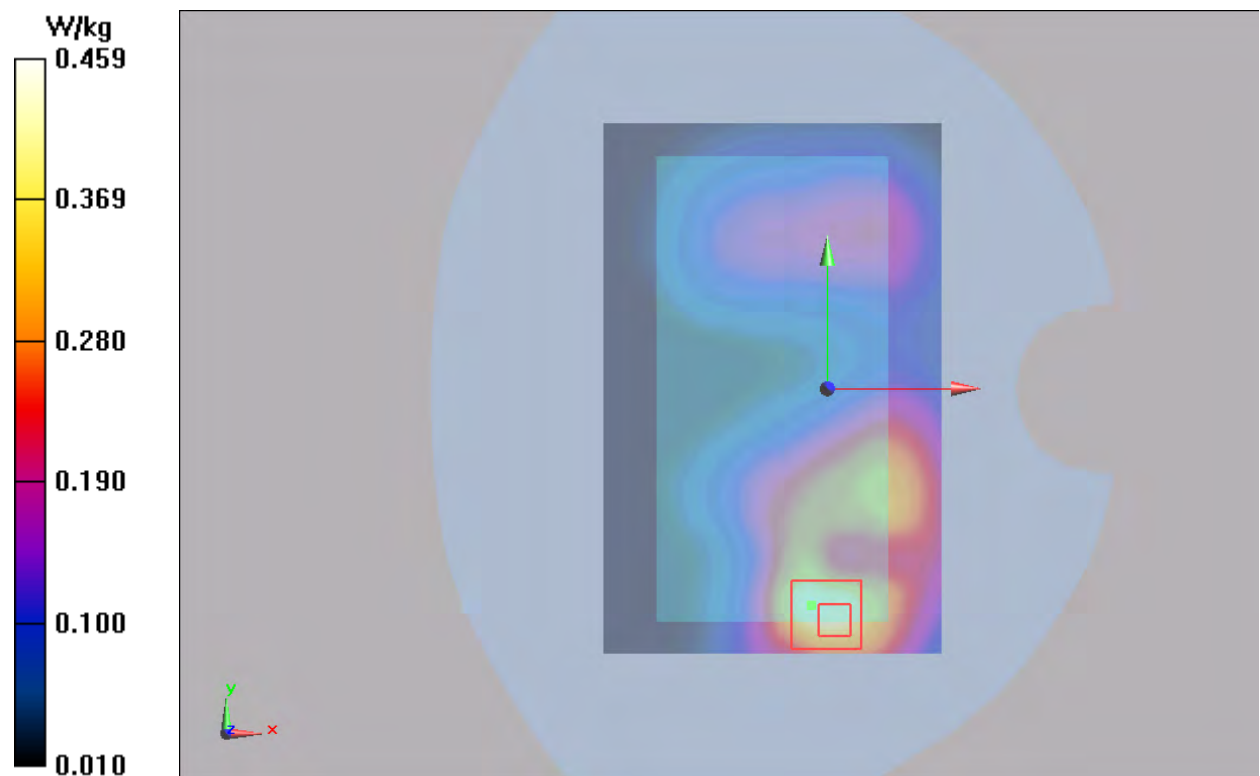


Figure 85 Body, Back Side, LTE Band 2 1RB Channel 20175

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**LTE Band 4 1RB Back Side Middle (Battery 1, Distance 10mm)**

Date: 3/23/2015

Communication System: UID 0, LTE (0); Frequency: 1732.5 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated):  $f = 1732.5$  MHz;  $\sigma = 1.488$  S/m;  $\epsilon_r = 52.928$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.74, 7.74, 7.74); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Back Side Middle/Area Scan (71x111x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.735 W/kg

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

Reference Value = 5.749 V/m; Power Drift = 0.021 dB

Peak SAR (extrapolated) = 1.26 W/kg

**SAR(1 g) = 0.654 W/kg; SAR(10 g) = 0.339 W/kg**

Maximum value of SAR (measured) = 0.623 W/kg

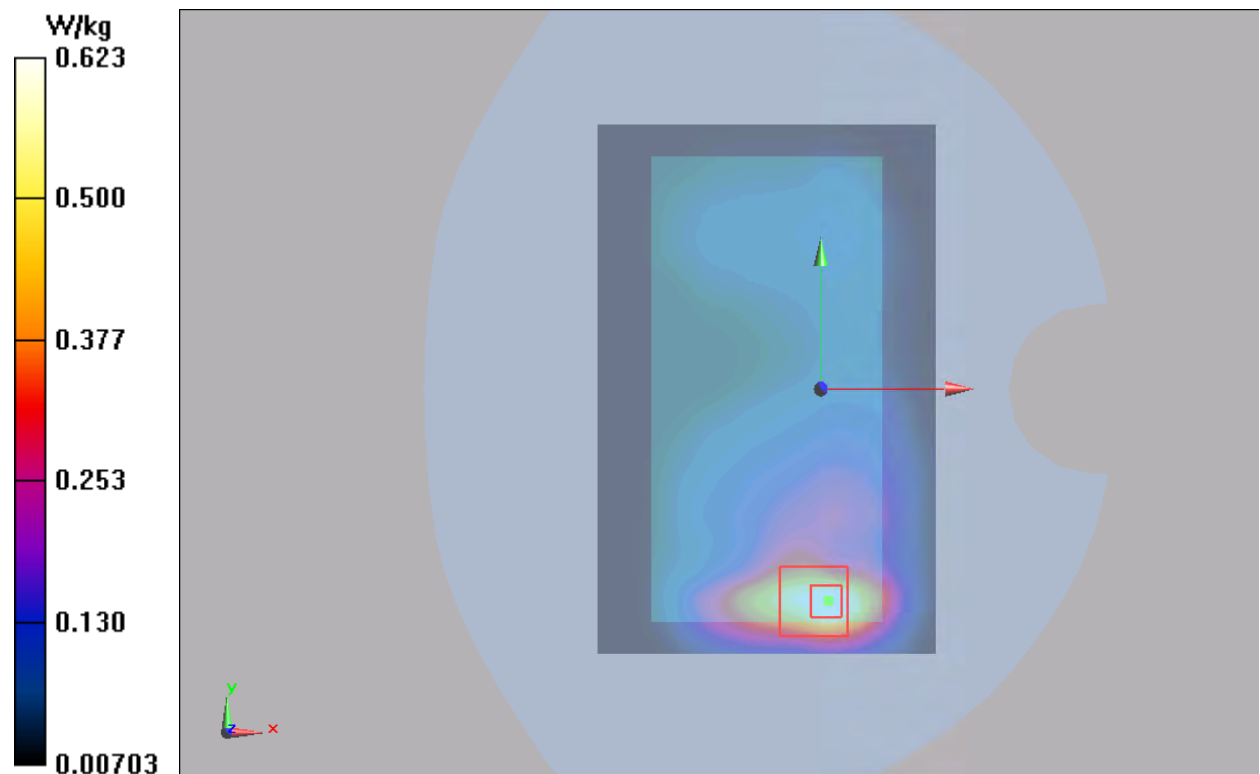


Figure 86 Body, Back Side, LTE Band 4 1RB Channel 20175

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### LTE Band 5 1RB Right Cheek High (Battery 1)

Date: 3/11/2015

Communication System: LTE Band 5; Frequency: 844 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 844 \text{ MHz}$ ;  $\sigma = 0.93 \text{ mho/m}$ ;  $\epsilon_r = 40$ ;  $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature:  $22.3^\circ\text{C}$       Liquid Temperature:  $21.5^\circ\text{C}$

Phantom section: Right Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.30, 9.30, 9.30); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 11; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY5, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Right Cheek High/Area Scan (61x111x1):** Measurement grid:  $dx=1.500\text{mm}$ ,  $dy=1.500\text{mm}$

Maximum value of SAR (interpolated) =  $0.267 \text{ mW/g}$

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

Reference Value =  $7.39 \text{ V/m}$ ; Power Drift =  $-0.028 \text{ dB}$

Peak SAR (extrapolated) =  $0.384 \text{ W/kg}$

**SAR(1 g) =  $0.261 \text{ mW/g}$ ; SAR(10 g) =  $0.196 \text{ mW/g}$**

Maximum value of SAR (measured) =  $0.273 \text{ mW/g}$

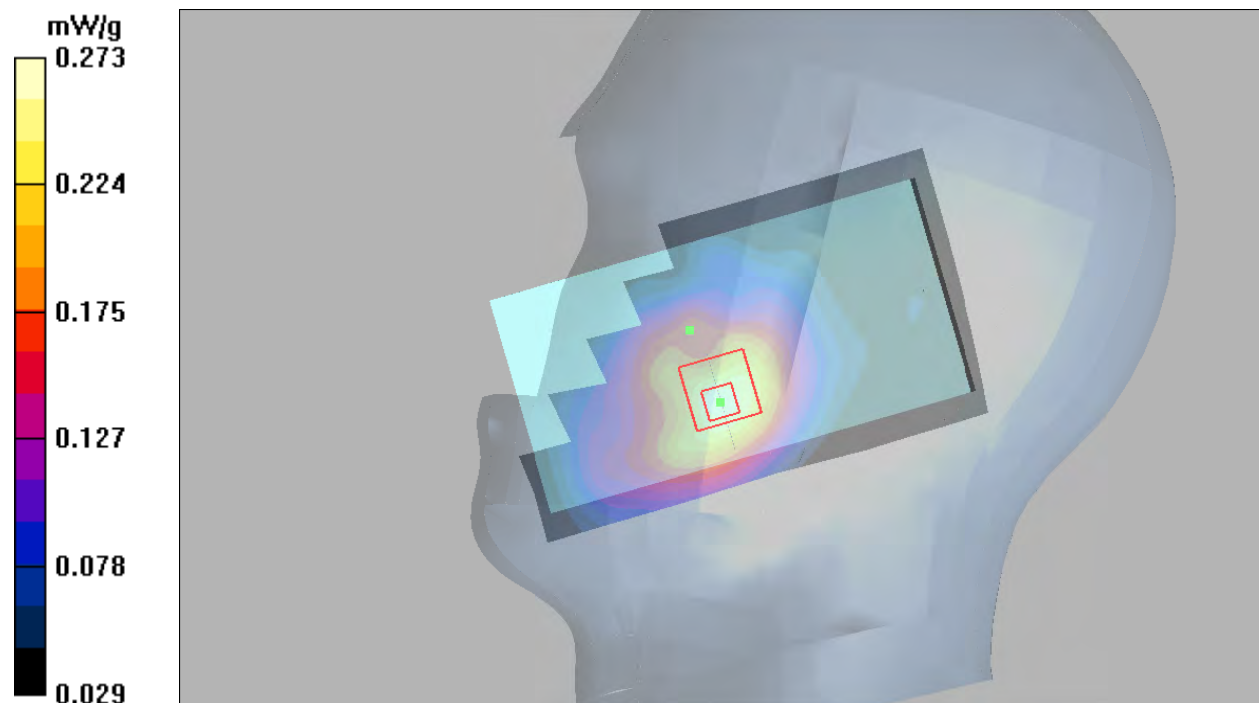


Figure 87 Right Hand Touch Cheek LTE Band 5 1RB Channel 20600

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### LTE Band 5 1RB Back Side High (Battery 1, Distance 15mm)

Date: 3/10/2015

Communication System: LTE Band 5; Frequency: 844 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 844 \text{ MHz}$ ;  $\sigma = 1.01 \text{ mho/m}$ ;  $\epsilon_r = 54.8$ ;  $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature:  $22.3^\circ\text{C}$       Liquid Temperature:  $21.5^\circ\text{C}$

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.45, 9.45, 9.45); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 11; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY5, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Back Side High/Area Scan (61x111x1):** Measurement grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) =  $0.146 \text{ mW/g}$

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

Reference Value =  $11.9 \text{ V/m}$ ; Power Drift =  $0.016 \text{ dB}$

Peak SAR (extrapolated) =  $0.177 \text{ W/kg}$

**SAR(1 g) =  $0.138 \text{ mW/g}$ ; SAR(10 g) =  $0.107 \text{ mW/g}$**

Maximum value of SAR (measured) =  $0.144 \text{ mW/g}$

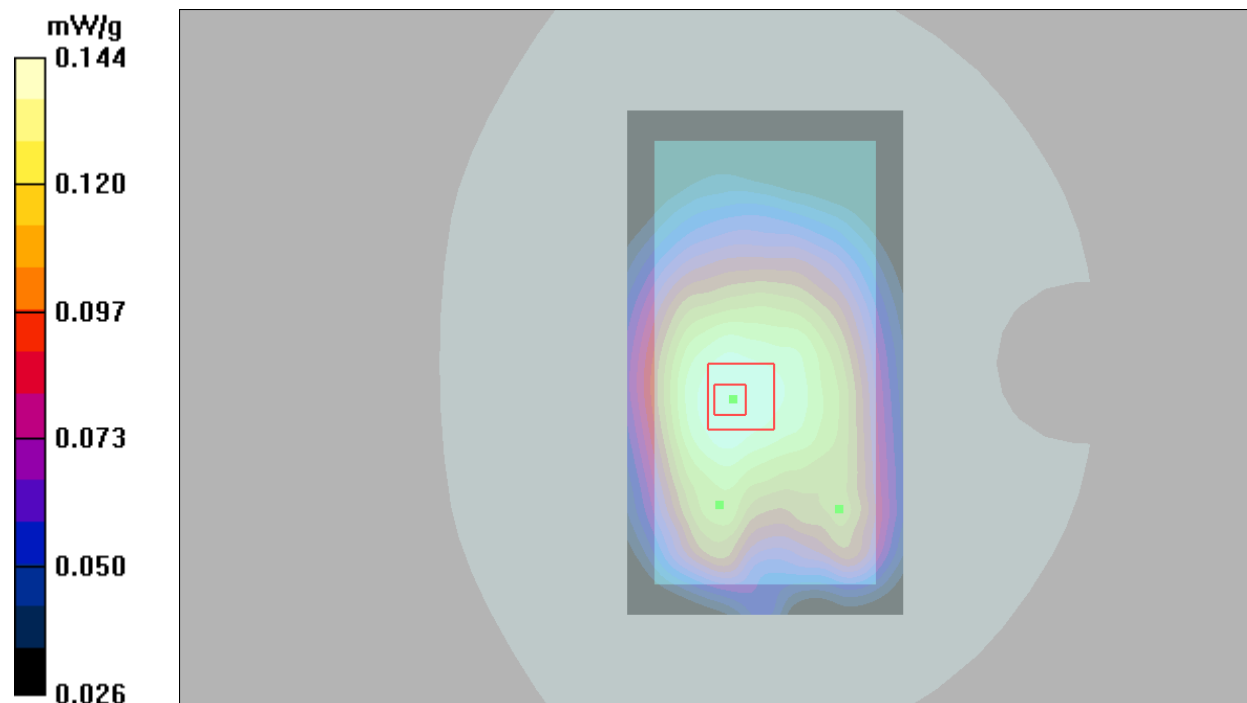


Figure 88 Body, Back Side, LTE Band 5 1RB Channel 20600

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**LTE Band 5 1RB Back Side High (Battery 1, Distance 10mm)**

Date: 3/10/2015

Communication System: LTE Band 5; Frequency: 844 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 844 \text{ MHz}$ ;  $\sigma = 1.01 \text{ mho/m}$ ;  $\epsilon_r = 55$ ;  $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature:  $22.3^\circ\text{C}$       Liquid Temperature:  $21.5^\circ\text{C}$

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.45, 9.45, 9.45); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 11; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY5, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Back Side High/Area Scan (71x111x1):** Measurement grid:  $dx=1.500\text{mm}$ ,  $dy=1.500\text{mm}$

Maximum value of SAR (interpolated) =  $0.311 \text{ mW/g}$

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

Reference Value =  $16.5 \text{ V/m}$ ; Power Drift =  $-0.024 \text{ dB}$

Peak SAR (extrapolated) =  $0.406 \text{ W/kg}$

**SAR(1 g) =  $0.316 \text{ mW/g}$ ; SAR(10 g) =  $0.227 \text{ mW/g}$**

Maximum value of SAR (measured) =  $0.330 \text{ mW/g}$

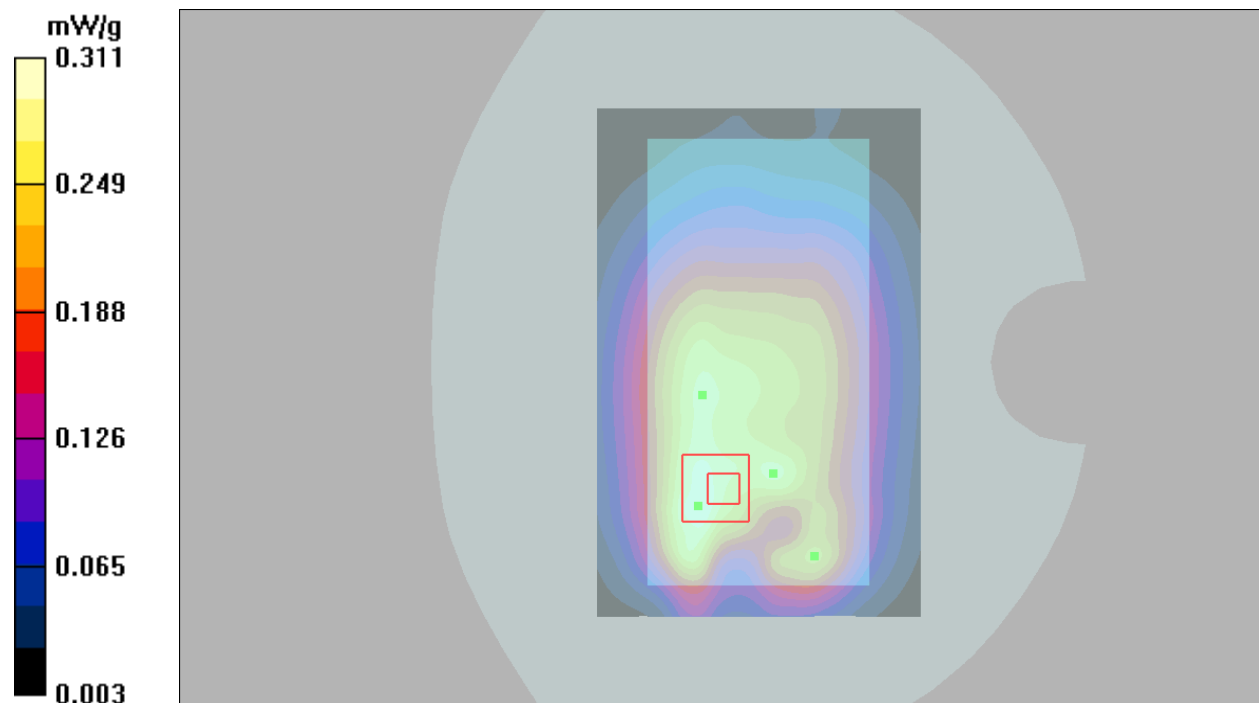


Figure 89 Body, Back Side, LTE Band 5 1RB Channel 20600

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### LTE Band 7 1RB Right Cheek High (Battery 2)

Date: 3/9/2015

Communication System: UID 0, LTE (0); Frequency: 2560 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 2560$  MHz;  $\sigma = 1.941$  S/m;  $\epsilon_r = 38.761$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Right Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(6.94, 6.94, 6.94); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Right Cheek High/Area Scan (91x141x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.603 W/kg

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

Reference Value = 3.702 V/m; Power Drift = 0.176 dB

Peak SAR (extrapolated) = 1.09 W/kg

**SAR(1 g) = 0.577 W/kg; SAR(10 g) = 0.297 W/kg**

Maximum value of SAR (measured) = 0.613 W/kg

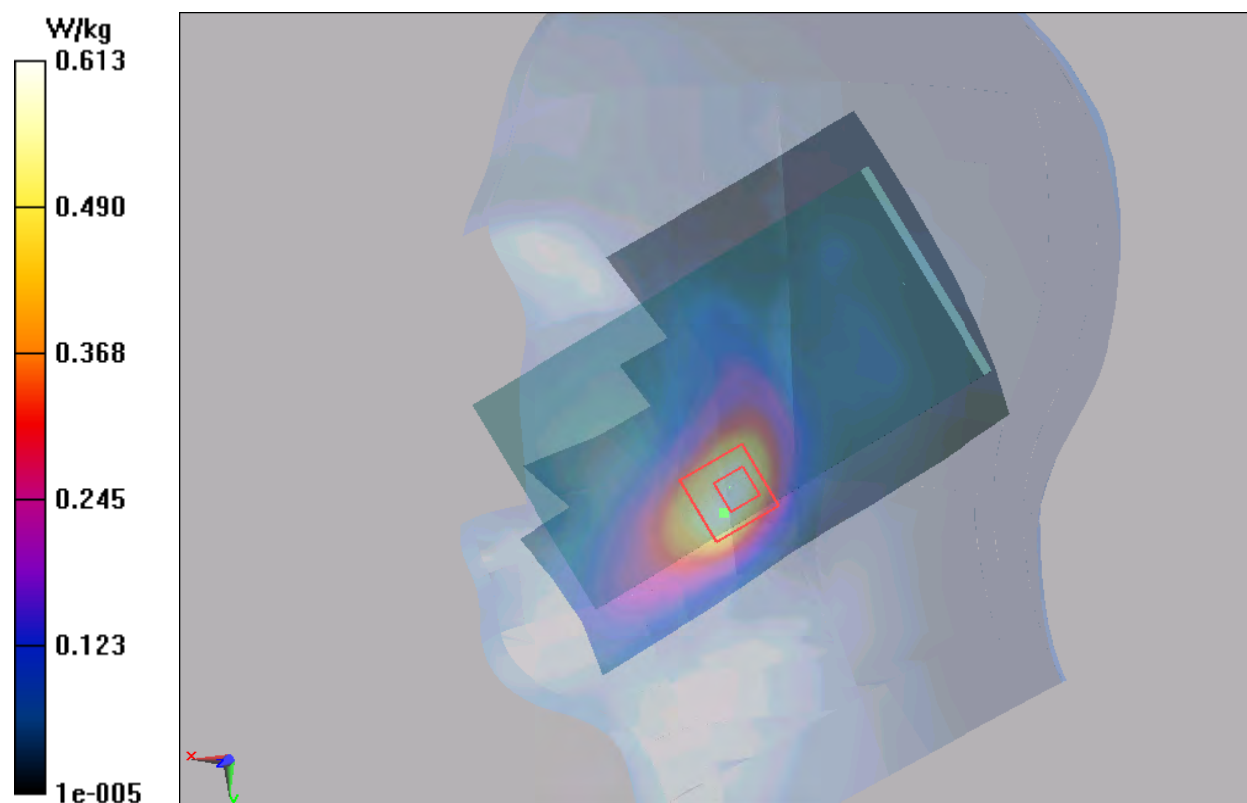


Figure 90 Right Hand Touch Cheek LTE Band 7 1RB Channel 21350



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### LTE Band 7 1RB Front Side High (Battery 1, Distance 15mm)

Date: 3/9/2015

Communication System: UID 0, LTE (0); Frequency: 2560 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 2560$  MHz;  $\sigma = 2.151$  S/m;  $\epsilon_r = 52.442$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.29, 7.29, 7.29); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Front Side High/Area Scan (91x141x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.352 W/kg

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

Reference Value = 8.250 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 0.581 W/kg

**SAR(1 g) = 0.326 W/kg; SAR(10 g) = 0.181 W/kg**

Maximum value of SAR (measured) = 0.329 W/kg

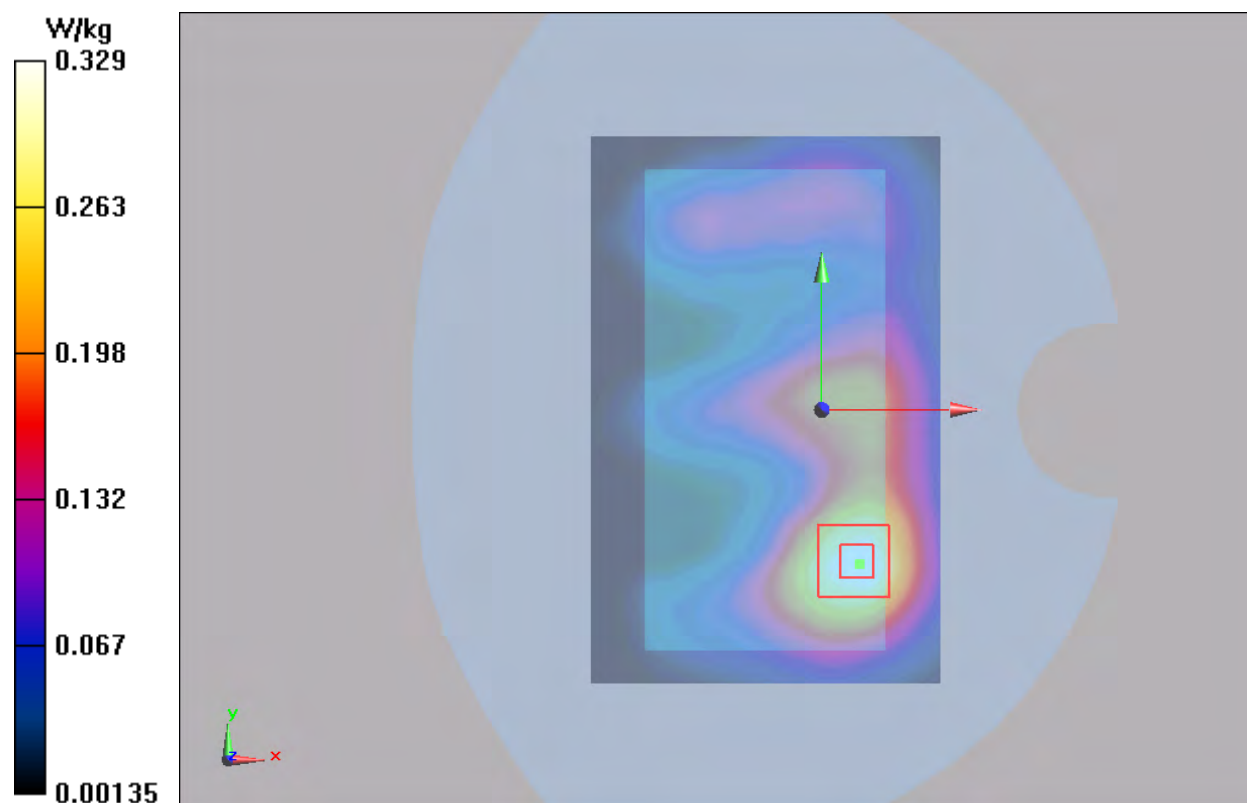


Figure 91 Body, Front Side, LTE Band 7 1RB Channel 21350



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**LTE Band 7 1RB Front Side High (Battery 1, Distance 10mm)**

Date: 3/9/2015

Communication System: UID 0, LTE (0); Frequency: 2560 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 2560$  MHz;  $\sigma = 2.151$  S/m;  $\epsilon_r = 52.442$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.29, 7.29, 7.29); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Front Side High/Area Scan (91x141x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.456 W/kg

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

Reference Value = 7.489 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 0.703 W/kg

**SAR(1 g) = 0.399 W/kg; SAR(10 g) = 0.220 W/kg**

Maximum value of SAR (measured) = 0.405 W/kg

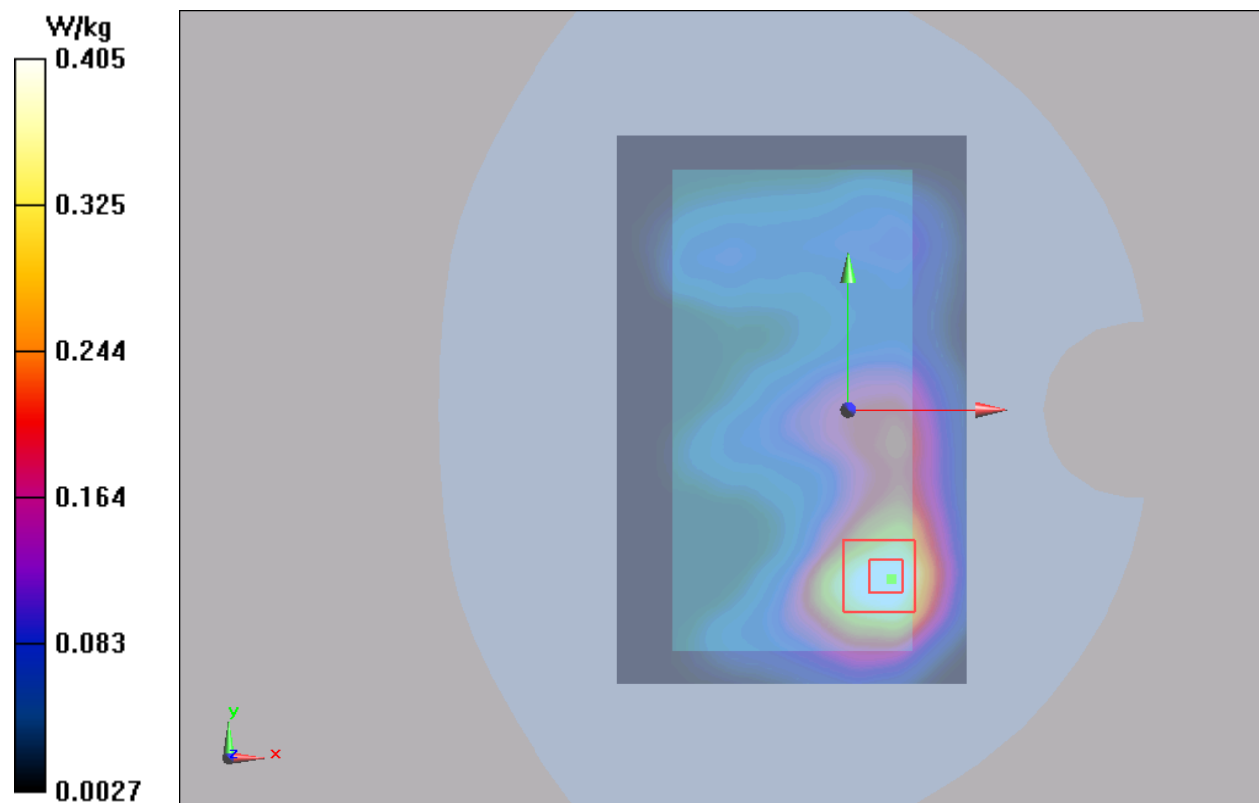


Figure 92 Body, Front Side, LTE Band 7 1RB Channel 21350

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**LTE Band 12 1RB Right Cheek Middle (Battery 2)**

Date: 3/15/2015

Communication System: LTE Band 12; Frequency: 707.5 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated):  $f = 707.5$  MHz;  $\sigma = 0.868$  mho/m;  $\epsilon_r = 42.6$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Right Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.79, 9.79, 9.79); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 11; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY5, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Right Cheek Middle/Area Scan (61x111x1):** Measurement grid: dx=1.500mm, dy=1.500mm

Maximum value of SAR (interpolated) = 0.051 mW/g

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

Reference Value = 1.88 V/m; Power Drift = -0.094 dB

Peak SAR (extrapolated) = 0.061 W/kg

**SAR(1 g) = 0.046 mW/g; SAR(10 g) = 0.037 mW/g**

Maximum value of SAR (measured) = 0.051 mW/g

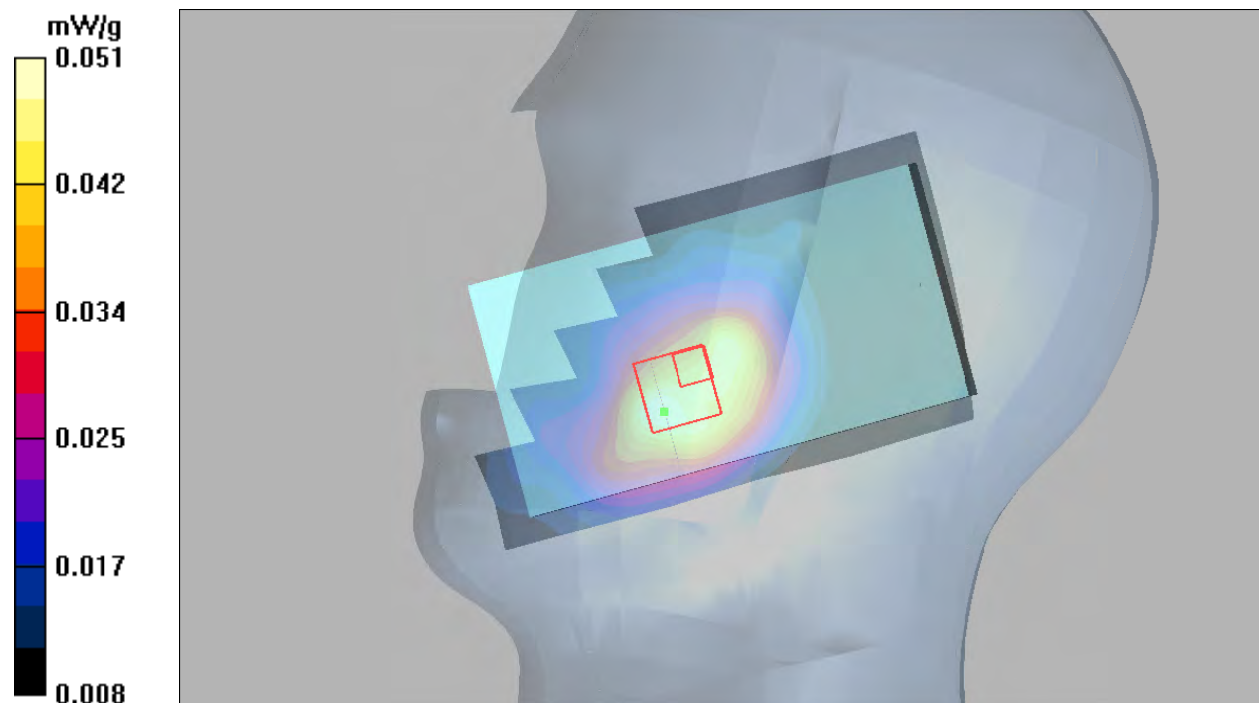


Figure 93 Right Hand Touch Cheek LTE Band 12 1RB Channel 23095

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**LTE Band 12 1RB Back Side Middle (Battery 1, Distance 15mm)**

Date: 3/14/2015

Communication System: LTE Band 12; Frequency: 707.5 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated):  $f = 707.5$  MHz;  $\sigma = 0.928$  mho/m;  $\epsilon_r = 54.8$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.53, 9.53, 9.53); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 11; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY5, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Back Side Middle/Area Scan (61x111x1):** Measurement grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.073 mW/g

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

Reference Value = 6.99 V/m; Power Drift = 0.044 dB

Peak SAR (extrapolated) = 0.105 W/kg

**SAR(1 g) = 0.069 mW/g; SAR(10 g) = 0.048 mW/g**

Maximum value of SAR (measured) = 0.073 mW/g

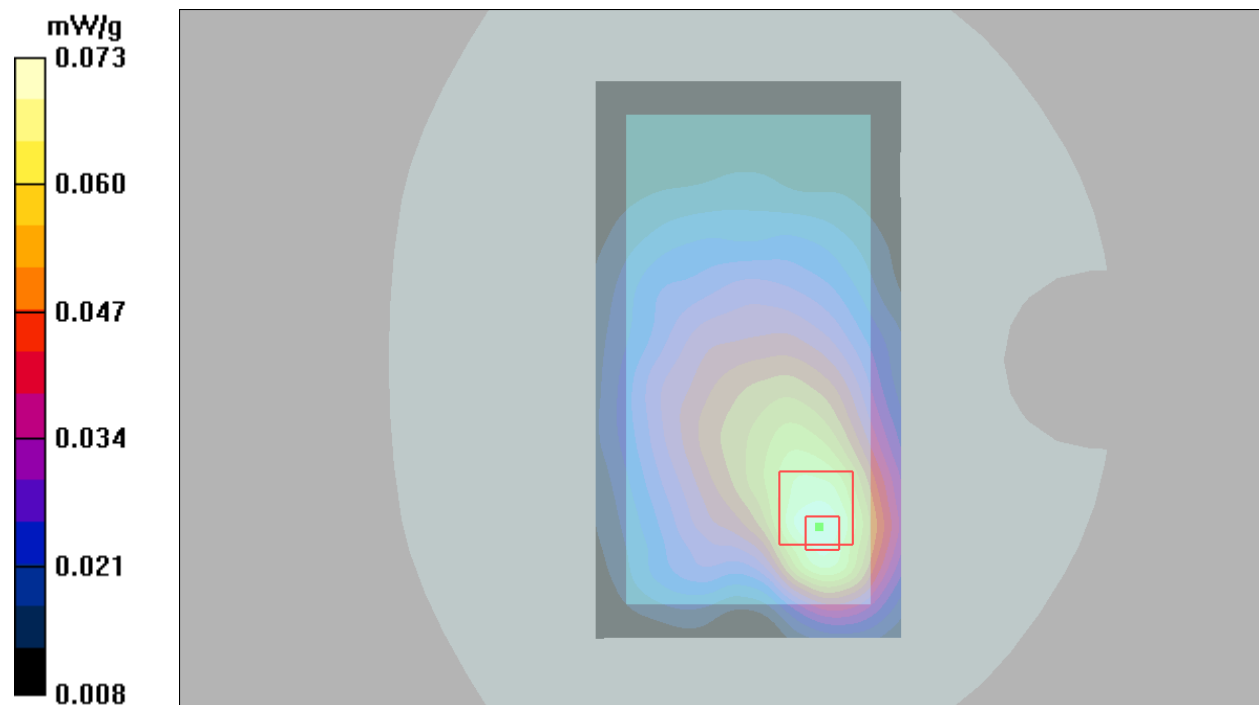


Figure 94 Body, Back Side, LTE Band 12 1RB Channel 23095

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**LTE Band 12 1RB Back Side Middle (Battery 2, Distance 10mm)**

Date: 3/14/2015

Communication System: LTE Band 12; Frequency: 707.5 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated):  $f = 707.5$  MHz;  $\sigma = 0.928$  mho/m;  $\epsilon_r = 54.8$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.53, 9.53, 9.53); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 11; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY5, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Back Side Middle/Area Scan (71x111x1):** Measurement grid: dx=1.500mm, dy=1.500mm

Maximum value of SAR (interpolated) = 0.120 mW/g

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

Reference Value = 8.43 V/m; Power Drift = -0.052 dB

Peak SAR (extrapolated) = 0.179 W/kg

**SAR(1 g) = 0.114 mW/g; SAR(10 g) = 0.075 mW/g**

Maximum value of SAR (measured) = 0.122 mW/g

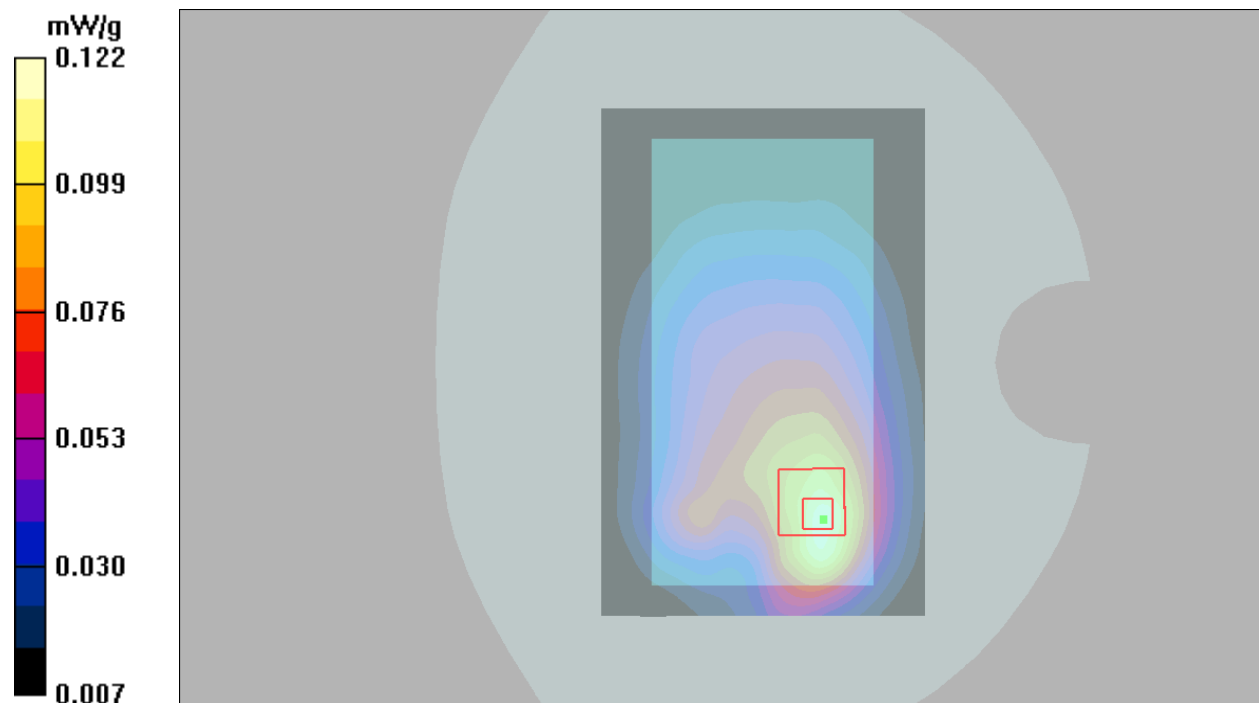


Figure 95 Body, Back Side, LTE Band 12 1RB Channel 23095

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**LTE Band 17 1RB Right Cheek Middle (Battery 1)**

Date: 3/15/2015

Communication System: LTE B17; Frequency: 710 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 710 \text{ MHz}$ ;  $\sigma = 0.87 \text{ mho/m}$ ;  $\epsilon_r = 42.6$ ;  $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature:  $22.3 \text{ }^\circ\text{C}$       Liquid Temperature:  $21.5^\circ\text{C}$

Phantom section: Right Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.79, 9.79, 9.79); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 11; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY5, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Right Cheek Middle/Area Scan (61x111x1):** Measurement grid:  $dx=1.500\text{mm}$ ,  $dy=1.500\text{mm}$

Maximum value of SAR (interpolated) =  $0.046 \text{ mW/g}$

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

Reference Value =  $1.75 \text{ V/m}$ ; Power Drift =  $-0.02 \text{ dB}$

Peak SAR (extrapolated) =  $0.134 \text{ W/kg}$

**SAR(1 g) =  $0.054 \text{ mW/g}$ ; SAR(10 g) =  $0.031 \text{ mW/g}$**

Maximum value of SAR (measured) =  $0.089 \text{ mW/g}$

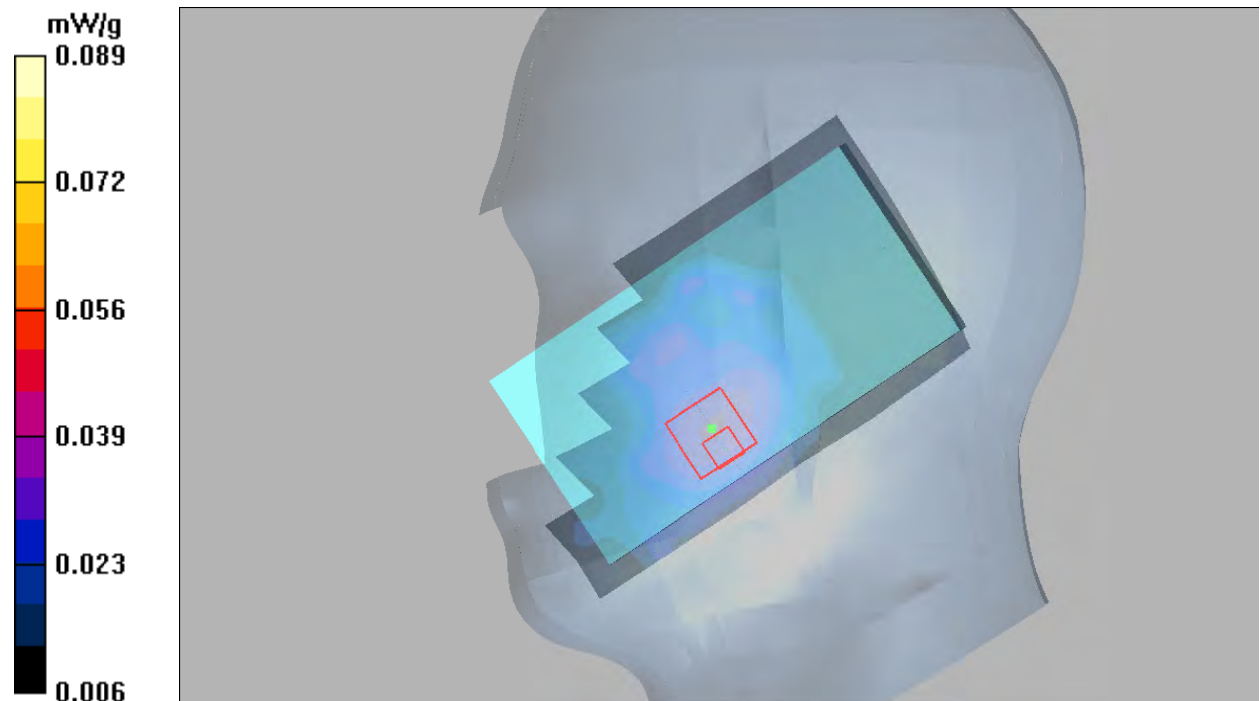


Figure 96 Right Hand Touch Cheek LTE Band 17 1RB Channel 23790

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### LTE Band 17 1RB Back Side Middle (Battery1, Distance 15mm)

Date: 3/14/2015

Communication System: LTE B17; Frequency: 710 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 710$  MHz;  $\sigma = 0.931$  mho/m;  $\epsilon_r = 54.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.53, 9.53, 9.53); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 11; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY5, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Back Side Middle/Area Scan (61x111x1):** Measurement grid: dx=1.500 mm, dy=1.500 mm  
Maximum value of SAR (interpolated) = 0.059 mW/g

**Back Side Middle/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 6.29 V/m; Power Drift = 0.032 dB  
Peak SAR (extrapolated) = 0.081 W/kg  
**SAR(1 g) = 0.053 mW/g; SAR(10 g) = 0.038 mW/g**

Maximum value of SAR (measured) = 0.056 mW/g

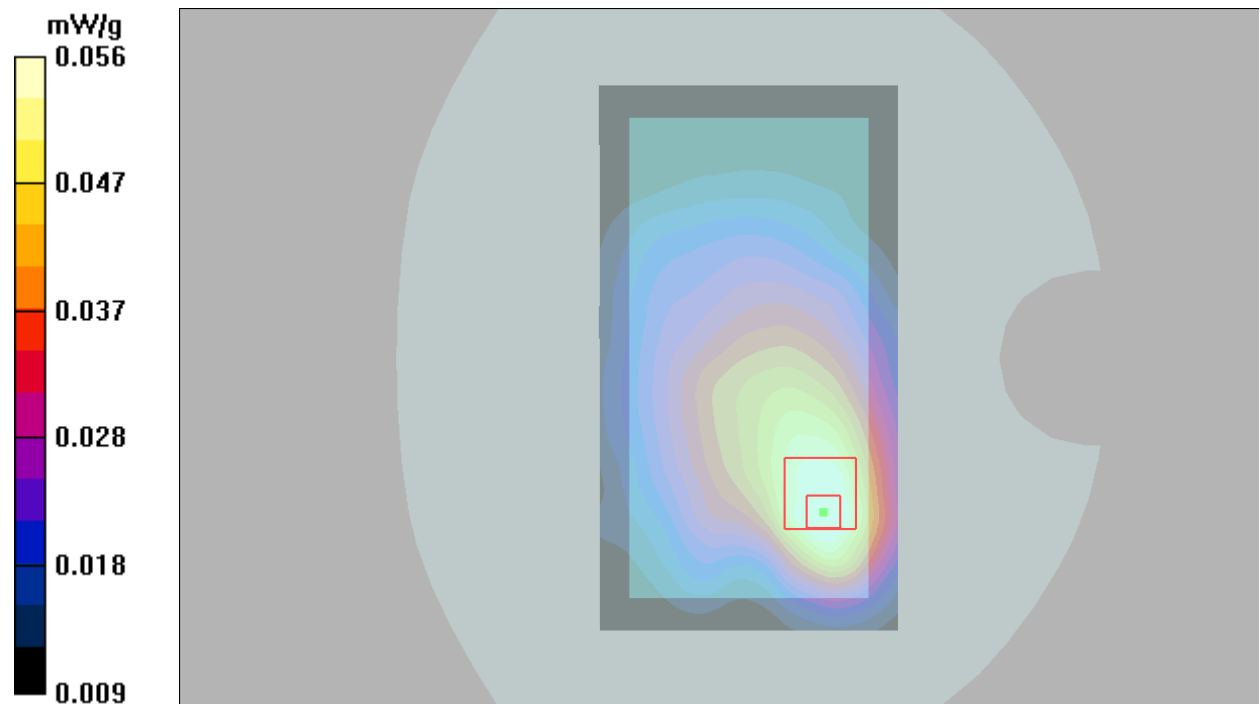


Figure 97 Body, Back Side, LTE Band 17 1RB Channel 23790

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### LTE Band 17 50%RB Right Edge Middle (Battery 1, Distance 10mm)

Date: 3/14/2015

Communication System: LTE B17; Frequency: 710 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 710 \text{ MHz}$ ;  $\sigma = 0.931 \text{ mho/m}$ ;  $\epsilon_r = 54.7$ ;  $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature:  $22.3^\circ\text{C}$       Liquid Temperature:  $21.5^\circ\text{C}$

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.53, 9.53, 9.53); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 11; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY5, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Right Edge Middle/Area Scan (51x171x1):** Measurement grid:  $dx=1.000\text{mm}$ ,  $dy=1.000\text{mm}$

Maximum value of SAR (interpolated) =  $0.114 \text{ mW/g}$

**Right Edge Middle/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value =  $11.2 \text{ V/m}$ ; Power Drift =  $-0.026 \text{ dB}$

Peak SAR (extrapolated) =  $0.145 \text{ W/kg}$

**SAR(1 g) =  $0.106 \text{ mW/g}$ ; SAR(10 g) =  $0.075 \text{ mW/g}$**

Maximum value of SAR (measured) =  $0.113 \text{ mW/g}$

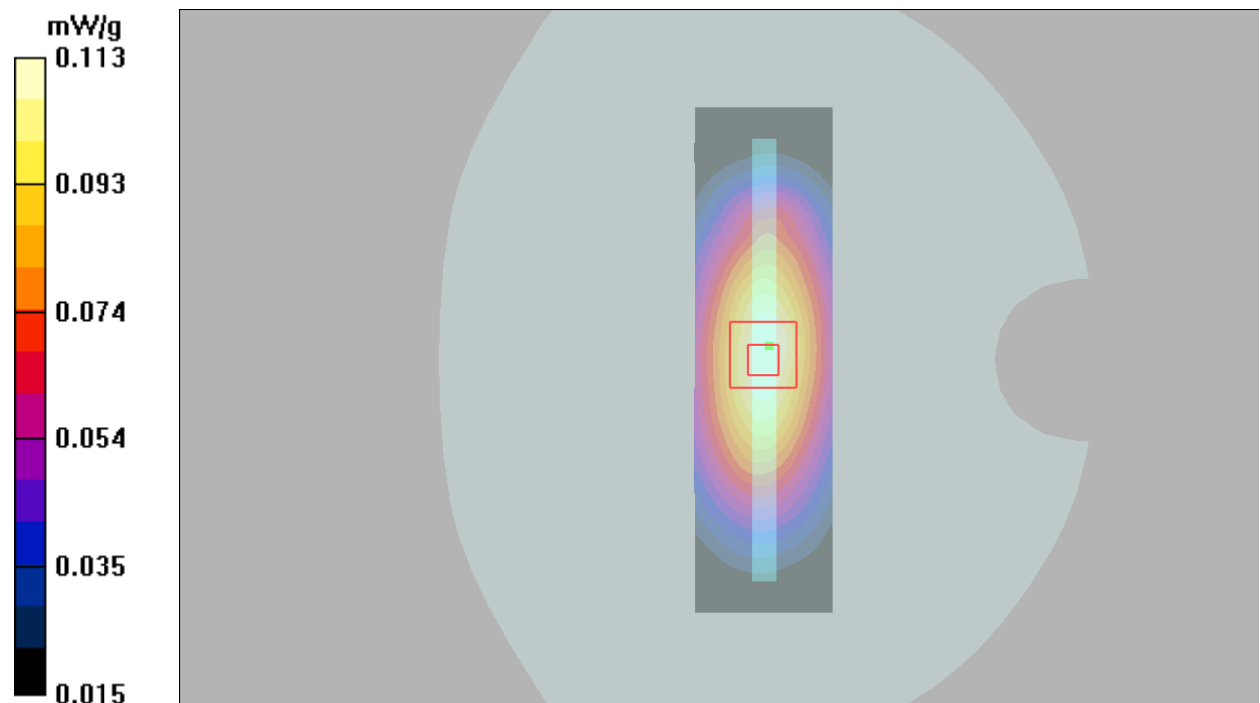


Figure 98 Body, Right Edge, LTE Band 17 50%RB Channel 23790

### LTE Band 25 1RB Left Cheek High (Battery 1)

Date: 3/17/2015

Communication System: UID 0, LTE (0); Frequency: 1905 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 1905$  MHz;  $\sigma = 1.436$  S/m;  $\epsilon_r = 39.583$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Left Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.94, 7.94, 7.94); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Left Cheek High/Area Scan (71x111x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.861 W/kg

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

Reference Value = 6.133 V/m; Power Drift = 0.085 dB

Peak SAR (extrapolated) = 1.18 W/kg

**SAR(1 g) = 0.752 W/kg; SAR(10 g) = 0.460 W/kg**

Maximum value of SAR (measured) = 0.766 W/kg

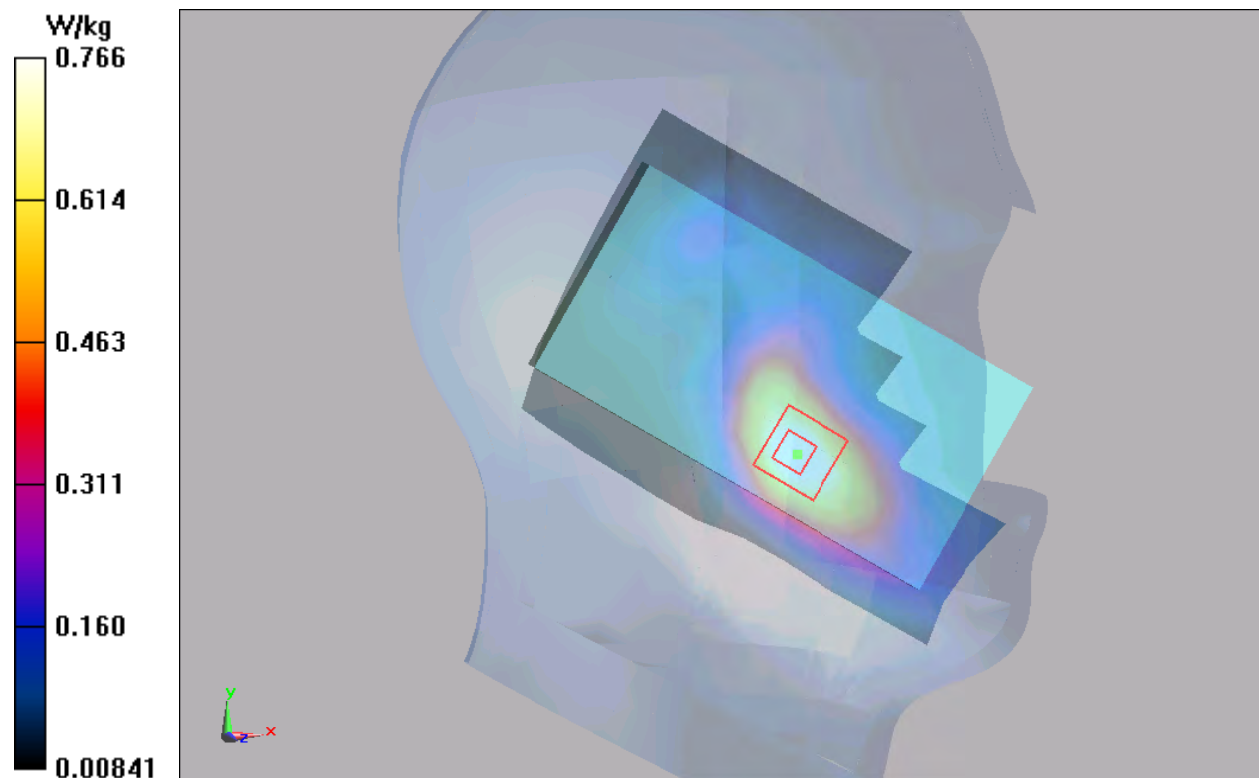


Figure 99 Left Hand Touch Cheek LTE Band 25 1RB Channel 26590



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**LTE Band 25 1RB Back Side High (Battery 1, Distance 15mm)**

Date: 3/26/2015

Communication System: UID 0, LTE (0); Frequency: 1905 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 1905$  MHz;  $\sigma = 1.529$  S/m;  $\epsilon_r = 53.065$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.57, 7.57, 7.57); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Back Side High/Area Scan (71x111x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.458 W/kg

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

Reference Value = 4.364 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.735 W/kg

**SAR(1 g) = 0.415 W/kg; SAR(10 g) = 0.212 W/kg**

Maximum value of SAR (measured) = 0.407 W/kg

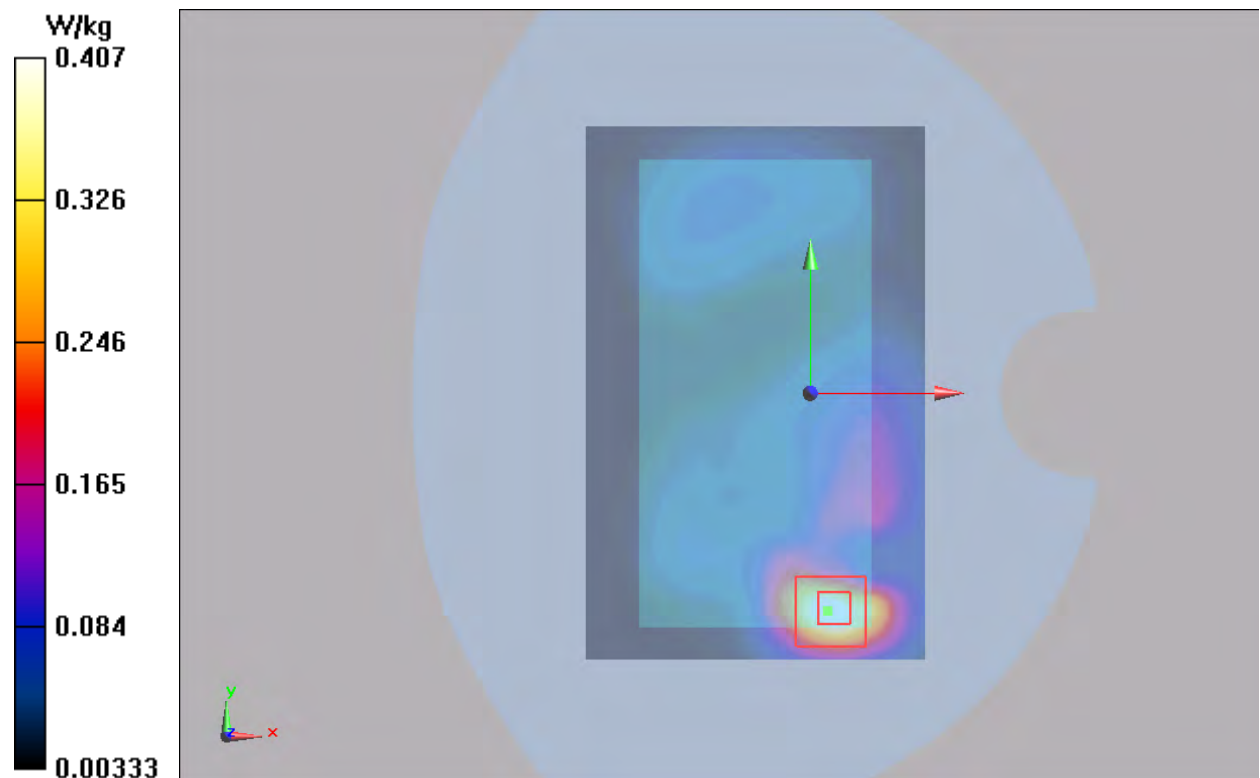


Figure 100 Body, Back Side, LTE Band 25 1RB Channel 26590

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### LTE Band 25 1RB Back Side High (Battery 1, Distance 10mm)

Date: 3/26/2015

Communication System: UID 0, LTE (0); Frequency: 1905 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 1905$  MHz;  $\sigma = 1.529$  S/m;  $\epsilon_r = 53.065$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.57, 7.57, 7.57); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Back Side High/Area Scan (71x111x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.08 W/kg

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

Reference Value = 4.460 V/m; Power Drift = 0.020 dB

Peak SAR (extrapolated) = 2.03 W/kg

**SAR(1 g) = 1.05 W/kg; SAR(10 g) = 0.489 W/kg**

Maximum value of SAR (measured) = 1.16 W/kg

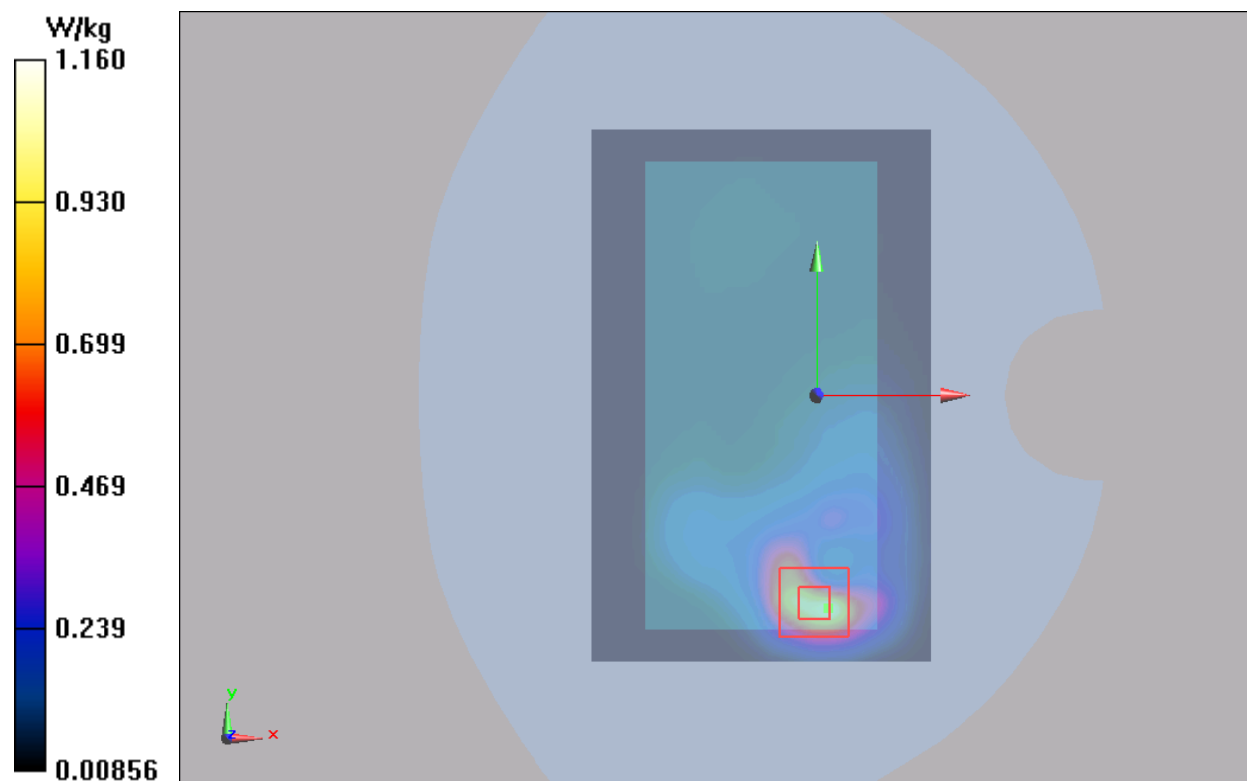


Figure 101 Body, Back Side, LTE Band 25 1RB Channel 26590

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**LTE Band 26 1RB Right Cheek Middle (Battery 1)**

Date: 3/11/2015

Communication System: LTE Band 26; Frequency: 831.5 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated):  $f = 831.5$  MHz;  $\sigma = 0.917$  mho/m;  $\epsilon_r = 40.1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Right Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.30, 9.30, 9.30); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 11; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY5, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Right Cheek Middle/Area Scan (61x111x1):** Measurement grid: dx=1.500mm, dy=1.500mm

Maximum value of SAR (interpolated) = 0.224 mW/g

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

Reference Value = 6.74 V/m; Power Drift = 0.056 dB

Peak SAR (extrapolated) = 0.273 W/kg

**SAR(1 g) = 0.207 mW/g; SAR(10 g) = 0.158 mW/g**

Maximum value of SAR (measured) = 0.213 mW/g

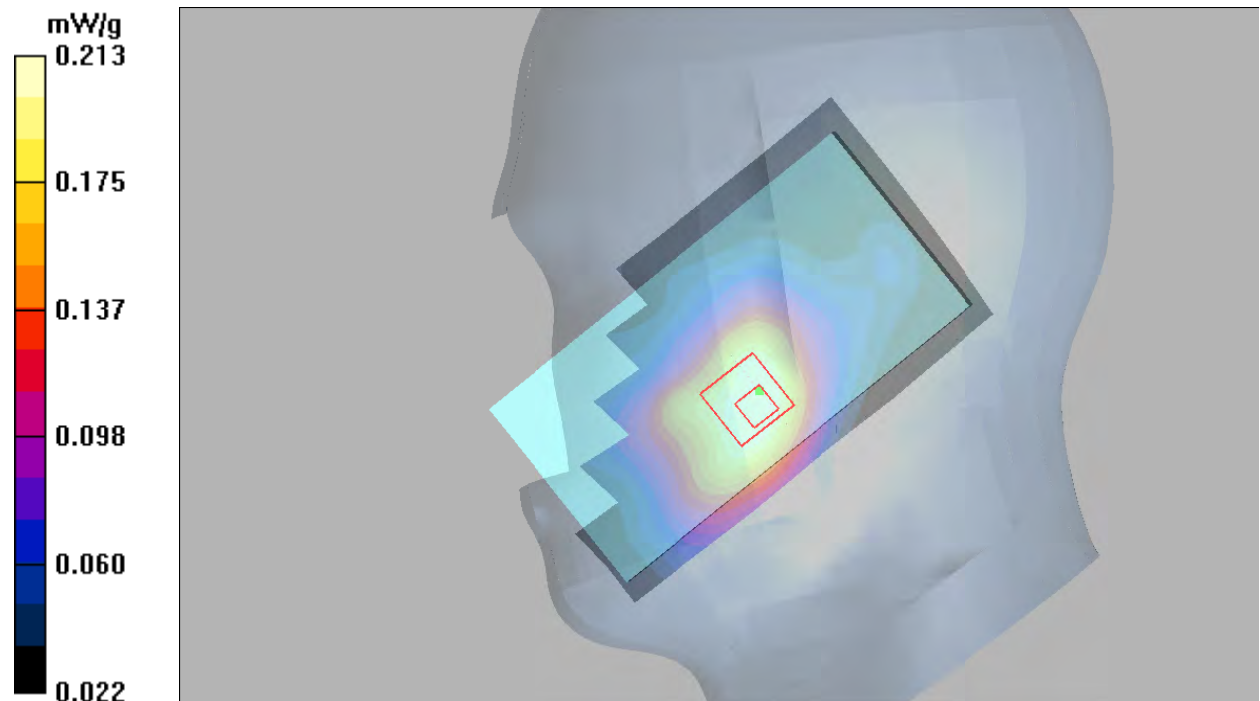


Figure 102 Right Hand Touch Cheek LTE Band 26 1RB Channel 26865

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### LTE Band 26 1RB Back Side Middle (Battery 1, Distance 15mm)

Date: 3/10/2015

Communication System: LTE Band 26; Frequency: 831.5 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated):  $f = 831.5$  MHz;  $\sigma = 0.996$  mho/m;  $\epsilon_r = 54.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.45, 9.45, 9.45); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 11; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY5, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Back Side Middle/Area Scan (61x111x1):** Measurement grid: dx=1.500 mm, dy=1.500 mm  
Maximum value of SAR (interpolated) = 0.133 mW/g

**Back Side Middle/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 11.3 V/m; Power Drift = 0.047 dB  
Peak SAR (extrapolated) = 0.161 W/kg

**SAR(1 g) = 0.126 mW/g; SAR(10 g) = 0.098 mW/g**

Maximum value of SAR (measured) = 0.131 mW/g

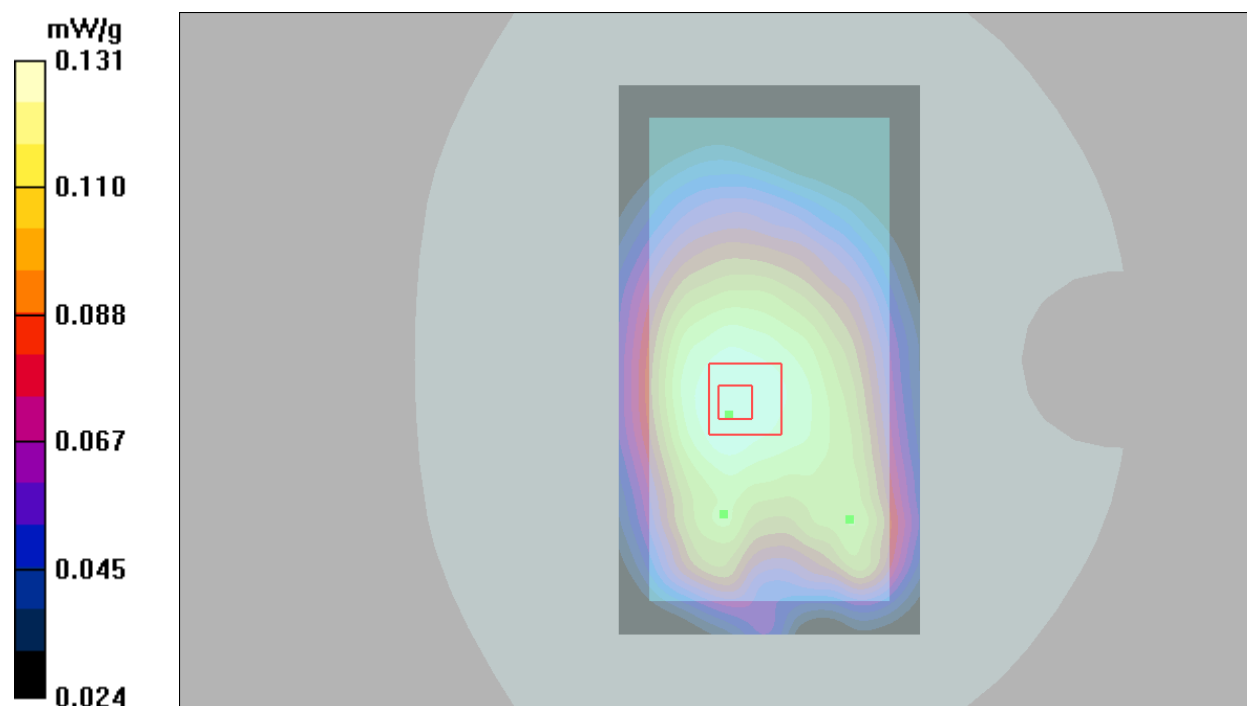


Figure 103 Body, Back Side, LTE Band 26 1RB Channel 26865

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**LTE Band 26 1RB Back Side Middle (Battery 2, Distance 10mm)**

Date: 3/10/2015

Communication System: LTE Band 26; Frequency: 831.5 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated):  $f = 831.5$  MHz;  $\sigma = 0.998$  mho/m;  $\epsilon_r = 55.1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.45, 9.45, 9.45); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 11; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY5, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Back Side Middle/Area Scan (71x111x1):** Measurement grid: dx=1.500mm, dy=1.500mm

Maximum value of SAR (interpolated) = 0.282 mW/g

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

Reference Value = 13.2 V/m; Power Drift = -0.061 dB

Peak SAR (extrapolated) = 0.361 W/kg

**SAR(1 g) = 0.249 mW/g; SAR(10 g) = 0.170 mW/g**

Maximum value of SAR (measured) = 0.288 mW/g

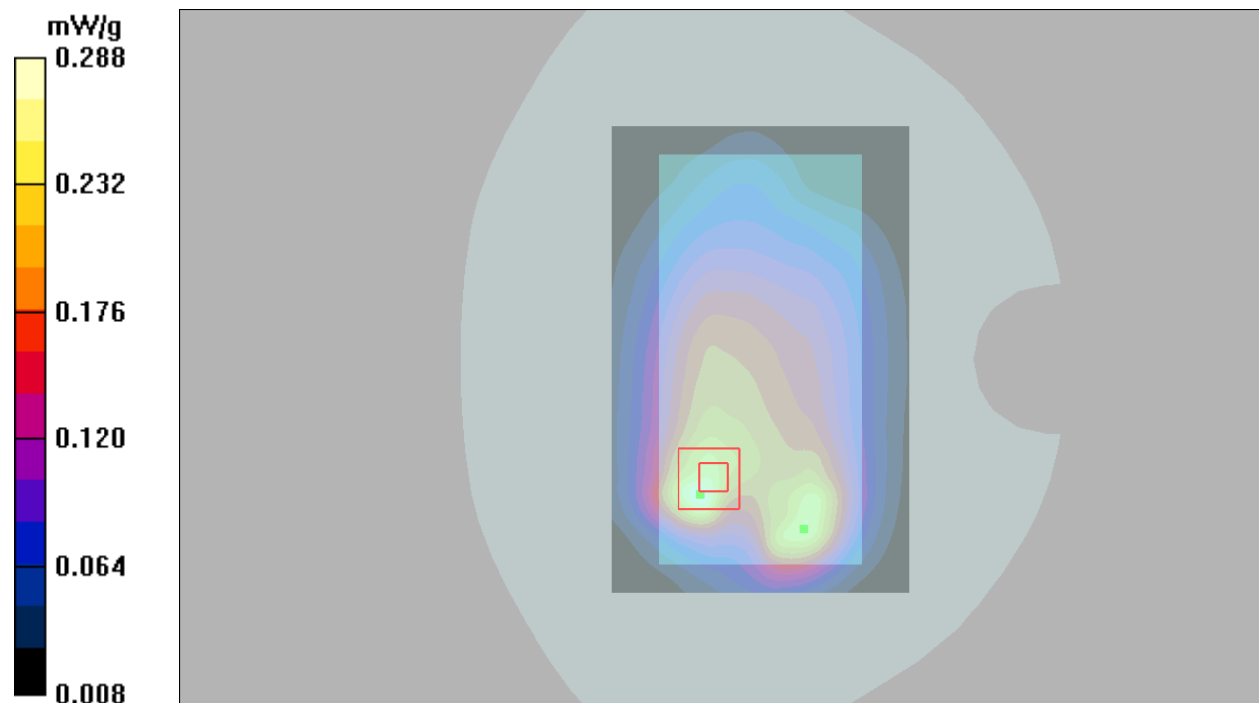


Figure 104 Body, Back Side, LTE Band 26 1RB Channel 26865

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**ANNEX C3: WiFi Antenna**

**802.11b Left Cheek Low (Battery 1)**

Date: 3/25/2015

Communication System: UID 0, 802.11b (0); Frequency: 2412 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 2412$  MHz;  $\sigma = 1.771$  S/m;  $\epsilon_r = 38.872$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Left Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.22, 7.22, 7.22); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Left Cheek Low/Area Scan (91x141x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.778 W/kg

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

Reference Value = 6.085 V/m; Power Drift = 0.057 dB

Peak SAR (extrapolated) = 1.93 W/kg

**SAR(1 g) = 0.724 W/kg; SAR(10 g) = 0.315 W/kg**

Maximum value of SAR (measured) = 0.755 W/kg

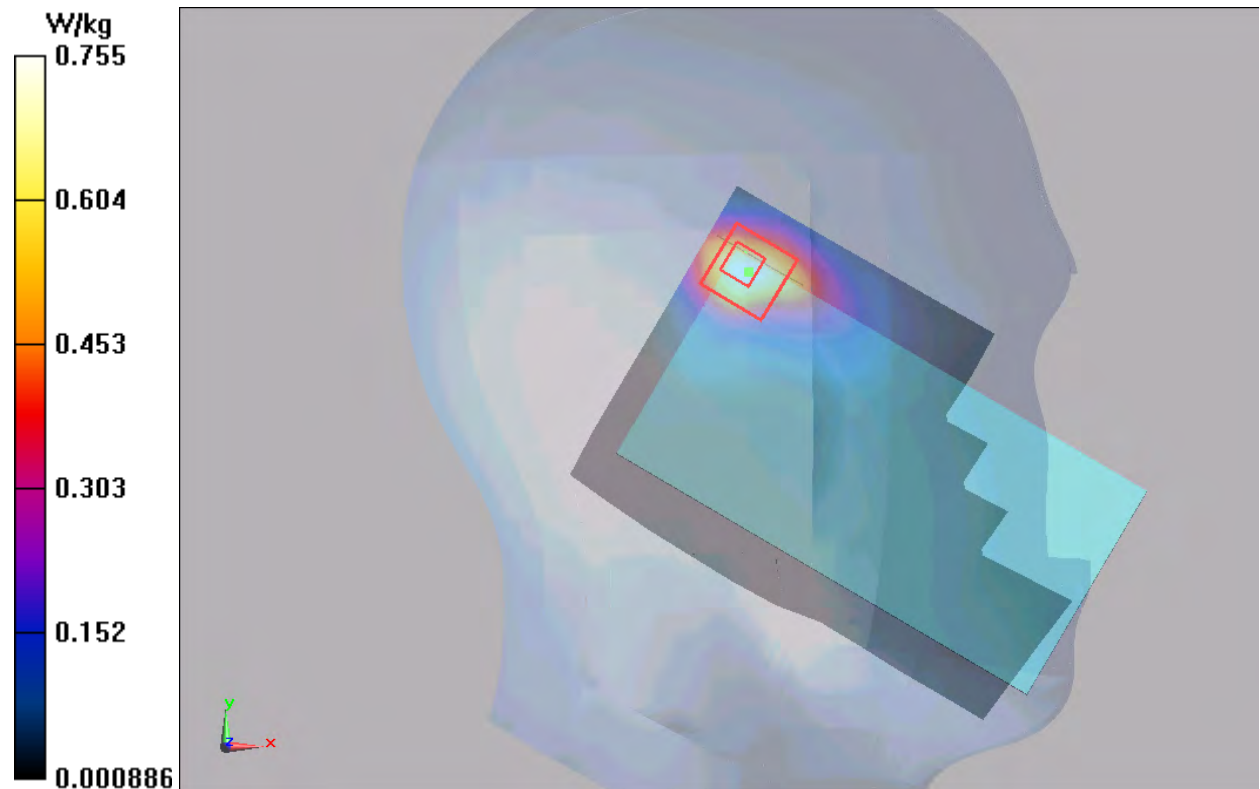


Figure 105 Left Hand Touch Cheek 802.11b Channel 1

### 802.11b Left Tilt Low (Battery 1)

Date: 3/25/2015

Communication System: UID 0, 802.11b (0); Frequency: 2412 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 2412$  MHz;  $\sigma = 1.771$  S/m;  $\epsilon_r = 38.872$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Left Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.22, 7.22, 7.22); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Left Tilt Low/Area Scan (91x141x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.770 W/kg

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

Reference Value = 6.049 V/m; Power Drift = 0.028 dB

Peak SAR (extrapolated) = 2.27 W/kg

**SAR(1 g) = 0.780 W/kg; SAR(10 g) = 0.302 W/kg**

Maximum value of SAR (measured) = 0.804 W/kg

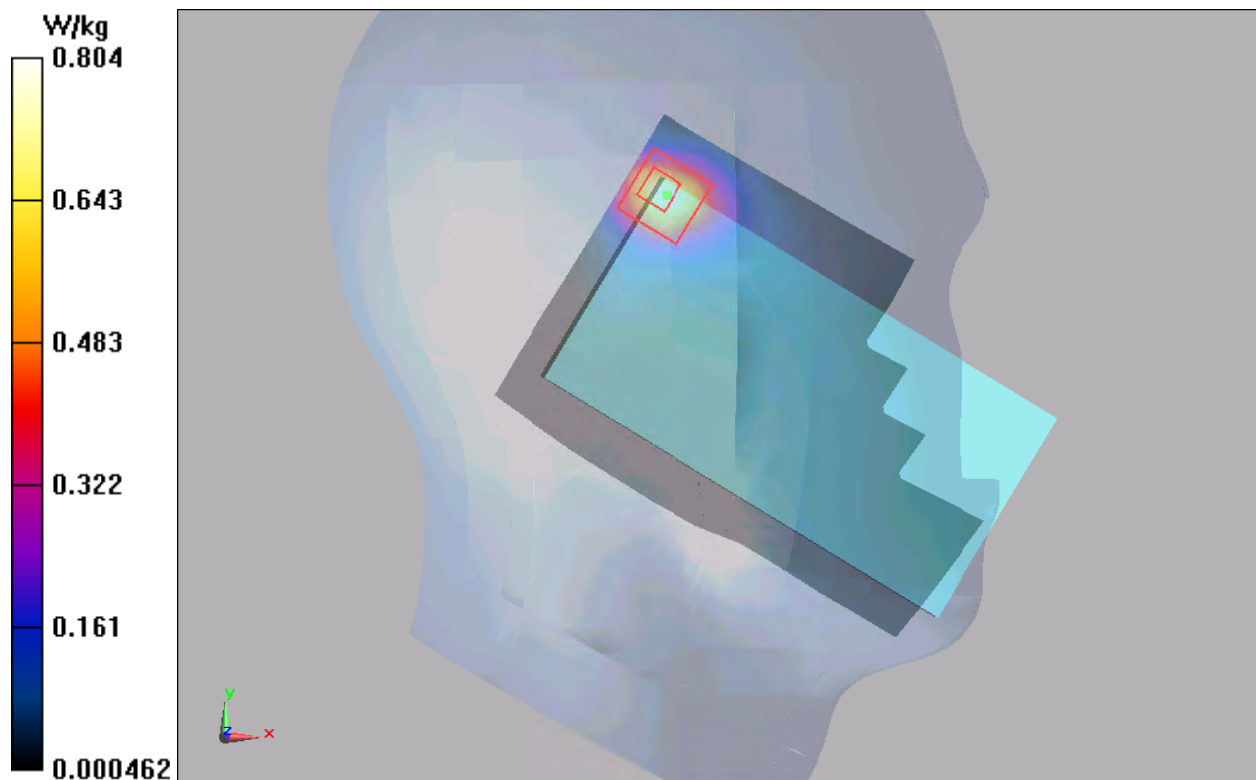


Figure 106 Left Hand Tilt 15° 802.11b Channel 1



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**802.11b Back Side Low (Battery 1, Distance 15mm)**

Date: 3/25/2015

Communication System: UID 0, 802.11b (0); Frequency: 2412 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 2412$  MHz;  $\sigma = 1.945$  S/m;  $\epsilon_r = 52.239$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.42, 7.42, 7.42); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Back Side Low/Area Scan (91x141x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.0873 W/kg

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

Reference Value = 3.434 V/m; Power Drift = 0.050 dB

Peak SAR (extrapolated) = 0.140 W/kg

**SAR(1 g) = 0.078 W/kg; SAR(10 g) = 0.042 W/kg**

Maximum value of SAR (measured) = 0.0846 W/kg

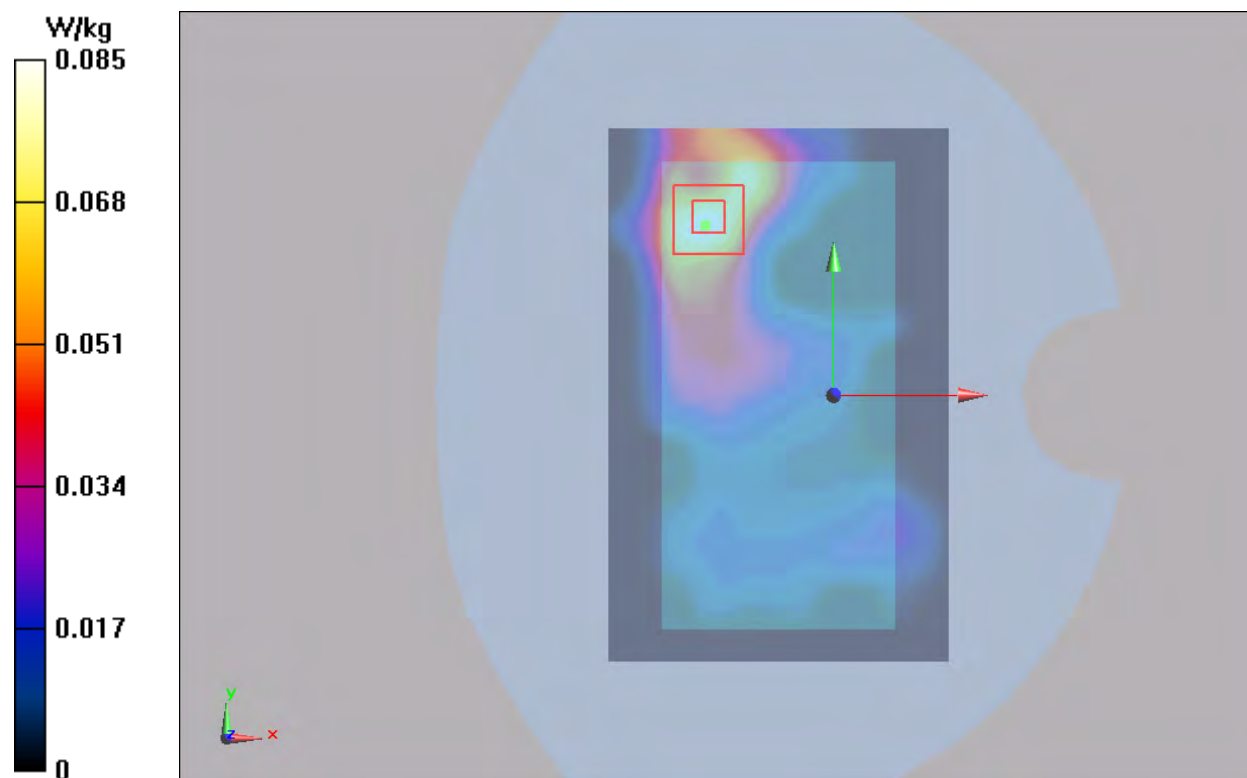


Figure 107 Body, Back Side, 802.11b Channel 1



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**802.11b Back Side Low (Battery 2, Distance 10mm)**

Date: 3/25/2015

Communication System: UID 0, 802.11b (0); Frequency: 2412 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 2412$  MHz;  $\sigma = 1.945$  S/m;  $\epsilon_r = 52.239$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 22.3 °C      Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.42, 7.42, 7.42); Calibrated: 1/30/2015;

Electronics: DAE4 Sn1291; Calibrated: 11/14/2014

Phantom: SAM 2; Type: SAM;

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Back Side Low/Area Scan (91x141x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.183 W/kg

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

Reference Value = 3.487 V/m; Power Drift = 0.036 dB

Peak SAR (extrapolated) = 0.304 W/kg

**SAR(1 g) = 0.152 W/kg; SAR(10 g) = 0.078 W/kg**

Maximum value of SAR (measured) = 0.157 W/kg

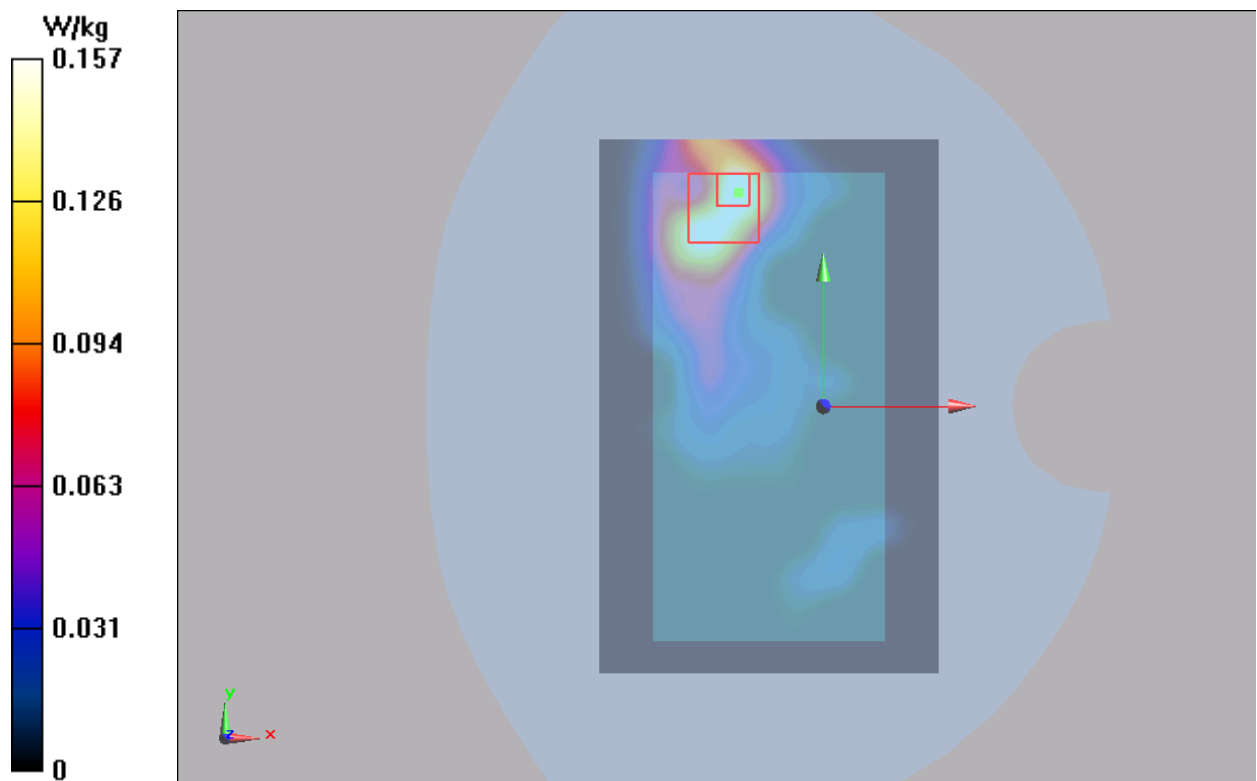


Figure 108 Body, Back Side, 802.11b Channel 1

# TA Technology (Shanghai) Co., Ltd.

## Test Report

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### ANNEX D: Probe Calibration Certificate



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Client **TA-ShangHai**

Certificate No: Z15-97010

#### CALIBRATION CERTIFICATE

Object **EX3DV4 - SN:3677**

Calibration Procedure(s) **FD-Z11-2-004-01**  
**Calibration Procedures for Dosimetric E-field Probes**

Calibration date: **January 30, 2015**

This calibration Certificate documents the traceability to national standards, which realize the physical units of measurements(SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature(22±3)℃ and humidity<70%.

Calibration Equipment used (M&TE critical for calibration)

| Primary Standards       | ID #        | Cal Date(Calibrated by, Certificate No.) | Scheduled Calibration |
|-------------------------|-------------|------------------------------------------|-----------------------|
| Power Meter NRP2        | 101919      | 01-Jul-14 (CTTL, No.J14X02146)           | Jun-15                |
| Power sensor NRP-Z91    | 101547      | 01-Jul-14 (CTTL, No.J14X02146)           | Jun-15                |
| Power sensor NRP-Z91    | 101548      | 01-Jul-14 (CTTL, No.J14X02146)           | Jun-15                |
| Reference10dBAttenuator | 18N50W-10dB | 13-Mar-14(TMC,No.JZ14-1103)              | Mar-16                |
| Reference20dBAttenuator | 18N50W-20dB | 13-Mar-14(TMC,No.JZ14-1104)              | Mar-16                |
| Reference Probe EX3DV4  | SN 3617     | 28-Aug-14(SPEAG,No.EX3-3617_Aug14)       | Aug-15                |
| DAE4                    | SN 777      | 17-Sep-14 (SPEAG, DAE4-777_Sep14)        | Sep -15               |
| Secondary Standards     | ID #        | Cal Date(Calibrated by, Certificate No.) | Scheduled Calibration |
| SignalGeneratorMG3700A  | 6201052605  | 01-Jul-14 (CTTL, No.J14X02145)           | Jun-15                |
| Network Analyzer E5071C | MY46110673  | 15-Feb-14 (TMC, No.JZ14-781)             | Feb-15                |

|                |             |                                   |           |
|----------------|-------------|-----------------------------------|-----------|
|                | Name        | Function                          | Signature |
| Calibrated by: | Yu Zongying | SAR Test Engineer                 |           |
| Reviewed by:   | Qi Dianyuan | SAR Project Leader                |           |
| Approved by:   | Lu Bingsong | Deputy Director of the laboratory |           |

Issued: January 31, 2015

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

Certificate No: Z15-97010

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# TA Technology (Shanghai) Co., Ltd.

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### Glossary:

|                       |                                                                                                                                        |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| TSL                   | tissue simulating liquid                                                                                                               |
| NORM <sub>x,y,z</sub> | sensitivity in free space                                                                                                              |
| ConvF                 | sensitivity in TSL / NORM <sub>x,y,z</sub>                                                                                             |
| DCP                   | diode compression point                                                                                                                |
| CF                    | crest factor (1/duty_cycle) of the RF signal                                                                                           |
| A,B,C,D               | modulation dependent linearization parameters                                                                                          |
| Polarization $\Phi$   | $\Phi$ rotation around probe axis                                                                                                      |
| Polarization $\theta$ | $\theta$ rotation around an axis that is in the plane normal to probe axis (at measurement center), $\theta=0$ is normal to probe axis |

Connector Angle information used in DASY system to align probe sensor X to the robot coordinate system

### Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300MHz to 3GHz)", February 2005

### Methods Applied and Interpretation of Parameters:

- NORM<sub>x,y,z</sub>: Assessed for E-field polarization  $\theta=0$  ( $f \leq 900\text{MHz}$  in TEM-cell;  $f > 1800\text{MHz}$ : waveguide). NORM<sub>x,y,z</sub> are only intermediate values, i.e., the uncertainties of NORM<sub>x,y,z</sub> does not effect the  $E^2$ -field uncertainty inside TSL (see below ConvF).
- NORM( $f$ )<sub>x,y,z</sub> = NORM<sub>x,y,z</sub> \* frequency\_response (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of ConvF.
- DCPx,y,z: DCP are numerical linearization parameters assessed based on the data of power sweep (no uncertainty required). DCP does not depend on frequency nor media.
- PAR: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics.
- A<sub>x,y,z</sub>; B<sub>x,y,z</sub>; C<sub>x,y,z</sub>; VR<sub>x,y,z</sub>: A,B,C are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- ConvF and Boundary Effect Parameters: Assessed in flat phantom using E-field (or Temperature Transfer Standard for  $f \leq 800\text{MHz}$ ) and inside waveguide using analytical field distributions based on power measurements for  $f > 800\text{MHz}$ . The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty valued are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORM<sub>x,y,z</sub> \* ConvF whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from  $\pm 50\text{MHz}$  to  $\pm 100\text{MHz}$ .
- Spherical isotropy (3D deviation from isotropy): in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- Sensor Offset: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- Connector Angle: The angle is assessed using the information gained by determining the NORM<sub>x</sub> (no uncertainty required).



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# Probe EX3DV4

## SN: 3677

Calibrated: January 30, 2015

Calibrated for DASY/EASY Systems

(Note: non-compatible with DASY2 system!)



# TA Technology (Shanghai) Co., Ltd.

## Test Report

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### DASY/EASY – Parameters of Probe: EX3DV4 – SN: 3677

#### Basic Calibration Parameters

|                                                          | Sensor X | Sensor Y | Sensor Z | Unc (k=2) |
|----------------------------------------------------------|----------|----------|----------|-----------|
| Norm( $\mu\text{V}/(\text{V}/\text{m})^2$ ) <sup>A</sup> | 0.41     | 0.46     | 0.40     | ±10.8%    |
| DCP(mV) <sup>B</sup>                                     | 101.9    | 102.0    | 104.6    |           |

#### Modulation Calibration Parameters

| UID | Communication System Name |   | A<br>dB | B<br>dB $\sqrt{\mu\text{V}}$ | C   | D<br>dB | VR<br>mV | Unc <sup>E</sup><br>(k=2) |
|-----|---------------------------|---|---------|------------------------------|-----|---------|----------|---------------------------|
| 0   | CW                        | X | 0.0     | 0.0                          | 1.0 | 0.00    | 182.5    | ±2.3%                     |
|     |                           | Y | 0.0     | 0.0                          | 1.0 |         | 198.5    |                           |
|     |                           | Z | 0.0     | 0.0                          | 1.0 |         | 179.8    |                           |

The reported uncertainty of measurement is stated as the standard uncertainty of Measurement multiplied by the coverage factor k=2, which for a normal distribution Corresponds to a coverage probability of approximately 95%.

<sup>A</sup> The uncertainties of Norm X, Y, Z do not affect the E<sup>2</sup>-field uncertainty inside TSL (see Page 5 and Page 6).

<sup>B</sup> Numerical linearization parameter: uncertainty not required.

<sup>E</sup> Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.



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## DASY/EASY – Parameters of Probe: EX3DV4 – SN: 3677

### Calibration Parameter Determined in Head Tissue Simulating Media

| f [MHz] <sup>C</sup> | Relative Permittivity <sup>F</sup> | Conductivity (S/m) <sup>F</sup> | ConvF X | ConvF Y | ConvF Z | Alpha <sup>G</sup> | Depth <sup>G</sup> (mm) | Unct. (k=2) |
|----------------------|------------------------------------|---------------------------------|---------|---------|---------|--------------------|-------------------------|-------------|
| 750                  | 41.9                               | 0.89                            | 9.79    | 9.79    | 9.79    | 0.30               | 0.84                    | ±12%        |
| 835                  | 41.5                               | 0.90                            | 9.30    | 9.30    | 9.30    | 0.19               | 1.05                    | ±12%        |
| 1750                 | 40.1                               | 1.37                            | 8.02    | 8.02    | 8.02    | 0.21               | 1.14                    | ±12%        |
| 1900                 | 40.0                               | 1.40                            | 7.94    | 7.94    | 7.94    | 0.24               | 1.04                    | ±12%        |
| 2450                 | 39.2                               | 1.80                            | 7.22    | 7.22    | 7.22    | 0.65               | 0.68                    | ±12%        |
| 2600                 | 39.0                               | 1.96                            | 6.94    | 6.94    | 6.94    | 0.33               | 0.95                    | ±12%        |
| 5200                 | 36.0                               | 4.66                            | 5.55    | 5.55    | 5.55    | 0.42               | 1.18                    | ±13%        |
| 5300                 | 35.9                               | 4.76                            | 5.35    | 5.35    | 5.35    | 0.45               | 1.05                    | ±13%        |
| 5600                 | 35.5                               | 5.07                            | 5.05    | 5.05    | 5.05    | 0.42               | 1.26                    | ±13%        |
| 5800                 | 35.3                               | 5.27                            | 5.01    | 5.01    | 5.01    | 0.48               | 1.13                    | ±13%        |

<sup>C</sup> Frequency validity of ±100MHz only applies for DASY v4.4 and higher (Page 2), else it is restricted to ±50MHz. The uncertainty is the RSS of ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

<sup>F</sup> At frequency below 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) can be relaxed to ±10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) is restricted to ±5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

<sup>G</sup> Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ±1% for frequencies below 3 GHz and below ±2% for the frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.



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## DASY/EASY – Parameters of Probe: EX3DV4 – SN: 3677

### Calibration Parameter Determined in Body Tissue Simulating Media

| f [MHz] <sup>C</sup> | Relative Permittivity <sup>F</sup> | Conductivity (S/m) <sup>F</sup> | ConvF X | ConvF Y | ConvF Z | Alpha <sup>G</sup> | Depth <sup>G</sup> (mm) | Unct. (k=2) |
|----------------------|------------------------------------|---------------------------------|---------|---------|---------|--------------------|-------------------------|-------------|
| 750                  | 55.5                               | 0.96                            | 9.53    | 9.53    | 9.53    | 0.15               | 1.46                    | ± 12%       |
| 835                  | 55.2                               | 0.97                            | 9.45    | 9.45    | 9.45    | 0.17               | 1.35                    | ± 12%       |
| 1750                 | 53.4                               | 1.49                            | 7.74    | 7.74    | 7.74    | 0.18               | 1.36                    | ± 12%       |
| 1900                 | 53.3                               | 1.52                            | 7.57    | 7.57    | 7.57    | 0.18               | 1.31                    | ± 12%       |
| 2450                 | 52.7                               | 1.95                            | 7.42    | 7.42    | 7.42    | 0.37               | 1.08                    | ± 12%       |
| 2600                 | 52.5                               | 2.16                            | 7.29    | 7.29    | 7.29    | 0.40               | 0.97                    | ± 12%       |
| 5200                 | 49.0                               | 5.30                            | 4.96    | 4.96    | 4.96    | 0.45               | 1.42                    | ± 13%       |
| 5300                 | 48.9                               | 5.42                            | 4.76    | 4.76    | 4.76    | 0.46               | 1.48                    | ± 13%       |
| 5600                 | 48.5                               | 5.77                            | 4.36    | 4.36    | 4.36    | 0.49               | 1.80                    | ± 13%       |
| 5800                 | 48.2                               | 6.00                            | 4.45    | 4.45    | 4.45    | 0.50               | 1.20                    | ± 13%       |

<sup>C</sup> Frequency validity of ±100MHz only applies for DASY v4.4 and higher (Page 2), else it is restricted to ±50MHz. The uncertainty is the RSS of ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

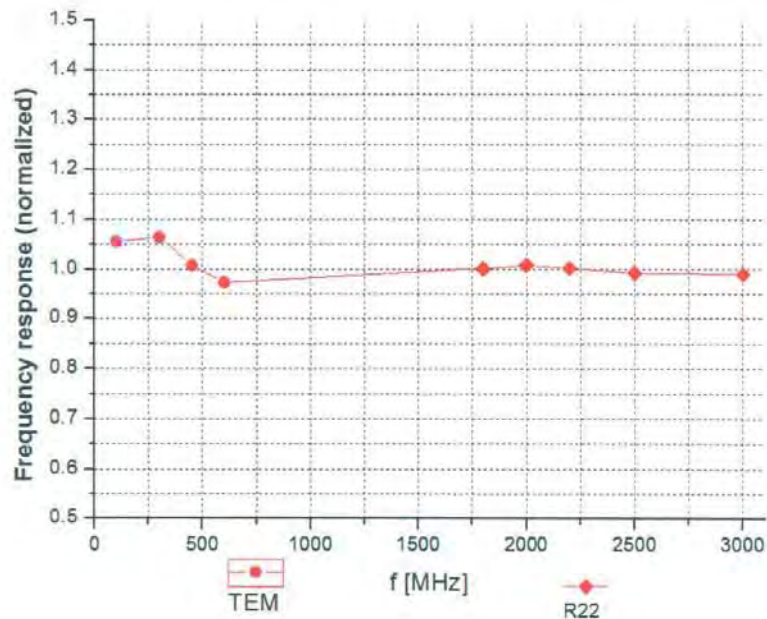
<sup>F</sup> At frequency below 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) can be relaxed to ±10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters ( $\epsilon$  and  $\sigma$ ) is restricted to ±5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

<sup>G</sup> Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for the frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.



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### Frequency Response of E-Field (TEM-Cell: ifi110 EXX, Waveguide: R22)



Uncertainty of Frequency Response of E-field:  $\pm 7.5\%$  ( $k=2$ )



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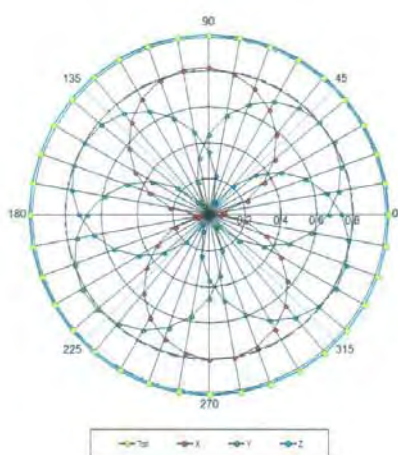
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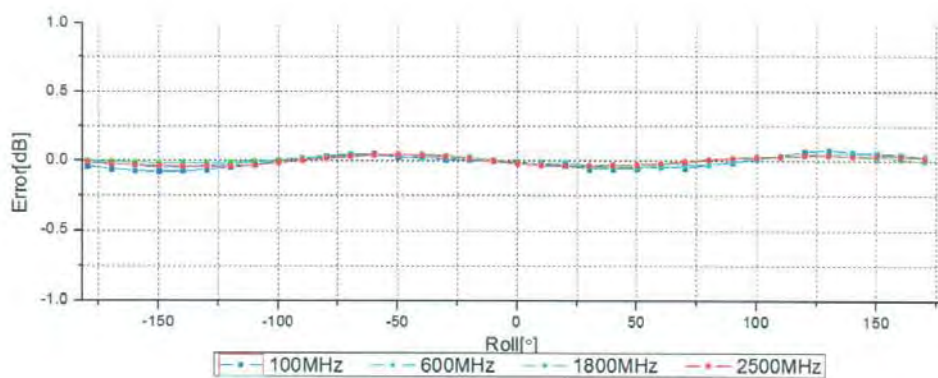
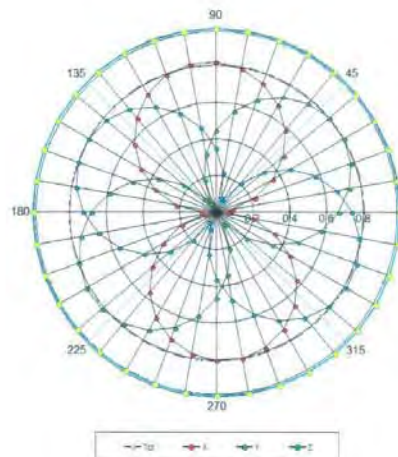
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## Receiving Pattern ( $\Phi$ ), $\theta=0^\circ$

**f=600 MHz, TEM**



**f=1800 MHz, R22**



Uncertainty of Axial Isotropy Assessment:  $\pm 0.9\%$  ( $k=2$ )

# TA Technology (Shanghai) Co., Ltd. Test Report

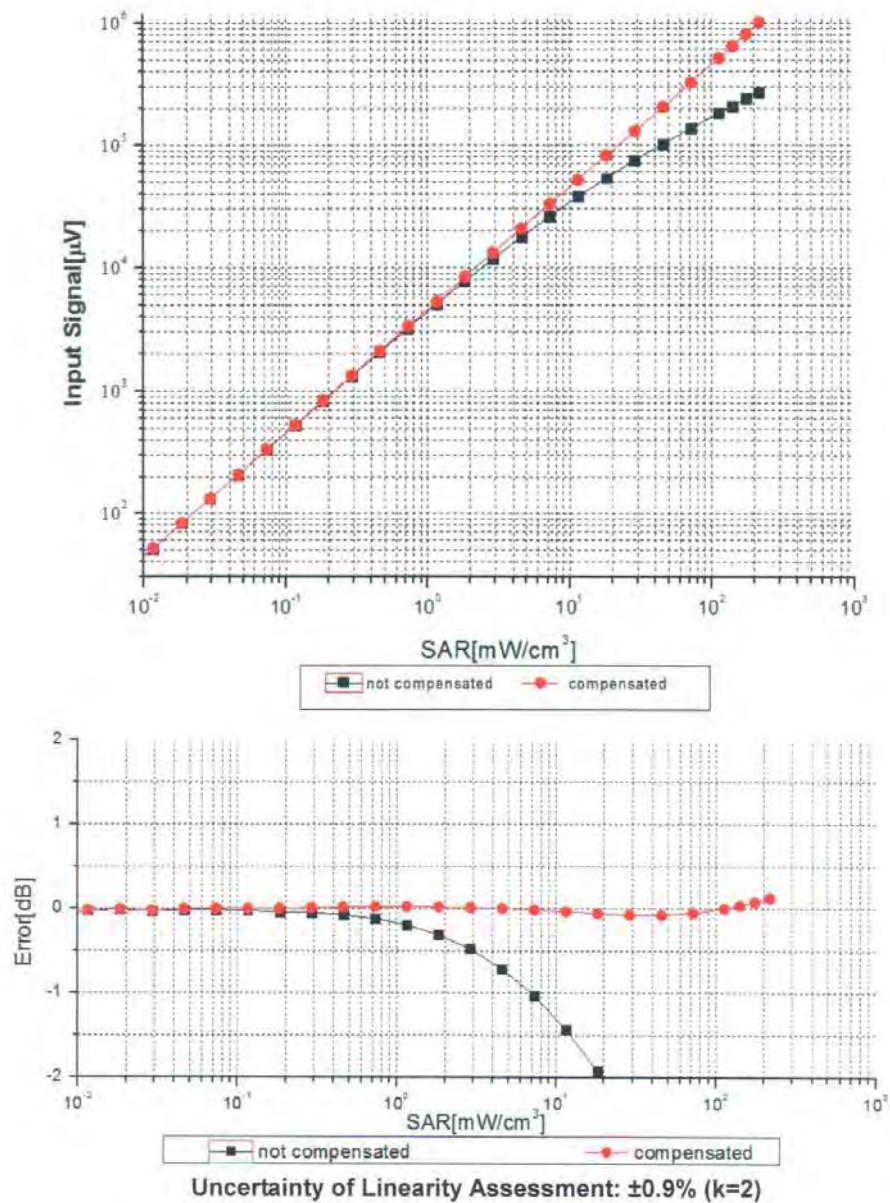
Report No.: RHA1502-0012SAR02R1

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## Dynamic Range $f(\text{SAR}_{\text{head}})$ (TEM cell, $f = 900 \text{ MHz}$ )



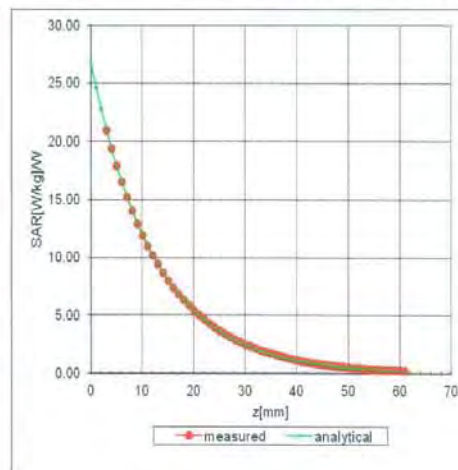
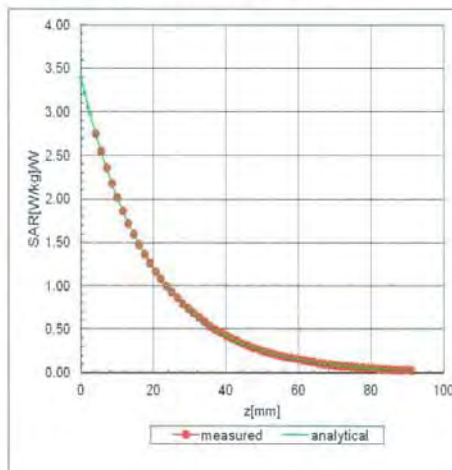


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E-mail: cttl@chinattl.com Http://www.chinattl.cn

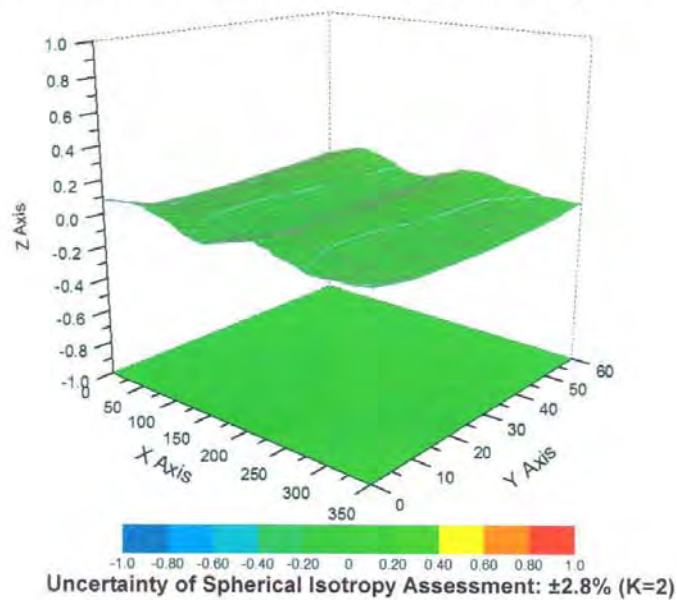
## Conversion Factor Assessment

$f=835$  MHz, WGLS R9(H\_convF)

$f=1750$  MHz, WGLS R22(H\_convF)



## Deviation from Isotropy in Liquid



**TA Technology (Shanghai) Co., Ltd.**  
**Test Report**

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**DASY/EASY – Parameters of Probe: EX3DV4 – SN: 3677**

**Other Probe Parameters**

|                                               |            |
|-----------------------------------------------|------------|
| Sensor Arrangement                            | Triangular |
| Connector Angle (°)                           | 116.7      |
| Mechanical Surface Detection Mode             | enabled    |
| Optical Surface Detection Mode                | disable    |
| Probe Overall Length                          | 337mm      |
| Probe Body Diameter                           | 10mm       |
| Tip Length                                    | 9mm        |
| Tip Diameter                                  | 2.5mm      |
| Probe Tip to Sensor X Calibration Point       | 1mm        |
| Probe Tip to Sensor Y Calibration Point       | 1mm        |
| Probe Tip to Sensor Z Calibration Point       | 1mm        |
| Recommended Measurement Distance from Surface | 1.4mm      |



# TA Technology (Shanghai) Co., Ltd.

## Test Report

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### ANNEX E: D750V3 Dipole Calibration Certificate

Calibration Laboratory of  
Schmid & Partner  
Engineering AG  
Zeughausstrasse 43, 8004 Zurich, Switzerland



S Schweizerischer Kalibrierdienst  
S Service suisse d'étalonnage  
C Servizio svizzero di taratura  
S Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)  
The Swiss Accreditation Service is one of the signatories to the EA  
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 108

Client CCTL (Auden)

Certificate No: D750V3-1017\_Aug14

#### CALIBRATION CERTIFICATE

Object D750V3 - SN: 1017

Calibration procedure(s) QA CAL-05.v9  
Calibration procedure for dipole validation kits above 700 MHz

Calibration date: August 28, 2014

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).  
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature  $(22 \pm 3)^{\circ}\text{C}$  and humidity  $< 70\%$ .

Calibration Equipment used (M&TE critical for calibration)

| Primary Standards           | ID #               | Cal Date (Certificate No.)        | Scheduled Calibration  |
|-----------------------------|--------------------|-----------------------------------|------------------------|
| Power meter EPM-442A        | GB37480704         | 09-Oct-13 (No. 217-01827)         | Oct-14                 |
| Power sensor HP 8481A       | US37292783         | 09-Oct-13 (No. 217-01827)         | Oct-14                 |
| Power sensor HP 8481A       | MY41092317         | 09-Oct-13 (No. 217-01828)         | Oct-14                 |
| Reference 20 dB Attenuator  | SN: 5058 (20k)     | 03-Apr-14 (No. 217-01918)         | Apr-15                 |
| Type-N mismatch combination | SN: 5047.2 / 06327 | 03-Apr-14 (No. 217-01921)         | Apr-15                 |
| Reference Probe ES3DV3      | SN: 3205           | 30-Dec-13 (No. ES3-3205_Dec13)    | Dec-14                 |
| DAE4                        | SN: 601            | 18-Aug-14 (No. DAE4-601_Aug14)    | Aug-15                 |
| Secondary Standards         | ID #               | Check Date (in house)             | Scheduled Check        |
| RF generator R&S SMT-06     | 100005             | 04-Aug-99 (in house check Oct-13) | In house check: Oct-16 |
| Network Analyzer HP 8753E   | US37390585 S4206   | 18-Oct-01 (in house check Oct-13) | In house check: Oct-14 |

Calibrated by: Michael Weber  
Name: Michael Weber  
Function: Laboratory Technician

Signature

Approved by: Katja Pokovic  
Name: Katja Pokovic  
Function: Technical Manager

Issued: August 28, 2014

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# TA Technology (Shanghai) Co., Ltd.

## Test Report

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**Calibration Laboratory of**  
**Schmid & Partner**  
**Engineering AG**  
Zeughausstrasse 43, 8004 Zurich, Switzerland



**S** Schweizerischer Kalibrierdienst  
**C** Service suisse d'étalonnage  
**S** Servizio svizzero di taratura  
**S** Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)  
The Swiss Accreditation Service is one of the signatories to the EA  
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

### Glossary:

|       |                                 |
|-------|---------------------------------|
| TSL   | tissue simulating liquid        |
| ConvF | sensitivity in TSL / NORM x,y,z |
| N/A   | not applicable or not measured  |

### Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

### Additional Documentation:

- DASY4/5 System Handbook

### Methods Applied and Interpretation of Parameters:

- Measurement Conditions:** Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL:** The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss:** These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay:** One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- SAR measured:** SAR measured at the stated antenna input power.
- SAR normalized:** SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters:** The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor  $k=2$ , which for a normal distribution corresponds to a coverage probability of approximately 95%.