TESTING
No. L2264

# SAR TEST REPORT

| | |
|---|---|
| **Product Name** | Tablet |
| **Model Name** | P1988 |
| **FCC ID** | VOB-P1988 |
| **Client** | NVIDIA CORPORATION |
| **Manufacturer** | NVIDIA CORPORATION |
| **Date of issue** | April 28, 2014 |

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

# GENERAL SUMMARY

| | |
|---|---|
| **Reference Standard(s)** | **FCC 47CFR §2.1093** Radiofrequency Radiation Exposure Evaluation: Portable Devices<br><br>**ANSI C95.1, 1992:** Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz.(IEEE Std C95.1-1991)<br><br>**IEEE Std 1528™-2013:** IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques.<br><br>**KDB 865664 D01 SAR measurement 100 MHz to 6 GHz v01r03:** SAR Measurement Requirements for 100 MHz to 6 GHz<br><br>**KDB 447498 D01 General RF Exposure Guidance v05r02:** Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies<br><br>**KDB 941225 D01 SAR test for 3G devices v02:** SAR Measurement Procedures CDMA 20001x RTT, 1x Ev-Do, WCDMA, HSDPA/HSPA<br><br>**KDB 941225 D02 HSPA and 1x Advanced v02r02** SAR Guidance for HSPA, HSPA+, DC-HSDPA and 1x-Advanced<br><br>**KDB 941225 D03 SAR Test Reduction GSM/GPRS/EDGE v01:** Recommended SAR Test Reduction Procedures for GSM/GPRS/EDGE<br><br>**KDB 616217 D04 SAR for laptop and tablets v01r01:** SAR Evaluation Considerations for Laptop, Notebook, Netbook and Tablet Computers<br><br>**KDB 941225 D05 SAR for LTE Devices v02r03** SAR Test Considerations for LTE Handsets and Data Modems<br><br>**KDB 248227 D01 SAR meas for 802 11 a b g v01r02:** SAR Measurement Procedures for 802.11a/b/g Transmitters. |
| **Conclusion** | 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.<br><br>General Judgment: **Pass** |
| **Comment** | The test result only responds to the measured sample. |

**Approved by** Weizhong Yang
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Director

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SAR Manager

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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. This report only refers to the item that has undergone the test.

This report alone does not constitute or imply by its own an approval of the product by the certification Bodies or competent Authorities. This report cannot be used partially or in full for publicity and/or promotional purposes without previous written approval of **TA Technology (Shanghai) Co., Ltd.** and the Accreditation Bodies, if it applies.

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. |
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## 1.3. Applicant Information

| | |
|---|---|
| Company: | NVIDIA CORPORATION |
| Address: | 2701 SAN TOMAS EXPRESSWAY,SANTA CLARA,CALIFORNIA 95050<br>UNITED STATES OF AMERICA |

## 1.4. Manufacturer Information

| | |
|---|---|
| Company: | NVIDIA CORPORATION |
| Address: | 2701 SAN TOMAS EXPRESSWAY,SANTA CLARA,CALIFORNIA 95050<br>UNITED STATES OF AMERICA |

## 1.5. Information of EUT

**General Information**

| | | |
|---|---|---|
| Device Type: | Portable Device | |
| Exposure Category: | Uncontrolled Environment / General Population | |
| State of Sample: | Prototype Unit | |
| IMEI: | 004402351232826 | |
| Hardware Version: | A00 | |
| Software Version: | 4.4.2 | |
| Antenna Type: | Internal Antenna | |
| Device Operating Configurations: | | |
| Tested Mode(s): | GSM 850/ GSM 1900;<br>UMTS Band II/ UMTS Band IV/ UMTS Band V;<br>LTE Band 2/4/5/7/17;<br>Bluetooth;<br>WiFi(802.11b/g/n HT20/n HT40); | |
| Test Modulation: | (GSM)GMSK; (UMTS)QPSK; (LTE) QPSK, 16QAM | |
| Device Class: | B | |
| HSDPA UE Category: | 8 | |
| HSUPA UE Category: | 6 | |
| DC-HSDPA UE Category: | 24 | |
| LTE UE Category: | 3 | |
| 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 |
| Power Class: | GSM 850: 4 | |
| | GSM 1900: 1 | |
| | UMTS Band II: 3 | |
| | UMTS Band IV: 3 | |
| | UMTS Band V: 3 | |
| | LTE Band 2: 3 | |
| | LTE Band 4: 3 | |
| | LTE Band 5: 3 | |
| | LTE Band 7: 3 | |
| | LTE Band 17: 3 | |

| | |
|---|---|
| Power Level: | GSM 850: tested with power level 5 |
| | GSM 1900: tested with power level 0 |
| | UMTS Band II: tested with power control all up bits |
| | UMTS Band IV: tested with power control all up bits |
| | UMTS Band V: tested with power control all up bits |
| | LTE Band 2: tested with max power |
| | LTE Band 4: tested with max power |
| | LTE Band 5: tested with max power |
| | LTE Band 7: tested with max power |
| | LTE Band 17: tested with max power |
| Test Channel:<br>(Low - Middle - High) | 128 – 190 – 251 (GSM 850)<br>512 – 661 – 810 (GSM 1900)<br>9262 – 9400 – 9538 (UMTS Band II)<br>1312 – 1412 – 1513 (UMTS Band IV)<br>4132 – 4183 – 4233 (UMTS Band V)<br>18607 – 18900 – 19193 ( LTE Band 2, 1.4M)<br>18615 – 18900 – 19185 ( LTE Band 2, 3M)<br>18625 – 18900 – 19175 ( LTE Band 2, 5M)<br>18650 – 18900 – 19150 ( LTE Band 2, 10M)<br>18675 – 18900 – 19125 ( LTE Band 2, 15M)<br>18700 – 18900 – 19100 ( LTE Band 2, 20M)<br>19957 – 20175 – 20393 ( LTE Band 4, 1.4M)<br>19965 – 20175 – 20385 ( LTE Band 4, 3M)<br>19975 – 20175 – 20375 ( LTE Band 4, 5M)<br>20000 – 20175 – 20350 ( LTE Band 4, 10M)<br>20025 – 20175 – 20325 ( LTE Band 4, 15M)<br>20050 – 20175 – 20300 (LTE Band 4, 20M)<br>20407 – 20525 – 20643 ( LTE Band 5, 1.4M)<br>20415 – 20525 – 20635 ( LTE Band 5, 3M)<br>20425 – 20525 – 20625 ( LTE Band 5, 5M)<br>20450 – 20525 – 20600 ( LTE Band 5, 10M)<br>20775 – 21100 – 21425 (LTE Band 7, 5M)<br>20800 – 21100 – 21400 (LTE Band 7, 10M)<br>20825 – 21100 – 21375 (LTE Band 7, 15M)<br>20850 – 21100 – 21350 (LTE Band 7, 20M)<br>23755 – 23790 – 23825 (LTE Band 17, 5M)<br>23780 – 23790 – 23800 (LTE Band 17, 10M)<br>0 – 39 – 78 (Bluetooth)<br>1 – 6 – 11 (802.11b/g/n HT20)<br>3 – 6 – 9 (802.11n HT40) |

| Test Frequency Range(s): | Mode | Tx (MHz) | Rx (MHz) |
|---|---|---|---|
| | GSM 850 | 824.2 ~ 848.8 | 869.2 ~ 893.8 |
| | GSM 1900 | 1850.2 ~ 1909.8 | 1930.2 ~ 1989.8 |

| | | | |
|---|---|---|---|
| | UMTS Band II | 1852.4 ~ 1907.6 | 1932.4 ~ 1987.6 |
| | UMTS Band IV | 1712.4 ~ 1752.6 | 2112.4 ~ 2152.2 |
| | UMTS Band V | 826.4 ~ 846.6 | 871.4 ~ 891.6 |
| | LTE Band 2(1.4MHz) | 1850.7 ~ 1909.3 | 1930.7 ~ 1989.3 |
| | LTE Band 2(3MHz) | 1851.5 ~ 1908.5 | 1931.5 ~ 1988.5 |
| | LTE Band 2(5MHz) | 1852.5 ~ 1907.5 | 1932.5 ~ 1987.5 |
| | LTE Band 2(10MHz) | 1855 ~ 1905 | 1935 ~ 1985 |
| | LTE Band 2(15MHz) | 1857.5 ~ 1902.5 | 1937.5 ~ 1982.5 |
| | LTE Band 2(20MHz) | 1860 ~ 1900 | 1940 ~ 1980 |
| | LTE Band 4(1.4MHz) | 1710.7 ~ 1754.3 | 2110.7 ~ 2154.3 |
| | LTE Band 4(3MHz) | 1711.5 ~ 1753.5 | 2111.5 ~ 2153.5 |
| | LTE Band 4(5MHz) | 1712.5 ~ 1752.5 | 2112.5 ~ 2152.5 |
| | LTE Band 4(10MHz) | 1715 ~ 1750 | 2115 ~ 2150 |
| | LTE Band 4(15MHz) | 1717.5 ~ 1747.5 | 2117.5 ~ 2147.5 |
| | LTE Band 4(20MHz) | 1720 ~ 1745 | 2120 ~ 2145 |
| | LTE Band 5(1.4MHz) | 824.7 ~ 848.3 | 869.7 ~ 893.3 |
| | LTE Band 5(3MHz) | 825.5 ~ 847.5 | 870.5 ~ 892.5 |
| | LTE Band 5(5MHz) | 826.5 ~ 846.5 | 871.5 ~ 891.5 |
| | LTE Band 5(10MHz) | 829 ~ 844 | 874 ~ 889 |
| | LTE Band 7(5MHz) | 2502.5 ~ 2567.5 | 2622.5 ~ 2687.5 |
| | LTE Band 7(10MHz) | 2505 ~ 2565 | 2625 ~ 2685 |
| | LTE Band 7(15MHz) | 2507.5 ~ 2562.5 | 2627.5 ~ 2682.5 |
| | LTE Band 7(20MHz) | 2510 ~ 2560 | 2630 ~ 2680 |
| | LTE Band 17(5MHz) | 706.5 ~ 713.5 | 736.5 ~ 743.5 |
| | LTE Band 17(10MHz) | 709 ~ 711 | 739 ~ 741 |
| | Bluetooth | 2402 ~ 2480 | 2402 ~ 2480 |
| | WIFI | 2412 ~ 2462 | 2412 ~ 2462 |

Equipment Under Test (EUT) has a main GSM/UMTS/LTE antenna that is used for Tx/Rx, the second is BT/WIFI antenna that can be used for Tx/Rx, and the third is GSM/UMTS/LTE/GPS antenna that is used for Rx.

The sample undergoing test was selected by the Client.

Components list please refer to documents of the manufacturer.

## 1.6. The Maximum Reported $SAR_{1g}$

**Body SAR Configuration**

| Mode | Test Position | Distance | Channel /Frequency(MHz) | Limit $SAR_{1g}$ 1.6 W/kg | |
|---|---|---|---|---|---|
| | | | | Measured $SAR_{1g}$ (W/kg) | Reported $SAR_{1g}$ (W/kg) |
| 2Txslots GPRS 850 | Test Position 1 | 0mm | 251/848.8 | 0.855 | 0.918 |
| 4Txslots GPRS 1900 | Test Position 1 | 0mm | 512/1850 | 0.846 | 0.919 |
| UMTS Band II | Test Position 1 | 0mm | 9400/1880 | 1.120 | 1.186 |
| UMTS Band IV | Test Position 1 | 0mm | 1413/1732.6 | 1.060 | 1.141 |
| UMTS Band V | Test Position 1 | 10mm | 4183/836.6 | 0.527 | 0.586 |
| LTE Band 2 | Test Position 1 | 0mm | 19100/1900 | 1.380 | 1.419 |
| LTE Band 4 | Test Position 1 | 0mm | 20300/1745 | 1.020 | 1.113 |
| LTE Band 5 | Test Position 1 | 0mm | 20525/836.5 | 1.010 | 1.087 |
| LTE Band 7 | Test Position 1 | 10mm | 20850/2510 | 1.300 | 1.374 |
| LTE Band 17 | Test Position 1 | 0mm | 23790/710 | 0.750 | 0.843 |
| WiFi(802.11b) | Test Position 1 | 0mm | 11/2462 | 0.656 | 0.716 |

## 1.7. Test Date

The test performed from March 13, 2014 to March 26, 2014.

# 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.

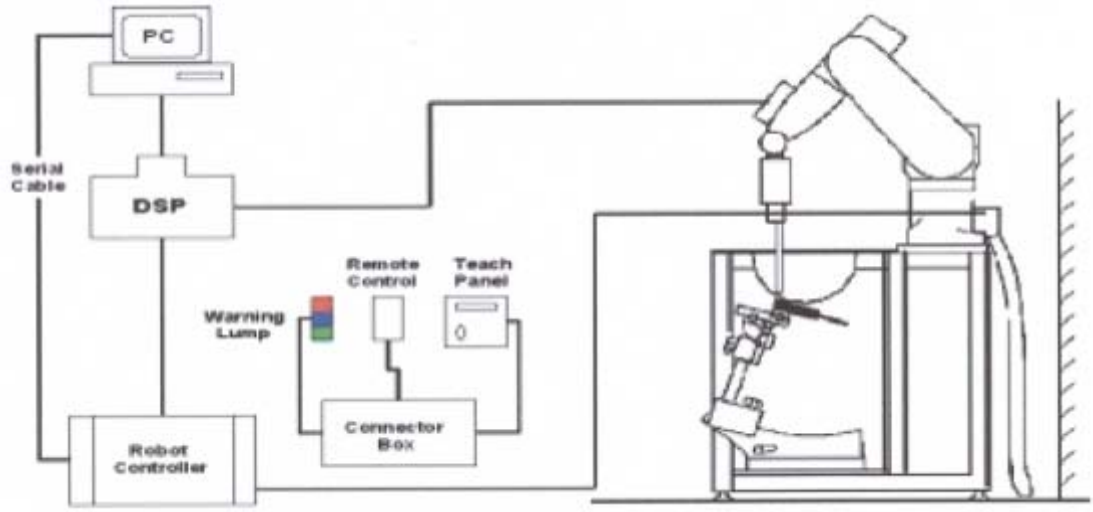



**Figure 1. SAR Lab Test Measurement Set-up**

## 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 Linearity: ± 0.2 dB (30 MHz to 6 GHz) |
| Directivity | ± 0.3 dB in HSL (rotation around probe axis) ± 0.5 dB in tissue material (rotation normal to probe axis) |
| Dynamic Range | 10 μW/g to > 100 mW/g Linearity: ± 0.2dB (noise: typically < 1 μW/g) |
| Dimensions | Overall length: 330 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) 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). 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 ± 10%. The spherical isotropy was evaluated and found to be better than ± 0.25dB. 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 bellow 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.

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

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

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

Where:
σ = Simulated tissue conductivity,
ρ = Tissue density (kg/m3).

## 2.3. Other Test Equipment

#### 2.3.1. Device Holder for Transmitters

**Construction:** Simple but effective and easy-to-use extension for Mounting Device that facilitates the testing of larger devices according to IEC 62209-2 (e.g., laptops, cameras, etc.) It is lightweight and fits easily on the upper part of the Mounting Device in place of the phone positioner. The extension is fully compatible with the Twin SAM, ELI4 and SAM v6.0 Phantoms.

**Material:** POM, Acrylic glass, Foam

### 2.3.2. Phantom

Phantom for compliance testing of handheld andbody-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI is fully compatible with the IEC 62209-2 standard and all known tissue simulating liquids. ELI has been optimized regarding its performance and can beintegrated into our standard phantom tables. A cover prevents evaporation ofthe liquid. Reference markings on the phantom allow installation of the complete setup, including all predefined phantom positions and measurement grids, by teaching three points. The phantom is compatible with all SPEAG do simetric probes and dipoles.

| | |
|---|---|
| Shell Thickness | 2±0.2 mm |
| Filling Volume | Approx. 30 liters |
| Dimensions | 190×600×0 mm (H x L x W) |

**Figure 4.ELI4 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. ± 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 ± 0.1mm). 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 ± 30°.)

- 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 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) ($\Delta x_{area}$, $\Delta y_{area}$) | Maximum Zoom Scan Resolution (mm) ($\Delta x_{zoom}$, $\Delta y_{zoom}$) | Maximum Zoom Scan Spatial Resolution (mm) $\Delta z_{zoom}(n)$ | Minimum Zoom Scan Volume (mm) (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/cm²], [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 | Normi, $a_{i0}$, $a_{i1}$, $a_{i2}$ |
| | - Conversion factor | $ConvF_i$ |
| | - Diode compression point | $Dcp_i$ |
| 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.

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)$^2$] 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.

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

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$^3$

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.

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

with $P_{pwe}$ = equivalent power density of a plane wave in mW/cm$^2$

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

$\boldsymbol{H_{tot}}$ = 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 Ω |
| 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. | |

# 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. Table 3 shows the detail solution. It's satisfying the latest tissue dielectric parameters requirements proposed by the KDB 865664 D01.

**Table 3: 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 Target Value | f=750MHz ε=55.5 σ=0.96 |

| MIXTURE% | FREQUENCY(Body) 835MHz |
|---|---|
| Water | 52.5 |
| Sugar | 45 |
| Salt | 1.4 |
| Preventol | 0.1 |
| Cellulose | 1.0 |
| Dielectric Parameters Target Value | f=835MHz ε=55.2 σ=0.97 |

| MIXTURE% | FREQUENCY(Body) 1750MHz |
|---|---|
| Water | 69.91 |
| Glycol | 29.97 |
| Salt | 0.12 |
| Dielectric Parameters Target Value | f=1750MHz ε=53.4 σ=1.49 |

| MIXTURE% | FREQUENCY (Body) 1900MHz |
|---|---|
| Water | 69.91 |
| Glycol monobutyl | 29.96 |
| Salt | 0.13 |
| Dielectric Parameters Target Value | f=1900MHz ε=53.3 σ=1.52 |

| MIXTURE% | FREQUENCY(Body) 2450MHz |
|---|---|
| Water | 73.2 |
| Glycol | 26.7 |
| Salt | 0.1 |
| Dielectric Parameters Target Value | f=2450MHz ε=52.7 σ=1.95 |

| MIXTURE% | FREQUENCY (Body) 2600MHz |
|---|---|
| Water | 72.6 |
| Glycol monobutyl | 27.3 |
| Salt | 0.1 |
| Dielectric Parameters Target Value | f=2600MHz ε=52.5 σ=2.16 |

## 4.2. Tissue-equivalent Liquid Properties

**Table 4: Dielectric Performance of Tissue Simulating Liquid**

| Frequency | Test Date | Temp ℃ | Measured Dielectric Parameters | | Target Dielectric Parameters | | Limit (Within ±5%) | |
|---|---|---|---|---|---|---|---|---|
| | | | $\varepsilon_r$ | σ(s/m) | $\varepsilon_r$ | σ(s/m) | Dev $\varepsilon_r$(%) | Dev σ(%) |
| **750MHz (body)** | 2014-3-17 | 21.5 | 54.3 | 0.97 | 55.5 | 0.96 | -2.16 | 1.04 |
| **835MHz (body)** | 2014-3-14 | 21.5 | 55.9 | 0.98 | 55.2 | 0.97 | 1.27 | 1.03 |
| **1750MHz (body)** | 2014-3-16 | 21.5 | 52.9 | 1.50 | 53.4 | 1.49 | -0.94 | 0.67 |
| **1900MHz (body)** | 2014-3-13 | 21.5 | 53.1 | 1.52 | 53.3 | 1.52 | -0.38 | 0.00 |
| **2450MHz (body)** | 2014-3-26 | 21.5 | 52.1 | 1.99 | 52.7 | 1.95 | -1.14 | 2.05 |
| **2600MHz (body)** | 2014-3-20 | 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 simulants 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 simulant, 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 5.

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

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

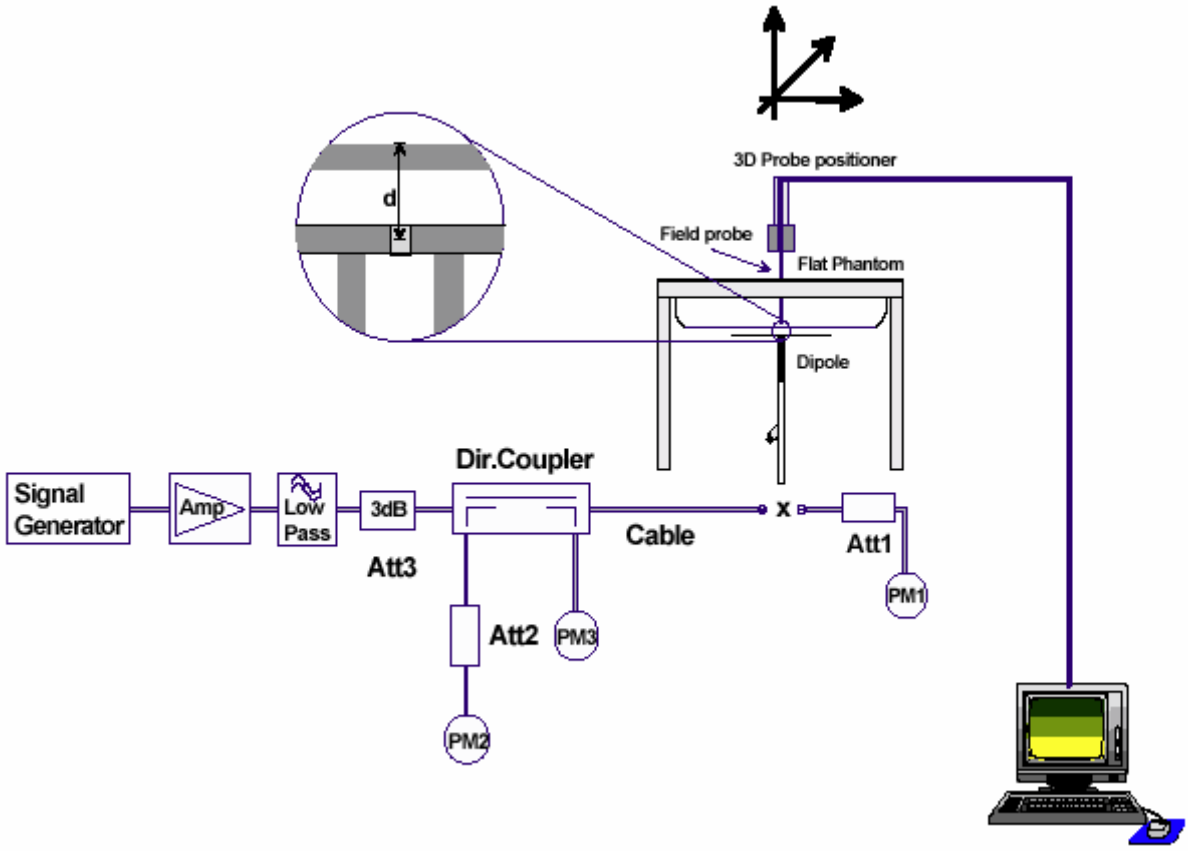



**Figure 5. System Check Set-up**

**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 D750V3 SN: 1045 | | | | |
|---|---|---|---|---|
| Body Liquid | | | | |
| Date of Measurement | Return Loss(dB) | Δ % | Impedance (Ω) | ΔΩ |
| 9/29/2011 | -27.5 | / | 49.5 | / |
| 9/28/2012 | -26.9 | 2.2% | 48.2 | 1.3Ω |
| 9/27/2013 | -25.4 | 7.6% | 47.6 | 1.9Ω |

| Dipole D835V2 SN: 4d020 | | | | |
|---|---|---|---|---|
| Body Liquid | | | | |
| Date of Measurement | Return Loss(dB) | Δ % | Impedance (Ω) | ΔΩ |
| 8/26/2011 | -25.1 | / | 48.7 | / |
| 8/25/2012 | -24.3 | 3.2% | 50.6 | 1.9Ω |
| 8/24/2013 | -24.7 | 1.6% | 51.1 | 2.4Ω |

| Dipole D1900V2 SN: 5d060 | | | | |
|---|---|---|---|---|
| Body Liquid | | | | |
| Date of Measurement | Return Loss(dB) | Δ % | Impedance (Ω) | ΔΩ |
| 8/31/2011 | -21.3 | / | 47.3 | / |
| 8/30/2012 | -20.9 | 1.9% | 45.9 | 1.4Ω |
| 8/29/2013 | -20.4 | 4.4% | 44.8 | 2.5Ω |

| Dipole D2450V2 SN: 786 | | | | |
|---|---|---|---|---|
| Body Liquid | | | | |
| Date of Measurement | Return Loss(dB) | Δ % | Impedance (Ω) | ΔΩ |
| 8/29/2011 | -29.0 | / | 50.4 | / |
| 8/28/2012 | -29.9 | 3.1% | 52.1 | 1.7Ω |
| 8/27/2013 | -28.2 | 2.8% | 52.7 | 2.3Ω |

| Dipole D2600V2 SN: 1012 | | | | |
|---|---|---|---|---|
| Body Liquid | | | | |
| Date of Measurement | Return Loss(dB) | Δ % | Impedance (Ω) | ΔΩ |
| 5/2/2012 | -23.6 | / | 45 | / |
| 5/1/2013 | -24.5 | 3.8% | 43.2 | 1.8Ω |

## 5.2. System Check Results

**Table 5: System Check in Body Tissue Simulating Liquid**

| Frequency | Test Date | Dielectric Parameters | | Temp | 250mW Measured $SAR_{1g}$ | 1W Normalized $SAR_{1g}$ | 1W Target $SAR_{1g}$ | Limit (±10% Deviation) |
|---|---|---|---|---|---|---|---|---|
| | | $\varepsilon_r$ | σ(s/m) | (℃) | (W/kg) | | | |
| **750MHz** | 2014-3-17 | 54.3 | 0.97 | 21.5 | 2.22 | 8.88 | 8.80 | 0.91% |
| **835MHz** | 2014-3-14 | 55.9 | 0.98 | 21.5 | 2.52 | 10.08 | 9.46 | 6.55% |
| **1750MHz** | 2014-3-16 | 52.9 | 1.50 | 21.5 | 9.24 | 36.96 | 38.80 | -4.74% |
| **1900MHz** | 2014-3-13 | 53.1 | 1.52 | 21.5 | 9.82 | 39.28 | 41.7 | -5.80% |
| **2450MHz** | 2014-3-26 | 52.1 | 1.99 | 21.5 | 13.20 | 52.80 | 51.7 | 2.13% |
| **2600MHz** | 2014-3-20 | 52.3 | 2.20 | 21.5 | 13.50 | 54.00 | 54.30 | -0.55% |

Note：1. The graph results see ANNEX B.
2. Target Values used derive from the calibration certificate

# 6. Operational Conditions during Test

## 6.1. General Description of Test Procedures

Connection to the EUT is established via air interface with CMW 500, and the EUT is set to maximum output power by CMW 500. Using CMW 500 the power lever is set to “5” in SAR of GSM 850, set to “0” in SAR of GSM 1900, power control is set “All Up Bits” of UMTS, power control is set “Max power” of LTE . 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. SAR sensor working

When the SAR sensor active, the active distance as below:

| Test Position | Active distance(mm) |
|---|---|
| Test position 1 | 11 |
| Test position 2 | 6 |
| Test position 3 | NA |
| Test position 4 | NA |
| Test position 5 | 11 |

the SAR power reduce as below:

| Band | Reduce power(dBm) |
|---|---|
| GSM850 | 3 |
| GSM 1900 | 1 |
| WCDMA V 850 | 3 |
| WCDMA IV 1700 | 4 |
| WCDMA II 1900 | 4 |
| LTE Band 2 1900 | 4 |
| LTE Band 4 1700 | 4 |
| LTE Band 5 | 3 |
| LTE Band 17 700 | 3 |
| LTE Band 7 2600 | 4.5 |

## 6.3. Test Configuration

### 6.3.1. GSM Test Configuration

For the body SAR tests for GSM 850 and GSM 1900, a communication link is set up with a System Simulator (SS) by air link. The EUT is commanded to operate at maximum transmitting power.
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 timeslot is 5. Since 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 timeslot 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:

**Table 6: The allowed power reduction in the multi-slot configuration**

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

### 6.3.2. UMTS Test Configuration

#### 6.3.2.1. WCDMA Test Configuration

As the SAR body tests for WCDMA Band II/ WCDMA Band IV/WCDMA Band V, we established the radio link through call processing. The maximum output power were verified on high, middle and low channels for each test band according to 3GPP TS 34.121 with the following configuration:

1) 12.2kbps RMC, 64,144,384 kbps RMC with TPC set to all up bits
2) Test loop Mode 1

For the output power, the configurations for the DPCCH and $DPDCH_1$ are as followed (EUT do not support the $DPDCH_{2-n}$)

**Table 7: The configurations for the DPCCH and $DPDCH_1$**

| | Channel Bit Rate(kbps) | Channel Symbol Rate(ksps) | Spreading Factor | Spreading Code Number | Bits/Slot |
|---|---|---|---|---|---|
| DPCCH | 15 | 15 | 256 | 0 | 10 |
| $DPDCH_1$ | 15 | 15 | 256 | 64 | 10 |
| | 30 | 30 | 128 | 32 | 20 |
| | 60 | 60 | 64 | 16 | 40 |
| | 120 | 120 | 32 | 8 | 80 |
| | 240 | 240 | 16 | 4 | 160 |
| | 480 | 480 | 8 | 2 | 320 |
| | 960 | 960 | 4 | 1 | 640 |

SAR is tested with 12.2kps RMC and not required for other spreading codes (64,144, and 384 kbps RMC) and multiple $DPDCH_n$, because the maximum output power for each of these other configurations<0.25dB higher than 12.2kbps RMC and the multiple $DPDCH_n$ is not applicable for the EUT.

### 6.3.3. HSDPA Test Configuration

SAR for body exposure configurations is measured according to the “Body SAR Measurements” procedures of 3G device. In addition, body SAR is also measured for HSDPA when the maximum average output of each RF channel with HSDPA active is at least 1/4 dB higher than that measured without HSDPA using 12.2kbps RMC or the maximum SAR 12.2kbps RMC is above 75% of the SAR limit. Body SAR for HSDPA is measured using an FRC with H-Set 1 in Sub-test 1 and a 12.2kbps RMC configured in Test Loop Mode 1, using the highest body SAR configuration in 12.2 kbps RMC without HSDPA.

HSDPA should be configured according to the UE category of a test device. The number of HS-DSCH/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 condition, 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(βc,βd), and HS-DPCCH power offset parameters(△ACK, △NACK, △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 8: Subtests for UMTS Release 5 HSDPA**

| Sub-set | $\beta_c$ | $\beta_d$ | $\beta_d$ (SF) | $\beta_c/\beta_d$ | $\beta_{hs}$ (note 1, note 2) | CM(dB) (note 3) | MPR(dB) |
|---|---|---|---|---|---|---|---|
| 1 | 2/15 | 15/15 | 64 | 2/15 | 4/15 | 0.0 | 0.0 |
| 2 | 12/15 (note 4) | 15/15 (note 4) | 64 | 12/15 (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 |

Note1: $\triangle_{ACK}$, $\triangle_{NACK}$ and $\triangle_{CQI}$= 8 ⇔ $A_{hs} = \beta_{hs}/\beta_c$=30/15 ⇔ $\beta_{hs}$=30/15*$\beta_c$

Note2:For the HS-DPCCH power mask requirement test in clause 5.2C,5.7A,and the Error Vector Magnitude(EVM) with HS-DPCCH test in clause 5.13.1.A,and HSDPA EVM with phase discontinuity in clause 5.13.1AA, $\triangle_{ACK}$ and $\triangle_{NACK}$= 8 ( $A_{hs}$=30/15) with $\beta_{hs}$=30/15*$\beta_c$,and $\triangle_{CQI}$= 7 ( $A_{hs}$=24/15) with $\beta_{hs}$=24/15*$\beta_c$.

Note3: CM=1 for$\beta_c/\beta_d$ =12/15, $\beta_{hs}/\beta_c$=24/15. For all other combinations of DPDCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.

Note 4:For subtest 2 the $\beta_c\beta_d$ ratio of 12/15 for the TFC during the measurement period(TF1,TF0) is achieved by setting the signaled gain factors for the reference TFC (TFC1,TF1) to $\beta_c$=11/15 and $\beta_d$=15/15.

**Table 9: Settings of required H-Set 1 QPSK in HSDPA mode**

| Parameter | Unit | Value |
|---|---|---|
| Nominal Avg. Inf. Bit Rate | kbps | 534 |
| Inter-TTI Distance | TTI's | 3 |
| Number of HARQ Processes | Processes | 2 |
| Information Bit Payload ( $N_{INF}$) | Bits | 3202 |
| Number Code Blocks | Blocks | 1 |
| Binary Channel Bits Per TTI | Bits | 4800 |
| Total Available SML's in UE | SML's | 19200 |
| Number of SML's per HARQ Proc. | SML's | 9600 |
| Coding Rate | / | 0.67 |
| Number of Physical Channel Codes | Codes | 5 |
| Modulation | / | QPSK |

### 6.3.4. DC-HSDPA Test Configuration

When the maximum average output power of each RF channel with (uplink) HSPA+ or DC-HSDPA active is ≤ ¼ dB higher than that measured without HSPA+ or DC-HSDPA using 12.2 kbps RMC, or the maximum *reported* SAR for 12.2 kbps RMC without HSPA+ or DC-HSDPA is ≤ 75% of the SAR limit, SAR evaluation for HSPA+ or DC-HSDPA is not required.

**Configure DC-HSDPA parameters for base station**

a) Set up the HSDPA RB Test Mode Parameters

RB Test HS-DSCH Configuration Type = User Defined
RB Test User Defined HS-DSCH MAC entity = MAC-ehs (Note 1)
RB Test User Defined HARQ Processes = 6 (Note 2)
RB Test User Defined UE IR Buffer Allocation = Implicit
RB Test User Defined DC-HSDPA State = On
RB Test Mode DC-HSDPA DPCH Loopback State = On

b) Set up the Serving Cell Parameters

RB Test User Defined 64QAM State =On
RB Test User Defined Active HS-PDSCHs =15
RB Test User Def Transport Block Size Index =62
RB Test User Defined Modulation Type =64QAM
RB Test User Defined Inter-TTI Interval =1

c) Set up the Secondary Serving Cell Parameters

RB Test User Def Secondary Cell 64QAM State =On
RBTM User Def Sec Cell Active HS-PDSCHs = 15
RBTM User Def Sec Cell TB Size Index = 62
RBTM User Def Sec Cell Modulation Type =64QAM
RBTM User Def Sec Cell Inter-TTI Interval = 1

d) Set the HSDPA Conn DL Channel Levels

HSDPA Cell 1 Connected CPICH Level = -8
HSDPA Cell 1 Connected P-CCPCH/SCH Level = -20
HSDPA Cell 1 Connected PICH Level = off
HSDPA Cell 1 Connected DPCH Level = -30
HSDPA Cell 1 Connected HS-PDSCH Level (Sum) = -1 dBm
HSDPA Cell 1 Connected HS-SCCH 1 to 4 Level = -20,-20,off,off
Secondary Cell HSDPA Conn CPICH Level = -8
Secondary Cell HSDPA Conn PCCPCH/SCH Level = -20
Secondary Cell HSDPA Conn PICH Level = off
Secondary Cell HSDPA Conn HS-PDSCHs Lvl (Sum) = -1 dBm
Secondary Cell HSDPA Conn HS-SCCH 1 to 4 Level = -20,-20,off,off

**Table 10: 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 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 NOTE 2 | 15 | 1 | 35280 | 259200 | QPSK, 16QAM, 64QAM | – | |
| | | | 23370 | 345600 | – | QPSK, 16QAM | |
| Category 18 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 | | | |
| Category 23 | 15 | 1 | 35280 | 518400 | | | QPSK, 16QAM, 64QAM |
| Category 24 | 15 | 1 | 42192 | 518400 | | | |

### 6.3.5. HSUPA Test Configuration

Body SAR is also measured for HSPA when the maximum average output of each RF channel with HSPA active is at least ¼ dB higher than that measured without HSPA using 12.2 kbps RMC or the maximum SAR for 12.2 kbps RMC is above 75% of the SAR limit. Body SAR for HSPA is measured with E-DCH Sub-test 5, using H-Set 1 and QPSK for FRC and a 12.2 kbps RMC configured in Test Loop Mode 1 with power control algorithm 2, according to the highest body SAR configuration in 12.2 kbps RMC without HSPA.

Due to inner loop power control requirements in HSPA, a commercial communication test set should be used for the output power and SAR tests. The 12.2 kbps RMC, FRC H-set 1 and E- DCH configurations for HSPA should be configured according to the β values indicated below as well as other applicable procedures described in the ‘WCDMA Handset’ and ‘Release 5 HSDPA Data Devices’ sections of 3 G device.

**Table 11: Sub-Test 5 Setup for Release 6 HSUPA**

| Sub-set | $\beta_c$ | $\beta_d$ | $\beta_d$ (SF) | $\beta_c/\beta_d$ | $\beta_{hs}$ (1) | $\beta_{ec}$ | $\beta_{ed}$ | $\beta_{ed}$ (SF) | $\beta_{ed}$ (codes) | CM (2) (dB) | MPR (dB) | AG (4) Index | E-TFCI |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 11/15 (3) | 15/15 (3) | 64 | 11/15 (3) | 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 (4) | 15/15 (4) | 64 | 15/15 (4) | 30/15 | 24/15 | 134/15 | 4 | 1 | 1.0 | 0.0 | 21 | 81 |

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

Note 2: CM = 1 for βc/βd =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 βc/βd 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 βc = 10/15 and βd = 15/15.

Note 4: For subtest 5 the βc/βd 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 βc = 14/15 and βd = 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: βed can not be set directly; it is set by Absolute Grant Value.

**Table 12: HSUPA UE category**

| UE E-DCH Category | Maximum E-DCH Codes Transmitted | Number of HARQ Processes | E-DCH TTI (ms) | Minimum Spreading Factor | Maximum E-DCH Transport Block Bits | Max Rate (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 (No DPDCH) | 4 | 8 | 2 | 2 SF2 & 2 SF4 | 11484 | 5.76 |
| | 4 | 4 | 10 | | 20000 | 2.00 |
| 7 (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) | | | | | | |

### 6.3.6. 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 ≤

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 ≤ 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 > ½ 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 > ½ 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.

### 6.3.7. 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 16 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.

## 6.4. 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 ≥ 0.80 W/kg, the measurement was repeated once.
2) A second repeated measurement was preformed 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 ≥ 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 ≥ 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

## 6.5. Test Positions

### 6.5.1. Test Positions Requirements

The overall diagonal dimension of the display section of a tablet is 22.5 cm > 20 cm, Per FCC KDB 616217, the back surface and edges of the tablet should be tested for SAR compliance with the tablet touching the phantom. SAR evaluation for the front surface of tablet display screens are generally not necessary. The SAR Exclusion Threshold in KDB 447498 D01 can be applied to determine SAR test exclusion for adjacent edge configurations. The closest distance from the antenna to an adjacent tablet edge is used to determine if SAR testing is required for the adjacent edges, with the adjacent edge positioned against the phantom and the edge containing the antenna positioned perpendicular to the phantom.

### 6.5.2. SAR test reduction and exclusion guidance

(1) The SAR exclusion threshold for distances <50mm is defined by the following equation:

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

(2) The SAR exclusion threshold for distances >50mm is defined by the following equation, as illustrated in KDB 447498 D01 Appendix B:

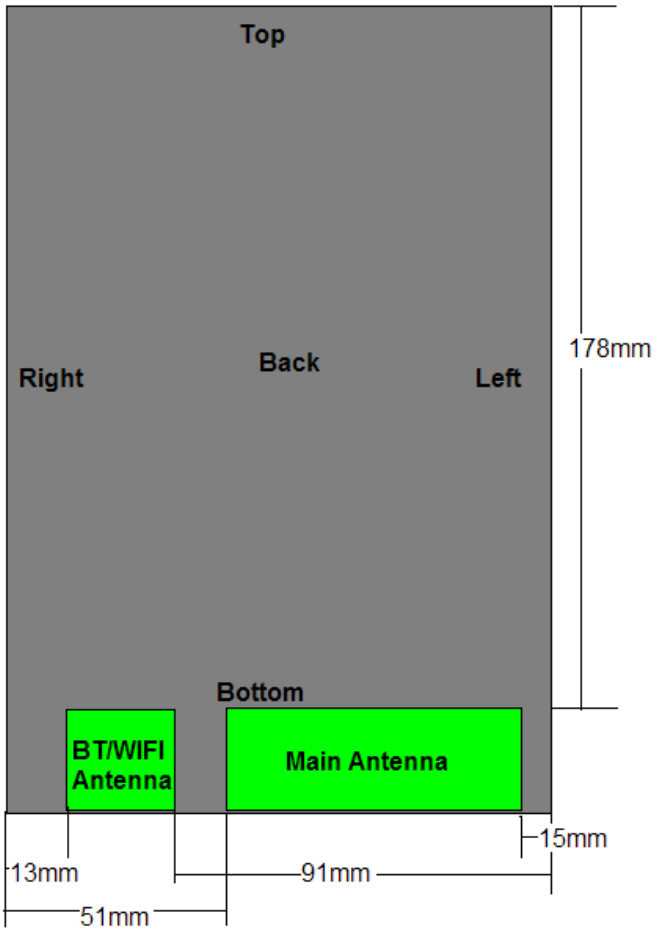
a) at 100 MHz to 1500 MHz

**[Power allowed at numeric Threshold at 50 mm in step 1) + (test separation distance - 50 mm) · ($f_{(MHz)}$/150)] mW**

b) at > 1500 MHz and ≤ 6 GHz

**[Power allowed at numeric Threshold at 50 mm in step 1) + (test separation distance - 50 mm) ·10] mW**

The location of the antennas inside EUT is shown in ANNEX L:




| Tested position | Proximity Sensor function triggers distance |
|---|---|
| Tested position 1 | 11mm |
| Tested position 2 | 6mm |
| Tested position 3 | Not trigger |
| Tested position 4 | Not trigger |
| Tested position 5 | 11mm |

- Test Position 1: The back surface of the EUT towards to the bottom of the flat phantom. (ANNEX L Picture 9).

  SAR is required for GSM/UMTS/LTE/WiFi antenna in this position.
  SAR is not required for BT antenna in this position.
  Test Position 1 Evaluation $_{(GSM)}$ = $[10^{((26-6.02)/10)}/5] * (0.8488^{1/2})$ =18.3 >3.0
  Test Position 1 Evaluation $_{(UMTS)}$ = $[10^{(19.5/10)}/5] * (0.8466^{1/2})$ =16.4 >3.0
  Test Position 1 Evaluation $_{(LTE)}$ = $[10^{(20.5/10)}/5] * (0.844^{1/2})$ =20.6 >3.0
  Test Position 1 Evaluation $_{(WiFi)}$ = $[10^{(16.5/10)}/5] * (2.462^{1/2})$ =14.0 >3.0
  Test Position 1 Evaluation $_{(BT)}$ = $[10^{(2.5/10)}/5] * (2.480^{1/2})$ =0.56 <3.0

- Test Position 2: The left edge of the EUT towards the bottom of the flat phantom. (ANNEX L Picture 12).
  SAR is required for GSM/UMTS/LTE antenna in this position.
  SAR is not required for BT/WIFI antenna in this position.
  Test Position 2 Evaluation $_{(GSM)}$ = $[10^{((26-6.02)/10)}/15] * (0.8488^{1/2})$ =6.1 >3.0
  Test Position 2 Evaluation $_{(UMTS)}$ = $[10^{(19.5/10)}/15] * (0.8466^{1/2})$ =5.5 >3.0
  Test Position 2 Evaluation $_{(LTE)}$ = $[10^{(20.5/10)}/15] * (0.844^{1/2})$ =6.9 >3.0
  Test Position 2 Evaluation $_{(WIFI)}$ =96+ (91-50)*10=506mW=27.0 dBm>16.5 dBm (max.power)
  Test Position 2 Evaluation $_{(BT)}$ = 96+ (91-50)*10=506mW=27.0 dBm >2.5 dBm (max.power)

- Test Position 3: The right edge of the EUT towards the bottom of the flat phantom. (ANNEX L Picture 15).
  SAR is required for WIFI antenna in this position.
  SAR is not required for BT/GSM/UMTS/LTE antenna in this position.
  Test Position 3 evaluation $_{(GSM\ 850)}$ = 164+ (51-50)*(848.8/150)=169.7mW=22.3 dBm> (26-6.02) dBm=19.98 dBm (max.power)
  Test Position 3 evaluation $_{(GSM\ 1900)}$ = 109+ (51-50)*10=119mW=20.8 dBm>(22-3.01) dBm =18.99(max.power)
  Test Position 3 evaluation $_{(UMTS\ Band\ II)}$ = 109+(51-50)*10=119mW =20.8dBm>18.5 dBm (max.power)
  Test Position 3 Evaluation $_{(UMTS\ Band\ IV)}$ = 113+(51-50)*10=123mW =20.9dBm>18.5 dBm (max.power)
  Test Position 3 evaluation $_{(UMTS\ Band\ V)}$ = 164+ (51-50)*(846.6/150)=169.6mW=22.3 dBm>19.5 dBm (max.power)
  Test Position 3 Evaluation $_{(LTE\ Band\ 2)}$ = 109+(51-50)*10=119mW =20.8dBm>18.32 dBm (max.power)
  Test Position 3 Evaluation $_{(LTE\ Band\ 4)}$ = 113+(51-50)*10=123mW =20.9dBm>18.7 dBm (max.power)
  Test Position 3 Evaluation $_{(LTE\ Band\ 5)}$ = 164+ (51-50)*(846.6/150)=169.6mW=20 dBm>20.5 dBm
  Test Position 3 Evaluation $_{(LTE\ Band\ 7)}$ = 93+(51-50)*10=103mW =20.1dBm>17.3 dBm (max.power)
  Test Position 3 Evaluation $_{(LTE\ Band\ 17)}$ = 173+(51-50)*10=183mW =22.6dBm>20.5 dBm (max.power)
  Test Position 3 evaluation $_{(WIFI)}$ = $[10^{(16.5/10)}/16] * (2.462^{1/2})$ =4.4 >3.0
  Test Position 3 evaluation $_{(BT)}$ = $[10^{(2.5/10)}/16] * (2.480^{1/2})$ =0.17 <3.0

- Test Position 4: The top edge of the EUT towards the bottom of the flat phantom. (ANNEX L Picture 18).
  SAR is not required for GSM/UMTS/LTE/BT/WIFI antenna in this position.
  Test Position 4 evaluation $_{(GSM\ 850)}$ = 164+ (178-50)*(848.8/150)=888.3mW=29.5 dBm> (26-6.02) dBm=19.98 dBm (max.power)
  Test Position 4 evaluation $_{(GSM\ 1900)}$ = 109+ (178-50)*10=1389mW=31.4 dBm>(22-3.01) dBm =18.99(max.power)
  Test Position 4 evaluation $_{(UMTS\ Band\ II)}$ = 109+(178-50)*10=1389mW =31.4dBm>18.5 dBm (max.power)
  Test Position 4 Evaluation $_{(UMTS\ Band\ IV)}$ = 113+(178-50)*10=1393mW =31.4dBm>18.5 dBm (max.power)
  Test Position 4 evaluation $_{(UMTS\ Band\ V)}$ = 164+ (178-50)*(846.6/150)= 888.3mW=29.5 dBm>19.5 dBm (max.power)

Test Position 4 Evaluation $_{(LTE\ Band\ 2)}$ = 109+(178-50)*10=1389mW =31.4dBm>18.32 dBm (max.power)
Test Position 4 Evaluation $_{(LTE\ Band\ 4)}$ = 113+(178-50)*10=1393mW =31.4dBm>18.7 dBm (max.power)
Test Position 4 Evaluation $_{(LTE\ Band\ 5)}$ = 164+ (178-50)*(846.6/150)=888.3mW=29.5 dBm>20.5 dBm
Test Position 4 Evaluation $_{(LTE\ Band\ 7)}$ = 93+(178-50)*10=1373mW =31.4dBm>17.3 dBm (max.power)
Test Position 4 Evaluation $_{(LTE\ Band\ 17)}$ = 173+(178-50)*10=1453mW =31.6dBm>20.5 dBm (max.power)
Test Position 4 Evaluation $_{(WIFI)}$ = 96+ (178-50)*10=1376mW=31.4 dBm >16.5 dBm (max.power)
Test Position 4 Evaluation $_{(BT)}$ = 96+ (178-50)*10=1376mW=31.4 dBm >2.5 dBm (max.power)

- Test Position 5: The bottom edge of the EUT towards the bottom of the flat phantom. . (ANNEX L Picture 21).
  SAR is required for GSM/UMTS/LTE/WiFi antenna in this position.
  SAR is not required for BT antenna in this position.
  Test Position 5 Evaluation $_{(GSM)}$ = $[10^{((26-6.02)/10)}/5] * (0.8488^{1/2})$ =18.3 >3.0
  Test Position 5 Evaluation $_{(UMTS)}$ = $[10^{(19.5/10)}/5] * (0.8466^{1/2})$ =16.4 >3.0
  Test Position 5 Evaluation $_{(LTE)}$ = $[10^{(20.5/10)}/5] * (0.844^{1/2})$ =20.6 >3.0
  Test Position 5 Evaluation $_{(WIFI)}$ = $[10^{(16.5/10)}/5] * (2.462^{1/2})$ =14.0 >3.0
  Test Position 5 Evaluation $_{(BT)}$ = $[10^{(2.5/10)}/5] * (2.480^{1/2})$ =0.56 <3.0

# 7. Test Results

## 7.1. Conducted Power Results

**Table 13: GSM Band Conducted Power Measurement Results**

**SAR sensor not active**

| GSM 850 | | Burst Conducted Power(dBm) | | | / | Average power(dBm) | | |
|---|---|---|---|---|---|---|---|---|
| | | Channel 128 | Channel 190 | Channel 251 | | Channel 128 | Channel 190 | Channel 251 |
| GPRS (GMSK) | 1Txslot | 31.54 | 31.25 | 31.19 | -9.03dB | 22.51 | 22.22 | 22.16 |
| | 2Txslots | 28.53 | 28.40 | 28.39 | -6.02dB | **22.51** | **22.38** | **22.37** |
| | 3Txslots | 26.71 | 26.60 | 26.58 | -4.26dB | 22.45 | 22.34 | 22.32 |
| | 4Txslots | 25.46 | 25.37 | 25.38 | -3.01dB | 22.45 | 22.36 | 22.37 |
| EGPRS (GMSK) | 1Txslot | 31.53 | 31.26 | 31.21 | -9.03dB | 22.50 | 22.23 | 22.18 |
| | 2Txslots | 28.52 | 28.42 | 28.41 | -6.02dB | **22.50** | **22.40** | **22.39** |
| | 3Txslots | 26.70 | 26.62 | 26.61 | -4.26dB | 22.44 | 22.36 | 22.35 |
| | 4Txslots | 25.50 | 25.41 | 25.42 | -3.01dB | 22.49 | 22.40 | 22.41 |
| EGPRS (8PSK) | 1Txslot | 25.42 | 25.43 | 25.53 | -9.03dB | 16.39 | 16.40 | 16.50 |
| | 2Txslots | 22.38 | 22.36 | 22.44 | -6.02dB | 16.36 | 16.34 | 16.42 |
| | 3Txslots | 20.26 | 20.26 | 20.30 | -4.26dB | 16.00 | 16.00 | 16.04 |
| | 4Txslots | 19.18 | 19.17 | 19.08 | -3.01dB | 16.17 | 16.16 | 16.07 |
| GSM 1900 | | Burst Conducted Power(dBm) | | | / | Average power(dBm) | | |
| | | Channel 512 | Channel 661 | Channel 810 | | Channel 512 | Channel 661 | Channel 810 |
| GPRS (GMSK) | 1Txslot | 28.56 | 28.60 | 28.61 | -9.03dB | 19.53 | 19.57 | 19.58 |
| | 2Txslots | 25.69 | 25.69 | 25.60 | -6.02dB | 19.67 | 19.67 | 19.58 |
| | 3Txslots | 23.93 | 23.78 | 23.77 | -4.26dB | 19.67 | 19.52 | 19.51 |
| | 4Txslots | 22.74 | 22.69 | 22.59 | -3.01dB | **19.73** | **19.68** | **19.58** |
| EGPRS (GMSK) | 1Txslot | 28.57 | 28.62 | 28.60 | -9.03dB | 19.54 | 19.59 | 19.57 |
| | 2Txslots | 25.67 | 25.67 | 25.58 | -6.02dB | 19.65 | 19.65 | 19.56 |
| | 3Txslots | 23.91 | 23.85 | 23.75 | -4.26dB | 19.65 | 19.59 | 19.49 |
| | 4Txslots | 22.72 | 22.66 | 22.55 | -3.01dB | **19.71** | **19.65** | **19.54** |
| EGPRS (8PSK) | 1Txslot | 25.33 | 25.14 | 25.45 | -9.03dB | 16.30 | 16.11 | 16.42 |
| | 2Txslots | 21.85 | 21.64 | 21.93 | -6.02dB | 15.83 | 15.62 | 15.91 |
| | 3Txslots | 20.06 | 19.69 | 19.95 | -4.26dB | 15.80 | 15.43 | 15.69 |
| | 4Txslots | 18.65 | 18.45 | 18.59 | -3.01dB | 15.64 | 15.44 | 15.58 |

**SAR sensor active**

| GSM 850 | | Burst Conducted Power(dBm) | | | / | Average power(dBm) | | |
|---|---|---|---|---|---|---|---|---|
| | | Channel 128 | Channel 190 | Channel 251 | | Channel 128 | Channel 190 | Channel 251 |
| GPRS (GMSK) | 1Txslot | 28.65 | 28.36 | 28.3 | 9.03 | 19.62 | 19.33 | 19.27 |
| | 2Txslots | 25.39 | 25.53 | 25.69 | 6.02 | **19.37** | **19.51** | **19.67** |
| | 3Txslots | 23.82 | 23.74 | 23.62 | 4.26 | 19.56 | 19.48 | 19.36 |
| | 4Txslots | 22.57 | 22.48 | 22.42 | 3.01 | 19.56 | 19.47 | 19.41 |
| EGPRS (GMSK) | 1Txslot | 28.61 | 28.31 | 28.23 | 9.03 | 19.58 | 19.28 | 19.2 |
| | 2Txslots | 25.63 | 25.49 | 25.48 | 6.02 | 19.61 | 19.47 | 19.46 |
| | 3Txslots | 23.81 | 23.74 | 23.62 | 4.26 | 19.55 | 19.48 | 19.36 |
| | 4Txslots | 22.54 | 22.48 | 22.42 | 3.01 | 19.53 | 19.47 | 19.41 |
| EGPRS (8PSK) | 1Txslot | 22.49 | 22.52 | 22.61 | 9.03 | 13.46 | 13.49 | 13.58 |
| | 2Txslots | 19.48 | 19.45 | 19.51 | 6.02 | 13.46 | 13.43 | 13.49 |
| | 3Txslots | 17.33 | 17.31 | 17.37 | 4.26 | 13.07 | 13.05 | 13.11 |
| | 4Txslots | 16.25 | 16.21 | 16.18 | 3.01 | 13.24 | 13.2 | 13.17 |

| GSM 1900 | | Burst Conducted Power(dBm) | | | / | Average power(dBm) | | |
|---|---|---|---|---|---|---|---|---|
| | | Channel 512 | Channel 661 | Channel 810 | | Channel 512 | Channel 661 | Channel 810 |
| GPRS (GMSK) | 1Txslot | 27.53 | 27.61 | 27.63 | 9.03 | 18.5 | 18.58 | 18.6 |
| | 2Txslots | 24.62 | 24.64 | 24.61 | 6.02 | 18.6 | 18.62 | 18.59 |
| | 3Txslots | 22.87 | 22.72 | 22.72 | 4.26 | 18.61 | 18.46 | 18.46 |
| | 4Txslots | 21.64 | 21.75 | 21.61 | 3.01 | 18.63 | 18.74 | 18.60 |
| EGPRS (GMSK) | 1Txslot | 27.51 | 27.63 | 27.62 | 9.03 | 18.48 | 18.6 | 18.59 |
| | 2Txslots | 24.63 | 24.61 | 24.66 | 6.02 | 18.61 | 18.59 | 18.64 |
| | 3Txslots | 22.96 | 22.71 | 22.76 | 4.26 | 18.7 | 18.45 | 18.5 |
| | 4Txslots | 21.79 | 21.75 | 21.66 | 3.01 | 18.78 | 18.74 | 18.65 |
| EGPRS (8PSK) | 1Txslot | 24.38 | 24.22 | 24.52 | 9.03 | 15.35 | 15.19 | 15.49 |
| | 2Txslots | 20.9 | 20.72 | 21 | 6.02 | 14.88 | 14.7 | 14.98 |
| | 3Txslots | 19.11 | 18.77 | 19.02 | 4.26 | 14.85 | 14.51 | 14.76 |
| | 4Txslots | 17.7 | 17.53 | 17.66 | 3.01 | 14.69 | 14.52 | 14.65 |

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

2) Average power numbers
The maximum power numbers are marks in bold.

**Table 14: WCDMA Band Conducted Power Measurement Results**

**SAR sensor not active**

| **UMTS Band II** | | **Conducted Power (dBm)** | | |
|---|---|---|---|---|
| | | Channel 9262 | Channel 9400 | Channel 9538 |
| **RMC** | 12.2kbps RMC | 22.24 | 22.08 | 22.23 |
| | 64kbps RMC | 22.23 | 22.07 | 22.21 |
| | 144kbps RMC | 22.21 | 22.05 | 22.18 |
| | 384kbps RMC | 22.20 | 22.06 | 22.15 |
| **HSDPA** | Sub - Test 1 | 22.22 | 22.05 | 22.21 |
| | Sub - Test 2 | 22.21 | 22.06 | 22.19 |
| | Sub - Test 3 | 22.19 | 22.04 | 22.16 |
| | Sub - Test 4 | 22.18 | 22.05 | 22.14 |
| **HSUPA** | Sub - Test 1 | 20.89 | 20.68 | 20.81 |
| | Sub - Test 2 | 20.10 | 19.89 | 20.03 |
| | Sub - Test 3 | 20.40 | 20.19 | 20.33 |
| | Sub - Test 4 | 20.11 | 19.92 | 20.01 |
| | Sub - Test 5 | 20.88 | 20.67 | 20.79 |
| **DC-HSDPA** | Sub - Test 1 | 22.15 | 21.98 | 22.13 |
| | Sub - Test 2 | 22.13 | 21.98 | 22.09 |
| | Sub - Test 3 | 22.08 | 21.97 | 22.16 |
| | Sub - Test 4 | 22.09 | 21.96 | 22.14 |
| **UMTS Band IV** | | **Conducted Power (dBm)** | | |
| | | Channel 1312 | Channel 1412 | Channel 1513 |
| **RMC** | 12.2kbps RMC | 22.23 | 22.26 | 22.05 |
| | 64kbps RMC | 22.21 | 22.24 | 22.03 |
| | 144kbps RMC | 22.20 | 22.23 | 22.01 |
| | 384kbps RMC | 22.22 | 22.25 | 22.04 |
| **HSDPA** | Sub - Test 1 | 22.22 | 22.25 | 22.03 |
| | Sub - Test 2 | 22.20 | 22.23 | 22.02 |

| | | | | |
|---|---|---|---|---|
| | Sub - Test 3 | 22.19 | 22.21 | 22.00 |
| | Sub - Test 4 | 22.21 | 22.21 | 22.01 |
| **HSUPA** | Sub - Test 1 | 20.89 | 20.88 | 20.65 |
| | Sub - Test 2 | 20.12 | 20.09 | 19.88 |
| | Sub - Test 3 | 20.40 | 20.38 | 20.15 |
| | Sub - Test 4 | 20.11 | 20.10 | 19.90 |
| | Sub - Test 5 | 20.87 | 20.85 | 20.61 |
| **DC-HSDPA** | Sub - Test 1 | 22.13 | 22.16 | 21.99 |
| | Sub - Test 2 | 22.14 | 22.13 | 21.97 |
| | Sub - Test 3 | 22.04 | 22.15 | 21.95 |
| | Sub - Test 4 | 22.13 | 22.11 | 21.96 |
| **UMTS Band V** | | **Conducted Power (dBm)** | | |
| | | Channel 4132 | Channel 4183 | Channel 4233 |
| **RMC** | 12.2kbps RMC | 21.57 | 22.04 | 21.65 |
| | 64kbps RMC | 21.58 | 22.03 | 21.63 |
| | 144kbps RMC | 21.56 | 22.01 | 21.62 |
| | 384kbps RMC | 21.57 | 22.03 | 21.61 |
| **HSDPA** | Sub - Test 1 | 21.54 | 22.03 | 21.62 |
| | Sub - Test 2 | 21.57 | 22.01 | 21.62 |
| | Sub - Test 3 | 21.54 | 22.02 | 21.63 |
| | Sub - Test 4 | 21.55 | 22.01 | 21.62 |
| **HSUPA** | Sub - Test 1 | 20.15 | 20.70 | 20.28 |
| | Sub - Test 2 | 19.37 | 19.96 | 19.49 |
| | Sub - Test 3 | 19.67 | 20.21 | 19.79 |
| | Sub - Test 4 | 19.38 | 19.97 | 19.51 |
| | Sub - Test 5 | 20.13 | 20.68 | 20.25 |
| **DC-HSDPA** | Sub - Test 1 | 21.46 | 21.92 | 21.55 |
| | Sub - Test 2 | 21.69 | 21.97 | 21.53 |
| | Sub - Test 3 | 21.46 | 21.96 | 21.54 |
| | Sub - Test 4 | 21.44 | 21.95 | 21.53 |

**SAR sensor active**

| UMTS Band II | | Conducted Power (dBm) | | |
|---|---|---|---|---|
| | | Channel 9262 | Channel 9400 | Channel 9538 |
| RMC | 12.2kbps RMC | 18.21 | 18.25 | 18.39 |
| | 64kbps RMC | 18.09 | 17.93 | 18.07 |
| | 144kbps RMC | 18.08 | 17.91 | 18.07 |
| | 384kbps RMC | 18.07 | 17.92 | 18.01 |
| HSDPA | Sub - Test 1 | 18.24 | 18.09 | 18.23 |
| | Sub - Test 2 | 18.26 | 18.08 | 18.21 |
| | Sub - Test 3 | 18.21 | 18.01 | 18.18 |
| | Sub - Test 4 | 18.15 | 18.07 | 18.13 |
| HSUPA | Sub - Test 1 | 16.81 | 16.63 | 16.74 |
| | Sub - Test 2 | 16.06 | 15.82 | 15.93 |
| | Sub - Test 3 | 16.33 | 16.15 | 16.26 |
| | Sub - Test 4 | 16.04 | 15.85 | 15.97 |
| | Sub - Test 5 | 16.84 | 16.62 | 16.72 |
| DC-HSDPA | Sub - Test 1 | 18.21 | 18.04 | 18.16 |
| | Sub - Test 2 | 18.17 | 18.04 | 18.15 |
| | Sub - Test 3 | 18.14 | 18.08 | 18.24 |
| | Sub - Test 4 | 18.19 | 18.02 | 18.2 |
| UMTS Band IV | | Conducted Power (dBm) | | |
| | | Channel 1312 | Channel 1412 | Channel 1513 |
| RMC | 12.2kbps RMC | 18.18 | 18.27 | 18.36 |
| | 64kbps RMC | 18.07 | 18.12 | 17.99 |
| | 144kbps RMC | 18.06 | 18.13 | 17.98 |
| | 384kbps RMC | 18.09 | 18.12 | 17.99 |
| HSDPA | Sub - Test 1 | 18.27 | 18.25 | 18.05 |
| | Sub - Test 2 | 18.25 | 18.21 | 18.07 |
| | Sub - Test 3 | 18.21 | 18.23 | 18.02 |
| | Sub - Test 4 | 18.24 | 18.23 | 18.08 |
| HSUPA | Sub - Test 1 | 16.85 | 16.86 | 16.58 |
| | Sub - Test 2 | 16.02 | 16.02 | 15.83 |
| | Sub - Test 3 | 16.31 | 16.35 | 16.05 |
| | Sub - Test 4 | 16.04 | 16.03 | 15.81 |

| | | | | |
|---|---|---|---|---|
| | Sub - Test 5 | 16.8 | 16.78 | 16.54 |
| DC-HSDPA | Sub - Test 1 | 18.18 | 18.22 | 18.09 |
| | Sub - Test 2 | 18.22 | 18.13 | 18.05 |
| | Sub - Test 3 | 18.1 | 18.23 | 18.01 |
| | Sub - Test 4 | 18.19 | 18.15 | 18.02 |
| **UMTS Band V** | | **Conducted Power (dBm)** | | |
| | | Channel 4132 | Channel 4183 | Channel 4233 |
| RMC | 12.2kbps RMC | 18.67 | 19.17 | 18.78 |
| | 64kbps RMC | 18.72 | 19.15 | 18.75 |
| | 144kbps RMC | 18.61 | 19.16 | 18.72 |
| | 384kbps RMC | 18.69 | 19.15 | 18.71 |
| HSDPA | Sub - Test 1 | 18.46 | 18.92 | 18.45 |
| | Sub - Test 2 | 18.41 | 18.88 | 18.44 |
| | Sub - Test 3 | 18.41 | 18.89 | 18.52 |
| | Sub - Test 4 | 18.44 | 18.85 | 18.49 |
| HSUPA | Sub - Test 1 | 17.07 | 17.57 | 17.15 |
| | Sub - Test 2 | 16.21 | 16.81 | 16.31 |
| | Sub - Test 3 | 16.59 | 17.03 | 16.66 |
| | Sub - Test 4 | 16.25 | 16.89 | 16.33 |
| | Sub - Test 5 | 17.01 | 17.55 | 17.11 |
| DC-HSDPA | Sub - Test 1 | 18.42 | 18.82 | 18.51 |
| | Sub - Test 2 | 18.61 | 18.91 | 18.49 |
| | Sub - Test 3 | 18.42 | 18.92 | 18.55 |
| | Sub - Test 4 | 18.43 | 18.91 | 18.42 |

**Table 15: LTE Band 2 Conducted Power Measurement Results**

**SAR sensor not active**

| LTE FDD Band 2 | | | | Conducted Power(dBm) | | |
|---|---|---|---|---|---|---|
| **Bandwidth** | Modulation | RB size | RB offset | Channel | Channel | Channel |
| | | | | 18607 | 18900 | 19193 |
| **1.4MHz** | QPSK | 1 | 0 | 22.08 | 22.04 | 21.85 |
| | | 1 | 2 | 22.15 | 22.16 | 21.86 |
| | | 1 | 5 | 22.06 | 22.14 | 22.00 |
| | | 3 | 0 | 22.01 | 21.09 | 21.93 |
| | | 3 | 2 | 21.96 | 21.61 | 21.94 |
| | | 3 | 3 | 21.87 | 20.81 | 21.95 |
| | | 6 | 0 | 20.90 | 19.93 | 20.93 |
| | 16QAM | 1 | 0 | 21.41 | 21.39 | 21.02 |
| | | 1 | 2 | 21.50 | 21.11 | 21.27 |
| | | 1 | 5 | 21.57 | 21.15 | 21.33 |
| | | 3 | 0 | 21.28 | 20.44 | 21.38 |
| | | 3 | 2 | 21.14 | 20.33 | 21.14 |
| | | 3 | 3 | 21.30 | 20.46 | 21.10 |
| | | 6 | 0 | 20.33 | 19.42 | 19.91 |
| **Bandwidth** | Modulation | RB size | RB offset | Channel | Channel | Channel |
| | | | | 18615 | 18900 | 19185 |
| **3MHz** | QPSK | 1 | 0 | 22.30 | 22.08 | 22.05 |
| | | 1 | 7 | 22.39 | 22.24 | 21.94 |
| | | 1 | 14 | 22.33 | 22.31 | 22.09 |
| | | 8 | 0 | 21.19 | 21.11 | 21.10 |
| | | 8 | 4 | 21.23 | 21.21 | 21.09 |
| | | 8 | 7 | 21.24 | 21.17 | 21.05 |
| | | 15 | 0 | 21.22 | 21.12 | 20.90 |
| | 16QAM | 1 | 0 | 21.32 | 21.27 | 20.86 |
| | | 1 | 7 | 21.45 | 20.88 | 21.02 |
| | | 1 | 14 | 19.91 | 21.22 | 20.70 |
| | | 8 | 0 | 20.24 | 20.13 | 19.94 |
| | | 8 | 4 | 20.24 | 20.09 | 19.95 |
| | | 8 | 7 | 20.18 | 20.04 | 19.95 |
| | | 15 | 0 | 20.35 | 20.06 | 19.82 |
| **Bandwidth** | Modulation | RB size | RB offset | Channel | Channel | Channel |
| | | | | 18625 | 18900 | 19175 |
| **5MHz** | QPSK | 1 | 0 | 22.05 | 22.09 | 22.32 |
| | | 1 | 13 | 22.09 | 21.93 | 22.37 |
| | | 1 | 24 | 22.10 | 21.86 | 22.35 |
| | | 12 | 0 | 21.17 | 20.92 | 22.04 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | 12 | 6 | 21.17 | 20.83 | 22.14 |
| | | 12 | 13 | 21.17 | 20.73 | 22.21 |
| | | 25 | 0 | 21.15 | 21.02 | 21.08 |
| | 16QAM | 1 | 0 | 21.69 | 21.24 | 21.73 |
| | | 1 | 13 | 21.29 | 21.07 | 21.07 |
| | | 1 | 24 | 21.59 | 20.88 | 20.91 |
| | | 12 | 0 | 20.03 | 20.00 | 20.04 |
| | | 12 | 6 | 20.00 | 19.88 | 20.01 |
| | | 12 | 13 | 20.12 | 19.87 | 20.13 |
| | | 25 | 0 | 20.24 | 19.86 | 20.30 |
| **Bandwidth** | Modulation | RB size | RB offset | Channel | Channel | Channel |
| | | | | 18650 | 18900 | 19150 |
| **10MHz** | QPSK | 1 | 0 | 22.19 | 22.13 | 22.14 |
| | | 1 | 25 | 22.17 | 22.02 | 22.20 |
| | | 1 | 49 | 22.20 | 22.00 | 22.16 |
| | | 25 | 0 | 21.15 | 20.92 | 20.94 |
| | | 25 | 13 | 21.11 | 20.89 | 20.96 |
| | | 25 | 25 | 21.02 | 20.82 | 20.99 |
| | | 50 | 0 | 20.99 | 20.97 | 21.09 |
| | 16QAM | 1 | 0 | 21.49 | 21.74 | 21.96 |
| | | 1 | 25 | 20.77 | 21.73 | 21.86 |
| | | 1 | 49 | 21.37 | 21.85 | 21.73 |
| | | 25 | 0 | 20.04 | 19.83 | 20.04 |
| | | 25 | 13 | 20.07 | 19.81 | 20.10 |
| | | 25 | 25 | 20.09 | 19.94 | 20.00 |
| | | 50 | 0 | 20.14 | 19.86 | 20.01 |
| **Bandwidth** | Modulation | RB size | RB offset | Channel | Channel | Channel |
| | | | | 18675 | 18900 | 19125 |
| **15MHz** | QPSK | 1 | 0 | 22.21 | 22.17 | 22.24 |
| | | 1 | 38 | 22.31 | 22.18 | 22.28 |
| | | 1 | 74 | 22.12 | 22.21 | 22.32 |
| | | 36 | 0 | 21.22 | 20.98 | 21.05 |
| | | 36 | 18 | 21.31 | 20.90 | 21.09 |
| | | 36 | 39 | 21.15 | 20.84 | 21.13 |
| | | 75 | 0 | 21.07 | 20.94 | 21.03 |
| | 16QAM | 1 | 0 | 21.43 | 20.79 | 22.21 |
| | | 1 | 38 | 21.58 | 20.84 | 21.71 |
| | | 1 | 74 | 21.46 | 20.02 | 21.70 |
| | | 36 | 0 | 20.21 | 19.90 | 19.81 |
| | | 36 | 18 | 20.00 | 19.88 | 19.86 |
| | | 36 | 39 | 20.00 | 19.94 | 19.80 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | 75 | 0 | 20.19 | 19.97 | 20.11 |
| **Bandwidth** | Modulation | RB size | RB offset | Channel 18700 | Channel 18900 | Channel 19100 |
| **20MHz** | QPSK | 1 | 0 | 22.35 | 22.05 | 22.15 |
| | | 1 | 50 | 22.35 | 21.89 | 22.13 |
| | | 1 | 99 | 22.24 | 21.98 | 22.08 |
| | | 50 | 0 | 21.48 | 21.28 | 21.36 |
| | | 50 | 25 | 21.46 | 21.25 | 21.31 |
| | | 50 | 50 | 21.41 | 21.19 | 21.32 |
| | | 100 | 0 | 21.09 | 20.89 | 21.03 |
| | 16QAM | 1 | 0 | 21.65 | 21.25 | 21.69 |
| | | 1 | 50 | 21.72 | 20.93 | 21.86 |
| | | 1 | 99 | 21.83 | 21.32 | 21.98 |
| | | 50 | 0 | 19.93 | 20.86 | 19.87 |
| | | 50 | 25 | 19.94 | 20.89 | 19.82 |
| | | 50 | 50 | 19.89 | 20.96 | 19.91 |
| | | 100 | 0 | 20.27 | 19.92 | 20.11 |

**SAR sensor active**

| **LTE FDD Band 2** | | | | **Conducted Power(dBm)** | | |
|---|---|---|---|---|---|---|
| **Bandwidth** | Modulation | RB size | RB offset | Channel 18607 | Channel 18900 | Channel 19193 |
| **1.4MHz** | QPSK | 1 | 0 | 18.15 | 18.13 | 17.98 |
| | | 1 | 2 | 18.22 | 18.25 | 17.99 |
| | | 1 | 5 | 18.13 | 18.23 | 18.13 |
| | | 3 | 0 | 18.08 | 17.18 | 18.06 |
| | | 3 | 2 | 18.03 | 17.70 | 18.07 |
| | | 3 | 3 | 17.94 | 16.90 | 18.08 |
| | | 6 | 0 | 16.97 | 16.02 | 17.06 |
| | 16QAM | 1 | 0 | 17.48 | 17.48 | 17.15 |
| | | 1 | 2 | 17.57 | 17.20 | 17.40 |
| | | 1 | 5 | 17.64 | 17.24 | 17.46 |
| | | 3 | 0 | 17.35 | 16.53 | 17.51 |
| | | 3 | 2 | 17.21 | 16.42 | 17.27 |
| | | 3 | 3 | 17.37 | 16.55 | 17.23 |
| | | 6 | 0 | 16.40 | 15.51 | 16.04 |
| **Bandwidth** | Modulation | RB size | RB offset | Channel 18615 | Channel 18900 | Channel 19185 |
| **3MHz** | QPSK | 1 | 0 | 18.37 | 18.17 | 18.18 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | 1 | 7 | 18.46 | 18.33 | 18.07 |
| | | 1 | 14 | 18.40 | 18.40 | 18.22 |
| | | 8 | 0 | 17.26 | 17.20 | 17.23 |
| | | 8 | 4 | 17.30 | 17.30 | 17.22 |
| | | 8 | 7 | 17.31 | 17.26 | 17.18 |
| | | 15 | 0 | 17.29 | 17.21 | 17.03 |
| | 16QAM | 1 | 0 | 17.39 | 17.36 | 16.99 |
| | | 1 | 7 | 17.52 | 16.97 | 17.15 |
| | | 1 | 14 | 15.98 | 17.31 | 16.83 |
| | | 8 | 0 | 16.31 | 16.22 | 16.07 |
| | | 8 | 4 | 16.31 | 16.18 | 16.08 |
| | | 8 | 7 | 16.25 | 16.13 | 16.08 |
| | | 15 | 0 | 16.42 | 16.15 | 15.95 |
| **Bandwidth** | Modulation | RB size | RB offset | Channel | Channel | Channel |
| | | | | 18625 | 18900 | 19175 |
| **5MHz** | QPSK | 1 | 0 | 18.12 | 18.18 | 18.45 |
| | | 1 | 13 | 18.16 | 18.02 | 18.50 |
| | | 1 | 24 | 18.17 | 17.95 | 18.48 |
| | | 12 | 0 | 17.24 | 17.01 | 18.17 |
| | | 12 | 6 | 17.24 | 16.92 | 18.27 |
| | | 12 | 13 | 17.24 | 16.82 | 18.34 |
| | | 25 | 0 | 17.22 | 17.11 | 17.21 |
| | 16QAM | 1 | 0 | 17.76 | 17.33 | 17.86 |
| | | 1 | 13 | 17.36 | 17.16 | 17.20 |
| | | 1 | 24 | 17.66 | 16.97 | 17.04 |
| | | 12 | 0 | 16.10 | 16.09 | 16.17 |
| | | 12 | 6 | 16.07 | 15.97 | 16.14 |
| | | 12 | 13 | 16.19 | 15.96 | 16.26 |
| | | 25 | 0 | 16.31 | 15.95 | 16.43 |
| **Bandwidth** | Modulation | RB size | RB offset | Channel | Channel | Channel |
| | | | | 18650 | 18900 | 19150 |
| **10MHz** | QPSK | 1 | 0 | 18.26 | 18.22 | 18.27 |
| | | 1 | 25 | 18.24 | 18.11 | 18.33 |
| | | 1 | 49 | 18.27 | 18.09 | 18.29 |
| | | 25 | 0 | 17.22 | 17.01 | 17.07 |
| | | 25 | 13 | 17.18 | 16.98 | 17.09 |
| | | 25 | 25 | 17.09 | 16.91 | 17.12 |
| | | 50 | 0 | 17.06 | 17.06 | 17.22 |
| | 16QAM | 1 | 0 | 17.56 | 17.83 | 18.09 |
| | | 1 | 25 | 16.84 | 17.82 | 17.99 |
| | | 1 | 49 | 17.44 | 17.94 | 17.86 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | 25 | 0 | 16.11 | 15.92 | 16.17 |
| | | 25 | 13 | 16.14 | 15.90 | 16.23 |
| | | 25 | 25 | 16.16 | 16.03 | 16.13 |
| | | 50 | 0 | 16.21 | 15.95 | 16.14 |
| **Bandwidth** | Modulation | RB size | RB offset | Channel | Channel | Channel |
| | | | | 18675 | 18900 | 19125 |
| **15MHz** | QPSK | 1 | 0 | 18.28 | 18.26 | 18.37 |
| | | 1 | 38 | 18.38 | 18.27 | 18.41 |
| | | 1 | 74 | 18.19 | 18.30 | 18.45 |
| | | 36 | 0 | 17.29 | 17.07 | 17.18 |
| | | 36 | 18 | 17.38 | 16.99 | 17.22 |
| | | 36 | 39 | 17.22 | 16.93 | 17.26 |
| | | 75 | 0 | 17.14 | 17.03 | 17.16 |
| | 16QAM | 1 | 0 | 17.50 | 16.88 | 18.34 |
| | | 1 | 38 | 17.65 | 16.93 | 17.84 |
| | | 1 | 74 | 17.53 | 16.11 | 17.83 |
| | | 36 | 0 | 16.28 | 15.99 | 15.94 |
| | | 36 | 18 | 16.07 | 15.97 | 15.99 |
| | | 36 | 39 | 16.07 | 16.03 | 15.93 |
| | | 75 | 0 | 16.26 | 16.06 | 16.24 |
| **Bandwidth** | Modulation | RB size | RB offset | Channel | Channel | Channel |
| | | | | 18700 | 18900 | 19100 |
| **20MHz** | QPSK | 1 | 0 | 18.33 | 18.32 | 18.38 |
| | | 1 | 50 | 18.32 | 17.98 | 18.26 |
| | | 1 | 99 | 18.31 | 18.07 | 18.21 |
| | | 50 | 0 | 17.38 | 17.32 | 17.41 |
| | | 50 | 25 | 17.36 | 17.34 | 17.38 |
| | | 50 | 50 | 17.32 | 17.28 | 17.39 |
| | | 100 | 0 | 17.16 | 16.98 | 17.16 |
| | 16QAM | 1 | 0 | 17.72 | 17.34 | 17.82 |
| | | 1 | 50 | 17.79 | 17.02 | 17.99 |
| | | 1 | 99 | 17.90 | 17.41 | 18.11 |
| | | 50 | 0 | 16.00 | 16.95 | 16.00 |
| | | 50 | 25 | 16.01 | 16.98 | 15.95 |
| | | 50 | 50 | 15.96 | 17.05 | 16.04 |
| | | 100 | 0 | 16.34 | 16.01 | 16.24 |

**Table 16: LTE Band 4 Conducted Power Measurement Results**

**SAR sensor not active**

| LTE FDD Band | | | | Conducted Power(dBm) | | |
|---|---|---|---|---|---|---|
| Bandwidth | Modulation | RB size | RB offset | Channel | Channel | Channel |
| | | | | 19957 | 20175 | 20393 |
| 1.4MHz | QPSK | 1 | 0 | 22.13 | 22.33 | 22.26 |
| | | 1 | 2 | 22.12 | 22.35 | 22.17 |
| | | 1 | 5 | 22.18 | 22.33 | 22.17 |
| | | 3 | 0 | 22.20 | 22.32 | 22.18 |
| | | 3 | 2 | 22.02 | 22.22 | 22.14 |
| | | 3 | 3 | 22.17 | 22.32 | 22.28 |
| | | 6 | 0 | 21.11 | 21.29 | 21.15 |
| | 16QAM | 1 | 0 | 21.39 | 21.30 | 21.49 |
| | | 1 | 2 | 21.68 | 21.75 | 21.86 |
| | | 1 | 5 | 21.35 | 21.56 | 21.76 |
| | | 3 | 0 | 21.87 | 21.86 | 21.90 |
| | | 3 | 2 | 21.86 | 22.00 | 22.27 |
| | | 3 | 3 | 21.89 | 21.95 | 22.00 |
| | | 6 | 0 | 20.80 | 20.50 | 20.79 |
| Bandwidth | Modulation | RB size | RB offset | Channel | Channel | Channel |
| | | | | 19965 | 20175 | 20385 |
| 3MHz | QPSK | 1 | 0 | 22.43 | 22.32 | 22.15 |
| | | 1 | 7 | 22.40 | 22.46 | 22.24 |
| | | 1 | 14 | 22.39 | 22.31 | 22.31 |
| | | 8 | 0 | 21.14 | 21.29 | 21.03 |
| | | 8 | 4 | 21.13 | 21.31 | 21.18 |
| | | 8 | 7 | 21.10 | 21.19 | 21.18 |
| | | 15 | 0 | 21.12 | 21.34 | 21.05 |
| | 16QAM | 1 | 0 | 22.44 | 21.58 | 21.05 |
| | | 1 | 7 | 22.12 | 22.12 | 21.05 |
| | | 1 | 14 | 22.22 | 21.72 | 21.30 |
| | | 8 | 0 | 20.36 | 20.33 | 20.43 |
| | | 8 | 4 | 20.18 | 20.41 | 20.45 |
| | | 8 | 7 | 20.36 | 20.38 | 20.38 |
| | | 15 | 0 | 20.22 | 20.30 | 19.95 |
| Bandwidth | Modulation | RB size | RB offset | Channel | Channel | Channel |
| | | | | 19975 | 20175 | 20375 |
| 5MHz | QPSK | 1 | 0 | 22.08 | 22.26 | 22.26 |
| | | 1 | 13 | 22.04 | 22.25 | 22.24 |
| | | 1 | 24 | 21.97 | 22.27 | 22.22 |
| | | 12 | 0 | 21.05 | 21.29 | 21.17 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | 12 | 6 | 21.12 | 21.25 | 21.15 |
| | | 12 | 13 | 21.05 | 21.34 | 21.20 |
| | | 25 | 0 | 21.06 | 21.21 | 21.19 |
| | 16QAM | 1 | 0 | 22.08 | 21.06 | 21.93 |
| | | 1 | 13 | 21.37 | 20.88 | 21.94 |
| | | 1 | 24 | 21.85 | 21.26 | 22.17 |
| | | 12 | 0 | 20.17 | 20.33 | 20.16 |
| | | 12 | 6 | 20.14 | 20.55 | 20.13 |
| | | 12 | 13 | 20.12 | 20.45 | 20.13 |
| | | 25 | 0 | 20.01 | 20.36 | 20.21 |
| **Bandwidth** | Modulation | RB size | RB offset | Channel | Channel | Channel |
| | | | | 20000 | 20175 | 20350 |
| **10MHz** | QPSK | 1 | 0 | 22.17 | 22.16 | 22.36 |
| | | 1 | 25 | 22.44 | 22.11 | 22.15 |
| | | 1 | 49 | 22.17 | 21.26 | 22.21 |
| | | 25 | 0 | 21.01 | 21.22 | 21.04 |
| | | 25 | 13 | 21.12 | 21.38 | 20.85 |
| | | 25 | 25 | 21.13 | 21.53 | 20.90 |
| | | 50 | 0 | 21.06 | 21.31 | 21.10 |
| | 16QAM | 1 | 0 | 21.30 | 21.93 | 21.79 |
| | | 1 | 25 | 21.31 | 22.09 | 21.95 |
| | | 1 | 49 | 21.11 | 22.05 | 21.70 |
| | | 25 | 0 | 20.17 | 20.48 | 20.12 |
| | | 25 | 13 | 20.17 | 20.42 | 20.04 |
| | | 25 | 25 | 20.19 | 20.36 | 20.12 |
| | | 50 | 0 | 19.94 | 20.27 | 19.98 |
| **Bandwidth** | Modulation | RB size | RB offset | Channel | Channel | Channel |
| | | | | 20025 | 20175 | 20325 |
| **15MHz** | QPSK | 1 | 0 | 21.99 | 22.27 | 22.40 |
| | | 1 | 38 | 21.96 | 22.27 | 22.10 |
| | | 1 | 74 | 22.21 | 22.07 | 22.38 |
| | | 36 | 0 | 21.00 | 21.15 | 20.96 |
| | | 36 | 18 | 21.08 | 21.18 | 20.90 |
| | | 36 | 39 | 21.18 | 21.15 | 20.92 |
| | | 75 | 0 | 20.09 | 21.23 | 20.93 |
| | 16QAM | 1 | 0 | 21.62 | 21.83 | 21.77 |
| | | 1 | 38 | 21.40 | 22.22 | 21.75 |
| | | 1 | 74 | 21.75 | 22.26 | 22.02 |
| | | 36 | 0 | 20.09 | 20.29 | 19.97 |
| | | 36 | 18 | 20.09 | 20.34 | 20.01 |
| | | 36 | 39 | 20.08 | 20.37 | 19.98 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | 75 | 0 | 20.09 | 20.06 | 19.84 |
| **Bandwidth** | Modulation | RB size | RB offset | Channel | Channel | Channel |
| | | | | 20050 | 29175 | 20300 |
| **20MHz** | QPSK | 1 | 0 | 22.24 | 22.36 | 22.27 |
| | | 1 | 50 | 22.24 | 22.31 | 22.21 |
| | | 1 | 99 | 22.15 | 22.34 | 22.22 |
| | | 50 | 0 | 20.98 | 21.24 | 20.95 |
| | | 50 | 25 | 21.10 | 21.24 | 20.87 |
| | | 50 | 50 | 21.34 | 21.23 | 20.90 |
| | | 100 | 0 | 21.22 | 21.15 | 20.94 |
| | 16QAM | 1 | 0 | 21.95 | 20.72 | 21.54 |
| | | 1 | 50 | 22.04 | 21.19 | 21.53 |
| | | 1 | 99 | 21.89 | 21.50 | 21.59 |
| | | 50 | 0 | 20.19 | 20.06 | 20.00 |
| | | 50 | 25 | 20.16 | 20.19 | 19.89 |
| | | 50 | 50 | 20.15 | 20.03 | 19.88 |
| | | 100 | 0 | 20.07 | 20.15 | 19.92 |

**SAR sensor active**

| **LTE FDD Band 4** | | | | **Conducted Power(dBm)** | | |
|---|---|---|---|---|---|---|
| **Bandwidth** | Modulation | RB size | RB offset | Channel | Channel | Channel |
| | | | | 19957 | 20175 | 20393 |
| **1.4MHz** | QPSK | 1 | 0 | 18.17 | 18.38 | 18.28 |
| | | 1 | 2 | 18.16 | 18.40 | 18.19 |
| | | 1 | 5 | 18.22 | 18.38 | 18.19 |
| | | 3 | 0 | 18.24 | 18.37 | 18.20 |
| | | 3 | 2 | 18.06 | 18.27 | 18.16 |
| | | 3 | 3 | 18.21 | 18.37 | 18.30 |
| | | 6 | 0 | 17.15 | 17.34 | 17.17 |
| | 16QAM | 1 | 0 | 17.43 | 17.35 | 17.51 |
| | | 1 | 2 | 17.72 | 17.80 | 17.88 |
| | | 1 | 5 | 17.39 | 17.61 | 17.78 |
| | | 3 | 0 | 17.91 | 17.91 | 17.92 |
| | | 3 | 2 | 17.90 | 18.05 | 18.29 |
| | | 3 | 3 | 17.93 | 18.00 | 18.02 |
| | | 6 | 0 | 16.84 | 16.55 | 16.81 |
| **Bandwidth** | Modulation | RB size | RB offset | Channel | Channel | Channel |
| | | | | 19965 | 20175 | 20385 |
| **3MHz** | QPSK | 1 | 0 | 18.47 | 18.37 | 18.17 |
| | | 1 | 7 | 18.44 | 18.51 | 18.26 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | 1 | 14 | 18.43 | 18.36 | 18.33 |
| | | 8 | 0 | 17.18 | 17.34 | 17.05 |
| | | 8 | 4 | 17.17 | 17.36 | 17.20 |
| | | 8 | 7 | 17.14 | 17.24 | 17.20 |
| | | 15 | 0 | 17.16 | 17.39 | 17.07 |
| | 16QAM | 1 | 0 | 18.48 | 17.63 | 17.07 |
| | | 1 | 7 | 18.16 | 18.17 | 17.07 |
| | | 1 | 14 | 18.26 | 17.77 | 17.32 |
| | | 8 | 0 | 16.40 | 16.38 | 16.45 |
| | | 8 | 4 | 16.22 | 16.46 | 16.47 |
| | | 8 | 7 | 16.40 | 16.43 | 16.40 |
| | | 15 | 0 | 16.26 | 16.35 | 15.97 |
| **Bandwidth** | Modulation | RB size | RB offset | Channel | Channel | Channel |
| | | | | 19975 | 20175 | 20375 |
| **5MHz** | QPSK | 1 | 0 | 18.12 | 18.31 | 18.28 |
| | | 1 | 13 | 18.08 | 18.30 | 18.26 |
| | | 1 | 24 | 18.01 | 18.32 | 18.24 |
| | | 12 | 0 | 17.09 | 17.34 | 17.19 |
| | | 12 | 6 | 17.16 | 17.30 | 17.17 |
| | | 12 | 13 | 17.09 | 17.39 | 17.22 |
| | | 25 | 0 | 17.10 | 17.26 | 17.21 |
| | 16QAM | 1 | 0 | 18.12 | 17.11 | 17.95 |
| | | 1 | 13 | 17.41 | 16.93 | 17.96 |
| | | 1 | 24 | 17.89 | 17.31 | 18.19 |
| | | 12 | 0 | 16.21 | 16.38 | 16.18 |
| | | 12 | 6 | 16.18 | 16.60 | 16.15 |
| | | 12 | 13 | 16.16 | 16.50 | 16.15 |
| | | 25 | 0 | 16.05 | 16.41 | 16.23 |
| **Bandwidth** | Modulation | RB size | RB offset | Channel | Channel | Channel |
| | | | | 20000 | 20175 | 20350 |
| **10MHz** | QPSK | 1 | 0 | 18.21 | 18.21 | 18.38 |
| | | 1 | 25 | 18.48 | 18.16 | 18.17 |
| | | 1 | 49 | 18.21 | 17.31 | 18.23 |
| | | 25 | 0 | 17.05 | 17.27 | 17.06 |
| | | 25 | 13 | 17.16 | 17.43 | 16.87 |
| | | 25 | 25 | 17.17 | 17.58 | 16.92 |
| | | 50 | 0 | 17.10 | 17.36 | 17.12 |
| | 16QAM | 1 | 0 | 17.34 | 17.98 | 17.81 |
| | | 1 | 25 | 17.35 | 18.14 | 17.97 |
| | | 1 | 49 | 17.15 | 18.10 | 17.72 |
| | | 25 | 0 | 16.21 | 16.53 | 16.14 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | 25 | 13 | 16.21 | 16.47 | 16.06 |
| | | 25 | 25 | 16.23 | 16.41 | 16.14 |
| | | 50 | 0 | 15.98 | 16.32 | 16.00 |
| **Bandwidth** | Modulation | RB size | RB offset | Channel | Channel | Channel |
| | | | | 20025 | 20175 | 20325 |
| **15MHz** | QPSK | 1 | 0 | 18.03 | 18.32 | 18.42 |
| | | 1 | 38 | 18.00 | 18.32 | 18.12 |
| | | 1 | 74 | 18.25 | 18.12 | 18.40 |
| | | 36 | 0 | 17.04 | 17.20 | 16.98 |
| | | 36 | 18 | 17.12 | 17.23 | 16.92 |
| | | 36 | 39 | 17.22 | 17.20 | 16.94 |
| | | 75 | 0 | 16.13 | 17.28 | 16.95 |
| | 16QAM | 1 | 0 | 17.66 | 17.88 | 17.79 |
| | | 1 | 38 | 17.44 | 18.27 | 17.77 |
| | | 1 | 74 | 17.79 | 18.31 | 18.04 |
| | | 36 | 0 | 16.13 | 16.34 | 15.99 |
| | | 36 | 18 | 16.13 | 16.39 | 16.03 |
| | | 36 | 39 | 16.12 | 16.42 | 16.00 |
| | | 75 | 0 | 16.13 | 16.11 | 15.86 |
| **Bandwidth** | Modulation | RB size | RB offset | Channel | Channel | Channel |
| | | | | 20050 | 20175 | 20300 |
| **20MHz** | QPSK | 1 | 0 | 18.32 | 18.39 | 18.33 |
| | | 1 | 50 | 18.28 | 18.36 | 18.23 |
| | | 1 | 99 | 18.19 | 18.39 | 18.24 |
| | | 50 | 0 | 17.02 | 17.45 | 16.97 |
| | | 50 | 25 | 17.14 | 17.29 | 16.89 |
| | | 50 | 50 | 17.38 | 17.28 | 16.92 |
| | | 100 | 0 | 17.26 | 17.20 | 16.96 |
| | 16QAM | 1 | 0 | 17.99 | 16.77 | 17.56 |
| | | 1 | 50 | 18.08 | 17.24 | 17.55 |
| | | 1 | 99 | 17.93 | 17.55 | 17.61 |
| | | 50 | 0 | 16.23 | 16.11 | 16.02 |
| | | 50 | 25 | 16.20 | 16.24 | 15.91 |
| | | 50 | 50 | 16.19 | 16.08 | 15.90 |
| | | 100 | 0 | 16.11 | 16.20 | 15.94 |

**Table 17: LTE Band 5 Conducted Power Measurement Results**

**SAR sensor not active**

| LTE FDD Band 5 | | | | Conducted Power(dBm) | | |
|---|---|---|---|---|---|---|
| **Bandwidth** | Modulation | RB size | RB offset | Channel | Channel | Channel |
| | | | | 20407 | 20525 | 20643 |
| **1.4MHz** | QPSK | 1 | 0 | 22.67 | 22.99 | 22.73 |
| | | 1 | 2 | 22.71 | 22.98 | 22.70 |
| | | 1 | 5 | 22.79 | 22.94 | 22.70 |
| | | 3 | 0 | 22.63 | 22.79 | 22.86 |
| | | 3 | 2 | 22.61 | 22.89 | 22.70 |
| | | 3 | 3 | 22.68 | 22.84 | 22.63 |
| | | 6 | 0 | 21.70 | 22.07 | 21.90 |
| | 16QAM | 1 | 0 | 22.91 | 22.05 | 23.51 |
| | | 1 | 2 | 22.62 | 21.95 | 22.93 |
| | | 1 | 5 | 22.96 | 21.65 | 22.90 |
| | | 3 | 0 | 22.39 | 22.01 | 22.11 |
| | | 3 | 2 | 22.62 | 22.00 | 22.12 |
| | | 3 | 3 | 22.48 | 21.94 | 22.00 |
| | | 6 | 0 | 21.46 | 21.56 | 21.33 |
| **Bandwidth** | Modulation | RB size | RB offset | Channel | Channel | Channel |
| | | | | 20415 | 20525 | 20635 |
| **3MHz** | QPSK | 1 | 0 | 22.67 | 22.91 | 22.72 |
| | | 1 | 7 | 22.68 | 23.00 | 22.82 |
| | | 1 | 14 | 22.54 | 22.84 | 22.63 |
| | | 8 | 0 | 21.80 | 22.02 | 21.82 |
| | | 8 | 4 | 21.71 | 21.89 | 21.77 |
| | | 8 | 7 | 21.70 | 21.83 | 21.80 |
| | | 15 | 0 | 21.68 | 22.03 | 21.74 |
| | 16QAM | 1 | 0 | 22.51 | 22.78 | 22.06 |
| | | 1 | 7 | 22.61 | 22.58 | 22.05 |
| | | 1 | 14 | 22.38 | 22.93 | 22.05 |
| | | 8 | 0 | 20.95 | 21.46 | 21.54 |
| | | 8 | 4 | 20.85 | 21.21 | 21.48 |
| | | 8 | 7 | 20.90 | 21.08 | 21.14 |
| | | 15 | 0 | 20.89 | 21.29 | 20.91 |
| **Bandwidth** | Modulation | RB size | RB offset | Channel | Channel | Channel |
| | | | | 20425 | 20525 | 20625 |
| **5MHz** | QPSK | 1 | 0 | 22.44 | 22.75 | 22.58 |
| | | 1 | 13 | 22.29 | 22.74 | 22.62 |
| | | 1 | 24 | 22.49 | 22.59 | 22.65 |
| | | 12 | 0 | 21.65 | 21.92 | 21.74 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | 12 | 6 | 21.75 | 21.95 | 21.61 |
| | | 12 | 13 | 21.68 | 22.04 | 21.70 |
| | | 25 | 0 | 21.63 | 21.83 | 21.70 |
| | 16QAM | 1 | 0 | 22.60 | 22.99 | 21.48 |
| | | 1 | 13 | 21.98 | 22.49 | 21.91 |
| | | 1 | 24 | 22.25 | 22.77 | 21.85 |
| | | 12 | 0 | 20.80 | 21.18 | 21.02 |
| | | 12 | 6 | 21.09 | 21.06 | 20.93 |
| | | 12 | 13 | 20.96 | 21.24 | 21.03 |
| | | 25 | 0 | 20.74 | 21.02 | 21.21 |
| **Bandwidth** | Modulation | RB size | RB offset | Channel | Channel | Channel |
| | | | | 20450 | 20525 | 20600 |
| **10MHz** | QPSK | 1 | 0 | 22.71 | 22.87 | 22.41 |
| | | 1 | 25 | 22.77 | 22.65 | 22.67 |
| | | 1 | 49 | 22.57 | 22.57 | 22.52 |
| | | 25 | 0 | 21.64 | 21.94 | 21.65 |
| | | 25 | 13 | 21.61 | 21.92 | 21.53 |
| | | 25 | 25 | 21.68 | 21.93 | 21.62 |
| | | 50 | 0 | 21.87 | 21.96 | 21.73 |
| | 16QAM | 1 | 0 | 22.21 | 22.21 | 22.48 |
| | | 1 | 25 | 22.30 | 22.05 | 22.40 |
| | | 1 | 49 | 21.82 | 22.37 | 22.36 |
| | | 25 | 0 | 20.84 | 21.26 | 20.94 |
| | | 25 | 13 | 20.86 | 21.13 | 20.94 |
| | | 25 | 25 | 20.96 | 21.08 | 20.94 |
| | | 50 | 0 | 20.76 | 20.94 | 20.59 |

**SAR Sensor active**

| **LTE FDD Band 5** | | | | **Conducted Power(dBm)** | | |
|---|---|---|---|---|---|---|
| **Bandwidth** | Modulation | RB size | RB offset | Channel | Channel | Channel |
| | | | | 20407 | 20525 | 20643 |
| **1.4MHz** | QPSK | 1 | 0 | 19.78 | 20.00 | 19.86 |
| | | 1 | 2 | 19.82 | 19.99 | 19.83 |
| | | 1 | 5 | 19.90 | 19.95 | 19.83 |
| | | 3 | 0 | 19.74 | 19.80 | 19.99 |
| | | 3 | 2 | 19.72 | 19.90 | 19.83 |
| | | 3 | 3 | 19.79 | 19.85 | 19.76 |
| | | 6 | 0 | 18.81 | 19.08 | 19.03 |
| | 16QAM | 1 | 0 | 20.02 | 19.06 | 20.64 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | 1 | 2 | 19.73 | 18.96 | 20.06 |
| | | 1 | 5 | 20.07 | 18.66 | 20.03 |
| | | 3 | 0 | 19.50 | 19.02 | 19.24 |
| | | 3 | 2 | 19.73 | 19.01 | 19.25 |
| | | 3 | 3 | 19.59 | 18.95 | 19.13 |
| | | 6 | 0 | 18.57 | 18.57 | 18.46 |
| **Bandwidth** | Modulation | RB size | RB offset | Channel | Channel | Channel |
| | | | | 20415 | 20525 | 20635 |
| **3MHz** | QPSK | 1 | 0 | 19.78 | 19.92 | 19.85 |
| | | 1 | 7 | 19.79 | 20.01 | 19.95 |
| | | 1 | 14 | 19.65 | 19.85 | 19.76 |
| | | 8 | 0 | 18.91 | 19.03 | 18.95 |
| | | 8 | 4 | 18.82 | 18.90 | 18.90 |
| | | 8 | 7 | 18.81 | 18.84 | 18.93 |
| | | 15 | 0 | 18.79 | 19.04 | 18.87 |
| | 16QAM | 1 | 0 | 19.62 | 19.79 | 19.19 |
| | | 1 | 7 | 19.72 | 19.59 | 19.18 |
| | | 1 | 14 | 19.49 | 19.94 | 19.18 |
| | | 8 | 0 | 18.06 | 18.47 | 18.67 |
| | | 8 | 4 | 17.96 | 18.22 | 18.61 |
| | | 8 | 7 | 18.01 | 18.09 | 18.27 |
| | | 15 | 0 | 18.00 | 18.30 | 18.04 |
| **Bandwidth** | Modulation | RB size | RB offset | Channel | Channel | Channel |
| | | | | 20425 | 20525 | 20625 |
| **5MHz** | QPSK | 1 | 0 | 19.55 | 19.76 | 19.71 |
| | | 1 | 13 | 19.40 | 19.75 | 19.75 |
| | | 1 | 24 | 19.60 | 19.60 | 19.78 |
| | | 12 | 0 | 18.76 | 18.93 | 18.87 |
| | | 12 | 6 | 18.86 | 18.96 | 18.74 |
| | | 12 | 13 | 18.79 | 19.05 | 18.83 |
| | | 25 | 0 | 18.74 | 18.84 | 18.83 |
| | 16QAM | 1 | 0 | 19.71 | 20.00 | 18.61 |
| | | 1 | 13 | 19.09 | 19.50 | 19.04 |
| | | 1 | 24 | 19.36 | 19.78 | 18.98 |
| | | 12 | 0 | 17.91 | 18.19 | 18.15 |
| | | 12 | 6 | 18.20 | 18.07 | 18.06 |
| | | 12 | 13 | 18.07 | 18.25 | 18.16 |
| | | 25 | 0 | 17.85 | 18.03 | 18.34 |
| **Bandwidth** | Modulation | RB size | RB offset | Channel | Channel | Channel |
| | | | | 20450 | 20525 | 20600 |
| **10MHz** | QPSK | 1 | 0 | 20.22 | 20.18 | 20.13 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | 1 | 25 | 19.88 | 19.88 | 19.80 |
| | | 1 | 49 | 19.68 | 19.58 | 19.65 |
| | | 25 | 0 | 18.95 | 19.25 | 19.17 |
| | | 25 | 13 | 18.72 | 18.93 | 18.66 |
| | | 25 | 25 | 18.79 | 18.94 | 18.75 |
| | | 50 | 0 | 18.98 | 18.97 | 18.86 |
| | 16QAM | 1 | 0 | 19.32 | 19.22 | 19.61 |
| | | 1 | 25 | 19.41 | 19.06 | 19.53 |
| | | 1 | 49 | 18.93 | 19.38 | 19.49 |
| | | 25 | 0 | 17.95 | 18.27 | 18.07 |
| | | 25 | 13 | 17.97 | 18.14 | 18.07 |
| | | 25 | 25 | 18.07 | 18.09 | 18.07 |
| | | 50 | 0 | 17.87 | 17.95 | 17.72 |

**Table 18: LTE Band 7 Conducted Power Measurement Results**

**SAR sensor not active**

| LTE FDD Band 7 | | | | Conducted Power(dBm) | | |
|---|---|---|---|---|---|---|
| **Bandwidth** | Modulation | RB size | RB offset | Channel | Channel | Channel |
| | | | | 20775 | 21100 | 21425 |
| **5MHz** | QPSK | 1 | 0 | 21.08 | 21.62 | 22.01 |
| | | 1 | 13 | 21.65 | 21.62 | 22.12 |
| | | 1 | 24 | 21.37 | 21.70 | 21.98 |
| | | 12 | 0 | 20.50 | 20.46 | 20.47 |
| | | 12 | 6 | 20.45 | 20.43 | 20.47 |
| | | 12 | 13 | 20.61 | 20.48 | 20.46 |
| | | 25 | 0 | 20.53 | 20.46 | 20.47 |
| | 16QAM | 1 | 0 | 20.36 | 20.84 | 21.22 |
| | | 1 | 13 | 20.42 | 20.88 | 20.72 |
| | | 1 | 24 | 20.26 | 20.86 | 20.65 |
| | | 12 | 0 | 19.54 | 19.55 | 19.52 |
| | | 12 | 6 | 19.53 | 19.55 | 19.37 |
| | | 12 | 13 | 19.37 | 19.59 | 19.42 |
| | | 25 | 0 | 19.45 | 19.46 | 19.30 |
| **Bandwidth** | Modulation | RB size | RB offset | Channel | Channel | Channel |
| | | | | 20800 | 21100 | 21400 |
| **10MHz** | QPSK | 1 | 0 | 21.80 | 21.72 | 21.57 |
| | | 1 | 25 | 21.43 | 21.50 | 21.37 |
| | | 1 | 49 | 21.64 | 21.53 | 21.27 |
| | | 25 | 0 | 20.72 | 20.50 | 20.29 |
| | | 25 | 13 | 20.75 | 20.51 | 20.25 |
| | | 25 | 25 | 20.62 | 20.53 | 20.25 |
| | | 50 | 0 | 20.87 | 20.49 | 20.38 |
| | 16QAM | 1 | 0 | 21.62 | 21.05 | 21.20 |
| | | 1 | 25 | 21.56 | 21.01 | 21.31 |
| | | 1 | 49 | 21.50 | 20.95 | 20.90 |
| | | 25 | 0 | 19.38 | 19.61 | 19.58 |
| | | 25 | 13 | 19.57 | 19.61 | 19.38 |
| | | 25 | 25 | 19.39 | 19.61 | 19.53 |
| | | 50 | 0 | 19.44 | 19.43 | 19.14 |
| **Bandwidth** | Modulation | RB size | RB offset | Channel | Channel | Channel |
| | | | | 20825 | 21100 | 21375 |
| **15MHz** | QPSK | 1 | 0 | 21.72 | 21.55 | 21.52 |
| | | 1 | 38 | 21.61 | 21.47 | 21.45 |
| | | 1 | 74 | 21.54 | 21.22 | 21.34 |
| | | 36 | 0 | 20.39 | 20.14 | 20.29 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | 36 | 18 | 20.26 | 20.02 | 20.32 |
| | | 36 | 39 | 20.13 | 20.05 | 20.20 |
| | | 75 | 0 | 20.51 | 20.25 | 20.10 |
| | 16QAM | 1 | 0 | 21.37 | 21.41 | 21.33 |
| | | 1 | 38 | 21.89 | 21.87 | 20.77 |
| | | 1 | 74 | 21.73 | 21.44 | 20.86 |
| | | 36 | 0 | 19.33 | 19.12 | 19.33 |
| | | 36 | 18 | 19.32 | 19.11 | 19.21 |
| | | 36 | 39 | 19.24 | 19.09 | 19.19 |
| | | 75 | 0 | 19.16 | 19.14 | 19.17 |
| **Bandwidth** | Modulation | RB size | RB offset | Channel | Channel | Channel |
| | | | | 20850 | 21100 | 21350 |
| **20MHz** | QPSK | 1 | 0 | 21.56 | 21.55 | 21.52 |
| | | 1 | 50 | 21.37 | 21.31 | 21.31 |
| | | 1 | 99 | 21.20 | 21.21 | 21.28 |
| | | 50 | 0 | 20.41 | 20.57 | 20.54 |
| | | 50 | 25 | 20.24 | 20.24 | 20.17 |
| | | 50 | 50 | 20.22 | 20.20 | 20.19 |
| | | 100 | 0 | 20.43 | 20.10 | 20.19 |
| | 16QAM | 1 | 0 | 20.82 | 20.47 | 21.17 |
| | | 1 | 50 | 20.68 | 20.77 | 21.18 |
| | | 1 | 99 | 20.19 | 20.76 | 21.18 |
| | | 50 | 0 | 19.33 | 19.00 | 19.24 |
| | | 50 | 25 | 19.27 | 19.02 | 19.17 |
| | | 50 | 50 | 19.19 | 19.13 | 19.11 |
| | | 100 | 0 | 19.32 | 19.11 | 19.27 |

SAR Sensor active

| **LTE FDD Band 7** | | | | **Conducted Power(dBm)** | | |
|---|---|---|---|---|---|---|
| **Bandwidth** | Modulation | RB size | RB offset | Channel | Channel | Channel |
| | | | | 20775 | 21100 | 21425 |
| **5MHz** | QPSK | 1 | 0 | 16.60 | 17.13 | 17.59 |
| | | 1 | 13 | 17.17 | 17.13 | 17.70 |
| | | 1 | 24 | 16.89 | 17.21 | 17.56 |
| | | 12 | 0 | 16.02 | 15.97 | 16.05 |
| | | 12 | 6 | 15.97 | 15.94 | 16.05 |
| | | 12 | 13 | 16.13 | 15.99 | 16.04 |
| | | 25 | 0 | 16.05 | 15.97 | 16.05 |
| | 16QAM | 1 | 0 | 15.88 | 16.35 | 16.80 |
| | | 1 | 13 | 15.94 | 16.39 | 16.30 |
| | | 1 | 24 | 15.78 | 16.37 | 16.23 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | 12 | 0 | 15.06 | 15.06 | 15.10 |
| | | 12 | 6 | 15.05 | 15.06 | 14.95 |
| | | 12 | 13 | 14.89 | 15.10 | 15.00 |
| | | 25 | 0 | 14.97 | 14.97 | 14.88 |
| **Bandwidth** | Modulation | RB size | RB offset | Channel | Channel | Channel |
| | | | | 20800 | 21100 | 21400 |
| **10MHz** | QPSK | 1 | 0 | 17.32 | 17.23 | 17.15 |
| | | 1 | 25 | 16.95 | 17.01 | 16.95 |
| | | 1 | 49 | 17.16 | 17.04 | 16.85 |
| | | 25 | 0 | 16.24 | 16.01 | 15.87 |
| | | 25 | 13 | 16.27 | 16.02 | 15.83 |
| | | 25 | 25 | 16.14 | 16.04 | 15.83 |
| | | 50 | 0 | 16.39 | 16.00 | 15.96 |
| | 16QAM | 1 | 0 | 17.14 | 16.56 | 16.78 |
| | | 1 | 25 | 17.08 | 16.52 | 16.89 |
| | | 1 | 49 | 17.02 | 16.46 | 16.48 |
| | | 25 | 0 | 14.90 | 15.12 | 15.16 |
| | | 25 | 13 | 15.09 | 15.12 | 14.96 |
| | | 25 | 25 | 14.91 | 15.12 | 15.11 |
| | | 50 | 0 | 14.96 | 14.94 | 14.72 |
| **Bandwidth** | Modulation | RB size | RB offset | Channel | Channel | Channel |
| | | | | 20825 | 21100 | 21375 |
| **15MHz** | QPSK | 1 | 0 | 17.24 | 17.06 | 17.10 |
| | | 1 | 38 | 17.13 | 16.98 | 17.03 |
| | | 1 | 74 | 17.06 | 16.73 | 16.92 |
| | | 36 | 0 | 15.91 | 15.65 | 15.87 |
| | | 36 | 18 | 15.78 | 15.53 | 15.90 |
| | | 36 | 39 | 15.65 | 15.56 | 15.78 |
| | | 75 | 0 | 16.03 | 15.76 | 15.68 |
| | 16QAM | 1 | 0 | 16.89 | 16.92 | 16.91 |
| | | 1 | 38 | 17.41 | 17.38 | 16.35 |
| | | 1 | 74 | 17.25 | 16.95 | 16.44 |
| | | 36 | 0 | 14.85 | 14.63 | 14.91 |
| | | 36 | 18 | 14.84 | 14.62 | 14.79 |
| | | 36 | 39 | 14.76 | 14.60 | 14.77 |
| | | 75 | 0 | 14.68 | 14.65 | 14.75 |
| **Bandwidth** | Modulation | RB size | RB offset | Channel | Channel | Channel |
| | | | | 20850 | 21100 | 21350 |
| **20MHz** | QPSK | 1 | 0 | 17.16 | 17.02 | 17.15 |
| | | 1 | 50 | 16.89 | 16.82 | 16.89 |
| | | 1 | 99 | 16.72 | 16.72 | 16.86 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | 50 | 0 | 16.02 | 16.11 | 16.03 |
| | | 50 | 25 | 15.76 | 15.75 | 15.75 |
| | | 50 | 50 | 15.74 | 15.71 | 15.77 |
| | | 100 | 0 | 15.95 | 15.61 | 15.77 |
| | 16QAM | 1 | 0 | 16.34 | 15.98 | 16.75 |
| | | 1 | 50 | 16.20 | 16.28 | 16.76 |
| | | 1 | 99 | 15.71 | 16.27 | 16.76 |
| | | 50 | 0 | 14.85 | 14.51 | 14.82 |
| | | 50 | 25 | 14.79 | 14.53 | 14.75 |
| | | 50 | 50 | 14.71 | 14.64 | 14.69 |
| | | 100 | 0 | 14.84 | 14.62 | 14.85 |

**Table 19: LTE Band 17 Conducted Power Measurement Results**

**SAR sensor not active**

| LTE FDD Band 17 | | | | Conducted Power(dBm) | | |
|---|---|---|---|---|---|---|
| Bandwidth | Modulation | RB size | RB offset | Channel | Channel | Channel |
| | | | | 23755 | 23790 | 23825 |
| 5MHz | QPSK | 1 | 0 | 22.92 | 22.93 | 22.62 |
| | | 1 | 13 | 22.87 | 22.92 | 22.68 |
| | | 1 | 24 | 22.91 | 22.83 | 22.62 |
| | | 12 | 0 | 21.80 | 21.78 | 21.72 |
| | | 12 | 6 | 21.78 | 21.78 | 21.74 |
| | | 12 | 13 | 21.79 | 21.76 | 21.71 |
| | | 25 | 0 | 21.76 | 21.80 | 21.68 |
| | 16QAM | 1 | 0 | 22.64 | 21.62 | 22.33 |
| | | 1 | 13 | 22.56 | 21.63 | 22.30 |
| | | 1 | 24 | 22.54 | 21.65 | 22.30 |
| | | 12 | 0 | 20.85 | 20.82 | 20.66 |
| | | 12 | 6 | 20.88 | 20.80 | 20.68 |
| | | 12 | 13 | 20.86 | 20.89 | 20.75 |
| | | 25 | 0 | 20.92 | 20.70 | 20.61 |
| Bandwidth | Modulation | RB size | RB offset | Channel | Channel | Channel |
| | | | | 23780 | 23790 | 23800 |
| 10MHz | QPSK | 1 | 0 | 22.99 | 22.99 | 22.69 |
| | | 1 | 25 | 22.92 | 22.90 | 22.64 |
| | | 1 | 49 | 22.97 | 22.98 | 22.65 |
| | | 25 | 0 | 21.69 | 21.76 | 21.65 |
| | | 25 | 13 | 21.67 | 21.69 | 21.66 |
| | | 25 | 25 | 21.62 | 21.68 | 21.62 |
| | | 50 | 0 | 21.60 | 21.74 | 21.65 |
| | 16QAM | 1 | 0 | 22.99 | 21.74 | 22.64 |
| | | 1 | 25 | 22.90 | 21.74 | 22.56 |
| | | 1 | 49 | 22.95 | 21.76 | 22.57 |
| | | 25 | 0 | 20.69 | 20.84 | 20.73 |
| | | 25 | 13 | 20.64 | 20.84 | 20.78 |
| | | 25 | 25 | 20.67 | 20.77 | 20.72 |
| | | 50 | 0 | 20.49 | 20.65 | 20.64 |

**SAR sensor active**

| LTE FDD Band 17 | | | | Conducted Power(dBm) | | |
|---|---|---|---|---|---|---|
| Bandwidth | Modulation | RB size | RB offset | Channel | Channel | Channel |
| | | | | 23755 | 23790 | 23825 |
| 5MHz | QPSK | 1 | 0 | 20.03 | 20.00 | 19.69 |
| | | 1 | 13 | 19.98 | 19.99 | 19.75 |
| | | 1 | 24 | 20.02 | 19.90 | 19.69 |
| | | 12 | 0 | 18.91 | 18.85 | 18.79 |
| | | 12 | 6 | 18.89 | 18.85 | 18.81 |
| | | 12 | 13 | 18.90 | 18.83 | 18.78 |
| | | 25 | 0 | 18.87 | 18.87 | 18.75 |
| | 16QAM | 1 | 0 | 19.75 | 18.69 | 19.40 |
| | | 1 | 13 | 19.67 | 18.70 | 19.37 |
| | | 1 | 24 | 19.65 | 18.72 | 19.37 |
| | | 12 | 0 | 17.96 | 17.89 | 17.73 |
| | | 12 | 6 | 17.99 | 17.87 | 17.75 |
| | | 12 | 13 | 17.97 | 17.96 | 17.82 |
| | | 25 | 0 | 18.03 | 17.77 | 17.68 |
| Bandwidth | Modulation | RB size | RB offset | Channel | Channel | Channel |
| | | | | 23780 | 23790 | 23800 |
| 10MHz | QPSK | 1 | 0 | 20.02 | 19.99 | 20.13 |
| | | 1 | 25 | 19.67 | 19.97 | 19.71 |
| | | 1 | 49 | 19.67 | 20.05 | 19.72 |
| | | 25 | 0 | 18.64 | 19.12 | 18.72 |
| | | 25 | 13 | 18.73 | 18.83 | 18.73 |
| | | 25 | 25 | 18.69 | 18.75 | 18.69 |
| | | 50 | 0 | 18.71 | 18.81 | 18.72 |
| | 16QAM | 1 | 0 | 20.10 | 18.81 | 19.71 |
| | | 1 | 25 | 20.01 | 18.81 | 19.63 |
| | | 1 | 49 | 20.06 | 18.83 | 19.64 |
| | | 25 | 0 | 17.80 | 17.91 | 17.80 |
| | | 25 | 13 | 17.75 | 17.91 | 17.85 |
| | | 25 | 25 | 17.78 | 17.84 | 17.79 |
| | | 50 | 0 | 17.60 | 17.72 | 17.71 |

The average output power of BT antenna is as following:

| Channel | Ch 0 | Ch 39 | Ch 78 |
|---|---|---|---|
| GFSK(dBm) | 0.69 | -0.23 | 0.67 |
| EDR 3M-8DPSK(dBm) | 1.44 | 0.19 | 2.36 |
| **BT 4.0** | **Ch 0** | **Ch 19** | **Ch 39** |
| GFSK(dBm) | 1.73 | 0.88 | 2.45 |

The average output power of WIFI antenna is as following:

WIFI Antenna

| WIFI Mode | Channel | Data rate (Mbps) | AV Power (dBm) |
|---|---|---|---|
| 11b | 1 | 1 | 13.51 |
| | | 2 | 13.49 |
| | | 5.5 | 13.47 |
| | | 11 | 13.45 |
| | 6 | 1 | 14.13 |
| | | 2 | 14.11 |
| | | 5.5 | 14.09 |
| | | 11 | 14.07 |
| | 11 | 1 | 15.43 |
| | | 2 | 15.41 |
| | | 5.5 | 15.38 |
| | | 11 | 15.35 |
| 11g | 1 | 6 | 8.79 |
| | | 9 | 8.60 |
| | | 12 | 8.58 |
| | | 18 | 8.55 |
| | | 24 | 8.53 |
| | | 36 | 8.51 |
| | | 48 | 8.48 |
| | | 54 | 8.46 |
| | 6 | 6 | 13.26 |
| | | 9 | 13.24 |

| | | | |
|---|---|---|---|
| | | 12 | 13.22 |
| | | 18 | 13.20 |
| | | 24 | 13.18 |
| | | 36 | 13.16 |
| | | 48 | 13.14 |
| | | 54 | 13.12 |
| | 11 | 6 | 11.73 |
| | | 9 | 11.71 |
| | | 12 | 11.69 |
| | | 18 | 11.66 |
| | | 24 | 11.64 |
| | | 36 | 11.62 |
| | | 48 | 11.60 |
| | | 54 | 11.58 |
| 11n HT20 | 1 | MCS0 | 8.62 |
| | | MCS1 | 8.60 |
| | | MCS2 | 8.57 |
| | | MCS3 | 8.55 |
| | | MCS4 | 8.52 |
| | | MCS5 | 8.50 |
| | | MCS6 | 8.48 |
| | | MCS7 | 8.45 |
| | | MCS8 | 8.43 |
| | 6 | MCS0 | 13.01 |
| | | MCS1 | 12.98 |
| | | MCS2 | 12.96 |
| | | MCS3 | 12.94 |
| | | MCS4 | 12.92 |
| | | MCS5 | 12.90 |
| | | MCS6 | 12.88 |
| | | MCS7 | 12.86 |
| | | MCS8 | 12.84 |
| | 11 | MCS0 | 12.15 |
| | | MCS1 | 12.13 |
| | | MCS2 | 12.10 |

| | | | |
|---|---|---|---|
| | | MCS3 | 12.08 |
| | | MCS4 | 12.05 |
| | | MCS5 | 12.03 |
| | | MCS6 | 12.00 |
| | | MCS7 | 11.98 |
| | | MCS8 | 11.95 |
| 11n HT40 | 3 | MCS0 | 12.10 |
| | | MCS1 | 12.08 |
| | | MCS2 | 12.05 |
| | | MCS3 | 12.03 |
| | | MCS4 | 12.01 |
| | | MCS5 | 11.99 |
| | | MCS6 | 11.97 |
| | | MCS7 | 11.95 |
| | | MCS8 | 11.93 |
| | 6 | MCS0 | 13.87 |
| | | MCS1 | 13.85 |
| | | MCS2 | 13.82 |
| | | MCS3 | 13.80 |
| | | MCS4 | 13.78 |
| | | MCS5 | 13.75 |
| | | MCS6 | 13.73 |
| | | MCS7 | 13.71 |
| | | MCS8 | 13.69 |
| | 9 | MCS0 | 10.25 |
| | | MCS1 | 10.23 |
| | | MCS2 | 10.20 |
| | | MCS3 | 10.18 |
| | | MCS4 | 10.15 |
| | | MCS5 | 10.13 |
| | | MCS6 | 10.11 |
| | | MCS7 | 10.09 |
| | | MCS8 | 10.07 |

## 7.2. SAR Test Results

### 7.2.1. GSM 850 (GPRS/EGPRS)

**Table 20: SAR Values [GSM 850 (GPRS/EGPRS)]**

| Test Position | Channel/ Frequency (MHz) | Time slot | Duty Cycle | Maximum Allowed Power (dBm) | Conducted Power (dBm) | Drift ± 0.21dB | Limit $SAR_{1g}$ 1.6 W/kg | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Drift (dB) | Measured $SAR_{1g}$ (W/kg) | Scaling Factor | Reported $SAR_{1g}$ (W/kg) | Graph Results |
| **Test Position of Body ( SAR Sesor active, Distance 0mm)** | | | | | | | | | | |
| Test Position 1 | 251/848.8 | 2Txslots | 1:4.15 | 26 | 25.69 | 0.050 | 0.855 | 1.07 | 0.918 | Figure 12 |
| | 190/836.6 | 2Txslots | 1:4.15 | 26 | 25.53 | 0.020 | 0.719 | 1.11 | 0.801 | / |
| | 128/824.2 | 2Txslots | 1:4.15 | 26 | 25.39 | -0.180 | 0.676 | 1.15 | 0.778 | / |
| Test Position 2 | 190/836.6 | 2Txslots | 1:4.15 | 26 | 25.53 | 0.032 | 0.058 | 1.11 | 0.064 | / |
| Test Position 4 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Test Position 5 | 190/836.6 | 2Txslots | 1:4.15 | 26 | 25.53 | 0.022 | 0.057 | 1.11 | 0.063 | / |
| **Worst Case Position of Body with EGPRS ( SAR Sesor active, Distance 0mm)** | | | | | | | | | | |
| Test Position 1 | 251/848.8 | 2Txslots | 1:4.15 | 26 | 25.69 | 0.080 | 0.783 | 1.07 | 0.841 | / |
| **Test Position of Body( SAR Sesor not active, Distance 5mm)** | | | | | | | | | | |
| Test Position 2 | 190/836.6 | 2Txslots | 1:4.15 | 29 | 28.4 | 0.130 | 0.084 | 1.15 | 0.096 | / |
| **Test Position of Body( SAR Sesor not active, Distance 0mm)** | | | | | | | | | | |
| Test Position 3 | 190/836.6 | 2Txslots | 1:4.15 | 29 | 28.4 | 0.080 | 0.093 | 1.15 | 0.106 | / |
| **Test Position of Body (SAR Sesor not active, Distance 10mm)** | | | | | | | | | | |
| Test Position 1 | 190/836.6 | 2Txslots | 1:4.15 | 29 | 28.4 | -0.060 | 0.282 | 1.15 | 0.324 | / |
| Test Position 5 | 190/836.6 | 2Txslots | 1:4.15 | 29 | 28.4 | 0.030 | 0.259 | 1.15 | 0.297 | / |
| **Worst Case Position of Body ($1^{st}$ Repeated SAR, SAR Sesor active, Distance 0mm)** | | | | | | | | | | |
| Test Position 1 | 251/848.8 | 2Txslots | 1:4.15 | 26 | 25.69 | 0.055 | 0.839 | 1.07 | 0.901 | / |

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

2. Per FCC KDB Publication 447498 D01, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is not required for such test configuration(s).
3. 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.
4. When multiple slots are used, SAR should be tested to account for the maximum source-based time-averaged output power.

**Table 21: SAR Measurement Variability Results [GSM 850 (GPRS/EGPRS)]**

| Test Position | Timeslots | Channel/ Frequency (MHz) | Measured SAR (1g) | 1st Repeated SAR (1g) | Ratio | 2nd Repeated SAR (1g) | 3rd Repeated SAR (1g) |
|---|---|---|---|---|---|---|---|
| Test Position 1 | 2Txslots | 251/848.8 | 0.855 | 0.839 | 1.02 | NA | NA |

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

2) A second repeated measurement was preformed 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 ≥ 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 ≥ 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

### 7.2.2. GSM 1900 (GPRS/EGPRS)

**Table 22: SAR Values [GSM 1900 (GPRS/EGPRS)]**

| Test Position | Channel/ Frequency (MHz) | Time slot | Duty Cycle | Maximum Allowed Power (dBm) | Conducted Power (dBm) | Drift ± 0.21dB | Limit $SAR_{1g}$ 1.6 W/kg | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Drift (dB) | Measured $SAR_{1g}$ (W/kg) | Scaling Factor | Reported $SAR_{1g}$ (W/kg) | Graph Results |
| **Test Position of Body ( SAR Sesor active, Distance 0mm)** | | | | | | | | | | |
| Test Position 1 | 810/1909.8 | 4Txslots | 1:4.14 | 22 | 21.61 | 0.170 | 0.726 | 1.09 | 0.794 | / |
| | 661/1880 | 4Txslots | 1:4.14 | 22 | 21.75 | -0.043 | 0.789 | 1.06 | 0.836 | / |
| | 512/1850 | 4Txslots | 1:4.14 | 22 | 21.64 | 0.105 | 0.846 | 1.09 | 0.919 | Figure 13 |
| Test Position 2 | 661/1880 | 4Txslots | 1:4.14 | 22 | 21.75 | -0.120 | 0.139 | 1.06 | 0.147 | / |
| Test Position 4 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Test Position 5 | 661/1880 | 4Txslots | 1:4.14 | 22 | 21.75 | -0.120 | 0.529 | 1.06 | 0.560 | / |
| **Worst Case Position of Body with EGPRS (SAR Sesor active, Distance 0mm)** | | | | | | | | | | |
| Test Position 1 | 512/1850 | 4Txslots | 1:4.14 | 22 | 21.64 | 0.080 | 0.783 | 1.09 | 0.851 | / |
| **Test Position of Body( SAR Sesor not active, Distance 5mm)** | | | | | | | | | | |
| Test Position 2 | 661/1880 | 4Txslots | 1:4.14 | 23 | 22.69 | 0.110 | 0.087 | 1.07 | 0.094 | / |
| **Test Position of Body( SAR Sesor not active, Distance 0mm)** | | | | | | | | | | |
| Test Position 3 | 661/1880 | 4Txslots | 1:4.14 | 23 | 22.69 | -0.048 | 0.030 | 1.07 | 0.032 | / |
| **Test Position of Body (SAR Sesor not active, Distance 10mm)** | | | | | | | | | | |
| Test Position 1 | 661/1880 | 4Txslots | 1:4.14 | 23 | 22.69 | -0.020 | 0.255 | 1.07 | 0.274 | / |
| Test Position 5 | 661/1880 | 4Txslots | 1:4.14 | 23 | 22.69 | 0.050 | 0.194 | 1.07 | 0.208 | / |
| **Worst Case Position of Body ($1^{st}$ Repeated SAR, SAR Sesor active, Distance 0mm)** | | | | | | | | | | |
| Test Position 1 | 512/1850 | 4Txslots | 1:4.14 | 22 | 21.64 | 0.160 | 0.820 | 1.09 | 0.891 | / |

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

2. Per FCC KDB Publication 447498 D01, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is not required for such test configuration(s).
3. 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.
4. When multiple slots are used, SAR should be tested to account for the maximum source-based time-averaged output power.

**Table 23: SAR Measurement Variability Results [GSM 1900 (GPRS/EGPRS)]**

| Test Position | Timeslots | Channel/ Frequency (MHz) | Measured SAR (1g) | 1st Repeated SAR (1g) | Ratio | 2nd Repeated SAR (1g) | 3rd Repeated SAR (1g) |
|---|---|---|---|---|---|---|---|
| Test Position 1 | 4Txslots | 512/1850 | 0.846 | 0.820 | 1.03 | NA | NA |

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

2) A second repeated measurement was preformed 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 ≥ 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 ≥ 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

### 7.2.3. UMTS Band II (WCDMA/HSDPA/HSUPA)

**Table 24: SAR Values [UMTS Band II (WCDMA/HSDPA/HSUPA)]**

| Test Position | Channel/ Frequency (MHz) | Channel Type | Duty Cycle | Maximum Allowed Power (dBm) | Conducted Power (dBm) | Drift ±0.21dB | Limit $SAR_{1g}$ 1.6 W/kg | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Drift (dB) | Measured $SAR_{1g}$ (W/kg) | Scaling Factor | Reported $SAR_{1g}$ (W/kg) | Graph Results |
| **Test Position of Body ( SAR Sesor active, Distance 0mm)** | | | | | | | | | | |
| Test Position 1 | 9538/1907.6 | RMC | 1:1 | 18.5 | 18.39 | 0.010 | 1.150 | 1.03 | 1.179 | / |
| | 9400/1880 | RMC | 1:1 | 18.5 | 18.25 | 0.010 | 1.120 | 1.06 | 1.186 | Figure 14 |
| | 9262/1852.4 | RMC | 1:1 | 18.5 | 18.21 | -0.130 | 1.080 | 1.07 | 1.155 | / |
| Test Position 2 | 9400/1880 | RMC | 1:1 | 18.5 | 18.15 | 0.090 | 0.138 | 1.08 | 0.150 | / |
| Test Position 4 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Test Position 5 | 9400/1880 | RMC | 1:1 | 18.5 | 18.15 | -0.160 | 0.523 | 1.08 | 0.567 | / |
| **Test Position of Body (SAR Sesor not active, Distance 5mm)** | | | | | | | | | | |
| Test Position 2 | 9400/1880 | RMC | 1:1 | 22.5 | 22.08 | -0.040 | 0.101 | 1.10 | 0.111 | / |
| **Test Position of Body( SAR Sesor not active, Distance 0mm)** | | | | | | | | | | |
| Test Position 3 | 9400/1880 | RMC | 1:1 | 22.5 | 22.08 | 0.042 | 0.073 | 1.10 | 0.081 | / |
| **Test Position of Body (SAR Sesor not active, Distance 10mm)** | | | | | | | | | | |
| Test Position 1 | 9400/1880 | RMC | 1:1 | 22.5 | 22.08 | -0.170 | 0.487 | 1.10 | 0.536 | / |
| Test Position 5 | 9400/1880 | RMC | 1:1 | 22.5 | 22.08 | -0.040 | 0.383 | 1.10 | 0.422 | / |
| **Worst Case Position of Body (1st Repeated SAR, SAR Sesor active, Distance 0mm)** | | | | | | | | | | |
| Test Position 1 | 9538/1907.6 | RMC | 1:1 | 18.5 | 18.39 | -0.040 | 1.150 | 1.03 | 1.179 | / |

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

2. Per FCC KDB Publication 447498 D01, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is not required for such test configuration(s).
3. WCDMA mode was tested under RMC 12.2kbps with HSPA (HSDPA/HSUPA) inactive per KDB Publication 941225 D01. HSPA (HSDPA/HSUPA) SAR for body was not required since the average output power of the HSPA (HSDPA/HSUPA) subtests was not more than 0.25 dB higher than the RMC level or the maximum measured SAR for 12.2kbps RMC was less than 75% SAR limit.
4. WCDMA mode was tested under RMC 12.2kbps with DC-HSDPA inactive per KDB Publication 941225 D02. DC-HSDPA SAR for body was not required since the average output power of the DC-HSDPA subtests was not more than 0.25 dB higher than the RMC level or the maximum reported SAR for 12.2kbps RMC was less than 75% SAR limit.

**Table 25: SAR Measurement Variability Results [UMTS Band II (WCDMA/HSDPA/HSUPA)]**

| Test Position | Channel/ Frequency (MHz) | Measured SAR (1g) | 1st Repeated SAR (1g) | Ratio | 2nd Repeated SAR (1g) | 3rd Repeated SAR (1g) |
|---|---|---|---|---|---|---|
| Test Position 1 | 9538/1907.6 | 1.120 | 1.150 | 1.03 | NA | NA |

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

2) A second repeated measurement was preformed 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 ≥ 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 ≥ 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

### 7.2.4. UMTS Band IV (WCDMA/HSDPA/HSUPA)

**Table 26: SAR Values [UMTS Band IV (WCDMA/HSDPA/HSUPA)]**

| Test Position | Channel/ Frequency (MHz) | Channel Type | Duty Cycle | Maximum Allowed Power (dBm) | Conducted Power (dBm) | Drift ± 0.21dB | Limit $SAR_{1g}$ 1.6 W/kg | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Drift (dB) | Measured $SAR_{1g}$ (W/kg) | Scaling Factor | Reported $SAR_{1g}$ (W/kg) | Graph Results |
| **Test Position of Body ( SAR Sesor active, Distance 0mm)** | | | | | | | | | | |
| Test Position 1 | 1513/1752.6 | RMC | 1:1 | 18.5 | 18.36 | 0.060 | 0.876 | 1.03 | 0.905 | / |
| | 1413/1732.6 | RMC | 1:1 | 18.5 | 18.27 | 0.150 | 0.895 | 1.05 | 0.944 | / |
| | 1312/1712.4 | RMC | 1:1 | 18.5 | 18.18 | -0.080 | 0.888 | 1.08 | 0.956 | / |
| Test Position 2 | 1413/1732.6 | RMC | 1:1 | 18.5 | 18.27 | -0.060 | 0.377 | 1.05 | 0.398 | / |
| Test Position 4 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Test Position 5 | 1413/1732.6 | RMC | 1:1 | 18.5 | 18.27 | -0.080 | 0.562 | 1.05 | 0.593 | / |
| **Test Position of Body (SAR Sesor not active, Distance 5mm)** | | | | | | | | | | |
| Test Position 2 | 1413/1732.6 | RMC | 1:1 | 22.5 | 22.26 | 0.025 | 0.201 | 1.06 | 0.212 | / |
| **Test Position of Body( SAR Sesor not active, Distance 0mm)** | | | | | | | | | | |
| Test Position 3 | 1413/1732.6 | N/A | N/A | 22.5 | 22.26 | 0.021 | 0.096 | 1.06 | 0.101 | / |
| **Test Position of Body (SAR Sesor not active, Distance 10mm)** | | | | | | | | | | |
| Test Position 1 | 1413/1732.6 | RMC | 1:1 | 22.5 | 22.26 | -0.050 | 0.549 | 1.06 | 0.580 | / |
| Test Position 5 | 1413/1732.6 | RMC | 1:1 | 22.5 | 22.26 | 0.090 | 0.454 | 1.06 | 0.480 | / |
| **Worst Case Position of Body (1st Repeated SAR, SAR Sesor active, Distance 0mm)** | | | | | | | | | | |
| Test Position 1 | 1413/1732.6 | RMC | 1:1 | 18.5 | 18.18 | 0.054 | 1.060 | 1.08 | 1.141 | Figure 15 |

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

2. Per FCC KDB Publication 447498 D01, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is not required for such test configuration(s).
3. WCDMA mode was tested under RMC 12.2kbps with HSPA (HSDPA/HSUPA) inactive per KDB Publication 941225 D01. HSPA (HSDPA/HSUPA) SAR for body was not required since the average output power of the HSPA (HSDPA/HSUPA) subtests was not more than 0.25 dB higher than the RMC level or the maximum measured SAR for 12.2kbps RMC was less than 75% SAR limit.
4. WCDMA mode was tested under RMC 12.2kbps with DC-HSDPA inactive per KDB Publication 941225 D02. DC-HSDPA SAR for body was not required since the average output power of the DC-HSDPA subtests was not more than 0.25 dB higher than the RMC level or the maximum reported SAR for 12.2kbps RMC was less than 75% SAR limit.

**Table 27: SAR Measurement Variability Results [UMTS Band IV (WCDMA/HSDPA/HSUPA)]**

| Test Position | Channel/ Frequency (MHz) | Measured SAR (1g) | 1st Repeated SAR (1g) | Ratio | 2nd Repeated SAR (1g) | 3rd Repeated SAR (1g) |
|---|---|---|---|---|---|---|
| Test Position 1 | 1413/1732.6 | 0.895 | 1.060 | 1.18 | NA | NA |

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

2) A second repeated measurement was preformed 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 ≥ 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 ≥ 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

### 7.2.5. UMTS Band V (WCDMA/HSDPA/HSUPA)

**Table 28: SAR Values [UMTS Band V (WCDMA/HSDPA/HSUPA)]**

| Test Position | Channel/ Frequency (MHz) | Channel Type | Duty Cycle | Maximum Allowed Power (dBm) | Conducted Power (dBm) | Drift ± 0.21dB | Limit $SAR_{1g}$ 1.6 W/kg | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Drift (dB) | Measured $SAR_{1g}$ (W/kg) | Scaling Factor | Reported $SAR_{1g}$ (W/kg) | Graph Results |
| **Test Position of Body ( SAR Sesor active, Distance 0mm)** | | | | | | | | | | |
| Test Position 1 | 4183/836.6 | RMC | 1:1 | 19.5 | 19.17 | 0.166 | 0.211 | 1.08 | 0.228 | / |
| Test Position 2 | 4183/836.6 | RMC | 1:1 | 19.5 | 19.17 | 0.033 | 0.127 | 1.08 | 0.137 | / |
| Test Position 4 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Test Position 5 | 4183/836.6 | RMC | 1:1 | 19.5 | 19.17 | 0.047 | 0.050 | 1.08 | 0.054 | / |
| **Test Position of Body (SAR Sesor not active, Distance 5mm)** | | | | | | | | | | |
| Test Position 2 | 4183/836.6 | RMC | 1:1 | 22.5 | 22.04 | 0.060 | 0.128 | 1.11 | 0.142 | / |
| **Test Position of Body( SAR Sesor not active, Distance 0mm)** | | | | | | | | | | |
| Test Position 3 | 4183/836.6 | RMC | 1:1 | 22.5 | 22.04 | 0.131 | 0.003 | 1.11 | 0.004 | / |
| **Test Position of Body (SAR Sesor not active, Distance 10mm)** | | | | | | | | | | |
| Test Position 1 | 4183/836.6 | RMC | 1:1 | 22.5 | 22.04 | -0.010 | 0.527 | 1.11 | 0.586 | Figure 16 |
| Test Position 5 | 4183/836.6 | RMC | 1:1 | 22.5 | 22.04 | -0.120 | 0.255 | 1.11 | 0.283 | / |

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

2. Per FCC KDB Publication 447498 D01, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is not required for such test configuration(s).
3. WCDMA mode was tested under RMC 12.2kbps with HSPA (HSDPA/HSUPA) inactive per KDB Publication 941225 D01. HSPA (HSDPA/HSUPA) SAR for body was not required since the average output power of the HSPA (HSDPA/HSUPA) subtests was not more than 0.25 dB higher than the RMC level or the maximum measured SAR for 12.2kbps RMC was less than 75% SAR limit.
4. WCDMA mode was tested under RMC 12.2kbps with DC-HSDPA inactive per KDB Publication 941225 D02. DC-HSDPA SAR for body was not required since the average output power of the DC-HSDPA subtests was not more than 0.25 dB higher than the RMC level or the maximum reported SAR for 12.2kbps RMC was less than 75% SAR limit.

### 7.2.6. LTE Band 2

**Table 29: SAR Values (LTE Band 2/20MHz/1RB/50%RB)**

| Test Position | Channel/ Frequency (MHz) | Mode | Duty Cycle | Maximum Allowed Power (dBm) | Conducted Power (dBm) | Drift ± 0.21dB | Limit $SAR_{1g}$ 1.6 W/kg | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Drift (dB) | Measured $SAR_{1g}$ (W/kg) | Scaling Factor | Reported $SAR_{1g}$ (W/kg) | Graph Results |
| **Test position of Body with 1RB, QPSK (SAR Sesor active, Distance 0mm)** | | | | | | | | | | |
| Test Position 1 | 19100/1900 | 1RB 0 Offset | 1:1 | 18.5 | 18.38 | -0.035 | 1.380 | 1.03 | 1.419 | Figure17 |
| | 18900/1880 | 1RB 0 Offset | 1:1 | 18.5 | 18.32 | 0.018 | 1.040 | 1.04 | 1.084 | / |
| | 18700/1860 | 1RB 0 Offset | 1:1 | 18.5 | 18.33 | 0.020 | 1.350 | 1.04 | 1.404 | / |
| Test Position 2 | 18900/1880 | 1RB 0 Offset | 1:1 | 18.5 | 18.32 | -0.140 | 0.265 | 1.04 | 0.276 | / |
| Test Position 4 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Test Position 5 | 18900/1880 | 1RB 0 Offset | 1:1 | 18.5 | 18.32 | 0.190 | 0.402 | 1.04 | 0.419 | / |
| **Test position of Body with 50%RB, QPSK (SAR Sesor active, Distance 0mm)** | | | | | | | | | | |
| Test Position 1 | 19100/1900 | 50%RB 0 Offset | 1:1 | 17.5 | 17.41 | -0.030 | 1.280 | 1.02 | 1.307 | / |
| | 18900/1880 | 50%RB 0 Offset | 1:1 | 17.5 | 17.32 | 0.025 | 0.953 | 1.04 | 0.993 | / |
| | 18700/1860 | 50%RB 0 Offset | 1:1 | 17.5 | 17.38 | 0.027 | 1.260 | 1.03 | 1.295 | / |
| Test Position 2 | 18900/1880 | 50%RB 0 Offset | 1:1 | 17.5 | 17.32 | 0.080 | 0.112 | 1.04 | 0.117 | / |
| Test Position 4 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Test Position 5 | 18900/1880 | 50%RB 0 Offset | 1:1 | 17.5 | 17.32 | 0.020 | 0.402 | 1.04 | 0.419 | / |
| **Test Position of Body with 1RB, QPSK (SAR Sesor not active, Distance 5mm)** | | | | | | | | | | |
| Test Position 2 | 18900/1880 | 1RB 0 Offset | 1:1 | 22.5 | 22.05 | 0.140 | 0.180 | 1.11 | 0.200 | / |
| **Test Position of Body with 1RB, QPSK ( SAR Sesor not active, Distance 0mm)** | | | | | | | | | | |
| Test Position 3 | 18900/1880 | 1RB 0 Offset | 1:1 | 22.5 | 22.05 | -0.140 | 0.086 | 1.11 | 0.095 | / |
| **Test Position of Body with 1RB, QPSK (SAR Sesor not active, Distance 10mm)** | | | | | | | | | | |
| Test Position 1 | 18900/1880 | 1RB 0 Offset | 1:1 | 22.5 | 22.05 | -0.050 | 0.440 | 1.11 | 0.488 | / |
| Test Position 5 | 18900/1880 | 1RB 0 Offset | 1:1 | 22.5 | 22.05 | -0.030 | 0.506 | 1.11 | 0.561 | / |
| **Test Position of Body with 50%RB, QPSK (SAR Sesor not active, Distance 5mm)** | | | | | | | | | | |
| Test Position 2 | 18900/1880 | 50%RB 0 Offset | 1:1 | 21.5 | 21.28 | 0.010 | 0.141 | 1.05 | 0.148 | / |
| **Test Position of Body with 50%RB, QPSK ( SAR Sesor not active, Distance 0mm)** | | | | | | | | | | |
| Test Position 3 | 18900/1880 | 50%RB 0 Offset | 1:1 | 21.5 | 21.28 | -0.060 | 0.068 | 1.05 | 0.072 | / |
| **Test Position of Body with 50%RB, QPSK (SAR Sesor not active, Distance 10mm)** | | | | | | | | | | |
| Test Position 1 | 18900/1880 | 50%RB 0 Offset | 1:1 | 21.5 | 21.28 | -0.060 | 0.368 | 1.05 | 0.387 | / |
| Test Position 5 | 18900/1880 | 50%RB 0 Offset | 1:1 | 21.5 | 21.28 | 0.040 | 0.411 | 1.05 | 0.432 | / |
| **Worst Case Position of Body with 1RB, QPSK (1st Repeated SAR, SAR Sesor active, Distance 0mm)** | | | | | | | | | | |
| Test Position 1 | 19100/1900 | 1RB 0 Offset | 1:1 | 18.5 | 18.38 | -0.150 | 1.370 | 1.03 | 1.408 | / |

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

2. Per FCC KDB Publication 447498 D01, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is not required for such test configuration(s).

**Table 30: SAR Measurement Variability Results (LTE Band 2/20MHz/1RB/50%RB)**

| Test Position | Channel/ Frequency (MHz) | Measured SAR (1g) | 1st Repeated SAR (1g) | Ratio | 2nd Repeated SAR (1g) | 3rd Repeated SAR (1g) |
|---|---|---|---|---|---|---|
| Test Position 1 | 19100/1900 | 1.380 | 1.370 | 1.01 | N/A | N/A |

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

2) A second repeated measurement was preformed 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 ≥ 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 ≥ 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

### 7.2.7. LTE Band 4

**Table 31: SAR Values (LTE Band 4/20MHz/1RB/50%RB)**

| Test Position | Channel/ Frequency (MHz) | Mode | Duty Cycle | Maximum Allowed Power (dBm) | Conducted Power (dBm) | Drift ± 0.21dB | Limit $SAR_{1g}$ 1.6 W/kg | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Drift (dB) | Measured $SAR_{1g}$ (W/kg) | Scaling Factor | Reported $SAR_{1g}$ (W/kg) | Graph Results |
| **Test position of Body with 1RB, QPSK (SAR Sesor active, Distance 0mm)** | | | | | | | | | | |
| Test Position 1 | 20300/1745 | 1RB 0 Offset | 1:1 | 18.7 | 18.32 | 0.150 | 0.998 | 1.09 | 1.089 | / |
| | 20175/1732.5 | 1RB 0 Offset | 1:1 | 18.7 | 18.39 | 0.080 | 0.767 | 1.07 | 0.824 | / |
| | 20050/1720 | 1RB 0 Offset | 1:1 | 18.7 | 18.33 | 0.032 | 0.971 | 1.09 | 1.057 | / |
| Test Position 2 | 20175/1732.5 | 1RB 0 Offset | 1:1 | 18.7 | 18.39 | 0.020 | 0.384 | 1.07 | 0.412 | / |
| Test Position 4 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Test Position 5 | 20175/1732.5 | 1RB 0 Offset | 1:1 | 18.7 | 18.39 | -0.100 | 0.576 | 1.07 | 0.619 | / |
| **Test position of Body with 50%RB, QPSK (SAR Sesor active, Distance 0mm)** | | | | | | | | | | |
| Test Position 1 | 20175/1732.5 | 50%RB 0 Offset | 1:1 | 17.7 | 17.45 | 0.120 | 0.589 | 1.06 | 0.624 | / |
| Test Position 2 | 20175/1732.5 | 50%RB 0 Offset | 1:1 | 17.7 | 17.45 | 0.030 | 0.308 | 1.06 | 0.326 | / |
| Test Position 4 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Test Position 5 | 20175/1732.5 | 50%RB 0 Offset | 1:1 | 17.7 | 17.45 | -0.100 | 0.447 | 1.06 | 0.473 | / |
| **Test Position of Body with 1RB, QPSK (SAR Sesor not active, Distance 5mm)** | | | | | | | | | | |
| Test Position 2 | 20175/1732.5 | 1RB 0 Offset | 1:1 | 22.7 | 22.36 | 0.010 | 0.186 | 1.08 | 0.201 | / |
| **Test Position of Body with 1RB, QPSK ( SAR Sesor not active, Distance 0mm)** | | | | | | | | | | |
| Test Position 3 | 20175/1732.5 | 1RB 0 Offset | 1:1 | 22.7 | 22.36 | 0.034 | 0.111 | 1.08 | 0.120 | / |
| **Test Position of Body with 1RB, QPSK (SAR Sesor not active, Distance 10mm)** | | | | | | | | | | |
| Test Position 1 | 20175/1732.5 | 1RB 0 Offset | 1:1 | 22.7 | 22.36 | -0.100 | 0.623 | 1.08 | 0.674 | / |
| Test Position 5 | 20175/1732.5 | 1RB 0 Offset | 1:1 | 22.7 | 22.36 | -0.140 | 0.468 | 1.08 | 0.506 | / |
| **Test Position of Body with 50%RB, QPSK (SAR Sesor not active, Distance 5mm)** | | | | | | | | | | |
| Test Position 2 | 20175/1732.5 | 50%RB 0 Offset | 1:1 | 21.7 | 21.24 | 0.034 | 0.141 | 1.11 | 0.157 | / |
| **Test Position of Body with 50%RB, QPSK ( SAR Sesor not active, Distance 0mm)** | | | | | | | | | | |
| Test Position 3 | 20175/1732.5 | 50%RB 0 Offset | 1:1 | 21.7 | 21.24 | 0.042 | 0.086 | 1.11 | 0.096 | / |
| **Test Position of Body with 50%RB, QPSK (SAR Sesor not active, Distance 10mm)** | | | | | | | | | | |
| Test Position 1 | 20175/1732.5 | 50%RB 0 Offset | 1:1 | 21.7 | 21.24 | 0.030 | 0.487 | 1.11 | 0.541 | / |
| Test Position 5 | 20175/1732.5 | 50%RB 0 Offset | 1:1 | 21.7 | 21.24 | 0.040 | 0.355 | 1.11 | 0.395 | / |
| **Worst Case Position of Body with 1RB, QPSK (1st Repeated SAR, SAR Sesor active, Distance 0mm)** | | | | | | | | | | |
| Test Position 1 | 20300/1745 | 1RB 0 Offset | 1:1 | 18.7 | 18.32 | -0.028 | 1.020 | 1.09 | 1.113 | Figure18 |

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

2. Per FCC KDB Publication 447498 D01, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is not required for such test configuration(s).

**Table 32: SAR Measurement Variability Results [LTE Band 4/20MHz/1RB/50%RB]**

| Test Position | Channel/ Frequency (MHz) | Measured SAR (1g) | 1st Repeated SAR (1g) | Ratio | 2nd Repeated SAR (1g) | 3rd Repeated SAR (1g) |
|---|---|---|---|---|---|---|
| Test Position 1 | 20300/1745 | 0.998 | 1.020 | 1.02 | N/A | N/A |

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

2) A second repeated measurement was preformed 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 ≥ 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 ≥ 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

### 7.2.8. LTE Band 5

**Table 33: SAR Values (LTE Band 5/10MHz/1RB/50%RB)**

| Test Position | Channel/ Frequency (MHz) | Mode | Duty Cycle | Maximum Allowed Power (dBm) | Conducted Power (dBm) | Drift ± 0.21dB | Limit $SAR_{1g}$ 1.6 W/kg | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Drift (dB) | Measured $SAR_{1g}$ (W/kg) | Scaling Factor | Reported $SAR_{1g}$ (W/kg) | Graph Results |
| **Test position of Body with 1RB, QPSK (SAR Sesor active, Distance 0mm)** | | | | | | | | | | |
| Test Position 1 | 20600/844 | 1RB 0 Offset | 1:1 | 20.5 | 20.13 | 0.140 | 0.940 | 1.09 | 1.024 | / |
| | 20525/836.5 | 1RB 0 Offset | 1:1 | 20.5 | 20.18 | 0.060 | 1.010 | 1.08 | 1.087 | Figure19 |
| | 20450/829 | 1RB 0 Offset | 1:1 | 20.5 | 20.22 | 0.021 | 0.921 | 1.07 | 0.982 | / |
| Test Position 2 | 20525/836.5 | 1RB 0 Offset | 1:1 | 20.5 | 20.18 | -0.010 | 0.287 | 1.08 | 0.309 | / |
| Test Position 4 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Test Position 5 | 20525/836.5 | 1RB 0 Offset | 1:1 | 20.5 | 20.18 | -0.020 | 0.448 | 1.08 | 0.482 | / |
| **Test position of Body with 50%RB, QPSK (SAR Sesor active, Distance 0mm)** | | | | | | | | | | |
| Test Position 1 | 20600/844 | 50%RB 0 Offset | 1:1 | 19.5 | 19.17 | -0.020 | 0.691 | 1.08 | 0.746 | / |
| | 20525/836.5 | 50%RB 0 Offset | 1:1 | 19.5 | 19.25 | 0.070 | 0.767 | 1.06 | 0.812 | / |
| | 20450/829 | 50%RB 0 Offset | 1:1 | 19.5 | 18.95 | 0.038 | 0.707 | 1.14 | 0.802 | / |
| Test Position 2 | 20525/836.5 | 50%RB 0 Offset | 1:1 | 19.5 | 19.25 | 0.028 | 0.215 | 1.06 | 0.228 | / |
| Test Position 4 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Test Position 5 | 20525/836.5 | 50%RB 0 Offset | 1:1 | 19.5 | 19.25 | 0.010 | 0.346 | 1.06 | 0.367 | / |
| **Test Position of Body with 1RB, QPSK (SAR Sesor not active, Distance 5mm)** | | | | | | | | | | |
| Test Position 2 | 20525/836.5 | 1RB 0 Offset | 1:1 | 23.5 | 22.87 | 0.040 | 0.135 | 1.16 | 0.156 | / |
| **Test Position of Body with 1RB, QPSK ( SAR Sesor not active, Distance 0mm)** | | | | | | | | | | |
| Test Position 3 | 20525/836.5 | 1RB 0 Offset | 1:1 | 23.5 | 22.87 | -0.110 | 0.147 | 1.16 | 0.170 | / |
| **Test Position of Body with 1RB, QPSK (SAR Sesor not active, Distance 10mm)** | | | | | | | | | | |
| Test Position 1 | 20525/836.5 | 1RB 0 Offset | 1:1 | 23.5 | 22.87 | -0.030 | 0.591 | 1.16 | 0.683 | / |
| Test Position 5 | 20525/836.5 | 1RB 0 Offset | 1:1 | 23.5 | 22.87 | 0.110 | 0.309 | 1.16 | 0.357 | / |
| **Test Position of Body with 50%RB, QPSK (SAR Sesor not active, Distance 5mm)** | | | | | | | | | | |
| Test Position 2 | 20525/836.5 | 50%RB 0 Offset | 1:1 | 22.5 | 21.94 | 0.020 | 0.107 | 1.14 | 0.122 | / |
| **Test Position of Body with 50%RB, QPSK ( SAR Sesor not active, Distance 0mm)** | | | | | | | | | | |
| Test Position 3 | 20525/836.5 | 50%RB 0 Offset | 1:1 | 22.5 | 19.25 | 0.020 | 0.117 | 2.11 | 0.247 | / |
| **Test Position of Body with 50%RB, QPSK (SAR Sesor not active, Distance 10mm)** | | | | | | | | | | |
| Test Position 1 | 20525/836.5 | 50%RB 0 Offset | 1:1 | 22.5 | 21.94 | 0.110 | 0.494 | 1.14 | 0.562 | / |
| Test Position 5 | 20525/836.5 | 50%RB 0 Offset | 1:1 | 22.5 | 21.94 | -0.039 | 0.328 | 1.14 | 0.373 | / |
| **Worst Case Position of Body with 1RB, QPSK (1st Repeated SAR, SAR Sesor active, Distance 0mm)** | | | | | | | | | | |
| Test Position 1 | 20525/836.5 | 1RB 0 Offset | 1:1 | 20.5 | 20.18 | -0.050 | 0.961 | 1.08 | 1.034 | / |

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

2. Per FCC KDB Publication 447498 D01, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is not required for such test configuration(s).

**Table 34: SAR Measurement Variability Results [LTE Band 5/10MHz/1RB/50%RB]**

| Test Position | Channel/ Frequency (MHz) | Measured SAR (1g) | 1st Repeated SAR (1g) | Ratio | 2nd Repeated SAR (1g) | 3rd Repeated SAR (1g) |
|---|---|---|---|---|---|---|
| Test Position 1 | 20525/836.5 | 1.010 | 0.961 | 1.05 | N/A | N/A |

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

2) A second repeated measurement was preformed 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 ≥ 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 ≥ 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

### 7.2.9. LTE Band 7

**Table 35: SAR Values (LTE Band 7/20MHz/1RB/50%RB)**

| Test Position | Channel/ Frequency (MHz) | Mode | Duty Cycle | Maximum Allowed Power (dBm) | Conducted Power (dBm) | Drift ± 0.21dB | Limit $SAR_{1g}$ 1.6 W/kg | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Drift (dB) | Measured $SAR_{1g}$ (W/kg) | Scaling Factor | Reported $SAR_{1g}$ (W/kg) | Graph Results |
| **Test position of Body with 1RB, QPSK (SAR Sesor active, Distance 0mm)** | | | | | | | | | | |
| Test Position 1 | 21350/2560 | 1RB 0 Offset | 1:1 | 17.3 | 17.15 | -0.057 | 1.120 | 1.04 | 1.159 | / |
| | 21100/2535 | 1RB 0 Offset | 1:1 | 17.3 | 17.02 | 0.067 | 1.270 | 1.07 | 1.355 | / |
| | 20850/2510 | 1RB 0 Offset | 1:1 | 17.3 | 17.16 | 0.038 | 1.210 | 1.03 | 1.250 | / |
| Test Position 2 | 21100/2535 | 1RB 0 Offset | 1:1 | 17.3 | 17.02 | -0.070 | 0.173 | 1.07 | 0.185 | / |
| Test Position 4 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Test Position 5 | 21350/2560 | 1RB 0 Offset | 1:1 | 17.3 | 17.15 | 0.035 | 0.941 | 1.04 | 0.974 | / |
| | 21100/2535 | 1RB 0 Offset | 1:1 | 17.3 | 17.02 | -0.080 | 1.070 | 1.07 | 1.141 | / |
| | 20850/2510 | 1RB 0 Offset | 1:1 | 17.3 | 17.16 | 0.047 | 1.170 | 1.03 | 1.208 | / |
| **Test position of Body with 50%RB, QPSK (SAR Sesor active, Distance 0mm)** | | | | | | | | | | |
| Test Position 1 | 21350/2560 | 50%RB 0 Offset | 1:1 | 16.3 | 16.03 | 0.027 | 0.681 | 1.06 | 0.725 | / |
| | 21100/2535 | 50%RB 0 Offset | 1:1 | 16.3 | 16.11 | 0.053 | 0.737 | 1.04 | 0.770 | / |
| | 20850/2510 | 50%RB 0 Offset | 1:1 | 16.3 | 16.02 | 0.130 | 0.957 | 1.07 | 1.021 | / |
| Test Position 2 | 21100/2535 | 50%RB 0 Offset | 1:1 | 16.3 | 16.11 | 0.060 | 0.136 | 1.04 | 0.142 | / |
| Test Position 4 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Test Position 5 | 21350/2560 | 50%RB 0 Offset | 1:1 | 16.3 | 16.03 | 0.040 | 0.725 | 1.06 | 0.772 | / |
| | 21100/2535 | 50%RB 0 Offset | 1:1 | 16.3 | 16.11 | 0.049 | 0.819 | 1.04 | 0.856 | / |
| | 20850/2510 | 50%RB 0 Offset | 1:1 | 16.3 | 16.02 | 0.046 | 0.911 | 1.07 | 0.972 | / |
| **Test Position of Body with 1RB, QPSK (SAR Sesor not active, Distance 5mm)** | | | | | | | | | | |
| Test Position 2 | 21100/2535 | 1RB 0 Offset | 1:1 | 21.8 | 21.55 | 0.110 | 0.222 | 1.06 | 0.235 | / |
| **Test Position of Body with 1RB, QPSK ( SAR Sesor not active, Distance 0mm)** | | | | | | | | | | |
| Test Position 3 | 21100/2535 | 1RB 0 Offset | 1:1 | 21.8 | 21.55 | -0.080 | 0.018 | 1.06 | 0.019 | / |
| **Test Position of Body with 1RB, QPSK (SAR Sesor not active, Distance 10mm)** | | | | | | | | | | |
| Test Position 1 | 21350/2560 | 1RB 0 Offset | 1:1 | 21.8 | 21.52 | 0.140 | 1.180 | 1.07 | 1.259 | / |
| | 21100/2535 | 1RB 0 Offset | 1:1 | 21.8 | 21.55 | 0.050 | 1.290 | 1.06 | 1.366 | / |
| | 20850/2510 | 1RB 0 Offset | 1:1 | 21.8 | 21.56 | 0.067 | 1.300 | 1.06 | 1.374 | Figure20 |
| Test Position 5 | 21350/2560 | 1RB 0 Offset | 1:1 | 21.8 | 21.52 | 0.170 | 0.865 | 1.07 | 0.923 | / |
| | 21100/2535 | 1RB 0 Offset | 1:1 | 21.8 | 21.55 | 0.023 | 1.010 | 1.06 | 1.070 | / |
| | 20850/2510 | 1RB 0 Offset | 1:1 | 21.8 | 21.56 | 0.060 | 1.140 | 1.06 | 1.205 | / |
| **Test Position of Body with 50%RB, QPSK (SAR Sesor not active, Distance 5mm)** | | | | | | | | | | |
| Test Position 2 | 21100/2535 | 50%RB 0 Offset | 1:1 | 20.8 | 20.57 | 0.180 | 0.284 | 1.05 | 0.299 | / |
| **Test Position of Body with 50%RB, QPSK ( SAR Sesor not active, Distance 0mm)** | | | | | | | | | | |
| Test Position 3 | 21100/2535 | 50%RB 0 Offset | 1:1 | 20.8 | 20.57 | -0.140 | 0.019 | 1.05 | 0.020 | / |
| **Test Position of Body with 50%RB, QPSK (SAR Sesor not active, Distance 10mm)** | | | | | | | | | | |
| Test Position 1 | 21350/2560 | 50%RB 0 Offset | 1:1 | 20.8 | 20.54 | -0.020 | 0.788 | 1.06 | 0.837 | / |
| | 21100/2535 | 50%RB 0 Offset | 1:1 | 20.8 | 20.57 | -0.010 | 0.879 | 1.05 | 0.927 | / |
| | 20850/2510 | 50%RB 0 Offset | 1:1 | 20.8 | 20.41 | -0.050 | 0.951 | 1.09 | 1.040 | / |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Test Position 5 | 21350/2560 | 50%RB 0 Offset | 1:1 | 20.8 | 20.54 | -0.010 | 0.623 | 1.06 | 0.661 | / |
| | 21100/2535 | 50%RB 0 Offset | 1:1 | 20.8 | 20.57 | 0.180 | 0.739 | 1.05 | 0.779 | / |
| | 20850/2510 | 50%RB 0 Offset | 1:1 | 20.8 | 20.41 | 0.027 | 0.867 | 1.09 | 0.948 | / |
| **Worst Case Position of Body with 1RB, QPSK (1st Repeated SAR, SAR Sesor active, Distance 10mm)** | | | | | | | | | | |
| Test Position 1 | 20850/2510 | 1RB 0 Offset | 1:1 | 21.8 | 21.56 | -0.080 | 1.280 | 1.06 | 1.353 | / |

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

2. Per FCC KDB Publication 447498 D01, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is not required for such test configuration(s).

**Table 36: SAR Measurement Variability Results [LTE Band 7/20MHz/1RB/50%RB]**

| Test Position | Channel/ Frequency (MHz) | Measured SAR (1g) | 1st Repeated SAR (1g) | Ratio | 2nd Repeated SAR (1g) | 3rd Repeated SAR (1g) |
|---|---|---|---|---|---|---|
| Test Position 1 | 20850/2510 | 1.410 | 1.280 | 1.1 | N/A | N/A |

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

2) A second repeated measurement was preformed 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 ≥ 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 ≥ 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

### 7.2.10. LTE Band 17

**Table 37: SAR Values (LTE Band 17/10MHz/1RB/50%RB)**

| Test Position | Channel/ Frequency (MHz) | Mode | Duty Cycle | Maximum Allowed Power (dBm) | Conducted Power (dBm) | Drift ± 0.21dB | Limit $SAR_{1g}$ 1.6 W/kg | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Drift (dB) | Measured $SAR_{1g}$ (W/kg) | Scaling Factor | Reported $SAR_{1g}$ (W/kg) | Graph Results |
| **Test position of Body with 1RB, QPSK (SAR Sesor active, Distance 0mm)** | | | | | | | | | | |
| Test Position 1 | 23800/711 | 1RB 0 Offset | 1:1 | 20.5 | 20.13 | 0.120 | 0.773 | 1.09 | 0.842 | / |
| | 23790/710 | 1RB 0 Offset | 1:1 | 20.5 | 19.99 | -0.020 | 0.750 | 1.12 | 0.843 | Figure21 |
| | 23780/709 | 1RB 0 Offset | 1:1 | 20.5 | 20.02 | 0.002 | 0.624 | 1.12 | 0.697 | / |
| Test Position 2 | 23790/710 | 1RB 0 Offset | 1:1 | 20.5 | 19.99 | -0.032 | 0.101 | 1.12 | 0.114 | / |
| Test Position 4 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Test Position 5 | 23790/710 | 1RB 0 Offset | 1:1 | 20.5 | 19.99 | -0.080 | 0.348 | 1.12 | 0.391 | / |
| **Test position of Body with 50%RB, QPSK (SAR Sesor active, Distance 0mm)** | | | | | | | | | | |
| Test Position 1 | 23790/710 | 50%RB 0 Offset | 1:1 | 19.5 | 19.12 | 0.026 | 0.553 | 1.09 | 0.604 | / |
| Test Position 2 | 23790/710 | 50%RB 0 Offset | 1:1 | 19.5 | 19.12 | 0.080 | 0.081 | 1.09 | 0.088 | / |
| Test Position 4 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | / |
| Test Position 5 | 23790/710 | 50%RB 0 Offset | 1:1 | 19.5 | 19.12 | -0.010 | 0.272 | 1.09 | 0.297 | / |
| **Test Position of Body with 1RB, QPSK (SAR Sesor not active, Distance 5mm)** | | | | | | | | | | |
| Test Position 2 | 23790/710 | 1RB 0 Offset | 1:1 | 23.5 | 22.99 | 0.050 | 0.0473 | 1.12 | 0.053 | / |
| **Test Position of Body with 1RB, QPSK ( SAR Sesor not active, Distance 0mm)** | | | | | | | | | | |
| Test Position 3 | 23790/710 | 1RB 0 Offset | 1:1 | 23.5 | 22.99 | -0.070 | 0.081 | 1.12 | 0.091 | / |
| **Test Position of Body with 1RB, QPSK (SAR Sesor not active, Distance 10mm)** | | | | | | | | | | |
| Test Position 1 | 23790/710 | 1RB 0 Offset | 1:1 | 23.5 | 22.99 | -0.090 | 0.256 | 1.12 | 0.288 | / |
| Test Position 5 | 23790/710 | 1RB 0 Offset | 1:1 | 23.5 | 22.99 | 0.098 | 0.108 | 1.12 | 0.121 | / |
| **Test Position of Body with 50%RB, QPSK (SAR Sesor not active, Distance 5mm)** | | | | | | | | | | |
| Test Position 2 | 23790/710 | 50%RB 0 Offset | 1:1 | 22.5 | 21.76 | -0.040 | 0.037 | 1.19 | 0.044 | / |
| **Test Position of Body with 50%RB, QPSK ( SAR Sesor not active, Distance 0mm)** | | | | | | | | | | |
| Test Position 3 | 23790/710 | 50%RB 0 Offset | 1:1 | 22.5 | 21.76 | -0.030 | 0.083 | 1.19 | 0.098 | / |
| **Test Position of Body with 50%RB, QPSK (SAR Sesor not active, Distance 10mm)** | | | | | | | | | | |
| Test Position 1 | 23790/710 | 50%RB 0 Offset | 1:1 | 22.5 | 21.76 | 0.150 | 0.201 | 1.19 | 0.238 | / |
| Test Position 5 | 23790/710 | 50%RB 0 Offset | 1:1 | 22.5 | 21.76 | -0.060 | 0.085 | 1.19 | 0.101 | / |

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

2. Per FCC KDB Publication 447498 D01, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is not required for such test configuration(s).

### 7.2.11. WIFI (802.11b, WIFI)

**Table 38: SAR Values (802.11b)**

| Test Position | Channel/ Frequency (MHz) | Mode | Duty Cycle | Maximum Allowed Power (dBm) | Conducted Power (dBm) | Drift ± 0.21dB | Limit of SAR 1.6 W/kg | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Drift (dB) | Measured $SAR_{1g}$ (W/kg) | Scaling Factor | Reported $SAR_{1g}$ (W/kg) | Graph Results |
| **Test Position of Body (Distance 0mm)** | | | | | | | | | | |
| Test Position 1 | 11/2462 | DSSS | 1:1 | 16.5 | 16.12 | 0.126 | 0.656 | 1.09 | 0.716 | Figure 22 |
| Test Position 2 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Test Position 3 | 11/2462 | DSSS | 1:1 | 16.5 | 16.12 | -0.064 | 0.179 | 1.09 | 0.195 | / |
| Test Position 4 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Test Position 5 | 11/2462 | DSSS | 1:1 | 16.5 | 16.12 | 0.110 | 0.073 | 1.09 | 0.080 | / |
| **Test Position of Body (Distance 10mm)** | | | | | | | | | | |
| Test Position 1 | 11/2462 | DSSS | 1:1 | 16.5 | 16.12 | 0.022 | 0.106 | 1.09 | 0.116 | / |
| Test Position 2 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Test Position 3 | 11/2462 | DSSS | 1:1 | 16.5 | 16.12 | 0.025 | 0.010 | 1.09 | 0.011 | / |
| Test Position 4 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Test Position 5 | 11/2462 | DSSS | 1:1 | 16.5 | 16.12 | 0.050 | 0.019 | 1.09 | 0.020 | / |

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

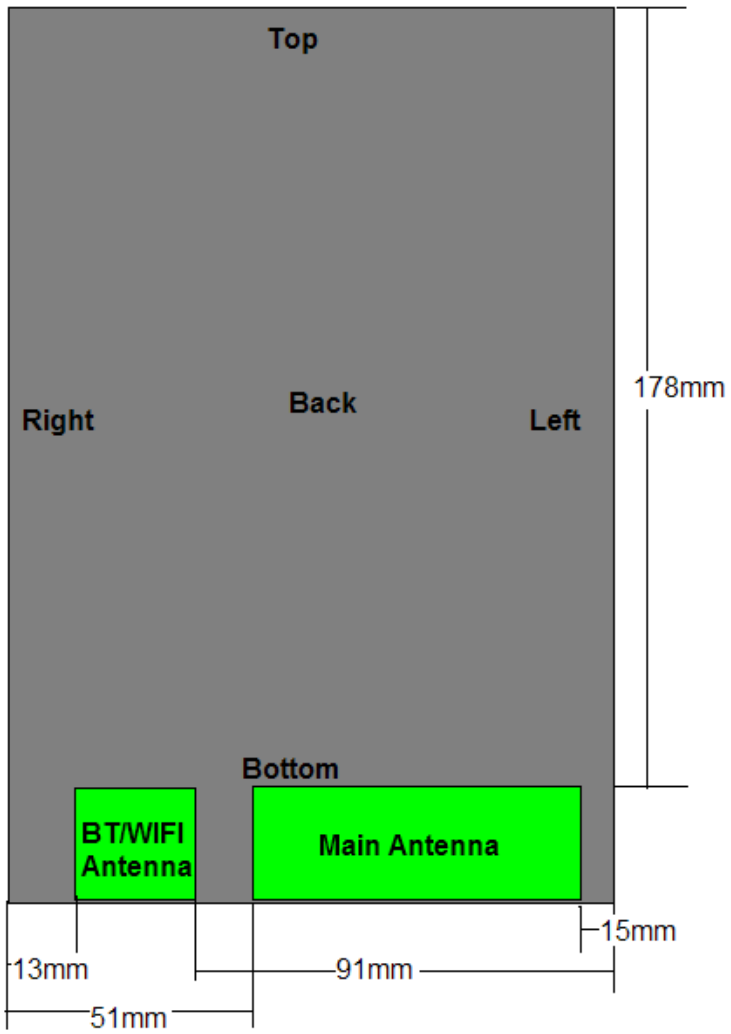
2. Per FCC KDB Publication 447498 D01, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is not required for such test configuration(s).

3. 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.

## 7.3. Simultaneous Transmission Conditions

| Band | Type | SimultaneousTransmissions | Voice Over Digital Transport (Data) |
|---|---|---|---|
| GPRS/EGPRS | DT | Yes<br>BT or WIFI | NA |
| UMTS II/IV/V | DT | | |
| LTE 2/4/5/7/17 | DT | | |
| WIFI 2.4G | DT | Yes<br>LTE, GPRS,EGPRS, HSDPA, HSUPA, DC-HSDPA | Yes |
| Bluetooth (BT) | DT | Yes<br>LTE, GPRS,EGPRS, HSDPA, HSUPA , DC-HSDPA | NA |
| Note: VO Voice Service only<br>DT Digital Transport | | | |

The location of the antennas inside EUT is shown in ANNEX L:



Estimated SAR

(1) for test separation distances ≤ 50 mm

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 for test separation distances ≤ 50 mm.

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

(2) for test separation distances >50 mm

**0.4 W/kg for 1-g SAR**

Body Estimated $SAR_{Max.BT.\ Test\ Position\ 1}$ = $[10^{(2.5/10)}/5]*(2.48^{0.5}/7.5)$ =0.075W/kg

Body Estimated $SAR_{Max.\ BT.\ Test\ Position\ 2}$ ≤ 0.4W/kg

Body Estimated $SAR_{Max.\ BT.\ Test\ Position\ 3}$ = $[10^{(2.5/10)}/13]*(2.48^{0.5}/7.5)$ =0.029W/kg

Body Estimated $SAR_{Max.\ BT.\ Test\ Position\ 4}$ ≤ 0.4W/kg

Body Estimated $SAR_{Max.\ BT.\ Test\ Position\ 5}$ =$[10^{(2.5/10)}/5]*(2.48^{0.5}/7.5)$ =0.075W/kg

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 ≤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.

$$\textbf{Ratio} = \frac{\textbf{(SAR}_1 + \textbf{SAR}_2\textbf{)}^{\textbf{1.5}}}{\textbf{(min. test separation distance, mm)}} < \textbf{0.04}$$

**GSM/UMTS&WIFI Mode**

**SAR Sesor active**

| Reported $SAR_{1g}$(W/kg) / Test Position | GSM 850 | GSM 1900 | UMTS Band II | UMTS Band IV | UMTS Band V | LTE 2 | LTE 4 | LTE 5 | LTE 7 | LTE 17 | WIFI | MAX. Σ $SAR_{1g}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Test Position 1 | 0.918 | 0.919 | 1.186 | 1.141 | 0.228 | **1.419** | 1.113 | 1.087 | 1.355 | 0.843 | **0.716** | 2.135 |
| Test Position 2 | 0.064 | 0.147 | 0.150 | 0.398 | 0.137 | 0.276 | **0.412** | 0.309 | 0.185 | 0.114 | 0.4 | 0.812 |
| Test Position 3 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | **0.195** | 0.595 |
| Test Position 4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.8 |
| Test Position 5 | 0.063 | 0.560 | 0.567 | 0.593 | 0.054 | 0.419 | 0.619 | 0.482 | **1.208** | 0.391 | **0.080** | 1.288 |

Note: 1.The value with blue color is the maximum $\Sigma SAR_{1g}$ Value.

2. MAX. $\Sigma SAR_{1g}$ = Reported $SAR_{Max.WIFI}$ + Reported $SAR_{Max.UMTS}$

MAX. $\Sigma SAR_{1g}$ = 2.135W/kg ＞1.6 W/kg, so the SAR to peak location separation ratio should be considered

| Reported $SAR_{1g}$(W/kg) / Test Position | GSM 850 | GSM 1900 | UMTS Band II | UMTS Band IV | UMTS Band V | LTE 2 | LTE 4 | LTE 5 | LTE 7 | LTE 17 | WIFI | MAX. Σ $SAR_{1g}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Test Position 1 | 0.918 | / | / | / | / | / | / | / | / | / | **0.716** | 1.634 |
| | / | 0.919 | / | / | / | / | / | / | / | / | **0.716** | 1.635 |
| | / | / | 1.186 | / | / | / | / | / | / | / | **0.716** | 1.902 |
| | / | / | / | 1.141 | / | / | / | / | / | / | **0.716** | 1.857 |
| | / | / | / | / | 0.228 | / | / | / | / | / | **0.716** | 0.944 |
| | / | / | / | / | / | **1.419** | / | / | / | / | **0.716** | 2.135 |
| | / | / | / | / | / | / | 1.113 | / | / | / | **0.716** | 1.829 |
| | / | / | / | / | / | / | / | 1.087 | / | / | **0.716** | 1.803 |
| | / | / | / | / | / | / | / | / | 1.355 | / | **0.716** | 2.071 |
| | / | / | / | / | / | / | / | / | / | 0.843 | **0.716** | 1.559 |

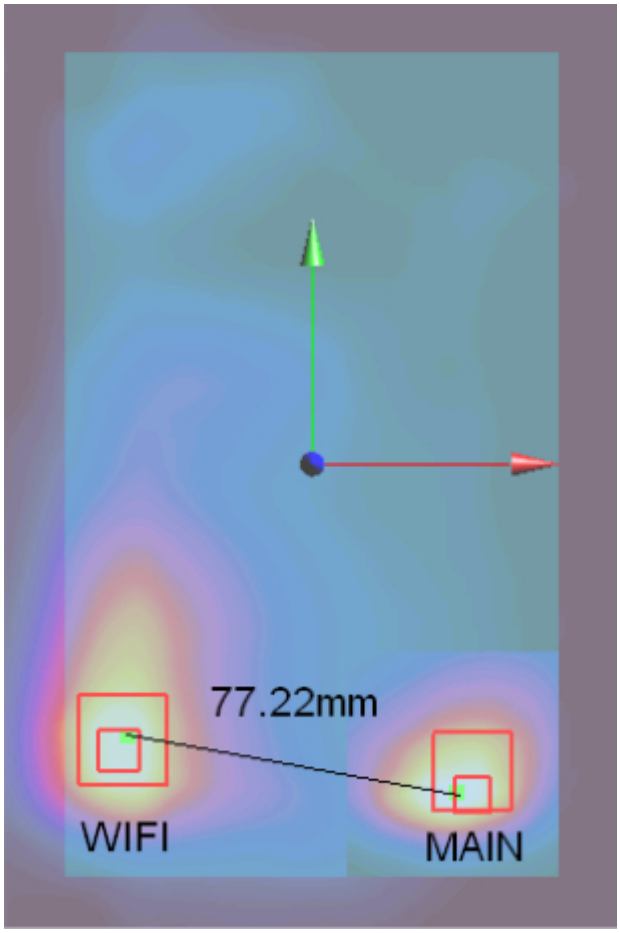
Note: 1.The value with blue color is the maximum $\Sigma SAR_{1g}$ Value.

2. MAX. $\Sigma SAR_{1g}$ = Reported $SAR_{Max.WIFI}$ + Reported $SAR_{Max.GSM/UMTS/LTE}$

**Pair Simultaneous Transmission for GSM 850 Band and Wifi**

| Reported $SAR_{1g}$(W/kg) / Test Position | GSM 850 | WIFI | MAX. Σ $SAR_{1g}$ |
|---|---|---|---|
| Body, Back Side | 0.918 | **0.716** | 1.634 |

The position $SAR_{GSM\ 850}$ is ($x_1$= 31.5, $y_1$= -76.5, $z_1$= -179.2),
The position $SAR_{Max.WIFI}$ is ($x_2$= -45, $y_2$=-66,$z_2$= -179.2)
so the distance between the $SAR_{Max.GSM\ 850}$ and $SAR_{Max.WIFI}$ is 77.22mm.

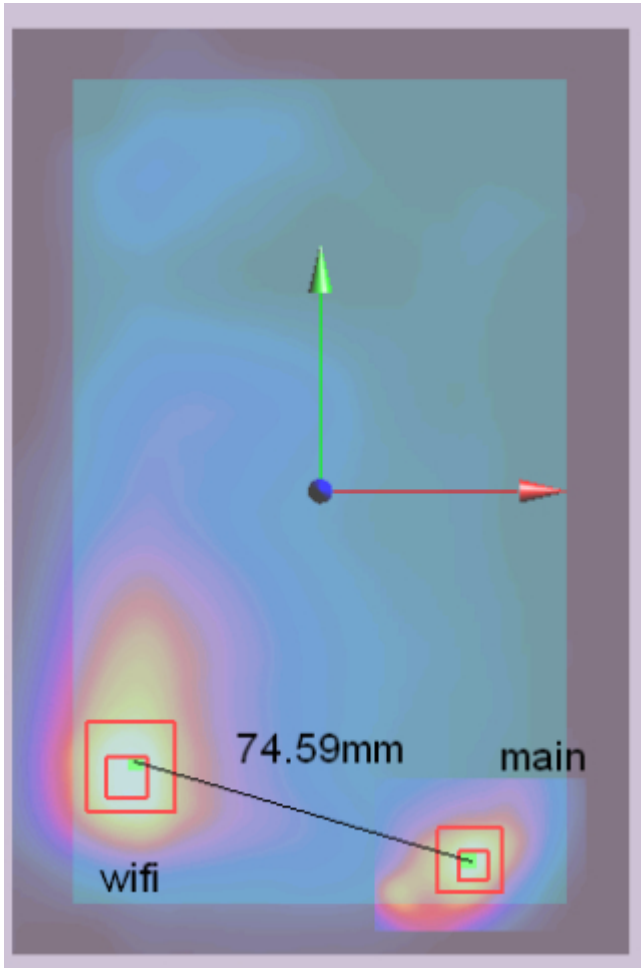



Ratio =[(Reported $SAR_{Max.GSM/UMTS}$) 0.918W/kg +(Reported $SAR_{Max.WIFI}$) 0.716W/kg]$^{3/2}$ /Peak SAR Location Separation =1.634$^{3/2}$ /77.22=0.03 <0.04
So Simultaneous SAR testing for GSM 850 and Wifi is not required.

**Pair Simultaneous Transmission for GSM 1900 Band and Wifi**

| Reported $SAR_{1g}$(W/kg) / Test Position | GSM 1900 | WIFI | MAX. Σ $SAR_{1g}$ |
|---|---|---|---|
| Body, Back Side | 0.919 | **0.716** | 1.635 |

The position $SAR_{GSM\ 1900}$ is ($x_1$= 27, $y_1$= -85.5, $z_1$= -179.2),
The position $SAR_{Max.WIFI}$ is ($x_2$= -45, $y_2$=-66,$z_2$= -179.2)
so the distance between the $SAR_{Max.GSM\ 1900}$ and $SAR_{Max.WIFI}$ is 74.59mm.

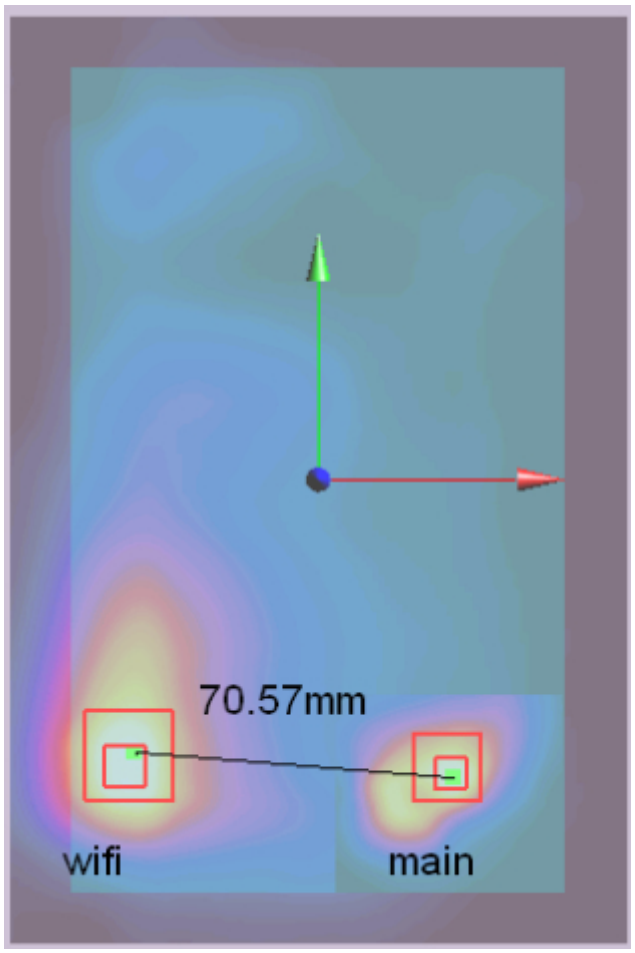



Ratio =[(Reported $SAR_{Max.GSM/UMTS}$) 0.919W/kg +(Reported $SAR_{Max.WIFI}$) 0.716W/kg]$^{3/2}$ /Peak SAR Location Separation =$1.635^{3/2}$ /74.59=0.03 <0.04
So Simultaneous SAR testing for GSM 1900 and Wifi is not required.

**Pair Simultaneous Transmission for UMTS Band II and Wifi**

| Reported $SAR_{1g}$(W/kg) / Test Position | UMTS Band II | WIFI | MAX. Σ $SAR_{1g}$ |
|---|---|---|---|
| Body, Back Side | 1.186 | **0.716** | 1.902 |

The position $SAR_{UMTS\ Band\ II}$ is ($x_1$= 25.5, $y_1$= -63, $z_1$= -179.2),
The position $SAR_{Max.WIFI}$ is ($x_2$= -45, $y_2$=-66,$z_2$= -179.2)
so the distance between the $SAR_{Max.UMTS\ Band\ II}$ and $SAR_{Max.WIFI}$ is 70.57mm.

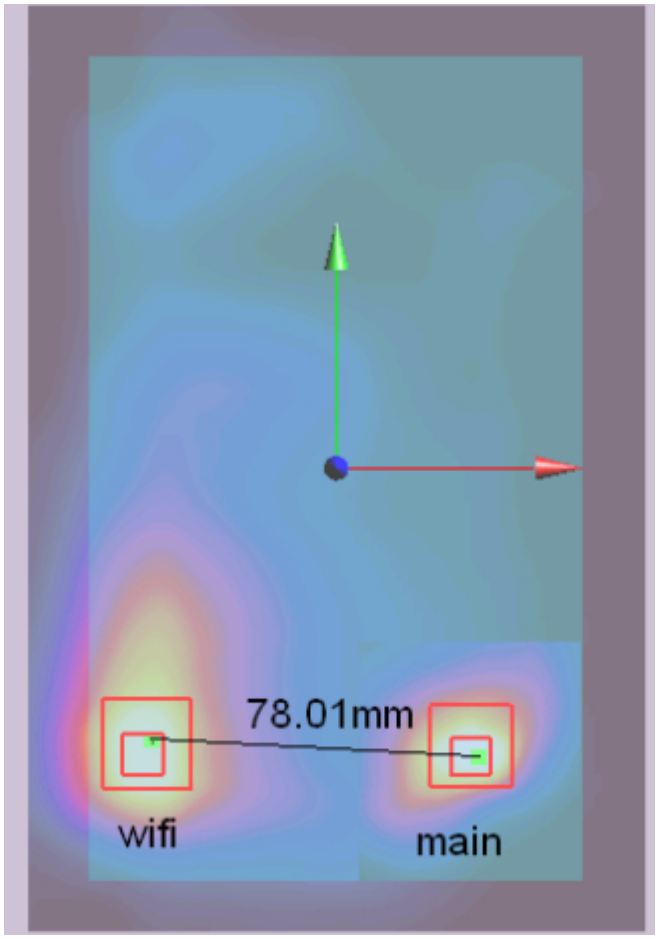



Ratio =[(Reported $SAR_{Max.GSM/UMTS}$) 1.186W/kg +(Reported $SAR_{Max.WIFI}$) 0.716W/kg]$^{3/2}$ /Peak SAR Location Separation =1.902$^{3/2}$ /70.57=0.039≈0.04
So Simultaneous SAR testing for UMTS Band II and Wifi is not required.

**Pair Simultaneous Transmission for UMTS Band IV and Wifi**

| Reported $SAR_{1g}$(W/kg) / Test Position | UMTS Band IV | WIFI | MAX. Σ $SAR_{1g}$ |
|---|---|---|---|
| Body, Back Side | 1.141 | **0.716** | 1.857 |

The position $SAR_{UMTS\ Band\ IV}$ is ($x_1$= 33, $y_1$= -67, $z_1$= -179.2),
The position $SAR_{Max.WIFI}$ is ($x_2$= -45, $y_2$=-66,$z_2$= -179.2)
so the distance between the $SAR_{Max.UMTS\ Band\ V}$ and $SAR_{Max.WIFI}$ is 78.01mm.

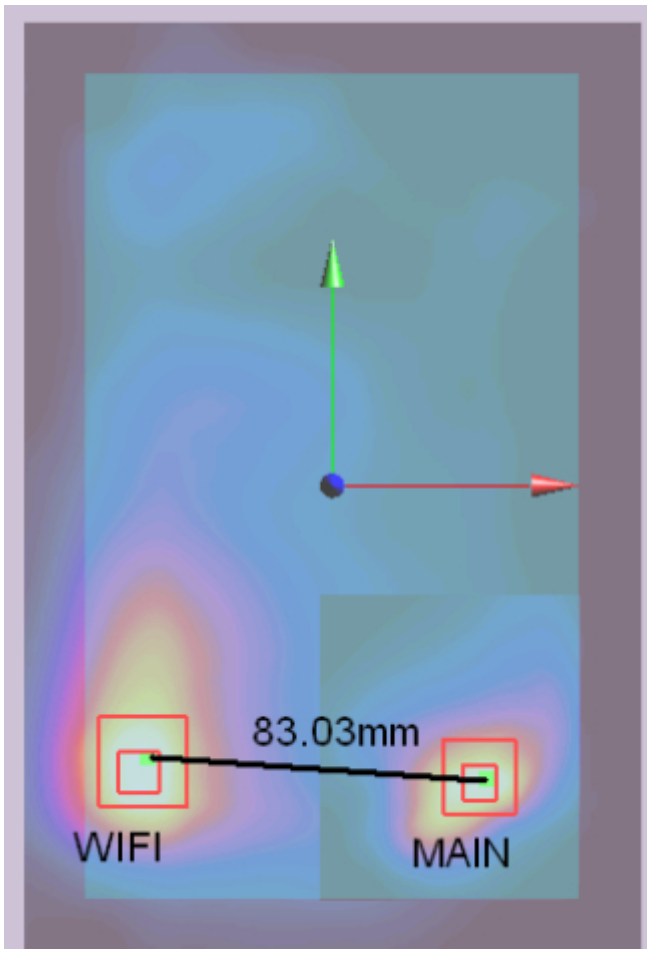



Ratio =[(Reported $SAR_{Max.GSM/UMTS}$) 1.141W/kg +(Reported $SAR_{Max.WIFI}$) 0.716W/kg]$^{3/2}$ /Peak SAR Location Separation =1.857$^{3/2}$ /78.01=0.03<0.04
So Simultaneous SAR testing for UMTS Band IV and Wifi is not required.

**Pair Simultaneous Transmission for LTE Band II and Wifi**

| Reported $SAR_{1g}$(W/kg) / Test Position | LTE Band II | WIFI | MAX. Σ $SAR_{1g}$ |
|---|---|---|---|
| Body, Back Side | 1.419 | **0.716** | 2.135 |

The position $SAR_{LTE\ Band\ II}$ is ($x_1$= 37, $y_1$= -53.5, $z_1$= -179.2),
The position $SAR_{Max.WIFI}$ is ($x_2$= -45, $y_2$=-66,$z_2$= -179.2)
so the distance between the $SAR_{Max.LTE\ \ Band\ II}$ and $SAR_{Max.WIFI}$ is 83.03mm.

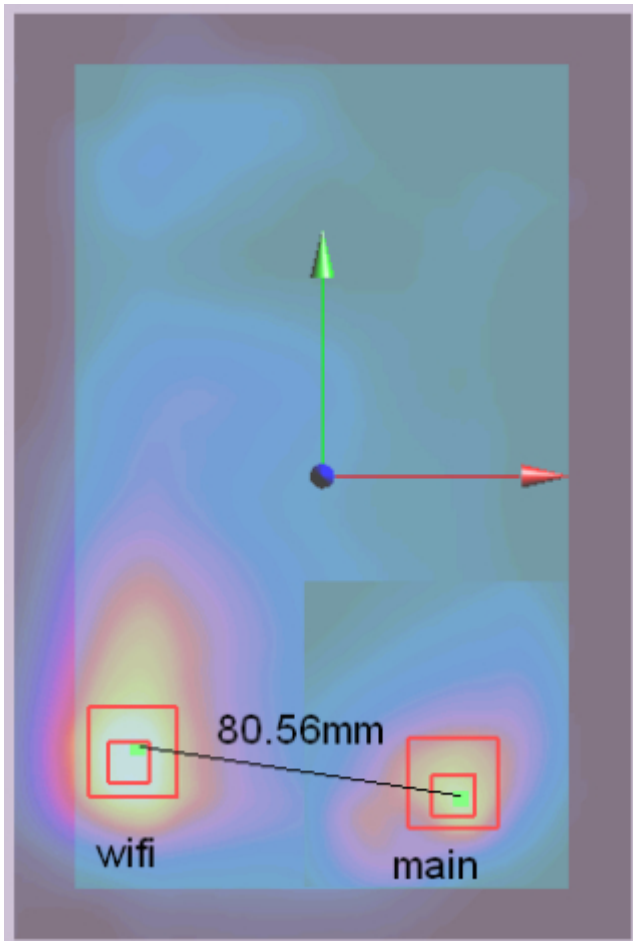



Ratio =[(Reported $SAR_{Max.LTE}$) 1.419W/kg +(Reported $SAR_{Max.WIFI}$) 0.716W/kg]$^{3/2}$ /Peak SAR Location Separation =2.135$^{3/2}$ /83.03=0.038≈0.04
So Simultaneous SAR testing for LTE Band II and Wifi is not required.

**Pair Simultaneous Transmission for LTE Band IV and Wifi**

| Reported $SAR_{1g}$(W/kg) / Test Position | LTE Band IV | WIFI | MAX. Σ $SAR_{1g}$ |
|---|---|---|---|
| Body, Back Side | 1.113 | **0.716** | 1.829 |

The position $SAR_{LTE\ Band\ IV}$ is ($x_1$= 34.5, $y_1$= -79, $z_1$= -179.2),
The position $SAR_{Max.WIFI}$ is ($x_2$= -45, $y_2$=-66, $z_2$= -179.2)
so the distance between the $SAR_{Max.LTE\ \ Band\ IV}$ and $SAR_{Max.WIFI}$ is 80.56mm.

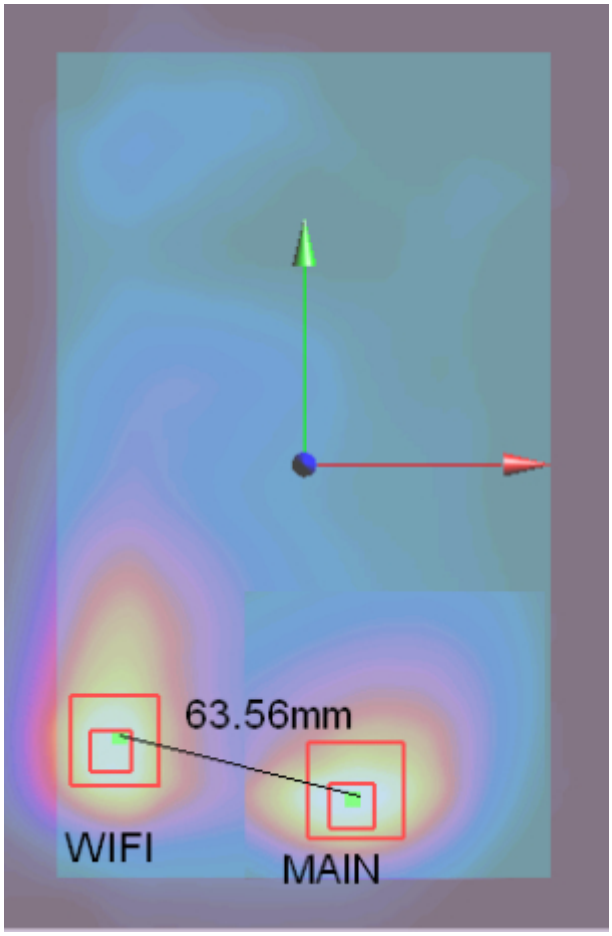



Ratio =[(Reported $SAR_{Max.LTE}$) 1.113W/kg +(Reported $SAR_{Max.WIFI}$) 0.716W/kg]$^{3/2}$ /Peak SAR Location Separation =1.829$^{3/2}$ /80.56=0.03<0.04
So Simultaneous SAR testing for LTE Band IV and Wifi is not required.

**Pair Simultaneous Transmission for LTE Band V and Wifi**

| Reported $SAR_{1g}$(W/kg) / Test Position | LTE Band V | WIFI | MAX. Σ $SAR_{1g}$ |
|---|---|---|---|
| Body, Back Side | 1.087 | **0.716** | 1.803 |

The position $SAR_{LTE\ Band\ V}$ is ($x_1$= 34.5, $y_1$= -79, $z_1$= -179.2),
The position $SAR_{Max.WIFI}$ is ($x_2$= -45, $y_2$=-66, $z_2$= -179.2)
so the distance between the $SAR_{Max.LTE\ \ Band\ V}$ and $SAR_{Max.WIFI}$ is 63.56mm.

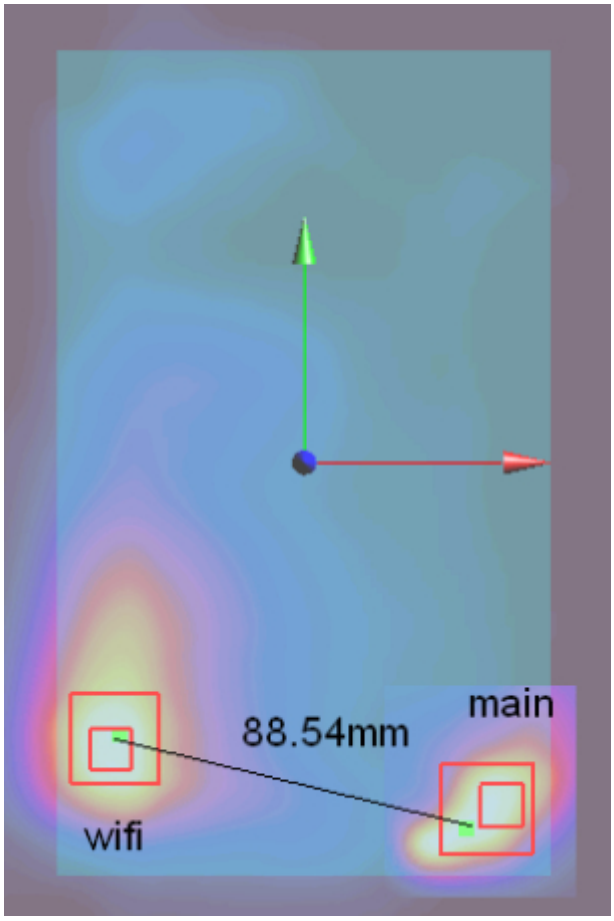



Ratio =[(Reported $SAR_{Max.LTE}$) 1.087W/kg +(Reported $SAR_{Max.WIFI}$) 0.716W/kg]$^{3/2}$ /Peak SAR Location Separation =1.803$^{3/2}$ /64.56=0.037≈0.04
So Simultaneous SAR testing for LTE Band V and Wifi is not required.

**Pair Simultaneous Transmission for LTE Band VII and Wifi**

| Reported $SAR_{1g}$(W/kg) / Test Position | LTE Band VII | WIFI | MAX. Σ $SAR_{1g}$ |
|---|---|---|---|
| Body, Back Side | 1.355 | **0.716** | 2.071 |

The position $SAR_{LTE\ Band\ VII}$ is ($x_1$= 40.5, $y_1$= -89, $z_1$= -179.2),
The position $SAR_{Max.WIFI}$ is ($x_2$= -45, $y_2$=-66, $z_2$= -179.2)
so the distance between the $SAR_{Max.LTE\ \ Band\ VII}$ and $SAR_{Max.WIFI}$ is 88.54mm.




Ratio =[(Reported $SAR_{Max.LTE}$) 1.355W/kg +(Reported $SAR_{Max.WIFI}$) 0.716W/kg]$^{3/2}$ /Peak SAR Location Separation =$2.071^{3/2}$ /88.54=0.034<0.04
So Simultaneous SAR testing for LTE Band VII and Wifi is not required.

**SAR Sesor not active**

| Reported $SAR_{1g}$(W/kg) / Test Position | GSM 850 | GSM 1900 | UMTS Band II | UMTS Band IV | UMTS Band V | LTE 2 | LTE 4 | LTE 5 | LTE 7 | LTE 17 | WIFI | MAX. Σ $SAR_{1g}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Test Position 1 | 0.324 | 0.274 | 0.536 | 0.580 | 0.586 | 0.488 | 0.674 | 0.683 | **1.374** | 0.288 | **0.116** | 1.490 |
| Test Position 2 | 0.096 | 0.094 | 0.111 | 0.212 | 0.142 | 0.200 | 0.201 | 0.156 | **0.299** | 0.053 | 0.4 | 0.699 |
| Test Position 3 | 0.106 | 0.032 | 0.081 | 0.101 | 0.004 | 0.095 | 0.120 | **0.247** | 0.020 | 0.098 | **0.011** | 0.258 |
| Test Position 4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.8 |
| Test Position 5 | 0.297 | 0.208 | 0.422 | 0.480 | 0.283 | 0.561 | 0.506 | 0.373 | **1.205** | 0.121 | **0.020** | 1.225 |

Note: 1.The value with blue color is the maximum Σ$SAR_{1g}$ Value.

2. MAX. Σ$SAR_{1g}$ = Reported $SAR_{Max.WIFI}$ + Reported $SAR_{Max.UMTS}$

MAX. Σ$SAR_{1g}$ = 1.490W/kg <1.6 W/kg, so the Simultaneous SAR are not required for WIFI and GSM/UMTS/LTE antenna.

**GSM&BT Mode**

**SAR Sesor active**

| Reported $SAR_{1g}$(W/kg) / Test Position | GSM 850 | GSM 1900 | UMTS Band II | UMTS Band IV | UMTS Band V | LTE 2 | LTE 4 | LTE 5 | LTE 7 | LTE 17 | BT | MAX. Σ $SAR_{1g}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Test Position 1 | 0.918 | 0.919 | 1.186 | 1.141 | 0.228 | **1.419** | 1.113 | 1.087 | 1.355 | 0.843 | **0.075** | 1.494 |
| Test Position 2 | 0.064 | 0.147 | 0.150 | 0.398 | 0.137 | 0.276 | **0.412** | 0.309 | 0.185 | 0.114 | **0.4** | 0.812 |
| Test Position 3 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | **0.029** | 0.429 |
| Test Position 4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | **0.4** | 0.8 |
| Test Position 5 | 0.063 | 0.560 | 0.567 | 0.593 | 0.054 | 0.419 | 0.619 | 0.482 | **1.208** | 0.391 | **0.075** | 1.283 |

Note: 1.The value with blue color is the maximum $\Sigma SAR_{1g}$ Value.

2. MAX. $\Sigma SAR_{1g}$ = Reported $SAR_{Max.BT}$ + Reported $SAR_{Max.GSM/UMTS/LTE}$

MAX. $\Sigma SAR_{1g}$ =1.494W/kg <1.6 W/kg, So the Simultaneous SAR are not required for BT and GSM/UMTS/LTE antenna.

**SAR Sesor not active**

| Reported $SAR_{1g}$(W/kg) / Test Position | GSM 850 | GSM 1900 | UMTS Band II | UMTS Band IV | UMTS Band V | LTE 2 | LTE 4 | LTE 5 | LTE 7 | LTE 17 | BT | MAX. Σ $SAR_{1g}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Test Position 1 | 0.324 | 0.274 | 0.536 | 0.580 | 0.586 | 0.488 | 0.674 | 0.683 | **1.374** | 0.288 | **0.075** | 1.449 |
| Test Position 2 | 0.096 | 0.094 | 0.111 | 0.212 | 0.142 | 0.200 | 0.201 | 0.156 | **0.299** | 0.053 | **0.4** | 0.699 |
| Test Position 3 | 0.106 | 0.032 | 0.081 | 0.101 | 0.004 | 0.095 | 0.120 | **0.247** | 0.020 | 0.098 | **0.029** | 0.276 |
| Test Position 4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | **0.4** | 0.8 |
| Test Position 5 | 0.297 | 0.208 | 0.422 | 0.480 | 0.283 | 0.561 | 0.506 | 0.373 | **1.205** | 0.121 | **0.075** | 1.280 |

Note: 1.The value with blue color is the maximum $\Sigma SAR_{1g}$ Value.

2. MAX. $\Sigma SAR_{1g}$ = Reported $SAR_{Max.BT}$ + Reported $SAR_{Max.GSM/UMTS/LTE}$

MAX. $\Sigma SAR_{1g}$ =1.449W/kg <1.6 W/kg, So the Simultaneous SAR are not required for BT and GSM/UMTS/LTE antenna.

WIFI antenna and BT antenna cannot transmit simultaneously.

# 8. Measurement Uncertainty

| No. | source | Type | Uncertainty Value (%) | Probability Distribution | k | $c_i$ | Standard ncertainty $u_i^{'}$ (%) | Degree of freedom $V_{eff}$ or $v_i$ |
|---|---|---|---|---|---|---|---|---|
| 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 | $\sqrt{3}$ | $\sqrt{0.5}$ | 1.9 | ∞ |
| 4 | - Hemispherical isotropy of the probe | B | 9.4 | R | $\sqrt{3}$ | $\sqrt{0.5}$ | 3.9 | ∞ |
| 5 | -boundary effect | B | 1.9 | R | $\sqrt{3}$ | 1 | 1.1 | ∞ |
| 6 | -probe linearity | B | 4.7 | R | $\sqrt{3}$ | 1 | 2.7 | ∞ |
| 7 | - System detection limits | B | 1.0 | R | $\sqrt{3}$ | 1 | 0.6 | ∞ |
| 8 | -readout Electronics | B | 1.0 | N | 1 | 1 | 1.0 | ∞ |
| 9 | -response time | B | 0.8 | R | $\sqrt{3}$ | 1 | 0.5 | ∞ |
| 10 | -integration time | B | 4.3 | R | $\sqrt{3}$ | 1 | 2.5 | ∞ |
| 11 | -RF Ambient noise | B | 3.0 | R | $\sqrt{3}$ | 1 | 1.7 | ∞ |
| 12 | -RF Ambient Conditions | B | 3.0 | R | $\sqrt{3}$ | 1 | 1.7 | ∞ |
| 13 | -Probe Positioner Mechanical Tolerance | B | 0.4 | R | $\sqrt{3}$ | 1 | 0.2 | ∞ |
| 14 | -Probe Positioning with respect to Phantom Shell | B | 2.9 | R | $\sqrt{3}$ | 1 | 1.7 | ∞ |
| 15 | -Extrapolation, interpolation and Integration Algorithms for Max. SAR Evaluation | B | 3.9 | R | $\sqrt{3}$ | 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 | $\sqrt{3}$ | 1 | 2.9 | ∞ |
| Physical parameter | | | | | | | | |
| 19 | -phantom Uncertainty | B | 4.0 | R | $\sqrt{3}$ | 1 | 2.3 | ∞ |
| 20 | Algorithm for correcting SAR for deviations | B | 1.9 | N | 1 | 0.84 | 0.9 | ∞ |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | in permittivity and conductivity | | | | | | | |
| 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 | ∞ |
| 24 | -Liquid permittivity -temperature uncertainty | B | 0.3 | R | $\sqrt{3}$ | 0.26 | 0.05 | ∞ |
| 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 | |

# 9. Main Test Instruments

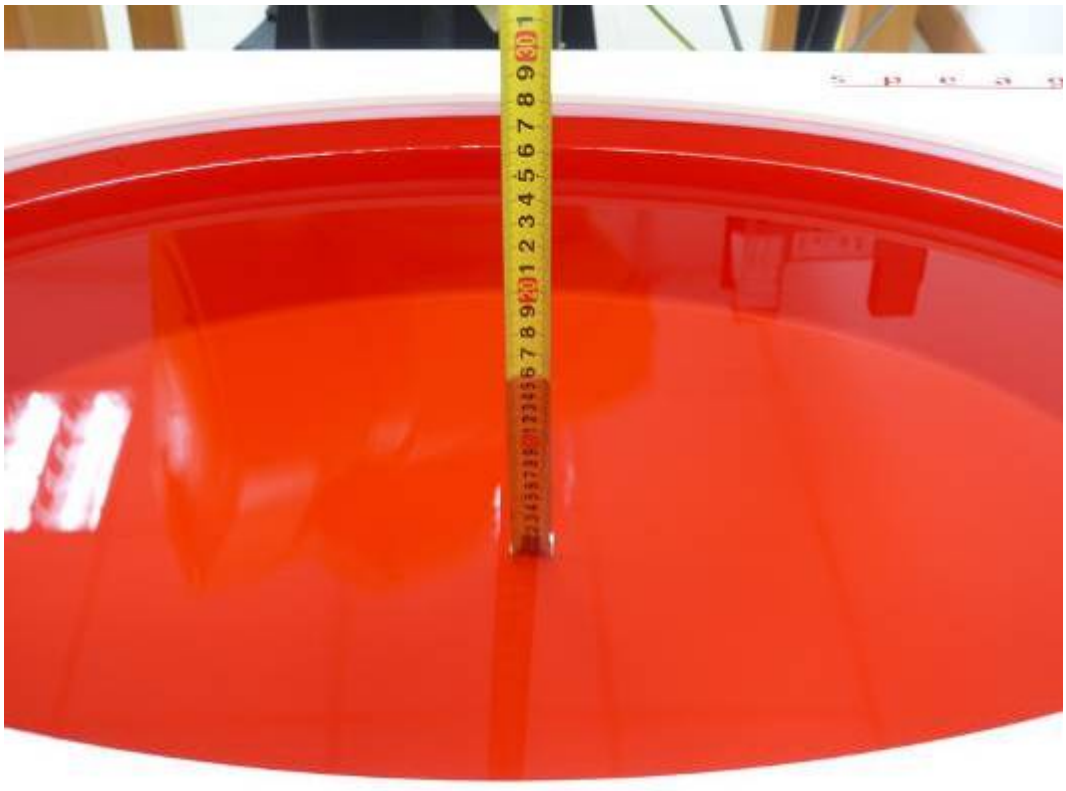
**Table 39: List of Main Instruments**

| No. | Name | Type | Serial Number | Calibration Date | Valid Period |
|---|---|---|---|---|---|
| 01 | Network analyzer | Agilent 8753E | US37390326 | September 10, 2013 | One year |
| 02 | Dielectric Probe Kit | Agilent 85070E | US44020115 | No Calibration Requested | |
| 03 | Power meter | Agilent E4417A | GB41291714 | March 9, 2014 | One year |
| 04 | Power sensor | Agilent N8481H | MY50350004 | September 23, 2013 | One year |
| 05 | Power sensor | E9327A | US40441622 | January 1, 2014 | One year |
| 06 | Signal Generator | HP 8341B | 2730A00804 | September 9,2013 | One year |
| 07 | Dual directional coupler | 778D-012 | 50519 | March 28, 2013 | One year |
| 08 | Dual directional coupler | 777D | 50146 | March 28, 2013 | One year |
| 09 | Amplifier | IXA-020 | 0401 | No Calibration Requested | |
| 10 | Wideband radio communication tester | CMW 500 | 113645 | August 30, 2012 | One year |
| 11 | E-field Probe | EX3DV4 | 3677 | November 28, 2013 | One year |
| 12 | E-field Probe | EX3DV4 | 3816 | June 4, 2013 | One year |
| 13 | DAE | DAE4 | 1317 | January 16, 2014 | One year |
| 14 | Validation Kit 750MHz | D750V3 | 1045 | September 29,2011 | Three years |
| 15 | Validation Kit 835MHz | D835V2 | 4d020 | August 26, 2011 | Three years |
| 16 | Validation Kit 1750MHz | D1750V2 | 1033 | January 26, 2014 | Three years |
| 17 | Validation Kit 1900MHz | D1900V2 | 5d060 | August 31, 2011 | Three years |
| 18 | Validation Kit 2450MHz | D2450V2 | 786 | August 29, 2011 | Three years |
| 19 | Validation Kit 2600MHz | D2600V2 | 1012 | May 02, 2012 | Three years |
| 20 | Temperature Probe | JM222 | AA1009129 | March 10, 2013 | One year |
| 21 | Hygrothermograph | WS-1 | 64591 | September 26, 2013 | One year |

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

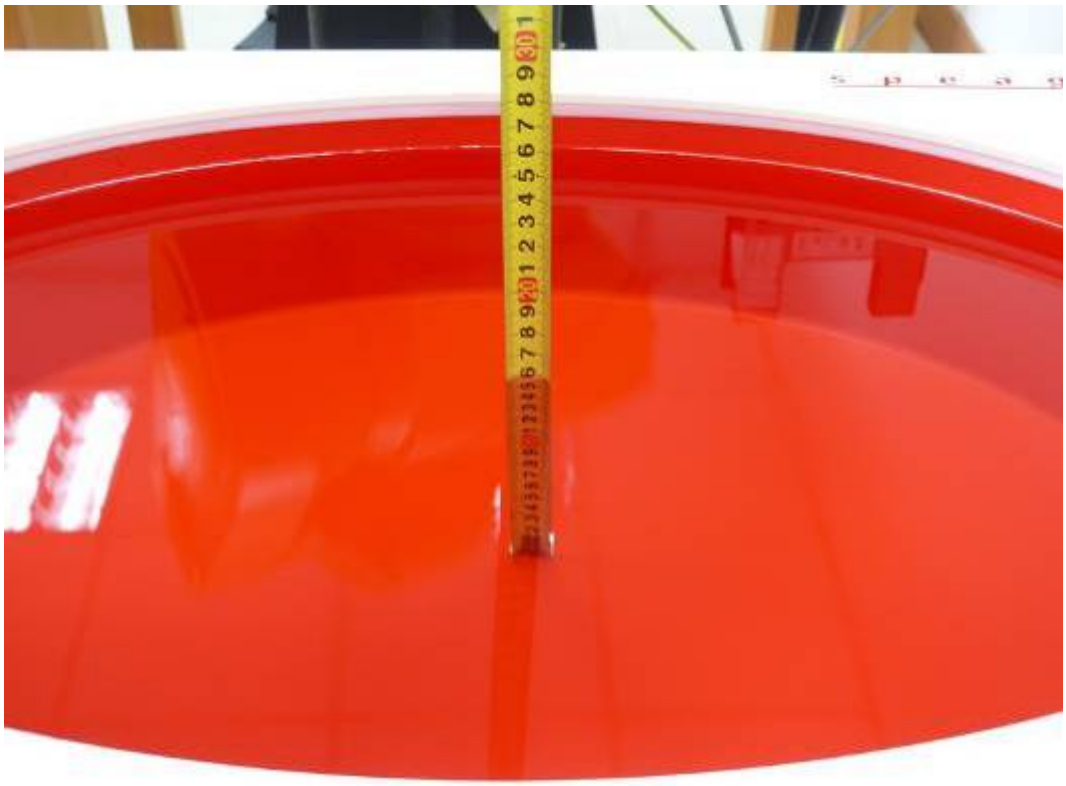
# ANNEX A: Test Layout


**Picture 1: Specific Absorption Rate Test Layout**

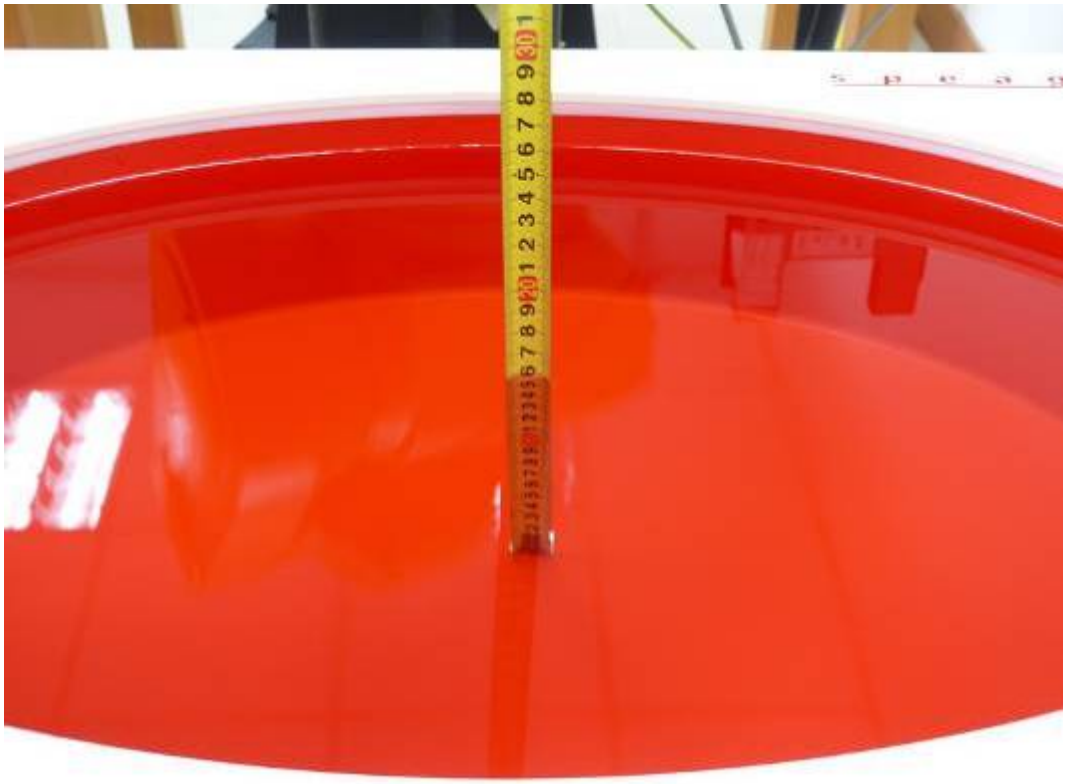


**Picture 2: Liquid depth in the flat Phantom (750MHz, 15.4cm depth)**

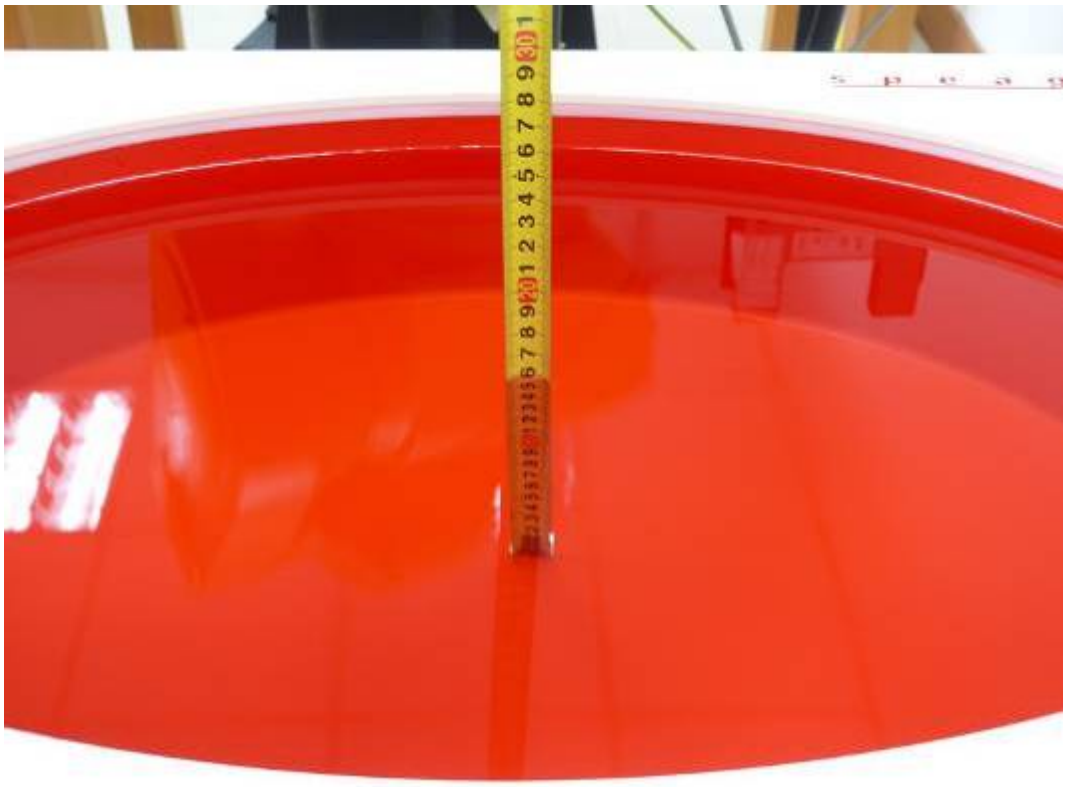
**Picture 3: Liquid depth in the Flat Phantom (835 MHz, 15.4cm depth)**



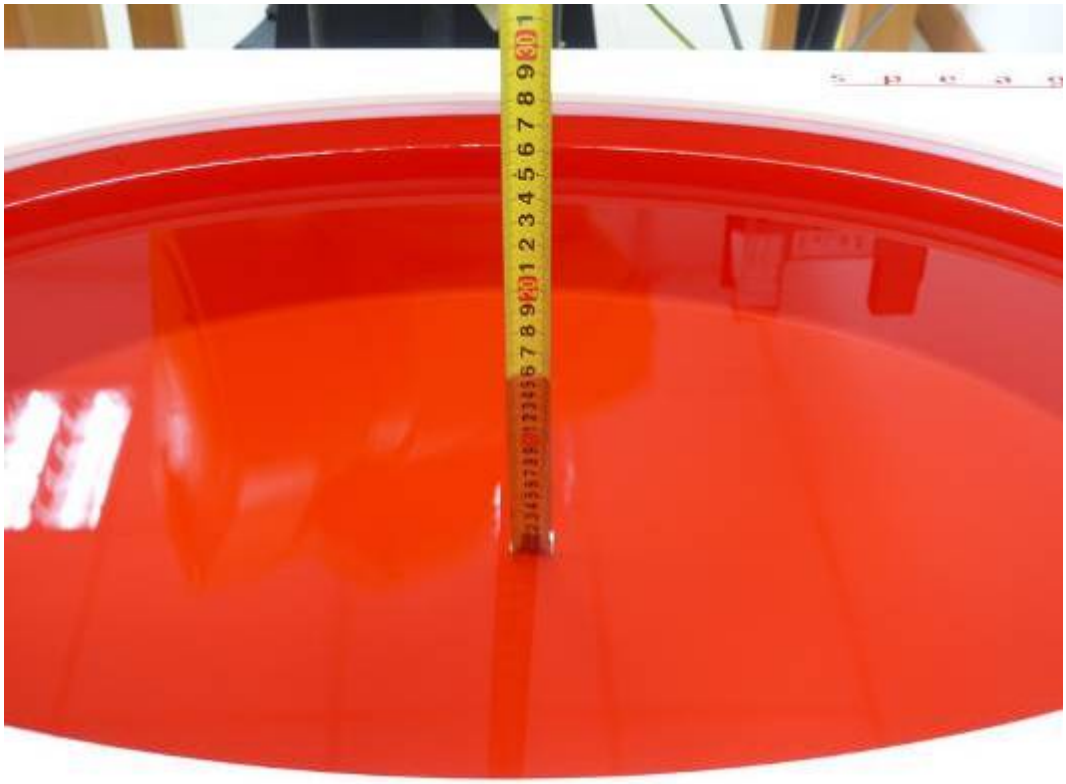
**Picture 4: Liquid depth in the flat Phantom (1750 MHz, 15.2cm depth)**



**Picture 5: Liquid depth in the Flat Phantom (1900 MHz, 15.1cm depth)**



**Picture 6: Liquid depth in the Flat Phantom (2450 MHz, 15.3cm depth)**



**Picture 7: Liquid depth in the flat Phantom (2600 MHz, 15.3cm depth)**

# ANNEX B: System Check Results

## System Performance Check at 750 MHz Body TSL

**DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 - SN: 1045**

Date/Time: 3/17/2014 2:34:34 AM

Communication System: CW; Frequency: 750 MHz;Duty Cycle: 1:1

Medium parameters used: f = 750 MHz; $\sigma$ = 0.97 S/m; $\varepsilon_r$ = 54.3; $\rho$ = 1000 kg/m$^3$

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(9.72, 9.72, 9.72); Calibrated: 11/28/2013;

Electronics: DAE4 Sn1317; Calibrated: 1/16/2014

Phantom: ELI 4.0; Type: QDOVA001BA;

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

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

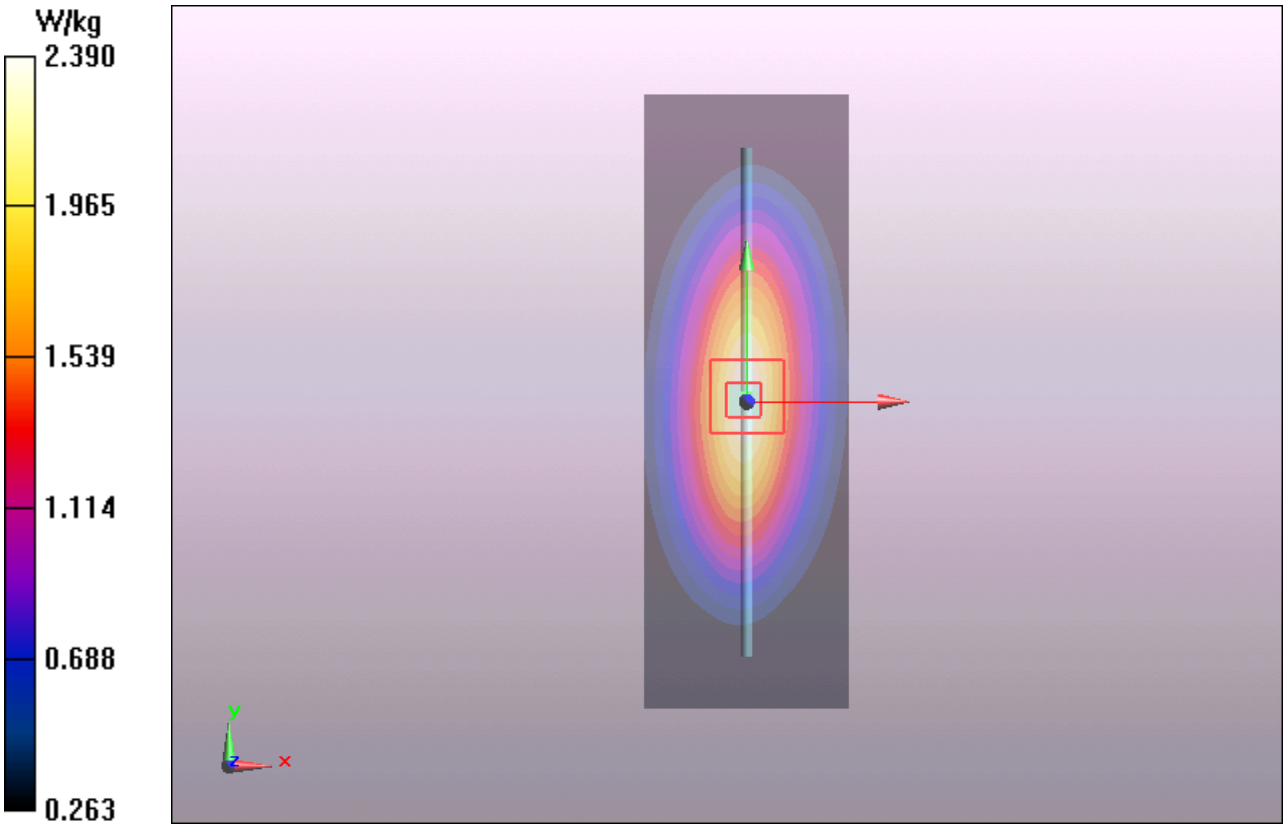



Figure 6 System Performance Check 750MHz 250mW

## System Performance Check at 835 MHz

**DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d020**

Date/Time: 3/14/2014 11:34:34 PM

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

Medium parameters used: f = 835 MHz; $\sigma$ = 0.98 mho/m; $\varepsilon_r$ = 55.9; $\rho$ = 1000 kg/m$^3$

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Probe: EX3DV4 – SN3677; ConvF(9.51, 9.51, 9.51); Calibrated: 11/28/2013

Electronics: DAE4 Sn1317; Calibrated: 1/16/2014

Sensor-Surface: 4mm (Mechanical Surface Detection)

Phantom: ELI 4.0; Type: QDOVA001BA;

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

**d=15mm, Pin=250mW/Area Scan (61x121x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 2.72 mW/g

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

Reference Value = 50.9 V/m; Power Drift = 0.023 dB

Peak SAR (extrapolated) = 3.63 W/kg

**SAR(1 g) = 2.52 mW/g; SAR(10 g) = 1.65 mW/g**

Maximum value of SAR (measured) = 2.73 mW/g

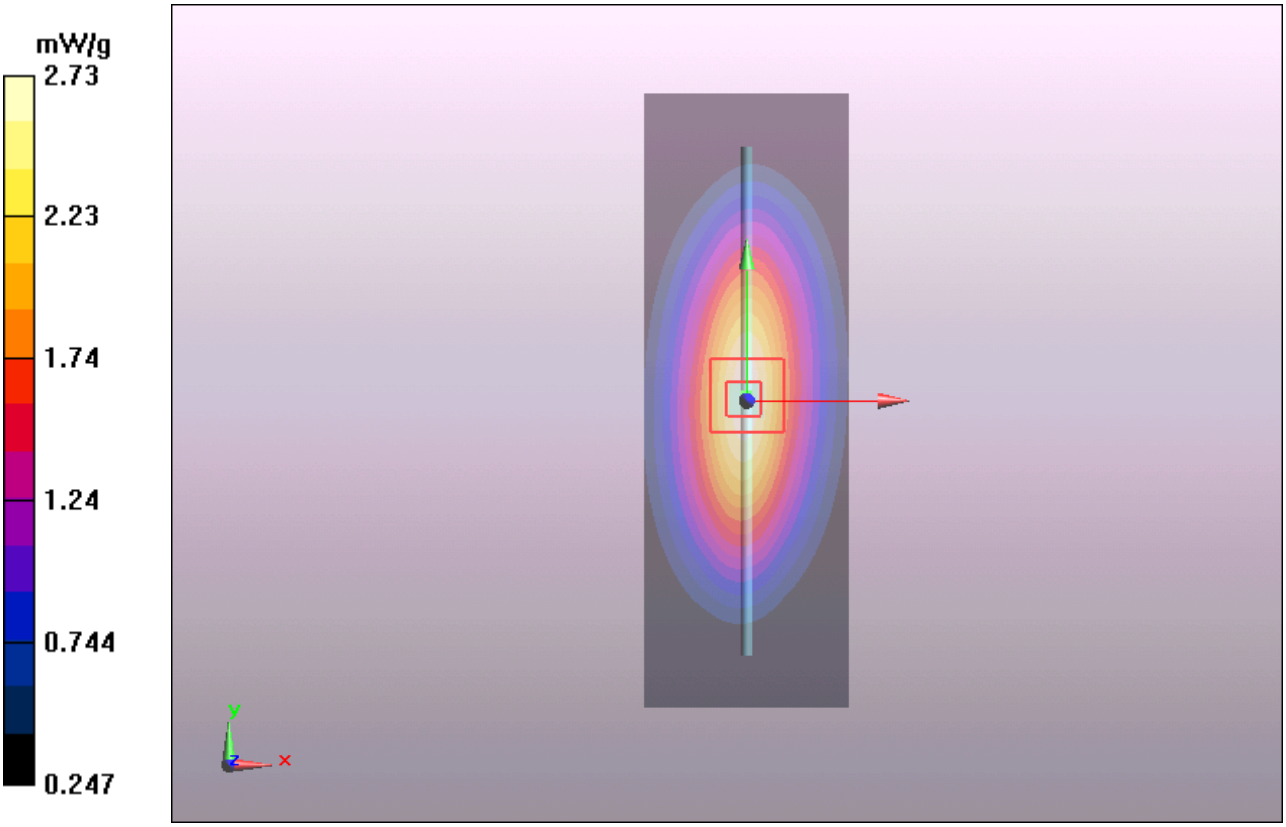



**Figure 7 System Performance Check 835MHz 250mW**

## System Performance Check at 1750 MHz Body TSL

**DUT: Dipole 1750 MHz; Type: D1750V2; Serial: D1750V2 - SN: 1033**

Date/Time: 3/16/2014 8:04:55 AM

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

Medium parameters used: f = 1750 MHz; $\sigma$ = 1.5 mho/m; $\varepsilon_r$ = 52.9; $\rho$ = 1000 kg/m$^3$

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.7℃

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 – SN3677; ConvF(7.77, 7.77, 7.77); Calibrated: 11/28/2013;

Electronics: DAE4 Sn1317; Calibrated: 1/16/2014

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

**d=10mm, Pin=250mW/Area Scan (51x81x1):** Measurement grid: dx=15mm, dy=15mm

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

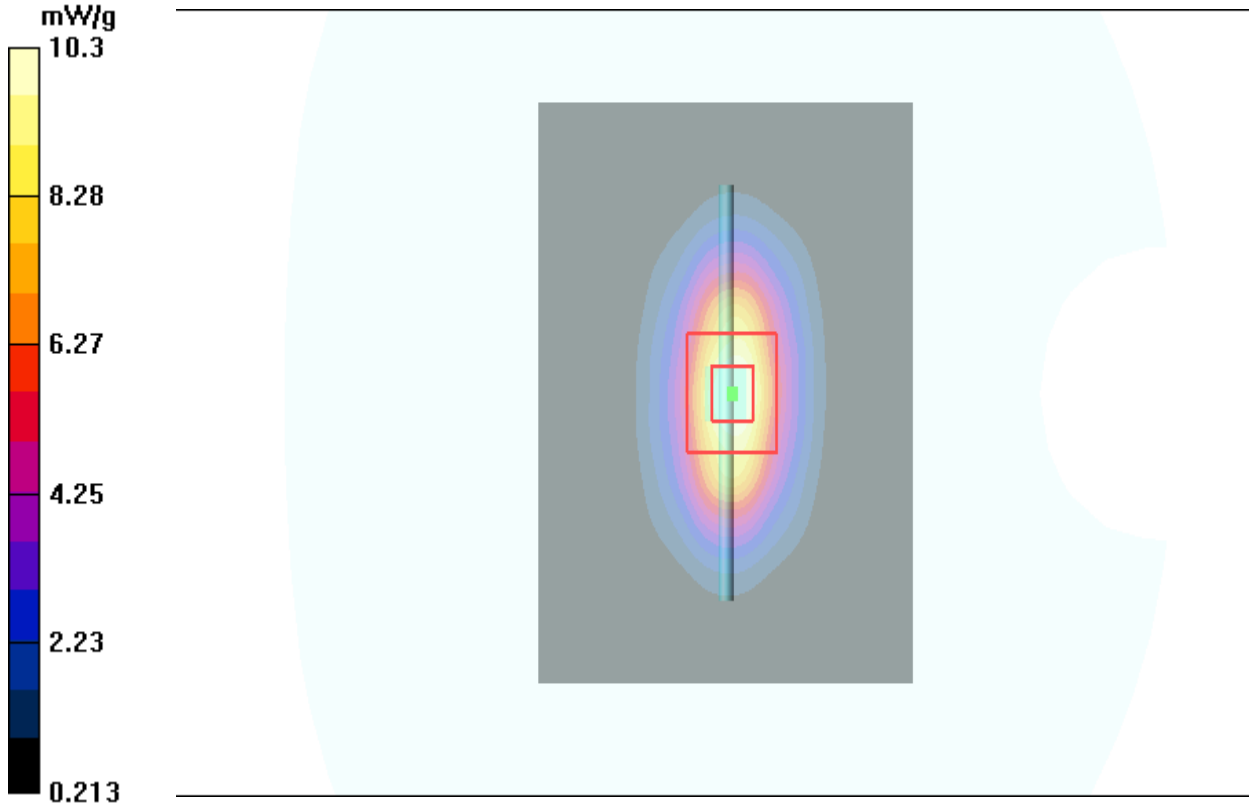



Figure 8 System Performance Check 1750MHz 250mW

## System Performance Check at 1900 MHz

**DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d060**

Date/Time: 3/13/2014 8:11:01 AM

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

Medium parameters used: f = 1900 MHz; $\sigma$ = 1.52 mho/m; $\varepsilon_r$ = 53.1; $\rho$ = 1000 kg/m$^3$

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.63, 7.63, 7.63); Calibrated: 11/28/2013

Electronics: DAE4 Sn1317; Calibrated: 1/16/2014

Phantom: ELI 4.0; Type: QDOVA001BA;

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

**d=10mm, Pin=250mW/Area Scan (41x71x1):** Measurement grid: dx=15mm, dy=15mm

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

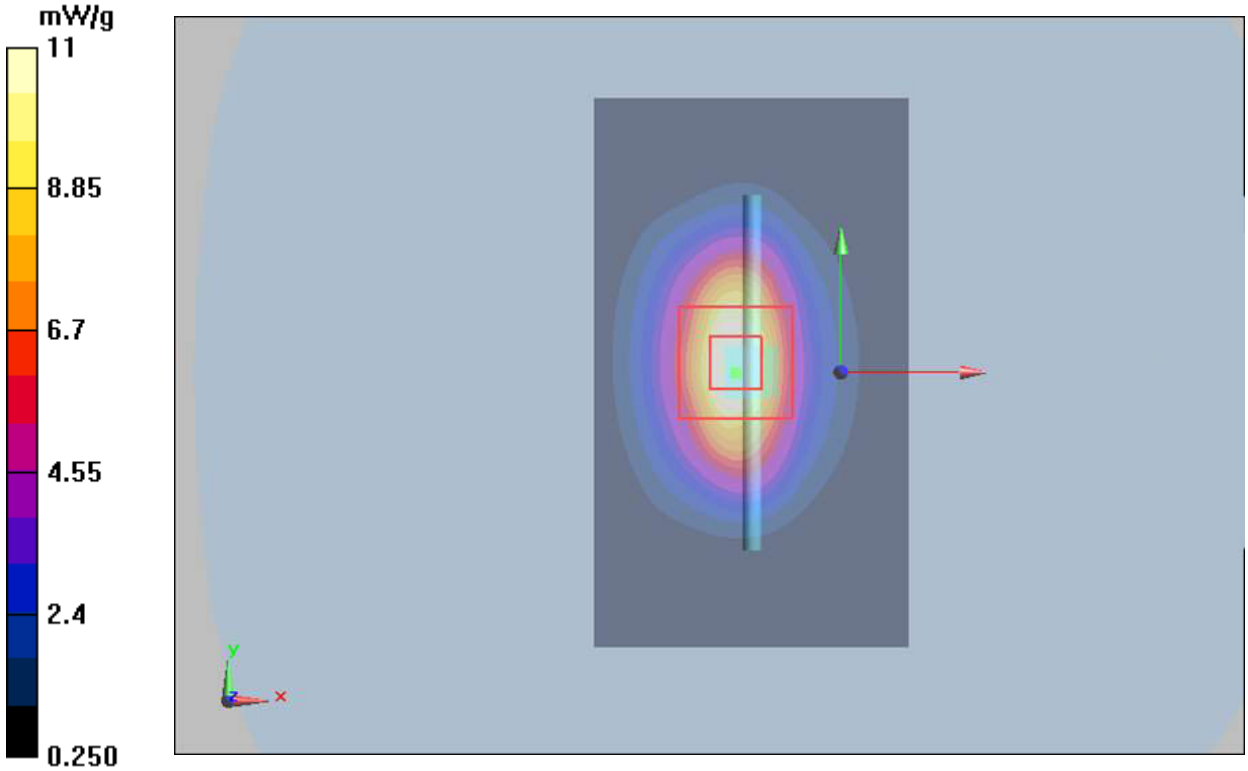



**Figure 9 System Performance Check 1900MHz 250Mw**

## System Performance Check at 2450 MHz

**DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 786**

Date/Time: 3/26/2014 7:32:19 PM

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

Medium parameters used: f = 2450 MHz; $\sigma$ = 1.99 mho/m; $\varepsilon_r$ = 52.1; $\rho$ = 1000 kg/m$^3$

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Sensor-Surface: 4mm (Mechanical Surface Detection)

Probe: EX3DV4 - SN3677; ConvF(7.61, 7.61, 7.61); Calibrated: 11/28/2013

Electronics: DAE4 Sn1317; Calibrated: 1/16/2014

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASY52, Version 52.8 (5); SEMCAD X Version 14.6.8 (7028)

**d=10mm, Pin=250mW/Area Scan (41x71x1):** Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (interpolated) = 17.3 mW/g

**d=10mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 90.4 V/m; Power Drift = -0.093 dB

Peak SAR (extrapolated) = 26.1 W/kg

**SAR(1 g) = 13.2 mW/g; SAR(10 g) = 6.27 mW/g**

Maximum value of SAR (measured) = 15 mW/g

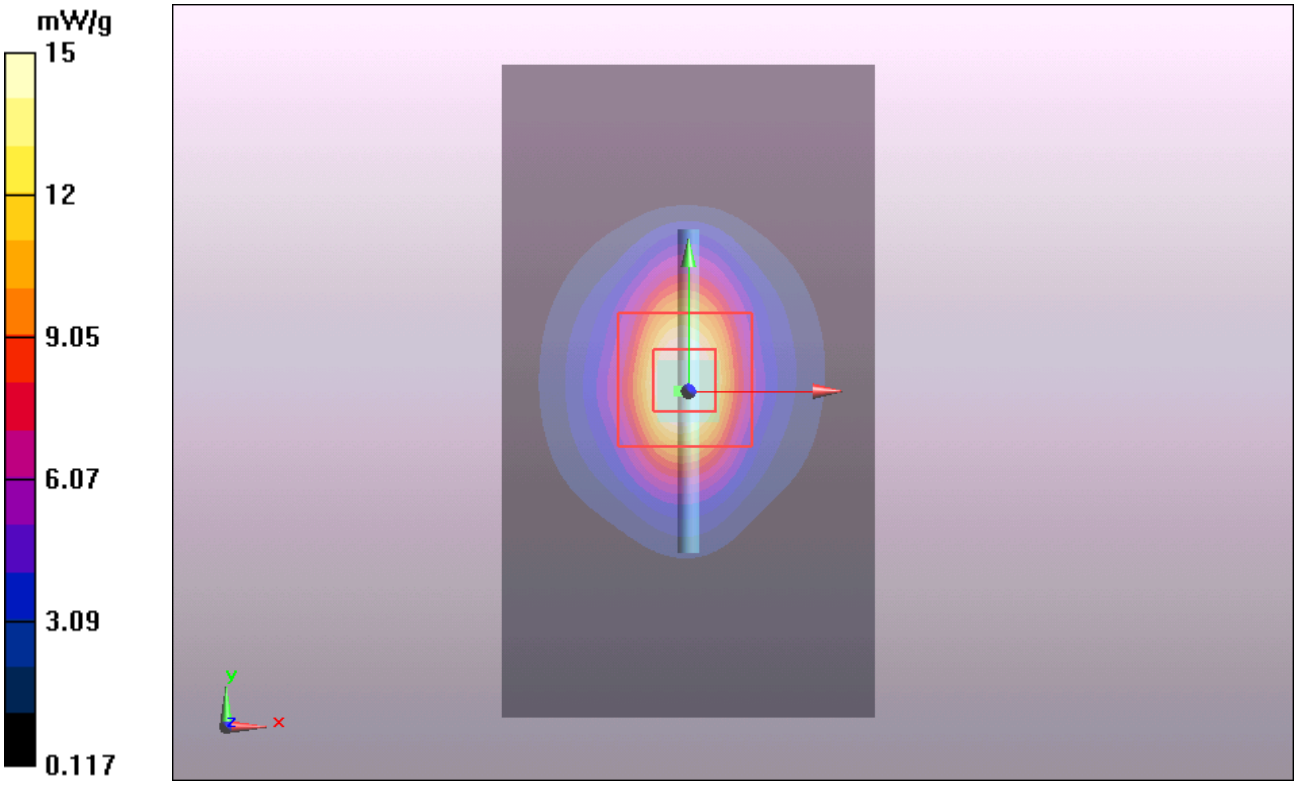



**Figure 10 System Performance Check 2450MHz 250mW**

## System Performance Check at 2600 MHz Body TSL

**DUT: Dipole 2600 MHz; Type: D2600V2; Serial: D2600V2 - SN: 1012**

Date/Time: 3/20/2014 12:30:51 PM

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

Medium parameters used: f = 2600 MHz; $\sigma$ = 2.2 mho/m; $\varepsilon_r$ = 52.3; $\rho$ = 1000 kg/m$^3$

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Probe: EX3DV4 - SN3816; ConvF(7.82, 7.82, 7.82); Calibrated: 6/4/2013

Electronics: DAE4 Sn1317; Calibrated: 1/16/2014

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

**d=10mm, Pin=250mW /Area Scan (41x71x1):** Measurement grid: dx=12mm, dy=12mm

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

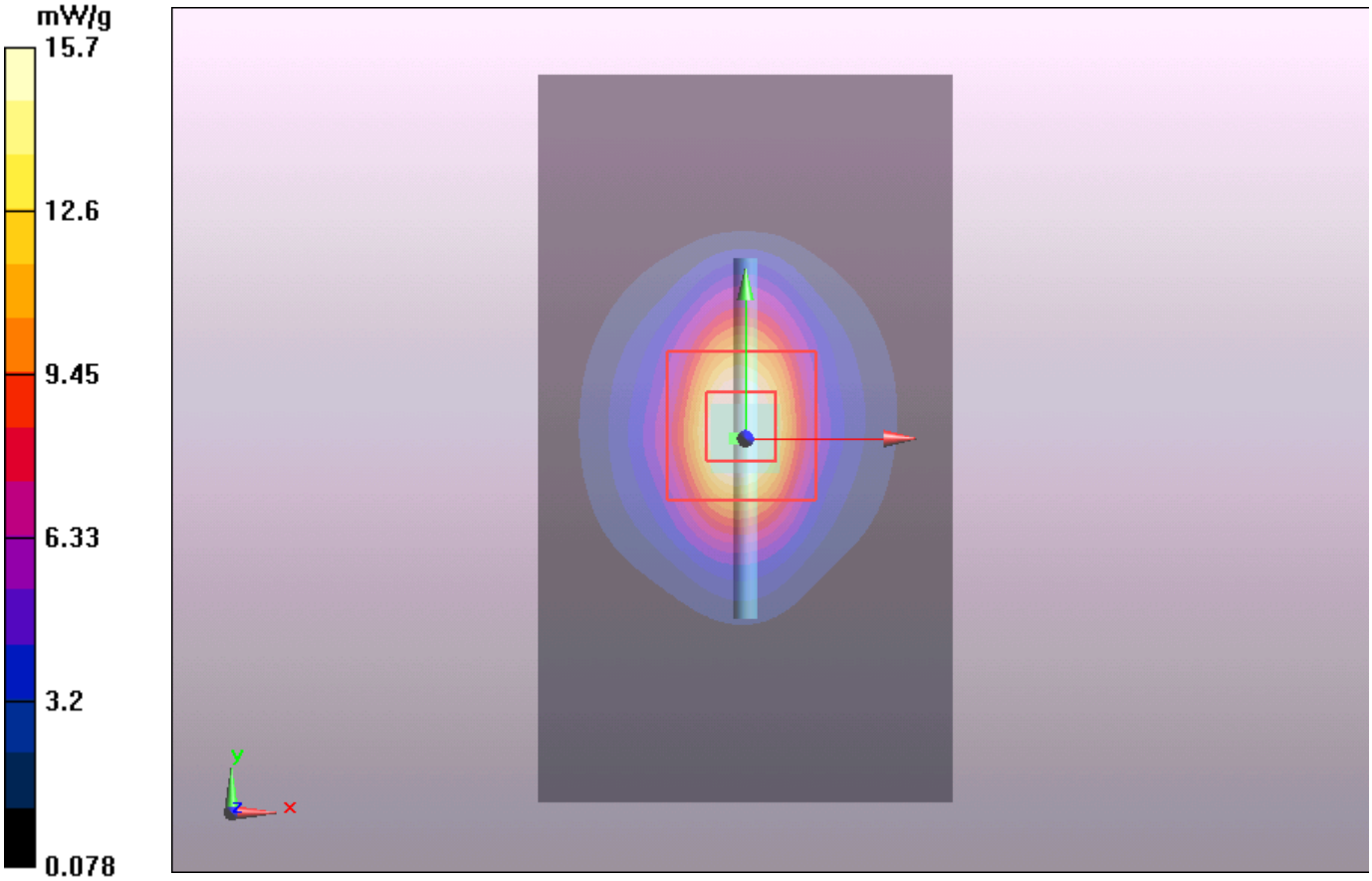



**Figure 11 System Performance Check 1900MHz 250mW**

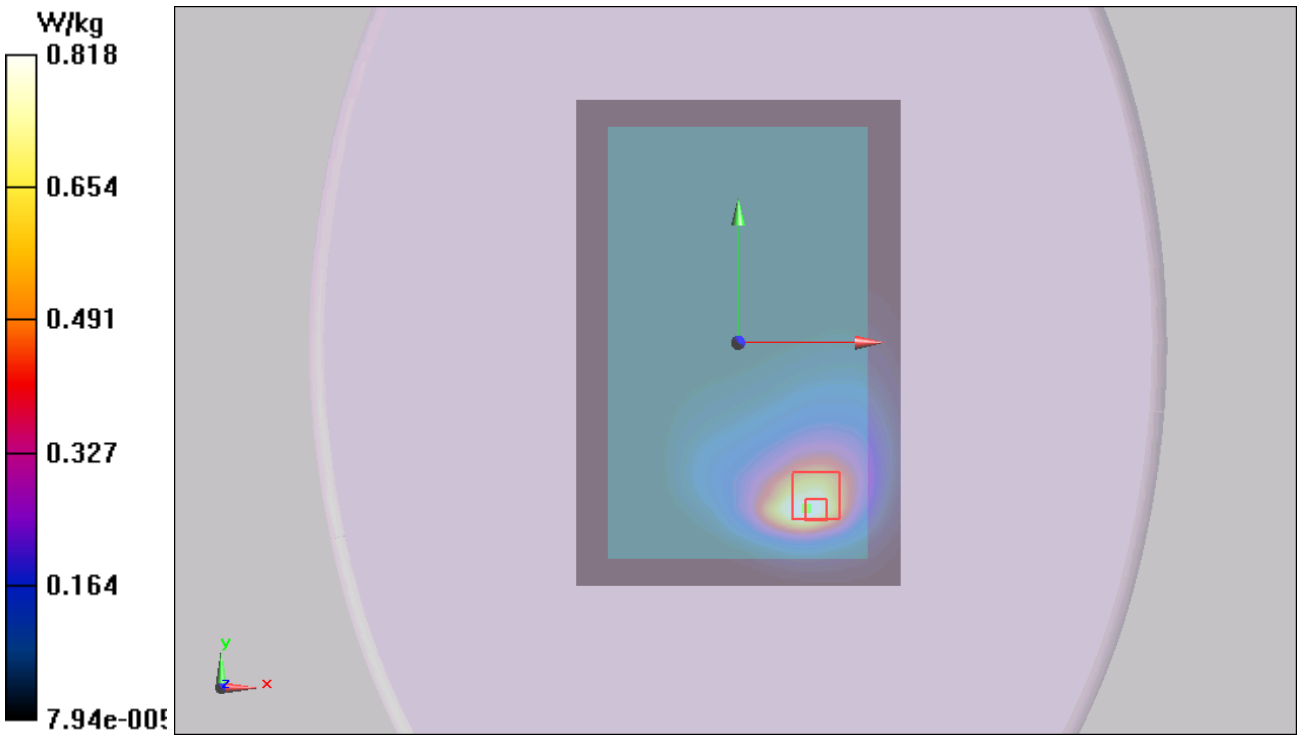
# ANNEX C: Graph Results

## GSM 850 GPRS (2TXslots) with Test Position 1 High (Distance 0mm)

Date/Time: 3/15/2014 9:42:18 PM
Communication System: GPRS 2TX; Frequency: 848.8 MHz;Duty Cycle: 1:4.14954
Medium parameters used: f = 849 MHz; $\sigma$ = 1.006 S/m; $\varepsilon_r$ = 55.736; $\rho$ = 1000 kg/m$^3$
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Flat Section
DASY5 Configuration:
Sensor-Surface: 4mm (Mechanical Surface Detection)
Probe: EX3DV4 – SN3677; ConvF(9.51, 9.51, 9.51); Calibrated: 11/28/2013;
Electronics: DAE4 Sn1317; Calibrated: 1/16/2014
Phantom: ELI 4.0; Type: QDOVA001BA;
Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**Back Side High/Area Scan (101x151x1):** Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.930 W/kg

**Back Side High/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.930 V/m; Power Drift = 0.050 dB
Peak SAR (extrapolated) = 1.75 W/kg
**SAR(1 g) = 0.855 W/kg; SAR(10 g) = 0.433 W/kg**
Maximum value of SAR (measured) = 0.818 W/kg



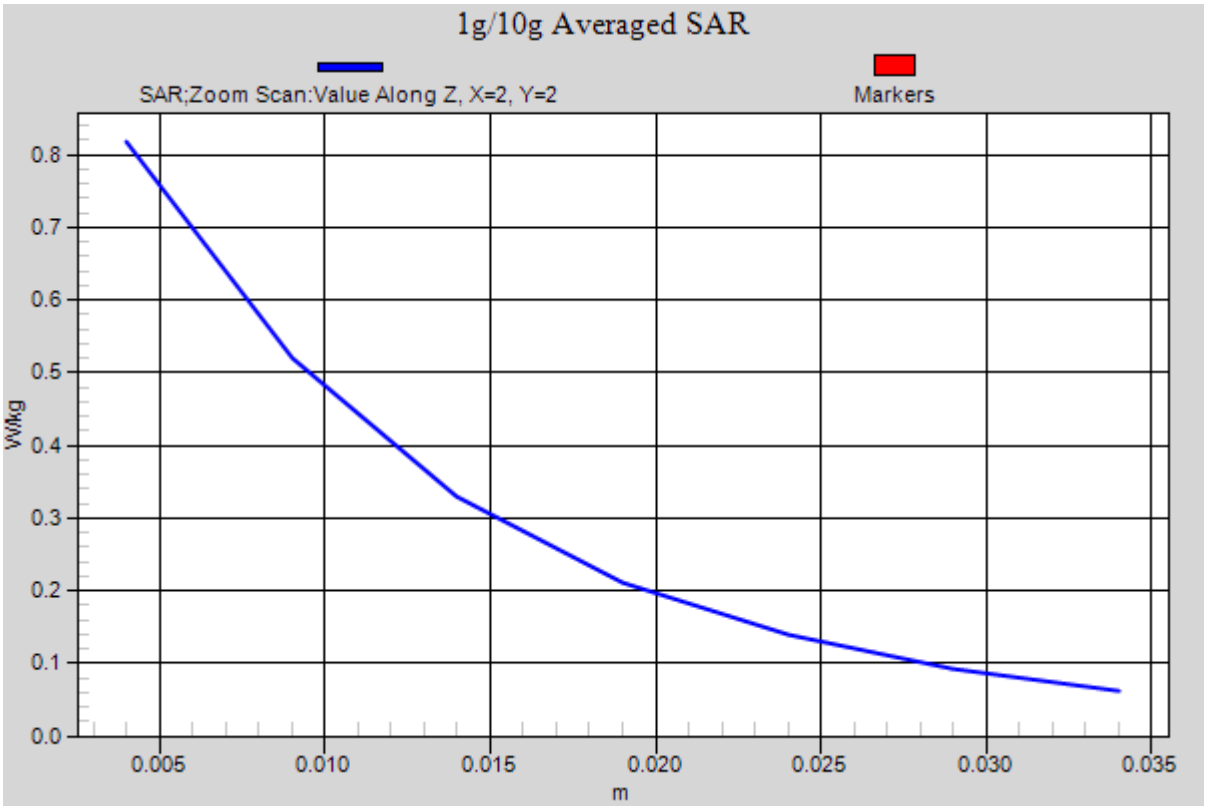


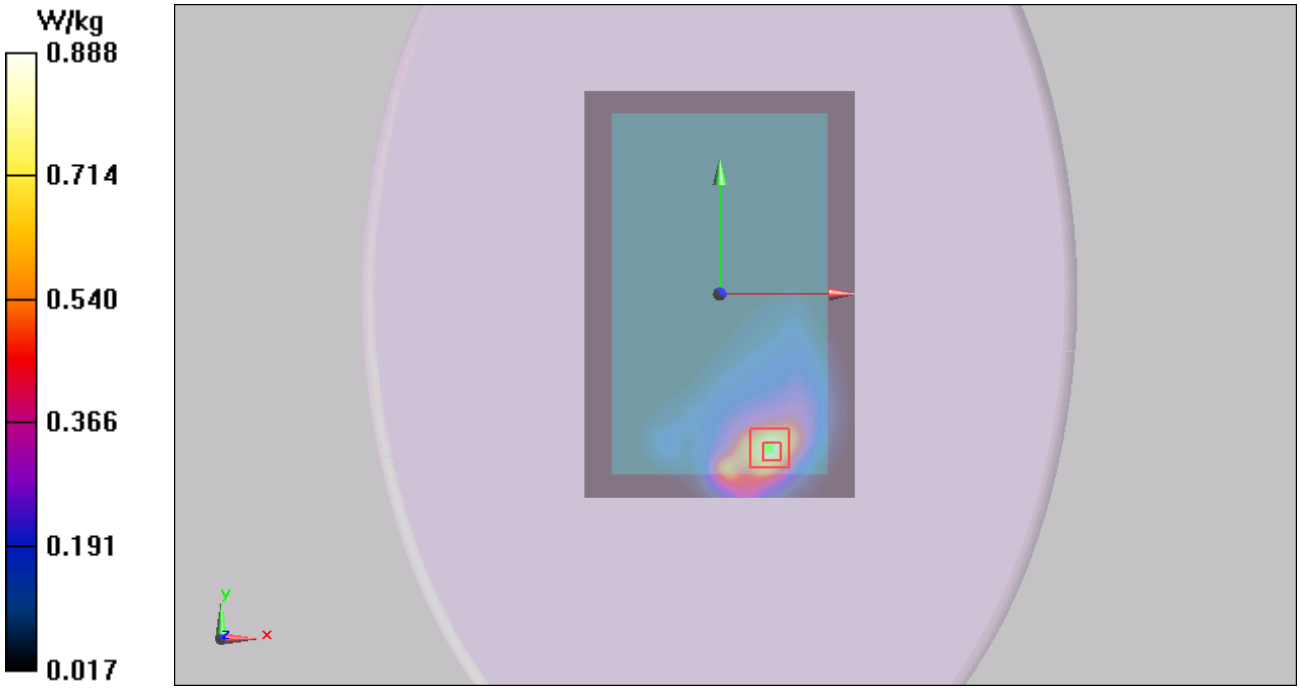

**Figure 12 GSM 850 GPRS (2TXslots) with Test Position 1 Channel 251**

### GSM 1900 GPRS (4TXslots) with Test Position 1 Low (Distance 0mm)

Date/Time: 3/13/2014 10:37:00 PM
Communication System: GPRS 4TX; Frequency: 1850.2 MHz;Duty Cycle: 1:2.07491
Medium parameters used (interpolated): f = 1850.2 MHz; $\sigma$ = 1.476 S/m; $\varepsilon_r$ = 53.266; $\rho$ = 1000 kg/m$^3$
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Flat Section
DASY5 Configuration:
Sensor-Surface: 4mm (Mechanical Surface Detection)
Probe: EX3DV4 – SN3677; ConvF(7.63, 7.63, 7.63); Calibrated: 11/28/2013;
Electronics: DAE4 Sn1317; Calibrated: 1/16/2014
Phantom: ELI 4.0; Type: QDOVA001BA;
Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**Back Side Low/Area Scan (101x151x1):** Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.849 W/kg

**Back Side Low/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.962 V/m; Power Drift = 0.105 dB
Peak SAR (extrapolated) = 1.75 W/kg
**SAR(1 g) = 0.846 W/kg; SAR(10 g) = 0.423 W/kg**
Maximum value of SAR (measured) = 0.888 W/kg



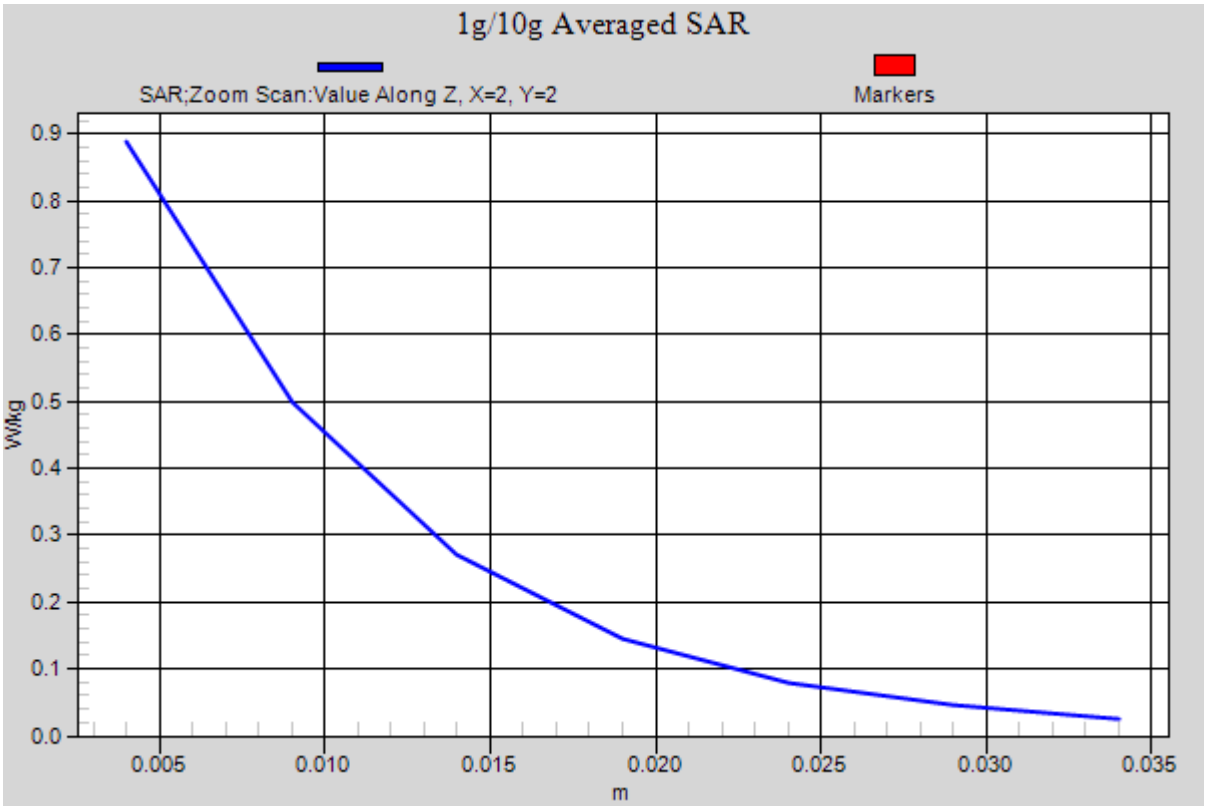


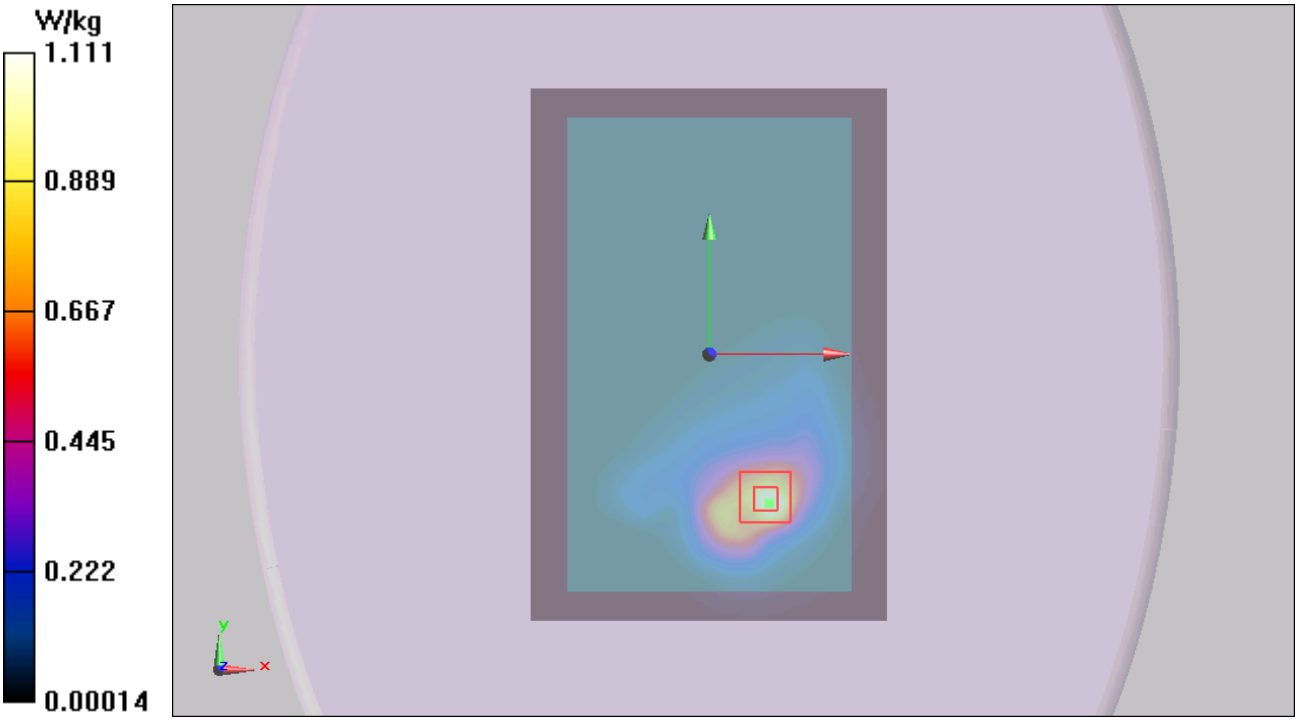

**Figure 13 GSM 1900 GPRS (4TXslots) with Test Position 1 Channel 512**

### UMTS Band II with Test Position 1 Middle (Distance 0mm)

Date/Time: 3/13/2014 9:58:03 AM
Communication System: WCDMA ; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; $\sigma$ = 1.504 S/m; $\varepsilon_r$ = 53.137; $\rho$ = 1000 kg/m$^3$
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Flat Section
DASY5 Configuration:
Sensor-Surface: 4mm (Mechanical Surface Detection)
Probe: EX3DV4 – SN3677; ConvF(7.63, 7.63, 7.63); Calibrated: 11/28/2013;
Electronics: DAE4 Sn1317; Calibrated: 1/16/2014
Phantom: ELI 4.0; Type: QDOVA001BA;
Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**Back Side Middle/Area Scan (101x61x1):** Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.11 W/kg

**Back Side Middle/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.277 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 2.45 W/kg
**SAR(1 g) = 1.12 W/kg; SAR(10 g) = 0.531 W/kg**
Maximum value of SAR (measured) = 1.30 W/kg



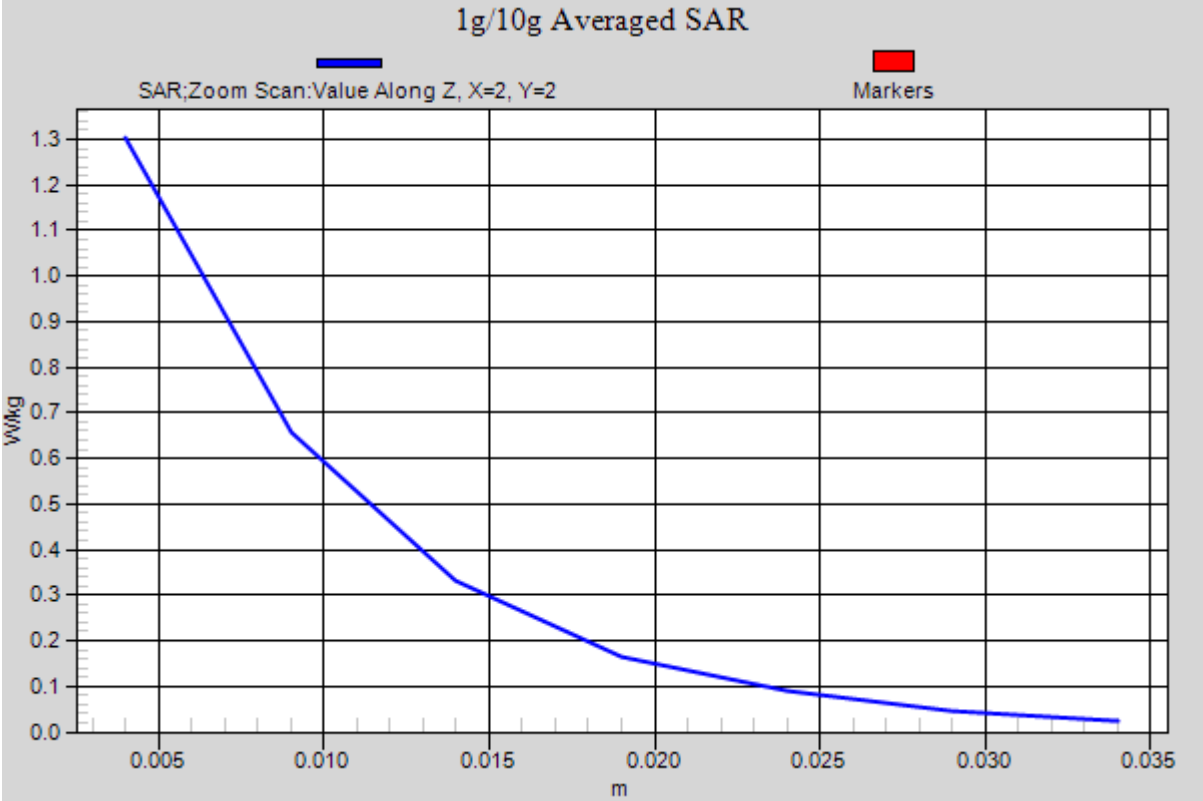


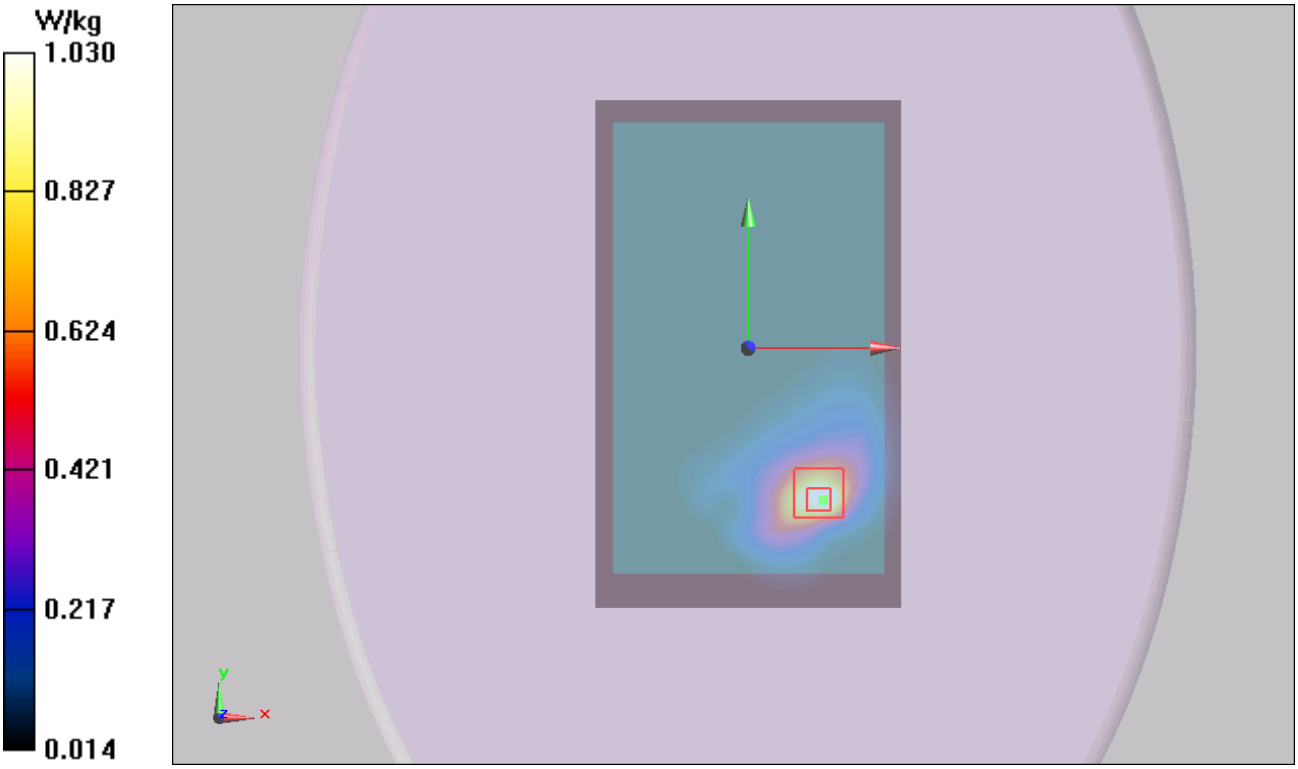

**Figure 14 UMTS Band II with Test Position 1 Channel 9400**

**UMTS Band IV with Test Position 1 Middle (1st Repeated SAR, Distance 0mm)**

Date/Time: 3/16/2014 9:38:28 AM
Communication System: WCDMA; Frequency: 1732.6 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1733 MHz; $\sigma$ = 1.489 S/m; $\varepsilon_r$ = 52.919; $\rho$ = 1000 kg/m$^3$
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Flat Section
DASY5 Configuration:
Sensor-Surface: 4mm (Mechanical Surface Detection)
Probe: EX3DV4 – SN3677; ConvF(7.77, 7.77, 7.77); Calibrated: 11/28/2013;
Electronics: DAE4 Sn1317; Calibrated: 1/16/2014
Phantom: ELI 4.0; Type: QDOVA001BA;
Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**Back Side Middle/Area Scan (91x151x1):** Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.21 W/kg

**Back Side Middle/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.355 V/m; Power Drift = 0.054 dB
Peak SAR (extrapolated) = 2.15 W/kg
**SAR(1 g) = 1.06 W/kg; SAR(10 g) = 0.524 W/kg**
Maximum value of SAR (measured) = 1.03 W/kg



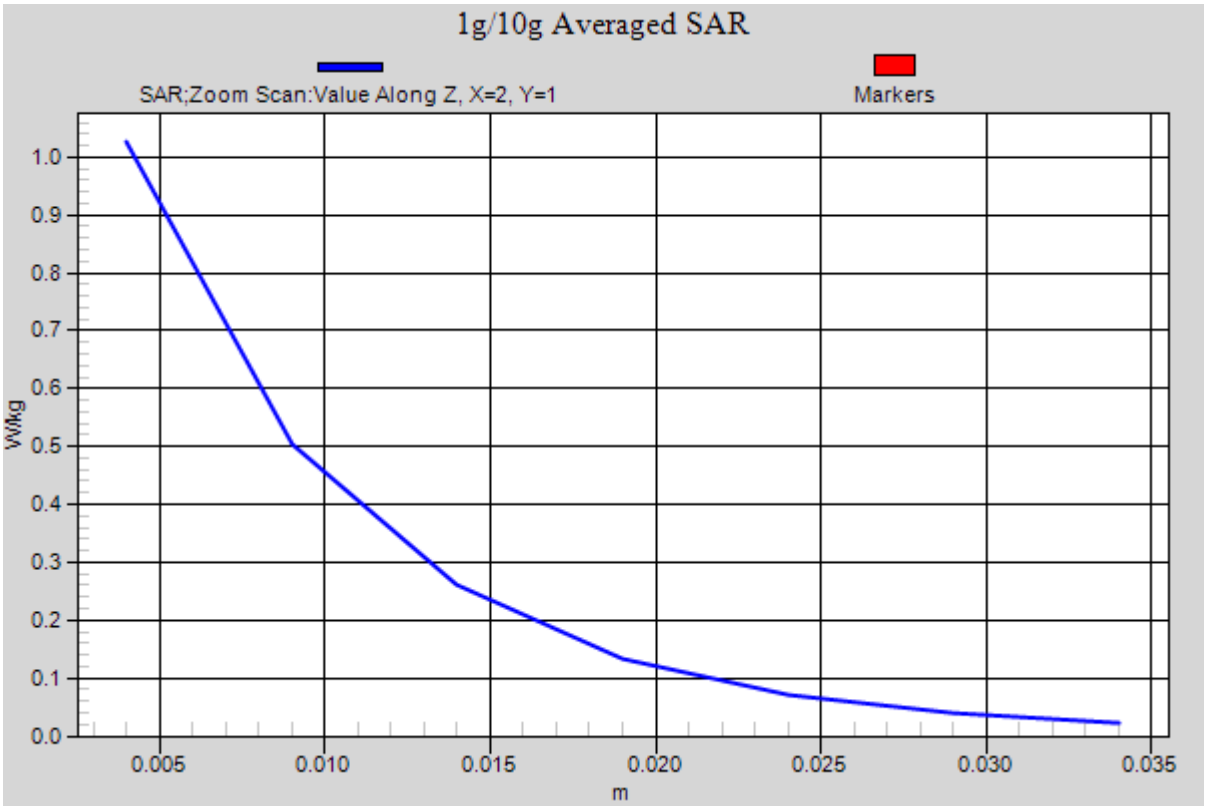


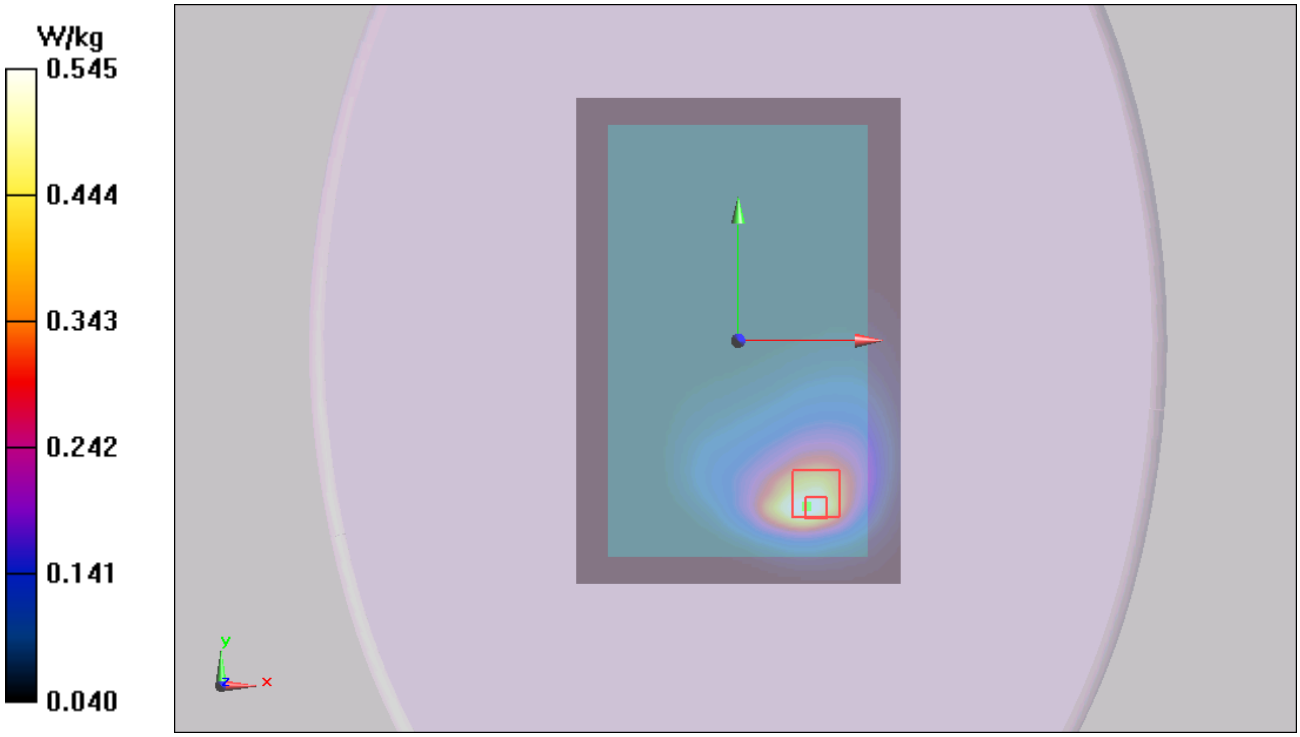

**Figure 15 UMTS Band IV with Test Position 1 Channel 1413**

## UMTS Band V with Test Position 1 Middle (Distance 10mm)

Date/Time: 3/15/2014 1:40:40 AM
Communication System: WCDMA; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used: f = 837 MHz; $\sigma$ = 0.992 S/m; $\varepsilon_r$ = 55.882; $\rho$ = 1000 kg/m$^3$
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Flat Section
DASY5 Configuration:
Sensor-Surface: 4mm (Mechanical Surface Detection)
Probe: EX3DV4 – SN3677; ConvF(9.51, 9.51, 9.51); Calibrated: 11/28/2013;
Electronics: DAE4 Sn1317; Calibrated: 1/16/2014
Phantom: ELI 4.0; Type: QDOVA001BA;
Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**Back Side Middle/Area Scan (91x151x1):** Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.594 W/kg

**Back Side Middle/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.196 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.768 W/kg
**SAR(1 g) = 0.527 W/kg; SAR(10 g) = 0.354 W/kg**
Maximum value of SAR (measured) = 0.545 W/kg



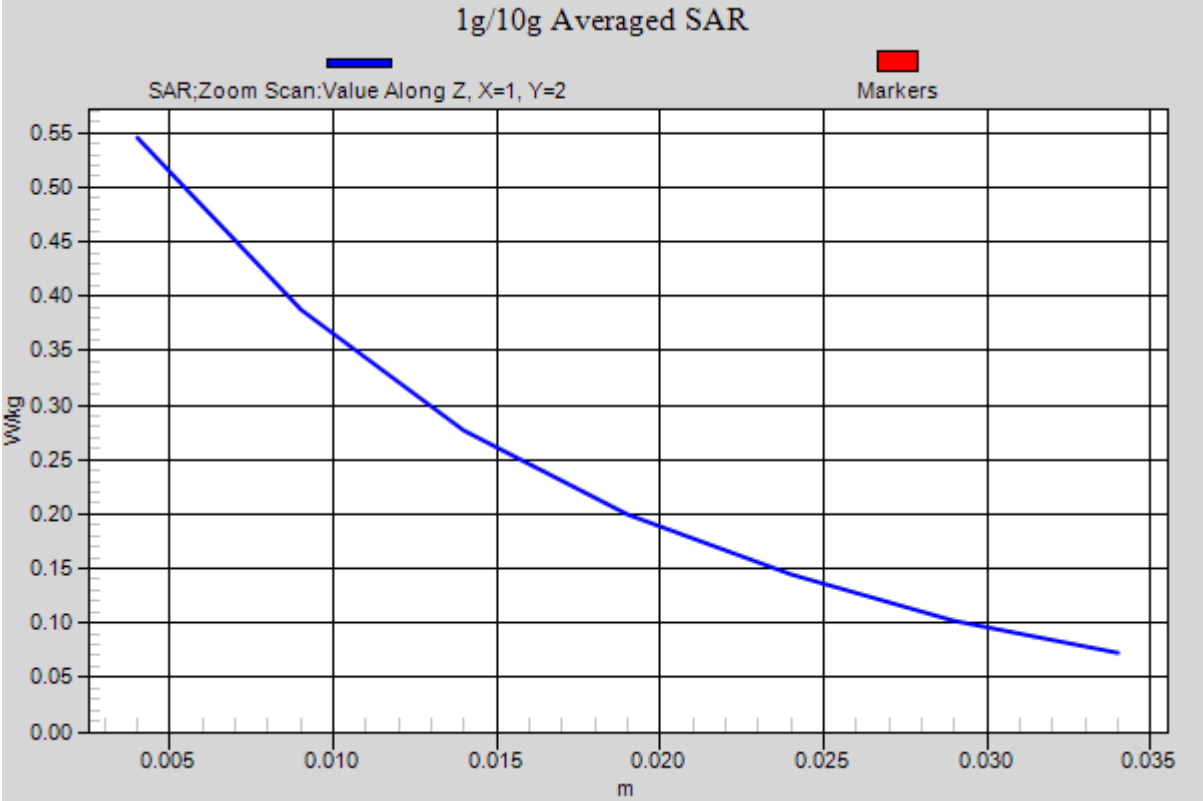


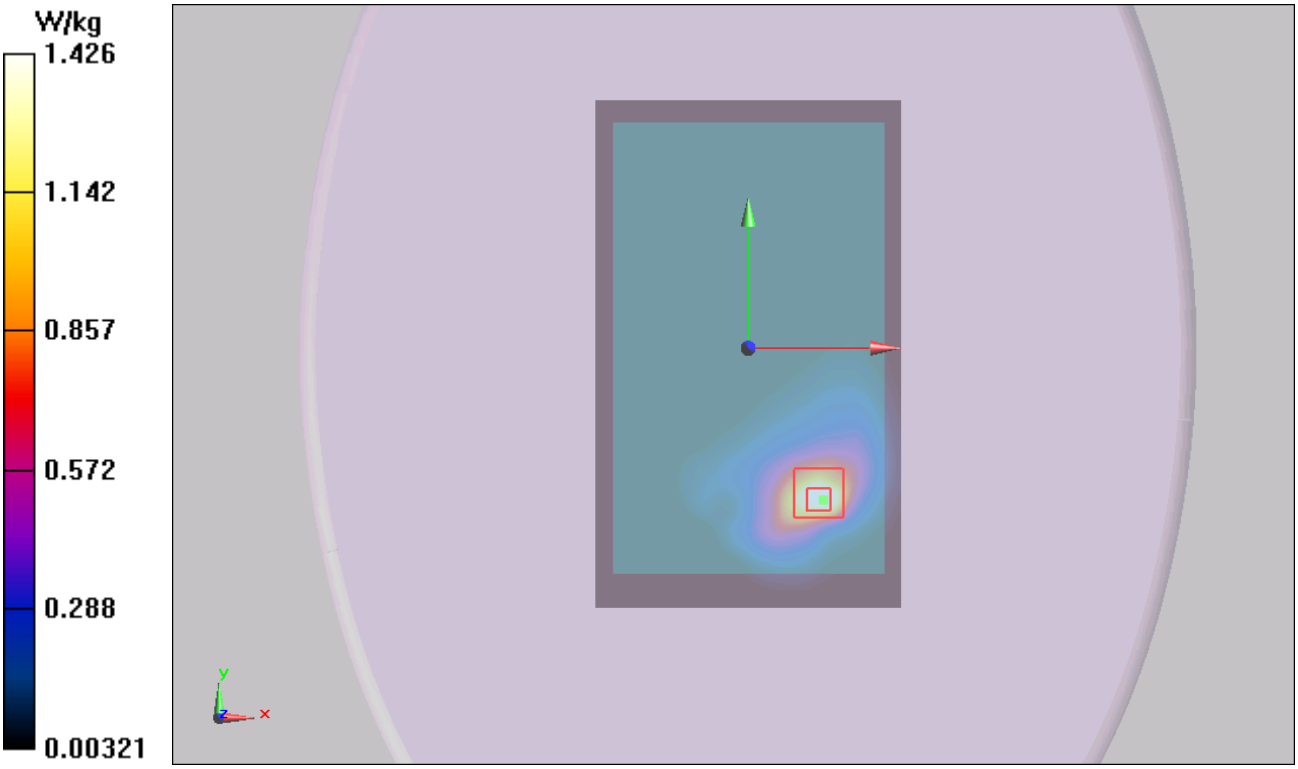

**Figure 16 UMTS Band V with Test Position 1 Channel 4183**

## LTE Band 2 1RB with Test Position 1 High (Distance 0mm)

Date/Time: 3/13/2014 3:29:01 PM
Communication System: LTE; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; $\sigma$ = 1.524 S/m; $\varepsilon_r$ = 53.079; $\rho$ = 1000 kg/m$^3$
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Flat Section
DASY5 Configuration:
Sensor-Surface: 4mm (Mechanical Surface Detection)
Probe: EX3DV4 – SN3677; ConvF(7.63, 7.63, 7.63); Calibrated: 11/28/2013;
Electronics: DAE4 Sn1317; Calibrated: 1/16/2014
Phantom: ELI 4.0; Type: QDOVA001BA;
Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**Back Side High/Area Scan (91x151x1):** Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.43 W/kg

**Back Side High/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.950 V/m; Power Drift = -0.035 dB
Peak SAR (extrapolated) = 2.92 W/kg
**SAR(1 g) = 1.38 W/kg; SAR(10 g) = 0.668 W/kg**
Maximum value of SAR (measured) = 1.41 W/kg



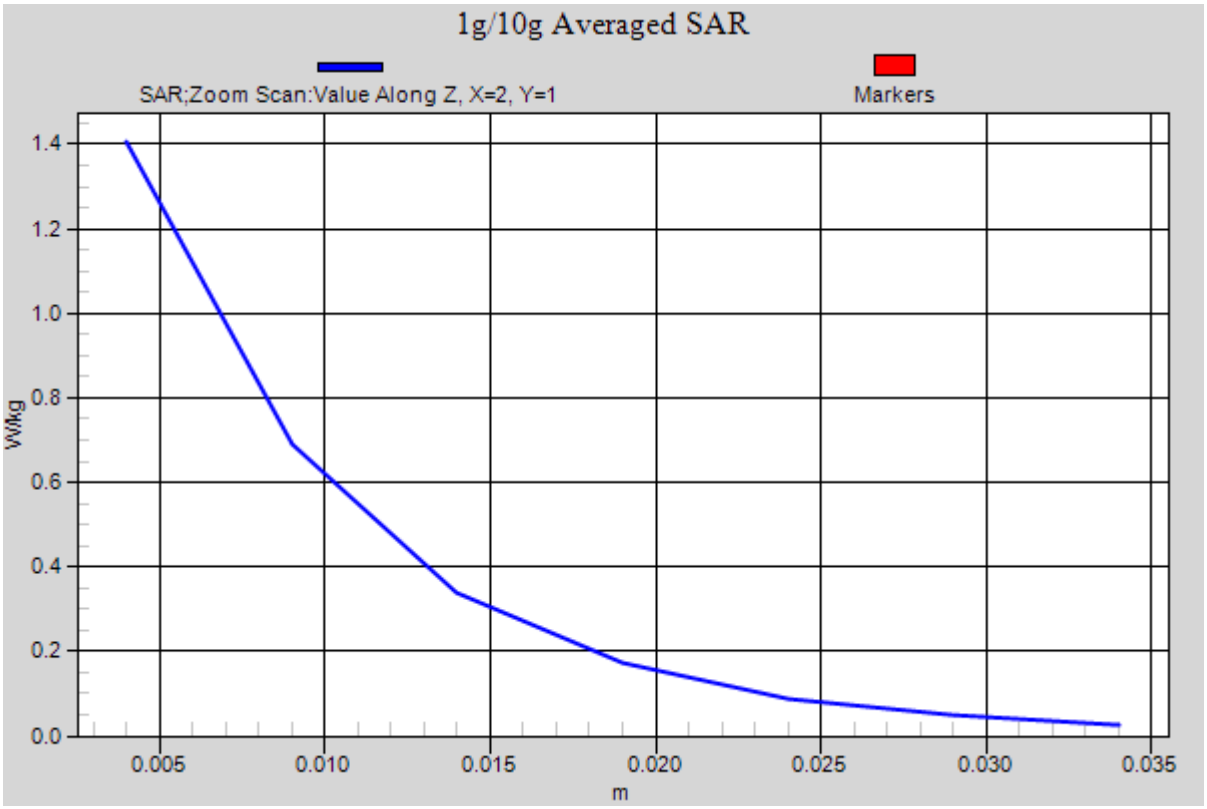


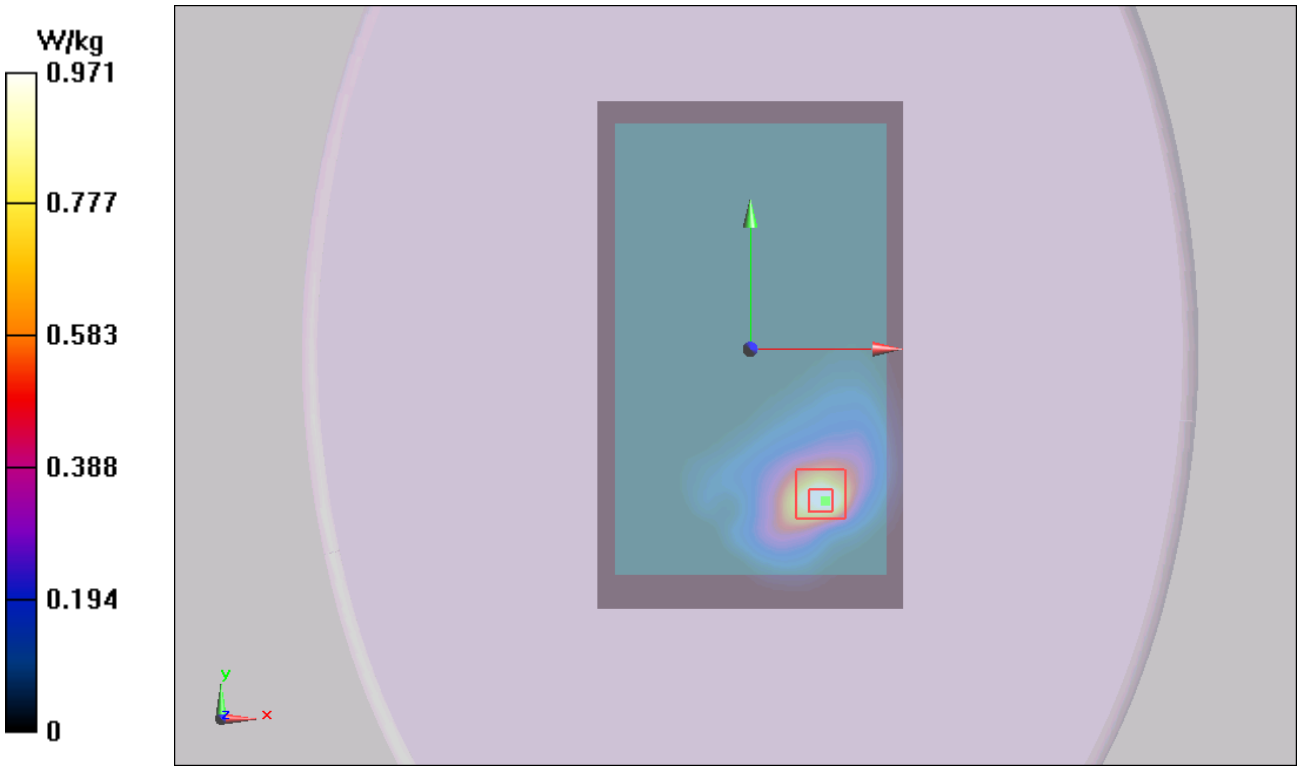

**Figure 17 LTE Band 2 1RB with Test Position 1 Channel 19100**

**LTE Band 4 1RB with Test Position 1 High (1st Repeated SAR, Distance 0mm)**

Date/Time: 3/16/2014 8:33:31 PM
Communication System: LTE; Frequency: 1745 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1745 MHz; $\sigma$ = 1.498 S/m; $\varepsilon_r$ = 52.918; $\rho$ = 1000 kg/m$^3$
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Flat Section
DASY5 Configuration:
Sensor-Surface: 4mm (Mechanical Surface Detection)
Probe: EX3DV4 – SN3677; ConvF(7.77, 7.77, 7.77); Calibrated: 11/28/2013;
Electronics: DAE4 Sn1317; Calibrated: 1/16/2014
Phantom: ELI 4.0; Type: QDOVA001BA;
Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**Back Side Middle/Area Scan (91x151x1):** Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.971 W/kg

**Back Side Middle/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.207 V/m; Power Drift = -0.028 dB
Peak SAR (extrapolated) = 2.10 W/kg
**SAR(1 g) = 1.02 W/kg; SAR(10 g) = 0.494 W/kg**
Maximum value of SAR (measured) = 1.16 W/kg



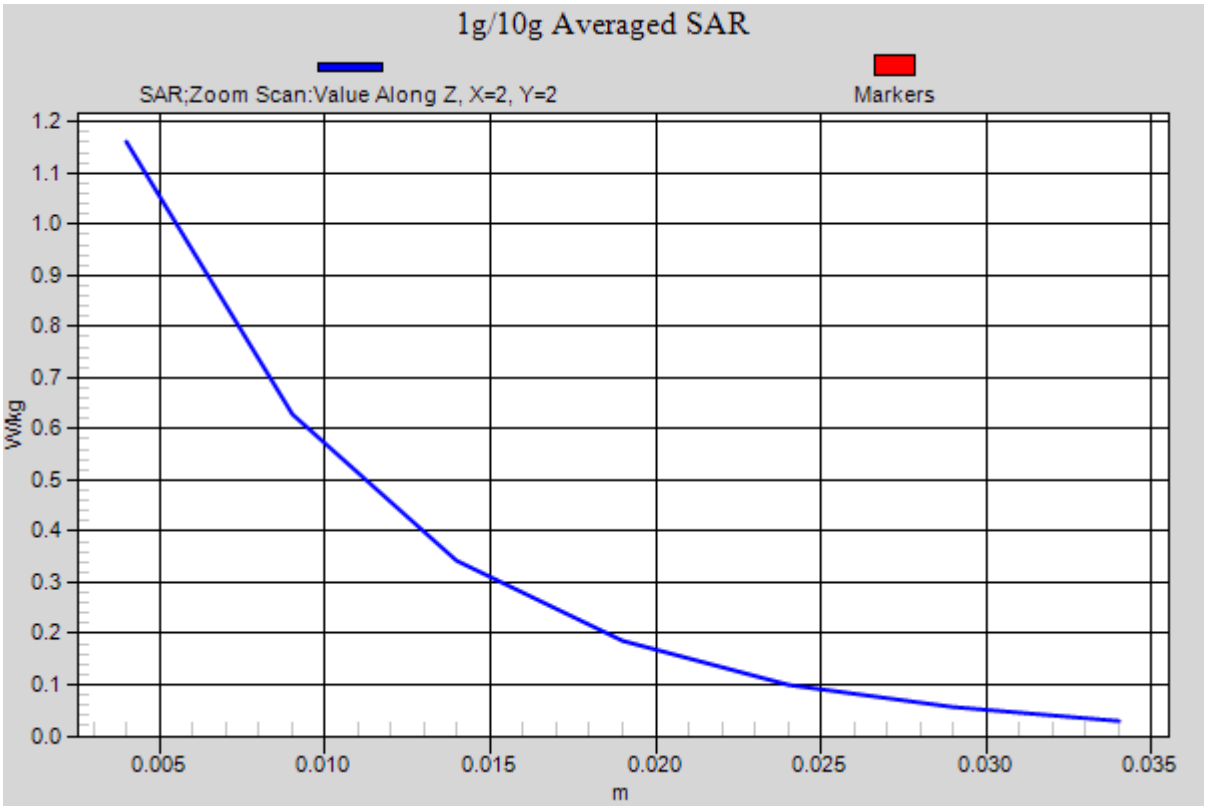


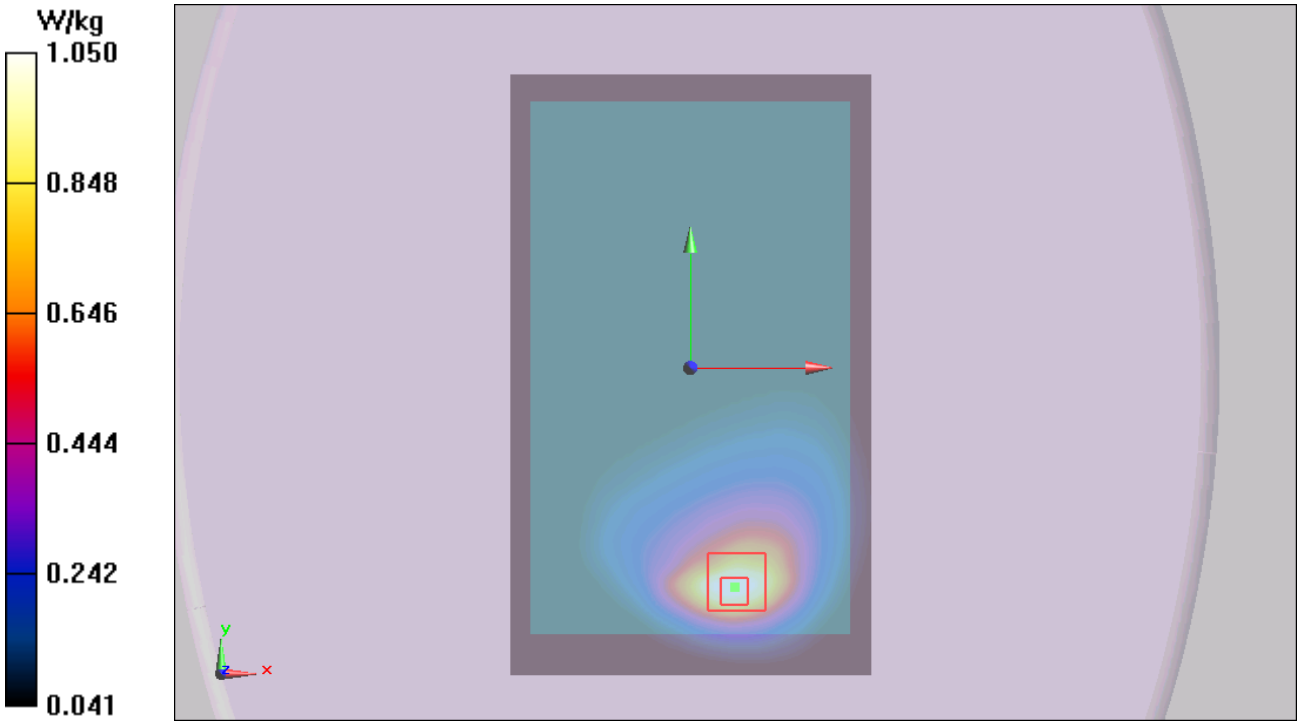

**Figure 18 LTE Band 4 1RB with Test Position 1 Channel 20300**

## LTE Band 5 1RB with Test Position 1 Middle (Distance 0mm)

Date/Time: 3/15/2014 9:08:29 AM
Communication System: LTE; Frequency: 836.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.5 MHz; $\sigma$ = 0.992 S/m; $\varepsilon_r$ = 55.884; $\rho$ = 1000 kg/m$^3$
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Flat Section
DASY5 Configuration:
Sensor-Surface: 4mm (Mechanical Surface Detection)
Probe: EX3DV4 – SN3677; ConvF(9.51, 9.51, 9.51); Calibrated: 11/28/2013;
Electronics: DAE4 Sn1317; Calibrated: 1/16/2014
Phantom: ELI 4.0; Type: QDOVA001BA;
Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**Back Side Middle/Area Scan (91x151x1):** Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.14 W/kg

**Back Side Middle/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.912 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 1.77 W/kg
**SAR(1 g) = 1.01 W/kg; SAR(10 g) = 0.597 W/kg**
Maximum value of SAR (measured) = 1.05 W/kg



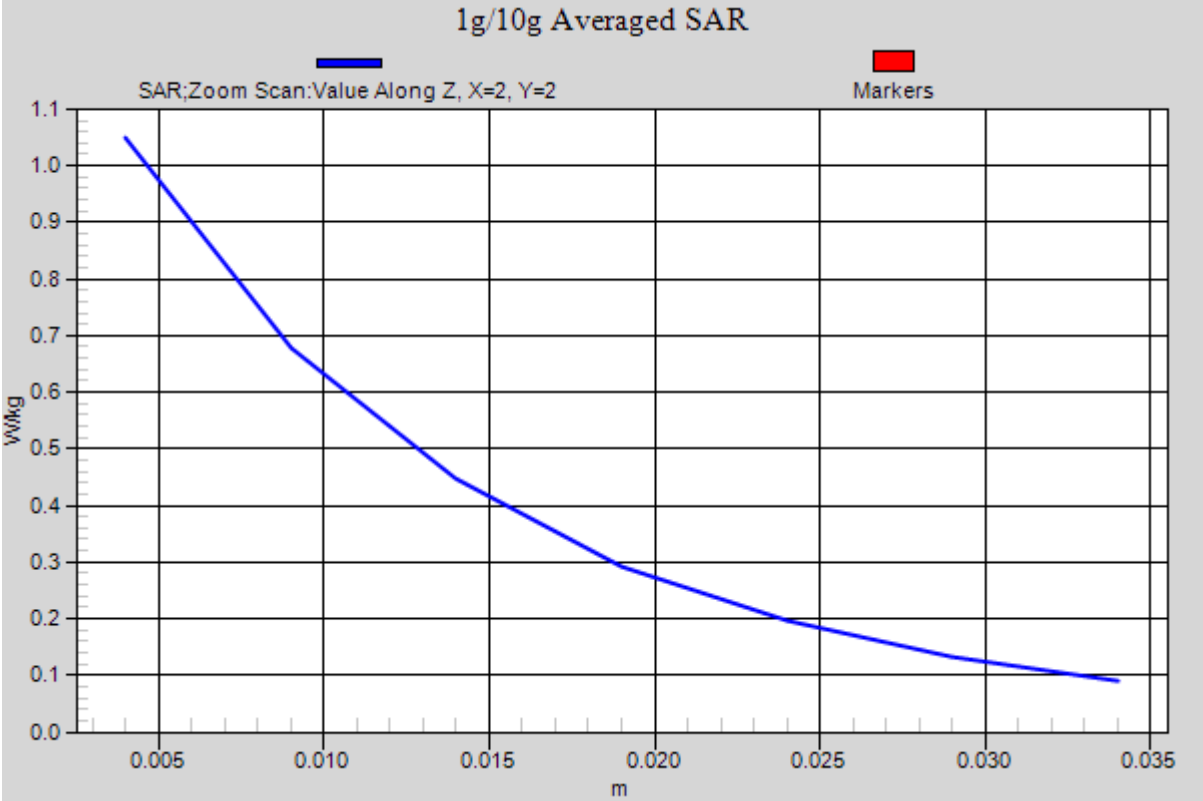


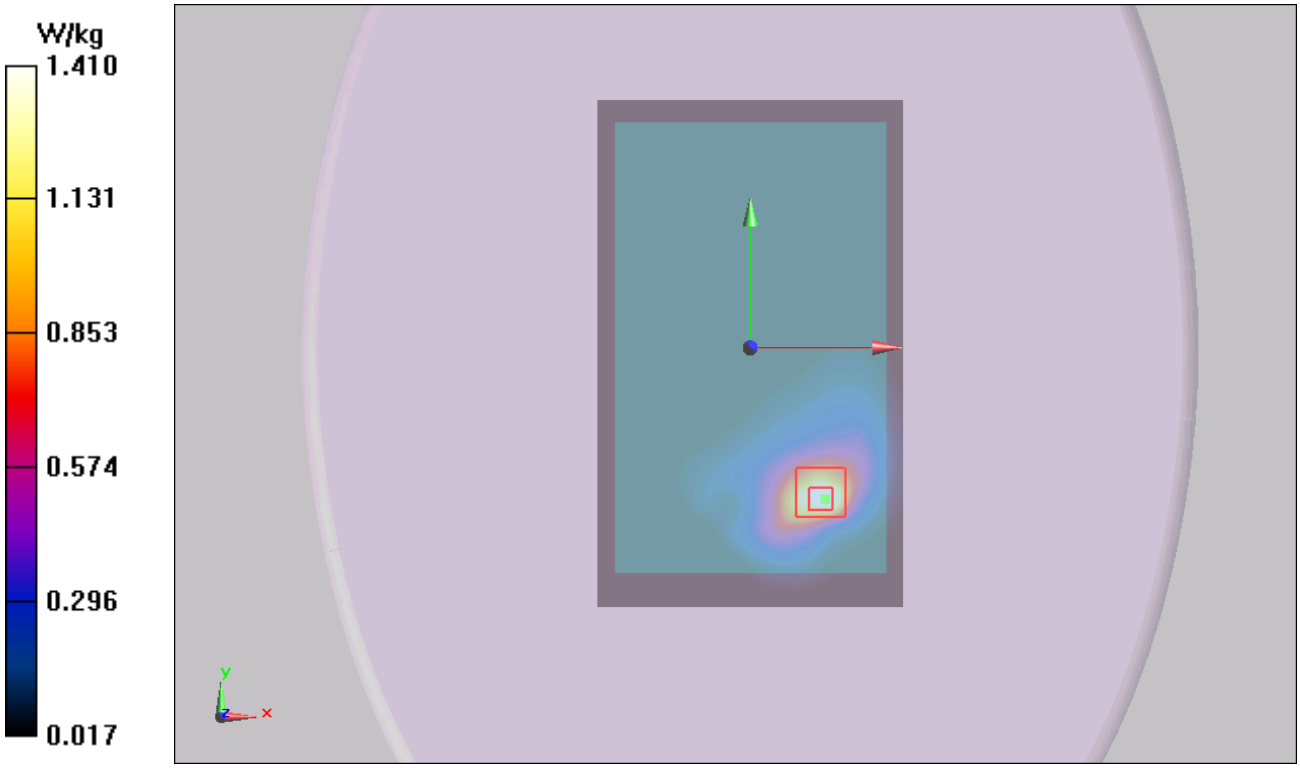

**Figure 19 LTE Band 5 1RB with Test Position 1 Channel 20525**

## LTE Band 7 1RB with Test Position 1 Low (Distance 10mm)

Date/Time: 3/20/2014 1:59:47 PM
Communication System: LTE; Frequency: 2510 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2510 MHz; $\sigma$ = 2.093 S/m; $\varepsilon_r$ = 52.611; $\rho$ = 1000 kg/m$^3$
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Flat Section
DASY5 Configuration:
Sensor-Surface: 4mm (Mechanical Surface Detection)
Probe: EX3DV4 - SN3816; ConvF(7.82, 7.82, 7.82); Calibrated: 6/4/2013;
Electronics: DAE4 Sn1317; Calibrated: 1/16/2014
Phantom: ELI 4.0; Type: QDOVA001BA;
Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**Back Side Low/Area Scan (91x151x1):** Interpolated grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 1.40 W/kg

**Back Side Low/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.427 V/m; Power Drift = 0.030 dB
Peak SAR (extrapolated) = 2.59 W/kg
**SAR(1 g) = 1.41 W/kg; SAR(10 g) = 0.721 W/kg**
Maximum value of SAR (measured) = 1.41 W/kg



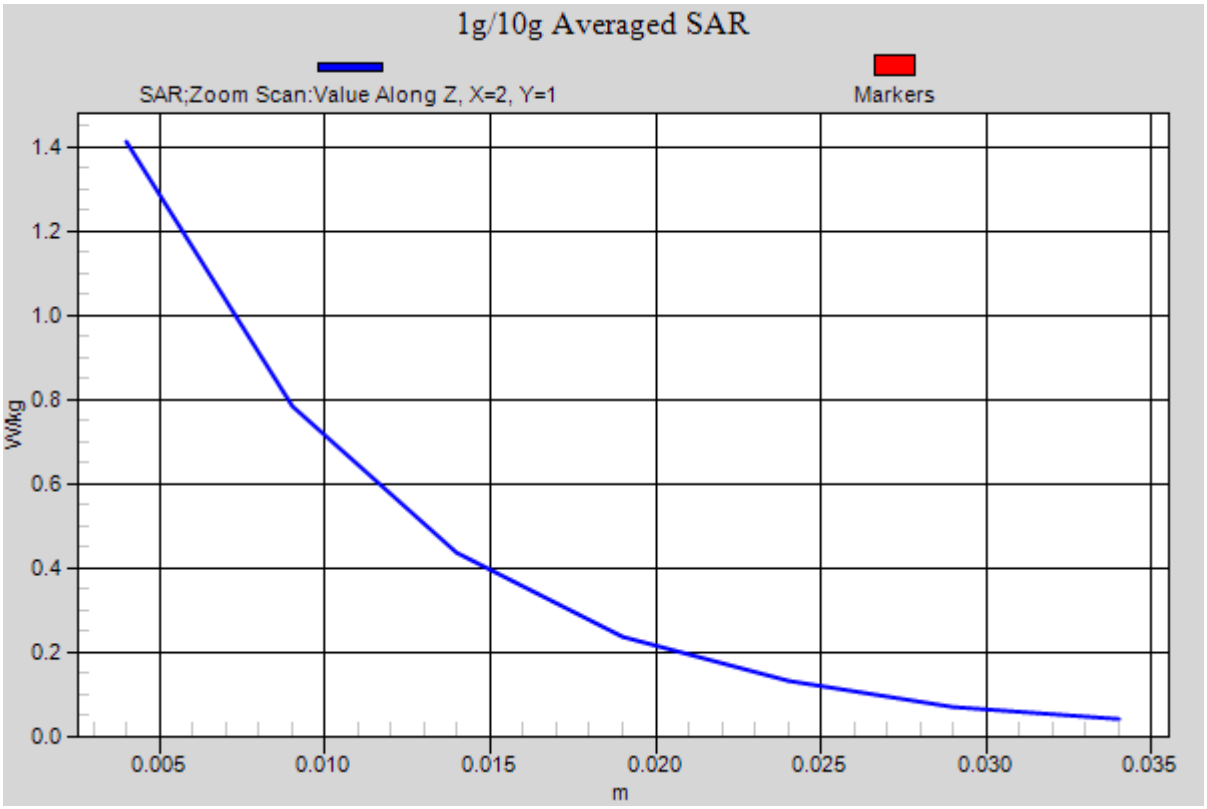


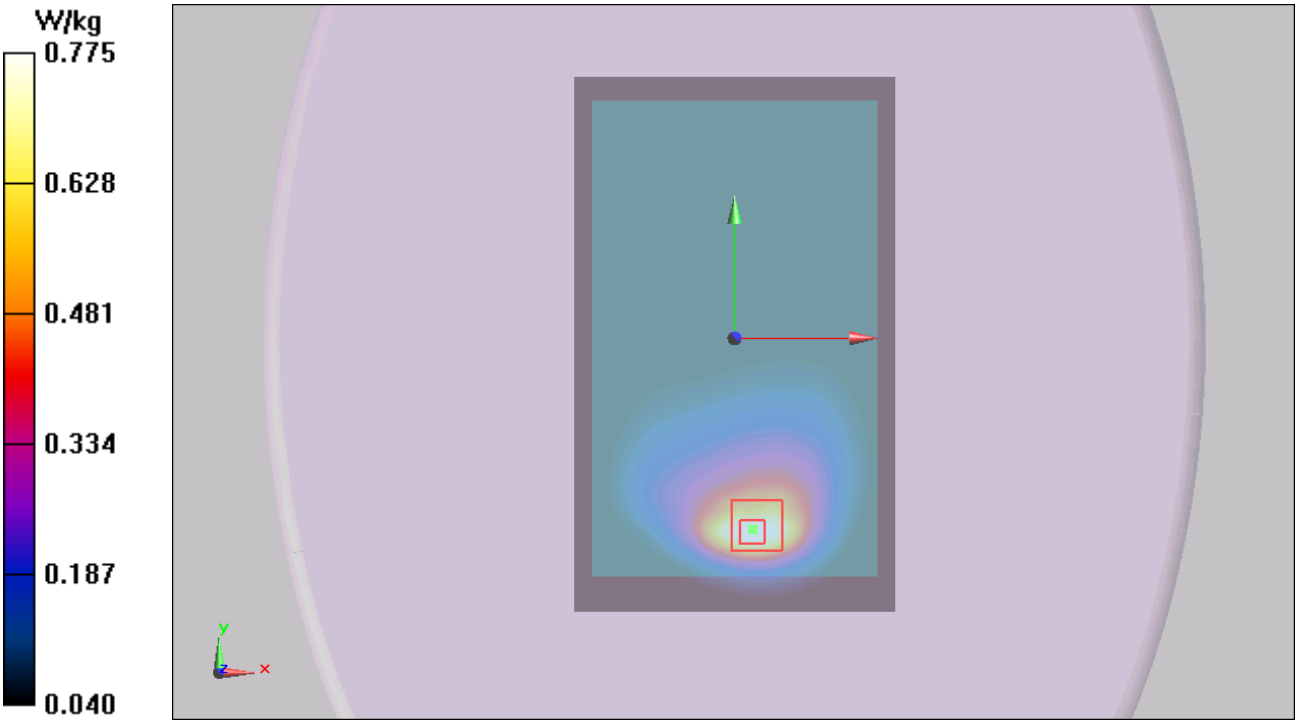

**Figure 20 LTE Band 7 1RB with Test Position 1 Channel 20850**

## LTE Band 17 1RB with Test Position 1 Middle (Distance 0mm)

Date/Time: 3/17/2014 4:49:01 AM
Communication System: LTE; Frequency: 710 MHz;Duty Cycle: 1:1
Medium parameters used: f = 710 MHz; $\sigma$ = 0.931 S/m; $\varepsilon_r$ = 54.734; $\rho$ = 1000 kg/m$^3$
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Flat Section
DASY5 Configuration:
Sensor-Surface: 4mm (Mechanical Surface Detection)
Probe: EX3DV4 - SN3677; ConvF(9.72, 9.72, 9.72); Calibrated: 11/28/2013;
Electronics: DAE4 Sn1317; Calibrated: 1/16/2014
Phantom: ELI 4.0; Type: QDOVA001BA;
Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**Back Side Middle/Area Scan (91x151x1):** Interpolated grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.883 W/kg

**Back Side Middle/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.312 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 1.28 W/kg
**SAR(1 g) = 0.750 W/kg; SAR(10 g) = 0.448 W/kg**
Maximum value of SAR (measured) = 0.775 W/kg



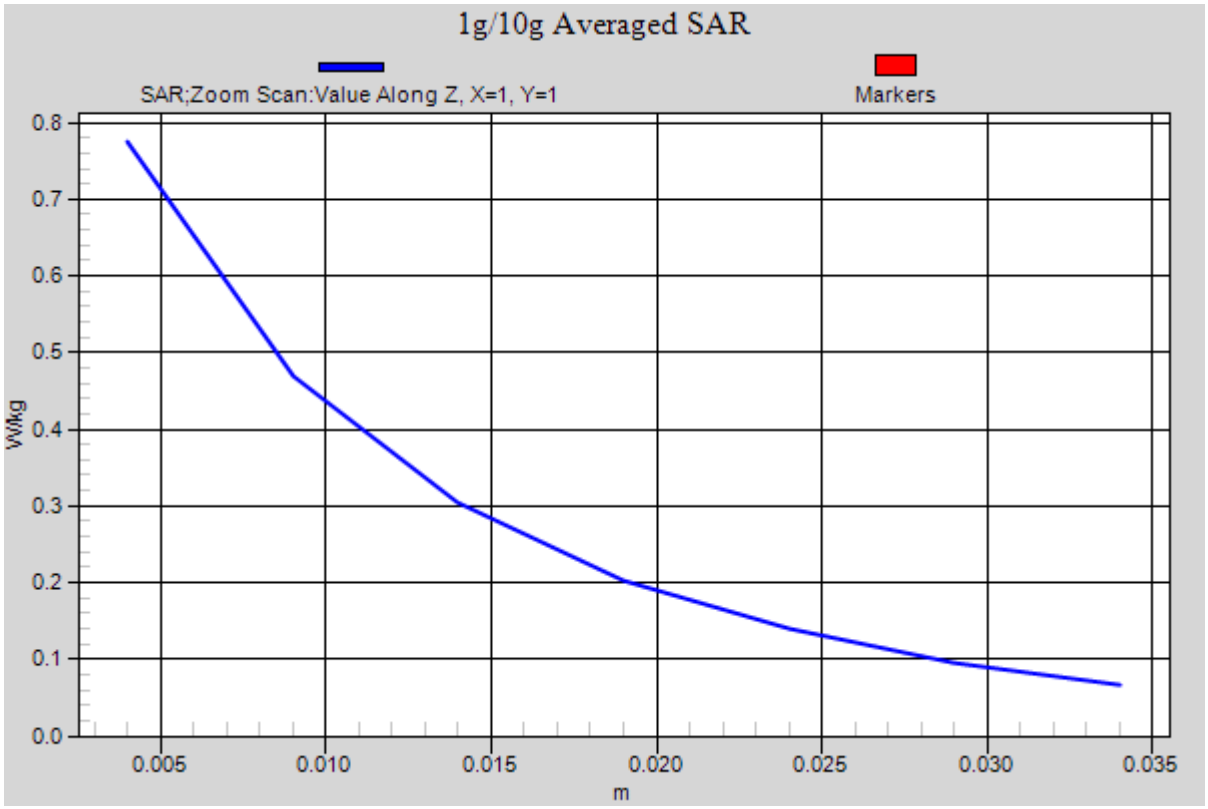


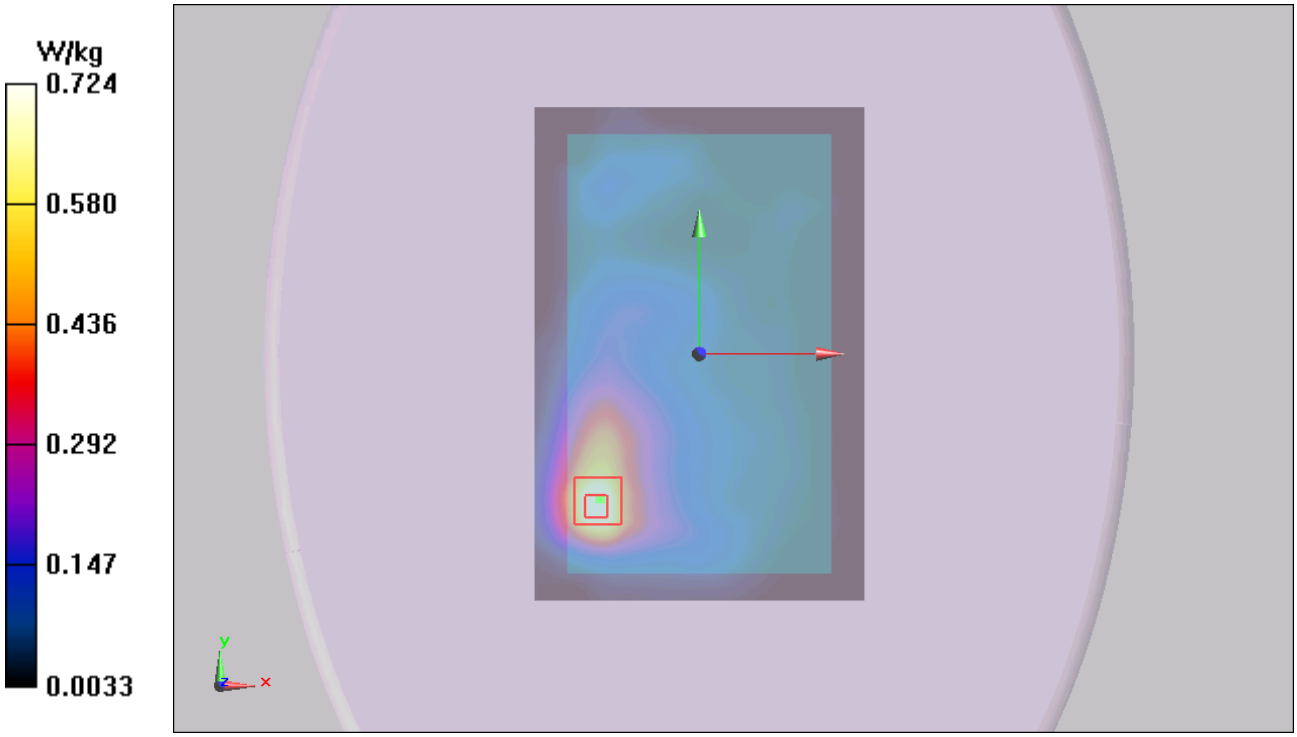

**Figure 21 LTE Band 17 1RB with Test Position 1 Channel 23790**

### 802.11b Test Position 1 High (Distance 0mm)

Date/Time: 3/26/2014 9:09:59 PM
Communication System: 802.11b; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; $\sigma$ = 2.009 S/m; $\varepsilon_r$ = 52.109; $\rho$ = 1000 kg/m$^3$
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Flat Section
DASY5 Configuration:
Sensor-Surface: 4mm (Mechanical Surface Detection)
Probe: EX3DV4 – SN3677; ConvF(7.61, 7.61, 7.61); Calibrated: 11/28/2013;
Electronics: DAE4 Sn1317; Calibrated: 1/16/2014
Phantom: ELI 4.0; Type: QDOVA001BA;
Measurement SW: DASY52, Version 52.8 (7); SEMCAD X Version 14.6.10 (7164)

**Back Side High/Area Scan (101x151x1):** Interpolated grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 0.829 W/kg

**Back Side High/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.542 V/m; Power Drift = 0.126 dB
Peak SAR (extrapolated) = 1.52 W/kg
**SAR(1 g) = 0.656 W/kg; SAR(10 g) = 0.294 W/kg**
Maximum value of SAR (measured) = 0.724 W/kg



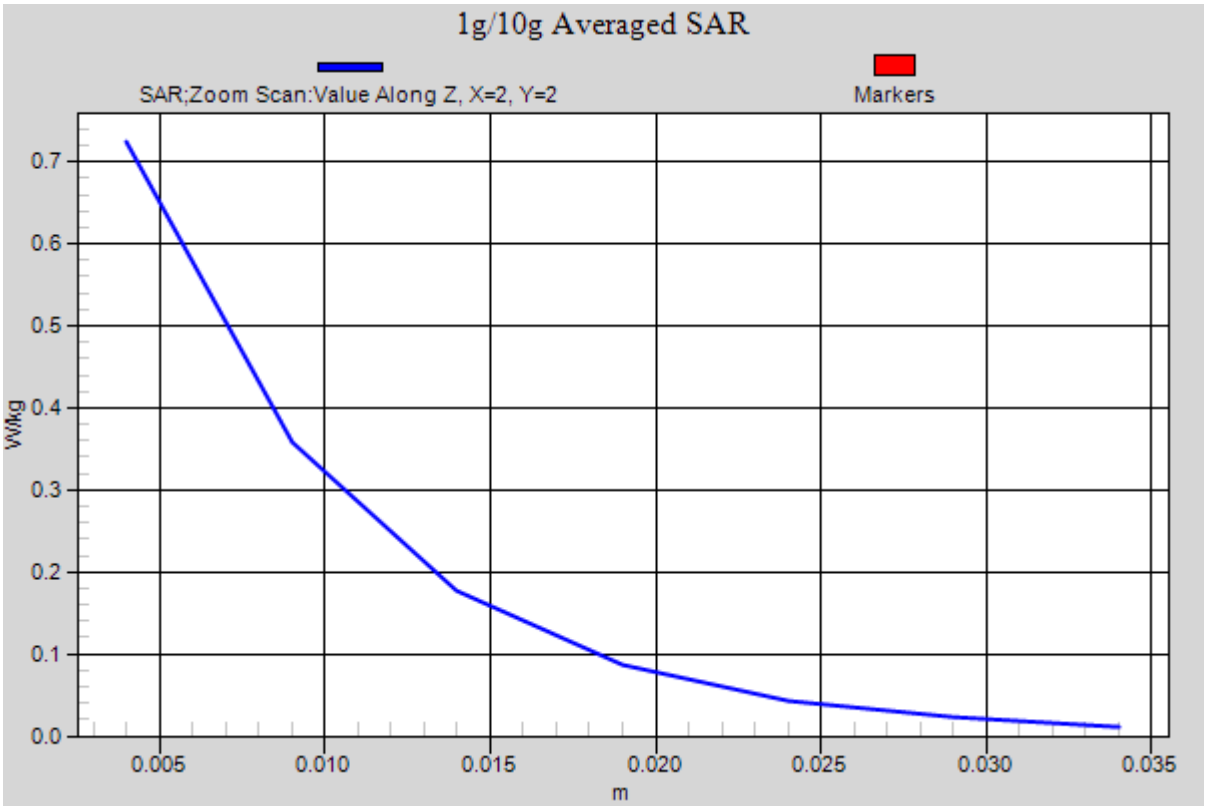



**Figure 22 802.11b Test Position 1 Channel 11**

# ANNEX D: Probe Calibration Certificate (SN:3677)

In Collaboration with
s p e a g
CALIBRATION LABORATORY
Add: No.52 Huayuanbei Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504
E-mail: Info@emcite.com Http://www.emcite.com
CNAS 校准 CNAS L0442

Client TA-ShangHai Certificate No: J13-2-2971

## CALIBRATION CERTIFICATE

Object EX3DV4 - SN:3677

Calibration Procedure(s) TMC-OS-E-02-195
Calibration Procedures for Dosimetric E-field Probes

Calibration date: November 28, 2013

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-13 (TMC, No.JW13-044) | Jun-14 |
| Power sensor NRP-Z91 | 101547 | 01-Jul-13 (TMC, No.JW13-044) | Jun-14 |
| Power sensor NRP-Z91 | 101548 | 01-Jul-13 (TMC, No.JW13-044) | Jun-14 |
| Reference10dBAttenuator | BT0520 | 12-Dec-12(TMC,No.JZ12-867) | Dec-14 |
| Reference20dBAttenuator | BT0267 | 12-Dec-12(TMC,No.JZ12-866) | Dec-14 |
| Reference Probe EX3DV4 | SN 3846 | 03-Sep-13(SPEAG,No.EX3-3846_Sep13) | Sep-14 |
| DAE4 | SN 777 | 22-Feb-13 (SPEAG, DAE4-777_Feb13) | Feb -14 |
| Secondary Standards | ID # | Cal Date(Calibrated by, Certificate No.) | Scheduled Calibration |
| SignalGeneratorMG3700A | 6201052605 | 01-Jul-13 (TMC, No.JW13-045) | Jun-14 |
| Network Analyzer E5071C | MY46110673 | 15-Feb-13 (TMC, No.JZ13-781) | Feb-14 |

| | 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: November 29, 2013

In Collaboration with
s p e a g
CALIBRATION LABORATORY
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E-mail: Info@emcite.com Http://www.emcite.com

**Glossary:**

| | |
|---|---|
| TSL | tissue simulating liquid |
| NORMx,y,z | sensitivity in free space |
| ConvF | sensitivity in TSL / NORMx,y,z |
| DCP | diode compression point |
| CF | crest factor (1/duty_cycle) of the RF signal |
| A,B,C,D | modulation dependent linearization parameters |
| Polarization Φ | Φ rotation around probe axis |
| Polarization θ | θ rotation around an axis that is in the plane normal to probe axis (at measurement center), i θ=0 is normal to probe axis |

**Calibration is Performed According to the Following Standards:**

a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003

b) 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:**

- *NORMx,y,z:* Assessed for E-field polarization θ=0 (f≤900MHz in TEM-cell; f>1800MHz: waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not effect the $E^2$-field uncertainty inside TSL (see below ConvF).
- *NORM(f)x,y,z = NORMx,y,z* 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.
- *Ax,y,z; Bx,y,z; Cx,y,z; VRx,y,z:* 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≤800MHz) and inside waveguide using analytical field distributions based on power measurements for f >800MHz. 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 NORMx,y,z* 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±50MHz to±100MHz.
- *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 *NORMx* (no uncertainty required).

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# Probe EX3DV4

## SN: 3677

Calibrated: November 28, 2013

Calibrated for DASY/EASY Systems

(Note: non-compatible with DASY2 system!)

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# DASY – Parameters of Probe: EX3DV4 - SN: 3677

## Basic Calibration Parameters

| | Sensor X | Sensor Y | Sensor Z | Unc (k=2) |
|---|---|---|---|---|
| Norm(μV/(V/m)²)[A] | 0.38 | 0.44 | 0.38 | ±10.8% |
| DCP(mV)[B] | 99.8 | 100.9 | 101.9 | |

## Modulation Calibration Parameters

| UID | Communication System Name | | A dB | B dB√μV | C | D dB | VR mV | Unc[E] (k=2) |
|---|---|---|---|---|---|---|---|---|
| 0 | CW | X | 0.0 | 0.0 | 1.0 | 0.00 | 93.3 | ±2.6% |
| | | Y | 0.0 | 0.0 | 1.0 | | 101.7 | |
| | | Z | 0.0 | 0.0 | 1.0 | | 92.1 | |

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%.

[A] The uncertainties of Norm X, Y, Z do not affect the $E^2$-field uncertainty inside TSL (see Page 5 and Page 6).
[B] Numerical linearization parameter: uncertainty not required.
[E] Uncertainly 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 – Parameters of Probe: EX3DV4 - SN: 3677

## Calibration Parameter Determined in Head Tissue Simulating Media

| f [MHz][C] | Relative Permittivity [F] | Conductivity (S/m) [F] | ConvF X | ConvF Y | ConvF Z | Alpha | Depth (mm) | Unct. (k=2) |
|---|---|---|---|---|---|---|---|---|
| 750 | 41.9 | 0.89 | 9.94 | 9.94 | 9.94 | 0.16 | 1.13 | ±12% |
| 850 | 41.5 | 0.92 | 9.41 | 9.41 | 9.41 | 0.11 | 1.47 | ±12% |
| 1750 | 40.1 | 1.37 | 8.22 | 8.22 | 8.22 | 0.14 | 2.11 | ±12% |
| 1900 | 40.0 | 1.40 | 8.15 | 8.15 | 8.15 | 0.14 | 2.34 | ±12% |
| 2100 | 39.8 | 1.49 | 7.87 | 7.87 | 7.87 | 0.13 | 3.21 | ±12% |
| 2450 | 39.2 | 1.80 | 7.64 | 7.64 | 7.64 | 0.39 | 0.95 | ±12% |
| 5200 | 36.0 | 4.66 | 5.73 | 5.73 | 5.73 | 0.95 | 0.62 | ±13% |
| 5300 | 35.9 | 4.76 | 5.68 | 5.68 | 5.68 | 0.87 | 0.67 | ±13% |
| 5500 | 35.6 | 4.96 | 5.62 | 5.62 | 5.62 | 0.97 | 0.62 | ±13% |
| 5600 | 35.5 | 5.07 | 5.29 | 5.29 | 5.29 | 0.89 | 0.63 | ±13% |
| 5800 | 35.3 | 5.27 | 5.29 | 5.29 | 5.29 | 1.02 | 0.61 | ±13% |

[C] 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.
[F] At frequency below 3 GHz, the validity of tissue parameters (ε and σ) 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 (ε and σ) is restricted to ±5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

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# DASY – Parameters of Probe: EX3DV4 - SN: 3677

## Calibration Parameter Determined in Body Tissue Simulating Media

| f [MHz][C] | Relative Permittivity[F] | Conductivity (S/m)[F] | ConvF X | ConvF Y | ConvF Z | Alpha | Depth (mm) | Unct. (k=2) |
|---|---|---|---|---|---|---|---|---|
| 750 | 55.5 | 0.96 | 9.72 | 9.72 | 9.72 | 0.11 | 1.97 | ±12% |
| 850 | 55.2 | 0.99 | 9.51 | 9.51 | 9.51 | 0.15 | 1.55 | ±12% |
| 1750 | 53.4 | 1.49 | 7.77 | 7.77 | 7.77 | 0.14 | 3.23 | ±12% |
| 1900 | 53.3 | 1.52 | 7.63 | 7.63 | 7.63 | 0.15 | 2.81 | ±12% |
| 2100 | 53.2 | 1.62 | 7.97 | 7.97 | 7.97 | 0.16 | 4.09 | ±12% |
| 2450 | 52.7 | 1.95 | 7.61 | 7.61 | 7.61 | 0.45 | 0.92 | ±12% |
| 5200 | 49.0 | 5.30 | 4.72 | 4.72 | 4.72 | 0.66 | 1.10 | ±13% |
| 5300 | 48.9 | 5.42 | 4.67 | 4.67 | 4.67 | 0.64 | 1.19 | ±13% |
| 5500 | 48.6 | 5.65 | 4.34 | 4.34 | 4.34 | 0.73 | 0.80 | ±13% |
| 5600 | 48.5 | 5.77 | 4.29 | 4.29 | 4.29 | 0.74 | 0.81 | ±13% |
| 5800 | 48.2 | 6.00 | 4.46 | 4.46 | 4.46 | 0.78 | 0.80 | ±13% |

[C] 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.
[F] At frequency below 3 GHz, the validity of tissue parameters (ε and σ) 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 (ε and σ) is restricted to ±5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

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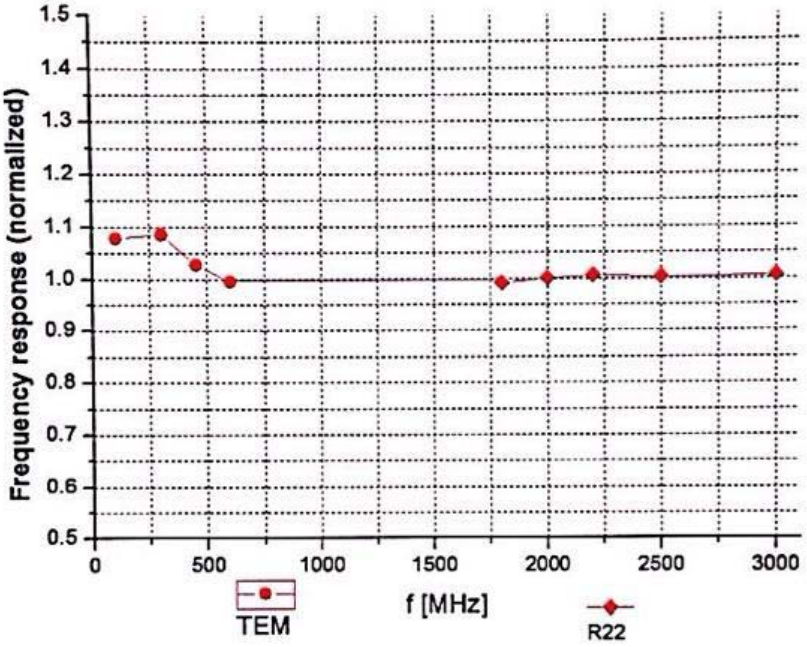
# Frequency Response of E-Field
## (TEM-Cell: ifi110 EXX, Waveguide: R22)




**Uncertainty of Frequency Response of E-field: ±7.5% (k=2)**

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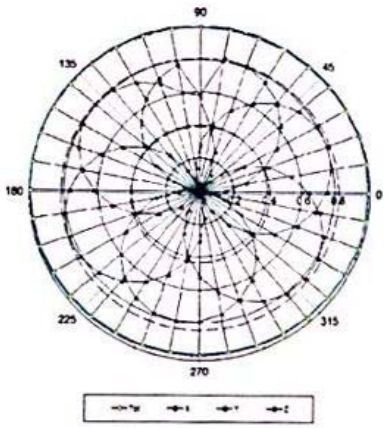
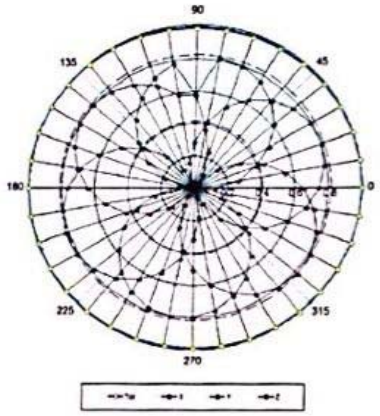
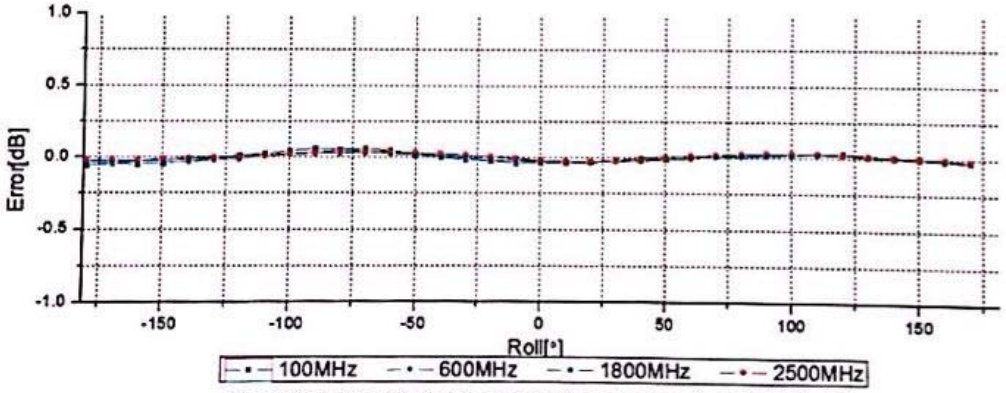
# Receiving Pattern (Φ), θ=0°

## f=600 MHz, TEM




## f=1800 MHz, R22




**Uncertainty of Axial Isotropy Assessment: ±0.9% (k=2)**

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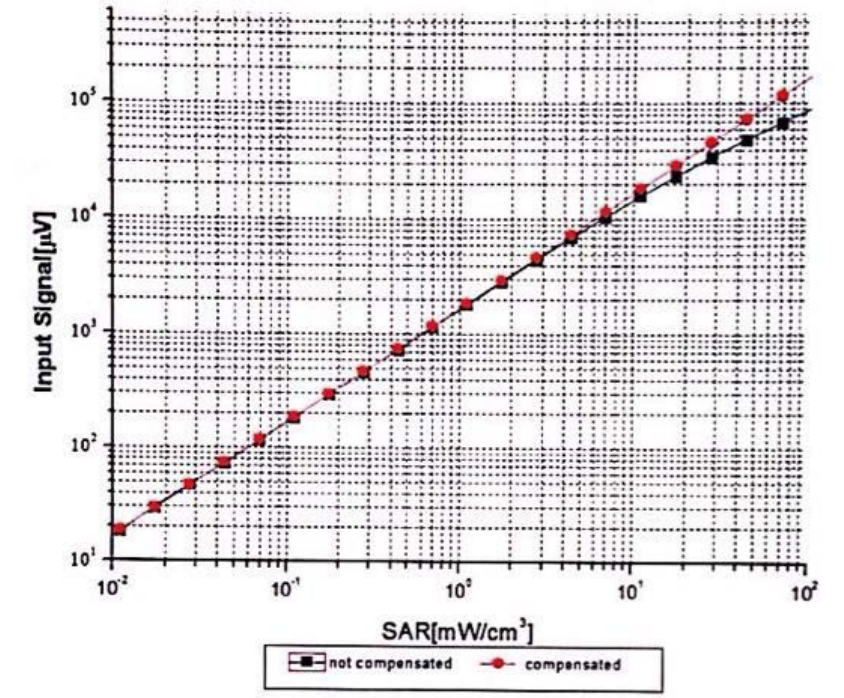
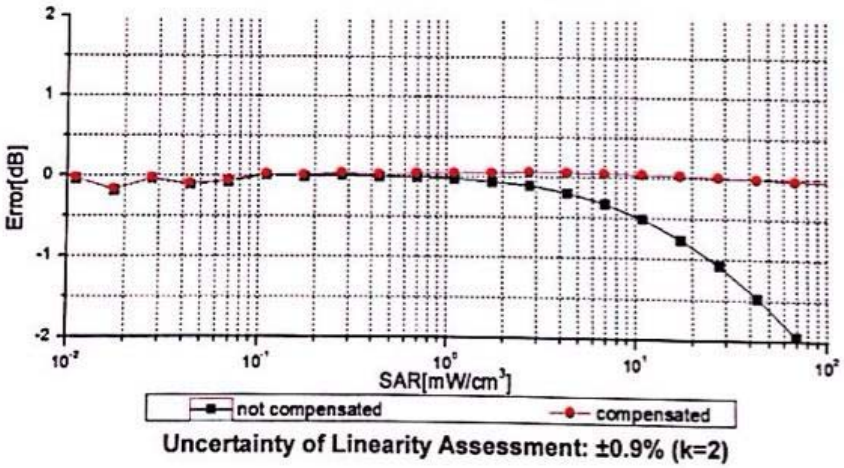
## Dynamic Range f($SAR_{head}$)
## (TEM cell, f = 900 MHz)




Uncertainty of Linearity Assessment: ±0.9% (k=2)