

# FCC SAR TEST REPORT

No. 150701-SAR

For

Bullitt Group

Product Name: Smartphone

Model Name: SP4

Trade Name: Kodak

Issued Date: 2015-07-14

**Note:**

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of GCCT.

**Test Laboratory:**

GCCT, Guangdong Telecommunications Terminal Products Quality Supervision and Testing Center  
Technology Road, High-tech Zone, He Yuan, Guang Dong, PR China 517001  
Tel:+86(0)762-3607221, Fax:+86(0)762-3603336 Email: ncctmail@126.com. [www.ncct.org.cn](http://www.ncct.org.cn)

**CONTENTS**

<b>GENERAL SUMMARY .....</b>	<b>4</b>
<b>1. Test Laboratory.....</b>	<b>6</b>
1.1 Testing Location.....	6
1.2 Testing Environment.....	6
1.3 Project Data.....	6
<b>2. Client Information .....</b>	<b>5</b>
2.1 Applicant Information.....	5
2.2 Manufacturer Information.....	5
<b>3. Equipment Under Test (EUT) and Ancillary Equipment (AE).....</b>	<b>6</b>
3.1 About EUT.....	7
3.2 DUT Antenna Locations .....	8
3.3 Internal Identification of EUT.....	8
3.4 Internal Identification of AE .....	8
<b>4. EUT Operational Conditions during Test.....</b>	<b>9</b>
4.1 General Description of Test Procedures.....	9
4.2 GSM Test Configuration.....	9
4.3 WCDMA Test Configuration .....	9
4.4 WIFI Test Configuration.....	10
4.5 Hotspot Test Configuration.....	10
<b>5. SAR Measurements System Configuration .....</b>	<b>11</b>
5.1 Measurement System Diagram .....	11
5.2 System Components.....	12
5.3 Equivalent Tissues .....	15
<b>6. Evaluation Procedures.....</b>	<b>16</b>
6.1 Data Evaluation.....	16
6.2 SAR Evaluation Procedures.....	17
6.3 Spatial Peak SAR Evaluation.....	18
<b>7. Conducted Output Power Measurement .....</b>	<b>20</b>
<b>8. SAR Measurement Results.....</b>	<b>22</b>
8.1 Liquid Measurement Results .....	22
8.2 System Performance Check .....	22
8.3 Measurement Results .....	24
<b>9. Equipment List &amp; Calibration Status .....</b>	<b>31</b>
<b>10. Measurement Uncertainty.....</b>	<b>32</b>
<b>ANNEX A: EUT Photos and Test Positions .....</b>	<b>33</b>

<b>ANNEX B: System Performance Check Plots.....</b>	<b>39</b>
<b>ANNEX C: SAR Test Plots.....</b>	<b>45</b>
<b>ANNEX D: Probe Calibration Report .....</b>	<b>118</b>
<b>ANNEX E: Dipole Calibration Report.....</b>	<b>130</b>
<b>ANNEX F: DAE Calibration Report .....</b>	<b>154</b>
<b>ANNEX G: Dipole Annual Check Result.....</b>	<b>157</b>

## GENERAL SUMMARY

<b>Product Name</b>	Smartphone
<b>Model Name</b>	SP4
<b>Trade Mark</b>	Kodak
<b>Applicant</b>	Bullitt Group
<b>Manufacturer</b>	CK Telecom Limited
<b>Test laboratory</b>	GCCT, Guangdong Telecommunications Terminal Products Quality Supervision and Testing Center
<b>Reference Standards</b>	<p><b>IEEE Std C95.1, 2005:</b> IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz</p> <p><b>IEEE 1528-2003:</b> Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Body Due to Wireless Communications Devices: Experimental Techniques</p> <p><b>FCC KDB 447498 D01 v05r02:</b> Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies</p> <p><b>FCC KDB 865664 D01 v01r03:</b> SAR Measurement Requirements for 100 MHz to 6 GHz</p> <p><b>FCC KDB 941225 D01 3G SAR Procedures v03:</b> 3G SAR Measurement Procedures</p> <p><b>FCC KDB 941225 D06 Hotspot Mode SAR v02:</b> SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities</p> <p><b>FCC KDB 248227 D01 v02r01:</b> SAR Guidance For IEEE 802.11 (Wi-Fi) Transmitters</p> <p><b>FCC KDB 648474 D04 Handset SAR v01r02:</b> SAR Evaluation Considerations for Wireless Handsets</p>
<b>Test Conclusion</b>	<p>This portable wireless equipment has been measured in all cases requested by the relevant standards. Test results in Chapter 8 of this test report are below limits specified in the relevant standards.</p> <p>General Judgment: <b>Pass</b></p>
<b>Comment:</b>	The test results in this report apply only to the tested sample of the stated device/equipment.

Approved by:

Luo Jian  
Manager

Reviewed by:

Dong Xiaobo  
Manager

Tested by:

Li Linqiang  
Test Engineer

Date of issue: 2015.07.14

## 2. Client Information

### 2.1 Applicant Information

<b>Company Name:</b>	Bullitt Group
<b>Address:</b>	4 The Aquarium, 1-7 King Street, Reading, RG1 2AN, UK
<b>City:</b>	/
<b>Postal Code:</b>	/
<b>Country:</b>	UK

### 2.2 Manufacturer Information

<b>Company Name:</b>	CK Telecom Limited
<b>Address:</b>	Technology Road.High-Tech Development Zone. Heyuan, Guangdong,P.R.China.
<b>City:</b>	Heyuan
<b>Postal Code:</b>	/
<b>Country:</b>	China

## 1 Test Laboratory

### 1.1 Testing Location

<b>Company Name:</b>	GCCT, Guangdong Telecommunications Terminal Products Quality Supervision and Testing Center
<b>Address:</b>	Technology Road, High-tech Zone, Heyuan, Guangdong Province, PR.China
<b>Postal Code:</b>	517001
<b>Telephone:</b>	+86-762-3607293
<b>Fax:</b>	+86-762-3603336

### 1.2 Testing Environment

<b>Temperature</b>	Min. = 20 °C, Max. = 25 °C
<b>Relative humidity</b>	Min. = 30%, Max. = 70%
<b>Ground system resistance</b>	< 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.	

### 1.3 Project Data

<b>Project Leader:</b>	Wen Xiaoyong
<b>Project Engineer</b>	Li Linqiang
<b>Testing Start Date:</b>	2015-07-07
<b>Testing End Date:</b>	2015-07-13

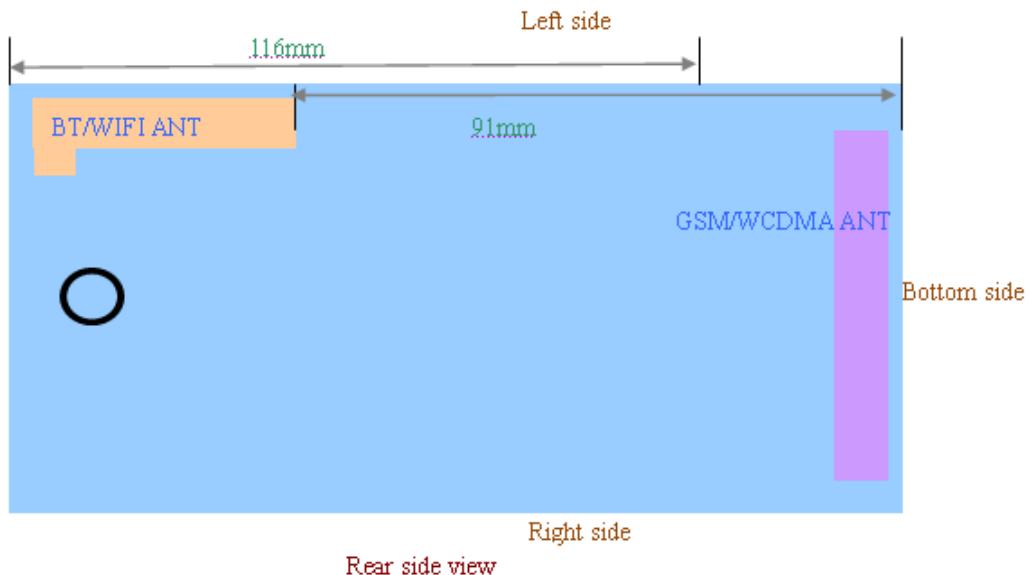
### 3. Equipment Under Test (EUT) and Ancillary Equipment (AE)

#### 3.1 About EUT

<b>Product Name</b>	Smartphone		
<b>Model Name</b>	SP4		
<b>FCC ID</b>	ZL5SP4		
<b>Trade Mark</b>	Kodak		
<b>Exposure Category</b>	Uncontrolled Environment / General Population		
<b>Device Type</b>	Portable Device		
<b>Supporting modes</b>	GSM850 (tested) DCS1900 (tested) WCDMA Band II(tested) WCDMA Band V(tested) WIFI(tested) Bluetooth		
<b>GPRS Class</b>	Class 12		
<b>Hotspot</b>	Supported		
<b>Operating Frequency Range(s)</b>	Mode	Tx(MHz)	Rx(MHz)
	GSM850	824.0 ~ 849.0	869.0 ~ 894.0
	GSM1900	1850 ~1910	1930 ~ 1990
	WCDMA Band V	824 ~849	869 ~ 894
	WCDMA Band II	1850 ~ 1910	1930 ~ 1990
	WiFi	2412 ~ 2462	2412 ~ 2462
	Bluetooth	2402 ~ 2480	2402 ~ 2480
<b>Max. SAR (1g)</b>	Mode	1g SAR(W/Kg)	
		Head	Body-worn
	GSM850	0.412	1.19
	GSM1900	0.737	1.12
	WCDMA Band II	0.909	1.13
	WCDMA Band V	0.369	0.806
	WiFi	0.477	0.372
<b>Antenna Type</b>	Fixed Internal Antenna		
<b>Form factor</b>	13.2cm*6.7cm		
<b>Comment</b>	The above EUT's information was declared by manufacture.		

Note: Photographs of EUT are shown in ANNEX A of this test report.

### 3.2 DUT Antenna Locations



### 3.3 Internal Identification of EUT

EUT ID *	IMEI	HW Version	SW Version
150701-M04	356092022307000 356092022307018	SLFQPLUS-V1.0	SLFQPLUS13B-S29A_BULLITT_L7EN_206_150127
*EUT ID: is used to identify the test sample in the lab internally.			

### 3.4 Internal Identification of AE

AE ID *	Description	Type	SN	Manufacture
150701-C04	Charger	A8-510100	/	/
150701-B04	Battery	HD395759AR	/	/

\*AE ID: is used to identify the test sample in the lab internally.

## 4. EUT Operational Conditions during Test

### 4.1 General Description of Test Procedures

A communication link is set up with a System Simulator (SS) by air link, and a call is established. The Absolute Radio Frequency Channel Number (ARFCN) is allocated to 128, 190 and 251 in the case of GSM850, allocated to 512, 661 and 810 in the case of PCS1900, allocated to 4132, 4183 and 4233 in the case of WCDMA Band V, allocated to 9262, 9400 and 9538 in the case of WCDMA Band II, allocated to 1, 6 and 11 respectively in the case of WIFI. The EUT is commanded to operate at maximum transmitting power by CMU200.

When we test, the EUT battery must be fully charged and checked periodically during the test to ascertain uniform power output. The antenna connected to the output of the base station simulator shall be placed at least 50 cm away from the EUT. The signal transmitted by the simulator to the antenna feeding point shall be lower than the output power level of the EUT by at least 30 dB.

### 4.2 GSM Test Configuration

For the SAR tests for GSM850 and DCS1900, a communication link is set up with a System Simulator (SS) by air link. Using CMU200 the power lever is set to “5” of GSM850, set to “0” of PCS1900. The EUT is commanded to operate at maximum transmitting power. The GPRS class is 12 for this EUT. It has at most 4 timeslots in uplink and at most 4 timeslots in downlink, the maximum total timeslots is 5.

### 4.3 WCDMA Test Configuration

For the SAR body tests for WCDMA Band V and WCDMA Band II, a communication link is set up with a System Simulator (SS) by air link. We established the radio link with 12.2kbps RMC and the power control “all bits up” in test loop mode 1.

HSDPA:

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 0.25 dB higher than that measured without HSDPA using 12.2kbps RMC or the highest reported SAR of 12.2kbps RMC mode is scaled by the ratio of specified maximum output power and tune-up tolerance of secondary to primary mode and the adjusted SAR is above 1.2 W/kg.

HSPA:

Body SAR is also measured for HSPA when the maximum average output of each RF channel with HSPA active is at least 0.25 dB higher than that measured without HSPA using 12.2 kbps RMC or the highest reported SAR of 12.2kbps RMC mode is scaled by the ratio of specified maximum output power and tune-up tolerance of secondary to primary mode and the adjusted SAR is above 1.2 W/kg. 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.

## 4.4 WIFI Test Configuration

For the 802.11b/g/n SAR tests, a communication link is set up with the test mode software for WIFI mode test. The Absolute Radio Frequency Channel Number (ARFCN) is allocated to 1, 6 and 11 respectively in the case of WiFi. During the test, at each test frequency channel, the EUT is operated at the RF continuous emission mode. Each channel should be tested at the lowest data rate.

802.11b/g operating modes are tested independently according to the service requirements in each frequency band. 802.11b/g modes are tested on channels 1, 6, 11; however, if output power reduction is necessary for channels 1 and /or 11 to meet restricted band requirements the highest output channels closest to each of these channels must be tested instead.

SAR is not required for 802.11g/n channels when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is  $\leq 1.2 \text{ W/kg}$ .

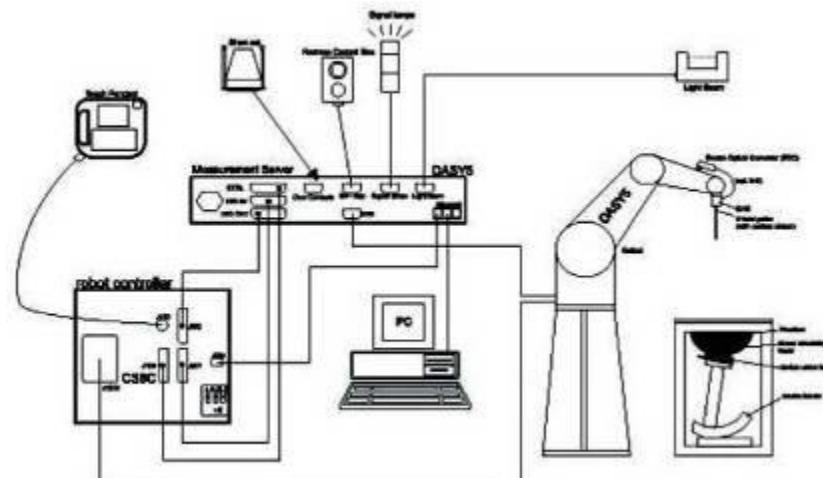
## 4.5 Hotspot Test Configuration

Standalone personal wireless routers and handsets with hotspot mode capabilities must address hand-held and other near-body exposure conditions to show SAR compliance. SAR must be measured for all sides and surfaces with a transmitting antenna located within 25 mm from that surface or edge, for the data modes, wireless technologies and frequency bands supporting hotspot mode. A test separation of 10 mm is required. The standalone SAR results in each device test orientation must be analyzed for the applicable hotspot mode simultaneous transmission configurations to determine SAR test exclusion and volume scan requirements. The simultaneous transmission configurations must be clearly described in the SAR report to support the analyses or test results

## 5. SAR Measurements System Configuration

These measurements were performed with the automated near-field scanning system DASY5 from SPEAG. The system is based on a high precision robot, which positions the probes with a positional repeatability of better than  $\pm 0.02$  mm. Special E-field probes have been developed for measurements close to material discontinuity, the sensors of which are directly loaded with a Schottky diode and connected via highly resistive lines to the data acquisition unit. The SAR measurements were conducted with the dosimetric probe manufactured by SPEAG, designed in the classical triangular configuration and optimized for dosimetric evaluation. The probe has been calibrated according to the procedure described in with accuracy of better than  $\pm 10\%$ . The spherical isotropy was evaluated and found to be better than  $\pm 0.3$  dB. The phantom used was the SAM Twin Phantom and ELI4 Phantom as described in IEC 62209-1, IEEE1528 and EN 62209-1.

### 5.1 Measurement System Diagram



**Figure 1 System Diagram**

#### The DASY5 system consists of the following items:

1. A standard high precision 6-axis robot (TX90XL) with Staubli CS8c robot controllers.
2. DASY5 Measurement Server.
3. Data Acquisition Electronics.
4. 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.
5. Light Beam Unit.
6. The SAM phantom enabling testing left-hand right-hand and the ELI4 phantom for body usage.
7. The Position device for handheld EUT.
8. Tissue simulating liquid mixed according to the given recipes.
9. System validation dipoles to validate the proper functioning of the system.
10. A computer operating Windows XP.

## 5.2 System Components

The mobile phone under test operating at the maximum power level is placed in the phone holder, under the phantom, which is filled with head simulating liquid. The E-Field probe measures the electric field inside the phantom. The DASY5 software computes the results to give a SAR value in a 1g or 10 g mass.

### 5.2.1 TX90XL

The TX90XL robot has six axes. The six axes are controlled by the Staubli CS8c robot controllers. It offers the features important for our application:

- High precision (repeatability 0.02mm)
- High reliability (industrial design)
- Low maintenance costs (virtually maintenance free due to direct drive gears; no belt drives)
- Jerk-free straight movements (brushless synchrony motors; no stepper motors)
- Low ELF

### 5.2.2 DASY5 Measurement Server

The DASY5 measurement server is based on a PC/104 CPU board with a 400MHz Intel ULV Celeron, 128MB chip disk and 128MB RAM. The necessary circuits for communication with either the DAE4 electronics box as well as the 16 bit AD converter system for optical detection and digital I/O interface are contained on the DASY5 I/O board, which is directly connected to the PC/104 bus of the CPU board.



Figure 2 TX90XL



Figure 3 Measurement Server

### 5.2.3 Probe

For the measurements the specific dosimetric E-Field Probe ES3DV3 and EX3DV4 with following specifications is used.

Frequency: 10 MHz to 3 GHz; Linearity:  $\pm 0.2$  dB

Directivity:  $\pm 0.3$  dB in HSL (rotation around probe axis)

$\pm 0.5$  dB in tissue material (rotation normal to probe axis)

Dynamic Range: 10  $\mu$ W/g to > 100 mW/g; Linearity:  $\pm 0.2$  dB

Tip Diameter: 5 mm; Distance between probe tip and sensor center: 2.5 mm

Probe linearity:  $\pm 0.3$  dB

Calibration range: 835 to 2500 MHz for head & body simulating liquid

### 5.2.4 Device holder

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

It has two scales for device rotation (with respect to the body axis) and device inclination (with respect to the line between the ear reference points). The rotation centers for both scales are the ear reference point (ERP). Thus the device needs no repositioning when changing the angles. The DASY device holder is constructed of low-loss POM material having the following dielectric parameters: relative permittivity =3 and loss tangent =0.02. The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the influence of the clamp on the test results could thus be lowered.



Figure 4 Probe



Figure 5 Device Holder

### 5.2.5 Phantom

The SAM Twin Phantom and the ELI4 Phantom are constructed of a fiberglass shell integrated in a wooden table. The shape of the shell is in compliance with the specification set in IEEE P1528 and CENELEC EN62209-1. The SAM Twin phantom enables the dosimetric evaluation of left and right hand phone usage and the ELI4 phantom enables the dosimetric evaluation of body mounted usage. A cover prevents the evaporation of the liquid. Reference markings on the Phantom allow the complete setup of all predefined phantom positions and measurement grids by manually teaching three points in the robot.

Shell thickness: 2 mm  $\pm 0.2$  mm

Filling Volume: Approx. 25 liters

Dimensions (H x L x W): 850 x 1000 x 500 mm



**Figure 6 SAM Twin Phantom and ELI Phantom**

### **5.2.6 Data Acquisition Electronics**

DAE4 consist of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder with a control logic unit. Transmission to the measurement server is accomplished through an optical downlink for data and status information, as well as an optical uplink for commands and the clock. The mechanical probe mounting device includes two different sensor systems for frontal and sideways probe contacts. They are used for mechanical surface detection and probe collision detection.

Input impedance: 200MOhm, symmetrical and floating.

Common mode rejection: > 80 dB.

### **5.2.7 Validation dipoles**

SPEAG has a full range of dipoles corresponding to the frequencies defines by the standards: 835, 900, 1800, 1900, 2000, 2450MHz

Maximum input Power: 100W

Connectors: SMA

Dimensions: (depends on the dipole frequency)

**Figure 7 DAE4****Figure 8 Validation Dipoles**

### 5.3 Equivalent Tissues

The relative permittivity and conductivity of the tissue material should be within  $\pm 5\%$  of the values given in the table below recommended by the FCC KDB 865664 D01 v01r03.

Target Frequency (MHz)	Head		Body	
	$\epsilon_r$	$\sigma$ (S/m)	$\epsilon_r$	$\sigma$ (S/m)
150	52.3	0.76	61.9	0.80
300	45.3	0.87	58.2	0.92
450	43.5	0.87	56.7	0.94
835	41.5	0.90	55.2	0.97
900	41.5	0.97	55.0	1.05
915	41.5	0.98	55.0	1.06
1450	40.5	1.20	54.0	1.30
1610	40.3	1.29	53.8	1.40
1800-2000	40.0	1.40	53.3	1.52
2450	39.2	1.80	52.7	1.95
3000	38.5	2.40	52.0	2.73
5800	35.3	5.27	48.2	6.00

(  $\epsilon_r$  = relative permittivity,  $\sigma$  = conductivity and  $\rho = 1000 \text{ kg/m}^3$  )

## 6. Evaluation Procedures

### 6.1 Data Evaluation

The DASY5 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, ai0, ai1, ai2
  - Conversion factor ConvFi
  - Diode compression point dcpi

- Device parameters:
- Frequency f
  - Crest factor cf

- Media parameters:
- Conductivity  $\sigma$
  - Density  $\rho$

These parameters must be set correctly in the software. They can be found in the component documents or be imported into the software from the configuration files issued for the DASY5 components. 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:

$$V_i = U_i + U_i^2 \bullet \frac{cf}{dcpi}$$

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 (DASY5 parameter)

dcpi = Diode compression point (DASY5 parameter)

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

E-field probes:

$$E_i = \sqrt{\frac{V_i}{Norm_i \ ConvF}}$$

H-field probes:

$$H_i = \sqrt{V_i} \frac{a_{i0} + a_{i1}f + a_{i2}f^2}{f}$$

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

Norm<sub>i</sub> = Sensor sensitivity of channel i (i = x, y, z)

ConvF= Sensitivity enhancement in solution

a<sub>ij</sub> = Sensor sensitivity factors for H-field probes

f = Carrier frequency (GHz)

E<sub>i</sub> = Electric field strength of channel i in V/m

H<sub>i</sub> = Magnetic field strength of channel i in A/m

The RSS value of the field components give the total field strength:

$$E_{\text{tot}} = \sqrt{E_x^2 + E_y^2 + E_z^2}$$

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

$$SAR = E_{\text{tot}}^2 \frac{\sigma}{\rho 1000}$$

With SAR = local specific absorption rate in mW/g

E<sub>tot</sub> = total field strength in V/m

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

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

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

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

With  $P_{\text{pwe}}$  = Equivalent power density of a plane wave in mW/cm<sup>2</sup>

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

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

## 6.2 SAR Evaluation Procedures

The procedure for assessing the peak spatial-average SAR value consists of the following steps:

- **Power Reference Measurement**

The reference and drift jobs are useful jobs for monitoring the power drift of the device under test in the batch process. Both jobs measure the field at a specified reference position, at a selectable distance from the phantom surface. The reference position can be either the selected section's grid reference point or a user point in this section. The reference job projects the selected point onto the phantom surface, orients the probe perpendicularly to the surface, and approaches the surface using the selected detection method.

- **Area Scan**

The area scan is used as a fast scan in two dimensions to find the area of high field values, before doing a finer measurement around the hot spot. The sophisticated interpolation routines implemented in DASY5 software can find the maximum locations even in relatively coarse grids. The scan area is defined by an editable grid. This grid is anchored at the grid reference point of the selected section in the phantom. When the area scan's property sheet is brought-up, grid was at to 15 mm by 15 mm and can be edited by a user.

- **Zoom Scan**

Zoom scans are used to assess the peak spatial SAR values within a cubic averaging volume containing 1 g and 10 g of simulated tissue. The default zoom scan measures 7 x 7 x 7 points within a cube whose base faces are centered around the maximum found in a preceding area scan job within the same procedure. If the preceding Area Scan job indicates more than one maximum, the number of Zoom Scans has to be enlarged accordingly (The default number inserted is 1).

- **Power Drift Measurement**

The drift job measures the field at the same location as the most recent reference job within the same procedure, and with the same settings. The drift measurement gives the field difference in dB from the reading conducted within the last reference measurement. Several drift measurements are possible for one reference measurement. This allows a user to monitor the power drift of the device under test within a batch process. In the properties of the Drift job, the user can specify a limit for the drift and have DASY5 software stop the measurements if this limit is exceeded.

## 6.3 Spatial Peak SAR Evaluation

The procedure for spatial peak SAR evaluation has been implemented according to the IEC62209-1 standard. It can be conducted for 1 g and 10 g. 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 maximum 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

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 Cube 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. For a grid using 7x7x7 measurement points with 5mm resolution amounting to 343 measurement points, the uncertainty of the extrapolation routines is less than 1% for 1 g and 10 g cubes.

### Boundary effect

For measurements in the immediate vicinity of a phantom surface, the field coupling effects between the probe and the boundary influence the probe characteristics. Boundary effect errors of different dosimetric probe types

have been analyzed by measurements and using a numerical probe model. As expected, both methods showed an enhanced sensitivity in the immediate vicinity of the boundary. The effect strongly depends on the probe dimensions and disappears with increasing distance from the boundary. The sensitivity can be approximately given as:

$$S \approx S_o + S_b \exp\left(-\frac{z}{a}\right) \cos\left(\pi \frac{z}{\lambda}\right)$$

Since the decay of the boundary effect dominates for small probes ( $a \ll \lambda$ ), the cos-term can be omitted. Factors  $S_b$  (parameter Alpha in the DASY5 software) and  $a$  (parameter Delta in the DASY5 software) are assessed during probe calibration and used for numerical compensation of the boundary effect. Several simulations and measurements have confirmed that the compensation is valid for different field and boundary configurations. This simple compensation procedure can largely reduce the probe uncertainty near boundaries. It works well as long as:

- the boundary curvature is small
- the probe axis is angled less than 30 ° to the boundary normal
- the distance between probe and boundary is larger than 25% of the probe diameter
- the probe is symmetric (all sensors have the same offset from the probe tip)

Since all of these requirements are fulfilled in a DASY5 system, the correction of the probe boundary effect in the vicinity of the phantom surface is performed in a fully automated manner via the measurement data extraction during post processing.

## 7. Conducted Output Power Measurement

The following procedures had been used to prepare the EUT for the SAR test. To setup the desire channel frequency and the maximum output power. A Radio Communication Tester CMU200 was used to program the EUT.

GSM 850		Power (dBm)				Average power (dBm)		
		Channel	Channel	Channel		Channel	Channel	Channel
		128	190	251		128	190	251
GSM		<b>32.23</b>	32.20	32.07				
GPRS (GMSK)	1Txslot	32.13	32.19	32.06	-9.03	23.1	23.16	23.03
	2Txslots	30.04	30.24	30.11	-6.02	24.02	24.22	24.09
	3Txslots	29.11	29.04	29.03	-4.26	24.85	24.78	24.77
	4Txslots	28.45	28.39	28.32	-3.01	<b>25.44</b>	<b>25.38</b>	<b>25.31</b>
GSM 1900		Power (dBm)				Average power (dBm)		
		Channel	Channel	Channel		Channel	Channel	Channel
		512	661	810		512	661	810
GSM		30.32	<b>30.44</b>	30.33				
GPRS (GMSK)	1Txslot	30.54	30.39	30.20	-9.03	21.51	21.36	21.17
	2Txslots	29.48	29.44	29.27	-6.02	23.46	23.42	23.25
	3Txslots	27.60	27.47	27.28	-4.26	23.34	23.21	23.02
	4Txslots	26.48	26.49	26.26	-3.01	<b>23.47</b>	<b>23.48</b>	<b>23.25</b>

### Note:1) Division Factors

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

1 TX-slot = 1 transmit time slot out of 8 time slots

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

2 TX-slots = 2 transmit time slots out of 8 time slots

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

3TX-slots = 3 transmit time slots out of 8 time slots

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

4 TX-slots = 4 transmit time slots out of 8 time slots

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

### 2) Average power

The maximum power are marks in bold. According to the conducted power as above, the body measurements are performed with 4Txslots for GPRS.

**WCDMA**

<b>Band II</b>		<b>Power (dBm)</b>		
		Channel	Channel	Channel
		9262	9400	9538
RMC12.2kbps		23.41	<b>23.45</b>	23.17
HSDPA	Sub - Test 1	22.48	22.22	21.86
	Sub - Test 2	22.6	22.27	21.87
	Sub - Test 3	22.13	21.81	21.5
	Sub - Test 4	22.14	21.83	21.49
HSUPA	Sub - Test 1	20.63	20.36	20.05
	Sub - Test 2	20.63	20.45	20.02
	Sub - Test 3	21.64	21.48	21
	Sub - Test 4	20.08	19.83	19.45
	Sub - Test 5	22.51	22.12	21.19
<b>Band V</b>		<b>Power (dBm)</b>		
		Channel	Channel	Channel
		4132	4183	4233
RMC12.2kbps		22.83	<b>22.95</b>	22.42
HSDPA	Sub - Test 1	21.86	22.05	21.38
	Sub - Test 2	21.94	22.09	21.34
	Sub - Test 3	21.48	21.64	20.99
	Sub - Test 4	21.48	21.65	20.97
HSUPA	Sub - Test 1	20.35	19.92	19.14
	Sub - Test 2	20.41	19.90	19.10
	Sub - Test 3	20.39	20.93	20.09
	Sub - Test 4	19.81	19.31	19.53
	Sub - Test 5	22.27	21.9	21.06

## 8. SAR Measurement Results

### 8.1 Liquid Measurement Results

The simulating liquids should be checked at the beginning of a series of SAR measurements to determine if the dielectric parameters are within the tolerances of the specified target values.

Freq. [MHz]	Date	Liquid Type	Liquid Temp. [ °C]	Ambient Temp. [ °C]	Relative Humidity	Para.	Target Value	Measured Value	Deviation [%]	Limit [%]
835	July 07, 2015	Head	21.5	21	58%	εr	41.5	41.5	0.00	±5
						σ	0.90	0.89	-1.11	±5
835	July 08, 2015	Body	21.5	21	58%	εr	55.2	55.87	1.21	±5
						σ	0.97	0.96	-1.03	±5
1900	July 09, 2015	Head	21.5	21	58%	εr	40	40.33	0.82	±5
						σ	1.40	1.42	1.43	±5
1900	July 10, 2015	Body	21.5	21	58%	εr	53.3	51.05	-4.22	±5
						σ	1.52	1.57	3.29	±5
2450	July 12, 2015	Head	21.5	21	58%	εr	39.2	40.1	2.30	±5
						σ	1.80	1.86	3.33	±5
2450	July 12, 2015	Body	21.5	21	58%	εr	52.7	52.15	-1.04	±5
						σ	1.95	1.90	-2.56	±5

### 8.2 System Performance Check

#### System Performance Check Measurement conditions

- The measurements were performed in the flat section of the SAM twin phantom filled with head and body simulating liquid of the following parameters.
- The DASY5 system with an E-field probe was used for the measurements.
- The dipole was mounted on the small tripod so that the dipole feed point was positioned below the center marking of the flat phantom section and the dipole was oriented parallel to the body axis (the long side of the phantom). The standard measuring distance was 15 mm (below 1 GHz) and 10 mm (above 1 GHz) from dipole center to the simulating liquid surface.
- The coarse grid with a grid spacing of 10mm was aligned with the dipole.
- Special 5x5x7 fine cube was chosen for cube integration ( $dx= 8 \text{ mm}$ ,  $dy= 8 \text{ mm}$ ,  $dz= 5 \text{ mm}$ ).
- Distance between probe sensors and phantom surface was set to 2.5 mm.

The depth of Liquid must above 15cm



### System Performance Check Results

Freq. [MHz]	Date	Liquid Type	Liquid Temp. [ °C]	Amb. Temp. [ °C]	Input Power (mW)	Measured SAR_1g (W/Kg)	250mW Target SAR_1g (W/Kg)	Dev. [%]	Limit [%]
835	July 07, 2015	Head	21.5	21	250	2.37	2.47	-4.05	±10
	July 08, 2015	Body	21.5	21	250	2.46	2.52	-2.38	±10
1900	July 09, 2015	Head	21.5	21	250	9.83	9.89	-0.61	±10
	July 10, 2015	Body	21.5	21	250	10.5	10.3	1.94	±10
2450	July 12, 2015	Head	21.5	21	250	13.8	13.4	2.99	±10
	July 12, 2015	Body	21.5	21	250	12.7	13.0	-2.31	±10

## 8.3 Measurement Results

Band	Test configuration	Mode	Ch#.	Freq. [MHz]	Power (dBm)		1g SAR (W/Kg)		Power Drift (dB)	
					Tune-up limit	Measured	Measured	Scaled		
GSM850	Head	Left Cheek	voice	128	824.2	32.5	32.23	0.360	0.383	0.16
	Head	Left Tilted	voice	128	824.2	32.5	32.23	0.261	0.278	0.08
	Head	Right Cheek	voice	128	824.2	32.5	32.23	0.387	<b>0.412</b>	-0.08
	Head	Right Tilted	voice	128	824.2	32.5	32.23	0.243	0.259	0.03
	Body	Back	GPRS 4 slots	251	848.8	28.5	28.32	1.10	1.15	0.10
	Body	Back	GPRS 4 slots	190	836.6	28.5	28.39	1.15	1.18	-0.03
	Body	Back	GPRS 4 slots	128	824.2	28.5	28.45	1.18	<b>1.19</b>	0.09
	Body	Back	GPRS 4 slots	128	824.2	28.5	28.45	1.17	1.18	0.19
	Body	Front	GPRS 4 slots	251	848.8	28.5	28.32	0.812	0.846	-0.02
	Body	Front	GPRS 4 slots	190	836.6	28.5	28.39	0.878	0.901	0.01
	Body	Front	GPRS 4 slots	128	824.2	28.5	28.45	0.779	0.788	-0.07
	Body	Left	GPRS 4 slots	128	824.2	28.5	28.43	0.601	0.608	0.01
	Body	Right	GPRS 4 slots	251	848.8	28.5	28.32	0.795	0.829	-0.02
	Body	Right	GPRS 4 slots	190	836.6	28.5	28.39	0.830	0.851	-0.16
	Body	Right	GPRS 4 slots	128	824.2	28.5	28.43	0.810	0.819	-0.15
	Body	Bottom	GPRS 4 slots	128	824.2	28.5	28.43	0.079	0.080	-0.22
GSM 1900	Head	Left Cheek	voice	661	1880	30.5	30.44	0.727	<b>0.737</b>	0.22
	Head	Left Tilted	voice	661	1880	30.5	30.44	0.216	0.219	-0.02
	Head	Right Cheek	voice	661	1880	30.5	30.44	0.394	0.400	-0.02
	Head	Right Tilted	voice	661	1880	30.5	30.44	0.214	0.217	0.11
	Body	Back	GPRS 4 slots	810	1909.8	26.5	26.26	0.909	0.961	-0.04

Band	Test configuration		Mode	Ch#.	Freq. [MHz]	Power (dBm)		1g SAR (W/Kg)		Power Drift (dB)
						Tune-up limit	Measured	Measured	Scaled	
	Body	Back	GPRS 4 slots	661	1880	26.5	26.49	1.04	1.042	-0.01
	Body	Back	GPRS 4 slots	512	1850.2	26.5	26.48	1.11	<b>1.12</b>	-0.07
	Body	Back	GPRS 4 slots	512	1850.2	26.5	26.48	1.11	1.12	-0.06
	Body	Front	GPRS 4 slots	661	1880	26.5	26.49	0.665	0.667	0.04
	Body	Left	GPRS 4 slots	661	1880	26.5	26.49	0.430	0.431	-0.04
	Body	Right	GPRS 4 slots	661	1880	26.5	26.49	0.187	0.187	-0.02
	Body	Bottom	GPRS 4 slots	661	1880	26.5	26.49	0.544	0.545	-0.01
WCDMA Band II	Head	Left Cheek	RMC 12.2 kbps	9538	1907.6	23.5	23.17	0.787	0.849	0.08
	Head	Left Cheek	RMC 12.2 kbps	9400	1880	23.5	23.45	0.899	<b>0.909</b>	0.11
	Head	Left Cheek	RMC 12.2 kbps	9262	1852.4	23.5	23.41	0.874	0.892	0.00
	Head	Left Tilted	RMC 12.2 kbps	9400	1880	23.5	23.45	0.352	0.356	0.01
	Head	Right Cheek	RMC 12.2 kbps	9400	1880	23.5	23.45	0.663	0.671	0.06
	Head	Right Tilted	RMC 12.2 kbps	9400	1880	23.5	23.45	0.346	0.350	0.09
	Body	Back	RMC 12.2 kbps	9538	1907.6	23.5	23.17	0.961	1.04	0.00
	Body	Back	RMC 12.2 kbps	9400	1880	23.5	23.45	1.09	1.10	0.00
	Body	Back	RMC 12.2 kbps	9262	1852.4	23.5	23.41	1.11	<b>1.13</b>	0.00
	Body	Back	RMC 12.2 kbps	9262	1852.4	23.5	23.41	1.09	1.11	0.03
	Body	Front	RMC 12.2 kbps	9538	1907.6	23.5	23.17	0.726	0.784	0.08
	Body	Front	RMC 12.2 kbps	9400	1880	23.5	23.45	0.794	0.803	0.02

Band	Test configuration		Mode	Ch#.	Freq. [MHz]	Power (dBm)		1g SAR (W/Kg)		Power Drift (dB)
						Tune-up limit	Measured	Measured	Scaled	
	Body	Front	RMC 12.2 kbps	9262	1852.4	23.5	23.41	0.782	0.80	0.04
	Body	Left	RMC 12.2 kbps	9400	1880	23.5	23.45	0.538	0.544	-0.02
	Body	Right	RMC 12.2 kbps	9400	1880	23.5	23.45	0.212	0.214	-0.07
	Body	Bottom	RMC 12.2 kbps	9400	1880	23.5	23.45	0.609	0.616	-0.02
WCDMA Band V	Head	Left Cheek	RMC 12.2 kbps	4183	836.6	23.0	22.95	0.327	0.331	0.08
	Head	Left Tilted	RMC 12.2 kbps	4183	836.6	23.0	22.95	0.252	0.255	-0.21
	Head	Right Cheek	RMC 12.2 kbps	4183	836.6	23.0	22.95	0.365	<b>0.369</b>	-0.15
	Head	Right Tilted	RMC 12.2 kbps	4183	836.6	23.0	22.95	0.250	0.253	0.06
	Body	Back	RMC 12.2 kbps	4233	846.6	23.0	22.42	0.705	<b>0.806</b>	0.01
	Body	Back	RMC 12.2 kbps	4183	836.6	23.0	22.95	0.781	0.790	0.02
	Body	Back	RMC 12.2 kbps	4132	826.4	23.0	22.83	0.690	0.718	-0.10
	Body	Front	RMC 12.2 kbps	4183	836.6	23.0	22.95	0.467	0.472	-0.03
	Body	Left	RMC 12.2 kbps	4183	836.6	23.0	22.95	0.347	0.351	-0.09
	Body	Right	RMC 12.2 kbps	4183	836.6	23.0	22.95	0.475	0.481	-0.14
	Body	Bottom	RMC 12.2 kbps	4183	836.6	23.0	22.95	0.050	0.051	-0.10

Note:

- 1) The body SAR was tested with separation distance 10mm.
- 2) According to KDB 941225 D06 Hotspot Mode SAR v02, body SAR for top configuration measurement was not required for WWAN mode because the top side of the EUT with WWAN antenna further than 25 mm from the surface.

3) According to KDB 941225 D01 3G SAR Procedures v03, HSDPA and HSUPA body SAR are not required, because the maximum output power and tune-up tolerance specified for production units in a secondary mode is  $\leq \frac{1}{4}$  dB higher than the primary mode and the highest reported SAR of the primary mode is scaled by the ratio of specified maximum output power and tune-up tolerance of secondary to primary mode and the adjusted SAR is  $\leq 1.2$  W/kg.

4) Blue entries represent repeated test.

### **Measurement variability consideration**

According to KDB 865664 D01v01r03 section 2.8.1, repeated measurements are required following the procedures as below:

- 1) Repeated measurement is not required when the original highest measured SAR is  $< 0.80$  W/kg; steps 2) through 4) do not apply.
- 2) When the original highest measured SAR is  $\geq 0.80$  W/kg, repeat that measurement once.
- 3) Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is  $> 1.20$  or when the original or repeated measurement is  $\geq 1.45$  W/kg ( $\sim 10\%$  from the 1-g SAR limit).
- 4) Perform a third repeated measurement only if the original, first or second repeated measurement is  $\geq 1.5$  W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is  $> 1.20$ .

Band	Test configuration		Mode	Ch#.	Freq. (MHz)	Measured SAR (W/Kg)				
						Original	1 <sup>st</sup> Repeated		2 <sup>nd</sup> Repeated	
							Value	Ratio	Value	Ratio
GSM 850	Body	Back	GPRS 4 slots	128	824.2	1.18	1.17	1.01	NA	NA
GSM 1900	Body	Back	GPRS 4 slots	512	1850.2	1.11	1.11	1.00	NA	NA
WCDMA Band II	Body	Back	RMC 12.2 kbps	9262	1852.4	1.11	1.09	1.02	NA	NA

### SAR consideration for unlicensed transmitters:

The EUT support WIFI and Bluetooth functions, the output power of WIFI and Bluetooth are as follow:

WIFI (802.11b/g/n)

	Power (dBm)			
	802.11b	802.11g	802.11n(H20)	802.11n(H40)
Lowest	15.898	15.342	12.584	10.775
Middle	15.575	15.592	12.640	10.110
Highest	15.488	15.284	12.711	10.227
Tune-up limit	16.5	16.5	13.0	11.0

Bluetooth:

	Conducted power (dBm)		
	GFSK	Pi/4DQPSK	8QPSK
Lowest	5.537	5.788	6.127
Middle	4.881	5.228	5.173
Highest	4.823	5.241	4.898
Tune-up limit	6.0	6.0	6.5

According to KDB 447498 section 4.3.1, the 1-g SAR test exclusion thresholds at test separation distances  $\leq 50$  mm are determined by:

$$\frac{\text{Max power of Channel(mW)}}{\text{Test Separation Distance(mm)}} * \sqrt{\text{Frequency(GHz)}} \leq 3.0$$

1) WIFI maximum tune-up limit power is  $17.0\text{dBm}=50.12\text{mW}$ , Bluetooth maximum tune-up limit power is  $6.5\text{dBm}=4.47\text{mW}$ .

For the head and Body SAR, use 5mm and 10mm as the conservative minimum test separation distance respectively.

Mode	Frequency(MHz)	maximum Tune-up limit power(mW)	Separation Distance(mm)	$\leq 3.0$
WiFi(Head)	2412	50.12	5	15.57
WiFi(Body)	2412	50.12	10	7.78
Bluetooth (Head)	2480	4.47	5	1.41
Bluetooth (Body)	2480	4.47	10	0.70

So WIFI standalone SAR measurements are required for both head and body, and Bluetooth standalone SAR measurements are not required for both head and body.

The standalone SAR of WIFI is follow:

Test configuration		Mode	Ch#.	Freq. [MHz]	Power (dBm)		1g SAR (W/Kg)		Power Drift (dB)
					Tune-up limit	Measured	Measured	Scaled	
Head	Left Cheek	802.11b	1	2412	16.5	15.898	0.225	0.258	-0.18
Head	Left Tilted	802.11b	1	2412	16.5	15.898	0.163	0.187	0.01
Head	Right Cheek	802.11b	1	2412	16.5	15.898	0.415	<b>0.477</b>	0.07
Head	Right Tilted	802.11b	1	2412	16.5	15.898	0.223	0.256	0.04
Body	Back	802.11b	1	2412	16.5	15.898	0.324	<b>0.372</b>	-0.22
Body	Front	802.11b	1	2412	16.5	15.898	0.092	0.106	-0.12
Body	Left	802.11b	1	2412	16.5	15.898	0.162	0.186	-0.19
Body	Right	802.11b	1	2412	16.5	15.898	0.046	0.053	-0.10
Body	Top	802.11b	1	2412	16.5	15.898	0.106	0.122	-0.22

Note: 1) The body SAR was tested with separation distance 10mm.

- 2) According to KDB 941225 D06 Hotspot Mode SAR v01r01, body SAR for bottom configuration measurements were not required for WIFI mode because the bottom side of the EUT with WIFI antenna further than 25 mm from these surfaces.
- 3) SAR is not required for 802.11g/n channels because the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is  $\leq 1.2 \text{ W/kg}$ .

2) According to KDB 447498 section 4.3.2.2, when standalone SAR test exclusion applies, the standalone SAR must be estimated according to following formula:

$$\text{Estimated SAR} = \frac{\sqrt{f(\text{GHz})}}{7.5} * \frac{\text{Max power of Channel(mW)}}{\text{Min Test Separation Distance(mm)}}$$

Mode	Frequency(MHz)	maximum Tune-up limit power(mW)	Separation Distance(mm)	Estimated SAR(W/Kg)
Bluetooth (Head)	2480	4.47	5	0.188
Bluetooth (Body)	2480	4.47	10	0.094

So the estimated Bluetooth head SAR is 0.188 W/kg and the body SAR is 0.094 W/kg.

## Result Summary:

### Head SAR configuration

Mode	Channel	Position	1g SAR (W/Kg)
GSM850	128	Right , Cheek	0.412
GSM1900	661	Left , Cheek	0.737
WCDMA Band II	9400	Left , Cheek	0.909
WCDMA Band V	4183	Right , Cheek	0.369
WIFI(802.11g)	1	Right , Cheek	0.477
Bluetooth	/	/	0.188

### Body Worn configuration

Mode	Channel	Position	1g SAR (W/Kg)
4Tx slots GPRS850	128	Back side	1.19
4Tx slots GPRS1900	512	Back side	1.12
WCDMA Band II	9262	Back side	1.13
WCDMA Band V	4233	Back side	0.806
WIFI(802.11b)	1	Back side	0.372
Bluetooth	/	/	0.094

### Hotspot SAR configuration

Mode	Channel	Position	1g SAR (W/Kg)
4Tx slots GPRS850	128	Back side	1.19
4Tx slots GPRS1900	512	Back side	1.12
WCDMA Band II	9262	Back side	1.13
WCDMA Band V	4183	Back side	0.806
WIFI(802.11b)	1	Back side	0.372

## Simultaneous SAR Consideration

The simultaneous SAR scenarios are as follow.

No	Simultaneous Configuration	Sum. SAR (W/kg)
1	Cellular head + WiFi head	1.386
2	Cellular body + WiFi body	1.562
3	Cellular head + BT head	1.097
4	Cellular body + BT body	1.284
5	Cellular Hotspot + WiFi Hotspot	1.562

The maximum evaluation SAR of the simultaneous scenarios is 1.562 W/kg that less than 1.6 W/kg, so the simultaneous SAR measurement is not required.

## 9. Equipment List & Calibration Status

Name of Equipment	Manufacturer	Type/Model	Serial Number	Cal. Date	Cal.Due Date
PC	HP	d7900eC	CZC9312JJ4	N/A	N/A
E-field Probe	SPEAG	ES3DV3	SN 3221	2015-1-31	2016-1-30
DAE	SPEAG	DAE4-SD 000 D04 BJ	SN 893	2015-1-23	2016-1-22
Device Holder	Stäubli	N/A	N/A	N/A	N/A
SAM Phantom	SPEAG	SAM Twin Phantom	TP-1545/TP-1548	N/A	N/A
6 Axis Robot	Stäubli	Robot TX90XL	F09/5B9UA1/A/01	N/A	N/A
Dipole 835MHz	SPEAG	D835V2	4d150	2013-3-18	2016-3-17
Dipole 1900MHz	SPEAG	D1900V2	5d070	2012-10-1	2015-9-30
Dipole 2450MHz	SPEAG	D2450V2	815	2012-9-26	2015-9-25
Wireless Communication Test Set	Anritsu	MT8820C	6201060976	2014-8-13	2015-8-12
Wireless Communication Test Set	R&S	CMU200	120574	2014-8-13	2015-8-12
Signal Generator	Agilent	5183A	MY49060563	2014-8-13	2015-8-12
Power Meter	Agilent	E4419B	MY45104719	2014-8-13	2015-8-12
Power Sensor	Agilent	N8481H	MY48100148	2014-8-13	2015-8-12
Directional couplers	Agilent	778D	MY48220223	N/A	N/A
Power amplifier	mini-circuits	ZHL-42W	QA0940002	N/A	N/A
Power supply	Topward	3303d	796708	2014-8-13	2015-8-12
Network Analyzer	Agilent	E5071C	MY46108263	2014-8-13	2015-8-12
Liquid Calibration Kit	Agilent	85070E	N/A	N/A	N/A

Note: Per KDB 450824 Dipole SAR Validation Verification, GCCT Lab has adopted 3 years calibration intervals. On annual basis, every measurement dipole has been evaluated and is in compliance with the following criteria:

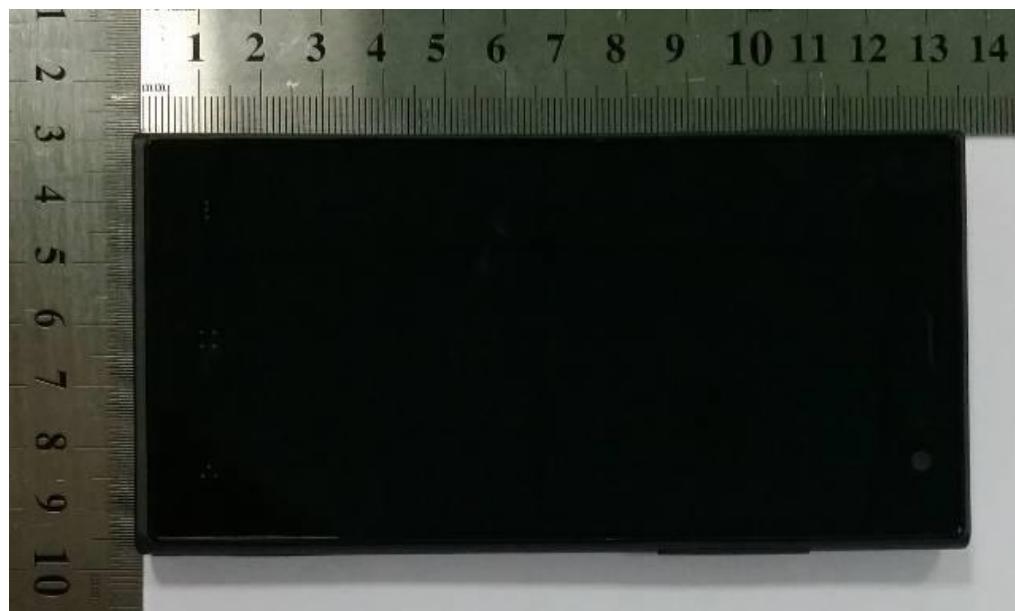
1. There is no physical damage on the dipole;
2. System validation with specific dipole is within 10% of calibrated value;
3. Return-loss is within 20% of calibrated measurement;
4. Impedance is within  $5\Omega$  of calibrated measurement.

## 10. Measurement Uncertainty

Uncertainty Component	Sec.	Tol (+-%)	Prob. Dist.	Div.	Ci (1g)	Ci (10g)	1g Ui (+-%)	10g Ui (+-%)	Vi
<b>Measurement System</b>									
Probe calibration	E.2.1	6.55	N	1.0	1.0	1.0	6.55	6.55	$\infty$
Axial Isotropy	E.2.2	0.5	R	$\sqrt{3}$	1.0	1.0	0.29	0.29	$\infty$
Hemispherical Isotropy	E.2.2	2.6	R	$\sqrt{3}$	1.0	1.0	1.5	1.5	$\infty$
Boundary effect	E.2.3	0.8	R	$\sqrt{3}$	1.0	1.0	0.46	0.46	$\infty$
Linearity	E.2.4	0.6	R	$\sqrt{3}$	1.0	1.0	0.35	0.35	$\infty$
System detection limits	E.2.5	0.25	R	$\sqrt{3}$	1.0	1.0	0.14	0.14	$\infty$
Readout Electronics	E.2.6	0.35	N	1	1.0	1.0	0.35	0.35	$\infty$
Reponse Time	E.2.7	0	R	$\sqrt{3}$	1.0	1.0	0	0	$\infty$
Integration Time	E.2.8	2.6	R	$\sqrt{3}$	1.0	1.0	1.5	1.5	$\infty$
RF ambient Conditions-Noise	E.6.1	0	R	$\sqrt{3}$	1.0	1.0	0	0	$\infty$
RF ambient Conditions-Reflections	E.6.1	3.0	R	$\sqrt{3}$	1.0	1.0	1.7	1.7	$\infty$
Probe positioner Mechanical Tolerance	E.6.2	1.5	R	$\sqrt{3}$	1.0	1.0	0.87	0.87	$\infty$
Probe positioning with respect to Phantom Shell	E.6.3	2.9	R	$\sqrt{3}$	1.0	1.0	1.67	1.67	$\infty$
Extrapolation, interpolation and integration Algoritms for Max. SAR	E.5	1.0	R	$\sqrt{3}$	1.0	1.0	0.58	0.58	$\infty$
<b>Test sample Related</b>									
Test Sample Positioning	E.4.2	4.6	N	1.0	1.0	1.0	4.6	4.6	N-1
Device Holder Uncertainty	E.4.1	5.2	N	1.0	1.0	1.0	5.2	5.2	N-1
Output Power Variation - SAR drift measurement	6.6.2	5	R	$\sqrt{3}$	1.0	1.0	2.89	2.89	$\infty$
<b>Phantom and Tissue Parameters</b>									
Phantom Uncertainty (Shape and thickness tolerances)	E.3.1	4.0	R	$\sqrt{3}$	1.0	1.0	2.31	2.31	$\infty$
Liquid conductivity - deviation from target value	E.3.2	5.0	R	$\sqrt{3}$	0.64	0.43	1.85	1.24	$\infty$
Liquid conductivity - measurement uncertainty	E.3.3	2.5	N	1.0	0.64	0.43	1.60	1.08	M
Liquid permitivity - deviation from target value	E.3.2	5.0	R	$\sqrt{3}$	0.6	0.49	1.73	1.42	$\infty$
Liquid permitivity - measurement uncertainty	E.3.3	2.5	N	1.0	0.6	0.49	1.5	1.23	M
<b>Combined Standard Uncertainty</b>									
Expanded Uncertainty (95% Confidence interval)			K				11.3	11.0	
							23	22	

## ANNEX A: EUT Photos and Test Positions

EUT Photos:

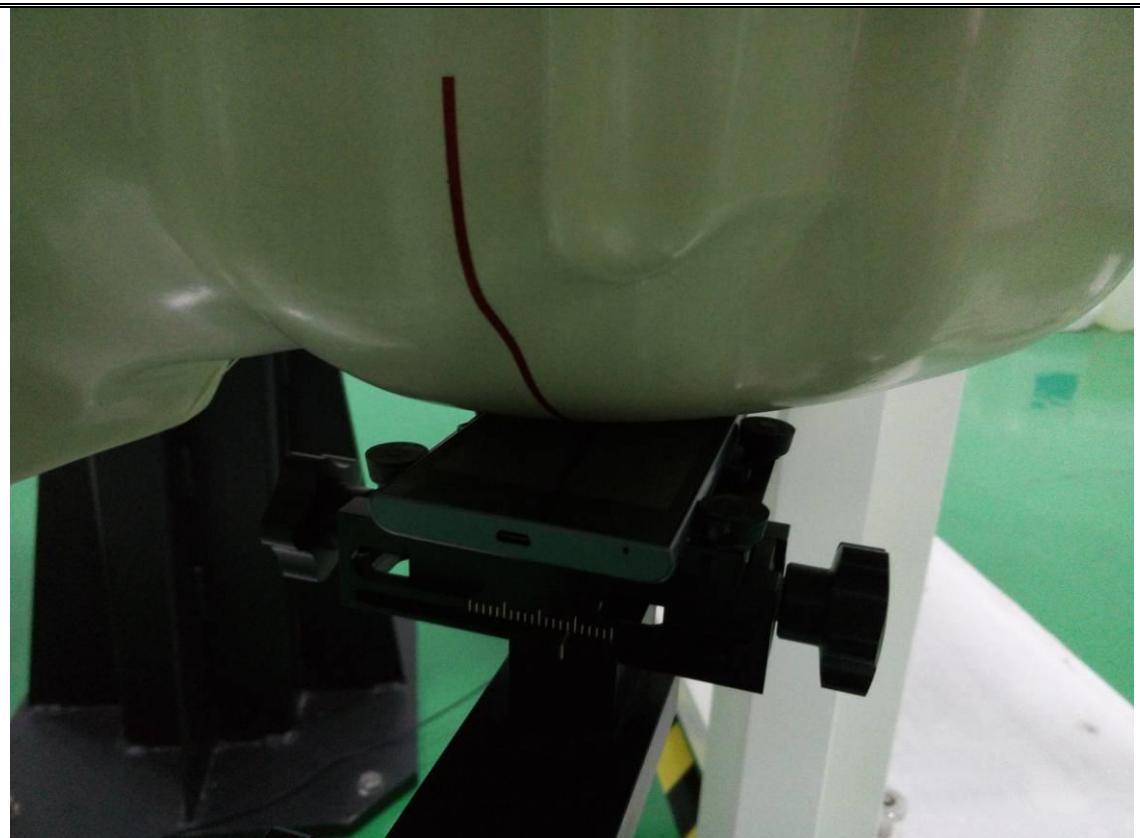


Mobile Phone

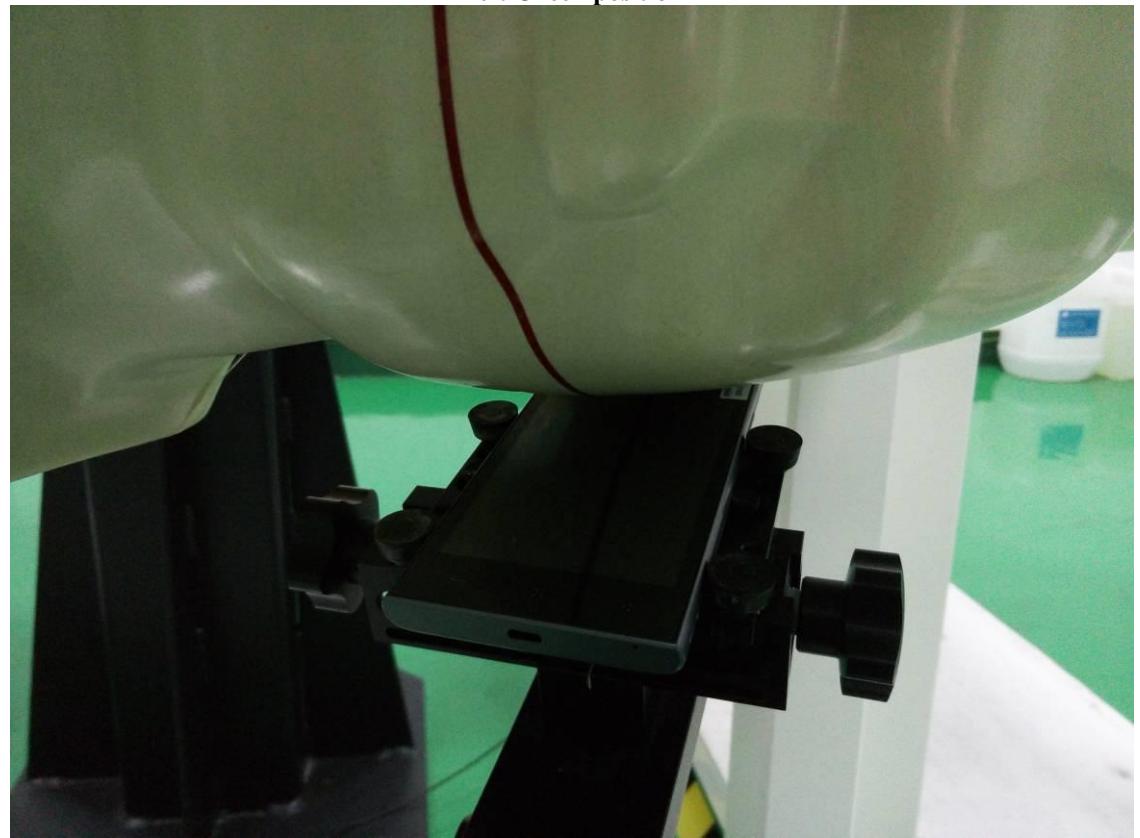


Mobile Phone

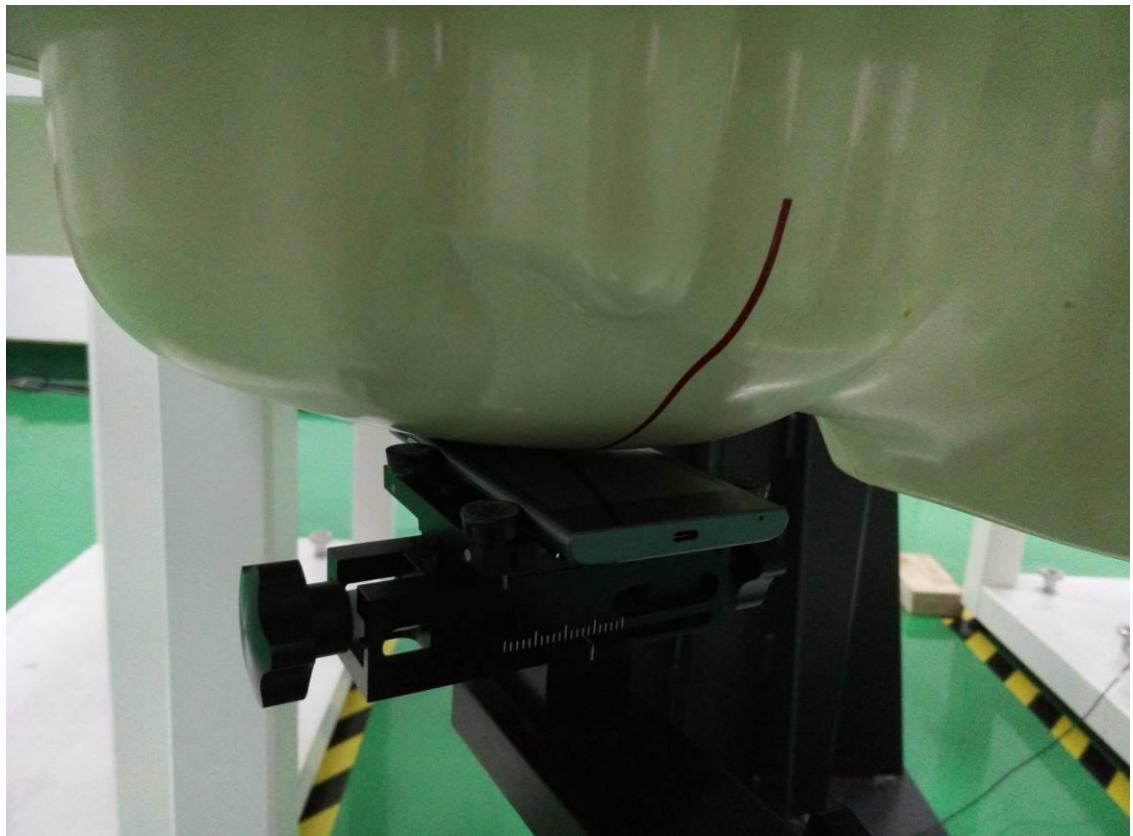
**Test Positions:**



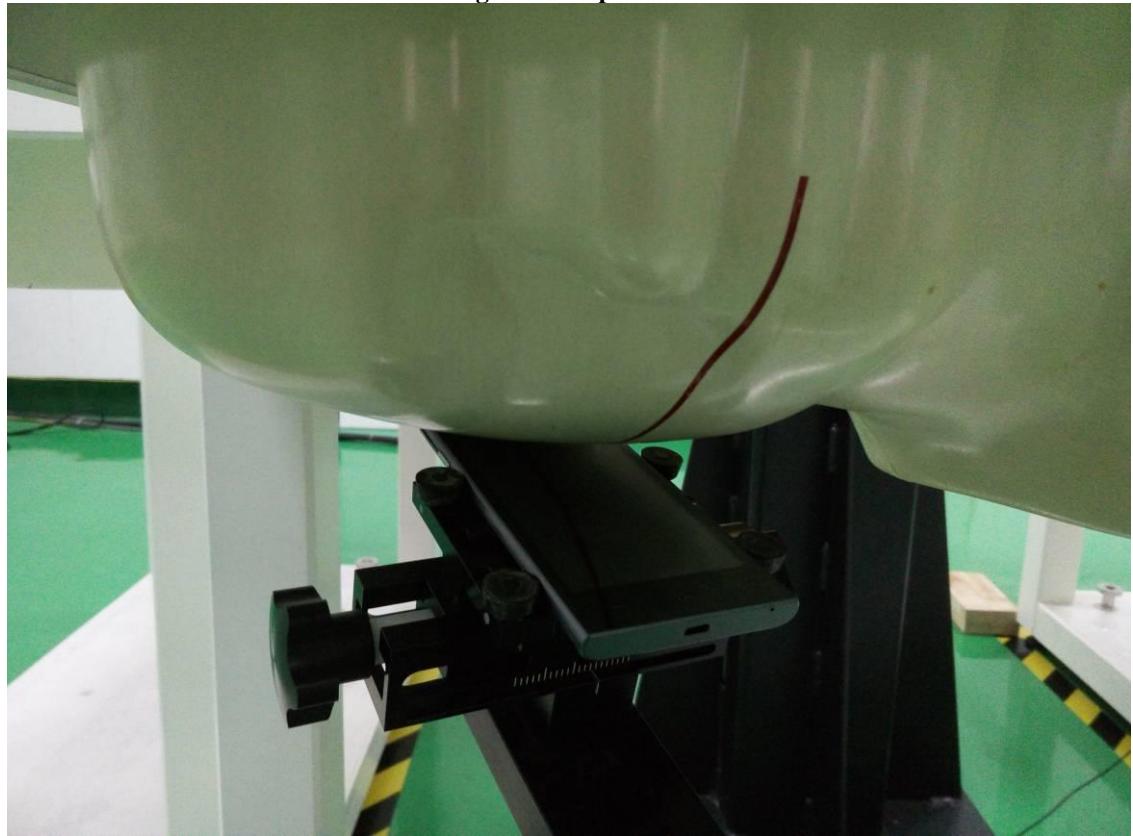
**Left Check position**



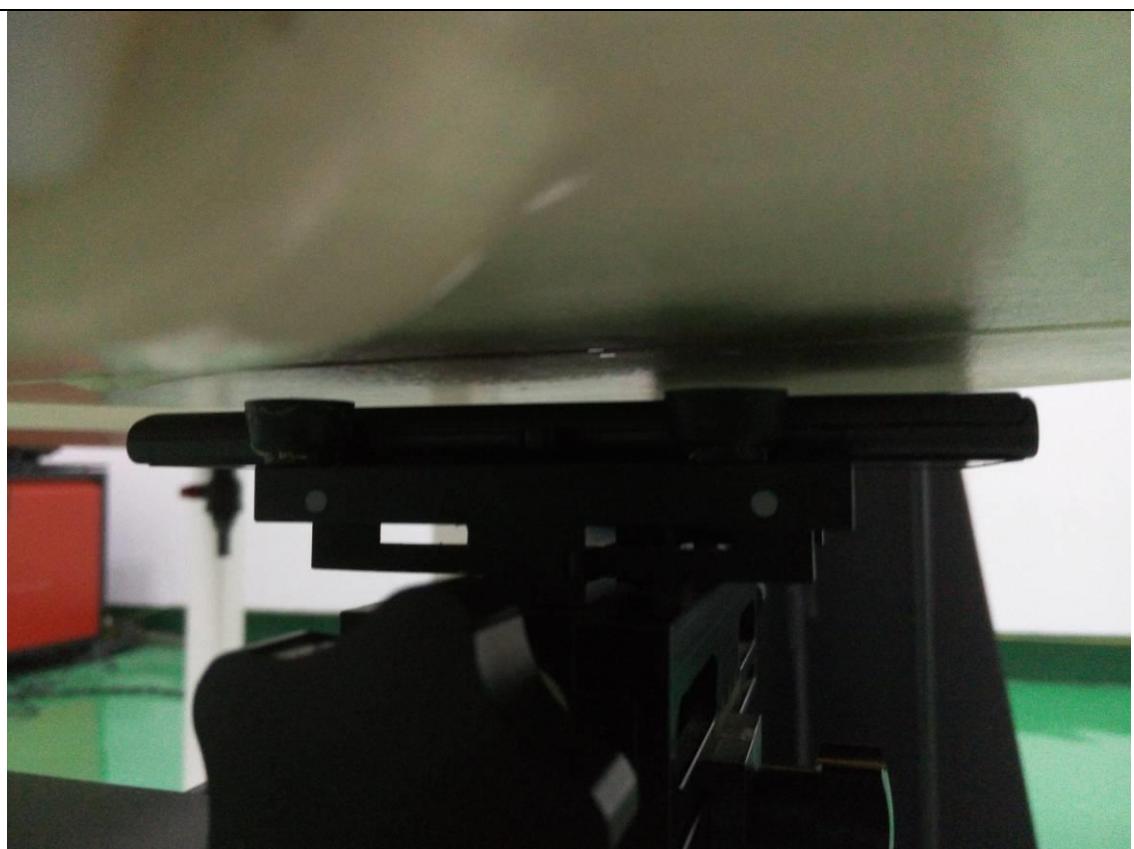
**Left Tilted position**



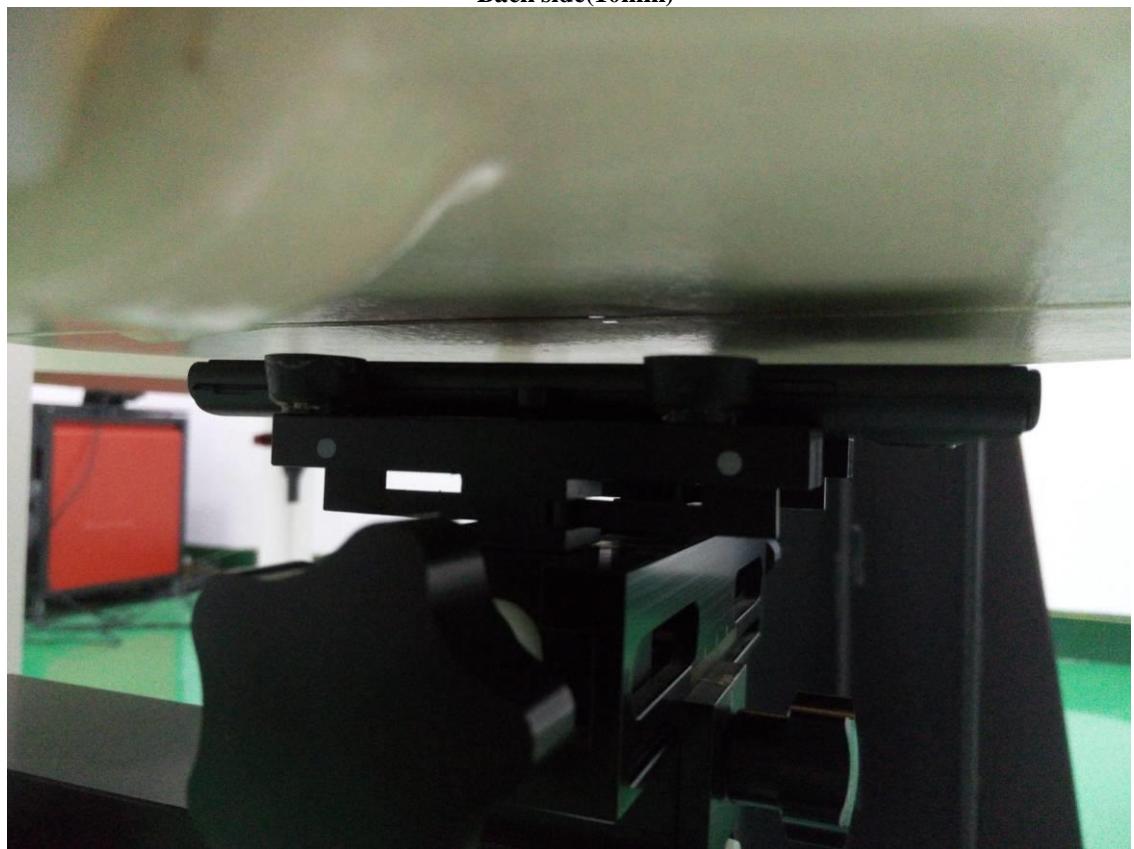
Right Cheek position



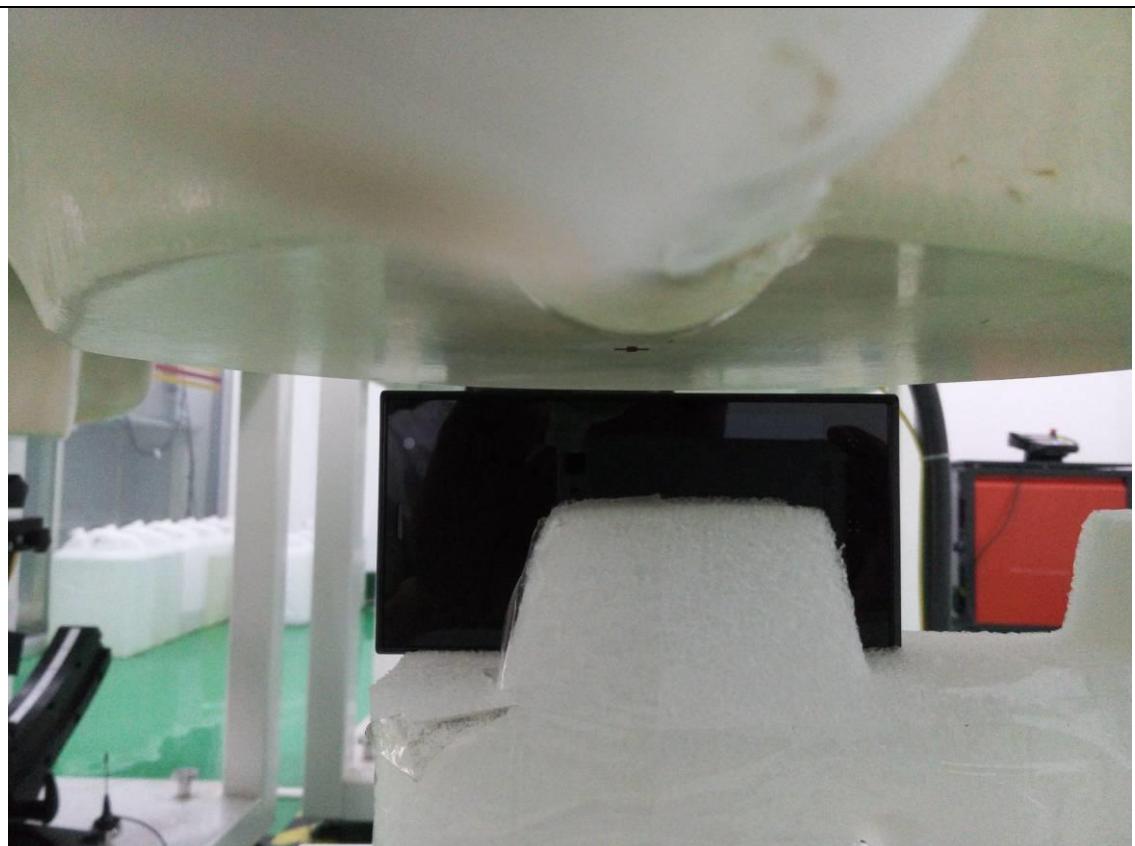
Right Tilted position



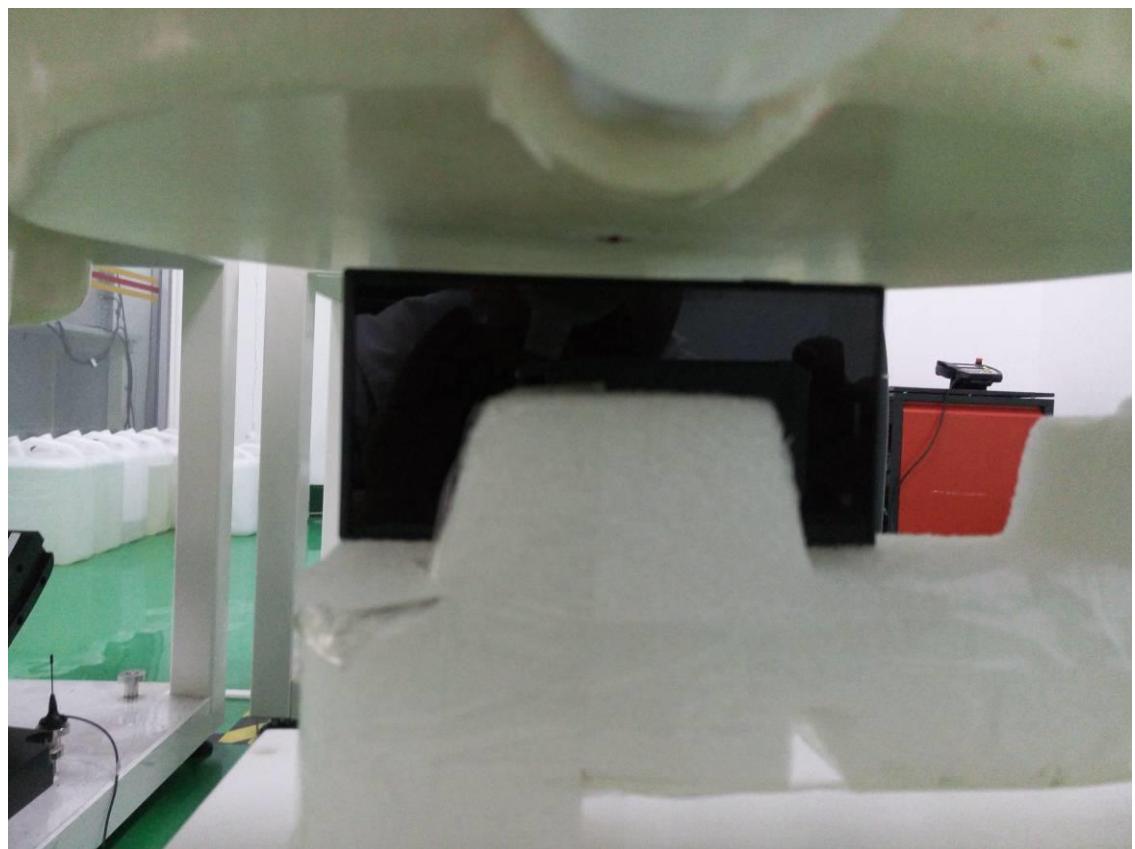
Back side(10mm)



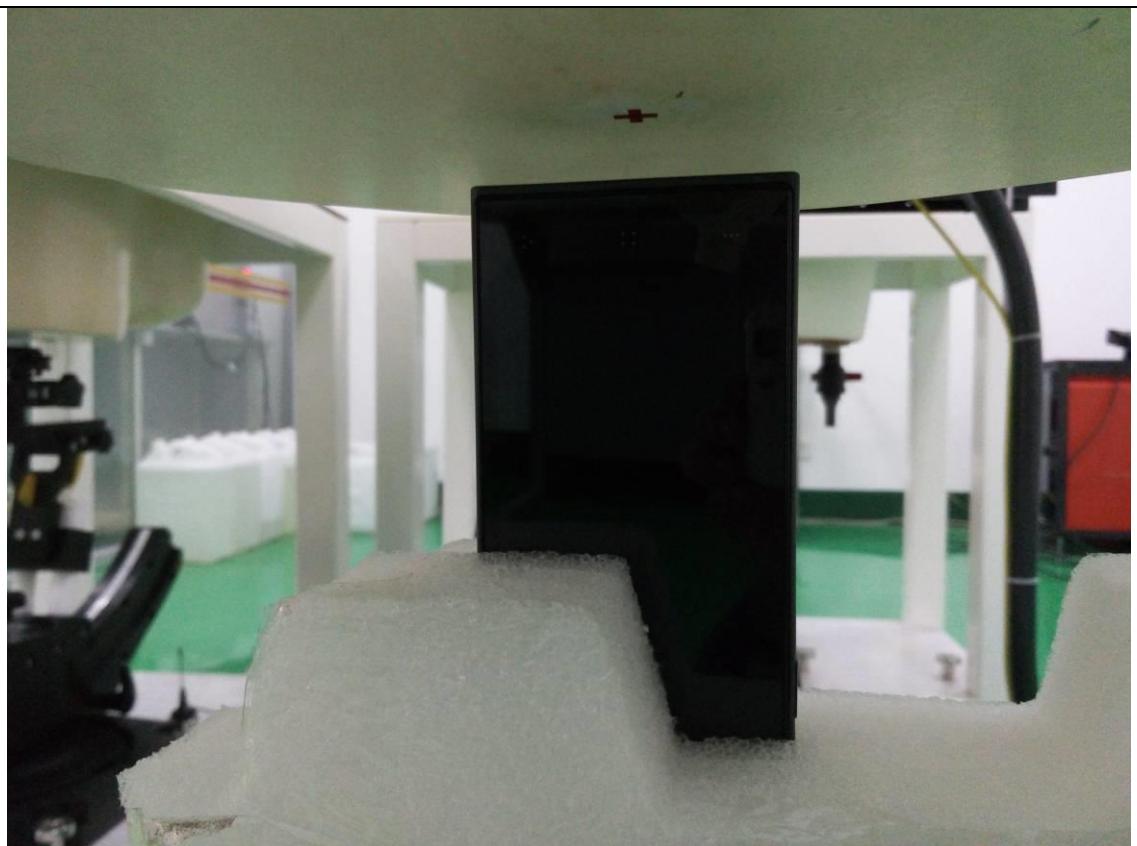
Front side(10mm)



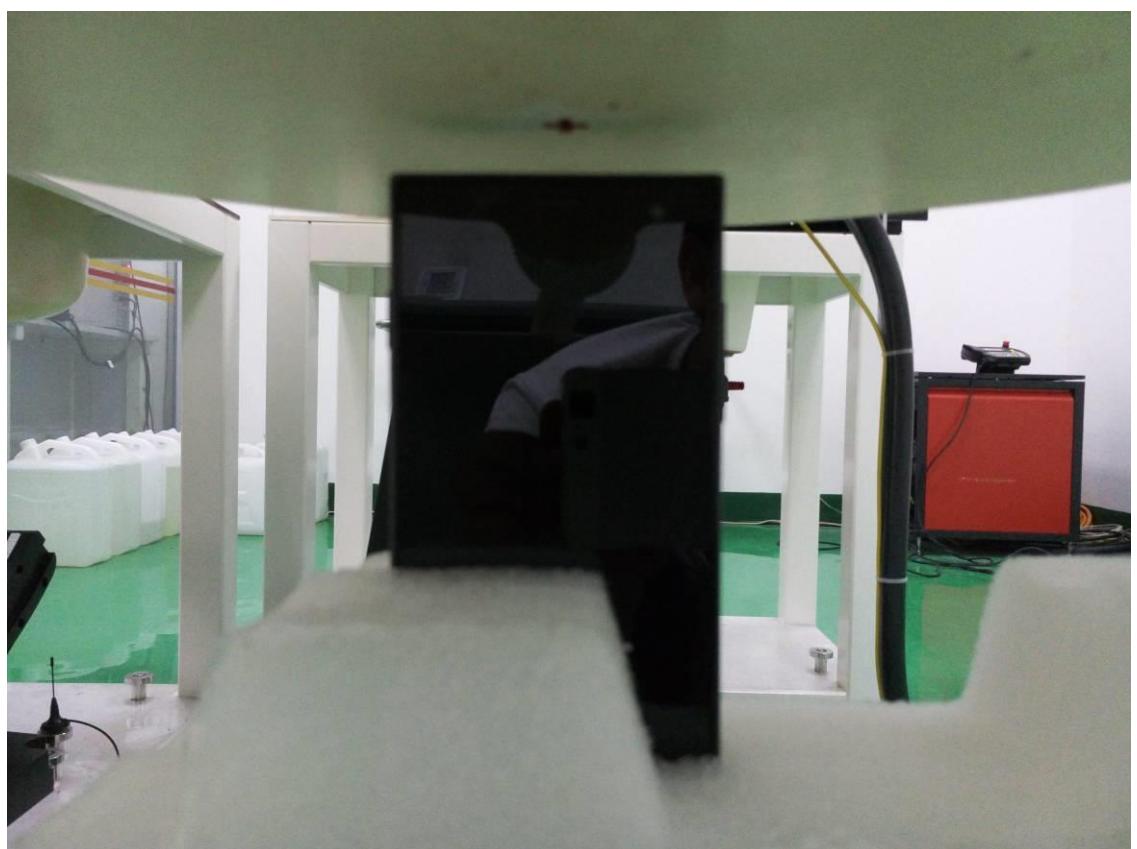
Right side(10mm)



Left side(10mm)



Bottom side(10mm)



Top side(10mm)

## ANNEX B: System Performance Check Plots

Test Laboratory: GCCT

Test Date: July. 07, 2015

### System 835 MHz dipole (Head)

**DUT: Dipole 835 MHz D835V2; Type: D835V2**

Communication System: CW; Communication System Band: D835 (835.0 MHz); Frequency: 835 MHz;  
Communication System PAR: 0 dB

Medium parameters used:  $f = 835$  MHz;  $\sigma = 0.89$  mho/m;  $\epsilon_r = 41.5$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(6.25, 6.25, 6.25); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_1 with CRP v4.0; Type: QD000P40CC; Serial: TP:1586
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**835Head/System/Area Scan (31x181x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Reference Value = 54.685 V/m; Power Drift = -0.10 dB

Maximum value of SAR (interpolated) = 2.55 W/kg

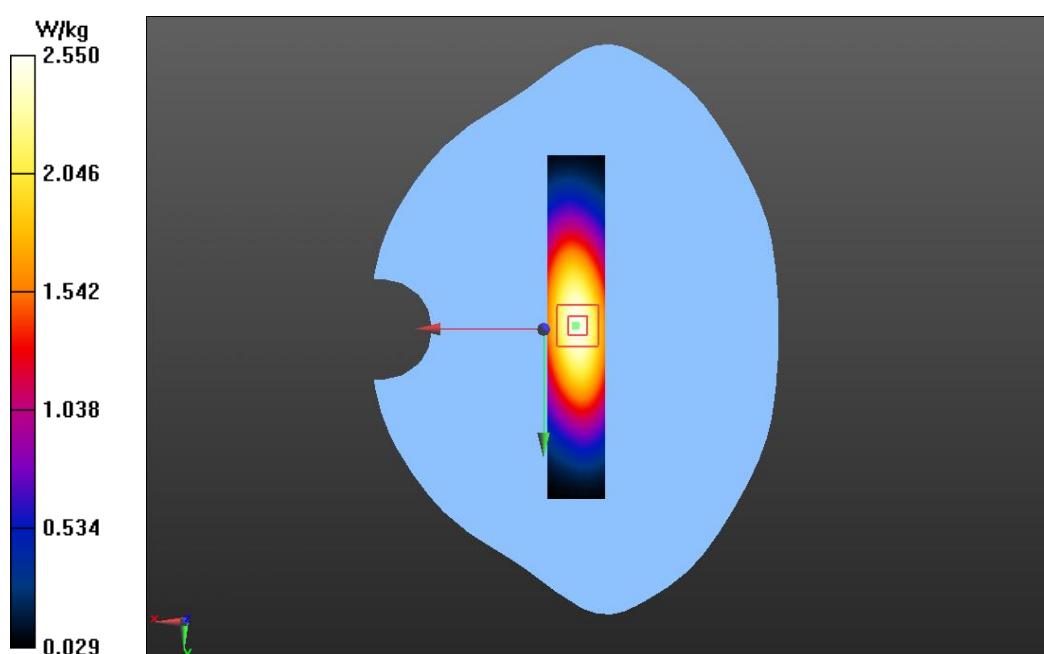
**835Head/System/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 54.685 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 3.500 mW/g

**SAR(1 g) = 2.37 mW/g; SAR(10 g) = 1.56 mW/g**

Maximum value of SAR (measured) = 2.56 W/kg



Test Laboratory: GCCT

Test Date: July. 08, 2015

### System 835 MHz dipole (Body)

**DUT: Dipole 835 MHz D835V2; Type: D835V2**

Communication System: CW; Communication System Band: D835 (835.0 MHz); Frequency: 835 MHz;  
Communication System PAR: 0 dB

Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.96 \text{ mho/m}$ ;  $\epsilon_r = 55.87$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(6.29, 6.29, 6.29); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_2with CRP v4.0; Type: QD000P40CC; Serial: TP:1548
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**835Body/System/Area Scan (31x181x1):** Interpolated grid:  $dx=1.000 \text{ mm}$ ,  $dy=1.000 \text{ mm}$

Reference Value = 53.231 V/m; Power Drift = 0.01 dB

Maximum value of SAR (interpolated) = 2.65 W/kg

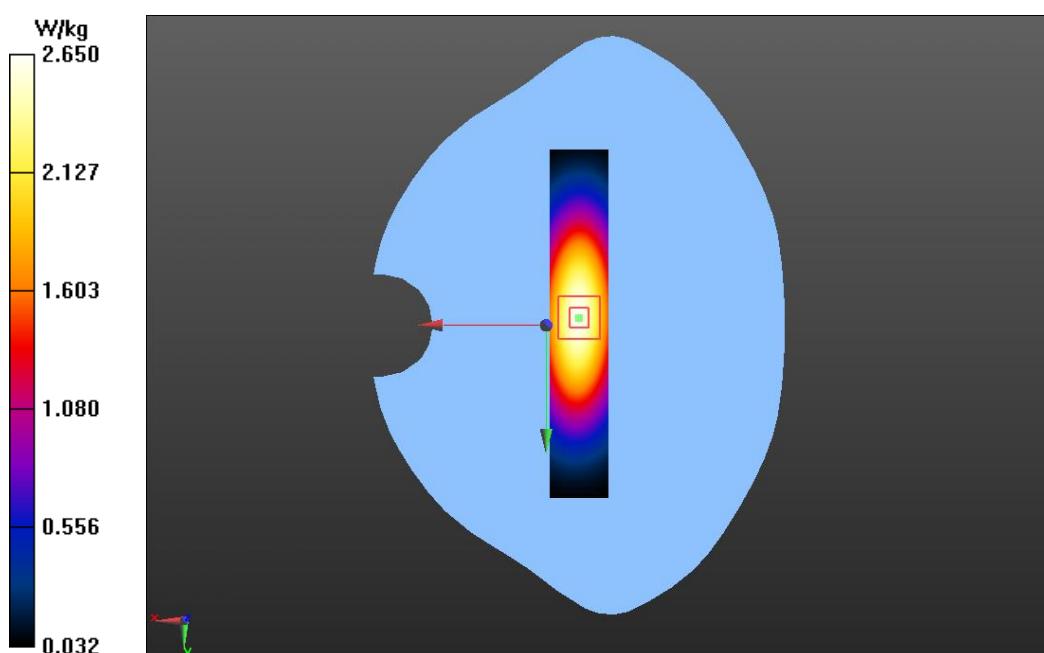
**835Body/System/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 53.231 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 3.564 mW/g

**SAR(1 g) = 2.46 mW/g; SAR(10 g) = 1.63 mW/g**

Maximum value of SAR (measured) = 2.67 W/kg



Test Laboratory: GCCT

Test Date: July. 09, 2015

### System 1900 MHz dipole (head)

**DUT: Dipole 1900 MHz D1900V2; Type: D1900V2**

Communication System: CW; Communication System Band: D1900 (1900.0 MHz); Frequency: 1900 MHz;  
Communication System PAR: 0 dB

Medium parameters used:  $f = 1900 \text{ MHz}$ ;  $\sigma = 1.422 \text{ mho/m}$ ;  $\epsilon_r = 40.328$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(5.2, 5.2, 5.2); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_1 with CRP v4.0; Type: QD000P40CC; Serial: TP:1586
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**1900Head/System 20140621/Area Scan (31x91x1):** Interpolated grid:  $dx=1.000 \text{ mm}$ ,  $dy=1.000 \text{ mm}$

Reference Value = 92.733 V/m; Power Drift = -0.41 dB

Maximum value of SAR (interpolated) = 11.4 W/kg

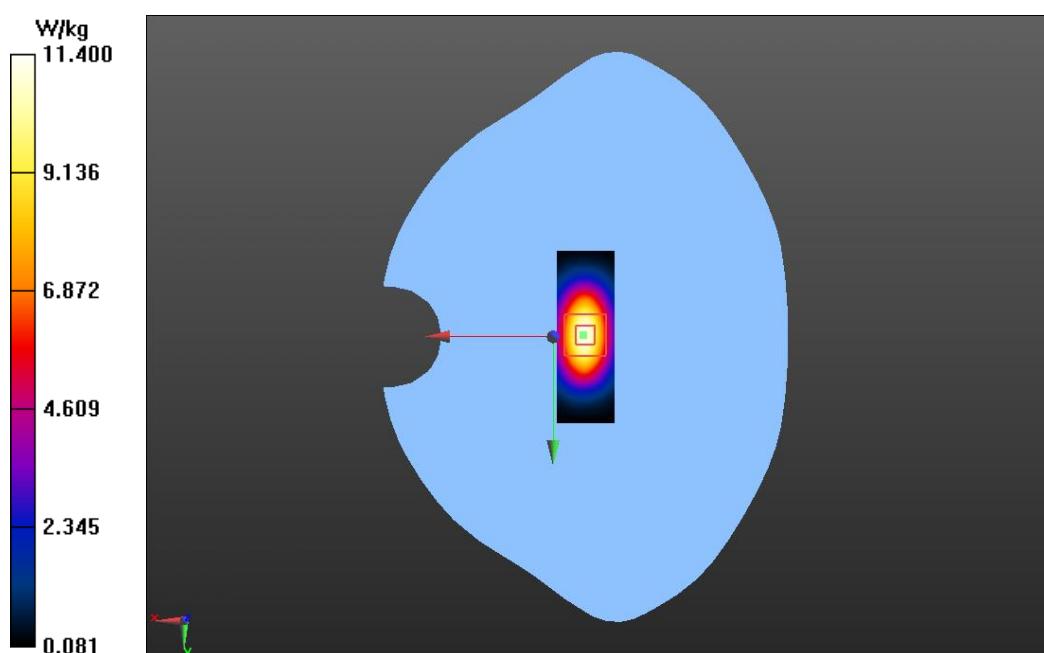
**1900Head/System 20140621/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 92.733 V/m; Power Drift = -0.41 dB

Peak SAR (extrapolated) = 18.316 mW/g

**SAR(1 g) = 9.83 mW/g; SAR(10 g) = 5.11 mW/g**

Maximum value of SAR (measured) = 11.0 W/kg



Test Laboratory: GCCT

Test Date: July. 10, 2015

### System 1900 MHz dipole (Body)

**DUT: Dipole 1900 MHz D1900V2; Type: D1900V2**

Communication System: CW; Communication System Band: D1900 (1900.0 MHz); Frequency: 1900 MHz;  
Communication System PAR: 0 dB

Medium parameters used:  $f = 1900 \text{ MHz}$ ;  $\sigma = 1.57 \text{ mho/m}$ ;  $\epsilon_r = 51.05$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(4.79, 4.79, 4.79); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_1 with CRP v4.0; Type: QD000P40CC; Serial: TP:1586
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**1900Body/System/Area Scan (21x91x1):** Interpolated grid:  $dx=1.000 \text{ mm}$ ,  $dy=1.000 \text{ mm}$

Reference Value = 88.532 V/m; Power Drift = -0.10 dB

Maximum value of SAR (interpolated) = 12.0 W/kg

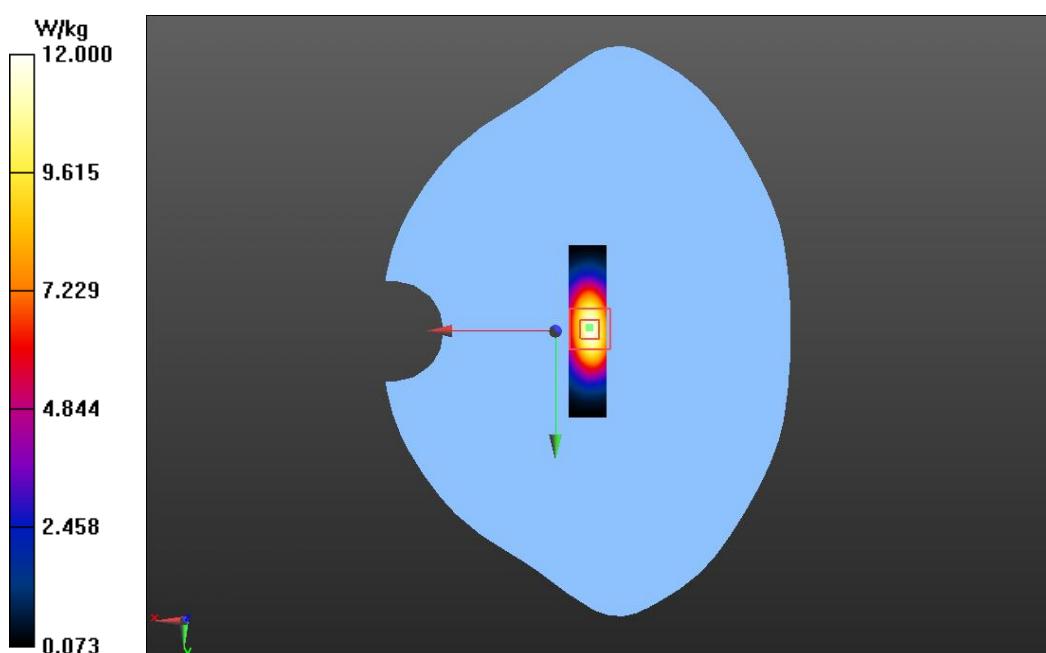
**1900Body/System/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 88.532 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 19.107 mW/g

**SAR(1 g) = 10.5 mW/g; SAR(10 g) = 5.51 mW/g**

Maximum value of SAR (measured) = 11.8 W/kg



Test Laboratory: GCCT

Test Date: July. 12, 2015

### System 2450 MHz dipole (Head)

**DUT: Dipole 2450 MHz D2450V2; Type: D2450V2**

Communication System: CW; Communication System Band: D2450 (2450.0 MHz); Frequency: 2450 MHz;  
Communication System PAR: 0 dB

Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.864$  mho/m;  $\epsilon_r = 40.086$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(4.5, 4.5, 4.5); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_1 with CRP v4.0; Type: QD000P40CC; Serial: TP:1586
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**2450 Head/System/Area Scan (31x71x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Reference Value = 92.154 V/m; Power Drift = -0.13 dB

Maximum value of SAR (interpolated) = 16.2 W/kg

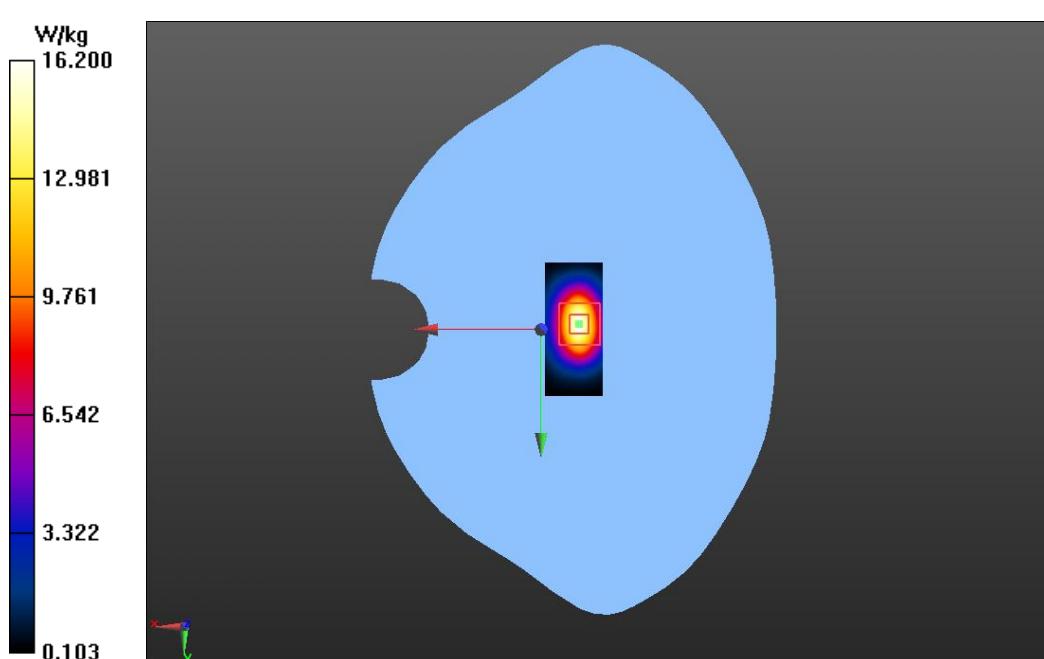
**2450 Head/System/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 92.154 V/m; Power Drift = -0.13 dB

Peak SAR (extrapolated) = 28.668 mW/g

**SAR(1 g) = 13.8 mW/g; SAR(10 g) = 6.5 mW/g**

Maximum value of SAR (measured) = 15.7 W/kg



Test Laboratory: GCCT

Test Date: July. 12, 2015

### System 2450 MHz dipole (Body)

**DUT: Dipole 2450 MHz D2450V2; Type: D2450V2**

Communication System: CW; Communication System Band: D2450 (2450.0 MHz); Frequency: 2450 MHz;  
Communication System PAR: 0 dB

Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.902$  mho/m;  $\epsilon_r = 52.15$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(4.49, 4.49, 4.49); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_1 with CRP v4.0; Type: QD000P40CC; Serial: TP:1586
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**2450 Body/System check/Area Scan (31x71x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Reference Value = 86.432 V/m; Power Drift = -0.03 dB

Maximum value of SAR (interpolated) = 14.7 W/kg

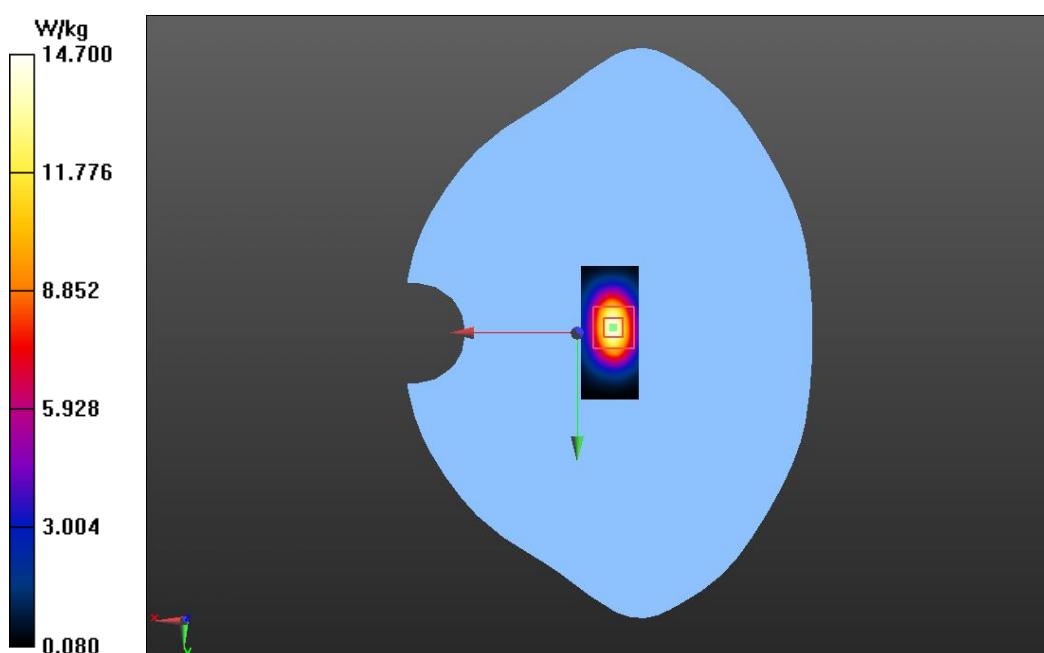
**2450 Body/System check/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 86.432 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 26.078 mW/g

**SAR(1 g) = 12.7 mW/g; SAR(10 g) = 5.94 mW/g**

Maximum value of SAR (measured) = 14.4 W/kg



## ANNEX C: SAR Test Plots

Test Laboratory: GCCT

Test Date: July. 07, 2015

### GSM850 LEFT/CHEEK-Low

**DUT: Mobile Phone; Type: SP4**

Communication System: Generic GSM; Communication System Band: GSM 850 (824.0 - 849.0 MHz); Frequency: 824.2 MHz; Communication System PAR: 9.191 dB

Medium parameters used (interpolated):  $f = 824.2 \text{ MHz}$ ;  $\sigma = 0.849 \text{ mho/m}$ ;  $\epsilon_r = 40.573$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(6.25, 6.25, 6.25); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_2with CRP v4.0; Type: QD000P40CC; Serial: TP:1548
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**GSM850 LEFT/CHEEK-Low/Area Scan (51x101x1):** Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$

Reference Value = 6.459 V/m; Power Drift = 0.16 dB

Maximum value of SAR (interpolated) = 0.374 W/kg

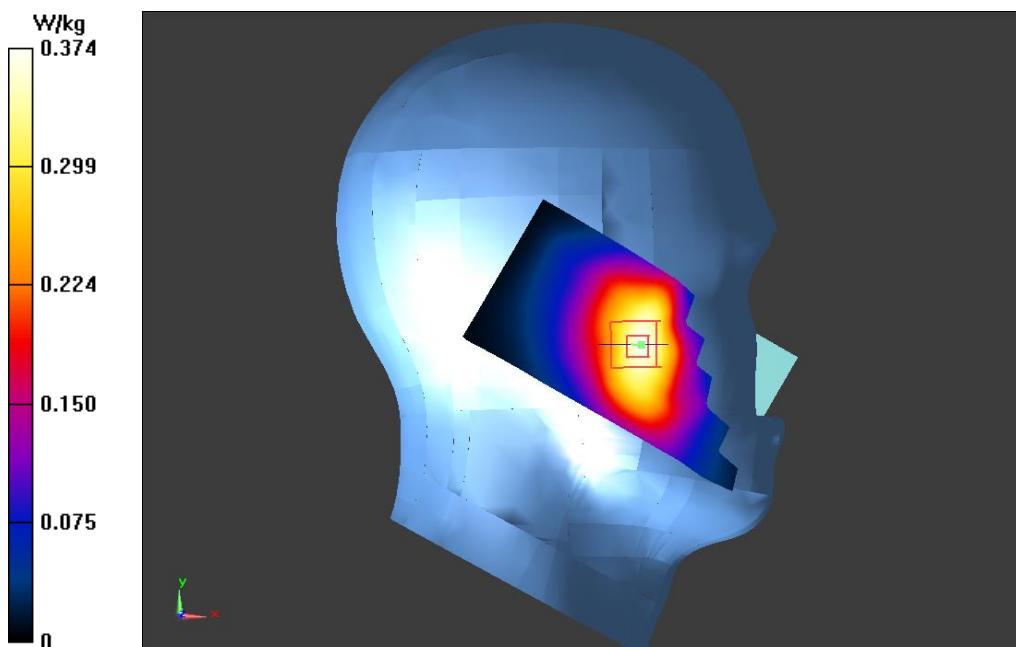
**GSM850 LEFT/CHEEK-Low/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 6.459 V/m; Power Drift = 0.16 dB

Peak SAR (extrapolated) = 0.454 mW/g

**SAR(1 g) = 0.360 mW/g; SAR(10 g) = 0.268 mW/g**

Maximum value of SAR (measured) = 0.382 W/kg



Test Laboratory: GCCT

Test Date: July. 07, 2015

## GSM850 LEFT/TILT-Low

**DUT: Mobile Phone; Type: SP4**

Communication System: Generic GSM; Communication System Band: GSM 850 (824.0 - 849.0 MHz); Frequency: 824.2 MHz; Communication System PAR: 9.191 dB

Medium parameters used (interpolated):  $f = 824.2 \text{ MHz}$ ;  $\sigma = 0.849 \text{ mho/m}$ ;  $\epsilon_r = 40.573$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(6.25, 6.25, 6.25); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_2with CRP v4.0; Type: QD000P40CC; Serial: TP:1548
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**GSM850 LEFT/TILT-Low/Area Scan (51x101x1):** Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$

Reference Value = 11.879 V/m; Power Drift = 0.08 dB

Maximum value of SAR (interpolated) = 0.264 W/kg

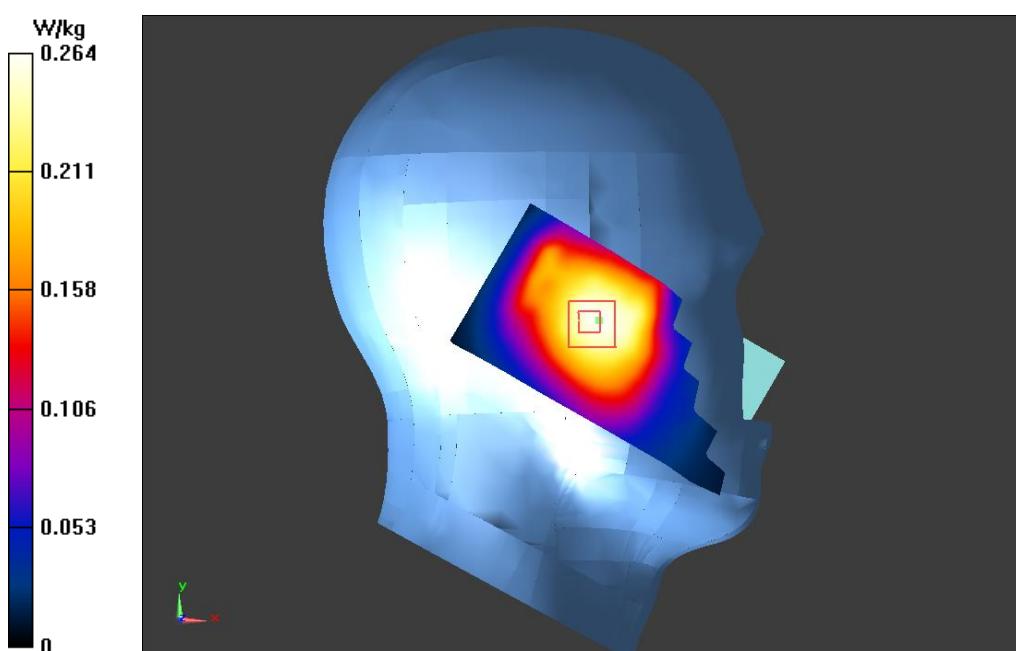
**GSM850 LEFT/TILT-Low/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 11.879 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 0.324 mW/g

**SAR(1 g) = 0.261 mW/g; SAR(10 g) = 0.201 mW/g**

Maximum value of SAR (measured) = 0.272 W/kg



Test Laboratory: GCCT

Test Date: July. 07, 2015

## GSM850 RIGHT/CHEEK-Low

**DUT: Mobile Phone; Type: SP4**

Communication System: Generic GSM; Communication System Band: GSM 850 (824.0 - 849.0 MHz); Frequency: 824.2 MHz; Communication System PAR: 9.191 dB

Medium parameters used (interpolated):  $f = 824.2 \text{ MHz}$ ;  $\sigma = 0.849 \text{ mho/m}$ ;  $\epsilon_r = 40.573$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(6.25, 6.25, 6.25); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_2with CRP v4.0; Type: QD000P40CC; Serial: TP:1548
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**GSM850 RIGHT/CHEEK-Low/Area Scan (51x101x1):** Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$

Reference Value = 6.158 V/m; Power Drift = -0.08 dB

Maximum value of SAR (interpolated) = 0.409 W/kg

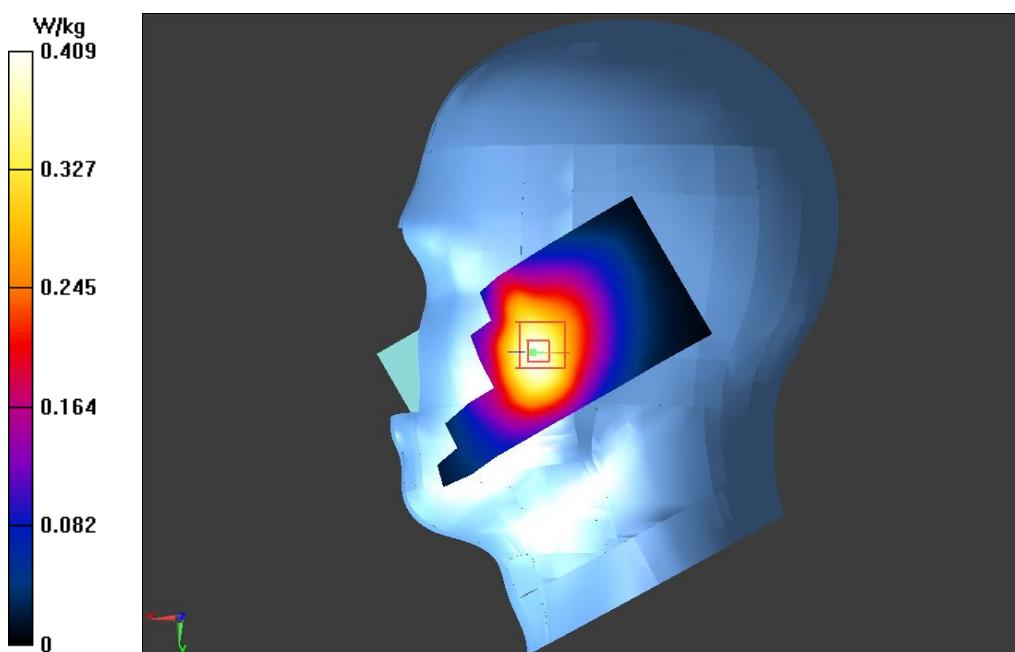
**GSM850 RIGHT/CHEEK-Low/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 6.158 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 0.490 mW/g

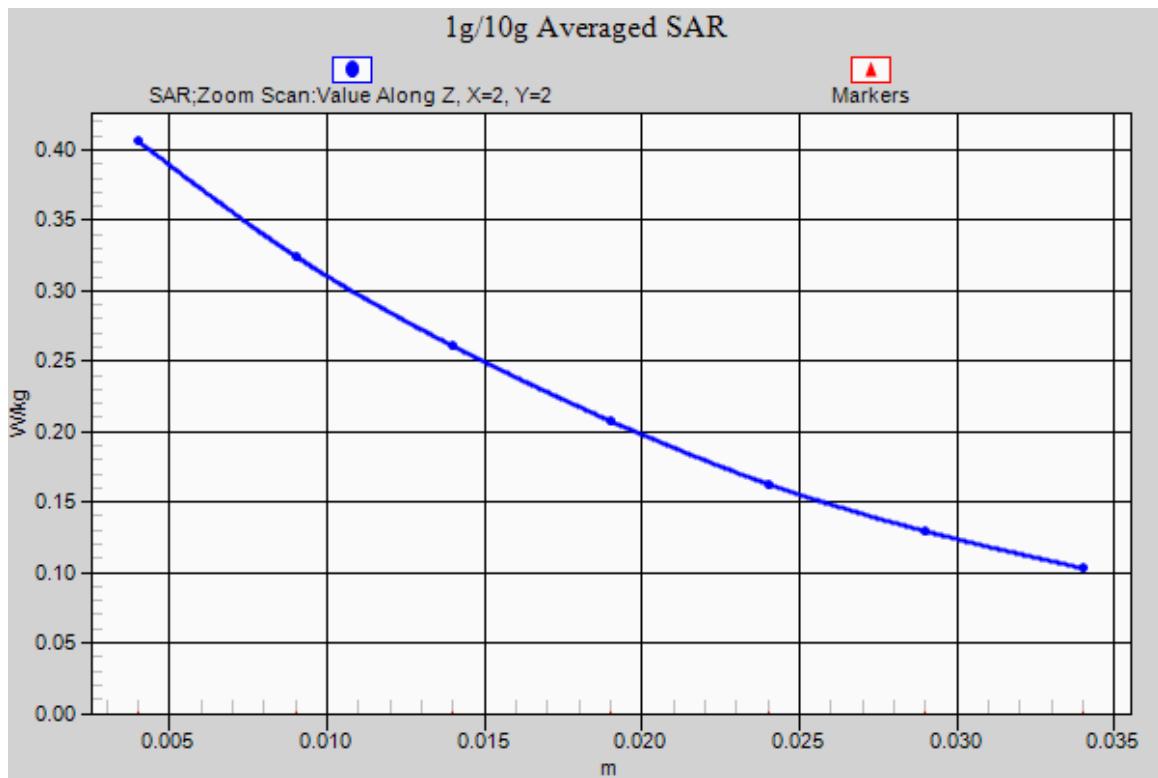
**SAR(1 g) = 0.387 mW/g; SAR(10 g) = 0.291 mW/g**

Maximum value of SAR (measured) = 0.407 W/kg



Test Laboratory: GCCT

Test Date: July. 07, 2015



Test Laboratory: GCCT

Test Date: July. 07, 2015

## GSM850 RIGHT/TILT-Low

**DUT: Mobile Phone; Type: SP4**

Communication System: Generic GSM; Communication System Band: GSM 850 (824.0 - 849.0 MHz); Frequency: 824.2 MHz; Communication System PAR: 9.191 dB

Medium parameters used (interpolated):  $f = 824.2 \text{ MHz}$ ;  $\sigma = 0.849 \text{ mho/m}$ ;  $\epsilon_r = 40.573$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(6.25, 6.25, 6.25); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_2with CRP v4.0; Type: QD000P40CC; Serial: TP:1548
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**GSM850 RIGHT/TILT-Low/Area Scan (51x101x1):** Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$

Reference Value = 11.407 V/m; Power Drift = 0.03 dB

Maximum value of SAR (interpolated) = 0.252 W/kg

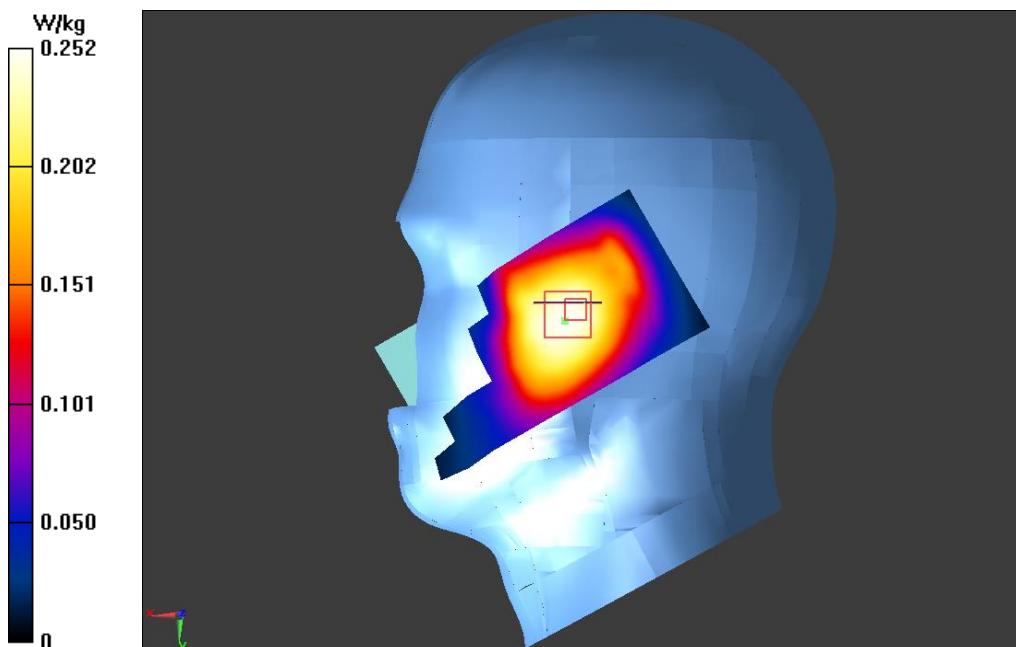
**GSM850 RIGHT/TILT-Low/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 11.407 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 0.300 mW/g

**SAR(1 g) = 0.243 mW/g; SAR(10 g) = 0.189 mW/g**

Maximum value of SAR (measured) = 0.253 W/kg



Test Laboratory: GCCT

Test Date: July. 08, 2015

## GPRS 850/Back side High

**DUT: Mobile Phone; Type: SP4**

Communication System: GPRS(4slots); Communication System Band: GSM850; Frequency: 848.8 MHz;  
Communication System PAR: 3.181 dB

Medium parameters used (interpolated):  $f = 848.8 \text{ MHz}$ ;  $\sigma = 0.951 \text{ mho/m}$ ;  $\epsilon_r = 53.603$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(6.29, 6.29, 6.29); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_2with CRP v4.0; Type: QD000P40CC; Serial: TP:1548
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

### GPRS 850/Back side High/Area Scan (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Reference Value = 35.173 V/m; Power Drift = 0.10 dB

Maximum value of SAR (interpolated) = 1.16 W/kg

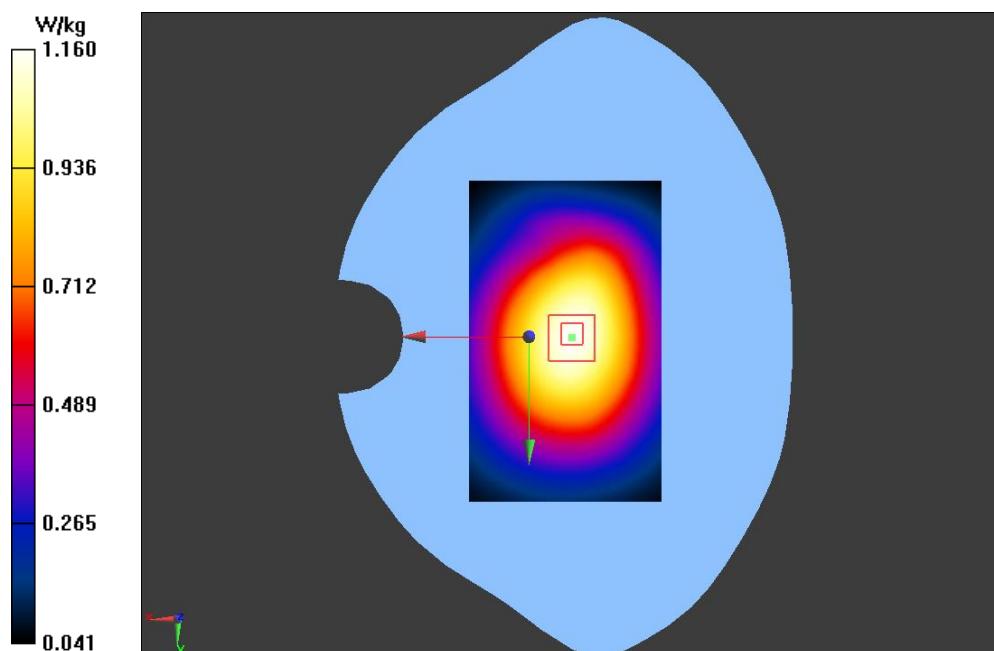
### GPRS 850/Back side High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 35.173 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 1.356 mW/g

**SAR(1 g) = 1.1 mW/g; SAR(10 g) = 0.835 mW/g**

Maximum value of SAR (measured) = 1.16 W/kg



Test Laboratory: GCCT

Test Date: July. 08, 2015

## GPRS 850/Back side Mid

**DUT: Mobile Phone; Type: SP4**

Communication System: GPRS(4slots); Communication System Band: GSM850; Frequency: 836.6 MHz;  
Communication System PAR: 3.181 dB

Medium parameters used (interpolated):  $f = 836.6 \text{ MHz}$ ;  $\sigma = 0.939 \text{ mho/m}$ ;  $\epsilon_r = 53.719$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(6.29, 6.29, 6.29); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_2with CRP v4.0; Type: QD000P40CC; Serial: TP:1548
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**GPRS 850/Back side Mid/Area Scan (61x101x1):** Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$

Reference Value = 36.821 V/m; Power Drift = -0.03 dB

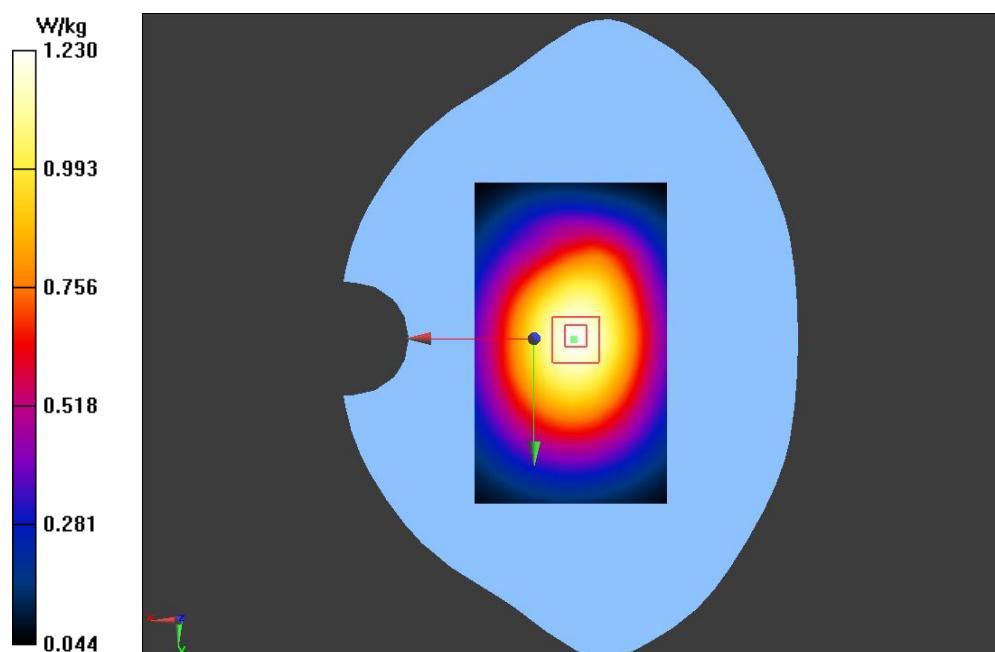
Maximum value of SAR (interpolated) = 1.23 W/kg

**GPRS 850/Back side Mid/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value = 36.821 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 1.413 mW/g

**SAR(1 g) = 1.15 mW/g; SAR(10 g) = 0.877 mW/g**

Maximum value of SAR (measured) = 1.21 W/kg



Test Laboratory: GCCT

Test Date: July. 08, 2015

## GPRS 850/Back side Low

**DUT: Mobile Phone; Type: SP4**

Communication System: GPRS(4slots); Communication System Band: GSM850; Frequency: 824.2 MHz;  
Communication System PAR: 3.181 dB

Medium parameters used (interpolated):  $f = 824.2 \text{ MHz}$ ;  $\sigma = 0.927 \text{ mho/m}$ ;  $\epsilon_r = 53.832$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(6.29, 6.29, 6.29); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_2with CRP v4.0; Type: QD000P40CC; Serial: TP:1548
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**GPRS 850/Back side Low/Area Scan (61x101x1):** Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$

Reference Value = 36.754 V/m; Power Drift = 0.09 dB

Maximum value of SAR (interpolated) = 1.22 W/kg

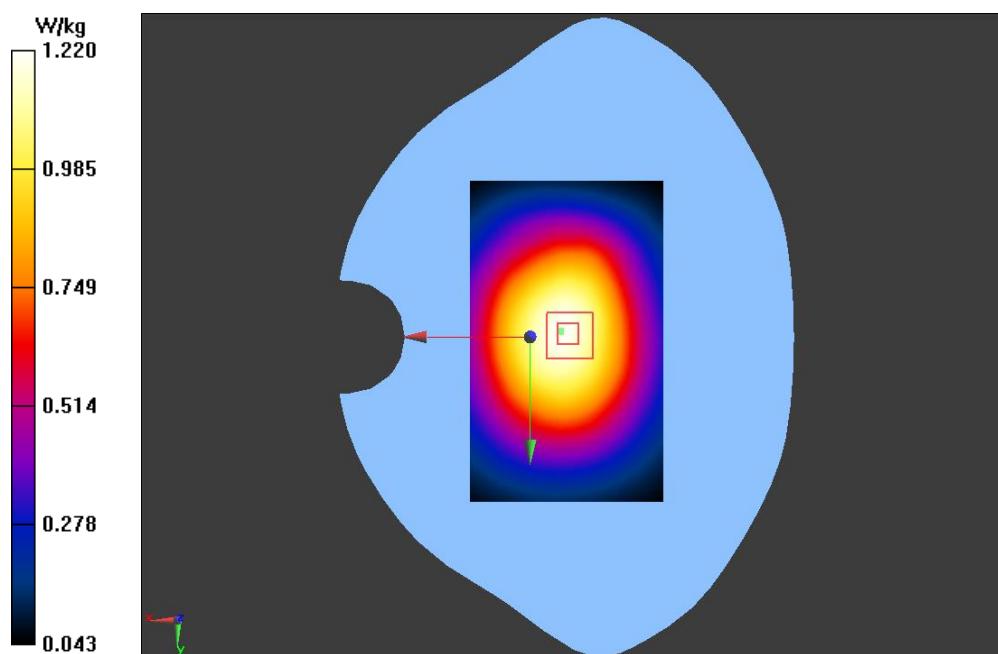
**GPRS 850/Back side Low/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 36.754 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 1.458 mW/g

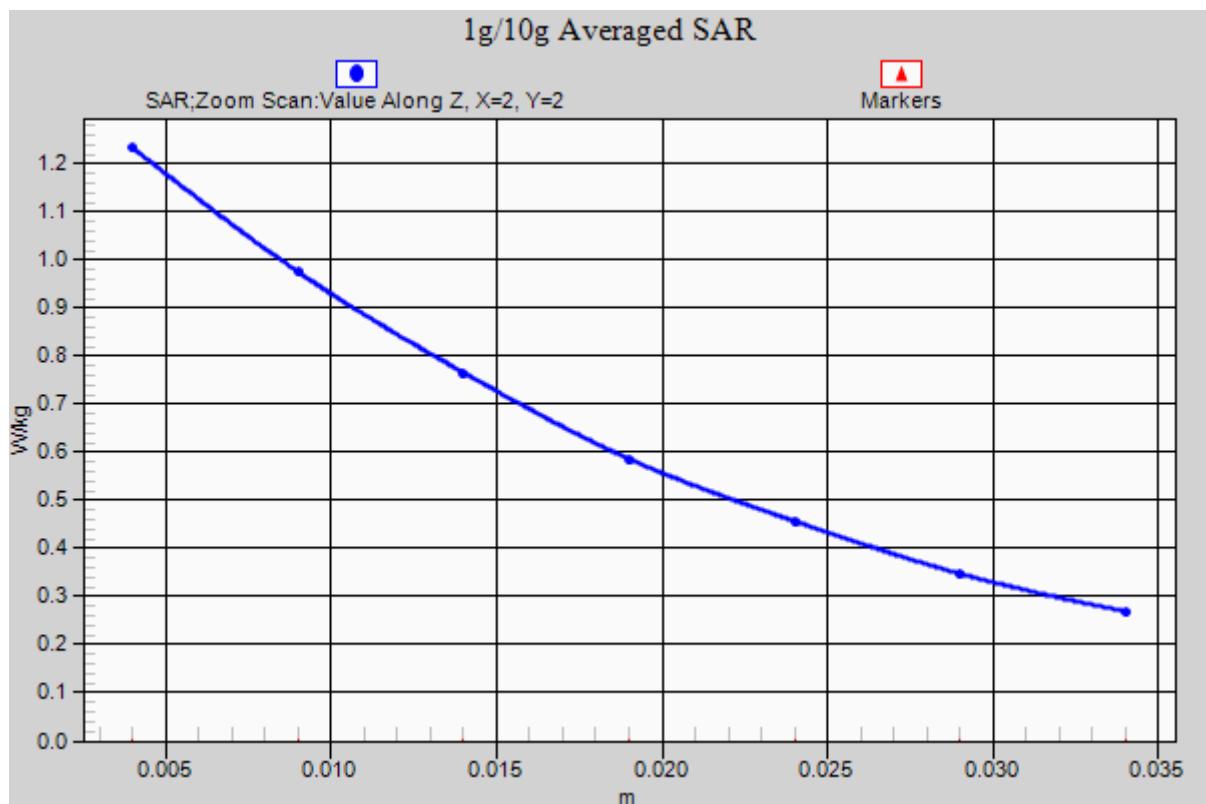
**SAR(1 g) = 1.18 mW/g; SAR(10 g) = 0.904 mW/g**

Maximum value of SAR (measured) = 1.23 W/kg



Test Laboratory: GCCT

Test Date: July. 08, 2015



GPRS 850/Back side Low\_ axis scan

Test Laboratory: GCCT

Test Date: July. 08, 2015

## GPRS 850/Back side Low

**DUT: Mobile Phone; Type: SP4**

Communication System: GPRS(4slots); Communication System Band: GSM850; Frequency: 824.2 MHz;  
Communication System PAR: 3.181 dB

Medium parameters used (interpolated):  $f = 824.2 \text{ MHz}$ ;  $\sigma = 0.927 \text{ mho/m}$ ;  $\epsilon_r = 53.832$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(6.29, 6.29, 6.29); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_2with CRP v4.0; Type: QD000P40CC; Serial: TP:1548
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**GPRS 850/Back side Low 2/Area Scan (61x101x1):** Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$

Reference Value = 36.644 V/m; Power Drift = 0.19 dB

Maximum value of SAR (interpolated) = 1.22 W/kg

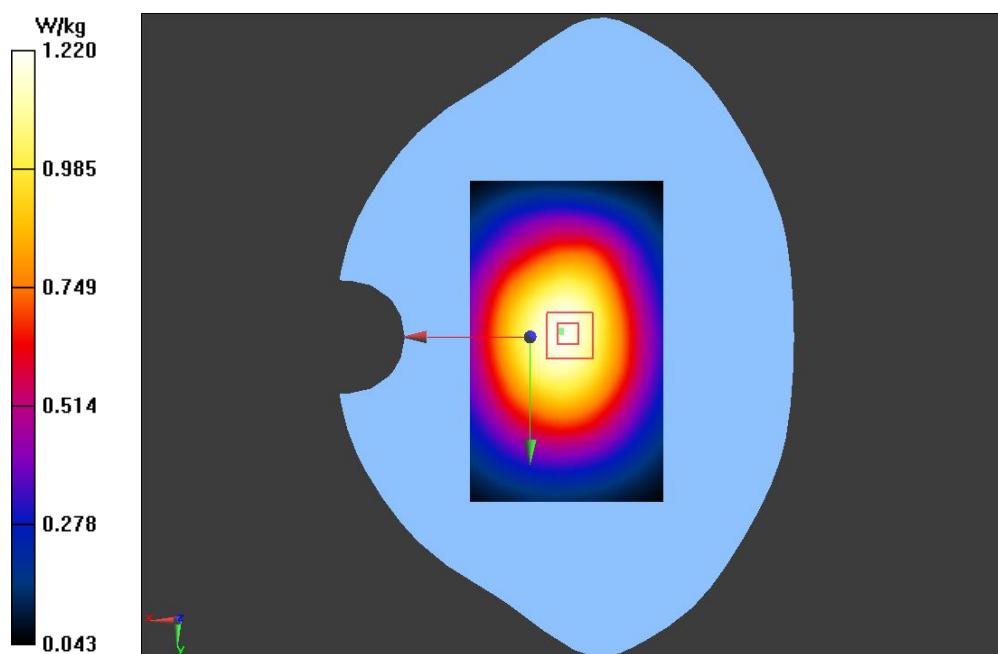
**GPRS 850/Back side Low 2/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 36.644 V/m; Power Drift = 0.19 dB

Peak SAR (extrapolated) = 1.458 mW/g

**SAR(1 g) = 1.17 mW/g; SAR(10 g) = 0.902 mW/g**

Maximum value of SAR (measured) = 1.21 W/kg



Test Laboratory: GCCT

Test Date: July. 08, 2015

## GPRS 850/Front side High

### DUT: Mobile Phone; Type: SP4

Communication System: GPRS(4slots); Communication System Band: GSM850; Frequency: 848.8 MHz;  
Communication System PAR: 3.181 dB

Medium parameters used (interpolated):  $f = 848.8 \text{ MHz}$ ;  $\sigma = 0.951 \text{ mho/m}$ ;  $\epsilon_r = 53.603$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(6.29, 6.29, 6.29); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_2with CRP v4.0; Type: QD000P40CC; Serial: TP:1548
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

### GPRS 850/Front side High/Area Scan (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Reference Value = 30.683 V/m; Power Drift = -0.02 dB

Maximum value of SAR (interpolated) = 0.864 W/kg

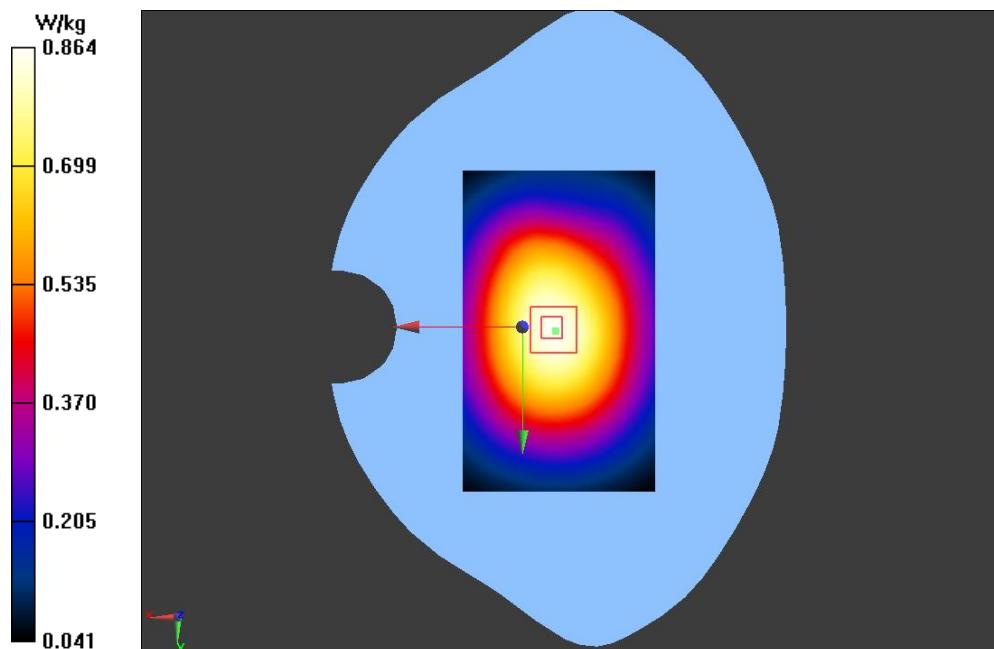
### GPRS 850/Front side High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 30.683 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 0.988 mW/g

**SAR(1 g) = 0.812 mW/g; SAR(10 g) = 0.620 mW/g**

Maximum value of SAR (measured) = 0.852 W/kg



Test Laboratory: GCCT

Test Date: July. 08, 2015

## GPRS 850/Front side Mid

### DUT: Mobile Phone; Type: SP4

Communication System: GPRS(4slots); Communication System Band: GSM850; Frequency: 836.6 MHz;  
Communication System PAR: 3.181 dB

Medium parameters used (interpolated):  $f = 836.6 \text{ MHz}$ ;  $\sigma = 0.939 \text{ mho/m}$ ;  $\epsilon_r = 53.719$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(6.29, 6.29, 6.29); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_2with CRP v4.0; Type: QD000P40CC; Serial: TP:1548
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

### GPRS 850/Front side Mid/Area Scan (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Reference Value = 31.577 V/m; Power Drift = 0.01 dB

Maximum value of SAR (interpolated) = 0.912 W/kg

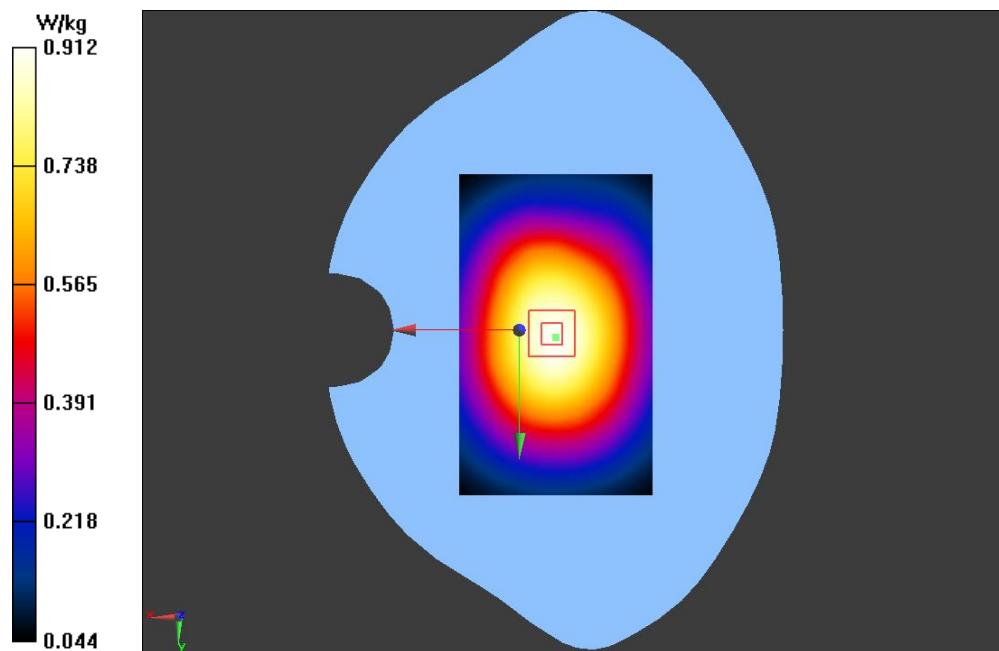
### GPRS 850/Front side Mid/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 31.577 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 1.066 mW/g

**SAR(1 g) = 0.878 mW/g; SAR(10 g) = 0.671 mW/g**

Maximum value of SAR (measured) = 0.924 W/kg



Test Laboratory: GCCT

Test Date: July. 08, 2015

## GPRS 850/Front side Low

### DUT: Mobile Phone; Type: SP4

Communication System: GPRS(4slots); Communication System Band: GSM850; Frequency: 824.2 MHz;  
Communication System PAR: 3.181 dB

Medium parameters used (interpolated):  $f = 824.2 \text{ MHz}$ ;  $\sigma = 0.927 \text{ mho/m}$ ;  $\epsilon_r = 53.832$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(6.29, 6.29, 6.29); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_2with CRP v4.0; Type: QD000P40CC; Serial: TP:1548
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

### GPRS 850/Front side Low/Area Scan (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Reference Value = 30.505 V/m; Power Drift = -0.07 dB

Maximum value of SAR (interpolated) = 0.819 W/kg

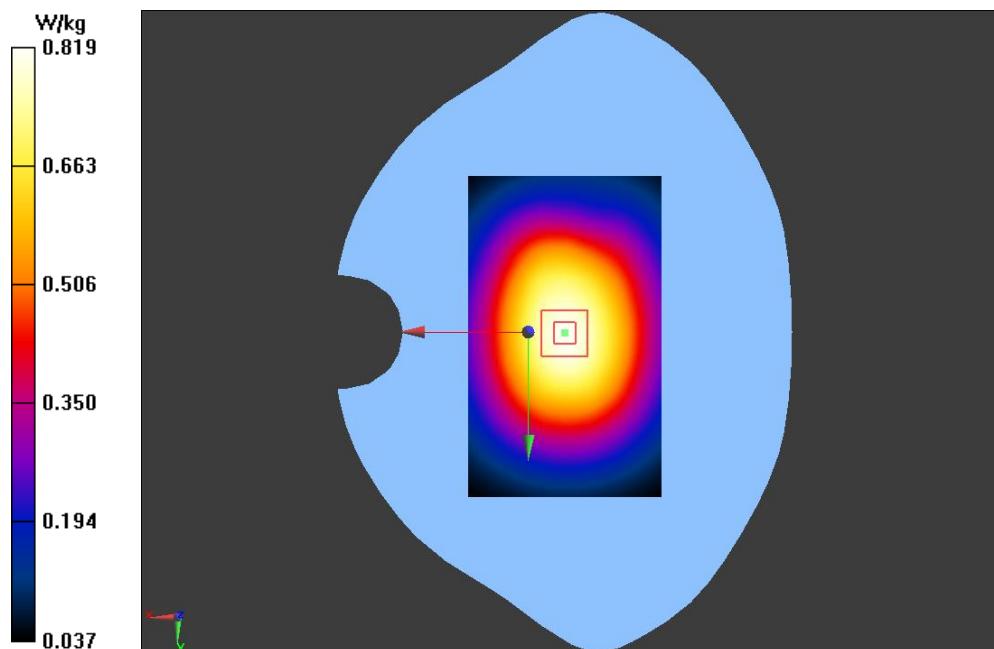
### GPRS 850/Front side Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 30.505 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 0.956 mW/g

**SAR(1 g) = 0.779 mW/g; SAR(10 g) = 0.597 mW/g**

Maximum value of SAR (measured) = 0.822 W/kg



Test Laboratory: GCCT

Test Date: July. 08, 2015

## GPRS850 -Left side-Low

### DUT: Mobile Phone; Type: SP4

Communication System: GPRS(4slots); Communication System Band: GSM850; Frequency: 824.2 MHz;  
Communication System PAR: 3.181 dB

Medium parameters used (interpolated):  $f = 824.2 \text{ MHz}$ ;  $\sigma = 0.927 \text{ mho/m}$ ;  $\epsilon_r = 53.832$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(6.29, 6.29, 6.29); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_2with CRP v4.0; Type: QD000P40CC; Serial: TP:1548
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

### GPRS850 -Left side-Low/Area Scan (31x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Reference Value = 26.556 V/m; Power Drift = 0.01 dB

Maximum value of SAR (interpolated) = 0.637 W/kg

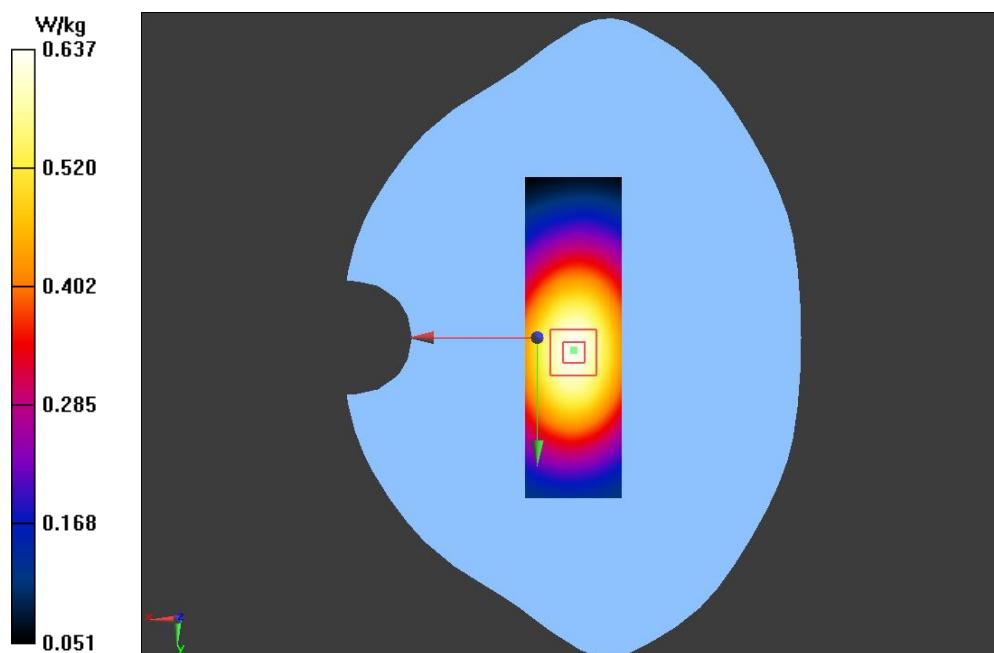
### GPRS850 -Left side-Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 26.556 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.773 mW/g

**SAR(1 g) = 0.601 mW/g; SAR(10 g) = 0.440 mW/g**

Maximum value of SAR (measured) = 0.638 W/kg



Test Laboratory: GCCT

Test Date: July. 08, 2015

## GPRS850 -Right side-High

**DUT: Mobile Phone; Type: SP4**

Communication System: GPRS(4slots); Communication System Band: GSM850; Frequency: 848.8 MHz;  
Communication System PAR: 3.181 dB

Medium parameters used (interpolated):  $f = 848.8 \text{ MHz}$ ;  $\sigma = 0.951 \text{ mho/m}$ ;  $\epsilon_r = 53.603$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(6.29, 6.29, 6.29); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_2with CRP v4.0; Type: QD000P40CC; Serial: TP:1548
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

## GPRS850 -Right side-High/Area Scan (31x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Reference Value = 30.277 V/m; Power Drift = -0.02 dB

Maximum value of SAR (interpolated) = 0.842 W/kg

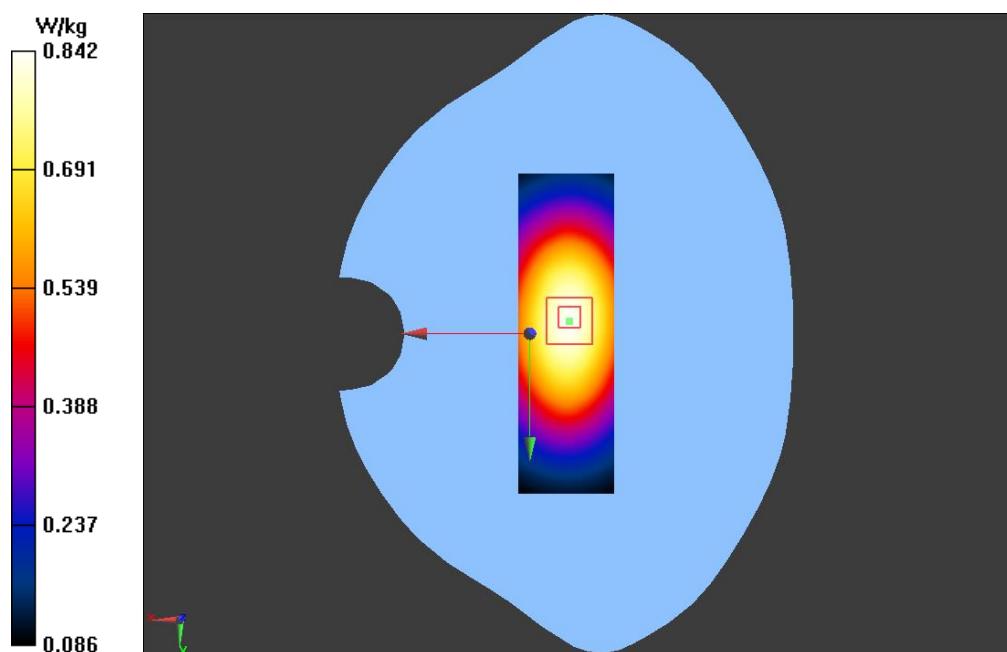
**850 R-L side/GPRS850 -Right side-High/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 30.277 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 1.023 mW/g

**SAR(1 g) = 0.795 mW/g; SAR(10 g) = 0.579 mW/g**

Maximum value of SAR (measured) = 0.844 W/kg



Test Laboratory: GCCT

Test Date: July. 08, 2015

### GPRS850 -Right side-Mid

**DUT: Mobile Phone; Type: SP4**

Communication System: GPRS(4slots); Communication System Band: GSM850; Frequency: 836.6 MHz;  
Communication System PAR: 3.181 dB

Medium parameters used (interpolated):  $f = 836.6 \text{ MHz}$ ;  $\sigma = 0.939 \text{ mho/m}$ ;  $\epsilon_r = 53.719$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(6.29, 6.29, 6.29); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_2with CRP v4.0; Type: QD000P40CC; Serial: TP:1548
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**GPRS850 -Right side-Mid/Area Scan (31x101x1):** Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$

Reference Value = 31.536 V/m; Power Drift = -0.16 dB

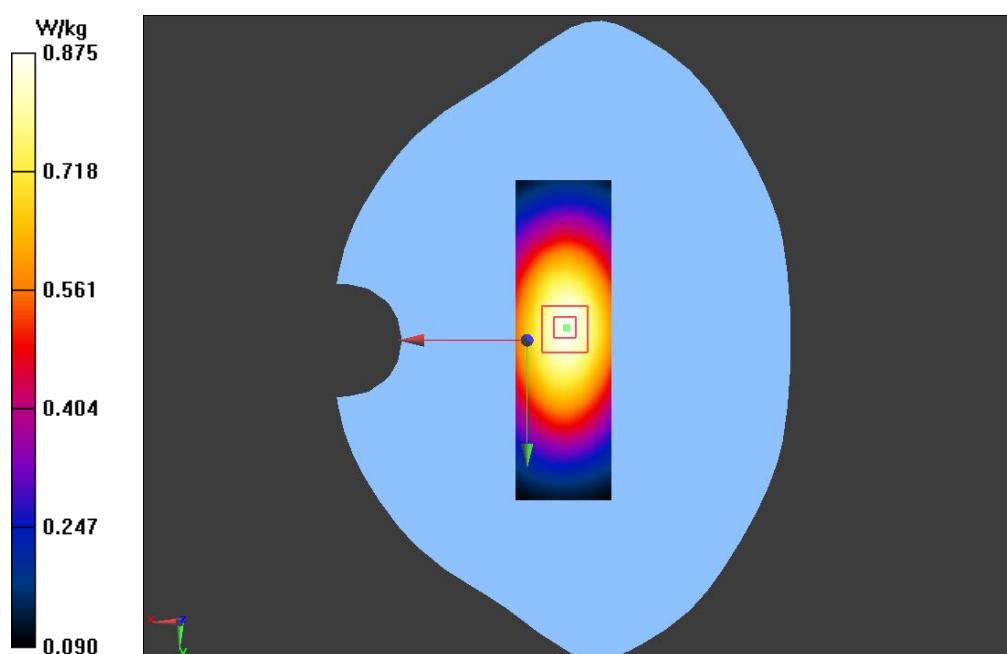
Maximum value of SAR (interpolated) = 0.875 W/kg

**GPRS850 -Right side-Mid/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value = 31.536 V/m; Power Drift = -0.16 dB

Peak SAR (extrapolated) = 1.063 mW/g

**SAR(1 g) = 0.830 mW/g; SAR(10 g) = 0.609 mW/g**

Maximum value of SAR (measured) = 0.875 W/kg



Test Laboratory: GCCT

Test Date: July. 08, 2015

## GPRS850 -Right side-Low

**DUT: Mobile Phone; Type: SP4**

Communication System: GPRS(4slots); Communication System Band: GSM850; Frequency: 824.2 MHz;  
Communication System PAR: 3.181 dB

Medium parameters used (interpolated):  $f = 824.2 \text{ MHz}$ ;  $\sigma = 0.927 \text{ mho/m}$ ;  $\epsilon_r = 53.832$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(6.29, 6.29, 6.29); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_2with CRP v4.0; Type: QD000P40CC; Serial: TP:1548
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**GPRS850 -Right side-Low/Area Scan (31x101x1):** Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$

Reference Value = 32.327 V/m; Power Drift = -0.15 dB

Maximum value of SAR (interpolated) = 0.909 W/kg

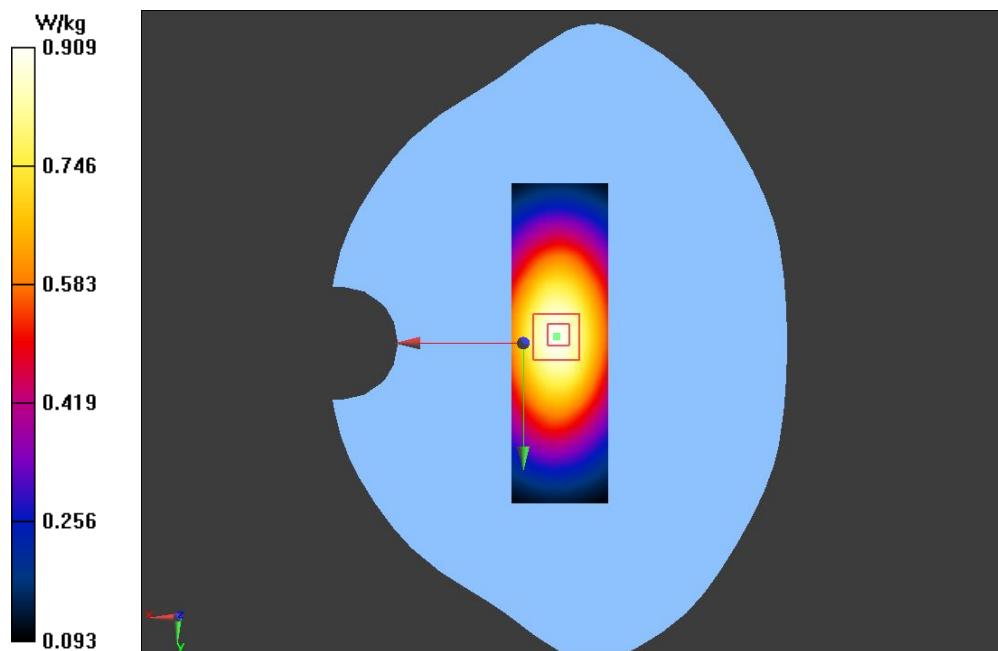
**GPRS850 -Right side-Low/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 32.327 V/m; Power Drift = -0.15 dB

Peak SAR (extrapolated) = 1.038 mW/g

**SAR(1 g) = 0.810 mW/g; SAR(10 g) = 0.595 mW/g**

Maximum value of SAR (measured) = 0.853 W/kg



Test Laboratory: GCCT

Test Date: July. 08, 2015

## GPRS850 -Bottom side-Low

**DUT: Mobile Phone; Type: SP4**

Communication System: GPRS(4slots); Communication System Band: GSM850; Frequency: 824.2 MHz;  
Communication System PAR: 3.181 dB

Medium parameters used (interpolated):  $f = 824.2 \text{ MHz}$ ;  $\sigma = 0.927 \text{ mho/m}$ ;  $\epsilon_r = 53.832$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(6.29, 6.29, 6.29); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_2with CRP v4.0; Type: QD000P40CC; Serial: TP:1548
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**GPRS850 -Bottom side-Low/Area Scan (31x61x1):** Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$

Reference Value = 8.832 V/m; Power Drift = -0.22 dB

Maximum value of SAR (interpolated) = 0.0835 W/kg

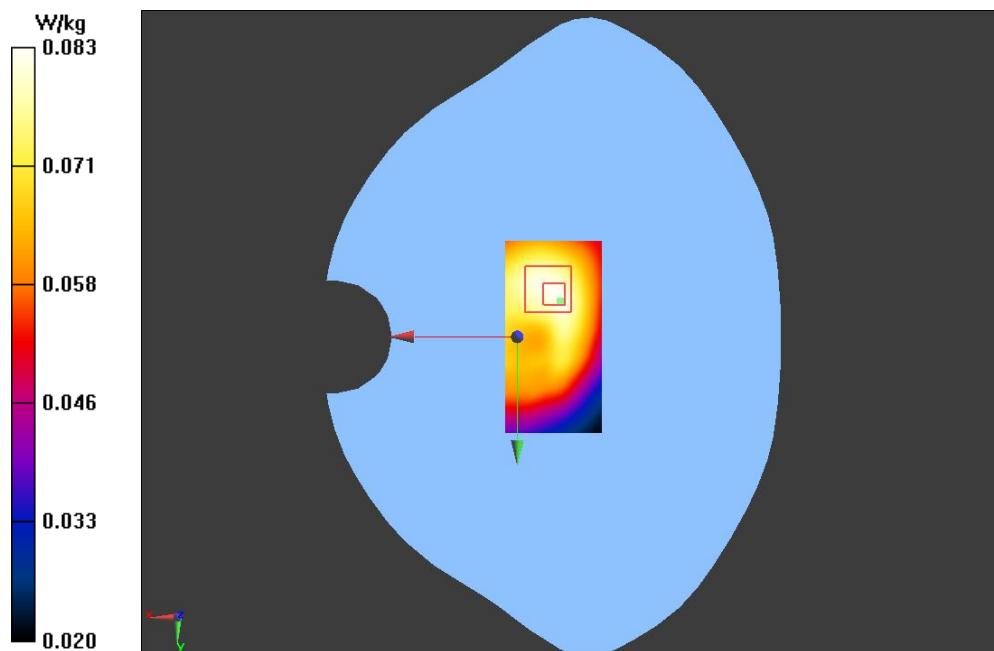
**GPRS850 -Bottom side-Low/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 8.832 V/m; Power Drift = -0.22 dB

Peak SAR (extrapolated) = 0.126 mW/g

**SAR(1 g) = 0.079 mW/g; SAR(10 g) = 0.054 mW/g**

Maximum value of SAR (measured) = 0.0832 W/kg



Test Laboratory: GCCT

Test Date: July. 09, 2015

## PCS1900 LEFT/CHEEK-Mid

### DUT: Mobile Phone; Type: SP4

Communication System: Generic GSM; Communication System Band: PCS 1900 (1850.0 - 1910.0 MHz); Frequency: 1880 MHz; Communication System PAR: 9.191 dB

Medium parameters used:  $f = 1880 \text{ MHz}$ ;  $\sigma = 1.424 \text{ mho/m}$ ;  $\epsilon_r = 39.231$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(5.2, 5.2, 5.2); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_1 with CRP v4.0; Type: QD000P40CC; Serial: TP:1586
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**PCS1900 LEFT/CHEEK-Mid/Area Scan (51x91x1):** Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$

Reference Value = 6.929 V/m; Power Drift = 0.22 dB

Maximum value of SAR (interpolated) = 0.811 W/kg

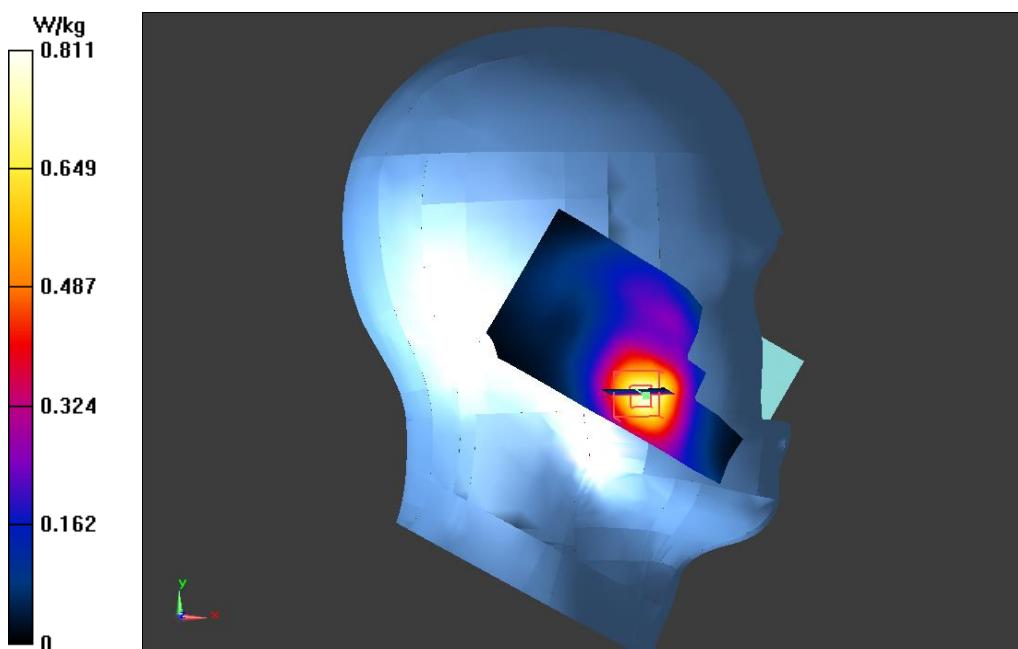
**PCS1900 LEFT/CHEEK-Mid/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 6.929 V/m; Power Drift = 0.22 dB

Peak SAR (extrapolated) = 1.193 mW/g

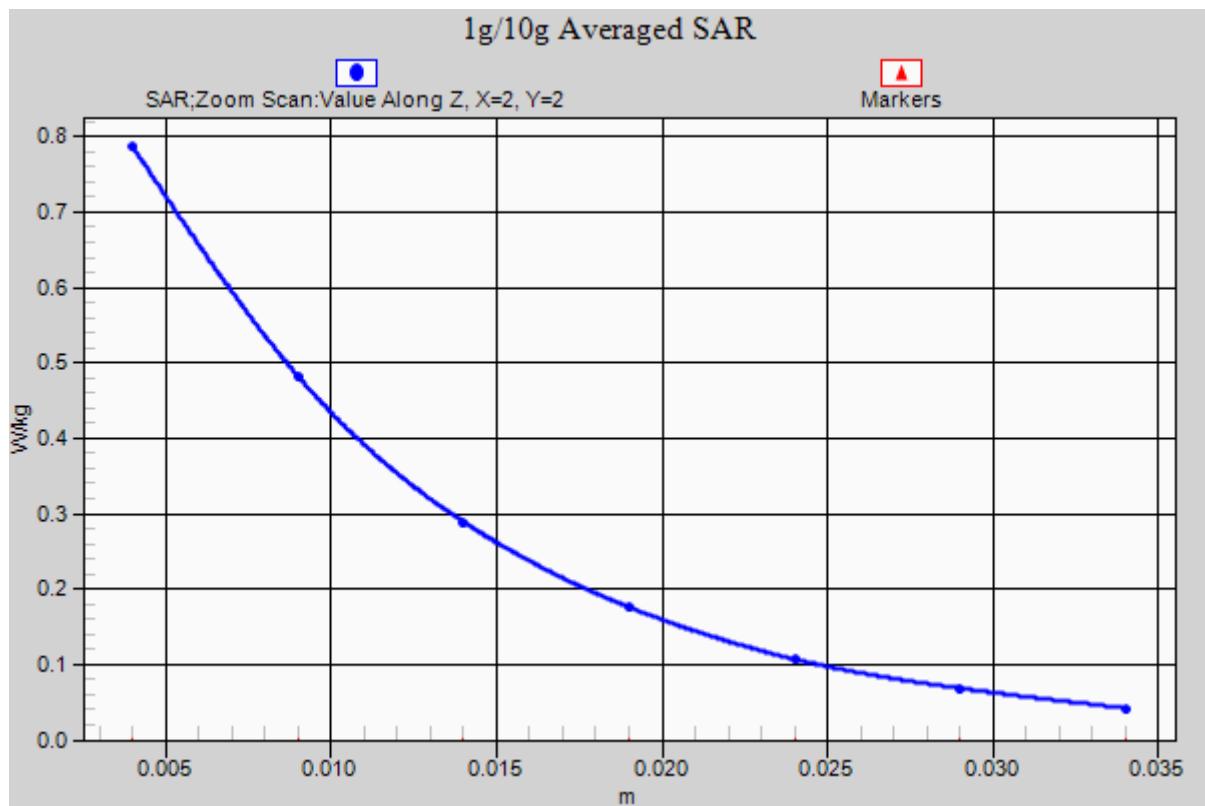
**SAR(1 g) = 0.727 mW/g; SAR(10 g) = 0.421 mW/g**

Maximum value of SAR (measured) = 0.787 W/kg



Test Laboratory: GCCT

Test Date: July. 09, 2015



PCS1900 LEFT/CHEEK-Mid\_ axis scan

Test Laboratory: GCCT

Test Date: July. 09, 2015

## PCS1900 LEFT/TILT-Mid

DUT: Mobile Phone; Type: SP4

Communication System: Generic GSM; Communication System Band: PCS 1900 (1850.0 - 1910.0 MHz); Frequency: 1880 MHz; Communication System PAR: 9.191 dB

Medium parameters used:  $f = 1880 \text{ MHz}$ ;  $\sigma = 1.424 \text{ mho/m}$ ;  $\epsilon_r = 39.231$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(5.2, 5.2, 5.2); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_1 with CRP v4.0; Type: QD000P40CC; Serial: TP:1586
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**PCS1900 LEFT/TILT-Mid/Area Scan (51x91x1):** Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$

Reference Value = 12.737 V/m; Power Drift = -0.02 dB

Maximum value of SAR (interpolated) = 0.239 W/kg

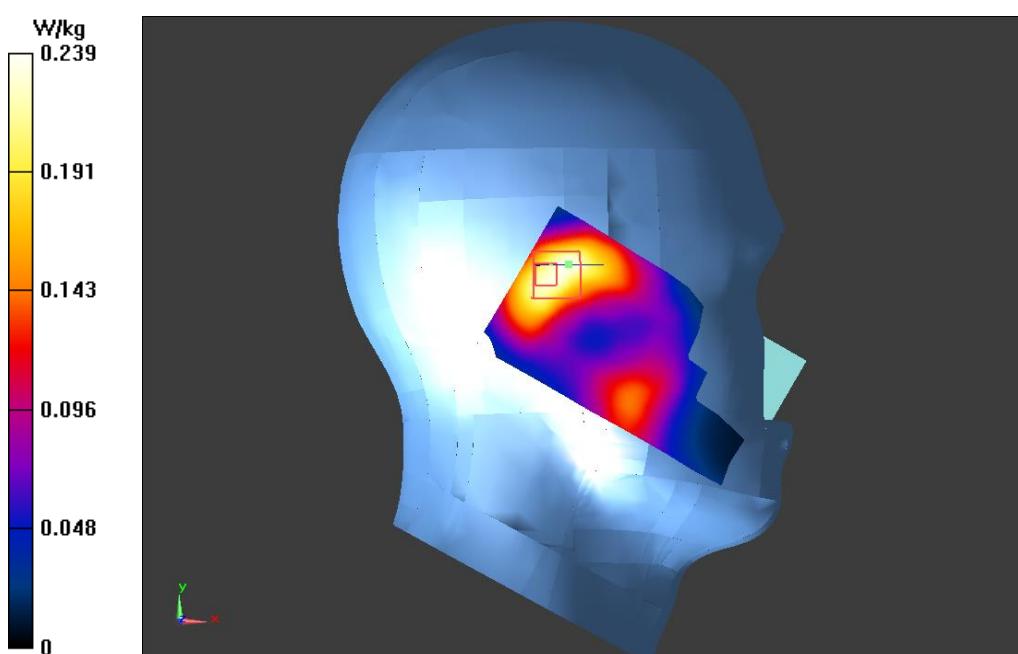
**PCS1900 LEFT/TILT-Mid/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 12.737 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 0.357 mW/g

**SAR(1 g) = 0.216 mW/g; SAR(10 g) = 0.130 mW/g**

Maximum value of SAR (measured) = 0.228 W/kg



## PCS1900 RIGHT/CHEEK-Mid

DUT: Mobile Phone; Type: SP4

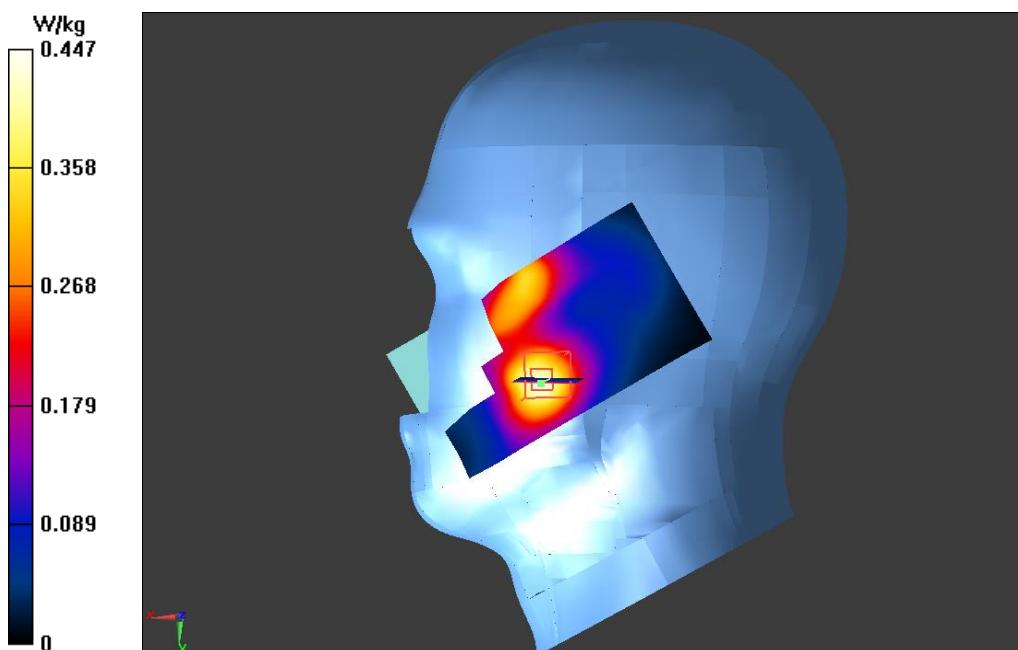
Communication System: Generic GSM; Communication System Band: PCS 1900 (1850.0 - 1910.0 MHz); Frequency: 1880 MHz; Communication System PAR: 9.191 dB  
Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.424$  mho/m;  $\epsilon_r = 39.231$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Right Section  
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(5.2, 5.2, 5.2); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_1 with CRP v4.0; Type: QD000P40CC; Serial: TP:1586
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**PCS1900 RIGHT/CHEEK-Mid/Area Scan (51x91x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm  
Reference Value = 6.820 V/m; Power Drift = -0.02 dB  
Maximum value of SAR (interpolated) = 0.447 W/kg

**PCS1900 RIGHT/CHEEK-Mid/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 6.820 V/m; Power Drift = -0.02 dB  
Peak SAR (extrapolated) = 0.623 mW/g  
**SAR(1 g) = 0.394 mW/g; SAR(10 g) = 0.235 mW/g**  
Maximum value of SAR (measured) = 0.428 W/kg



## PCS1900 RIGHT/TILT-Mid

DUT: Mobile Phone; Type: SP4

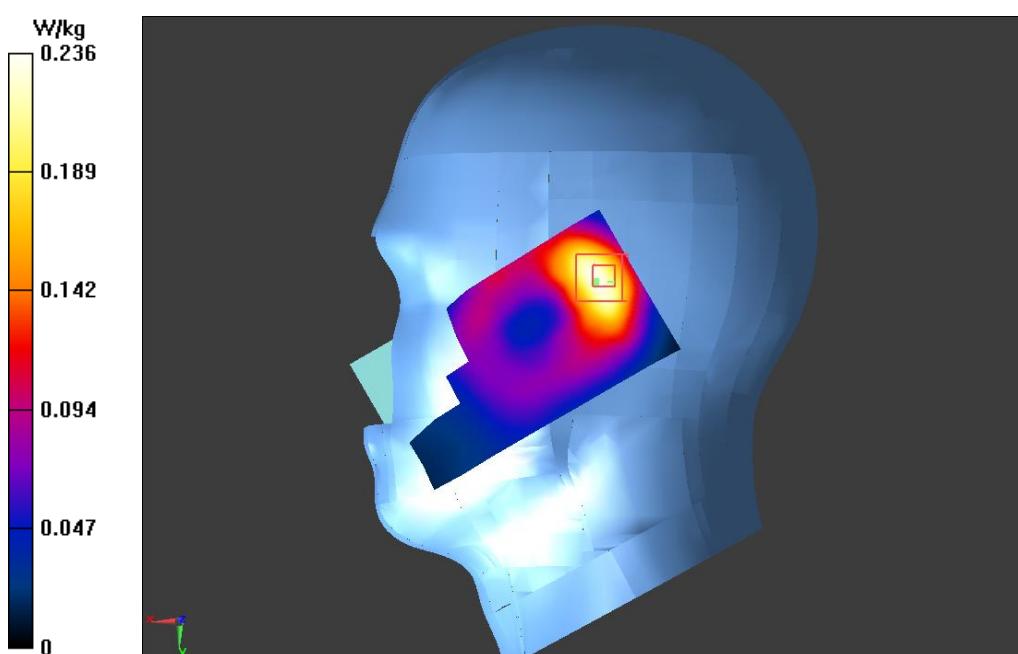
Communication System: Generic GSM; Communication System Band: PCS 1900 (1850.0 - 1910.0 MHz); Frequency: 1880 MHz; Communication System PAR: 9.191 dB  
Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.424$  mho/m;  $\epsilon_r = 39.231$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Right Section  
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(5.2, 5.2, 5.2); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_1 with CRP v4.0; Type: QD000P40CC; Serial: TP:1586
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**PCS1900 RIGHT/TILT-Mid/Area Scan (51x91x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm  
Reference Value = 11.951 V/m; Power Drift = 0.11 dB  
Maximum value of SAR (interpolated) = 0.236 W/kg

**PCS1900 RIGHT/TILT-Mid/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 11.951 V/m; Power Drift = 0.11 dB  
Peak SAR (extrapolated) = 0.348 mW/g  
**SAR(1 g) = 0.214 mW/g; SAR(10 g) = 0.126 mW/g**  
Maximum value of SAR (measured) = 0.228 W/kg



## GPRS 1900/Back side High

DUT: Mobile Phone; Type: SP4

Communication System: GPRS(4slots); Communication System Band: PCS1900; Frequency: 1909.8 MHz;  
Communication System PAR: 3.181 dB

Medium parameters used:  $f = 1910$  MHz;  $\sigma = 1.579$  mho/m;  $\epsilon_r = 52.359$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(4.79, 4.79, 4.79); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_1 with CRP v4.0; Type: QD000P40CC; Serial: TP:1586
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**GPRS 1900/Back side High/Area Scan (61x101x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Reference Value = 17.473 V/m; Power Drift = -0.04 dB

Maximum value of SAR (interpolated) = 0.984 W/kg

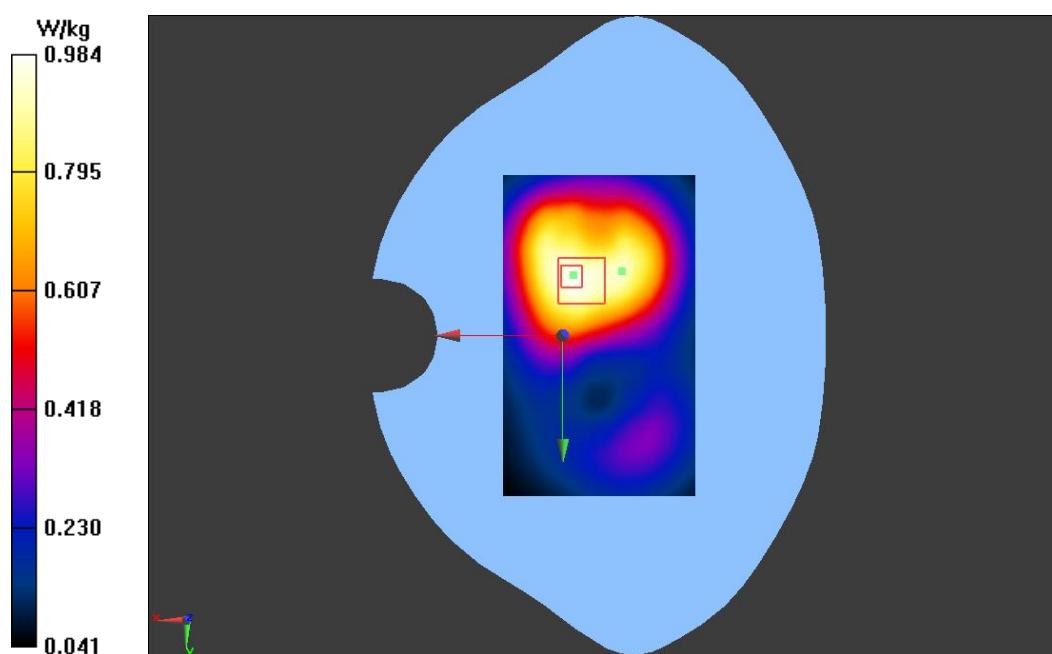
**GPRS 1900/Back side High/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 17.473 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 1.484 mW/g

**SAR(1 g) = 0.909 mW/g; SAR(10 g) = 0.570 mW/g**

Maximum value of SAR (measured) = 0.974 W/kg



Test Laboratory: GCCT

Test Date: July. 10, 2015

## GPRS 1900/Back side Mid

**DUT: Mobile Phone; Type: SP4**

Communication System: GPRS(4slots); Communication System Band: PCS1900; Frequency: 1880 MHz;  
Communication System PAR: 3.181 dB

Medium parameters used:  $f = 1880 \text{ MHz}$ ;  $\sigma = 1.552 \text{ mho/m}$ ;  $\epsilon_r = 52.4$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(4.79, 4.79, 4.79); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_1 with CRP v4.0; Type: QD000P40CC; Serial: TP:1586
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

## GPRS 1900/Back side Mid/Area Scan (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Reference Value = 17.238 V/m; Power Drift = -0.01 dB

Maximum value of SAR (interpolated) = 1.14 W/kg

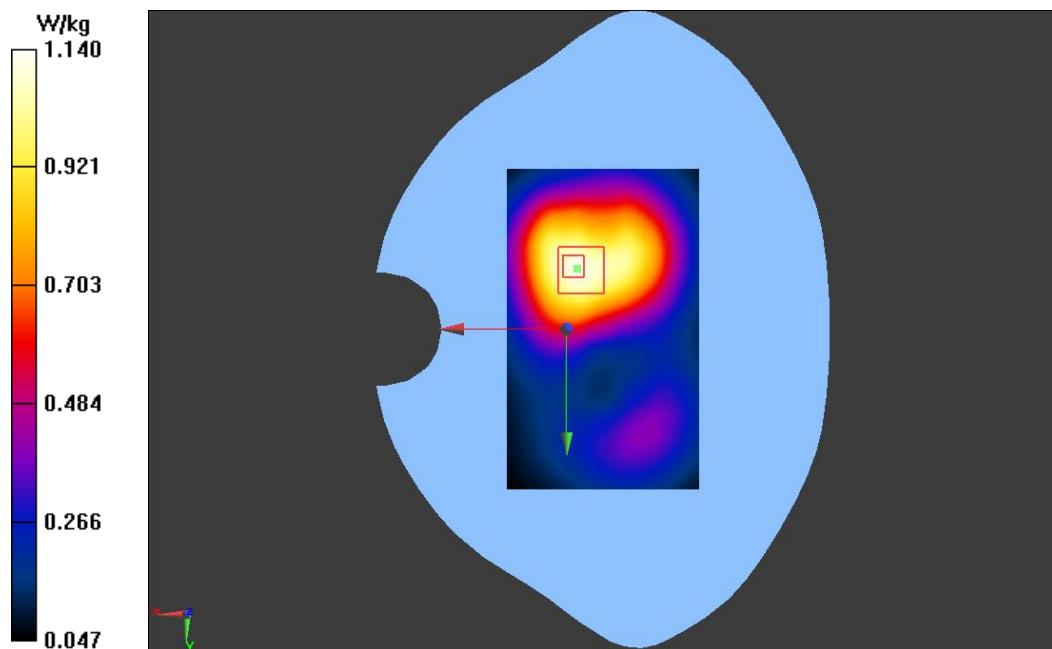
## GPRS 1900/Back side Mid/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 17.238 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 1.674 mW/g

**SAR(1 g) = 1.04 mW/g; SAR(10 g) = 0.649 mW/g**

Maximum value of SAR (measured) = 1.11 W/kg



Test Laboratory: GCCT

Test Date: July. 10, 2015

## GPRS 1900/Back side Low

DUT: Mobile Phone; Type: SP4

Communication System: GPRS(4slots); Communication System Band: PCS1900; Frequency: 1850.2 MHz;  
Communication System PAR: 3.181 dB

Medium parameters used (interpolated):  $f = 1850.2$  MHz;  $\sigma = 1.525$  mho/m;  $\epsilon_r = 52.488$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(4.79, 4.79, 4.79); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_1 with CRP v4.0; Type: QD000P40CC; Serial: TP:1586
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**GPRS 1900/Back side Low/Area Scan (61x101x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Reference Value = 16.829 V/m; Power Drift = -0.07 dB

Maximum value of SAR (interpolated) = 1.22 W/kg

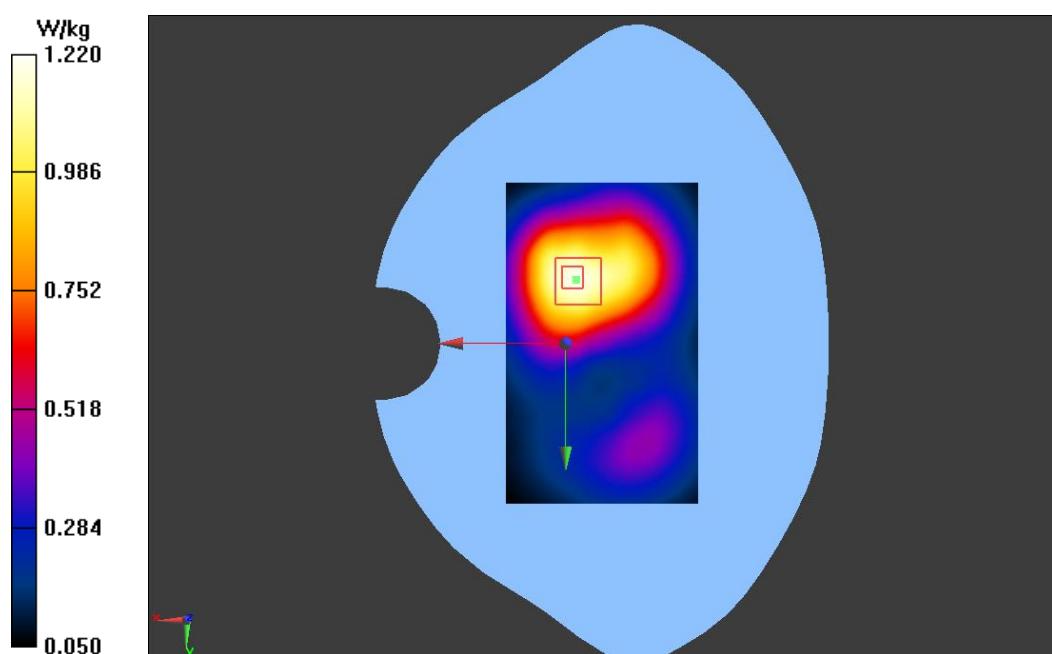
**GPRS 1900/Back side Low/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 16.829 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 1.794 mW/g

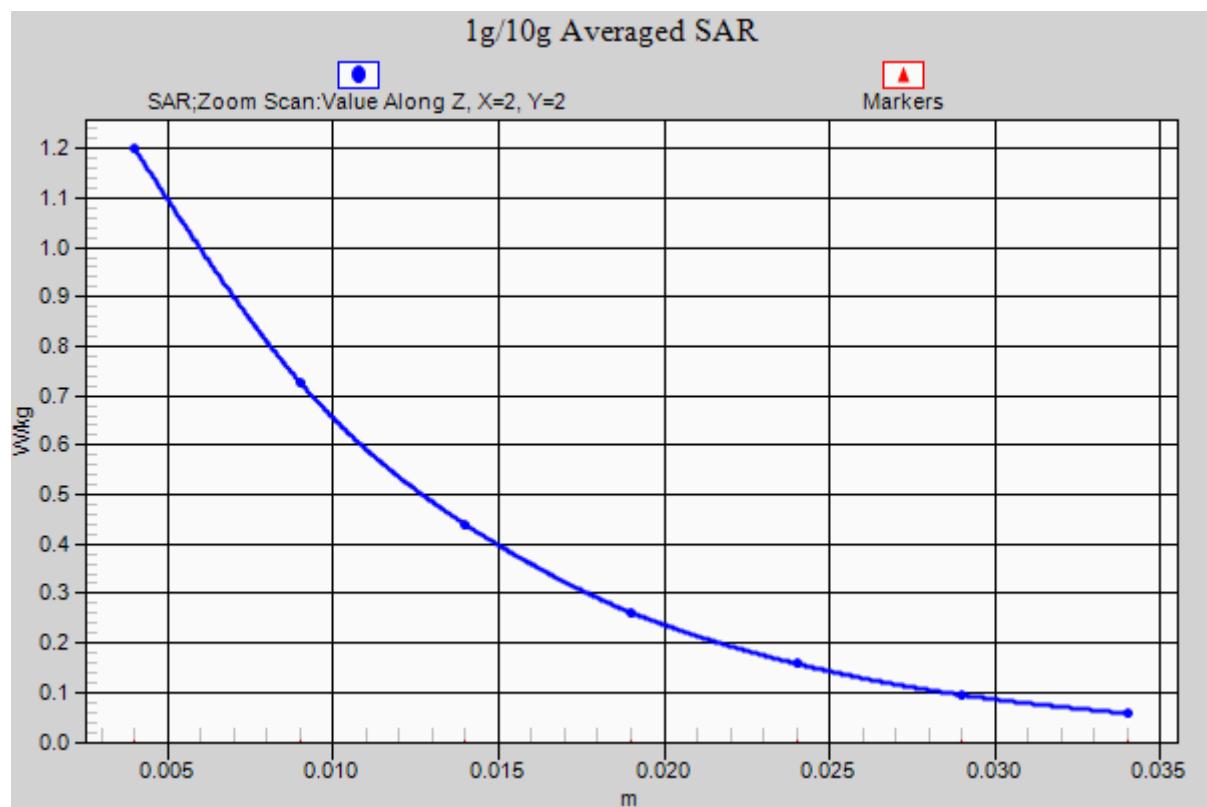
**SAR(1 g) = 1.11 mW/g; SAR(10 g) = 0.690 mW/g**

Maximum value of SAR (measured) = 1.20 W/kg



Test Laboratory: GCCT

Test Date: July. 10, 2015



GPRS 1900/Back side Low\_ axis scan

Test Laboratory: GCCT

Test Date: July. 10, 2015

## GPRS 1900/Back side Low

### DUT: Mobile Phone; Type: SP4

Communication System: GPRS(4slots); Communication System Band: PCS1900; Frequency: 1850.2 MHz;  
Communication System PAR: 3.181 dB

Medium parameters used (interpolated):  $f = 1850.2 \text{ MHz}$ ;  $\sigma = 1.525 \text{ mho/m}$ ;  $\epsilon_r = 52.488$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(4.79, 4.79, 4.79); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_1 with CRP v4.0; Type: QD000P40CC; Serial: TP:1586
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

### GPRS 1900/Back side Low2/Area Scan (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Reference Value = 16.832 V/m; Power Drift = -0.06 dB

Maximum value of SAR (interpolated) = 1.22 W/kg

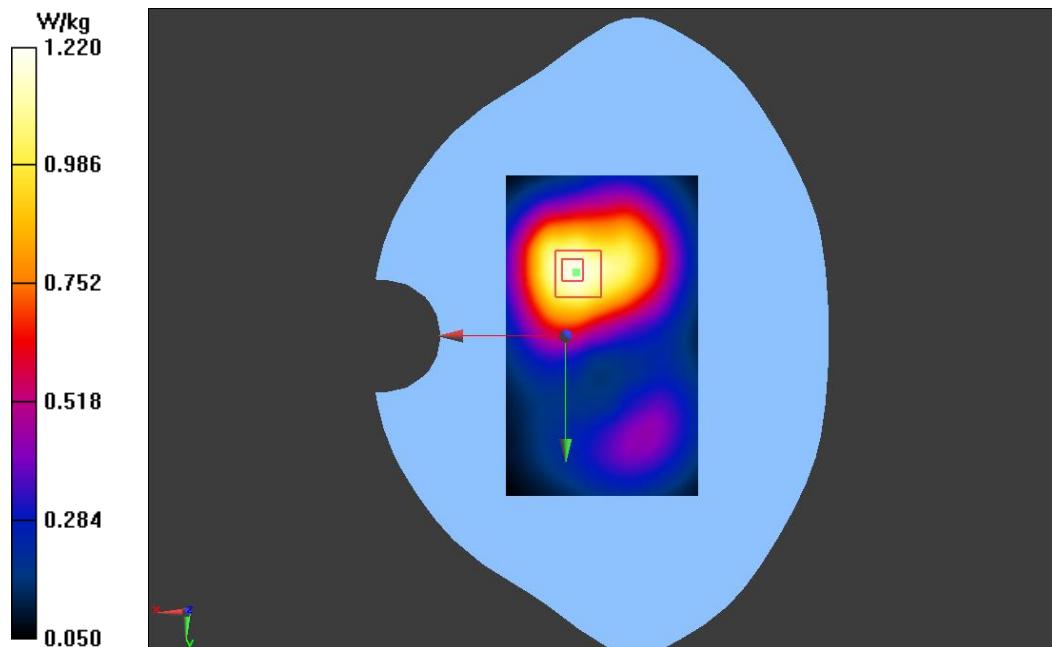
### GPRS 1900/Back side Low2/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 16.832 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 1.794 mW/g

**SAR(1 g) = 1.11 mW/g; SAR(10 g) = 0.691 mW/g**

Maximum value of SAR (measured) = 1.20 W/kg



Test Laboratory: GCCT

Test Date: July. 10, 2015

## GPRS 1900/Front side Mid

### DUT: Mobile Phone; Type: SP4

Communication System: GPRS(4slots); Communication System Band: PCS1900; Frequency: 1880 MHz;  
Communication System PAR: 3.181 dB

Medium parameters used:  $f = 1880 \text{ MHz}$ ;  $\sigma = 1.552 \text{ mho/m}$ ;  $\epsilon_r = 52.4$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(4.79, 4.79, 4.79); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_1 with CRP v4.0; Type: QD000P40CC; Serial: TP:1586
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

### GPRS 1900/Front side Mid/Area Scan (61x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Reference Value = 10.957 V/m; Power Drift = 0.04 dB

Maximum value of SAR (interpolated) = 0.708 W/kg

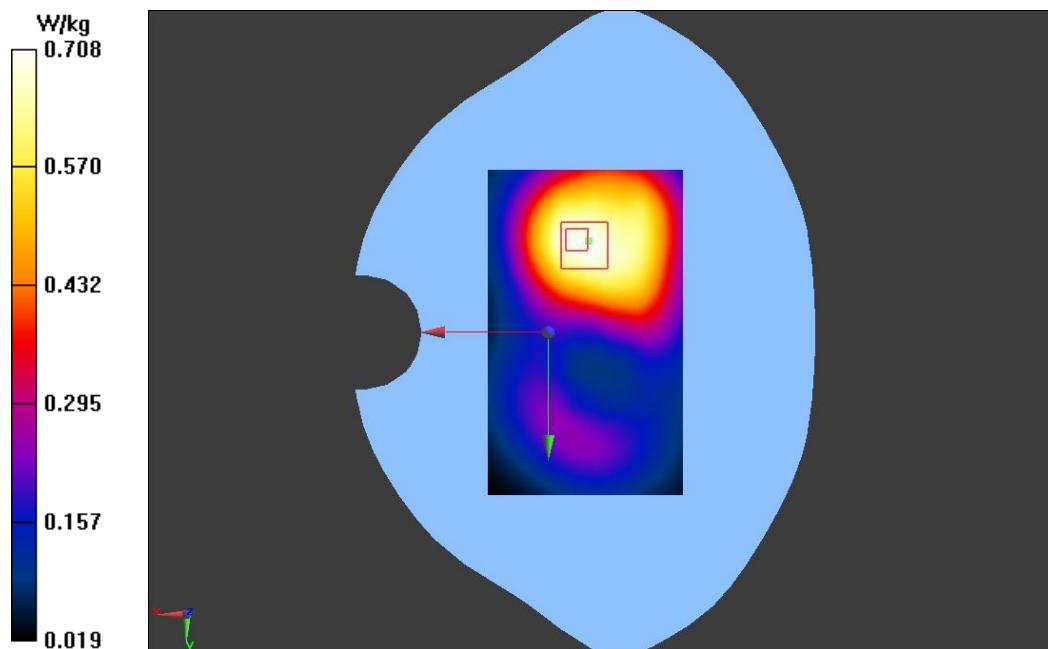
### GPRS 1900/Front side Mid/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 10.957 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 1.058 mW/g

**SAR(1 g) = 0.665 mW/g; SAR(10 g) = 0.418 mW/g**

Maximum value of SAR (measured) = 0.715 W/kg



Test Laboratory: GCCT

Test Date: July. 10, 2015

## GPRS1900 -Left side-Mid

**DUT: Mobile Phone; Type: SP4**

Communication System: GPRS(4slots); Communication System Band: PCS1900; Frequency: 1880 MHz;  
Communication System PAR: 3.181 dB

Medium parameters used:  $f = 1880 \text{ MHz}$ ;  $\sigma = 1.552 \text{ mho/m}$ ;  $\epsilon_r = 52.4$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(4.79, 4.79, 4.79); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_1 with CRP v4.0; Type: QD000P40CC; Serial: TP:1586
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**GPRS1900 -Left side-Mid/Area Scan (31x111x1):** Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$

Reference Value = 13.584 V/m; Power Drift = -0.04 dB

Maximum value of SAR (interpolated) = 0.471 W/kg

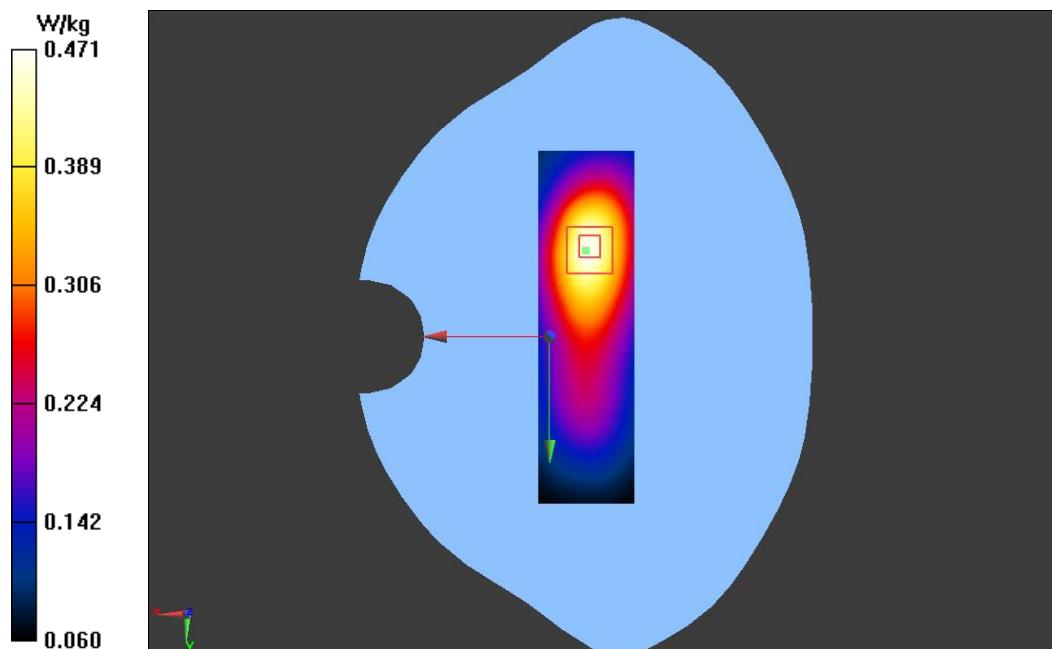
**GPRS1900 -Left side-Mid/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 13.584 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.716 mW/g

**SAR(1 g) = 0.430 mW/g; SAR(10 g) = 0.256 mW/g**

Maximum value of SAR (measured) = 0.466 W/kg



Test Laboratory: GCCT

Test Date: July. 10, 2015

## GPRS1900 -Right side-Mid

**DUT: Mobile Phone; Type: SP4**

Communication System: GPRS(4slots); Communication System Band: PCS1900; Frequency: 1880 MHz;  
Communication System PAR: 3.181 dB

Medium parameters used:  $f = 1880 \text{ MHz}$ ;  $\sigma = 1.552 \text{ mho/m}$ ;  $\epsilon_r = 52.4$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(4.79, 4.79, 4.79); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_1 with CRP v4.0; Type: QD000P40CC; Serial: TP:1586
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**GPRS1900 -Right side-Mid/Area Scan (31x111x1):** Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$

Reference Value = 8.198 V/m; Power Drift = -0.02 dB

Maximum value of SAR (interpolated) = 0.198 W/kg

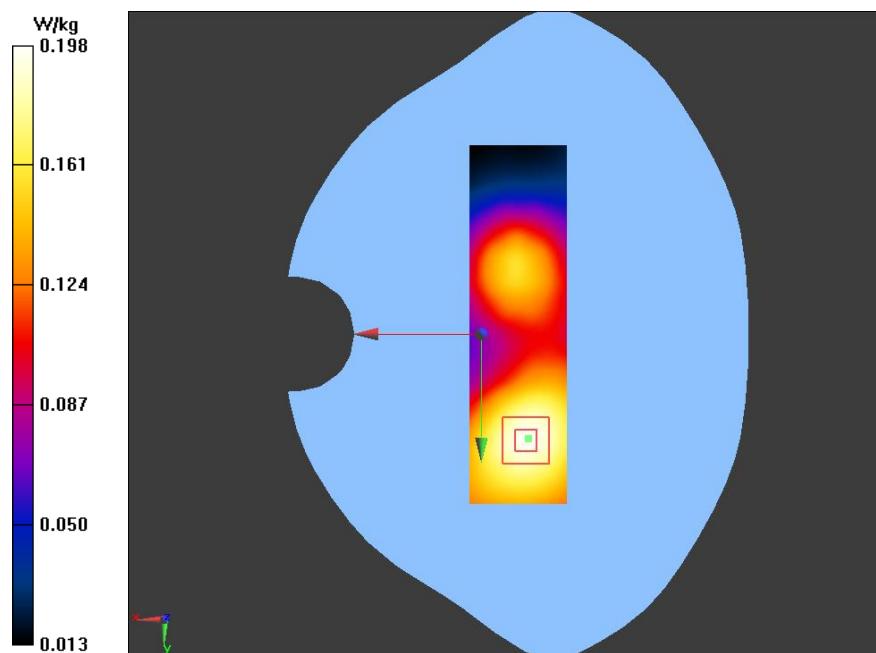
**GPRS1900 -Right side-Mid/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 8.198 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 0.308 mW/g

**SAR(1 g) = 0.187 mW/g; SAR(10 g) = 0.117 mW/g**

Maximum value of SAR (measured) = 0.200 W/kg



Test Laboratory: GCCT

Test Date: July. 10, 2015

## GPRS1900 -Bottom side-Mid

DUT: Mobile Phone; Type: SP4

Communication System: GPRS(4slots); Communication System Band: PCS1900; Frequency: 1880 MHz;  
Communication System PAR: 3.181 dB

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.552$  mho/m;  $\epsilon_r = 52.4$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(4.79, 4.79, 4.79); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_1 with CRP v4.0; Type: QD000P40CC; Serial: TP:1586
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**GPRS1900 -Bottom side-Mid/Area Scan (31x61x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Reference Value = 19.705 V/m; Power Drift = -0.01 dB

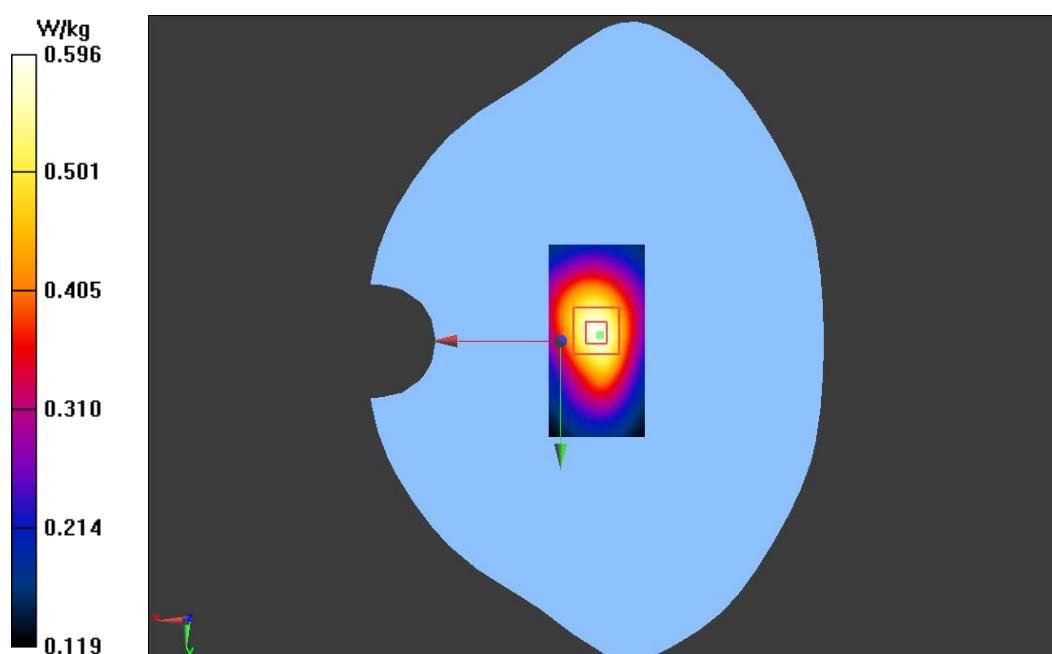
Maximum value of SAR (interpolated) = 0.596 W/kg

**GPRS1900 -Bottom side-Mid/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 19.705 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.926 mW/g

**SAR(1 g) = 0.544 mW/g; SAR(10 g) = 0.319 mW/g**

Maximum value of SAR (measured) = 0.594 W/kg



## WCDMA Band II LEFT/CHEEK-High

DUT: Mobile Phone; Type: SP4

Communication System: UMTS-FDD(WCDMA); Communication System Band: Band2; Frequency: 1907.6 MHz;  
Communication System PAR: 0 dB

Medium parameters used:  $f = 1908 \text{ MHz}$ ;  $\sigma = 1.449 \text{ mho/m}$ ;  $\epsilon_r = 39.155$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(5.2, 5.2, 5.2); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_1 with CRP v4.0; Type: QD000P40CC; Serial: TP:1586
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**WCDMA Band II LEFT/CHEEK-High/Area Scan (51x91x1):** Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$

Reference Value = 11.391 V/m; Power Drift = 0.08 dB

Maximum value of SAR (interpolated) = 0.868 W/kg

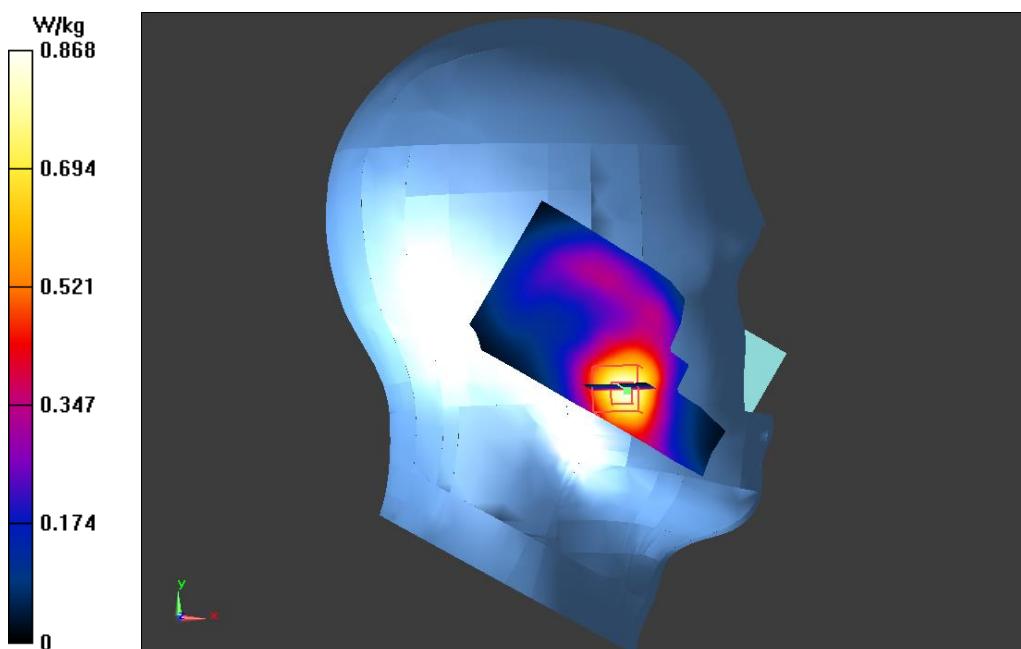
**WCDMA Band II LEFT/CHEEK-High/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 11.391 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 1.252 mW/g

**SAR(1 g) = 0.787 mW/g; SAR(10 g) = 0.468 mW/g**

Maximum value of SAR (measured) = 0.845 W/kg



## WCDMA Band II LEFT/CHEEK-Mid

DUT: Mobile Phone; Type: SP4

Communication System: UMTS-FDD(WCDMA); Communication System Band: Band2; Frequency: 1880 MHz;  
Communication System PAR: 0 dB

Medium parameters used:  $f = 1880 \text{ MHz}$ ;  $\sigma = 1.424 \text{ mho/m}$ ;  $\epsilon_r = 39.231$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(5.2, 5.2, 5.2); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_1 with CRP v4.0; Type: QD000P40CC; Serial: TP:1586
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**WCDMA Band II LEFT/CHEEK-Mid/Area Scan (51x91x1):** Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$

Reference Value = 11.773 V/m; Power Drift = 0.11 dB

Maximum value of SAR (interpolated) = 0.992 W/kg

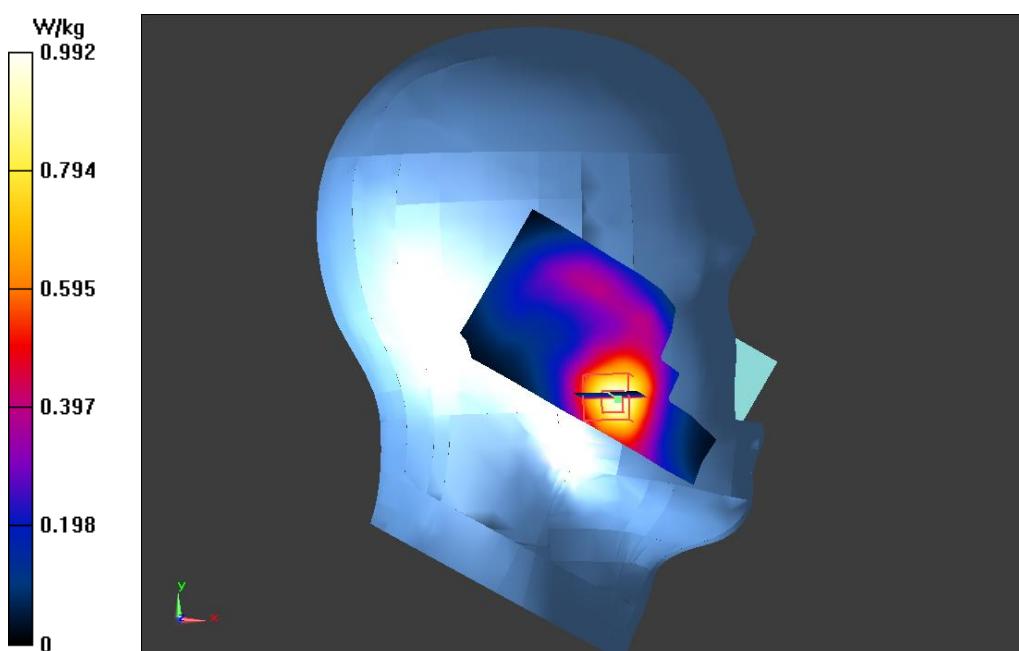
**WCDMA Band II LEFT/CHEEK-Mid/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 11.773 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 1.407 mW/g

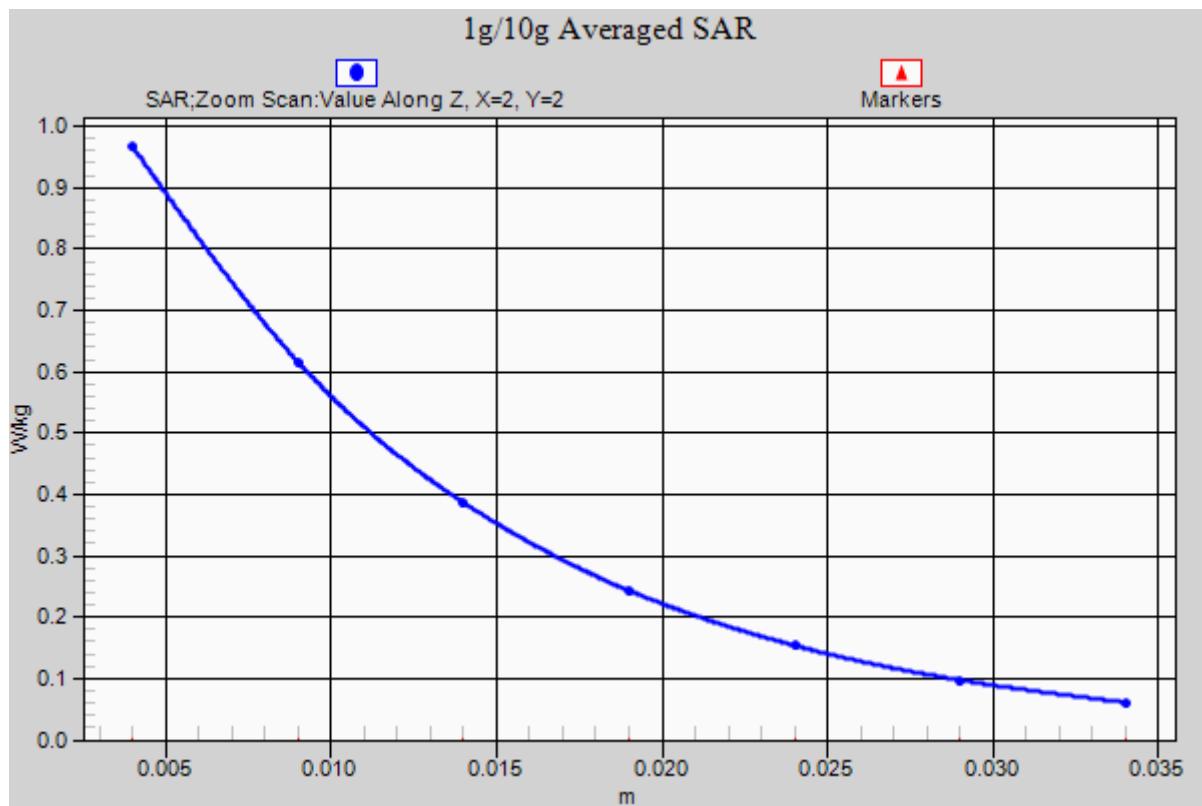
**SAR(1 g) = 0.899 mW/g; SAR(10 g) = 0.538 mW/g**

Maximum value of SAR (measured) = 0.967 W/kg



Test Laboratory: GCCT

Test Date: July. 09, 2015



WCDMA Band II LEFT/CHEEK-Mid\_ axis scan

Test Laboratory: GCCT

Test Date: July. 09, 2015

## WCDMA Band II LEFT/CHEEK-Low

**DUT: Mobile Phone; Type: SP4**

Communication System: UMTS-FDD(WCDMA); Communication System Band: Band2; Frequency: 1852.4 MHz;  
Communication System PAR: 0 dB

Medium parameters used (interpolated):  $f = 1852.4$  MHz;  $\sigma = 1.397$  mho/m;  $\epsilon_r = 39.326$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(5.2, 5.2, 5.2); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_1 with CRP v4.0; Type: QD000P40CC; Serial: TP:1586
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**WCDMA Band II LEFT/CHEEK-Low/Area Scan (51x91x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Reference Value = 11.725 V/m; Power Drift = 0.00 dB

Maximum value of SAR (interpolated) = 0.962 W/kg

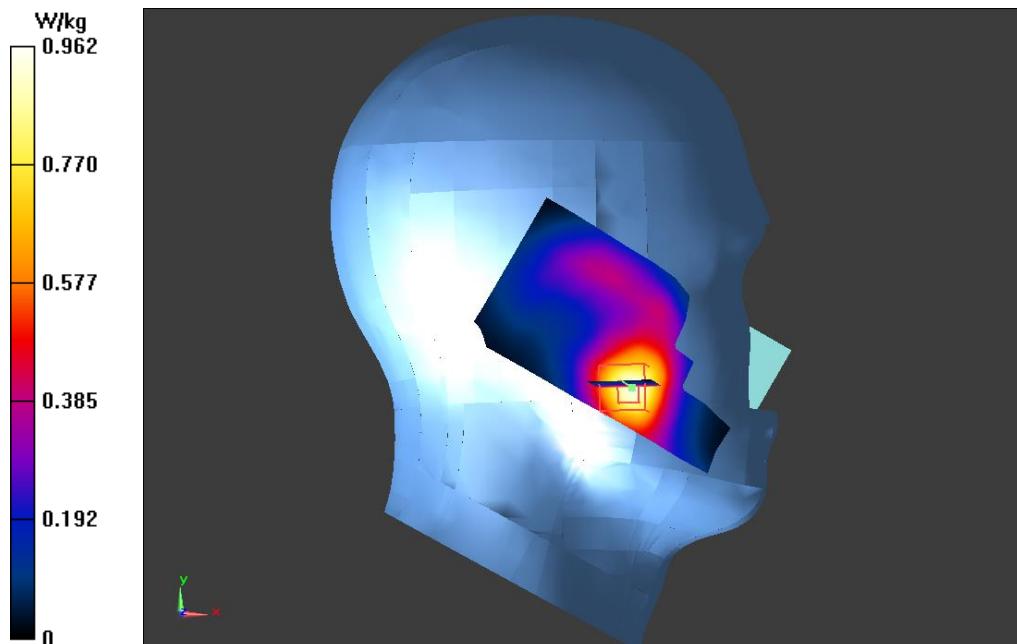
**WCDMA Band II LEFT/CHEEK-Low/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 11.725 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 1.368 mW/g

**SAR(1 g) = 0.874 mW/g; SAR(10 g) = 0.524 mW/g**

Maximum value of SAR (measured) = 0.938 W/kg



Test Laboratory: GCCT

Test Date: July. 09, 2015

## WCDMA Band II LEFT/TILT-Mid

DUT: Mobile Phone; Type: SP4

Communication System: UMTS-FDD(WCDMA); Communication System Band: Band2; Frequency: 1880 MHz;  
Communication System PAR: 0 dB

Medium parameters used:  $f = 1880 \text{ MHz}$ ;  $\sigma = 1.424 \text{ mho/m}$ ;  $\epsilon_r = 39.231$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(5.2, 5.2, 5.2); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_1 with CRP v4.0; Type: QD000P40CC; Serial: TP:1586
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**WCDMA Band II LEFT/TILT-Mid/Area Scan (51x91x1):** Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$

Reference Value = 16.421 V/m; Power Drift = 0.01 dB

Maximum value of SAR (interpolated) = 0.388 W/kg

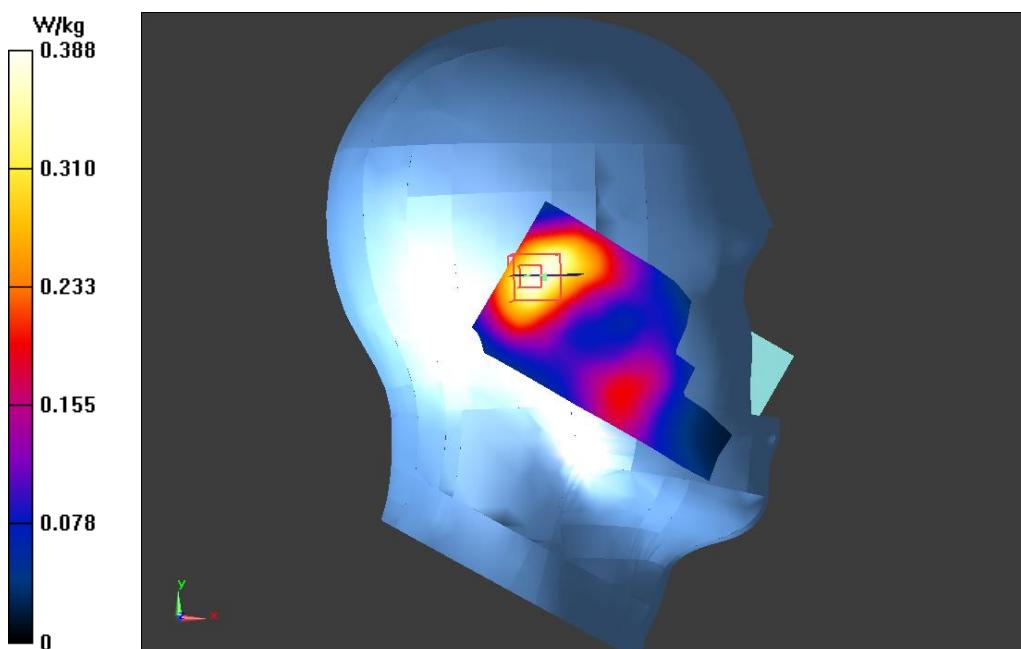
**WCDMA Band II LEFT/TILT-Mid/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 16.421 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.566 mW/g

**SAR(1 g) = 0.352 mW/g; SAR(10 g) = 0.213 mW/g**

Maximum value of SAR (measured) = 0.381 W/kg



## WCDMA Band II RIGHT/CHEEK-Mid

DUT: Mobile Phone; Type: SP4

Communication System: UMTS-FDD(WCDMA); Communication System Band: Band2; Frequency: 1880 MHz;  
Communication System PAR: 0 dB

Medium parameters used:  $f = 1880 \text{ MHz}$ ;  $\sigma = 1.424 \text{ mho/m}$ ;  $\epsilon_r = 39.231$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(5.2, 5.2, 5.2); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_1 with CRP v4.0; Type: QD000P40CC; Serial: TP:1586
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**WCDMA Band II RIGHT/CHEEK-Mid/Area Scan (51x91x1):** Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$

Reference Value = 8.439 V/m; Power Drift = 0.06 dB

Maximum value of SAR (interpolated) = 0.740 W/kg

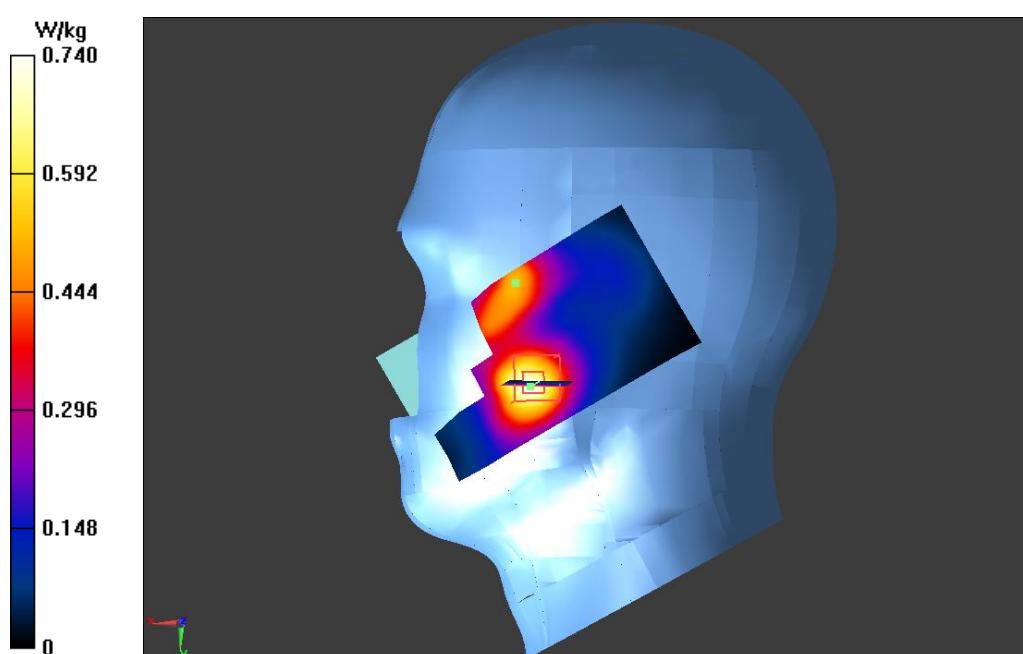
**WCDMA Band II RIGHT/CHEEK-Mid/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 8.439 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 1.068 mW/g

**SAR(1 g) = 0.663 mW/g; SAR(10 g) = 0.391 mW/g**

Maximum value of SAR (measured) = 0.722 W/kg



## WCDMA Band II RIGHT/TILT-Mid

DUT: Mobile Phone; Type: SP4

Communication System: UMTS-FDD(WCDMA); Communication System Band: Band2; Frequency: 1880 MHz;  
Communication System PAR: 0 dB

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.424$  mho/m;  $\epsilon_r = 39.231$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(5.2, 5.2, 5.2); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_1 with CRP v4.0; Type: QD000P40CC; Serial: TP:1586
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**WCDMA Band II RIGHT/TILT-Mid/Area Scan (51x91x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Reference Value = 15.272 V/m; Power Drift = 0.09 dB

Maximum value of SAR (interpolated) = 0.370 W/kg

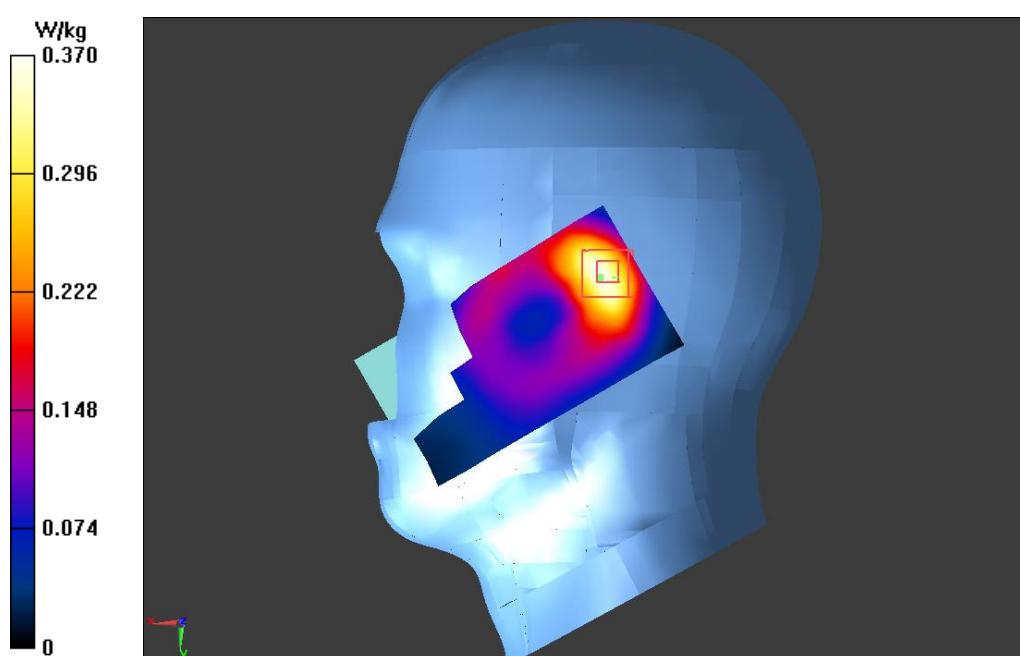
**WCDMA Band II RIGHT/TILT-Mid/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 15.272 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 0.567 mW/g

**SAR(1 g) = 0.346 mW/g; SAR(10 g) = 0.203 mW/g**

Maximum value of SAR (measured) = 0.372 W/kg



## WCDMA Band II Body/Back side High

DUT: Mobile Phone; Type: SP4

Communication System: UMTS-FDD(WCDMA); Communication System Band: Band2; Frequency: 1907.6 MHz;  
Communication System PAR: 0 dB

Medium parameters used:  $f = 1908 \text{ MHz}$ ;  $\sigma = 1.577 \text{ mho/m}$ ;  $\epsilon_r = 52.361$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(4.79, 4.79, 4.79); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_1 with CRP v4.0; Type: QD000P40CC; Serial: TP:1586
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**WCDMA Band II Body/Back side High/Area Scan (51x101x1):** Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$   
Reference Value = 19.887 V/m; Power Drift = 0.00 dB

Maximum value of SAR (interpolated) = 1.03 W/kg

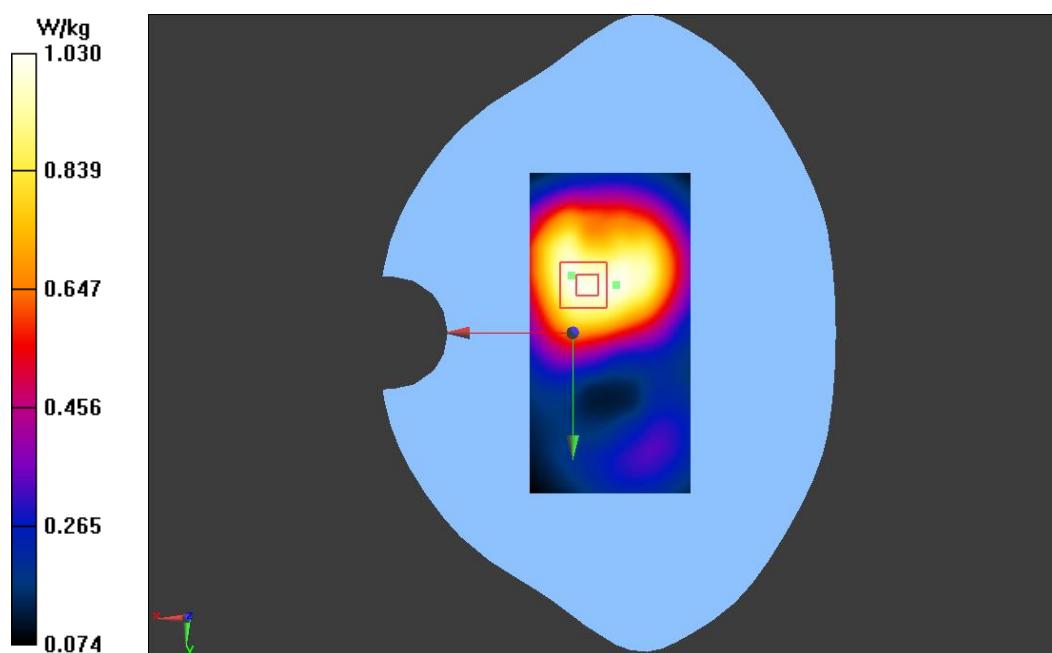
**WCDMA Band II Body/Back side High/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 19.887 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 1.562 mW/g

**SAR(1 g) = 0.961 mW/g; SAR(10 g) = 0.595 mW/g**

Maximum value of SAR (measured) = 1.02 W/kg



## WCDMA Band II Body/Back side Mid

DUT: Mobile Phone; Type: SP4

Communication System: UMTS-FDD(WCDMA); Communication System Band: Band2; Frequency: 1880 MHz;  
Communication System PAR: 0 dB

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.552$  mho/m;  $\epsilon_r = 52.4$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(4.79, 4.79, 4.79); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_1 with CRP v4.0; Type: QD000P40CC; Serial: TP:1586
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**WCDMA Band II Body/Back side Mid/Area Scan (51x101x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm  
Reference Value = 19.909 V/m; Power Drift = 0.00 dB

Maximum value of SAR (interpolated) = 1.18 W/kg

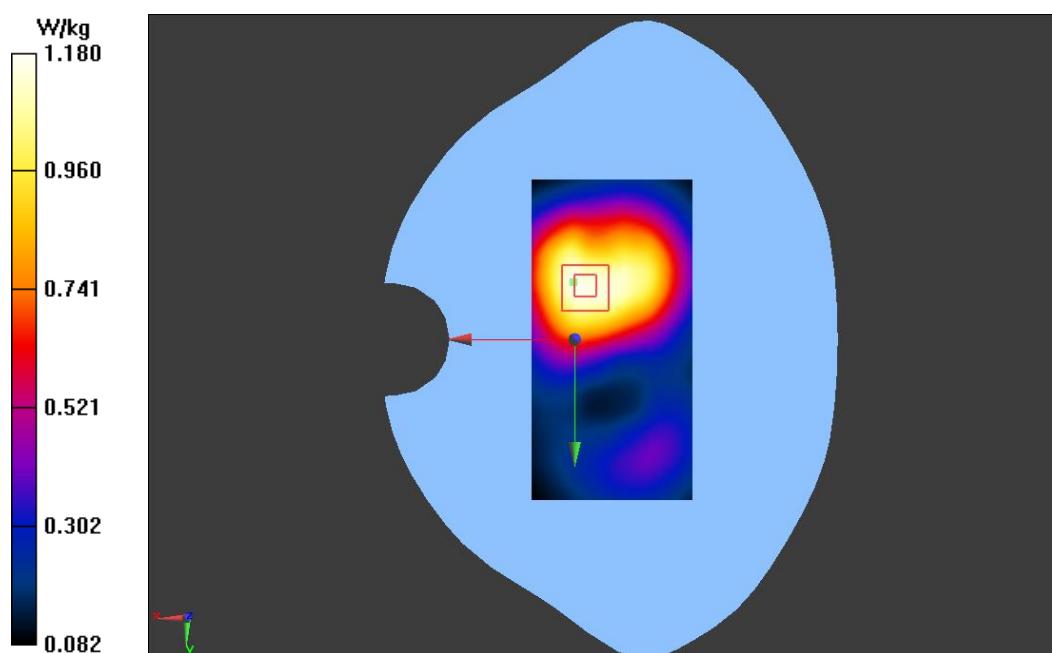
**WCDMA Band II Body/Back side Mid/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm,  
dz=5mm

Reference Value = 19.909 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 1.770 mW/g

**SAR(1 g) = 1.09 mW/g; SAR(10 g) = 0.674 mW/g**

Maximum value of SAR (measured) = 1.16 W/kg



## WCDMA Band II Body/Back side Low

DUT: Mobile Phone; Type: SP4

Communication System: UMTS-FDD(WCDMA); Communication System Band: Band2; Frequency: 1852.4 MHz;  
Communication System PAR: 0 dB

Medium parameters used (interpolated):  $f = 1852.4$  MHz;  $\sigma = 1.527$  mho/m;  $\epsilon_r = 52.48$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(4.79, 4.79, 4.79); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_1 with CRP v4.0; Type: QD000P40CC; Serial: TP:1586
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**WCDMA Band II Body/Back side Low/Area Scan (51x101x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm  
Reference Value = 18.988 V/m; Power Drift = 0.00 dB

Maximum value of SAR (interpolated) = 1.20 W/kg

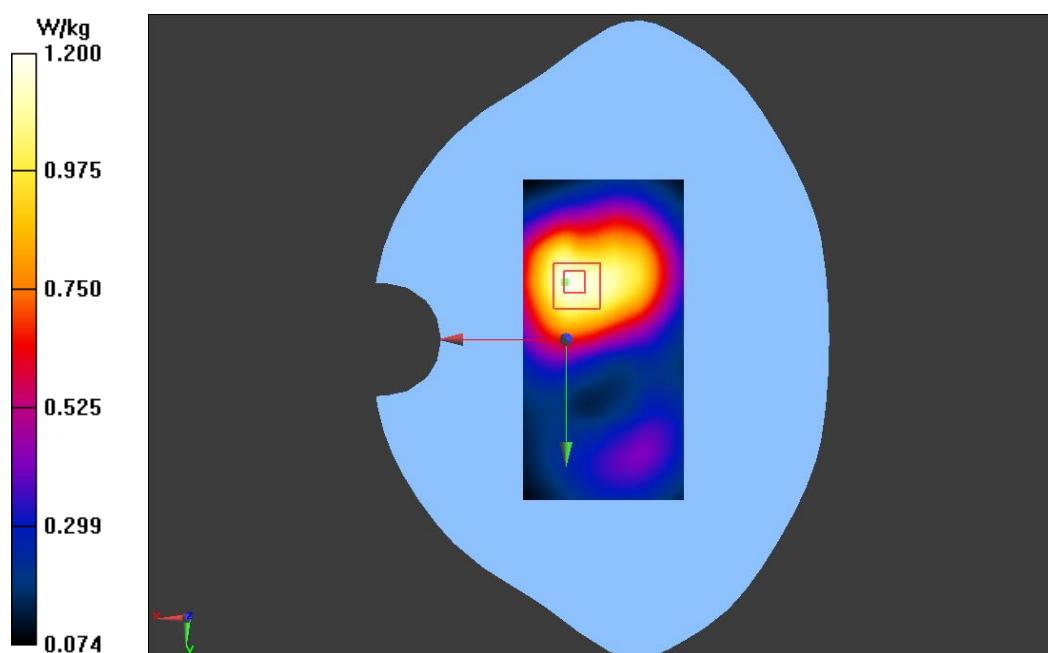
**WCDMA Band II Body/Back side Low/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 18.988 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 1.794 mW/g

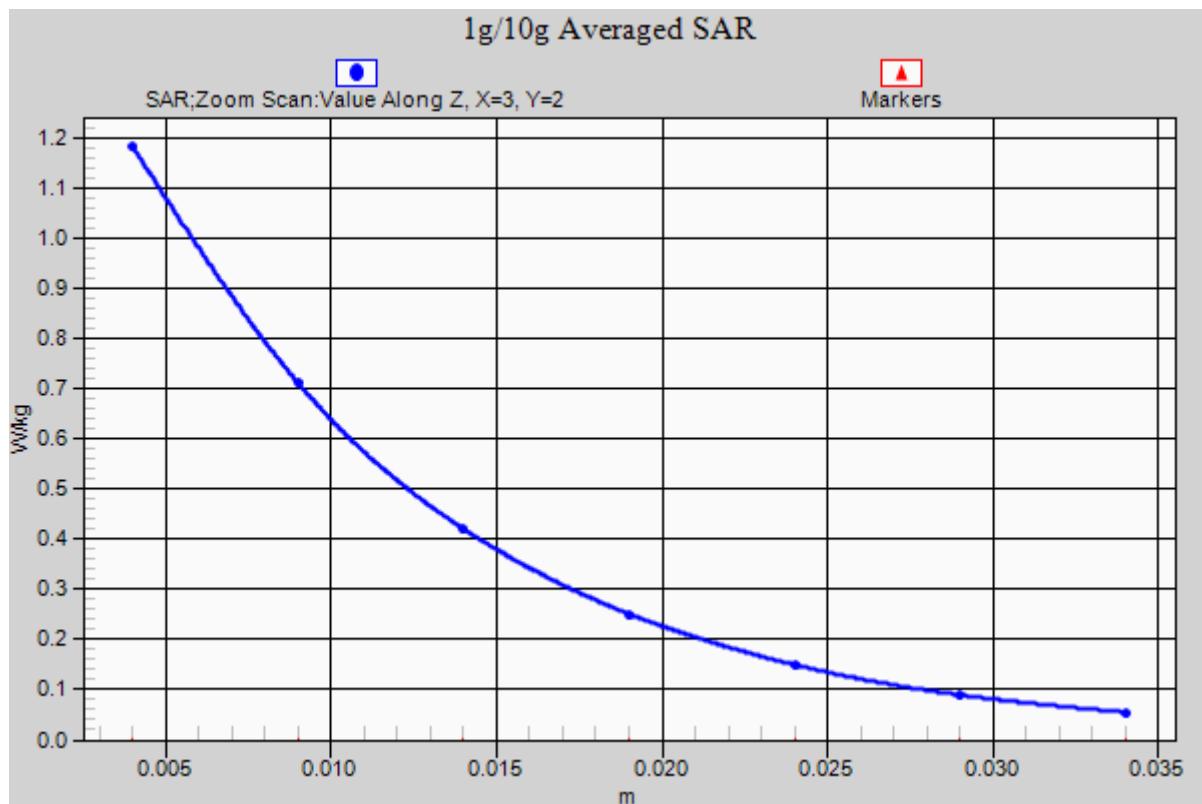
**SAR(1 g) = 1.11 mW/g; SAR(10 g) = 0.683 mW/g**

Maximum value of SAR (measured) = 1.18 W/kg



Test Laboratory: GCCT

Test Date: July. 10, 2015



Test Laboratory: GCCT

Test Date: July. 10, 2015

## WCDMA Band II Body/Back side Low

DUT: Mobile Phone; Type: SP4

Communication System: UMTS-FDD(WCDMA); Communication System Band: Band2; Frequency: 1852.4 MHz;  
Communication System PAR: 0 dB

Medium parameters used (interpolated):  $f = 1852.4$  MHz;  $\sigma = 1.527$  mho/m;  $\epsilon_r = 52.48$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(4.79, 4.79, 4.79); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_1 with CRP v4.0; Type: QD000P40CC; Serial: TP:1586
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**WCDMA Band II Body/Back side Low/Area Scan (51x101x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm  
Reference Value = 18.852 V/m; Power Drift = 0.03 dB

Maximum value of SAR (interpolated) = 1.20 W/kg

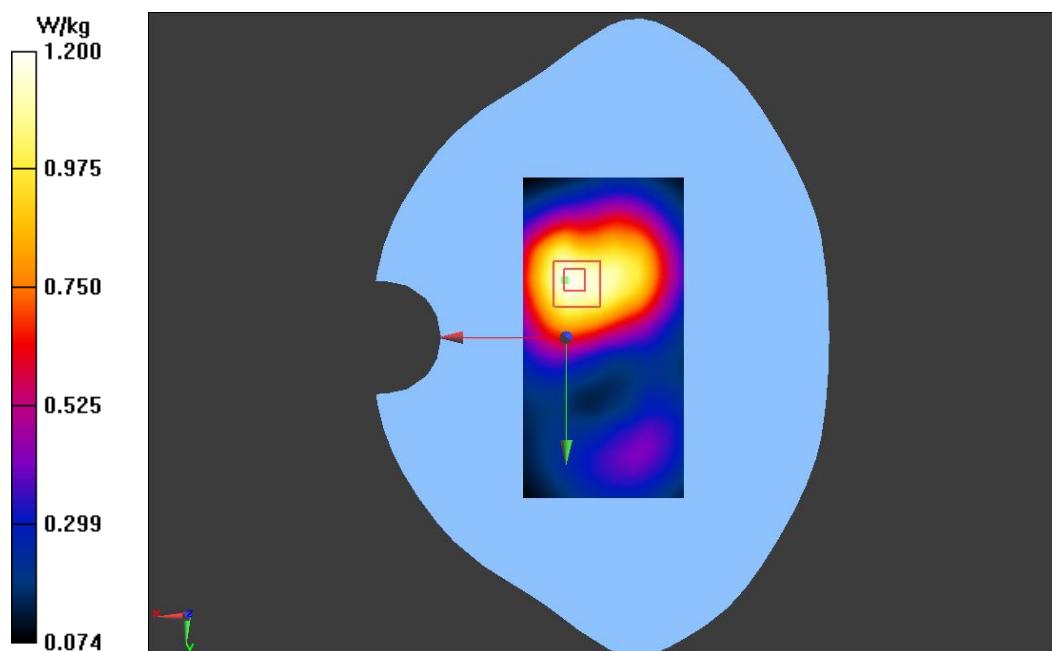
**WCDMA Band II Body/Back side Low/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 18.852 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 1.794 mW/g

**SAR(1 g) = 1.09 mW/g; SAR(10 g) = 0.680 mW/g**

Maximum value of SAR (measured) = 1.17 W/kg



## WCDMA Band II Body/Front side High

**DUT: Mobile Phone; Type: SP4**

Communication System: UMTS-FDD(WCDMA); Communication System Band: Band2; Frequency: 1907.6 MHz;  
Communication System PAR: 0 dB

Medium parameters used:  $f = 1908 \text{ MHz}$ ;  $\sigma = 1.577 \text{ mho/m}$ ;  $\epsilon_r = 52.361$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(4.79, 4.79, 4.79); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_1 with CRP v4.0; Type: QD000P40CC; Serial: TP:1586
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**WCDMA Band II Body/Front side High/Area Scan (51x101x1):** Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$

Reference Value = 10.938 V/m; Power Drift = 0.08 dB

Maximum value of SAR (interpolated) = 0.792 W/kg

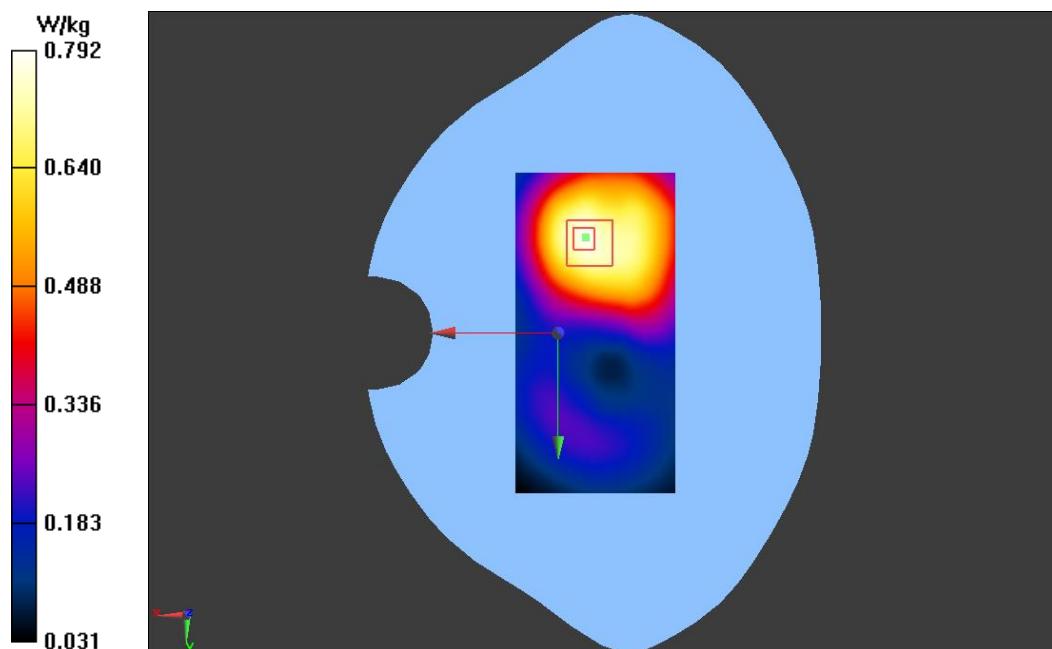
**WCDMA Band II Body/Front side High/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 10.938 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 1.147 mW/g

**SAR(1 g) = 0.726 mW/g; SAR(10 g) = 0.454 mW/g**

Maximum value of SAR (measured) = 0.781 W/kg



Test Laboratory: GCCT

Test Date: July. 10, 2015

## WCDMA Band II Body/Front side Mid

**DUT: Mobile Phone; Type: SP4**

Communication System: UMTS-FDD(WCDMA); Communication System Band: Band2; Frequency: 1880 MHz;  
Communication System PAR: 0 dB

Medium parameters used:  $f = 1880 \text{ MHz}$ ;  $\sigma = 1.552 \text{ mho/m}$ ;  $\epsilon_r = 52.4$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(4.79, 4.79, 4.79); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_1 with CRP v4.0; Type: QD000P40CC; Serial: TP:1586
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**WCDMA Band II Body/Front side Mid/Area Scan (51x101x1):** Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$

Reference Value = 10.625 V/m; Power Drift = 0.02 dB

Maximum value of SAR (interpolated) = 0.862 W/kg

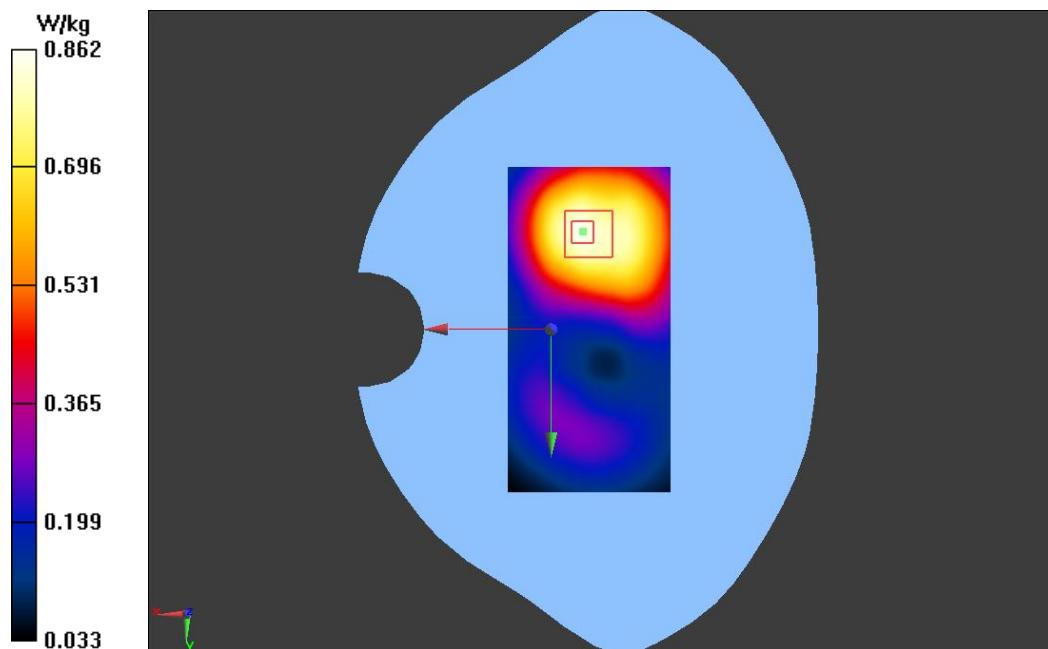
**WCDMA Band II Body/Front side Mid/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 10.625 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 1.255 mW/g

**SAR(1 g) = 0.794 mW/g; SAR(10 g) = 0.499 mW/g**

Maximum value of SAR (measured) = 0.856 W/kg



Test Laboratory: GCCT

Test Date: July. 10, 2015

## WCDMA Band II Body/Front side Low

DUT: Mobile Phone; Type: SP4

Communication System: UMTS-FDD(WCDMA); Communication System Band: Band2; Frequency: 1852.4 MHz;  
Communication System PAR: 0 dB

Medium parameters used (interpolated):  $f = 1852.4$  MHz;  $\sigma = 1.527$  mho/m;  $\epsilon_r = 52.48$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(4.79, 4.79, 4.79); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_1 with CRP v4.0; Type: QD000P40CC; Serial: TP:1586
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**WCDMA Band II Body/Front side Low/Area Scan (51x101x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Reference Value = 10.122 V/m; Power Drift = 0.04 dB

Maximum value of SAR (interpolated) = 0.853 W/kg

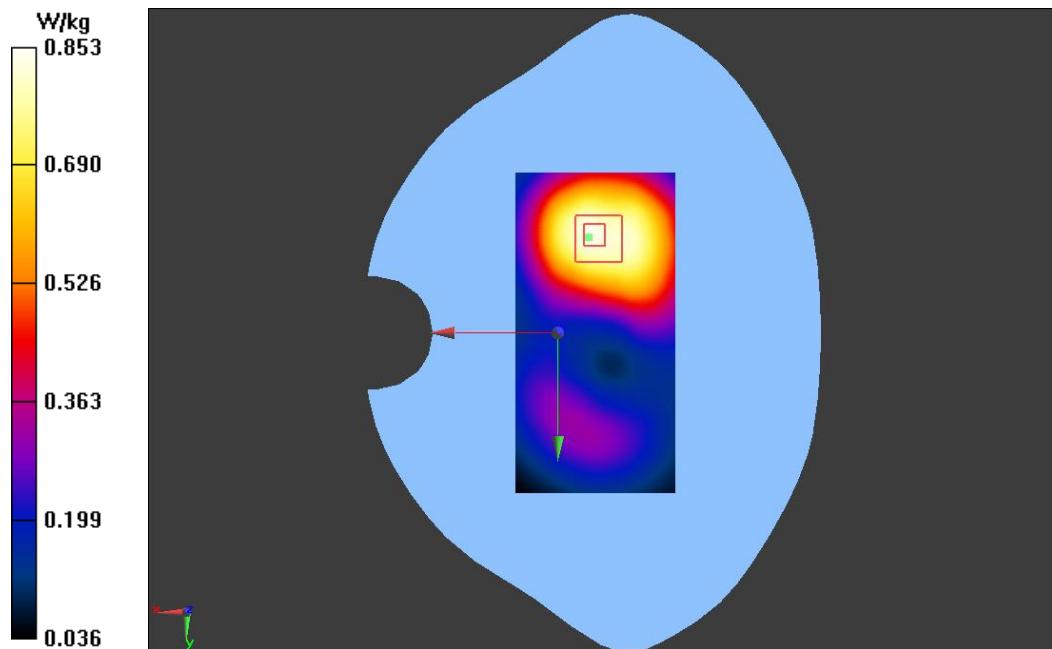
**WCDMA Band II Body/Front side Low/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 10.122 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 1.225 mW/g

**SAR(1 g) = 0.782 mW/g; SAR(10 g) = 0.494 mW/g**

Maximum value of SAR (measured) = 0.838 W/kg



Test Laboratory: GCCT

Test Date: July. 10, 2015

## WCDMA Band II-Left side-Mid

**DUT: Mobile Phone; Type: SP4**

Communication System: UMTS-FDD(WCDMA); Communication System Band: Band2; Frequency: 1880 MHz;  
Communication System PAR: 0 dB

Medium parameters used:  $f = 1880 \text{ MHz}$ ;  $\sigma = 1.552 \text{ mho/m}$ ;  $\epsilon_r = 52.4$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(4.79, 4.79, 4.79); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_1 with CRP v4.0; Type: QD000P40CC; Serial: TP:1586
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**WCDMA Band II-Left side-Mid/Area Scan (31x111x1):** Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$

Reference Value = 15.575 V/m; Power Drift = -0.02 dB

Maximum value of SAR (interpolated) = 0.592 W/kg

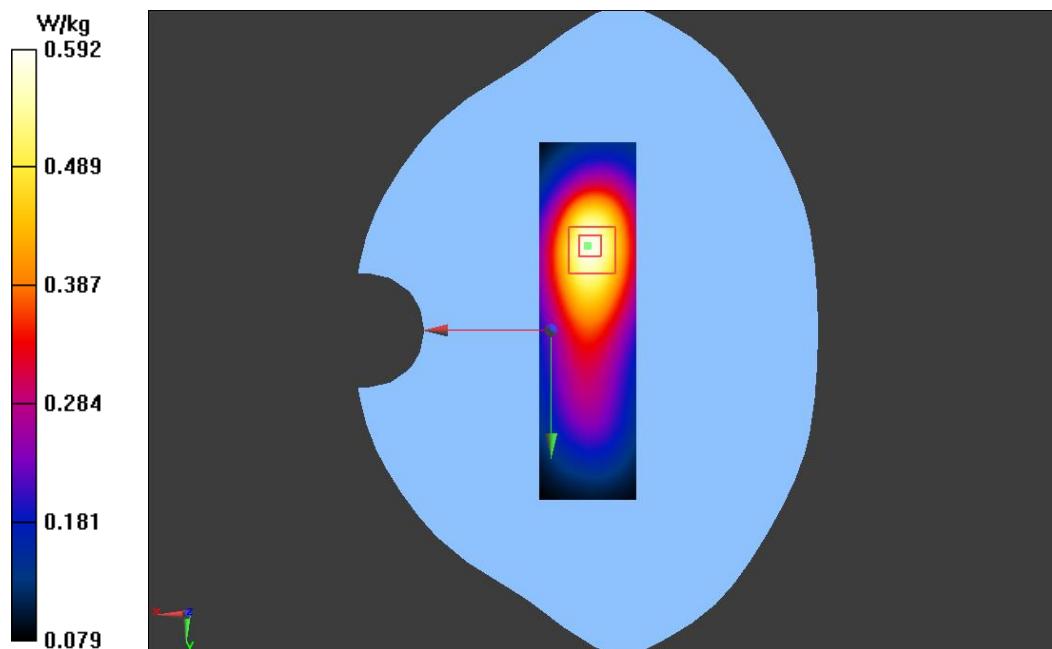
**WCDMA Band II-Left side-Mid/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 15.575 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 0.886 mW/g

**SAR(1 g) = 0.538 mW/g; SAR(10 g) = 0.324 mW/g**

Maximum value of SAR (measured) = 0.582 W/kg



Test Laboratory: GCCT

Test Date: July. 10, 2015

## WCDMA Band II-Right side-Mid

DUT: Mobile Phone; Type: SP4

Communication System: UMTS-FDD(WCDMA); Communication System Band: Band2; Frequency: 1880 MHz;  
Communication System PAR: 0 dB

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.552$  mho/m;  $\epsilon_r = 52.4$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(4.79, 4.79, 4.79); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_1 with CRP v4.0; Type: QD000P40CC; Serial: TP:1586
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**WCDMA Band II-Right side-Mid/Area Scan (31x111x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Reference Value = 9.069 V/m; Power Drift = -0.07 dB

Maximum value of SAR (interpolated) = 0.226 W/kg

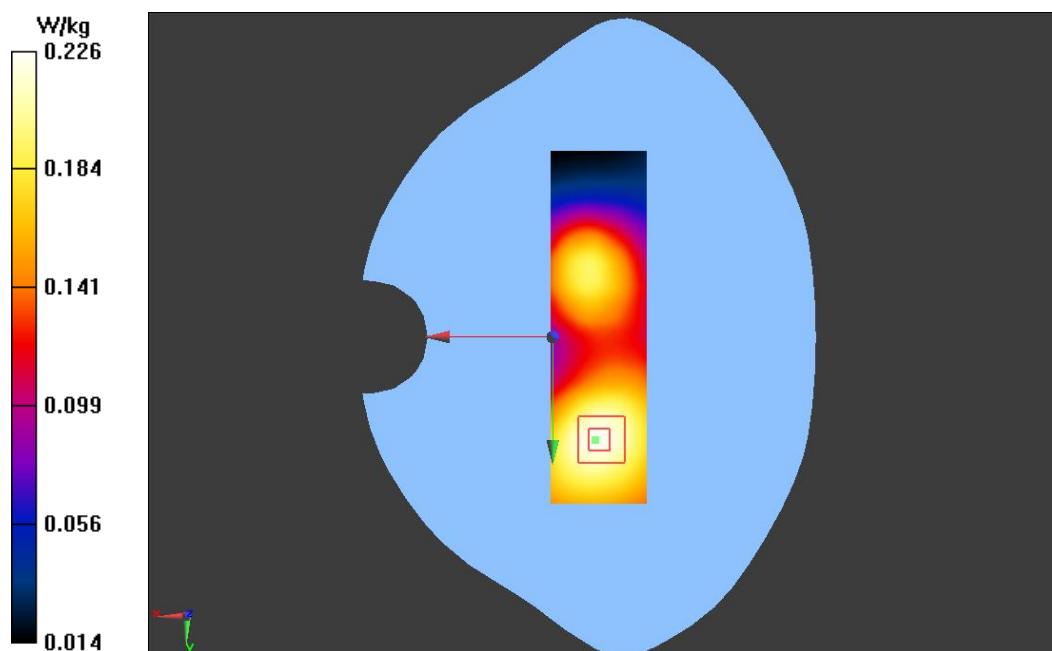
**WCDMA Band II-Right side-Mid/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.069 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 0.338 mW/g

**SAR(1 g) = 0.212 mW/g; SAR(10 g) = 0.134 mW/g**

Maximum value of SAR (measured) = 0.227 W/kg



## WCDMA Band II-Bottom side-Mid

DUT: Mobile Phone; Type: SP4

Communication System: UMTS-FDD(WCDMA); Communication System Band: Band2; Frequency: 1880 MHz;  
Communication System PAR: 0 dB

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.552$  mho/m;  $\epsilon_r = 52.4$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(4.79, 4.79, 4.79); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_1 with CRP v4.0; Type: QD000P40CC; Serial: TP:1586
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**WCDMA Band II-Bottom side-Mid/Area Scan (31x61x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Reference Value = 20.635 V/m; Power Drift = -0.02 dB

Maximum value of SAR (interpolated) = 0.662 W/kg

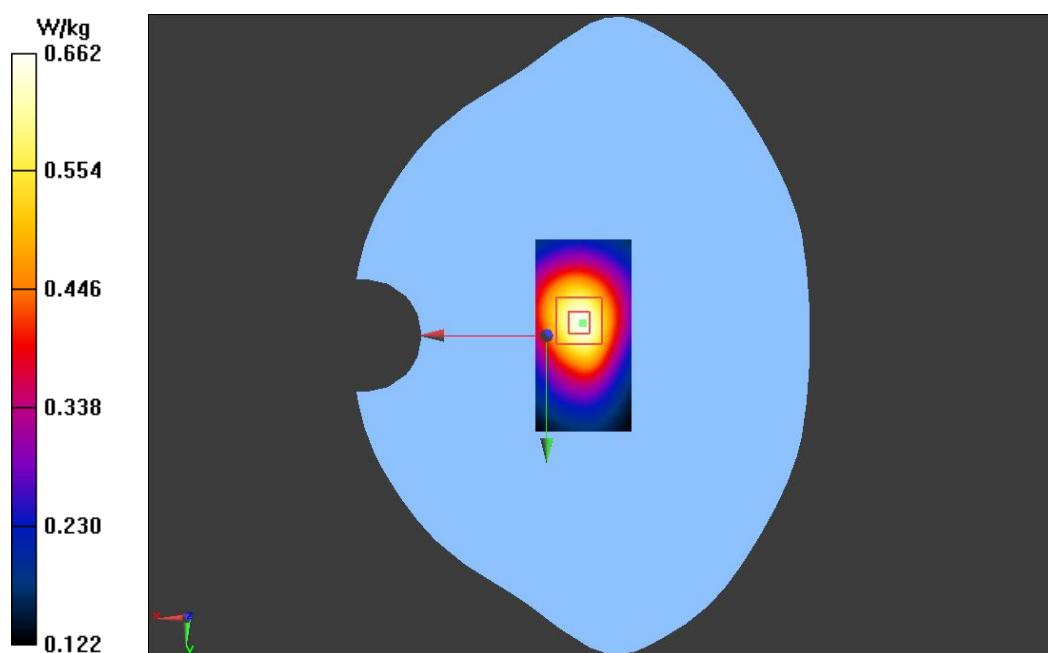
**WCDMA Band II-Bottom side-Mid/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 20.635 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 1.021 mW/g

**SAR(1 g) = 0.609 mW/g; SAR(10 g) = 0.360 mW/g**

Maximum value of SAR (measured) = 0.661 W/kg



## WCDMA Band V LEFT/CHEEK-Mid

DUT: Mobile Phone; Type: SP4

Communication System: UMTS-FDD(WCDMA); Communication System Band: Band 5; Frequency: 836.6 MHz;  
Communication System PAR: 0 dB

Medium parameters used (interpolated):  $f = 836.6 \text{ MHz}$ ;  $\sigma = 0.861 \text{ mho/m}$ ;  $\epsilon_r = 40.411$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(6.25, 6.25, 6.25); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_2with CRP v4.0; Type: QD000P40CC; Serial: TP:1548
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**WCDMA Band V LEFT/CHEEK-Mid/Area Scan (51x101x1):** Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$

Reference Value = 7.095 V/m; Power Drift = -0.08 dB

Maximum value of SAR (interpolated) = 0.386 W/kg

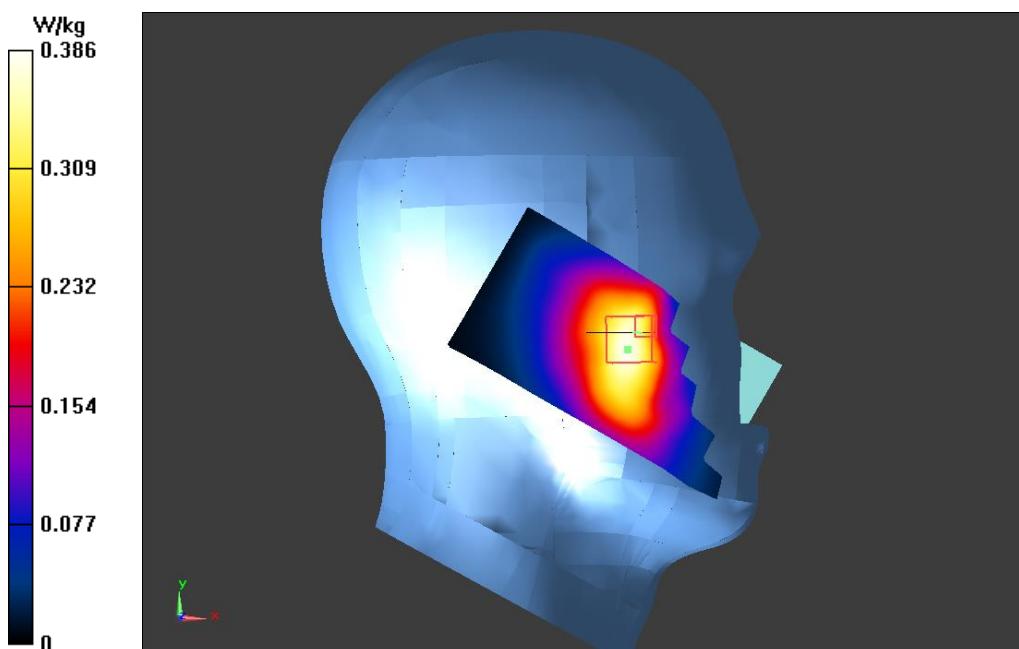
**WCDMA Band V LEFT/CHEEK-Mid/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 7.095 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 0.763 mW/g

**SAR(1 g) = 0.327 mW/g; SAR(10 g) = 0.044 mW/g**

Maximum value of SAR (measured) = 0.327 W/kg



## WCDMA Band V LEFT/TILT-Mid

DUT: Mobile Phone; Type: SP4

Communication System: UMTS-FDD(WCDMA); Communication System Band: Band 5; Frequency: 836.6 MHz;  
Communication System PAR: 0 dB

Medium parameters used (interpolated):  $f = 836.6$  MHz;  $\sigma = 0.861$  mho/m;  $\epsilon_r = 40.411$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(6.25, 6.25, 6.25); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_2with CRP v4.0; Type: QD000P40CC; Serial: TP:1548
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**WCDMA Band V LEFT/TILT-Mid/Area Scan (51x101x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Reference Value = 11.543 V/m; Power Drift = -0.21 dB

Maximum value of SAR (interpolated) = 0.258 W/kg

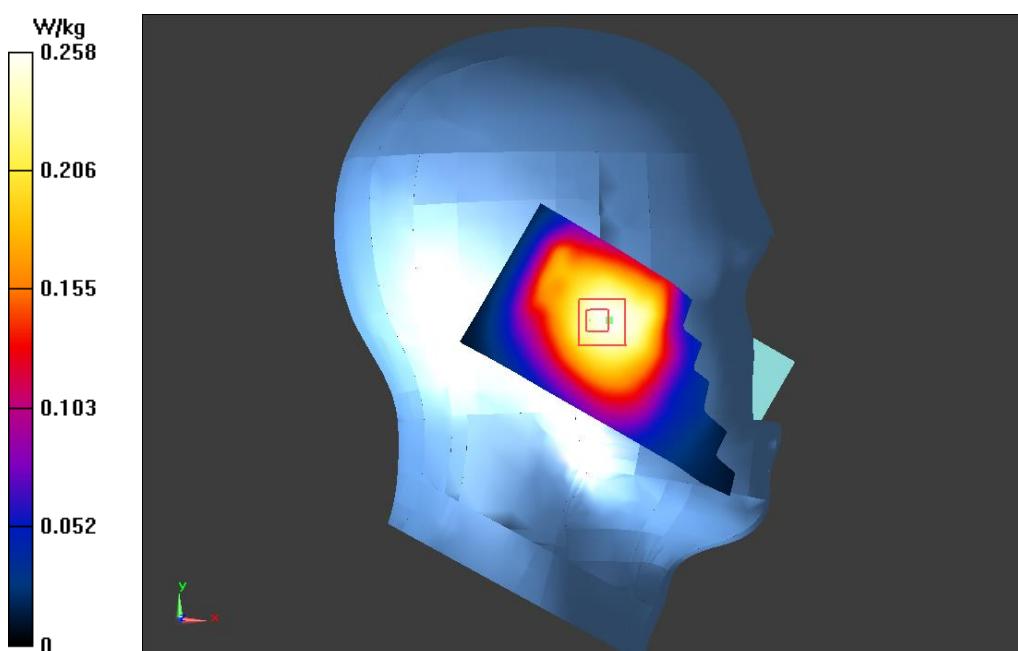
**WCDMA Band V LEFT/TILT-Mid/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 11.543 V/m; Power Drift = -0.21 dB

Peak SAR (extrapolated) = 0.309 mW/g

**SAR(1 g) = 0.252 mW/g; SAR(10 g) = 0.194 mW/g**

Maximum value of SAR (measured) = 0.263 W/kg



## WCDMA Band V RIGHT/CHEEK-Mid

DUT: Mobile Phone; Type: SP4

Communication System: UMTS-FDD(WCDMA); Communication System Band: Band 5; Frequency: 836.6 MHz;  
Communication System PAR: 0 dB

Medium parameters used (interpolated):  $f = 836.6$  MHz;  $\sigma = 0.861$  mho/m;  $\epsilon_r = 40.411$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(6.25, 6.25, 6.25); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_2with CRP v4.0; Type: QD000P40CC; Serial: TP:1548
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**WCDMA Band V RIGHT/CHEEK-Mid/Area Scan (51x101x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Reference Value = 6.552 V/m; Power Drift = -0.15 dB

Maximum value of SAR (interpolated) = 0.385 W/kg

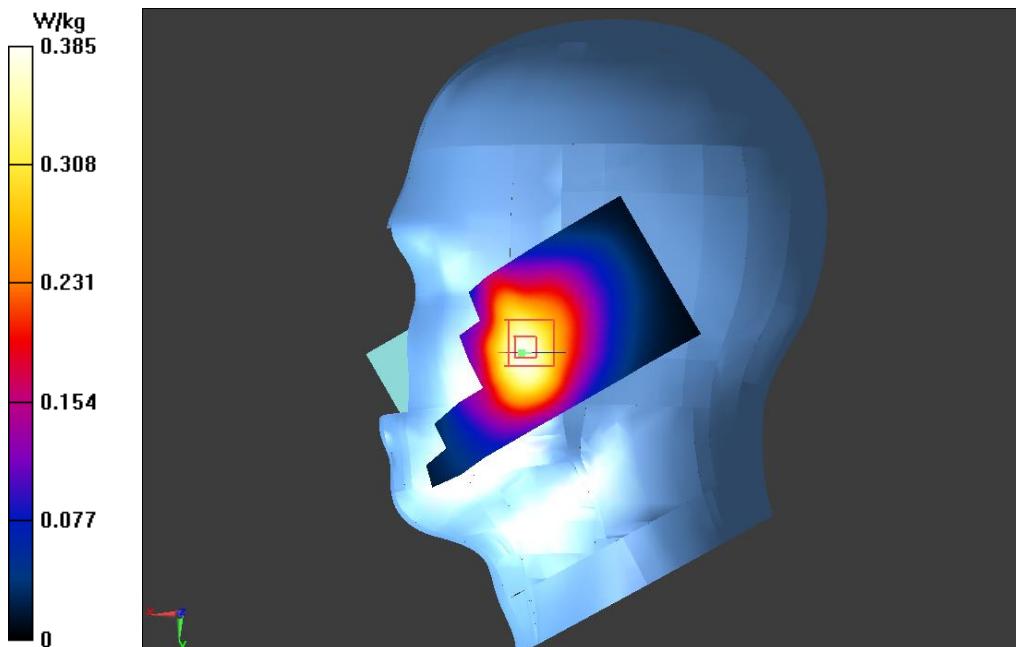
**WCDMA Band V RIGHT/CHEEK-Mid/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 6.552 V/m; Power Drift = -0.15 dB

Peak SAR (extrapolated) = 0.453 mW/g

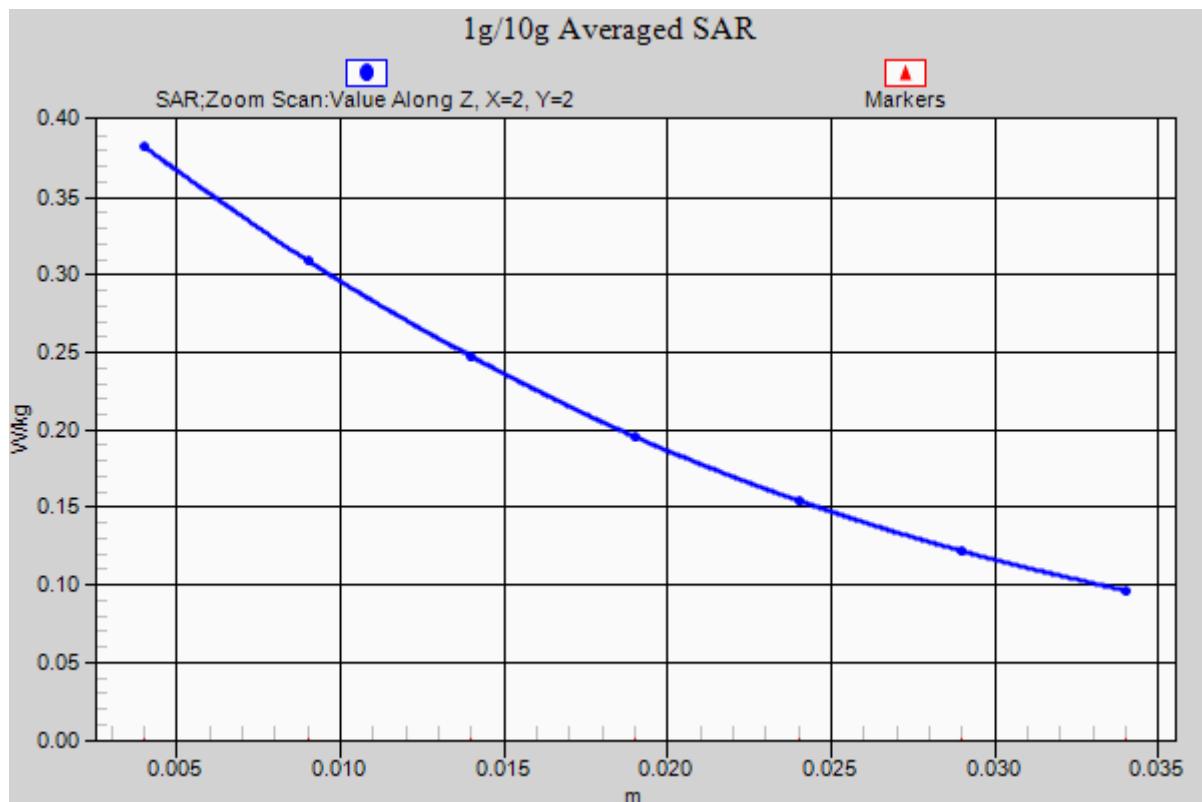
**SAR(1 g) = 0.365 mW/g; SAR(10 g) = 0.276 mW/g**

Maximum value of SAR (measured) = 0.383 W/kg



Test Laboratory: GCCT

Test Date: July. 07, 2015



**WCDMA Band V RIGHT/CHEEK-Mid\_ axis scan**

Test Laboratory: GCCT

Test Date: July. 07, 2015

## WCDMA Band V RIGHT/TILT-Mid

DUT: Mobile Phone; Type: SP4

Communication System: UMTS-FDD(WCDMA); Communication System Band: Band 5; Frequency: 836.6 MHz;  
Communication System PAR: 0 dB

Medium parameters used (interpolated):  $f = 836.6$  MHz;  $\sigma = 0.861$  mho/m;  $\epsilon_r = 40.411$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(6.25, 6.25, 6.25); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_2with CRP v4.0; Type: QD000P40CC; Serial: TP:1548
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**WCDMA Band V RIGHT/TILT-Mid/Area Scan (51x101x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Reference Value = 11.998 V/m; Power Drift = 0.06 dB

Maximum value of SAR (interpolated) = 0.259 W/kg

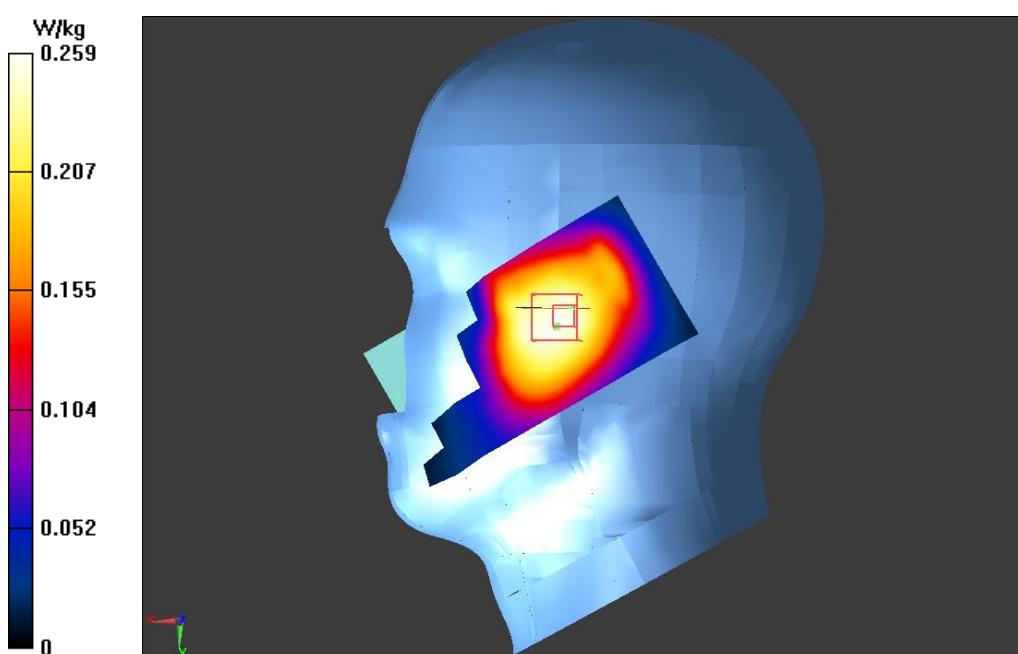
**WCDMA Band V RIGHT/TILT-Mid/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 11.998 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 0.302 mW/g

**SAR(1 g) = 0.250 mW/g; SAR(10 g) = 0.194 mW/g**

Maximum value of SAR (measured) = 0.258 W/kg



## WCDMA Band V (Body)/Back side High

DUT: Mobile Phone; Type: SP4

Communication System: UMTS-FDD(WCDMA); Communication System Band: Band 5; Frequency: 846.6 MHz;  
Communication System PAR: 0 dB

Medium parameters used (interpolated):  $f = 846.6$  MHz;  $\sigma = 0.949$  mho/m;  $\epsilon_r = 53.624$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(6.29, 6.29, 6.29); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_2with CRP v4.0; Type: QD000P40CC; Serial: TP:1548
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**WCDMA Band V (Body)/Back side High/Area Scan (61x101x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Reference Value = 28.198 V/m; Power Drift = 0.01 dB

Maximum value of SAR (interpolated) = 0.740 W/kg

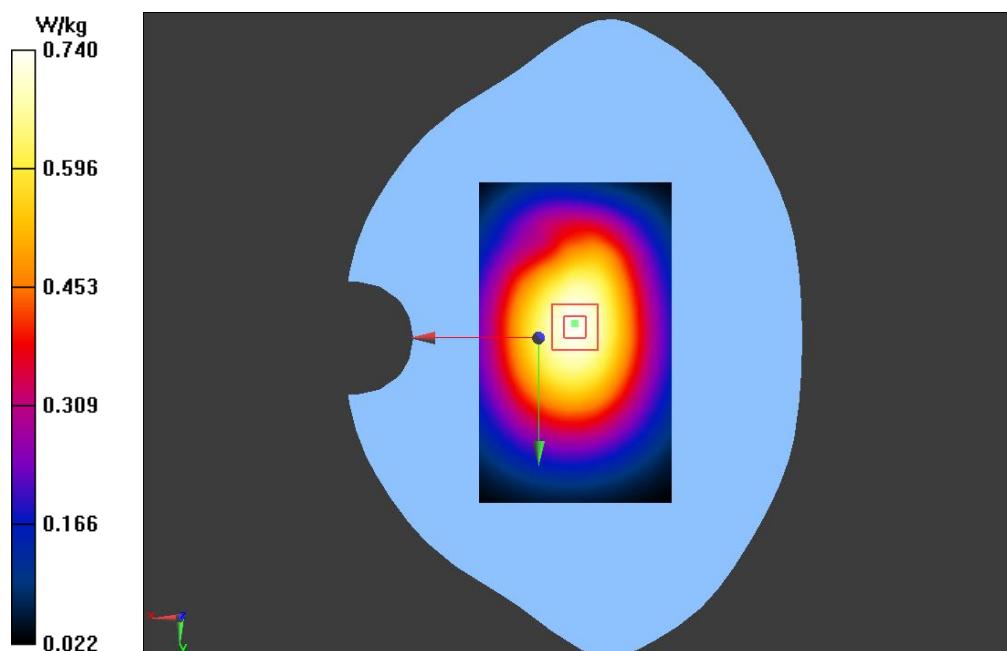
**WCDMA Band V (Body)/Back side High/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 28.198 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.874 mW/g

**SAR(1 g) = 0.705 mW/g; SAR(10 g) = 0.536 mW/g**

Maximum value of SAR (measured) = 0.741 W/kg



## WCDMA Band V (Body)/Back side Mid

DUT: Mobile Phone; Type: SP4

Communication System: UMTS-FDD(WCDMA); Communication System Band: Band 5; Frequency: 836.6 MHz;  
Communication System PAR: 0 dB

Medium parameters used (interpolated):  $f = 836.6$  MHz;  $\sigma = 0.939$  mho/m;  $\epsilon_r = 53.719$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(6.29, 6.29, 6.29); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_2with CRP v4.0; Type: QD000P40CC; Serial: TP:1548
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**WCDMA Band V (Body)/Back side Mid/Area Scan (61x101x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Reference Value = 29.361 V/m; Power Drift = 0.02 dB

Maximum value of SAR (interpolated) = 0.823 W/kg

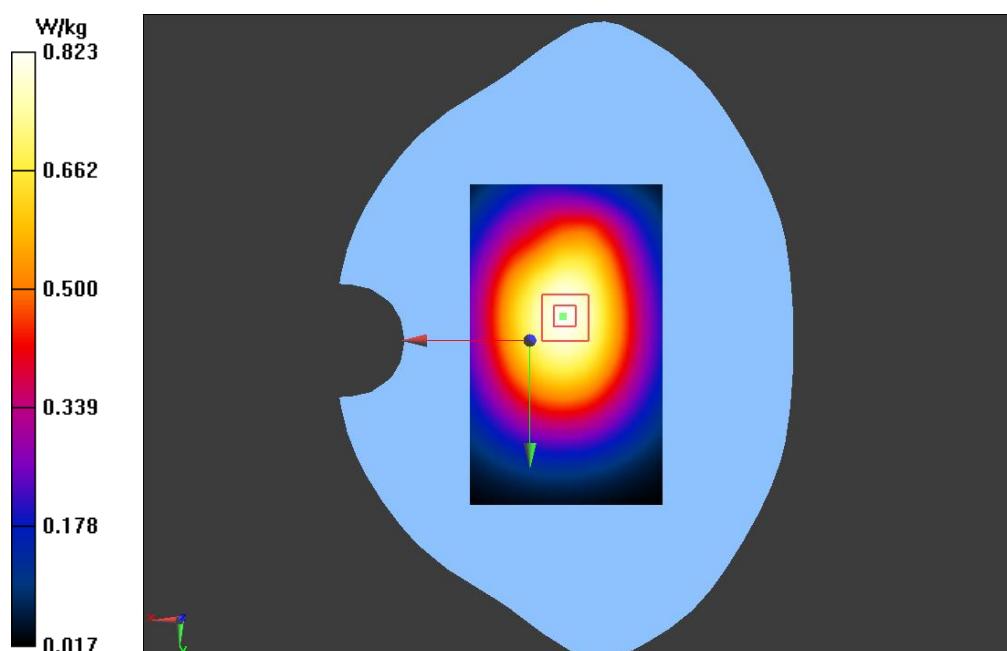
**WCDMA Band V (Body)/Back side Mid/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 29.361 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.961 mW/g

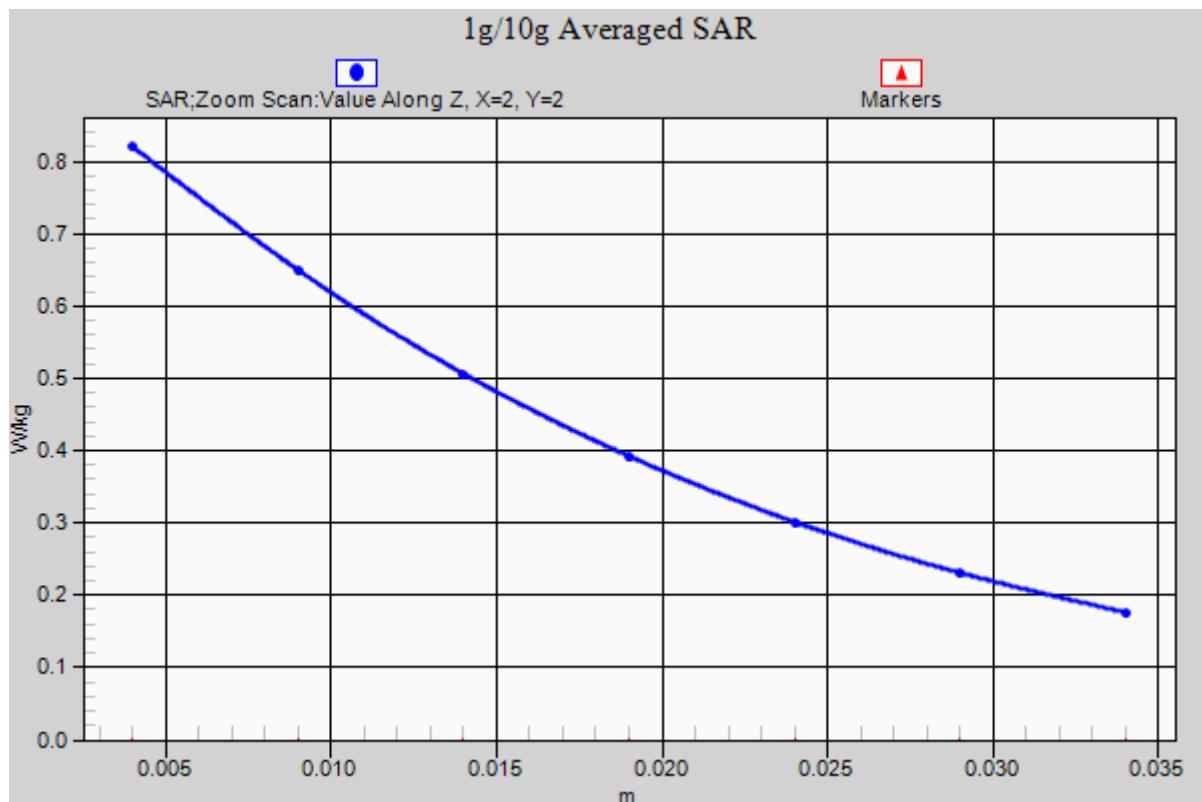
**SAR(1 g) = 0.781 mW/g; SAR(10 g) = 0.596 mW/g**

Maximum value of SAR (measured) = 0.820 W/kg



Test Laboratory: GCCT

Test Date: July. 08, 2015



Test Laboratory: GCCT

Test Date: July. 08, 2015

## WCDMA Band V (Body)/Back side Low

**DUT: Mobile Phone; Type: SP4**

Communication System: UMTS-FDD(WCDMA); Communication System Band: Band 5; Frequency: 826.4 MHz;

Communication System PAR: 0 dB

Medium parameters used (interpolated):  $f = 826.4$  MHz;  $\sigma = 0.929$  mho/m;  $\epsilon_r = 53.813$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(6.29, 6.29, 6.29); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_2with CRP v4.0; Type: QD000P40CC; Serial: TP:1548
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**WCDMA Band V (Body)/Back side Low/Area Scan (61x101x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Reference Value = 28.757 V/m; Power Drift = -0.10 dB

Maximum value of SAR (interpolated) = 0.749 W/kg

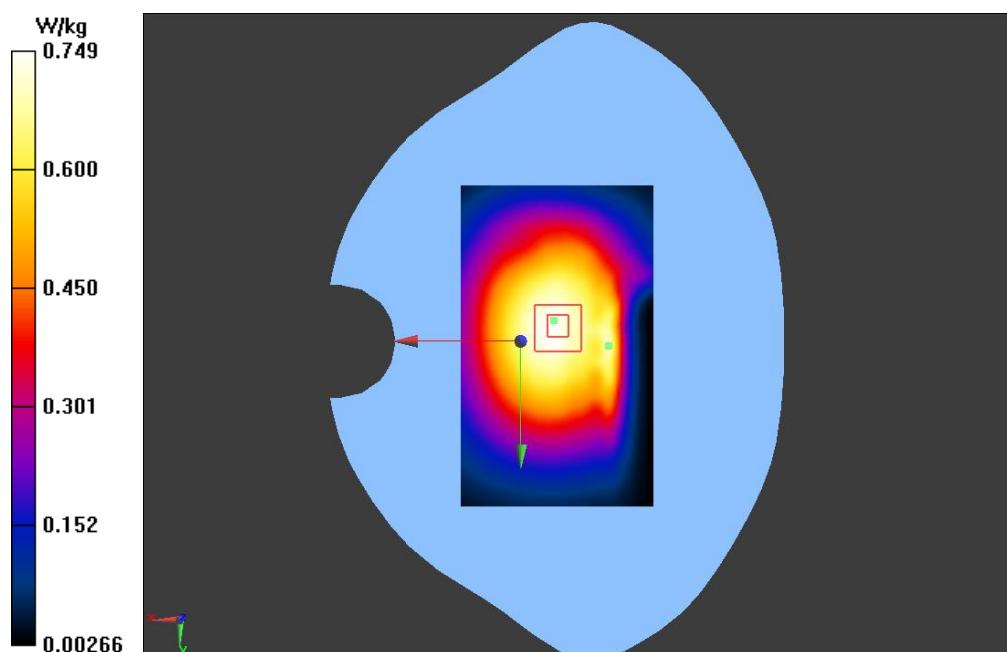
**WCDMA Band V (Body)/Back side Low/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 28.757 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 0.851 mW/g

**SAR(1 g) = 0.690 mW/g; SAR(10 g) = 0.524 mW/g**

Maximum value of SAR (measured) = 0.723 W/kg



## WCDMA Band V (Body)/Front side Mid

DUT: Mobile Phone; Type: SP4

Communication System: UMTS-FDD(WCDMA); Communication System Band: Band 5; Frequency: 836.6 MHz;

Communication System PAR: 0 dB

Medium parameters used (interpolated):  $f = 836.6$  MHz;  $\sigma = 0.939$  mho/m;  $\epsilon_r = 53.719$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(6.29, 6.29, 6.29); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_2with CRP v4.0; Type: QD000P40CC; Serial: TP:1548
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**WCDMA Band V (Body)/Front side Mid/Area Scan (61x101x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Reference Value = 23.038 V/m; Power Drift = -0.03 dB

Maximum value of SAR (interpolated) = 0.490 W/kg

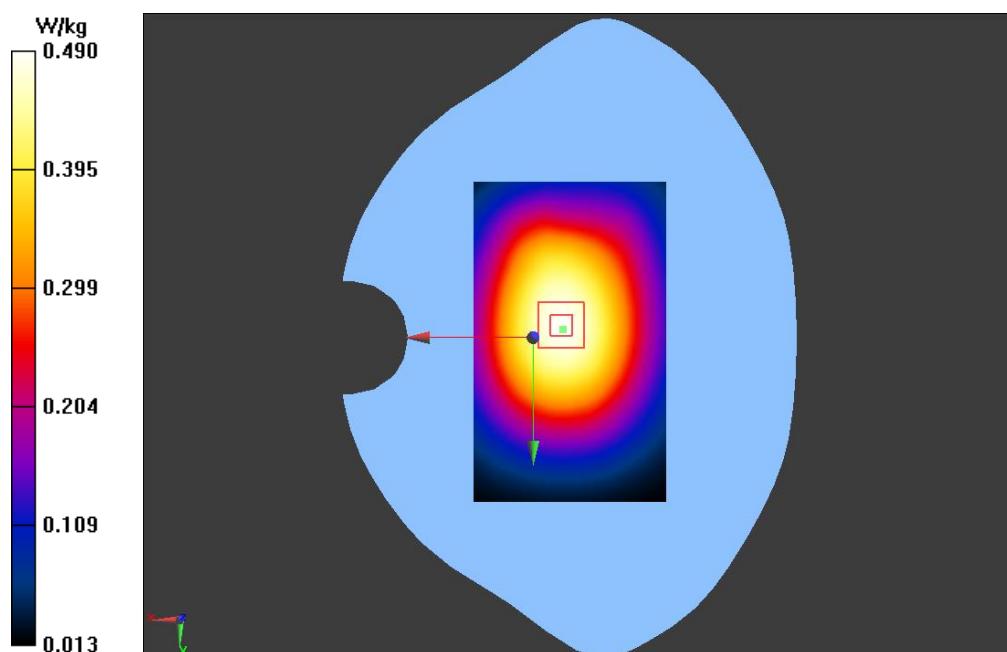
**WCDMA Band V (Body)/Front side Mid/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 23.038 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 0.573 mW/g

**SAR(1 g) = 0.467 mW/g; SAR(10 g) = 0.357 mW/g**

Maximum value of SAR (measured) = 0.490 W/kg



## WCDMA Band V-Left side-Mid

**DUT: Mobile Phone; Type: SP4**

Communication System: UMTS-FDD(WCDMA); Communication System Band: Band 5; Frequency: 836.6 MHz;  
Communication System PAR: 0 dB

Medium parameters used (interpolated):  $f = 836.6$  MHz;  $\sigma = 0.939$  mho/m;  $\epsilon_r = 53.719$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(6.29, 6.29, 6.29); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_2with CRP v4.0; Type: QD000P40CC; Serial: TP:1548
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**WCDMA Band V-Left side-Mid/Area Scan (31x101x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Reference Value = 20.218 V/m; Power Drift = -0.09 dB

Maximum value of SAR (interpolated) = 0.367 W/kg

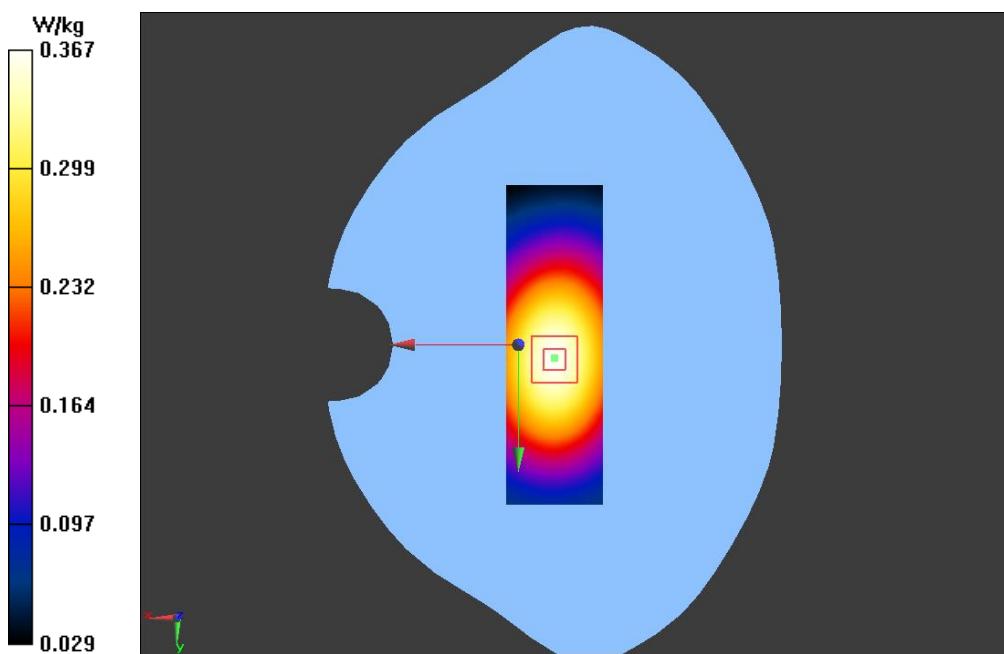
**WCDMA Band V-Left side-Mid/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 20.218 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 0.445 mW/g

**SAR(1 g) = 0.347 mW/g; SAR(10 g) = 0.255 mW/g**

Maximum value of SAR (measured) = 0.368 W/kg



## WCDMA Band V-Right side-Mid

**DUT: Mobile Phone; Type: SP4**

Communication System: UMTS-FDD(WCDMA); Communication System Band: Band 5; Frequency: 836.6 MHz;  
Communication System PAR: 0 dB

Medium parameters used (interpolated):  $f = 836.6$  MHz;  $\sigma = 0.939$  mho/m;  $\epsilon_r = 53.719$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(6.29, 6.29, 6.29); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_2with CRP v4.0; Type: QD000P40CC; Serial: TP:1548
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**WCDMA Band V-Right side-Mid/Area Scan (31x101x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Reference Value = 23.817 V/m; Power Drift = -0.14 dB

Maximum value of SAR (interpolated) = 0.503 W/kg

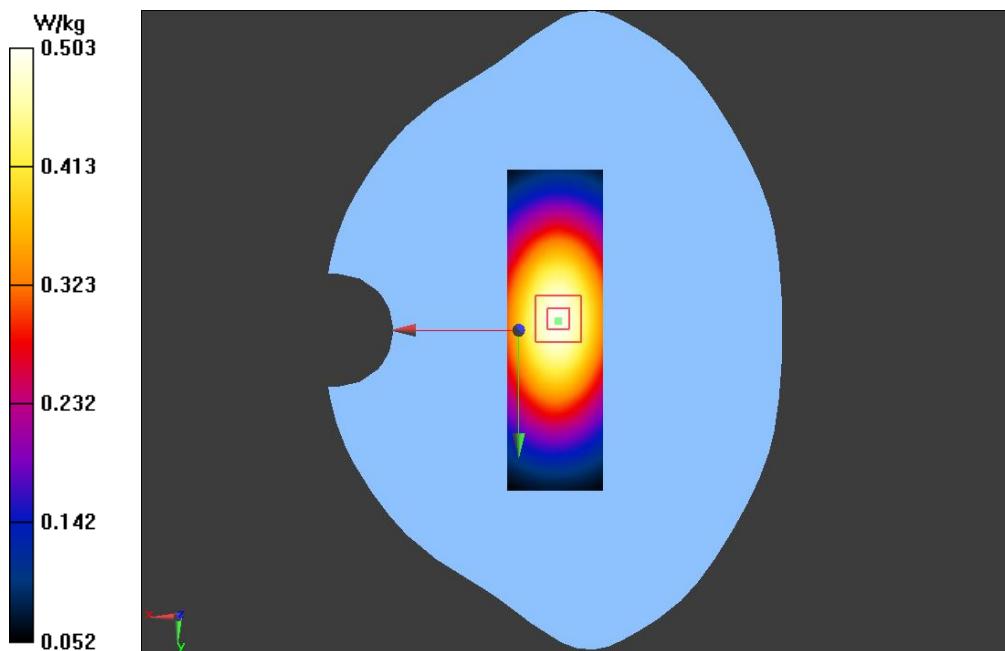
**WCDMA Band V-Right side-Mid/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 23.817 V/m; Power Drift = -0.14 dB

Peak SAR (extrapolated) = 0.610 mW/g

**SAR(1 g) = 0.475 mW/g; SAR(10 g) = 0.347 mW/g**

Maximum value of SAR (measured) = 0.503 W/kg



## WCDMA Band V-Bottom side-Mid

**DUT: Mobile Phone; Type: SP4**

Communication System: UMTS-FDD(WCDMA); Communication System Band: Band 5; Frequency: 836.6 MHz;  
Communication System PAR: 0 dB

Medium parameters used (interpolated):  $f = 836.6$  MHz;  $\sigma = 0.939$  mho/m;  $\epsilon_r = 53.719$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(6.29, 6.29, 6.29); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_2with CRP v4.0; Type: QD000P40CC; Serial: TP:1548
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**WCDMA Band V-Bottom side-Mid/Area Scan (31x61x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Reference Value = 6.881 V/m; Power Drift = -0.10 dB

Maximum value of SAR (interpolated) = 0.0529 W/kg

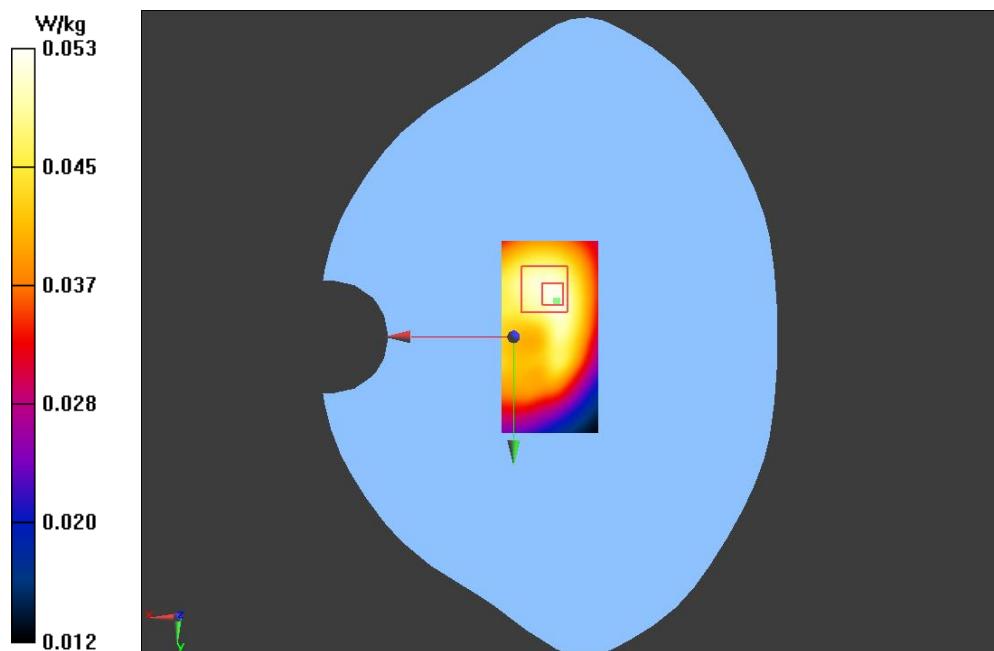
**WCDMA Band V-Bottom side-Mid/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 6.881 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 0.081 mW/g

**SAR(1 g) = 0.050 mW/g; SAR(10 g) = 0.034 mW/g**

Maximum value of SAR (measured) = 0.0533 W/kg



## WiFi 802.11b LEFT/CHEEK-Low

**DUT: Mobile Phone; Type: SP4**

Communication System: 802.11b WiFi 2.4 GHz ; Communication System Band: 2450; Frequency: 2412 MHz;  
Communication System PAR: 0 dB

Medium parameters used (interpolated):  $f = 2412 \text{ MHz}$ ;  $\sigma = 1.838 \text{ mho/m}$ ;  $\epsilon_r = 38.149$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(4.5, 4.5, 4.5); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_1 with CRP v4.0; Type: QD000P40CC; Serial: TP:1586
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**WiFi 802.11b LEFT/CHEEK-Low/Area Scan (51x91x1):** Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$

Reference Value = 10.523 V/m; Power Drift = -0.18 dB

Maximum value of SAR (interpolated) = 0.238 W/kg

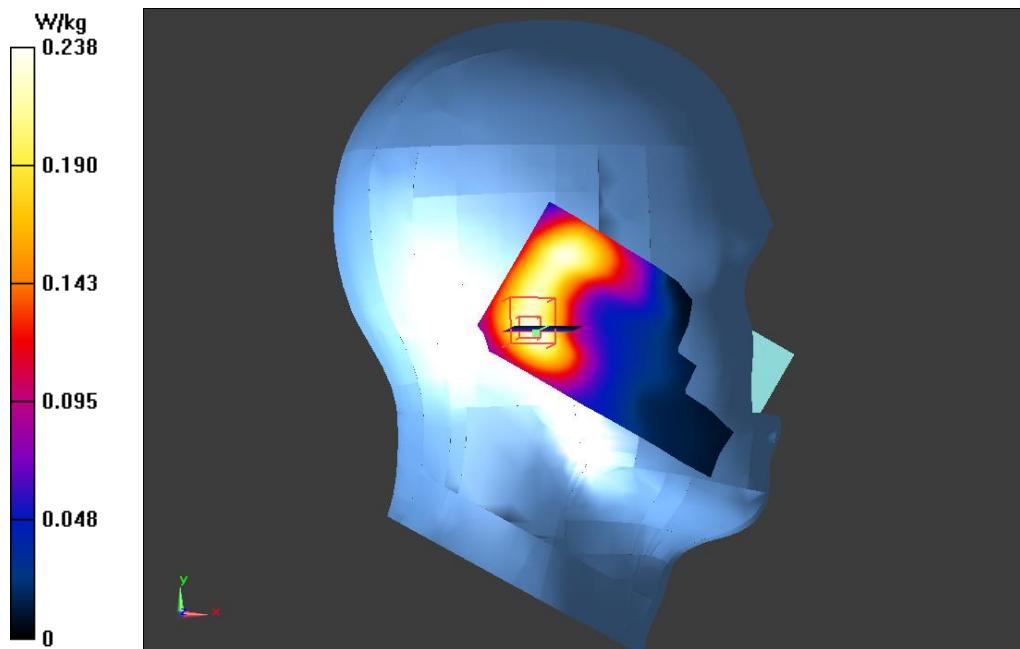
**WiFi 802.11b LEFT/CHEEK-Low/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 10.523 V/m; Power Drift = -0.18 dB

Peak SAR (extrapolated) = 0.517 mW/g

**SAR(1 g) = 0.225 mW/g; SAR(10 g) = 0.124 mW/g**

Maximum value of SAR (measured) = 0.240 W/kg



## WiFi 802.11b LEFT/TILT-Low

**DUT: Mobile Phone; Type: SP4**

Communication System: 802.11b WiFi 2.4 GHz ; Communication System Band: 2450; Frequency: 2412 MHz;  
Communication System PAR: 0 dB

Medium parameters used (interpolated):  $f = 2412 \text{ MHz}$ ;  $\sigma = 1.838 \text{ mho/m}$ ;  $\epsilon_r = 38.149$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(4.5, 4.5, 4.5); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_1 with CRP v4.0; Type: QD000P40CC; Serial: TP:1586
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**WiFi 802.11b LEFT/TILT-Low/Area Scan (51x91x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Reference Value = 8.951 V/m; Power Drift = 0.01 dB

Maximum value of SAR (interpolated) = 0.181 W/kg

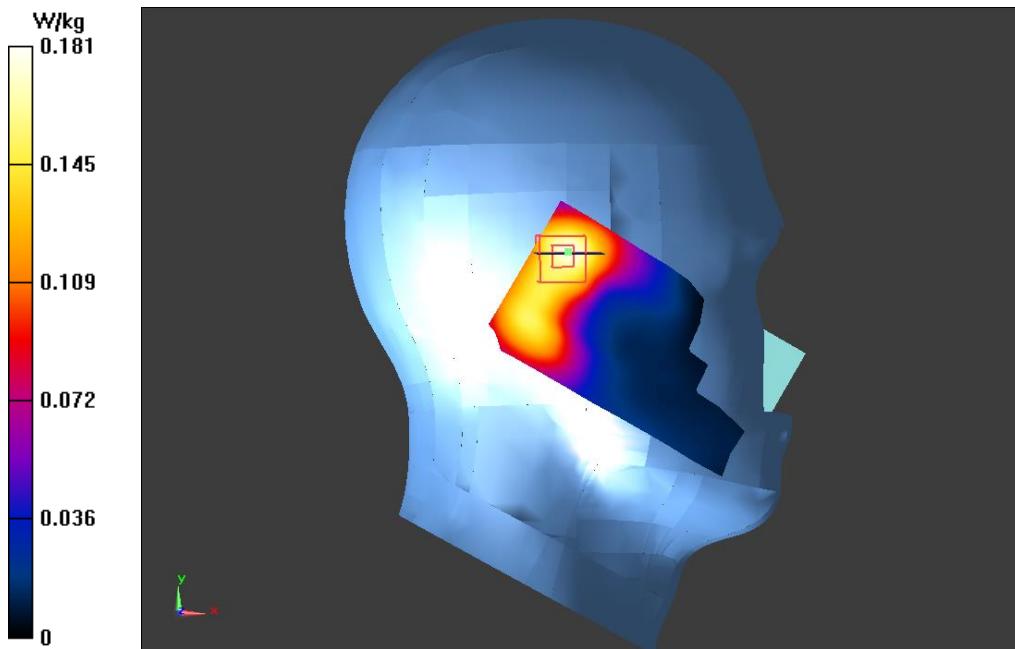
**WiFi 802.11b LEFT/TILT-Low/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 8.951 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.315 mW/g

**SAR(1 g) = 0.163 mW/g; SAR(10 g) = 0.089 mW/g**

Maximum value of SAR (measured) = 0.179 W/kg



## WiFi 802.11b RIGHT/CHEEK-Low

DUT: Mobile Phone; Type: SP4

Communication System: 802.11b WiFi 2.4 GHz ; Communication System Band: 2450; Frequency: 2412 MHz;  
Communication System PAR: 0 dB

Medium parameters used (interpolated):  $f = 2412 \text{ MHz}$ ;  $\sigma = 1.838 \text{ mho/m}$ ;  $\epsilon_r = 38.149$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(4.5, 4.5, 4.5); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_1 with CRP v4.0; Type: QD000P40CC; Serial: TP:1586
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**WiFi 802.11b RIGHT/CHEEK-Low/Area Scan (51x91x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Reference Value = 9.061 V/m; Power Drift = 0.07 dB

Maximum value of SAR (interpolated) = 0.443 W/kg

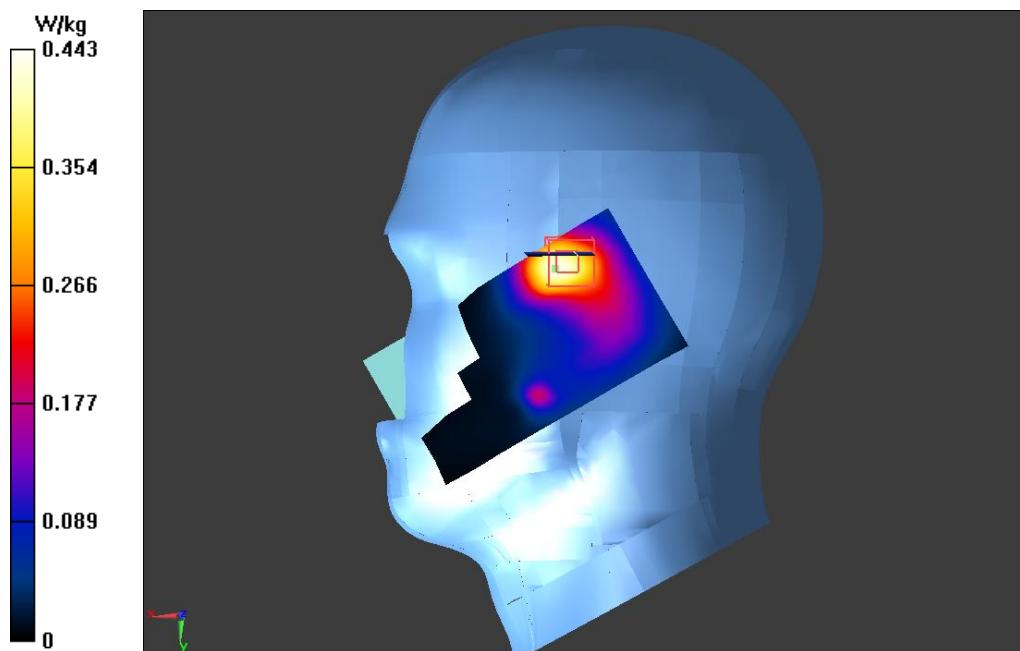
**WiFi 802.11b RIGHT/CHEEK-Low/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

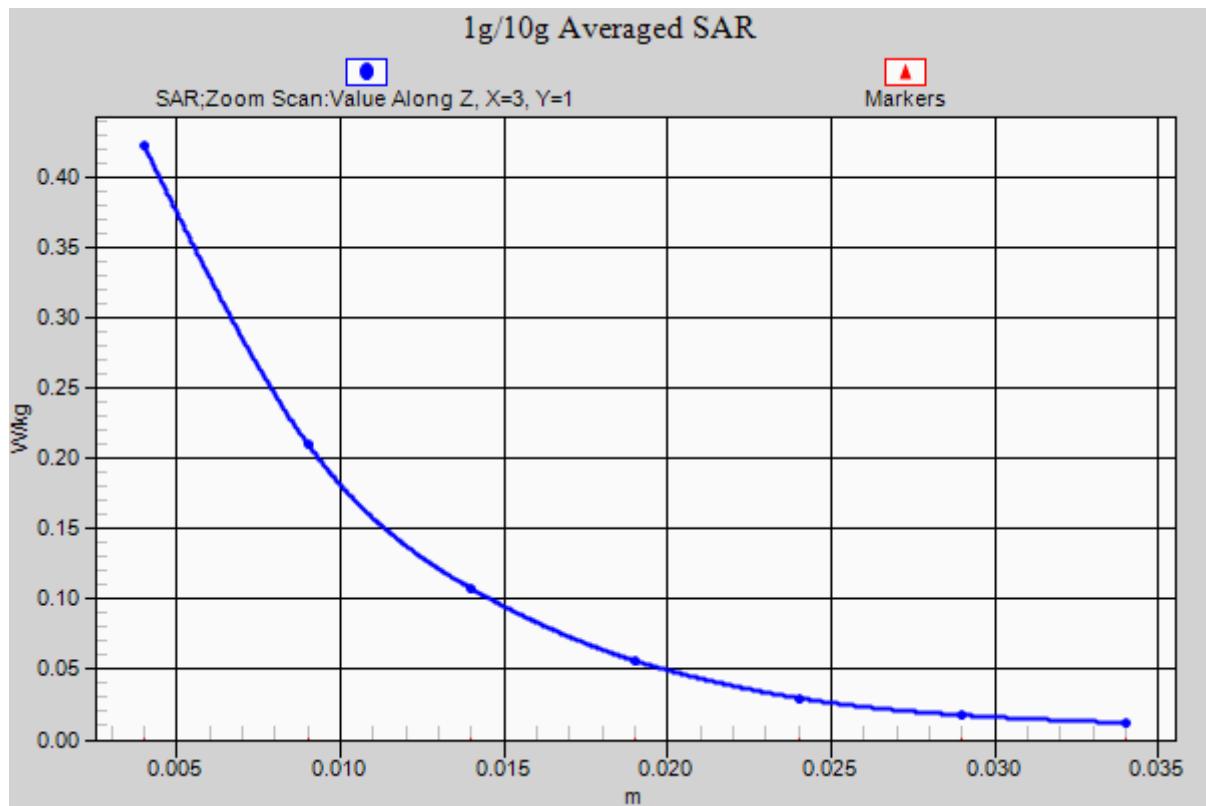
Reference Value = 9.061 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 0.868 mW/g

**SAR(1 g) = 0.415 mW/g; SAR(10 g) = 0.208 mW/g**

Maximum value of SAR (measured) = 0.423 W/kg





WiFi 802.11b RIGHT/CHEEK-Low\_ axis scan

## WiFi 802.11b RIGHT/TILT-Low

DUT: Mobile Phone; Type: SP4

Communication System: 802.11b WiFi 2.4 GHz ; Communication System Band: 2450; Frequency: 2412 MHz;  
Communication System PAR: 0 dB

Medium parameters used (interpolated):  $f = 2412 \text{ MHz}$ ;  $\sigma = 1.838 \text{ mho/m}$ ;  $\epsilon_r = 38.149$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(4.5, 4.5, 4.5); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_1 with CRP v4.0; Type: QD000P40CC; Serial: TP:1586
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

## WiFi 802.11b RIGHT/TILT-Low/Area Scan (51x91x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Reference Value = 8.898 V/m; Power Drift = 0.04 dB

Maximum value of SAR (interpolated) = 0.244 W/kg

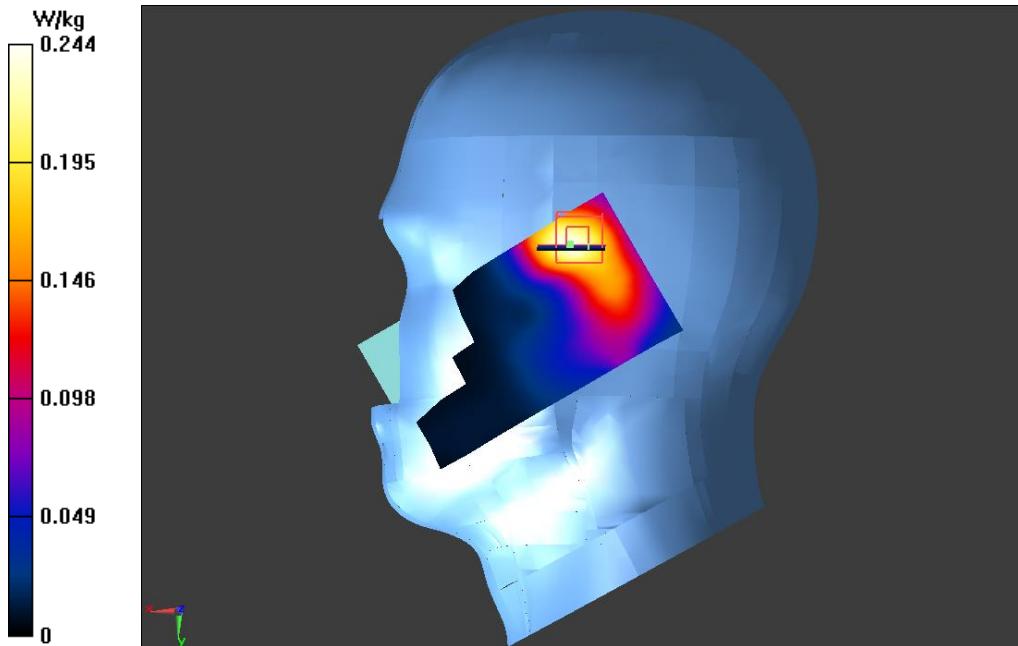
WiFi 802.11b RIGHT/TILT-Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 8.898 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.440 mW/g

SAR(1 g) = 0.223 mW/g; SAR(10 g) = 0.119 mW/g

Maximum value of SAR (measured) = 0.233 W/kg



## WIFI 802.11b Body/Back side Low

DUT: Mobile Phone; Type: SP4

Communication System: 802.11b WiFi 2.4 GHz ; Communication System Band: 2450; Frequency: 2412 MHz;  
Communication System PAR: 0 dB

Medium parameters used (interpolated):  $f = 2412 \text{ MHz}$ ;  $\sigma = 1.968 \text{ mho/m}$ ;  $\epsilon_r = 50.861$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(4.49, 4.49, 4.49); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_1 with CRP v4.0; Type: QD000P40CC; Serial: TP:1586
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**WIFI 802.11b Body/Back side Low/Area Scan (61x101x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Reference Value = 6.324 V/m; Power Drift = -0.22 dB

Maximum value of SAR (interpolated) = 0.356 W/kg

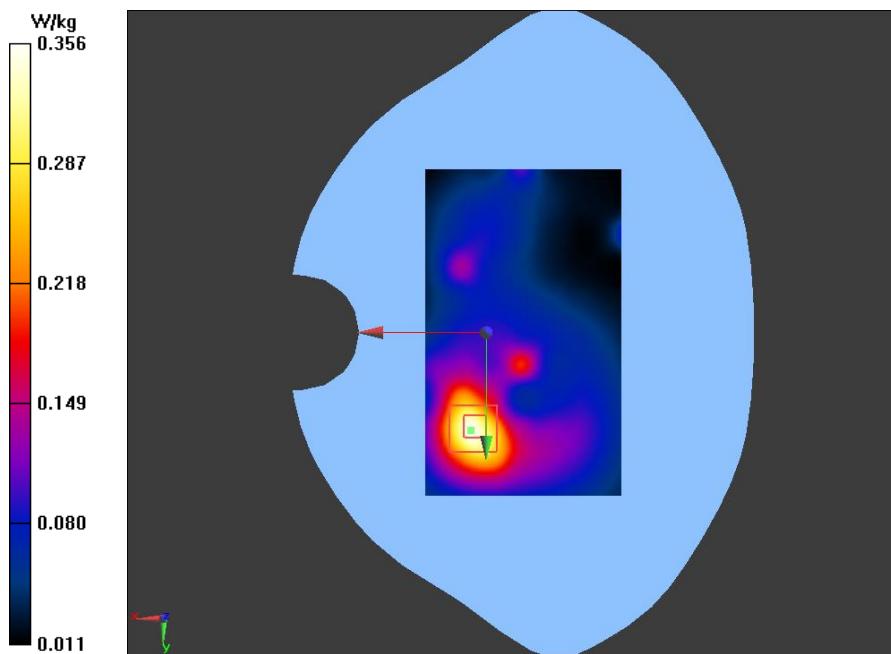
**WIFI 802.11b Body/Back side Low/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

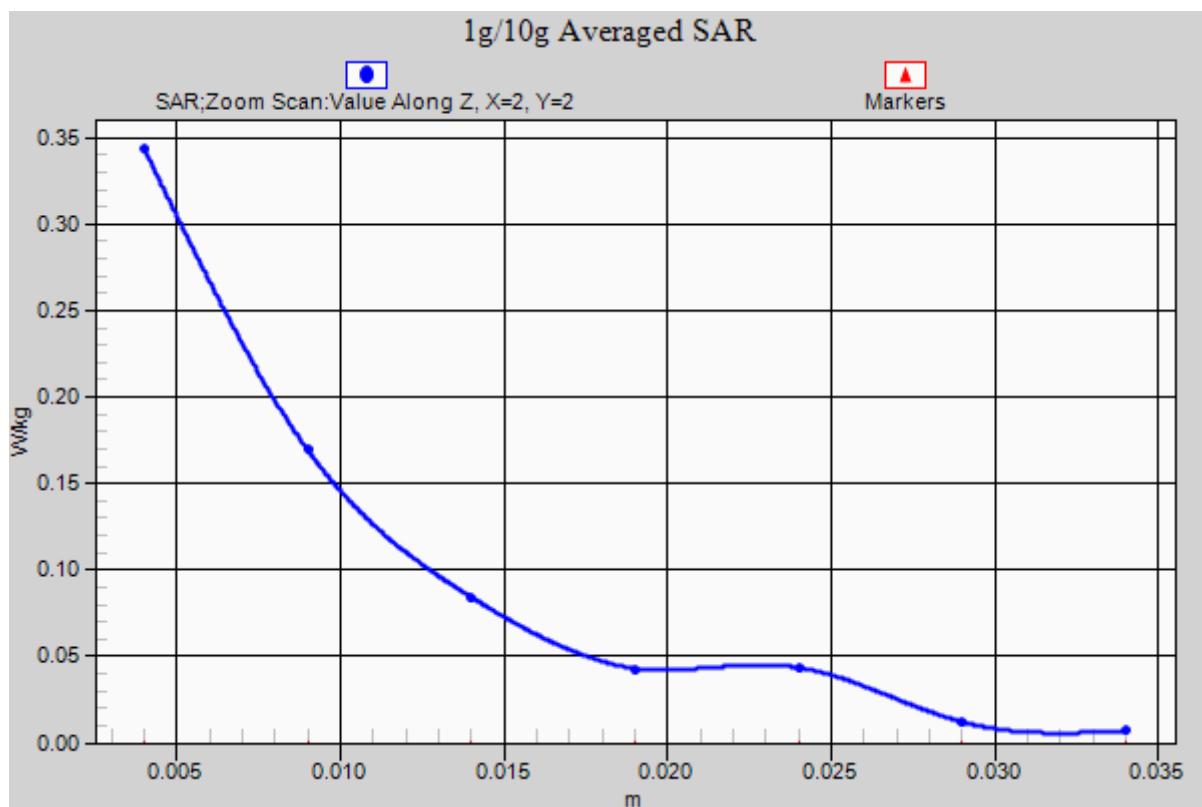
Reference Value = 6.324 V/m; Power Drift = -0.22 dB

Peak SAR (extrapolated) = 0.720 mW/g

**SAR(1 g) = 0.324 mW/g; SAR(10 g) = 0.165 mW/g**

Maximum value of SAR (measured) = 0.344 W/kg





WIFI 802.11b Body/Back side Low\_ axis scan

## WIFI 802.11b Body/Front side Low

DUT: Mobile Phone; Type: SP4

Communication System: 802.11b WiFi 2.4 GHz ; Communication System Band: 2450; Frequency: 2412 MHz;  
Communication System PAR: 0 dB

Medium parameters used (interpolated):  $f = 2412 \text{ MHz}$ ;  $\sigma = 1.968 \text{ mho/m}$ ;  $\epsilon_r = 50.861$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(4.49, 4.49, 4.49); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_1 with CRP v4.0; Type: QD000P40CC; Serial: TP:1586
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**WIFI 802.11b Body/Front side Low/Area Scan (61x101x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Reference Value = 3.189 V/m; Power Drift = -0.12 dB

Maximum value of SAR (interpolated) = 0.102 W/kg

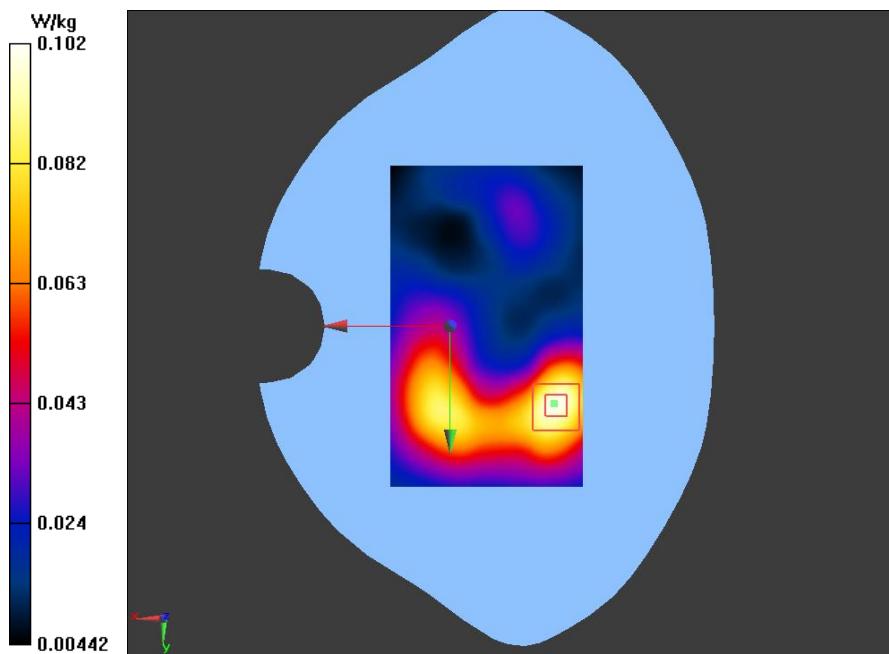
**WIFI 802.11b Body/Front side Low/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 3.189 V/m; Power Drift = -0.12 dB

Peak SAR (extrapolated) = 0.181 mW/g

**SAR(1 g) = 0.092 mW/g; SAR(10 g) = 0.050 mW/g**

Maximum value of SAR (measured) = 0.0989 W/kg



## WIFI/WIFI 802.11b -Left side-Low

DUT: Mobile Phone; Type: SP4

Communication System: 802.11b WiFi 2.4 GHz ; Communication System Band: 2450; Frequency: 2412 MHz;  
Communication System PAR: 0 dB

Medium parameters used (interpolated):  $f = 2412 \text{ MHz}$ ;  $\sigma = 1.968 \text{ mho/m}$ ;  $\epsilon_r = 50.861$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(4.49, 4.49, 4.49); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_1 with CRP v4.0; Type: QD000P40CC; Serial: TP:1586
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**WIFI/WIFI 802.11b -Left side-Low/Area Scan (31x101x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Reference Value = 4.847 V/m; Power Drift = -0.19 dB

Maximum value of SAR (interpolated) = 0.178 W/kg

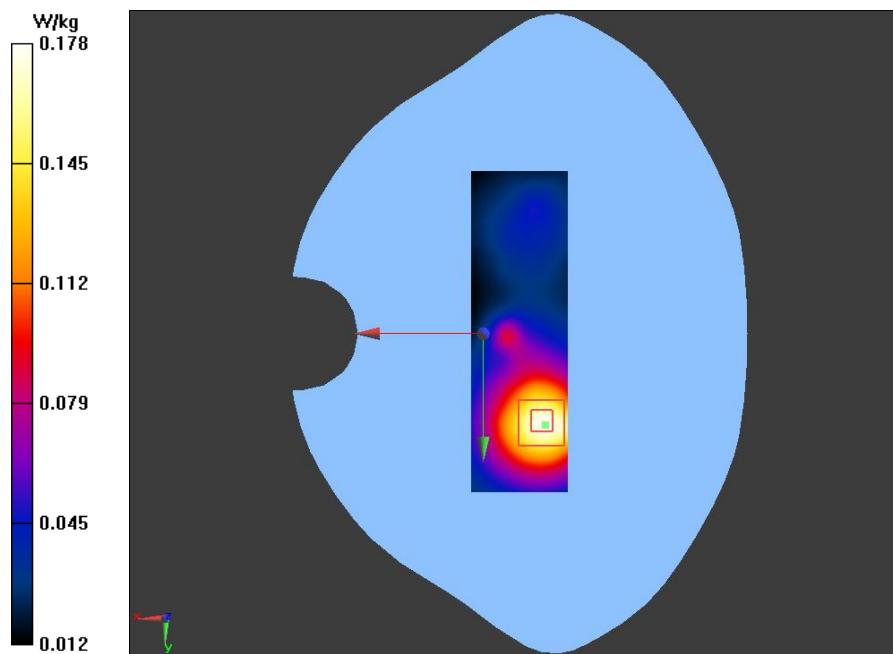
**WIFI/WIFI 802.11b -Left side-Low/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 4.847 V/m; Power Drift = -0.19 dB

Peak SAR (extrapolated) = 0.335 mW/g

**SAR(1 g) = 0.162 mW/g; SAR(10 g) = 0.090 mW/g**

Maximum value of SAR (measured) = 0.174 W/kg



## WIFI/WIFI 802.11b -Right side-Low

DUT: Mobile Phone; Type: SP4

Communication System: 802.11b WiFi 2.4 GHz ; Communication System Band: 2450; Frequency: 2412 MHz;  
Communication System PAR: 0 dB

Medium parameters used (interpolated):  $f = 2412 \text{ MHz}$ ;  $\sigma = 1.968 \text{ mho/m}$ ;  $\epsilon_r = 50.861$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

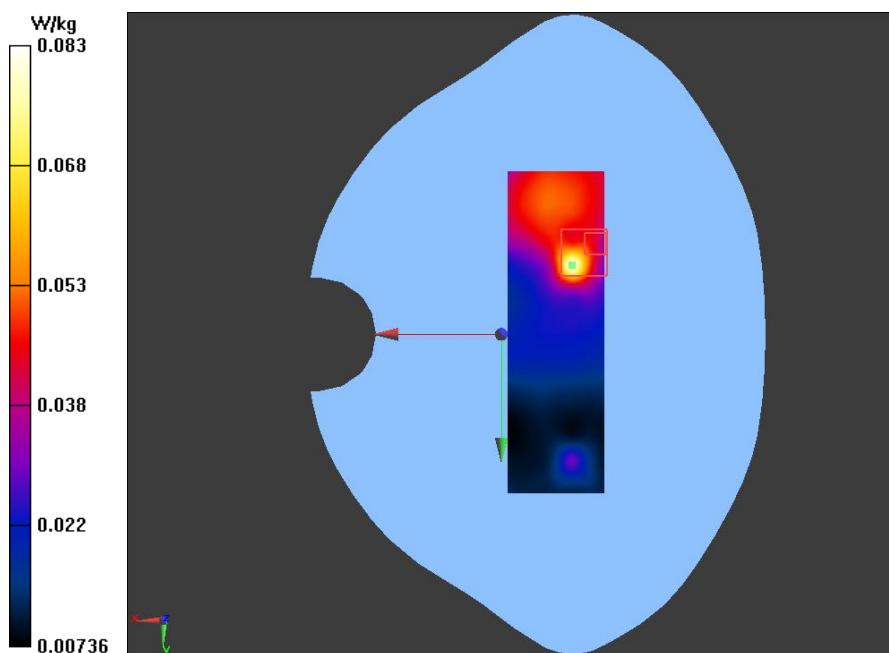
- Probe: ES3DV3 - SN3221; ConvF(4.49, 4.49, 4.49); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_1 with CRP v4.0; Type: QD000P40CC; Serial: TP:1586
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**WIFI/WIFI 802.11b -Right side-Low/Area Scan (31x101x1):** Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$   
Reference Value = 3.209 V/m; Power Drift = -0.10 dB  
Maximum value of SAR (interpolated) = 0.0828 W/kg

**WIFI/WIFI 802.11b -Right side-Low/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  
 $dz=5\text{mm}$

Reference Value = 3.209 V/m; Power Drift = -0.10 dB  
Peak SAR (extrapolated) = 0.208 mW/g

**SAR(1 g) = 0.046 mW/g; SAR(10 g) = 0.025 mW/g**  
Maximum value of SAR (measured) = 0.0592 W/kg



## WIFI Top/WIFI 802.11b-Top side-Low

DUT: Mobile Phone; Type: SP4

Communication System: 802.11b WiFi 2.4 GHz ; Communication System Band: 2450; Frequency: 2412 MHz;  
Communication System PAR: 0 dB

Medium parameters used (interpolated):  $f = 2412 \text{ MHz}$ ;  $\sigma = 1.968 \text{ mho/m}$ ;  $\epsilon_r = 50.861$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3221; ConvF(4.49, 4.49, 4.49); Calibrated: 1/31/2015;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 1/23/2015
- Phantom: SAM\_1 with CRP v4.0; Type: QD000P40CC; Serial: TP:1586
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**WIFI Top/WIFI 802.11b-Top side-Low/Area Scan (31x61x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Reference Value = 6.780 V/m; Power Drift = -0.22 dB

Maximum value of SAR (interpolated) = 0.113 W/kg

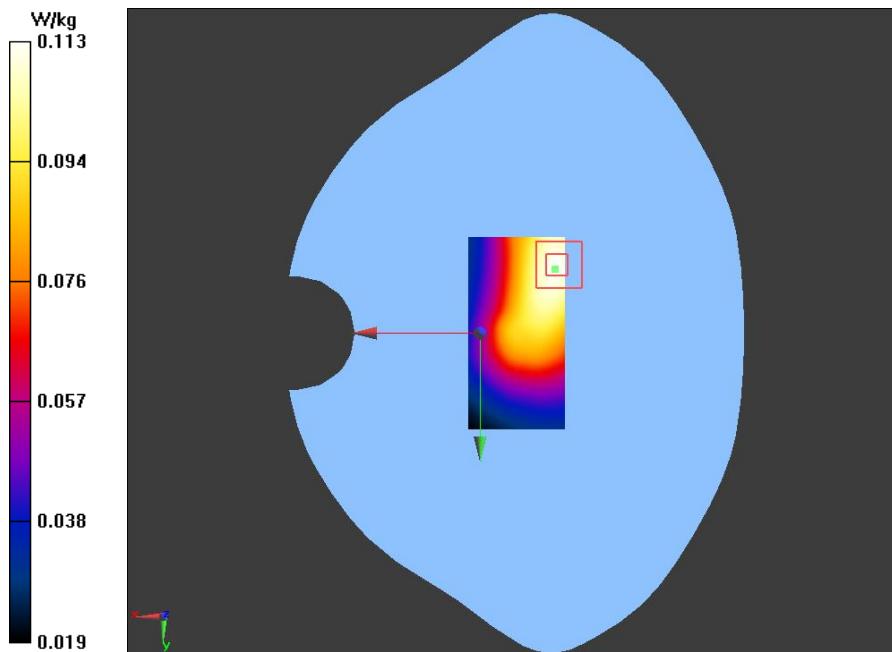
**WIFI Top/WIFI 802.11b-Top side-Low/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 6.780 V/m; Power Drift = -0.22 dB

Peak SAR (extrapolated) = 0.197 mW/g

**SAR(1 g) = 0.106 mW/g; SAR(10 g) = 0.062 mW/g**

Maximum value of SAR (measured) = 0.113 W/kg



## ANNEX D: Probe Calibration Report