

# FCC SAR Test Report

**APPLICANT** : CT Asia  
**EQUIPMENT** : WCDMA+GSM smartphone  
**BRAND NAME** : Blu  
**MODEL NAME** : Elite3.8  
**FCC ID** : YHLBLUELITE  
**STANDARD** : FCC 47 CFR Part 2 (2.1093)  
ANSI/IEEE C95.1-1992  
IEEE 1528-2003  
FCC OET Bulletin 65 Supplement C (Edition 01-01)

The product was received on May 02, 2012 and completely tested on Jun. 06, 2012. We, SPORTON INTERNATIONAL (KUNSHAN) INC., would like to declare that the tested sample has been evaluated in accordance with the procedures and shown the compliance with the applicable technical standards.

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

Reviewed by:



Jones Tsai / Manager



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### 1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **CT Asia WCDMA+GSM smartphone Blu Elite3.8** are as follows.

**<Standalone SAR>**

Band	Position	SAR <sub>1g</sub> (W/kg)
GSM850	Head	1.17
GSM1900	Head	0.757
WCDMA Band V	Head	0.627
802.11 b/g/n	Head	0.115
GSM850	Hotspot (1 cm Gap)	1.42
GSM1900	Hotspot (1 cm Gap)	1.04
WCDMA Band V	Hotspot (1 cm Gap)	0.889
802.11 b/g/n	Hotspot (1 cm Gap)	0.122
GSM850	Body-worn (1 cm Gap)	1.42
GSM1900	Body-worn (1 cm Gap)	1.04
WCDMA Band V	Body-worn (1 cm Gap)	0.889
802.11 b/g/n	Body-worn (1 cm Gap)	0.107

This device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6 W/kg) specified in FCC 47 CFR part 2 (2.1093) and ANSI/IEEE C95.1-1992, and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528-2003 and FCC OET Bulletin 65 Supplement C (Edition 01-01).



## 2. Administration Data

### 2.1 Testing Laboratory

Test Site	SPORTON INTERNATIONAL (KUNSHAN) INC.
Test Site Location	No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P.R.C. TEL: +86-0512-5790-0158 FAX: +86-0512-5790-0958

### 2.2 Applicant

Company Name	CT Asia
Address	RMA2011, 20/F, GOLDEN CENTRAL TOWER, NO.3037# JINTIAN ROAD, FUTIAN DISTRICT

### 2.3 Manufacturer

Company Name	Beijing Tianyu Communication Equipment Co. Ltd.
Address	NO.55 Jiachang 2 road, OPTO-Mechatronics Industrial Park, Tongzhou district, Beijing 101111

### 2.4 Application Details

Date of Receipt of Application	May 02, 2012
Date of Start during the Test	May 15, 2012
Date of End during the Test	Jun. 06, 2012



### 3. General Information

#### 3.1 Description of Equipment Under Test (DUT)

Product Feature & Specification	
DUT	WCDMA+GSM smartphone
Brand Name	Blu
Model Name	Elite3.8
FCC ID	YHLBLUELITE
Tx Frequency	GSM850: 824.2 MHz ~ 848.8 MHz GSM1900: 1850.2 MHz ~ 1909.8 MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz 802.11b/g/n: 2412 MHz ~ 2462 MHz Bluetooth: 2402 MHz ~ 2480 MHz
Rx Frequency	GSM850: 869.2 MHz ~ 893.8 MHz GSM1900: 1930.2 MHz ~ 1989.8 MHz WCDMA Band V: 871.4 MHz ~ 891.6 MHz 802.11b/g/n: 2412 MHz ~ 2462 MHz Bluetooth: 2402 MHz ~ 2480 MHz
Maximum Average Output Power to Antenna	GSM850: 32.20 dBm GSM1900: 29.06 dBm WCDMA Band V: 22.74 dBm 802.11b: 11.63 dBm 802.11g: 11.21 dBm 802.11n (BW 20MHz) (2.4GHz): 10.97 dBm Bluetooth: 9.12 dBm
Antenna Type	WWAN: Fixed Internal Antenna WLAN: PIFA Antenna Bluetooth: PIFA Antenna
HW Version	P3.1
SW Version	TBW591227_834F_V2029
Type of Modulation	GSM / GPRS: GMSK WCDMA: QPSK (Uplink) HSDPA: QPSK (Uplink) HSUPA: QPSK (Uplink) 802.11b: DSSS (BPSK / QPSK / CCK) 802.11g/n: OFDM (BPSK / QPSK / 16QAM / 64QAM) Bluetooth (1Mbps): GFSK Bluetooth EDR (2Mbps): $\pi/4$ -DQPSK Bluetooth EDR (3Mbps): 8-DPSK
Dual Transfer Mode (DTM) Category	Class B – DUT cannot support Packet Switched and Circuit Switched Network simultaneously but can automatically switch between Packet and Circuit Switched Network.
DUT Stage	Identical Prototype
<b>Remark:</b> The above DUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.	

#### 3.2 Product Photos

Please refer to Appendix D.



### 3.3 Applied Standards

The Specific Absorption Rate (SAR) testing specification, method and procedure for this device is in accordance with the following standards:

- FCC 47 CFR Part 2 (2.1093)
- ANSI/IEEE C95.1-1992
- IEEE 1528-2003
- FCC OET Bulletin 65 Supplement C (Edition 01-01)
- FCC KDB 447498 D01 v04
- FCC KDB 648474 D01 v01r05
- FCC KDB 941225 D01 v02
- FCC KDB 941225 D03 v01
- FCC KDB 941225 D06 v01
- FCC KDB 248227 D01 v01r02

### 3.4 Device Category and SAR Limits

This device belongs to portable device category because its radiating structure is allowed to be used within 20 centimeters of the body of the user. Limit for General Population/Uncontrolled exposure should be applied for this device, it is 1.6 W/kg as averaged over any 1 gram of tissue.

### 3.5 Test Conditions

#### 3.5.1. Ambient Condition

Ambient Temperature	20 to 24 °C
Humidity	< 60 %

#### 3.5.2. Test Configuration

The device was controlled by using a base station emulator. Communication between the device and the emulator was established by air link. The distance between the DUT and the antenna of the emulator is larger than 50 cm and the output power radiated from the emulator antenna is at least 30 dB smaller than the output power of DUT. The DUT was set from the emulator to radiate maximum output power during all tests.

For WLAN SAR testing, WLAN engineering testing software installed on the DUT can provide continuous transmitting RF signal. This RF signal utilized in SAR measurement has over 99% duty cycle and is treated as 1.

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

### **4.1 Introduction**

SAR is related to the rate at which energy is absorbed per unit mass in an object exposed to a radio field. The SAR distribution in a biological body is complicated and is usually carried out by experimental techniques or numerical modeling. The standard recommends limits for two tiers of groups, occupational/controlled and general population/uncontrolled, based on a person's awareness and ability to exercise control over his or her exposure. In general, occupational/controlled exposure limits are higher than the limits for general population/uncontrolled.

### **4.2 SAR Definition**

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

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

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

SAR measurement can be either related to the temperature elevation in tissue by

$$\text{SAR} = c \left( \frac{\delta T}{\delta t} \right)$$

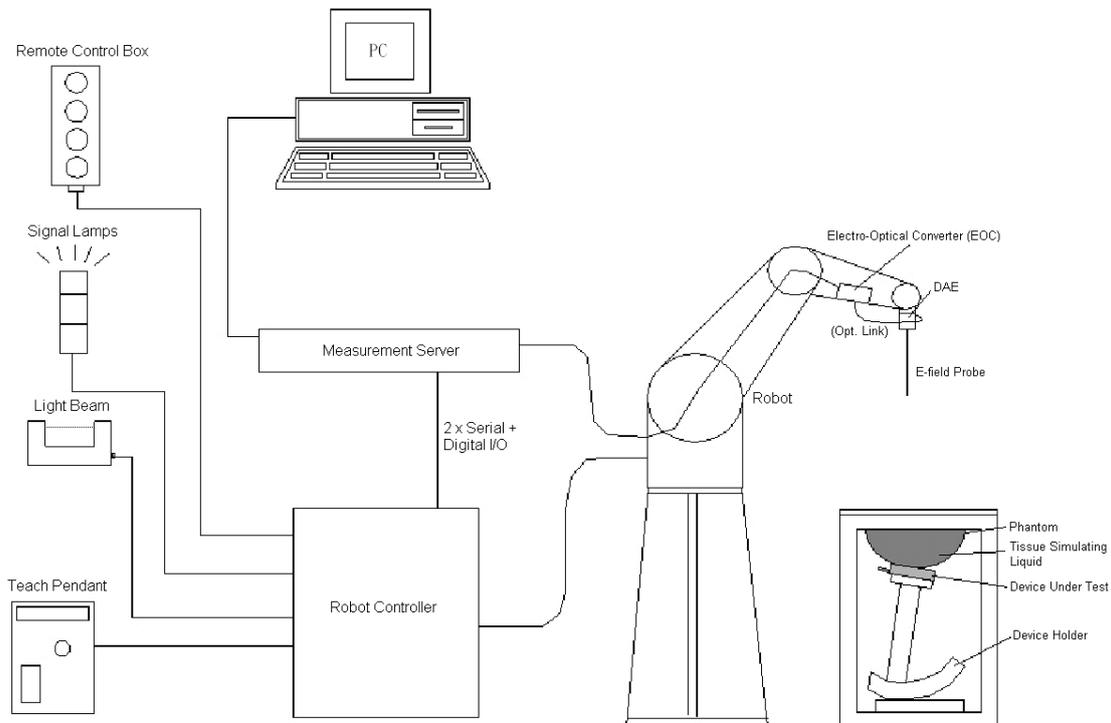
Where: C is the specific heat capacity,  $\delta T$  is the temperature rise and  $\delta t$  is the exposure duration, or related to the electrical field in the tissue by

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

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

However for evaluating SAR of low power transmitter, electrical field measurement is typically applied.

## 5. SAR Measurement System



**Fig 5.1 SPEAG DASY System Configurations**

The DASY system for performance compliance tests is illustrated above graphically. This system consists of the following items:

- A standard high precision 6-axis robot with controller, a teach pendant and software
- A data acquisition electronic (DAE) attached to the robot arm extension
- A dosimetric probe equipped with an optical surface detector system
- The electro-optical converter (ECO) performs the conversion between optical and electrical signals
- A measurement server performs the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- A probe alignment unit which improves the accuracy of the probe positioning
- A computer operating Windows XP
- DASY software
- Remote control with teach pendant and additional circuitry for robot safety such as warning lamps, etc.
- The SAM twin phantom
- A device holder
- Tissue simulating liquid
- Dipole for evaluating the proper functioning of the system

Some of the components are described in details in the following sub-sections.

**5.1 E-Field Probe**

The SAR measurement is conducted with the dosimetric probe (manufactured by SPEAG). The probe is specially designed and calibrated for use in liquid with high permittivity. The dosimetric probe has special calibration in liquid at different frequency. This probe has a built in optical surface detection system to prevent from collision with phantom.

**5.1.1. E-Field Probe Specification**

**< ES3DV3 Probe >**

<b>Construction</b>	Symmetrical design with triangular core Interleaved sensors Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	 <p><b>Fig 5.2 Photo of ES3DV3</b></p>
<b>Frequency</b>	10 MHz to 4 GHz; Linearity: $\pm 0.2$ dB	
<b>Directivity</b>	$\pm 0.2$ dB in HSL (rotation around probe axis) $\pm 0.3$ dB in tissue material (rotation normal to probe axis)	
<b>Dynamic Range</b>	5 $\mu$ W/g to 100 mW/g; Linearity: $\pm 0.2$ dB	
<b>Dimensions</b>	Overall length: 337 mm (Tip: 20 mm) Tip diameter: 3.9 mm (Body: 12 mm) Distance from probe tip to dipole centers: 2.0 mm	

**5.1.2. E-Field Probe Calibration**

Each probe needs to be calibrated according to a dosimetric assessment procedure with accuracy better than  $\pm 10\%$ . The spherical isotropy shall be evaluated and within  $\pm 0.25$  dB. The sensitivity parameters (NormX, NormY, and NormZ), the diode compression parameter (DCP) and the conversion factor (ConvF) of the probe are tested. The calibration data can be referred to appendix C of this report.

**5.2 Data Acquisition Electronics (DAE)**

The data acquisition electronics (DAE) consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder and control logic unit. Transmission to the measurement server is accomplished through an optical downlink for data and status information as well as an optical uplink for commands and the clock.

The input impedance of the DAE is 200 MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.



**Fig 5.3 Photo of DAE**

### 5.3 Robot

The SPEAG DASY system uses the high precision robots (DASY5: TX90XL) type from Stäubli SA (France). For the 6-axis controller system, the robot controller version (DASY5: CS8c) from Stäubli is used. The Stäubli robot series have many features that are important for our application:

- High precision (repeatability  $\pm 0.035$  mm)
- High reliability (industrial design)
- Jerk-free straight movements
- Low ELF interference (the closed metallic construction shields against motor control fields)



Fig 5.4 Photo of DASY5

### 5.4 Measurement Server

The measurement server is based on a PC/104 CPU board with CPU (DASY5: 400 MHz, Intel Celeron), chipdisk (DASY5: 128 MB), RAM (DASY5: 128 MB). The necessary circuits for communication with the DAE electronic box, as well as the 16 bit AD converter system for optical detection and digital I/O interface are contained on the DASY I/O board, which is directly connected to the PC/104 bus of the CPU board.

The measurement server performs all the real-time data evaluation for field measurements and surface detection, controls robot movements and handles safety operations.



Fig 5.5 Photo of Server for DASY5

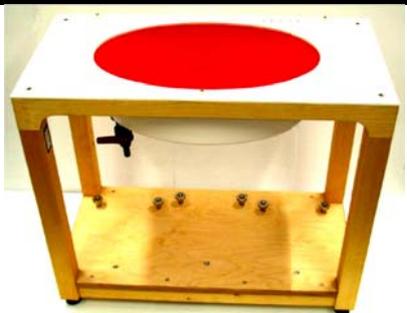
**5.5 Phantom**

**<SAM Twin Phantom>**

<b>Shell Thickness</b>	2 ± 0.2 mm; Center ear point: 6 ± 0.2 mm	 <p><b>Fig 5.6 Photo of SAM Phantom</b></p>
<b>Filling Volume</b>	Approx. 25 liters	
<b>Dimensions</b>	Length: 1000 mm; Width: 500 mm; Height: adjustable feet	
<b>Measurement Areas</b>	Left Hand, Right Hand, Flat Phantom	

The bottom plate contains three pair of bolts for locking the device holder. The device holder positions are adjusted to the standard measurement positions in the three sections. A white cover is provided to tap the phantom during off-periods to prevent water evaporation and changes in the liquid parameters. On the phantom top, three reference markers are provided to identify the phantom position with respect to the robot.

**<ELI4 Phantom>**

<b>Shell Thickness</b>	2 ± 0.2 mm (sagging: <1%)	 <p><b>Fig 5.7 Photo of ELI4 Phantom</b></p>
<b>Filling Volume</b>	Approx. 30 liters	
<b>Dimensions</b>	Major ellipse axis: 600 mm Minor axis: 400 mm	

The ELI4 phantom is intended for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI4 is fully compatible with standard and all known tissue simulating liquids.

## 5.6 Device Holder

### <Device Holder for SAM Twin Phantom>

The SAR in the phantom is approximately inversely proportional to the square of the distance between the source and the liquid surface. For a source at 5 mm distance, a positioning uncertainty of  $\pm 0.5$  mm would produce a SAR uncertainty of  $\pm 20$  %. Accurate device positioning is therefore crucial for accurate and repeatable measurements. The positions in which the devices must be measured are defined by the standards.

The DASY device holder is designed to cope with different positions given in the standard. It has two scales for the device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear reference points). The rotation center for both scales is the ear reference point (EPR). Thus the device needs no repositioning when changing the angles.

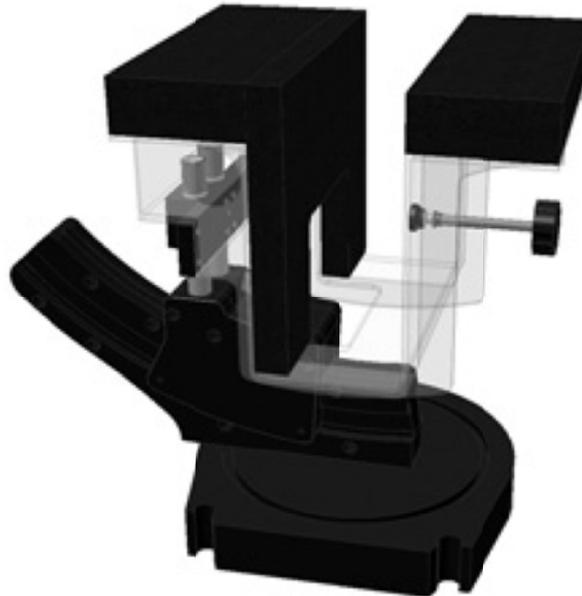
The DASY device holder is constructed of low-loss POM material having the following dielectric parameters: relative permittivity  $\epsilon = 3$  and loss tangent  $\delta = 0.02$ . The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the influence of the clamp on the test results could thus be lowered.



Fig 5.8 Device Holder

**<Laptop Extension Kit>**

The extension is lightweight and made of POM, acrylic glass and foam. It fits easily on the upper part of the mounting device in place of the phone positioned. The extension is fully compatible with the SAM Twin and ELI phantoms.



**Fig 5.9 Laptop Extension Kit**

## 5.7 Data Storage and Evaluation

### 5.7.1. Data Storage

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

The measured data can be visualized or exported in different units or formats, depending on the selected probe type (e.g., [V/m], [A/m], [mW/g]). Some of these units are not available in certain situations or give meaningless results, e.g., a SAR-output in a non-lose media, will always be zero. Raw data can also be exported to perform the evaluation with other software packages.

### 5.7.2. Data Evaluation

The DASY post-processing software (SEMCAD) 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 :

<b>Probe parameters :</b>	- Sensitivity	Norm <sub>i</sub> , a <sub>10</sub> , a <sub>11</sub> , a <sub>12</sub>
	- Conversion factor	ConvF <sub>i</sub>
	- Diode compression point	dcp <sub>i</sub>
<b>Device parameters :</b>	- Frequency	f
	- Crest factor	cf
<b>Media parameters :</b>	- Conductivity	σ
	- Density	ρ

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

The first step of the evaluation is a linearization of the filtered input signal to account for the compression characteristics of the detector diode. The compensation depends on the input signal, the diode type and the DC-transmission factor from the diode to the evaluation electronics. If the exciting field is pulsed, the crest factor of the signal must be known to correctly compensate for peak power.

The formula for each channel can be given as :

$$V_i = U_i + U_i^2 \cdot \frac{cf}{dcp_i}$$

with  $V_i$  = compensated signal of channel i, (i = x, y, z)  
 $U_i$  = input signal of channel i, (i = x, y, z)  
 cf = crest factor of exciting field (DASY parameter)  
 dcp<sub>i</sub> = diode compression point (DASY parameter)

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

$$\text{E-field Probes : } E_i = \sqrt{\frac{V_i}{\text{Norm}_i \cdot \text{ConvF}}}$$

$$\text{H-field Probes : } H_i = \sqrt{V_i} \cdot \frac{a_{i0} + a_{i1}f + a_{i2}f^2}{f}$$

with  $V_i$  = compensated signal of channel i, (i = x, y, z)  
 $\text{Norm}_i$  = sensor sensitivity of channel i, (i = x, y, z),  $\mu\text{V}/(\text{V}/\text{m})^2$  for E-field Probes  
 ConvF = sensitivity enhancement in solution  
 $a_{ij}$  = sensor sensitivity factors for H-field probes  
 f = carrier frequency [GHz]  
 $E_i$  = electric field strength of channel i in V/m  
 $H_i$  = magnetic field strength of channel i in A/m

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

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

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

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

with SAR = local specific absorption rate in mW/g  
 $E_{\text{tot}}$  = total field strength in V/m  
 $\sigma$  = conductivity in [mho/m] or [Siemens/m]  
 $\rho$  = equivalent tissue density in  $\text{g}/\text{cm}^3$

Note that the density is set to 1, to account for actual head tissue density rather than the density of the tissue simulating liquid.



5.8 Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	Dosimetric E-Field Probe	ES3DV3	3270	Sep. 12, 2011	Sep. 11, 2012
SPEAG	Data Acquisition Electronics	DAE4	1303	Nov. 10, 2011	Nov. 09, 2012
SPEAG	835MHz System Validation Kit	D835V2	4d091	Nov. 18, 2011	Nov. 17, 2012
SPEAG	1900MHz System Validation Kit	D1900V2	5d118	Nov. 21, 2011	Nov. 20, 2012
SPEAG	2450MHz System Validation Kit	D2450V2	736	Jul. 25, 2011	Jul. 24, 2012
SPEAG	SAM Twin Phantom	QD 000 P40 CD	TP-1670	NCR	NCR
SPEAG	SAM Twin Phantom	QD 000 P40 CD	TP-1671	NCR	NCR
SPEAG	Test Arch Phantom	Par phantom	1105	NCR	NCR
SPEAG	Phone Positioner	N/A	N/A	NCR	NCR
Anritsu	Radio Communication Analyzer	MT8820C	6201091028	Jun. 10, 2012	Jun. 9, 2013
Agilent	Base Station	E5515C	MY50267224	Dec. 29, 2011	Dec. 28, 2012
Agilent	ENA Series Network Analyzer	E5071C	MY46111157	Apr. 13, 2012	Apr. 14, 2013
R&S	Signal Generator	SMR40	100455	Dec. 30, 2011	Dec. 29, 2012
Agilent	Power Meter	E4416A	MY45101555	Aug. 23, 2011	Aug. 22, 2012
Agilent	Power Sensor	E9327A	MY44421198	Aug. 23, 2011	Aug. 22, 2012
ARRA	Power Divider	A3200-2	N/A	NA	NA
MCL	Attenuation	BW-S10W5	N/A	NA	NA
R&S	Spectrum Analyzer	FSP30	101400	Jun. 01, 2012	May. 31, 2013

Table 5.1 Test Equipment List

Note: The calibration certificate of DASY can be referred to appendix C of this report.

## 6. Tissue Simulating Liquids

For the measurement of the field distribution inside the SAM phantom with DASY, the phantom must be filled with around 25 liters of homogeneous body tissue simulating liquid. For head SAR testing, the liquid height from the ear reference point (ERP) of the phantom to the liquid top surface is larger than 15 cm, which is shown in Fig. 6.1. For body SAR testing, the liquid height from the center of the flat phantom to the liquid top surface is larger than 15 cm, which is shown in Fig. 6.2.



Fig 6.1 Photo of Liquid Height for Head SAR



Fig 6.2 Photo of Liquid Height for Body SAR

The following table gives the recipes for tissue simulating liquid.

Frequency (MHz)	Water (%)	Sugar (%)	Cellulose (%)	Salt (%)	Preventol (%)	DGBE (%)	Conductivity ( $\sigma$ )	Permittivity ( $\epsilon_r$ )
<b>For Head</b>								
835	40.3	57.9	0.2	1.4	0.2	0	0.90	41.5
1800, 1900, 2000	55.2	0	0	0.3	0	44.5	1.40	40.0
2450	55.0	0	0	0	0	45.0	1.80	39.2
<b>For Body</b>								
835	50.8	48.2	0	0.9	0.1	0	0.97	55.2
1800, 1900, 2000	70.2	0	0	0.4	0	29.4	1.52	53.3
2450	68.6	0	0	0	0	31.4	1.95	52.7

Table 6.1 Recipes of Tissue Simulating Liquid



The dielectric parameters of the liquids were verified prior to the SAR evaluation using an Agilent 85070D Dielectric Probe Kit and an Agilent Network Analyzer.

Freq.	Liquid Type	Temp. (°C)	Conductivity (σ)	Permittivity (ε <sub>r</sub> )	Conductivity Target (σ)	Permittivity Target (ε <sub>r</sub> )	Delta (σ) (%)	Delta (ε <sub>r</sub> ) (%)	Limit (%)	Date
835	Head	21.5	0.916	41.029	0.90	41.5	1.78	-1.13	±5	May 15, 2012
835	Head	21.7	0.915	41.98	0.90	41.5	1.67	1.16	±5	May 16, 2012
835	Body	21.6	0.977	54.395	0.97	55.2	0.72	-1.46	±5	May 16, 2012
835	Body	21.4	0.968	57.458	0.97	55.2	-0.21	4.09	±5	May 16, 2012
1900	Head	21.5	1.44	39.914	1.40	40.0	2.86	-0.21	±5	May 16, 2012
1900	Body	21.7	1.535	54.579	1.52	53.3	0.99	2.40	±5	May 16, 2012
2450	Head	21.5	1.857	37.67	1.80	39.2	3.17	-3.90	±5	Jun. 06, 2012
2450	Body	21.6	1.939	53.98	1.95	52.7	-0.56	2.43	±5	Jun. 06, 2012

Table 6.2 Measuring Results for Simulating Liquid

## **7. Uncertainty Assessment**

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

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

A type B evaluation of standard uncertainty is typically based on scientific judgment using all of the relevant information available. These may include previous measurement data, experience and knowledge of the behavior and properties of relevant materials and instruments, manufacture’s specification, data provided in calibration reports and uncertainties assigned to reference data taken from handbooks. Broadly speaking, the uncertainty is either obtained from an outdoor source or obtained from an assumed distribution, such as the normal distribution, rectangular or triangular distributions indicated in Table 7.1

<b>Uncertainty Distributions</b>	<b>Normal</b>	<b>Rectangular</b>	<b>Triangular</b>	<b>U-Shape</b>
Multi-plying Factor <sup>(a)</sup>	1/k <sup>(b)</sup>	1/√3	1/√6	1/√2

- (a) standard uncertainty is determined as the product of the multiplying factor and the estimated range of variations in the measured quantity
- (b)  $\kappa$  is the coverage factor

**Table 7.1 Standard Uncertainty for Assumed Distribution**

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

Expanded uncertainty is a measure of uncertainty that defines an interval about the measurement result within which the measured value is confidently believed to lie. It is obtained by multiplying the combined standard uncertainty by a coverage factor. Typically, the coverage factor ranges from 2 to 3. Using a coverage factor allows the true value of a measured quantity to be specified with a defined probability within the specified uncertainty range. For purpose of this document, a coverage factor two is used, which corresponds to confidence interval of about 95 %. The DASY uncertainty Budget is showed in Table 7.2.



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

Table 7.2 Uncertainty Budget of DASY for frequency range 300 MHz to 3 GHz

## 8. SAR Measurement Evaluation

Each DASY system is equipped with one or more system validation kits. These units, together with the predefined measurement procedures within the DASY software, enable the user to conduct the system performance check and system validation. System validation kit includes a dipole, tripod holder to fix it underneath the flat phantom and a corresponding distance holder.

### 8.1 Purpose of System Performance check

The system performance check verifies that the system operates within its specifications. System and operator errors can be detected and corrected. It is recommended that the system performance check be performed prior to any usage of the system in order to guarantee reproducible results. The system performance check uses normal SAR measurements in a simplified setup with a well characterized source. This setup was selected to give a high sensitivity to all parameters that might fail or vary over time. The system check does not intend to replace the calibration of the components, but indicates situations where the system uncertainty is exceeded due to drift or failure.

### 8.2 System Setup

In the simplified setup for system evaluation, the DUT is replaced by a calibrated dipole and the power source is replaced by a continuous wave that comes from a signal generator. The calibrated dipole must be placed beneath the flat phantom section of the SAM twin phantom with the correct distance holder. The distance holder should touch the phantom surface with a light pressure at the reference marking and be oriented parallel to the long side of the phantom. The equipment setup is shown below:

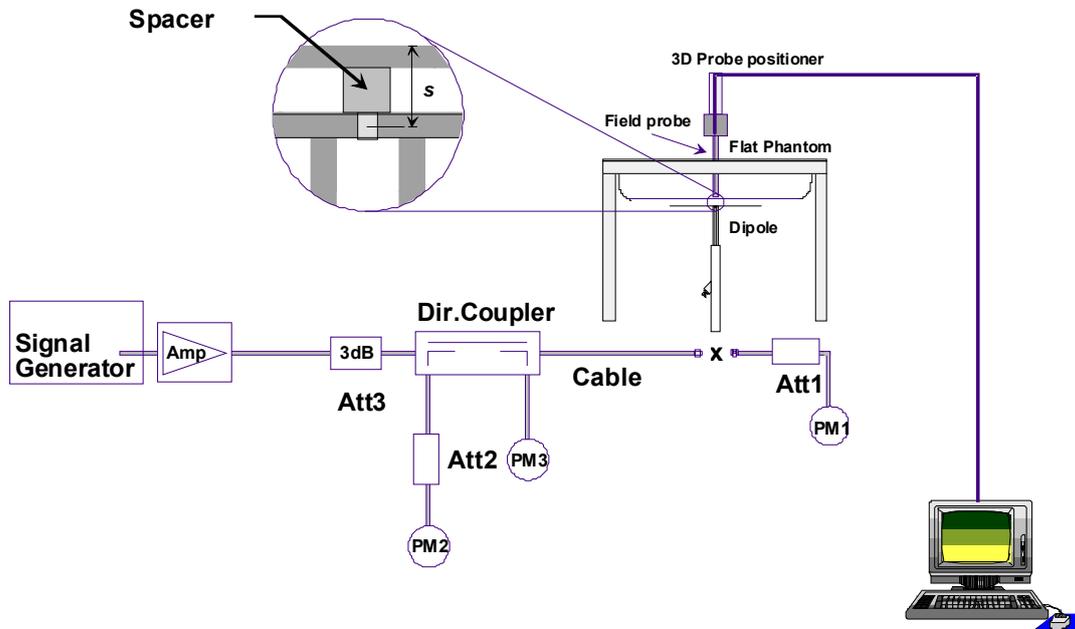
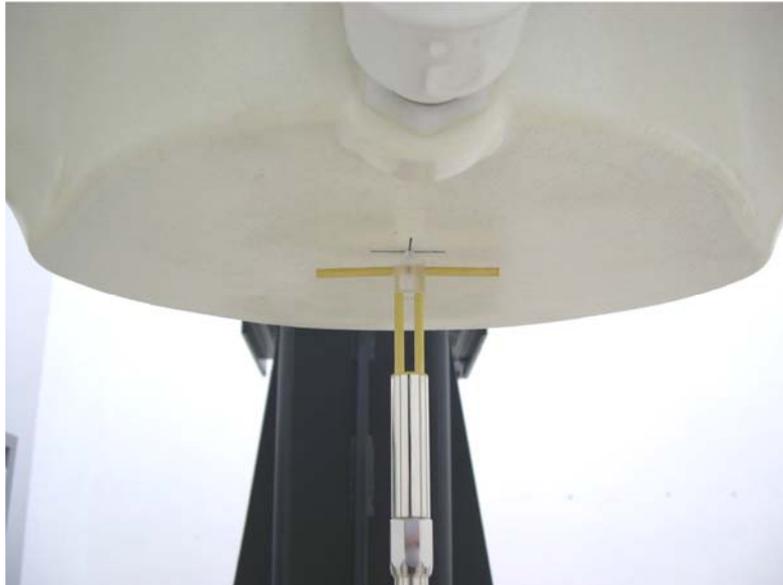


Fig 8.1 System Setup for System Evaluation

1. Signal Generator
2. Amplifier
3. Directional Coupler
4. Power Meter
5. Calibrated Dipole

The output power on dipole port must be calibrated to 24 dBm (250 mW) before dipole is connected.



**Fig 8.2 Photo of Dipole Setup**

**8.3 Validation Results**

Comparing to the original SAR value provided by SPEAG, the validation data should be within its specification of 10 %. Table 8.1 shows the target SAR and measured SAR after normalized to 1W input power. The table below indicates the system performance check can meet the variation criterion and the plots can be referred to Appendix A of this report.

Measurement Date	Frequency (MHz)	Liquid Type	Targeted SAR <sub>1g</sub> (W/kg)	Measured SAR <sub>1g</sub> (W/kg)	Normalized SAR <sub>1g</sub> (W/kg)	Deviation (%)
May 15, 2012	835	Head	9.4	2.44	9.76	3.83
May 16, 2012	835	Head	9.4	2.4	9.60	2.13
May 16, 2012	835	Body	9.42	2.45	9.80	4.03
May 16, 2012	835	Body	9.42	2.48	9.92	5.31
May 16, 2012	1900	Head	40.3	9.8	39.20	-2.73
May 16, 2012	1900	Body	41.80	9.83	39.32	-5.93
Jun. 06, 2012	2450	Head	54.80	14.2	56.80	3.65
Jun. 06, 2012	2450	Body	52.30	12.4	49.60	-5.16

**Table 8.1 Target and Measurement SAR after Normalized**

## 9. DUT Testing Position

This DUT was tested in nine different positions. They are right cheek, right tilted, left cheek, left tilted, Front of the DUT with phantom 1 cm gap, Back of the DUT with phantom 1 cm gap, Bottom Side of the DUT with phantom 1 cm gap, Right Side of the DUT with phantom 1 cm gap, and Left Side of the DUT with phantom 1 cm gap, as illustrated below:

### 9.1 Define two imaginary lines on the handset

- (a) The vertical centerline passes through two points on the front side of the handset - the midpoint of the width  $w_t$  of the handset at the level of the acoustic output, and the midpoint of the width  $w_b$  of the bottom of the handset.
- (b) The horizontal line is perpendicular to the vertical centerline and passes through the center of the acoustic output. The horizontal line is also tangential to the face of the handset at point A.
- (c) The two lines intersect at point A. Note that for many handsets, point A coincides with the center of the acoustic output; however, the acoustic output may be located elsewhere on the horizontal line. Also note that the vertical centerline is not necessarily parallel to the front face of the handset, especially for clamshell handsets, handsets with flip covers, and other irregularly shaped handsets.

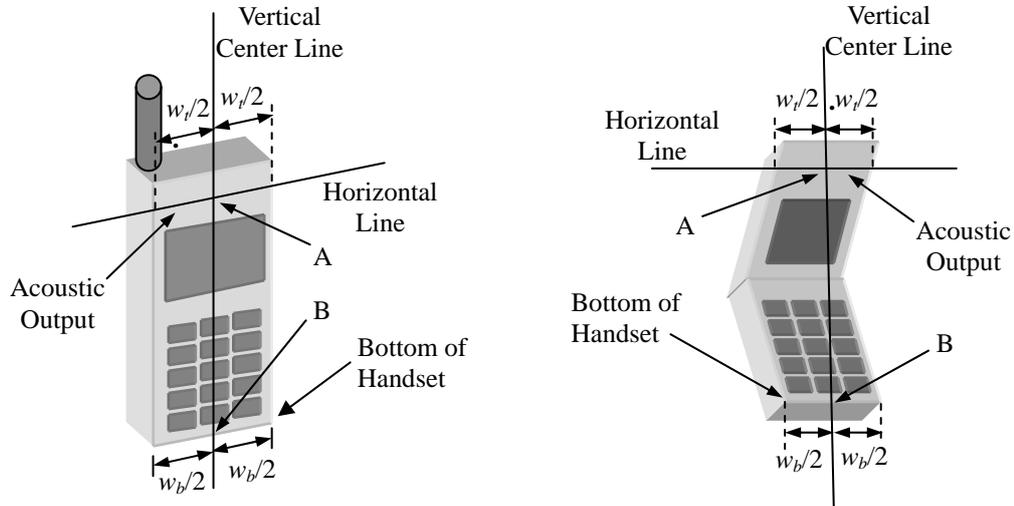


Fig 9.1 Illustration for Handset Vertical and Horizontal Reference Lines

### 9.2 Cheek Position

- (a) To position the device with the vertical center line of the body of the device and the horizontal line crossing the center piece in a plane parallel to the sagittal plane of the phantom. While maintaining the device in this plane, align the vertical center line with the reference plane containing the three ear and mouth reference point (M: Mouth, RE: Right Ear, and LE: Left Ear) and align the center of the ear piece with the line RE-LE.
- (b) To move the device towards the phantom with the ear piece aligned with the line LE-RE until the phone touched the ear. While maintaining the device in the reference plane and maintaining the phone contact with the ear, move the bottom of the phone until any point on the front side is in contact with the cheek of the phantom or until contact with the ear is lost (see Fig. 9.2).

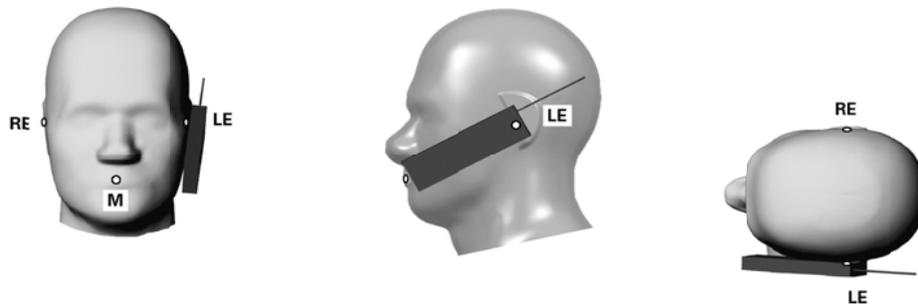


Fig 9.2 Illustration for Cheek Position

### 9.3 Tilted Position

- (a) To position the device in the “cheek” position described above.
- (b) While maintaining the device the reference plane described above and pivoting against the ear, moves it outward away from the mouth by an angle of 15 degrees or until contact with the ear is lost (see Fig. 9.3).

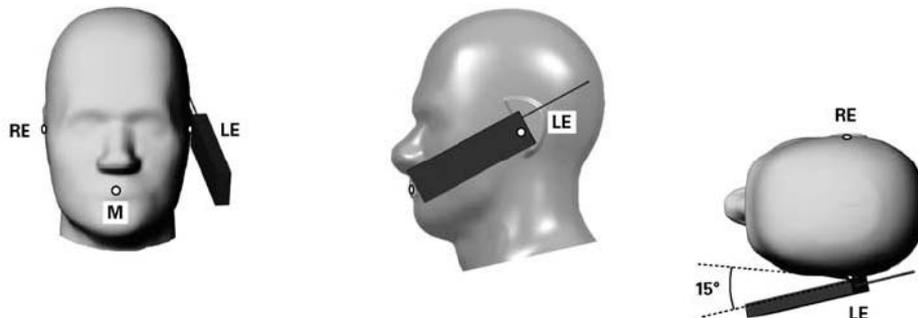
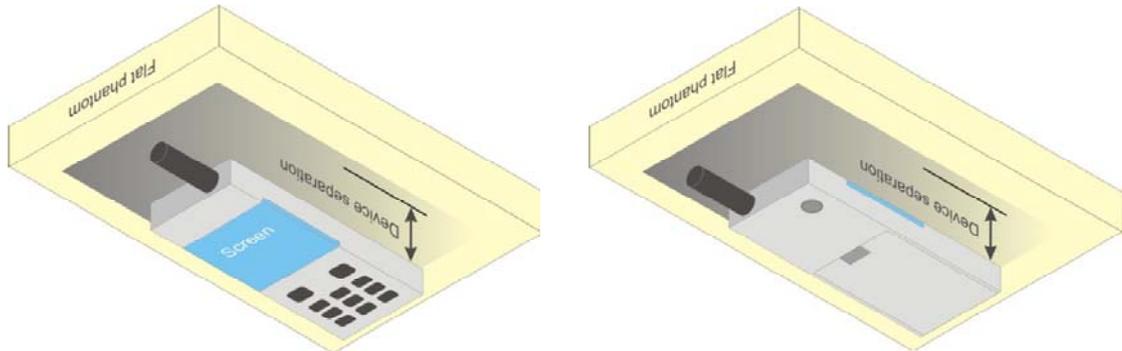


Fig 9.3 Illustration for Tilted Position

### 9.4 Body Worn Position

- (a) To position the device parallel to the phantom surface with either keypad up or down.
- (b) To adjust the device parallel to the flat phantom.
- (c) To adjust the distance between the device surface and the flat phantom to 1 cm.



**Fig 9.4 Illustration for Body Worn Position**

#### <DUT Setup Photos>

Please refer to Appendix E for the test setup photos.

## **10. Measurement Procedures**

The measurement procedures are as follows:

- (a) Use base station simulator (if applicable) or engineering software to transmit RF power continuously (continuous Tx) in the highest power channel.
- (b) Keep DUT to radiate maximum output power or 100% duty factor (if applicable)
- (c) Measure output power through RF cable and power meter.
- (d) Place the DUT in the positions as Appendix E demonstrates.
- (e) Set scan area, grid size and other setting on the DASY software.
- (f) Measure SAR results for the highest power channel on each testing position.
- (g) Find out the largest SAR result on these testing positions of each band
- (h) Measure SAR results for other channels in worst SAR testing position if the SAR of highest power channel is larger than 0.8 W/kg

According to the test standard, the recommended procedure for assessing the peak spatial-average SAR value consists of the following steps:

- (a) Power reference measurement
- (b) Area scan
- (c) Zoom scan
- (d) Power drift measurement

### **10.1 Spatial Peak SAR Evaluation**

The procedure for spatial peak SAR evaluation has been implemented according to the test standard. It can be conducted for 1g and 10g, as well as for user-specific masses. The DASY software includes all numerical procedures necessary to evaluate the spatial peak SAR value.

The base for the evaluation is a "cube" measurement. The measured volume must include the 1g and 10g cubes with the highest averaged SAR values. For that purpose, the center of the measured volume is aligned to the interpolated peak SAR value of a previously performed area scan.

The entire evaluation of the spatial peak values is performed within the post-processing engine (SEMCAD). The system always gives the maximum values for the 1g and 10g cubes. The algorithm to find the cube with highest averaged SAR is divided into the following stages:

- (a) Extraction of the measured data (grid and values) from the Zoom Scan
- (b) Calculation of the SAR value at every measurement point based on all stored data (A/D values and measurement parameters)
- (c) Generation of a high-resolution mesh within the measured volume
- (d) Interpolation of all measured values from the measurement grid to the high-resolution grid
- (e) Extrapolation of the entire 3-D field distribution to the phantom surface over the distance from sensor to surface
- (f) Calculation of the averaged SAR within masses of 1g and 10g

## **10.2 Area & Zoom Scan Procedures**

First Area Scan is used to locate the approximate location(s) of the local peak SAR value(s). The measurement grid within an Area Scan is defined by the grid extent, grid step size and grid offset. Next, in order to determine the EM field distribution in a three-dimensional spatial extension, Zoom Scan is required. The Zoom Scan measures 5x5x7 points with step size 8, 8 and 5 mm for 300 MHz to 3 GHz, and 8x8x8 points with step size 4, 4 and 2.5 mm for 3 GHz to 6 GHz. The Zoom Scan is performed around the highest E-field value to determine the averaged SAR-distribution over 10 g.

## **10.3 Volume Scan Procedures**

The volume scan is used for assess overlapping SAR distributions for antennas transmitting in different frequency bands. It is equivalent to an oversized zoom scan used in standalone measurements. The measurement volume will be used to enclose all the simultaneous transmitting antennas. For antennas transmitting simultaneously in different frequency bands, the volume scan is measured separately in each frequency band. In order to sum correctly to compute the 1g aggregate SAR, the DUT remain in the same test position for all measurements and all volume scan use the same spatial resolution and grid spacing (step-size is 4, 4 and 2.5 mm). When all volume scan were completed, the software, SEMCAD postprocessor can combine and subsequently superpose these measurement data to calculating the multiband SAR.

## **10.4 SAR Averaged Methods**

In DASy, the interpolation and extrapolation are both based on the modified Quadratic Shepard's method. The interpolation scheme combines a least-square fitted function method and a weighted average method which are the two basic types of computational interpolation and approximation.

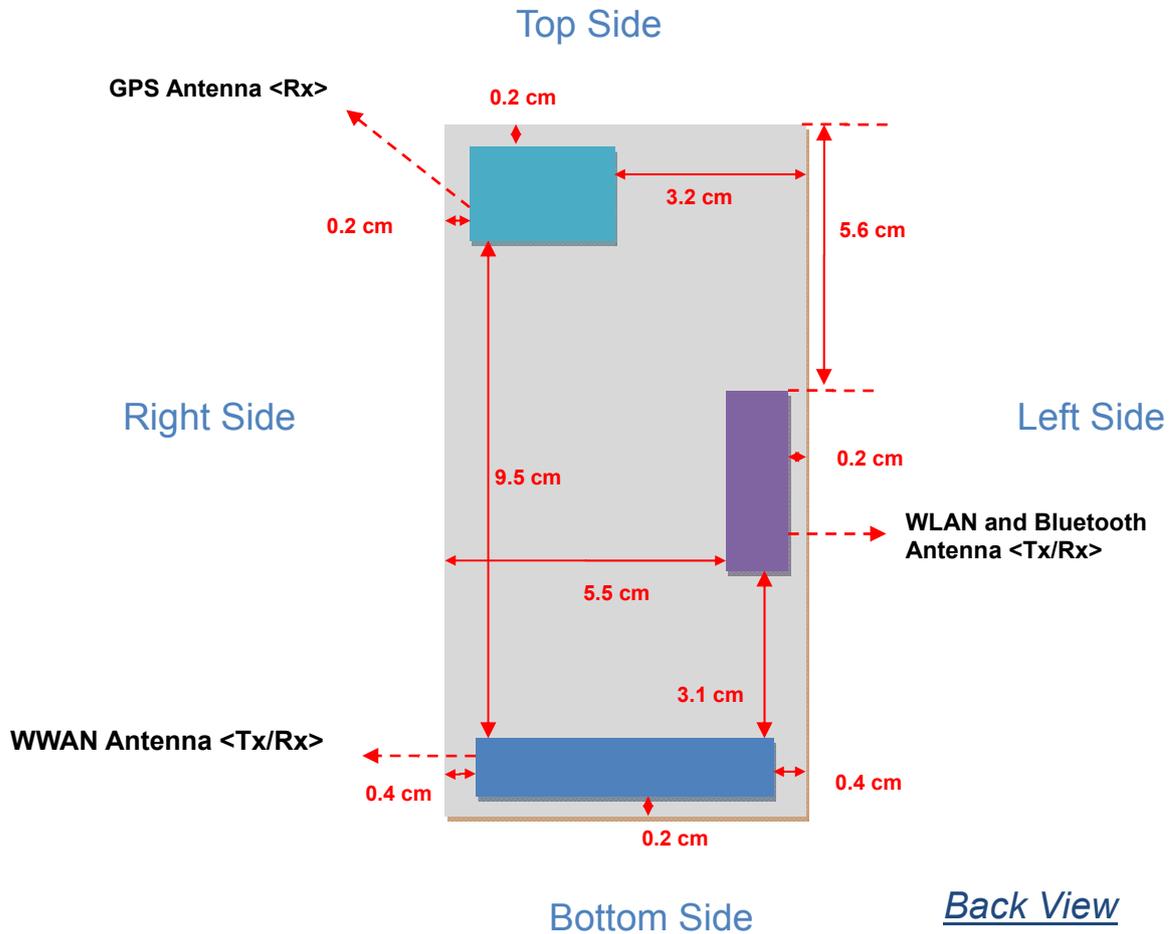
Extrapolation routines are used to obtain SAR values between the lowest measurement points and the inner phantom surface. The extrapolation distance is determined by the surface detection distance and the probe sensor offset. The uncertainty increases with the extrapolation distance. To keep the uncertainty within 1% for the 1 g and 10 g cubes, the extrapolation distance should not be larger than 5 mm.

## **10.5 Power Drift Monitoring**

All SAR testing is under the DUT install full charged battery and transmit maximum output power. In DASy measurement software, the power reference measurement and power drift measurement procedures are used for monitoring the power drift of DUT during SAR test. Both these procedures measure the field at a specified reference position before and after the SAR testing. The software will calculate the field difference in dB. If the power drift more than 5%, the SAR will be retested.

## 11. SAR Test Configurations

### 11.1 Exposure Positions Consideration



Antenna	Length	Width
WWAN Antenna (Tx / Rx)	2.6 cm	0.5 cm
WLAN & Bluetooth Antenna (Tx / Rx)	4.9 cm	0.8 cm
GPS Antenna (Rx)	2.8 cm	1.5 cm



Sides for SAR tests; Hotspot mode Test distance: 10 mm						
Antennas	Back	Front	Top Side	Bottom Side	Right Side	Left Side
WWAN	YES	YES	NO	YES	YES	YES
BT&WLAN	YES	YES	NO	NO	NO	YES

Note:

1. Head/Body-worn/Hotspot mode SAR assessments are required.
2. Referring to KDB 941225 D06, when the overall device length and width are  $\geq 9\text{cm} \times 5\text{cm}$ , the test distance is 10 mm. SAR must be measured for all sides and surfaces with a transmitting antenna located within 25mm from that surface or edge.
3. For WWAN antenna, SAR measurements at Top side are not required since the distance between DUT and flat phantom  $> 25\text{mm}$ .
4. For BT&WLAN antenna, SAR measurements Top side, Bottom side and Right side are not required since the distance between DUT and flat phantom  $> 25\text{mm}$ .

## 12. SAR Test Results

### 12.1 Conducted Power (Unit: dBm)

<GSM/GPRS/EDGE>

Burst Average Power						
Band	GSM850			GSM1900		
Channel	128	189	251	512	661	810
Frequency (MHz)	824.2	836.4	848.8	1850.2	1880.0	1909.8
GSM (1 Uplink)	32.15	32.20	32.19	28.66	28.83	29.06
GPRS 8 (1 Uplink) – CS1	32.13	32.18	32.17	28.61	28.79	29.02
GPRS 10 (2 Uplink) – CS1	32.08	32.14	32.13	28.58	28.76	29.01
GPRS 11 (3 Uplink) – CS1	30.20	30.26	30.22	26.65	26.82	27.06
GPRS 12 (4 Uplink) – CS1	27.34	27.43	27.42	23.63	23.81	24.09

Source-Based Time-Averaged Power						
Band	GSM850			GSM1900		
Channel	128	189	251	512	661	810
Frequency (MHz)	824.2	836.4	848.8	1850.2	1880.0	1909.8
GSM (1 Uplink)	23.15	23.20	23.19	19.66	19.83	20.06
GPRS 8 (1 Uplink) – CS1	23.13	23.18	23.17	19.61	19.79	20.02
GPRS 10 (2 Uplink) – CS1	26.08	26.14	26.13	22.58	22.76	23.01
GPRS 11 (3 Uplink) – CS1	25.94	26.00	25.96	22.39	22.56	22.80
GPRS 12 (4 Uplink) – CS1	24.34	24.43	24.42	20.63	20.81	21.09

**Remark:** The source-based time-averaged power is linearly scaled the maximum burst averaged power based on time slots. The calculated method are shown as below:

Source based time averaged power = Maximum burst averaged power (1 Uplink) - 9 dB

Source based time averaged power = Maximum burst averaged power (2 Uplink) - 6 dB

Source based time averaged power = Maximum burst averaged power (3 Uplink) - 4.26 dB

Source based time averaged power = Maximum burst averaged power (4 Uplink) - 3 dB

**Note:**

1. For Head SAR testing, GPRS should be evaluated, therefore the DUT was set in GPRS 10 for GSM850 and set in GPRS 10 for GSM1900 due to its highest source-based time-average power.
2. For Body-worn SAR testing, GPRS should be evaluated, therefore the DUT was set in GPRS 10 for GSM850 and set in GPRS 10 for GSM1900 due to its highest source-based time-average power.
3. Per 2010/10 workshop, the maximum output power channel is used for SAR testing and for further SAR test reduction.
4. The DUT do not support DTM function.



<WCDMA/HSDPA/HSUPA>

Band	WCDMA Band V		
Channel	4132	4182	4233
Frequency (MHz)	826.4	836.4	846.6
AMR	22.67	22.73	22.70
RMC 12.2K	22.69	22.74	22.70
HSDPA Subtest-1	21.76	21.55	21.72
HSDPA Subtest-2	21.57	21.41	21.48
HSDPA Subtest-3	21.18	21.04	21.07
HSDPA Subtest-4	21.16	21.00	20.42
HSUPA Subtest-1	21.07	21.00	20.70
HSUPA Subtest-2	19.98	19.88	19.78
HSUPA Subtest-3	20.31	19.81	19.99
HSUPA Subtest-4	19.96	19.88	19.90
HSUPA Subtest-5	21.06	20.96	20.93

MPR				
3GPP Requirement	Band	WCDMA band V		
0	HSDPA Subtest-1	0.00	0.00	0.00
0	HSDPA Subtest-2	0.19	0.14	0.24
0.5	HSDPA Subtest-3	0.58	0.51	0.65
0.5	HSDPA Subtest-4	0.60	0.55	1.30
0	HSUPA Subtest-1	-0.01	-0.04	0.23
2	HSUPA Subtest-2	1.08	1.08	1.15
1	HSUPA Subtest-3	0.75	1.15	0.94
2	HSUPA Subtest-4	1.10	1.08	1.03
0	HSUPA Subtest-5	0.00	0.00	0.00

Note:

1. For Head SAR, per KDB 941225 D01, RMC 12.2kbps setting is used to evaluate SAR. If AMR 12.2kbps power is < 1/4 dB higher than RMC, SAR tests with AMR 12.2kbps can be excluded.
2. For Body-worn SAR, per KDB 941225 D01, RMC 12.2kbps setting is used to evaluate SAR. If HSPDA subset-1 and HSUPA subset-5 output power is < 1/4 dB higher than RMC, and SAR with RMC 12.2kbps setting is  $\leq 1.2W/kg$ , HSDPA and HSUPA SAR evaluation can be excluded.
3. According to KDB 941225 D02 v02, 1)b), the MPR implementation information is provided here.

<WLAN>

Mode	Channel	Frequency (MHz)	Average power (dBm)			
			Data Rate (bps)			
			1M	2M	5.5M	11M
802.11b	CH 01	2412 MHz	10.29	10.62	10.69	10.34
	CH 06	2437 MHz	10.53	10.58	10.57	10.56
	CH 11	2462 MHz	11.63	11.34	11.28	11.61

Mode	Channel	Frequency (MHz)	Average power (dBm)							
			Data Rate (bps)							
			6M	9M	12M	18M	24M	36M	48M	54M
802.11g	CH 01	2412 MHz	10.01	9.97	9.84	9.79	9.82	9.75	9.78	9.92
	CH 06	2437 MHz	10.49	10.47	10.33	10.22	10.27	10.29	10.10	10.38
	CH 11	2462 MHz	11.21	11.17	11.06	11.11	11.03	11.12	11.08	11.17

Mode	Channel	Frequency (MHz)	Average power (dBm)							
			Data Rate (bps)							
			MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
802.11n 20M	CH 01	2412 MHz	9.82	9.69	9.62	9.69	9.68	9.75	9.74	9.68
	CH 06	2437 MHz	10.09	10.09	10.07	10.06	10.12	10.15	10.11	10.02
	CH 11	2462 MHz	10.97	10.79	10.96	10.88	10.96	10.92	10.94	10.92

Note:

1. Per 2010/10 TCB workshop and KDB 248227, choose the highest output power channel to test SAR and determine further SAR exclusion
2. Per KDB 248227, 11g and 11n output power is less than 1/4 dB higher than 11b mode, thus the SAR can be excluded.

<Bluetooth>

Bluetooth	Channel	Frequency (MHz)	Average power (dBm)								
			Data Rate								
			DH1	DH3	DH5	2DH1	2DH3	2DH5	3DH1	3DH3	3DH5
	CH 00	2402 MHz	8.06	8.16	8.13	5.95	6.07	6.07	6.05	6.13	6.066387
	CH 39	2441 MHz	9.12	9.07	9.12	6.98	7.10	7.09	7.17	7.10	6.886387
	CH 78	2480 MHz	8.99	8.97	9.05	7.09	7.08	7.14	7.11	7.15	7.096387

**12.2 Test Records for Head SAR Test**

**<GSM>**

Plot No.	Band	Mode	Test Position	Ch.	SAR <sub>1g</sub> (W/kg)
1	GSM850	GPRS10	Right Cheek	189	1.03
2	GSM850	GPRS10	Right Tilted	189	0.618
3	GSM850	GPRS10	Left Cheek	189	0.984
4	GSM850	GPRS10	Left Tilted	189	0.583
5	GSM850	GPRS10	Right Cheek	128	0.826
<b>6</b>	<b>GSM850</b>	<b>GPRS10</b>	<b>Right Cheek</b>	<b>251</b>	<b>1.17</b>
7	GSM850	GPRS10	Left Cheek	128	0.792
8	GSM850	GPRS10	Left Cheek	251	1.14
53	GSM1900	GPRS10	Right Cheek	810	0.67
54	GSM1900	GPRS10	Right Tilted	810	0.228
<b>55</b>	<b>GSM1900</b>	<b>GPRS10</b>	<b>Left Cheek</b>	<b>810</b>	<b>0.757</b>
56	GSM1900	GPRS10	Left Tilted	810	0.229

**Note:** Per KDB 447498, if the highest output channel SAR for each exposure position  $\leq 0.8$  W/kg other channels SAR tests are not necessary.

**<WCDMA>**

Plot No.	Band	Mode	Test Position	Ch.	SAR <sub>1g</sub> (W/kg)
<b>49</b>	<b>WCDMA V</b>	<b>RMC 12.2K</b>	<b>Right Cheek</b>	<b>4182</b>	<b>0.627</b>
50	WCDMA V	RMC 12.2K	Right Tilted	4182	0.363
51	WCDMA V	RMC 12.2K	Left Cheek	4182	0.593
52	WCDMA V	RMC 12.2K	Left Tilted	4182	0.342

**Note:** Per KDB 447498, if the highest output channel SAR for each exposure position  $\leq 0.8$  W/kg other channels SAR tests are not necessary.

**<WLAN>**

Plot No.	Band	Mode	Test Position	Ch.	Data Rate	Power Setting	SAR <sub>1g</sub> (W/kg)
57	801.11b	-	Right Cheek	11	1M	14	0.056
58	801.11b	-	Right Tilted	11	1M	14	0.022
<b>59</b>	<b>801.11b</b>	-	<b>Left Cheek</b>	<b>11</b>	<b>1M</b>	<b>14</b>	<b>0.115</b>
60	801.11b	-	Left Tilted	11	1M	14	0.012

**Note:** Per KDB 648474, if the highest output channel SAR for each exposure position  $\leq 0.8$  W/kg other channels SAR tests are not necessary.

**12.3 Test Records for Hotspot SAR Test**

**<GSM>**

Plot No.	Band	Mode	Test Position	Gap (cm)	Ch.	SAR <sub>1g</sub> (W/kg)
9	GSM850	GPRS10	Front	1	189	1.29
10	GSM850	GPRS10	Back	1	189	1.4
11	GSM850	GPRS10	Left Side	1	189	0.82
12	GSM850	GPRS10	Right Side	1	189	1.13
13	GSM850	GPRS10	Bottom Side	1	189	0.245
14	GSM850	GPRS10	Front	1	128	1.2
15	GSM850	GPRS10	Front	1	251	1.3
16	GSM850	GPRS10	Back	1	128	1.22
<b>17</b>	<b>GSM850</b>	<b>GPRS10</b>	<b>Back</b>	<b>1</b>	<b>251</b>	<b>1.42</b>
18	GSM850	GPRS10	Left Side	1	128	0.803
19	GSM850	GPRS10	Left Side	1	251	0.86
20	GSM850	GPRS10	Right Side	1	128	0.93
21	GSM850	GPRS10	Right Side	1	251	1.18
<b>35</b>	<b>GSM1900</b>	<b>GPRS10</b>	<b>Front</b>	<b>1</b>	<b>810</b>	<b>1.04</b>
36	GSM1900	GPRS10	Back	1	810	0.854
37	GSM1900	GPRS10	Left Side	1	810	0.232
38	GSM1900	GPRS10	Right Side	1	810	0.203
39	GSM1900	GPRS10	Bottom Side	1	810	0.909
40	GSM1900	GPRS10	Front	1	512	0.919
41	GSM1900	GPRS10	Front	1	661	0.95
42	GSM1900	GPRS10	Back	1	512	0.744
43	GSM1900	GPRS10	Back	1	661	0.809
44	GSM1900	GPRS10	Bottom Side	1	512	0.818
45	GSM1900	GPRS10	Bottom Side	1	661	0.857

**Note:**

1. Per KDB 941225 D06, for DUT dimension  $\geq 9\text{cm} \times 5\text{cm}$ , the test distance is 1cm. SAR must be measured for all surfaces and sides with a transmitting antenna located within 2.5cm from that surface or edge.
2. As in (1), SAR for Front/Back /Bottom Side/Left Side/Right Side is necessary.
3. Per KDB 447498 if the highest output channel SAR for each exposure position  $\leq 0.8 \text{ W/kg}$  other channels SAR tests are not necessary.

<WCDMA>

Plot No.	Band	Mode	Test Position	Gap (cm)	Ch.	SAR <sub>1g</sub> (W/kg)
25	WCDMA V	RMC 12.2K	Front	1	4182	0.808
26	WCDMA V	RMC 12.2K	Back	1	4182	0.874
27	WCDMA V	RMC 12.2K	Left Side	1	4182	0.556
28	WCDMA V	RMC 12.2K	Right Side	1	4182	0.607
29	WCDMA V	RMC 12.2K	Bottom Side	1	4182	0.136
30	WCDMA V	RMC 12.2K	Front	1	4132	0.653
31	WCDMA V	RMC 12.2K	Front	1	4233	0.813
32	WCDMA V	RMC 12.2K	Back	1	4132	0.704
<b>33</b>	<b>WCDMA V</b>	<b>RMC 12.2K</b>	<b>Back</b>	<b>1</b>	<b>4233</b>	<b>0.889</b>

Note:

1. Per KDB 941225 D06, for DUT dimension  $\geq 9\text{cm} \times 5\text{cm}$ , the test distance is 1cm. SAR must be measured for all surfaces and sides with a transmitting antenna located within 2.5cm from that surface or edge.
2. As in (1), SAR for Front/Back /Bottom Side/Left Side/Right Side is necessary.
3. Per KDB 447498, if the highest output channel SAR for each exposure position  $\leq 0.8$  W/kg other channels SAR tests are not necessary.

<WLAN>

Plot No.	Band	Mode	Test Position	Gap (cm)	Ch.	Data Rate	Power Setting	SAR <sub>1g</sub> (W/kg)
61	801.11b	-	Front	1	11	1M	14	0.028
62	801.11b	-	Back	1	11	1M	14	0.096
<b>63</b>	<b>801.11b</b>	-	<b>Left Side</b>	<b>1</b>	<b>11</b>	<b>1M</b>	<b>14</b>	<b>0.122</b>

Note:

1. Per KDB 941225 D06, for DUT dimension  $\geq 9\text{cm} \times 5\text{cm}$ , the test distance is 1cm. SAR must be measured for all surfaces and sides with a transmitting antenna located within 2.5cm from that surface or edge.
2. As in (1), SAR for Front/Back /Left Side is necessary.
3. Per KDB 648474, if the highest output channel SAR for each exposure position  $\leq 0.8$  W/kg other channels SAR tests are not necessary.

**12.4 Test Records for Body-worn SAR Test**

**<GSM>**

Plot No.	Band	Mode	Test Position	Gap (cm)	Ch.	Ear-phone	SAR <sub>1g</sub> (W/kg)
9	GSM850	GPRS10	Front	1	189	-	1.29
10	GSM850	GPRS10	Back	1	189	-	1.4
14	GSM850	GPRS10	Front	1	128	-	1.2
15	GSM850	GPRS10	Front	1	251	-	1.3
16	GSM850	GPRS10	Back	1	128	-	1.22
<b>17</b>	<b>GSM850</b>	<b>GPRS10</b>	<b>Back</b>	<b>1</b>	<b>251</b>	-	<b>1.42</b>
22	GSM850	GPRS10	Back	1	251	V	1.35
23	GSM850	GPRS10	Back	1	128	V	1.03
24	GSM850	GPRS10	Back	1	189	V	1.22
<b>35</b>	<b>GSM1900</b>	<b>GPRS10</b>	<b>Front</b>	<b>1</b>	<b>810</b>	-	<b>1.04</b>
36	GSM1900	GPRS10	Back	1	810	-	0.854
40	GSM1900	GPRS10	Front	1	512	-	0.919
41	GSM1900	GPRS10	Front	1	661	-	0.95
42	GSM1900	GPRS10	Back	1	512	-	0.744
43	GSM1900	GPRS10	Back	1	661	-	0.809
<b>46</b>	<b>GSM1900</b>	<b>GPRS10</b>	<b>Front</b>	<b>1</b>	<b>810</b>	<b>V</b>	<b>1.04</b>
47	GSM1900	GPRS10	Front	1	512	V	0.899
48	GSM1900	GPRS10	Front	1	661	V	0.974

**Note:** Per KDB 447498, if the highest output channel SAR for each exposure position ≤ 0.8 W/kg other channels SAR tests are not necessary.

**<WCDMA>**

Plot No.	Band	Mode	Test Position	Gap (cm)	Ch.	Ear-phone	SAR <sub>1g</sub> (W/kg)
25	WCDMA V	RMC 12.2K	Front	1	4182	-	0.808
26	WCDMA V	RMC 12.2K	Back	1	4182	-	0.874
30	WCDMA V	RMC 12.2K	Front	1	4132	-	0.653
31	WCDMA V	RMC 12.2K	Front	1	4233	-	0.813
32	WCDMA V	RMC 12.2K	Back	1	4132	-	0.704
<b>33</b>	<b>WCDMA V</b>	<b>RMC 12.2K</b>	<b>Back</b>	<b>1</b>	<b>4233</b>	-	<b>0.889</b>
34	WCDMA V	RMC 12.2K	Back	1	4233	V	0.723

**Note:** Per KDB 447498, if the highest output channel SAR for each exposure position ≤ 0.8 W/kg other channels SAR tests are not necessary.



<WLAN>

Plot No.	Band	Mode	Test Position	Gap (cm)	Ch.	Ear-phone	Data Rate	Power Setting	SAR <sub>1g</sub> (W/kg)
61	801.11b	-	Front	1	11	-	1M	14	0.028
62	801.11b	-	Back	1	11	-	1M	14	0.096
<b>64</b>	<b>801.11b</b>	-	<b>Back</b>	<b>1</b>	11	<b>V</b>	<b>1M</b>	<b>14</b>	<b>0.107</b>

**Note:** Per KDB 648474, if the highest output channel SAR for each exposure position  $\leq 0.8$  W/kg other channels SAR tests are not necessary.

**12.5 Simultaneous Multi-band Transmission Analysis**

	Applicable Combination
Simultaneous Transmission	WWAN+WLAN
	WWAN+BT

**Note:**

1. WLAN and BT share the same antenna, thus they cannot transmit simultaneously.
2. Per KDB KDB 648474 D01, Bluetooth (9.12 dBm) output power  $\leq P_{ref}$  and the distance to other antennas  $\geq 2.5\text{cm}$ , therefore, stand-alone SAR is not required; the simultaneous transmission SAR for WWAN and Bluetooth were not required, because Bluetooth standalone SAR is not required and the maximum WWAN SAR (1.42 W/kg), so the SAR summation is less than 1.6 W/kg.
3. The GPRS and WCDMA share the same WWAN transmitting antenna, and GPRS will not transmit simultaneously with WCDMA.
4. According to KDB 648474, the simultaneous transmission SAR for WWAN and WLAN was not required, because the SAR summation (Head: 1.255 W/kg; Body: 1.527 W/kg) is less than 1.6 W/kg.

**<Maximum SAR list for each band and position>**

	GSM 850	GSM 1900	WCDMA Band V	802.11b/g/n	Max. SAR Summation	Hot Spot Separation	Result
Right Cheek	1.17	0.67	0.627	0.056	1.226	-	PASS
Right Tilted	0.618	0.228	0.363	0.022	0.64	-	PASS
Left Cheek	1.14	0.757	0.593	0.115	1.255	-	PASS
Left Tilted	0.583	0.229	0.342	0.012	0.595	-	PASS
Front	1.3	1.04	0.813	0.028	1.328	1	PASS
Back	1.42	0.854	0.889	0.107	1.527	1	PASS
Left Side	0.86	0.232	0.556	0.122	0.982	1	PASS
Right Side	1.18	0.203	0.607	-	1.18	1	PASS
Bottom Side	0.245	0.909	0.136	-	0.909	1	PASS

**Note:**

- 1 The maximum SAR summation is calculated based on the same configuration and test position.
- 2 For 1g-SAR scalar summation  $< 1.6\text{W/kg}$ , simultaneous SAR measurement is not necessary.

Test Engineer : Jeme Lee



### **13. References**

- [1] FCC 47 CFR Part 2 “Frequency Allocations and Radio Treaty Matters; General Rules and Regulations”
- [2] ANSI/IEEE Std. C95.1-1992, “IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz”, September 1992
- [3] IEEE Std. 1528-2003, “Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques”, December 2003
- [4] FCC OET Bulletin 65 (Edition 97-01) Supplement C (Edition 01-01), “Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields”, June 2001
- [5] SPEAG DASY System Handbook
- [6] FCC KDB 248227 D01 v01r02, “SAR Measurement Procedures for 802.11 a/b/g Transmitters”, May 2007
- [7] FCC KDB 447498 D01 v04, “Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies”, November 2009
- [8] FCC KDB 648474 D01 v01r05, “SAR Evaluation Considerations for Handsets with Multiple Transmitters and Antennas”, September 2008
- [9] FCC KDB 941225 D01 v02, “SAR Measurement Procedures for 3G Devices – CDMA 2000 / Ev-Do / WCDMA / HSDPA / HSPA”, October 2007
- [10] FCC KDB 941225 D02 v02 "3GPP R6 HSPA and R7 HSPA+ SAR Guidance", December 2009.
- [11] FCC KDB 941225 D03 v01, “Recommended SAR Test Reduction Procedures for GSM / GPRS / EDGE”, December 2008
- [12] FCC KDB 941225 D04 v01, “Evaluating SAR for GSM/(E)GPRS Dual Transfer Mode”, January 27 2010
- [13] FCC KDB 941225 D06 v01, "SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities", April 2011
- [14] FCC KDB 388624 D02, "Permit But Ask List", April 2011.



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

The plots are shown as follows.

## System Check\_Head\_835MHz\_120515

**DUT: D835V2 - SN: 4d091**

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

Medium: HSL\_835\_120515 Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.916 \text{ mho/m}$ ;  $\epsilon_r = 41.029$ ;  $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(6.04, 6.04, 6.04); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

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

Maximum value of SAR (interpolated) = 2.629 mW/g

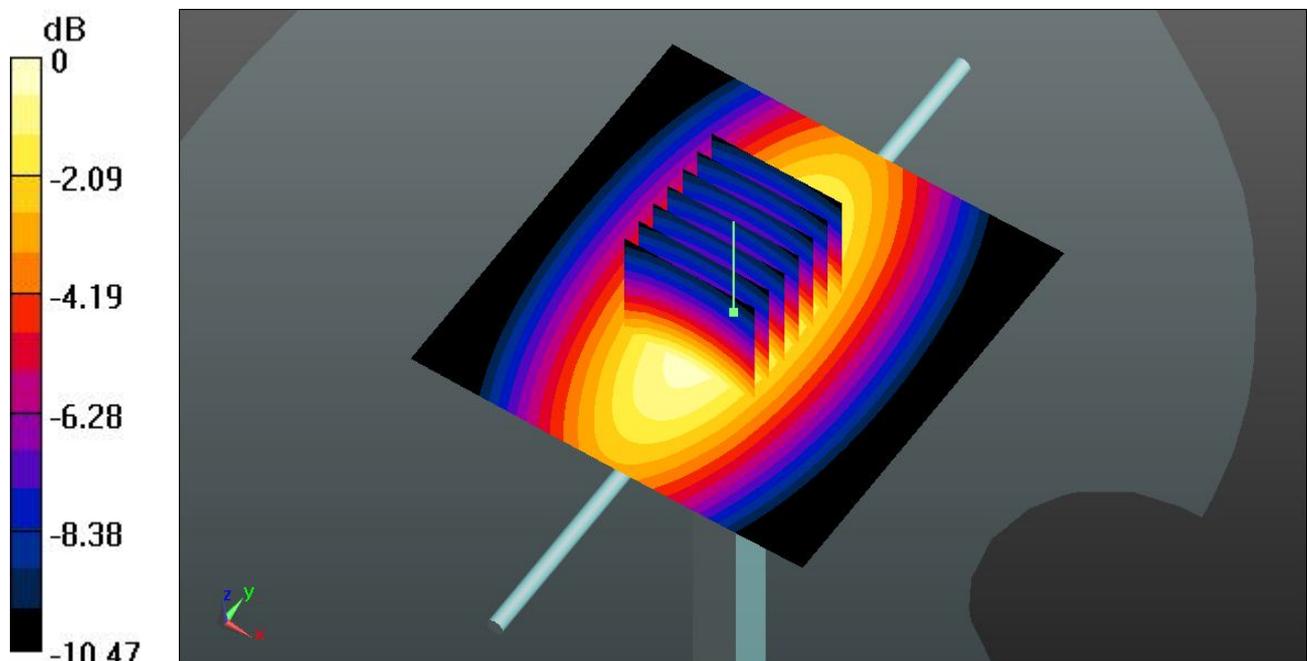
**Pin=250mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 53.938 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 3.7160

**SAR(1 g) = 2.44 mW/g; SAR(10 g) = 1.59 mW/g**

Maximum value of SAR (measured) = 2.630 mW/g



0 dB = 2.630mW/g = 8.40 dB mW/g

## System Check\_Body\_835MHz\_120515

**DUT: D835V2 - SN: 4d091**

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

Medium: MSL\_835\_120515 Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.977 \text{ mho/m}$ ;  $\epsilon_r = 54.395$ ;

$\rho = 1000 \text{ kg/m}^3$

Ambient Temperature :  $23.6 \text{ }^\circ\text{C}$ ; Liquid Temperature :  $21.6 \text{ }^\circ\text{C}$

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(6.16, 6.16, 6.16); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

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

Maximum value of SAR (interpolated) =  $2.638 \text{ mW/g}$

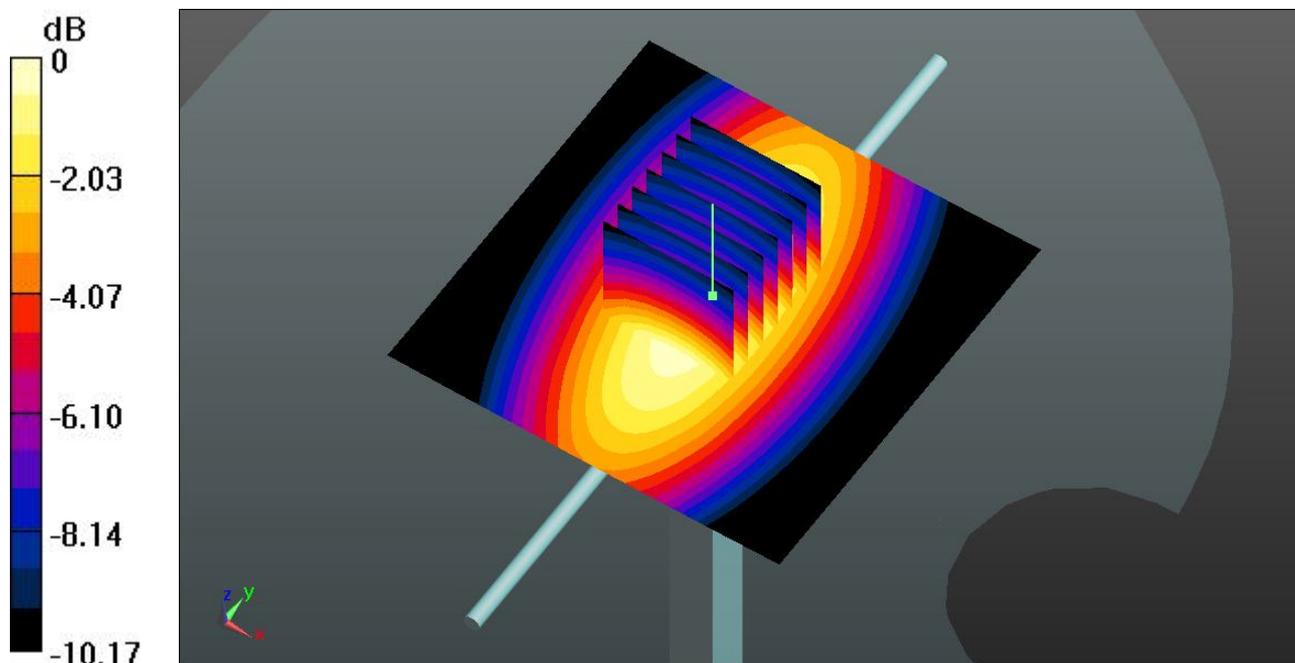
**Pin=250mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value =  $52.386 \text{ V/m}$ ; Power Drift =  $-0.01 \text{ dB}$

Peak SAR (extrapolated) =  $3.6860$

**SAR(1 g) =  $2.45 \text{ mW/g}$ ; SAR(10 g) =  $1.6 \text{ mW/g}$**

Maximum value of SAR (measured) =  $2.648 \text{ mW/g}$



0 dB =  $2.650\text{mW/g} = 8.46 \text{ dB mW/g}$

### System Check\_Head\_835MHz\_120516

**DUT: D835V2 - SN: 4d091**

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

Medium: HSL\_835\_120516 Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.915 \text{ mho/m}$ ;  $\epsilon_r = 41.98$ ;  $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature : 23.7 °C; Liquid Temperature : 21.7 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(6.04, 6.04, 6.04); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

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

Maximum value of SAR (interpolated) = 2.587 mW/g

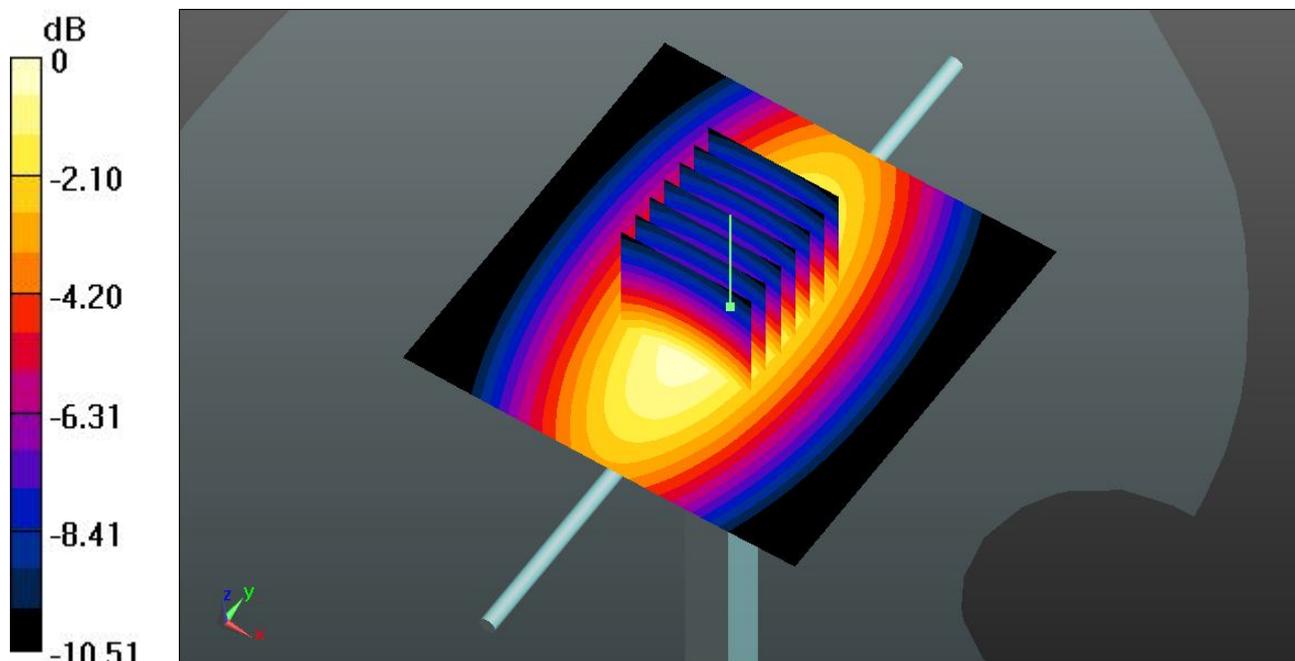
**Pin=250mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 53.572 V/m; Power Drift = 0.0078 dB

Peak SAR (extrapolated) = 3.6710

**SAR(1 g) = 2.4 mW/g; SAR(10 g) = 1.56 mW/g**

Maximum value of SAR (measured) = 2.591 mW/g



0 dB = 2.590mW/g = 8.27 dB mW/g

### System Check\_Body\_835MHz\_120516

**DUT: D835V2 - SN: 4d091**

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

Medium: MSL\_835\_120516 Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.968 \text{ mho/m}$ ;  $\epsilon_r = 57.458$ ;

$\rho = 1000 \text{ kg/m}^3$

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.4 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(6.16, 6.16, 6.16); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

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

Maximum value of SAR (interpolated) = 2.684 mW/g

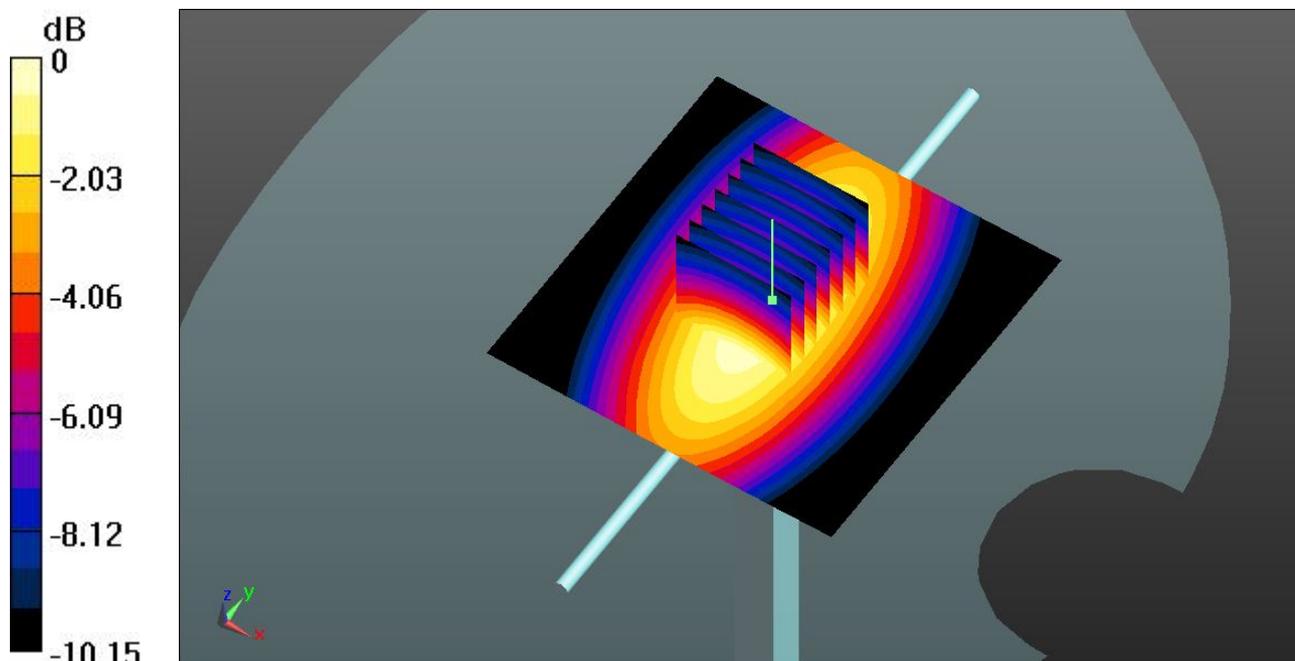
**Pin=250mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 53.049 V/m; Power Drift = -0.00013 dB

Peak SAR (extrapolated) = 3.7240

**SAR(1 g) = 2.48 mW/g; SAR(10 g) = 1.62 mW/g**

Maximum value of SAR (measured) = 2.682 mW/g



0 dB = 2.680mW/g = 8.56 dB mW/g

## System Check\_Head\_1900MHz\_120516

**DUT: D1900V2 - SN: 5d118**

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

Medium: HSL\_1900\_120516 Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.44$  mho/m;  $\epsilon_r = 39.914$ ;

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

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(5.14, 5.14, 5.14); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Pin=250mW/Area Scan (91x91x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 11.068 mW/g

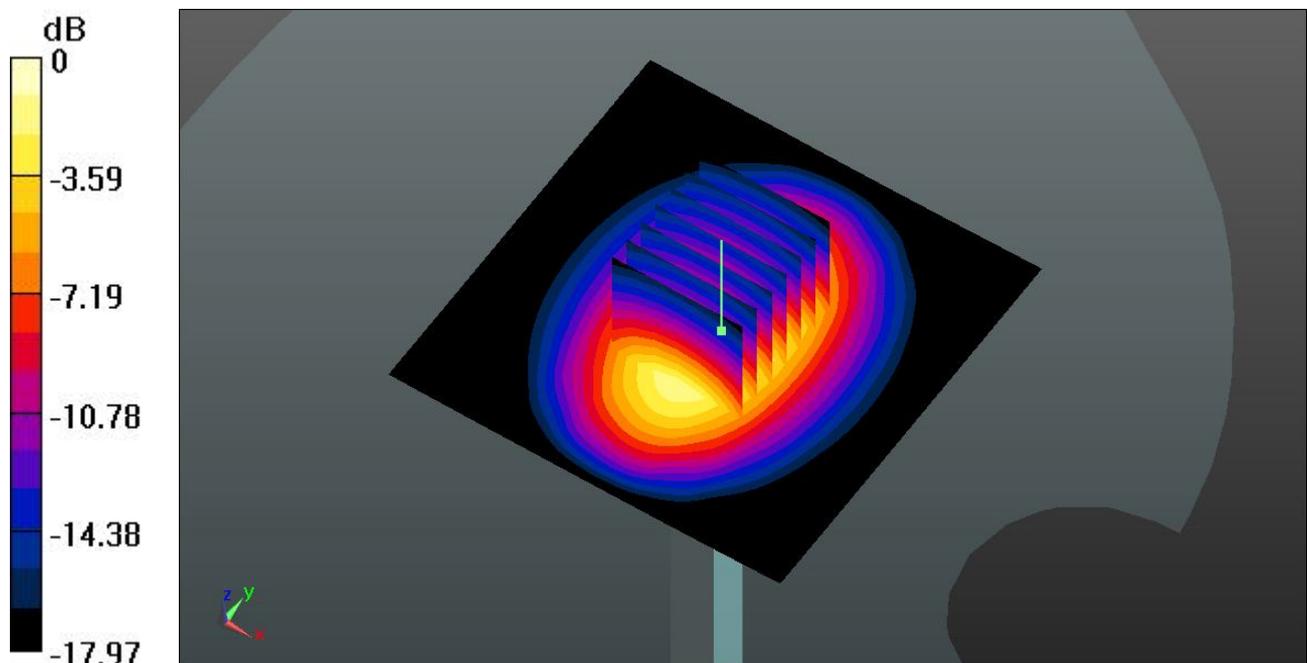
**Pin=250mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 87.395 V/m; Power Drift = -0.16 dB

Peak SAR (extrapolated) = 18.6150

**SAR(1 g) = 9.8 mW/g; SAR(10 g) = 5.01 mW/g**

Maximum value of SAR (measured) = 11.070 mW/g



0 dB = 11.070mW/g = 20.88 dB mW/g

## System Check\_Body\_1900MHz\_120516

**DUT: D1900V2 - SN: 5d118**

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

Medium: MSL\_1900\_120516 Medium parameters used:  $f = 1900 \text{ MHz}$ ;  $\sigma = 1.535 \text{ mho/m}$ ;  $\epsilon_r =$

$54.579$ ;  $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature :  $23.4 \text{ }^\circ\text{C}$ ; Liquid Temperature :  $21.7 \text{ }^\circ\text{C}$

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(4.64, 4.64, 4.64); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Pin=250mW/Area Scan (91x91x1):** Measurement grid:  $dx=10\text{mm}$ ,  $dy=10\text{mm}$

Maximum value of SAR (interpolated) =  $11.299 \text{ mW/g}$

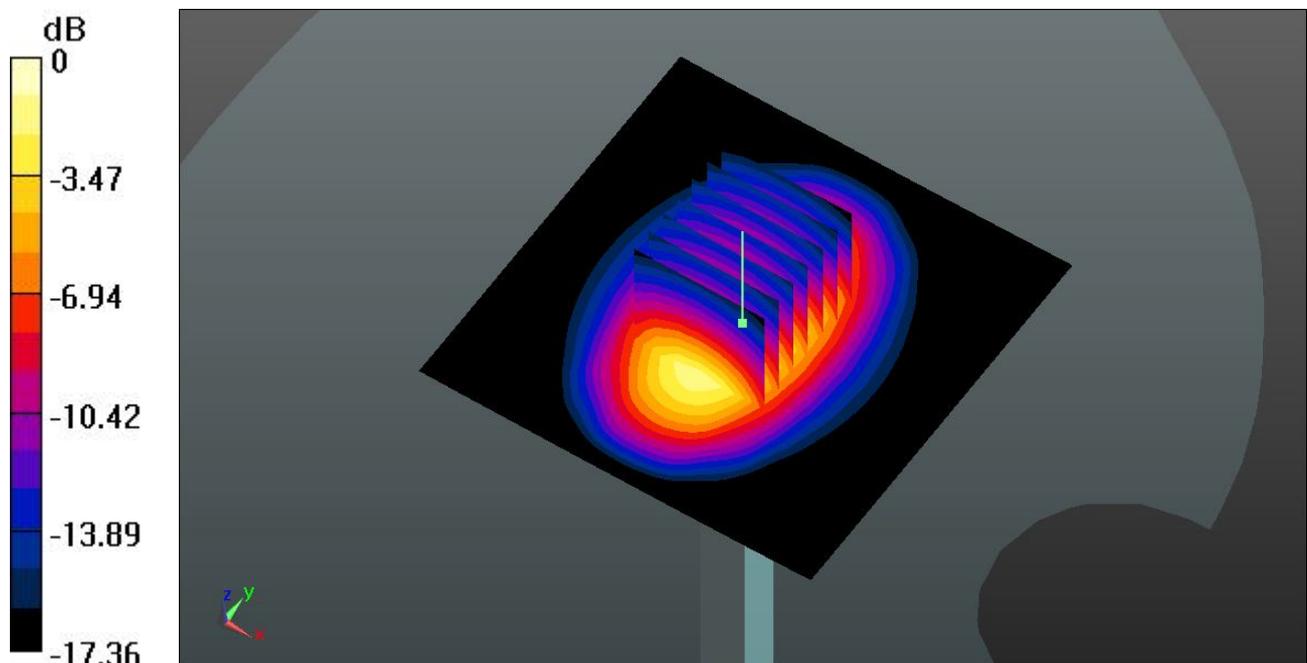
**Pin=250mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$

Reference Value =  $86.604 \text{ V/m}$ ; Power Drift =  $-0.0096 \text{ dB}$

Peak SAR (extrapolated) =  $18.0660$

**SAR(1 g) =  $9.83 \text{ mW/g}$ ; SAR(10 g) =  $5.06 \text{ mW/g}$**

Maximum value of SAR (measured) =  $11.142 \text{ mW/g}$



0 dB =  $11.140\text{mW/g} = 20.94 \text{ dB mW/g}$

### System Check\_Head\_2450MHz\_120606

**DUT: D2450V2 - SN: 736**

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

Medium: HSL\_2450\_120606 Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.857$  mho/m;  $\epsilon_r = 37.67$ ;

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

Ambient Temperature : 23.5 °C; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(4.52, 4.52, 4.52); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

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

Maximum value of SAR (interpolated) = 16.2 mW/g

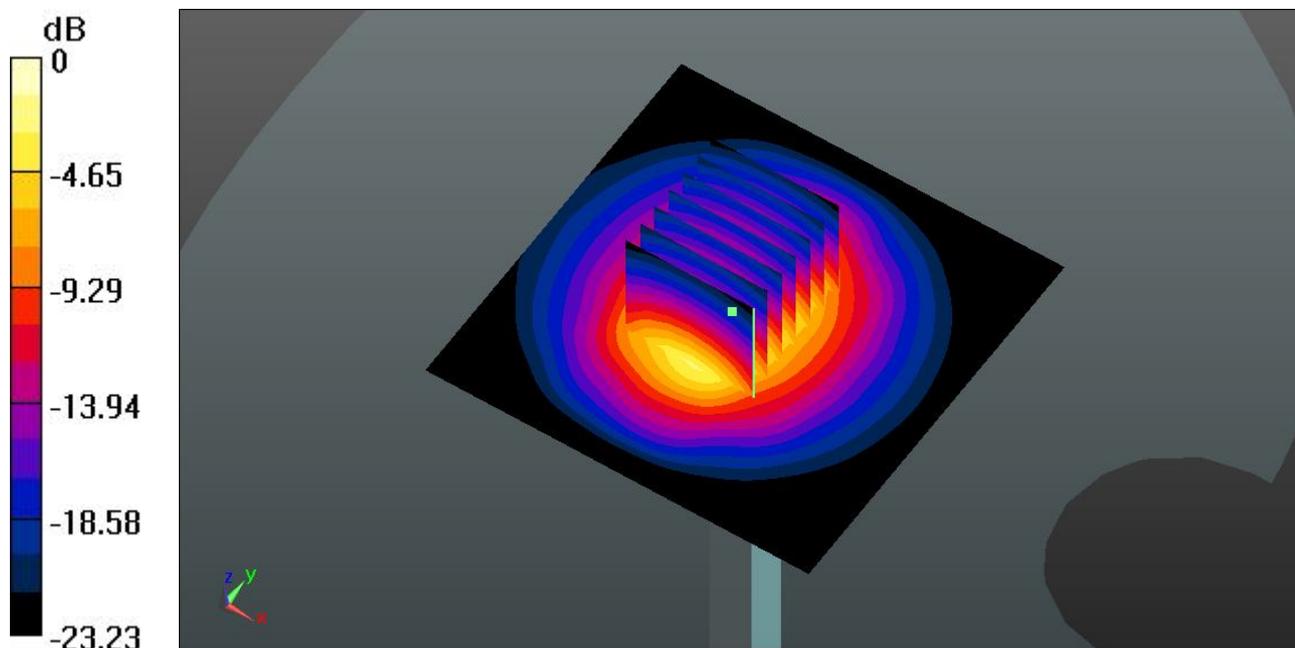
**Pin=250mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 91.814 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 31.3780

**SAR(1 g) = 14.2 mW/g; SAR(10 g) = 6.36 mW/g**

Maximum value of SAR (measured) = 16.2 mW/g



0 dB = 16.2 mW/g = 24.19 dB mW/g

## System Check\_Body\_2450MHz\_120606

**DUT: D2450V2 - SN: 736**

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

Medium: MSL\_2450\_120606 Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.939$  mho/m;  $\epsilon_r = 53.98$ ;

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

Ambient Temperature : 23.4 °C ; Liquid Temperature : 21.6 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(4.28, 4.28, 4.28); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

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

Maximum value of SAR (interpolated) = 13.9 mW/g

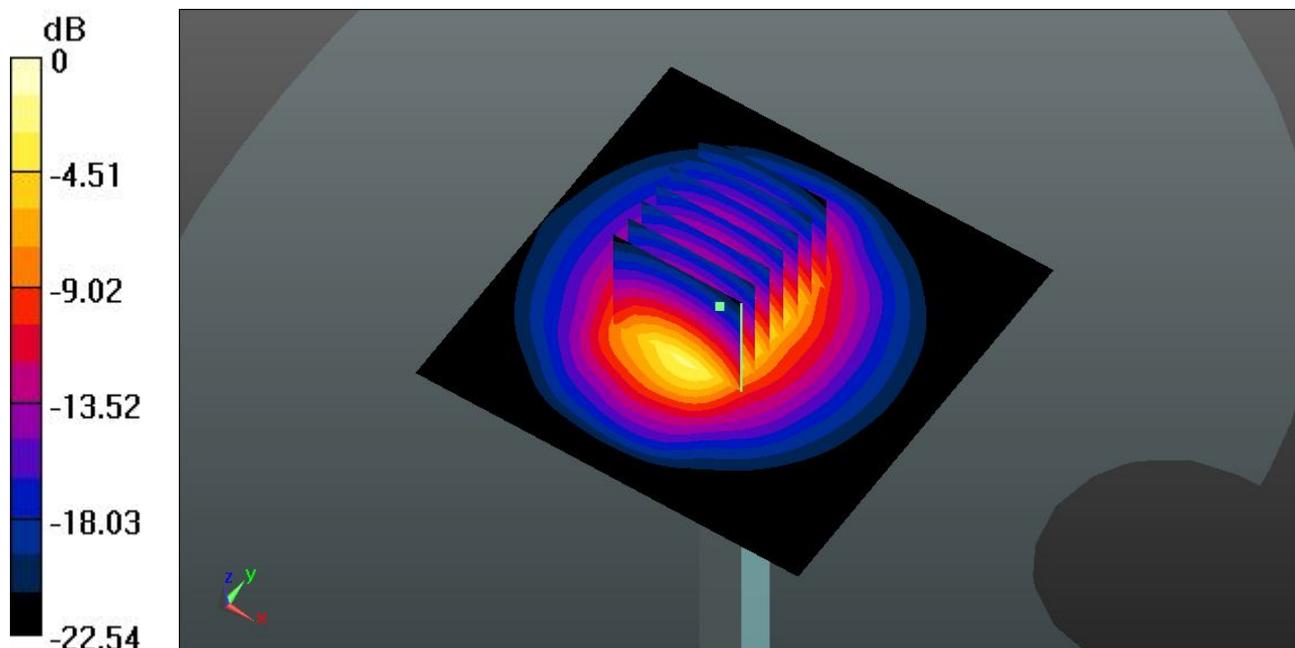
**Pin=250mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 81.047 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 27.3890

**SAR(1 g) = 12.4 mW/g; SAR(10 g) = 5.57 mW/g**

Maximum value of SAR (measured) = 14.1 mW/g



0 dB = 14.1 mW/g = 22.98 dB mW/g



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

The plots are shown as follows.

## 01 GSM850\_GPRS 10\_Right Cheek\_Ch189

**DUT: 250202**

Communication System: GPRS/EDGE10; Frequency: 836.4 MHz; Duty Cycle: 1:4

Medium: HSL\_835\_120515 Medium parameters used:  $f = 836.5$  MHz;  $\sigma = 0.917$  mho/m;  $\epsilon_r = 41.014$ ;

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

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(6.04, 6.04, 6.04); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch189/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.069 mW/g

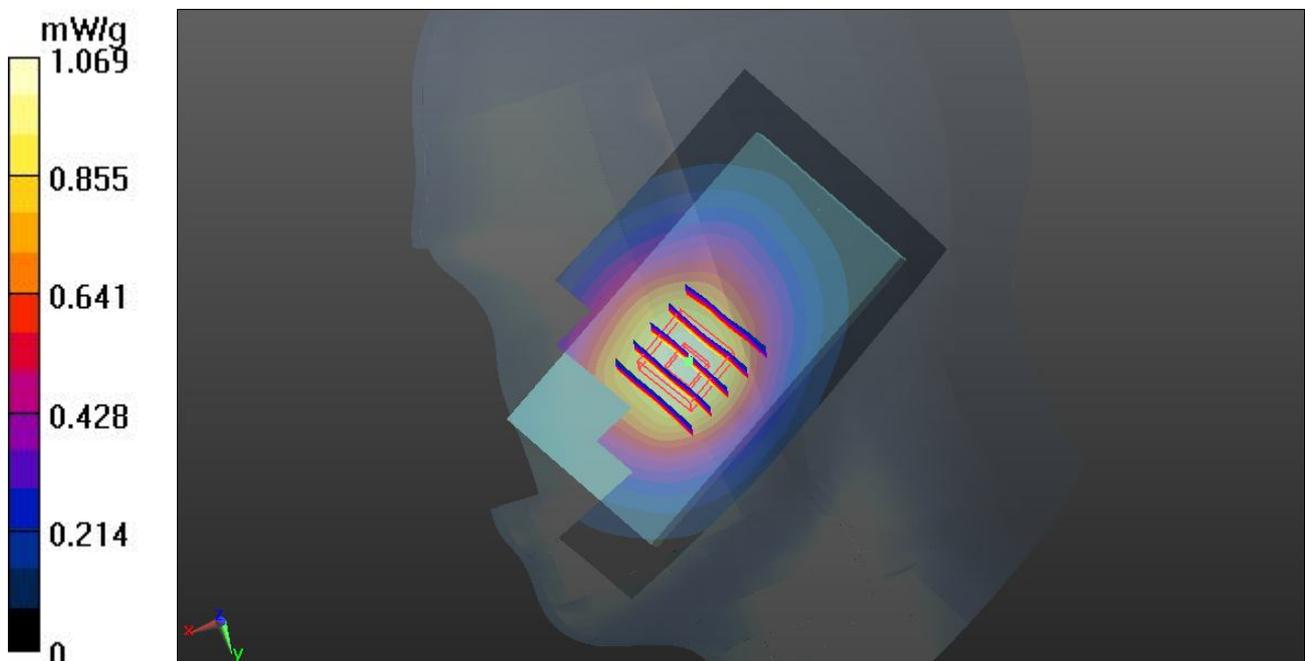
**Ch189/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.104 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 1.2790

**SAR(1 g) = 1.03 mW/g; SAR(10 g) = 0.771 mW/g**

Maximum value of SAR (measured) = 1.084 mW/g



## 02 GSM850\_GPRS 10\_Right Tilted\_Ch189

**DUT: 250202**

Communication System: GPRS/EDGE10; Frequency: 836.4 MHz; Duty Cycle: 1:4

Medium: HSL\_835\_120515 Medium parameters used:  $f = 836.5$  MHz;  $\sigma = 0.917$  mho/m;  $\epsilon_r = 41.014$ ;

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

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(6.04, 6.04, 6.04); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch189/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.635 mW/g

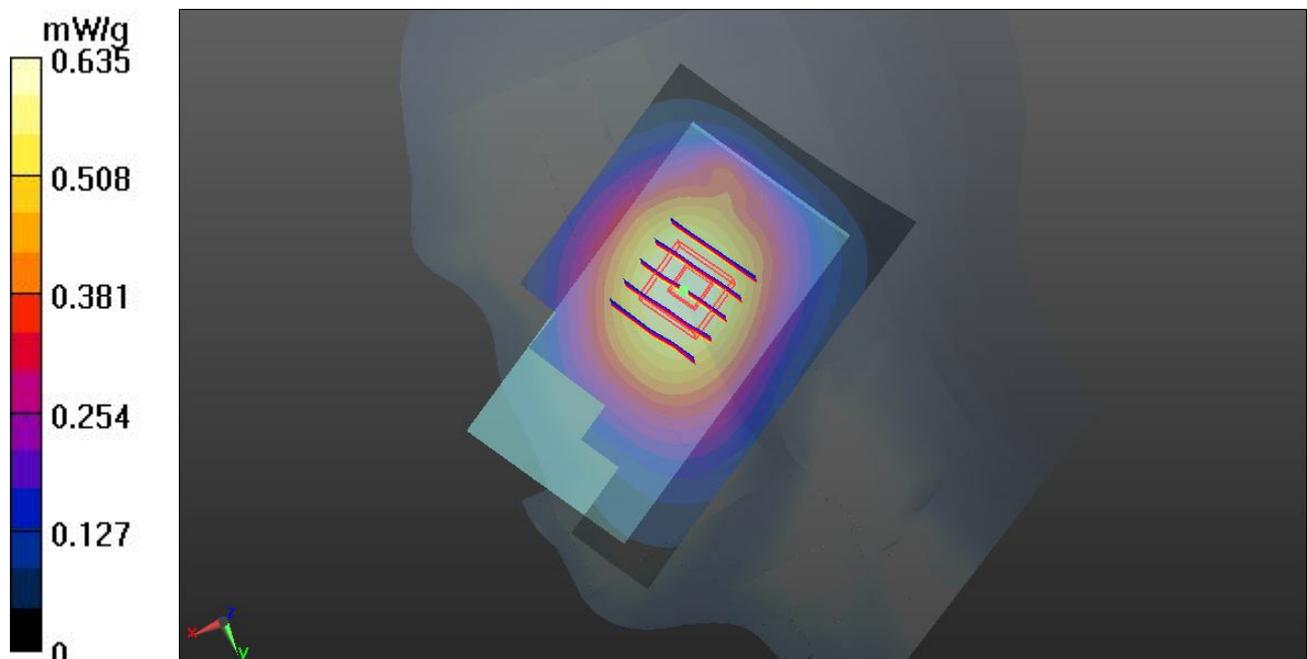
**Ch189/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 17.067 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.9110

**SAR(1 g) = 0.618 mW/g; SAR(10 g) = 0.468 mW/g**

Maximum value of SAR (measured) = 0.646 mW/g



### 03 GSM850\_GPRS 10\_Left Cheek\_Ch189

**DUT: 250202**

Communication System: GPRS/EDGE10; Frequency: 836.4 MHz; Duty Cycle: 1:4

Medium: HSL\_835\_120515 Medium parameters used:  $f = 836.5$  MHz;  $\sigma = 0.917$  mho/m;  $\epsilon_r = 41.014$ ;

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

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(6.04, 6.04, 6.04); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch189/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.043 mW/g

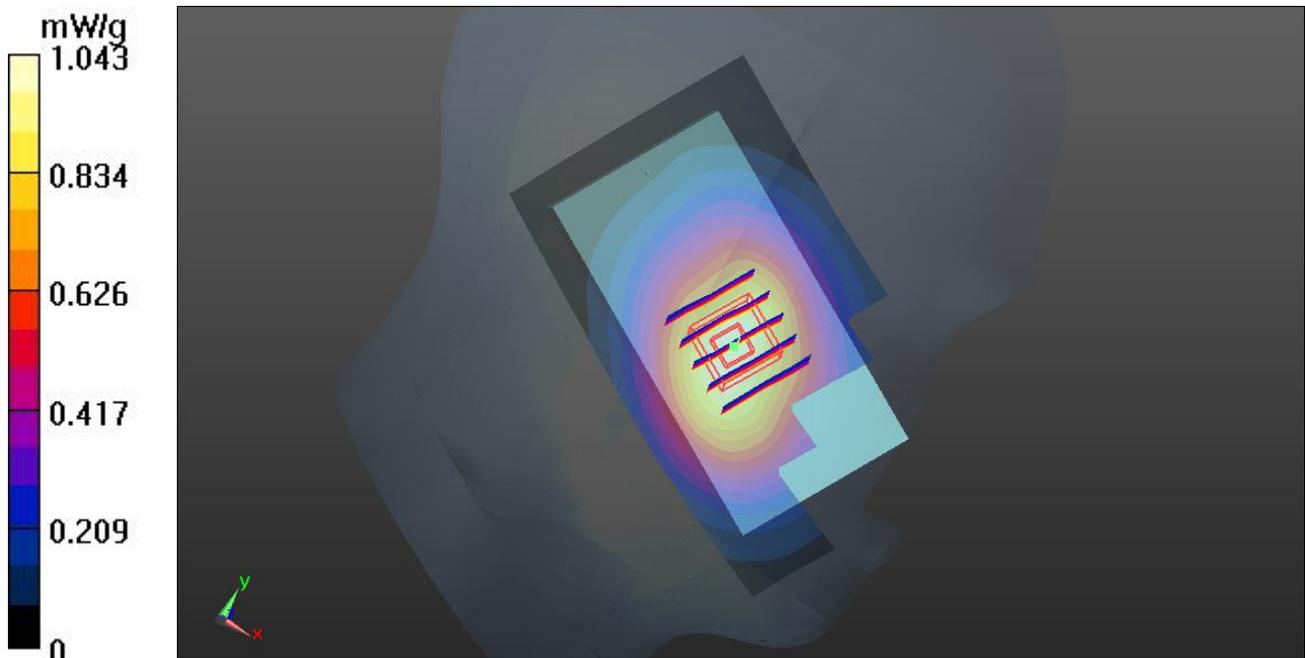
**Ch189/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.176 V/m; Power Drift = -0.16 dB

Peak SAR (extrapolated) = 1.3040

**SAR(1 g) = 0.984 mW/g; SAR(10 g) = 0.721 mW/g**

Maximum value of SAR (measured) = 1.043 mW/g



## 04 GSM850\_GPRS 10\_Left Tilted\_Ch189

**DUT: 250202**

Communication System: GPRS/EDGE10; Frequency: 836.4 MHz; Duty Cycle: 1:4

Medium: HSL\_835\_120515 Medium parameters used:  $f = 836.5$  MHz;  $\sigma = 0.917$  mho/m;  $\epsilon_r = 41.014$ ;

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

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(6.04, 6.04, 6.04); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch189/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.601 mW/g

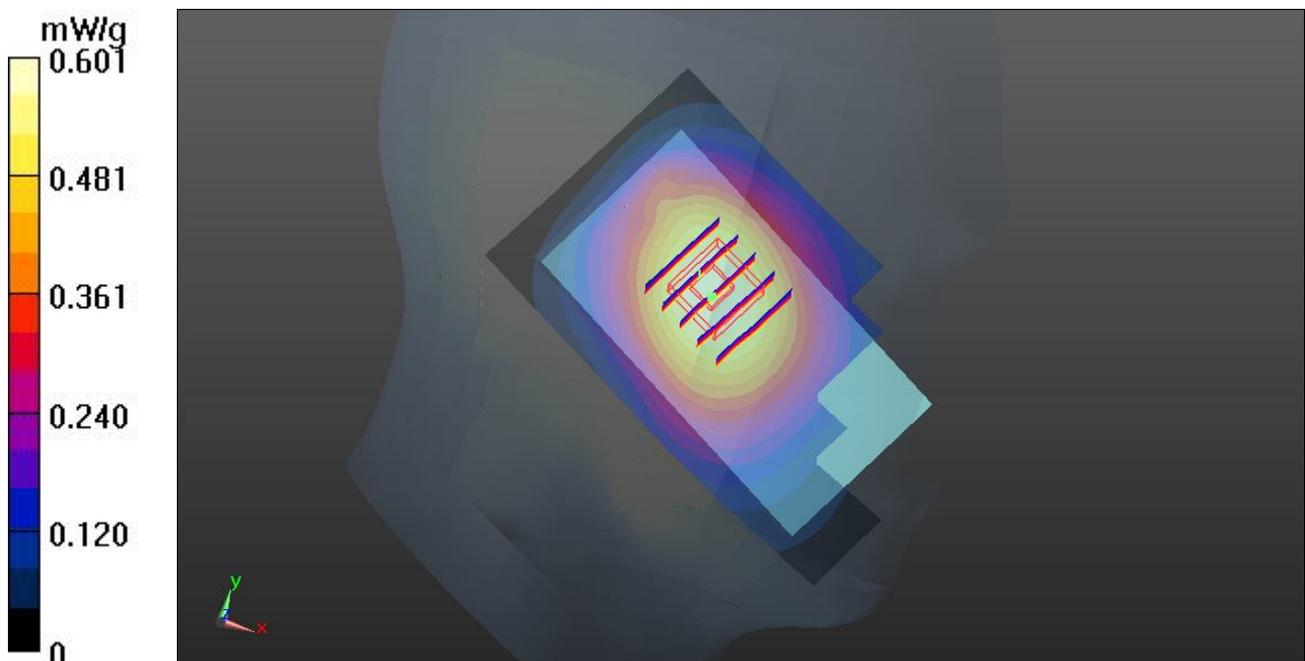
**Ch189/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 16.218 V/m; Power Drift = 0.0064 dB

Peak SAR (extrapolated) = 0.7350

**SAR(1 g) = 0.583 mW/g; SAR(10 g) = 0.442 mW/g**

Maximum value of SAR (measured) = 0.603 mW/g



## 05 GSM850\_GPRS 10\_Right Cheek\_Ch128

**DUT: 250202**

Communication System: GPRS/EDGE10; Frequency: 824.2 MHz; Duty Cycle: 1:4  
Medium: HSL\_835\_120515 Medium parameters used:  $f = 824.2$  MHz;  $\sigma = 0.906$  mho/m;  $\epsilon_r = 41.145$ ;  
 $\rho = 1000$  kg/m<sup>3</sup>  
Ambient Temperature : 23.5 °C; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(6.04, 6.04, 6.04); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch128/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.872 mW/g

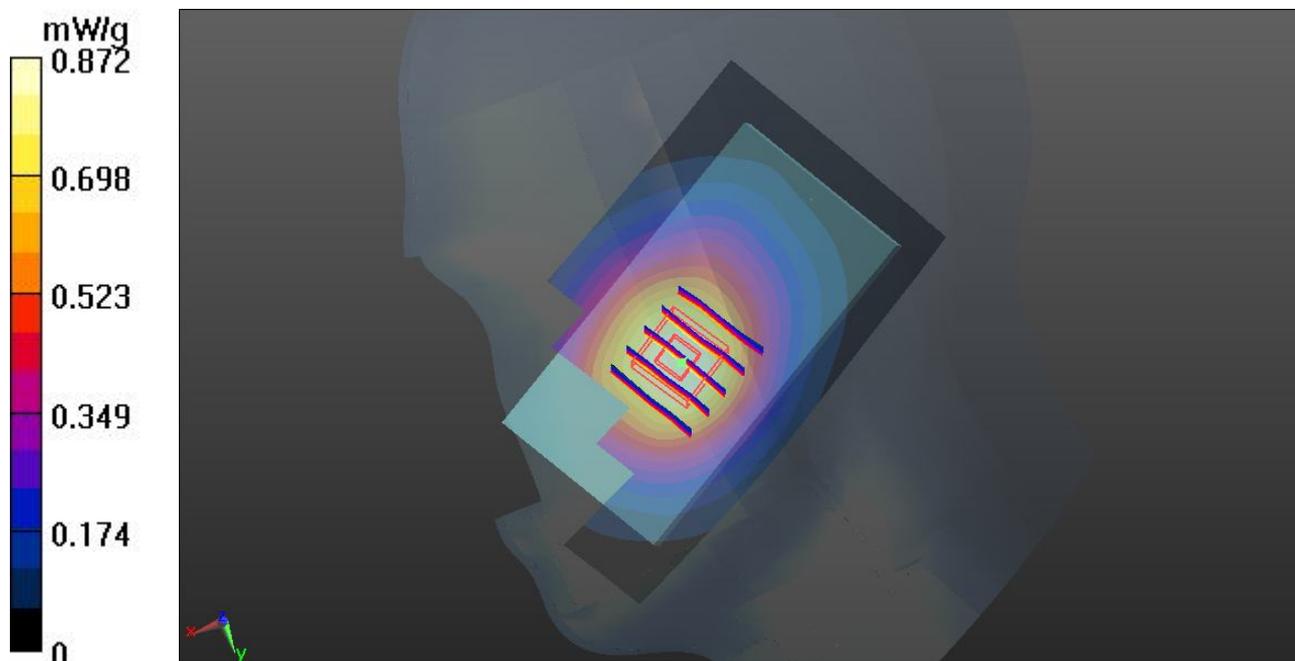
**Ch128/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 8.432 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 1.0200

**SAR(1 g) = 0.826 mW/g; SAR(10 g) = 0.621 mW/g**

Maximum value of SAR (measured) = 0.867 mW/g



## 06 GSM850\_GPRS 10\_Right Cheek\_Ch251

**DUT: 250202**

Communication System: GPRS/EDGE10; Frequency: 848.8 MHz; Duty Cycle: 1:4

Medium: HSL\_835\_120515 Medium parameters used:  $f = 849$  MHz;  $\sigma = 0.928$  mho/m;  $\epsilon_r = 40.874$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(6.04, 6.04, 6.04); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch251/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.233 mW/g

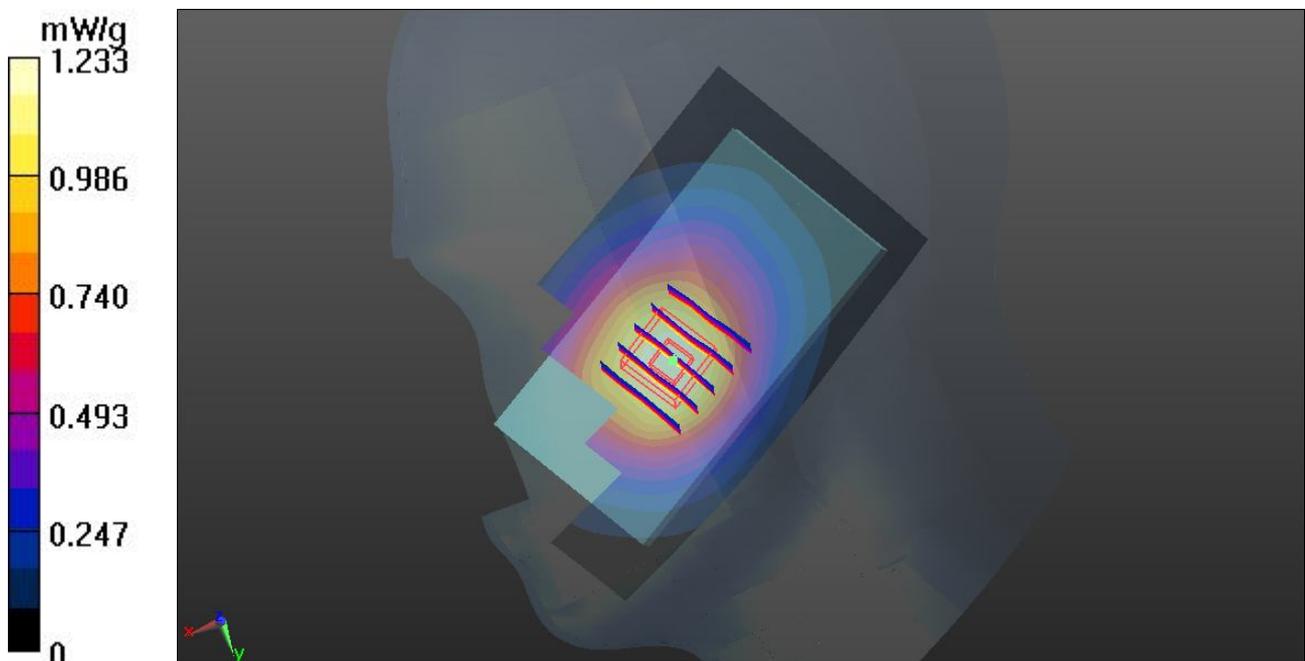
**Ch251/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.615 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 1.4350

**SAR(1 g) = 1.17 mW/g; SAR(10 g) = 0.882 mW/g**

Maximum value of SAR (measured) = 1.250 mW/g



## 06 GSM850\_GPRS 10\_Right Cheek\_Ch251\_2D

**DUT: 250202**

Communication System: GPRS/EDGE10; Frequency: 848.8 MHz; Duty Cycle: 1:4

Medium: HSL\_835\_120515 Medium parameters used:  $f = 849$  MHz;  $\sigma = 0.928$  mho/m;  $\epsilon_r = 40.874$ ;

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

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(6.04, 6.04, 6.04); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch251/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.233 mW/g

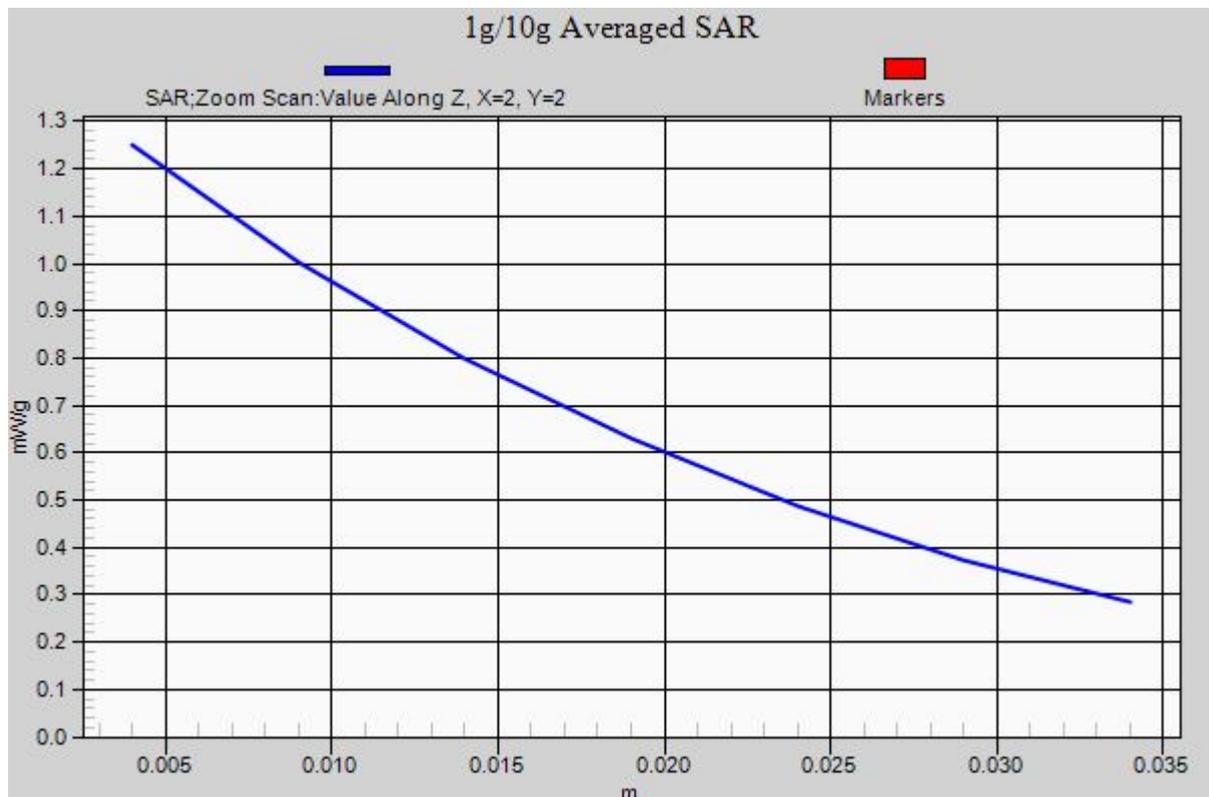
**Ch251/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.615 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 1.4350

**SAR(1 g) = 1.17 mW/g; SAR(10 g) = 0.882 mW/g**

Maximum value of SAR (measured) = 1.250 mW/g



## 07 GSM850\_GPRS 10\_Left Cheek\_Ch128

**DUT: 250202**

Communication System: GPRS/EDGE10; Frequency: 824.2 MHz; Duty Cycle: 1:4

Medium: HSL\_835\_120515 Medium parameters used:  $f = 824.2$  MHz;  $\sigma = 0.906$  mho/m;  $\epsilon_r = 41.145$ ;

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

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(6.04, 6.04, 6.04); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch128/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.837 mW/g

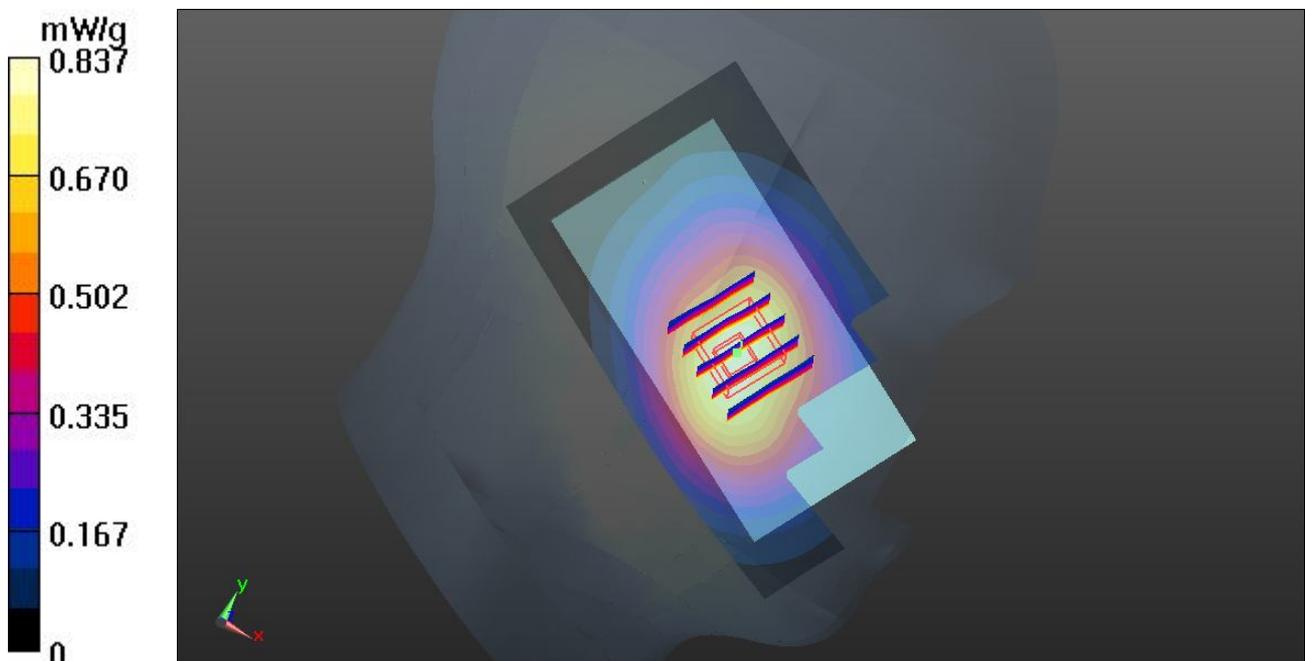
**Ch128/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 8.115 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 1.0450

**SAR(1 g) = 0.792 mW/g; SAR(10 g) = 0.583 mW/g**

Maximum value of SAR (measured) = 0.836 mW/g



## 08 GSM850\_GPRS 10\_Left Cheek\_Ch251

**DUT: 250202**

Communication System: GPRS/EDGE10; Frequency: 848.8 MHz; Duty Cycle: 1:4

Medium: HSL\_835\_120515 Medium parameters used:  $f = 849$  MHz;  $\sigma = 0.928$  mho/m;  $\epsilon_r = 40.874$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.5 °C; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(6.04, 6.04, 6.04); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch251/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.204 mW/g

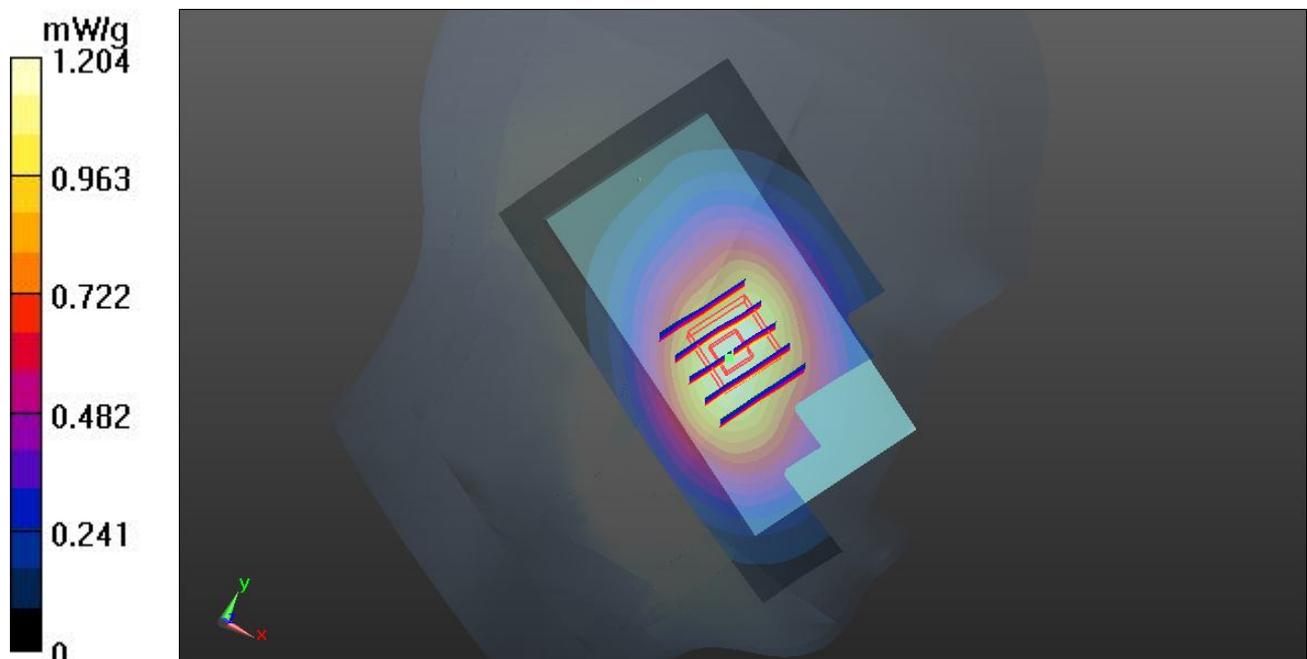
**Ch251/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.312 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 1.5120

**SAR(1 g) = 1.14 mW/g; SAR(10 g) = 0.833 mW/g**

Maximum value of SAR (measured) = 1.197 mW/g



### 53 GSM1900\_GPRS10\_Right Cheek\_Ch810

**DUT: 250202**

Communication System: GPRS/EDGE10; Frequency: 1909.8 MHz; Duty Cycle: 1:4

Medium: HSL\_1900\_120516 Medium parameters used:  $f = 1910$  MHz;  $\sigma = 1.45$  mho/m;  $\epsilon_r = 39.873$ ;

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

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(5.14, 5.14, 5.14); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch810/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.740 mW/g

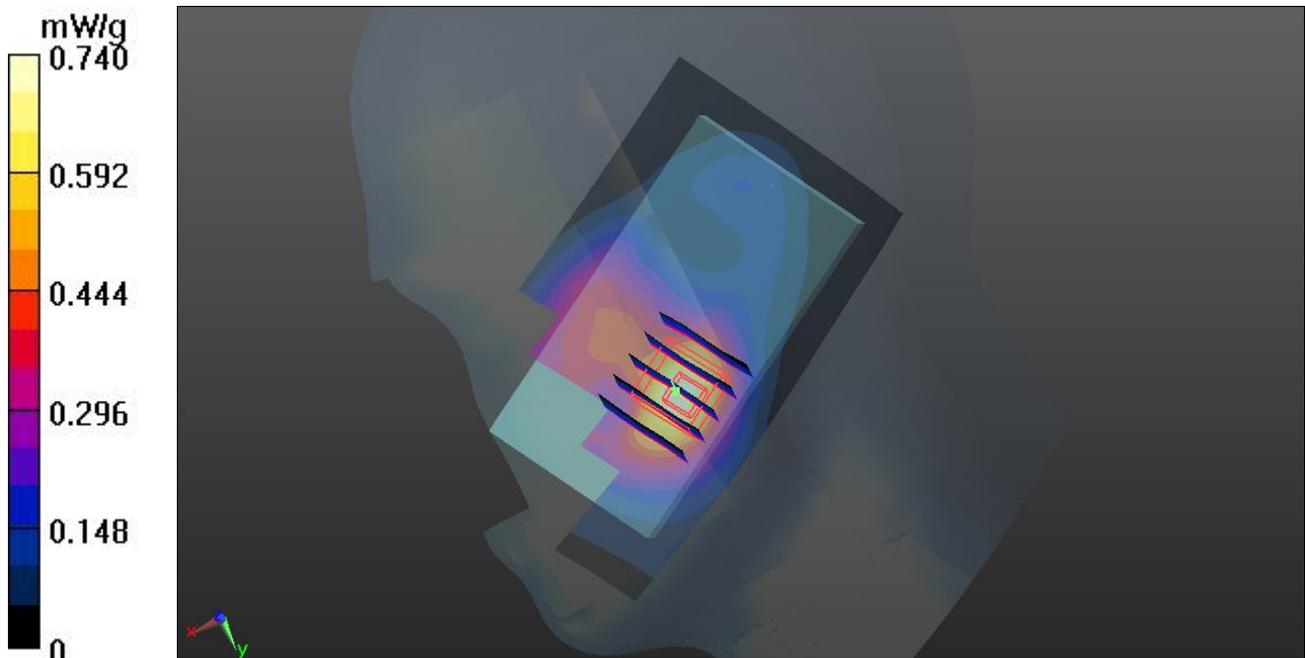
**Ch810/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 10.298 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 1.0300

**SAR(1 g) = 0.670 mW/g; SAR(10 g) = 0.400 mW/g**

Maximum value of SAR (measured) = 0.719 mW/g



## 54 GSM1900\_GPRS10\_Right Tilted\_Ch810

**DUT: 250202**

Communication System: GPRS/EDGE10; Frequency: 1909.8 MHz; Duty Cycle: 1:4

Medium: HSL\_1900\_120516 Medium parameters used:  $f = 1910$  MHz;  $\sigma = 1.45$  mho/m;  $\epsilon_r = 39.873$ ;

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

Ambient Temperature : 23.5 °C; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(5.14, 5.14, 5.14); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch810/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.260 mW/g

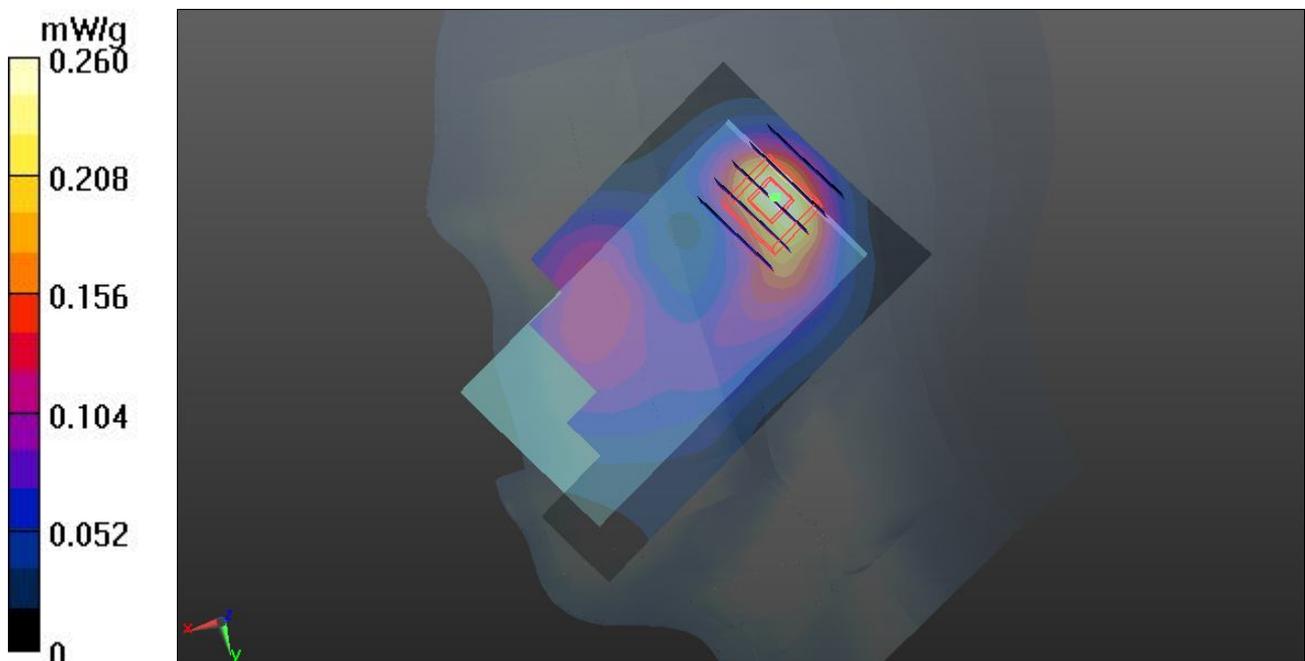
**Ch810/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 13.243 V/m; Power Drift = 0.0048 dB

Peak SAR (extrapolated) = 0.3740

**SAR(1 g) = 0.228 mW/g; SAR(10 g) = 0.130 mW/g**

Maximum value of SAR (measured) = 0.255 mW/g



## 55 GSM1900\_GPRS10\_Left Cheek\_Ch810

**DUT: 250202**

Communication System: GPRS/EDGE10; Frequency: 1909.8 MHz; Duty Cycle: 1:4

Medium: HSL\_1900\_120516 Medium parameters used:  $f = 1910$  MHz;  $\sigma = 1.45$  mho/m;  $\epsilon_r = 39.873$ ;

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

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(5.14, 5.14, 5.14); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch810/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.837 mW/g

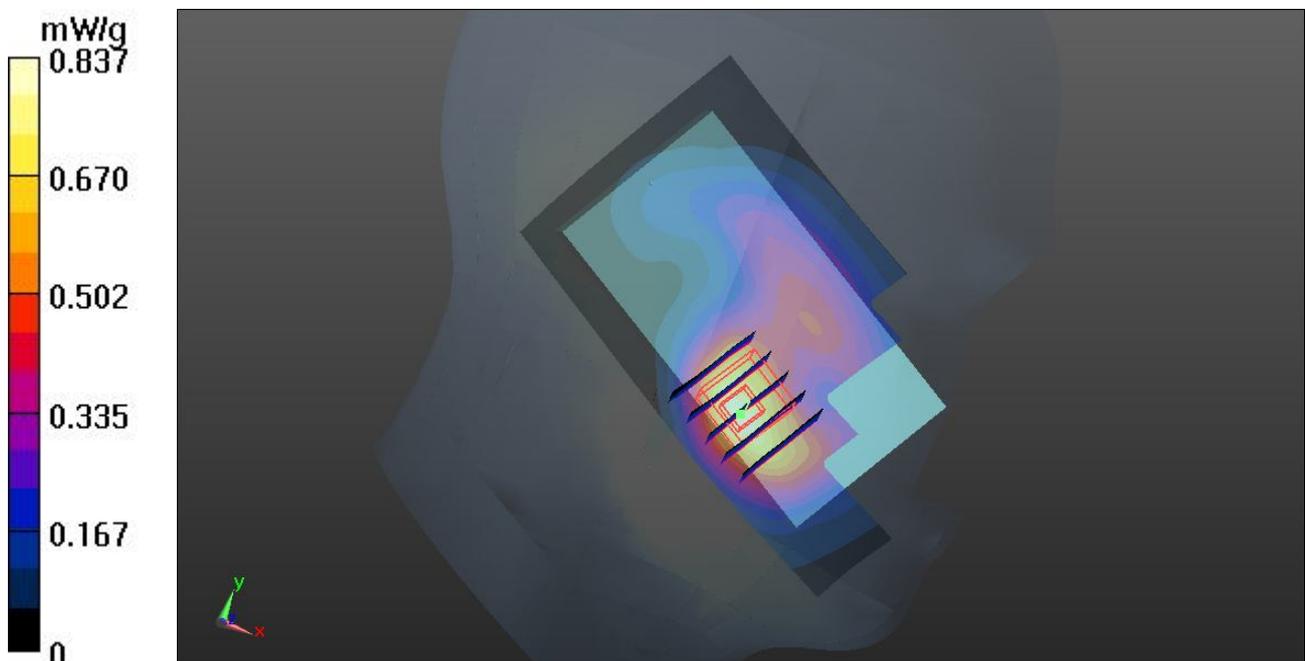
**Ch810/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.778 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 1.2040

**SAR(1 g) = 0.757 mW/g; SAR(10 g) = 0.447 mW/g**

Maximum value of SAR (measured) = 0.829 mW/g



### 55 GSM1900\_GPRS10\_Left Cheek\_Ch810\_2D

**DUT: 250202**

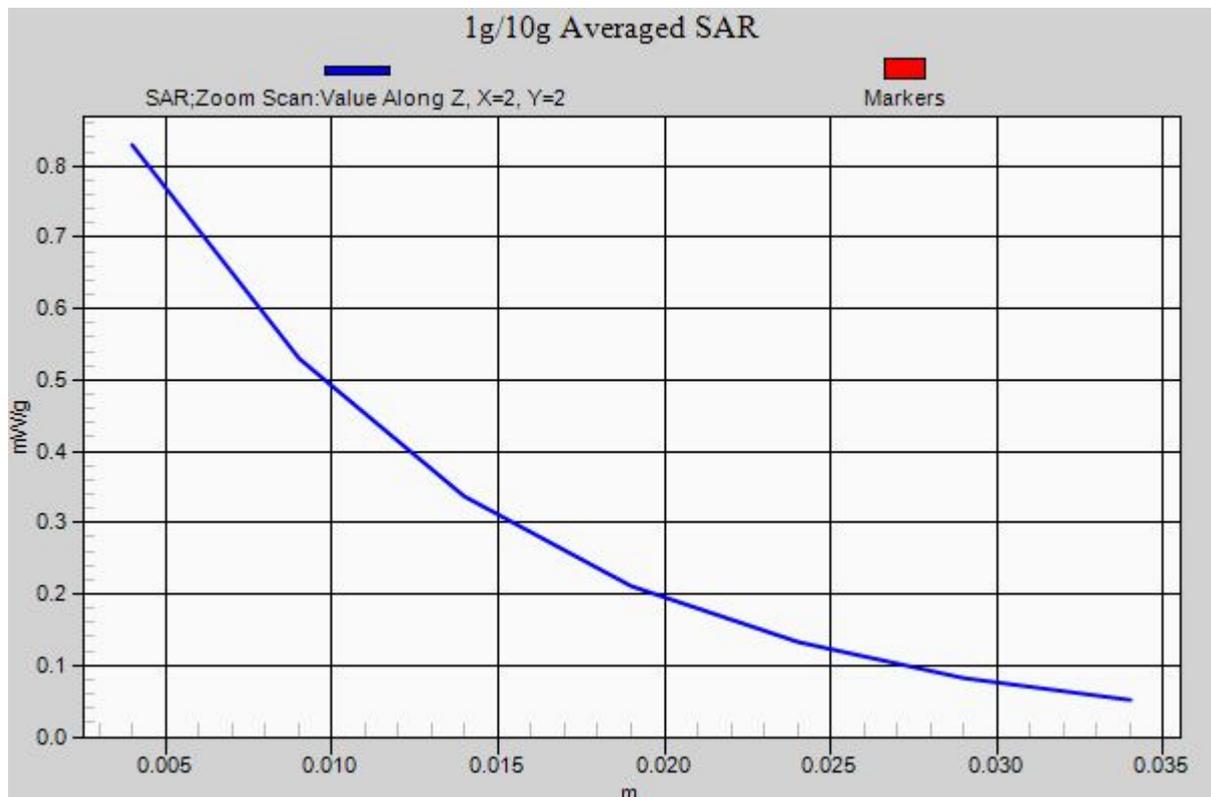
Communication System: GPRS/EDGE10; Frequency: 1909.8 MHz; Duty Cycle: 1:4  
 Medium: HSL\_1900\_120516 Medium parameters used:  $f = 1910$  MHz;  $\sigma = 1.45$  mho/m;  $\epsilon_r = 39.873$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
 Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(5.14, 5.14, 5.14); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch810/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
 Maximum value of SAR (interpolated) = 0.837 mW/g

**Ch810/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
 Reference Value = 9.778 V/m; Power Drift = -0.08 dB  
 Peak SAR (extrapolated) = 1.2040  
**SAR(1 g) = 0.757 mW/g; SAR(10 g) = 0.447 mW/g**  
 Maximum value of SAR (measured) = 0.829 mW/g



## 56 GSM1900\_GPRS10\_Left Tilted\_Ch810

**DUT: 250202**

Communication System: GPRS/EDGE10; Frequency: 1909.8 MHz; Duty Cycle: 1:4

Medium: HSL\_1900\_120516 Medium parameters used:  $f = 1910$  MHz;  $\sigma = 1.45$  mho/m;  $\epsilon_r = 39.873$ ;

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

Ambient Temperature : 23.5 °C; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(5.14, 5.14, 5.14); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch810/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.272 mW/g

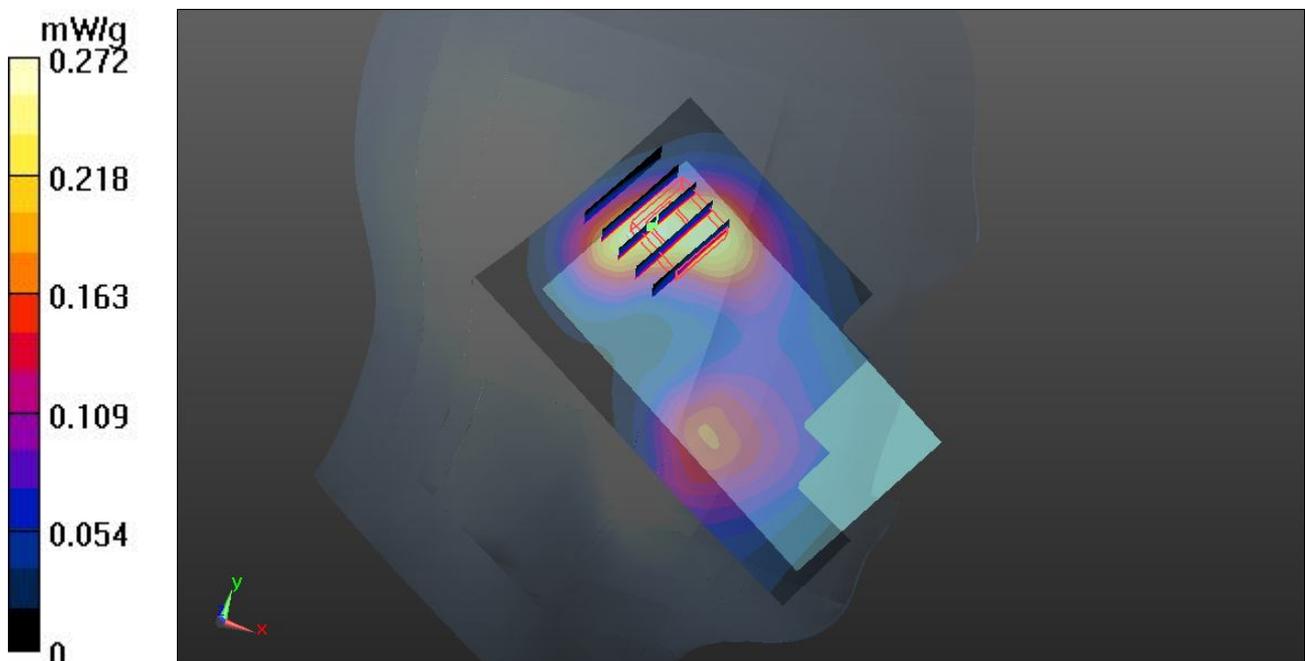
**Ch810/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 13.011 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.3680

**SAR(1 g) = 0.229 mW/g; SAR(10 g) = 0.143 mW/g**

Maximum value of SAR (measured) = 0.245 mW/g



## 49 WCDMA V\_RMC 12.2K\_Right Cheek\_Ch4182

**DUT: 250202**

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

Medium: HSL\_835\_120516 Medium parameters used:  $f = 836.4$  MHz;  $\sigma = 0.917$  mho/m;  $\epsilon_r = 41.975$ ;

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

Ambient Temperature : 23.7 °C ; Liquid Temperature : 21.7 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(6.04, 6.04, 6.04); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch4182/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.655 mW/g

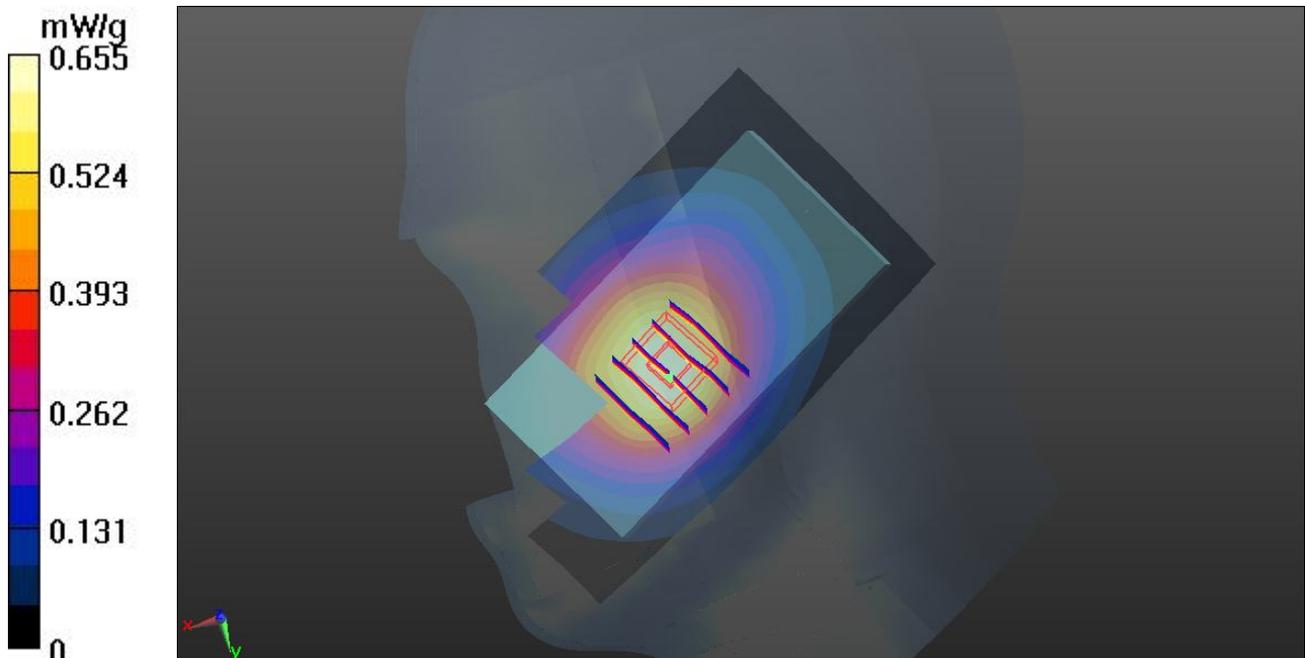
**Ch4182/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 6.622 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.7720

**SAR(1 g) = 0.627 mW/g; SAR(10 g) = 0.472 mW/g**

Maximum value of SAR (measured) = 0.647 mW/g



### 49 WCDMA V\_RMC 12.2K\_Right Cheek\_Ch4182\_2D

**DUT: 250202**

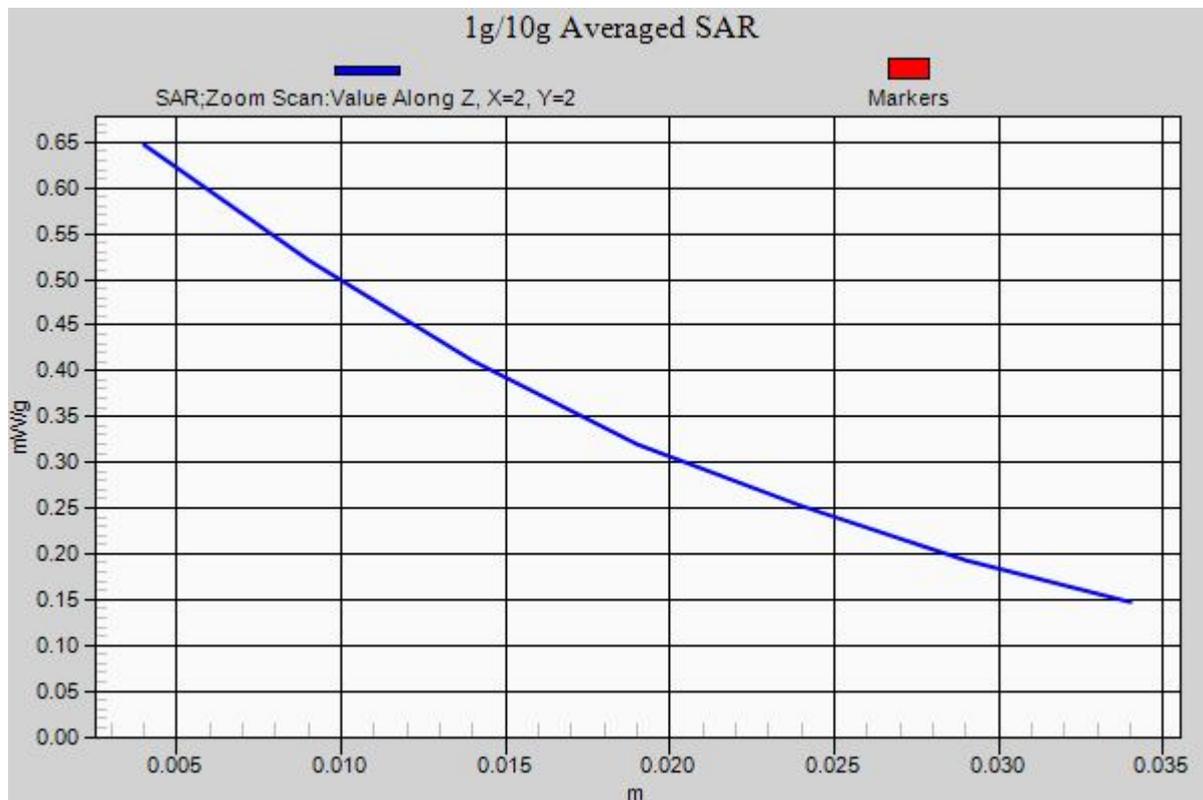
Communication System: UMTS; Frequency: 836.4 MHz; Duty Cycle: 1:1  
Medium: HSL\_835\_120516 Medium parameters used:  $f = 836.4$  MHz;  $\sigma = 0.917$  mho/m;  $\epsilon_r = 41.975$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Ambient Temperature : 23.7 °C ; Liquid Temperature : 21.7 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(6.04, 6.04, 6.04); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch4182/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.655 mW/g

**Ch4182/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 6.622 V/m; Power Drift = 0.02 dB  
Peak SAR (extrapolated) = 0.7720  
**SAR(1 g) = 0.627 mW/g; SAR(10 g) = 0.472 mW/g**  
Maximum value of SAR (measured) = 0.647 mW/g



## 50 WCDMA V\_RMC 12.2K\_Right Tilted\_Ch4182

**DUT: 250202**

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

Medium: HSL\_835\_120516 Medium parameters used:  $f = 836.4$  MHz;  $\sigma = 0.917$  mho/m;  $\epsilon_r = 41.975$ ;

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

Ambient Temperature : 23.7 °C; Liquid Temperature : 21.7 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(6.04, 6.04, 6.04); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch4182/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.375 mW/g

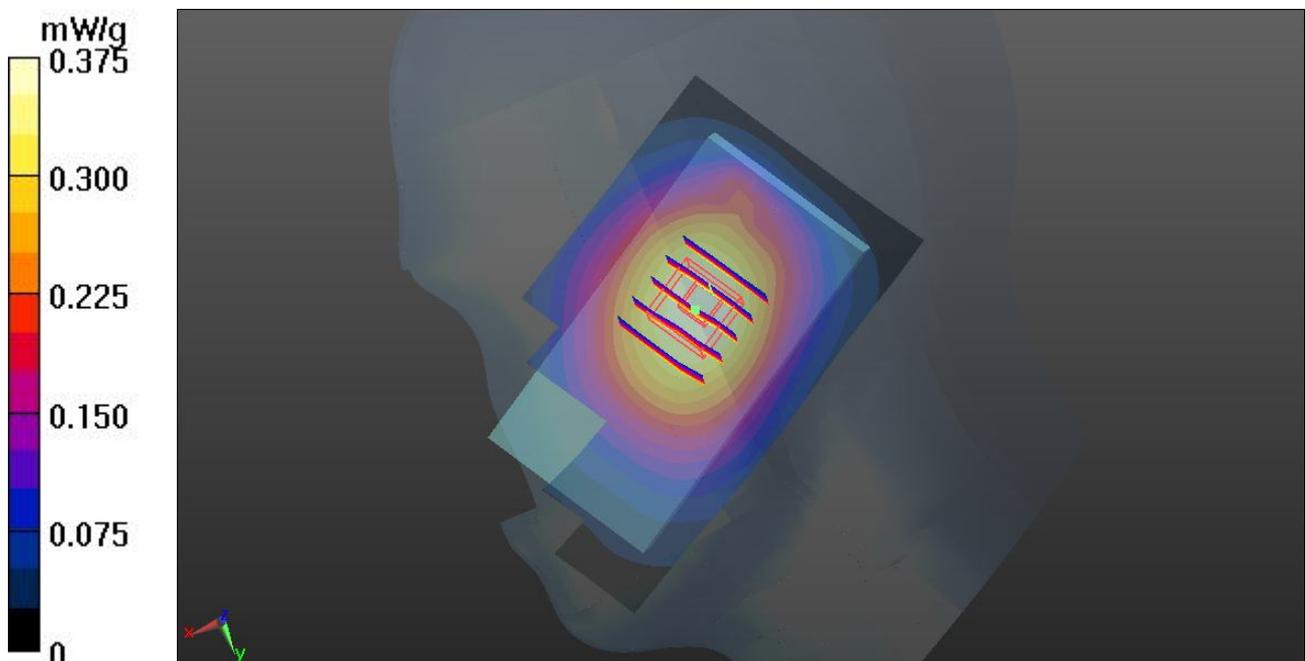
**Ch4182/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 12.828 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.4630

**SAR(1 g) = 0.363 mW/g; SAR(10 g) = 0.276 mW/g**

Maximum value of SAR (measured) = 0.378 mW/g



## 51 WCDMA V\_RMC 12.2K\_Left Cheek\_Ch4182

**DUT: 250202**

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

Medium: HSL\_835\_120516 Medium parameters used:  $f = 836.4$  MHz;  $\sigma = 0.917$  mho/m;  $\epsilon_r = 41.975$ ;

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

Ambient Temperature : 23.7 °C ; Liquid Temperature : 21.7 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(6.04, 6.04, 6.04); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch4182/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.632 mW/g

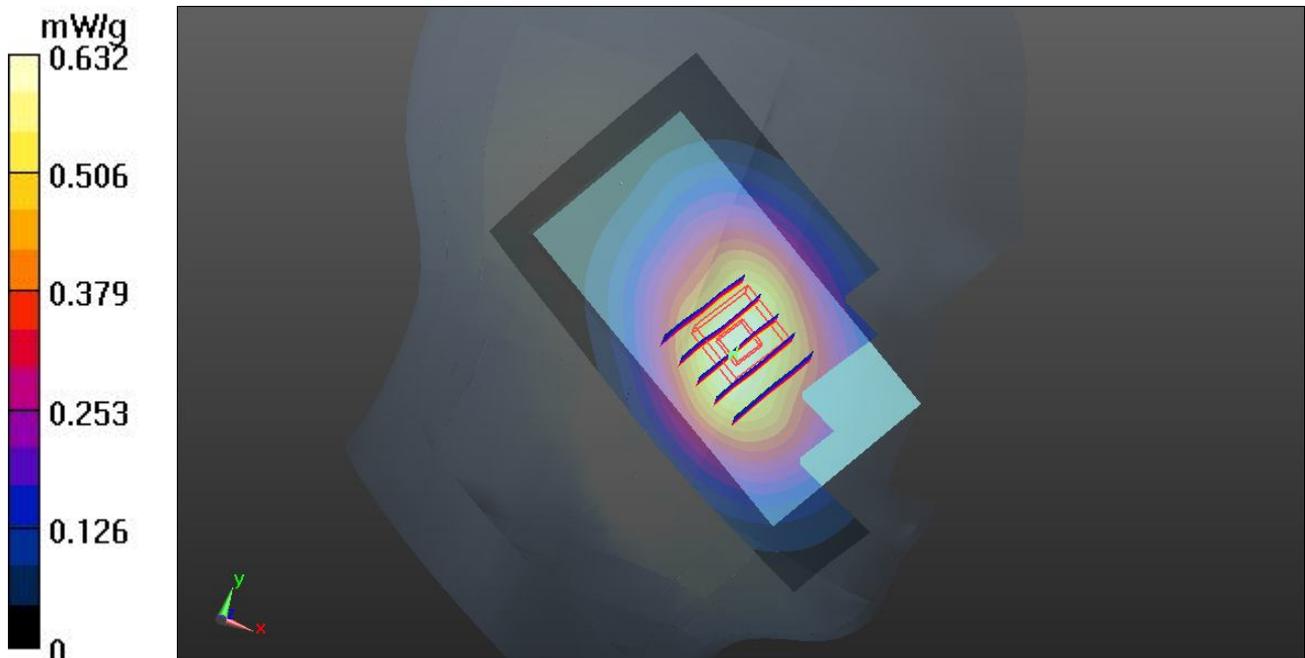
**Ch4182/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 6.480 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 0.7950

**SAR(1 g) = 0.593 mW/g; SAR(10 g) = 0.435 mW/g**

Maximum value of SAR (measured) = 0.626 mW/g



## 52 WCDMA V\_RMC 12.2K\_Left Tilted\_Ch4182

**DUT: 250202**

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

Medium: HSL\_835\_120516 Medium parameters used:  $f = 836.4$  MHz;  $\sigma = 0.917$  mho/m;  $\epsilon_r = 41.975$ ;

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

Ambient Temperature : 23.7 °C ; Liquid Temperature : 21.7 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(6.04, 6.04, 6.04); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch4182/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.353 mW/g

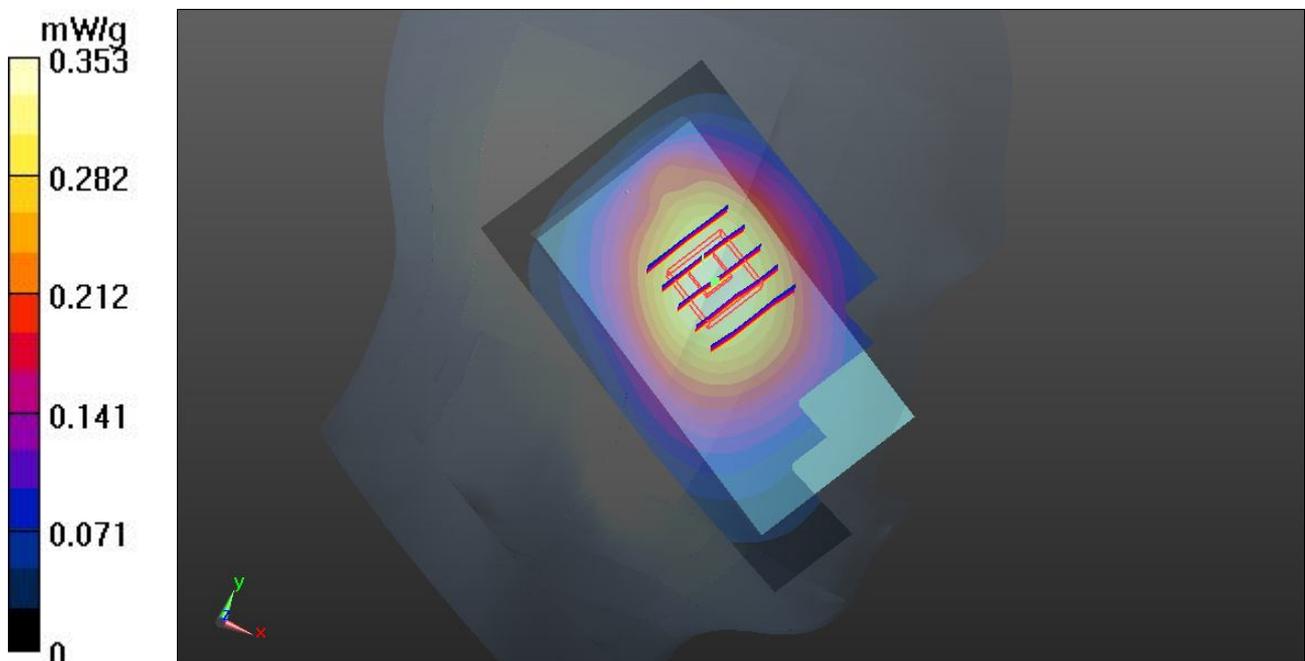
**Ch4182/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 11.983 V/m; Power Drift = -0.0032 dB

Peak SAR (extrapolated) = 0.4310

**SAR(1 g) = 0.342 mW/g; SAR(10 g) = 0.259 mW/g**

Maximum value of SAR (measured) = 0.356 mW/g



### 57 802.11b\_Right Cheek\_Ch11

**DUT: 250202**

Communication System: WIFI; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium: HSL\_2450\_120606 Medium parameters used:  $f = 2462$  MHz;  $\sigma = 1.87$  mho/m;  $\epsilon_r = 37.627$ ;

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

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(4.52, 4.52, 4.52); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch11/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.0533 mW/g

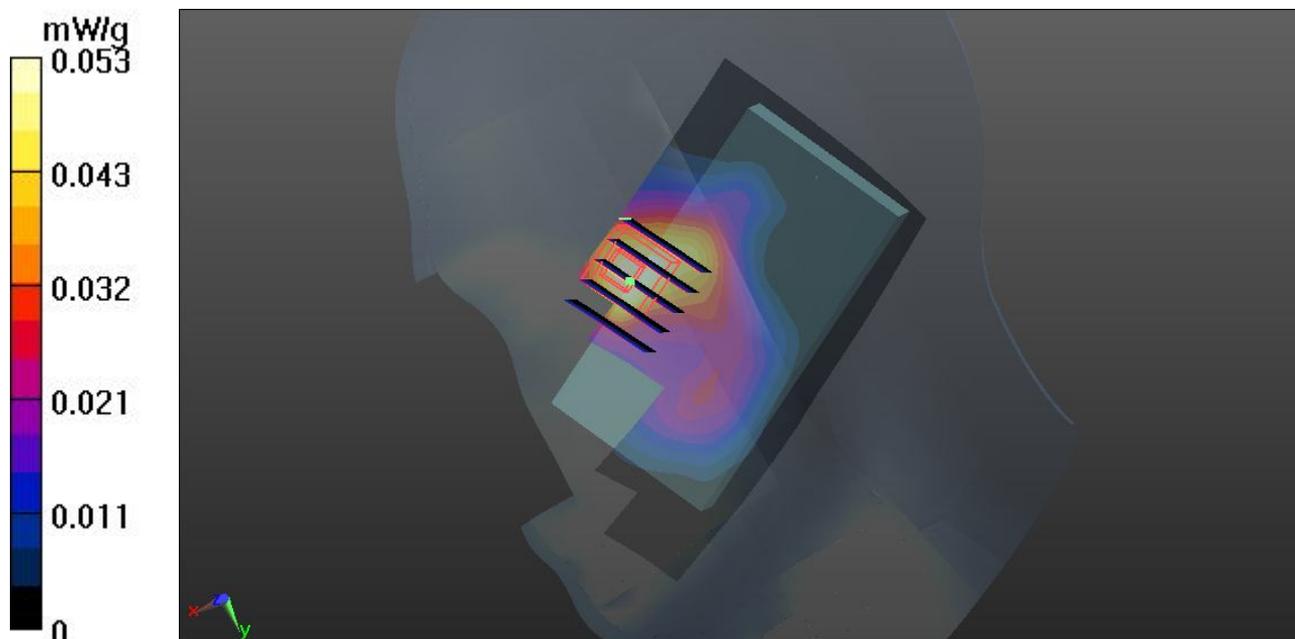
**Ch11/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 1.184 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.1190

**SAR(1 g) = 0.056 mW/g; SAR(10 g) = 0.027 mW/g**

Maximum value of SAR (measured) = 0.0603 mW/g



### 58 802.11b\_Right Tilted\_Ch11

**DUT: 250202**

Communication System: WIFI; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium: HSL\_2450\_120606 Medium parameters used:  $f = 2462$  MHz;  $\sigma = 1.87$  mho/m;  $\epsilon_r = 37.627$ ;

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

Ambient Temperature : 23.5 °C; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(4.52, 4.52, 4.52); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch11/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.0256 mW/g

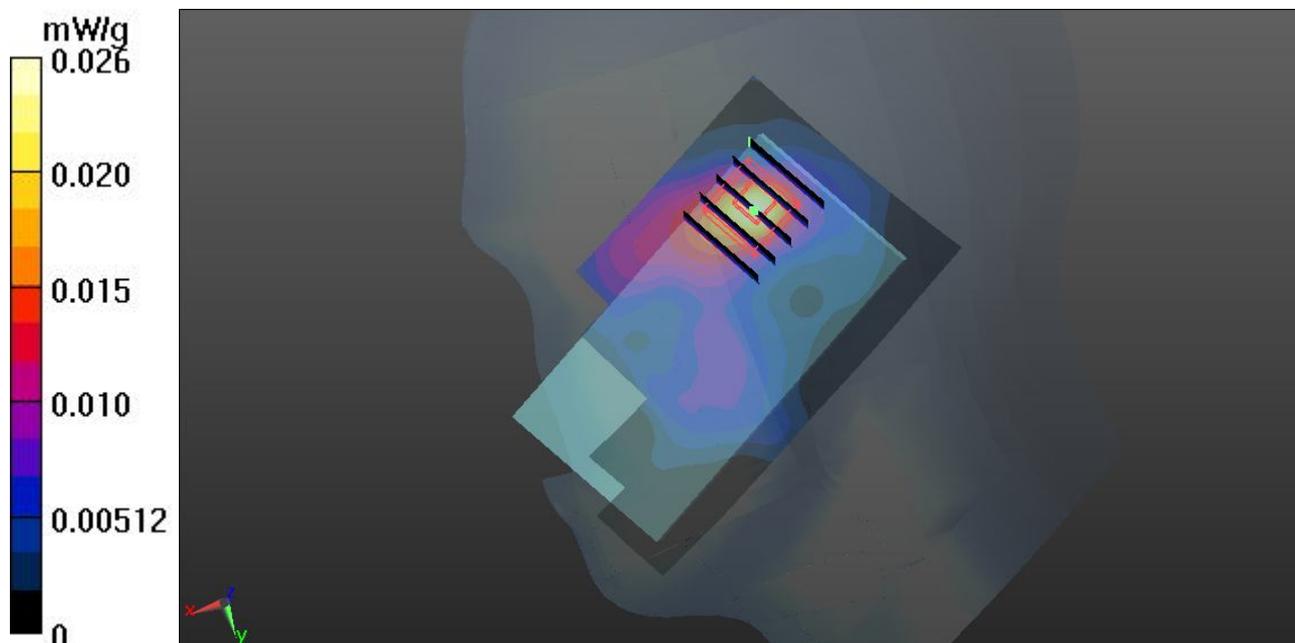
**Ch11/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 2.200 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 0.0410

**SAR(1 g) = 0.022 mW/g; SAR(10 g) = 0.010 mW/g**

Maximum value of SAR (measured) = 0.0243 mW/g



### 59 802.11b\_Left Cheek\_Ch11

**DUT: 250202**

Communication System: WIFI; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium: HSL\_2450\_120606 Medium parameters used:  $f = 2462$  MHz;  $\sigma = 1.87$  mho/m;  $\epsilon_r = 37.627$ ;

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

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(4.52, 4.52, 4.52); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch11/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.109 mW/g

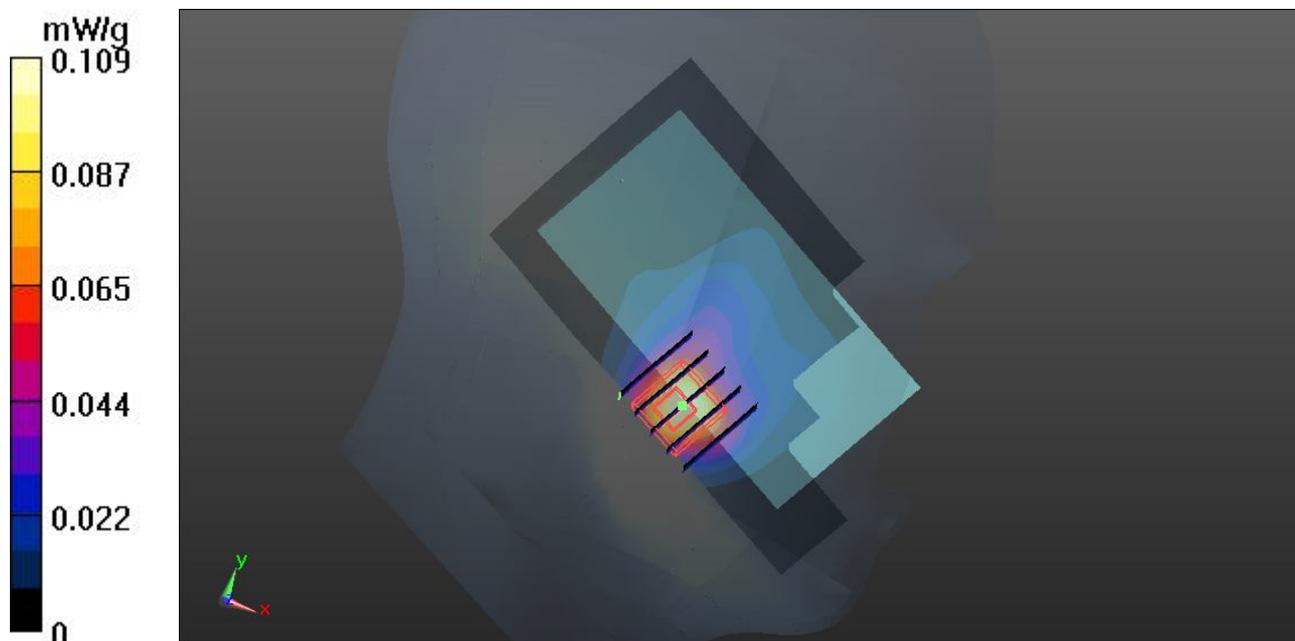
**Ch11/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 1.499 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.2700

**SAR(1 g) = 0.115 mW/g; SAR(10 g) = 0.051 mW/g**

Maximum value of SAR (measured) = 0.123 mW/g



### 59 802.11b\_Left Cheek\_Ch11\_2D

**DUT: 250202**

Communication System: WIFI; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium: HSL\_2450\_120606 Medium parameters used:  $f = 2462$  MHz;  $\sigma = 1.87$  mho/m;  $\epsilon_r =$

$37.627$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(4.52, 4.52, 4.52); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch11/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.109 mW/g

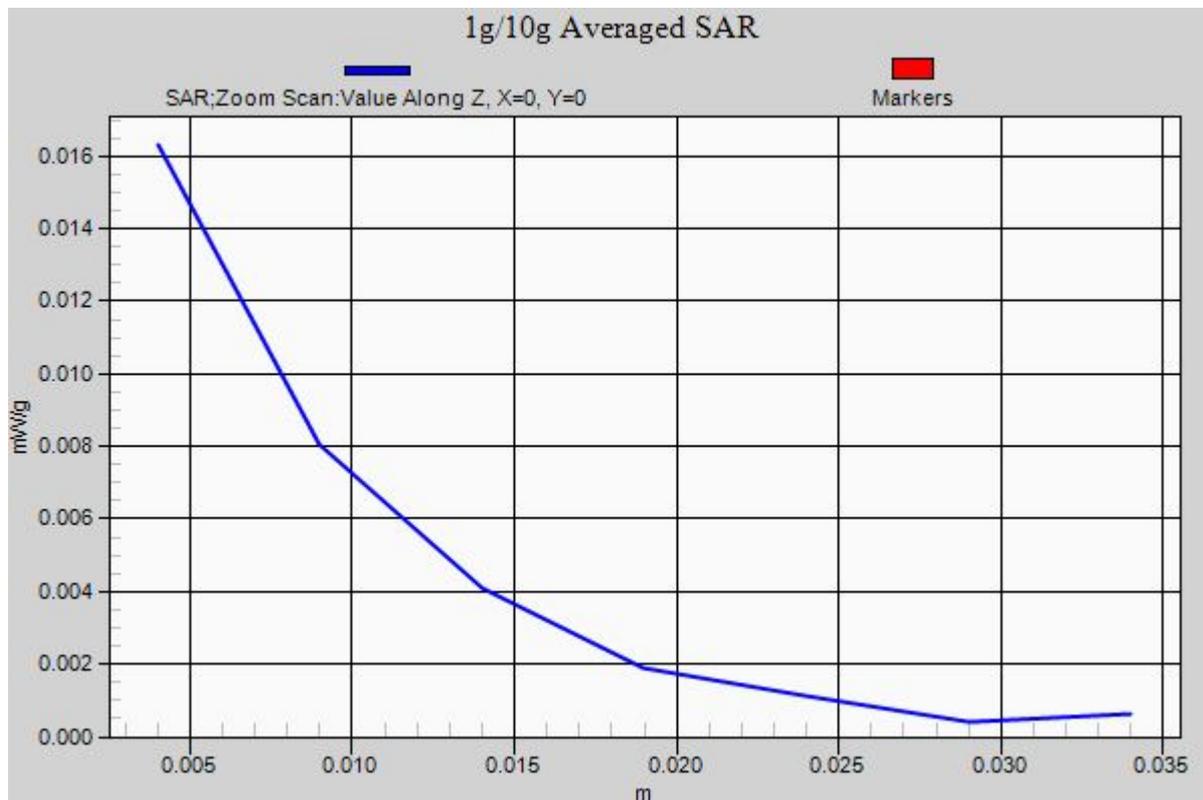
**Ch11/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 1.499 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.270

**SAR(1 g) = 0.115 mW/g; SAR(10 g) = 0.051 mW/g**

Maximum value of SAR (measured) = 0.123 mW/g



### 60 802.11b\_Left Tilted\_Ch11

**DUT: 250202**

Communication System: WIFI; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium: HSL\_2450\_120606 Medium parameters used:  $f = 2462$  MHz;  $\sigma = 1.87$  mho/m;  $\epsilon_r = 37.627$ ;

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

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(4.52, 4.52, 4.52); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch11/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.0144 mW/g

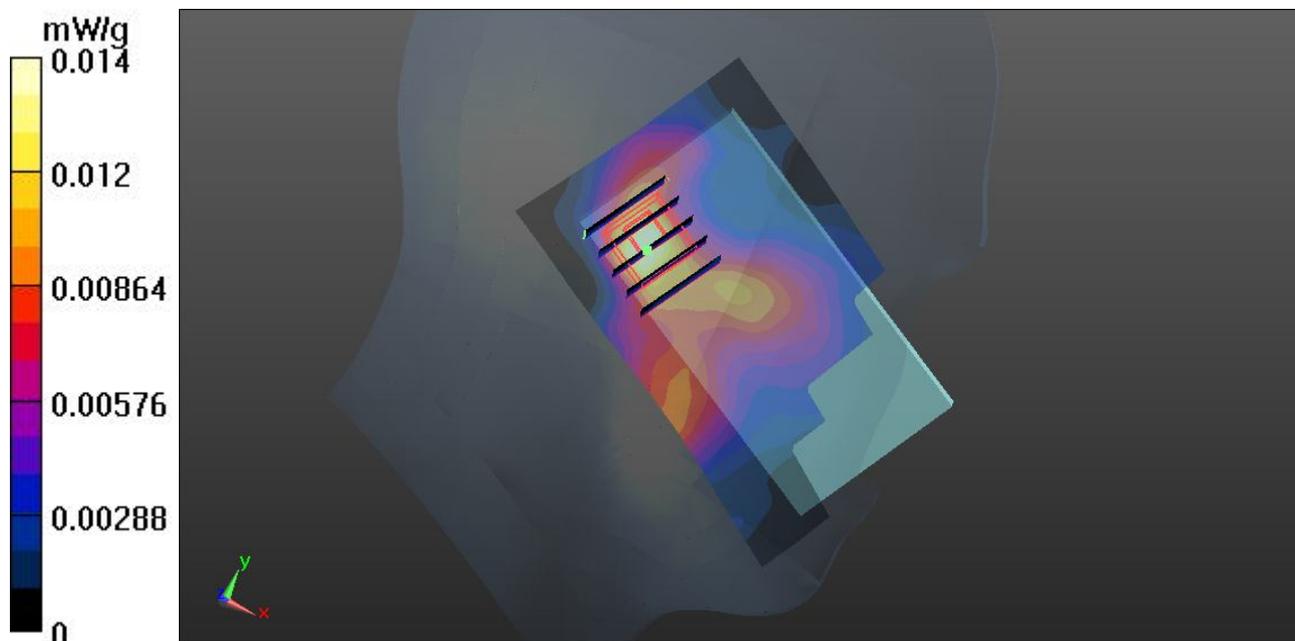
**Ch11/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 2.163 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 0.0210

**SAR(1 g) = 0.012 mW/g; SAR(10 g) = 0.00576 mW/g**

Maximum value of SAR (measured) = 0.0148 mW/g



## 09 GSM850\_GPRS 10\_Front\_1.0cm\_Ch189

**DUT: 250202**

Communication System: GPRS/EDGE10; Frequency: 836.4 MHz; Duty Cycle: 1:4  
 Medium: MSL\_835\_120515 Medium parameters used:  $f = 836.4 \text{ MHz}$ ;  $\sigma = 0.978 \text{ mho/m}$ ;  $\epsilon_r = 54.384$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Ambient Temperature : 23.6 °C; Liquid Temperature : 21.6 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(6.16, 6.16, 6.16); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch189/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.369 mW/g

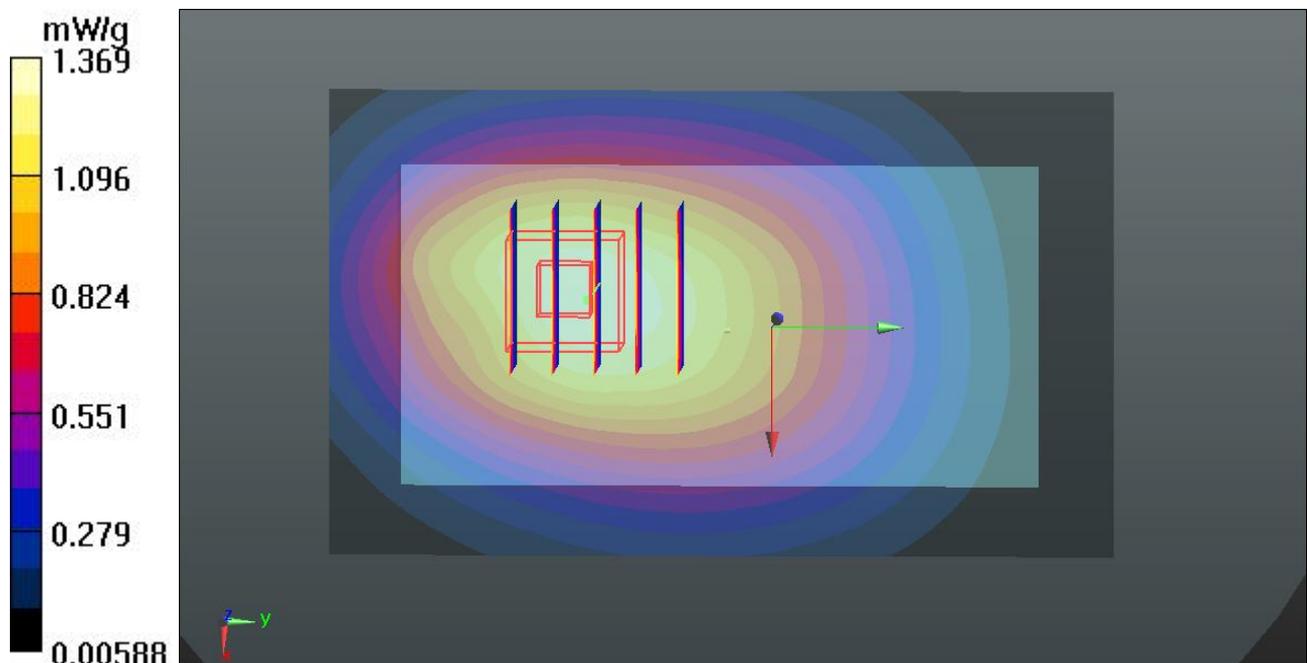
**Ch189/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 34.218 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 1.7790

**SAR(1 g) = 1.29 mW/g; SAR(10 g) = 0.890 mW/g**

Maximum value of SAR (measured) = 1.359 mW/g



## 10 GSM850\_GPRS 10\_Back\_1.0cm\_Ch189

**DUT: 250202**

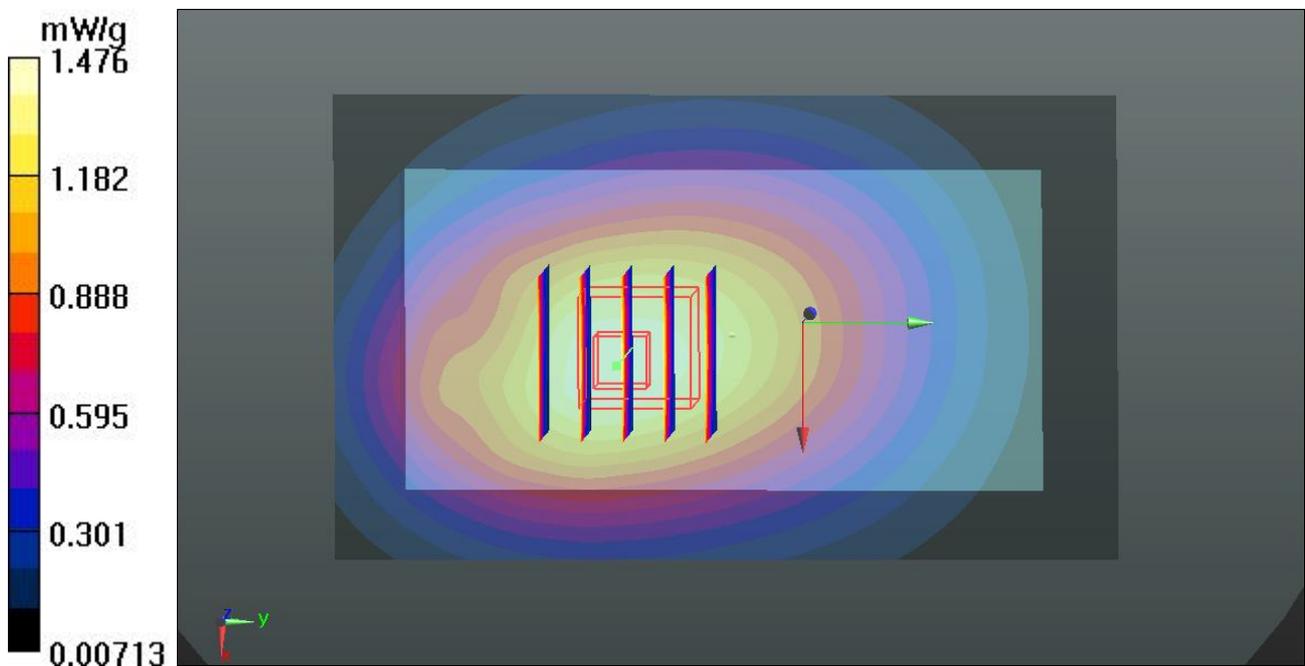
Communication System: GPRS/EDGE10; Frequency: 836.4 MHz; Duty Cycle: 1:4  
 Medium: MSL\_835\_120515 Medium parameters used:  $f = 836.4 \text{ MHz}$ ;  $\sigma = 0.978 \text{ mho/m}$ ;  $\epsilon_r = 54.384$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Ambient Temperature : 23.6 °C; Liquid Temperature : 21.6 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(6.16, 6.16, 6.16); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch189/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
 Maximum value of SAR (interpolated) = 1.476 mW/g

**Ch189/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
 Reference Value = 35.971 V/m; Power Drift = 0.05 dB  
 Peak SAR (extrapolated) = 1.8880  
**SAR(1 g) = 1.4 mW/g; SAR(10 g) = 1.02 mW/g**  
 Maximum value of SAR (measured) = 1.478 mW/g



## 11 GSM850\_GPRS 10\_Left Side\_1.0cm\_Ch189

**DUT: 250202**

Communication System: GPRS/EDGE10; Frequency: 836.4 MHz; Duty Cycle: 1:4  
Medium: MSL\_835\_120515 Medium parameters used:  $f = 836.4$  MHz;  $\sigma = 0.978$  mho/m;  $\epsilon_r = 54.384$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Ambient Temperature : 23.6 °C; Liquid Temperature : 21.6 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(6.16, 6.16, 6.16); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch189/Area Scan (41x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.896 mW/g

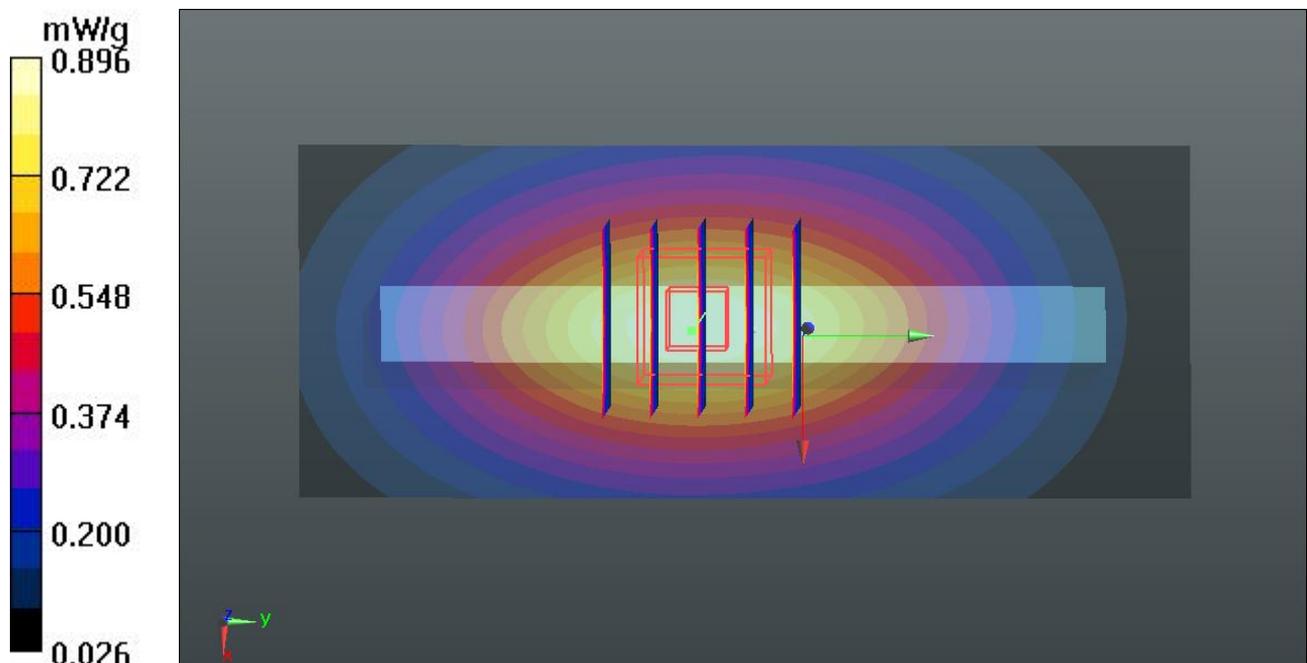
**Ch189/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 30.271 V/m; Power Drift = -0.13 dB

Peak SAR (extrapolated) = 1.1800

**SAR(1 g) = 0.820 mW/g; SAR(10 g) = 0.560 mW/g**

Maximum value of SAR (measured) = 0.876 mW/g



## 12 GSM850\_GPRS 10\_Right Side\_1.0cm\_Ch189

**DUT: 250202**

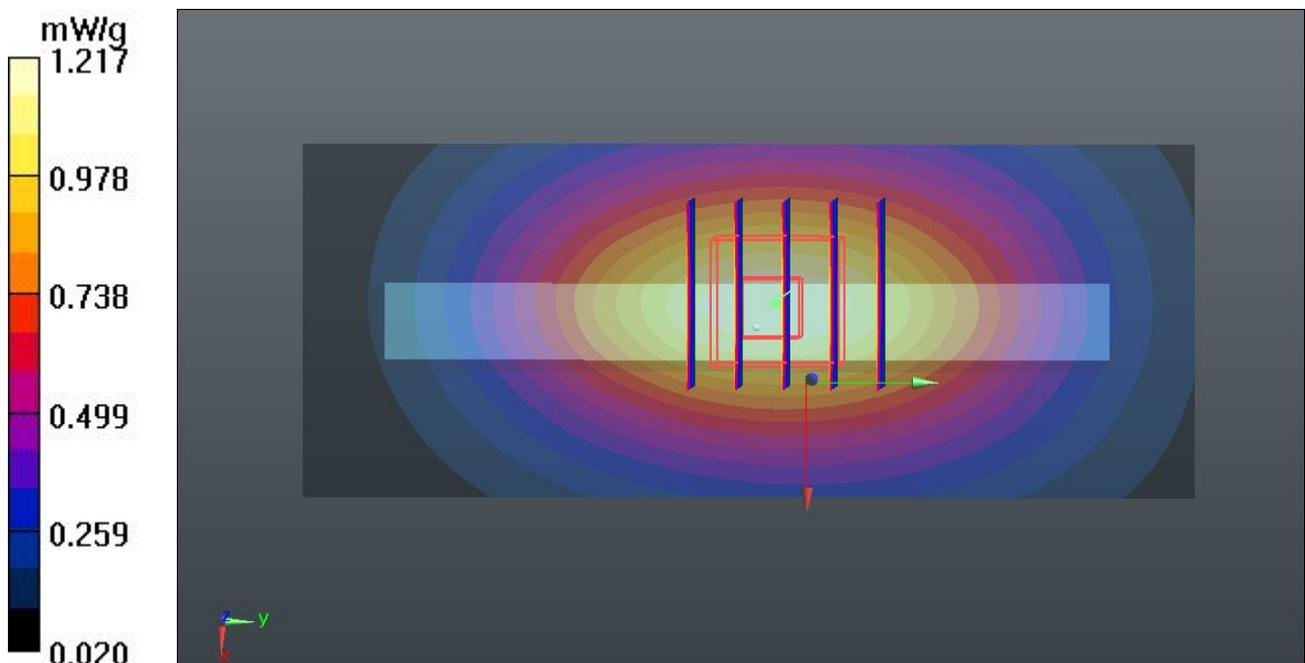
Communication System: GPRS/EDGE10; Frequency: 836.4 MHz; Duty Cycle: 1:4  
 Medium: MSL\_835\_120515 Medium parameters used:  $f = 836.4 \text{ MHz}$ ;  $\sigma = 0.978 \text{ mho/m}$ ;  $\epsilon_r = 54.384$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Ambient Temperature : 23.6 °C ; Liquid Temperature : 21.6 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(6.16, 6.16, 6.16); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch189/Area Scan (41x101x1):** Measurement grid: dx=15mm, dy=15mm  
 Maximum value of SAR (interpolated) = 1.217 mW/g

**Ch189/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
 Reference Value = 35.224 V/m; Power Drift = -0.0029 dB  
 Peak SAR (extrapolated) = 1.6250  
**SAR(1 g) = 1.13 mW/g; SAR(10 g) = 0.781 mW/g**  
 Maximum value of SAR (measured) = 1.199 mW/g



### 13 GSM850\_GPRS 10\_Bottom Side\_1.0cm\_Ch189

**DUT: 250202**

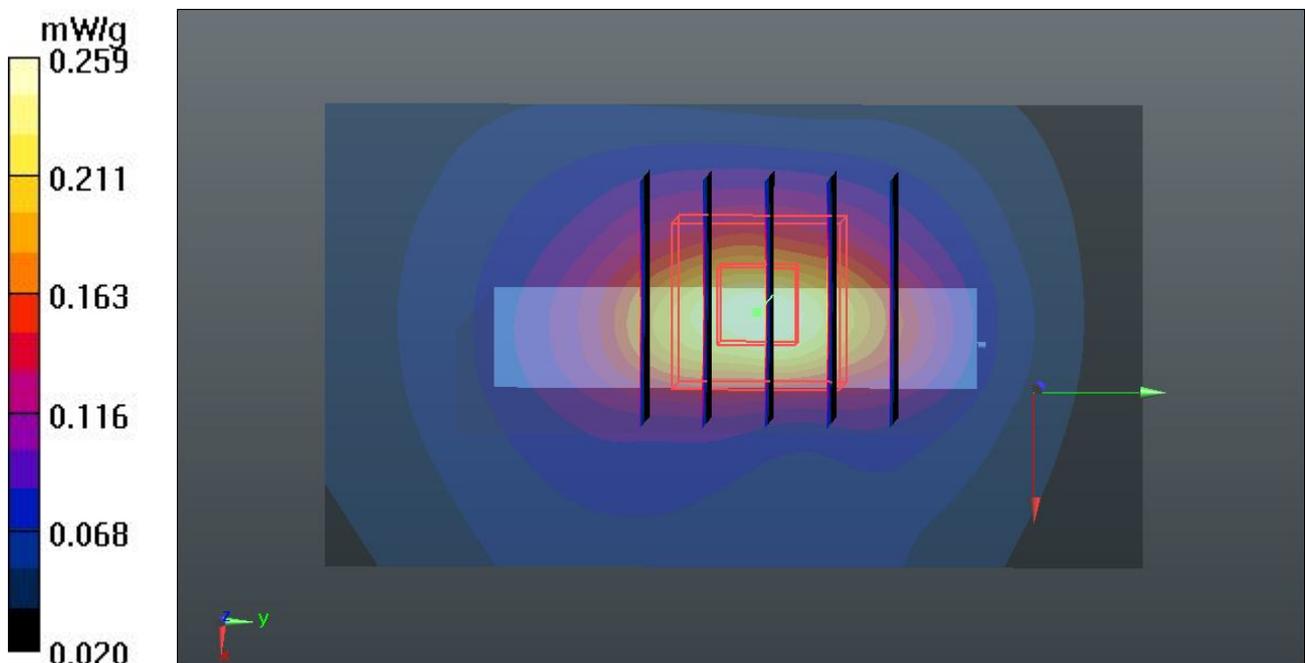
Communication System: GPRS/EDGE10; Frequency: 836.4 MHz; Duty Cycle: 1:4  
 Medium: MSL\_835\_120515 Medium parameters used:  $f = 836.4 \text{ MHz}$ ;  $\sigma = 0.978 \text{ mho/m}$ ;  $\epsilon_r = 54.384$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Ambient Temperature : 23.6 °C ; Liquid Temperature : 21.6 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(6.16, 6.16, 6.16); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch189/Area Scan (41x71x1):** Measurement grid: dx=15mm, dy=15mm  
 Maximum value of SAR (interpolated) = 0.259 mW/g

**Ch189/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
 Reference Value = 9.561 V/m; Power Drift = -0.10 dB  
 Peak SAR (extrapolated) = 0.5030  
**SAR(1 g) = 0.245 mW/g; SAR(10 g) = 0.126 mW/g**  
 Maximum value of SAR (measured) = 0.280 mW/g



## 14 GSM850\_GPRS 10\_Front\_1.0cm\_Ch128

**DUT: 250202**

Communication System: GPRS/EDGE10; Frequency: 824.2 MHz; Duty Cycle: 1:4  
 Medium: MSL\_835\_120515 Medium parameters used:  $f = 824.2$  MHz;  $\sigma = 0.967$  mho/m;  $\epsilon_r = 54.473$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
 Ambient Temperature : 23.6 °C; Liquid Temperature : 21.6 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(6.16, 6.16, 6.16); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch128/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.279 mW/g

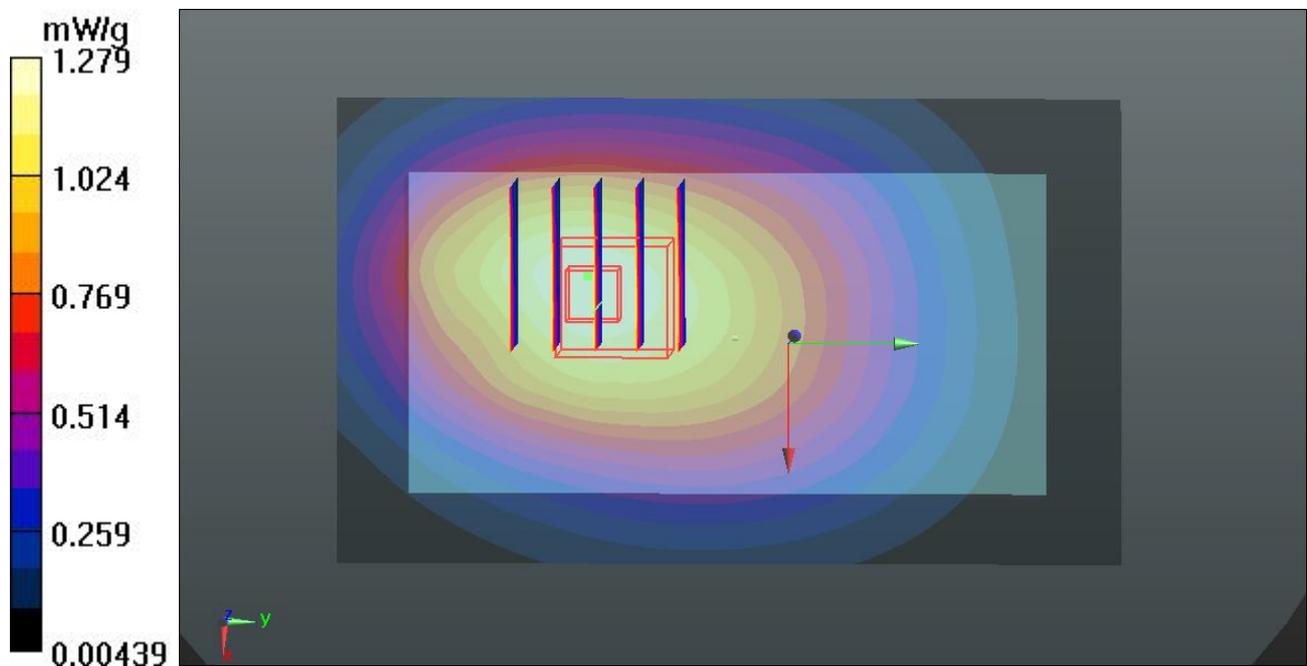
**Ch128/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 32.881 V/m; Power Drift = -0.14 dB

Peak SAR (extrapolated) = 1.6130

**SAR(1 g) = 1.2 mW/g; SAR(10 g) = 0.883 mW/g**

Maximum value of SAR (measured) = 1.256 mW/g



## 15 GSM850\_GPRS 10\_Front\_1.0cm\_Ch251

**DUT: 250202**

Communication System: GPRS/EDGE10; Frequency: 848.8 MHz; Duty Cycle: 1:4

Medium: MSL\_835\_120515 Medium parameters used:  $f = 849 \text{ MHz}$ ;  $\sigma = 0.99 \text{ mho/m}$ ;  $\epsilon_r = 54.276$ ;  $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature :  $23.6 \text{ }^\circ\text{C}$ ; Liquid Temperature :  $21.6 \text{ }^\circ\text{C}$

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(6.16, 6.16, 6.16); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch251/Area Scan (61x101x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) =  $1.35 \text{ mW/g}$

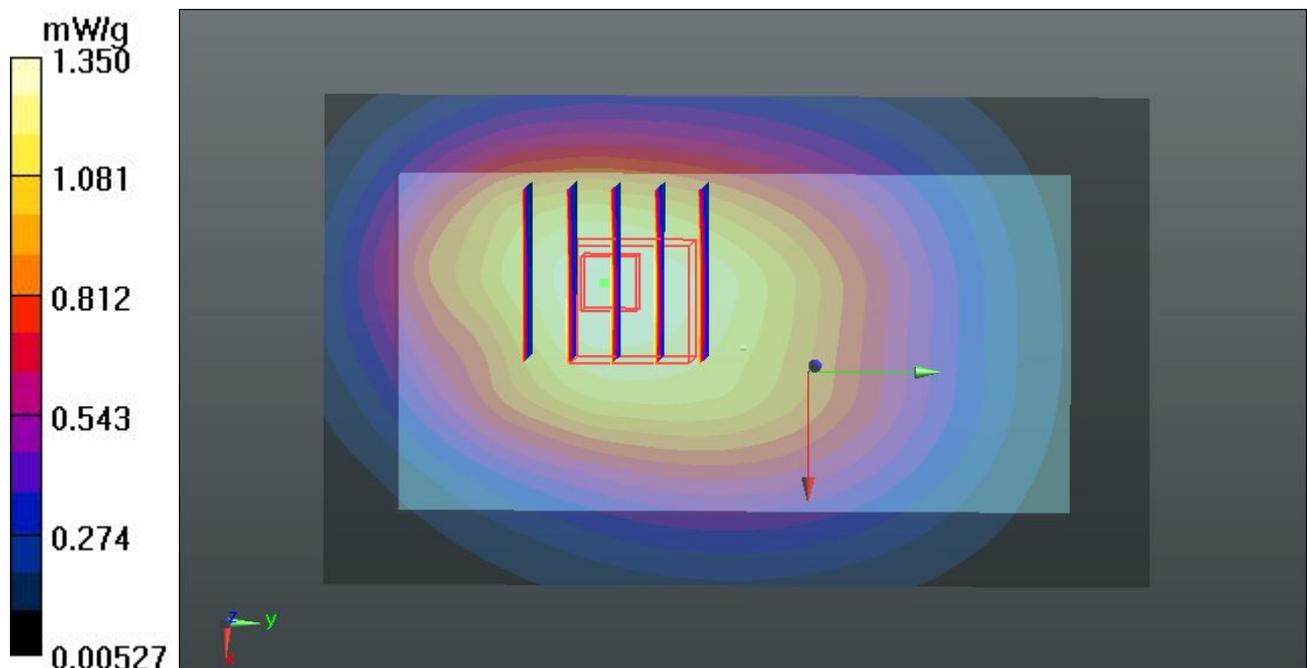
**Ch251/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value =  $35.355 \text{ V/m}$ ; Power Drift =  $-0.14 \text{ dB}$

Peak SAR (extrapolated) =  $1.7800$

**SAR(1 g) =  $1.3 \text{ mW/g}$ ; SAR(10 g) =  $0.948 \text{ mW/g}$**

Maximum value of SAR (measured) =  $1.38 \text{ mW/g}$



### 16 GSM850\_GPRS 10\_Back\_1.0cm\_Ch128

**DUT: 250202**

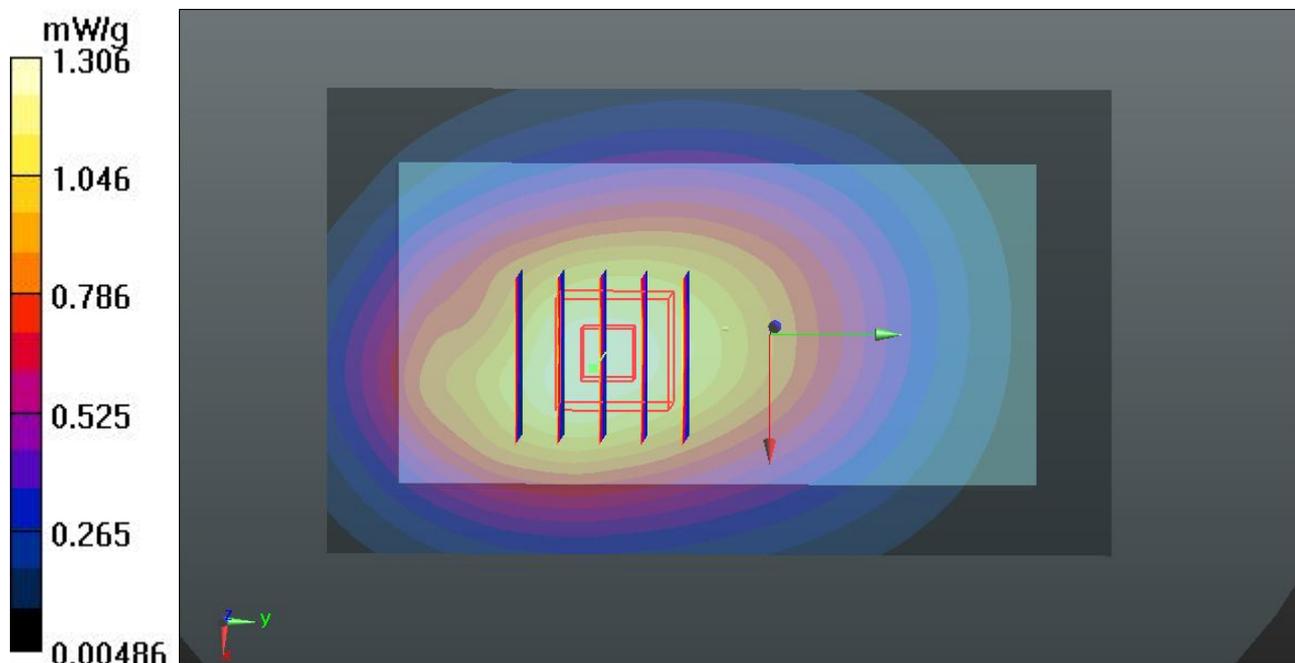
Communication System: GPRS/EDGE10; Frequency: 824.2 MHz; Duty Cycle: 1:4  
Medium: MSL\_835\_120515 Medium parameters used:  $f = 824.2$  MHz;  $\sigma = 0.967$  mho/m;  $\epsilon_r = 54.473$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Ambient Temperature : 23.6 °C; Liquid Temperature : 21.6 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(6.16, 6.16, 6.16); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch128/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 1.306 mW/g

**Ch128/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 33.379 V/m; Power Drift = -0.08 dB  
Peak SAR (extrapolated) = 1.8240  
**SAR(1 g) = 1.22 mW/g; SAR(10 g) = 0.888 mW/g**  
Maximum value of SAR (measured) = 1.277 mW/g



## 17 GSM850\_GPRS 10\_Back\_1.0cm\_Ch251

**DUT: 250202**

Communication System: GPRS/EDGE10; Frequency: 848.8 MHz; Duty Cycle: 1:4

Medium: MSL\_835\_120515 Medium parameters used:  $f = 849$  MHz;  $\sigma = 0.99$  mho/m;  $\epsilon_r = 54.276$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.6 °C; Liquid Temperature : 21.6 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(6.16, 6.16, 6.16); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch251/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.53 mW/g

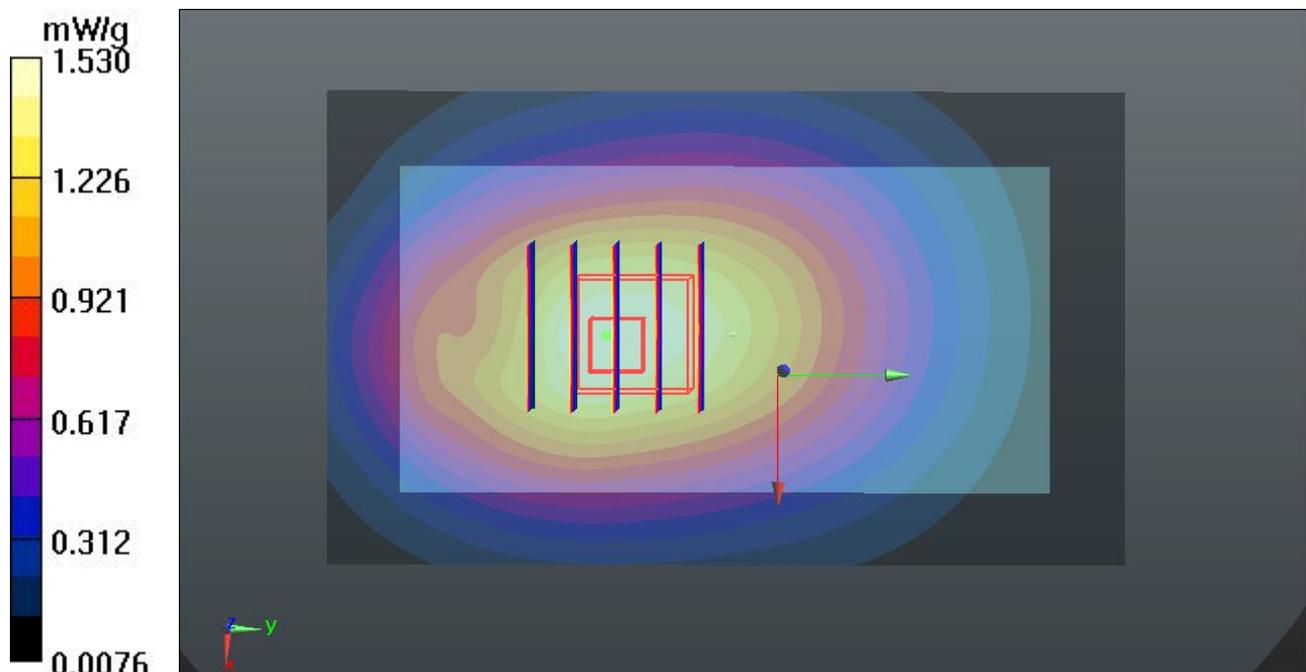
**Ch251/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 36.387 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 1.920 mW/g

**SAR(1 g) = 1.42 mW/g; SAR(10 g) = 1.03 mW/g**

Maximum value of SAR (measured) = 1.50 mW/g



### 17 GSM850\_GPRS 10\_Back\_1.0cm\_Ch251\_2D

**DUT: 250202**

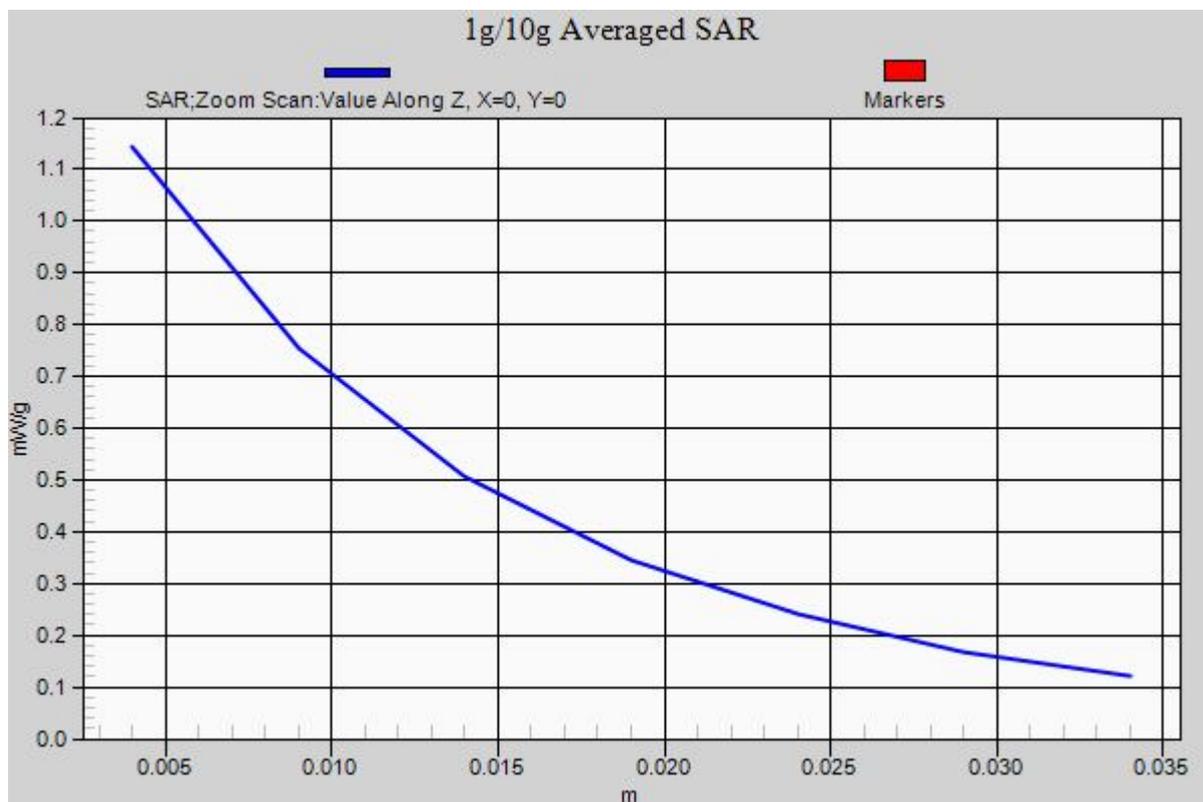
Communication System: GPRS/EDGE10; Frequency: 848.8 MHz; Duty Cycle: 1:4  
 Medium: MSL\_835\_120515 Medium parameters used:  $f = 849$  MHz;  $\sigma = 0.99$  mho/m;  $\epsilon_r = 54.276$ ;  
 $\rho = 1000$  kg/m<sup>3</sup>  
 Ambient Temperature : 23.6 °C ; Liquid Temperature : 21.6 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(6.16, 6.16, 6.16); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch251/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
 Maximum value of SAR (interpolated) = 1.53 mW/g

**Ch251/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
 Reference Value = 36.387 V/m; Power Drift = -0.08 dB  
 Peak SAR (extrapolated) = 1.9200  
**SAR(1 g) = 1.42 mW/g; SAR(10 g) = 1.03 mW/g**  
 Maximum value of SAR (measured) = 1.50 mW/g



## 18 GSM850\_GPRS 10\_Left Side\_1.0cm\_Ch128

**DUT: 250202**

Communication System: GPRS/EDGE10; Frequency: 824.2 MHz; Duty Cycle: 1:4  
 Medium: MSL\_835\_120515 Medium parameters used:  $f = 824.2 \text{ MHz}$ ;  $\sigma = 0.967 \text{ mho/m}$ ;  $\epsilon_r = 54.473$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Ambient Temperature : 23.6 °C ; Liquid Temperature : 21.6 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(6.16, 6.16, 6.16); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch128/Area Scan (41x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.864 mW/g

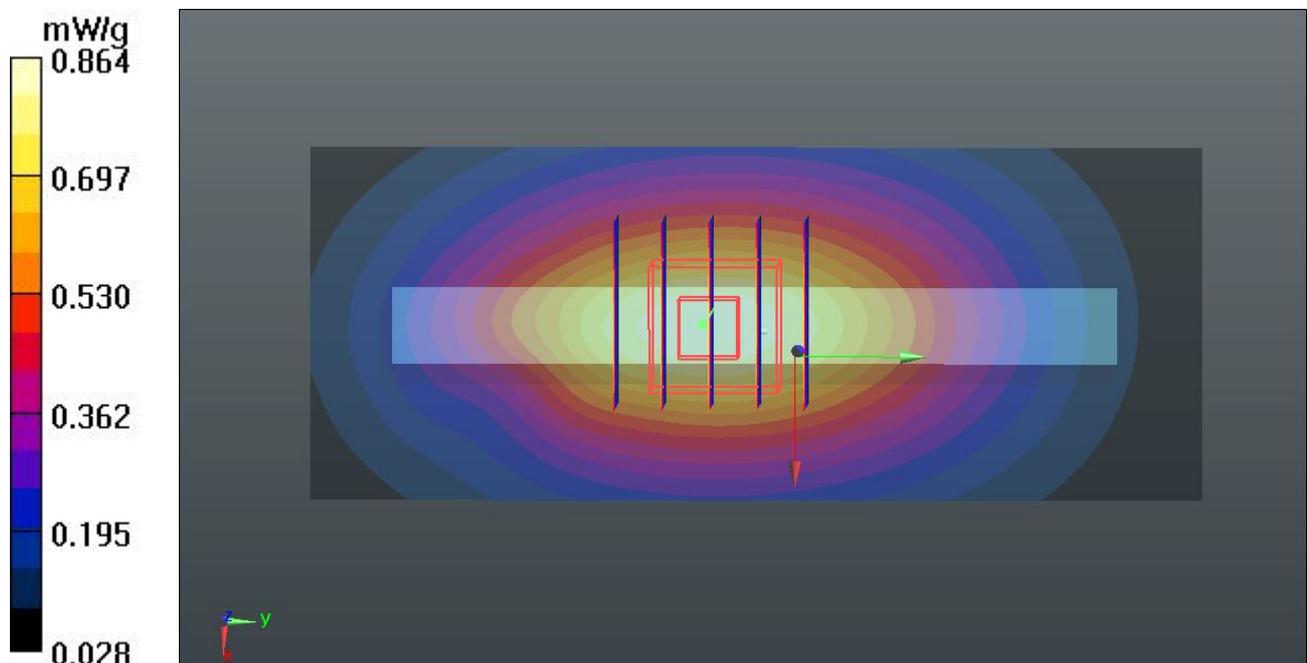
**Ch128/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 29.651 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 1.1620

**SAR(1 g) = 0.803 mW/g; SAR(10 g) = 0.546 mW/g**

Maximum value of SAR (measured) = 0.859 mW/g



### 19 GSM850\_GPRS 10\_Left Side\_1.0cm\_Ch251

**DUT: 250202**

Communication System: GPRS/EDGE10; Frequency: 848.8 MHz; Duty Cycle: 1:4

Medium: MSL\_835\_120515 Medium parameters used:  $f = 849$  MHz;  $\sigma = 0.99$  mho/m;  $\epsilon_r = 54.276$ ;  $\rho$

$= 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.6 °C ; Liquid Temperature : 21.6 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(6.16, 6.16, 6.16); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch251/Area Scan (41x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.924 mW/g

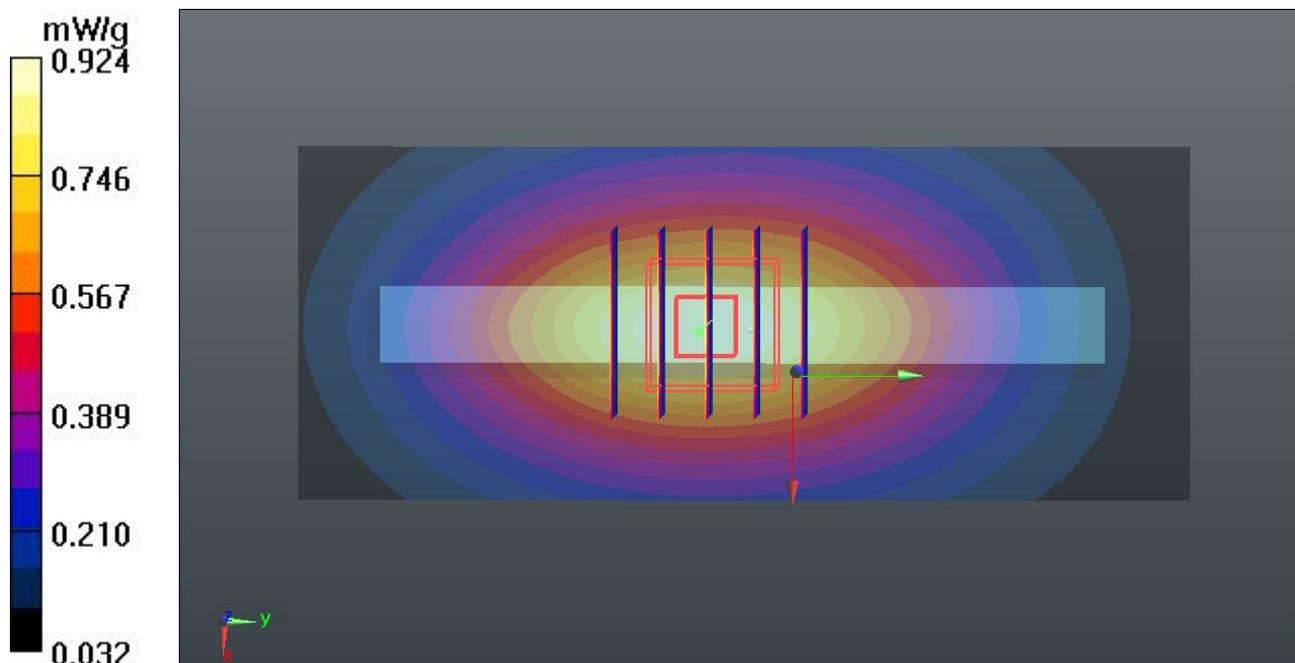
**Ch251/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 30.715 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 1.2510

**SAR(1 g) = 0.860 mW/g; SAR(10 g) = 0.584 mW/g**

Maximum value of SAR (measured) = 0.928 mW/g



## 20 GSM850\_GPRS 10\_Right Side\_1.0cm\_Ch128

**DUT: 250202**

Communication System: GPRS/EDGE10; Frequency: 824.2 MHz; Duty Cycle: 1:4  
 Medium: MSL\_835\_120515 Medium parameters used:  $f = 824.2 \text{ MHz}$ ;  $\sigma = 0.967 \text{ mho/m}$ ;  $\epsilon_r = 54.473$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Ambient Temperature : 23.6 °C ; Liquid Temperature : 21.6 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(6.16, 6.16, 6.16); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch128/Area Scan (41x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.006 mW/g

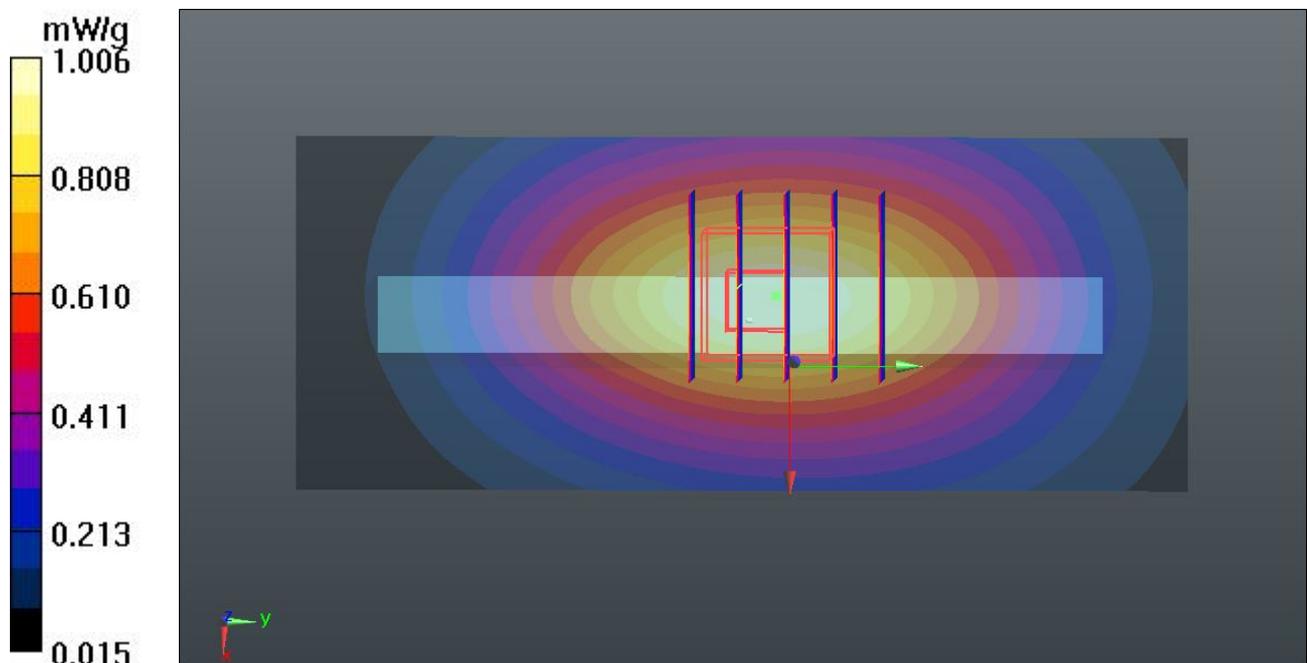
**Ch128/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 32.259 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 1.3390

**SAR(1 g) = 0.930 mW/g; SAR(10 g) = 0.640 mW/g**

Maximum value of SAR (measured) = 0.982 mW/g



## 21 GSM850\_GPRS 10\_Right Side\_1.0cm\_Ch251

**DUT: 250202**

Communication System: GPRS/EDGE10; Frequency: 848.8 MHz; Duty Cycle: 1:4

Medium: MSL\_835\_120515 Medium parameters used:  $f = 849$  MHz;  $\sigma = 0.99$  mho/m;  $\epsilon_r = 54.276$ ;  $\rho$

$= 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.6 °C; Liquid Temperature : 21.6 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(6.16, 6.16, 6.16); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch251/Area Scan (41x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.317 mW/g

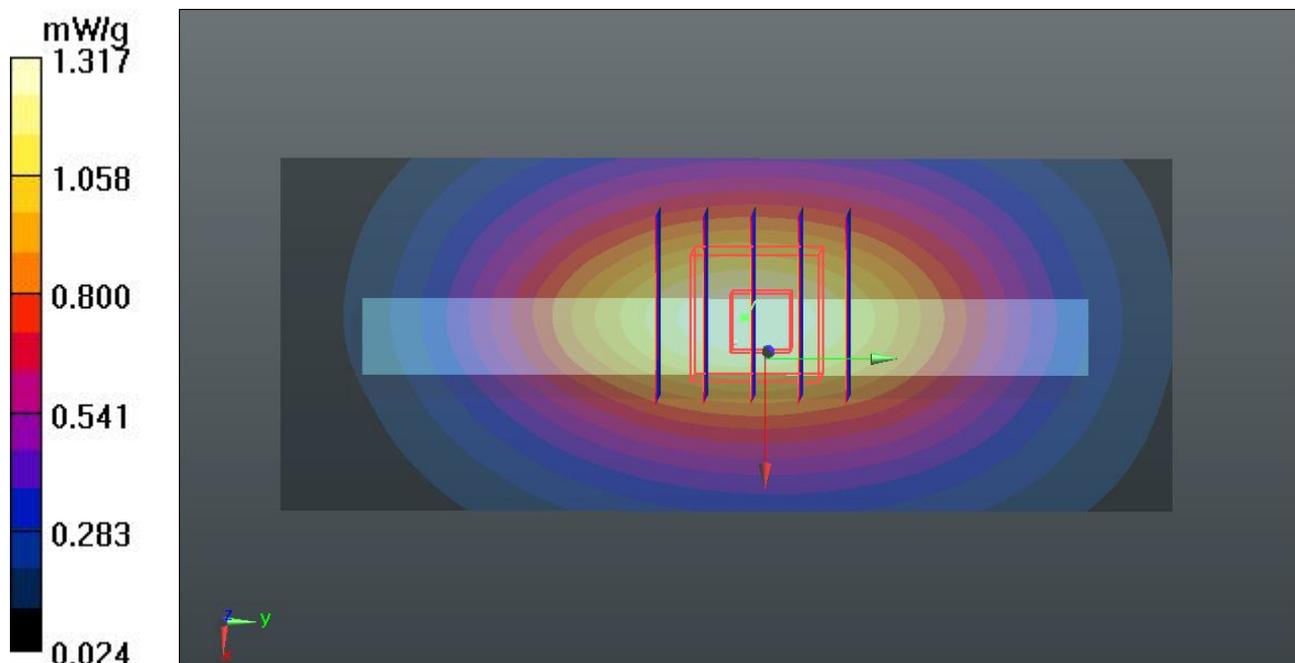
**Ch251/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 35.922 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 1.6850

**SAR(1 g) = 1.18 mW/g; SAR(10 g) = 0.814 mW/g**

Maximum value of SAR (measured) = 1.234 mW/g



## 22 GSM850\_GPRS 10\_Back\_1.0cm\_Ch251\_Earphone

**DUT: 250202**

Communication System: GPRS/EDGE10; Frequency: 848.8 MHz; Duty Cycle: 1:4

Medium: MSL\_835\_120515 Medium parameters used:  $f = 849$  MHz;  $\sigma = 0.99$  mho/m;  $\epsilon_r = 54.276$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.6 °C ; Liquid Temperature : 21.6 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(6.16, 6.16, 6.16); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch251/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.431 mW/g

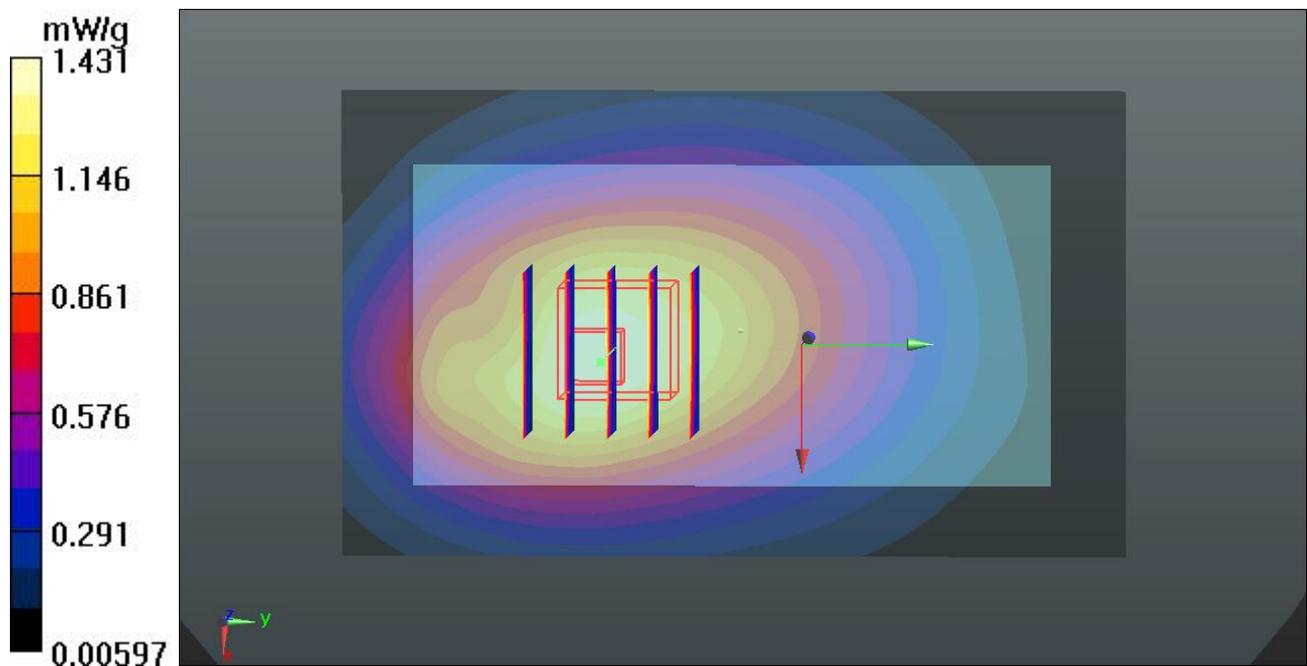
**Ch251/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 33.927 V/m; Power Drift = -0.14 dB

Peak SAR (extrapolated) = 1.8920

**SAR(1 g) = 1.35 mW/g; SAR(10 g) = 0.965 mW/g**

Maximum value of SAR (measured) = 1.414 mW/g



## 23 GSM850\_GPRS 10\_Back\_1.0cm\_Ch128\_Earphone

**DUT: 250202**

Communication System: GPRS/EDGE10; Frequency: 824.2 MHz; Duty Cycle: 1:4  
 Medium: MSL\_835\_120515 Medium parameters used:  $f = 824.2 \text{ MHz}$ ;  $\sigma = 0.967 \text{ mho/m}$ ;  $\epsilon_r = 54.473$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Ambient Temperature : 23.6 °C; Liquid Temperature : 21.6 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(6.16, 6.16, 6.16); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch128/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.097 mW/g

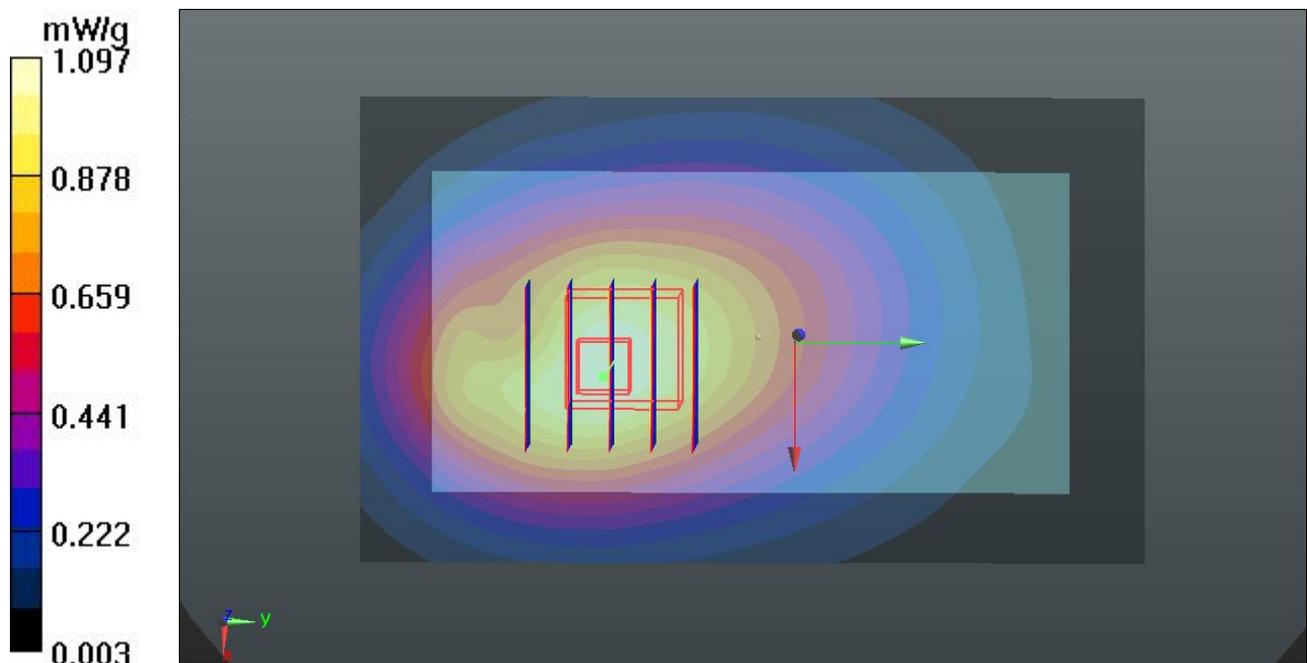
**Ch128/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 27.960 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 1.4780

**SAR(1 g) = 1.03 mW/g; SAR(10 g) = 0.718 mW/g**

Maximum value of SAR (measured) = 1.092 mW/g



## 24 GSM850\_GPRS 10\_Back\_1.0cm\_Ch189\_Earphone

**DUT: 250202**

Communication System: GPRS/EDGE10; Frequency: 836.4 MHz; Duty Cycle: 1:4  
 Medium: MSL\_835\_120515 Medium parameters used:  $f = 836.4 \text{ MHz}$ ;  $\sigma = 0.978 \text{ mho/m}$ ;  $\epsilon_r = 54.384$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Ambient Temperature : 23.6 °C; Liquid Temperature : 21.6 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(6.16, 6.16, 6.16); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch189/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.299 mW/g

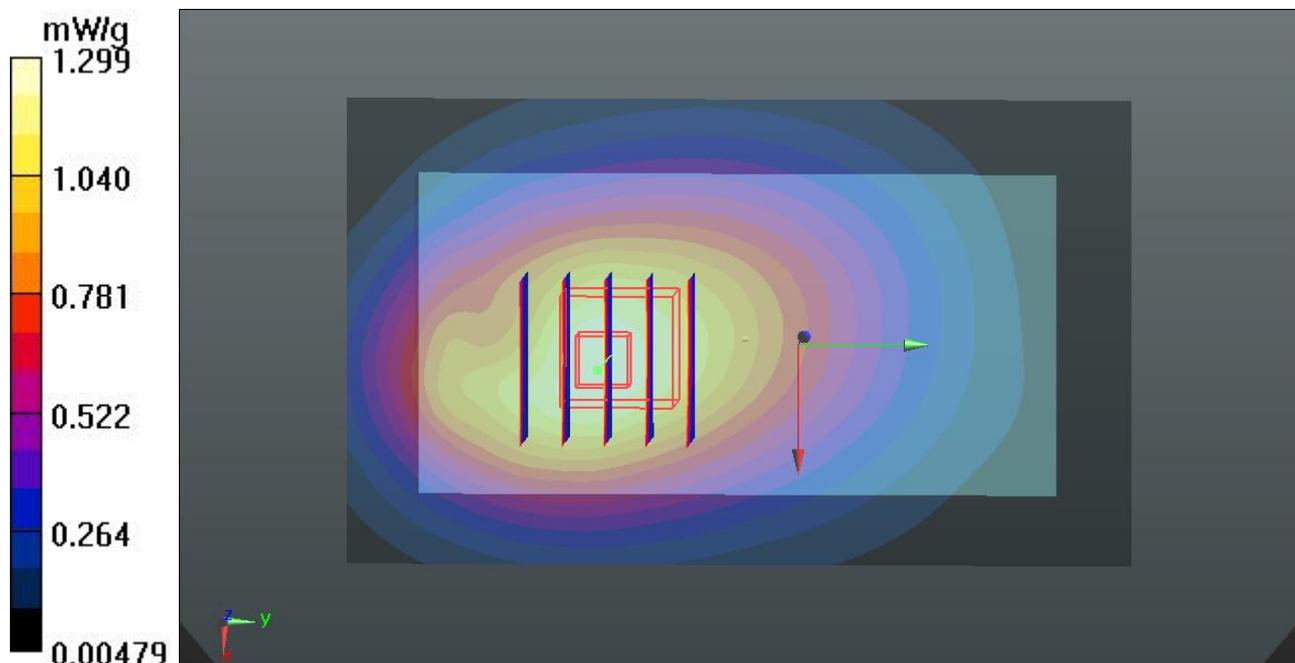
**Ch189/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 31.180 V/m; Power Drift = 0.007 dB

Peak SAR (extrapolated) = 1.7350

**SAR(1 g) = 1.22 mW/g; SAR(10 g) = 0.864 mW/g**

Maximum value of SAR (measured) = 1.289 mW/g



### 35 GSM1900\_GPRS10\_Front\_1.0cm\_Ch810

**DUT: 250202**

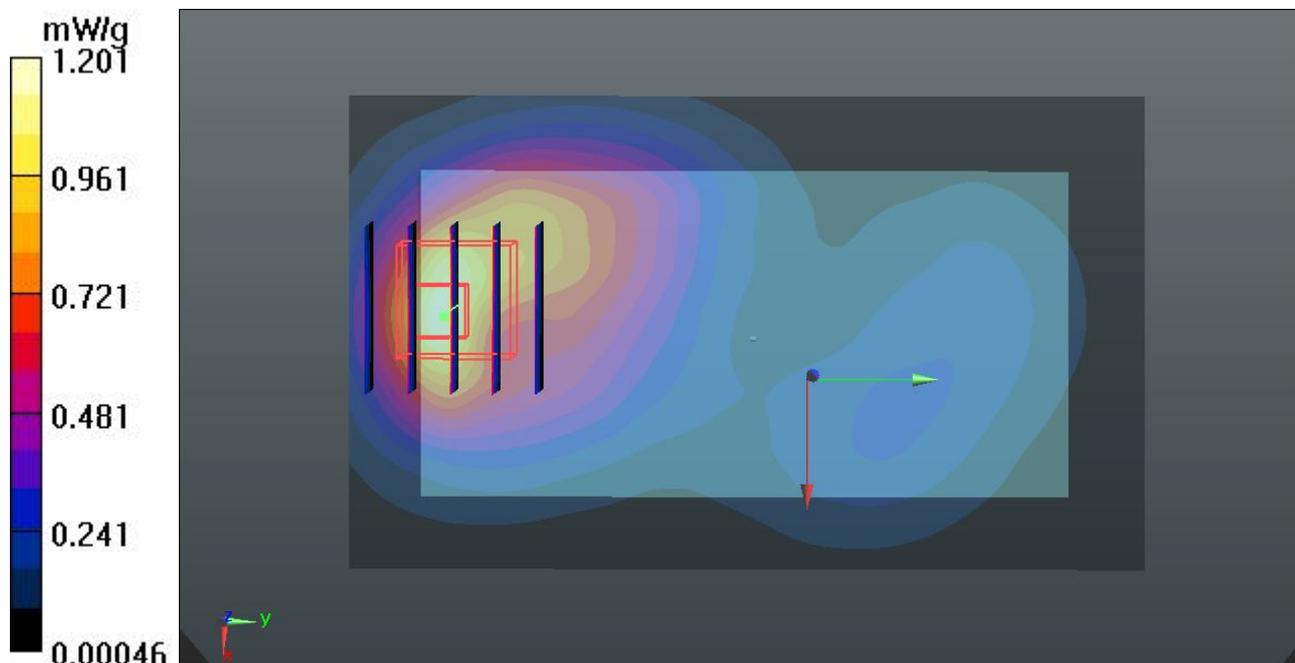
Communication System: GPRS/EDGE10; Frequency: 1909.8 MHz; Duty Cycle: 1:4  
 Medium: MSL\_1900\_120516 Medium parameters used:  $f = 1910 \text{ MHz}$ ;  $\sigma = 1.544 \text{ mho/m}$ ;  $\epsilon_r = 54.559$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Ambient Temperature : 23.4 °C ; Liquid Temperature : 21.7 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(4.64, 4.64, 4.64); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch810/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
 Maximum value of SAR (interpolated) = 1.201 mW/g

**Ch810/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
 Reference Value = 10.197 V/m; Power Drift = -0.12 dB  
 Peak SAR (extrapolated) = 1.7520  
**SAR(1 g) = 1.04 mW/g; SAR(10 g) = 0.588 mW/g**  
 Maximum value of SAR (measured) = 1.158 mW/g



### 35 GSM1900\_GPRS10\_Front\_1.0cm\_Ch810\_2D

**DUT: 250202**

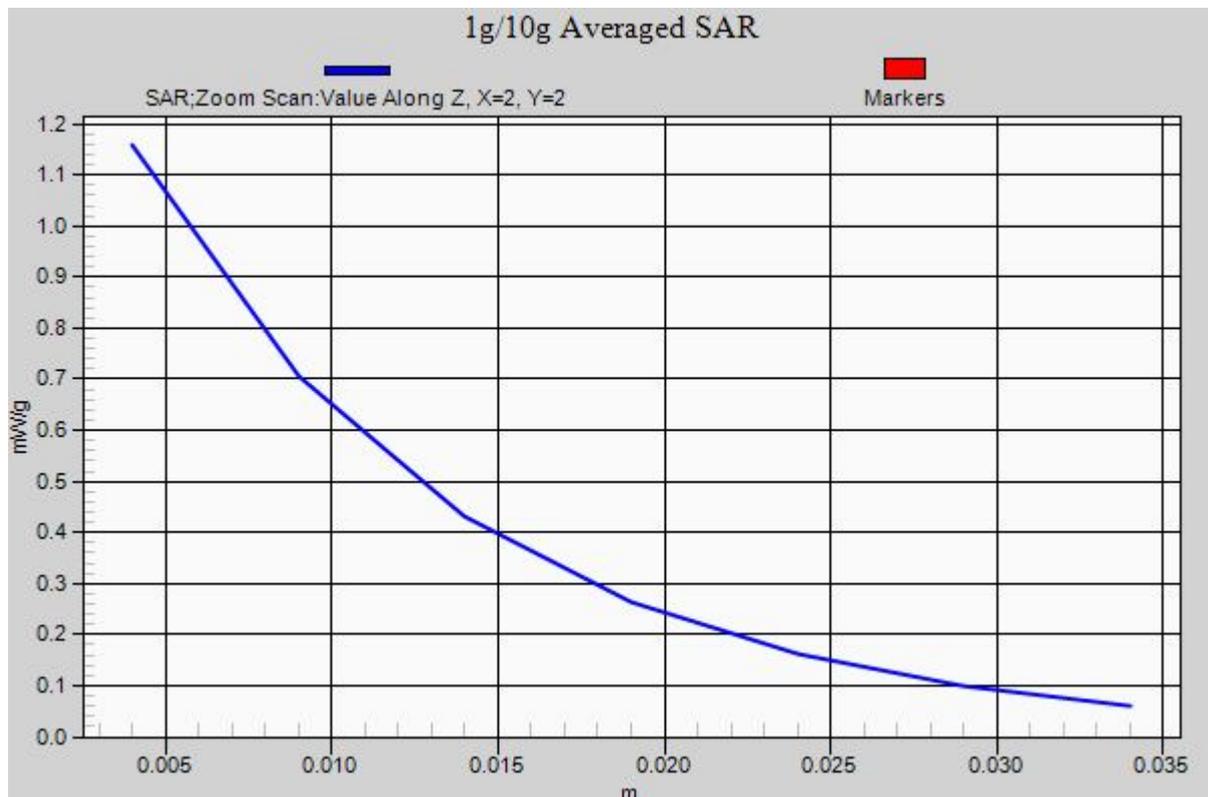
Communication System: GPRS/EDGE10; Frequency: 1909.8 MHz; Duty Cycle: 1:4  
 Medium: MSL\_1900\_120516 Medium parameters used:  $f = 1910$  MHz;  $\sigma = 1.544$  mho/m;  $\epsilon_r = 54.559$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
 Ambient Temperature : 23.4 °C ; Liquid Temperature : 21.7 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(4.64, 4.64, 4.64); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch810/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
 Maximum value of SAR (interpolated) = 1.201 mW/g

**Ch810/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
 Reference Value = 10.197 V/m; Power Drift = -0.12 dB  
 Peak SAR (extrapolated) = 1.7520  
**SAR(1 g) = 1.04 mW/g; SAR(10 g) = 0.588 mW/g**  
 Maximum value of SAR (measured) = 1.158 mW/g



### 36 GSM1900\_GPRS10\_Back\_1.0cm\_Ch810

**DUT: 250202**

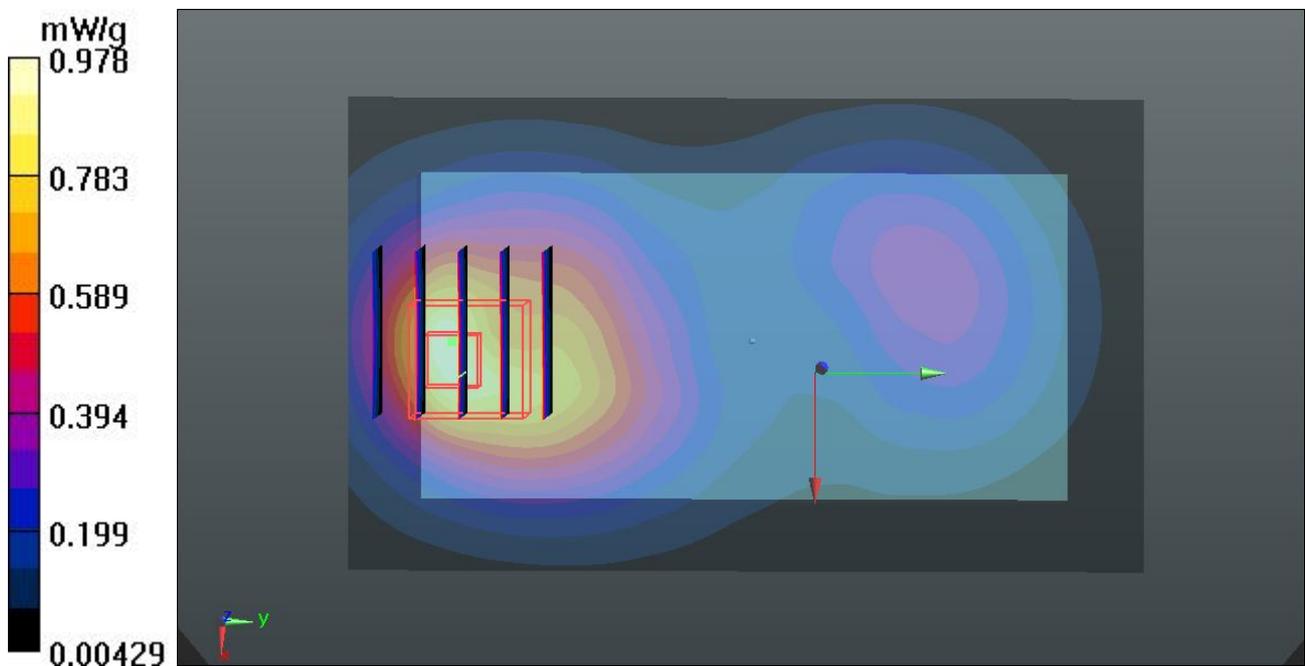
Communication System: GPRS/EDGE10; Frequency: 1909.8 MHz; Duty Cycle: 1:4  
 Medium: MSL\_1900\_120516 Medium parameters used:  $f = 1910 \text{ MHz}$ ;  $\sigma = 1.544 \text{ mho/m}$ ;  $\epsilon_r = 54.559$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Ambient Temperature : 23.4 °C ; Liquid Temperature : 21.7 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(4.64, 4.64, 4.64); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch810/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
 Maximum value of SAR (interpolated) = 0.978 mW/g

**Ch810/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
 Reference Value = 9.841 V/m; Power Drift = -0.03 dB  
 Peak SAR (extrapolated) = 1.4420  
**SAR(1 g) = 0.854 mW/g; SAR(10 g) = 0.501 mW/g**  
 Maximum value of SAR (measured) = 0.914 mW/g



### 37 GSM1900\_GPRS10\_Lift Side\_1.0cm\_Ch810

**DUT: 250202**

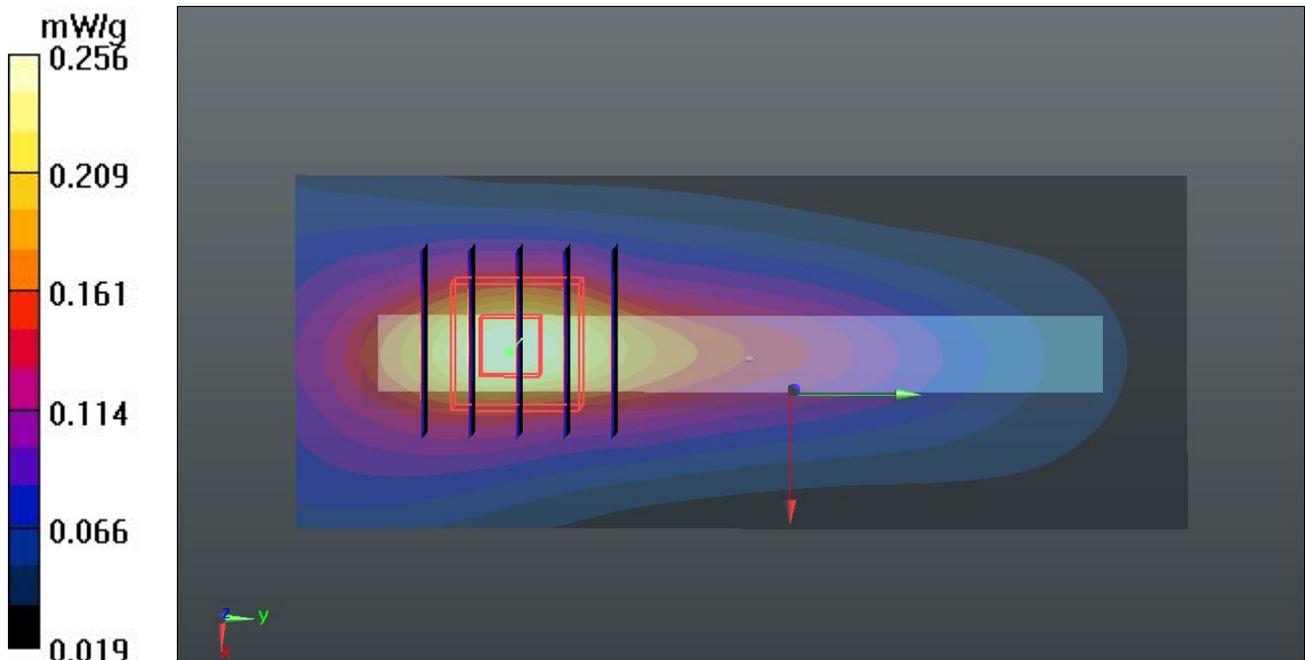
Communication System: GPRS/EDGE10; Frequency: 1909.8 MHz; Duty Cycle: 1:4  
 Medium: MSL\_1900\_120516 Medium parameters used:  $f = 1910 \text{ MHz}$ ;  $\sigma = 1.544 \text{ mho/m}$ ;  $\epsilon_r = 54.559$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Ambient Temperature : 23.4 °C ; Liquid Temperature : 21.7 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(4.64, 4.64, 4.64); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch810/Area Scan (41x101x1):** Measurement grid: dx=15mm, dy=15mm  
 Maximum value of SAR (interpolated) = 0.256 mW/g

**Ch810/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
 Reference Value = 9.964 V/m; Power Drift = -0.03 dB  
 Peak SAR (extrapolated) = 0.3910  
**SAR(1 g) = 0.232 mW/g; SAR(10 g) = 0.132 mW/g**  
 Maximum value of SAR (measured) = 0.257 mW/g



### 38 GSM1900\_GPRS10\_Right Side\_1.0cm\_Ch810

**DUT: 250202**

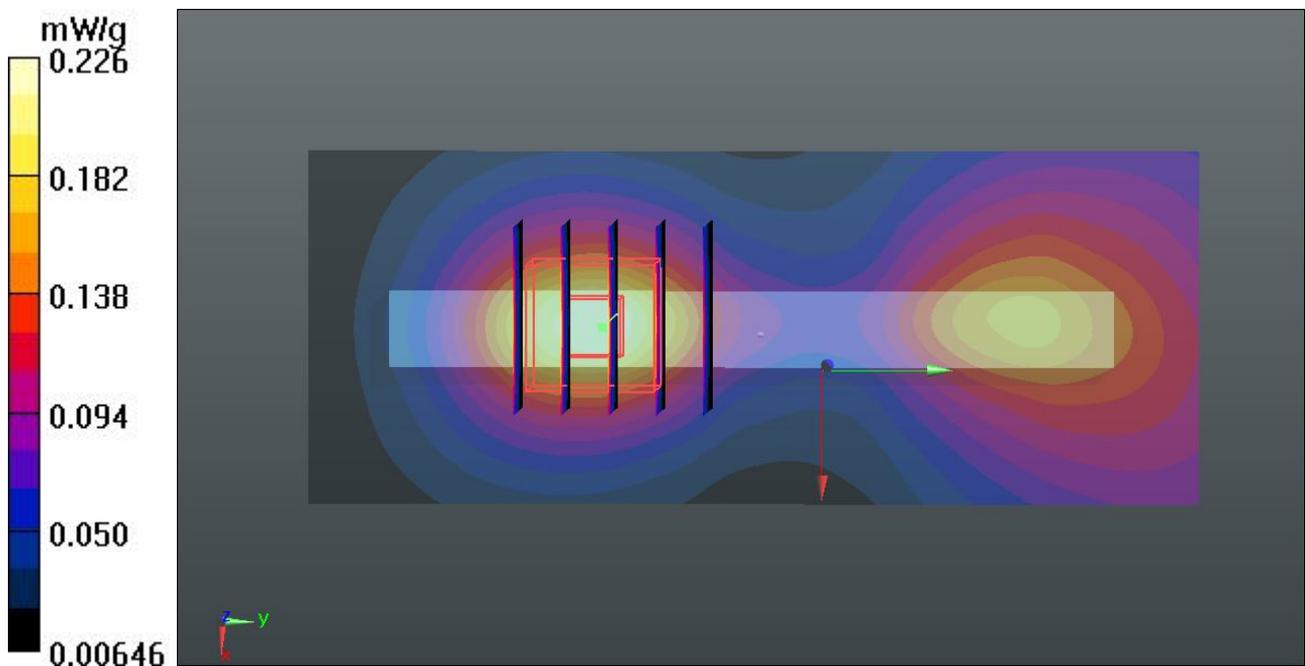
Communication System: GPRS/EDGE10; Frequency: 1909.8 MHz; Duty Cycle: 1:4  
Medium: MSL\_1900\_120516 Medium parameters used:  $f = 1910 \text{ MHz}$ ;  $\sigma = 1.544 \text{ mho/m}$ ;  $\epsilon_r = 54.559$ ;  $\rho = 1000 \text{ kg/m}^3$   
Ambient Temperature :  $23.4 \text{ }^\circ\text{C}$ ; Liquid Temperature :  $21.7 \text{ }^\circ\text{C}$

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(4.64, 4.64, 4.64); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch810/Area Scan (41x101x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
Maximum value of SAR (interpolated) =  $0.226 \text{ mW/g}$

**Ch810/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value =  $7.787 \text{ V/m}$ ; Power Drift =  $0.01 \text{ dB}$   
Peak SAR (extrapolated) =  $0.3340$   
**SAR(1 g) =  $0.203 \text{ mW/g}$ ; SAR(10 g) =  $0.117 \text{ mW/g}$**   
Maximum value of SAR (measured) =  $0.221 \text{ mW/g}$



### 39 GSM1900\_GPRS10\_Bottom Side\_1.0cm\_Ch810

**DUT: 250202**

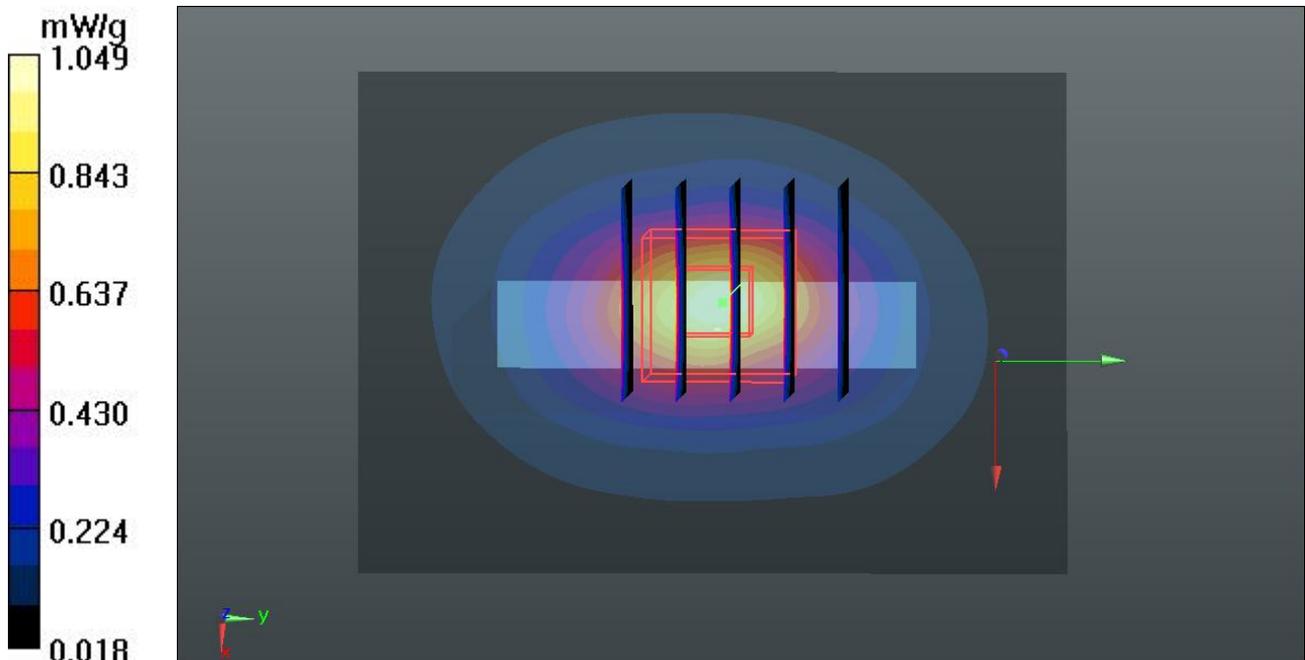
Communication System: GPRS/EDGE10; Frequency: 1909.8 MHz; Duty Cycle: 1:4  
 Medium: MSL\_1900\_120516 Medium parameters used:  $f = 1910 \text{ MHz}$ ;  $\sigma = 1.544 \text{ mho/m}$ ;  $\epsilon_r = 54.559$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Ambient Temperature : 23.4 °C ; Liquid Temperature : 21.7 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(4.64, 4.64, 4.64); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch810/Area Scan (51x71x1):** Measurement grid: dx=15mm, dy=15mm  
 Maximum value of SAR (interpolated) = 1.049 mW/g

**Ch810/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
 Reference Value = 11.213 V/m; Power Drift = -0.0051 dB  
 Peak SAR (extrapolated) = 1.5870  
**SAR(1 g) = 0.909 mW/g; SAR(10 g) = 0.481 mW/g**  
 Maximum value of SAR (measured) = 1.015 mW/g



### 40 GSM1900\_GPRS10\_Front\_1.0cm\_Ch512

**DUT: 250202**

Communication System: GPRS/EDGE10; Frequency: 1850.2 MHz; Duty Cycle: 1:4

Medium: MSL\_1900\_120516 Medium parameters used:  $f = 1850.2 \text{ MHz}$ ;  $\sigma = 1.472 \text{ mho/m}$ ;  $\epsilon_r =$

$54.682$ ;  $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature :  $23.4 \text{ }^\circ\text{C}$ ; Liquid Temperature :  $21.7 \text{ }^\circ\text{C}$

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(4.64, 4.64, 4.64); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch512/Area Scan (61x101x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) =  $1.071 \text{ mW/g}$

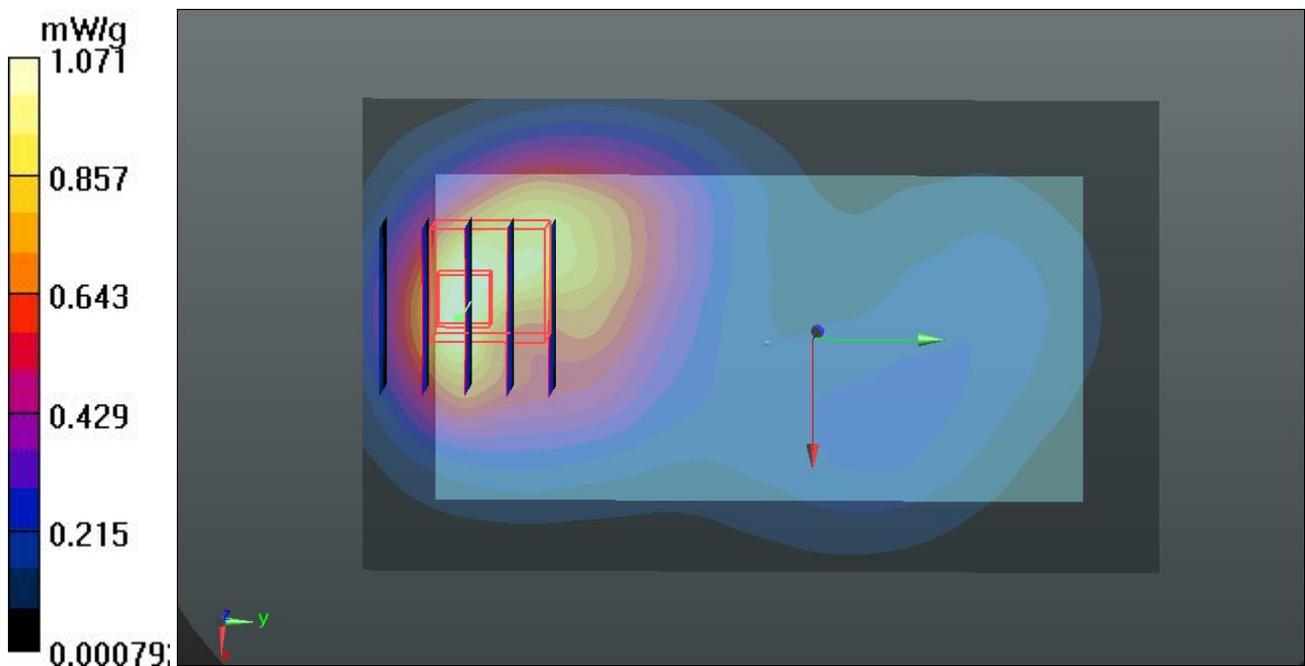
**Ch512/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value =  $10.552 \text{ V/m}$ ; Power Drift =  $0.02 \text{ dB}$

Peak SAR (extrapolated) =  $1.5180$

**SAR(1 g) =  $0.919 \text{ mW/g}$ ; SAR(10 g) =  $0.550 \text{ mW/g}$**

Maximum value of SAR (measured) =  $1.013 \text{ mW/g}$



### 41 GSM1900\_GPRS10\_Front\_1.0cm\_Ch661

**DUT: 250202**

Communication System: GPRS/EDGE10; Frequency: 1880 MHz; Duty Cycle: 1:4

Medium: MSL\_1900\_120516 Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.513$  mho/m;  $\epsilon_r =$

$54.609$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.4 °C ; Liquid Temperature : 21.7 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(4.64, 4.64, 4.64); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch661/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.111 mW/g

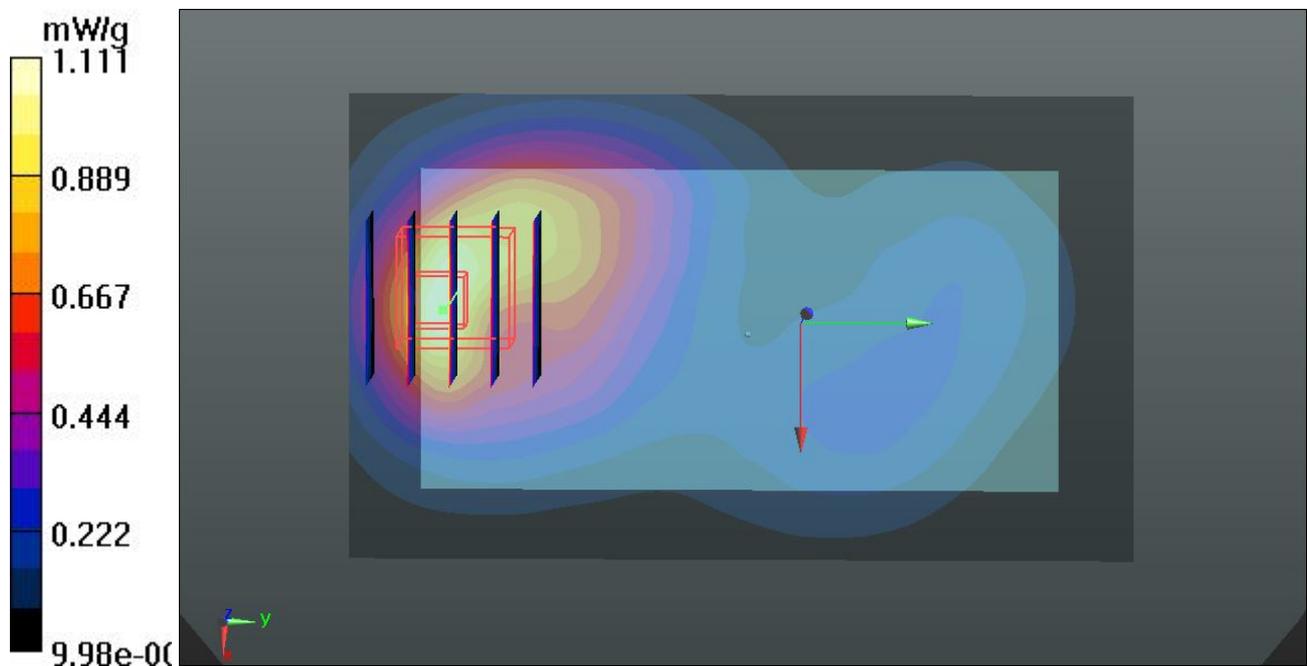
**Ch661/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 10.180 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 1.5690

**SAR(1 g) = 0.950 mW/g; SAR(10 g) = 0.554 mW/g**

Maximum value of SAR (measured) = 1.035 mW/g



## 42 GSM1900\_GPRS10\_Back\_1.0cm\_Ch512

**DUT: 250202**

Communication System: GPRS/EDGE10; Frequency: 1850.2 MHz; Duty Cycle: 1:4

Medium: MSL\_1900\_120516 Medium parameters used:  $f = 1850.2$  MHz;  $\sigma = 1.472$  mho/m;  $\epsilon_r =$

$54.682$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.4 °C; Liquid Temperature : 21.7 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(4.64, 4.64, 4.64); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch512/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.873 mW/g

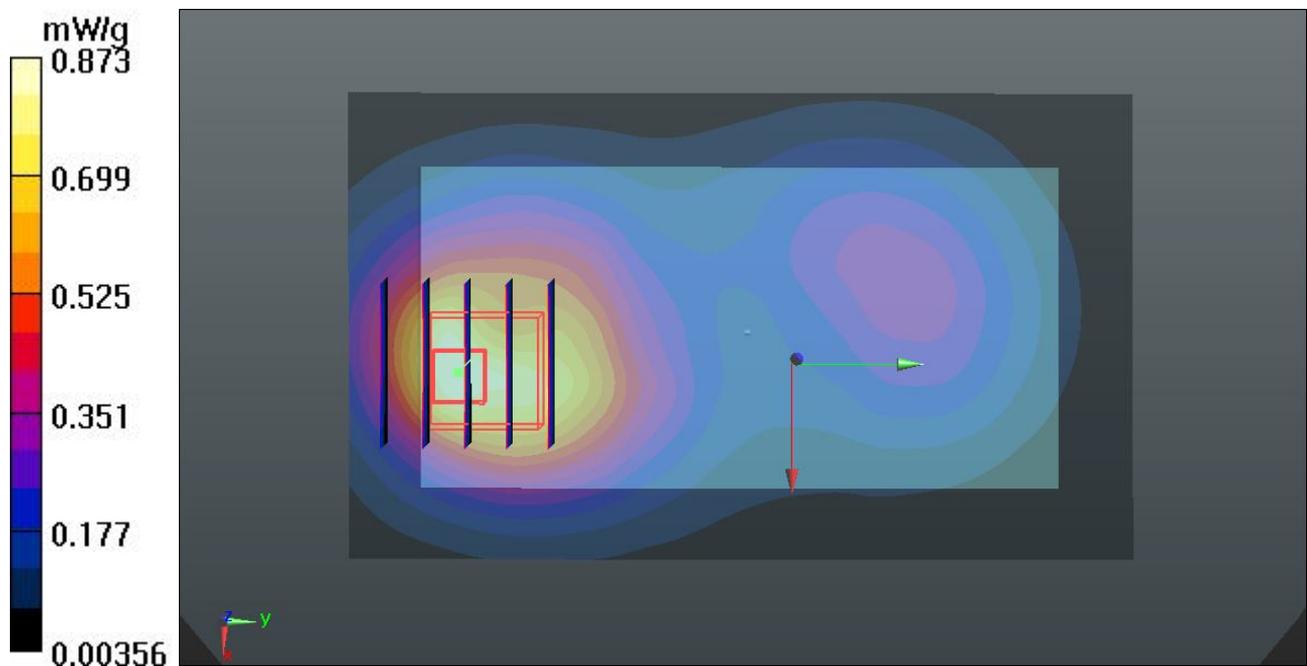
**Ch512/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 10.982 V/m; Power Drift = -0.11 dB

Peak SAR (extrapolated) = 1.2190

**SAR(1 g) = 0.744 mW/g; SAR(10 g) = 0.455 mW/g**

Maximum value of SAR (measured) = 0.793 mW/g



### 43 GSM1900\_GPRS10\_Back\_1.0cm\_Ch661

**DUT: 250202**

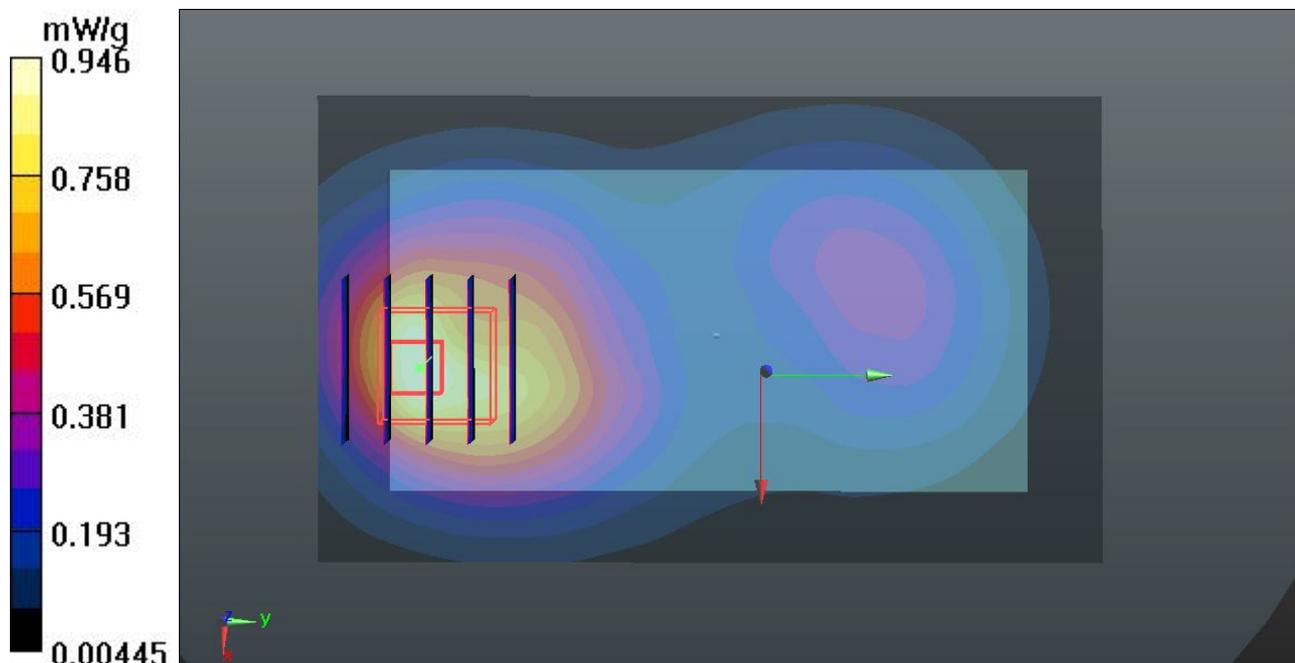
Communication System: GPRS/EDGE10; Frequency: 1880 MHz; Duty Cycle: 1:4  
 Medium: MSL\_1900\_120516 Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.513$  mho/m;  $\epsilon_r = 54.609$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
 Ambient Temperature : 23.4 °C ; Liquid Temperature : 21.7 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(4.64, 4.64, 4.64); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch661/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
 Maximum value of SAR (interpolated) = 0.946 mW/g

**Ch661/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
 Reference Value = 10.637 V/m; Power Drift = -0.14 dB  
 Peak SAR (extrapolated) = 1.3330  
**SAR(1 g) = 0.809 mW/g; SAR(10 g) = 0.482 mW/g**  
 Maximum value of SAR (measured) = 0.872 mW/g



### 44 GSM1900\_GPRS10\_Bottom Side\_1.0cm\_Ch512

**DUT: 250202**

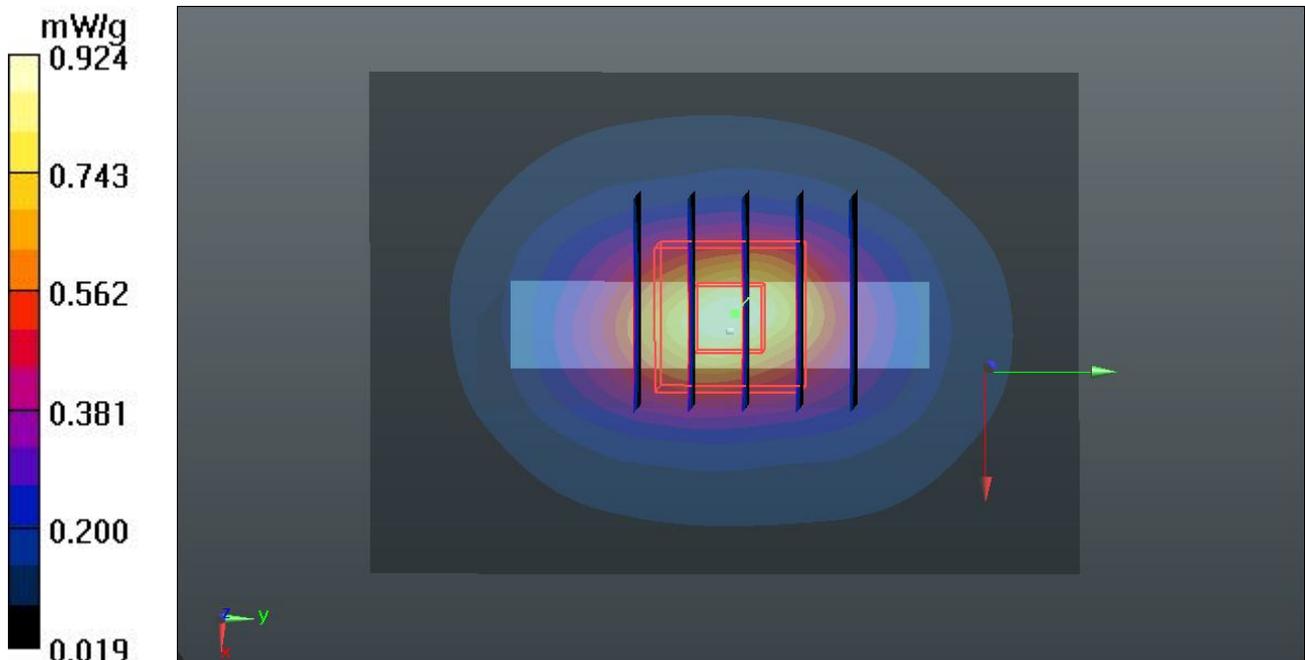
Communication System: GPRS/EDGE10; Frequency: 1850.2 MHz; Duty Cycle: 1:4  
 Medium: MSL\_1900\_120516 Medium parameters used:  $f = 1850.2 \text{ MHz}$ ;  $\sigma = 1.472 \text{ mho/m}$ ;  $\epsilon_r = 54.682$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Ambient Temperature : 23.4 °C ; Liquid Temperature : 21.7 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(4.64, 4.64, 4.64); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch512/Area Scan (51x71x1):** Measurement grid: dx=15mm, dy=15mm  
 Maximum value of SAR (interpolated) = 0.924 mW/g

**Ch512/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
 Reference Value = 11.322 V/m; Power Drift = -0.09 dB  
 Peak SAR (extrapolated) = 1.4000  
**SAR(1 g) = 0.818 mW/g; SAR(10 g) = 0.439 mW/g**  
 Maximum value of SAR (measured) = 0.911 mW/g



### 45 GSM1900\_GPRS10\_Bottom Side\_1.0cm\_Ch661

**DUT: 250202**

Communication System: GPRS/EDGE10; Frequency: 1880 MHz; Duty Cycle: 1:4

Medium: MSL\_1900\_120516 Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.513$  mho/m;  $\epsilon_r =$

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

Ambient Temperature : 23.4 °C; Liquid Temperature : 21.7 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(4.64, 4.64, 4.64); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch661/Area Scan (51x71x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.988 mW/g

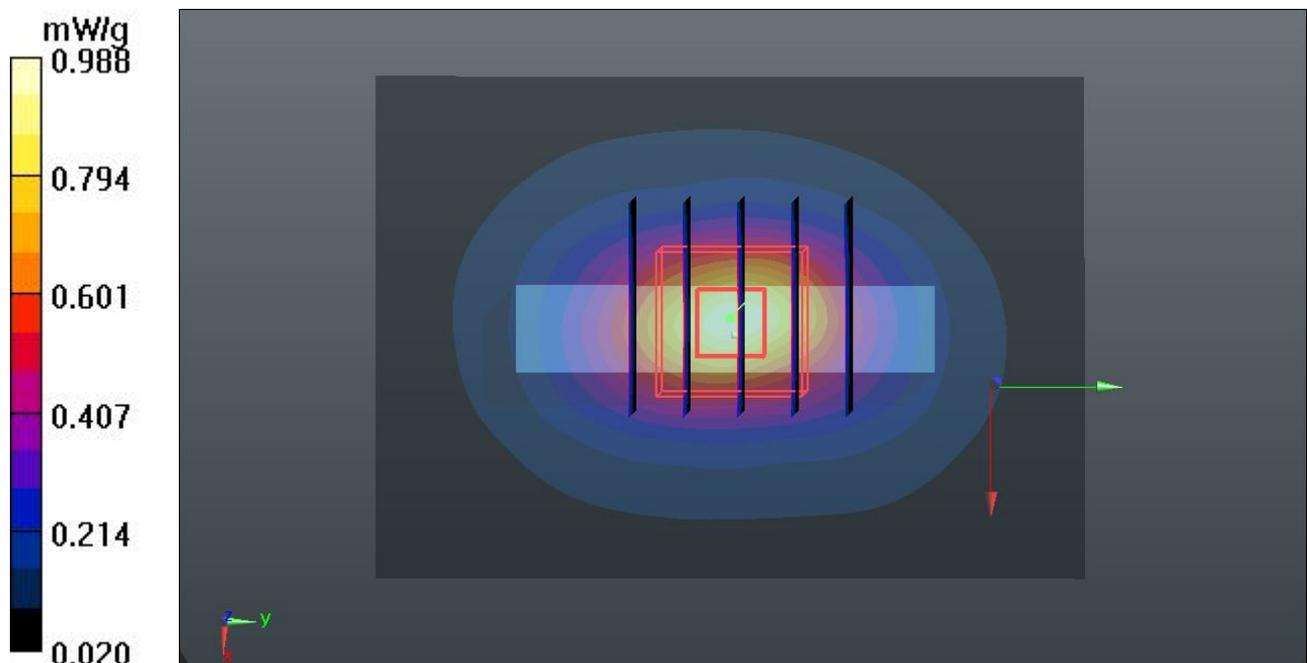
**Ch661/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 11.108 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 1.4830

**SAR(1 g) = 0.857 mW/g; SAR(10 g) = 0.457 mW/g**

Maximum value of SAR (measured) = 0.965 mW/g



## 46 GSM1900\_GPRS10\_Front\_1.0cm\_Ch810\_Earphone

**DUT: 250202**

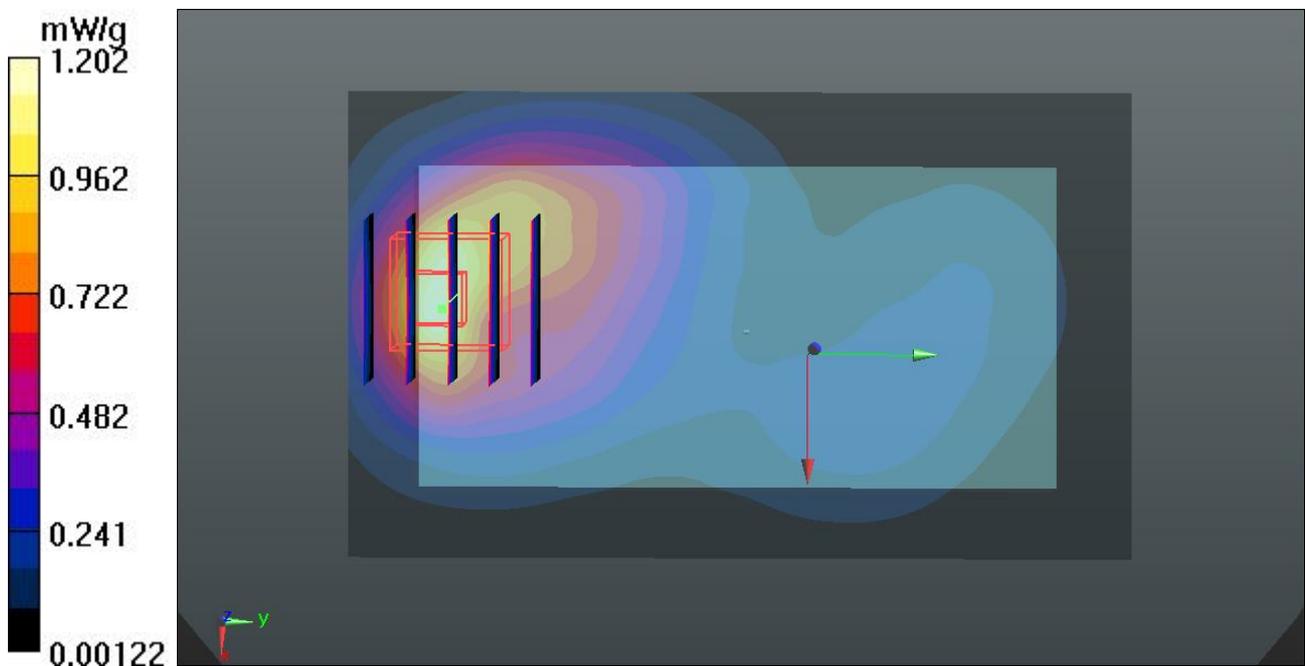
Communication System: GPRS/EDGE10; Frequency: 1909.8 MHz; Duty Cycle: 1:4  
 Medium: MSL\_1900\_120516 Medium parameters used:  $f = 1910 \text{ MHz}$ ;  $\sigma = 1.544 \text{ mho/m}$ ;  $\epsilon_r = 54.559$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Ambient Temperature :  $23.4 \text{ }^\circ\text{C}$ ; Liquid Temperature :  $21.7 \text{ }^\circ\text{C}$

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(4.64, 4.64, 4.64); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch810/Area Scan (61x101x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
 Maximum value of SAR (interpolated) =  $1.202 \text{ mW/g}$

**Ch810/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
 Reference Value =  $10.294 \text{ V/m}$ ; Power Drift =  $-0.05 \text{ dB}$   
 Peak SAR (extrapolated) =  $1.7500$   
**SAR(1 g) =  $1.04 \text{ mW/g}$ ; SAR(10 g) =  $0.587 \text{ mW/g}$**   
 Maximum value of SAR (measured) =  $1.149 \text{ mW/g}$



## 47 GSM1900\_GPRS10\_Front\_1.0cm\_Ch512\_Earphone

**DUT: 250202**

Communication System: GPRS/EDGE10; Frequency: 1850.2 MHz; Duty Cycle: 1:4

Medium: MSL\_1900\_120516 Medium parameters used:  $f = 1850.2$  MHz;  $\sigma = 1.472$  mho/m;  $\epsilon_r =$

$54.682$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.4 °C ; Liquid Temperature : 21.7 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(4.64, 4.64, 4.64); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch512/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.054 mW/g

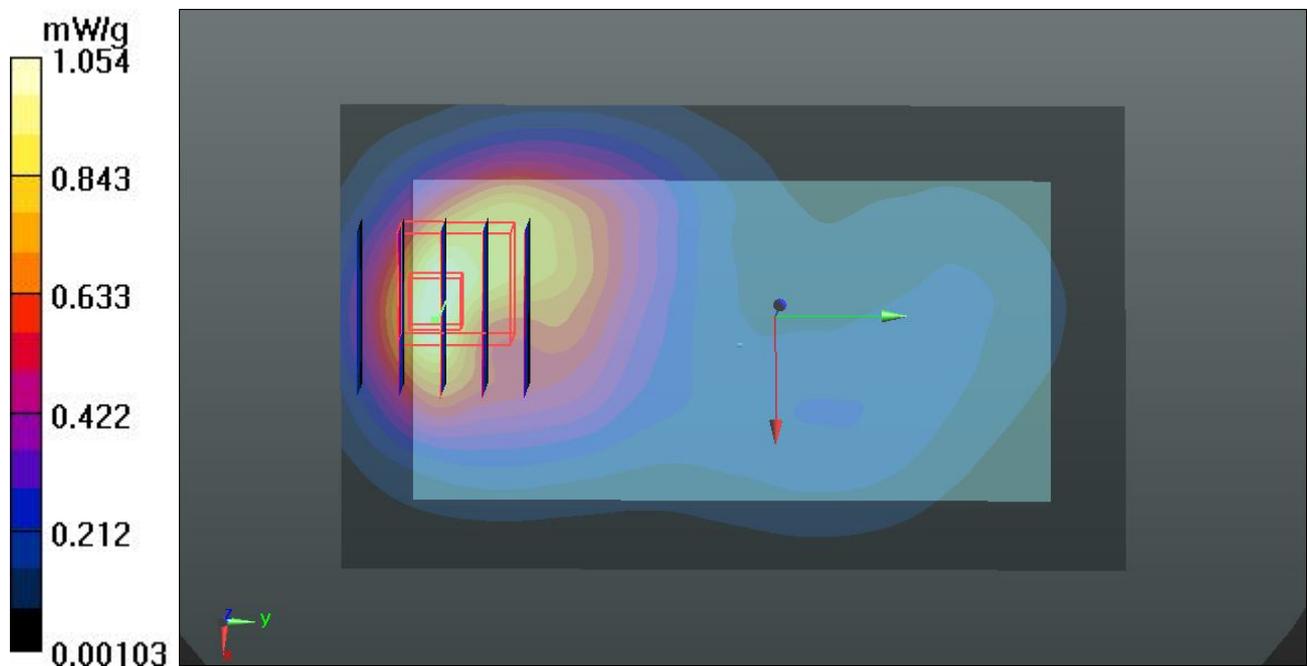
**Ch512/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 10.613 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 1.4720

**SAR(1 g) = 0.899 mW/g; SAR(10 g) = 0.531 mW/g**

Maximum value of SAR (measured) = 0.988 mW/g



## 48 GSM1900\_GPRS10\_Front\_1.0cm\_Ch661\_Earphone

**DUT: 250202**

Communication System: GPRS/EDGE10; Frequency: 1880 MHz; Duty Cycle: 1:4

Medium: MSL\_1900\_120516 Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.513$  mho/m;  $\epsilon_r =$

$54.609$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.4 °C ; Liquid Temperature : 21.7 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(4.64, 4.64, 4.64); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch661/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.138 mW/g

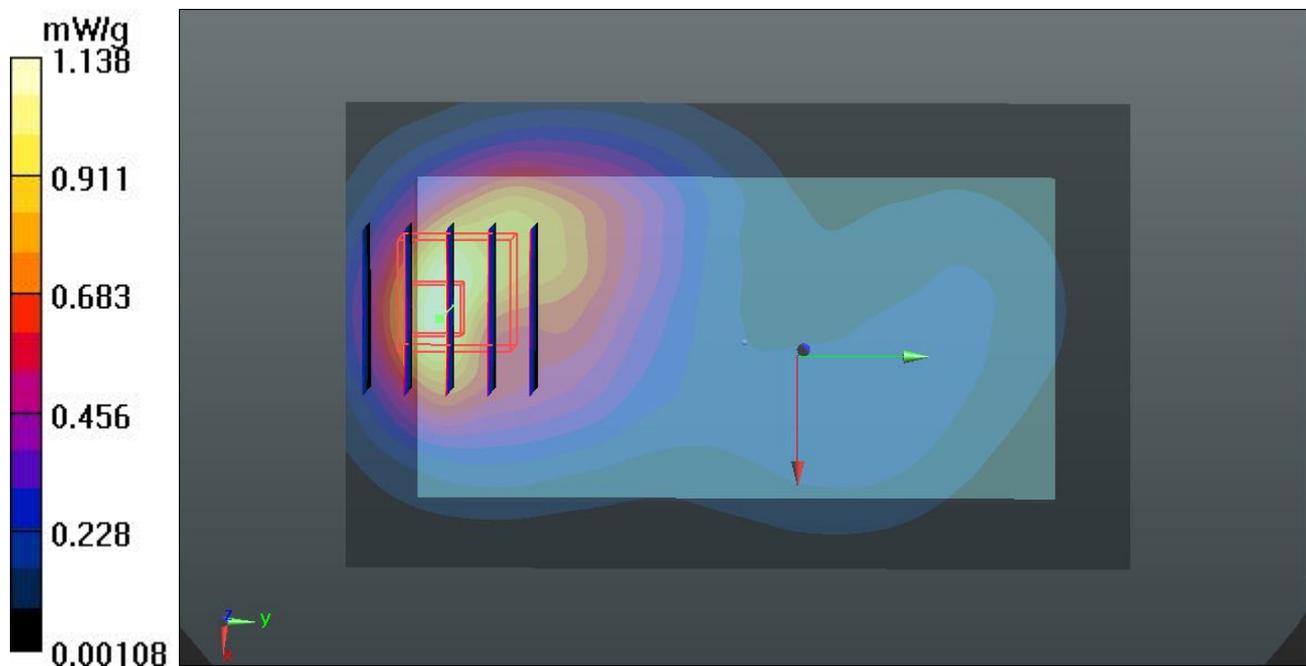
**Ch661/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 10.538 V/m; Power Drift = 0.001 dB

Peak SAR (extrapolated) = 1.6120

**SAR(1 g) = 0.974 mW/g; SAR(10 g) = 0.563 mW/g**

Maximum value of SAR (measured) = 1.075 mW/g



## 25 WCDMA V\_RMC 12.2K\_Front\_1.0cm\_Ch4182

**DUT: 250202**

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

Medium: MSL\_835\_120516 Medium parameters used:  $f = 836.4$  MHz;  $\sigma = 0.969$  mho/m;  $\epsilon_r =$

$57.444$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.4 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(6.16, 6.16, 6.16); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch4182/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.851 mW/g

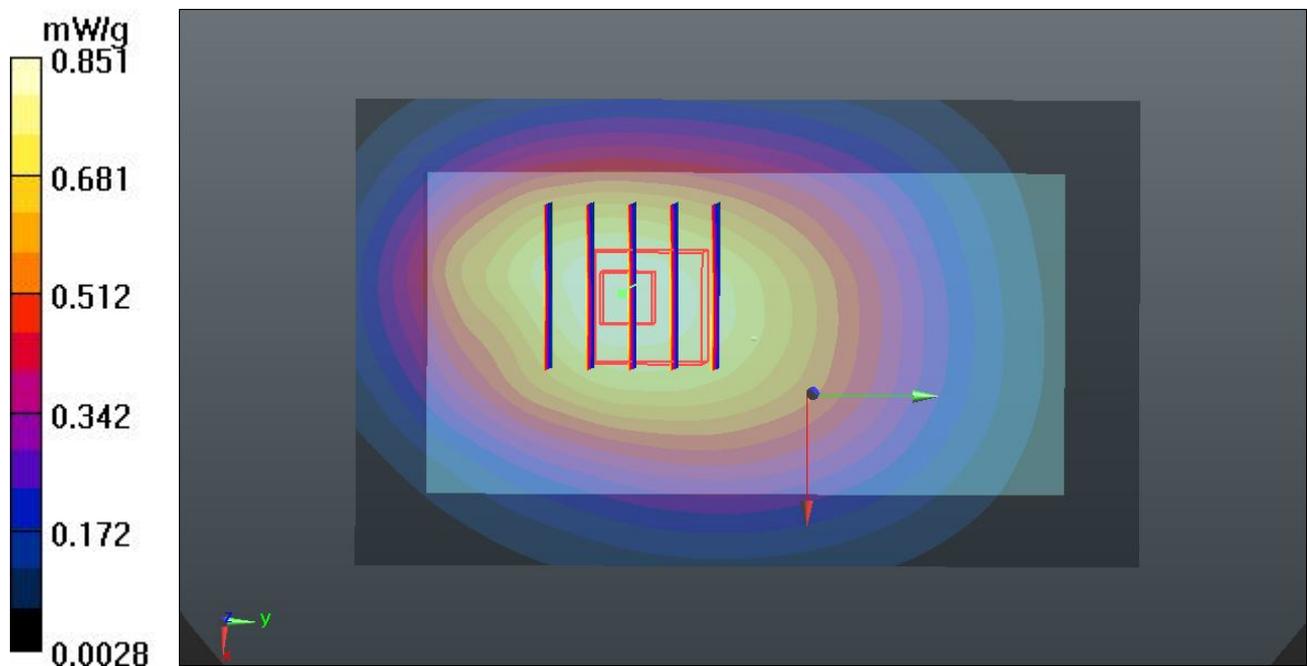
**Ch4182/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 27.286 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 1.0780

**SAR(1 g) = 0.808 mW/g; SAR(10 g) = 0.597 mW/g**

Maximum value of SAR (measured) = 0.851 mW/g



## 26 WCDMA V\_RMC 12.2K\_Back\_1.0cm\_Ch4182

**DUT: 250202**

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

Medium: MSL\_835\_120516 Medium parameters used:  $f = 836.4$  MHz;  $\sigma = 0.969$  mho/m;  $\epsilon_r =$

$57.444$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.5 °C; Liquid Temperature : 21.4 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(6.16, 6.16, 6.16); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch4182/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.924 mW/g

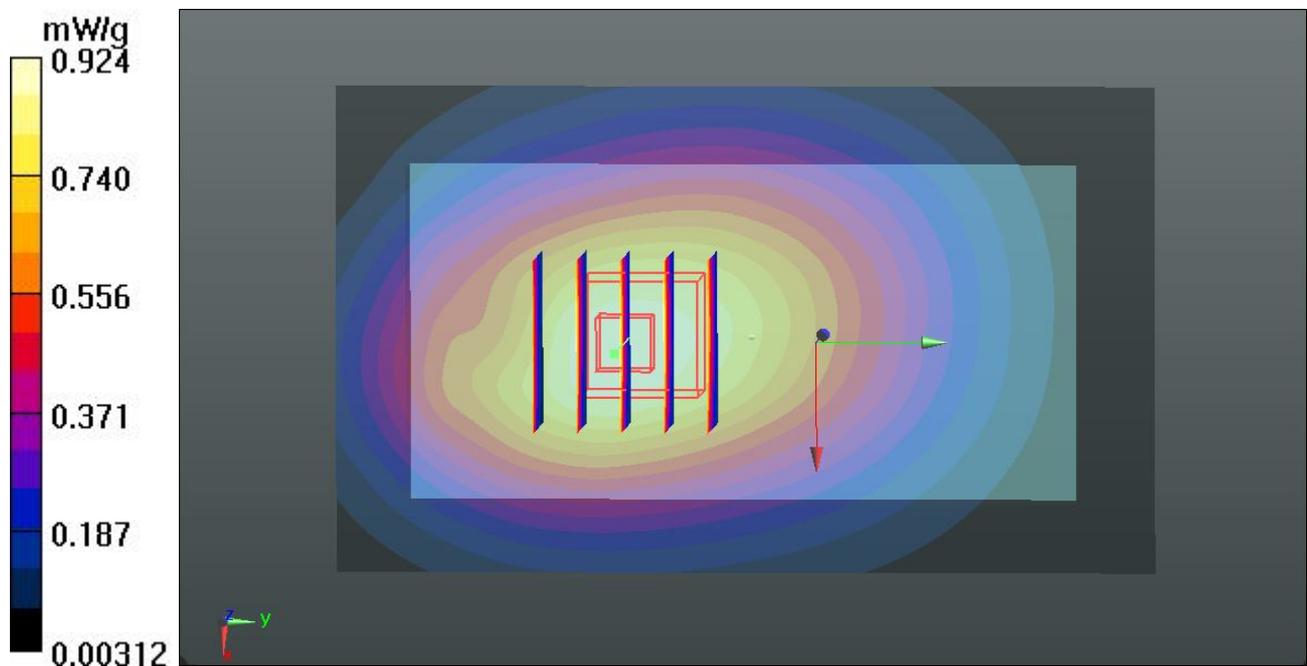
**Ch4182/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 28.547 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 1.1770

**SAR(1 g) = 0.874 mW/g; SAR(10 g) = 0.639 mW/g**

Maximum value of SAR (measured) = 0.922 mW/g



## 27 WCDMA V\_RMC 12.2K\_Left Side\_1.0cm\_Ch4182

**DUT: 250202**

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

Medium: MSL\_835\_120516 Medium parameters used:  $f = 836.4$  MHz;  $\sigma = 0.969$  mho/m;  $\epsilon_r =$

$57.444$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.4 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(6.16, 6.16, 6.16); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch4182/Area Scan (41x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.590 mW/g

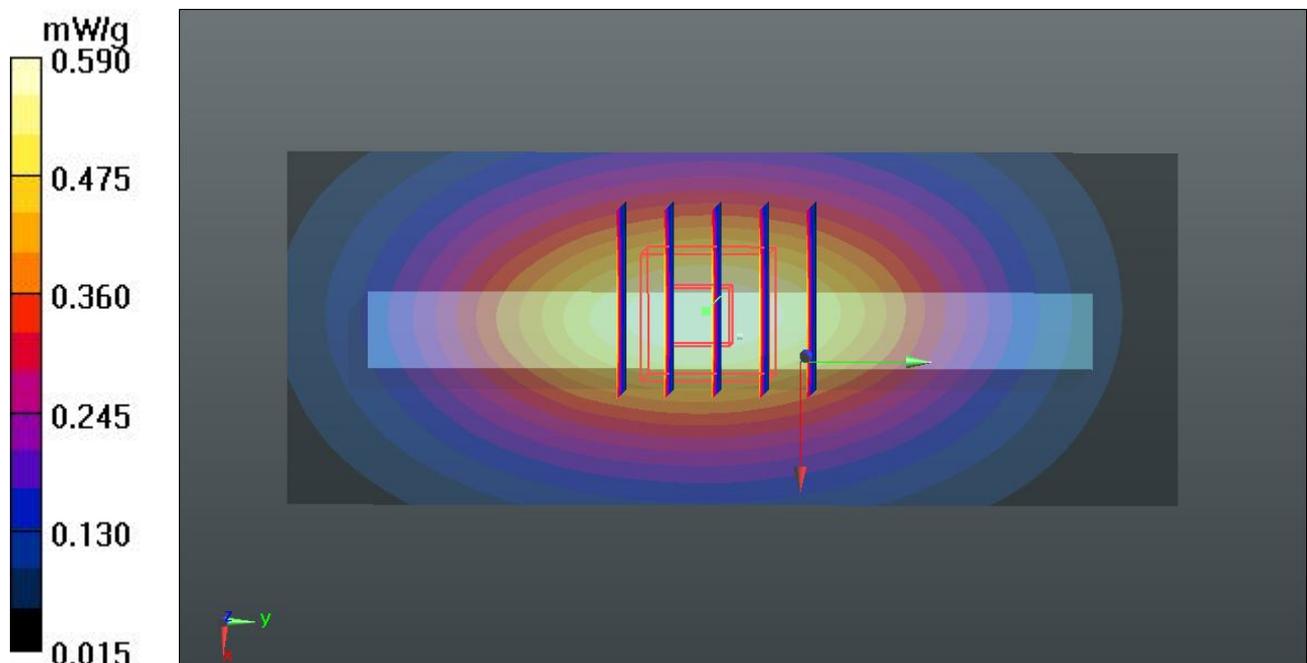
**Ch4182/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 24.553 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 0.7980

**SAR(1 g) = 0.556 mW/g; SAR(10 g) = 0.380 mW/g**

Maximum value of SAR (measured) = 0.589 mW/g



## 28 WCDMA V\_RMC 12.2K\_Right Side\_1.0cm\_Ch4182

**DUT: 250202**

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

Medium: MSL\_835\_120516 Medium parameters used:  $f = 836.4$  MHz;  $\sigma = 0.969$  mho/m;  $\epsilon_r =$

$57.444$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.4 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(6.16, 6.16, 6.16); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch4182/Area Scan (41x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.651 mW/g

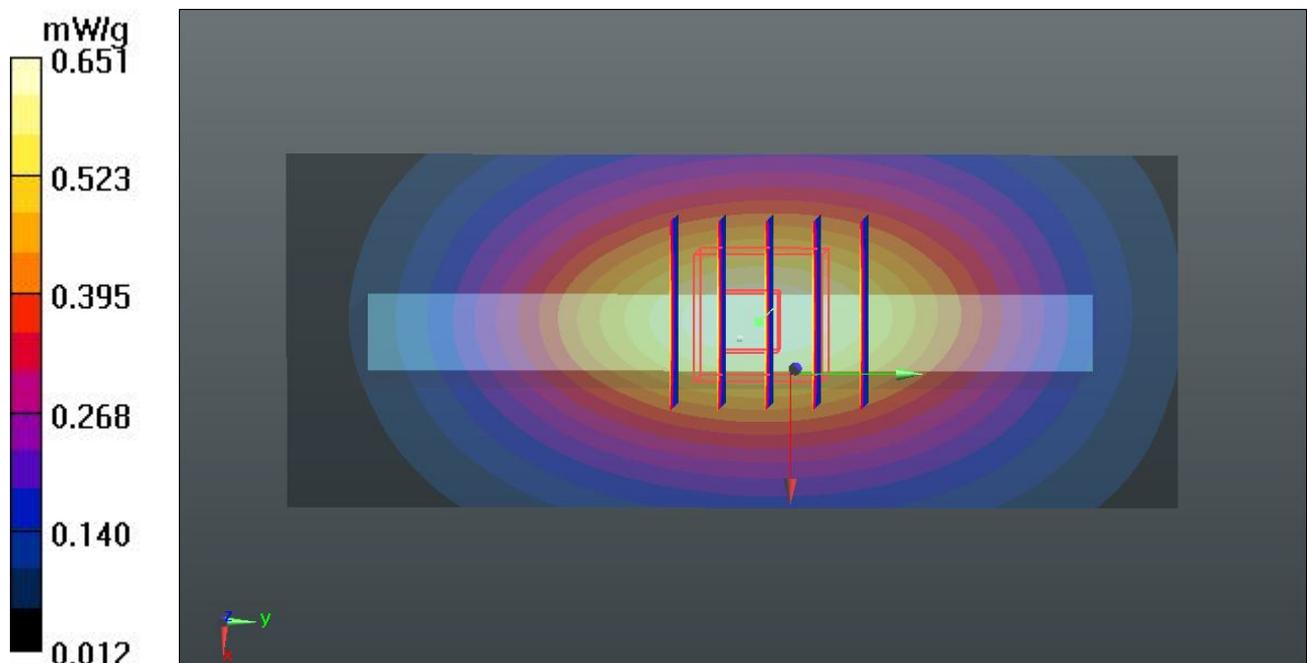
**Ch4182/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 25.984 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 0.8730

**SAR(1 g) = 0.607 mW/g; SAR(10 g) = 0.416 mW/g**

Maximum value of SAR (measured) = 0.645 mW/g



## 29 WCDMA V\_RMC 12.2K\_Bottom Side\_1.0cm\_Ch4182

**DUT: 250202**

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

Medium: MSL\_835\_120516 Medium parameters used:  $f = 836.4$  MHz;  $\sigma = 0.969$  mho/m;  $\epsilon_r =$

$57.444$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.4 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(6.16, 6.16, 6.16); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch4182/Area Scan (41x71x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.146 mW/g

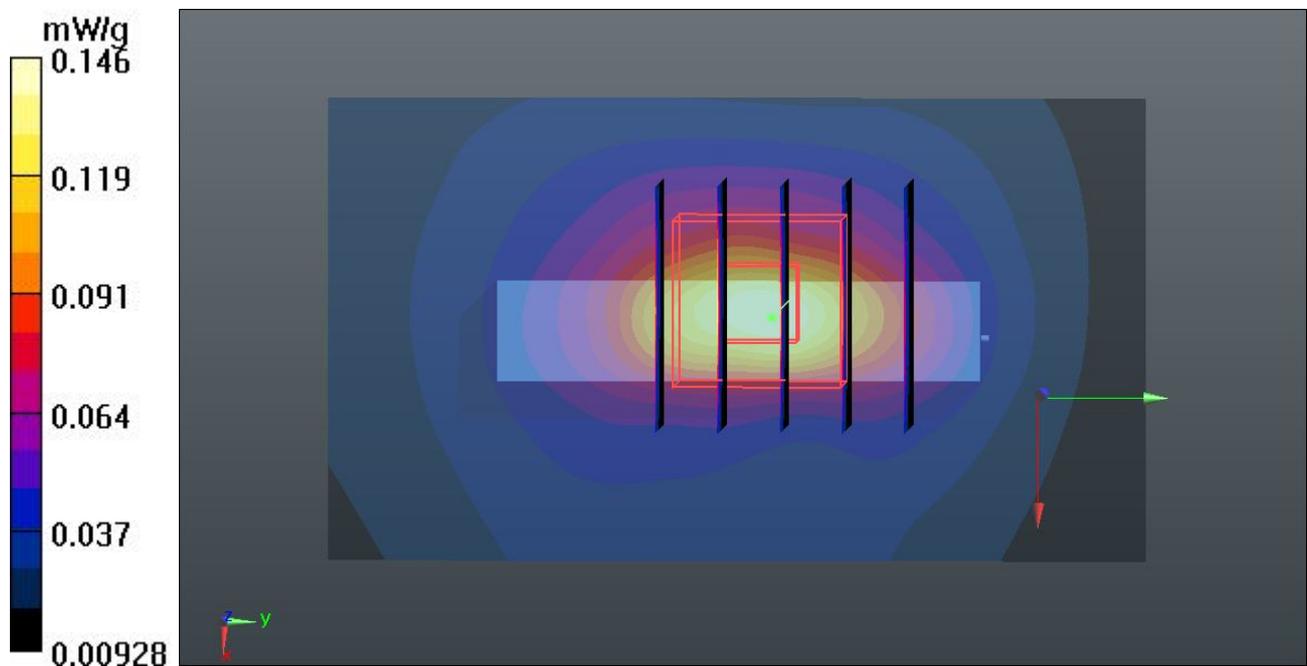
**Ch4182/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 6.880 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 0.2770

**SAR(1 g) = 0.136 mW/g; SAR(10 g) = 0.069 mW/g**

Maximum value of SAR (measured) = 0.152 mW/g



### 30 WCDMA V\_RMC 12.2K\_Front\_1.0cm\_Ch4132

**DUT: 250202**

Communication System: UMTS; Frequency: 826.4 MHz; Duty Cycle: 1:1

Medium: MSL\_835\_120516 Medium parameters used:  $f = 826.4 \text{ MHz}$ ;  $\sigma = 0.96 \text{ mho/m}$ ;  $\epsilon_r = 57.537$ ;

$\rho = 1000 \text{ kg/m}^3$

Ambient Temperature :  $23.5 \text{ }^\circ\text{C}$ ; Liquid Temperature :  $21.4 \text{ }^\circ\text{C}$

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(6.16, 6.16, 6.16); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch4132/Area Scan (61x101x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) =  $0.689 \text{ mW/g}$

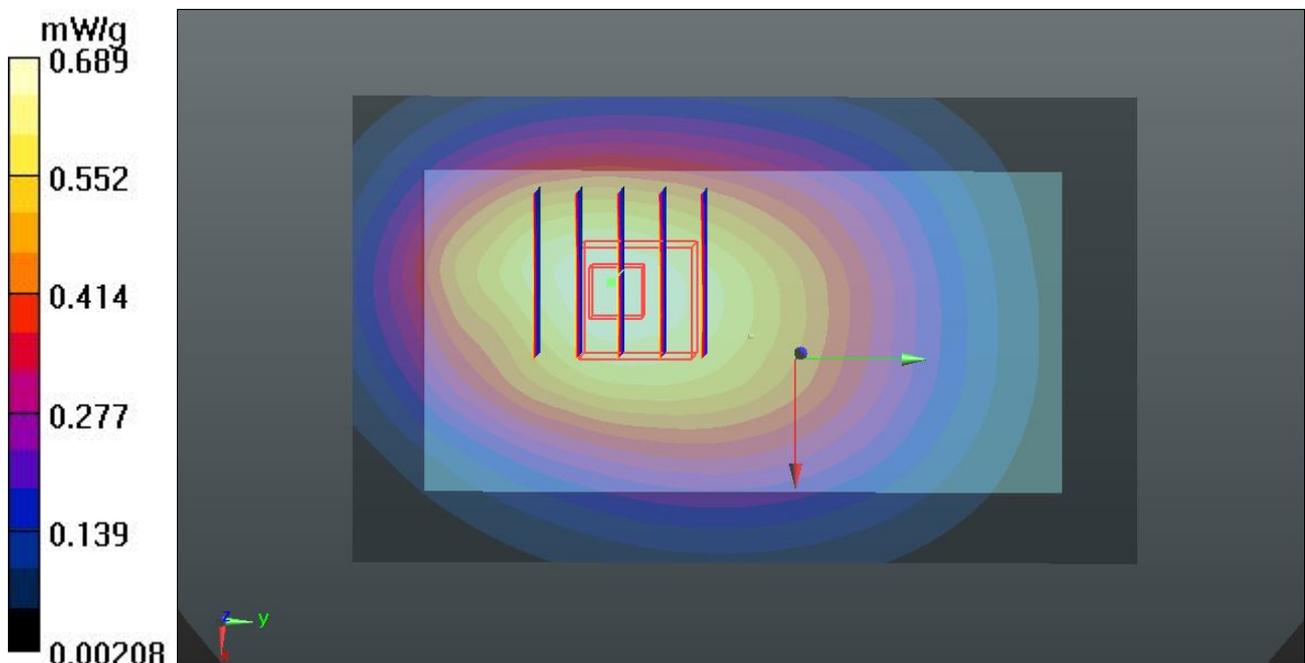
**Ch4132/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value =  $24.263 \text{ V/m}$ ; Power Drift =  $0.06 \text{ dB}$

Peak SAR (extrapolated) =  $0.8780$

**SAR(1 g) =  $0.653 \text{ mW/g}$ ; SAR(10 g) =  $0.482 \text{ mW/g}$**

Maximum value of SAR (measured) =  $0.685 \text{ mW/g}$



### 31 WCDMA V\_RMC 12.2K\_Front\_1.0cm\_Ch4233

**DUT: 250202**

Communication System: UMTS; Frequency: 846.6 MHz; Duty Cycle: 1:1

Medium: MSL\_835\_120516 Medium parameters used:  $f = 847$  MHz;  $\sigma = 0.979$  mho/m;  $\epsilon_r = 57.353$ ;

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

Ambient Temperature : 23.5 °C; Liquid Temperature : 21.4 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(6.16, 6.16, 6.16); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch4233/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.856 mW/g

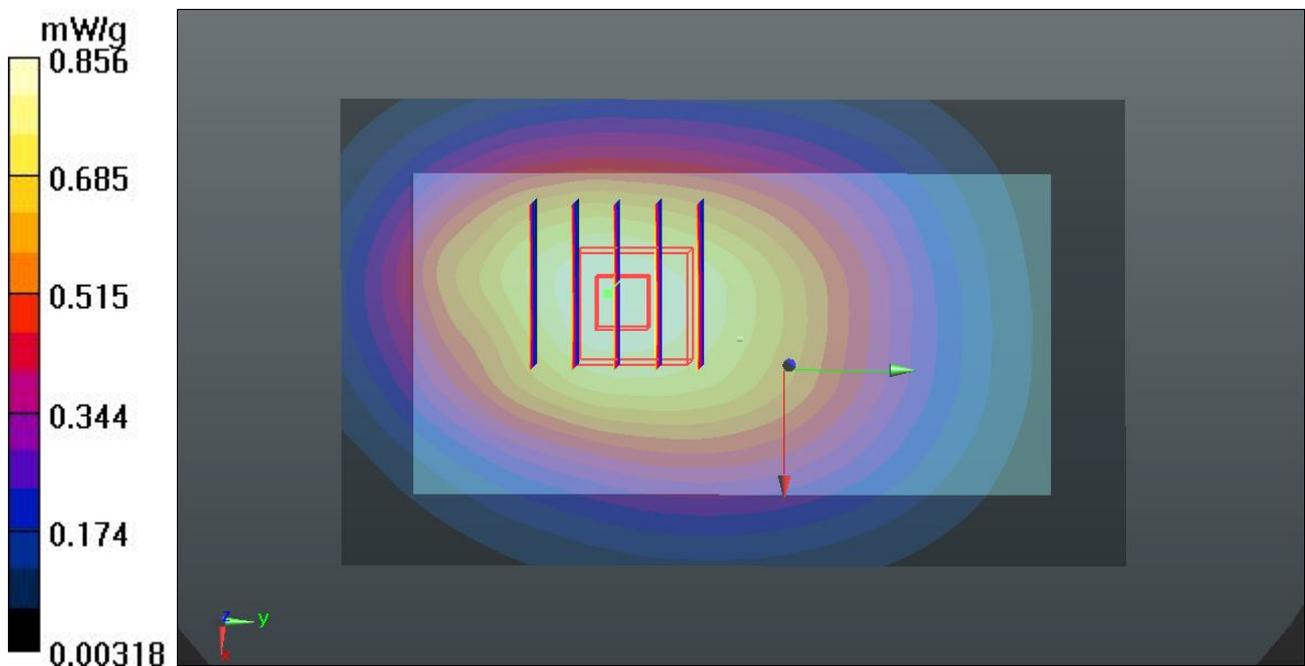
**Ch4233/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 27.422 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 1.0820

**SAR(1 g) = 0.813 mW/g; SAR(10 g) = 0.601 mW/g**

Maximum value of SAR (measured) = 0.852 mW/g



### 32 WCDMA V\_RMC 12.2K\_Back\_1.0cm\_Ch4132

**DUT: 250202**

Communication System: UMTS; Frequency: 826.4 MHz; Duty Cycle: 1:1

Medium: MSL\_835\_120516 Medium parameters used:  $f = 826.4$  MHz;  $\sigma = 0.96$  mho/m;  $\epsilon_r = 57.537$ ;

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

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.4 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(6.16, 6.16, 6.16); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch4132/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.741 mW/g

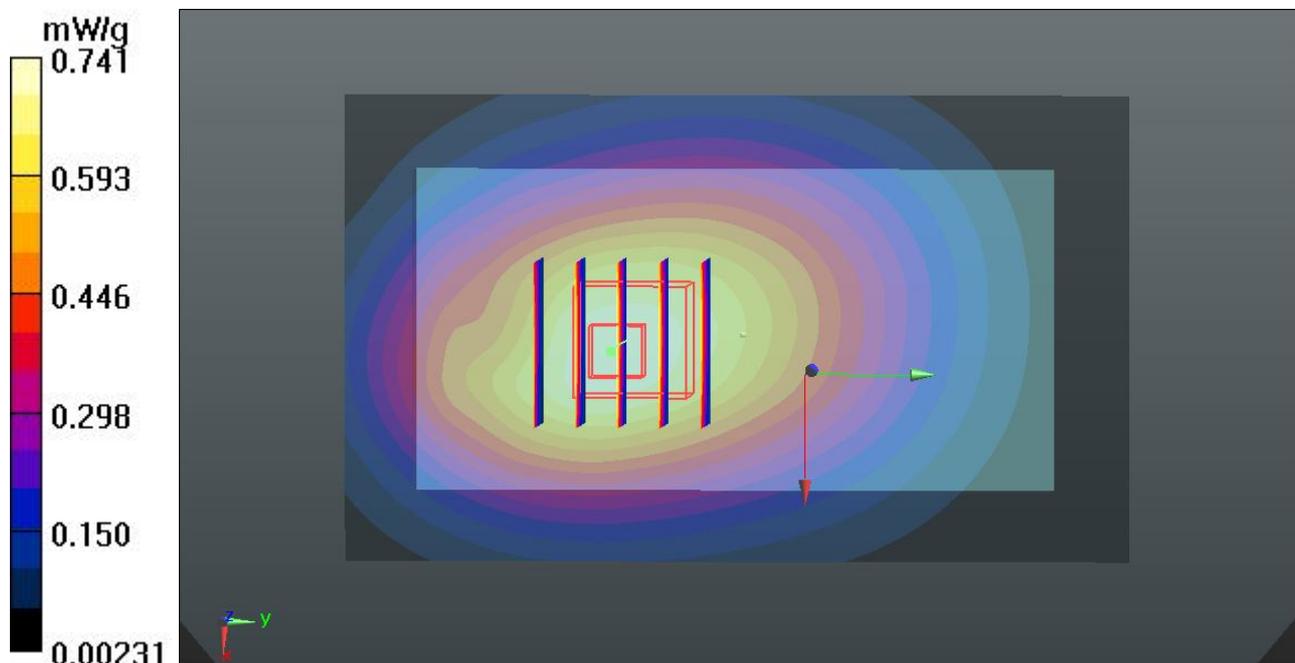
**Ch4132/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 25.381 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 0.9540

**SAR(1 g) = 0.704 mW/g; SAR(10 g) = 0.511 mW/g**

Maximum value of SAR (measured) = 0.744 mW/g



### 33 WCDMA V\_RMC 12.2K\_Back\_1.0cm\_Ch4233

**DUT: 250202**

Communication System: UMTS; Frequency: 846.6 MHz; Duty Cycle: 1:1

Medium: MSL\_835\_120516 Medium parameters used:  $f = 847 \text{ MHz}$ ;  $\sigma = 0.979 \text{ mho/m}$ ;  $\epsilon_r = 57.353$ ;

$\rho = 1000 \text{ kg/m}^3$

Ambient Temperature :  $23.5 \text{ }^\circ\text{C}$ ; Liquid Temperature :  $21.4 \text{ }^\circ\text{C}$

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(6.16, 6.16, 6.16); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch4233/Area Scan (61x101x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) =  $0.925 \text{ mW/g}$

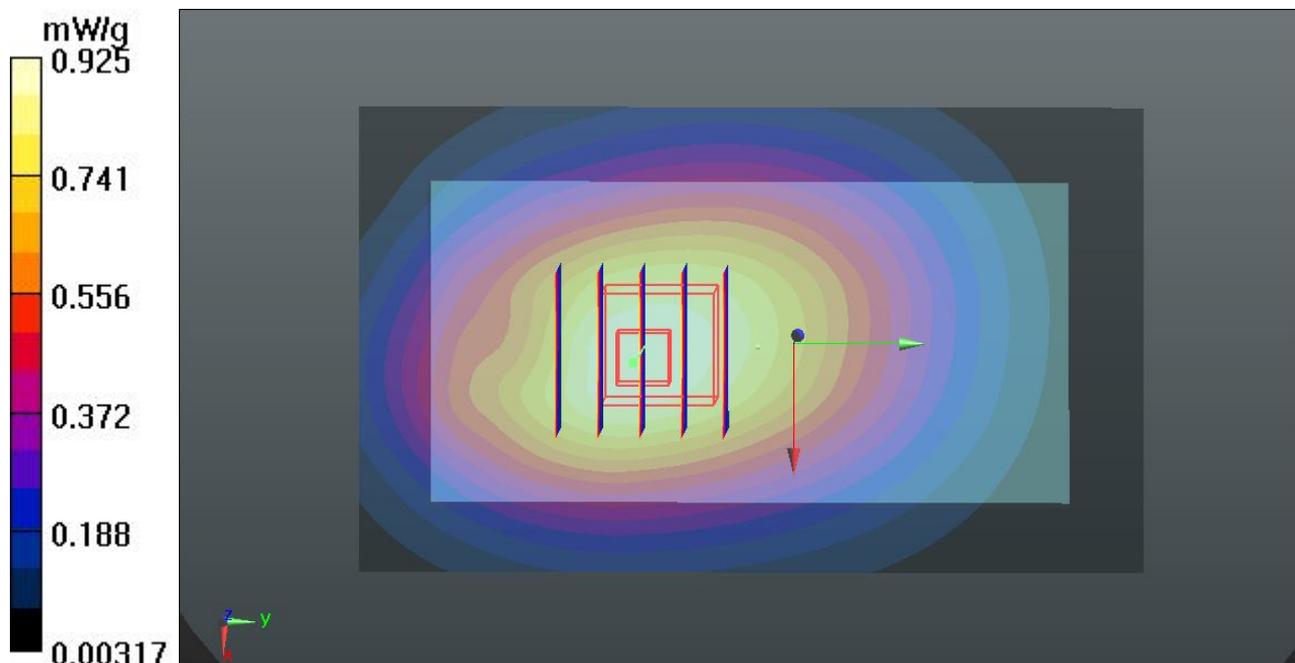
**Ch4233/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value =  $28.852 \text{ V/m}$ ; Power Drift =  $0.04 \text{ dB}$

Peak SAR (extrapolated) =  $1.1900$

**SAR(1 g) =  $0.889 \text{ mW/g}$ ; SAR(10 g) =  $0.650 \text{ mW/g}$**

Maximum value of SAR (measured) =  $0.938 \text{ mW/g}$



### 33 WCDMA V\_RMC 12.2K\_Back\_1.0cm\_Ch4233\_2D

**DUT: 250202**

Communication System: UMTS; Frequency: 846.6 MHz; Duty Cycle: 1:1

Medium: MSL\_835\_120516 Medium parameters used:  $f = 847$  MHz;  $\sigma = 0.979$  mho/m;  $\epsilon_r = 57.353$ ;

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

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.4 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(6.16, 6.16, 6.16); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch4233/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.925 mW/g

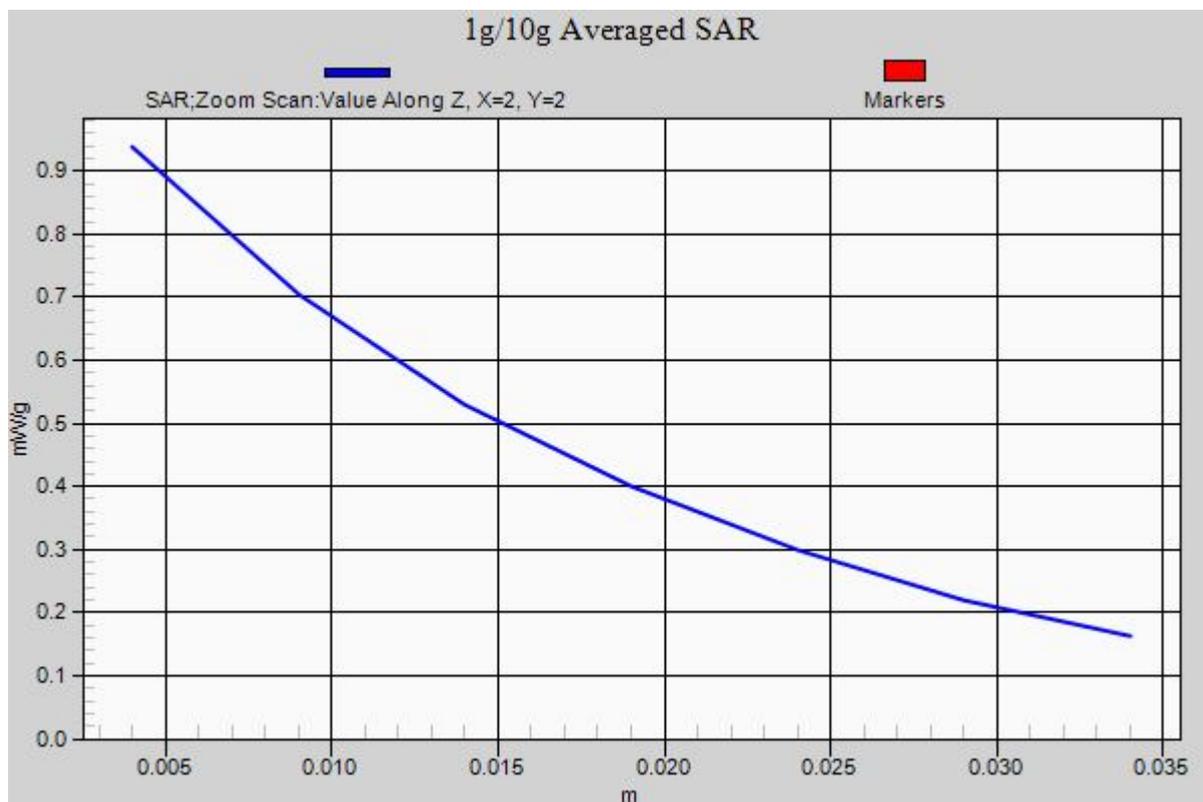
**Ch4233/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 28.852 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 1.1900

**SAR(1 g) = 0.889 mW/g; SAR(10 g) = 0.650 mW/g**

Maximum value of SAR (measured) = 0.938 mW/g



### 34 WCDMA V\_RMC 12.2K\_Back\_1.0cm\_Ch4233\_Earphone

**DUT: 250202**

Communication System: UMTS; Frequency: 846.6 MHz; Duty Cycle: 1:1

Medium: MSL\_835\_120516 Medium parameters used:  $f = 847$  MHz;  $\sigma = 0.979$  mho/m;  $\epsilon_r = 57.353$ ;

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

Ambient Temperature : 23.5 °C ; Liquid Temperature : 21.4 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(6.16, 6.16, 6.16); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM2; Type: QD000P40CD; Serial: TP:1671
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch4233/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.762 mW/g

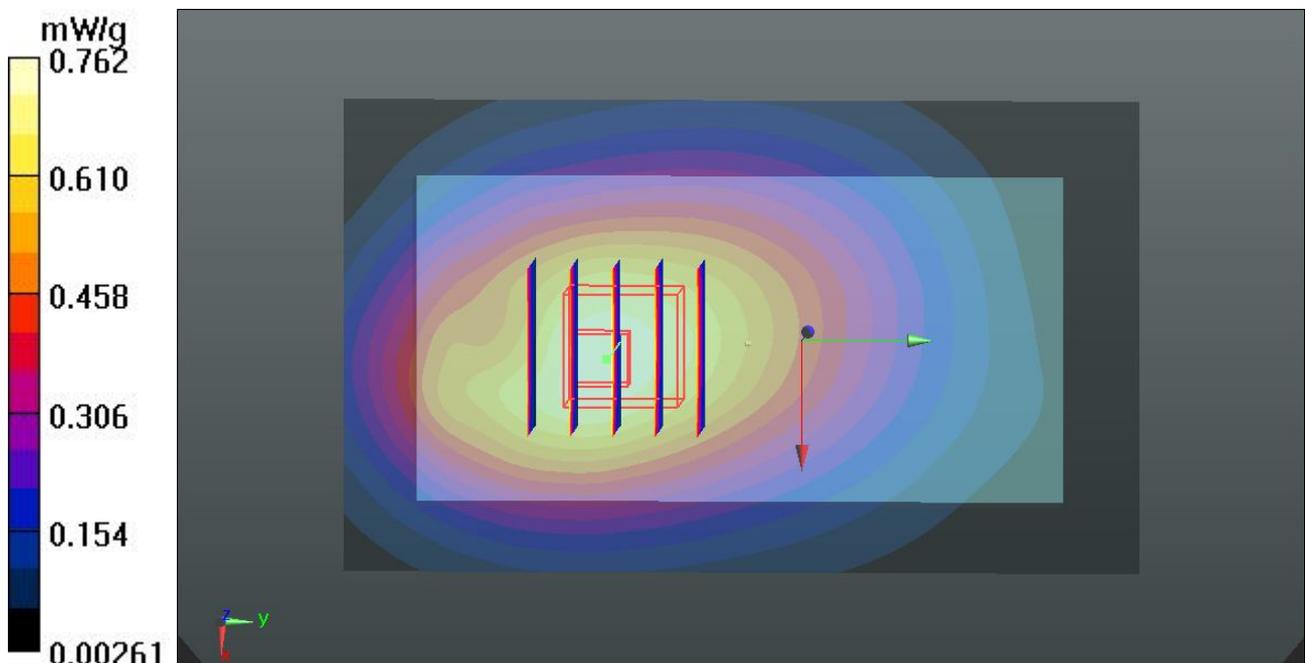
**Ch4233/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 24.437 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 1.0150

**SAR(1 g) = 0.723 mW/g; SAR(10 g) = 0.514 mW/g**

Maximum value of SAR (measured) = 0.762 mW/g



### 61 802.11b\_Front\_1.0cm\_Ch11

**DUT: 250202**

Communication System: WIFI; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium: MSL\_2450\_120606 Medium parameters used:  $f = 2462 \text{ MHz}$ ;  $\sigma = 1.964 \text{ mho/m}$ ;  $\epsilon_r =$

$53.919$ ;  $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature :  $23.4 \text{ }^\circ\text{C}$ ; Liquid Temperature :  $21.6 \text{ }^\circ\text{C}$

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(4.28, 4.28, 4.28); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch11/Area Scan (71x101x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) =  $0.0291 \text{ mW/g}$

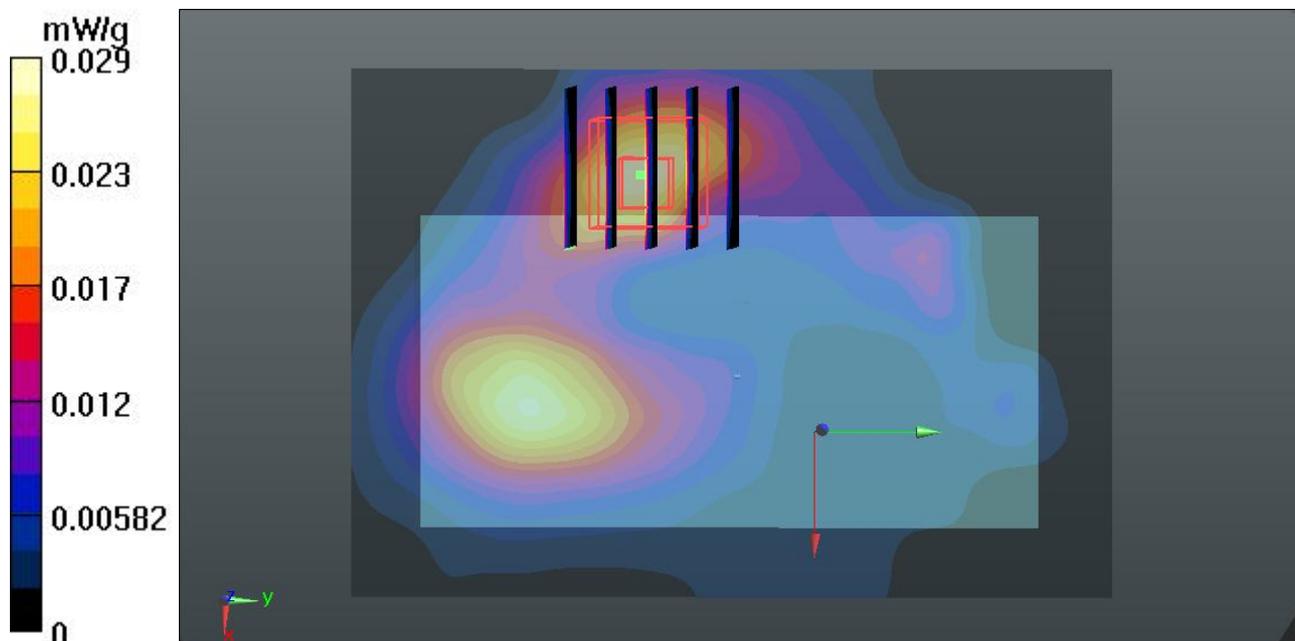
**Ch11/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value =  $1.889 \text{ V/m}$ ; Power Drift =  $0.15 \text{ dB}$

Peak SAR (extrapolated) =  $0.0640$

**SAR(1 g) =  $0.028 \text{ mW/g}$ ; SAR(10 g) =  $0.013 \text{ mW/g}$**

Maximum value of SAR (measured) =  $0.0302 \text{ mW/g}$



## 62 802.11b\_Back\_1.0cm\_Ch11

**DUT: 250202**

Communication System: WIFI; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium: MSL\_2450\_120606 Medium parameters used:  $f = 2462 \text{ MHz}$ ;  $\sigma = 1.964 \text{ mho/m}$ ;  $\epsilon_r =$

$53.919$ ;  $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature :  $23.4 \text{ }^\circ\text{C}$ ; Liquid Temperature :  $21.6 \text{ }^\circ\text{C}$

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(4.28, 4.28, 4.28); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch11/Area Scan (61x101x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) =  $0.105 \text{ mW/g}$

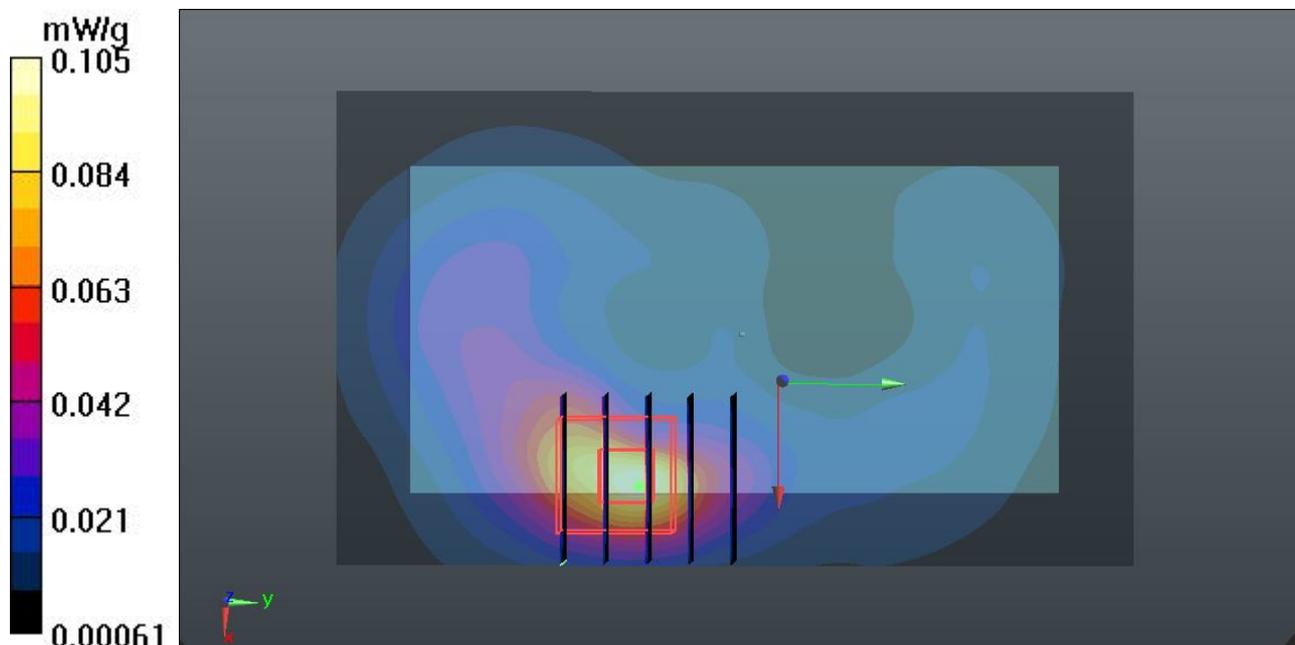
**Ch11/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value =  $2.557 \text{ V/m}$ ; Power Drift =  $0.08 \text{ dB}$

Peak SAR (extrapolated) =  $0.2060$

**SAR(1 g) =  $0.096 \text{ mW/g}$ ; SAR(10 g) =  $0.046 \text{ mW/g}$**

Maximum value of SAR (measured) =  $0.105 \text{ mW/g}$



### 63 802.11b\_Left Side\_1.0cm\_Ch11

**DUT: 250202**

Communication System: WIFI; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium: MSL\_2450\_120606 Medium parameters used:  $f = 2462$  MHz;  $\sigma = 1.964$  mho/m;  $\epsilon_r =$

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

Ambient Temperature : 23.4 °C; Liquid Temperature : 21.6 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(4.28, 4.28, 4.28); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch11/Area Scan (41x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.128 mW/g

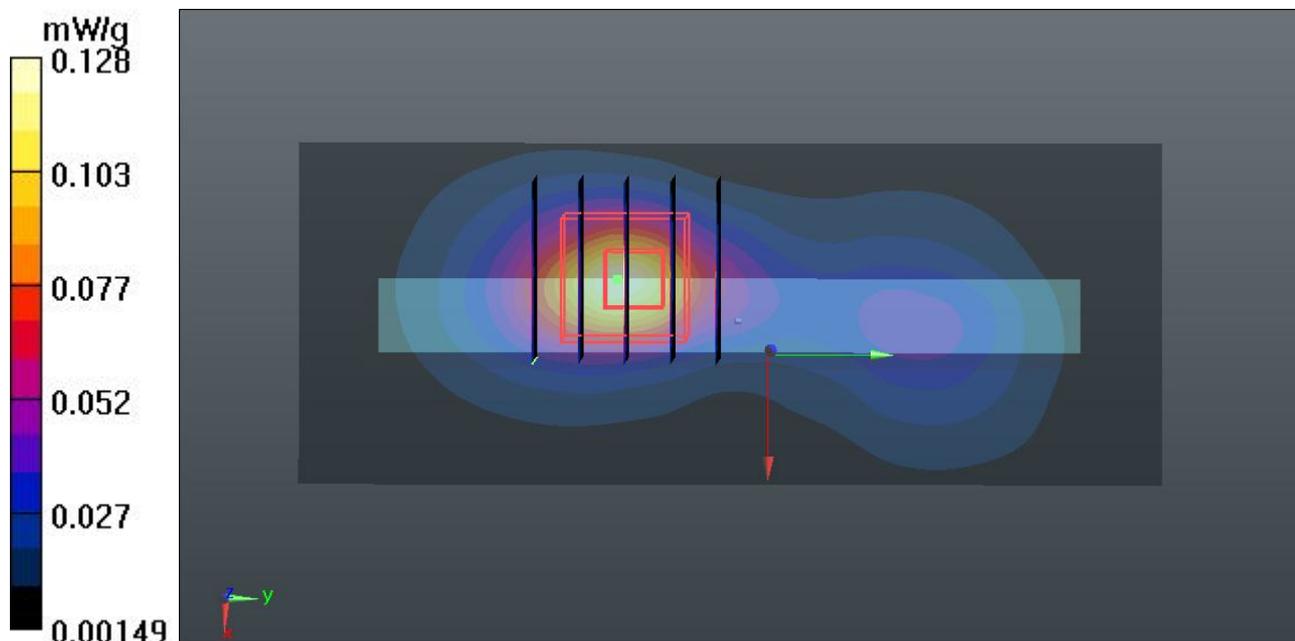
**Ch11/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 4.948 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.2710

**SAR(1 g) = 0.122 mW/g; SAR(10 g) = 0.054 mW/g**

Maximum value of SAR (measured) = 0.138 mW/g



### 63 802.11b\_Left Side\_1.0cm\_Ch11\_2D

**DUT: 250502**

Communication System: WIFI; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium: MSL\_2450\_120606 Medium parameters used:  $f = 2462$  MHz;  $\sigma = 1.964$  mho/m;  $\epsilon_r =$

$53.919$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.4 °C ; Liquid Temperature : 21.6 °C

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(4.28, 4.28, 4.28); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch11/Area Scan (41x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.128 mW/g

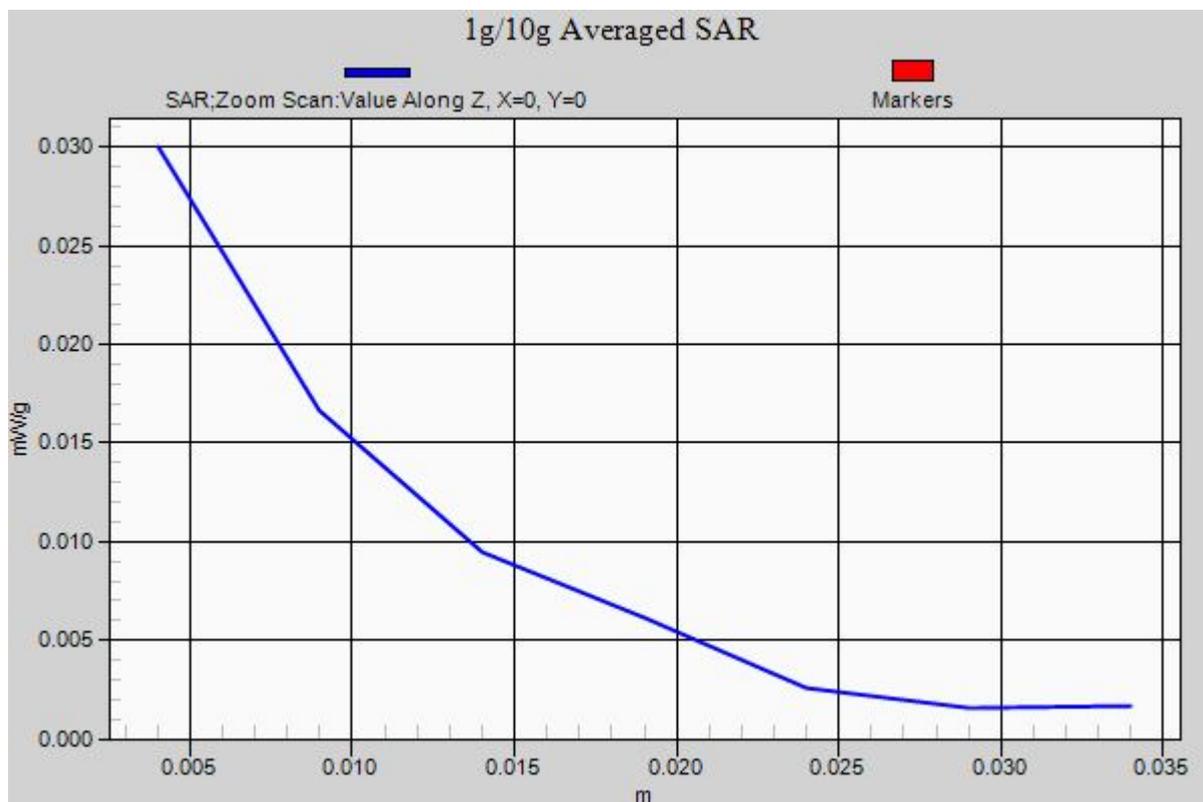
**Ch11/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 4.948 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.271

**SAR(1 g) = 0.122 mW/g; SAR(10 g) = 0.054 mW/g**

Maximum value of SAR (measured) = 0.138 mW/g



## 64 802.11b\_Back\_1.0cm\_Ch11\_Earphone

**DUT: 250202**

Communication System: WIFI; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium: MSL\_2450\_120606 Medium parameters used:  $f = 2462 \text{ MHz}$ ;  $\sigma = 1.964 \text{ mho/m}$ ;  $\epsilon_r =$

$53.919$ ;  $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature :  $23.4 \text{ }^\circ\text{C}$ ; Liquid Temperature :  $21.6 \text{ }^\circ\text{C}$

DASY5 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(4.28, 4.28, 4.28); Calibrated: 12.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1303; Calibrated: 10.11.2011
- Phantom: SAM1; Type: QD000P40CD; Serial: TP:1670
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

**Ch11/Area Scan (61x101x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) =  $0.117 \text{ mW/g}$

**Ch11/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value =  $2.168 \text{ V/m}$ ; Power Drift =  $0.10 \text{ dB}$

Peak SAR (extrapolated) =  $0.2250$

**SAR(1 g) =  $0.107 \text{ mW/g}$ ; SAR(10 g) =  $0.051 \text{ mW/g}$**

Maximum value of SAR (measured) =  $0.117 \text{ mW/g}$

