



No.: RZC2008-1567



# OET 65

## TEST REPORT

<b>Test name</b>	Electromagnetic Field (Specific Absorption Rate)
<b>Product</b>	GSM Dual-Band Digital Mobile Phone
<b>Model</b>	ZTE A931G+
<b>FCC ID</b>	Q78-ZTEA931GPLUS
<b>Client</b>	ZTE CORPORATION

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



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**GENERAL SUMMARY**

<b>Product</b>	GSM Dual-Band Digital Mobile Phone	<b>Model</b>	ZTE A931G+
<b>Client</b>	ZTE CORPORATION	<b>Type of test</b>	Entrusted
<b>Manufacturer</b>	ZTE CORPORATION	<b>Arrival Date of sample</b>	December 9 <sup>th</sup> , 2008
<b>Place of sampling</b>	(Blank)	<b>Carrier of the samples</b>	Min Zhang
<b>Quantity of the samples</b>	One	<b>Date of product</b>	(Blank)
<b>Base of the samples</b>	(Blank)	<b>Items of test</b>	SAR
<b>Series number</b>	355628020000369		
<b>Standard(s)</b>	<p><b>ANSI C95.1-2005:</b> IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz.</p> <p><b>IEEE 1528-2003:</b> Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head Due to Wireless Communications Devices: Experimental Techniques.</p> <p><b>OET Bulletin 65 supplement C, published June 2001 including DA 02-1438, published June 2002:</b> Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits. Transition Period for the Phantom Requirements of Supplement C to OET Bulletin 65.</p> <p><b>IEC 62209-1:</b> Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices – Human models, instrumentation, and procedures –Part 1: Procedure to determine the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz).</p> <p><b>IEC 62209-2(draft):</b> Human exposure to radio frequency fields from handheld and body-mounted wireless communication devices – Human models, instrumentation, and procedures –Part 2: Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body. ( frequency rang of 30MHz to 6GHz )</p>		
<b>Conclusion</b>	<p>Localized Specific Absorption Rate (SAR) of this portable wireless equipment has been measured in all cases requested by the relevant standards cited in Clause 7.2 of this test report. Maximum localized SAR is below exposure limits specified in the relevant standards cited in Clause 7.1 of this test report.</p> <p>General Judgment: <b>Pass</b></p> <p style="text-align: right;">(Stamp) Date of issue: <b>December 24<sup>th</sup>, 2008</b></p>		
<b>Comment</b>	The test result only responds to the measured sample.		

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## **1. COMPETENCE AND WARRANTIES**

**TA Technology (Shanghai) Co., Ltd.** is a test laboratory competent to carry out the tests described in this test report.

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

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### 3. DESCRIPTION OF EUT

#### 3.1. Addressing Information Related to EUT

**Table 1: Applicant (The Client)**

Name or Company	ZTE CORPORATION
Address/Post	ZTE Plaza, Keji Road South, Hi-Tech Industrial Park,Nanshan District,Shenzhen, Guangdong, 518057, P.R.China
City	Shenzhen
Postal Code	518057
Country	P.R.China
Telephone	021-68897541
Fax	021-50801070

**Table 2: Manufacturer**

Name or Company	ZTE CORPORATION
Address/Post	ZTE Plaza, Keji Road South, Hi-Tech Industrial Park,Nanshan District,Shenzhen, Guangdong, 518057, P.R.China
City	Shenzhen
Postal Code	518057
Country	P.R.China
Telephone	021-68897541
Fax	021-50801070

#### 3.2. Constituents of EUT

**Table 3: Constituents of Samples**

Description	Model	Serial Number	Manufacturer
Handset	ZTE A931G+	355628020000369	ZTE CORPORATION
Lithium Battery	Li37007T42P3h463848	10020809042345402	ZTE CORPORATION
AC/DC Adapter	STC-A22O50U8-C	100803230474080	ZTE CORPORATION

Note:

The EUT appearances see ANNEX H.

#### 3.3. General Description

Equipment Under Test (EUT) is a model of GSM Dual-Band Digital Mobile Phone with internal antenna. The EUT is a slide phone. It consists of Handset, Lithium Battery and AC/DC Adapter. The detail about Mobile phone, Lithium Battery and AC/DC Adapter is in Table 3. SAR is tested for GSM 850 and GSM 1900. The EUT has GPRS(Class 10) function.

The sample under test was selected by the Client.

Components list please refer to documents of the manufacturer.

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**3.4. Test item**

**Table 4: Test item of EUT**

Device type :	portable device	
Exposure category:	uncontrolled environment / general population	
Device operating configurations :		
Operating mode(s):	GSM850; ( tested ) GSM1900; ( tested )	
GPRS mobile station class :	A	
GPRS multislots class :	10	
Modulation:	GMSK,	
Standard output power	(33dBm,2W)GSM850; ( tested ) (30dBm,1W)GSM1900; ( tested )	
Operating frequency range(s)	transmitter frequency range	receiver frequency range
GSM850: (tested)	824.2 MHz ~ 848.8 MHz	869.2 MHz ~ 893.8 MHz
GSM1900: (tested)	1850.2 MHz ~ 1909.8 MHz	1930.2 MHz ~ 1989.8 MHz
Power class	GSM 850: 4, tested with power level 5	
	GSM 1900: 1, tested with power level 0	
Test channel (Low –Middle –High)	128 -190 - 251 (GSM850) (tested) 512 - 661 – 810 (GSM1900) (tested)	
Hardware version:	g3yB	
Software version:	EFS-P108C2FM(G)(U)V1.0.0B01	
Antenna type:	integrated antenna	

## **4. OPERATIONAL CONDITIONS DURING TEST**

### **4.1. General description of test procedures**

Connection to the EUT is established via air interface with E5515C, and the EUT is set to maximum output power by E5515C. The antenna connected to the output of the base station simulator shall be placed at least 50 cm away from the EUT. The signal transmitted by the simulator to the antenna feeding point shall be lower than the output power level of the EUT by at least 30 dB.

### **4.2. GSM Test Configuration**

SAR tests for GSM 850 and GSM 1900, a communication link is set up with a System Simulator (SS) by air link. Using E5515C the power level is set to "5" in head SAR and body SAR of GSM850, set to "0" in head SAR and body SAR of GSM1900,

The tests in the band of GSM 850 and GSM 1900 are performed in the mode of speech transfer function and GPRS. And since the GPRS class is 10 for this EUT, it has at most 2 timeslots in uplink.

## 5. SAR MEASUREMENTS SYSTEM CONFIGURATION

### 5.1. SAR Measurement Set-up

The DASY4 system for performing compliance tests consists of the following items:

- A standard high precision 6-axis robot (Stäubli RX family) with controller and software. An arm extension for accommodating the data acquisition electronics (DAE).
- A dosimetric probe, i.e. an isotropic E-field probe optimized and calibrated for usage in tissue simulating liquid. The probe is equipped with an optical surface detector system.
- A data acquisition electronic (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- A unit to operate the optical surface detector which is connected to the EOC.
- The Electro-Optical Coupler (EOC) performs the conversion from the optical into a digital electric signal of the DAE. The EOC is connected to the DASY4 measurement server.
- The DASY4 measurement server, which performs all real-time data evaluation for field measurements and surface detection, controls robot movements and handles safety operation. A computer operating Windows 2003
- DASY4 software and SEMCAD data evaluation software.
- Remote control with teach panel and additional circuitry for robot safety such as warning lamps, etc.
- The generic twin phantom enabling the testing of left-hand and right-hand usage.
- The device holder for handheld mobile phones.
- Tissue simulating liquid mixed according to the given recipes.
- System validation dipoles allowing to validate the proper functioning of the system.

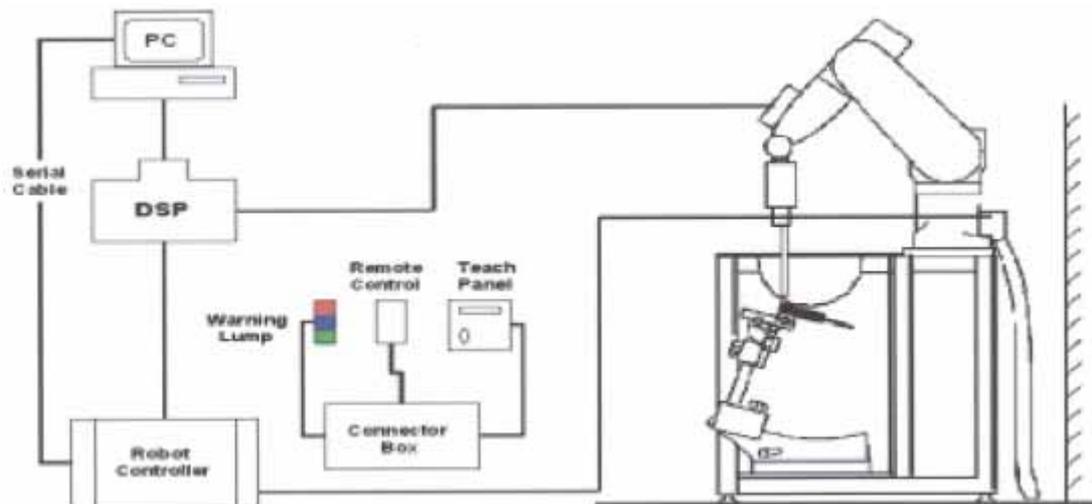


Figure 1. SAR Lab Test Measurement Set-up

## 5.2. Dasy4 E-field Probe System

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

### 5.2.1. EX3DV4 Probe Specification

Construction	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Calibration	Basic Broad Band Calibration in air Conversion Factors (CF) for HSL 900 and HSL 1750 Additional CF for other liquids and frequencies upon request
Frequency	10 MHz to > 6 GHz Linearity: $\pm 0.2$ dB (30 MHz to 6 GHz)
Directivity	$\pm 0.3$ dB in HSL (rotation around probe axis) $\pm 0.5$ dB in tissue material (rotation normal to probe axis)
Dynamic Range	10 $\mu$ W/g to > 100 mW/g Linearity: $\pm 0.2$ dB (noise: typically < 1 $\mu$ W/g)
Dimensions	Overall length: 330 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm
Application	High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields). Only probe which enables compliance testing for frequencies up to 6 GHz with precision of better 30%.



Figure 2. EX3DV4 E-field Probe



Figure 3. EX3DV4 E-field probe

### 5.2.2. E-field Probe Calibration

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

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

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

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

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

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

Where:  
 $\sigma$  = Simulated tissue conductivity,  
 $\rho$  = Tissue density (kg/m<sup>3</sup>).

### 5.3. Other Test Equipment

#### 5.3.1. Device Holder for Transmitters

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

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



**Figure 4. Device Holder**

### 5.3.2. Phantom

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

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



**Figure 5. Generic Twin Phantom**

### 5.4. Scanning procedure

The DASY4 installation includes predefined files with recommended procedures for measurements and validation. They are read-only document files and destined as fully defined but unmeasured masks. All test positions (head or body-worn) are tested with the same configuration of test steps differing only in the grid definition for the different test positions.

- The "reference" and "drift" measurements are located at the beginning and end of the batch process. They measure the field drift at one single point in the liquid over the complete procedure. The indicated drift is mainly the variation of the DUT's output power and should vary max. ± 5 %.
- The "surface check" measurement tests the optical surface detection system of the DASY4 system by repeatedly detecting the surface with the optical and mechanical surface detector and comparing the results. The output gives the detecting heights of both systems, the difference between the two systems and the standard deviation of the detection repeatability. Air bubbles or refraction in the liquid due to separation of the sugar-water mixture gives poor repeatability (above ± 0.1mm). To prevent wrong results tests are only executed when the liquid is free of air bubbles. The difference between the optical surface detection and the actual surface depends on the probe and is specified with each probe. (It does not depend on the surface reflectivity or the probe angle to the surface within ± 30°.)
- Area Scan  
The Area Scan is used as a fast scan in two dimensions to find the area of high field values

before running a detailed measurement around the hot spot. Before starting the area scan a grid spacing of 15 mm x 15 mm is set. During the scan the distance of the probe to the phantom remains unchanged.

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

- **Zoom Scan**

Zoom Scans are used to estimate the peak spatial SAR values within a cubic averaging volume containing 1 g and 10 g of simulated tissue. The default Zoom Scan is done by 7x7x7 points within a cube whose base is centered around the maxima found in the preceding area scan.

- **Spatial Peak Detection**

The procedure for spatial peak SAR evaluation has been implemented according to the IEEE1529 standard and can determine values of masses of 1g and 10g, as well as for user-specific masses. The DASY4 system allows evaluations that combine measured data and robot positions, such as:

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

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

Extrapolation routines are used to obtain SAR values between the lowest measurement points and the inner phantom surface. The extrapolation distance is determined by the surface detection distance and the probe sensor offset. Several measurements at different distances are necessary for the extrapolation. Extrapolation routines require at least 10 measurement points in 3-D space. They are used in the Zoom Scan to obtain SAR values between the lowest measurement points and the inner phantom surface. The routine uses the modified Quadratic Shepard's method for extrapolation. For a grid using 7x7x7 measurement points with 5mm resolution amounting to 343 measurement points, the uncertainty of the extrapolation routines is less than 1% for 1g and 10g cubes.

- A Z-axis scan measures the total SAR value at the x-and y-position of the maximum SAR value found during the cube 7x7x7 scan. The probe is moved away in z-direction from the bottom of the SAM phantom in 5mm steps.

## 5.5. Data Storage and Evaluation

### 5.5.1. Data Storage

The DASY4 software stores the acquired data from the data acquisition electronics as raw data (in microvolt readings from the probe sensors), together with all necessary software parameters for the data evaluation (probe calibration data, liquid parameters and device frequency and modulation data) in measurement files with the extension ".DA4". The software evaluates the desired unit and format for output each time the data is visualized or exported. This allows verification of the complete software setup even after the measurement and allows correction of incorrect parameter settings. For example, if a measurement has been performed with a wrong crest factor parameter in the device setup, the parameter can be corrected afterwards and the data can be re-evaluated.

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

### 5.5.2. Data Evaluation by SEMCAD

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

Probe parameters:	- Sensitivity	Normi, ai <sub>0</sub> , a <sub>i1</sub> , a <sub>i2</sub>
	- Conversion factor	ConvF <sub>i</sub>
	- Diode compression point	Dcp <sub>i</sub>
Device parameters:	- Frequency	f
	- Crest factor	cf
Media parameters:	- Conductivity	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 DASY4 components. In the direct measuring mode of the multimeter option, the parameters of the actual system setup are used. In the scan visualization and export modes, the parameters stored in the corresponding document files are used.

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

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

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

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

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

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

$dcp_i$  = diode compression point (DASY parameter)

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

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

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

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

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

$ConvF$  = sensitivity enhancement in solution

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

$f$  = carrier frequency [GHz]

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

## 5.6. System validation

System validation is performed by using a validation dipole which is positioned parallel to the planar part of the SAM phantom at the reference point. The distance of the dipole to the SAM phantom is determined by a plexiglass spacer. The dipole is connected to the signal source consisting of signal generator and amplifier via a directional coupler, N-connector cable and adaptation to SMA. It is fed with a power of 1000 mW. To adjust this power a power meter is used. The power sensor is connected to the cable before the validation to measure the power at this point and do adjustments at the signal generator. At the outputs of the directional coupler both return loss as well as forward power are controlled during the validation to make sure that emitted power at the dipole is kept constant. This can also be checked by the power drift measurement after the test.

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

System validation is performed regularly on all frequency bands where tests are performed with the DASY 4 system.

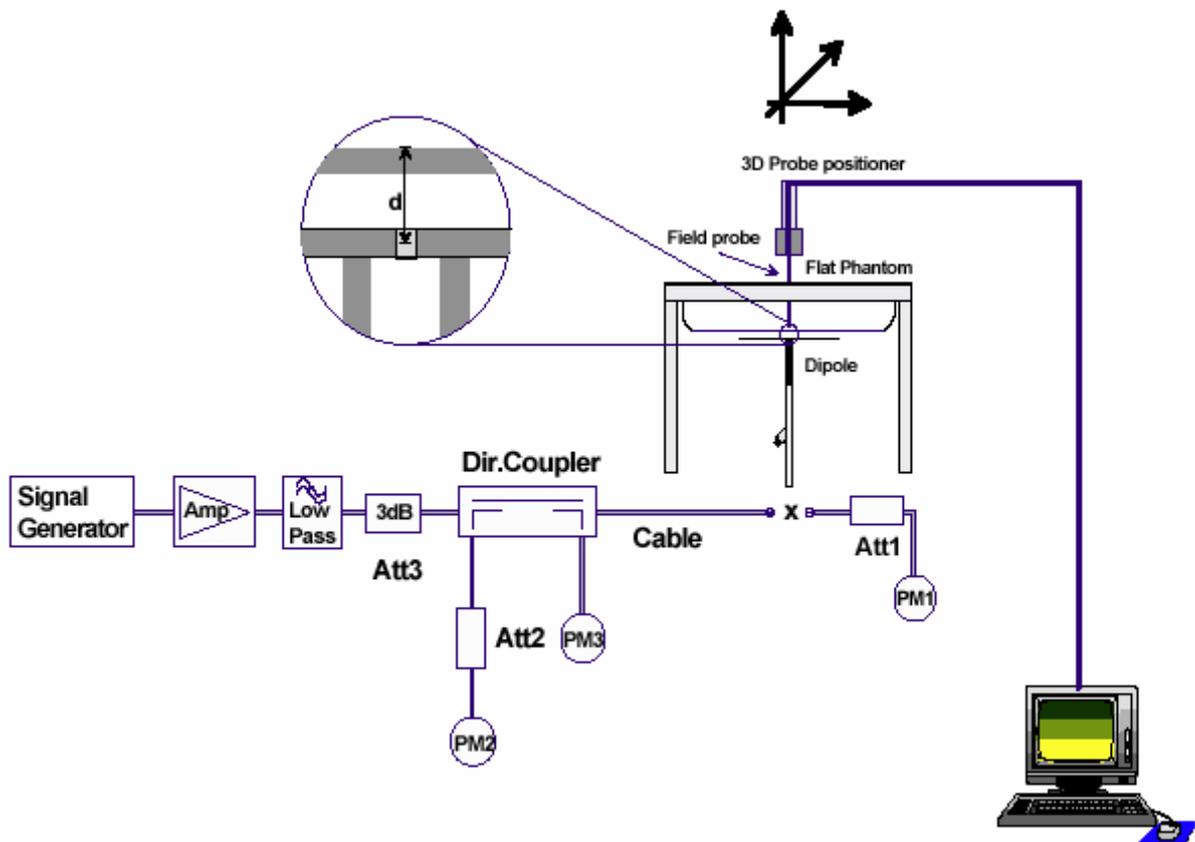


Figure 6. System validation Set-up

### 5.7. Equivalent Tissues

The liquid is consisted of water, salt, Glycol, Sugar, Preventol and Cellulose. The liquid has previously been proven to be suited for worst-case. The Table 5 and Table 6 show the detail solution. It's satisfying the latest tissue dielectric parameters requirements proposed by the OET 65.

**Table 5: Composition of the Head Tissue Equivalent Matter**

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

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

**Table 6: Composition of the Body Tissue Equivalent Matter**

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

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

## 6. LABORATORY ENVIRONMENT

**Table 7: The Ambient Conditions during Test**

Temperature	Min. = 20°C, Max. = 25 °C
Relative humidity	Min. = 30%, Max. = 70%
Ground system resistance	< 0.5 $\Omega$
Ambient noise is checked and found very low and in compliance with requirement of standards.	
Reflection of surrounding objects is minimized and in compliance with requirement of standards.	

## 7. CHARACTERISTICS OF THE TEST

### 7.1. Applicable Limit Regulations

**ANSI C95.1–2005:** IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz.

It specifies the maximum exposure limit of 1.6 W/kg as averaged over any 1 gram of tissue for portable devices being used within 20 cm of the user in the uncontrolled environment.

### 7.2. Applicable Measurement Standards

**IEEE 1528–2003:** Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head Due to Wireless Communications Devices: Experimental Techniques.

**OET Bulletin 65 supplement C, published June 2001 including DA 02-1438, published June 2002:** Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits. Transition Period for the Phantom Requirements of Supplement C to OET Bulletin 65.

**IEC 62209-1:** Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices – Human models, instrumentation, and procedures –Part 1: Procedure to determine the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz).

**IEC 62209-2(draft):** Human exposure to radio frequency fields from handheld and body-mounted wireless communication devices – Human models, instrumentation, and procedures –Part 2: Procedure to determine the Specific Absorption Rate (SAR)for wireless communication devices used in close proximity to the human body .( frequency rang of 30MHz to 6GHz )

## 8. CONDUCTED OUTPUT POWER MEASUREMENT

### 8.1. Summary

The DUT is tested using an E5515C communications tester as controller unit to set test channels and maximum output power to the DUT, as well as for measuring the conducted peak power. Conducted output power was measured using an integrated RF connector and attached RF cable. This result contains conducted output power for the EUT.

### 8.2. Conducted Power Results

**Table 8: Conducted Power Measurement Results**

<b>GSM 850</b>	<b>Conducted Power</b>		
	Channel 128	Channel 190	Channel 251
	(824.2MHz)	(836.6MHz)	(848.8MHz)
Result (dBm)	30.70	30.60	30.59
<b>GSM 850+GPRS</b>	<b>Conducted Power</b>		
	Channel 128	Channel 128	Channel 128
	(824.2MHz)	(836.6MHz)	(848.8MHz)
Result (dBm)	31.25	31.18	31.33
<b>GSM 1900</b>	<b>Conducted Power</b>		
	Channel 512	Channel 661	Channel 810
	(1850.2MHz)	(1880MHz)	(1909.8MHz)
Result (dBm)	26.54	26.58	26.44
<b>GSM 1900+GPRS</b>	<b>Conducted Power</b>		
	Channel 512	Channel 661	Channel 810
	(1850.2MHz)	(1880MHz)	(1909.8MHz)
Result (dBm)	20.36	19.89	19.90

## 9. TEST RESULTS

### 9.1. Dielectric Performance

**Table 9: Dielectric Performance of Head Tissue Simulating Liquid**

Measurement is made at temperature 22.5 °C and relative humidity 51%. Liquid temperature during the test: 22.3°C					
Frequency (MHz)		Target value	Measurement value	Difference percentage	
<b>835 (Brain)</b>	Permittivity $\epsilon_r$	41.5	41.21	-0.70	%
	Conductivity $\sigma$	0.9	0.89	-1.11	%
<b>1900 (Brain)</b>	Permittivity $\epsilon_r$	40	39.98	-0.05	%
	Conductivity $\sigma$	1.4	1.41	0.71	%

**Table 10: Dielectric Performance of Body Tissue Simulating Liquid**

Measurement is made at temperature 22.5 °C and relative humidity 51%. Liquid temperature during the test: 22.3°C					
Frequency (MHz)		Target value	Measurement value	Difference percentage	
<b>835 (Body)</b>	Permittivity $\epsilon_r$	55.2	54.06	-2.07	%
	Conductivity $\sigma$	0.97	0.98	1.03	%
<b>1900 (Body)</b>	Permittivity $\epsilon_r$	53.3	51.59	-3.21	%
	Conductivity $\sigma$	1.52	1.56	2.63	%

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**9.2. System Validation Results**

**Table 11: System Validation for Head tissue simulant**

Measurement is made at temperature 23.2 °C, relative humidity 50%, and input power 250 mW. Liquid temperature during the test: 22.3°C					
	Frequency	Description	Dielectric Parameters		Temp
			Permittivity $\epsilon$	Conductivity $\sigma$ (S/m)	
<b>Liquid parameters</b>	835MHz	Recommended result $\pm 5\%$ window	40.9 38.85---42.94	0.89 0.85---0.93	/
		Measurement value	41.21	0.89	22.3
	1900MHz	Recommended result $\pm 5\%$ window	38.8 36.86---40.74	1.47 1.40---1.54	/
		Measurement value	39.98	1.41	22.3
	Frequency	Description	SAR(W/kg)		Input Power
			10 g Average	1 g Average	
<b>Velidation results</b>	835MHz	Recommended result $\pm 10\%$ window	1.52 1.37--1.67	2.30 2.07--2.53	250mW
		Measurement value	1.50	2.30	250mW
	1900MHz	Recommended result $\pm 10\%$ window	5.06 4.55---5.57	9.84 8.86--10.82	250mW
		Measurement value	5.09	9.74	250mW

- Note: 1. Target Values used derive from the SPEAG calibration certificate and 250 mW is used as feeding power to the validation dipole (SPEAG using).  
 2. The graph results see ANNEX B.  
 3. Target values are the data of the dipole calibration results; please check ANNEX E/F for the Dipole Calibration Certificate.

### 9.3. Summary of Measurement Results

**Table 12: SAR Values (GSM850, Head, Slide open)**

Liquid Temperature: 22.5					
Limit of SAR (W/kg)		10 g Average	1 g Average	Power Drift (dB)	Graph Results
		2.0	1.6	± 0.21	
Test Case Of Head		Measurement Result(W/kg)		Power Drift (dB)	
		10 g Average	1 g Average		
Different Test Position	Channel				
Left hand, Touch cheek	High	0.242	0.340	-0.003	Figure 11
	Middle	0.229	0.322	-0.106	Figure 13
	Low	0.228	0.319	0.062	Figure 15
Left hand, Tilt 15 Degree	Middle	0.122	0.166	0.046	Figure 17
Right hand, Touch cheek	Middle	0.203	0.286	0.143	Figure 19
Right hand, Tilt 15 Degree	Middle	0.116	0.161	0.156	Figure 21

Note: 1. Upper and lower frequencies were measured at the worst position of head.

2. The SAR test shall be performed at the high, middle and low frequency channels of each operating mode. If the SAR measured at mid-band channel for each test configuration is at least 3.0 dB lower than the SAR limit (< 0.8W/kg), testing at the high and low channels is optional.

**Table 13: SAR Values (GSM850, Head, Slide close)**

Liquid Temperature: 22.5					
Limit of SAR (W/kg)		10 g Average	1 g Average	Power Drift (dB)	Graph Results
		2.0	1.6	± 0.21	
Test Case Of Head		Measurement Result(W/kg)		Power Drift (dB)	
		10 g Average	1 g Average		
Different Test Position	Channel				
Left hand, Touch cheek	High	0.246	0.343	-0.077	Figure 23
	Middle	0.229	0.317	0.030	Figure 25
	Low	0.220	0.303	0.115	Figure 27
Left hand, Tilt 15 Degree	Middle	0.122	0.165	-0.041	Figure 29
Right hand, Touch cheek	Middle	0.224	0.317	0.174	Figure 31
Right hand, Tilt 15 Degree	Middle	0.119	0.162	0.063	Figure 33

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

2. Upper and lower frequencies were measured at the worst position of head.

3. The SAR test shall be performed at the high, middle and low frequency channels of each operating mode. If the SAR measured at mid-band channel for each test configuration is at least 3.0 dB lower than the SAR limit (< 0.8W/kg), testing at the high and low channels is optional.

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**Table 14: SAR Values (GSM850, Body, Slide open, Distance 15mm)**

Liquid Temperature: 22.5°C					
Limit of SAR (W/kg)		10 g Average	1 g Average	Power Drift (dB)	Graph Results
		2.0	1.6	± 0.21	
Test Case Of Body		Measurement Result (W/kg)		Power Drift (dB)	
		10 g Average	1 g Average		
Different Test Position	Channel	10 g Average	1 g Average	Power Drift (dB)	Graph Results
Towards Ground	High	<b>0.256</b>	<b>0.362</b>	0.069	Figure 35
	Middle	0.246	0.348	-0.173	Figure 37
	Low	0.241	0.341	0.000	Figure 39
Towards Phantom	Middle	0.203	0.281	-0.073	Figure 41
Worst case position of Body in speech transfer mode with Earphone					
Towards Ground	High	0.235	0.335	-0.020	Figure 43
Test position of Body with GPRS					
Towards Ground	High	0.447	0.638	0.053	Figure 45
	Middle	0.456	0.646	0.108	Figure 47
	Low	0.452	0.638	0.062	Figure 49
Towards Phantom	Middle	0.322	0.442	0.004	Figure 51

- Note: 1. Tests in body position were performed with 15 mm air gap between DUT and Phantom to simulate the use of a non-metallic belt-clip or holster.
2. Upper and lower frequencies were measured at the worst position of body.
3. The SAR test shall be performed at the high, middle and low frequency channels of each operating mode. If the SAR measured at mid-band channel for each test configuration is at least 3.0 dB lower than the SAR limit (< 0.8W/kg), testing at the high and low channels is optional.

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**Table 15: SAR Values (GSM850, Body, Slide Close, Distance 15mm)**

Liquid Temperature: 22.5°C					
Limit of SAR (W/kg)		10 g Average	1 g Average	Power Drift (dB)	Graph Results
		2.0	1.6	± 0.21	
Test Case Of Body		Measurement Result (W/kg)		Power Drift (dB)	
		10 g Average	1 g Average		
Different Test Position	Channel				
Towards Ground	High	<b>0.250</b>	<b>0.361</b>	0.070	Figure 53
	Middle	0.225	0.324	-0.011	Figure 55
	Low	0.226	0.326	-0.123	Figure 57
Towards Phantom	Middle	0.139	0.192	-0.005	Figure 59
Worst case position of Body in speech transfer mode with Earphone					
Towards Ground	High	0.235	0.340	-0.093	Figure 61
Test position of Body with GPRS					
Towards Ground	High	<b>0.471</b>	<b>0.679</b>	-0.094	Figure 63
	Middle	0.432	0.623	0.020	Figure 65
	Low	0.366	0.523	-0.155	Figure 67
Towards Phantom	Middle	0.226	0.313	-0.036	Figure 69

- Note: 1. the value with blue color is the maximum SAR Value of test case of body in each test band.
2. Tests in body position were performed with 15 mm air gap between DUT and Phantom to simulate the use of a non-metallic belt-clip or holster.
  3. Upper and lower frequencies were measured at the worst position of body.
  4. The SAR test shall be performed at the high, middle and low frequency channels of each operating mode. If the SAR measured at mid-band channel for each test configuration is at least 3.0 dB lower than the SAR limit (< 0.8W/kg), testing at the high and low channels is optional.

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**Table 16: SAR Values (GSM1900, Head, Slide open)**

Liquid Temperature: 22.5°C					
Limit of SAR (W/kg)		10 g Average	1 g Average	Power Drift (dB)	Graph Results
		2.0	1.6	± 0.21	
Test Case Of Head		Measurement Result(W/kg)		Power Drift (dB)	
		10 g Average	1 g Average		
Different Test Position	Channel				
Left hand, Touch cheek	High	0.187	0.335	-0.196	Figure 71
	Middle	0.224	0.367	0.054	Figure 73
	Low	0.184	0.300	0.115	Figure 75
Left hand, Tilt 15 Degree	Middle	0.087	0.144	-0.170	Figure 77
Right hand, Touch cheek	Middle	0.206	0.323	-0.186	Figure 79
Right hand, Tilt 15 Degree	Middle	0.112	0.192	-0.174	Figure 81

- Note: 1. Upper and lower frequencies were measured at the worst position of head.  
 2. The SAR test shall be performed at the high, middle and low frequency channels of each operating mode. If the SAR measured at mid-band channel for each test configuration is at least 3.0 dB lower than the SAR limit (< 0.8W/kg), testing at the high and low channels is optional.

**Table 17: SAR Values (GSM1900, Head, Slide close)**

Liquid Temperature: 22.5°C					
Limit of SAR (W/kg)		10 g Average	1 g Average	Power Drift (dB)	Graph Results
		2.0	1.6	± 0.21	
Test Case Of Head		Measurement Result(W/kg)		Power Drift (dB)	
		10 g Average	1 g Average		
Different Test Position	Channel				
Left hand, Touch cheek	High	0.377	0.606	0.033	Figure 83
Left hand, Tilt 15 Degree	Middle	0.113	0.186	0.008	Figure 85
Right hand, Touch cheek	High	0.434	0.742	-0.166	Figure 87
	Middle	0.510	0.867	-0.133	Figure 89
	Low	0.437	0.747	-0.021	Figure 91
Right hand, Tilt 15 Degree	Middle	0.115	0.184	0.036	Figure 93

- Note: 1. The value with blue color is the maximum SAR Value of test case of head in each test band  
 2. Upper and lower frequencies were measured at the worst position of head.  
 3. The SAR test shall be performed at the high, middle and low frequency channels of each operating mode. If the SAR measured at mid-band channel for each test configuration is at least 3.0 dB lower than the SAR limit (< 0.8W/kg), testing at the high and low channels is optional.

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**Table 18: SAR Values (GSM1900, Body, Slide open, Distance 15mm)**

Liquid Temperature: 22.5°C					
Limit of SAR (W/kg)		10 g Average	1 g Average	Power Drift (dB)	Graph Results
		2.0	1.6	± 0.21	
Test Case Of Body		Measurement Result (W/kg)		Power Drift (dB)	
		10 g Average	1 g Average		
Different Test Position	Channel	10 g Average	1 g Average	Power Drift (dB)	
Towards Ground	High	0.310	0.532	0.037	Figure 95
	Middle	<b>0.318</b>	<b>0.538</b>	-0.172	Figure 97
	Low	0.272	0.455	0.001	Figure 99
Towards Phantom	Middle	0.115	0.184	-0.029	Figure 101
Worst case position of Body in speech transfer mode with Earphone					
Towards Ground	Middle	0.325	0.556	-0.004	Figure 103
Test position of Body with GPRS					
Towards Ground	High	<b>0.486</b>	<b>0.823</b>	0.134	Figure 105
	Middle	0.475	0.793	-0.138	Figure 107
	Low	0.425	0.701	-0.139	Figure 109
Towards Phantom	Middle	0.224	0.360	-0.173	Figure 111

- Note: 1. The value with blue color is the maximum SAR Value of test case of body in each test band.
2. Tests in body position were performed with 15 mm air gap between DUT and Phantom to simulate the use of a non-metallic belt-clip or holster.
  3. Upper and lower frequencies were measured at the worst position of body.
  4. The SAR test shall be performed at the high, middle and low frequency channels of each operating mode. If the SAR measured at mid-band channel for each test configuration is at least 3.0 dB lower than the SAR limit (< 0.8W/kg), testing at the high and low channels is optional.

**Table 19: SAR Values (GSM1900, Body, Slide close, Distance 15mm)**

Liquid Temperature: 22.5°C					
Limit of SAR (W/kg)		10 g Average	1 g Average	Power Drift (dB)	Graph Results
		2.0	1.6	± 0.21	
Test Case Of Body		Measurement Result (W/kg)		Power Drift (dB)	
		10 g Average	1 g Average		
Different Test Position	Channel				
Towards Ground	High	0.221	0.385	0.057	Figure 113
	Middle	<b>0.252</b>	<b>0.437</b>	-0.048	Figure 115
	Low	0.229	0.396	-0.093	Figure 117
Towards Phantom	Middle	0.122	0.200	-0.188	Figure 119
Worst case position of Body in speech transfer mode with Earphone					
Towards Ground	Middle	0.199	0.348	-0.020	Figure 121
Test position of Body with GPRS					
Towards Ground	High	0.418	0.733	-0.119	Figure 123
	Middle	0.471	0.819	0.020	Figure 125
	Low	0.461	0.791	0.093	Figure 127
Towards Phantom	Middle	0.217	0.357	-0.190	Figure 129

- Note: 1. Tests in body position were performed with 15 mm air gap between DUT and Phantom to simulate the use of a non-metallic belt-clip or holster.
2. Upper and lower frequencies were measured at the worst position of body.
3. The SAR test shall be performed at the high, middle and low frequency channels of each operating mode. If the SAR measured at mid-band channel for each test configuration is at least 3.0 dB lower than the SAR limit (< 0.8W/kg), testing at the high and low channels is optional.

#### 9.4. Conclusion

Localized Specific Absorption Rate (SAR) of this portable wireless device has been measured in all cases requested by the relevant standards cited in Clause 7.2 of this report. Maximum localized SAR are 0.867 W/kg (head) and 0.823W/kg (body) that are below exposure limits specified in the relevant standards cited in Clause 7.1 of this test report.

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**10. MEASUREMENT UNCERTAINTY**

No.	a	Type	c	d	e=f(d, k)	f	h=cxf / e	k
	Uncertainty Component		Tol. (±%)	Prob. Dist	Div.	c <sub>1</sub> (1g)	1g u (± %)	v <sub>1</sub>
1	System repetivity	A	0.5	N	1	1	0.5	9
Measurement system								
2	Probe Calibration	B	5	N	2	1	2.5	∞
3	Axial isotropy	B	4.7	R	$\sqrt{3}$	$(1-c_p)_{1/2}$	4.3	∞
4	Hemisphere Isotropy	B	9.4	R	$\sqrt{3}$	$\sqrt{C_P}$		∞
5	Boundary Effect	B	0.4	R	$\sqrt{3}$	1	0.23	∞
6	Linearity	B	4.7	R	$\sqrt{3}$	1	2.7	∞
7	System Detection Limits	B	1.0	R	$\sqrt{3}$	1	0.6	∞
8	Readout Electronics	B	1.0	N	1	1	1.0	∞
9	RF Ambient Conditions	B	3.0	R	$\sqrt{3}$	1	1.73	∞
10	Probe Positioner Mechanical Tolerance	B	0.4	R	$\sqrt{3}$	1	0.2	∞
11	Probe Positioning with respect to Phantom Shell	B	2.9	R	$\sqrt{3}$	1	1.7	∞
12	Extrapolation, interpolation and Integration Algorithms for Max. SAR Evaluation	B	3.9	R	$\sqrt{3}$	1	2.3	∞
Test Sample Related								
13	Test Sample Positioning	A	4.9	N	1	1	4.9	N-1
14	Device Holder Uncertainty	A	6.1	N	1	1	6.1	N-1
15	Output Power Variation-SAR drift measurement	B	5.0	R	$\sqrt{3}$	1	2.9	∞
Phantom and Tissue Parameters								
16	Phantom Uncertainty(shape and thickness tolerances)	B	1.0	R	$\sqrt{3}$	1	0.6	∞
17	Liquid Conductivity-deviation from target values	B	5.0	R	$\sqrt{3}$	0.64	1.7	∞
18	Liquid Conductivity-measurement uncertainty	B	5.0	N	1	0.64	1.7	M
19	Liquid Permittivity-deviation from target values	B	5.0	R	$\sqrt{3}$	0.6	1.7	∞
20	Liquid Permittivity- measurement uncertainty	B	5.0	N	1	0.6	1.7	M
Combined Standard Uncertainty							11.25	
Expanded Uncertainty (95 % CONFIDENCE INTERVAL)							22.5	

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## 11. MAIN TEST INSTRUMENTS

**Table 20: List of Main Instruments**

No.	Name	Type	Serial Number	Calibration Date	Valid Period
01	Network analyzer	Agilent 8753E	US37390326	September 14, 2008	One year
02	Dielectric Probe Kit	Agilent 85070E	US44020115	No Calibration Requested	
03	Power meter	Agilent E4417A	GB41291714	March 14, 2008	One year
04	Power sensor	Agilent 8481H	MY41091316	March 14, 2008	One year
05	Signal Generator	HP 8341B	2730A00804	September 14, 2008	One year
06	Amplifier	IXA-020	0401	No Calibration Requested	
07	BTS	E5515C	GB46490218	September 14, 2008	One year
08	E-field Probe	EX3DV4	3660	September 3, 2008	One year
09	DAE	DAE3	536	August 28, 2008	One year
10	Validation Kit 835MHz	D835V2	4d020	July 21, 2008	One year
11	Validation Kit 1900MHz	D1900V2	5d060	July 22, 2008	One year

## 12. TEST PERIOD

The test is performed from December 13, 2008 to December 15, 2008.

## 13. TEST LOCATION

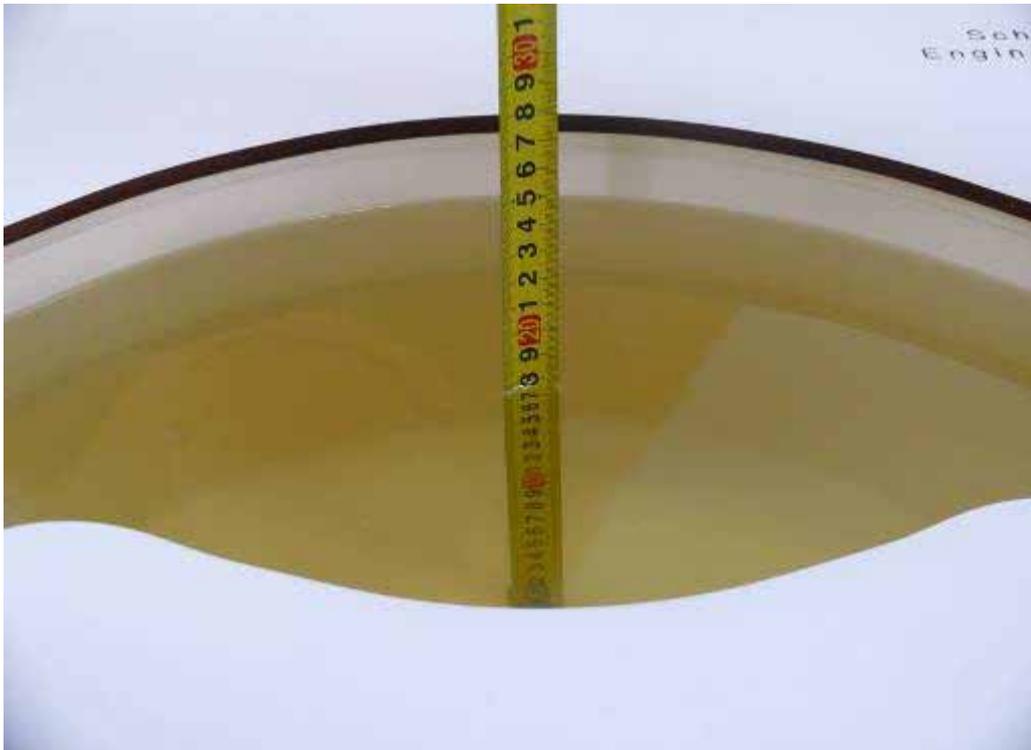
The test is performed at TA Technology (Shanghai) Co., Ltd.

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

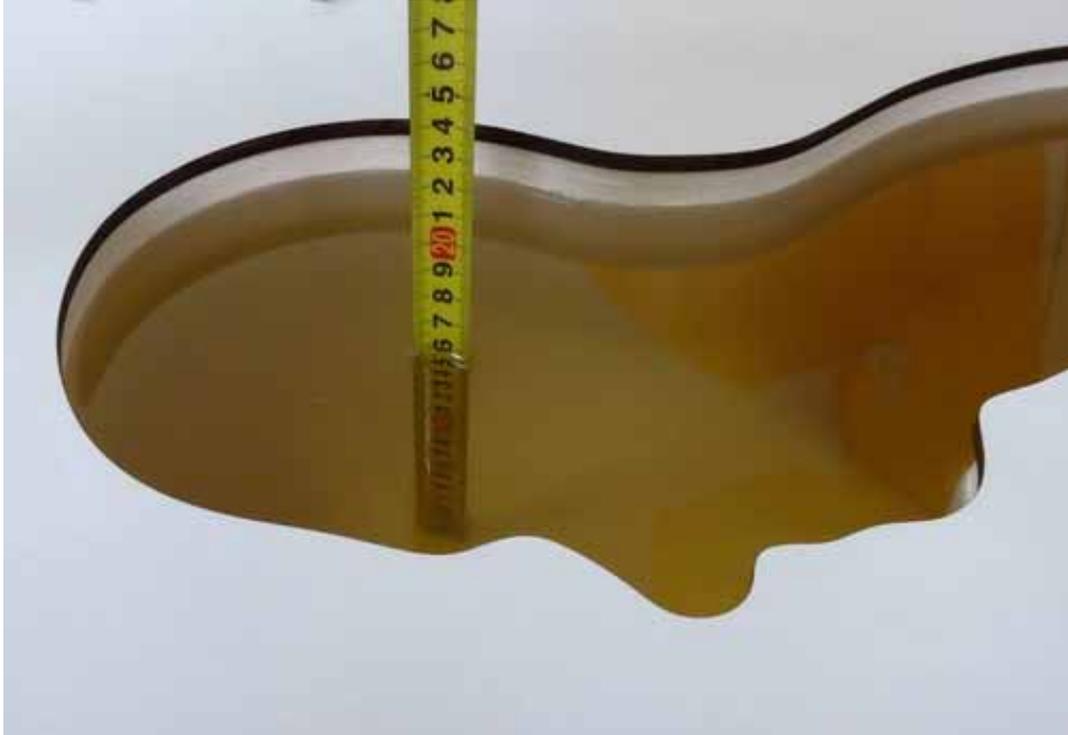
## ANNEX A: TEST LAYOUT



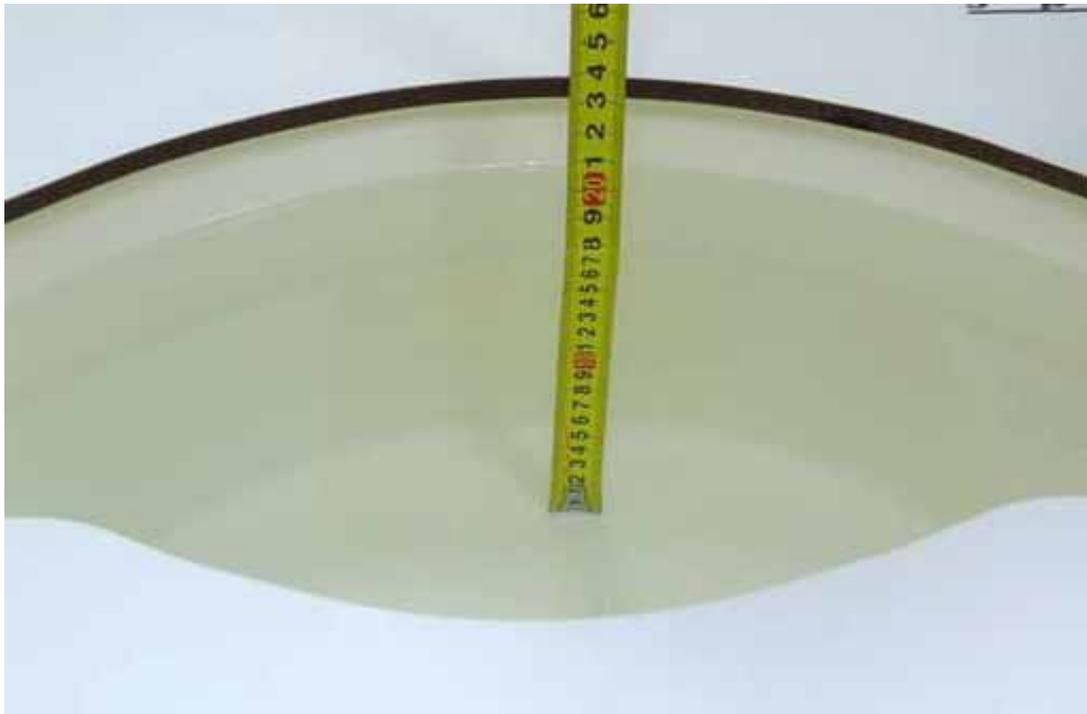
Picture 1: Specific Absorption Rate Test Layout



Picture 2: Liquid depth in the flat Phantom (835MHz)



Picture 3: Liquid depth in the head Phantom (835MHz)



Picture 4: Liquid depth in the flat Phantom (1900 MHz)



Picture 5: liquid depth in the head Phantom (1900 MHz)

## ANNEX B: SYSTEM VALIDATION RESULTS

### System Performance Check at 835 MHz

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

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

Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.89 \text{ mho/m}$ ;  $\epsilon_r = 41.21$ ;  $\rho = 1000 \text{ kg/m}^3$

Probe: EX3DV4 - SN3660; ConvF(9.19, 9.19, 9.19);

Electronics: DAE3 Sn536;

**d=15mm, Pin=250mW/Area Scan (101x121x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 2.81 mW/g

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

Reference Value = 55.8 V/m; Power Drift = -0.060 dB

Peak SAR (extrapolated) = 3.50 W/kg

**SAR(1 g) = 2.3 mW/g; SAR(10 g) = 1.5 mW/g**

Maximum value of SAR (measured) = 2.83 mW/g

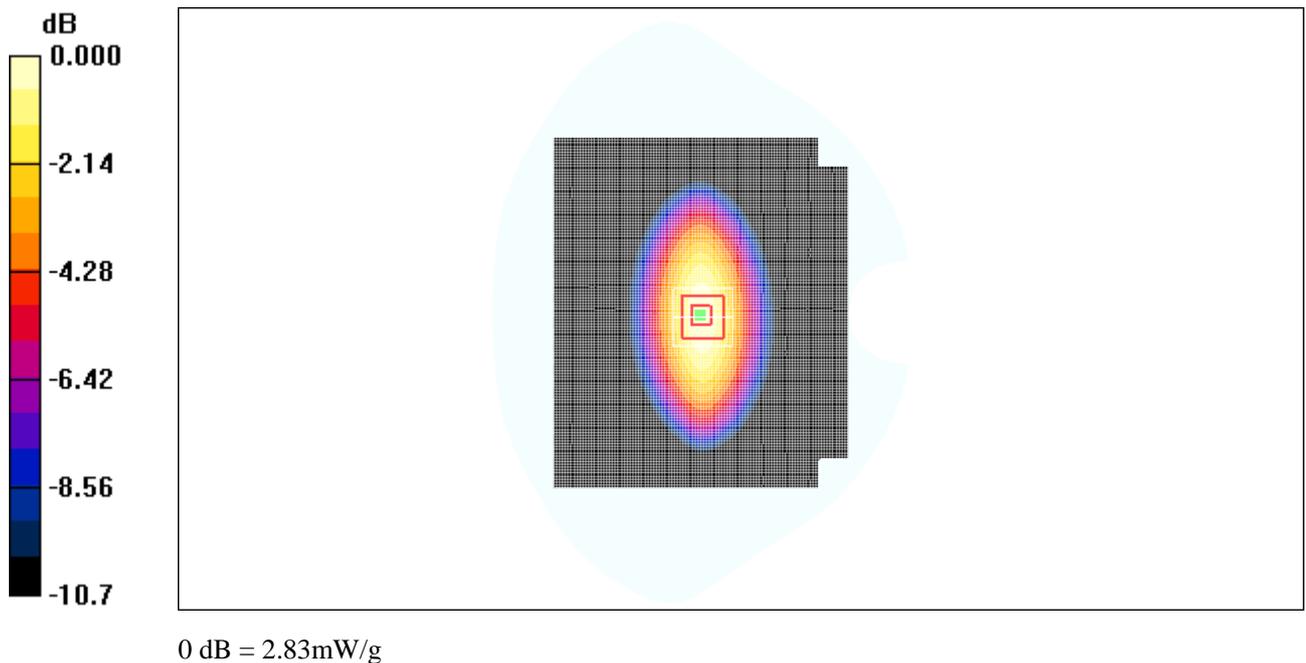


Figure 7 System Performance Check 835MHz 250mW

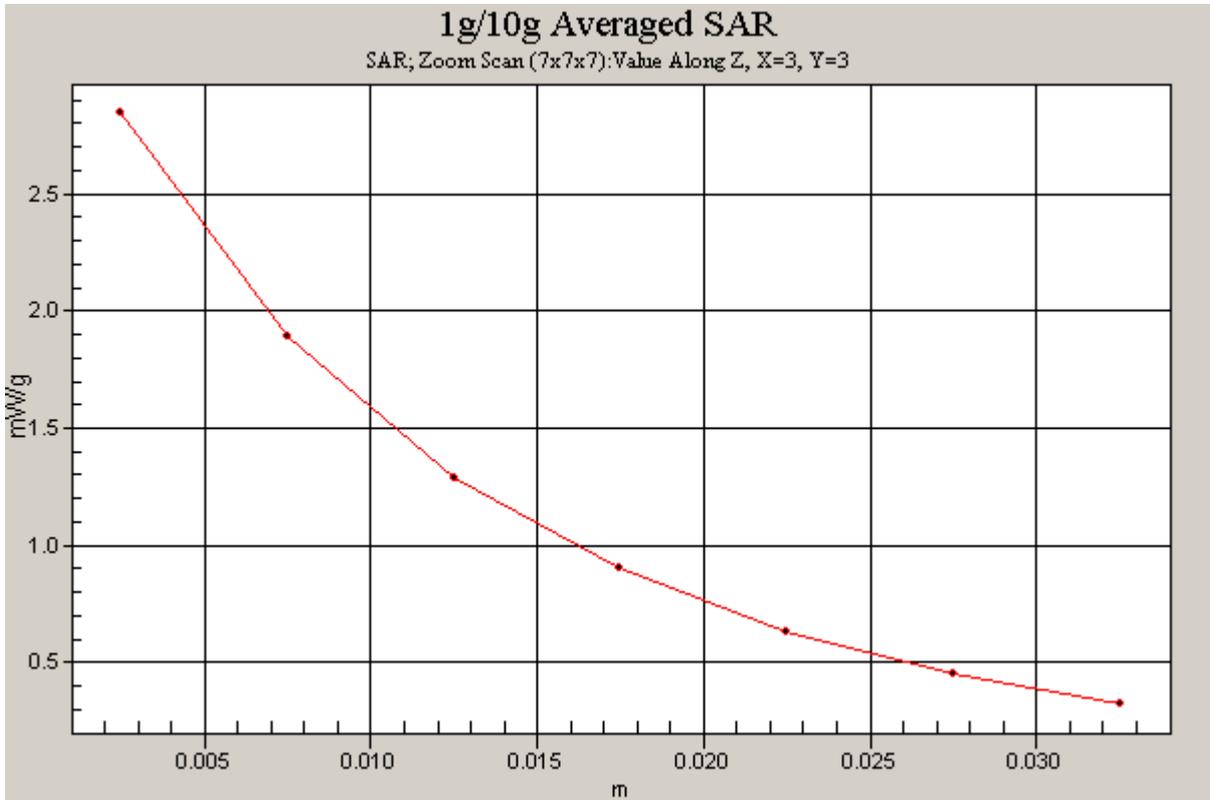


Figure 8 Z-Scan at power reference point (system validation at 835 MHz dipole)

### System Performance Check at 1900 MHz

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

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

Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.406$  mho/m;  $\epsilon_r = 39.98$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Probe: EX3DV4 - SN3660; ConvF(7.35, 7.35, 7.35);

Electronics: DAE3 Sn536;

**d=10mm, Pin=250mW/Area Scan (61x61x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 11.4 mW/g

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

Reference Value = 93.1 V/m; Power Drift = -0.006 dB

Peak SAR (extrapolated) = 16.9 W/kg

**SAR(1 g) = 9.74 mW/g; SAR(10 g) = 5.09 mW/g**

Maximum value of SAR (measured) = 11.1 mW/g

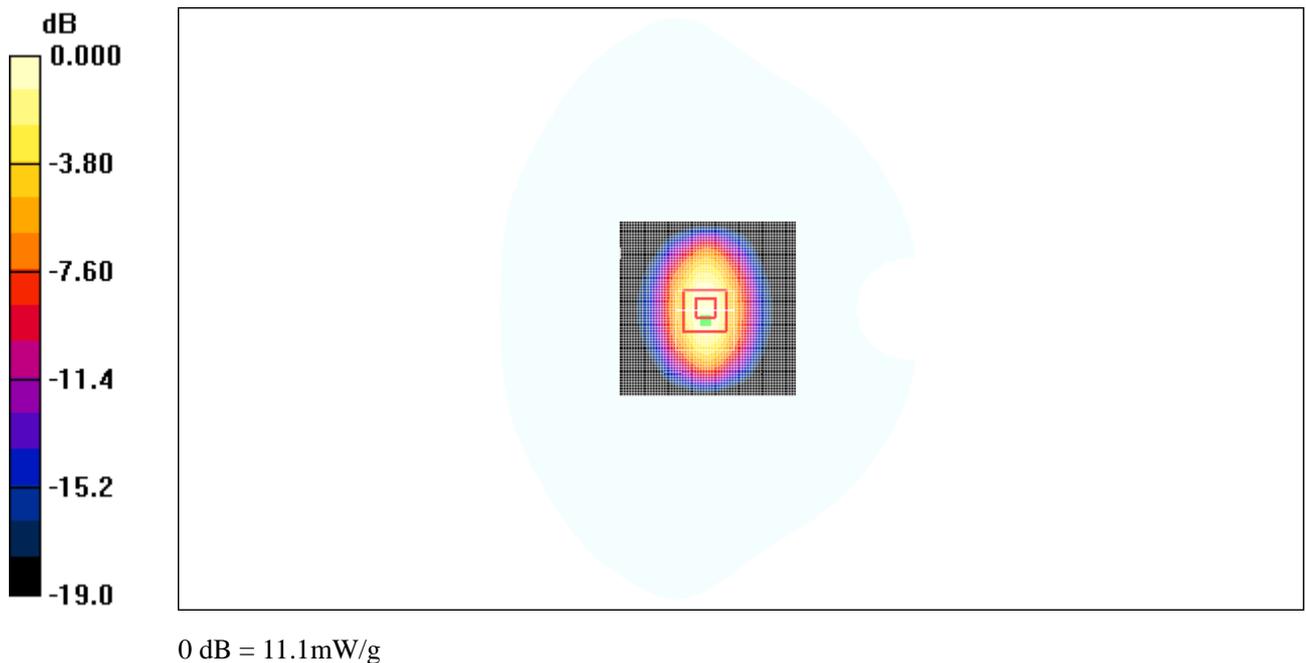


Figure 9 System Performance Check 1900MHz 250mW

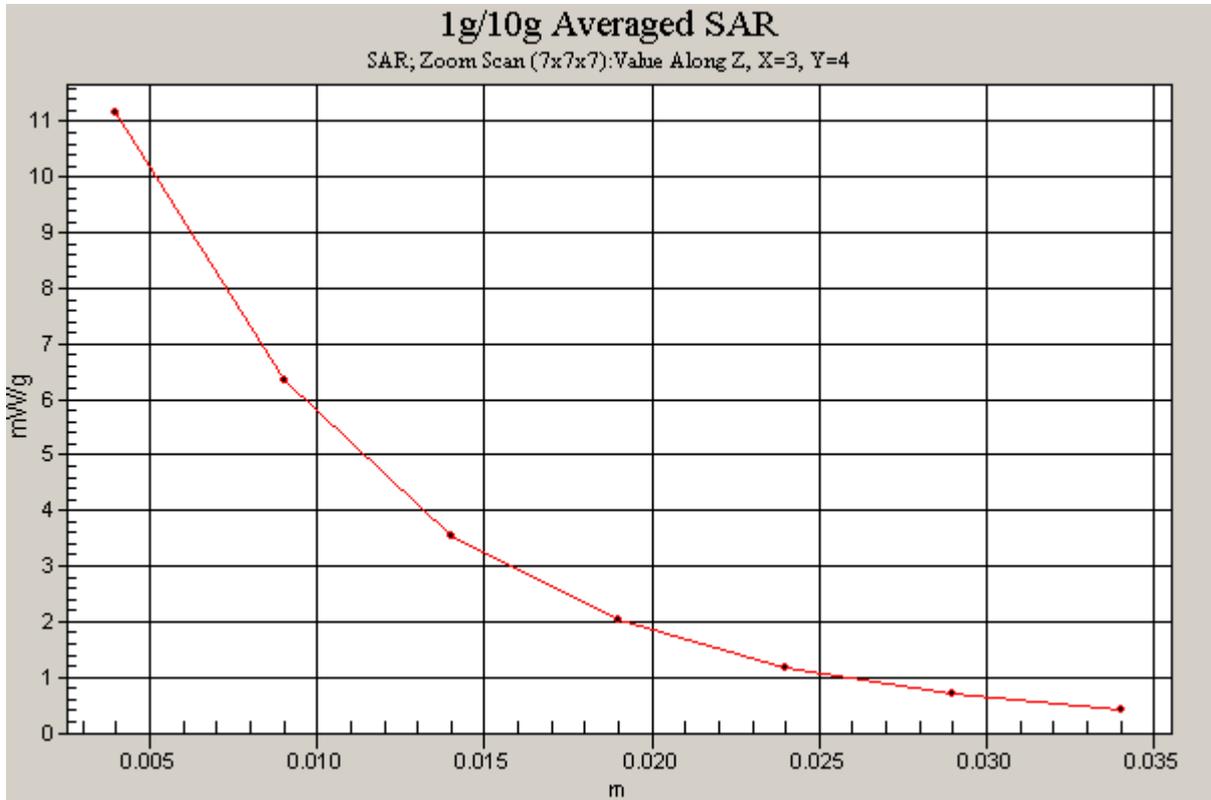


Figure 10 Z-Scan at power reference point (system validation at 1900 MHz dipole)

## ANNEX C: GRAPH RESULTS

Date/Time: 12/14/2008 9:48:48 PM

### GSM 850 Left Cheek High Slide Open

Communication System: GSM 850; Frequency: 848.8 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 849$  MHz;  $\sigma = 0.9$  mho/m;  $\epsilon_r = 41$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: EX3DV4 - SN3660; ConvF(9.19, 9.19, 9.19);
- Electronics: DAE3 Sn536; 76

**Cheek High/Area Scan (51x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.397 mW/g

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

Reference Value = 6.31 V/m; Power Drift = -0.003 dB

Peak SAR (extrapolated) = 0.453 W/kg

**SAR(1 g) = 0.340 mW/g; SAR(10 g) = 0.242 mW/g**

Maximum value of SAR (measured) = 0.395 mW/g

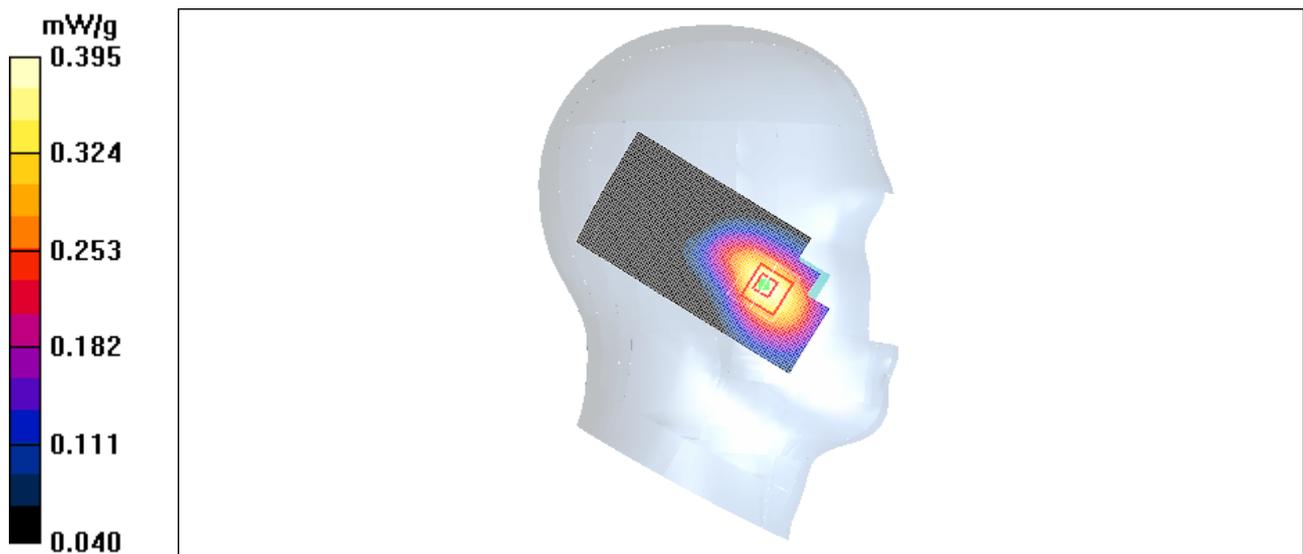


Figure 11 Left Hand Touch Cheek Slide Open GSM 850 Channel 251

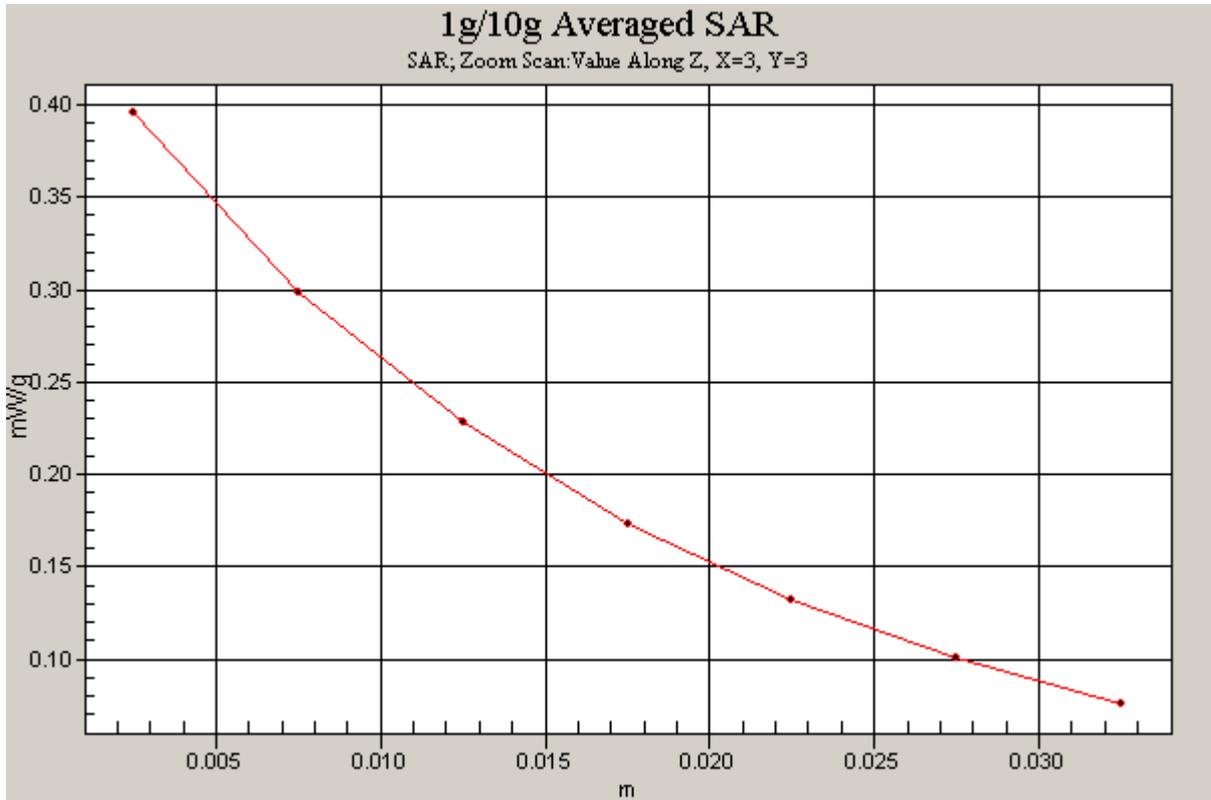


Figure 12 Z-Scan at power reference point (Left Hand Touch Cheek Slide Open Slide Open GSM 850 Channel 251)

Date/Time: 12/14/2008 9:08:34 PM

**GSM 850 Left Cheek Middle Slide Open**

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.889$  mho/m;  $\epsilon_r = 41.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: EX3DV4 - SN3660; ConvF(9.19, 9.19, 9.19);
- Electronics: DAE3 Sn536;

**Cheek Middle/Area Scan (51x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.376 mW/g

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

Reference Value = 6.05 V/m; Power Drift = -0.106 dB

Peak SAR (extrapolated) = 0.428 W/kg

**SAR(1 g) = 0.322 mW/g; SAR(10 g) = 0.229 mW/g**

Maximum value of SAR (measured) = 0.374 mW/g

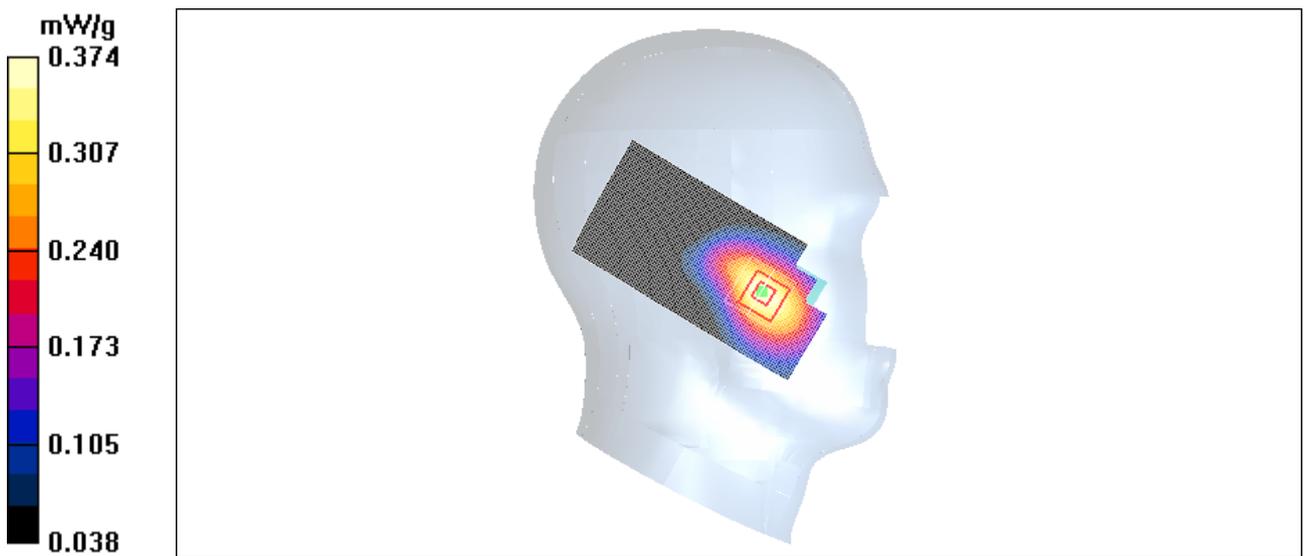


Figure 13 Left Hand Touch Cheek Slide Open GSM 850 Channel 190

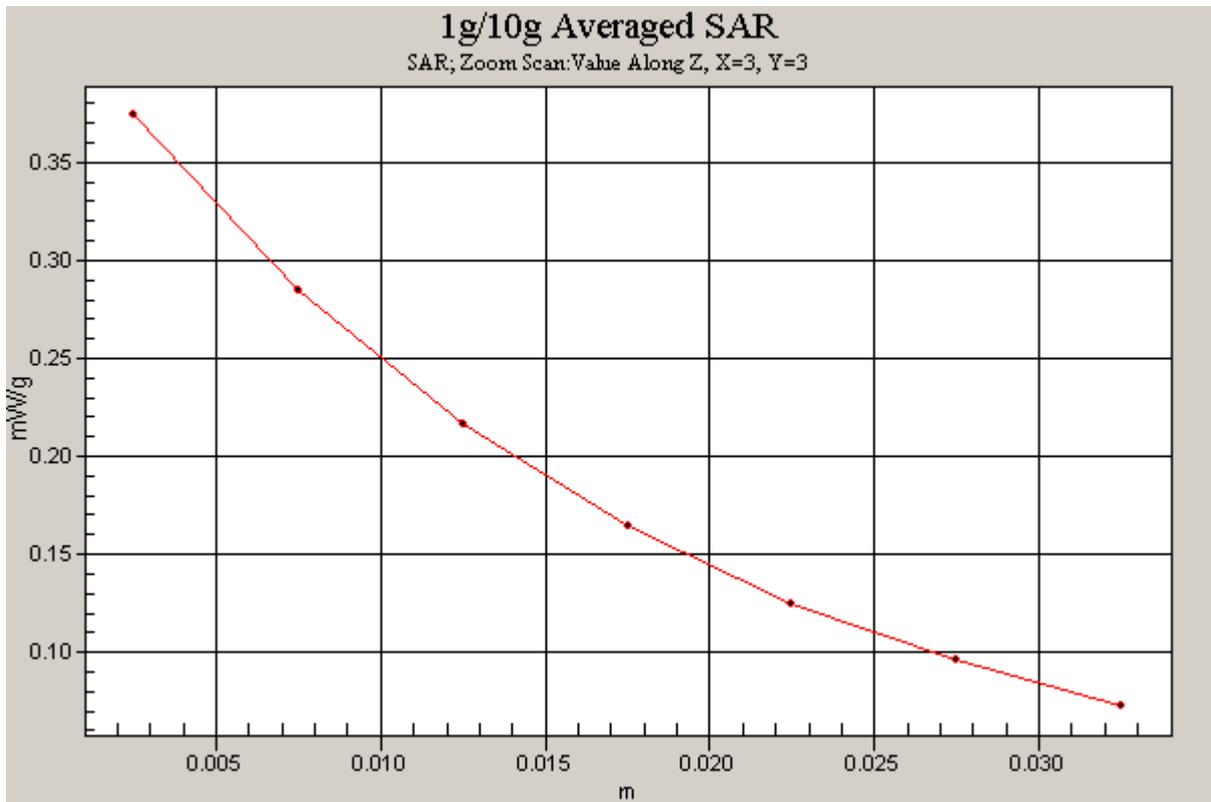


Figure 14 Z-Scan at power reference point (Left Hand Touch Cheek Slide Open GSM 850 Channel 190)

Date/Time: 12/14/2008 9:29:19 PM

**GSM 850 Left Cheek Low Slide Open**

Communication System: GSM 850; Frequency: 824.2 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated):  $f = 824.2$  MHz;  $\sigma = 0.878$  mho/m;  $\epsilon_r = 41.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: EX3DV4 - SN3660; ConvF(9.19, 9.19, 9.19);
- Electronics: DAE3 Sn536;

**Cheek Low/Area Scan (51x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.370 mW/g

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

Reference Value = 6.04 V/m; Power Drift = 0.062 dB

Peak SAR (extrapolated) = 0.420 W/kg

**SAR(1 g) = 0.319 mW/g; SAR(10 g) = 0.228 mW/g**

Maximum value of SAR (measured) = 0.368 mW/g

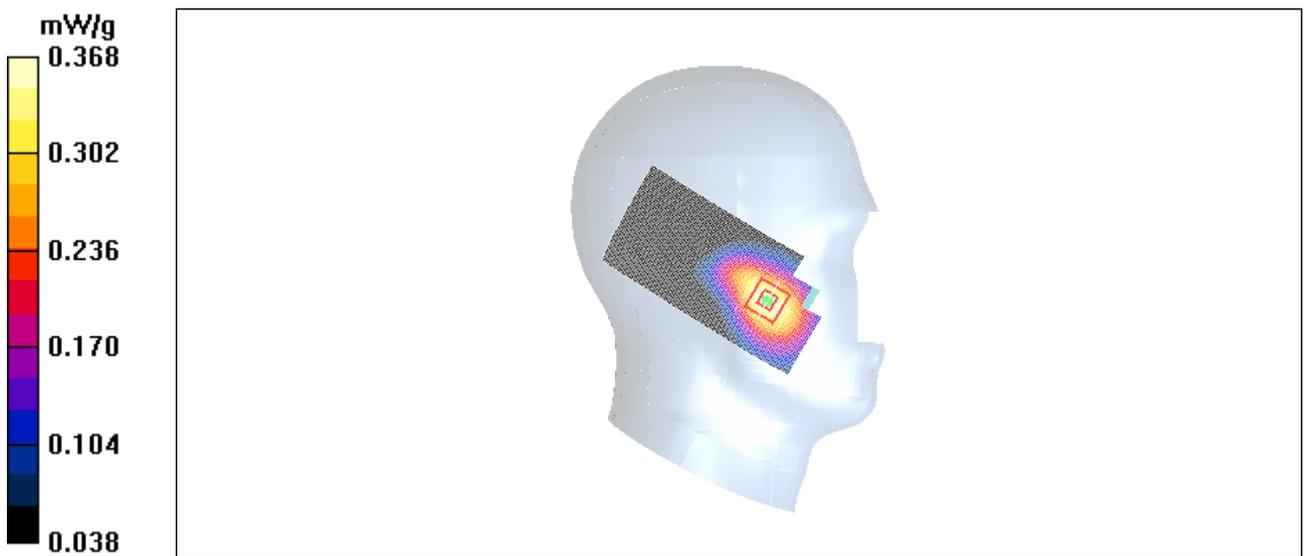


Figure 15 Left Hand Touch Cheek Slide Open GSM 850 Channel 128

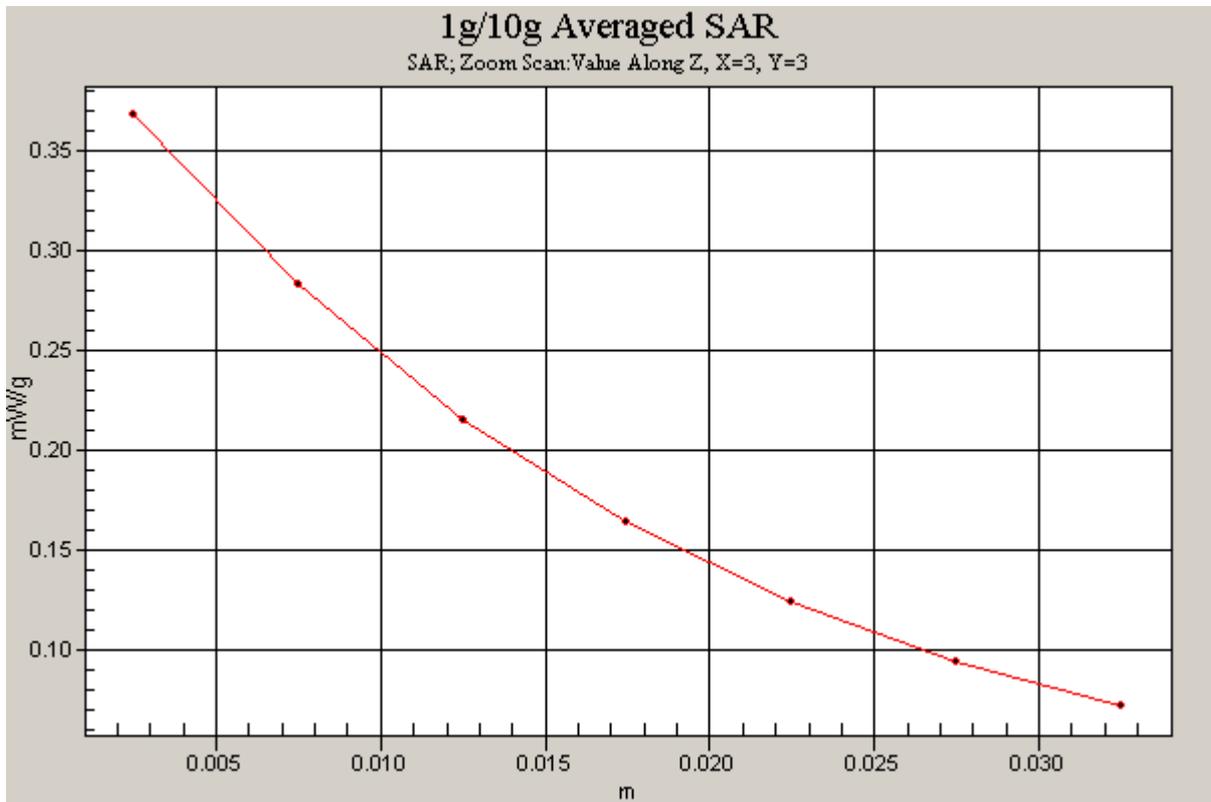


Figure 16 Z-Scan at power reference point (Left Hand Touch Cheek Slide Open GSM 850 Channel 128)

Date/Time: 12/14/2008 10:08:39 PM

### GSM 850 Left Tilt Middle Slide Open

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.889$  mho/m;  $\epsilon_r = 41.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: EX3DV4 - SN3660; ConvF(9.19, 9.19, 9.19);
- Electronics: DAE3 Sn536;

**Tilt Middle/Area Scan (51x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.192 mW/g

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

Reference Value = 9.76 V/m; Power Drift = 0.046 dB

Peak SAR (extrapolated) = 0.217 W/kg

**SAR(1 g) = 0.166 mW/g; SAR(10 g) = 0.122 mW/g**

Maximum value of SAR (measured) = 0.193 mW/g

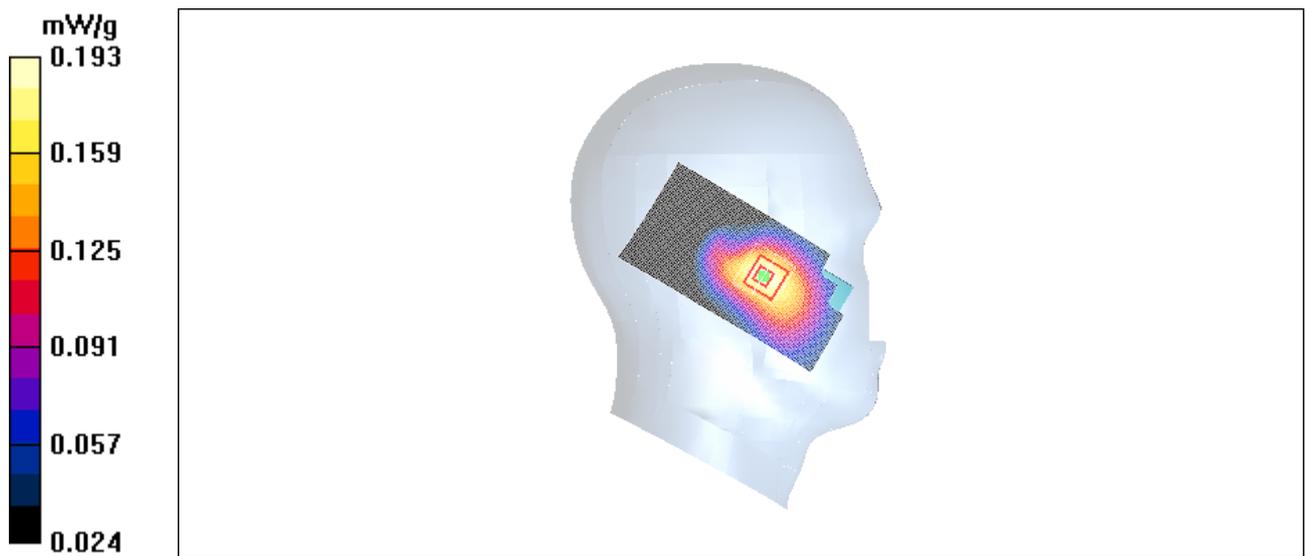


Figure 17 Left Hand Tilt 15° Slide Open GSM 850 Channel 190

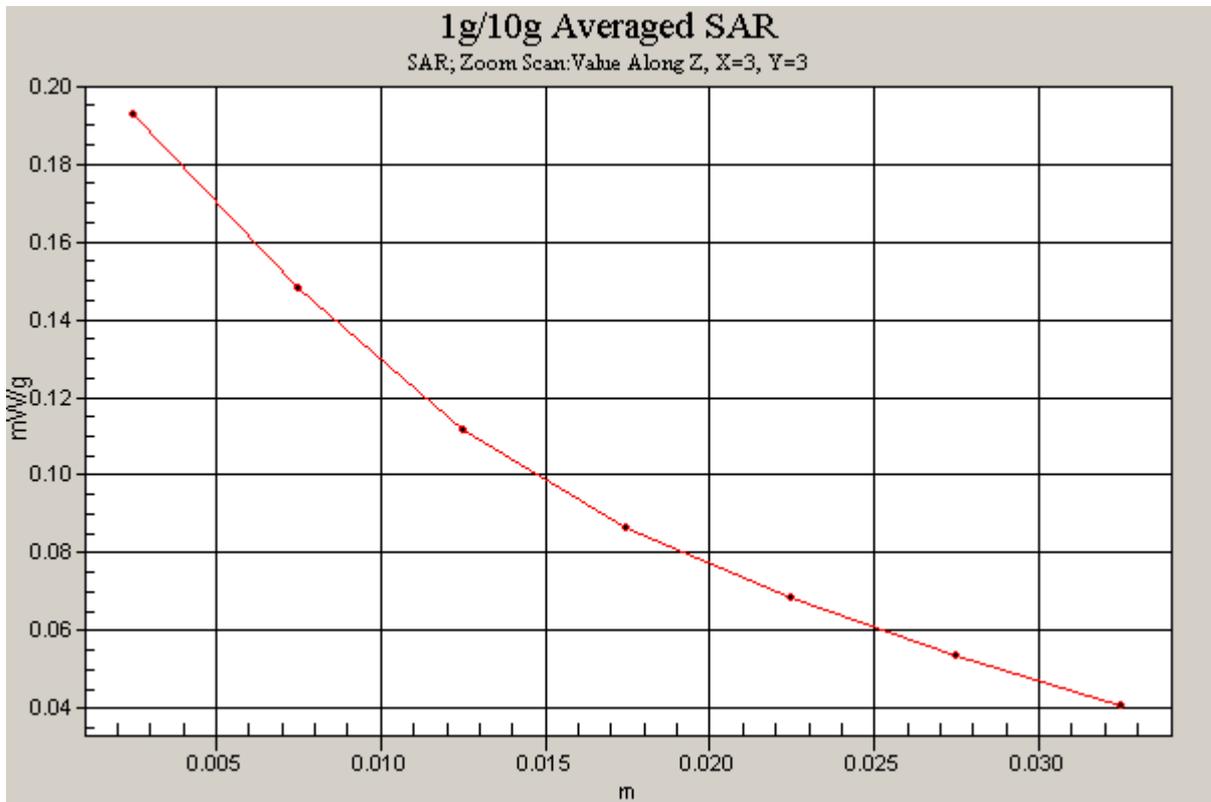


Figure 18 Z-Scan at power reference point (Left Hand Tilt 15° Slide Open GSM 850 Channel 190)

Date/Time: 12/14/2008 6:44:26 PM

### GSM 850 Right Cheek Middle Slide Open

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.889$  mho/m;  $\epsilon_r = 41.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: EX3DV4 - SN3660; ConvF(9.19, 9.19, 9.19);
- Electronics: DAE3 Sn536;

**Cheek Middle/Area Scan (51x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.350 mW/g

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

Reference Value = 5.43 V/m; Power Drift = 0.143 dB

Peak SAR (extrapolated) = 0.387 W/kg

**SAR(1 g) = 0.286 mW/g; SAR(10 g) = 0.203 mW/g**

Maximum value of SAR (measured) = 0.334 mW/g

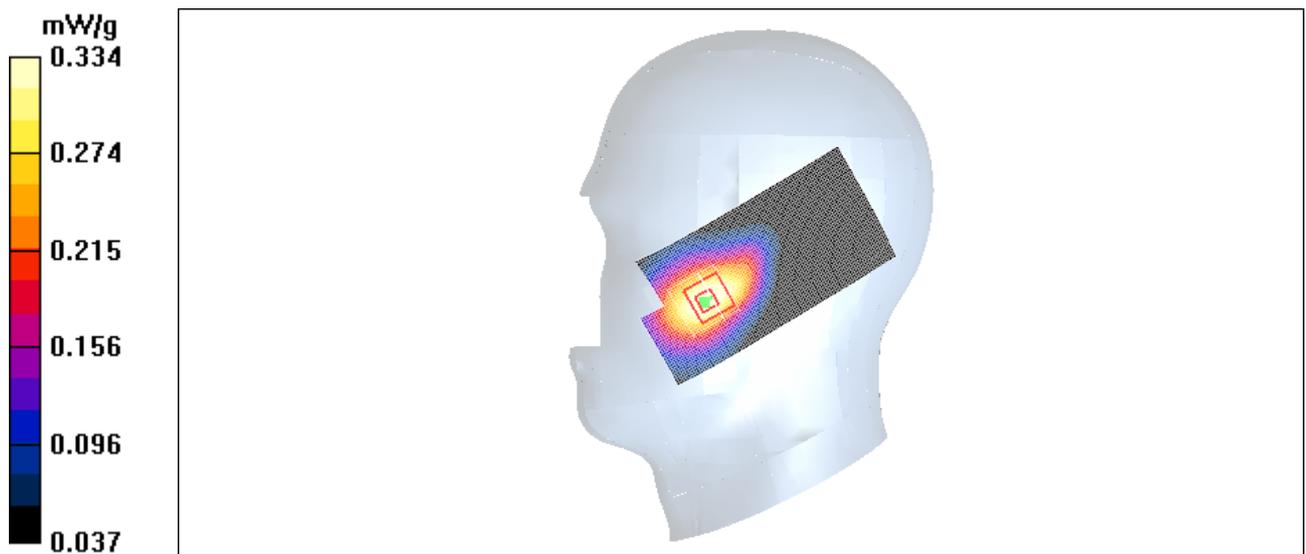


Figure 19 Right Hand Touch Cheek Slide Open GSM 850 Channel 190

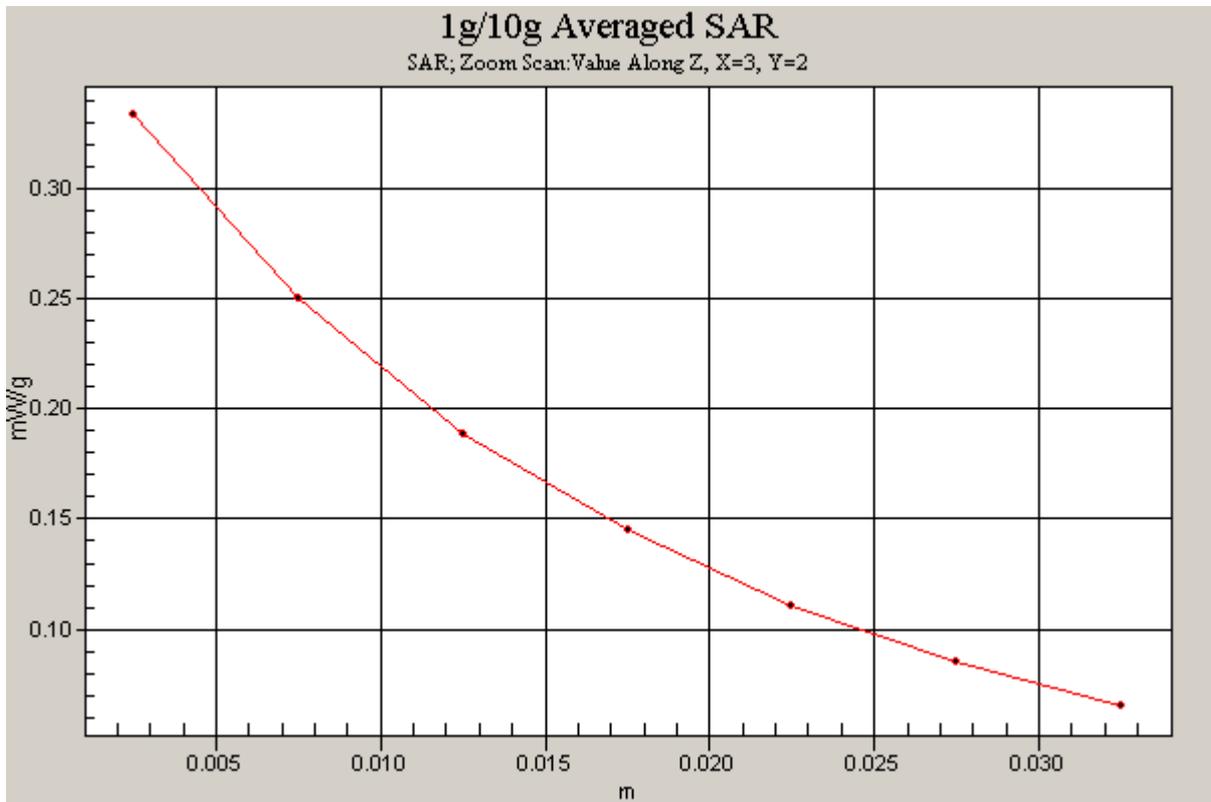


Figure 20 Z-Scan at power reference point (Right Hand Touch Cheek Slide Open GSM 850 Channel 190)

Date/Time: 12/14/2008 10:28:59 PM

### GSM 850 Right Tilt Middle Slide Open

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.889$  mho/m;  $\epsilon_r = 41.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: EX3DV4 - SN3660; ConvF(9.19, 9.19, 9.19);
- Electronics: DAE3 Sn536;

**Tilt Middle/Area Scan (51x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.186 mW/g

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

Reference Value = 9.18 V/m; Power Drift = 0.156 dB

Peak SAR (extrapolated) = 0.213 W/kg

**SAR(1 g) = 0.161 mW/g; SAR(10 g) = 0.116 mW/g**

Maximum value of SAR (measured) = 0.186 mW/g

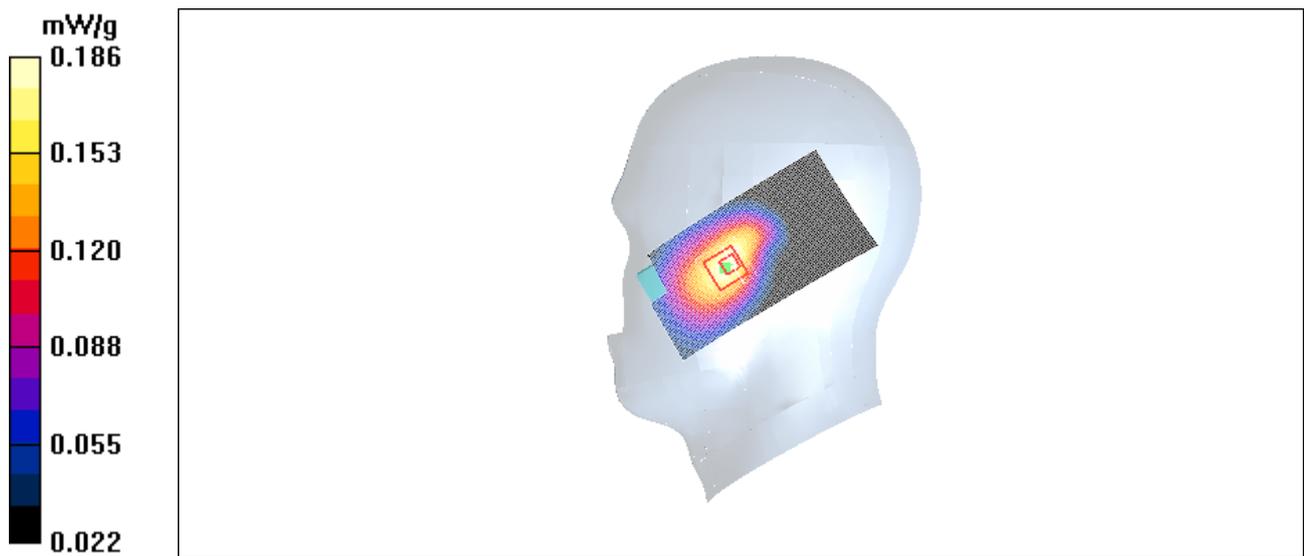


Figure 21 Right Hand Tilt 15° Slide Open GSM 850 Channel 190

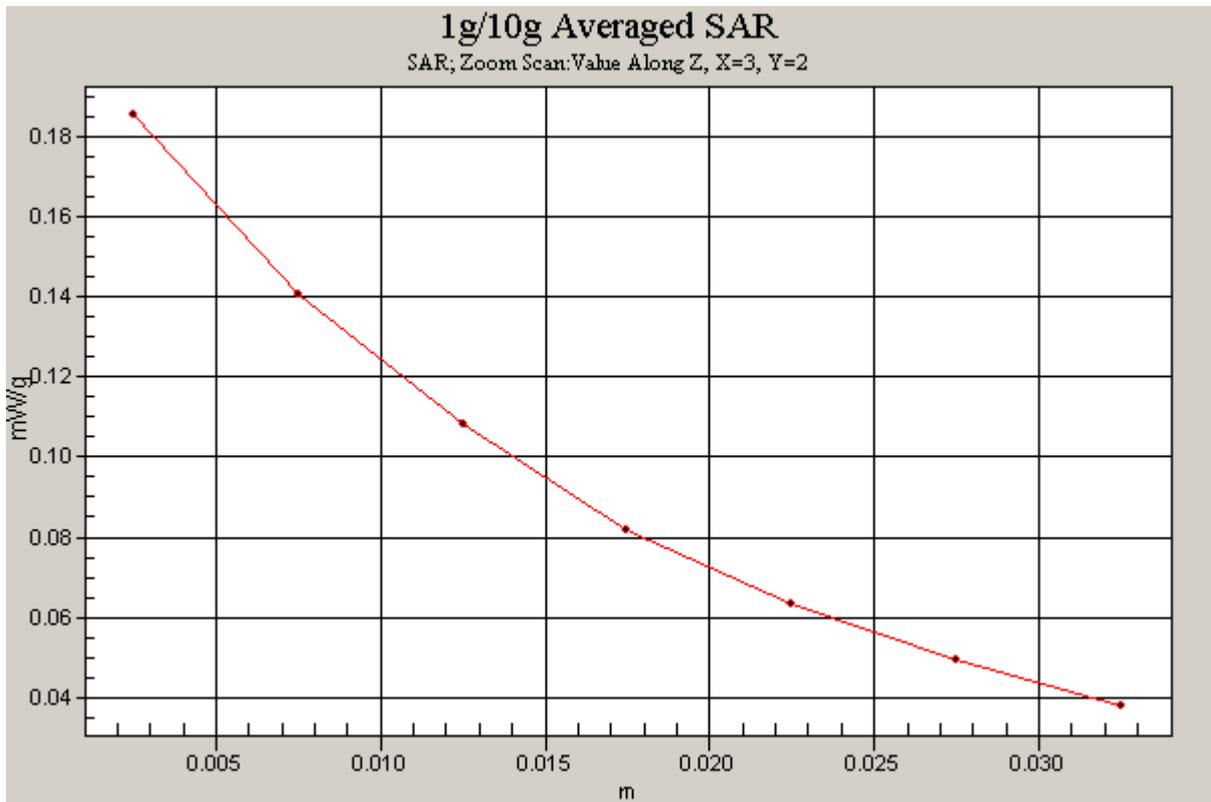


Figure 22 Z-Scan at power reference point (Right Hand Tilt 15° Slide Open GSM 850 Channel 190)

Date/Time: 12/14/2008 8:23:30 PM

**GSM 850 Left Cheek High Slide Close**

Communication System: GSM 850; Frequency: 848.8 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 849 \text{ MHz}$ ;  $\sigma = 0.9 \text{ mho/m}$ ;  $\epsilon_r = 41$ ;  $\rho = 1000 \text{ kg/m}^3$

- Probe: EX3DV4 - SN3660; ConvF(9.19, 9.19, 9.19);
- Electronics: DAE3 Sn536;

**Cheek High/Area Scan (51x81x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.406 mW/g

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

Reference Value = 8.00 V/m; Power Drift = -0.077 dB

Peak SAR (extrapolated) = 0.459 W/kg

**SAR(1 g) = 0.343 mW/g; SAR(10 g) = 0.246 mW/g**

Maximum value of SAR (measured) = 0.395 mW/g

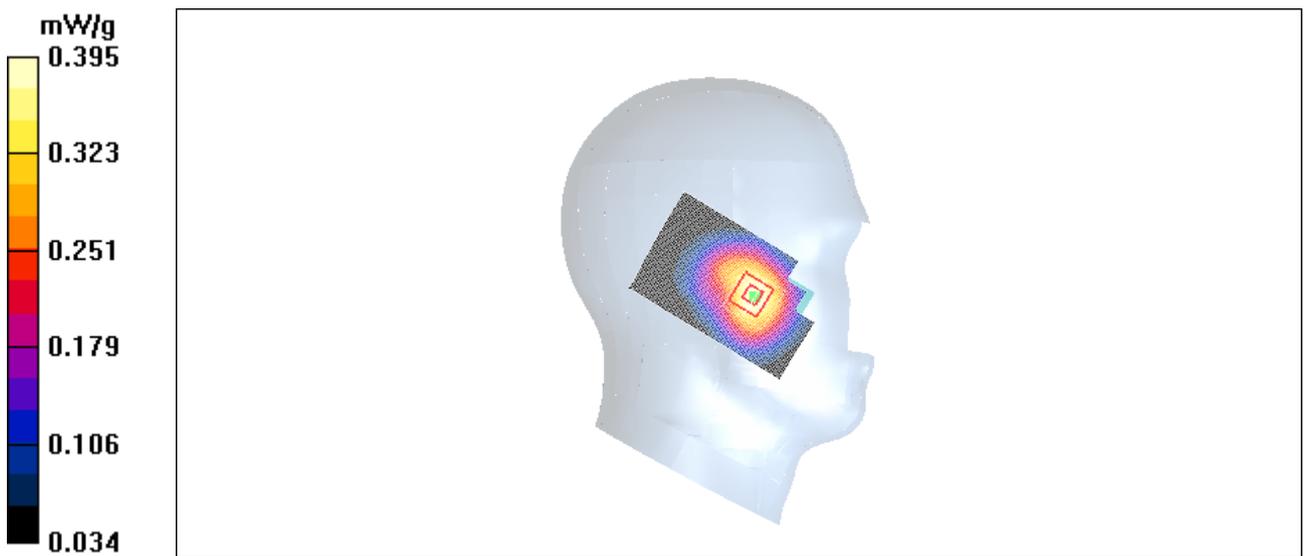


Figure 23 Left Hand Touch Cheek Slide Close GSM 850 Channel 251

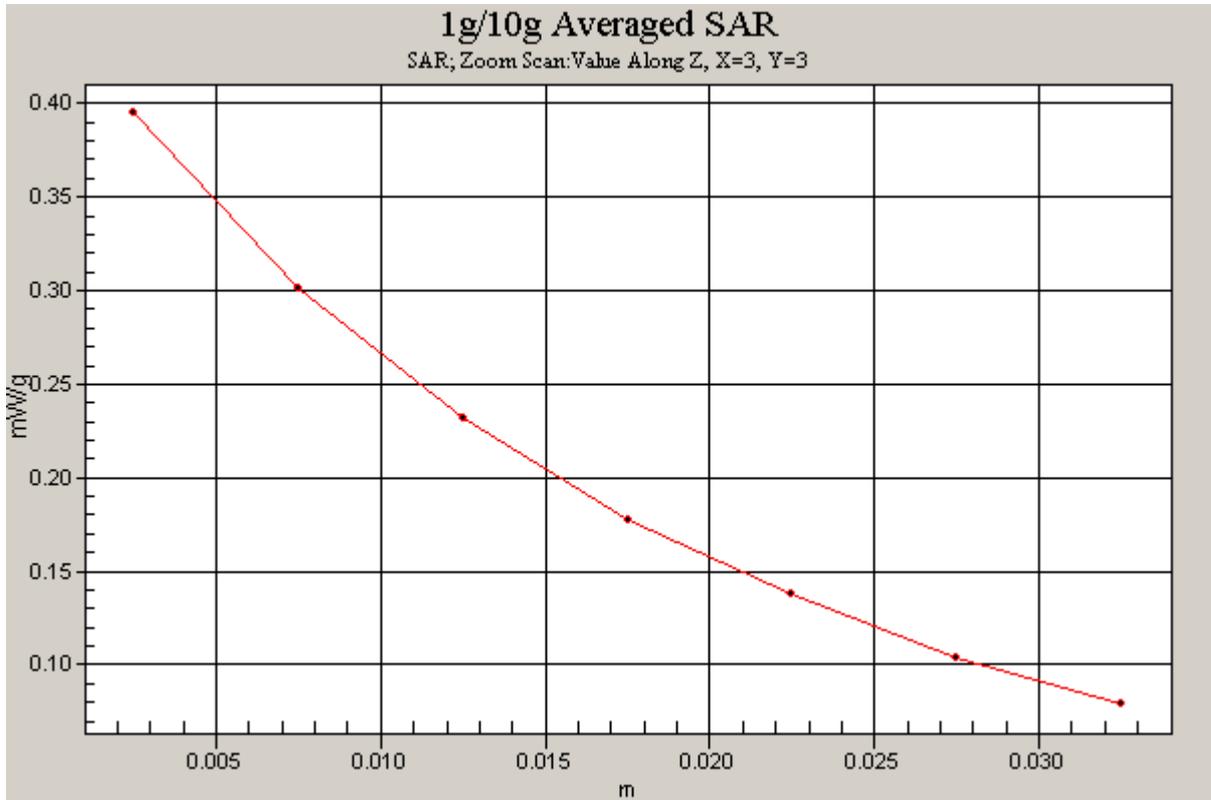


Figure 24 Z-Scan at power reference point (Left Hand Touch Cheek Slide Close Slide Close GSM 850 Channel 251)

Date/Time: 12/14/2008 8:04:06 PM

**GSM 850 Left Cheek Middle Slide Close**

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.889$  mho/m;  $\epsilon_r = 41.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: EX3DV4 - SN3660; ConvF(9.19, 9.19, 9.19);
- Electronics: DAE3 Sn536; 76

**Cheek Middle/Area Scan (51x81x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.374 mW/g

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

Reference Value = 7.51 V/m; Power Drift = 0.030 dB

Peak SAR (extrapolated) = 0.426 W/kg

**SAR(1 g) = 0.317 mW/g; SAR(10 g) = 0.229 mW/g**

Maximum value of SAR (measured) = 0.369 mW/g

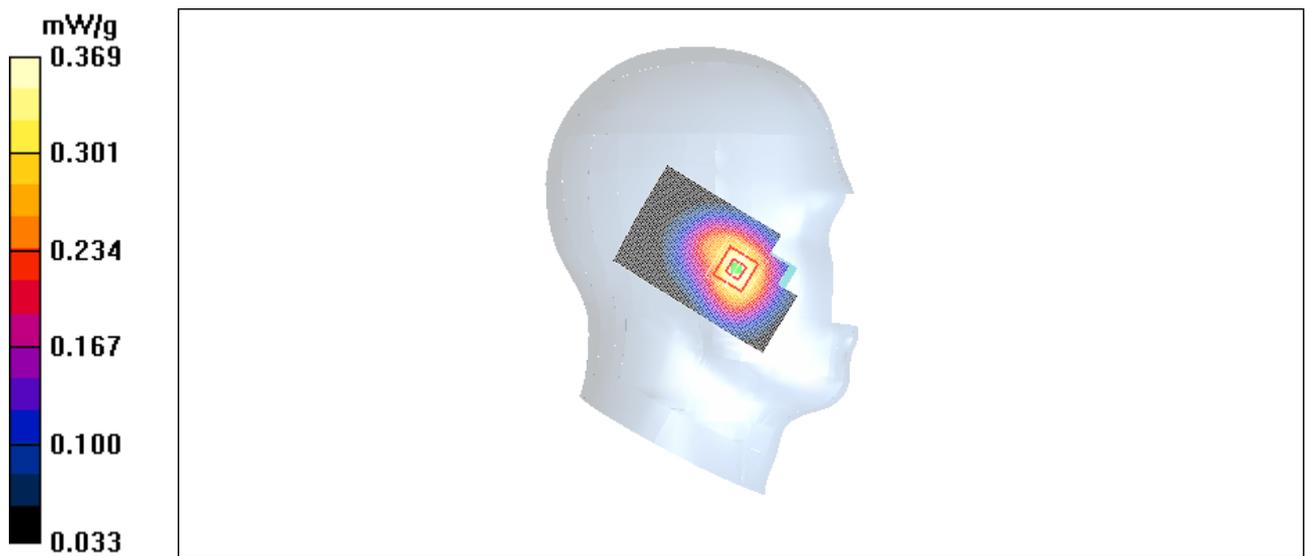


Figure 25 Left Hand Touch Cheek Slide Close GSM 850 Channel 190

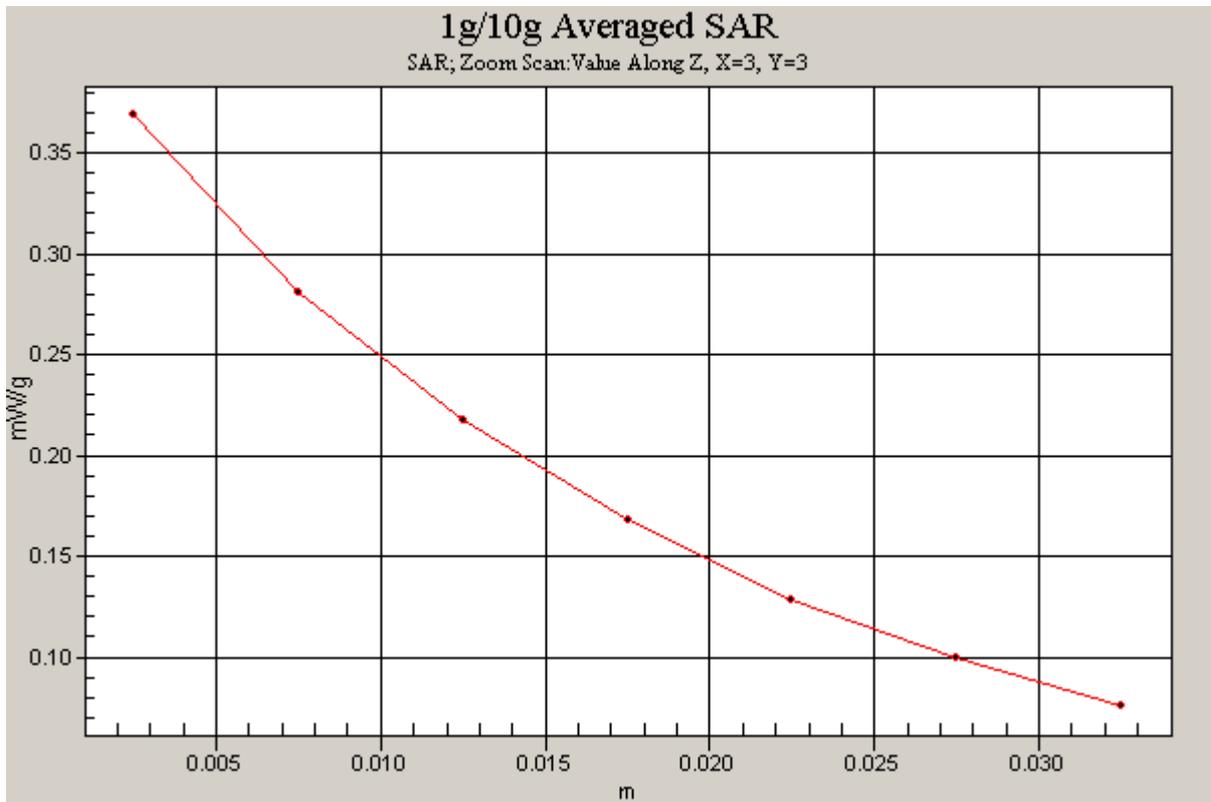


Figure 26 Z-Scan at power reference point (Left Hand Touch Cheek Slide Close GSM 850 Channel 190)

Date/Time: 12/14/2008 8:46:04 PM

**GSM 850 Left Cheek Low Slide Close**

Communication System: GSM 850; Frequency: 824.2 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated):  $f = 824.2$  MHz;  $\sigma = 0.878$  mho/m;  $\epsilon_r = 41.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: EX3DV4 - SN3660; ConvF(9.19, 9.19, 9.19);
- Electronics: DAE3 Sn536;

**Cheek Low/Area Scan (51x81x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.355 mW/g

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

Reference Value = 7.23 V/m; Power Drift = 0.115 dB

Peak SAR (extrapolated) = 0.402 W/kg

**SAR(1 g) = 0.303 mW/g; SAR(10 g) = 0.220 mW/g**

Maximum value of SAR (measured) = 0.348 mW/g

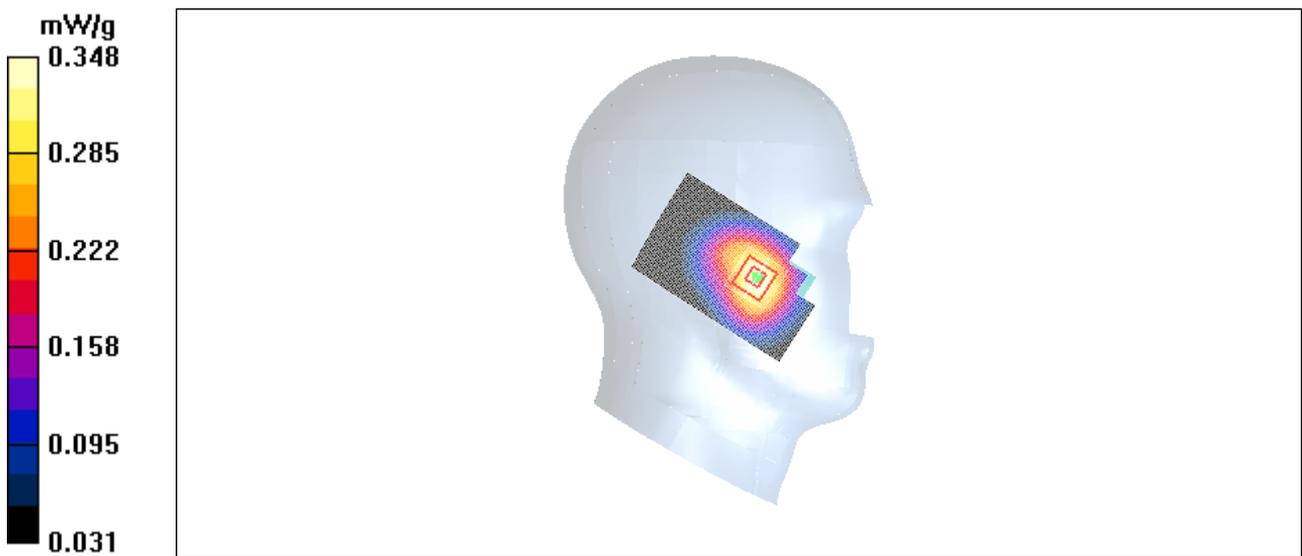


Figure 27 Left Hand Touch Cheek Slide Close GSM 850 Channel 128

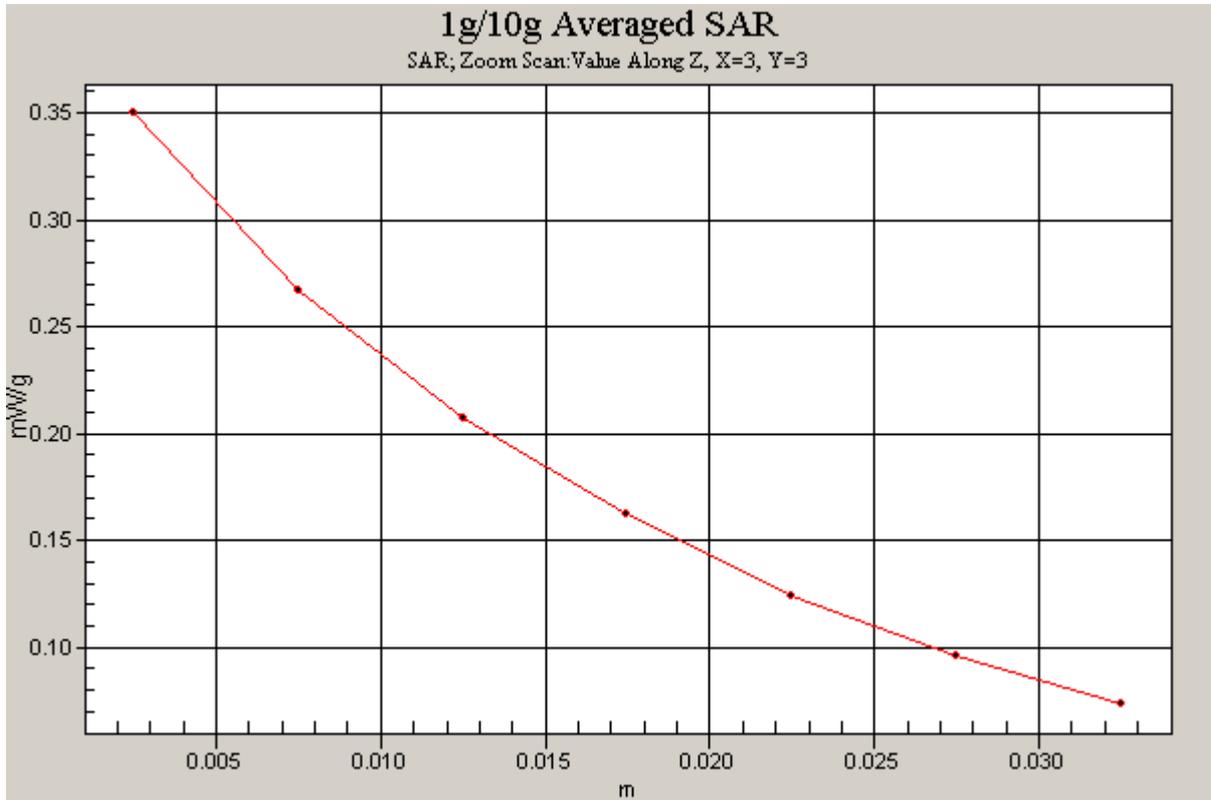


Figure 28 Z-Scan at power reference point (Left Hand Touch Cheek Slide Close GSM 850 Channel 128)

Date/Time: 12/14/2008 7:44:42 PM

### GSM 850 Left Tilt Middle Slide Close

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.889$  mho/m;  $\epsilon_r = 41.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: EX3DV4 - SN3660; ConvF(9.19, 9.19, 9.19);
- Electronics: DAE3 Sn536;

**Tilt Middle/Area Scan (51x81x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.188 mW/g

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

Reference Value = 9.72 V/m; Power Drift = -0.041 dB

Peak SAR (extrapolated) = 0.213 W/kg

**SAR(1 g) = 0.165 mW/g; SAR(10 g) = 0.122 mW/g**

Maximum value of SAR (measured) = 0.188 mW/g

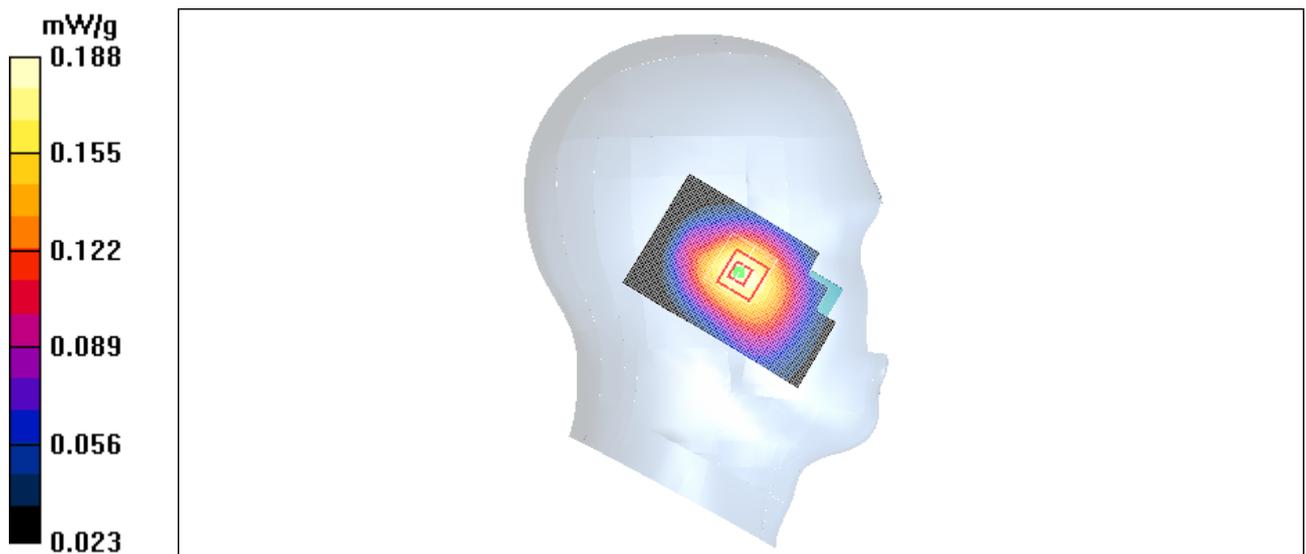


Figure 29 Left Hand Tilt 15° Slide Close GSM 850 Channel 190

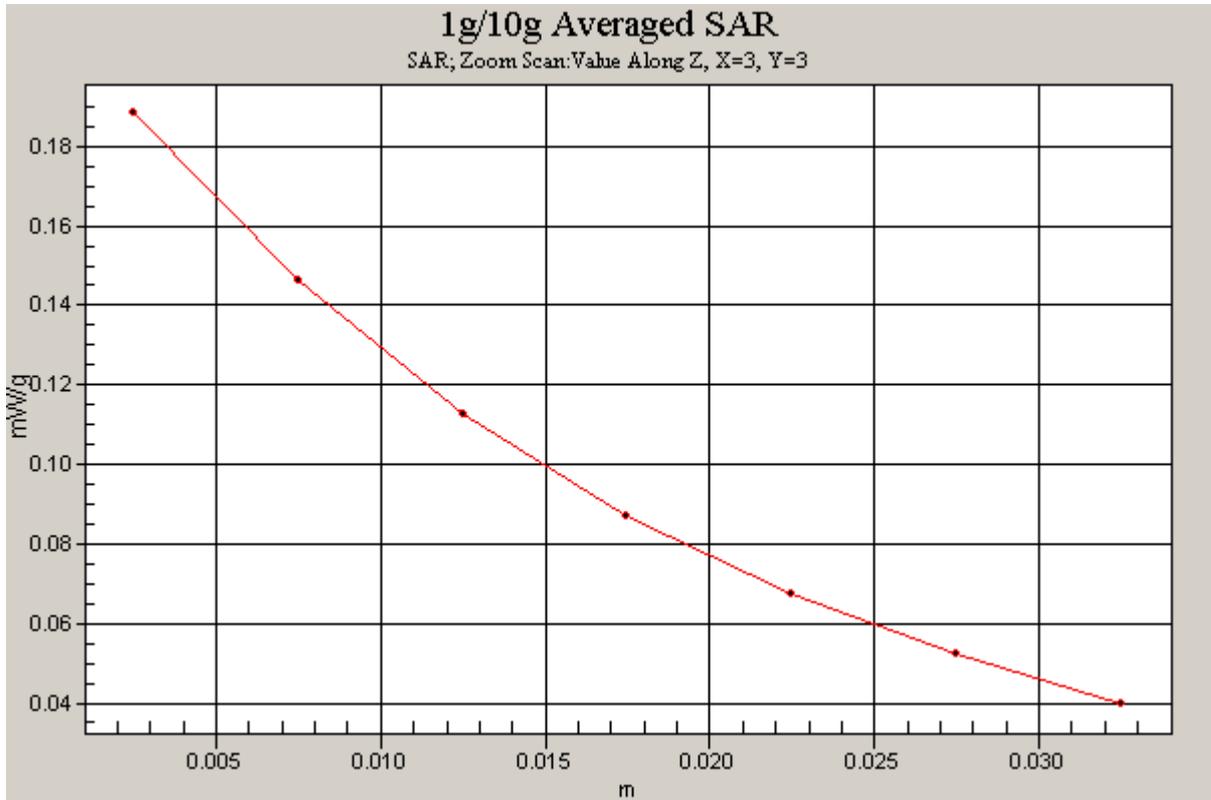


Figure 30 Z-Scan at power reference point (Left Hand Tilt 15° Slide Close GSM 850 Channel 190)

Date/Time: 12/14/2008 7:05:51 PM

### GSM 850 Right Cheek Middle Slide Close

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.889$  mho/m;  $\epsilon_r = 41.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: EX3DV4 - SN3660; ConvF(9.19, 9.19, 9.19);
- Electronics: DAE3 Sn536;

**Cheek Middle/Area Scan (51x81x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.376 mW/g

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

Reference Value = 7.21 V/m; Power Drift = 0.174 dB

Peak SAR (extrapolated) = 0.441 W/kg

**SAR(1 g) = 0.317 mW/g; SAR(10 g) = 0.224 mW/g**

Maximum value of SAR (measured) = 0.370 mW/g

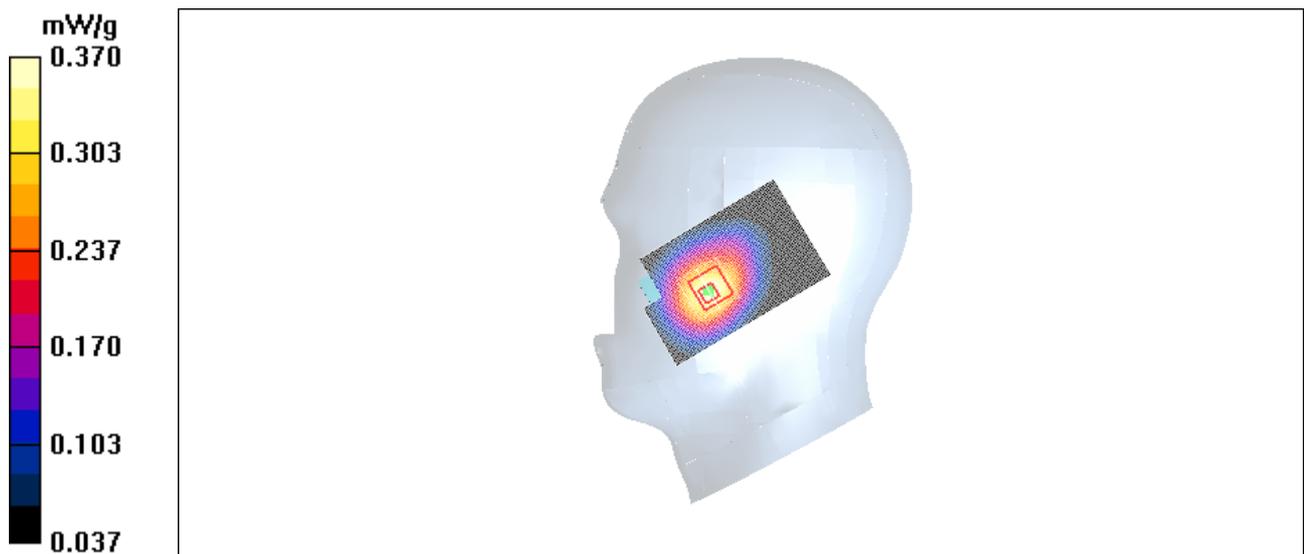


Figure 31 Right Hand Touch Cheek Slide Close GSM 850 Channel 190

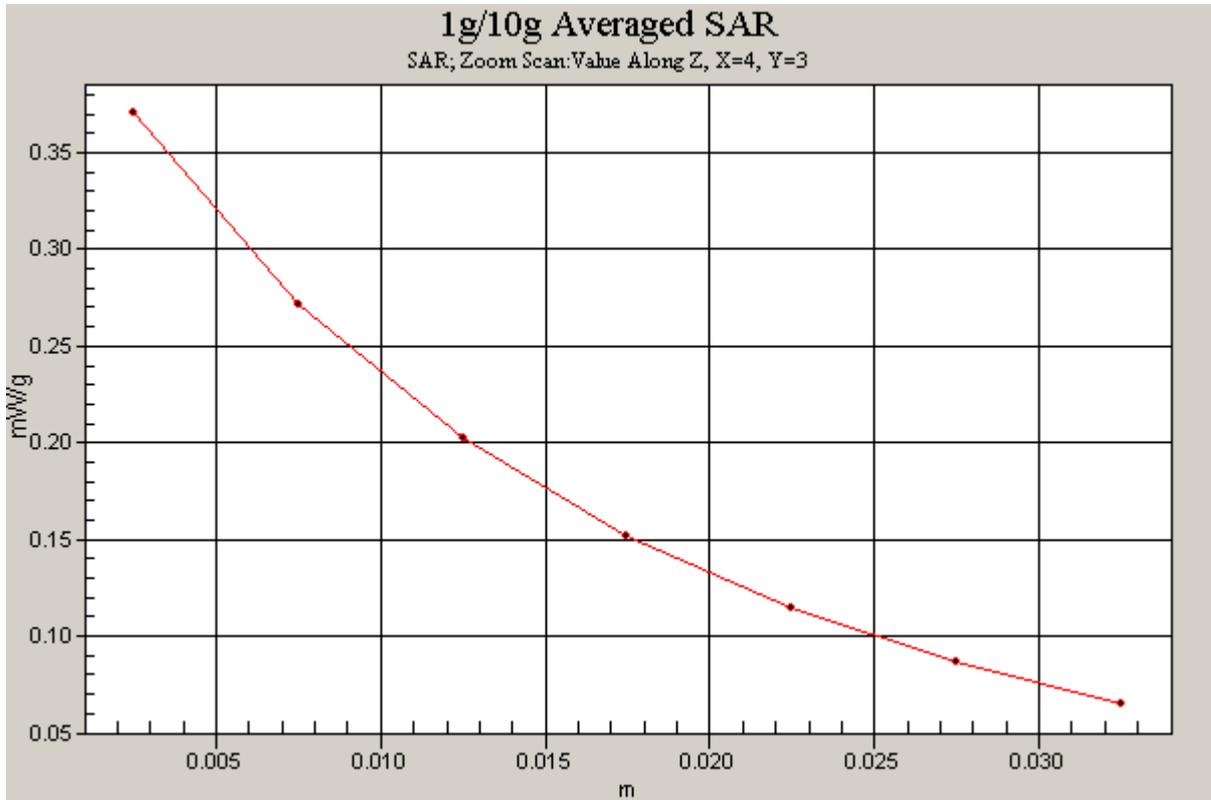


Figure 32 Z-Scan at power reference point (Right Hand Touch Cheek Slide Close GSM 850 Channel 190)

Date/Time: 12/14/2008 7:24:20 PM

### GSM 850 Right Tilt Middle Slide Close

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.889$  mho/m;  $\epsilon_r = 41.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: EX3DV4 - SN3660; ConvF(9.19, 9.19, 9.19);
- Electronics: DAE3 Sn536;

**Tilt Middle/Area Scan (51x81x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.184 mW/g

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

Reference Value = 9.22 V/m; Power Drift = 0.063 dB

Peak SAR (extrapolated) = 0.207 W/kg

**SAR(1 g) = 0.162 mW/g; SAR(10 g) = 0.119 mW/g**

Maximum value of SAR (measured) = 0.183 mW/g

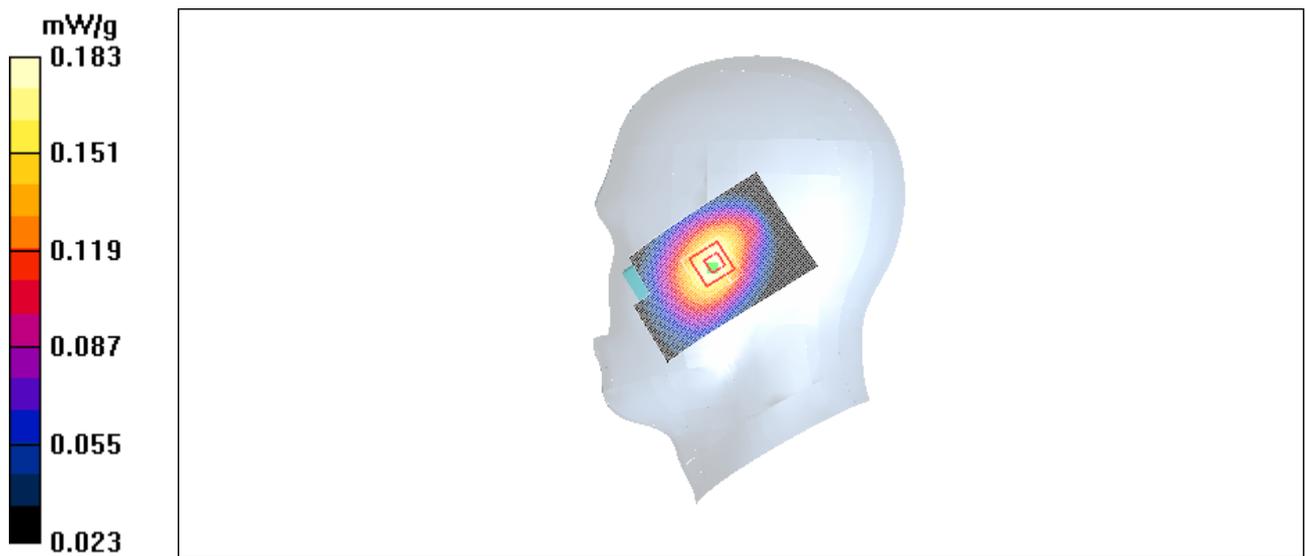


Figure 33 Right Hand Tilt 15° Slide Close GSM 850 Channel 190

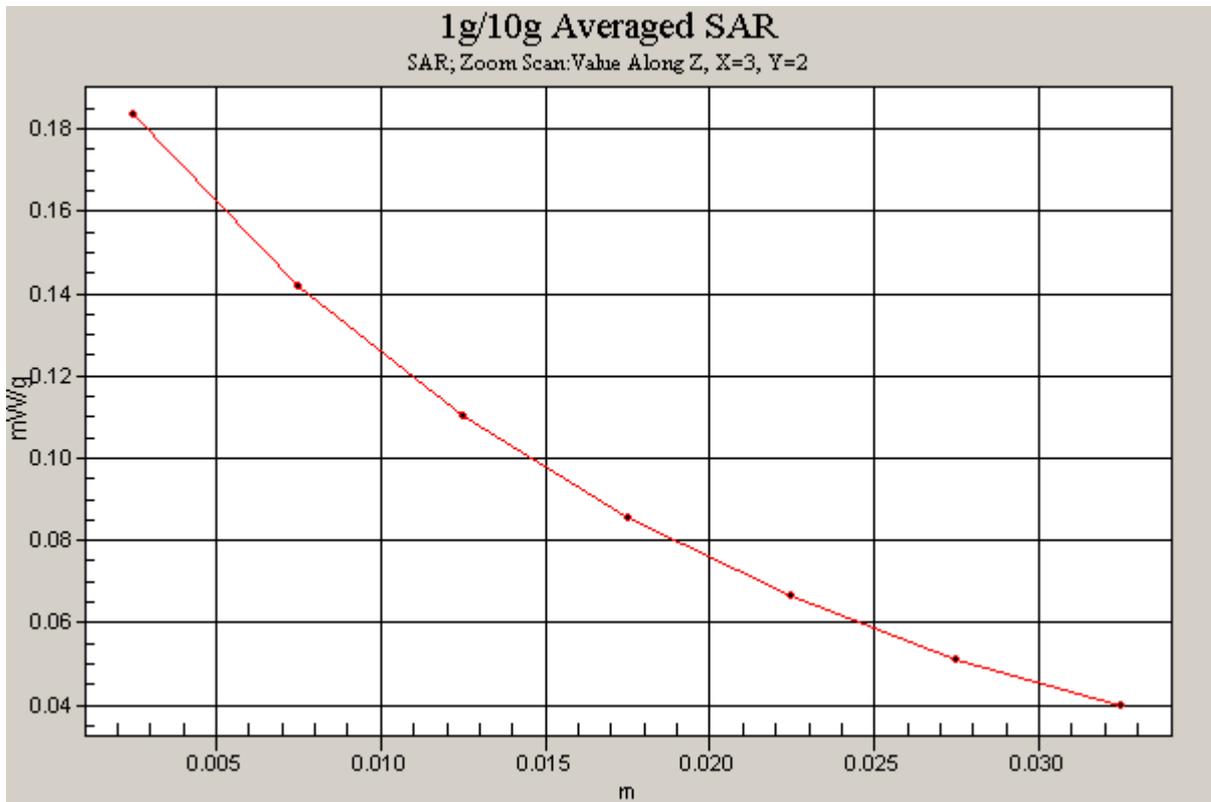


Figure 34 Z-Scan at power reference point (Right Hand Tilt 15° Slide Close GSM 850 Channel 190)

Date/Time: 12/13/2008 11:03:47 PM

### GSM 850 Towards Ground High Slide Open

Communication System: GSM 850; Frequency: 848.8 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 849$  MHz;  $\sigma = 0.997$  mho/m;  $\epsilon_r = 53.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: EX3DV4 - SN3660; ConvF(9.1, 9.1, 9.1);
- Electronics: DAE3 Sn536;

**Towards Ground High/Area Scan (51x111x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.421 mW/g

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

Reference Value = 6.41 V/m; Power Drift = 0.069 dB

Peak SAR (extrapolated) = 0.486 W/kg

**SAR(1 g) = 0.362 mW/g; SAR(10 g) = 0.256 mW/g**

Maximum value of SAR (measured) = 0.420 mW/g

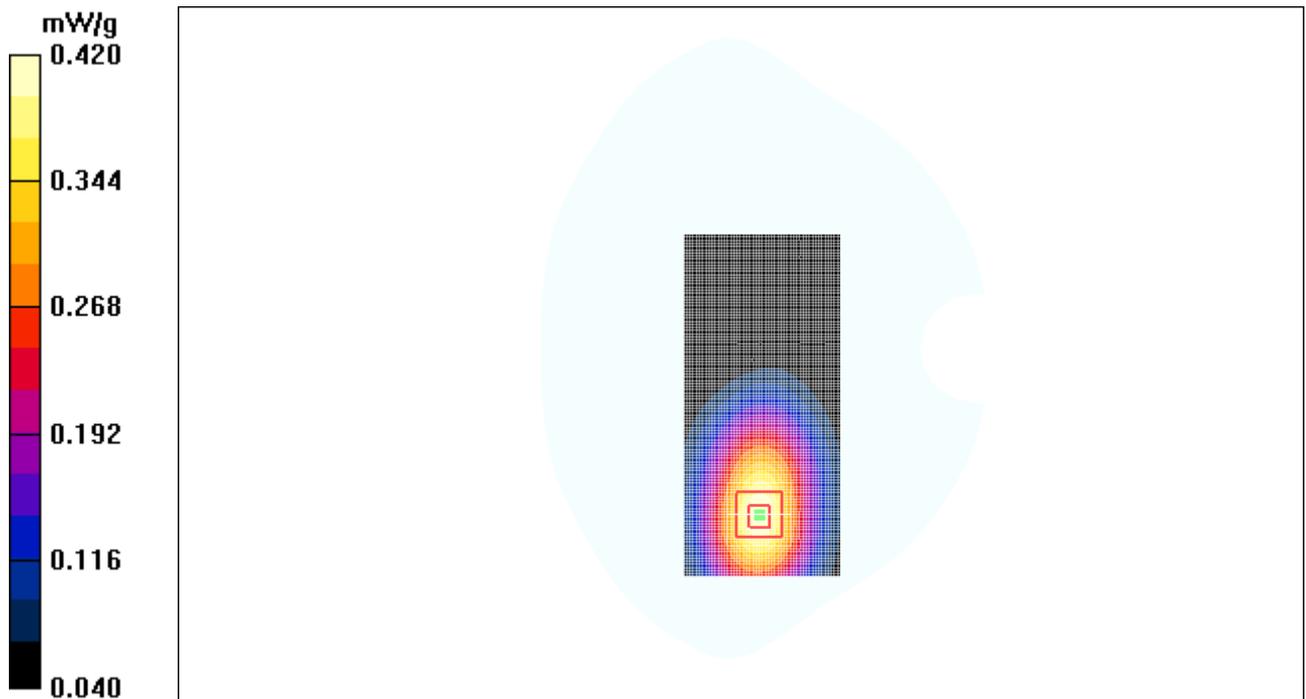


Figure 35 Body, Towards Ground Slide Open , GSM 850 Channel 251

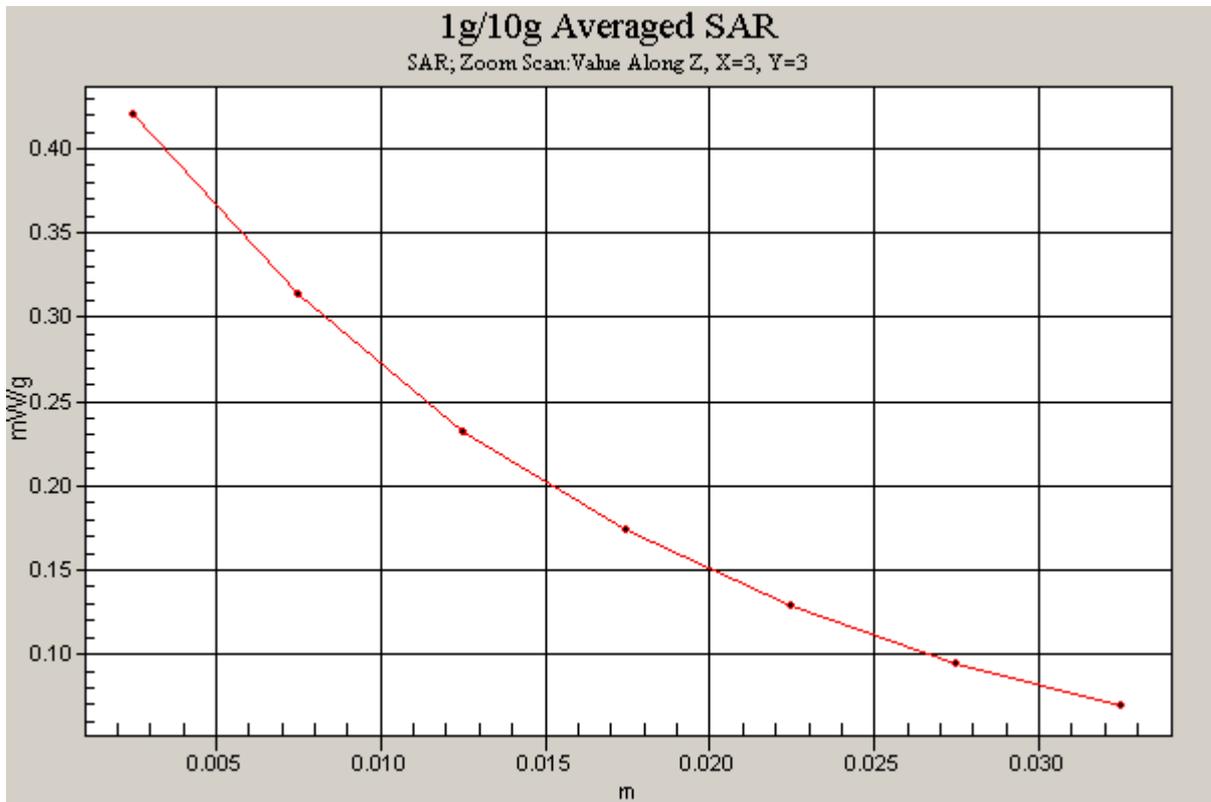


Figure 36 Z-Scan at power reference point (Body, Towards Ground Slide Open , GSM 850 Channel 251)

Date/Time: 12/13/2008 10:44:13 PM

**GSM 850 Towards Ground Middle Slide Open**

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.984$  mho/m;  $\epsilon_r = 54$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: EX3DV4 - SN3660; ConvF(9.1, 9.1, 9.1);
- Electronics: DAE3 Sn536;

**Towards Ground Middle/Area Scan (51x111x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.408 mW/g

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

Reference Value = 6.65 V/m; Power Drift = -0.173 dB

Peak SAR (extrapolated) = 0.472 W/kg

**SAR(1 g) = 0.348 mW/g; SAR(10 g) = 0.246 mW/g**

Maximum value of SAR (measured) = 0.404 mW/g

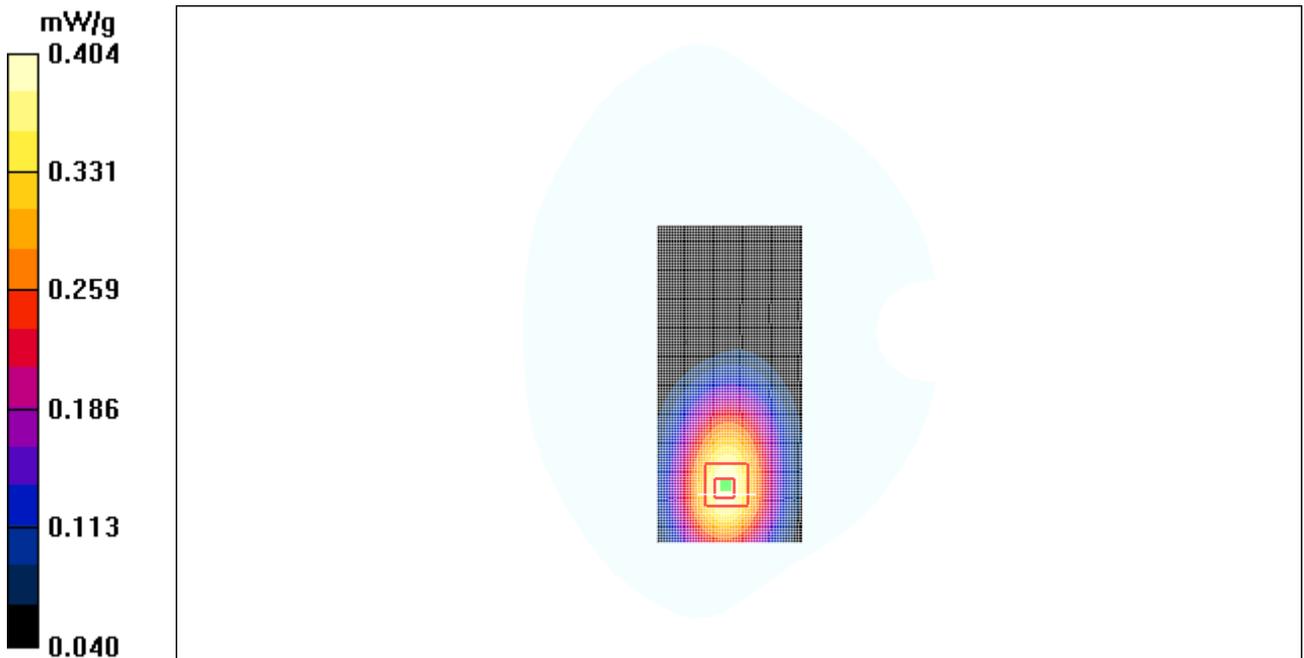


Figure 37 Body, Towards Ground Slide Open , GSM 850 Channel 190

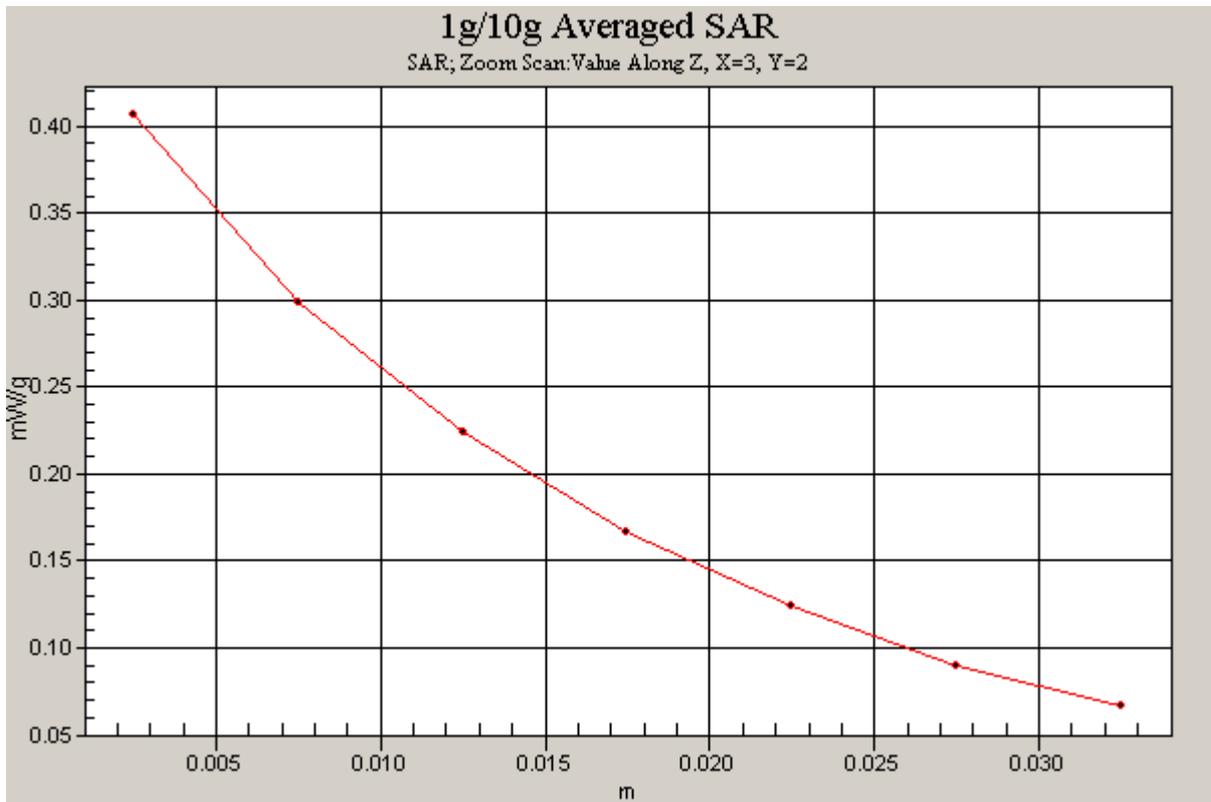


Figure 38 Z-Scan at power reference point (Body, Towards Ground Slide Open , GSM 850 Channel 190)

Date/Time: 12/13/2008 11:22:52 PM

### GSM 850 Towards Ground Low Slide Open

Communication System: GSM 850; Frequency: 824.2 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated):  $f = 824.2$  MHz;  $\sigma = 0.968$  mho/m;  $\epsilon_r = 54.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: EX3DV4 - SN3660; ConvF(9.1, 9.1, 9.1);
- Electronics: DAE3 Sn536;

**Towards Ground Low/Area Scan (61x111x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.394 mW/g

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

Reference Value = 6.27 V/m; Power Drift = 0.000 dB

Peak SAR (extrapolated) = 0.457 W/kg

**SAR(1 g) = 0.341 mW/g; SAR(10 g) = 0.241 mW/g**

Maximum value of SAR (measured) = 0.394 mW/g

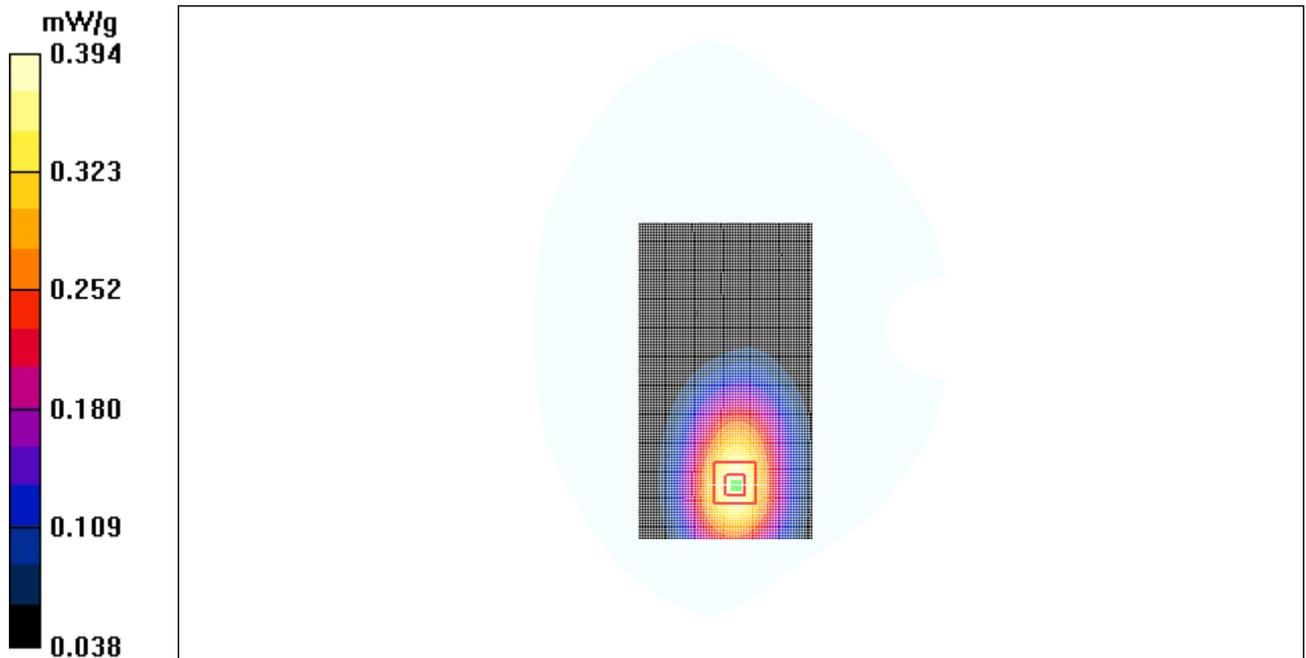


Figure 39 Body, Towards Ground Slide Open , GSM 850 Channel 128

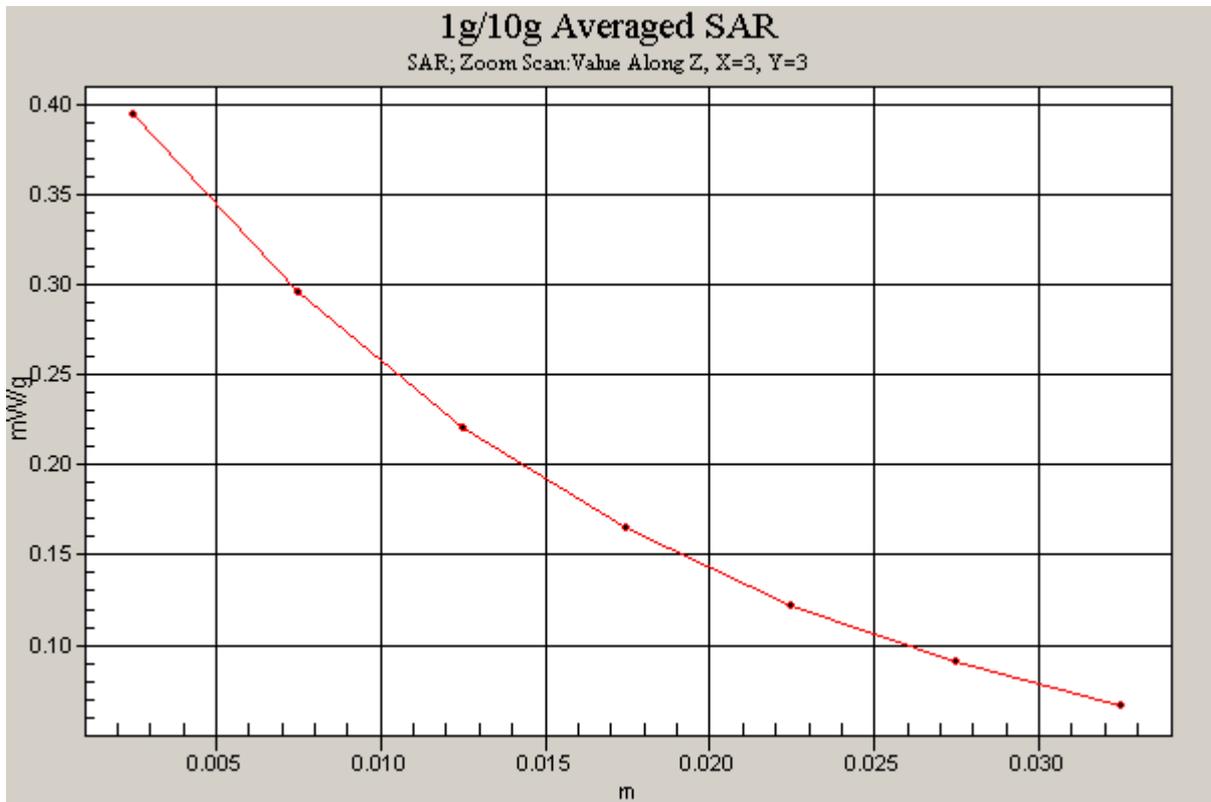


Figure 40 Z-Scan at power reference point (Body, Towards Ground Slide Open , GSM 850 Channel 128)

Date/Time: 12/13/2008 11:37:14 AM

### GSM 850 Towards Phantom Middle Slide Open

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.984$  mho/m;  $\epsilon_r = 54$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: EX3DV4 - SN3660; ConvF(9.1, 9.1, 9.1);
- Electronics: DAE3 Sn536;

**Towards Phantom Middle/Area Scan (51x111x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.326 mW/g

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

Reference Value = 15.2 V/m; Power Drift = -0.073 dB

Peak SAR (extrapolated) = 0.374 W/kg

**SAR(1 g) = 0.281 mW/g; SAR(10 g) = 0.203 mW/g**

Maximum value of SAR (measured) = 0.323 mW/g

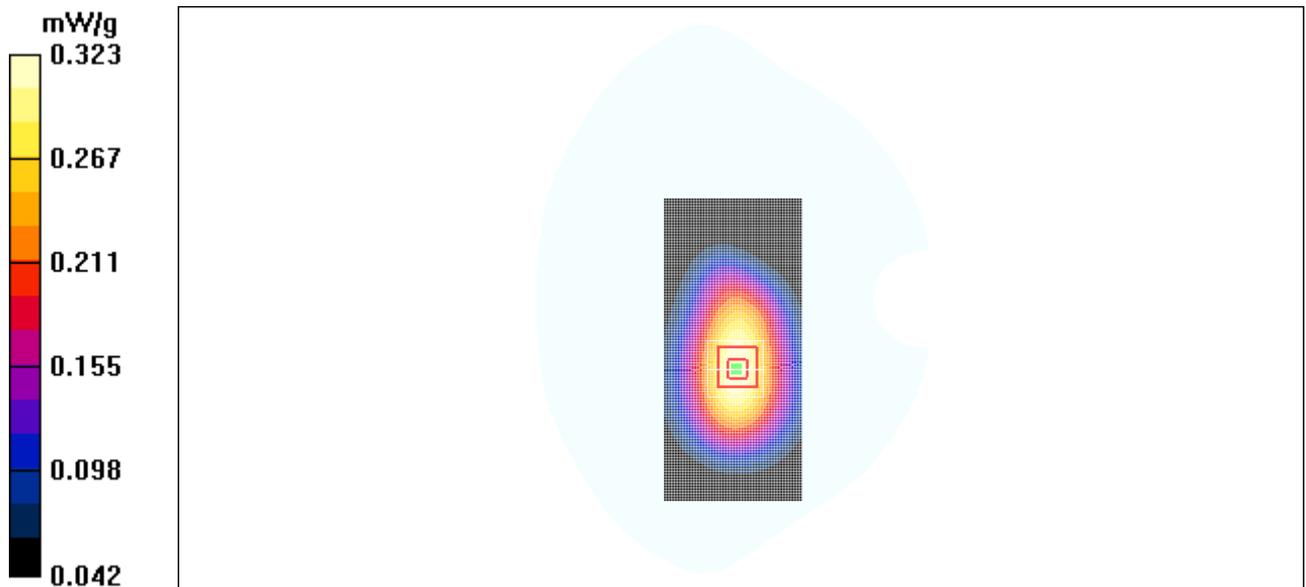


Figure 41 Body, Towards Phantom Slide Open, GSM 850 Channel 190

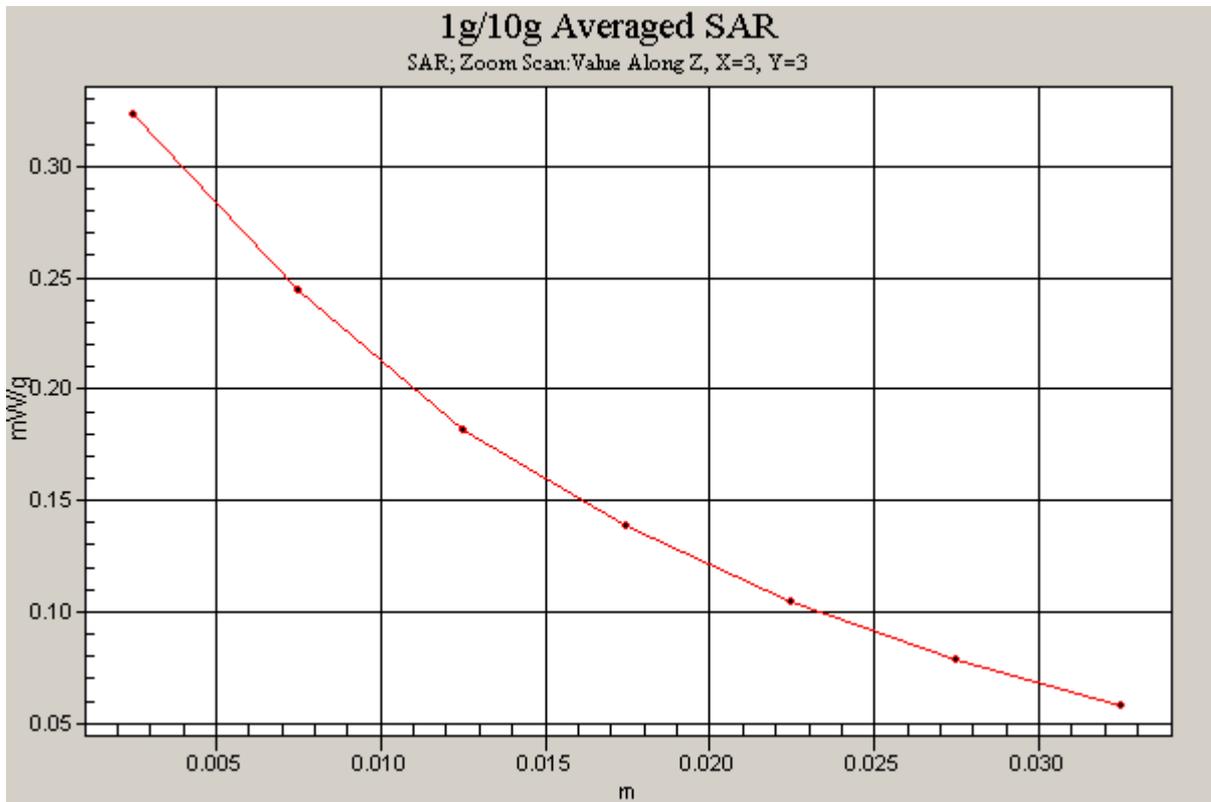


Figure 42 Z-Scan at power reference point (Body, Towards Phantom Slide Open, GSM 850 Channel 190)

Date/Time: 12/14/2008 12:20:14 AM

**GSM 850 Earphone Towards Ground High Slide Open**

Communication System: GSM 850; Frequency: 848.8 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 849$  MHz;  $\sigma = 0.997$  mho/m;  $\epsilon_r = 53.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: EX3DV4 - SN3660; ConvF(9.1, 9.1, 9.1);
- Electronics: DAE3 Sn536;

**Towards Ground High/Area Scan (51x111x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.399 mW/g

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

Reference Value = 6.17 V/m; Power Drift = -0.020 dB

Peak SAR (extrapolated) = 0.451 W/kg

**SAR(1 g) = 0.335 mW/g; SAR(10 g) = 0.235 mW/g**

Maximum value of SAR (measured) = 0.389 mW/g

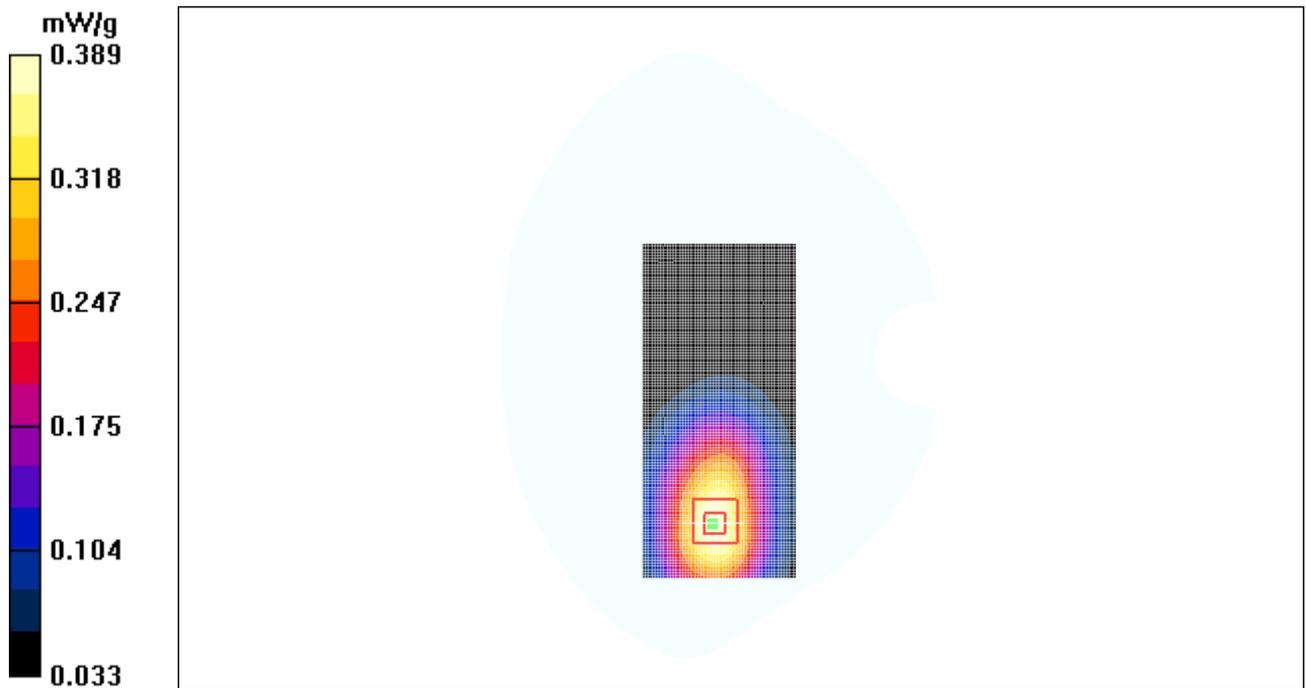


Figure 43 Body with Earphone, Towards Ground Slide Open , GSM 850, Channel 251

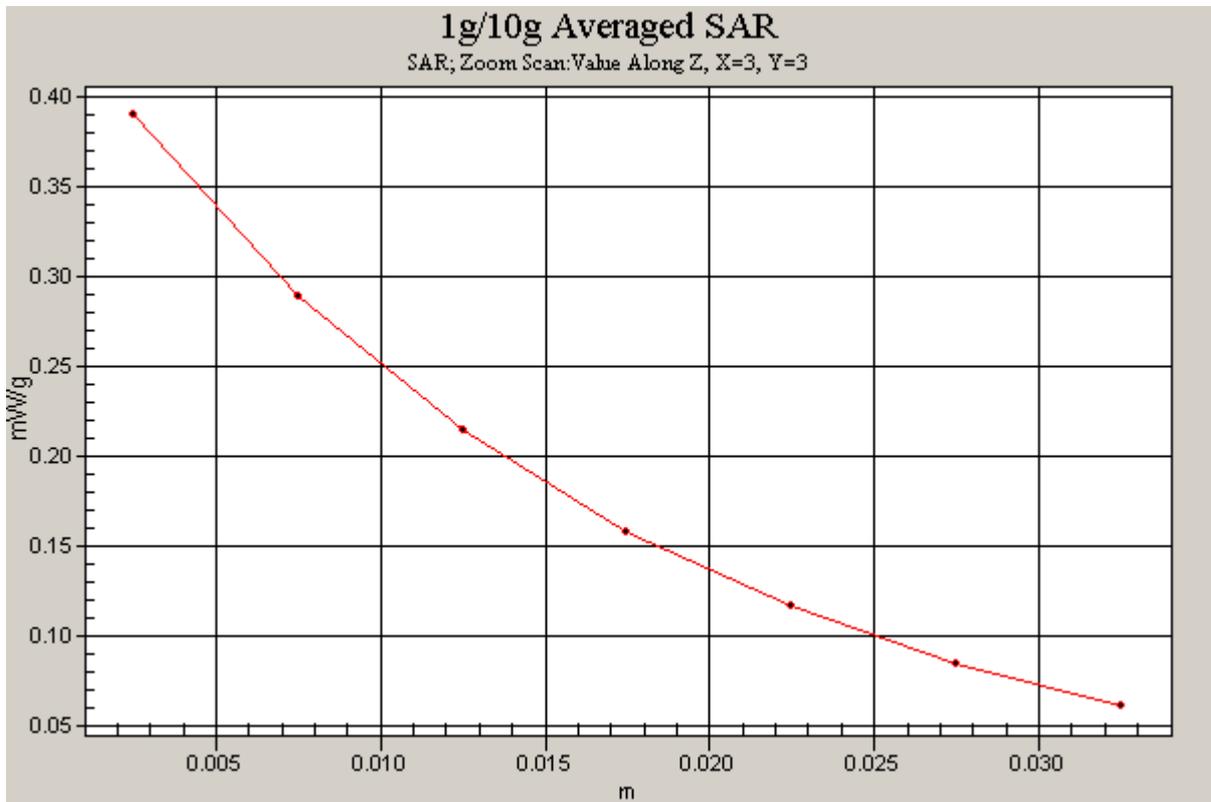


Figure 44 Z-Scan at power reference point (Body with Earphone, Towards Ground Slide Open, GSM 850, Channel 251)

Date/Time: 12/14/2008 12:42:08 AM

### GSM 850 GPRS Towards Ground High Slide Open

Communication System: GSM850 + GPRS(2Up); Frequency: 848.8 MHz; Duty Cycle: 1:4

Medium parameters used:  $f = 849$  MHz;  $\sigma = 0.997$  mho/m;  $\epsilon_r = 53.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: EX3DV4 - SN3660; ConvF(9.1, 9.1, 9.1);
- Electronics: DAE3 Sn536;

**Towards Ground High/Area Scan (51x111x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.754 mW/g

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

Reference Value = 8.42 V/m; Power Drift = 0.053 dB

Peak SAR (extrapolated) = 0.882 W/kg

**SAR(1 g) = 0.638 mW/g; SAR(10 g) = 0.447 mW/g**

Maximum value of SAR (measured) = 0.753 mW/g

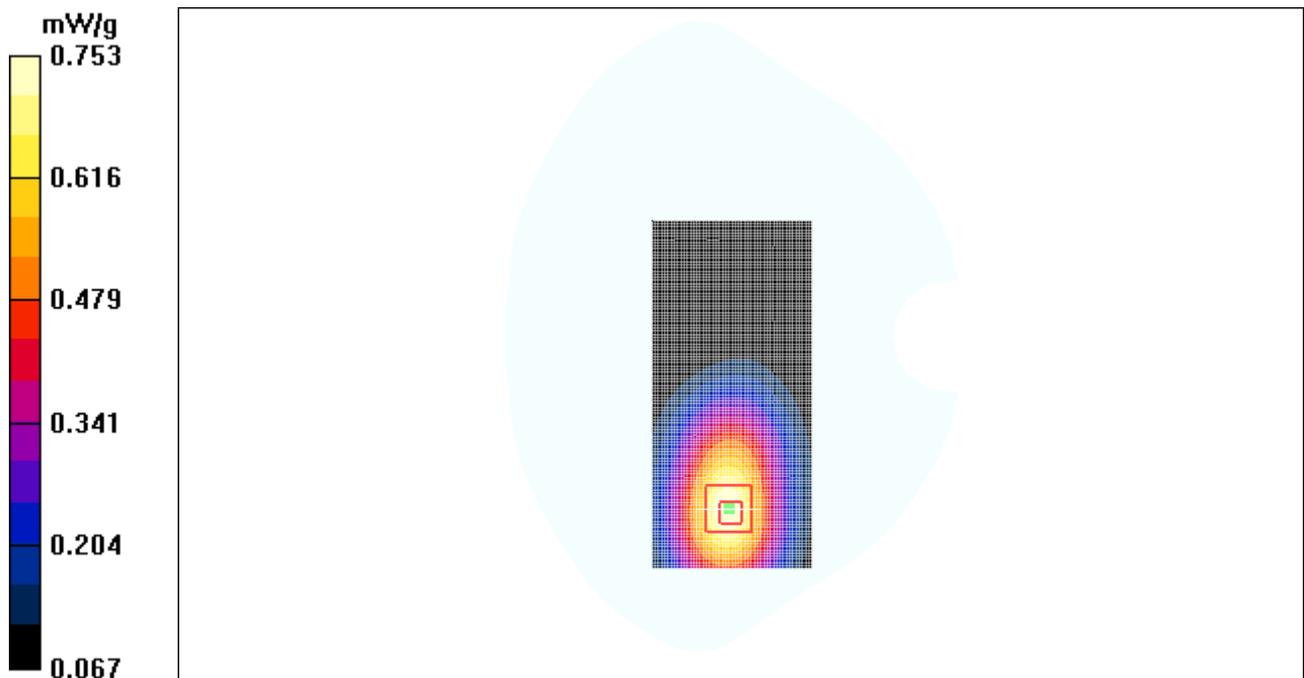


Figure 45 Body, Towards Ground Slide Open , GSM 850 GPRS, Channel 251

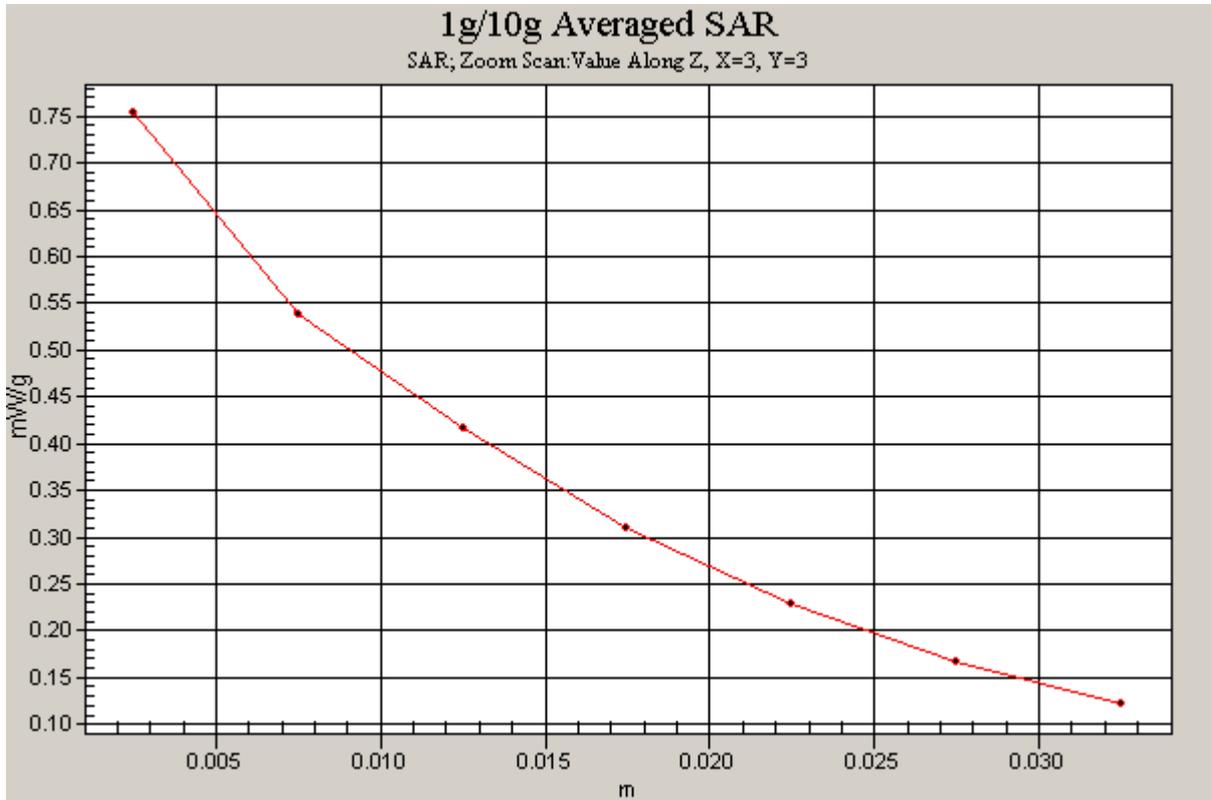


Figure 46 Z-Scan at power reference point (Body, Towards Ground Slide Open , GSM 850 GPRS, Channel 251)

Date/Time: 12/14/2008 1:27:15 AM

**GSM 850 GPRS Towards Ground Middle Slide Open**

Communication System: GSM850 + GPRS(2Up); Frequency: 836.6 MHz; Duty Cycle: 1:4

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.984$  mho/m;  $\epsilon_r = 54$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: EX3DV4 - SN3660; ConvF(9.1, 9.1, 9.1);
- Electronics: DAE3 Sn536;

**Towards Ground Middle/Area Scan (51x111x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.780 mW/g

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

Reference Value = 9.15 V/m; Power Drift = 0.108 dB

Peak SAR (extrapolated) = 0.882 W/kg

**SAR(1 g) = 0.646 mW/g; SAR(10 g) = 0.456 mW/g**

Maximum value of SAR (measured) = 0.757 mW/g

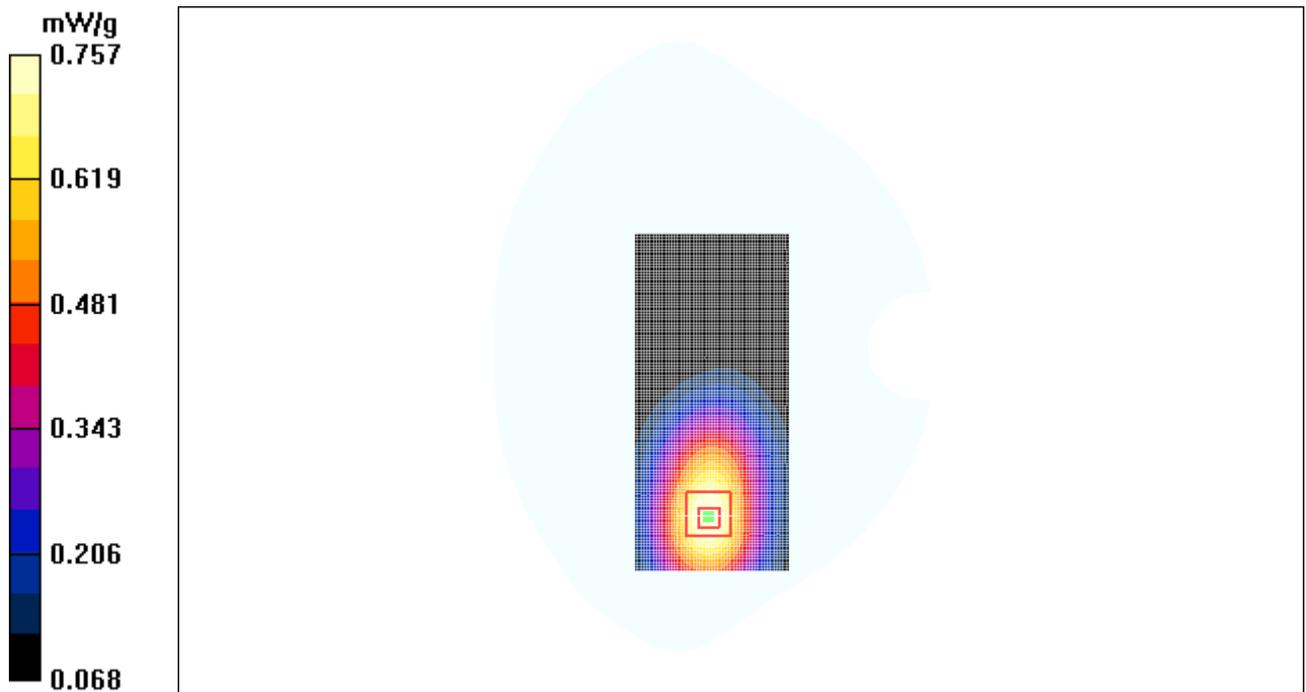


Figure 47 Body, Towards Ground Slide Open , GSM 850 GPRS, Channel 190

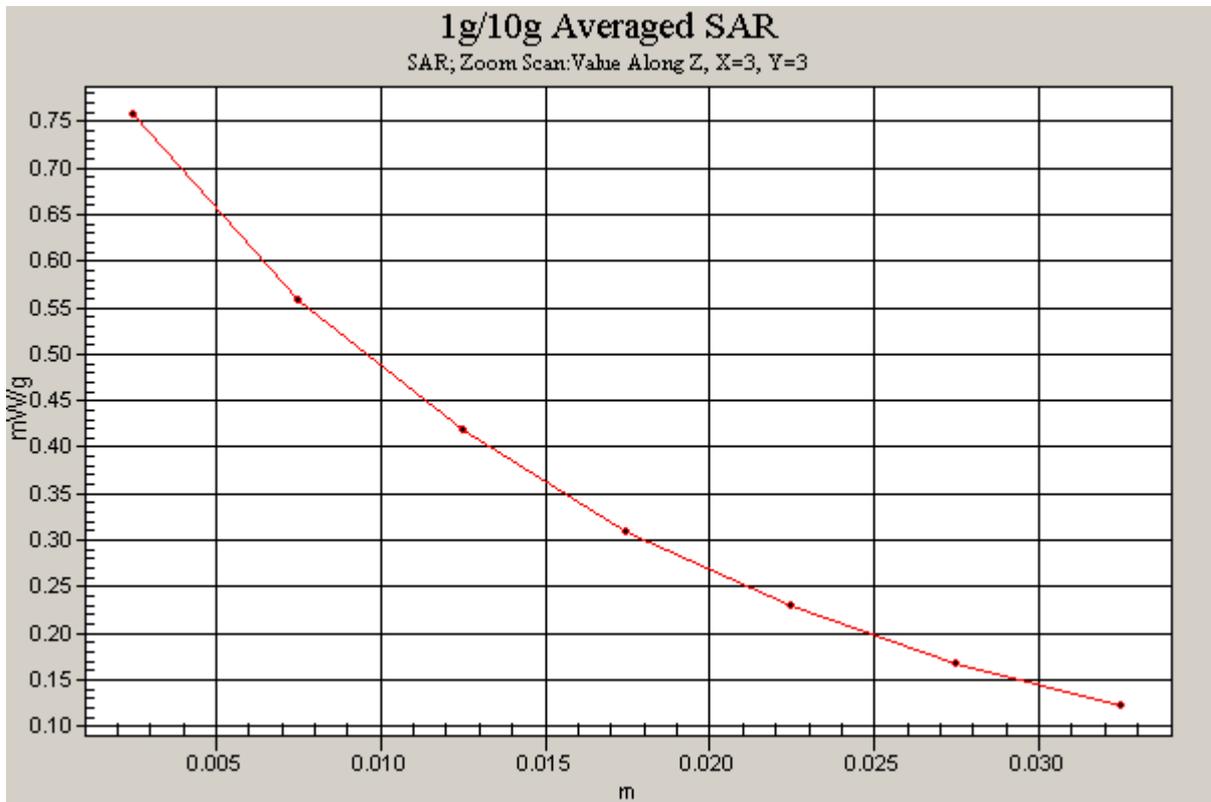


Figure 48 Z-Scan at power reference point (Body, Towards Ground Slide Open , GSM 850 GPRS, Channel 190)

Date/Time: 12/14/2008 1:49:38 AM

### GSM 850 GPRS Towards Ground Low Slide Open

Communication System: GSM850 + GPRS(2Up); Frequency: 824.2 MHz; Duty Cycle: 1:4

Medium parameters used (interpolated):  $f = 824.2$  MHz;  $\sigma = 0.968$  mho/m;  $\epsilon_r = 54.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: EX3DV4 - SN3660; ConvF(9.1, 9.1, 9.1);
- Electronics: DAE3 Sn536;

**Towards Ground Low/Area Scan (61x111x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.758 mW/g

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

Reference Value = 9.66 V/m; Power Drift = 0.062 dB

Peak SAR (extrapolated) = 0.863 W/kg

**SAR(1 g) = 0.638 mW/g; SAR(10 g) = 0.452 mW/g**

Maximum value of SAR (measured) = 0.748 mW/g

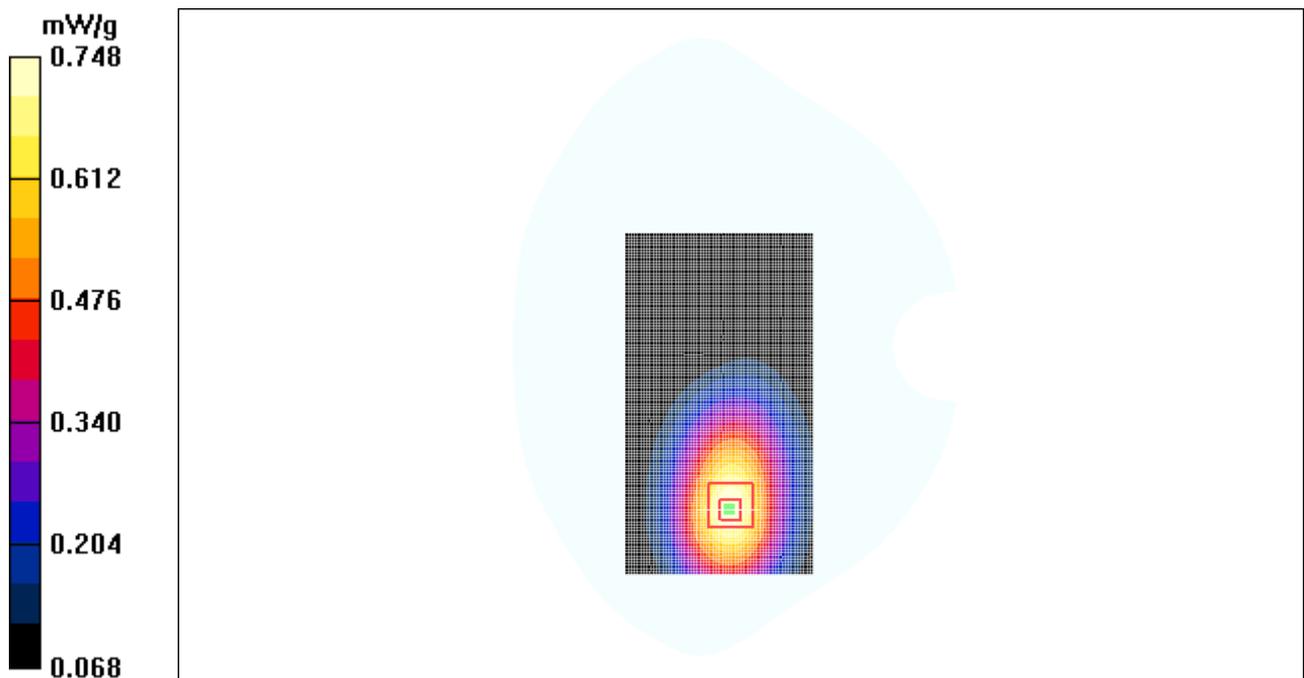


Figure 49 Body, Towards Ground Slide Open , GSM 850 GPRS, Channel 128

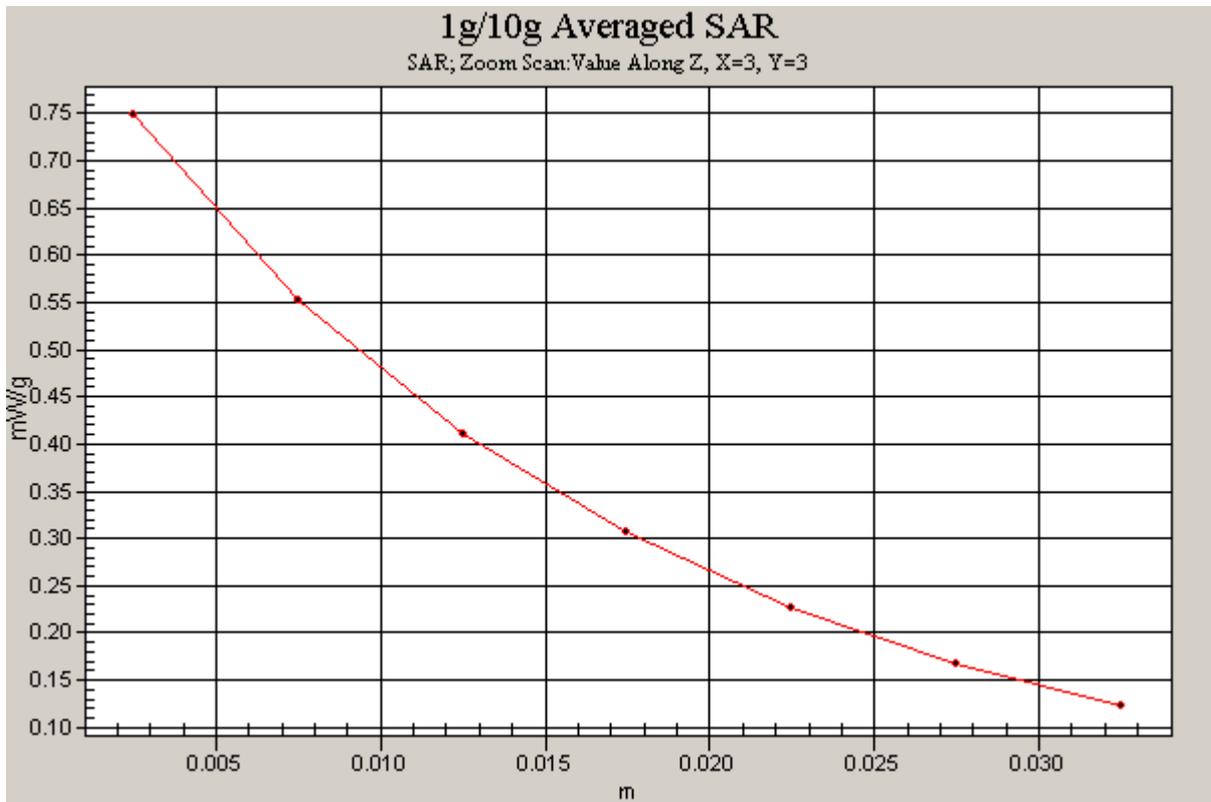


Figure 50 Z-Scan at power reference point (Body, Towards Ground Slide Open , GSM 850 GPRS, Channel 128)

Date/Time: 12/14/2008 2:19:03 AM

### GSM 850 GPRS Towards Phantom Middle Slide Open

Communication System: GSM850 + GPRS(2Up); Frequency: 836.6 MHz; Duty Cycle: 1:4

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.984$  mho/m;  $\epsilon_r = 54$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: EX3DV4 - SN3660; ConvF(9.1, 9.1, 9.1);
- Electronics: DAE3 Sn536;

**Towards Phantom Middle/Area Scan (51x111x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.510 mW/g

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

Reference Value = 9.58 V/m; Power Drift = 0.004 dB

Peak SAR (extrapolated) = 0.800 W/kg

**SAR(1 g) = 0.442 mW/g; SAR(10 g) = 0.322 mW/g**

Maximum value of SAR (measured) = 0.508 mW/g

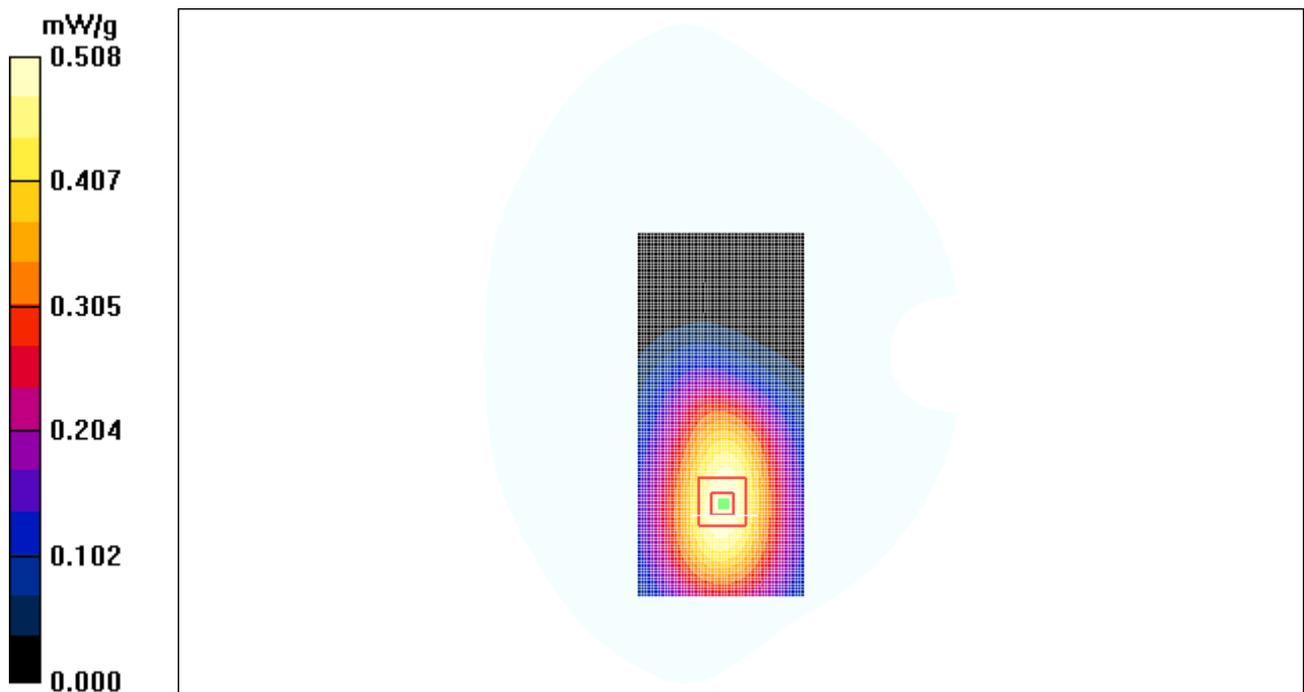


Figure 51 Body, Towards Phantom Slide Open, GSM 850 GPRS, Channel 190

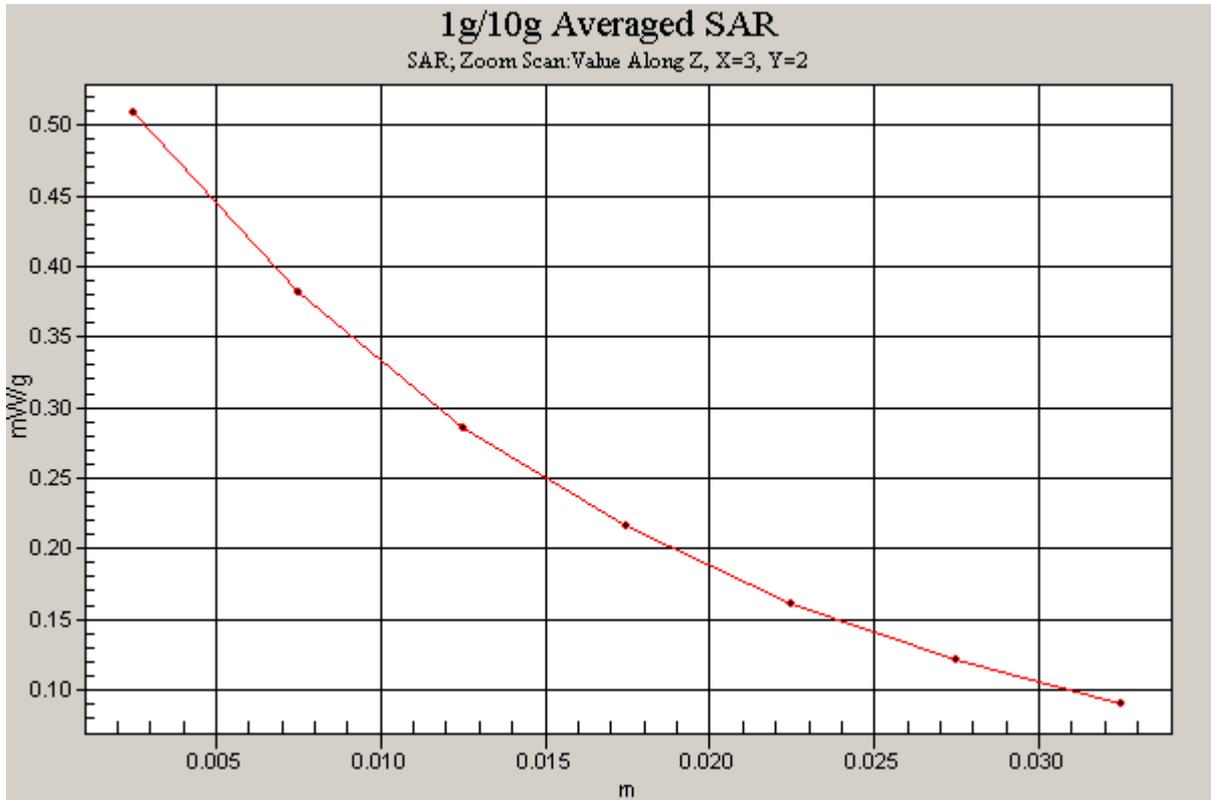


Figure 52 Z-Scan at power reference point (Body, Towards Phantom Slide Open, GSM 850 GPRS, Channel 190)

Date/Time: 12/13/2008 10:03:09 AM

**GSM 850 Towards Ground High Slide Close**

Communication System: GSM 850; Frequency: 848.8 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 849$  MHz;  $\sigma = 0.997$  mho/m;  $\epsilon_r = 53.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: EX3DV4 - SN3660; ConvF(9.1, 9.1, 9.1);
- Electronics: DAE3 Sn536;

**Towards Ground High/Area Scan (51x91x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.414 mW/g

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

Reference Value = 7.84 V/m; Power Drift = 0.070 dB

Peak SAR (extrapolated) = 0.500 W/kg

**SAR(1 g) = 0.361 mW/g; SAR(10 g) = 0.250 mW/g**

Maximum value of SAR (measured) = 0.425 mW/g

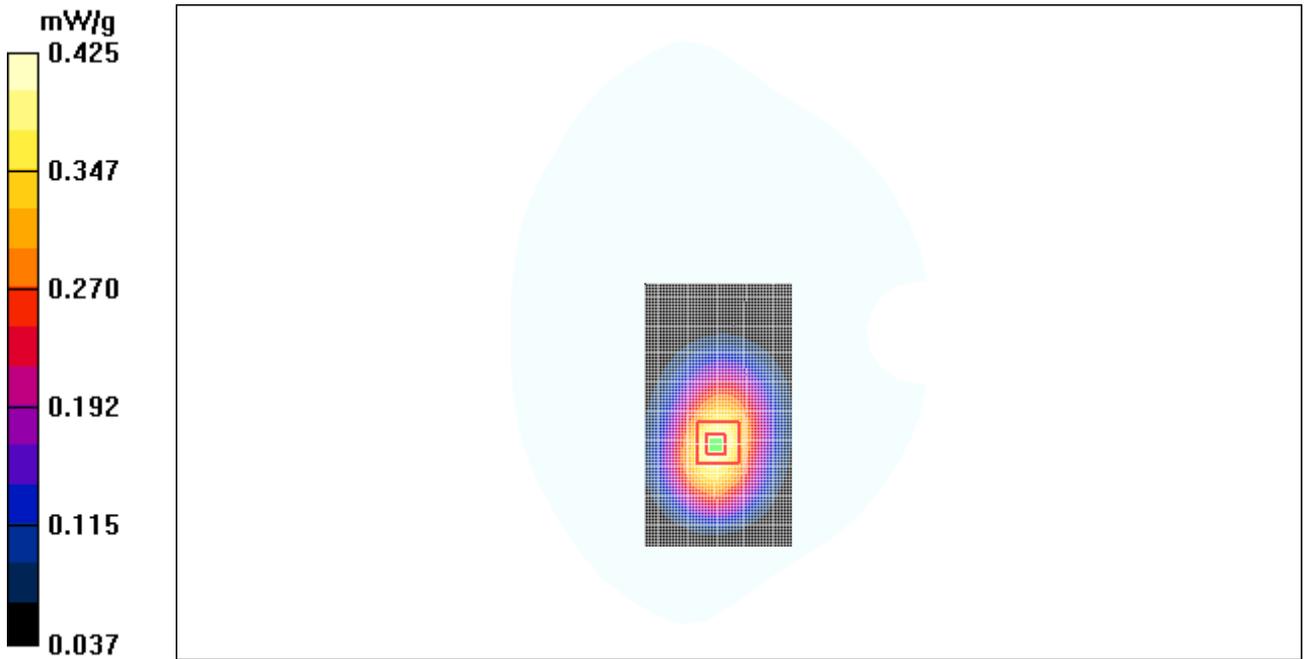


Figure 53 Body, Towards Ground Slide Close , GSM 850 Channel 251

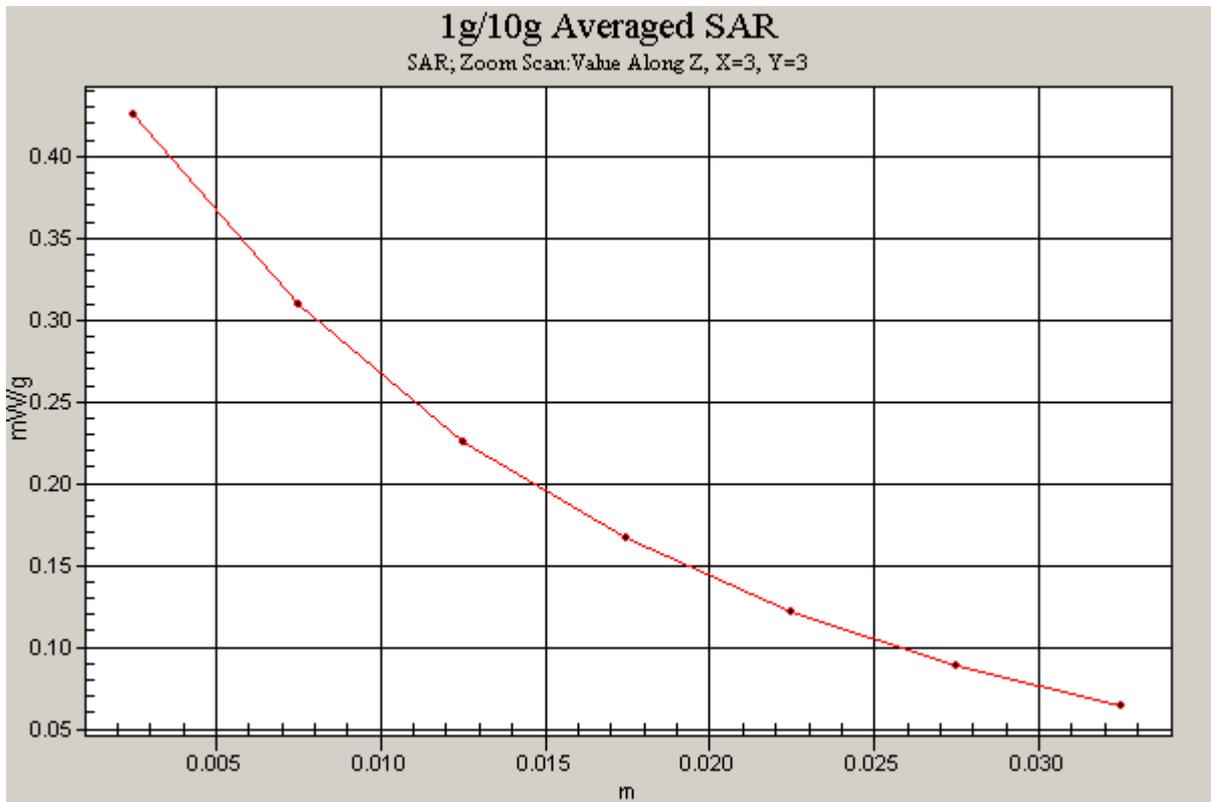


Figure 54 Z-Scan at power reference point (Body, Towards Ground Slide Close , GSM 850 Channel 251)

Date/Time: 12/13/2008 9:44:28 AM

**GSM 850 Towards Ground Middle Slide Close**

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.984$  mho/m;  $\epsilon_r = 54$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: EX3DV4 - SN3660; ConvF(9.1, 9.1, 9.1);
- Electronics: DAE3 Sn536;

**Towards Ground Middle/Area Scan (51x91x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.374 mW/g

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

Reference Value = 7.38 V/m; Power Drift = -0.011 dB

Peak SAR (extrapolated) = 0.446 W/kg

**SAR(1 g) = 0.324 mW/g; SAR(10 g) = 0.225 mW/g**

Maximum value of SAR (measured) = 0.379 mW/g

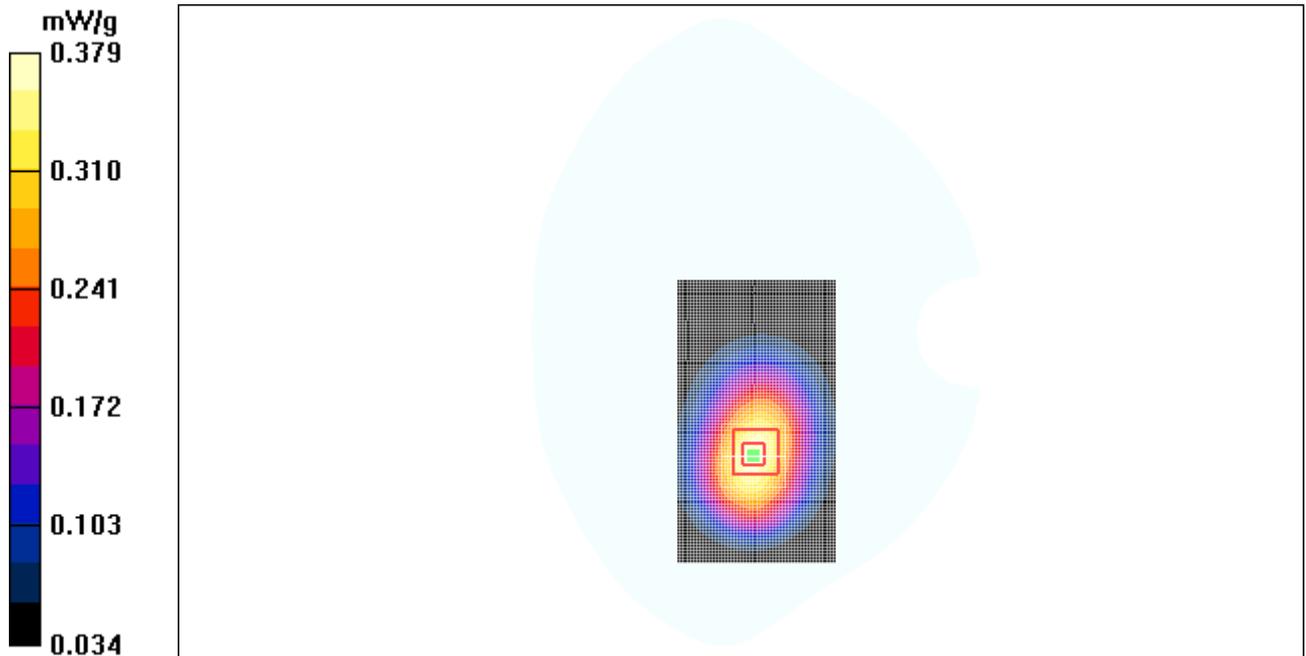


Figure 55 Body, Towards Ground Slide Close , GSM 850 Channel 190

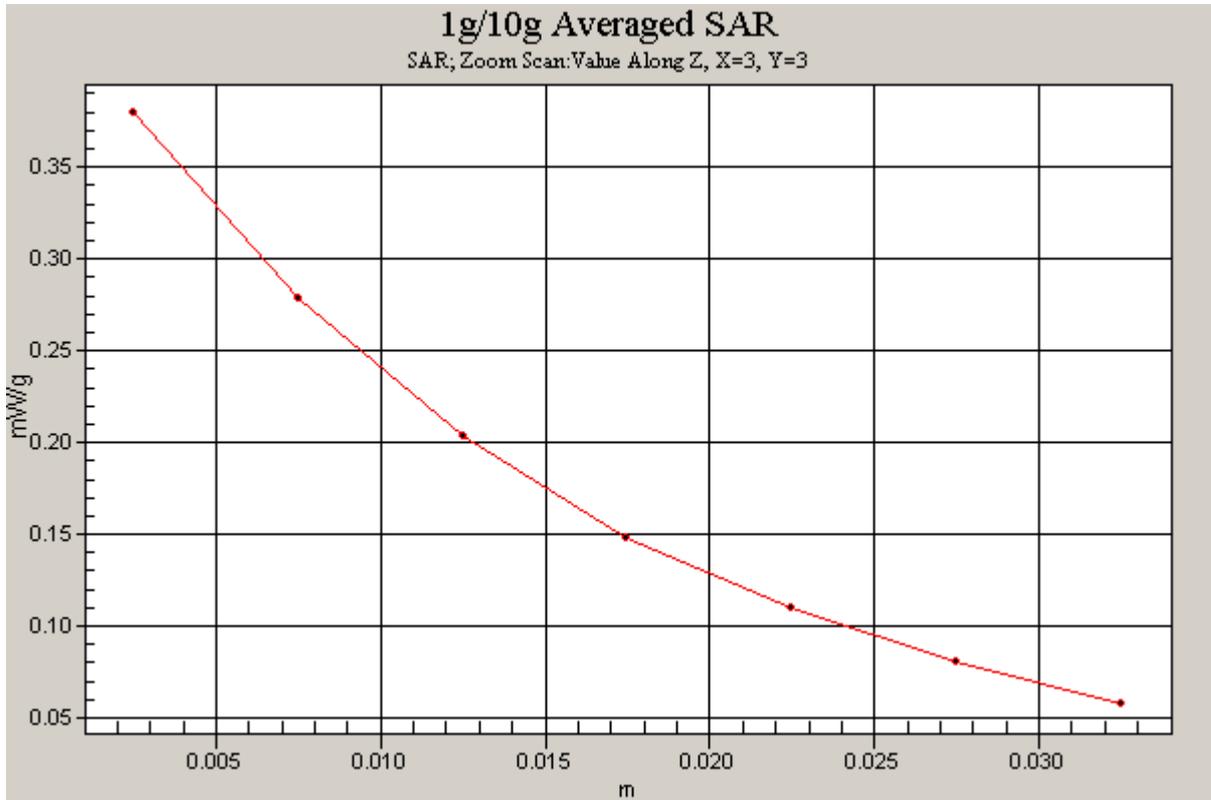


Figure 56 Z-Scan at power reference point (Body, Towards Ground Slide Close , GSM 850 Channel 190)

Date/Time: 12/13/2008 10:26:46 AM

**GSM 850 Towards Ground Low Slide Close**

Communication System: GSM 850; Frequency: 824.2 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated):  $f = 824.2$  MHz;  $\sigma = 0.968$  mho/m;  $\epsilon_r = 54.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: EX3DV4 - SN3660; ConvF(9.1, 9.1, 9.1);
- Electronics: DAE3 Sn536;

**Towards Ground Low/Area Scan (61x91x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.380 mW/g

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

Reference Value = 7.71 V/m; Power Drift = -0.123 dB

Peak SAR (extrapolated) = 0.450 W/kg

**SAR(1 g) = 0.326 mW/g; SAR(10 g) = 0.226 mW/g**

Maximum value of SAR (measured) = 0.383 mW/g

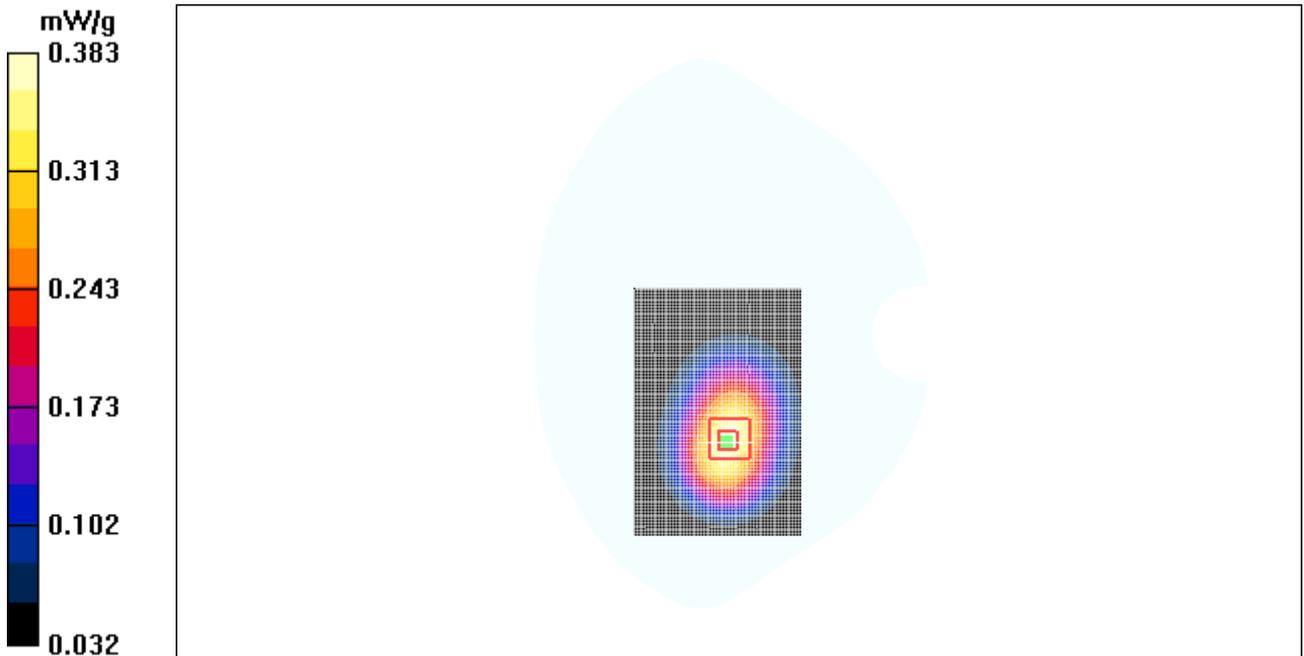


Figure 57 Body, Towards Ground Slide Close , GSM 850 Channel 128

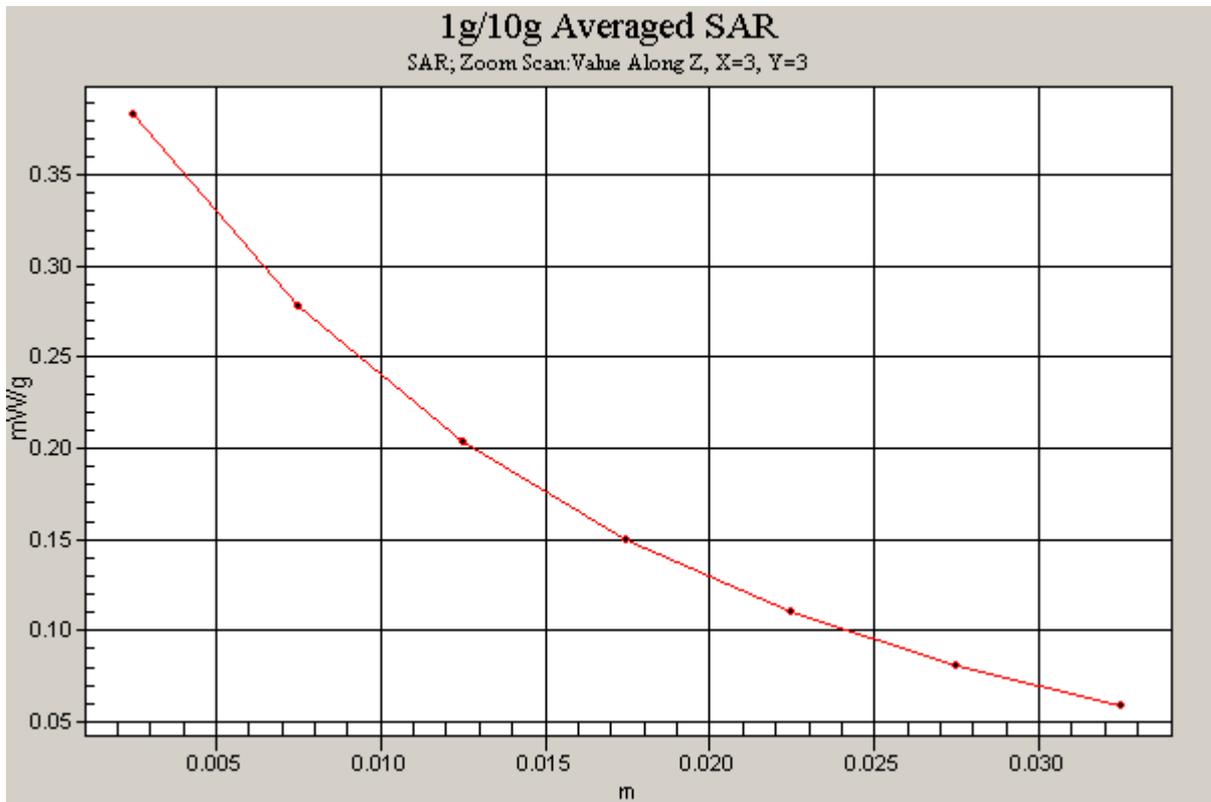


Figure 58 Z-Scan at power reference point (Body, Towards Ground Slide Close , GSM 850 Channel 128)

Date/Time: 12/13/2008 10:48:52 AM

**GSM 850 Towards Phantom Middle Slide Close**

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.984$  mho/m;  $\epsilon_r = 54$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: EX3DV4 - SN3660; ConvF(9.1, 9.1, 9.1);
- Electronics: DAE3 Sn536;

**Towards Phantom Middle/Area Scan (51x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.220 mW/g

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

Reference Value = 9.25 V/m; Power Drift = -0.005 dB

Peak SAR (extrapolated) = 0.259 W/kg

**SAR(1 g) = 0.192 mW/g; SAR(10 g) = 0.139 mW/g**

Maximum value of SAR (measured) = 0.223 mW/g

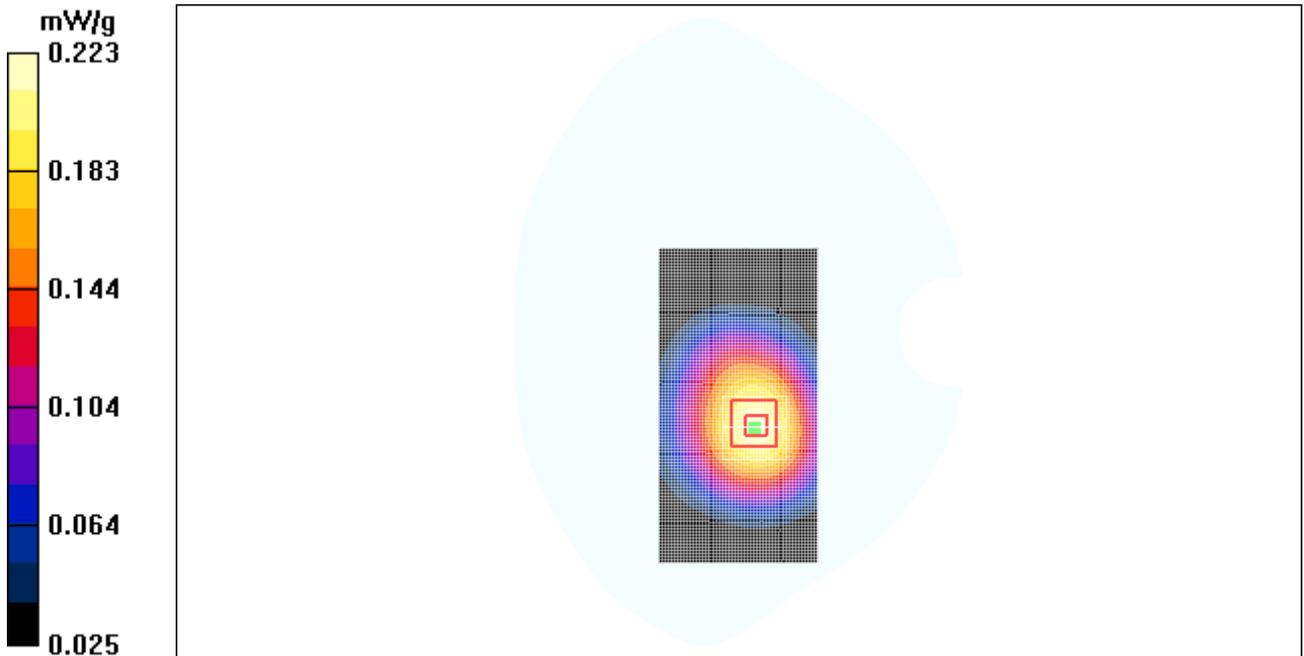


Figure 59 Body, Towards Phantom Slide Close, GSM 850 Channel 190

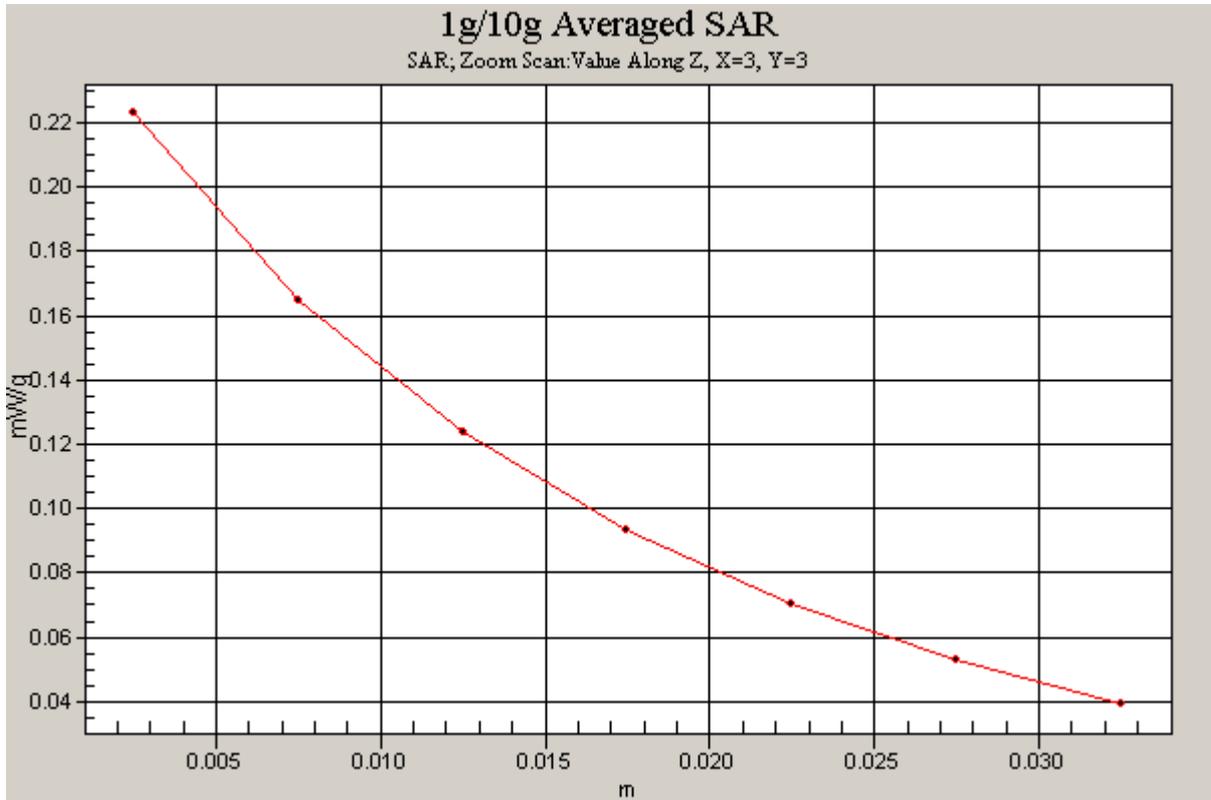


Figure 60 Z-Scan at power reference point (Body, Towards Phantom Slide Close, GSM 850 Channel 190)

Date/Time: 12/15/2008 12:07:25 AM

**GSM 850 Earphone Towards Ground High Slide Close**

Communication System: GSM 850; Frequency: 848.8 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 849$  MHz;  $\sigma = 0.997$  mho/m;  $\epsilon_r = 53.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: EX3DV4 - SN3660; ConvF(9.1, 9.1, 9.1);
- Electronics: DAE3 Sn536;

**Towards Ground High/Area Scan (51x91x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.409 mW/g

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

Reference Value = 8.11 V/m; Power Drift = -0.093 dB

Peak SAR (extrapolated) = 0.473 W/kg

**SAR(1 g) = 0.340 mW/g; SAR(10 g) = 0.235 mW/g**

Maximum value of SAR (measured) = 0.401 mW/g

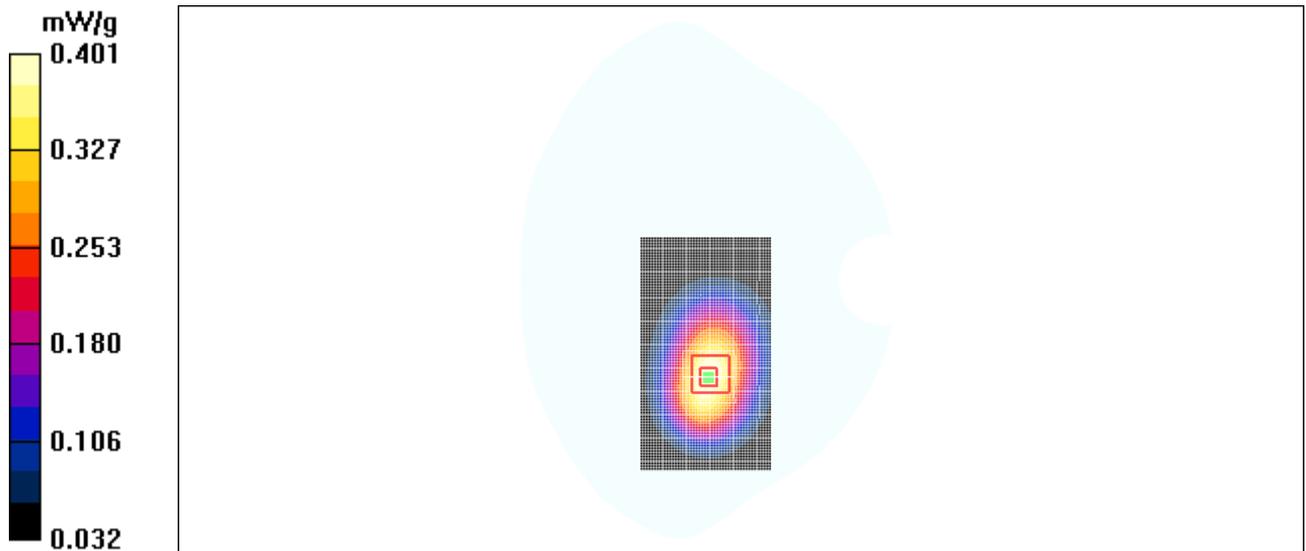


Figure 61 Body with Earphone, Towards Ground Slide Close , GSM 850, Channel 251

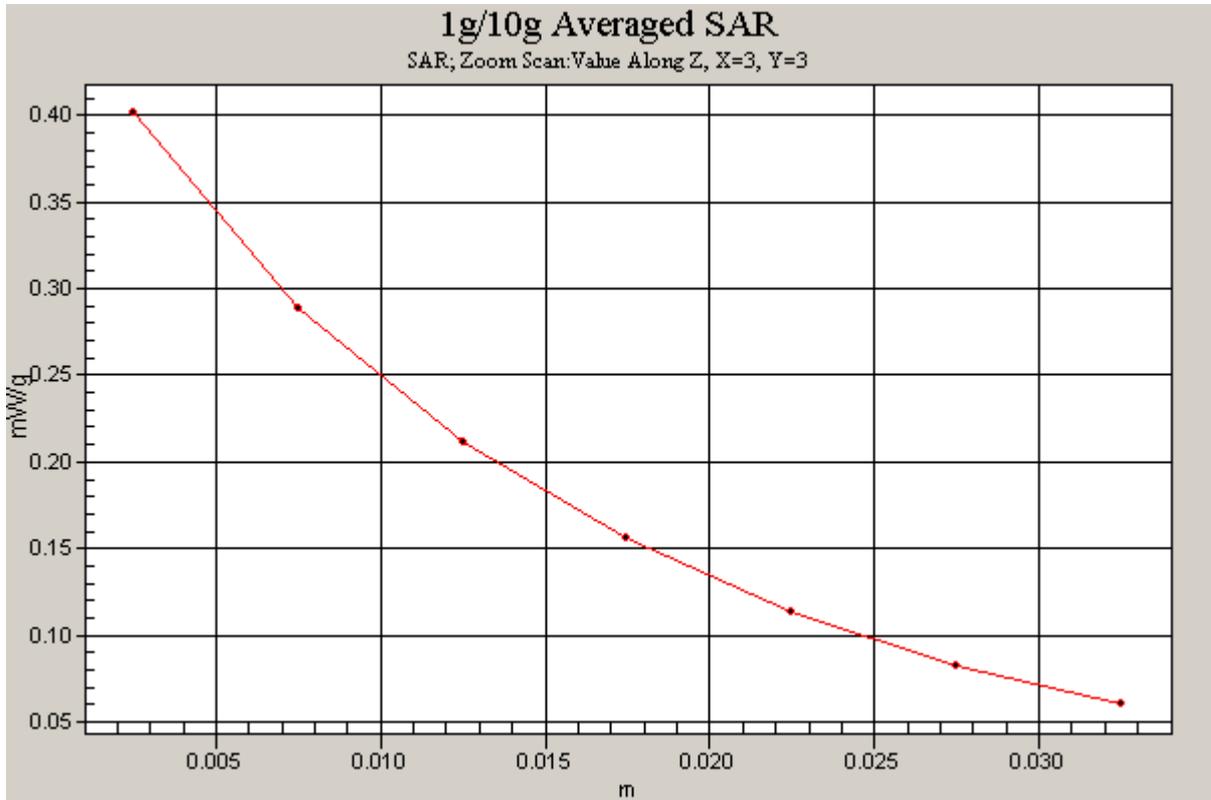


Figure 62 Z-Scan at power reference point (Body with Earphone, Towards Ground Slide Close , GSM 850, Channel 251)

Date/Time: 12/14/2008 3:47:31 AM

**GSM 850 GPRS Towards Ground High Slide Close**

Communication System: GSM850 + GPRS(2Up); Frequency: 848.8 MHz; Duty Cycle: 1:4

Medium parameters used:  $f = 849$  MHz;  $\sigma = 0.997$  mho/m;  $\epsilon_r = 53.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: EX3DV4 - SN3660; ConvF(9.1, 9.1, 9.1);
- Electronics: DAE3 Sn536;

**Towards Ground High/Area Scan (51x91x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.798 mW/g

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

Reference Value = 11.8 V/m; Power Drift = -0.094 dB

Peak SAR (extrapolated) = 0.938 W/kg

**SAR(1 g) = 0.679 mW/g; SAR(10 g) = 0.471 mW/g**

Maximum value of SAR (measured) = 0.802 mW/g

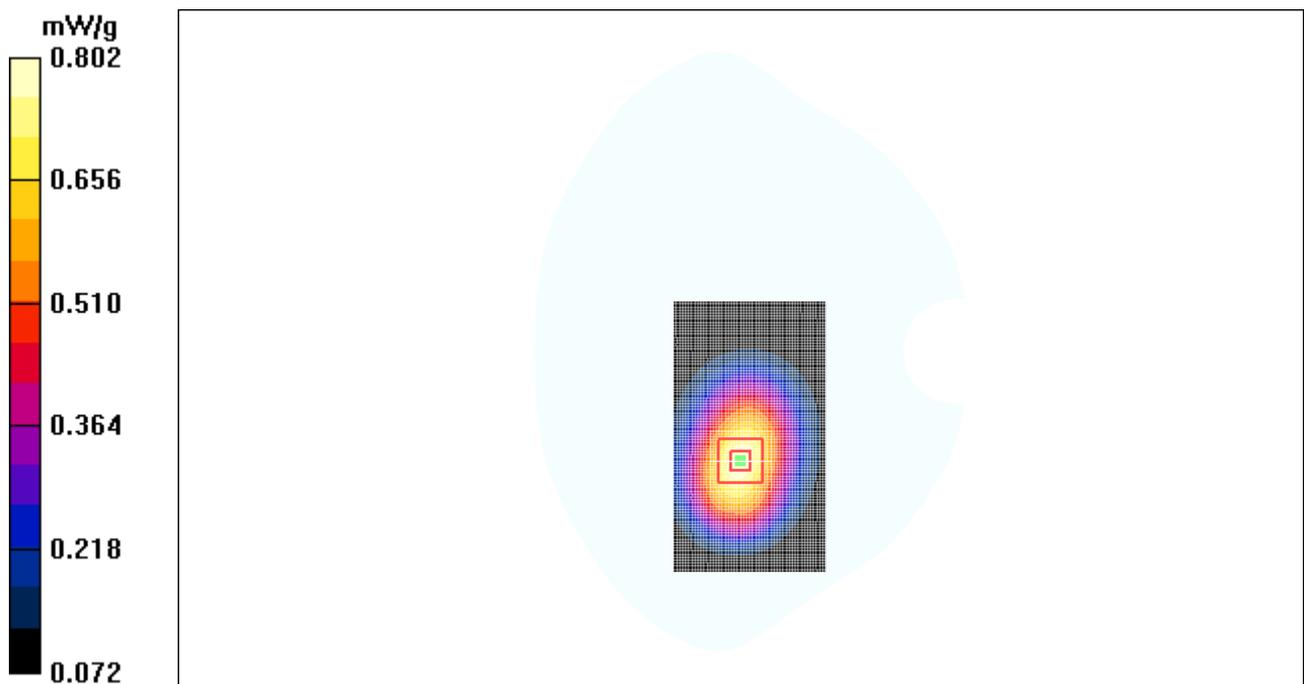


Figure 63 Body, Towards Ground Slide Close , GSM 850 GPRS, Channel 251

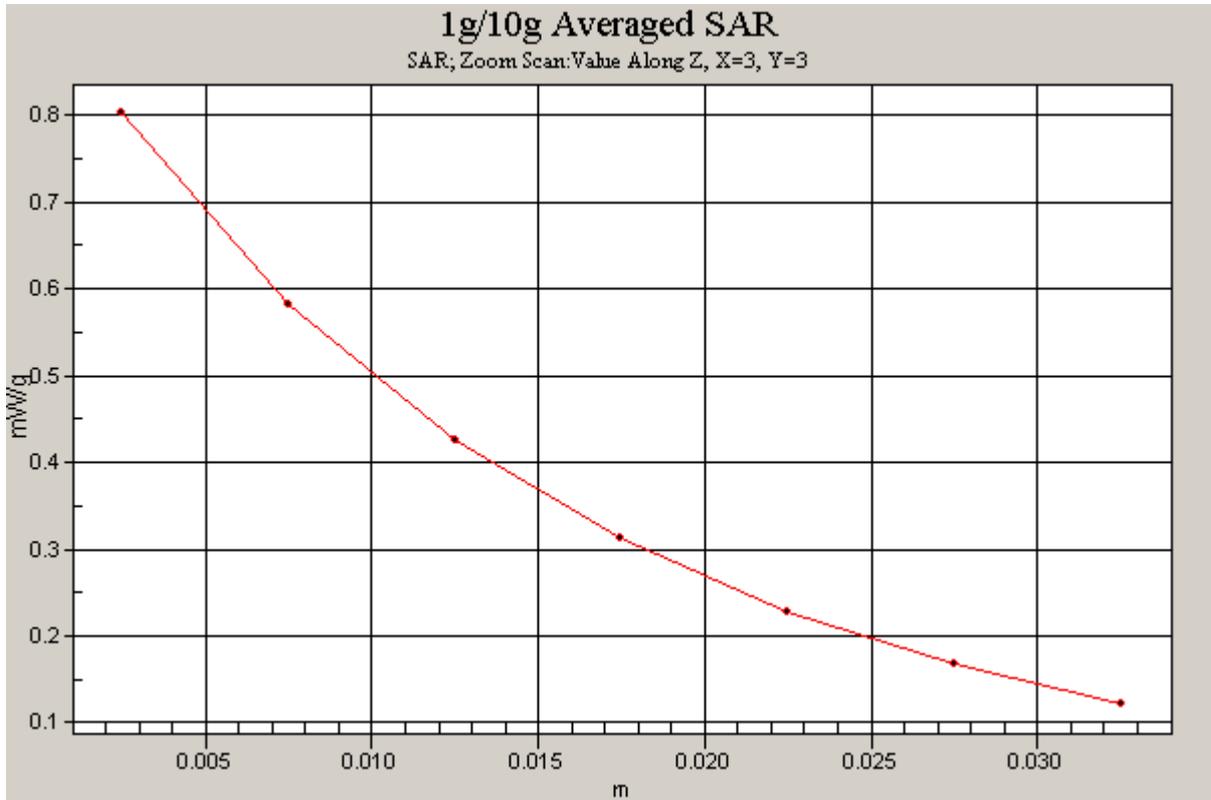


Figure 64 Z-Scan at power reference point (Body, Towards Ground Slide Close , GSM 850 GPRS, Channel 251)

Date/Time: 12/14/2008 3:26:18 AM

**GSM 850 GPRS Towards Ground Middle Slide Close**

Communication System: GSM850 + GPRS(2Up); Frequency: 836.6 MHz;Duty Cycle: 1:4

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.984$  mho/m;  $\epsilon_r = 54$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: EX3DV4 - SN3660; ConvF(9.1, 9.1, 9.1);
- Electronics: DAE3 Sn536;

**Towards Ground Middle/Area Scan (51x91x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.746 mW/g

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

Reference Value = 11.6 V/m; Power Drift = 0.020 dB

Peak SAR (extrapolated) = 0.851 W/kg

**SAR(1 g) = 0.623 mW/g; SAR(10 g) = 0.432 mW/g**

Maximum value of SAR (measured) = 0.728 mW/g

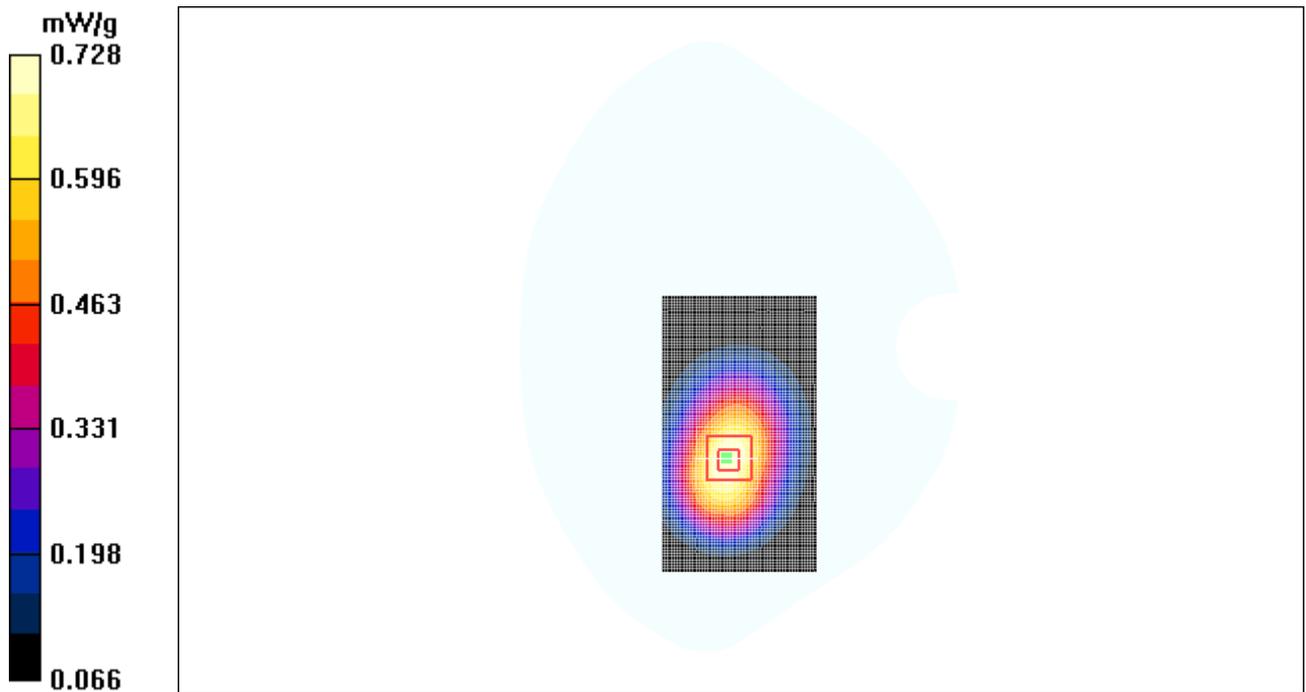


Figure 65 Body, Towards Ground Slide Close , GSM 850 GPRS, Channel 190

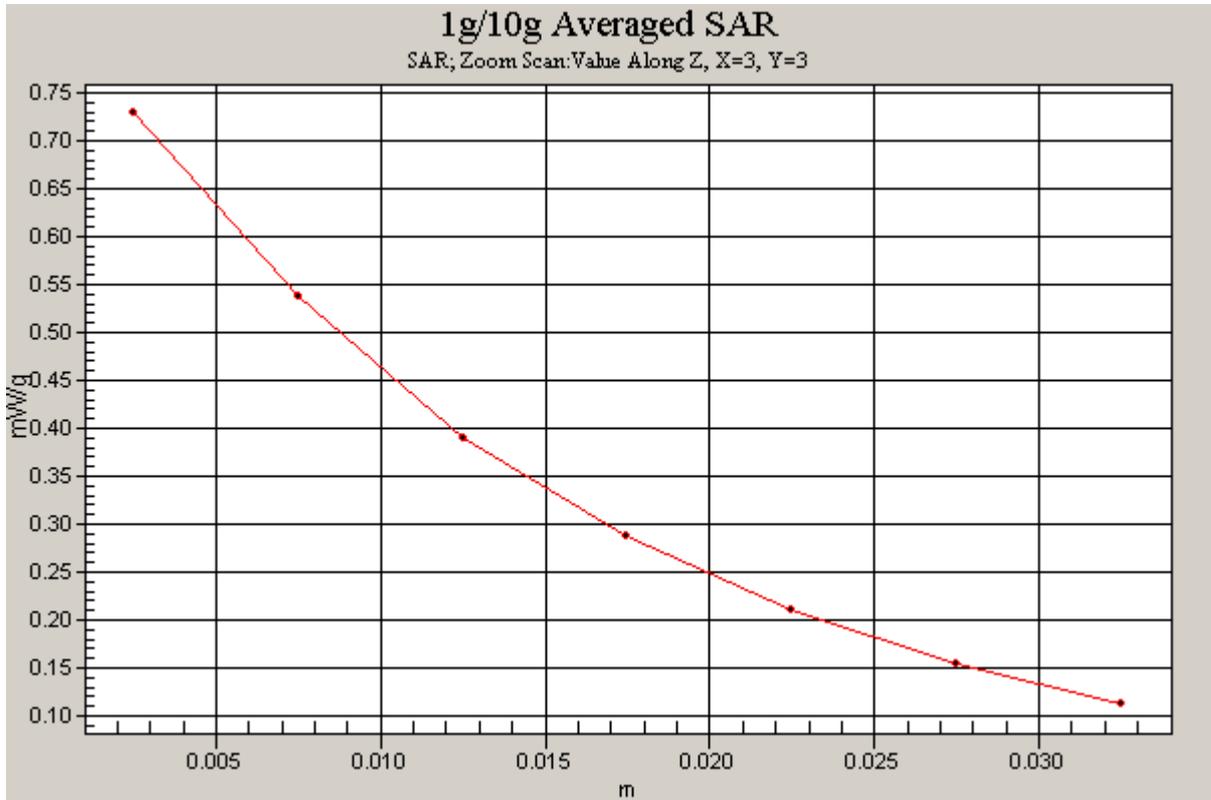


Figure 66 Z-Scan at power reference point (Body, Towards Ground Slide Close , GSM 850 GPRS, Channel 190)

Date/Time: 12/14/2008 4:08:06 AM

**GSM 850 GPRS Towards Ground Low Slide Close**

Communication System: GSM850 + GPRS(2Up); Frequency: 824.2 MHz;Duty Cycle: 1:4

Medium parameters used (interpolated):  $f = 824.2$  MHz;  $\sigma = 0.968$  mho/m;  $\epsilon_r = 54.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: EX3DV4 - SN3660; ConvF(9.1, 9.1, 9.1);
- Electronics: DAE3 Sn536;

**Towards Ground Low/Area Scan (61x91x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.621 mW/g

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

Reference Value = 9.48 V/m; Power Drift = -0.155 dB

Peak SAR (extrapolated) = 0.711 W/kg

**SAR(1 g) = 0.523 mW/g; SAR(10 g) = 0.366 mW/g**

Maximum value of SAR (measured) = 0.610 mW/g

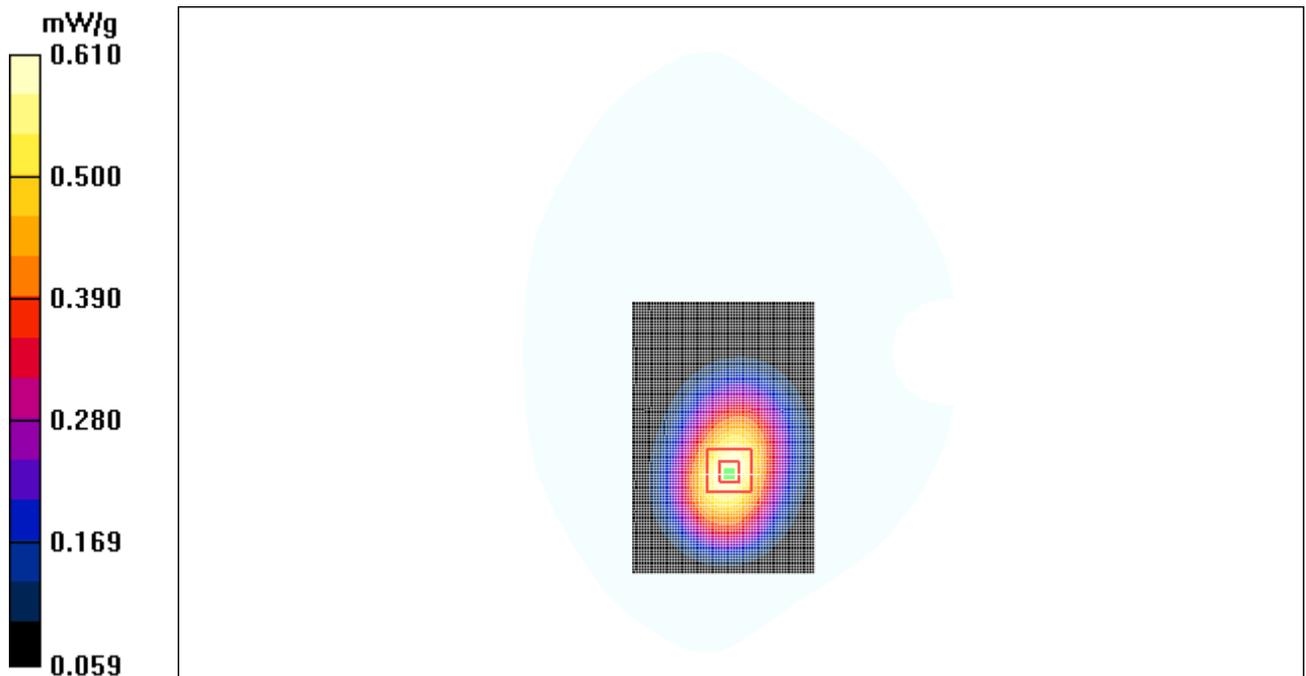


Figure 67 Body, Towards Ground Slide Close , GSM 850 GPRS, Channel 128

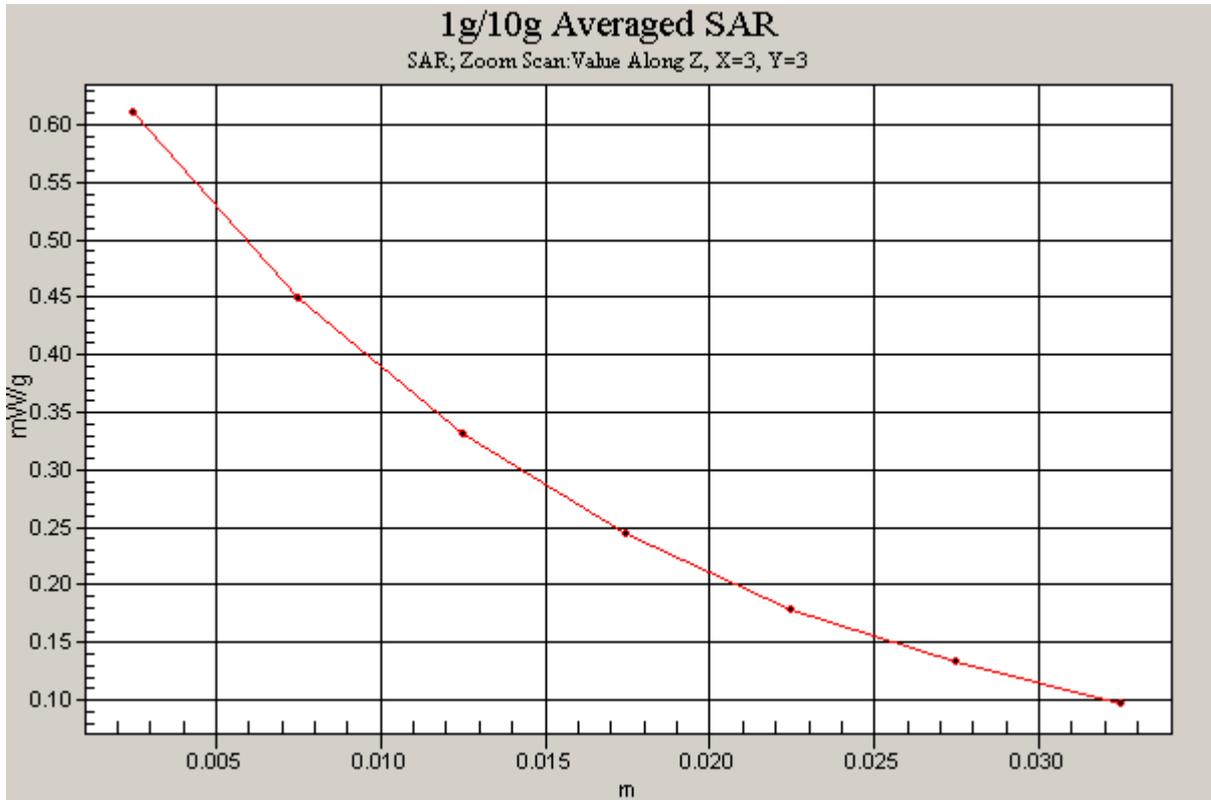


Figure 68 Z-Scan at power reference point (Body, Towards Ground Slide Close , GSM 850 GPRS, Channel 128)

Date/Time: 12/14/2008 2:46:17 AM

**GSM 850 GPRS Towards Phantom Middle Slide Close**

Communication System: GSM850 + GPRS(2Up); Frequency: 836.6 MHz; Duty Cycle: 1:4

Medium parameters used:  $f = 837$  MHz;  $\sigma = 0.984$  mho/m;  $\epsilon_r = 54$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: EX3DV4 - SN3660; ConvF(9.1, 9.1, 9.1);
- Electronics: DAE3 Sn536;

**Towards Phantom Middle/Area Scan (51x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.370 mW/g

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

Reference Value = 8.15 V/m; Power Drift = -0.036 dB

Peak SAR (extrapolated) = 0.425 W/kg

**SAR(1 g) = 0.313 mW/g; SAR(10 g) = 0.226 mW/g**

Maximum value of SAR (measured) = 0.361 mW/g

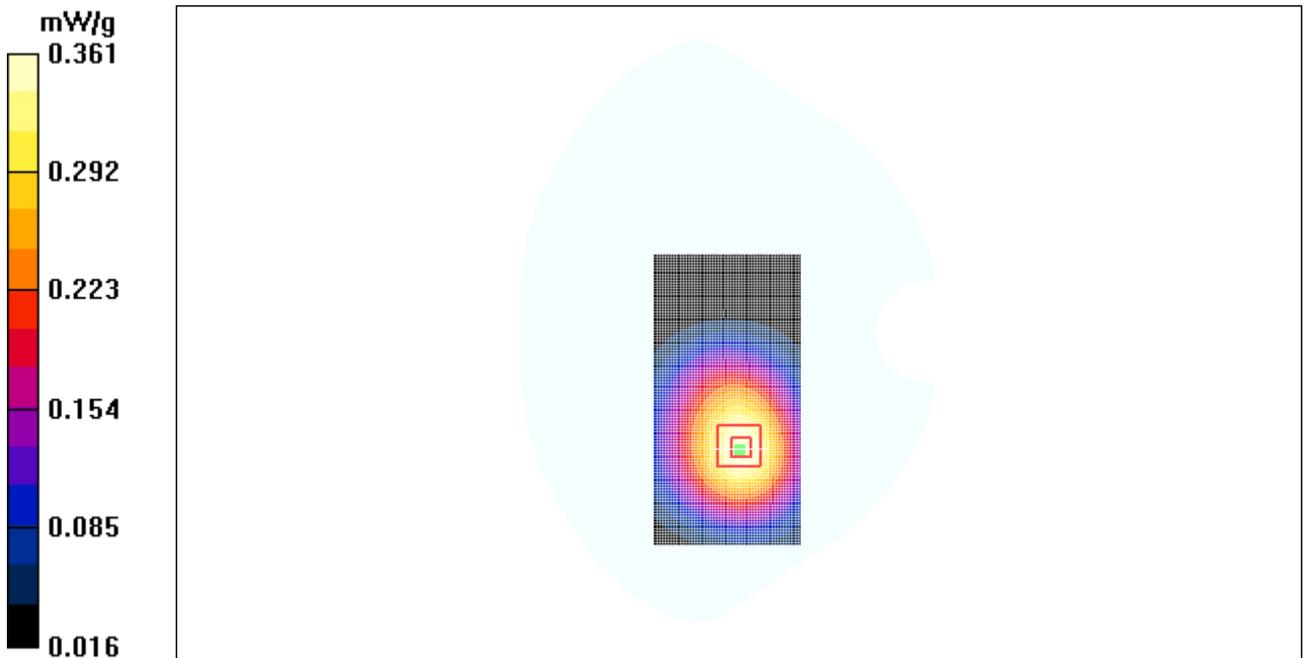


Figure 69 Body, Towards Phantom Slide Close, GSM 850 GPRS, Channel 190

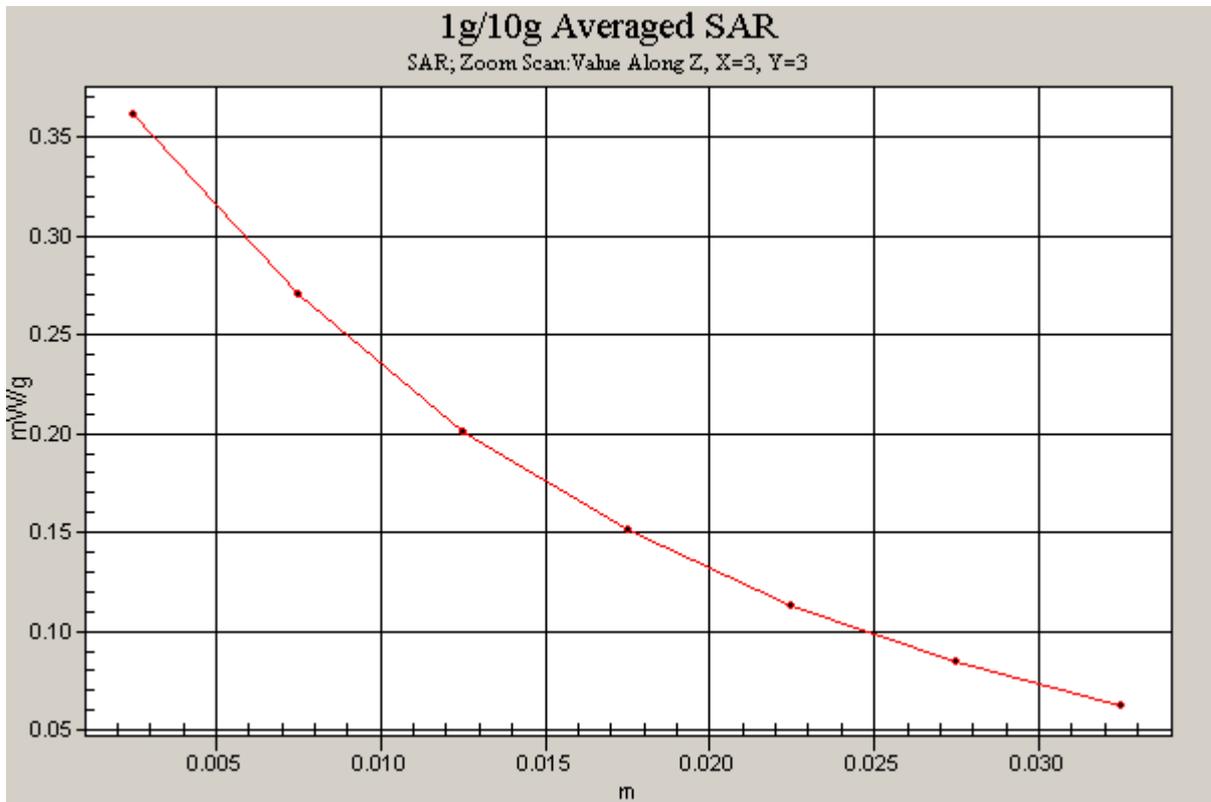


Figure 70 Z-Scan at power reference point (Body, Towards Phantom Slide Close, GSM 850 GPRS, Channel 190)

Date/Time: 12/15/2008 12:38:11 PM

**GSM 1900 Left Cheek High Slide Open**

Communication System: PCS 1900; Frequency: 1909.8 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 1910$  MHz;  $\sigma = 1.42$  mho/m;  $\epsilon_r = 40$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: EX3DV4 - SN3660; ConvF(7.35, 7.35, 7.35);
- Electronics: DAE3 Sn536;

**Cheek High/Area Scan (51x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.389 mW/g

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

Reference Value = 4.71 V/m; Power Drift = -0.196 dB

Peak SAR (extrapolated) = 0.521 W/kg

**SAR(1 g) = 0.335 mW/g; SAR(10 g) = 0.187 mW/g**

Maximum value of SAR (measured) = 0.419 mW/g

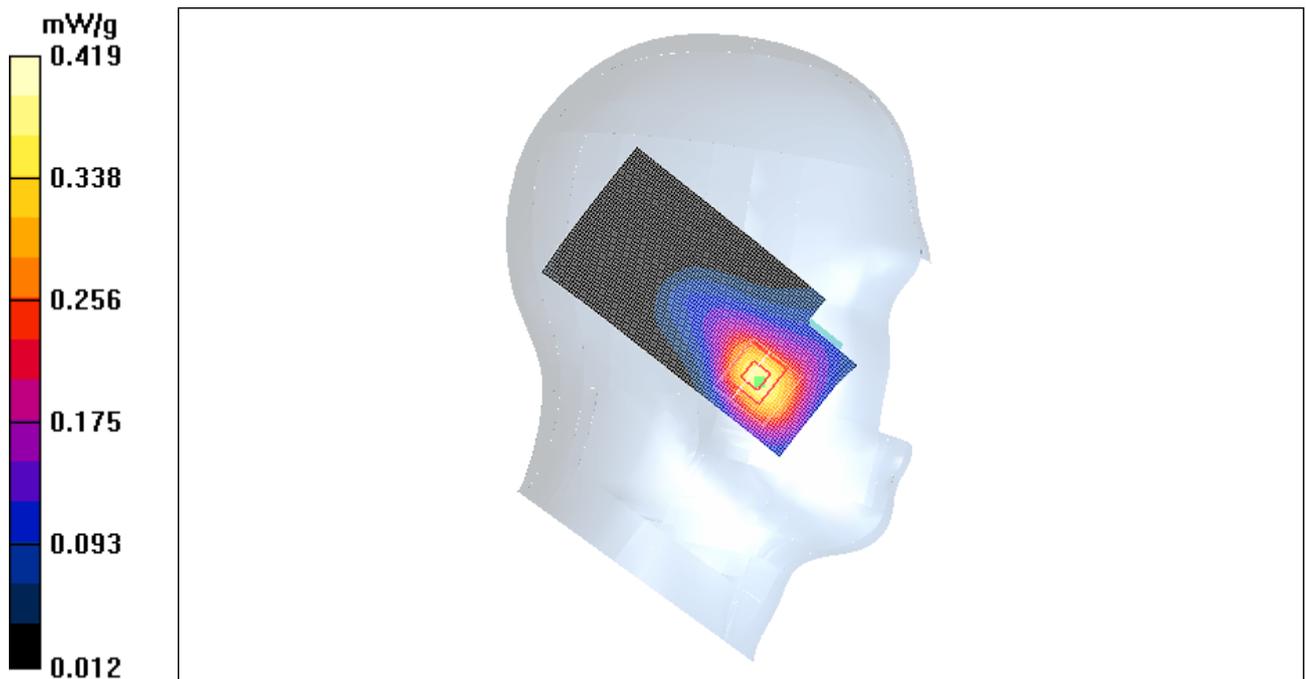


Figure 71 Left Hand Touch Cheek Slide Open GSM 1900 Channel 810

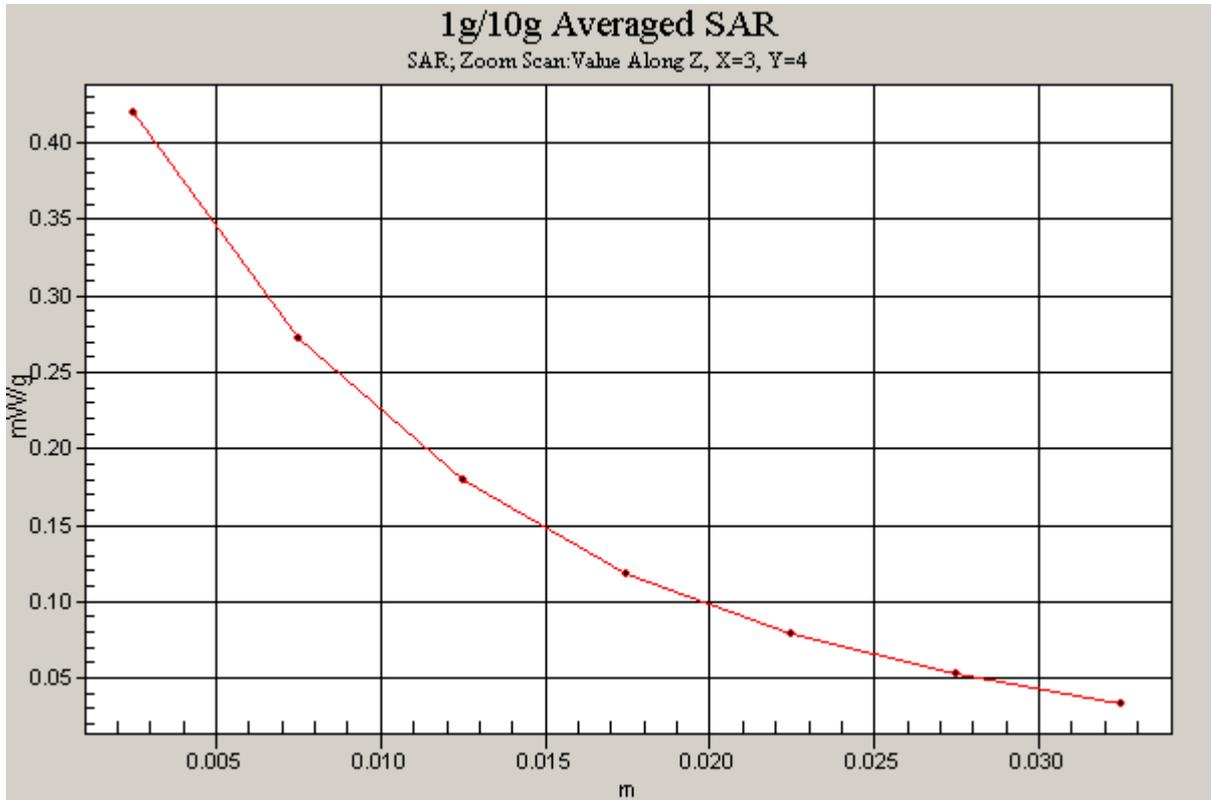


Figure 72 Z-Scan at power reference point (Left Hand Touch Cheek Slide Open GSM 1900 Channel 810)

Date/Time: 12/15/2008 11:55:24 AM

**GSM 1900 Left Cheek Middle Slide Open**

Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.39$  mho/m;  $\epsilon_r = 40.1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: EX3DV4 - SN3660; ConvF(7.35, 7.35, 7.35);
- Electronics: DAE3 Sn536;

**Cheek Middle/Area Scan (51x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.425 mW/g

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

Reference Value = 5.27 V/m; Power Drift = 0.054 dB

Peak SAR (extrapolated) = 0.560 W/kg

**SAR(1 g) = 0.367 mW/g; SAR(10 g) = 0.224 mW/g**

Maximum value of SAR (measured) = 0.452 mW/g

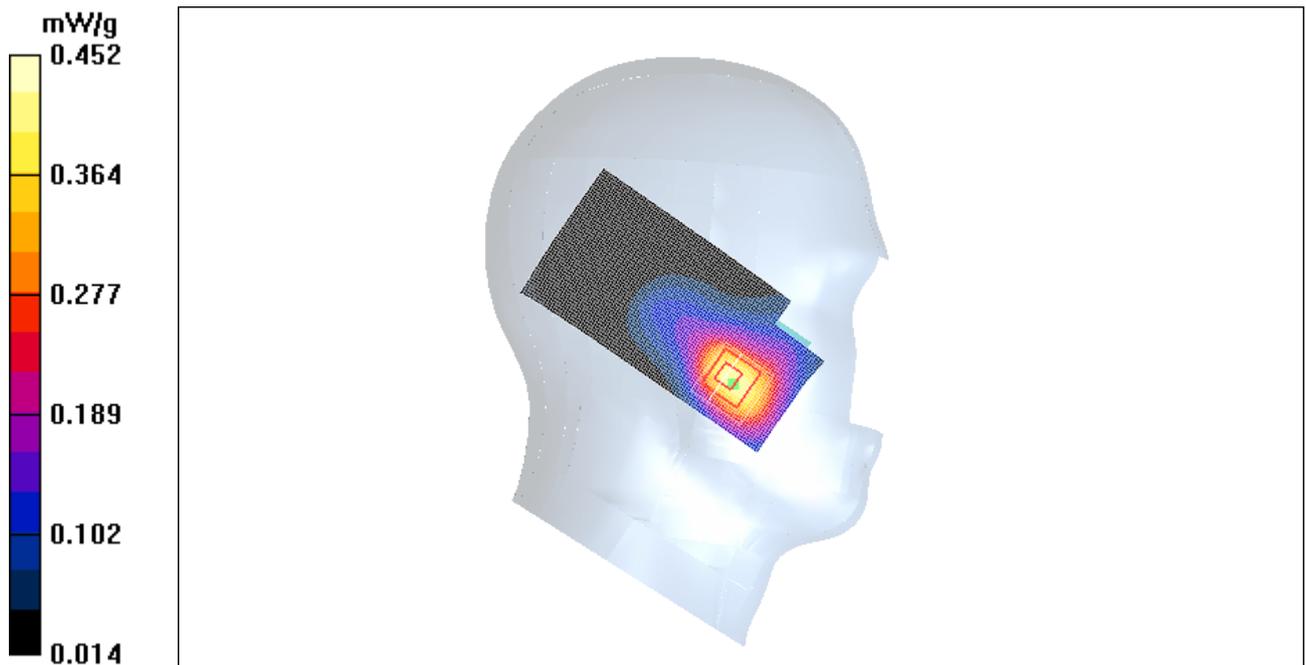


Figure 73 Left Hand Touch Cheek Slide Open GSM 1900 Channel 661

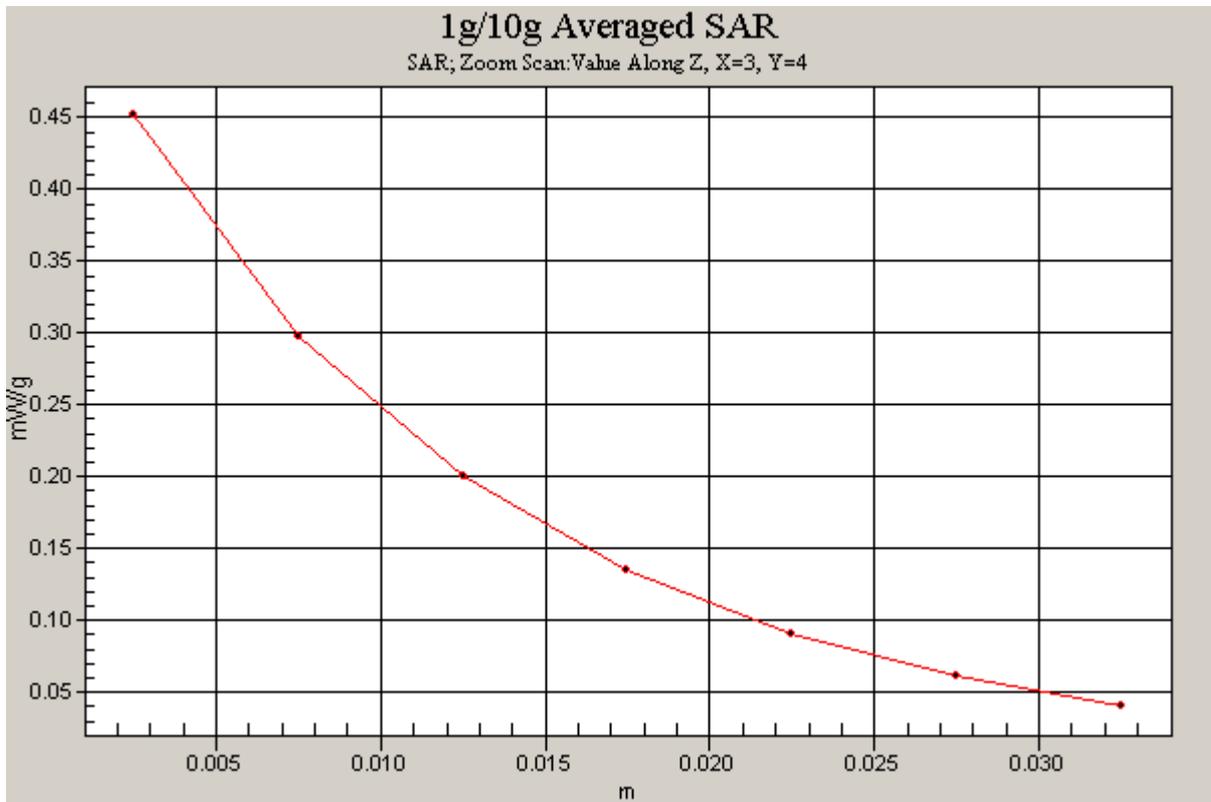


Figure 74 Z-Scan at power reference point (Left Hand Touch Cheek Slide Open GSM 1900 Channel 661)

Date/Time: 12/15/2008 1:05:04 PM

**GSM 1900 Left Cheek Low Slide Open**

Communication System: PCS 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated):  $f = 1850.2$  MHz;  $\sigma = 1.37$  mho/m;  $\epsilon_r = 40.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: EX3DV4 - SN3660; ConvF(7.35, 7.35, 7.35);
- Electronics: DAE3 Sn536;

**Cheek Low/Area Scan (51x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.346 mW/g

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

Reference Value = 4.80 V/m; Power Drift = 0.115 dB

Peak SAR (extrapolated) = 0.456 W/kg

**SAR(1 g) = 0.300 mW/g; SAR(10 g) = 0.184 mW/g**

Maximum value of SAR (measured) = 0.370 mW/g

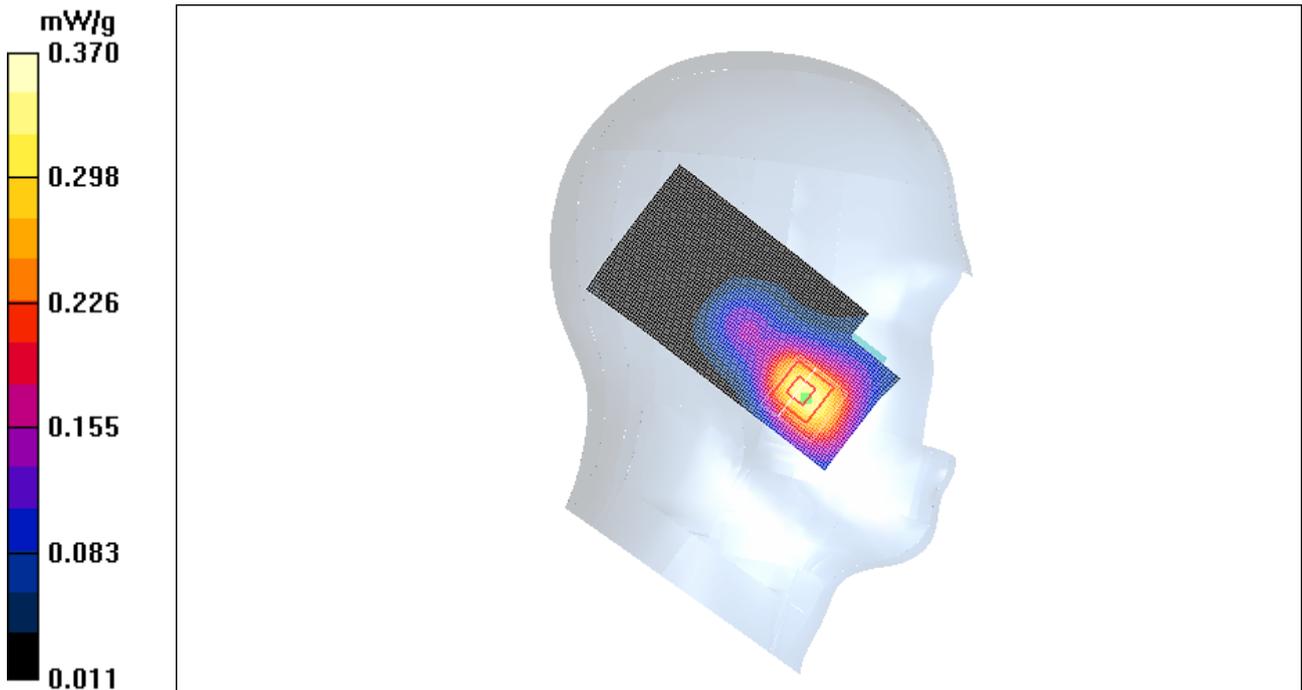


Figure 75 Left Hand Touch Cheek Slide Open GSM 1900 Channel 512

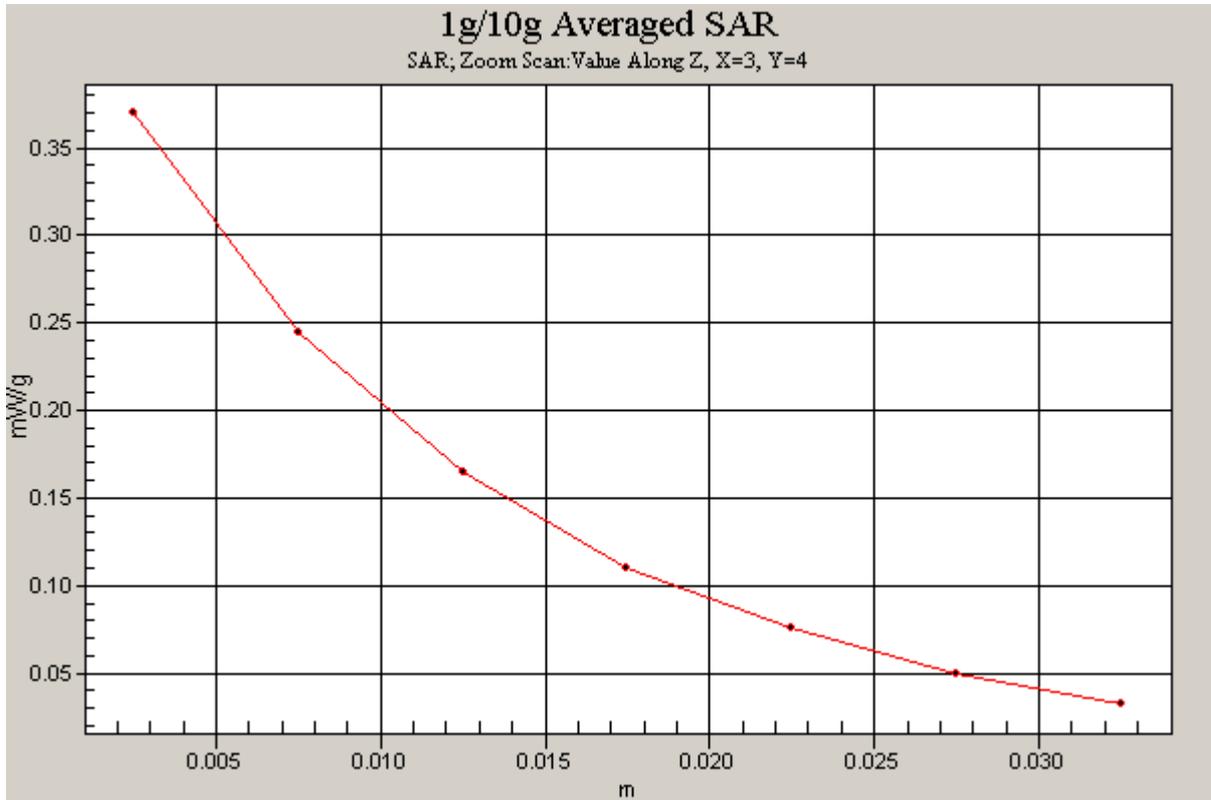


Figure 76 Z-Scan at power reference point (Left Hand Touch Cheek Slide Open GSM 1900 Channel 512)

Date/Time: 12/15/2008 12:16:31 PM

**GSM 1900 Left Tilt Middle Slide Open**

Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.39$  mho/m;  $\epsilon_r = 40.1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: EX3DV4 - SN3660; ConvF(7.35, 7.35, 7.35);
- Electronics: DAE3 Sn536;

**Tilt Middle/Area Scan (51x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.186 mW/g

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

Reference Value = 8.48 V/m; Power Drift = -0.170 dB

Peak SAR (extrapolated) = 0.224 W/kg

**SAR(1 g) = 0.144 mW/g; SAR(10 g) = 0.087 mW/g**

Maximum value of SAR (measured) = 0.178 mW/g

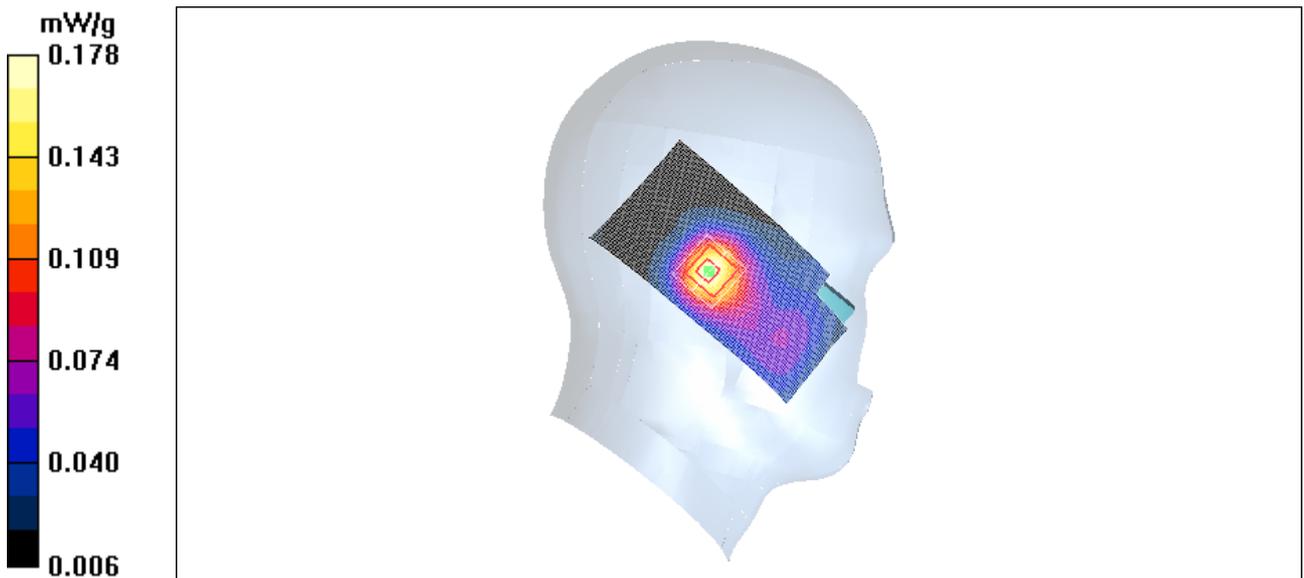


Figure 77 Left Hand Tilt 15° Slide Open GSM 1900 Channel 661

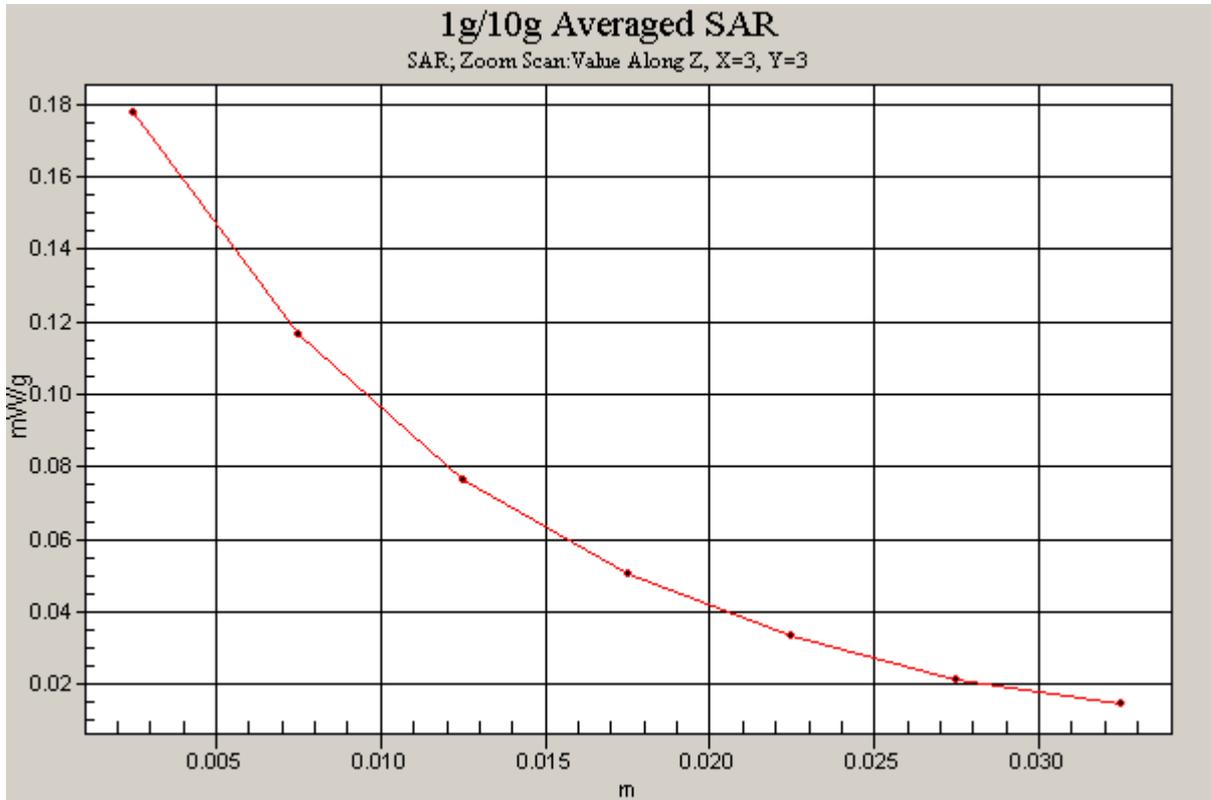


Figure 78 Z-Scan at power reference point (Left Hand Tilt 15° Slide Open GSM 1900 Channel 661)

Date/Time: 12/15/2008 11:09:33 AM

### GSM 1900 Right Cheek Middle Slide Open

Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.39$  mho/m;  $\epsilon_r = 40.1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: EX3DV4 - SN3660; ConvF(7.35, 7.35, 7.35);
- Electronics: DAE3 Sn536;

**Cheek Middle/Area Scan (51x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.393 mW/g

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

Reference Value = 8.21 V/m; Power Drift = -0.186 dB

Peak SAR (extrapolated) = 0.469 W/kg

**SAR(1 g) = 0.323 mW/g; SAR(10 g) = 0.208 mW/g**

Maximum value of SAR (measured) = 0.386 mW/g

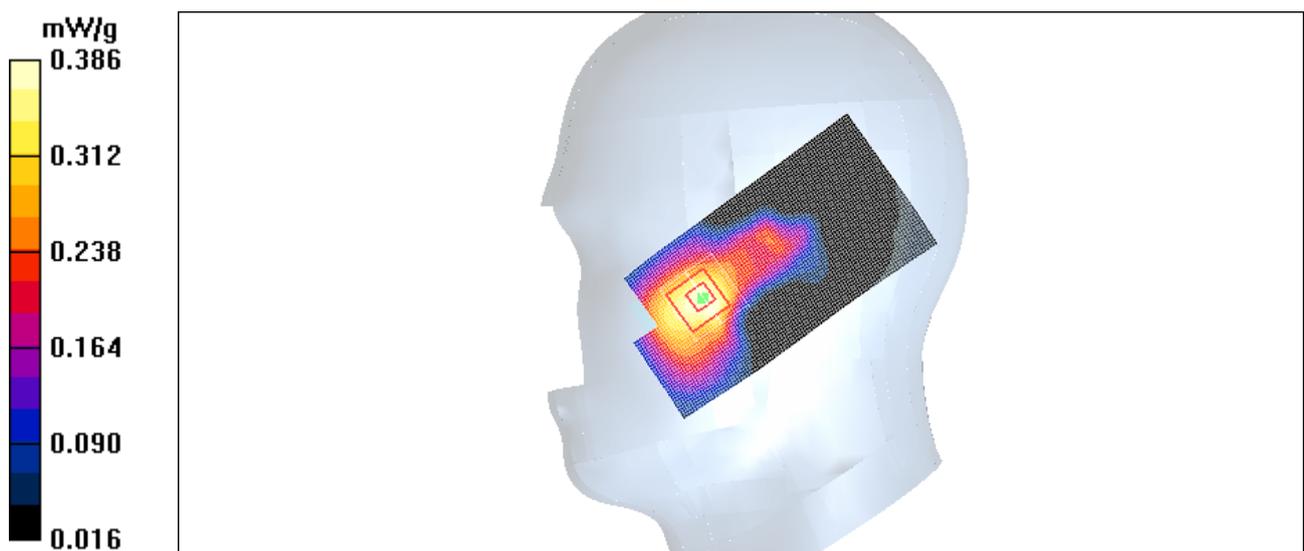


Figure 79 Right Hand Touch Cheek Slide Open GSM 1900 Channel 661

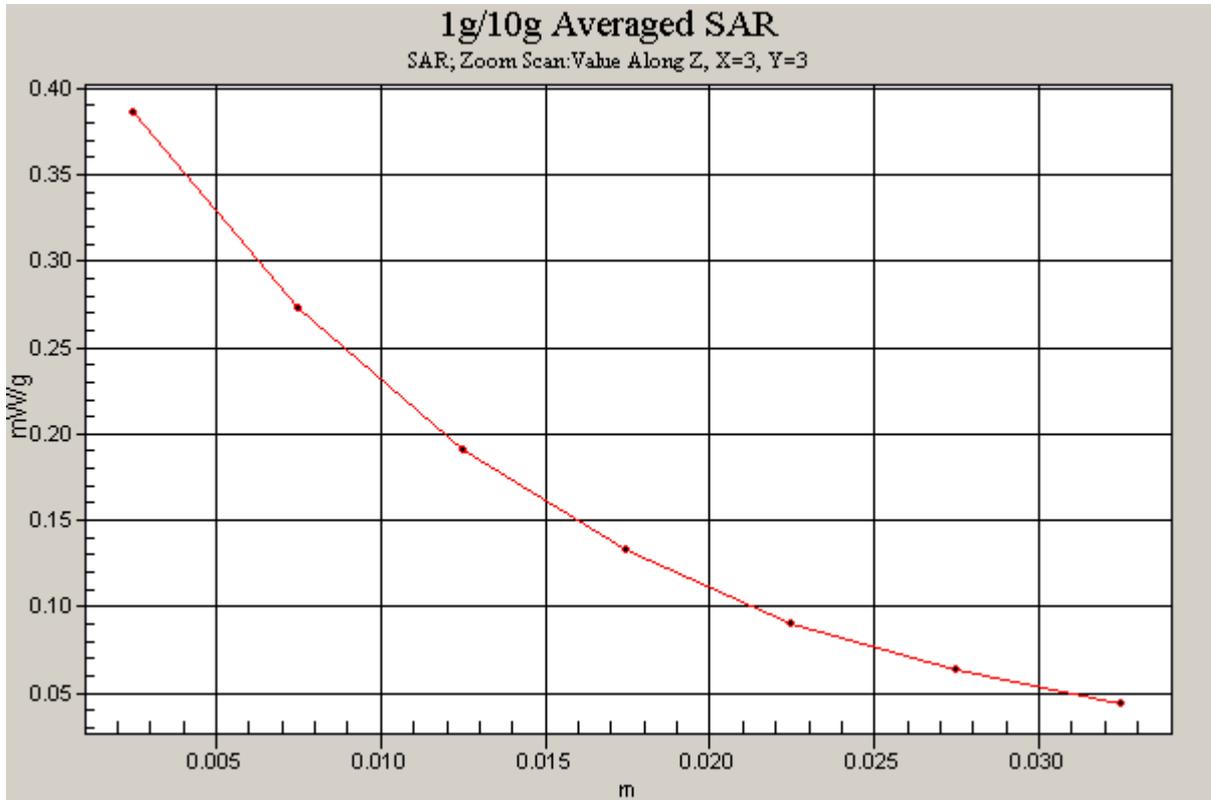


Figure 80 Z-Scan at power reference point (Right Hand Touch Cheek Slide Open GSM 1900 Channel 661)

Date/Time: 12/15/2008 11:31:02 AM

**GSM 1900 Right Tilt Middle Slide Open**

Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.39$  mho/m;  $\epsilon_r = 40.1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: EX3DV4 - SN3660; ConvF(7.35, 7.35, 7.35);
- Electronics: DAE3 Sn536;

**Tilt Middle/Area Scan (51x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.248 mW/g

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

Reference Value = 11.0 V/m; Power Drift = -0.174 dB

Peak SAR (extrapolated) = 0.309 W/kg

**SAR(1 g) = 0.192 mW/g; SAR(10 g) = 0.112 mW/g**

Maximum value of SAR (measured) = 0.238 mW/g

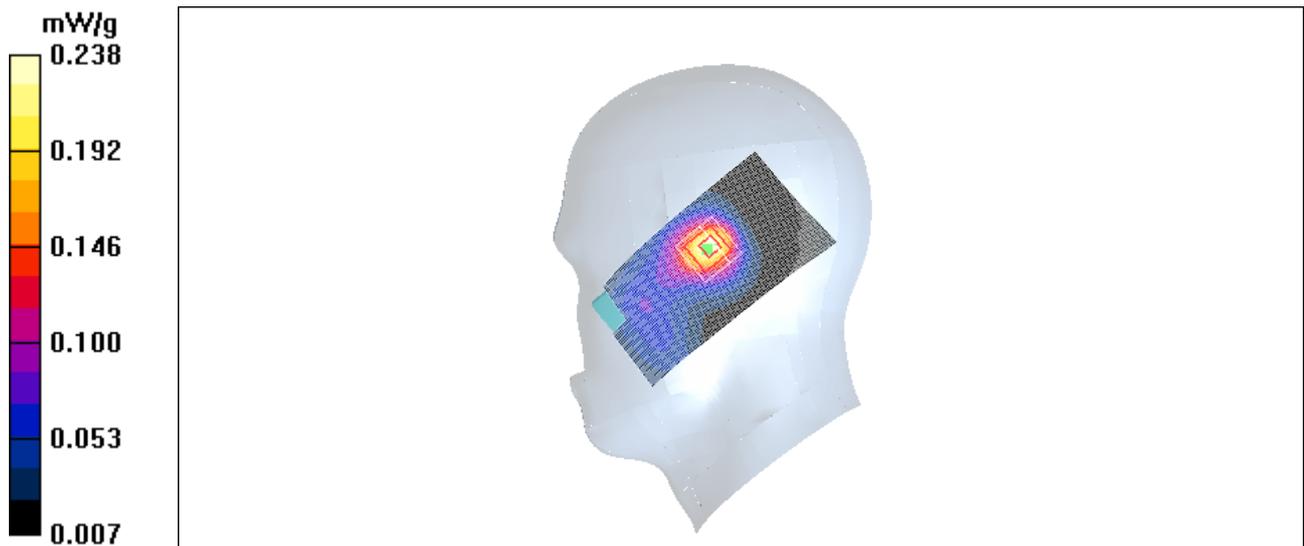


Figure 81 Right Hand Tilt 15° Slide Open GSM 1900 Channel 661

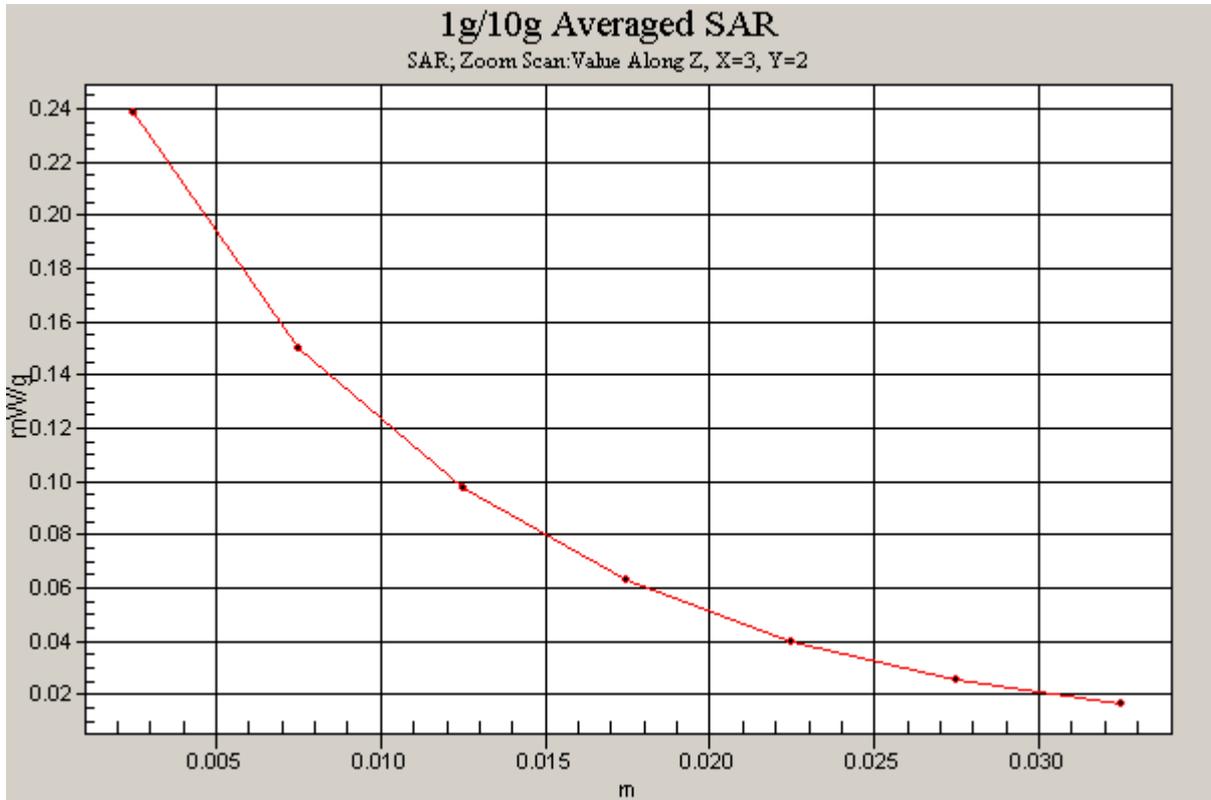


Figure 82 Z-Scan at power reference point (Right Hand Tilt 15° Slide Open GSM 1900 Channel 661)

Date/Time: 12/15/2008 1:32:21 PM

**GSM 1900 Left Cheek Middle Slide Close**

Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.39$  mho/m;  $\epsilon_r = 40.1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: EX3DV4 - SN3660; ConvF(7.35, 7.35, 7.35);
- Electronics: DAE3 Sn536;

**Cheek Middle/Area Scan (51x91x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.816 mW/g

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

Reference Value = 10.7 V/m; Power Drift = 0.033 dB

Peak SAR (extrapolated) = 0.943 W/kg

**SAR(1 g) = 0.606 mW/g; SAR(10 g) = 0.377 mW/g**

Maximum value of SAR (measured) = 0.750 mW/g

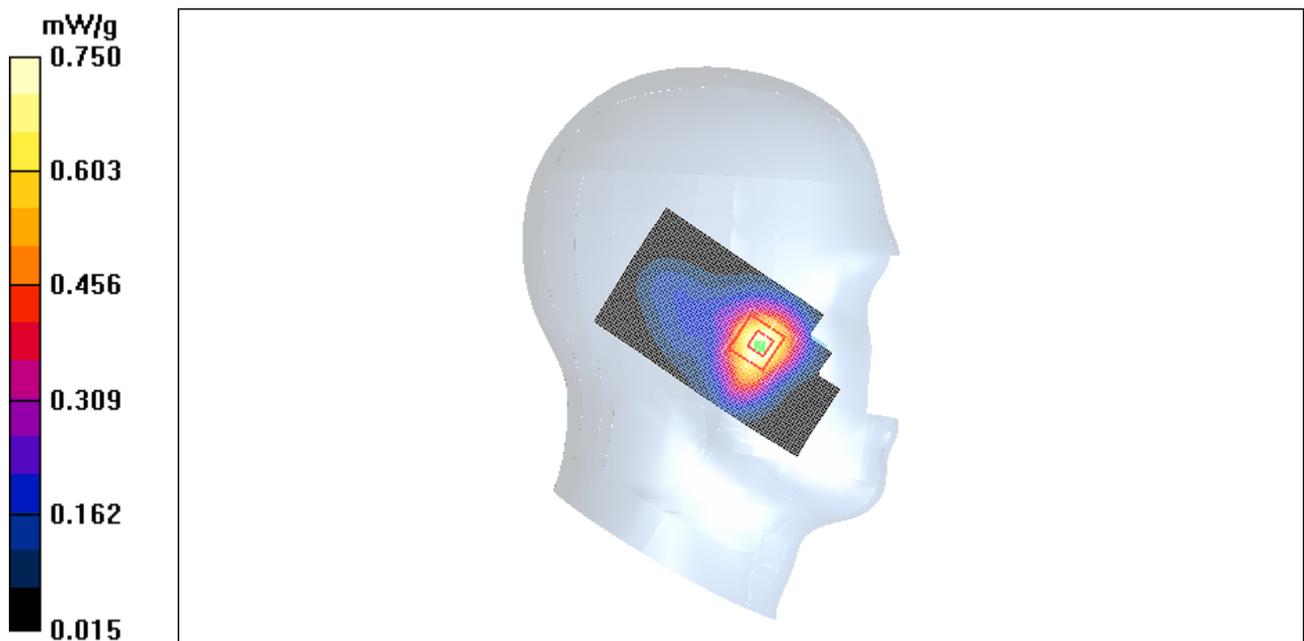


Figure 83 Left Hand Touch Cheek Slide Close GSM 1900 Channel 661

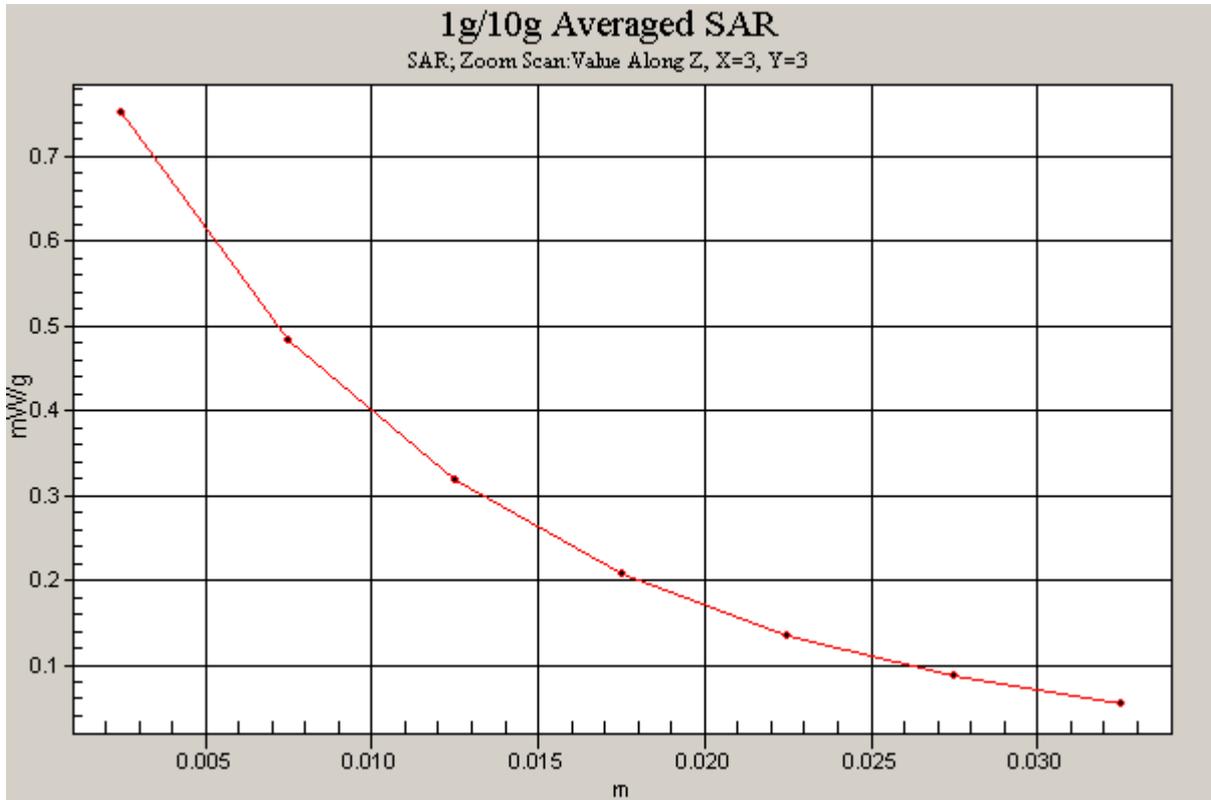


Figure 84 Z-Scan at power reference point (Left Hand Touch Cheek Slide Close GSM 1900 Channel 661)

Date/Time: 12/15/2008 1:52:54 PM

**GSM 1900 Left Tilt Middle Slide Close**

Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.39$  mho/m;  $\epsilon_r = 40.1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: EX3DV4 - SN3660; ConvF(7.35, 7.35, 7.35);
- Electronics: DAE3 Sn536;

**Tilt Middle/Area Scan (51x91x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.229 mW/g

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

Reference Value = 13.2 V/m; Power Drift = 0.008 dB

Peak SAR (extrapolated) = 0.292 W/kg

**SAR(1 g) = 0.186 mW/g; SAR(10 g) = 0.113 mW/g**

Maximum value of SAR (measured) = 0.237 mW/g

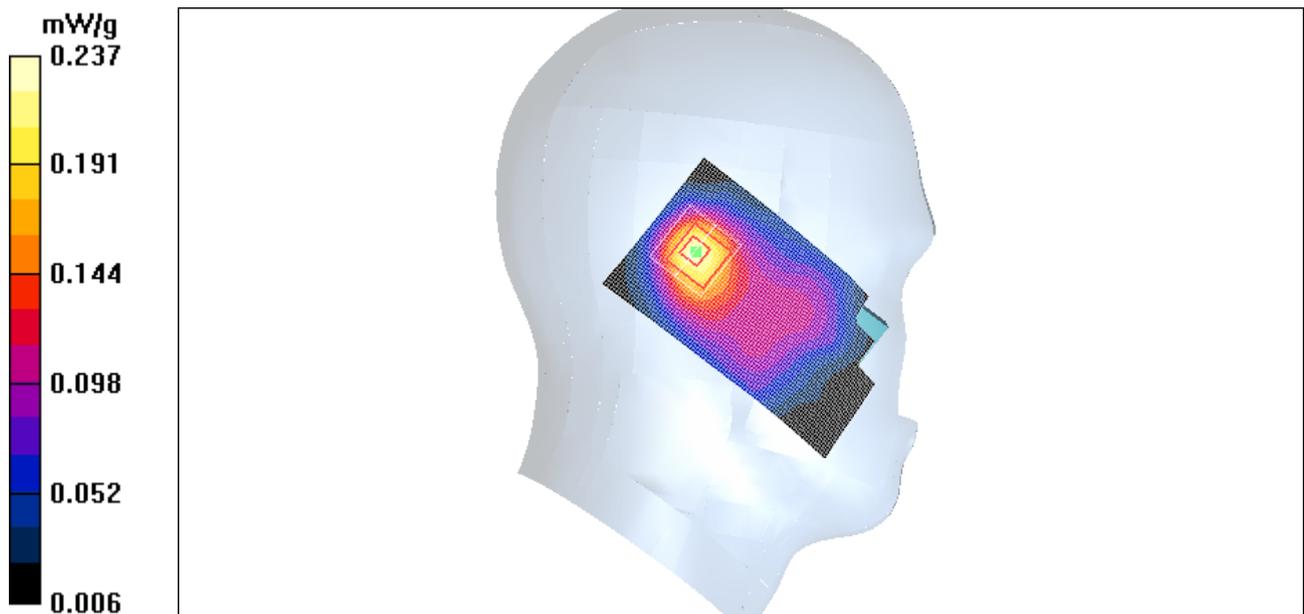


Figure 85 Left Hand Tilt 15° Slide Close GSM 1900 Channel 661

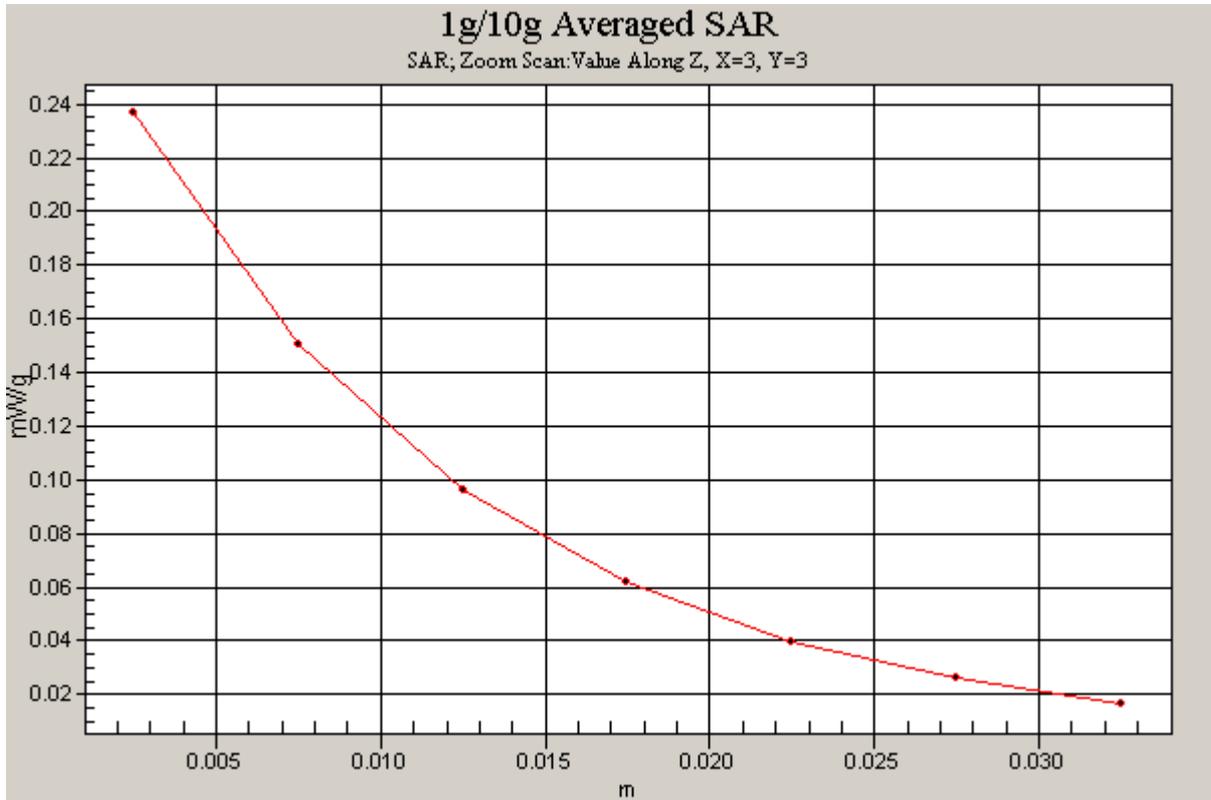


Figure 86 Z-Scan at power reference point (Left Hand Tilt 15° Slide Close GSM 1900 Channel 661)

Date/Time: 12/15/2008 2:36:36 PM

**GSM 1900 Right Cheek High Slide Close**

Communication System: PCS 1900; Frequency: 1909.8 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 1910$  MHz;  $\sigma = 1.42$  mho/m;  $\epsilon_r = 40$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: EX3DV4 - SN3660; ConvF(7.35, 7.35, 7.35);
- Electronics: DAE3 Sn536;

**Cheek High/Area Scan (51x91x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.939 mW/g

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

Reference Value = 10.1 V/m; Power Drift = -0.166 dB

Peak SAR (extrapolated) = 1.19 W/kg

**SAR(1 g) = 0.742 mW/g; SAR(10 g) = 0.434 mW/g**

Maximum value of SAR (measured) = 0.943 mW/g

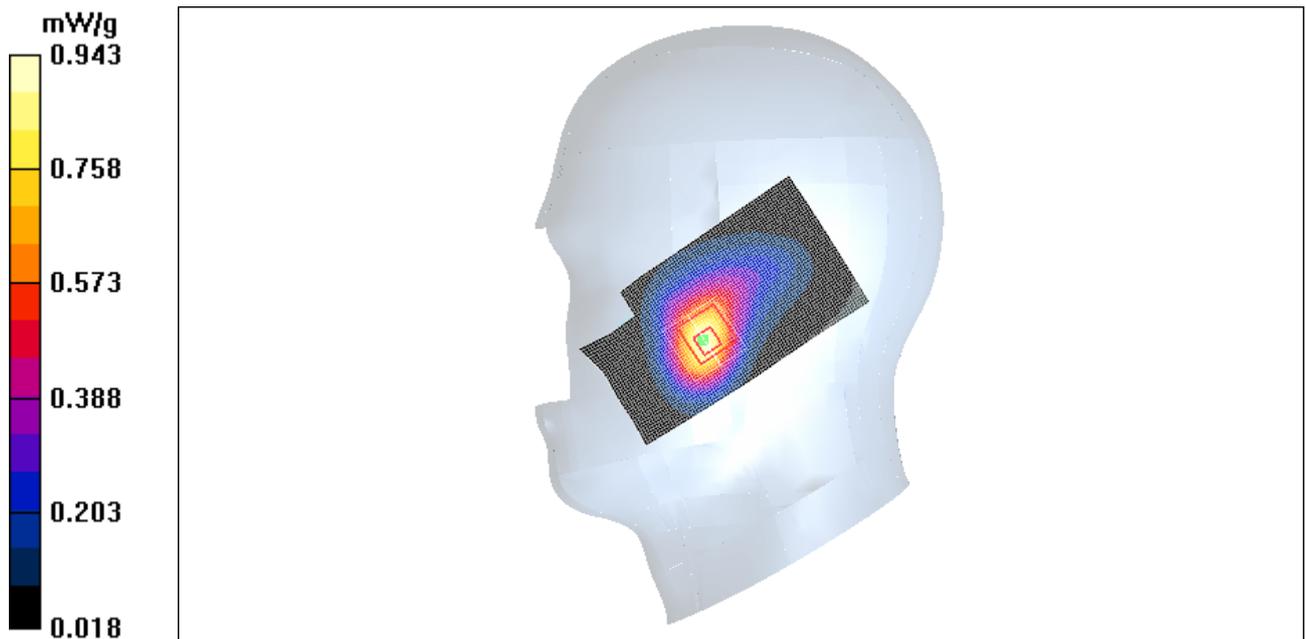


Figure 87 Right Hand Touch Cheek Slide Close GSM 1900 Channel 810

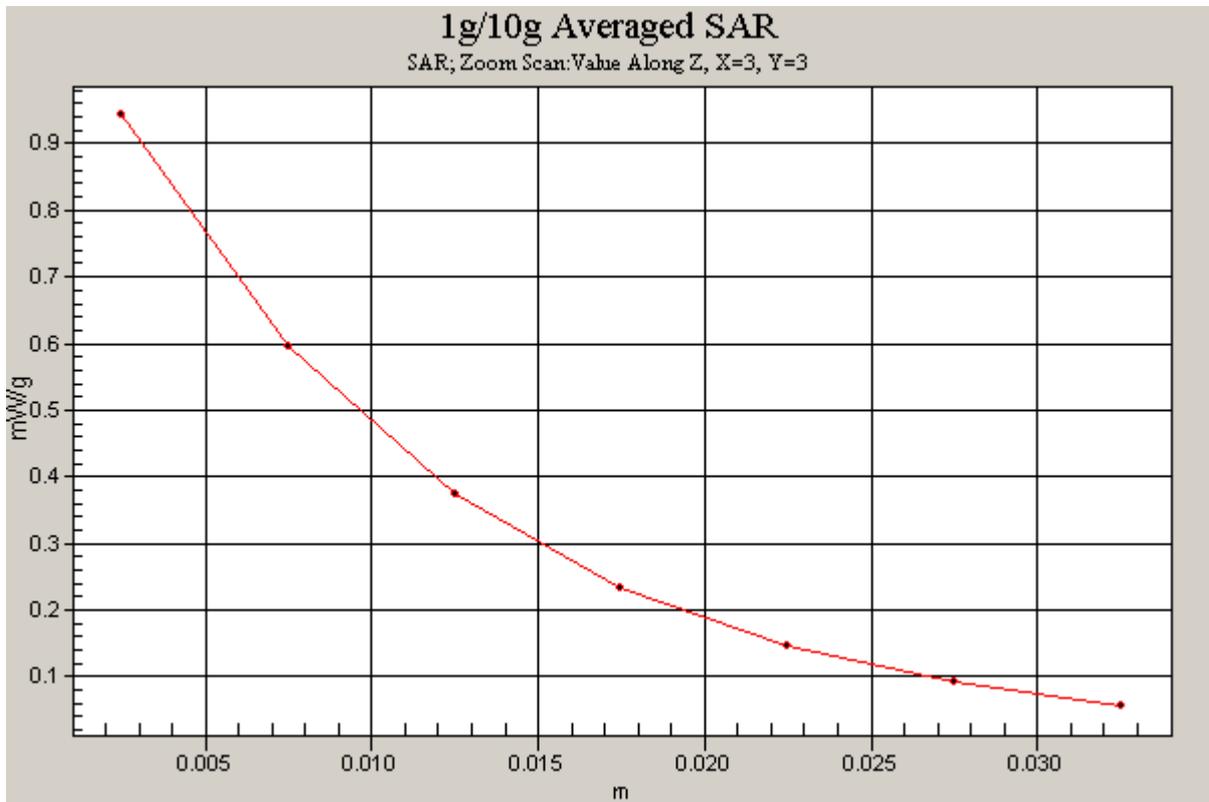


Figure 88 Z-Scan at power reference point (Right Hand Touch Cheek Slide Close GSM 1900 Channel 810)

Date/Time: 12/15/2008 2:16:57 PM

**GSM 1900 Right Cheek Middle Slide Close**

Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.39$  mho/m;  $\epsilon_r = 40.1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: EX3DV4 - SN3660; ConvF(7.35, 7.35, 7.35);
- Electronics: DAE3 Sn536;

**Cheek Middle/Area Scan (51x91x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.11 mW/g

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

Reference Value = 10.7 V/m; Power Drift = -0.133 dB

Peak SAR (extrapolated) = 1.39 W/kg

**SAR(1 g) = 0.867 mW/g; SAR(10 g) = 0.510 mW/g**

Maximum value of SAR (measured) = 1.08 mW/g

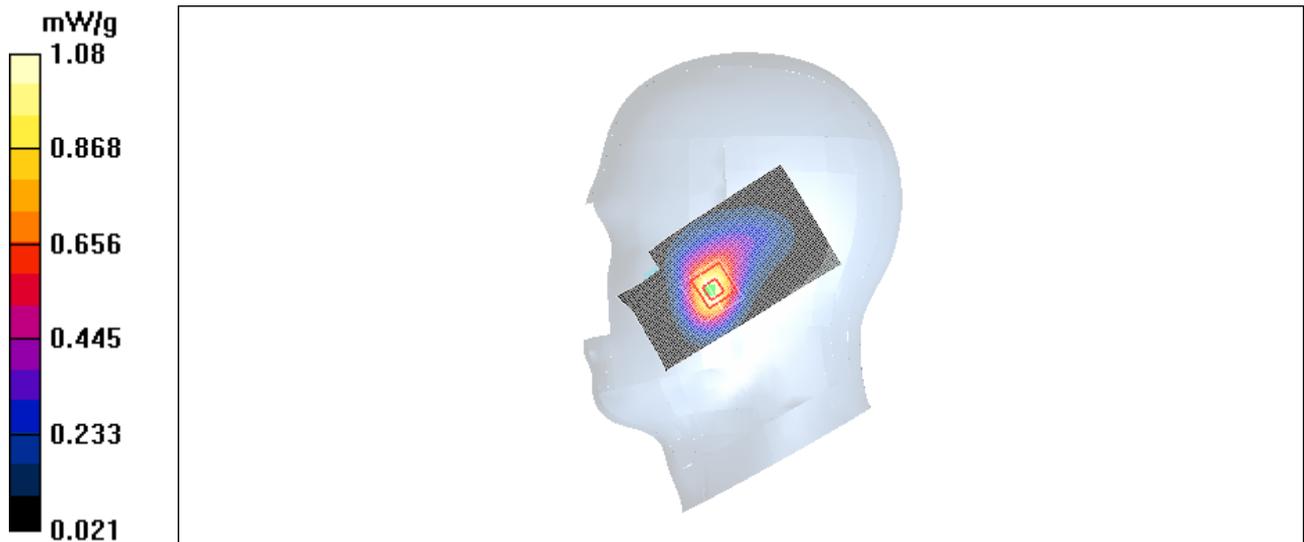


Figure 89 Right Hand Touch Cheek Slide Close GSM 1900 Channel 661

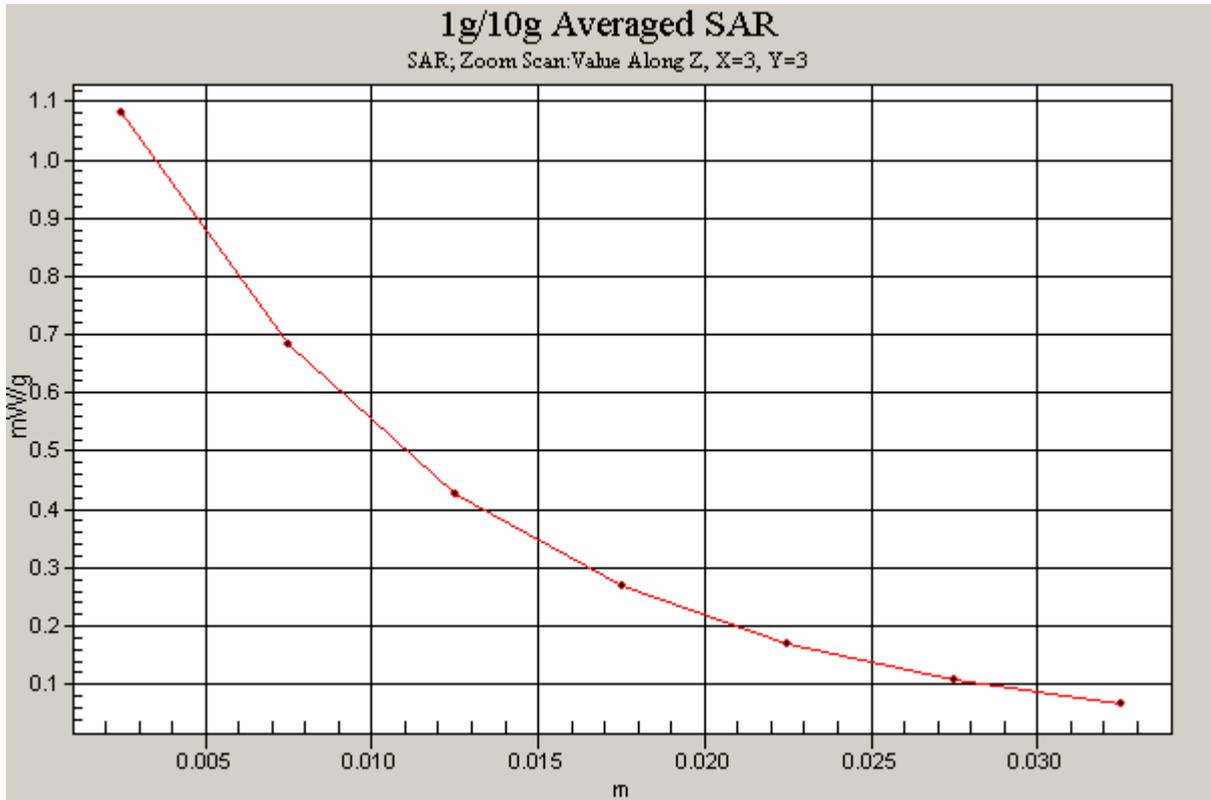


Figure 90 Z-Scan at power reference point (Right Hand Touch Cheek Slide Close GSM 1900 Channel 661)

Date/Time: 12/15/2008 3:02:39 PM

### GSM 1900 Right Cheek Low Slide Close

Communication System: PCS 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated):  $f = 1850.2$  MHz;  $\sigma = 1.37$  mho/m;  $\epsilon_r = 40.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: EX3DV4 - SN3660; ConvF(7.35, 7.35, 7.35);
- Electronics: DAE3 Sn536;

**Cheek Low/Area Scan (51x91x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.942 mW/g

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

Reference Value = 10.4 V/m; Power Drift = -0.021 dB

Peak SAR (extrapolated) = 1.19 W/kg

**SAR(1 g) = 0.747 mW/g; SAR(10 g) = 0.437 mW/g**

Maximum value of SAR (measured) = 0.945 mW/g

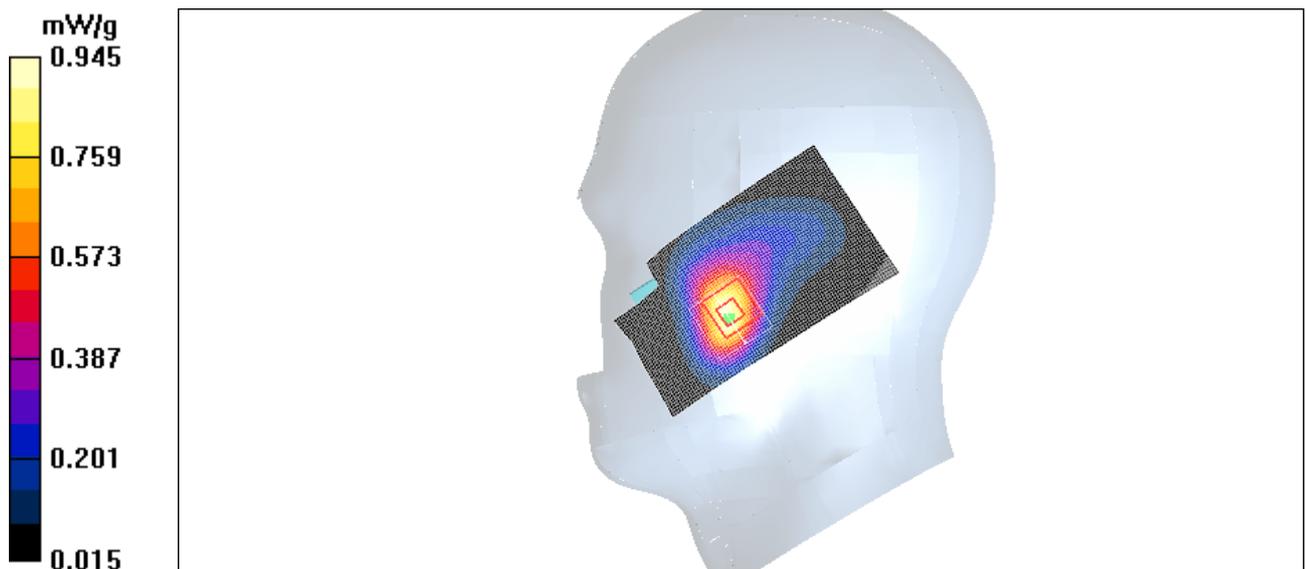


Figure 91 Right Hand Touch Cheek Slide Close GSM 1900 Channel 512

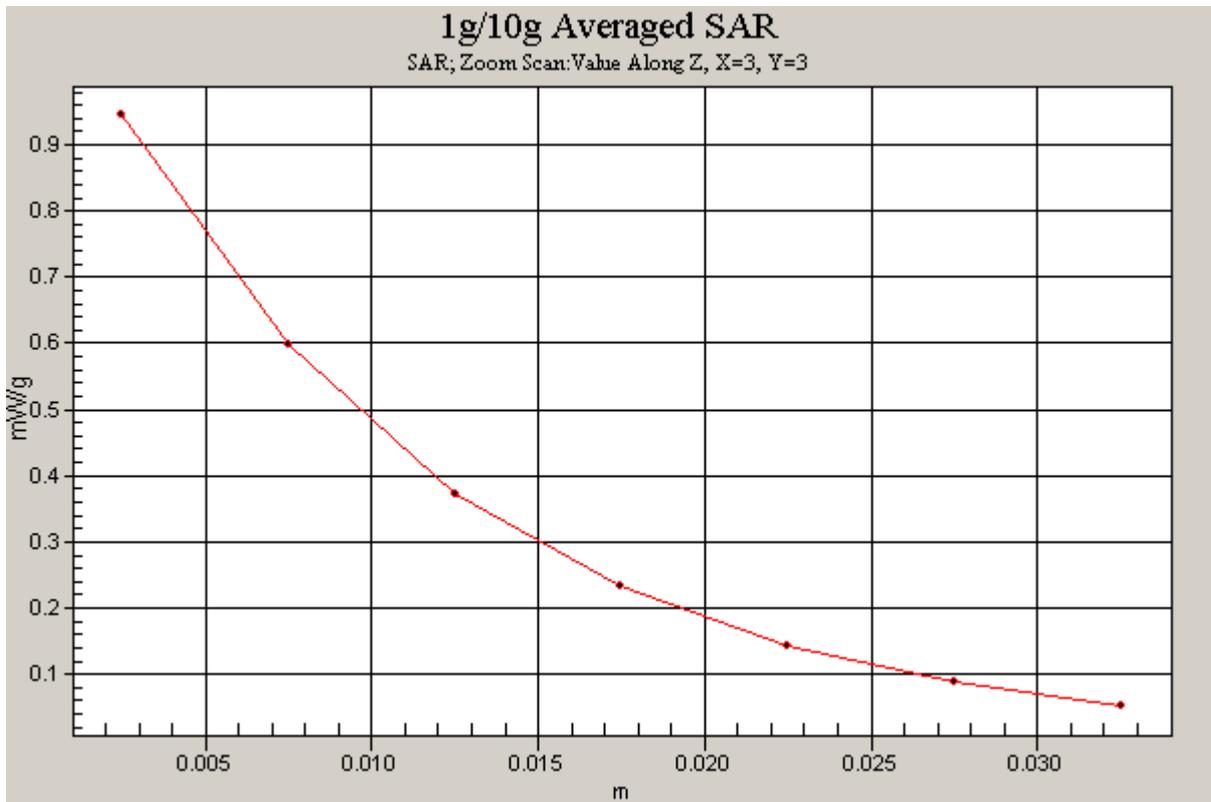


Figure 92 Z-Scan at power reference point (Right Hand Touch Cheek Slide Close GSM 1900 Channel 512)

Date/Time: 12/15/2008 3:25:37 PM

**GSM 1900 Right Tilt Middle Slide Close**

Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.39$  mho/m;  $\epsilon_r = 40.1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: EX3DV4 - SN3660; ConvF(7.35, 7.35, 7.35);
- Electronics: DAE3 Sn536;

**Tilt Middle/Area Scan (51x91x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.246 mW/g

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

Reference Value = 12.6 V/m; Power Drift = 0.036 dB

Peak SAR (extrapolated) = 0.294 W/kg

**SAR(1 g) = 0.184 mW/g; SAR(10 g) = 0.115 mW/g**

Maximum value of SAR (measured) = 0.231 mW/g

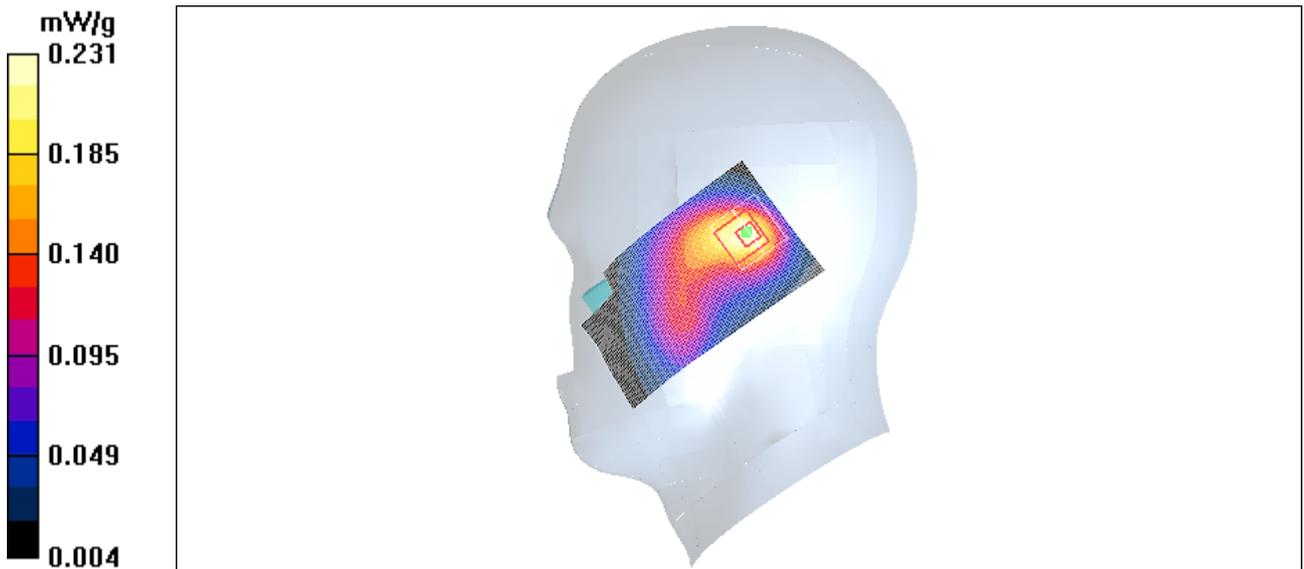


Figure 93 Right Hand Tilt 15° Slide Close GSM 1900 Channel 661

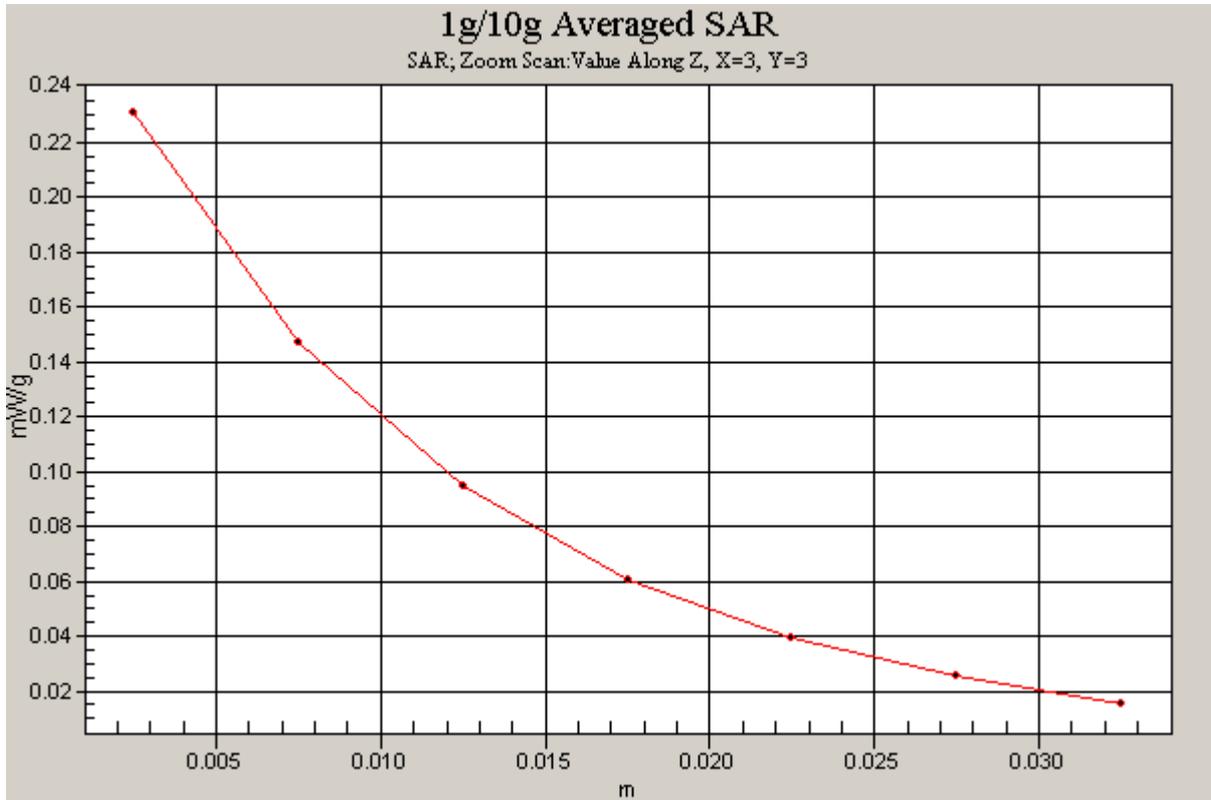


Figure 94 Z-Scan at power reference point (Right Hand Tilt 15° Slide Close GSM 1900 Channel 661)

Date/Time: 12/15/2008 5:51:08 AM

### GSM 1900 Towards Ground High Slide Open

Communication System: PCS 1900; Frequency: 1909.8 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 1910$  MHz;  $\sigma = 1.58$  mho/m;  $\epsilon_r = 51.5$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: EX3DV4 - SN3660; ConvF(7.45, 7.45, 7.45);
- Electronics: DAE3 Sn536;

**Towards Ground High/Area Scan (51x111x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.665 mW/g

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

Reference Value = 7.39 V/m; Power Drift = 0.037 dB

Peak SAR (extrapolated) = 0.879 W/kg

**SAR(1 g) = 0.532 mW/g; SAR(10 g) = 0.310 mW/g**

Maximum value of SAR (measured) = 0.673 mW/g

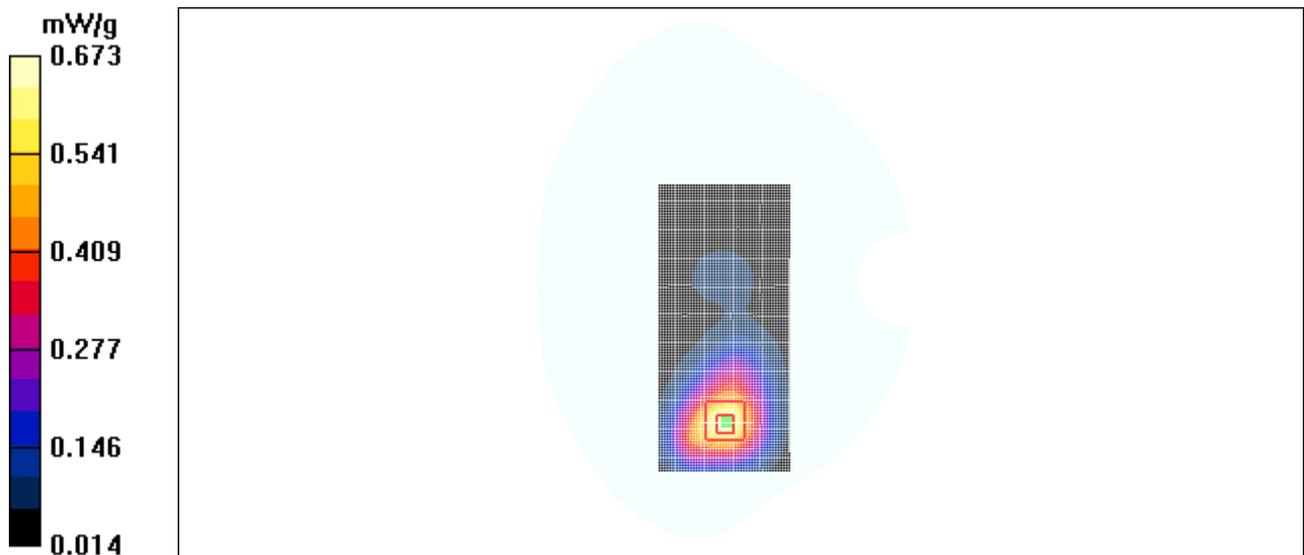


Figure 95 Body, Towards Ground Slide Open , GSM 1900 Channel 810

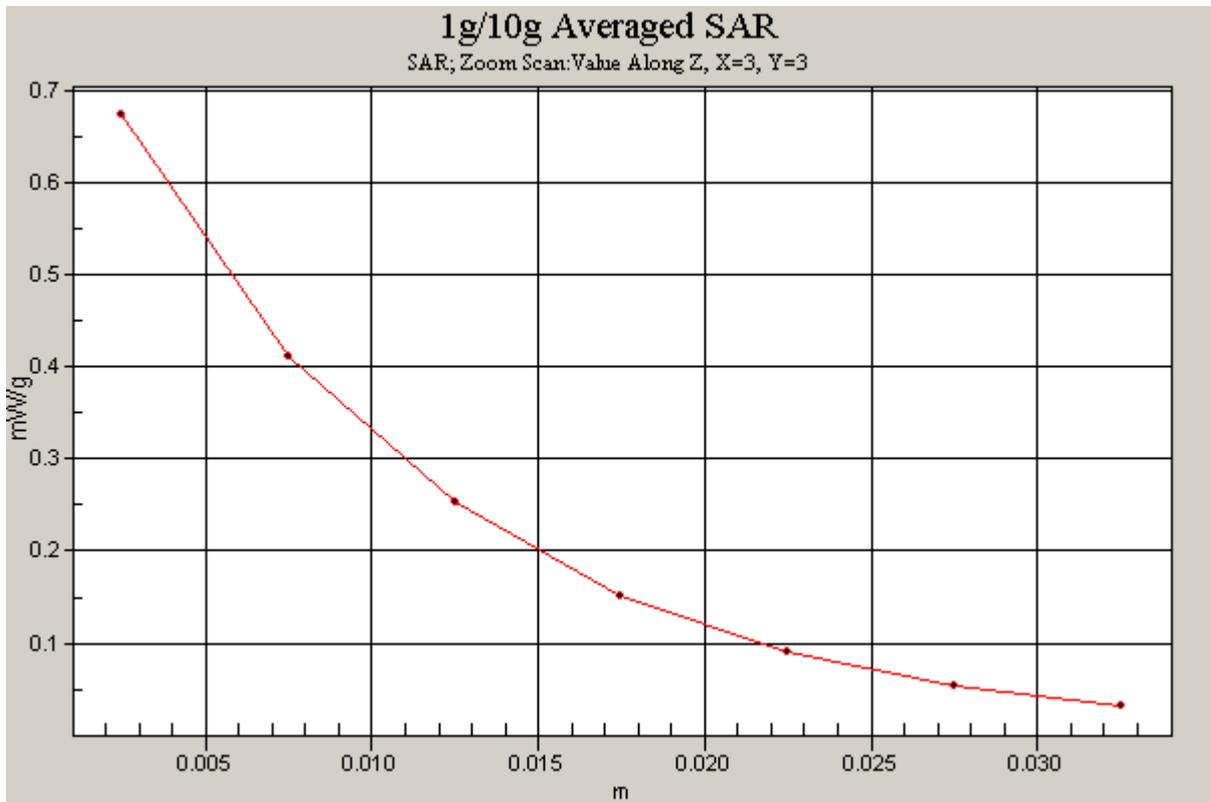


Figure 96 Z-Scan at power reference point (Body, Towards Ground Slide Open , GSM 1900 Channel 810)

Date/Time: 12/15/2008 5:31:08 AM

**GSM 1900 Towards Ground Middle Slide Open**

Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.54$  mho/m;  $\epsilon_r = 51.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: EX3DV4 - SN3660; ConvF(7.45, 7.45, 7.45);
- Electronics: DAE3 Sn536;

**Towards Ground Middle/Area Scan (51x111x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.675 mW/g

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

Reference Value = 8.60 V/m; Power Drift = -0.172 dB

Peak SAR (extrapolated) = 0.878 W/kg

**SAR(1 g) = 0.538 mW/g; SAR(10 g) = 0.318 mW/g**

Maximum value of SAR (measured) = 0.677 mW/g

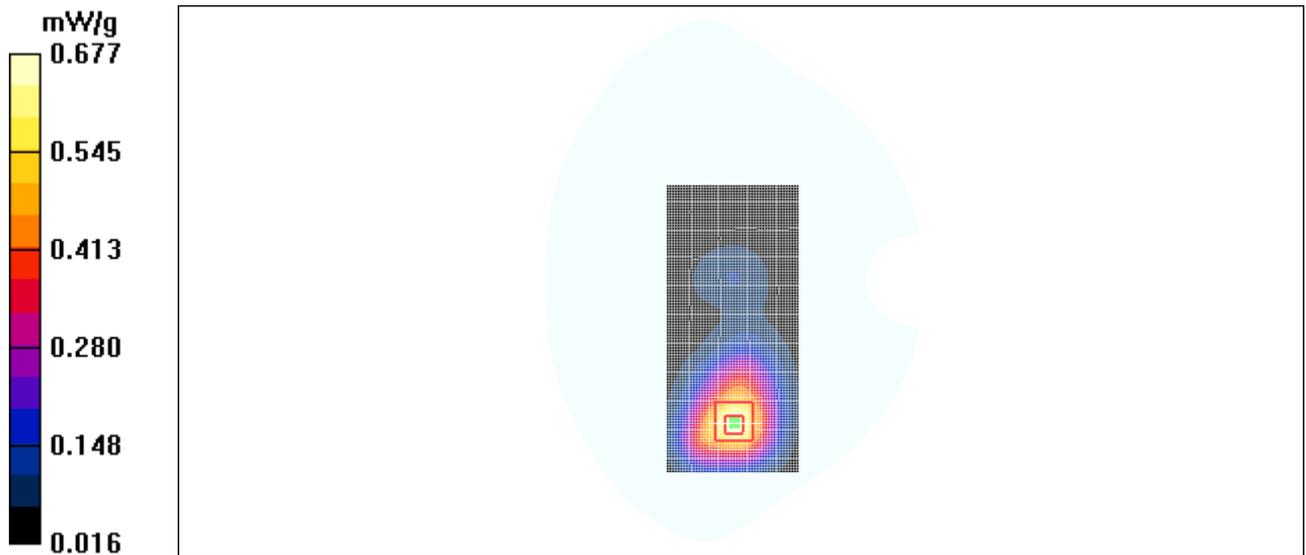


Figure 97 Body, Towards Ground Slide Open , GSM 1900 Channel 661

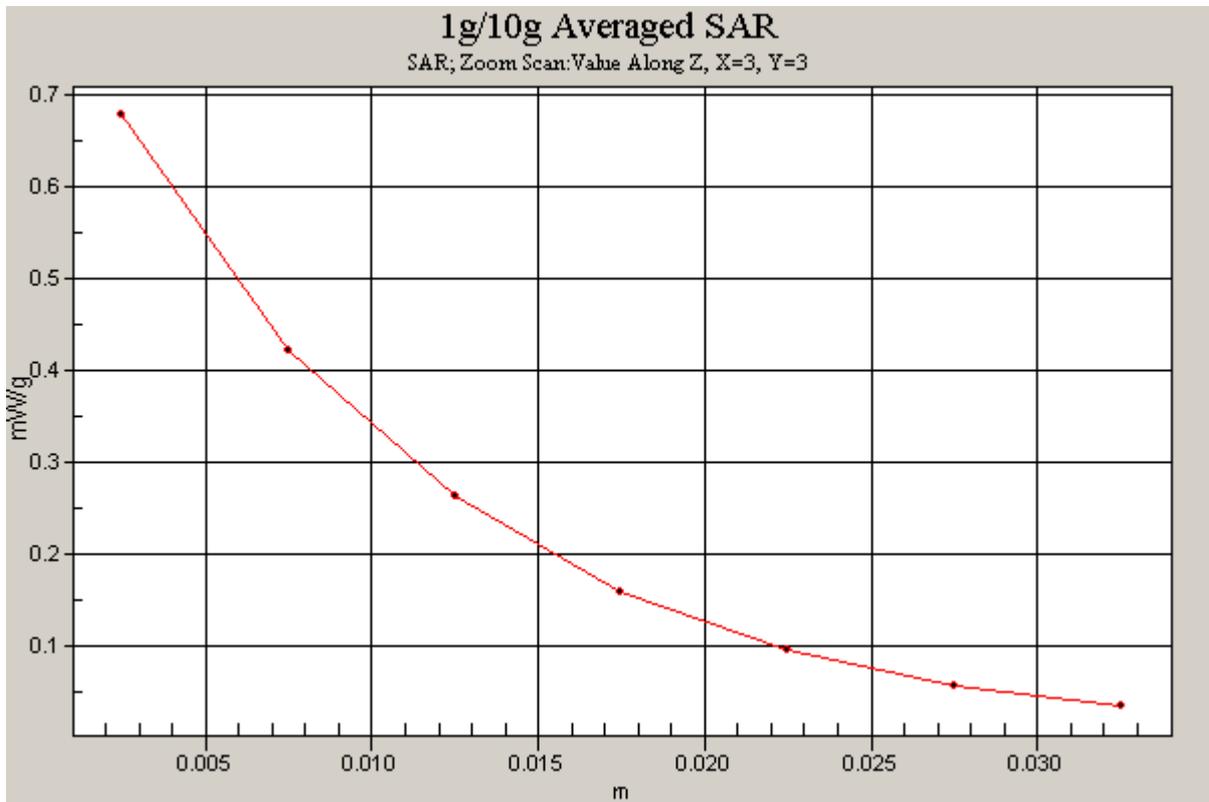


Figure 98 Z-Scan at power reference point (Body, Towards Ground Slide Open , GSM 1900 Channel 661)

Date/Time: 12/15/2008 6:10:43 AM

**GSM 1900 Towards Ground Low Slide Open**

Communication System: PCS 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated):  $f = 1850.2$  MHz;  $\sigma = 1.55$  mho/m;  $\epsilon_r = 51.8$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: EX3DV4 - SN3660; ConvF(7.45, 7.45, 7.45);
- Electronics: DAE3 Sn536;

**Towards Ground Low/Area Scan (51x111x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.566 mW/g

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

Reference Value = 8.50 V/m; Power Drift = 0.001 dB

Peak SAR (extrapolated) = 0.730 W/kg

**SAR(1 g) = 0.455 mW/g; SAR(10 g) = 0.272 mW/g**

Maximum value of SAR (measured) = 0.570 mW/g

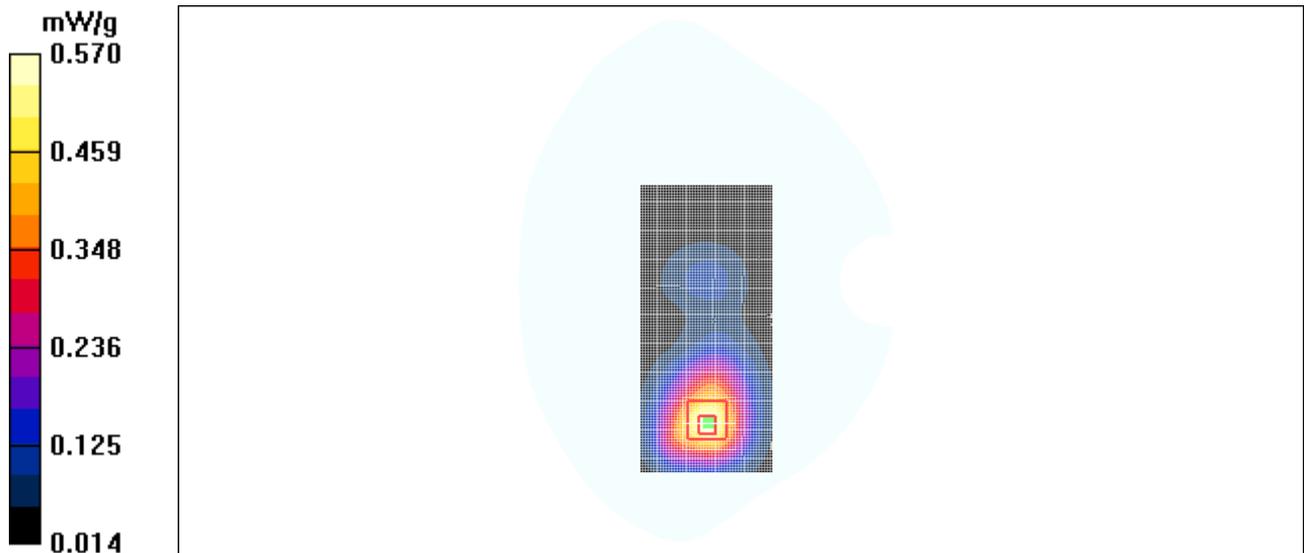


Figure 99 Body, Towards Ground Slide Open , GSM 1900 Channel 512

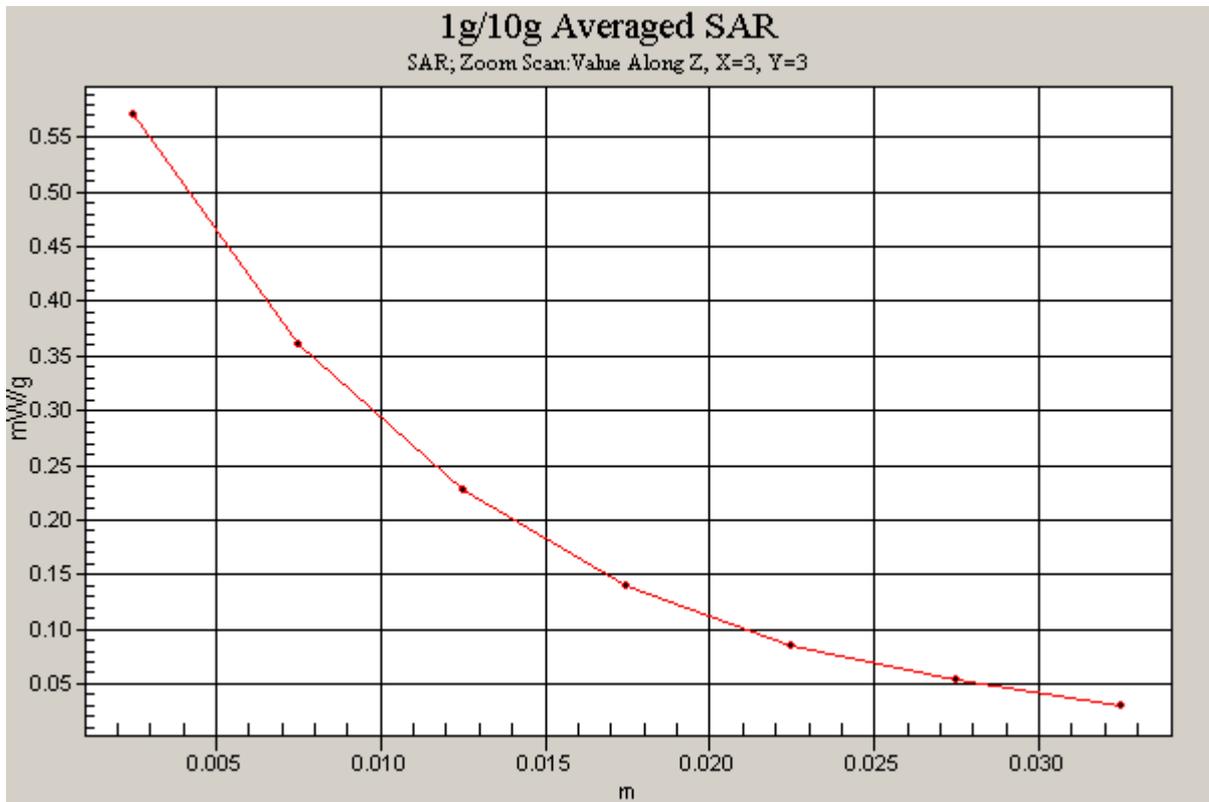


Figure 100 Z-Scan at power reference point (Body, Towards Ground Slide Open , GSM 1900 Channel 512)

Date/Time: 12/15/2008 5:08:06 AM

### GSM 1900 Towards Phantom Middle Slide Open

Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.54$  mho/m;  $\epsilon_r = 51.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: EX3DV4 - SN3660; ConvF(7.45, 7.45, 7.45);
- Electronics: DAE3 Sn536;

**Towards Phantom Middle/Area Scan (51x111x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.230 mW/g

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

Reference Value = 8.48 V/m; Power Drift = -0.029 dB

Peak SAR (extrapolated) = 0.296 W/kg

**SAR(1 g) = 0.184 mW/g; SAR(10 g) = 0.115 mW/g**

Maximum value of SAR (measured) = 0.229 mW/g

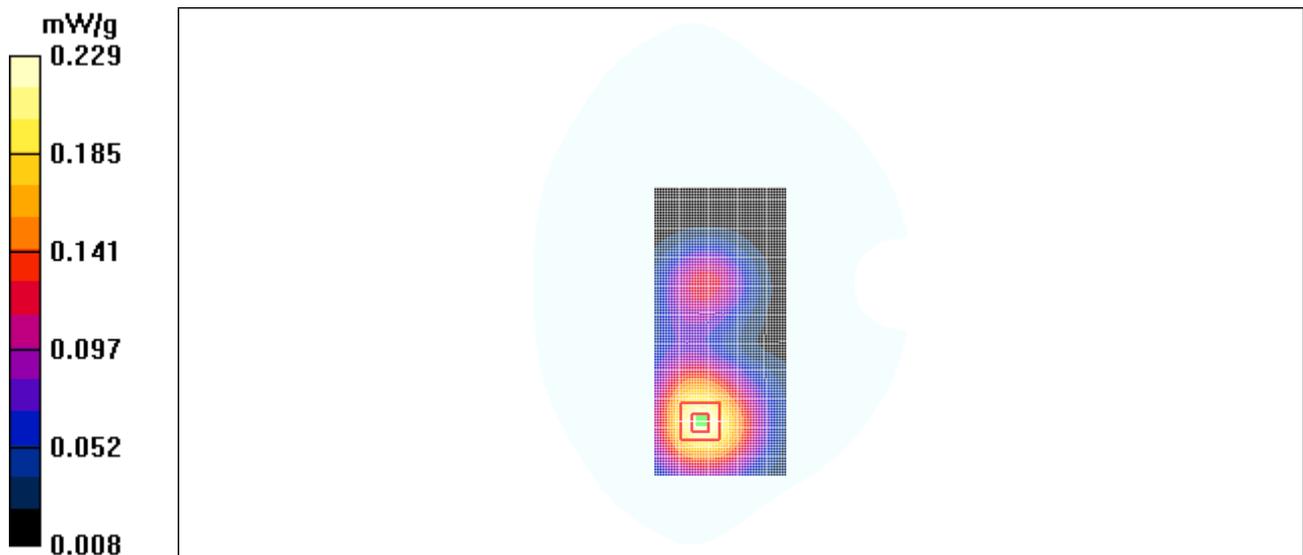


Figure 101 Body, Towards Phantom Slide Open, GSM 1900 Channel 661

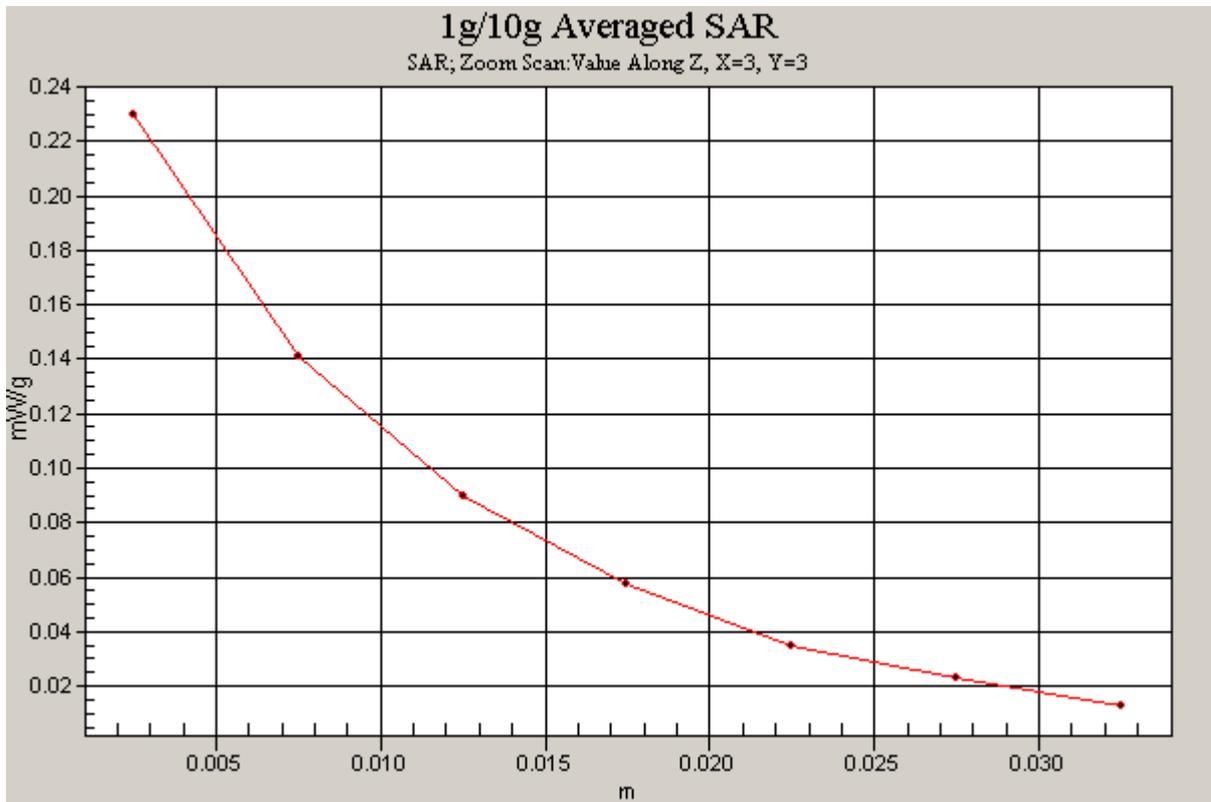


Figure 102 Z-Scan at power reference point (Body, Towards Phantom Slide Open, GSM 1900 Channel 661)

Date/Time: 12/15/2008 6:33:06 AM

### GSM 1900 Earphone Towards Ground Middle Slide Open

Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.54$  mho/m;  $\epsilon_r = 51.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: EX3DV4 - SN3660; ConvF(7.45, 7.45, 7.45);
- Electronics: DAE3 Sn536;

**Towards Ground Middle/Area Scan (51x111x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.698 mW/g

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

Reference Value = 8.12 V/m; Power Drift = -0.004 dB

Peak SAR (extrapolated) = 0.896 W/kg

**SAR(1 g) = 0.556 mW/g; SAR(10 g) = 0.325 mW/g**

Maximum value of SAR (measured) = 0.705 mW/g

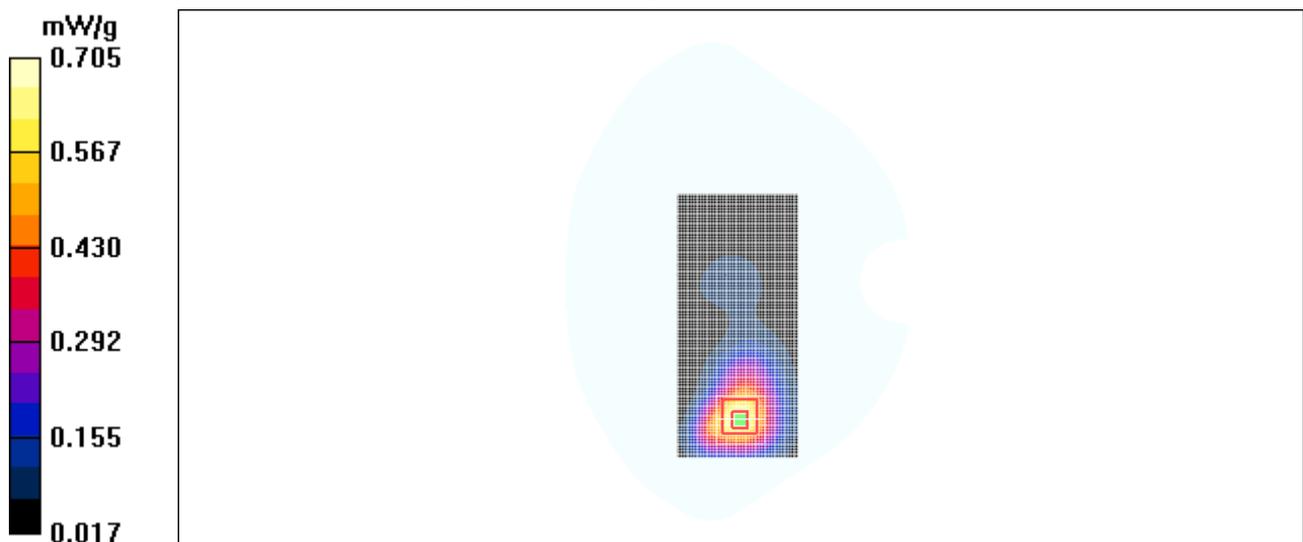


Figure 103 Body with Earphone, Towards Ground Slide Open , GSM 1900, Channel 661

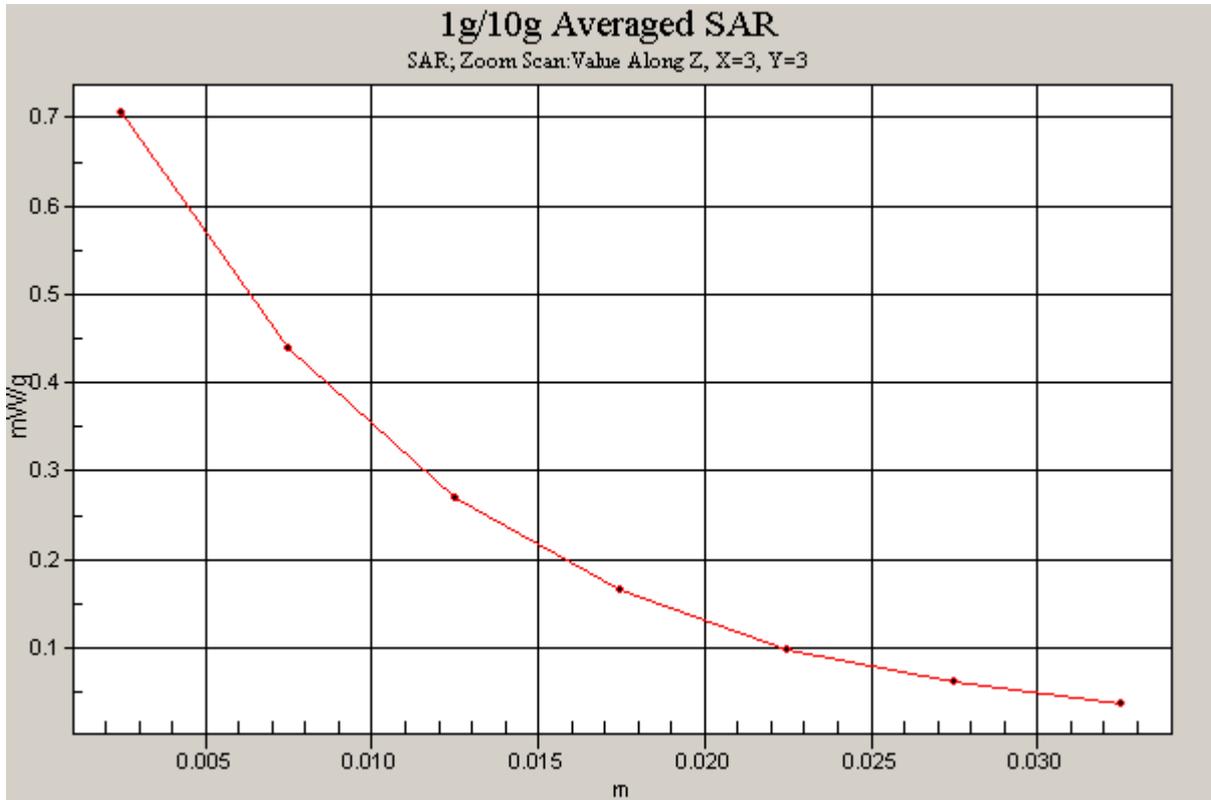


Figure 104 Z-Scan at power reference point (Body with Earphone, Towards Ground Slide Open , GSM 1900, Channel 661)

Date/Time: 12/15/2008 8:47:00 AM

### GSM 1900 GPRS Towards Ground High Slide Open

Communication System: PCS 1900+GPRS(2Up); Frequency: 1909.8 MHz; Duty Cycle: 1:4  
Medium parameters used:  $f = 1910$  MHz;  $\sigma = 1.58$  mho/m;  $\epsilon_r = 51.5$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: EX3DV4 - SN3660; ConvF(7.45, 7.45, 7.45);
- Electronics: DAE3 Sn536;

**Towards Ground High/Area Scan (51x111x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 1.05 mW/g

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

Reference Value = 9.29 V/m; Power Drift = 0.134 dB

Peak SAR (extrapolated) = 1.36 W/kg

**SAR(1 g) = 0.823 mW/g; SAR(10 g) = 0.486 mW/g**

Maximum value of SAR (measured) = 1.04 mW/g

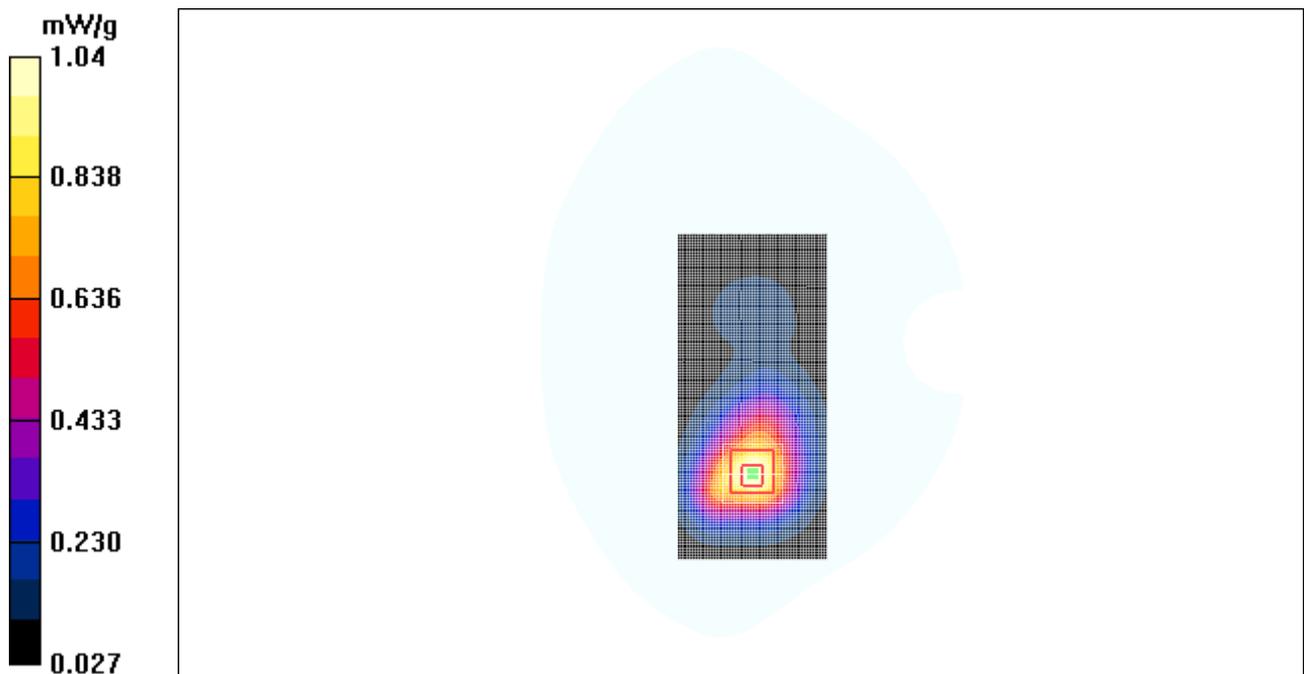


Figure 105 Body, Towards Ground Slide Open , GSM 1900 GPRS, Channel 810

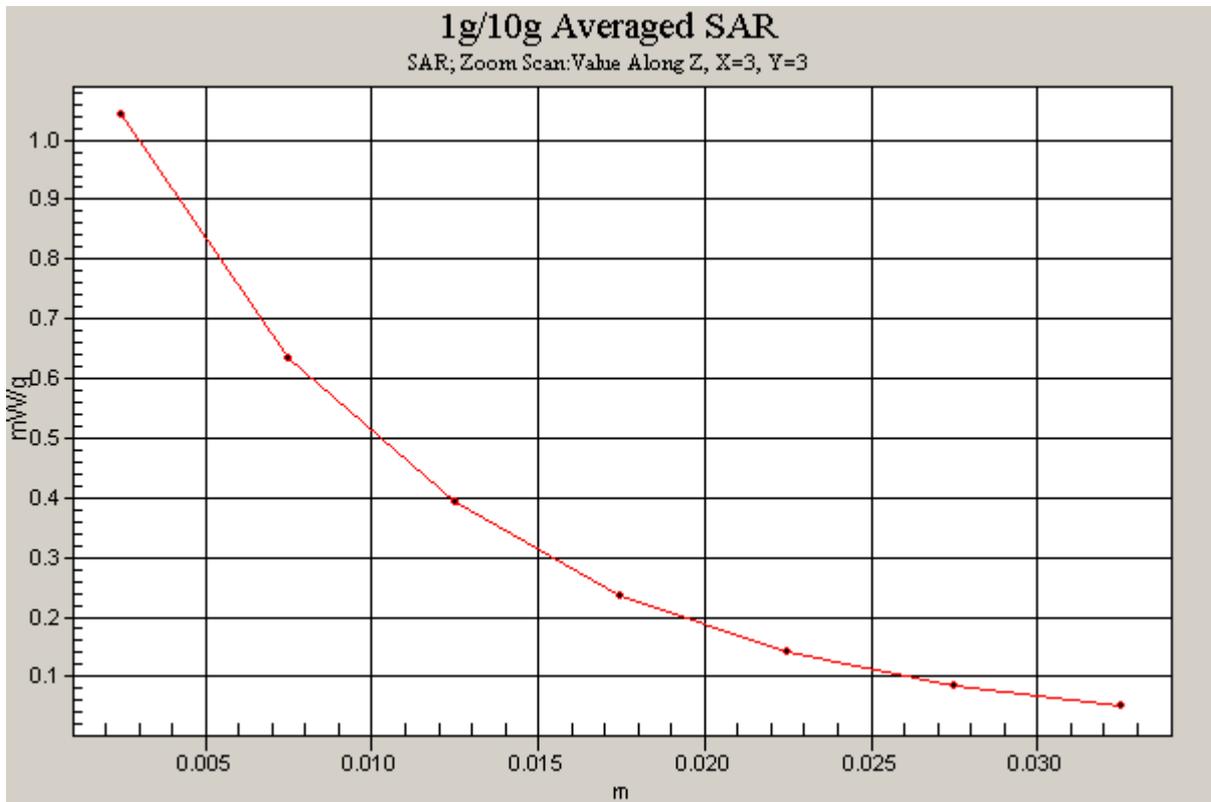


Figure 106 Z-Scan at power reference point (Body, Towards Ground Slide Open , GSM 1900 GPRS, Channel 810)

Date/Time: 12/15/2008 8:22:46 AM

**GSM 1900 GPRS Towards Ground Middle Slide Open**

Communication System: PCS 1900+GPRS(2Up); Frequency: 1880 MHz; Duty Cycle: 1:4

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.54$  mho/m;  $\epsilon_r = 51.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: EX3DV4 - SN3660; ConvF(7.45, 7.45, 7.45);
- Electronics: DAE3 Sn536;

**Towards Ground Middle/Area Scan (51x111x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.02 mW/g

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

Reference Value = 10.1 V/m; Power Drift = -0.138 dB

Peak SAR (extrapolated) = 1.27 W/kg

**SAR(1 g) = 0.793 mW/g; SAR(10 g) = 0.475 mW/g**

Maximum value of SAR (measured) = 0.995 mW/g

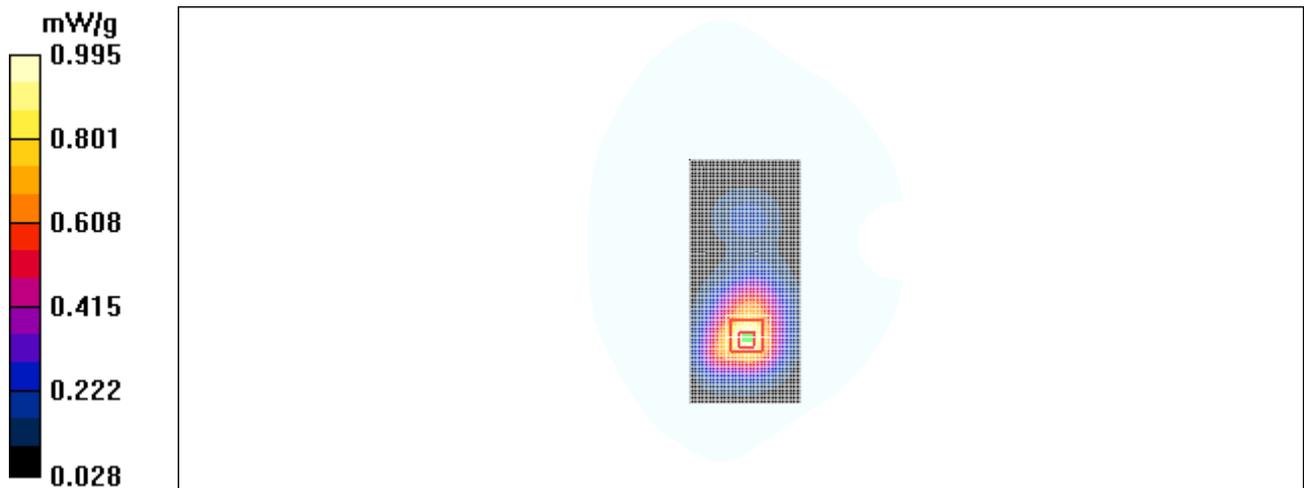


Figure 107 Body, Towards Ground Slide Open , GSM 1900 GPRS, Channel 661

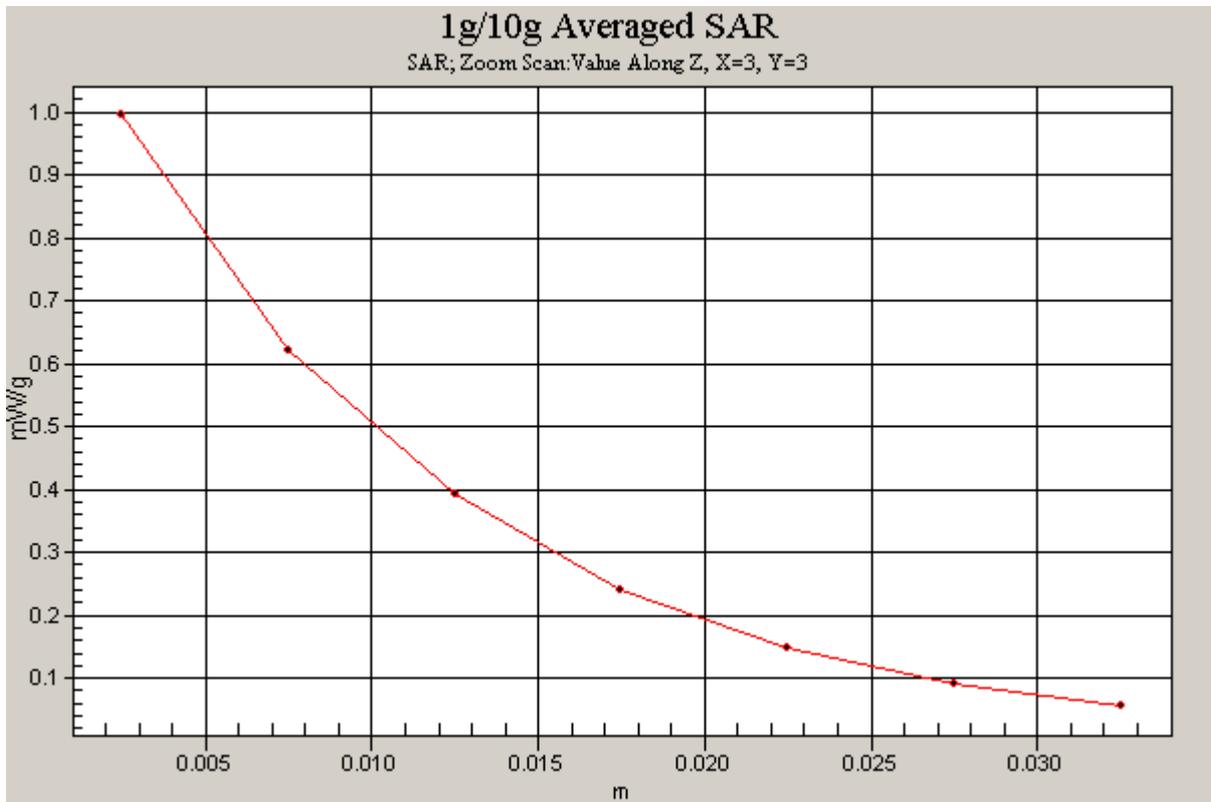


Figure 108 Z-Scan at power reference point (Body, Towards Ground Slide Open , GSM 1900 GPRS, Channel 661)

Date/Time: 12/15/2008 9:08:39 AM

**GSM 1900 GPRS Towards Ground Low Slide Open**

Communication System: PCS 1900+GPRS(2Up); Frequency: 1850.2 MHz; Duty Cycle: 1:4

Medium parameters used (interpolated):  $f = 1850.2$  MHz;  $\sigma = 1.55$  mho/m;  $\epsilon_r = 51.8$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: EX3DV4 - SN3660; ConvF(7.45, 7.45, 7.45);
- Electronics: DAE3 Sn536;

**Towards Ground Low/Area Scan (51x111x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.884 mW/g

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

Reference Value = 9.85 V/m; Power Drift = -0.139 dB

Peak SAR (extrapolated) = 1.12 W/kg

**SAR(1 g) = 0.701 mW/g; SAR(10 g) = 0.425 mW/g**

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

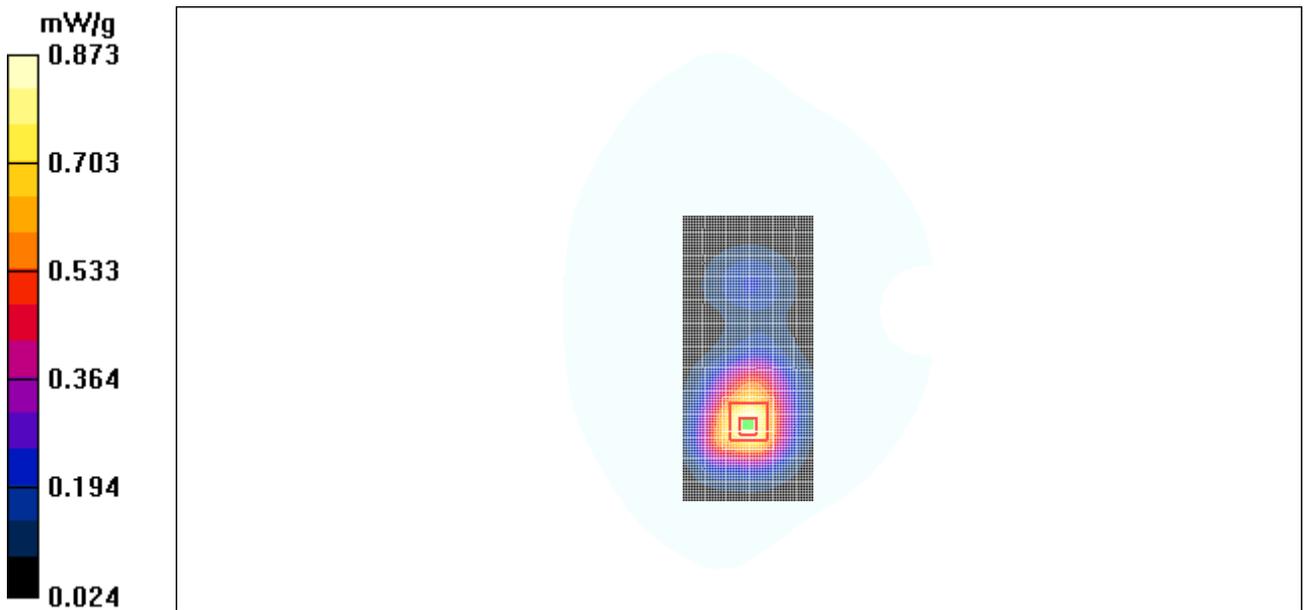


Figure 109 Body, Towards Ground Slide Open , GSM 1900 GPRS, Channel 512

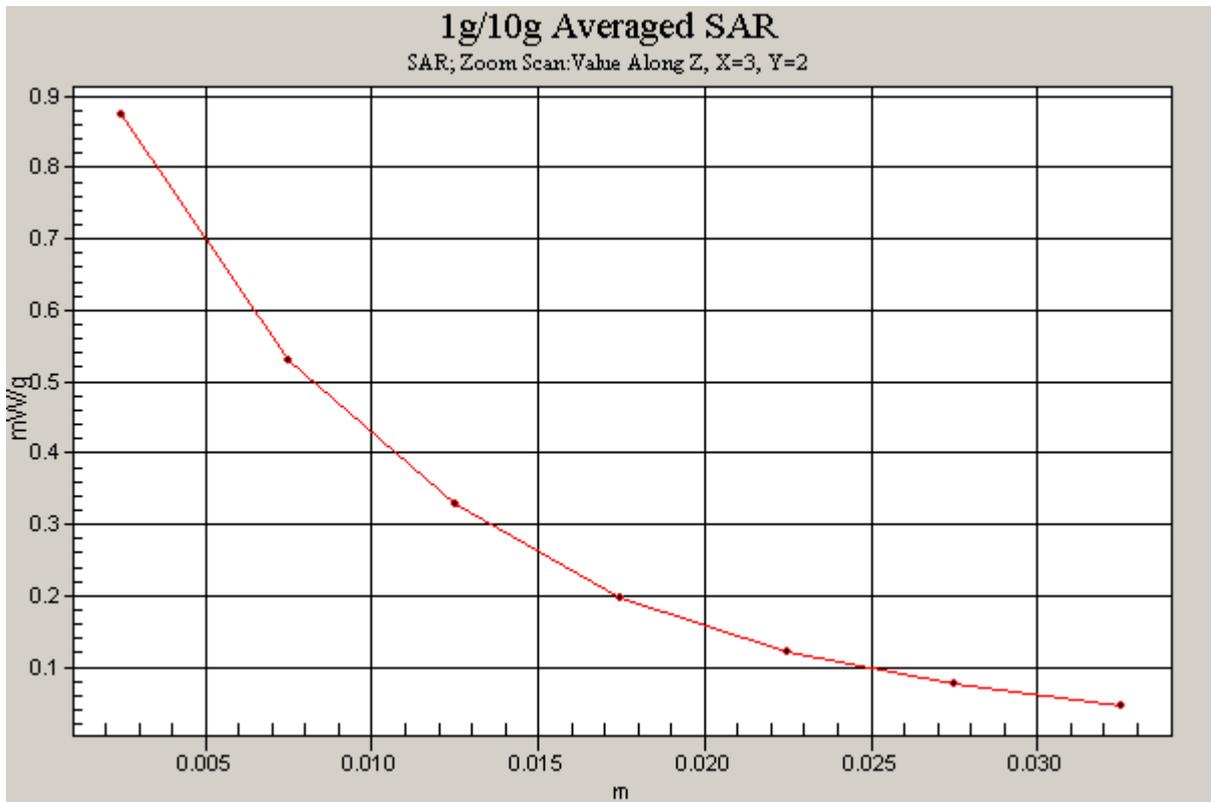


Figure 110 Z-Scan at power reference point (Body, Towards Ground Slide Open , GSM 1900 GPRS, Channel 512)

Date/Time: 12/15/2008 7:51:46 AM

**GSM 1900 GPRS Towards Phantom Middle Slide Open**

Communication System: PCS 1900+GPRS(2Up); Frequency: 1880 MHz; Duty Cycle: 1:4

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.54$  mho/m;  $\epsilon_r = 51.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: EX3DV4 - SN3660; ConvF(7.45, 7.45, 7.45);
- Electronics: DAE3 Sn536;

**Towards Phantom Middle/Area Scan (51x111x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.458 mW/g

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

Reference Value = 12.2 V/m; Power Drift = -0.173 dB

Peak SAR (extrapolated) = 0.574 W/kg

**SAR(1 g) = 0.360 mW/g; SAR(10 g) = 0.224 mW/g**

Maximum value of SAR (measured) = 0.450 mW/g

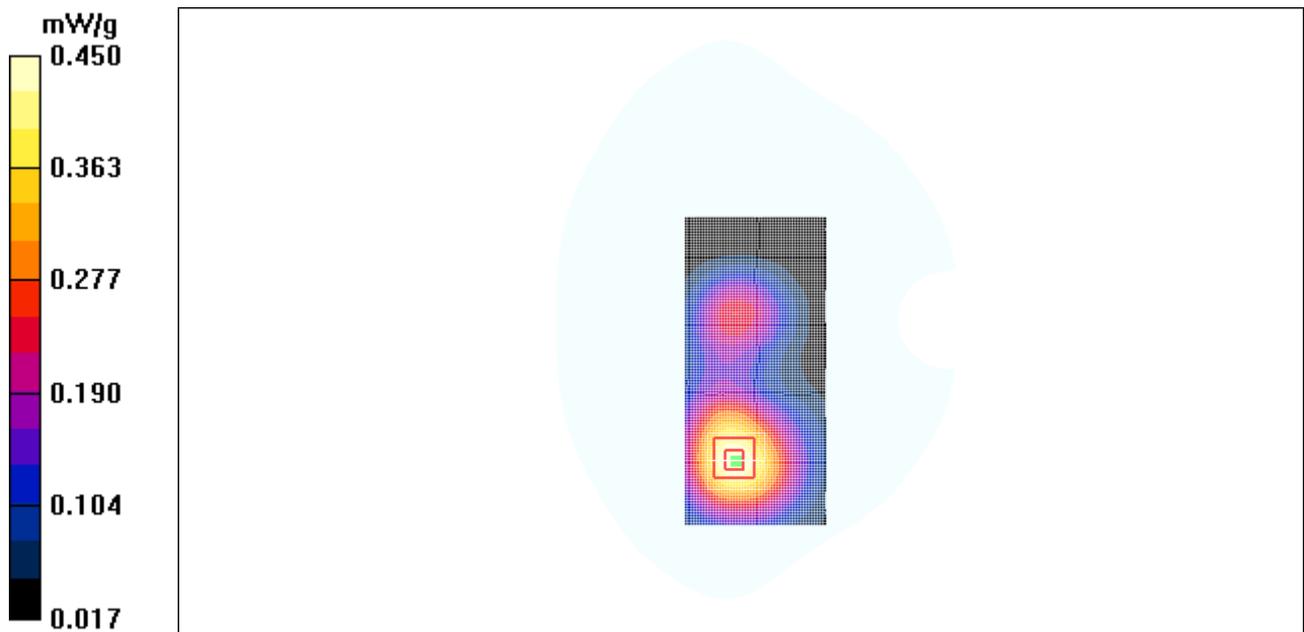


Figure 111 Body, Towards Phantom Slide Open, GSM 1900 GPRS, Channel 661

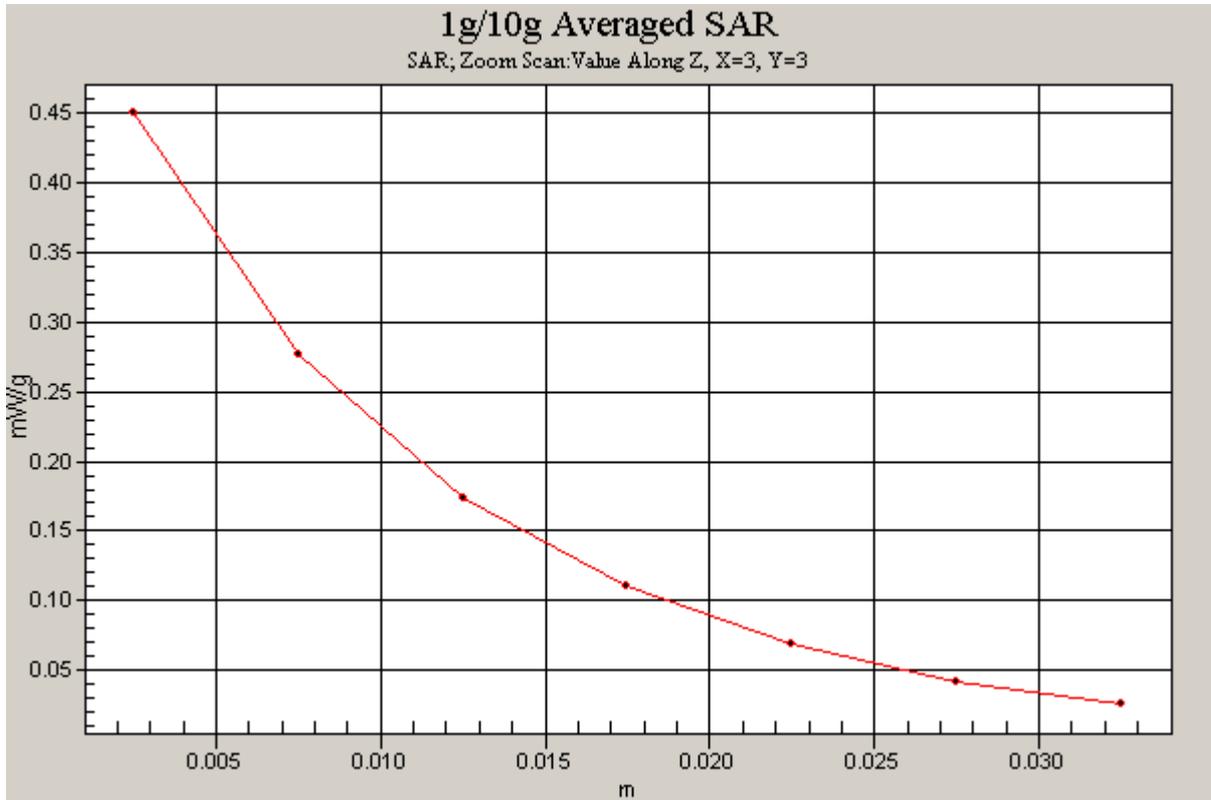


Figure 112 Z-Scan at power reference point (Body, Towards Phantom Slide Open, GSM 1900 GPRS, Channel 661)

Date/Time: 12/15/2008 1:58:40 AM

### GSM 1900 Towards Ground High Slide Close

Communication System: PCS 1900; Frequency: 1909.8 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 1910$  MHz;  $\sigma = 1.58$  mho/m;  $\epsilon_r = 51.5$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: EX3DV4 - SN3660; ConvF(7.45, 7.45, 7.45);
- Electronics: DAE3 Sn536;

**Towards Ground High/Area Scan (51x91x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.509 mW/g

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

Reference Value = 9.01 V/m; Power Drift = 0.057 dB

Peak SAR (extrapolated) = 0.657 W/kg

**SAR(1 g) = 0.385 mW/g; SAR(10 g) = 0.221 mW/g**

Maximum value of SAR (measured) = 0.489 mW/g

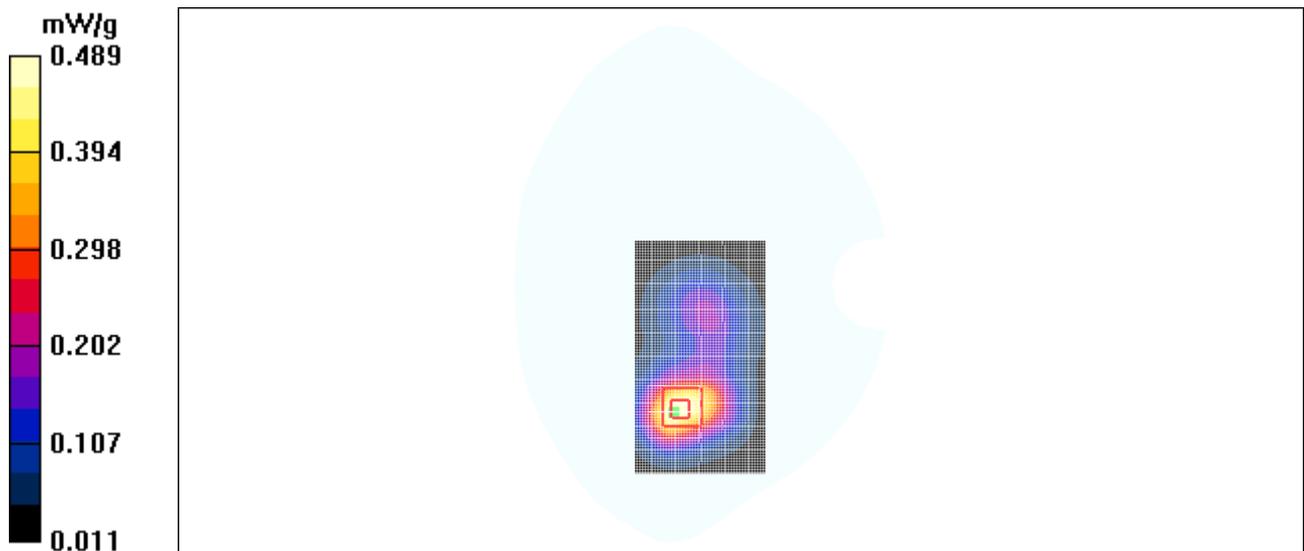


Figure 113 Body, Towards Ground Slide Close , GSM 1900 Channel 810

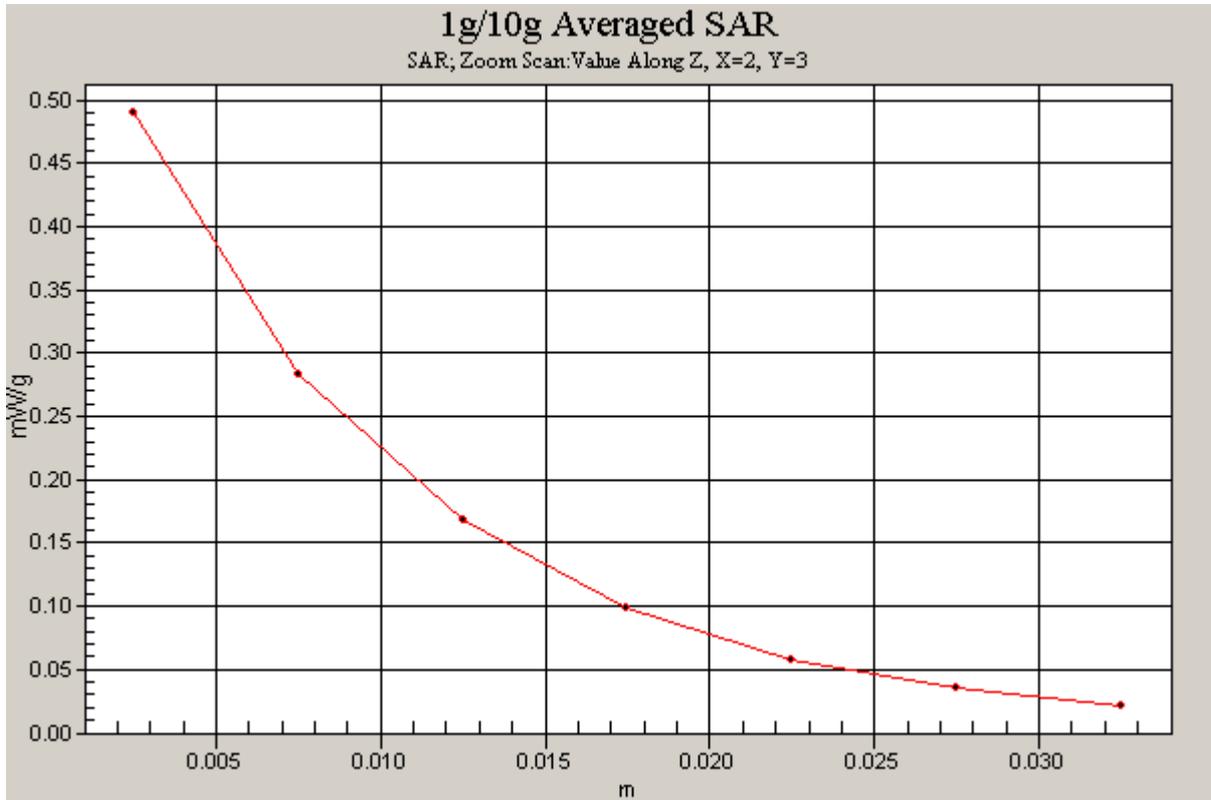


Figure 114 Z-Scan at power reference point (Body, Towards Ground Slide Close , GSM 1900 Channel 810)

Date/Time: 12/15/2008 1:39:51 AM

**GSM 1900 Towards Ground Middle Slide Close**

Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.54$  mho/m;  $\epsilon_r = 51.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: EX3DV4 - SN3660; ConvF(7.45, 7.45, 7.45);
- Electronics: DAE3 Sn536;

**Towards Ground Middle/Area Scan (51x91x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.580 mW/g

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

Reference Value = 9.60 V/m; Power Drift = -0.048 dB

Peak SAR (extrapolated) = 0.739 W/kg

**SAR(1 g) = 0.437 mW/g; SAR(10 g) = 0.252 mW/g**

Maximum value of SAR (measured) = 0.554 mW/g

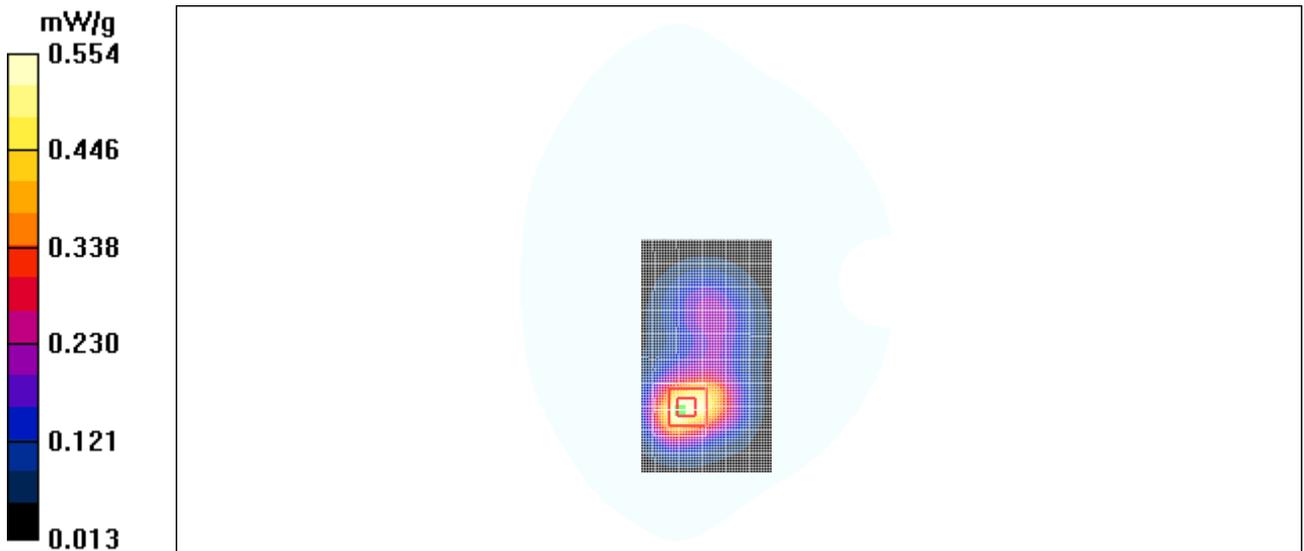


Figure 115 Body, Towards Ground Slide Close , GSM 1900 Channel 661

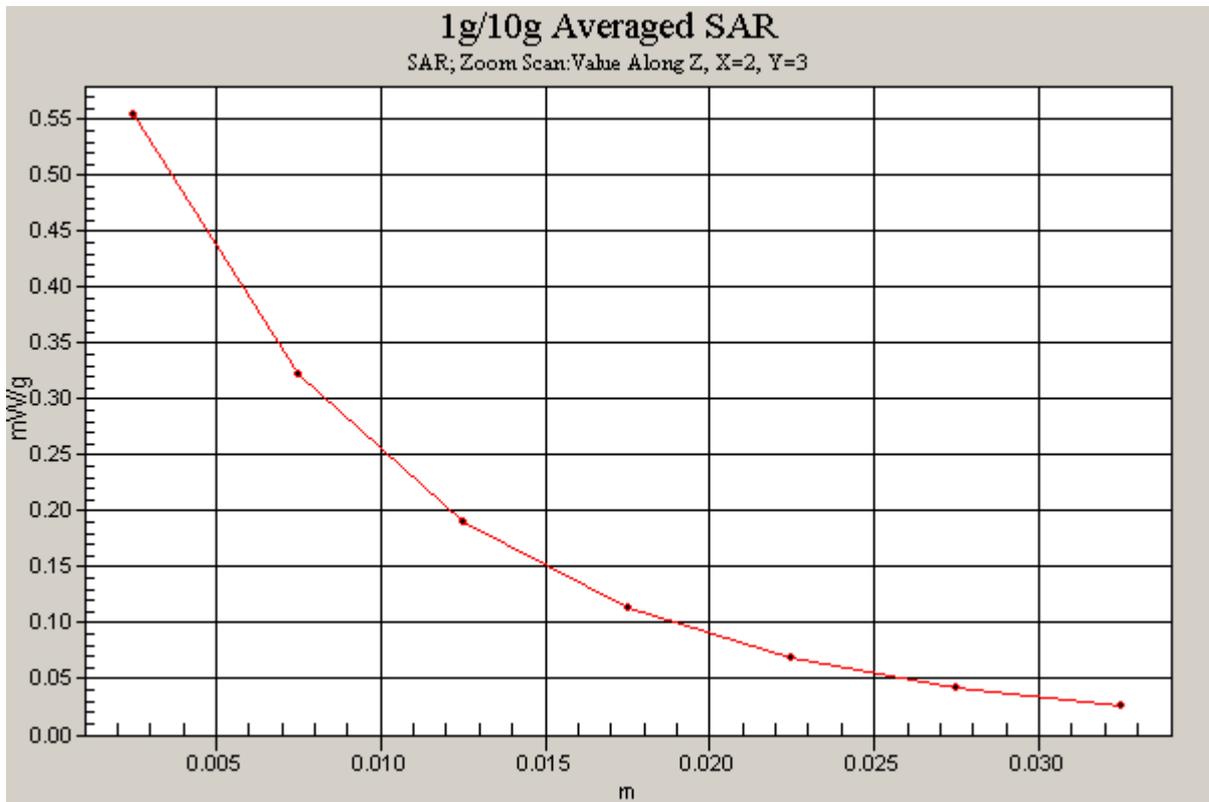


Figure 116 Z-Scan at power reference point (Body, Towards Ground Slide Close , GSM 1900 Channel 661)

### GSM 1900 Towards Ground Low Slide Close

Communication System: PCS 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated):  $f = 1850.2$  MHz;  $\sigma = 1.55$  mho/m;  $\epsilon_r = 51.8$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: EX3DV4 - SN3660; ConvF(7.45, 7.45, 7.45);
- Electronics: DAE3 Sn536;

**Towards Ground Low/Area Scan (51x91x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.521 mW/g

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

Reference Value = 8.89 V/m; Power Drift = -0.093 dB

Peak SAR (extrapolated) = 0.672 W/kg

**SAR(1 g) = 0.396 mW/g; SAR(10 g) = 0.229 mW/g**

Maximum value of SAR (measured) = 0.502 mW/g

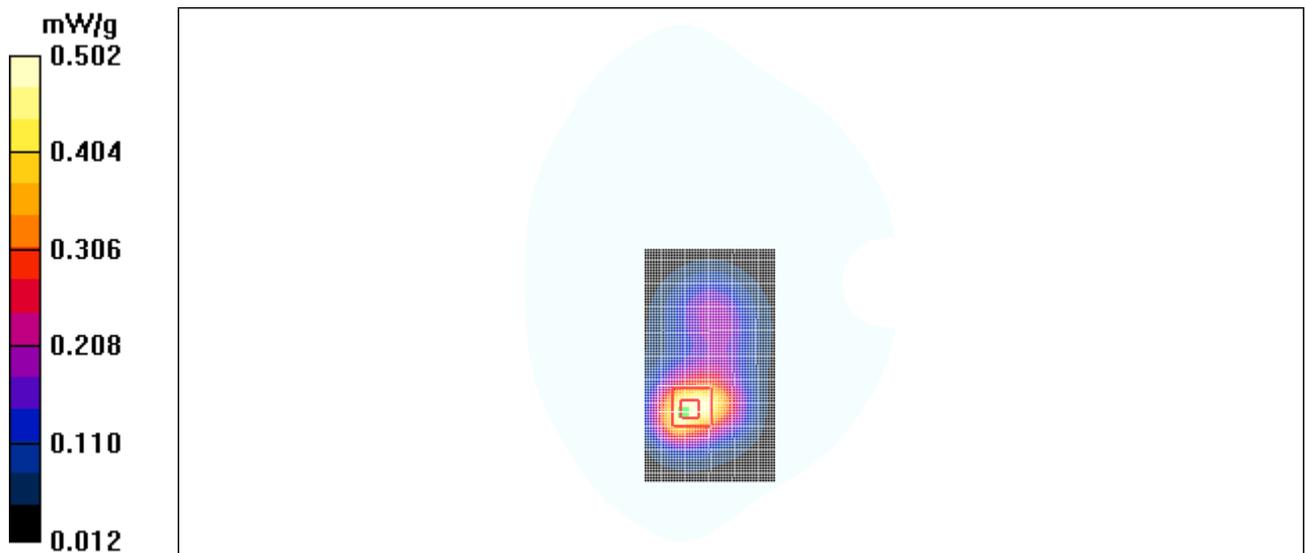


Figure 117 Body, Towards Ground Slide Close , GSM 1900 Channel 512

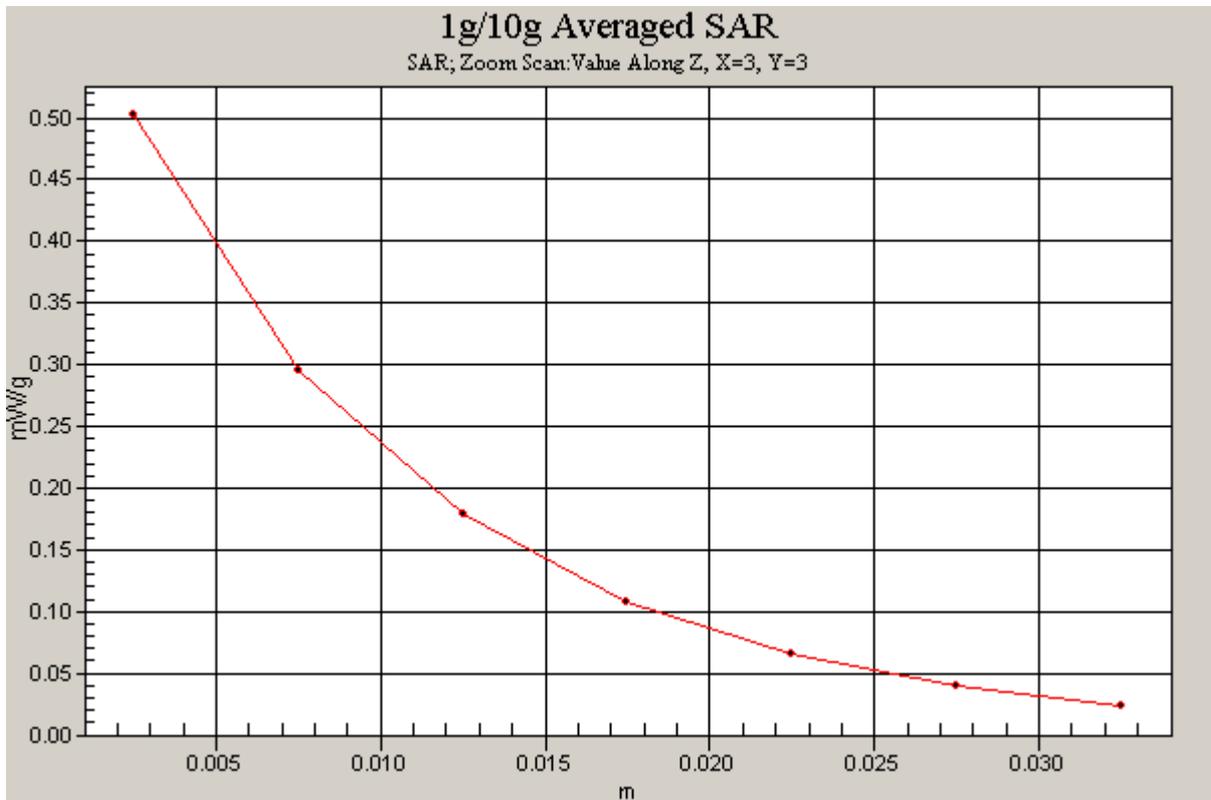


Figure 118 Z-Scan at power reference point (Body, Towards Ground Slide Close , GSM 1900 Channel 512)

Date/Time: 12/15/2008 1:19:39 AM

**GSM 1900 Towards Phantom Middle Slide Close**

Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.54$  mho/m;  $\epsilon_r = 51.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: EX3DV4 - SN3660; ConvF(7.45, 7.45, 7.45);
- Electronics: DAE3 Sn536;

**Towards Phantom Middle/Area Scan (51x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.264 mW/g

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

Reference Value = 8.37 V/m; Power Drift = -0.188 dB

Peak SAR (extrapolated) = 0.326 W/kg

**SAR(1 g) = 0.200 mW/g; SAR(10 g) = 0.122 mW/g**

Maximum value of SAR (measured) = 0.248 mW/g

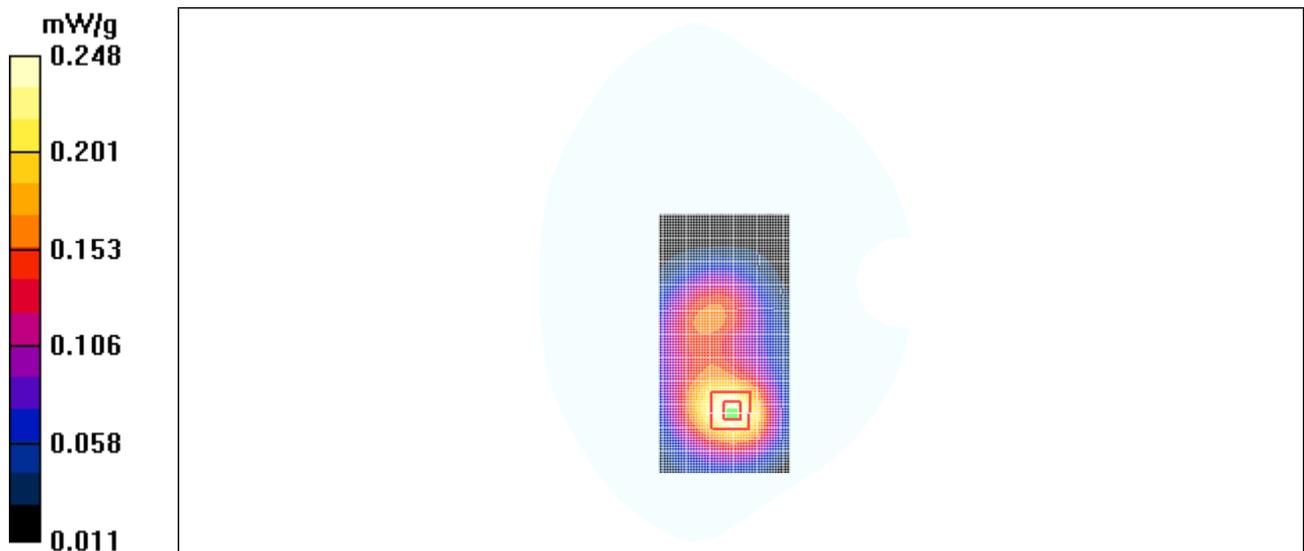


Figure 119 Body, Towards Phantom Slide Close, GSM 1900 Channel 661

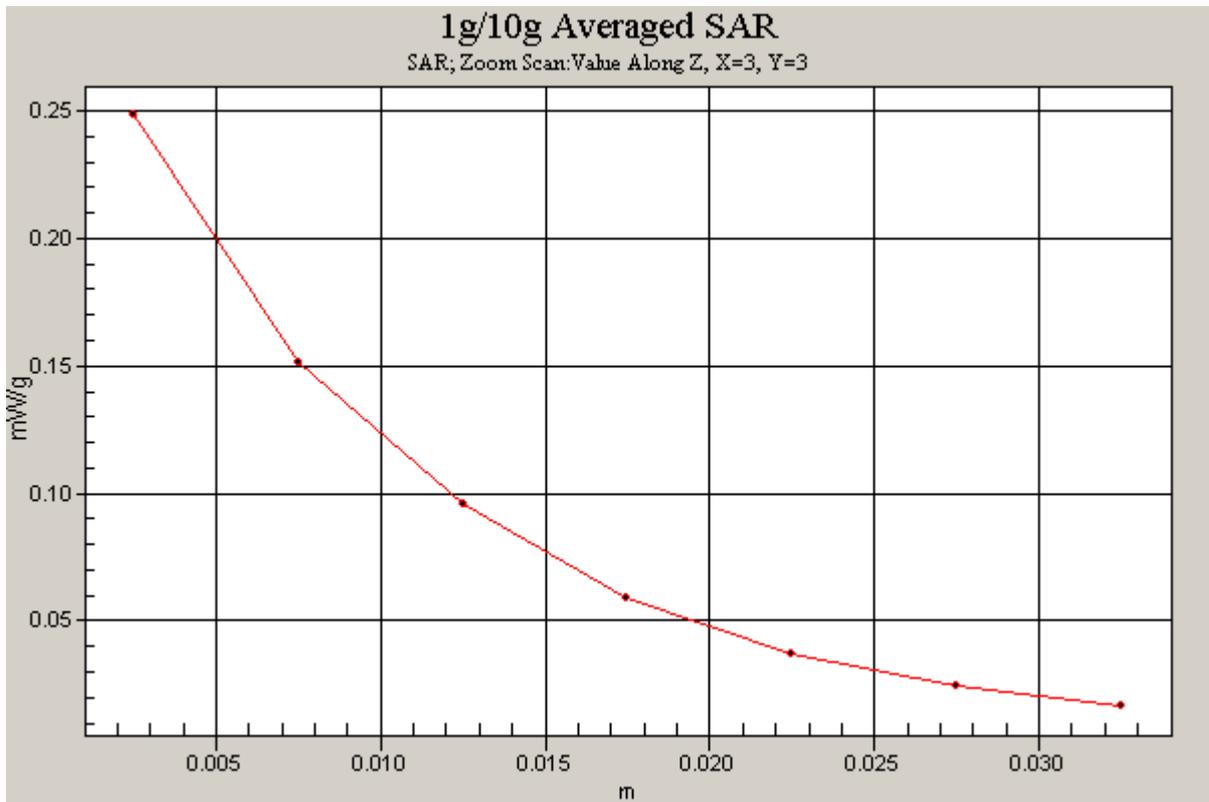


Figure 120 Z-Scan at power reference point (Body, Towards Phantom Slide Close, GSM 1900 Channel 661)

### GSM 1900 Earphone Towards Ground Middle Slide Close

Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.54$  mho/m;  $\epsilon_r = 51.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: EX3DV4 - SN3660; ConvF(7.45, 7.45, 7.45);
- Electronics: DAE3 Sn536;

**Towards Ground Middle/Area Scan (51x91x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.451 mW/g

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

Reference Value = 7.29 V/m; Power Drift = -0.020 dB

Peak SAR (extrapolated) = 0.587 W/kg

**SAR(1 g) = 0.348 mW/g; SAR(10 g) = 0.199 mW/g**

Maximum value of SAR (measured) = 0.448 mW/g

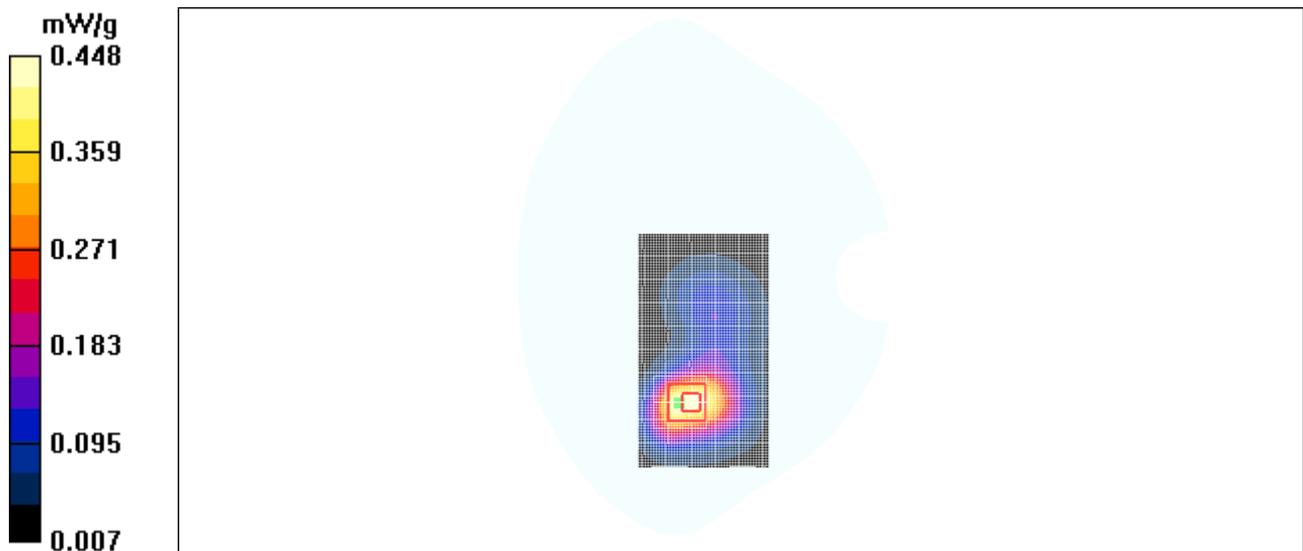


Figure 121 Body with Earphone, Towards Ground Slide Close , GSM 1900, Channel 661

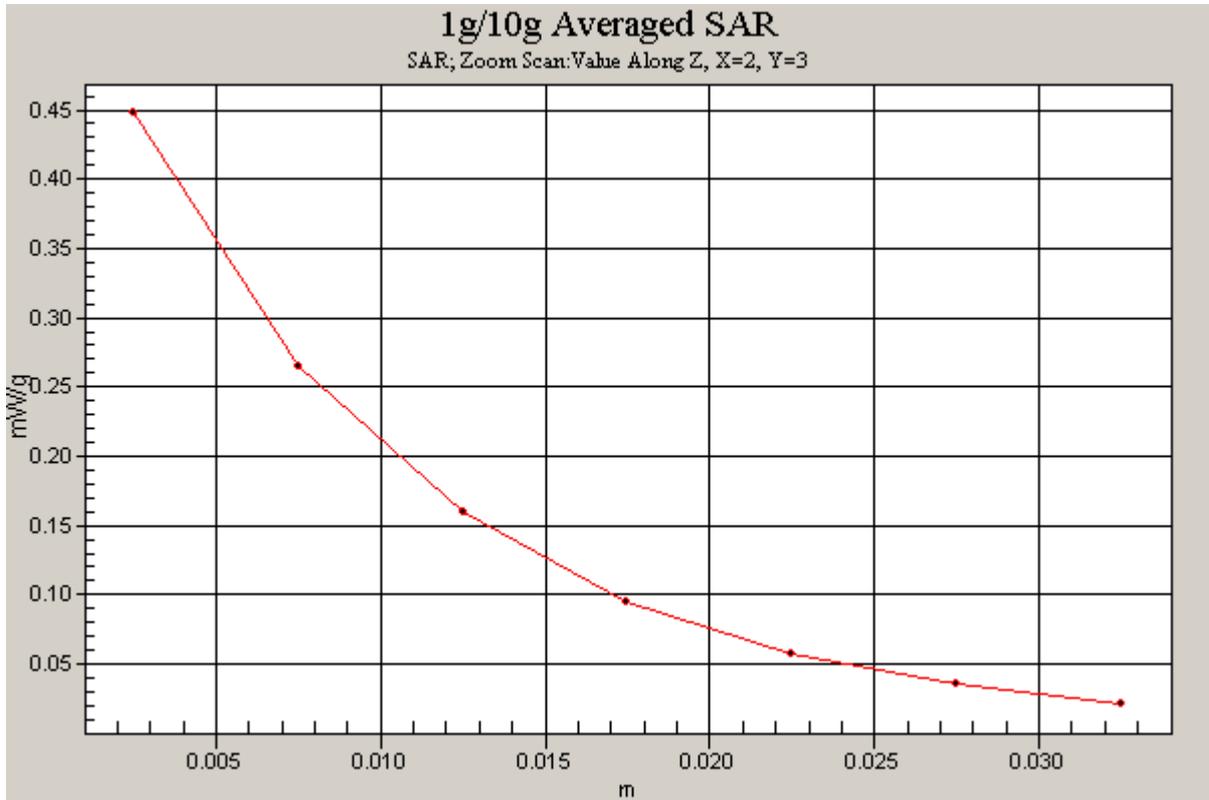


Figure 122 Z-Scan at power reference point (Body with Earphone, Towards Ground Slide Close , GSM 1900, Channel 512)

Date/Time: 12/15/2008 3:58:51 AM

**GSM 1900 GPRS Towards Ground High Slide Close**

Communication System: PCS 1900+GPRS(2Up); Frequency: 1909.8 MHz; Duty Cycle: 1:4  
Medium parameters used:  $f = 1910$  MHz;  $\sigma = 1.58$  mho/m;  $\epsilon_r = 51.5$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: EX3DV4 - SN3660; ConvF(7.45, 7.45, 7.45);
- Electronics: DAE3 Sn536;

**Towards Ground High/Area Scan (51x91x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.978 mW/g

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

Reference Value = 13.0 V/m; Power Drift = -0.119 dB

Peak SAR (extrapolated) = 1.26 W/kg

**SAR(1 g) = 0.733 mW/g; SAR(10 g) = 0.418 mW/g**

Maximum value of SAR (measured) = 0.945 mW/g

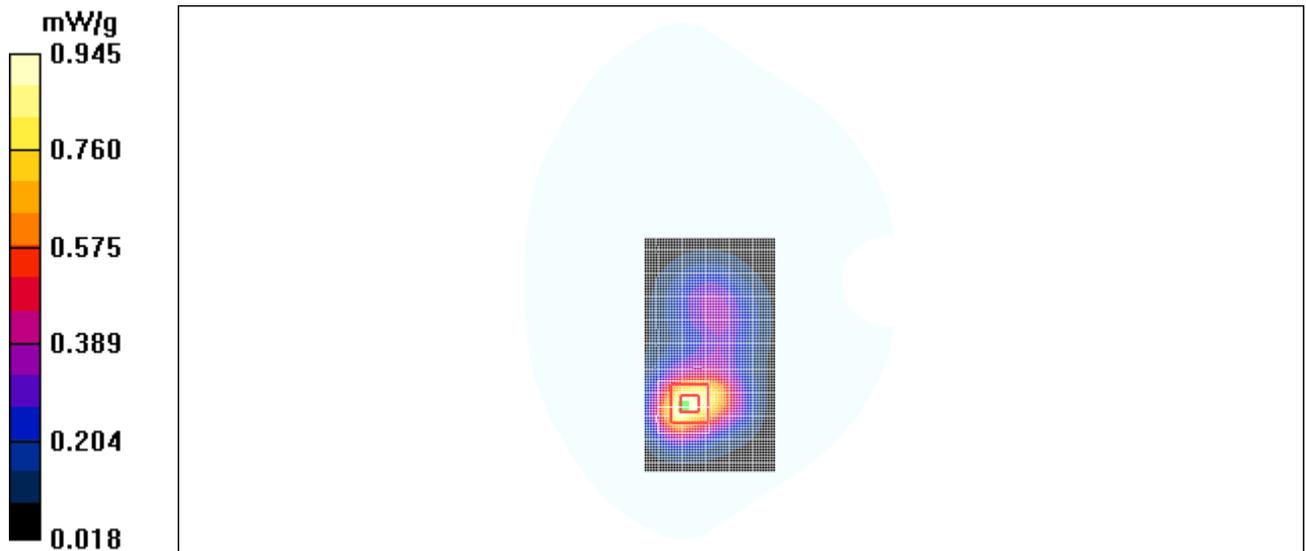


Figure 123 Body, Towards Ground Slide Close , GSM 1900 GPRS, Channel 810

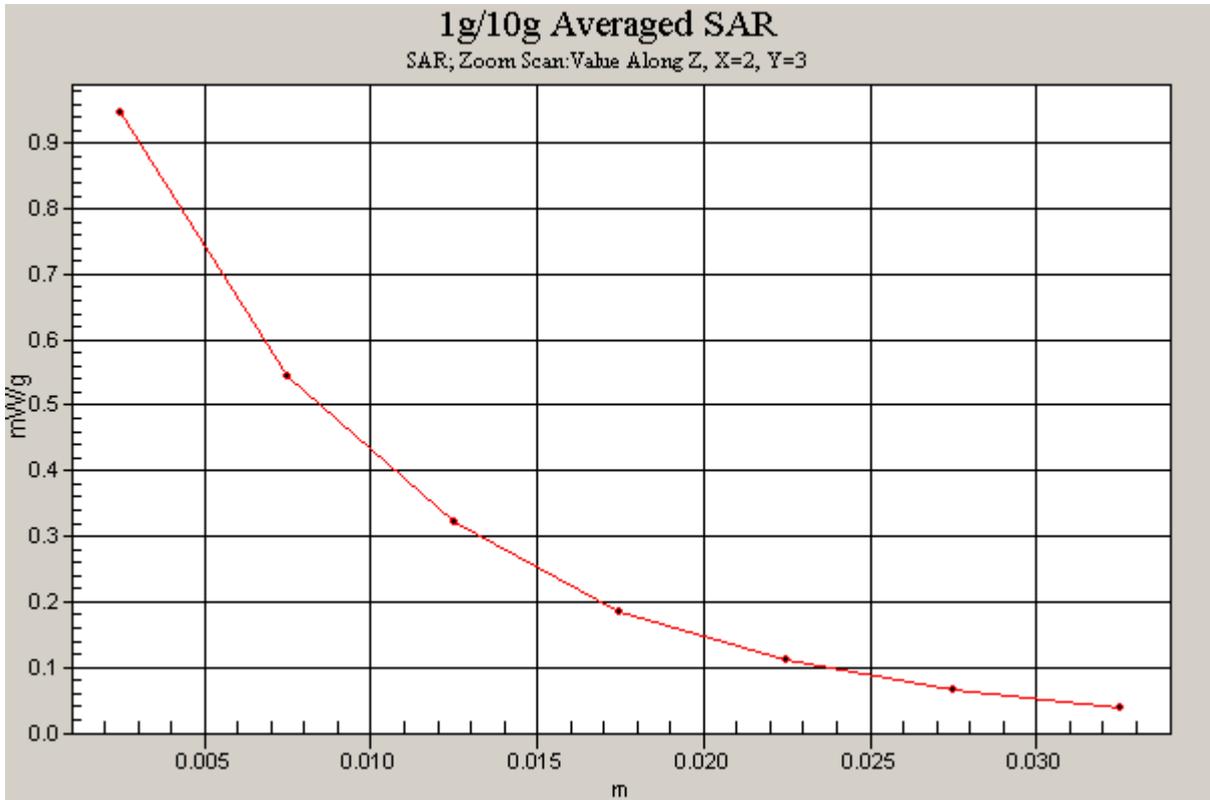


Figure 124 Z-Scan at power reference point (Body, Towards Ground Slide Close , GSM 1900 GPRS, Channel 810)

Date/Time: 12/15/2008 3:37:51 AM

**GSM 1900 GPRS Towards Ground Middle Slide Close**

Communication System: PCS 1900+GPRS(2Up); Frequency: 1880 MHz; Duty Cycle: 1:4

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.54$  mho/m;  $\epsilon_r = 51.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: EX3DV4 - SN3660; ConvF(7.45, 7.45, 7.45);
- Electronics: DAE3 Sn536;

**Towards Ground Middle/Area Scan (51x91x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.07 mW/g

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

Reference Value = 13.1 V/m; Power Drift = 0.020 dB

Peak SAR (extrapolated) = 1.39 W/kg

**SAR(1 g) = 0.819 mW/g; SAR(10 g) = 0.471 mW/g**

Maximum value of SAR (measured) = 1.05 mW/g

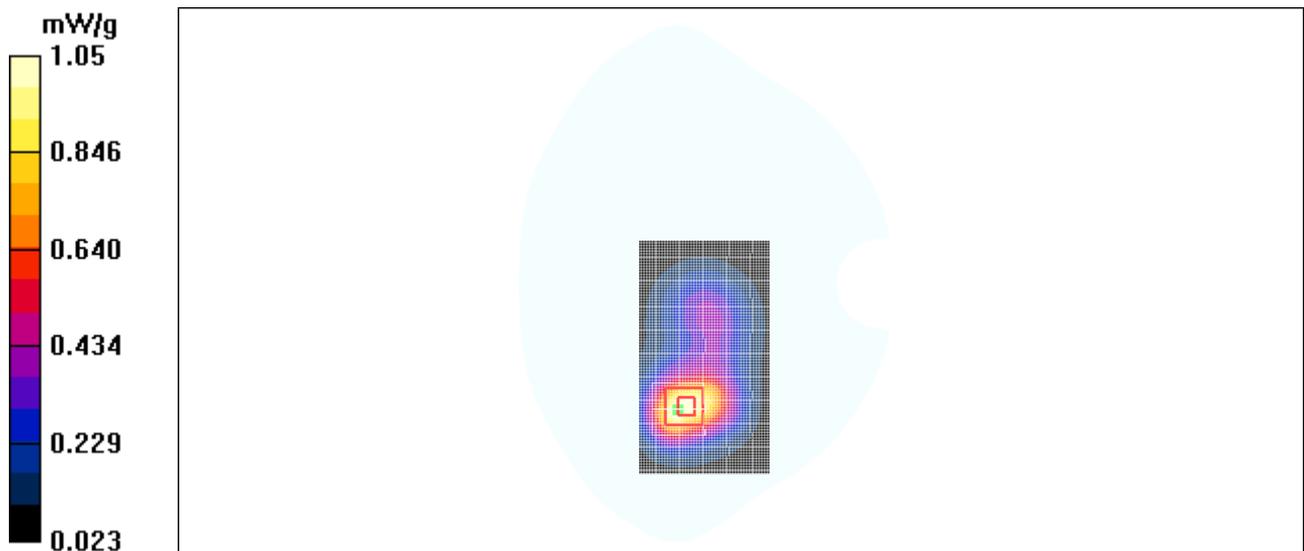


Figure 125 Body, Towards Ground Slide Close , GSM 1900 GPRS, Channel 661

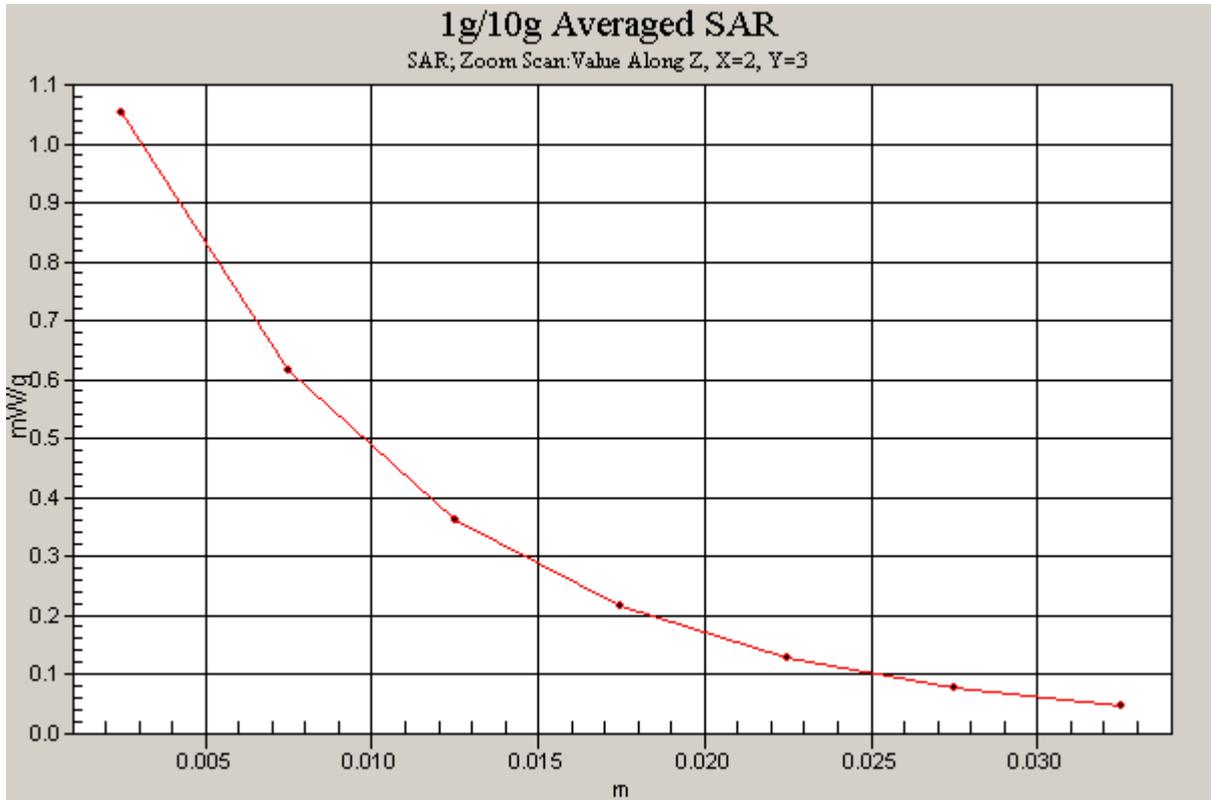


Figure 126 Z-Scan at power reference point (Body, Towards Ground Slide Close , GSM 1900 GPRS, Channel 661)

Date/Time: 12/15/2008 4:29:08 AM

**GSM 1900 GPRS Towards Ground Low Slide Close**

Communication System: PCS 1900+GPRS(2Up); Frequency: 1850.2 MHz; Duty Cycle: 1:4

Medium parameters used (interpolated):  $f = 1850.2$  MHz;  $\sigma = 1.55$  mho/m;  $\epsilon_r = 51.8$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: EX3DV4 - SN3660; ConvF(7.45, 7.45, 7.45);
- Electronics: DAE3 Sn536;

**Towards Ground Low/Area Scan (51x91x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.04 mW/g

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

Reference Value = 12.5 V/m; Power Drift = 0.093 dB

Peak SAR (extrapolated) = 1.32 W/kg

**SAR(1 g) = 0.791 mW/g; SAR(10 g) = 0.461 mW/g**

Maximum value of SAR (measured) = 1.01 mW/g

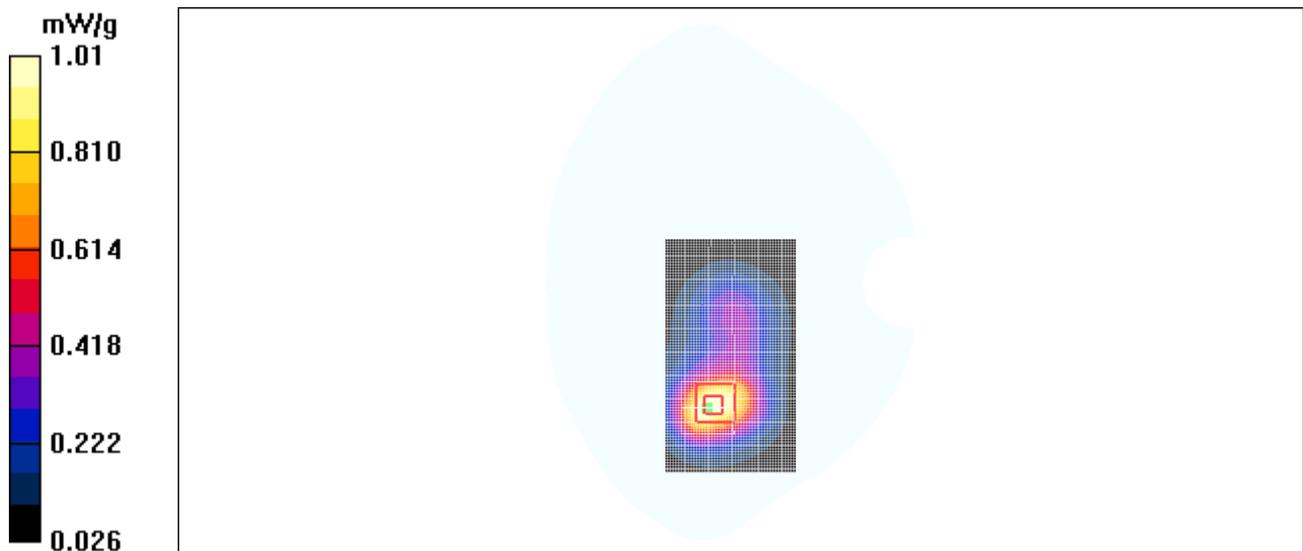


Figure 127 Body, Towards Ground Slide Close , GSM 1900 GPRS, Channel 512

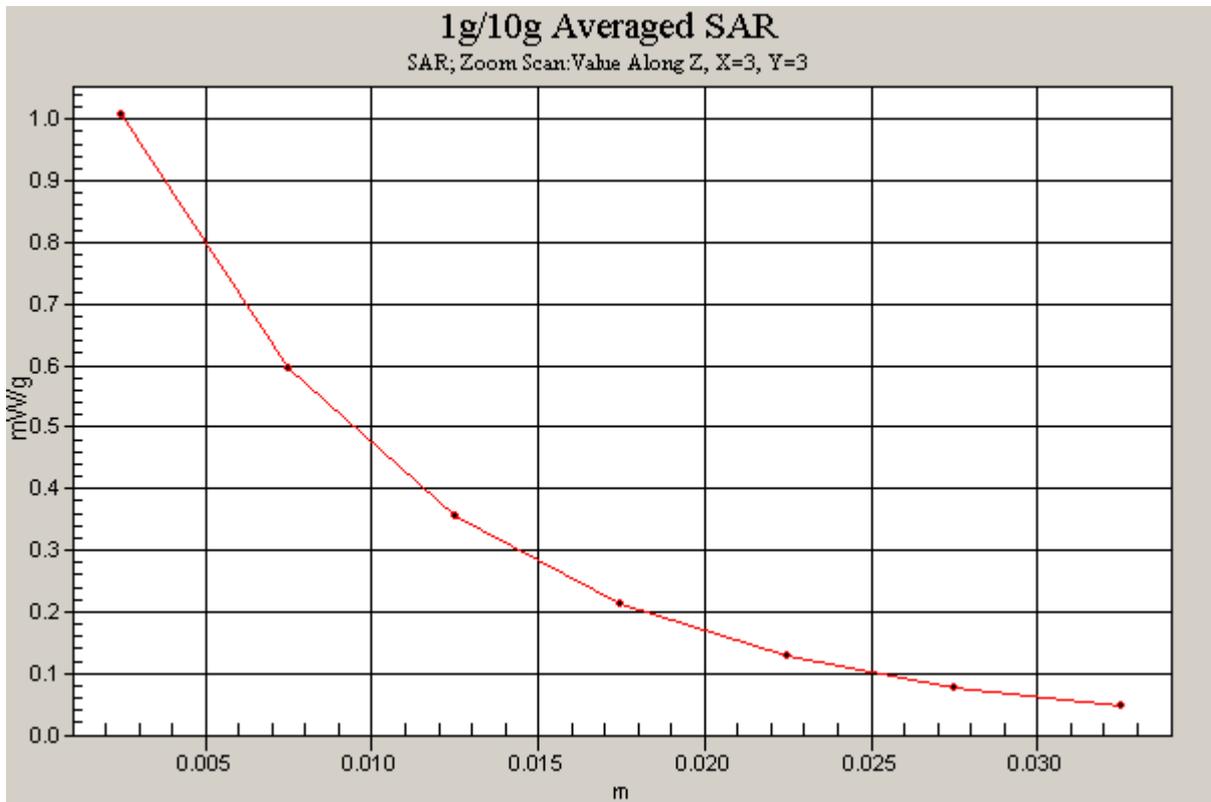


Figure 128 Z-Scan at power reference point (Body, Towards Ground Slide Close , GSM 1900 GPRS, Channel 512)

Date/Time: 12/15/2008 6:59:44 AM

**GSM 1900 GPRS Towards Phantom Middle Slide Close**

Communication System: PCS 1900+GPRS(2Up); Frequency: 1880 MHz; Duty Cycle: 1:4

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.54$  mho/m;  $\epsilon_r = 51.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>

- Probe: EX3DV4 - SN3660; ConvF(7.45, 7.45, 7.45);
- Electronics: DAE3 Sn536;

**Towards Phantom Middle/Area Scan (51x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.466 mW/g

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

Reference Value = 11.5 V/m; Power Drift = -0.190 dB

Peak SAR (extrapolated) = 0.582 W/kg

**SAR(1 g) = 0.357 mW/g; SAR(10 g) = 0.217 mW/g**

Maximum value of SAR (measured) = 0.450 mW/g

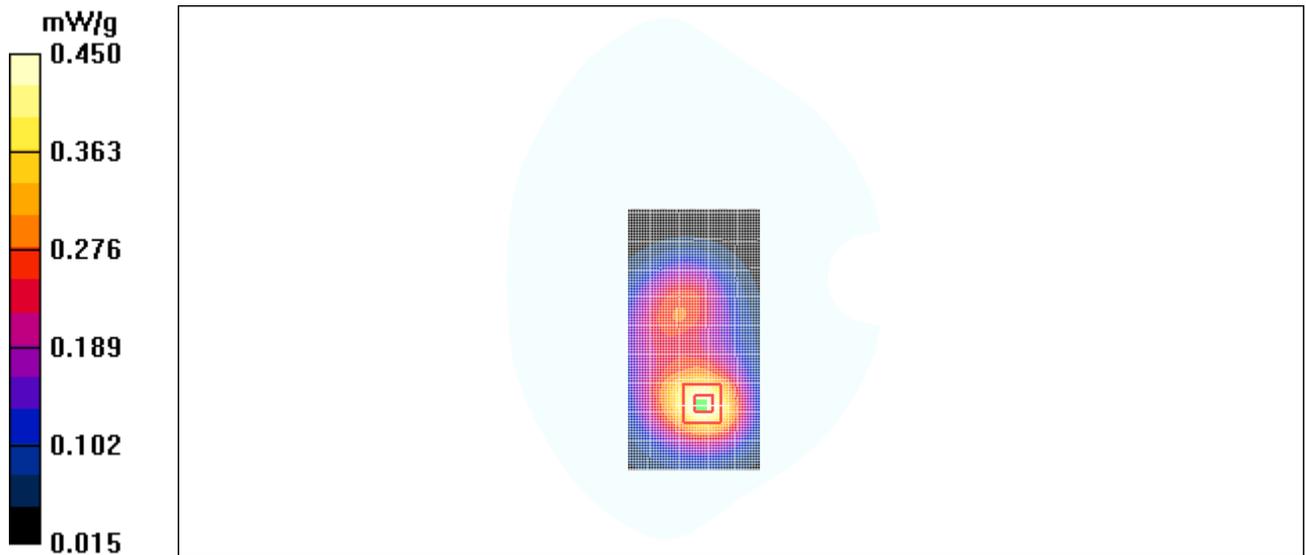


Figure 129 Body, Towards Phantom Slide Close, GSM 1900 GPRS, Channel 661

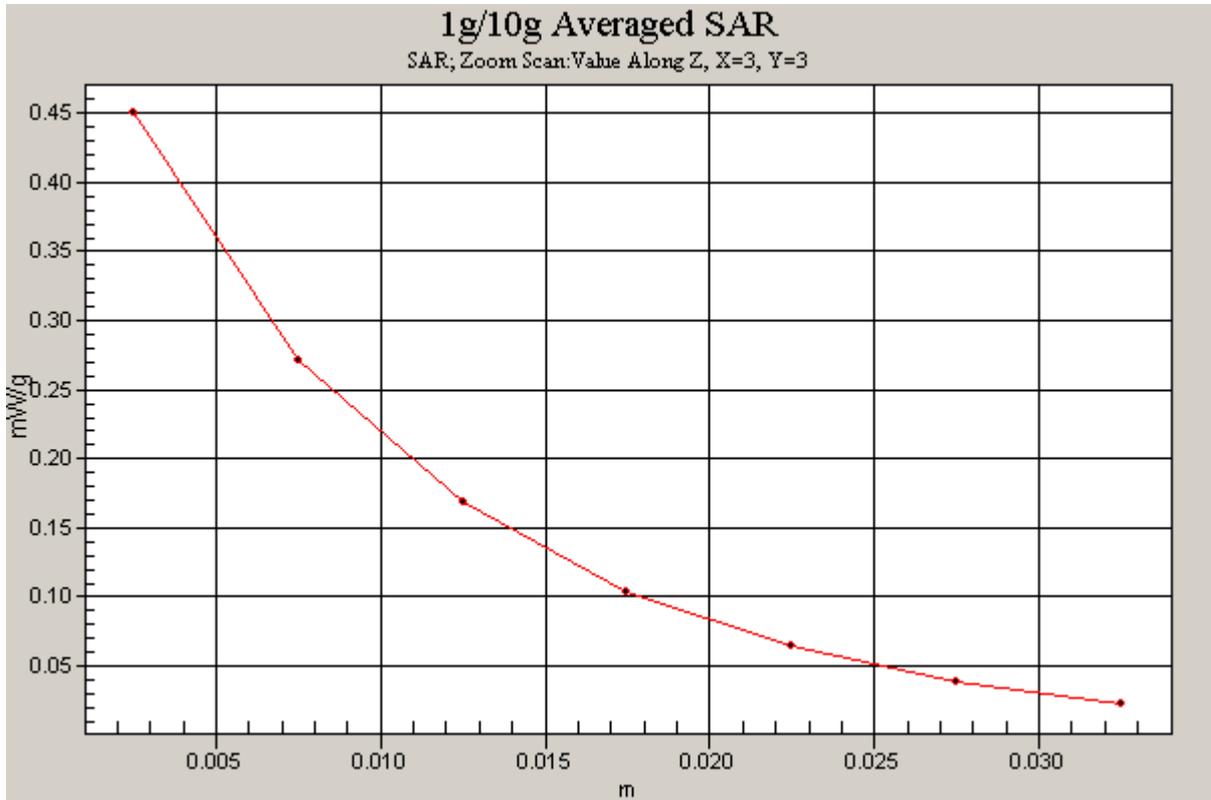


Figure 130 Z-Scan at power reference point (Body, Towards Phantom Slide Close, GSM 1900 GPRS, Channel 661)

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

No. RZC2008-1567

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## ANNEX D: PROBE CALIBRATION CERTIFICATE

**Calibration Laboratory of  
Schmid & Partner  
Engineering AG**  
Zeughausstrasse 43, 8004 Zurich, Switzerland



**S** Schweizerischer Kalibrierdienst  
**C** Service suisse d'étalonnage  
**S** Servizio svizzero di taratura  
**S** Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)  
The Swiss Accreditation Service is one of the signatories to the EA  
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Client **TA (Auden)**

Certificate No: **EX3-3660\_Sep08**

### CALIBRATION CERTIFICATE

Object **EX3DV4 - SN:3660**

Calibration procedure(s) **QA CAL-01.v6 and QA CAL-23.v3  
Calibration procedure for dosimetric E-field probes**

Calibration date: **September 3, 2008**

Condition of the calibrated item **In Tolerance**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).  
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	1-Apr-08 (No. 217-00788)	Apr-09
Power sensor E4412A	MY41495277	1-Apr-08 (No. 217-00788)	Apr-09
Power sensor E4412A	MY41498087	1-Apr-08 (No. 217-00788)	Apr-09
Reference 3 dB Attenuator	SN: S5054 (3c)	1-Jul-08 (No. 217-00685)	Jul-09
Reference 20 dB Attenuator	SN: S5086 (20b)	31-Mar-08 (No. 217-00787)	Apr-09
Reference 30 dB Attenuator	SN: S5129 (30b)	1-Jul-08 (No. 217-00666)	Jul-09
Reference Probe ES3DV2	SN: 3013	2-Jan-08 (No. ES3-3013_Jan08)	Jan-09
DAE4	SN: 660	3-Sep-07 (No. DAE4-660_Sep07)	Sep-08
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Oct-07)	In house check: Oct-09
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-07)	In house check: Oct-08

Calibrated by: **Katja Pokovic** (Name), **Technical Manager** (Function), *[Signature]* (Signature)

Approved by: **Fin Bomholt** (Name), **R&D Director** (Function), *[Signature]* (Signature)

Issued: September 3, 2008

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

Calibration Laboratory of  
Schmid & Partner  
Engineering AG  
Zeughausstrasse 43, 8004 Zurich, Switzerland



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C Service suisse d'étalonnage  
S Servizio svizzero di taratura  
S Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)  
The Swiss Accreditation Service is one of the signatories to the EA  
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 108

**Glossary:**

TSL	tissue simulating liquid
NORM <sub>x,y,z</sub>	sensitivity in free space
ConvF	sensitivity in TSL / NORM <sub>x,y,z</sub>
DCP	diode compression point
Polarization $\varphi$	$\varphi$ rotation around probe axis
Polarization $\vartheta$	$\vartheta$ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., $\vartheta = 0$ is normal to probe axis

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

- IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
- IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005

**Methods Applied and Interpretation of Parameters:**

- NORM<sub>x,y,z</sub>:** Assessed for E-field polarization  $\vartheta = 0$  ( $f \leq 900$  MHz in TEM-cell;  $f > 1800$  MHz: R22 waveguide). NORM<sub>x,y,z</sub> are only intermediate values, i.e., the uncertainties of NORM<sub>x,y,z</sub> does not effect the E<sup>2</sup>-field uncertainty inside TSL (see below ConvF).
- NORM(f)<sub>x,y,z</sub> = NORM<sub>x,y,z</sub> \* frequency\_response** (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of ConvF.
- DCP<sub>x,y,z</sub>:** DCP are numerical linearization parameters assessed based on the data of power sweep (no uncertainty required). DCP does not depend on frequency nor media.
- ConvF and Boundary Effect Parameters:** Assessed in flat phantom using E-field (or Temperature Transfer Standard for  $f \leq 800$  MHz) and inside waveguide using analytical field distributions based on power measurements for  $f > 800$  MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORM<sub>x,y,z</sub> \* ConvF whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from  $\pm 50$  MHz to  $\pm 100$  MHz.
- Spherical isotropy (3D deviation from isotropy):** in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- Sensor Offset:** The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.

EX3DV4 SN:3660

September 3, 2008

# Probe EX3DV4

## SN:3660

Manufactured: April 29, 2008  
Calibrated: September 3, 2008

Calibrated for DASY Systems

(Note: non-compatible with DASY2 system!)

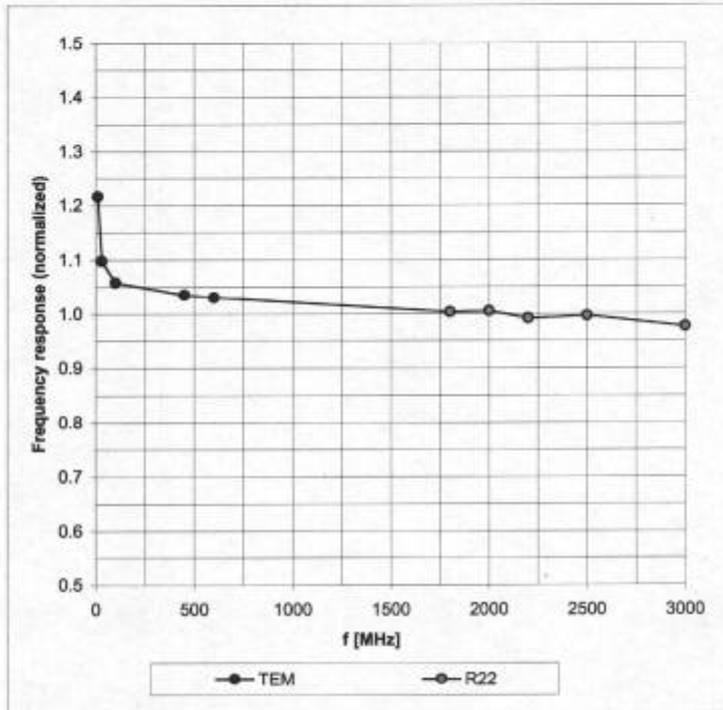


EX3DV4 SN:3660

September 3, 2008

### Frequency Response of E-Field

(TEM-Cell:ifi110 EXX, Waveguide: R22)

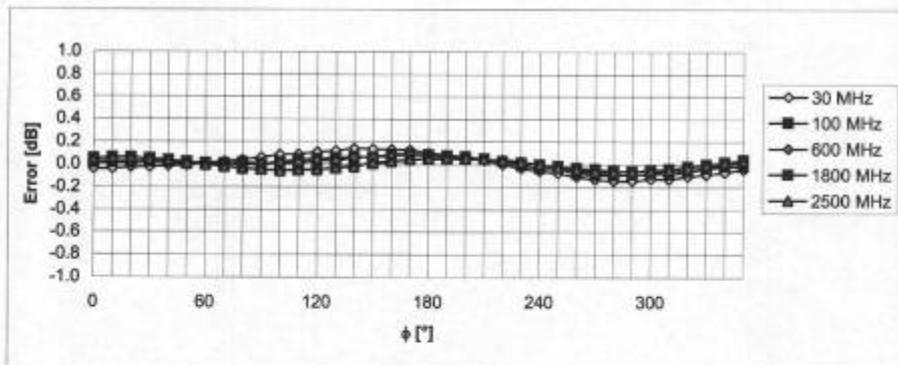
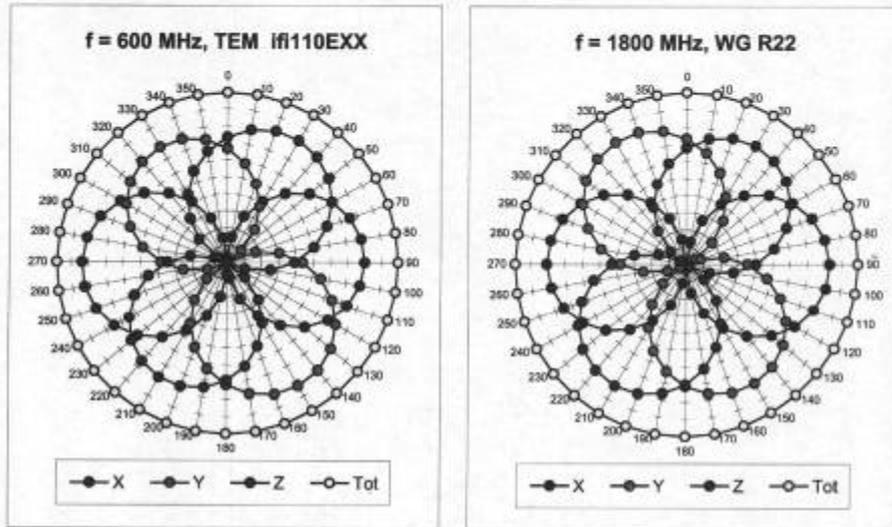


Uncertainty of Frequency Response of E-field:  $\pm 6.3\%$  ( $k=2$ )

EX3DV4 SN:3660

September 3, 2008

Receiving Pattern ( $\phi$ ),  $\vartheta = 0^\circ$

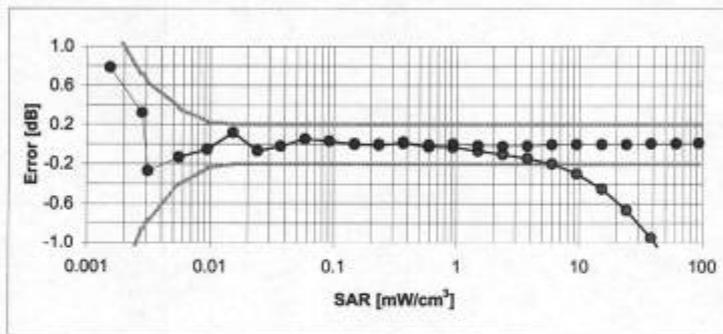
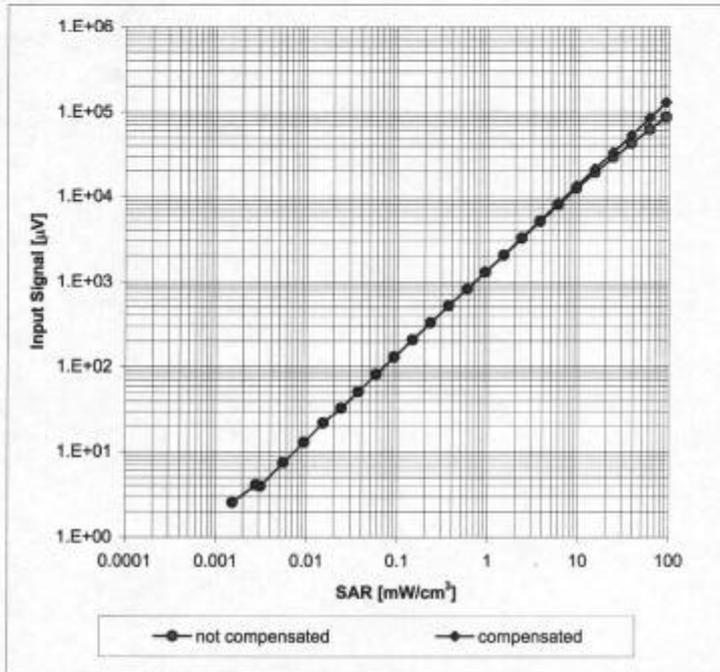


Uncertainty of Axial Isotropy Assessment:  $\pm 0.5\%$  (k=2)

EX3DV4 SN:3660

September 3, 2008

**Dynamic Range  $f(SAR_{head})$**   
(Waveguide R22,  $f = 1800$  MHz)

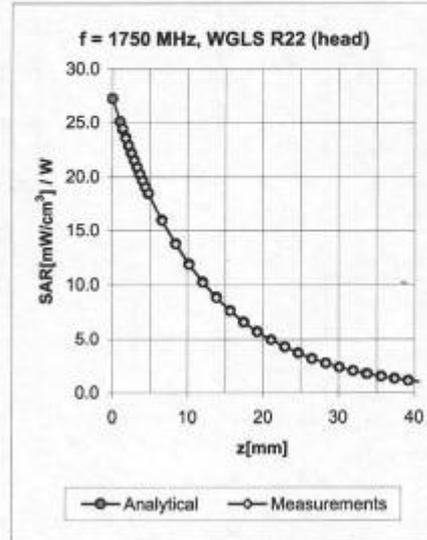
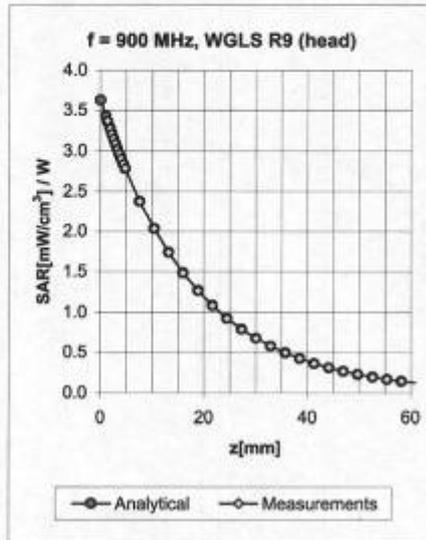


Uncertainty of Linearity Assessment:  $\pm 0.6\%$  ( $k=2$ )

EX3DV4 SN:3660

September 3, 2008

### Conversion Factor Assessment



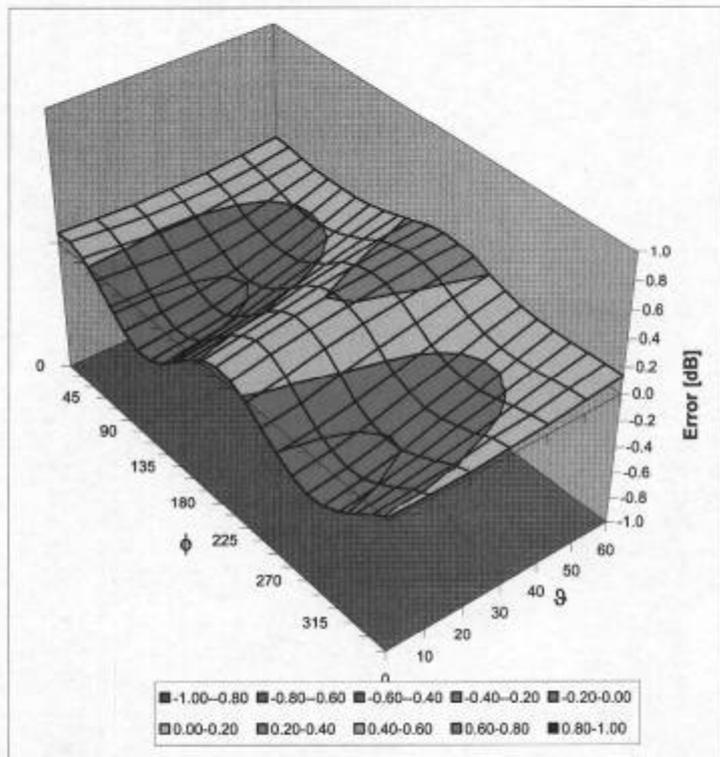
f [MHz]	Validity [MHz] <sup>c</sup>	TSL	Permittivity	Conductivity	Alpha	Depth	ConvF Uncertainty
835	± 50 / ± 100	Head	41.5 ± 5%	0.90 ± 5%	0.49	0.76	9.19 ± 11.0% (k=2)
900	± 50 / ± 100	Head	41.5 ± 5%	0.97 ± 5%	0.43	0.83	8.84 ± 11.0% (k=2)
1750	± 50 / ± 100	Head	40.1 ± 5%	1.37 ± 5%	0.68	0.63	7.79 ± 11.0% (k=2)
1950	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.31	0.80	7.35 ± 11.0% (k=2)
2450	± 50 / ± 100	Head	39.2 ± 5%	1.80 ± 5%	0.32	0.85	6.94 ± 11.0% (k=2)
835	± 50 / ± 100	Body	55.2 ± 5%	0.97 ± 5%	0.63	0.71	9.10 ± 11.0% (k=2)
900	± 50 / ± 100	Body	55.0 ± 5%	1.05 ± 5%	0.30	1.08	8.76 ± 11.0% (k=2)
1750	± 50 / ± 100	Body	53.4 ± 5%	1.49 ± 5%	0.34	0.86	7.55 ± 11.0% (k=2)
1950	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.60	0.67	7.45 ± 11.0% (k=2)
2450	± 50 / ± 100	Body	52.7 ± 5%	1.95 ± 5%	0.30	1.15	6.75 ± 11.0% (k=2)

<sup>c</sup> The validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2). The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

EX3DV4 SN:3660

September 3, 2008

**Deviation from Isotropy in HSL**  
Error ( $\phi$ ,  $\theta$ ),  $f = 900$  MHz



Uncertainty of Spherical Isotropy Assessment:  $\pm 2.6\%$  ( $k=2$ )

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

No. RZC2008-1567

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**ANNEX E: D835V2 DIPOLE CALIBRATION CERTIFICATE**

**Calibration Laboratory of  
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Engineering AG**  
Zeughausstrasse 43, 8004 Zurich, Switzerland



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**S** Swiss Calibration Service

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The Swiss Accreditation Service is one of the signatories to the EA  
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Client **Auden**

Certificate No: **D835V2-4d020\_Jul08**

**CALIBRATION CERTIFICATE**

Object **D835V2 - SN: 4d020**

Calibration procedure(s) **QA CAL-05.v7  
Calibration procedure for dipole validation kits**

Calibration date: **July 21, 2008**

Condition of the calibrated item **In Tolerance**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (Si).  
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	04-Oct-07 (No. 217-00736)	Oct-08
Power sensor HP 8481A	US37292783	04-Oct-07 (No. 217-00736)	Oct-08
Reference 20 dB Attenuator	SN: 5086 (20g)	01-Jul-06 (No. 217-00864)	Jul-09
Type-N mismatch combination	SN: 5047.2 / 06327	01-Jul-06 (No. 217-00867)	Jul-09
Reference Probe ES3DV2	SN: 3025	28-Apr-08 (No. ES3-3025_Apr08)	Apr-09
DAE4	SN: 601	14-Mar-08 (No. DAE4-601_Mar08)	Mar-09
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-07)	In house check: Oct-09
RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-07)	In house check: Oct-09
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-07)	In house check: Oct-08

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: July 21, 2008

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# TA Technology (Shanghai) Co., Ltd.

## Test Report

No. RZC2008-1567

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**Calibration Laboratory of  
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Engineering AG**  
Zeughausstrasse 43, 8004 Zurich, Switzerland



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**C** Service suisse d'étalonnage  
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**S** Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)  
The Swiss Accreditation Service is one of the signatories to the EA  
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

### Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM $x,y,z$
N/A	not applicable or not measured

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

- IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
- IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
- Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65
- EN 50361, "Basic standard for the measurement of specific absorption rate related to human exposure to electromagnetic fields from mobile phones (300 MHz - 3 GHz)", July 2001

### Additional Documentation:

- DASY4 System Handbook

### Methods Applied and Interpretation of Parameters:

- Measurement Conditions:** Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL:** The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss:** These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay:** One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- SAR measured:** SAR measured at the stated antenna input power.
- SAR normalized:** SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters:** The measured TSL parameters are used to calculate the nominal SAR result.