



NO.: RZA2009-0119FCC



OET 65

TEST REPORT

Test name	Electromagnetic Field (Specific Absorption Rate)
Product	WCDMA/GPRS/GSM/EDGE Mobile phone with Bluetooth
FCC ID	QISV736
Model	V736/Vodafone 736/U3210
Client	Huawei Technologies Co., Ltd.

TA Technology (Shanghai) Co., Ltd.



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GENERAL SUMMARY

Product	WCDMA/GPRS/GSM/EDGE Mobile Phone with Bluetooth	Model	V736/Vodafone 736/U3210
Client	Huawei Technologies Co., Ltd.	Type of test	Entrusted
Manufacturer	Huawei Technologies Co., Ltd.	Arrival Date of sample	February 16 th , 2009
Place of sampling	(Blank)	Carrier of the samples	Yan Xie
Quantity of the samples	One	Date of product	(Blank)
Base of the samples	(Blank)	Items of test	SAR
Series number	JU2AA10912200273		
Standard(s)	ANSI C95.1-2005: IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz. 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)-2008: 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)		
Conclusion	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. General Judgment: Pass (Stamp) Date of issue: March 6th, 2009		
Comment	The test result only responds to the measured sample.		

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1. COMPETENCE AND WARRANTIES

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3. DESCRIPTION OF EUT

3.1. Addressing Information Related to EUT

Table 1: Applicant (The Client)

Name or Company	Huawei Technologies Co., Ltd.
Address/Post	Bantian, Longgang District
City	Shenzhen
Postal Code	518129
Country	P.R. China
Telephone	0755-28780808
Fax	0755-28780808

Table 2: Manufacturer

Name or Company	Huawei Technologies Co., Ltd.
Address/Post	Bantian, Longgang District
City	Shenzhen
Postal Code	518129
Country	P.R. China
Telephone	0755-28780808
Fax	0755-28780808

3.2. Constituents of EUT

Table 3: Constituents of Samples

Description	Model	Serial Number	Manufacturer
Handset	V736/Vodafone 736 /U3210	JU2AA10912200273	Huawei Techonologies CO.,Ltd
Lithium Battery	HB4A1H	YAC8A08HI3785934	FMT Electronics Co.,Ltd.
AC/DC Adapter	FA-0500700STA	BYA8A1507113	Huawei Technologies Co., Ltd.

The EUT appearances see ANNEX H.

3.3. General Description

Equipment Under Test (EUT) is a model WCDMA/GPRS/GSM/EDGE Mobile Phone with Bluetooth with internal antenna. The detail about Mobile phone, Lithium Battery and AC/DC Adapter is in Table 3. SAR is tested for GSM 1900. The EUT have GPRS (class 10) and EGPRS (class 10) functions.

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):	GSM1900; （tested）	
Modulation:	GMSK,	
GPRS mobile station class :	A	
GPRS multislot class :	10	
EGPRS multislot class:	10	
Maximum no. of timeslots in uplink:	2	
operating frequency range(s)	transmitter frequency range	receiver frequency range
GSM1900: (tested)	1850.2 MHz ~ 1909.8 MHz	1930.2 MHz ~ 1989.8 MHz
Power class	GSM 1900: 1, tested with power level 0	
Test channel (Low –Middle –High)	512 - 661-810 （GSM1900）(tested)	
hardware version:	HD1U320M VER.C	
software version:	V736V100R001C02B708	
antenna type:	integrated antenna	

4. OPERATIONAL CONDITIONS DURING TEST

4.1. Test to be performed

A communication link is set up with a System Simulator (SS) by air link, and a call is established. The Absolute Radio Frequency Channel Number (ARFCN) are allocated to 512, 661 and 810 in the case of GSM 1900, The EUT is commanded to operate at maximum transmitting power.

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 1900, a communication link is set up with a System Simulator (SS) by air link. Using E5515C the power lever is set to "0" in head SAR and body SAR of GSM1900. The test in the band of GSM1900 are performed in the mode of speech transfer function, GPRS function and EGPRS function. Since the GPRS class and EGPRS class are 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.

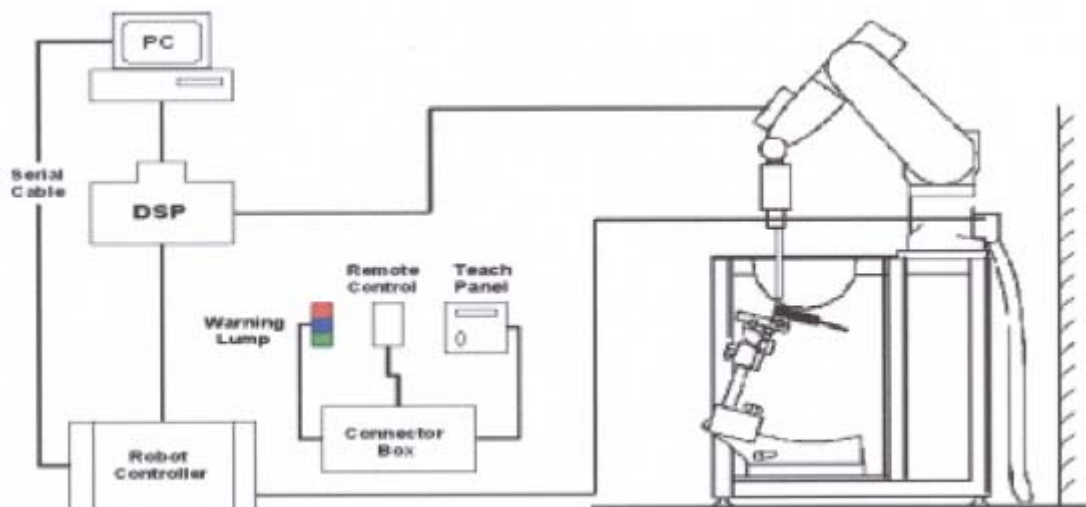


Figure 1. SAR Lab Test Measurement Set-up

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: ± 0.2 dB (30 MHz to 6 GHz)
Directivity	± 0.3 dB in HSL (rotation around probe axis) ± 0.5 dB in tissue material (rotation normal to probe axis)
Dynamic Range	10 μ W/g to > 100 mW/g Linearity: ± 0.2 dB (noise: typically < 1 μ 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.

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

Where: Δt = Exposure time (30 seconds),

C = Heat capacity of tissue (brain or muscle),

ΔT = Temperature increase due to RF exposure.

Or

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

Where:

σ = Simulated tissue conductivity,

ρ = Tissue density (kg/m^3).

5.3. Other Test Equipment

5.3.1. Device Holder for Transmitters

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

It has two scales for device rotation (with respect to the body axis) and device inclination (with respect to the line between the ear reference points). The rotation centers for both scales is the ear reference point (ERP). Thus the device needs no repositioning when changing the angles.

The DASY device holder is constructed of low-loss POM material having the following dielectric

parameters: relative permittivity $\epsilon_r=3$ 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 influence 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 DAS4 installation includes predefined files with recommended procedures for measurements and validation. They are read-only document files and destined as fully defined but unmeasured masks. All test positions (head or body-worn) are tested with the same configuration of test steps differing only in the grid definition for the different test positions.

- The "reference" and "drift" measurements are located at the beginning and end of the batch process. They measure the field drift at one single point in the liquid over the complete procedure. The indicated drift is mainly the variation of the DUT's output power and should vary max. $\pm 5\%$.
- The "surface check" measurement tests the optical surface detection system of the DAS4 system by repeatedly detecting the surface with the optical and mechanical surface detector and comparing the results. The output gives the detecting heights of both systems, the difference between the two systems and the standard deviation of the detection repeatability. Air bubbles or refraction in the liquid due to separation of the sugar-water mixture gives poor repeatability (above $\pm 0.1\text{mm}$). To prevent wrong results tests are only executed when the liquid is free of air bubbles. The difference between the optical surface detection and the actual surface depends on the probe and is specified with each probe. (It does not depend on the surface reflectivity or the probe angle to the surface within $\pm 30^\circ$.)
- Area Scan
The Area Scan is used as a fast scan in two dimensions to find the area of high field values

before running a detailed measurement around the hot spot. Before starting the area scan a grid 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 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/cm²], [dBrel], etc.). Some of these units are not available in certain situations or show meaningless results, e.g., a SAR output in a lossless media will always be zero. Raw data can also be exported to perform the evaluation with other software packages.

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 ₀ , ai ₁ , ai ₂
	- Conversion factor	ConvFi
	- Diode compression point	Dcp _i
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,

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the diode type and the DC-transmission factor from the diode to the evaluation electronics.

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

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

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

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

cf = crest factor of exciting field (DASY parameter)

dcp_i = diode compression point (DASY parameter)

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

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

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

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

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

$ConvF$ = sensitivity enhancement in solution

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

f = carrier frequency [GHz]

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

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

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

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

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

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

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

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

σ = conductivity in [mho/m] or [Siemens/m]

ρ = equivalent tissue density in g/cm³

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/cm²

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

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

5.6. System check

The manufacturer calibrates the probes annually. Dielectric parameters of the tissue simulants were measured every day using the dielectric probe kit and the network analyser. A system check measurement was made following the determination of the dielectric parameters of the simulant, using the dipole validation kit. A power level of 250 mW was supplied to the dipole antenna, which was placed under the flat section of the twin SAM phantom. The system check results (dielectric parameters and SAR values) are given in the table 11.

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

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

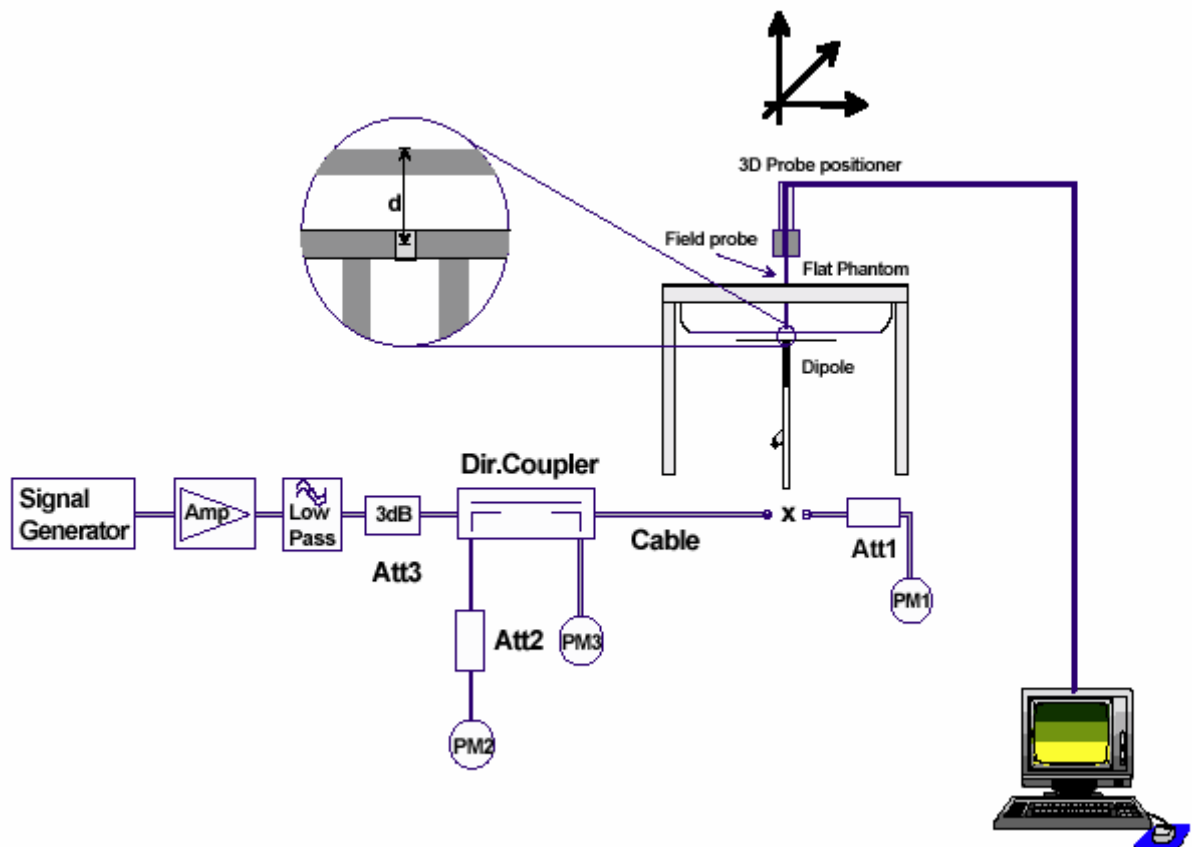


Figure 6. System Check Set-up

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5.7. Equivalent Tissues

The liquid is consisted of water, salt, and Glycol. 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) 1900MHz
Water	55.242
Glycol	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)1900MHz
Water	69.91
Glycol	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 Ω
Ambient noise is checked and found very low and in compliance with requirement of standards. Reflection of surrounding objects is minimized and in compliance with requirement of standards.	

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)-2008: 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.

8.1.1. Measurement result

Table 8: Conducted Power Measurement Results

GSM 1900	Conducted Power		
	Channel 512	Channel 661	Channel 810
	1850.2MHz	1880MHz	1909.8MHz
Before Test (dBm)	29.62	29.66	29.43
After Test (dBm)	29.60	29.63	29.56
GSM 1900+GPRS	Conducted Power		
	Channel 512	Channel 661	Channel 810
	1850.2MHz	1880MHz	1909.8MHz
Before Test (dBm)	29.44	29.70	29.58
After Test (dBm)	29.53	29.65	29.10
GSM 1900+EGPRS	Conducted Power		
	Channel 512	Channel 661	Channel 810
	1850.2MHz	1880MHz	1909.8MHz
Before Test (dBm)	25.22	25.18	25.19
After Test (dBm)	25.10	25.12	25.05

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9. TEST RESULTS

9.1. Dielectric Performance

Table 9: Dielectric Performance of Head Tissue Simulating Liquid

Frequency	Description	Dielectric Parameters		Temp ℃
		ϵ_r	$\sigma(\text{s/m})$	
1900MHz (body)	Target value ±5% window	40.00 38.00 — 42.00	1.40 1.33 — 1.47	/
	Measurement value 2009-03-04	38.83	1.40	21.80

Table 10: Dielectric Performance of Body Tissue Simulating Liquid

Frequency	Description	Dielectric Parameters		Temp ℃
		ϵ_r	$\sigma(\text{s/m})$	
1900MHz (body)	Target value ±5% window	53.30 50.64 — 55.97	1.52 1.44 — 1.60	/
	Measurement value 2009-03-04	53.17	1.53	21.80

9.2. System Validation Results

Table 11: System Validation

Frequency	Description	SAR(W/kg)		Dielectric Parameters		Temp ℃
		10g	1g	ϵ_r	$\sigma(\text{s/m})$	
1900 MHz	Recommended result ±10% window	5.06 4.55—5.57	9.84 8.86 — 10.82	38.80	1.47	/
	Measurement value 2009-03-04	5.09	9.74	38.83	1.40	21.7

Note: 1. The graph results see ANNEX B.

2. Target Values used derive from the calibration certificate and 250 mW is used as feeding power to the Calibrated dipole.

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9.3. Summary of Measurement Results

Table 12: SAR Values (GSM 1900, open)

Liquid Temperature: 22.5°C					
Limit of SAR (W/kg)		10 g Average	1 g Average	Power	Graph Results
		2.0	1.6	± 0.21	
Different Test Position	Channel	Measurement Result(W/kg)		Power	
		10 g Average	1 g Average	Drift(dB)	
Test position of Head					
Left hand, Touch cheek	High	0.174(max.cube)	0.266(max.cube)	0.005	Figure 9
	Middle	0.191(max.cube)	0.287(max.cube)	-0.051	Figure 11
	Low	0.181(max.cube)	0.272(max.cube)	-0.154	Figure 13
Left hand, Tilt 15 Degree	High	0.173	0.284	-0.051	Figure 15
	Middle	0.176	0.286	-0.137	Figure 17
	Low	0.170	0.276	0.008	Figure 19
Right hand, Touch cheek	High	0.251	0.407	0.075	Figure 21
	Middle	0.275	0.442	0.119	Figure 23
	Low	0.266	0.427	0.186	Figure 25
Right hand, Tilt 15 Degree	High	0.156	0.247	0.036	Figure 27
	Middle	0.159	0.249	-0.039	Figure 29
	Low	0.154	0.240	0.097	Figure 31
Test position of Body in speech transfer mode (Distance 15mm)					
Towards Ground	High	0.187	0.294	-0.001	Figure 33
	Middle	0.191	0.296	-0.050	Figure 35
	Low	0.185	0.284	0.013	Figure 37
Towards Phantom	High	0.208	0.325	0.011	Figure 39
	Middle	0.220	0.342	-0.049	Figure 41
	Low	0.205	0.316	-0.175	Figure 43
Worst case of Body with earphone (Distance 15mm)					
Towards Phantom	Middle	0.135(max.cube)	0.208(max.cube)	0.014	Figure 45
Test position of Body with GPRS(Distance 15mm)					
Towards Ground	High	0.335	0.546	0.056	Figure 47
	Middle	0.352	0.576	0.072	Figure 49
	Low	0.340	0.546	0.142	Figure 51
Towards Phantom	High	0.224(max.cube)	0.359(max.cube)	-0.023	Figure 53
	Middle	0.244(max.cube)	0.388(max.cube)	0.034	Figure 55
	Low	0.244(max.cube)	0.388(max.cube)	0.035	Figure 57
Worst case of GPRS with EGPRS (Distance 15mm)					
Towards Ground	Middle	0.166	0.257	-0.088	Figure 59

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

- 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.
- The (max.cube) labeling indicates that during the grid scanning an additional peak was found which was within 2.0dB of the highest peak. The value of the highest cube is given in the table above; the value from the second assessed cube is given in the SAR distribution plots (See ANNEX B).

Table 13: SAR Values (GSM 1900, close)

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Liquid Temperature: 22.5℃					
Limit of SAR (W/kg)		10 g Average	1 g Average	Power	Graph Results
		2.0	1.6	± 0.21	
Different Test Position	Channel	Measurement Result(W/kg)		Power	
		10 g Average	1 g Average	Drift(dB)	
Test position of Head					
Left hand, Touch cheek	High	0.168	0.286	-0.086	Figure 61
	Middle	0.199	0.336	-0.171	Figure 63
	Low	0.183	0.308	-0.164	Figure 65
Left hand, Tilt 15 Degree	High	0.113	0.182	-0.059	Figure 67
	Middle	0.129	0.207	-0.136	Figure 69
	Low	0.121	0.193	-0.037	Figure 71
Right hand, Touch cheek	High	0.172	0.274	-0.018	Figure 73
	Middle	0.208	0.326	-0.133	Figure 75
	Low	0.196	0.304	-0.011	Figure 77
Right hand, Tilt 15 Degree	High	0.109	0.175	-0.069	Figure 79
	Middle	0.120	0.191	-0.126	Figure 81
	Low	0.109	0.173	-0.068	Figure 83
Test position of Body in speech transfer mode (Distance 15mm)					
Towards Ground	High	0.107(max.cube)	0.187(max.cube)	-0.038	Figure 85
	Middle	0.122(max.cube)	0.214(max.cube)	0.026	Figure 87
	Low	0.115(max.cube)	0.201(max.cube)	-0.052	Figure 89
Towards Phantom	High	0.055	0.083	-0.117	Figure 91
	Middle	0.059	0.089	-0.106	Figure 93
	Low	0.055	0.081	-0.080	Figure 95
Worst case of Body with earphone (Distance 15mm)					
Towards Ground	Middle	0.115(max.cube)	0.204(max.cube)	-0.067	Figure 97
Test position of Body with GPRS(Distance 15mm)					
Towards Ground	High	0.227	0.417	0.037	Figure 99
	Middle	0.265	0.489	0.000	Figure 101
	Low	0.246	0.459	-0.004	Figure 103
Towards Phantom	High	0.104(max.cube)	0.155(max.cube)	-0.020	Figure 105
	Middle	0.115(max.cube)	0.171(max.cube)	-0.134	Figure 107
	Low	0.101(max.cube)	0.149(max.cube)	-0.095	Figure 109
Worst case of GPRS with EGPRS (Distance 15mm)					
Towards Ground	Middle	0.117(max.cube)	0.204(max.cube)	-0.131	Figure 111

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. The (max.cube) labeling indicates that during the grid scanning an additional peak was found which was within 2.0dB of the highest peak. The value of the highest cube is given in the table above; the value from the second assessed cube is given in the SAR distribution plots (See ANNEX B).

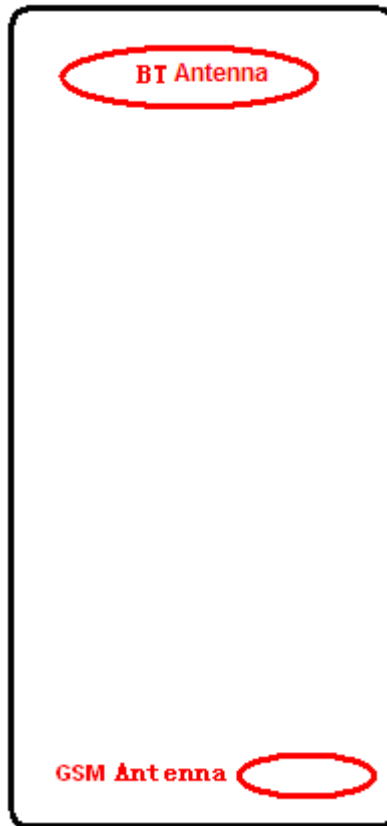
9.3.1. Bluetooth function

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The distance between BT antenna and GSM antenna is >5cm. The location of the antennas inside mobile phone is shown below:



The output power of BT antenna is as following:

Channel	Ch 0 2402 MHz	Ch 39 2441 Mhz	Ch 78 2480 MHz
Peak Conducted Output Power(dBm)	3.22	3.42	3.25

According to the output power measurement result and the distance between the two antennas, we can draw the conclusion that: stand-alone SAR and simultaneous transmission SAR are not required for BT transmitter, because the output power of BT transmitter is $\leq 2P_{Ref}$ and its antenna is ≥ 5 cm from other antenna.

10. 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 is 0.442W/kg (head) and 0.576 W/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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11. MEASUREMENT UNCERTAINTY

No.	a	Type	c	d	e=f(d, k)	f	h=c×f / e	k
	Uncertainty Component		Tol. (±%)	Prob. Dist	Div.	c ₁ (1g)	1g u (± %)	v ₁
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-cp) _{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				RSS			11.25	
Expanded Uncertainty (95 % CONFIDENCE INTERVAL)				K=2			22.5	

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12. MAIN TEST INSTRUMENTS

Table 14: 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	DAE4	452	November 18, 2008	One year
10	Validation Kit 1900MHz	D1900V2	5d060	July 22, 2008	One year

13. TEST PERIOD

The test is performed from March 4, 2009 to March 5, 2009.

14. TEST LOCATION

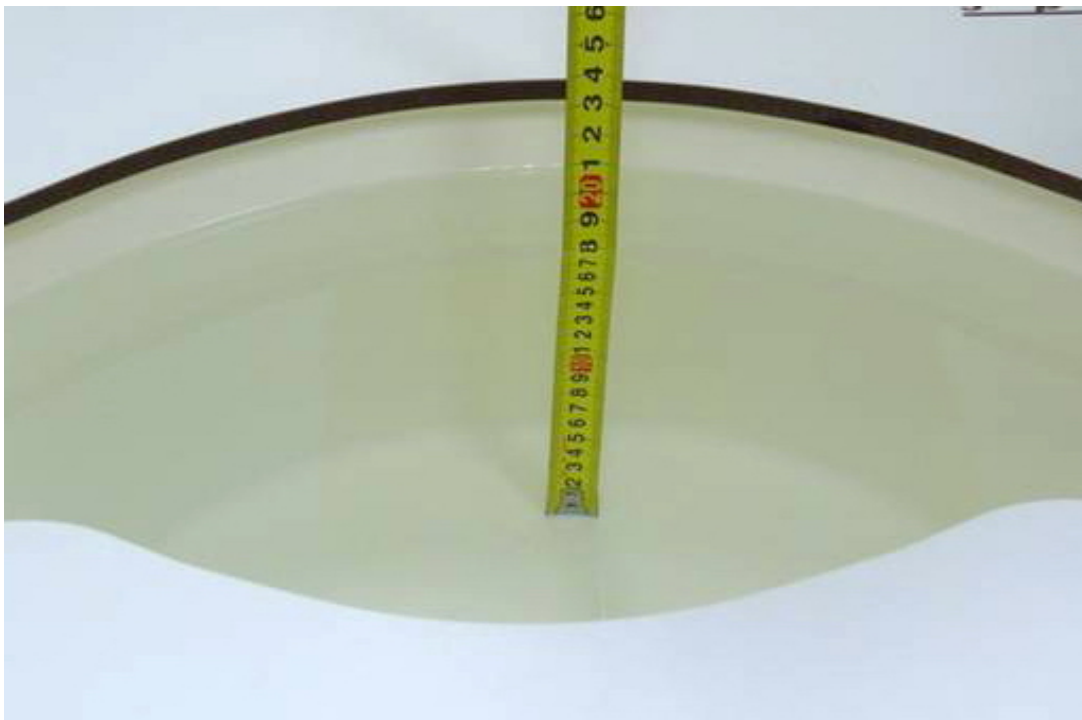
The test is performed at TA Technology (Shanghai) Co., Ltd.

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

ANNEX A: TEST LAYOUT



Picture 1: Specific Absorption Rate Test Layout



Picture 2: Liquid depth in the flat Phantom (1900 MHz)



Picture 3: liquid depth in the head Phantom (1900 MHz)

ANNEX B: SYSTEM CHECK RESULTS

Date/Time: 3/4/2009 07:01:36 AM

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; $\sigma = 1.40$ mho/m; $\epsilon_r = 38.83$; $\rho = 1000$ kg/m³

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

Electronics: DAE4 Sn452;

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

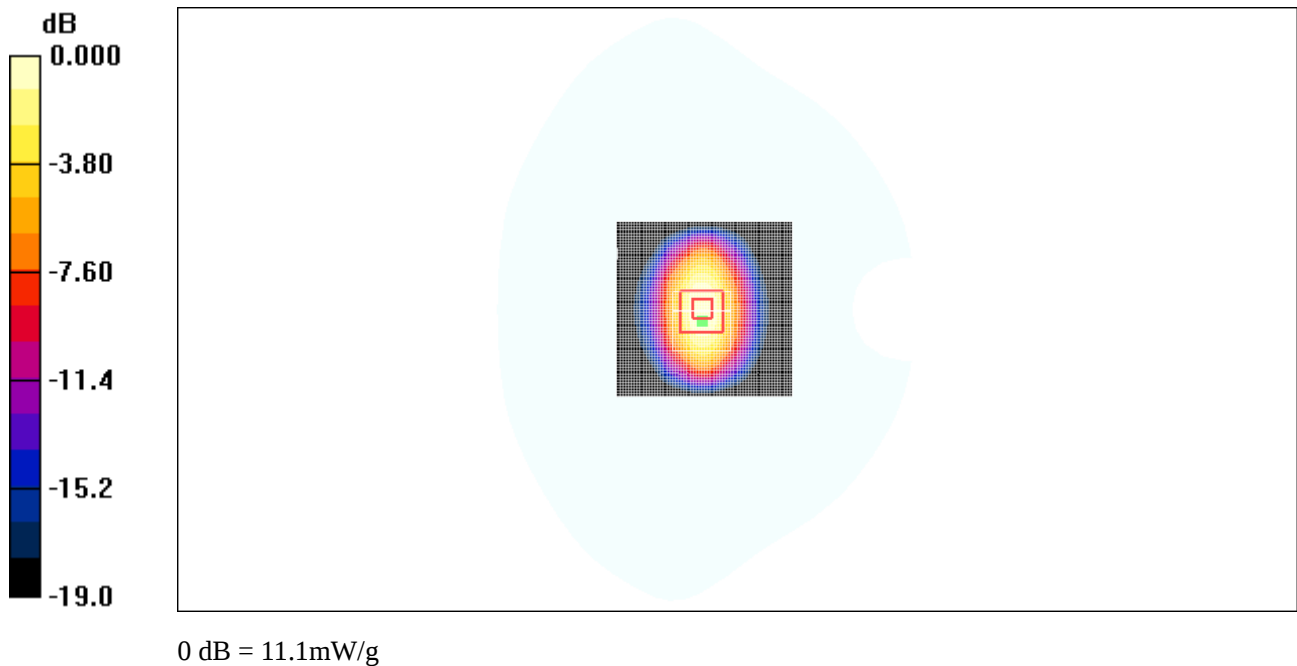


Figure 7 System Performance Check 1900MHz 250mW

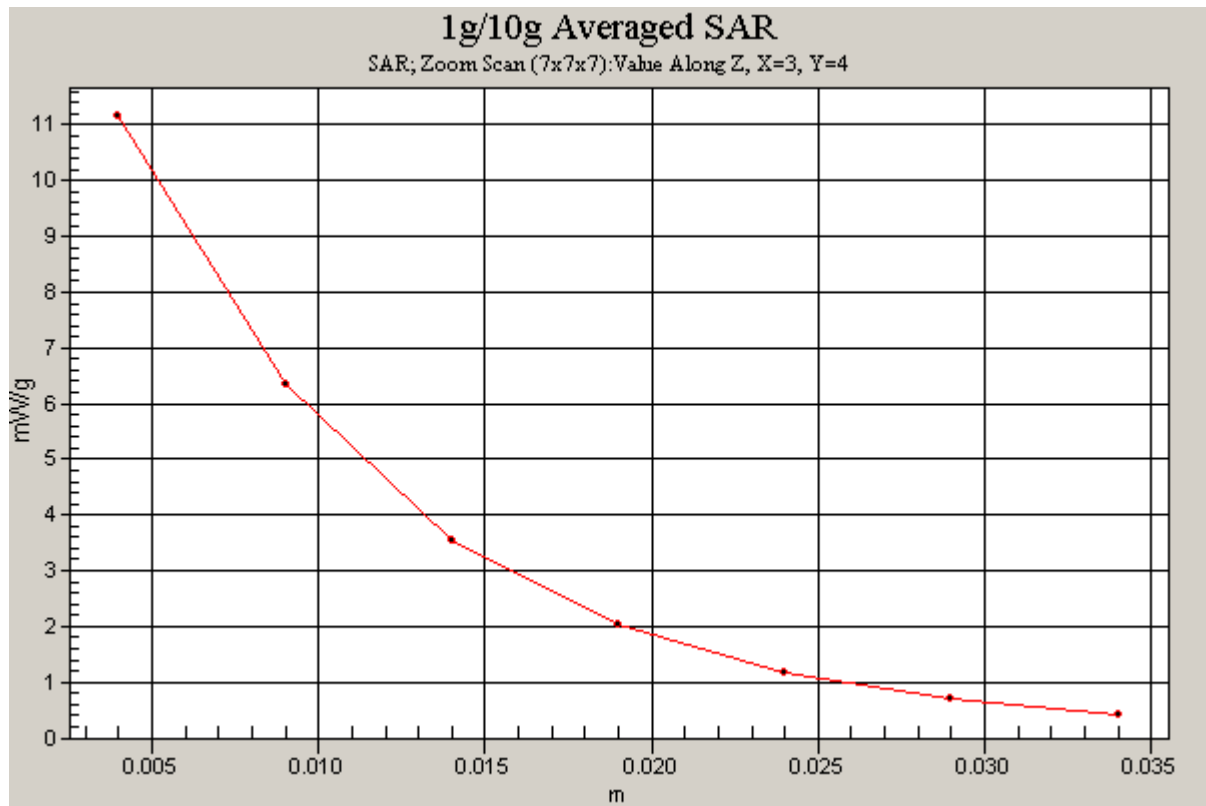


Figure 8 Z-Scan at power reference point (system check at 1900 MHz dipole)

ANNEX C: GRAPH RESULTS

Date/Time: 3/4/2009 7:58:35 AM

GSM 1900 Left Cheek High Open

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

Medium parameters used: $f = 1910$ MHz; $\sigma = 1.4$ mho/m; $\epsilon_r = 38.8$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(7.35, 7.35, 7.35); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM000 T01 ; Type: SAM V4.0; Serial: TP-1246
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

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

Maximum value of SAR (interpolated) = 0.318 mW/g

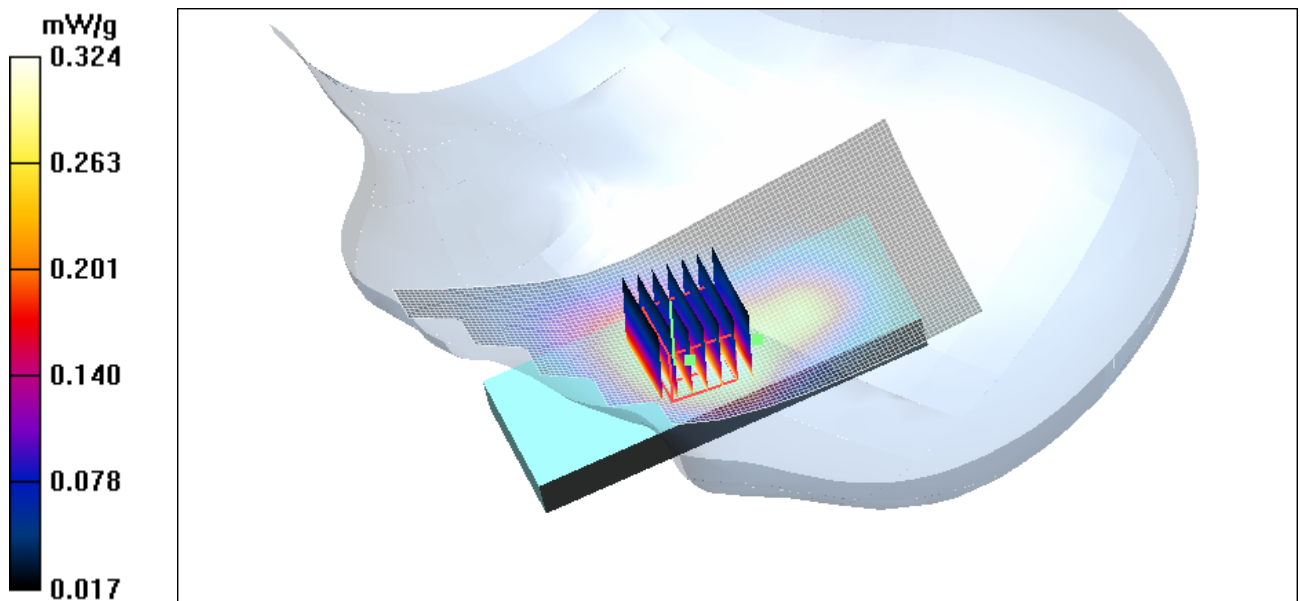
Cheek High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.48 V/m; Power Drift = 0.005 dB

Peak SAR (extrapolated) = 0.403 W/kg

SAR(1 g) = 0.266 mW/g; SAR(10 g) = 0.174 mW/g

Maximum value of SAR (measured) = 0.324 mW/g



Communication System: GSM 1900; Frequency: 1909.8 MHz; Duty Cycle: 1:8.3
Medium parameters used: $f = 1910$ MHz; $\sigma = 1.4$ mho/m; $\epsilon_r = 38.8$; $\rho = 1000$ kg/m³
Phantom section: Left Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(7.35, 7.35, 7.35); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM000 T01 ; Type: SAM V4.0; Serial: TP-1246
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Cheek High/Area Scan (51x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.318 mW/g

Cheek High/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.48 V/m; Power Drift = 0.005 dB
Peak SAR (extrapolated) = 0.374 W/kg
SAR(1 g) = 0.240 mW/g; SAR(10 g) = 0.155 mW/g
Maximum value of SAR (measured) = 0.300 mW/g

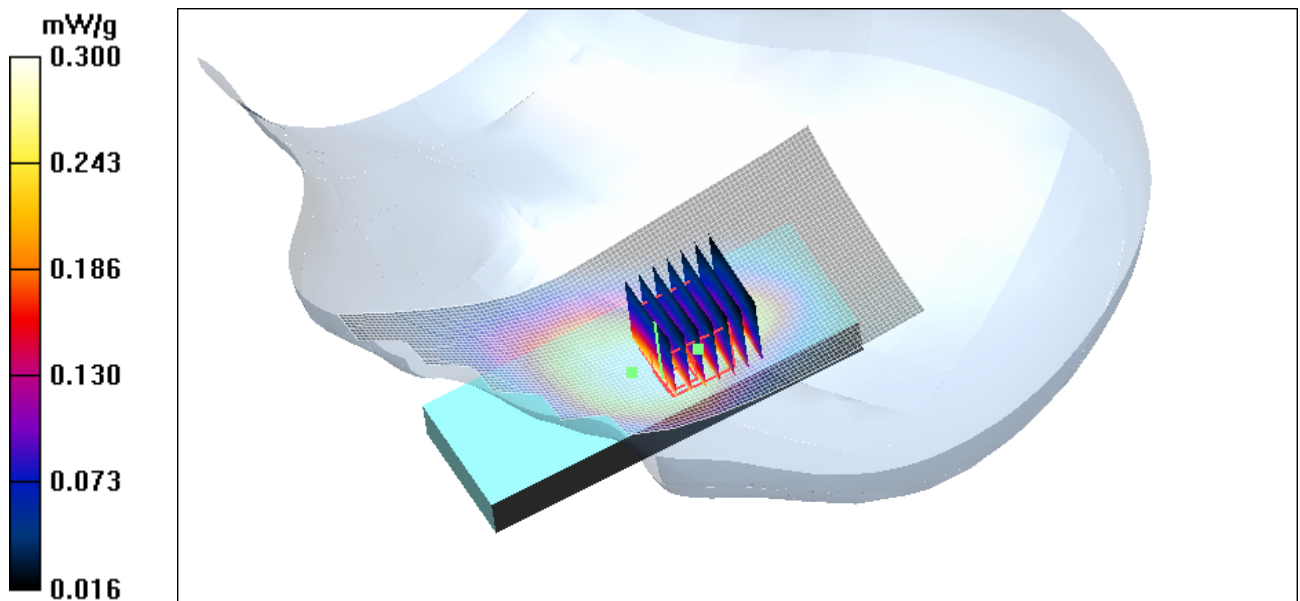


Figure 9 Left Hand Touch Cheek Open GSM 1900 Channel 810

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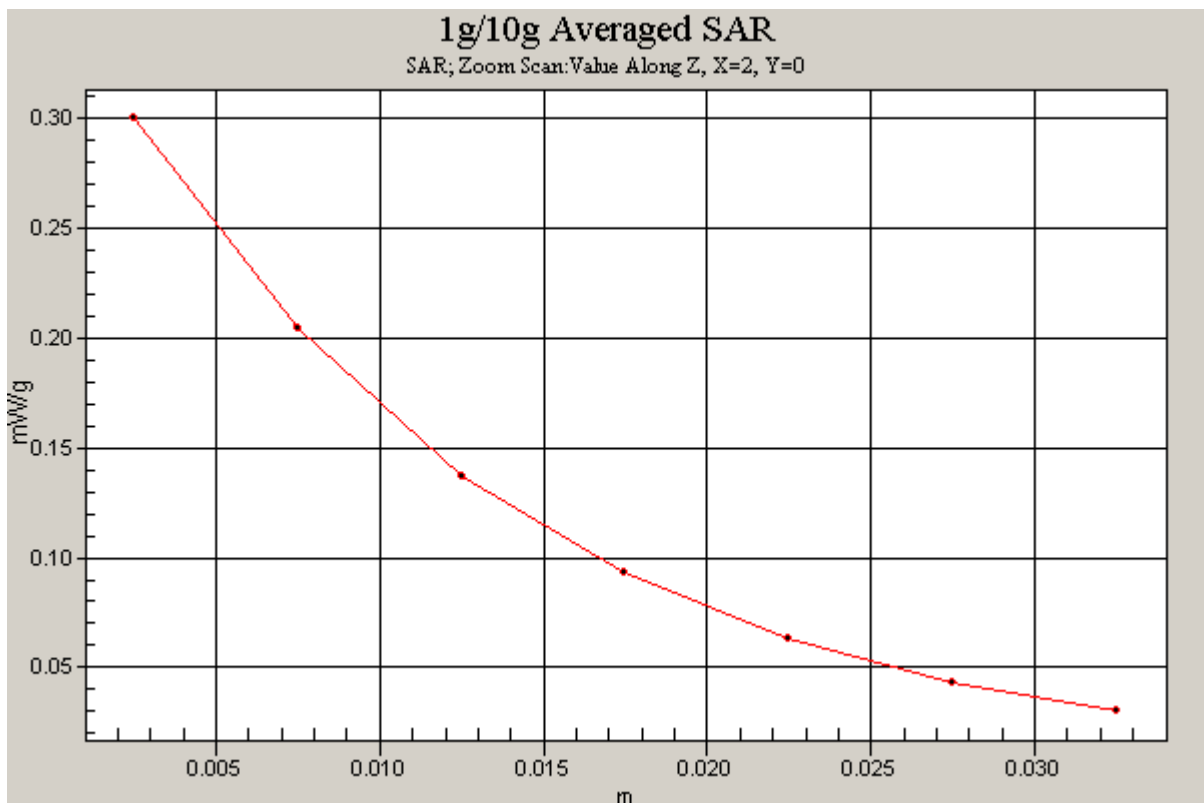
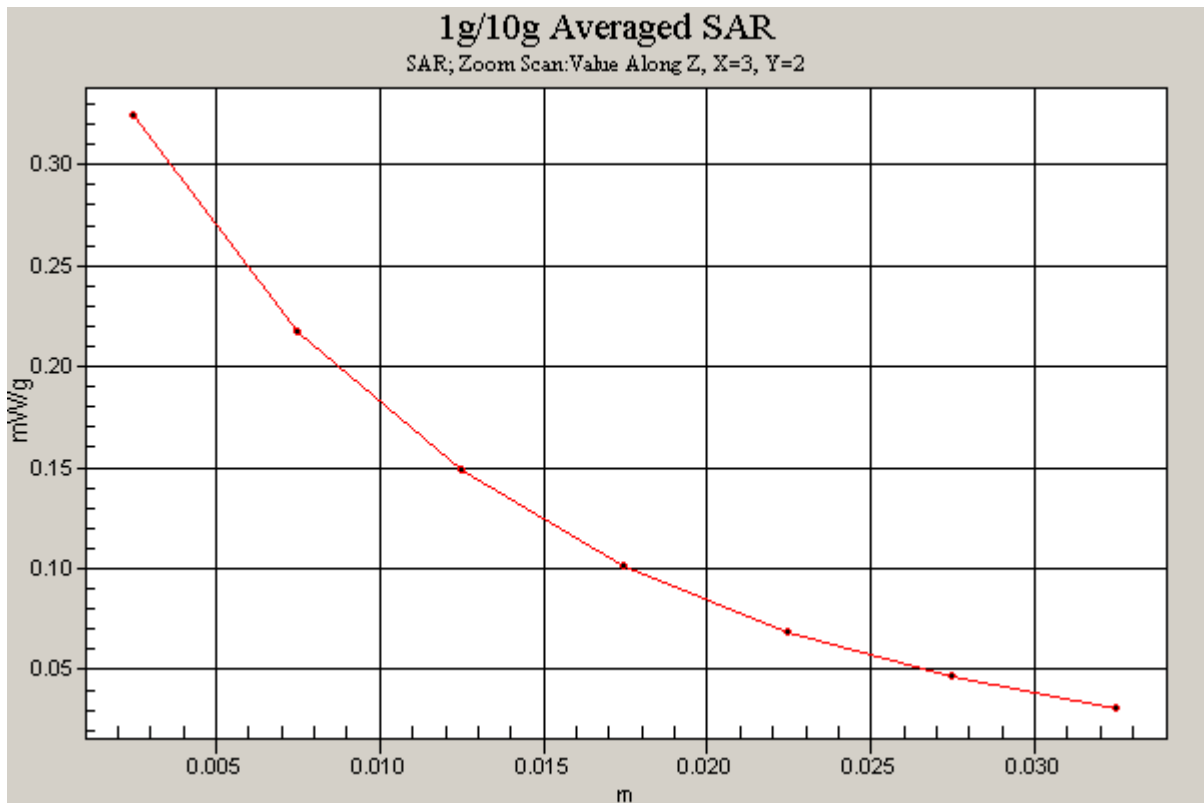


Figure 10 Z-Scan at power reference point (Left Hand Touch Cheek Open GSM 1900 Channel 810)

Date/Time: 3/4/2009 8:35:07 AM

GSM 1900 Left Cheek Middle Open

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

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.39$ mho/m; $\epsilon_r = 38.8$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(7.35, 7.35, 7.35); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM000 T01 ; Type: SAM V4.0; Serial: TP-1246
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

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

Maximum value of SAR (interpolated) = 0.347 mW/g

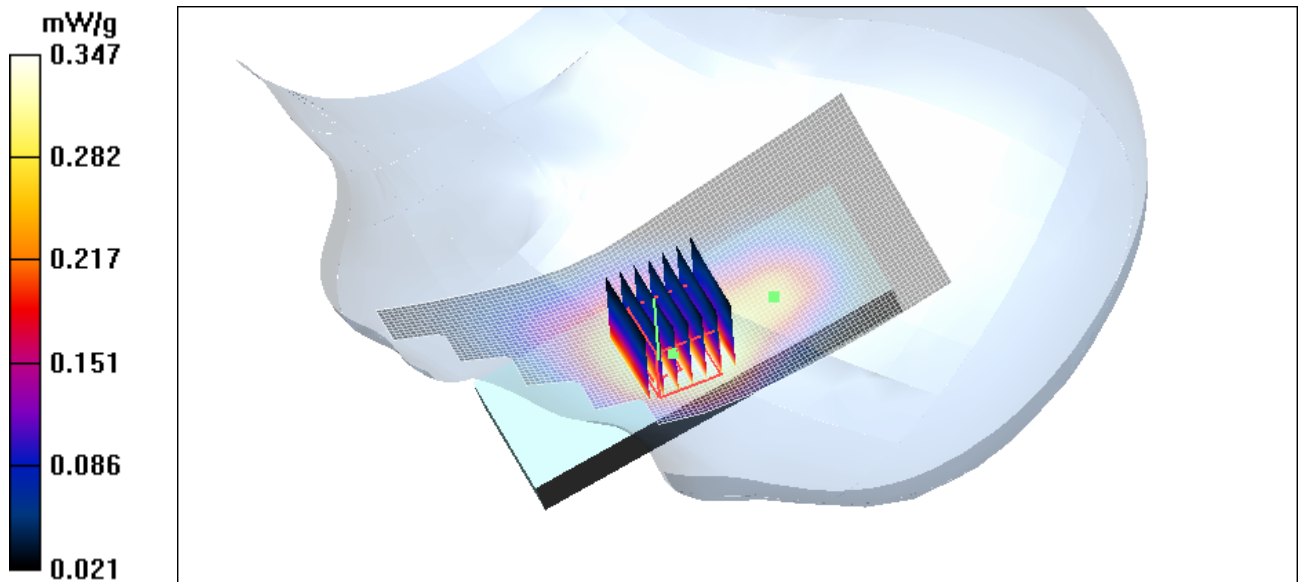
Cheek Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.70 V/m; Power Drift = -0.051 dB

Peak SAR (extrapolated) = 0.430 W/kg

SAR(1 g) = 0.287 mW/g; SAR(10 g) = 0.191 mW/g

Maximum value of SAR (measured) = 0.347 mW/g



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

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.39$ mho/m; $\epsilon_r = 38.8$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(7.35, 7.35, 7.35); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM000 T01 ; Type: SAM V4.0; Serial: TP-1246
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

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

Maximum value of SAR (interpolated) = 0.347 mW/g

Cheek Middle/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.70 V/m; Power Drift = -0.051 dB

Peak SAR (extrapolated) = 0.322 W/kg

SAR(1 g) = 0.227 mW/g; SAR(10 g) = 0.146 mW/g

Maximum value of SAR (measured) = 0.271 mW/g

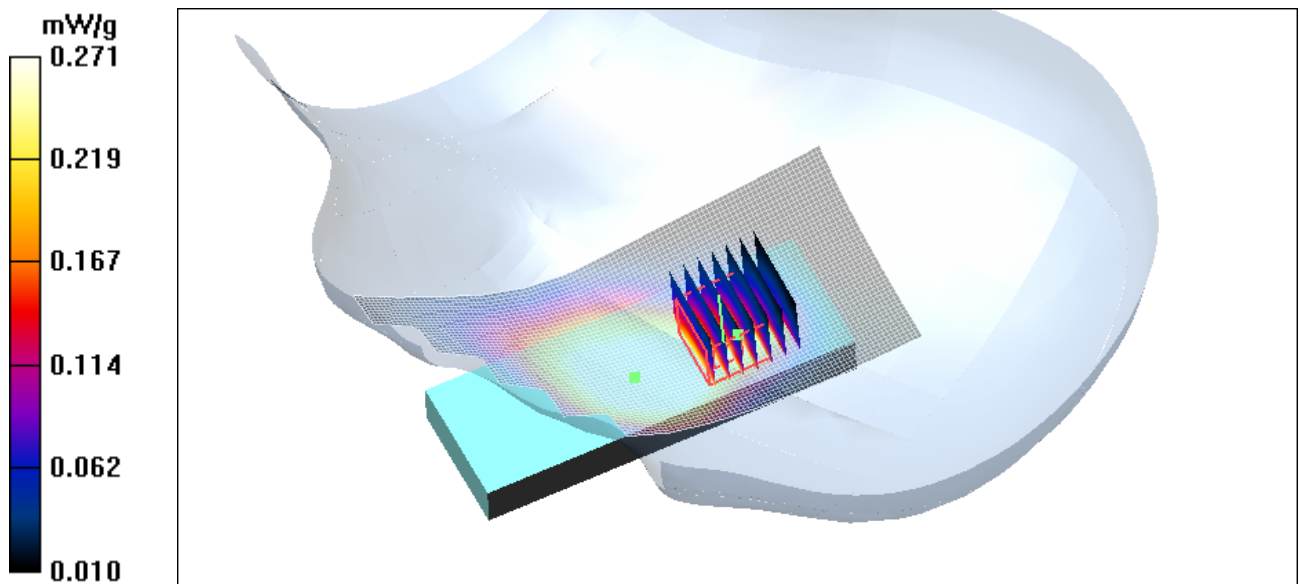


Figure 11 Left Hand Touch Cheek Open GSM 1900 Channel 661

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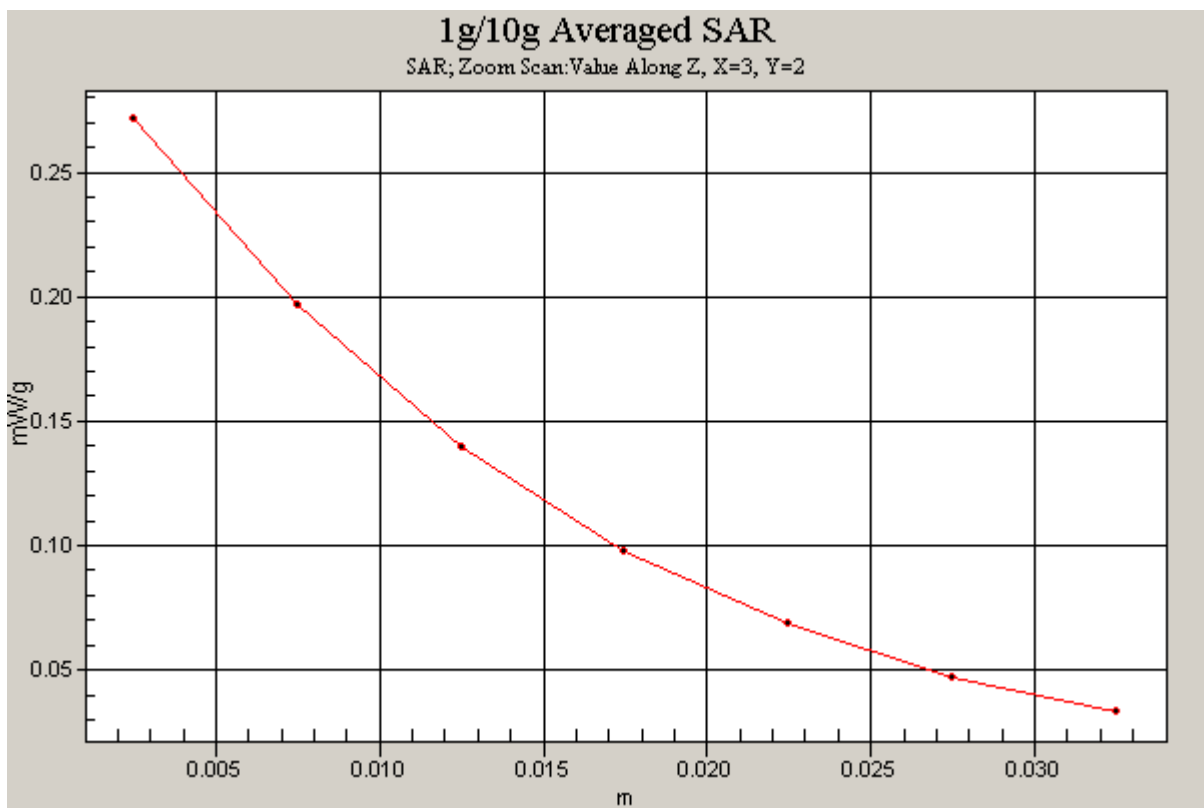
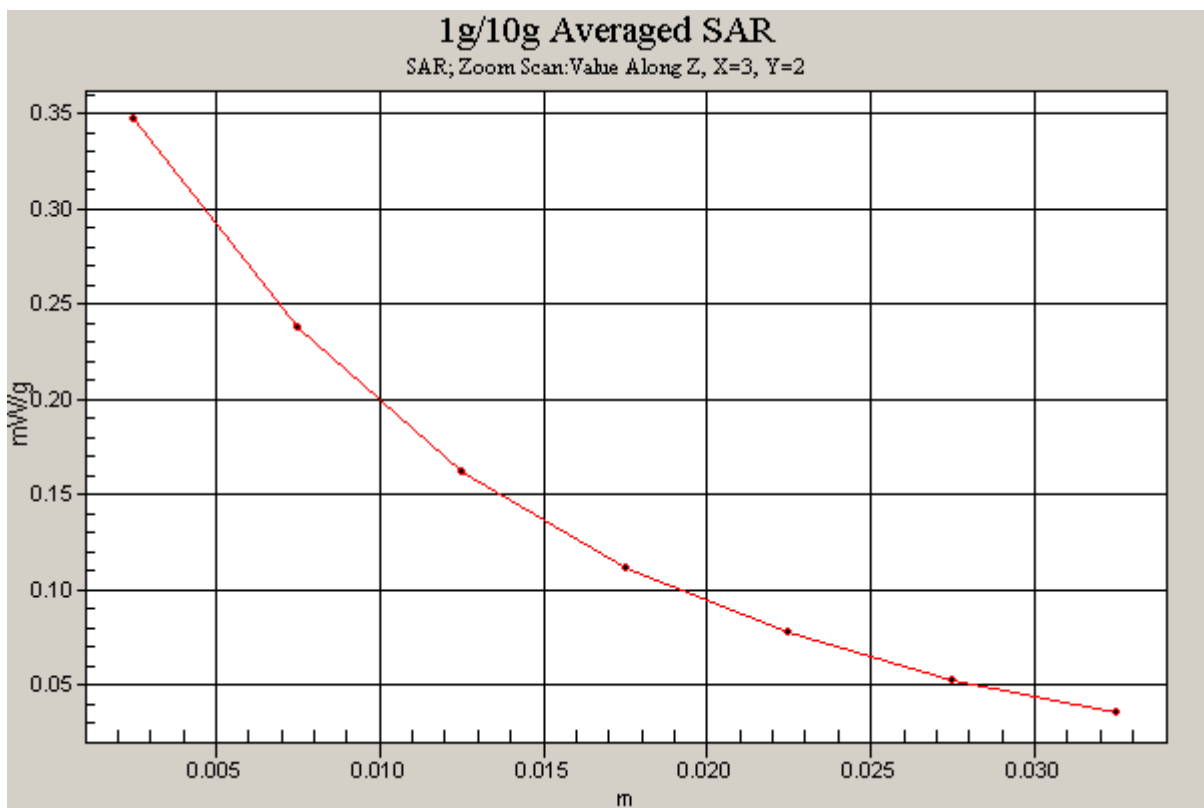


Figure 12 Z-Scan at power reference point (Left Hand Touch Cheek Open GSM 1900 Channel 661)

Date/Time: 3/4/2009 9:05:57 AM

GSM 1900 Left Cheek Low Open

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

Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.34$ mho/m; $\epsilon_r = 38.7$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(7.35, 7.35, 7.35); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM000 T01 ; Type: SAM V4.0; Serial: TP-1246
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

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

Maximum value of SAR (interpolated) = 0.327 mW/g

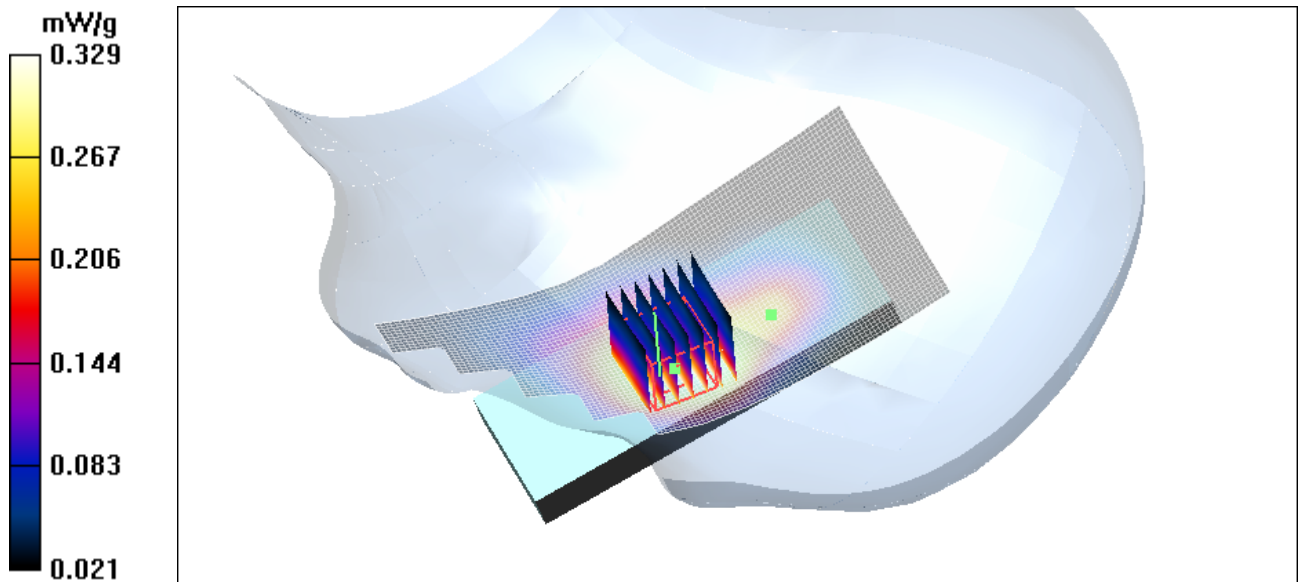
Cheek Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.34 V/m; Power Drift = -0.154 dB

Peak SAR (extrapolated) = 0.406 W/kg

SAR(1 g) = 0.272 mW/g; SAR(10 g) = 0.181 mW/g

Maximum value of SAR (measured) = 0.329 mW/g



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

Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.34$ mho/m; $\epsilon_r = 38.7$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(7.35, 7.35, 7.35); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM000 T01 ; Type: SAM V4.0; Serial: TP-1246
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

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

Maximum value of SAR (interpolated) = 0.327 mW/g

Cheek Low/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.34 V/m; Power Drift = -0.154 dB

Peak SAR (extrapolated) = 0.288 W/kg

SAR(1 g) = 0.202 mW/g; SAR(10 g) = 0.134 mW/g

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

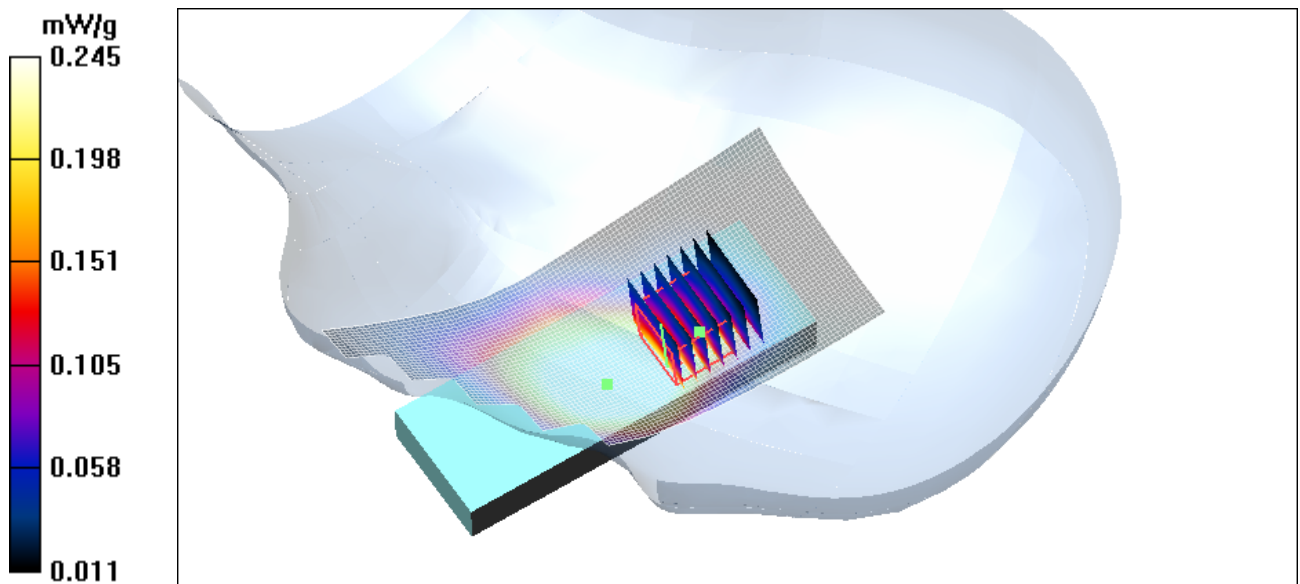


Figure 13 Left Hand Touch Cheek Open GSM 1900 Channel 512

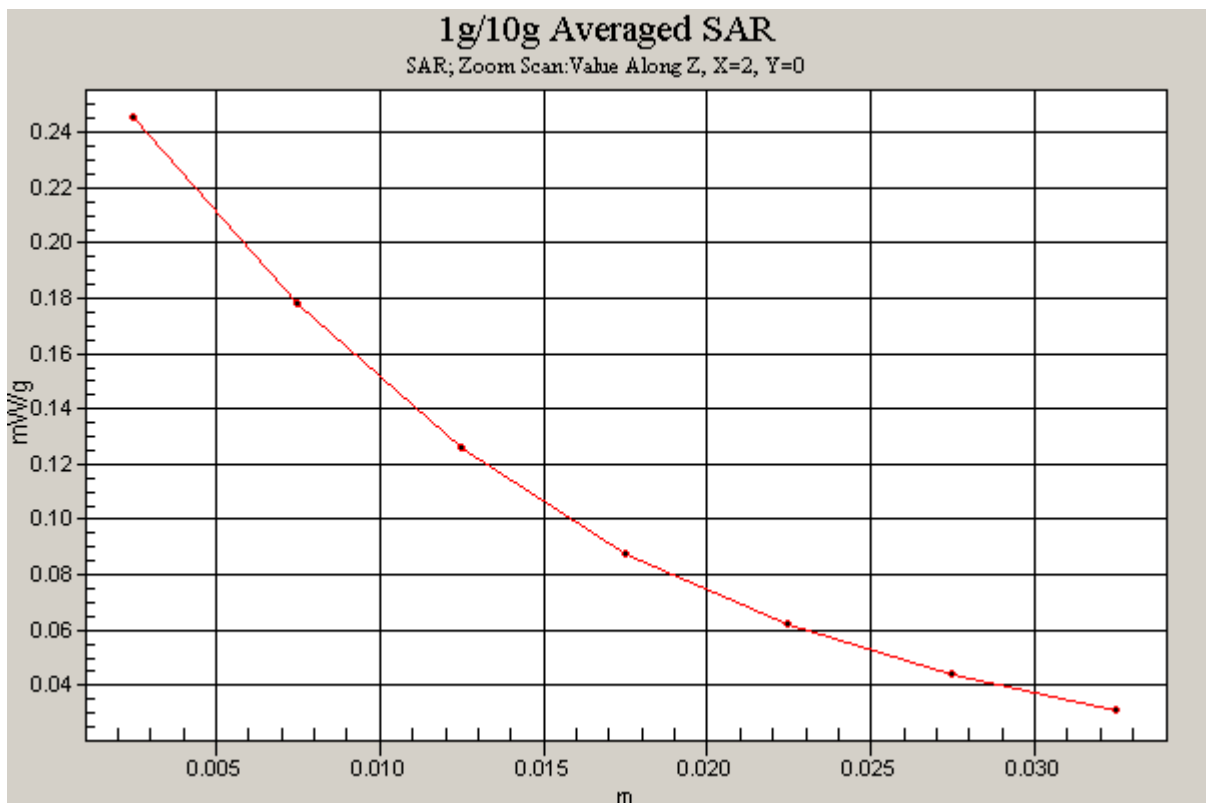
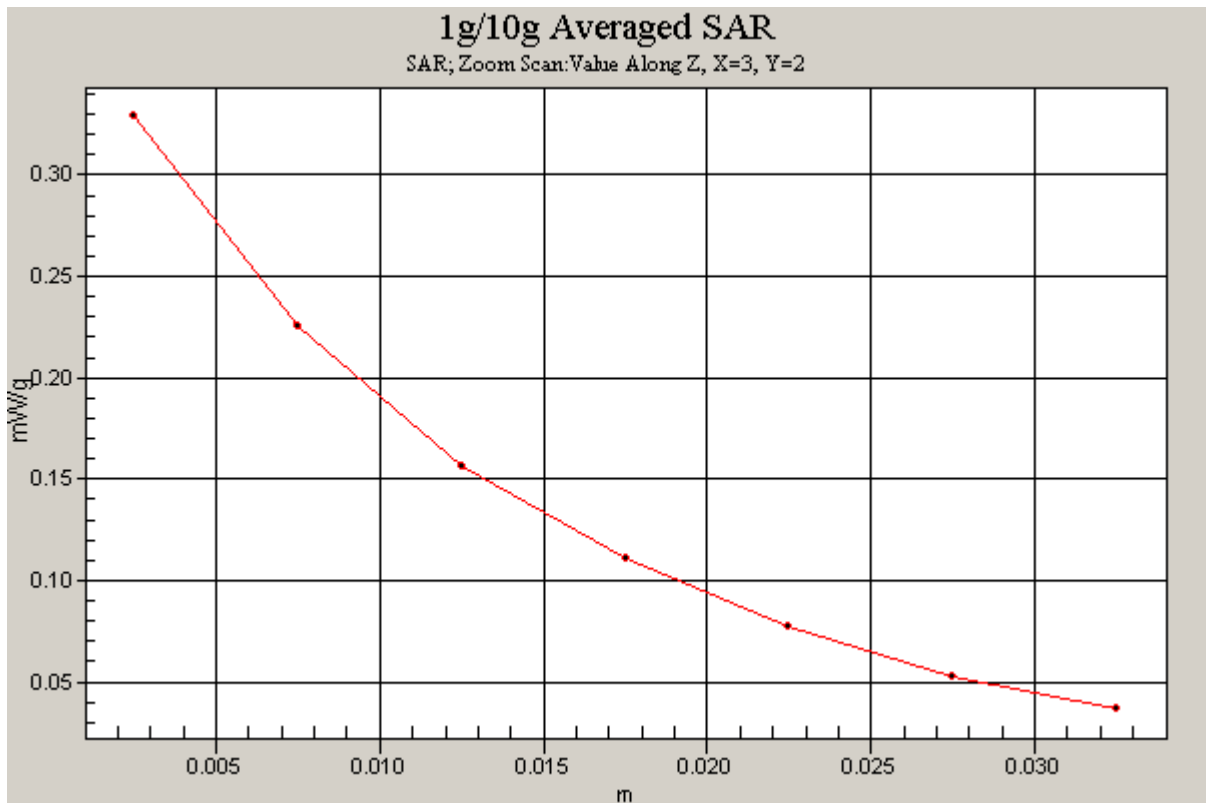


Figure 14 Z-Scan at power reference point (Left Hand Touch Cheek Open GSM 1900 Channel 512)

Date/Time: 3/4/2009 9:41:33 AM

GSM 1900 Left Tilt High Open

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

Medium parameters used: $f = 1910$ MHz; $\sigma = 1.4$ mho/m; $\epsilon_r = 38.8$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(7.35, 7.35, 7.35); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM000 T01 ; Type: SAM V4.0; Serial: TP-1246
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

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

Maximum value of SAR (interpolated) = 0.382 mW/g

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

Reference Value = 9.92 V/m; Power Drift = -0.051 dB

Peak SAR (extrapolated) = 0.433 W/kg

SAR(1 g) = 0.284 mW/g; SAR(10 g) = 0.173 mW/g

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

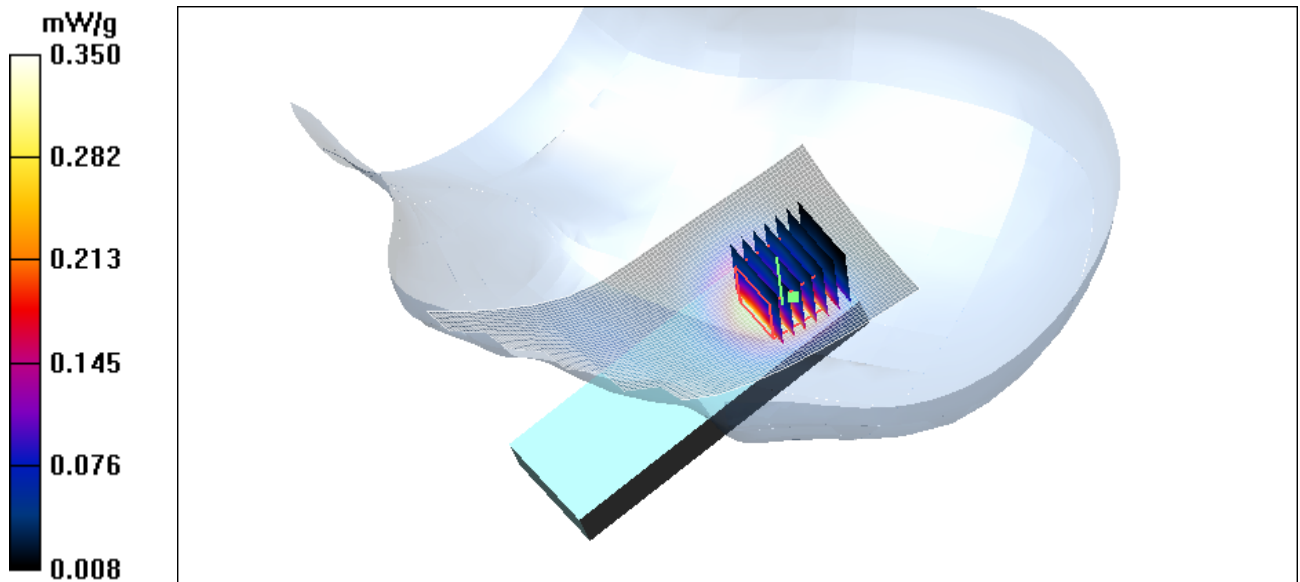


Figure 15 Left Hand Tilt 15°Open GSM 1900 Channel 810

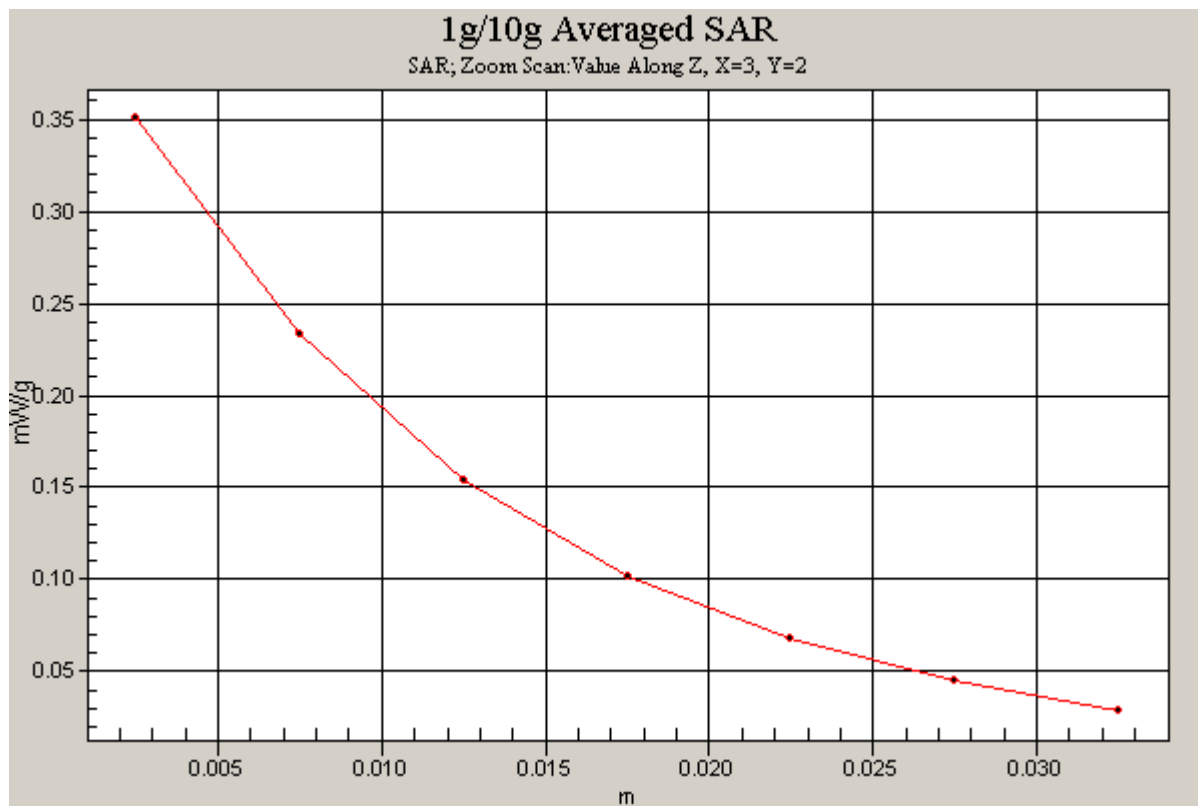


Figure 16 Z-Scan at power reference point (Left Hand Tilt 15° Open GSM 1900 Channel 810)

Date/Time: 3/4/2009 10:00:21 AM

GSM 1900 Left Tilt Middle Open

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

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.39$ mho/m; $\epsilon_r = 38.8$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(7.35, 7.35, 7.35); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM000 T01 ; Type: SAM V4.0; Serial: TP-1246
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

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

Maximum value of SAR (interpolated) = 0.407 mW/g

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

Reference Value = 10.2 V/m; Power Drift = -0.137 dB

Peak SAR (extrapolated) = 0.433 W/kg

SAR(1 g) = 0.286 mW/g; SAR(10 g) = 0.176 mW/g

Maximum value of SAR (measured) = 0.351 mW/g

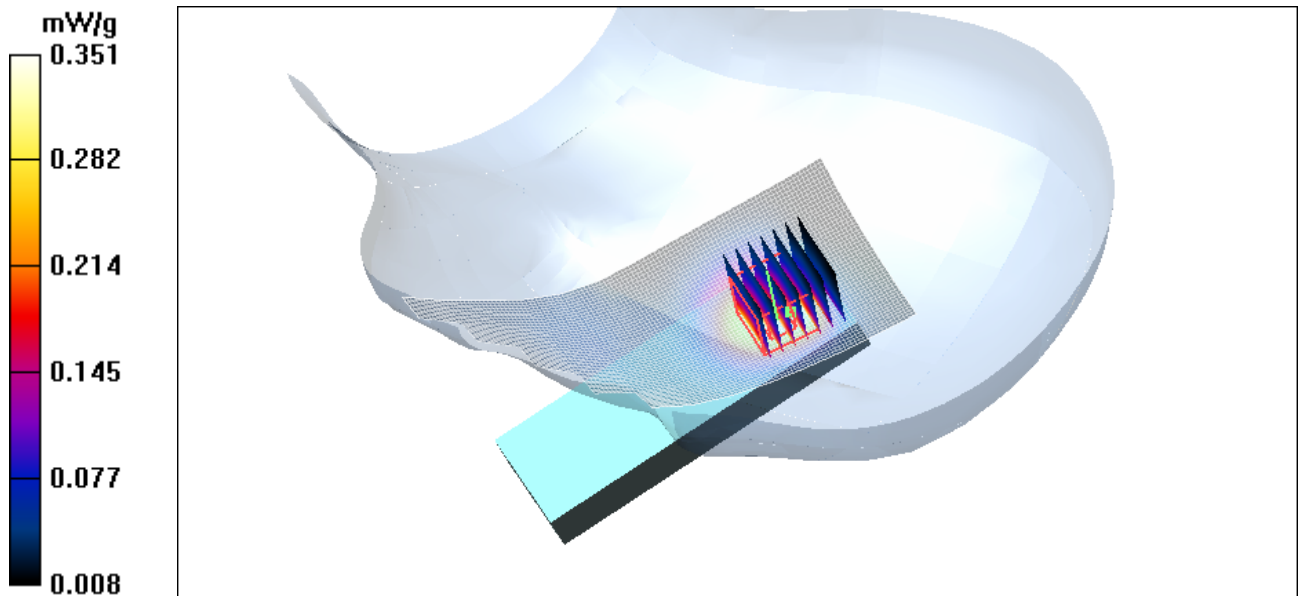


Figure 17 Left Hand Tilt 15°Open GSM 1900 Channel 661

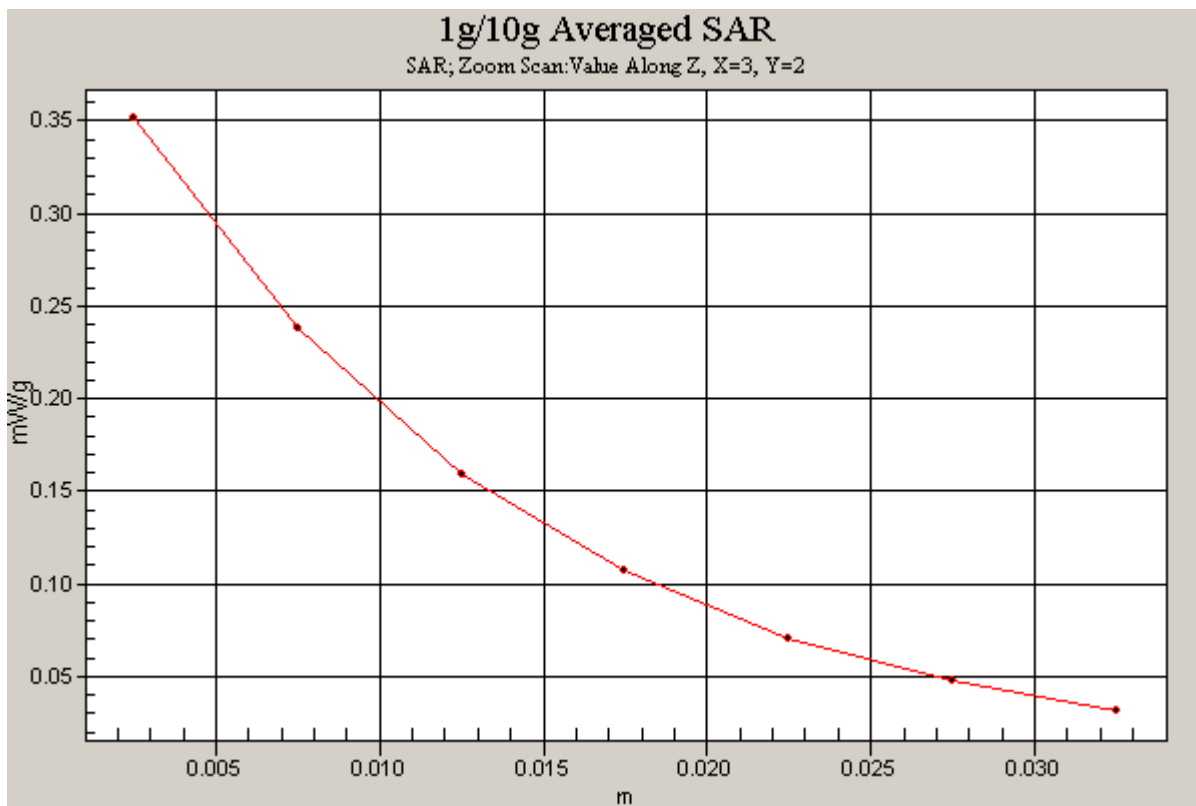


Figure 18 Z-Scan at power reference point (Left Hand Tilt 15° Open GSM 1900 Channel 661)

Date/Time: 3/4/2009 10:19:13 AM

GSM 1900 Left Tilt Low Open

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

Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.34$ mho/m; $\epsilon_r = 38.7$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(7.35, 7.35, 7.35); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM000 T01 ; Type: SAM V4.0; Serial: TP-1246
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

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

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

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

Reference Value = 10.2 V/m; Power Drift = 0.008 dB

Peak SAR (extrapolated) = 0.419 W/kg

SAR(1 g) = 0.276 mW/g; SAR(10 g) = 0.170 mW/g

Maximum value of SAR (measured) = 0.341 mW/g

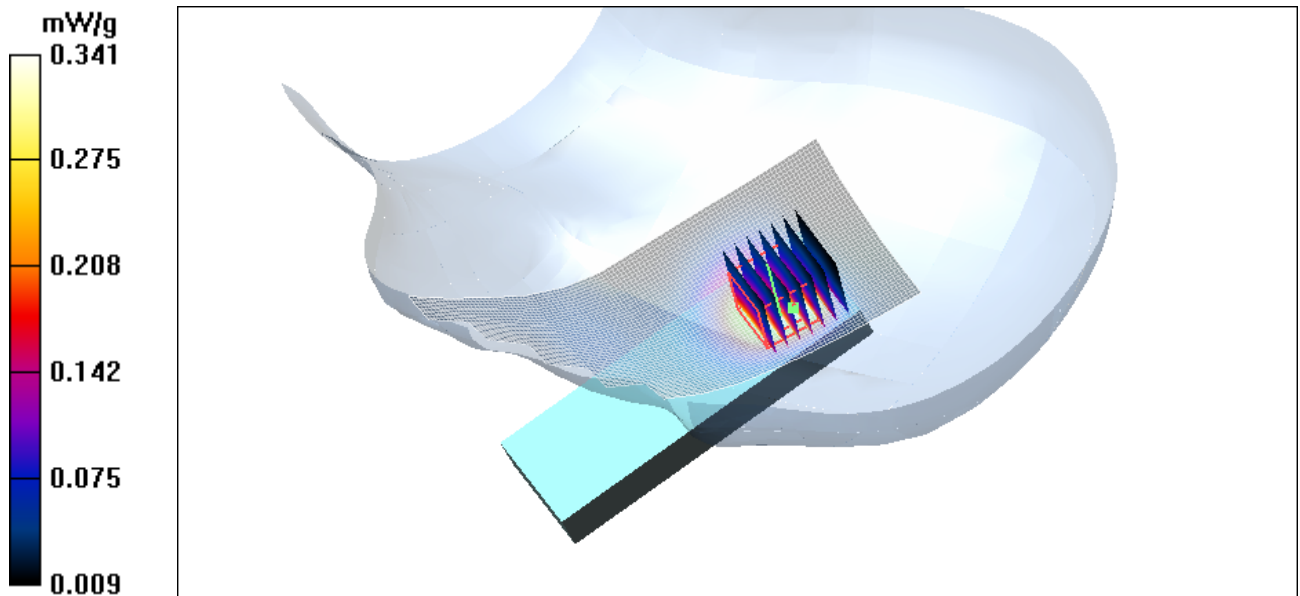


Figure 19 Left Hand Tilt 15°Open GSM 1900 Channel 512

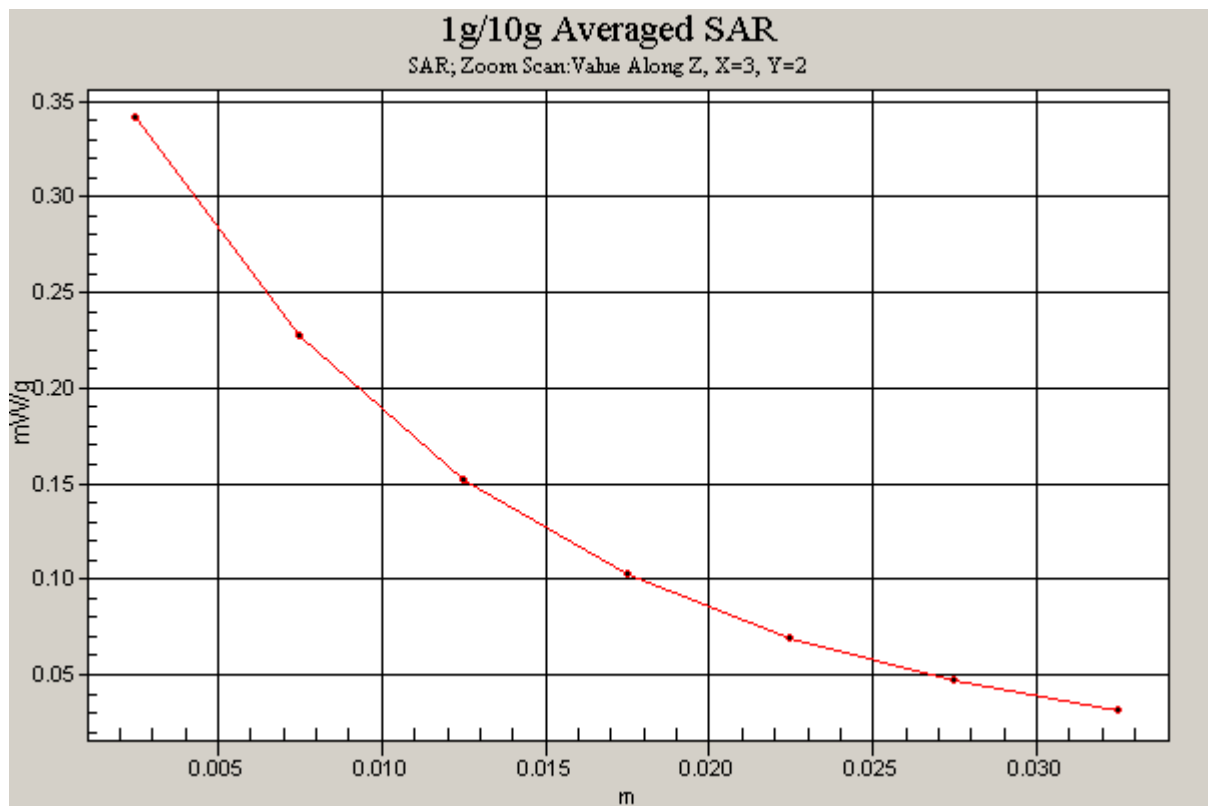


Figure 20 Z-Scan at power reference point (Left Hand Tilt 15°Open GSM 1900 Channel 512)

Date/Time: 3/4/2009 10:39:22 AM

GSM 1900 Right Cheek High Open

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

Medium parameters used: $f = 1910$ MHz; $\sigma = 1.4$ mho/m; $\epsilon_r = 38.8$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(7.35, 7.35, 7.35); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM000 T01 ; Type: SAM V4.0; Serial: TP-1246
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

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

Maximum value of SAR (interpolated) = 0.499 mW/g

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

Reference Value = 5.27 V/m; Power Drift = 0.075 dB

Peak SAR (extrapolated) = 0.626 W/kg

SAR(1 g) = 0.407 mW/g; SAR(10 g) = 0.251 mW/g

Maximum value of SAR (measured) = 0.504 mW/g

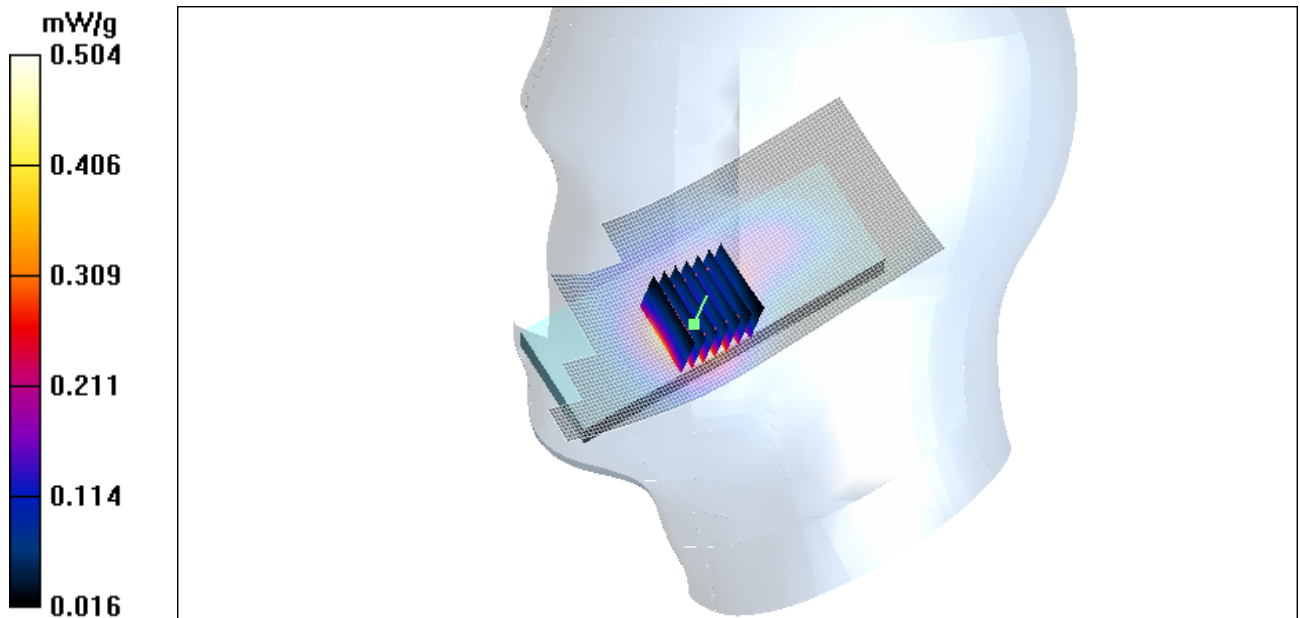


Figure 21 Right Hand Touch Cheek Open GSM 1900 Channel 810

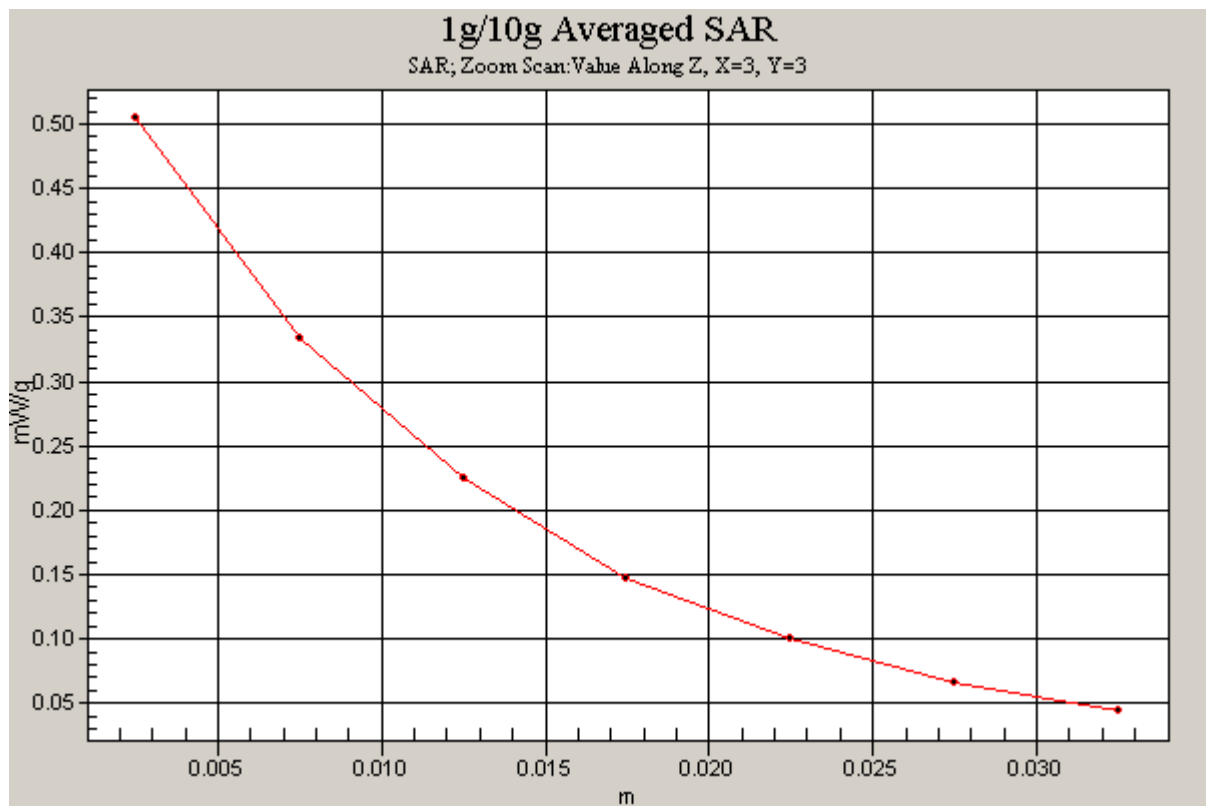


Figure 22 Z-Scan at power reference point (Right Hand Touch Cheek Open GSM 1900 Channel 810)

Date/Time: 3/4/2009 10:58:58 AM

GSM 1900 Right Cheek Middle Open

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

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.39$ mho/m; $\epsilon_r = 38.8$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(7.35, 7.35, 7.35); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM000 T01 ; Type: SAM V4.0; Serial: TP-1246
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

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

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

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

Reference Value = 5.14 V/m; Power Drift = 0.119 dB

Peak SAR (extrapolated) = 0.668 W/kg

SAR(1 g) = 0.442 mW/g; SAR(10 g) = 0.275 mW/g

Maximum value of SAR (measured) = 0.538 mW/g

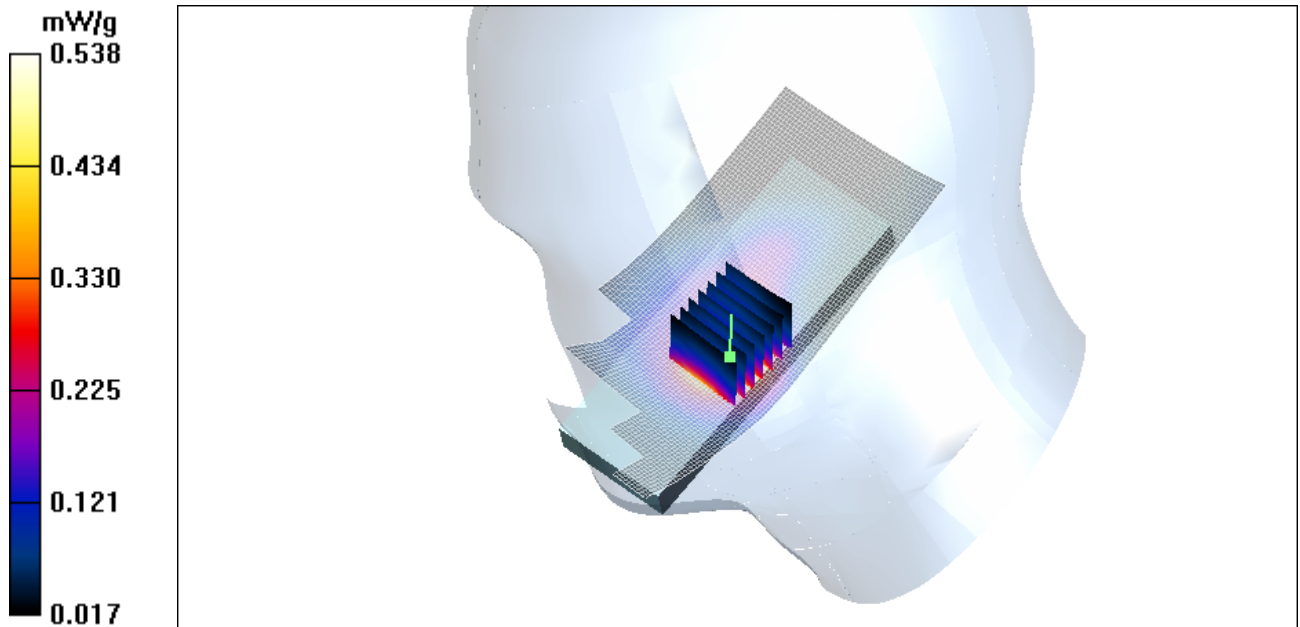


Figure 23 Right Hand Touch Cheek Open GSM 1900 Channel 661

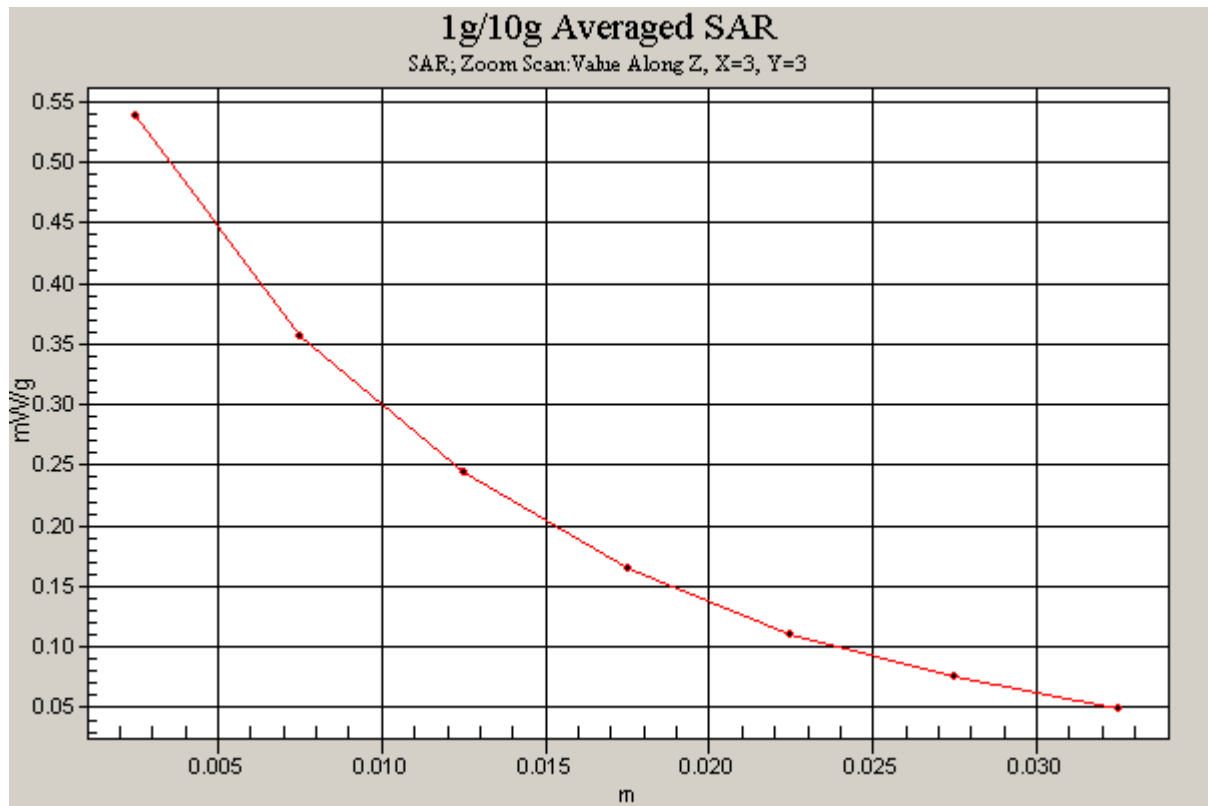


Figure 24 Z-Scan at power reference point (Right Hand Touch Cheek Open GSM 1900 Channel 661)

Date/Time: 3/4/2009 11:19:33 AM

GSM 1900 Right Cheek Low Open

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

Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.34$ mho/m; $\epsilon_r = 38.7$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(7.35, 7.35, 7.35); Calibrated: 9/3/2008
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM000 T01 ; Type: SAM V4.0; Serial: TP-1246
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

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

Maximum value of SAR (interpolated) = 0.536 mW/g

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

Reference Value = 4.96 V/m; Power Drift = 0.186 dB

Peak SAR (extrapolated) = 0.640 W/kg

SAR(1 g) = 0.427 mW/g; SAR(10 g) = 0.266 mW/g

Maximum value of SAR (measured) = 0.521 mW/g

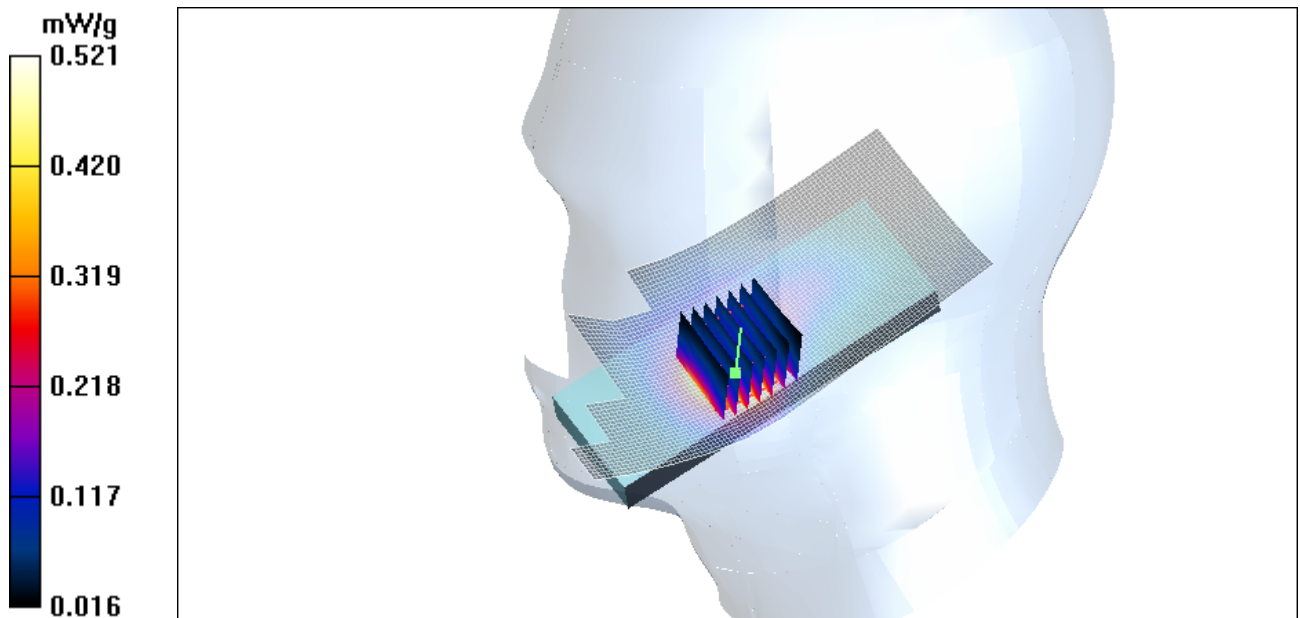


Figure 25 Right Hand Touch Cheek Open GSM 1900 Channel 512

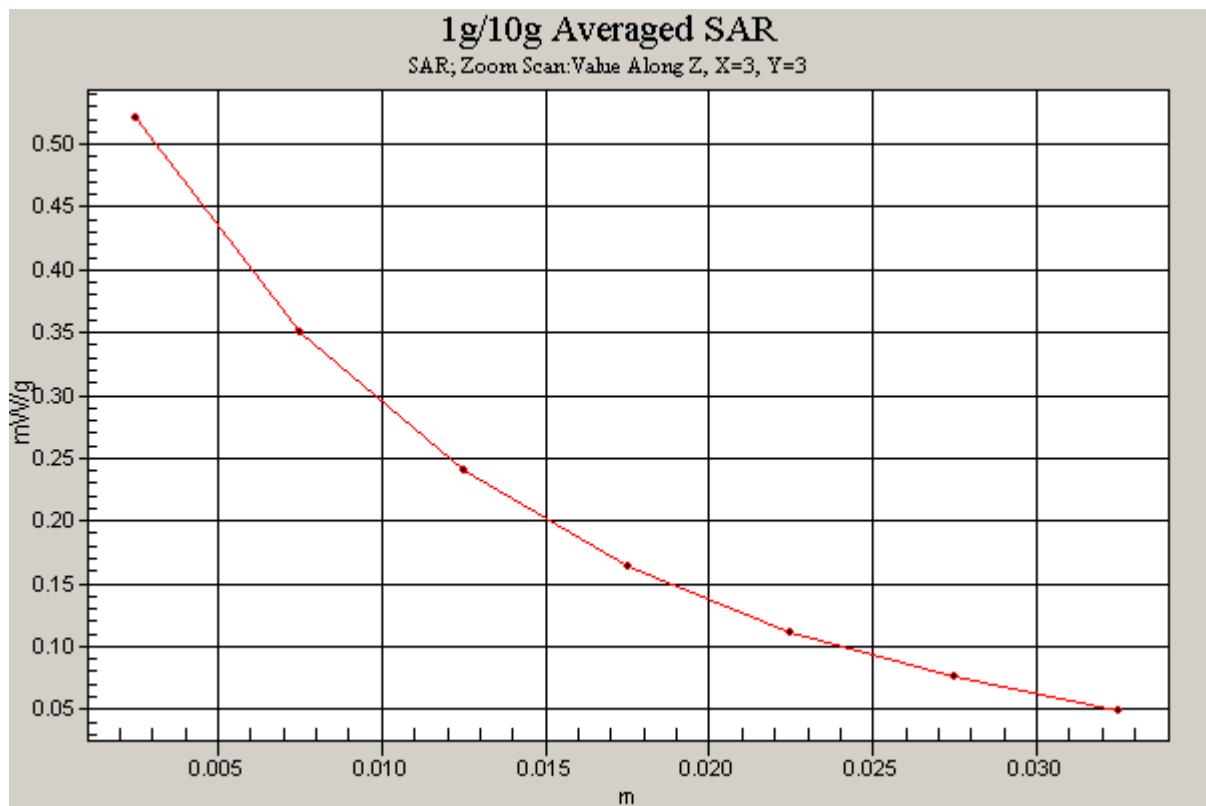


Figure 26 Z-Scan at power reference point (Right Hand Touch Cheek Open GSM 1900 Channel 512)

Date/Time: 3/4/2009 11:38:14 AM

GSM 1900 Right Tilt High Open

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

Medium parameters used: $f = 1910$ MHz; $\sigma = 1.4$ mho/m; $\epsilon_r = 38.8$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(7.35, 7.35, 7.35); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM000 T01 ; Type: SAM V4.0; Serial: TP-1246
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

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

Maximum value of SAR (interpolated) = 0.347 mW/g

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

Reference Value = 11.2 V/m; Power Drift = 0.036 dB

Peak SAR (extrapolated) = 0.363 W/kg

SAR(1 g) = 0.247 mW/g; SAR(10 g) = 0.156 mW/g

Maximum value of SAR (measured) = 0.298 mW/g

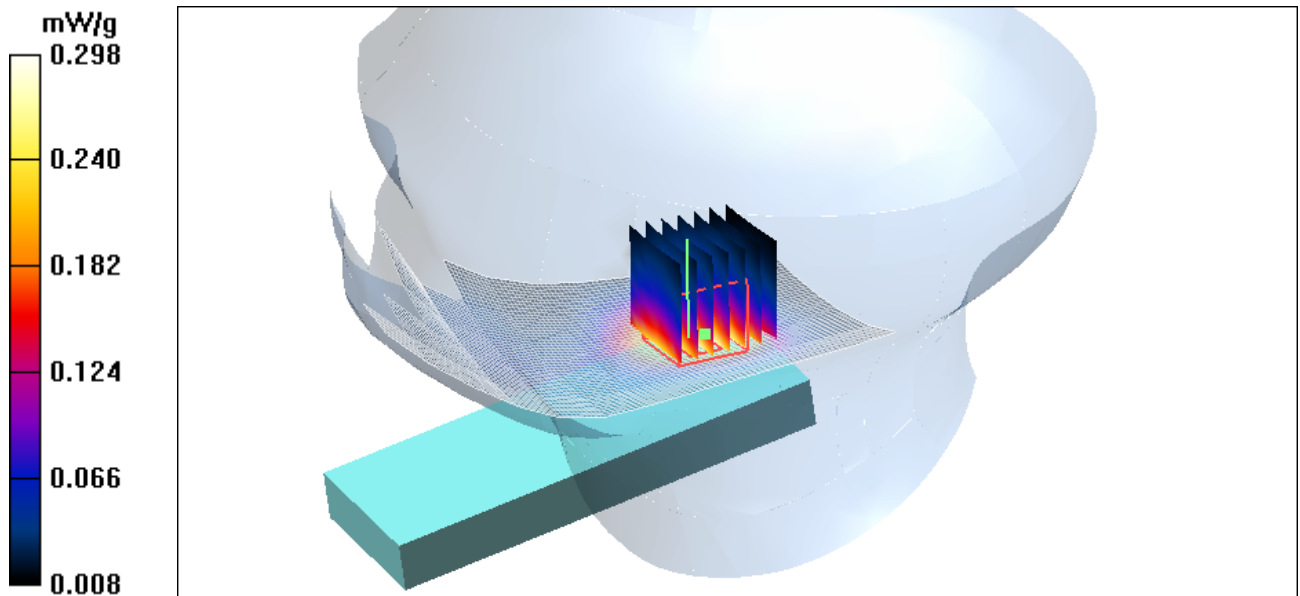


Figure 27 Right Hand Tilt 15°Open GSM 1900 Channel 810

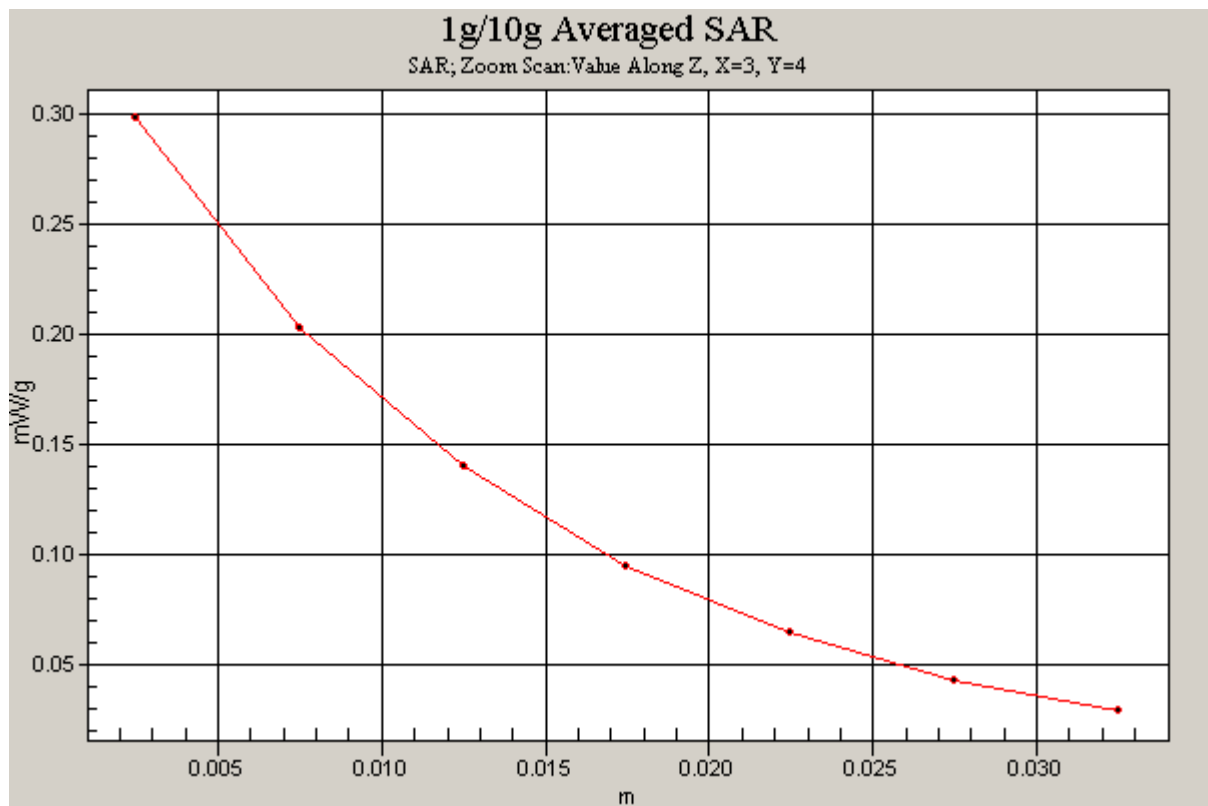


Figure 28 Z-Scan at power reference point (Right Hand Tilt 15° Open GSM 1900 Channel 810)

Date/Time: 3/4/2009 11:57:55 AM

GSM 1900 Right Tilt Middle Open

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

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.39$ mho/m; $\epsilon_r = 38.8$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(7.35, 7.35, 7.35); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM000 T01 ; Type: SAM V4.0; Serial: TP-1246
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

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

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

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

Reference Value = 11.2 V/m; Power Drift = -0.039 dB

Peak SAR (extrapolated) = 0.365 W/kg

SAR(1 g) = 0.249 mW/g; SAR(10 g) = 0.159 mW/g

Maximum value of SAR (measured) = 0.300 mW/g

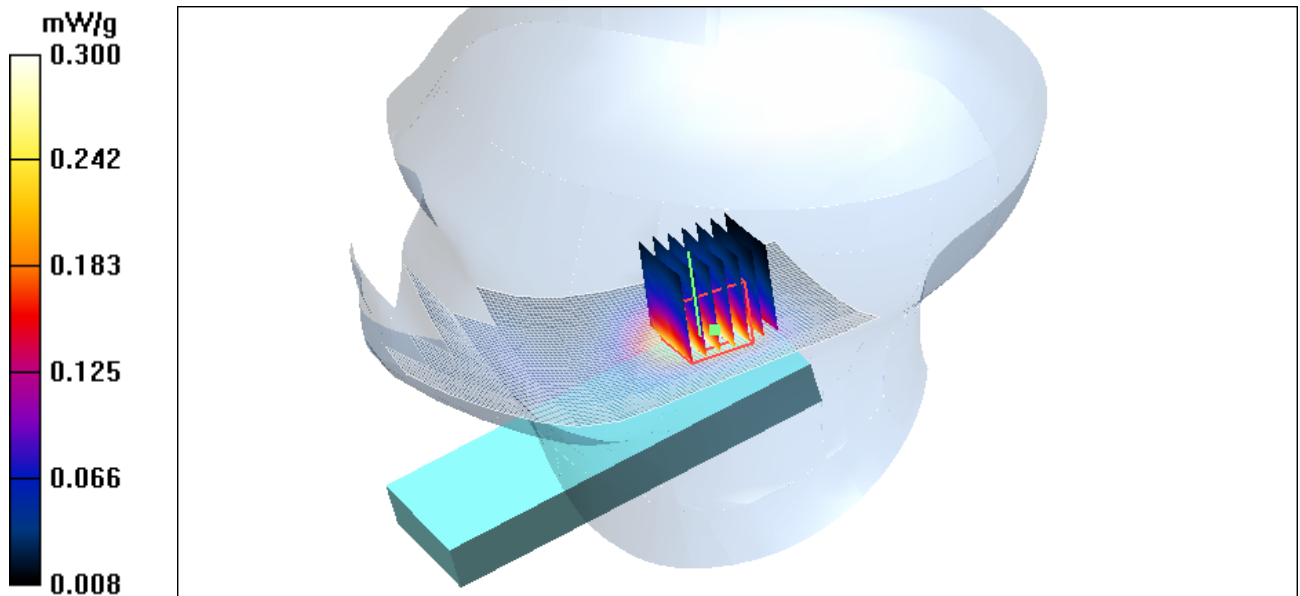


Figure 29 Right Hand Tilt 15°Open GSM 1900 Channel 661

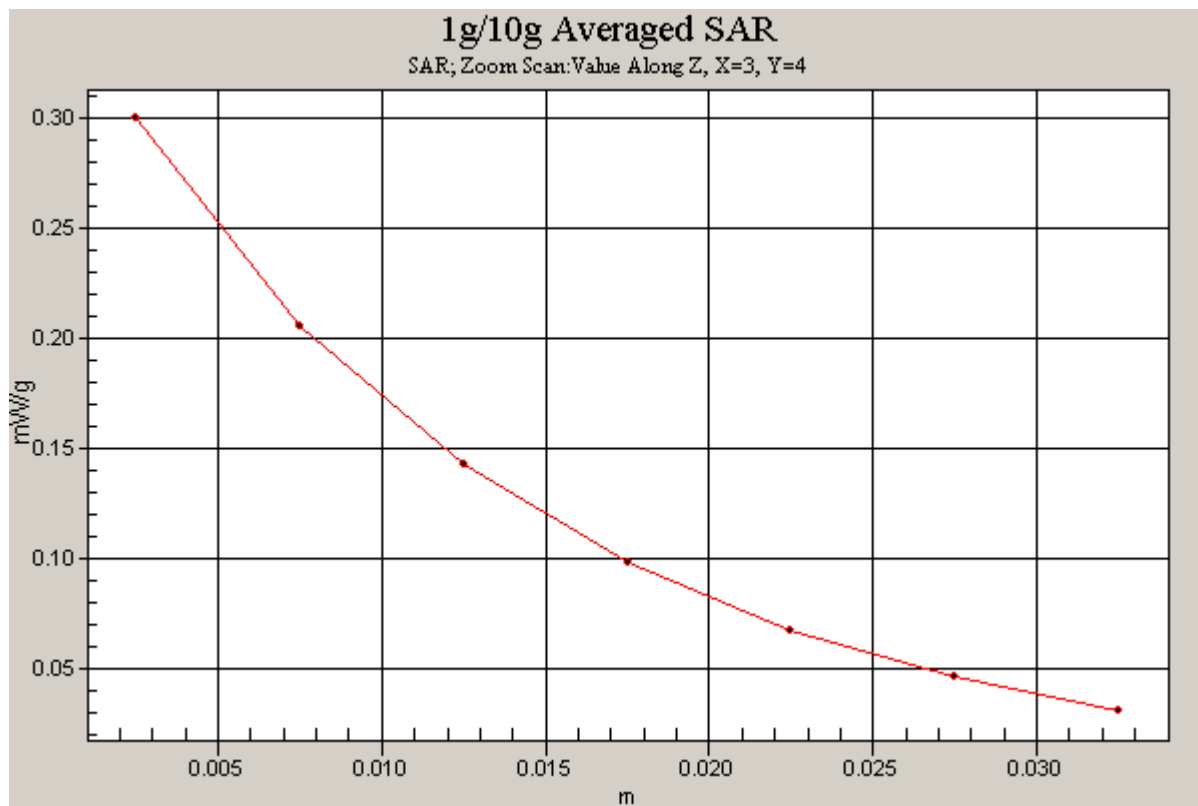


Figure 30 Z-Scan at power reference point (Right Hand Tilt 15° Open GSM 1900 Channel 661)

Date/Time: 3/4/2009 12:16:25 PM

GSM 1900 Right Tilt Low Open

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

Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.34$ mho/m; $\epsilon_r = 38.7$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(7.35, 7.35, 7.35); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM000 T01 ; Type: SAM V4.0; Serial: TP-1246
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

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

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

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

Reference Value = 11.0 V/m; Power Drift = 0.097 dB

Peak SAR (extrapolated) = 0.348 W/kg

SAR(1 g) = 0.240 mW/g; SAR(10 g) = 0.154 mW/g

Maximum value of SAR (measured) = 0.288 mW/g

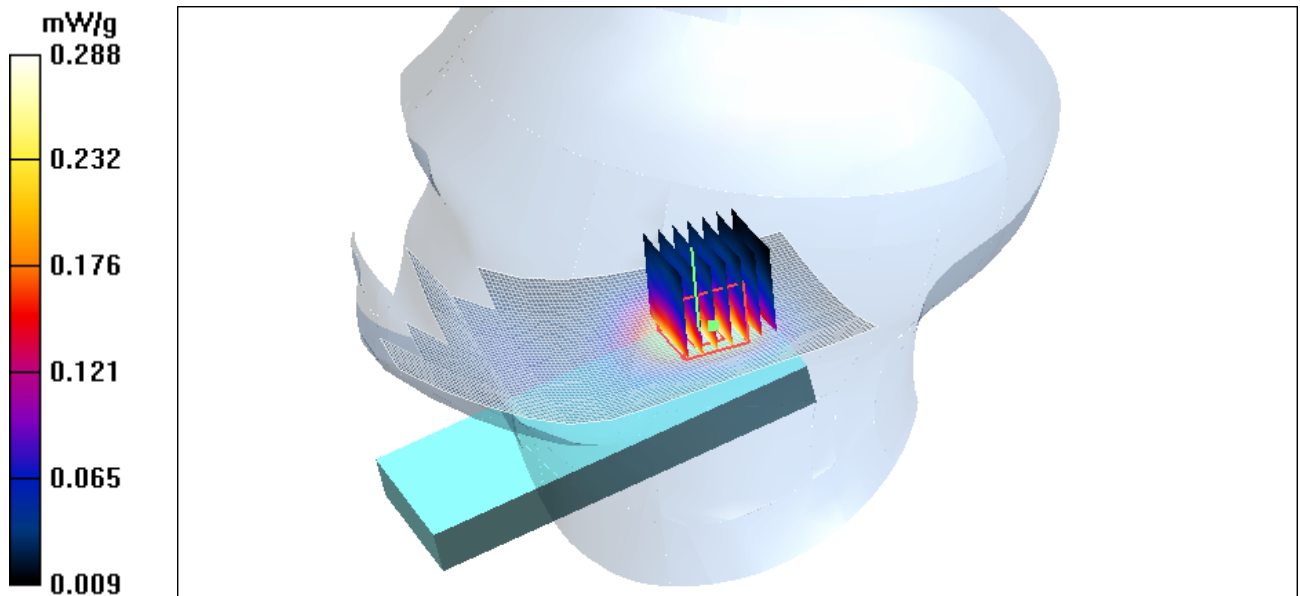


Figure 31 Right Hand Tilt 15°Open GSM 1900 Channel 512

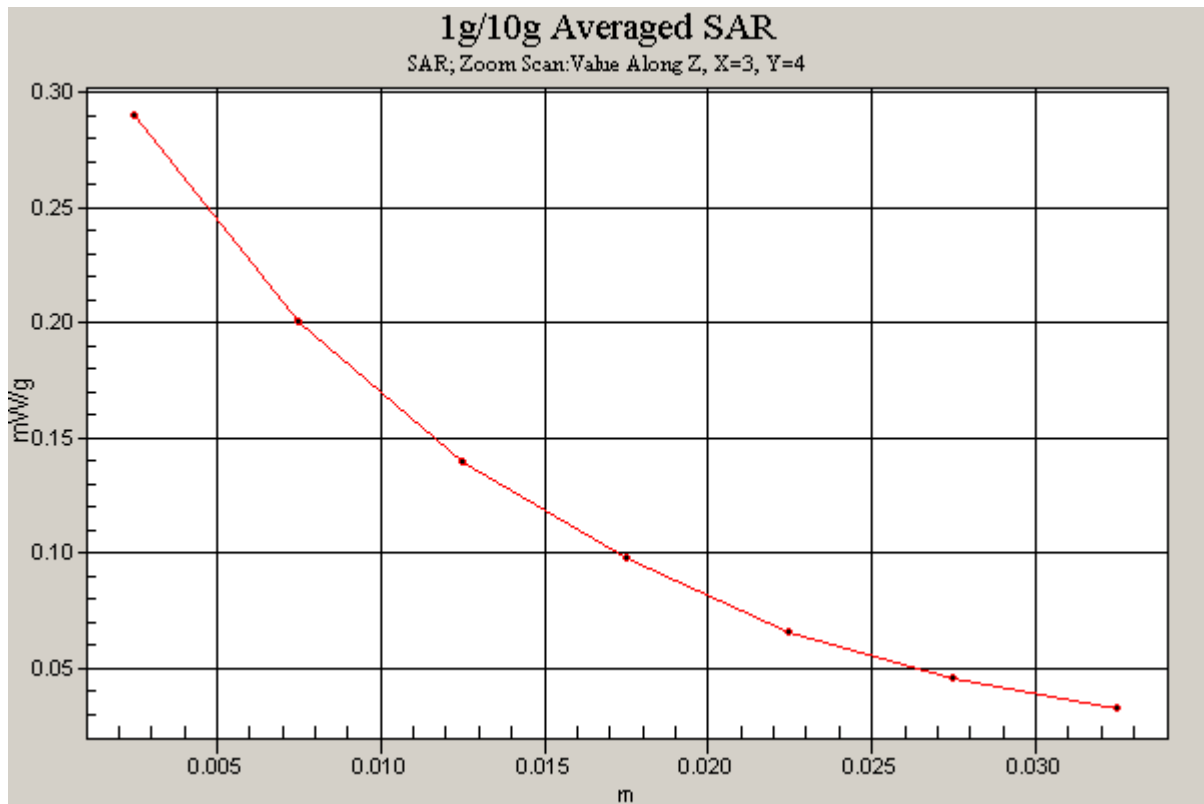


Figure 32 Z-Scan at power reference point (Right Hand Tilt 15° Open GSM 1900 Channel 512)

Date/Time: 3/4/2009 12:34:13 PM

GSM 1900 Towards Ground High Open

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

Medium parameters used: $f = 1910$ MHz; $\sigma = 1.54$ mho/m; $\epsilon_r = 53.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(7.45, 7.45, 7.45); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM000 T01 ; Type: SAM V4.0; Serial: TP-1246
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

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

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

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

Reference Value = 8.99 V/m; Power Drift = -0.001 dB

Peak SAR (extrapolated) = 0.443 W/kg

SAR(1 g) = 0.294 mW/g; SAR(10 g) = 0.187 mW/g

Maximum value of SAR (measured) = 0.360 mW/g

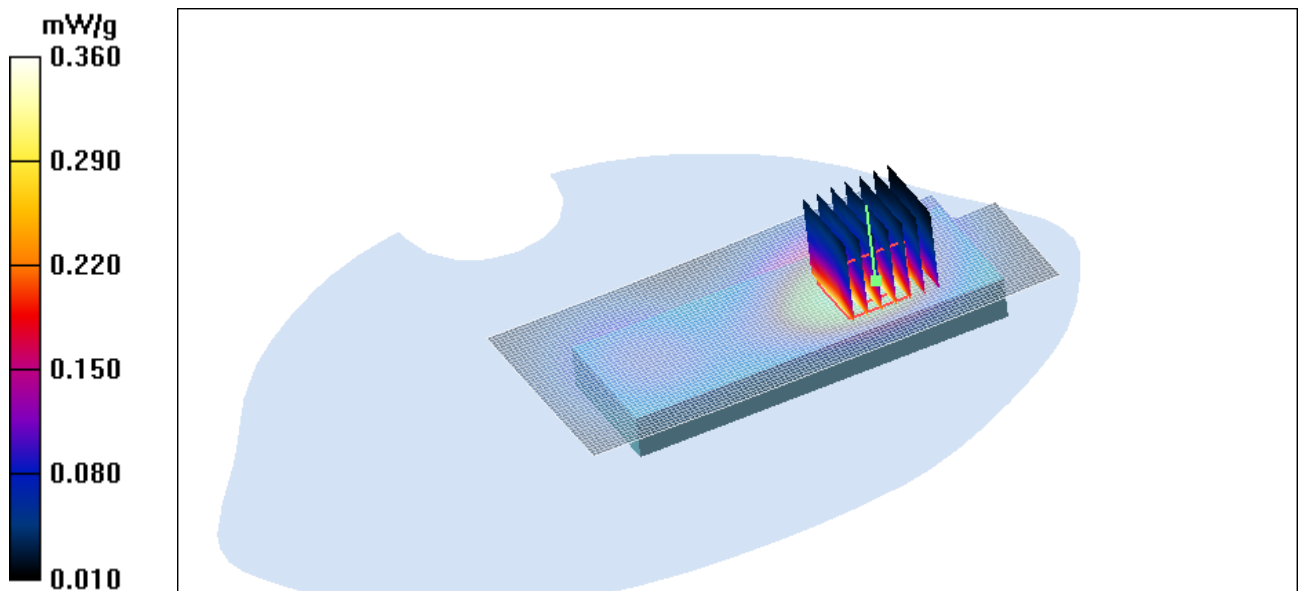


Figure 33 Body, Towards Ground, Open GSM 1900 Channel 810

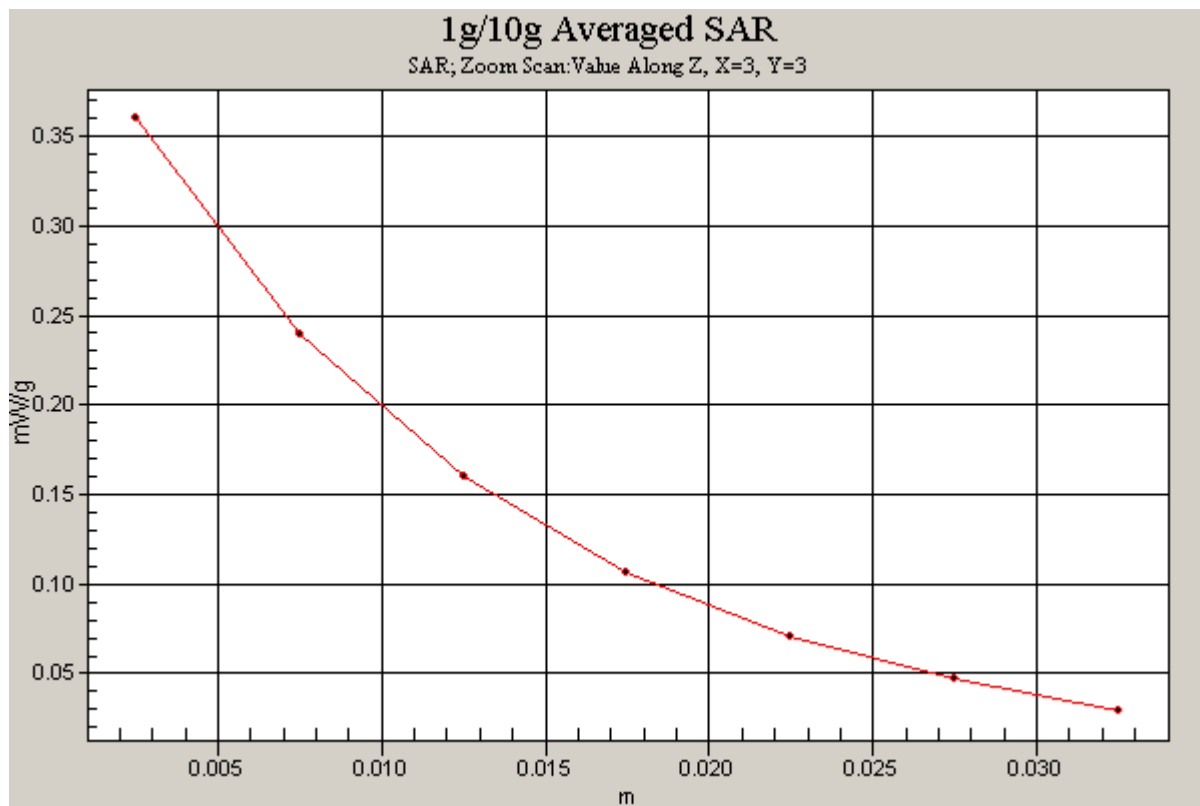


Figure 34 Z-Scan at power reference point (Body, Towards Ground, Open GSM 1900 Channel 810)

Date/Time: 3/4/2009 12:53:55 PM

GSM 1900 Towards Ground Middle Open

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

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.52$ mho/m; $\epsilon_r = 53.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(7.45, 7.45, 7.45); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM000 T01 ; Type: SAM V4.0; Serial: TP-1246
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

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

Maximum value of SAR (interpolated) = 0.364 mW/g

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

Reference Value = 9.32 V/m; Power Drift = -0.050 dB

Peak SAR (extrapolated) = 0.440 W/kg

SAR(1 g) = 0.296 mW/g; SAR(10 g) = 0.191 mW/g

Maximum value of SAR (measured) = 0.360 mW/g

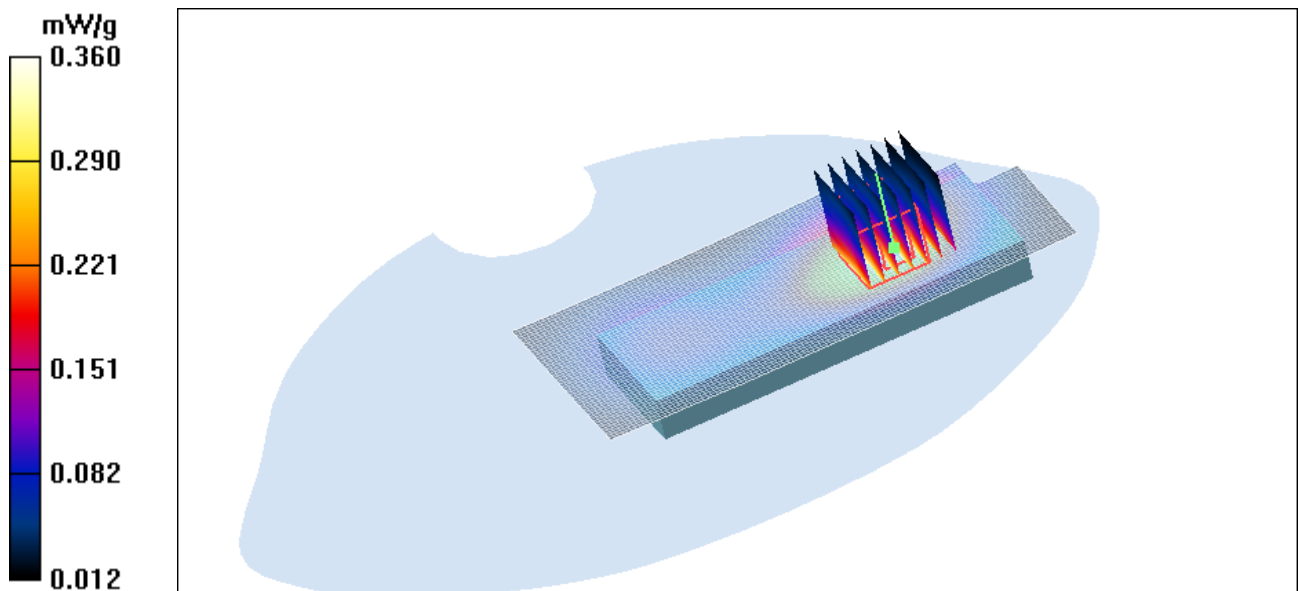


Figure 35 Body, Towards Ground, Open GSM 1900 Channel 661

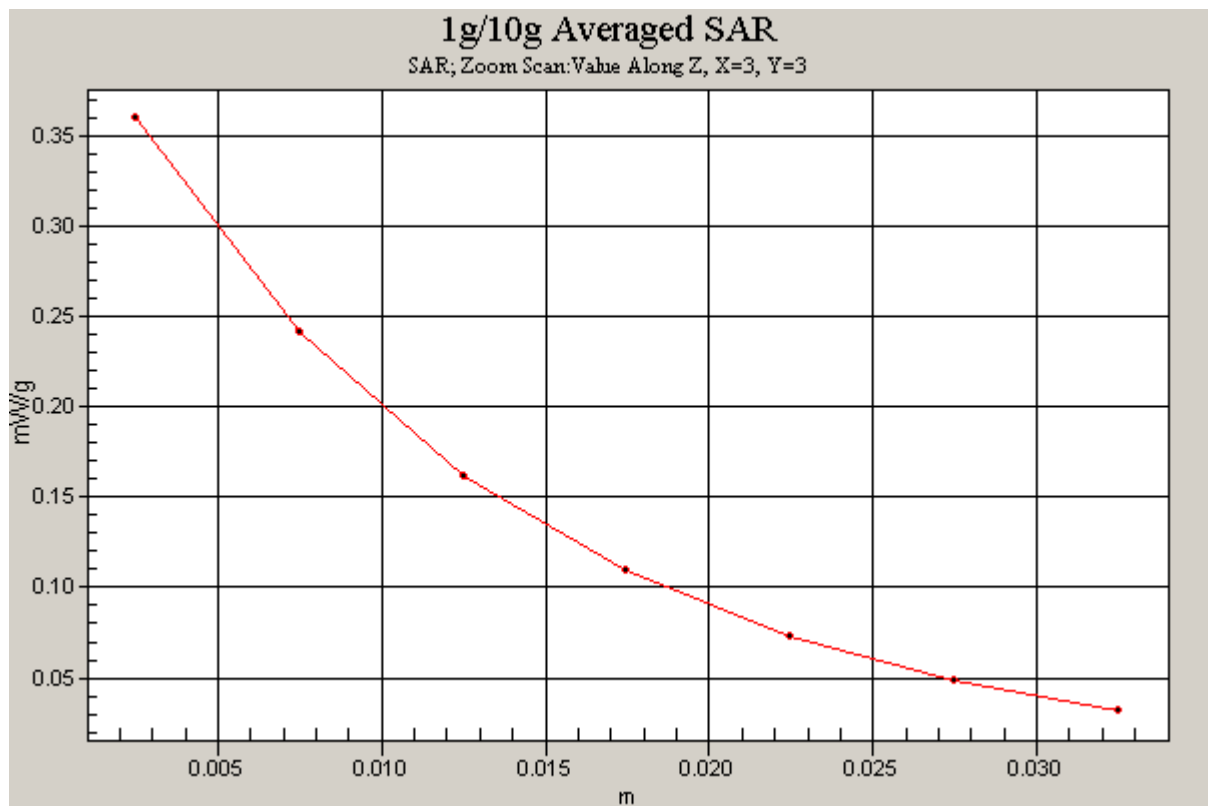


Figure 36 Z-Scan at power reference point (Body, Towards Ground, Open GSM 1900 Channel 661)

Date/Time: 3/4/2009 1:12:32 PM

GSM 1900 Towards Ground Low Open

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

Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.48$ mho/m; $\epsilon_r = 53.3$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(7.45, 7.45, 7.45); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM000 T01 ; Type: SAM V4.0; Serial: TP-1246
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

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

Maximum value of SAR (interpolated) = 0.349 mW/g

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

Reference Value = 9.32 V/m; Power Drift = 0.013 dB

Peak SAR (extrapolated) = 0.417 W/kg

SAR(1 g) = 0.284 mW/g; SAR(10 g) = 0.185 mW/g

Maximum value of SAR (measured) = 0.342 mW/g

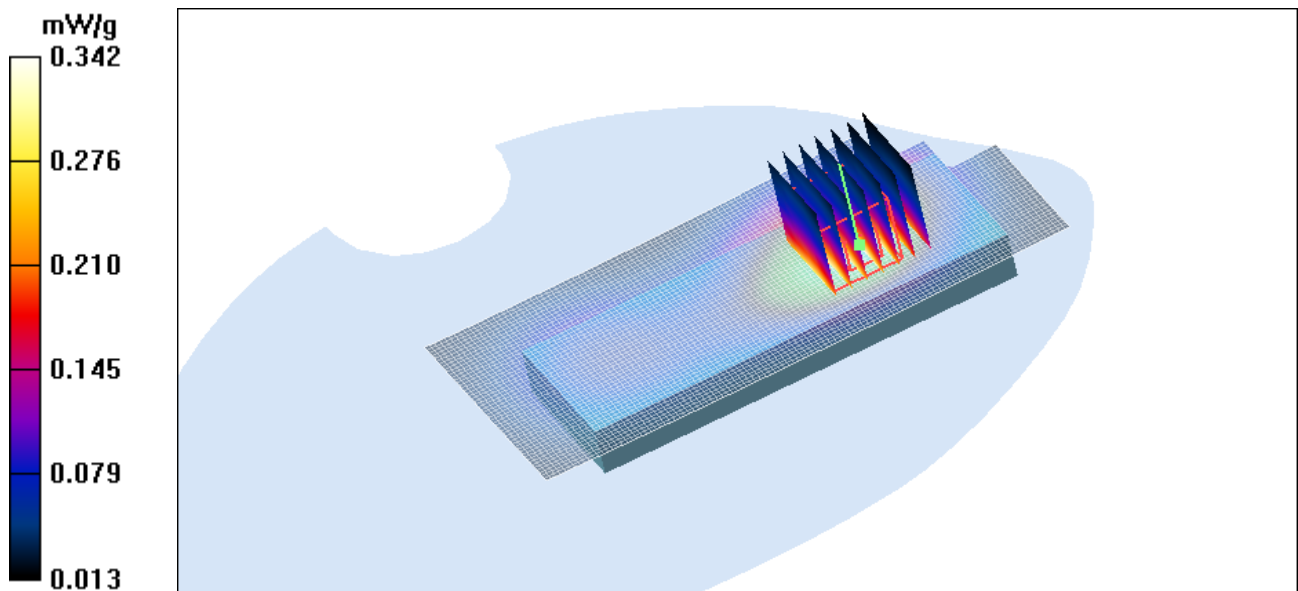


Figure 37 Body, Towards Ground, Open GSM 1900 Channel 512

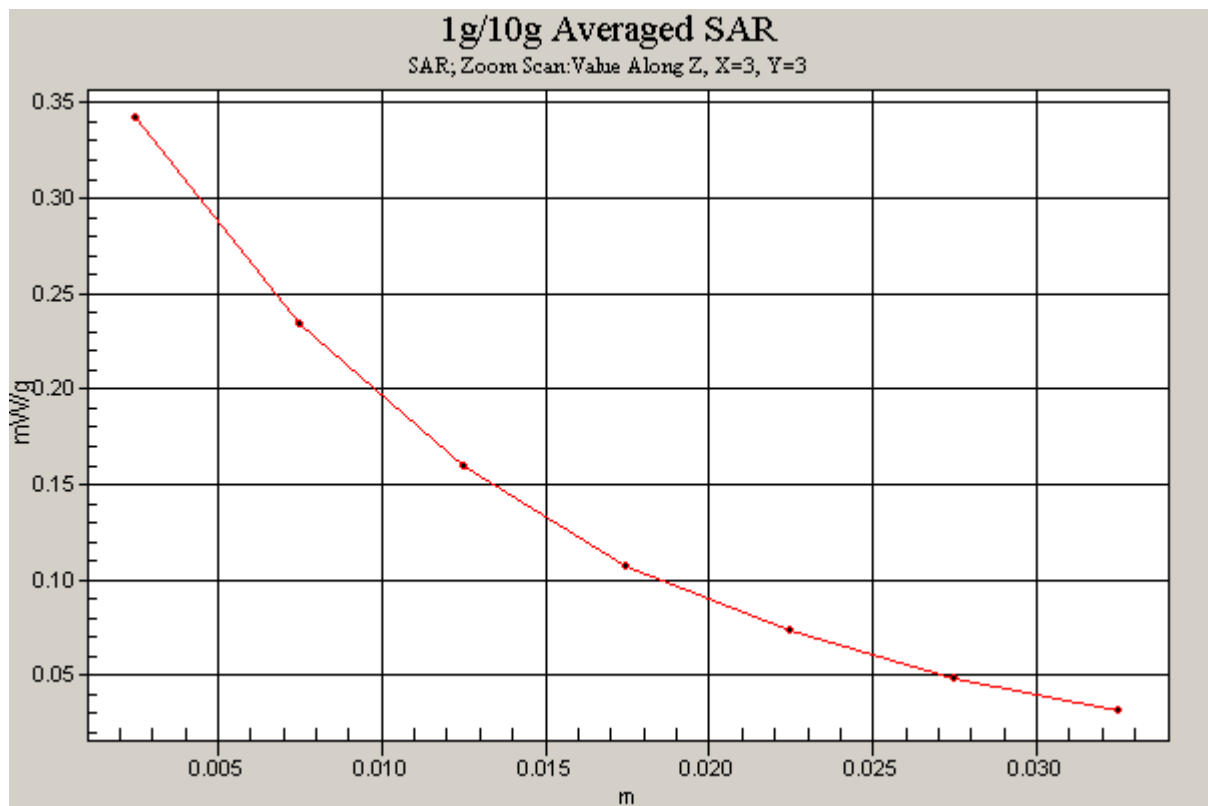


Figure 38 Z-Scan at power reference point (Body, Towards Ground, Open GSM 1900 Channel 512)

Date/Time: 3/4/2009 1:31:11 PM

GSM 1900 Towards Phantom High Open

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

Medium parameters used: $f = 1910$ MHz; $\sigma = 1.54$ mho/m; $\epsilon_r = 53.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(7.45, 7.45, 7.45); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM000 T01 ; Type: SAM V4.0; Serial: TP-1246
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

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

Maximum value of SAR (interpolated) = 0.428 mW/g

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

Reference Value = 8.98 V/m; Power Drift = 0.011 dB

Peak SAR (extrapolated) = 0.486 W/kg

SAR(1 g) = 0.325 mW/g; SAR(10 g) = 0.208 mW/g

Maximum value of SAR (measured) = 0.390 mW/g

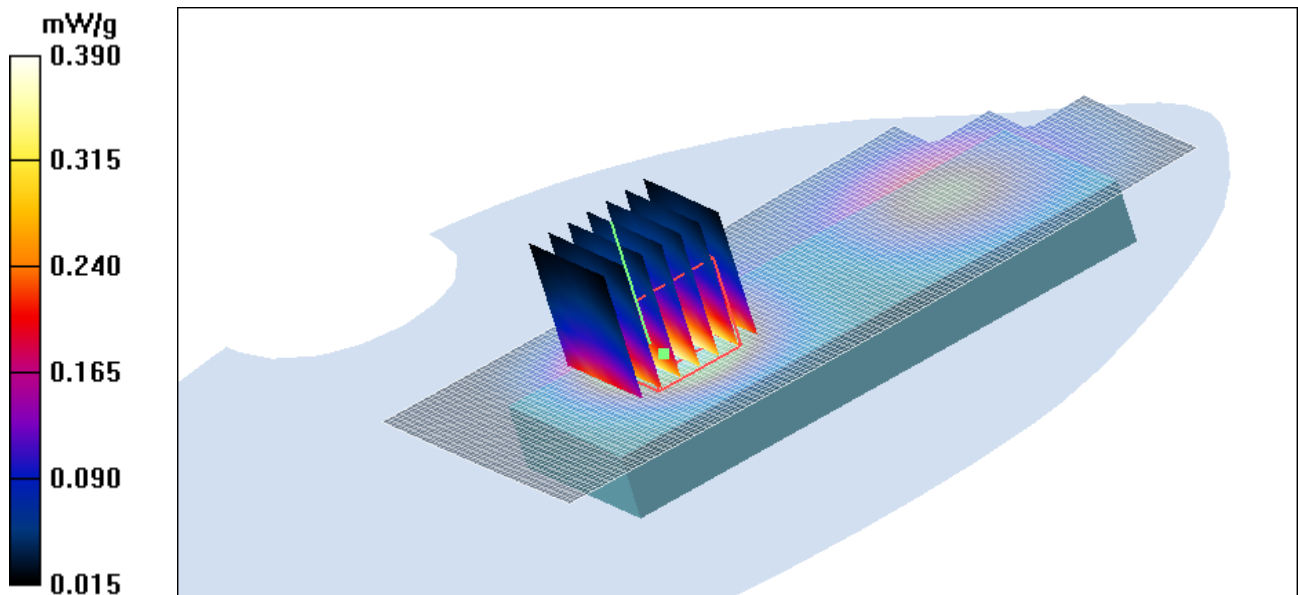


Figure 39 Body, Towards Phantom, Open GSM 1900 Channel 810

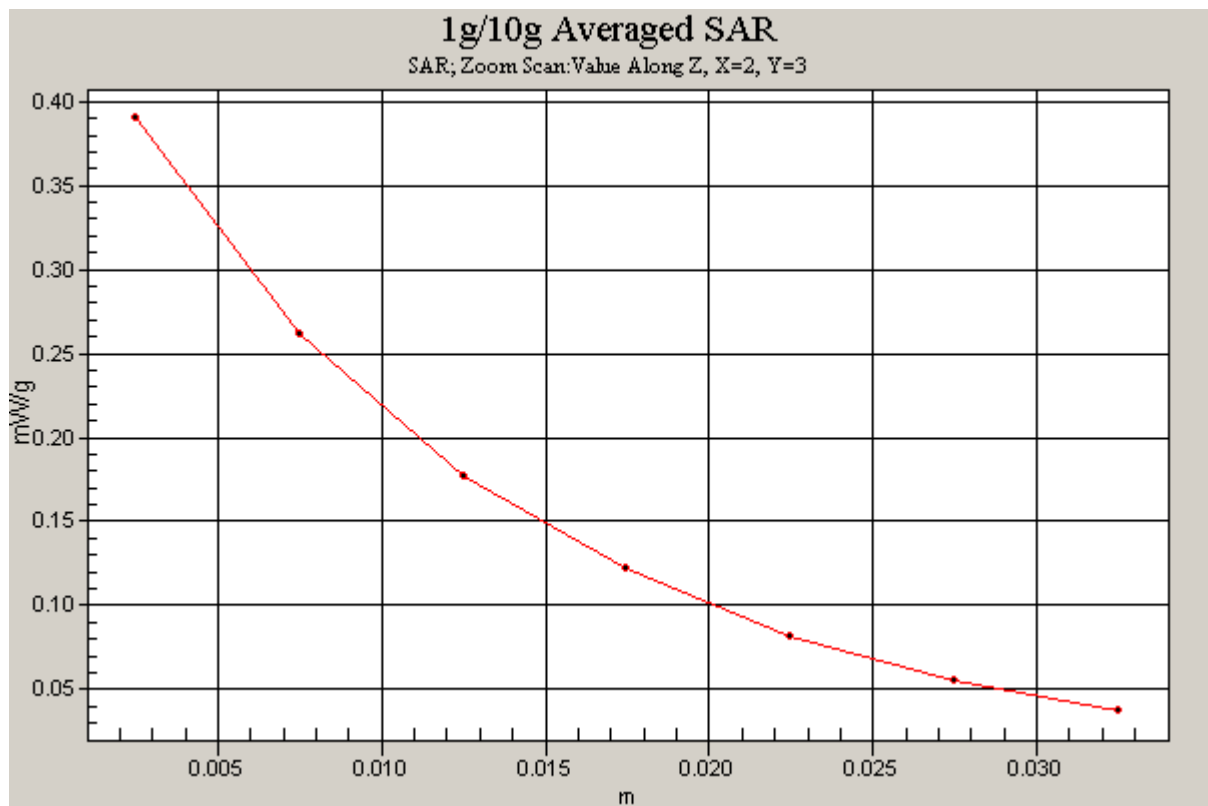


Figure 40 Z-Scan at power reference point (Body, Towards Phantom, Open GSM 1900 Channel 810)

Date/Time: 3/4/2009 1:50:06 PM

GSM 1900 Towards Phantom Middle Open

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

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.52$ mho/m; $\epsilon_r = 53.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(7.45, 7.45, 7.45); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM000 T01 ; Type: SAM V4.0; Serial: TP-1246
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

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

Maximum value of SAR (interpolated) = 0.442 mW/g

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

Reference Value = 9.04 V/m; Power Drift = -0.049 dB

Peak SAR (extrapolated) = 0.505 W/kg

SAR(1 g) = 0.342 mW/g; SAR(10 g) = 0.220 mW/g

Maximum value of SAR (measured) = 0.411 mW/g

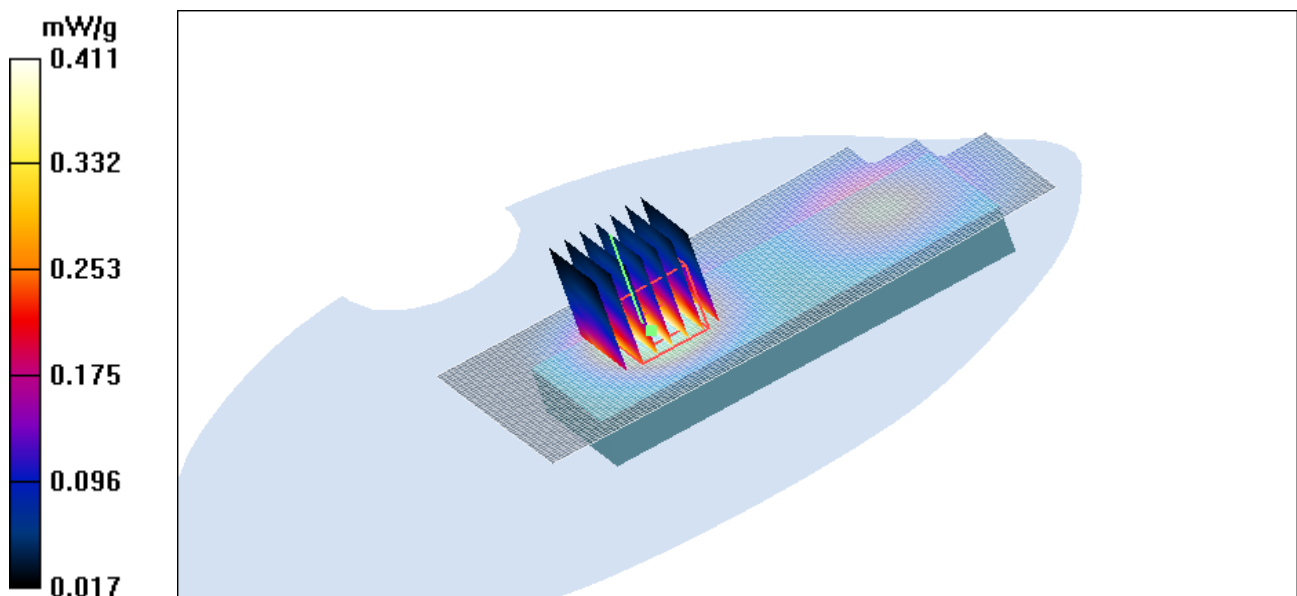


Figure 41 Body, Towards Phantom, Open GSM 1900 Channel 661

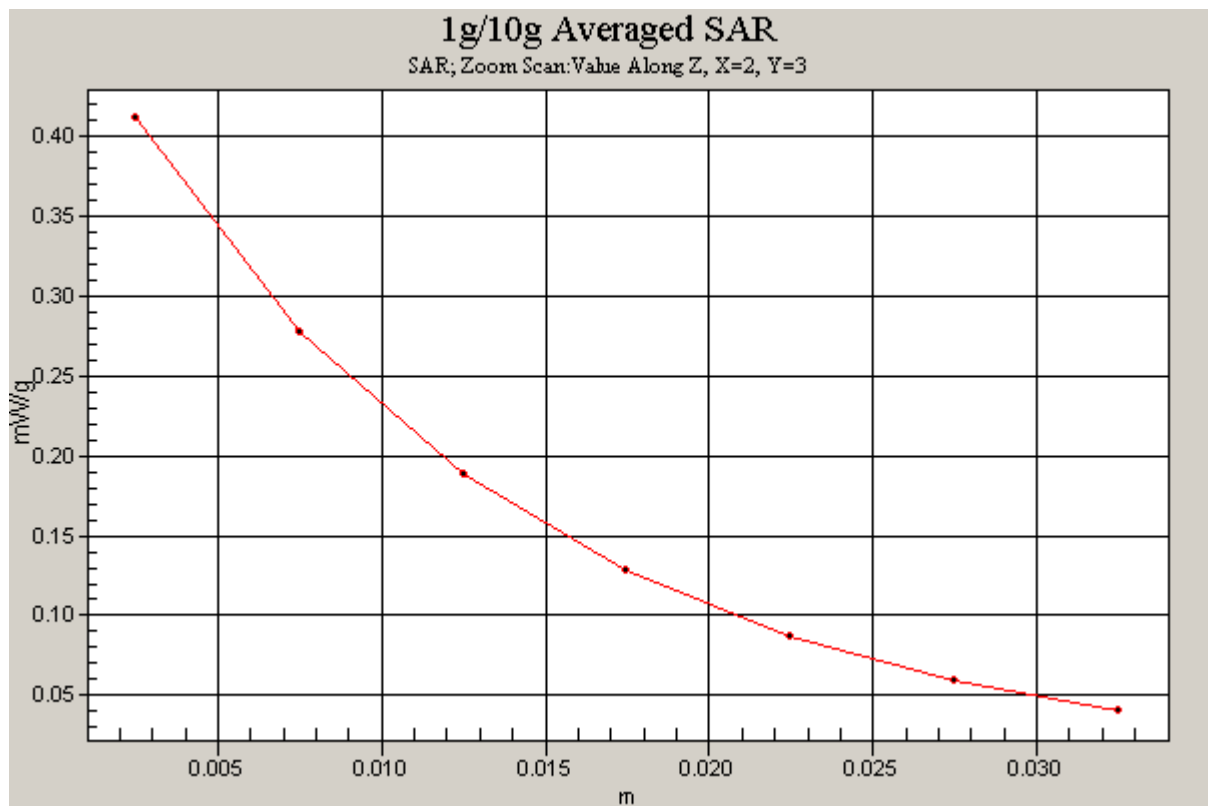


Figure 42 Z-Scan at power reference point (Body, Towards Phantom, Open GSM 1900 Channel 661)

Date/Time: 3/4/2009 2:10:06 PM

GSM 1900 Towards Phantom Low Open

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

Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.48$ mho/m; $\epsilon_r = 53.3$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(7.45, 7.45, 7.45); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM000 T01 ; Type: SAM V4.0; Serial: TP-1246
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

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

Maximum value of SAR (interpolated) = 0.428 mW/g

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

Reference Value = 8.71 V/m; Power Drift = -0.175 dB

Peak SAR (extrapolated) = 0.459 W/kg

SAR(1 g) = 0.316 mW/g; SAR(10 g) = 0.205 mW/g

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

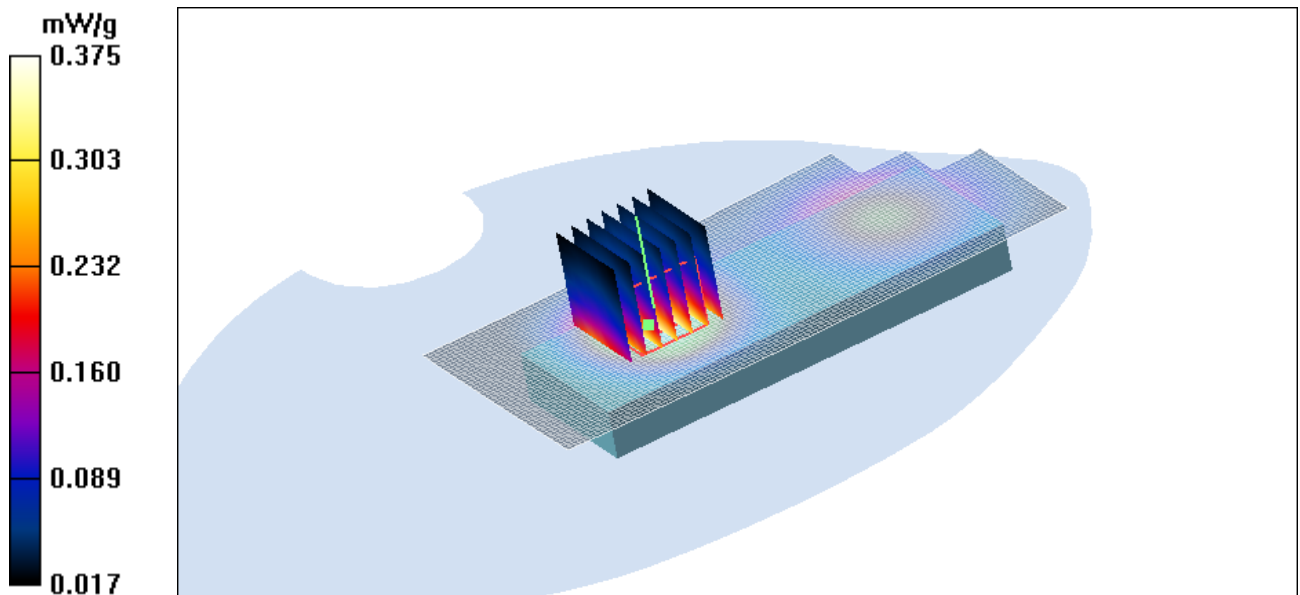


Figure 43 Body, Towards Phantom, Open GSM 1900 Channel 512

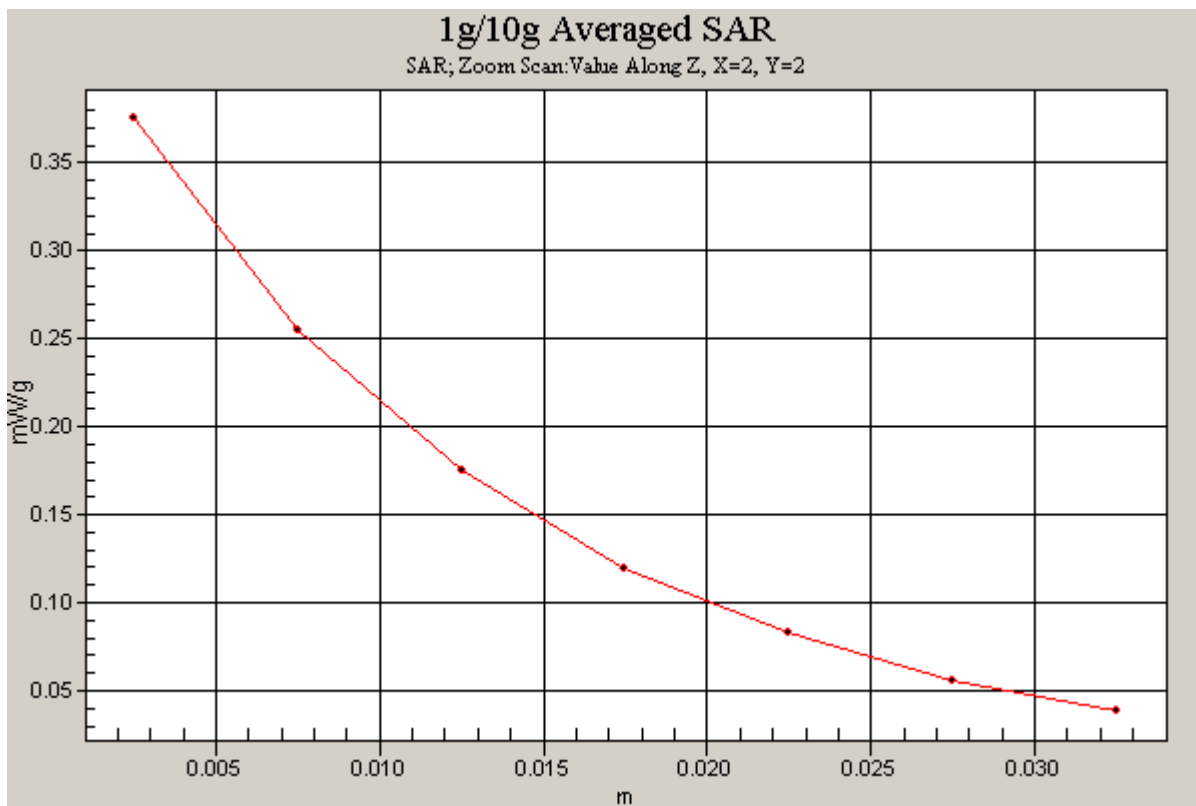


Figure 44 Z-Scan at power reference point (Body, Towards Ground, Open GSM 1900, Channel 512)

Date/Time: 3/4/2009 2:30:43 PM

GSM 1900 Earphone Towards Phantom Middle Open

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

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.52$ mho/m; $\epsilon_r = 53.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(7.45, 7.45, 7.45); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM000 T01 ; Type: SAM V4.0; Serial: TP-1246
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

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

Maximum value of SAR (interpolated) = 0.257 mW/g

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

Reference Value = 10.6 V/m; Power Drift = 0.014 dB

Peak SAR (extrapolated) = 0.303 W/kg

SAR(1 g) = 0.208 mW/g; SAR(10 g) = 0.135 mW/g

Maximum value of SAR (measured) = 0.249 mW/g

Towards Phantom Middle/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.6 V/m; Power Drift = 0.014 dB

Peak SAR (extrapolated) = 0.296 W/kg

SAR(1 g) = 0.201 mW/g; SAR(10 g) = 0.130 mW/g

Maximum value of SAR (measured) = 0.241 mW/g

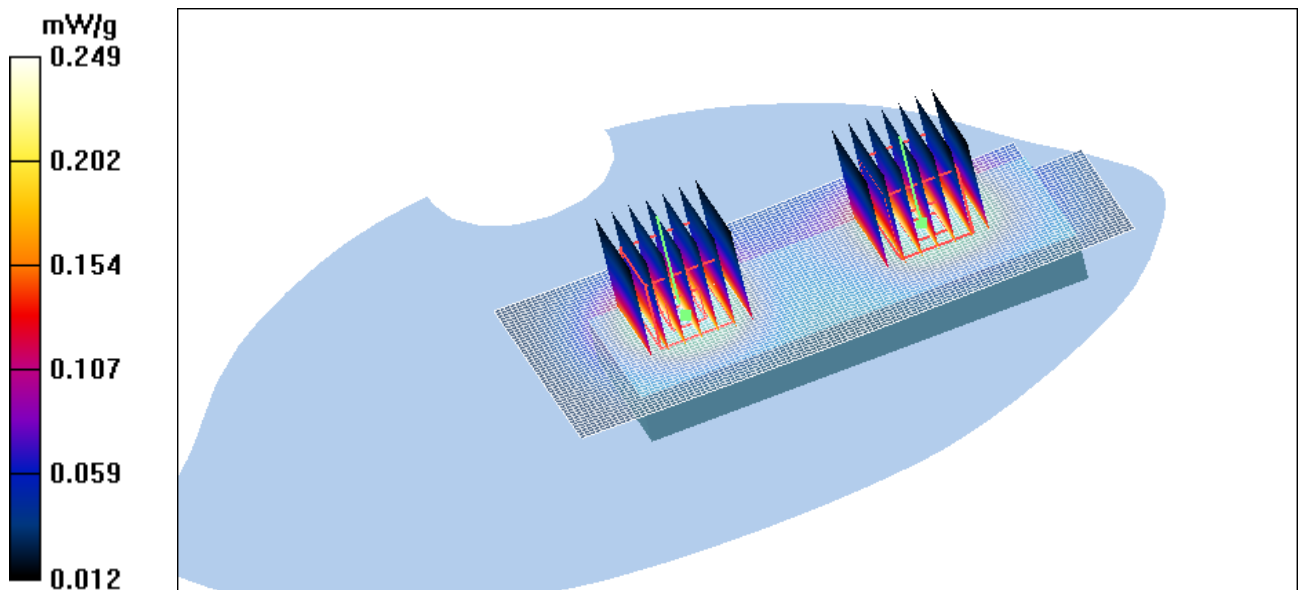


Figure 45 Body with Earphone, Towards Phantom, Open GSM 1900, Channel 661

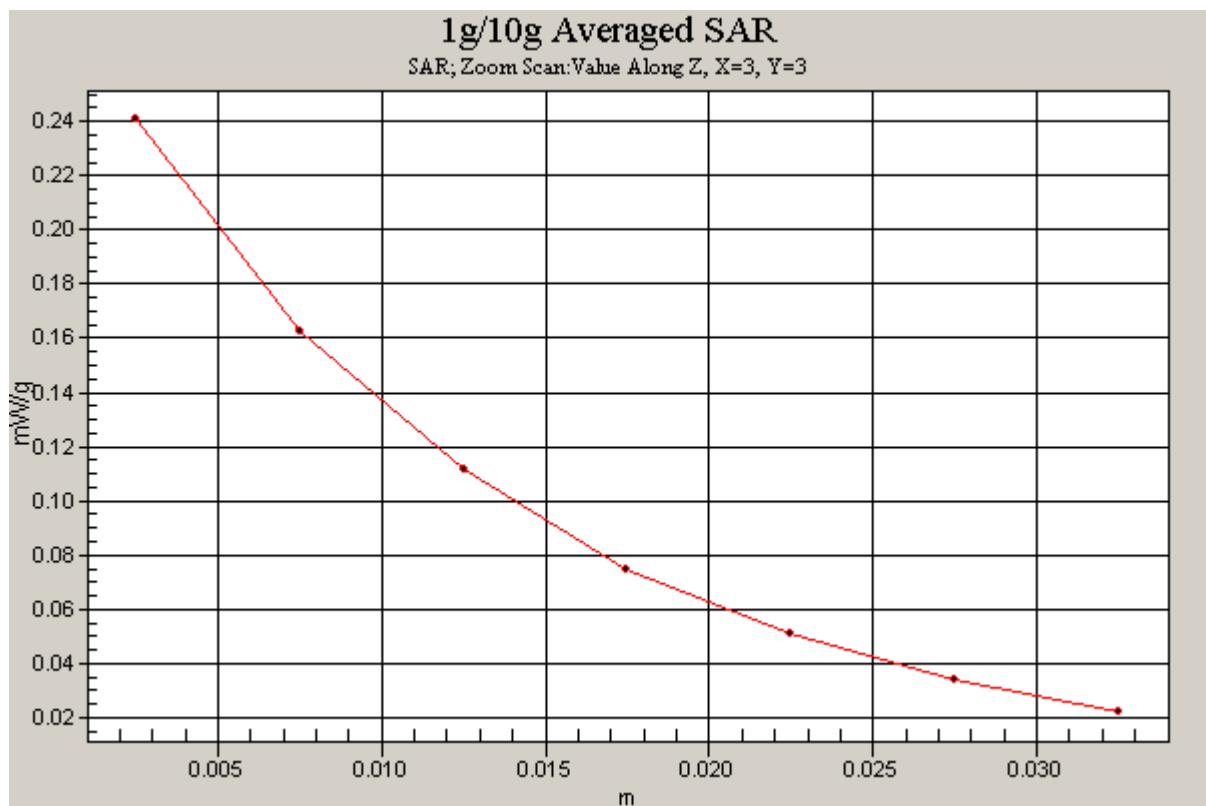
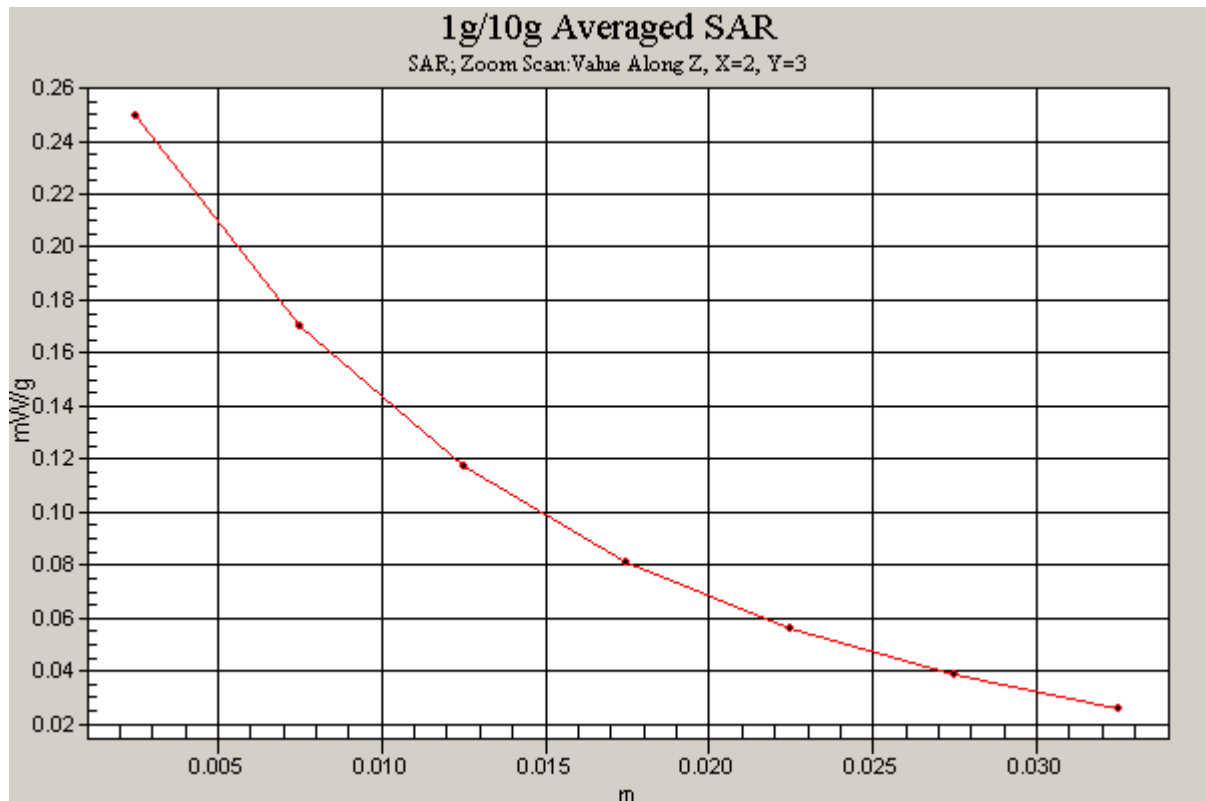


Figure 46 Z-Scan at power reference point (Body with Earphone, Towards Phantom, Open GSM 1900, Channel 661)

Date/Time: 3/4/2009 3:21:32 PM

GSM 1900 GPRS Towards Ground High Open

Communication System: GSM 1900+GPRS(2Up); Frequency: 1909.8 MHz; Duty Cycle: 1:4

Medium parameters used: $f = 1910$ MHz; $\sigma = 1.54$ mho/m; $\epsilon_r = 53.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(7.45, 7.45, 7.45); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM000 T01 ; Type: SAM V4.0; Serial: TP-1246
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

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

Maximum value of SAR (interpolated) = 0.674 mW/g

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

Reference Value = 11.5 V/m; Power Drift = 0.056 dB

Peak SAR (extrapolated) = 0.859 W/kg

SAR(1 g) = 0.546 mW/g; SAR(10 g) = 0.335 mW/g

Maximum value of SAR (measured) = 0.667 mW/g

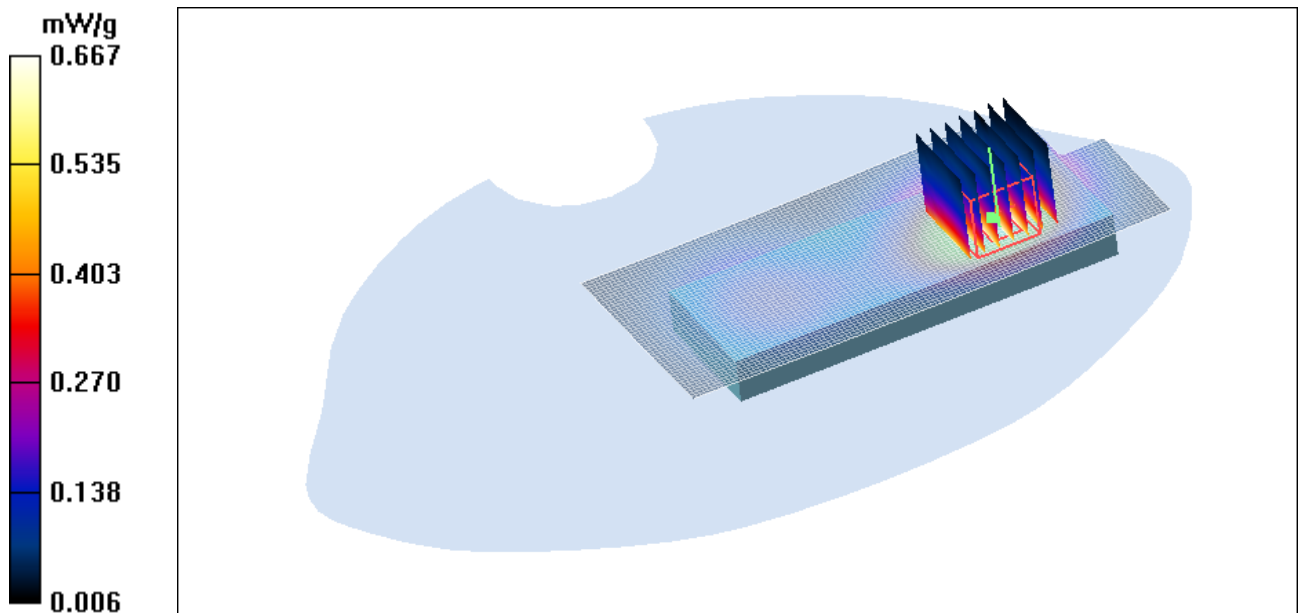


Figure 47 Body, Towards Ground, Open GSM 1900 GPRS, Channel 810

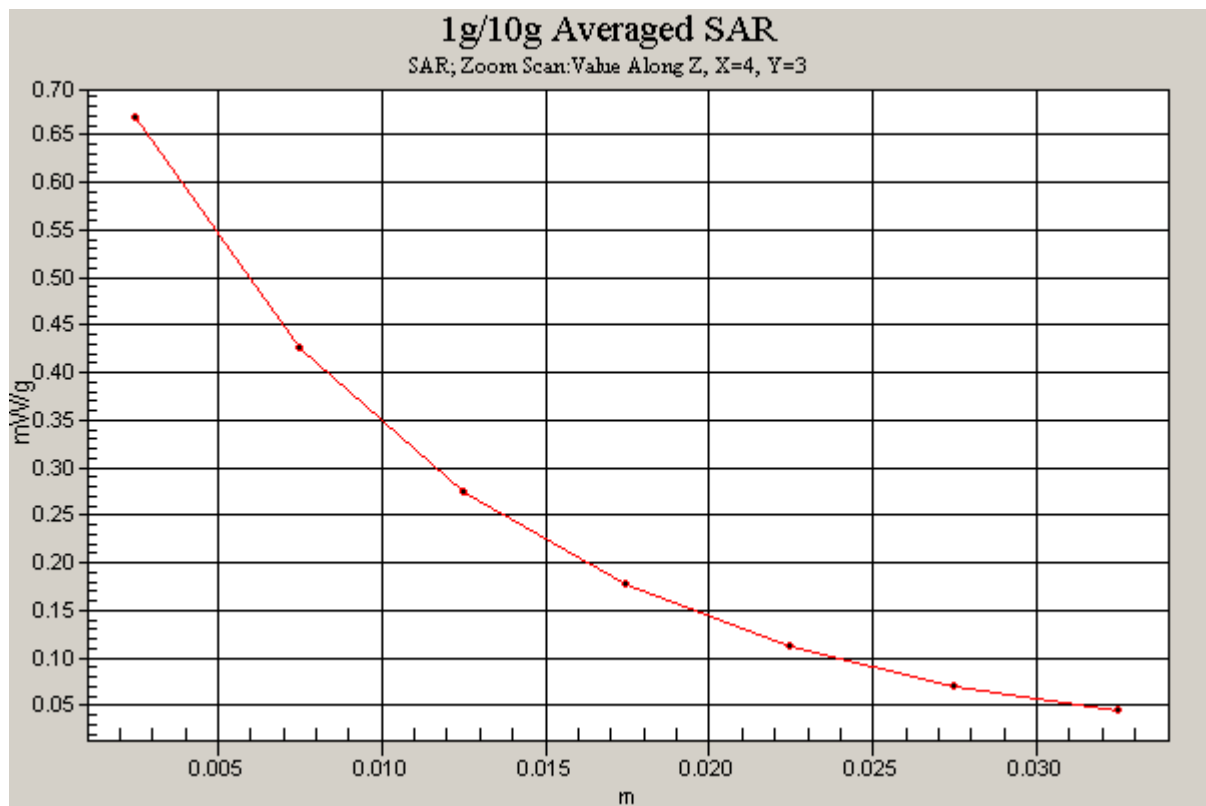


Figure 48 Z-Scan at power reference point (Body, Towards Ground, Open GSM 1900 GPRS, Channel 810)

Date/Time: 3/4/2009 3:40:04 PM

GSM 1900 GPRS Towards Ground Middle Open

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

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.52$ mho/m; $\epsilon_r = 53.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(7.45, 7.45, 7.45); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM000 T01 ; Type: SAM V4.0; Serial: TP-1246
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

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

Maximum value of SAR (interpolated) = 0.700 mW/g

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

Reference Value = 11.8 V/m; Power Drift = 0.071 dB

Peak SAR (extrapolated) = 0.911 W/kg

SAR(1 g) = 0.576 mW/g; SAR(10 g) = 0.352 mW/g

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

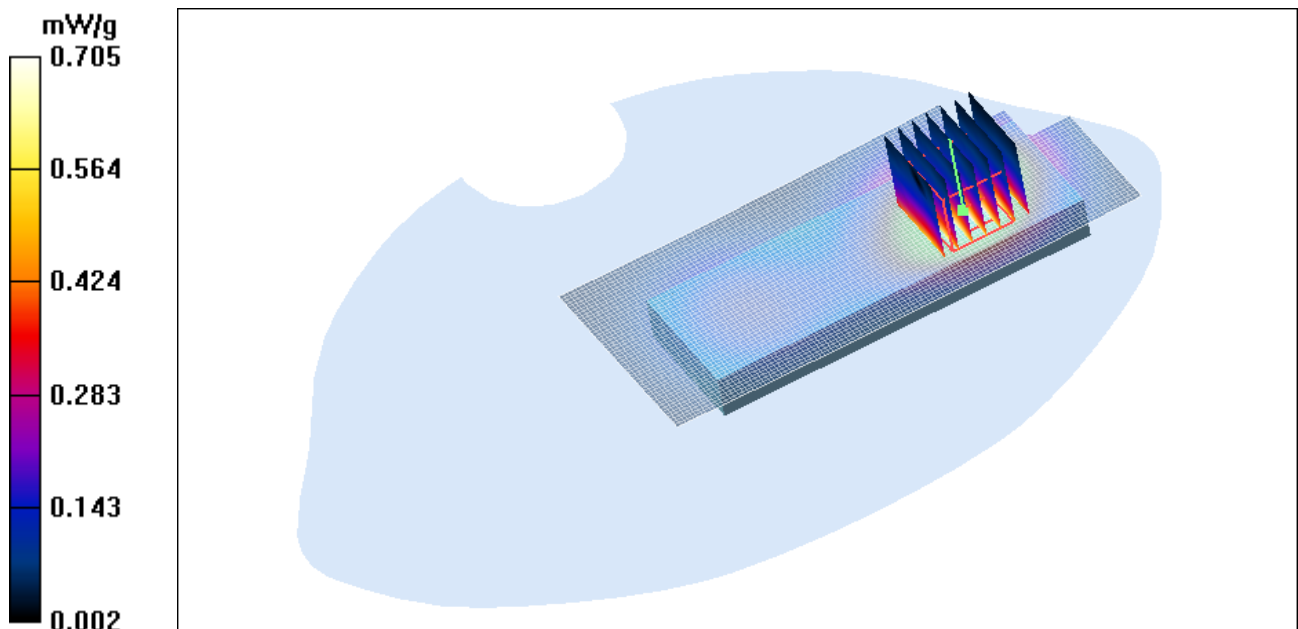


Figure 49 Body, Towards Ground, Open GSM 1900 GPRS Channel 661

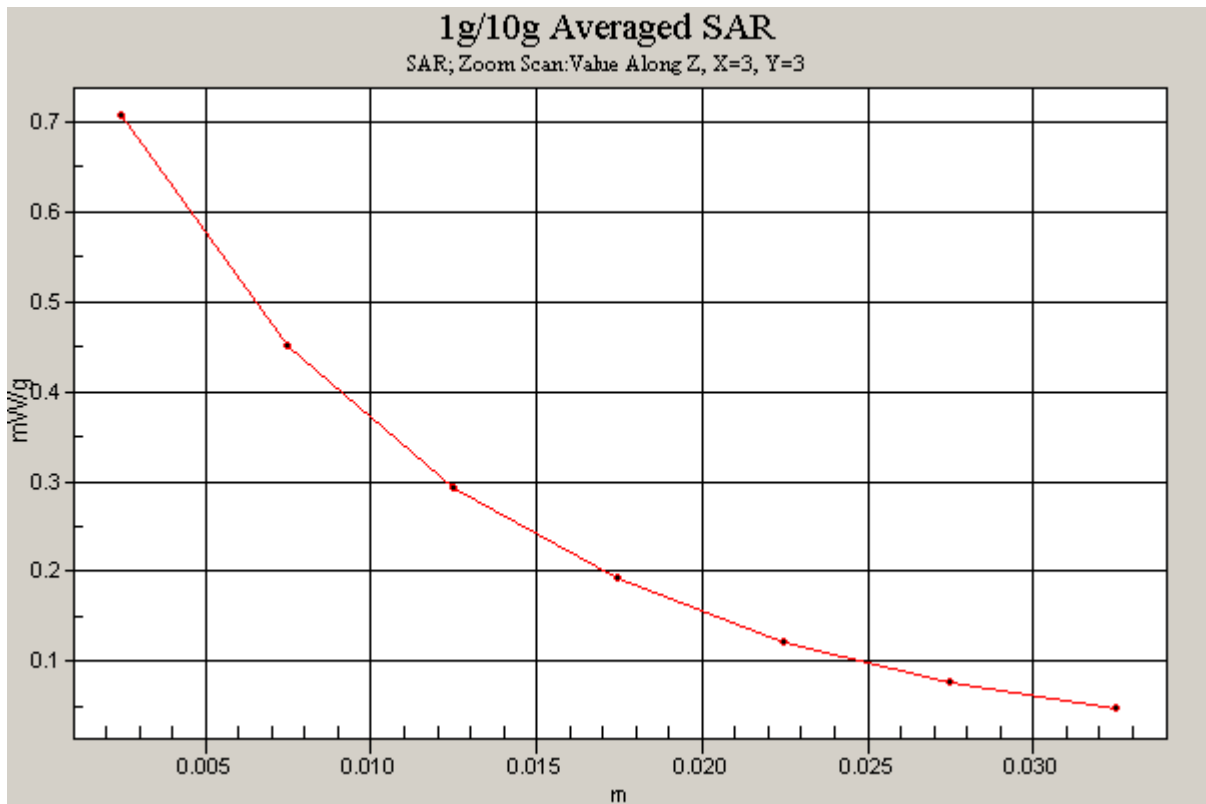


Figure 50 Z-Scan at power reference point (Body, Towards Ground, Open GSM 1900 GPRS Channel 661)

Date/Time: 3/4/2009 3:58:09 PM

GSM 1900 GPRS Towards Ground Low Open

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

Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.48$ mho/m; $\epsilon_r = 53.3$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(7.45, 7.45, 7.45); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM000 T01 ; Type: SAM V4.0; Serial: TP-1246
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

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

Maximum value of SAR (interpolated) = 0.668 mW/g

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

Reference Value = 11.6 V/m; Power Drift = 0.142 dB

Peak SAR (extrapolated) = 0.854 W/kg

SAR(1 g) = 0.546 mW/g; SAR(10 g) = 0.340 mW/g

Maximum value of SAR (measured) = 0.668 mW/g

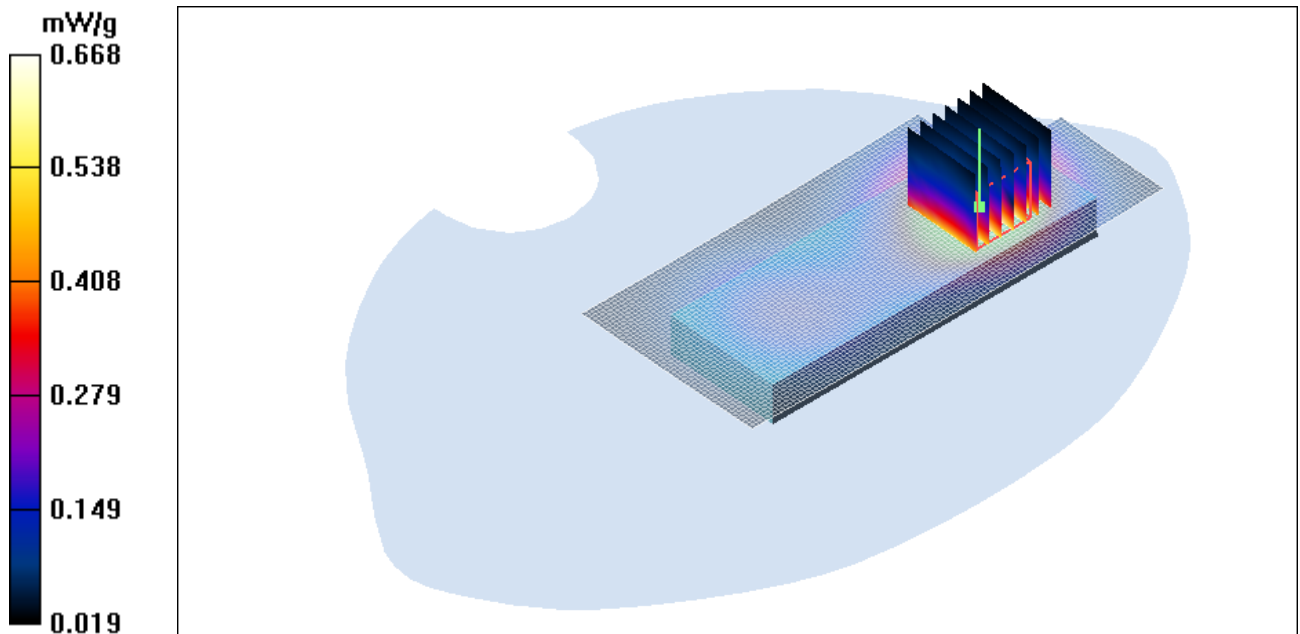


Figure 51 Body, Towards Ground, Open GSM 1900 GPRS Channel 512

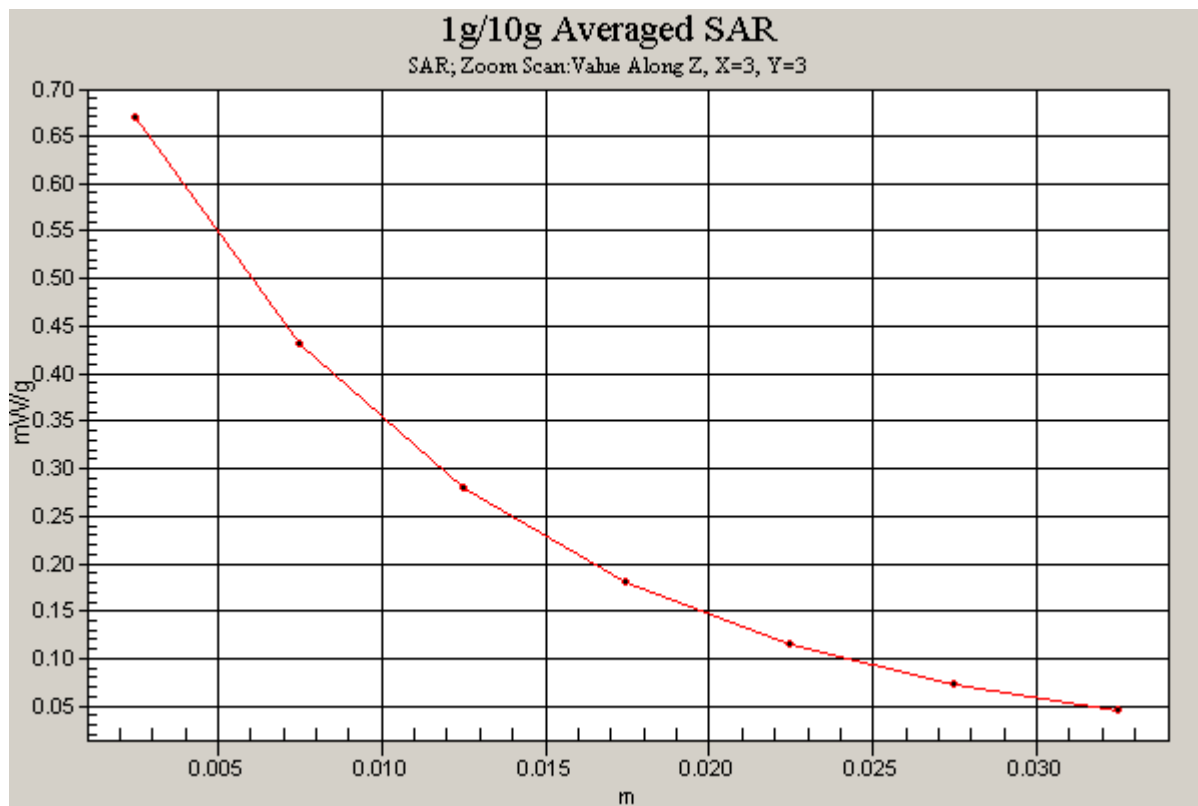


Figure 52 Z-Scan at power reference point (Body, Towards Ground, Open GSM 1900 GPRS Channel 512)

Date/Time: 3/4/2009 4:17:02 PM

GSM 1900 GPRS Towards Phantom High Open

Communication System: GSM 1900+GPRS(2Up); Frequency: 1909.8 MHz; Duty Cycle: 1:4

Medium parameters used: $f = 1910$ MHz; $\sigma = 1.54$ mho/m; $\epsilon_r = 53.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(7.45, 7.45, 7.45); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM000 T01 ; Type: SAM V4.0; Serial: TP-1246
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

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

Maximum value of SAR (interpolated) = 0.471 mW/g

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

Reference Value = 12.5 V/m; Power Drift = -0.023 dB

Peak SAR (extrapolated) = 0.556 W/kg

SAR(1 g) = 0.359 mW/g; SAR(10 g) = 0.224 mW/g

Maximum value of SAR (measured) = 0.444 mW/g

Towards Phantom High/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 12.5 V/m; Power Drift = -0.023 dB

Peak SAR (extrapolated) = 0.462 W/kg

SAR(1 g) = 0.299 mW/g; SAR(10 g) = 0.186 mW/g

Maximum value of SAR (measured) = 0.366 mW/g

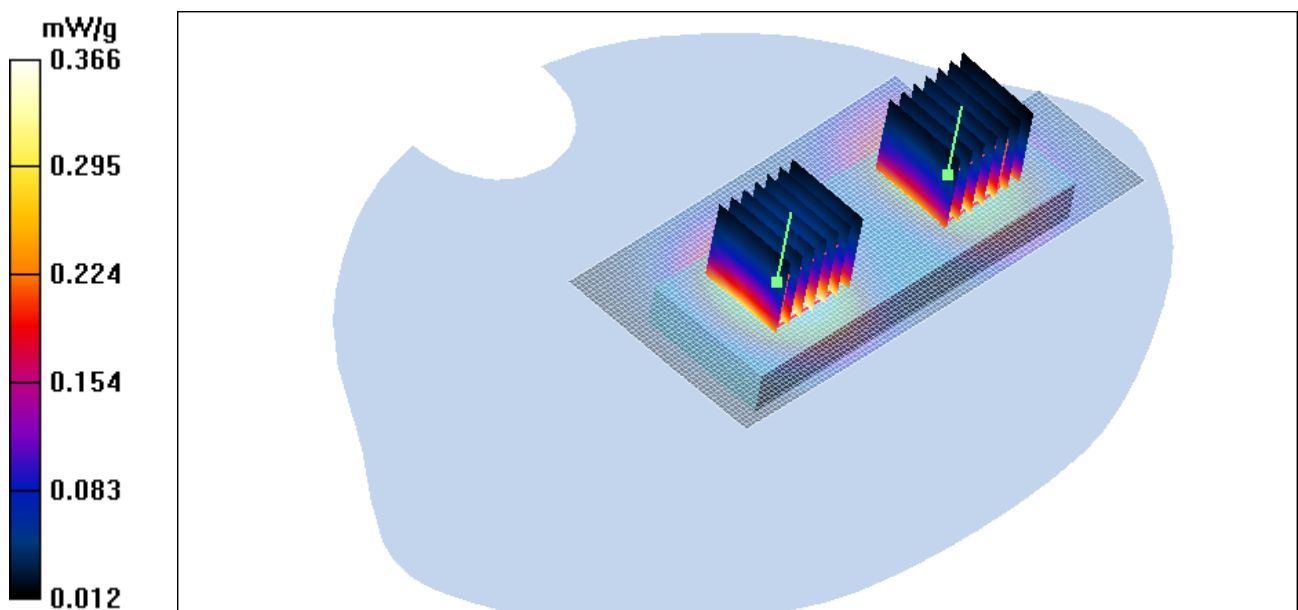


Figure 53 Body, Towards Phantom, Open GSM 1900 GPRS, Channel 810

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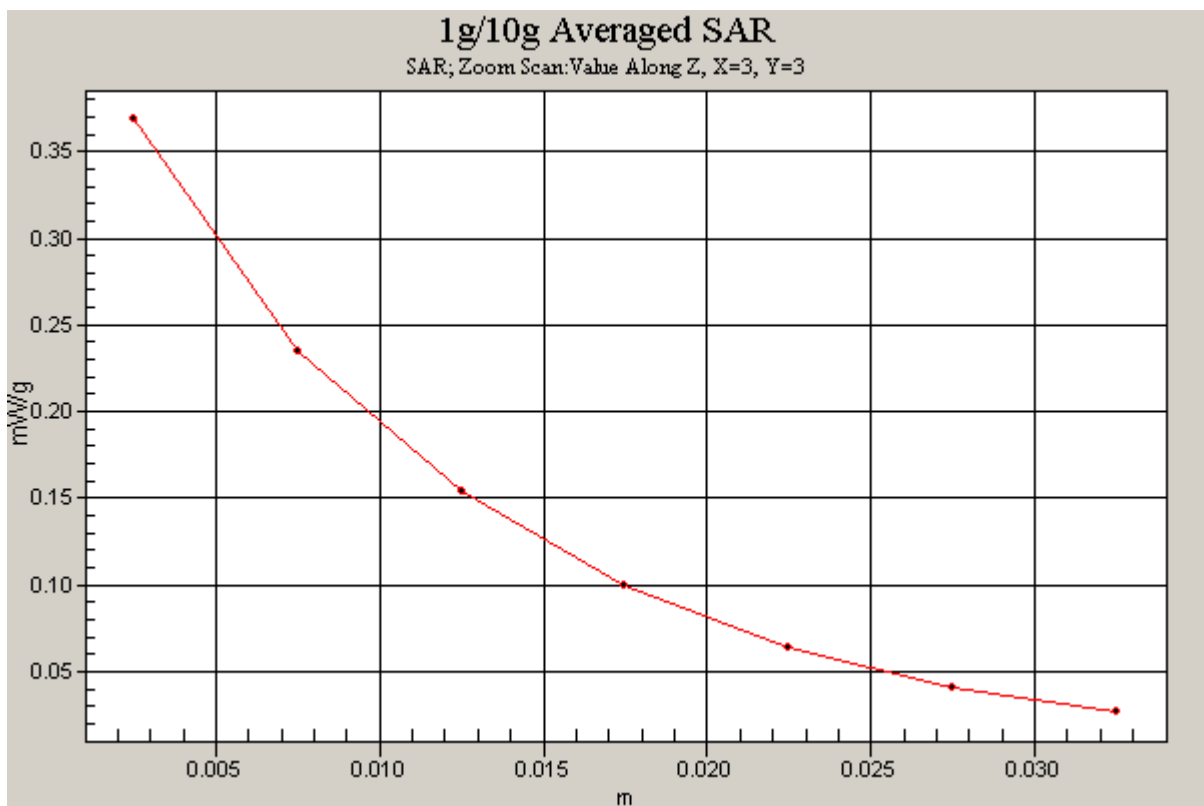
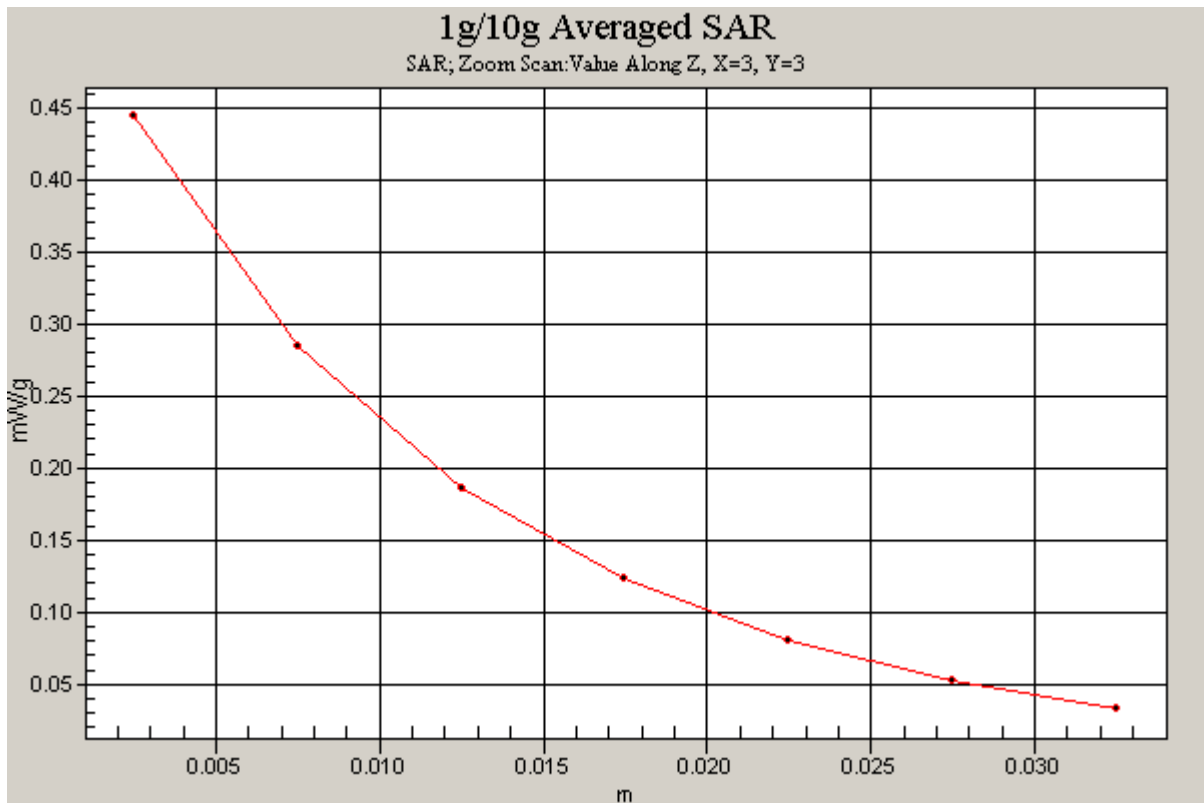


Figure 54 Z-Scan at power reference point (Body, Towards Phantom, Open GSM 1900 GPRS, Channel 810)

Date/Time: 3/4/2009 4:43:58 PM

GSM 1900 GPRS Towards Phantom Middle Open

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

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.52$ mho/m; $\epsilon_r = 53.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(7.45, 7.45, 7.45); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM000 T01 ; Type: SAM V4.0; Serial: TP-1246
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

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

Maximum value of SAR (interpolated) = 0.506 mW/g

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

Reference Value = 12.7 V/m; Power Drift = 0.034 dB

Peak SAR (extrapolated) = 0.662 W/kg

SAR(1 g) = 0.388 mW/g; SAR(10 g) = 0.244 mW/g

Maximum value of SAR (measured) = 0.477 mW/g

Towards Phantom Middle/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 12.7 V/m; Power Drift = 0.034 dB

Peak SAR (extrapolated) = 0.503 W/kg

SAR(1 g) = 0.321 mW/g; SAR(10 g) = 0.200 mW/g

Maximum value of SAR (measured) = 0.400 mW/g

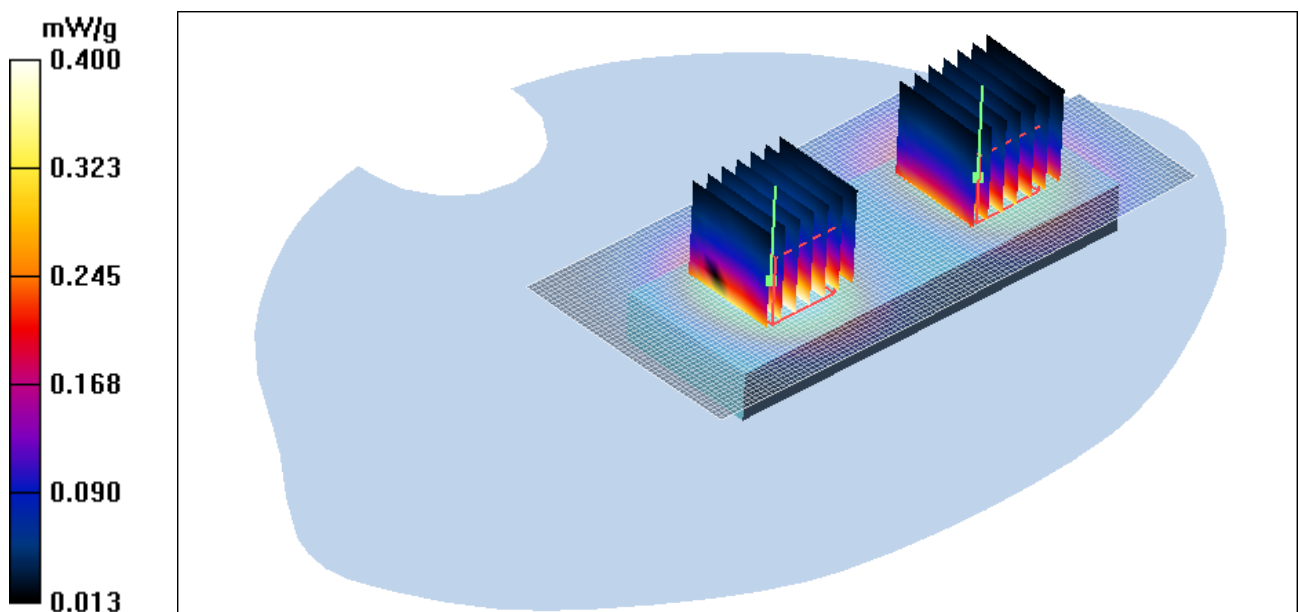


Figure 55 Body, Towards Phantom, Open GSM 1900 GPRS Channel 661

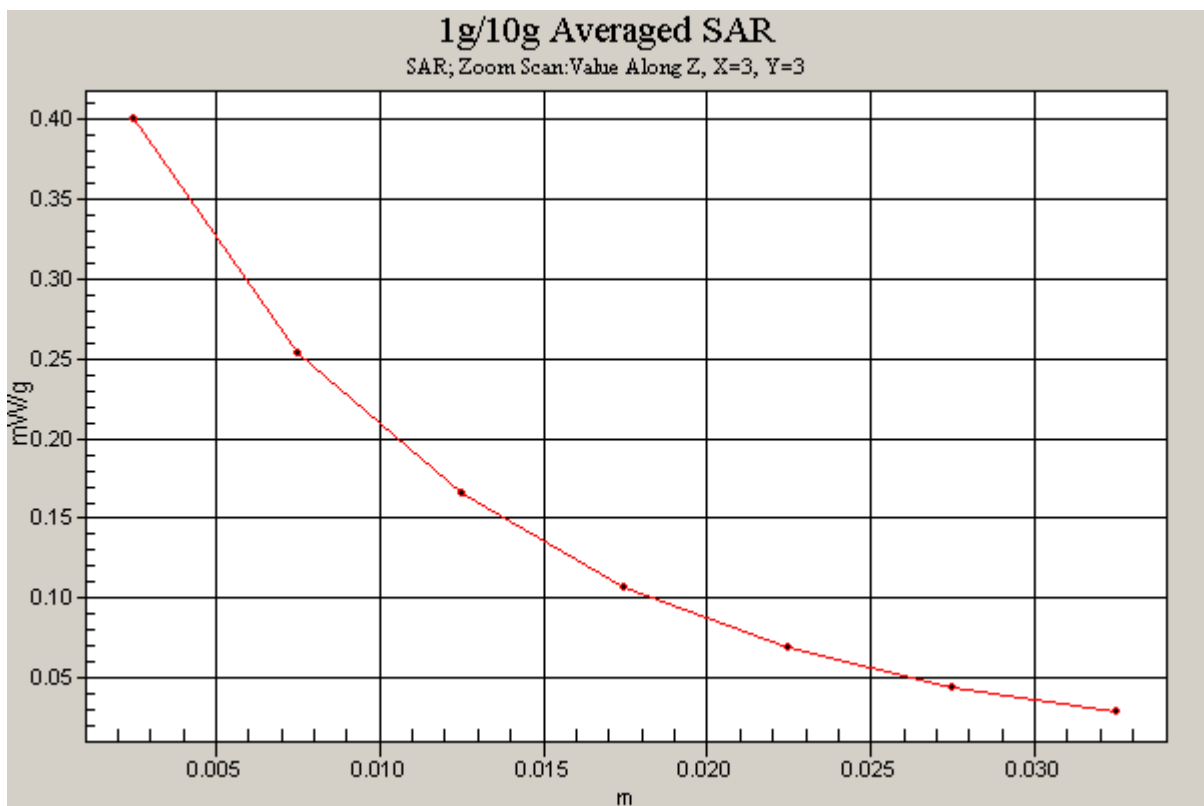
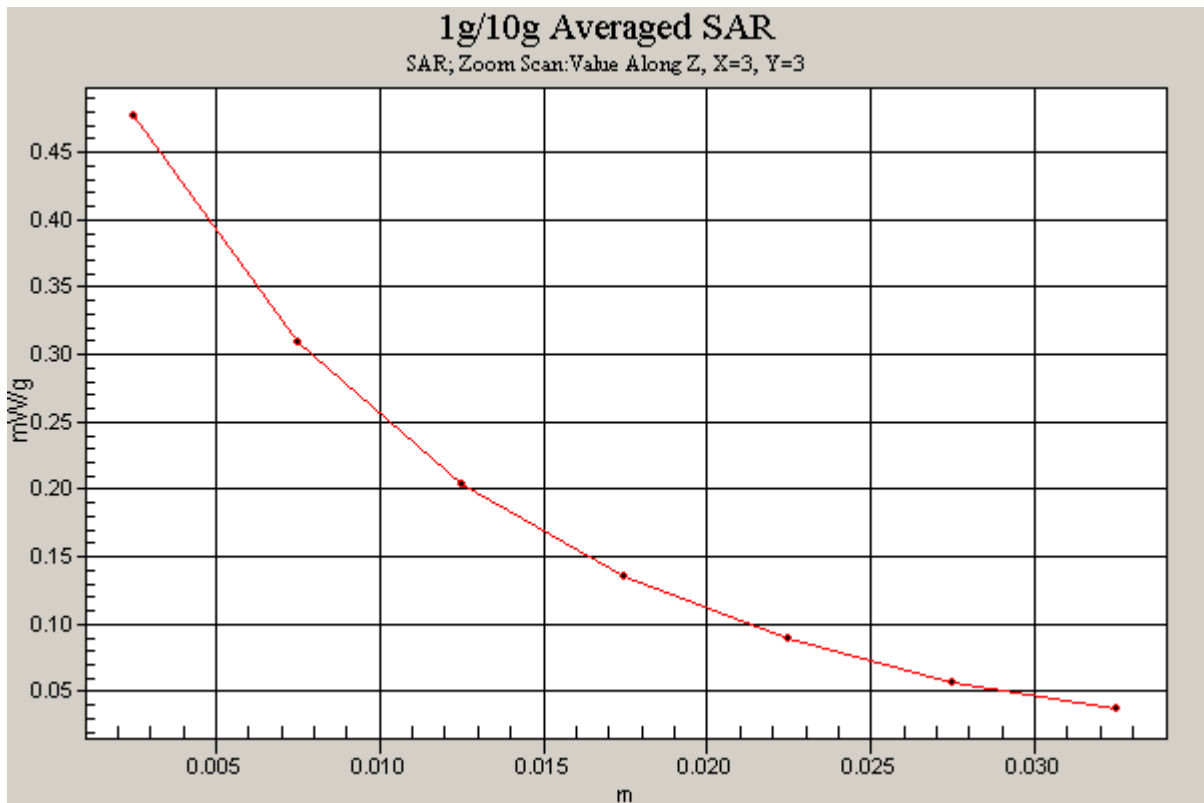


Figure 56 Z-Scan at power reference point (Body, Towards Phantom, Open GSM 1900 GPRS Channel 661)

Date/Time: 3/4/2009 5:16:56 PM

GSM 1900 GPRS Towards Phantom Low Open

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

Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.48$ mho/m; $\epsilon_r = 53.3$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(7.45, 7.45, 7.45); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM000 T01 ; Type: SAM V4.0; Serial: TP-1246
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

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

Maximum value of SAR (interpolated) = 0.500 mW/g

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

Reference Value = 12.5 V/m; Power Drift = 0.035 dB

Peak SAR (extrapolated) = 0.650 W/kg

SAR(1 g) = 0.388 mW/g; SAR(10 g) = 0.244 mW/g

Maximum value of SAR (measured) = 0.471 mW/g

Towards Phantom Low/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 12.5 V/m; Power Drift = 0.035 dB

Peak SAR (extrapolated) = 0.469 W/kg

SAR(1 g) = 0.304 mW/g; SAR(10 g) = 0.191 mW/g

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

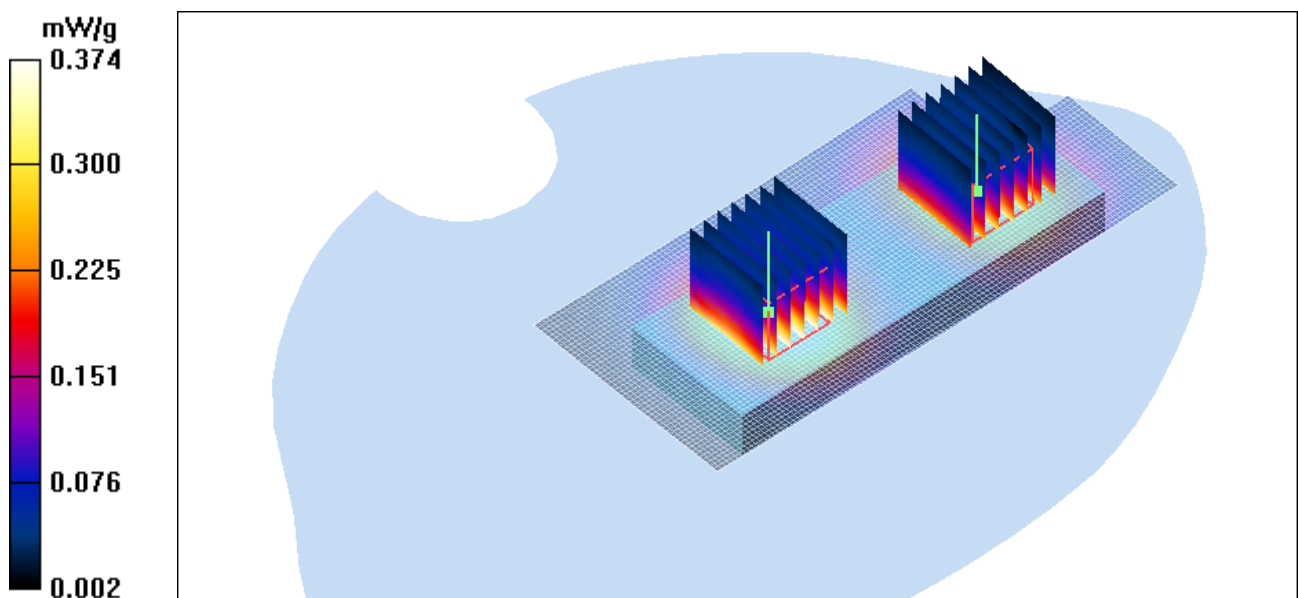


Figure 57 Body, Towards Phantom, Open GSM 1900 GPRS Channel 512

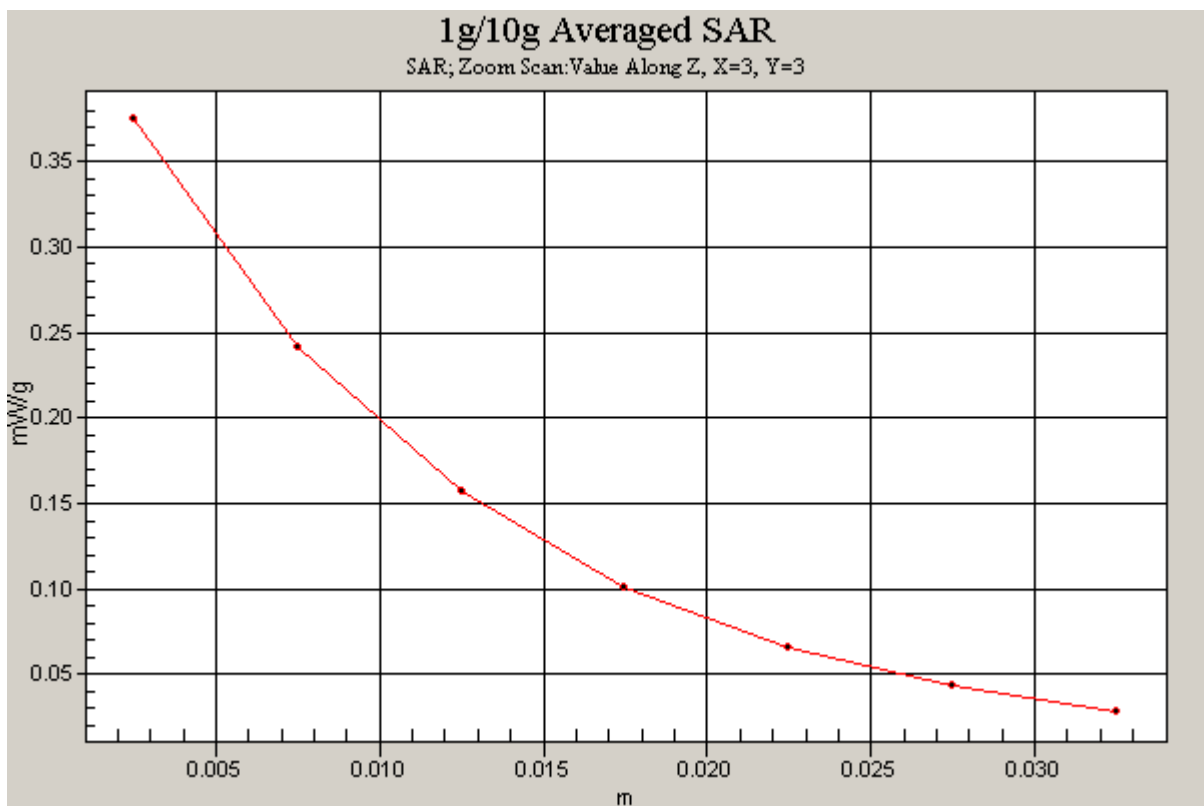
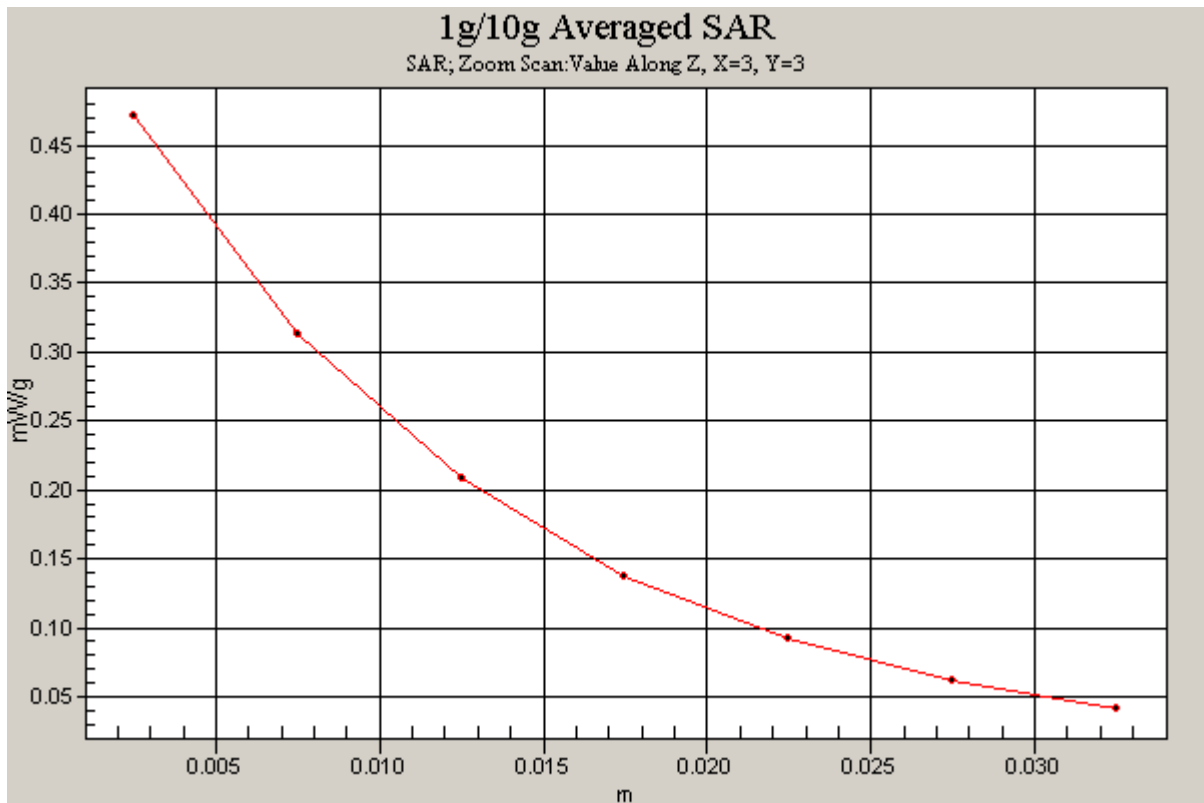


Figure 58 Z-Scan at power reference point (Body, Towards Phantom, Open GSM 1900 GPRS Channel 512)

Date/Time: 3/4/2009 5:35:19 PM

GSM 1900 EGPRS Towards Ground Middle Open

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

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.52$ mho/m; $\epsilon_r = 53.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(7.45, 7.45, 7.45); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM000 T01 ; Type: SAM V4.0; Serial: TP-1246
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

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

Maximum value of SAR (interpolated) = 0.321 mW/g

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

Reference Value = 8.70 V/m; Power Drift = -0.088 dB

Peak SAR (extrapolated) = 0.383 W/kg

SAR(1 g) = 0.257 mW/g; SAR(10 g) = 0.166 mW/g

Maximum value of SAR (measured) = 0.312 mW/g

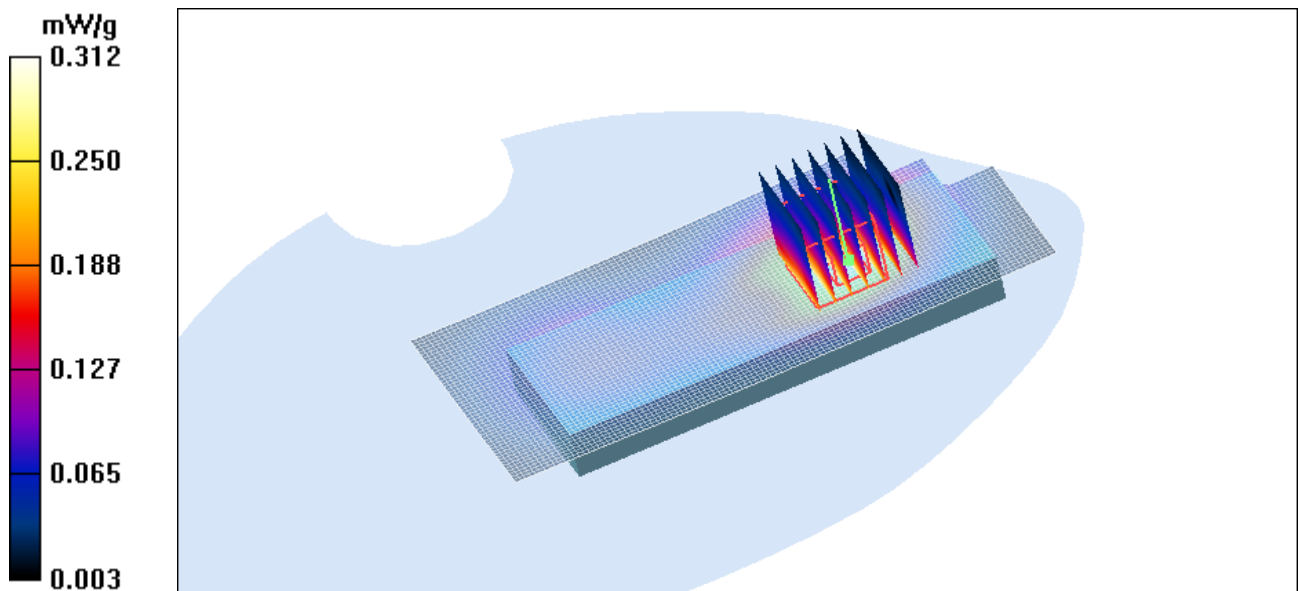


Figure 59 Body, Towards Ground, Open GSM 1900 EGPRS Channel 661

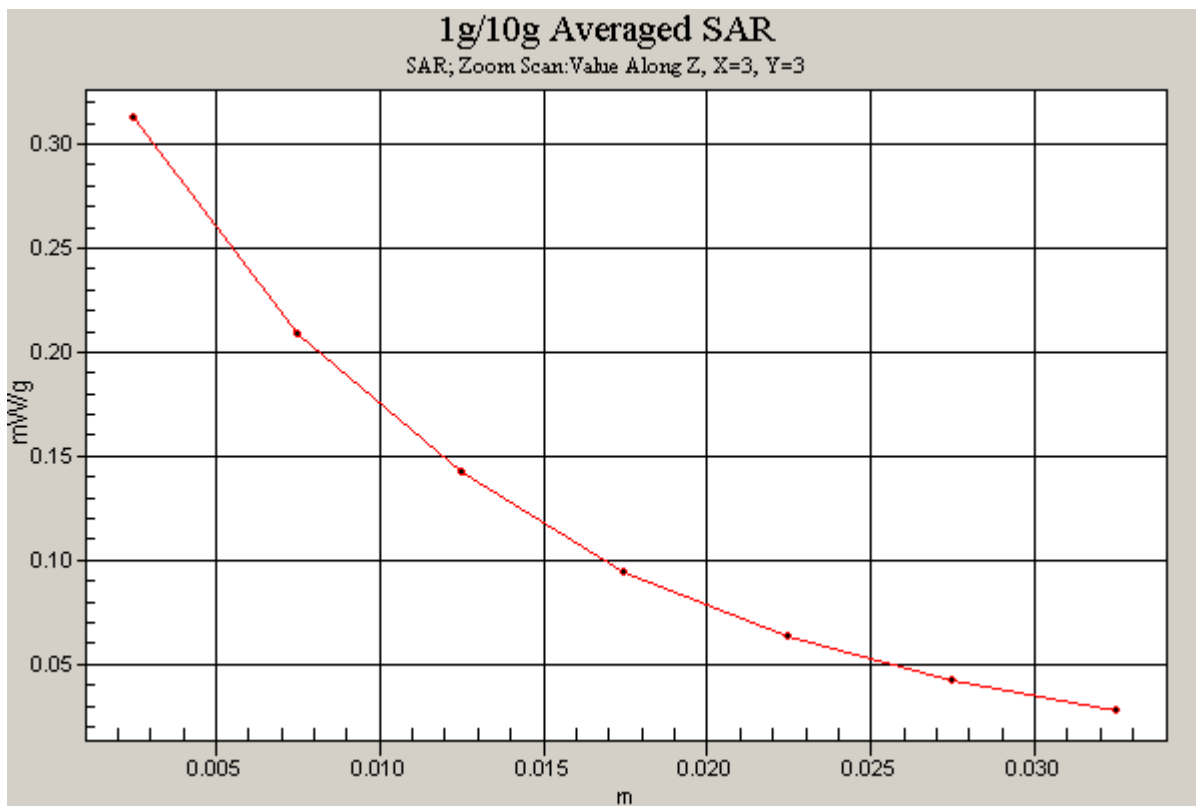


Figure 60 Z-Scan at power reference point (Body, Towards Ground, Open GSM 1900 EGPRS Channel 661)

Date/Time: 3/4/2009 5:53:23 PM

GSM 1900 Left Cheek High Close

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

Medium parameters used: $f = 1910$ MHz; $\sigma = 1.4$ mho/m; $\epsilon_r = 38.8$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(7.35, 7.35, 7.35); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM000 T01 ; Type: SAM V4.0; Serial: TP-1246
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

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

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

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

Reference Value = 7.44 V/m; Power Drift = -0.086 dB

Peak SAR (extrapolated) = 0.463 W/kg

SAR(1 g) = 0.286 mW/g; SAR(10 g) = 0.168 mW/g

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

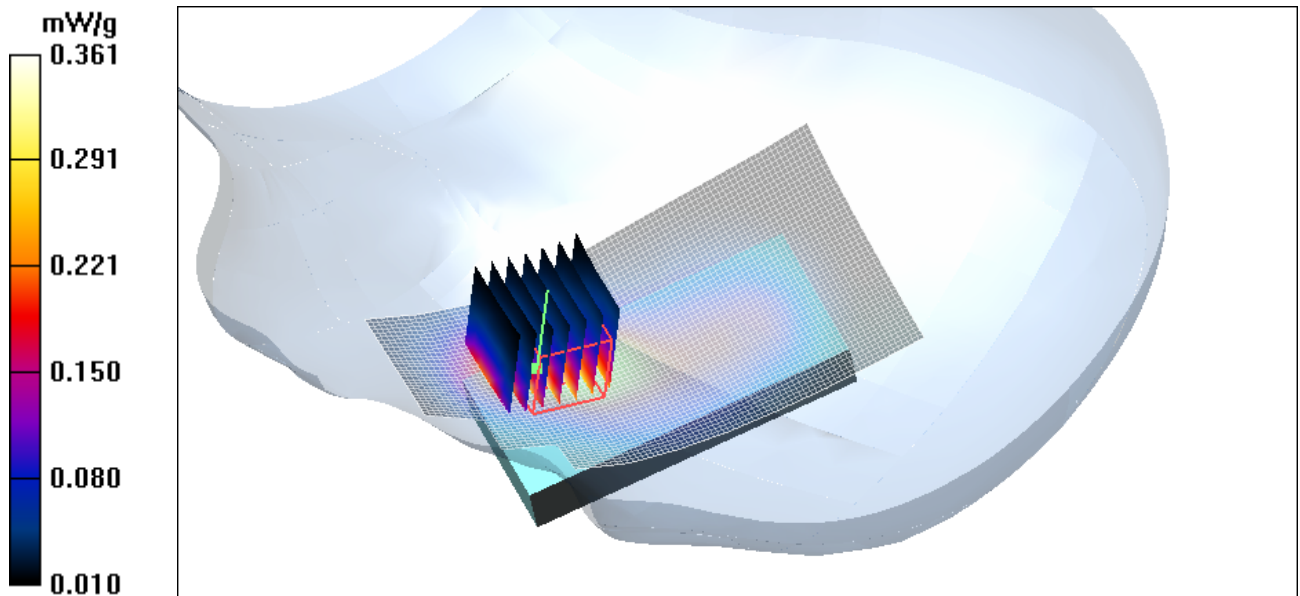


Figure 61 Left Hand Touch Cheek Close GSM 1900 Channel 810

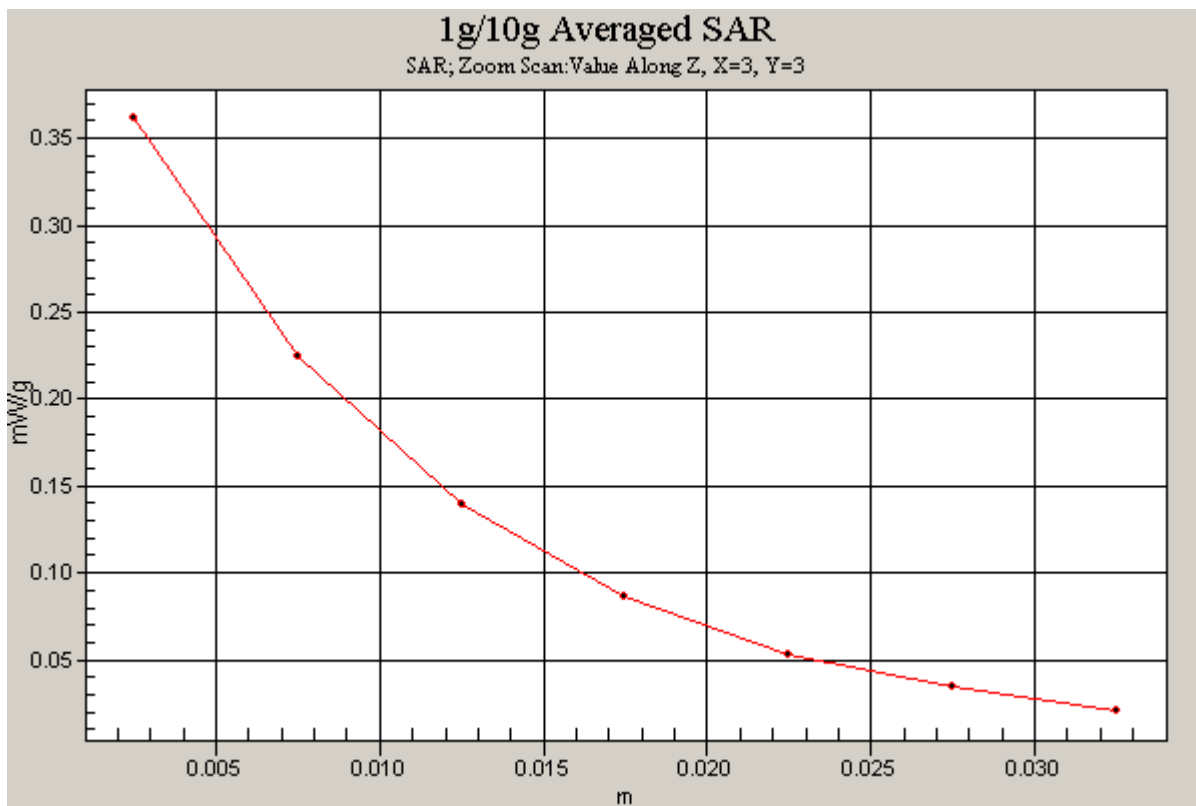


Figure 62 Z-Scan at power reference point (Left Hand Touch Cheek Close GSM 1900 Channel 810)

Date/Time: 3/4/2009 6:12:09 PM

GSM 1900 Left Cheek Middle Close

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

Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.39 \text{ mho/m}$; $\epsilon_r = 38.8$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(7.35, 7.35, 7.35); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM000 T01 ; Type: SAM V4.0; Serial: TP-1246
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Cheek Middle/Area Scan (51x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.413 mW/g

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

Reference Value = 8.25 V/m; Power Drift = -0.171 dB

Peak SAR (extrapolated) = 0.541 W/kg

SAR(1 g) = 0.336 mW/g; SAR(10 g) = 0.199 mW/g

Maximum value of SAR (measured) = 0.424 mW/g

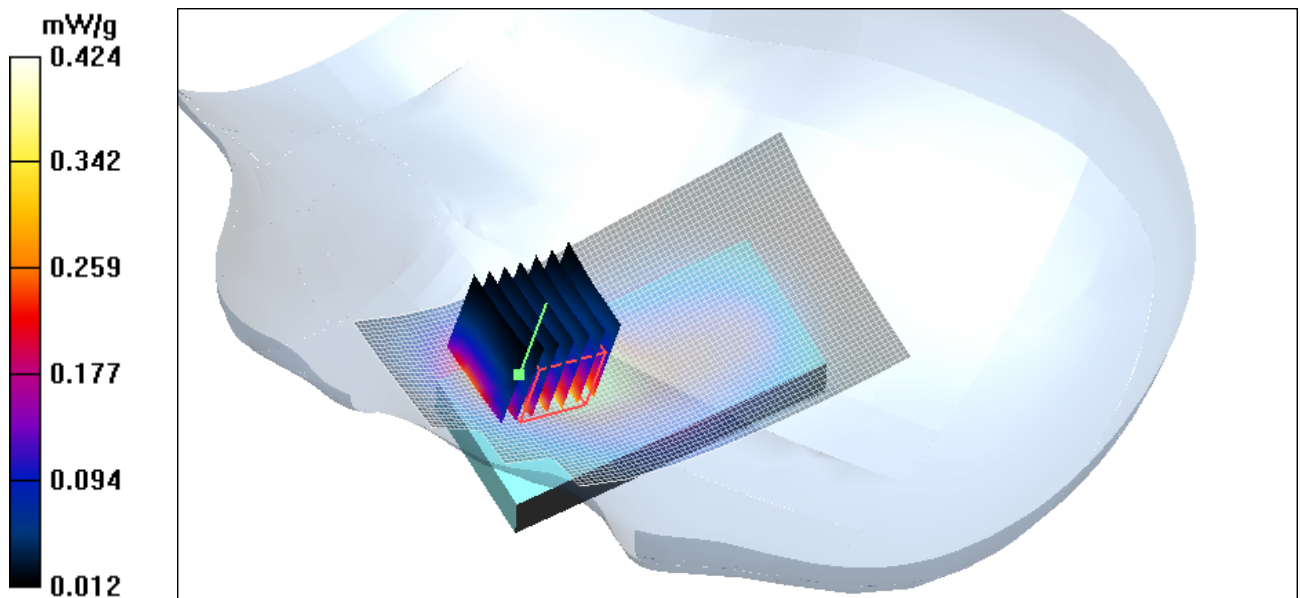


Figure 63 Left Hand Touch Cheek Close GSM 1900 Channel 661

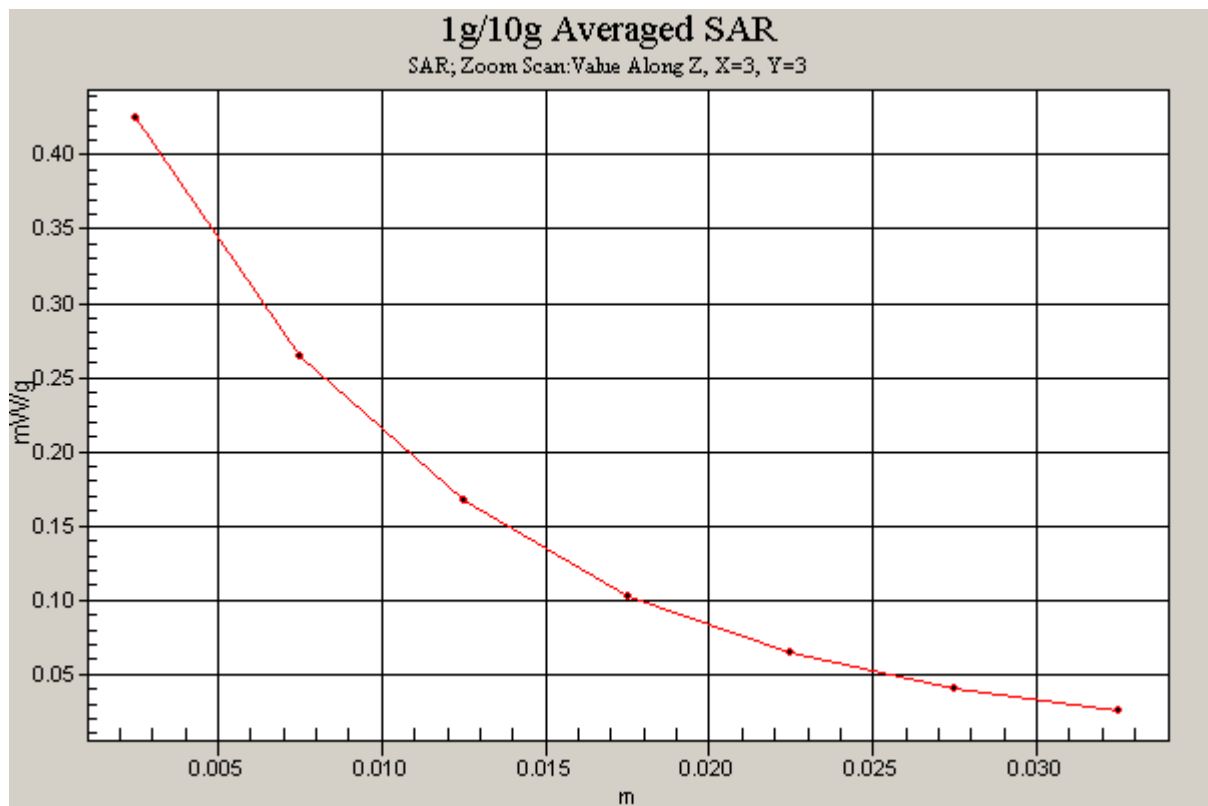


Figure 64 Z-Scan at power reference point (Left Hand Touch Cheek Close GSM 1900 Channel 661)

Date/Time: 3/4/2009 6:31:48 PM

GSM 1900 Left Cheek Low Close

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

Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.34$ mho/m; $\epsilon_r = 38.7$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(7.35, 7.35, 7.35); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM000 T01 ; Type: SAM V4.0; Serial: TP-1246
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

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

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

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

Reference Value = 7.85 V/m; Power Drift = -0.164 dB

Peak SAR (extrapolated) = 0.492 W/kg

SAR(1 g) = 0.308 mW/g; SAR(10 g) = 0.183 mW/g

Maximum value of SAR (measured) = 0.390 mW/g

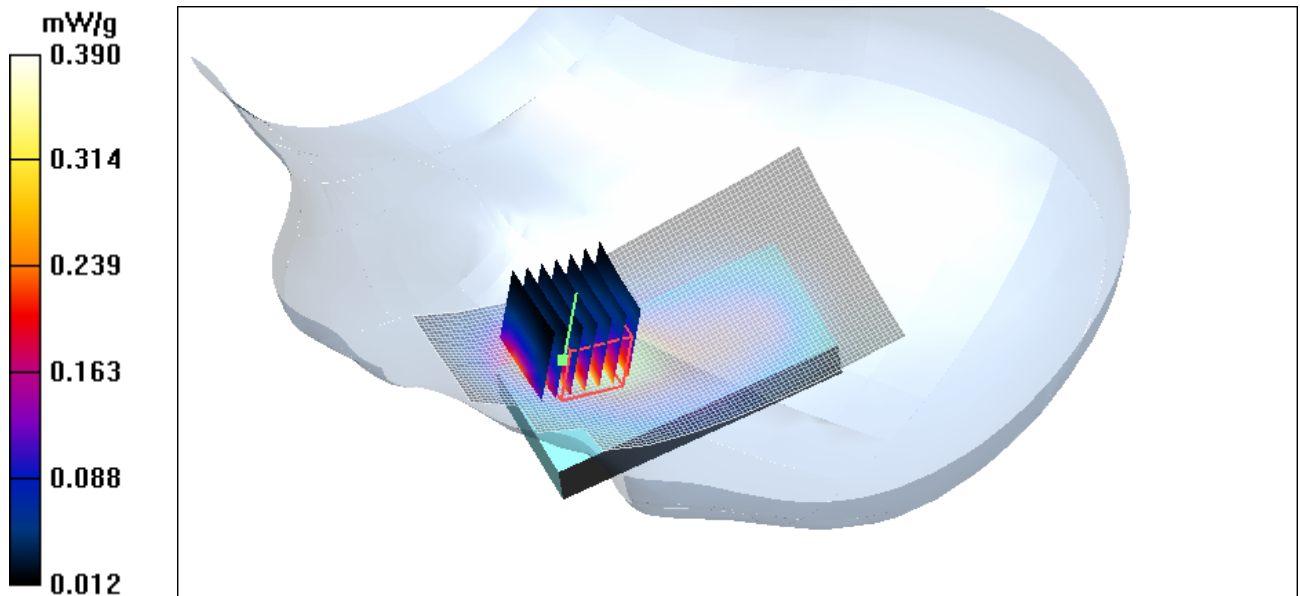


Figure 65 Left Hand Touch Cheek Close GSM 1900 Channel 512

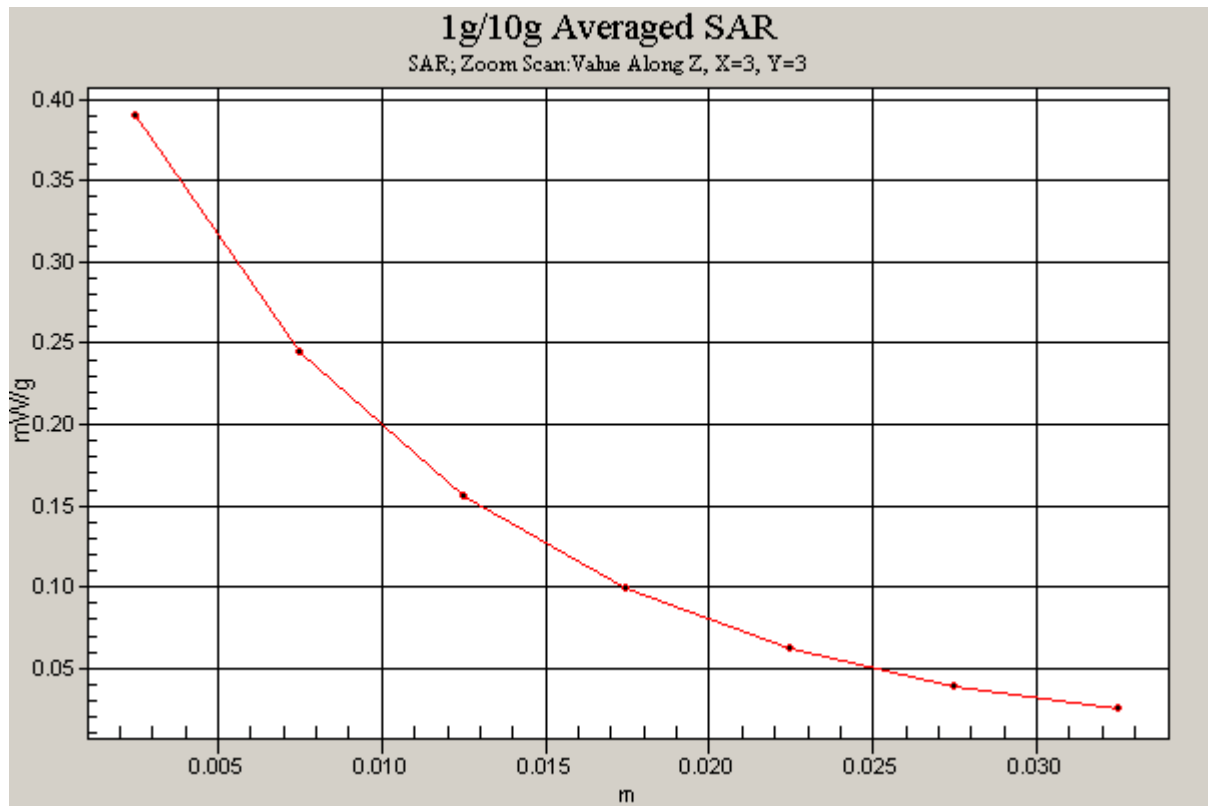


Figure 66 Z-Scan at power reference point (Left Hand Touch Cheek Close GSM 1900 Channel 512)

Date/Time: 3/4/2009 6:50:33 PM

GSM 1900 Left Tilt High Close

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

Medium parameters used: $f = 1910$ MHz; $\sigma = 1.4$ mho/m; $\epsilon_r = 38.8$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(7.35, 7.35, 7.35); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM000 T01 ; Type: SAM V4.0; Serial: TP-1246
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

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

Maximum value of SAR (interpolated) = 0.244 mW/g

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

Reference Value = 10.1 V/m; Power Drift = -0.059 dB

Peak SAR (extrapolated) = 0.272 W/kg

SAR(1 g) = 0.182 mW/g; SAR(10 g) = 0.113 mW/g

Maximum value of SAR (measured) = 0.222 mW/g

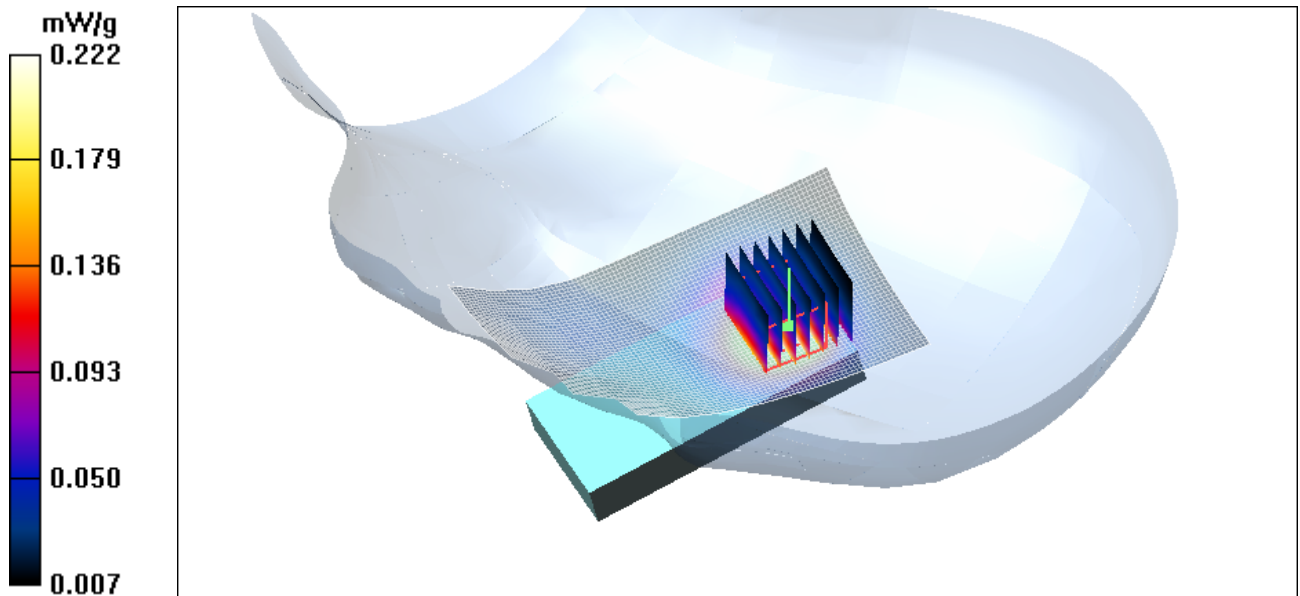


Figure 67 Left Hand Tilt 15°Close GSM 1900 Channel 810

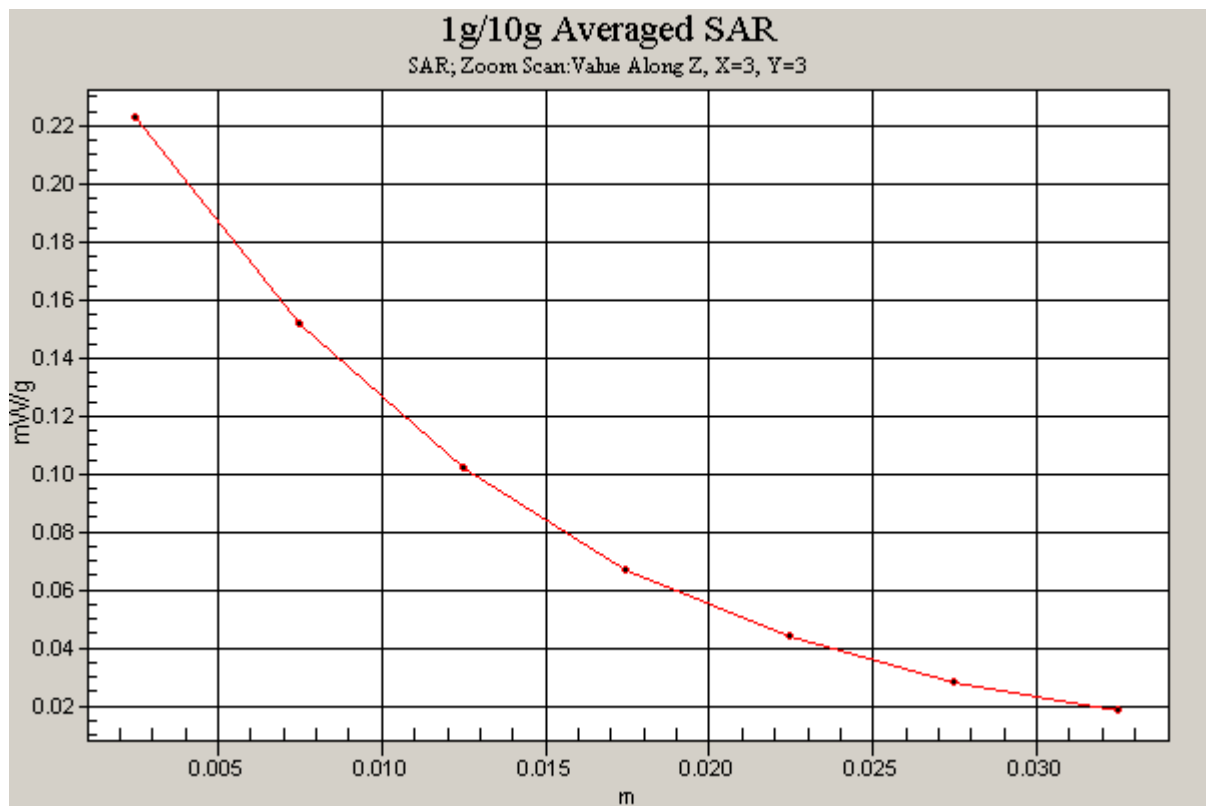


Figure 68 Z-Scan at power reference point (Left Hand Tilt 15° Close GSM 1900 Channel 810)

Date/Time: 3/4/2009 7:09:14 PM

GSM 1900 Left Tilt Middle Close

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

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.39$ mho/m; $\epsilon_r = 38.8$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(7.35, 7.35, 7.35); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM000 T01 ; Type: SAM V4.0; Serial: TP-1246
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

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

Maximum value of SAR (interpolated) = 0.277 mW/g

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

Reference Value = 10.8 V/m; Power Drift = -0.136 dB

Peak SAR (extrapolated) = 0.309 W/kg

SAR(1 g) = 0.207 mW/g; SAR(10 g) = 0.129 mW/g

Maximum value of SAR (measured) = 0.251 mW/g

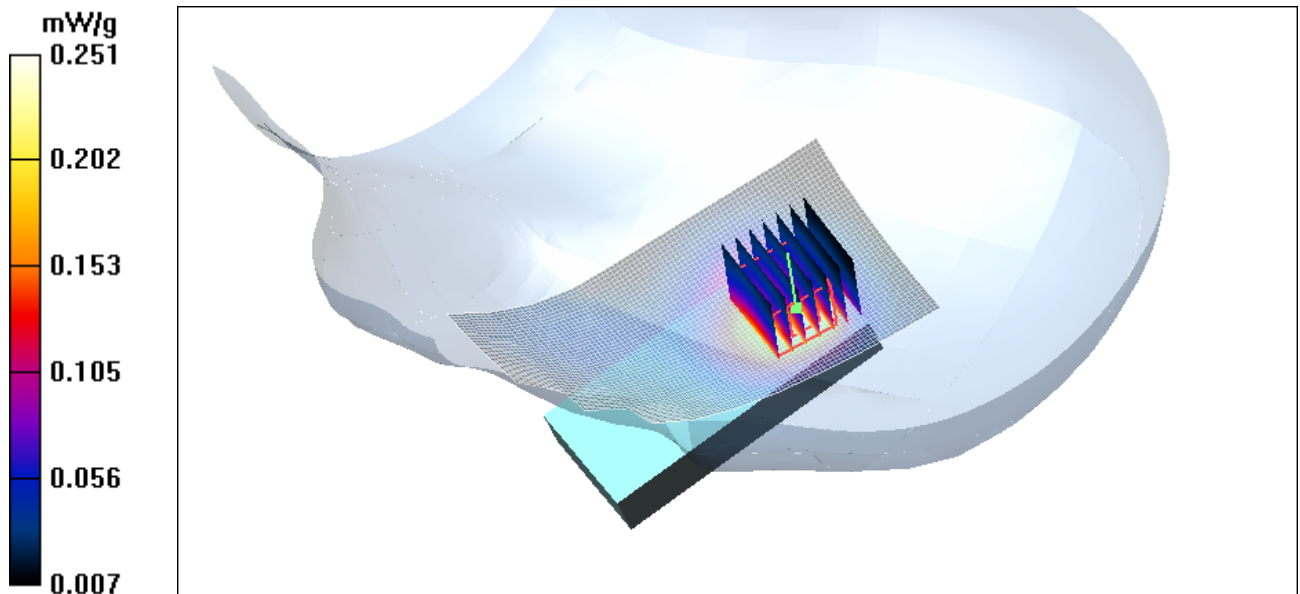


Figure 69 Left Hand Tilt 15°Close GSM 1900 Channel 661

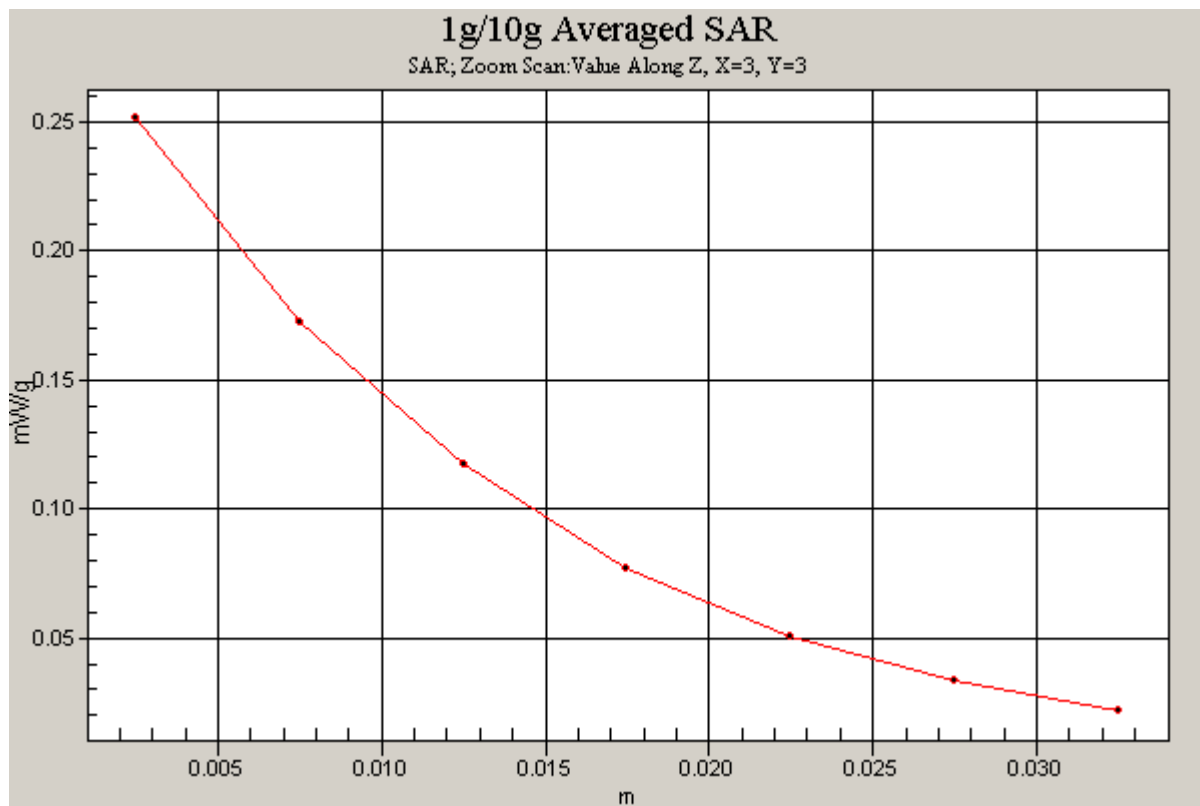


Figure 70 Z-Scan at power reference point (Left Hand Tilt 15° Close GSM 1900 Channel 661)

Date/Time: 3/4/2009 7:27:36 PM

GSM 1900 Left Tilt Low Close

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

Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.34$ mho/m; $\epsilon_r = 38.7$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(7.35, 7.35, 7.35); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM000 T01 ; Type: SAM V4.0; Serial: TP-1246
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

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

Maximum value of SAR (interpolated) = 0.256 mW/g

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

Reference Value = 10.3 V/m; Power Drift = -0.037 dB

Peak SAR (extrapolated) = 0.287 W/kg

SAR(1 g) = 0.193 mW/g; SAR(10 g) = 0.121 mW/g

Maximum value of SAR (measured) = 0.233 mW/g

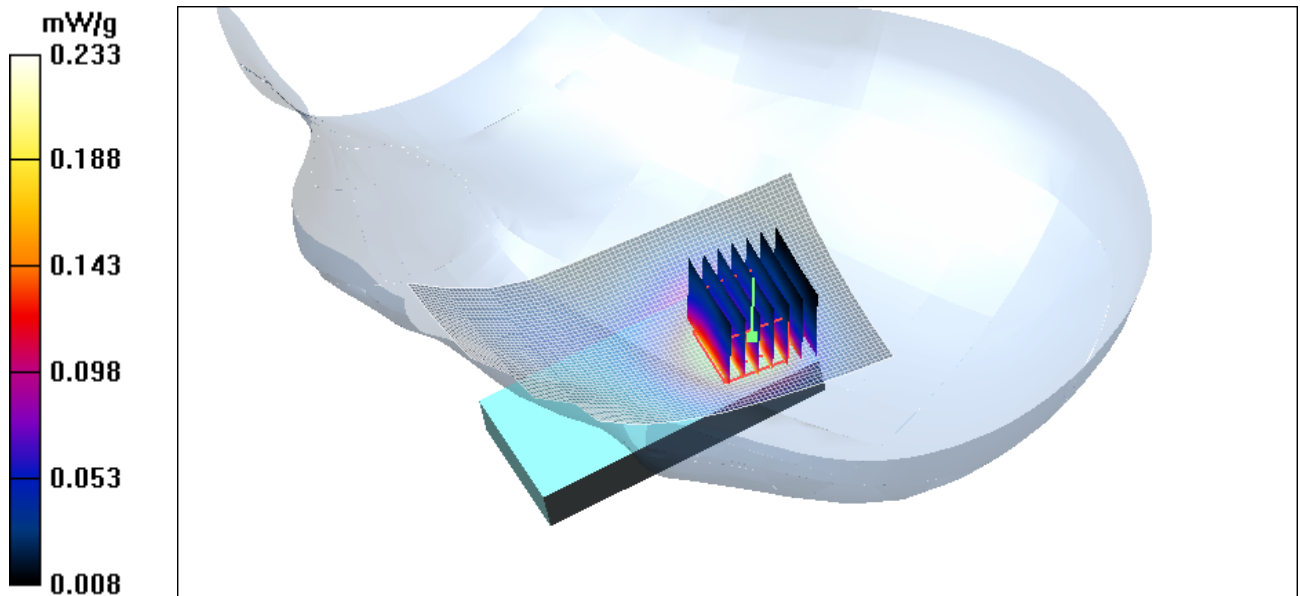


Figure 71 Left Hand Tilt 15° Close GSM 1900 Channel 512

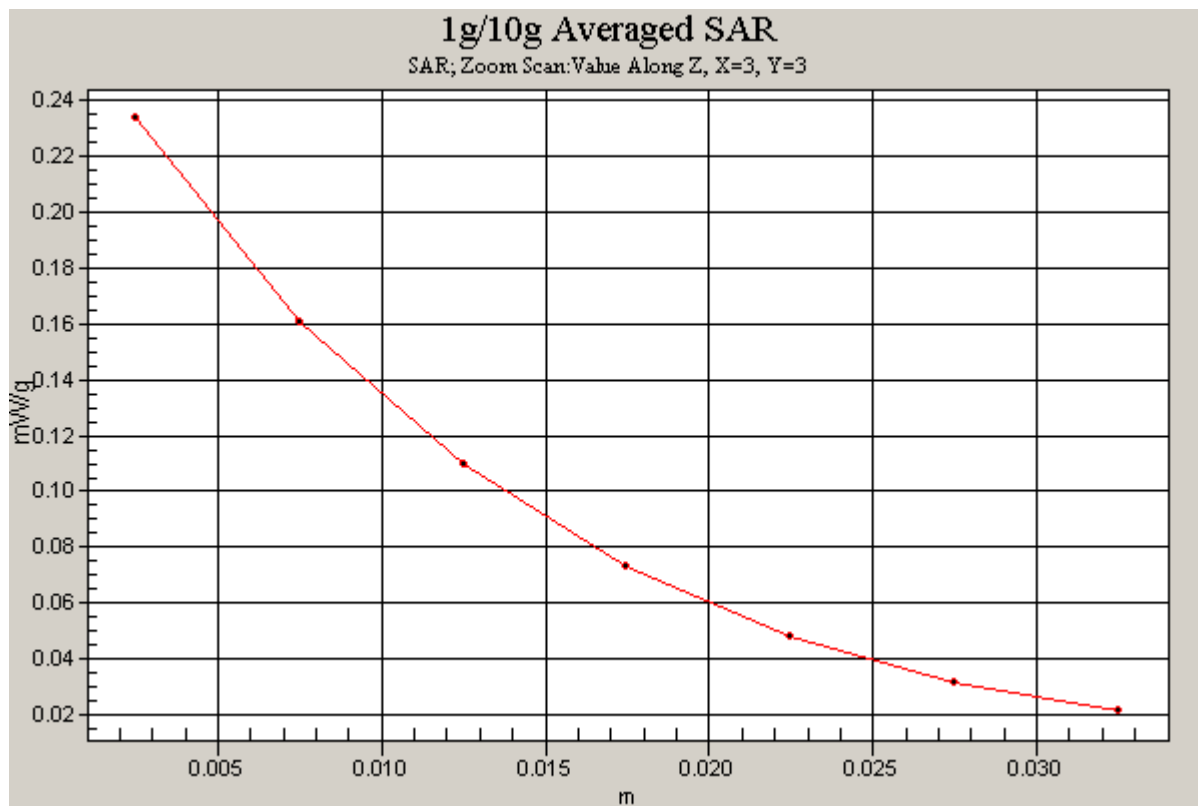


Figure 72 Z-Scan at power reference point (Left Hand Tilt 15° Close GSM 1900 Channel 512)

Date/Time: 3/4/2009 7:49:14 PM

GSM 1900 Right Cheek High Close

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

Medium parameters used: $f = 1910$ MHz; $\sigma = 1.4$ mho/m; $\epsilon_r = 38.8$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(7.35, 7.35, 7.35); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM000 T01 ; Type: SAM V4.0; Serial: TP-1246
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

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

Maximum value of SAR (interpolated) = 0.335 mW/g

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

Reference Value = 8.89 V/m; Power Drift = -0.018 dB

Peak SAR (extrapolated) = 0.414 W/kg

SAR(1 g) = 0.274 mW/g; SAR(10 g) = 0.172 mW/g

Maximum value of SAR (measured) = 0.331 mW/g

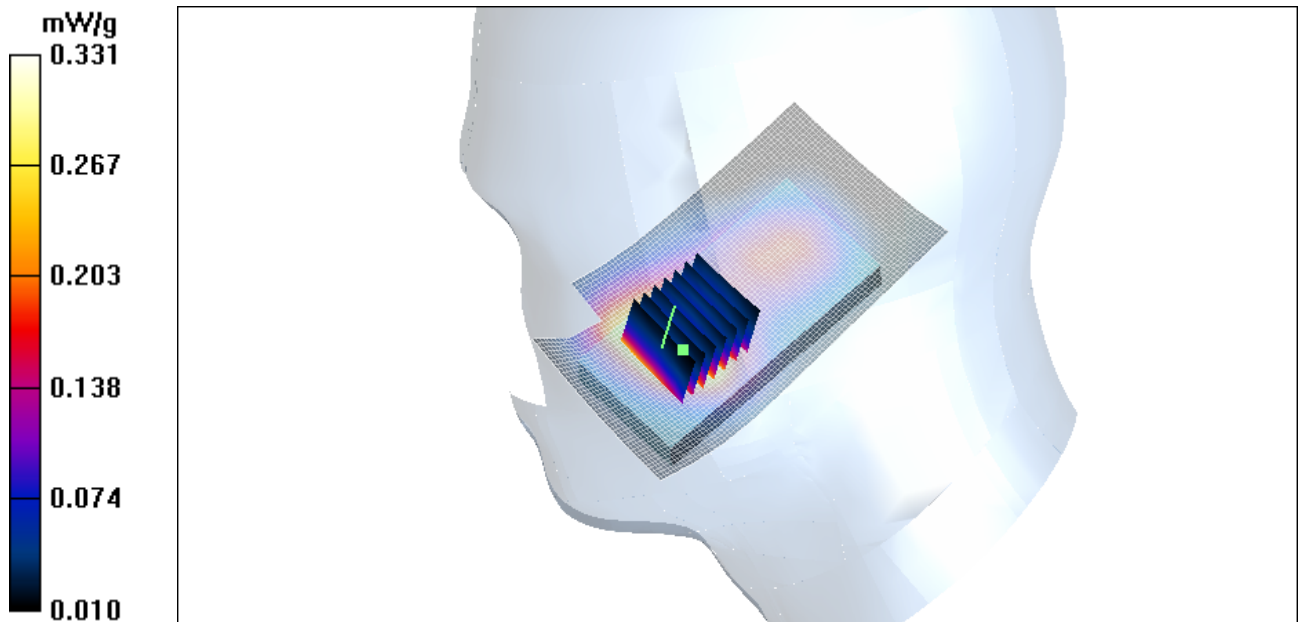


Figure 73 Right Hand Touch Cheek Close GSM 1900 Channel 810