NO.: RZA2009-0252FCC

OET 65

TEST REPORT

Test name	Electromagnetic Field (Specific Absorption Rate)
Product	WCDMA/GPRS/GSM/EDGE mobile phone with Bluetooth
FCC ID	QISU3311
Model	U3311
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**	U3311
Client	Huawei Technologies Co., Ltd.	**Type of test**	Entrusted
Manufacturer	Huawei Technologies Co., Ltd.	**Arrival Date of sample**	March 10th, 2009
Place of sampling	(Blank)	**Carrier of the samples**	Wei Wang
Quantity of the samples	One	**Date of product**	(Blank)
Base of the samples	(Blank)	**Items of test**	SAR
Series number	353074030001372		
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 62209-2:2008(106/162/CDV):** 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 23th, 2009**		
Comment	The test result only responds to the measured sample.		

Approved by 杨伟中 Weizhong Yang **Revised by** 凌敏宝 Minbao Ling **Performed by** 王路 Lu Wang

TABLE OF CONTENT

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	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	U3311	353074030001372	HUAWEI Techonologies CO.,Ltd
Lithium Battery	HBU570	FMT811504983Y	HUAWEI Techonologies CO.,Ltd
AC/DC Adapter	HS-050040U2	BYA910913922	HUAWEI Techonologies Co., Ltd

The EUT appearances see ANNEX H.

3.3. General Description

Equipment Under Test (EUT) is a model of 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 850 and GSM 1900. The EUT have GPRS (class 10), EGPRS (class 10) functions.

The sample under test was selected by the Client.

Components list please refer to documents of the manufacturer.

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）	
Modulation:	GMSK, 8-PSK;	
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
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:	HD3U330M VER.B	
software version:	V100R001C01B707	
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 128, 190 and 251 in the case of GSM 850, allocated to 512, 661 and 810 in the case of GSM 1800. 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 850 and GSM 1900, a communication link is set up with a System Simulator (SS) by air link. Using E5515C the power lever is set to”5” in head SAR and body SAR of GSM850, is set to”0” in head SAR and body SAR of GSM1900. The test in the band of GSM 850 and 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.

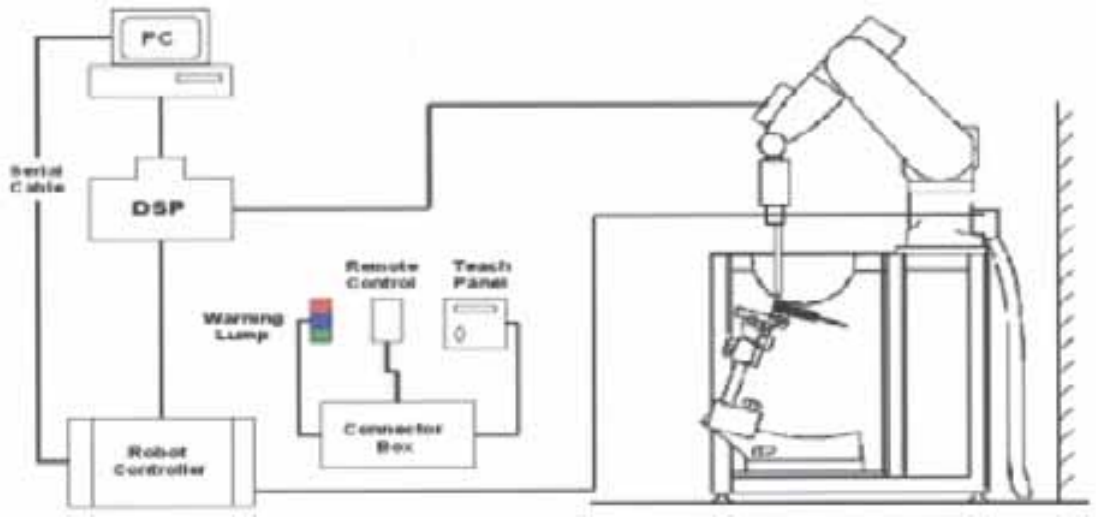

Figure 1. SAR Lab Test Measurement Set-up

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 μW/g to > 100 mW/g Linearity: ± 0.2dB (noise: typically < 1 μW/g)
Dimensions	Overall length: 330 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm
Application	High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields). Only probe which enables compliance testing for frequencies up to 6 GHz with precision of better 30%.

Figure 2.EX3DV4 E-field Probe

Figure 3. EX3DV4 E-field probe

5.2.2. E-field Probe Calibration

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

The free space E-field from amplified probe outputs is determined in a test chamber. This is performed in a TEM cell for frequencies bellow 1 GHz, and in a wave guide above 1 GHz for free space. For the free space calibration, the probe is placed in the volumetric center of the cavity and at the proper orientation with the field. The probe is then rotated 360 degrees.
E-field temperature correlation calibration is performed in a flat phantom filled with the appropriate simulated brain tissue. The measured free space E-field in the medium correlates to temperature rise in a dielectric medium. For temperature correlation calibration a RF transparent thermistor-based temperature probe is used in conjunction with the E-field probe.

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

Where: Δt = Exposure time (30 seconds),
C = Heat capacity of tissue (brain or muscle),
ΔT = Temperature increase due to RF exposure.
Or

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

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

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 "=3 and loss tangent _=0.02. The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the

Figure 4.Device Holder

inference of the clamp on the test results could thus be lowered.

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 l000 x 500 mm (H x L x W)
Aailable	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 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, a_{i1}, a_{i2}
	- Conversion factor	$ConvF_i$
	- Diode compression point	Dcp_i
Device parameters:	- Frequency	f
	- Crest factor	cf
Media parameters:	- Conductivity	
	- Density	

These parameters must be set correctly in the software. They can be found in the component documents or they can be imported into the software from the configuration files issued for the 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)^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.

$$SAR = (E_{tot}^2 \cdot \ .) / (\quad \cdot 1000)$$

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

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

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

ρ = equivalent tissue density in g/cm^3

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

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

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

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

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

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 (±10 %).

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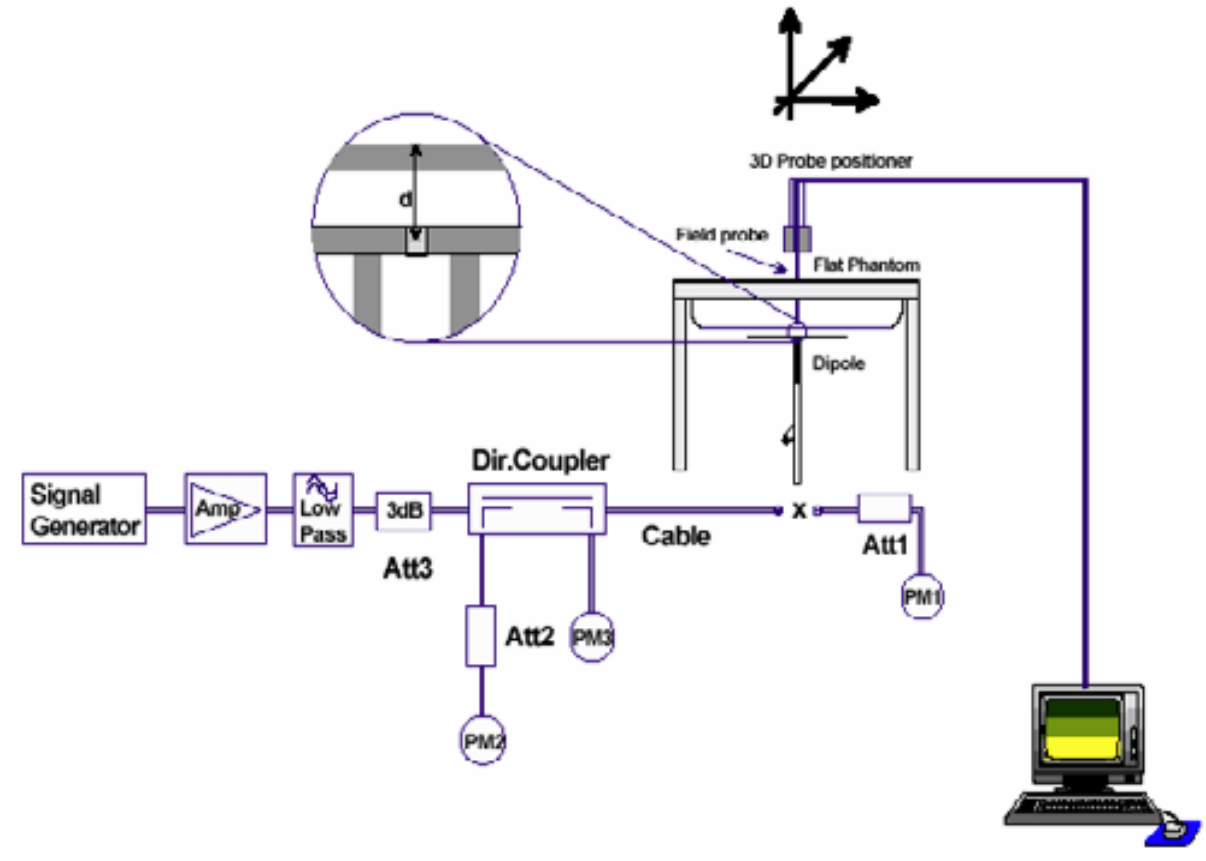


Figure 6. System Check Set-up

5.7. Equivalent Tissues

The liquid is consisted of water, sugar, salt, 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 ε=41.5 σ=0.9

MIXTURE%	FREQUENCY(Brain) 1900MHz
Water	55.242
Glycol	44.452
Salt	0.306
Dielectric Parameters Target Value	f=1900MHz ε=40.0 σ=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 ε=55.2 σ=0.97

MIXTURE%	FREQUENCY(Body)1900MHz
Water	69.91
Glycol	29.96
Salt	0.13
Dielectric Parameters Target Value	f=1900MHz ε=53.3 σ=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 62209-2:2008(106/162/CDV): 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 850	**Conducted Power**		
	Channel 128 (824.2MHz)	**Channel 190 (836.6MHz)**	**Channel 251 (848.8MHz)**
Before Test (dBm)	32.52	32.49	32.56
After Test (dBm)	32.53	32.48	32.57
GSM 850+GPRS	**Conducted Power**		
	Channel 128 (824.2MHz)	**Channel 190 (836.6MHz)**	**Channel 251 (848.8MHz)**
Before Test (dBm)	32.51	32.47	32.55
After Test (dBm)	32.50	32.46	32.54
GSM 1900	**Conducted Power**		
	Channel 512 (1850.2MHz)	**Channel 661 (1880MHz)**	**Channel 810 (1909.8MHz)**
Before Test (dBm)	30.34	30.41	29.63
After Test (dBm)	30.35	30.42	29.64
GSM 1900+GPRS	**Conducted Power**		
	Channel 512 (1850.2MHz)	**Channel 661 (1880MHz)**	**Channel 810 (1909.8MHz)**
Before Test (dBm)	30.33	30.41	29.62
After Test (dBm)	30.34	30.40	29.63

9. TEST RESULTS

9.1. Dielectric Performance

Table 9: Dielectric Performance of Head Tissue Simulating Liquid

Frequency	Description	Dielectric Parameters		Temp ℃
		ε_r	σ(s/m)	
835MHz (head)	Target value ±5% window	41.5 39.43 — 43.58	0.90 0.86 — 0.95	/
	Measurement value 2009-3-21	43.01	0.93	21.8
	Measurement value 2009-3-22	43.05	0.93	21.6
1900MHz (head)	Target value ±5% window	40.0 38 — 42	1.40 1.33 — 1.47	/
	Measurement value 2009-3-22	39.79	1.42	21.9
	Measurement value 2009-3-23	39.7	1.4	21.5

Table 10: Dielectric Performance of Body Tissue Simulating Liquid

Frequency	Description	Dielectric Parameters		Temp ℃
		ε_r	σ(s/m)	
835MHz (body)	Target value ±5% window	55.20 52.44 — 57.96	0.97 0.92 — 1.02	/
	Measurement value 2009-3-22	55.62	0.98	21.9
1900MHz (Body)	Target value ±5% window	40.0 38 — 42	1.40 1.33 — 1.47	/
	Measurement value 2009-3-23	52.1	1.51	21.7

9.2. System check

Table 11: **System check**

Frequency	Description	SAR(W/kg)		Dielectric Parameters		Temp
		10g	1g	ε_r	σ(s/m)	℃
835MHz	Recommended result ±10% window	1.52 1.37—1.67	2.3 2.07 — 2.53	40.9	0.89	/
	Measurement value 2009-3-21	1.5	2.3	43.01	0.93	21.9
	Measurement value 2009-3-22	1.54	2.35	43.05	0.93	21.8
1900 MHz	Recommended result ±10% window	5.06 4.55—5.57	9.84 8.86 — 10.82	38.8	1.47	/
	Measurement value 2009-3-22	5.09	9.74	39.79	1.42	21.7
	Measurement value 2009-3-23	5.14	9.65	39.7	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.

9.3. Summary of Measurement Results

Table 12: SAR Values (GSM 850,open)

Liquid Temperature: 21.5℃					
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 Drift(dB)**	
		10 g Average	**1 g Average**		
Test position of Head					
Left hand, Touch cheek	High	0.217	0.297	0.061	Figure 15
	Middle	0.221	0.302	-0.011	Figure 17
	Low	0.244	0.331	-0.037	Figure 19
Left hand, Tilt 15 Degree	High	0.106	0.146	-0.041	Figure 21
	Middle	0.115	0.158	-0.023	Figure 23
	Low	0.136(max.cube)	0.186(max.cube)	-0.072	Figure 25
Right hand, Touch cheek	High	0.199	0.274	0.110	Figure 27
	Middle	0.213	0.290	0.004	Figure 29
	Low	0.254	0.342	-0.084	Figure 31
Right hand, Tilt 15 Degree	High	0.119	0.164	-0.089	Figure 33
	Middle	0.134	0.185	-0.029	Figure 35
	Low	0.153(max.cube)	0.209(max.cube)	-0.109	Figure 37
Test position of Body (Distance 15mm)					
Towards Ground	High	0.273	0.379	0.063	Figure 39
	Middle	0.292	0.405	-0.039	Figure 41
	Low	**0.318**	**0.440**	-0.060	Figure 43
Towards Phantom	High	0.207	0.285	-0.032	Figure 45
	Middle	0.228	0.313	0.008	Figure 47
	Low	0.251	0.345	-0.085	Figure 49
Worst case of Body with earphone (Distance 15mm)					
Towards Ground	Low	0.250	0.346	0.187	Figure 51
Test position of Body with GPRS(Distance 15mm)					
Towards Ground	High	0.370(max.cube)	0.515(max.cube)	-0.055	Figure 53
	Middle	0.389(max.cube)	0.545(max.cube)	0.022	Figure 55
	Low	0.442	0.612	0.009	Figure 57
Towards Phantom	High	0.284	0.394	0.003	Figure 59
	Middle	0.342	0.470	-0.092	Figure 61
	Low	0.344	0.472	-0.069	Figure 63
Worst case of GPRS with EGPRS (Distance 15mm)					
Towards Ground	Low	0.140	0.195	0.083	Figure 65

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

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. 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 tables above; the value from the second assessed cube is given in the SAR distribution plots (See ANNEX C).

Table 13: SAR Values (GSM 850,close)

Liquid Temperature: 22.0℃					
Limit of SAR (W/kg)		**10 g Average**	**1 g Average**	**Power Drift (dB)**	**Graph Results**
		2.0	**1.6**	**± 0.21**	
Different Test Position	**Channel**	**Measurement Result(W/kg)**		**Power Drift(dB)**	
		10 g Average	**1 g Average**		
Test position of Head					
Left hand, Touch cheek	High	0.085	0.113	0.081	Figure 67
	Middle	0.080	0.106	0.102	Figure 69
	Low	0.086	0.114	0.086	Figure 71
Left hand, Tilt 15 Degree	High	0.060	0.082	-0.003	Figure 73
	Middle	0.058	0.080	-0.035	Figure 75
	Low	0.065	0.088	0.067	Figure 77
Right hand, Touch cheek	High	0.094	0.122	-0.006	Figure 79
	Middle	0.088	0.116	-0.190	Figure 81
	Low	0.092	0.122	0.067	Figure 83
Right hand, Tilt 15 Degree	High	0.071	0.097	0.023	Figure 85
	Middle	0.071	0.097	-0.009	Figure 87
	Low	0.075	0.101	0.002	Figure 89
Test position of Body (Distance 15mm)					
Towards Ground	High	0.121(max.cube)	0.178(max.cube)	0.070	Figure 91
	Middle	0.114(max.cube)	0.167(max.cube)	0.081	Figure 93
	Low	**0.122(max.cube)**	**0.179(max.cube)**	-0.031	Figure 95
Towards Phantom	High	0.043	0.059	-0.088	Figure 97
	Middle	0.040	0.054	0.171	Figure 99
	Low	0.041	0.055	0.042	Figure 101
Worst case of Body with earphone (Distance 15mm)					
Towards Ground	Low	0.084	0.133	0.134	Figure 103
Test position of Body with GPRS(Distance 15mm)					
Towards Ground	High	0.178(max.cube)	0.261(max.cube)	-0.008	Figure 105
	Middle	0.169	0.247	-0.105	Figure 107
	Low	0.194(max.cube)	0.288(max.cube)	0.065	Figure 109
Towards Phantom	High	0.065	0.087	-0.078	Figure 111
	Middle	0.063	0.085	0.047	Figure 113
	Low	0.061	0.084	-0.107	Figure 115
Worst case of GPRS with EGPRS (Distance 15mm)					
Towards Ground	Low	0.059((max.cube)	0.085((max.cube)	-0.043	Figure 117

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

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. 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 tables above; the value from the second assessed cube is given in the SAR distribution plots (See ANNEX

C).

Table 14: SAR Values (GSM 1900,open)

Liquid Temperature: 22.1°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 Drift(dB)**	
		10 g Average	**1 g Average**		
Test position of Head					
Left hand, Touch cheek	High	0.103	0.171	0.119	Figure 119
	Middle	0.153	0.252	0.052	Figure 121
	Low	0.166	0.272	0.080	Figure 123
Left hand, Tilt 15 Degree	High	0.057	0.092	-0.003	Figure 125
	Middle	0.080	0.125	-0.014	Figure 127
	Low	0.085	0.131	0.003	Figure 129
Right hand, Touch cheek	High	0.074(max.cube)	0.118(max.cube)	0.042	Figure 131
	Middle	0.108(max.cube)	0.173(max.cube)	0.153	Figure 133
	Low	0.119(max.cube)	0.191(max.cube)	0.066	Figure 135
Right hand, Tilt 15 Degree	High	0.070	0.115	0.095	Figure 137
	Middle	0.097	0.158	-0.089	Figure 139
	Low	0.106	0.168	0.115	Figure 141
Test position of Body (Distance 15mm)					
Towards Ground	High	0.153(max.cube)	0.247(max.cube)	-0.099	Figure 143
	Middle	0.206(max.cube)	0.331(max.cube)	0.096	Figure 145
	Low	**0.207(max.cube)**	**0.328(max.cube)**	0.069	Figure 147
Towards Phantom	High	0.057	0.089	0.157	Figure 149
	Middle	0.073(max.cube)	0.112(max.cube)	-0.035	Figure 151
	Low	0.065(max.cube)	0.100(max.cube)	-0.050	Figure 153
Worst case of Body with earphone (Distance 15mm)					
Towards Ground	middle	0.150(max.cube)	0.245(max.cube)	-0.056	Figure 155
Test position of Body with GPRS(Distance 15mm)					
Towards Ground	High	0.258	0.415	-0.004	Figure 157
	Middle	0.306(max.cube)	0.488(max.cube)	0.010	Figure 159
	Low	0.303(max.cube)	0.478(max.cube)	-0.093	Figure 161
Towards Phantom	High	0.139(max.cube)	0.219(max.cube)	-0.097	Figure 163
	Middle	0.182(max.cube)	0.285(max.cube)	0.029	Figure 165
	Low	0.185(max.cube)	0.288(max.cube)	-0.012	Figure 167
Worst case of GPRS with EGPRS (Distance 15mm)					
Towards Ground	Middle	0.110(max.cube)	0.175(max.cube)	0.006	Figure 169

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

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. 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 15: SAR Values (GSM 1900, close)

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 Drift(dB)**	
		10 g Average	**1 g Average**		
Test position of Head					
Left hand, Touch cheek	High	0.141(max.cube)	0.222(max.cube)	0.077	Figure 171
	Middle	0.201(max.cube)	0.315(max.cube)	-0.087	Figure 173
	Low	0.211	0.326	-0.099	Figure 175
Left hand, Tilt 15 Degree	High	0.097	0.166	0.013	Figure 177
	Middle	0.127	0.216	-0.009	Figure 179
	Low	0.122	0.205	-0.006	Figure 181
Right hand, Touch cheek	High	0.115(max.cube)	0.196(max.cube)	-0.105	Figure 183
	Middle	0.170(max.cube)	0.268(max.cube)	-0.082	Figure 185
	Low	0.173(max.cube)	0.276(max.cube)	-0.031	Figure 187
Right hand, Tilt 15 Degree	High	0.100	0.174	0.079	Figure 189
	Middle	0.133	0.230	-0.015	Figure 191
	Low	0.137	0.235	0.023	Figure 193
Test position of Body (Distance 15mm)					
Towards Ground	High	0.133	0.232	-0.049	Figure 195
	Middle	**0.175**	**0.307**	0.048	Figure 197
	Low	0.165	0.290	-0.058	Figure 199
Towards Phantom	High	0.044	0.066	0.022	Figure 201
	Middle	0.060	0.091	-0.008	Figure 203
	Low	0.060	0.089	0.000	Figure 205
Worst case of Body with earphone (Distance 15mm)					
Towards Ground	Middle	0.197	0.346	-0.035	Figure 207
Test position of Body with GPRS(Distance 15mm)					
Towards Ground	High	0.273	0.486	-0.115	Figure 209
	Middle	0.350	0.625	-0.082	Figure 211
	Low	0.321	0.571	-0.014	Figure 213
Towards Phantom	High	0.077(max.cube)	0.118(max.cube)	-0.177	Figure 215
	Middle	0.104(max.cube)	0.157(max.cube)	-0.059	Figure 217
	Low	0.106(max.cube)	0.159(max.cube)	-0.027	Figure 219
Worst case of GPRS with EGPRS (Distance 15mm)					
Towards Ground	Middle	0.124	0.224	-0.011	Figure 221

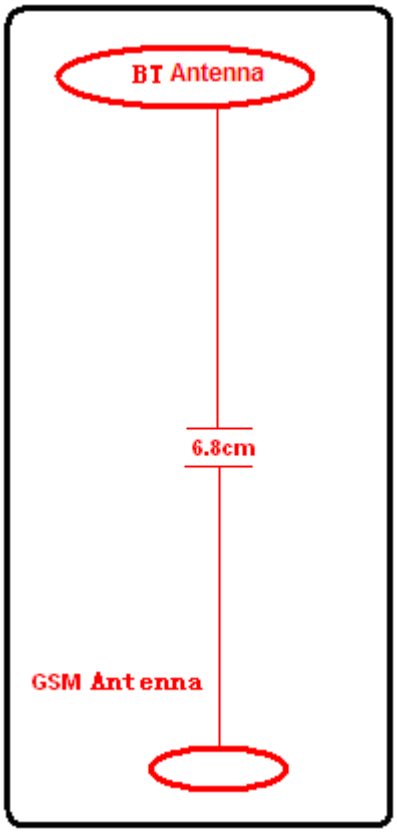
Note: 1.The value with blue color is the maximum SAR Value of each test band in head and body.

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. 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

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)	-0.68	-0.52	-0.83

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 $\geq$5cm from other antenna.

According to the output power measurement result and the distance between the two antennas, We didn't perform the standalone BT SAR tests,

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_{1g} is 0.342W/kg (head) and 0.625 W/kg (body) that are below exposure limits specified in the relevant standards cited in Clause 7.1 of this test report.

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	$\sqrt{3}$	$(1\text{-}cp)^{1/2}$	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	

12. MAIN TEST INSTRUMENTS

Table 16: 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, 2009	One year
04	Power sensor	Agilent 8481H	MY41091316	March 14, 2009	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 835MHz	D835V2	4d020	July 21, 2008	One year
11	Validation Kit 1900MHz	D1900V2	5d060	July 22, 2008	One year

13. TEST PERIOD

The test is performed from March 21, 2009 to March 23, 2009.

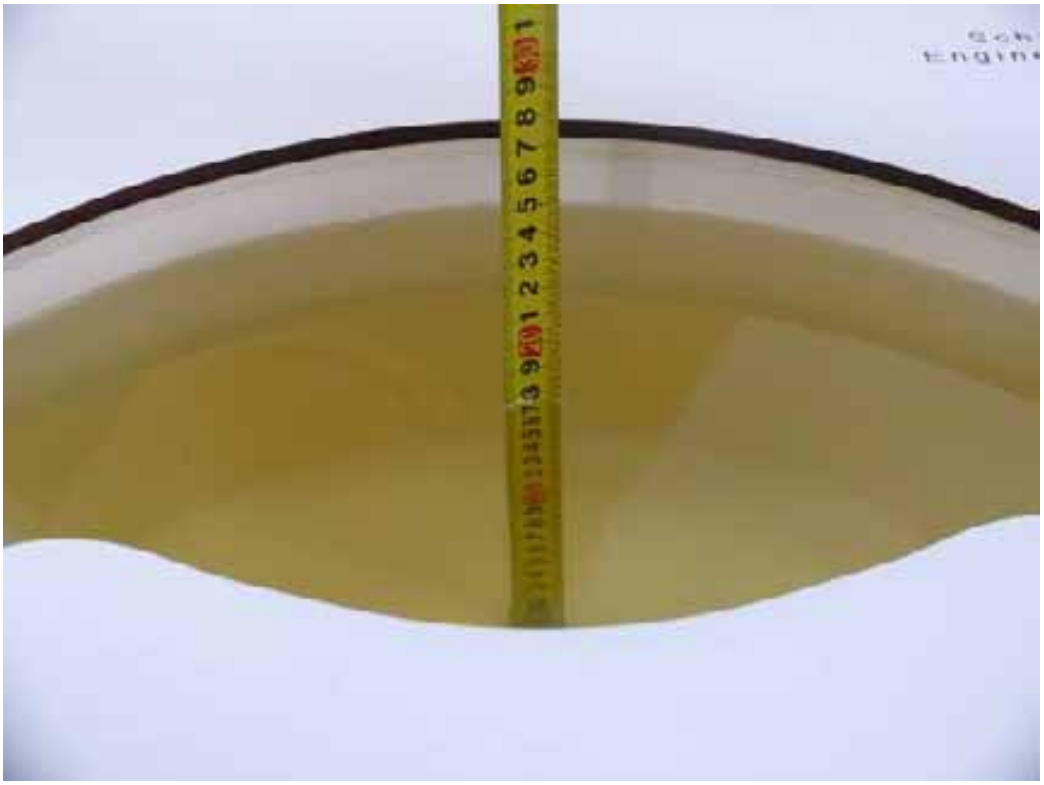
14. TEST LOCATION

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

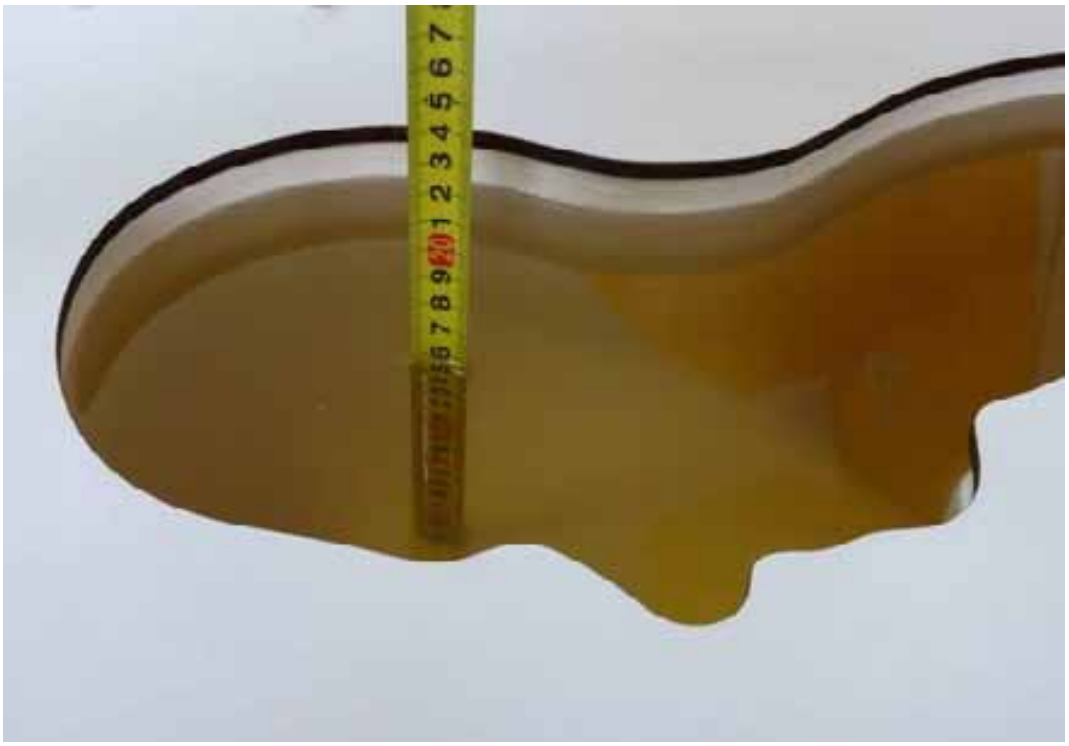
*******END OF REPORT BODY*******

ANNEX A： TEST LAYOUT

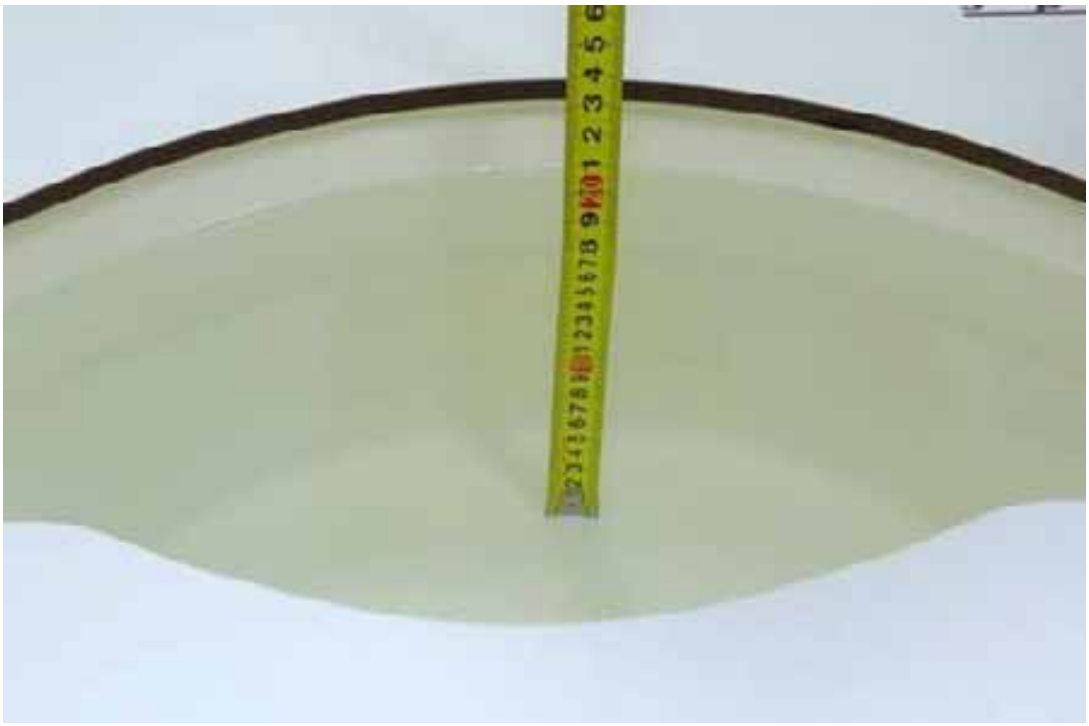
Picture 1: Specific Absorption Rate Test Layout



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



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



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

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

ANNEX B： SYSTEM CHECK RESULTS

Date/Time: 3/21/2009 5:40:07 AM

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 MHz; σ = 0.93 mho/m; ε_r = 43.01; ρ = 1000 kg/m^3

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

Electronics: DAE4 Sn452;

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

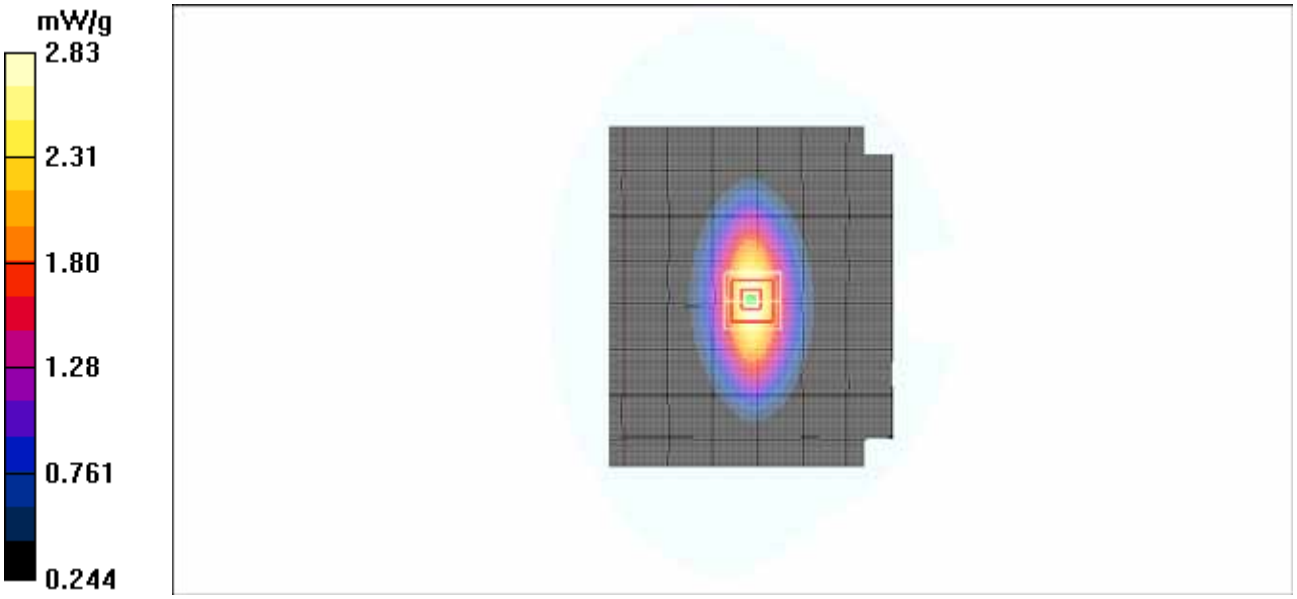


Figure 7 System Performance Check 835MHz 250mW

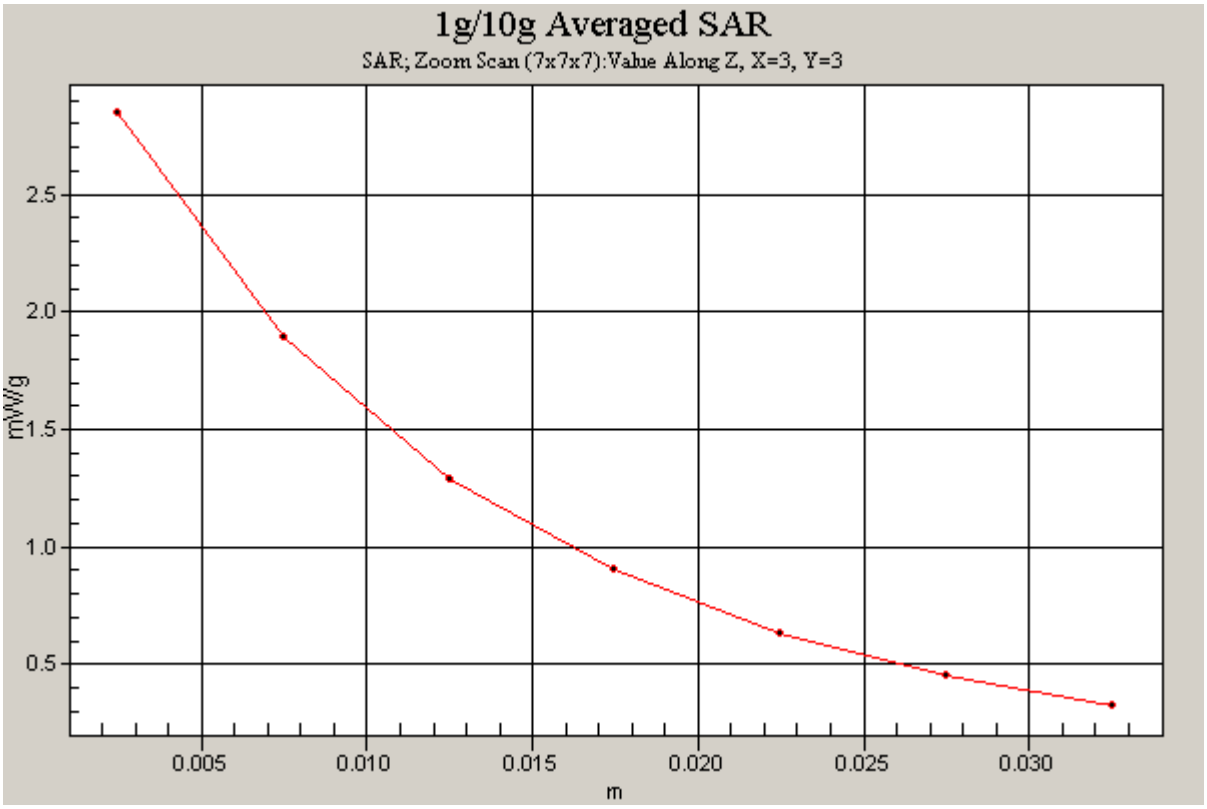


Figure 8 Z-Scan at power reference point (system Check at 835 MHz dipole)

Date/Time: 3/22/2009 7:47:07 AM

System Performance Check at 835 MHz

Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used: f = 835 MHz; σ = 0.93 mho/m; ε_r = 43.05; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(9.19, 9.19, 9.19);
- Electronics: DAE4 Sn452;

d=15mm, Pin=250mW/Area Scan (101x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.88 mW/g

d=15mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 57.7 V/m; Power Drift = -0.009 dB
Peak SAR (extrapolated) = 3.55 W/kg
SAR(1 g) = 2.35 mW/g; SAR(10 g) = 1.54 mW/g
Maximum value of SAR (measured) = 2.87 mW/g

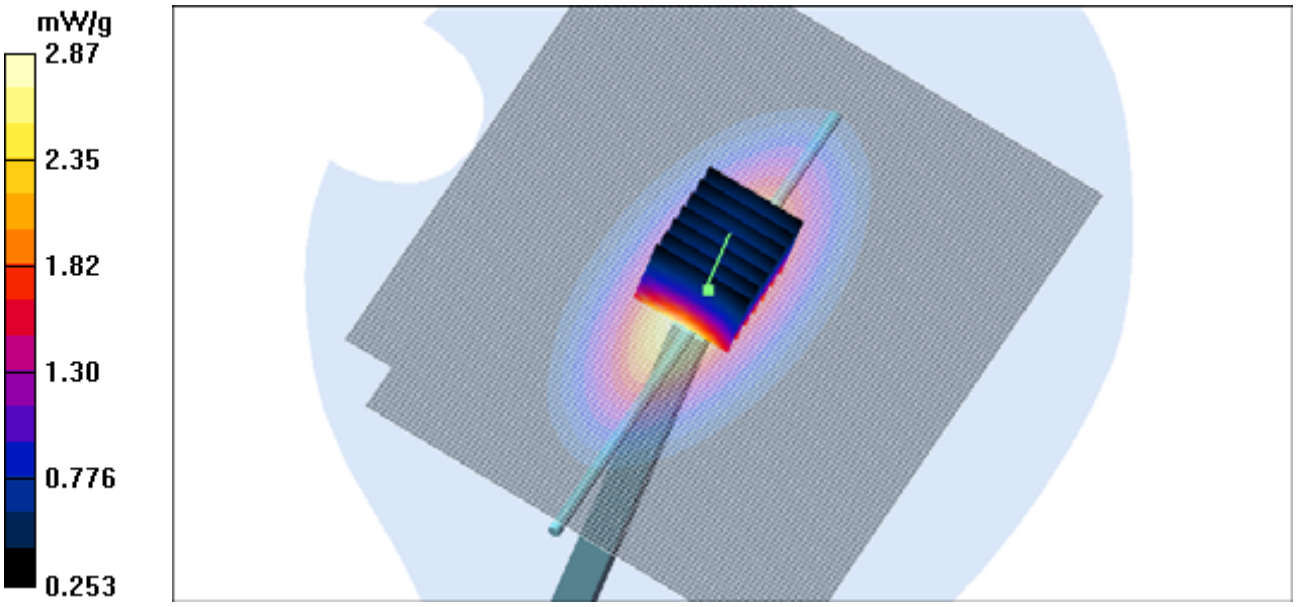


Figure 9 System Performance Check 835MHz 250Mw

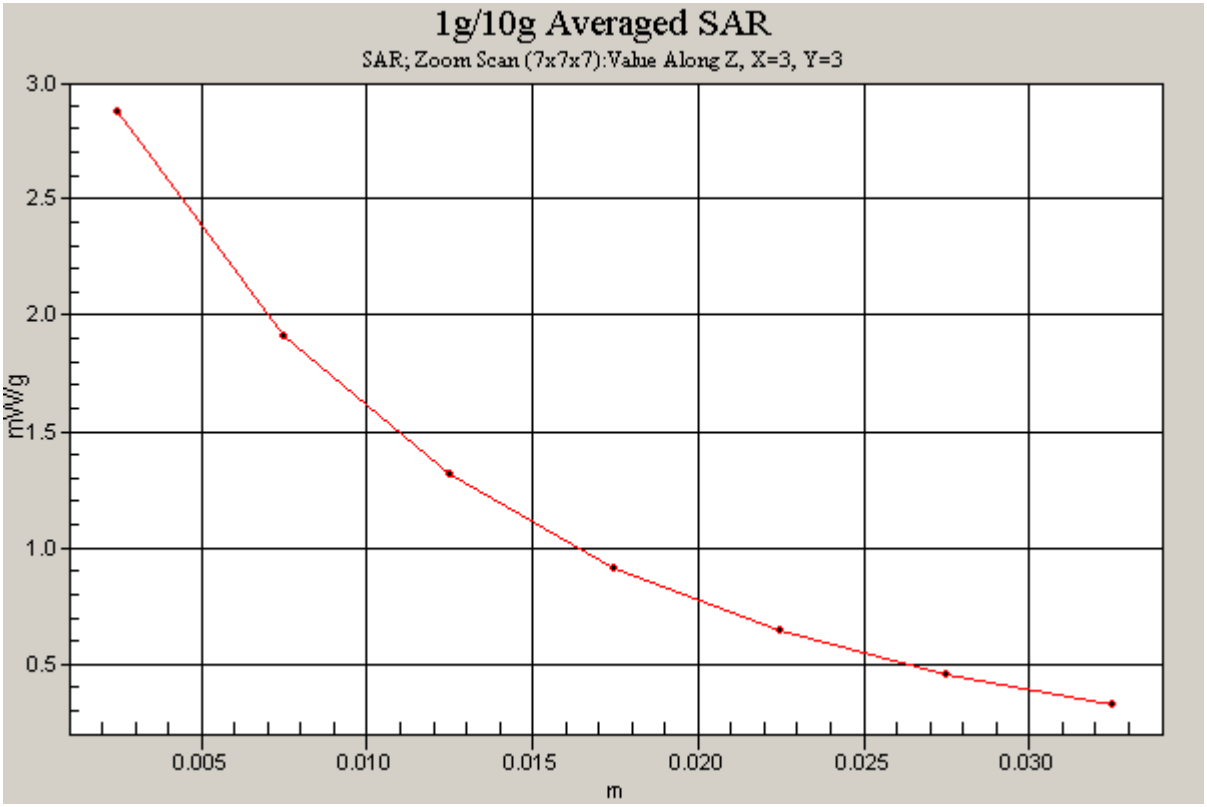


Figure 10 Z-Scan at power reference point (system Check at 835 MHz dipole)

Date/Time: 3/22/2009 5:01:07 PM

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; σ = 1.42mho/m; ε_r = 39.79; ρ = 1000 kg/m^3

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

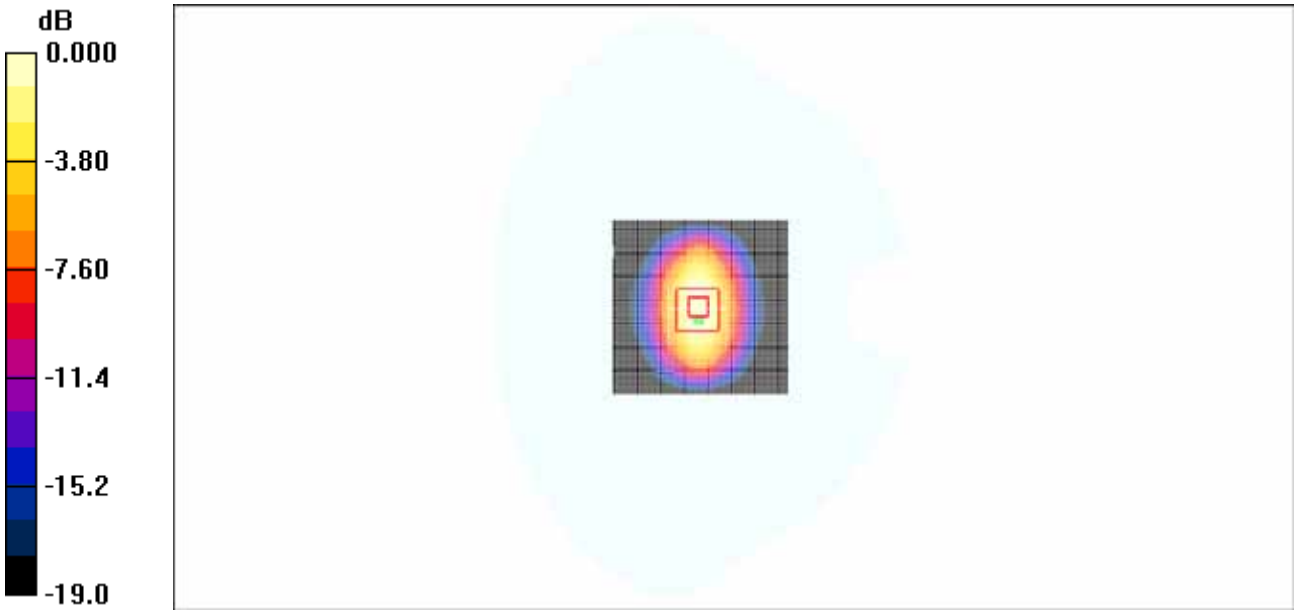
d=10mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

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



0 dB = 11.1mW/g

Figure 11 System Performance Check 1900MHz 250mW

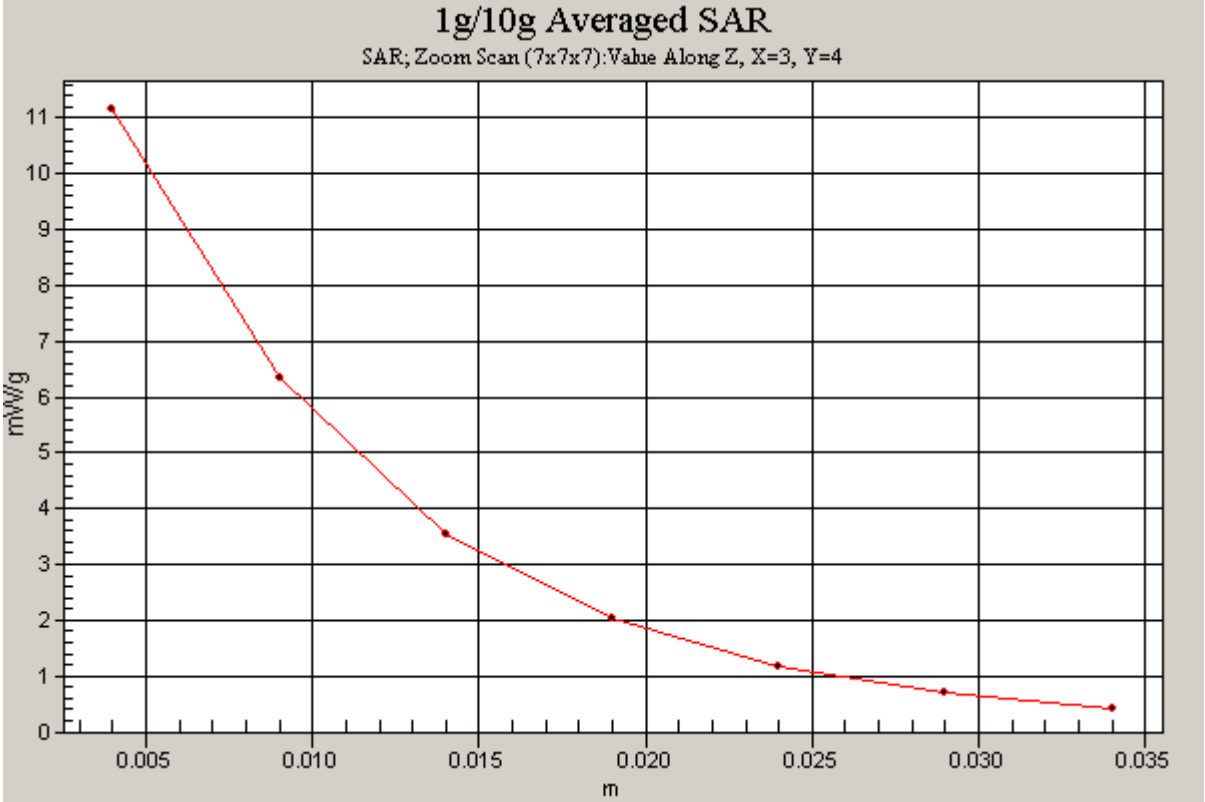


Figure 12 Z-Scan at power reference point (system Check at 1900 MHz dipole)

Date/Time: 3/23/2009 9:01:07 AM

System Performance Check at 1900 MHz

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

Medium parameters used: f = 1900 MHz; σ = 1.40 mho/m; ε_r = 39.7; ρ = 1000 kg/m^3

Phantom section: Flat Section

DASY4 Configuration:

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) = 12.4 mW/g

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

Reference Value = 85.3 V/m; Power Drift = -0.171 dB

Peak SAR (extrapolated) = 16.4 W/kg

SAR(1 g) = 9.65 mW/g; SAR(10 g) = 5.14 mW/g

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

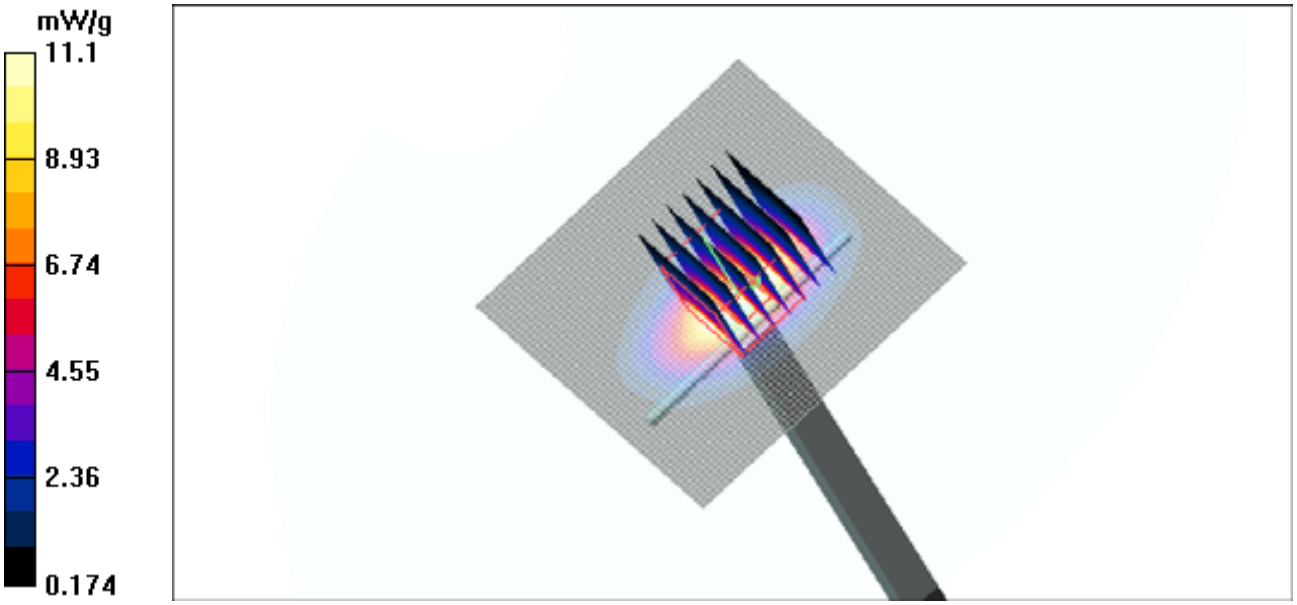


Figure 13 System Performance Check 1900MHz 250mW

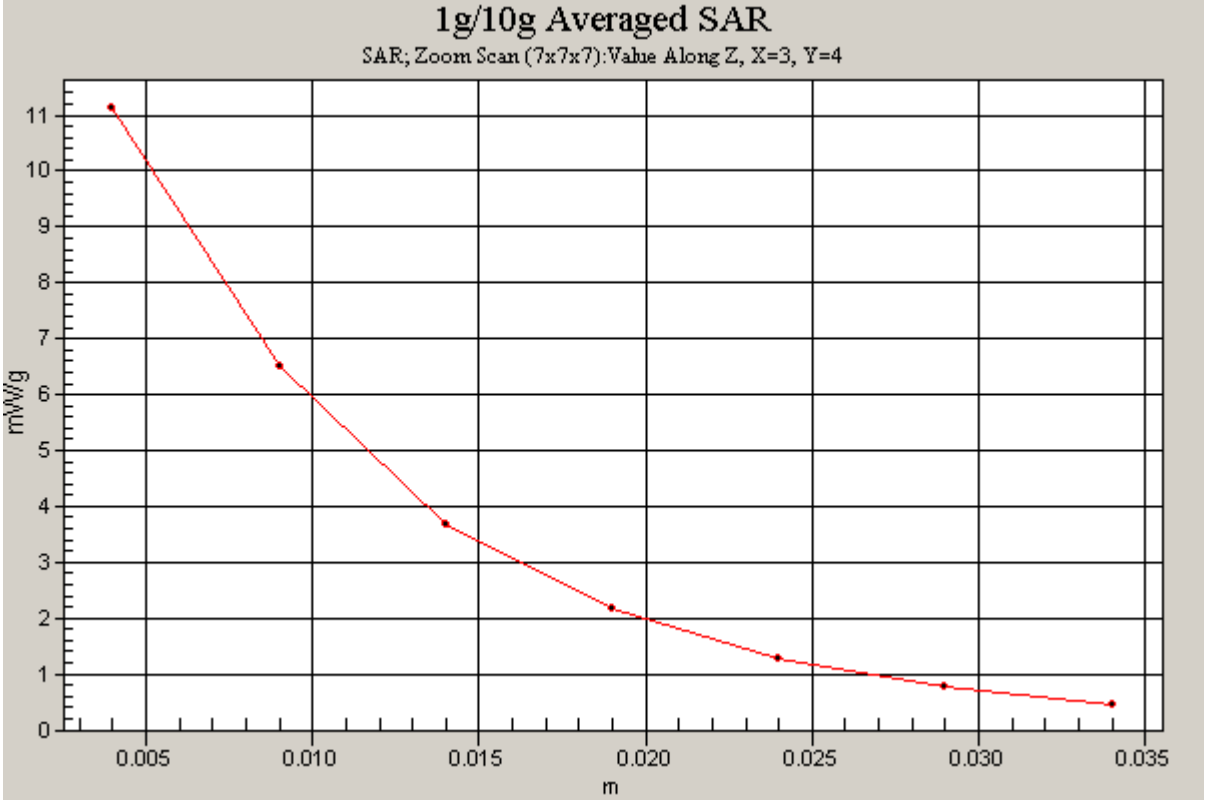


Figure 14 Z-Scan at power reference point (system Check at 1900 MHz dipole)

ANNEX C： GRAPH RESULTS

Date/Time: 3/21/2009 6:51:07 AM

GSM 850 Left Cheek High

Communication System: GSM 850; Frequency: 848.8 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 849 MHz; σ = 0.946 mho/m; ε_r = 42.9; ρ = 1000 kg/m^3
Phantom section: Left Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(9.19, 9.19, 9.19); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM 12; 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) = 0.342 mW/g

Cheek High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.67 V/m; Power Drift = 0.061 dB
Peak SAR (extrapolated) = 0.390 W/kg
SAR(1 g) = 0.297 mW/g; SAR(10 g) = 0.217 mW/g
Maximum value of SAR (measured) = 0.341 mW/g

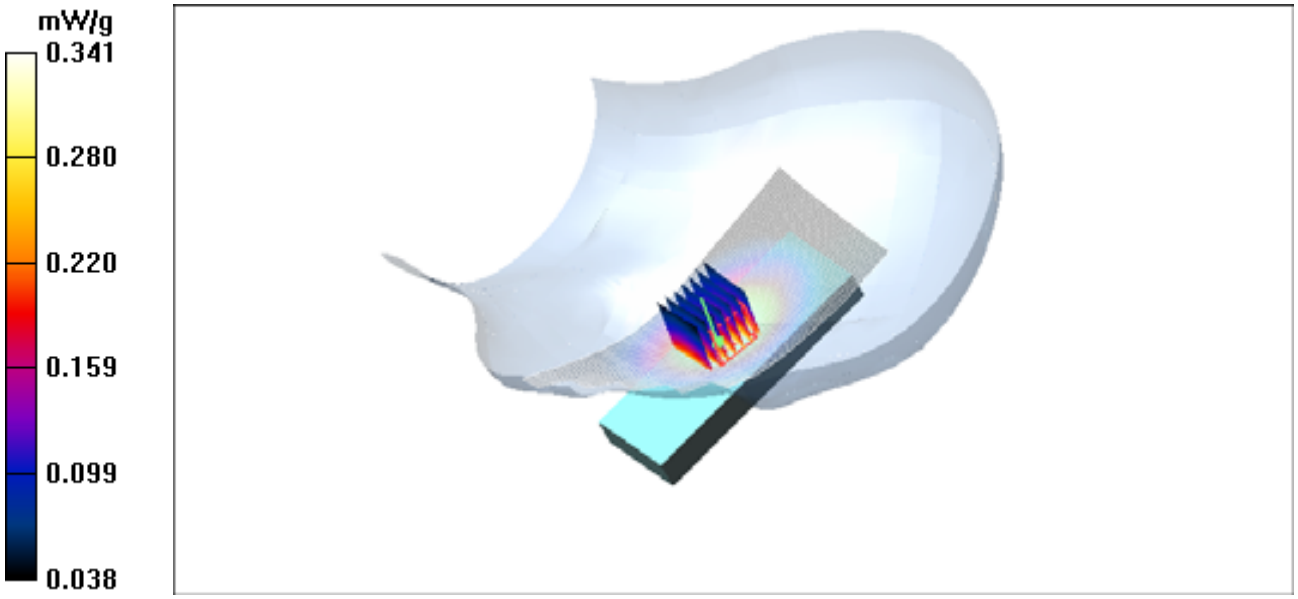


Figure 15 Left Hand Touch Cheek Open GSM 850 Channel 251

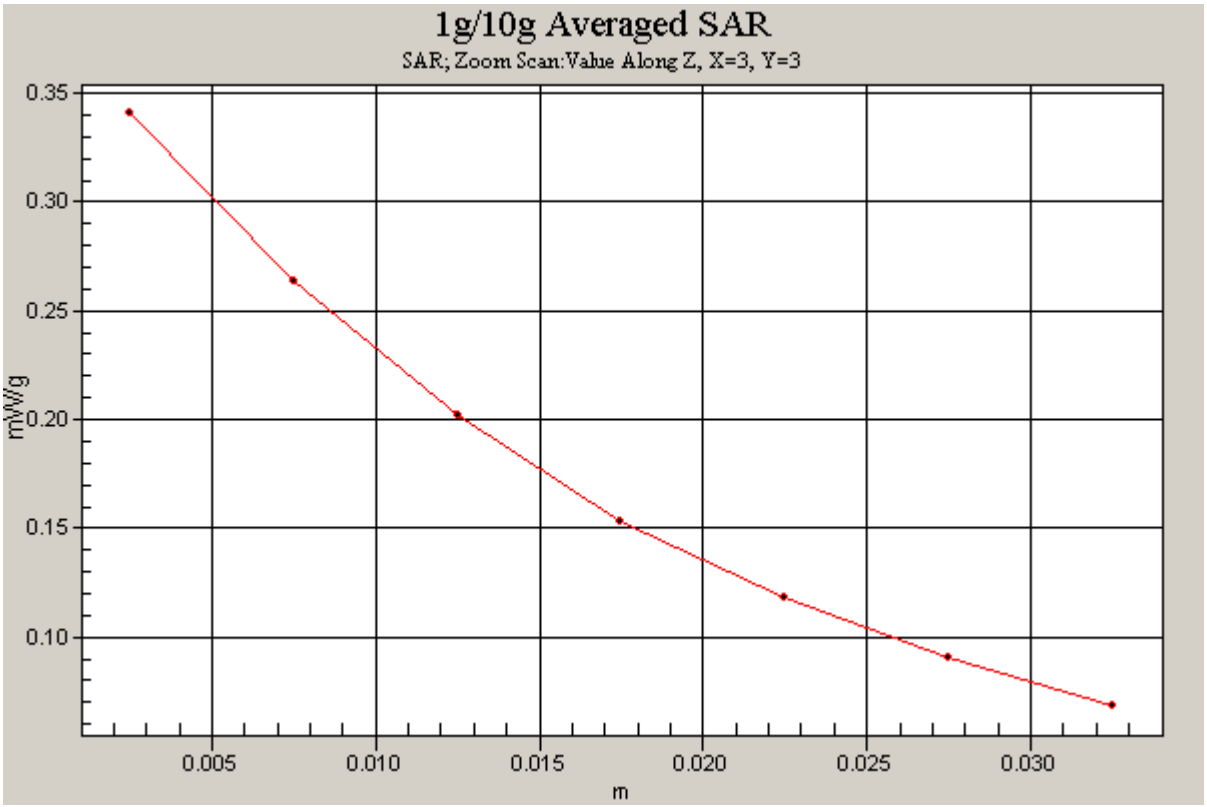


Figure 16 Z-Scan at power reference point (Left Hand Touch Cheek Open GSM 850 Channel 251)

Date/Time: 3/21/2009 7:10:54 AM

GSM 850 Left Cheek Middle Open

Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 837 MHz; σ = 0.935 mho/m; ε_r = 43; ρ = 1000 kg/m^3
Phantom section: Left Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(9.19, 9.19, 9.19); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM 12; 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) = 0.343 mW/g

Cheek Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.84 V/m; Power Drift = -0.011 dB
Peak SAR (extrapolated) = 0.396 W/kg
SAR(1 g) = 0.302 mW/g; SAR(10 g) = 0.221 mW/g
Maximum value of SAR (measured) = 0.346 mW/g

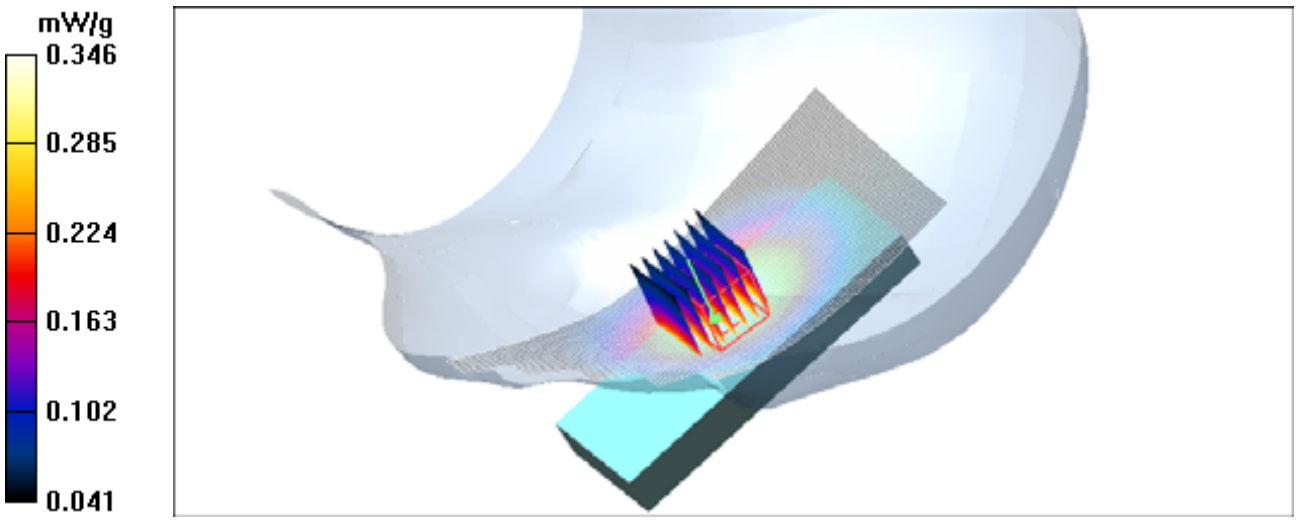


Figure 17 Left Hand Touch Cheek Open GSM 850 Channel 190

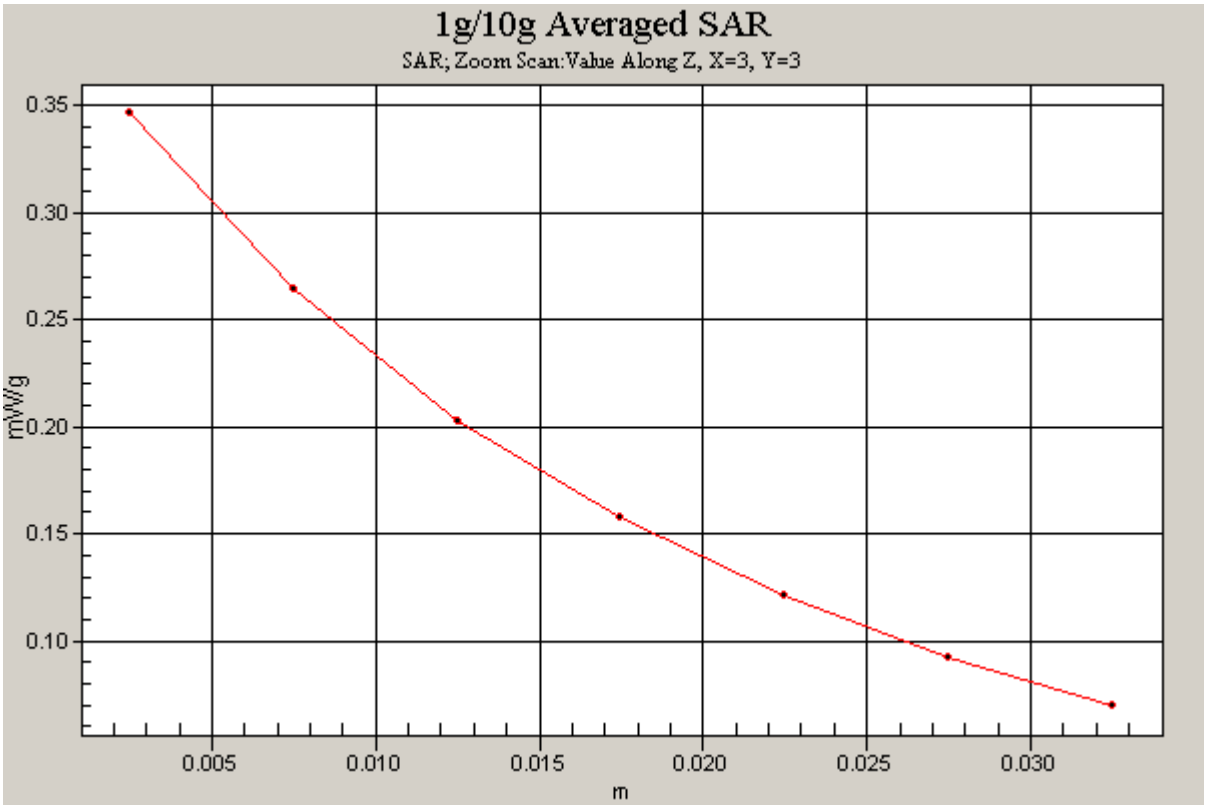


Figure 18 Z-Scan at power reference point (Left Hand Touch Cheek Open GSM 850 Channel 190)

Date/Time: 3/21/2009 7:33:54 AM

GSM 850 Left Cheek Low Open

Communication System: GSM 850; Frequency: 824.2 MHz;Duty Cycle: 1:8.3
Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.915 mho/m; ε_r = 43.2; ρ = 1000 kg/m^3
Phantom section: Left Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(9.19, 9.19, 9.19); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM 12; 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) = 0.375 mW/g

Cheek Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.5 V/m; Power Drift = -0.037 dB
Peak SAR (extrapolated) = 0.434 W/kg
SAR(1 g) = 0.331 mW/g; SAR(10 g) = 0.244 mW/g
Maximum value of SAR (measured) = 0.380 mW/g

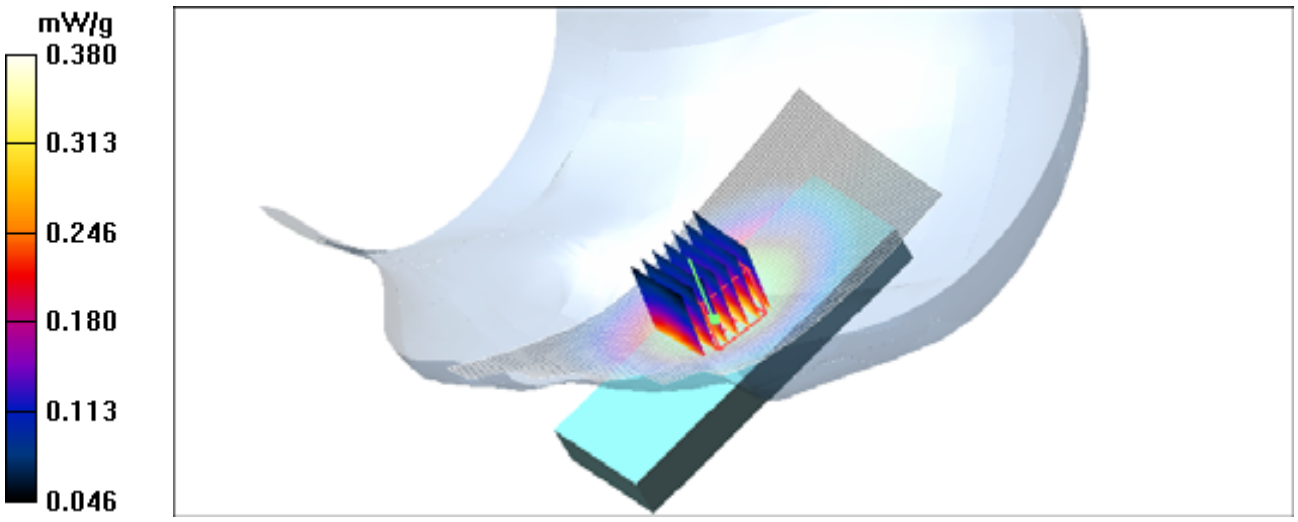


Figure 19 Left Hand Touch Cheek Open GSM 850 Channel 128

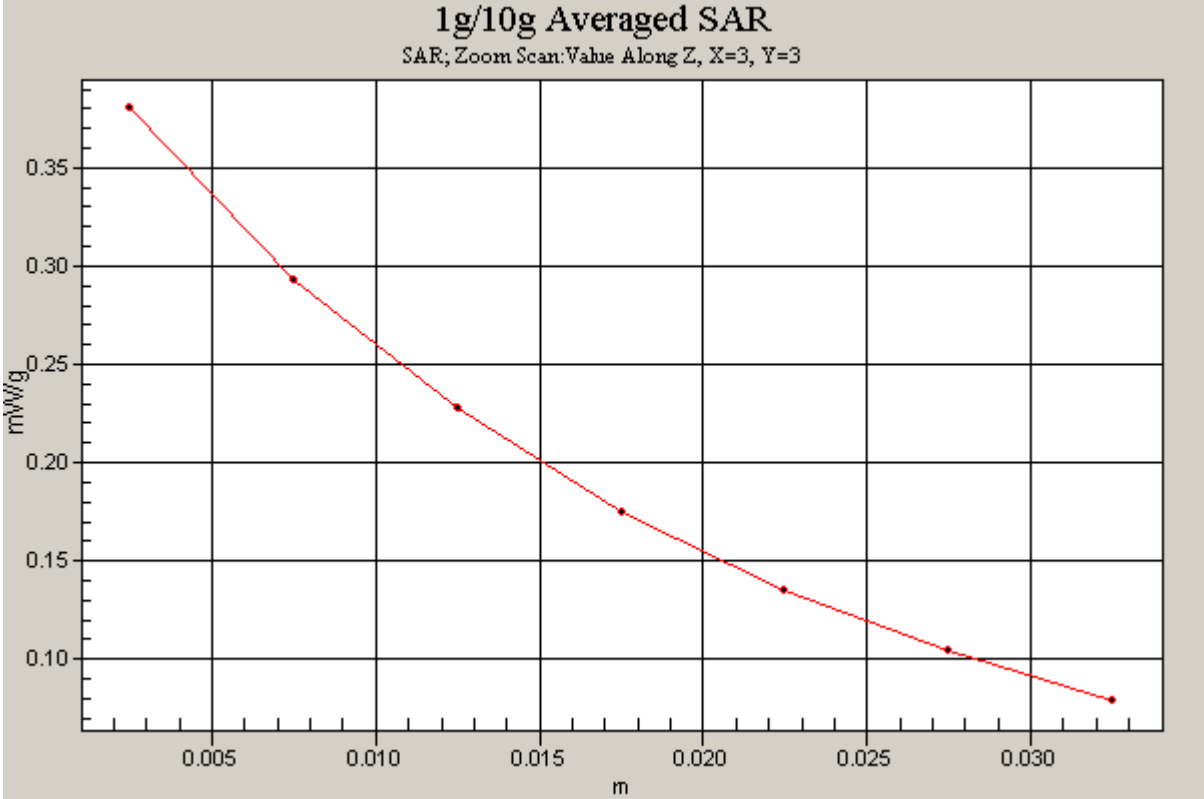


Figure 20 Z-Scan at power reference point (Left Hand Touch Cheek Open GSM 850 Channel 128)

Date/Time: 3/21/2009 7:53:59 AM

GSM 850 Left Tilt High Open

Communication System: GSM 850; Frequency: 848.8 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 849 MHz; σ = 0.946 mho/m; ε_r = 42.9; ρ = 1000 kg/m^3
Phantom section: Left Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(9.19, 9.19, 9.19); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM 12; 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) = 0.168 mW/g

Tilt High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.6 V/m; Power Drift = -0.041 dB
Peak SAR (extrapolated) = 0.194 W/kg
SAR(1 g) = 0.146 mW/g; SAR(10 g) = 0.106 mW/g
Maximum value of SAR (measured) = 0.169 mW/g

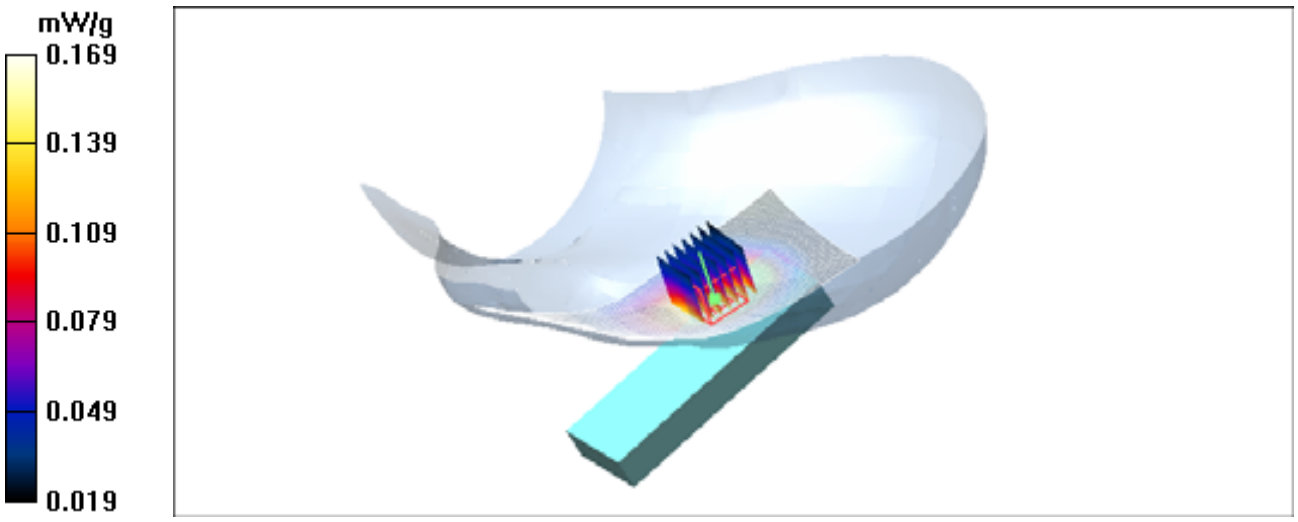


Figure 21 Left Hand Tilt 15°Open GSM 850 Channel 251

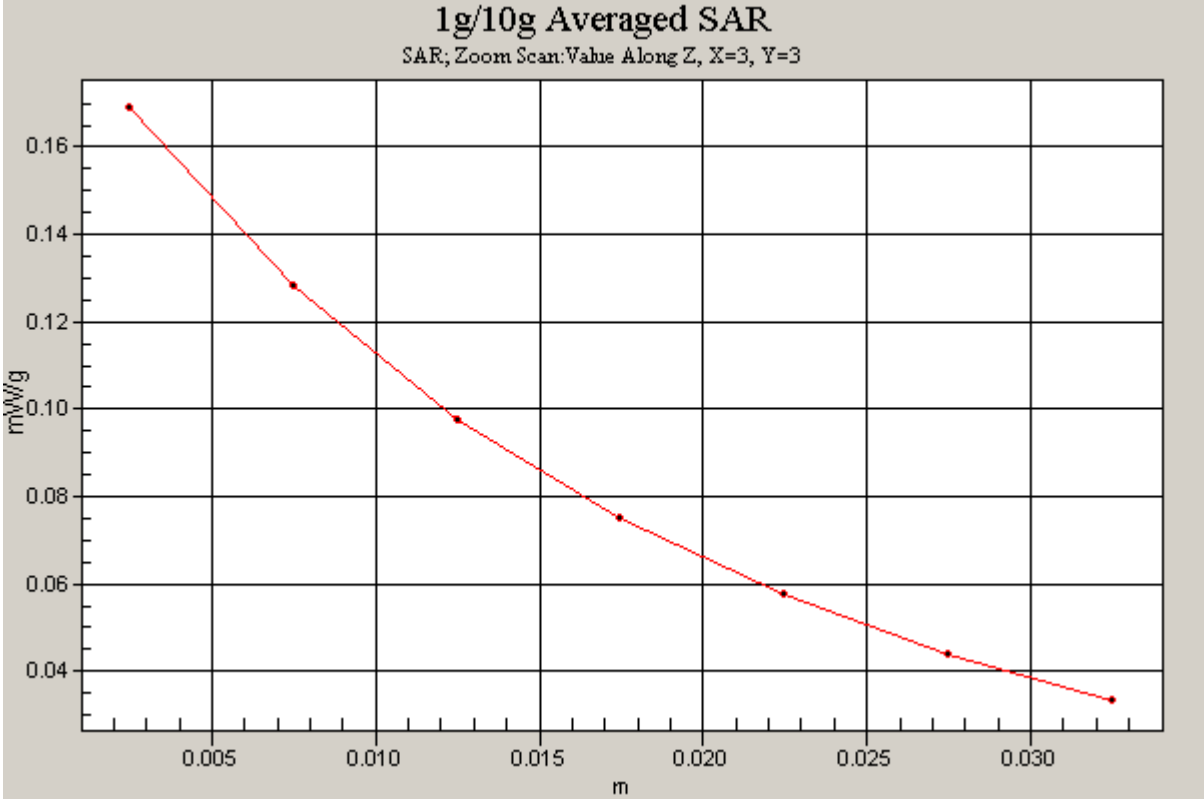


Figure 22 Z-Scan at power reference point (Left Hand Tilt 15°Open GSM 850 Channel 251)

Date/Time: 3/21/2009 8:12:31 AM

GSM 850 Left Tilt Middle Open

Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 837 MHz; σ = 0.935 mho/m; ε_r = 43; ρ = 1000 kg/m^3
Phantom section: Left Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(9.19, 9.19, 9.19); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM 12; 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) = 0.180 mW/g

Tilt Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.1 V/m; Power Drift = -0.023 dB
Peak SAR (extrapolated) = 0.210 W/kg
SAR(1 g) = 0.158 mW/g; SAR(10 g) = 0.115 mW/g
Maximum value of SAR (measured) = 0.182 mW/g

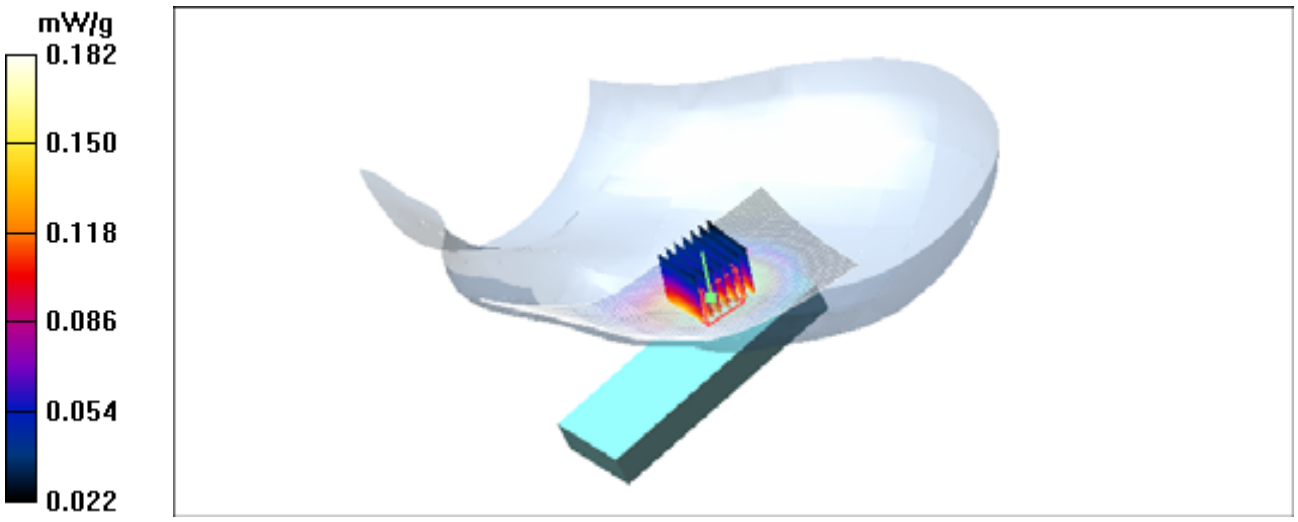


Figure 23 Left Hand Tilt 15°Open GSM 850 Channel 190

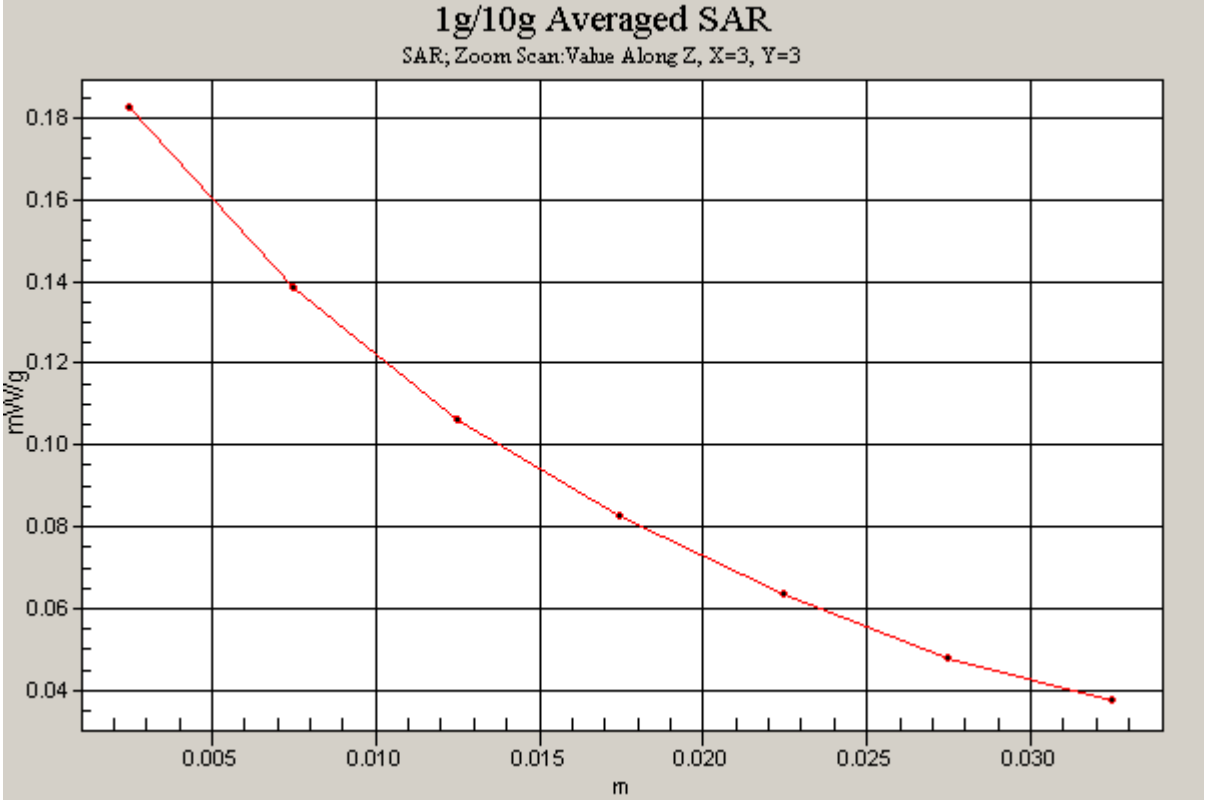


Figure 24 Z-Scan at power reference point (Left Hand Tilt 15°Open GSM 850 Channel 190)

Date/Time: 3/21/2009 8:31:09 AM

GSM 850 Left Tilt Low Open

Communication System: GSM 850; Frequency: 824.2 MHz;Duty Cycle: 1:8.3
Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.915 mho/m; ε_r = 43.2; ρ = 1000 kg/m^3
Phantom section: Left Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(9.19, 9.19, 9.19); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM 12; 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) = 0.215 mW/g
Tilt Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.3 V/m; Power Drift = -0.072 dB
Peak SAR (extrapolated) = 0.245 W/kg
SAR(1 g) = 0.186 mW/g; SAR(10 g) = 0.136 mW/g
Maximum value of SAR (measured) = 0.213 mW/g
Tilt Low/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.3 V/m; Power Drift = -0.072 dB
Peak SAR (extrapolated) = 0.229 W/kg
SAR(1 g) = 0.158 mW/g; SAR(10 g) = 0.105 mW/g
Maximum value of SAR (measured) = 0.198 mW/g

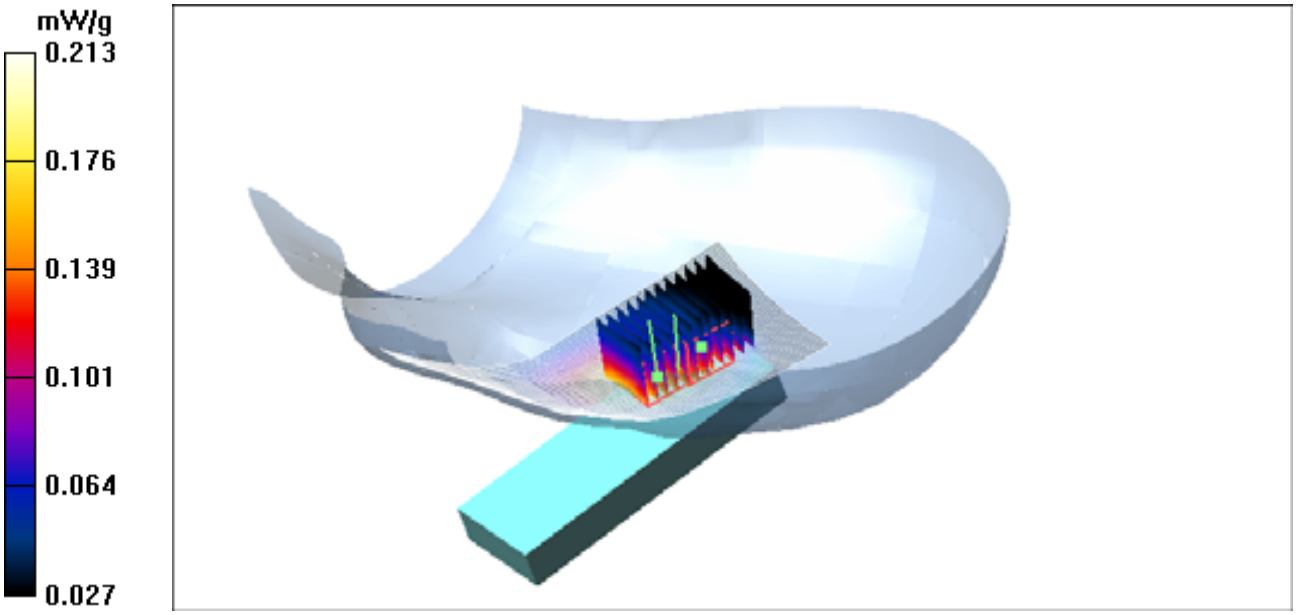


Figure 25 Left Hand Tilt 15°Open GSM 850 Channel 128

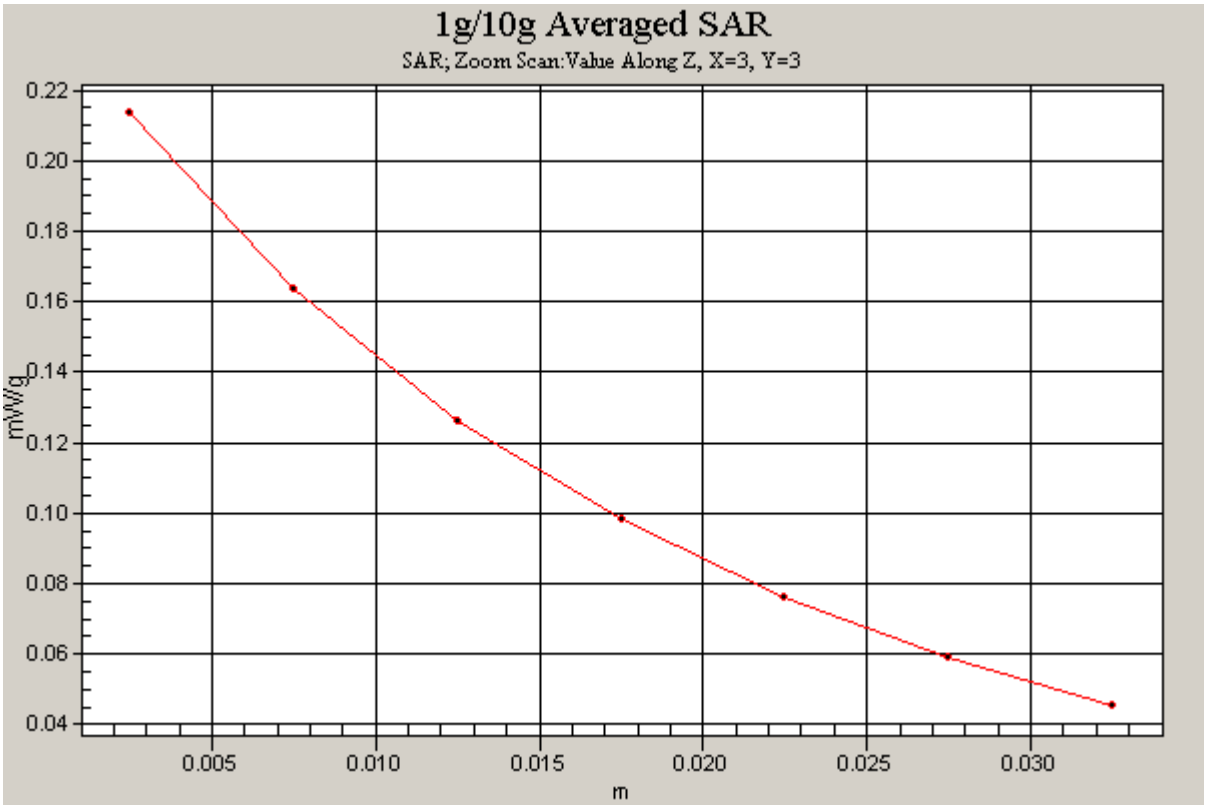


Figure 26 Z-Scan at power reference point (Left Hand Tilt 15°Open GSM 850 Channel 128)

Date/Time: 3/21/2009 8:13:25 PM

GSM 850 Right Cheek High Open

Communication System: GSM 850; Frequency: 848.8 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 849 MHz; σ = 0.946 mho/m; ε_r = 42.9; ρ = 1000 kg/m^3
Phantom section: Right Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(9.19, 9.19, 9.19); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM 12; 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) = 0.317 mW/g

Cheek High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.76 V/m; Power Drift = 0.110 dB
Peak SAR (extrapolated) = 0.362 W/kg
SAR(1 g) = 0.274 mW/g; SAR(10 g) = 0.199 mW/g
Maximum value of SAR (measured) = 0.315 mW/g

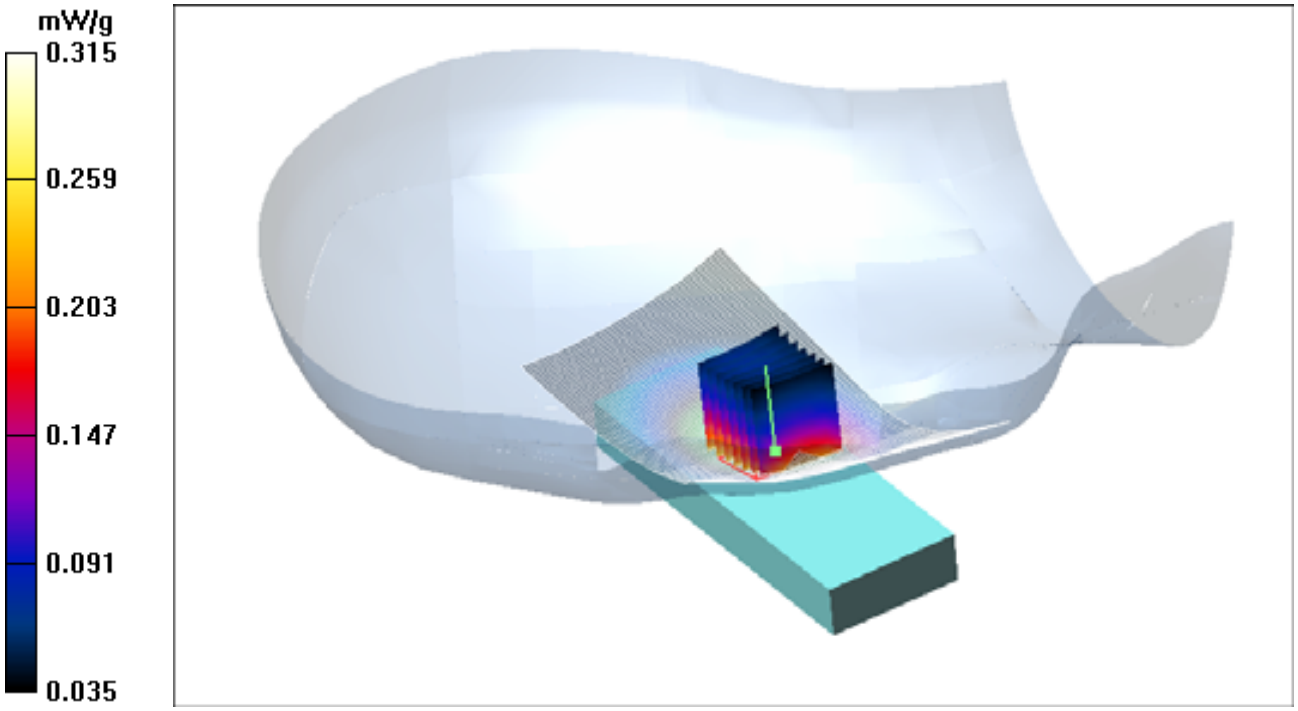


Figure 27 Right Hand Touch Cheek Open GSM 850 Channel 251

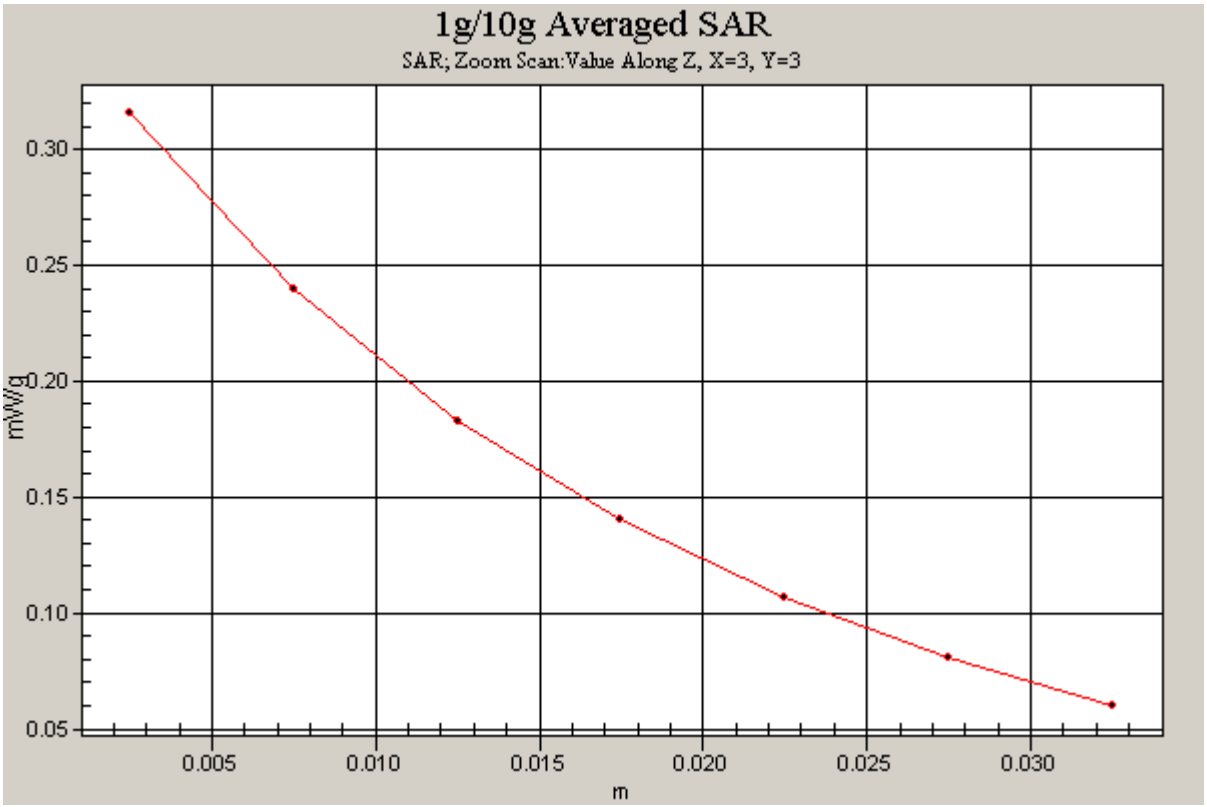


Figure 28 Z-Scan at power reference point (Right Hand Touch Cheek Open GSM 850 Channel 251)

Date/Time: 3/21/2009 8:32:34 PM

GSM 850 Right Cheek Middle Open

Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 837 MHz; σ = 0.935 mho/m; ε_r = 43; ρ = 1000 kg/m^3
Phantom section: Right Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(9.19, 9.19, 9.19); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM 12; 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) = 0.333 mW/g

Cheek Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.85 V/m; Power Drift = 0.004 dB
Peak SAR (extrapolated) = 0.380 W/kg
SAR(1 g) = 0.290 mW/g; SAR(10 g) = 0.213 mW/g
Maximum value of SAR (measured) = 0.333 mW/g

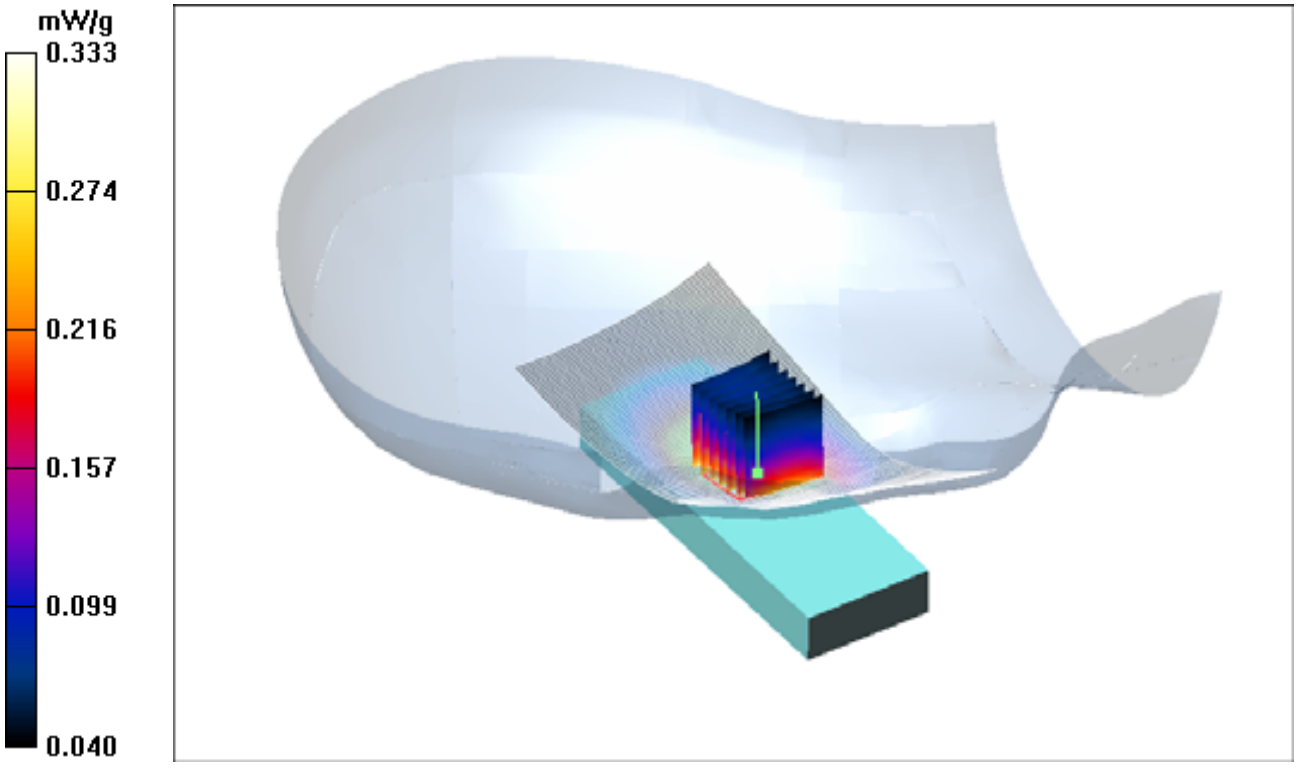


Figure 29 Right Hand Touch Cheek Open GSM 850 Channel 190

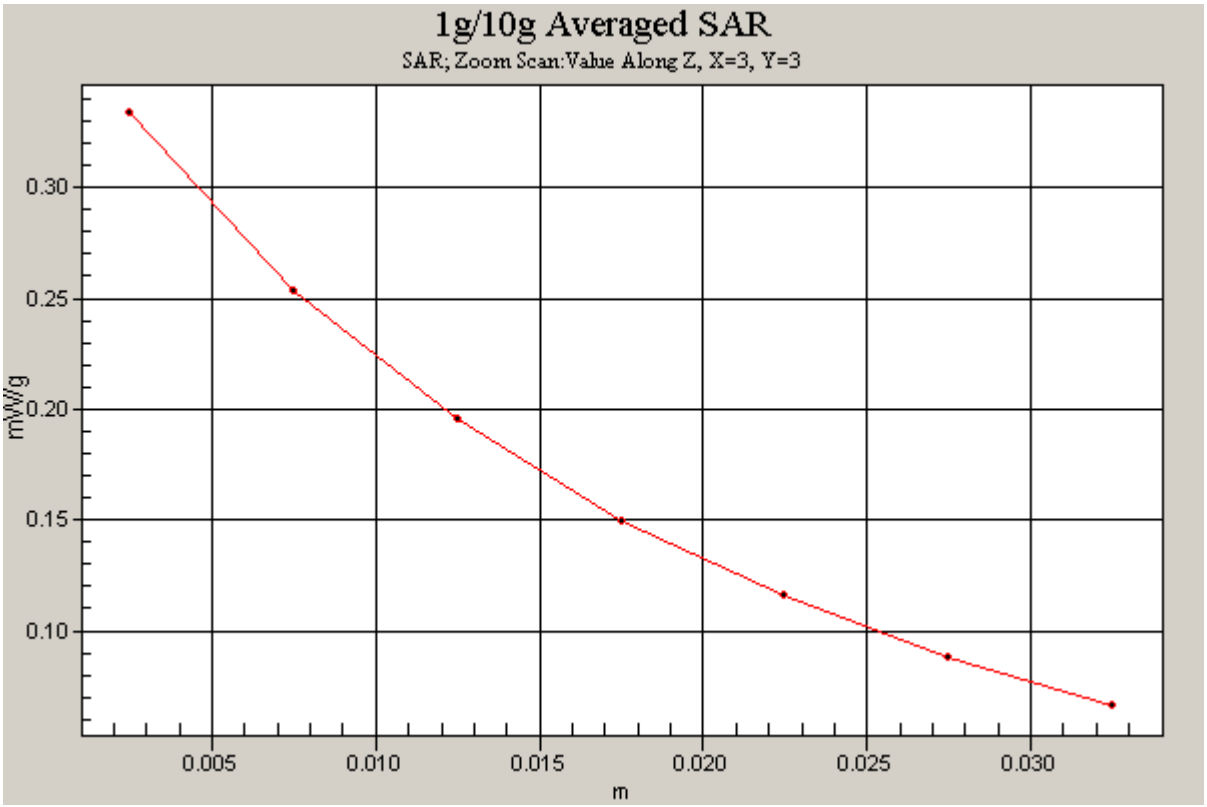


Figure 30 Z-Scan at power reference point (Right Hand Touch Cheek Open GSM 850 Channel 190)

Date/Time: 3/21/2009 8:51:45 PM

GSM 850 Right Cheek Low Open

Communication System: GSM 850; Frequency: 824.2 MHz;Duty Cycle: 1:8.3
Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.915 mho/m; ε_r = 43.2; ρ = 1000 kg/m^3
Phantom section: Right Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(9.19, 9.19, 9.19); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM 12; 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) = 0.393 mW/g

Cheek Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.2 V/m; Power Drift = -0.084 dB
Peak SAR (extrapolated) = 0.442 W/kg
SAR(1 g) = 0.342 mW/g; SAR(10 g) = 0.254 mW/g
Maximum value of SAR (measured) = 0.389 mW/g

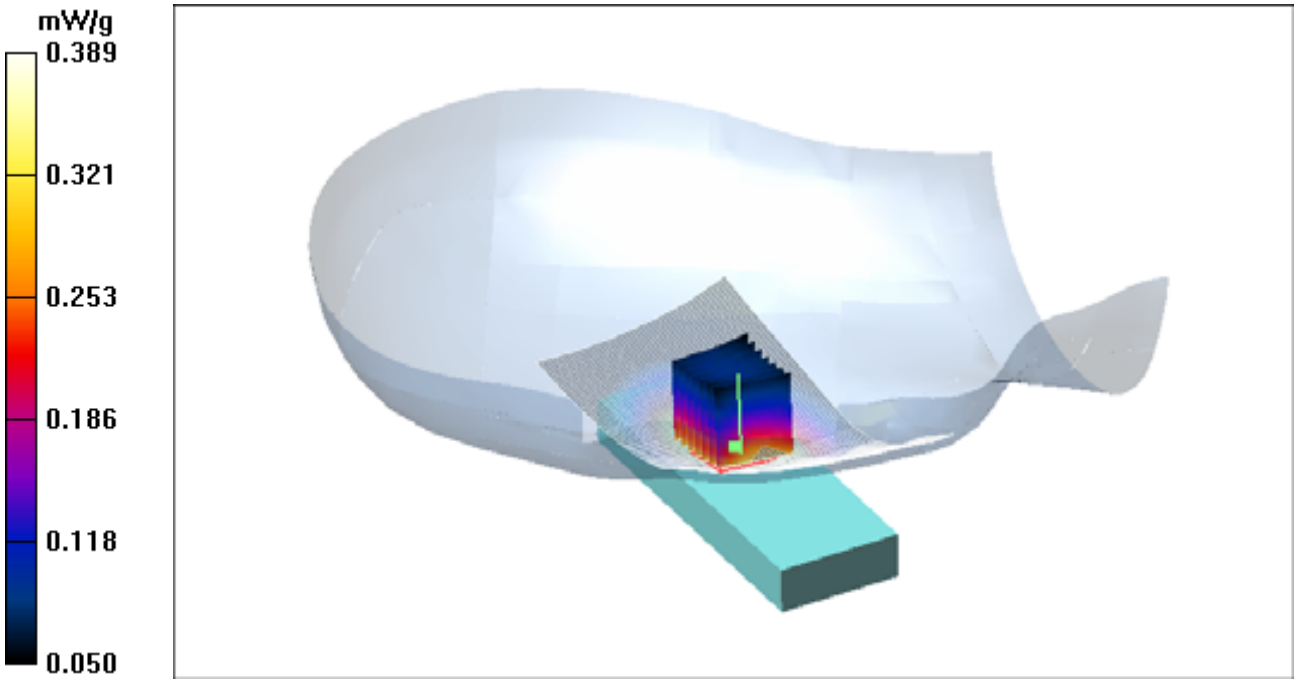


Figure 31 Right Hand Touch Cheek Open GSM 850 Channel 128

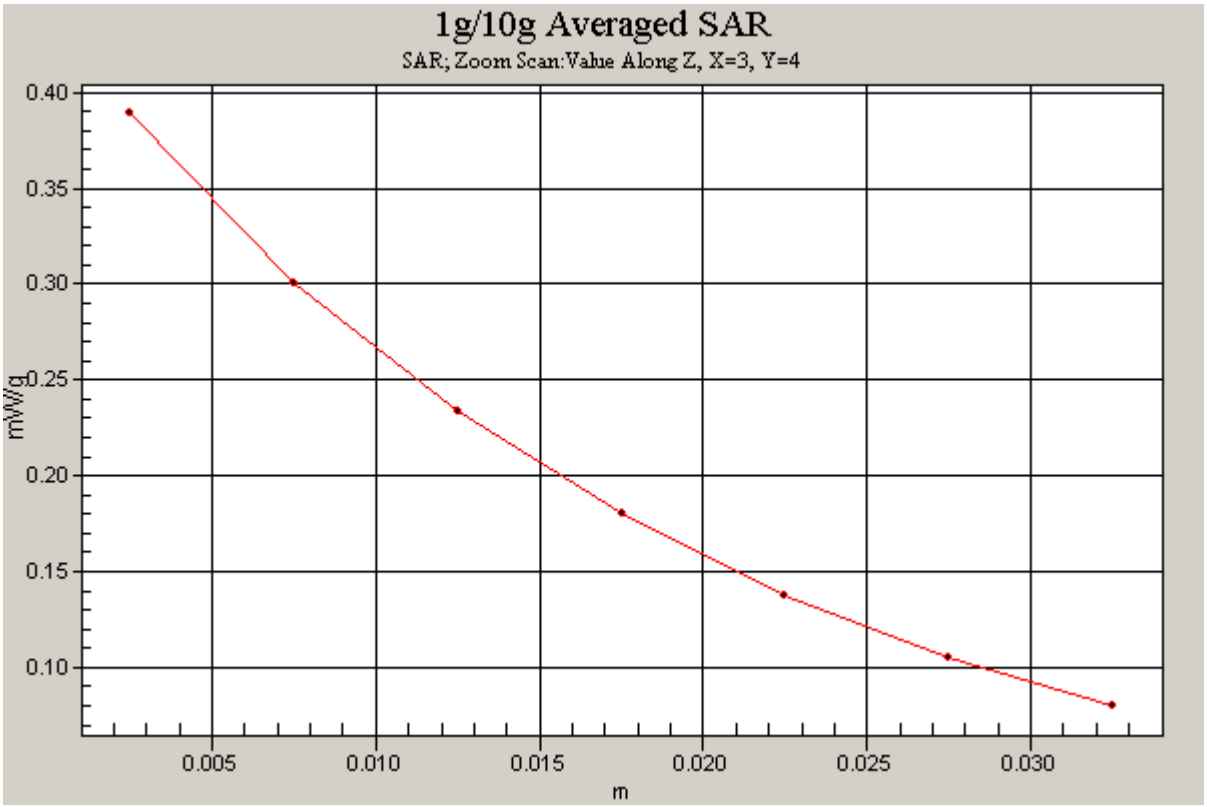


Figure 32 Z-Scan at power reference point (Right Hand Touch Cheek Open GSM 850 Channel 128)

Date/Time: 3/21/2009 9:58:31 PM

GSM 850 Right Tilt High Open

Communication System: GSM 850; Frequency: 848.8 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 849 MHz; σ = 0.946 mho/m; ε_r = 42.9; ρ = 1000 kg/m^3
Phantom section: Right Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(9.19, 9.19, 9.19); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM 12; 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) = 0.186 mW/g

Tilt High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.0 V/m; Power Drift = 0.089 dB
Peak SAR (extrapolated) = 0.218 W/kg
SAR(1 g) = 0.164 mW/g; SAR(10 g) = 0.119 mW/g
Maximum value of SAR (measured) = 0.189 mW/g

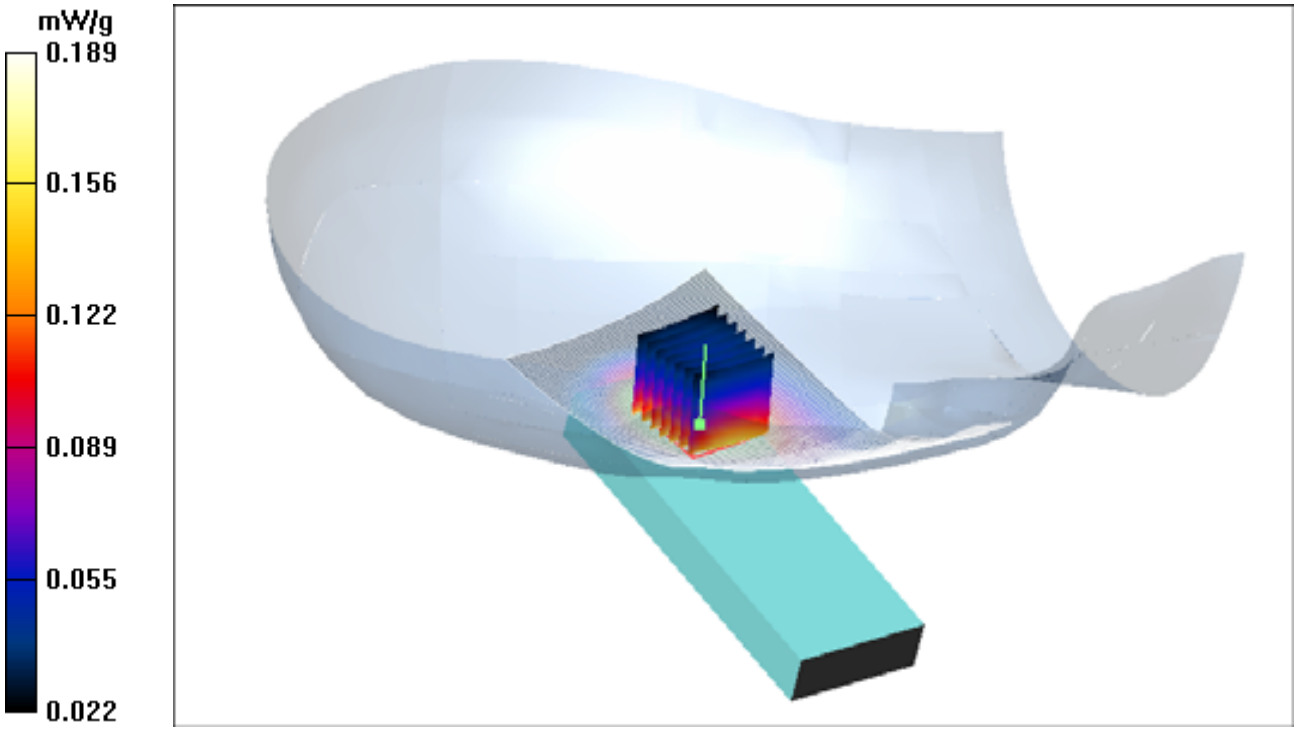


Figure 33 Right Hand Tilt 15°Open GSM 850 Channel 251

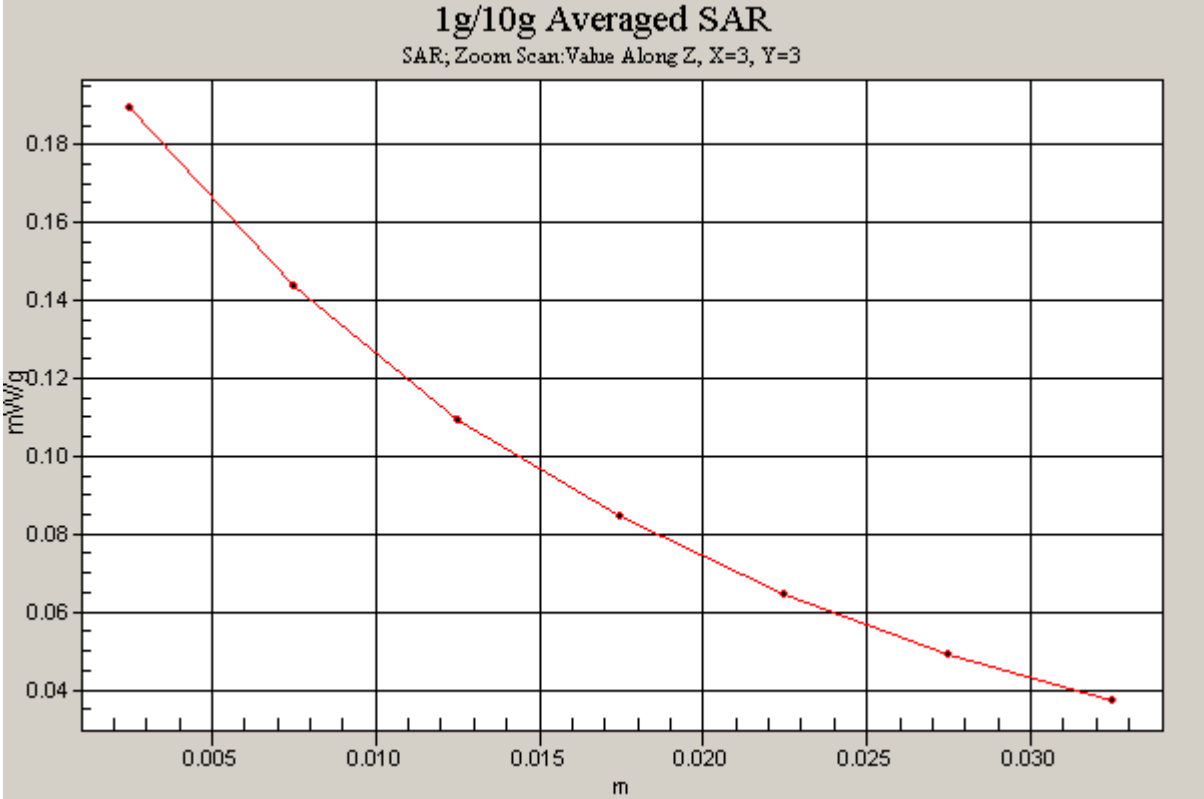


Figure 34 Z-Scan at power reference point (Right Hand Tilt 15°Open GSM 850 Channel 251)

Date/Time: 3/21/2009 9:39:56 PM

GSM 850 Right Tilt Middle Open

Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 837 MHz; σ = 0.935 mho/m; ε_r = 43; ρ = 1000 kg/m^3
Phantom section: Right Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(9.19, 9.19, 9.19); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM 12; 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) = 0.213 mW/g

Tilt Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.9 V/m; Power Drift = -0.029 dB
Peak SAR (extrapolated) = 0.245 W/kg
SAR(1 g) = 0.185 mW/g; SAR(10 g) = 0.134 mW/g
Maximum value of SAR (measured) = 0.212 mW/g

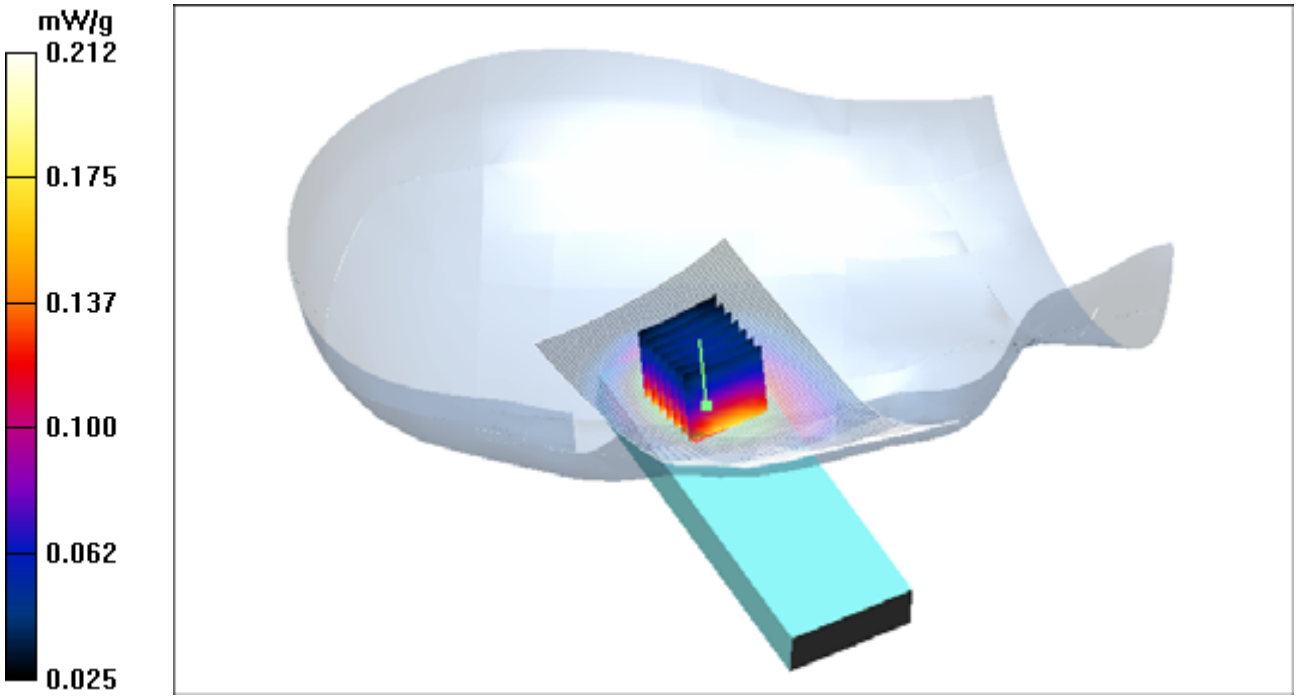


Figure 35 Right Hand Tilt 15°Open GSM 850 Channel 190

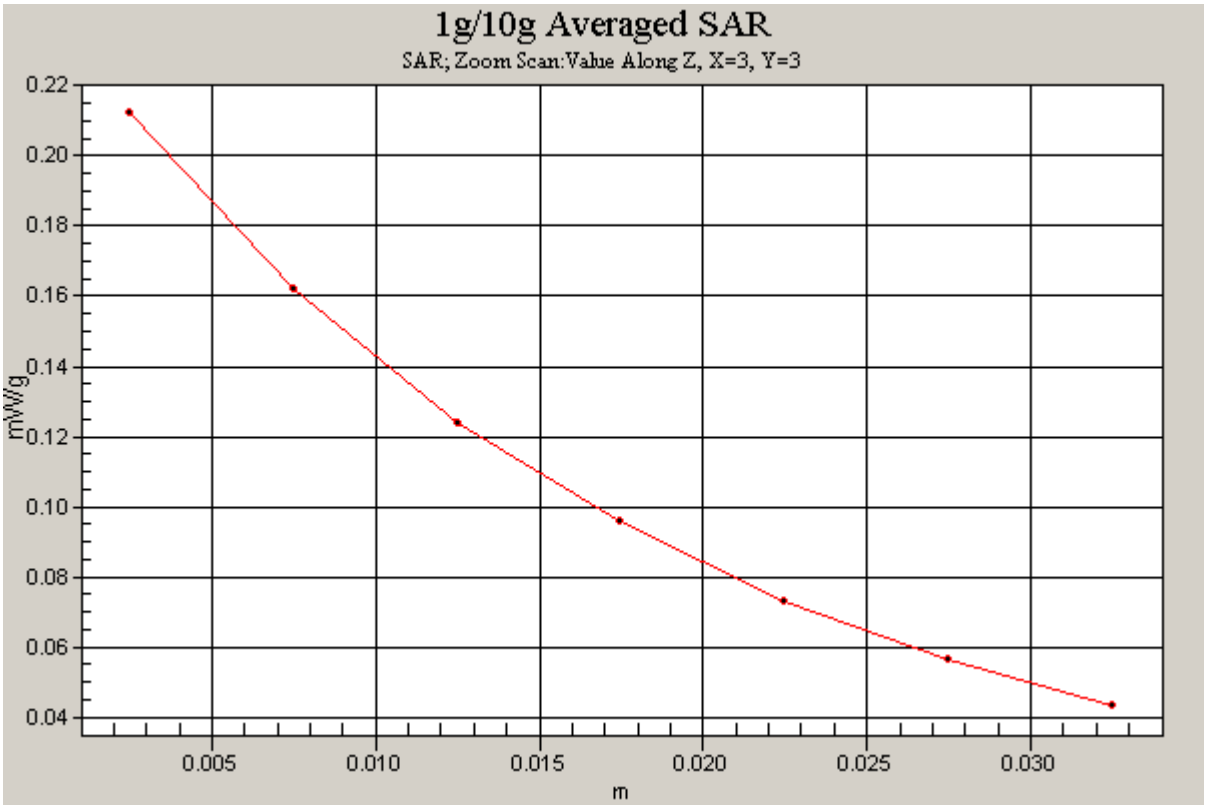


Figure 36 Z-Scan at power reference point (Right Hand Tilt 15°Open GSM 850 Channel 190)

Date/Time: 3/21/2009 9:11:24 PM

GSM 850 Right Tilt Low Open

Communication System: GSM 850; Frequency: 824.2 MHz;Duty Cycle: 1:8.3
Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.915 mho/m; ε_r = 43.2; ρ = 1000 kg/m^3
Phantom section: Right Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(9.19, 9.19, 9.19); Calibrated: 9/3/2008
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM 12; 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
Tilt Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.9 V/m; Power Drift = -0.109 dB
Peak SAR (extrapolated) = 0.275 W/kg
SAR(1 g) = 0.209 mW/g; SAR(10 g) = 0.153 mW/g
Maximum value of SAR (measured) = 0.239 mW/g
Tilt Low/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.9 V/m; Power Drift = -0.109 dB
Peak SAR (extrapolated) = 0.270 W/kg
SAR(1 g) = 0.191 mW/g; SAR(10 g) = 0.128 mW/g
Maximum value of SAR (measured) = 0.234 mW/g

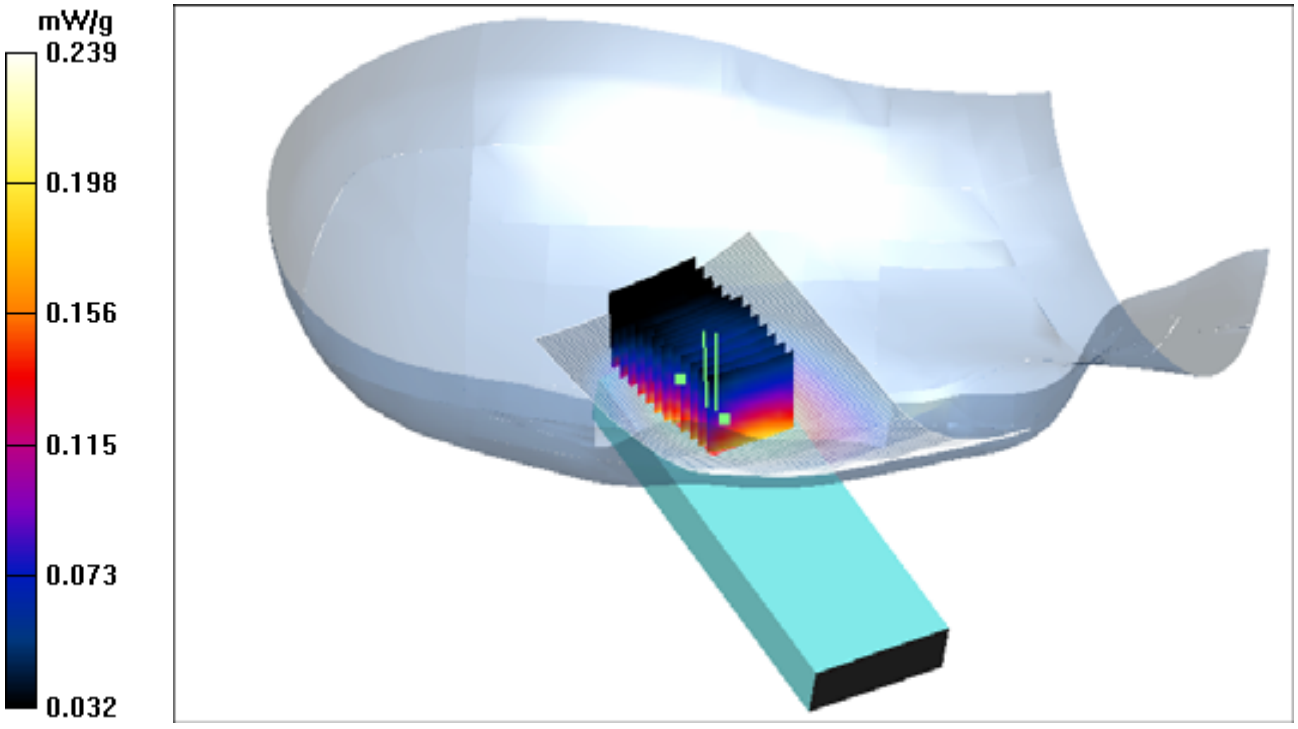
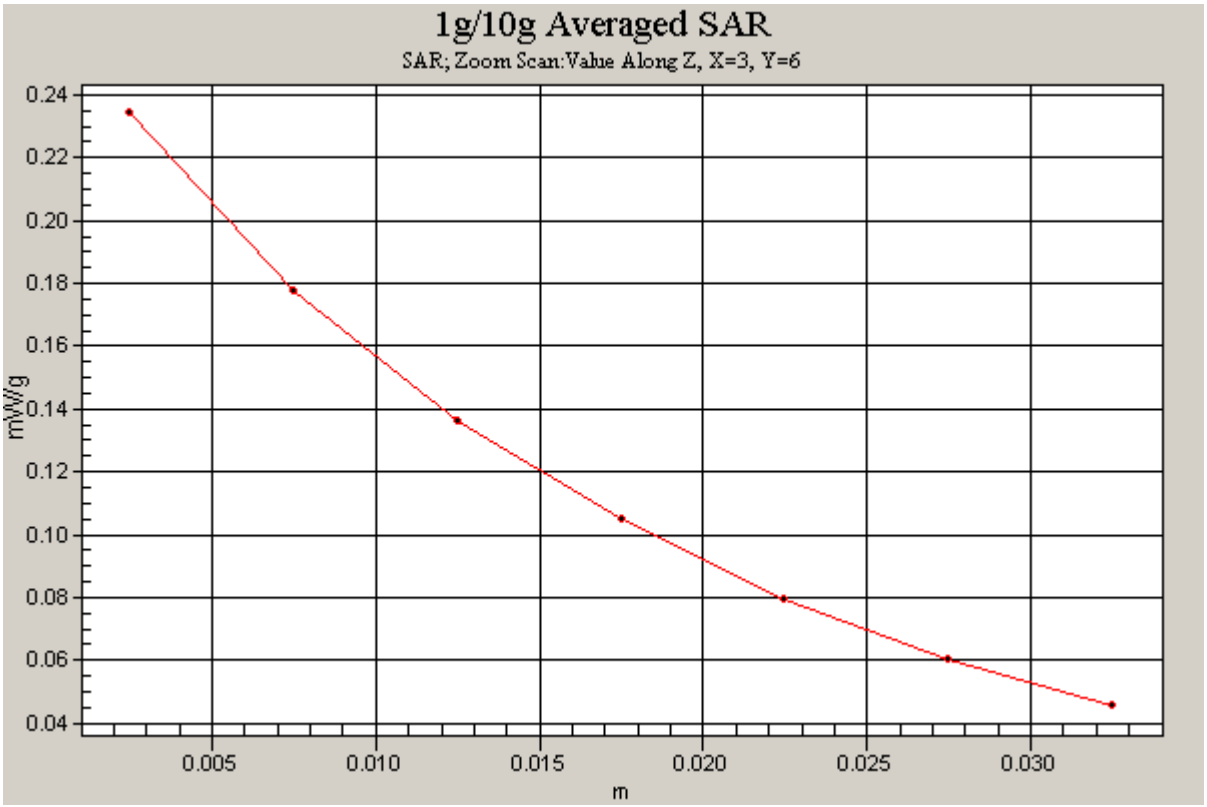


Figure 37 Right Hand Tilt 15°Open GSM 850 Channel 128



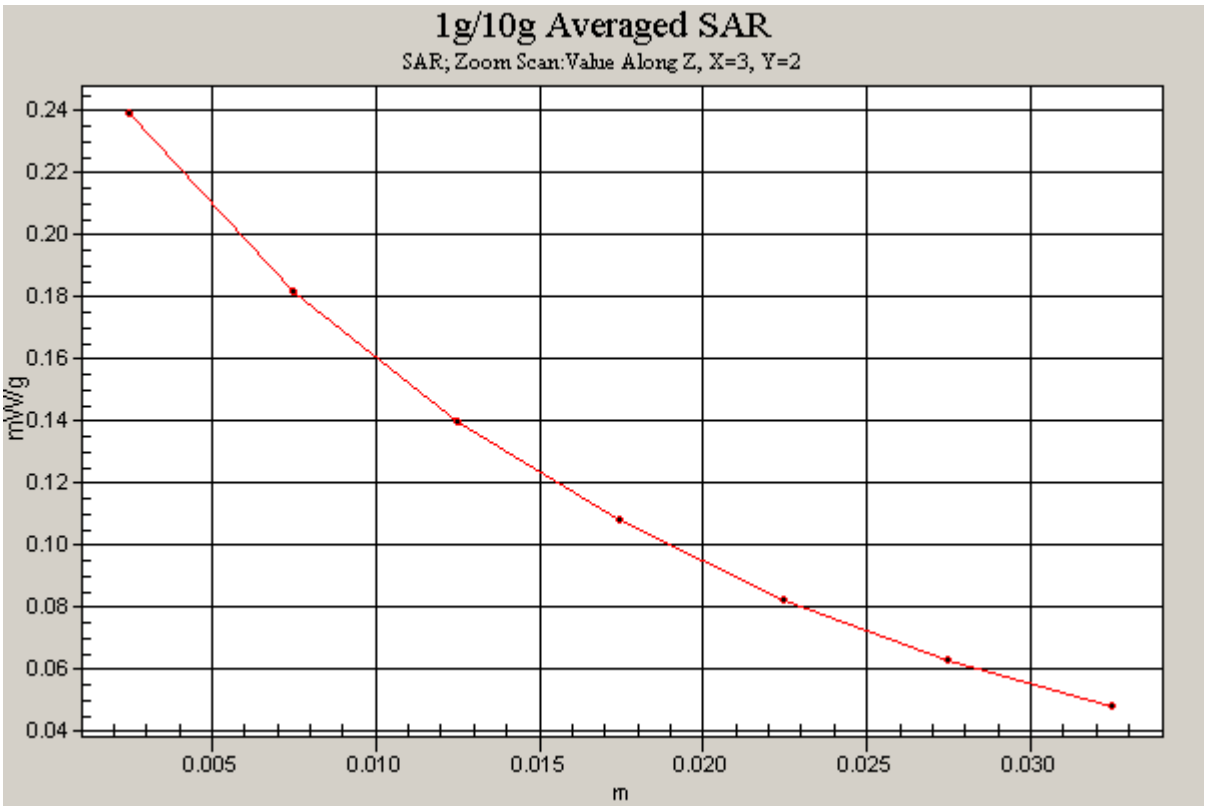


Figure 38 Z-Scan at power reference point (Right Hand Tilt 15°Open GSM 850 Channel 128)

Date/Time: 3/22/2009 3:08:02 AM

GSM 850 Towards Ground High Open

Communication System: GSM 850; Frequency: 848.8 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 849 MHz; σ = 0.976 mho/m; ε_r = 54.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(9.1, 9.1, 9.1); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM 12; 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 (71x151x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.441 mW/g

Towards Ground High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.36 V/m; Power Drift = 0.063 dB
Peak SAR (extrapolated) = 0.505 W/kg
SAR(1 g) = 0.379 mW/g; SAR(10 g) = 0.273 mW/g
Maximum value of SAR (measured) = 0.439 mW/g

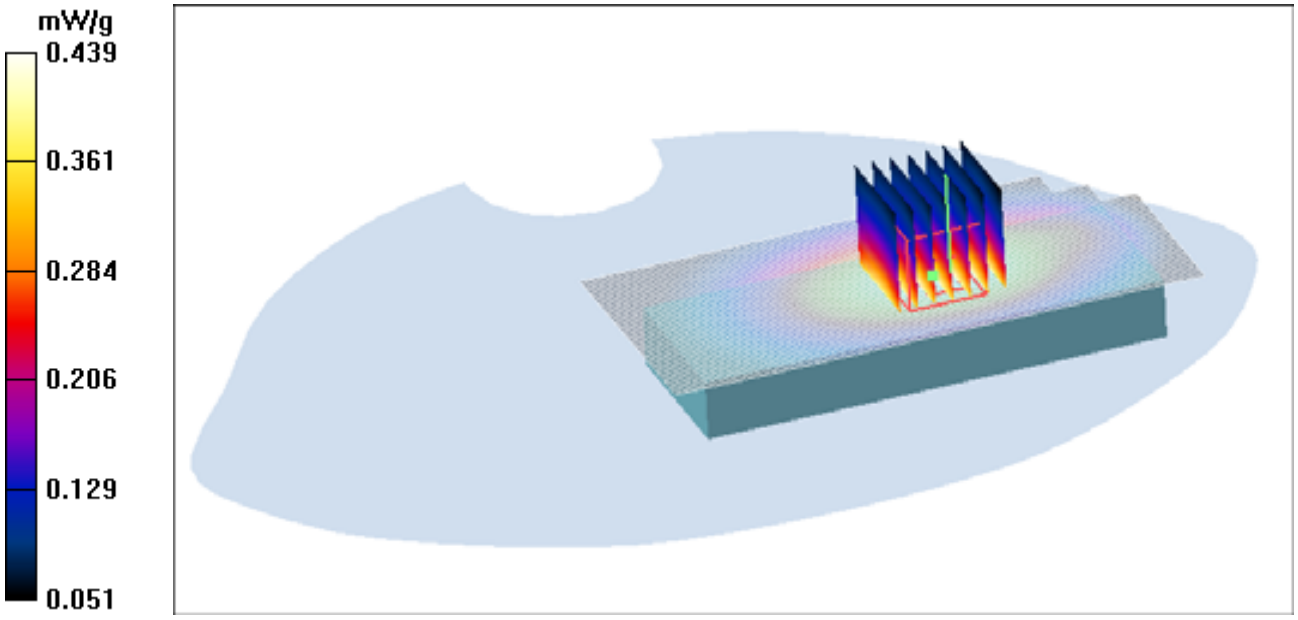


Figure 39 Body, Towards Ground, Open GSM 850 Channel 251

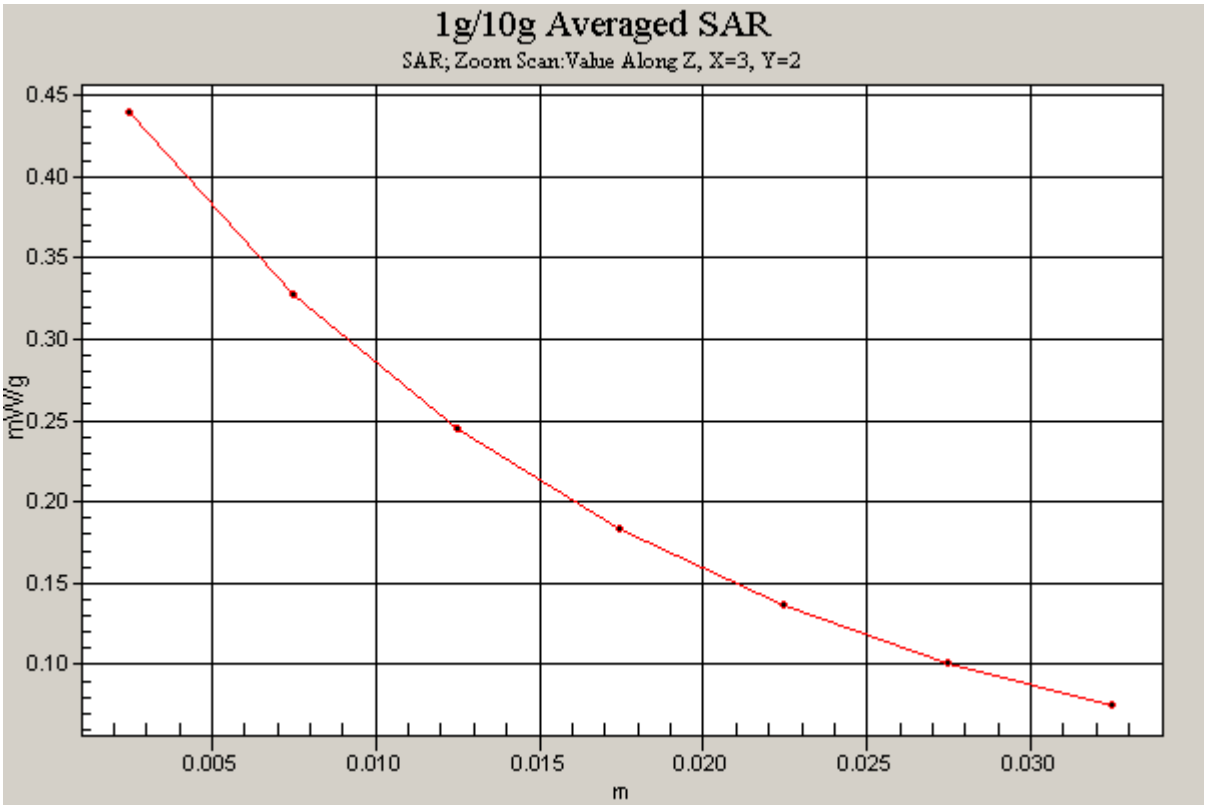


Figure 40 Z-Scan at power reference point (Body, Towards Ground, Open GSM 850 Channel 251)

Date/Time: 3/22/2009 3:27:41 AM

GSM 850 Towards Ground Middle Open

Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 837 MHz; σ = 0.961 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(9.1, 9.1, 9.1); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM 12; 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 (71x151x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.472 mW/g

Towards Ground Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.65 V/m; Power Drift = -0.039 dB
Peak SAR (extrapolated) = 0.534 W/kg
SAR(1 g) = 0.405 mW/g; SAR(10 g) = 0.292 mW/g
Maximum value of SAR (measured) = 0.464 mW/g

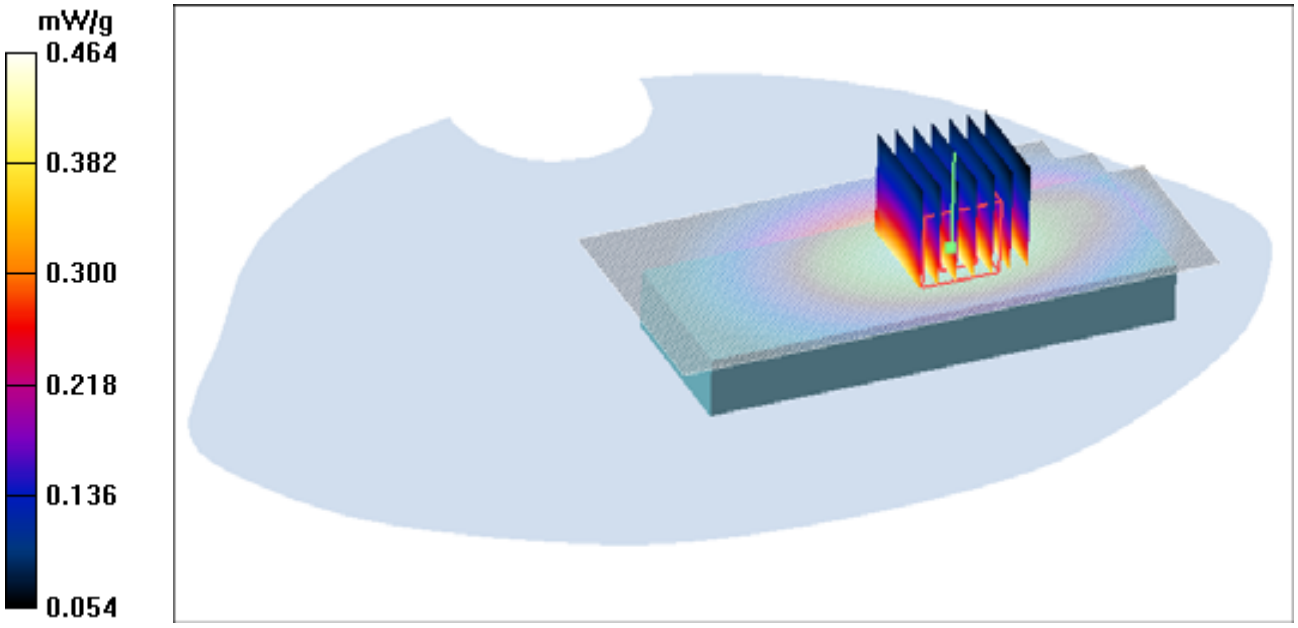


Figure 41 Body, Towards Ground, Open GSM 850 Channel 190

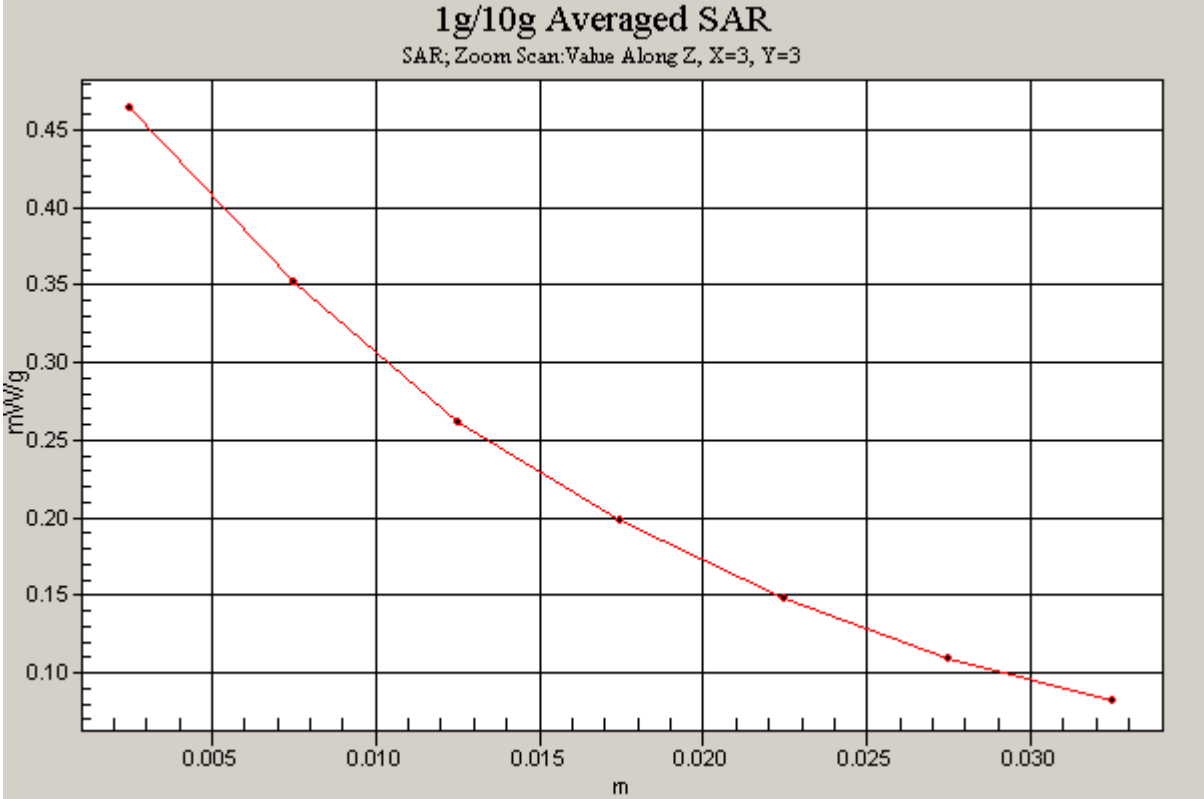


Figure 42 Z-Scan at power reference point (Body, Towards Ground, Open GSM 850 Channel 190)

Date/Time: 3/22/2009 4:13:25 AM

GSM 850 Towards Ground Low Open

Communication System: GSM 850; Frequency: 824.2 MHz;Duty Cycle: 1:8.3
Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.949 mho/m; ε_r = 55.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(9.1, 9.1, 9.1); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM 12; 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 (71x151x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.509 mW/g

Towards Ground Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.83 V/m; Power Drift = -0.060 dB
Peak SAR (extrapolated) = 0.584 W/kg
SAR(1 g) = 0.440 mW/g; SAR(10 g) = 0.318 mW/g
Maximum value of SAR (measured) = 0.507 mW/g

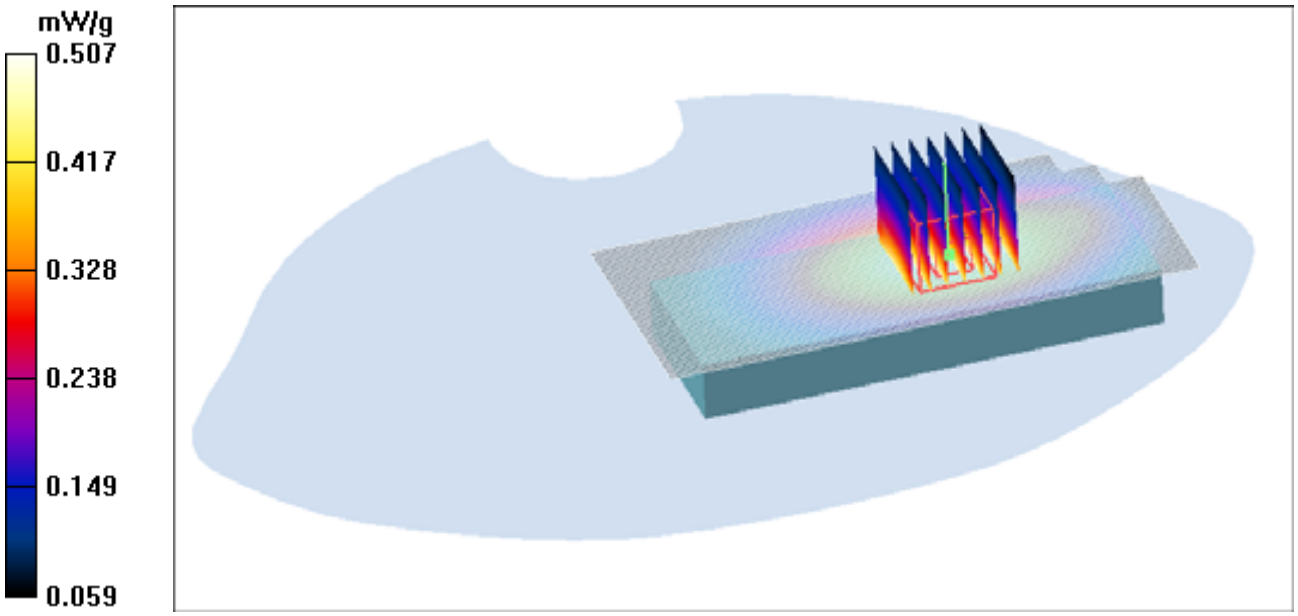


Figure 43 Body, Towards Ground, Open GSM 850 Channel 128

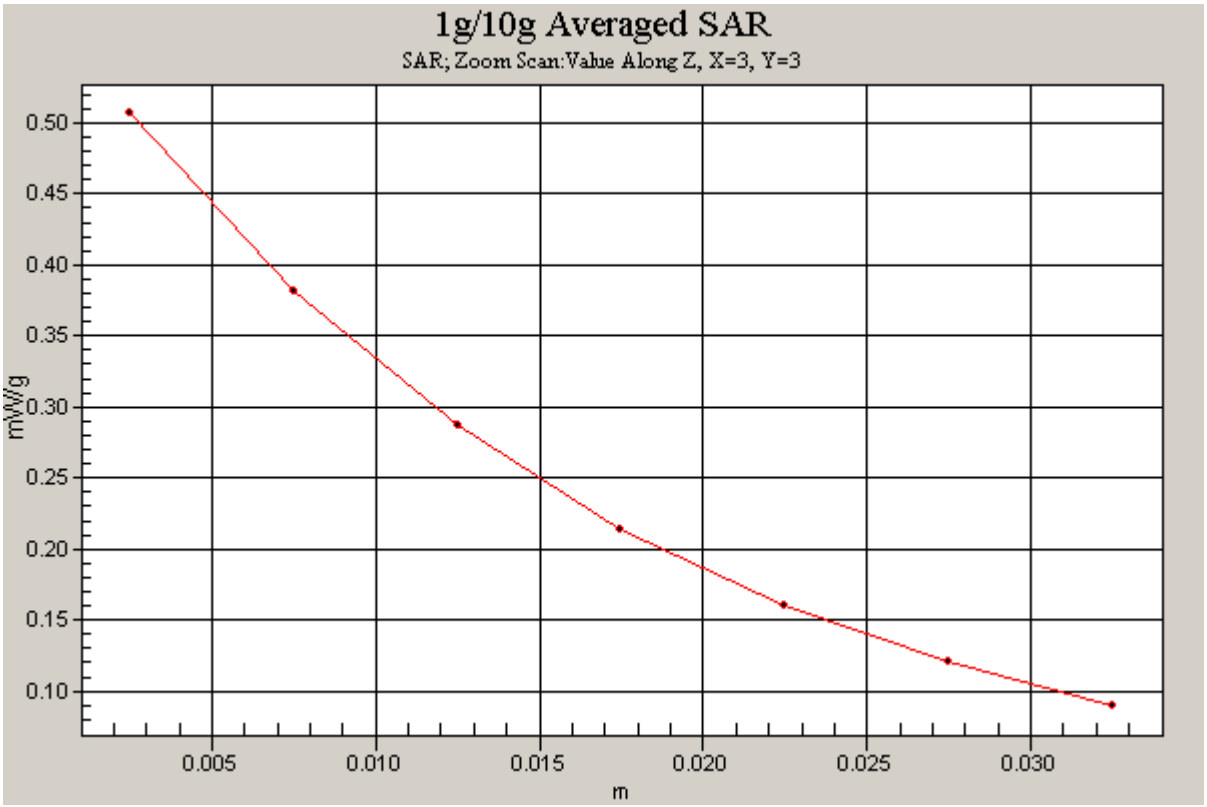


Figure 44 Z-Scan at power reference point (Body, Towards Ground, Open GSM 850 Channel 128)

Date/Time: 3/22/2009 2:46:06 AM

GSM 850 Towards Phantom High Open

Communication System: GSM 850; Frequency: 848.8 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 849 MHz; σ = 0.976 mho/m; ε_r = 54.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(9.1, 9.1, 9.1); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM 12; 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 (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.329 mW/g

Towards Phantom High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.34 V/m; Power Drift = -0.032 dB
Peak SAR (extrapolated) = 0.377 W/kg
SAR(1 g) = 0.285 mW/g; SAR(10 g) = 0.207 mW/g
Maximum value of SAR (measured) = 0.329 mW/g

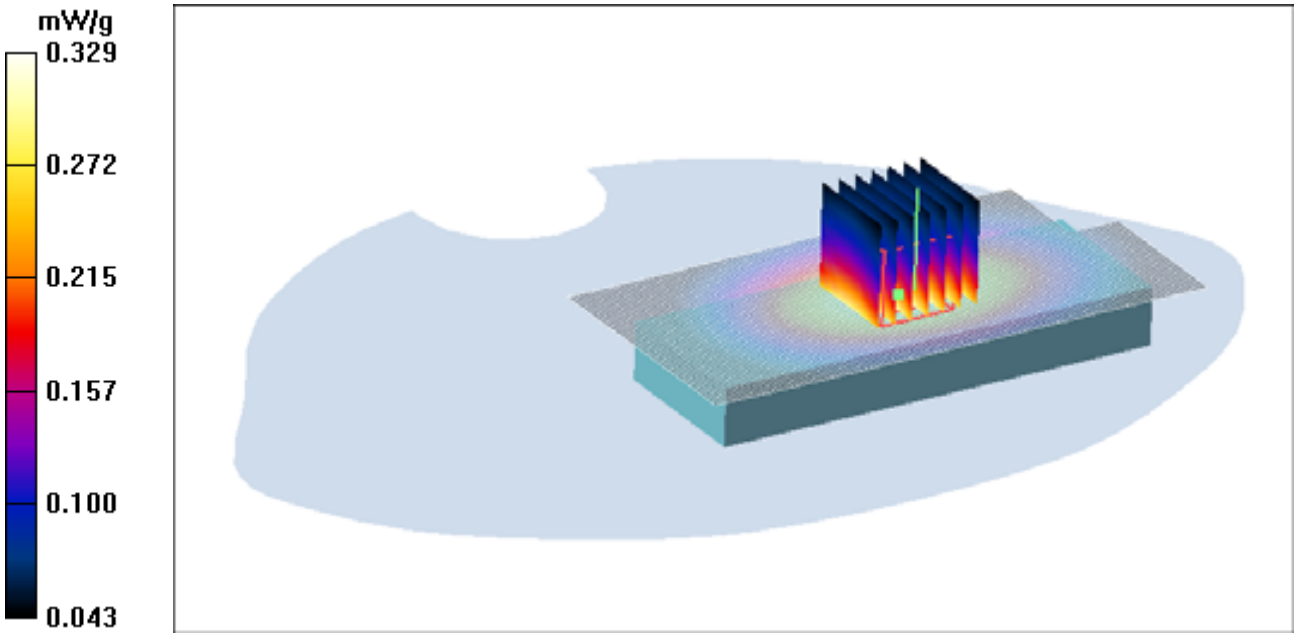


Figure 45 Body, Towards Phantom, Open GSM 850 Channel 251

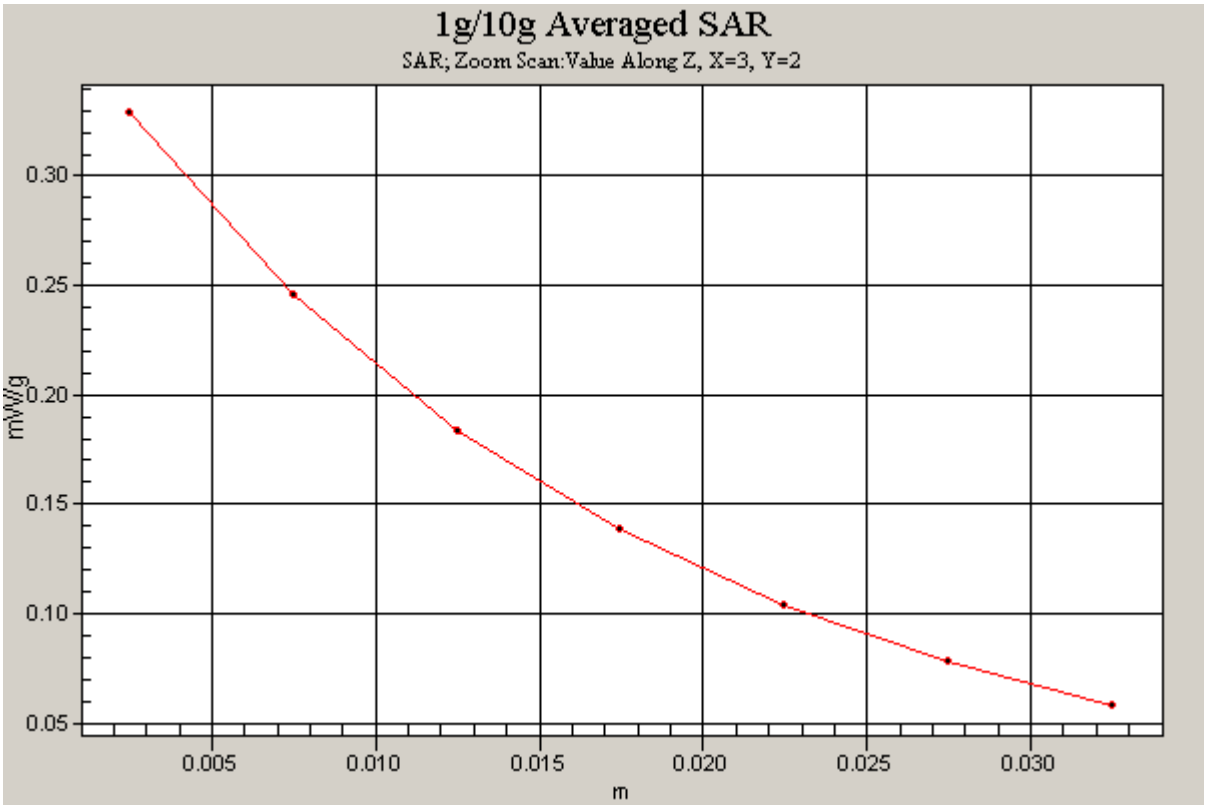


Figure 46 Z-Scan at power reference point (Body, Towards Phantom, Open GSM 850 Channel 251)

Date/Time: 3/22/2009 2:26:33 AM

GSM 850 Towards Phantom Middle Open

Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 837 MHz; σ = 0.961 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(9.1, 9.1, 9.1); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM 12; 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 (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.361 mW/g

Towards Phantom Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.75 V/m; Power Drift = 0.008 dB
Peak SAR (extrapolated) = 0.413 W/kg
SAR(1 g) = 0.313 mW/g; SAR(10 g) = 0.228 mW/g
Maximum value of SAR (measured) = 0.360 mW/g

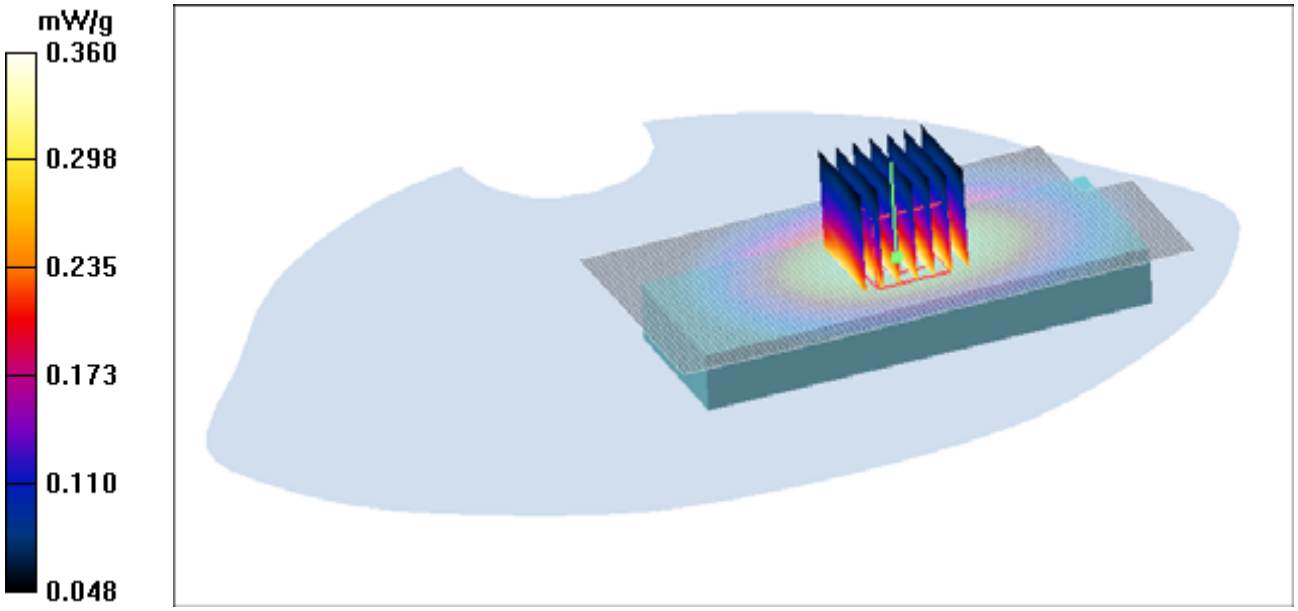


Figure 47 Body, Towards Phantom, Open GSM 850 Channel 190

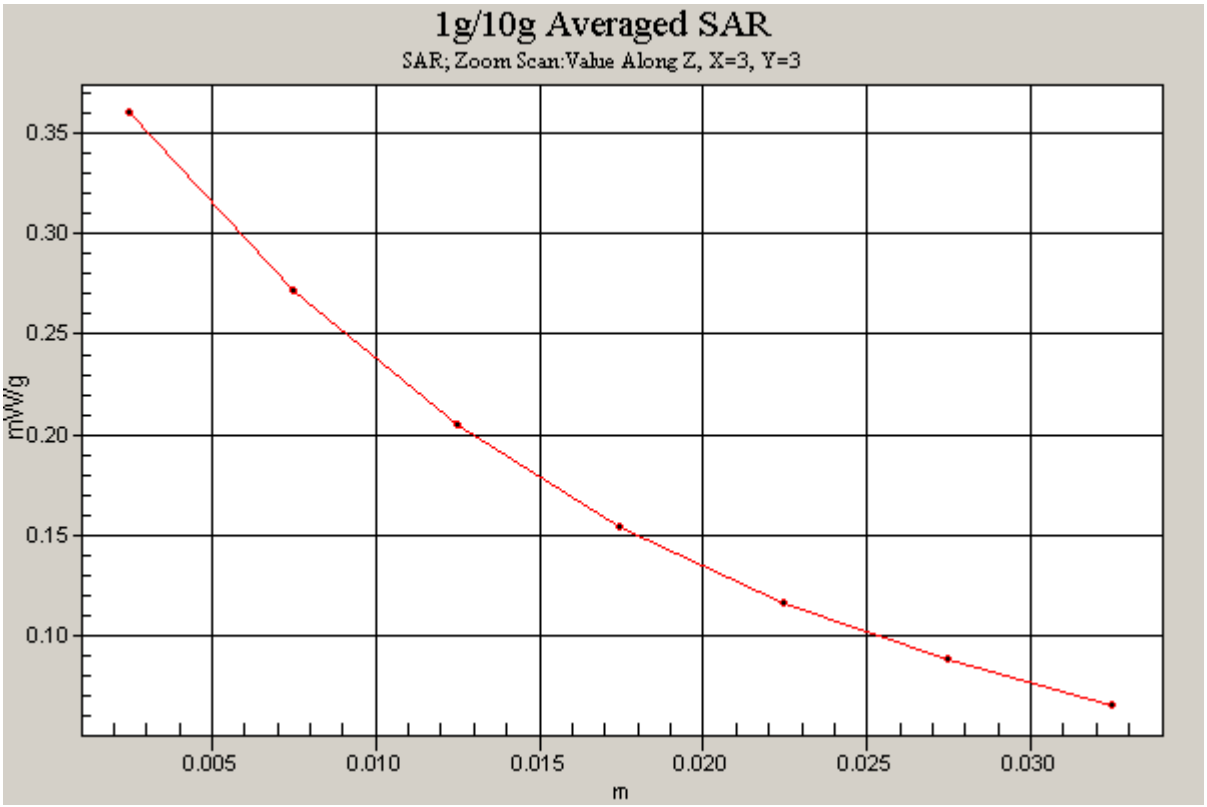


Figure 48 Z-Scan at power reference point (Body, Towards Phantom, Open GSM 850 Channel 190)

Date/Time: 3/22/2009 2:07:06 AM

GSM 850 Towards Phantom Low Open

Communication System: GSM 850; Frequency: 824.2 MHz;Duty Cycle: 1:8.3
Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.949 mho/m; ε_r = 55.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(9.1, 9.1, 9.1); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM 12; 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 (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.397 mW/g

Towards Phantom Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.19 V/m; Power Drift = -0.085 dB
Peak SAR (extrapolated) = 0.453 W/kg
SAR(1 g) = 0.345 mW/g; SAR(10 g) = 0.251 mW/g
Maximum value of SAR (measured) = 0.395 mW/g

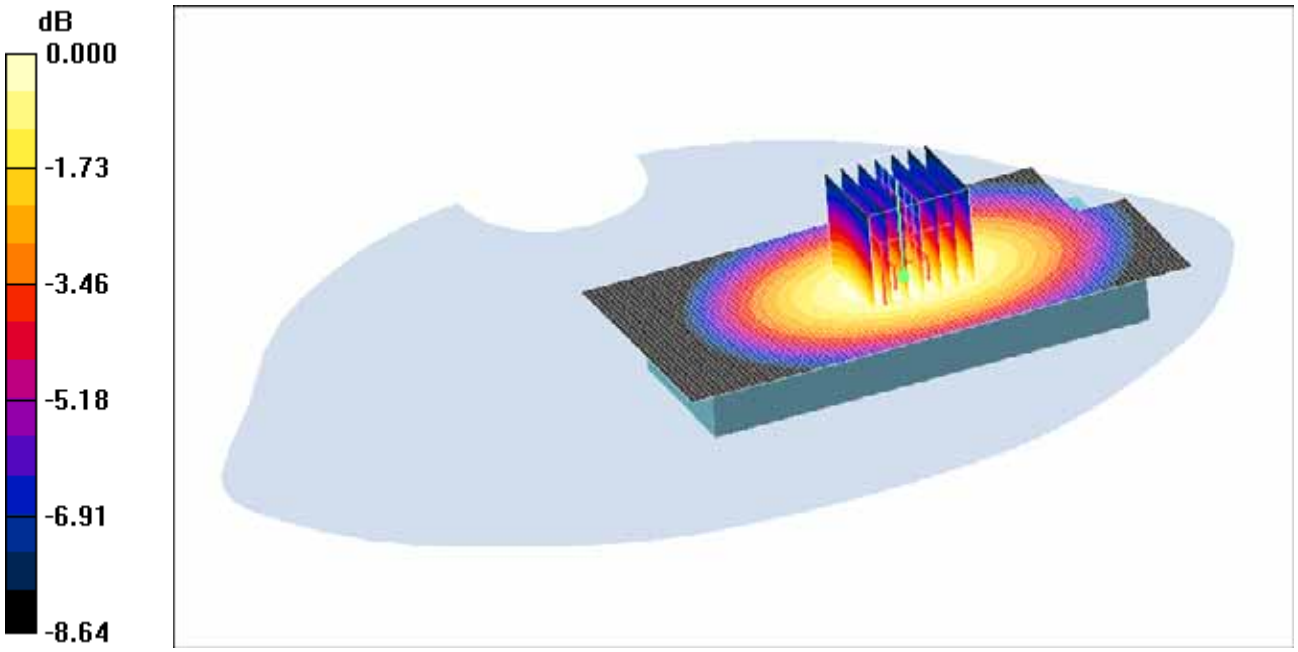


Figure 49 Body, Towards Phantom, Open GSM 850 Channel 128

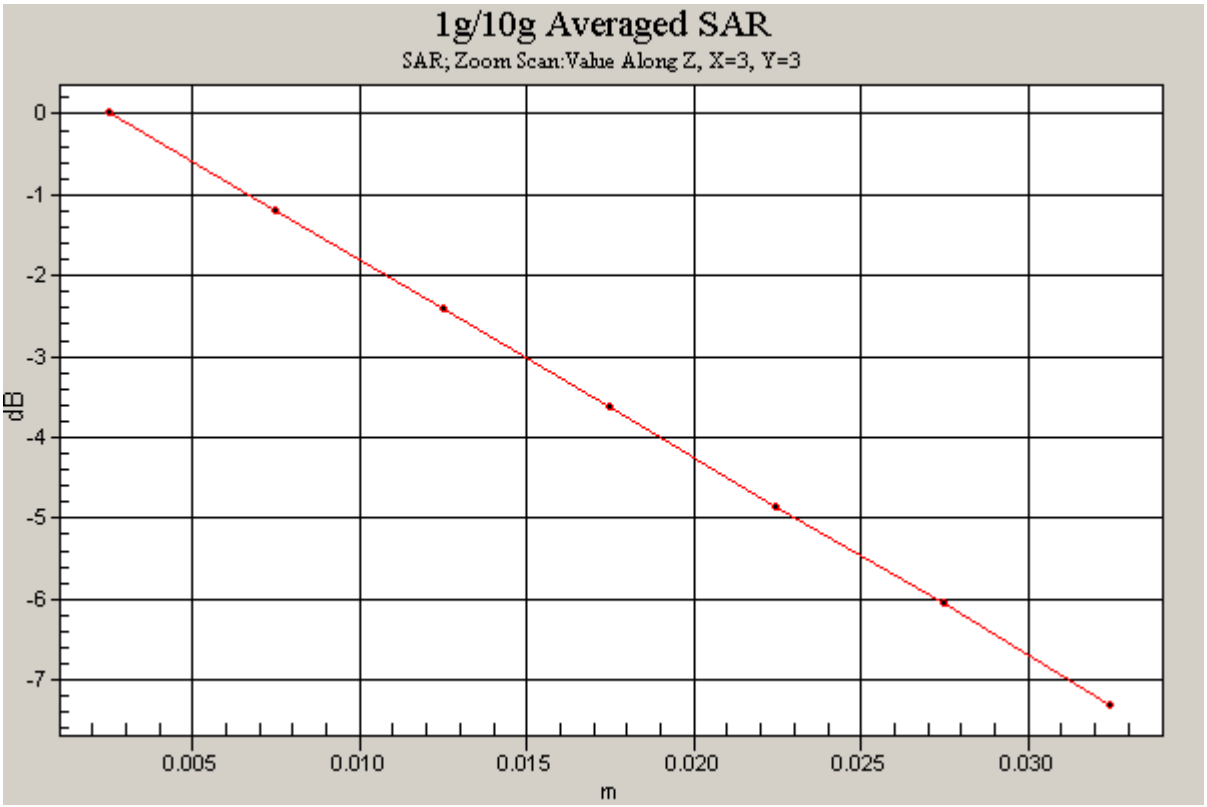


Figure 50 Z-Scan at power reference point (Body, Towards Ground, Open GSM 850, Channel 128)

Date/Time: 3/21/2009 12:18:15 PM

GSM 850 Earphone Towards Ground Low Open

Communication System: GSM 850; Frequency: 824.2 MHz;Duty Cycle: 1:8.3
Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.949 mho/m; ε_r = 55.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(9.1, 9.1, 9.1); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM 12; 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 (71x151x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.402 mW/g

Towards Ground Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.87 V/m; Power Drift = 0.187 dB
Peak SAR (extrapolated) = 0.461 W/kg
SAR(1 g) = 0.346 mW/g; SAR(10 g) = 0.250 mW/g
Maximum value of SAR (measured) = 0.398 mW/g

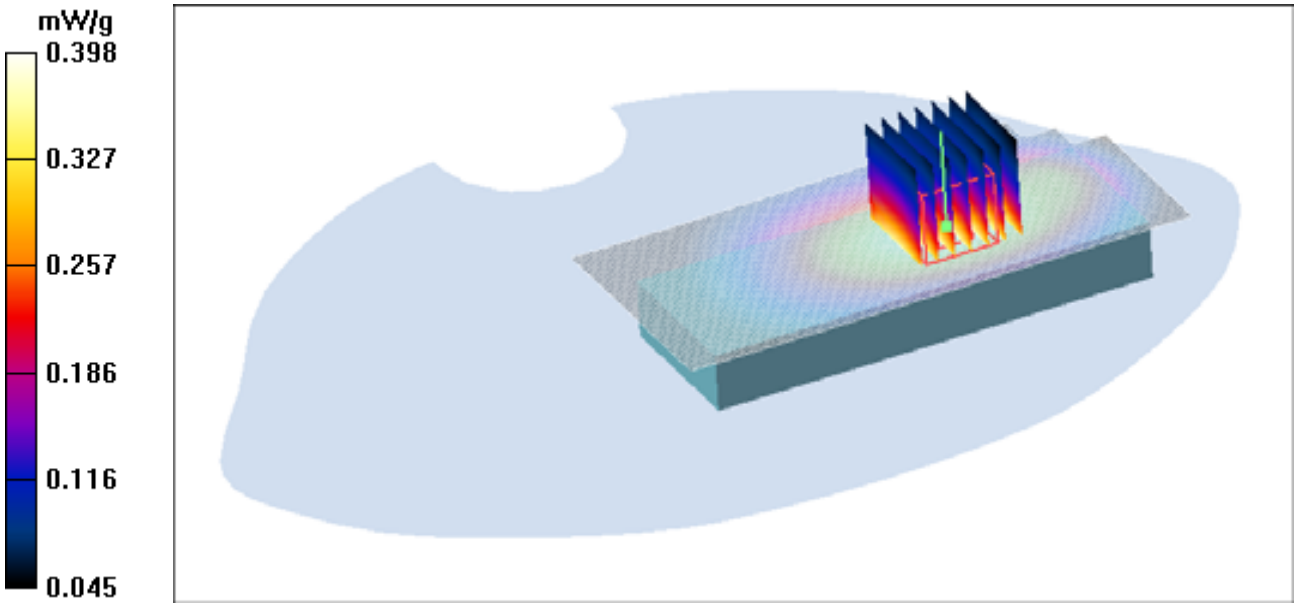


Figure 51 Body with Earphone, Towards Ground, Open GSM 850, Channel 128

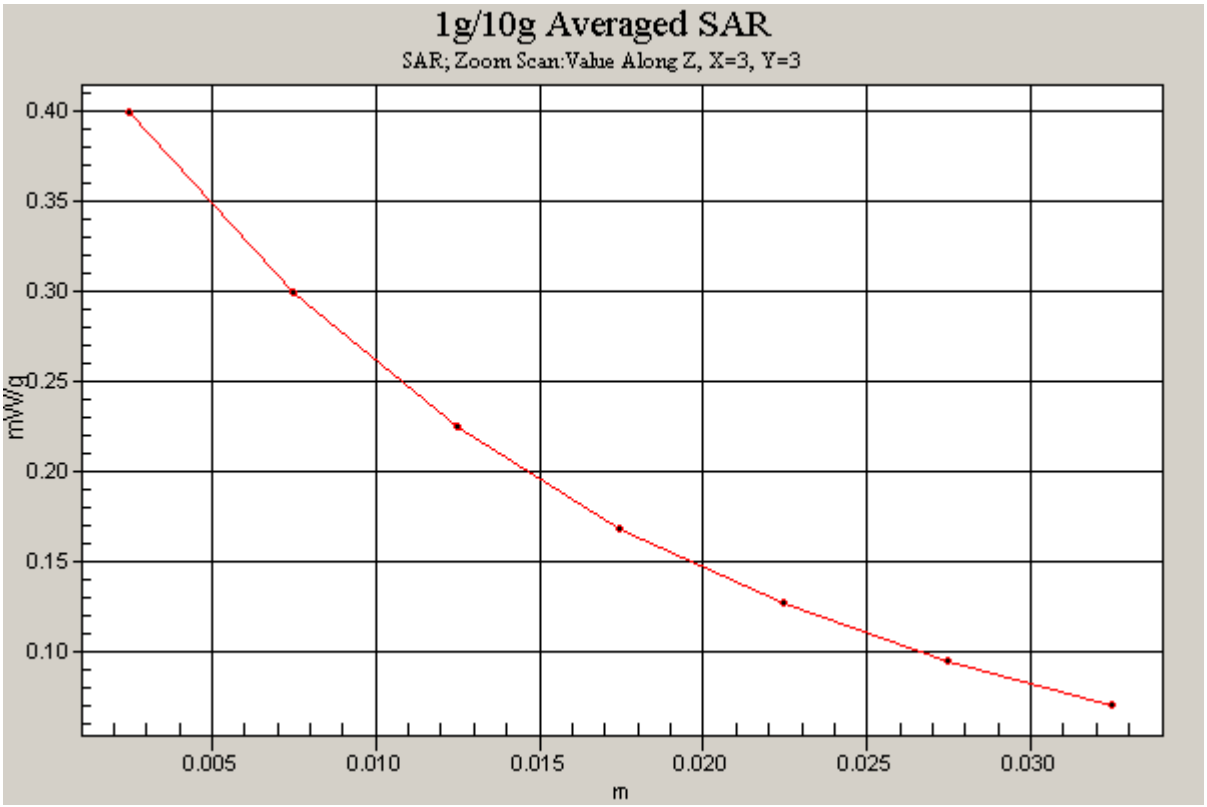


Figure 52 Z-Scan at power reference point (Body with Earphone, Towards Ground, Open GSM 850, Channel 128)

Date/Time: 3/22/2009 10:56:37 AM

GSM 850 GPRS Towards Ground High Open

Communication System: GSM850 + GPRS(2Up); Frequency: 848.8 MHz;Duty Cycle: 1:4
Medium parameters used: f = 849 MHz; σ = 0.976 mho/m; ε_r = 54.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(9.1, 9.1, 9.1); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM 12; 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 (71x151x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.605 mW/g
Towards Ground High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.7 V/m; Power Drift = -0.055 dB
Peak SAR (extrapolated) = 0.687 W/kg
SAR(1 g) = 0.515 mW/g; SAR(10 g) = 0.370 mW/g
Maximum value of SAR (measured) = 0.595 mW/g
Towards Ground High/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.7 V/m; Power Drift = -0.055 dB
Peak SAR (extrapolated) = 1.04 W/kg
SAR(1 g) = 0.369 mW/g; SAR(10 g) = 0.239 mW/g
Maximum value of SAR (measured) = 0.469 mW/g

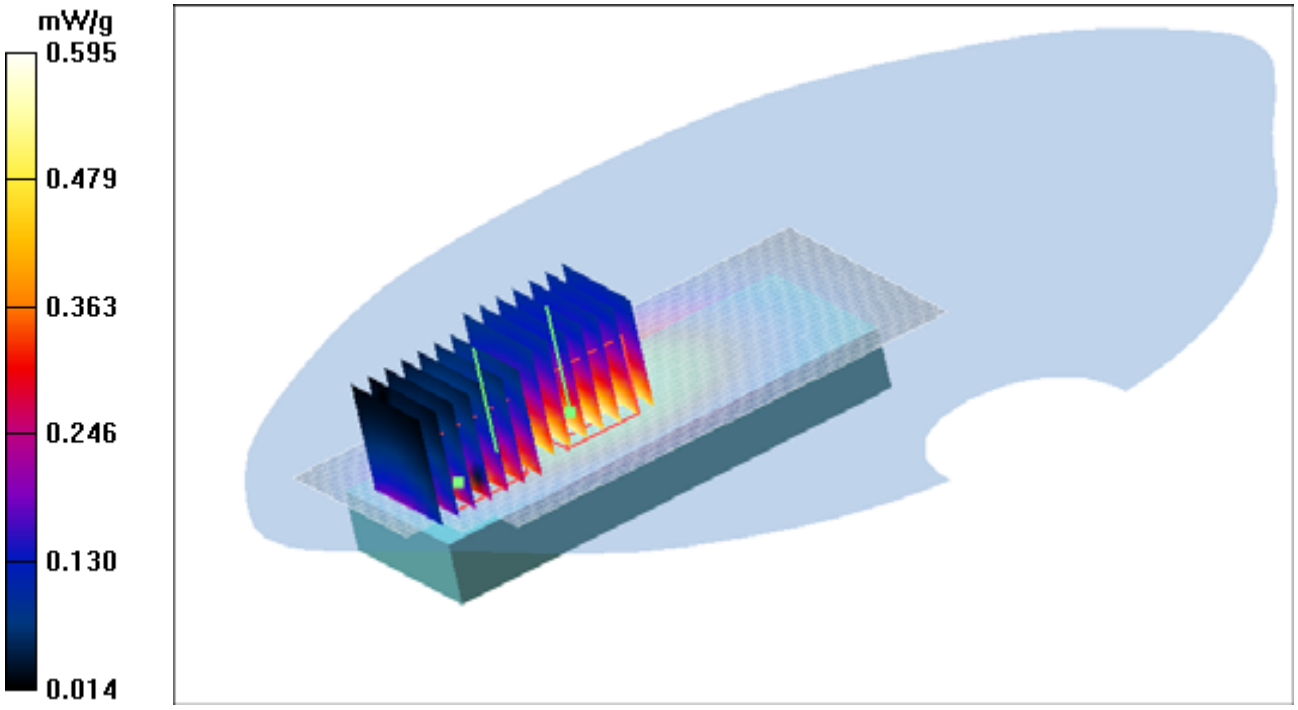
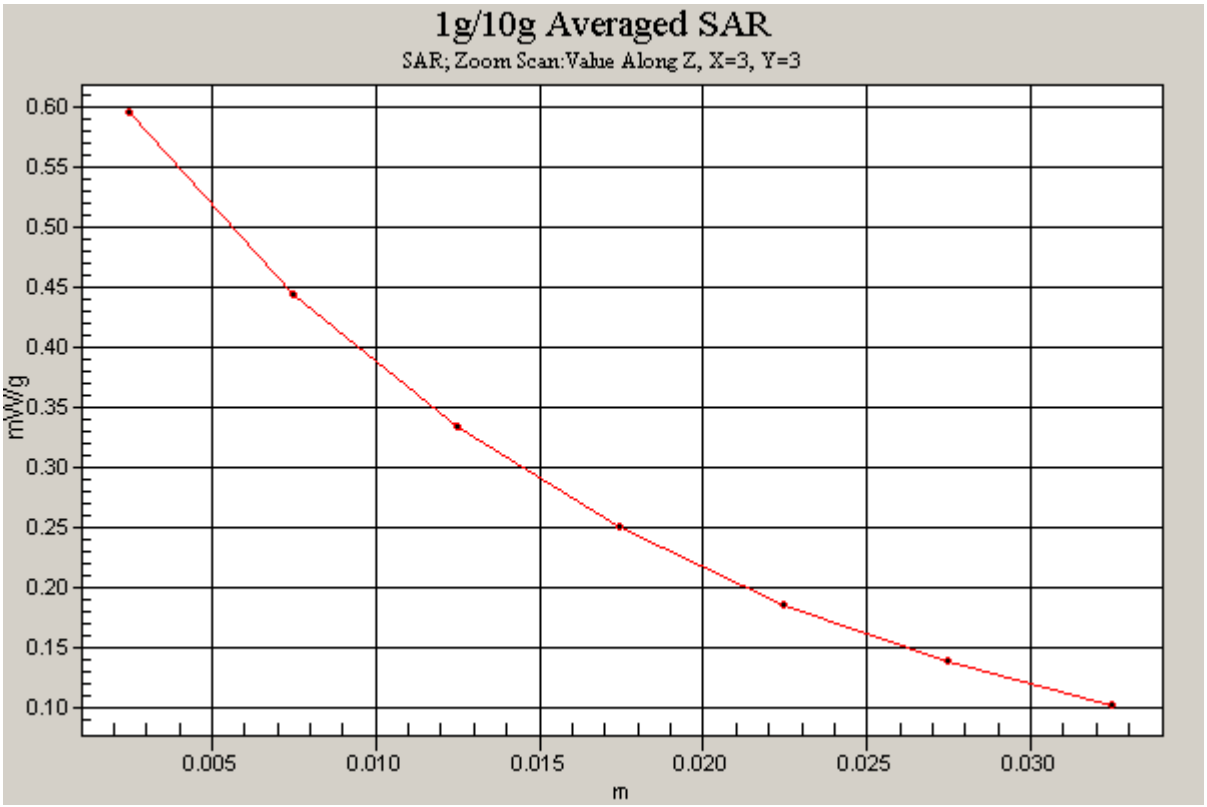


Figure 53 Body, Towards Ground, Open GSM 850 GPRS, Channel 251



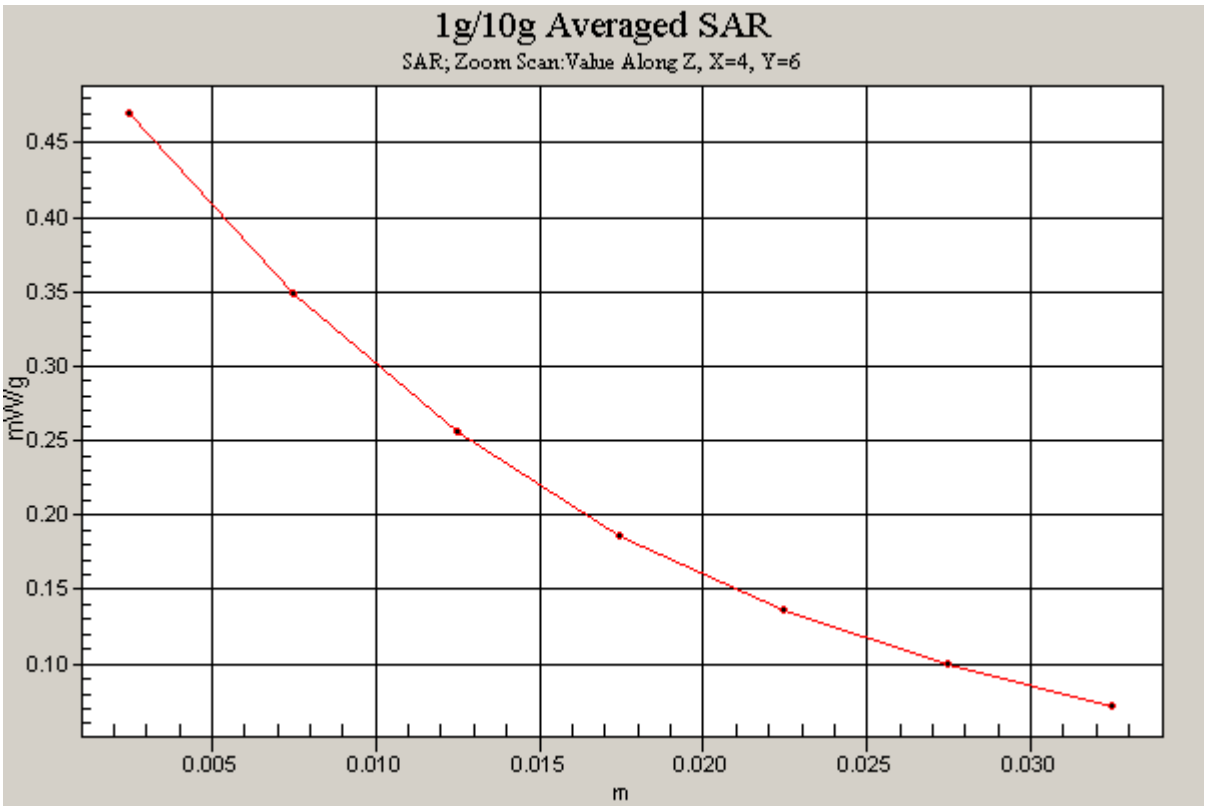


Figure 54 Z-Scan at power reference point (Body, Towards Ground, Open GSM 850 GPRS, Channel 251)

Date/Time: 3/22/2009 11:26:19 AM

GSM 850 GPRS Towards Ground Middle Open

Communication System: GSM850 + GPRS(2Up); Frequency: 836.6 MHz;Duty Cycle: 1:4
Medium parameters used: f = 837 MHz; σ = 0.961 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(9.1, 9.1, 9.1); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM 12; 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 (71x151x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.639 mW/g
Towards Ground Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.8 V/m; Power Drift = 0.022 dB
Peak SAR (extrapolated) = 0.729 W/kg
SAR(1 g) = 0.545 mW/g; SAR(10 g) = 0.389 mW/g
Maximum value of SAR (measured) = 0.631 mW/g
Towards Ground Middle/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.8 V/m; Power Drift = 0.022 dB
Peak SAR (extrapolated) = 0.872 W/kg
SAR(1 g) = 0.400 mW/g; SAR(10 g) = 0.258 mW/g
Maximum value of SAR (measured) = 0.515 mW/g

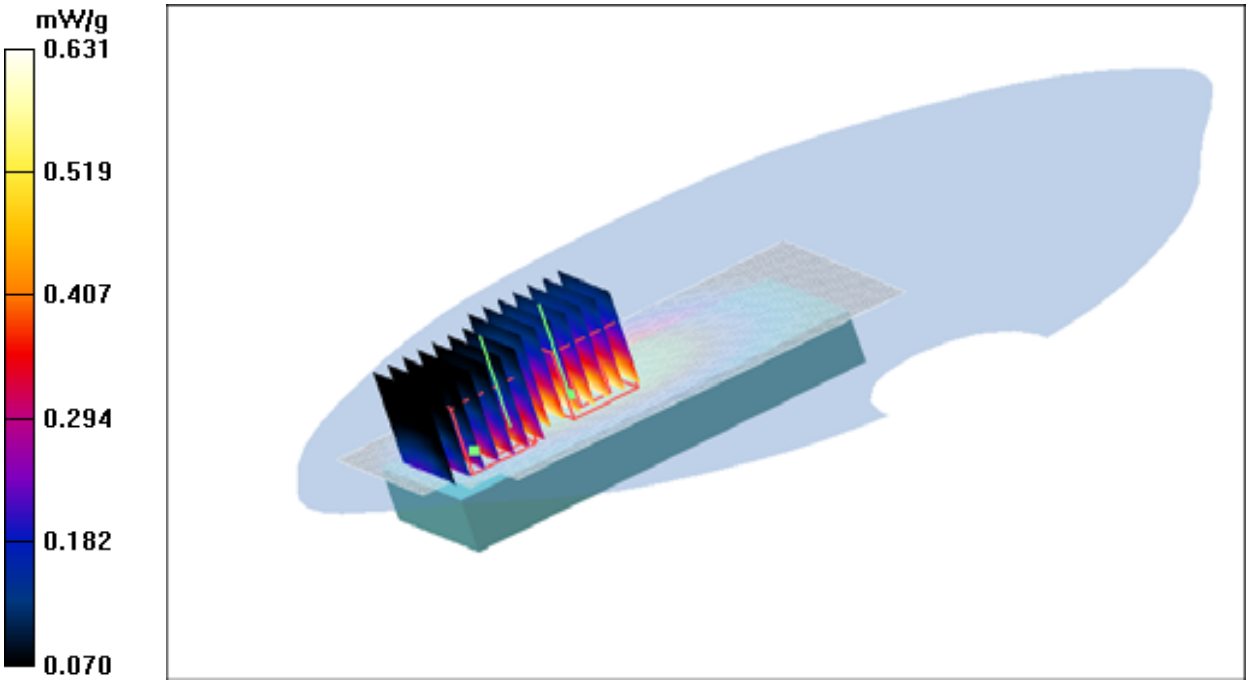
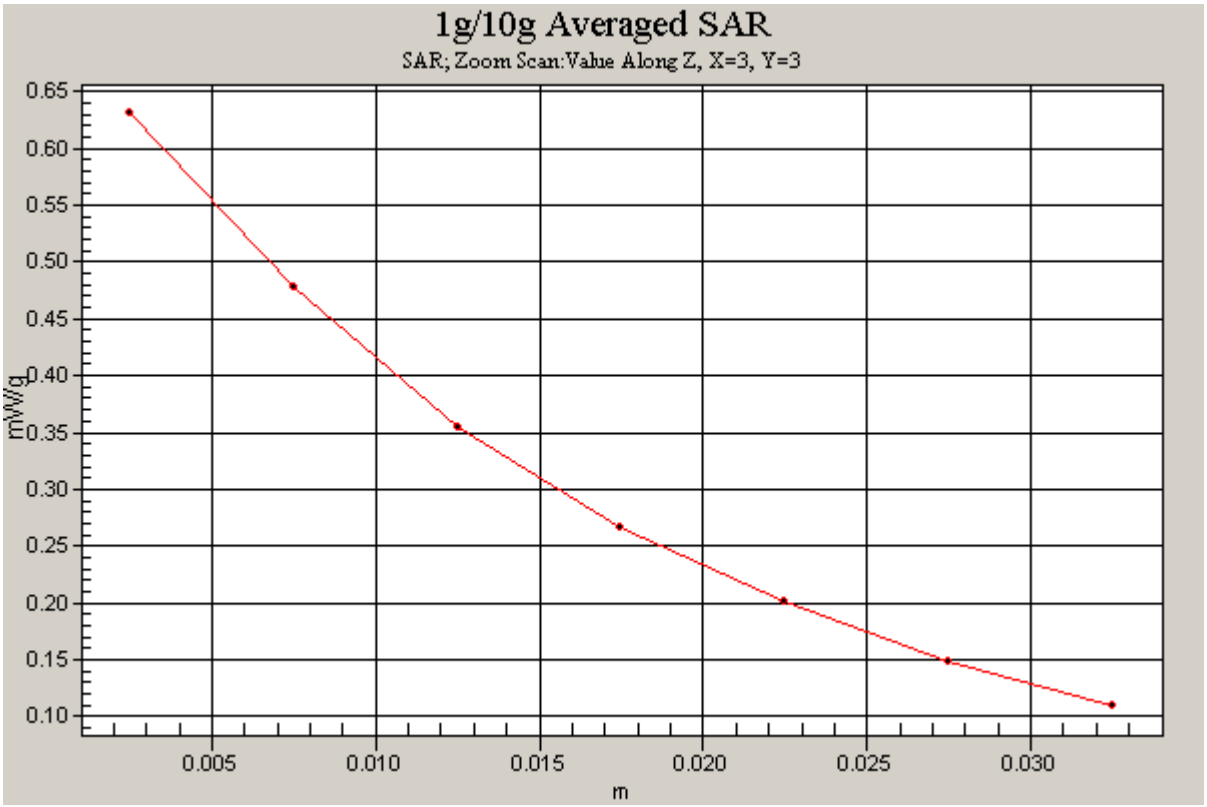


Figure 55 Body, Towards Ground, Open GSM 850 GPRS Channel 190



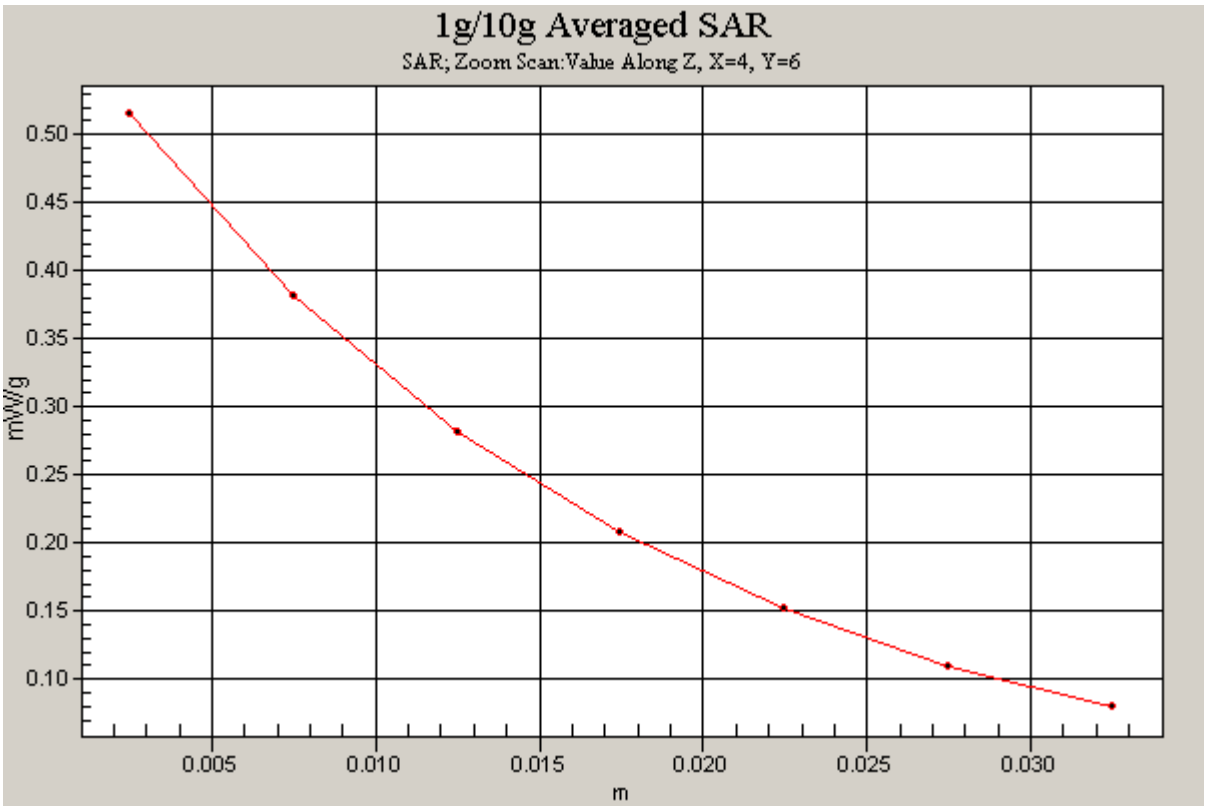


Figure 56 Z-Scan at power reference point (Body, Towards Ground, Open GSM 850 GPRS Channel 190)

Date/Time: 3/21/2009 11:57:49 AM

GSM 850 GPRS Towards Ground Low Open

Communication System: GSM850 + GPRS(2Up); Frequency: 824.2 MHz;Duty Cycle: 1:4
Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.949 mho/m; ε_r = 55.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(9.1, 9.1, 9.1); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM 12; 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 (71x151x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.715 mW/g

Towards Ground Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.3 V/m; Power Drift = 0.009 dB
Peak SAR (extrapolated) = 0.819 W/kg
SAR(1 g) = 0.612 mW/g; SAR(10 g) = 0.442 mW/g
Maximum value of SAR (measured) = 0.707 mW/g

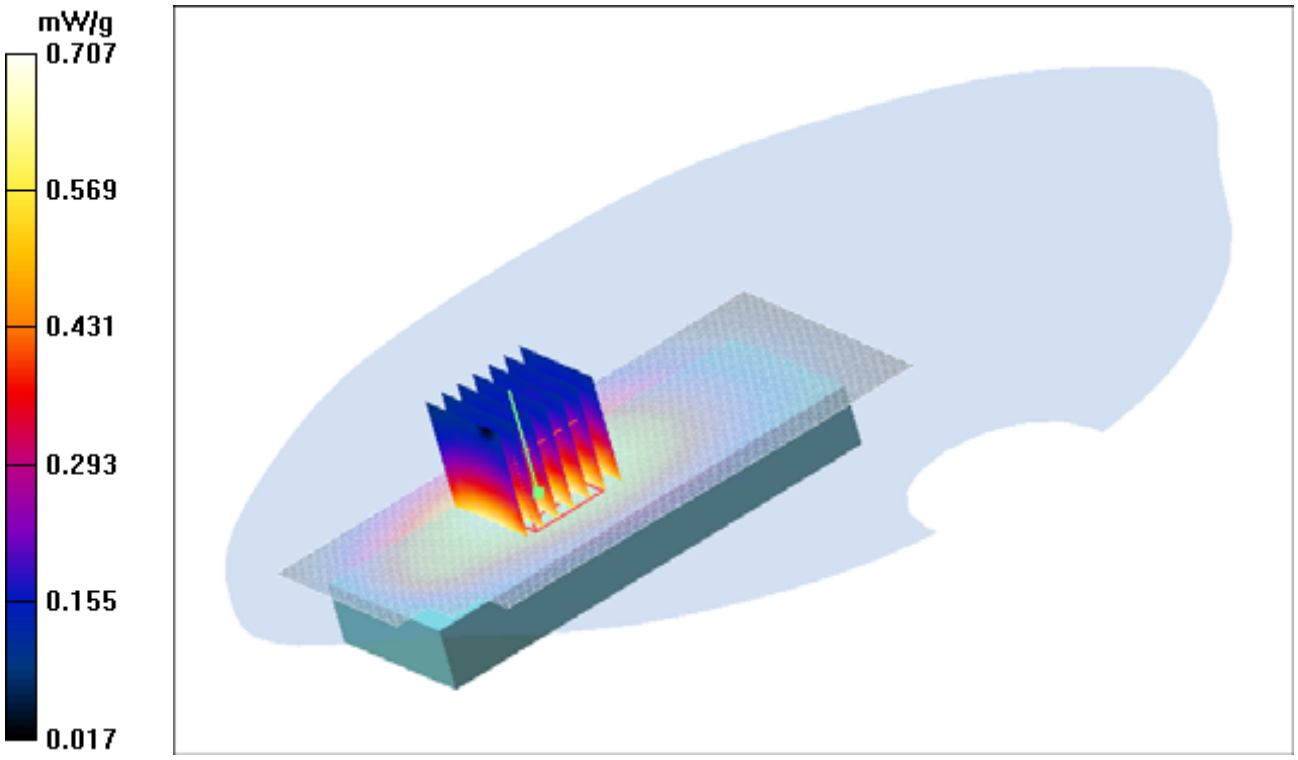


Figure 57 Body, Towards Ground, Open GSM 850 GPRS Channel 128

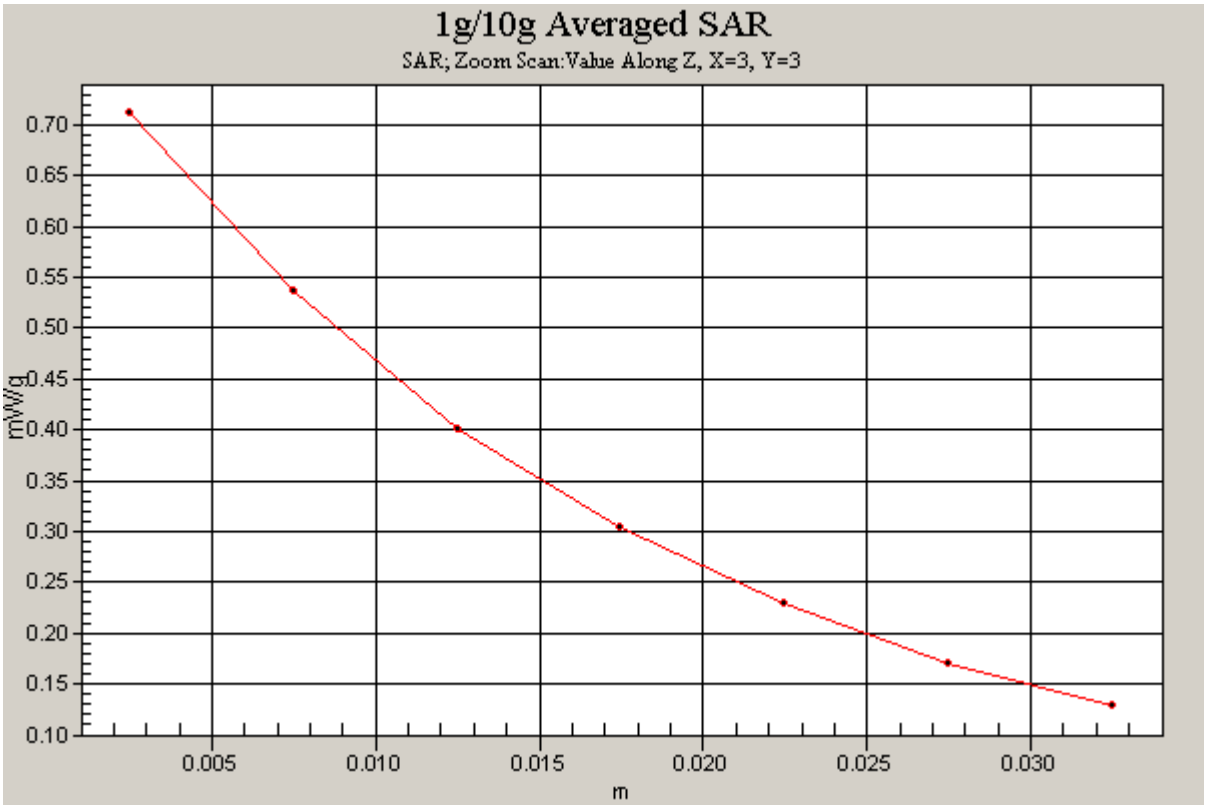


Figure 58 Z-Scan at power reference point (Body, Towards Ground, Open GSM 850 GPRS Channel 128)

Date/Time: 3/21/2009 10:12:38 AM

GSM 850 GPRS Towards Phantom High Open

Communication System: GSM850 + GPRS(2Up); Frequency: 848.8 MHz;Duty Cycle: 1:4
Medium parameters used: f = 849 MHz; σ = 0.976 mho/m; ε_r = 54.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(9.1, 9.1, 9.1); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM 12; 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 (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.454 mW/g

Towards Phantom High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.0 V/m; Power Drift = 0.003 dB
Peak SAR (extrapolated) = 0.519 W/kg
SAR(1 g) = 0.394 mW/g; SAR(10 g) = 0.284 mW/g
Maximum value of SAR (measured) = 0.450 mW/g

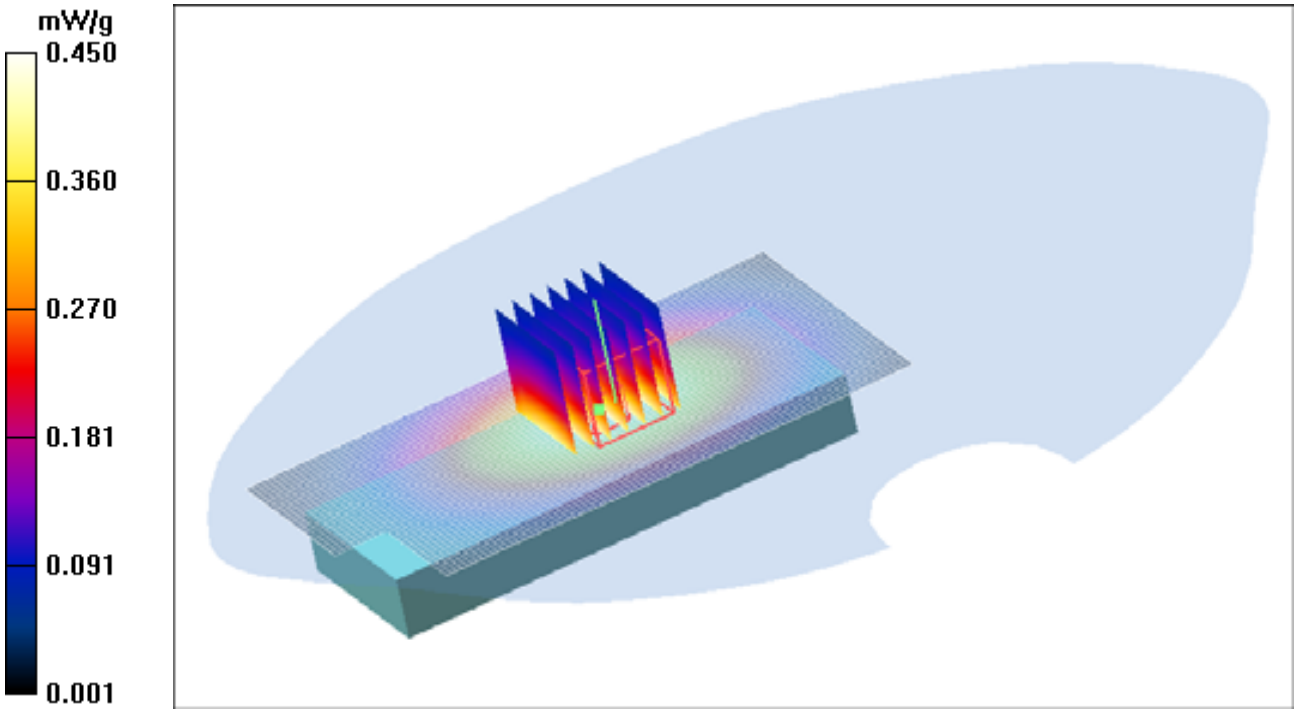


Figure 59 Body, Towards Phantom, Open GSM 850 GPRS, Channel 251

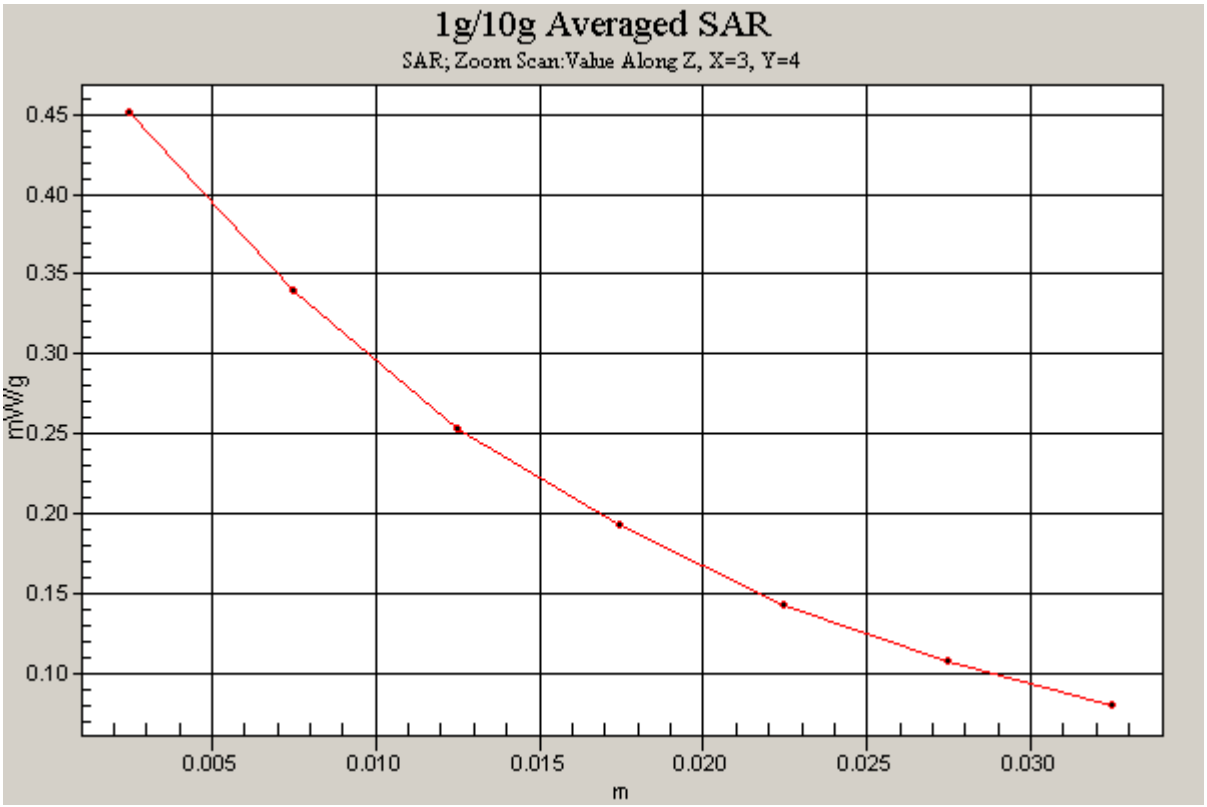


Figure 60 Z-Scan at power reference point (Body, Towards Phantom, Open GSM 850 GPRS, Channel 251)

Date/Time: 3/21/2009 10:33:05 AM

GSM 850 GPRS Towards Phantom Middle Open

Communication System: GSM850 + GPRS(2Up); Frequency: 836.6 MHz;Duty Cycle: 1:4
Medium parameters used: f = 837 MHz; σ = 0.961 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(9.1, 9.1, 9.1); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM 12; 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 (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.548 mW/g

Towards Phantom Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 17.4 V/m; Power Drift = -0.092 dB
Peak SAR (extrapolated) = 0.625 W/kg
SAR(1 g) = 0.470 mW/g; SAR(10 g) = 0.342 mW/g
Maximum value of SAR (measured) = 0.542 mW/g

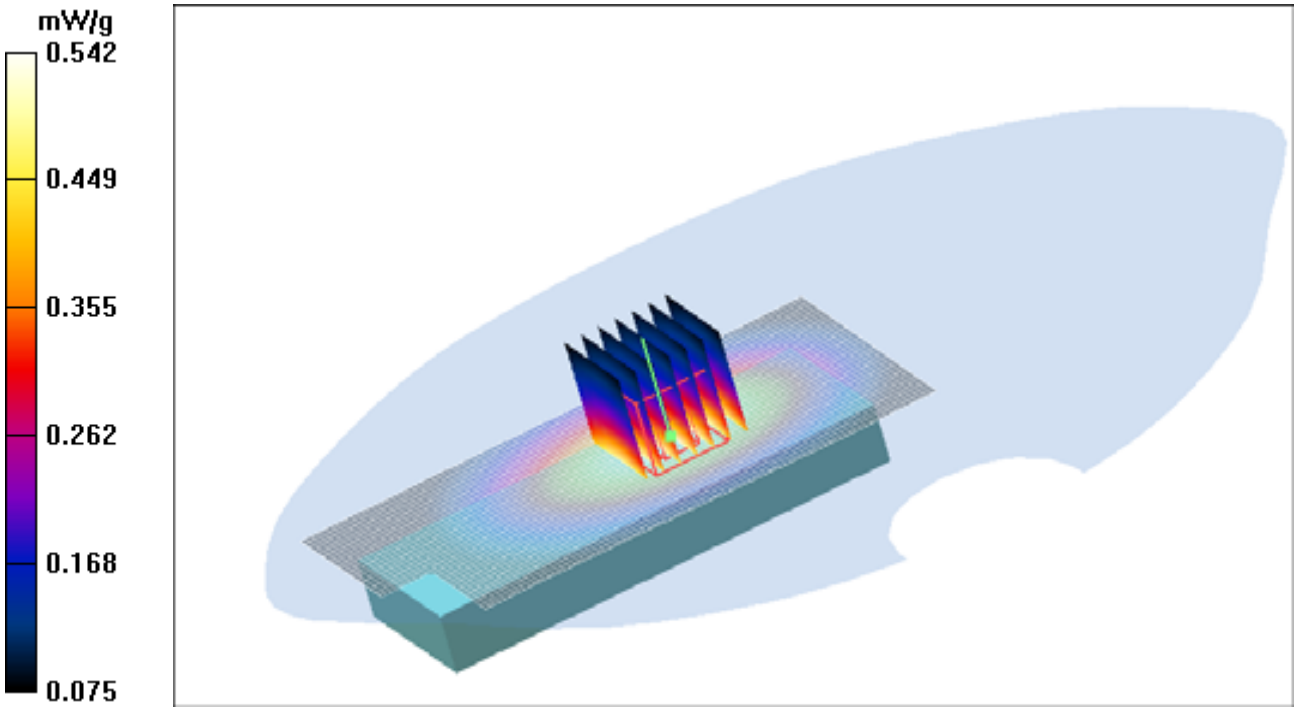


Figure 61 Body, Towards Phantom, Open GSM 850 GPRS Channel 190

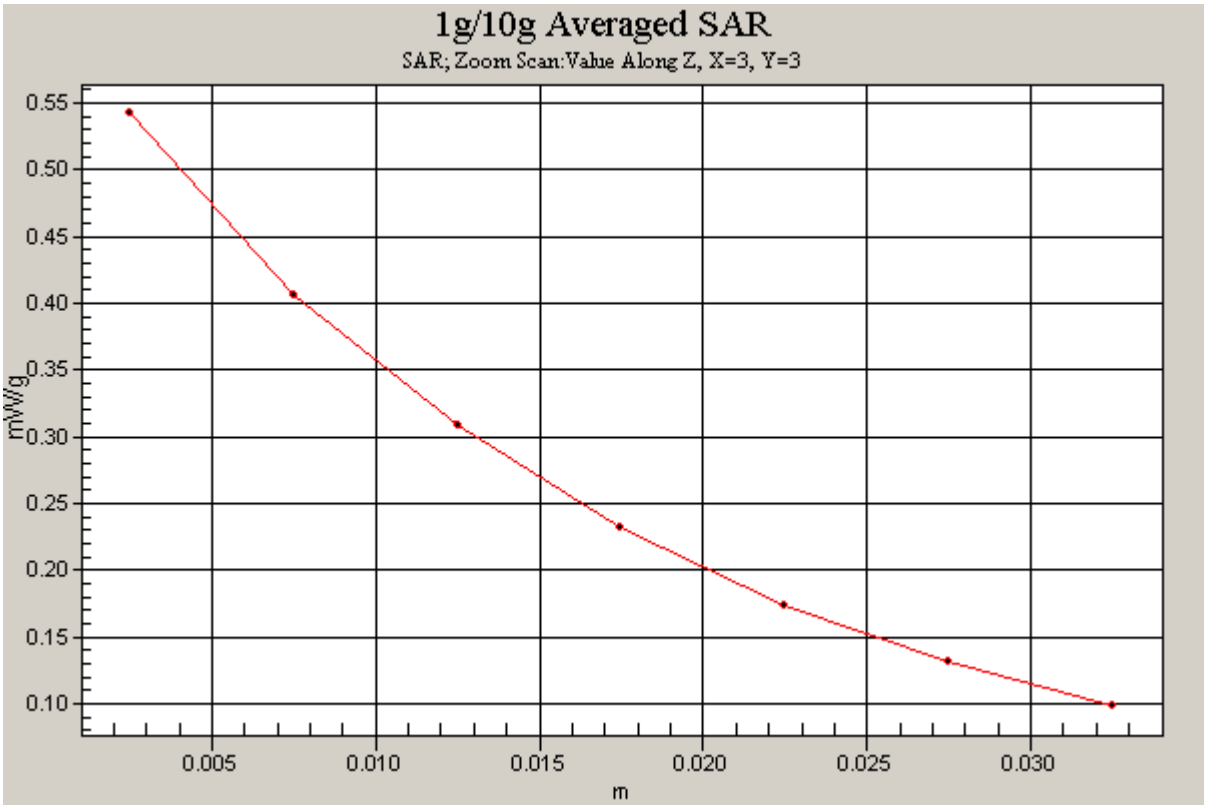


Figure 62 Z-Scan at power reference point (Body, Towards Phantom, Open GSM 850 GPRS Channel 190)

Date/Time: 3/21/2009 9:02:56 AM

GSM 850 GPRS Towards Phantom Low Open

Communication System: GSM850 + GPRS(2Up); Frequency: 824.2 MHz;Duty Cycle: 1:4
Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.949 mho/m; ε_r = 55.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(9.1, 9.1, 9.1); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM 12; 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 (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.548 mW/g

Towards Phantom Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 17.6 V/m; Power Drift = -0.069 dB
Peak SAR (extrapolated) = 0.625 W/kg
SAR(1 g) = 0.472 mW/g; SAR(10 g) = 0.344 mW/g
Maximum value of SAR (measured) = 0.540 mW/g

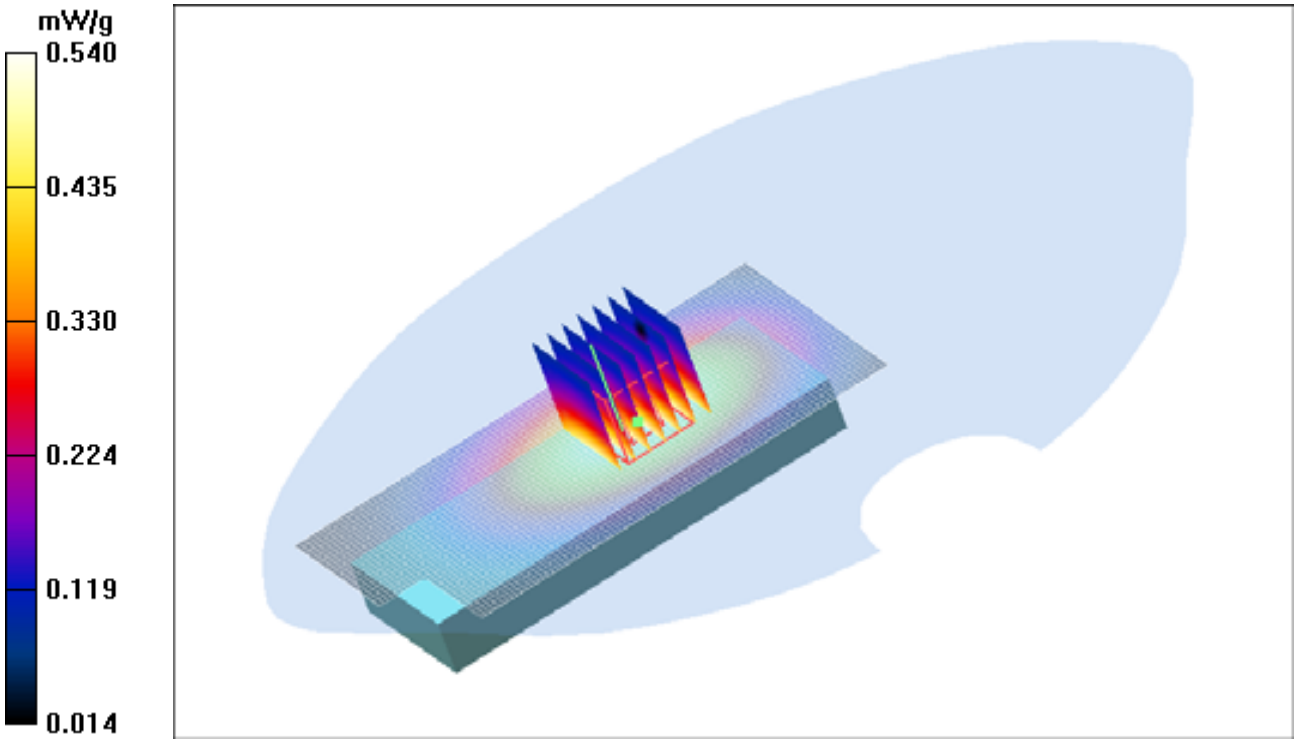


Figure 63 Body, Towards Phantom, Open GSM 850 GPRS Channel 128

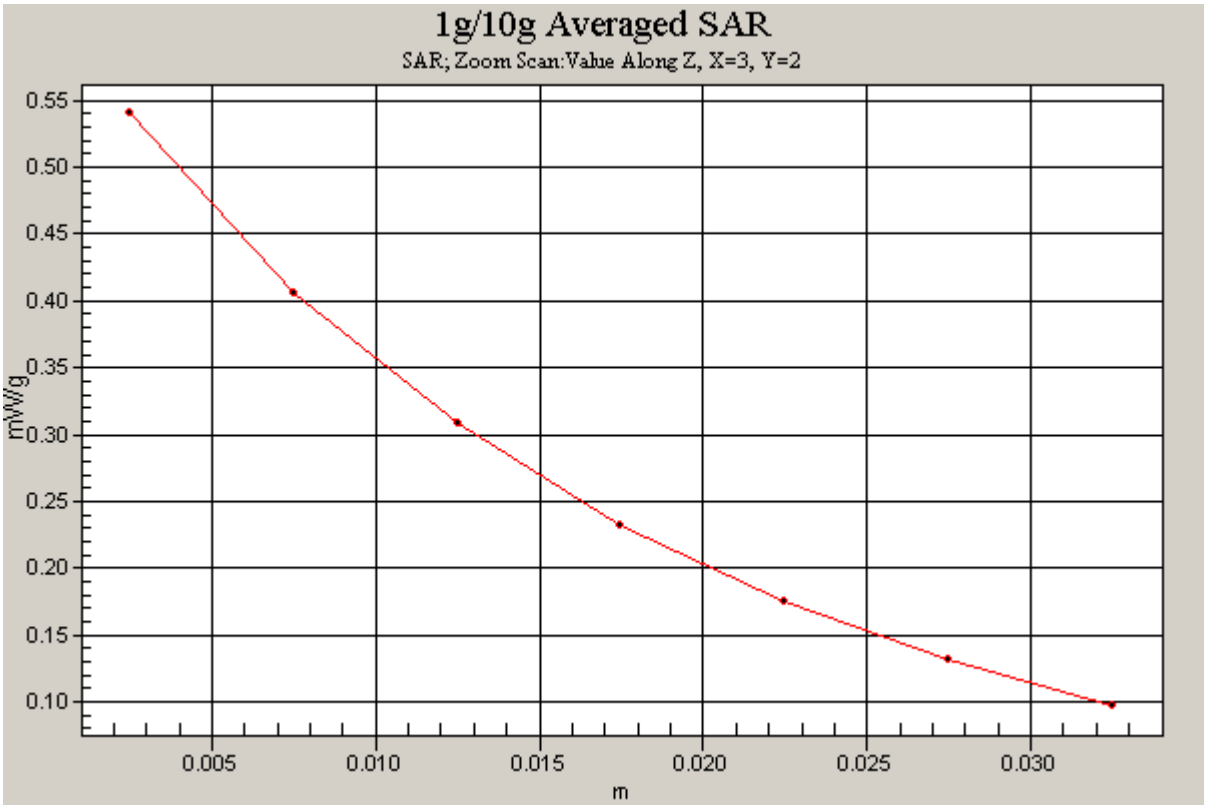


Figure 64 Z-Scan at power reference point (Body, Towards Phantom, Open GSM 850 GPRS Channel 128)

Date/Time: 3/21/2009 9:32:32 AM

GSM 850 EGPRS Towards Ground Low Open

Communication System: GSM850 + EGPRS(2Up); Frequency: 824.2 MHz;Duty Cycle: 1:4
Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.949 mho/m; ε_r = 55.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(9.1, 9.1, 9.1); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM 12; 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 (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.224 mW/g

Towards Ground Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.24 V/m; Power Drift = 0.083 dB
Peak SAR (extrapolated) = 0.547 W/kg
SAR(1 g) = 0.195 mW/g; SAR(10 g) = 0.140 mW/g
Maximum value of SAR (measured) = 0.226 mW/g

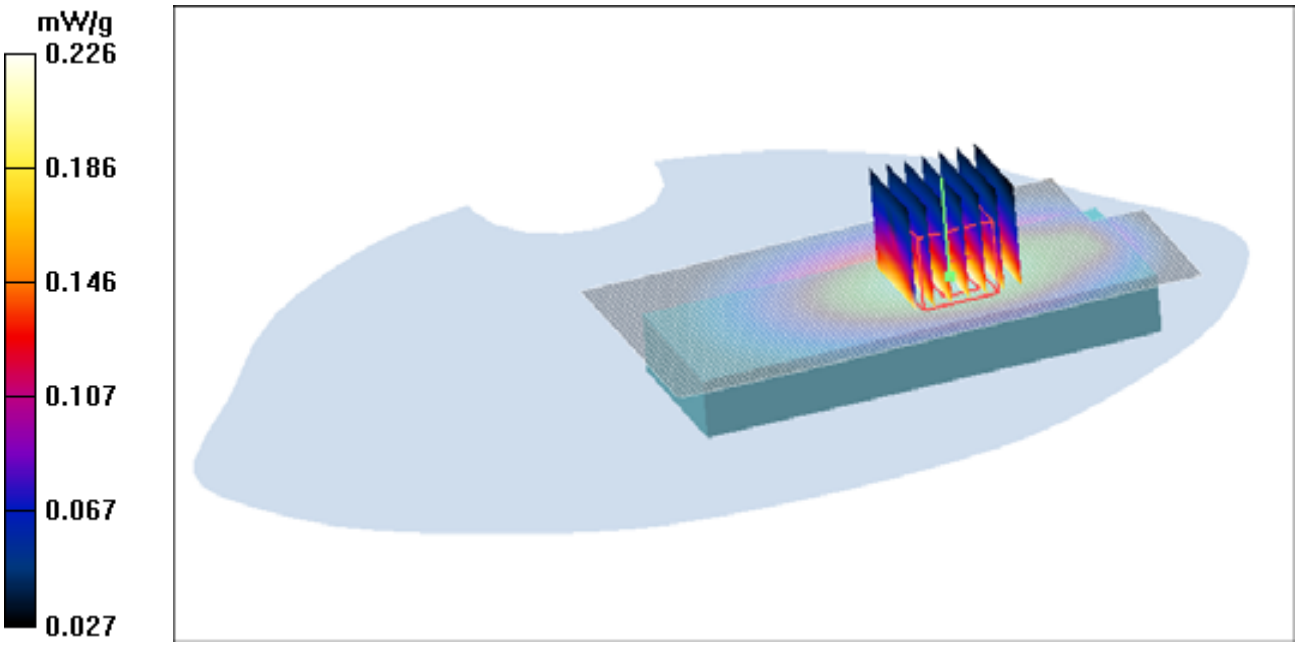


Figure 65 Body, Towards Ground, Open GSM 850 EGPRS Channel 128

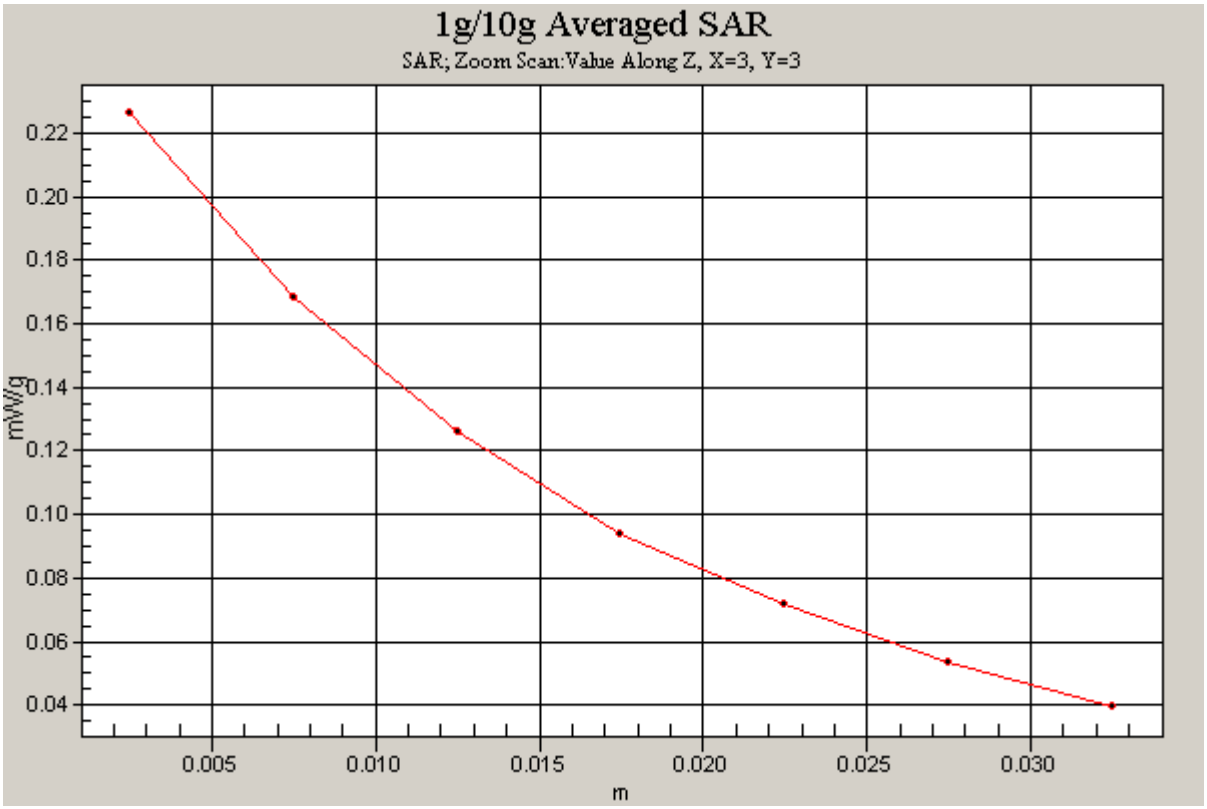


Figure 66 Z-Scan at power reference point (Body, Towards Ground, Open GSM 850 EGPRS Channel 128)

Date/Time: 3/22/2009 5:15:10 AM

GSM 850 Left Cheek High Close

Communication System: GSM 850; Frequency: 848.8 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 849 MHz; σ = 0.946 mho/m; ε_r = 42.9; ρ = 1000 kg/m^3
Phantom section: Left Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(9.19, 9.19, 9.19); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM 12; 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) = 0.126 mW/g

Cheek High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.92 V/m; Power Drift = 0.081 dB
Peak SAR (extrapolated) = 0.146 W/kg
SAR(1 g) = 0.113 mW/g; SAR(10 g) = 0.085 mW/g
Maximum value of SAR (measured) = 0.128 mW/g

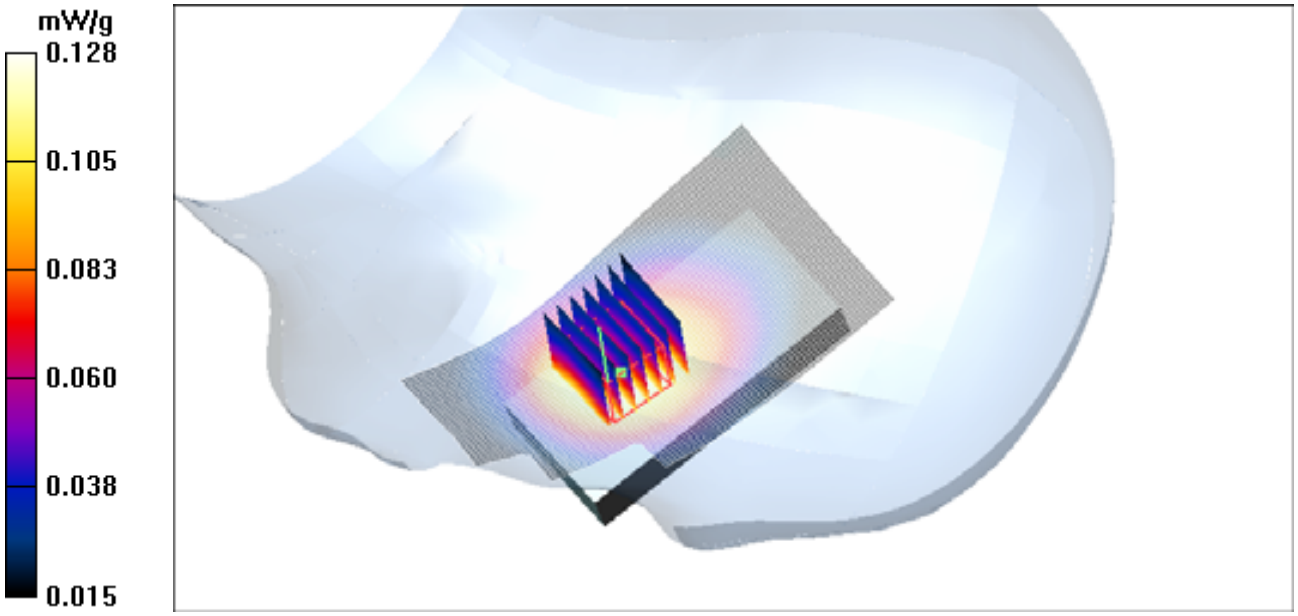


Figure 67 Left Hand Touch Cheek Close GSM 850 Channel 251

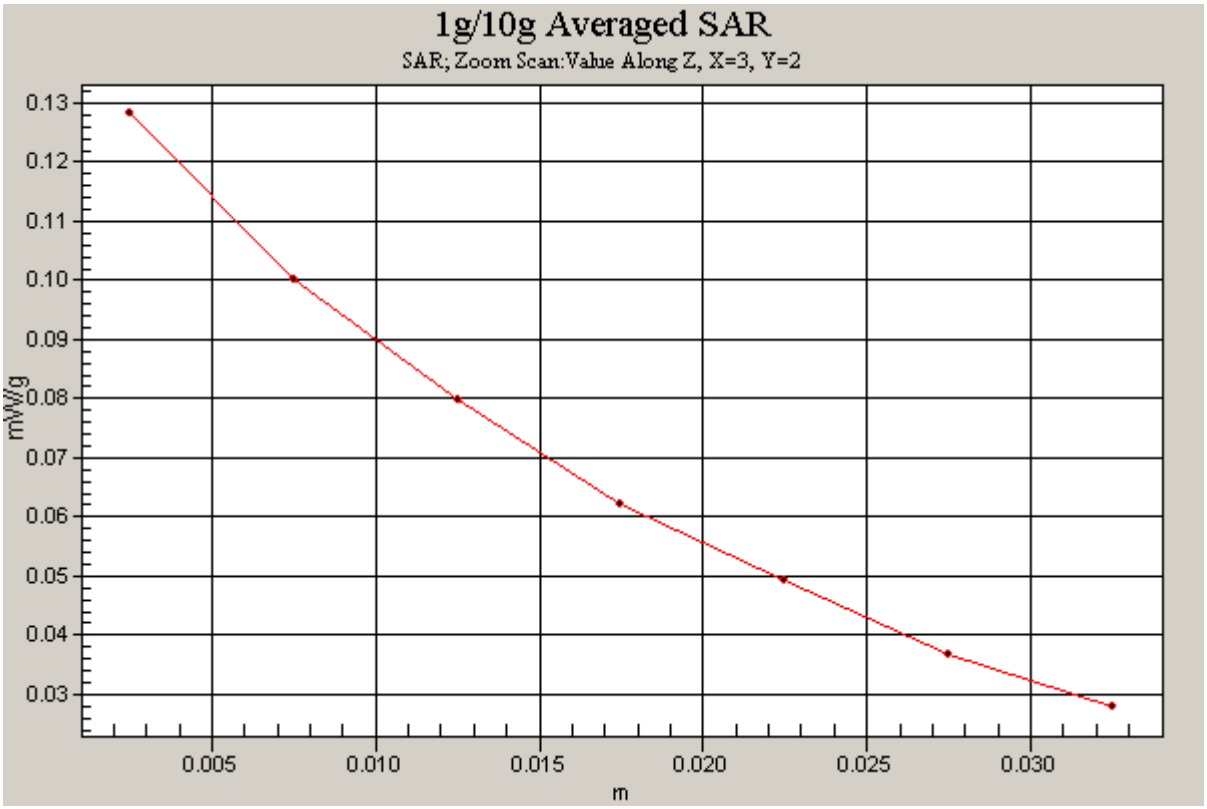


Figure 68 Z-Scan at power reference point (Left Hand Touch Cheek Close GSM 850 Channel 251)

GSM 850 Left Cheek Middle Close

Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 837 MHz; σ = 0.935 mho/m; ε_r = 43; ρ = 1000 kg/m^3
Phantom section: Left Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(9.19, 9.19, 9.19); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM 12; 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=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.118 mW/g

Cheek Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.77 V/m; Power Drift = 0.102 dB
Peak SAR (extrapolated) = 0.135 W/kg
SAR(1 g) = 0.106 mW/g; SAR(10 g) = 0.080 mW/g
Maximum value of SAR (measured) = 0.120 mW/g

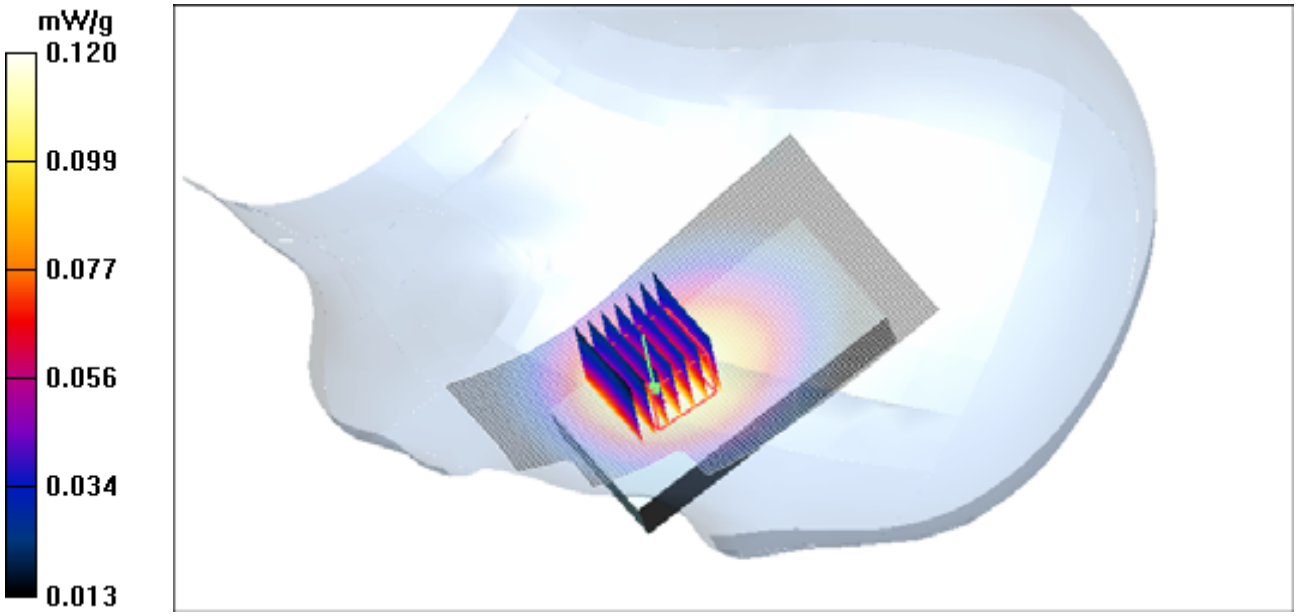


Figure 69 Left Hand Touch Cheek Close GSM 850 Channel 190

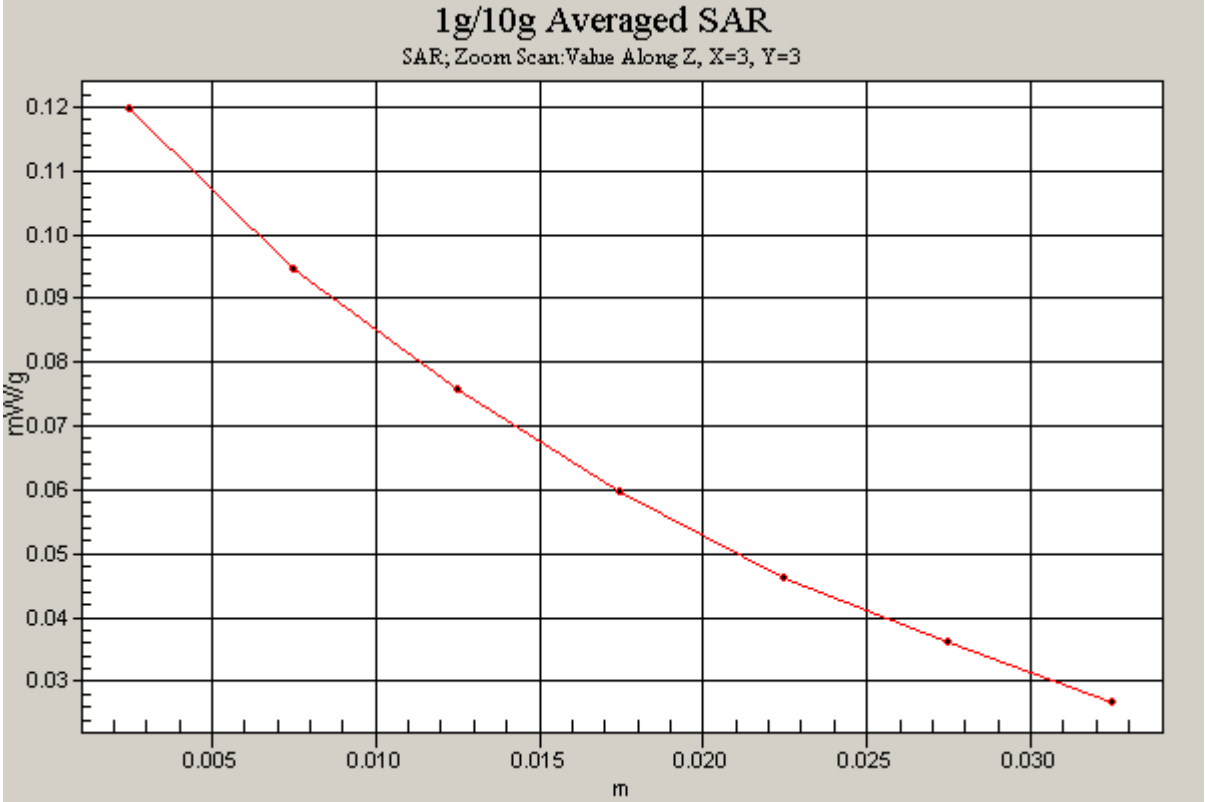


Figure 70 Z-Scan at power reference point (Left Hand Touch Cheek Close GSM 850 Channel 190)

GSM 850 Left Cheek Low Close

Communication System: GSM 850; Frequency: 824.2 MHz;Duty Cycle: 1:8.3
Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.915 mho/m; ε_r = 43.2; ρ = 1000 kg/m^3
Phantom section: Left Section
DASY4 Configuration:

- Probe: EX3DV4 - SN3660; ConvF(9.19, 9.19, 9.19); Calibrated: 9/3/2008
- Electronics: DAE4 Sn452; Calibrated: 11/18/2008
- Phantom: SAM 12; 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) = 0.128 mW/g

Cheek Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.05 V/m; Power Drift = 0.146 dB
Peak SAR (extrapolated) = 0.145 W/kg
SAR(1 g) = 0.114 mW/g; SAR(10 g) = 0.086 mW/g
Maximum value of SAR (measured) = 0.128 mW/g

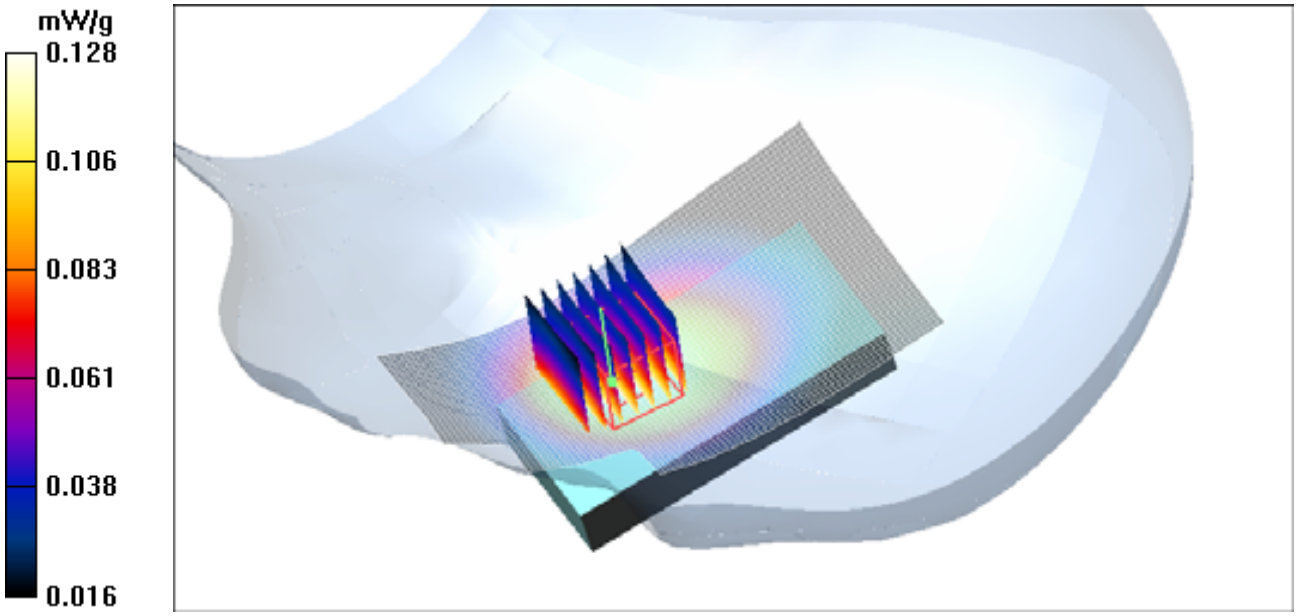


Figure 71 Left Hand Touch Cheek Close GSM 850 Channel 128