NO.: RZA2009-0126

OET 65

TEST REPORT

Test name	Electromagnetic Field (Specific Absorption Rate)
Product	CDMA 1X Digital Mobile Telephone
FCC ID	QISC5600
Model	HUAWEI C5600
Client	Huawei Technologies Co., Ltd.

TA Technology (Shanghai) Co., Ltd.

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GENERAL SUMMARY

Product	CDMA 1X Digital Mobile Telephone	**Model**	HUAWEI C5600
Client	Huawei Technologies Co., Ltd.	**Type of test**	Entrusted
Manufacturer	Huawei Technologies Co., Ltd.	**Arrival Date of sample**	Februray 17th, 2009
Place of sampling	(Blank)	**Carrier of the samples**	Yaohui Gu
Quantity of the samples	One	**Date of product**	(Blank)
Base of the samples	(Blank)	**Items of test**	SAR
Series number	X42BB10911900451		
Standard(s)	**ANSI C95.1–2005:** IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz. **IEEE 1528–2003:** Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head Due to Wireless Communications Devices: Experimental Techniques. **OET Bulletin 65 supplement C, published June 2001 including DA 02-1438, published June 2002:** Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits. Transition Period for the Phantom Requirements of Supplement C to OET Bulletin 65. **IEC 62209-1:** Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices – Human models, instrumentation, and procedures –Part 1: Procedure to determine the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz). **IEC 62209-2(draft)-2008:** Human exposure to radio frequency fields from handheld and body-mounted wireless communication devices – Human models, instrumentation, and procedures –Part 2: Procedure to determine the Specific Absorption Rate (SAR)for wireless communication devices used in close proximity to the human body .(frequency rang of 30MHz to 6GHz)		
Conclusion	Localized Specific Absorption Rate (SAR) of this portable wireless equipment has been measured in all cases requested by the relevant standards cited in Clause 7.2 of this test report. Maximum localized SAR is below exposure limits specified in the relevant standards cited in Clause 7.1 of this test report. General Judgment: **Pass** (Stamp) **Date of issue: February 20th, 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	HUAWEI 5600	X42BB10911900451	HUAWEI Technologies Co., Ltd.
Lithium Battery	HB5D1	BAA8C22XC3011138	HUAWEI Technologies Co., Ltd.
AC/DC Adapter	XQLCHW07	AKC771265932	Shenzhen OTC xinqiao Technology Co., Ltd.

Note:
The EUT appearances see ANNEX G.

3.3. General Description

Equipment Under Test (EUT) is a model of CDMA 1X Digital Mobile Telephone with internal antenna. The detail about Mobile phone, Lithium Battery and AC/DC Adapter is in Table 3. SAR is tested for CDMA Cellular only.

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):	CDMA Cellular	
Operating frequency range(s)	transmitter frequency range	receiver frequency range
CDMA Cellular	824.7 MHz ~ 848.31 MHz	869.7 MHz ~ 893.31MHz
Test channel (Low –Middle –High)	1013 -384 – 777 (CDMA Cellular)	
Hardware version:	Ver.A	
Software version:	C5600C58B107	
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) is allocated to 1013, 384 and 777 respectively in the case of CDMA Cellular. 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. Information for the measurement of CDMA 1x devices

4.2.1. Output Power Verification

Test Parameter setup for maximum RF output power according to section 4.4.5 of 3GPP2

Parameter	Units	Value
I or	dBm/1.23MHz	-104
PilotE c /I or	dB	-7
TrafficE c /I or	dB	-7.4

For SAR test, the maximum power output is very important and essential; it is identical under the measurement uncertainty. It is proper to use typical Test Mode 3 (FW RC3, RVS RC3, SO55) as the worst case for SAR test.

4.2.2 Head SAR measurement

SAR is measured in RC3 with the DUT configured to transmit at full rate using Loopback Service Option SO55.SAR for RC1 is not required because the maximum average output of each channel is less than 0.25 dB higher than that measured in RC3.Otherwise, SAR is measured on the maximum output channel in RC1 using the exposure configuration that results in the highest SAR for that channel in RC3.

4.2.3 Body SAR measurement

SAR is measured in RC3 with the EUT configured to transmit at full rate using TDSO/SO32, transmit at full rate on FCH with all other code channels disabled. SAR for multiple code channels (FCH+SCHn) is not required when the maximum average output of each RF channel is less than 0.25dB higher than measured with FCH only.

Body SAR in RC1 is not required because the maximum average output of each channel is less than 0.25 dB higher than that measured in RC3. Otherwise, SAR is measured on the maximum output channel in RC1; with Loopback Service Option SO55, at full rate using the body exposure configuration that results in the highest SAR for that channel in RC3.

Test communication setup meet as followings:

Communication standard between mobile station and base station simulator	3GPP2 C.S0011-B
Radio configuration	RC3（Supporting CDMA 1X）
Spreading Rate	SR1
Data Rate	9600bps
Service Options	SO55 （loop back mode）
Service Options	SO32 （test data service mode）
Multiplex Options	The mobile station does not support this service.

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.

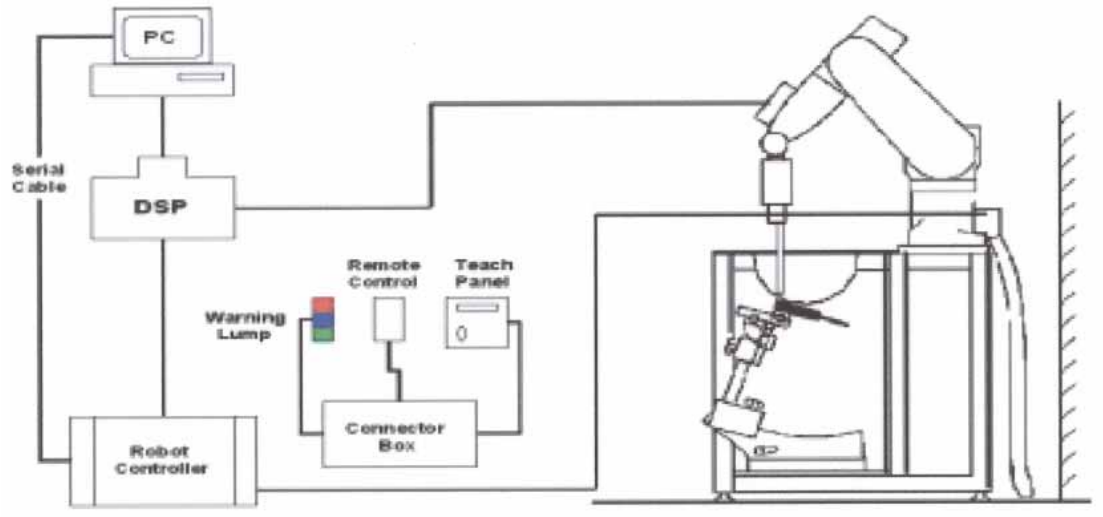

Figure 1. SAR Lab Test Measurement Set-up

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 1800 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 inference of the clamp on the test results could thus be lowered.

Figure 4.Device Holder

5.3.2. Phantom

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

Shell Thickness	2±0.1 mm
Filling Volume	Approx. 20 liters
Dimensions	810 x 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 $\boldsymbol{SAR}$ = 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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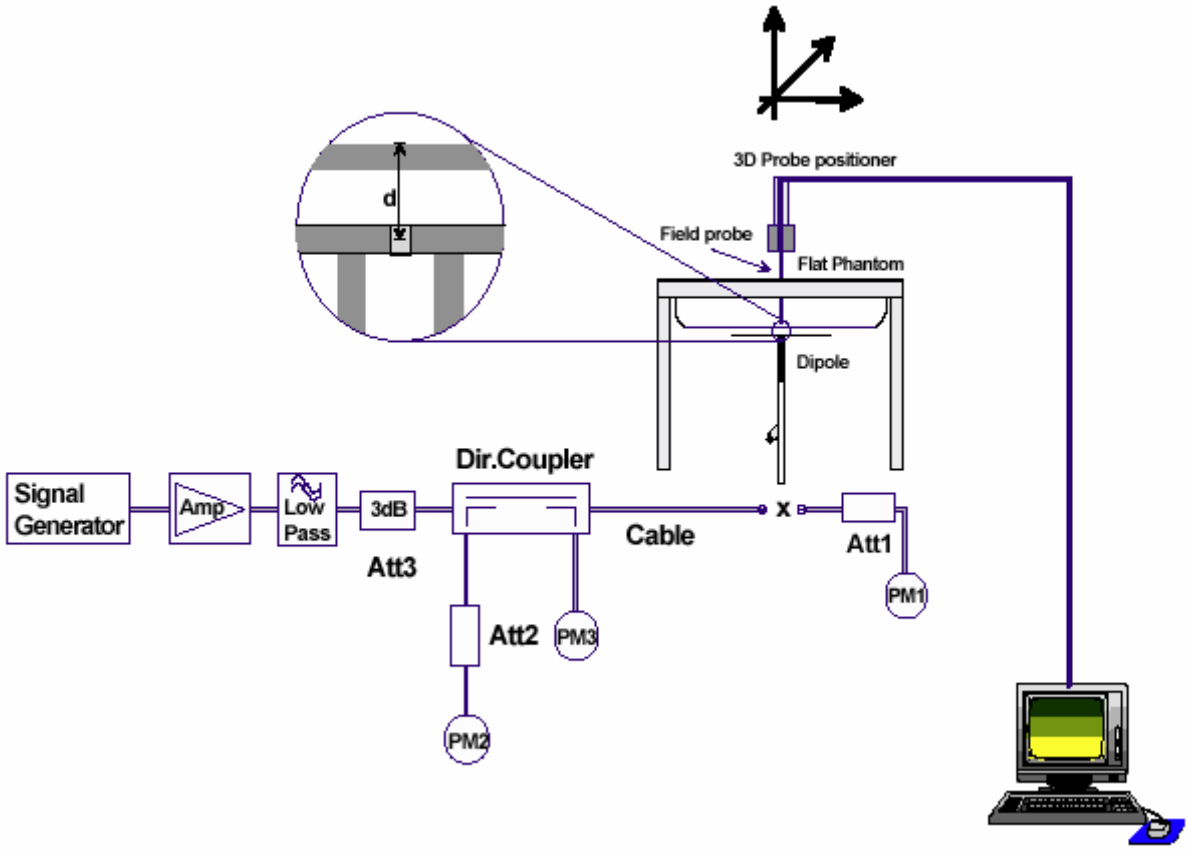


Figure 6. System Check Set-up

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

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

6. LABORATORY ENVIRONMENT

Table 7: The Ambient Conditions during Test

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

7. CHARACTERISTICS OF THE TEST

7.1. Applicable Limit Regulations

ANSI C95.1–2005: IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz.
It specifies the maximum exposure limit of 1.6 W/kg as averaged over any 1 gram of tissue for portable devices being used within 20 cm of the user in the uncontrolled environment.

7.2. Applicable Measurement Standards

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

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

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

IEC 62209-2(draft)-2008: Human exposure to radio frequency fields from handheld and body-mounted wireless communication devices – Human models, instrumentation, and procedures –Part 2: Procedure to determine the Specific Absorption Rate (SAR)for wireless communication devices used in close proximity to the human body .(frequency rang of 30MHz to 6GHz)

8. CONDUCTED OUTPUT POWER MEASUREMENT

8.1. Summary

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

8.2. Measurement result

Table 8: Conducted Power Measurement Results

CDMA Cellular (RC3)	Conducted Power		
	Channel 777 (848.31MHz)	Channel 384 (836.52MHz)	Channel 1013 (824.7MHz)
Before test (dBm)	24.2	24.1	24.2
After test (dBm)	24.1	24.1	24.2
CDMA Cellular (RC1)	**Conducted Power**		
	Channel 777 (848.31MHz)	**Channel 384 (836.52MHz)**	**Channel 1013 (824.7MHz)**
Before test (dBm)	24.2	24.1	24.2
After test (dBm)	24.1	24.1	24.2

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 0.855 — 0.945	/
	Measurement value 2009-2-18	43.36	0.93	21.8

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	55.2 52.44 — 57.96	0.97 0.92— 1.02	/
	Measurement value 2009-2-18	54.97	0.96	21.9

9.2. System Check Results

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 1.44—1.60	2.3 2.19 — 2.42	40.9	0.89	/
	Measurement value 2009-2-18	1.5	2.3	40.73	0.89	21.9

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 (CDMA Cellular)

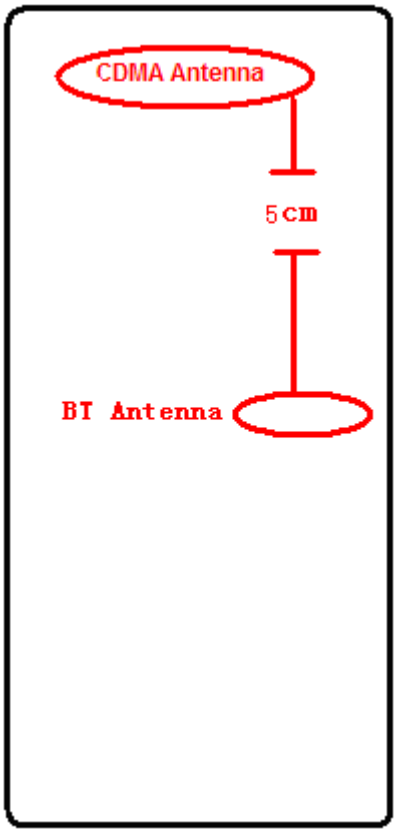
Liquid Temperature: 22.5°C					
Limit of SAR (W/kg)		**10 g Average**	**1 g Average**	**Power Drift (dB)**	**Graph Results**
		2.0	**1.6**	**± 0.21**	
Different Test Position	**Channel**	**Measurement Result(W/kg)**		**Power Drift(dB)**	
		10 g Average	**1 g Average**		
Test position of Head					
Left hand, Touch cheek	High	0.698(max.cube)	1.010(max.cube)	0.114	Figure 9
	Middle	0.695(max.cube)	0.936(max.cube)	0.086	Figure 11
	Low	0.533(max.cube)	0.718(max.cube)	-0.125	Figure 13
Left hand, Tilt 15 Degree	High	0.433(max.cube)	0.656(max.cube)	0.099	Figure 15
	Middle	0.429(max.cube)	0.637(max.cube)	0.006	Figure 17
	Low	0.318(max.cube)	0.472(max.cube)	0.021	Figure 19
Right hand, Touch cheek	High	0.734(max.cube)	1.010(max.cube)	0.054	Figure 21
	Middle	0.697(max.cube)	0.952(max.cube)	0.134	Figure 23
	Low	0.545(max.cube)	0.744(max.cube)	0.177	Figure 25
Right hand, Tilt 15 Degree	High	0.531(max.cube)	0.714(max.cube)	-0.035	Figure 27
	Middle	0.429(max.cube)	0.647(max.cube)	0.104	Figure 29
	Low	0.337(max.cube)	0.509(max.cube)	-0.123	Figure 31
Test position of Body (Distance 15mm)					
Towards Ground	High	0.763	1.070	0.181	Figure 33
	Middle	0.792	1.140	-0.031	Figure 35
	Low	0.856	1.240	0.064	Figure 37
Towards Phantom	High	0.446	0.612	0.130	Figure 39
	Middle	0.334	0.462	0.069	Figure 41
	Low	0.264	0.362	0.011	Figure 43
Worst case of Test position with earphone (Distance 15mm)					
Towards Ground	Low	0.402	0.574	-0.036	Figure 45
Worst case of Test position with bluetooth earphone (Distance 15mm)					
Towards Ground	Low	0.792	1.100	0.010	Figure 47

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 C).

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)	1.11	1.75	1.42

According to the output power measurement result and the distance between the two antennas, we can draw the conclusion that: stand-alone SAR is 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

So, because of the power and the distance, we didn't perform the standalone BT SAR tests, and just did the BT and GSM simultaneously SAR test with the request of the client.

Table 13: SAR Values (CDMA Cellular)

Liquid Temperature: 22.5°C					
Limit of SAR (W/kg)		**10 g Average**	**1 g Average**	**Power Drift (dB)**	**Graph Results**
		2.0	**1.6**	**± 0.21**	
Different Test Position	**Channel**	**Measurement Result(W/kg)**		**Power Drift(dB)**	
		10 g Average	**1 g Average**		
Worst case of Test position with bluetooth earphone (Distance 15mm)					
Towards Ground	Low	0.792	1.100	0.010	Figure 47

9.4. Conclusion

Localized Specific Absorption Rate (SAR) of this portable wireless device has been measured in all cases requested by the relevant standards cited in Clause 7.2 of this report. Maximum localized SAR is 1.01 W/kg (head) and 1.24 W/kg (body) that are below exposure limits specified in the relevant standards cited in Clause 7.1 of this test report.

10. 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	

11. MAIN TEST INSTRUMENTS

Table 14: List of Main Instruments

No.	Name	Type	Serial Number	Calibration Date	Valid Period
01	Network analyzer	Agilent 8753E	US37390326	September 14, 2008	One year
02	Dielectric Probe Kit	Agilent 85070E	US44020115	No Calibration Requested	
03	Power meter	Agilent E4417A	GB41291714	March 14, 2008	One year
04	Power sensor	Agilent 8481H	MY41091316	March 14, 2008	One year
05	Signal Generator	HP 8341B	2730A00804	September 14, 2008	One year
06	Amplifier	IXA-020	0401	No Calibration Requested	
07	BTS	E5515C	GB46490218	September 14, 2008	One year
08	E-field Probe	EX3DV4	3660	September 3, 2008	One year
09	DAE	DAE4	452	November 18, 2008	One year
10	Validation Kit 835MHz	D835V2	4d020	July 21, 2008	One year

12. TEST PERIOD

The test is performed in February 18, 2009.

13. TEST LOCATION

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

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

ANNEX A： TEST LAYOUT

Picture 1: Specific Absorption Rate Test Layout

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

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

ANNEX B： SYSTEM CHECK RESULTS

Date/Time: 2/18/2009 6:52:57 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 = 43.36 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

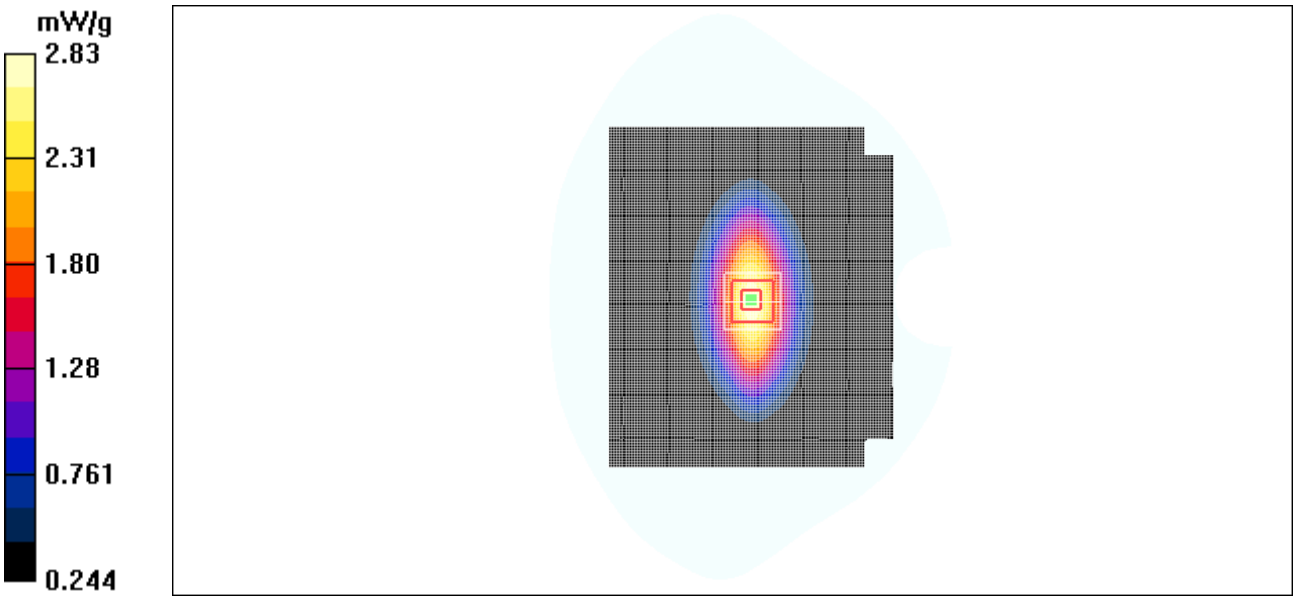


Figure 7 System Performance Check 835MHz 250mW

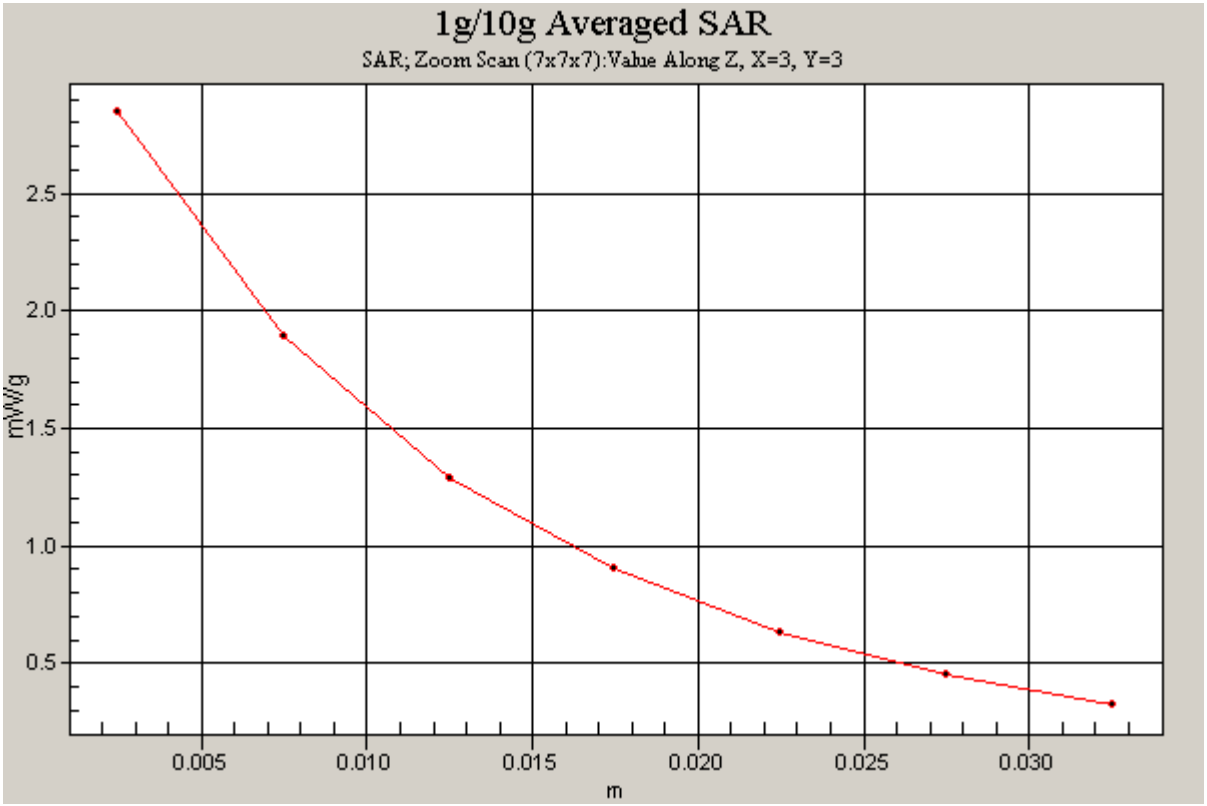


Figure 8 Z-Scan at power reference point (system Check at 835 MHz dipole)

ANNEX C： GRAPH RESULTS

Date/Time: 2/18/2009 7:52:57 AM

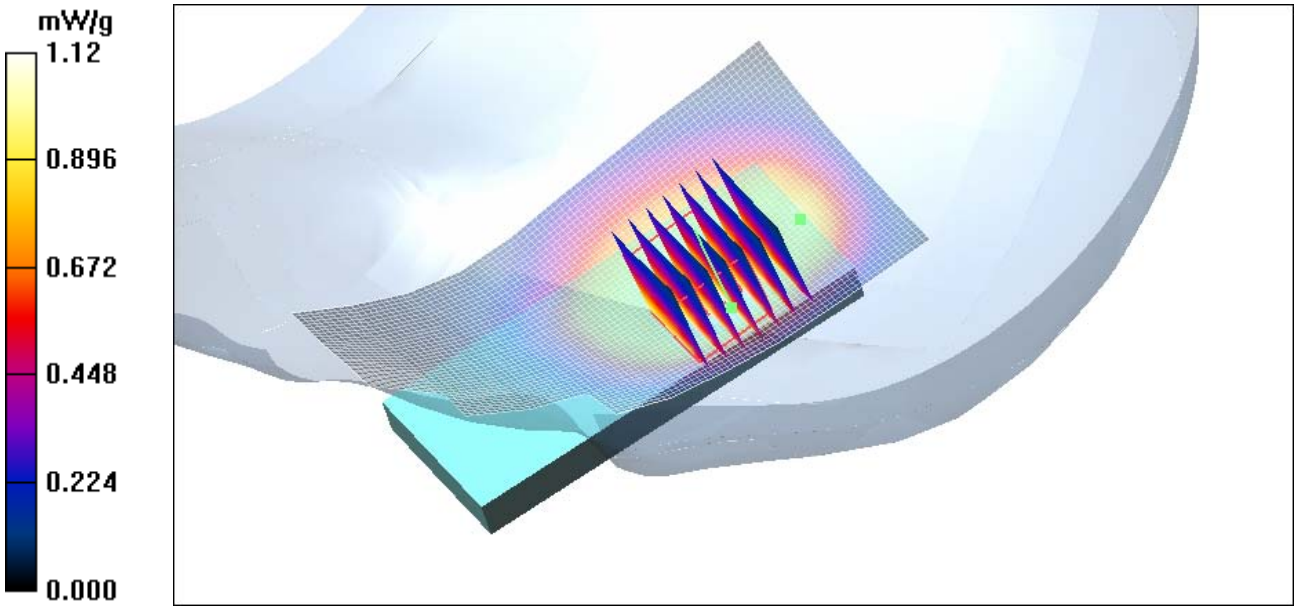
CDMA Cellular Left Cheek High

Communication System: CDMA Cellular; Frequency: 848.31 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 848.31 MHz; σ = 0.947 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 High/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.12 mW/g

Cheek High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 30.8 V/m; Power Drift = 0.114 dB
Peak SAR (extrapolated) = 1.52 W/kg
SAR(1 g) = 1.01 mW/g; SAR(10 g) = 0.698 mW/g
Maximum value of SAR (measured) = 1.17 mW/g



Communication System: CDMA Cellular; Frequency: 848.31 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 848.31 MHz; σ = 0.947 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 High/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.12 mW/g

Cheek High/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 30.8 V/m; Power Drift = 0.114 dB
Peak SAR (extrapolated) = 1.22 W/kg
SAR(1 g) = 0.843 mW/g; SAR(10 g) = 0.575 mW/g
Maximum value of SAR (measured) = 1.01 mW/g

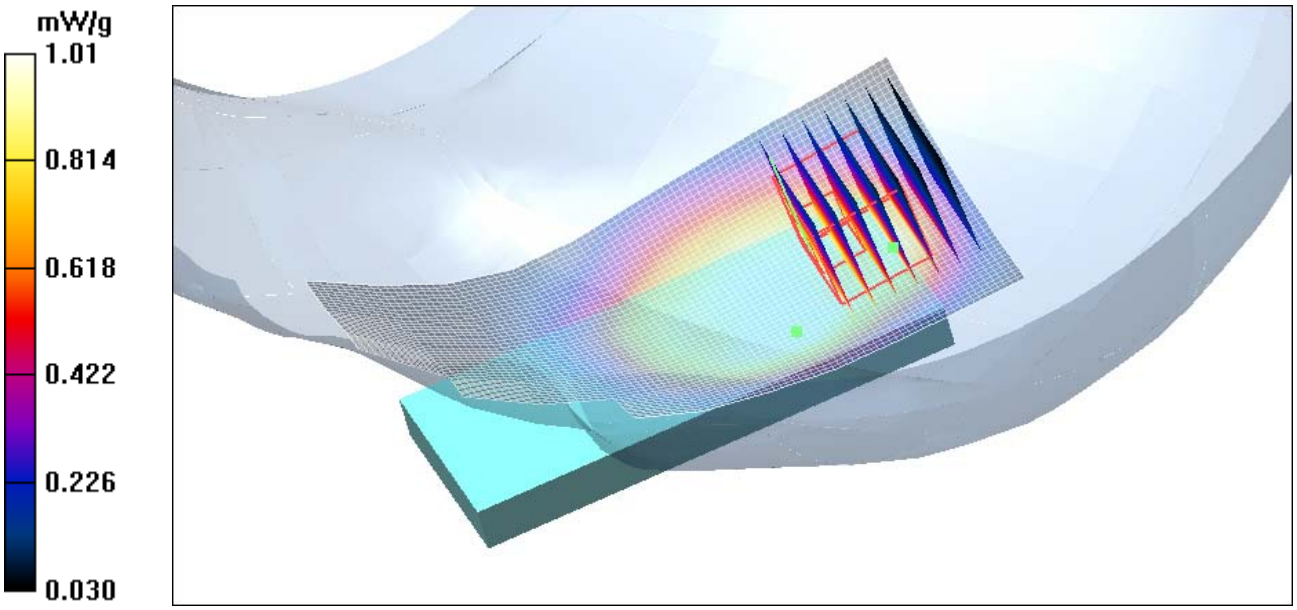
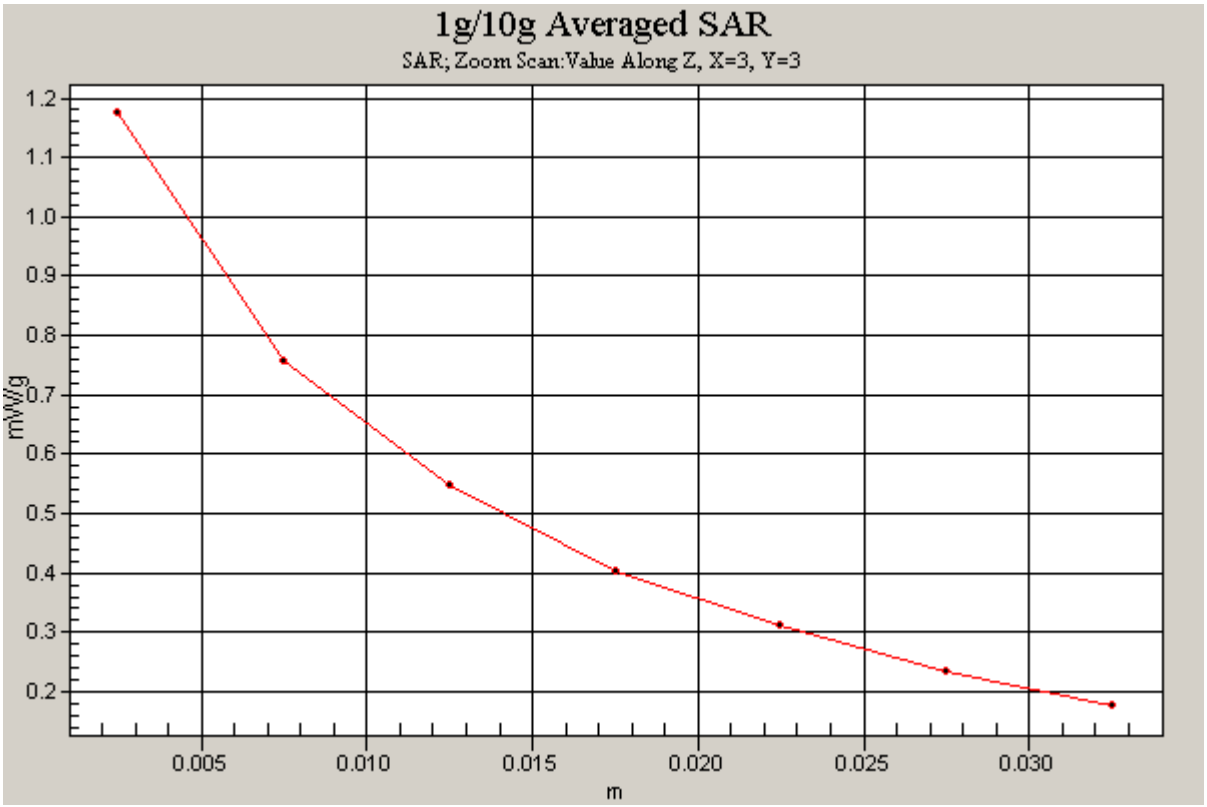


Figure 9 Left Hand Touch Cheek CDMA Cellular Channel 777



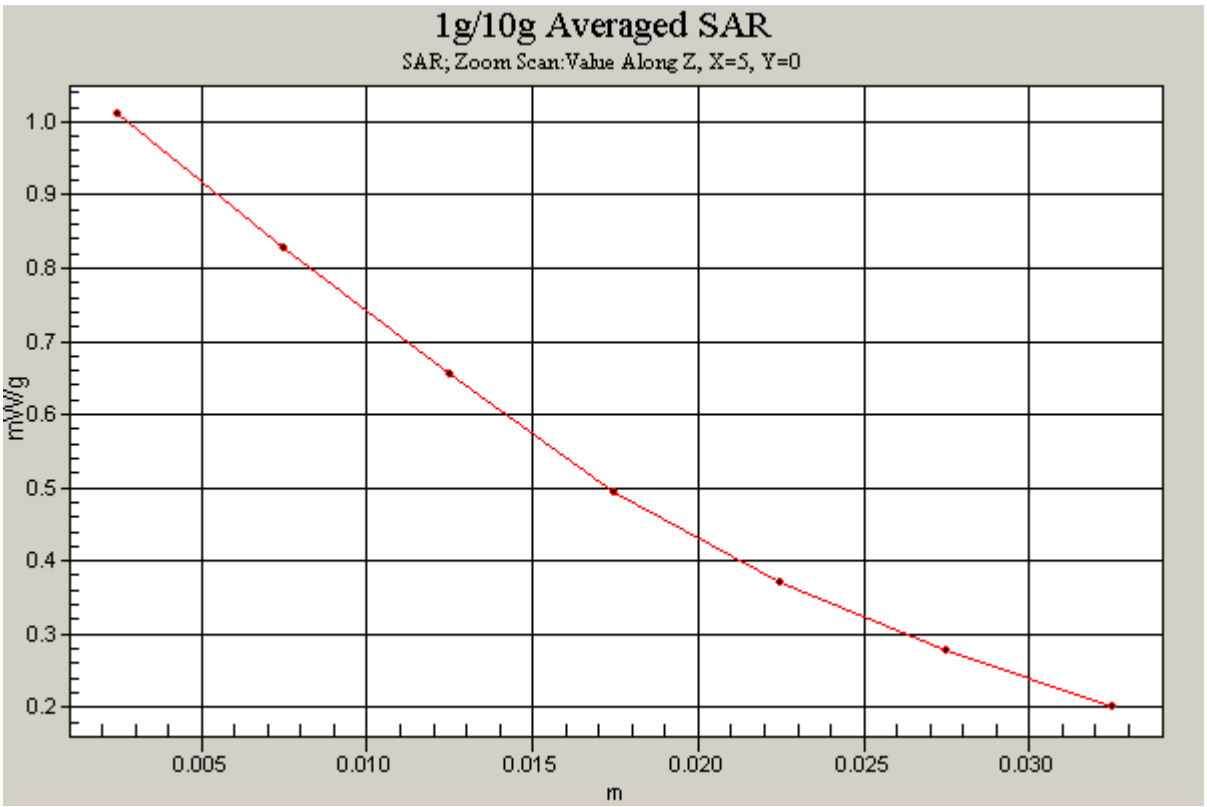


Figure 10 Z-Scan at power reference point (Left Hand Touch Cheek CDMA Cellular Channel 777)

Date/Time: 2/18/2009 8:31:50 AM

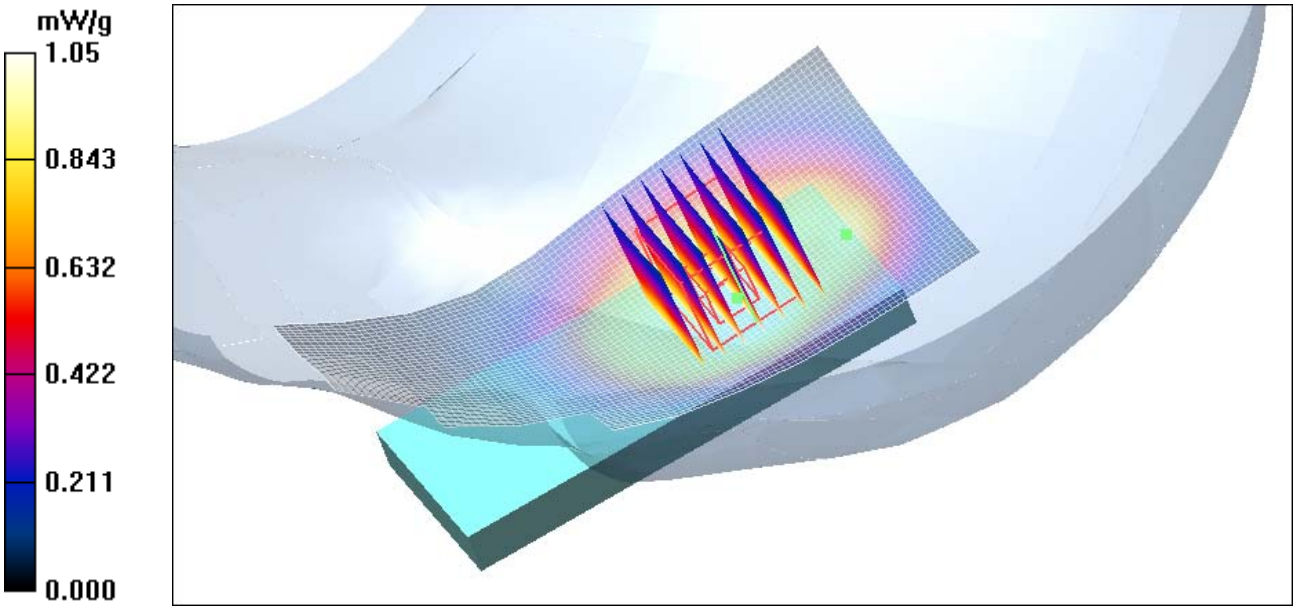
CDMA Cellular Left Cheek Middle

Communication System: CDMA Cellular; Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium parameters used: f = 837 MHz; σ = 0.936 mho/m; ε_r = 43.3; 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) = 1.05 mW/g

Cheek Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 30.1 V/m; Power Drift = 0.086 dB
Peak SAR (extrapolated) = 1.36 W/kg
SAR(1 g) = 0.936 mW/g; SAR(10 g) = 0.695 mW/g
Maximum value of SAR (measured) = 1.07 mW/g



Communication System: CDMA Cellular; Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium parameters used: f = 837 MHz; σ = 0.936 mho/m; ε_r = 43.3; 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) = 1.05 mW/g

Cheek Middle/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 30.1 V/m; Power Drift = 0.086 dB
Peak SAR (extrapolated) = 1.12 W/kg
SAR(1 g) = 0.775 mW/g; SAR(10 g) = 0.530 mW/g
Maximum value of SAR (measured) = 0.924 mW/g

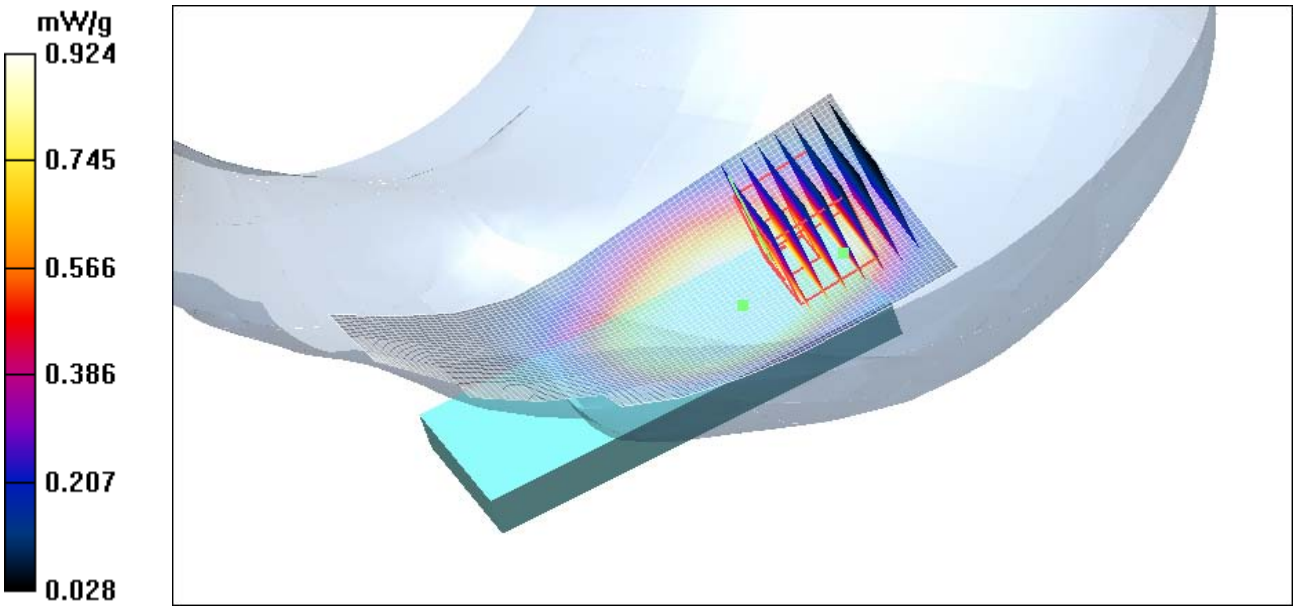
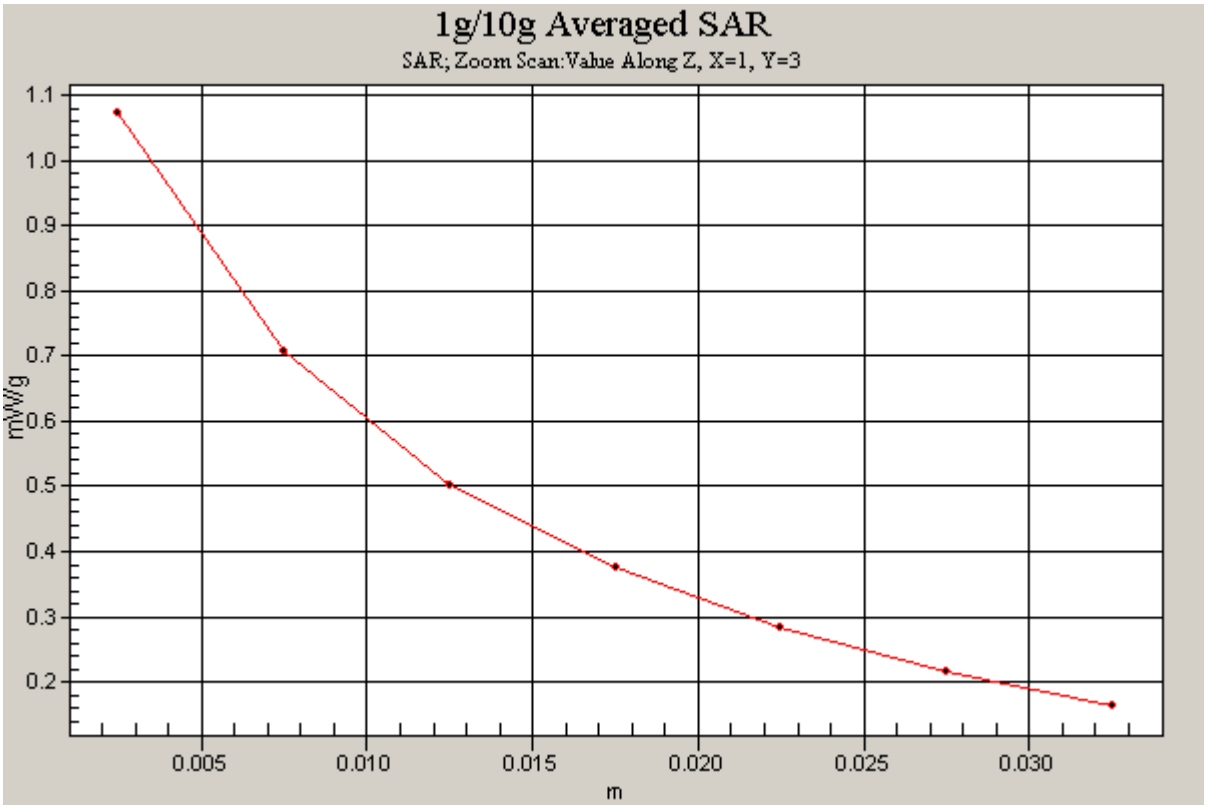


Figure 11 Left Hand Touch Cheek CDMA Cellular Channel 384



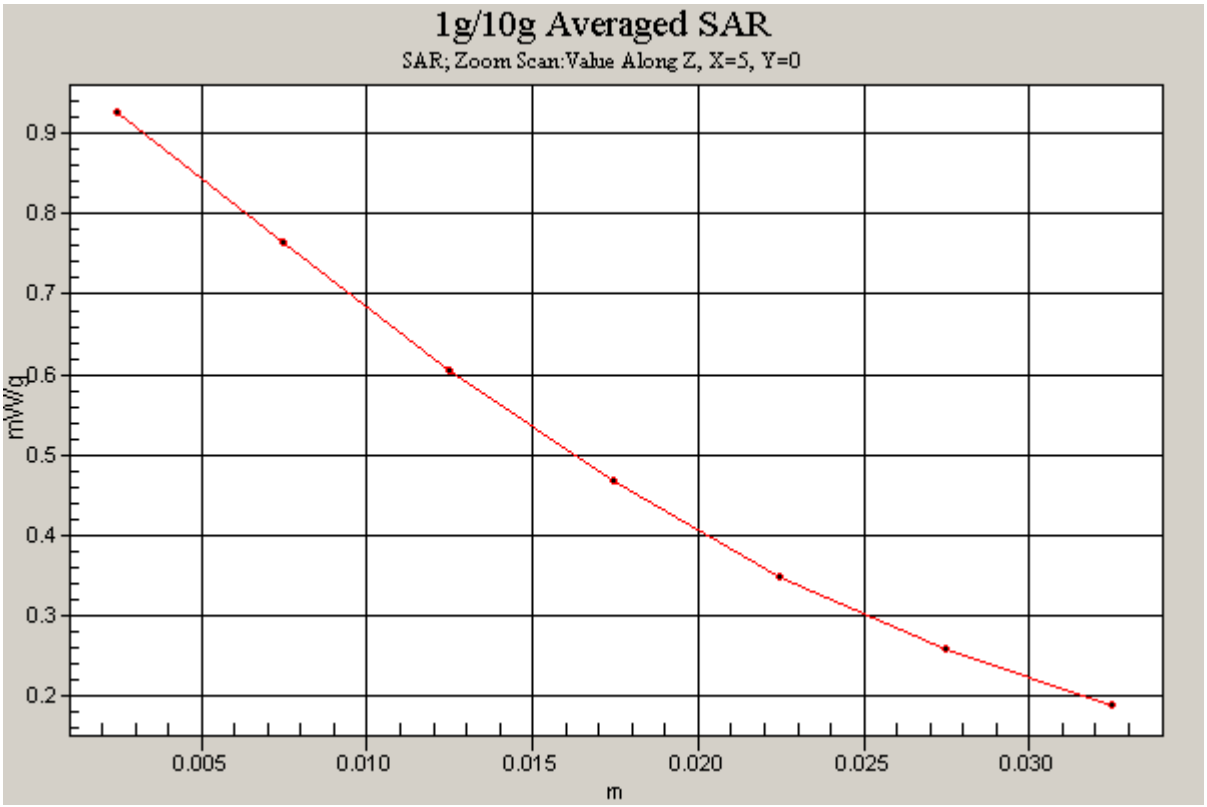


Figure 12 Z-Scan at power reference point (Left Hand Touch Cheek CDMA Cellular Channel 384)

Date/Time: 2/18/2009 9:08:48 AM

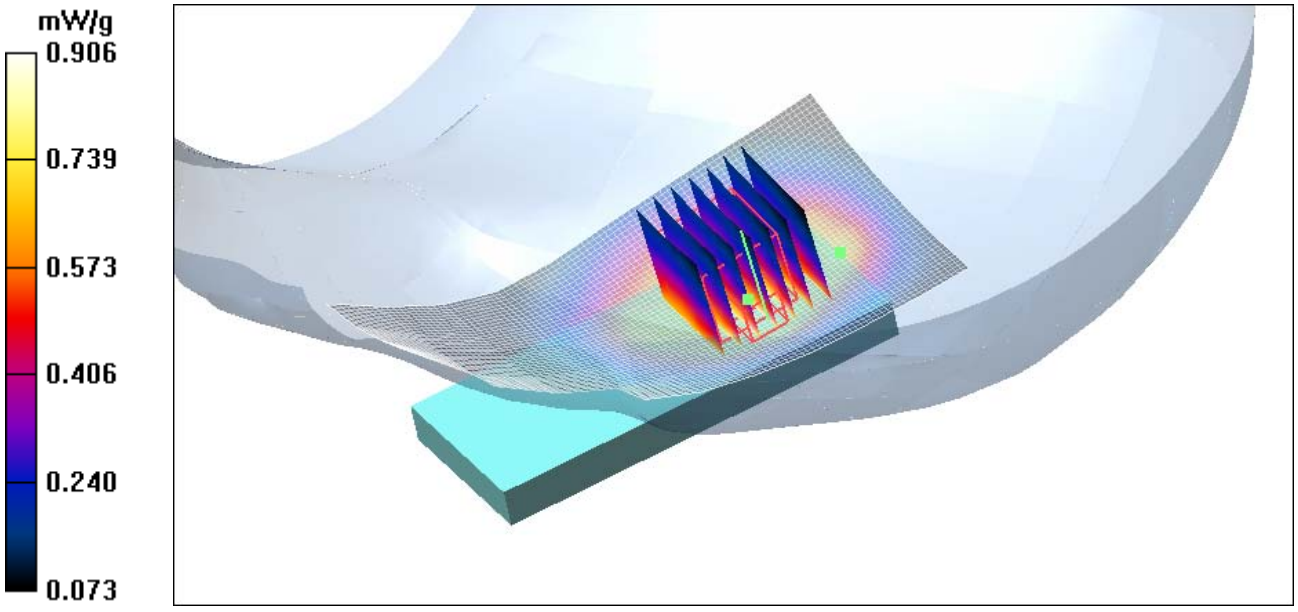
CDMA Cellular Left Cheek Low

Communication System: CDMA Cellular; Frequency: 824.7 MHz;Duty Cycle: 1:1
Medium parameters used: f = 825 MHz; σ = 0.924 mho/m; ε_r = 43.5; 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) = 0.810 mW/g

Cheek Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 27.4 V/m; Power Drift = -0.125 dB
Peak SAR (extrapolated) = 1.21 W/kg
SAR(1 g) = 0.718 mW/g; SAR(10 g) = 0.533 mW/g
Maximum value of SAR (measured) = 0.906 mW/g



Communication System: CDMA Cellular; Frequency: 824.7 MHz;Duty Cycle: 1:1
Medium parameters used: f = 825 MHz; σ = 0.924 mho/m; ε_r = 43.5; 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) = 0.810 mW/g

Cheek Low/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 27.4 V/m; Power Drift = -0.125 dB
Peak SAR (extrapolated) = 0.923 W/kg
SAR(1 g) = 0.603 mW/g; SAR(10 g) = 0.411 mW/g
Maximum value of SAR (measured) = 0.721 mW/g

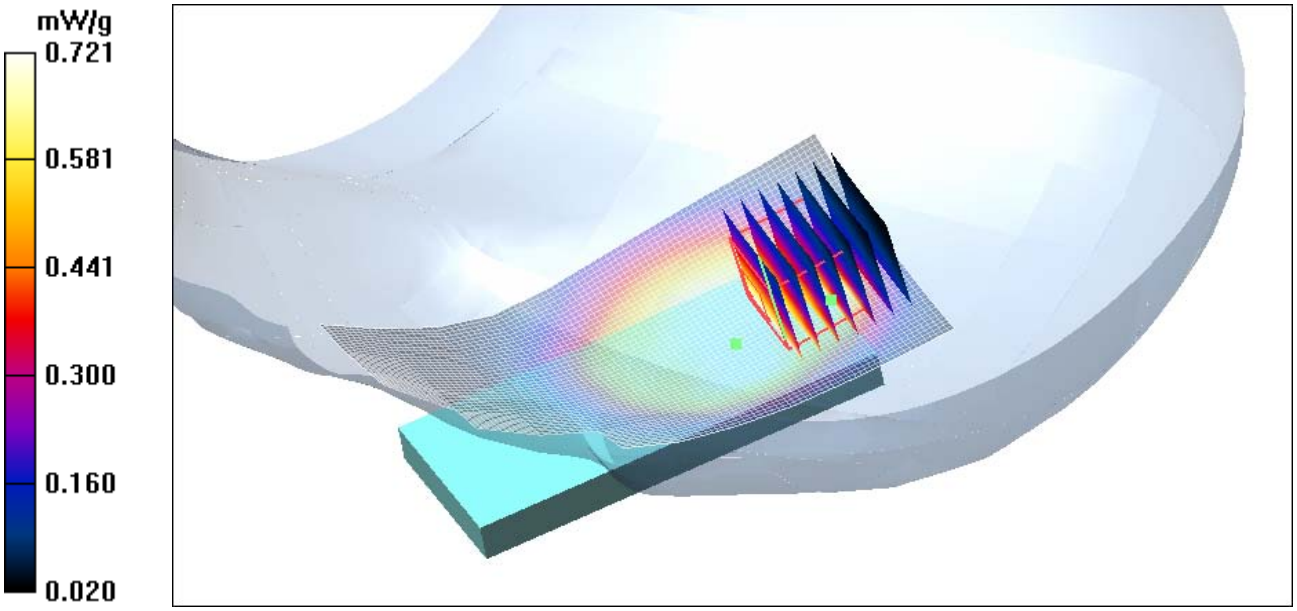
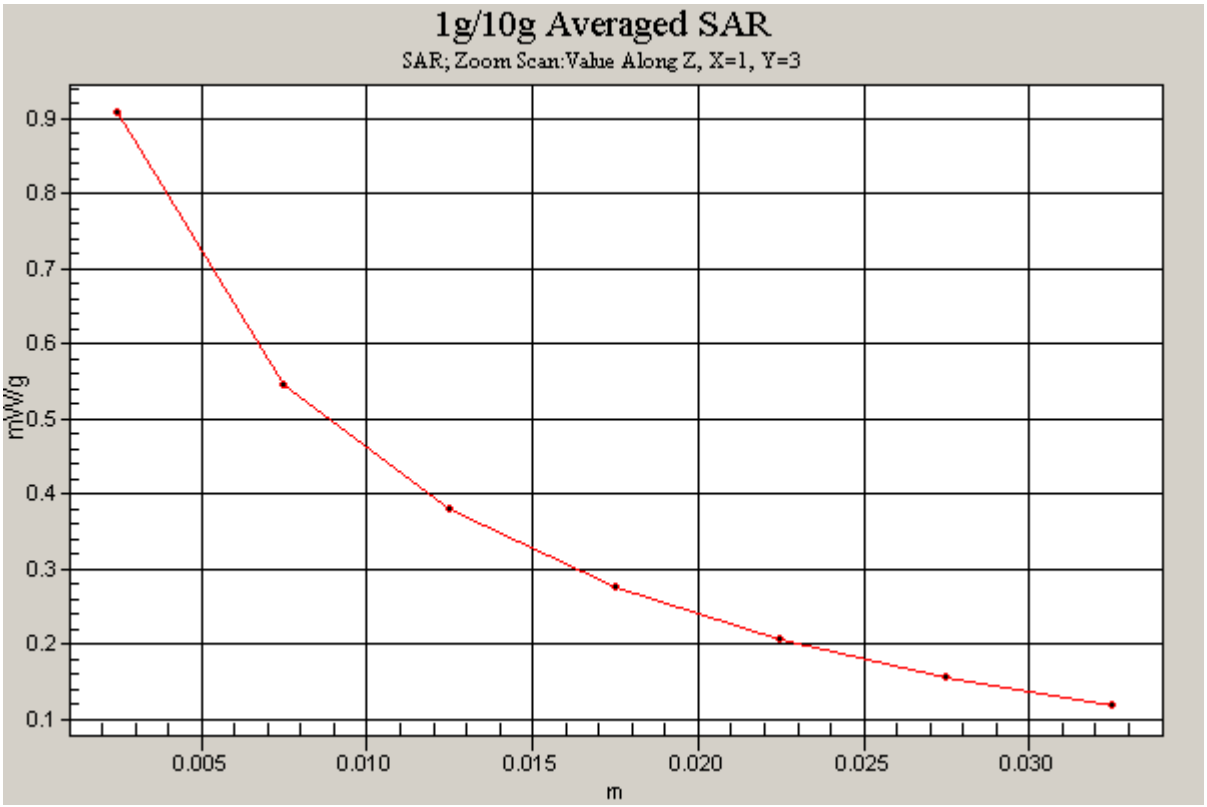


Figure 13 Left Hand Touch Cheek CDMA Cellular Channel 1013



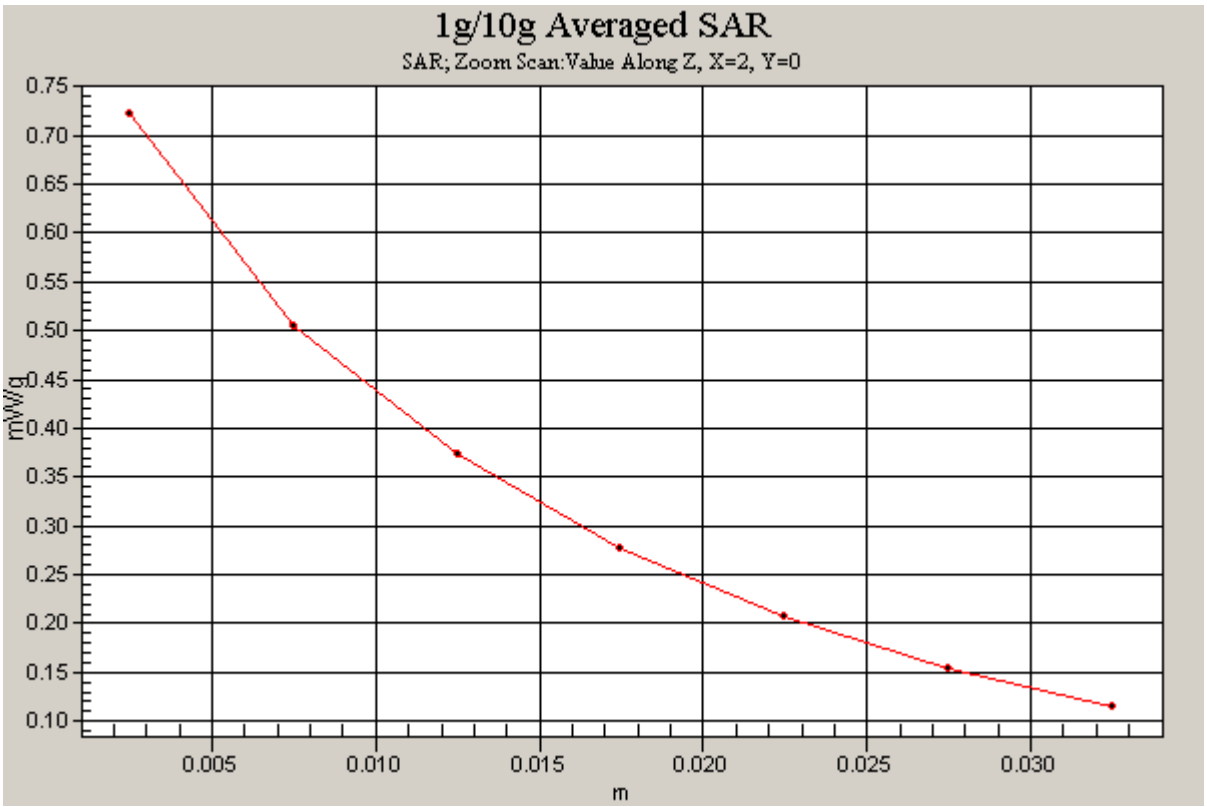


Figure 14 Z-Scan at power reference point (Left Hand Touch Cheek CDMA Cellular Channel 1013)

Date/Time: 2/18/2009 9:45:07 AM

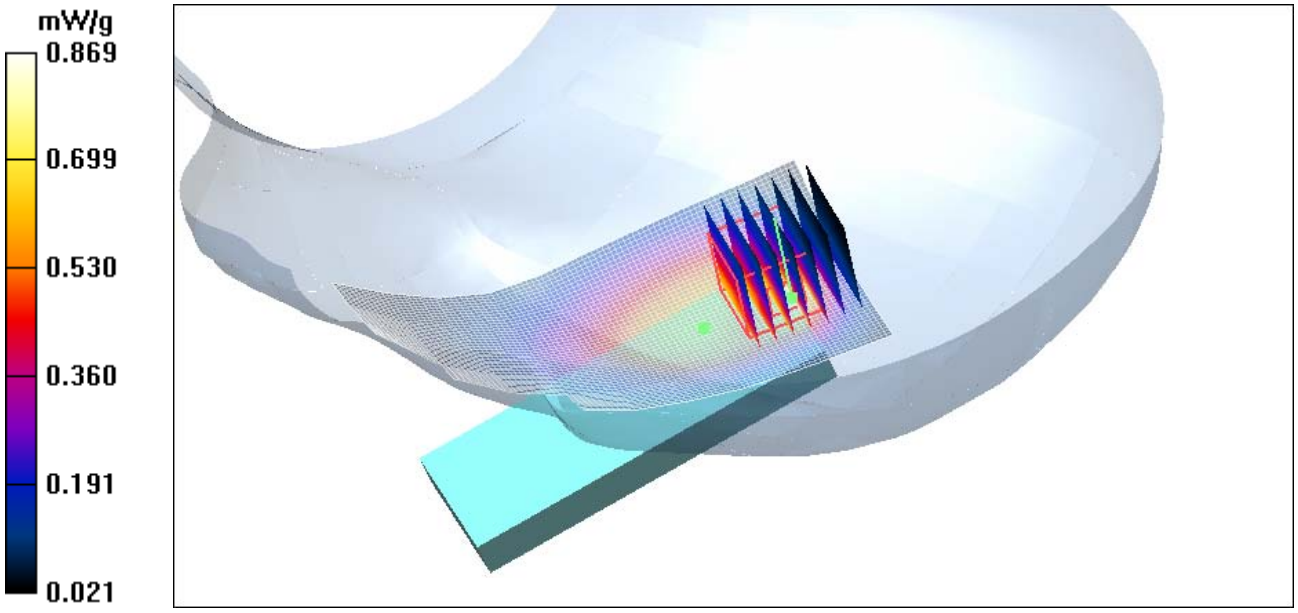
CDMA Cellular Left Tilt High

Communication System: CDMA Cellular; Frequency: 848.31 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 848.31 MHz; σ = 0.947 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 High/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.798 mW/g

Tilt High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 29.1 V/m; Power Drift = 0.099 dB
Peak SAR (extrapolated) = 1.14 W/kg
SAR(1 g) = 0.656 mW/g; SAR(10 g) = 0.433 mW/g
Maximum value of SAR (measured) = 0.869 mW/g



Communication System: CDMA Cellular; Frequency: 848.31 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 848.31 MHz; σ = 0.947 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 High/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.798 mW/g

Tilt High/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 29.1 V/m; Power Drift = 0.099 dB
Peak SAR (extrapolated) = 0.803 W/kg
SAR(1 g) = 0.619 mW/g; SAR(10 g) = 0.467 mW/g
Maximum value of SAR (measured) = 0.698 mW/g

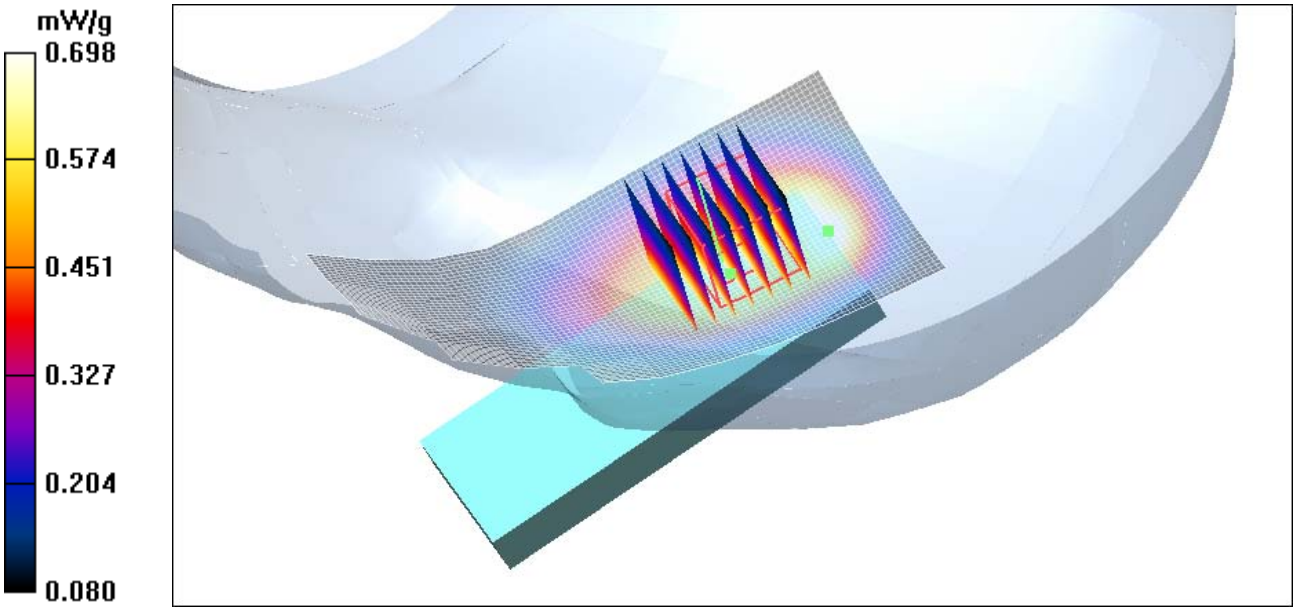
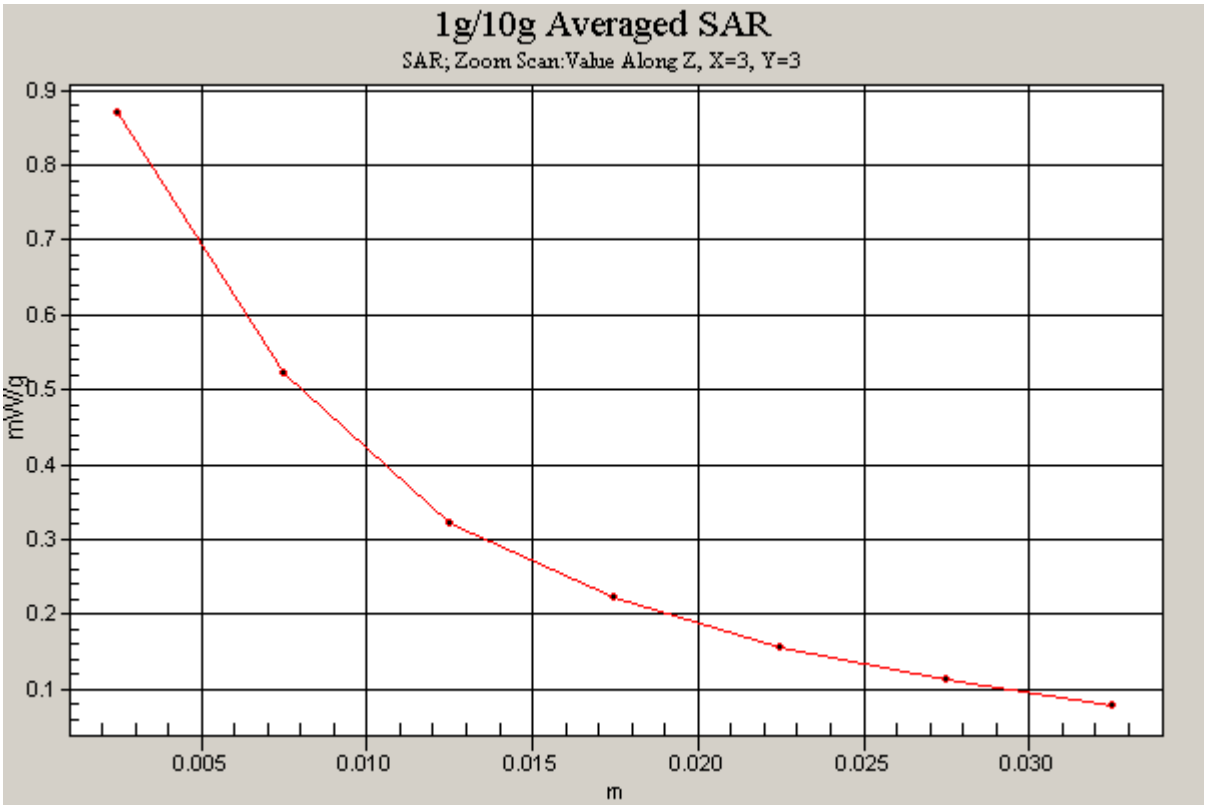


Figure 15 Left Hand Tilt 15°CDMA Cellular Channel 777



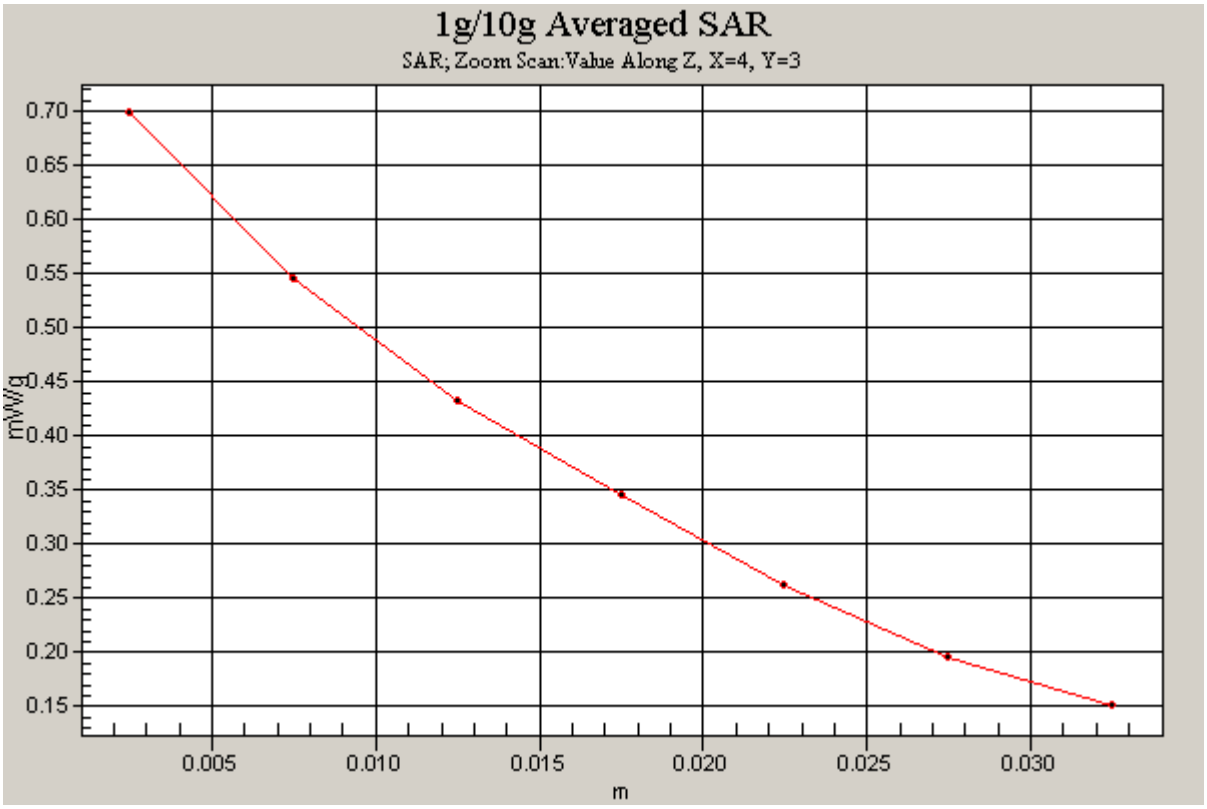


Figure 16 Z-Scan at power reference point (Left Hand Tilt 15°CDMA Cellular Channel 777)

Date/Time: 2/18/2009 10:28:11 AM

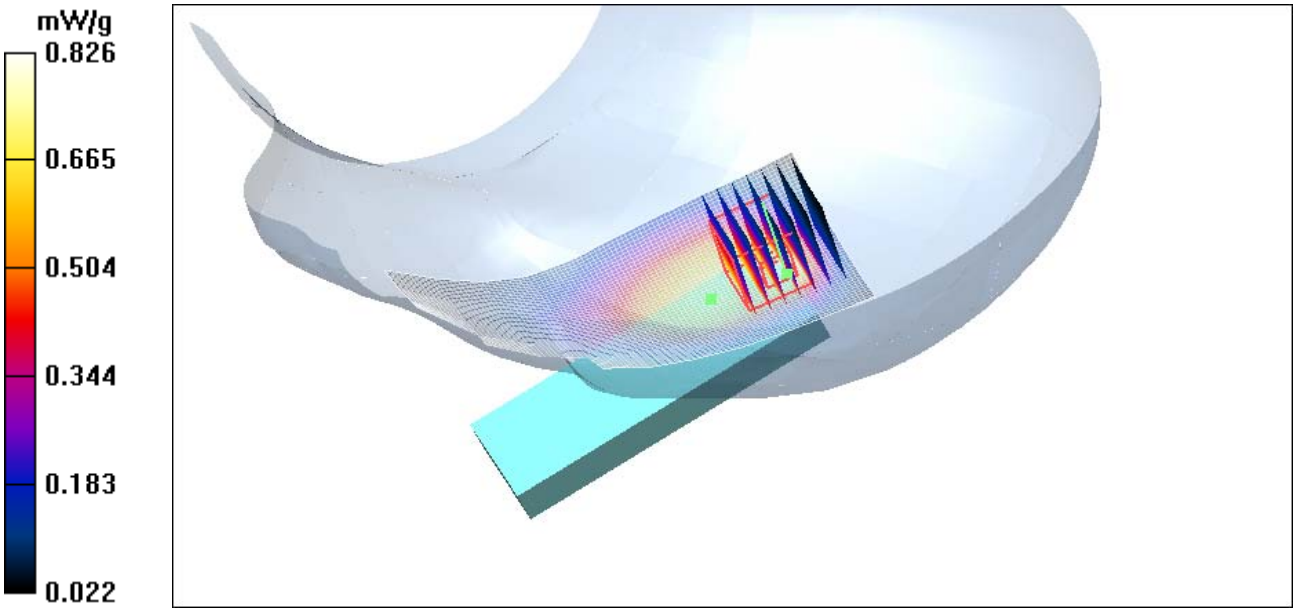
CDMA Cellular Left Tilt Middle

Communication System: CDMA Cellular; Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium parameters used: f = 837 MHz; σ = 0.936 mho/m; ε_r = 43.3; 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 (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.814 mW/g

Tilt Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 29.4 V/m; Power Drift = 0.006 dB
Peak SAR (extrapolated) = 1.12 W/kg
SAR(1 g) = 0.637 mW/g; SAR(10 g) = 0.429 mW/g
Maximum value of SAR (measured) = 0.826 mW/g



Communication System: CDMA Cellular; Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium parameters used: f = 837 MHz; σ = 0.936 mho/m; ε_r = 43.3; 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 (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.814 mW/g

Tilt Middle/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 29.4 V/m; Power Drift = 0.006 dB
Peak SAR (extrapolated) = 0.793 W/kg
SAR(1 g) = 0.609 mW/g; SAR(10 g) = 0.460 mW/g
Maximum value of SAR (measured) = 0.691 mW/g

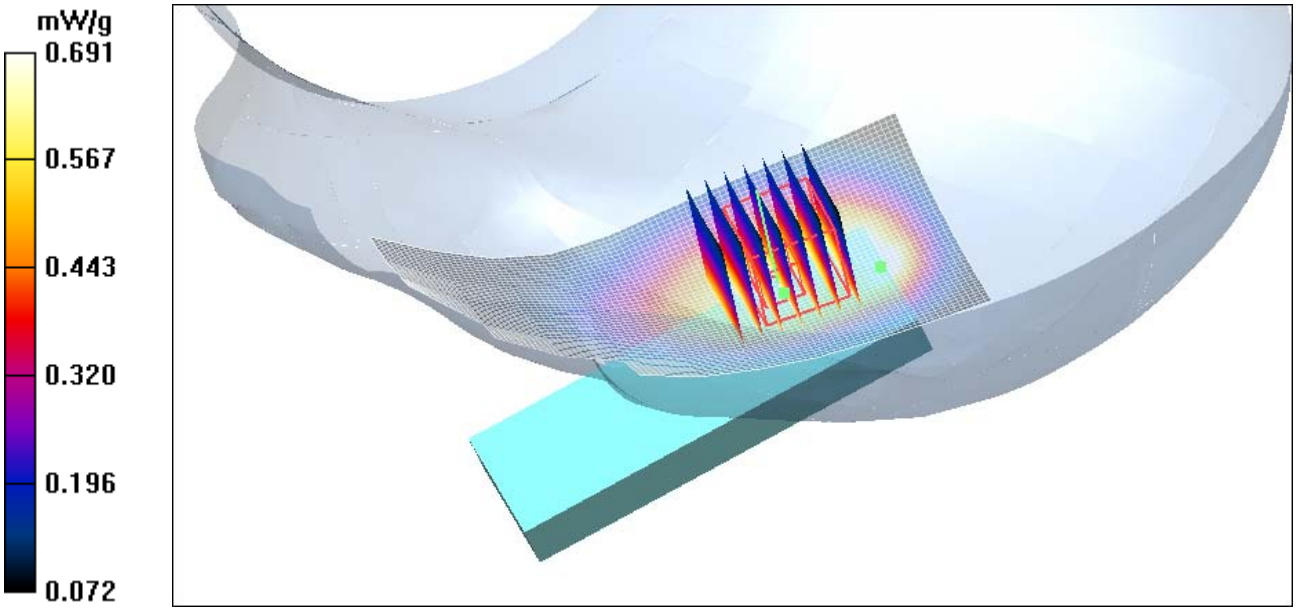
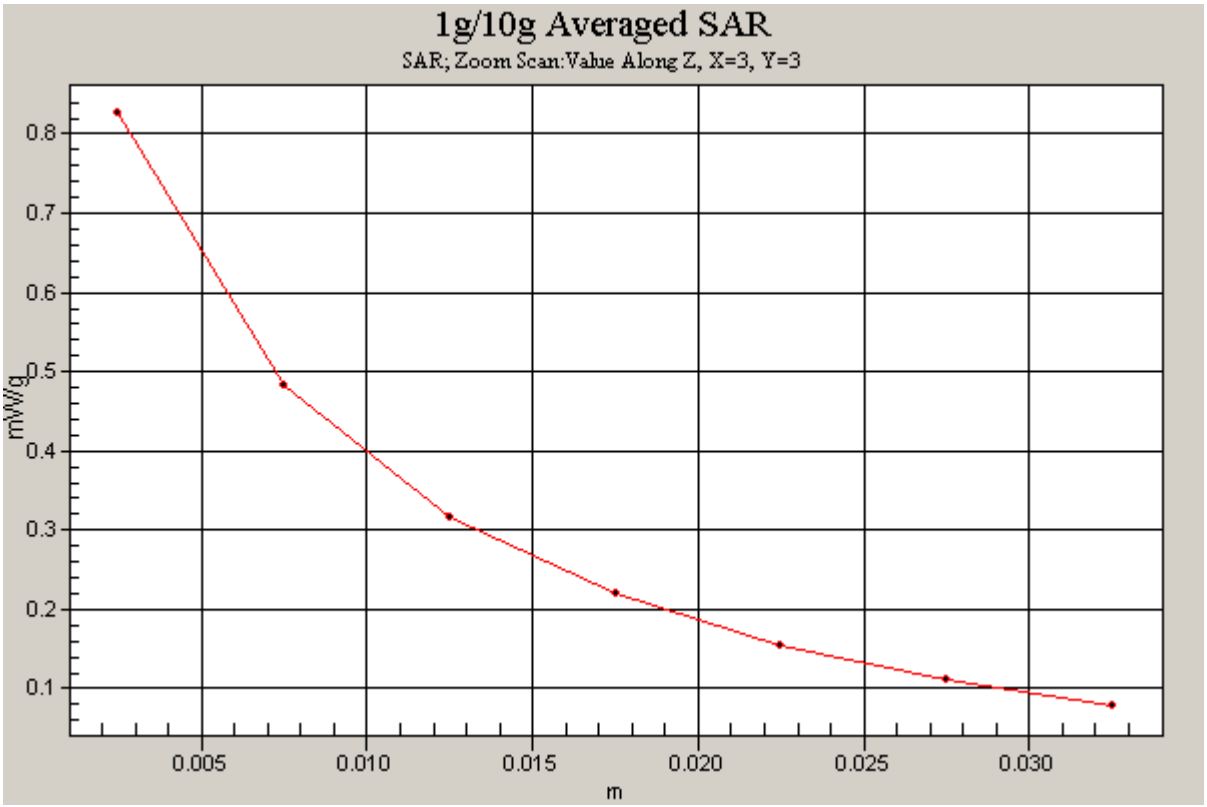


Figure 17 Left Hand Tilt 15°CDMA Cellular Channel 384



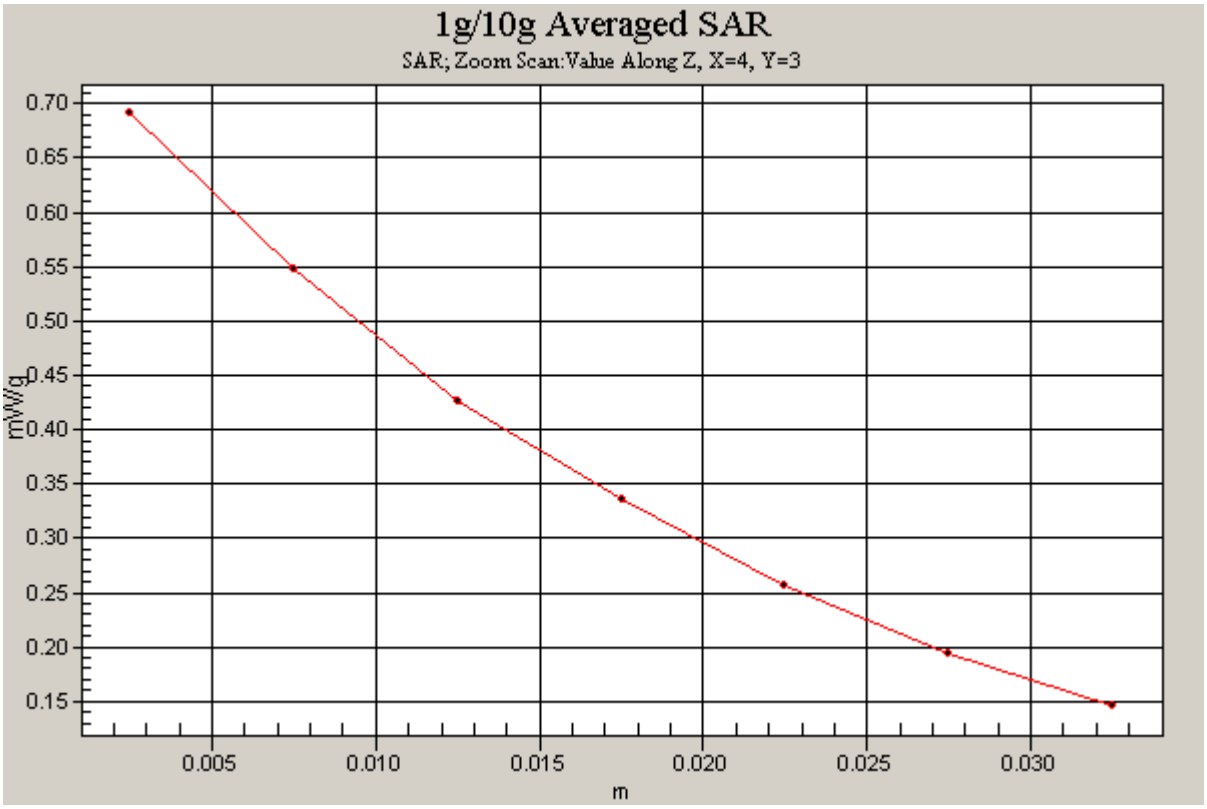


Figure 18 Z-Scan at power reference point (Left Hand Tilt 15°CDMA Cellular Channel 384)

Date/Time: 2/18/2009 11:04:13 AM

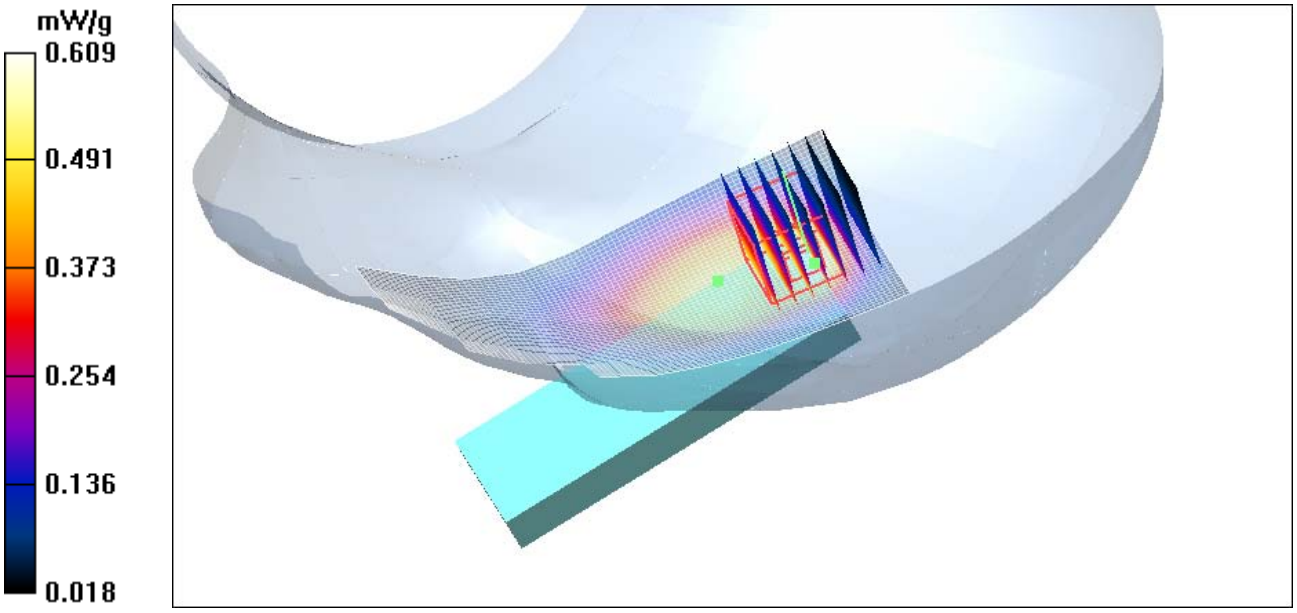
CDMA Cellular Left Tilt Low

Communication System: CDMA Cellular; Frequency: 824.7 MHz;Duty Cycle: 1:1
Medium parameters used: f = 825 MHz; σ = 0.924 mho/m; ε_r = 43.5; 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 (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.629 mW/g

Tilt Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 25.4 V/m; Power Drift = 0.021 dB
Peak SAR (extrapolated) = 0.802 W/kg
SAR(1 g) = 0.472 mW/g; SAR(10 g) = 0.318 mW/g
Maximum value of SAR (measured) = 0.609 mW/g



Communication System: CDMA Cellular; Frequency: 824.7 MHz;Duty Cycle: 1:1
Medium parameters used: f = 825 MHz; σ = 0.924 mho/m; ε_r = 43.5; 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

Left Tilt Low/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.629 mW/g

Left Tilt Low/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 25.4 V/m; Power Drift = 0.021 dB
Peak SAR (extrapolated) = 0.590 W/kg
SAR(1 g) = 0.455 mW/g; SAR(10 g) = 0.345 mW/g
Maximum value of SAR (measured) = 0.519 mW/g

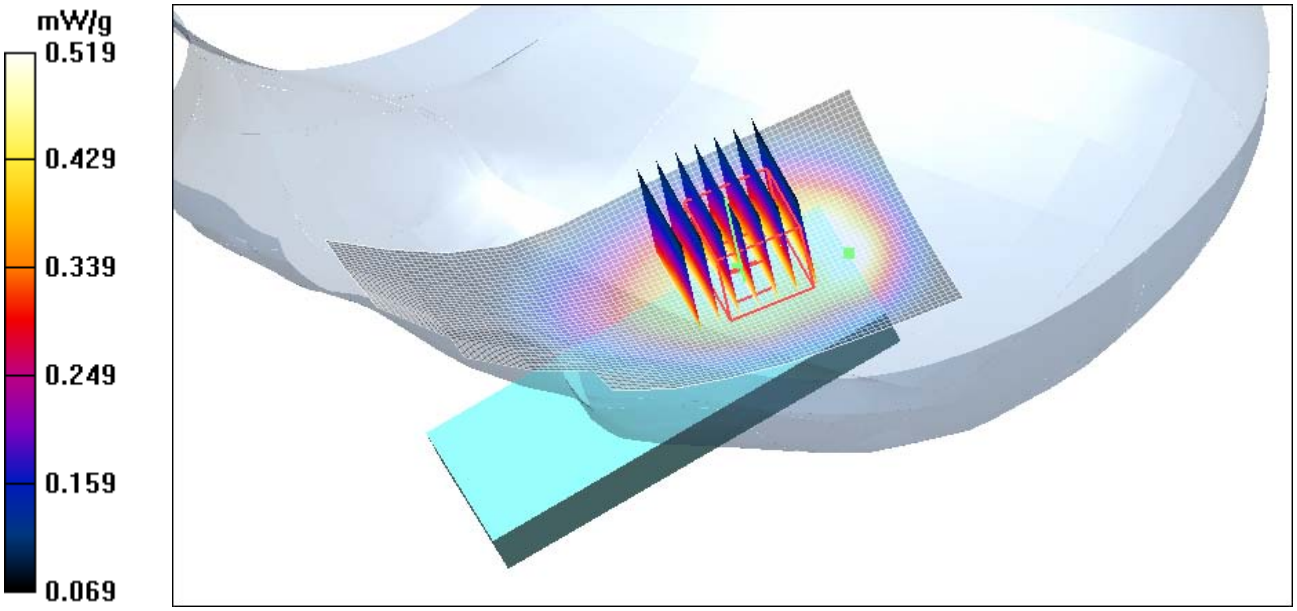
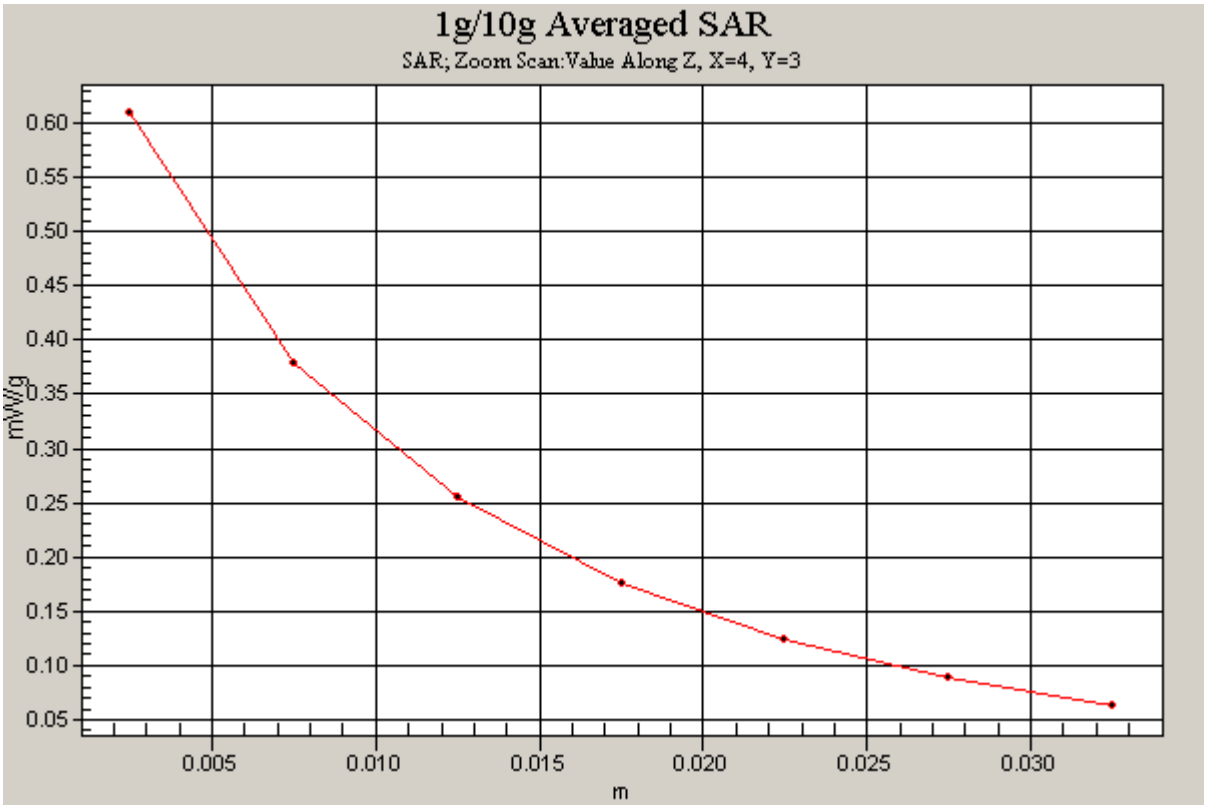


Figure 19 Left Hand Tilt 15°CDMA Cellular Channel 1013



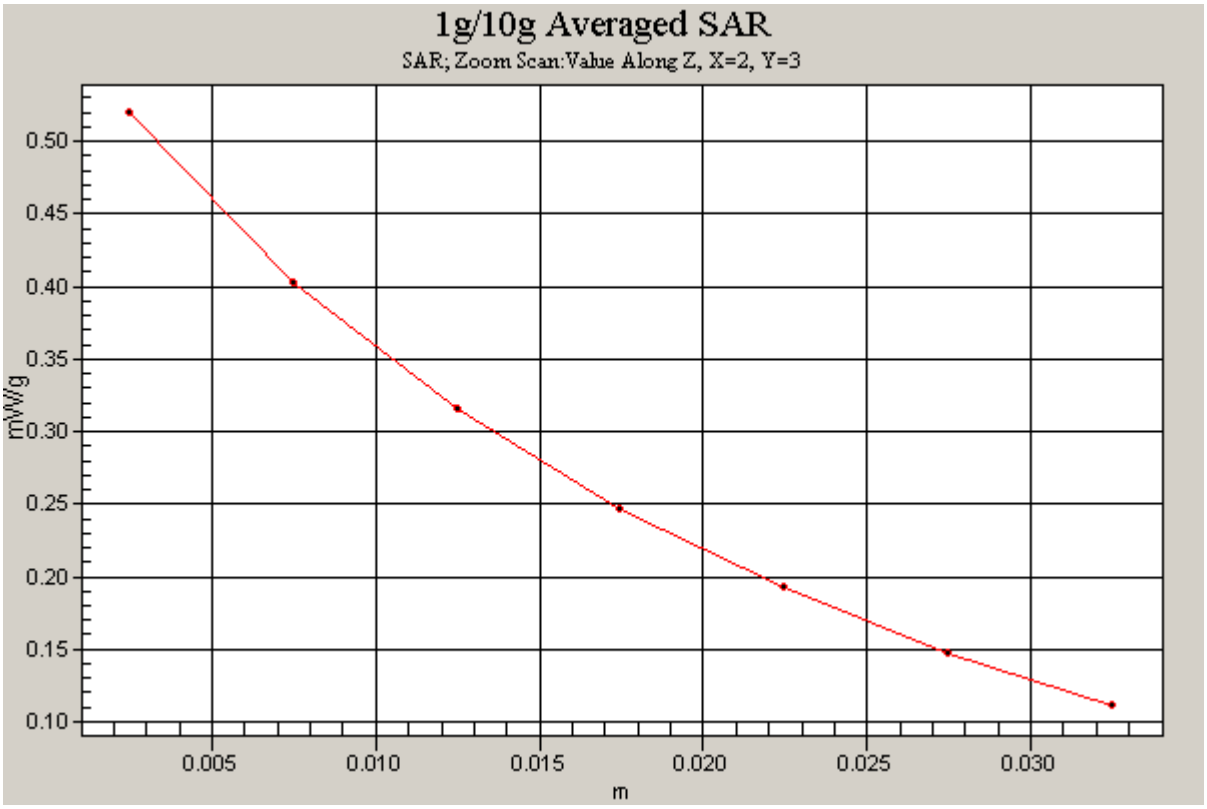


Figure 20 Z-Scan at power reference point (Left Hand Tilt 15°CDMA Cellular Channel 1013)

Date/Time: 2/18/2009 11:39:04 AM

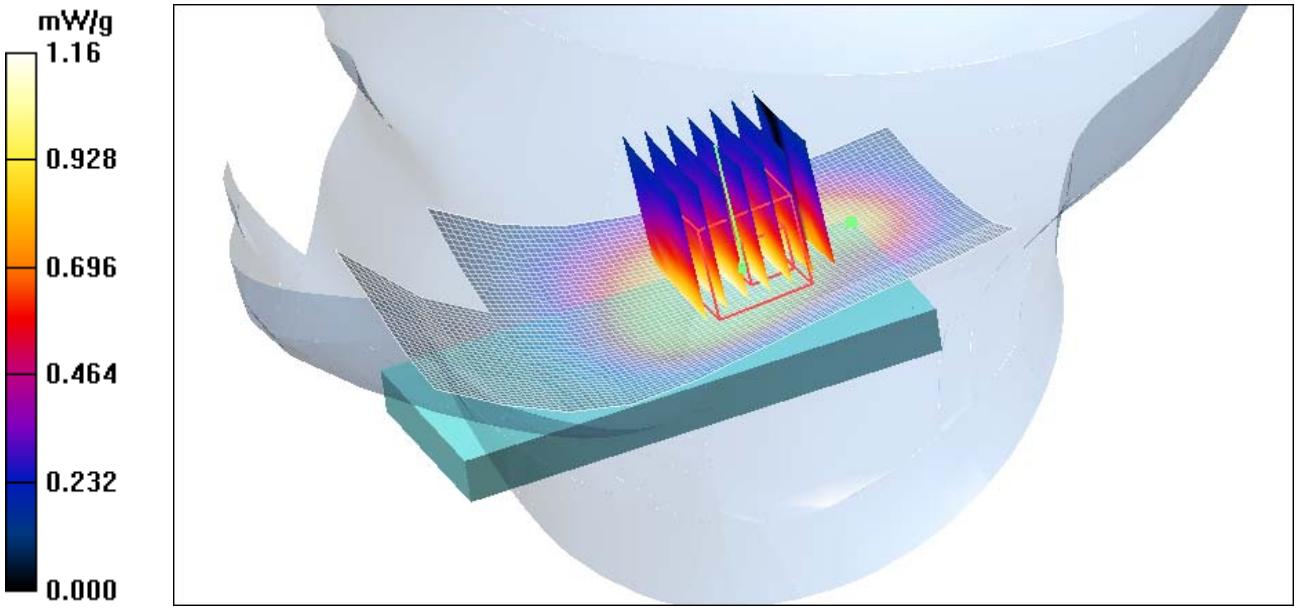
CDMA Cellular Right Cheek High

Communication System: CDMA Cellular; Frequency: 848.31 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 848.31 MHz; σ = 0.947 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 High/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.13 mW/g

Cheek High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 29.6 V/m; Power Drift = 0.054 dB
Peak SAR (extrapolated) = 1.78 W/kg
SAR(1 g) = 1.01 mW/g; SAR(10 g) = 0.734 mW/g
Maximum value of SAR (measured) = 1.16 mW/g



Communication System: CDMA Cellular; Frequency: 848.31 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 848.31 MHz; σ = 0.947 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 High/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.13 mW/g

Cheek High/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 29.6 V/m; Power Drift = 0.054 dB
Peak SAR (extrapolated) = 1.16 W/kg
SAR(1 g) = 0.861 mW/g; SAR(10 g) = 0.554 mW/g
Maximum value of SAR (measured) = 1.04 mW/g

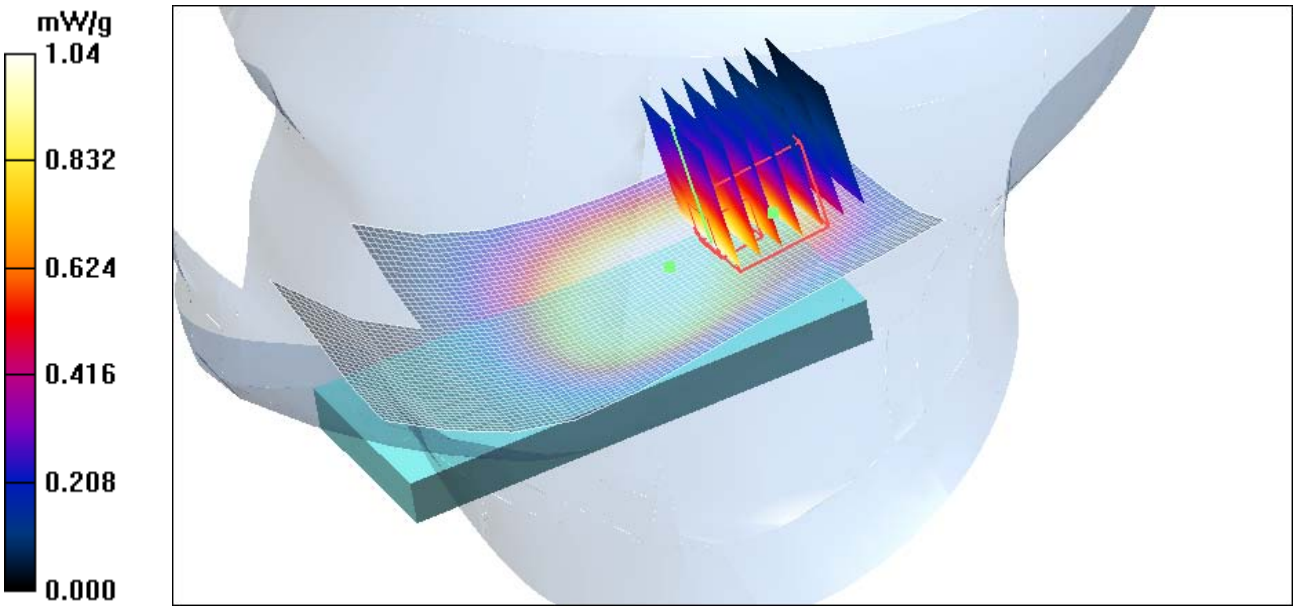
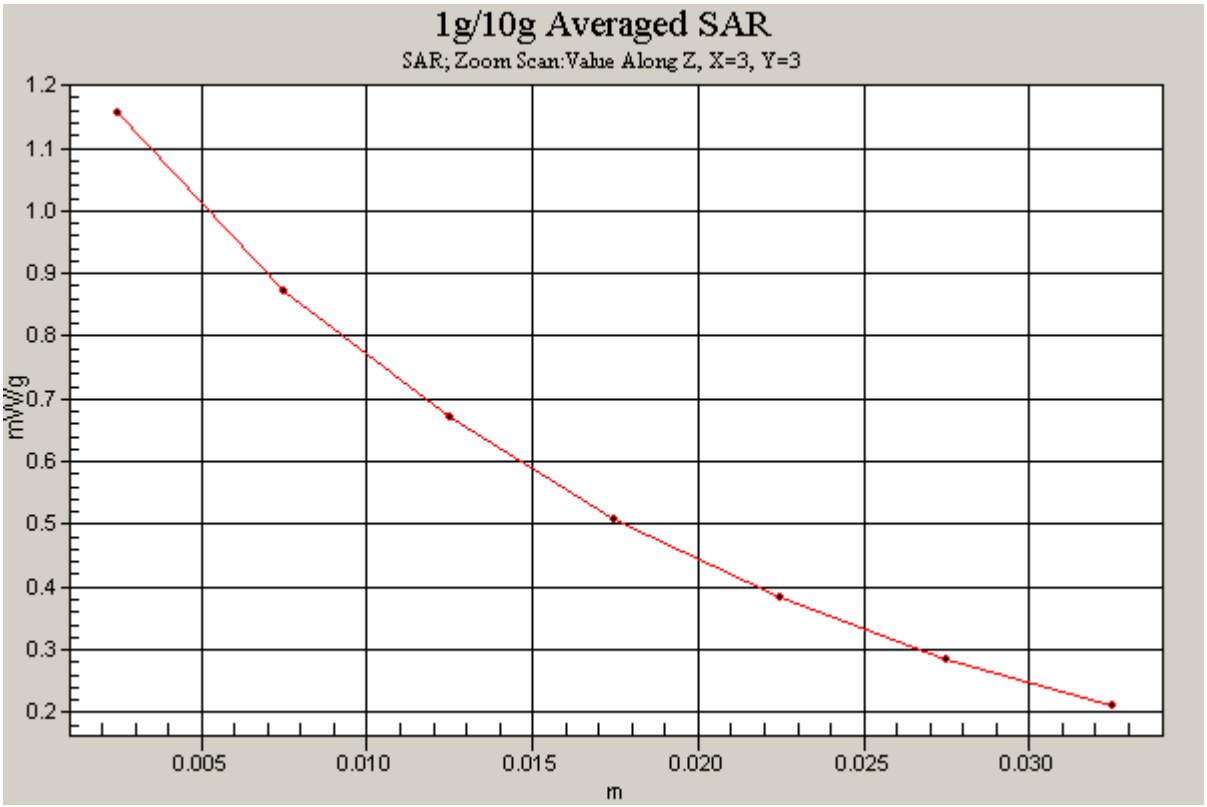


Figure 21 Right Hand Touch Cheek CDMA Cellular Channel 777



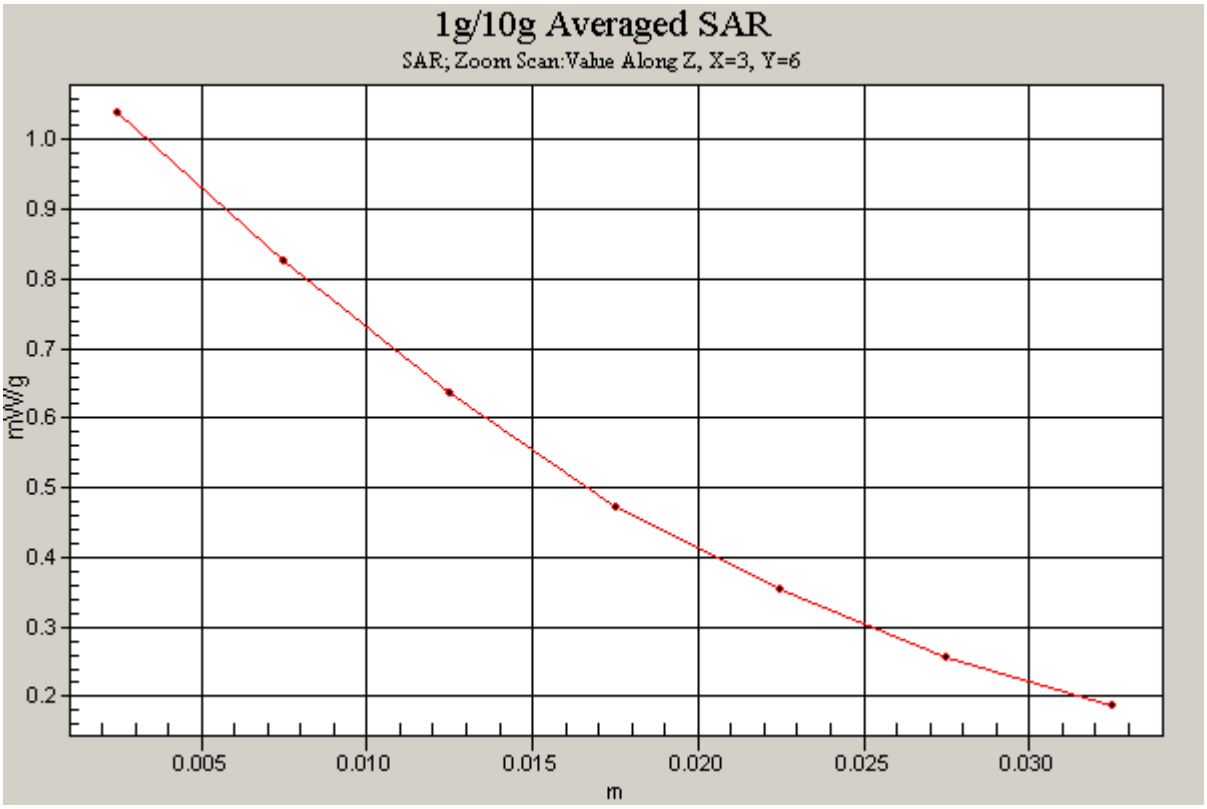


Figure 22 Z-Scan at power reference point (Right Hand Touch Cheek CDMA Cellular Channel 777)

Date/Time: 2/18/2009 12:17:46 PM

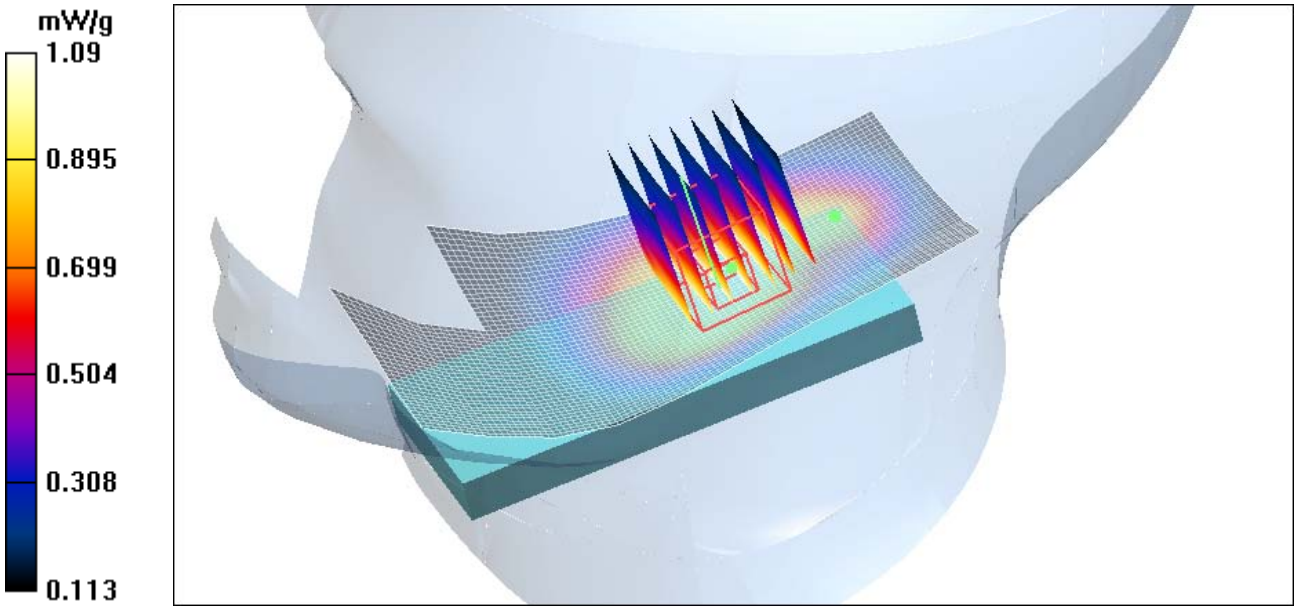
CDMA Cellular Right Cheek Middle

Communication System: CDMA Cellular; Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium parameters used: f = 837 MHz; σ = 0.936 mho/m; ε_r = 43.3; 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 (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.08 mW/g

Cheek Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 29.2 V/m; Power Drift = 0.134 dB
Peak SAR (extrapolated) = 1.25 W/kg
SAR(1 g) = 0.952 mW/g; SAR(10 g) = 0.697 mW/g
Maximum value of SAR (measured) = 1.09 mW/g



Communication System: CDMA Cellular; Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium parameters used: f = 837 MHz; σ = 0.936 mho/m; ε_r = 43.3; 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 (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.08 mW/g

Cheek Middle/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 29.2 V/m; Power Drift = 0.134 dB
Peak SAR (extrapolated) = 1.11 W/kg
SAR(1 g) = 0.819 mW/g; SAR(10 g) = 0.542 mW/g
Maximum value of SAR (measured) = 1.00 mW/g

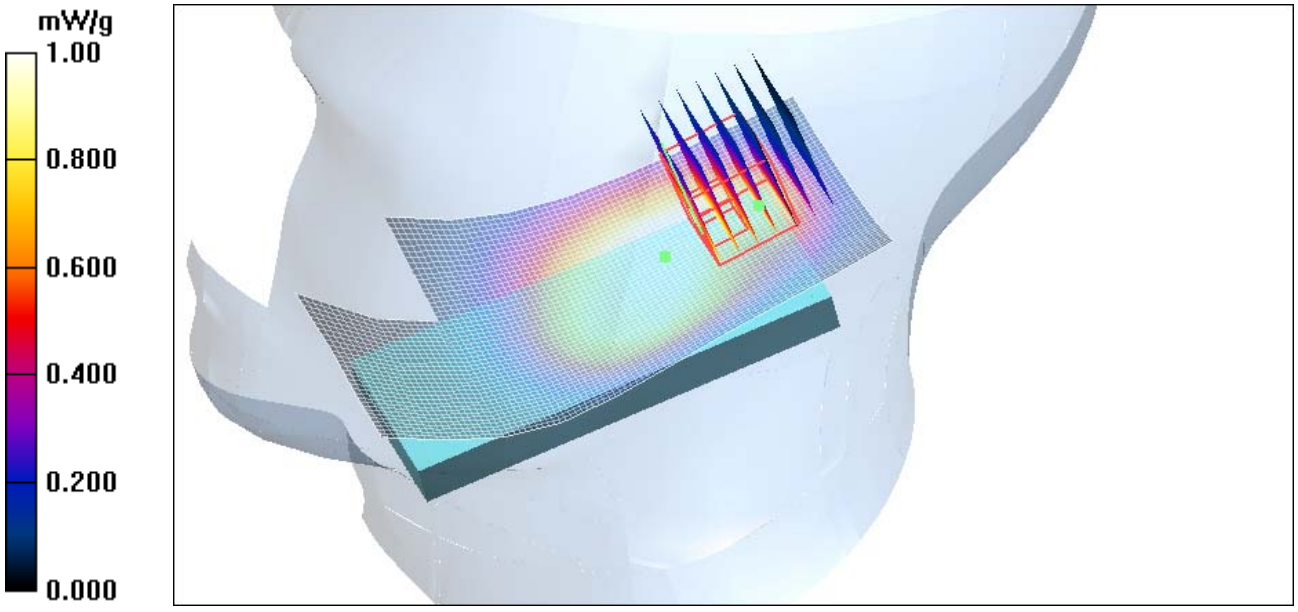
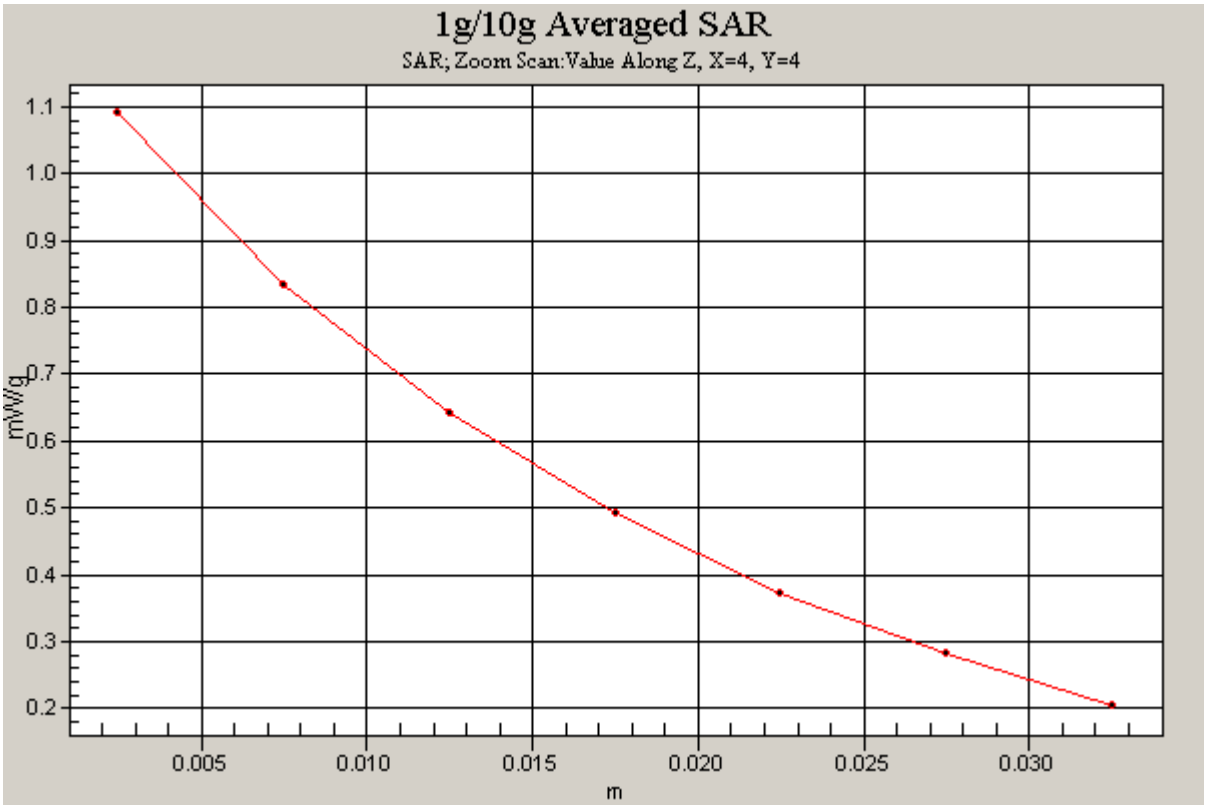


Figure 23 Right Hand Touch Cheek CDMA Cellular Channel 384



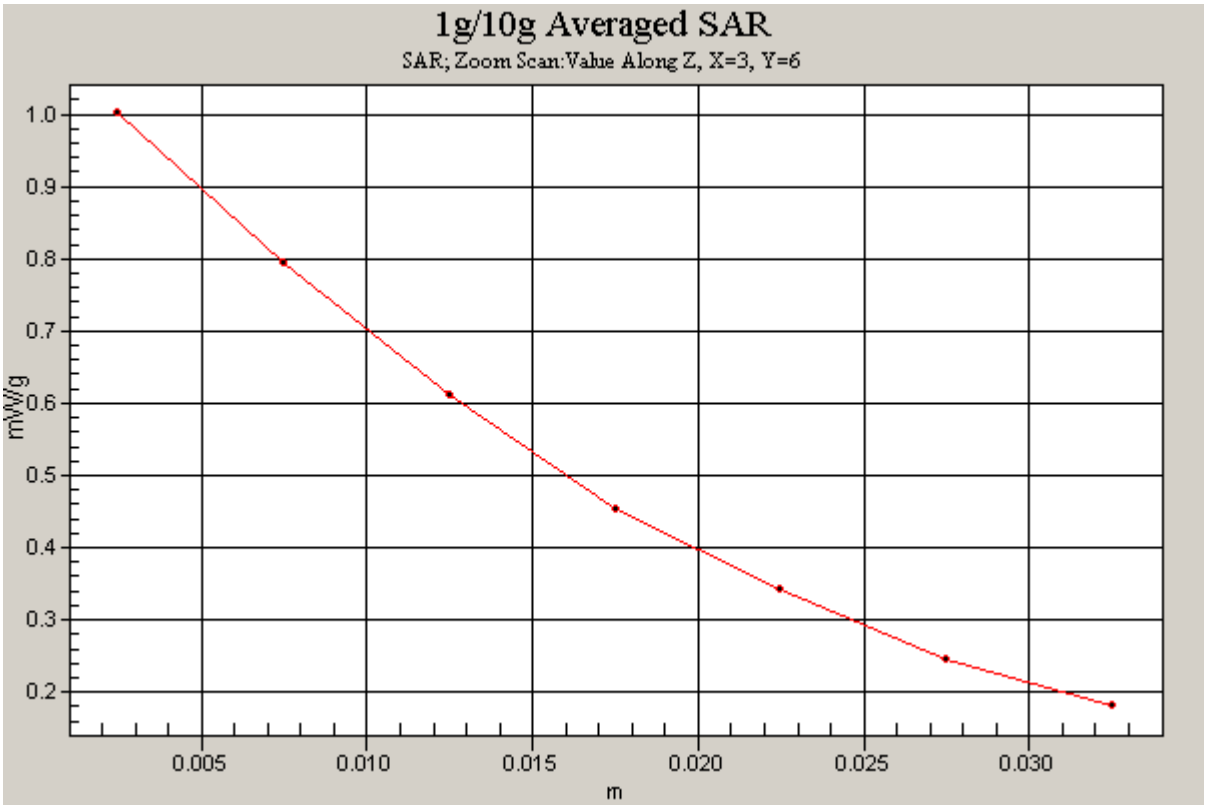


Figure 24 Z-Scan at power reference point (Right Hand Touch Cheek CDMA Cellular Channel 384)

Date/Time: 2/18/2009 12:58:07 PM

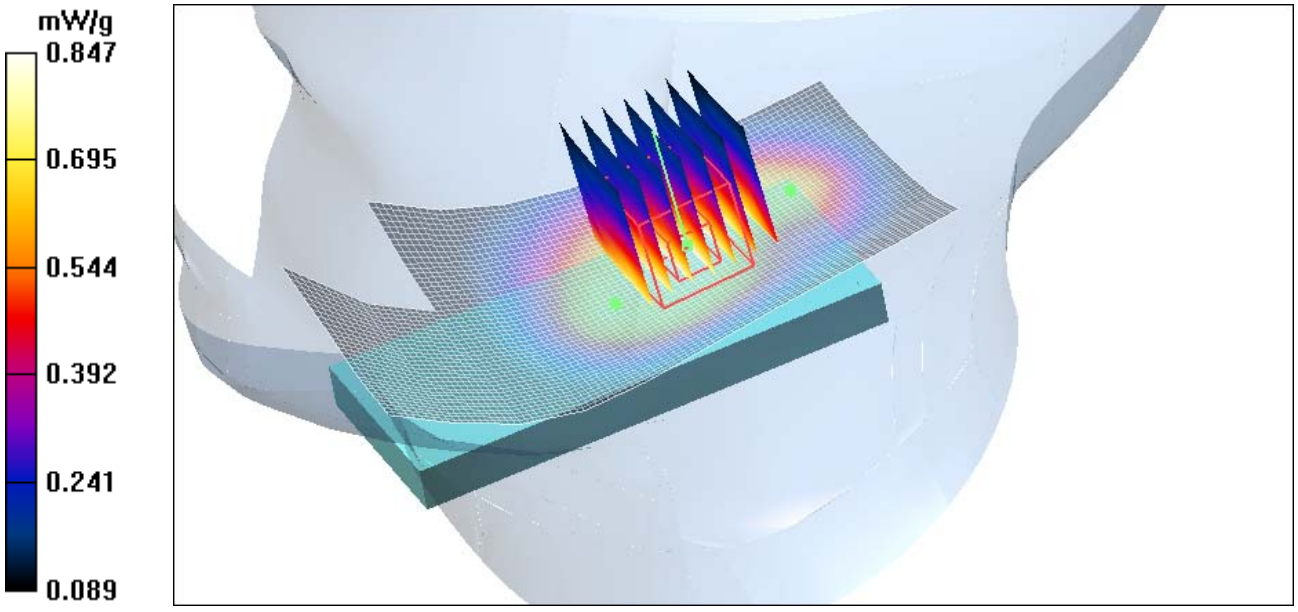
CDMA Cellular Right Cheek Low

Communication System: CDMA Cellular; Frequency: 824.7 MHz;Duty Cycle: 1:1
Medium parameters used: f = 825 MHz; σ = 0.924 mho/m; ε_r = 43.5; 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 (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.840 mW/g

Cheek Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 25.2 V/m; Power Drift = 0.177 dB
Peak SAR (extrapolated) = 0.976 W/kg
SAR(1 g) = 0.744 mW/g; SAR(10 g) = 0.545 mW/g
Maximum value of SAR (measured) = 0.847 mW/g



Communication System: CDMA Cellular; Frequency: 824.7 MHz;Duty Cycle: 1:1
Medium parameters used: f = 825 MHz; σ = 0.924 mho/m; ε_r = 43.5; 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 (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.840 mW/g

Cheek Low/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 25.2 V/m; Power Drift = 0.177 dB
Peak SAR (extrapolated) = 0.944 W/kg
SAR(1 g) = 0.706 mW/g; SAR(10 g) = 0.490 mW/g
Maximum value of SAR (measured) = 0.837 mW/g

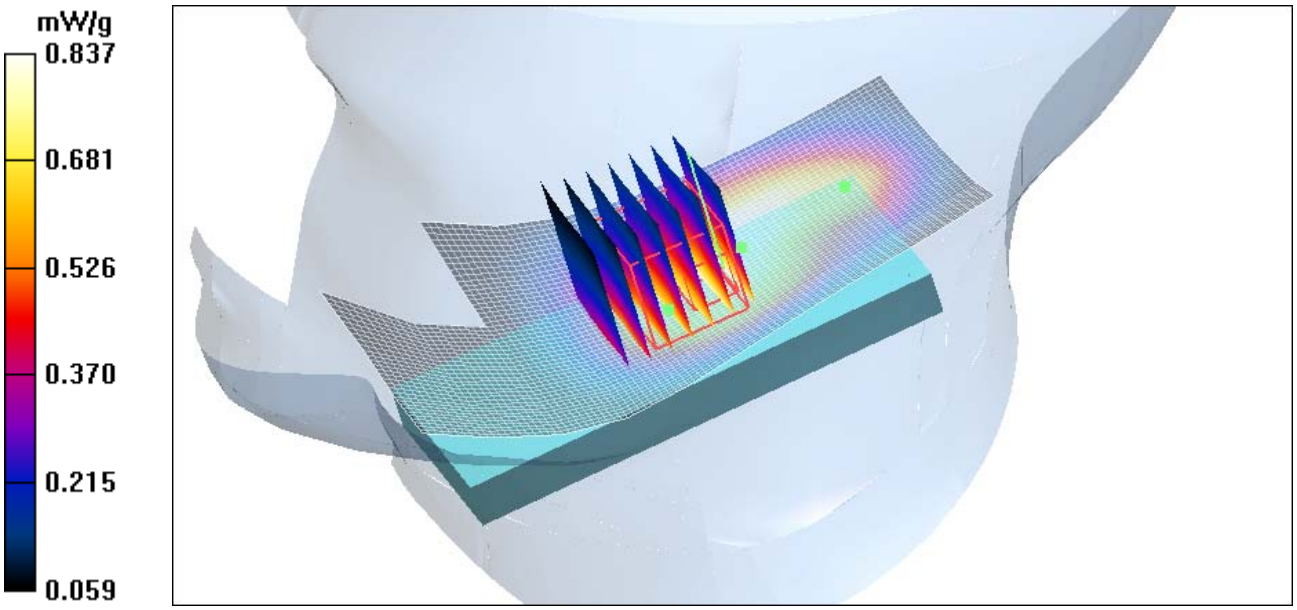
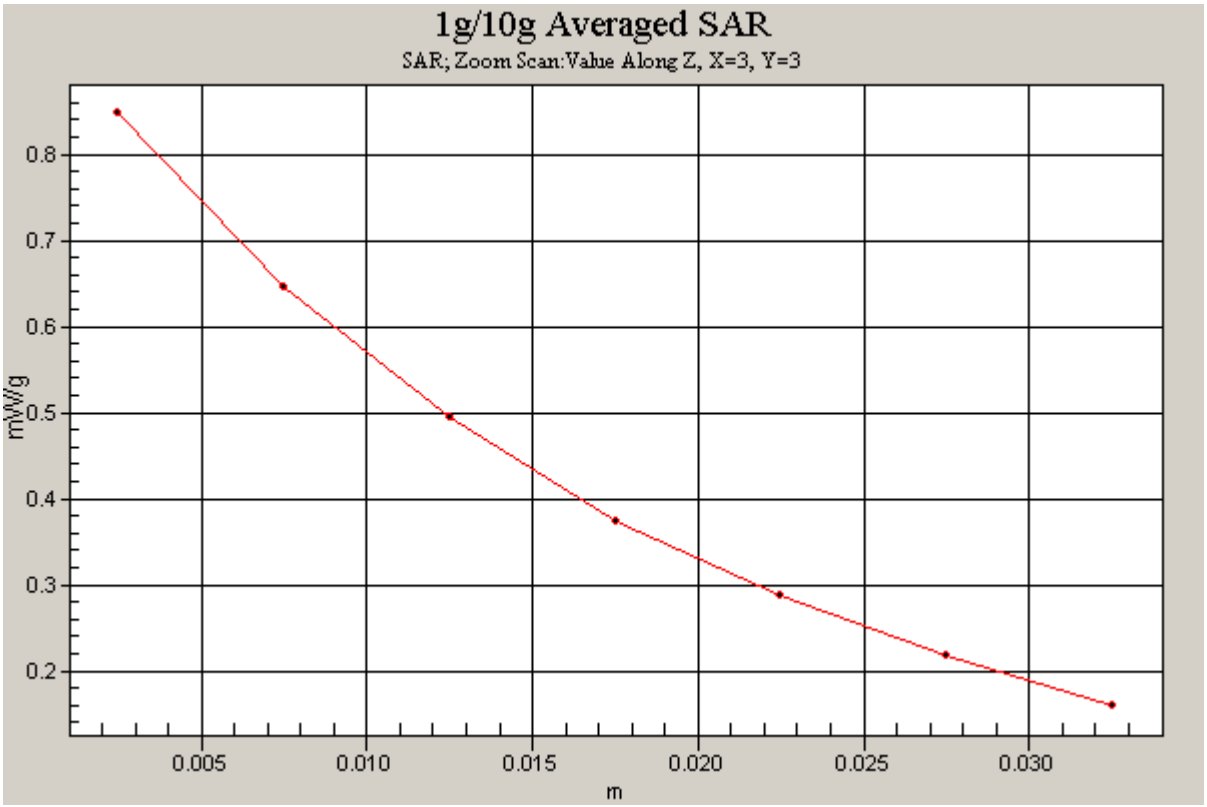


Figure 25 Right Hand Touch Cheek CDMA Cellular Channel 1013



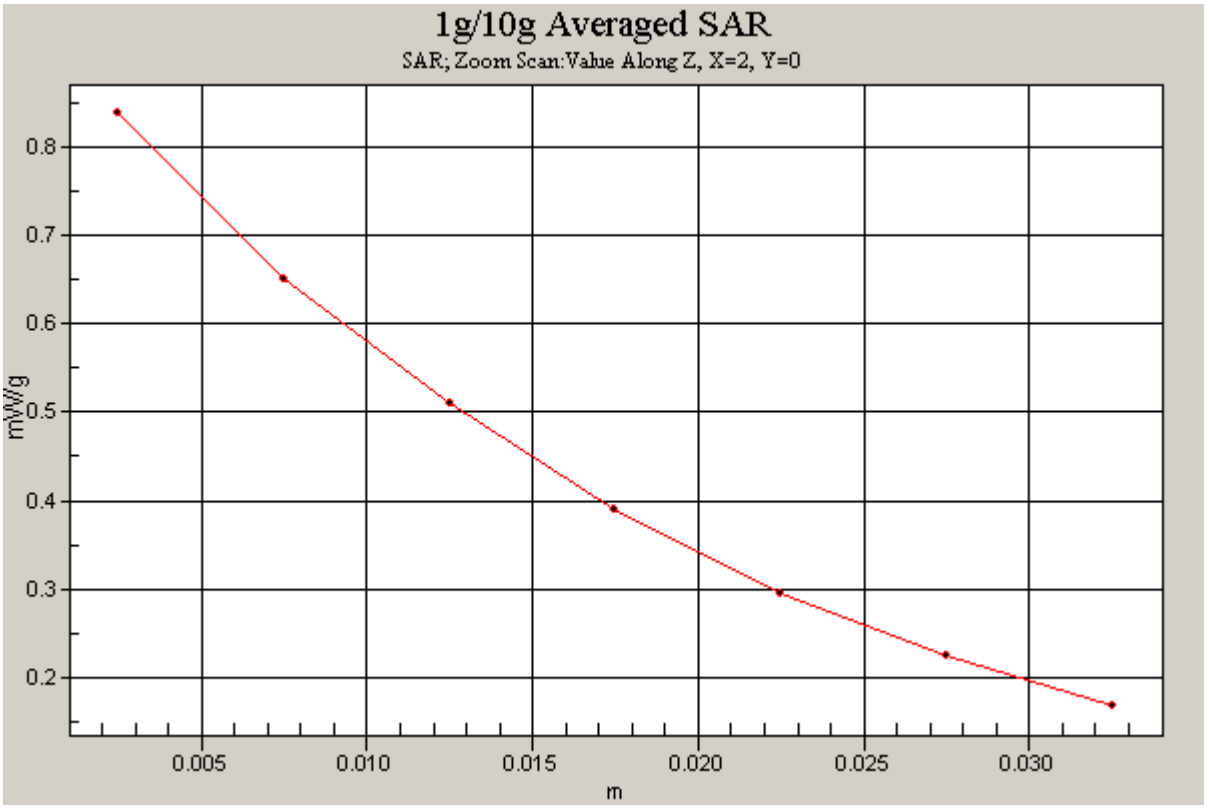


Figure 26 Z-Scan at power reference point (Right Hand Touch Cheek CDMA Cellular Channel 1013)

Date/Time: 2/18/2009 1:37:01 PM

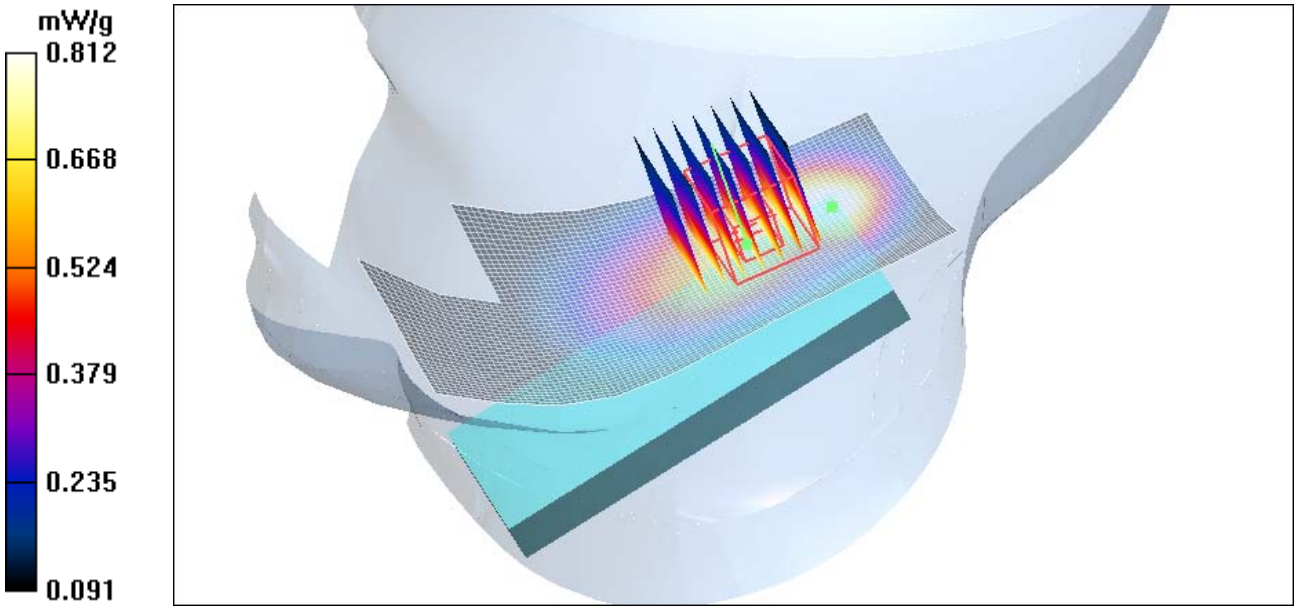
CDMA Cellular Right Tilt High

Communication System: CDMA Cellular; Frequency: 848.31 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 848.31 MHz; σ = 0.947 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

Tilt High/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.969 mW/g

Tilt High/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 27.7 V/m; Power Drift = -0.035 dB
Peak SAR (extrapolated) = 0.930 W/kg
SAR(1 g) = 0.714 mW/g; SAR(10 g) = 0.531 mW/g
Maximum value of SAR (measured) = 0.812 mW/g



Communication System: CDMA Cellular; Frequency: 848.31 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 848.31 MHz; σ = 0.947 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

Tilt High/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.969 mW/g

Tilt High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 27.7 V/m; Power Drift = -0.035 dB
Peak SAR (extrapolated) = 1.16 W/kg
SAR(1 g) = 0.702 mW/g; SAR(10 g) = 0.460 mW/g
Maximum value of SAR (measured) = 0.888 mW/g

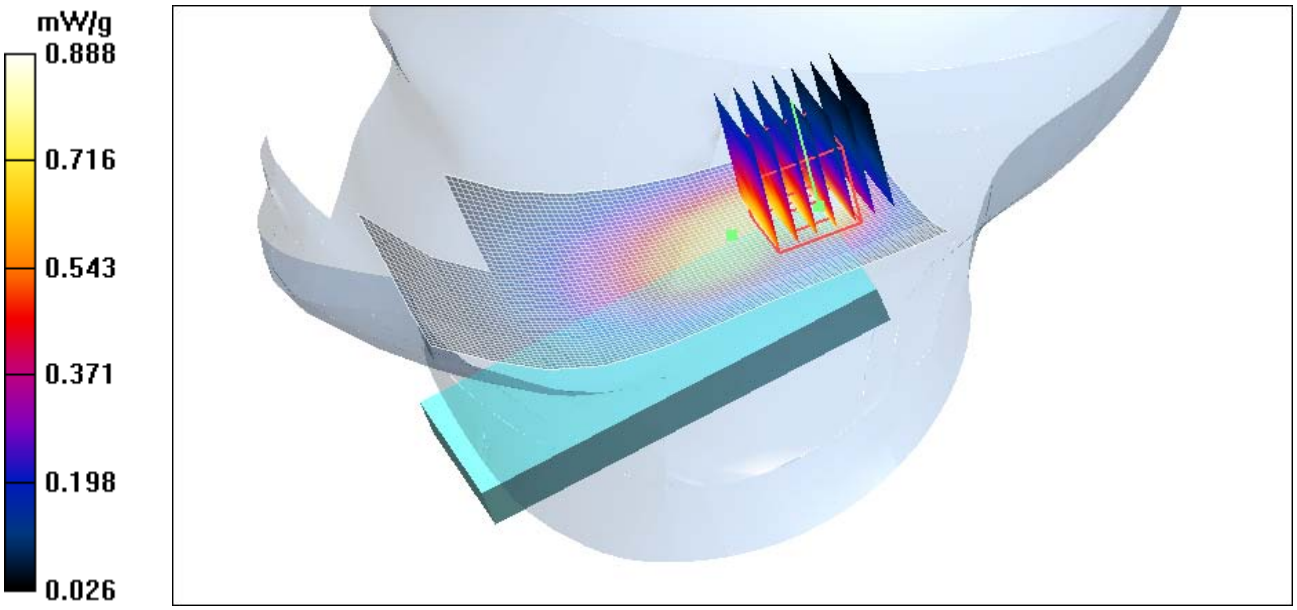
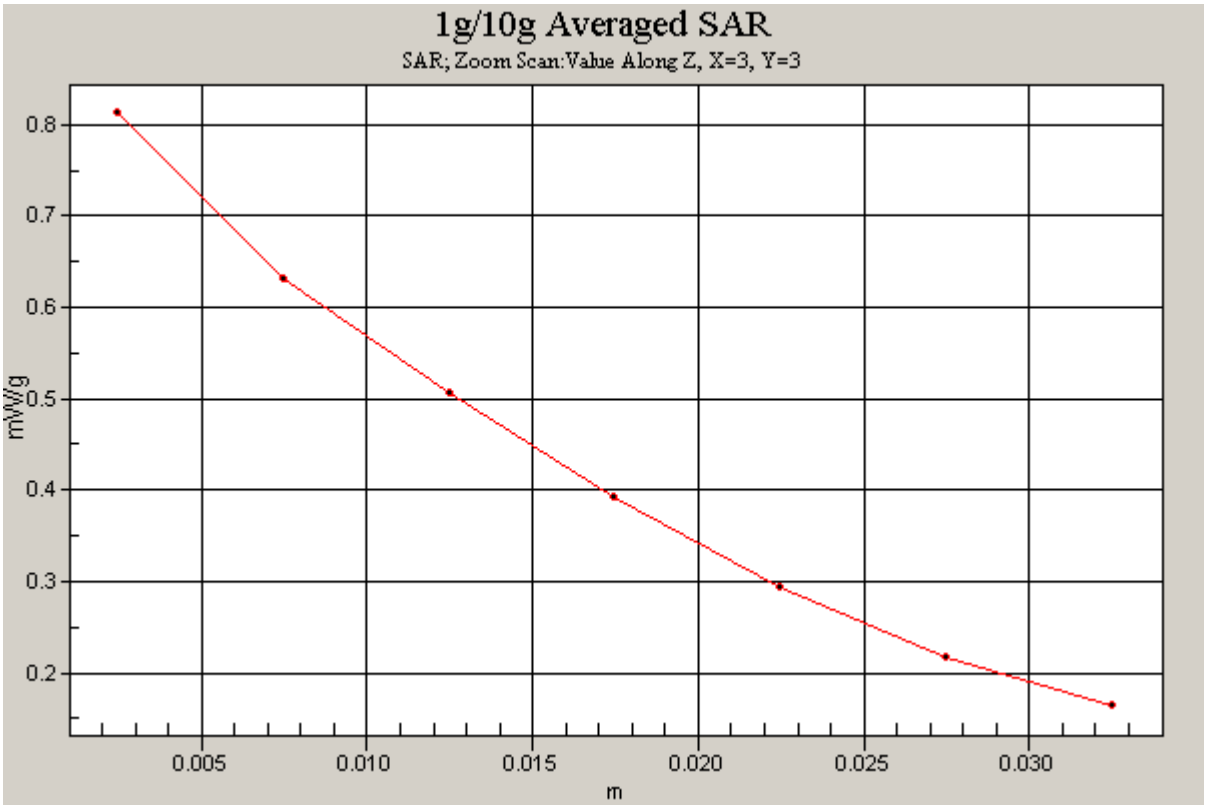


Figure 27 Right Hand Tilt 15°CDMA Cellular Channel 777



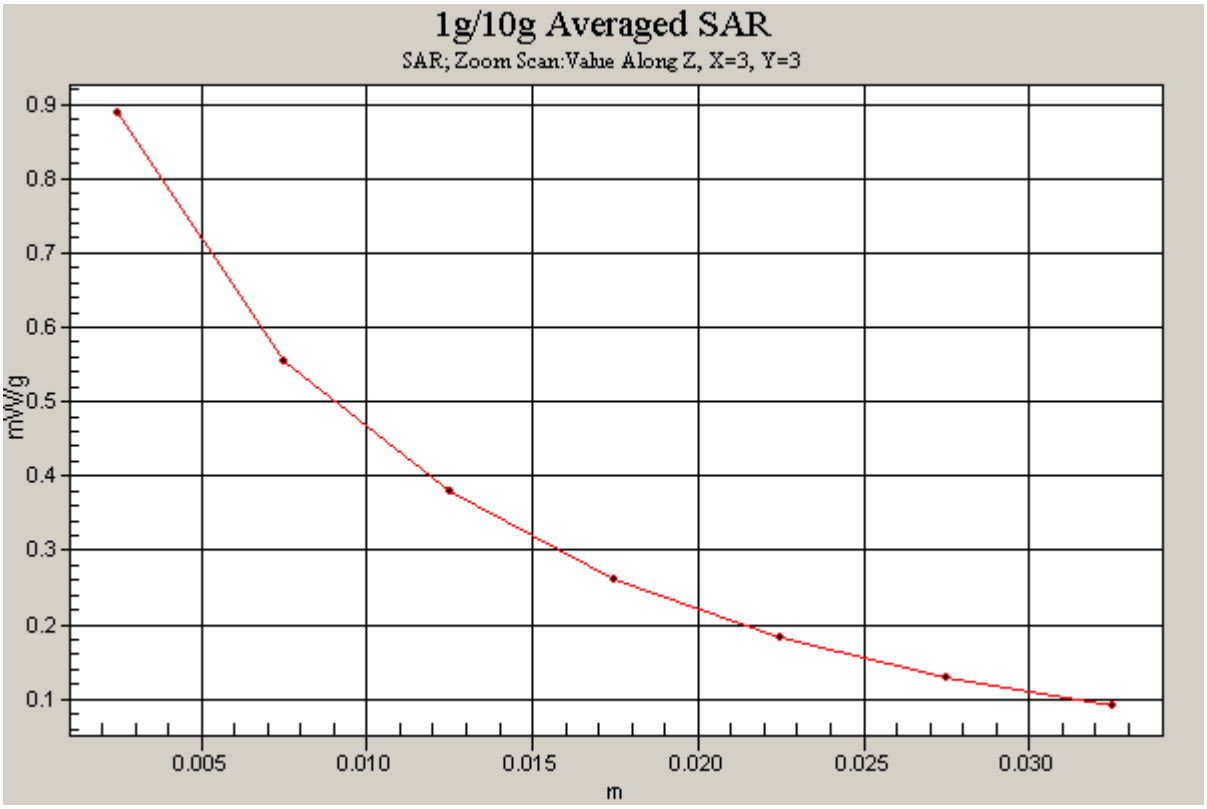


Figure 28 Z-Scan at power reference point (Right Hand Tilt 15°CDMA Cellular Channel 777)

Date/Time: 2/18/2009 2:11:52 PM

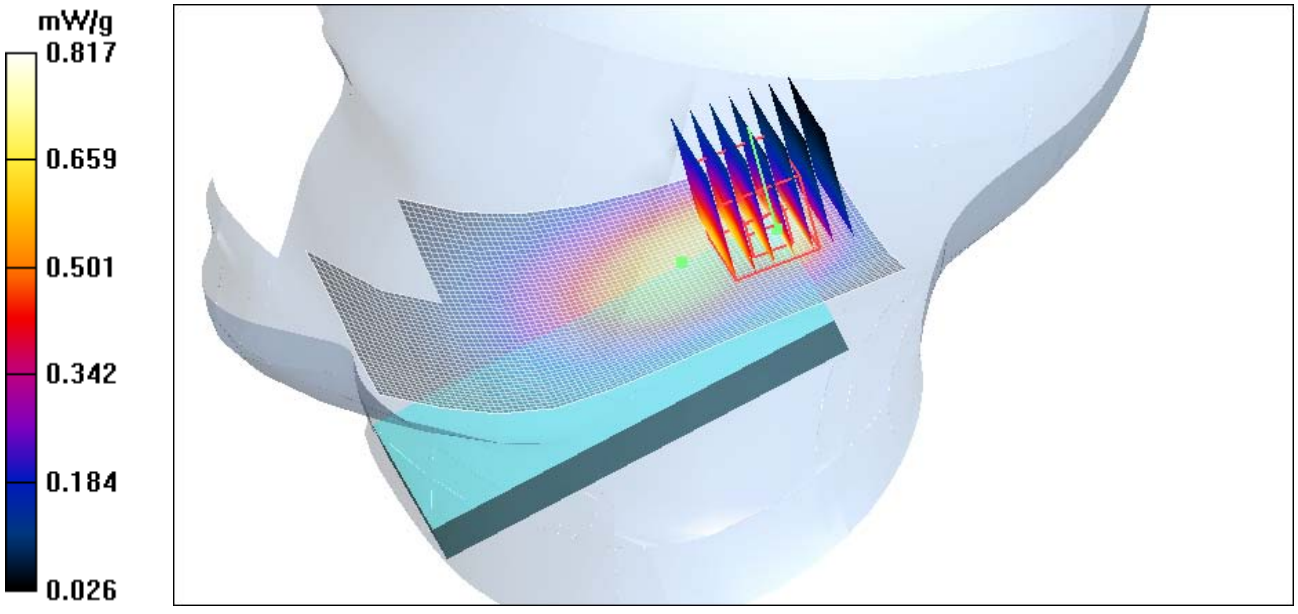
CDMA Cellular Right Tilt Middle

Communication System: CDMA Cellular; Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium parameters used: f = 837 MHz; σ = 0.936 mho/m; ε_r = 43.3; 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 (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.828 mW/g

Tilt Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 27.8 V/m; Power Drift = 0.104 dB
Peak SAR (extrapolated) = 1.03 W/kg
SAR(1 g) = 0.647 mW/g; SAR(10 g) = 0.429 mW/g
Maximum value of SAR (measured) = 0.817 mW/g



Communication System: CDMA Cellular; Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium parameters used: f = 837 MHz; σ = 0.936 mho/m; ε_r = 43.3; 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 (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.828 mW/g

Tilt Middle/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 27.8 V/m; Power Drift = 0.104 dB
Peak SAR (extrapolated) = 0.805 W/kg
SAR(1 g) = 0.621 mW/g; SAR(10 g) = 0.463 mW/g
Maximum value of SAR (measured) = 0.701 mW/g

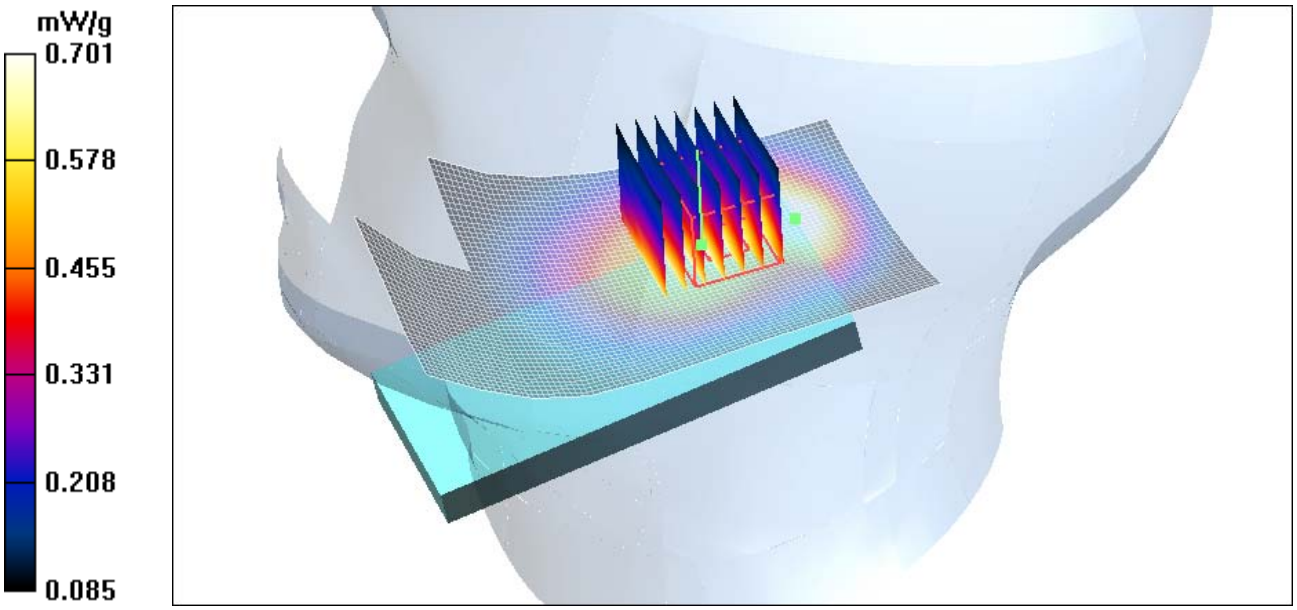
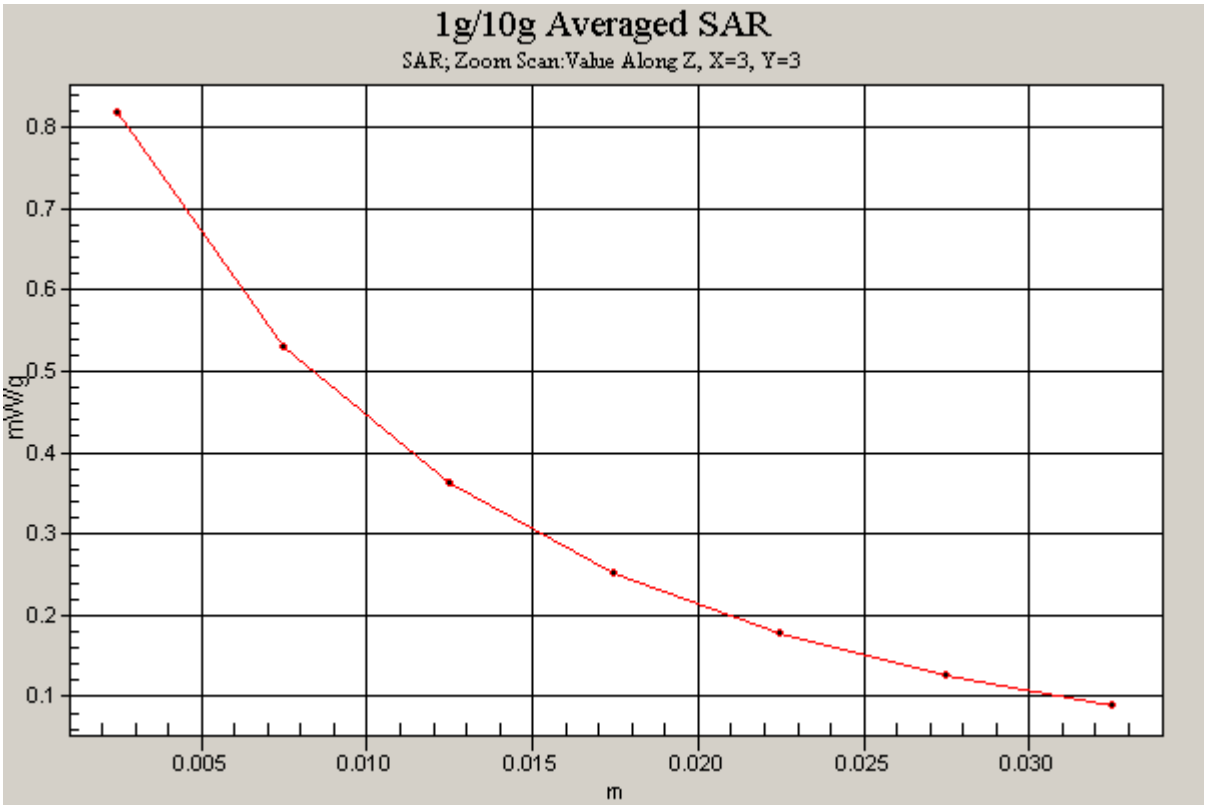


Figure 29 Right Hand Tilt 15°CDMA Cellular Channel 384



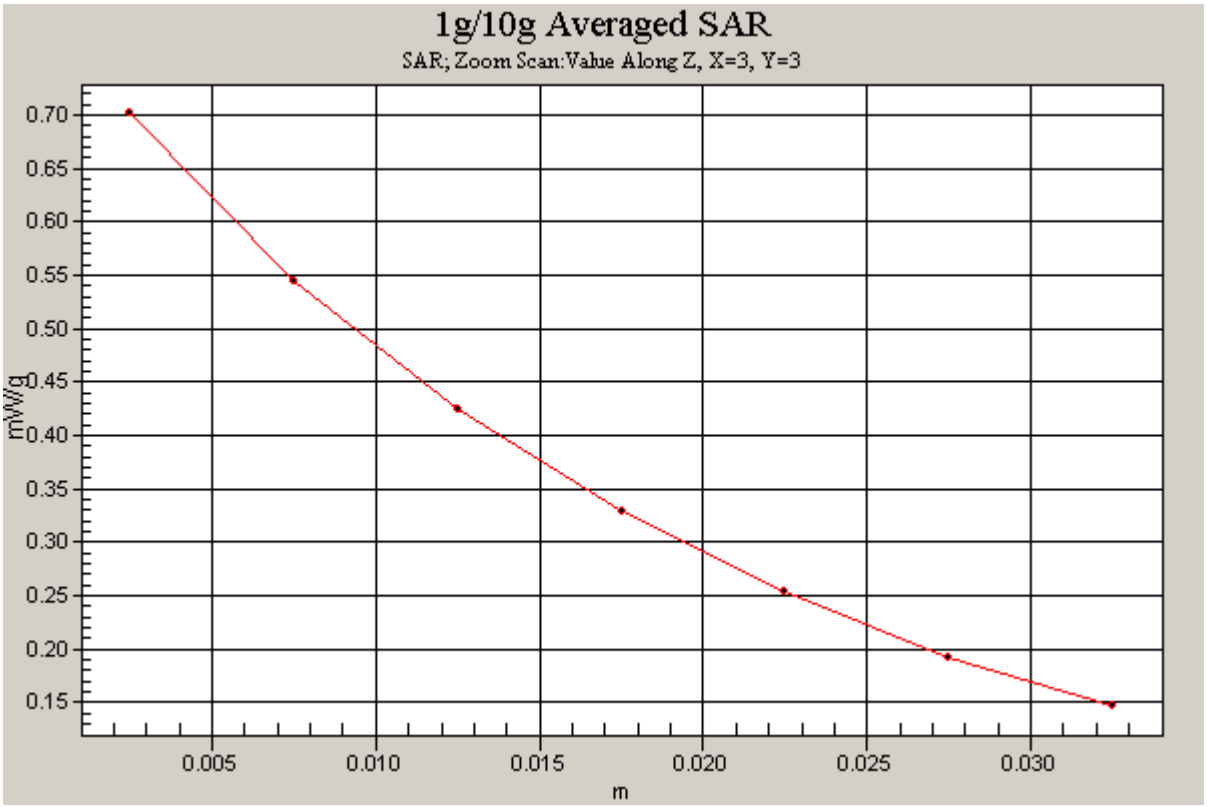


Figure 30 Z-Scan at power reference point (Right Hand Tilt 15°CDMA Cellular Channel 384)

Date/Time: 2/18/2009 2:48:20 PM

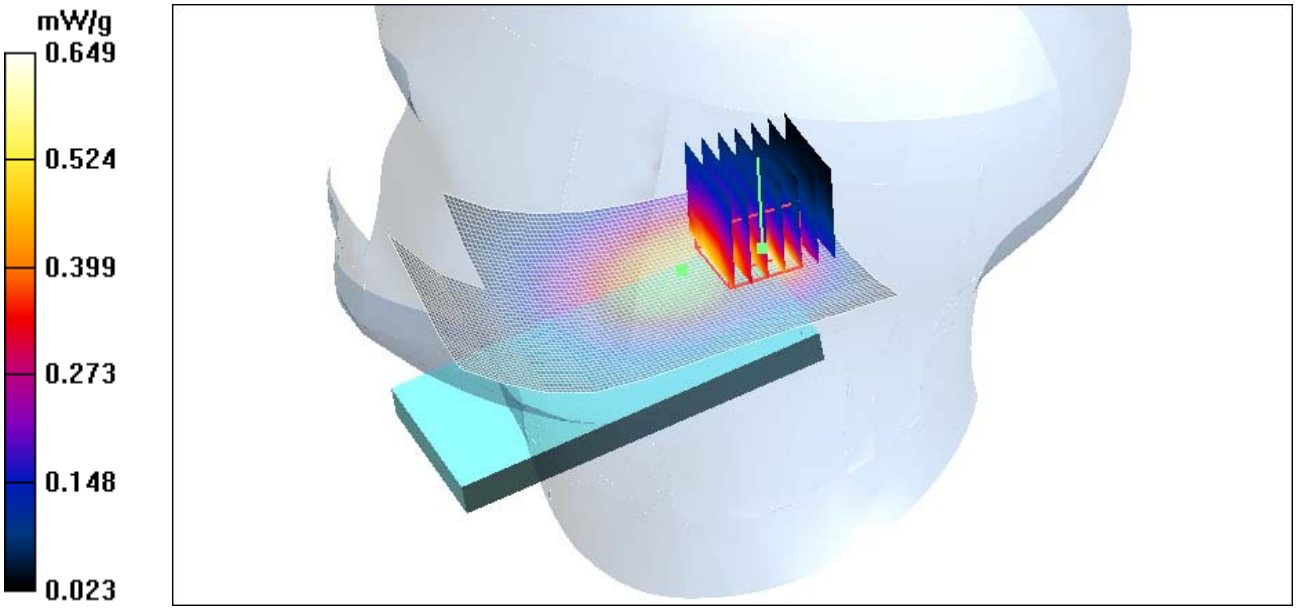
CDMA Cellular Right Tilt Low

Communication System: CDMA Cellular; Frequency: 824.7 MHz;Duty Cycle: 1:1
Medium parameters used: f = 825 MHz; σ = 0.924 mho/m; ε_r = 43.5; 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 Low/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.630 mW/g

Tilt Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 24.5 V/m; Power Drift = -0.123 dB
Peak SAR (extrapolated) = 0.834 W/kg
SAR(1 g) = 0.509 mW/g; SAR(10 g) = 0.337 mW/g
Maximum value of SAR (measured) = 0.649 mW/g



Communication System: CDMA Cellular; Frequency: 824.7 MHz;Duty Cycle: 1:1
Medium parameters used: f = 825 MHz; σ = 0.924 mho/m; ε_r = 43.5; 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 Low/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.630 mW/g

Tilt Low/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 24.5 V/m; Power Drift = -0.123 dB
Peak SAR (extrapolated) = 0.878 W/kg
SAR(1 g) = 0.494 mW/g; SAR(10 g) = 0.369 mW/g
Maximum value of SAR (measured) = 0.555 mW/g

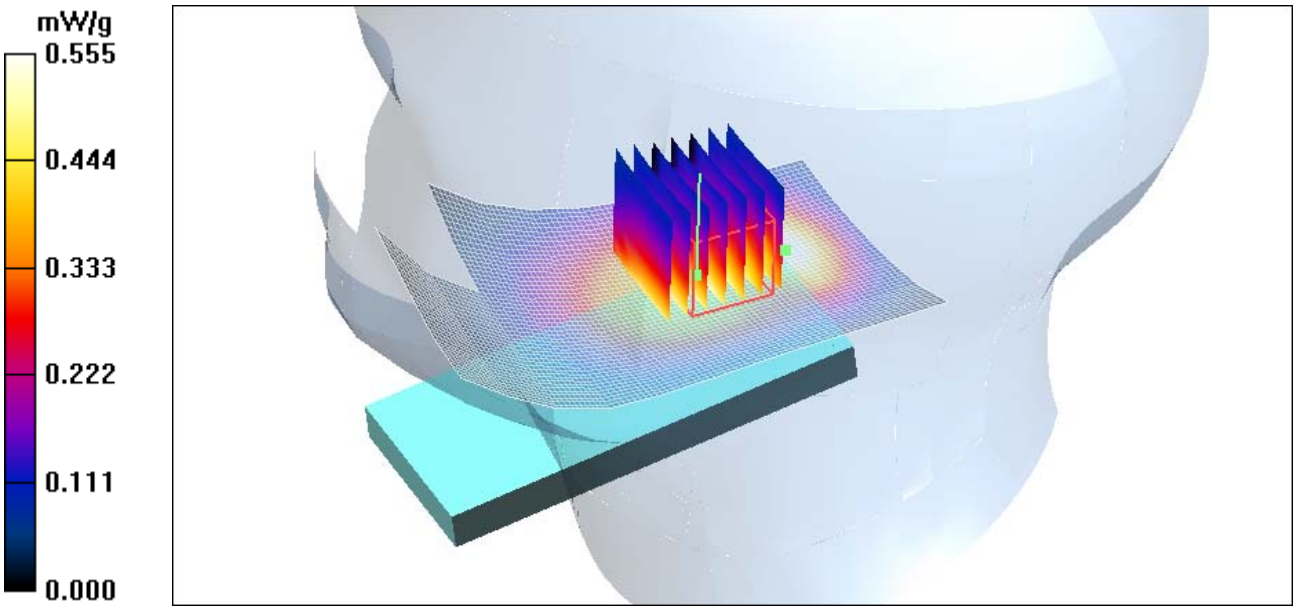
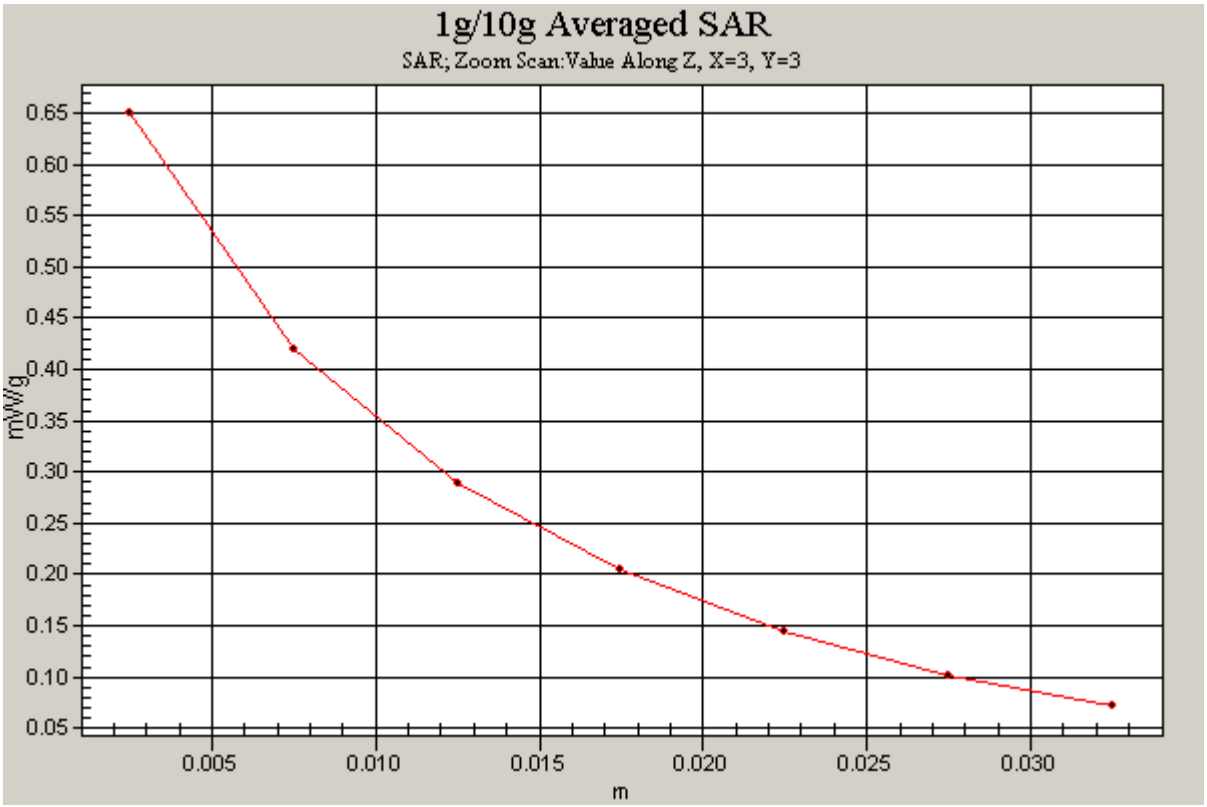


Figure 31 Right Hand Tilt 15°CDMA Cellular Channel 1013



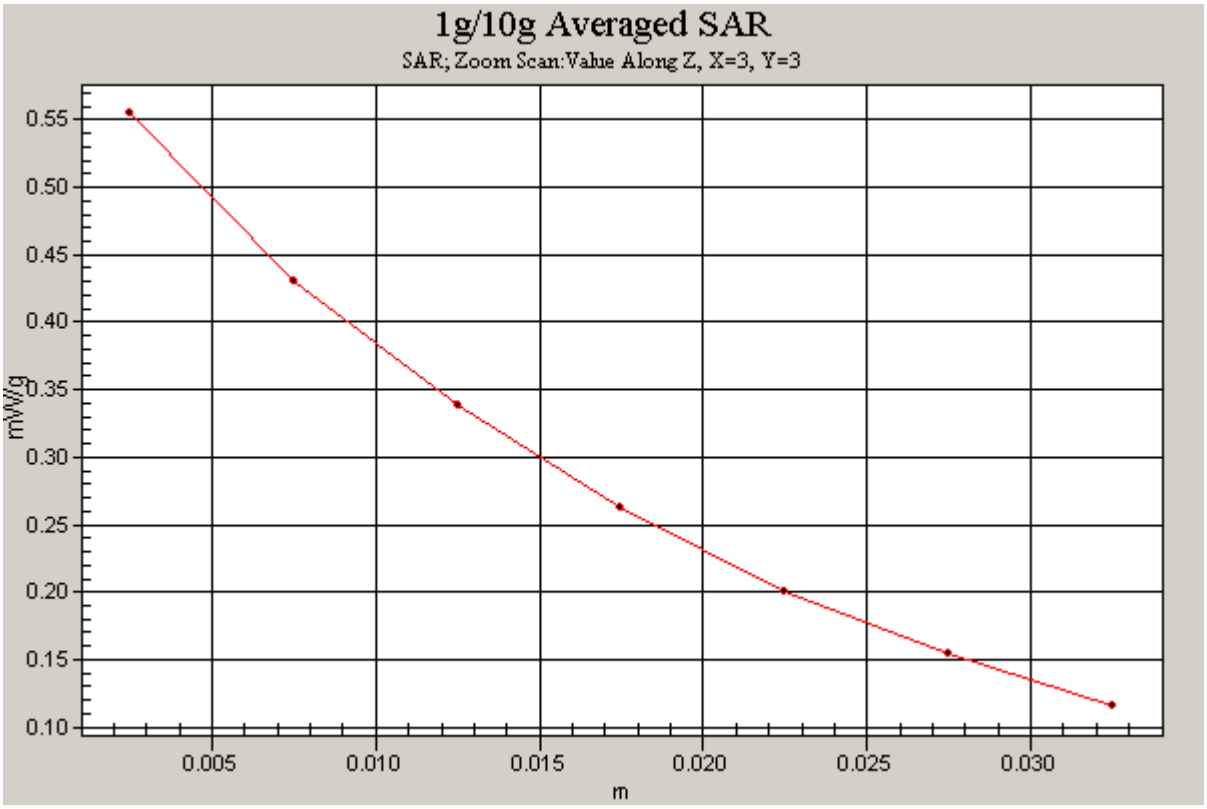


Figure 32 Z-Scan at power reference point (Right Hand Tilt 15°CDMA Cellular Channel 1013)

Date/Time: 2/18/2009 3:21:41 PM

CDMA Cellular Towards Ground High

Communication System: CDMA Cellular; Frequency: 848.31 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 848.31 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 (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.17 mW/g

Towards Ground High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 21.9 V/m; Power Drift = 0.181 dB
Peak SAR (extrapolated) = 1.44 W/kg
SAR(1 g) = 1.07 mW/g; SAR(10 g) = 0.763 mW/g
Maximum value of SAR (measured) = 1.13 mW/g

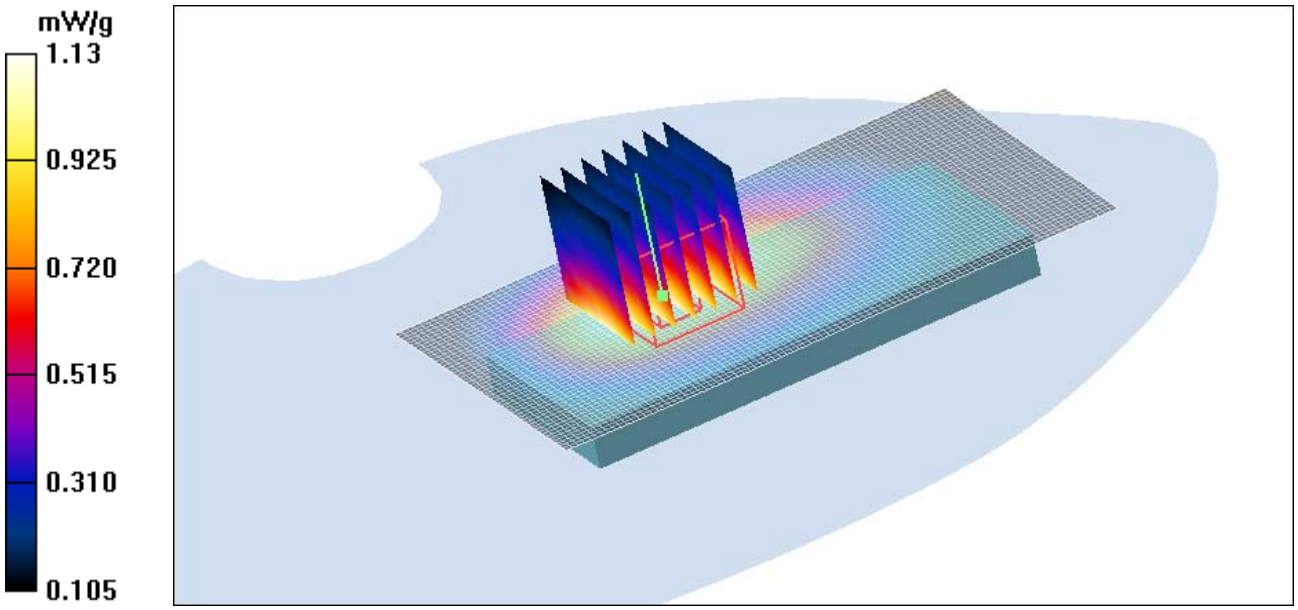


Figure 33 Body, Towards Ground, CDMA Cellular Channel 777

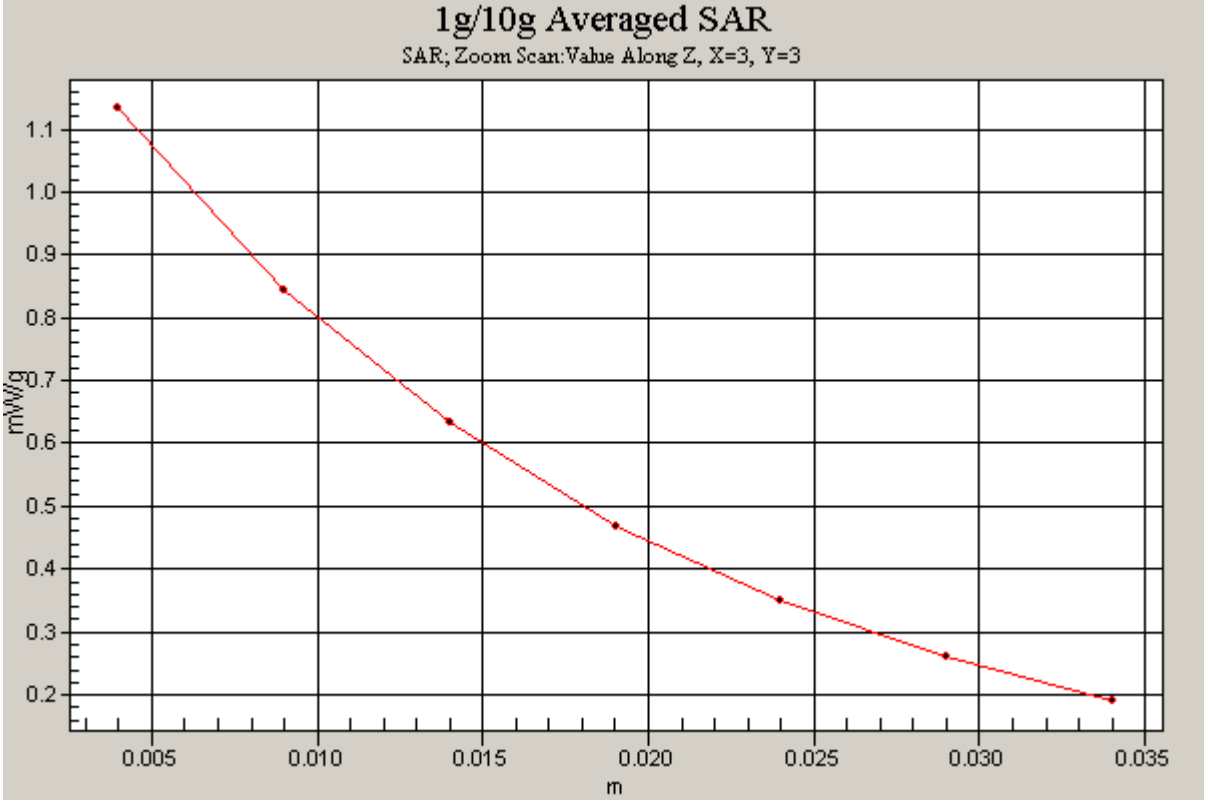


Figure 34 Z-Scan at power reference point (Body, Towards Ground, CDMA Cellular Channel 777)

Date/Time: 2/18/2009 3:43:34 PM

CDMA Cellular Towards Ground Middle

Communication System: CDMA Cellular; Frequency: 836.52 MHz;Duty Cycle: 1:1
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 (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.23 mW/g

Towards Ground Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 23.5 V/m; Power Drift = -0.031 dB
Peak SAR (extrapolated) = 1.55 W/kg
SAR(1 g) = 1.14 mW/g; SAR(10 g) = 0.792 mW/g
Maximum value of SAR (measured) = 1.21 mW/g

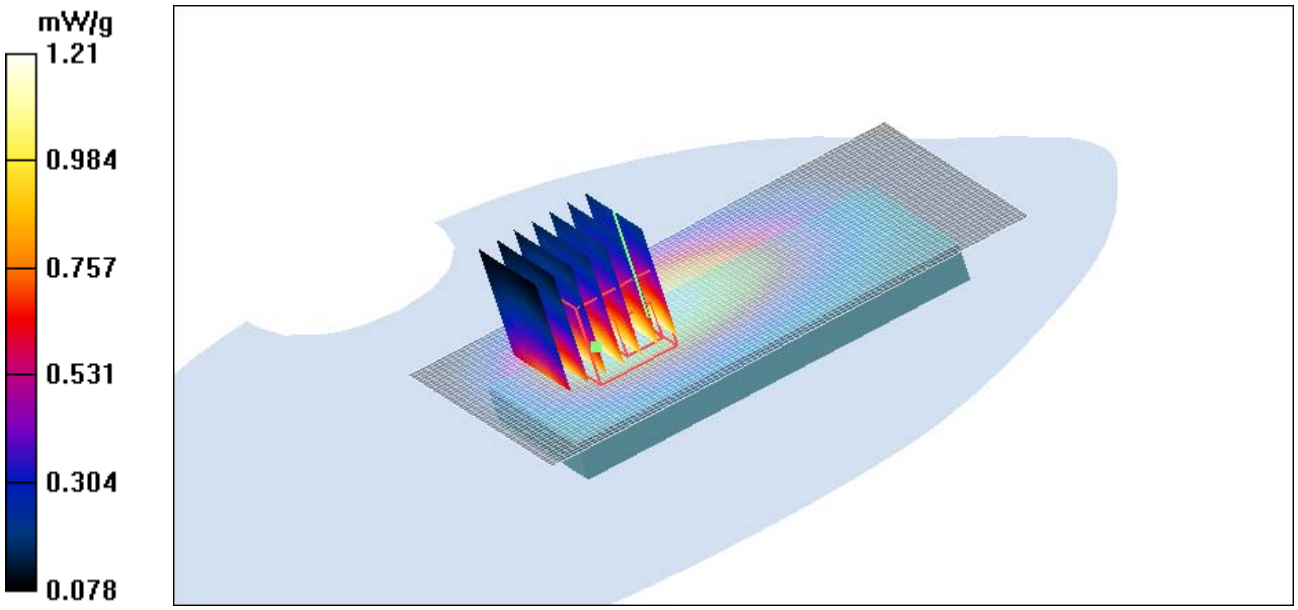


Figure 35 Body, Towards Ground, CDMA Cellular Channel 384

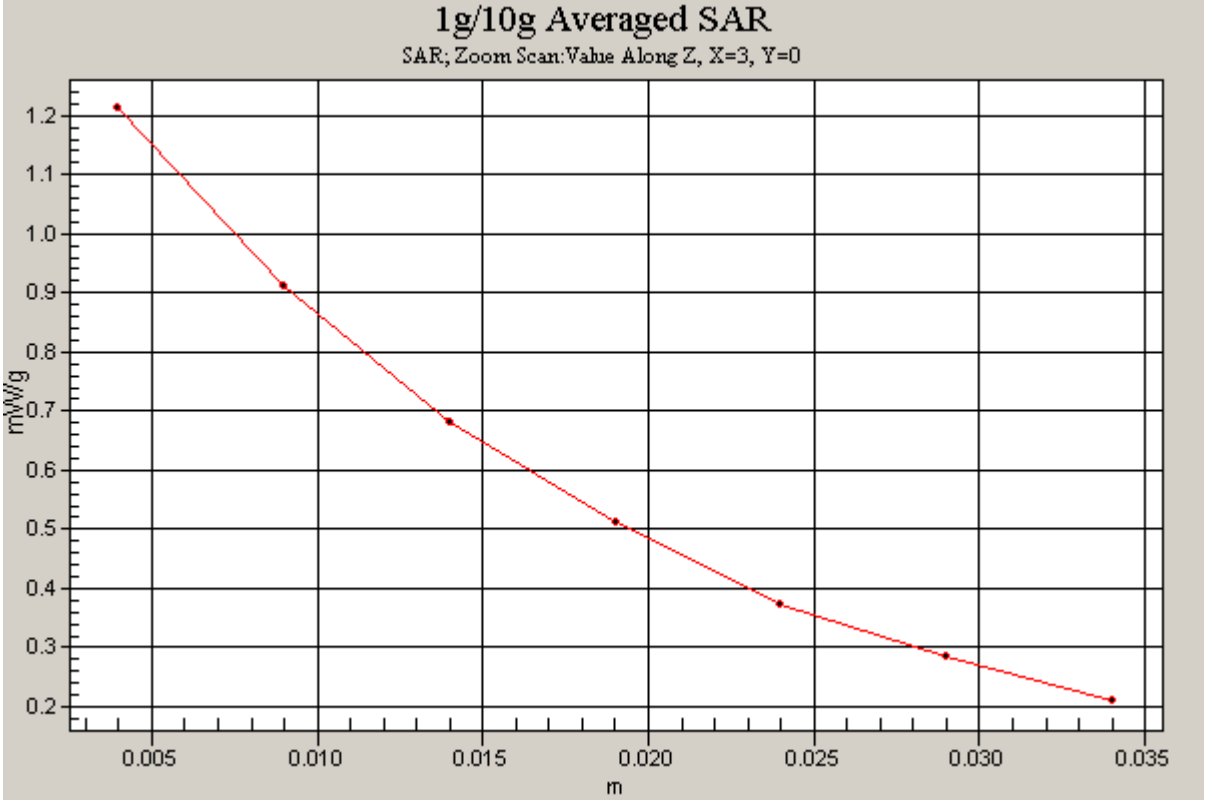


Figure 36 Z-Scan at power reference point (Body, Towards Ground, CDMA Cellular Channel 384)

Date/Time: 2/18/2009 4:05:34 PM

CDMA Cellular Towards Ground Low

Communication System: CDMA Cellular; Frequency: 824.7 MHz;Duty Cycle: 1:1
Medium parameters used: f = 825 MHz; σ = 0.95 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 (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.35 mW/g

Towards Ground Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 21.2 V/m; Power Drift = 0.064 dB
Peak SAR (extrapolated) = 1.69 W/kg
SAR(1 g) = 1.24 mW/g; SAR(10 g) = 0.856 mW/g
Maximum value of SAR (measured) = 1.32 mW/g

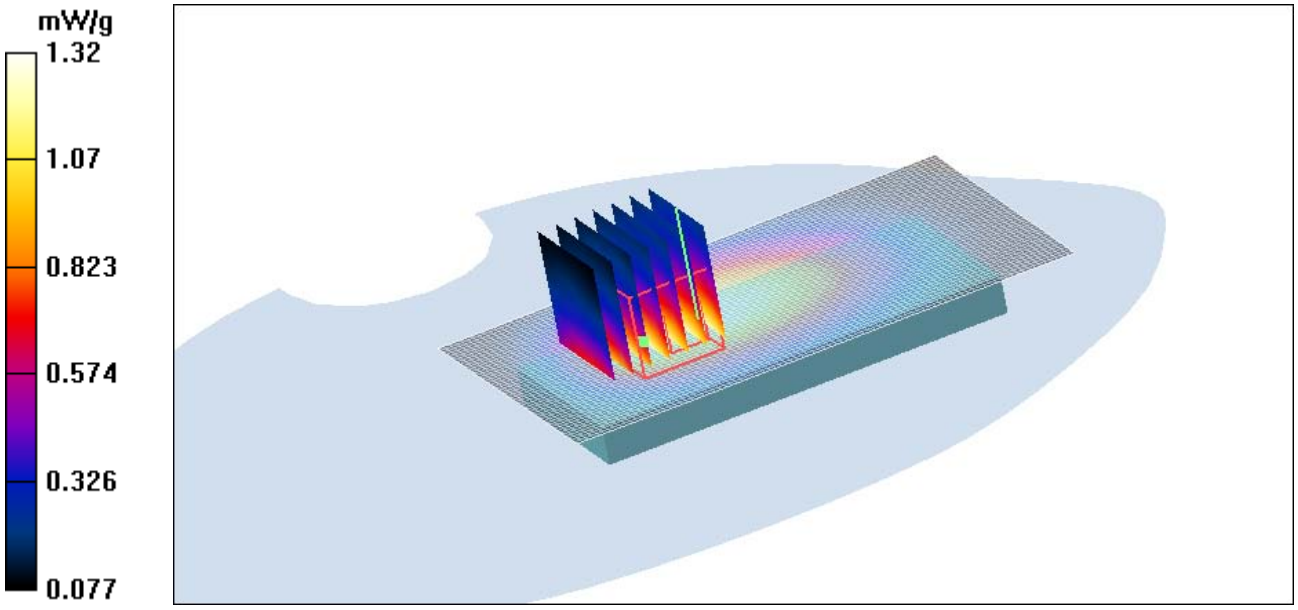


Figure 37 Body, Towards Ground, CDMA Cellular Channel 1013

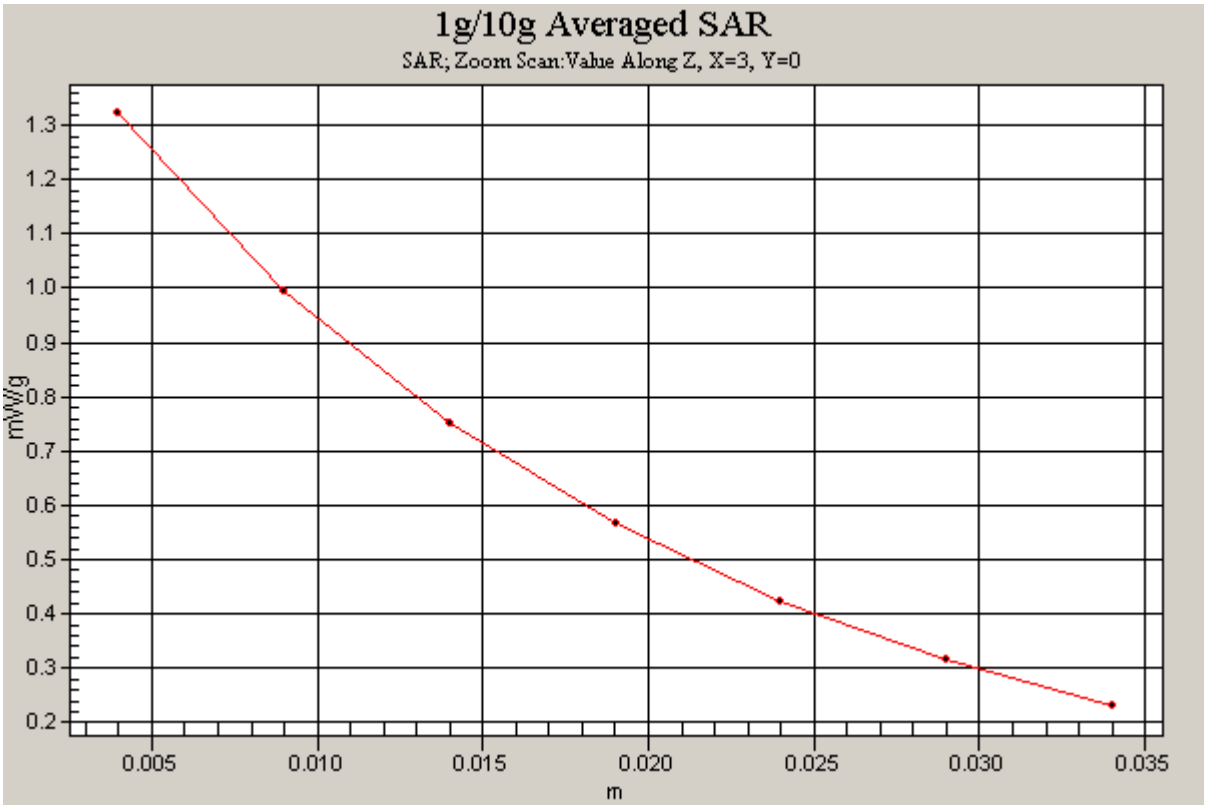


Figure 38 Z-Scan at power reference point (Body, Towards Ground, CDMA Cellular Channel 1013)

Date/Time: 2/18/2009 4:26:54 PM

CDMA Cellular Towards Phantom High

Communication System: CDMA Cellular; Frequency: 848.31 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 848.31 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 (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.648 mW/g

Towards Phantom High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 17.7 V/m; Power Drift = 0.130 dB
Peak SAR (extrapolated) = 1.48 W/kg
SAR(1 g) = 0.612 mW/g; SAR(10 g) = 0.446 mW/g
Maximum value of SAR (measured) = 0.643 mW/g

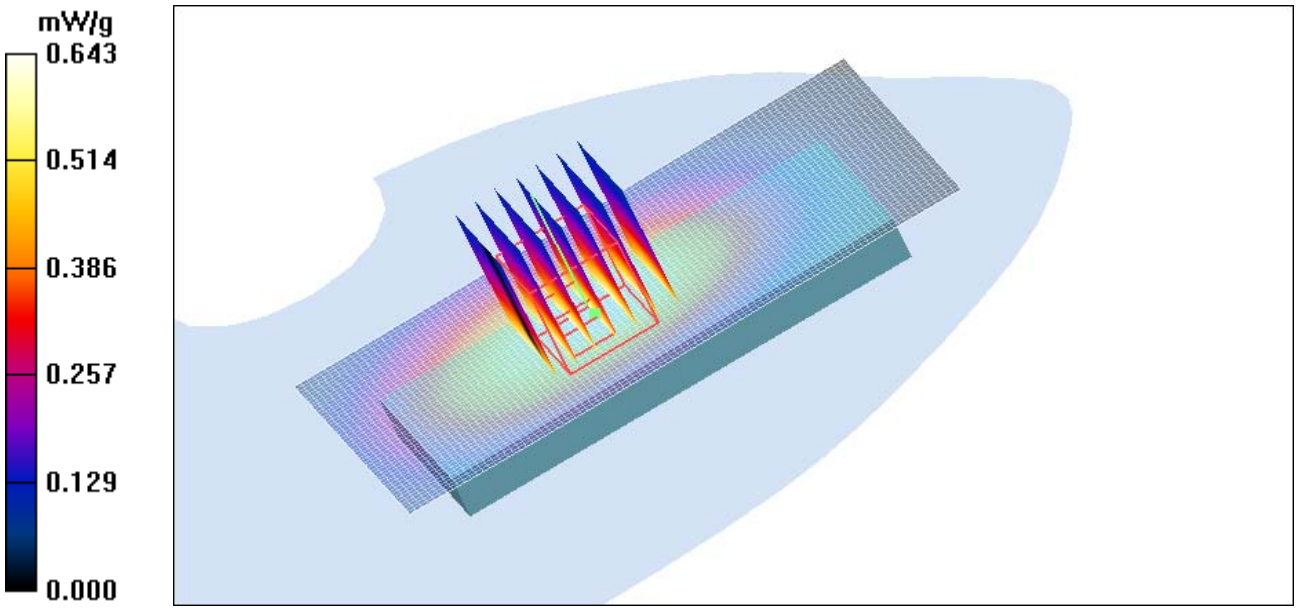


Figure 39 Body, Towards Phantom, CDMA Cellular Channel 777

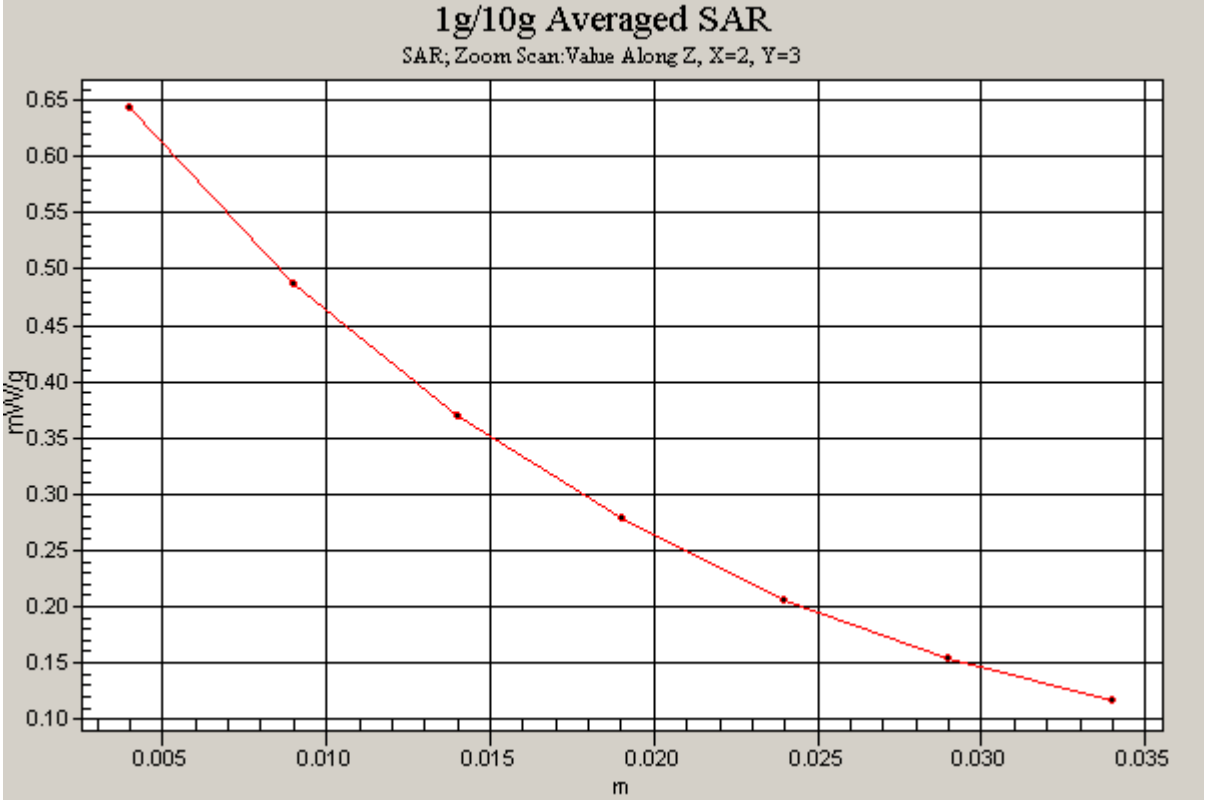


Figure 40 Z-Scan at power reference point (Body, Towards Phantom, , CDMA Cellular Channel 777)

Date/Time: 2/18/2009 4:51:54 PM

CDMA Cellular Towards Phantom Middle

Communication System: CDMA Cellular; Frequency: 836.52 MHz;Duty Cycle: 1:1
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 (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.499 mW/g

Towards Phantom Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 16.6 V/m; Power Drift = 0.069 dB
Peak SAR (extrapolated) = 0.627 W/kg
SAR(1 g) = 0.462 mW/g; SAR(10 g) = 0.334 mW/g
Maximum value of SAR (measured) = 0.496 mW/g

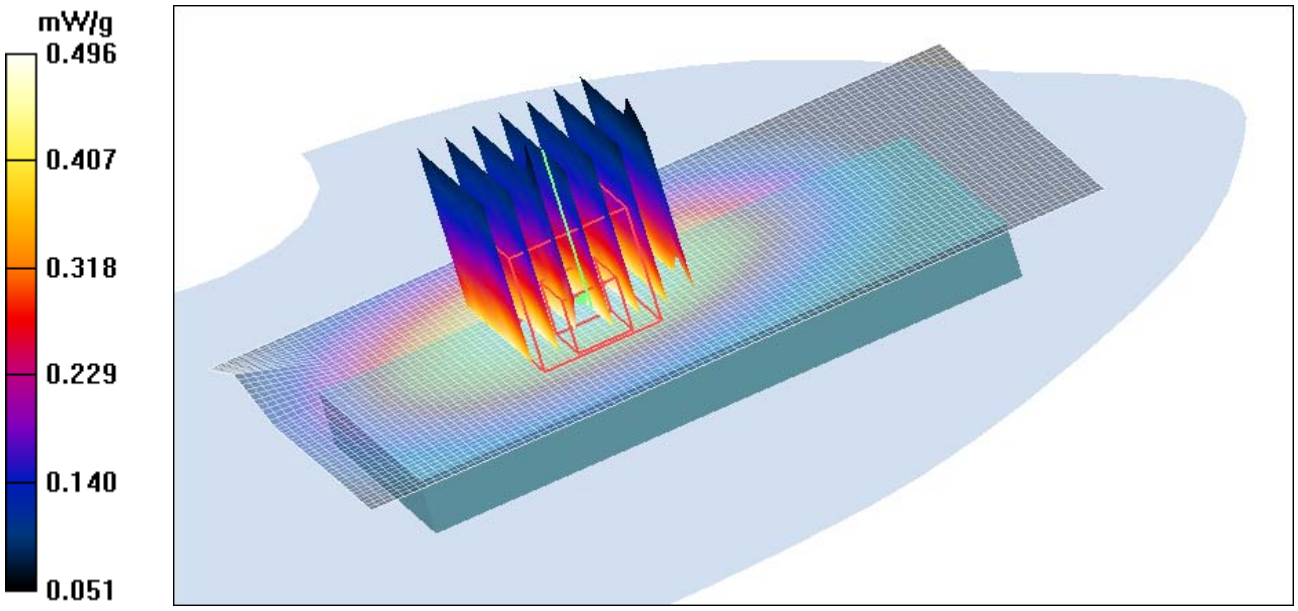


Figure 41 Body, Towards Phantom, CDMA Cellular Channel 384

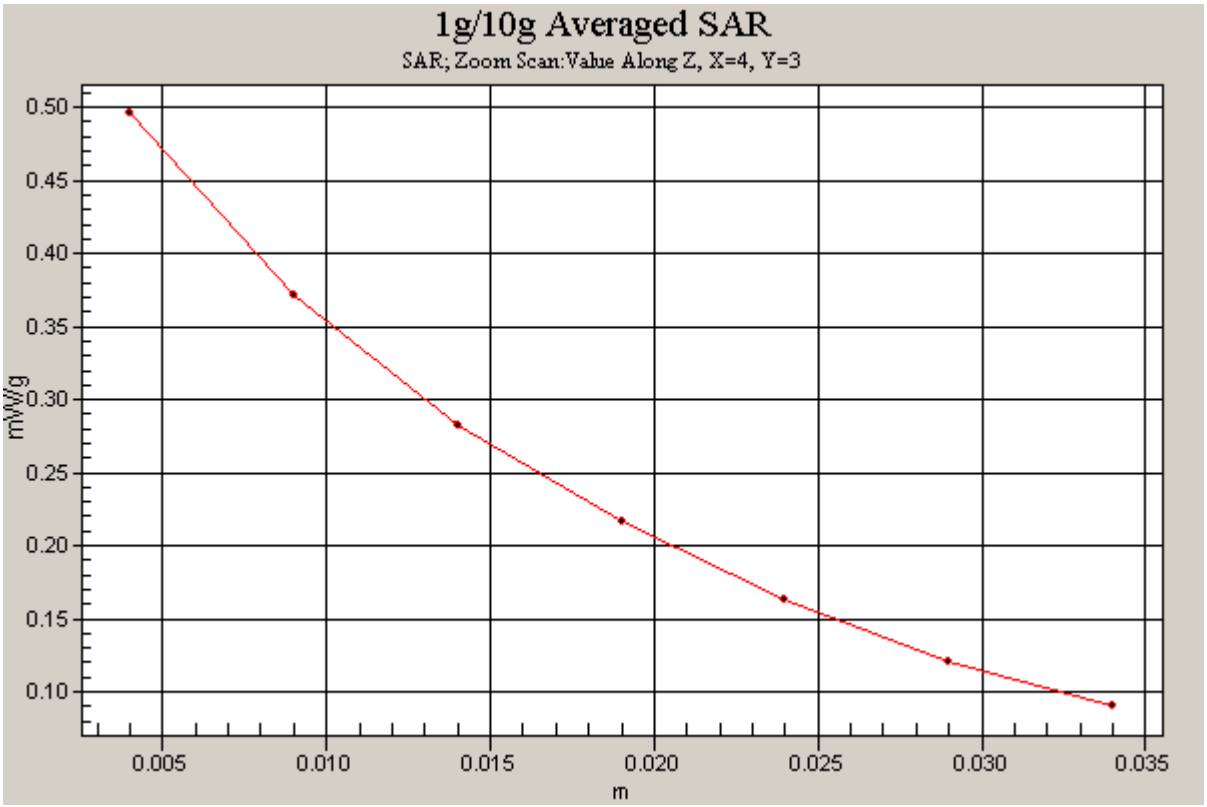


Figure 42 Z-Scan at power reference point (Body, Towards Phantom, , CDMA Cellular Channel 384)

Date/Time: 2/18/2009 5:22:11 PM

CDMA Cellular Towards Phantom Low

Communication System: CDMA Cellular; Frequency: 824.7 MHz;Duty Cycle: 1:1
Medium parameters used: f = 825 MHz; σ = 0.95 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 (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.383 mW/g

Towards Phantom Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.7 V/m; Power Drift = 0.011 dB
Peak SAR (extrapolated) = 0.471 W/kg
SAR(1 g) = 0.362 mW/g; SAR(10 g) = 0.264 mW/g
Maximum value of SAR (measured) = 0.385 mW/g

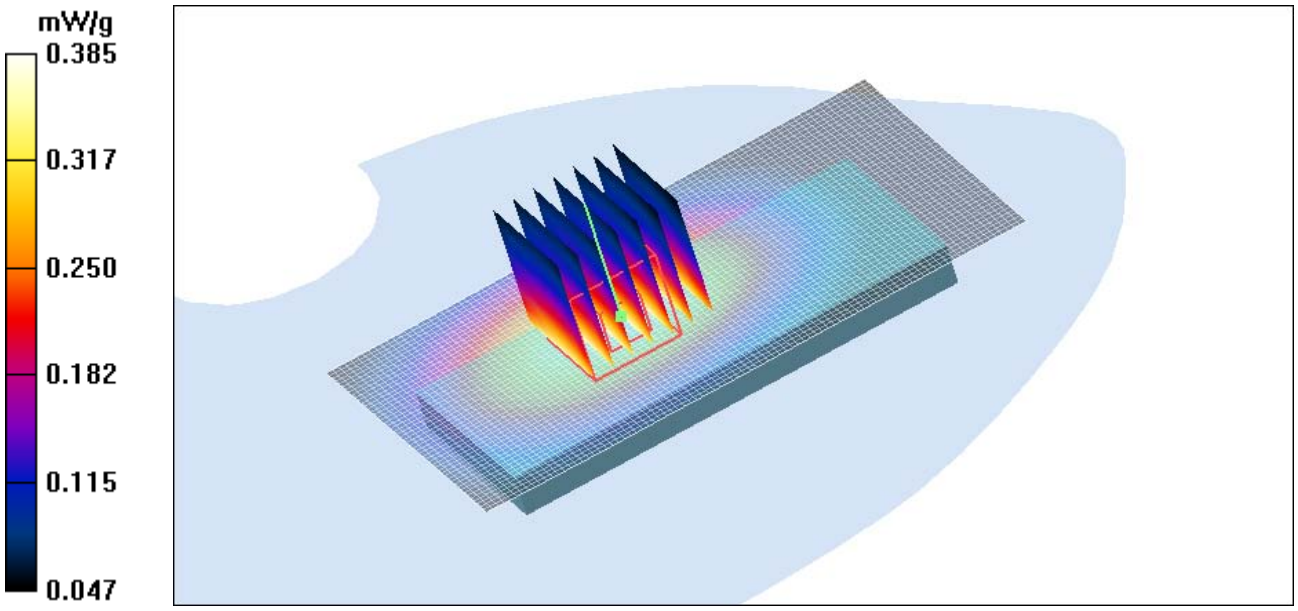


Figure 43 Body, Towards Phantom, CDMA Cellular Channel 1013

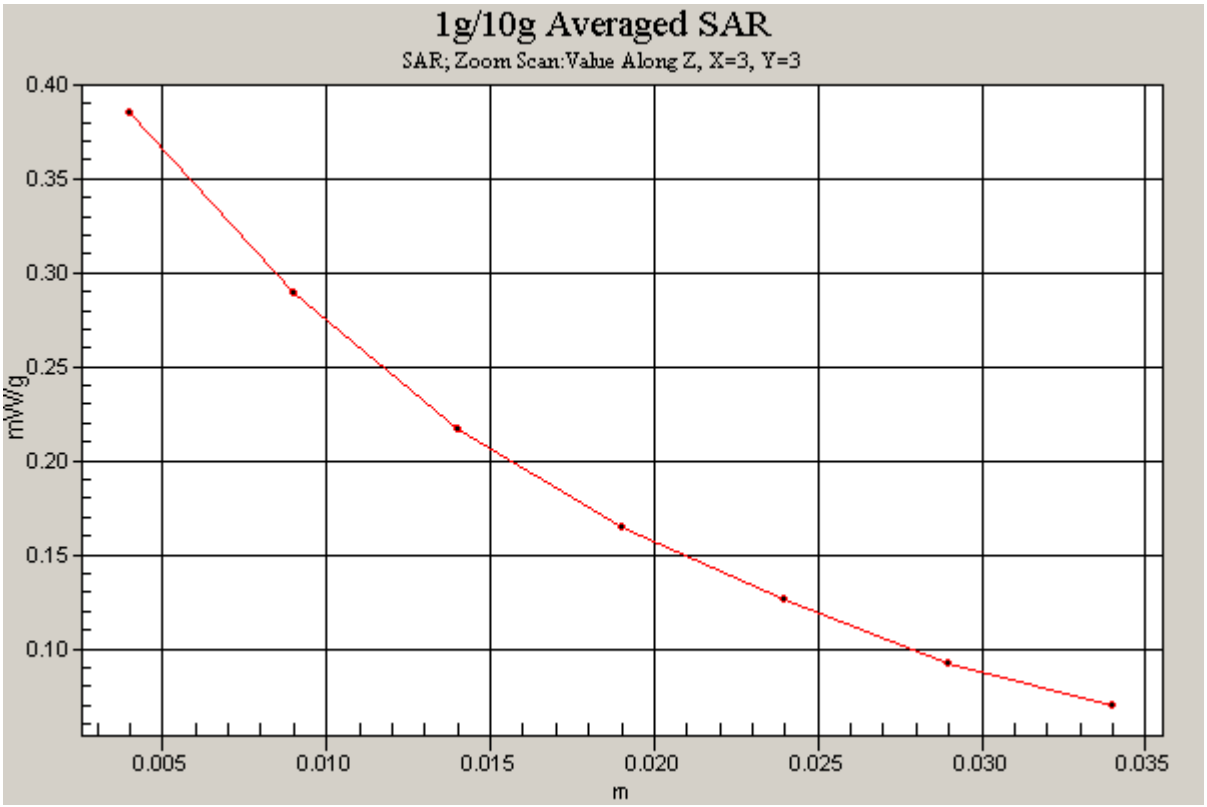


Figure 44 Z-Scan at power reference point (Body, Towards Phantom, , CDMA Cellular Channel 1013)

Date/Time: 2/18/2009 5:48:24 PM

CDMA Cellular Towards Ground with earphone Low

Communication System: CDMA Cellular; Frequency: 824.7 MHz;Duty Cycle: 1:1
Medium parameters used: f = 825 MHz; σ = 0.95 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 (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.666 mW/g

Towards Ground Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.7 V/m; Power Drift = -0.036 dB
Peak SAR (extrapolated) = 0.842 W/kg
SAR(1 g) = 0.574 mW/g; SAR(10 g) = 0.402 mW/g
Maximum value of SAR (measured) = 0.614 mW/g

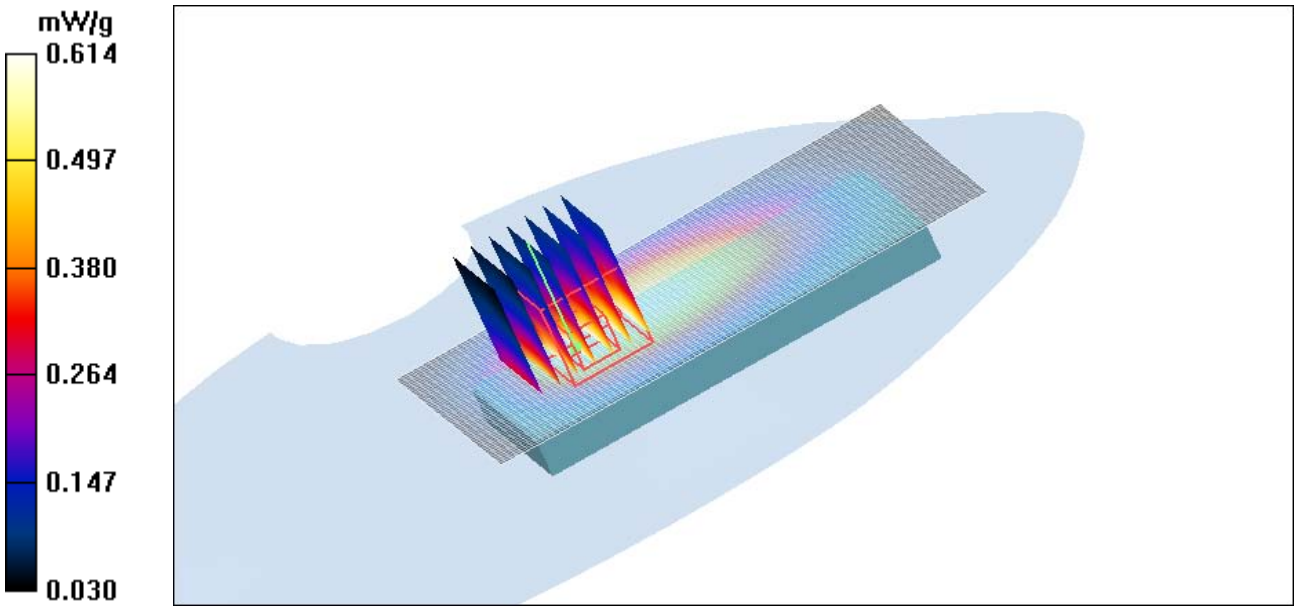


Figure 45 Body with earphone, Towards Ground, CDMA Cellular Channel 1013

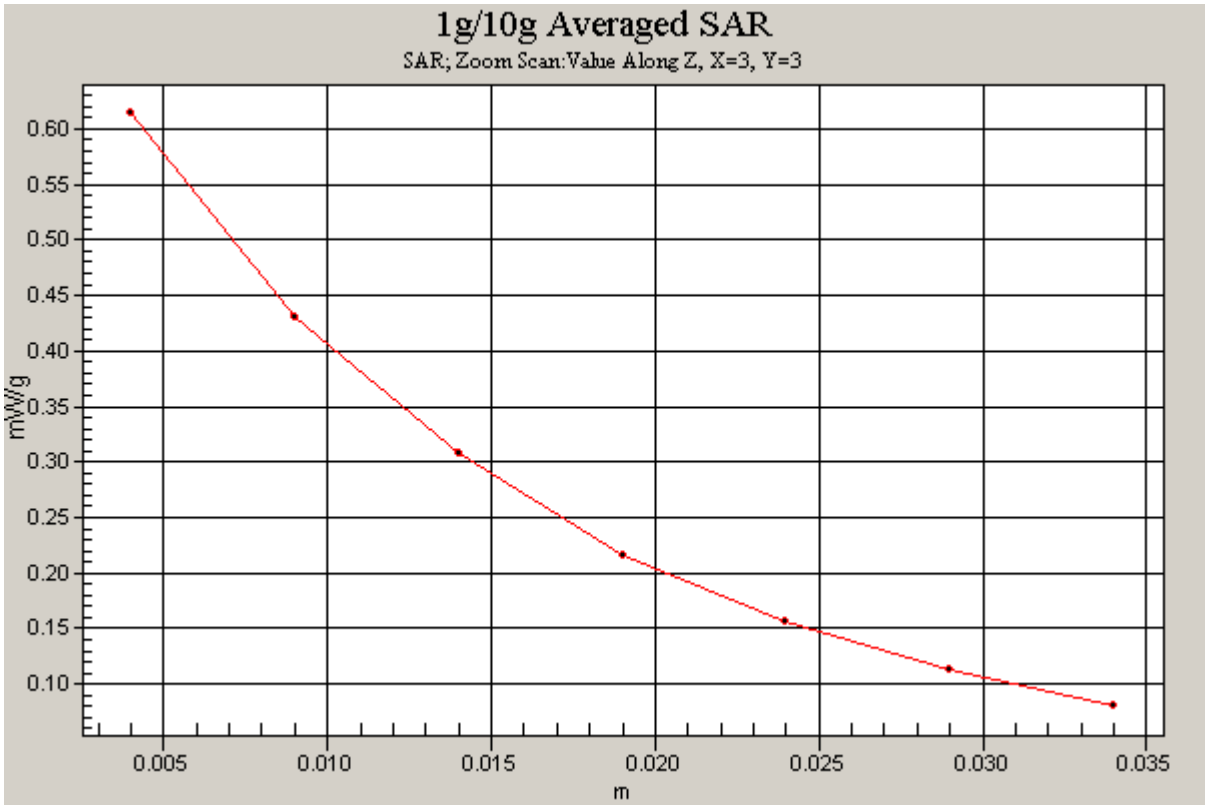


Figure 46 Z-Scan at power reference point (Body with earphone, Towards Ground, , CDMA Cellular Channel 1013)

Date/Time: 2/18/2009 6:11:33 PM

CDMA Cellular Towards Ground with Bluetooth earphone Low

Communication System: CDMA Cellular; Frequency: 824.7 MHz;Duty Cycle: 1:1
Medium parameters used: f = 825 MHz; σ = 0.95 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 (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.16 mW/g

Towards Ground Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 19.5 V/m; Power Drift = 0.010 dB
Peak SAR (extrapolated) = 1.51 W/kg
SAR(1 g) = 1.1 mW/g; SAR(10 g) = 0.792 mW/g
Maximum value of SAR (measured) = 1.16 mW/g

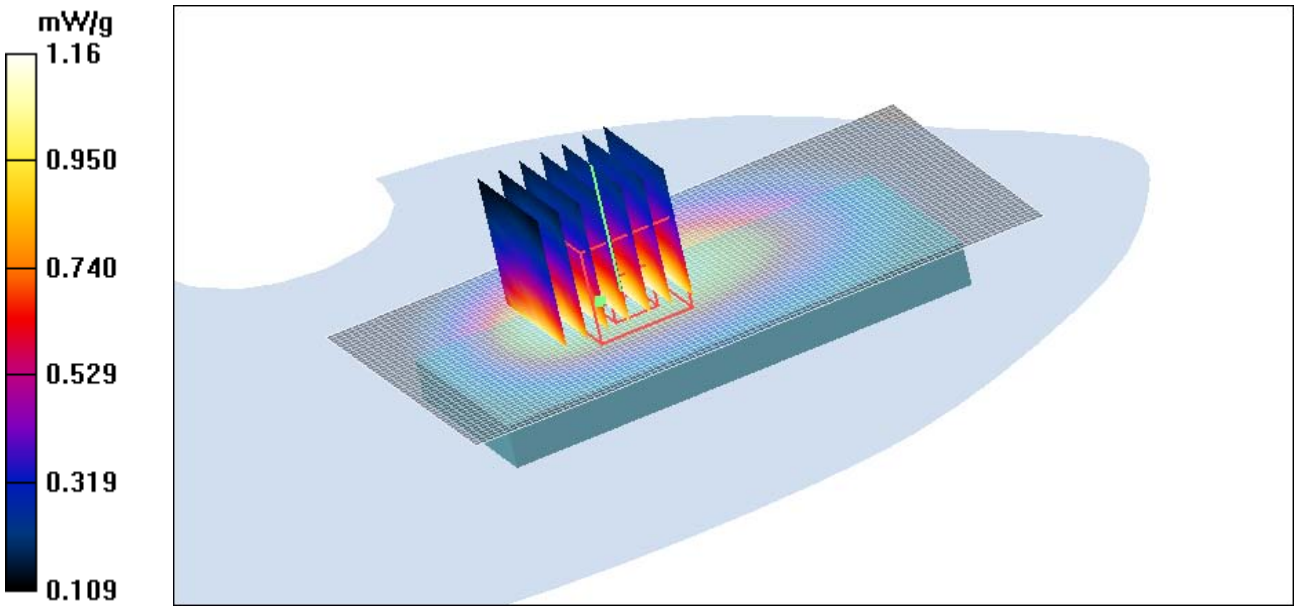


Figure 47 Body with Bluetooth earphone, Towards Ground, CDMA Cellular Channel 1013

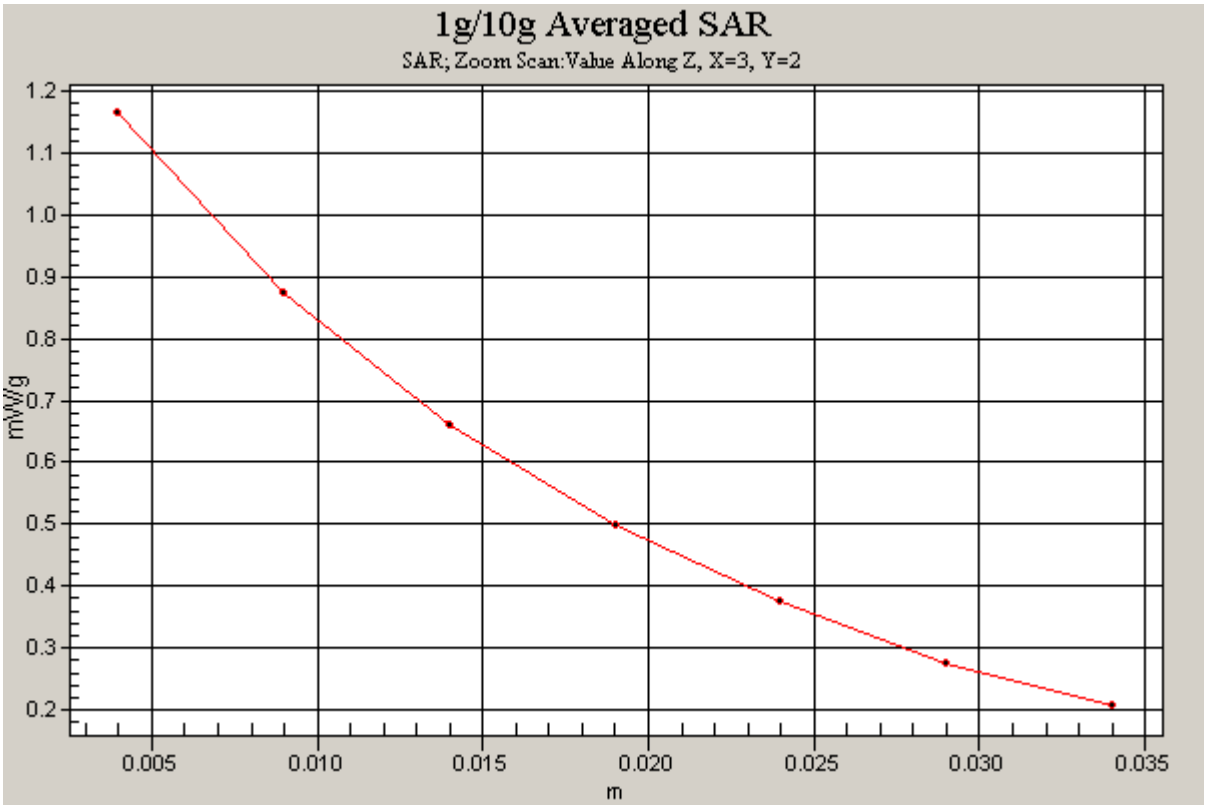


Figure 48 Z-Scan at power reference point (Body with Bluetooth earphone, Towards Ground, , CDMA Cellular Channel 1013)

ANNEX D： PROBE CALIBRATION CERTIFICATE

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
S Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 108

Client TA (Auden)

Certificate No: EX3-3660_Sep08

CALIBRATION CERTIFICATE

Object	EX3DV4 - SN:3660
Calibration procedure(s)	QA CAL-01.v6 and QA CAL-23.v3 Calibration procedure for dosimetric E-field probes
Calibration date:	September 3, 2008
Condition of the calibrated item	In Tolerance

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	1-Apr-08 (No. 217-00788)	Apr-09
Power sensor E4412A	MY41495277	1-Apr-08 (No. 217-00788)	Apr-09
Power sensor E4412A	MY41498087	1-Apr-08 (No. 217-00788)	Apr-09
Reference 3 dB Attenuator	SN: S5054 (3c)	1-Jul-08 (No. 217-00865)	Jul-09
Reference 20 dB Attenuator	SN: S5086 (20b)	31-Mar-08 (No. 217-00787)	Apr-09
Reference 30 dB Attenuator	SN: S5129 (30b)	1-Jul-08 (No. 217-00866)	Jul-09
Reference Probe ES3DV2	SN: 3013	2-Jan-08 (No. ES3-3013_Jan08)	Jan-09
DAE4	SN: 660	3-Sep-07 (No. DAE4-660_Sep07)	Sep-08

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Oct-07)	In house check: Oct-09
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-07)	In house check: Oct-08

	Name	Function	Signature
Calibrated by:	Katja Pokovic	Technical Manager	
Approved by:	Fin Bomholt	R&D Director	

Issued: September 3, 2008

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

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Accreditation No.: **SCS 108**

Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConvF	sensitivity in TSL / NORMx,y,z
DCP	diode compression point
Polarization φ	φ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., ϑ = 0 is normal to probe axis

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005

Methods Applied and Interpretation of Parameters:

- *NORMx,y,z:* Assessed for E-field polarization ϑ = 0 (f ≤ 900 MHz in TEM-cell; f > 1800 MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not effect the E^2-field uncertainty inside TSL (see below *ConvF*).
- *NORM(f)x,y,z = NORMx,y,z * frequency_response* (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of *ConvF*.
- *DCPx,y,z:* DCP are numerical linearization parameters assessed based on the data of power sweep (no uncertainty required). DCP does not depend on frequency nor media.
- *ConvF and Boundary Effect Parameters:* Assessed in flat phantom using E-field (or Temperature Transfer Standard for f ≤ 800 MHz) and inside waveguide using analytical field distributions based on power measurements for f > 800 MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to *NORMx,y,z * ConvF* whereby the uncertainty corresponds to that given for *ConvF*. A frequency dependent *ConvF* is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- *Spherical isotropy (3D deviation from isotropy)*: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- *Sensor Offset*: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.

Probe EX3DV4

SN:3660

Manufactured: April 29, 2008
Calibrated: September 3, 2008

Calibrated for DASY Systems

(Note: non-compatible with DASY2 system!)

EX3DV4 SN:3660 **September 3, 2008**

DASY - Parameters of Probe: EX3DV4 SN:3660

Sensitivity in Free Space[A] Diode Compression[B]

NormX	**0.44** ± 10.1%	μV/(V/m)^2	DCP X	**88** mV
NormY	**0.42** ± 10.1%	μV/(V/m)^2	DCP Y	**85** mV
NormZ	**0.45** ± 10.1%	μV/(V/m)^2	DCP Z	**89** mV

Sensitivity in Tissue Simulating Liquid (Conversion Factors)

Please see Page 8.

Boundary Effect

TSL **900 MHz** **Typical SAR gradient: 5 % per mm**

Sensor Center to Phantom Surface Distance		**2.0 mm**	**3.0 mm**
SAR_{be} [%]	Without Correction Algorithm	9.5	5.2
SAR_{be} [%]	With Correction Algorithm	0.4	0.1

TSL **1750 MHz** **Typical SAR gradient: 10 % per mm**

Sensor Center to Phantom Surface Distance		**2.0 mm**	**3.0 mm**
SAR_{be} [%]	Without Correction Algorithm	7.6	3.8
SAR_{be} [%]	With Correction Algorithm	0.2	0.1

Sensor Offset

Probe Tip to Sensor Center	**1.0** mm

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

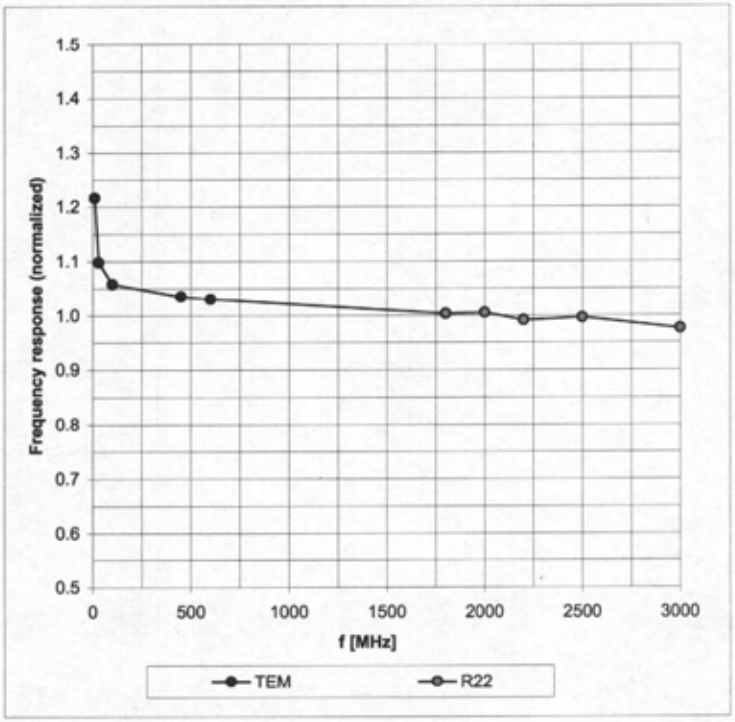
[A] The uncertainties of NormX,Y,Z do not affect the E^2-field uncertainty inside TSL (see Page 8).

[B] Numerical linearization parameter: uncertainty not required.

EX3DV4 SN:3660 September 3, 2008

Frequency Response of E-Field

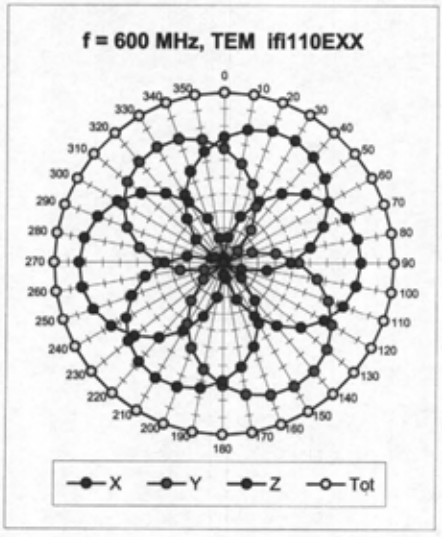
(TEM-Cell:ifi110 EXX, Waveguide: R22)

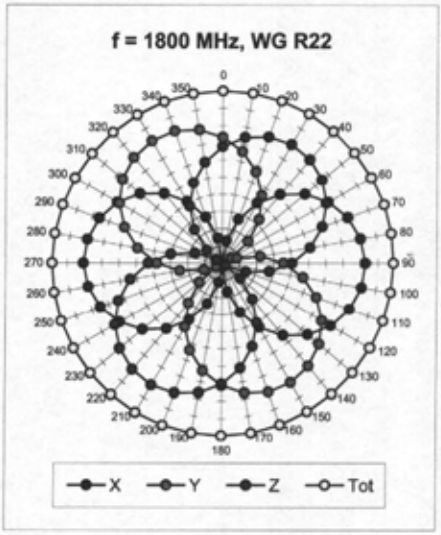


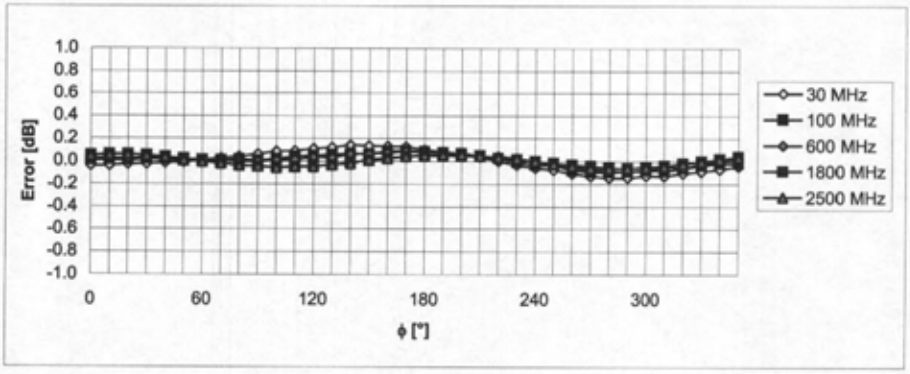
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

EX3DV4 SN:3660 **September 3, 2008**

Receiving Pattern (ϕ), ϑ = 0°







Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)