



No.: RZA2008-0952FCC



OET 65

TEST REPORT

Test name	Electromagnetic Field (Specific Absorption Rate)
Product	GSM/GPRS/EDGE/WCDMA/HSDPA Handhold Phone
Model	i800
FCC ID	WA61800
Client	Verykool USA, Inc.

TA Technology (Shanghai) Co., Ltd.



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GENERAL SUMMARY

Product	GSM/GPRS/EDGE/WCDMA/HSDPA Handhold Phone	Model	i800
Client	Verykool USA, Inc.	Type of test	Entrusted
Manufacturer	Shanghai Longcheer3g Technology Co.,Ltd	Arrival Date of sample	July.19 th , 2008
Place of sampling	(Blank)	Carrier of the samples	Zhengfang Hu
Quantity of the samples	One	Date of product	(Blank)
Base of the samples	(Blank)	Items of test	SAR
Series number	BQAEE01 805260001 5		
Standard(s)	<p>EN 50360–2001: Product standard for the measurement of Specific Absorption Rate related to human exposure to electromagnetic fields from mobile phones.</p> <p>BS EN 62209-1:2006: Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Human models, instrumentation, and procedures - Procedure to determine the specific absorption rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)</p> <p>ANSI C95.1–2005: IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz.</p> <p>IEEE 1528–2003: Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Body Due to Wireless Communications Devices: Experimental Techniques.</p> <p>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.</p> <p>IEC 62209-2: Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices – Human models, instrumentation, and procedures –Part 2: Procedure to determine the Specific Absorption Rate (SAR) in the head and body for 30MHz to 6GHz Handheld and Body-Mounted Devices used in close proximity to the body.</p>		
Conclusion	<p>Localized Specific Absorption Rate (SAR) of this portable wireless equipment has been measured in all cases requested by the relevant standards cited in Clause 7.2 of this test report. Maximum localized SAR is below exposure limits specified in the relevant standards cited in Clause 7.1 of this test report.</p> <p>General Judgment: Pass</p> <p style="text-align: right;">(Stamp) Date of issue: August. 11th, 2008</p>		
Comment	The test result only responds to the measured sample.		

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1. COMPETENCE AND WARRANTIES

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

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

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3. DESCRIPTION OF EUT

3.1. Addressing Information Related to EUT

Table 1: Applicant (The Client)

Name or Company	Verykool USA, Inc.
Address/Post	4350 Executive Drive. Suite 100, San Diego, CA 92121, USA
City	San Diego
Postal Code	92121
Country	USA
Telephone	+1-858-373-1600
Fax	+1-858-373-1505

Table 2: Manufacturer

Name or Company	Shanghai Longcheer3g Technology Co.,Ltd
Address/Post	No.1,Building 5, 299 Bisheng Rd, Zhangjiang Hi-Tech Park, Pudong, Shanghai, P.R. China
City	shanghai
Postal Code	201203
Country	P.R. China
Telephone	86-21-64088898/51552388
Fax	86-21-54970876

3.2. Constituents of EUT

Table 3: Constituents of Samples

Description	Model	Serial Number	Manufacturer
Handset	i800	BQAAE01 805260001 5	Shanghai Longcheer3g Technology Co.,Ltd
Lithium Battery	i800	FMT08062000214	SCUD(Fujian) ELECTRONICS CO., LTD
AC/DC Adapter	ASUC1-050050	/	Aquil star precision industrial (shenzhen) co.,LTD

Note:

The EUT appearances see ANNEX I.

3.3. General Description

Equipment Under Test (EUT) is a model of GSM/GPRS/EDGE/WCDMA/HSDPA Handhold Phone with internal antenna. It consists of Handset, Lithium Battery and AC/DC Adapter. The detail about Mobile phone, Lithium Battery and AC/DC Adapter is in Table 3. SAR is tested for GSM 850, GSM 1900, WCDMA Band II and WCDMA Band V. It has the GPRS, EGPRS and HSDPA functions, the GPRS and EGPRS class is 12.

The sample under test was selected by the Client.

Components list please refer to documents of the manufacturer.

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3.4. Test item

Table 4: Test item of EUT

Device type :	portable device	
Exposure category:	uncontrolled environment / general population	
Device operating configurations :		
Operating mode(s):	GSM850; (tested) GSM1900; (tested) WCDMA Band V; (tested) WCDMA Band II; (tested)	
Modulation:	GMSK, 8-PSK; QPSK	
GPRS mobile station class :	B	
GPRS multislots class :	12	
EGPRS multislots class:	12	
Maximum no.of timeslots in uplink:	4	
Standard output power	(33dBm,2W)GSM850; (tested) (30dBm,1W)GSM1900; (tested) (24dBm,0.25W)WCDMA Band II; (tested) (24dBm,0.25W)WCDMA Band V (tested)	
Operating frequency range(s)	transmitter frequency range	receiver frequency range
GSM850: (tested)	824.2 MHz ~ 848.8 MHz	869.2 MHz ~ 893.8 MHz
GSM1900:(tested)	1850.2 MHz ~ 1909.8 MHz	1930.2 MHz ~ 1989.8 MHz
WCDMA Band II: (tested)	1852.4MHz ~ 1907.6 MHz	1932.4 MHz ~ 1987.6 MHz
WCDMA Band V: (tested)	826.4 MHz ~ 846.6 MHz	871.4 MHz ~ 891.6MHz
Power class	GSM 850: 4, tested with power level 5	
	GSM 1900: 1, tested with power level 0	
	WCDMA Band II: 3, tested with maximum output power	
	WCDMA Band V: 3, tested with maximum output power	
Test channel (Low –Middle –High)	128 -190 – 251 (GSM850) (tested) 512 - 661 – 810 (GSM1900) (tested) 9262-9400 -9538 (WCDMA Band II) (tested) 4132 -4182 -4233 (WCDMA Band V) (tested)	
Hardware version:	---	
Software version:	LQAAE01_251026_1.0.2	
Antenna type:	integrated antenna	

4. OPERATIONAL CONDITIONS DURING TEST

4.1. General description of test procedures

The EUT is tested using a E5515C communications tester as controller unit to set test channels and maximum output power to the EUT, as well as for measuring the conducted peak power. Test positions as described in ANNEX I are in accordance with the specified test standard. Conducted output power was measured using an integrated RF connector and attached RF cable.

To make the mobile emits maximum power; the output power of E5515C would be adjusted to minimum power with the sensitivity of the mobile station to build steady connection with mobile station. The power level control parameter "5" of GSM850 ,"0" of GSM1900 and "all up" of WCDMA Band II and WCDMA Band V.They mean that requires mobile station to emit with maximum power.

The EUT shall use its internal transmitter. The antenna(s), battery and accessories shall be those specified by the manufacturer. The EUT battery must be fully charged and checked periodically during the test to ascertain uniform power output. If a wireless link is used, the antenna connected to the output of the base station simulator shall be placed at least 50 cm away from the handset. The signal transmitted by the simulator to the antenna feeding point shall be lower than the output power level of the handset 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 and GPRS/EGPRS. And since the GPRS/EGPRS class is 12 for this EUT, it has at most 4 timeslots in uplink.

4.3. WCDMA Test Configuration

4.3.1. Output power Verification

Maximum output power is verified on the High, Middle and Low channel according to the procedures described in section 5.2 of 3GPP TS 34. 121, using the appropriate RMC or AMR with TPC (transmit power control) set to all "1's" for WCDMA/HSDPA or applying the required inner loop power control procedures to the maximum output power while HSUPA is active. Results for all applicable physical channel configuration (DPCCH, DPDCH_n and spreading codes, HSDPA, HSPA) should be tabulated in the SAR report. All configuration that are not supported by the DUT or can not be measured due to technical or equipment limitations should be clearly identified.

4.3.2. Head SAR Measurements

SAR for head exposure configurations in voice mode is measured using a 12.2kbps RMC with TPC bits configured to all "1's". SAR in AMR configurations is not required when the maximum average

output of each RF channel for 12.2kbps AMR is less than 1/4 dB higher than that measured in 12.2 kbps RMC. Otherwise, SAR is measured on the maximum output channel in 12.2kbps AMR with a 3.4 kbps SRB(Signaling radio bearer) using the exposure configuration that results in the highest SAR in 12.2kbps RMC for that RF channel.

4.3.3. Body SAR Measurements

SAR for body exposure configurations in voice and data modes is measured using 12.2kbps RMC with TPC bits configured to all "1's". SAR for other spreading codes and multiple DPDCH_n, when supported by the DUT, are not required when the maximum average output of each RF channel, for each spreading code and DPDCH_n configuration, are less than 1/4 dB higher than those measured in 12.2kbps RMC. Otherwise, SAR is measured on the maximum output channel with an applicable RMC configuration for the corresponding spreading code or DPDCH_n using the exposure configuration that results in the highest SAR with 12.2 kbps RMC. When more than 2 DPDCH_n are supported by the DUT, it may be necessary to configure additional DPDCH_n for a DUT using FTM (Factory Test Mode) or other chipset based test approaches with parameters similar to those used in 384 kbps and 768 kbps RMC.

4.4. HSDPA Test Configuration

Body SAR is not required for handset with HSDPA capabilities when the maximum average output of each RF channel with HSDPA active is less than 1/4 dB higher than that measured without HSDPA using 12.2 kbps RMC and the maximum SAR for 12.2 kbps RMC is 75% of the SAR limit . On the maximum output channel with the body exposure configuration that results in the highest SAR in 12.2 kbps RMC for that RF channel.

5. SAR MEASUREMENTS SYSTEM CONFIGURATION

5.1. SAR Measurement Set-up

These measurements were performed with the automated near-field scanning system DASY4 from Schmid & Partner Engineering AG (SPEAG). The system is based on a high precision robot (working range greater than 0.9m) which positions the probes with a positional repeatability of better than $\pm 0.02\text{mm}$. Special E- and H-field probes have been developed for measurements close to material discontinuity, the sensors of which are directly loaded with a Schottky diode and connected via highly resistive lines (length = 300mm) to the data acquisition unit.

A cell controller system contains the power supply, robot controller, teaches pendant (Joystick) and remote control, is used to drive the robot motors. The PC consists of the Micron Pentium III 800 MHz computer with Windows 2003 system and SAR Measurement Software DASY4, A/D interface card, monitor, mouse, and keyboard. The Stäubli Robot is connected to the cell controller to allow software manipulation of the robot. A data acquisition electronic (DAE) circuit performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, meCHanical surface detection, collision detection, etc. is connected to the Electro-optical coupler (EOC). The EOC performs the conversion from the optical into digital electric signal of the DAE and transfers data to the PC plug-in card.

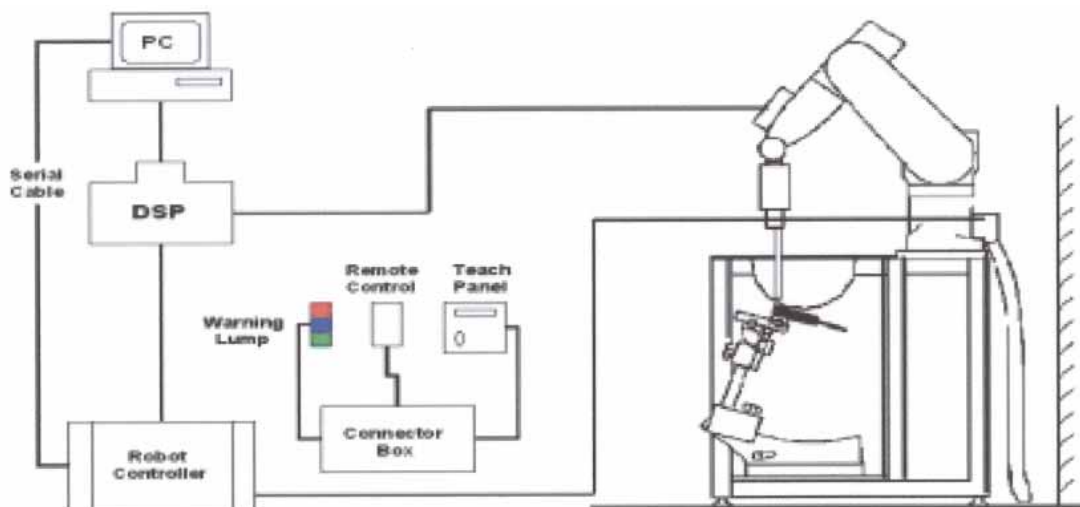


Figure 1. SAR Lab Test Measurement Set-up

The DAE4 consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder and control logic unit. Transmission to the PC-card is accomplished through an optical downlink for data and status information and an optical uplink for commands and clock lines. The mechanical probe mounting device includes two different sensor systems for frontal and sidewise probe contacts. They are also used for mechanical surface detection and probe collision detection. The robot uses its own controller with a built in VME-bus computer.

5.2. Dasy4 E-field Probe System

The SAR measurements were conducted with the dosimetric probe ET3DV6 (manufactured by SPEAG), designed in the classical triangular configuration and optimized for dosimetric evaluation. The probe has been calibrated according to the standard procedure with an accuracy of better than $\pm 10\%$. The spherical isotropy was evaluated and found to be better than $\pm 0.25\text{dB}$.

5.2.1. ET3DV6 Probe Specification

Construction	Symmetrical design with triangular core Built-in optical fiber for surface detection System (ET3DV6 only) Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.q., glycol)
Calibration	In air from 10 MHz to 2.5 GHz In brain and muscle simulating tissue at frequencies of 900MHz, 1750MHz, 1950MHz and 2450MHz (accuracy $\pm 8\%$) Calibration for other liquids and frequencies upon request
Frequency	10MHz to 2.5 GHz; Linearity: ± 0.2 dB (30 MHz to 2.5 GHz)
Directivity	± 0.2 dB in brain tissue (rotation around probe axis) ± 0.4 dB in brain tissue (rotation around probe axis)
Dynamic Range	5u W/g to > 100mW/g; Linearity: $\pm 0.2\text{dB}$
Surface Detection	± 0.2 mm repeatability in air and clear liquids over diffuse reflecting surface
Dimensions	Overall length: 330mm Tip length: 16mm Body diameter: 12mm Tip diameter: 6.8mm Distance from probe tip to dipole centers: 2.7mm
Application	General dosimetry up to 2.5GHz Compliance tests of mobile phones Fast automatic scanning in arbitrary phantoms

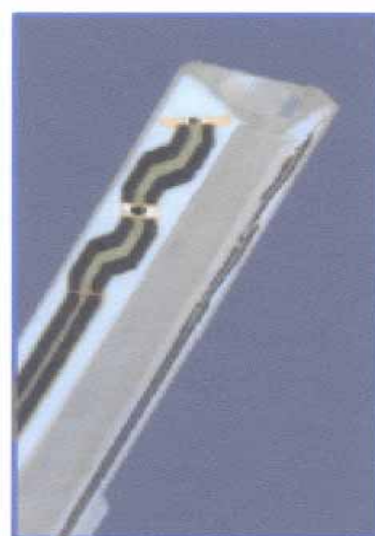


Figure 2. ET3DV6 E-field Probe



Figure 3. ET3DV6 E-field probe

5.2.2. E-field Probe Calibration

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

The free space E-field from amplified probe outputs is determined in a test Chamber. This is performed in a TEM cell for frequencies 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.

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

Where: Δt = Exposure time (30 seconds),

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

ΔT = Temperature increase due to RF exposure.

Or

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

Where:

σ = Simulated tissue conductivity,

ρ = Tissue density (kg/m³).

5.3. Other Test Equipment

5.3.1. Device Holder for Transmitters

In combination with the Generic Twin Phantom V3.0, the Mounting Device (POM) enables the rotation of the mounted transmitter in spherical coordinates whereby the rotation points is the ear opening. The devices can be easily, accurately, and repeat ably positioned according to the FCC and CENELEC specifications. The device holder can be locked at different phantom locations (left head, right head, flat phantom).



Figure 4. Device Holder

5.3.2. Phantom

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

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



Figure 5. Generic Twin Phantom

5.4. Scanning procedure

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

- The "reference" and "drift" measurements are located at the beginning and end of the batch process.
They measure the field drift at one single point in the liquid over the complete procedure. The indicated drift is mainly the variation of the DUT's output power and should vary max. $\pm 5\%$.
- 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 $\pm 0.1\text{mm}$). To prevent wrong results tests are only executed when the liquid is free of air bubbles. The difference between the optical surface detection and the actual surface depends on the probe and is specified with each probe. (It does not depend on the surface reflectivity or the probe angle to the surface within $\pm 30^\circ$.)
- The "area scan" measures the SAR above the DUT or verification dipole on a parallel plane to the surface. It is used to locate the approximate location of the peak SAR with 2D spline interpolation. The robot performs a stepped movement along one grid axis while the local electrical field strength is measured by the probe. The probe is touching the surface of the SAM during acquisition of measurement values. The standard scan uses large grid spacing for faster measurement. Standard grid spacing for head measurements is 15 mm in x- and y- dimension. If a finer resolution is needed, the grid spacing can be reduced. Grid spacing and orientation have no influence on the SAR result. For special applications where the standard scan method does not find the peak SAR within the grid, e.g. mobile phones with flip cover, the grid can be adapted in orientation.
- A "7x7x7 zoom scan" measures the field in a volume around the 2D peak SAR value acquired in the previous "coarse" scan. This is a fine 7x7 grid where the robot additionally moves the probe in 7 steps along the z-axis away from the bottom of the Phantom. Grid spacing for the cube measurement is 5mm in x and y-direction and 5 mm in z-direction. DASY4 is also able to perform repeated zoom scans if more than 1 peak is found during area scan.
- 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 2mm 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	σ
	- Density	ρ

These parameters must be set correctly in the software. They can be found in the component documents or they can be imported into the software from the configuration files issued for the DASY4 components. In the direct measuring mode of the multimeter option, the parameters of the actual system setup are used. In the scan visualization and export modes, the parameters stored in the corresponding document files are used.

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

If the exciting field is pulsed, the crest factor of the signal must be known to correctly compensate for

peak power. The formula for each channel can be given as:

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

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

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

cf = crest factor of exciting field (DASY parameter)

dcp_i = diode compression point (DASY parameter)

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

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

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

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

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

$ConvF$ = sensitivity enhancement in solution

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

f = carrier frequency [GHz]

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

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

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

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

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

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

with SAR = local specific absorption rate in mW/g

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

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

ρ = equivalent tissue density in g/cm³

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

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

with P_{pwe} = equivalent power density of a plane wave in mW/cm²

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

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

5.6. System Specifications

5.6.1. Robotic System Specifications

Specifications

Positioner: Stäubli Unimation Corp. Robot Model: RX90L

Repeatability: ±0.02 mm

No. of Axis: 6

Data Acquisition Electronic (DAE) System

Cell Controller

Processor: Pentium III

Clock Speed: 800 MHz

Operating System: Windows 2003

Data Converter

Features: Signal Amplifier, multiplexer, A/D converter, and control logic

Software: DASY4 software

Connecting Lines: Optical downlink for data and status info. Optical uplink for commands and clock.

5.7. System validation

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

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

System validation is performed regularly on all frequency bands where tests are performed with the DASY 4 system. Results are stored to have a long time overview of system performance and are shown in test reports at request.

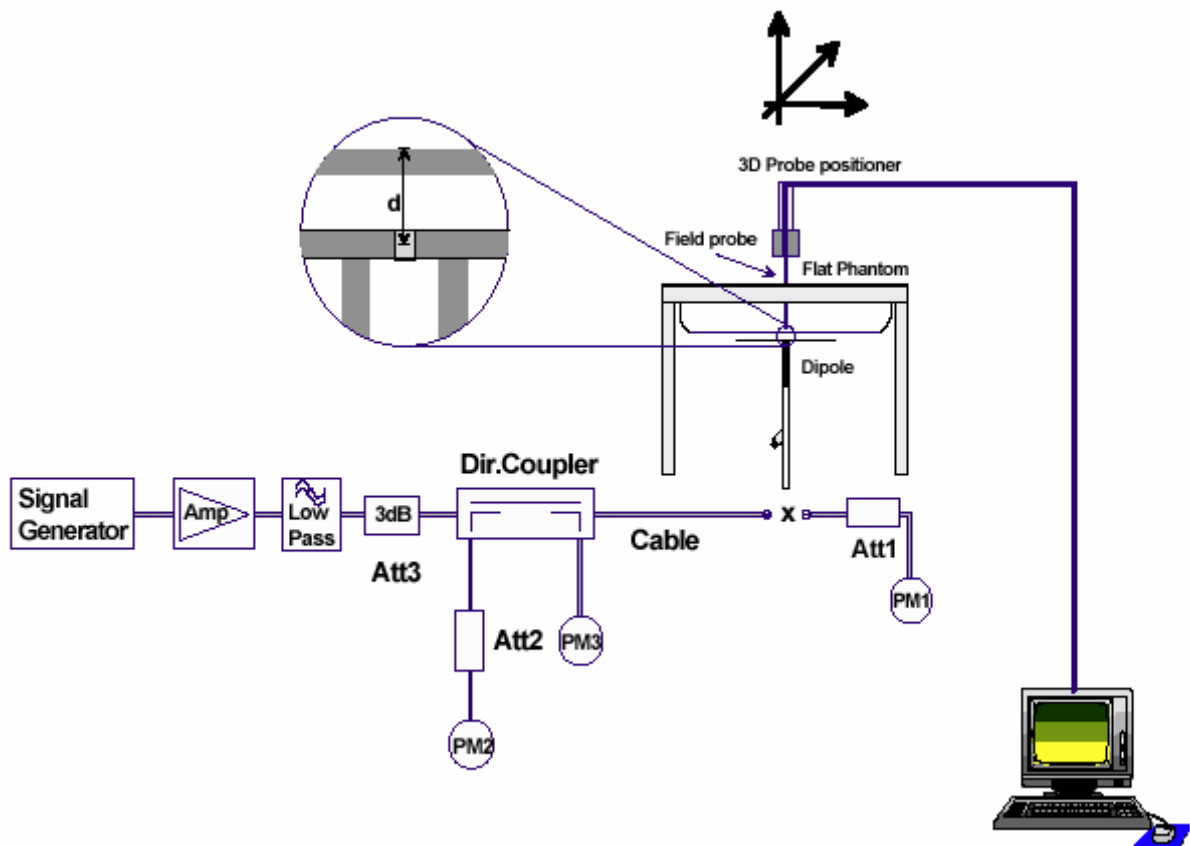


Figure 6. System validation Set-up

5.8. Equivalent Tissues

The liquid used for the frequency range of 800-2000 MHz consisted of water, sugar, salt, Preventol, Glycol 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 IEEE 1528.

Table 5: Composition of the Head Tissue Equivalent Matter

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

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

Table 6: Composition of the Body Tissue Equivalent Matter

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

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

6. LABORATORY ENVIRONMENT

Table 7: The Ambient Conditions during Test

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

7. CHARACTERISTICS OF THE TEST

7.1. Applicable Limit Regulations

EN 50360–2001: Product standard for the measurement of Specific Absorption Rate related to human exposure to electromagnetic fields from mobile phones.

It specifies the maximum exposure limit of 2.0 W/kg as averaged over any 10 gram of tissue for portable devices being used within 20 cm of the user in the uncontrolled environment.

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

BS EN 62209-1:2006: Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Human models, instrumentation, and procedures - 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)

IEEE 1528–2003: Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Body 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 62209-2: Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices – Human models, instrumentation, and procedures –Part 2: Procedure to determine the Specific Absorption Rate (SAR) in the head and body for 30MHz to 6GHz Handheld and Body-Mounted Devices used in close proximity to the body.

8. CONDUCTED OUTPUT POWER MEASUREMENT

8.1. Summary

During the process of testing, the EUT was controlled via Digital Radio Communication tester to ensure the maximum power transmission and proper modulation. This result contains conducted output power and ERP for the EUT. In all cases, the measured peak output power should be greater and within 5% than EMI measurement.

8.2. Power Drift

To control the output power stability during the SAR test, DASY4 system calculates the power drift by measuring the E-field at the same location at the beginning and at the end of the measurement for each test position. These drift values can be found in Table 12 to Table 15 labeled as: (Power Drift [dB]). This ensures that the power drift during one measurement is within 0.21dB.

8.3. Conducted Power

8.3.1. Measurement Methods

The EUT was set up for the maximum output power. The channel power was measured. The measurements were done both before and after SAR tests for each test band.

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8.3.2. 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)	32.08	31.93	32.16
After Test (dBm)	32.01	31.89	32.14
GSM 850+GPRS	Conducted Power		
	Channel 128 (824.2MHz)	Channel 190 (836.6MHz)	Channel 251 (848.8MHz)
Before Test (dBm)	31.85	31.82	32.05
After Test (dBm)	31.78	31.75	32.01
GSM 1900	Conducted Power		
	Channel 512 (1850.2MHz)	Channel 661 (1880MHz)	Channel 810 (1909.8MHz)
Before Test (dBm)	29.32	29.31	29.13
After Test (dBm)	29.29	29.30	29.10
GSM 1900+GPRS	Conducted Power		
	Channel 512 (1850.2MHz)	Channel 661 (1880MHz)	Channel 810 (1909.8MHz)
Before Test (dBm)	29.24	29.21	29.03
After Test (dBm)	29.18	29.20	29.01
WCDMA Band V (12.2kbps RMC)	Conducted Power		
	Channel 4132 (826.4MHz)	Channel 4182 (836.6MHz)	Channel 4233 (846.6MHz)
Before Test (dBm)	24.45	24.54	24.70
After Test (dBm)	24.41	24.52	24.68
WCDMA Band V (64kbps RMC)	Conducted Power		
	Channel 4132 (826.4MHz)	Channel 4182 (836.6MHz)	Channel 4233 (846.6MHz)
Before Test (dBm)	24.47	24.48	24.71
After Test (dBm)	24.43	24.45	24.68
WCDMA Band V (144kbps RMC)	Conducted Power		
	Channel 4132 (826.4MHz)	Channel 4182 (836.6MHz)	Channel 4233 (846.6MHz)
Before Test (dBm)	24.50	24.46	24.68
After Test (dBm)	24.49	24.43	24.65
WCDMA Band V (384kbps RMC)	Conducted Power		
	Channel 4132 (826.4MHz)	Channel 4182 (836.6MHz)	Channel 4233 (846.6MHz)
Before Test (dBm)	24.46	24.48	24.65

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After Test (dBm)	24.43	24.46	24.62
WCDMA Band V +HSDPA	Conducted Power		
	Channel 4132 (826.4MHz)	Channel 4182 (836.6MHz)	Channel 4233 (846.6MHz)
Before Test (dBm)	24.40	24.37	24.57
After Test (dBm)	24.38	24.35	24.56
WCDMA Band II (12.2kbps RMC)	Conducted Power		
	Channel 9262 (1852.4MHz)	Channel 9400 (1880MHz)	Channel 9538 (1907.6MHz)
Before Test (dBm)	25.86	26.16	26.44
After Test (dBm)	25.85	26.15	26.43
WCDMA Band II (64kbps RMC)	Conducted Power		
	Channel 9262 (1852.4MHz)	Channel 9400 (1880MHz)	Channel 9538 (1907.6MHz)
Before Test (dBm)	25.88	26.18	26.42
After Test (dBm)	25.89	26.19	26.43
WCDMA Band II (144kbps RMC)	Conducted Power		
	Channel 9262 (1852.4MHz)	Channel 9400 (1880MHz)	Channel 9538 (1907.6MHz)
Before Test (dBm)	25.84	26.14	26.42
After Test (dBm)	25.85	26.15	26.43
WCDMA Band II (384kbps RMC)	Conducted Power		
	Channel 9262 (1852.4MHz)	Channel 9400 (1880MHz)	Channel 9538 (1907.6MHz)
Before Test (dBm)	25.85	26.15	26.43
After Test (dBm)	25.86	26.14	26.44
WCDMA Band II +HSDPA	Conducted Power		
	Channel 9262 (1852.4MHz)	Channel 9400 (1880MHz)	Channel 9538 (1907.6MHz)
Before Test (dBm)	25.88	26.15	26.43
After Test (dBm)	25.87	26.14	26.42

9. TEST RESULTS

9.1. Dielectric Performance

Table 9: Dielectric Performance of Head Tissue Simulating Liquid

Measurement is made at temperature 22.5 °C and relative humidity 51%. Liquid temperature during the test: 22.3°C					
Frequency (MHz)		Target value	Measurement value	Difference percentage	
835 (Brain)	Permittivity ϵ_r	41.50	42.31	1.95	%
	Conductivity σ	0.90	0.92	2.22	%
1900 (Brain)	Permittivity ϵ_r	40.00	39.99	-0.03	%
	Conductivity σ	1.40	1.44	2.86	%

Table 10: Dielectric Performance of Body Tissue Simulating Liquid

Measurement is made at temperature 22.5 °C and relative humidity 51%. Liquid temperature during the test: 22.3°C					
Frequency (MHz)		Target value	Measurement value	Difference percentage	
835 (Body)	Permittivity ϵ_r	55.20	55.60	0.72	%
	Conductivity σ	0.97	1.01	4.12	%
1900 (Body)	Permittivity ϵ_r	53.30	53.05	-0.47	%
	Conductivity σ	1.52	1.52	0.00	%

9.2. System Validation Results

Table 11: System Validation

Measurement is made at temperature 23.2 °C, relative humidity 50%, and input power 250 mW. Liquid temperature during the test: 22.3°C							
Liquid parameters	Frequency	Permittivity ϵ		Conductivity σ (S/m)			
	835MHz	42.31		0.92			
	1900MHz	39.88		1.40			
Verification results	Frequency	Target value (W/kg)		Measurement value (W/kg)		Difference percentage	
		10 g Average	1 g Average	10 g Average	1 g Average	10 g Average	1g Average
	835MHz	1.56	2.43	1.53	2.34	-1.92%	-3.70%
	1900MHz	4.98	9.45	4.93	9.36	-1.00%	-1.06%

Note :

1. Target Values used derive from the SPEAG calibration certificate and 250 mW is used as feeding power to the validation dipole (SPEAG using).
2. The graph results see ANNEX D.

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9.3. Summary of Measurement Results

9.3.1. GSM850/GPRS/EGPRS

Table 12: SAR Values (GSM850/GPRS/EGPRS)

Liquid Temperature: 22.5					
Limit of SAR (W/kg)		10 g Average	1 g Average	Power Drift (dB)	Graph Results
		2.0	1.6	± 0.21	
Test Case Of Head		Measurement Result(W/kg)		Power Drift(dB)	
Different Test Position	Channel	10 g Average	1 g Average	Power Drift(dB)	
Test position of Head					
Left hand, Touch cheek	High	0.851	1.190	-0.168	Figure 8
	Middle	0.677	0.928	-0.027	Figure 10
	Low	0.586	0.809	-0.034	Figure 12
Left hand, Tilt 15 Degree	Middle	0.290	0.385	-0.032	Figure14
Right hand, Touch cheek	High	0.854	1.180	-0.002	Figure 16
	Middle	0.590	0.830	-0.022	Figure 18
	Low	0.528	0.738	-0.010	Figure 20
Right hand, Tilt 15 Degree	Middle	0.282	0.379	-0.019	Figure 22
Test position of Body (Distance 15mm)					
Towards Ground	High	0.536	0.725	-0.185	Figure 24
	Middle	0.468	0.646	0.121	Figure 26
	Low	0.370	0.501	-0.069	Figure 28
Towards Phantom	Middle	0.431	0.585	0.071	Figure 30
Worst case position of Body with Earphone					
Towards Ground	High	0.436	0.599	0.066	Figure 32
Worst case position of Body with Bluetooth Earphone					
Towards Ground	High	0.648	0.899	-0.185	Figure 34
Worst case position of Body with GPRS(4 timeslots in uplink)					
Towards Ground	High	0.389	0.531	-0.146	Figure 36
Worst case position of Body with EGPRS(4 timeslots in uplink)					
Towards Ground	High	0.168	0.230	-0.063	Figure 38

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

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

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9.3.2. GSM1900/GPRS/EGPRS

Table 13: SAR Values (GSM1900/GPRS/EGPRS)

Liquid Temperature: 22.5					
Limit of SAR (W/kg)		10 g Average	1 g Average	Power Drift (dB)	Graph Results
		2.0	1.6	± 0.21	
Test Case Of Head		Measurement Result(W/kg)		Power Drift(dB)	
Different Test Position	Channel	10 g Average	1 g Average	Power Drift(dB)	
Test position of Head					
Left hand, Touch cheek	Middle	0.217	0.342	0.008	Figure 40
Left hand, Tilt 15 Degree	Middle	0.050	0.076	0.011	Figure 42
Right hand, Touch cheek	High	0.238	0.402	0.054	Figure 44
	Middle	0.355	0.606	-0.026	Figure 46
	Low	0.482	0.820	0.074	Figure 48
Right hand, Tilt 15 Degree	Middle	0.068	0.103	-0.191	Figure 50
Test position of Body (Distance 15mm)					
Towards Ground	High	0.097	0.158	-0.017	Figure 52
	Middle	0.127	0.206	-0.022	Figure 54
	Low	0.152	0.249	-0.034	Figure 56
Towards Phantom	Middle	0.086	0.140	-0.196	Figure 58
Worst case position of Body with Earphone					
Towards Ground	Low	0.104	0.171	-0.136	Figure 60
Worst case position of Body with Bluetooth Earphone					
Towards Ground	Low	0.130	0.211	-0.065	Figure 62
Worst case position of Body with GPRS(4 timeslots in uplink)					
Towards Ground	Low	0.187	0.305	0.138	Figure 64
Worst case position of Body with EGPRS(4 timeslots in uplink)					
Towards Ground	Low	0.076	0.125	-0.082	Figure 66

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

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

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9.3.3. WCDMA Band II/HSDPA

Table 14: SAR Values (WCDMA Band II/HSDPA)

Liquid Temperature: 22.5					
Limit of SAR (W/kg)		10 g Average	1 g Average	Power Drift (dB)	Graph Results
		2.0	1.6	± 0.21	
Test Case Of Head		Measurement Result(W/kg)		Power Drift (dB)	
		10 g Average	1 g Average		
Different Test Position	Channel				
Test position of Head					
Left hand, Touch cheek	Middle	0.189	0.291	-0.041	Figure 68
Left hand, Tilt 15 Degree	Middle	0.063	0.092	-0.181	Figure 70
Right hand, Touch cheek	High	0.397	0.690	0.049	Figure 72
	Middle	0.362	0.629	0.024	Figure 74
	Low	0.270	0.451	-0.078	Figure 76
Right hand, Tilt 15 Degree	Middle	0.077	0.110	0.043	Figure 78
Test position of Body (Distance 15mm)					
Towards Ground	High	0.205	0.330	-0.197	Figure 80
	Middle	0.135	0.219	0.053	Figure 82
	Low	0.209	0.342	-0.174	Figure 84
Towards Phantom	Middle	0.094	0.150	-0.041	Figure 86
Worst case position of Body with Earphone					
Towards Ground	Low	0.270	0.488	0.034	Figure 88
Worst case position of Body with Bluetooth Earphone					
Towards Ground	Low	0.313	0.511	0.021	Figure 90
Worst case position of Body with HSDPA					
Towards Ground	Low	0.170	0.281	-0.015	Figure 92

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

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

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9.3.4. WCDMA Band V/HSDPA

Table 15: SAR Values (WCDMA Band V/HSDPA)

Liquid Temperature: 22.5					
Limit of SAR (W/kg)		10 g Average	1 g Average	Power Drift (dB)	Graph Results
		2.0	1.6	± 0.21	
Test Case Of Head		Measurement Result(W/kg)		Power Drift (dB)	
		10 g Average	1 g Average		
Different Test Position	Channel				
Test position of Head					
Left hand, Touch cheek	Middle	0.538	0.748	-0.142	Figure 94
Left hand, Tilt 15 Degree	Middle	0.244	0.325	-0.053	Figure 96
Right hand, Touch cheek	High	0.732	1.010	0.182	Figure 98
	Middle	0.614	0.847	0.019	Figure100
	Low	0.597	0.827	0.071	Figure102
Right hand, Tilt 15 Degree	Middle	0.300	0.406	-0.125	Figure104
Test position of Body (Distance 15mm)					
Towards Ground	High	0.197	0.265	0.127	Figure106
	Middle	0.211	0.286	-0.100	Figure108
	Low	0.187	0.253	-0.086	Figure110
Towards Phantom	Middle	0.152	0.206	0.172	Figure112
Worst case position of Body with Earphone					
Towards Ground	Middle	0.120	0.165	0.052	Figure114
Worst case position of Body with Bluetooth Earphone					
Towards Ground	Middle	0.345	0.467	0.068	Figure116
Worst case position of Body with HSDPA					
Towards Ground	Middle	0.131	0.178	0.149	Figure118

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

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

9.4. Conclusion

Localized Specific Absorption Rate (SAR) of this portable wireless device has been measured in all cases requested by the relevant standards cited in Clause 7.2 of this report. Maximum localized SAR is below exposure limits specified in the relevant standards cited in Clause 7.1 of this test report.

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10. MEASUREMENT UNCERTAINTY

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

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11. 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 15, 2007	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 15, 2007	One year
06	Amplifier	IXA-020	0401	No Calibration Requested	
07	BTS	E5515C	GB46490218	September 15, 2007	One year
08	E-field Probe	ET3DV6	1531	January 29, 2008	One year
09	DAE	DAE4	679	May 21, 2008	One year
10	Validation Kit 1900MHz	D1900V2	5d018	March 21, 2008	One year
11	Validation Kit 835MHz	D835V2	443	December 9, 2007	One year

12. TEST PERIOD

The test is performed from July 20, 2008 to July 28, 2008.

13. TEST LOCATION

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

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

ANNEX A : MEASUREMENT PROCESS

The evaluation was performed with the following procedure:

Step 1: Measurement of the SAR value at a fixed location above the ear point was measured and was used as a reference value for assessing the power drop.

Step 2: The SAR distribution at the exposed side of the head was measured at a distance of 3.9 mm from the inner surface of the shell. The area covered the entire dimension of the head and the horizontal grid spacing was 15 mm x 15 mm. Based on this data, the area of the maximum absorption was determined by spline interpolation.

Step 3: Around this point, a volume of 32 mm x 32 mm x 34 mm was assessed by measuring 7 x 7 x 7 points. On this basis of this data set, the spatial peak SAR value was evaluated with the following procedure:

- a. The data at the surface were extrapolated, since the center of the dipoles is 2.7 mm away from the tip of the probe and the distance between the surface and the lowest measuring point is 1.2 mm. The extrapolation was based on a least square algorithm. A polynomial of the fourth order was calculated through the points in z-axes. This polynomial was then used to evaluate the points between the surface and the probe tip.
- b. The maximum interpolated value was searched with a straightforward algorithm. Around this maximum the SAR values averaged over the spatial volumes (1g or 10g) were computed using the 3D-Spline interpolation algorithm. The 3D-spline is composed of three one-dimensional splines with the "Not a knot"-condition (in x ~ y and z-directions). The volume was integrated with the trapezoidal algorithm. One thousand points (10 x 10 x 10) were interpolated to calculate the average.
- c. All neighboring volumes were evaluated until no neighboring volume with a higher average value was found.

Step 4: Re-measurement the SAR value at the same location as in Step 1. If the value changed by more than 5%, the evaluation is repeated.

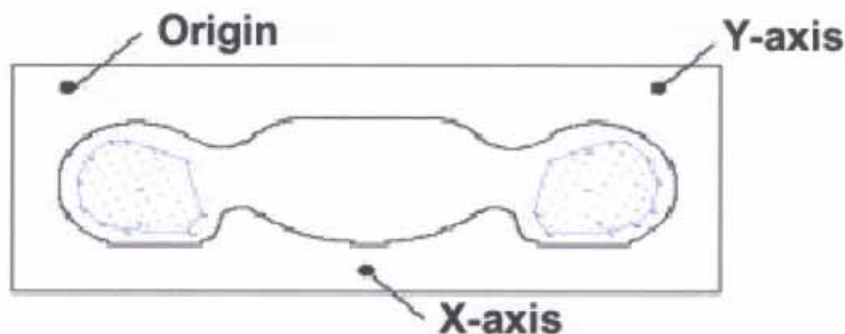


Figure 7 SAR Measurement Points in Area Scan

ANNEX B : TEST LAYOUT



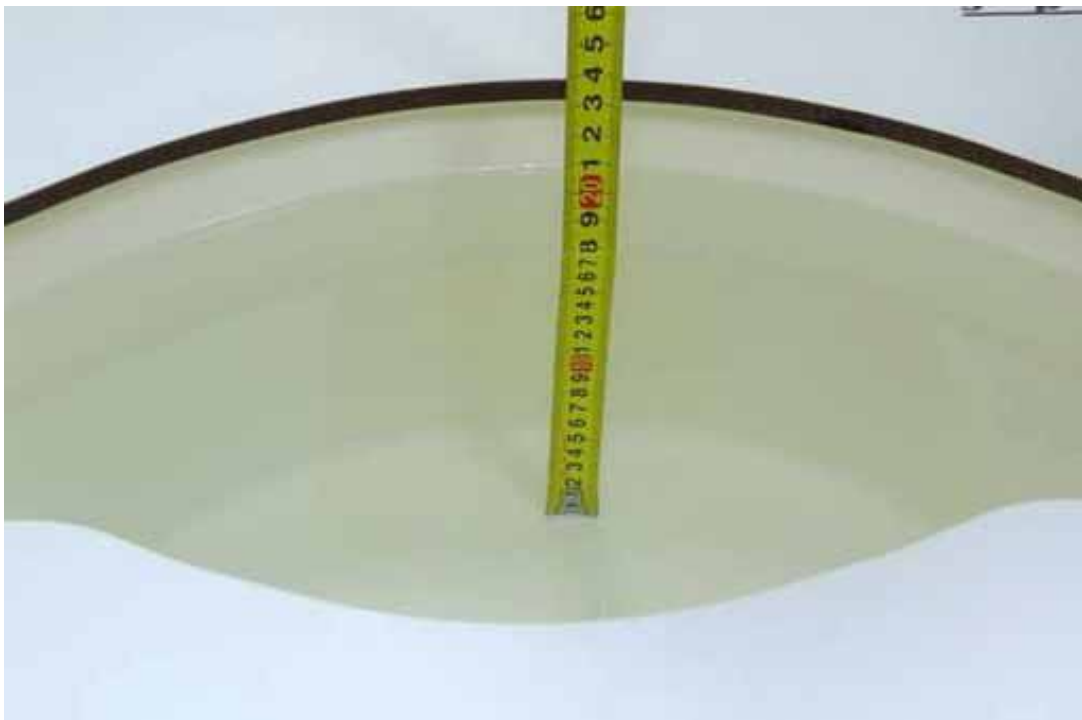
Picture 1: Specific Absorption Rate Test Layout



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



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



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



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

ANNEX C : GRAPH RESULTS

GSM 850 Left Cheek High

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

Medium parameters used: $f = 849$ MHz; $\sigma = 0.952$ mho/m; $\epsilon_r = 42.3$; $\rho = 1000$ kg/m³

Probe: ET3DV6 - SN1531; ConvF(6.85, 6.85, 6.85);

Electronics: DAE4 Sn679;

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

Maximum value of SAR (interpolated) = 1.28 mW/g

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

Reference Value = 12.3 V/m; Power Drift = -0.168 dB

Peak SAR (extrapolated) = 1.52 W/kg

SAR(1 g) = 1.19 mW/g; SAR(10 g) = 0.851 mW/g

Maximum value of SAR (measured) = 1.27 mW/g

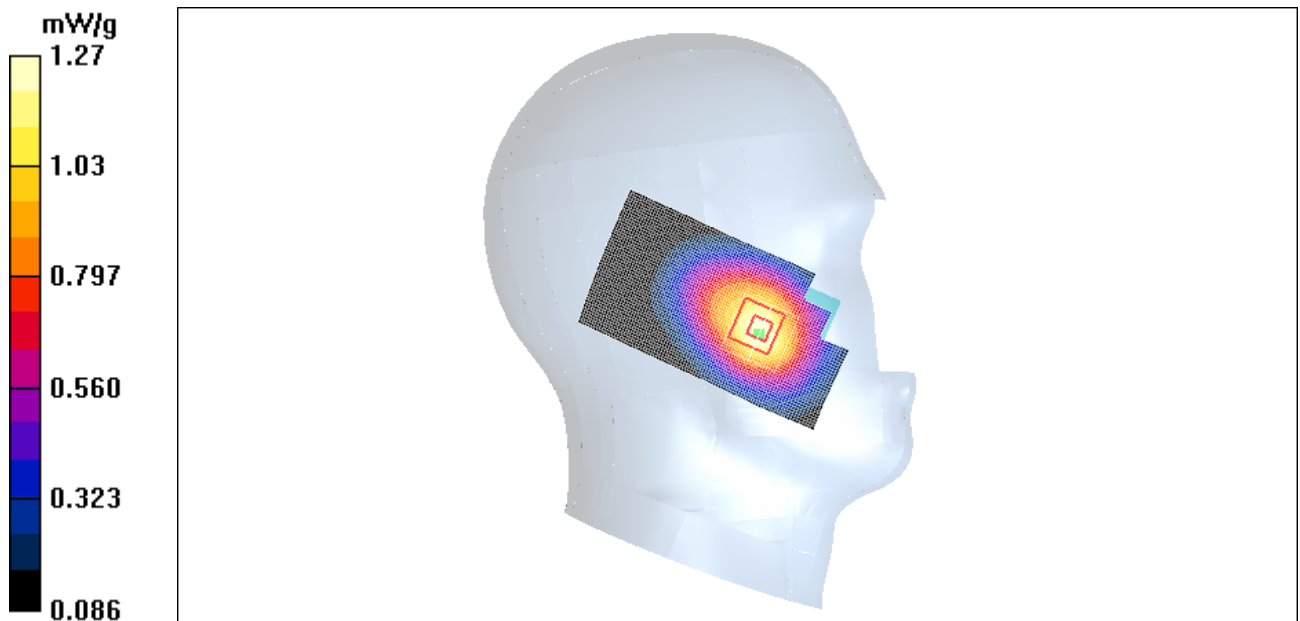


Figure 8 Left Hand Touch Cheek GSM 850 Channel 251

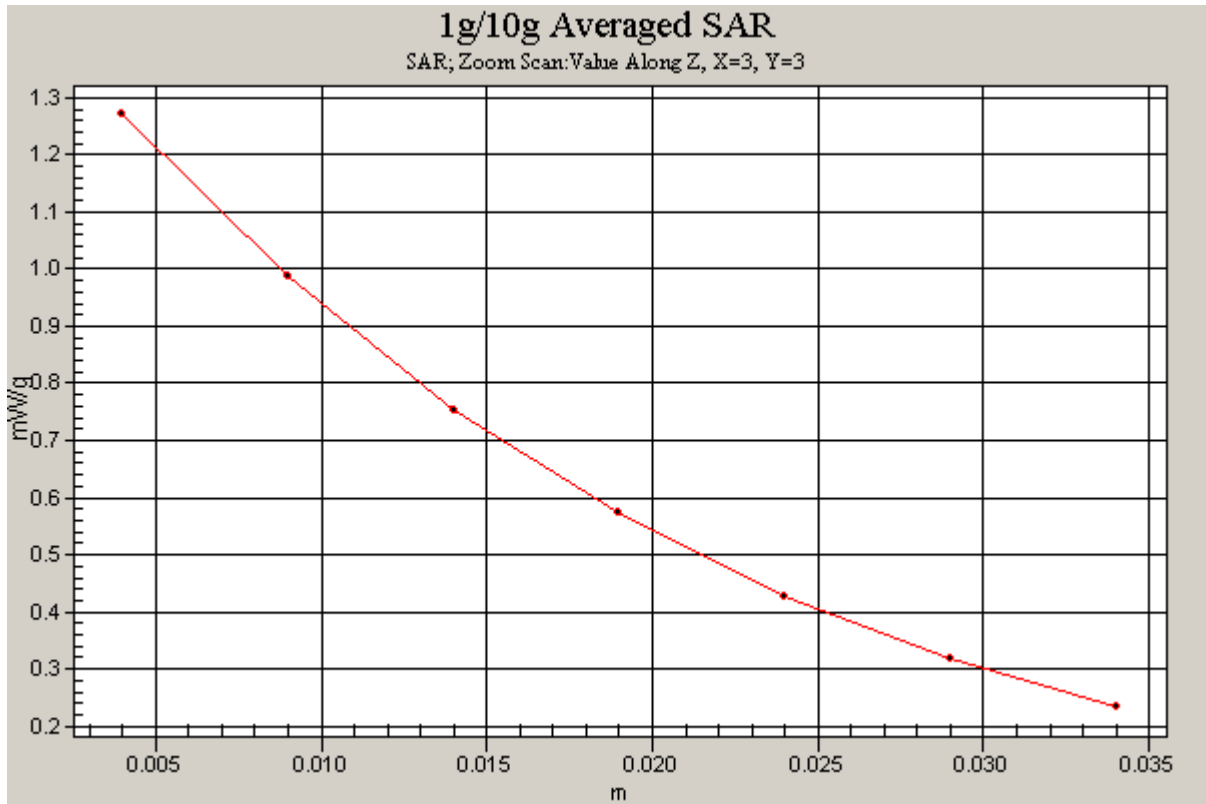


Figure 9 Z-Scan at power reference point (Left Hand Touch Cheek GSM 850 Channel 251)

GSM 850 Left Cheek Middle

Communication System: GSM 850; Frequency: 836.4 MHz; Duty Cycle: 1:8.3

Medium parameters used: $f = 837$ MHz; $\sigma = 0.94$ mho/m; $\epsilon_r = 42.4$; $\rho = 1000$ kg/m³

Probe: ET3DV6 - SN1531; ConvF(6.85, 6.85, 6.85);

Electronics: DAE4 Sn679;

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 = 10.8 V/m; Power Drift = -0.027 dB

Peak SAR (extrapolated) = 1.18 W/kg

SAR(1 g) = 0.928 mW/g; SAR(10 g) = 0.677 mW/g

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

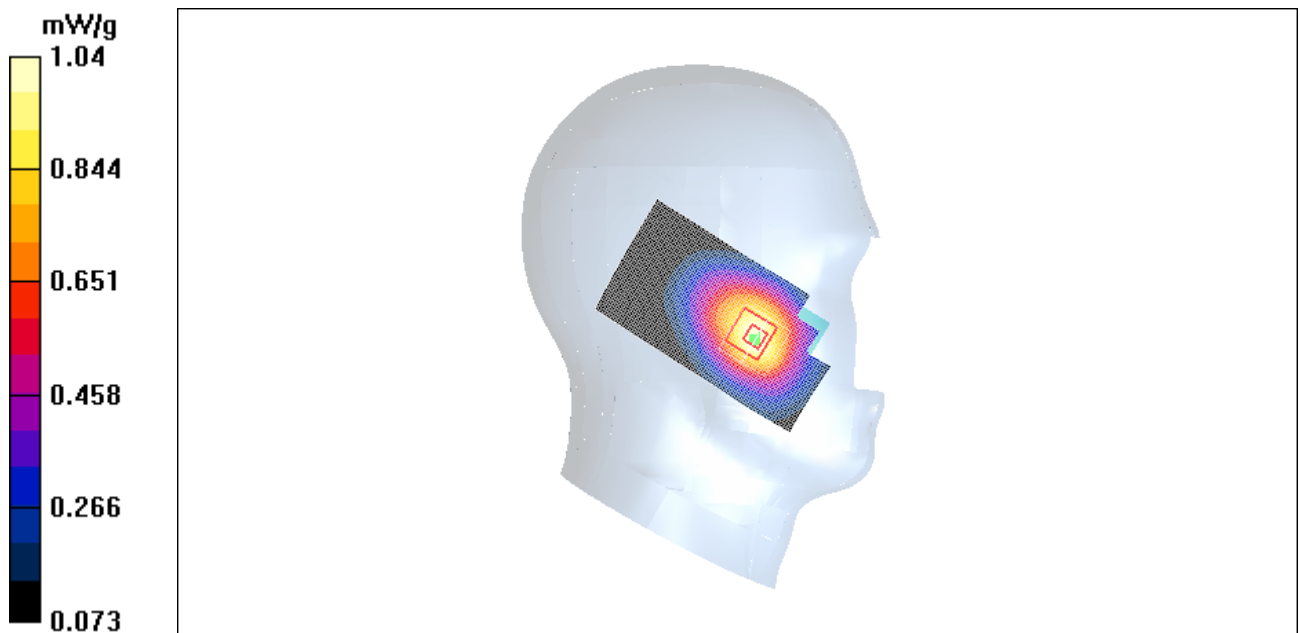


Figure 10 Left Hand Touch Cheek GSM 850 Channel 190

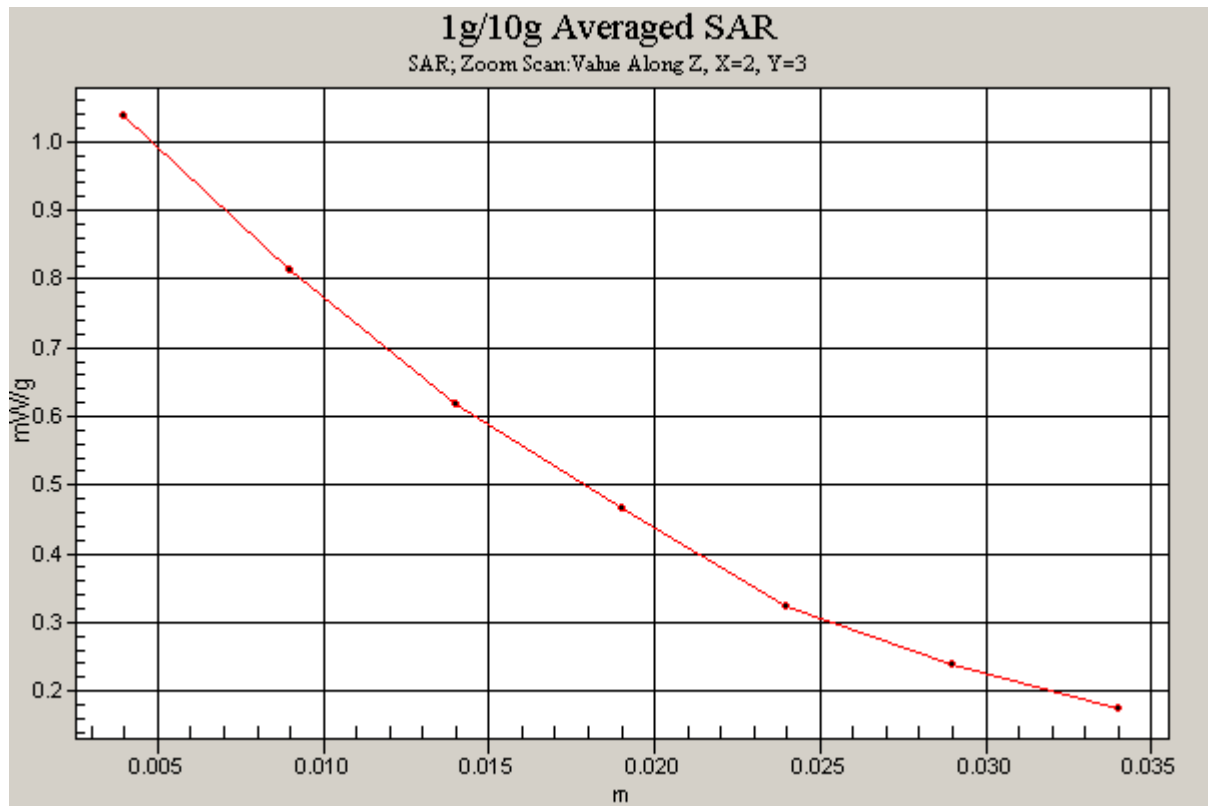


Figure 11 Z-Scan at power reference point (Left Hand Touch Cheek GSM 850 Channel 190)

GSM 850 Left Cheek Low

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

Medium parameters used (interpolated): $f = 824.2$ MHz; $\sigma = 0.926$ mho/m; $\epsilon_r = 42.5$; $\rho = 1000$ kg/m³

Probe: ET3DV6 - SN1531; ConvF(6.85, 6.85, 6.85);

Electronics: DAE4 Sn679;

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

Maximum value of SAR (interpolated) = 0.875 mW/g

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

Reference Value = 10.1 V/m; Power Drift = -0.034 dB

Peak SAR (extrapolated) = 1.03 W/kg

SAR(1 g) = 0.809 mW/g; SAR(10 g) = 0.586 mW/g

Maximum value of SAR (measured) = 0.855 mW/g

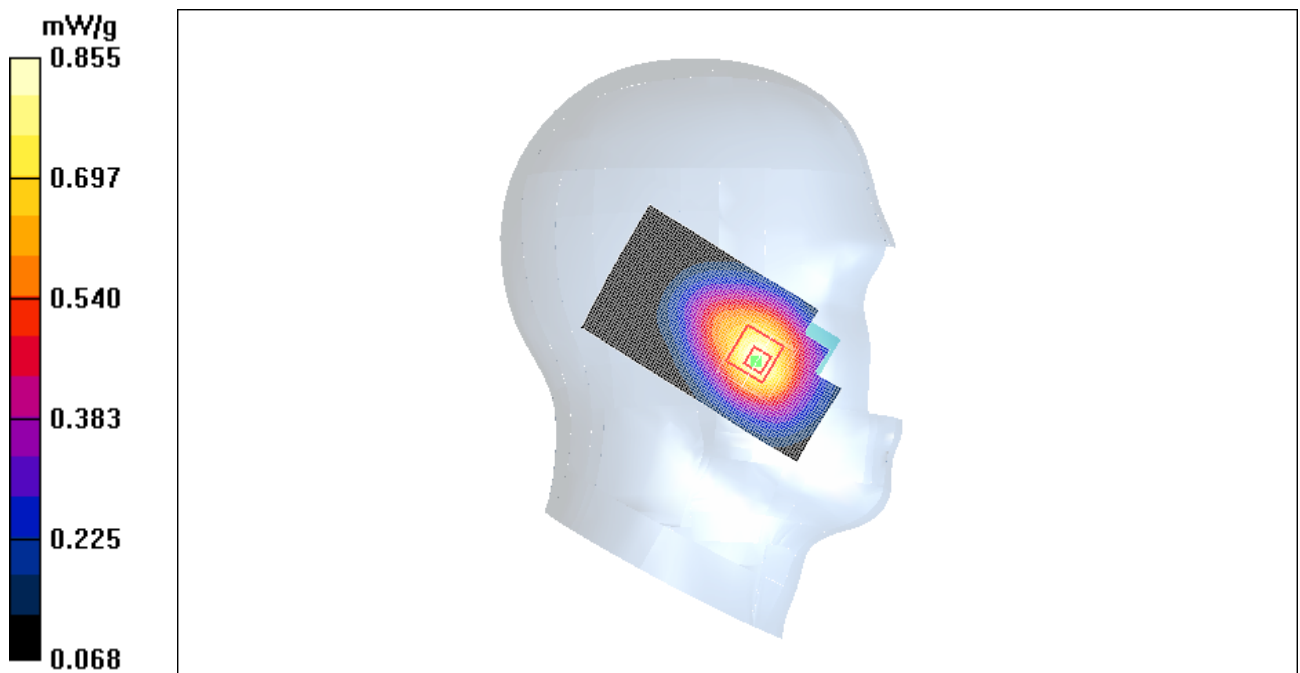


Figure 12 Left Hand Touch Cheek GSM 850 Channel 128

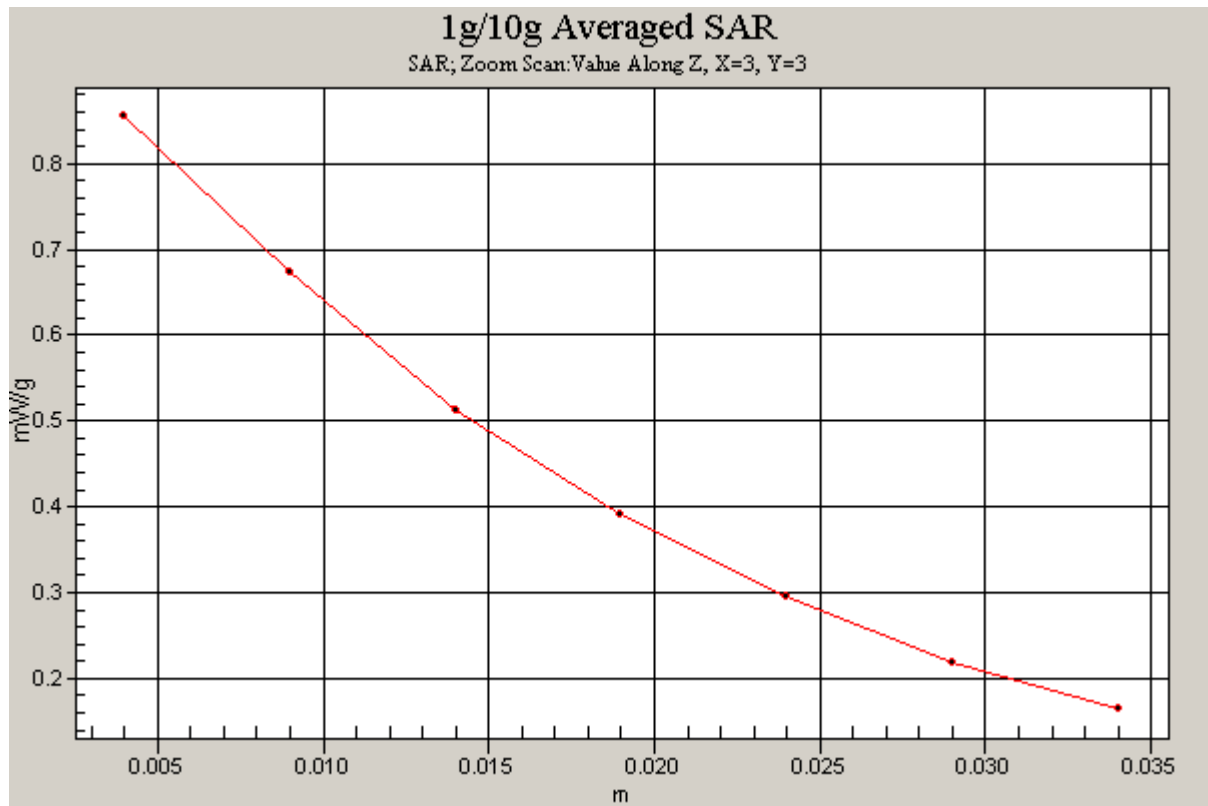


Figure 13 Z-Scan at power reference point (Left Hand Touch Cheek GSM 850 Channel 128)

GSM 850 Left Tilt Middle

Communication System: GSM 850; Frequency: 836.4 MHz; Duty Cycle: 1:8.3

Medium parameters used: $f = 837$ MHz; $\sigma = 0.94$ mho/m; $\epsilon_r = 42.4$; $\rho = 1000$ kg/m³

Probe: ET3DV6 - SN1531; ConvF(6.85, 6.85, 6.85);

Electronics: DAE4 Sn679;

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

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

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

Reference Value = 12.9 V/m; Power Drift = -0.032 dB

Peak SAR (extrapolated) = 0.476 W/kg

SAR(1 g) = 0.385 mW/g; SAR(10 g) = 0.290 mW/g

Maximum value of SAR (measured) = 0.405 mW/g

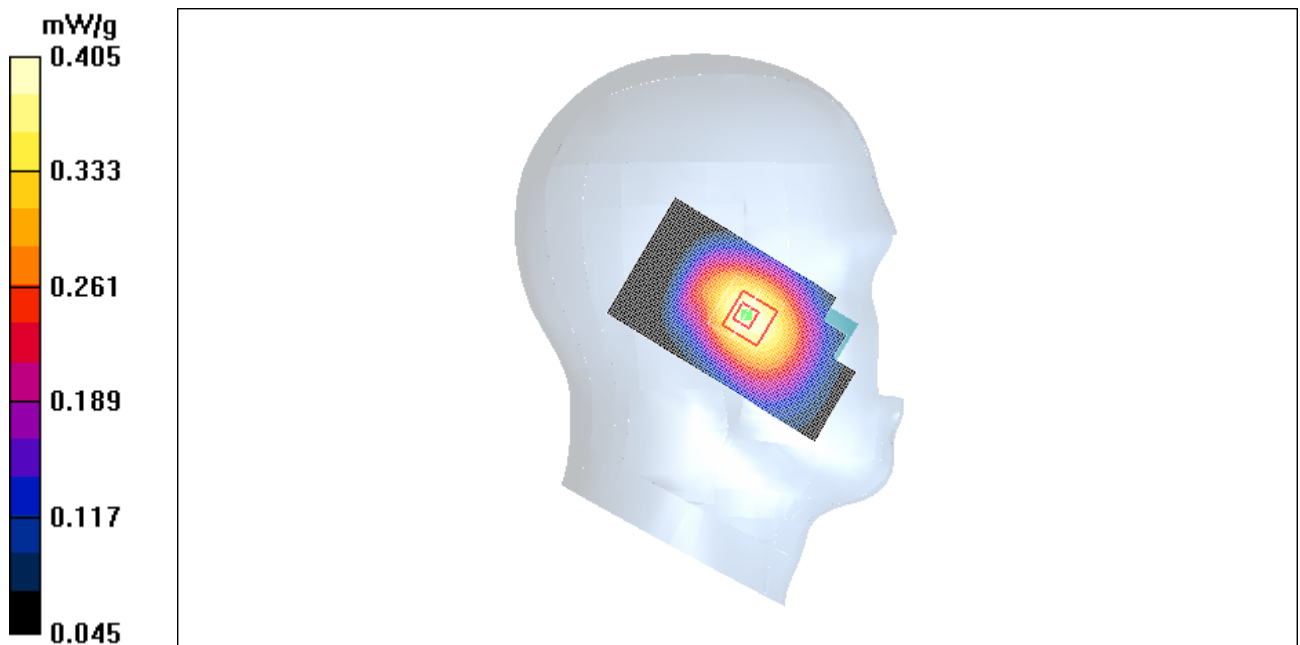


Figure 14 Left Hand Tilt 15 ° GSM 850 Channel 190

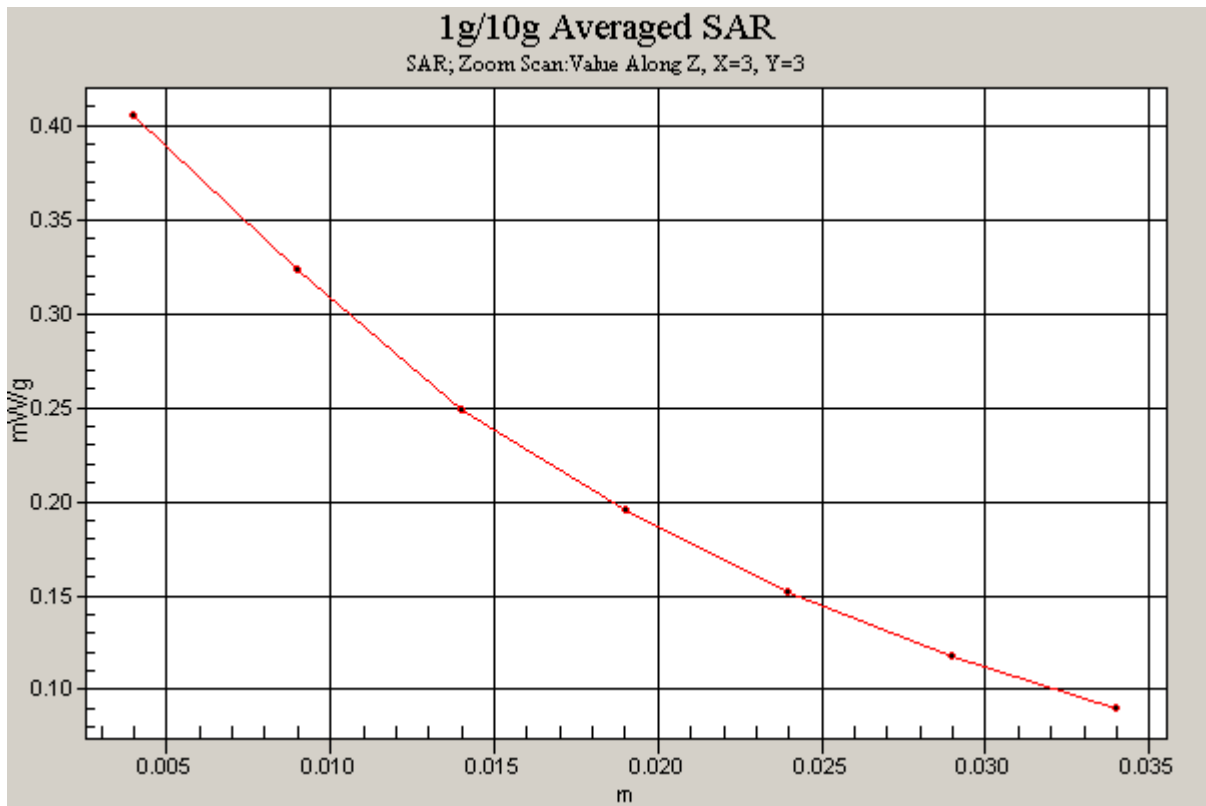


Figure 15 Z-Scan at power reference point (Left Hand Tilt 15 ° GSM 850 Channel 190)

GSM 850 Right Cheek High

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

Medium parameters used: $f = 849$ MHz; $\sigma = 0.952$ mho/m; $\epsilon_r = 42.3$; $\rho = 1000$ kg/m³

Probe: ET3DV6 - SN1531; ConvF(6.85, 6.85, 6.85);

Electronics: DAE4 Sn679;

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

Maximum value of SAR (interpolated) = 1.25 mW/g

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

Reference Value = 13.7 V/m; Power Drift = -0.002 dB

Peak SAR (extrapolated) = 1.72 W/kg

SAR(1 g) = 1.18 mW/g; SAR(10 g) = 0.854 mW/g

Maximum value of SAR (measured) = 1.26 mW/g

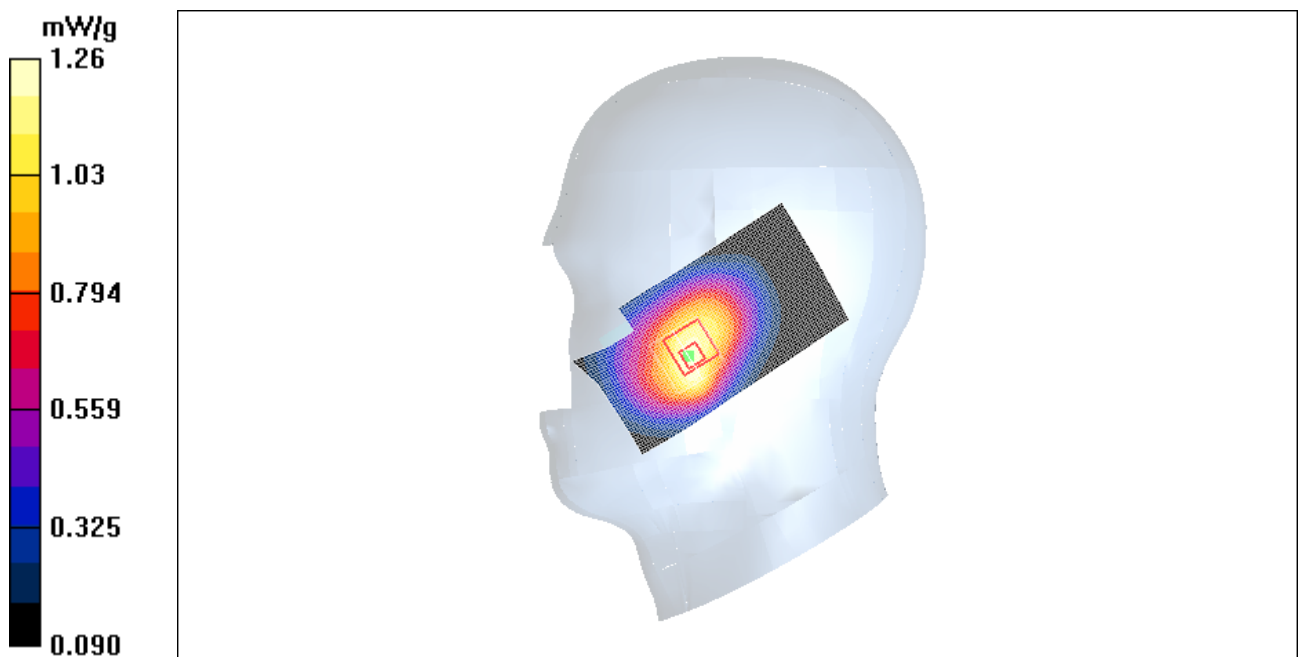


Figure 16 Right Hand Touch Cheek GSM 850 Channel 251

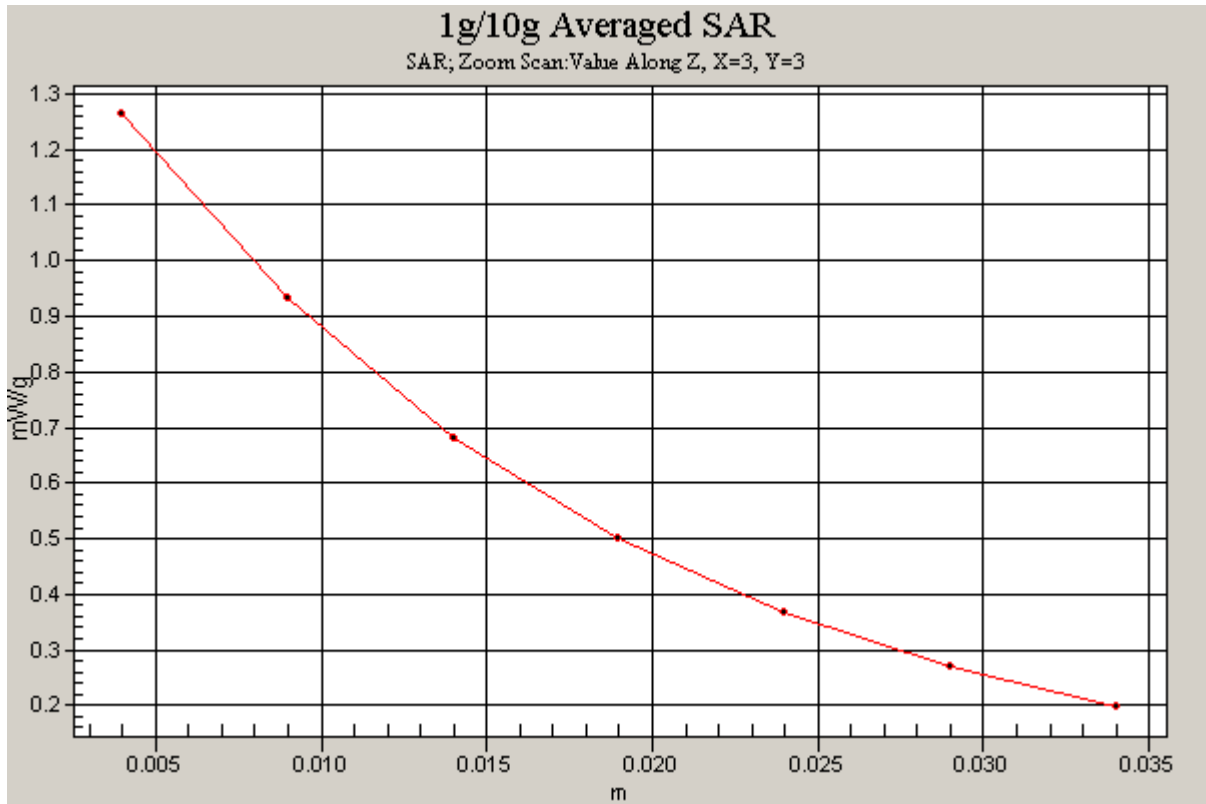


Figure 17 Z-Scan at power reference point (Right Hand Touch Cheek GSM 850 Channel 251)

GSM 850 Right Cheek Middle

Communication System: GSM 850; Frequency: 836.4 MHz; Duty Cycle: 1:8.3

Medium parameters used: $f = 837$ MHz; $\sigma = 0.94$ mho/m; $\epsilon_r = 42.4$; $\rho = 1000$ kg/m³

Probe: ET3DV6 - SN1531; ConvF(6.85, 6.85, 6.85);

Electronics: DAE4 Sn679;

Cheek Middle/Area Scan (81x141x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.908 mW/g

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

Reference Value = 13.7 V/m; Power Drift = -0.022 dB

Peak SAR (extrapolated) = 1.06 W/kg

SAR(1 g) = 0.830 mW/g; SAR(10 g) = 0.590 mW/g

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

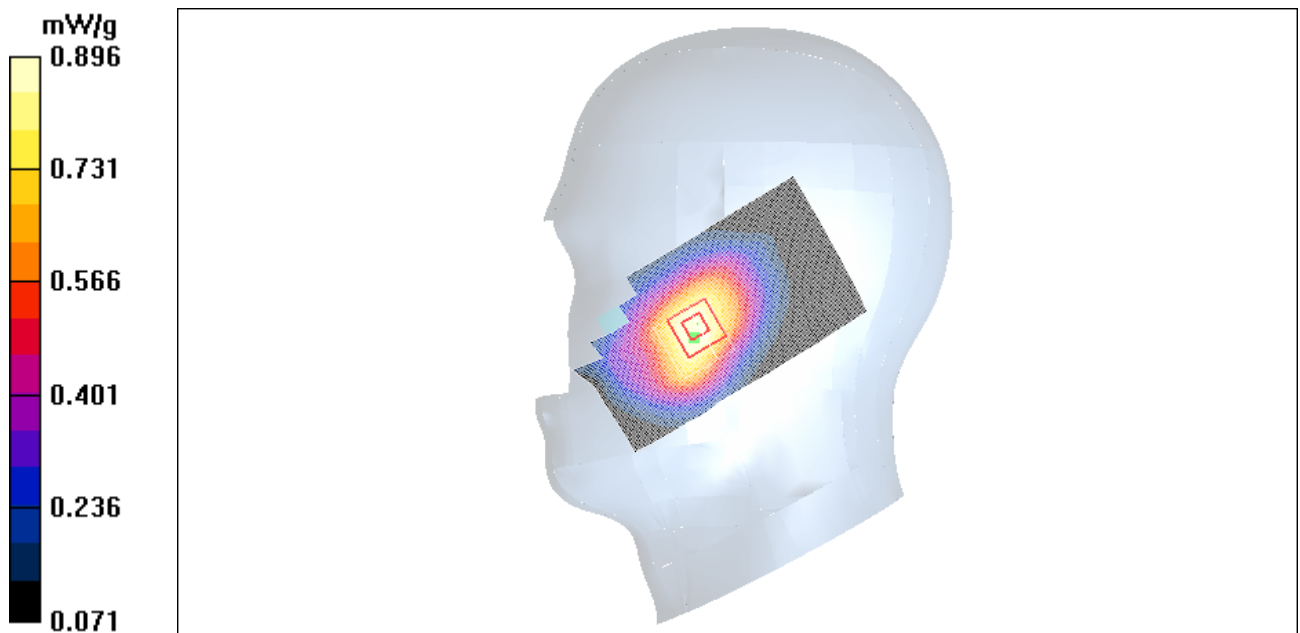


Figure 18 Right Hand Touch Cheek GSM 850 Channel 190

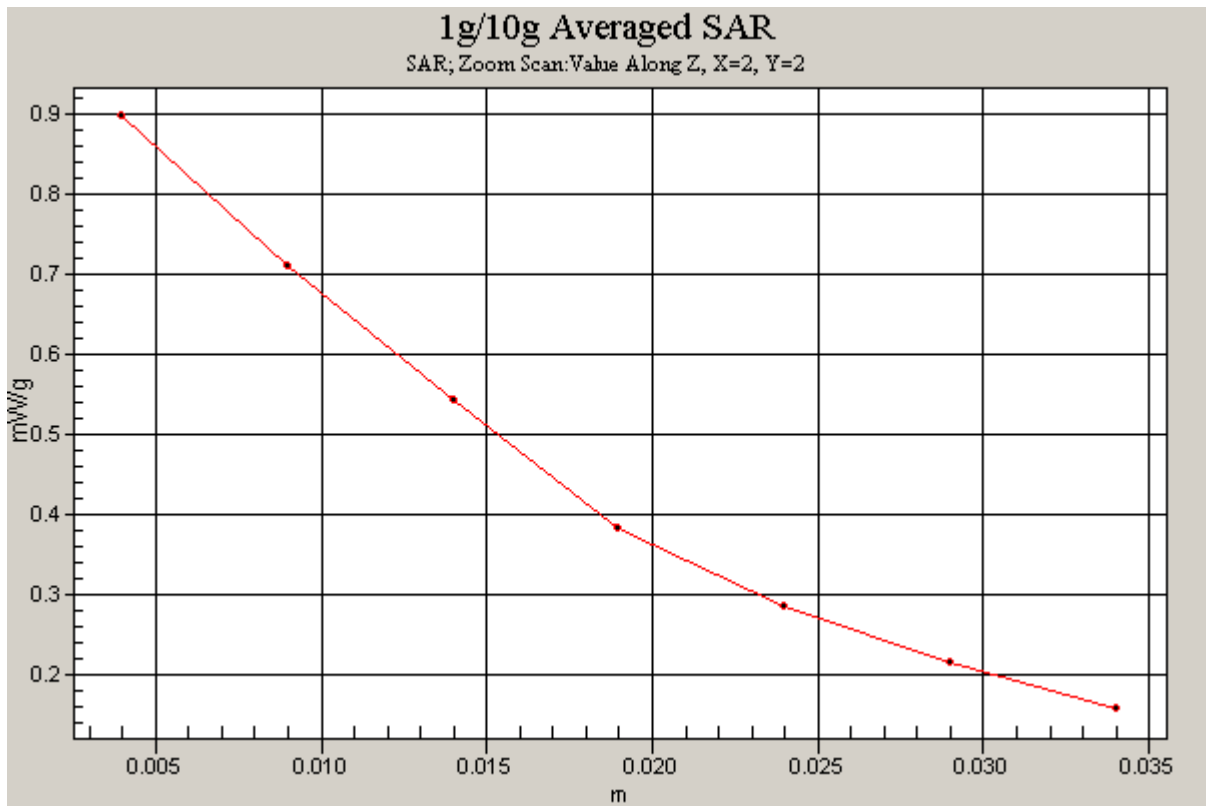


Figure 19 Z-Scan at power reference point (Right Hand Touch Cheek GSM 850 Channel 190)

GSM 850 Right Cheek Low

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

Medium parameters used (interpolated): $f = 824.2$ MHz; $\sigma = 0.926$ mho/m; $\epsilon_r = 42.5$; $\rho = 1000$ kg/m³

Probe: ET3DV6 - SN1531; ConvF(6.85, 6.85, 6.85);

Electronics: DAE4 Sn679;

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

Maximum value of SAR (interpolated) = 0.781 mW/g

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

Reference Value = 9.91 V/m; Power Drift = -0.010 dB

Peak SAR (extrapolated) = 1.01 W/kg

SAR(1 g) = 0.738 mW/g; SAR(10 g) = 0.528 mW/g

Maximum value of SAR (measured) = 0.842 mW/g

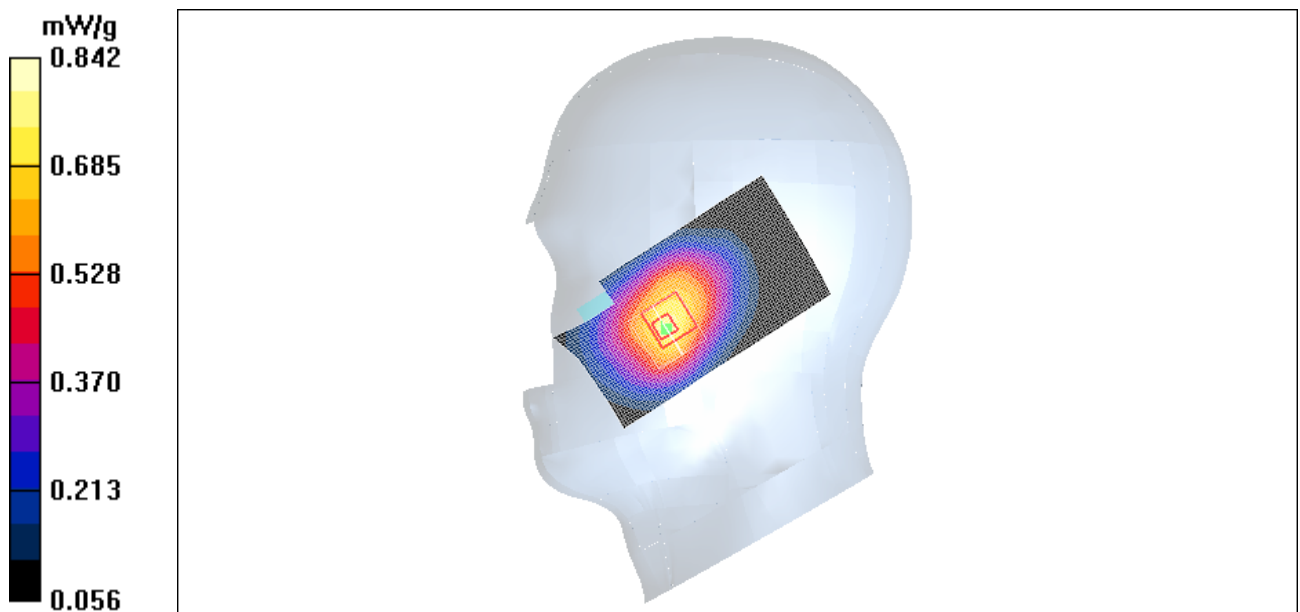


Figure 20 Right Hand Touch Cheek GSM 850 Channel 128

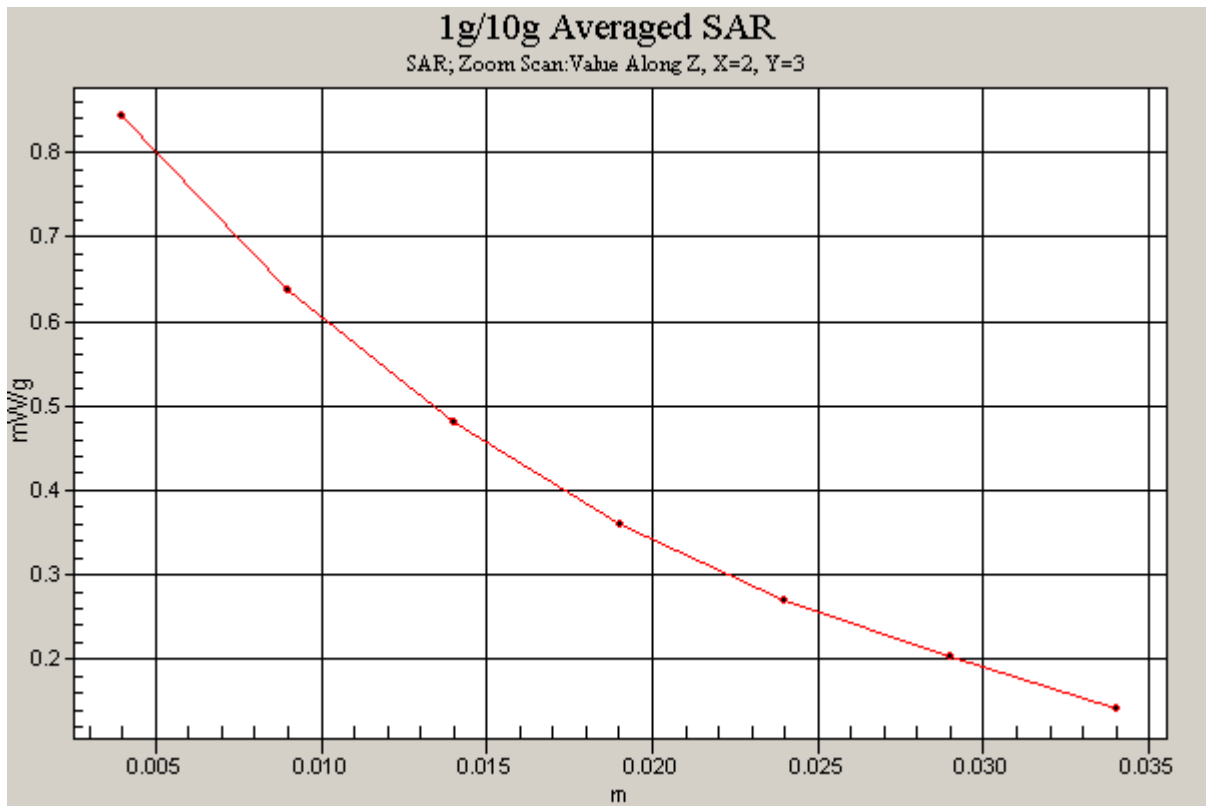


Figure 21 Z-Scan at power reference point (Right Hand Touch Cheek GSM 850 Channel 128)

GSM 850 Right Tilt Middle

Communication System: GSM 850; Frequency: 836.4 MHz; Duty Cycle: 1:8.3

Medium parameters used: $f = 837$ MHz; $\sigma = 0.94$ mho/m; $\epsilon_r = 42.4$; $\rho = 1000$ kg/m³

Probe: ET3DV6 - SN1531; ConvF(6.85, 6.85, 6.85);

Electronics: DAE4 Sn679;

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

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

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

Reference Value = 12.7 V/m; Power Drift = -0.019 dB

Peak SAR (extrapolated) = 0.472 W/kg

SAR(1 g) = 0.379 mW/g; SAR(10 g) = 0.282 mW/g

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

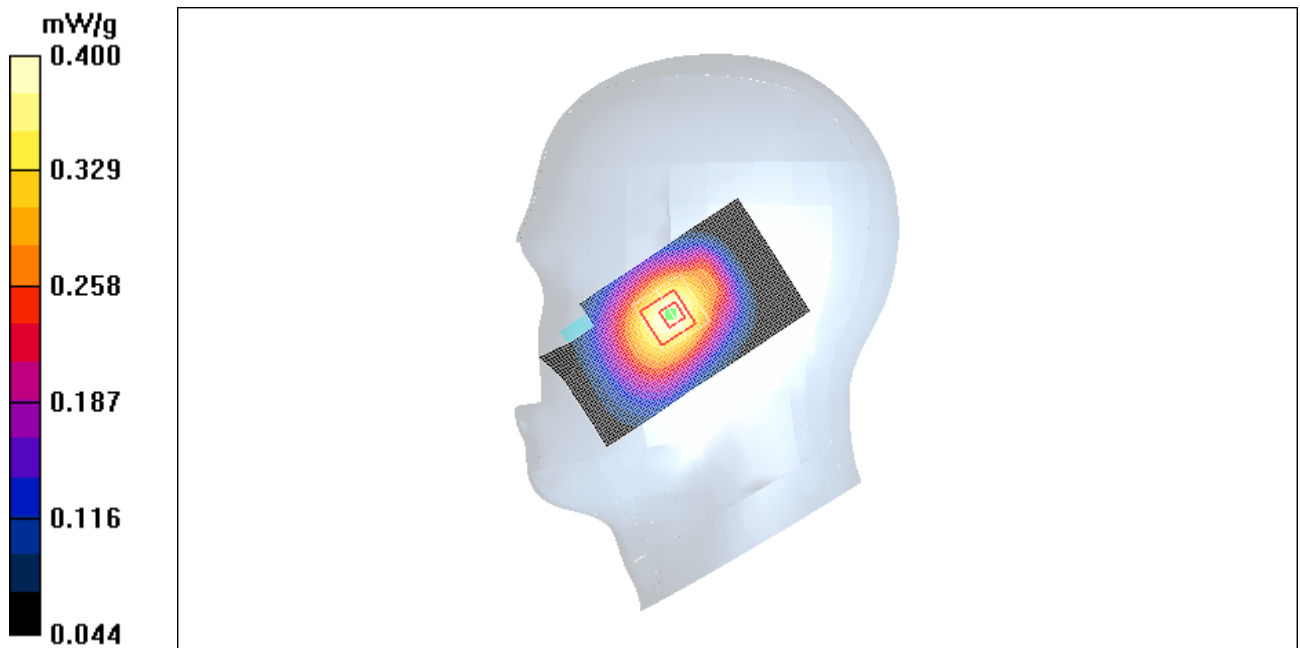


Figure 22 Right Hand Tilt 15 ° GSM 850 Channel 190

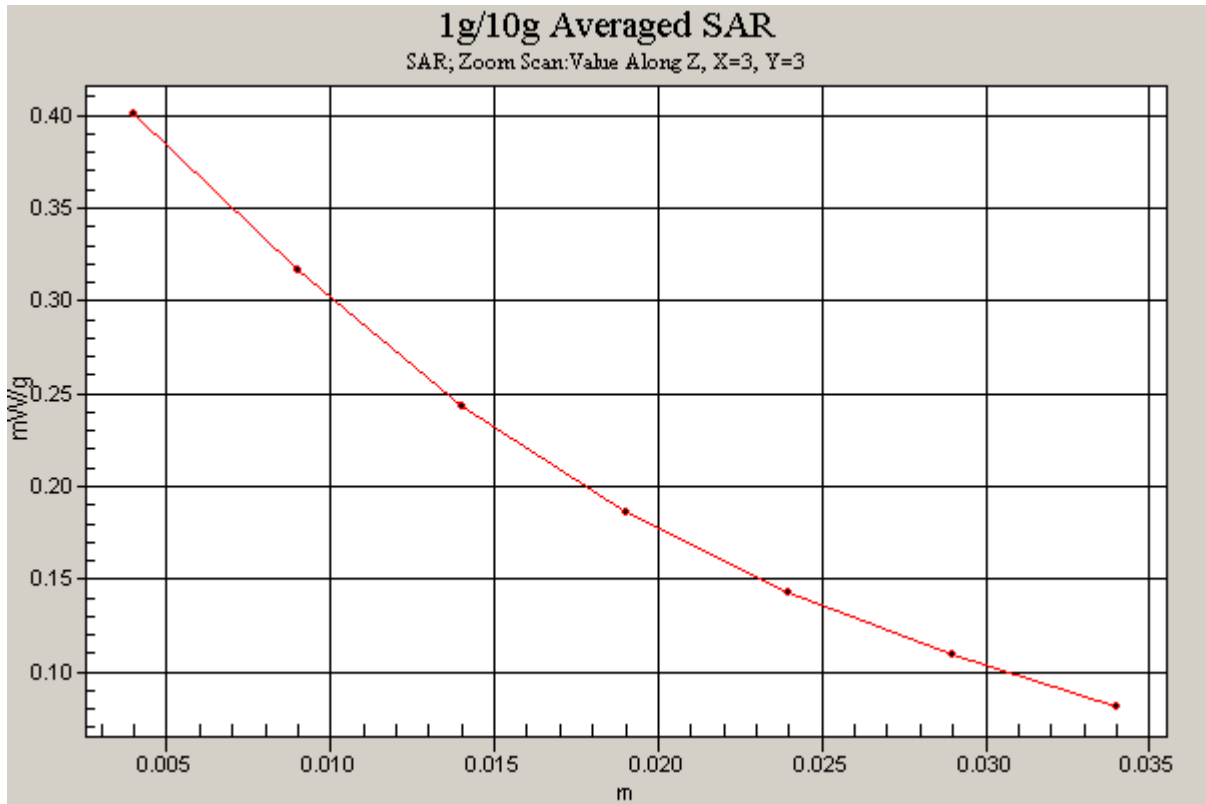


Figure 23 Z-Scan at power reference point (Right Hand Tilt 15 ° GSM 850 Channel 190)

GSM 850 Towards Ground High

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

Medium parameters used: $f = 849$ MHz; $\sigma = 1.02$ mho/m; $\epsilon_r = 55.4$; $\rho = 1000$ kg/m³

Probe: ET3DV6 - SN1531; ConvF(6.52, 6.52, 6.52);

Electronics: DAE4 Sn679;

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

Maximum value of SAR (interpolated) = 0.818 mW/g

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

Reference Value = 12.7 V/m; Power Drift = -0.185 dB

Peak SAR (extrapolated) = 0.920 W/kg

SAR(1 g) = 0.725 mW/g; SAR(10 g) = 0.536 mW/g

Maximum value of SAR (measured) = 0.788 mW/g

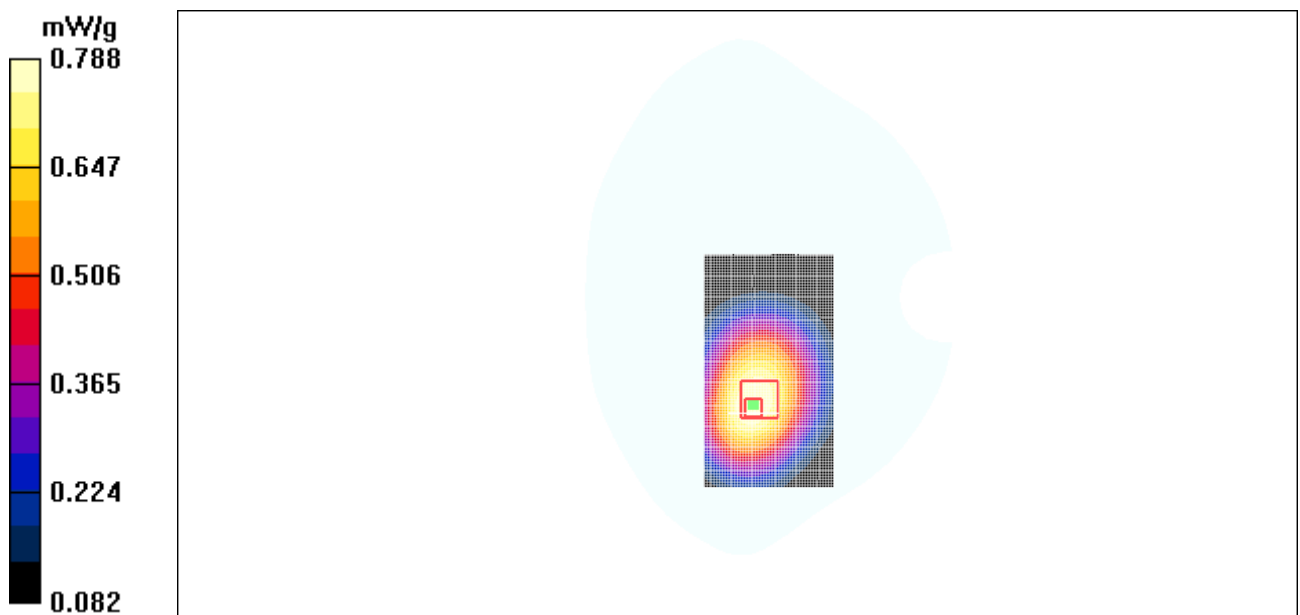


Figure 24 Body, Towards Ground, GSM 850 Channel 251

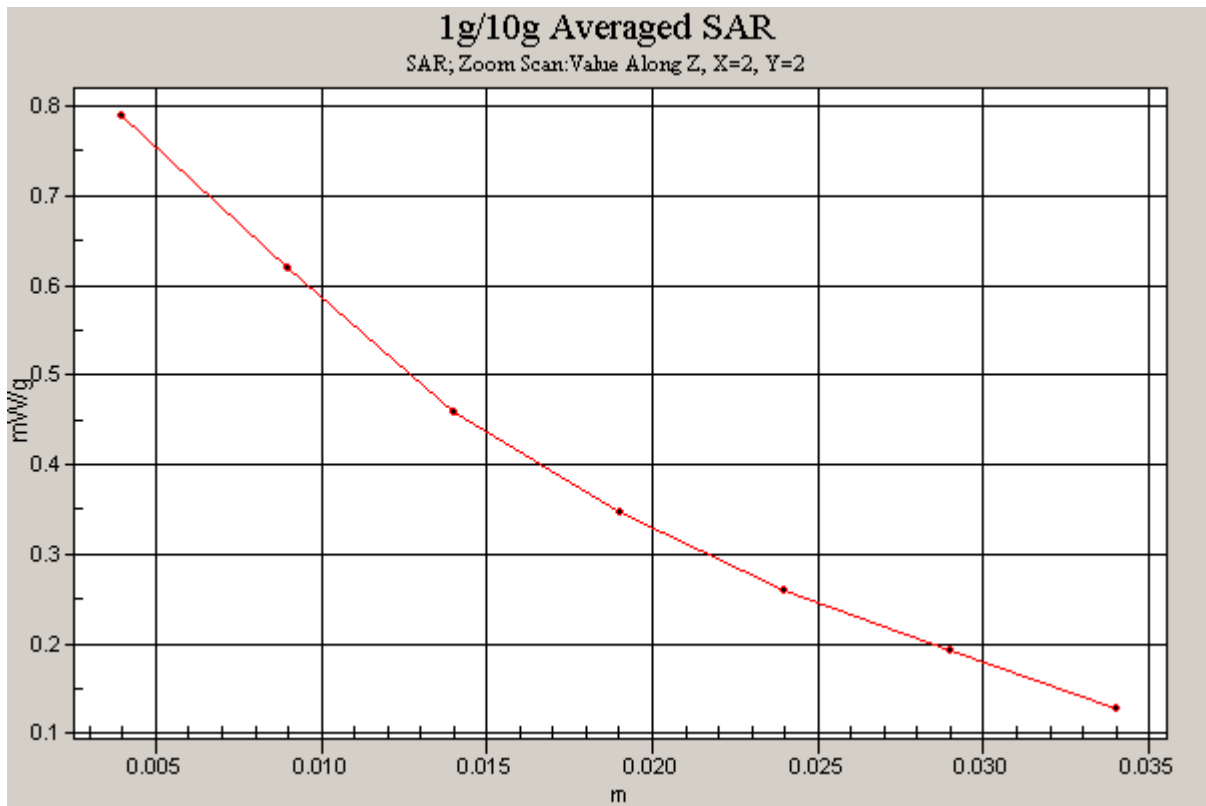


Figure 25 Z-Scan at power reference point (Body, Towards Ground, GSM 850 Channel 251)

GSM 850 Towards Ground Middle

Communication System: GSM 850; Frequency: 836.4 MHz; Duty Cycle: 1:8.3

Medium parameters used: $f = 837$ MHz; $\sigma = 1.01$ mho/m; $\epsilon_r = 55.5$; $\rho = 1000$ kg/m³

Probe: ET3DV6 - SN1531; ConvF(6.52, 6.52, 6.52);

Electronics: DAE4 Sn679;

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

Maximum value of SAR (interpolated) = 0.652 mW/g

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

Reference Value = 11.8 V/m; Power Drift = 0.121 dB

Peak SAR (extrapolated) = 0.831 W/kg

SAR(1 g) = 0.646 mW/g; SAR(10 g) = 0.468 mW/g

Maximum value of SAR (measured) = 0.711 mW/g

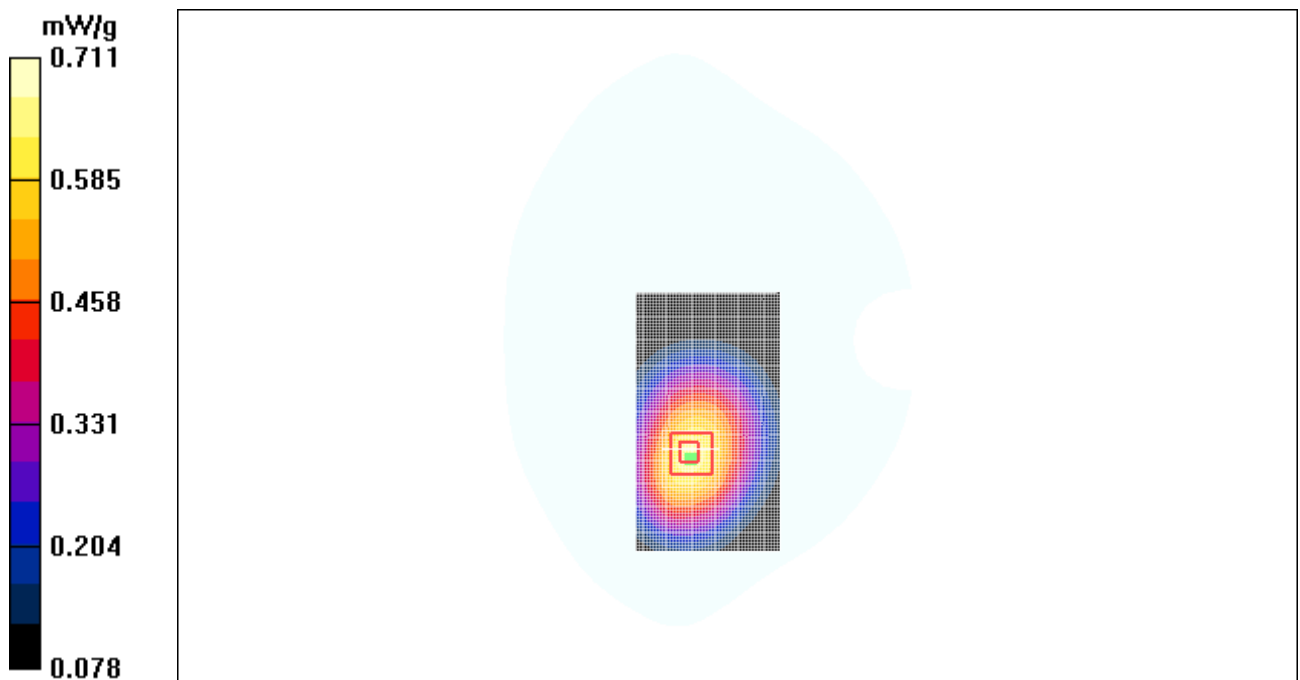


Figure 26 Body, Towards Ground, GSM 850 Channel 190

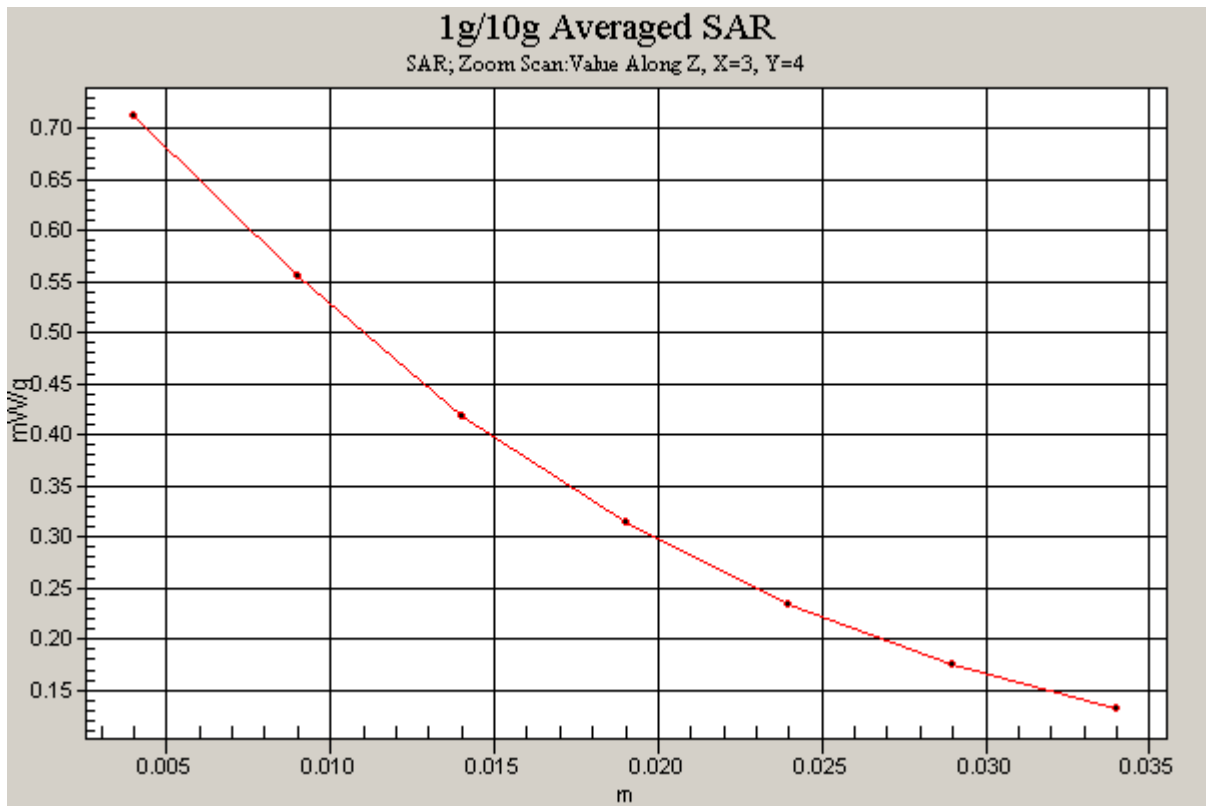


Figure 27 Z-Scan at power reference point (Body, Towards Ground, GSM 850 Channel 190)

GSM 850 Towards Ground Low

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

Medium parameters used (interpolated): $f = 824.2$ MHz; $\sigma = 0.996$ mho/m; $\epsilon_r = 55.6$; $\rho = 1000$ kg/m³

Probe: ET3DV6 - SN1531; ConvF(6.52, 6.52, 6.52);

Electronics: DAE4 Sn679;

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

Maximum value of SAR (interpolated) = 0.528 mW/g

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

Reference Value = 10.7 V/m; Power Drift = -0.069 dB

Peak SAR (extrapolated) = 0.614 W/kg

SAR(1 g) = 0.501 mW/g; SAR(10 g) = 0.370 mW/g

Maximum value of SAR (measured) = 0.531 mW/g

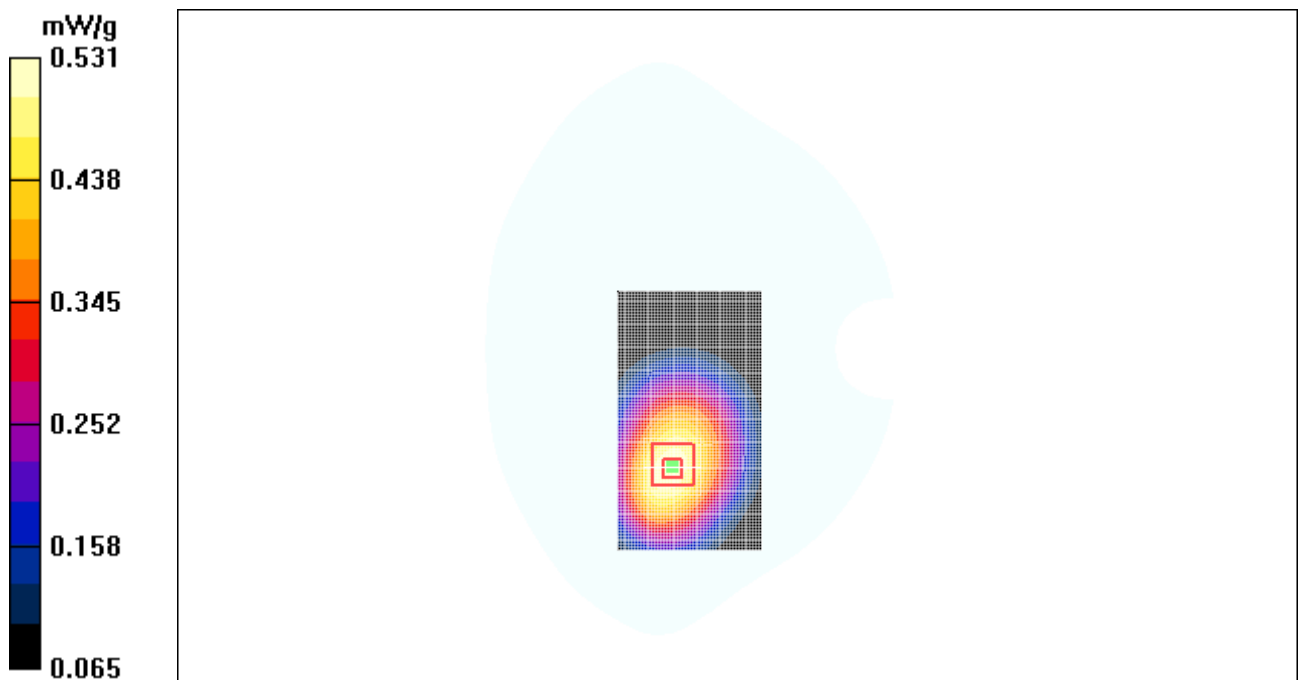


Figure 28 Body, Towards Ground, GSM 850 Channel 128

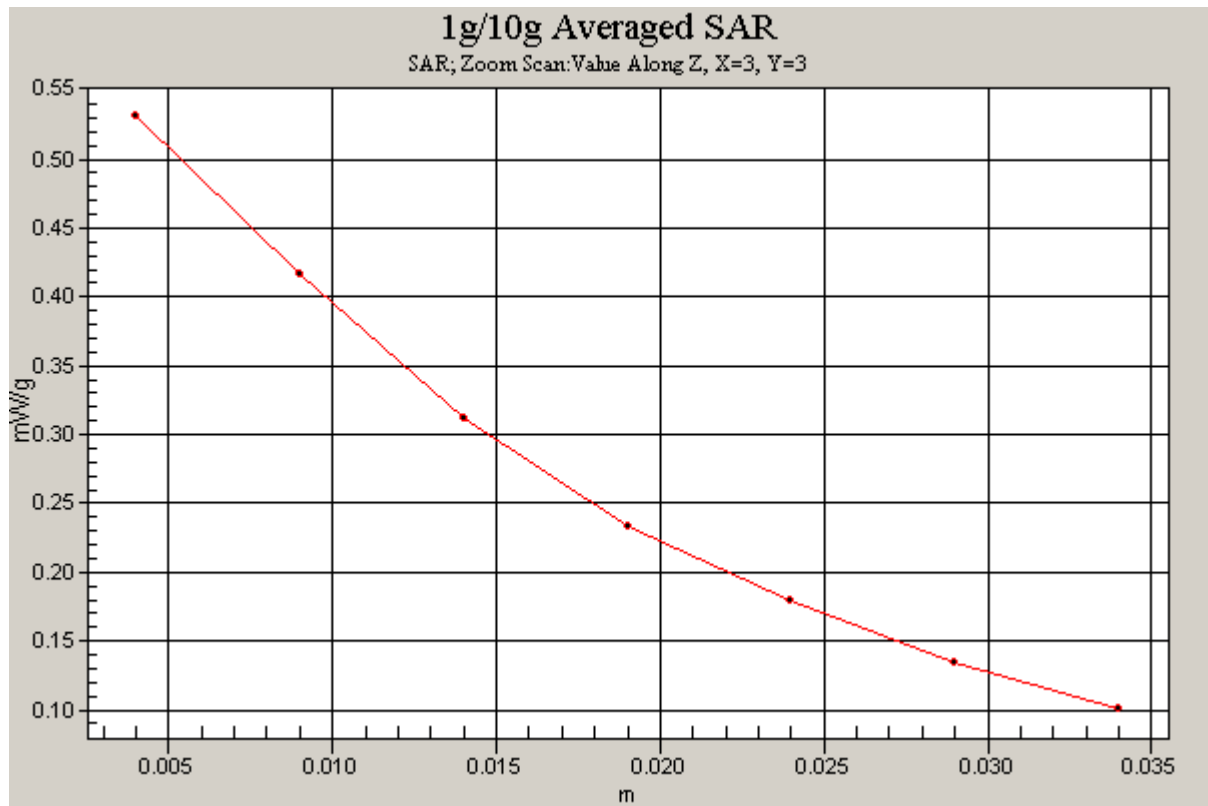


Figure 29 Z-Scan at power reference point (Body, Towards Ground, GSM 850 Channel 128)

GSM 850 Towards Phantom Middle

Communication System: GSM 850; Frequency: 836.4 MHz; Duty Cycle: 1:8.3

Medium parameters used: $f = 837$ MHz; $\sigma = 1.01$ mho/m; $\epsilon_r = 55.5$; $\rho = 1000$ kg/m³

Probe: ET3DV6 - SN1531; ConvF(6.52, 6.52, 6.52);

Electronics: DAE4 Sn679;

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

Maximum value of SAR (interpolated) = 0.625 mW/g

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

Reference Value = 11.3 V/m; Power Drift = 0.072 dB

Peak SAR (extrapolated) = 0.725 W/kg

SAR(1 g) = 0.585 mW/g; SAR(10 g) = 0.431 mW/g

Maximum value of SAR (measured) = 0.623 mW/g

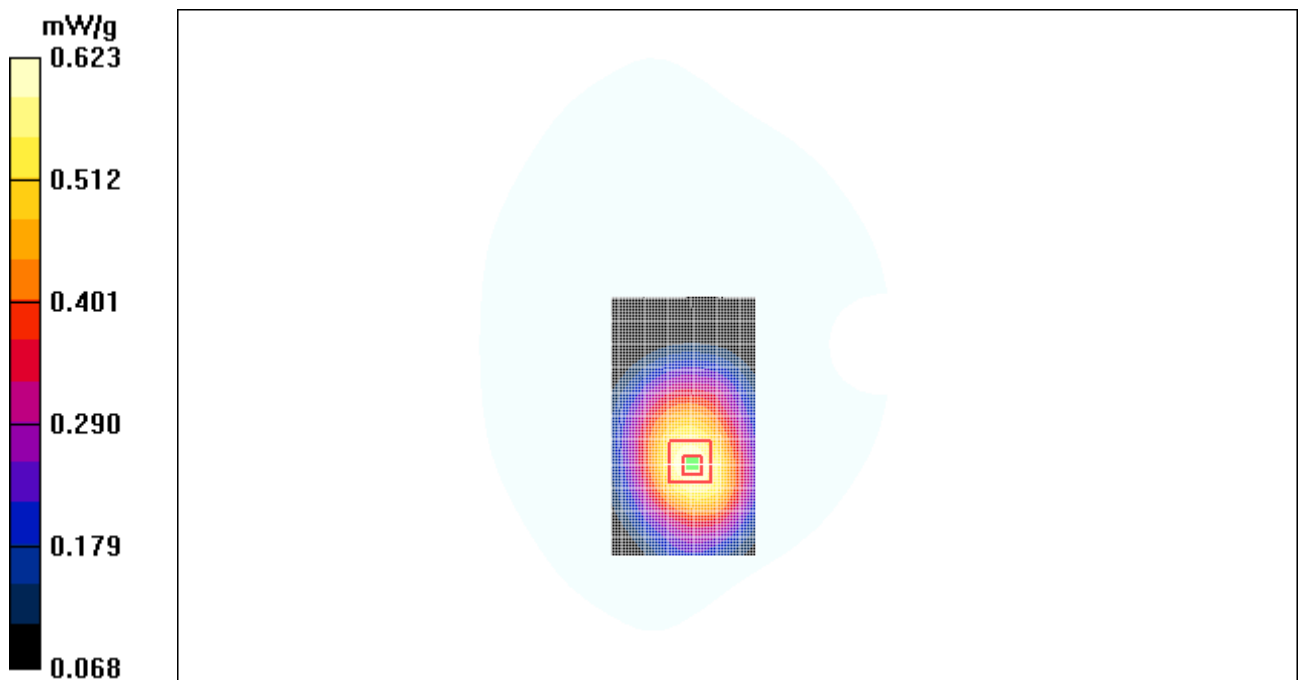


Figure 30 Body, Towards Phantom, GSM 850 Channel 190

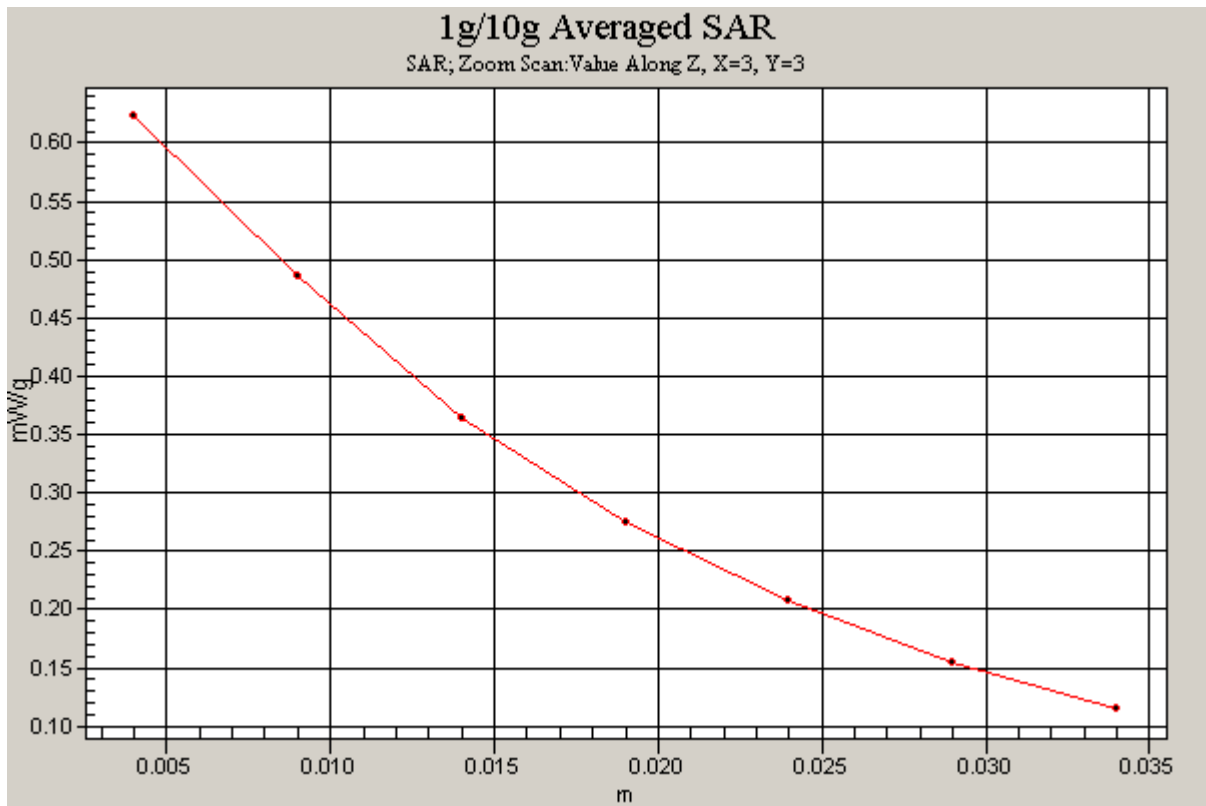


Figure 31 Z-Scan at power reference point (Body, Towards Phantom, GSM 850 Channel 190)

GSM 850 Earphone Towards Ground High

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

Medium parameters used: $f = 849$ MHz; $\sigma = 1.02$ mho/m; $\epsilon_r = 55.4$; $\rho = 1000$ kg/m³

Probe: ET3DV6 - SN1531; ConvF(6.52, 6.52, 6.52);

Electronics: DAE4 Sn679;

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

Maximum value of SAR (interpolated) = 0.642 mW/g

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

Reference Value = 10.8 V/m; Power Drift = 0.066 dB

Peak SAR (extrapolated) = 0.749 W/kg

SAR(1 g) = 0.599 mW/g; SAR(10 g) = 0.436 mW/g

Maximum value of SAR (measured) = 0.640 mW/g

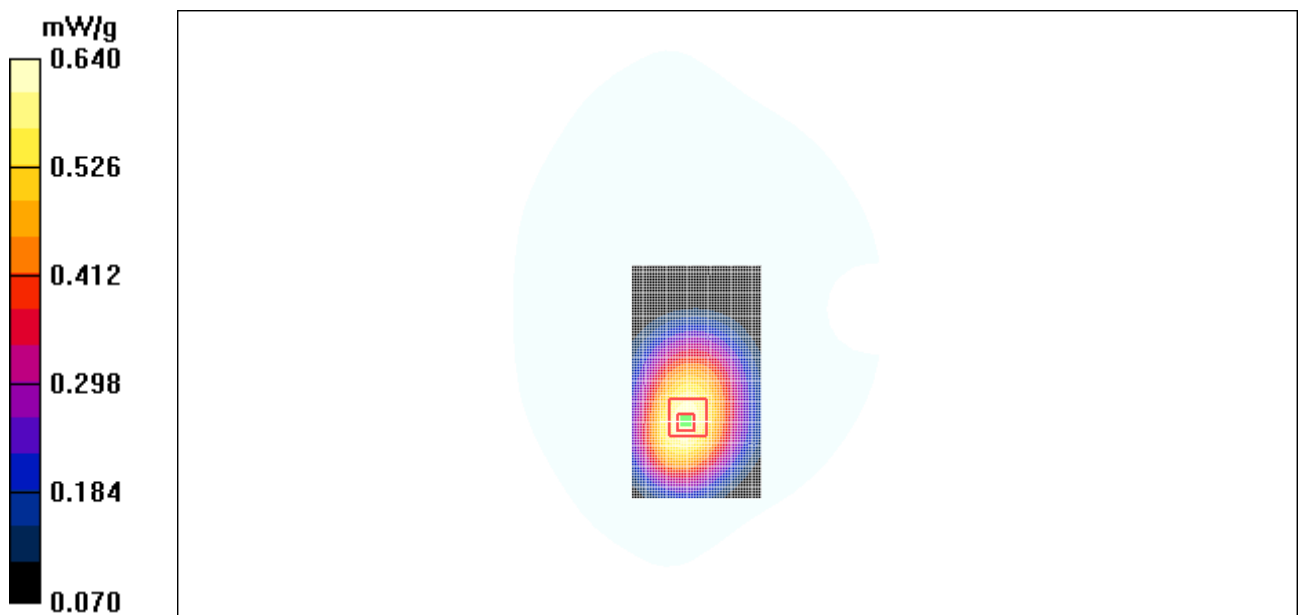


Figure 32 Body with Earphone, Towards Ground, GSM 850, Channel 251

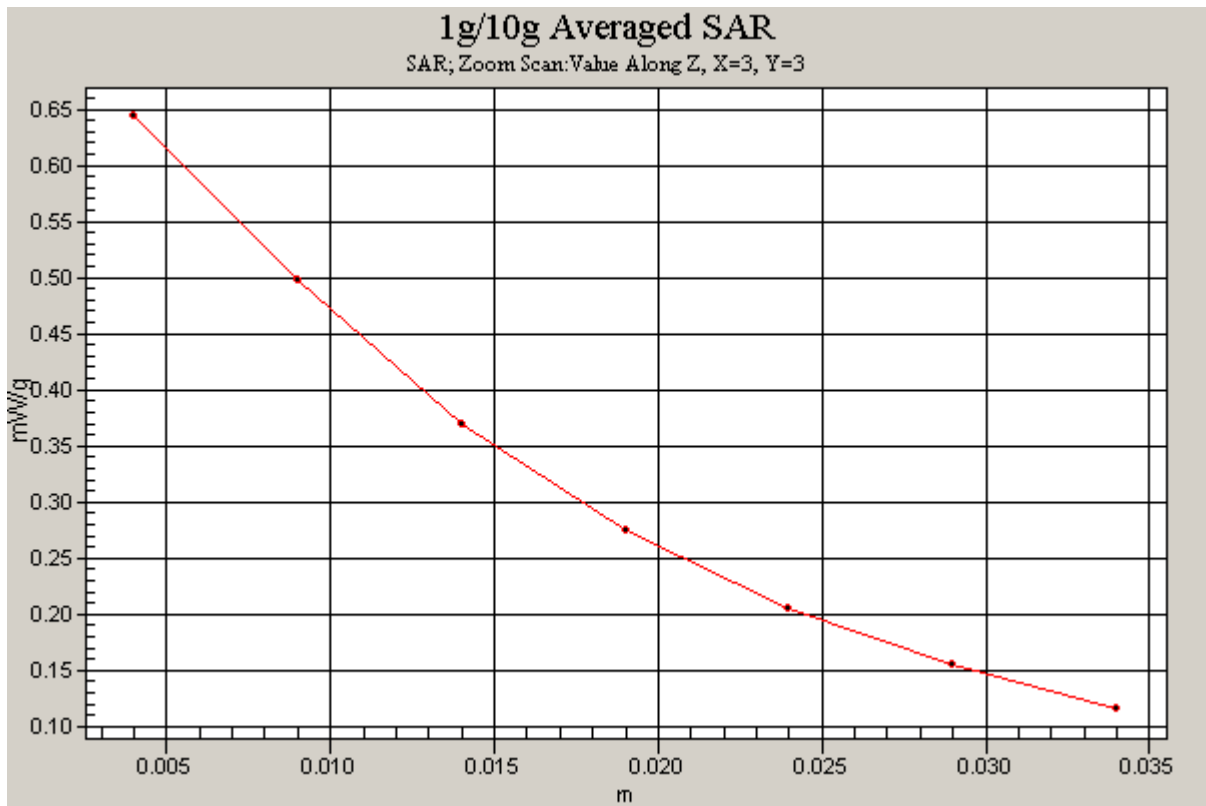


Figure 33 Z-Scan at power reference point (Body with Earphone, Towards Ground, GSM 850, Channel 251)

GSM 850 Bluetooth Towards Ground High

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

Medium parameters used: $f = 849$ MHz; $\sigma = 1.02$ mho/m; $\epsilon_r = 55.4$; $\rho = 1000$ kg/m³

Probe: ET3DV6 - SN1531; ConvF(6.52, 6.52, 6.52);

Electronics: DAE4 Sn679;

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

Maximum value of SAR (interpolated) = 0.944 mW/g

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

Reference Value = 14.5 V/m; Power Drift = -0.185 dB

Peak SAR (extrapolated) = 1.14 W/kg

SAR(1 g) = 0.899 mW/g; SAR(10 g) = 0.648 mW/g

Maximum value of SAR (measured) = 0.967 mW/g

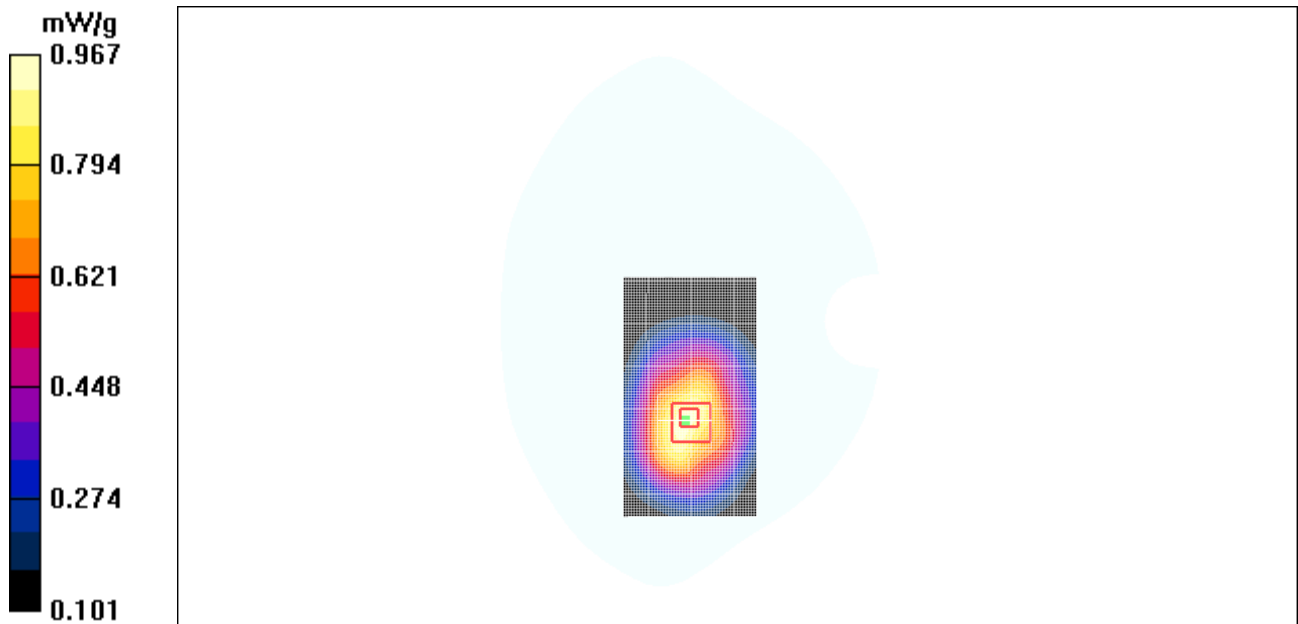


Figure 34 Body with Bluetooth, Towards Ground, GSM 850, Channel 251

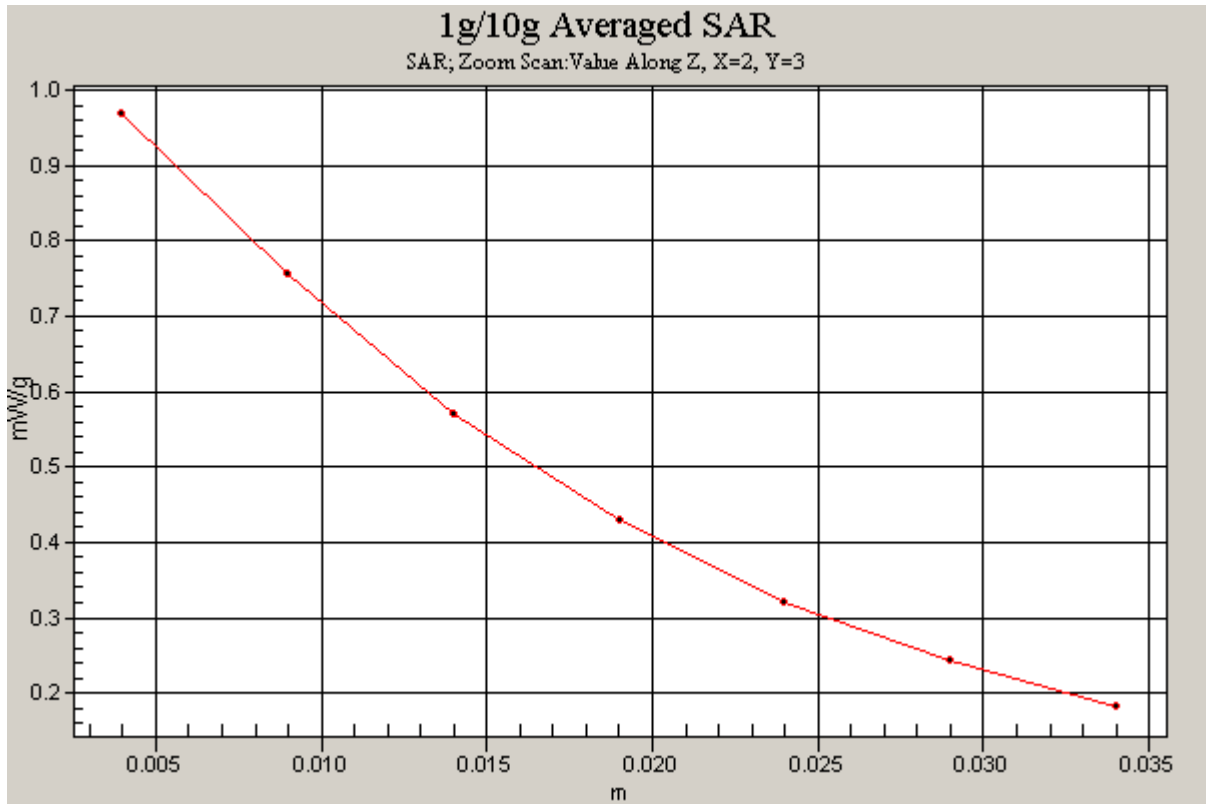


Figure 35 Z-Scan at power reference point (Body with Bluetooth, Towards Ground, GSM 850, Channel 251)

GSM 850 GPRS Towards Ground High

Communication System: GSM 850+GPRS(4Up); Frequency: 848.8 MHz; Duty Cycle: 1:2

Medium parameters used: $f = 849$ MHz; $\sigma = 1.02$ mho/m; $\epsilon_r = 55.4$; $\rho = 1000$ kg/m³

Probe: ET3DV6 - SN1531; ConvF(6.52, 6.52, 6.52);

Electronics: DAE4 Sn679;

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

Maximum value of SAR (interpolated) = 0.593 mW/g

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

Reference Value = 9.98 V/m; Power Drift = -0.146 dB

Peak SAR (extrapolated) = 0.653 W/kg

SAR(1 g) = 0.531 mW/g; SAR(10 g) = 0.389 mW/g

Maximum value of SAR (measured) = 0.564 mW/g

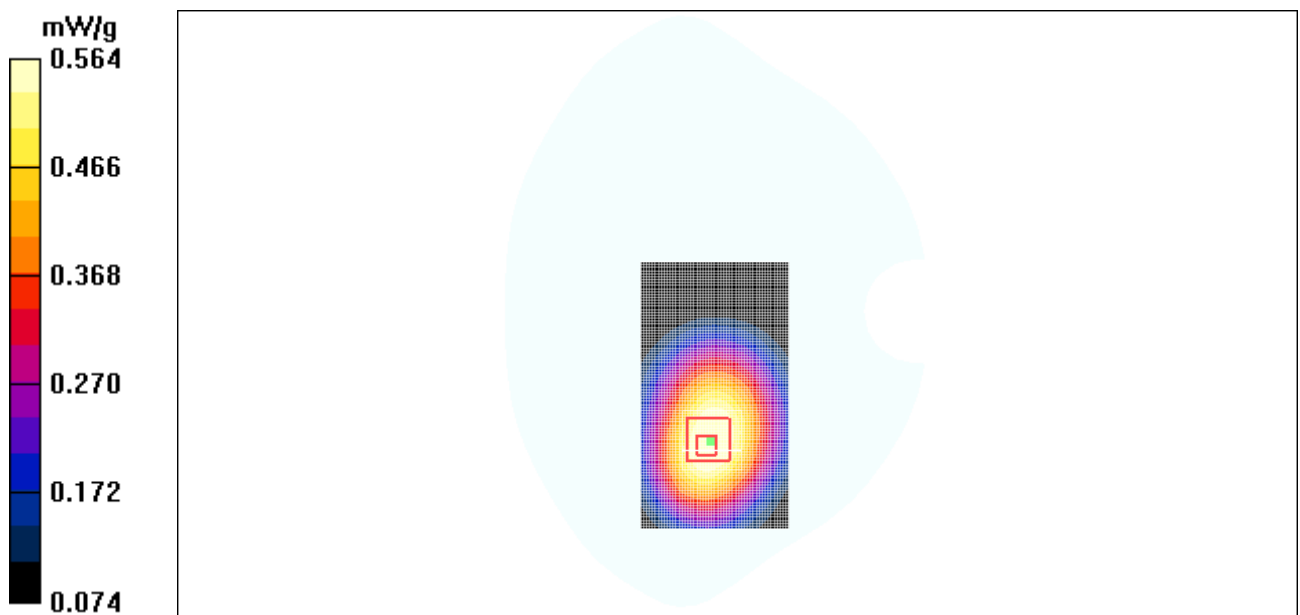


Figure 36 Body, Towards Ground, GSM 850 GPRS, Channel 251

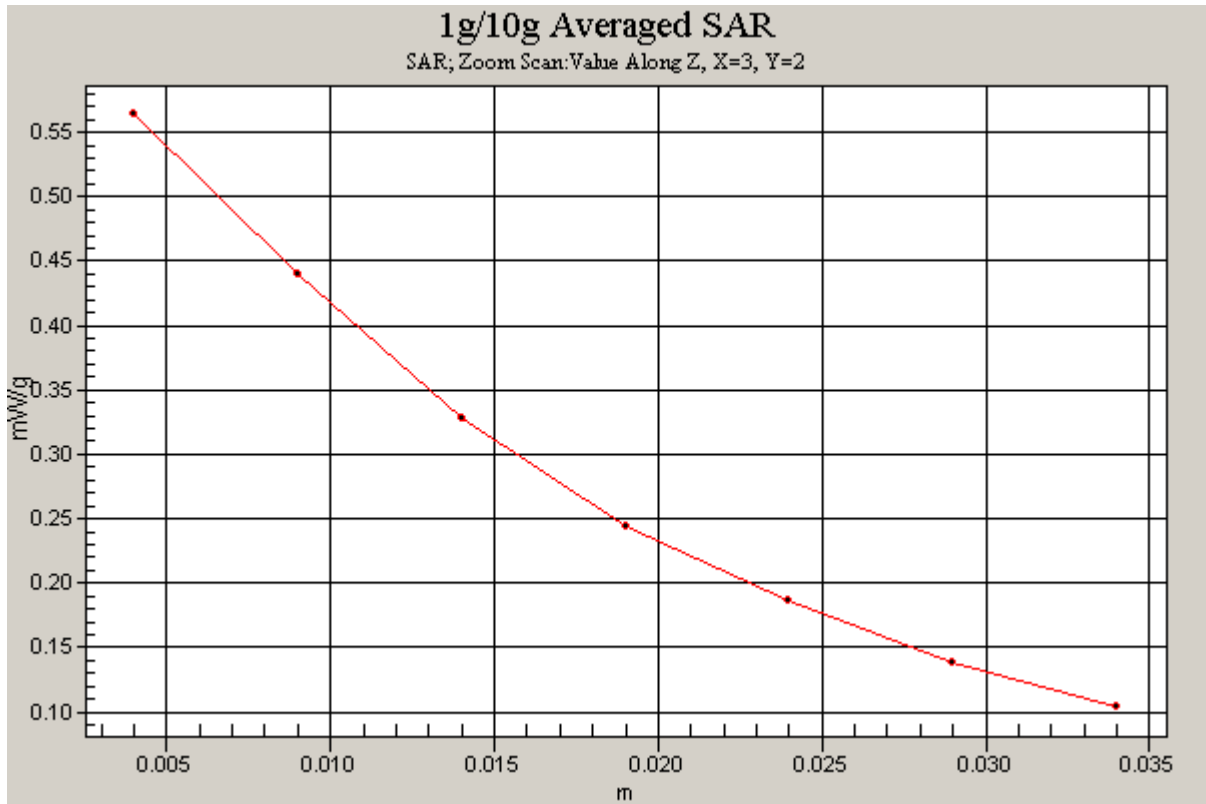


Figure 37 Z-Scan at power reference point (Body, Towards Ground, GSM 850 GPRS, Channel 251)

GSM 850 EGPRS Towards Ground High

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

Medium parameters used: $f = 849$ MHz; $\sigma = 1.02$ mho/m; $\epsilon_r = 55.4$; $\rho = 1000$ kg/m³

Probe: ET3DV6 - SN1531; ConvF(6.52, 6.52, 6.52);

Electronics: DAE4 Sn679;

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

Maximum value of SAR (interpolated) = 0.219 mW/g

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

Reference Value = 7.68 V/m; Power Drift = -0.063 dB

Peak SAR (extrapolated) = 0.294 W/kg

SAR(1 g) = 0.230 mW/g; SAR(10 g) = 0.168 mW/g

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

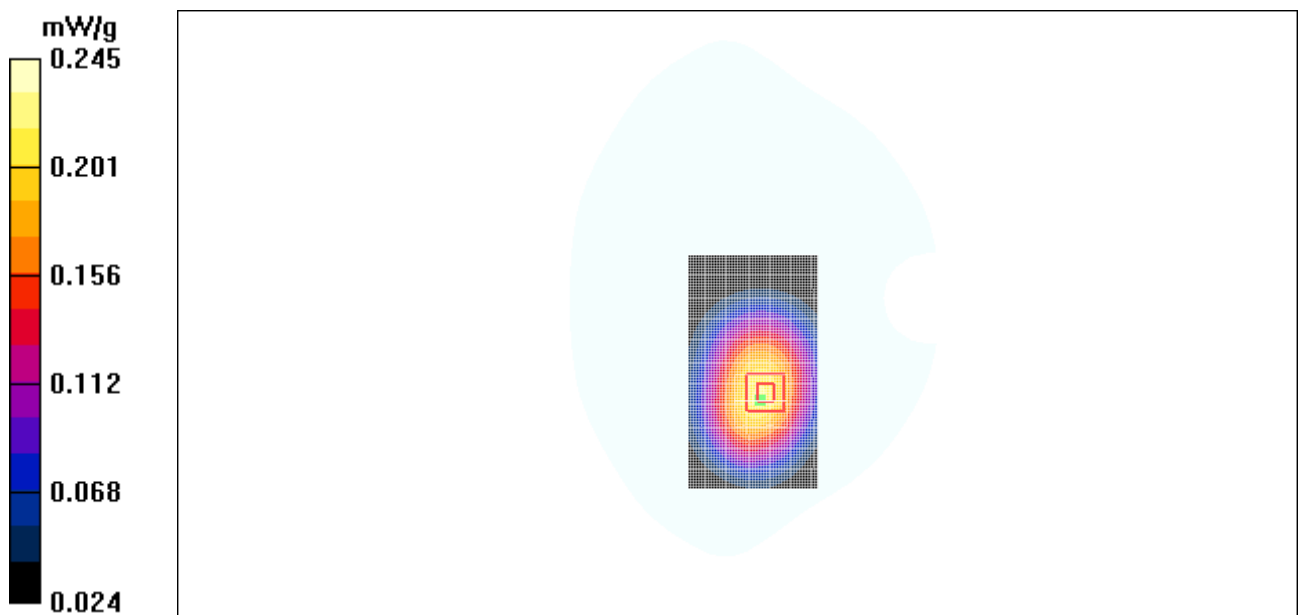


Figure 38 Body, Towards Ground, GSM 850 EGPRS, Channel 251

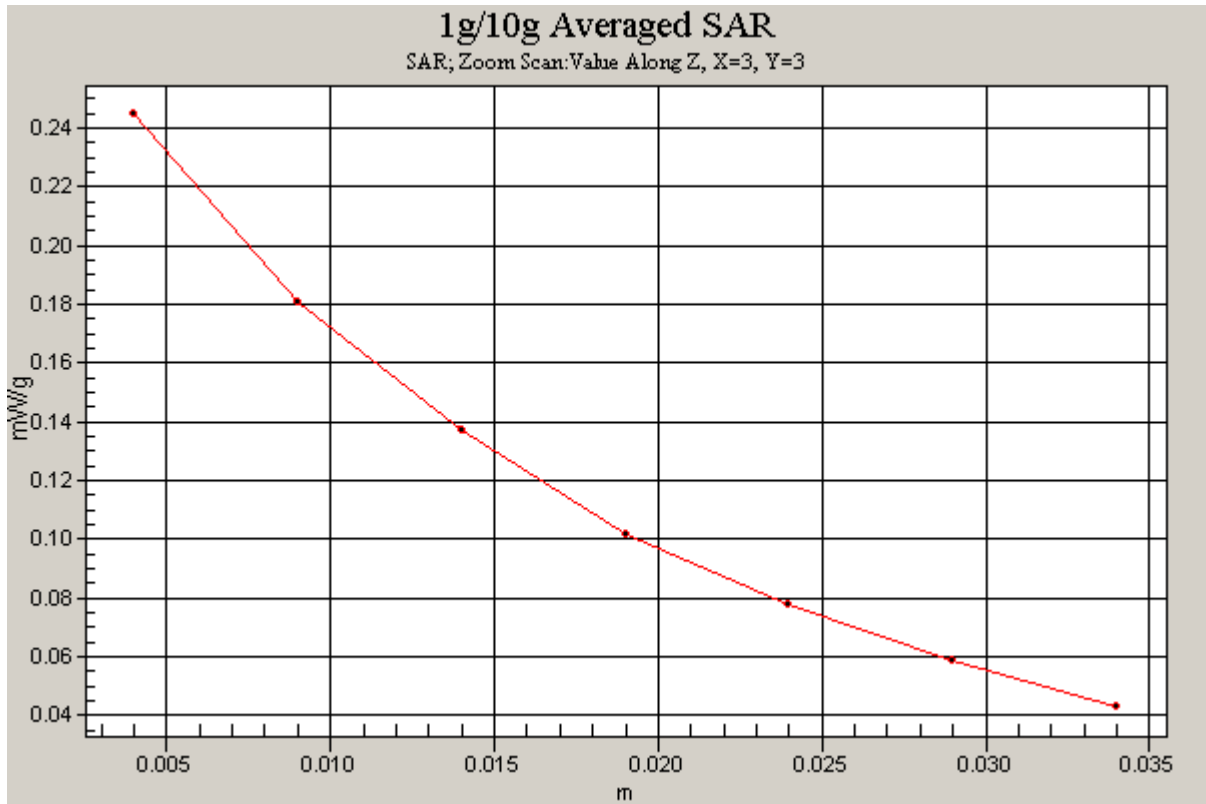


Figure 39 Z-Scan at power reference point (Body, Towards Ground, GSM 850 EGPRS, Channel 251)

GSM 1900 Left Cheek Middle

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

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.4$ mho/m; $\epsilon_r = 39.9$; $\rho = 1000$ kg/m³

Probe: ET3DV6 - SN1531; ConvF(5.15, 5.15, 5.15);

Electronics: DAE4 Sn679;

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

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

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

Reference Value = 7.12 V/m; Power Drift = 0.008 dB

Peak SAR (extrapolated) = 0.468 W/kg

SAR(1 g) = 0.342 mW/g; SAR(10 g) = 0.217 mW/g

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

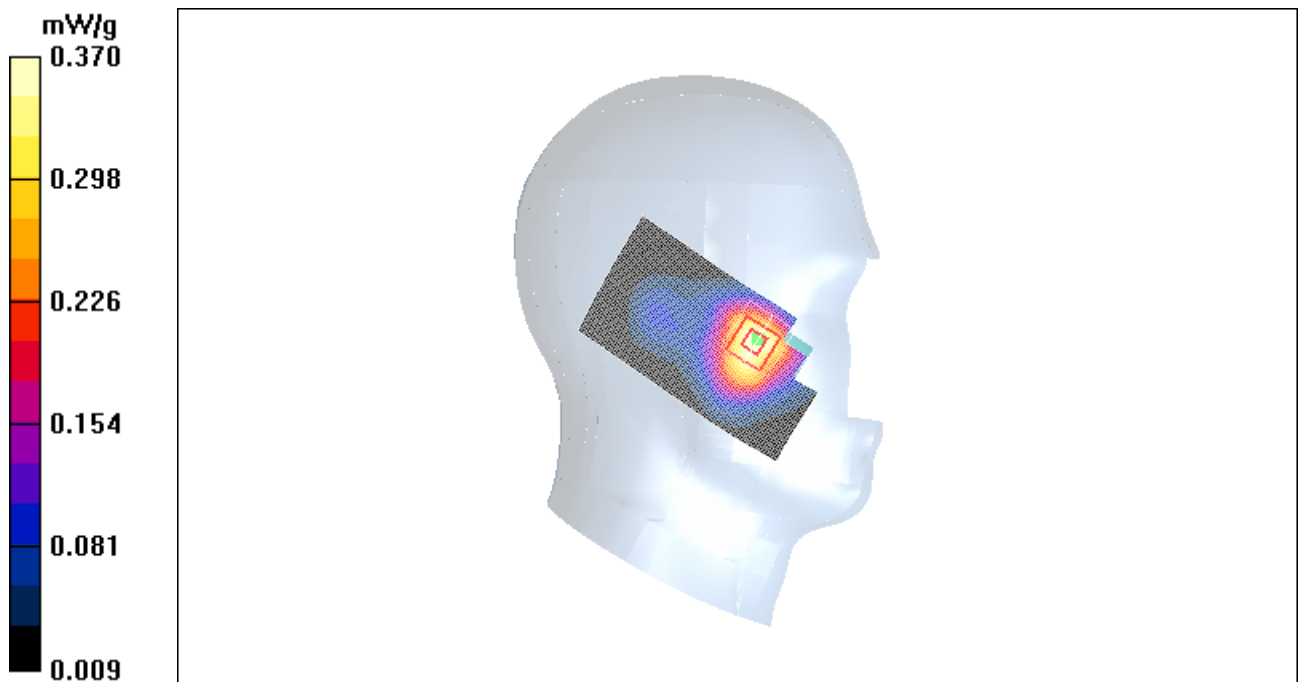


Figure 40 Left Hand Touch Cheek GSM 1900 Channel 661

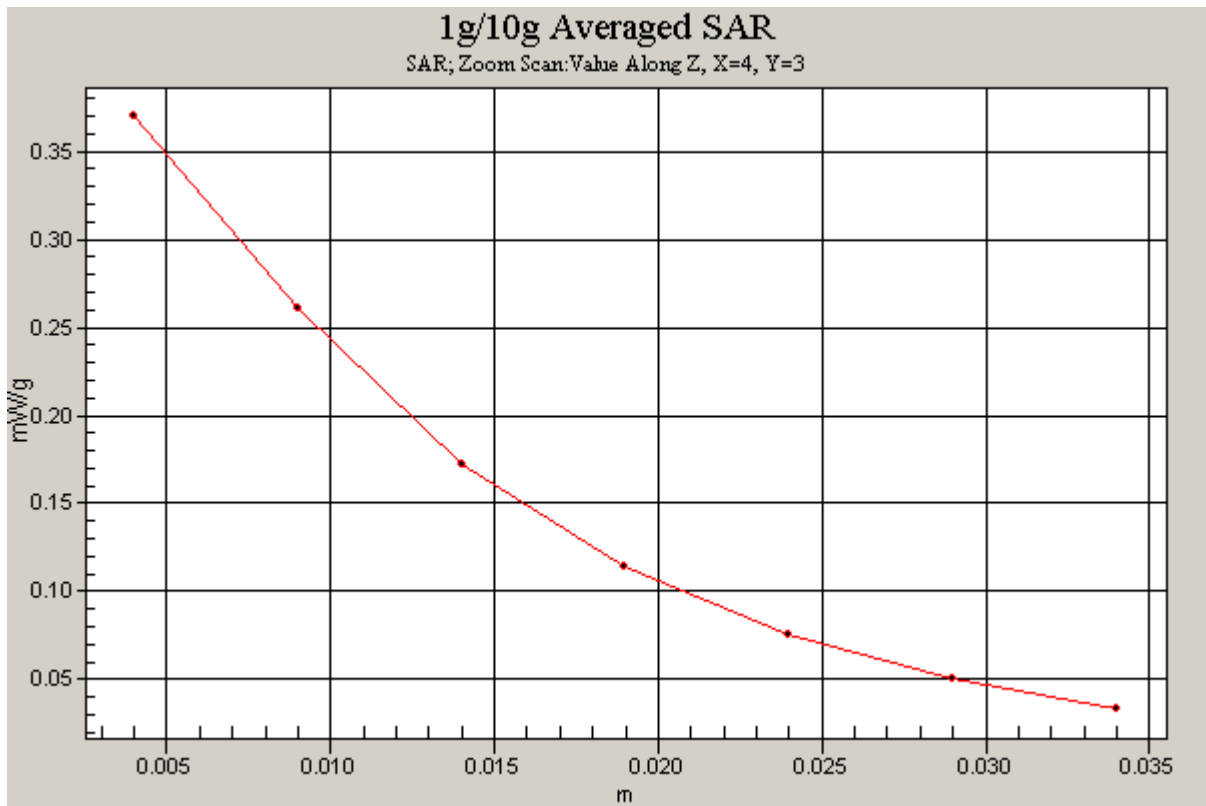


Figure 41 Z-Scan at power reference point (Left Hand Touch Cheek GSM 1900 Channel 661)

GSM 1900 Left Tilt Middle

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

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.4$ mho/m; $\epsilon_r = 39.9$; $\rho = 1000$ kg/m³

Probe: ET3DV6 - SN1531; ConvF(5.15, 5.15, 5.15);

Electronics: DAE4 Sn679;

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

Maximum value of SAR (interpolated) = 0.088 mW/g

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

Reference Value = 7.87 V/m; Power Drift = 0.011 dB

Peak SAR (extrapolated) = 0.103 W/kg

SAR(1 g) = 0.076 mW/g; SAR(10 g) = 0.050 mW/g

Maximum value of SAR (measured) = 0.082 mW/g

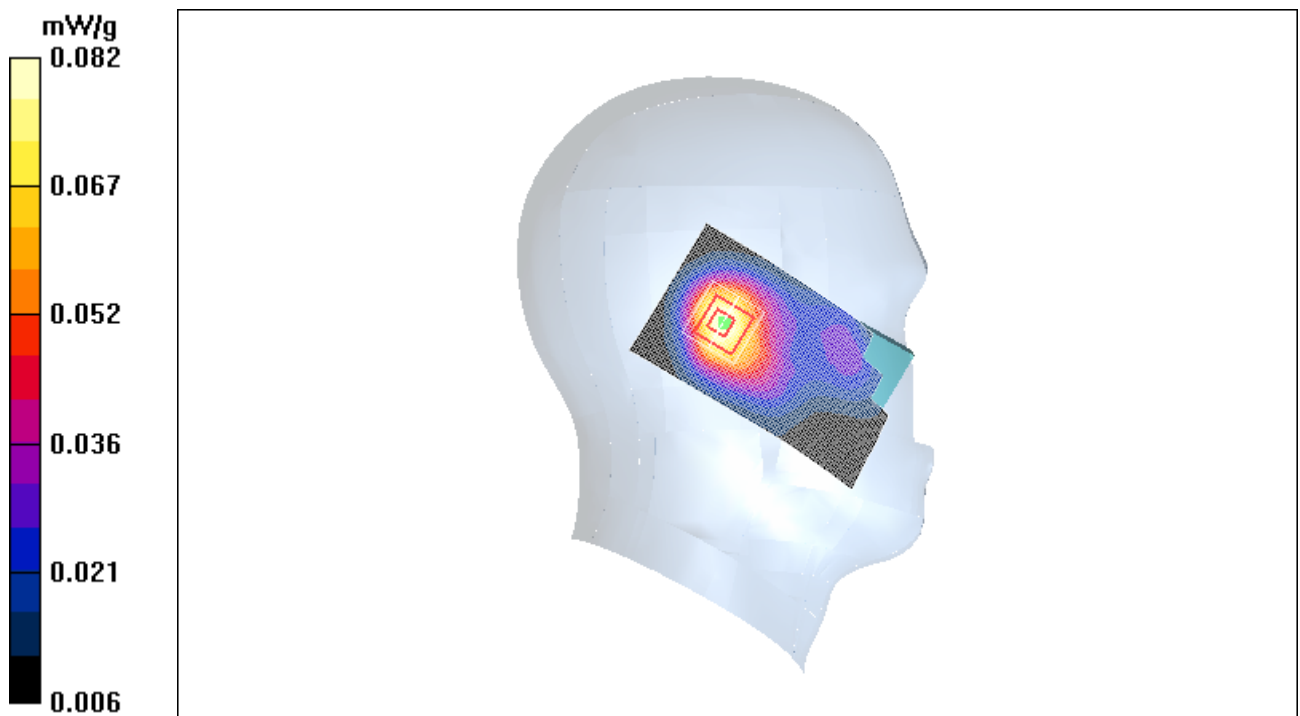


Figure 42 Left Hand Tilt 15 ° GSM 1900 Channel 661

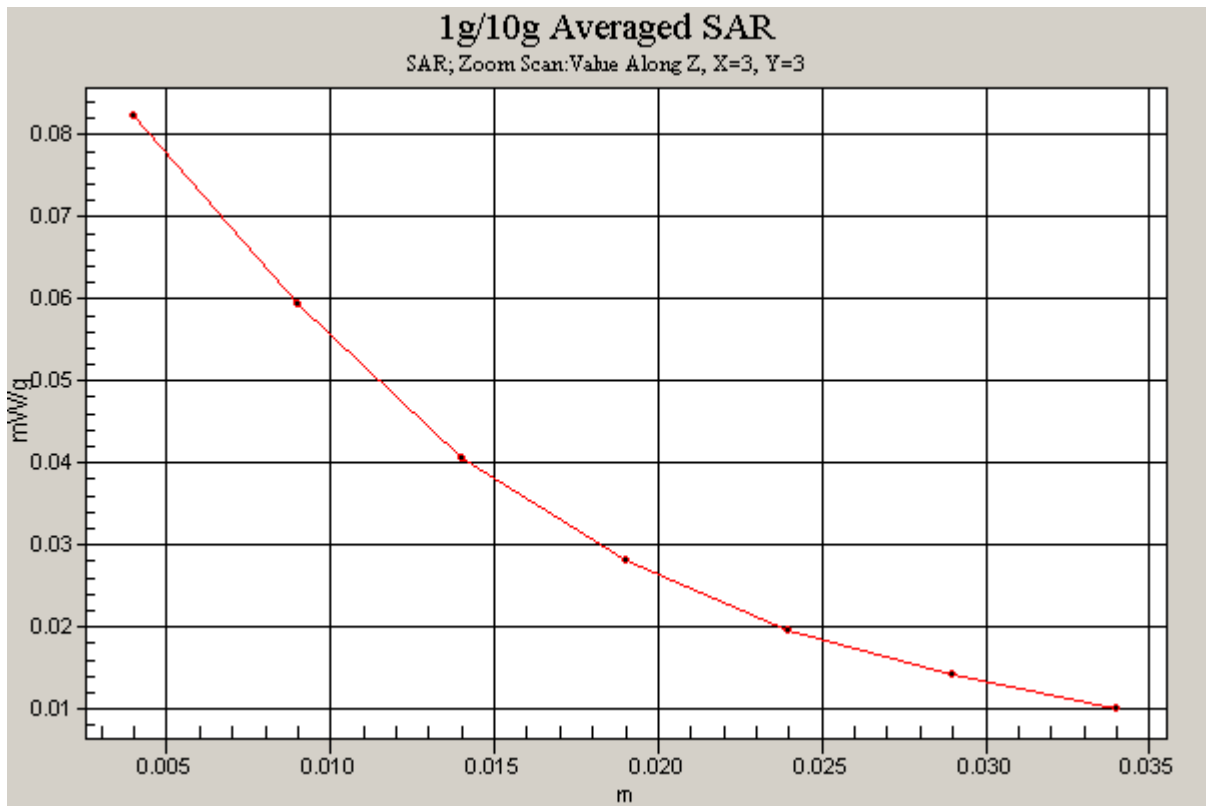


Figure 43 Z-Scan at power reference point (Left Hand Tilt 15 ° GSM 1900 Channel 661)

GSM 1900 Right Cheek High

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

Medium parameters used: $f = 1910$ MHz; $\sigma = 1.43$ mho/m; $\epsilon_r = 39.8$; $\rho = 1000$ kg/m³

Probe: ET3DV6 - SN1531; ConvF(5.15, 5.15, 5.15);

Electronics: DAE4 Sn679;

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

Maximum value of SAR (interpolated) = 0.478 mW/g

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

Reference Value = 7.21 V/m; Power Drift = 0.054 dB

Peak SAR (extrapolated) = 0.585 W/kg

SAR(1 g) = 0.402 mW/g; SAR(10 g) = 0.238 mW/g

Maximum value of SAR (measured) = 0.457 mW/g

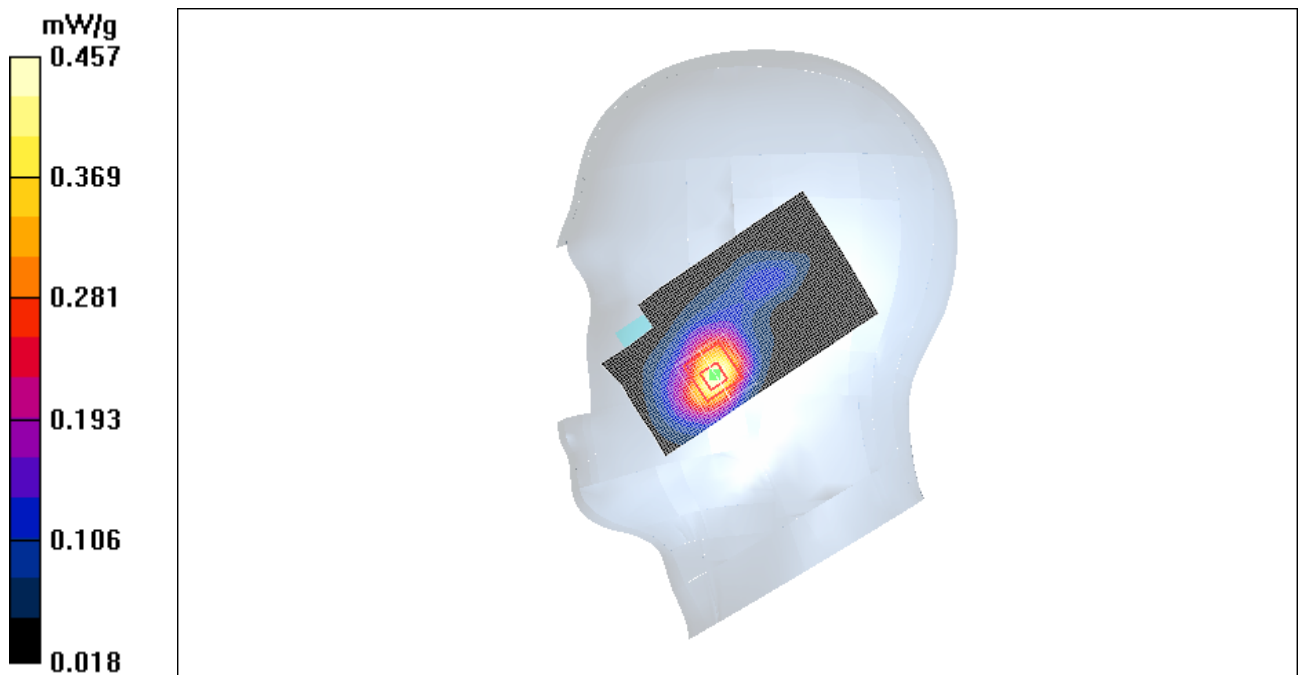


Figure 44 Right Hand Touch Cheek GSM 1900 Channel 810

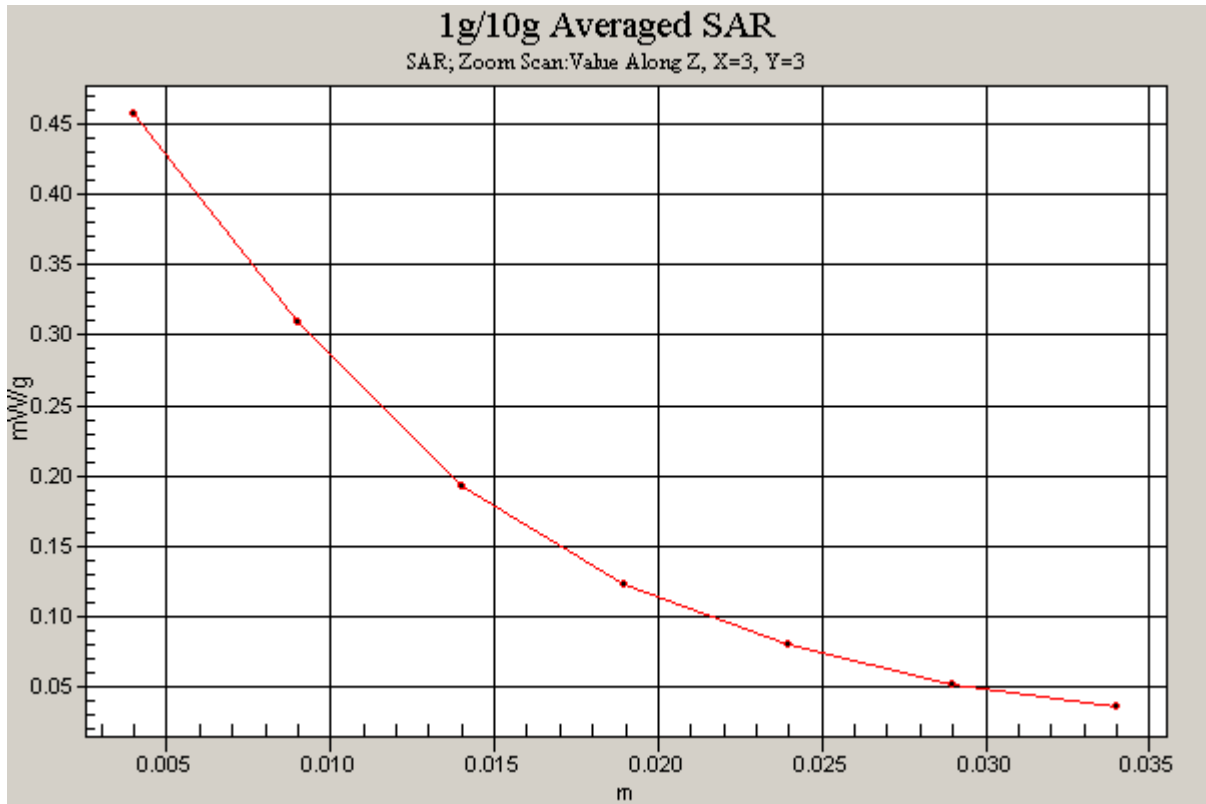


Figure 45 Z-Scan at power reference point (Right Hand Touch Cheek GSM 1900 Channel 810)

GSM 1900 Right Cheek Middle

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

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.4$ mho/m; $\epsilon_r = 39.9$; $\rho = 1000$ kg/m³

Probe: ET3DV6 - SN1531; ConvF(5.15, 5.15, 5.15);

Electronics: DAE4 Sn679;

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

Maximum value of SAR (interpolated) = 0.739 mW/g

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

Reference Value = 8.38 V/m; Power Drift = -0.026 dB

Peak SAR (extrapolated) = 0.894 W/kg

SAR(1 g) = 0.606 mW/g; SAR(10 g) = 0.355 mW/g

Maximum value of SAR (measured) = 0.680 mW/g

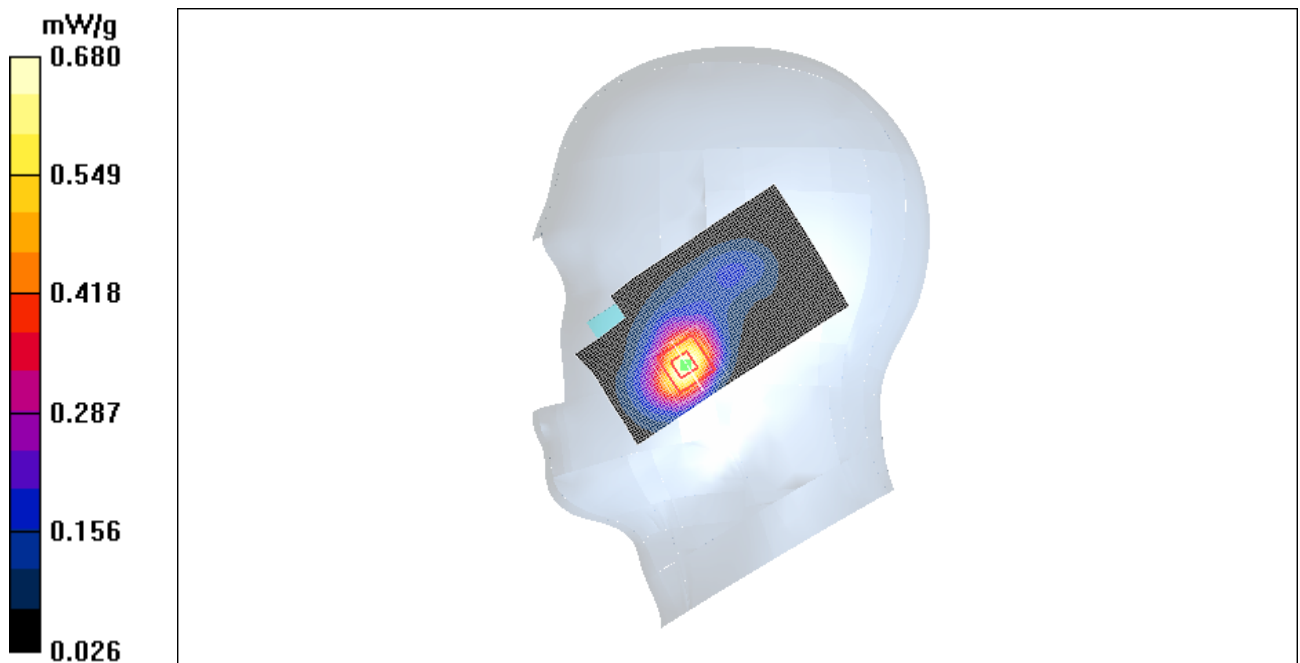


Figure 46 Right Hand Touch Cheek GSM 1900 Channel 661

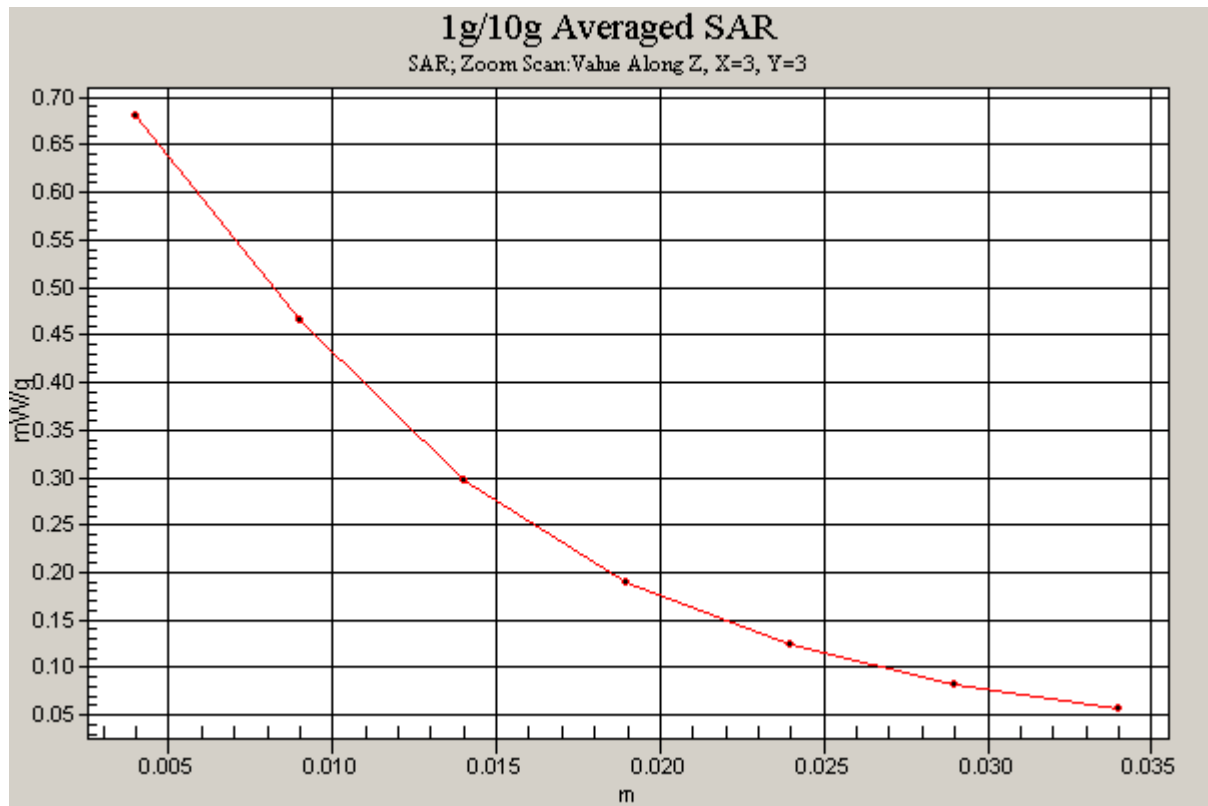


Figure 47 Z-Scan at power reference point (Right Hand Touch Cheek GSM 1900 Channel 661)

GSM 1900 Right Cheek Low

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

Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.37$ mho/m; $\epsilon_r = 40$; $\rho = 1000$ kg/m³

Probe: ET3DV6 - SN1531; ConvF(5.15, 5.15, 5.15);

Electronics: DAE4 Sn679;

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

Maximum value of SAR (interpolated) = 0.996 mW/g

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

Reference Value = 10.1 V/m; Power Drift = 0.074 dB

Peak SAR (extrapolated) = 1.20 W/kg

SAR(1 g) = 0.820 mW/g; SAR(10 g) = 0.482 mW/g

Maximum value of SAR (measured) = 0.918 mW/g

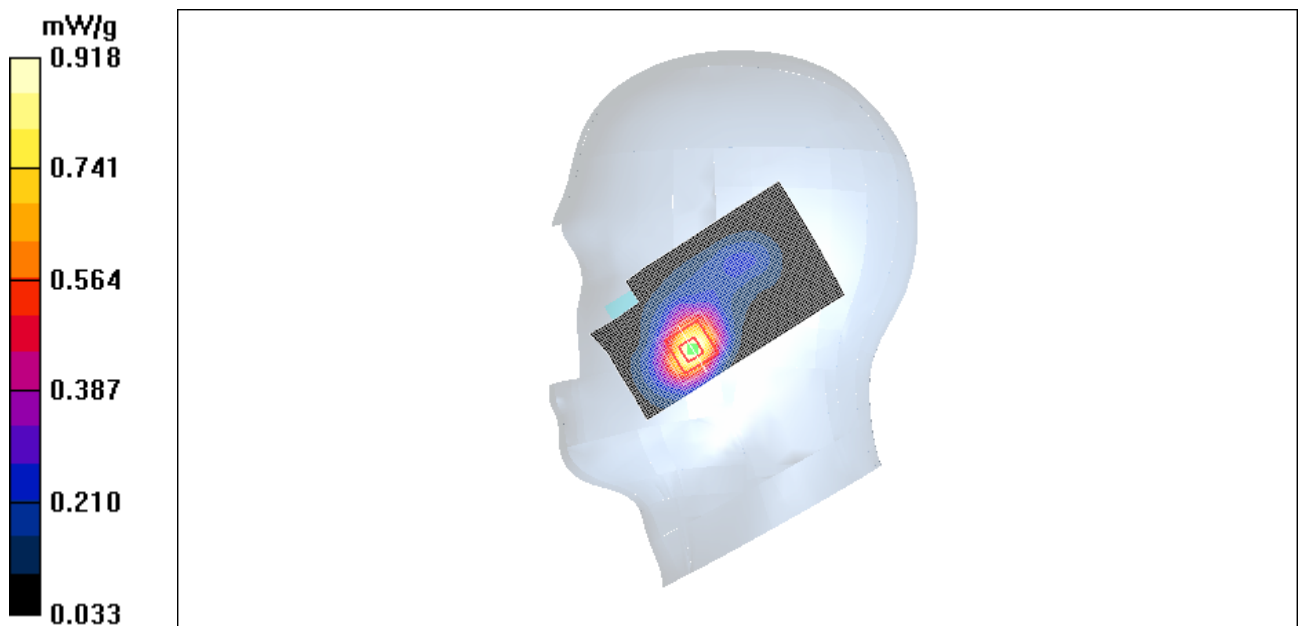


Figure 48 Right Hand Touch Cheek GSM 1900 Channel 512

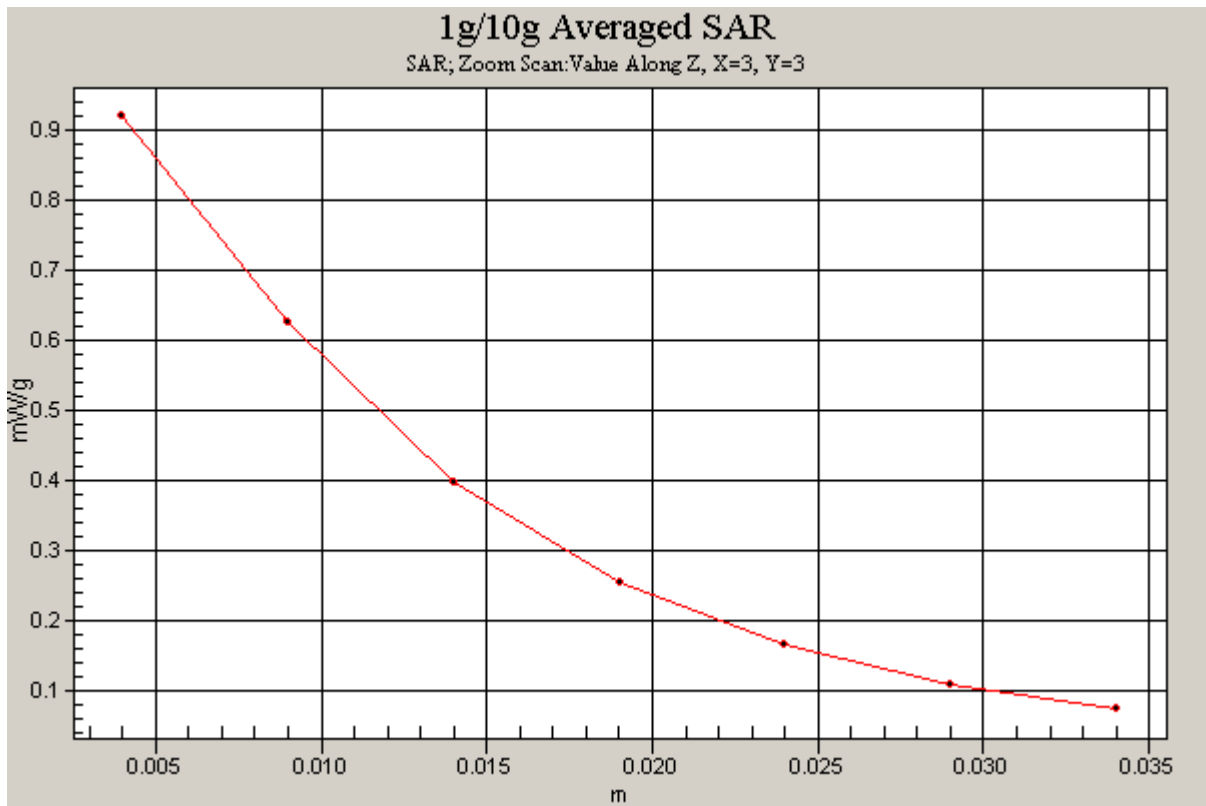


Figure 49 Z-Scan at power reference point (Right Hand Touch Cheek GSM 1900 Channel 512)

GSM 1900 Right Tilt Middle

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

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.4$ mho/m; $\epsilon_r = 39.9$; $\rho = 1000$ kg/m³

Probe: ET3DV6 - SN1531; ConvF(5.15, 5.15, 5.15);

Electronics: DAE4 Sn679;

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

Maximum value of SAR (interpolated) = 0.119 mW/g

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

Reference Value = 9.43 V/m; Power Drift = -0.191 dB

Peak SAR (extrapolated) = 0.146 W/kg

SAR(1 g) = 0.103 mW/g; SAR(10 g) = 0.068mW/g

Maximum value of SAR (measured) = 0.111 mW/g

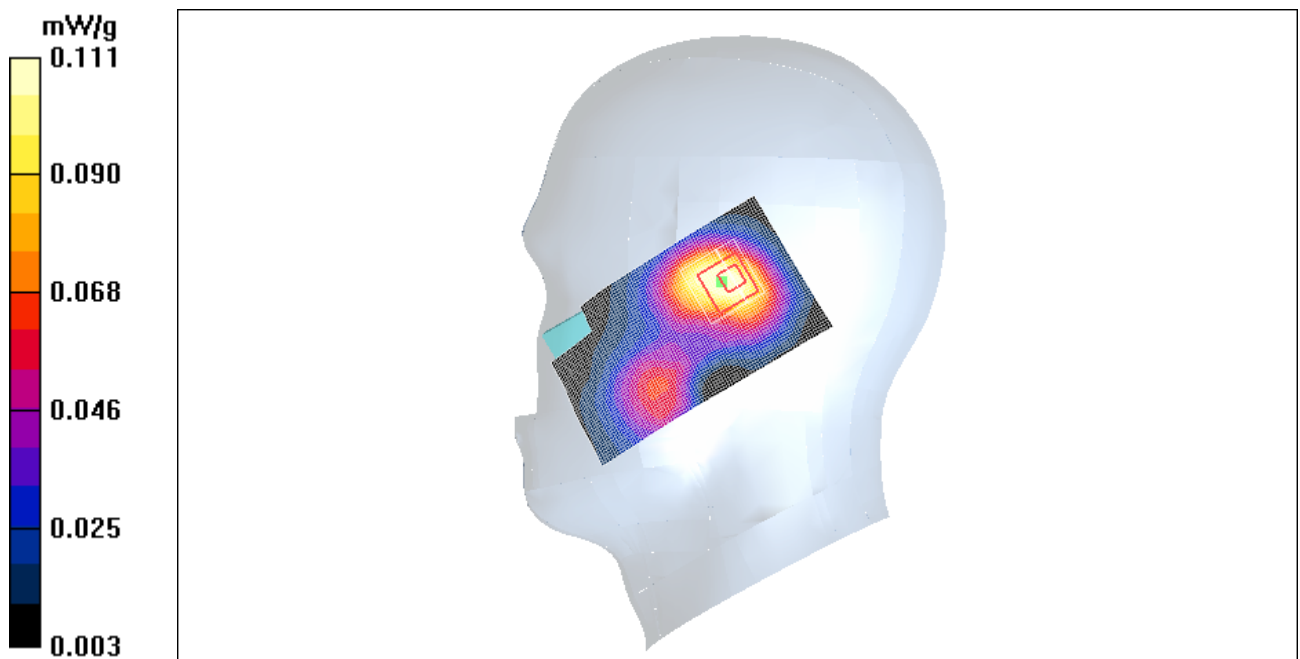


Figure 50 Right Hand Tilt 15 ° GSM 1900 Channel 661

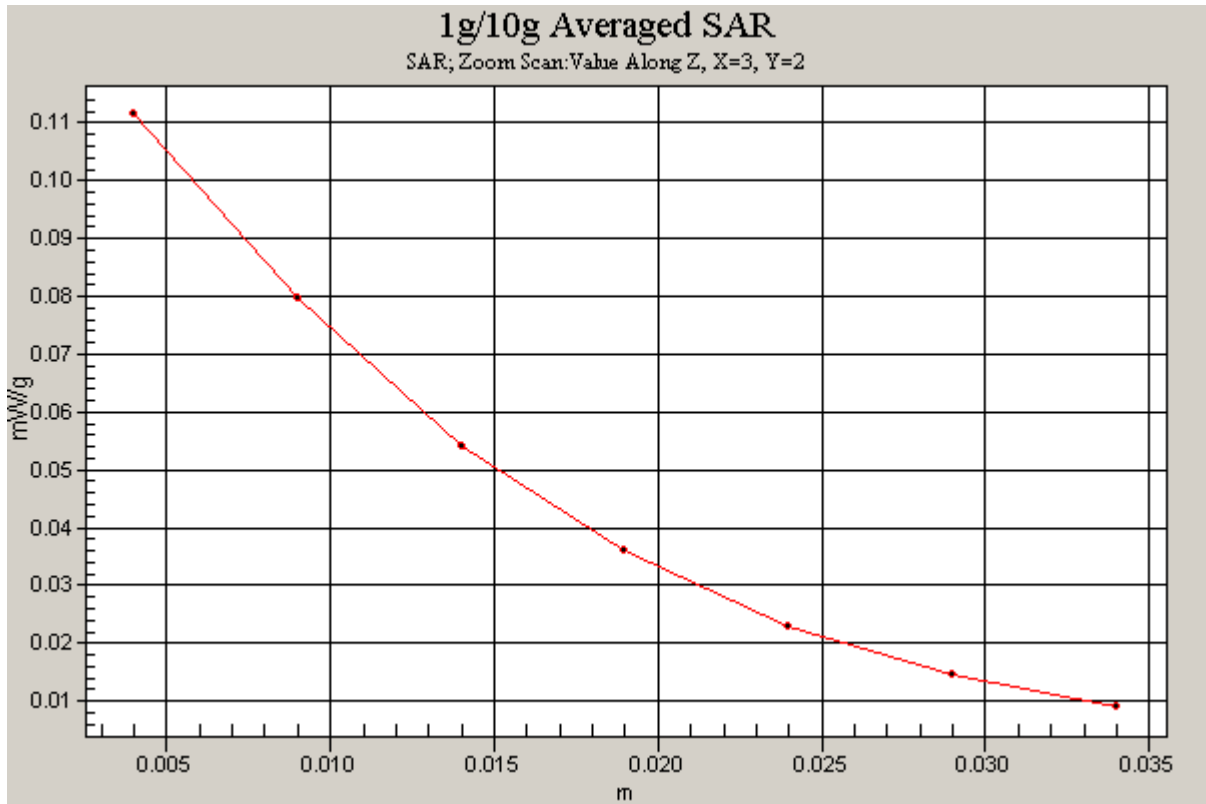


Figure 51 Z-Scan at power reference point (Right Hand Tilt 15 ° GSM 1900 Channel 661)

GSM 1900 Towards Ground High

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

Medium parameters used: $f = 1910$ MHz; $\sigma = 1.52$ mho/m; $\epsilon_r = 53$; $\rho = 1000$ kg/m³

Probe: ET3DV6 - SN1531; ConvF(4.64, 4.64, 4.64);

Electronics: DAE4 Sn679;

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

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

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

Reference Value = 6.35 V/m; Power Drift = -0.017 dB

Peak SAR (extrapolated) = 0.263 W/kg

SAR(1 g) = 0.158 mW/g; SAR(10 g) = 0.097 mW/g

Maximum value of SAR (measured) = 0.170 mW/g

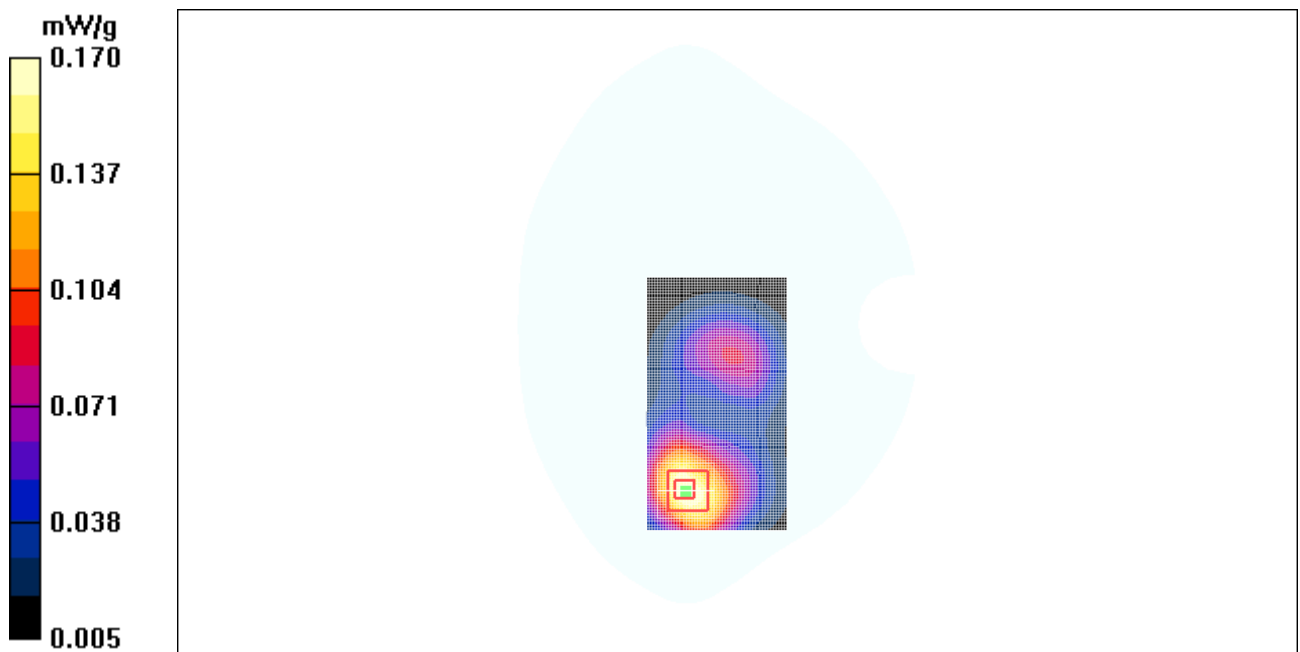


Figure 52 Body, Towards Ground, GSM 1900 Channel 810

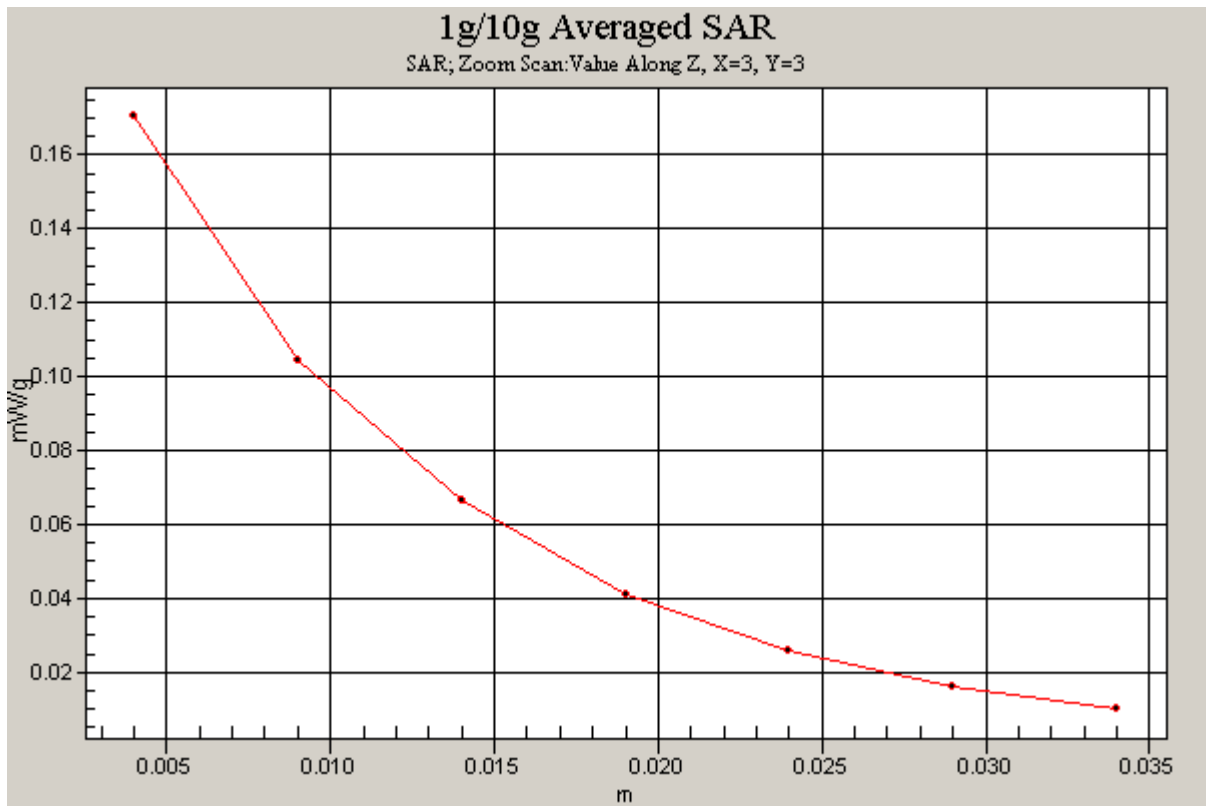


Figure 53 Z-Scan at power reference point (Body, Towards Ground, GSM 1900 Channel 810)

GSM 1900 Towards Ground Middle

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

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.49$ mho/m; $\epsilon_r = 53.1$; $\rho = 1000$ kg/m³

Probe: ET3DV6 - SN1531; ConvF(4.64, 4.64, 4.64);

Electronics: DAE4 Sn679;

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

Maximum value of SAR (interpolated) = 0.234 mW/g

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

Reference Value = 8.33 V/m; Power Drift = -0.022 dB

Peak SAR (extrapolated) = 0.347 W/kg

SAR(1 g) = 0.206 mW/g; SAR(10 g) = 0.127 mW/g

Maximum value of SAR (measured) = 0.226 mW/g

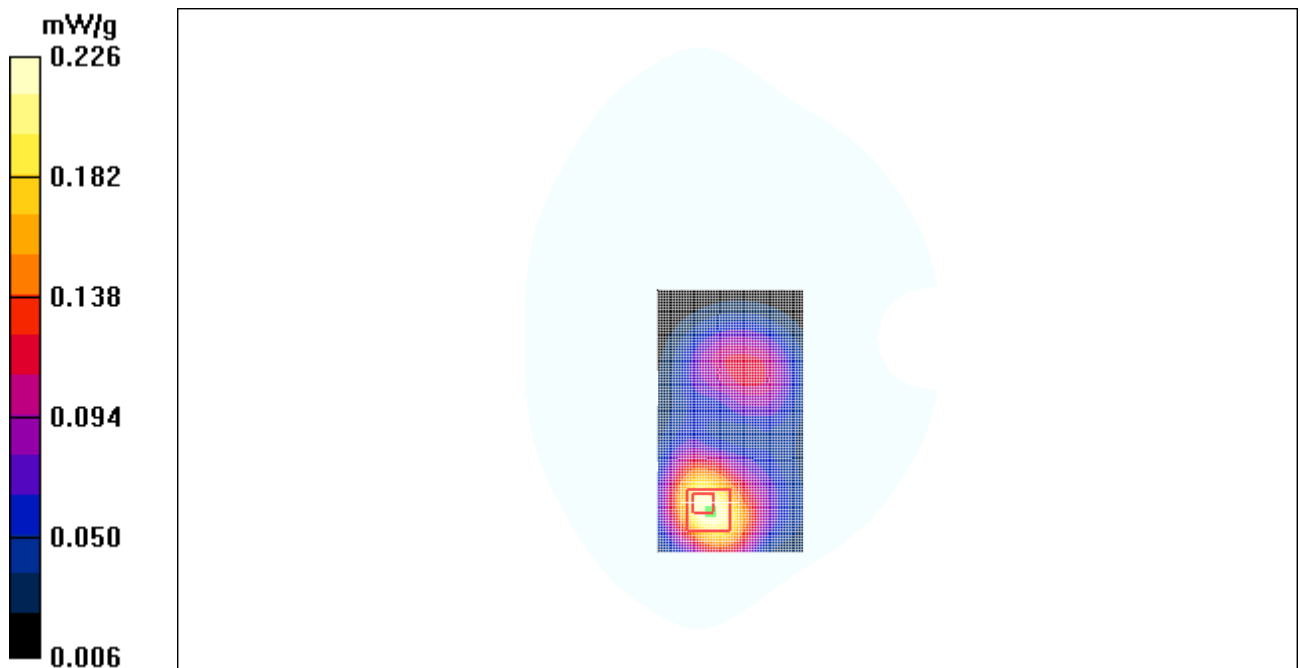


Figure 54 Body, Towards Ground, GSM 1900 Channel 661

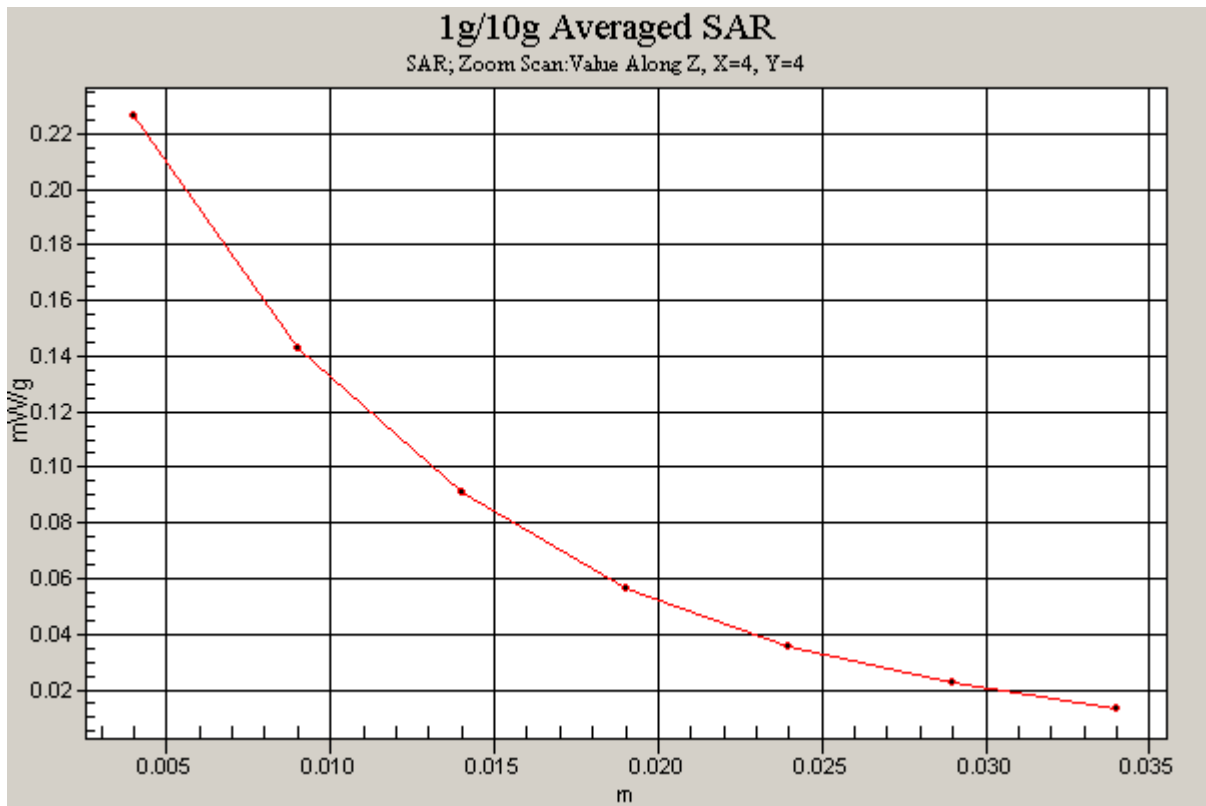


Figure 55 Z-Scan at power reference point (Body, Towards Ground, GSM 1900 Channel 661)

GSM 1900 Towards Ground Low

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

Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.46$ mho/m; $\epsilon_r = 53.2$; $\rho = 1000$ kg/m³

Probe: ET3DV6 - SN1531; ConvF(4.64, 4.64, 4.64);

Electronics: DAE4 Sn679;

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

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

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

Reference Value = 8.67 V/m; Power Drift = -0.034 dB

Peak SAR (extrapolated) = 0.410 W/kg

SAR(1 g) = 0.249 mW/g; SAR(10 g) = 0.152 mW/g

Maximum value of SAR (measured) = 0.270 mW/g

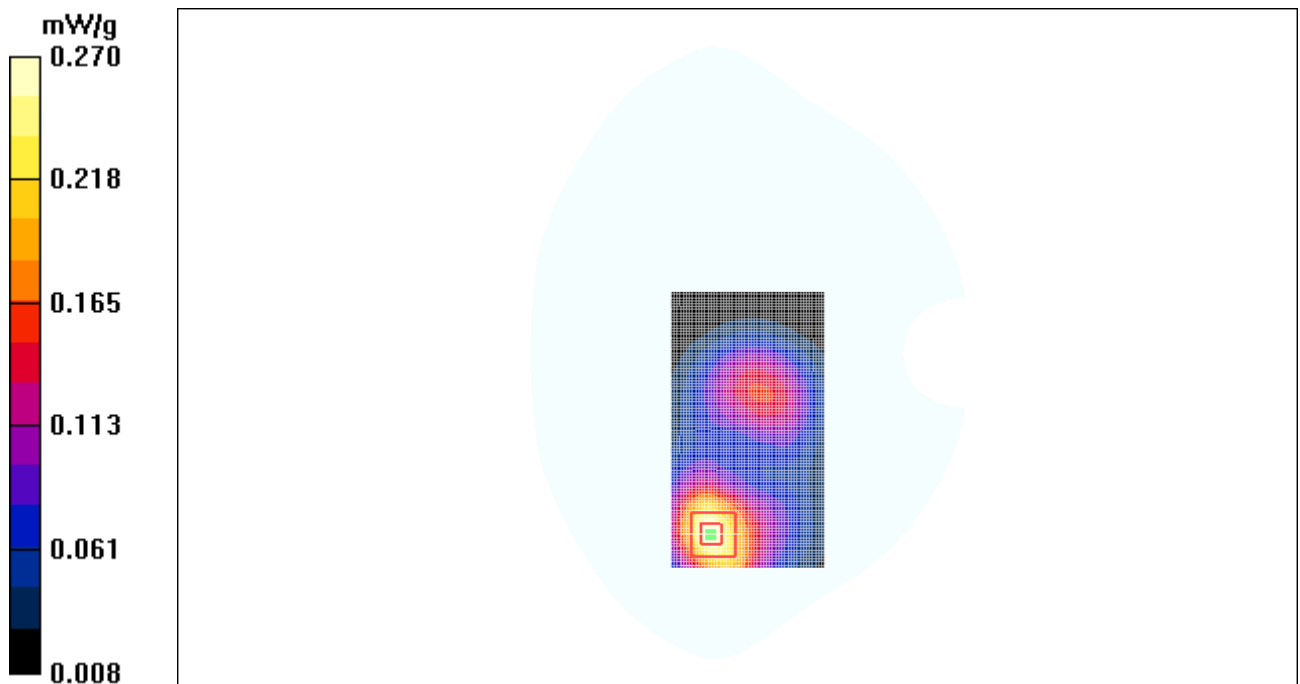


Figure 56 Body, Towards Ground, GSM 1900 Channel 512

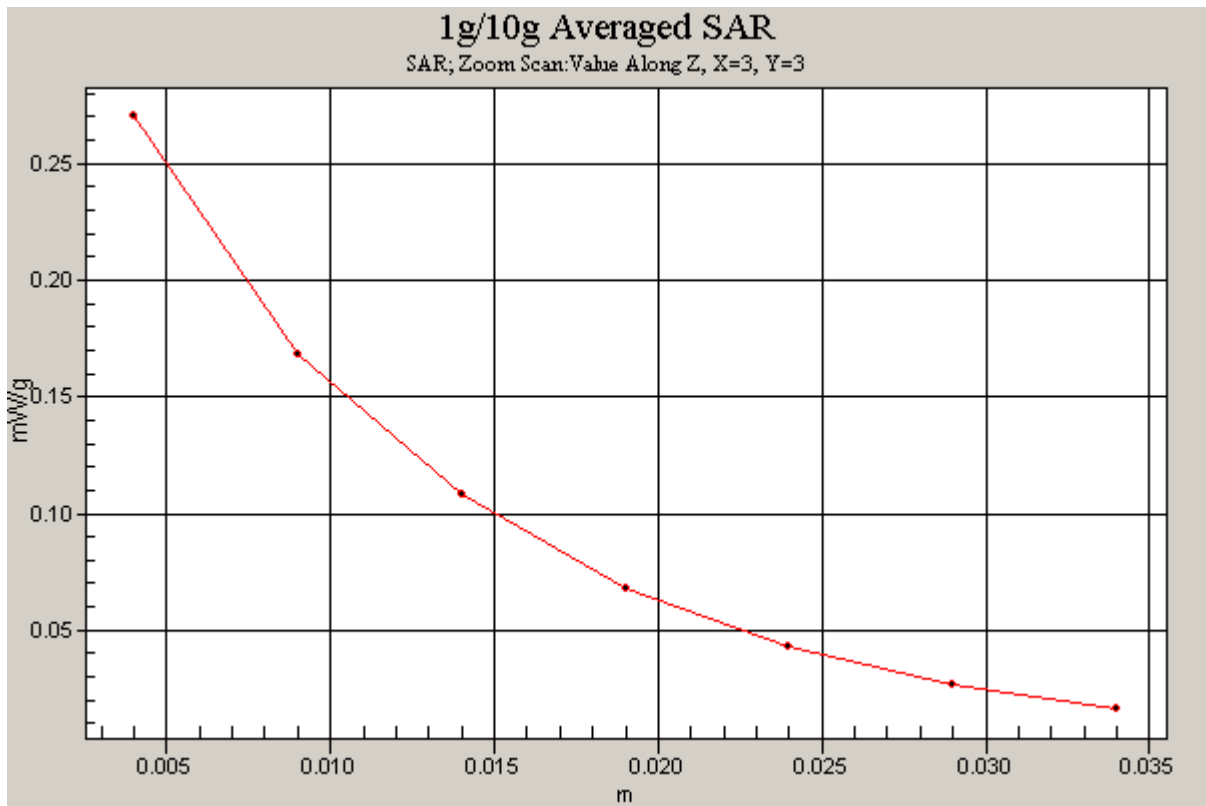


Figure 57 Z-Scan at power reference point (Body, Towards Ground, GSM 1900 Channel 512)

GSM 1900 Towards Phantom Middle

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

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.49$ mho/m; $\epsilon_r = 53.1$; $\rho = 1000$ kg/m³

Probe: ET3DV6 - SN1531; ConvF(4.64, 4.64, 4.64);

Electronics: DAE4 Sn679;

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

Maximum value of SAR (interpolated) = 0.159 mW/g

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

Reference Value = 6.25 V/m; Power Drift = -0.196 dB

Peak SAR (extrapolated) = 0.215 W/kg

SAR(1 g) = 0.140 mW/g; SAR(10 g) = 0.086 mW/g

Maximum value of SAR (measured) = 0.152 mW/g

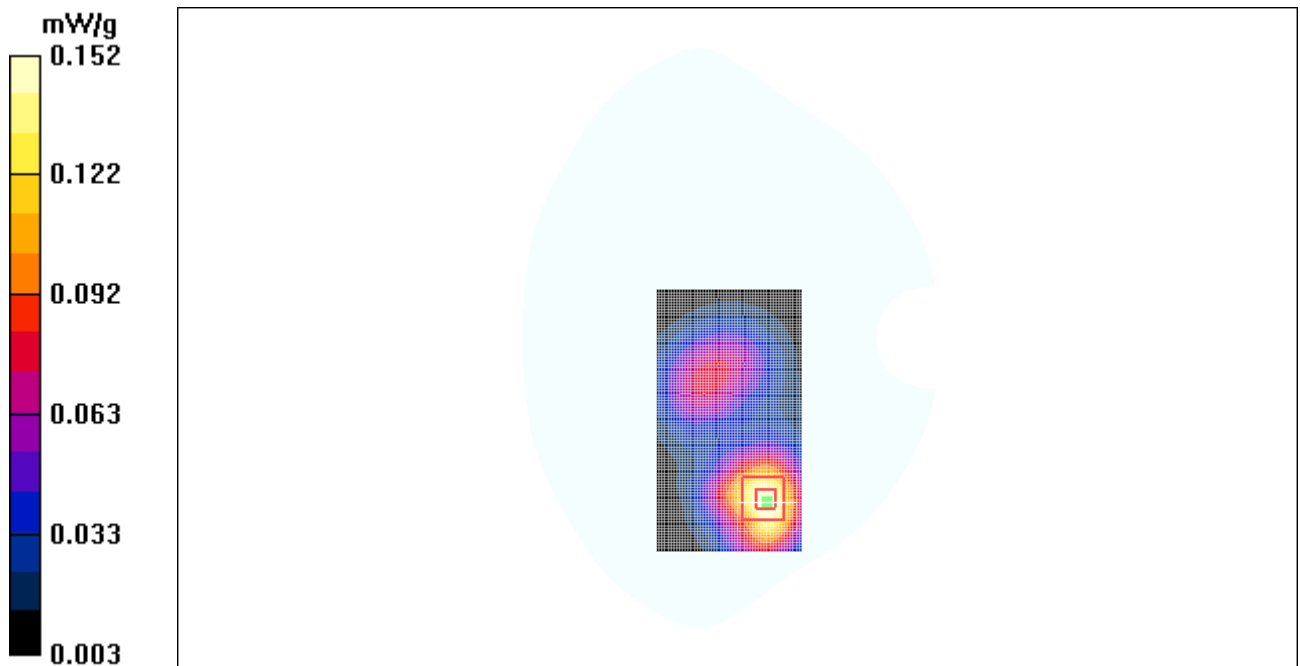


Figure 58 Body, Towards Phantom, GSM 1900 Channel 661

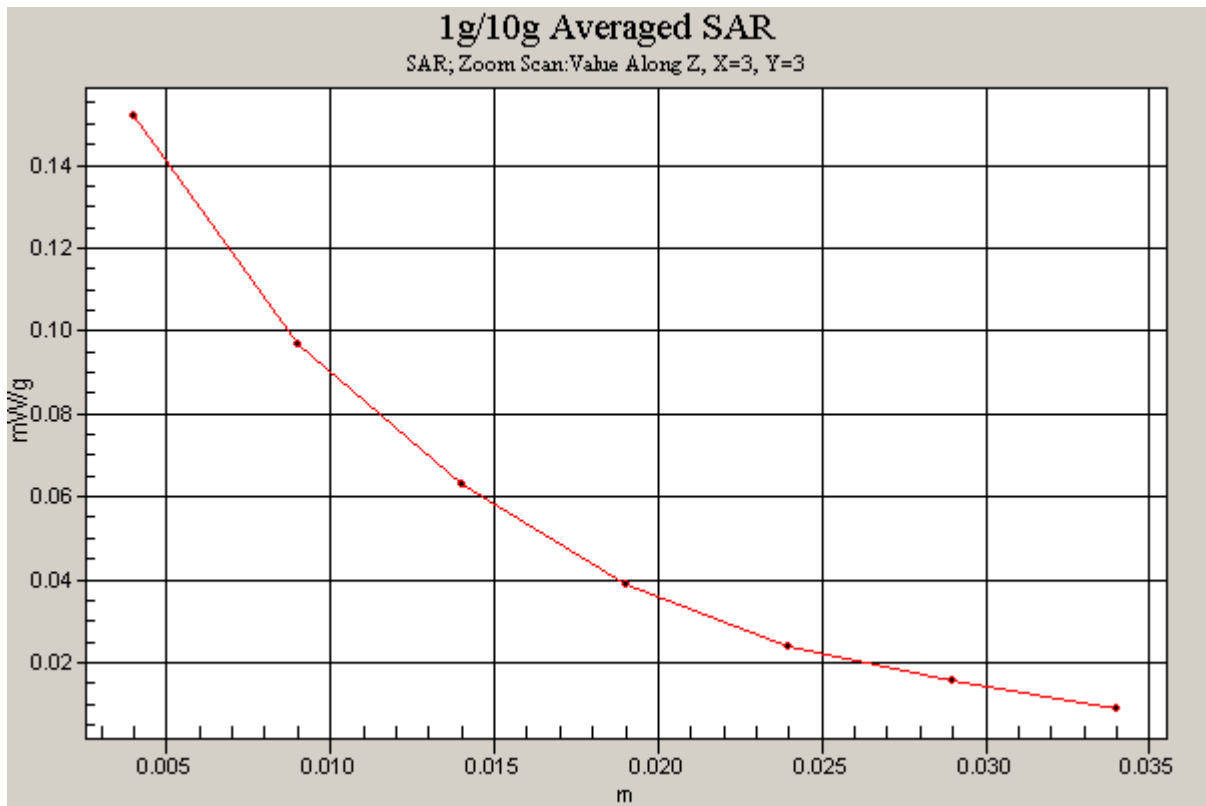


Figure 59 Z-Scan at power reference point (Body, Towards Phantom, GSM 1900 Channel 661)

GSM 1900 Earphone Towards Ground Low

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

Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.46$ mho/m; $\epsilon_r = 53.2$; $\rho = 1000$ kg/m³

Probe: ET3DV6 - SN1531; ConvF(4.64, 4.64, 4.64);

Electronics: DAE4 Sn679;

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

Maximum value of SAR (interpolated) = 0.189 mW/g

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

Reference Value = 8.03 V/m; Power Drift = -0.136 dB

Peak SAR (extrapolated) = 0.281 W/kg

SAR(1 g) = 0.171 mW/g; SAR(10 g) = 0.104 mW/g

Maximum value of SAR (measured) = 0.185 mW/g

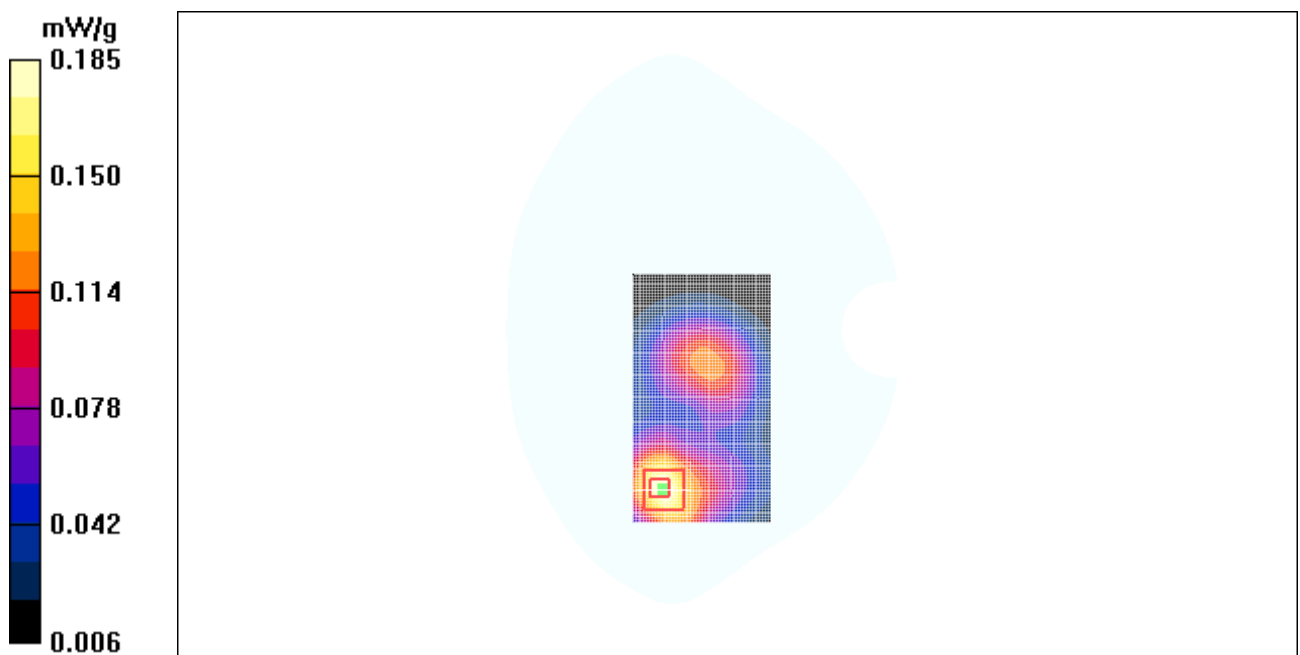


Figure 60 Body with Earphone, Towards Ground, GSM 1900, Channel 512

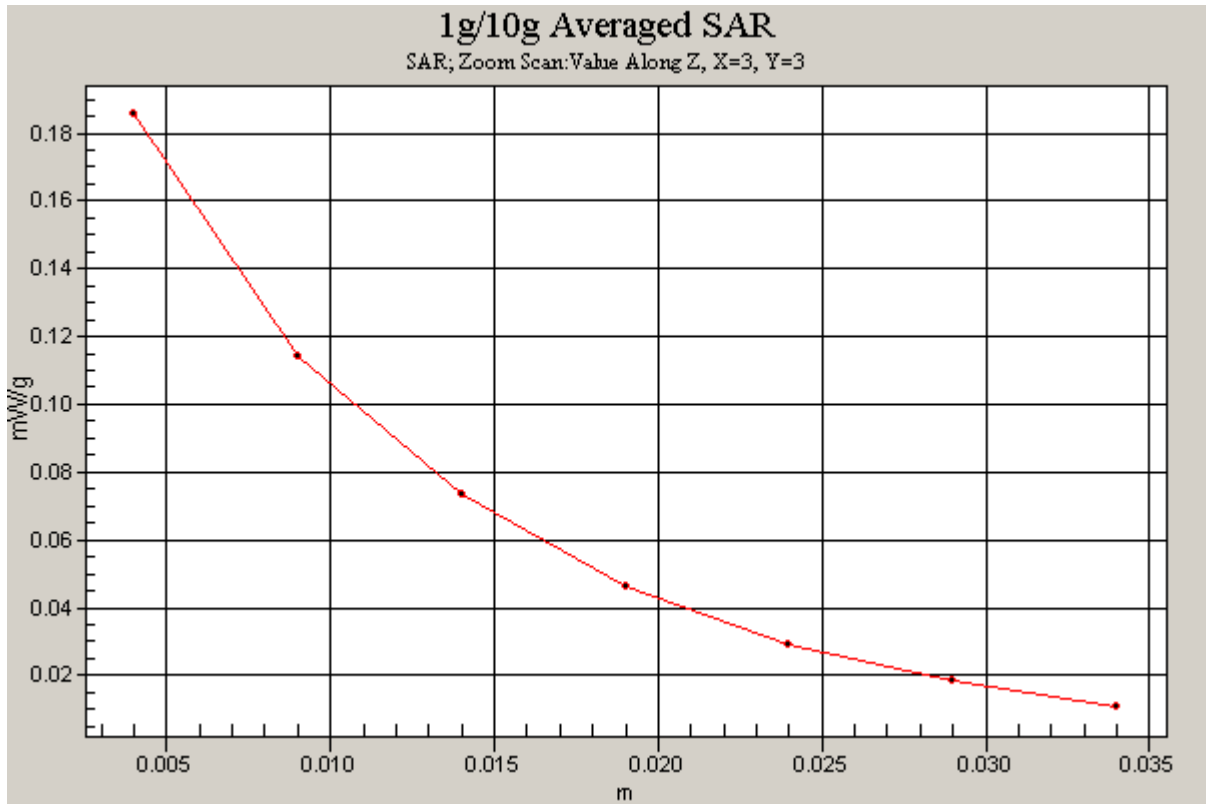


Figure 61 Z-Scan at power reference point (Body with Earphone, Towards Ground, GSM 1900, Channel 512)

GSM 1900 Bluetooth Towards Ground Low

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

Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.46$ mho/m; $\epsilon_r = 53.2$; $\rho = 1000$ kg/m³

Probe: ET3DV6 - SN1531; ConvF(4.64, 4.64, 4.64);

Electronics: DAE4 Sn679;

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

Maximum value of SAR (interpolated) = 0.228 mW/g

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

Reference Value = 7.08 V/m; Power Drift = -0.065 dB

Peak SAR (extrapolated) = 0.340 W/kg

SAR(1 g) = 0.211 mW/g; SAR(10 g) = 0.130 mW/g

Maximum value of SAR (measured) = 0.226 mW/g

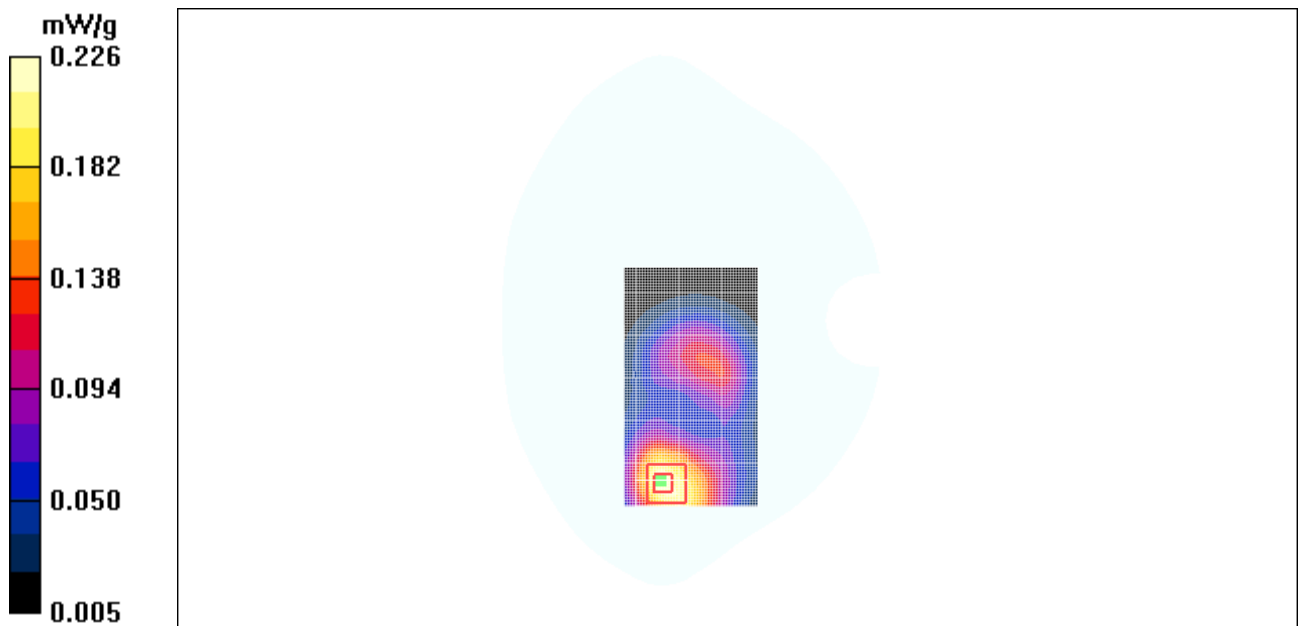


Figure 62 Body with Bluetooth, Towards Ground, GSM 1900, Channel 512

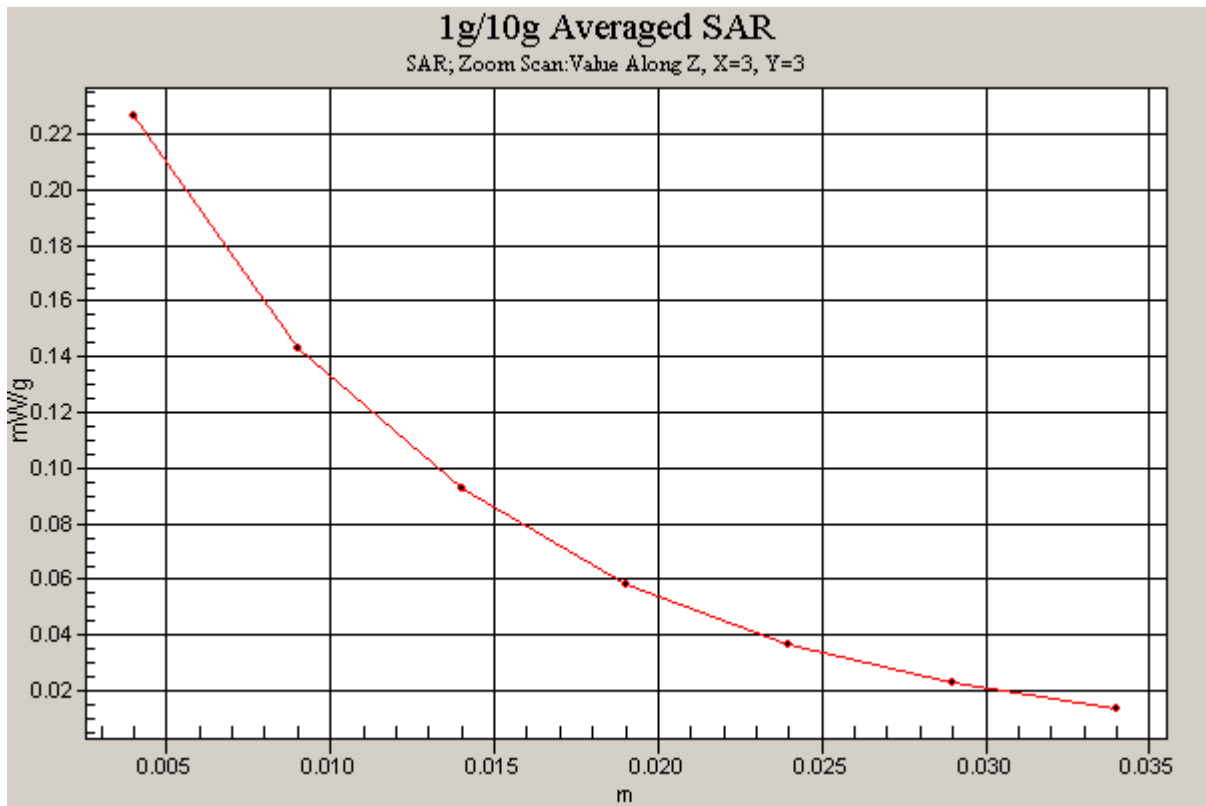


Figure 63 Z-Scan at power reference point (Body with Bluetooth, Towards Ground, GSM 1900, Channel 512)

GSM 1900 GPRS Towards Ground Low

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

Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.46$ mho/m; $\epsilon_r = 53.2$; $\rho = 1000$ kg/m³

Probe: ET3DV6 - SN1531; ConvF(4.64, 4.64, 4.64);

Electronics: DAE4 Sn679;

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

Maximum value of SAR (interpolated) = 0.338 mW/g

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

Reference Value = 9.84 V/m; Power Drift = 0.138 dB

Peak SAR (extrapolated) = 0.494 W/kg

SAR(1 g) = 0.305 mW/g; SAR(10 g) = 0.187 mW/g

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

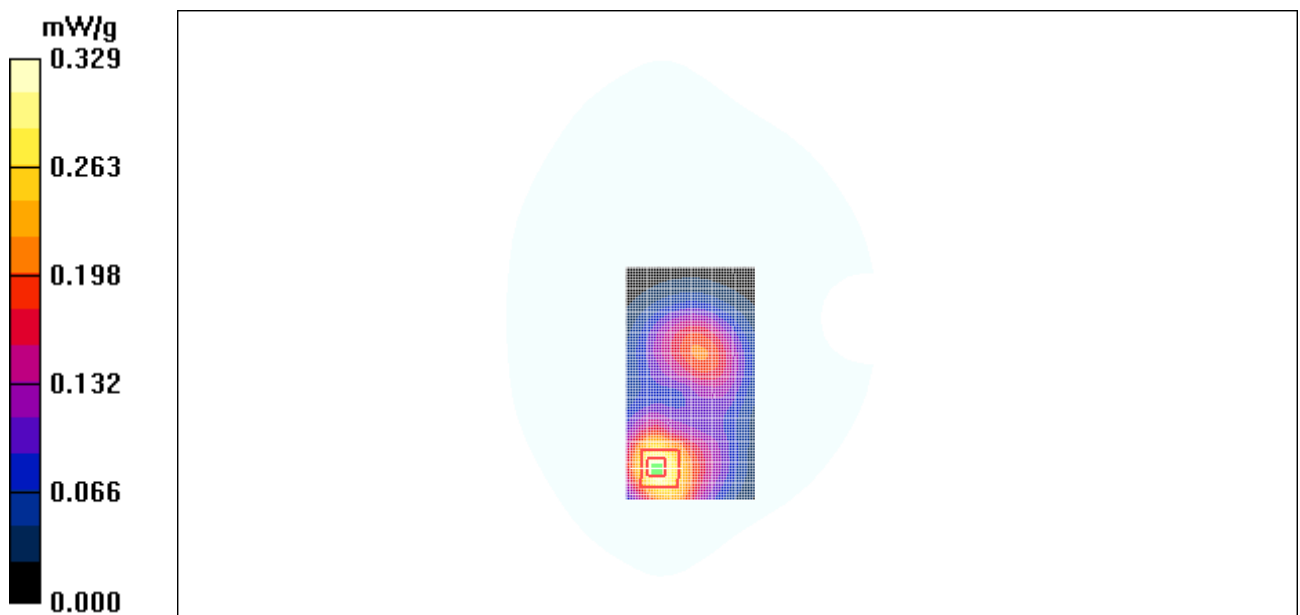


Figure 64 Body, Towards Ground, GSM 1900 GPRS Channel 512

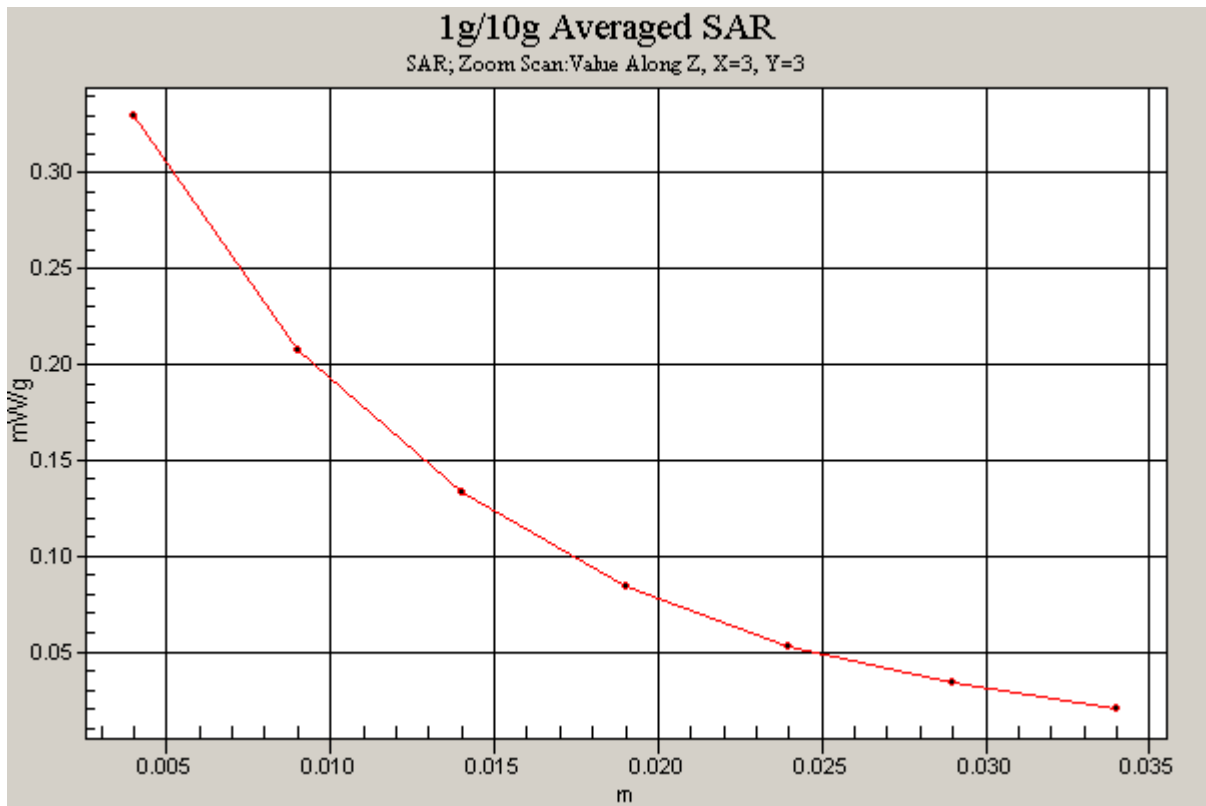


Figure 65 Z-Scan at power reference point (Body, Towards Ground, GSM 1900 GPRS Channel 512)

GSM 1900 EGPRS Towards Ground Low

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

Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.48$ mho/m; $\epsilon_r = 53.1$; $\rho = 1000$ kg/m³

Probe: ET3DV6 - SN1531; ConvF(4.64, 4.64, 4.64);

Electronics: DAE4 Sn679;

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

Maximum value of SAR (interpolated) = 0.147 mW/g

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

Reference Value = 7.05 V/m; Power Drift = -0.082 dB

Peak SAR (extrapolated) = 0.194 W/kg

SAR(1 g) = 0.125 mW/g; SAR(10 g) = 0.076 mW/g

Maximum value of SAR (measured) = 0.138 mW/g

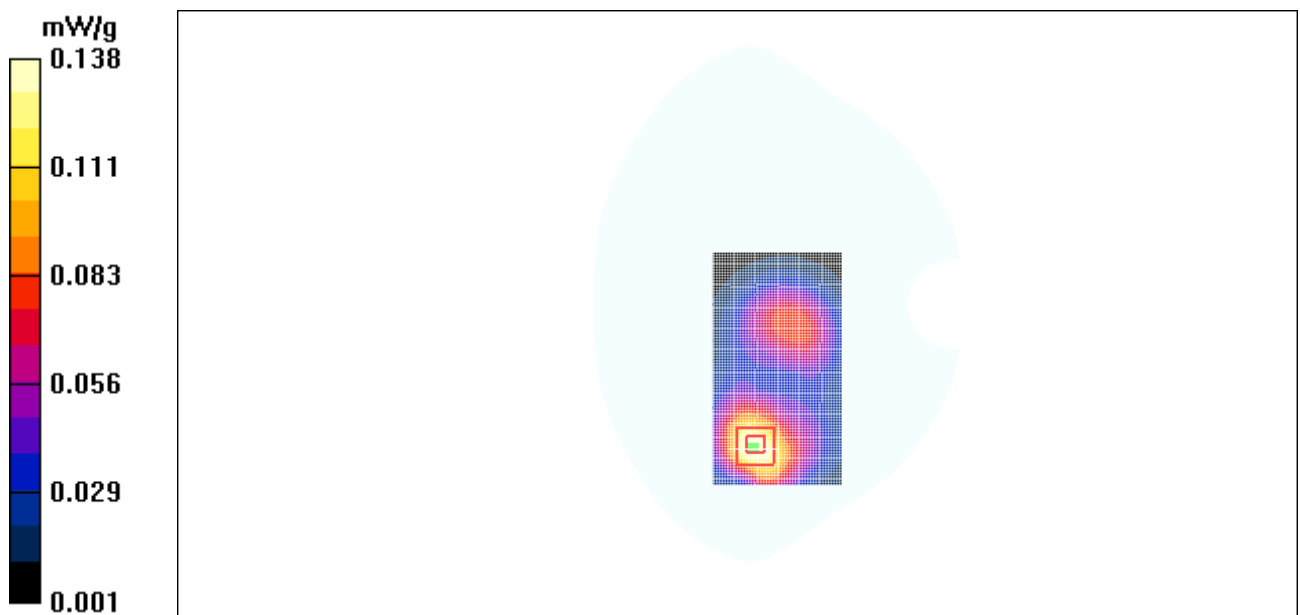


Figure 66 Body, Towards Ground, GSM 1900 EGPRS Channel 512

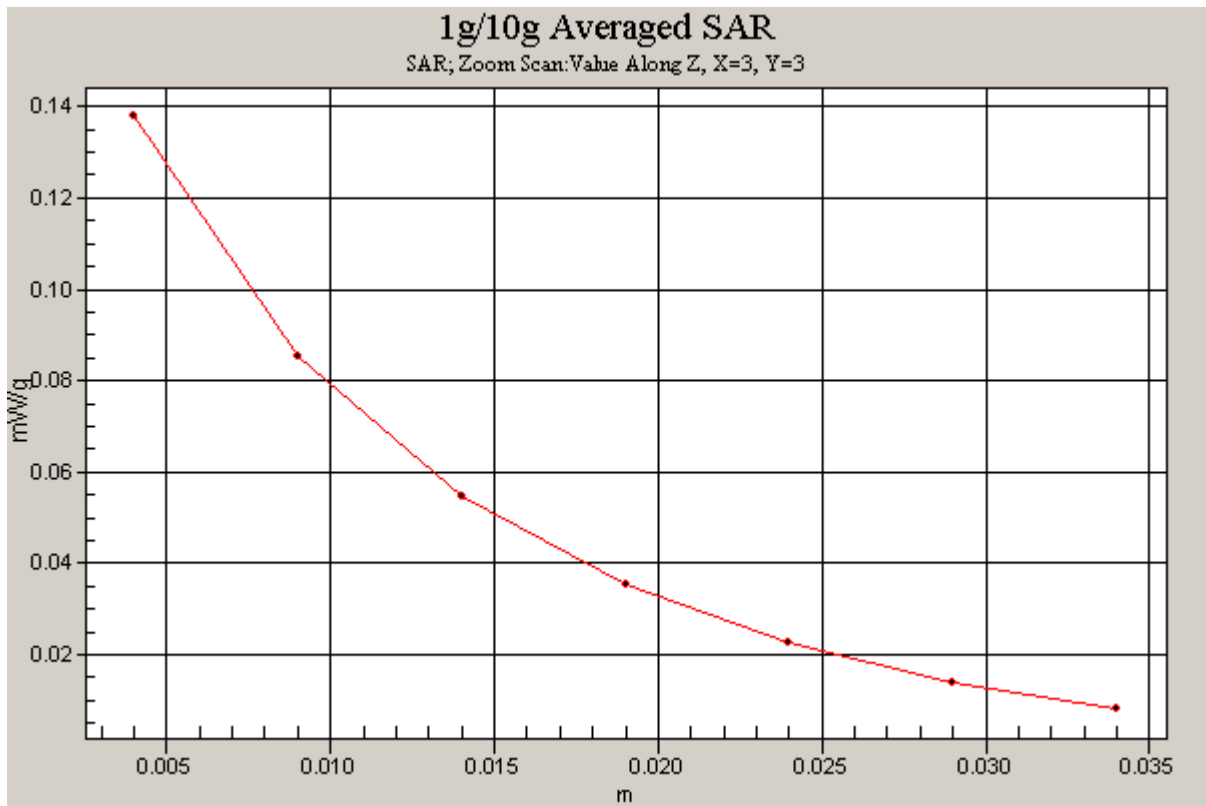


Figure 67 Z-Scan at power reference point (Body, Towards Ground, GSM 1900 EGPRS Channel 512)

WCDMA Band II Left Cheek Middle

Communication System: WCDMA Band II; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 1880$ MHz; $\sigma = 1.4$ mho/m; $\epsilon_r = 39.9$; $\rho = 1000$ kg/m³
Probe: ET3DV6 - SN1531; ConvF(5.15, 5.15, 5.15);
Electronics: DAE4 Sn679;

Cheek Middle/Area Scan (61x91x1): 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 = 7.21 V/m; Power Drift = -0.041 dB
Peak SAR (extrapolated) = 0.392 W/kg
SAR(1 g) = 0.291 mW/g; SAR(10 g) = 0.189 mW/g
Maximum value of SAR (measured) = 0.316 mW/g

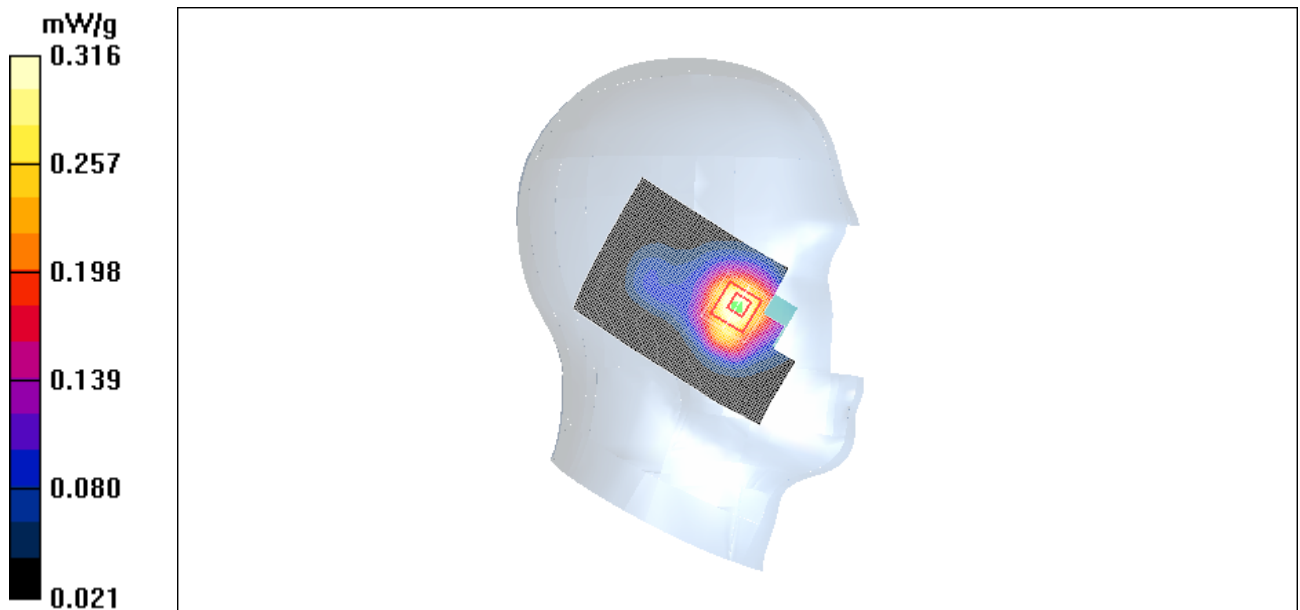


Figure 68 Left Hand Touch Cheek WCDMA Band II Channel 9400

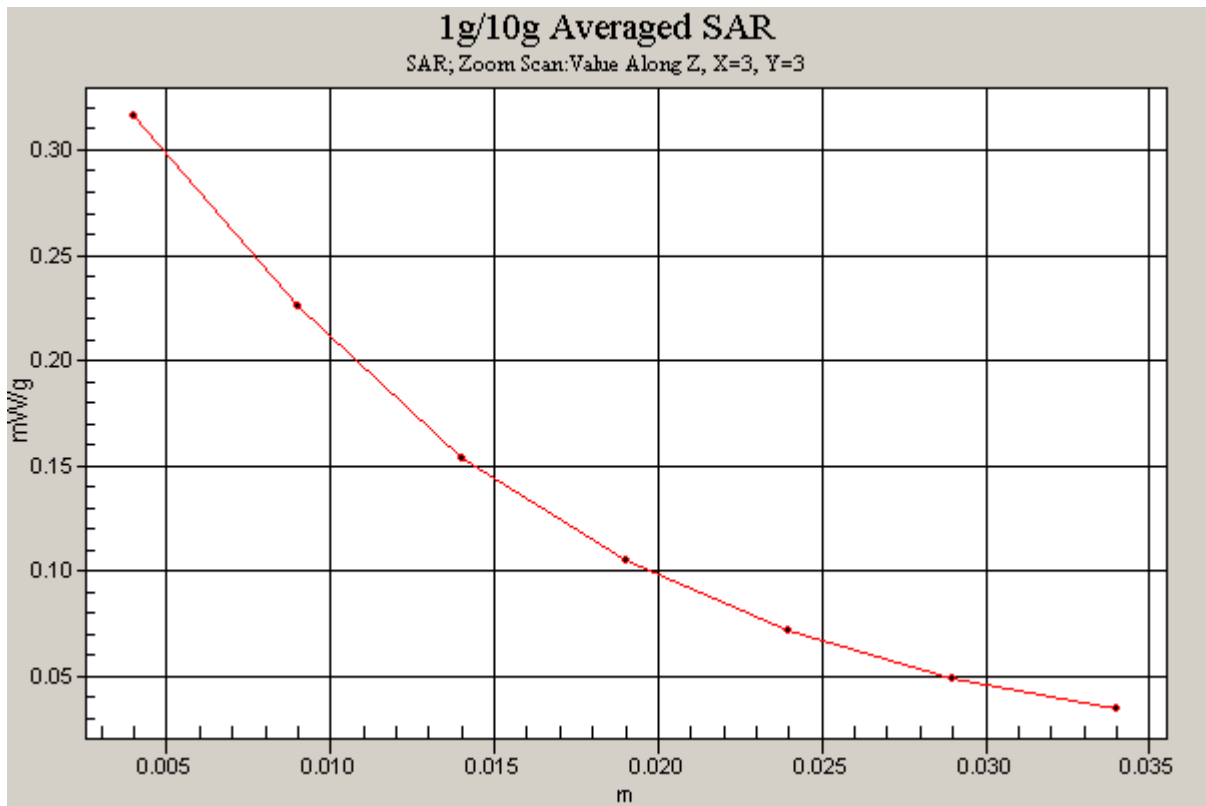


Figure 69 Z-Scan at power reference point (Left Hand Touch Cheek WCDMA Band II Channel 9400)

WCDMA Band II Left Tilt Middle

Communication System: WCDMA Band II; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 1880$ MHz; $\sigma = 1.4$ mho/m; $\epsilon_r = 39.9$; $\rho = 1000$ kg/m³
Probe: ET3DV6 - SN1531; ConvF(5.15, 5.15, 5.15);
Electronics: DAE4 Sn679;

Tilt Middle/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.108 mW/g

Tilt Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.87 V/m; Power Drift = -0.181 dB
Peak SAR (extrapolated) = 0.119 W/kg
SAR(1 g) = 0.092 mW/g; SAR(10 g) = 0.063 mW/g
Maximum value of SAR (measured) = 0.099 mW/g

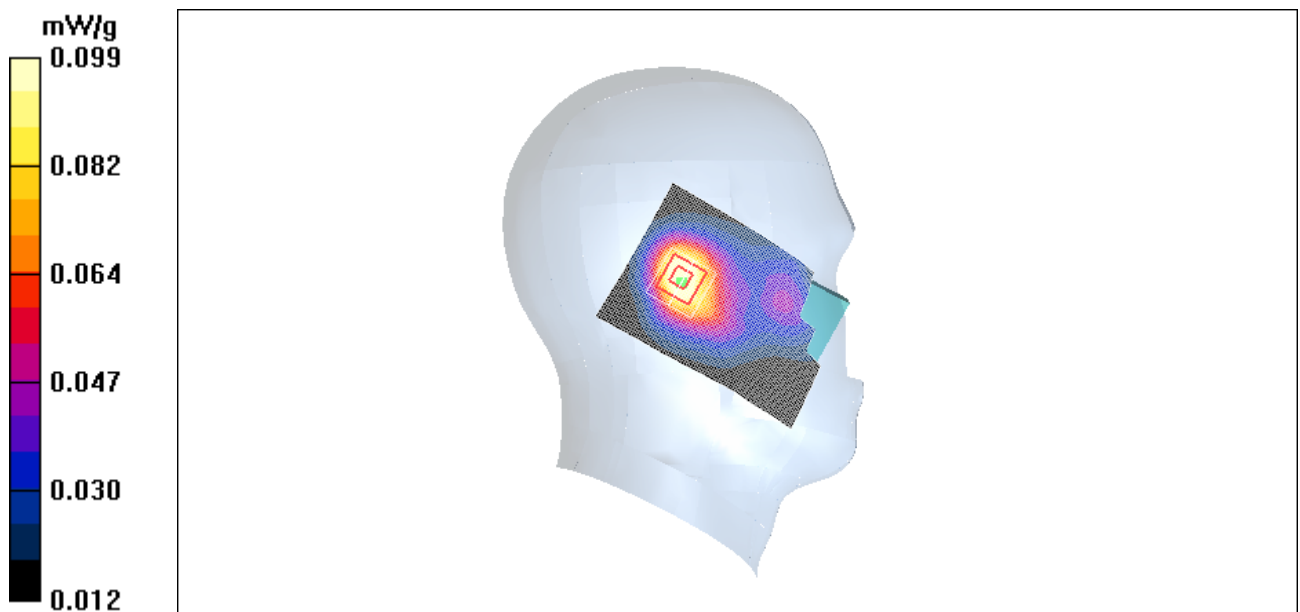


Figure 70 Left Hand Tilt 15 ° WCDMA Band II Channel 9400

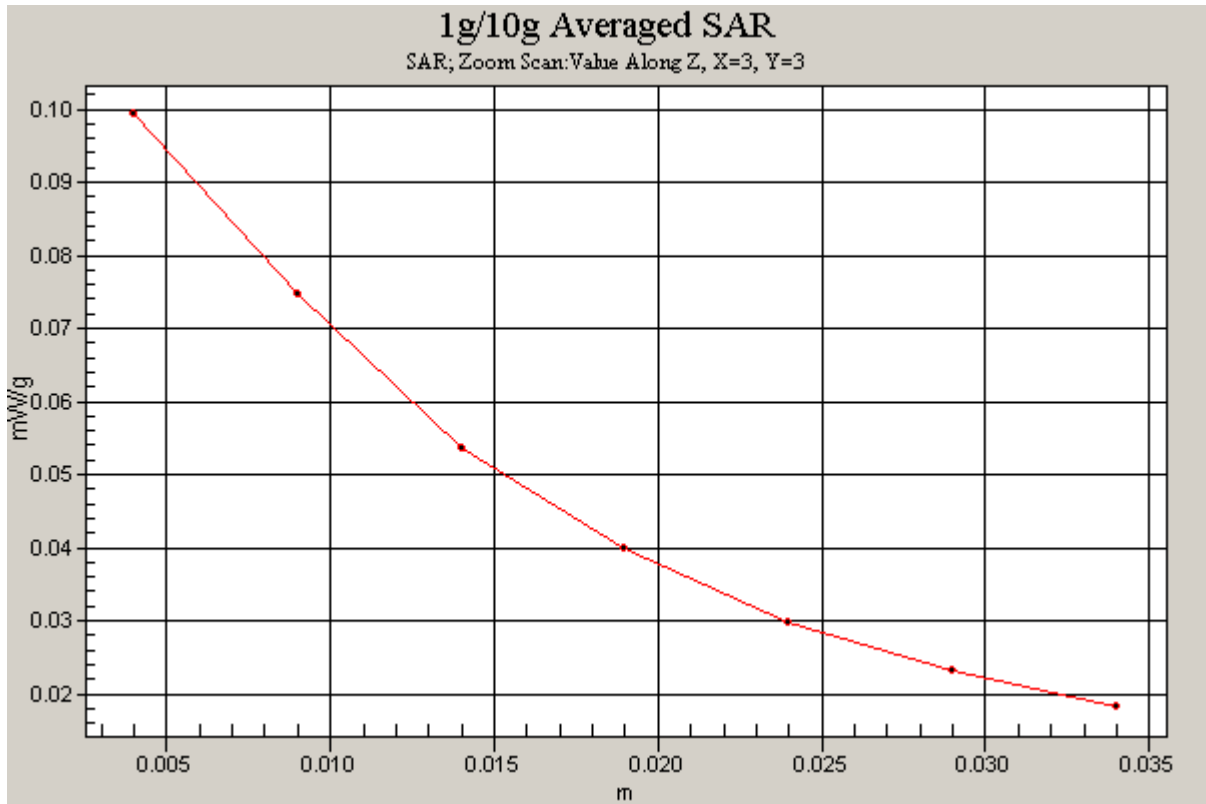


Figure 71 Z-Scan at power reference point (Left Hand Tilt 15 ° WCDMA Band II Channel 9400)

WCDMA Band II Right Cheek High

Communication System: WCDMA Band II; Frequency: 1907.6 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 1908$ MHz; $\sigma = 1.43$ mho/m; $\epsilon_r = 39.8$; $\rho = 1000$ kg/m³
Probe: ET3DV6 - SN1531; ConvF(5.15, 5.15, 5.15);
Electronics: DAE4 Sn679;

Cheek High/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.892 mW/g

Cheek High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.28 V/m; Power Drift = 0.049 dB
Peak SAR (extrapolated) = 1.03 W/kg
SAR(1 g) = 0.690 mW/g; SAR(10 g) = 0.397 mW/g
Maximum value of SAR (measured) = 0.774 mW/g

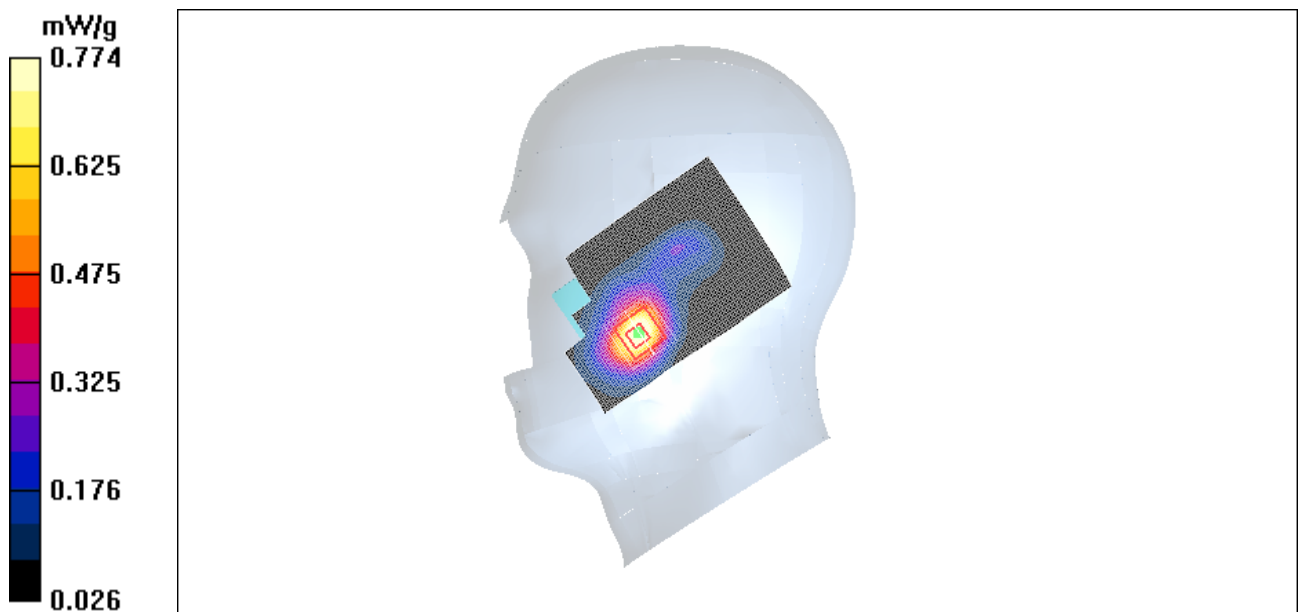


Figure 72 Right Hand Touch Cheek WCDMA Band II Channel 9538

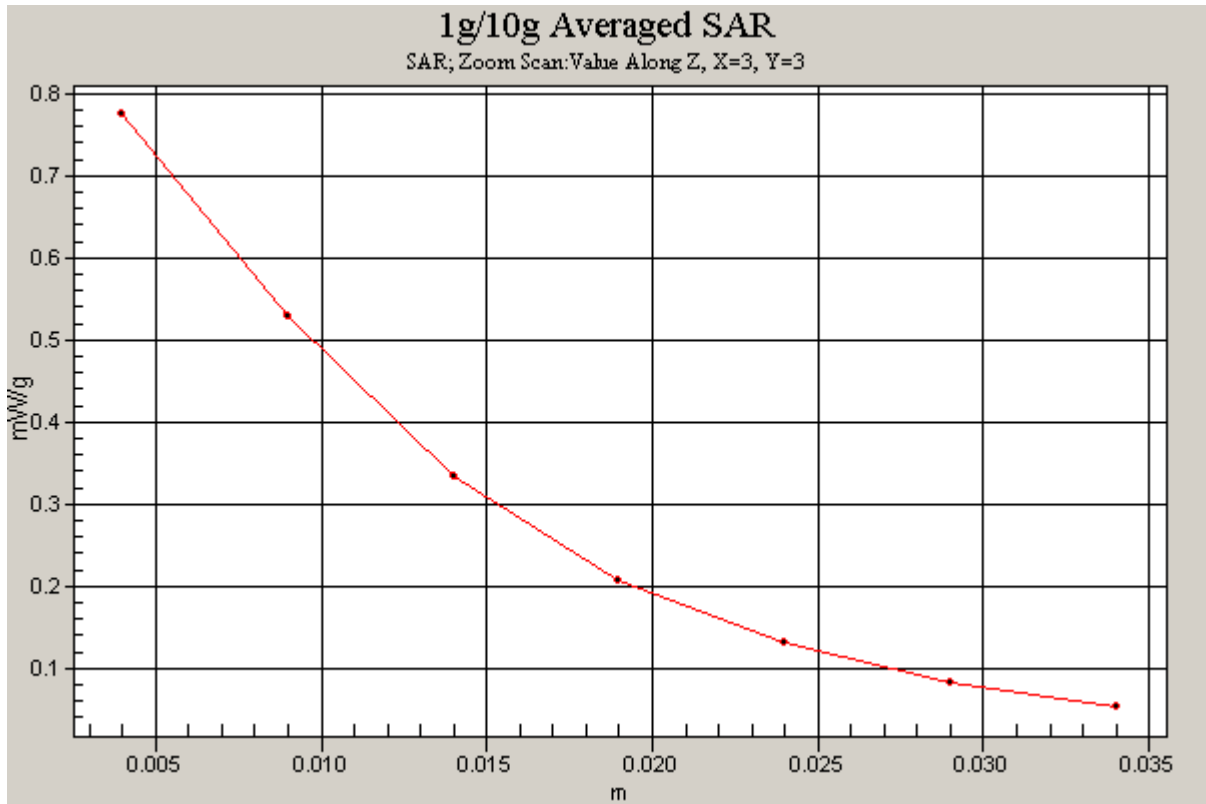


Figure 73 Z-Scan at power reference point (Right Hand Touch Cheek WCDMA Band II Channel 9538)

WCDMA Band II Right Cheek Middle

Communication System: WCDMA Band II; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 1880$ MHz; $\sigma = 1.4$ mho/m; $\epsilon_r = 39.9$; $\rho = 1000$ kg/m³
Probe: ET3DV6 - SN1531; ConvF(5.15, 5.15, 5.15);
Electronics: DAE4 Sn679;

Cheek Middle/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.703 mW/g

Cheek Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.87 V/m; Power Drift = 0.024 dB
Peak SAR (extrapolated) = 0.919 W/kg
SAR(1 g) = 0.629 mW/g; SAR(10 g) = 0.362 mW/g
Maximum value of SAR (measured) = 0.707 mW/g

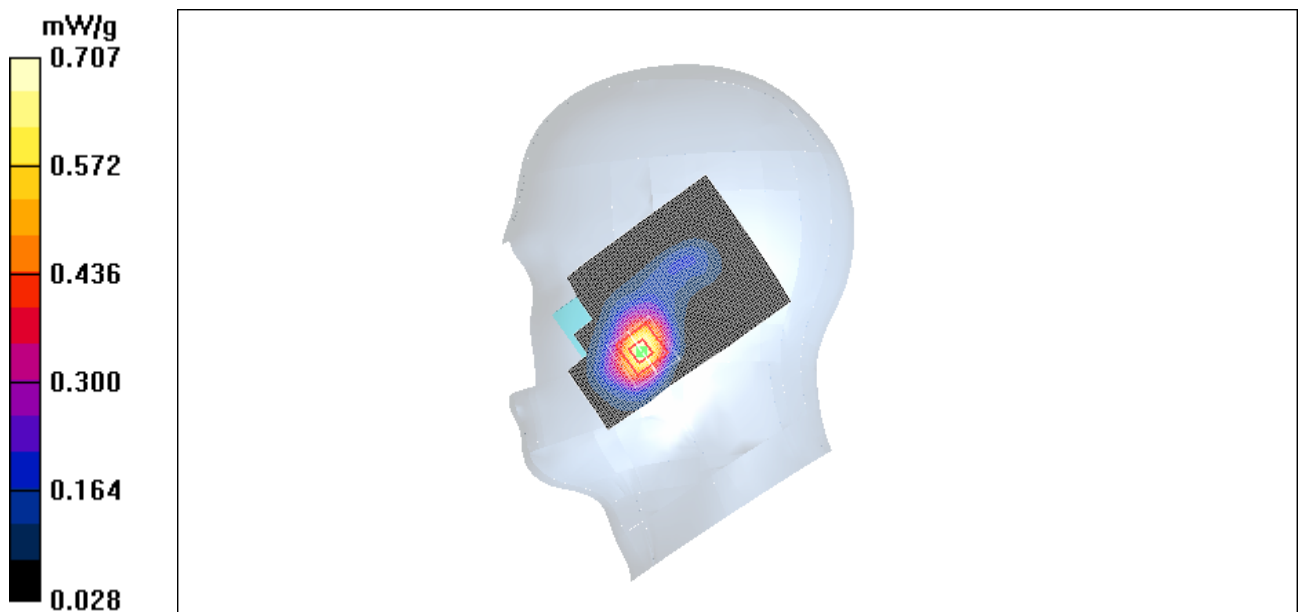


Figure 74 Right Hand Touch Cheek WCDMA Band II Channel 9400

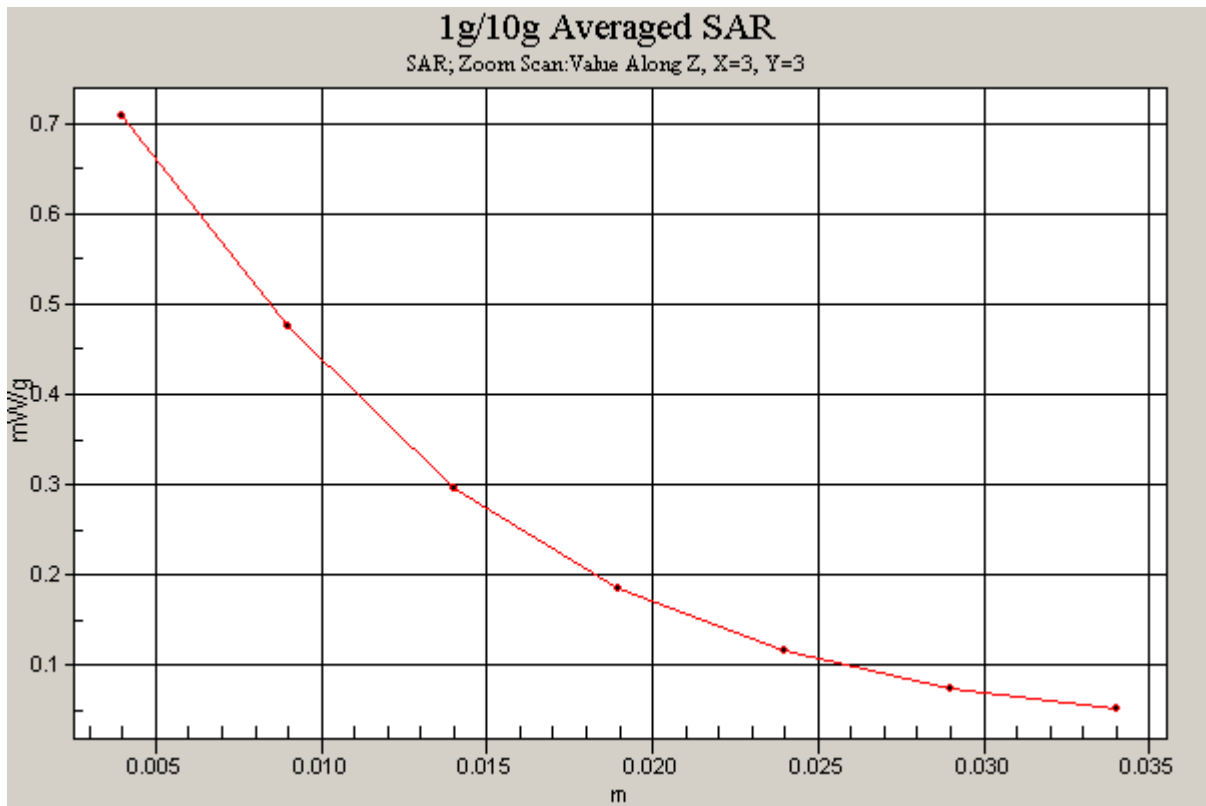


Figure 75 Z-Scan at power reference point (Right Hand Touch Cheek WCDMA Band II Channel 9400)

WCDMA Band II Right Cheek Low

Communication System: WCDMA Band II; Frequency: 1852.4 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 1852.4$ MHz; $\sigma = 1.37$ mho/m; $\epsilon_r = 40$; $\rho = 1000$ kg/m³

Probe: ET3DV6 - SN1531; ConvF(5.15, 5.15, 5.15);

Electronics: DAE4 Sn679;

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

Maximum value of SAR (interpolated) = 0.535 mW/g

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

Reference Value = 8.86 V/m; Power Drift = -0.078 dB

Peak SAR (extrapolated) = 0.667 W/kg

SAR(1 g) = 0.451 mW/g; SAR(10 g) = 0.270 mW/g

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

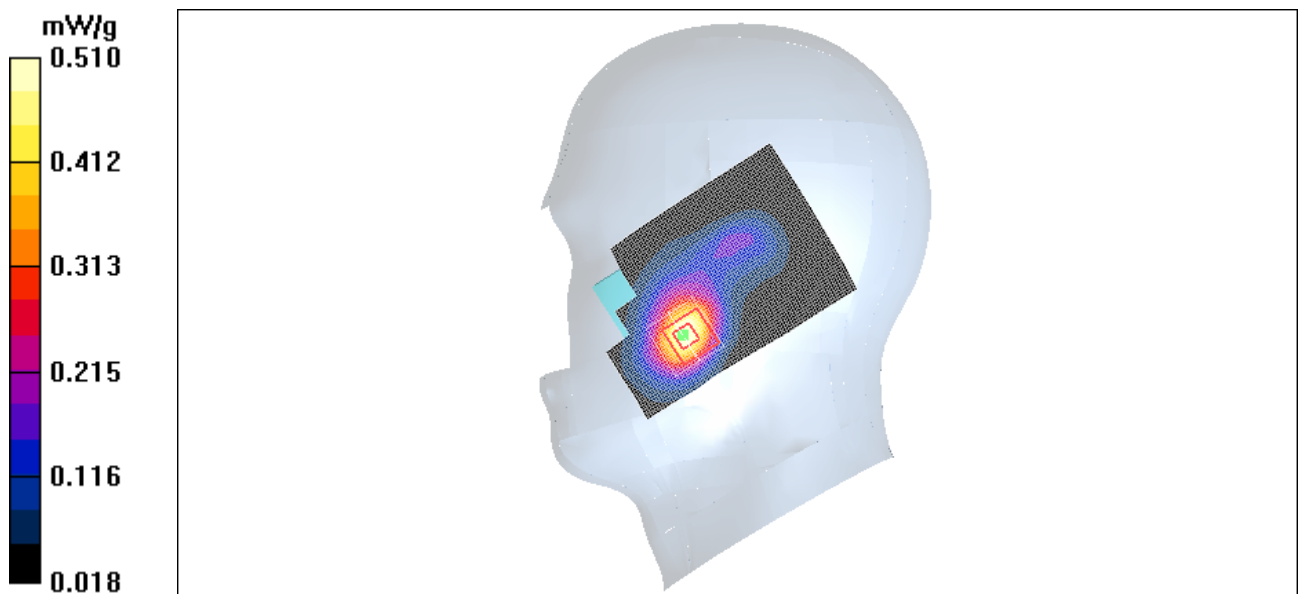


Figure 76 Right Hand Touch Cheek WCDMA Band II Channel 9262

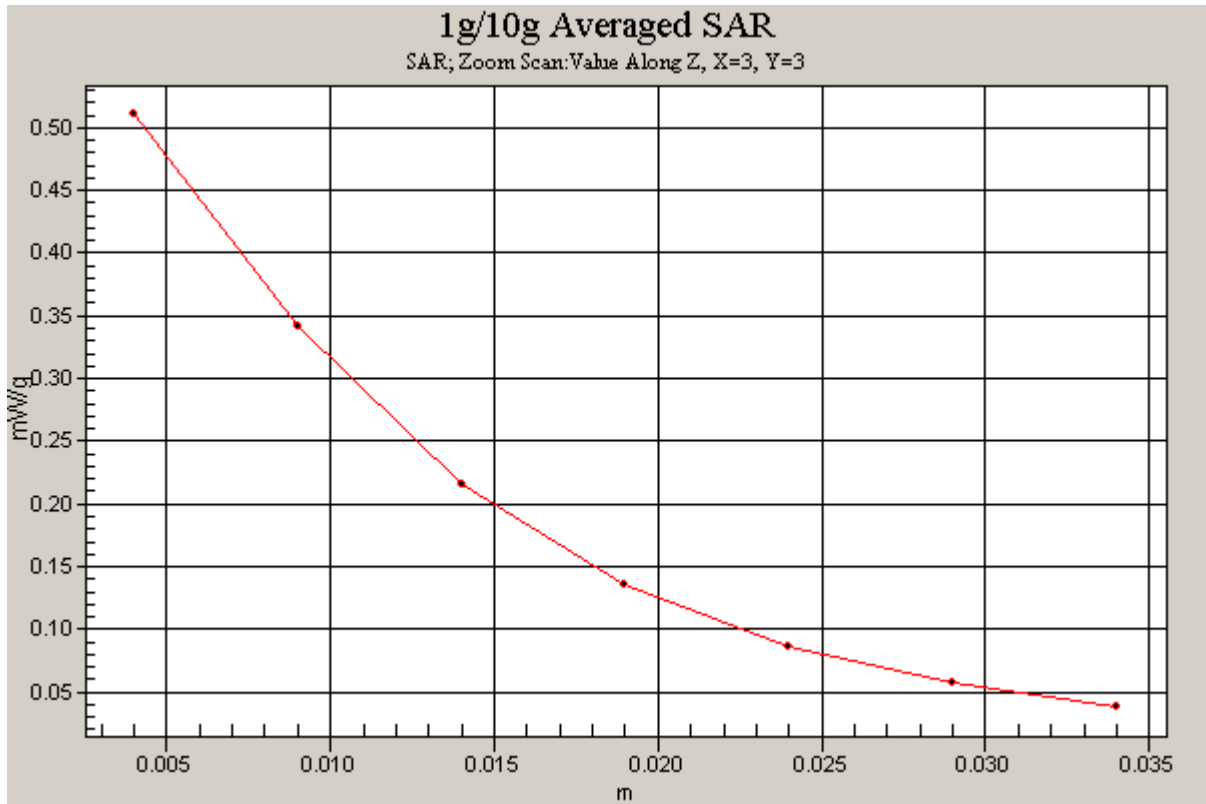


Figure 77 Z-Scan at power reference point (Right Hand Touch Cheek WCDMA Band II Channel 9262)

WCDMA Band II Right Tilt Middle

Communication System: WCDMA Band II; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 1880$ MHz; $\sigma = 1.4$ mho/m; $\epsilon_r = 39.9$; $\rho = 1000$ kg/m³
Probe: ET3DV6 - SN1531; ConvF(5.15, 5.15, 5.15);
Electronics: DAE4 Sn679;

Tilt Middle/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.127 mW/g

Tilt Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.13 V/m; Power Drift = 0.043 dB
Peak SAR (extrapolated) = 0.148 W/kg
SAR(1 g) = 0.110 mW/g; SAR(10 g) = 0.077 mW/g
Maximum value of SAR (measured) = 0.119 mW/g

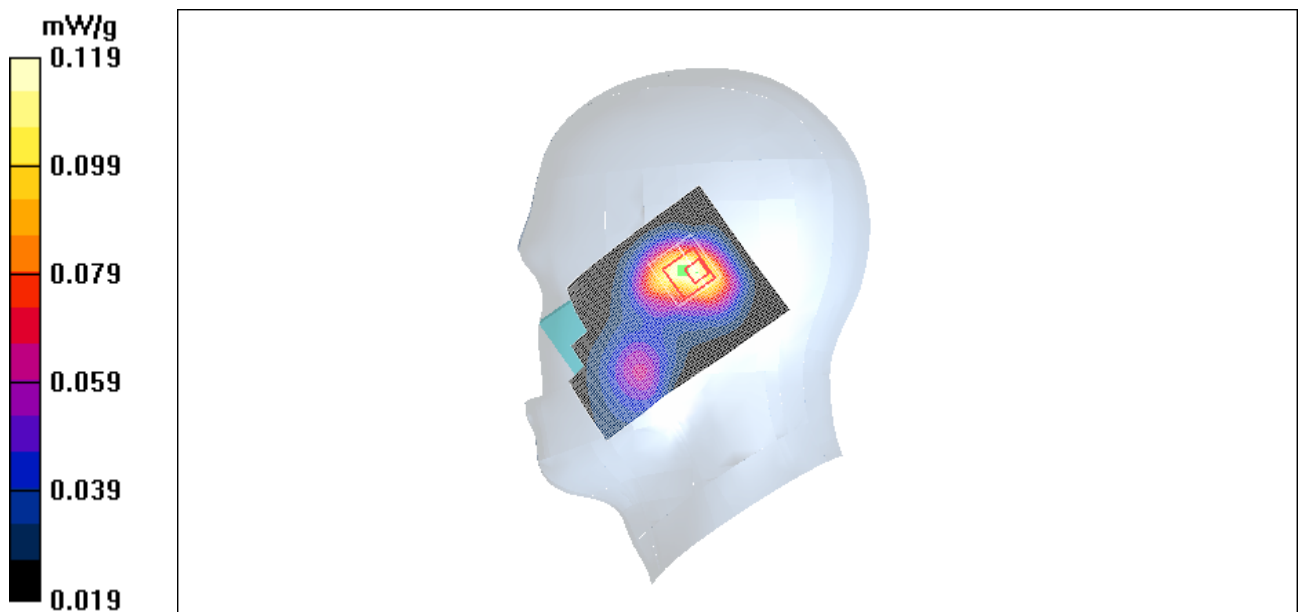


Figure 78 Right Hand Tilt 15 ° WCDMA Band II Channel 9400

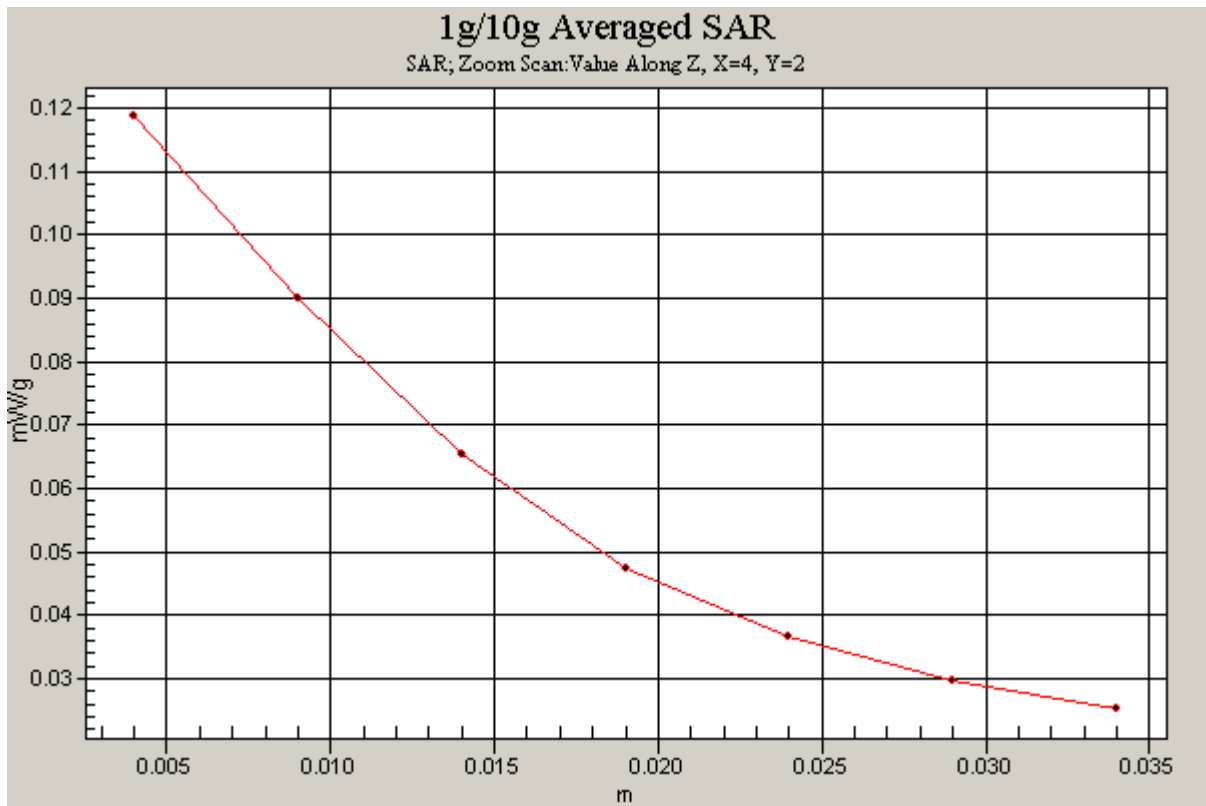


Figure 79 Z-Scan at power reference point (Right Hand Tilt 15 ° WCDMA Band II Channel 9400)

WCDMA Band II Towards Ground High

Communication System: WCDMA Band II; Frequency: 1907.6 MHz;Duty Cycle: 1:1

Medium parameters used: $f = 1908$ MHz; $\sigma = 1.52$ mho/m; $\epsilon_r = 53$; $\rho = 1000$ kg/m³

Probe: ET3DV6 - SN1531; ConvF(4.64, 4.64, 4.64);

Electronics: DAE4 Sn679;

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

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

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

Reference Value = 9.08 V/m; Power Drift = -0.197 dB

Peak SAR (extrapolated) = 0.545 W/kg

SAR(1 g) = 0.330 mW/g; SAR(10 g) = 0.205 mW/g

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

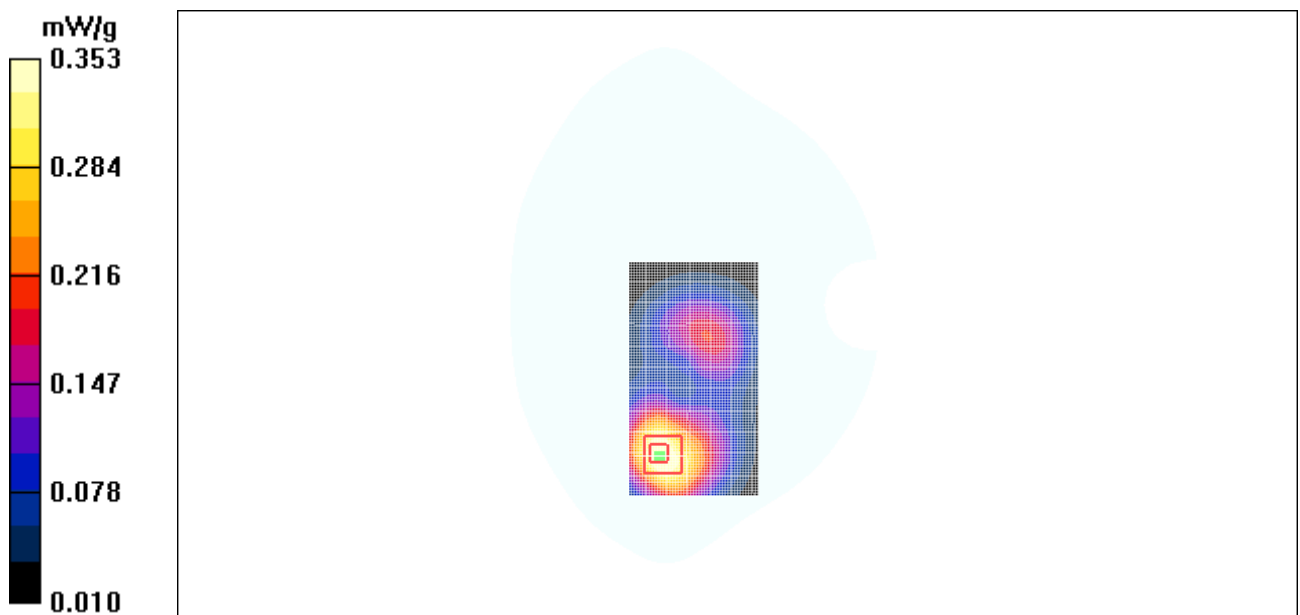


Figure 80 Body, Towards Ground, WCDMA Band II Channel 9538

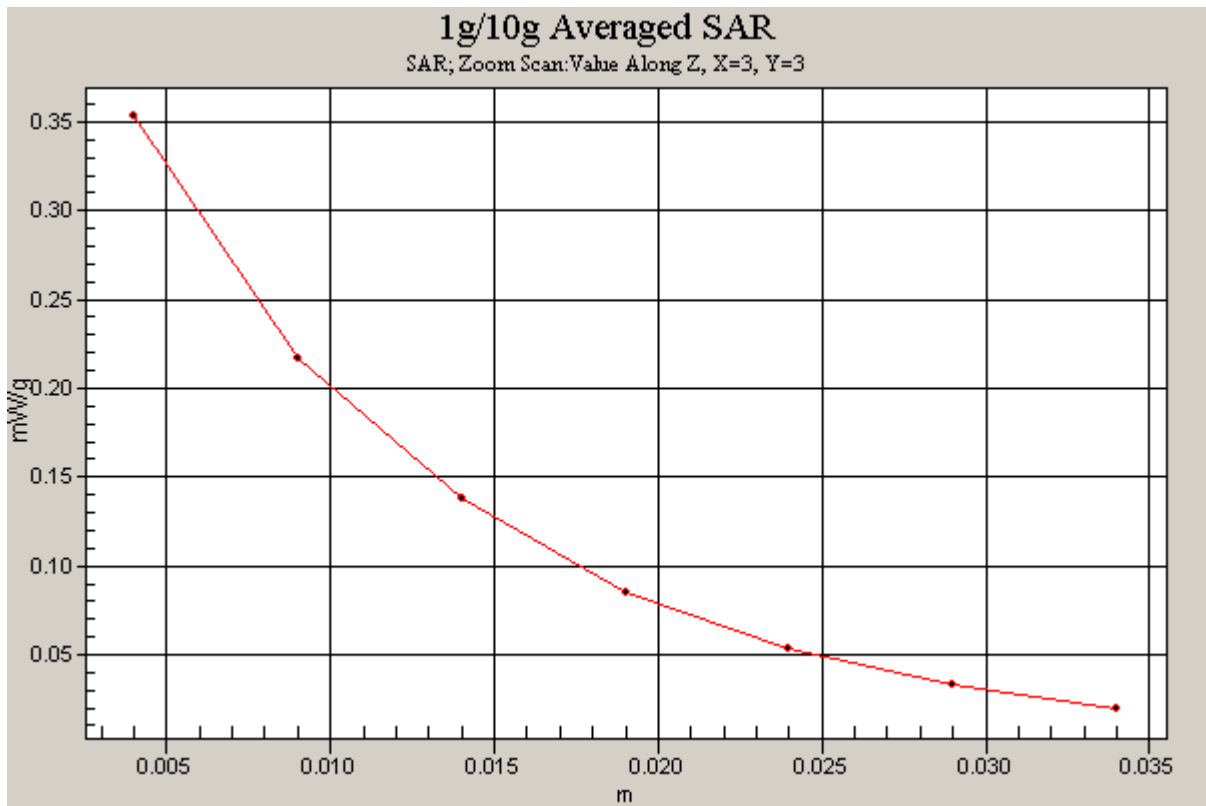


Figure 81 Z-Scan at power reference point (Body, Towards Ground, WCDMA Band II Channel 9538)

WCDMA Band II Towards Ground Middle

Communication System: WCDMA Band II; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.49$ mho/m; $\epsilon_r = 53.1$; $\rho = 1000$ kg/m³

Probe: ET3DV6 - SN1531; ConvF(4.64, 4.64, 4.64);

Electronics: DAE4 Sn679;

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

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

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

Reference Value = 8.01 V/m; Power Drift = 0.053 dB

Peak SAR (extrapolated) = 0.359 W/kg

SAR(1 g) = 0.219 mW/g; SAR(10 g) = 0.135 mW/g

Maximum value of SAR (measured) = 0.236 mW/g

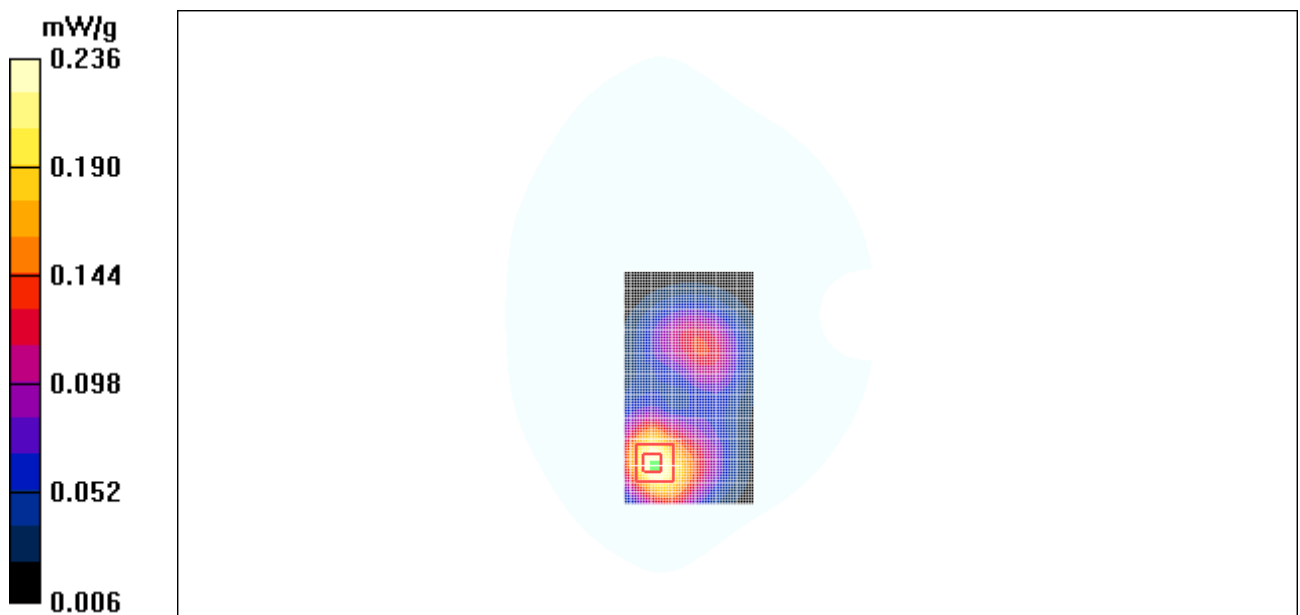


Figure 82 Body, Towards Ground, WCDMA Band II Channel 9400

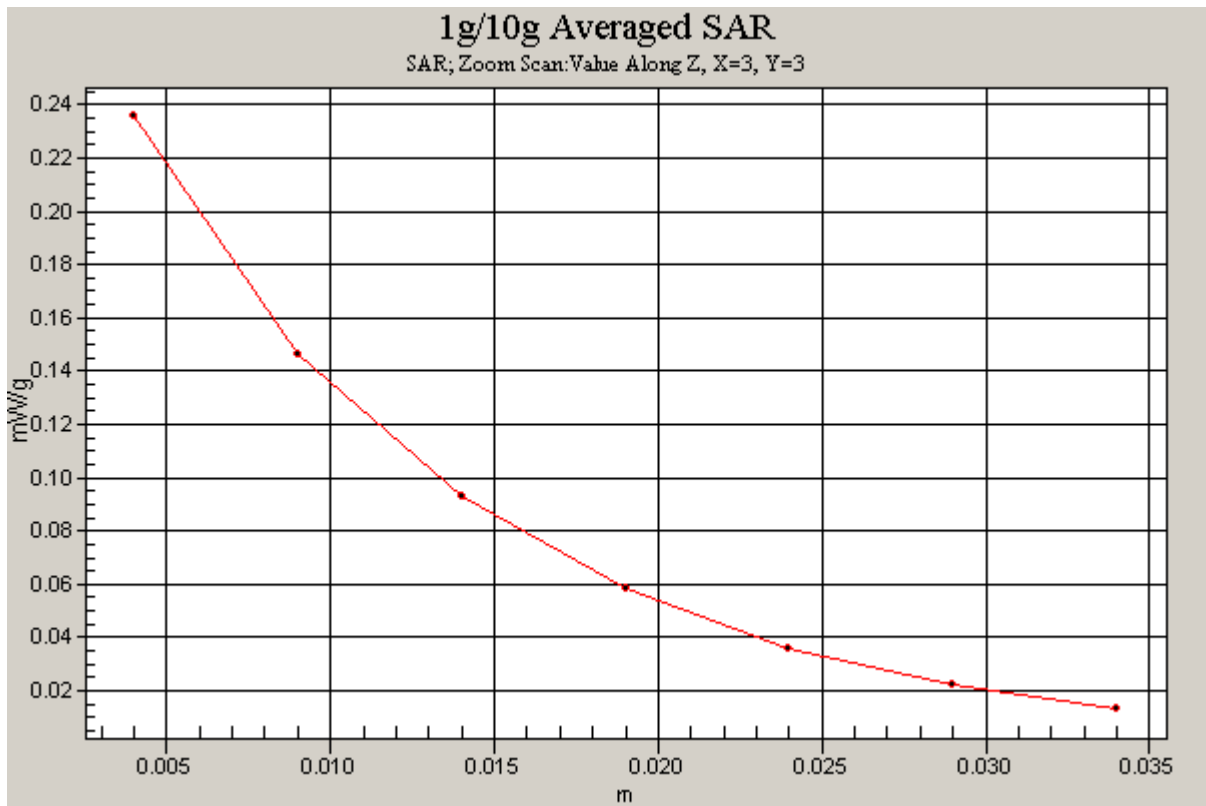


Figure 83 Z-Scan at power reference point (Body, Towards Ground, WCDMA Band II Channel 9400)

WCDMA Band II Towards Ground Low

Communication System: WCDMA Band II; Frequency: 1852.4 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 1852.4$ MHz; $\sigma = 1.46$ mho/m; $\epsilon_r = 53.2$; $\rho = 1000$ kg/m³

Probe: ET3DV6 - SN1531; ConvF(4.64, 4.64, 4.64);

Electronics: DAE4 Sn679;

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

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

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

Reference Value = 10.4 V/m; Power Drift = -0.174 dB

Peak SAR (extrapolated) = 0.559 W/kg

SAR(1 g) = 0.342 mW/g; SAR(10 g) = 0.209 mW/g

Maximum value of SAR (measured) = 0.371 mW/g

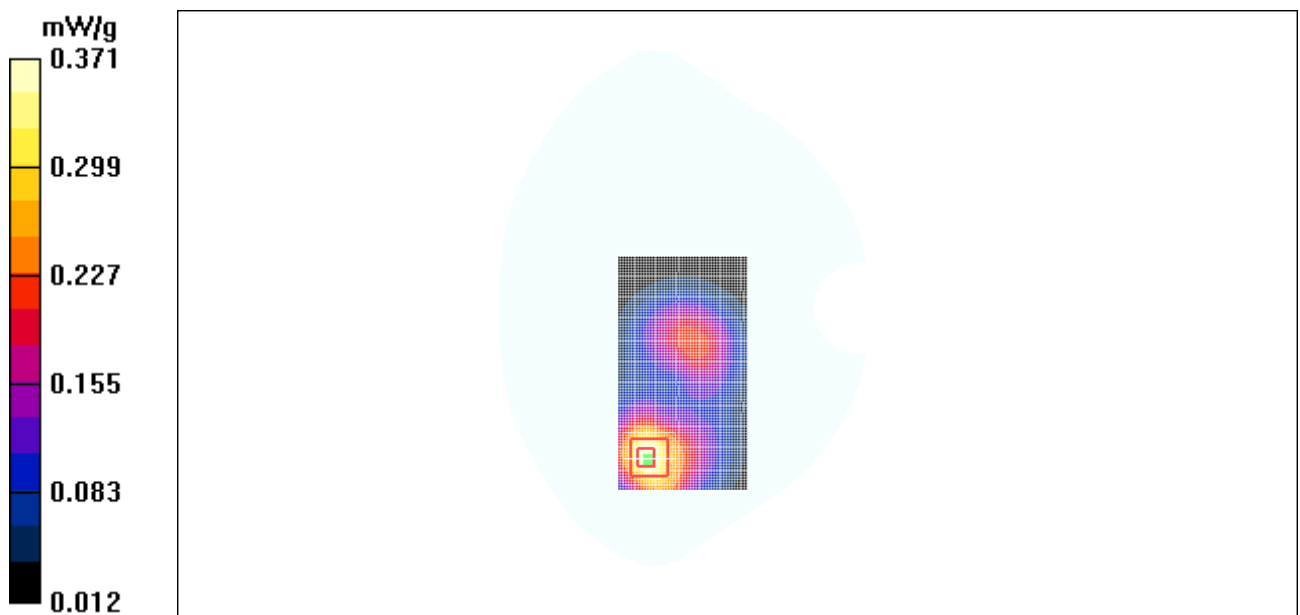


Figure 84 Body, Towards Ground, WCDMA Band II Channel 9262

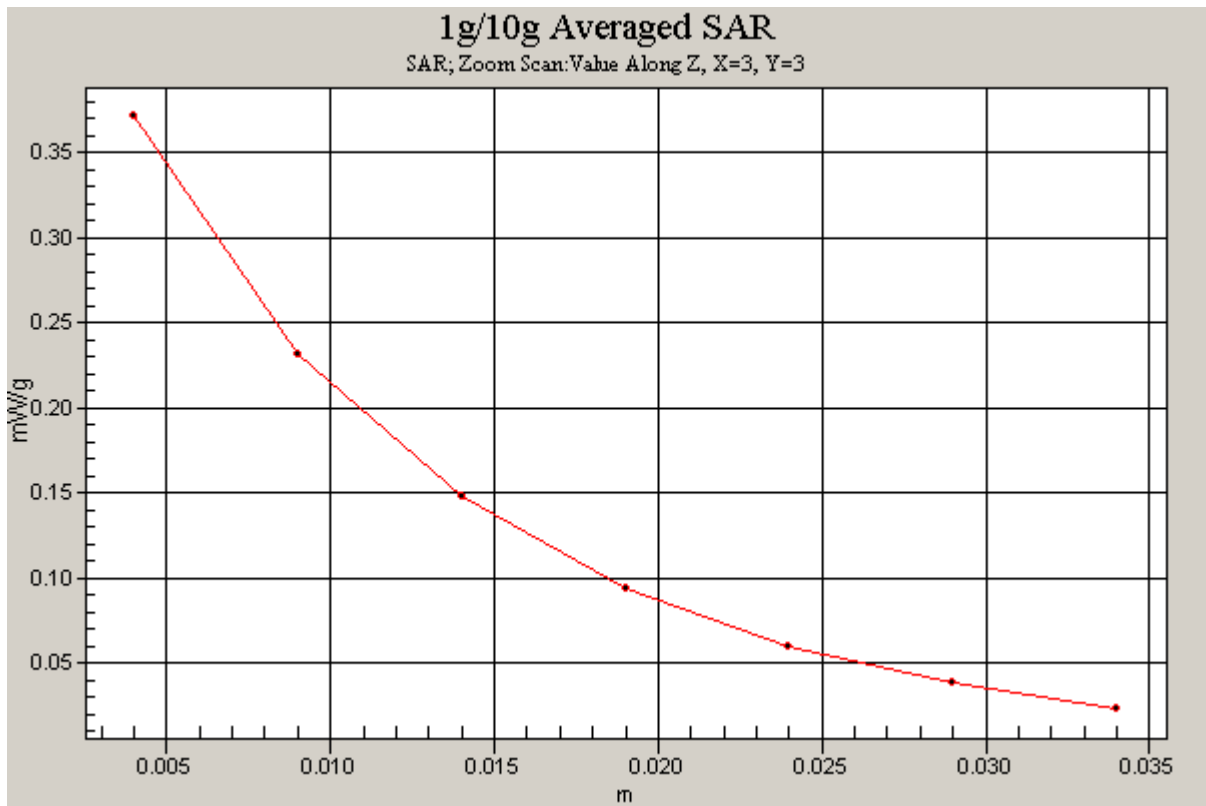


Figure 85 Z-Scan at power reference point (Body, Towards Ground, WCDMA Band II Channel 9262)

WCDMA Band II Towards Phantom Middle

Communication System: WCDMA Band II; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.49$ mho/m; $\epsilon_r = 53.1$; $\rho = 1000$ kg/m³

Probe: ET3DV6 - SN1531; ConvF(4.64, 4.64, 4.64);

Electronics: DAE4 Sn679;

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

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

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

Reference Value = 7.67 V/m; Power Drift = -0.041 dB

Peak SAR (extrapolated) = 0.225 W/kg

SAR(1 g) = 0.150 mW/g; SAR(10 g) = 0.094 mW/g

Maximum value of SAR (measured) = 0.160 mW/g

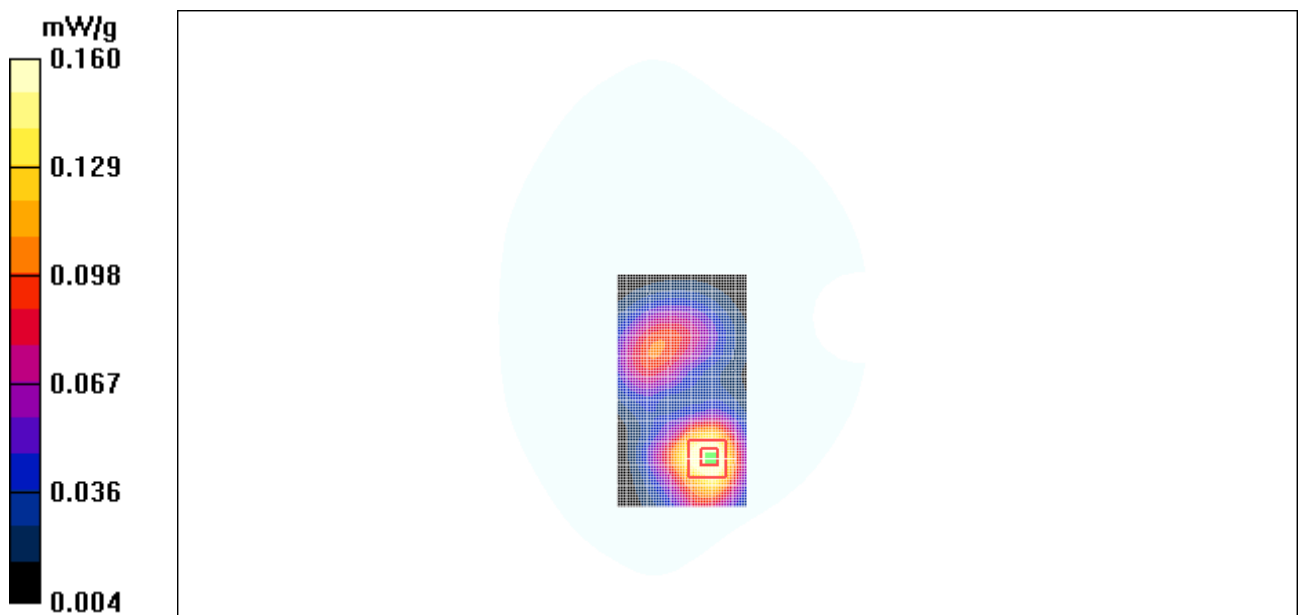


Figure 86 Body, Towards Phantom, WCDMA Band II Channel 9400

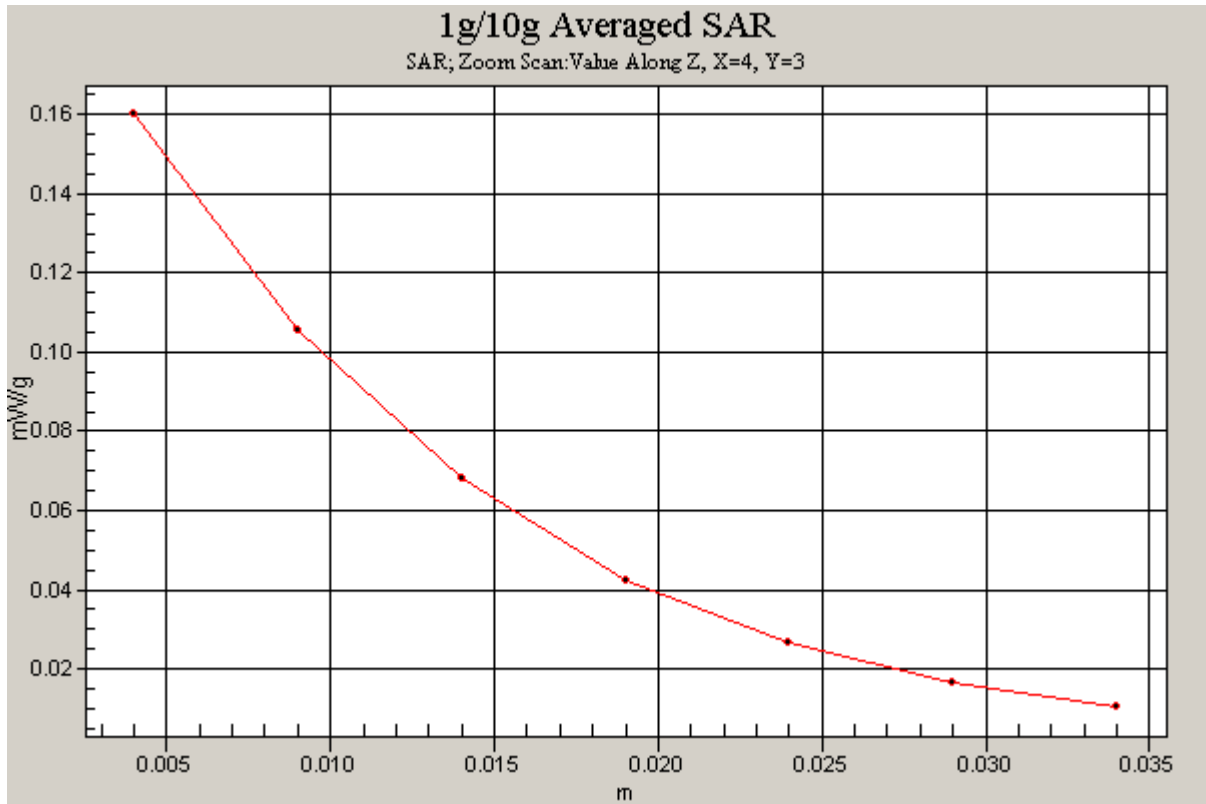


Figure 87 Z-Scan at power reference point (Body, Towards Phantom, WCDMA Band II Channel 9400)

WCDMA Band II Earphone Towards Ground Low

Communication System: WCDMA Band II; Frequency: 1852.4 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 1852.4$ MHz; $\sigma = 1.46$ mho/m; $\epsilon_r = 53.2$; $\rho = 1000$ kg/m³

Probe: ET3DV6 - SN1531; ConvF(4.64, 4.64, 4.64);

Electronics: DAE4 Sn679;

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

Maximum value of SAR (interpolated) = 0.325 mW/g

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

Reference Value = 7.56 V/m; Power Drift = 0.034 dB

Peak SAR (extrapolated) = 0.857 W/kg

SAR(1 g) = 0.488 mW/g; SAR(10 g) = 0.270 mW/g

Maximum value of SAR (measured) = 0.525 mW/g

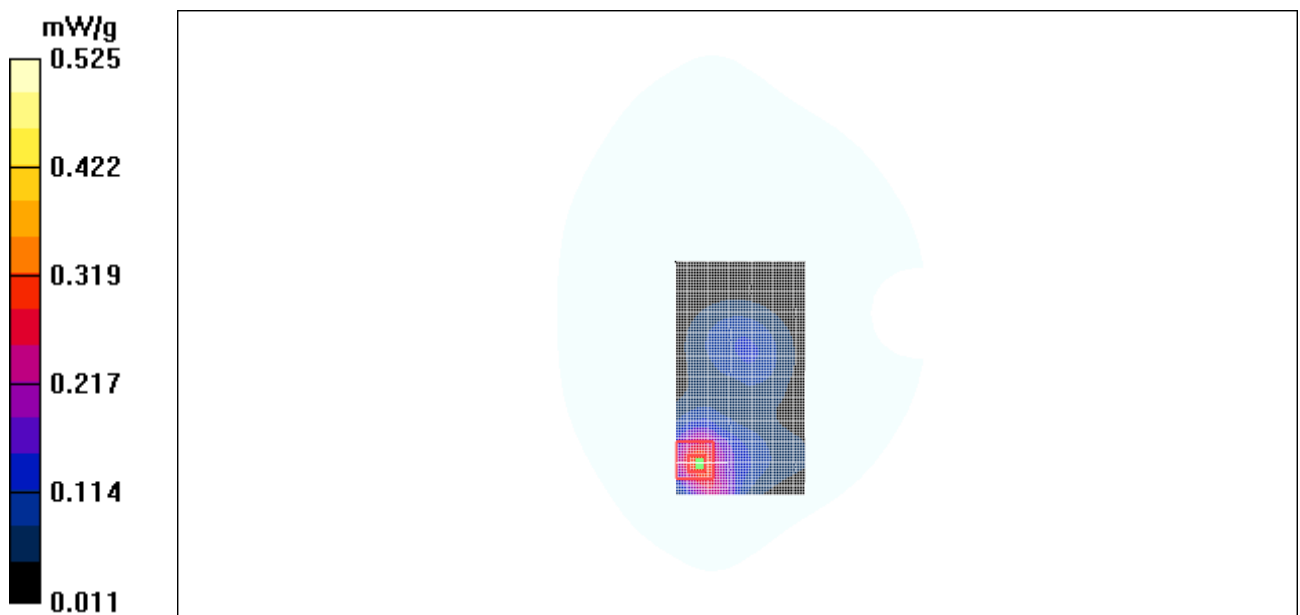


Figure 88 Body with Earphone, Towards Ground, WCDMA Band II, Channel 9262

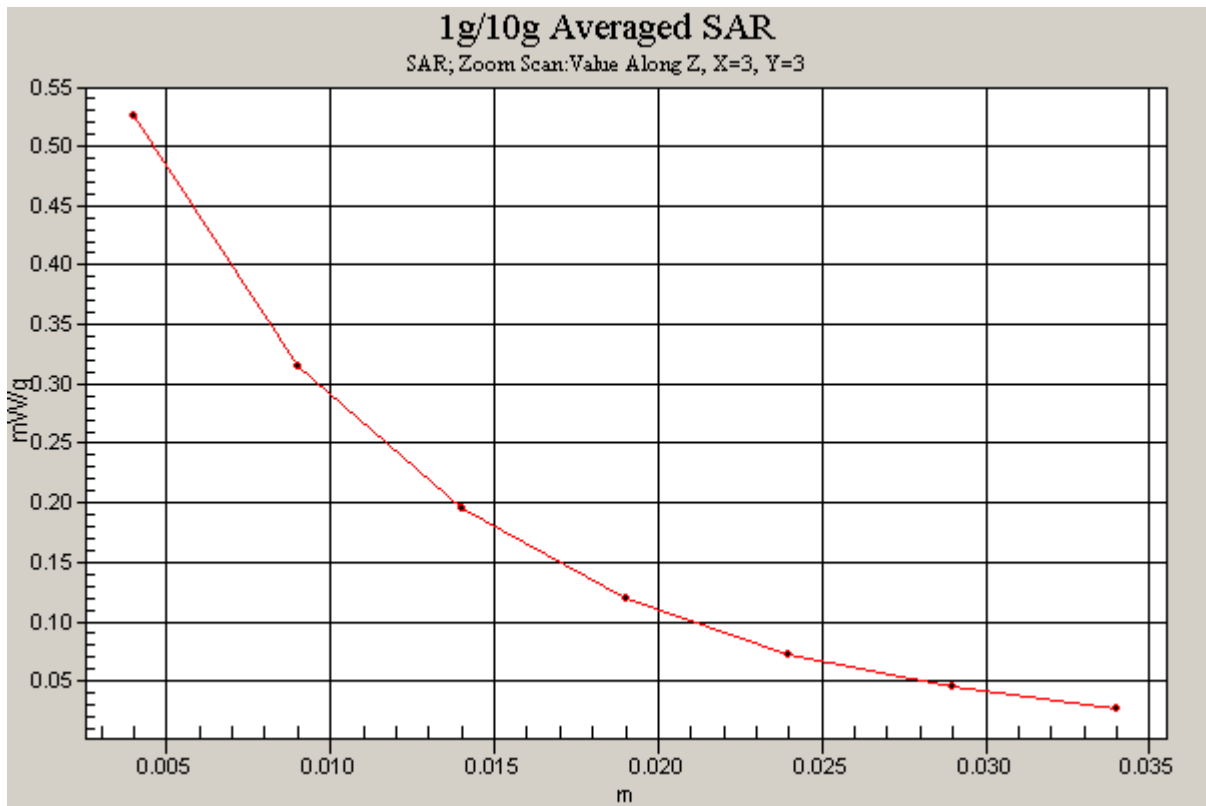


Figure 89 Z-Scan at power reference point (Body with Earphone, Towards Ground, WCDMA Band II, Channel 9262)

WCDMA Band II Bluetooth Towards Ground Low

Communication System: WCDMA Band II; Frequency: 1852.4 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 1852.4$ MHz; $\sigma = 1.48$ mho/m; $\epsilon_r = 53.1$; $\rho = 1000$ kg/m³

Probe: ET3DV6 - SN1531; ConvF(4.64, 4.64, 4.64);

Electronics: DAE4 Sn679;

Towards ground, Low/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm.

Maximum value of SAR (interpolated) = 0.623 mW/g

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

Reference Value = 9.64 V/m; Power Drift = 0.021 dB

Peak SAR (extrapolated) = 0.825 W/kg

SAR(1 g) = 0.511 mW/g; SAR(10 g) = 0.313 mW/g

Maximum value of SAR (measured) = 0.553 mW/g

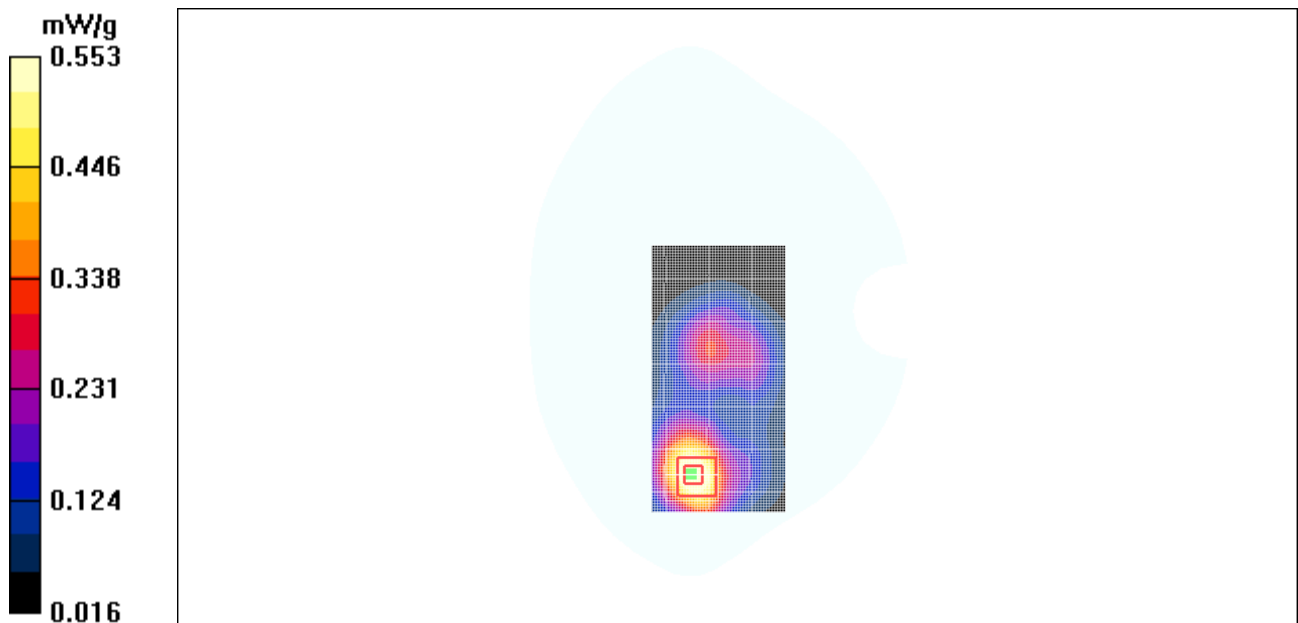


Figure 90 Body with Bluetooth, Towards Ground, WCDMA Band II, Channel 9262

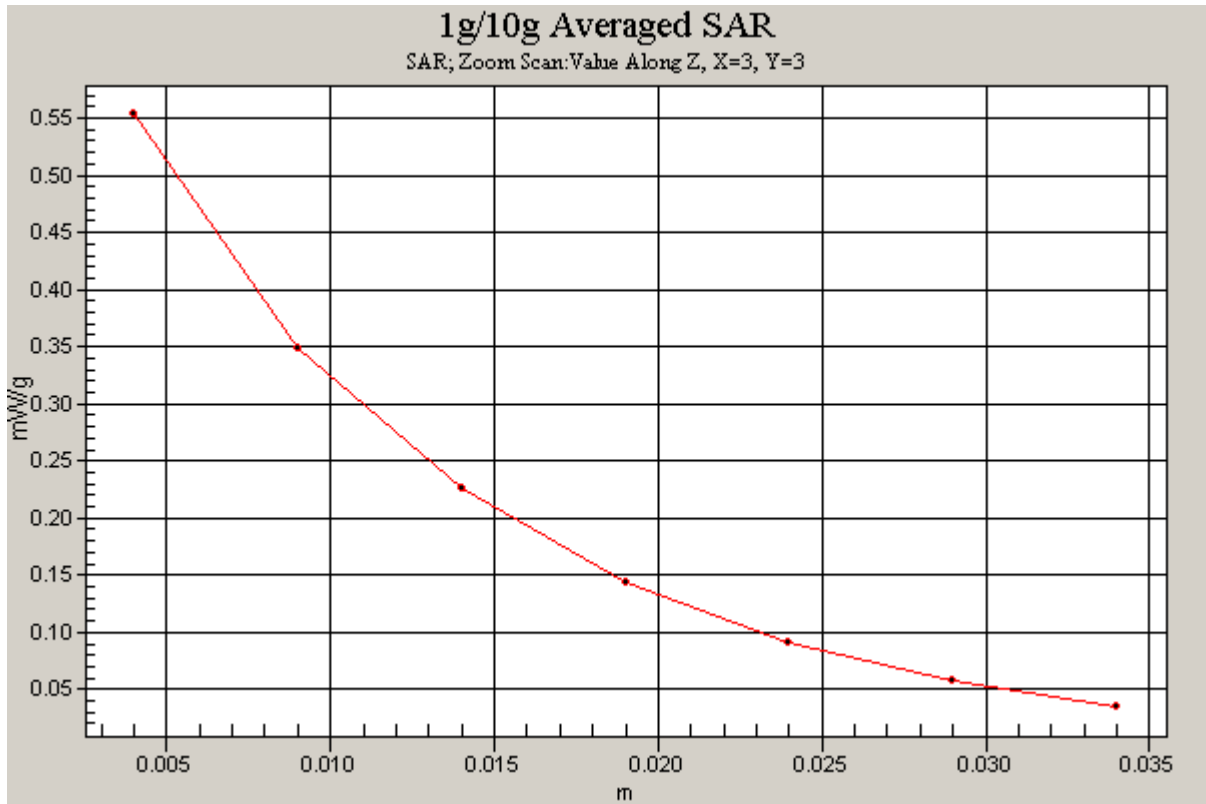


Figure 91 Z-Scan at power reference point (Body with Bluetooth, Towards Ground, WCDMA Band II, Channel 9262)

WCDMA Band II HSDPA Towards Ground Low

Communication System: WCDMA Band II+HSDPA; Frequency: 1852.4 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 1852.4$ MHz; $\sigma = 1.48$ mho/m; $\epsilon_r = 53.1$; $\rho = 1000$ kg/m³
Probe: ET3DV6 - SN1531; ConvF(4.64, 4.64, 4.64);
Electronics: DAE4 Sn679;

Towards ground, Low/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.309 mW/g

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

Reference Value = 8.08 V/m; Power Drift = -0.015 dB

Peak SAR (extrapolated) = 0.463 W/kg

SAR(1 g) = 0.281 mW/g; SAR(10 g) = 0.170 mW/g

Maximum value of SAR (measured) = 0.310 mW/g

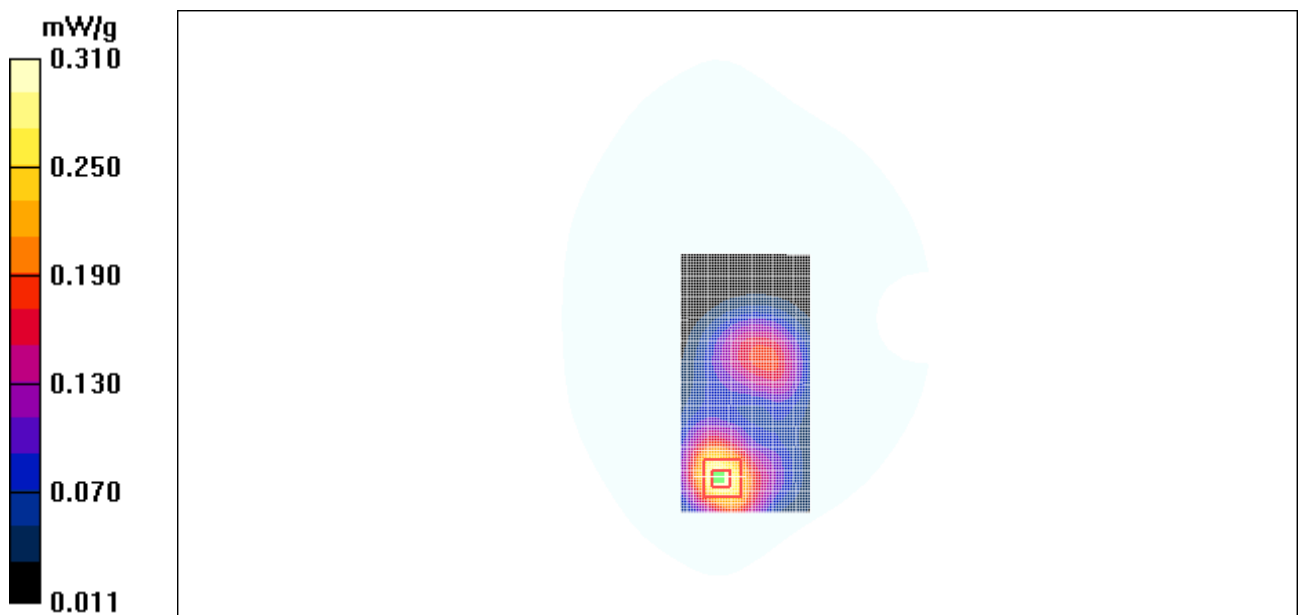


Figure 92 Body, Towards Ground, WCDMA Band II HSDPA, Channel 9262

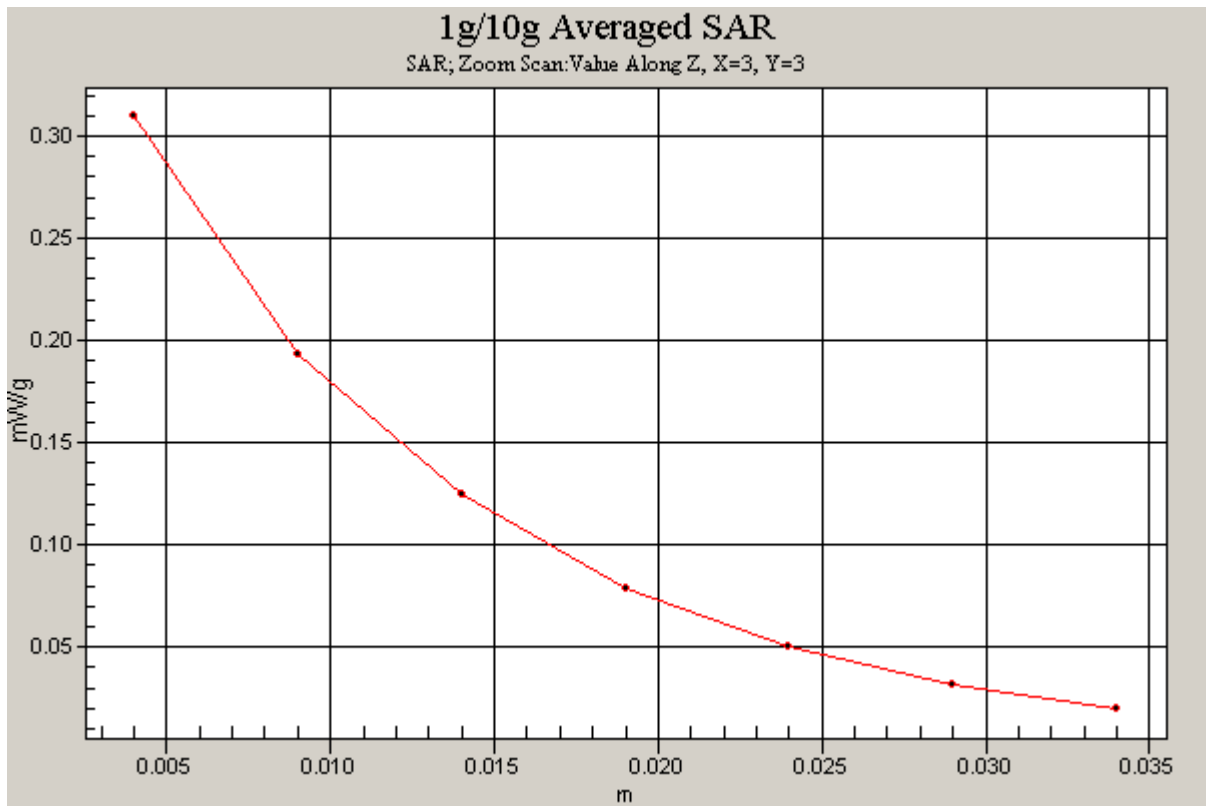


Figure 93 Z-Scan at power reference point (Body, Towards Ground, WCDMA Band II HSDPA, Channel 9262)

WCDMA Band V Left Cheek Middle

Communication System: WCDMA Band V; Frequency: 836.4 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 836.4$ MHz; $\sigma = 0.938$ mho/m; $\epsilon_r = 42.4$; $\rho = 1000$ kg/m³

Probe: ET3DV6 - SN1531; ConvF(6.85, 6.85, 6.85);

Electronics: DAE4 Sn679;

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

Maximum value of SAR (interpolated) = 0.803 mW/g

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

Reference Value = 10.1 V/m; Power Drift = -0.142 dB

Peak SAR (extrapolated) = 0.960 W/kg

SAR(1 g) = 0.748 mW/g; SAR(10 g) = 0.538 mW/g

Maximum value of SAR (measured) = 0.809 mW/g

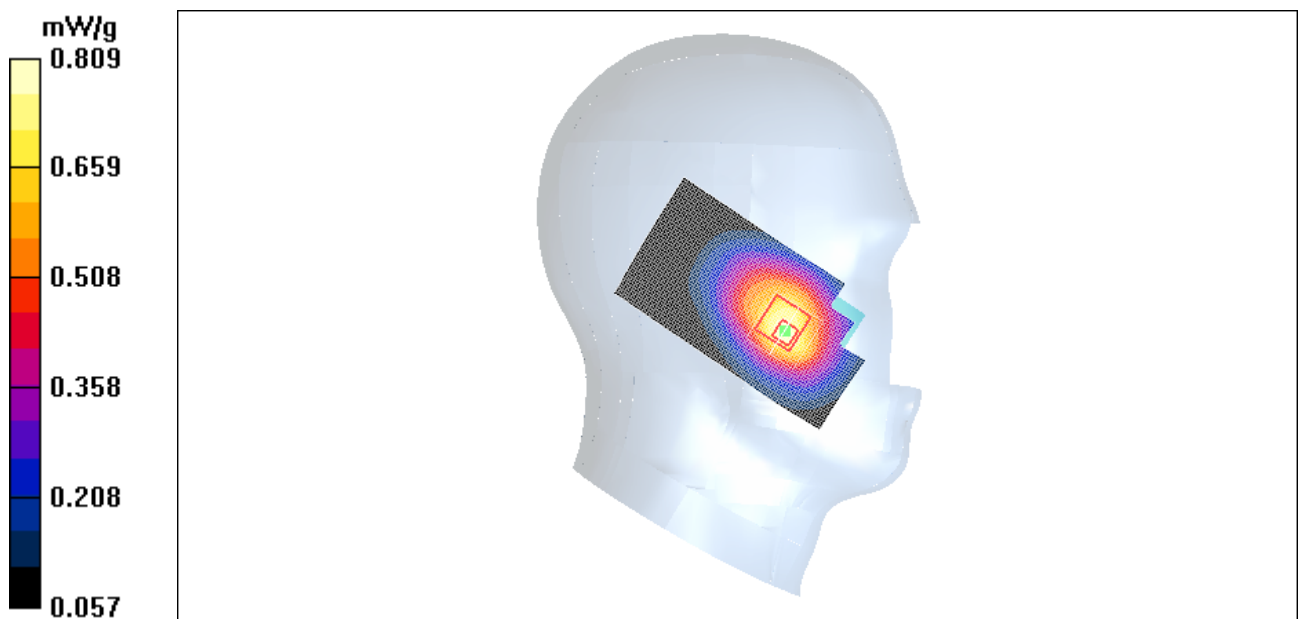


Figure 94 Left Hand Touch Cheek WCDMA Band V Channel 4182

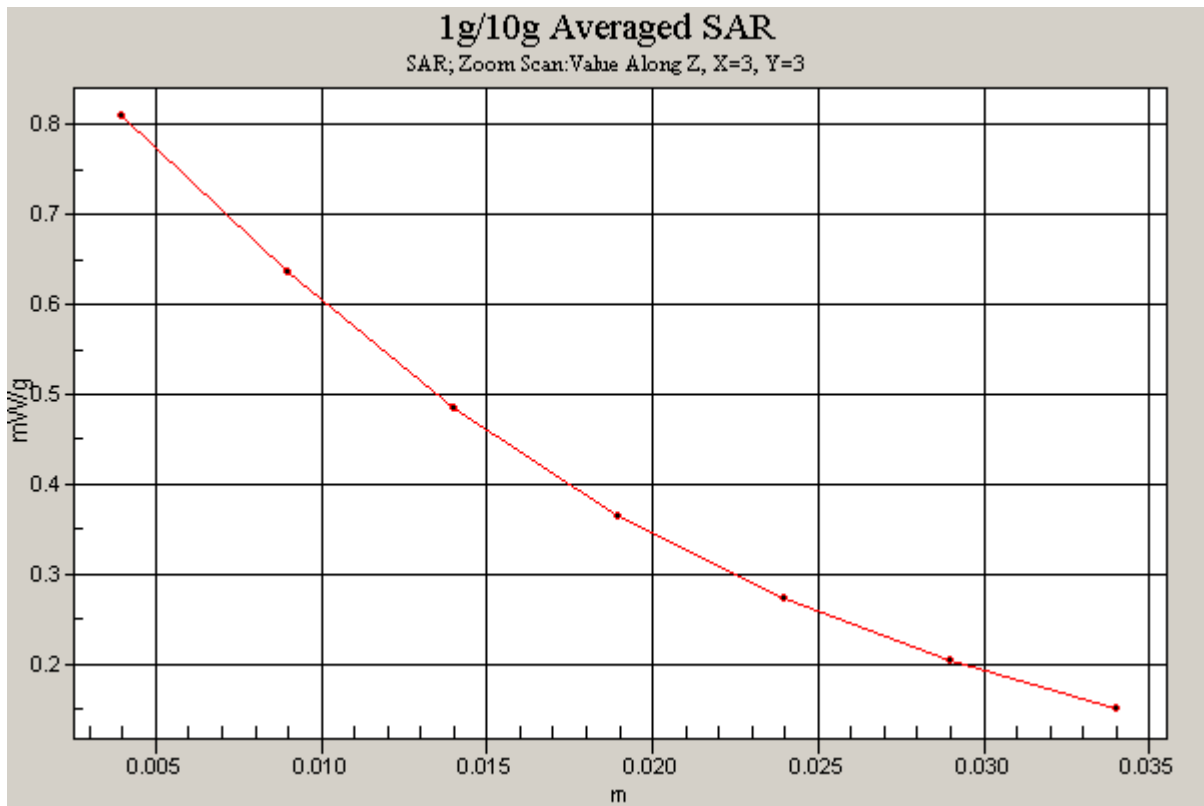


Figure 95 Z-Scan at power reference point (Left Hand Touch Cheek WCDMA Band V Channel 4182)

WCDMA Band V Left Tilt Middle

Communication System: WCDMA Band V; Frequency: 836.4 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 836.4$ MHz; $\sigma = 0.938$ mho/m; $\epsilon_r = 42.4$; $\rho = 1000$ kg/m³

Probe: ET3DV6 - SN1531; ConvF(6.85, 6.85, 6.85);

Electronics: DAE4 Sn679;

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

Maximum value of SAR (interpolated) = 0.339 mW/g

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

Reference Value = 11.7 V/m; Power Drift = -0.053 dB

Peak SAR (extrapolated) = 0.401 W/kg

SAR(1 g) = 0.325 mW/g; SAR(10 g) = 0.244 mW/g

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

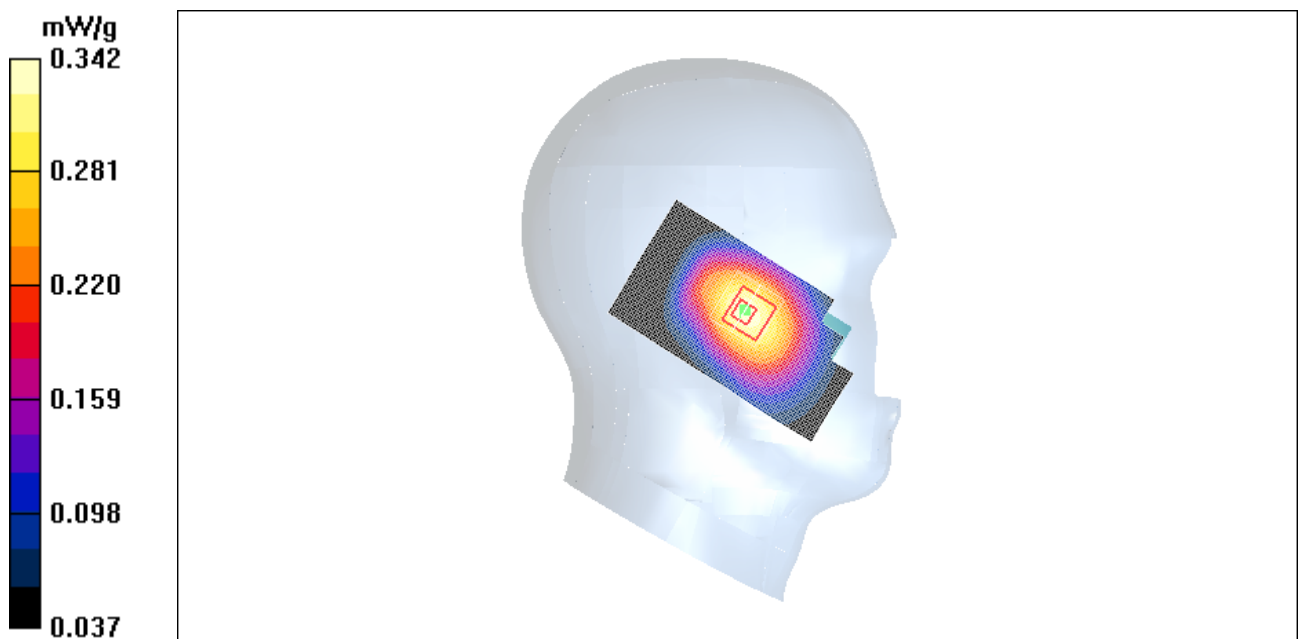


Figure 96 Left Hand Tilt 15 ° WCDMA Band V Channel 4182

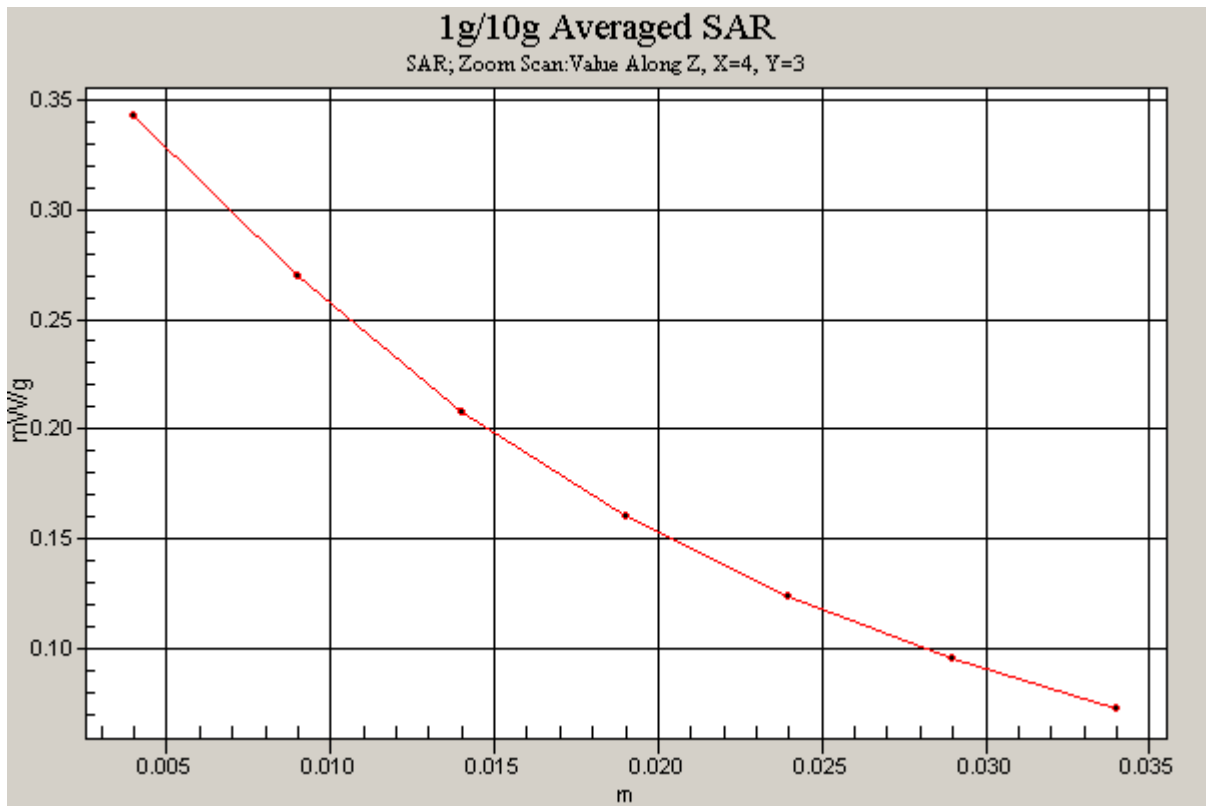


Figure 97 Z-Scan at power reference point (Left Hand Tilt 15 ° WCDMA Band V Channel 4182)

WCDMA Band V Right Cheek High

Communication System: WCDMA Band V; Frequency: 846.6 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 847$ MHz; $\sigma = 0.95$ mho/m; $\epsilon_r = 42.3$; $\rho = 1000$ kg/m³
Probe: ET3DV6 - SN1531; ConvF(6.85, 6.85, 6.85);
Electronics: DAE4 Sn679;

Cheek High/Area Scan (81x141x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.06 mW/g

Cheek High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.2 V/m; Power Drift = 0.182 dB
Peak SAR (extrapolated) = 1.36 W/kg
SAR(1 g) = 1.01 mW/g; SAR(10 g) = 0.732 mW/g
Maximum value of SAR (measured) = 1.08 mW/g

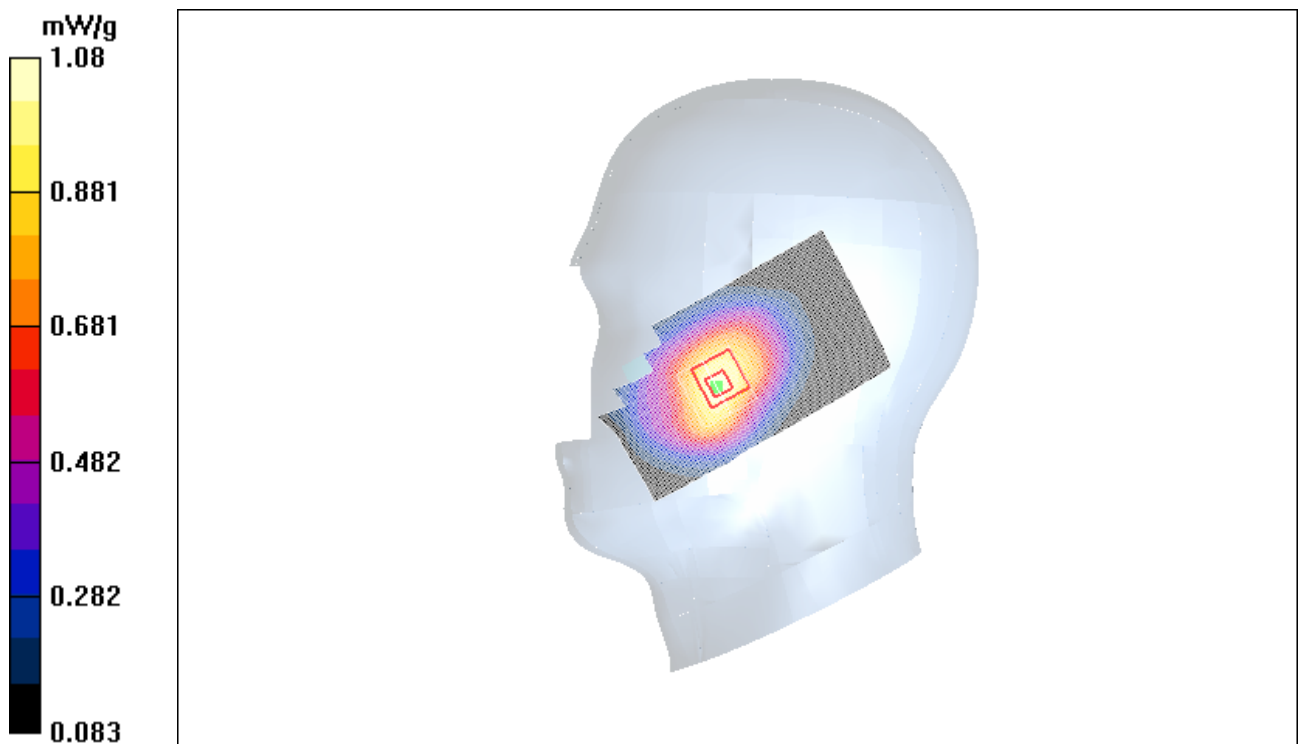


Figure 98 Right Hand Touch Cheek WCDMA Band V Channel 4233

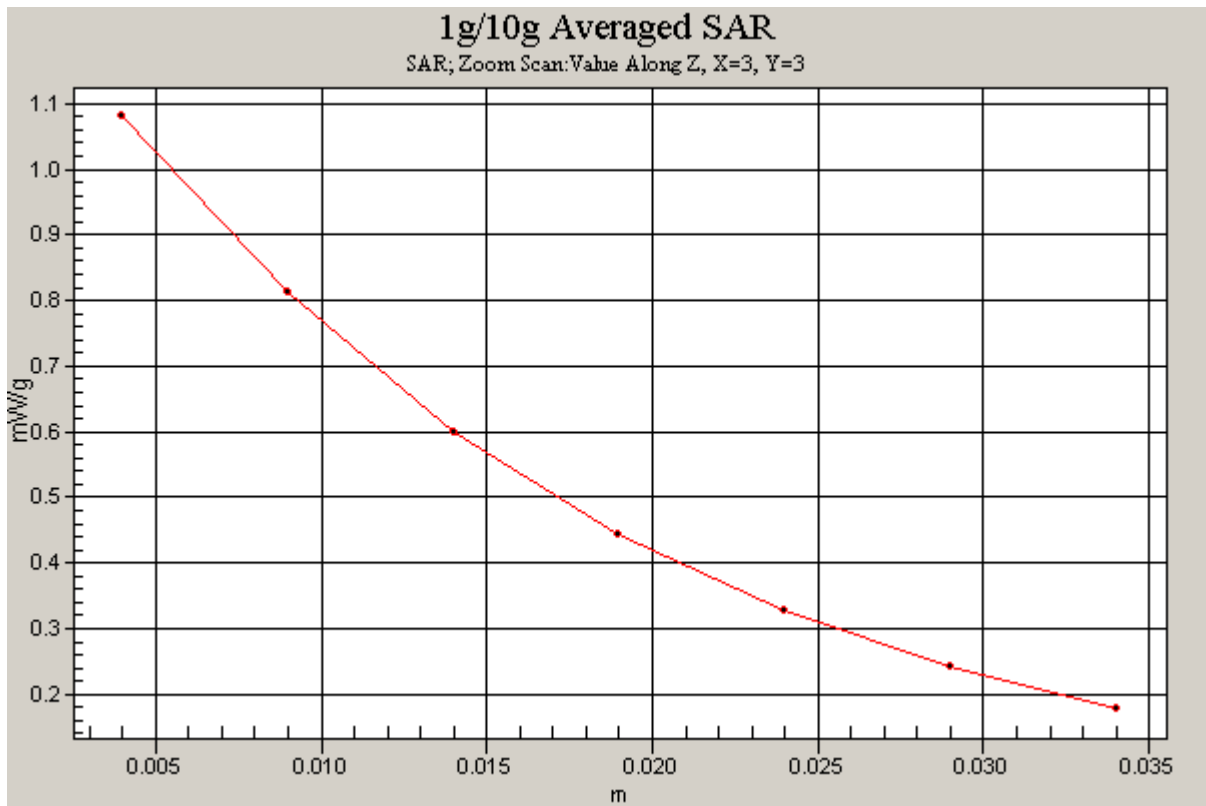


Figure 99 Z-Scan at power reference point (Right Hand Touch Cheek WCDMA Band V Channel 4233)

WCDMA Band V Right Cheek Middle

Communication System: WCDMA Band V; Frequency: 836.4 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 836.4$ MHz; $\sigma = 0.938$ mho/m; $\epsilon_r = 42.4$; $\rho = 1000$ kg/m³

Probe: ET3DV6 - SN1531; ConvF(6.85, 6.85, 6.85);

Electronics: DAE4 Sn679;

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

Maximum value of SAR (interpolated) = 0.921 mW/g

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

Reference Value = 12.0 V/m; Power Drift = 0.019 dB

Peak SAR (extrapolated) = 1.15 W/kg

SAR(1 g) = 0.847 mW/g; SAR(10 g) = 0.614 mW/g

Maximum value of SAR (measured) = 0.898 mW/g

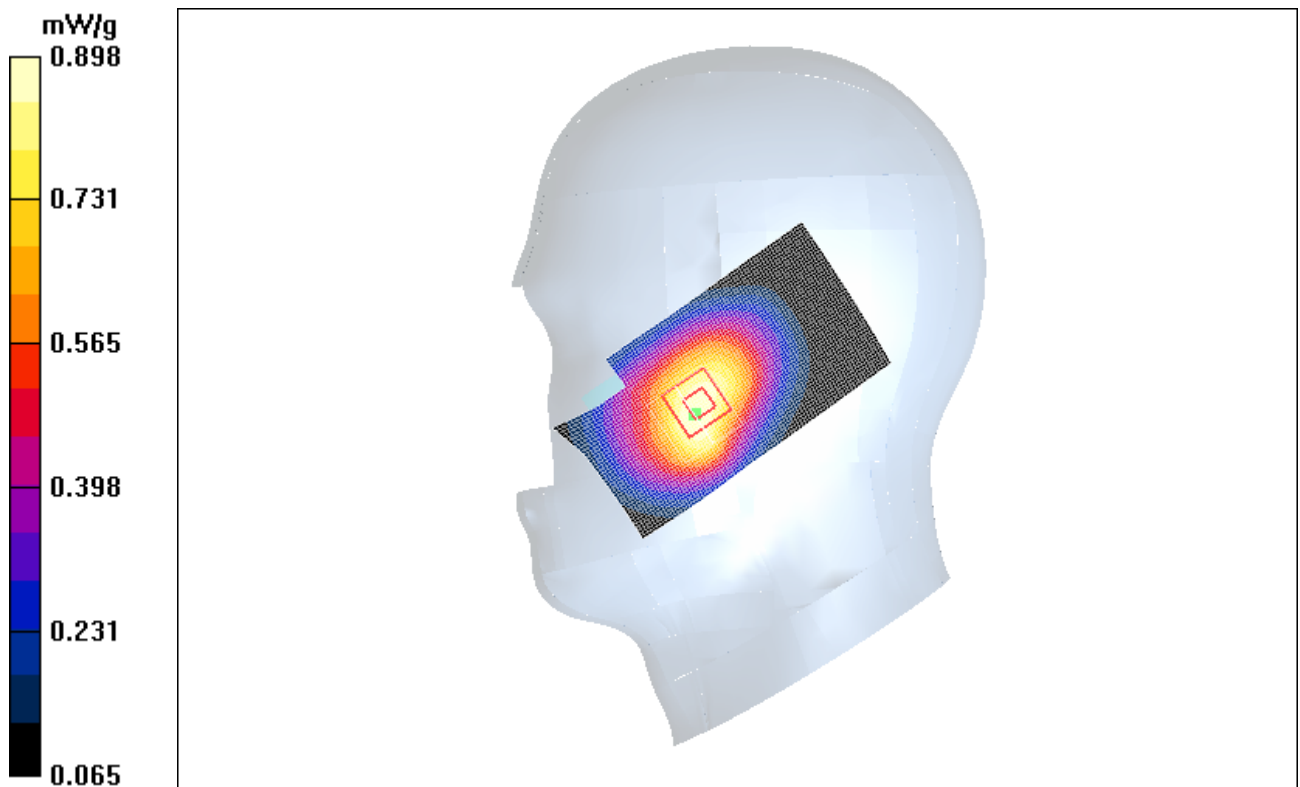


Figure 100 Right Hand Touch Cheek WCDMA Band V Channel 4182

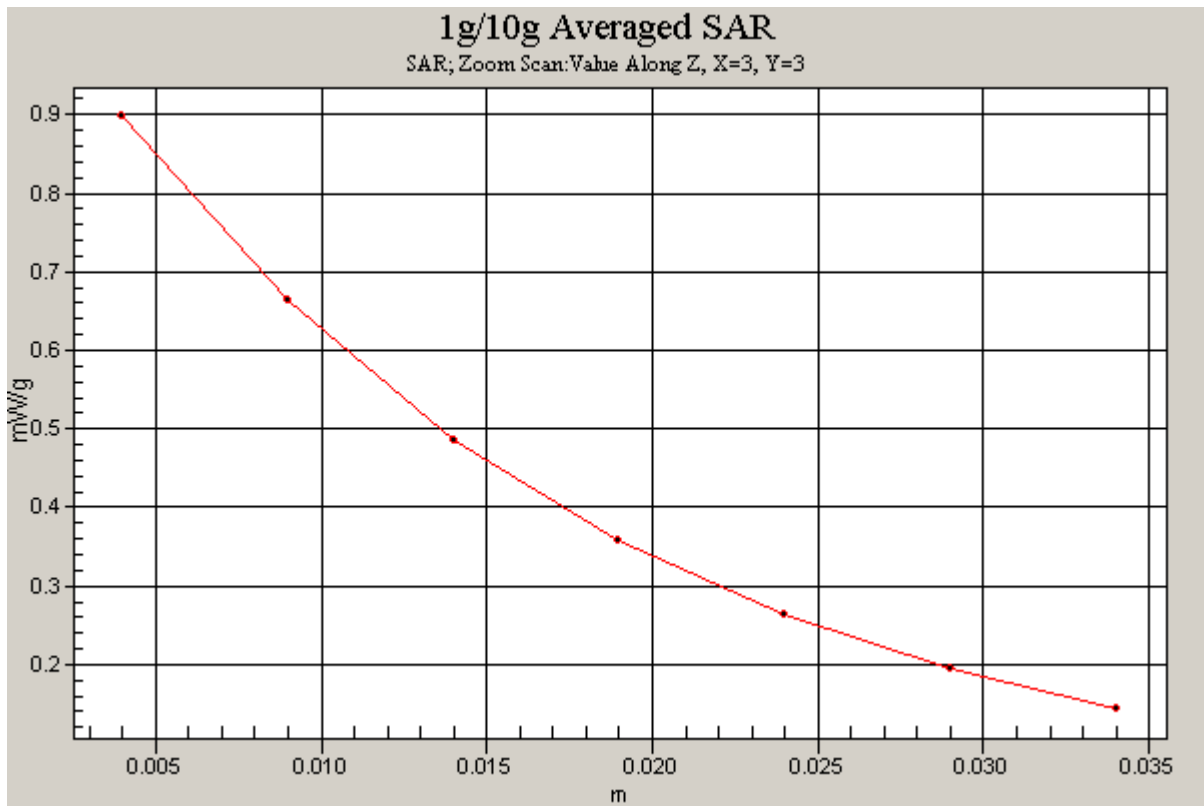


Figure 101 Z-Scan at power reference point (Right Hand Touch Cheek WCDMA Band V Channel 4182)

WCDMA Band V Right Cheek Low

Communication System: WCDMA Band V; Frequency: 826.4 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 826.4$ MHz; $\sigma = 0.928$ mho/m; $\epsilon_r = 42.5$; $\rho = 1000$ kg/m³

Probe: ET3DV6 - SN1531; ConvF(6.85, 6.85, 6.85);

Electronics: DAE4 Sn679;

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

Maximum value of SAR (interpolated) = 0.874 mW/g

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

Reference Value = 12.1 V/m; Power Drift = 0.071 dB

Peak SAR (extrapolated) = 1.11 W/kg

SAR(1 g) = 0.827 mW/g; SAR(10 g) = 0.597 mW/g

Maximum value of SAR (measured) = 0.874 mW/g

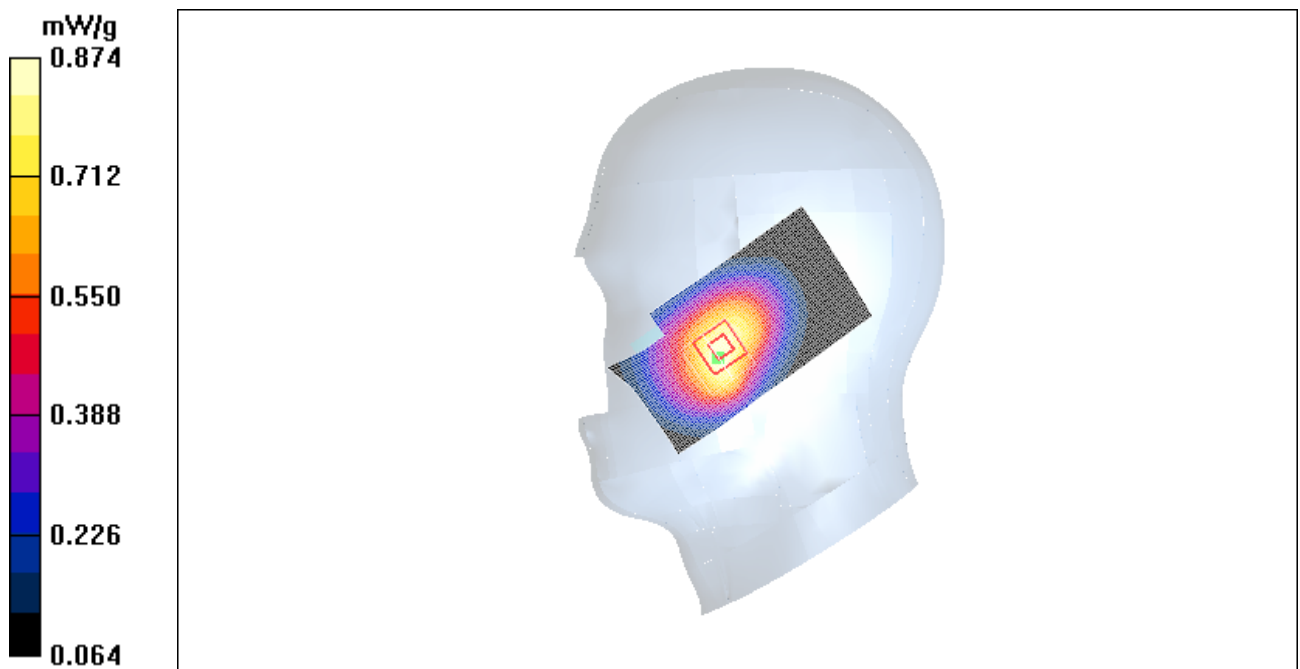


Figure 102 Right Hand Touch Cheek WCDMA Band V Channel 4132

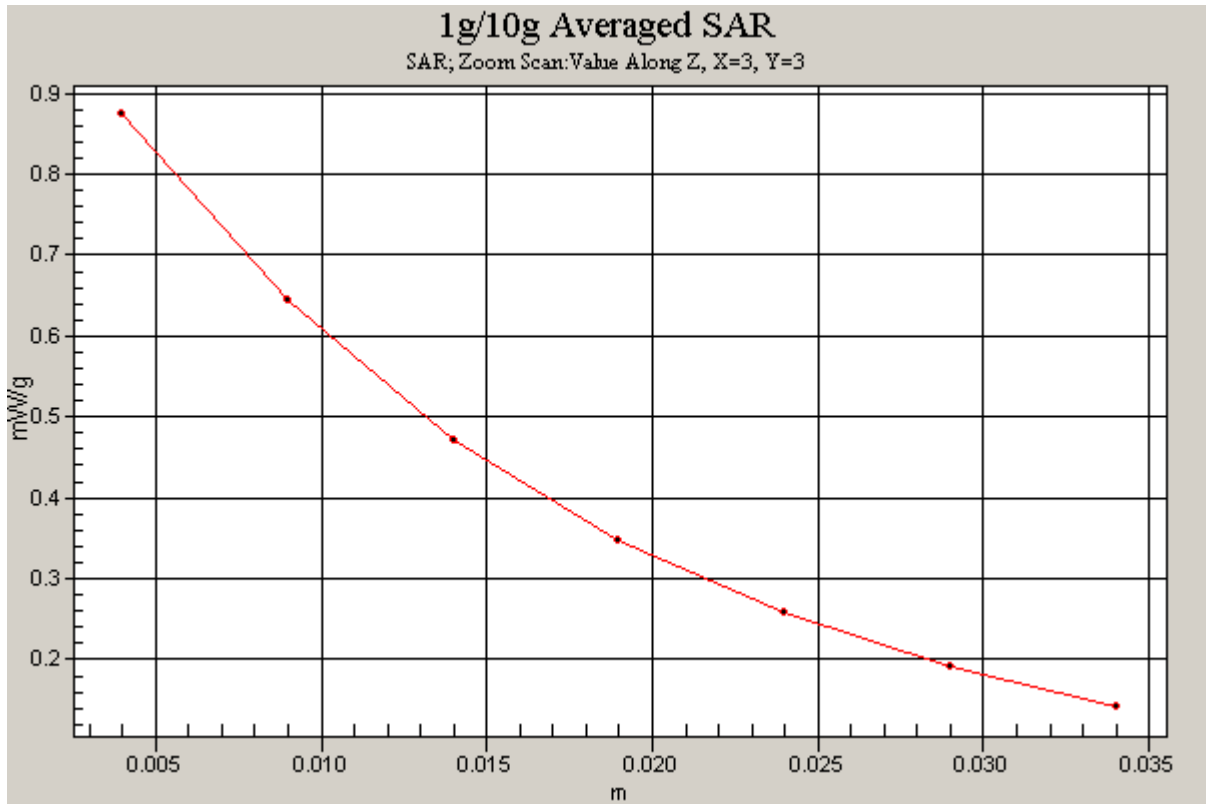


Figure 103 Z-Scan at power reference point (Right Hand Touch Cheek WCDMA Band V Channel 4132)

WCDMA Band V Right Tilt Middle

Communication System: WCDMA Band V; Frequency: 836.4 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 836.4$ MHz; $\sigma = 0.938$ mho/m; $\epsilon_r = 42.4$; $\rho = 1000$ kg/m³

Probe: ET3DV6 - SN1531; ConvF(6.85, 6.85, 6.85);

Electronics: DAE4 Sn679;

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

Maximum value of SAR (interpolated) = 0.433 mW/g

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

Reference Value = 14.1 V/m; Power Drift = -0.125 dB

Peak SAR (extrapolated) = 0.507 W/kg

SAR(1 g) = 0.406 mW/g; SAR(10 g) = 0.300 mW/g

Maximum value of SAR (measured) = 0.432 mW/g

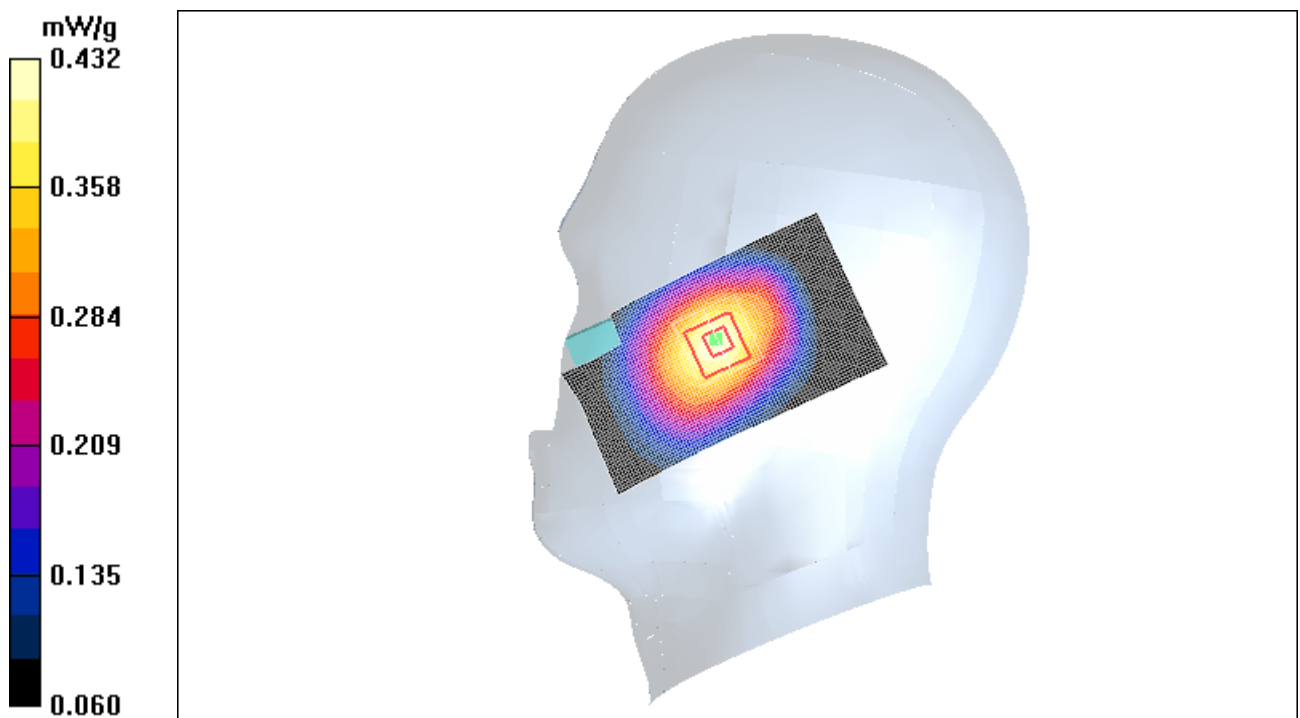


Figure 104 Right Hand Tilt 15 ° WCDMA Band V Channel 4182

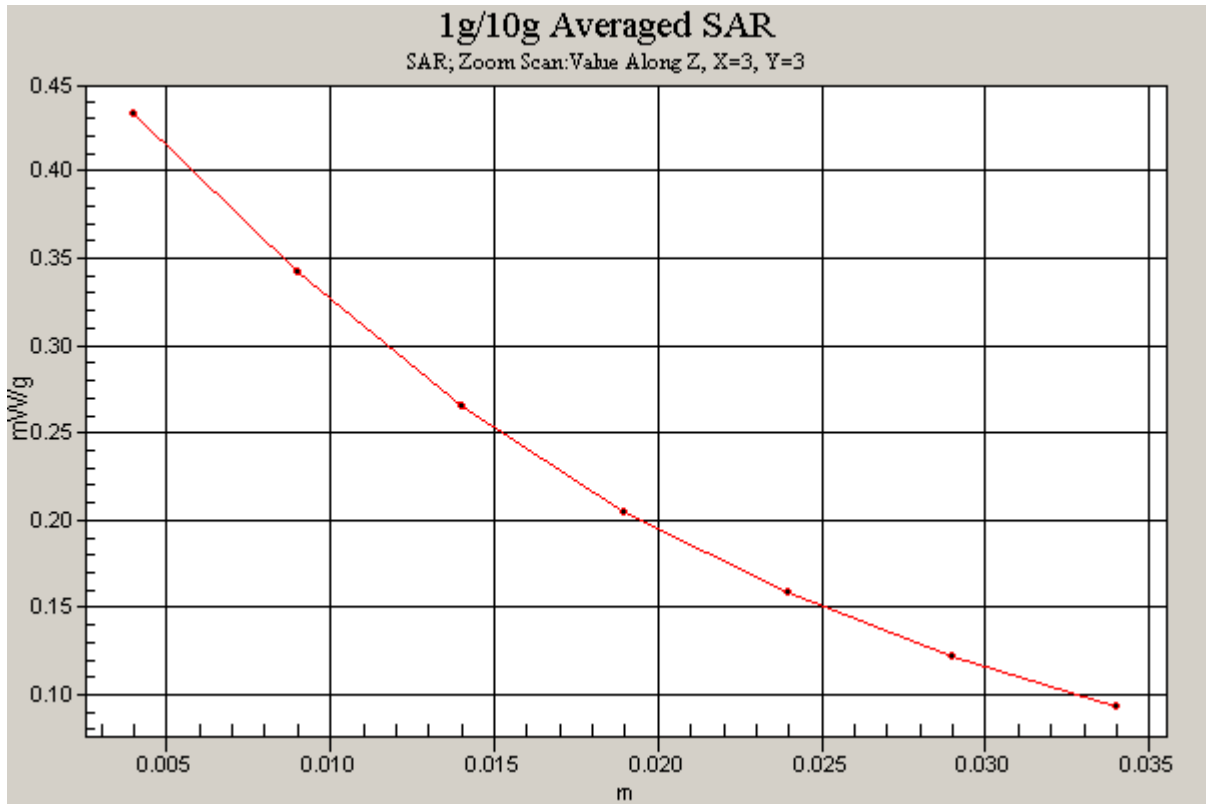


Figure 105 Z-Scan at power reference point (Right Hand Tilt 15 ° WCDMA Band V Channel 4182)

WCDMA Band V Towards Ground High

Communication System: WCDMA Band V; Frequency: 846.6 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 847$ MHz; $\sigma = 1.02$ mho/m; $\epsilon_r = 55.5$; $\rho = 1000$ kg/m³

Probe: ET3DV6 - SN1531; ConvF(6.52, 6.52, 6.52);

Electronics: DAE4 Sn679;

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

Maximum value of SAR (interpolated) = 0.295 mW/g

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

Reference Value = 7.74 V/m; Power Drift = 0.127 dB

Peak SAR (extrapolated) = 0.328 W/kg

SAR(1 g) = 0.265 mW/g; SAR(10 g) = 0.197 mW/g

Maximum value of SAR (measured) = 0.280 mW/g

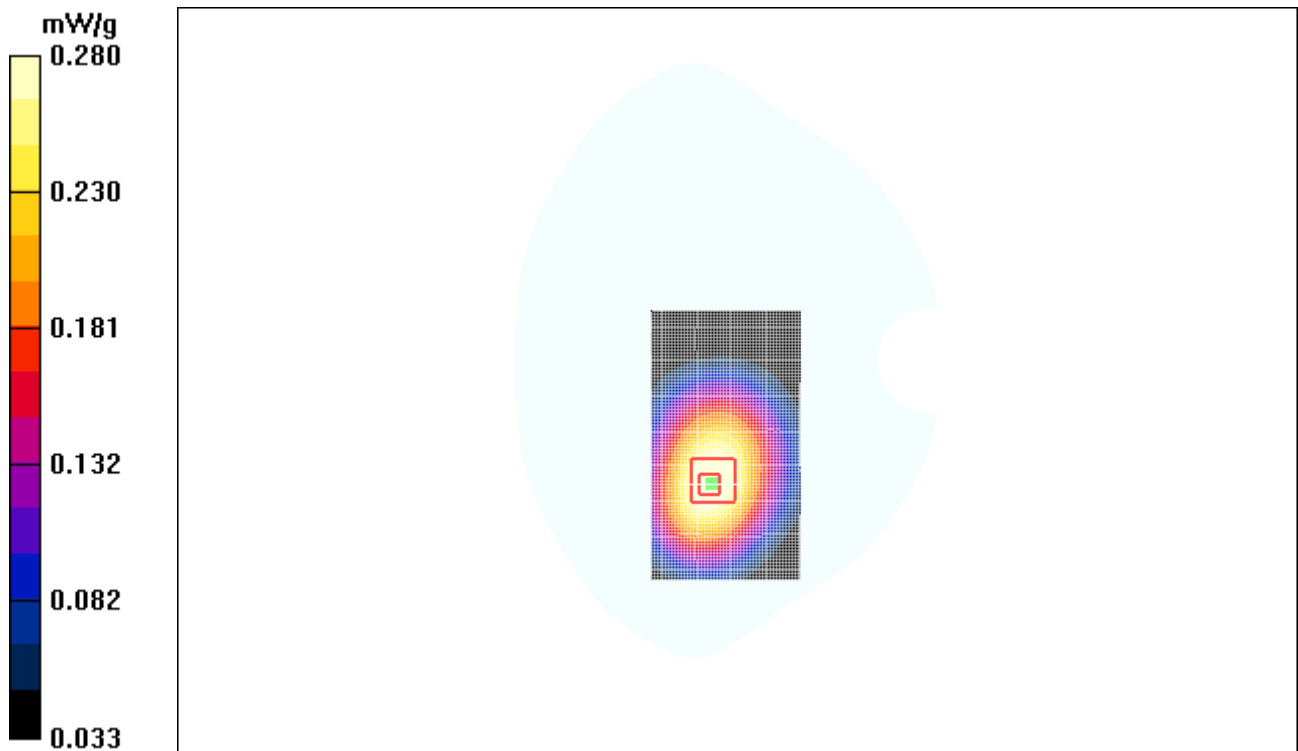


Figure 106 Body, Towards Ground, WCDMA Band V Channel 4233

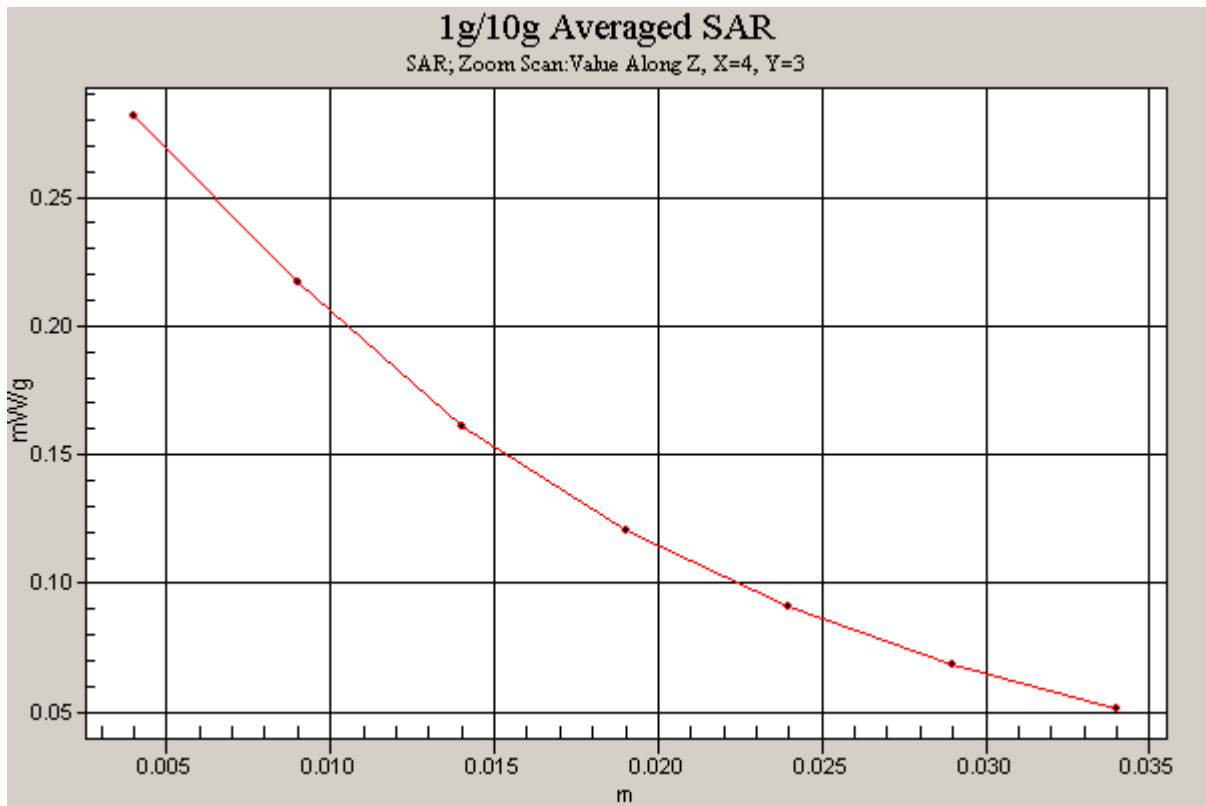


Figure 107 Z-Scan at power reference point (Body, Towards Ground, WCDMA Band V Channel 4233)

WCDMA Band V Towards Ground Middle

Communication System: WCDMA Band V; Frequency: 836.6 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 837$ MHz; $\sigma = 1.01$ mho/m; $\epsilon_r = 55.5$; $\rho = 1000$ kg/m³
Probe: ET3DV6 - SN1531; ConvF(6.52, 6.52, 6.52);
Electronics: DAE4 Sn679;

Towards ground, Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.300 mW/g

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

Reference Value = 8.09 V/m; Power Drift = -0.100 dB

Peak SAR (extrapolated) = 0.355 W/kg

SAR(1 g) = 0.286 mW/g; SAR(10 g) = 0.211 mW/g

Maximum value of SAR (measured) = 0.303 mW/g

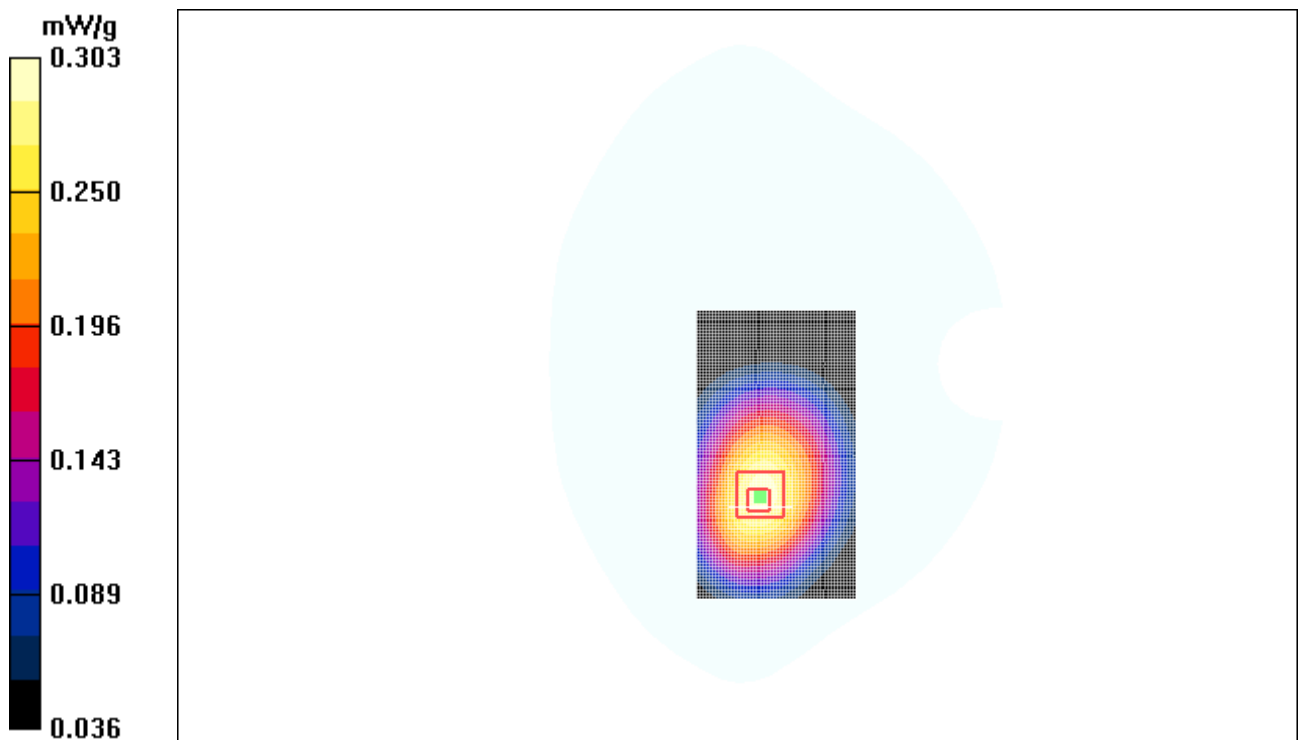


Figure 108 Body, Towards Ground, WCDMA Band V Channel 4182

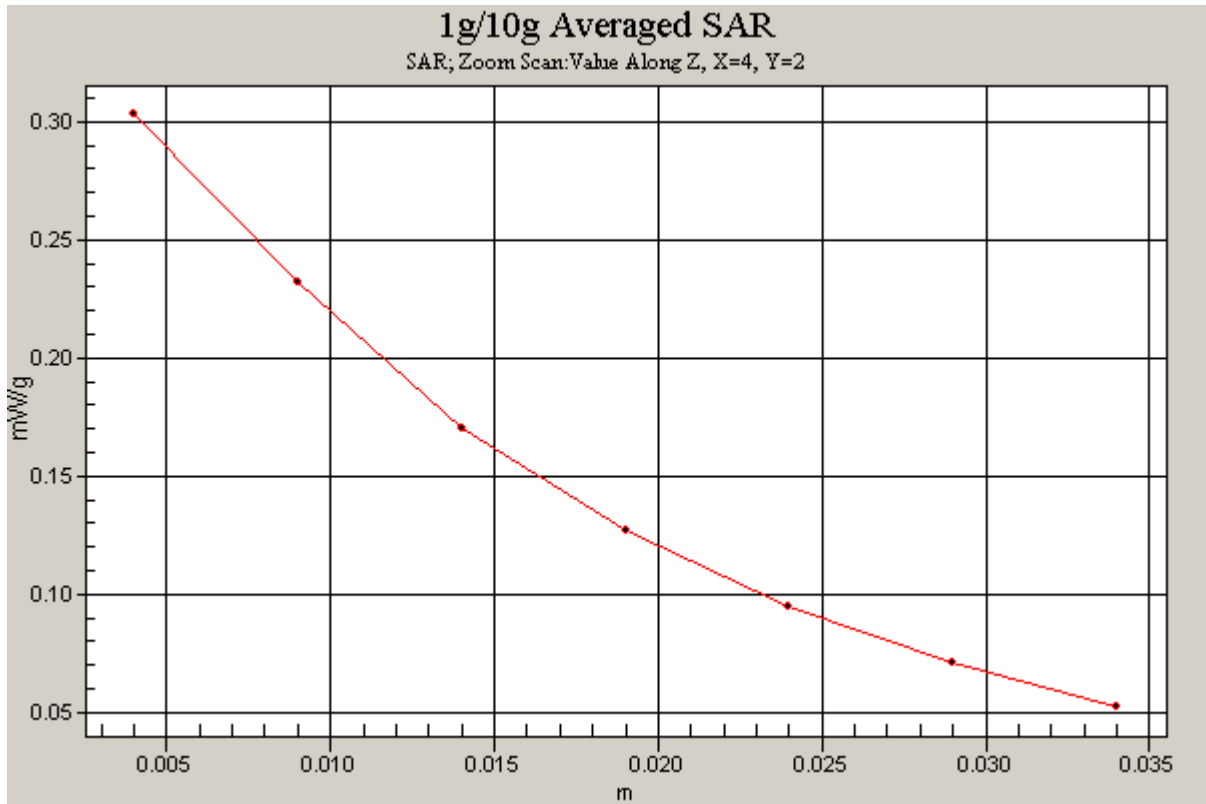


Figure 109 Z-Scan at power reference point (Body, Towards Ground, WCDMA Band V Channel 4182)

WCDMA Band V Towards Ground Low

Communication System: WCDMA Band V; Frequency: 826.4 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 826.4$ MHz; $\sigma = 0.999$ mho/m; $\epsilon_r = 55.6$; $\rho = 1000$ kg/m³

Probe: ET3DV6 - SN1531; ConvF(6.52, 6.52, 6.52);

Electronics: DAE4 Sn679;

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

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

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

Reference Value = 7.35 V/m; Power Drift = -0.086 dB

Peak SAR (extrapolated) = 0.311 W/kg

SAR(1 g) = 0.253 mW/g; SAR(10 g) = 0.187 mW/g

Maximum value of SAR (measured) = 0.269 mW/g

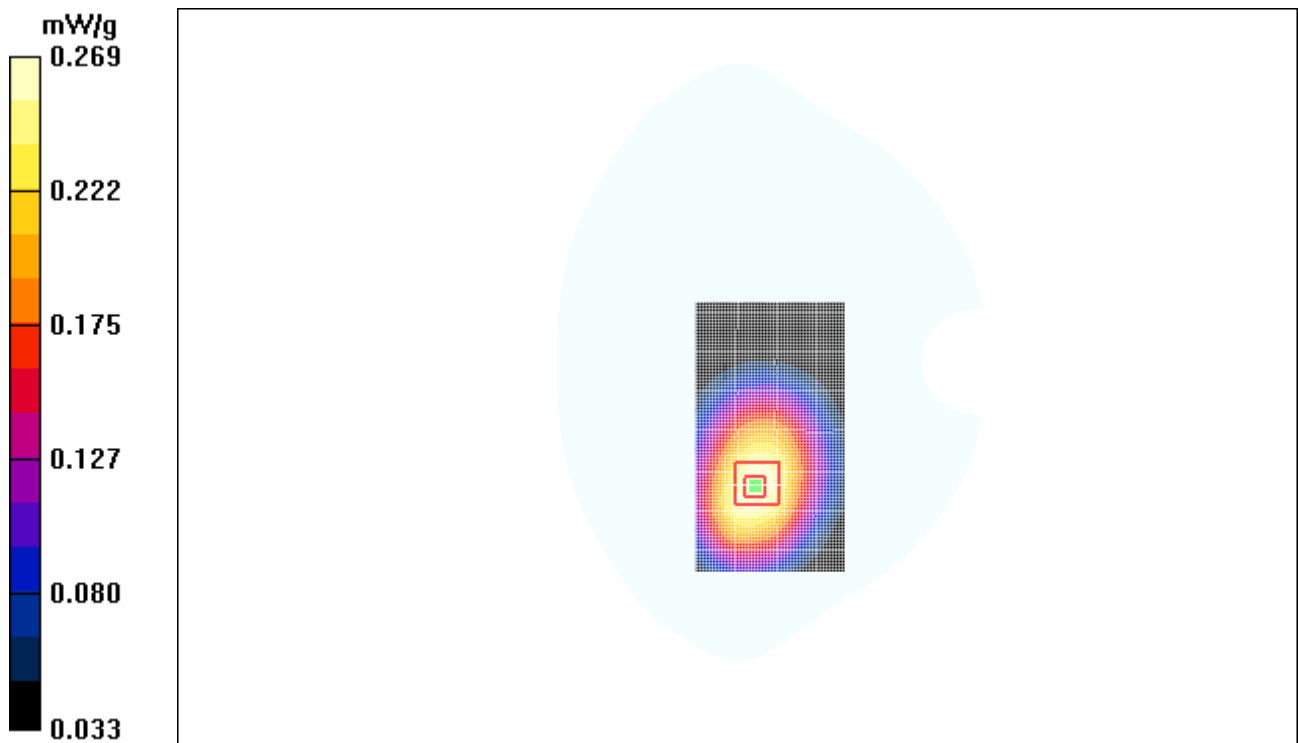


Figure 110 Body, Towards Ground, WCDMA Band V Channel 4132

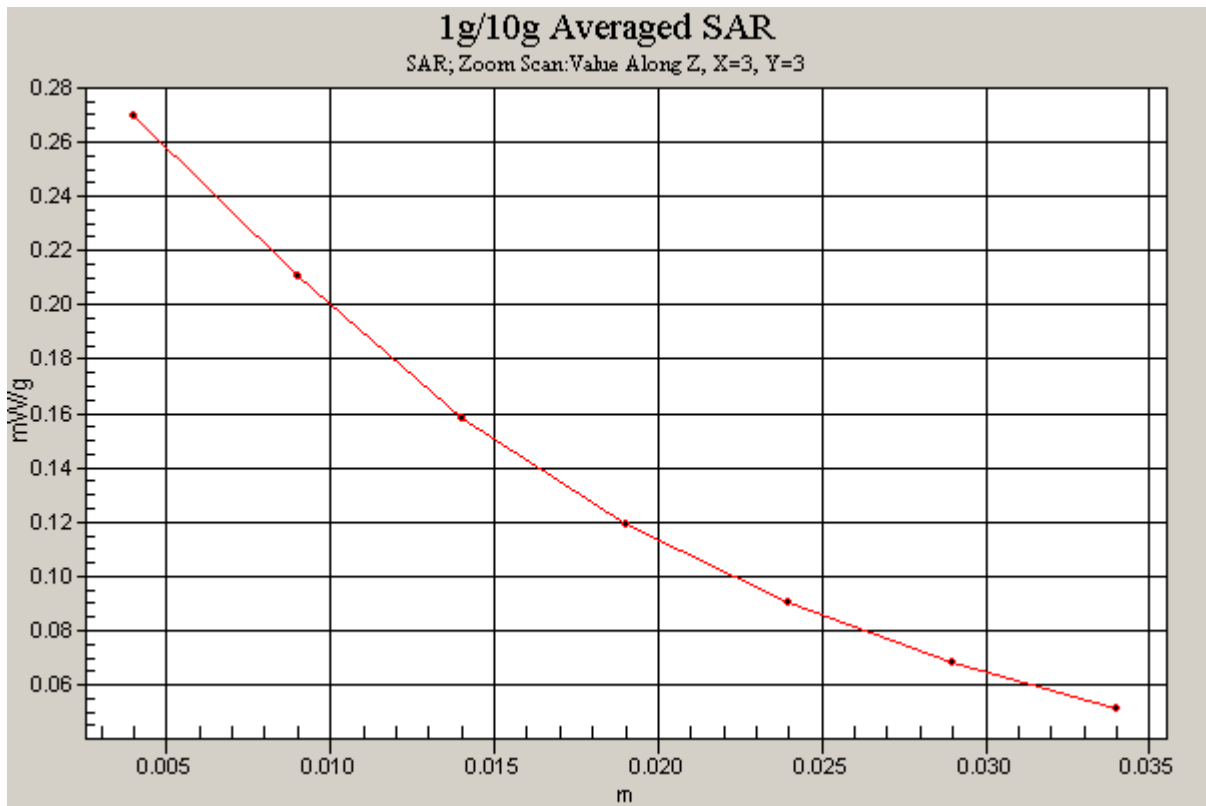


Figure 111 Z-Scan at power reference point (Body, Towards Ground, WCDMA Band V Channel 4132)

WCDMA Band V Towards Phantom Middle

Communication System: WCDMA Band V; Frequency: 836.6 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 837$ MHz; $\sigma = 1.01$ mho/m; $\epsilon_r = 55.5$; $\rho = 1000$ kg/m³

Probe: ET3DV6 - SN1531; ConvF(6.52, 6.52, 6.52);

Electronics: DAE4 Sn679;

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

Maximum value of SAR (interpolated) = 0.213 mW/g

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

Reference Value = 6.14 V/m; Power Drift = 0.172 dB

Peak SAR (extrapolated) = 0.260 W/kg

SAR(1 g) = 0.206 mW/g; SAR(10 g) = 0.152 mW/g

Maximum value of SAR (measured) = 0.224 mW/g

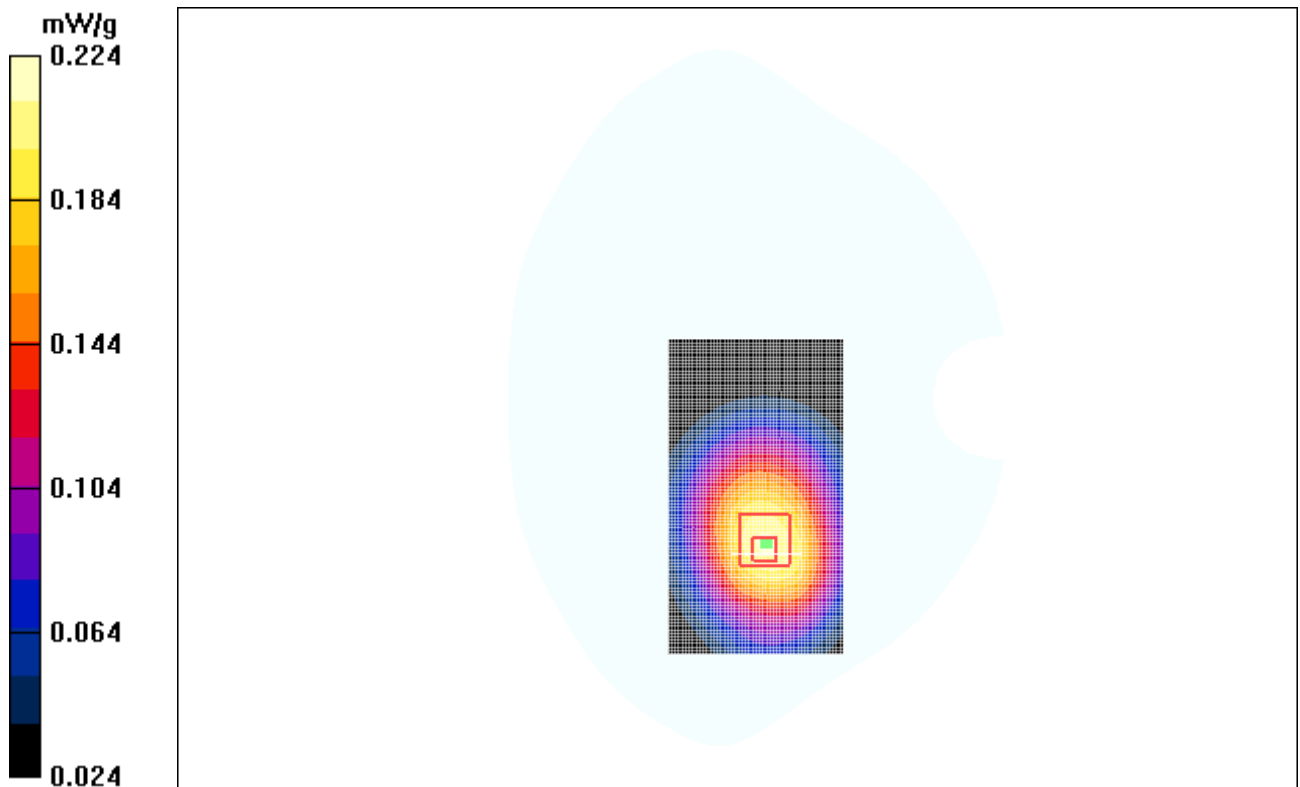


Figure 112 Body, Towards Phantom, WCDMA Band V Channel 4182

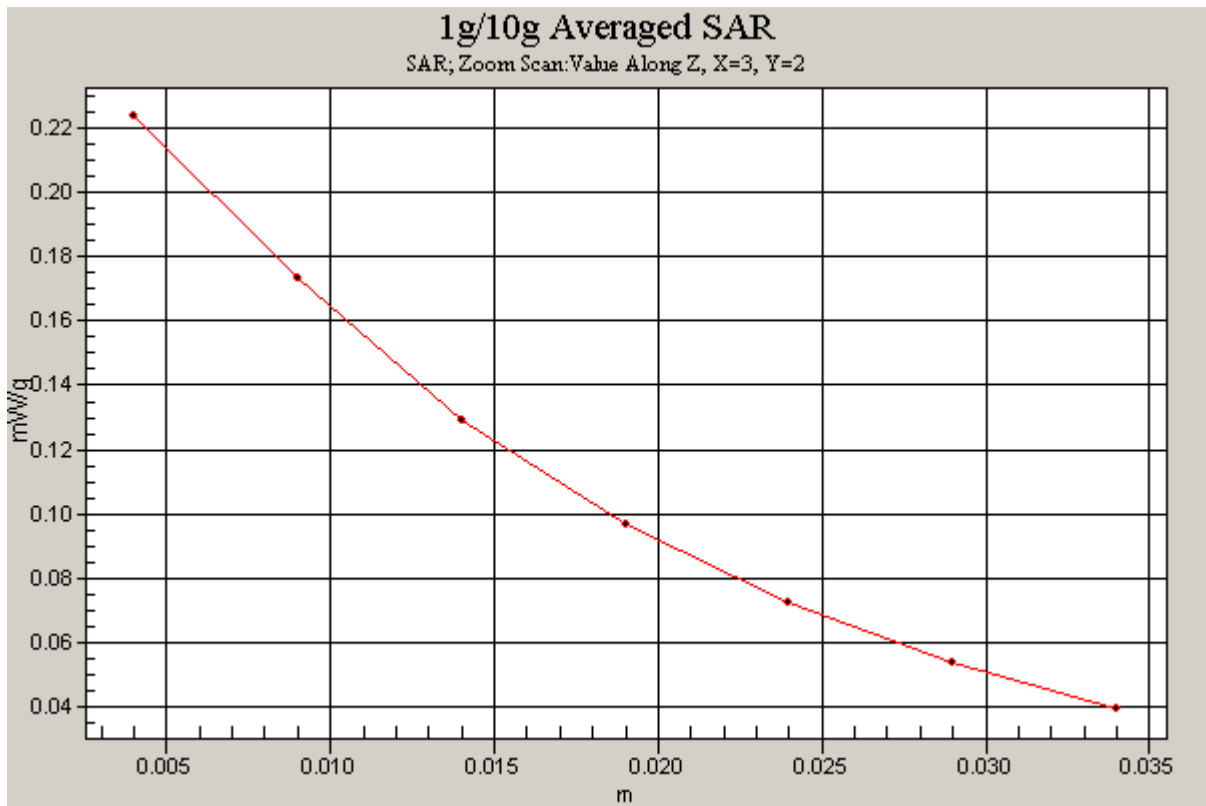


Figure 113 Z-Scan at power reference point (Body, Towards Phantom, WCDMA Band V Channel 4182)

WCDMA Band V Earphone Towards Ground Middle

Communication System: WCDMA Band V; Frequency: 836.4 MHz;Duty Cycle: 1:1

Medium parameters used: $f = 837$ MHz; $\sigma = 1.01$ mho/m; $\epsilon_r = 55.5$; $\rho = 1000$ kg/m³

Probe: ET3DV6 - SN1531; ConvF(6.52, 6.52, 6.52);

Electronics: DAE4 Sn679;

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

Maximum value of SAR (interpolated) = 0.175 mW/g

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

Reference Value = 5.06 V/m; Power Drift = -0.052 dB

Peak SAR (extrapolated) = 0.215 W/kg

SAR(1 g) = 0.165 mW/g; SAR(10 g) = 0.120 mW/g

Maximum value of SAR (measured) = 0.175 mW/g

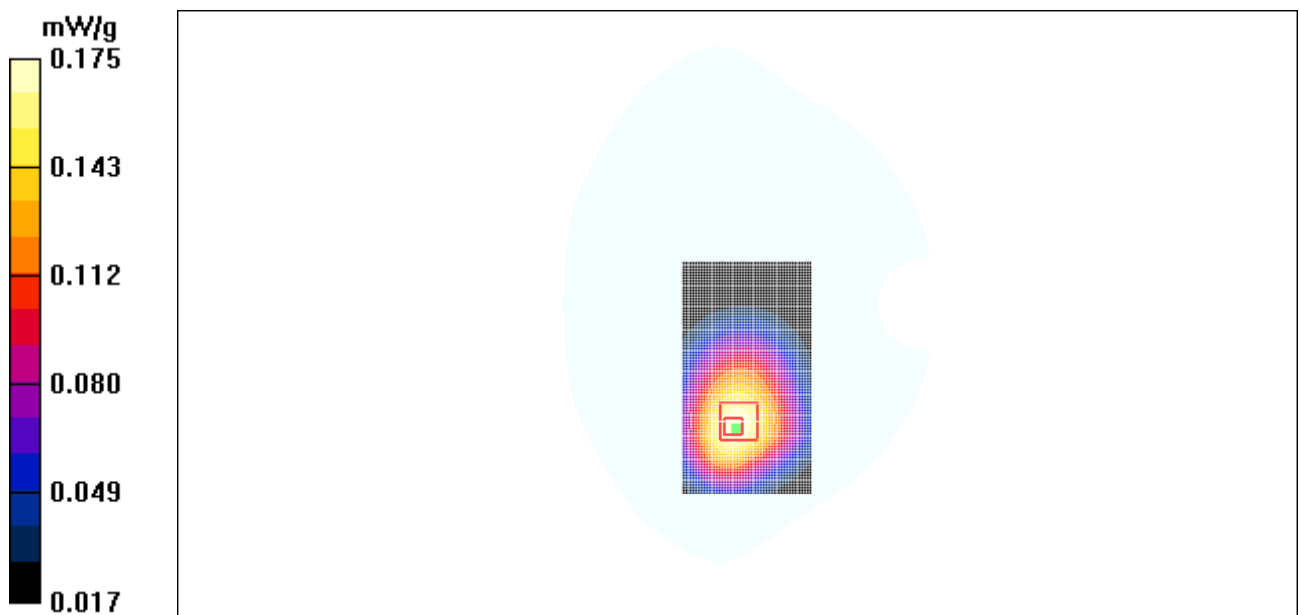


Figure 114 Body with Earphone, Towards Ground, WCDMA Band V, Channel 4182

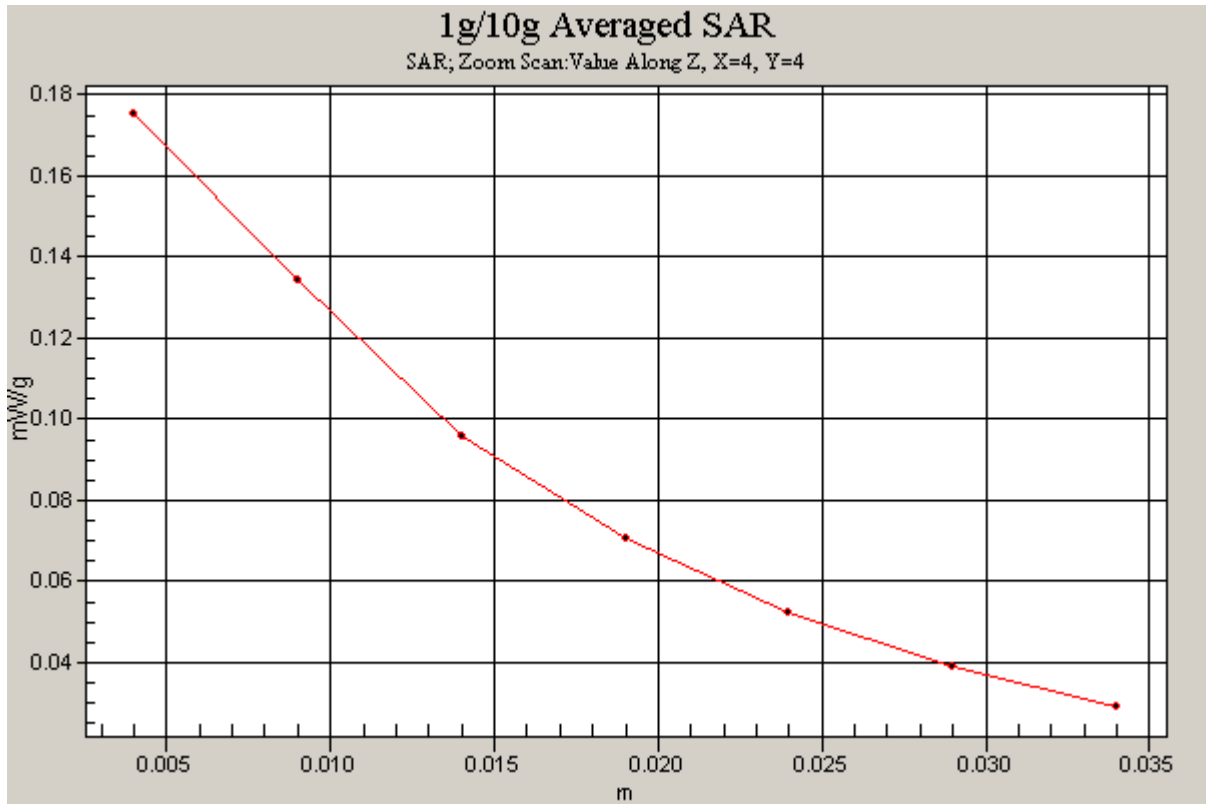


Figure 115 Z-Scan at power reference point (Body with Earphone, Towards Ground, WCDMA Band V, Channel 4182)

WCDMA Band V Bluetooth Towards Ground Middle

Communication System: WCDMA Band V; Frequency: 836.6 MHz;Duty Cycle: 1:1

Medium parameters used: $f = 837$ MHz; $\sigma = 1.01$ mho/m; $\epsilon_r = 55.5$; $\rho = 1000$ kg/m³

Probe: ET3DV6 - SN1531; ConvF(6.52, 6.52, 6.52);

Electronics: DAE4 Sn679;

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

Maximum value of SAR (interpolated) = 0.493 mW/g

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

Reference Value = 8.91 V/m; Power Drift = 0.068 dB

Peak SAR (extrapolated) = 0.575 W/kg

SAR(1 g) = 0.467 mW/g; SAR(10 g) = 0.345 mW/g

Maximum value of SAR (measured) = 0.491 mW/g

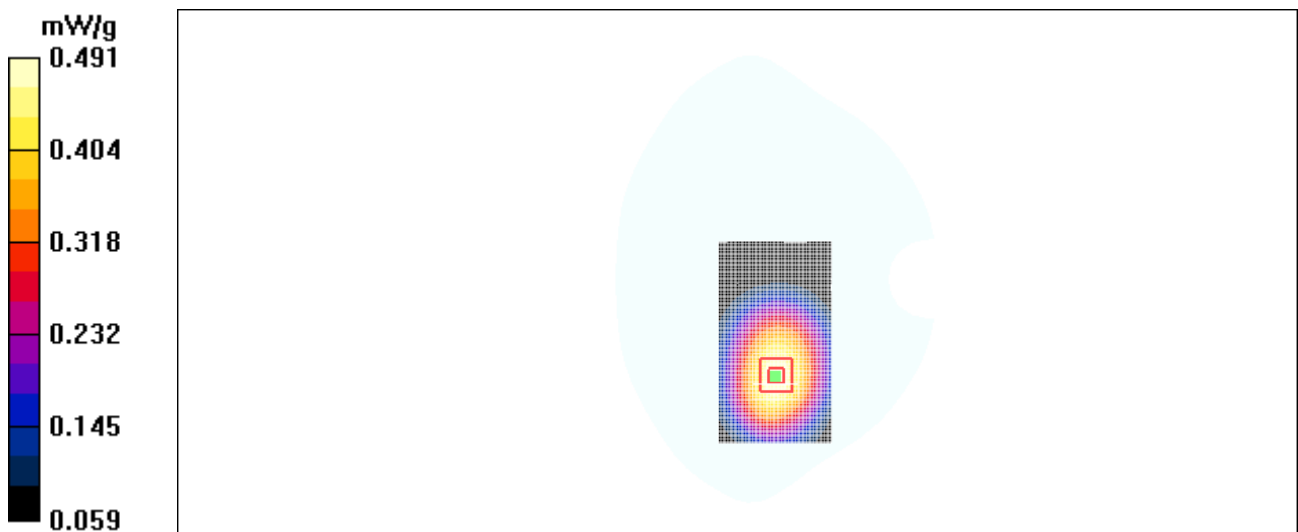


Figure 116 Body with Bluetooth earphone, Towards Ground, WCDMA Band V, Channel 4182

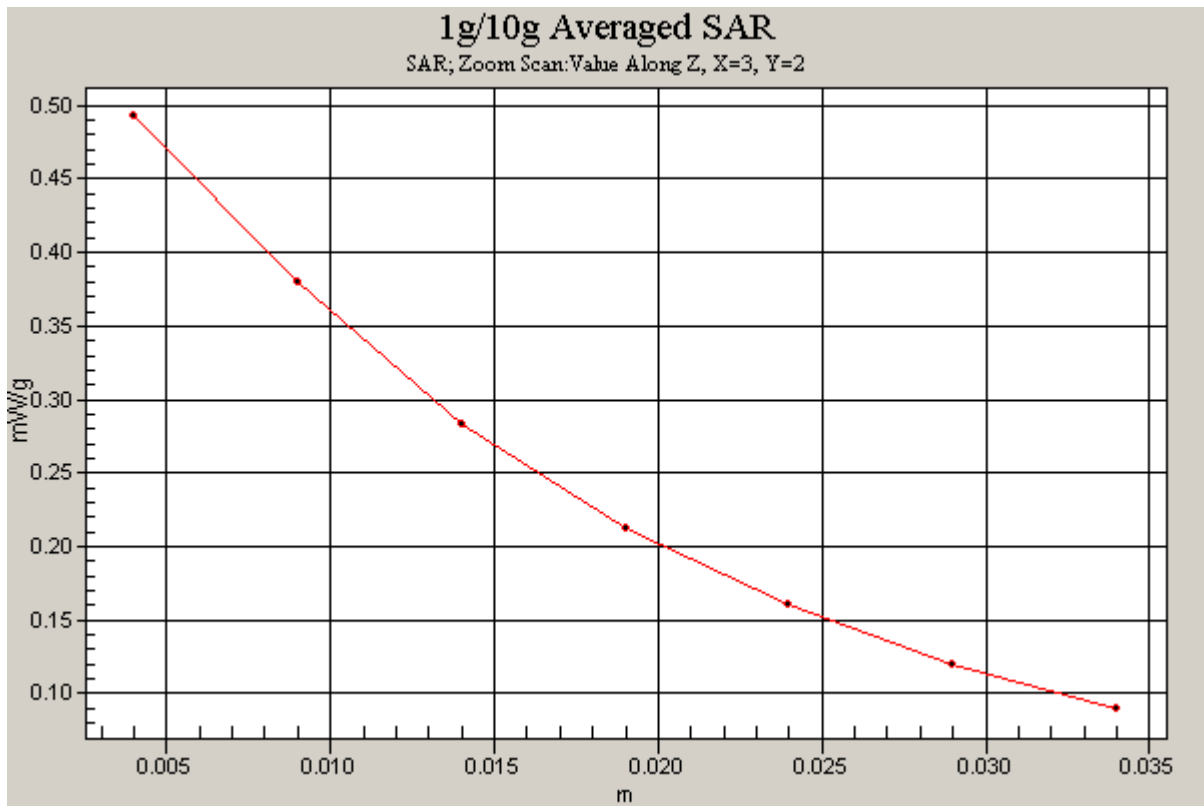


Figure 117 Z-Scan at power reference point (Body with Bluetooth earphone, Towards Ground, WCDMA Band V, Channel 4182)

WCDMA Band V HSDPA Towards Ground Middle

Communication System: WCDMA Band V+HSDPA; Frequency: 836.4 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 836.4$ MHz; $\sigma = 1.01$ mho/m; $\epsilon_r = 55.6$; $\rho = 1000$ kg/m³

Probe: ET3DV6 - SN1531; ConvF(6.52, 6.52, 6.52);

Electronics: DAE4 Sn679;

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

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

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

Reference Value = 7.31 V/m; Power Drift = 0.149 dB

Peak SAR (extrapolated) = 0.220 W/kg

SAR(1 g) = 0.178 mW/g; SAR(10 g) = 0.131 mW/g

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

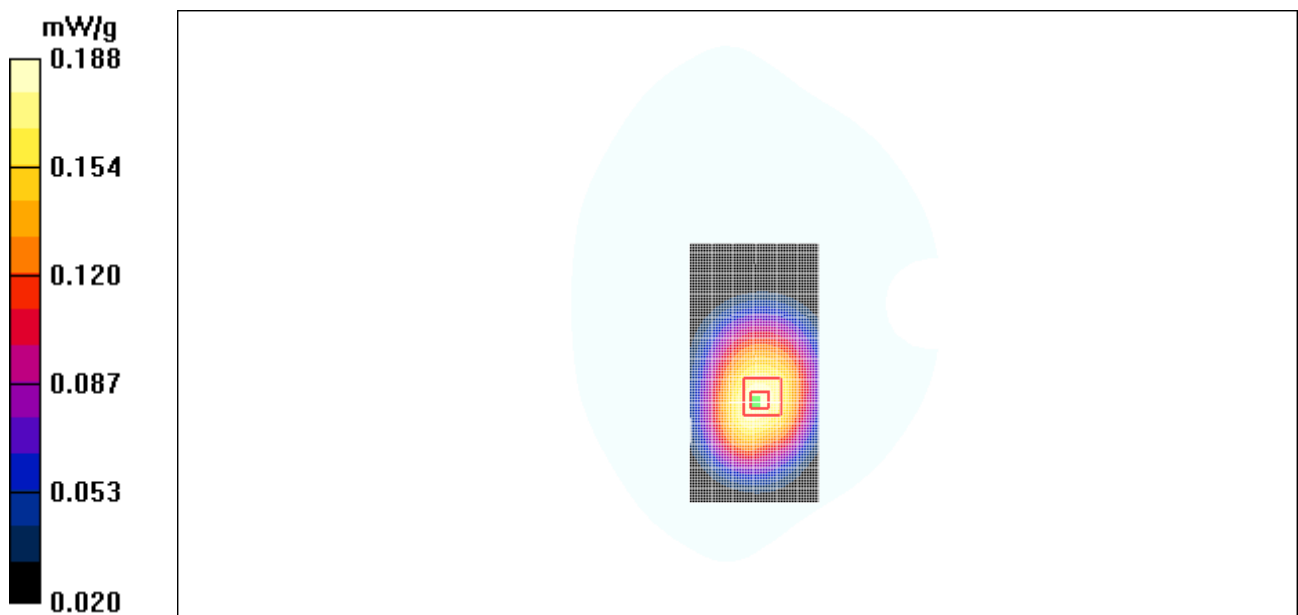


Figure 118 Body, Towards Ground, WCDMA Band V HSDPA, Channel 4182

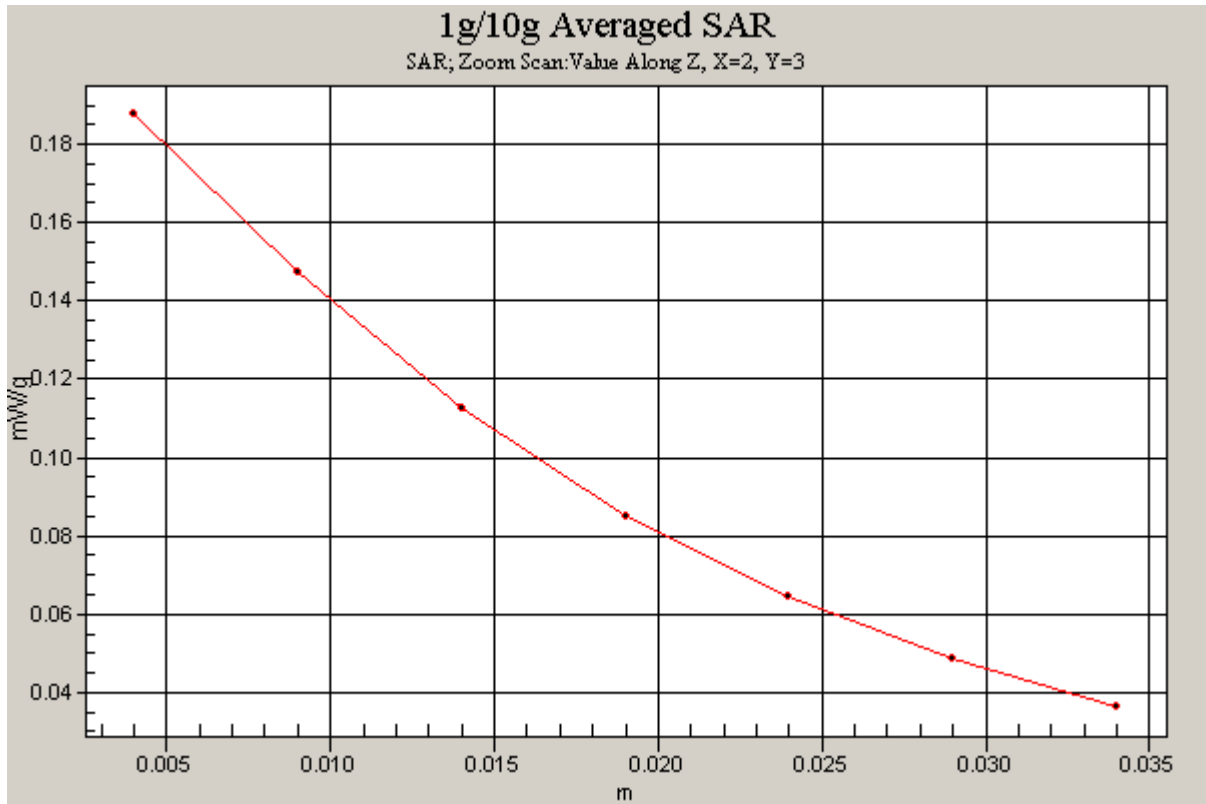


Figure 119 Z-Scan at power reference point (Body, Towards Ground, WCDMA Band V HSDPA, Channel 4182)

ANNEX D : SYSTEM VALIDATION RESULTS

System Performance Check at 835 MHz

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 443

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

Medium: Head 835MHz

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.92 \text{ mho/m}$; $\epsilon_r = 42.31$; $\rho = 1000 \text{ kg/m}^3$

- Probe: ET3DV6 - SN1531; ConvF(6.85, 6.85, 6.85);

- Electronics: DAE4 Sn679;

d=15mm, Pin=250mW/Area Scan (61x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 2.54 mW/g

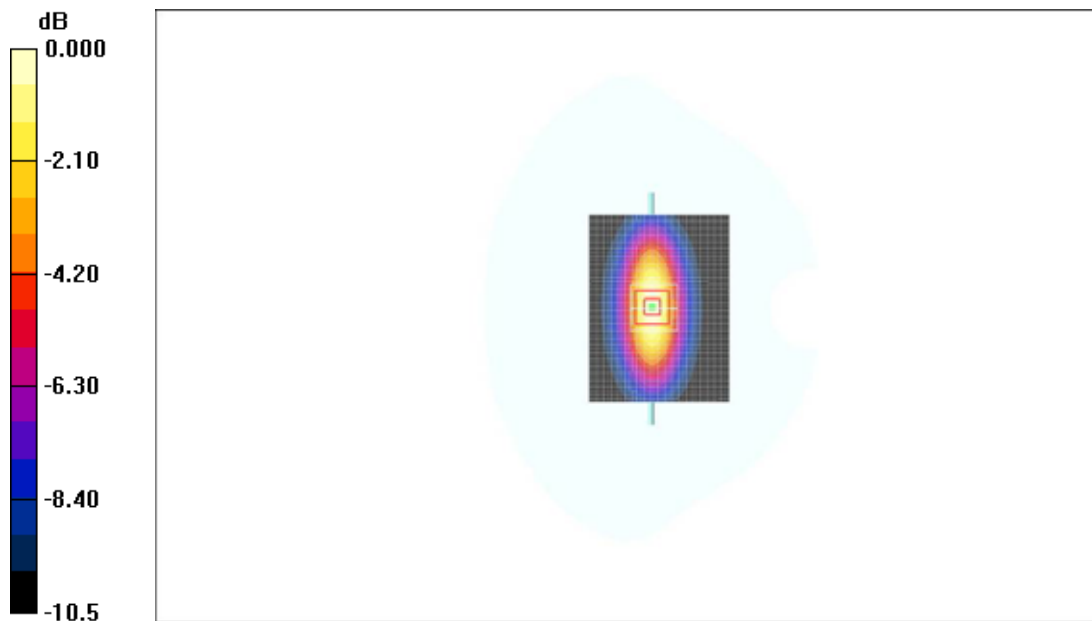
d=15mm, Pin=250mW/Zoom Scan (7x7x7) /Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 55.0 V/m; Power Drift = -0.061 dB

Peak SAR (extrapolated) = 3.44 W/kg

SAR(1 g) = 2.34 mW/g; SAR(10 g) = 1.53 mW/g

Maximum value of SAR (measured) = 2.52 mW/g



0 dB = 2.52mW/g

Figure 120 System Performance Check 835MHz 250mW

System Performance Check at 1900 MHz

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d018

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

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.44$ mho/m; $\epsilon_r = 39.99$; $\rho = 1000$ kg/m³

Probe: ET3DV6 - SN1531; ConvF(5.15, 5.15, 5.15);

Electronics: DAE4 Sn679;

d=10mm, Pin=250mW /Area Scan (101x121x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 10.8 mW/g

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

Reference Value = 92.8 V/m; Power Drift = -0.018 dB

Peak SAR (extrapolated) = 16.0 W/kg

SAR(1 g) = 9.36 mW/g; SAR(10 g) = 4.93 mW/g

Maximum value of SAR (measured) = 10.7 mW/g

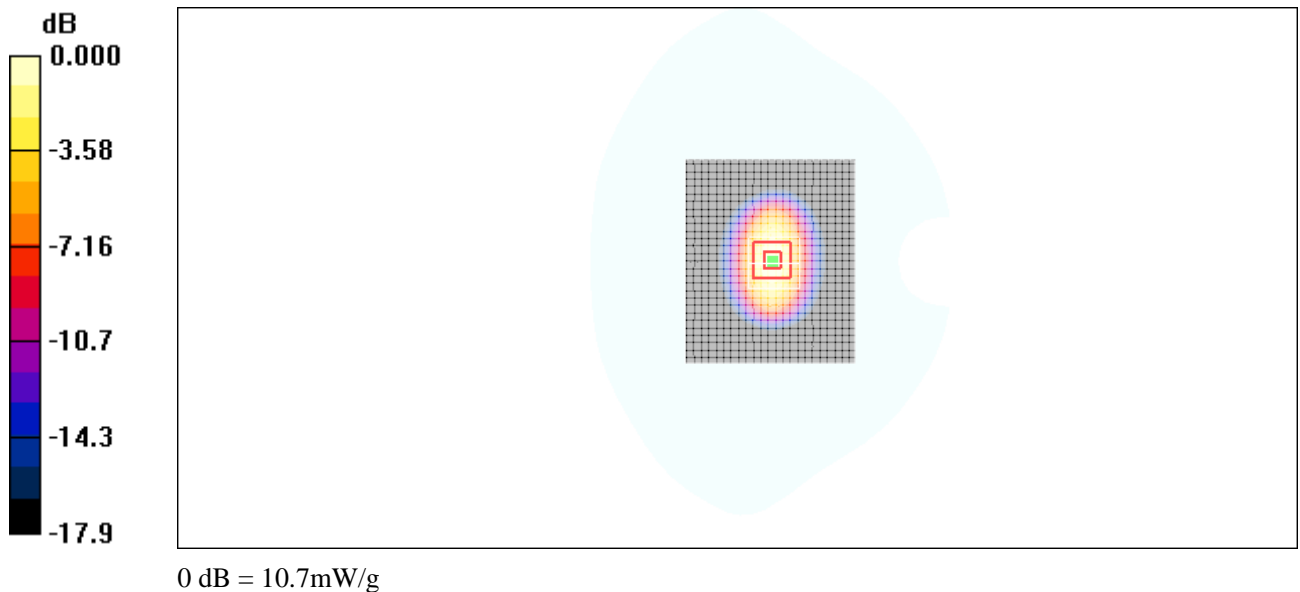


Figure 121 System Performance Check 1900MHz 250mW