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CNAS
TESTING
No. L2264

OET 65
TEST REPORT

Product Name	GSM 850/1900 BT1.2 FM
Model Name	A310
Marketing Name	SL10
FCC ID	YCNSL10
Client	Lenovo Mobile Communication Technology Ltd.

TA Technology (Shanghai) Co., Ltd.

GENERAL SUMMARY

Product Name	GSM 850/1900 BT1.2 FM	Model Name	A310
FCC ID	YCNSL10	**Marketing Name**	SL10
Report No.	RZA2010-1332SAR-R1		
Client	Lenovo Mobile Communication Technology Ltd.		
Manufacturer	Lenovo Mobile Communication Technology Ltd.		
Standard(s)	**IEEE Std C95.1, 1999:** IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz. **IEEE Std 1528™-2003:** IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques. **SUPPLEMENT C Edition 01-01 to OET BULLETIN 65 Edition 97-01 June 2001 including DA 02-1438, published June 2002:** Evaluating Compliance with FCC Guidelines for Human Exposure to Radio frequency Electromagnetic Fields Additional Information for Evaluation Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radio frequency Emissions.		
Conclusion	This portable wireless equipment has been measured in all cases requested by the relevant standards. Test results in Chapter 7 of this test report are below limits specified in the relevant standards. General Judgment: **Pass** (Stamp) **Date of issue: September 6th, 2010**		
Comment	The test result only responds to the measured sample.		

Approved by _____

Yang Weizhong

Revised by _____

Ling Minbao

Performed by _____

Xue Chaofeng

TABLE OF CONTENT

1.   General Information

1.1. Notes of the 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.

TA Technology (Shanghai) Co., Ltd. is liable to the client for the maintenance by its personnel of the confidentiality of all information related to the items under test and the results of the test. This report only refers to the item that has undergone the test.

This report standalone dose not constitute or imply by its own an approval of the product by the certification Bodies or competent Authorities. This report cannot be used partially or in full for publicity and/or promotional purposes without previous written approval of **TA Technology (Shanghai) Co., Ltd.** and the Accreditation Bodies, if it applies.

1.2. Testing Laboratory

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1.3. Applicant Information

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Address:	No.999, Qishan North 2nd Road, Information&Optoelectronics Park, Torch Hi-tech Indu
City:	Xiamen
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Country:	P.R. China
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1.4. Manufacturer Information

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City:	Xiamen
Postal Code:	/
Country:	P.R. China
Telephone:	86-0592-2166651
Fax:	86-0592-2169999-6651

1.5. Information of EUT

General Information

Device Type :	Portable Device		
Exposure Category:	Uncontrolled Environment / General Population		
Product Name:	GSM 850/1900 BT1.2 FM		
IMEI or SN:	862328004587814		
Device Operating Configurations :			
Operating Mode(s):	GSM 850; (tested) GSM 1900; (tested)		
Test Modulation:	GMSK		
GPRS Multislot Class:	10		
Operating Frequency Range(s):	Band	Tx (MHz)	Rx (MHz)
	GSM 850	824.2 ~ 848.8	869.2 ~ 893.8
	GSM 1900	1850.2 ~ 1909.8	1930.2 ~ 1989.8
Power Class:	GSM 850: 4, tested with power level 5		
	GSM 1900: 1, tested with power level 0		
Test Channel: (Low - Middle - High)	128 - 190 - 251 (GSM 850) (tested) 512 - 661 - 810 (GSM 1900) (tested)		
Hardware Version:	HUAQIN23_08A_HW		
Software Version:	LANIX_SL10_MX_S008_100818		
Antenna Type:	Internal Antenna		

Auxiliary Equipment Details

AE1:Battery

Model1:	BL110
Manufacturer:	Lishen
SN:	/

AE2:Travel Adapter

Model:	cp-13
Manufacturer:	Kunxing
SN:	/

AE3:Earphone

Model:	NLD-EM307E-02S
Manufacturer:	Xinlide
SN:	/

Equipment Under Test (EUT) is a model of GSM 850/1900 BT1.2 FM with internal antenna. The detail about Mobile phone, Lithium Battery and AC/DC Adapter is in chapter 1.5 in this report. SAR is tested for GSM 850 and GSM 1900.

The sample under test was selected by the Client.

Components list please refer to documents of the manufacturer.

1.6. The Maximum SAR$_{1g}$ Values and Conducted Power of each tested band

Band	SAR$_{1g}$ (W/kg)		Maximum Conducted Power (dBm)
	Head	Body	
GSM 850	0.832	1.480	32.73
GSM 1900	0.176	0.239	29.23

1.7. Test Date

The test is performed from August 27, 2010 to September 2, 2010.

2. Operational Conditions during Test

2.1. General Description of Test Procedures

A communication link is set up with a System Simulator (SS) by air link, and a call is established. The Absolute Radio Frequency Channel Number (ARFCN) is allocated to 128, 190 and 251 in the case of GSM 850, allocated to 512, 661 and 810 in the case of GSM 1900. The EUT is commanded to operate at maximum transmitting power.

Connection to the EUT is established via air interface with E5515C, and the EUT is set to maximum output power by E5515C. Using E5515C the power lever is set to "5" in SAR of GSM 850, set to "0" in SAR of GSM 1900. The EUT battery must be fully charged and checked periodically during the test to ascertain uniform power output. The antenna connected to the output of the base station simulator shall be placed at least 50 cm away from the EUT. The signal transmitted by the simulator to the antenna feeding point shall be lower than the output power level of the EUT by at least 30 dB.

2.2. 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 SAR of GSM 850, set to "0" in SAR of GSM 1900. The test in the band of GSM 850 and GSM 1900 are performed in the mode of speech transfer function. Since the GPRS class is 10 for this EUT, it has at most 2 timeslots in uplink.

When SAR tests for EGPRS mode is necessary, GMSK modulation should be used to minimize SAR measurement error due to higher peak-to-average power (PAR) ratios inherent in 8-PSK.

3. SAR Measurements System Configuration

3.1. SAR Measurement Set-up

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

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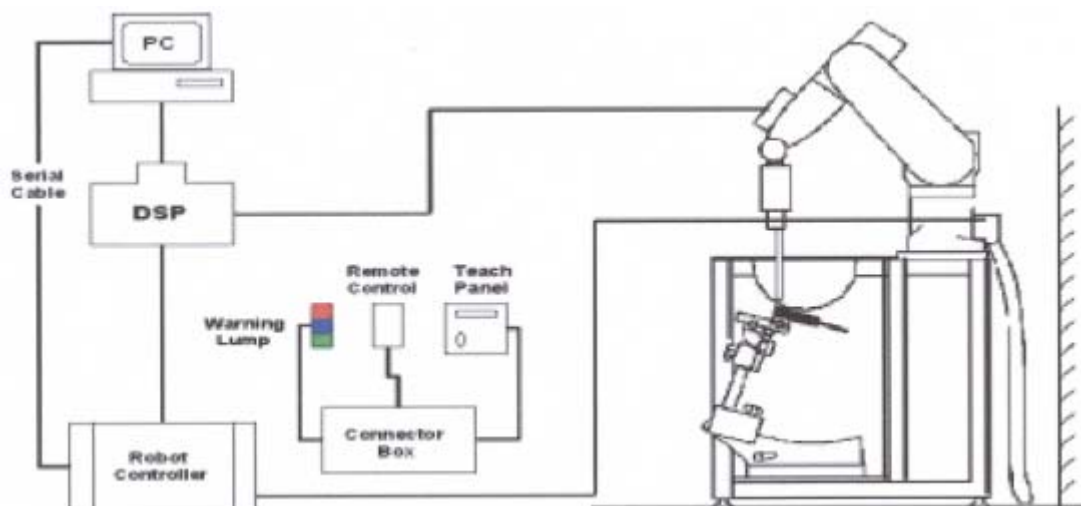- System validation dipoles allowing to validate the proper functioning of the system.

Figure 1. SAR Lab Test Measurement Set-up

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3.2. DASY4 E-field Probe System

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

3.2.1. EX3DV4 Probe Specification

Construction   Symmetrical design with triangular core
                    Built-in shielding against static charges
                    PEEK enclosure material (resistant to organic solvents, e.g., DGBE)

Calibration   ISO/IEC 17025 calibration service available

Frequency   10 MHz to > 6 GHz
                    Linearity: ± 0.2 dB
                    (30 MHz to 6 GHz)

Figure 2.EX3DV4 E-field Probe

Directivity   ± 0.3 dB in HSL (rotation around probe axis) ± 0.5 dB in tissue material (rotation normal to   probe axis)

Dynamic Range   10 µW/g to > 100 mW/g Linearity:

                    ± 0.2dB (noise: typically < 1 µW/g)

Dimensions   Overall length: 330 mm (Tip: 20 mm)
                    Tip diameter: 2.5 mm (Body: 12 mm)
                    Typical distance from probe tip to dipole centers: 1 mm

Application   High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields).
                    Only probe which enables compliance testing for frequencies up to 6 GHz with precision of better 30%.

Figure 3. EX3DV4 E-field probe

3.2.2. E-field Probe Calibration

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

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

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

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

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

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

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

3.3. Other Test Equipment

3.3.1. Device Holder for Transmitters

The DASY device holder is designed to cope with the die rent positions given in the standard. It has two scales for device rotation (with respect to the body axis) and device inclination (with respect to the line between the ear reference points). The rotation centers for both scales is the ear reference point (ERP). Thus the device needs no repositioning when changing the angles. The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the inference of the clamp on the test results could thus be lowered.

Figure 4.Device Holder

3.3.2. Phantom

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

Shell Thickness   2±0.1 mm
Filling Volume   Approx. 20 liters
Dimensions   810 x l000 x 500 mm (H x L x W)
Aailable   Special

Figure 5.Generic Twin Phantom

3.4. Scanning Procedure

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

- The "reference" and "drift" measurements are located at the beginning and end of the batch process. They measure the field drift at one single point in the liquid over the complete procedure. The indicated drift is mainly the variation of the DUT's output power and should vary max. ± 5 %.

- The "surface check" measurement tests the optical surface detection system of the DASY4 system by repeatedly detecting the surface with the optical and mechanical surface detector and comparing the results. The output gives the detecting heights of both systems, the difference between the two systems and the standard deviation of the detection repeatability. Air bubbles or refraction in the liquid due to separation of the sugar-water mixture gives poor repeatability (above ± 0.1mm). To prevent wrong results tests are only executed when the liquid is free of air bubbles. The difference between the optical surface detection and the actual surface depends on the probe and is specified with each probe. (It does not depend on the surface reflectivity or the probe angle to the surface within ± 30°.)

- **Area Scan**

  The Area Scan is used as a fast scan in two dimensions to find the area of high field values before running a detailed measurement around the hot spot.Before starting the area scan a grid spacing of 15 mm x 15 mm is set. During the scan the distance of the probe to the phantom remains unchanged.

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

- **Zoom Scan**

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

- **Spatial Peak Detection**

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

  • maximum search

  • extrapolation

  • boundary correction

  • peak search for averaged SAR

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

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

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

3.5. Data Storage and Evaluation

3.5.1. 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.

3.5.2. Data Evaluation by SEMCAD

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

Probe parameters: - Sensitivity   Normi, ai_0, a_{i1}, a_{i2}
                    - Conversion factor $ConvF_i$
                    - Diode compression point Dcp_i

Device parameters: - Frequency   f
                     - Crest factor   cf

Media parameters: - Conductivity
                    - Density

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

The first step of the evaluation is a linearization of the filtered input signal to account for the compression characteristics of the detector diode. The compensation depends on the input signal,

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

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

$$V_i = U_i + U_i^2 \cdot cf / dcp_i$$

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

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

        ■   = equivalent tissue density in g/cm^3

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

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

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

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

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

3.6. System Check

The manufacturer calibrates the probes annually. Dielectric parameters of the tissue simulates were measured every day using the dielectric probe kit and the network analyzer. A system check measurement was made following the determination of the dielectric parameters of the simulates, using the dipole validation kit. A power level of 250 mW was supplied to the dipole antenna, which was placed under the flat section of the twin SAM phantom. The system check results (dielectric parameters and SAR values) are given in the table 7 and table 8.

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

System check is performed regularly on all frequency bands where tests are performed with the DASY4 system.
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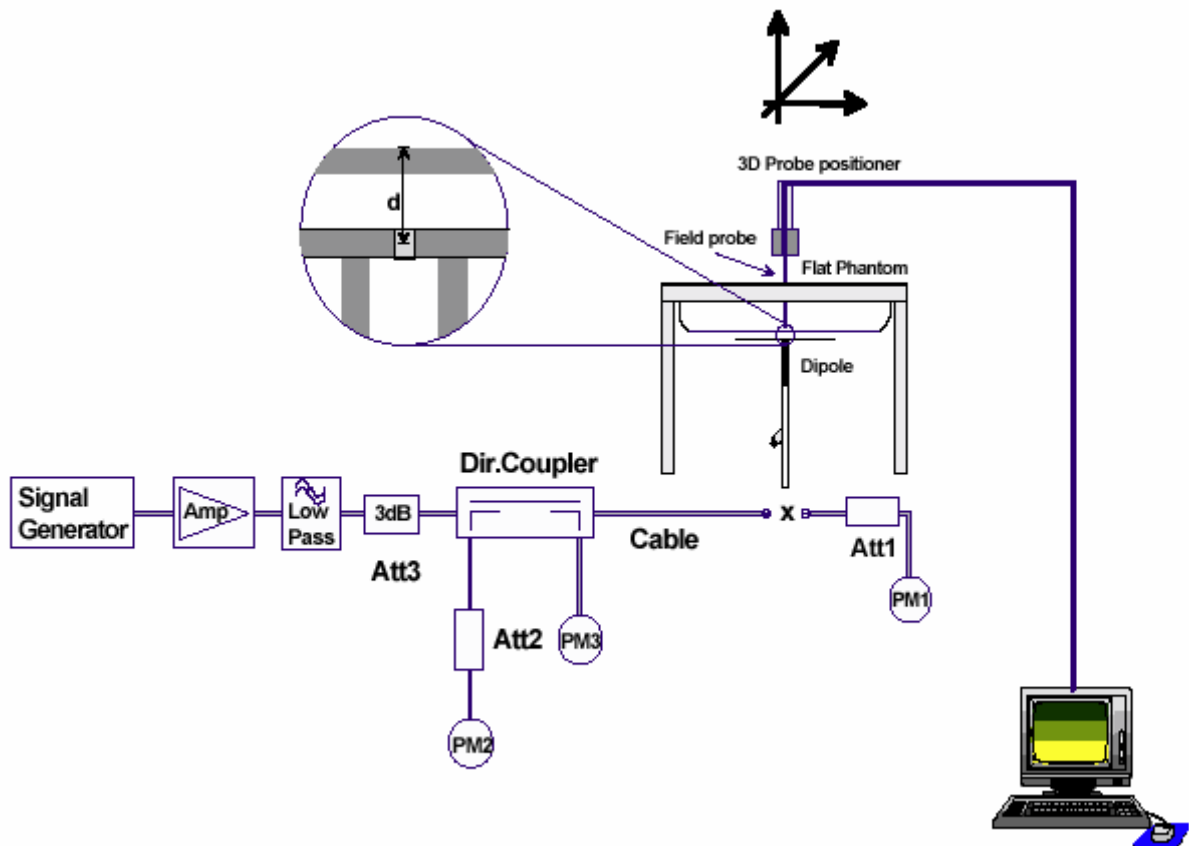
Figure 6. **System Check Set-up**

3.7. Equivalent Tissues

The liquid is consisted of water, salt, Glycol, Sugar, Preventol and Cellulose.The liquid has previously been proven to be suited for worst-case. The table 1 and table 2 show the detail solution. It's satisfying the latest tissue dielectric parameters requirements proposed by the OET 65.

Table 1: Composition of the Head Tissue Equivalent Matter

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

MIXTURE%	FREQUENCY(Brain) 1900MHz
Water	55.242
Glycol monobutyl	44.452
Salt	0.306
Dielectric Parameters Target Value	f=1900MHz ε=40.0 σ=1.40

Table 2: Composition of the Body Tissue Equivalent Matter

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

MIXTURE%	FREQUENCY (Body) 1900MHz
Water	69.91
Glycol monobutyl	29.96
Salt	0.13
Dielectric Parameters Target Value	f=1900MHz ε=53.3 σ=1.52

MIXTURE%	FREQUENCY(Body) 2450MHz
Water	73.2
Glycol	26.7
Salt	0.1
Dielectric Parameters Target Value	f=2450MHz ε=52.70 σ=1.95

4.   Laboratory Environment

Table 3: 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.	

5. Characteristics of the Test

5.1. Applicable Limit Regulations

IEEE Std C95.1, 1999: IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz.

5.2. Applicable Measurement Standards

IEEE Std 1528™-2003: IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques.

SUPPLEMENT C Edition 01-01 to OET BULLETIN 65 Edition 97-01 June 2001 including DA 02-1438, published June 2002: Evaluating Compliance with FCC Guidelines for Human Exposure to Radio frequency Electromagnetic Fields Additional Information for Evaluation Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radio frequency Emissions.

6. Conducted Output Power Measurement

6.1. Summary

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

6.2. Conducted Power Results

Table 4: Conducted Power Measurement Results

GSM 850	Conducted Power (dBm)		
	Channel 128	Channel 190	Channel 251
Before Test	32.73	32.69	32.66
After Test	32.72	32.67	32.65
GSM 1900	Conducted Power (dBm)		
	Channel 512	Channel 661	Channel 810
Before Test	29.23	29.13	29.16
After Test	29.21	29.12	29.14

Average power

GSM 850 GPRS		Conducted Power (dBm)						
		Channel 128	Channel 190	Channel 251		Channel 128	Channel 190	Channel 251
1TXslot	Before	32.72	32.68	32.65	-9.03dB	23.69	23.65	23.62
	After	32.70	32.67	32.64	-9.03dB	23.67	23.64	23.61
2TXslots	Before	32.72	32.69	32.66	-6.02dB	**26.70**	**26.67**	**26.64**
	After	32.71	32.68	32.65	-6.02dB	26.69	26.66	26.63
GSM 1900 GPRS		Conducted Power (dBm)						
		Channel 512	Channel 661	Channel 810		Channel 512	Channel 661	Channel 810
1TXslot	Before	29.22	29.12	29.15	-9.03dB	20.19	20.09	20.12
	After	29.20	29.11	29.13	-9.03dB	20.17	20.08	20.10
2TXslots	Before	29.18	29.09	29.12	-6.02dB	**23.16**	**23.07**	**23.10**
	After	29.17	29.08	29.10	-6.02dB	23.15	23.06	23.08

Note:

1) Division Factors

To average the power, the division factor is as follows:

1 TX- slot = 1 transmit time slot out of 8 time slots

=> conducted power divided by (8/1)   => -9.03 dB

2 TX- slot = 2 transmit time slots out of 8 time slots

=> conducted power divided by (8/2)   => -6.02 dB

2) Average power numbers

The maximum power numbers are marks in bold.

3) For SAR testing the EUT was set to multislot class based on the maximum averaged
conducted power.

7. Test Results

7.1. Dielectric Performance

Table 5: Dielectric Performance of Head Tissue Simulating Liquid

| Frequency | Description | Dielectric Parameters | | Temp |
		ε_r	σ(s/m)	℃
835MHz **(head)**	Target value ±5% window	41.5 39.43 — 43.58	0.90 0.86 — 0.95	/
	Measurement value 2010-8-27	42.46	0.90	21.8
1900MHz **(head)**	Target value 5% window	40.0 38 — 42	1.40 1.33 — 1.47	/
	Measurement value 2010-8-29	40.20	1.41	21.9

Table 6: Dielectric Performance of Body Tissue Simulating Liquid

| Frequency | Description | Dielectric Parameters | | Temp |
		ε_r	σ(s/m)	℃
835MHz **(body)**	Target value ±5% window	55.20 52.44 — 57.96	0.97 0.92 — 1.02	/
	Measurement value 2010-9-1	54.82	1.00	21.9
1900MHz **(body)**	Target value ±5% window	53.3 50.64 — 55.97	1.52 1.44 — 1.60	/
	Measurement value 2010-9-2	53.01	1.56	21.7
2450MHz **(body)**	Target value ±5% window	52.70 50.07 — 55.34	1.95 1.85 — 2.05	/
	Measurement value 2010-9-4	51.83	1.92	21.7

7.2. System Check Results

Table 7: System Check for Head Tissue Simulating Liquid

Frequency	Description	SAR(W/kg)		Dielectric Parameters		Temp
		10g	1g	ε_r	σ(s/m)	℃
835MHz	Recommended result ±10% window	1.56 1.40 — 1.72	2.39 2.15 — 2.63	41.2	0.89	/
	Measurement value 2010-8-27	1.57	2.40	42.46	0.90	21.8
1900MHz	Recommended result 10% window	5.22 4.70 — 5.74	10 9.00 — 11.00	39.5	1.44	/
	Measurement value 2010-8-29	5.21	10.02	40.20	1.41	21.9

Note: 1. the graph results see ANNEX B.

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

Table 8: System Check for Body Tissue Simulating Liquid

Frequency	Description	SAR(W/kg)		Dielectric Parameters		Temp
		10g	1g	ε_r	σ(s/m)	℃
835MHz	Recommended result ±10% window	1.63 1.47 — 1.79	2.49 2.24 — 2.74	54.6	0.98	/
	Measurement value 2010-9-1	1.65	2.52	54.82	1.00	21.9
1900 MHz	Recommended result ±10% window	5.52 4.97 — 6.07	10.3 9.27 — 11.33	53.5	1.54	/
	Measurement value 2010-9-2	5.50	10.28	53.01	1.56	21.7

Note: 1. The graph results see ANNEX B.

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

7.3. Summary of Measurement Results

7.3.1. GSM 850 (GPRS)

Table 9: SAR Values [GSM 850 (GPRS), Slide Open]

Limit of SAR		10 g Average	1 g Average	Power Drift	Graph Results
		2.0 W/kg	1.6 W/kg	± 0.21 dB	
Test Case		Measurement Result(W/kg)		Power Drift (dB)	
Different Test Position	Channel	10 g Average	1 g Average		
Test Position of Head					
Left Hand, Touch Cheek	High	0.596	0.832	-0.079	Figure 12
	Middle	0.576	0.804	0.012	Figure 13
	Low	0.324	0.448	-0.057	Figure 14
Left Hand, Tilt 15 Degree	Middle	0.236	0.320	-0.005	Figure 15
Right Hand, Touch Cheek	Middle	0.523	0.740	-0.013	Figure 16
Right Hand, Tilt 15 Degree	Middle	0.236	0.323	-0.017	Figure 17
Test Position of Body (Distance 15mm)					
Towards Ground	High	0.573	0.799	-0.057	Figure 18
	Middle	0.603	0.839	-0.151	Figure 19
	Low	0.401	0.556	0.034	Figure 20
Towards Phantom	Middle	0.515	0.710	-0.088	Figure 21
Worst Case Position of Body with Earphone (Distance 15mm)					
Towards Ground	Middle	0.539	0.746	0.032	Figure 22
Worst Case Position of Body with GPRS (2Up, Distance 15mm)					
Towards Ground	Middle	1.070	1.480	-0.132	Figure 23

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.

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.

Table 10: SAR Values [GSM 850(GPRS), Slide Close]

Limit of SAR		10 g Average	1 g Average	Power Drift	Graph Results
		2.0 W/kg	1.6 W/kg	± 0.21 dB	
Test Case		Measurement Result(W/kg)		Power Drift (dB)	
Different Test Position	Channel	10 g Average	1 g Average		
Test Position of Head					
Left Hand, Touch Cheek	High	0.562	0.813	-0.176	Figure 24
	Middle	0.557	0.800	-0.099	Figure 25
	Low	0.468	0.674	0.070	Figure 26
Left Hand, Tilt 15 Degree	Middle	0.192	0.262	-0.084	Figure 27
Right Hand, Touch Cheek	Middle	0.526	0.768	-0.180	Figure 28
Right Hand, Tilt 15 Degree	Middle	0.193	0.266	-0.047	Figure 29
Test Position of Body (Distance 15mm)					
Towards Ground	High	0.332	0.484	-0.144	Figure 30
	Middle	0.342	0.498	-0.060	Figure 31
	Low	0.325	0.473	0.087	Figure 32
Towards Phantom	Middle	0.228	0.319	-0.150	Figure 33
Worst Case Position of Body with Earphone (Distance 15mm)					
Towards Ground	Middle	0.383	0.557	-0.115	Figure 34
Worst Case Position of Body with GPRS (2Up, Distance 15mm)					
Towards Ground	Middle	0.657	0.956	-0.060	Figure 35

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.

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.

7.3.2. GSM 1900 (GPRS)

Table 11: SAR Values [GSM 1900 (GPRS), Slide Open]

Limit of SAR		10 g Average	1 g Average	Power Drift	Graph Results
		2.0 W/kg	1.6 W/kg	± 0.21 dB	
Test Case		Measurement Result(W/kg)		Power Drift	
Different Test Position	Channel	10 g Average	1 g Average	(dB)	
Test Position of Head					
Left Hand, Touch Cheek	High	0.045	0.074	0.151	Figure 36
	Middle	0.062	0.104	0.187	Figure 37
	Low	0.093	0.156	-0.053	Figure 38
Left Hand, Tilt 15 Degree	Middle	0.023	0.037	-0.141	Figure 39
Right Hand, Touch Cheek	Middle	0.051	0.083	0.138	Figure 40
Right Hand, Tilt 15 Degree	Middle	0.031	0.053	-0.093	Figure 41
Test Position of Body (Distance 15mm)					
Towards Ground	High	0.071	0.124	-0.067	Figure 42
	Middle	0.083	0.145	-0.189	Figure 43
	Low	0.101	0.173	-0.012	Figure 44
Towards Phantom	Middle	0.025	0.041	0.006	Figure 45
Worst Case Position of Body with Earphone (Distance 15mm)					
Towards Ground	Low	0.100	0.167	-0.080	Figure 46
Worst Case Position of Body with GPRS (2Up, Distance 15mm)					
Towards Ground	Low	0.141	0.239	-0.009	Figure 47

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.

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.

Table 12: SAR Values [GSM 1900(GPRS), Slide Close]

Limit of SAR		10 g Average	1 g Average	Power Drift	Graph Results
		2.0 W/kg	1.6 W/kg	± 0.21 dB	
Test Case		Measurement Result(W/kg)		Power Drift (dB)	
Different Test Position	Channel	10 g Average	1 g Average		
Test Position of Head					
Left Hand, Touch Cheek	High	0.070	0.120	-0.029	Figure 48
	Middle	0.079	0.133	-0.068	Figure 49
	Low	0.104	0.176	-0.119	Figure 50
Left Hand, Tilt 15 Degree	Middle	0.023	0.037	-0.185	Figure 51
Right Hand, Touch Cheek	Middle	0.070	0.125	0.080	Figure 52
Right Hand, Tilt 15 Degree	Middle	0.028	0.047	-0.049	Figure 53
Test Position of Body (Distance 15mm)					
Towards Ground	High	0.043	0.074	-0.029	Figure 54
	Middle	0.053	0.091	-0.105	Figure 55
	Low	0.065	0.111	0.105	Figure 56
Towards Phantom	Middle	0.015	0.024	0.024	Figure 57
Worst Case Position of Body with Earphone (Distance 15mm)					
Towards Ground	Low	0.072	0.125	-0.081	Figure 58
Worst Case Position of Body with GPRS (2Up, Distance 15mm)					
Towards Ground	Low	0.124	0.216	-0.071	Figure 59

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.

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.

7.3.3. Bluetooth Function

The distance between BT antenna and main antenna is ＜2.5cm. The location of the antennas inside mobile phone is shown below (refer to Annex I):
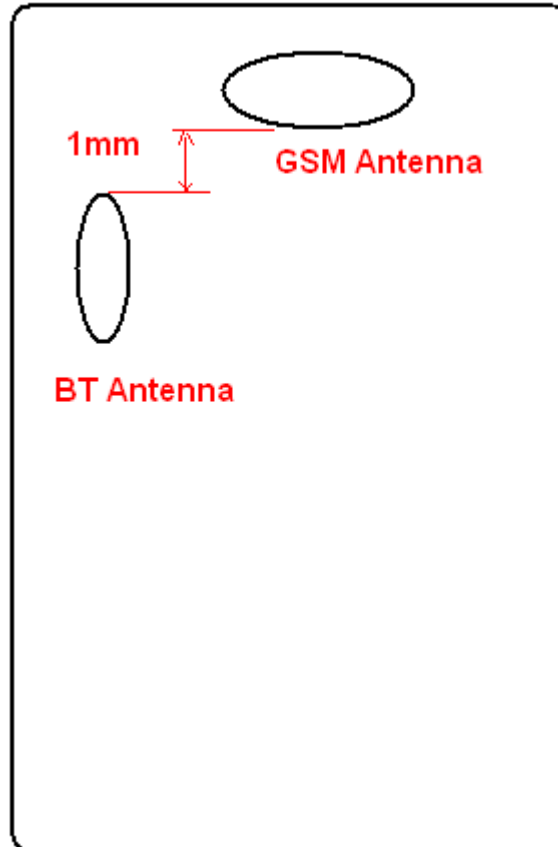
The output power of BT antenna is as following:

Channel	Ch 0 2402 MHz	Ch 39 2441 Mhz	Ch 78 2480 MHz
Peak Conducted Output Power(dBm)	-2.678	-1.851	-2.175

Stand-alone SAR

According to the output power measurement result and the distance between BT antenna and main antenna we can draw the conclusion that:

stand-alone SAR are required for BT, because the maximum SAR Values is ＞1.2W/kg and its antenna is ≤2.5cm from other antenna.

Table 13: SAR Values [Bluetooth, Slide Open]

Limit of SAR		10 g Average	1 g Average	Power Drift	Graph Results
		2.0 W/kg	1.6 W/kg	± 0.21 dB	
Test Case		**Measurement Result(W/kg)**		**Power Drift**	
Different Test Position	**Channel**	**10 g Average**	**1 g Average**	**(dB)**	
Worst Case Position of highest output power (Distance 15mm)					
Towards Ground	Middle	0.0008	0.0013	-0.020	Figure 60

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

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

Simultaneous SAR

About BT, Simultaneous SAR are not required for BT and main antenna, because the total of 1g SAR (1.481W/kg) is lower than the limited SAR (<1.6W/kg).

8. Measurement Uncertainty

No.	source	Type	Uncertainty Value (%)	Probability Distribution	k	c_i	Standard uncertainty $u_i^{'}$ (%)	Degree of freedom V_{eff} or v_i
1	System repetivity	A	0.5	N	1	1	0.5	9
Measurement system								
2	probe calibration	B	5.9	N	1	1	5.9	∞
3	axial isotropy of the probe	B	4.7	R	$\sqrt{3}$	$\sqrt{0.5}$	1.9	∞
4	Hemispherical isotropy of the probe	B	9.4	R	$\sqrt{3}$	$\sqrt{0.5}$	3.9	∞
6	boundary effect	B	1.9	R	$\sqrt{3}$	1	1.1	∞
7	probe linearity	B	4.7	R	$\sqrt{3}$	1	2.7	∞
8	System detection limits	B	1.0	R	$\sqrt{3}$	1	0.6	∞
9	readout Electronics	B	1.0	N	1	1	1.0	∞
10	response time	B	0	R	$\sqrt{3}$	1	0	∞
11	integration time	B	4.32	R	$\sqrt{3}$	1	2.5	∞
12	noise	B	0	R	$\sqrt{3}$	1	0	∞
13	RF Ambient Conditions	B	3	R	$\sqrt{3}$	1	1.73	∞
14	Probe Positioner Mechanical Tolerance	B	0.4	R	$\sqrt{3}$	1	0.2	∞
15	Probe Positioning with respect to Phantom Shell	B	2.9	R	$\sqrt{3}$	1	1.7	∞
16	Extrapolation, interpolation and Integration Algorithms for Max. SAR Evaluation	B	3.9	R	$\sqrt{3}$	1	2.3	∞
Test sample Related								
17	-Test Sample Positioning	A	2.9	N	1	1	2.9	5
18	-Device Holder Uncertainty	A	4.1	N	1	1	4.1	5
19	-Output Power Variation – SAR drift measurement	B	5.0	R	$\sqrt{3}$	1	2.9	∞
Physical parameter								

20	-phantom	B	4.0	R	$\sqrt{3}$	1	2.3	∞
21	-liquid conductivity (deviation from target)	B	5.0	R	$\sqrt{3}$	0.64	1.8	∞
22	-liquid conductivity (measurement uncertainty)	B	5.0	N	1	0.64	3.2	∞
23	-liquid permittivity (deviation from target)	B	5.0	R	$\sqrt{3}$	0.6	1.7	∞
24	-liquid permittivity (measurement uncertainty)	B	5.0	N	1	0.6	3.0	∞
Combined standard uncertainty		$u'_c = \sqrt{\sum_{i=1}^{21} c_i^2 u_i^2}$					12.0	
Expanded uncertainty (confidence interval of 95 %)		$u_e = 2u_c$		N		k=2	24.0	

9. Main Test Instruments

Table 14: List of Main Instruments

No.	Name	Type	Serial Number	Calibration Date	Valid Period
01	Network analyzer	Agilent 8753E	US37390326	September 13, 2009	One year
02	Dielectric Probe Kit	Agilent 85070E	US44020115	No Calibration Requested	
03	Power meter	Agilent E4417A	GB41291714	March 13, 2010	One year
04	Power sensor	Agilent 8481H	MY41091316	March 26, 2010	One year
05	Signal Generator	HP 8341B	2730A00804	September 13, 2009	One year
06	Amplifier	IXA-020	0401	No Calibration Requested	
07	BTS	E5515C	MY48360988	December 4, 2009	One year
08	E-field Probe	EX3DV4	3677	September 23, 2009	One year
09	DAE	DAE4	871	November 11, 2009	One year
10	Validation Kit 835MHz	D835V2	4d092	January 14, 2010	One year
11	Validation Kit 1900MHz	D1900V2	5d018	June 15, 2010	One year
12	Validation Kit 2450MHz	D2450V2	712	February 19, 2010	One year
13	BT Base Station Simulator	CBT	100271	November 26, 2009	One year

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

ANNEX A: Test Layout
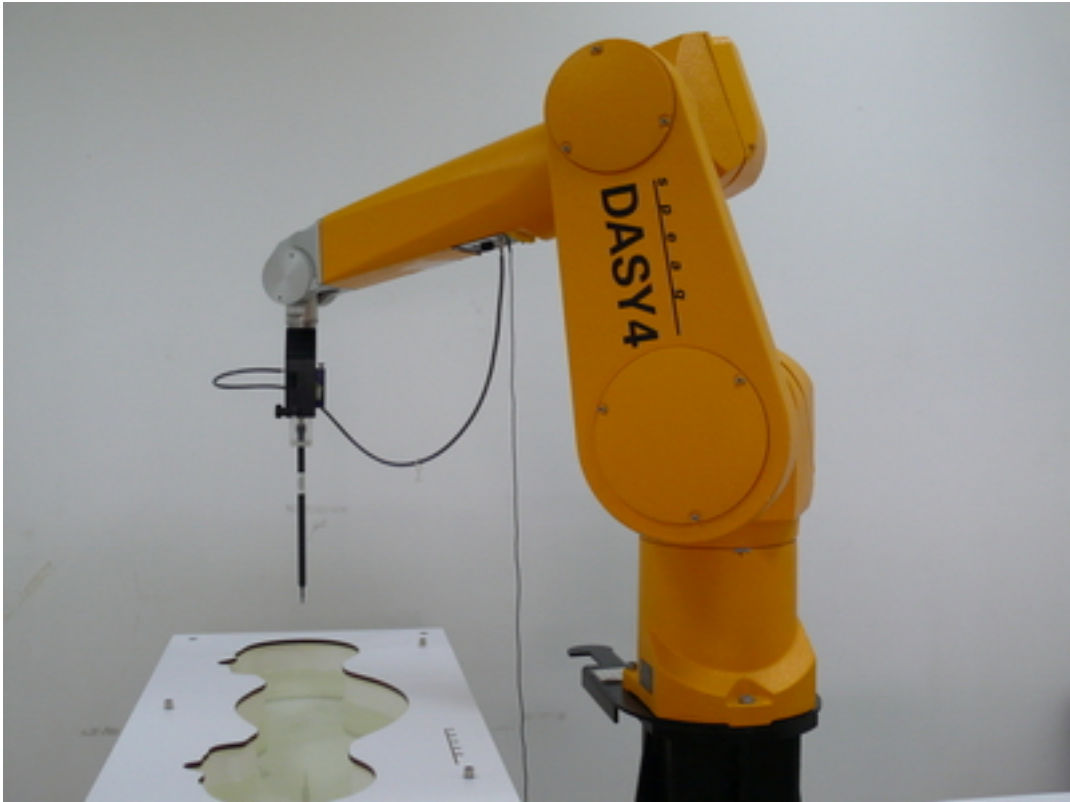
Picture 1: Specific Absorption Rate Test Layout

Picture 2: Liquid depth in the flat Phantom (835MHz, 15.4cm depth)
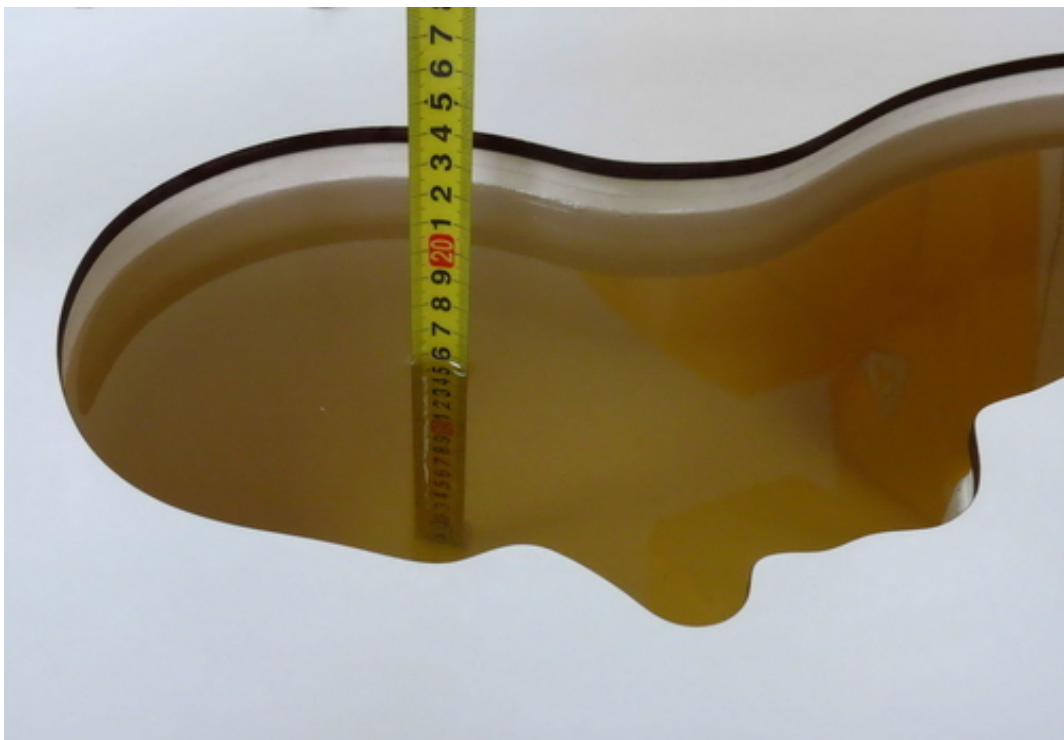
Picture 3: Liquid depth in the head Phantom (835MHz, 15.4cm depth)
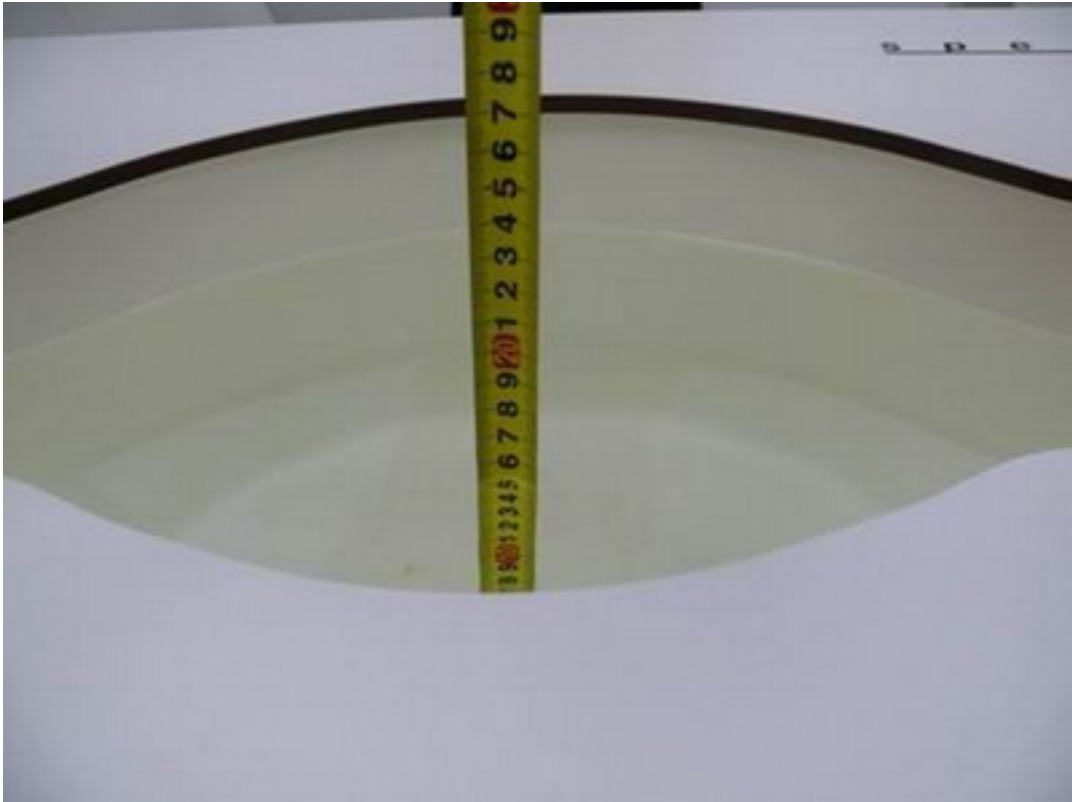
Picture 4: Liquid depth in the flat Phantom (1900 MHz, 15.3cm depth)

Picture 5: liquid depth in the head Phantom (1900 MHz, 15.4cm depth)

Picture 6: Liquid depth in the flat Phantom (2450 MHz, 15.4cm depth)

ANNEX B: System Check Results

System Performance Check at 835 MHz Head TSL
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d092
Date/Time: 8/27/2010 11:03:13 AM
Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used: f = 835 MHz; σ = 0.90 mho/m; ε_r = 42.46; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃   Liqiud Temperature: 21.5℃
Phantom section: Flat Section
DASY4 Configuration:
Probe: EX3DV4 - SN3677; ConvF(9.20, 9.20, 9.20); Calibrated: 9/23/2009
Electronics: DAE4 Sn871; Calibrated: 11/11/2009
Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

d=15mm, Pin=250mW/Area Scan (101x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.56 mW/g

d=15mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 51.1 V/m; Power Drift = -0.037 dB
Peak SAR (extrapolated) = 3.54 W/kg
SAR(1 g) = 2.40 mW/g; SAR(10 g) = 1.57 mW/g
Maximum value of SAR (measured) = 2.61 mW/g
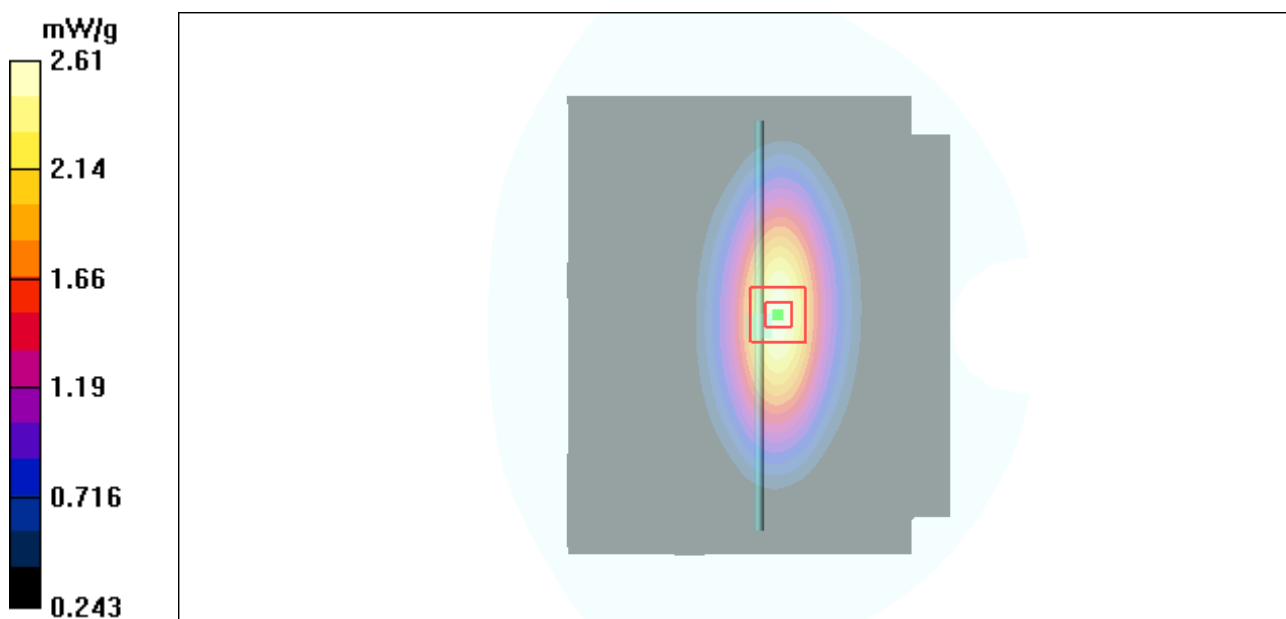
Figure 7 System Performance Check 835MHz 250mW

System Performance Check at 835 MHz Body TSL

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d092

Date/Time: 9/1/2009 10:10:20 AM

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

Medium parameters used: f = 835 MHz; σ = 1 mho/m; $ε_r$ = 54.82; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liqiud Temperature: 21.5℃

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(9.11, 9.11, 9.11); Calibrated: 9/23/2009

Electronics: DAE4 Sn871; Calibrated: 11/11/2009

Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

d=15mm, Pin=250mW/Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 2.72 mW/g

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

Reference Value = 50.9 V/m; Power Drift = 0.023 dB

Peak SAR (extrapolated) = 3.63 W/kg

SAR(1 g) = 2.52 mW/g; SAR(10 g) = 1.65 mW/g

Maximum value of SAR (measured) = 2.73 mW/g
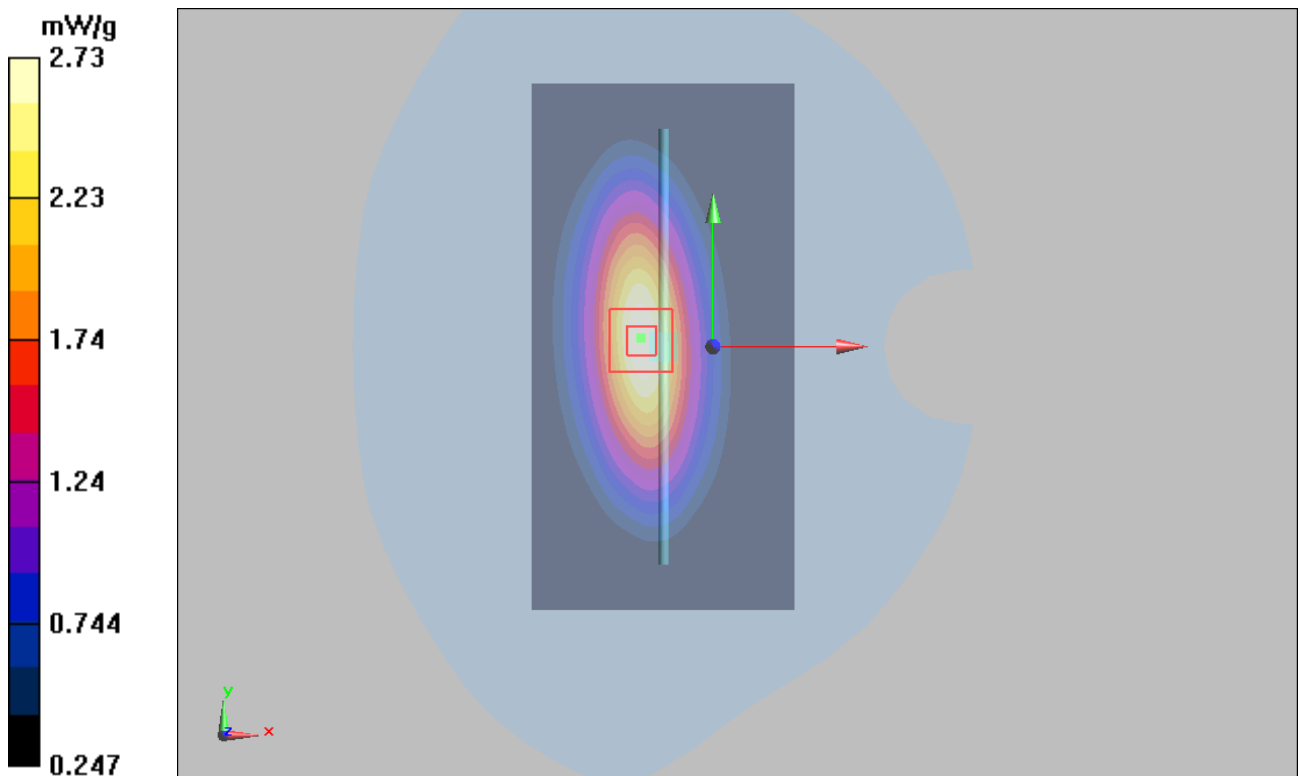
Figure 8 System Performance Check 835MHz 250mW

System Performance Check at 1900 MHz Head TSL
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d018
Date/Time: 8/29/2010 8:50:34 AM
Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.41 mho/m; ε_r = 40.2; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃   Liqiud Temperature: 21.5℃
Phantom section: Flat Section
DASY4 Configuration:
Probe: EX3DV4 - SN3677; ConvF(7.53, 7.53, 7.53); Calibrated: 9/23/2009
Electronics: DAE4 Sn871; Calibrated: 11/11/2009
Phantom: SAM000 T01 ; Type: SAM V4.0; Serial: TP-1246
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

d=10mm, Pin=250mW/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 12.7 mW/g

d=10mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 81.0 V/m; Power Drift = -0.068 dB
Peak SAR (extrapolated) = 18.9 W/kg
SAR(1 g) = 10.02 mW/g; SAR(10 g) = 5.21 mW/g
Maximum value of SAR (measured) = 11.5 mW/g
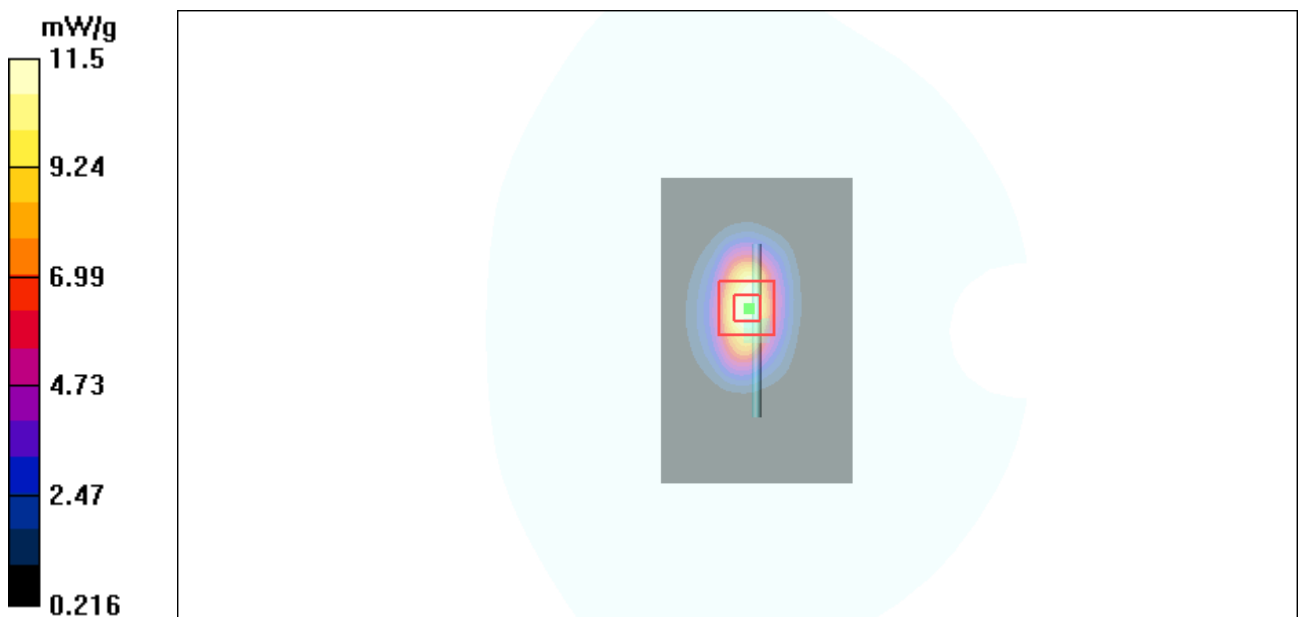
Figure 9 System Performance Check 1900MHz 250mW

System Performance Check at 1900 MHz Body TSL
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d018

Date/Time: 9/2/2010 8:09:19 AM

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

Medium parameters used: f = 1900 MHz; σ = 1.56 mho/m; ε_r = 53.01; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liqiud Temperature: 21.5℃

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.62, 7.62, 7.62); Calibrated: 9/23/2009

Electronics: DAE4 Sn871; Calibrated: 11/11/2009

Phantom: SAM000 T01 ; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

d=10mm, Pin=250mW/Area Scan (41x71x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 11.9 mW/g

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

Reference Value = 80.8 V/m; Power Drift = -0.063 dB

Peak SAR (extrapolated) = 17.6 W/kg

SAR(1 g) = 10.28 mW/g; SAR(10 g) = 5.50 mW/g

Maximum value of SAR (measured) = 11 mW/g
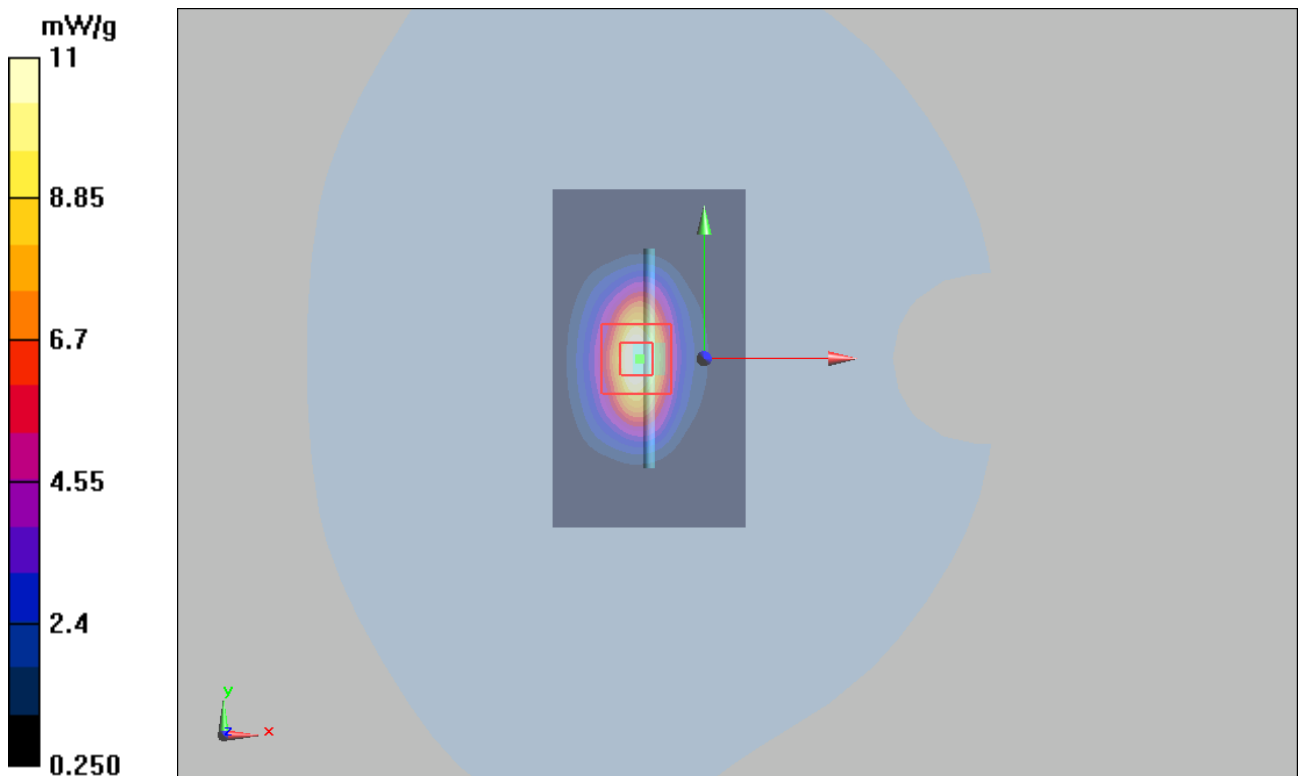
Figure 10 System Performance Check 1900MHz 250mW

System Performance Check at 2450 MHz Body TSL

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 712

Date/Time: 9/4/2010 1:30:36 PM

Communication System: CW; Frequency: 2450 MHz;Duty Cycle: 1:1

Medium parameters used: f = 2450 MHz; σ = 1.92 mho/m; ε_r = 51.83; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liqiud Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Probe: EX3DV4 - SN3661; ConvF(7.34, 7.34, 7.34); Calibrated: 12/30/2009

Electronics: DAE4 Sn871; Calibrated: 11/11/2009

Phantom: SAM2; Type: SAM;

Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

d=10mm, Pin=250mW/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 21.5 mW/g

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

Reference Value = 71.0 V/m; Power Drift = 0.011 dB

Peak SAR (extrapolated) = 28.2 W/kg

SAR(1 g) = 13.34 mW/g; SAR(10 g) = 6.22 mW/g

Maximum value of SAR (measured) = 19.8 mW/g
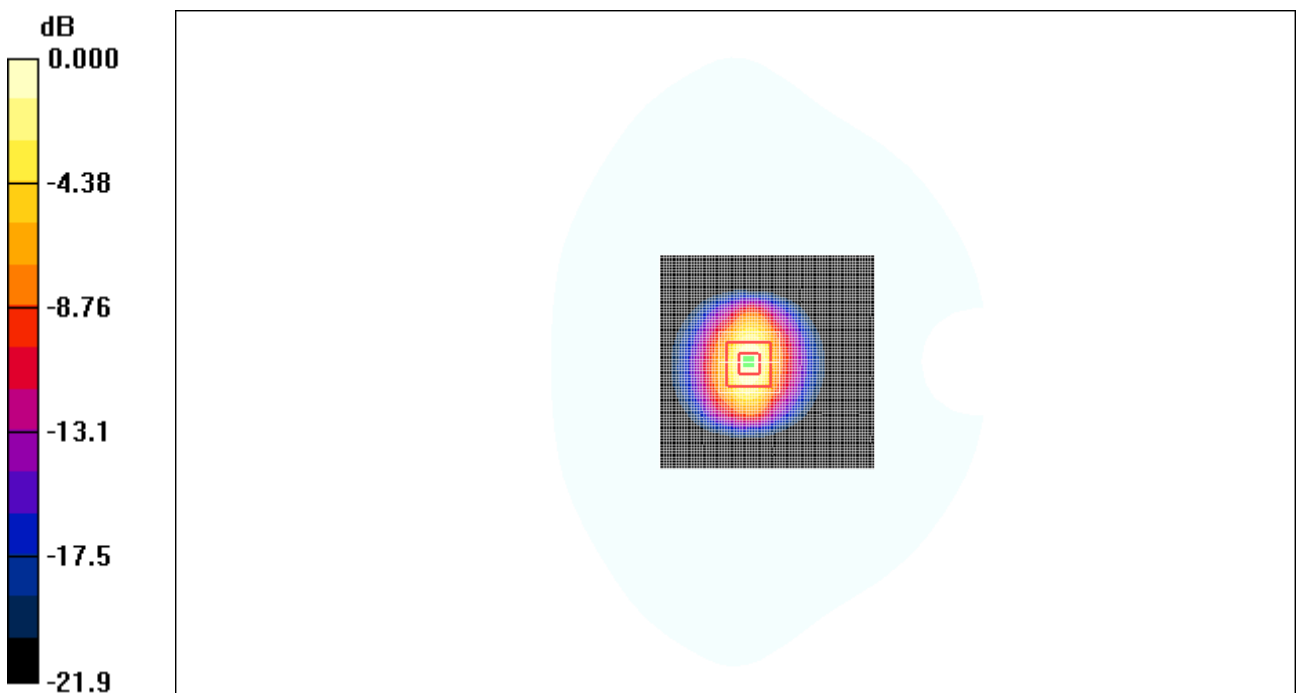
0 dB = 19.8mW/g

Figure 11 System Performance Check 2450MHz 250mW

ANNEX C: Graph Results

GSM 850 Left Cheek High Slide Open

Date/Time: 8/27/2010 8:02:07 PM

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

Medium parameters used: f = 849 MHz; σ = 0.911 mho/m; ε_r = 42.3; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liqiud Temperature: 21.5℃

Phantom section: Left Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(9.20, 9.20, 9.20); Calibrated: 9/23/2009

Electronics: DAE4 Sn871; Calibrated: 11/11/2009

Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

Maximum value of SAR (interpolated) = 0.893 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 = -0.079 dB

Peak SAR (extrapolated) = 1.06 W/kg

SAR(1 g) = 0.832 mW/g; SAR(10 g) = 0.596 mW/g

Maximum value of SAR (measured) = 0.883 mW/g
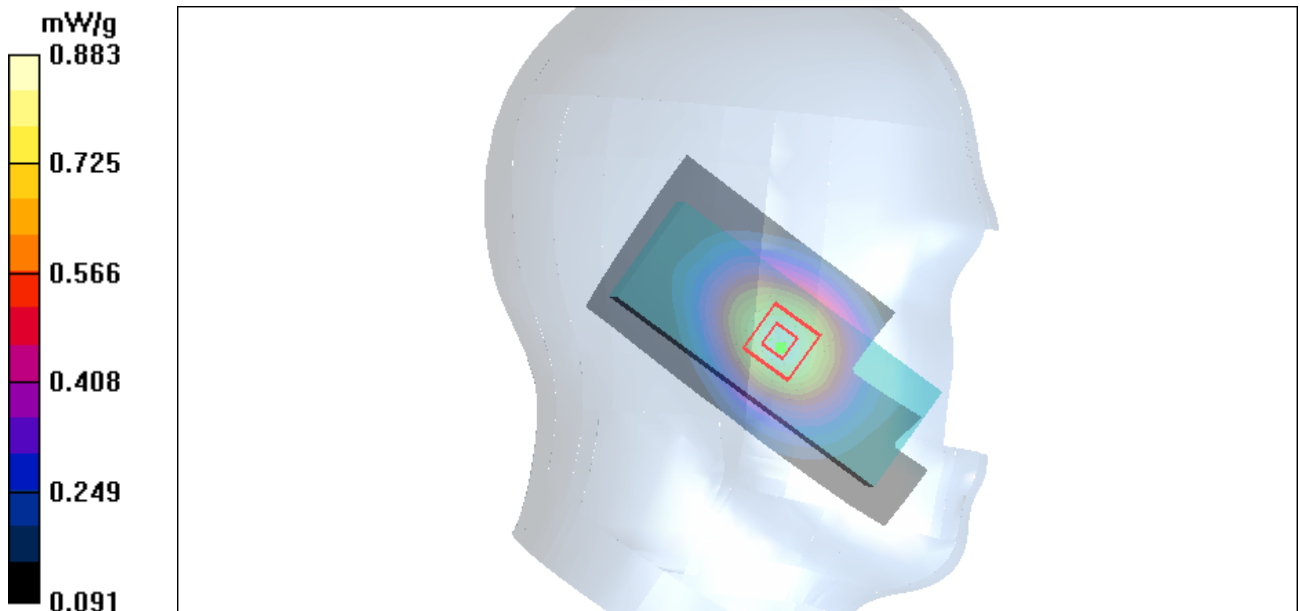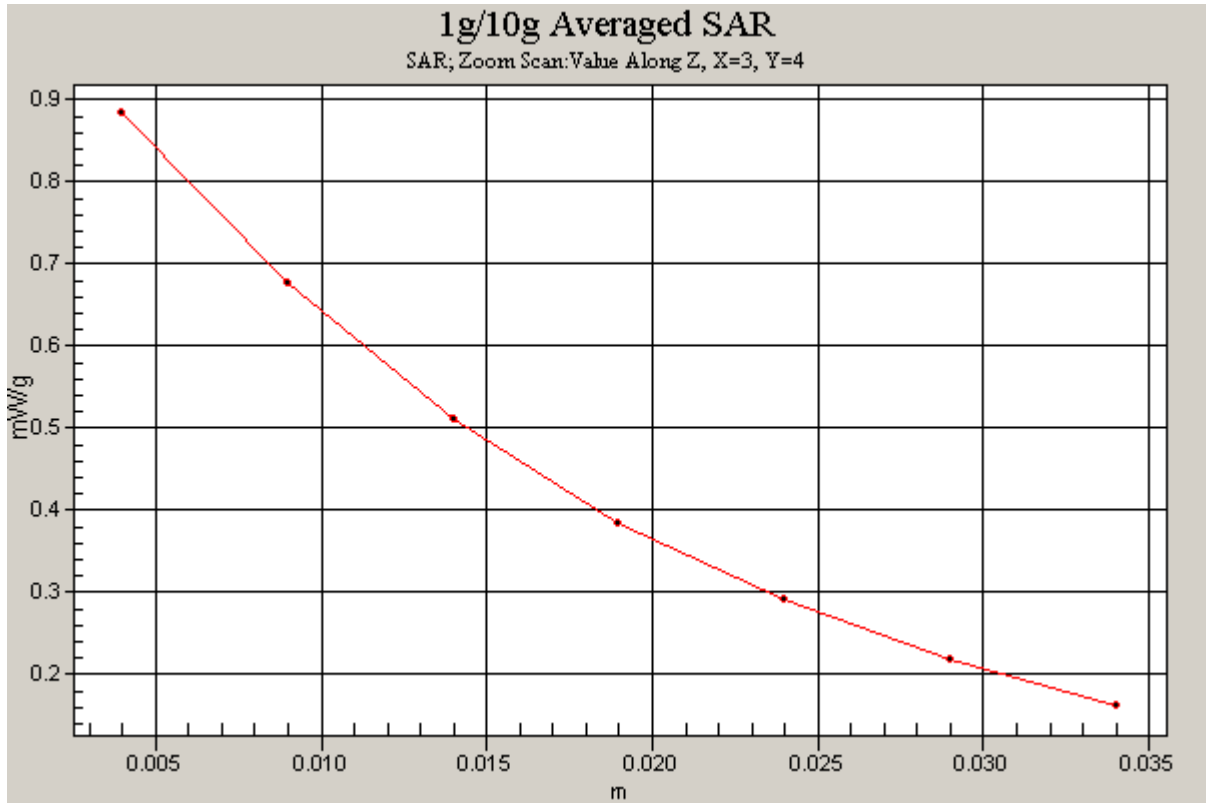
Figure 12 Left Hand Touch Cheek Slide Open, GSM 850 Channel 251

GSM 850 Left Cheek Middle Slide Open

Date/Time: 8/27/2010 12:53:19 PM

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

Medium parameters used: f = 837 MHz; σ = 0.9 mho/m; ε_r = 42.5; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liqiud Temperature: 21.5℃

Phantom section: Left Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(9.20, 9.20, 9.20); Calibrated: 9/23/2009

Electronics: DAE4 Sn871; Calibrated: 11/11/2009

Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

Maximum value of SAR (interpolated) = 0.863 mW/g

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

Reference Value = 11.6 V/m; Power Drift = 0.012 dB

Peak SAR (extrapolated) = 1.02 W/kg

SAR(1 g) = 0.804 mW/g; SAR(10 g) = 0.576 mW/g

Maximum value of SAR (measured) = 0.842 mW/g
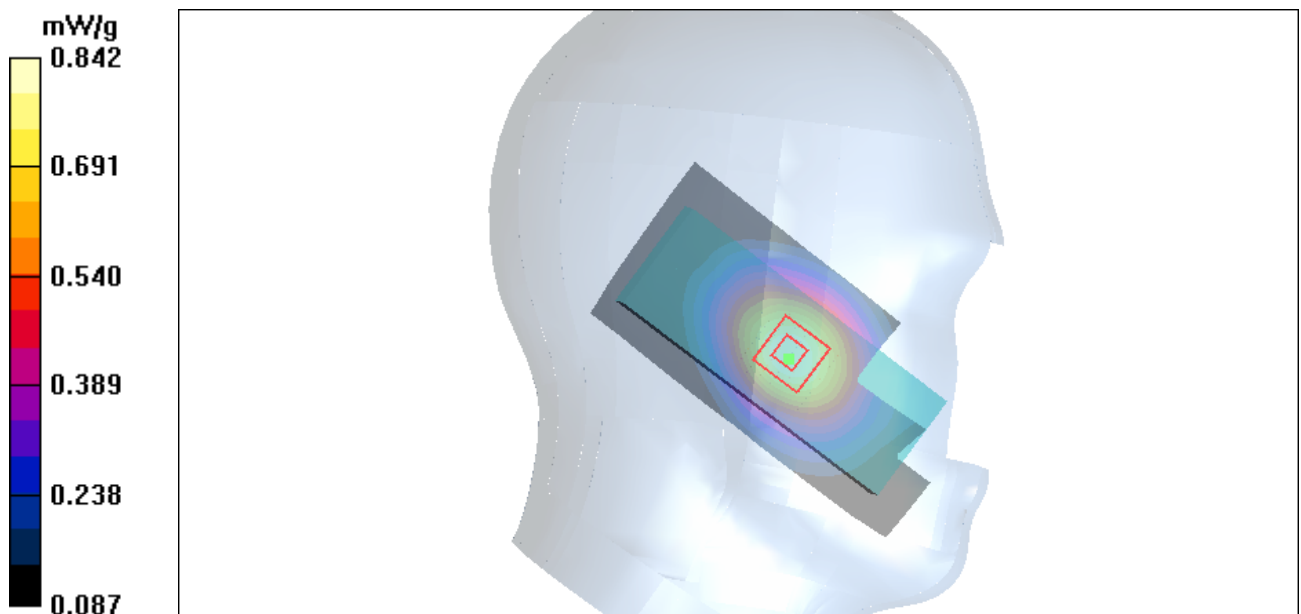
Figure 13 Left Hand Touch Cheek Slide Open, GSM 850 Channel 190

GSM 850 Left Cheek Low Slide Open

Date/Time: 8/27/2010 1:12:41 PM

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

Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.89 mho/m; ε_r = 42.6; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liqiud Temperature: 21.5℃

Phantom section: Left Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(9.20, 9.20, 9.20); Calibrated: 9/23/2009

Electronics: DAE4 Sn871; Calibrated: 11/11/2009

Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

Maximum value of SAR (interpolated) = 0.480 mW/g

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

Reference Value = 8.17 V/m; Power Drift = -0.057 dB

Peak SAR (extrapolated) = 0.560 W/kg

SAR(1 g) = 0.448 mW/g; SAR(10 g) = 0.324 mW/g

Maximum value of SAR (measured) = 0.472 mW/g
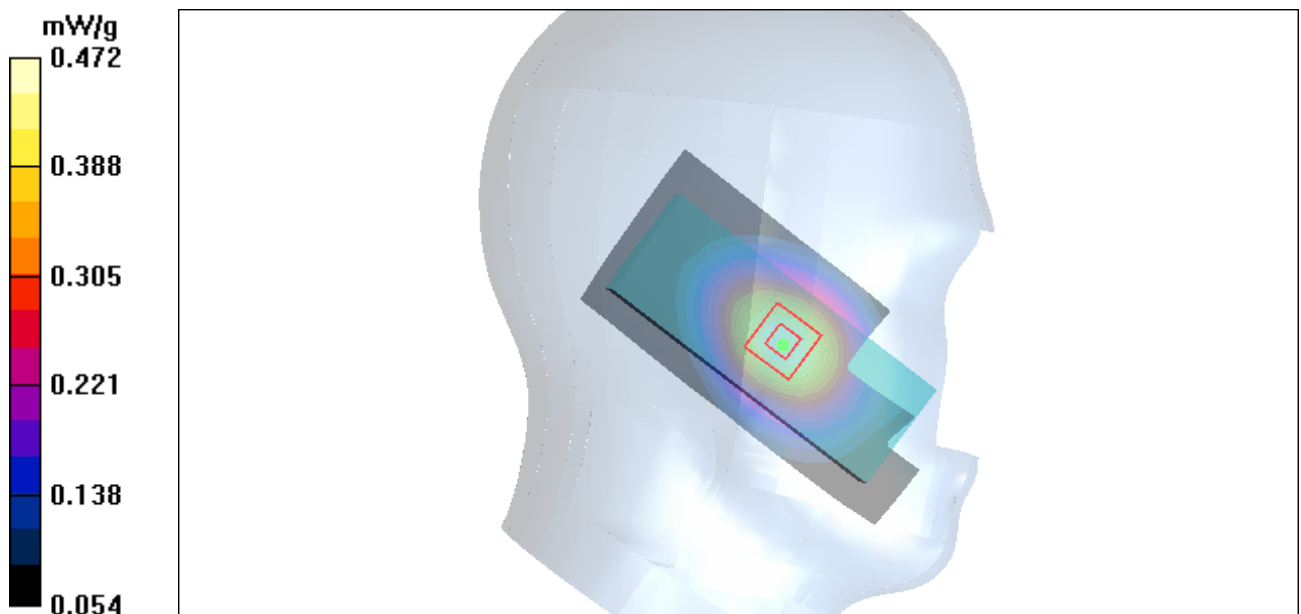
Figure 14 Left Hand Touch Cheek Slide Open, GSM 850 Channel 128

GSM 850 Left Tilt Middle Slide Open

Date/Time: 8/27/2010 1:35:53 PM

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

Medium parameters used: f = 837 MHz; σ = 0.9 mho/m; ε_r = 42.5; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liqiud Temperature: 21.5℃

Phantom section: Left Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(9.20, 9.20, 9.20); Calibrated: 9/23/2009

Electronics: DAE4 Sn871; Calibrated: 11/11/2009

Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

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

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

Reference Value = 13.0 V/m; Power Drift = -0.005 dB

Peak SAR (extrapolated) = 0.405 W/kg

SAR(1 g) = 0.320 mW/g; SAR(10 g) = 0.236 mW/g

Maximum value of SAR (measured) = 0.338 mW/g
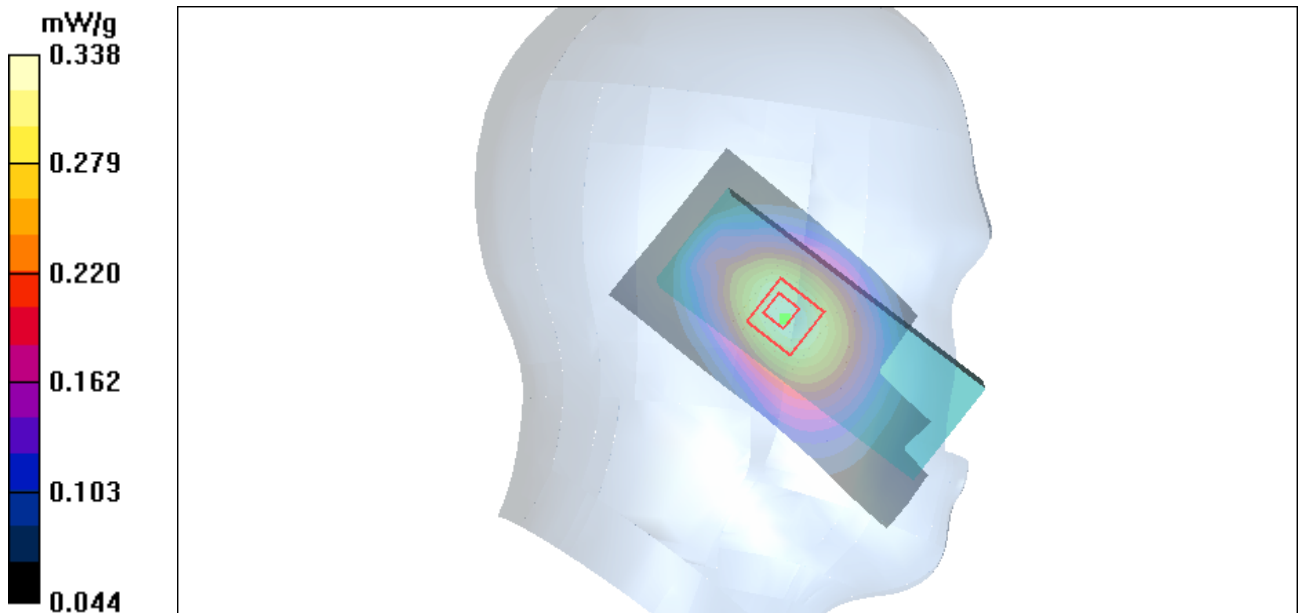
Figure 15 Left Hand Tilt 15° Slide Open, GSM 850 Channel 190

GSM 850 Right Cheek Middle Slide Open

Date/Time: 8/27/2010 1:58:17 PM

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

Medium parameters used: f = 837 MHz; σ = 0.9 mho/m; $ε_r$ = 42.5; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liqiud Temperature: 21.5℃

Phantom section: Right Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(9.20, 9.20, 9.20); Calibrated: 9/23/2009

Electronics: DAE4 Sn871; Calibrated: 11/11/2009

Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Cheek Middle/Area Scan (51x101x1): 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 = 11.1 V/m; Power Drift = -0.013 dB

Peak SAR (extrapolated) = 0.955 W/kg

SAR(1 g) = 0.740 mW/g; SAR(10 g) = 0.523 mW/g

Maximum value of SAR (measured) = 0.788 mW/g
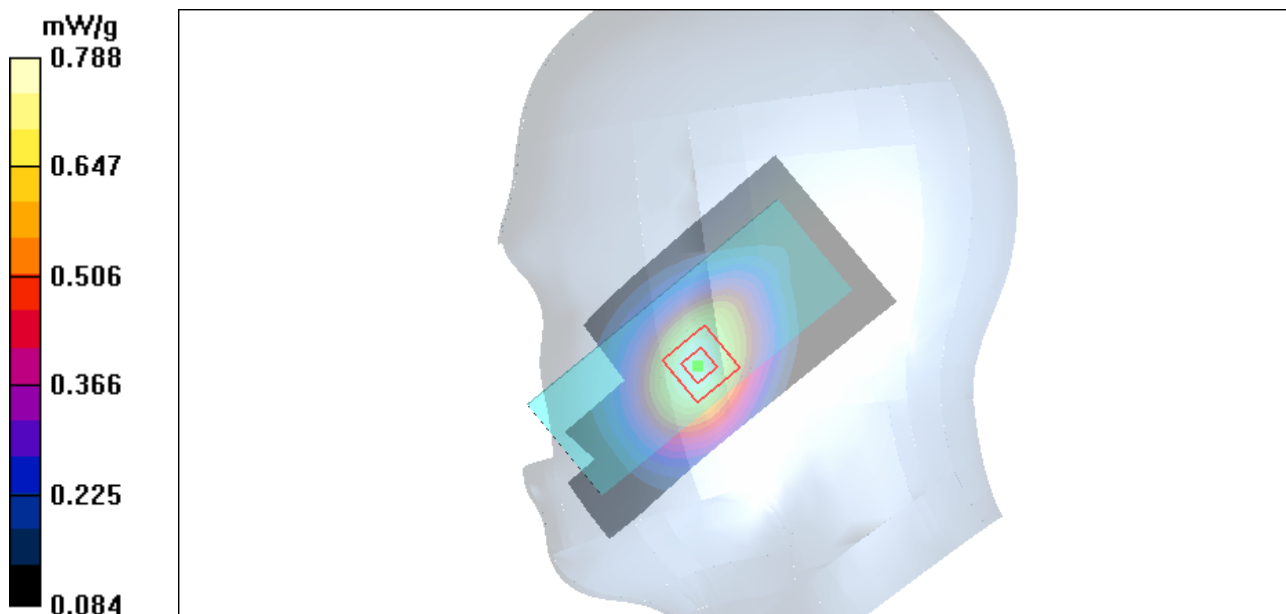
Figure 16 Right Hand Touch Cheek Slide Open, GSM 850 Channel 190

GSM 850 Right Tilt Middle Slide Open

Date/Time: 8/27/2010 12:23:19 PM

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

Medium parameters used: f = 837 MHz; σ = 0.9 mho/m; ε_r = 42.5; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liqiud Temperature: 21.5℃

Phantom section: Right Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(9.20, 9.20, 9.20); Calibrated: 9/23/2009

Electronics: DAE4 Sn871; Calibrated: 11/11/2009

Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Tilt Middle/Area Scan (51x101x1): 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 = 13.8 V/m; Power Drift = -0.017 dB

Peak SAR (extrapolated) = 0.415 W/kg

SAR(1 g) = 0.323 mW/g; SAR(10 g) = 0.236 mW/g

Maximum value of SAR (measured) = 0.343 mW/g
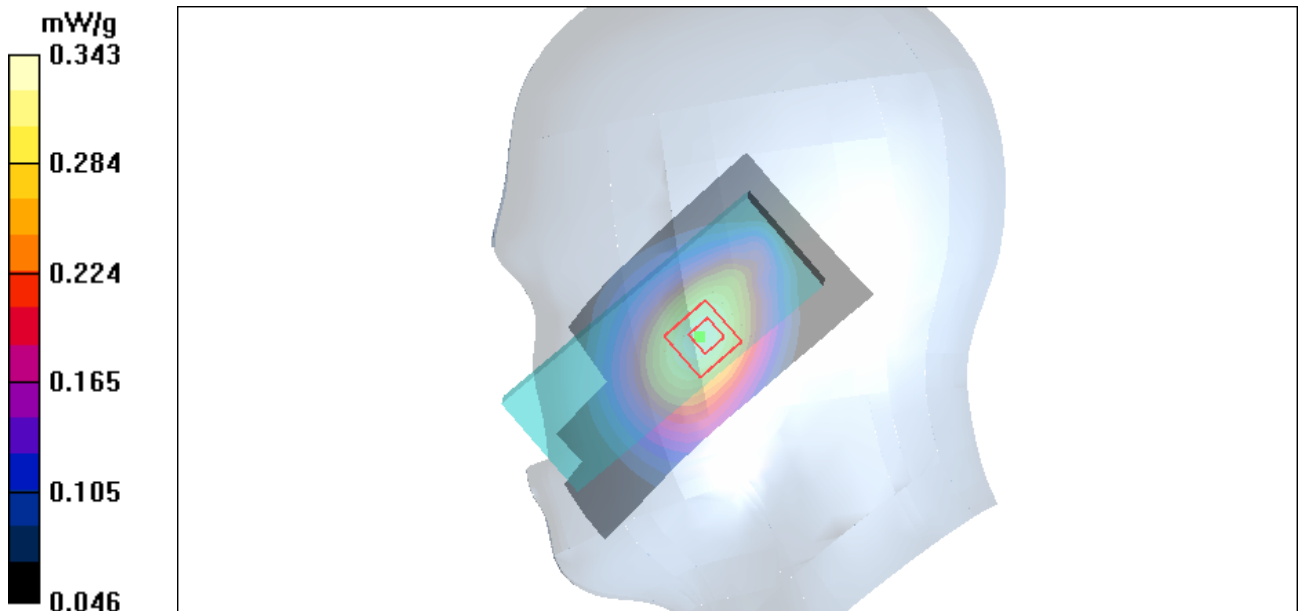
Figure 17 Right Hand Tilt 15° Slide Open, GSM 850 Channel 190

GSM 850 Towards Ground High Slide Open

Date/Time: 9/1/2010 2:45:02 PM

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

Medium parameters used: f = 849 MHz; σ = 1.01 mho/m; ε_r = 54.6; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liqiud Temperature: 21.5℃

Phantom section: Flat Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(9.11, 9.11, 9.11); Calibrated: 9/23/2009

Electronics: DAE4 Sn871; Calibrated: 11/11/2009

Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

Maximum value of SAR (interpolated) = 0.851 mW/g

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

Reference Value = 11.9 V/m; Power Drift = -0.057 dB

Peak SAR (extrapolated) = 1.05 W/kg

SAR(1 g) = 0.799 mW/g; SAR(10 g) = 0.573 mW/g

Maximum value of SAR (measured) = 0.849 mW/g
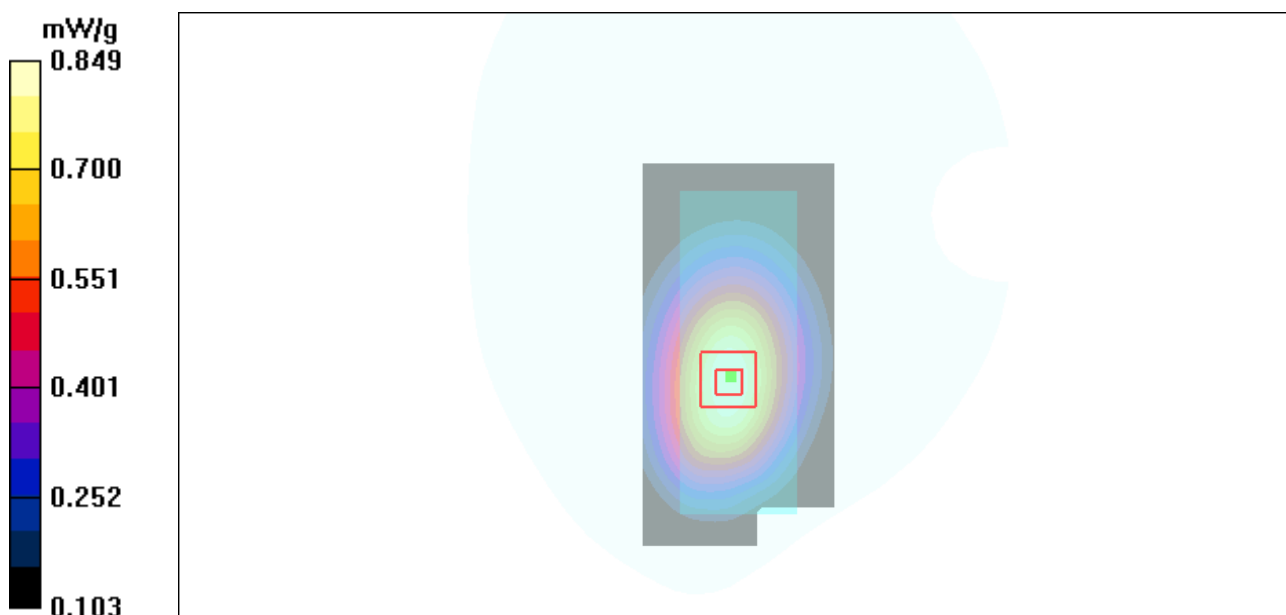
Figure 18 Body, Towards Ground Slide Open, GSM 850 Channel 251

GSM 850 Towards Ground Middle Slide Open

Date/Time: 9/1/2010 2:24:12 PM

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

Medium parameters used: f = 837 MHz; σ = 1 mho/m; ε_r = 54.8; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liqiud Temperature: 21.5℃

Phantom section: Flat Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(9.11, 9.11, 9.11); Calibrated: 9/23/2009

Electronics: DAE4 Sn871; Calibrated: 11/11/2009

Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

Maximum value of SAR (interpolated) = 0.904 mW/g

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

Reference Value = 12.3 V/m; Power Drift = -0.151 dB

Peak SAR (extrapolated) = 1.09 W/kg

SAR(1 g) = 0.839 mW/g; SAR(10 g) = 0.603 mW/g

Maximum value of SAR (measured) = 0.892 mW/g
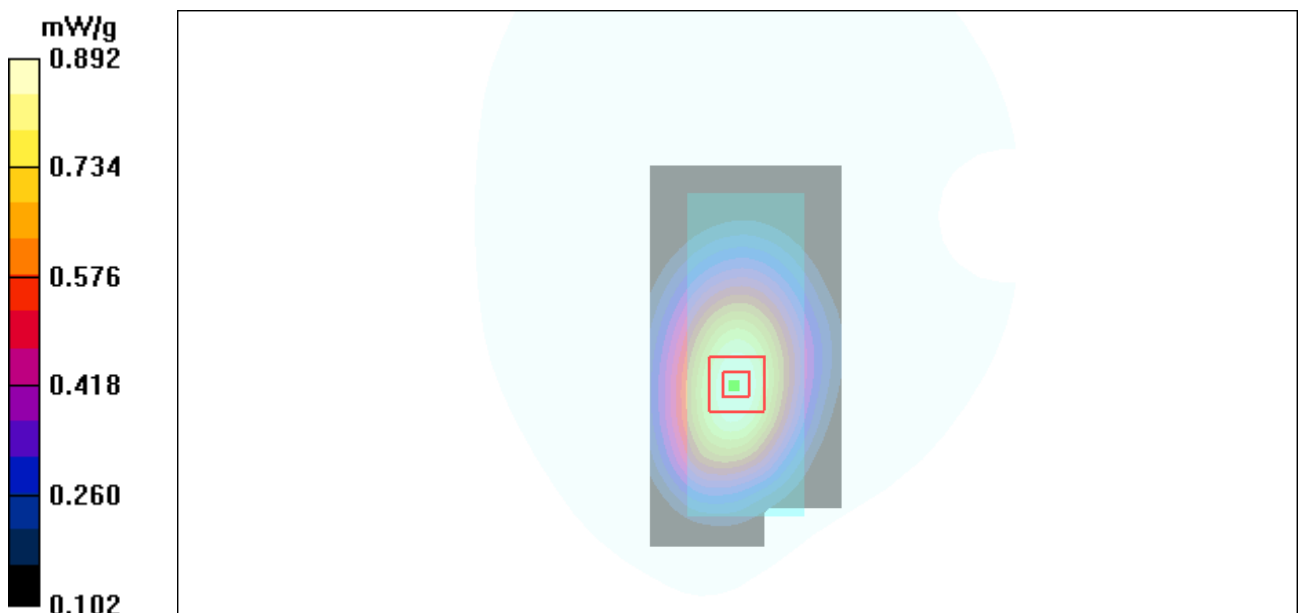
Figure 19 Body, Towards Ground Slide Open, GSM 850 Channel 190

GSM 850 Towards Ground Low Slide Open

Date/Time: 9/1/2010 3:03:08 PM

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

Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.99 mho/m; ε_r = 55; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liqiud Temperature: 21.5℃

Phantom section: Flat Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(9.11, 9.11, 9.11); Calibrated: 9/23/2009

Electronics: DAE4 Sn871; Calibrated: 11/11/2009

Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

Maximum value of SAR (interpolated) = 0.587 mW/g

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

Reference Value = 9.79 V/m; Power Drift = 0.034 dB

Peak SAR (extrapolated) = 0.724 W/kg

SAR(1 g) = 0.556 mW/g; SAR(10 g) = 0.401 mW/g

Maximum value of SAR (measured) = 0.589 mW/g
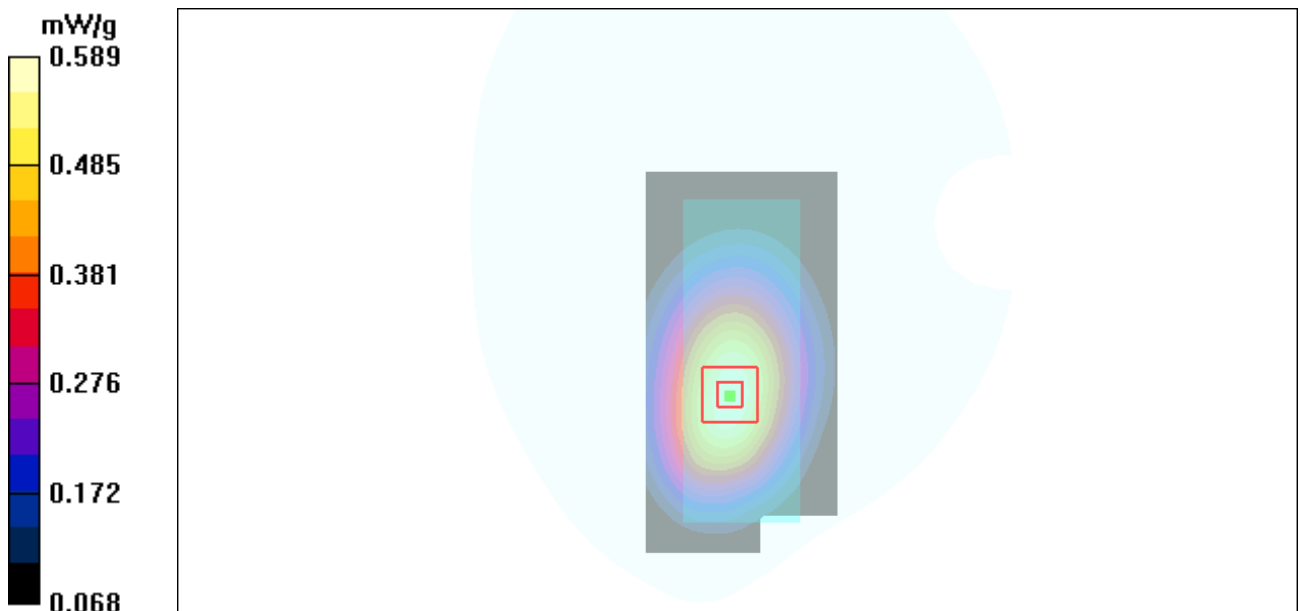
Figure 20 Body, Towards Ground Slide Open, GSM 850 Channel 128

GSM 850 Towards Phantom Middle Slide Open

Date/Time: 9/1/2010 2:03:57 PM

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

Medium parameters used: f = 837 MHz; σ = 1 mho/m; $ε_r$ = 54.8; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liqiud Temperature: 21.5℃

Phantom section: Flat Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(9.11, 9.11, 9.11); Calibrated: 9/23/2009

Electronics: DAE4 Sn871; Calibrated: 11/11/2009

Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

Maximum value of SAR (interpolated) = 0.759 mW/g

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

Reference Value = 13.1 V/m; Power Drift = -0.088 dB

Peak SAR (extrapolated) = 0.935 W/kg

SAR(1 g) = 0.710 mW/g; SAR(10 g) = 0.515 mW/g

Maximum value of SAR (measured) = 0.755 mW/g
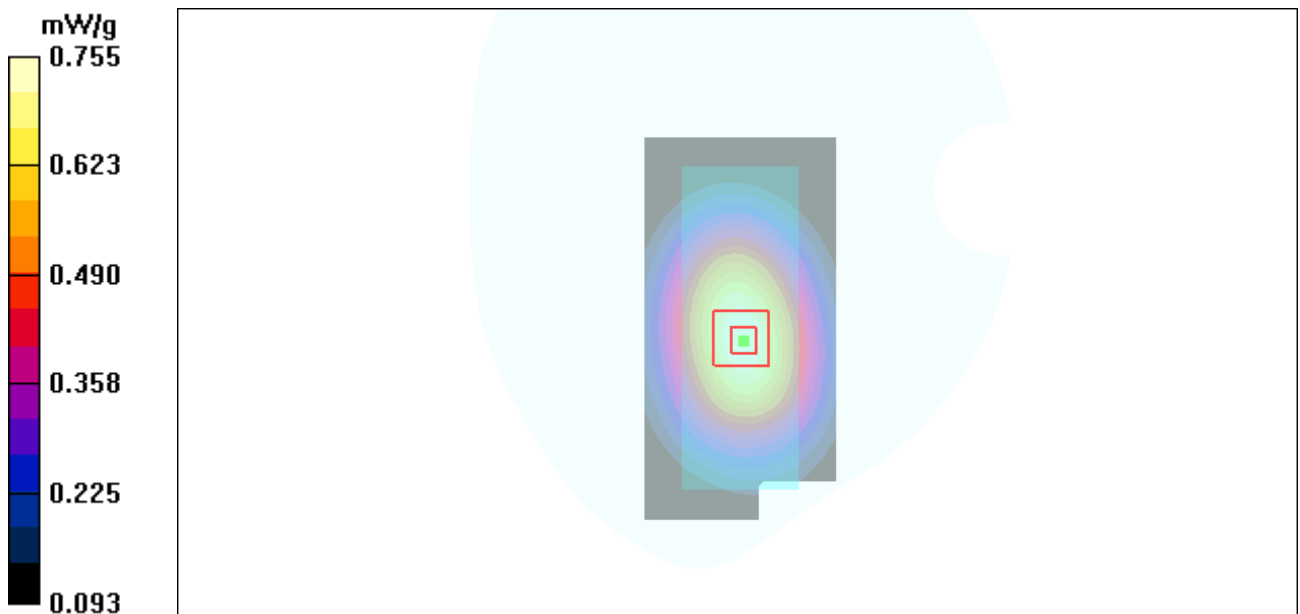
Figure 21 Body, Towards Phantom Slide Open, GSM 850 Channel 190

GSM 850 with Earphone Towards Ground Middle Slide Open

Date/Time: 9/1/2010 3:29:15 PM

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

Medium parameters used: f = 837 MHz; σ = 1 mho/m; $ε_r$ = 54.8; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liqiud Temperature: 21.5℃

Phantom section: Flat Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(9.11, 9.11, 9.11); Calibrated: 9/23/2009

Electronics: DAE4 Sn871; Calibrated: 11/11/2009

Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

Maximum value of SAR (interpolated) = 0.796 mW/g

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

Reference Value = 11.0 V/m; Power Drift = 0.032 dB

Peak SAR (extrapolated) = 0.972 W/kg

SAR(1 g) = 0.746 mW/g; SAR(10 g) = 0.539 mW/g

Maximum value of SAR (measured) = 0.788 mW/g
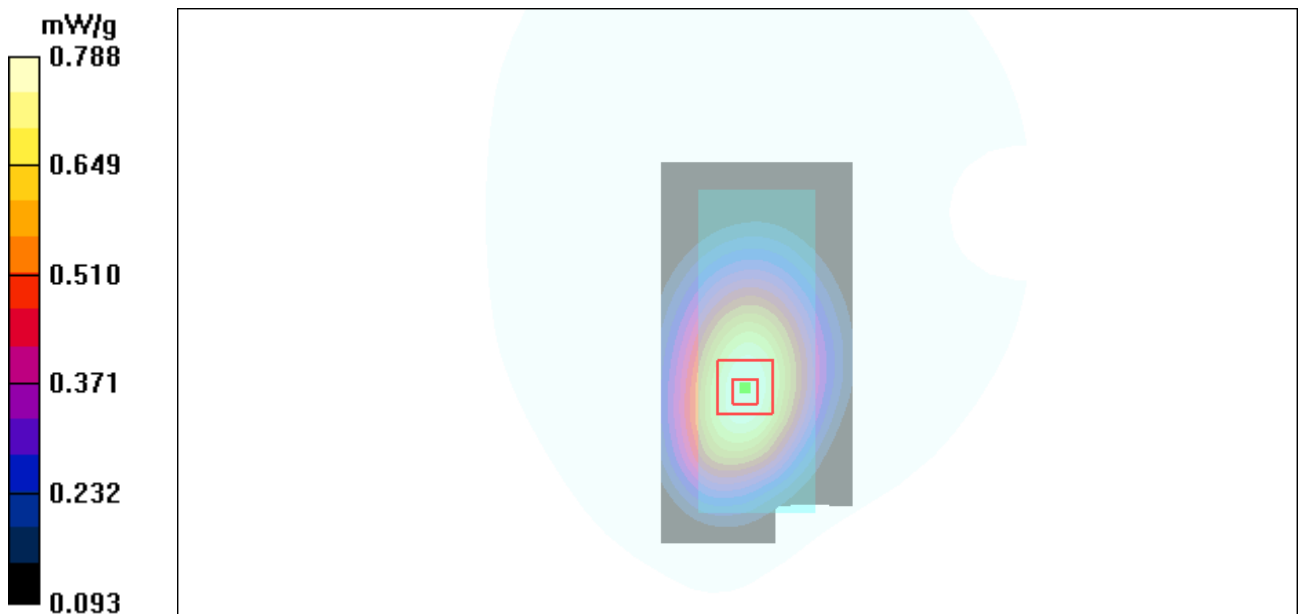
Figure 22 Body with Earphone, Towards Ground Slide Open, GSM 850 Channel 190

GSM 850 GPRS (2Up) Towards Ground Middle Slide Open

Date/Time: 9/1/2010 11:26:38 AM

Communication System: GSM850 + GPRS(2Up); Frequency: 836.6 MHz;Duty Cycle: 1:4.15

Medium parameters used: f = 837 MHz; σ = 1 mho/m; ε_r = 54.8; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liqiud Temperature: 21.5℃

Phantom section: Flat Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(9.11, 9.11, 9.11); Calibrated: 9/23/2009

Electronics: DAE4 Sn871; Calibrated: 11/11/2009

Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

Maximum value of SAR (interpolated) = 1.60 mW/g

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

Reference Value = 17.2 V/m; Power Drift = -0.132 dB

Peak SAR (extrapolated) = 1.93 W/kg

SAR(1 g) = 1.48 mW/g; SAR(10 g) = 1.07 mW/g

Maximum value of SAR (measured) = 1.58 mW/g
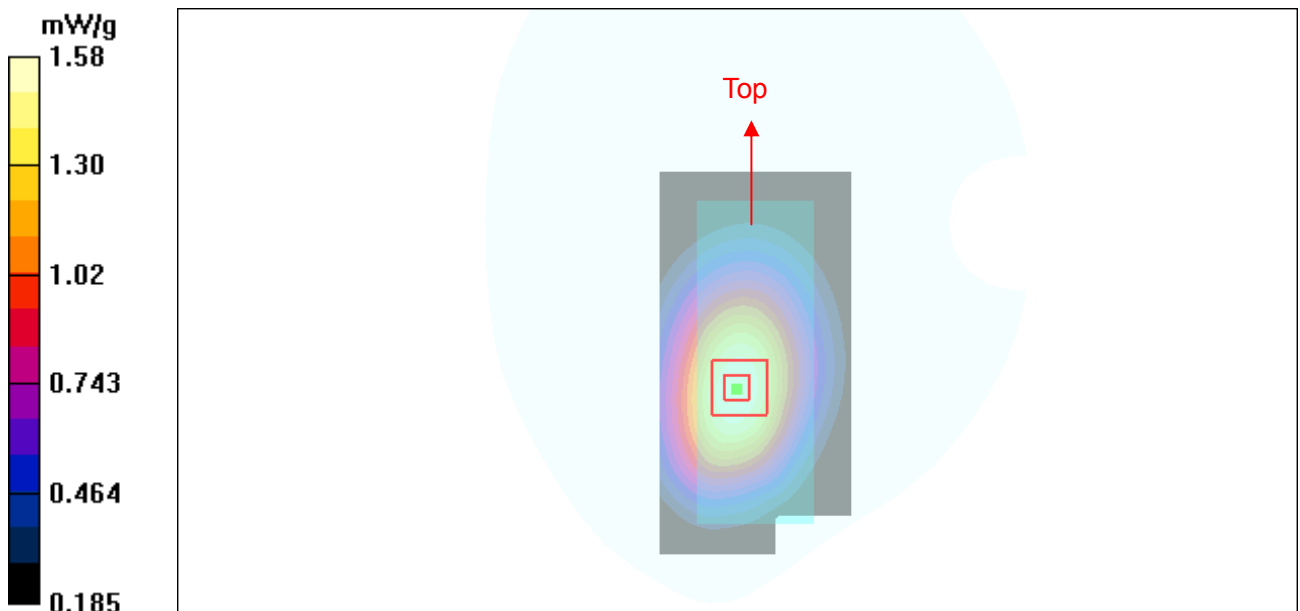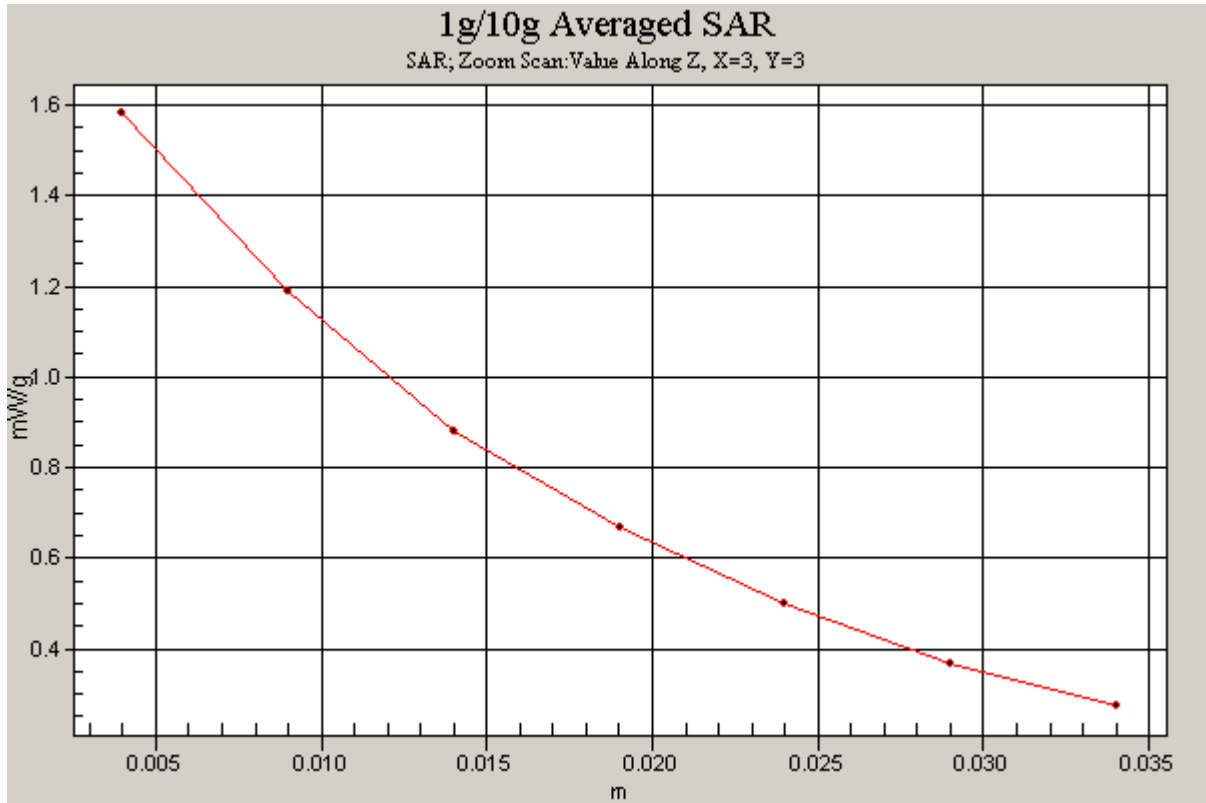
Figure 23 Body, Towards Ground Slide Open, GSM 850 GPRS (2Up) Channel 190

GSM 850 Left Cheek High Slide Close

Date/Time: 8/27/2010 5:40:50 PM

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

Medium parameters used: f = 849 MHz; σ = 0.911 mho/m; $ε_r$ = 42.3; ρ = 1000 kg/m³

Ambient Temperature:22.3 ℃   Liqiud Temperature: 21.5℃

Phantom section: Left Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(9.20, 9.20, 9.20); Calibrated: 9/23/2009

Electronics: DAE4 Sn871; Calibrated: 11/11/2009

Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

Maximum value of SAR (interpolated) = 0.861 mW/g

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

Reference Value = 11.0 V/m; Power Drift = -0.176 dB

Peak SAR (extrapolated) = 1.08 W/kg

SAR(1 g) = 0.813 mW/g; SAR(10 g) = 0.562 mW/g

Maximum value of SAR (measured) = 0.869 mW/g
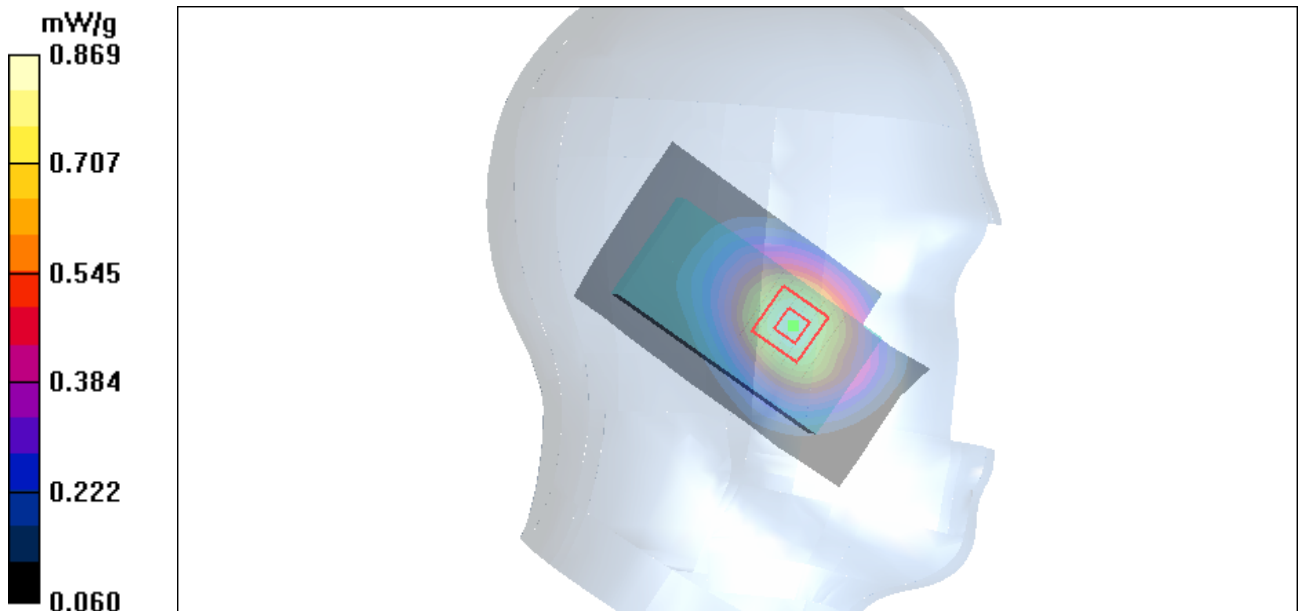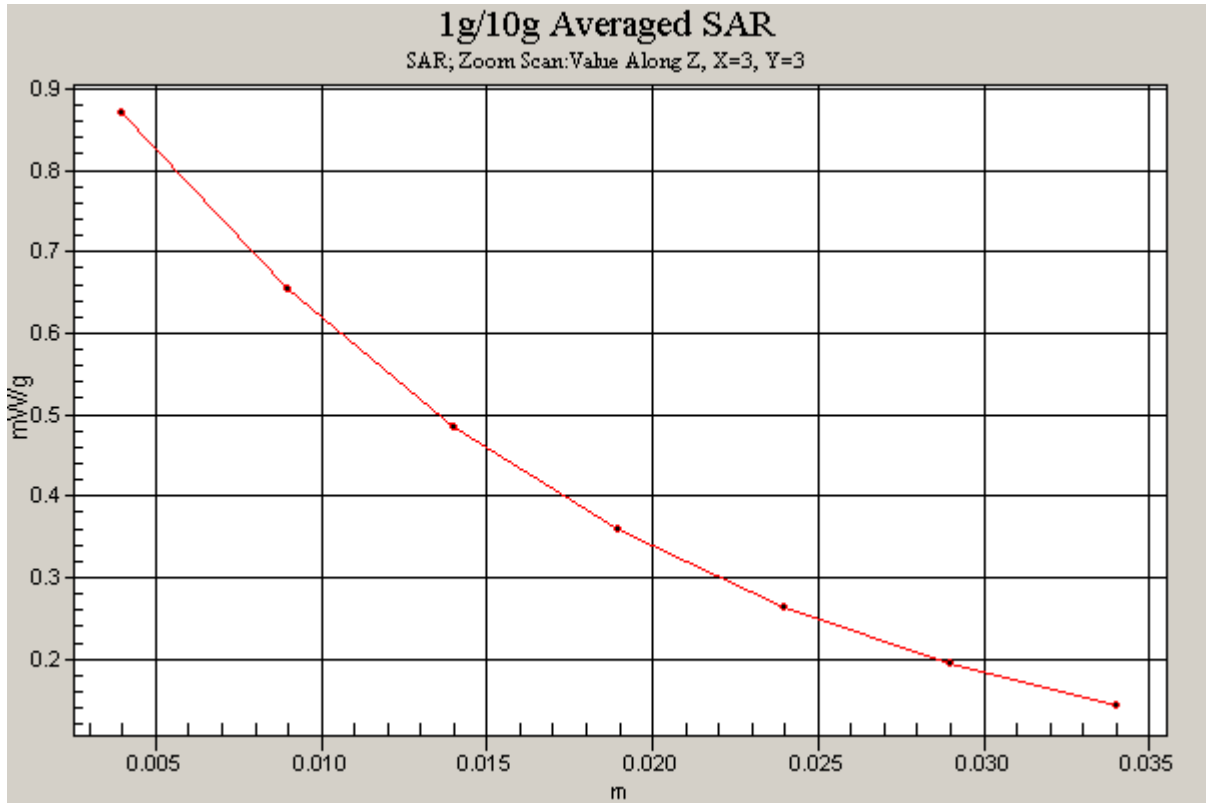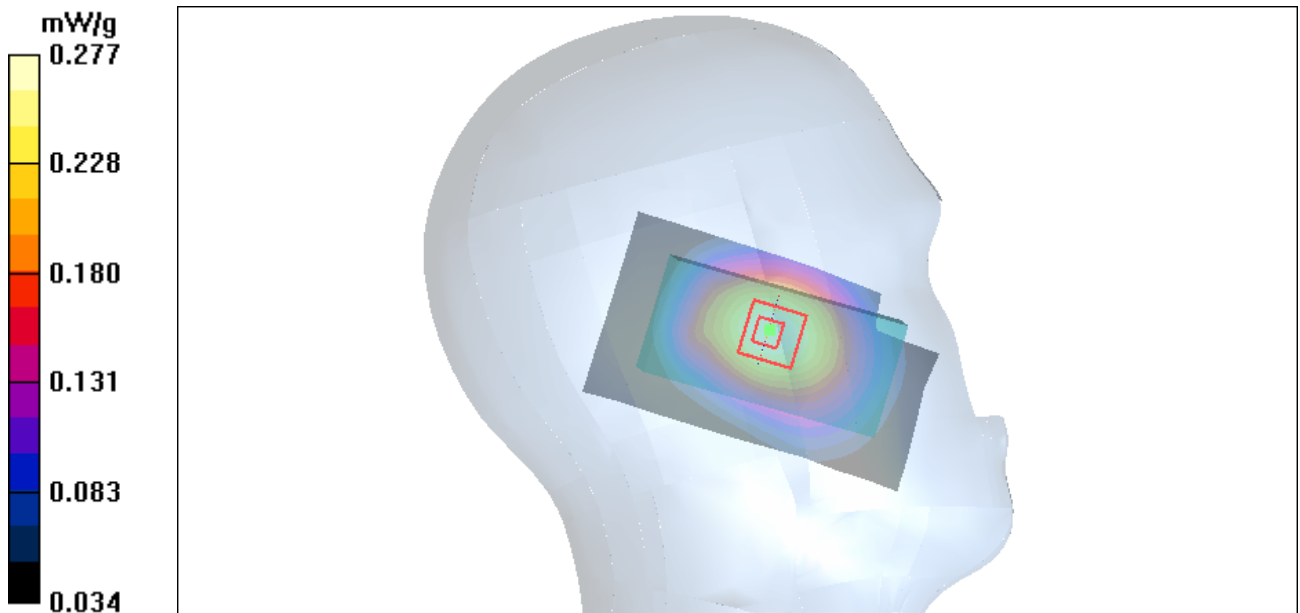
Figure 24 Left Hand Touch Cheek Slide Close, GSM 850 Channel 251

GSM 850 Left Cheek Middle Slide Close

Date/Time: 8/27/2010 5:20:33 PM

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

Medium parameters used: f = 837 MHz; σ = 0.9 mho/m; $ε_r$ = 42.5; ρ = 1000 kg/m³

Ambient Temperature:22.3 ℃   Liqiud Temperature: 21.5℃

Phantom section: Left Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(9.20, 9.20, 9.20); Calibrated: 9/23/2009

Electronics: DAE4 Sn871; Calibrated: 11/11/2009

Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

Maximum value of SAR (interpolated) = 0.858 mW/g

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

Reference Value = 11.2 V/m; Power Drift = -0.099 dB

Peak SAR (extrapolated) = 1.05 W/kg

SAR(1 g) = 0.800 mW/g; SAR(10 g) = 0.557 mW/g

Maximum value of SAR (measured) = 0.854 mW/g
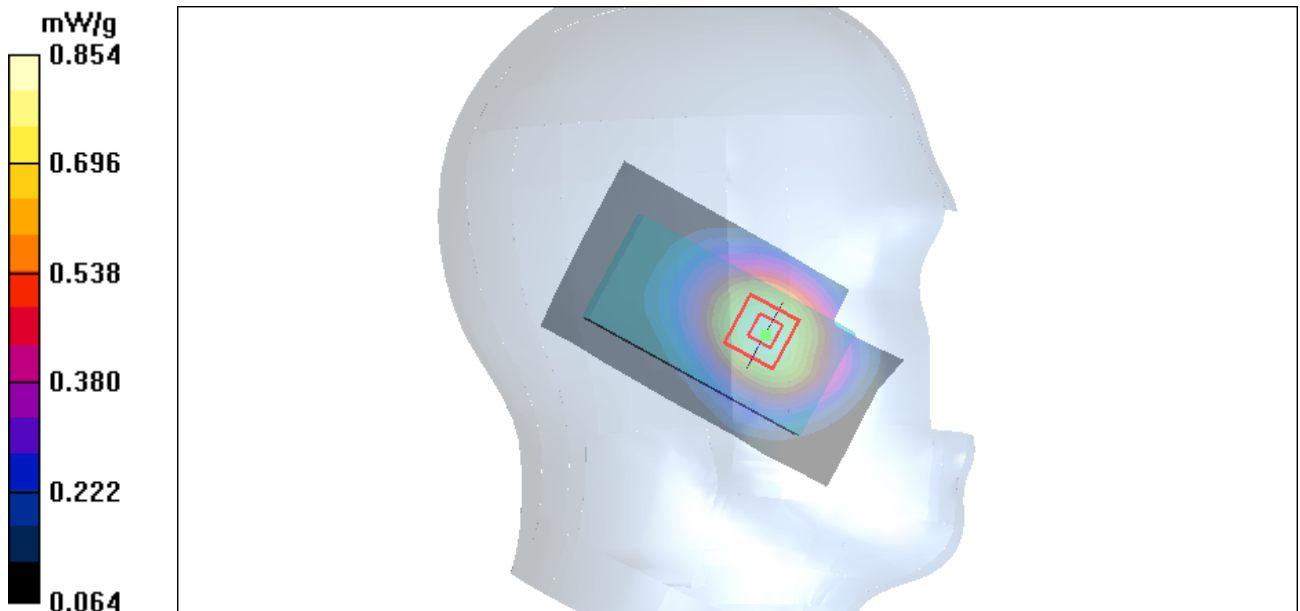
Figure 25 Left Hand Touch Cheek Slide Close, GSM 850 Channel 190

GSM 850 Left Cheek Low Slide Close

Date/Time: 8/27/2010 5:59:56 PM

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

Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.89 mho/m; ε_r = 42.6; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liqiud Temperature: 21.5℃

Phantom section: Left Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(9.20, 9.20, 9.20); Calibrated: 9/23/2009

Electronics: DAE4 Sn871; Calibrated: 11/11/2009

Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

Maximum value of SAR (interpolated) = 0.689 mW/g

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

Reference Value = 10.0 V/m; Power Drift = 0.070 dB

Peak SAR (extrapolated) = 0.900 W/kg

SAR(1 g) = 0.674 mW/g; SAR(10 g) = 0.468 mW/g

Maximum value of SAR (measured) = 0.725 mW/g
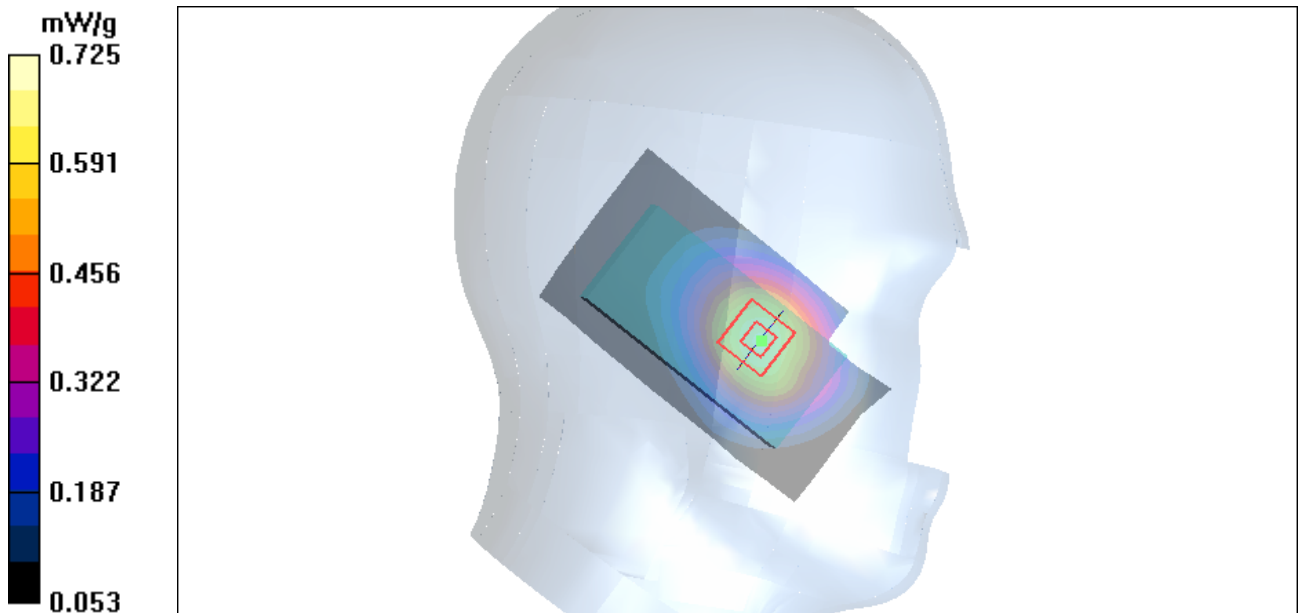
Figure 26 Left Hand Touch Cheek Slide Close, GSM 850 Channel 128

GSM 850 Left Tilt Middle Slide Close

Date/Time: 8/27/2010 6:19:28 PM

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

Medium parameters used: f = 837 MHz; σ = 0.9 mho/m; $ε_r$ = 42.5; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liqiud Temperature: 21.5℃

Phantom section: Left Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(9.20, 9.20, 9.20); Calibrated: 9/23/2009

Electronics: DAE4 Sn871; Calibrated: 11/11/2009

Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

Maximum value of SAR (interpolated) = 0.282 mW/g

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

Reference Value = 12.2 V/m; Power Drift = -0.084 dB

Peak SAR (extrapolated) = 0.334 W/kg

SAR(1 g) = 0.262 mW/g; SAR(10 g) = 0.192 mW/g

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

Figure 27 Left Hand Tilt 15° Slide Close, GSM 850 Channel 190

GSM 850 Right Cheek Middle Slide Close

Date/Time: 8/27/2010 7:04:33 PM

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

Medium parameters used: f = 837 MHz; σ = 0.9 mho/m; ε_r = 42.5; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liqiud Temperature: 21.5℃

Phantom section: Right Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(9.20, 9.20, 9.20); Calibrated: 9/23/2009

Electronics: DAE4 Sn871; Calibrated: 11/11/2009

Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

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

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

Reference Value = 11.7 V/m; Power Drift = -0.180 dB

Peak SAR (extrapolated) = 1.03 W/kg

SAR(1 g) = 0.768 mW/g; SAR(10 g) = 0.526 mW/g

Maximum value of SAR (measured) = 0.819 mW/g
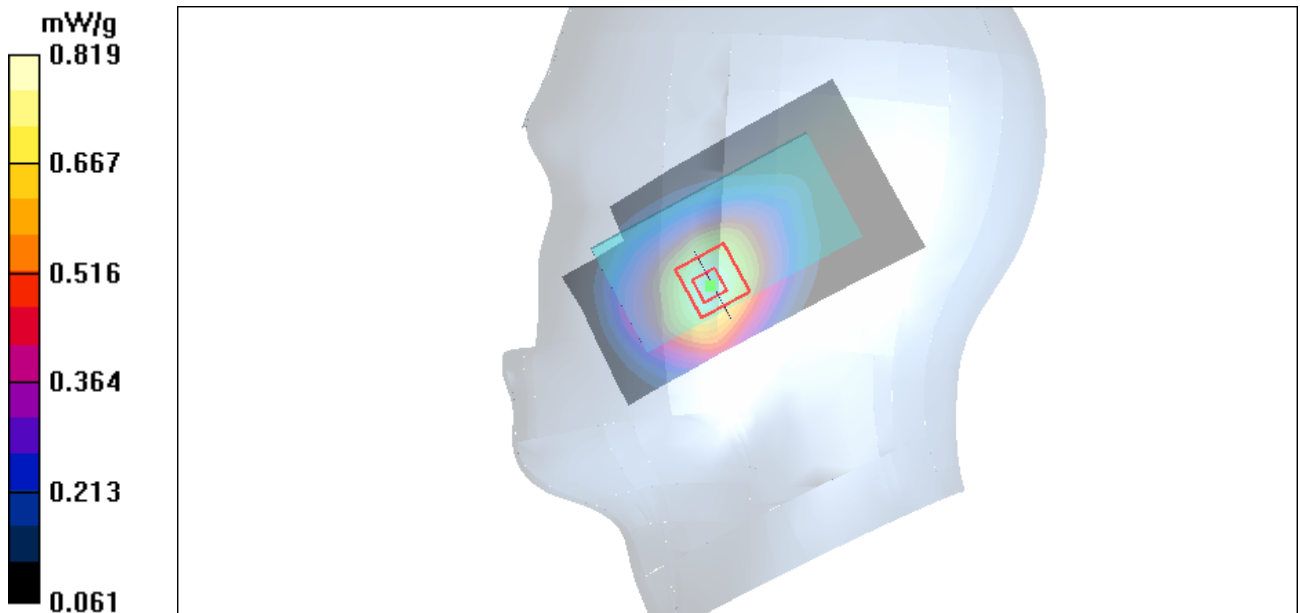
Figure 28 Right Hand Touch Cheek Slide Close, GSM 850 Channel 190

GSM 850 Right Tilt Middle Slide Close

Date/Time: 8/27/2010 7:31:59 PM

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

Medium parameters used: f = 837 MHz; σ = 0.9 mho/m; ε_r = 42.5; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃　　　　Liqiud Temperature: 21.5℃

Phantom section: Right Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(9.20, 9.20, 9.20); Calibrated: 9/23/2009

Electronics: DAE4 Sn871; Calibrated: 11/11/2009

Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

Maximum value of SAR (interpolated) = 0.286 mW/g

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

Reference Value = 13.0 V/m; Power Drift = -0.047 dB

Peak SAR (extrapolated) = 0.343 W/kg

SAR(1 g) = 0.266 mW/g; SAR(10 g) = 0.193 mW/g

Maximum value of SAR (measured) = 0.283 mW/g
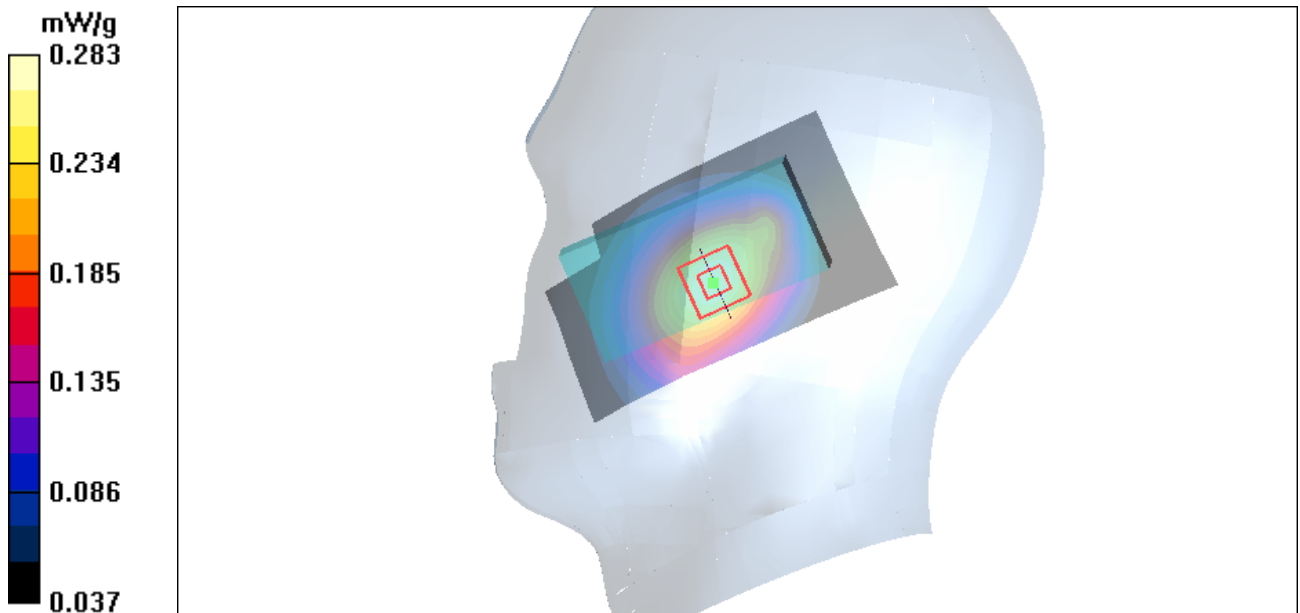
Figure 29 Right Hand Tilt 15° Slide Close, GSM 850 Channel 190

GSM 850 Towards Ground High Slide Close

Date/Time: 9/1/2010 1:15:03 PM

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

Medium parameters used: f = 849 MHz; σ = 1.01 mho/m; ε_r = 54.6; ρ = 1000 kg/m³

Ambient Temperature:22.3 ℃   Liqiud Temperature: 21.5℃

Phantom section: Flat Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(9.11, 9.11, 9.11); Calibrated: 9/23/2009

Electronics: DAE4 Sn871; Calibrated: 11/11/2009

Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

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

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

Reference Value = 10.5 V/m; Power Drift = -0.144 dB

Peak SAR (extrapolated) = 0.675 W/kg

SAR(1 g) = 0.484 mW/g; SAR(10 g) = 0.332 mW/g

Maximum value of SAR (measured) = 0.522 mW/g
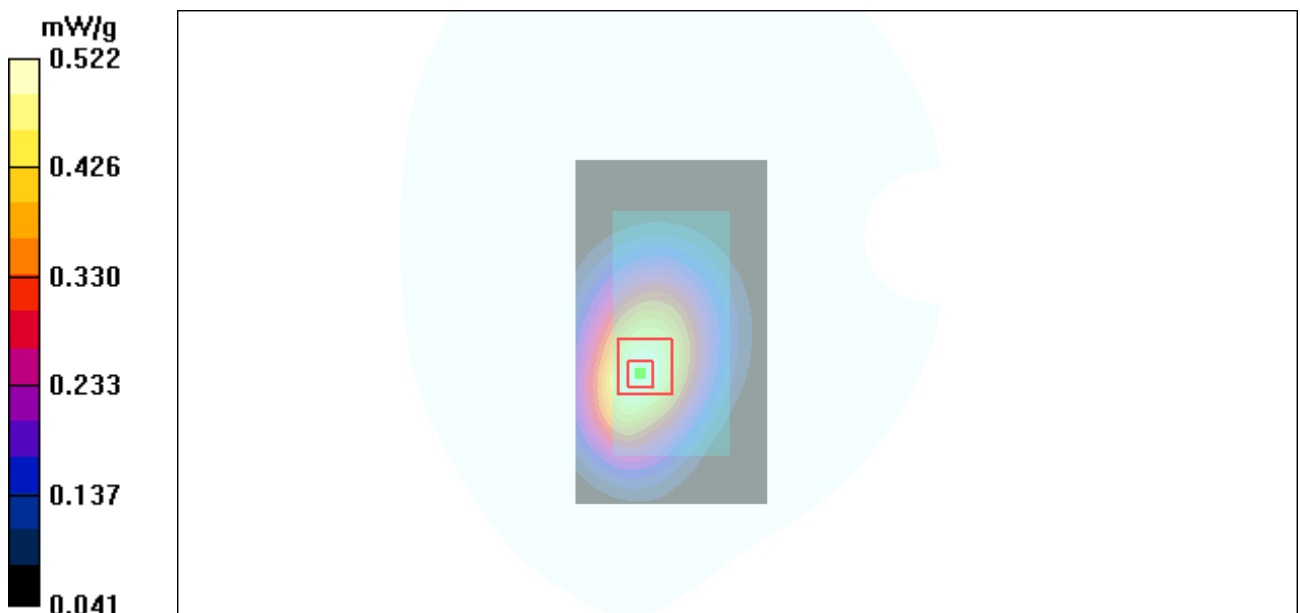
Figure 30 Body, Towards Ground Slide Close, GSM 850 Channel 251

GSM 850 Towards Ground Middle Slide Close

Date/Time: 9/1/2010 12:57:10 PM

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

Medium parameters used: f = 837 MHz; σ = 1 mho/m; $ε_r$ = 54.8; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liqiud Temperature: 21.5℃

Phantom section: Flat Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(9.11, 9.11, 9.11); Calibrated: 9/23/2009

Electronics: DAE4 Sn871; Calibrated: 11/11/2009

Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

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

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

Reference Value = 10.5 V/m; Power Drift = -0.060 dB

Peak SAR (extrapolated) = 0.695 W/kg

SAR(1 g) = 0.498 mW/g; SAR(10 g) = 0.342 mW/g
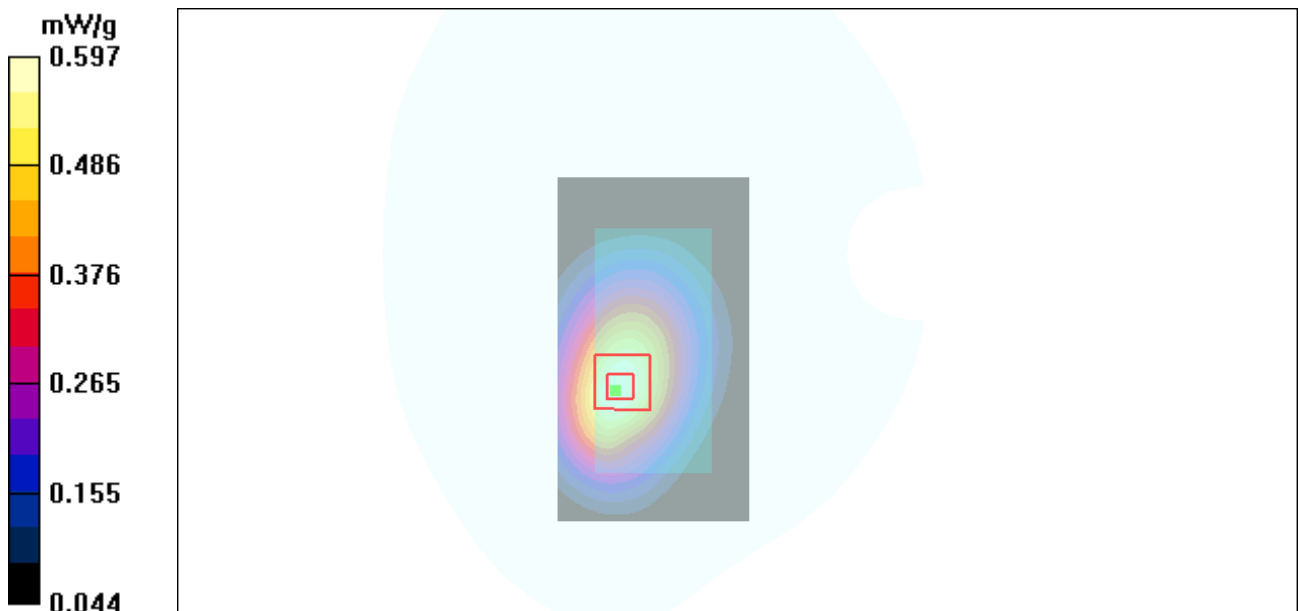
Maximum value of SAR (measured) = 0.533 mW/g
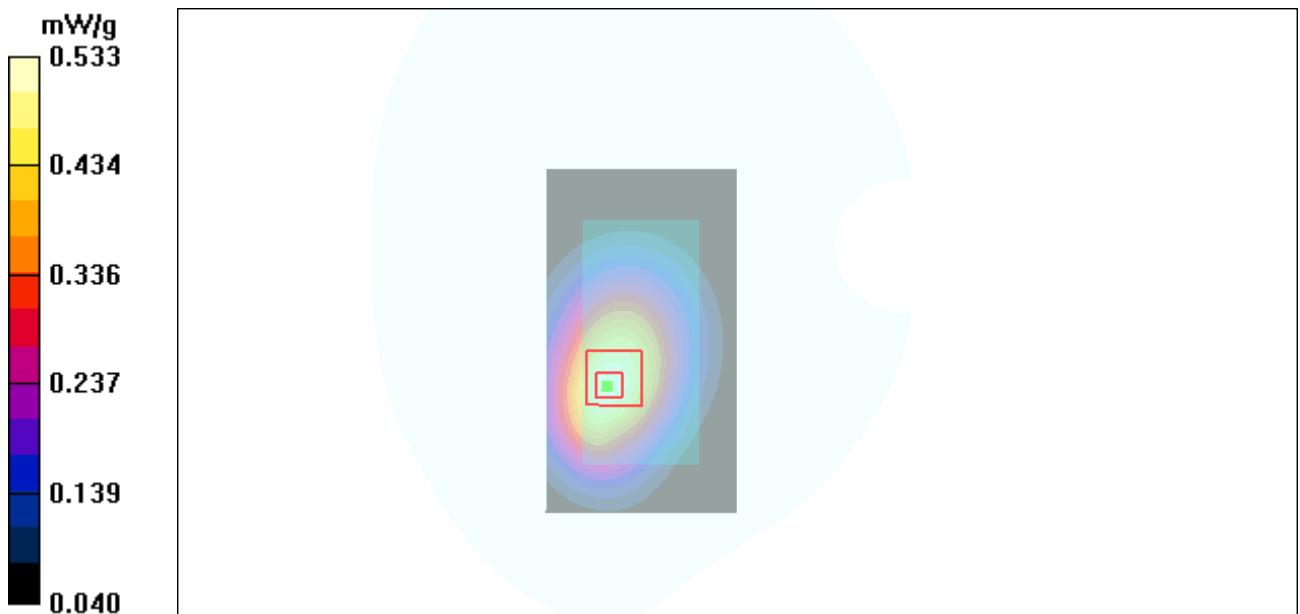
Figure 31 Body, Towards Ground Slide Close, GSM 850 Channel 190

GSM 850 Towards Ground Low Slide Close

Date/Time: 9/1/2010 1:32:52 PM

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

Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.99 mho/m; ε_r = 55; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liqiud Temperature: 21.5℃

Phantom section: Flat Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(9.11, 9.11, 9.11); Calibrated: 9/23/2009

Electronics: DAE4 Sn871; Calibrated: 11/11/2009

Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

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

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

Reference Value = 10.1 V/m; Power Drift = 0.087 dB

Peak SAR (extrapolated) = 0.662 W/kg

SAR(1 g) = 0.473 mW/g; SAR(10 g) = 0.325 mW/g

Maximum value of SAR (measured) = 0.509 mW/g
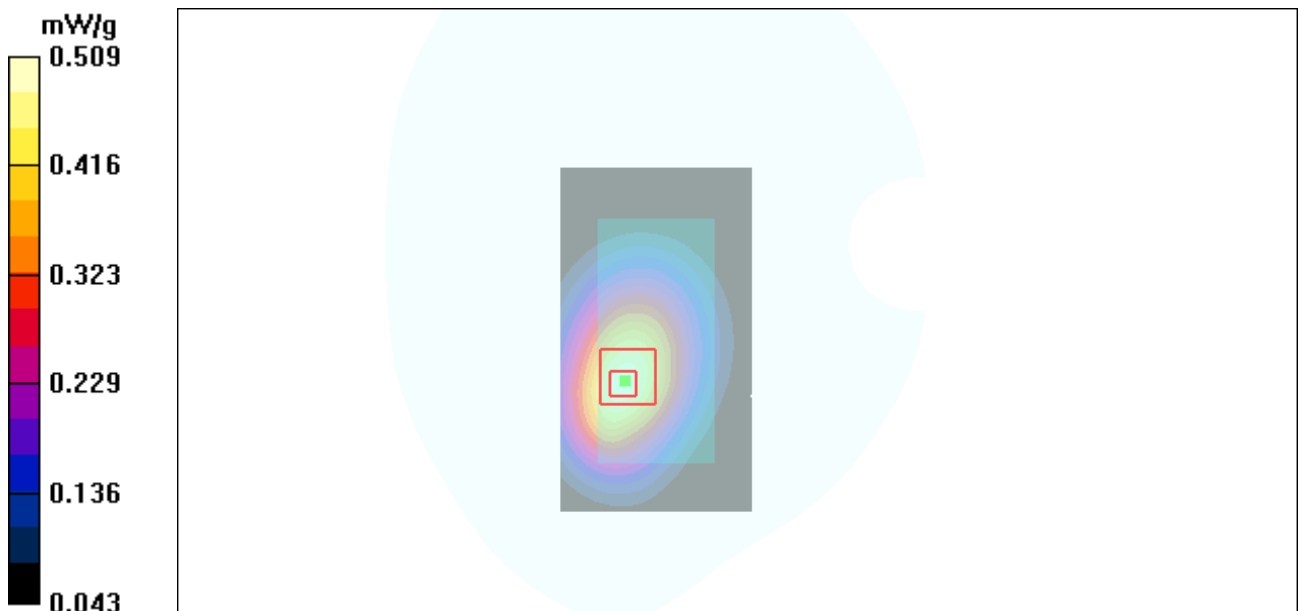
Figure 32 Body, Towards Ground Slide Close, GSM 850 Channel 128

GSM 850 Towards Phantom Middle Slide Close

Date/Time: 9/1/2010 12:36:32 PM

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

Medium parameters used: f = 837 MHz; σ = 1 mho/m; ε_r = 54.8; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liqiud Temperature: 21.5℃

Phantom section: Flat Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(9.11, 9.11, 9.11); Calibrated: 9/23/2009

Electronics: DAE4 Sn871; Calibrated: 11/11/2009

Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

Maximum value of SAR (interpolated) = 0.343 mW/g

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

Reference Value = 8.99 V/m; Power Drift = -0.150 dB

Peak SAR (extrapolated) = 0.425 W/kg

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

Maximum value of SAR (measured) = 0.338 mW/g
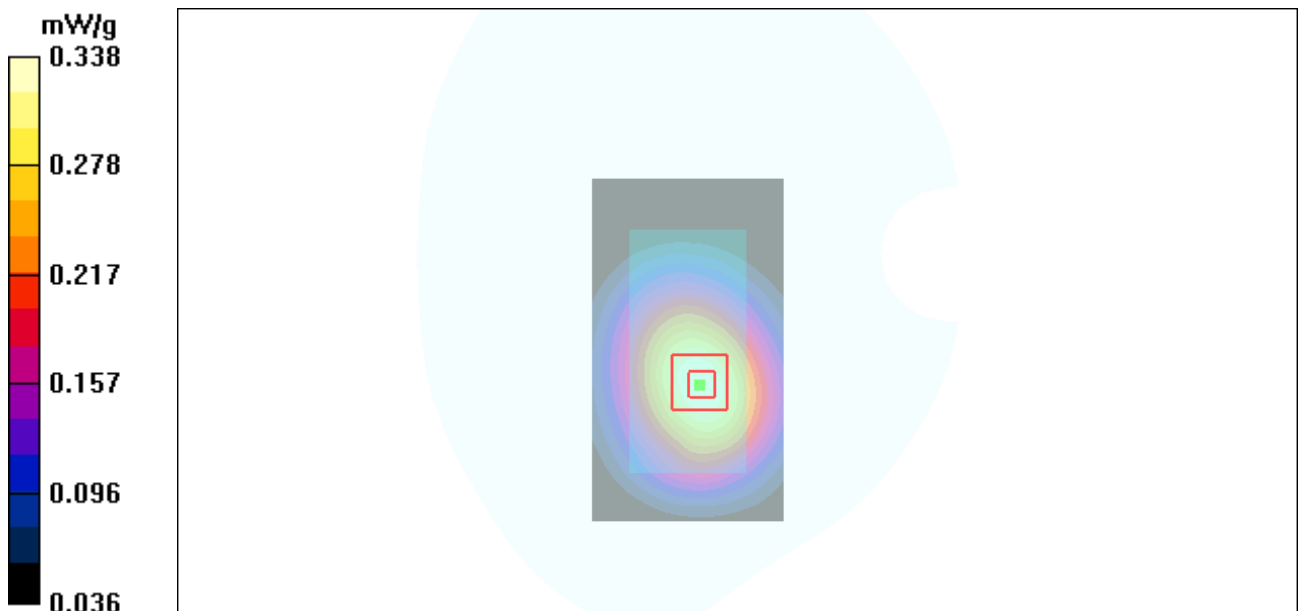
Figure 33 Body, Towards Phantom Slide Close, GSM 850 Channel 190

GSM 850 with Earphone Towards Ground Middle Slide Close

Date/Time: 9/1/2010 9:45:28 PM

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

Medium parameters used: f = 837 MHz; σ = 1 mho/m; ε_r = 54.8; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liqiud Temperature: 21.5℃

Phantom section: Flat Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(9.11, 9.11, 9.11); Calibrated: 9/23/2009

Electronics: DAE4 Sn871; Calibrated: 11/11/2009

Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

Maximum value of SAR (interpolated) = 0.605 mW/g

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

Reference Value = 11.6 V/m; Power Drift = -0.115 dB

Peak SAR (extrapolated) = 0.770 W/kg

SAR(1 g) = 0.557 mW/g; SAR(10 g) = 0.383 mW/g

Maximum value of SAR (measured) = 0.597 mW/g

Figure 34 Body with Earphone, Towards Ground Slide Close, GSM 850 Channel 190

GSM 850 GPRS (2Up) Towards Ground Middle Slide Close

Date/Time: 9/1/2010 10:10:44 PM

Communication System: GSM850 + GPRS(2Up); Frequency: 836.6 MHz;Duty Cycle: 1:4.15

Medium parameters used: f = 837 MHz; σ = 1 mho/m; ε_r = 54.8; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liqiud Temperature: 21.5℃

Phantom section: Flat Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(9.11, 9.11, 9.11); Calibrated: 9/23/2009

Electronics: DAE4 Sn871; Calibrated: 11/11/2009

Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

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

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

Reference Value = 14.9 V/m; Power Drift = -0.060 dB

Peak SAR (extrapolated) = 1.32 W/kg

SAR(1 g) = 0.956 mW/g; SAR(10 g) = 0.657 mW/g

Maximum value of SAR (measured) = 1.02 mW/g
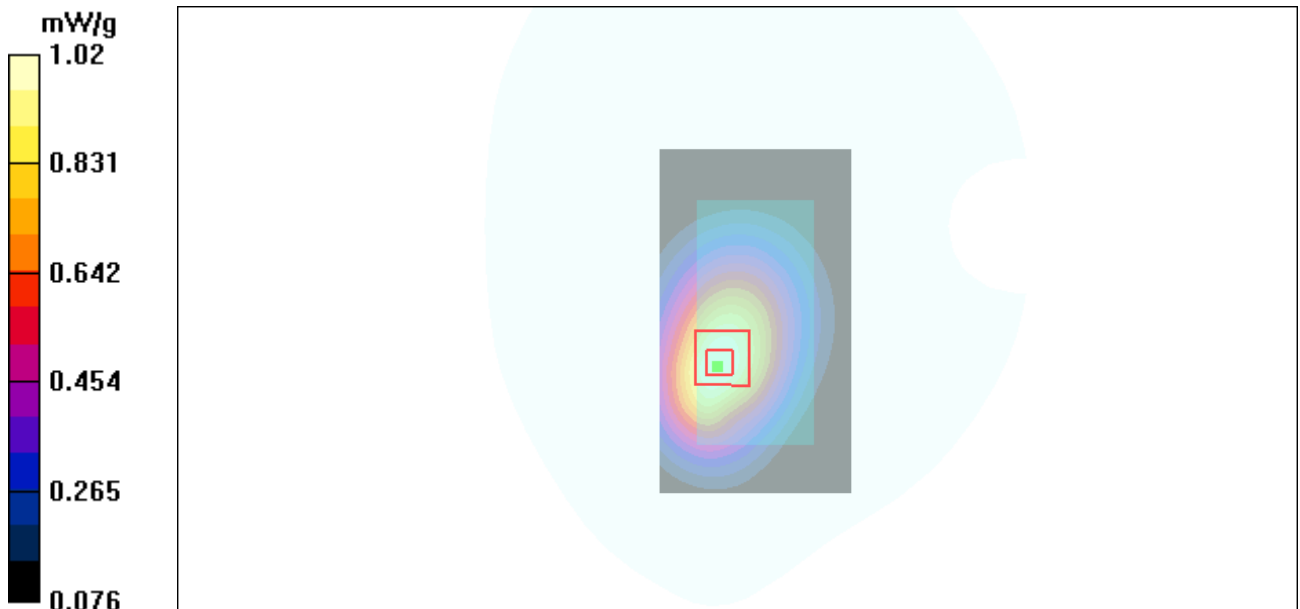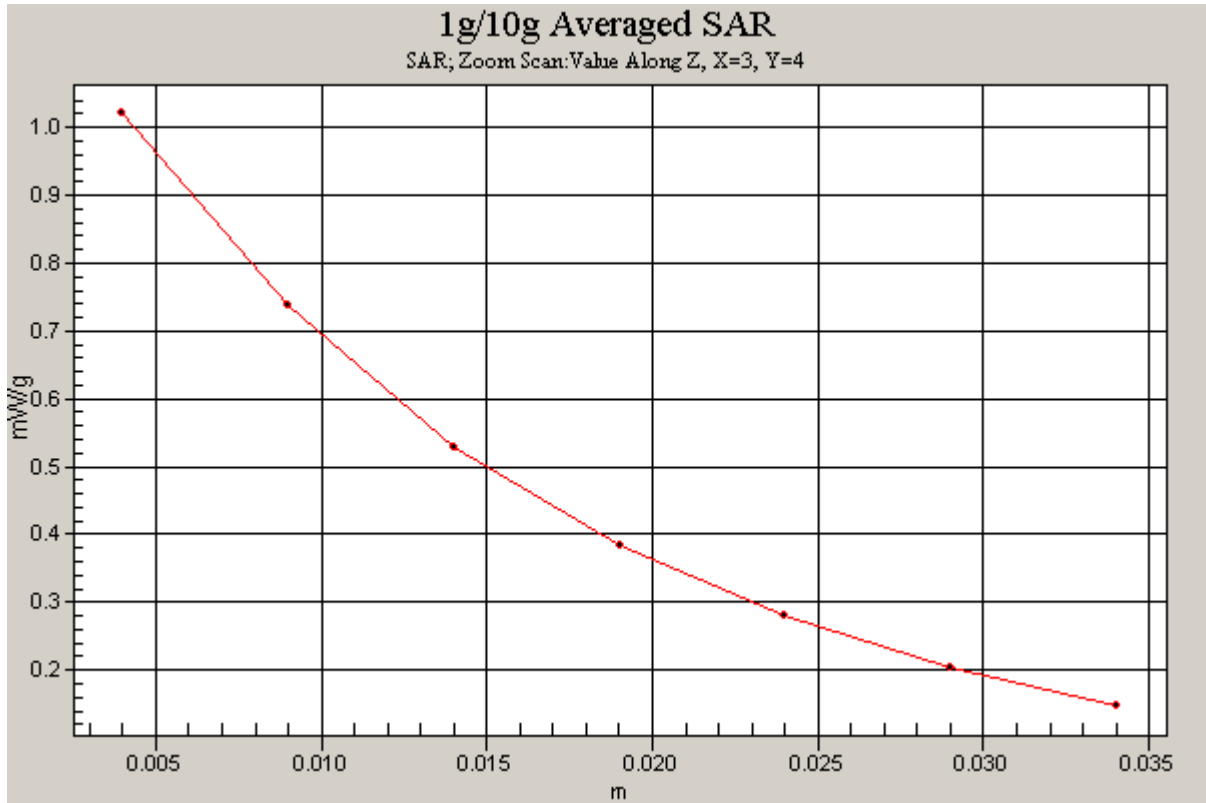
Figure 35 Body, Towards Ground Slide Close, GSM 850 GPRS (2Up) Channel 190

GSM 1900 Left Cheek High Slide Open

Date/Time: 8/29/2010 3:37:06 PM

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

Medium parameters used: f = 1910 MHz; σ = 1.42 mho/m; ε_r = 40.1; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liqiud Temperature: 21.5℃

Phantom section: Left Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.53, 7.53, 7.53); Calibrated: 9/23/2009

Electronics: DAE4 Sn871; Calibrated: 11/11/2009

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

Maximum value of SAR (interpolated) = 0.080 mW/g

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

Reference Value = 1.74 V/m; Power Drift = 0.151 dB

Peak SAR (extrapolated) = 0.112 W/kg

SAR(1 g) = 0.074 mW/g; SAR(10 g) = 0.045 mW/g

Maximum value of SAR (measured) = 0.081 mW/g
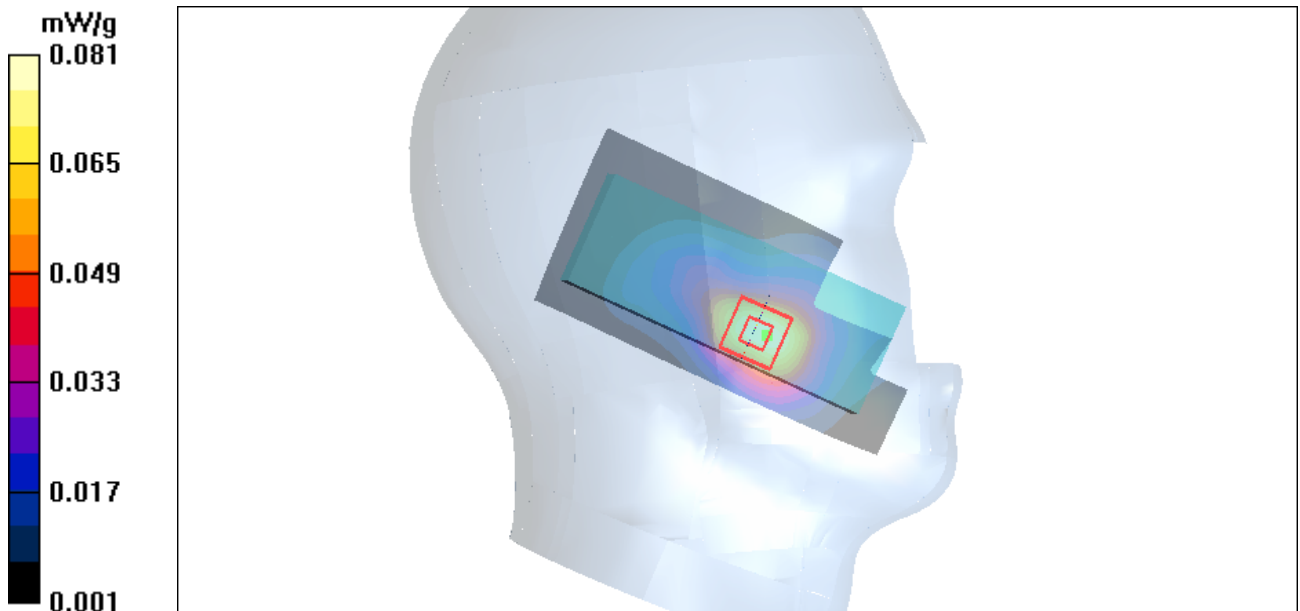
Figure 36 Left Hand Touch Cheek Slide Open, GSM 1900 Channel 810

GSM 1900 Left Cheek Middle Slide Open

Date/Time: 8/29/2010 3:11:39 PM

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

Medium parameters used: f = 1880 MHz; σ = 1.4 mho/m; ε_r = 40.3; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liqiud Temperature: 21.5℃

Phantom section: Left Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.53, 7.53, 7.53); Calibrated: 9/23/2009

Electronics: DAE4 Sn871; Calibrated: 11/11/2009

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

Maximum value of SAR (interpolated) = 0.114 mW/g

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

Reference Value = 2.32 V/m; Power Drift = 0.187 dB

Peak SAR (extrapolated) = 0.157 W/kg

SAR(1 g) = 0.104 mW/g; SAR(10 g) = 0.062 mW/g

Maximum value of SAR (measured) = 0.114 mW/g
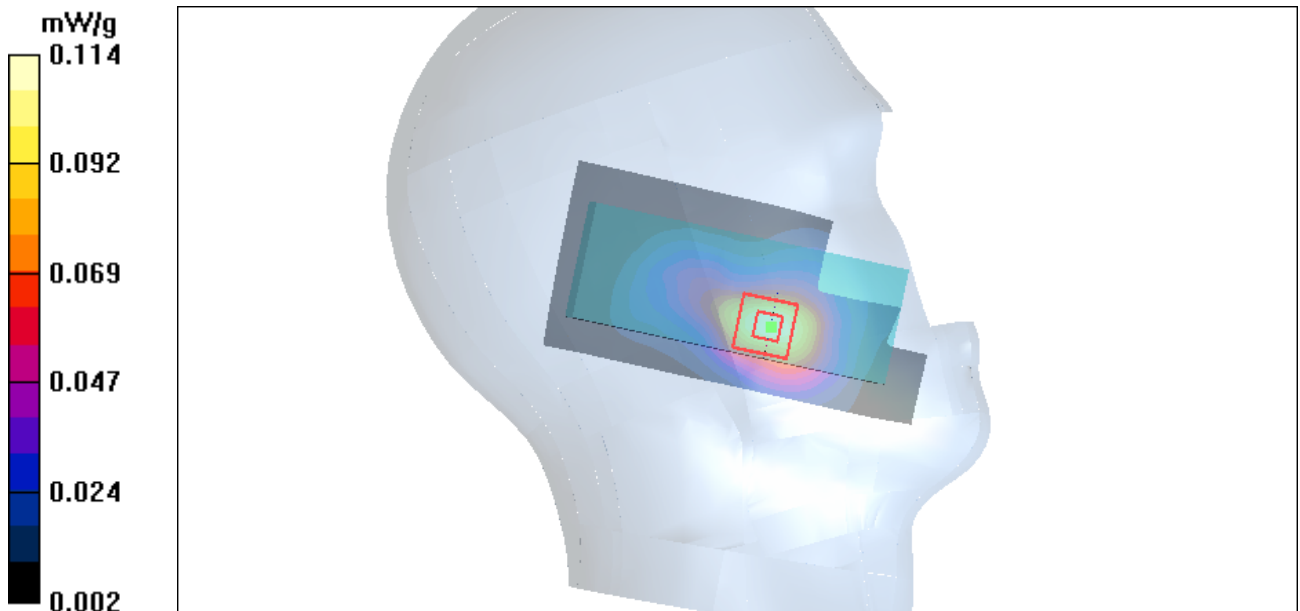
Figure 37 Left Hand Touch Cheek Slide Open, GSM 1900 Channel 661

GSM 1900 Left Cheek Low Slide Open

Date/Time: 8/29/2010 11:43:20 AM

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

Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.37 mho/m; $ε_r$ = 40.3; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liqiud Temperature: 21.5℃

Phantom section: Left Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.53, 7.53, 7.53); Calibrated: 9/23/2009

Electronics: DAE4 Sn871; Calibrated: 11/11/2009

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

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

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

Reference Value = 2.81 V/m; Power Drift = -0.053 dB

Peak SAR (extrapolated) = 0.235 W/kg

SAR(1 g) = 0.156 mW/g; SAR(10 g) = 0.093 mW/g

Maximum value of SAR (measured) = 0.169 mW/g
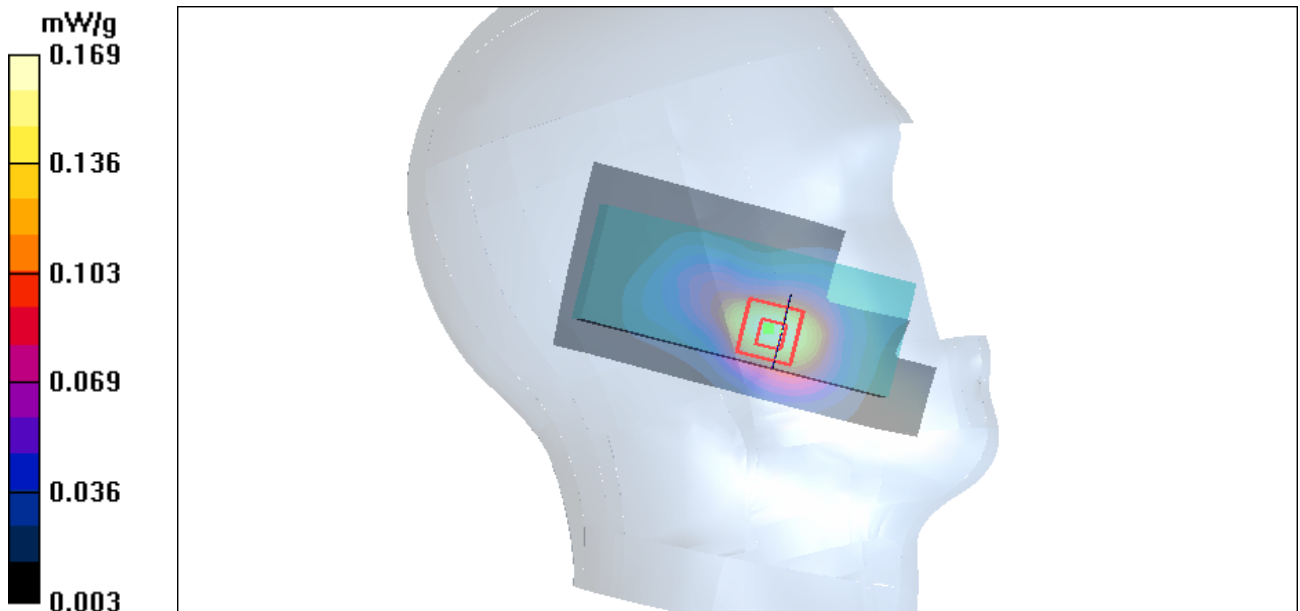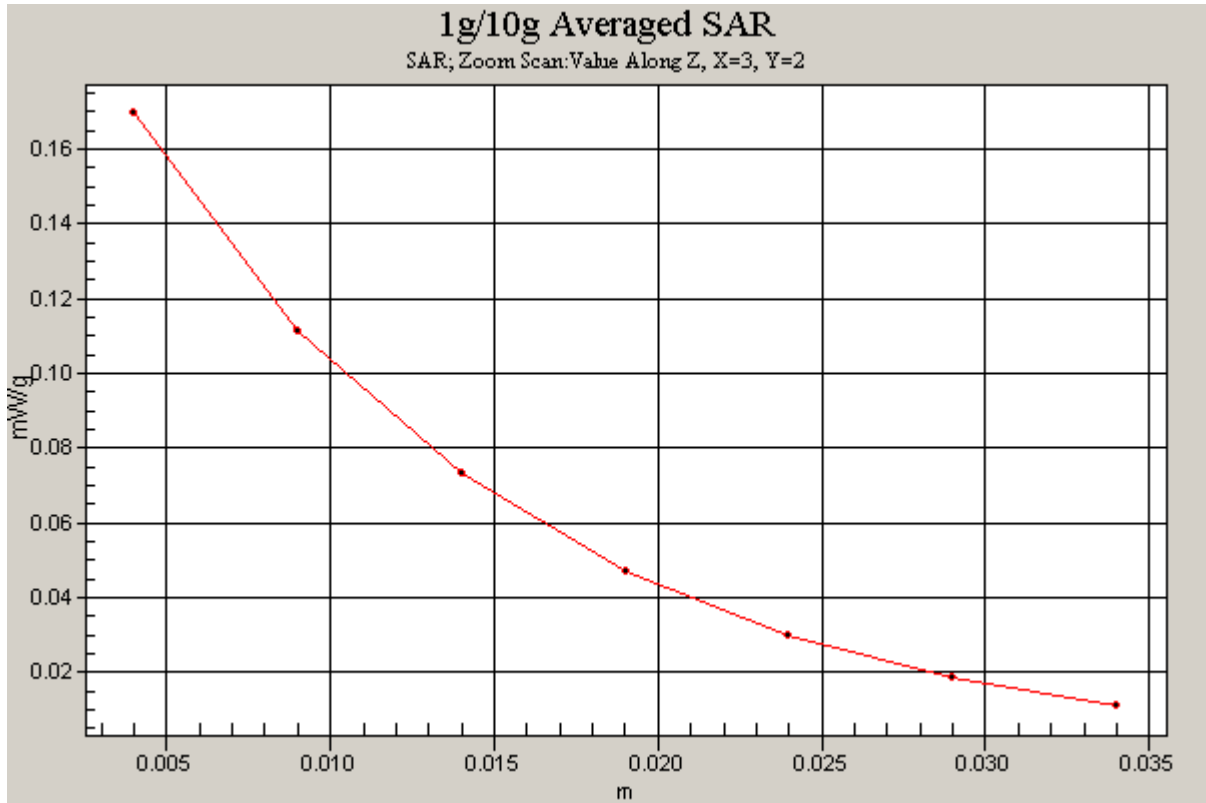
Figure 38 Left Hand Touch Cheek Slide Open, GSM 1900 Channel 512

GSM 1900 Left Tilt Middle Slide Open

Date/Time: 8/29/2010 3:59:26 PM

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

Medium parameters used: f = 1880 MHz; σ = 1.4 mho/m; ε_r = 40.3; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liqiud Temperature: 21.5℃

Phantom section: Left Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.53, 7.53, 7.53); Calibrated: 9/23/2009

Electronics: DAE4 Sn871; Calibrated: 11/11/2009

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

Maximum value of SAR (interpolated) = 0.041 mW/g

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

Reference Value = 3.53 V/m; Power Drift = -0.141 dB

Peak SAR (extrapolated) = 0.056 W/kg

SAR(1 g) = 0.037 mW/g; SAR(10 g) = 0.023 mW/g

Maximum value of SAR (measured) = 0.039 mW/g
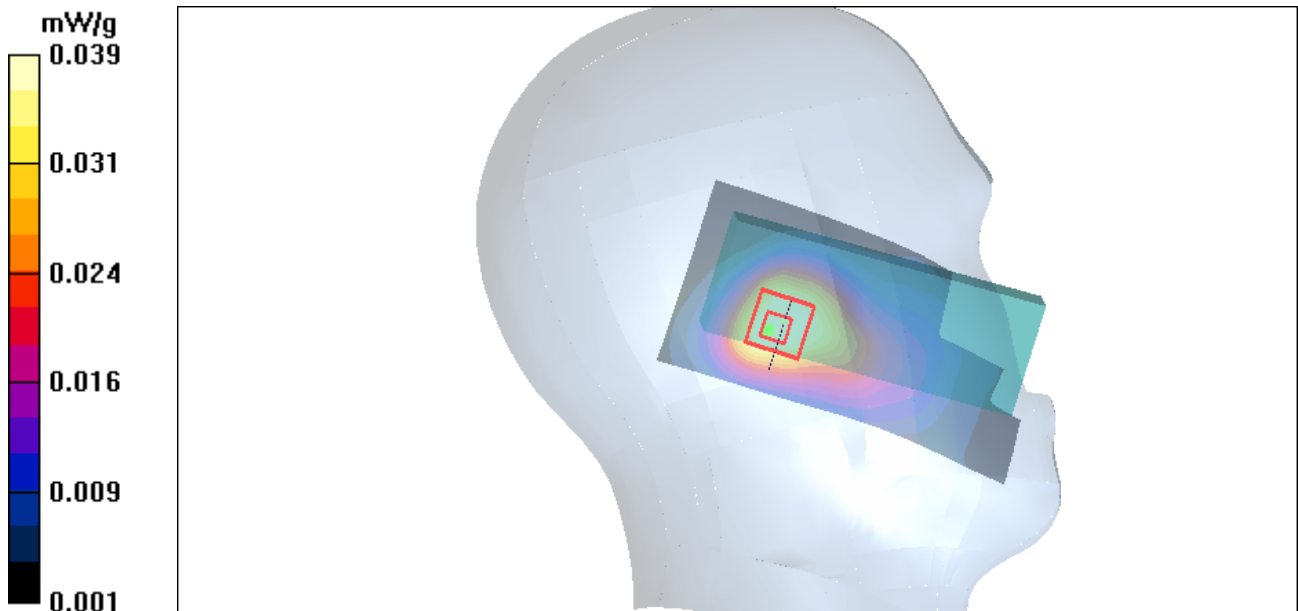
Figure 39 Left Hand Tilt 15° Slide Open, GSM 1900 Channel 661

GSM 1900 Right Cheek Middle Slide Open

Date/Time: 8/29/2010 2:29:38 PM

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

Medium parameters used: f = 1880 MHz; σ = 1.4 mho/m; $ε_r$ = 40.3; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liqiud Temperature: 21.5℃

Phantom section: Right Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.53, 7.53, 7.53); Calibrated: 9/23/2009

Electronics: DAE4 Sn871; Calibrated: 11/11/2009

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

Maximum value of SAR (interpolated) = 0.091 mW/g

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

Reference Value = 4.14 V/m; Power Drift = 0.138 dB

Peak SAR (extrapolated) = 0.124 W/kg

SAR(1 g) = 0.083 mW/g; SAR(10 g) = 0.051 mW/g

Maximum value of SAR (measured) = 0.090 mW/g
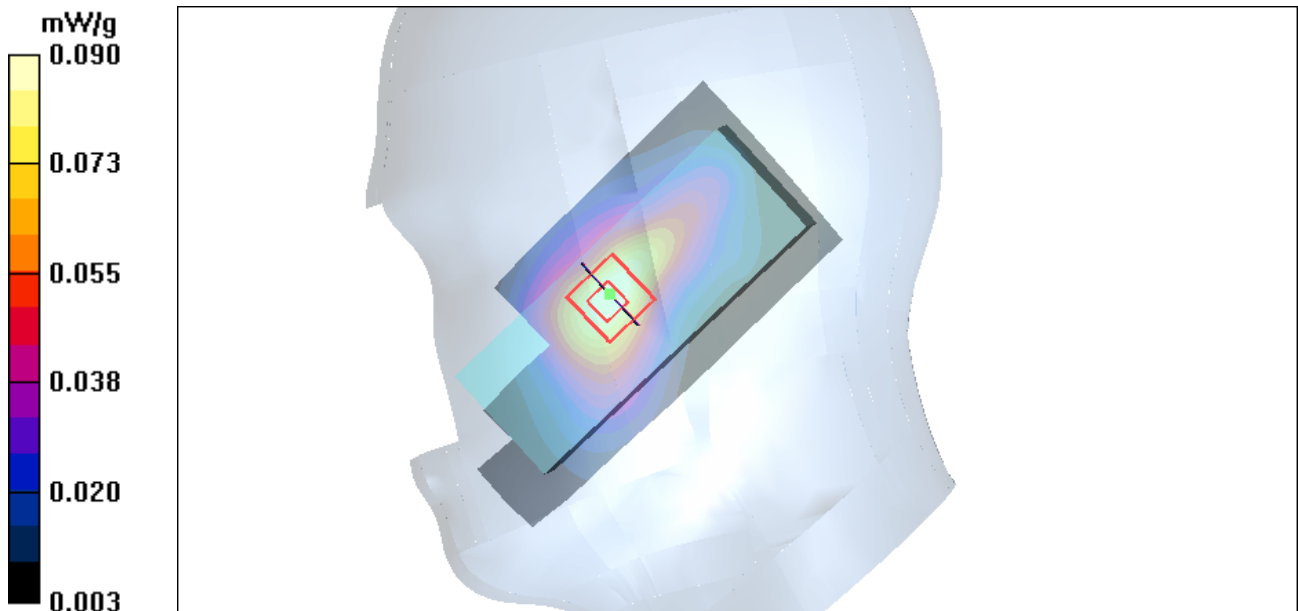
Figure 40 Right Hand Touch Cheek Slide Open, GSM 1900 Channel 661

GSM 1900 Right Tilt Middle Slide Open

Date/Time: 8/29/2010 2:49:43 PM

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

Medium parameters used: f = 1880 MHz; σ = 1.4 mho/m; ε_r = 40.3; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liqiud Temperature: 21.5℃

Phantom section: Right Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.53, 7.53, 7.53); Calibrated: 9/23/2009

Electronics: DAE4 Sn871; Calibrated: 11/11/2009

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

Maximum value of SAR (interpolated) = 0.058 mW/g

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

Reference Value = 5.26 V/m; Power Drift = -0.093 dB

Peak SAR (extrapolated) = 0.083 W/kg

SAR(1 g) = 0.053 mW/g; SAR(10 g) = 0.031 mW/g

Maximum value of SAR (measured) = 0.057 mW/g
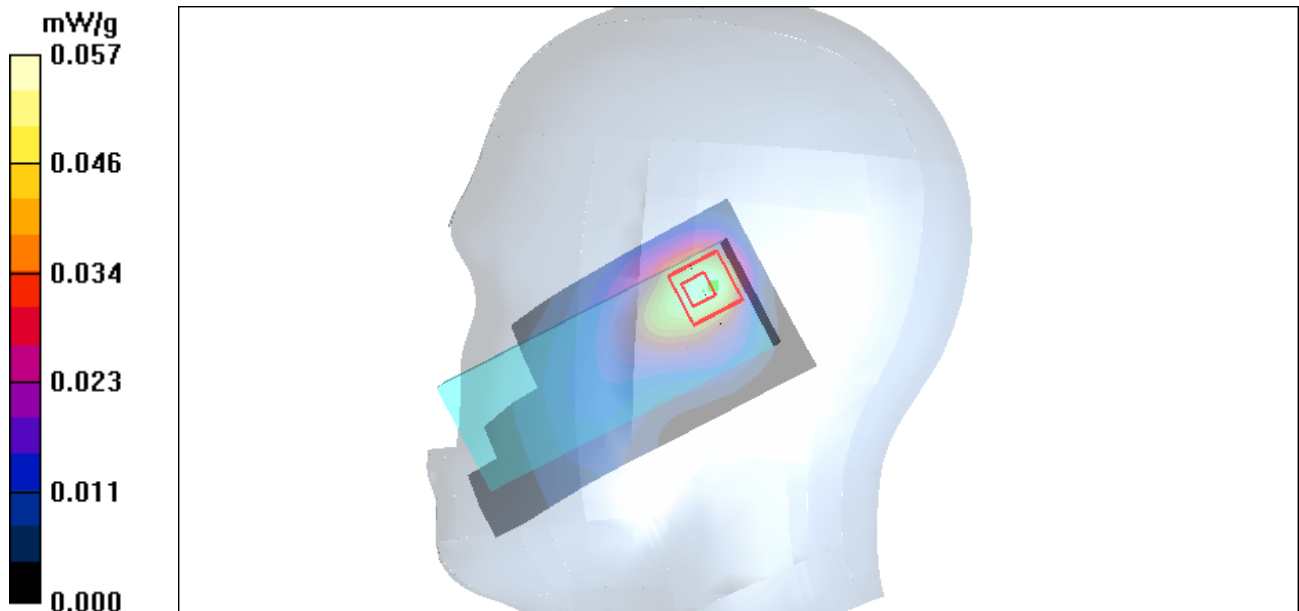
Figure 41 Right Hand Tilt 15° Slide Open, GSM 1900 Channel 661

GSM 1900 Towards Ground High Slide Open

Date/Time: 9/2/2010 9:43:12 AM

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

Medium parameters used: f = 1910 MHz; σ = 1.58 mho/m; ε_r = 53; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liqiud Temperature: 21.5℃

Phantom section: Flat Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.62, 7.62, 7.62); Calibrated: 9/23/2009

Electronics: DAE4 Sn871; Calibrated: 11/11/2009

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

Maximum value of SAR (interpolated) = 0.134 mW/g

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

Reference Value = 2.92 V/m; Power Drift = -0.067 dB

Peak SAR (extrapolated) = 0.209 W/kg

SAR(1 g) = 0.124 mW/g; SAR(10 g) = 0.071 mW/g
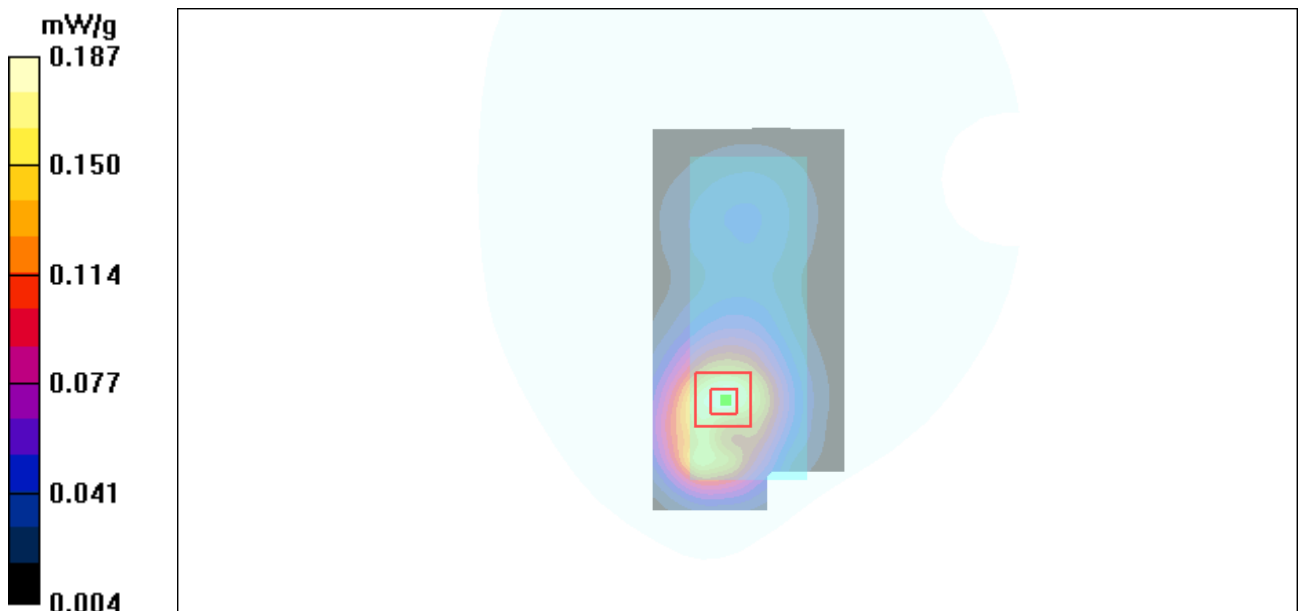
Maximum value of SAR (measured) = 0.136 mW/g
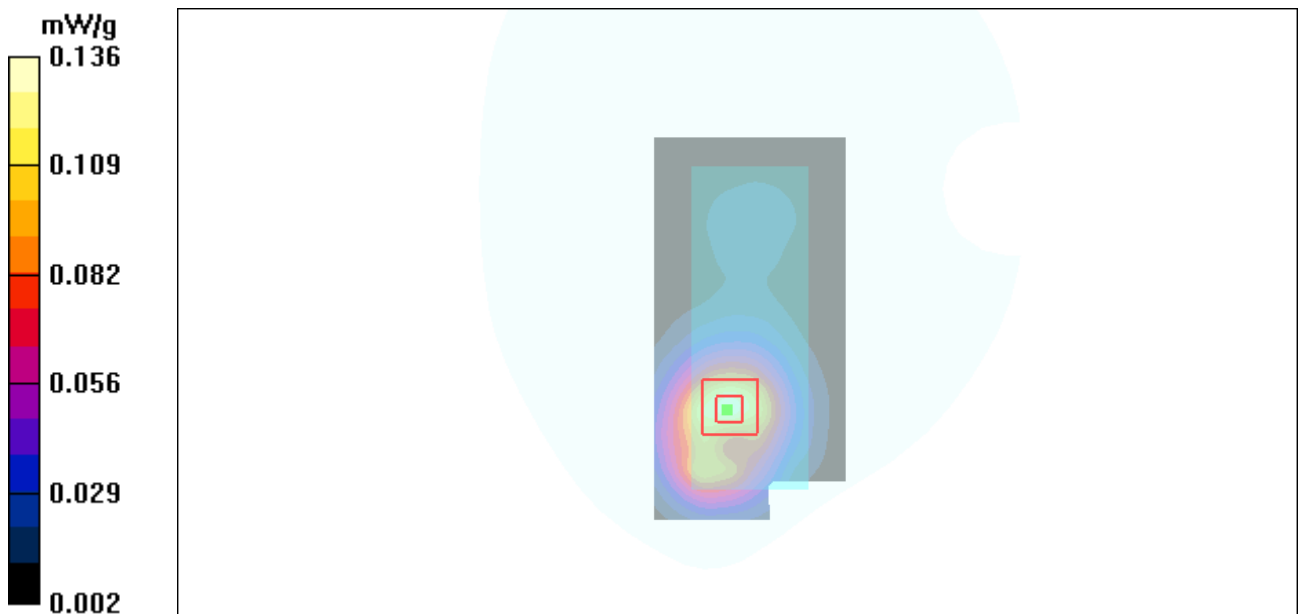
Figure 42 Body, Towards Ground Slide Open, GSM 1900 Channel 810

GSM 1900 Towards Ground Middle Slide Open

Date/Time: 9/2/2010 9:24:37 AM

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

Medium parameters used: f = 1880 MHz; σ = 1.54 mho/m; ε_r = 53.1; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liqiud Temperature: 21.5℃

Phantom section: Flat Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.62, 7.62, 7.62); Calibrated: 9/23/2009

Electronics: DAE4 Sn871; Calibrated: 11/11/2009

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

Maximum value of SAR (interpolated) = 0.156 mW/g

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

Reference Value = 3.69 V/m; Power Drift = -0.189 dB

Peak SAR (extrapolated) = 0.241 W/kg

SAR(1 g) = 0.145 mW/g; SAR(10 g) = 0.083 mW/g
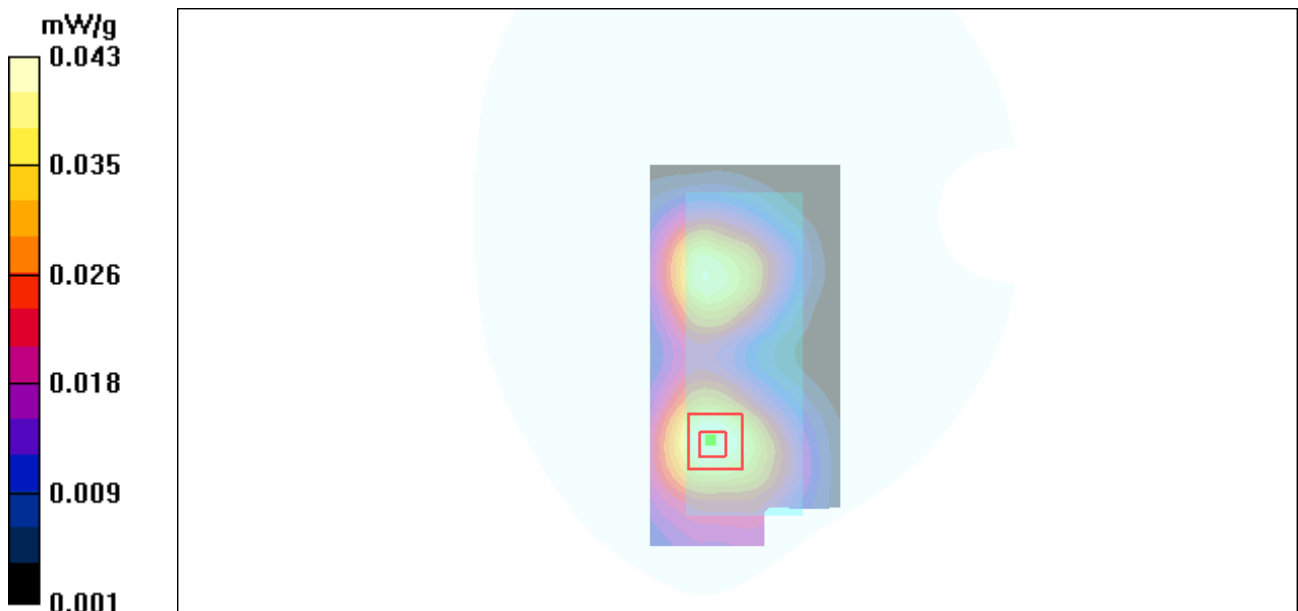
Maximum value of SAR (measured) = 0.159 mW/g
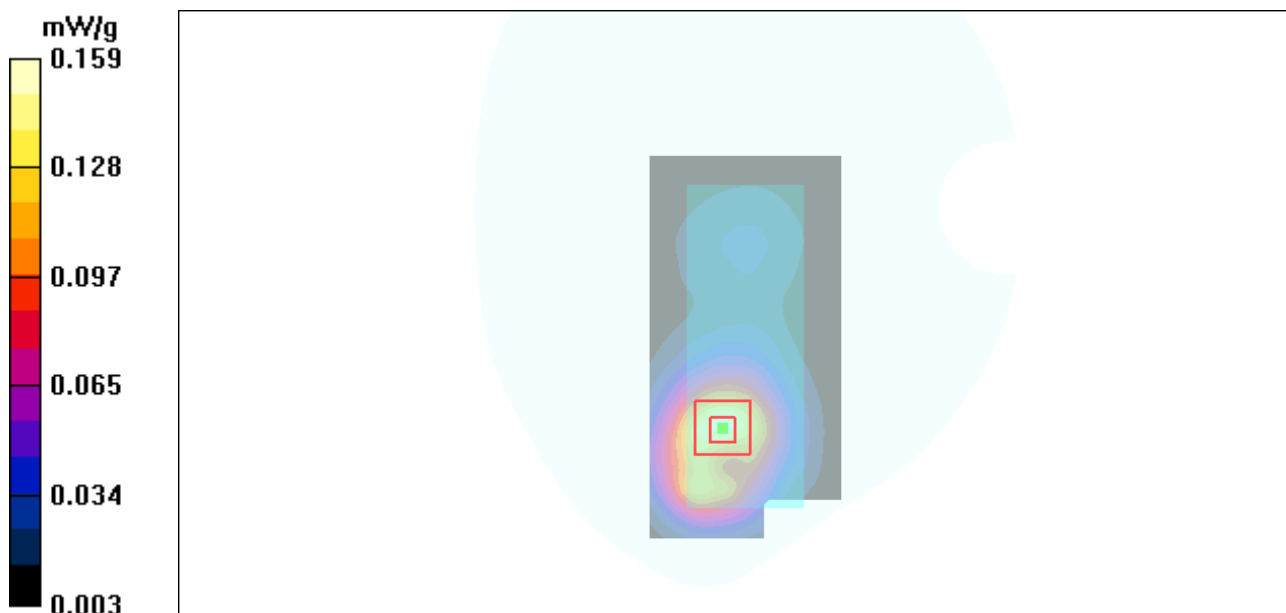
Figure 43 Body, Towards Ground Slide Open, GSM 1900 Channel 661

GSM 1900 Towards Ground Low Slide Open

Date/Time: 9/2/2010 10:01:19 AM

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

Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.51 mho/m; ε_r = 53.1; ρ = 1000 kg/m³

Ambient Temperature:22.3 ℃   Liqiud Temperature: 21.5℃

Phantom section: Flat Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.62, 7.62, 7.62); Calibrated: 9/23/2009

Electronics: DAE4 Sn871; Calibrated: 11/11/2009

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

Maximum value of SAR (interpolated) = 0.190 mW/g

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

Reference Value = 4.63 V/m; Power Drift = -0.012 dB

Peak SAR (extrapolated) = 0.287 W/kg

SAR(1 g) = 0.173 mW/g; SAR(10 g) = 0.101 mW/g

Maximum value of SAR (measured) = 0.187 mW/g

Figure 44 Body, Towards Ground Slide Open, GSM 1900 Channel 512

GSM 1900 Towards Phantom Middle Slide Open

Date/Time: 9/2/2010 10:41:55 AM

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

Medium parameters used: f = 1880 MHz; σ = 1.54 mho/m; ε_r = 53.1; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liqiud Temperature: 21.5℃

Phantom section: Flat Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.62, 7.62, 7.62); Calibrated: 9/23/2009

Electronics: DAE4 Sn871; Calibrated: 11/11/2009

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

Maximum value of SAR (interpolated) = 0.044 mW/g

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

Reference Value = 3.06 V/m; Power Drift = 0.006 dB

Peak SAR (extrapolated) = 0.065 W/kg

SAR(1 g) = 0.041 mW/g; SAR(10 g) = 0.025 mW/g

Maximum value of SAR (measured) = 0.043 mW/g
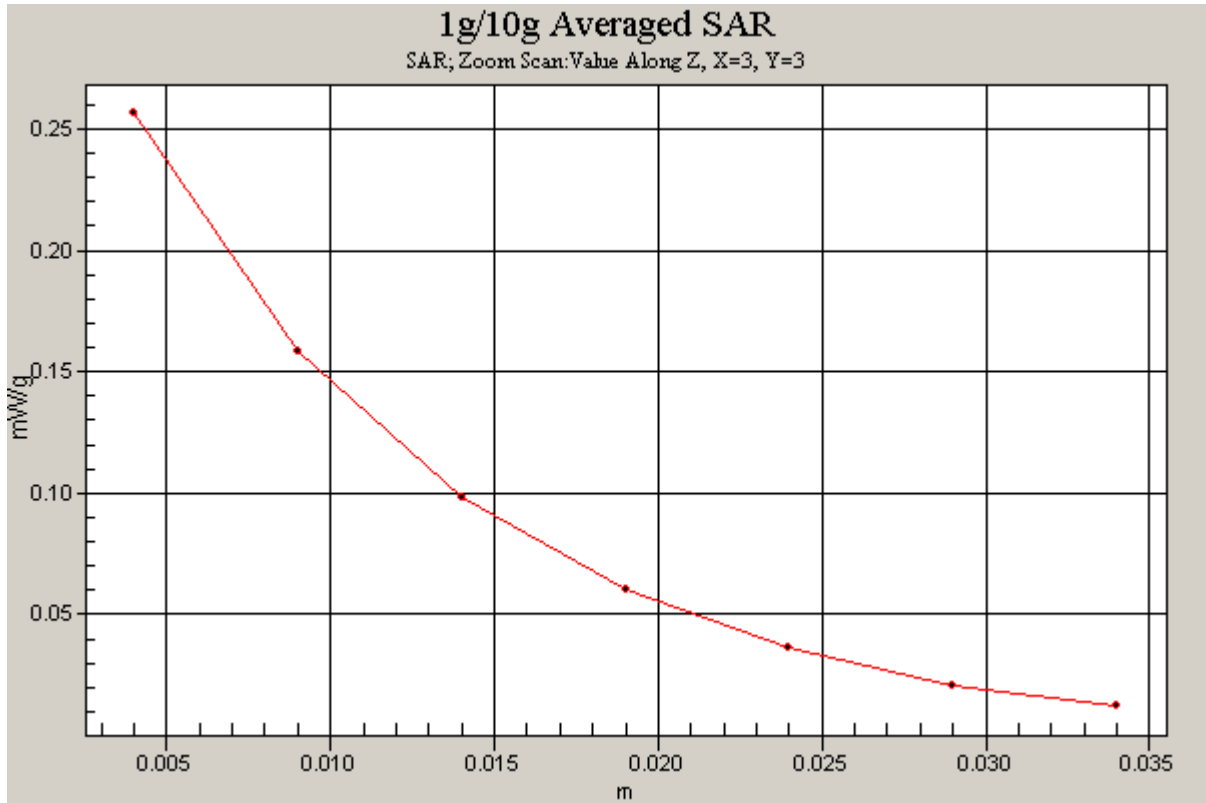

Figure 45 Body, Towards Phantom Slide Open, GSM 1900 Channel 661

GSM 1900 with Earphone Towards Ground Low Slide Open

Date/Time: 9/2/2010 10:20:54 AM

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

Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.51 mho/m; $ε_r$ = 53.1; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃　　　　Liqiud Temperature: 21.5℃

Phantom section: Flat Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.62, 7.62, 7.62); Calibrated: 9/23/2009

Electronics: DAE4 Sn871; Calibrated: 11/11/2009

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

Maximum value of SAR (interpolated) = 0.181 mW/g

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

Reference Value = 4.63 V/m; Power Drift = -0.080 dB

Peak SAR (extrapolated) = 0.272 W/kg

SAR(1 g) = 0.167 mW/g; SAR(10 g) = 0.100 mW/g

Maximum value of SAR (measured) = 0.181 mW/g
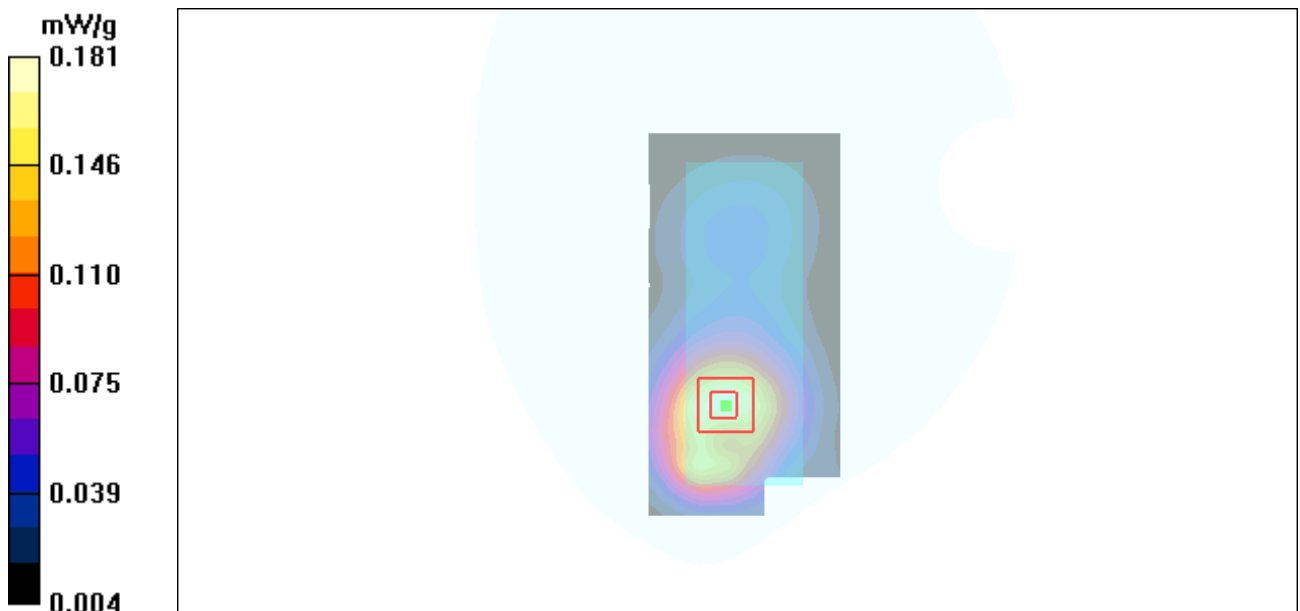

Figure 46 Body with Earphone, Towards Ground Slide Open, GSM 1900 Channel 512

GSM 1900 GPRS (2Up) Towards Ground Low Slide Open

Date/Time: 9/2/2010 10:25:37 PM

Communication System: PCS 1900+GPRS(2Up); Frequency: 1850.2 MHz;Duty Cycle: 1:4.15

Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.51 mho/m; ε_r = 53.1; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liqiud Temperature: 21.5℃

Phantom section: Flat Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.62, 7.62, 7.62); Calibrated: 9/23/2009

Electronics: DAE4 Sn871; Calibrated: 11/11/2009

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

Maximum value of SAR (interpolated) = 0.254 mW/g

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

Reference Value = 5.36 V/m; Power Drift = -0.009 dB

Peak SAR (extrapolated) = 0.397 W/kg

SAR(1 g) = 0.239 mW/g; SAR(10 g) = 0.141 mW/g

Maximum value of SAR (measured) = 0.256 mW/g
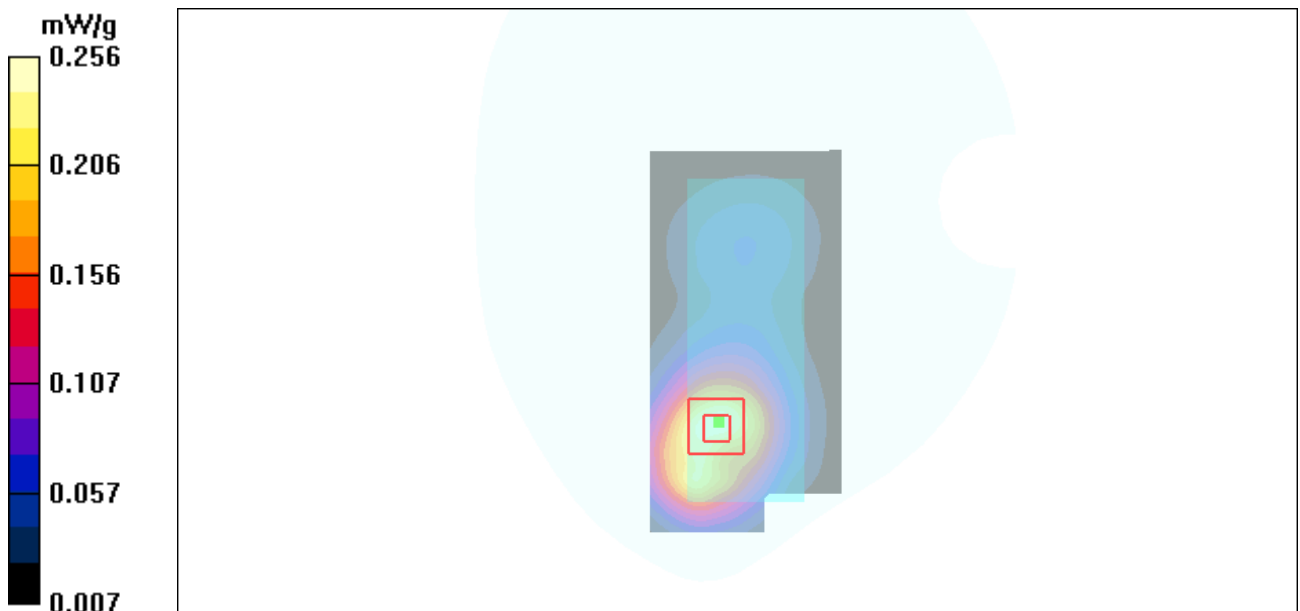
Figure 47 Body, Towards Ground Slide Open, GSM 1900 GPRS (2Up) Channel 512

GSM 1900 Left Cheek High Slide Close

Date/Time: 8/29/2010 10:58:55 AM

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

Medium parameters used: f = 1910 MHz; σ = 1.42 mho/m; ε_r = 40.1; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liqiud Temperature: 21.5℃

Phantom section: Left Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.53, 7.53, 7.53); Calibrated: 9/23/2009

Electronics: DAE4 Sn871; Calibrated: 11/11/2009

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

Maximum value of SAR (interpolated) = 0.135 mW/g

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

Reference Value = 4.13 V/m; Power Drift = -0.029 dB

Peak SAR (extrapolated) = 0.191 W/kg

SAR(1 g) = 0.120 mW/g; SAR(10 g) = 0.070 mW/g
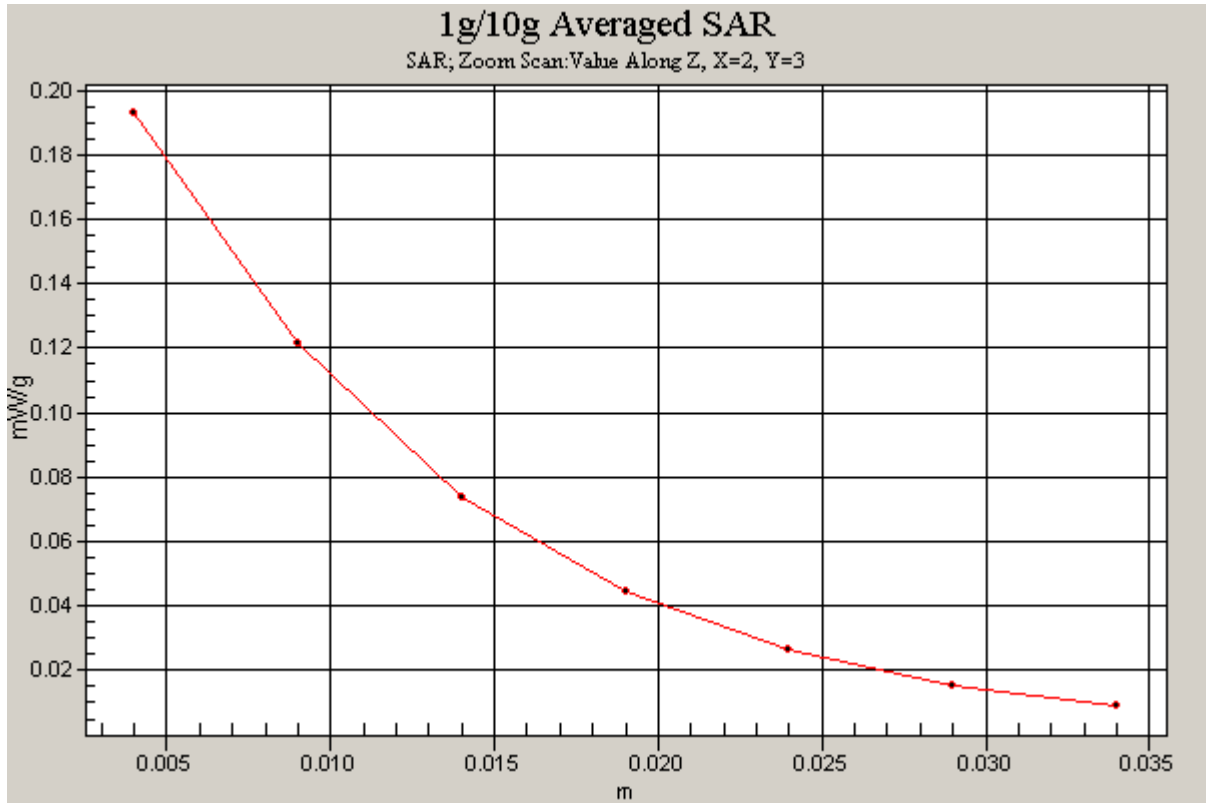
Maximum value of SAR (measured) = 0.134 mW/g
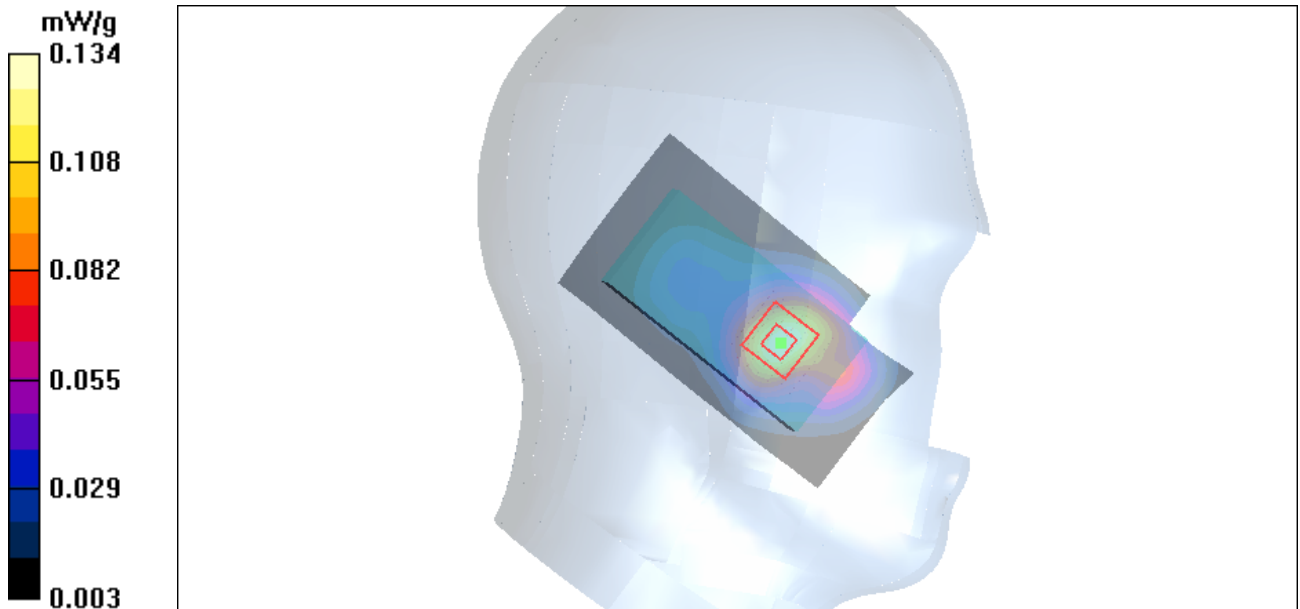
Figure 48 Left Hand Touch Cheek Slide Close, GSM 1900 Channel 810

GSM 1900 Left Cheek Middle Slide Close

Date/Time: 8/29/2010 10:10:06 PM

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

Medium parameters used: f = 1880 MHz; σ = 1.4 mho/m; ε_r = 40.3; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liqiud Temperature: 21.5℃

Phantom section: Left Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.53, 7.53, 7.53); Calibrated: 9/23/2009

Electronics: DAE4 Sn871; Calibrated: 11/11/2009

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

Maximum value of SAR (interpolated) = 0.148 mW/g

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

Reference Value = 4.45 V/m; Power Drift = -0.068 dB

Peak SAR (extrapolated) = 0.199 W/kg

SAR(1 g) = 0.133 mW/g; SAR(10 g) = 0.079 mW/g

Maximum value of SAR (measured) = 0.147 mW/g
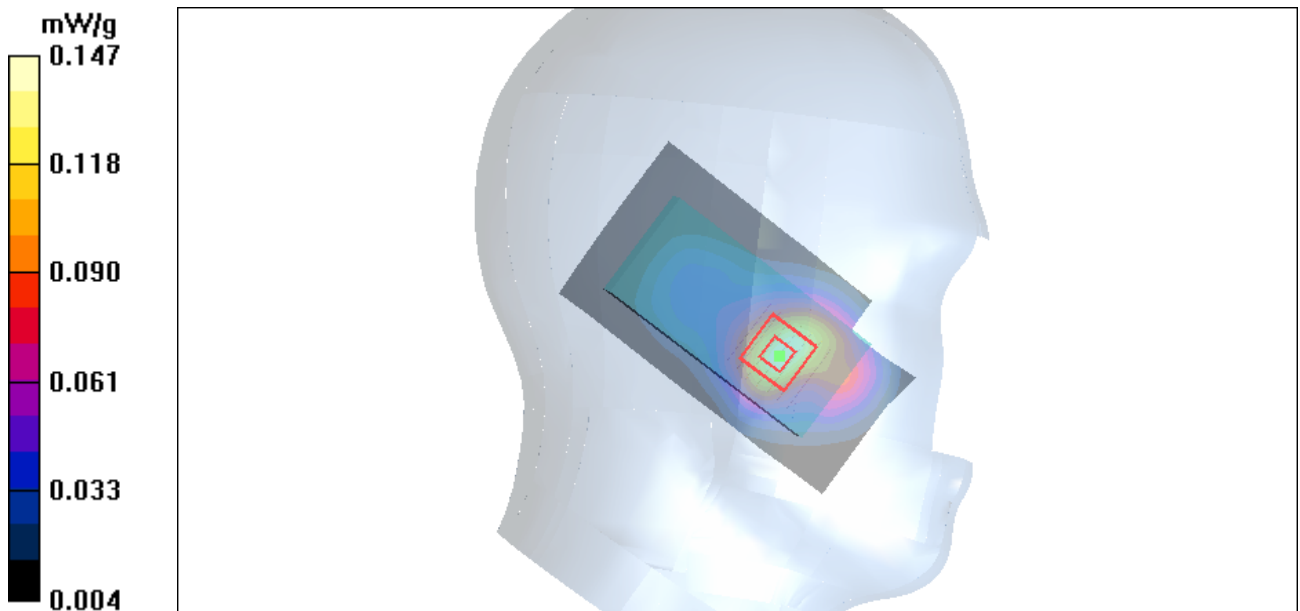
Figure 49 Left Hand Touch Cheek Slide Close, GSM 1900 Channel 661

GSM 1900 Left Cheek Low Slide Close

Date/Time: 8/29/2010 10:37:40 AM

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

Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.37 mho/m; ε_r = 40.3; ρ = 1000 kg/m³

Ambient Temperature:22.3 ℃   Liqiud Temperature: 21.5℃

Phantom section: Left Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.53, 7.53, 7.53); Calibrated: 9/23/2009

Electronics: DAE4 Sn871; Calibrated: 11/11/2009

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

Maximum value of SAR (interpolated) = 0.199 mW/g

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

Reference Value = 4.92 V/m; Power Drift = -0.119 dB

Peak SAR (extrapolated) = 0.272 W/kg

SAR(1 g) = 0.176 mW/g; SAR(10 g) = 0.104 mW/g

Maximum value of SAR (measured) = 0.193 mW/g
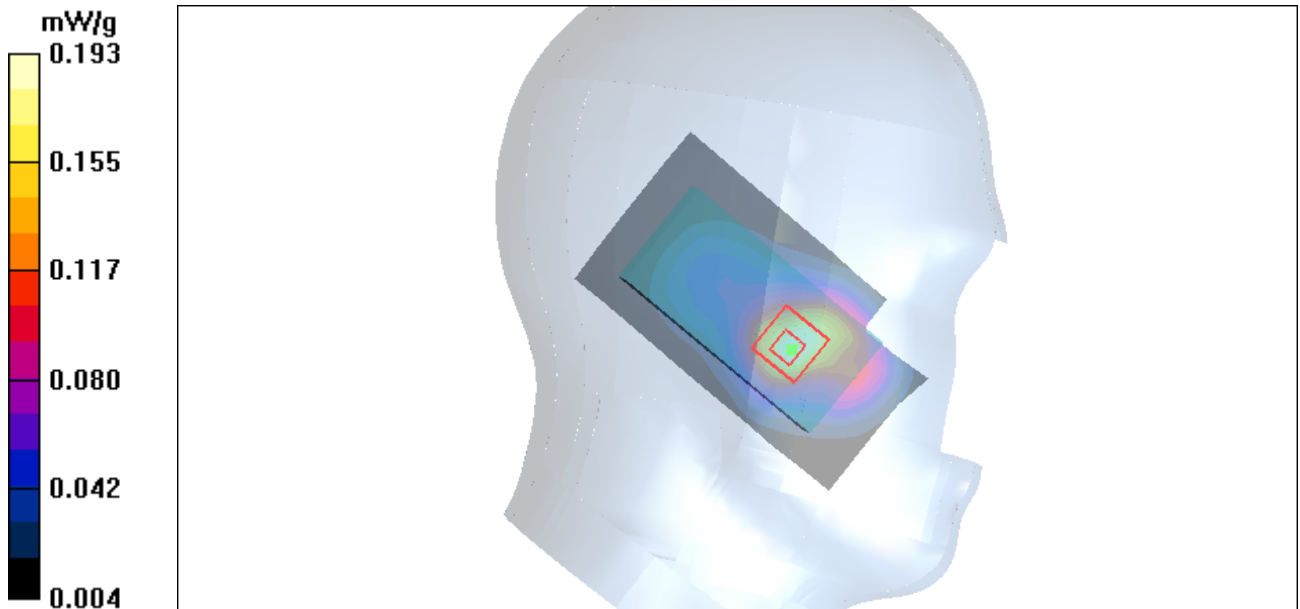
Figure 50 Left Hand Touch Cheek Slide Close, GSM 1900 Channel 512

GSM 1900 Left Tilt Middle Slide Close

Date/Time: 8/29/2010 10:33:06 PM

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

Medium parameters used: f = 1880 MHz; σ = 1.4 mho/m; $ε_r$ = 40.3; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liqiud Temperature: 21.5℃

Phantom section: Left Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.53, 7.53, 7.53); Calibrated: 9/23/2009

Electronics: DAE4 Sn871; Calibrated: 11/11/2009

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

Maximum value of SAR (interpolated) = 0.042 mW/g

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

Reference Value = 4.96 V/m; Power Drift = -0.185 dB

Peak SAR (extrapolated) = 0.057 W/kg

SAR(1 g) = 0.037 mW/g; SAR(10 g) = 0.023 mW/g

Maximum value of SAR (measured) = 0.040 mW/g
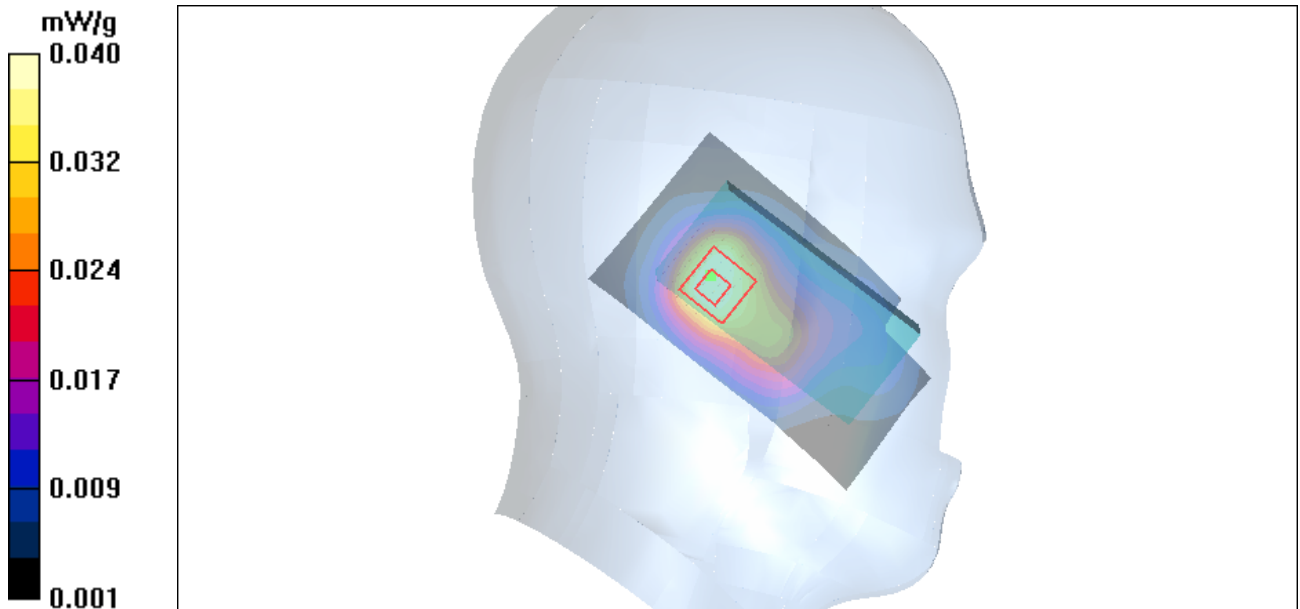
Figure 51 Left Hand Tilt 15° Slide Close, GSM 1900 Channel 661

GSM 1900 Right Cheek Middle Slide Close

Date/Time: 8/29/2010 10:53:28 PM

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

Medium parameters used: f = 1880 MHz; σ = 1.4 mho/m; ε_r = 40.3; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liqiud Temperature: 21.5℃

Phantom section: Right Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.53, 7.53, 7.53); Calibrated: 9/23/2009

Electronics: DAE4 Sn871; Calibrated: 11/11/2009

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

Maximum value of SAR (interpolated) = 0.133 mW/g

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

Reference Value = 4.51 V/m; Power Drift = 0.080 dB

Peak SAR (extrapolated) = 0.215 W/kg

SAR(1 g) = 0.125 mW/g; SAR(10 g) = 0.070 mW/g

Maximum value of SAR (measured) = 0.138 mW/g
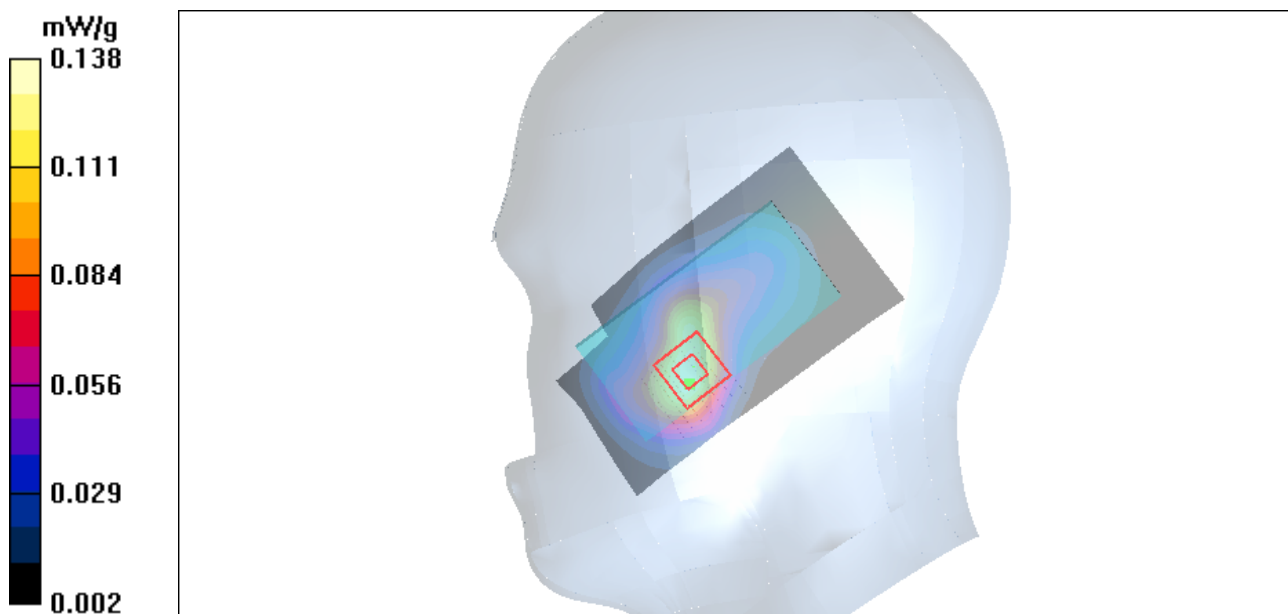
Figure 52 Right Hand Touch Cheek Slide Close, GSM 1900 Channel 661

GSM 1900 Right Tilt Middle Slide Close

Date/Time: 8/29/2010 11:12:41 PM

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

Medium parameters used: f = 1880 MHz; σ = 1.4 mho/m; ε_r = 40.3; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liqiud Temperature: 21.5℃

Phantom section: Right Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.53, 7.53, 7.53); Calibrated: 9/23/2009

Electronics: DAE4 Sn871; Calibrated: 11/11/2009

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

Maximum value of SAR (interpolated) = 0.053 mW/g

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

Reference Value = 5.53 V/m; Power Drift = -0.049 dB

Peak SAR (extrapolated) = 0.072 W/kg

SAR(1 g) = 0.047 mW/g; SAR(10 g) = 0.028 mW/g

Maximum value of SAR (measured) = 0.050 mW/g
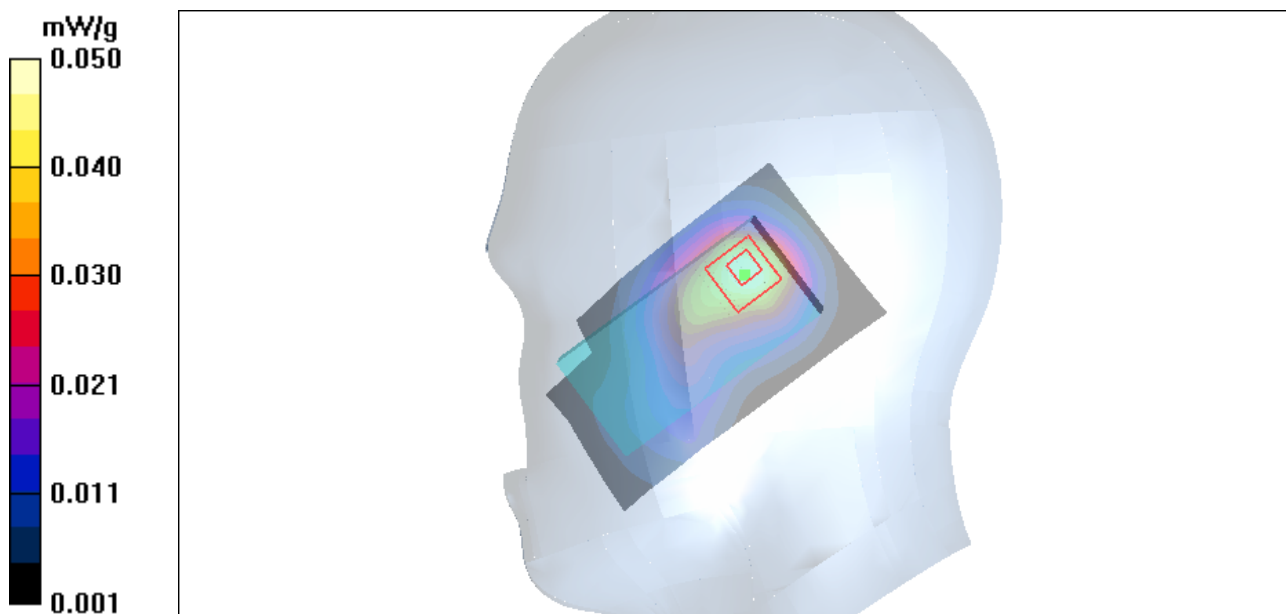
Figure 53 Right Hand Tilt 15° Slide Close, GSM 1900 Channel 661

GSM 1900 Towards Ground High Slide Close

Date/Time: 9/2/2010 11:18:38 PM

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

Medium parameters used: f = 1910 MHz; σ = 1.58 mho/m; ε_r = 53; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liqiud Temperature: 21.5℃

Phantom section: Flat Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.62, 7.62, 7.62); Calibrated: 9/23/2009

Electronics: DAE4 Sn871; Calibrated: 11/11/2009

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

Maximum value of SAR (interpolated) = 0.084 mW/g

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

Reference Value = 3.01 V/m; Power Drift = -0.029 dB

Peak SAR (extrapolated) = 0.131 W/kg

SAR(1 g) = 0.074 mW/g; SAR(10 g) = 0.043 mW/g

Maximum value of SAR (measured) = 0.081 mW/g
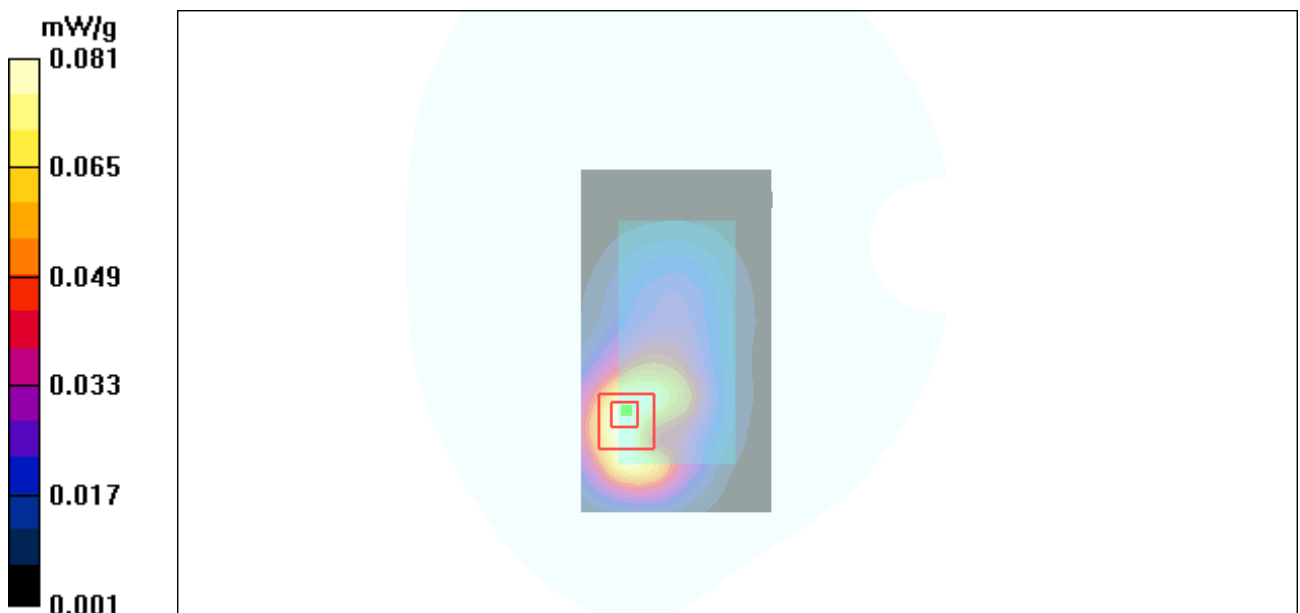
Figure 54 Body, Towards Ground Slide Close, GSM 1900 Channel 810

GSM 1900 Towards Ground Middle Slide Close

Date/Time: 9/2/2010 11:00:14 PM

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

Medium parameters used: f = 1880 MHz; σ = 1.54 mho/m; ε_r = 53.1; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liqiud Temperature: 21.5℃

Phantom section: Flat Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.62, 7.62, 7.62); Calibrated: 9/23/2009

Electronics: DAE4 Sn871; Calibrated: 11/11/2009

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

Maximum value of SAR (interpolated) = 0.104 mW/g

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

Reference Value = 3.32 V/m; Power Drift = -0.105 dB

Peak SAR (extrapolated) = 0.162 W/kg

SAR(1 g) = 0.091 mW/g; SAR(10 g) = 0.053 mW/g
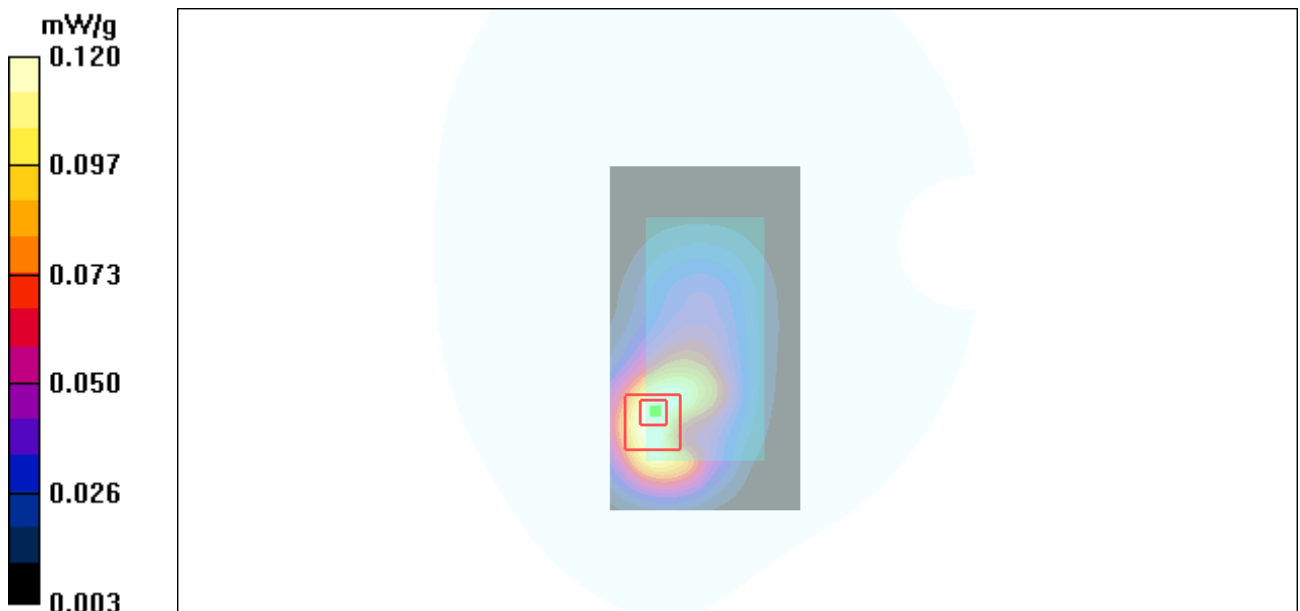
Maximum value of SAR (measured) = 0.099 mW/g
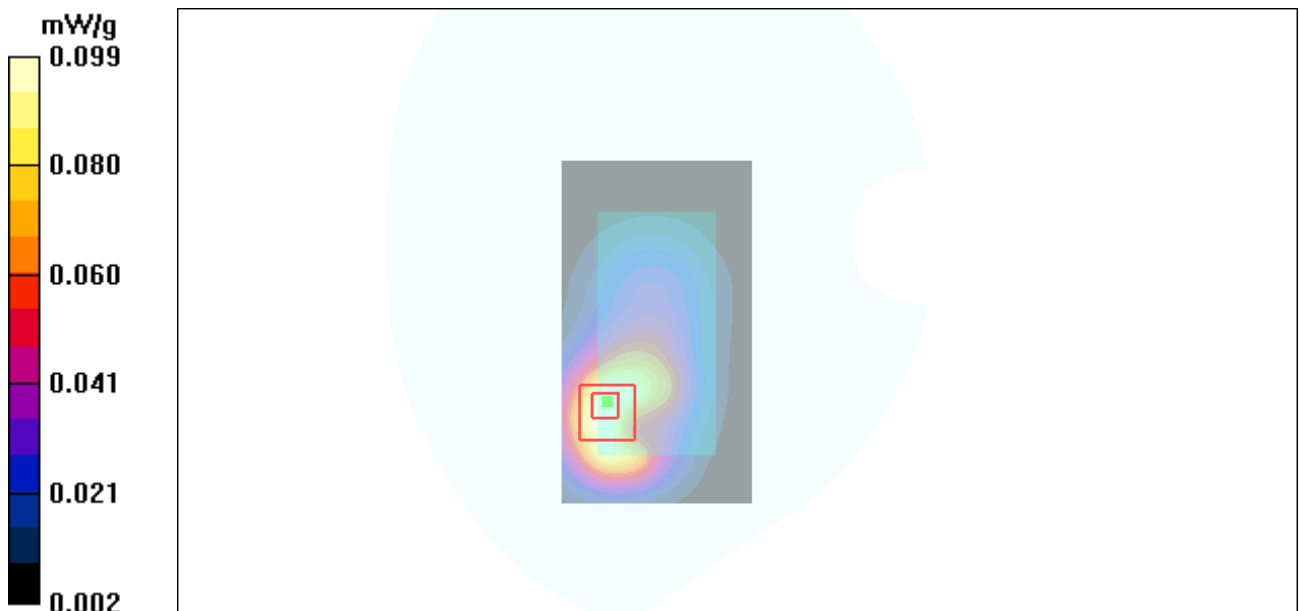
Figure 55 Body, Towards Ground Slide Close, GSM 1900 Channel 661

GSM 1900 Towards Ground Low Slide Close

Date/Time: 9/2/2010 11:36:51 PM

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

Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.51 mho/m; ε_r = 53.1; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liqiud Temperature: 21.5℃

Phantom section: Flat Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.62, 7.62, 7.62); Calibrated: 9/23/2009

Electronics: DAE4 Sn871; Calibrated: 11/11/2009

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

Maximum value of SAR (interpolated) = 0.125 mW/g

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

Reference Value = 3.53 V/m; Power Drift = 0.105 dB

Peak SAR (extrapolated) = 0.198 W/kg

SAR(1 g) = 0.111 mW/g; SAR(10 g) = 0.065 mW/g

Maximum value of SAR (measured) = 0.120 mW/g

Figure 56 Body, Towards Ground Slide Close, GSM 1900 Channel 512

GSM 1900 Towards Phantom Middle Slide Close

Date/Time: 9/2/2010 10:58:37 PM

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

Medium parameters used: f = 1880 MHz; σ = 1.54 mho/m; $ε_r$ = 53.1; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liqiud Temperature: 21.5℃

Phantom section: Flat Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.62, 7.62, 7.62); Calibrated: 9/23/2009

Electronics: DAE4 Sn871; Calibrated: 11/11/2009

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

Maximum value of SAR (interpolated) = 0.026 mW/g

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

Reference Value = 2.66 V/m; Power Drift = 0.024 dB

Peak SAR (extrapolated) = 0.040 W/kg

SAR(1 g) = 0.024 mW/g; SAR(10 g) = 0.015 mW/g

Maximum value of SAR (measured) = 0.026 mW/g
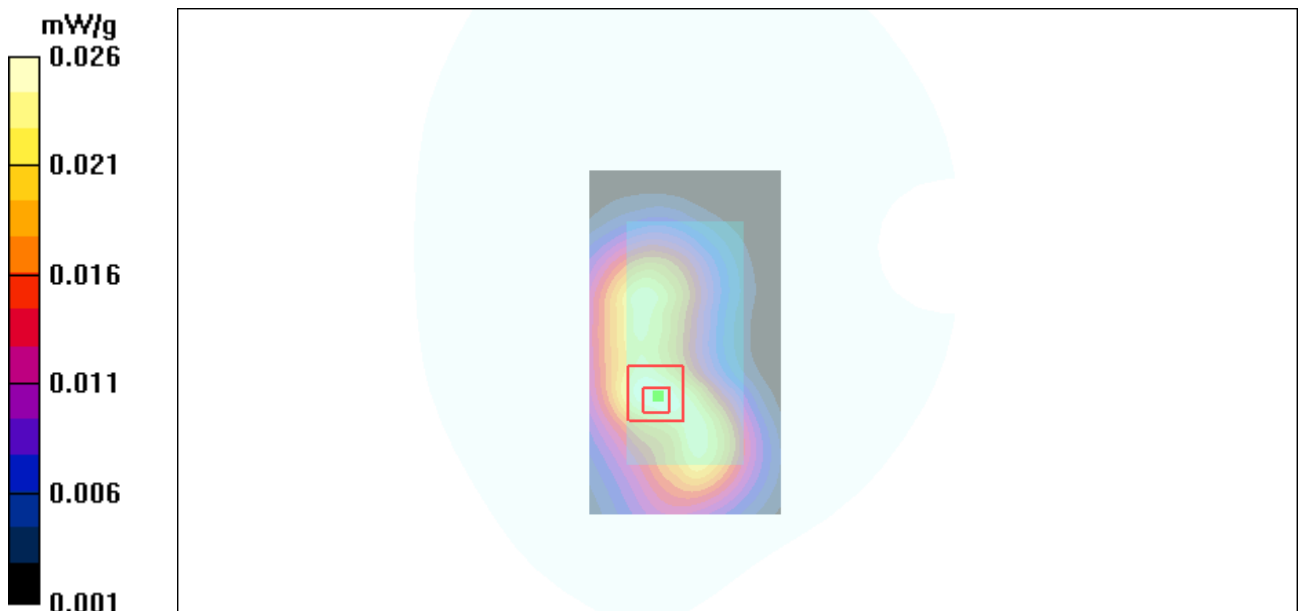
Figure 57 Body, Towards Phantom Slide Close, GSM 1900 Channel 661

GSM 1900 with Earphone Towards Ground Low Slide Close

Date/Time: 9/2/2010 9:30:56 PM

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

Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.51 mho/m; $ε_r$ = 53.1; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liqiud Temperature: 21.5℃

Phantom section: Flat Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.62, 7.62, 7.62); Calibrated: 9/23/2009

Electronics: DAE4 Sn871; Calibrated: 11/11/2009

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

Maximum value of SAR (interpolated) = 0.143 mW/g

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

Reference Value = 3.97 V/m; Power Drift = -0.081 dB

Peak SAR (extrapolated) = 0.216 W/kg

SAR(1 g) = 0.125 mW/g; SAR(10 g) = 0.072 mW/g

Maximum value of SAR (measured) = 0.137 mW/g
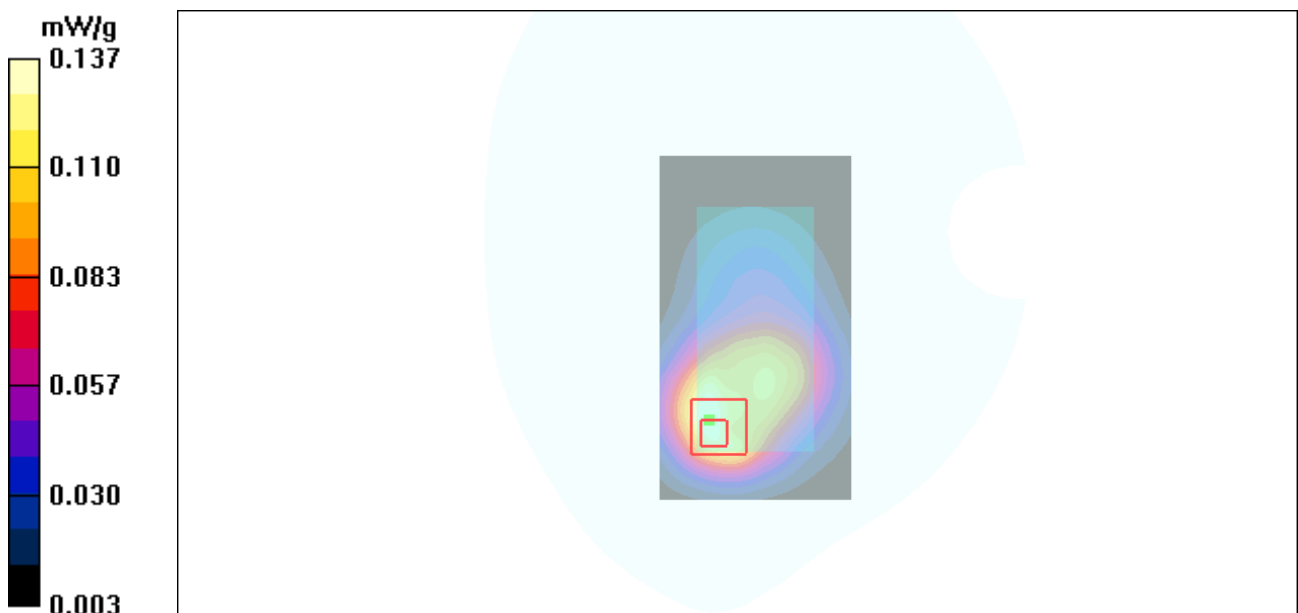
Figure 58 Body with Earphone, Towards Ground Slide Close, GSM 1900 Channel 512

GSM 1900 GPRS (2Up) Towards Ground Low Slide Close

Date/Time: 9/2/2010 10:02:37 PM

Communication System: PCS 1900+GPRS(2Up); Frequency: 1850.2 MHz;Duty Cycle: 1:4.15

Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.51 mho/m; ε_r = 53.1; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liqiud Temperature: 21.5℃

Phantom section: Flat Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.62, 7.62, 7.62); Calibrated: 9/23/2009

Electronics: DAE4 Sn871; Calibrated: 11/11/2009

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

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

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

Reference Value = 4.90 V/m; Power Drift = -0.071 dB

Peak SAR (extrapolated) = 0.384 W/kg

SAR(1 g) = 0.216 mW/g; SAR(10 g) = 0.124 mW/g

Maximum value of SAR (measured) = 0.237 mW/g
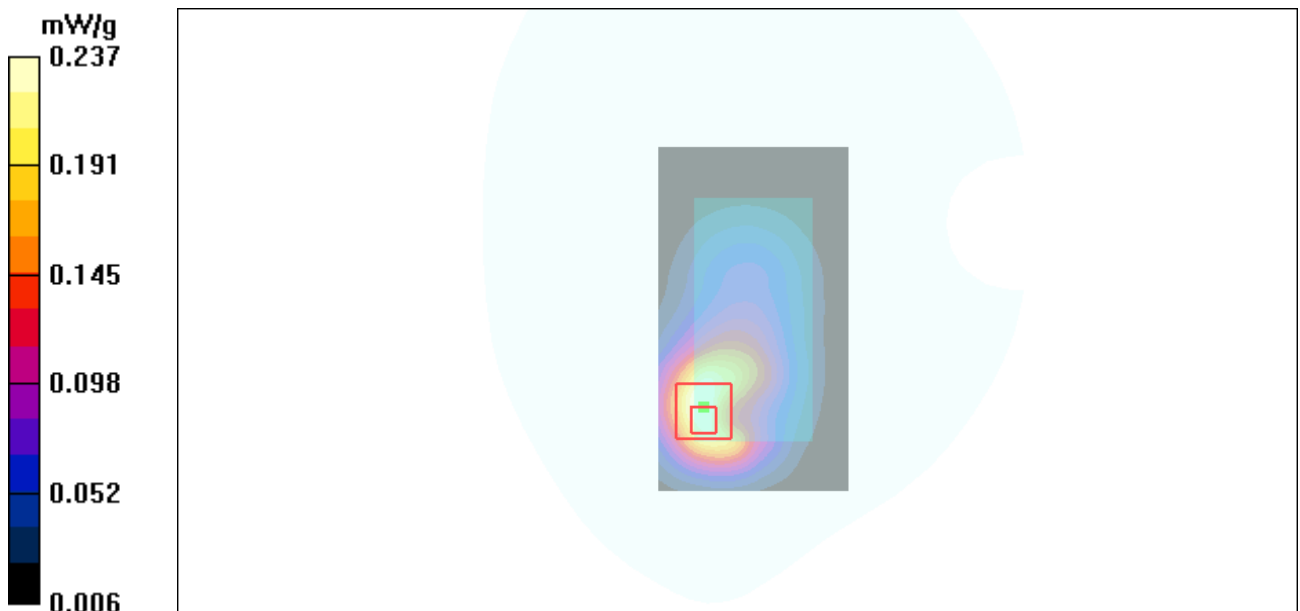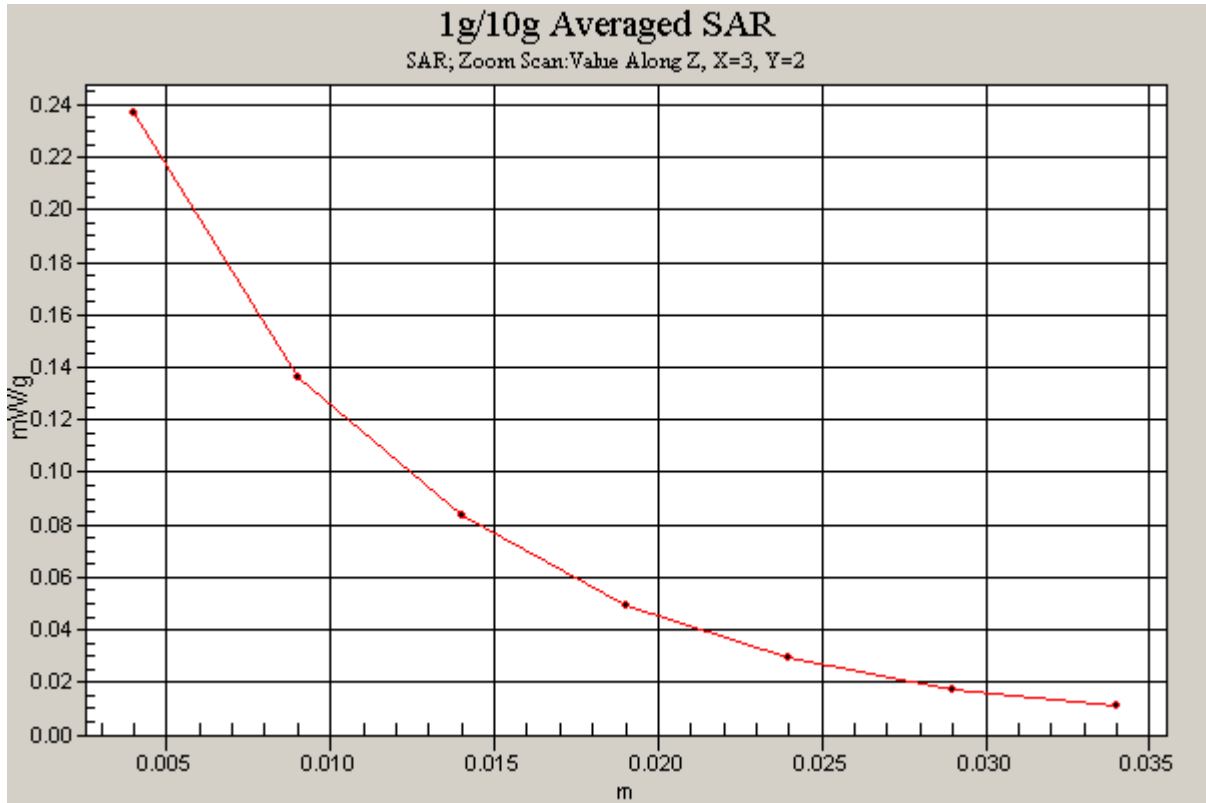
Figure 59 Body, Towards Ground Slide Close, GSM 1900 GPRS (2Up) Channel 512

A310 BT Towards Ground Middle Slide Open

Date/Time: 9/4/2010 6:01:55 PM

Communication System: BT; Frequency: 2441 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 2441 MHz; σ = 1.92 mho/m; ε_r = 51.9; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃   Liqiud Temperature: 21.5℃

Phantom section: Flat Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.28, 7.28, 7.28); Calibrated: 9/23/2009

Electronics: DAE4 Sn871; Calibrated: 11/11/2009

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

Maximum value of SAR (interpolated) = 0.003 mW/g

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

Reference Value = 0.685 V/m; Power Drift = -0.020 dB

Peak SAR (extrapolated) = 0.004 W/kg

SAR(1 g) = 0.0013 mW/g; SAR(10 g) = 0.000823 mW/g

Maximum value of SAR (measured) = 0.002 mW/g
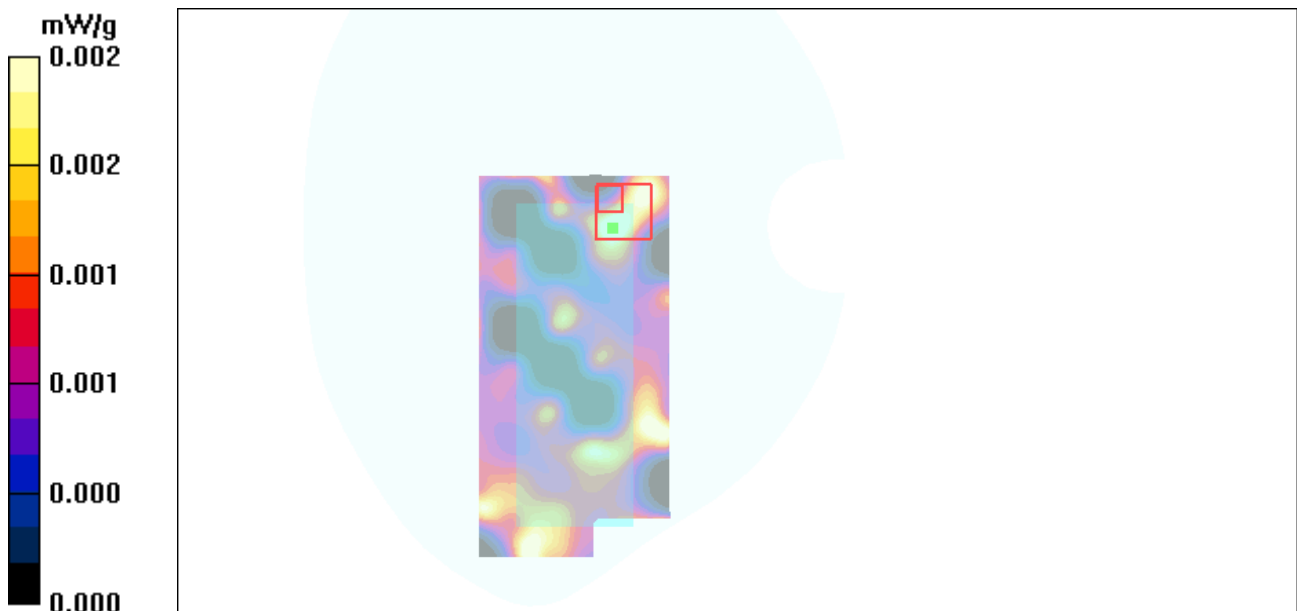
Figure 60 Body, Towards Ground Slide Open, Bluetooth Channel 39

ANNEX D: Probe Calibration Certificate

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

S   Schweizerischer Kalibrierdienst
C   Service suisse d'étalonnage
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S   Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)   Accreditation No.: **SCS 108**
The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Client   **TA (Auden)**   Certificate No: **EX3-3677_Sep09**

CALIBRATION CERTIFICATE

Object	**EX3DV4 - SN:3677**
Calibration procedure(s)	**QA CAL-01.v6, QA CAL-12.v5, QA CAL-23.v3 and QA CAL-25.v2** **Calibration procedure for dosimetric E-field probes**
Calibration date:	**September 23, 2009**
Condition of the calibrated item	**In Tolerance**

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	1-Apr-09 (No. 217-01030)	Apr-10
Power sensor E4412A	MY41495277	1-Apr-09 (No. 217-01030)	Apr-10
Power sensor E4412A	MY41498087	1-Apr-09 (No. 217-01030)	Apr-10
Reference 3 dB Attenuator	SN: S5054 (3c)	31-Mar-09 (No. 217-01026)	Mar-10
Reference 20 dB Attenuator	SN: S5086 (20b)	31-Mar-09 (No. 217-01028)	Mar-10
Reference 30 dB Attenuator	SN: S5129 (30b)	31-Mar-09 (No. 217-01027)	Mar-10
Reference Probe ES3DV2	SN: 3013	2-Jan-09 (No. ES3-3013_Jan09)	Jan-10
DAE4	SN: 660	9-Sep-08 (No. DAE4-660_Sep08)	Sep-09

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

	Name	Function	Signature
Calibrated by:	Claudio Leubler	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: September 23, 2009

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Accreditation No.: SCS 108

Glossary:

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

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003

b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005

Methods Applied and Interpretation of Parameters:

- *NORMx,y,z:* Assessed for E-field polarization θ = 0 (f ≤ 900 MHz in TEM-cell; f > 1800 MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not effect the E^2-field uncertainty inside TSL (see below ConvF).

- *NORM(f)x,y,z = NORMx,y,z * frequency_response* (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of ConvF.

- *DCPx,y,z:* DCP are numerical linearization parameters assessed based on the data of power sweep (no uncertainty required). DCP does not depend on frequency nor media.

- *ConvF and Boundary Effect Parameters:* Assessed in flat phantom using E-field (or Temperature Transfer Standard for f ≤ 800 MHz) and inside waveguide using analytical field distributions based on power measurements for f > 800 MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORMx,y,z * ConvF whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.

- *Spherical isotropy (3D deviation from isotropy):* in a field of low gradients realized using a flat phantom exposed by a patch antenna.

- *Sensor Offset:* The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.

Certificate No: EX3-3677_Sep09   Page 2 of 9

EX3DV4 SN:3677   **September 23, 2009**

Probe EX3DV4

SN:3677

Manufactured: September 9, 2008
Last calibrated: November 7, 2008
Recalibrated: September 23, 2009

Calibrated for DASY Systems

(Note: non-compatible with DASY2 system!)

EX3DV4 SN:3677   **September 23, 2009**

DASY - Parameters of Probe: EX3DV4 SN:3677

Sensitivity in Free Space[A]

NormX	0.42 ± 10.1%	$\mu V/(V/m)^2$
NormY	0.47 ± 10.1%	$\mu V/(V/m)^2$
NormZ	0.40 ± 10.1%	$\mu V/(V/m)^2$

Diode Compression[B]

DCP X	91 mV
DCP Y	92 mV
DCP Z	93 mV

Sensitivity in Tissue Simulating Liquid (Conversion Factors)

Please see Page 8.

Boundary Effect

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

Sensor Center to Phantom Surface Distance		2.0 mm	3.0 mm
SAR_{be} [%]	Without Correction Algorithm	8.2	4.4
SAR_{be} [%]	With Correction Algorithm	0.8	0.5

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

Sensor Center to Phantom Surface Distance		2.0 mm	3.0 mm
SAR_{be} [%]	Without Correction Algorithm	7.5	3.9
SAR_{be} [%]	With Correction Algorithm	0.8	0.4

Sensor Offset

Probe Tip to Sensor Center   **1.0** mm

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

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

[B] Numerical linearization parameter: uncertainty not required.

EX3DV4 SN:3677   **September 23, 2009**

Frequency Response of E-Field

(TEM-Cell:ifi110 EXX, Waveguide: R22)
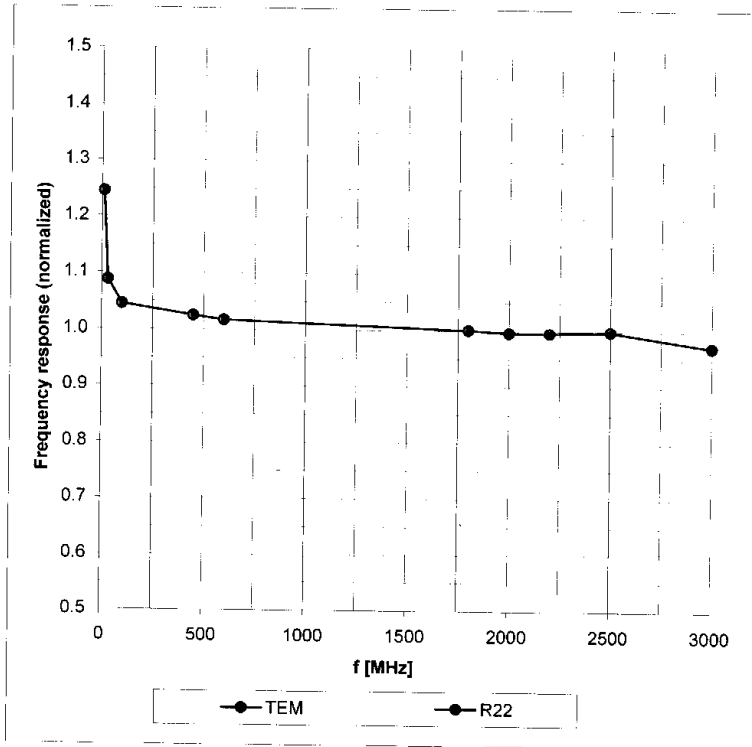
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

EX3DV4 SN:3677   **September 23, 2009**

Receiving Pattern (φ), ϑ = 0°

f = 600 MHz, TEM ifi110EXX

—●—X —●—Y —●—Z —○—Tot

f = 1800 MHz, WG R22

—●—X —●—Y —●—Z —○—Tot

—◇—30 MHz
—■—100 MHz
—◆—600 MHz
—■—1800 MHz
—▲—2500 MHz
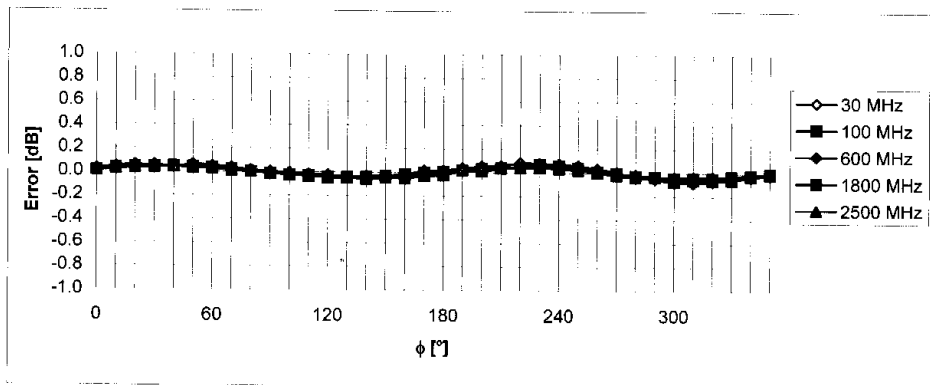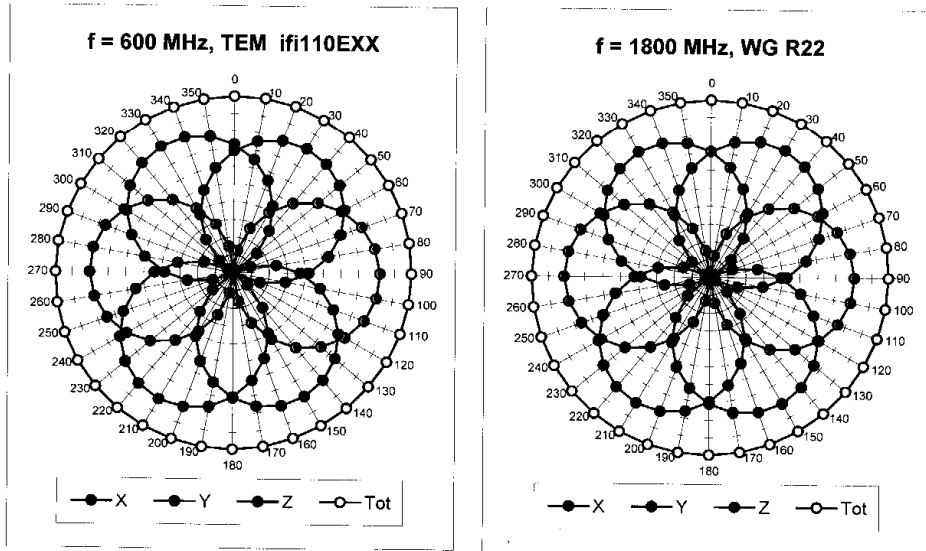
Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

EX3DV4 SN:3677   **September 23, 2009**

Dynamic Range f(SAR$_{head}$)
(Waveguide R22, f = 1800 MHz)

Uncertainty of Linearity Assessment: ± 0.6% (k=2)

EX3DV4 SN:3677   **September 23, 2009**

Conversion Factor Assessment

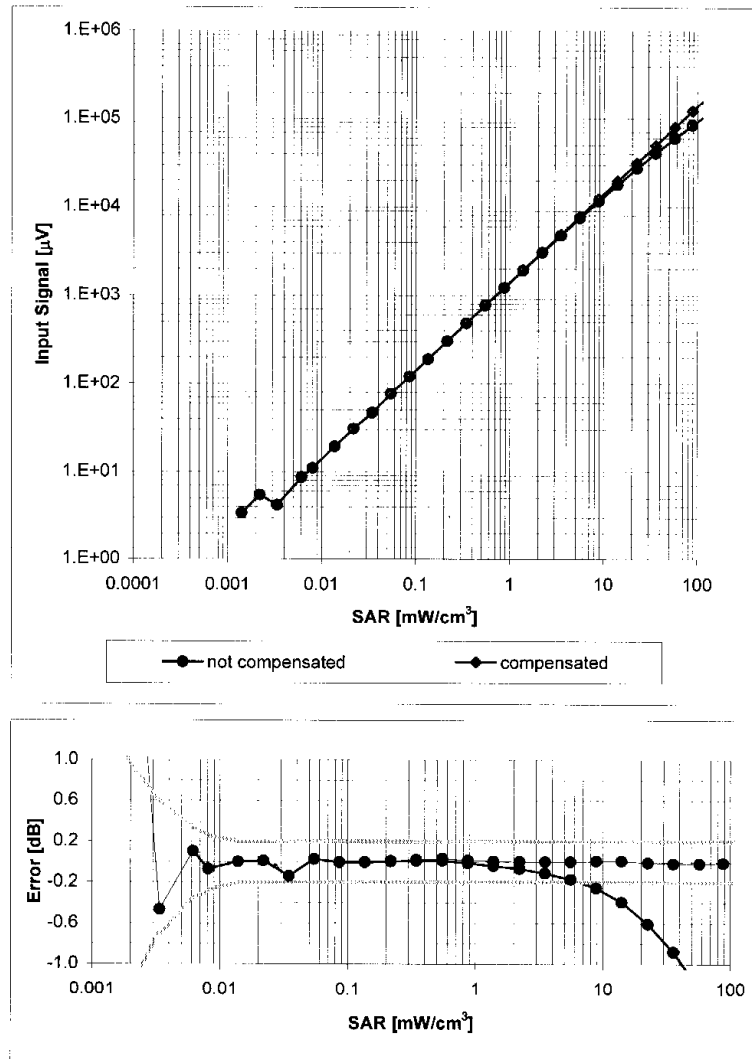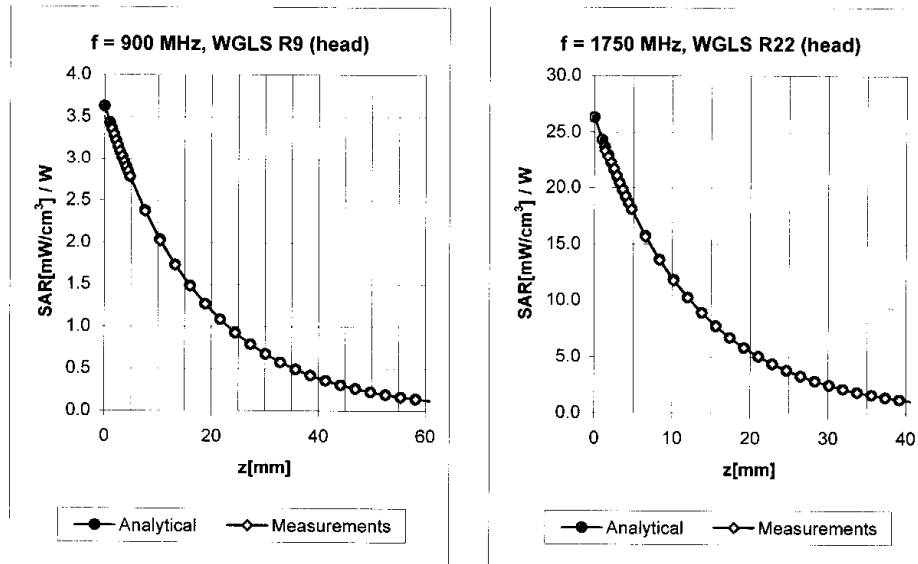| f [MHz]	Validity [MHz]ᶜ	TSL	Permittivity	Conductivity	Alpha	Depth	ConvF	Uncertainty
835	± 50 / ± 100	Head	41.5 ± 5%	0.90 ± 5%	0.68	0.64	9.20	± 11.0% (k=2)
900	± 50 / ± 100	Head	41.5 ± 5%	0.97 ± 5%	0.71	0.62	8.91	± 11.0% (k=2)
1750	± 50 / ± 100	Head	40.1 ± 5%	1.37 ± 5%	0.68	0.62	8.04	± 11.0% (k=2)
1950	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.70	0.60	7.53	± 11.0% (k=2)
450	± 50 / ± 100	Body	56.7 ± 5%	0.94 ± 5%	0.32	0.49	10.43	± 13.3% (k=2)
835	± 50 / ± 100	Body	55.2 ± 5%	0.97 ± 5%	0.54	0.73	9.11	± 11.0% (k=2)
900	± 50 / ± 100	Body	55.0 ± 5%	1.05 ± 5%	0.63	0.71	8.89	± 11.0% (k=2)
1750	± 50 / ± 100	Body	53.4 ± 5%	1.49 ± 5%	0.55	0.74	7.70	± 11.0% (k=2)
1950	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.30	1.01	7.62	± 11.0% (k=2)
2450	± 50 / ± 100	Body	52.7 ± 5%	1.95 ± 5%	0.56	0.68	7.28	± 11.0% (k=2)

ᶜ The validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2). The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

EX3DV4 SN:3677   **September 23, 2009**

Deviation from Isotropy in HSL
Error (φ, ϑ), f = 900 MHz

■-1.00--0.80 ■-0.80--0.60 ■-0.60--0.40 ■-0.40--0.20 ■-0.20-0.00
□0.00-0.20 ■0.20-0.40 ▣0.40-0.60 ■0.60-0.80 ■0.80-1.00
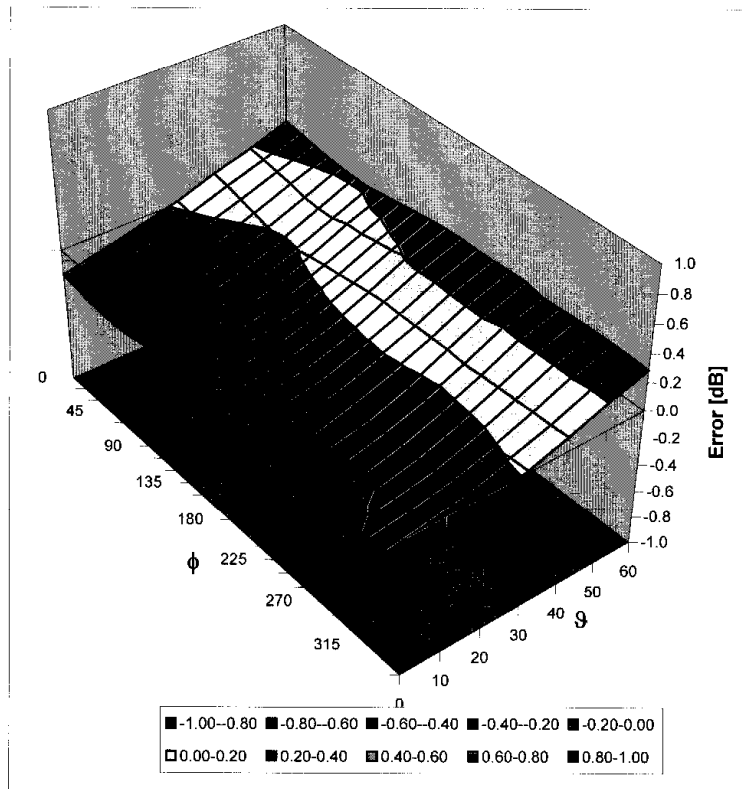
Uncertainty of Spherical Isotropy Assessment: ± 2.6% (k=2)

ANNEX E: D835V2 Dipole Calibration Certificate

Calibration Laboratory of
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Zeughausstrasse 43, 8004 Zurich, Switzerland

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Client   **Auden**   Certificate No: **D835V2-4d092_Jan10**

CALIBRATION CERTIFICATE

Object	D835V2 - SN: 4d092
Calibration procedure(s)	QA CAL-05.v7 Calibration procedure for dipole validation kits
Calibration date:	January 14, 2010

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	06-Oct-09 (No. 217-01086)	Oct-10
Power sensor HP 8481A	US37292783	06-Oct-09 (No. 217-01086)	Oct-10
Reference 20 dB Attenuator	SN: 5086 (20g)	31-Mar-09 (No. 217-01025)	Mar-10
Type-N mismatch combination	SN: 5047.2 / 06327	31-Mar-09 (No. 217-01029)	Mar-10
Reference Probe ES3DV3	SN: 3205	26-Jun-09 (No. ES3-3205_Jun09)	Jun-10
DAE4	SN: 601	07-Mar-09 (No. DAE4-601_Mar09)	Mar-10

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-09)	In house check: Oct-11
RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-09)	In house check: Oct-10

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: January 18, 2010

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Certificate No: D835V2-4d092_Jan10   Page 1 of 9

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Accreditation No.: **SCS 108**

Glossary:
TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:
a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
c) Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

Additional Documentation:
d) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:
- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.

- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.

- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.

- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.

- *SAR measured:* SAR measured at the stated antenna input power.

- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.

- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.