TESTING
No. L2264

OET 65

TEST REPORT

Product Name	GSM/WCDMA mobile phone
Model	V32-3G
IC	10262A-V323G
Client	Emporia Telecom USA Inc.

TA Technology (Shanghai) Co., Ltd.

GENERAL SUMMARY

Product Name	GSM/WCDMA mobile phone	**Model**	V32-3G
Report No.	RXA1205-0184SAR02R2	**IC**	10262A-V323G
Client	Emporia Telecom USA Inc.		
Manufacturer	Emporia Telecom USA Inc.		
Reference Standard(s)	**RSS-102 Issue 4 March 2010:** Radio Frequency (RF) Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands). **IEC 62209-1:2005:** Human Exposure to Radiofrequency Fields from Hand-held and Body-Mounted Wireless Communication Device-human models instrumentation, and procedures-PART 1: procedure to determine the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300MHz to 3GHz). **IEC 62209-2:2010** Human exposure to radio frequency fields from hand-held and bodymounted wireless communication devices. Human models, instrumentation, and procedures. Procedure to determine the specific absorption rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz). **IEEE Std C95.1, 1999:** IEEE Standard for Safety Levels with Respect to Human Exposure to Radiofrequency 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 Radiofrequency Electromagnetic Fields Additional Information for Evaluation Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions. **KDB941225 D01 SAR test for 3G devices v02:** SAR Measurement Procedures CDMA 20001x RTT, 1x Ev-Do, WCDMA, HSDPA/HSPA **KDB 648474 D01 SAR Handsets Multi Xmiter and Ant, v01r05:** SAR Evaluation Considerations for Handsets with Multiple Transmitters and Antennas.		
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: June 13th, 2012**		
Comment	The test result only responds to the measured sample.		

Approved by 杨伟中 **Revised by** 凌敏宝 **Performed by** 沈辰

Director SAR Manager SAR Engineer

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.

If the electrical report is inconsistent with the printed one, it should be subject to the latter.

1.2. Testing Laboratory

Company:	TA Technology (Shanghai) Co., Ltd.
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1.3. Applicant Information

Company:	Emporia Telecom USA Inc.
Address:	321 E. Glen Ave
City:	Ridgewood
Postal Code:	07450
Country:	United States

1.4. Manufacturer Information

Company:	Emporia Telecom USA Inc
Address:	321 E. Glen Ave
City:	Ridgewood
Postal Code:	07450
Country:	United States

1.5. Information of EUT

General Information

Device Type:	Portable Device		
Exposure Category:	Uncontrolled Environment / General Population		
State of Sample:	Prototype Unit		
Product Name:	GSM/WCDMA mobile phone		
IMEI:	353801003601740		
Hardware Version:	G362-MB-V0.2		
Software Version:	V4.5		
Antenna Type:	Internal Antenna		
Device Operating Configurations :			
Supporting Mode(s):	GSM 850/GSM 1900; (tested) WCDMA Band II /WCDMA Band V; (tested) Bluetooth; (untested)		
Test Modulation:	(GSM)GMSK; (WCDMA)QPSK		
Device Class:	B		
GPRS Multislot Class(12):	Max Number of Timeslots in Uplink		4
	Max Number of Timeslots in Downlink		4
	Max Total Timeslot		5
EGPRS Multislot Class(12):	Max Number of Timeslots in Uplink		4
	Max Number of Timeslots in Downlink		4
	Max Total Timeslot		5
Operating Frequency Range(s):	Mode	Tx (MHz)	Rx (MHz)
	GSM 850	824.2 ~ 848.8	869.2 ~ 893.8
	GSM 1900	1850.2 ~ 1909.8	1930.2 ~ 1989.8
	WCDMA Band II	1852.4 ~ 1907.6	1932.4 ~ 1987.6
	WCDMA Band V	826.4 ~ 846.6	871.4 ~ 891.6
Power Class:	GSM 850: 4, tested with power level 5		
	GSM 1900: 1, tested with power level 0		
	WCDMA Band II: 3, tested with power control all up bits		
	WCDMA Band V: 3, tested with power control all up bits		
Test Channel: (Low - Middle - High)	128 - 190 - 251 (GSM 850) (tested) 512 - 661 - 810 (GSM 1900) (tested) 9262 - 9400 - 9538 (WCDMA Band II) (tested) 4132 - 4183 - 4233 (WCDMA Band V) (tested)		

Auxiliary Equipment Details

Name	Model	Manufacturer	S/N
Battery	Li-ion	Shenzhen Renergy Technology Co., Ltd	/

Equipment Under Test (EUT) is a GSM/WCDMA mobile phone. The EUT has a GSM/WCDMA antenna that is used for Tx/Rx, and the other is BT antenna that can be used for Tx/Rx. The detail about EUT and Lithium Battery is in chapter 1.5 in this report. SAR are tested for GSM 850, GSM 1900, WCDMA Band II and WCDMA Band V.

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

Head SAR Configuration

Mode	Channel	Position	SAR_{1g} (W/kg)
GSM 850	High/251	Right, Cheek	**0.072**
GSM 1900	High/810	Right, Cheek	**0.195**
WCDMA Band II	High/9538	Right, Cheek	**0.306**
WCDMA Band V	High/4233	Left, Cheek	**0.053**

Body Worn Configuration

Mode	Channel	Position	Separation distance	SAR_{1g} (W/kg)
4Txslots GPRS 850	High/251	Towards Ground	15mm	**1.230**
4Txslots EGPRS 1900	High/810	Towards Ground	15mm	**0.800**
WCDMA Band II	High/9538	Towards Ground	15mm	**0.455**
WCDMA Band V	High/4233	Towards Ground	15mm	**0.282**

Simultaneous SAR

SAR1g(W/kg) / Test Position	GSM 850	BT	MAX. ΣSAR_{1g}
Towards Ground	1.230	0	**1.230**

Note: 1. Stand alone SAR for BT is not requird. Its SAR is considered 0 in the 1-g SAR summing process to determine simultaneous transmission SAR evaluation requirments.

Extrapolated SAR Values of the highest measured SAR

Mode	Test Position	Channel	Measurement Result		Tune-up procedures MAX Power(dBm)	1g Average Limit 1.6 W/kg
			Conducted Power(dBm)	1g Average (W/kg)		Extrapolated Result (W/kg)
GSM850	Right, Cheek	High/251	31.74	0.072	32.3	0.082
4Txslots GPRS850	Back Side	High/251	30.63	1.230	31.3	1.435
4Txslots EGPRS850	Back Side	High/251	30.63	1.220	31.3	1.424
GSM1900	Right, Cheek	High/810	29.35	0.195	29.8	0.216
4Txslots GPRS1900	Back Side	High/810	28.26	0.794	28.8	0.899
4Txslots EGPRS1900	Back Side	High/810	28.25	0.800	28.8	0.908
WCDMA Band II	Right, Cheek	High/9538	21.84	0.306	22.3	0.304
WCDMA Band II	Back Side	High/9538	21.84	0.455	22.3	0.506
WCDMA Band V	Left, Cheek	High/4233	21.16	0.053	21.4	0.056
WCDMA Band V	Back Side	High/4233	21.16	0.282	21.4	0.298

1.7. Test Date

The test performed from May 11, 2012 to May 16, 2012.

2. SAR Measurements System Configuration

2.1. SAR Measurement Set-up

The DASY5 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 DASY5 measurement server.
- The DASY5 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
- DASY5 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.

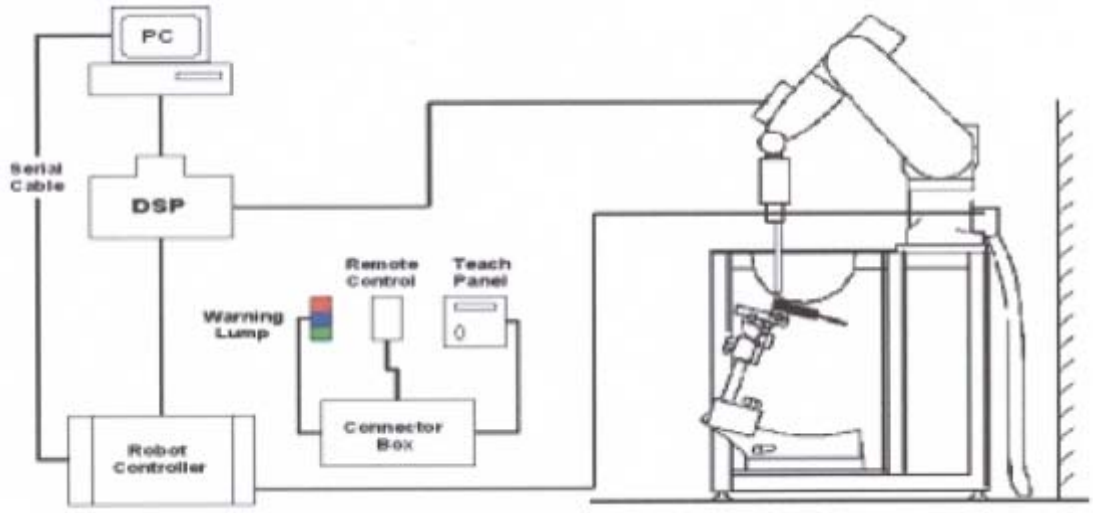


Figure 1 SAR Lab Test Measurement Set-up

2.2. DASY5 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.

2.2.1. 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)
Directivity	± 0.3 dB in HSL (rotation around probe axis) ± 0.5 dB in tissue material (rotation normal to probe axis)
Dynamic Range	10 μW/g to > 100 mW/g Linearity: ± 0.2dB (noise: typically < 1 μW/g)
Dimensions	Overall length: 330 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm
Application	High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields). Only probe which enables compliance testing for frequencies up to 6 GHz with precision of better 30%.

Figure 2.EX3DV4 E-field Probe

Figure 3. EX3DV4 E-field probe

2.2.2. 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).

2.3. Other Test Equipment

2.3.1. 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

2.3.2. Phantom

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

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

Figure 5 Generic Twin Phantom

2.4. Scanning Procedure

The DASY5 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 DASY5 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 5x5x7 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 DASY5 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 5x5x7 measurement points with 8mm resolution amounting to175 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 5x5x7 scan. The probe is moved away in z-direction from the bottom of the SAM phantom in 5mm steps.

2.5. Data Storage and Evaluation

2.5.1. Data Storage

The DASY5 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.

2.5.2. 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, a_{i0}, 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 DASY5 components. In the direct measuring mode of the multimeter option, the parameters of the actual system setup are used. In the scan visualization and export modes, the parameters stored in the corresponding document files are used.

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

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

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

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

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

cf = crest factor of exciting field (DASY parameter)

dcp_i = diode compression point (DASY parameter)

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

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

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

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

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

$ConvF$ = sensitivity enhancement in solution

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

f = carrier frequency [GHz]

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

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

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

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

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

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

with SAR = local specific absorption rate in mW/g

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

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

ρ = equivalent tissue density in g/cm^3

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

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

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

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

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

3. Laboratory Environment

Table 1: The Requirements of the Ambient Conditions

Temperature	Min. = 18°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.	

4. Tissue-equivalent Liquid

4.1. Tissue-equivalent Liquid Ingredients

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 2 and table 3 show the detail solution. It's satisfying the latest tissue dielectric parameters requirements proposed by the OET 65.

Table 2: 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 3: 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

4.2. Tissue-equivalent Liquid Properties

Table 4: Dielectric Performance of Head Tissue Simulating Liquid

Frequency	Description	Dielectric Parameters		Temp ℃
		ε_r	σ(s/m)	
824.2MHz (Low)	Target value ± 5% window	41.56 39.48 — 43.64	0.90 0.86 — 0.95	22.0
	Measurement value 2012-5-16	41.5	0.887	21.5
836.6MHz (Middle)	Target value ± 5% window	41.50 39.43 — 43.58	0.90 0.86 — 0.95	22.0
	Measurement value 2012-5-16	41.3	0.9	21.5
848.8MHz (High)	Target value ± 5% window	41.50 39.43 — 43.58	0.92 0.87— 0.97	22.0
	Measurement value 2012-5-16	41.2	0.913	21.5
826.4MHz (Low)	Target value ± 5% window	41.55 39.47 — 43.63	0.90 0.86 — 0.95	22.0
	Measurement value 2012-5-16	41.5	0.888	21.5
836.6MHz (Middle)	Target value ± 5% window	41.50 39.43 — 43.58	0.90 0.86 — 0.95	22.0
	Measurement value 2012-5-16	41.3	0.90	21.5
846.6MHz (High)	Target value ± 5% window	41.50 39.43 — 43.58	0.91 0.86 — 0.96	22.0
	Measurement value 2012-5-16	41.2	0.911	21.5
1850.2MHz (Low)	Target value ±5% window	40.00 38.00 — 42.00	1.40 1.33 — 1.47	22.0
	Measurement value 2012-5-15	41	1.37	21.5
1852.4MHz (Low)	Target value ±5% window	40.00 38.00 — 42.00	1.40 1.33 — 1.47	22.0
	Measurement value 2012-5-15	41	1.37	21.5
1880MHz (Middle)	Target value ±5% window	40.00 38.00 — 42.00	1.40 1.33 — 1.47	22.0
	Measurement value 2012-5-15	40.9	1.4	21.5
1907.6MHz (High)	Target value ±5% window	40.00 38.00 — 42.00	1.40 1.33 — 1.47	22.0

	Measurement value 2012-5-15	40.8	1.42	21.5
1909.8MHz (High)	Target value ±5% window	40.00 38.00 — 42.00	1.40 1.33 — 1.47	22.0
	Measurement value 2012-5-15	40.8	1.42	21.5

Table 5: Dielectric Performance of Body Tissue Simulating Liquid

Frequency	Description	Dielectric Parameters		Temp ℃
		ε_r	σ(s/m)	
824.2MHz (Low)	Target value ±5% window	55.24 52.48— 58.00	0.97 0.92 — 1.02	22.0
	Measurement value 2012-5-11	54.3	0.967	21.5
	Measurement value 2012-5-12	54.4	0.972	21.5
836.6MHz (Middle)	Target value ±5% window	55.20 52.44 — 57.96	0.97 0.92 — 1.02	22.0
	Measurement value 2012-5-11	54.3	0.977	21.5
	Measurement value 2012-5-12	54.2	0.988	21.5
848.8MHz (High)	Target value ±5% window	55.16 52.40 — 57.92	0.99 0.94 — 1.04	22.0
	Measurement value 2012-5-11	54.3	0.986	21.5
	Measurement value 2012-5-12	54.1	1.01	21.5
826.4MHz (Low)	Target value ±5% window	55.23 52.47— 57.99	0.97 0.92 — 1.02	22.0
	Measurement value 2012-5-15	54.9	0.99	21.5
836.6MHz (Middle)	Target value ±5% window	55.20 52.44 — 57.96	0.97 0.92 — 1.02	22.0
	Measurement value 2012-5-15	54.8	1.00	21.5
846.6MHz (High)	Target value ±5% window	55.16 52.40 — 57.92	0.98 0.93 — 1.03	22.0
	Measurement value 2012-5-15	54.7	1.01	21.5
1850.2MHz (Low)	Target value ±5% window	53.30 50.64 — 55.97	1.52 1.44 — 1.60	22.0

	Measurement value 2012-5-13	51.7	1.51	21.5
	Measurement value 2012-5-14	51.7	1.51	21.5
1852.4MHz (Low)	Target value ±5% window	53.30 50.64 — 55.97	1.52 1.44 — 1.60	22.0
	Measurement value 2012-5-14	52.3	1.51	21.5
	Measurement value 2012-5-15	52.3	1.51	21.5
1880MHz (Middle)	Target value ±5% window	53.30 50.64 — 55.97	1.52 1.44 — 1.60	22.0
	Measurement value 2012-5-13	51.7	1.53	21.5
	Measurement value 2012-5-14	51.7	1.53	21.5
1907.6MHz (High)	Target value ±5% window	53.30 50.64 — 55.97	1.52 1.44 — 1.60	22.0
	Measurement value 2012-5-14	52.1	1.56	21.5
1909.8MHz (High)	Target value ±5% window	53.30 50.64 — 55.97	1.52 1.44 — 1.60	22.0
	Measurement value 2012-5-13	51.5	1.57	21.5
	Measurement value 2012-5-14	51.5	1.57	21.5

5. System Check

5.1. Description of 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 6 and table 7.

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 DASY5 system.

.

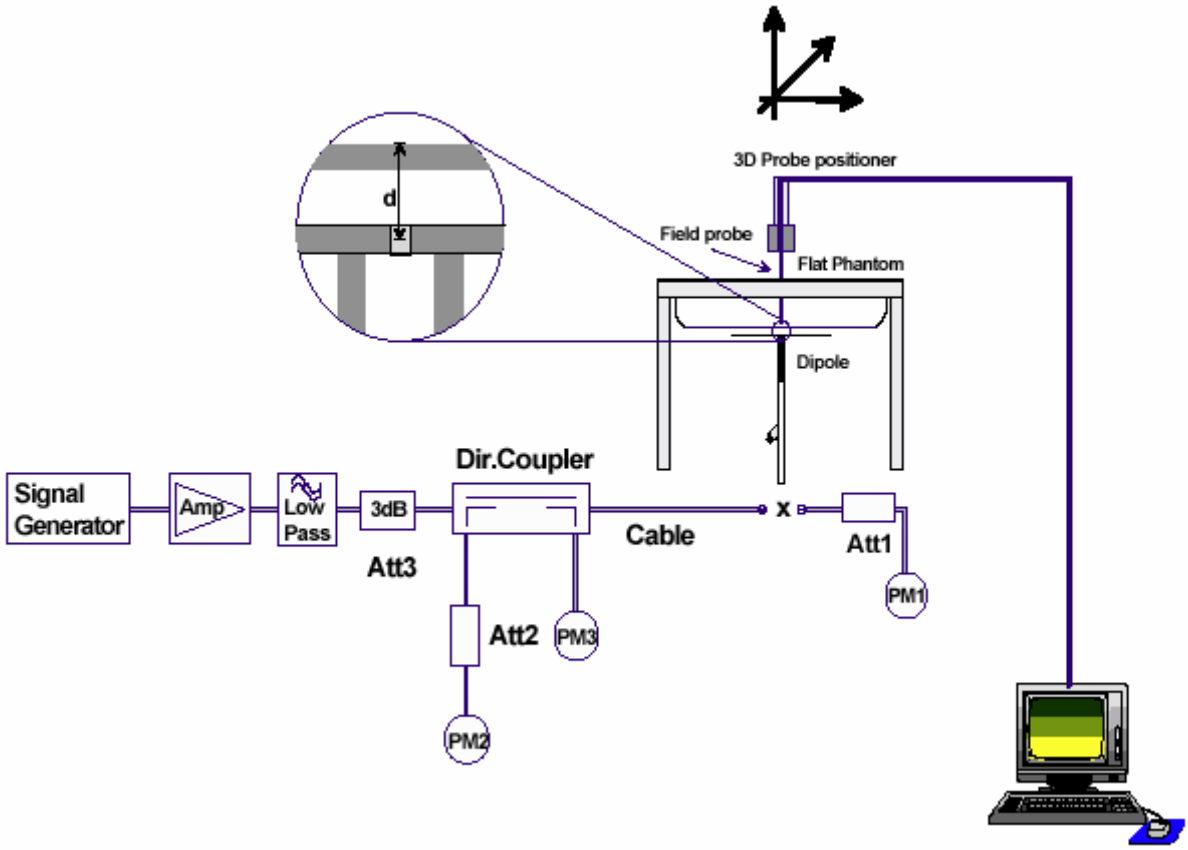


Figure 6 System Check Set-up

5.2. System Check Results

Table 6: System Check in Head Tissue Simulating Liquid

Frequency	Test Date	Dielectric Parameters		Temp	250mW Measured SAR_{1g}	1W Normalized SAR_{1g}	1W Target SAR_{1g} (±10%deviation)
		ε_r	σ(s/m)	(℃)	(W/kg)		
835MHz	2012-5-16	41.4	0.899	21.5	2.5	10	9.34 (8.41~10.27)
1900MHz	2012-5-15	40.8	1.41	21.5	9.56	38.24	40.30 (36.27~ 44.33)

Note：1. The graph results see ANNEX B.
2. Target Values derive from the calibration certificate

Table 7: System Check in Body Tissue Simulating Liquid

Frequency	Test Date	Dielectric Parameters		Temp	250mW Measured SAR_{1g}	1W Normalized SAR_{1g}	1W Target SAR_{1g} (±10% deviation)
		ε_r	σ(s/m)	(℃)	(W/kg)		
835MHz	2012-5-11	54.3	0.974	21.5	2.52	10.08	9.46 (8.51~10.41)
	2012-5-12	54.3	0.986	21.5	2.58	10.32	
	2012-5-15	53.8	0.95	21.5	2.48	9.92	
1900MHz	2012-5-13	51.5	1.56	21.5	10	40	41.70 (37.53~45.87)
	2012-5-14	52.1	1.55	21.5	10.3	41.2	

Note：1. The graph results see ANNEX B.
2. Target Values derive from the calibration certificate

6. Operational Conditions during Test

6.1. 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 Radiofrequency Channel Number (ARFCN) is allocated to 128, 190 and 251 in the case of GSM 850, to 512, 661 and 810 in the case of GSM 1900, to 9262, 9400 and 9538 in the case of WCDMA Band II, to 4132, 4183 and 4233 in the case of WCDMA Band V. The EUT is commanded to operate at maximum transmitting power.

Connection to the EUT is established via air interface with E5515C, and the EUT is set to maximum output power by E5515C. The 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.

6.2. Test Positions

6.2.1. Against Phantom Head

Measurements were made in “cheek” and “tilt” positions on both the left hand and right hand sides of the phantom.

The positions used in the measurements were according to IEEE 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".

6.2.2. Body Worn Configuration

Body-worn operating configurations should be tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in normal use configurations. Devices with a headset output should be tested with a headset connected to the device. The distance between the device and the phantom was kept 15mm.

6.3. Test Configuration

6.3.1. 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” for GSM 850, set to “0” for GSM 1900. Since the GPRS class is 12 for this EUT, it has at most 4 timeslots in uplink and at most 4 timeslots in downlink, the maximum total timeslots is 5; the EGPRS class is 12 for this EUT, it has at most 4 timeslots in uplink and at most 4 timeslots in downlink, the maximum total timeslots is 5.

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.

According to specification 3GPP TS 51.010, the maximum power of the GSM can do the power reduction for the multi-slot. The allowed power reduction in the multi-slot configuration is as following:

Table 8: The allowed power reduction in the multi-slot configuration

Number of timeslots in uplink assignment	Permissible nominal reduction of maximum output power,(dB)
1	0
2	0 to 3,0
3	1,8 to 4,8
4	3,0 to 6,0

6.3.2. WCDMA Test Configuration

6.3.2.1. Output power Verification

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

6.3.2.2. Head SAR Measurements

SAR for head exposure configurations in voice mode is measured using a 12.2kbps RMC with TPC bits configured to all up bits. SAR in AMR configurations is not required when the maximum average output of each RF channel for 12.2kbps AMR is less than 1/4 dB higher than that measured in 12.2 kbps RMC. Otherwise, SAR is measured on the maximum output channel in 12.2kbps AMR with a 3.4 kbps SRB(Signaling radio bearer) using the exposure configuration that results in the highest SAR in 12.2kbps RMC for that RF channel.

6.3.2.3. Body SAR Measurements

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

7. Test Results

7.1. Conducted Power Results

Table 9: Conducted Power Measurement Results

GSM 850		Burst Conducted Power(dBm)				Average power(dBm)		
		Channel 128	Channel 190	Channel 251		Channel 128	Channel 190	Channel 251
GSM		32.02	31.91	31.74	-9.03dB	22.99	22.88	22.71
GPRS (GMSK)	1Txslot	31.98	31.83	31.7	-9.03dB	22.95	22.8	22.67
	2Txslots	31.96	31.8	31.68	-6.02dB	25.94	25.78	25.66
	3Txslots	31.94	31.77	31.67	-4.26dB	27.68	27.51	27.41
	4Txslots	30.92	30.77	30.63	-3.01dB	**27.91**	**27.76**	**27.62**
EGPRS (GMSK)	1Txslot	31.99	31.84	31.7	-9.03dB	22.96	22.81	22.67
	2Txslots	31.97	31.81	31.68	-6.02dB	25.95	25.79	25.66
	3Txslots	31.95	31.78	31.67	-4.26dB	27.69	27.52	27.41
	4Txslots	30.93	30.77	30.63	-3.01dB	**27.92**	**27.76**	**27.62**
GSM 1900		**Burst Conducted Power(dBm)**				**Average power(dBm)**		
		Channel 512	Channel 661	Channel 810		Channel 512	Channel 661	Channel 810
GSM		29.56	29.59	29.35	-9.03dB	20.53	20.56	20.32
GPRS (GMSK)	1Txslot	29.57	29.54	29.31	-9.03dB	20.54	20.51	20.28
	2Txslots	29.55	29.51	29.31	-6.02dB	23.53	23.49	23.29
	3Txslots	29.51	29.49	29.27	-4.26dB	25.25	25.23	25.01
	4Txslots	28.48	28.5	28.26	-3.01dB	**25.47**	**25.49**	**25.25**
EGPRS (GMSK)	1Txslot	29.58	29.55	29.32	-9.03dB	20.55	20.52	20.29
	2Txslots	29.56	29.52	29.3	-6.02dB	23.54	23.5	23.28
	3Txslots	29.52	29.5	29.26	-4.26dB	25.26	25.24	25
	4Txslots	28.49	28.51	28.25	-3.01dB	**25.48**	**25.5**	**25.24**

Note:

1) Division Factors

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

1Txslot = 1 transmit time slot out of 8 time slots

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

2Txslots = 2 transmit time slots out of 8 time slots
=> conducted power divided by (8/2) => -6.02 dB
3Txslots = 3 transmit time slots out of 8 time slots
=> conducted power divided by (8/3) => -4.26 dB
4Txslots = 4 transmit time slots out of 8 time slots
=> conducted power divided by (8/4) => -3.01 dB

2) Average power numbers

The maximum power numbers are marks in bold.

WCDMA Band II	**Conducted Power (dBm)**		
	Channel 9262	Channel 9400	Channel 9538
12.2 kbps	21.93	21.78	21.84
64 kbps	21.9	21.75	21.83
144 kbps	21.92	21.76	21.85
384 kbps	21.91	21.74	21.82
WCDMA Band V	**Conducted Power (dBm)**		
	Channel 4132	Channel 4183	Channel 4233
12.2 kbps	21.06	21.14	21.16
64 kbps	21.07	21.1	21.15
144 kbps	21.08	21.12	21.13
384 kbps	21.05	21.13	21.14

7.2. SAR Test Results

7.2.1. GSM 850 (GPRS/EGPRS)

Table 10: SAR Values [GSM 850 (GPRS/EGPRS)]

Limit of SAR		10 g Average	1 g Average	Power Drift	Graph Results
		2.0 W/kg	1.6 W/kg	± 0.21 dB	
Different Test Position	Channel	Measurement Result(W/kg)		Power Drift (dB)	
		10 g Average	1 g Average		
Test Position of Head (Open)					
Left hand, Touch Cheek	Middle/190	0.034	0.052	0.092	Figure 14
Left hand, Tilt 15 Degree	Middle/190	0.011	0.015	-0.035	Figure 15
Right hand, Touch Cheek	High/251	0.046	0.072	-0.066	Figure 16
	Middle/190	0.036	0.056	-0.043	Figure 17
	Low/128	0.035	0.053	-0.046	Figure 18
Right hand, Tilt 15 Degree	Middle/190	0.013	0.018	-0.151	Figure 19
Test position of Body (Closed,Distance 15mm)					
Towards Ground (4Txslots)	High/251	0.899	1.230	0.039	Figure 20
	Middle/190	0.616	0.842	0.010	Figure 21
	Low/128	0.460	0.640	0.010	Figure 22
Towards Phantom (4Txslots)	High/251	0.265	0.359	0.034	Figure 23
	Middle/190	0.170	0.244	-0.014	Figure 24
	Low/128	0.139	0.188	-0.053	Figure 25
Test position of Body (Open,Distance 15mm)					
Towards Ground (4Txslots)	High/251	0.356	0.519	0.021	Figure 26
	Middle/190	0.245	0.349	0.170	Figure 27
	Low/128	0.187	0.266	0.035	Figure 28
Worst Case Position of Body with EGPRS (Closed,GMSK, Distance 15mm)					
Towards Ground (4Txslots)	High/251	0.889	1.220	0.022	Figure 29

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. When multiple slots can be used, SAR should be tested to account for the maximum source-based time-averaged output power.
4. 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.

7.2.2. GSM 1900 (GPRS/EGPRS)

Table 11: SAR Values [GSM 1900(GPRS/EGPRS)]

Limit of SAR		10 g Average	1 g Average	Power Drift	Graph Results
		2.0 W/kg	1.6 W/kg	± 0.21 dB	
Different Test Position	Channel	Measurement Result(W/kg)		Power Drift (dB)	
		10 g Average	1 g Average		
Test Position of Head (Open)					
Left hand, Touch Cheek	Middle/661	0.086	0.137	-0.014	Figure 30
Left hand, Tilt 15 Degree	Middle/661	0.018	0.027	0.030	Figure 31
Right hand, Touch Cheek	High/810	0.120	0.195	-0.098	Figure 32
	Middle/661	0.090	0.146	-0.042	Figure 33
	Low/512	0.092	0.145	0.083	Figure 34
Right hand, Tilt 15 Degree	Middle/661	0.017	0.027	0.054	Figure 35
Test position of Body (Closed,Distance 15mm)					
Towards Ground (4Txslots)	High/810	0.444(max.cube)	0.706(max.cube)	-0.093	Figure 36
	Middle/661	0.349(max.cube)	0.607(max.cube)	-0.089	Figure 37
	Low/512	0.363	0.633	-0.073	Figure 38
Towards Phantom (4Txslots)	High/810	0.188	0.316	0.025	Figure 39
	Middle/661	0.160	0.268	0.012	Figure 40
	Low/512	0.152	0.257	0.067	Figure 41
Test position of Body (Open,Distance 15mm)					
Towards Ground (4Txslots)	High/810	0.463(max.cube)	0.794(max.cube)	-0.056	Figure 42
	Middle/661	0.398(max.cube)	0.689(max.cube)	-0.106	Figure 43
	Low/512	0.386(max.cube)	0.669(max.cube)	-0.062	Figure 44
Worst Case Position of Body with EGPRS (Open,GMSK, Distance 15mm)					
Towards Ground (4Txslots)	High/810	0.503(max.cube)	0.800(max.cube)	-0.046	Figure 45

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. When multiple slots can be used, SAR should be tested to account for the maximum source-based time-averaged output power.
4. 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.
5. The (max.cube) labeling indicates that during the grid scanning an additional peak was found which was within 2.0dB of the highest peak. The value of the highest cube is given in the table above.

7.2.3. WCDMA Band II (WCDMA)

Table 12: SAR Values [WCDMA Band II (WCDMA)]

Limit of SAR		10 g Average	1 g Average	Power Drift	Graph Results
		2.0 W/kg	1.6 W/kg	± 0.21 dB	
Different Test Position	Channel	Measurement Result(W/kg)		Power Drift (dB)	
		10 g Average	1 g Average		
Test Position of Head (Open)					
Left hand, Touch Cheek	Middle/9400	0.161	0.258	-0.052	Figure 46
Left hand, Tilt 15 Degree	Middle/9400	0.032	0.049	-0.020	Figure 47
Right hand, Touch Cheek	High/9538	0.185	0.306	0.040	Figure 48
	Middle/9400	0.173	0.279	-0.003	Figure 49
	Low/9262	0.154	0.244	-0.070	Figure 50
Right hand, Tilt 15 Degree	Middle/9400	0.032	0.049	0.056	Figure 51
Test position of Body (Closed,Distance 15mm)					
Towards Ground	High/9538	0.228	0.395	-0.070	Figure 52
	Middle/9400	0.239	0.409	-0.103	Figure 53
	Low/9262	0.200	0.346	-0.055	Figure 54
Towards Phantom	High/9538	0.101	0.169	0.152	Figure 55
	Middle/9400	0.094	0.160	0.068	Figure 56
	Low/9262	0.087	0.146	0.054	Figure 57
Test position of Body (Open,Distance 15mm)					
Towards Ground	High/9538	0.284	0.455	-0.149	Figure 58
	Middle/9400	0.255	0.438	-0.044	Figure 59
	Low/9262	0.206	0.359	0.078	Figure 60

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.

7.2.4. WCDMA Band V (WCDMA)

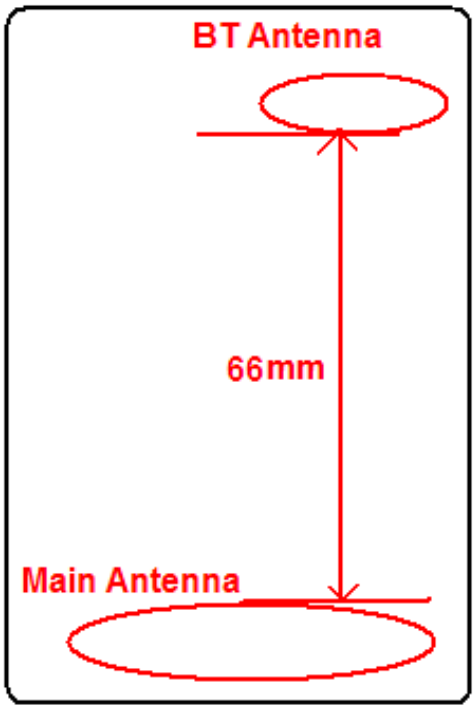
Table 13: SAR Values [WCDMA Band V (WCDMA)]

Limit of SAR		10 g Average	1 g Average	Power Drift	Graph Results
		2.0 W/kg	1.6 W/kg	± 0.21 dB	
Different Test Position	Channel	Measurement Result(W/kg)		Power Drift (dB)	
		10 g Average	1 g Average		
Test Position of Head (Open)					
Left hand, Touch Cheek	High/4233	0.035	0.053	-0.177	Figure 61
	Middle/4183	0.029	0.043	0.164	Figure 62
	Low/4132	0.023	0.035	-0.065	Figure 63
Left hand, Tilt 15 Degree	Middle/4183	0.009	0.013	-0.038	Figure 64
Right hand, Touch Cheek	Middle/4183	0.014	0.020	0.057	Figure 65
Right hand, Tilt 15 Degree	Middle/4183	0.011	0.016	-0.024	Figure 66
Test position of Body (Closed,Distance 15mm)					
Towards Ground	High/4233	0.209	0.282	-0.096	Figure 67
	Middle/4183	0.197	0.268	0.056	Figure 68
	Low/4132	0.125	0.170	-0.014	Figure 69
Towards Phantom	High/4233	0.067	0.091	-0.124	Figure 70
	Middle/4183	0.057	0.078	0.021	Figure 71
	Low/4132	0.037	0.051	0.046	Figure 72
Test position of Body (Open,Distance 15mm)					
Towards Ground	High/4233	0.087	0.126	0.176	Figure 73
	Middle/4183	0.075	0.108	0.165	Figure 74
	Low/4132	0.048	0.069	-0.150	Figure 75

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.

7.2.5. Bluetooth Function

The distance between BT antenna and GSM/WCDMA antenna is ＞5cm. The location of the antennas inside EUT is shown in Annex H:



The output power of BT antenna is as following:

Channel	Ch 0 2402 MHz	Ch 39 2441 MHz	Ch 78 2480 MHz
GFSK(dBm)	1.16	3.18	3.17
EDR2M-4_DQPSK(dBm)	3.38	5.37	5.48
EDR3M-8DPSK(dBm)	3.24	5.17	5.26

Output Power Thresholds for Unlicensed Transmitters

	2.45	5.15 - 5.35	5.47 - 5.85	GHz
P_{Ref}	12	6	5	mW
Device output power should be rounded to the nearest mW to compare with values specified in this table.				

Stand-alone SAR

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

Stand-alone SAR are not required for BT, because the output power of BT transmitter is ≤ (P_{max}=13dBm).

Simultaneous SAR

About BT and GSM/WCDMA Antenna,

SAR_{1g}(W/kg) Test Position	GSM 850	GSM 1900	WCDMA Band II	WCDMA Band V	BT	MAX. ΣSAR_{1g}
Left hand, Touch cheek	0.052	0.137	**0.258**	0.053	0	0.258
Left hand, Tilt 15 Degree	0.015	0.027	**0.049**	0.013	0	0.049
Right hand, Touch cheek	0.072	0.195	**0.306**	0.020	0	0.306
Right hand, Tilt 15 Degree	0.018	0.027	**0.049**	0.016	0	0.049
Body, Towards Ground	**1.230**	0.800	0.455	0.282	0	1.230
Body, Towards Phantom	**0.359**	0.316	0.169	0.091	0	0.359

Note: 1.The value with blue color is the maximum ΣSAR_{1g} Value.

2. MAX. ΣSAR_{1g} =Unlicensed SAR_{MAX} +Licensed SAR_{MAX}

3. Stand alone SAR for BT is not required. Its SAR is considered 0 in the 1-g SAR summing process to determine simultaneous transmission SAR evaluation requirments.

BT antenna is ＞5cm from GSM/WCDMA Antenna. (GSM/WCDMA Antenna SAR_{MAX}) 1.230 +(BT Antenna SAR_{MAX})0 =1.230 ＜1.6, So the Simultaneous SAR are not required for BT and GSM/WCDMA antenna.

8. 300MHz to 3GHz Measurement Uncertainty

No.	source	Type	Uncertainty Value (%)	Probability Distribution	k	c_i	Standard ncertainty 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	6	N	1	1	6	∞
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	∞
5	-boundary effect	B	1.9	R	$\sqrt{3}$	1	1.1	∞
6	-probe linearity	B	4.7	R	$\sqrt{3}$	1	2.7	∞
7	- System detection limits	B	1.0	R	$\sqrt{3}$	1	0.6	∞
8	-readout Electronics	B	1.0	N	1	1	1.0	∞
9	-response time	B	0	R	$\sqrt{3}$	1	0	∞
10	-integration time	B	4.3	R	$\sqrt{3}$	1	2.5	∞
11	-noise	B	0	R	$\sqrt{3}$	1	0	∞
12	-RF Ambient Conditions	B	3	R	$\sqrt{3}$	1	1.7	∞
13	-Probe Positioner Mechanical Tolerance	B	0.4	R	$\sqrt{3}$	1	0.2	∞
14	-Probe Positioning with respect to Phantom Shell	B	2.9	R	$\sqrt{3}$	1	1.7	∞
15	-Extrapolation, interpolation and Integration Algorithms for Max. SAR Evaluation	B	3.9	R	$\sqrt{3}$	1	2.3	∞
Test sample Related								
16	-Test Sample Positioning	A	2.9	N	1	1	2.9	71
17	-Device Holder Uncertainty	A	4.1	N	1	1	4.1	5
18	-Output Power Variation - SAR drift measurement	B	5.0	R	$\sqrt{3}$	1	2.9	∞
Physical parameter								
19	-phantom	B	4.0	R	$\sqrt{3}$	1	2.3	∞

20	Algorithm for correcting SAR for deviations in permittivity and conductivity	B	1.9	N	1	1	1.9	∞
21	-Liquid conductivity (measurement uncertainty)	B	2.5	N	1	0.78	2.0	9
22	-Liquid permittivity (measurement uncertainty)	B	2.5	N	1	0.23	0.6	9
23	-Liquid conductivity -temperature uncertainty	B	1.7	R	$\sqrt{3}$	0.78	0.8	∞
24	-Liquid permittivity -temperature uncertainty	B	0.3	R	$\sqrt{3}$	0.23	0.04	∞
Combined standard uncertainty		$u_c^{'} = \sqrt{\sum_{i=1}^{21} c_i^2 u_i^2}$					11.39	
Expanded uncertainty (confidence interval of 95 %)		$u_e = 2u_c$		N		k=2	22.79	

9. Main Test Instruments

Table 14: List of Main Instruments

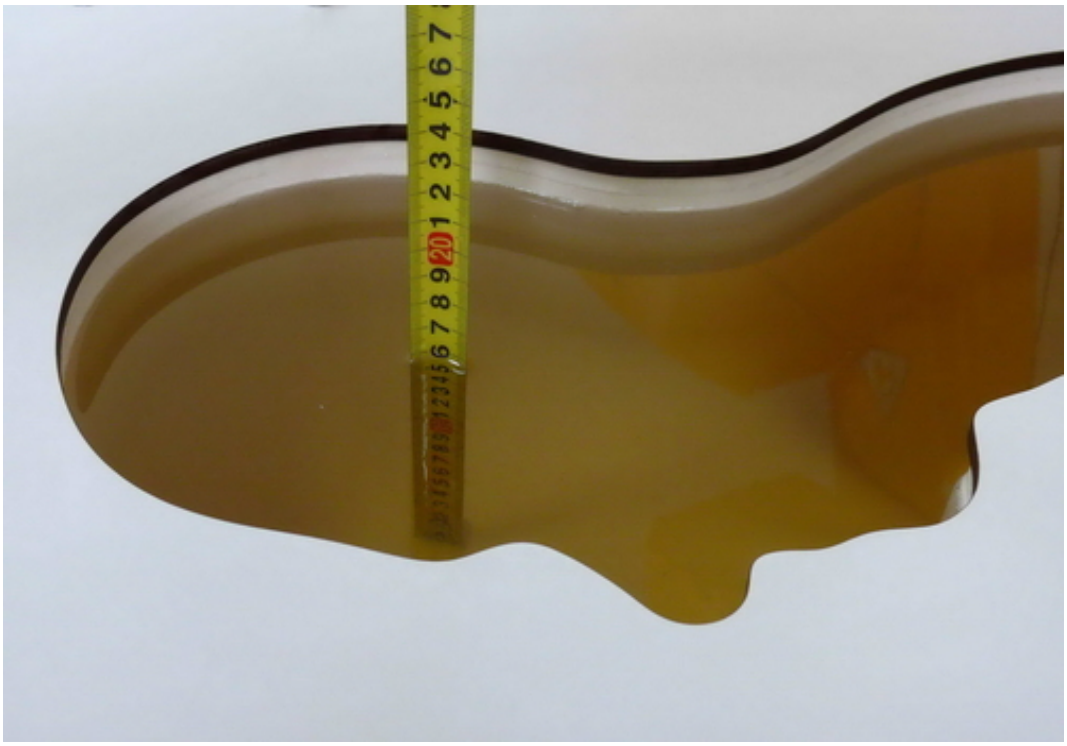
No.	Name	Type	Serial Number	Calibration Date	Valid Period
01	Network analyzer	Agilent 8753E	US37390326	September 12, 2011	One year
02	Dielectric Probe Kit	Agilent 85070E	US44020115	No Calibration Requested	
03	Power meter	Agilent E4417A	GB41291714	March 11, 2012	One year
04	Power sensor	Agilent N8481H	MY50350004	September 25, 2011	One year
05	Power sensor	E9327A	US40441622	September 24, 2011	One year
06	Signal Generator	HP 8341B	2730A00804	September 12, 2011	One year
07	Dual directional coupler	778D-012	50519	March 26, 2012	One year
08	Amplifier	IXA-020	0401	No Calibration Requested	
09	BTS	E5515C	MY48360988	December 2, 2011	One year
10	E-field Probe	EX3DV4	3753	January 4, 2012	One year
11	DAE	DAE4	871	November 22, 2011	One year
12	Validation Kit 835MHz	D835V2	4d020	August 26, 2011	One year
13	Validation Kit 1900MHz	D1900V2	5d060	August 31, 2011	One year
14	Temperature Probe	JM222	AA1009129	March 15, 2012	One year
15	Hygrothermograph	WS-1	64591	September 28, 2011	One year

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

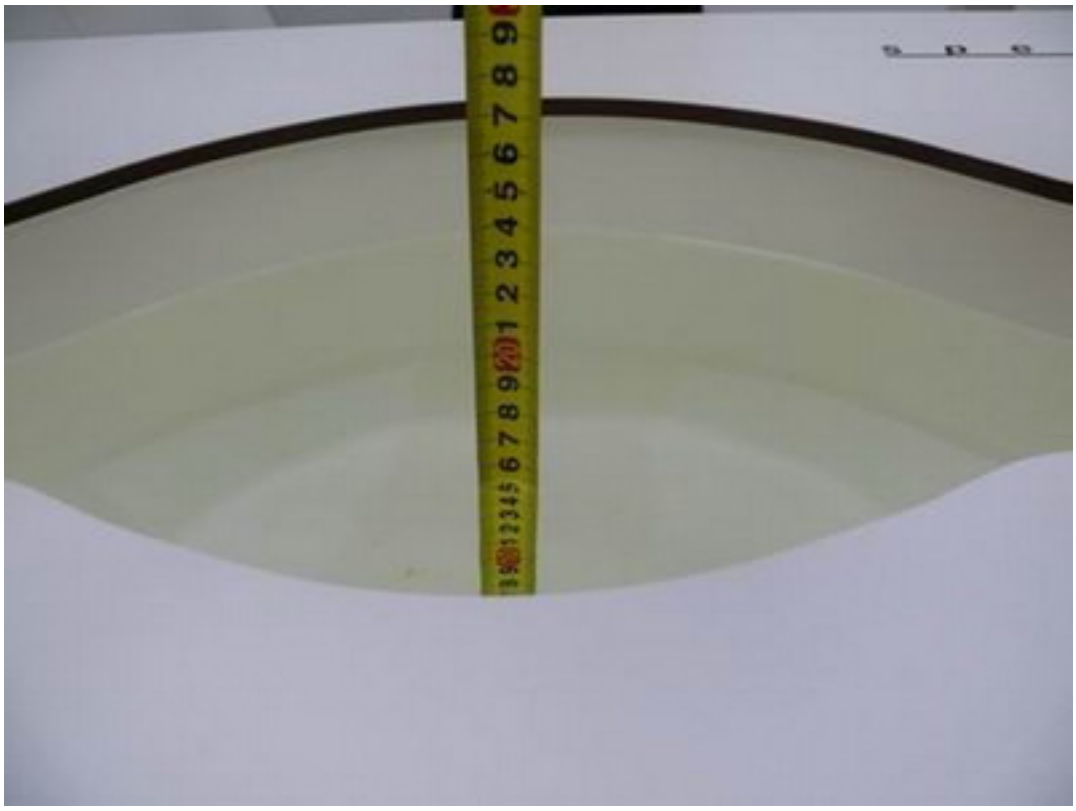
ANNEX A: Test Layout

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, 15.3cm depth)



Picture 4: Liquid depth in the flat Phantom (1900 MHz, 15.2cm depth)

Picture 5: liquid depth in the head Phantom (1900 MHz, 15.3cm depth)

ANNEX B: System Check Results

System Performance Check at 835 MHz Head TSL

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d020

Date/Time: 5/16/2012 10:05:10 AM

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

Medium parameters used: f = 835 MHz; σ = 0.899 mho/m; ε_r = 41.4; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Probe: EX3DV4 - SN3753; ConvF(9.02, 9.02, 9.02); Calibrated: 1/4/2012

Electronics: DAE4 Sn871; Calibrated: 11/22/2011

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

d=15mm, Pin=250mW/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 2.7 mW/g

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

Reference Value = 54.7 V/m; Power Drift = -5.01e-005 dB

Peak SAR (extrapolated) = 3.73 W/kg

SAR(1 g) = 2.5 mW/g; SAR(10 g) = 1.64 mW/g

Maximum value of SAR (measured) = 2.67 mW/g

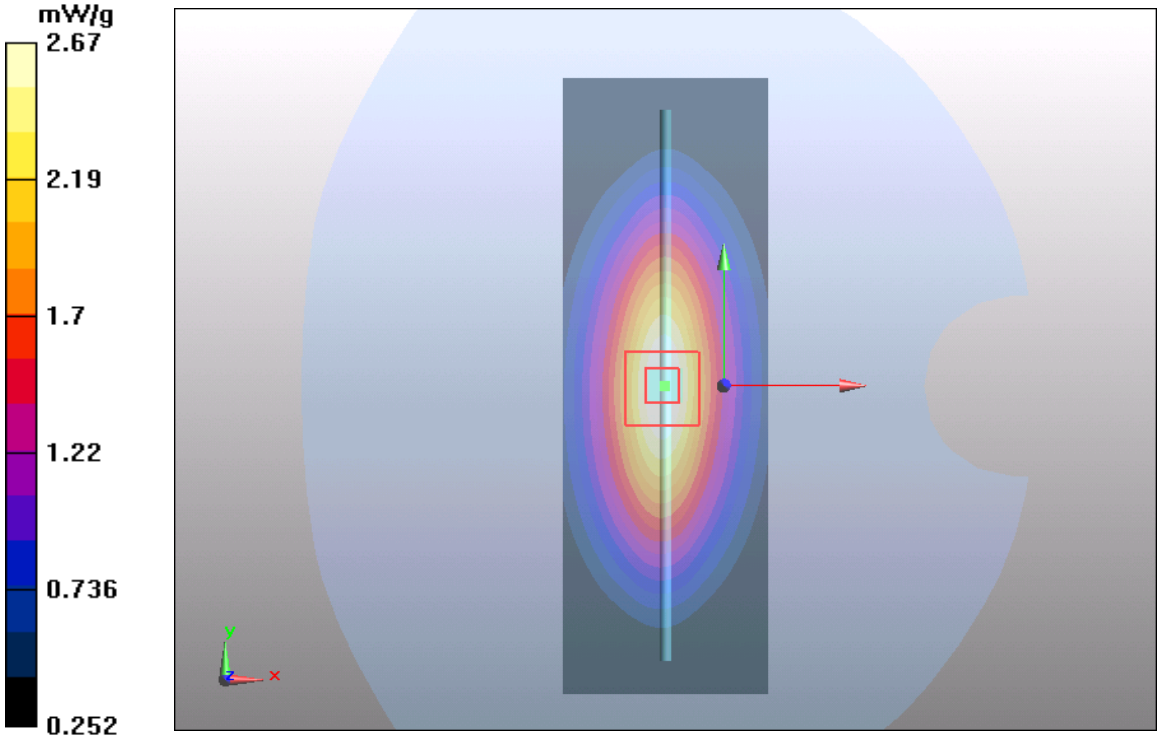


Figure 7 System Performance Check 835MHz 250mW

System Performance Check at 835 MHz Body TSL

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d020

Date/Time: 5/11/2012 8:20:30 PM

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

Medium parameters used: f = 835 MHz; σ = 0.974 mho/m; ε_r = 54.3; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Probe: EX3DV4 - SN3753; ConvF(9.18, 9.18, 9.18); Calibrated: 1/4/2012

Electronics: DAE4 Sn871; Calibrated: 11/22/2011

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

835 MHZ Dipole/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 2.71 mW/g

835 MHZ Dipole/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 53 V/m; Power Drift = -0.059 dB

Peak SAR (extrapolated) = 3.74 W/kg

SAR(1 g) = 2.52 mW/g; SAR(10 g) = 1.66 mW/g

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

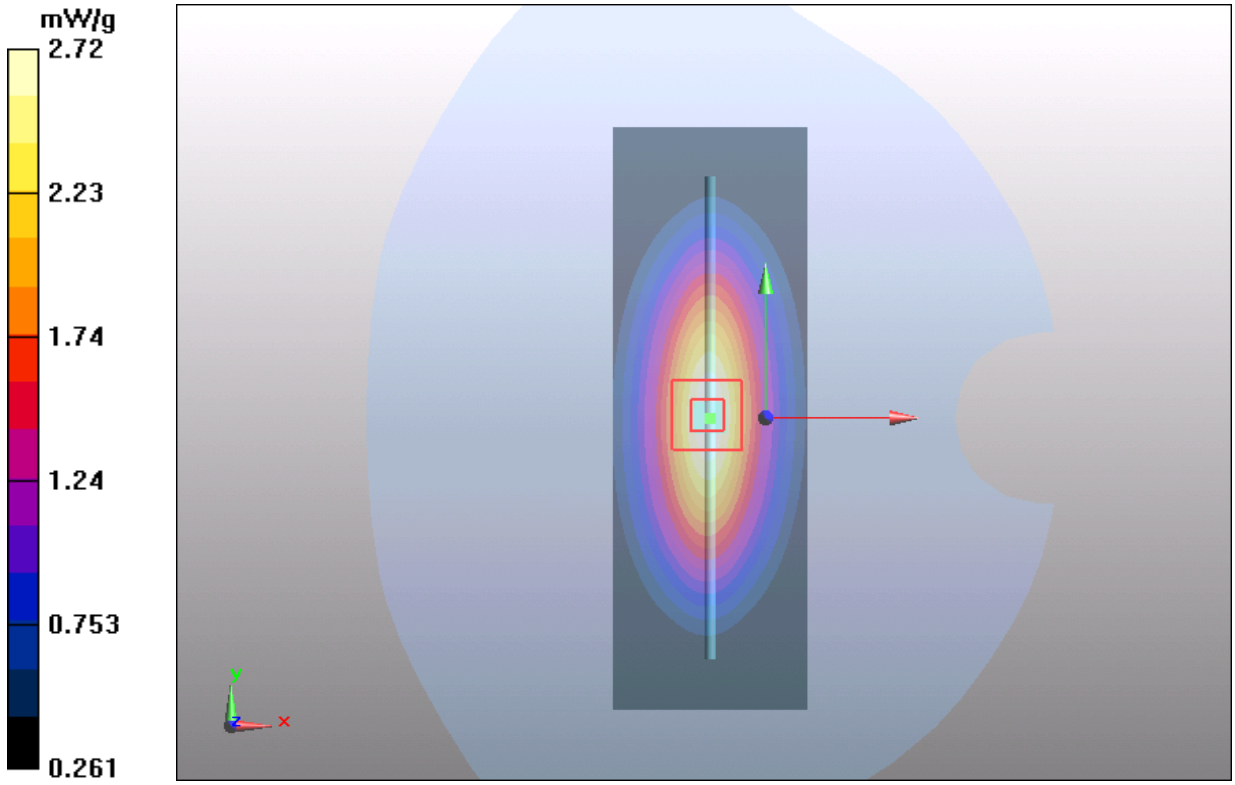


Figure 8 System Performance Check 835MHz 250mW

System Performance Check at 835 MHz Body TSL

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d020

Date/Time: 5/12/2012 8:40:44 PM

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

Medium parameters used: f = 835 MHz; σ = 0.986 mho/m; ε_r = 54.3; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Probe: EX3DV4 - SN3753; ConvF(9.18, 9.18, 9.18); Calibrated: 1/4/2012

Electronics: DAE4 Sn871; Calibrated: 11/22/2011

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

835 MHZ Dipole/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 2.78 mW/g

835 MHZ Dipole/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 53.9 V/m; Power Drift = -0.114 dB

Peak SAR (extrapolated) = 3.83 W/kg

SAR(1 g) = 2.58 mW/g; SAR(10 g) = 1.7 mW/g

Maximum value of SAR (measured) = 2.79 mW/g

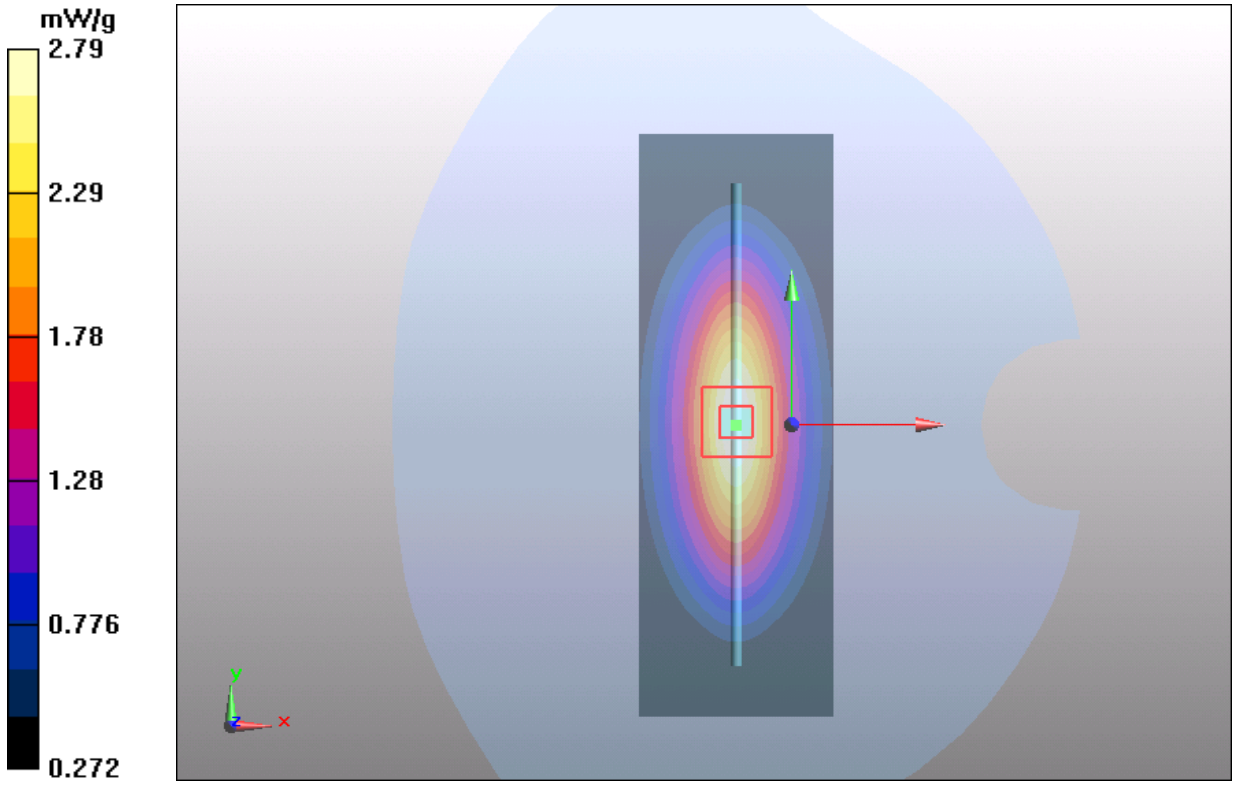


Figure 9 System Performance Check 835MHz 250mW

System Performance Check at 835 MHz Body TSL

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d020

Date/Time: 5/15/2012 11:45:30 AM

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

Medium parameters used: f = 835 MHz; σ = 0.95 mho/m; ε_r = 53.8; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Probe: EX3DV4 - SN3753; ConvF(9.18, 9.18, 9.18); Calibrated: 1/4/2012

Electronics: DAE4 Sn871; Calibrated: 11/22/2011

Phantom: SAM1; Type: SAM; Serial: TP-1534

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

835 MHZ Dipole/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 2.67 mW/g

835 MHZ Dipole/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 53.2 V/m; Power Drift = -0.028 dB

Peak SAR (extrapolated) = 3.66 W/kg

SAR(1 g) = 2.48 mW/g; SAR(10 g) = 1.64 mW/g

Maximum value of SAR (measured) = 2.67 mW/g

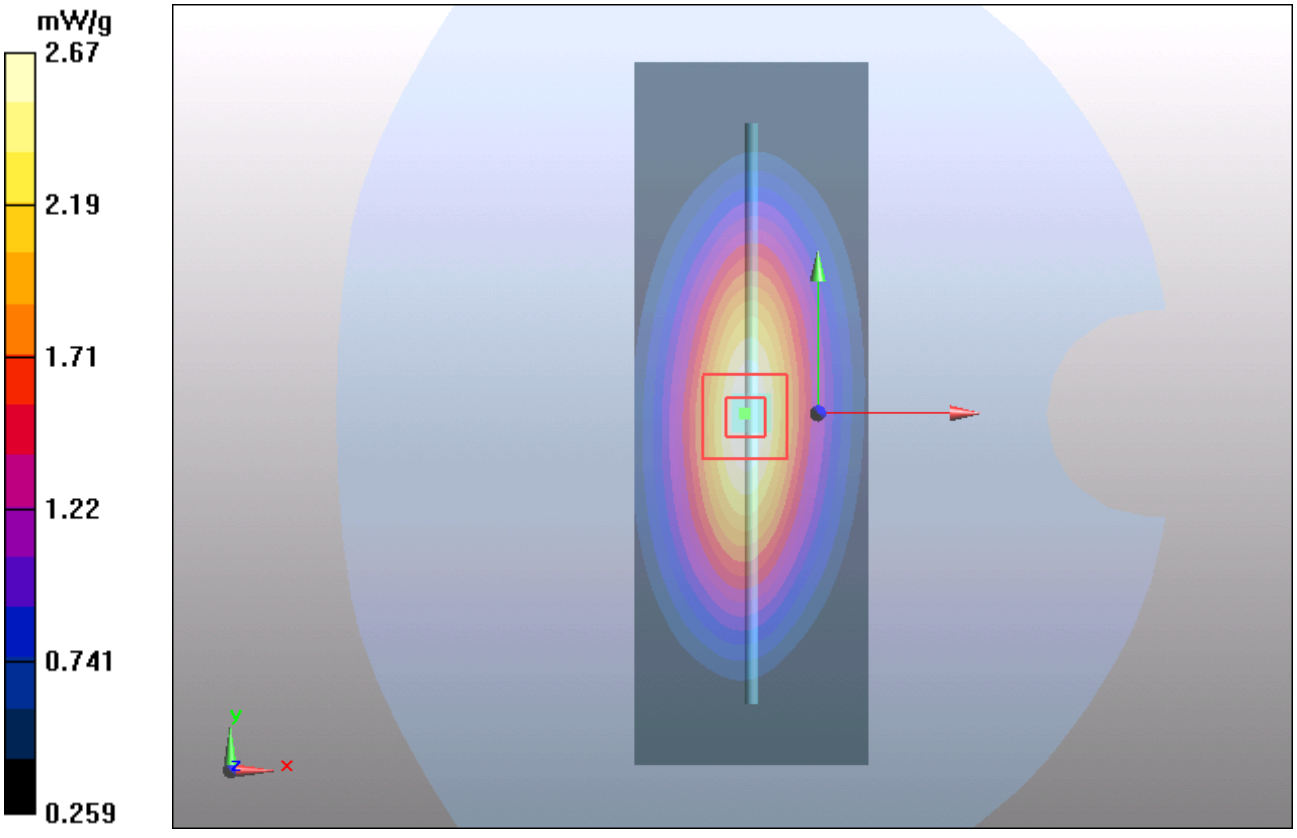


Figure 10 System Performance Check 835MHz 250mW

System Performance Check at 1900 MHz Head TSL

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d060

Date/Time: 5/15/2012 4:55:22 PM

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

Medium parameters used: f = 1900 MHz; σ = 1.41 mho/m; ε_r = 40.8; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Probe: EX3DV4 - SN3753; ConvF(8.05, 8.05, 8.05); Calibrated: 1/4/2012

Electronics: DAE4 Sn871; Calibrated: 11/22/2011

Phantom: SAM2; Type: SAM; Serial: TP-1524

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

1900 MHZ Dipole/Area Scan (41x71x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 11.7 mW/g

1900 MHZ Dipole/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 82.5 V/m; Power Drift = 0.179 dB

Peak SAR (extrapolated) = 17.9 W/kg

SAR(1 g) = 9.56 mW/g; SAR(10 g) = 4.94 mW/g

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

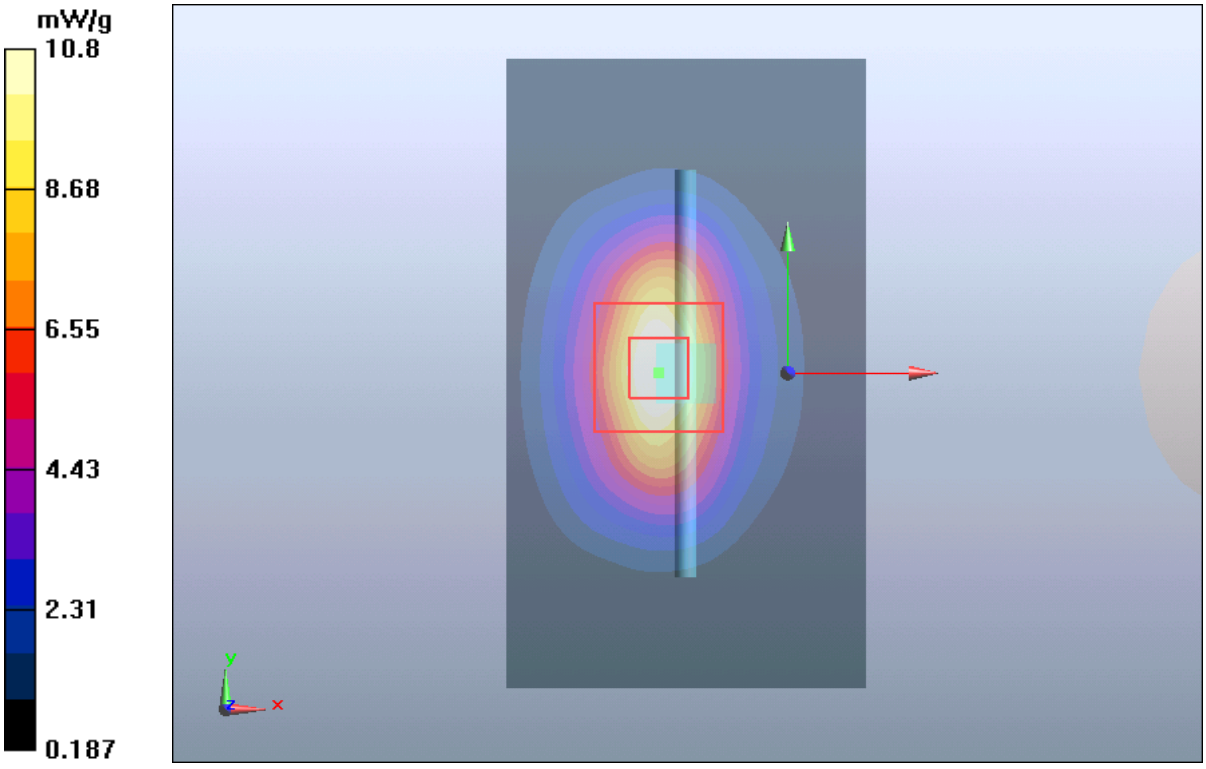


Figure 11 System Performance Check 1900MHz 250mW

System Performance Check at 1900 MHz Body TSL

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d060

Date/Time: 5/13/2012 11:00:11 AM

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

Medium parameters used: f = 1900 MHz; σ = 1.56 mho/m; ε_r = 51.5; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Probe: EX3DV4 - SN3753; ConvF(7.57, 7.57, 7.57); Calibrated: 1/4/2012

Electronics: DAE4 Sn871; Calibrated: 11/22/2011

Phantom: SAM2; Type: SAM; Serial: TP-1524

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

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

Maximum value of SAR (interpolated) = 12.6 mW/g

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

Reference Value = 83.3 V/m; Power Drift = 0.086 dB

Peak SAR (extrapolated) = 18.2 W/kg

SAR(1 g) = 10 mW/g; SAR(10 g) = 5.24 mW/g

Maximum value of SAR (measured) = 11.4 mW/g

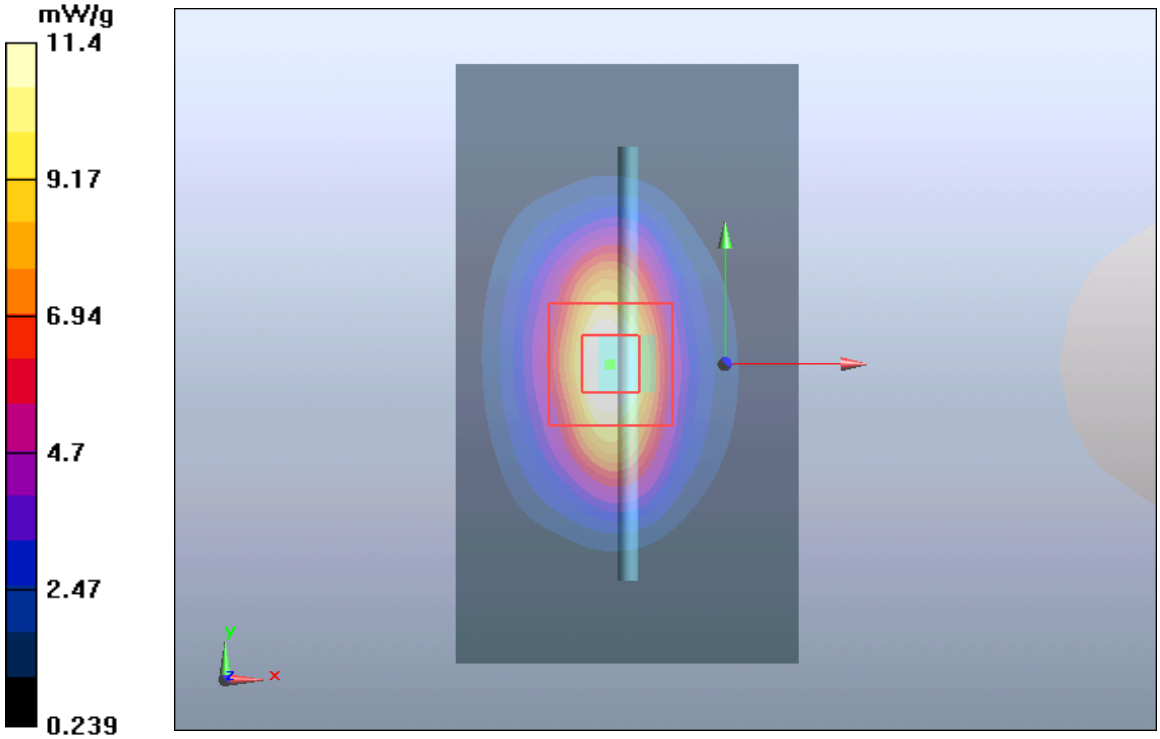


Figure 12 System Performance Check 1900MHz 250mW

System Performance Check at 1900 MHz Body TSL

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d060

Date/Time: 5/14/2012 11:05:22 AM

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

Medium parameters used: f = 1900 MHz; σ = 1.55 mho/m; ε_r = 52.1; ρ = 1000 kg/m^3

Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃

Phantom section: Flat Section

DASY5 Configuration:

Probe: EX3DV4 - SN3753; ConvF(7.57, 7.57, 7.57); Calibrated: 1/4/2012

Electronics: DAE4 Sn871; Calibrated: 11/22/2011

Phantom: SAM2; Type: SAM; Serial: TP-1524

Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

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

Maximum value of SAR (interpolated) = 12.8 mW/g

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

Reference Value = 81.7 V/m; Power Drift = 0.067 dB

Peak SAR (extrapolated) = 18.8 W/kg

SAR(1 g) = 10.3 mW/g; SAR(10 g) = 5.34 mW/g

Maximum value of SAR (measured) = 11.6 mW/g

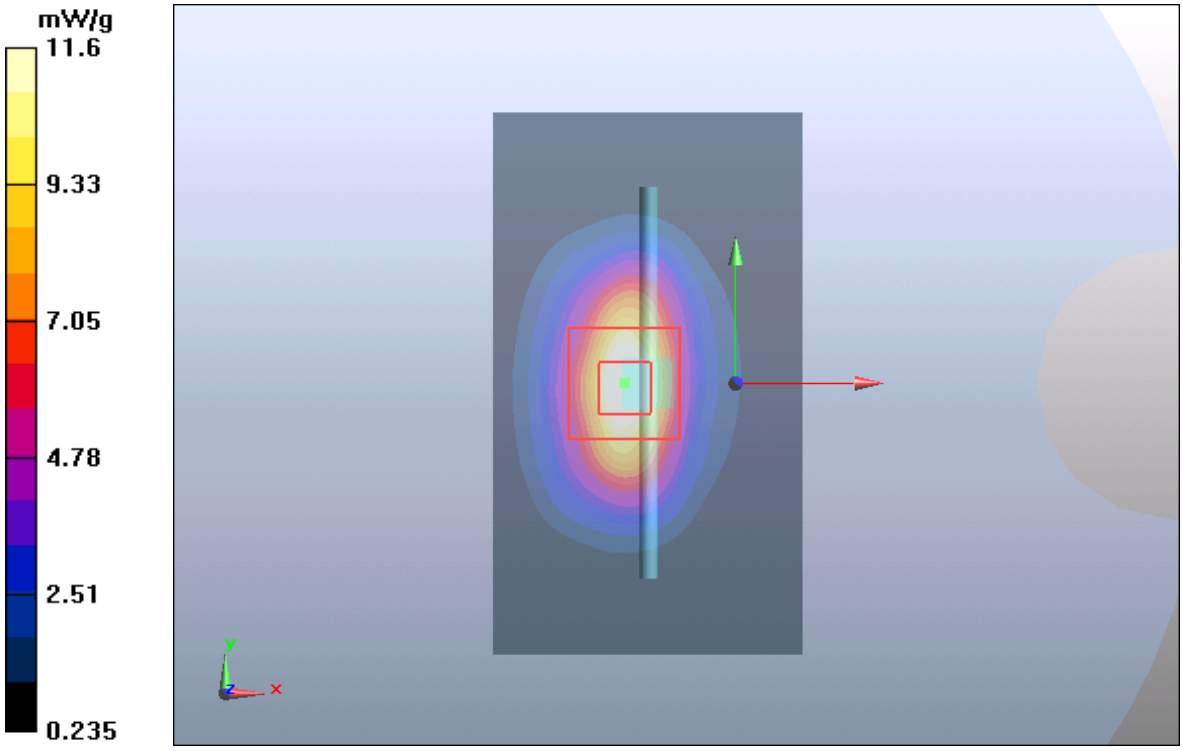


Figure 13 System Performance Check 1900MHz 250mW

ANNEX C: Graph Results

GSM 850 Left Cheek Middle (Open)

Date/Time: 5/16/2012 10:38:35 AM
Communication System: GSM; Frequency: 836.6 MHz;Duty Cycle: 1:8.30042
Medium parameters used: f = 837 MHz; σ = 0.9 mho/m; ε_r = 41.3; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Left Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(9.02, 9.02, 9.02); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM1; Type: SAM; Serial: TP-1534
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

GSM 850 Left/Cheek Middle/Area Scan (51x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.057 mW/g

GSM 850 Left/Cheek Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.73 V/m; Power Drift = 0.092 dB
Peak SAR (extrapolated) = 0.081 W/kg
SAR(1 g) = 0.052 mW/g; SAR(10 g) = 0.034 mW/g
Maximum value of SAR (measured) = 0.057 mW/g

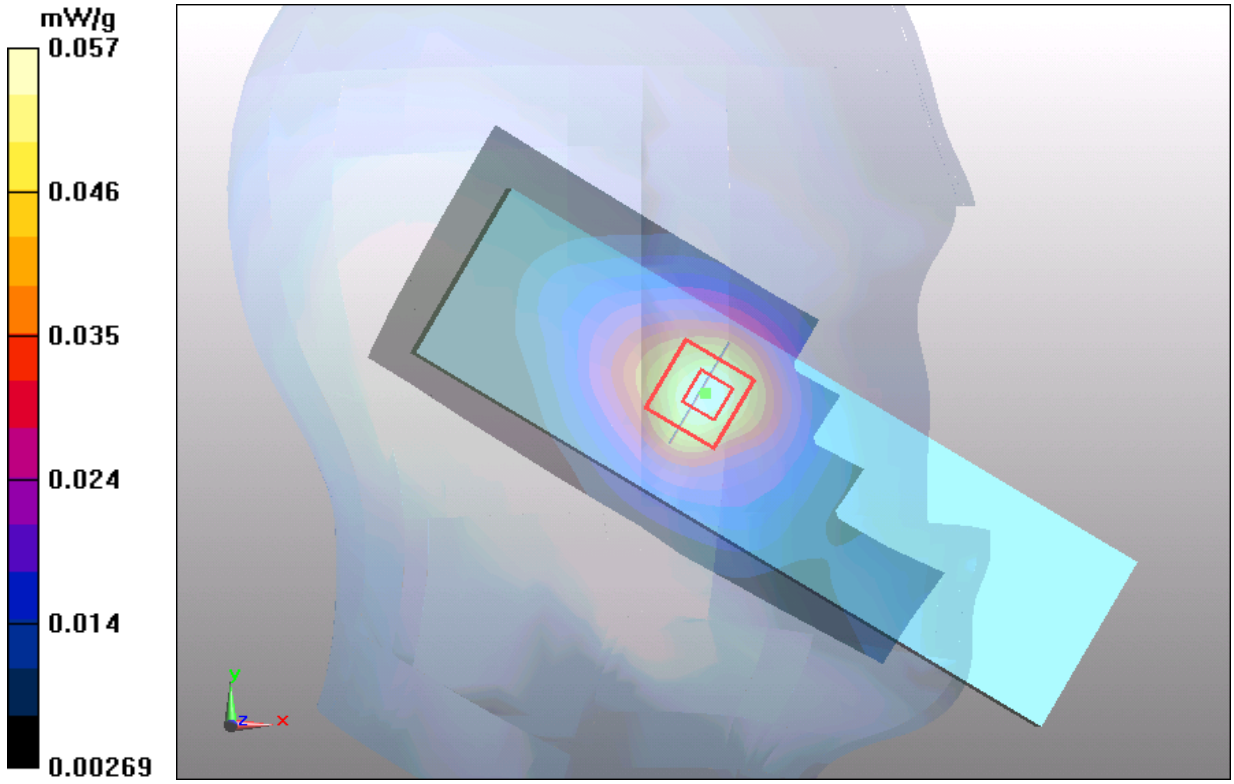


Figure 14 Left Hand Touch Cheek GSM 850 Channel 190

GSM 850 Left Tilt Middle (Open)

Date/Time: 5/16/2012 10:54:42 AM
Communication System: GSM; Frequency: 836.6 MHz;Duty Cycle: 1:8.30042
Medium parameters used: f = 837 MHz; σ = 0.9 mho/m; ε_r = 41.3; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Left Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(9.02, 9.02, 9.02); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM1; Type: SAM; Serial: TP-1534
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

GSM 850 Left/Tilt Middle/Area Scan (51x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.017 mW/g

GSM 850 Left/Tilt Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3 V/m; Power Drift = -0.035 dB
Peak SAR (extrapolated) = 0.022 W/kg
SAR(1 g) = 0.015 mW/g; SAR(10 g) = 0.011 mW/g
Maximum value of SAR (measured) = 0.016 mW/g

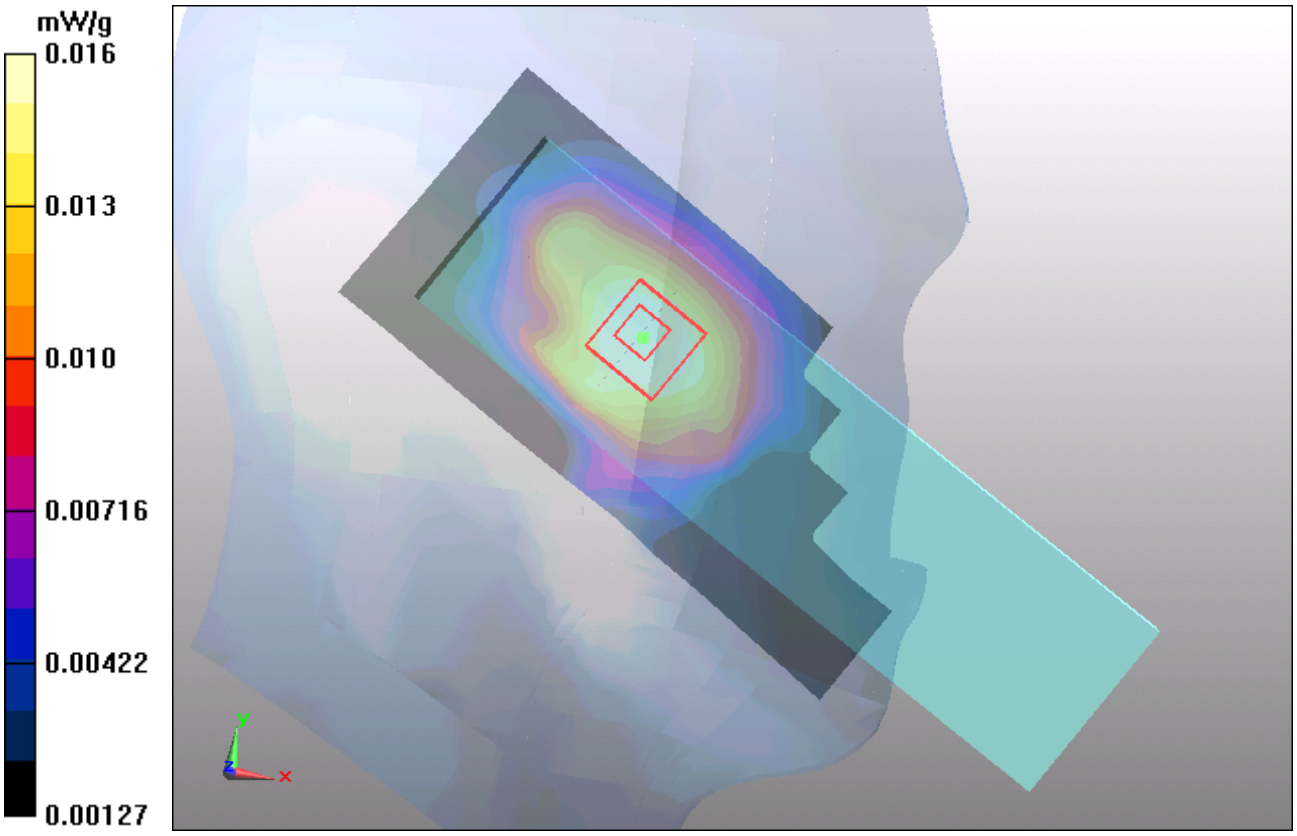


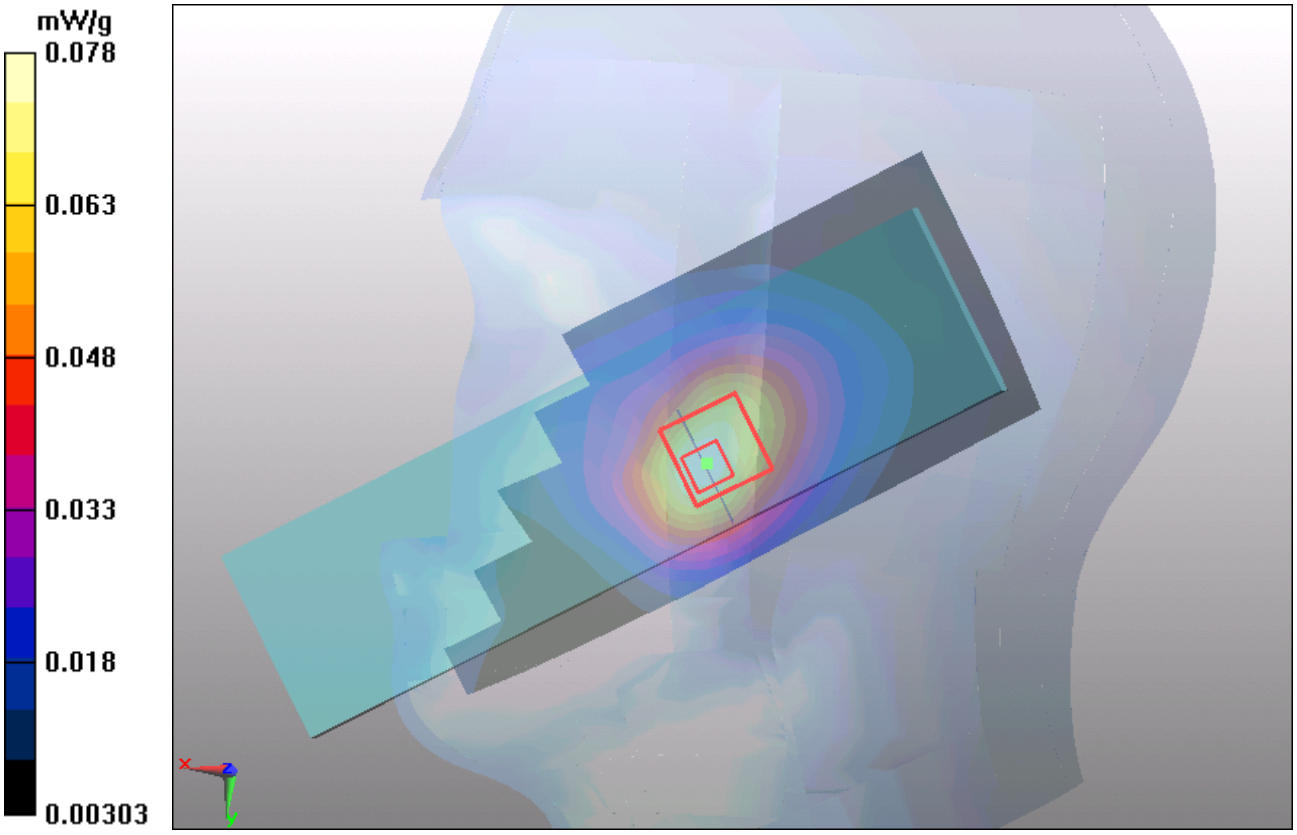
Figure 15 Left Hand Tilt 15° GSM 850 Channel 190

GSM 850 Right Cheek High (Open)

Date/Time: 5/16/2012 11:31:15 AM
Communication System: GSM; Frequency: 848.8 MHz;Duty Cycle: 1:8.30042
Medium parameters used: f = 849 MHz; σ = 0.913 mho/m; ε_r = 41.2; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Right Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(9.02, 9.02, 9.02); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM1; Type: SAM; Serial: TP-1534
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

GSM 850 Right/Cheek High/Area Scan (51x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.078 mW/g

GSM 850 Right/Cheek High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.96 V/m; Power Drift = -0.066 dB
Peak SAR (extrapolated) = 0.119 W/kg
SAR(1 g) = 0.072 mW/g; SAR(10 g) = 0.046 mW/g
Maximum value of SAR (measured) = 0.078 mW/g



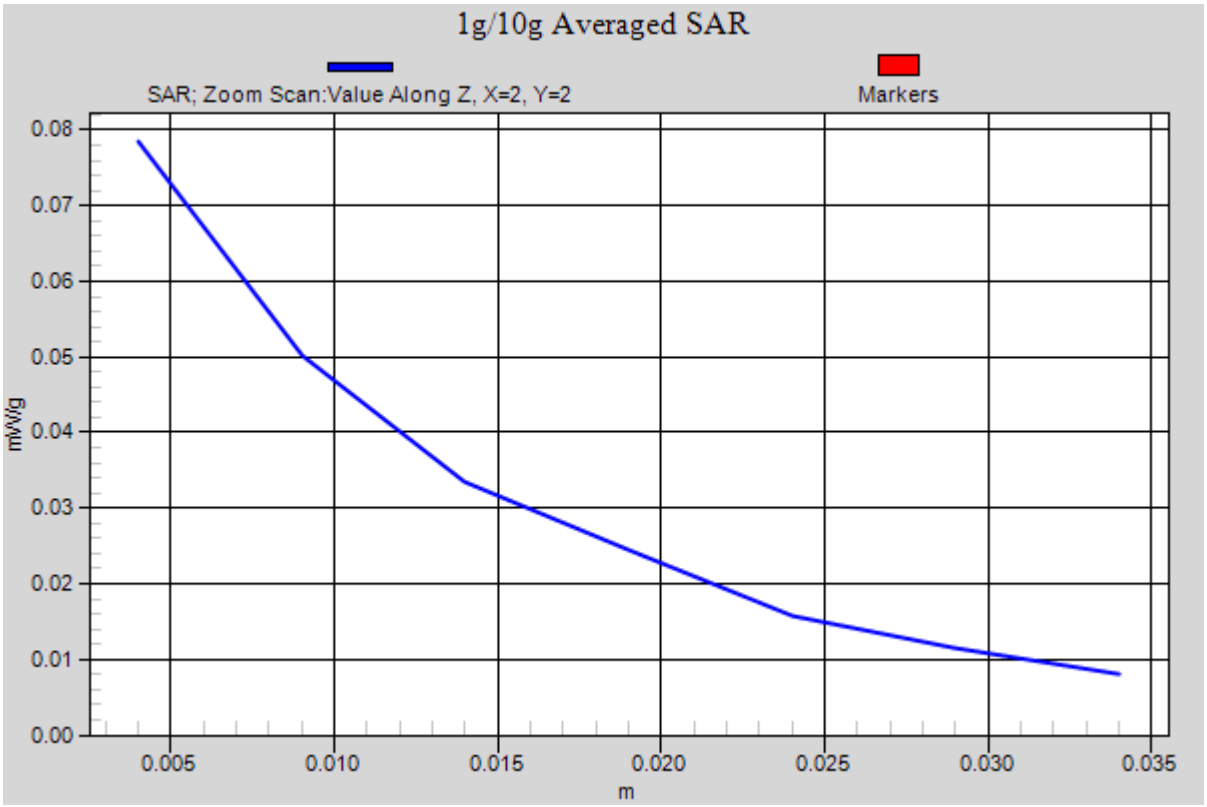


Figure 16 Right Hand Touch Cheek GSM 850 Channel 251

GSM 850 Right Cheek Middle (Open)

Date/Time: 5/16/2012 11:14:51 AM
Communication System: GSM; Frequency: 836.6 MHz;Duty Cycle: 1:8.30042
Medium parameters used: f = 837 MHz; σ = 0.9 mho/m; ε_r = 41.3; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Right Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(9.02, 9.02, 9.02); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM1; Type: SAM; Serial: TP-1534
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

GSM 850 Right/Cheek Middle/Area Scan (51x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.062 mW/g

GSM 850 Right/Cheek Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.57 V/m; Power Drift = -0.043 dB
Peak SAR (extrapolated) = 0.093 W/kg
SAR(1 g) = 0.056 mW/g; SAR(10 g) = 0.036 mW/g
Maximum value of SAR (measured) = 0.061 mW/g

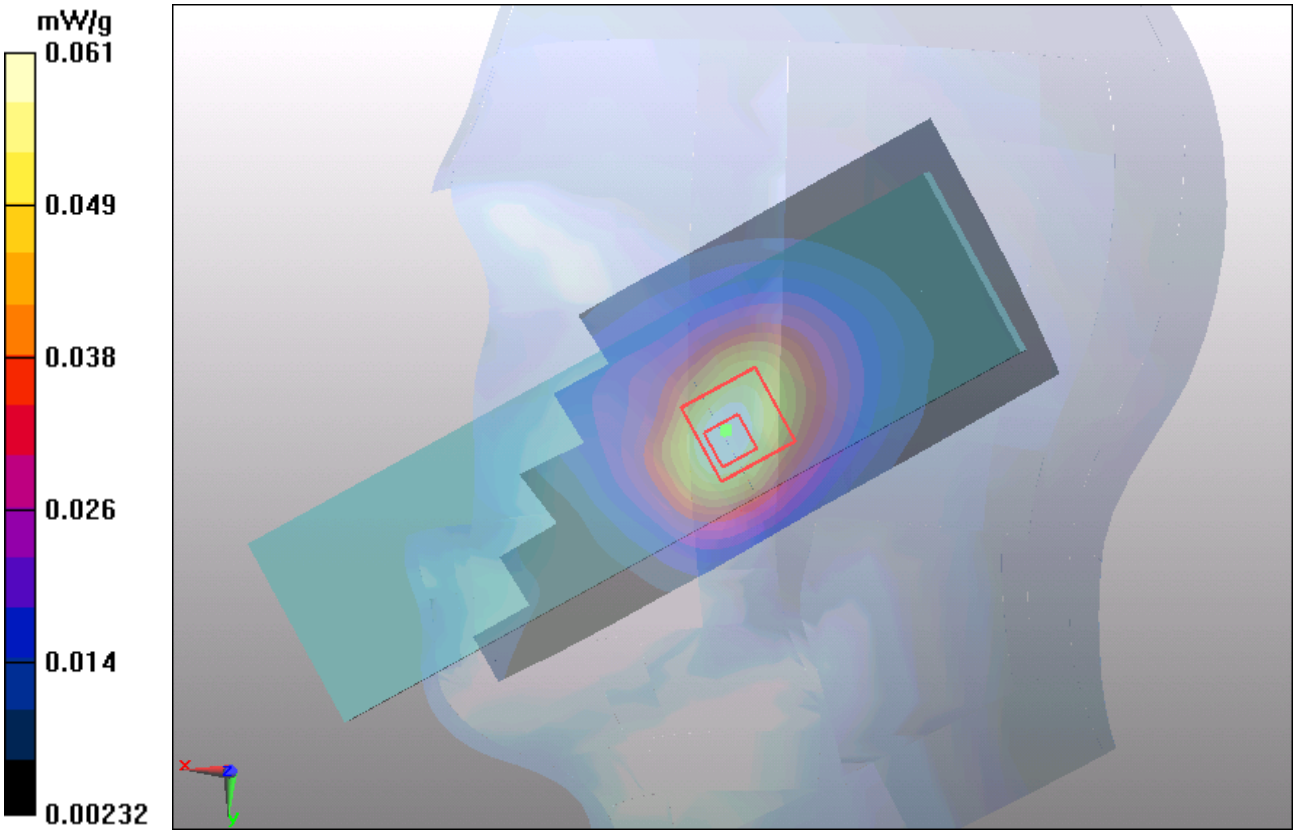


Figure 17 Right Hand Touch Cheek GSM 850 Channel 190

GSM 850 Right Cheek Low (Open)

Date/Time: 5/16/2012 11:47:57 AM
Communication System: GSM; Frequency: 824.2 MHz;Duty Cycle: 1:8.30042
Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.887 mho/m; ε_r = 41.5; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Right Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(9.02, 9.02, 9.02); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM1; Type: SAM; Serial: TP-1534
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

GSM 850 Right/Cheek Low/Area Scan (51x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.052 mW/g

GSM 850 Right/Cheek Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.39 V/m; Power Drift = -0.046 dB
Peak SAR (extrapolated) = 0.087 W/kg
SAR(1 g) = 0.053 mW/g; SAR(10 g) = 0.035 mW/g
Maximum value of SAR (measured) = 0.057 mW/g

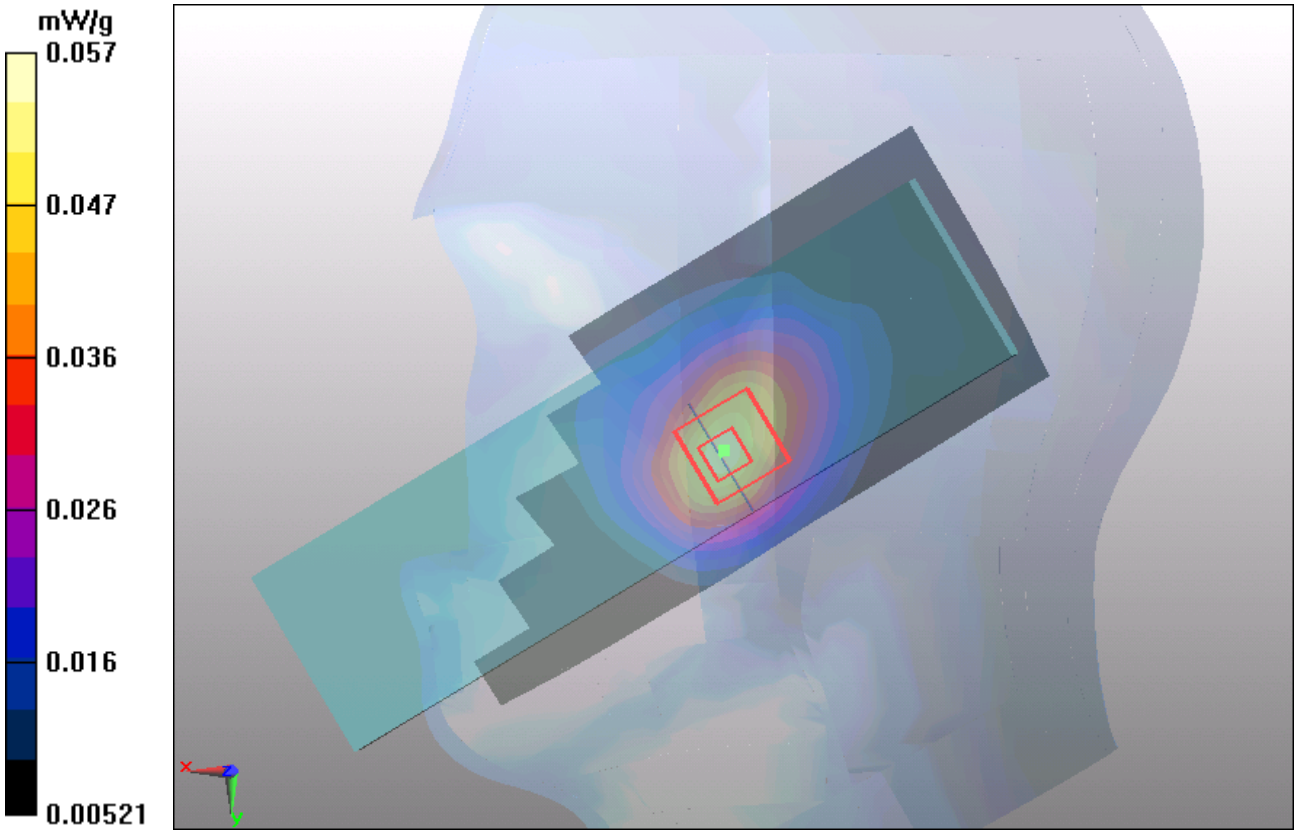


Figure 18 Right Hand Touch Cheek GSM 850 Channel 128

GSM 850 Right Tilt Middle (Open)

Date/Time: 5/16/2012 12:04:57 PM
Communication System: GSM; Frequency: 836.6 MHz;Duty Cycle: 1:8.30042
Medium parameters used: f = 837 MHz; σ = 0.9 mho/m; ε_r = 41.3; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Right Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(9.02, 9.02, 9.02); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM1; Type: SAM; Serial: TP-1534
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

GSM 850 Right/Tilt Middle/Area Scan (51x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.020 mW/g

GSM 850 Right/Tilt Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.82 V/m; Power Drift = -0.151 dB
Peak SAR (extrapolated) = 0.024 W/kg
SAR(1 g) = 0.018 mW/g; SAR(10 g) = 0.013 mW/g
Maximum value of SAR (measured) = 0.019 mW/g

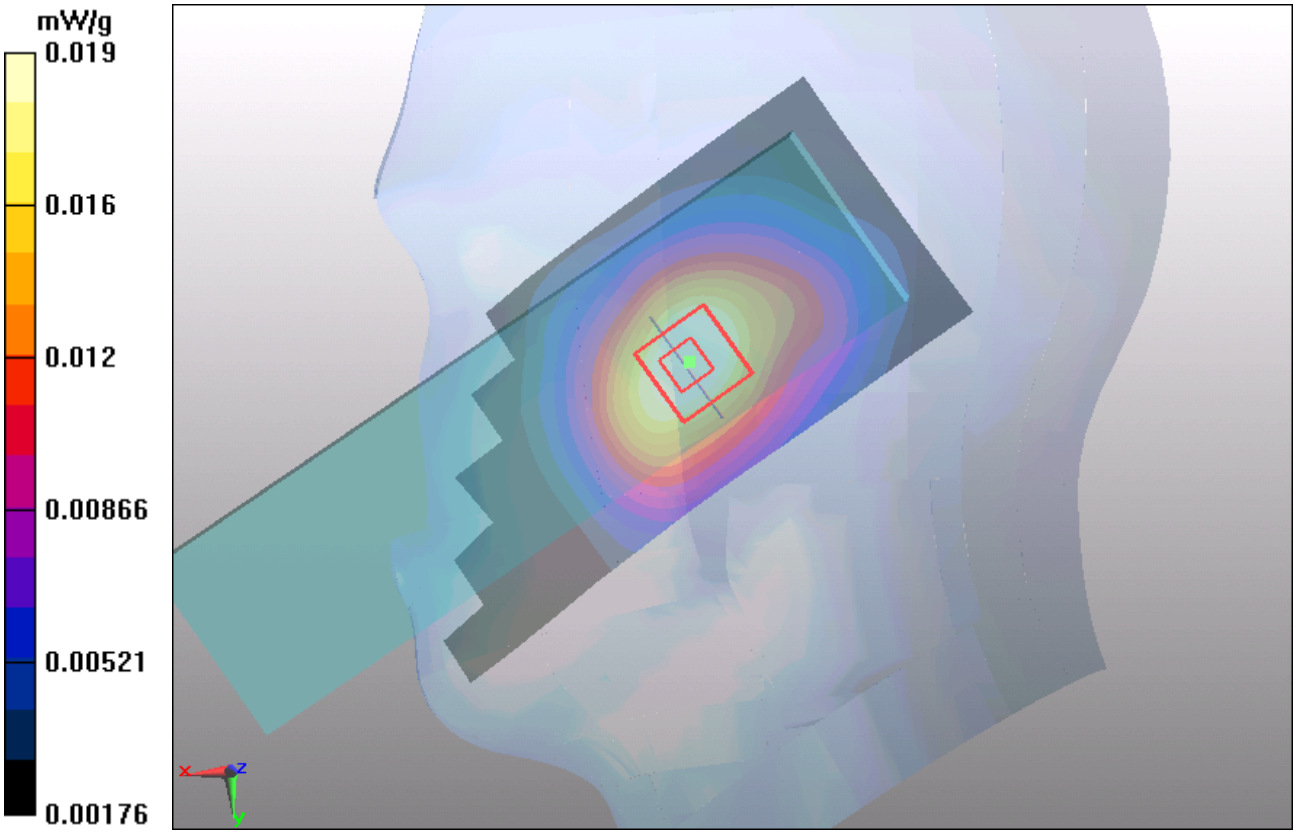


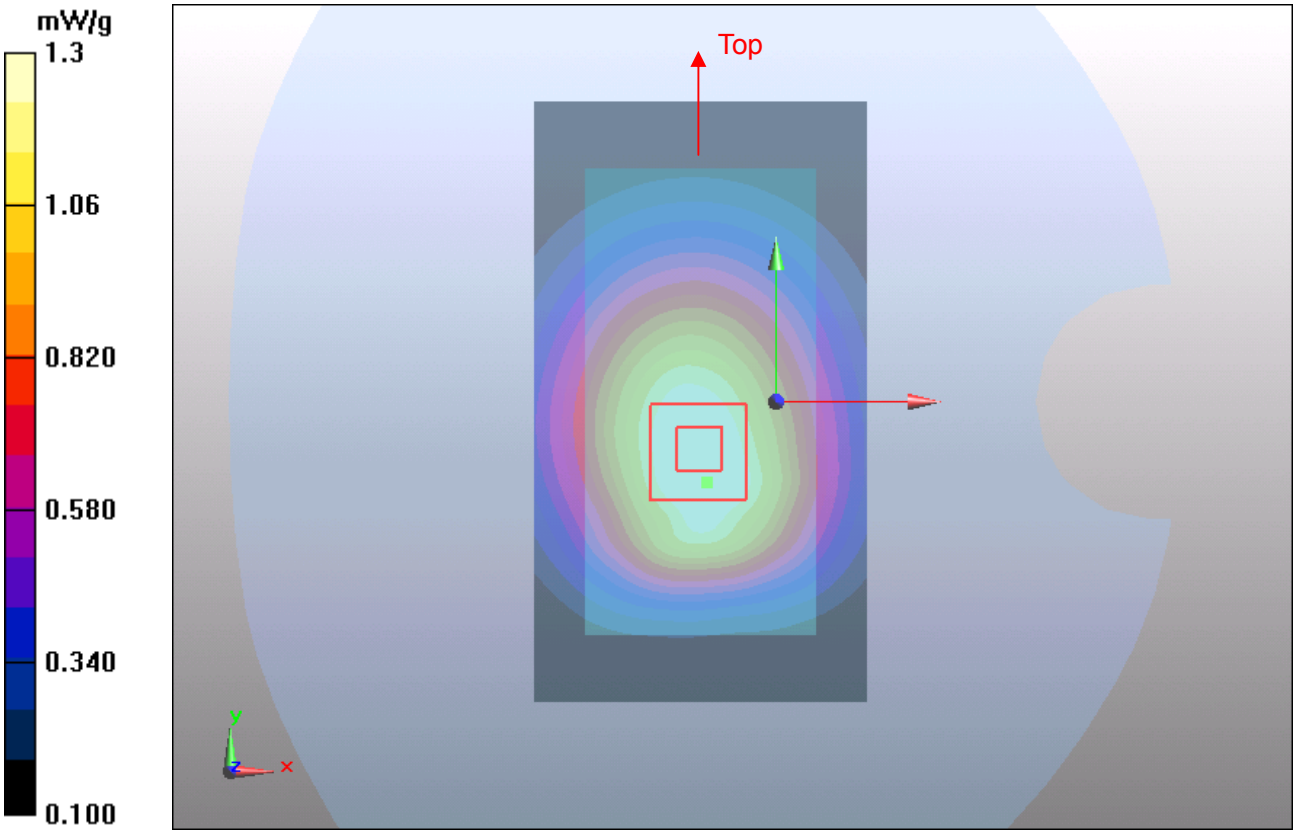
Figure 19 Right Hand Tilt 15° GSM 850 Channel 190

GSM 850 GPRS (4Txslots) Towards Ground High (Closed)

Date/Time: 5/12/2012 3:45:43 PM
Communication System: GPRS 4TX; Frequency: 848.8 MHz;Duty Cycle: 1:2.07491
Medium parameters used: f = 849 MHz; σ = 0.986 mho/m; ε_r = 54.3; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Flat Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(9.18, 9.18, 9.18); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM1; Type: SAM; Serial: TP-1534
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Towards Ground High/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.39 mW/g

Towards Ground High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 35.9 V/m; Power Drift = 0.039 dB
Peak SAR (extrapolated) = 1.61 W/kg
SAR(1 g) = 1.23 mW/g; SAR(10 g) = 0.899 mW/g
Maximum value of SAR (measured) = 1.3 mW/g



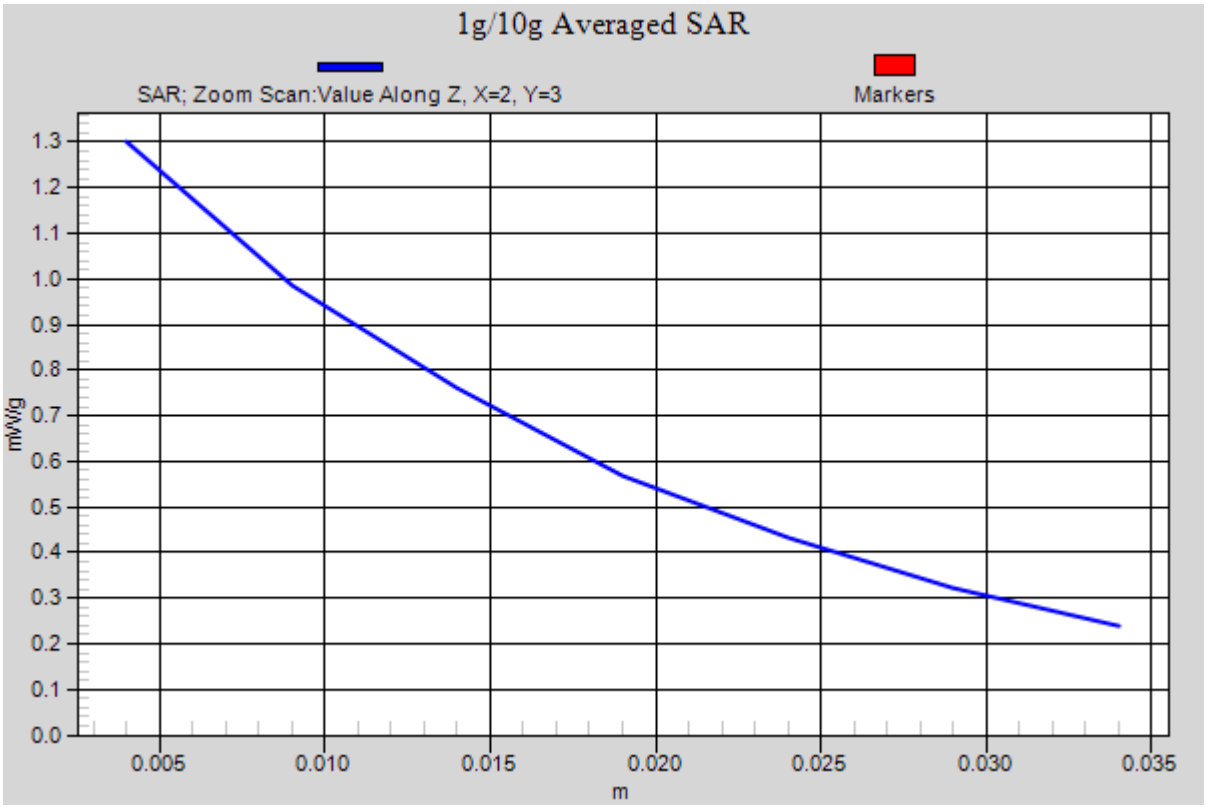


Figure 20 Body, Towards Ground, GSM 850 GPRS (4Txslots) Channel 251

GSM 850 GPRS (4Txslots) Towards Ground Middle (Closed)

Date/Time: 5/12/2012 4:02:25 PM
Communication System: GPRS 4TX; Frequency: 836.6 MHz;Duty Cycle: 1:2.07491
Medium parameters used: f = 837 MHz; σ = 0.977 mho/m; ε_r = 54.3; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Flat Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(9.18, 9.18, 9.18); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM1; Type: SAM; Serial: TP-1534
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Towards Ground Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.908 mW/g

Towards Ground Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 29.3 V/m; Power Drift = 0.00965 dB
Peak SAR (extrapolated) = 1.11 W/kg
SAR(1 g) = 0.842 mW/g; SAR(10 g) = 0.616 mW/g
Maximum value of SAR (measured) = 0.886 mW/g

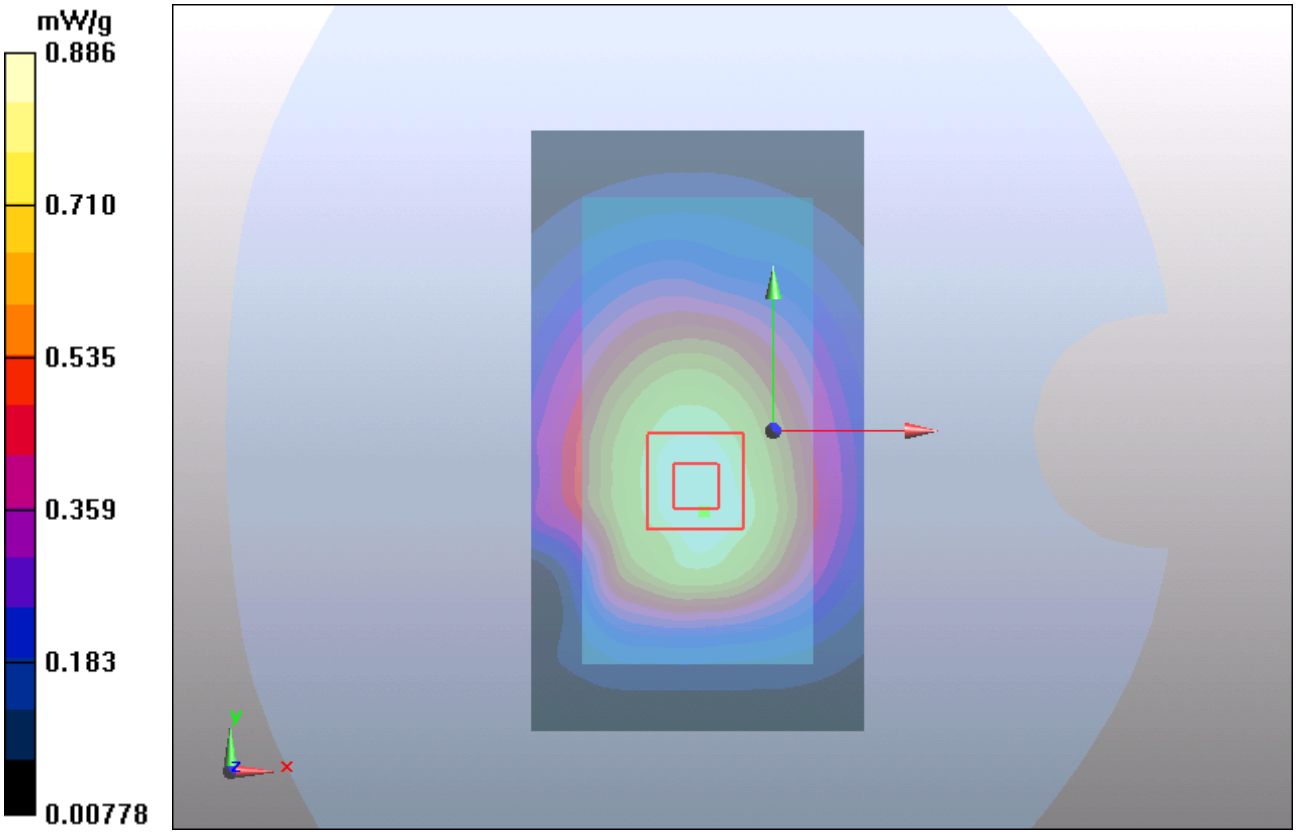


Figure 21 Body, Towards Ground, GSM 850 GPRS (4Txslots) Channel 190

GSM 850 GPRS (4Txslots) Towards Ground Low (Closed)

Date/Time: 5/12/2012 4:17:27 PM
Communication System: GPRS 4TX; Frequency: 824.2 MHz;Duty Cycle: 1:2.07491
Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.967 mho/m; ε_r = 54.3; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Flat Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(9.18, 9.18, 9.18); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM1; Type: SAM; Serial: TP-1534
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Towards Ground Low/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.712 mW/g

Towards Ground Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 25.7 V/m; Power Drift = 0.0099 dB
Peak SAR (extrapolated) = 0.830 W/kg
SAR(1 g) = 0.640 mW/g; SAR(10 g) = 0.460 mW/g
Maximum value of SAR (measured) = 0.670 mW/g

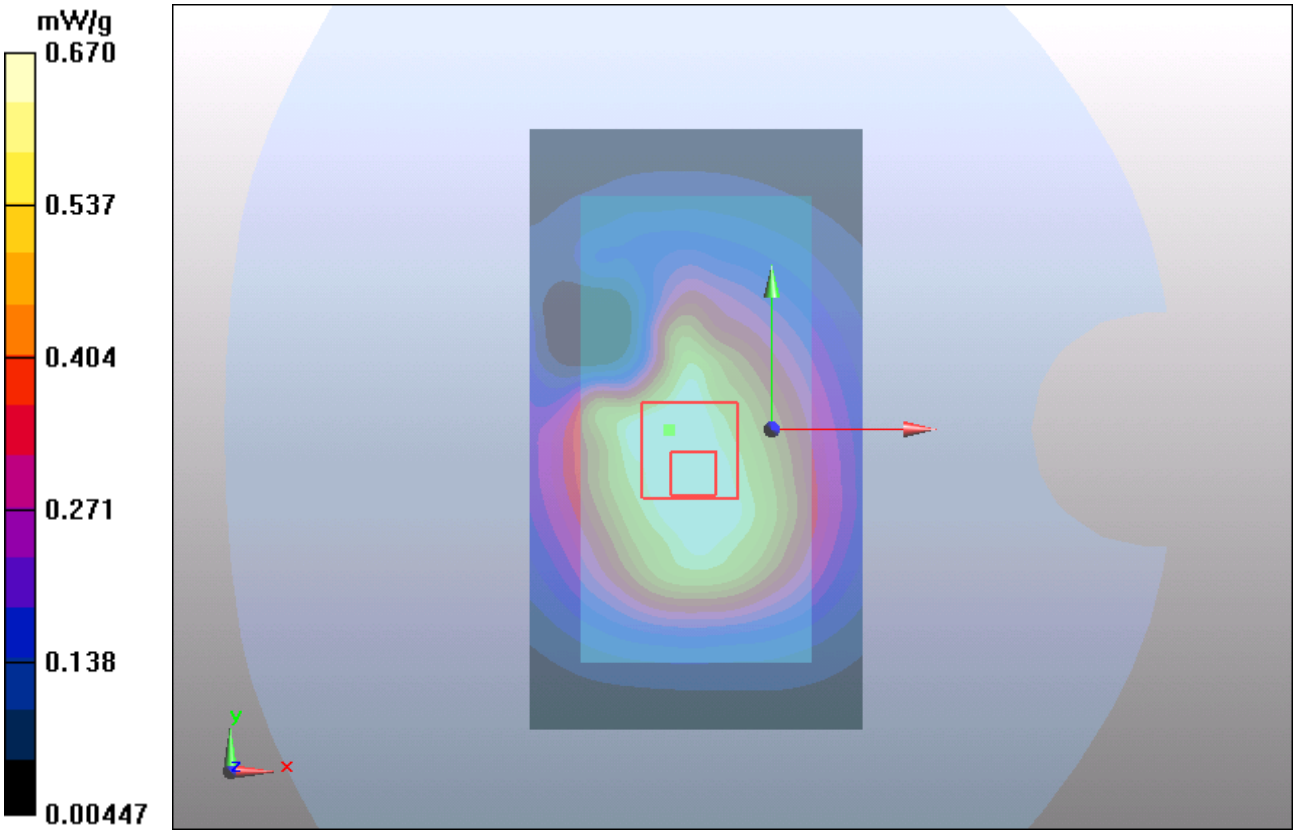


Figure 22 Body, Towards Ground, GSM 850 GPRS (4Txslots) Channel 128

GSM 850 GPRS (4Txslots) Towards Phantom High (Closed)

Date/Time: 5/12/2012 9:38:32 PM
Communication System: GPRS 4TX; Frequency: 848.8 MHz;Duty Cycle: 1:2.07491
Medium parameters used: f = 849 MHz; σ = 1.01 mho/m; ε_r = 54.1; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Flat Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(9.18, 9.18, 9.18); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM1; Type: SAM; Serial: TP-1534
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Towards Phantom High/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.379 mW/g

Towards Phantom High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.8 V/m; Power Drift = 0.034 dB
Peak SAR (extrapolated) = 1.34 W/kg
SAR(1 g) = 0.359 mW/g; SAR(10 g) = 0.265 mW/g
Maximum value of SAR (measured) = 0.379 mW/g

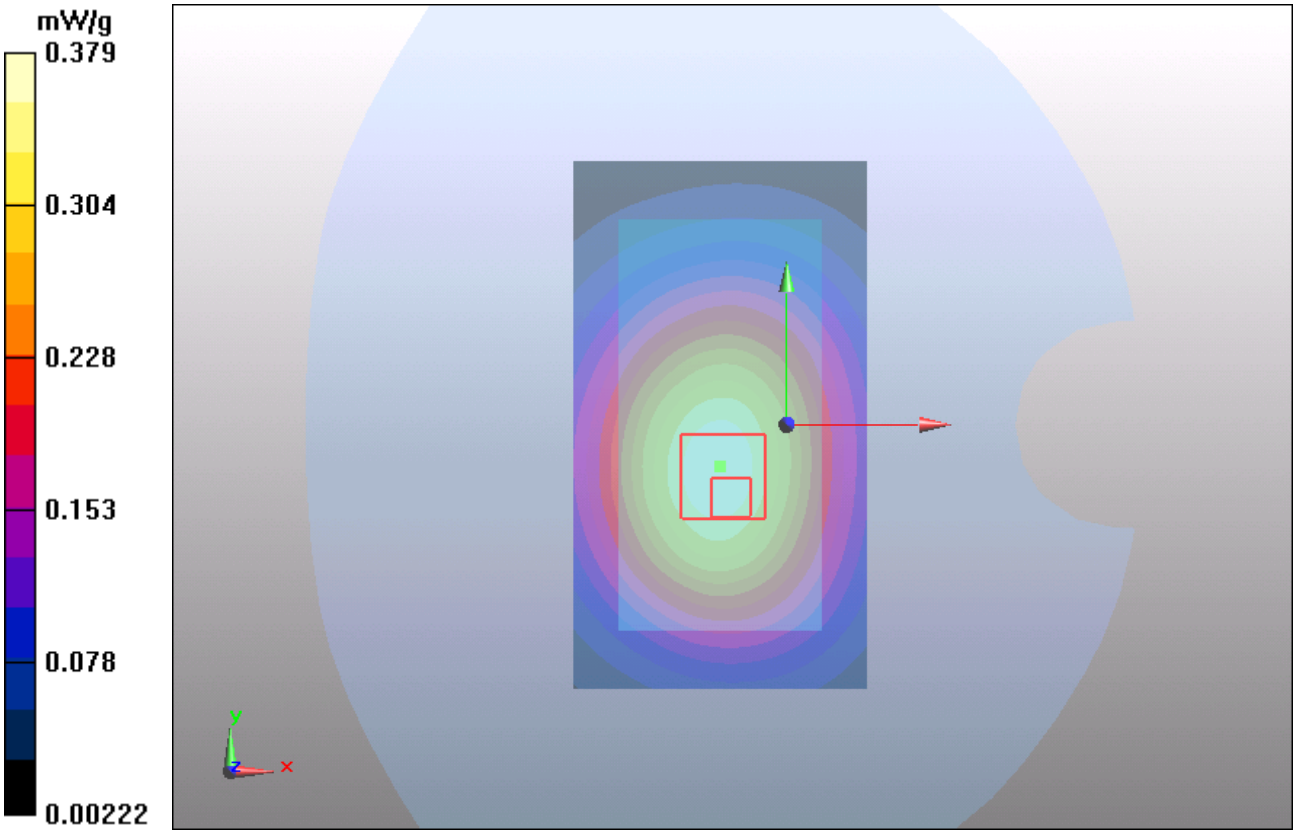


Figure 23 Body, Towards Phantom, GSM 850 GPRS (4Txslots) Channel 251

GSM 850 GPRS (4Txslots) Towards Phantom Middle (Closed)

Date/Time: 5/12/2012 9:53:49 PM
Communication System: GPRS 4TX; Frequency: 836.6 MHz;Duty Cycle: 1:2.07491
Medium parameters used: f = 837 MHz; σ = 0.988 mho/m; ε_r = 54.2; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Flat Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(9.18, 9.18, 9.18); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM1; Type: SAM; Serial: TP-1534
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Towards Phantom Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.254 mW/g

Towards Phantom Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.5 V/m; Power Drift = -0.014 dB
Peak SAR (extrapolated) = 0.324 W/kg
SAR(1 g) = 0.244 mW/g; SAR(10 g) = 0.170 mW/g
Maximum value of SAR (measured) = 0.254 mW/g

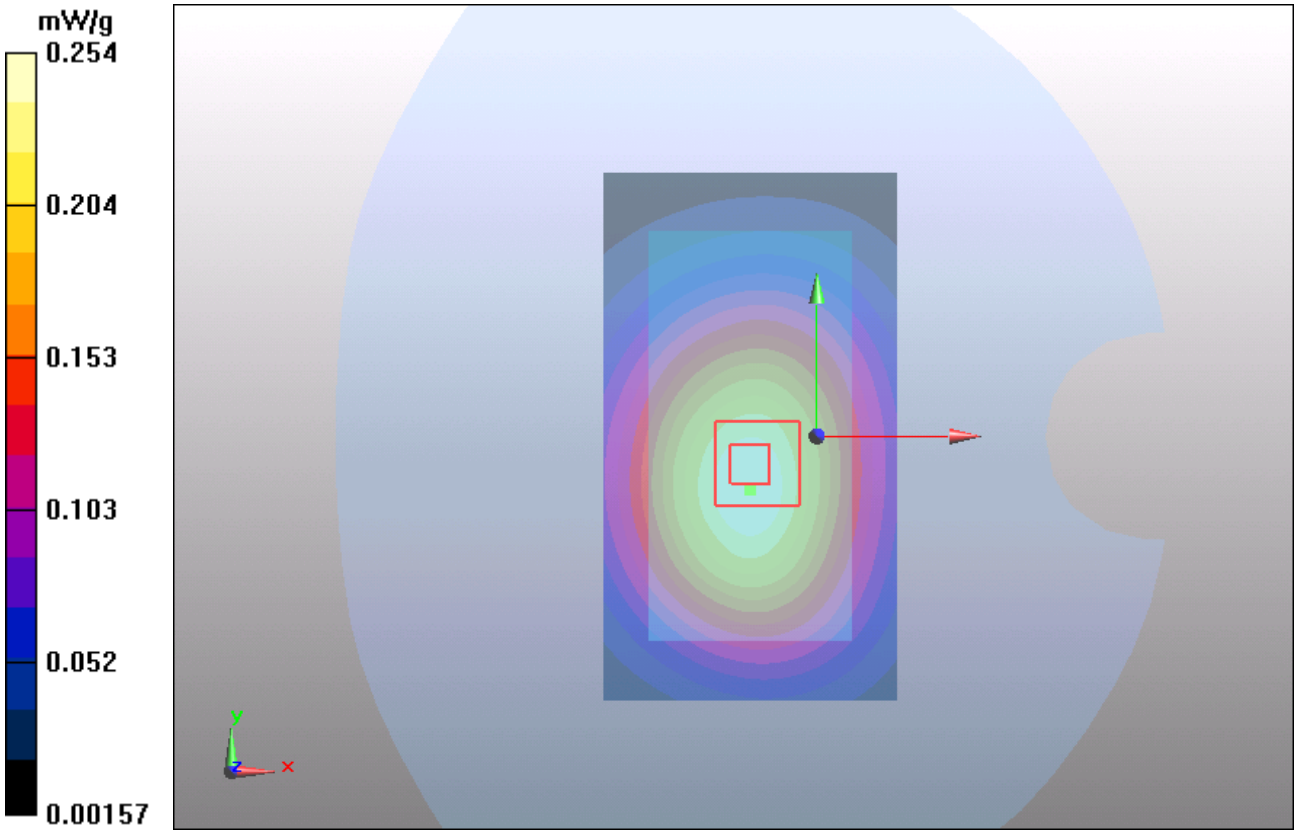


Figure 24 Body, Towards Phantom, GSM 850 GPRS (4Txslots) Channel 190

GSM 850 GPRS (4Txslots) Towards Phantom Low (Closed)

Date/Time: 5/12/2012 9:18:40 PM
Communication System: GPRS 4TX; Frequency: 824.2 MHz;Duty Cycle: 1:2.07491
Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.972 mho/m; ε_r = 54.4; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Flat Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(9.18, 9.18, 9.18); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM1; Type: SAM; Serial: TP-1534
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Towards Phantom Low/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.200 mW/g

Towards Phantom Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.1 V/m; Power Drift = -0.053 dB
Peak SAR (extrapolated) = 0.247 W/kg
SAR(1 g) = 0.188 mW/g; SAR(10 g) = 0.139 mW/g
Maximum value of SAR (measured) = 0.199 mW/g

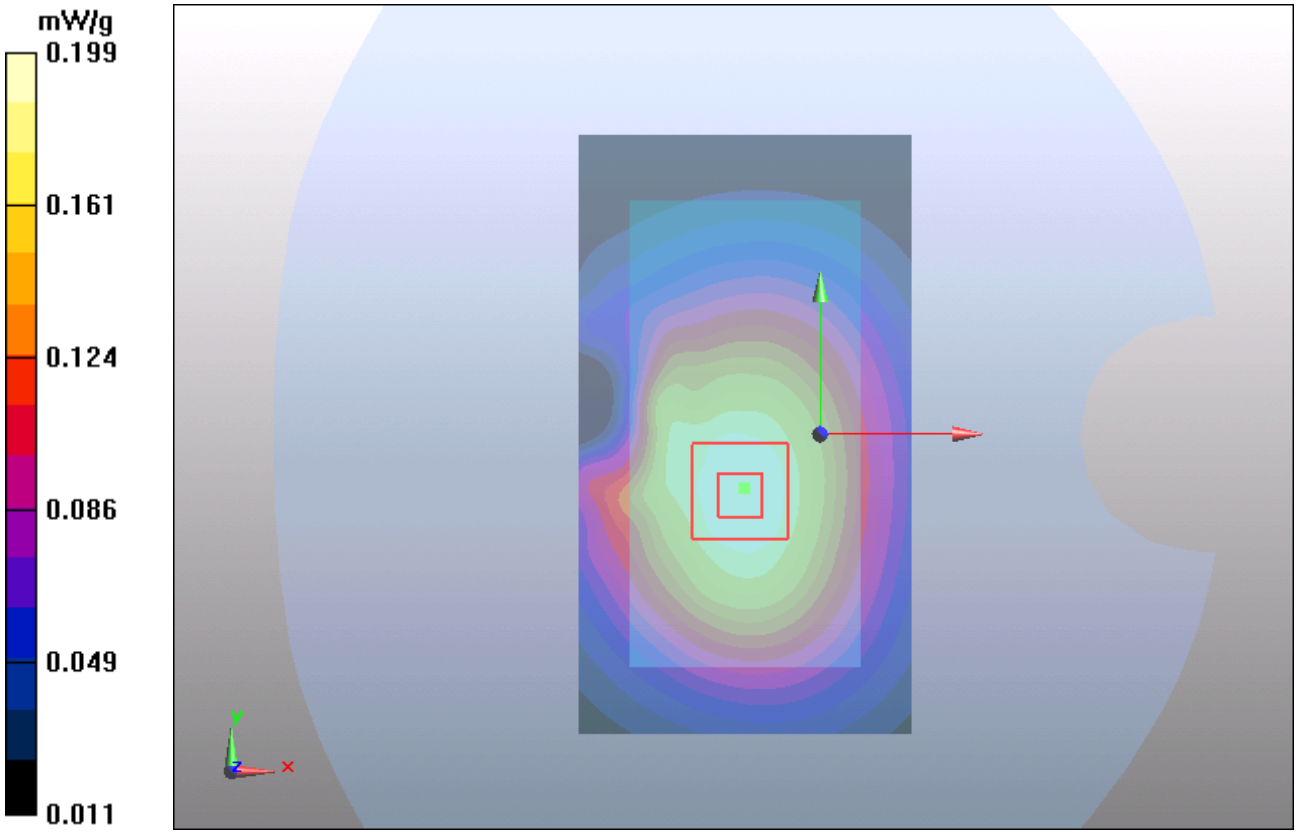


Figure 25 Body, Towards Phantom, GSM 850 GPRS (4Txslots) Channel 128

GSM 850 GPRS (4Txslots) Towards Ground High (Open)

Date/Time: 5/12/2012 10:38:30 PM
Communication System: GPRS 4TX; Frequency: 848.8 MHz;Duty Cycle: 1:2.07491
Medium parameters used: f = 849 MHz; σ = 1.01 mho/m; ε_r = 54.1; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Flat Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(9.18, 9.18, 9.18); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM1; Type: SAM; Serial: TP-1534
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Towards Ground High/Area Scan (51x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.564 mW/g

Towards Ground High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.59 V/m; Power Drift = 0.021 dB
Peak SAR (extrapolated) = 0.712 W/kg
SAR(1 g) = 0.519 mW/g; SAR(10 g) = 0.356 mW/g
Maximum value of SAR (measured) = 0.542 mW/g

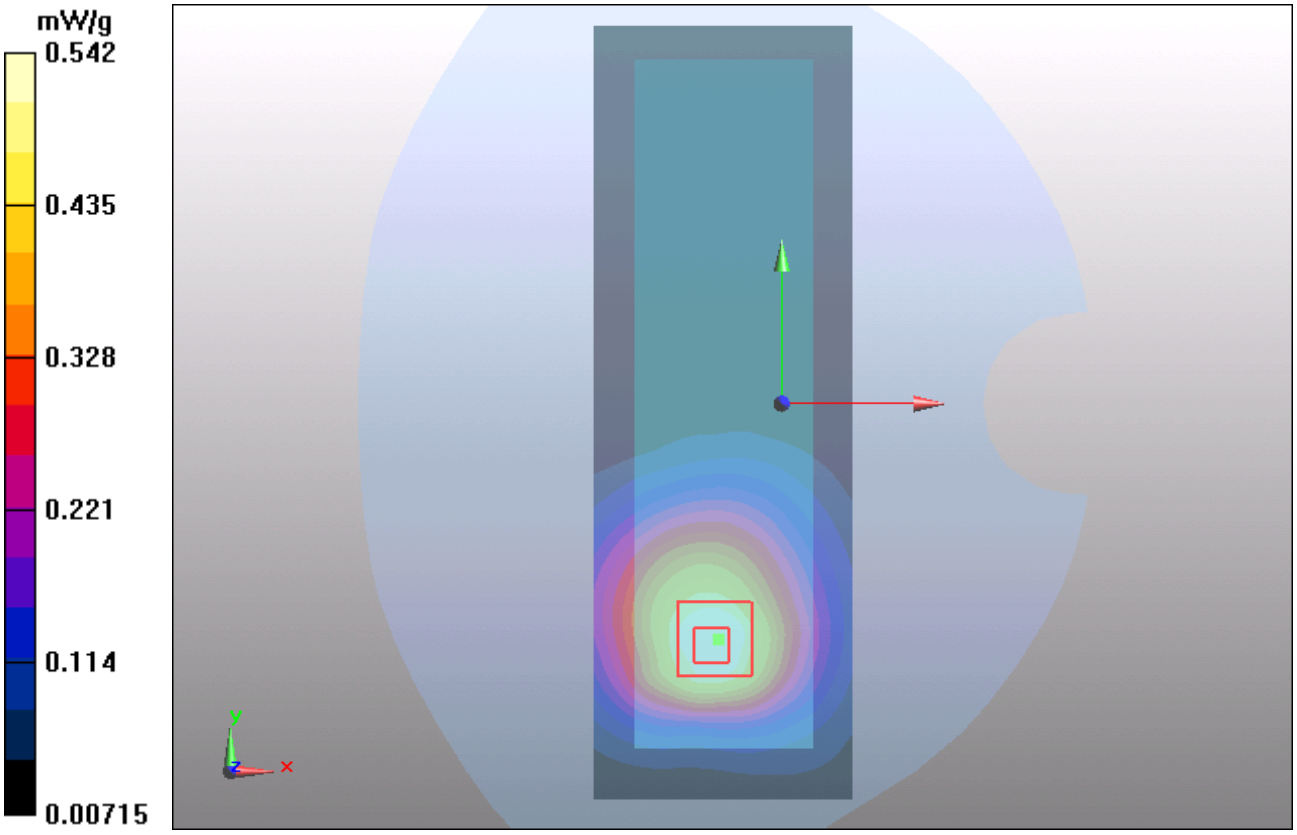


Figure 26 Body, Towards Ground, GSM 850 GPRS (4Txslots) Channel 251

GSM 850 GPRS (4Txslots) Towards Ground Middle (Open)

Date/Time: 5/12/2012 10:19:15 PM
Communication System: GPRS 4TX; Frequency: 836.6 MHz;Duty Cycle: 1:2.07491
Medium parameters used: f = 837 MHz; σ = 0.988 mho/m; ε_r = 54.2; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Flat Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(9.18, 9.18, 9.18); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM1; Type: SAM; Serial: TP-1534
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Towards Ground Middle/Area Scan (51x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.376 mW/g

Towards Ground Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.63 V/m; Power Drift = 0.170 dB
Peak SAR (extrapolated) = 0.593 W/kg
SAR(1 g) = 0.349 mW/g; SAR(10 g) = 0.245 mW/g
Maximum value of SAR (measured) = 0.367 mW/g

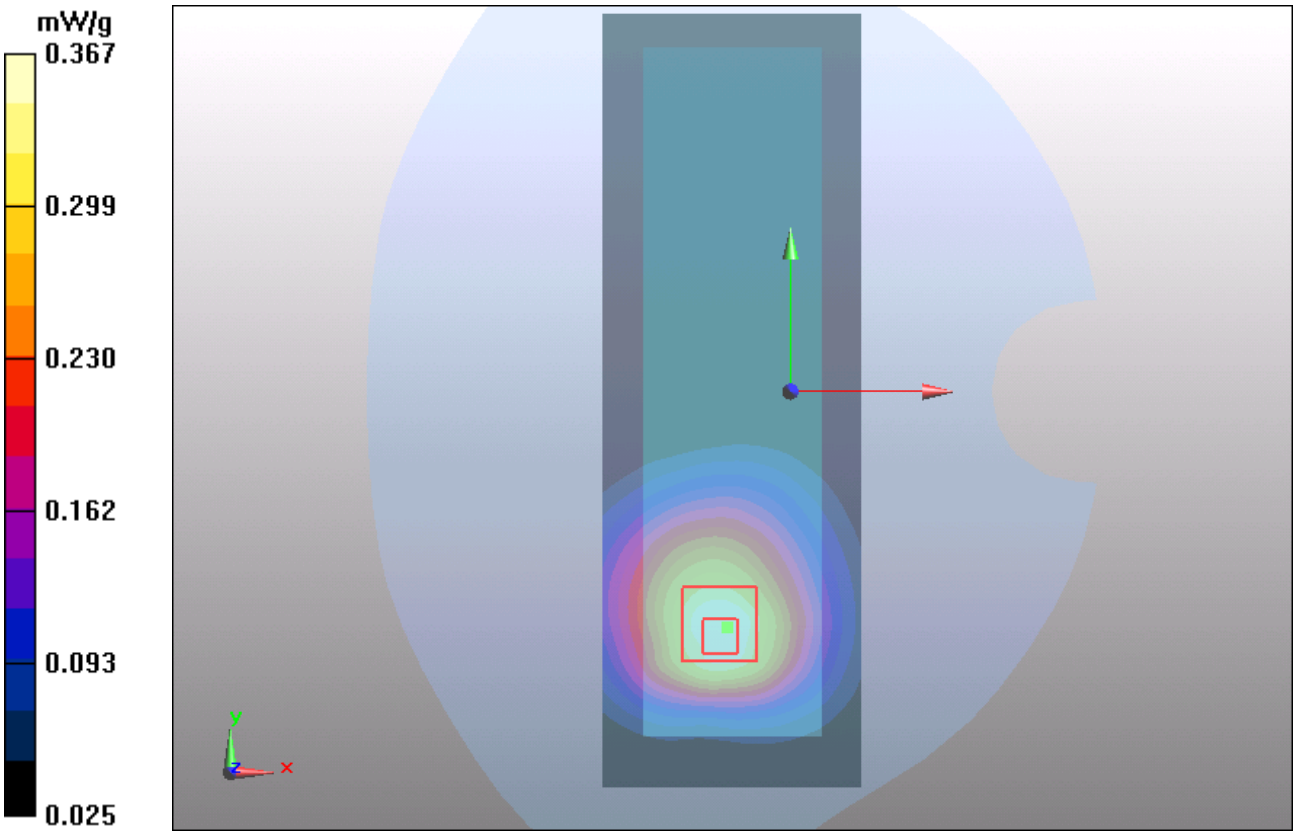


Figure 27 Body, Towards Ground, GSM 850 GPRS (4Txslots) Channel 190

GSM 850 GPRS (4Txslots) Towards Ground Low (Open)

Date/Time: 5/12/2012 10:57:37 PM
Communication System: GPRS 4TX; Frequency: 824.2 MHz;Duty Cycle: 1:2.07491
Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.972 mho/m; ε_r = 54.4; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Flat Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(9.18, 9.18, 9.18); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM1; Type: SAM; Serial: TP-1534
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Towards Ground Low/Area Scan (51x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.289 mW/g

Towards Ground Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.34 V/m; Power Drift = 0.035 dB
Peak SAR (extrapolated) = 0.355 W/kg
SAR(1 g) = 0.266 mW/g; SAR(10 g) = 0.187 mW/g
Maximum value of SAR (measured) = 0.282 mW/g

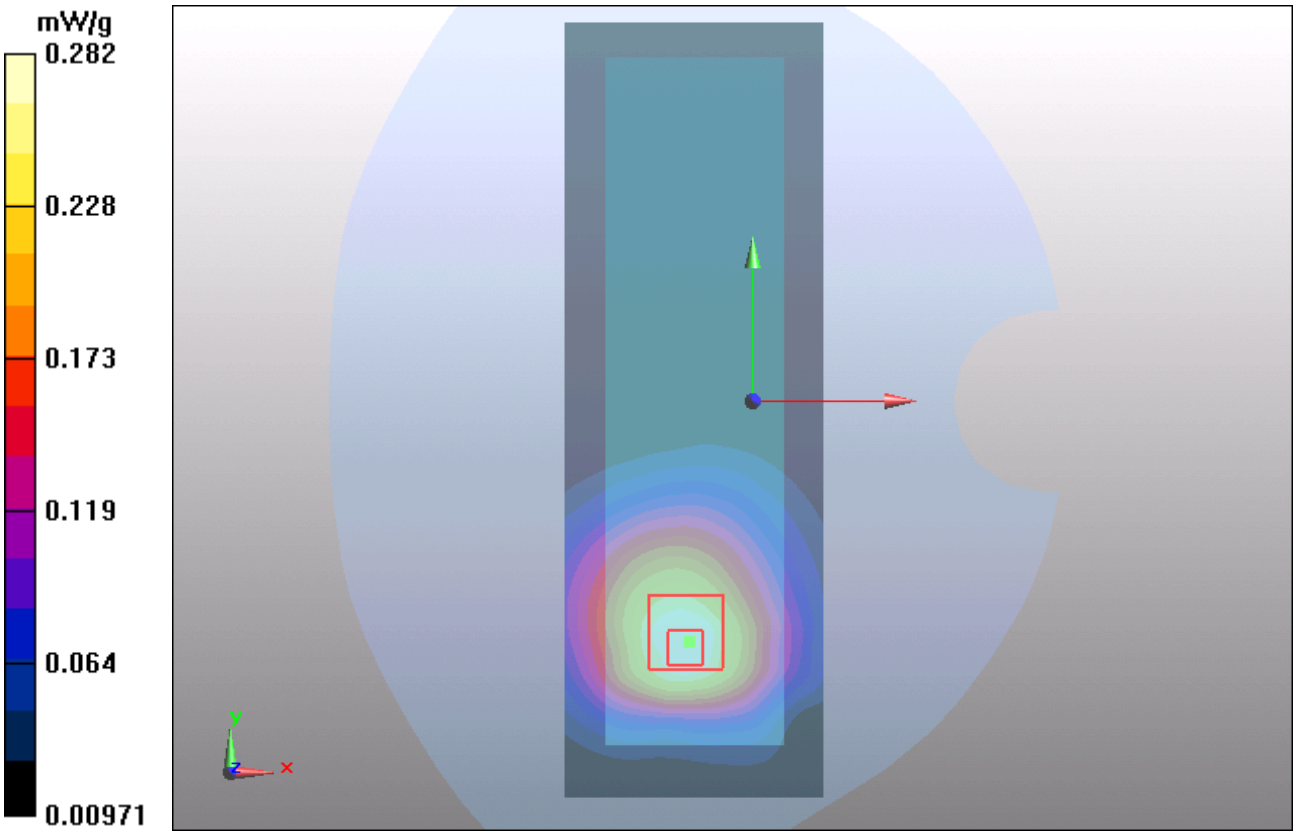


Figure 28 Body, Towards Ground, GSM 850 GPRS (4Txslots) Channel 128

GSM 850 EGPRS (4Txslots) Towards Ground High (Closed)

Date/Time: 5/12/2012 4:32:51 PM
Communication System: EGPRS 4TX; Frequency: 848.8 MHz;Duty Cycle: 1:2.07491
Medium parameters used: f = 849 MHz; σ = 0.986 mho/m; ε_r = 54.3; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Flat Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(9.18, 9.18, 9.18); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM1; Type: SAM; Serial: TP-1534
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Towards Ground High/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.32 mW/g

Towards Ground High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 35.1 V/m; Power Drift = 0.022 dB
Peak SAR (extrapolated) = 1.59 W/kg
SAR(1 g) = 1.22 mW/g; SAR(10 g) = 0.889 mW/g
Maximum value of SAR (measured) = 1.29 mW/g

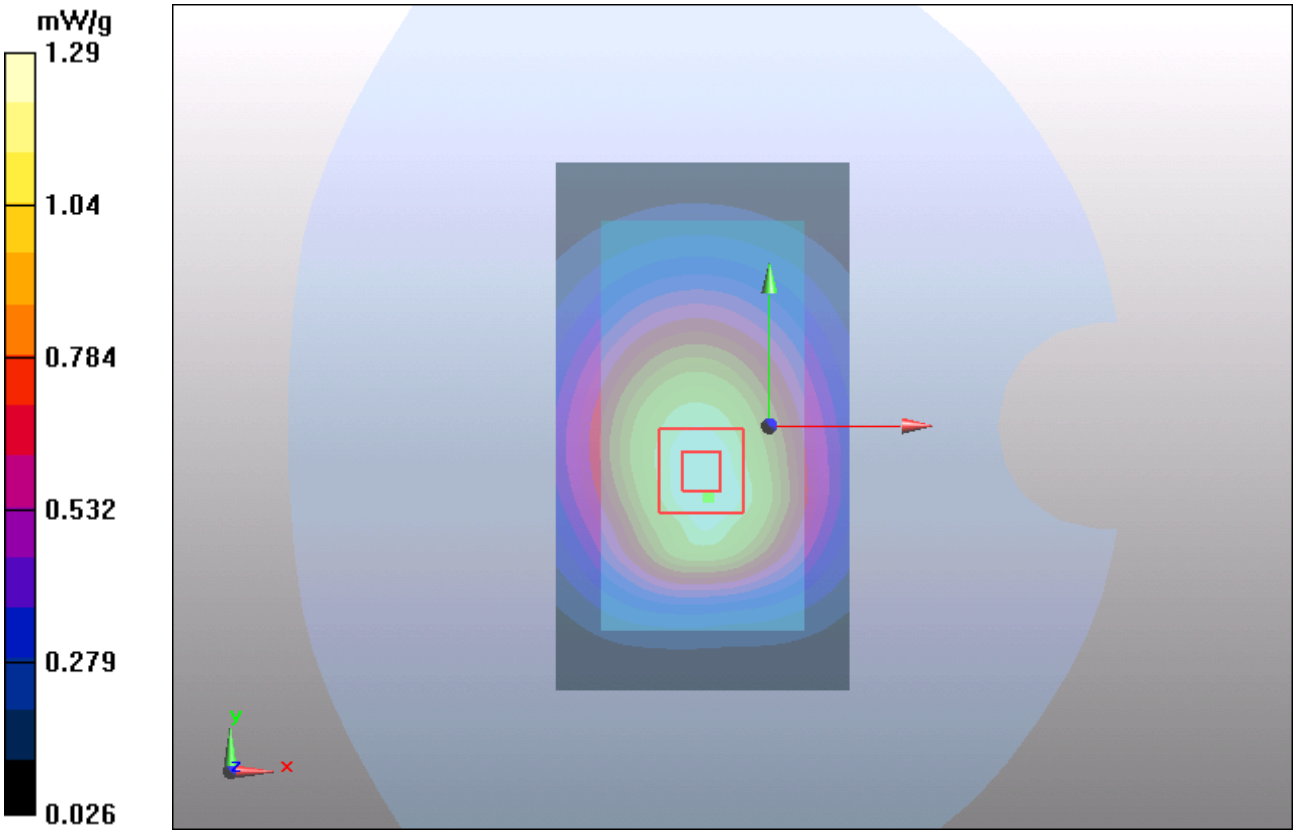


Figure 29 Body, Towards Ground, GSM 850 EGPRS (4Txslots) Channel 251

GSM 1900 Left Cheek Middle (Open)

Date/Time: 5/15/2012 5:56:07 PM
Communication System: GSM; Frequency: 1880 MHz;Duty Cycle: 1:8.30042
Medium parameters used: f = 1880 MHz; σ = 1.4 mho/m; ε_r = 40.9; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Left Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(8.05, 8.05, 8.05); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM2; Type: SAM; Serial: TP-1524
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

GSM 1900 Left/Cheek Middle/Area Scan (51x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.147 mW/g

GSM 1900 Left/Cheek Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.48 V/m; Power Drift = -0.014 dB
Peak SAR (extrapolated) = 0.207 W/kg
SAR(1 g) = 0.137 mW/g; SAR(10 g) = 0.086 mW/g
Maximum value of SAR (measured) = 0.149 mW/g

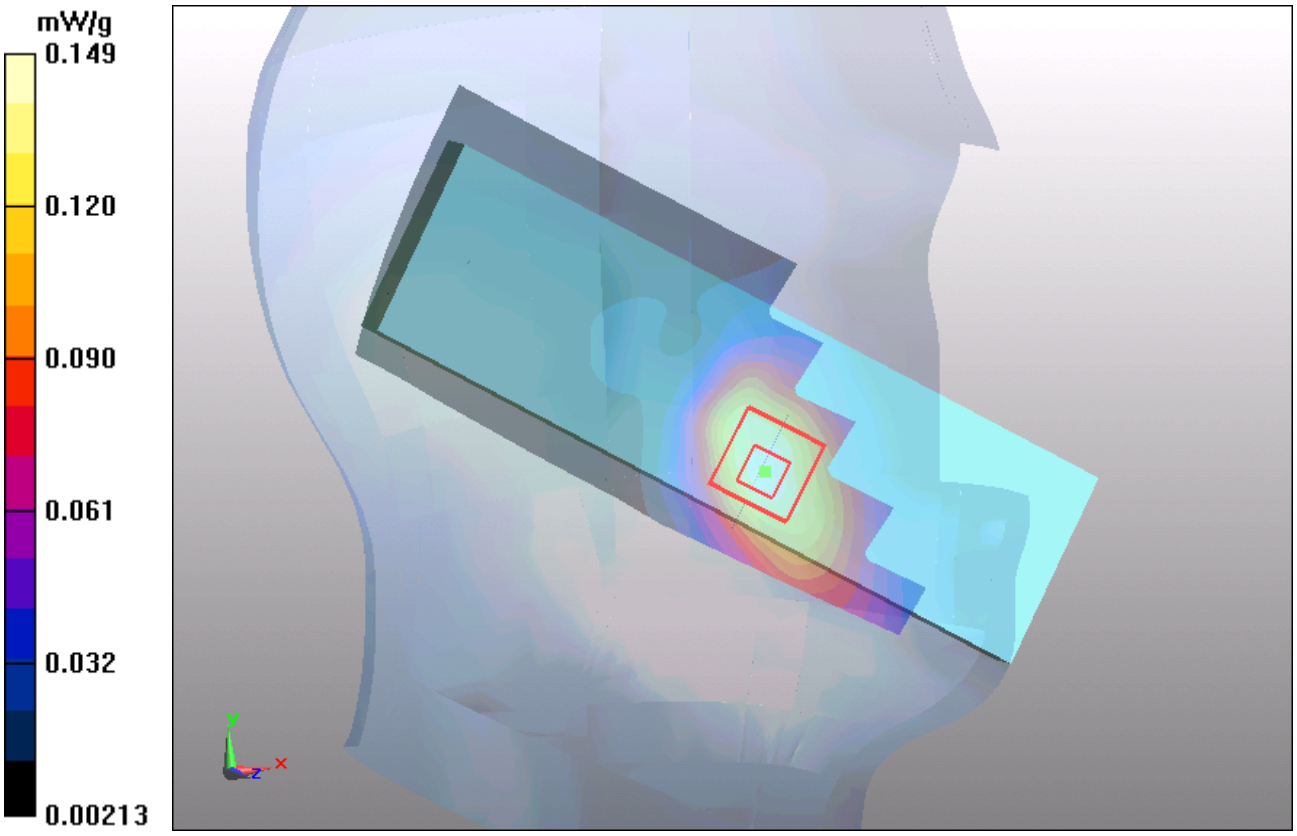


Figure 30 Left Hand Touch Cheek GSM 1900 Channel 661

GSM 1900 Left Tilt Middle (Open)

Date/Time: 5/15/2012 6:12:35 PM
Communication System: GSM; Frequency: 1880 MHz;Duty Cycle: 1:8.30042
Medium parameters used: f = 1880 MHz; σ = 1.4 mho/m; ε_r = 40.9; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Left Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(8.05, 8.05, 8.05); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM2; Type: SAM; Serial: TP-1524
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

GSM 1900 Left/Tilt Middle/Area Scan (51x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.030 mW/g

GSM 1900 Left/Tilt Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.02 V/m; Power Drift = 0.030 dB
Peak SAR (extrapolated) = 0.042 W/kg
SAR(1 g) = 0.027 mW/g; SAR(10 g) = 0.018 mW/g
Maximum value of SAR (measured) = 0.028 mW/g

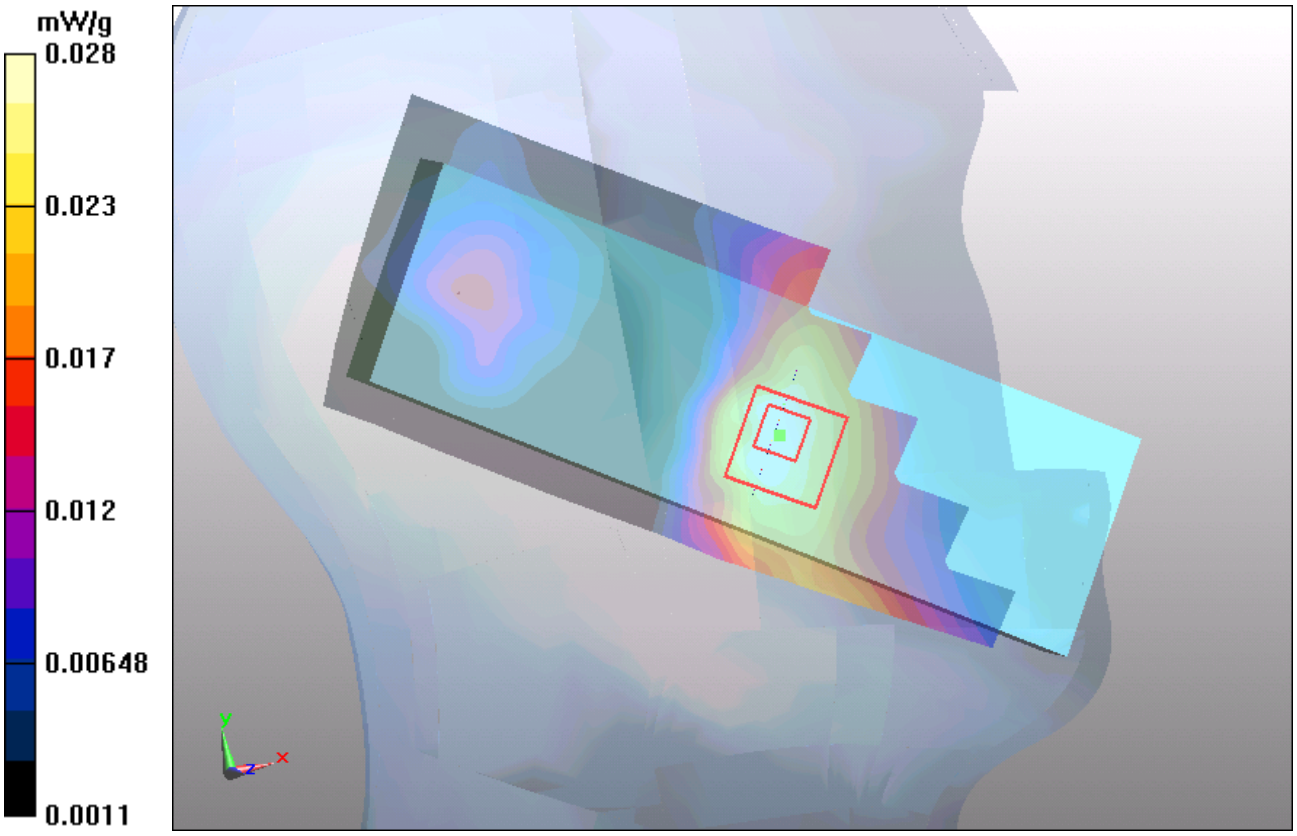


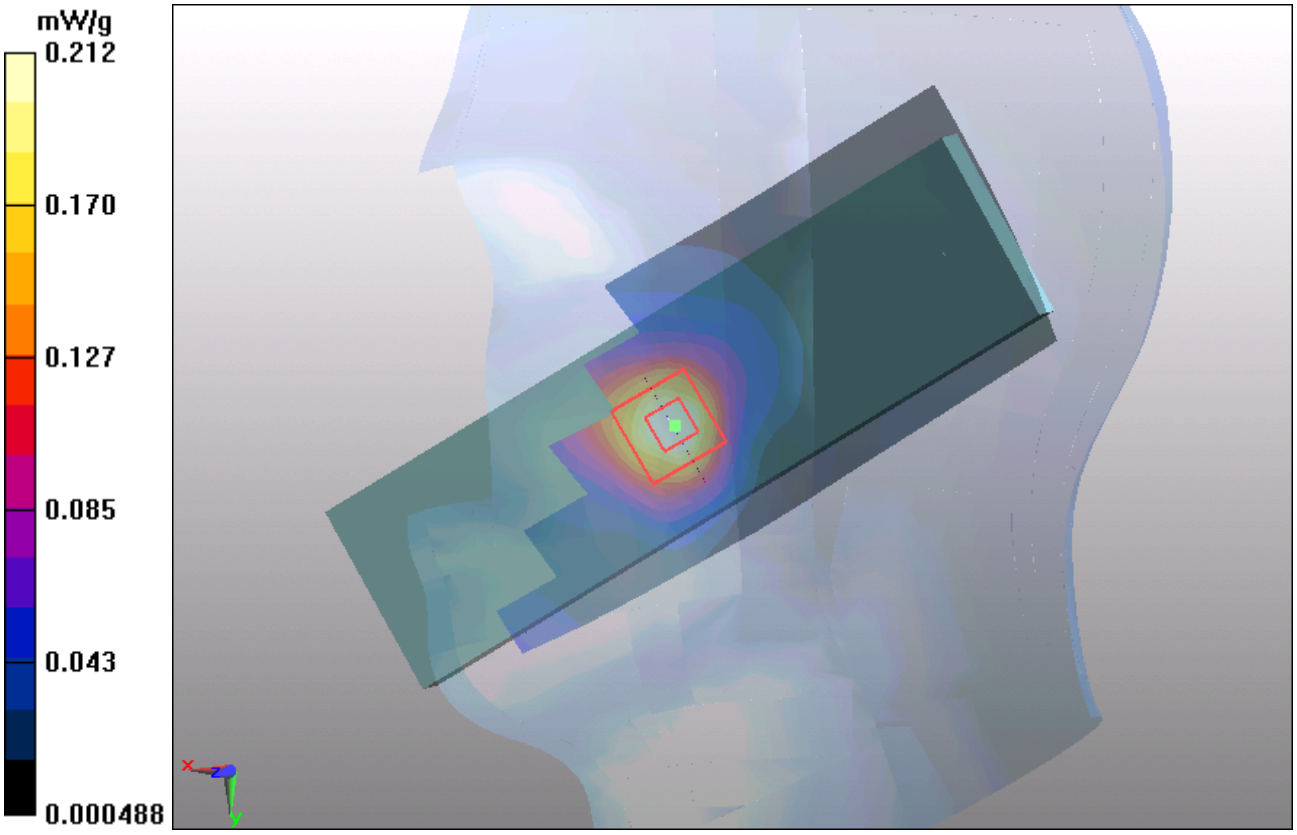
Figure 31 Left Hand Tilt 15° GSM 1900 Channel 661

GSM 1900 Right Cheek High (Open)

Date/Time: 5/15/2012 9:23:59 PM
Communication System: GSM; Frequency: 1909.8 MHz;Duty Cycle: 1:8.30042
Medium parameters used: f = 1910 MHz; σ = 1.42 mho/m; ε_r = 40.8; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Right Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(8.05, 8.05, 8.05); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM2; Type: SAM; Serial: TP-1524
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

GSM 1900 Right/Cheek High/Area Scan (51x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.230 mW/g

GSM 1900 Right/Cheek High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.65 V/m; Power Drift = -0.098 dB
Peak SAR (extrapolated) = 0.290 W/kg
SAR(1 g) = 0.195 mW/g; SAR(10 g) = 0.120 mW/g
Maximum value of SAR (measured) = 0.212 mW/g



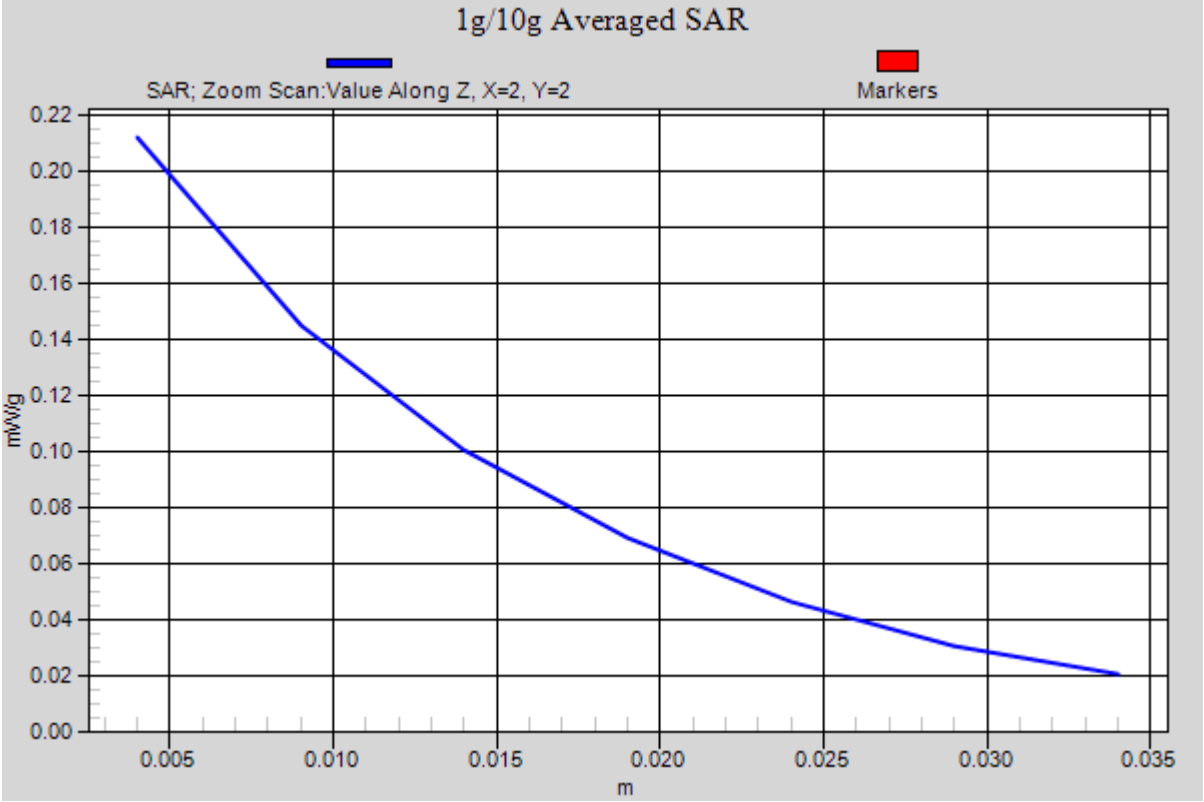


Figure 32 Right Hand Touch Cheek GSM 1900 Channel 810

GSM 1900 Right Cheek Middle (Open)

Date/Time: 5/15/2012 7:34:47 PM
Communication System: GSM; Frequency: 1880 MHz;Duty Cycle: 1:8.30042
Medium parameters used: f = 1880 MHz; σ = 1.4 mho/m; ε_r = 40.9; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Right Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(8.05, 8.05, 8.05); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM2; Type: SAM; Serial: TP-1524
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

GSM 1900 Right/Cheek Middle/Area Scan (51x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.178 mW/g

GSM 1900 Right/Cheek Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.12 V/m; Power Drift = -0.042 dB
Peak SAR (extrapolated) = 0.214 W/kg
SAR(1 g) = 0.146 mW/g; SAR(10 g) = 0.090 mW/g
Maximum value of SAR (measured) = 0.157 mW/g

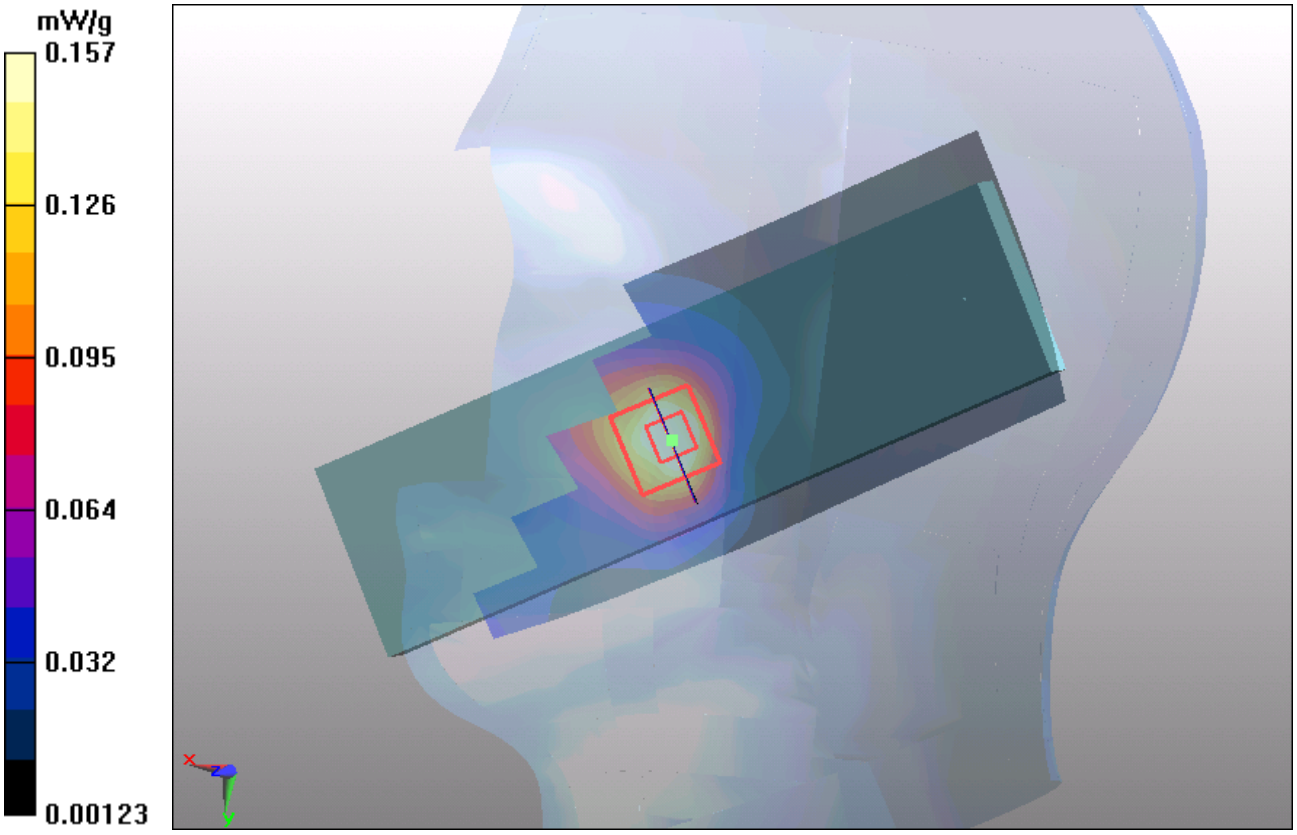


Figure 33 Right Hand Touch Cheek GSM 1900 Channel 661

GSM 1900 Right Cheek Low (Open)

Date/Time: 5/15/2012 9:40:29 PM
Communication System: GSM; Frequency: 1850.2 MHz;Duty Cycle: 1:8.30042
Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.37 mho/m; ε_r = 41; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Right Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(8.05, 8.05, 8.05); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM2; Type: SAM; Serial: TP-1524
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

GSM 1900 Right/Cheek Low/Area Scan (51x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.176 mW/g

GSM 1900 Right/Cheek Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.08 V/m; Power Drift = 0.083 dB
Peak SAR (extrapolated) = 0.210 W/kg
SAR(1 g) = 0.145 mW/g; SAR(10 g) = 0.092 mW/g
Maximum value of SAR (measured) = 0.157 mW/g

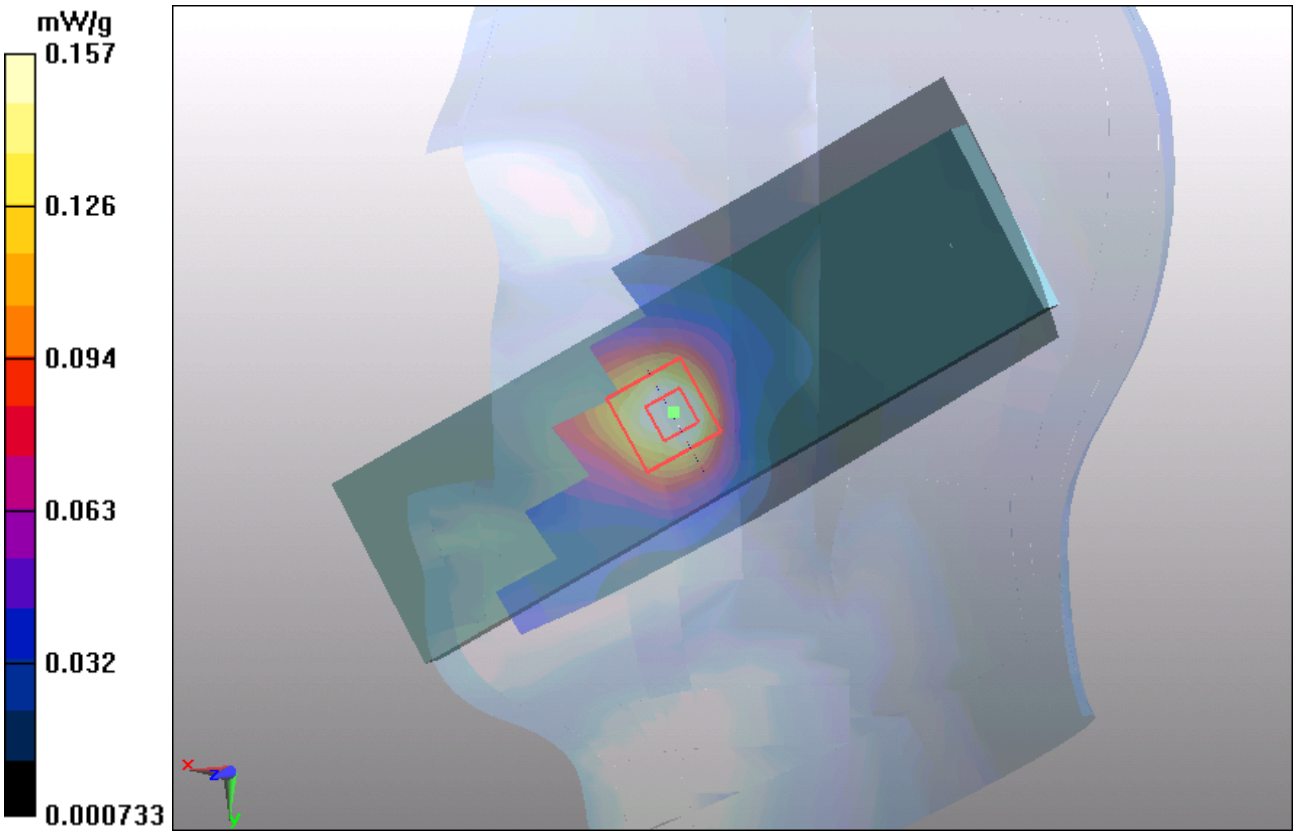


Figure 34 Right Hand Touch Cheek GSM 1900 Channel 512

GSM 1900 Right Tilt Middle (Open)

Date/Time: 5/15/2012 7:51:04 PM
Communication System: GSM; Frequency: 1880 MHz;Duty Cycle: 1:8.30042
Medium parameters used: f = 1880 MHz; σ = 1.4 mho/m; ε_r = 40.9; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Right Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(8.05, 8.05, 8.05); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM2; Type: SAM; Serial: TP-1524
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

GSM 1900 Right/Tilt Middle/Area Scan (51x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.029 mW/g

GSM 1900 Right/Tilt Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.89 V/m; Power Drift = 0.054 dB
Peak SAR (extrapolated) = 0.040 W/kg
SAR(1 g) = 0.027 mW/g; SAR(10 g) = 0.017 mW/g
Maximum value of SAR (measured) = 0.029 mW/g

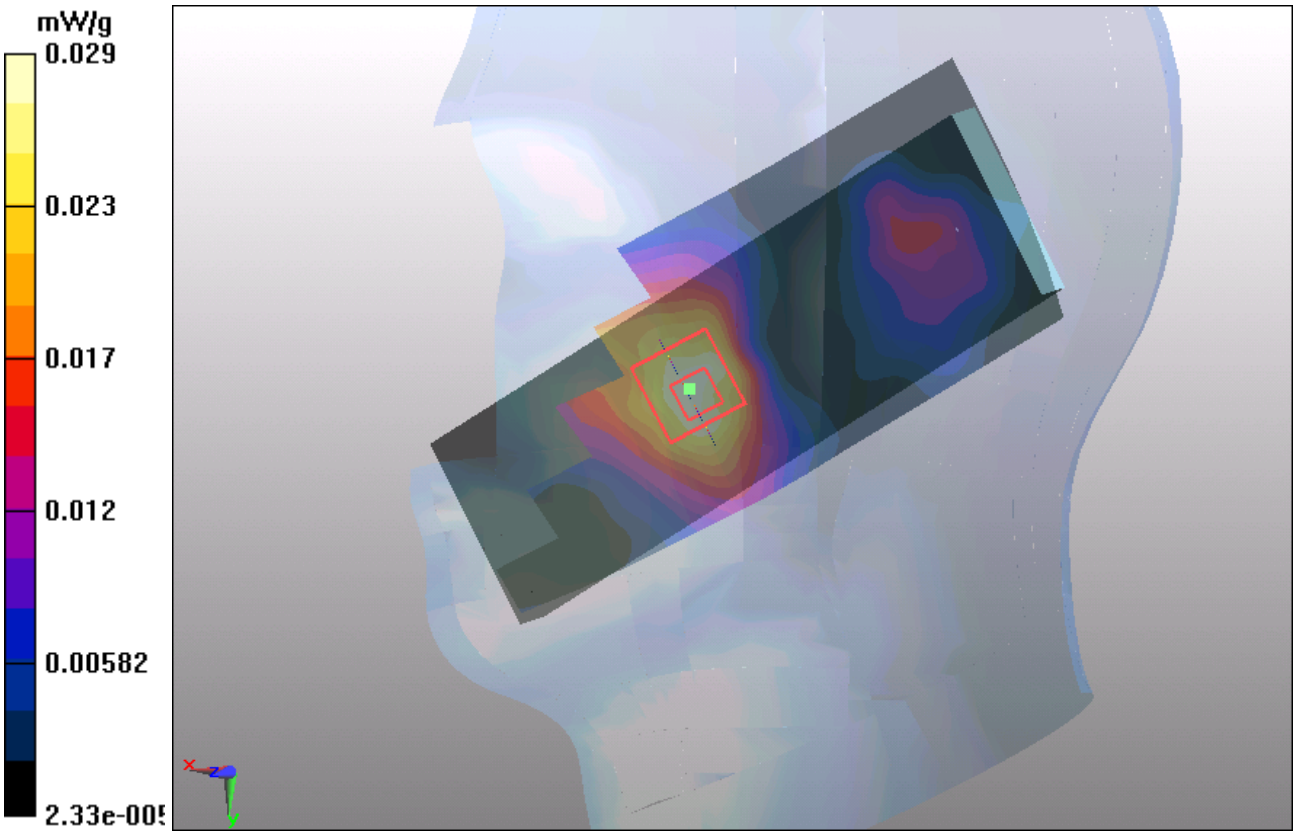


Figure 35 Right Hand Tilt 15° GSM 1900 Channel 661

GSM 1900 GPRS (4Txslots) Towards Ground High (Closed)

Date/Time: 5/13/2012 12:02:50 PM
Communication System: GPRS 4TX; Frequency: 1909.8 MHz;Duty Cycle: 1:2.07491
Medium parameters used: f = 1910 MHz; σ = 1.57 mho/m; ε_r = 51.5; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Flat Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(7.57, 7.57, 7.57); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM2; Type: SAM; Serial: TP-1524
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Towards Ground High/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.774 mW/g
Towards Ground High/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.1 V/m; Power Drift = -0.093 dB
Peak SAR (extrapolated) = 1.12 W/kg
SAR(1 g) = 0.686 mW/g; SAR(10 g) = 0.395 mW/g
Maximum value of SAR (measured) = 0.772 mW/g
Towards Ground High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.1 V/m; Power Drift = -0.093 dB
Peak SAR (extrapolated) = 1.07 W/kg
SAR(1 g) = 0.706 mW/g; SAR(10 g) = 0.444 mW/g
Maximum value of SAR (measured) = 0.757 mW/g

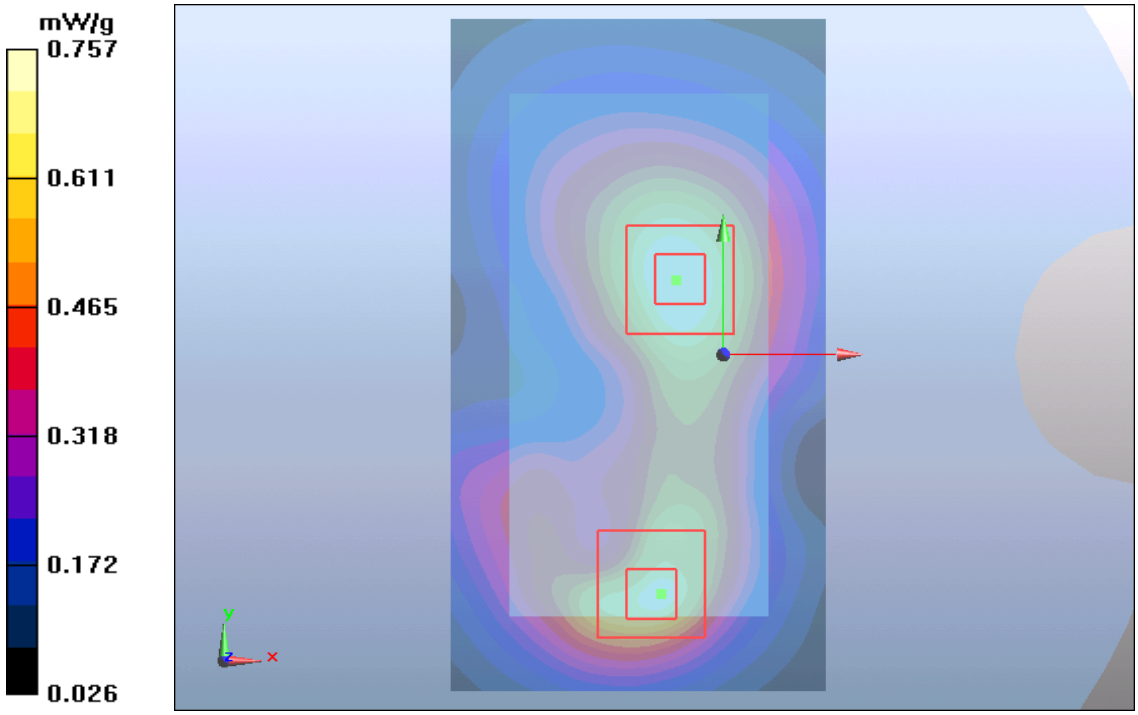


Figure 36 Body, Towards Ground, GSM 1900 GPRS (4Txslots) Channel 810

GSM 1900 GPRS (4Txslots) Towards Ground Middle (Closed)

Date/Time: 5/13/2012 11:32:46 AM
Communication System: GPRS 4TX; Frequency: 1880 MHz;Duty Cycle: 1:2.07491
Medium parameters used: f = 1880 MHz; σ = 1.53 mho/m; ε_r = 51.7; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Flat Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(7.57, 7.57, 7.57); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM2; Type: SAM; Serial: TP-1524
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Towards Ground Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.704 mW/g
Towards Ground Middle/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.2 V/m; Power Drift = -0.089 dB
Peak SAR (extrapolated) = 0.743 W/kg
SAR(1 g) = 0.499 mW/g; SAR(10 g) = 0.315 mW/g
Maximum value of SAR (measured) = 0.542 mW/g
Towards Ground Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.2 V/m; Power Drift = -0.089 dB
Peak SAR (extrapolated) = 0.989 W/kg
SAR(1 g) = 0.607 mW/g; SAR(10 g) = 0.349 mW/g
Maximum value of SAR (measured) = 0.681 mW/g

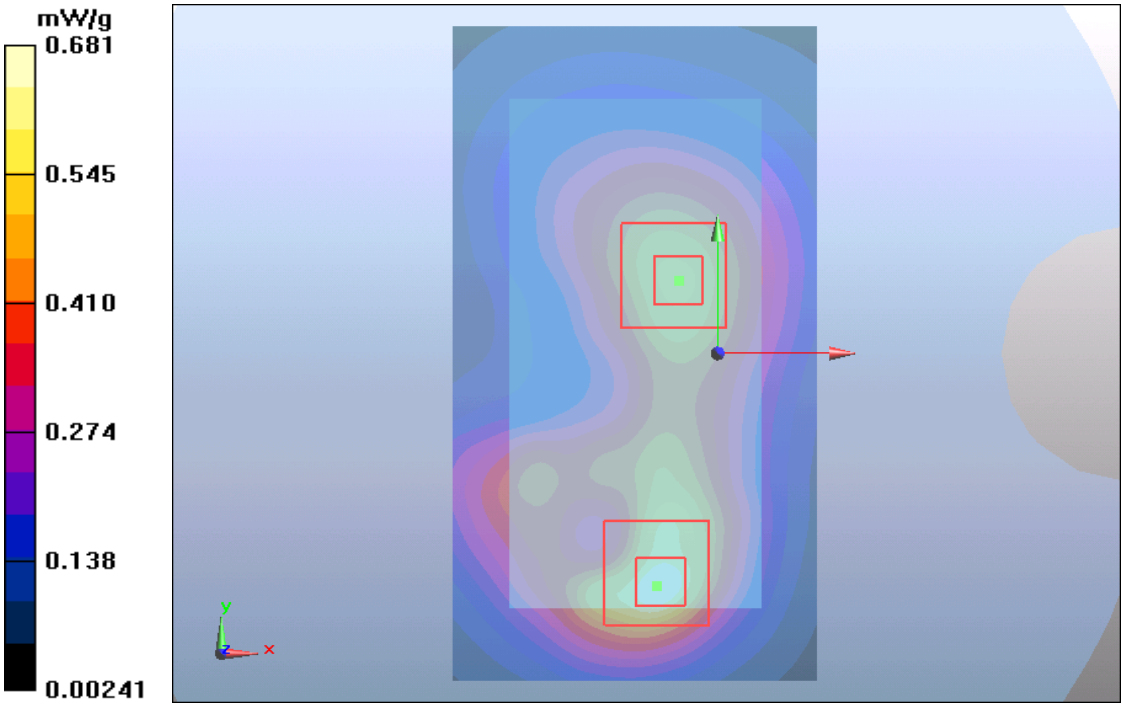


Figure 37 Body, Towards Ground, GSM 1900 GPRS (4Txslots) Channel 661

GSM 1900 GPRS (4Txslots) Towards Ground Low (Closed)

Date/Time: 5/13/2012 12:25:06 PM
Communication System: GPRS 4TX; Frequency: 1850.2 MHz;Duty Cycle: 1:2.07491
Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.51 mho/m; ε_r = 51.7; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Flat Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(7.57, 7.57, 7.57); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM2; Type: SAM; Serial: TP-1524
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Towards Ground Low/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.799 mW/g

Towards Ground Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.7 V/m; Power Drift = -0.073 dB
Peak SAR (extrapolated) = 1.38 W/kg
SAR(1 g) = 0.633 mW/g; SAR(10 g) = 0.363 mW/g
Maximum value of SAR (measured) = 0.717 mW/g

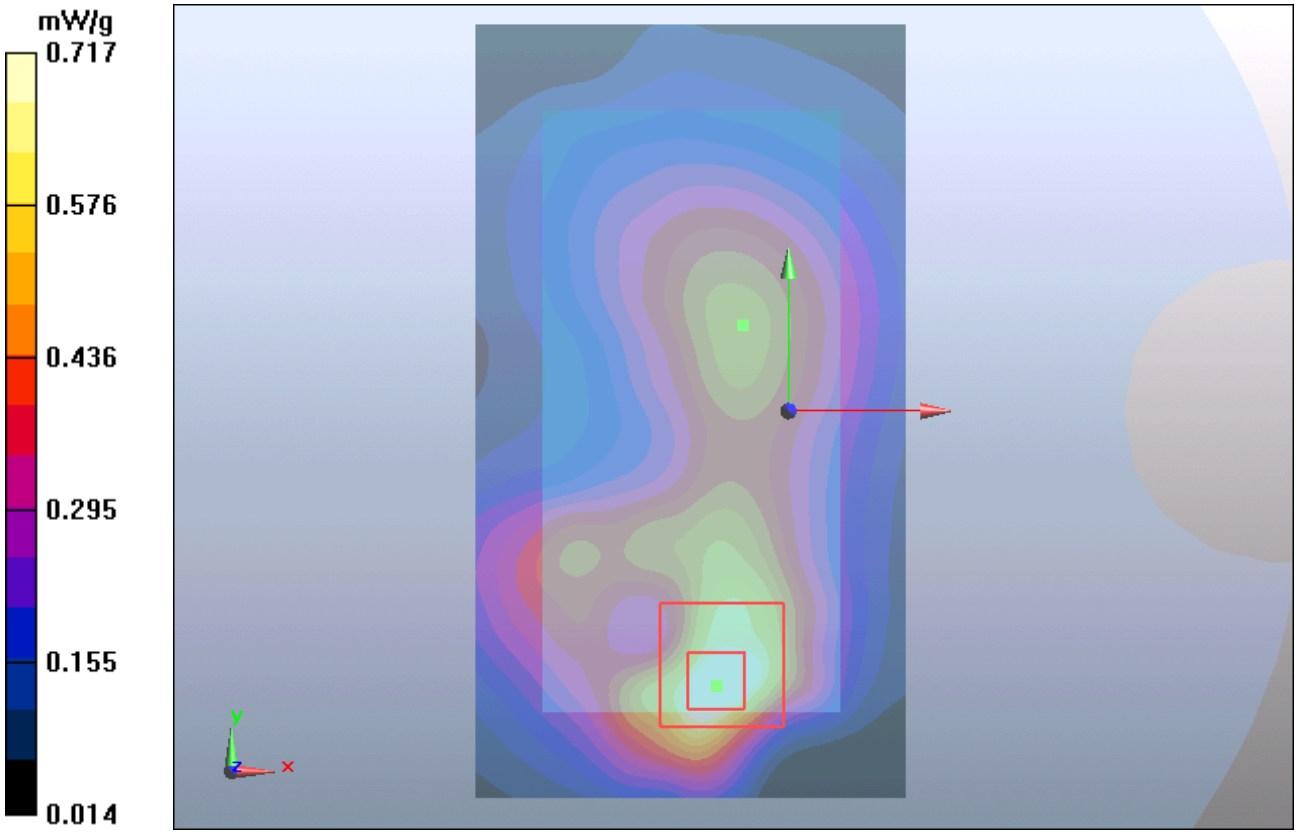


Figure 38 Body, Towards Ground, GSM 1900 GPRS (4Txslots) Channel 512

GSM 1900 GPRS (4Txslots) Towards Phantom High (Closed)

Date/Time: 5/14/2012 9:42:07 AM
Communication System: GPRS 4TX; Frequency: 1909.8 MHz;Duty Cycle: 1:2.07491
Medium parameters used: f = 1910 MHz; σ = 1.57 mho/m; ε_r = 51.5; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Flat Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(7.57, 7.57, 7.57); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM2; Type: SAM; Serial: TP-1524
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Towards Phantom High/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.351 mW/g

Towards Phantom High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.56 V/m; Power Drift = 0.025 dB
Peak SAR (extrapolated) = 0.506 W/kg
SAR(1 g) = 0.316 mW/g; SAR(10 g) = 0.188 mW/g
Maximum value of SAR (measured) = 0.345 mW/g

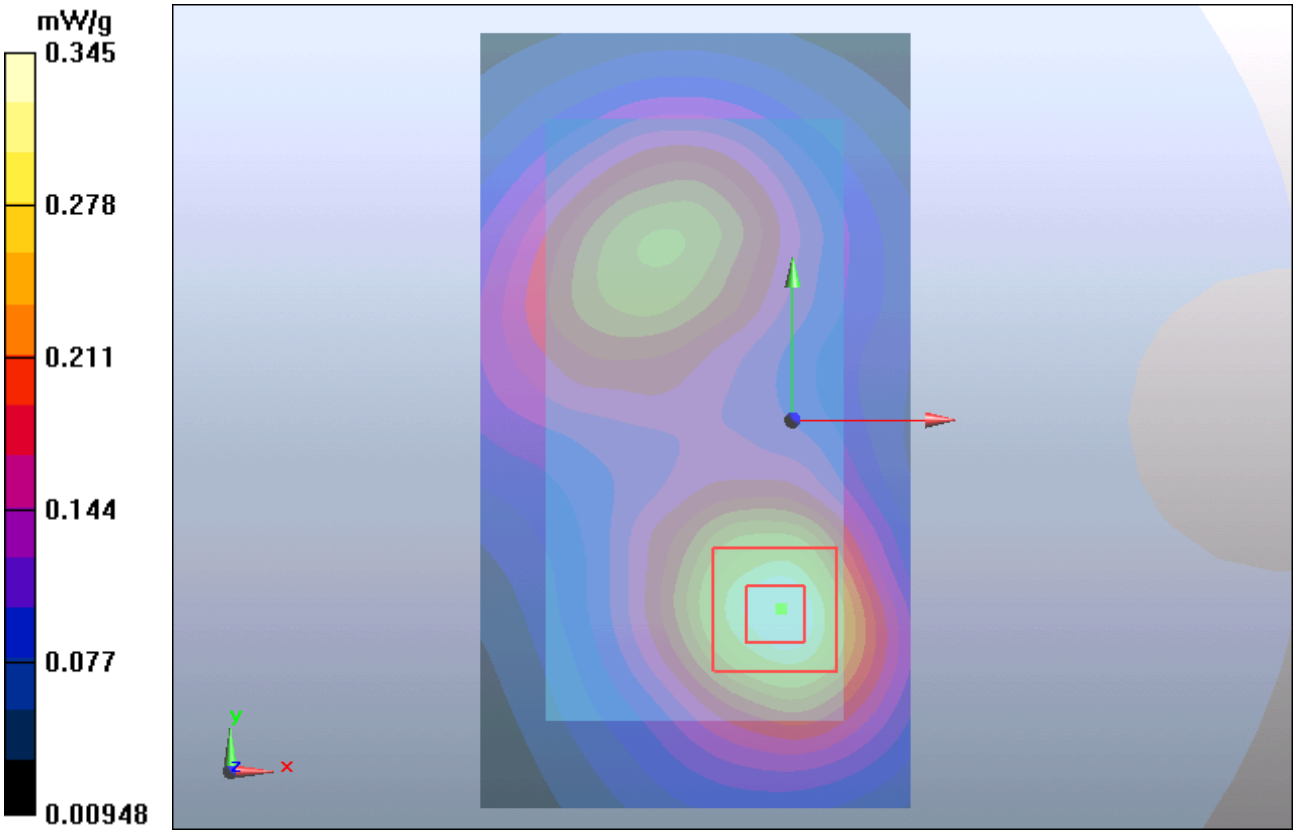


Figure 39 Body, Towards Phantom, GSM 1900 GPRS (4Txslots) Channel 810

GSM 1900 GPRS (4Txslots) Towards Phantom Middle (Closed)

Date/Time: 5/14/2012 9:27:09 AM
Communication System: GPRS 4TX; Frequency: 1880 MHz;Duty Cycle: 1:2.07491
Medium parameters used: f = 1880 MHz; σ = 1.53 mho/m; ε_r = 51.7; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Flat Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(7.57, 7.57, 7.57); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM2; Type: SAM; Serial: TP-1524
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Towards Phantom Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.343 mW/g

Towards Phantom Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.03 V/m; Power Drift = 0.012 dB
Peak SAR (extrapolated) = 0.429 W/kg
SAR(1 g) = 0.268 mW/g; SAR(10 g) = 0.160 mW/g
Maximum value of SAR (measured) = 0.290 mW/g

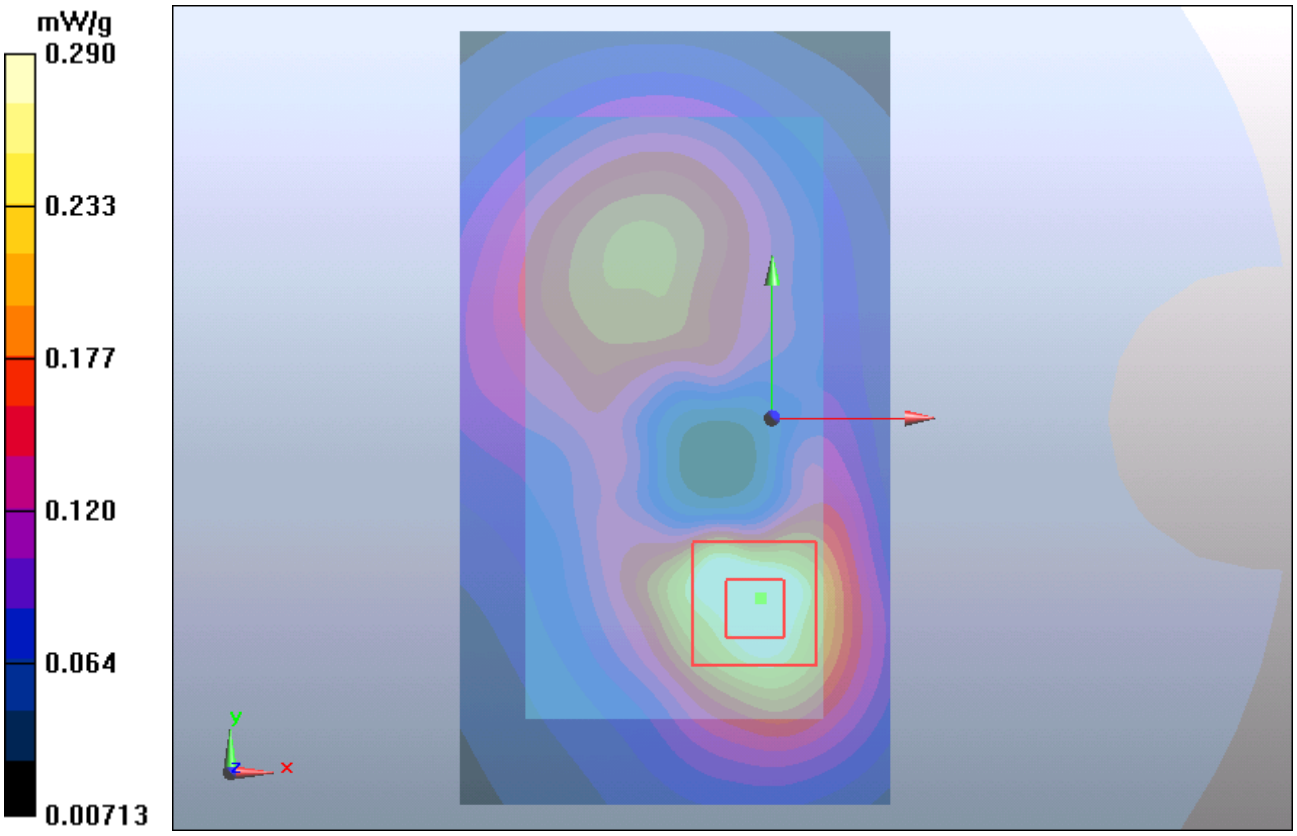


Figure 40 Body, Towards Phantom, GSM 1900 GPRS (4Txslots) Channel 661

GSM 1900 GPRS (4Txslots) Towards Phantom Low (Closed)

Date/Time: 5/14/2012 9:57:10 AM
Communication System: GPRS 4TX; Frequency: 1850.2 MHz;Duty Cycle: 1:2.07491
Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.51 mho/m; ε_r = 51.7; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Flat Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(7.57, 7.57, 7.57); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM2; Type: SAM; Serial: TP-1524
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Towards Phantom Low/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.275 mW/g

Towards Phantom Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.11 V/m; Power Drift = 0.067 dB
Peak SAR (extrapolated) = 0.651 W/kg
SAR(1 g) = 0.257 mW/g; SAR(10 g) = 0.152 mW/g
Maximum value of SAR (measured) = 0.274 mW/g

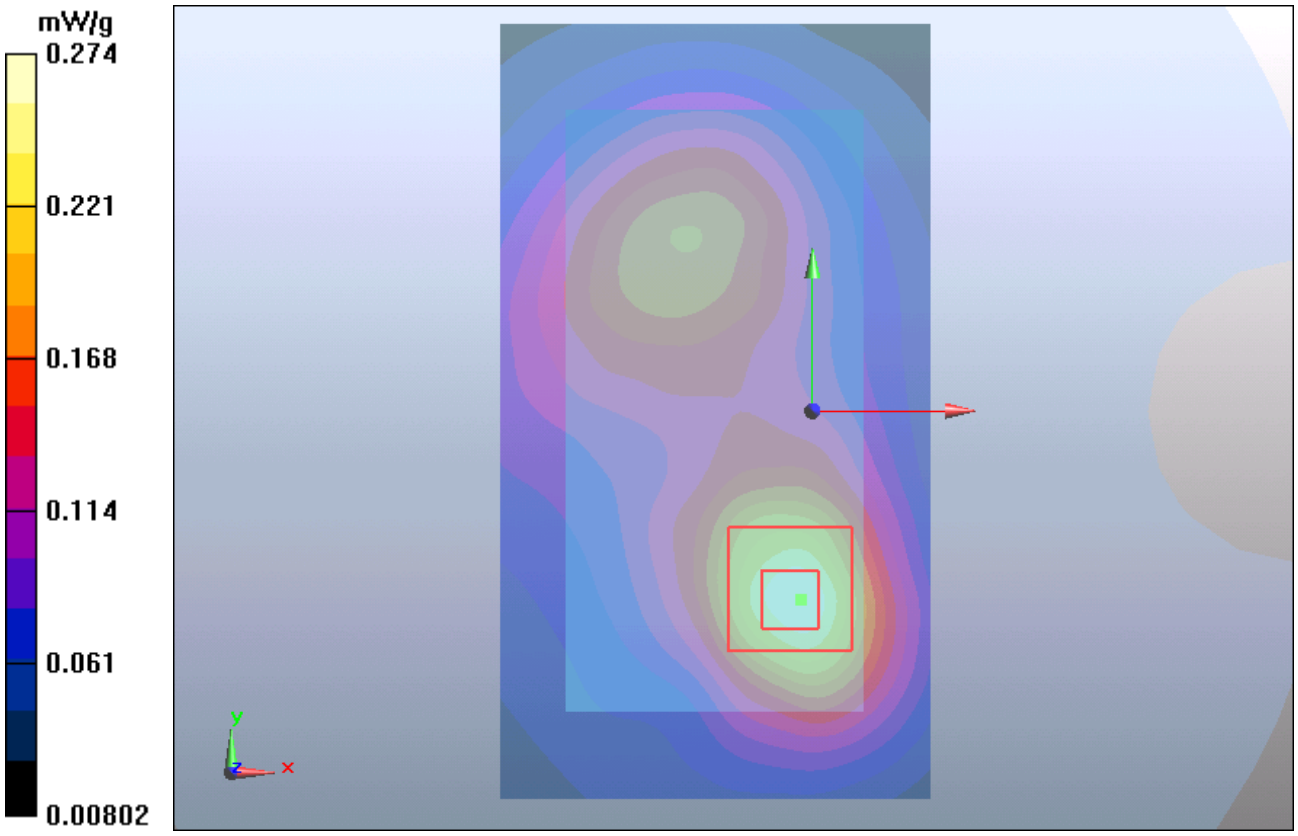


Figure 41 Body, Towards Phantom, GSM 1900 GPRS (4Txslots) Channel 512

GSM 1900 GPRS (4Txslots) Towards Ground High (Open)

Date/Time: 5/13/2012 5:56:09 PM
Communication System: GPRS 4TX; Frequency: 1909.8 MHz;Duty Cycle: 1:2.07491
Medium parameters used: f = 1910 MHz; σ = 1.57 mho/m; ε_r = 51.5; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Flat Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(7.57, 7.57, 7.57); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM2; Type: SAM; Serial: TP-1524
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Towards Ground High/Area Scan (51x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.905 mW/g
Towards Ground High/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.2 V/m; Power Drift = -0.056 dB
Peak SAR (extrapolated) = 1.2 W/kg
SAR(1 g) = 0.789 mW/g; SAR(10 g) = 0.499 mW/g
Maximum value of SAR (measured) = 0.854 mW/g
Towards Ground High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.2 V/m; Power Drift = -0.056 dB
Peak SAR (extrapolated) = 1.27 W/kg
SAR(1 g) = 0.794 mW/g; SAR(10 g) = 0.463 mW/g
Maximum value of SAR (measured) = 0.865 mW/g

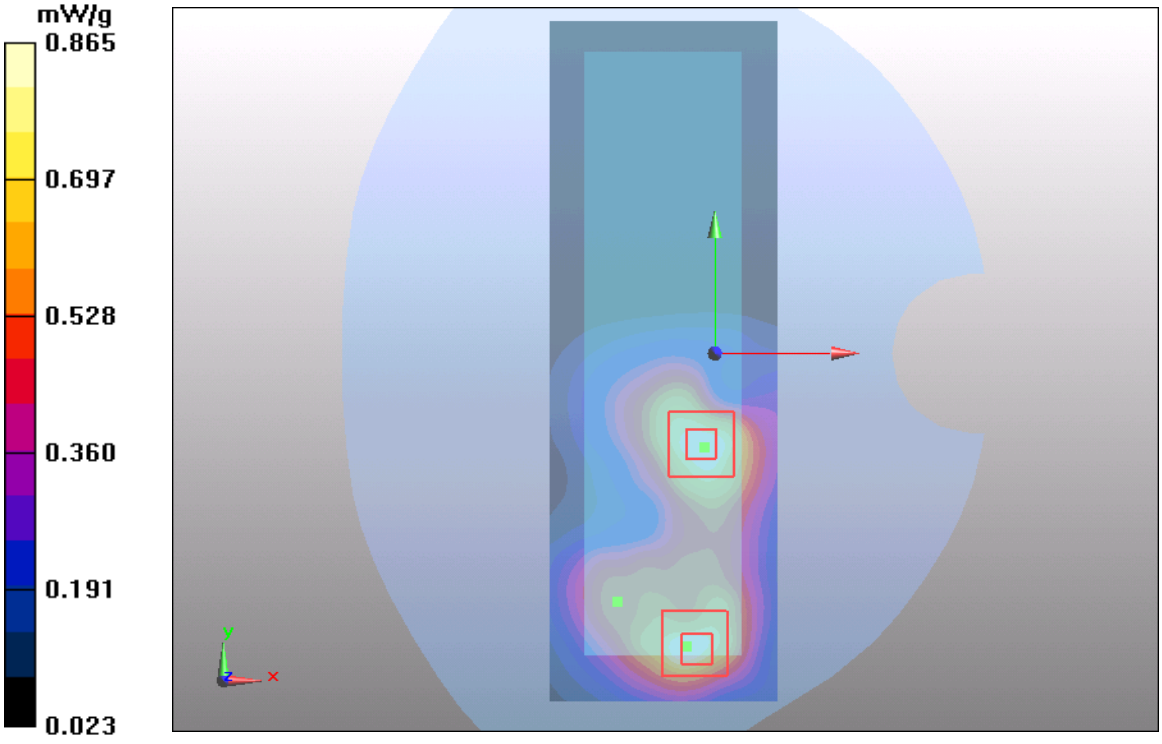


Figure 42 Body, Towards Ground, GSM 1900 GPRS (4Txslots) Channel 810

GSM 1900 GPRS (4Txslots) Towards Ground Middle (Open)

Date/Time: 5/13/2012 6:48:53 PM
Communication System: GPRS 4TX; Frequency: 1880 MHz;Duty Cycle: 1:2.07491
Medium parameters used: f = 1880 MHz; σ = 1.53 mho/m; ε_r = 51.7; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Flat Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(7.57, 7.57, 7.57); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM2; Type: SAM; Serial: TP-1524
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Towards Ground Middle 2/Area Scan (51x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.748 mW/g
Towards Ground Middle 2/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.2 V/m; Power Drift = -0.106 dB
Peak SAR (extrapolated) = 0.915 W/kg
SAR(1 g) = 0.604 mW/g; SAR(10 g) = 0.386 mW/g
Maximum value of SAR (measured) = 0.647 mW/g
Towards Ground Middle 2/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.2 V/m; Power Drift = -0.106 dB
Peak SAR (extrapolated) = 1.1 W/kg
SAR(1 g) = 0.689 mW/g; SAR(10 g) = 0.398 mW/g
Maximum value of SAR (measured) = 0.759 mW/g

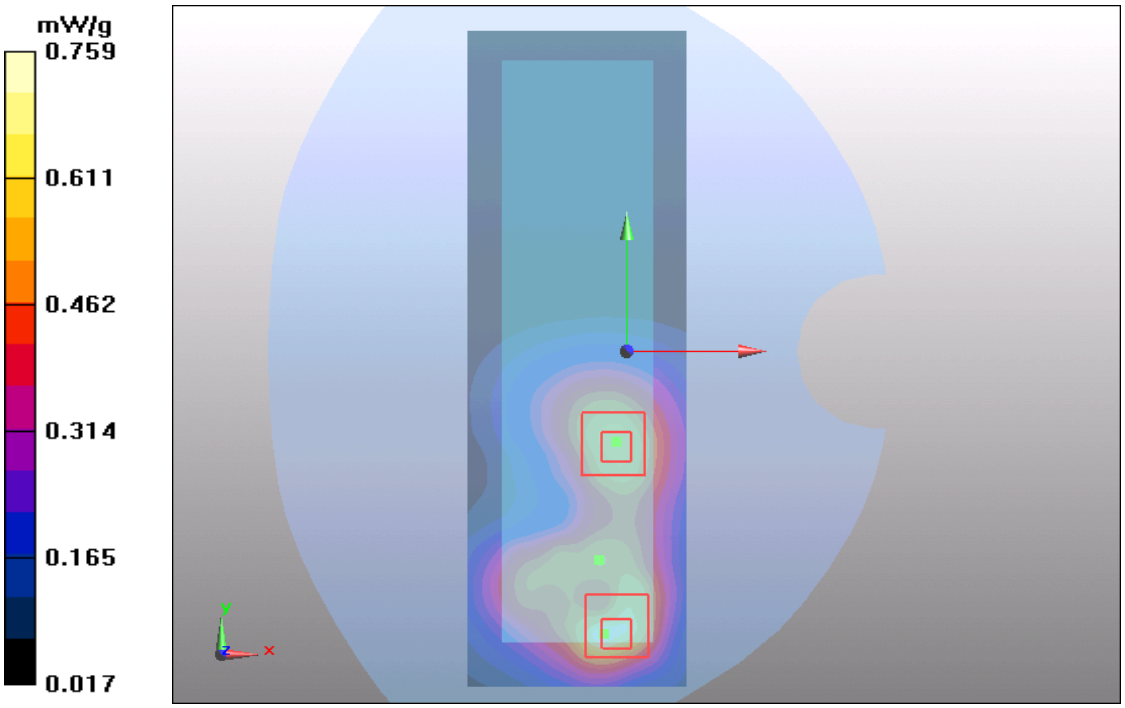


Figure 43 Body, Towards Ground, GSM 1900 GPRS (4Txslots) Channel 661

GSM 1900 GPRS (4Txslots) Towards Ground Low (Open)

Date/Time: 5/13/2012 6:22:30 PM
Communication System: GPRS 4TX; Frequency: 1850.2 MHz;Duty Cycle: 1:2.07491
Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.51 mho/m; ε_r = 51.7; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Flat Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(7.57, 7.57, 7.57); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM2; Type: SAM; Serial: TP-1524
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Towards Ground Low/Area Scan (51x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.711 mW/g
Towards Ground Low/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.1 V/m; Power Drift = -0.062 dB
Peak SAR (extrapolated) = 0.852 W/kg
SAR(1 g) = 0.581 mW/g; SAR(10 g) = 0.374 mW/g
Maximum value of SAR (measured) = 0.616 mW/g
Towards Ground Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.1 V/m; Power Drift = -0.062 dB
Peak SAR (extrapolated) = 1.08 W/kg
SAR(1 g) = 0.669 mW/g; SAR(10 g) = 0.386 mW/g
Maximum value of SAR (measured) = 0.740 mW/g

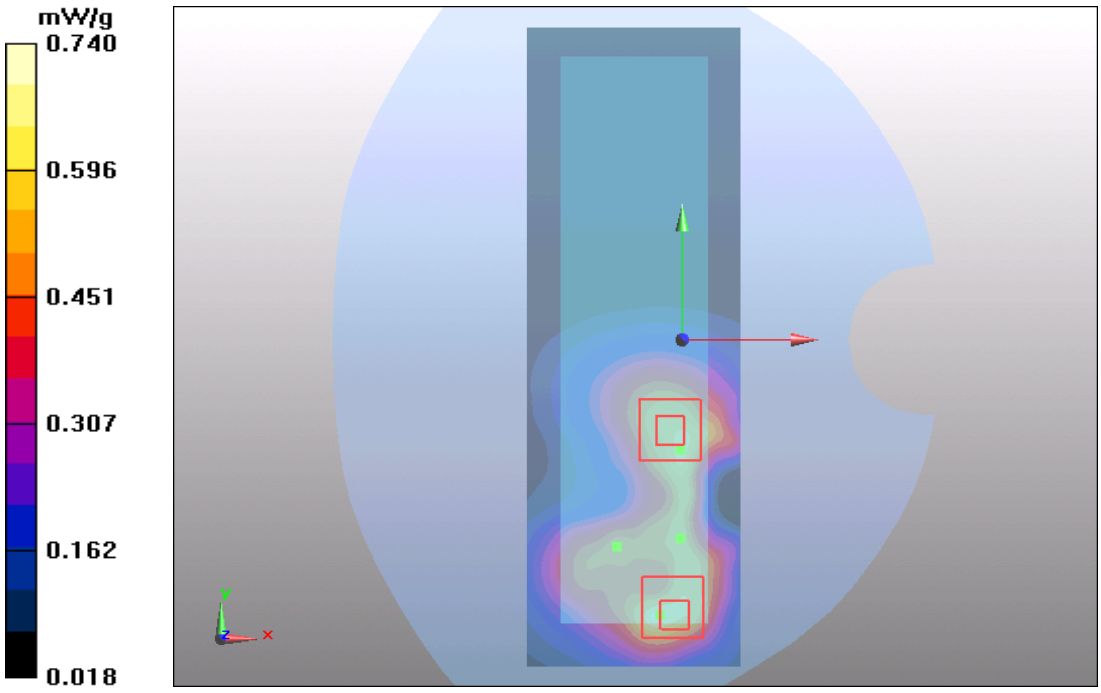
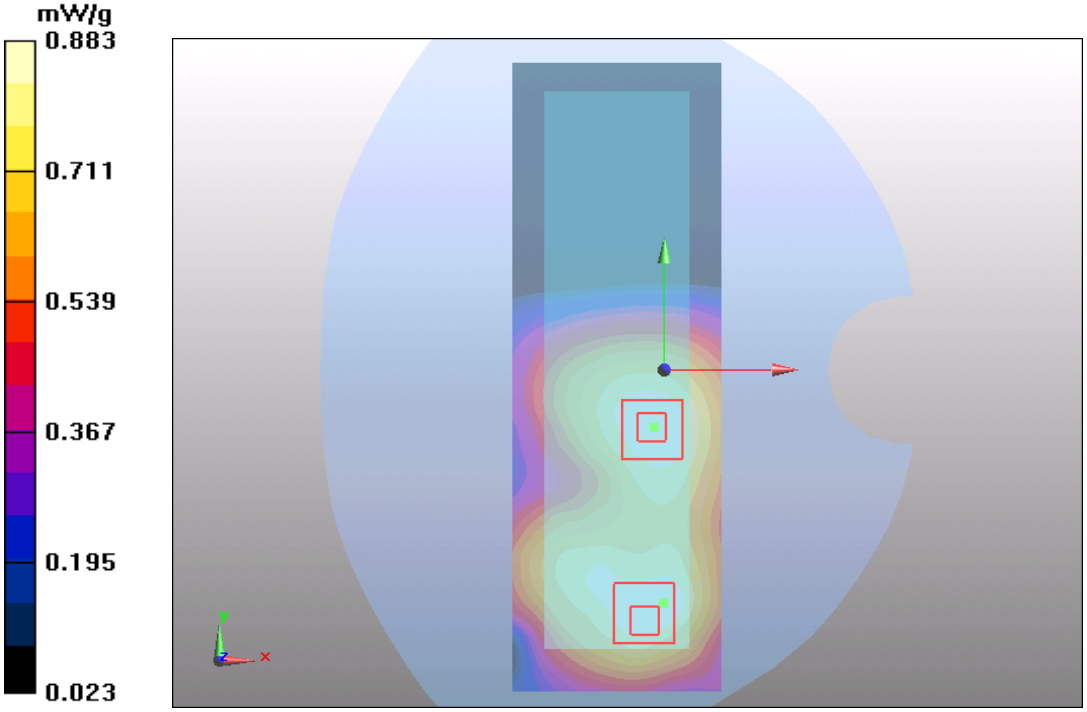


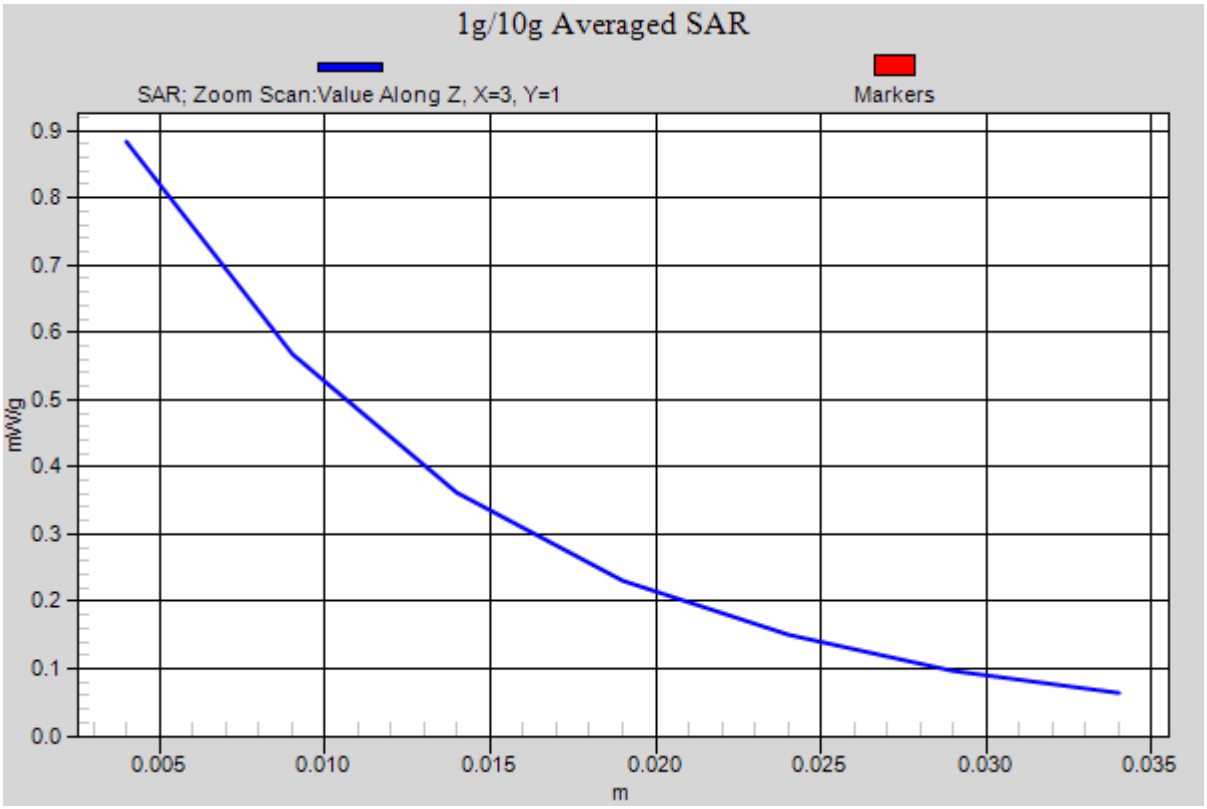
Figure 44 Body, Towards Ground, GSM 1900 GPRS (4Txslots) Channel 512

GSM 1900 EGPRS (4Txslots) Towards Ground High (Open)

Date/Time: 5/14/2012 10:14:55 AM
Communication System: EGPRS 4TX; Frequency: 1909.8 MHz;Duty Cycle: 1:2.07491
Medium parameters used: f = 1910 MHz; σ = 1.57 mho/m; ε_r = 51.5; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Flat Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(7.57, 7.57, 7.57); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM2; Type: SAM; Serial: TP-1524
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Towards Ground High/Area Scan (51x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.867 mW/g
Towards Ground High/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.3 V/m; Power Drift = -0.046 dB
Peak SAR (extrapolated) = 1.22 W/kg
SAR(1 g) = 0.800 mW/g; SAR(10 g) = 0.503 mW/g
Maximum value of SAR (measured) = 0.857 mW/g
Towards Ground High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.3 V/m; Power Drift = -0.046 dB
Peak SAR (extrapolated) = 1.06 W/kg
SAR(1 g) = 0.781 mW/g; SAR(10 g) = 0.450 mW/g
Maximum value of SAR (measured) = 0.883 mW/g





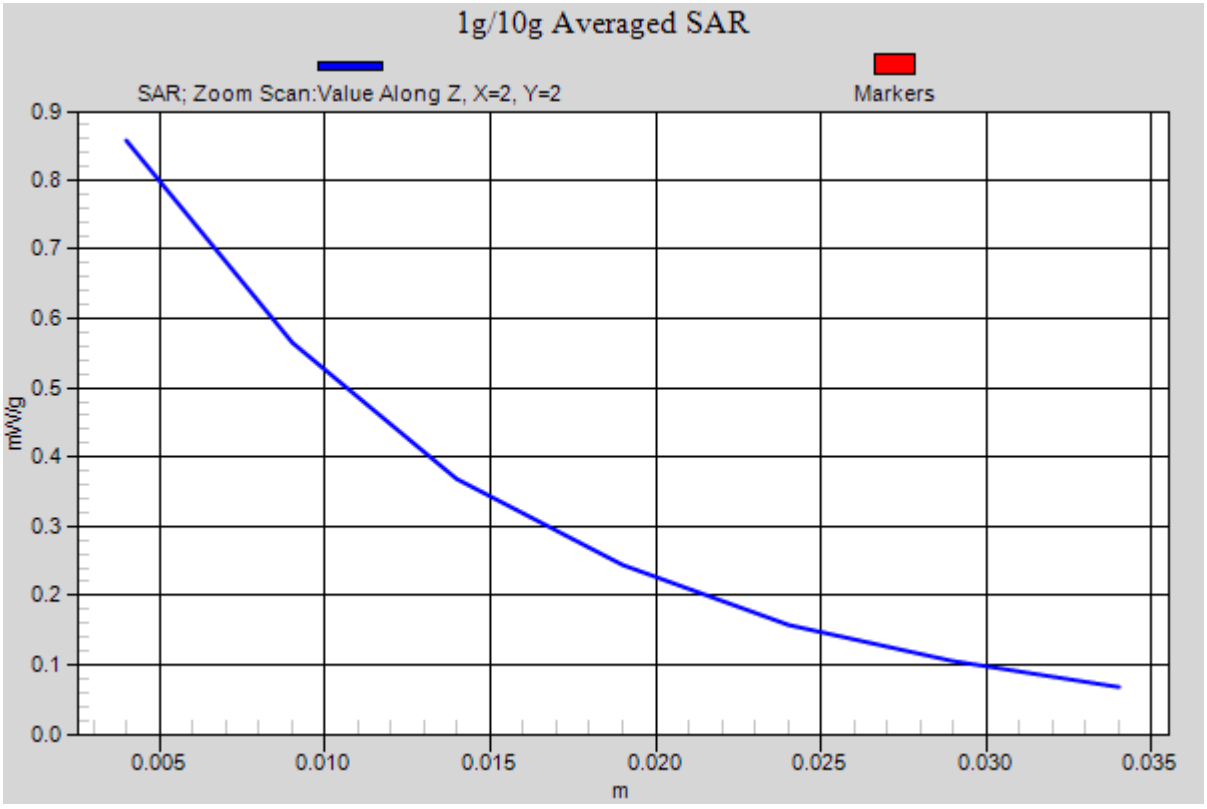


Figure 45 Body, Towards Ground, GSM 1900 EGPRS (4Txslots) Channel 810

WCDMA Band II Left Cheek Middle (Open)

Date/Time: 5/15/2012 6:47:07 PM
Communication System: WCDMA ; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.4 mho/m; ε_r = 40.9; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Left Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(8.05, 8.05, 8.05); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM2; Type: SAM; Serial: TP-1524
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

WCDMA II Left/Cheek Middle/Area Scan (51x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.274 mW/g

WCDMA II Left/Cheek Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.17 V/m; Power Drift = -0.052 dB
Peak SAR (extrapolated) = 0.387 W/kg
SAR(1 g) = 0.258 mW/g; SAR(10 g) = 0.161 mW/g
Maximum value of SAR (measured) = 0.280 mW/g

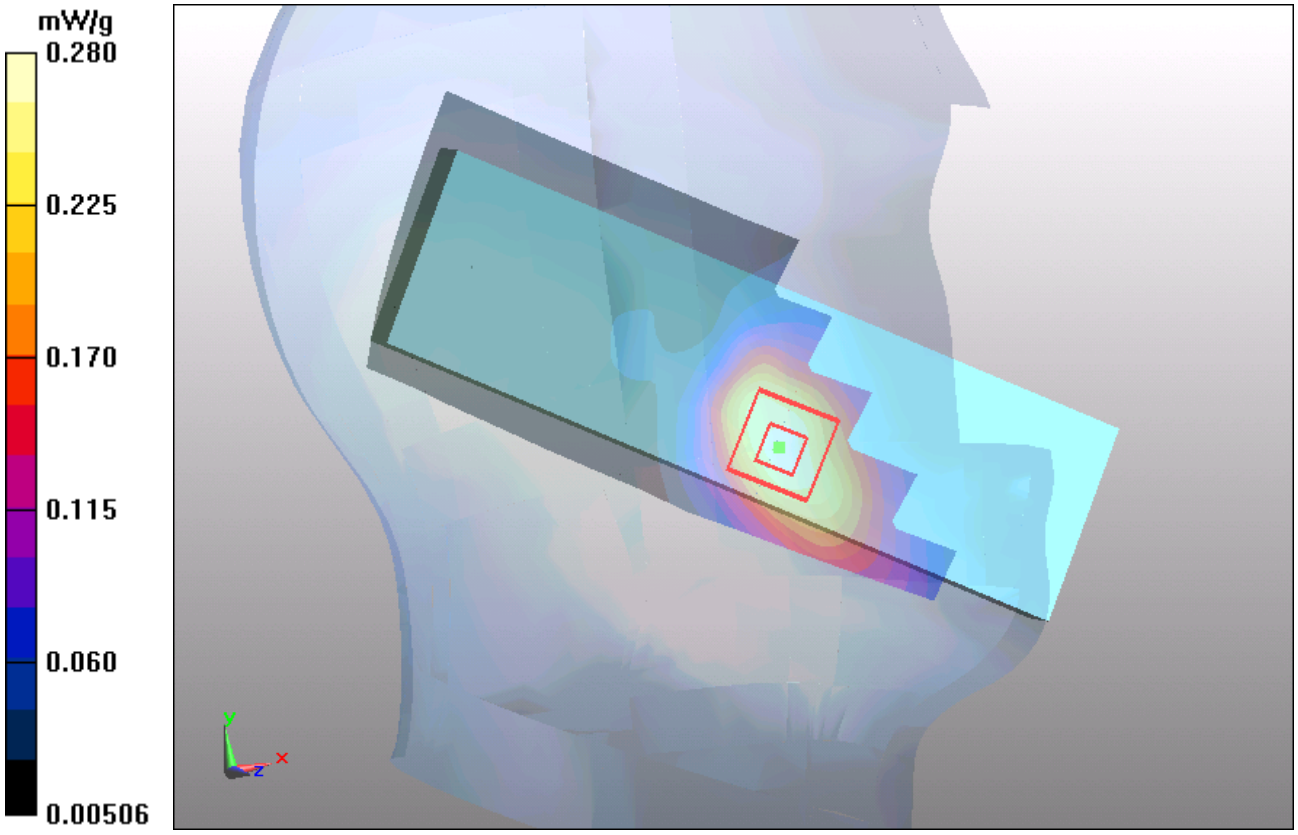


Figure 46 Left Hand Touch Cheek WCDMA Band II Channel 9400

WCDMA Band II Left Tilt Middle (Open)

Date/Time: 5/15/2012 6:29:34 PM
Communication System: WCDMA ; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.4 mho/m; ε_r = 40.9; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Left Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(8.05, 8.05, 8.05); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM2; Type: SAM; Serial: TP-1524
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

WCDMA II Left/Tilt Middle/Area Scan (51x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.056 mW/g

WCDMA II Left/Tilt Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.26 V/m; Power Drift = -0.020 dB
Peak SAR (extrapolated) = 0.074 W/kg
SAR(1 g) = 0.049 mW/g; SAR(10 g) = 0.032 mW/g
Maximum value of SAR (measured) = 0.052 mW/g

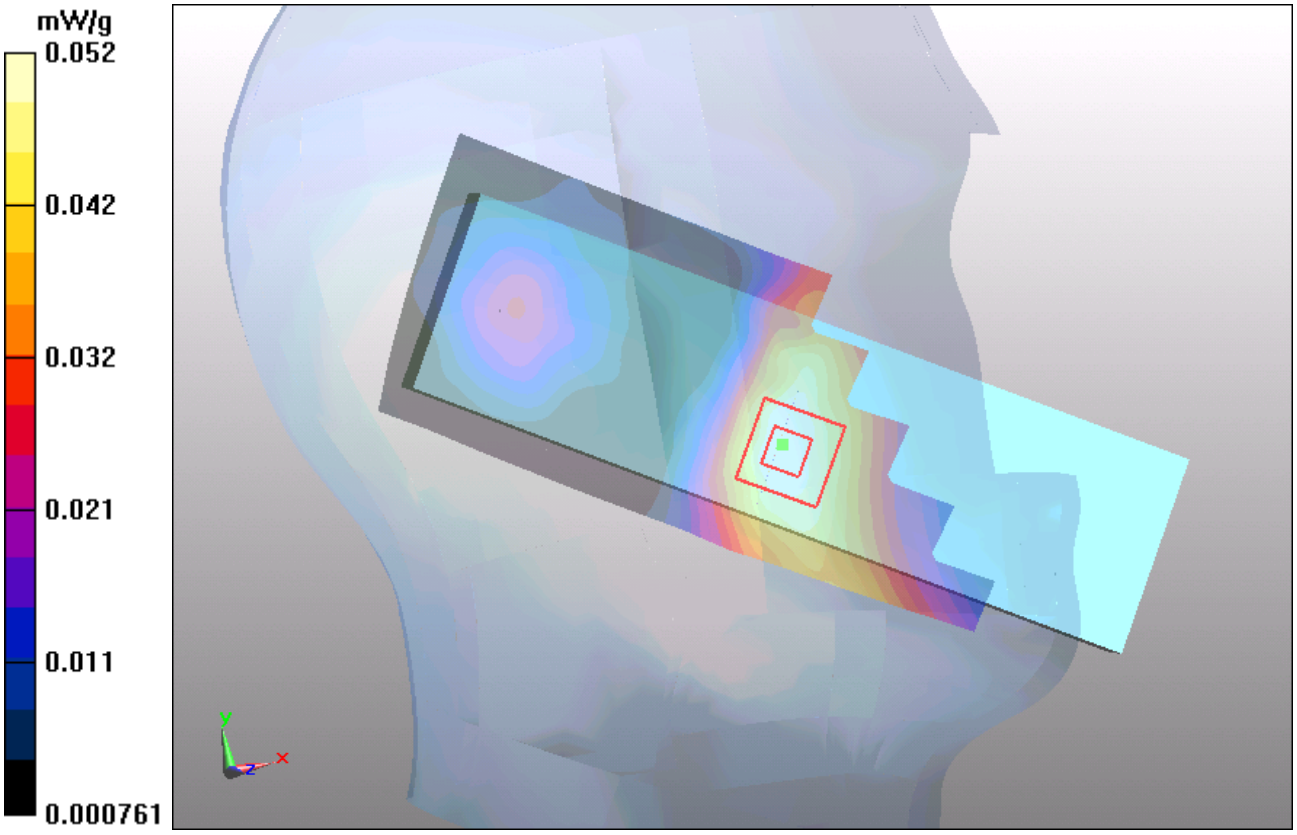


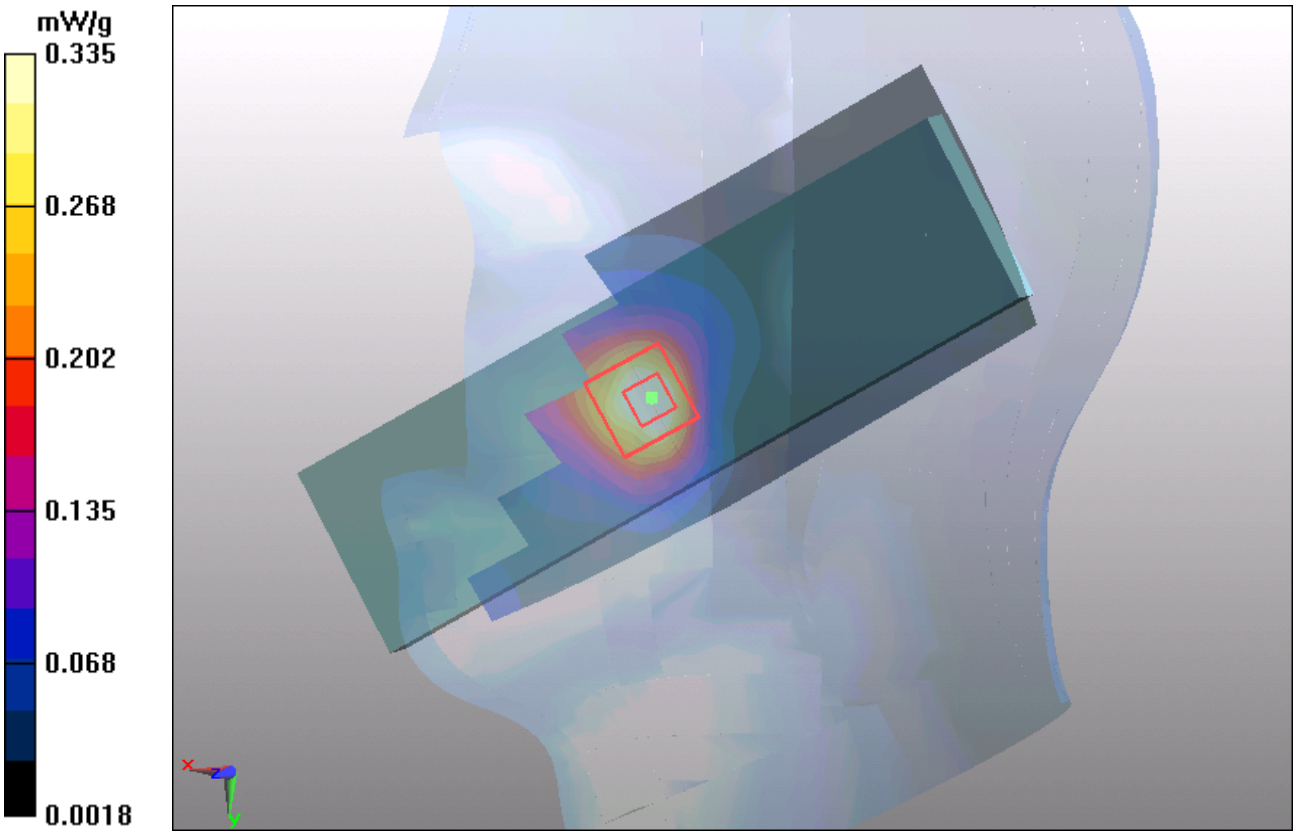
Figure 47 Left Hand Tilt 15° WCDMA Band II Channel 9400

WCDMA Band II Right Cheek High (Open)

Date/Time: 5/15/2012 8:50:42 PM
Communication System: WCDMA ; Frequency: 1907.6 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1908 MHz; σ = 1.42 mho/m; ε_r = 40.8; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Right Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(8.05, 8.05, 8.05); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM2; Type: SAM; Serial: TP-1524
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

WCDMA II Right/Cheek Higih/Area Scan (51x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.370 mW/g

WCDMA II Right/Cheek Higih/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.46 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.456 W/kg
SAR(1 g) = 0.306 mW/g; SAR(10 g) = 0.185 mW/g
Maximum value of SAR (measured) = 0.335 mW/g



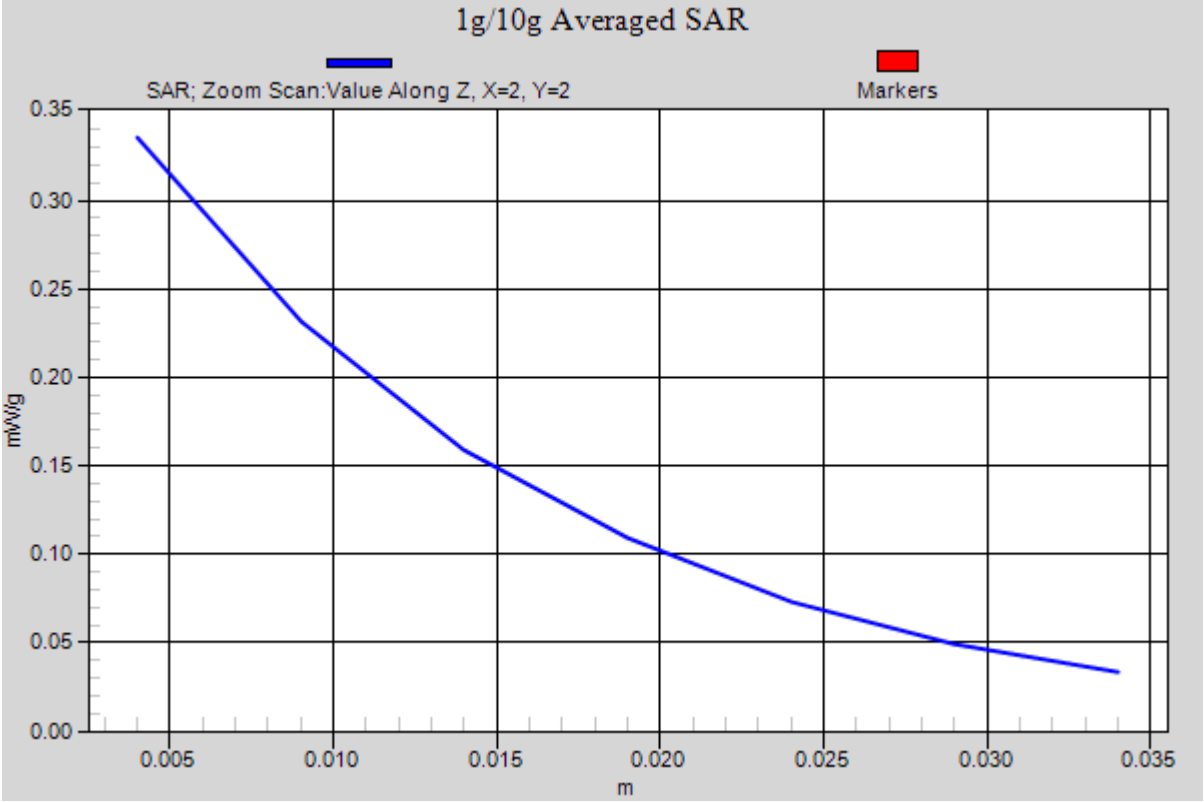


Figure 48 Right Hand Touch Cheek WCDMA Band II Channel 9538

WCDMA Band II Right Cheek Middle (Open)

Date/Time: 5/15/2012 8:24:44 PM
Communication System: WCDMA ; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.4 mho/m; ε_r = 40.9; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Right Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(8.05, 8.05, 8.05); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM2; Type: SAM; Serial: TP-1524
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

WCDMA II Right/Cheek Middle/Area Scan (51x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.339 mW/g

WCDMA II Right/Cheek Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.69 V/m; Power Drift = -0.003 dB
Peak SAR (extrapolated) = 0.411 W/kg
SAR(1 g) = 0.279 mW/g; SAR(10 g) = 0.173 mW/g
Maximum value of SAR (measured) = 0.299 mW/g

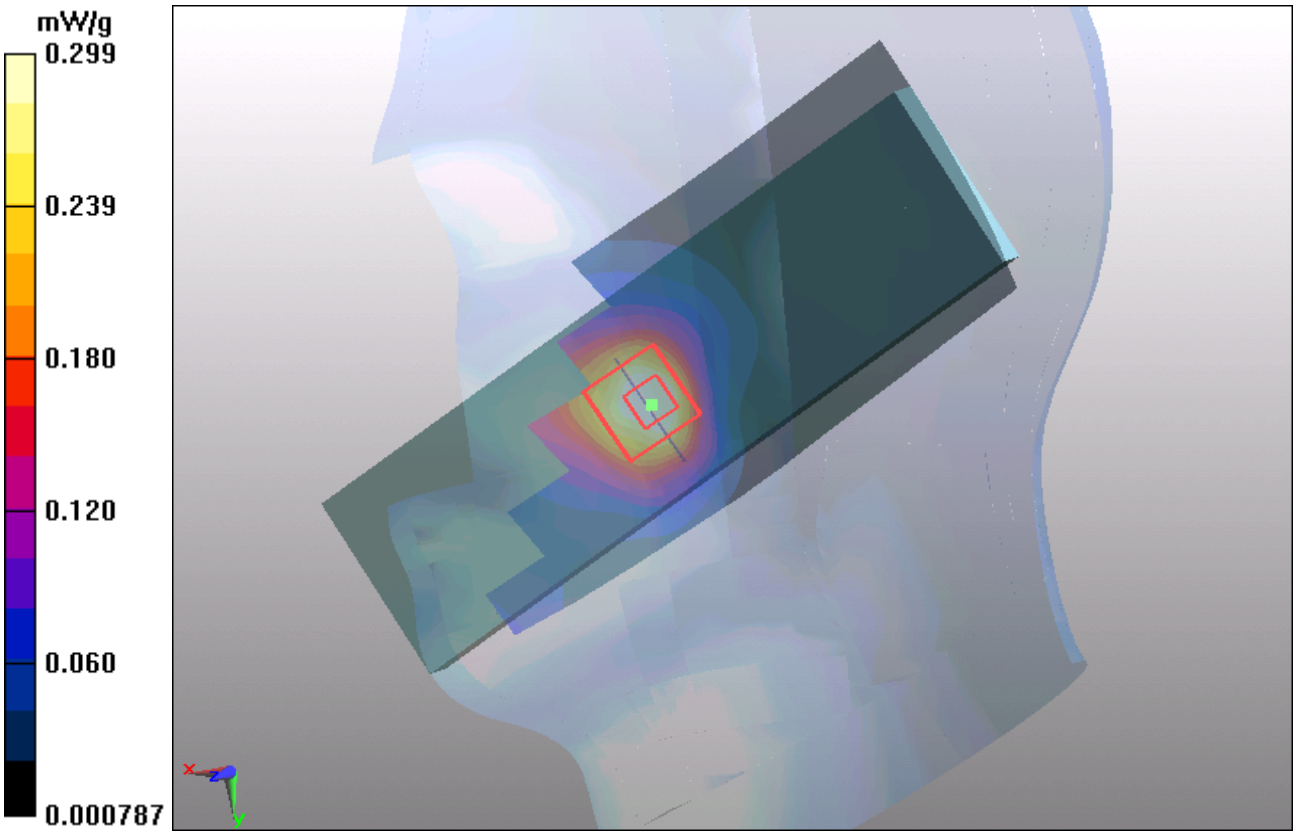


Figure 49 Right Hand Touch Cheek WCDMA Band II Channel 9400

WCDMA Band II Right Cheek Low (Open)

Date/Time: 5/15/2012 9:06:15 PM
Communication System: WCDMA ; Frequency: 1852.4 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.37 mho/m; ε_r = 41; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Right Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(8.05, 8.05, 8.05); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM2; Type: SAM; Serial: TP-1524
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

WCDMA II Right/Cheek Low/Area Scan (51x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.298 mW/g

WCDMA II Right/Cheek Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.71 V/m; Power Drift = -0.070 dB
Peak SAR (extrapolated) = 0.355 W/kg
SAR(1 g) = 0.244 mW/g; SAR(10 g) = 0.154 mW/g
Maximum value of SAR (measured) = 0.266 mW/g

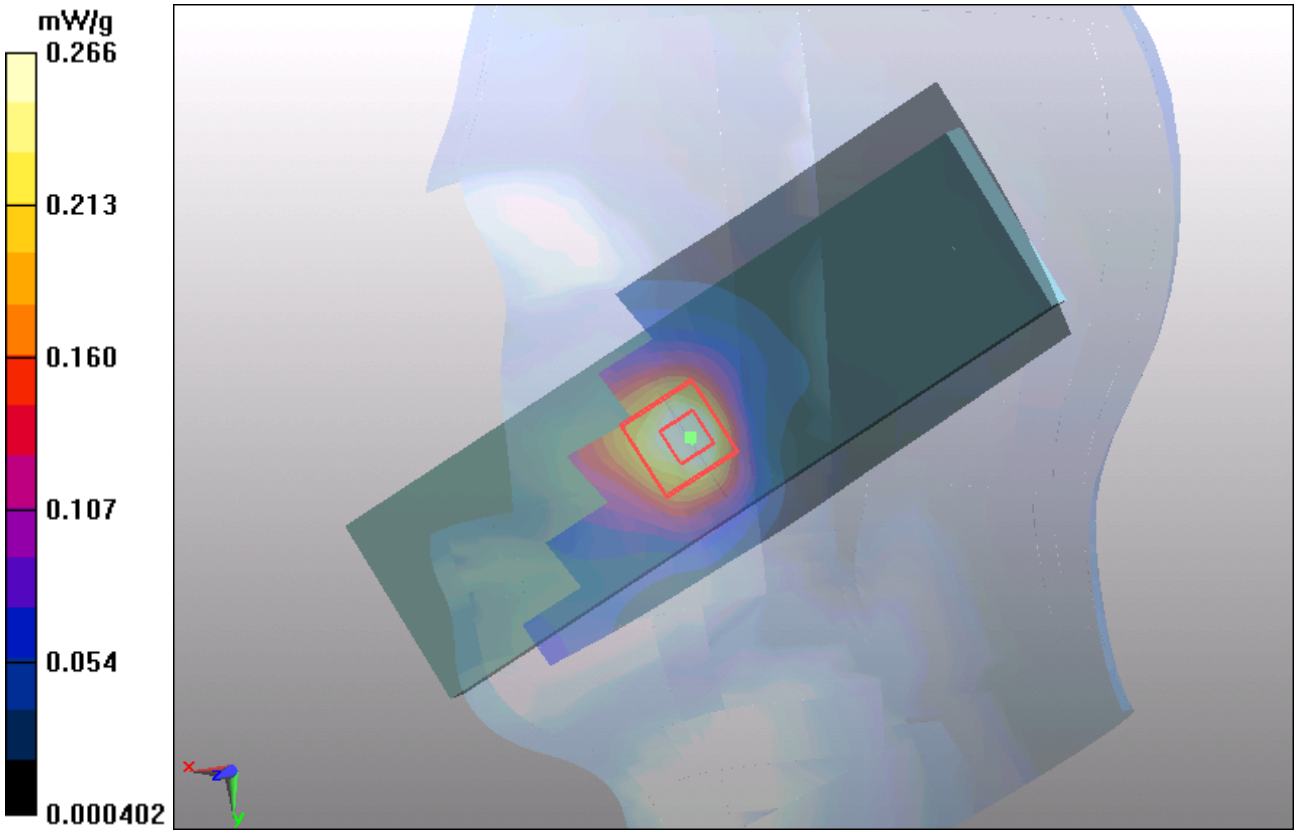


Figure 50 Right Hand Touch Cheek WCDMA Band II Channel 9262

WCDMA Band II Right Tilt Middle (Open)

Date/Time: 5/15/2012 8:08:52 PM
Communication System: WCDMA ; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.4 mho/m; ε_r = 40.9; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Right Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(8.05, 8.05, 8.05); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM2; Type: SAM; Serial: TP-1524
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

WCDMA II Right/Tilt Middle/Area Scan (51x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.058 mW/g

WCDMA II Right/Tilt Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.09 V/m; Power Drift = 0.056 dB
Peak SAR (extrapolated) = 0.072 W/kg
SAR(1 g) = 0.049 mW/g; SAR(10 g) = 0.032 mW/g
Maximum value of SAR (measured) = 0.052 mW/g

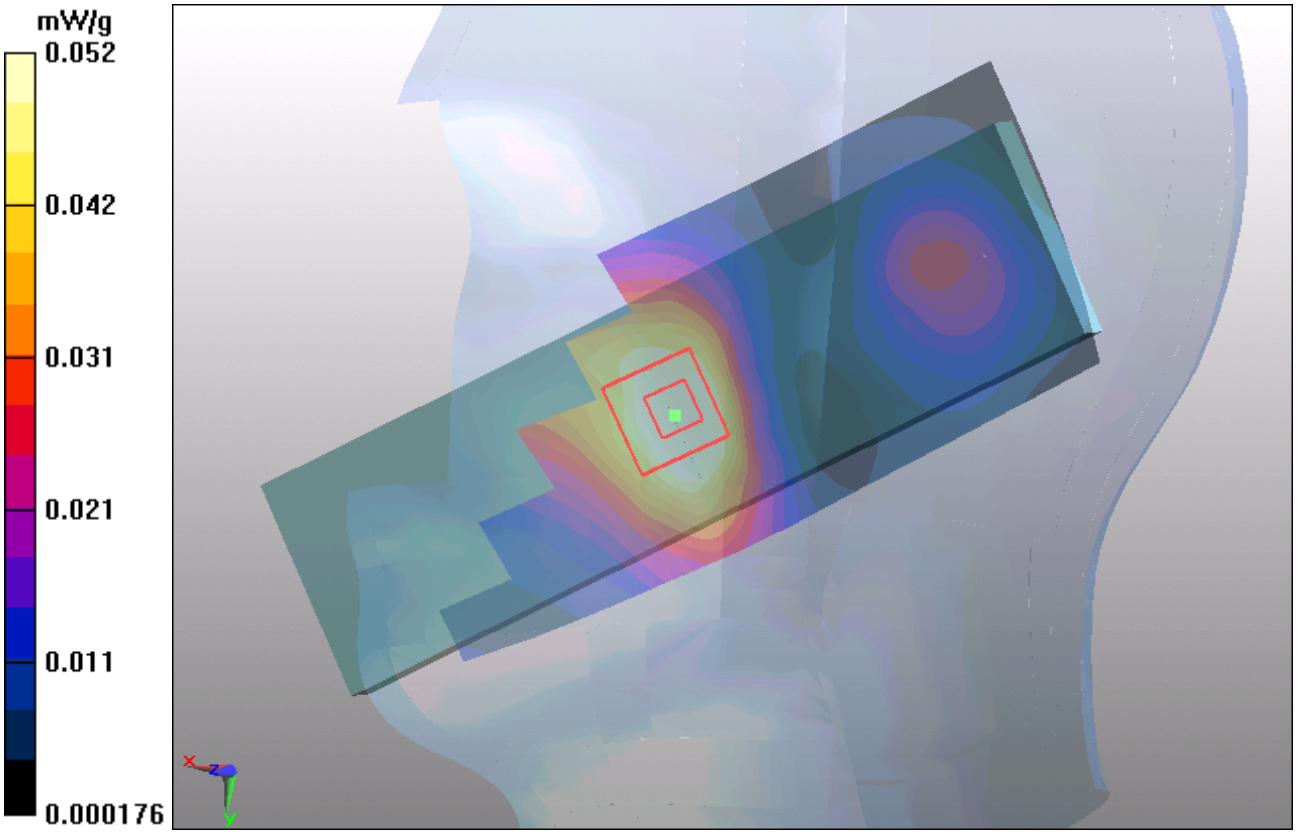


Figure 51 Right Hand Tilt 15° WCDMA Band II Channel 9400

WCDMA Band II Towards Ground High (Closed)

Date/Time: 5/14/2012 2:27:06 PM
Communication System: WCDMA ; Frequency: 1907.6 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1908 MHz; σ = 1.56 mho/m; ε_r = 52.1; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Flat Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(7.57, 7.57, 7.57); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM2; Type: SAM; Serial: TP-1524
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Towards Ground High/Area Scan (41x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.429 mW/g

Towards Ground High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.1 V/m; Power Drift = -0.070 dB
Peak SAR (extrapolated) = 0.642 W/kg
SAR(1 g) = 0.395 mW/g; SAR(10 g) = 0.228 mW/g
Maximum value of SAR (measured) = 0.433 mW/g

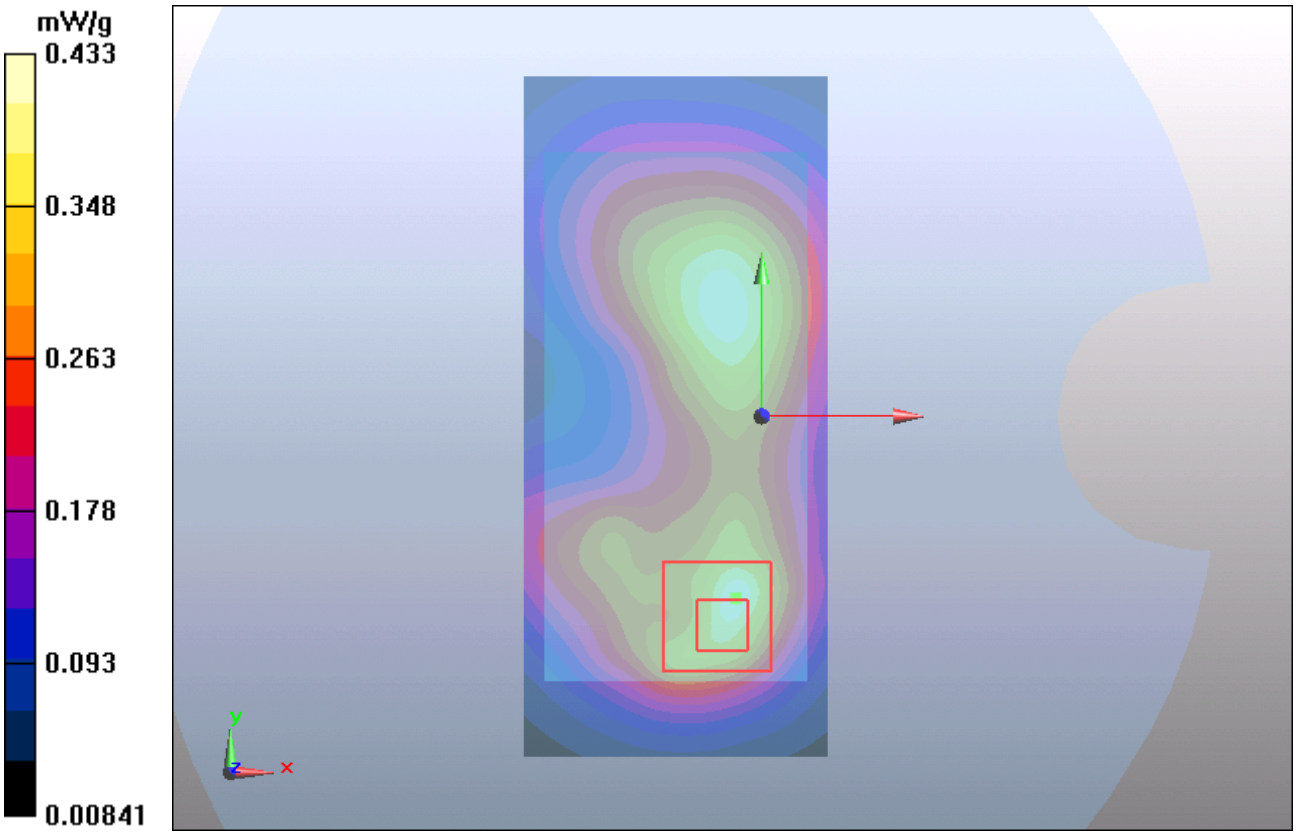


Figure 52 Body, Towards Ground, WCDMA Band II Channel 9538

WCDMA Band II Towards Ground Middle (Closed)

Date/Time: 5/14/2012 11:34:15 AM
Communication System: WCDMA ; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.54 mho/m; ε_r = 52.2; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Flat Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(7.57, 7.57, 7.57); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM2; Type: SAM; Serial: TP-1524
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Towards Ground Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.445 mW/g

Towards Ground Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12 V/m; Power Drift = -0.103 dB
Peak SAR (extrapolated) = 0.652 W/kg
SAR(1 g) = 0.409 mW/g; SAR(10 g) = 0.239 mW/g
Maximum value of SAR (measured) = 0.448 mW/g

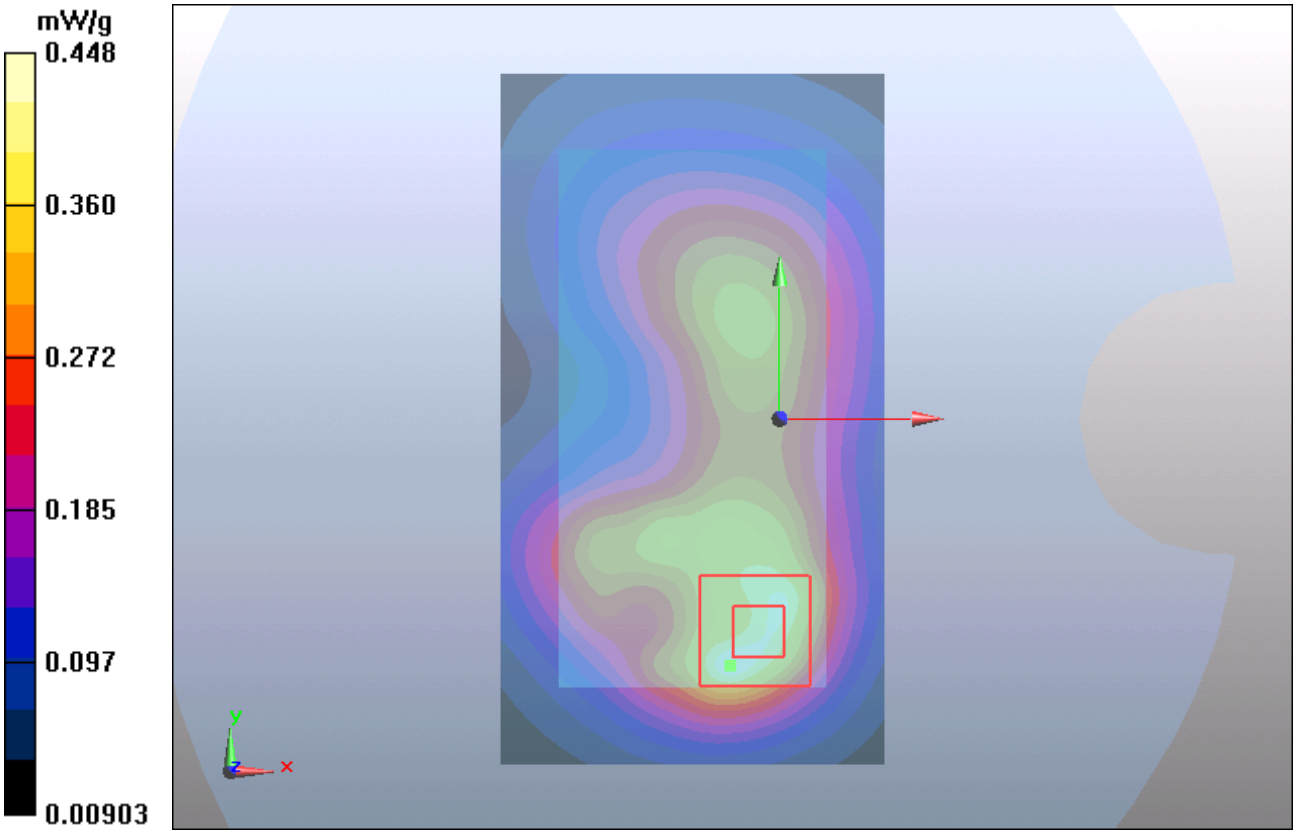


Figure 53 Body, Towards Ground, WCDMA Band II Channel 9400

WCDMA Band II Towards Ground Low (Closed)

Date/Time: 5/14/2012 2:12:27 PM
Communication System: WCDMA ; Frequency: 1852.4 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.51 mho/m; ε_r = 52.3; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Flat Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(7.57, 7.57, 7.57); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM2; Type: SAM; Serial: TP-1524
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Towards Ground Low/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.361 mW/g

Towards Ground Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11 V/m; Power Drift = -0.055 dB
Peak SAR (extrapolated) = 0.563 W/kg
SAR(1 g) = 0.346 mW/g; SAR(10 g) = 0.200 mW/g
Maximum value of SAR (measured) = 0.376 mW/g

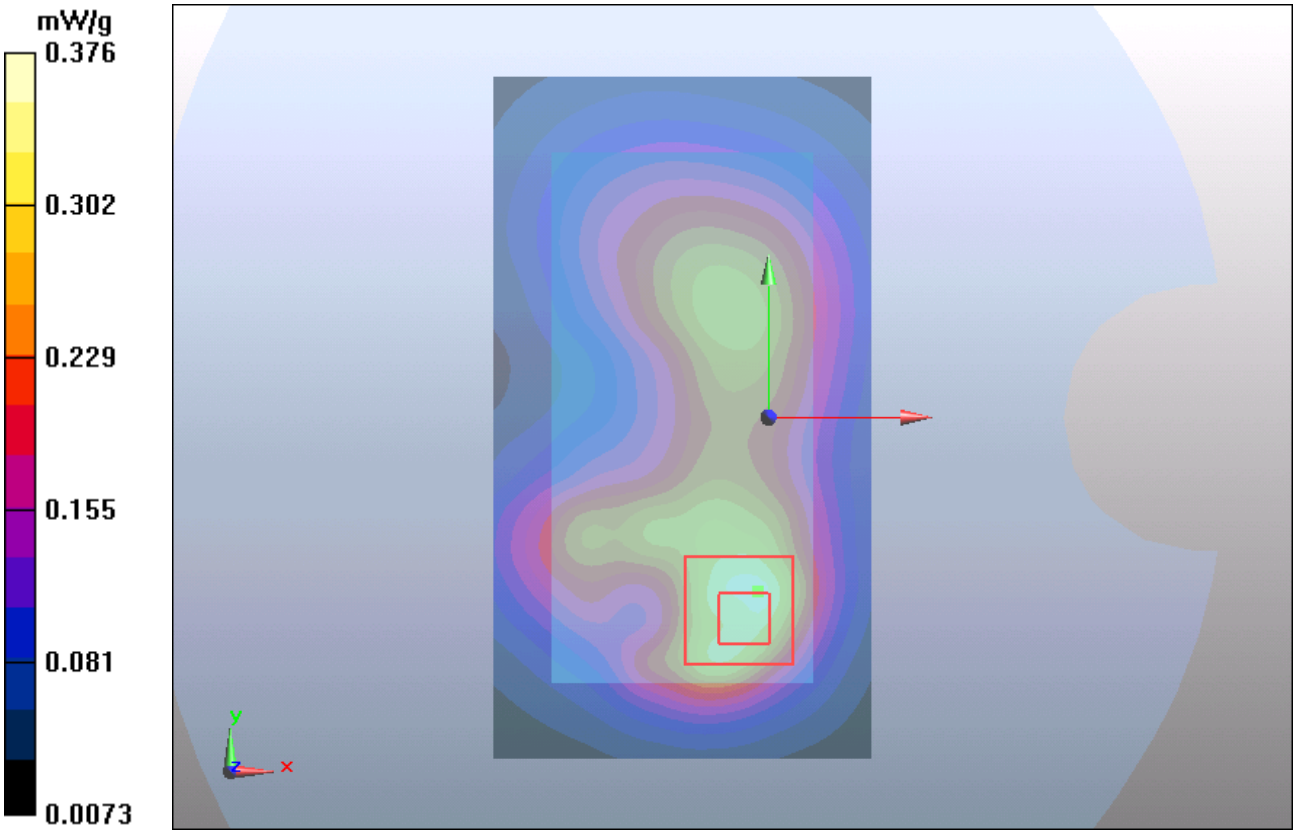


Figure 54 Body, Towards Ground, WCDMA Band II Channel 9262

WCDMA Band II Towards Phantom High (Closed)

Date/Time: 5/14/2012 2:44:43 PM
Communication System: WCDMA ; Frequency: 1907.6 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1908 MHz; σ = 1.56 mho/m; ε_r = 52.1; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Flat Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(7.57, 7.57, 7.57); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM2; Type: SAM; Serial: TP-1524
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Towards Phantom High/Area Scan (41x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.185 mW/g

Towards Phantom High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.42 V/m; Power Drift = 0.152 dB
Peak SAR (extrapolated) = 0.271 W/kg
SAR(1 g) = 0.169 mW/g; SAR(10 g) = 0.101 mW/g
Maximum value of SAR (measured) = 0.186 mW/g

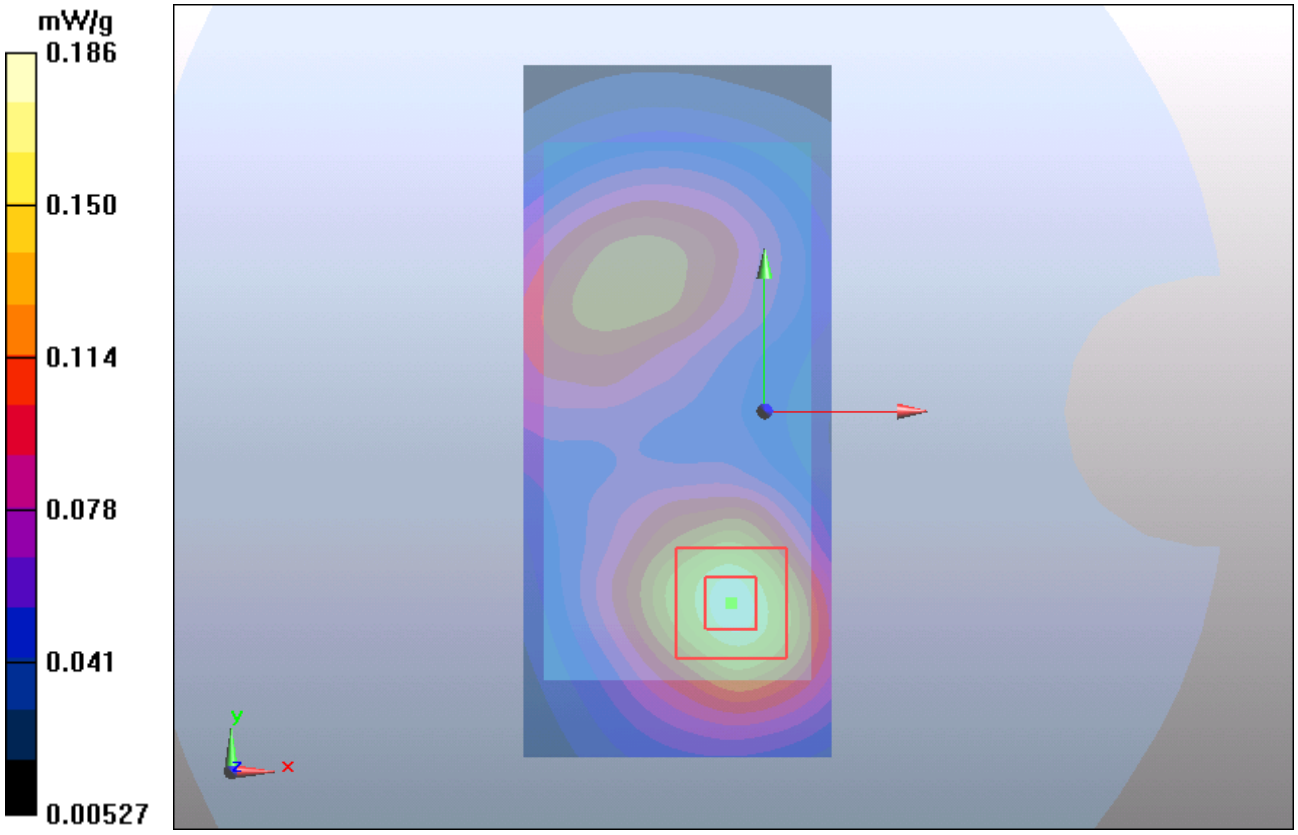


Figure 55 Body, Towards Phantom, WCDMA Band II Channel 9538

WCDMA Band II Towards Phantom Middle (Closed)

Date/Time: 5/14/2012 3:15:22 PM
Communication System: WCDMA ; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.54 mho/m; ε_r = 52.2; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Flat Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(7.57, 7.57, 7.57); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM2; Type: SAM; Serial: TP-1524
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Towards Phantom Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.179 mW/g

Towards Phantom Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.46 V/m; Power Drift = 0.068 dB
Peak SAR (extrapolated) = 0.259 W/kg
SAR(1 g) = 0.160 mW/g; SAR(10 g) = 0.094 mW/g
Maximum value of SAR (measured) = 0.174 mW/g

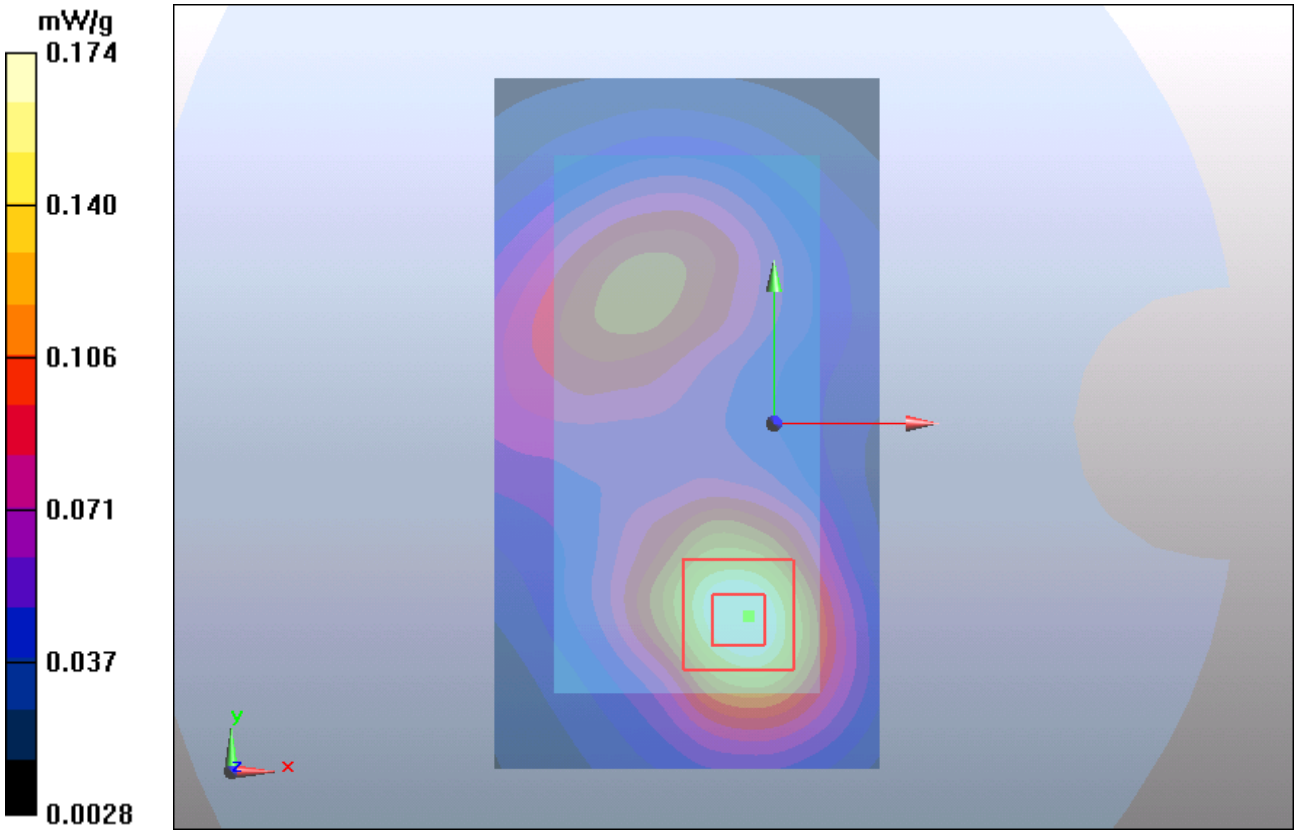


Figure 56 Body, Towards Phantom, WCDMA Band II Channel 9400

WCDMA Band II Towards Phantom Low (Closed)

Date/Time: 5/14/2012 2:59:00 PM
Communication System: WCDMA ; Frequency: 1852.4 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.51 mho/m; ε_r = 52.3; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Flat Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(7.57, 7.57, 7.57); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM2; Type: SAM; Serial: TP-1524
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Towards Phantom Low/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.156 mW/g

Towards Phantom Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.55 V/m; Power Drift = 0.054 dB
Peak SAR (extrapolated) = 0.227 W/kg
SAR(1 g) = 0.146 mW/g; SAR(10 g) = 0.087 mW/g
Maximum value of SAR (measured) = 0.158 mW/g

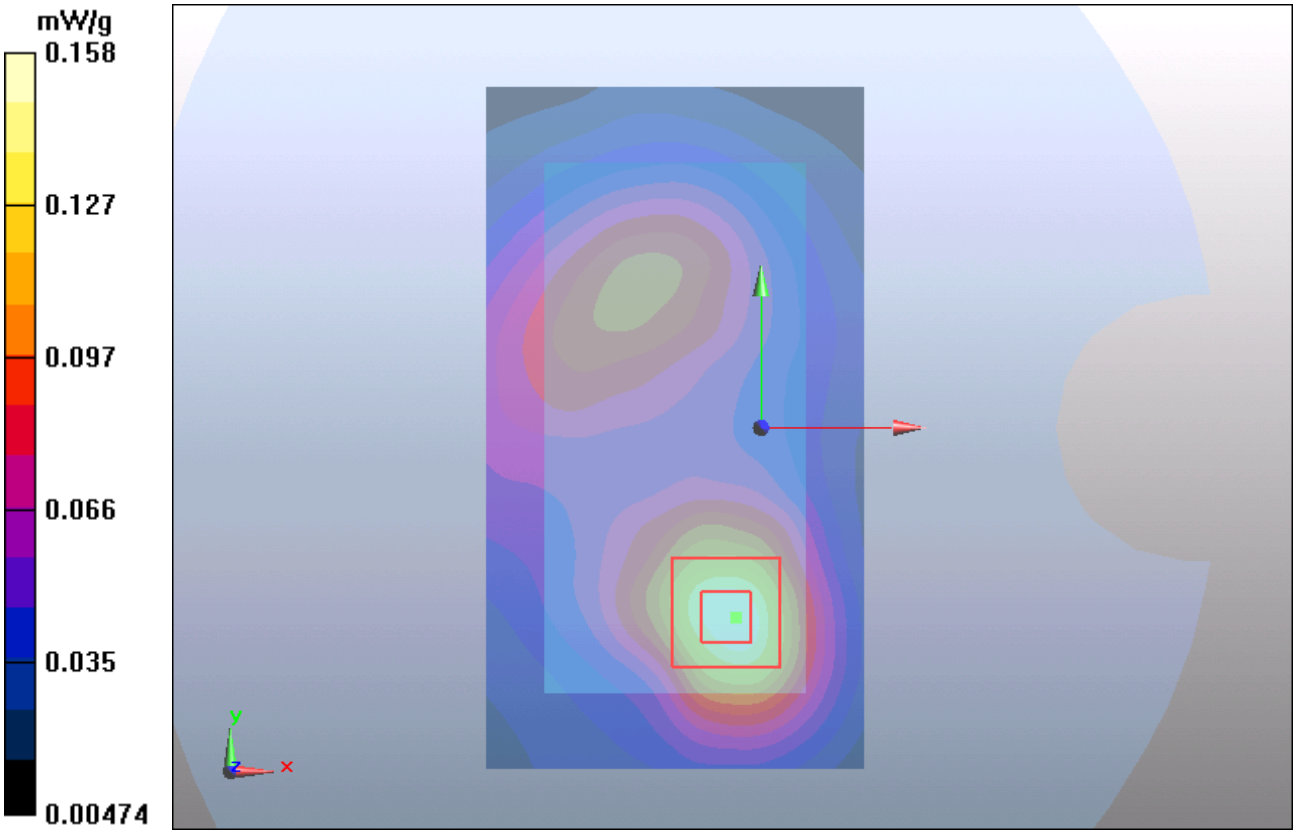


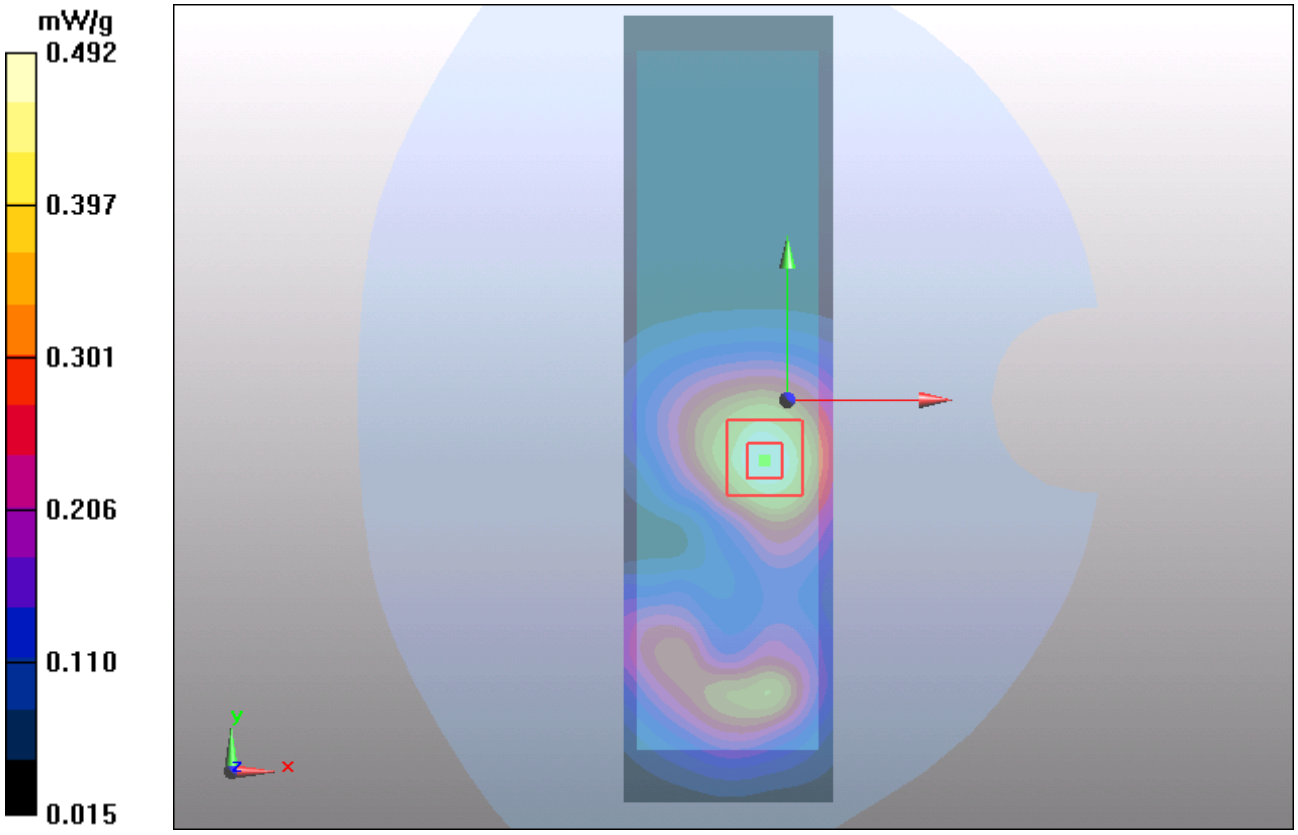
Figure 57 Body, Towards Phantom, WCDMA Band II Channel 9262

WCDMA Band II Towards Ground High (Open)

Date/Time: 5/14/2012 11:43:39 PM
Communication System: WCDMA ; Frequency: 1907.6 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1908 MHz; σ = 1.56 mho/m; ε_r = 52.1; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Flat Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(7.57, 7.57, 7.57); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM2; Type: SAM; Serial: TP-1524
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Towards Ground High/Area Scan (41x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.508 mW/g

Towards Ground High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.3 V/m; Power Drift = -0.149 dB
Peak SAR (extrapolated) = 0.695 W/kg
SAR(1 g) = 0.455 mW/g; SAR(10 g) = 0.284 mW/g
Maximum value of SAR (measured) = 0.492 mW/g



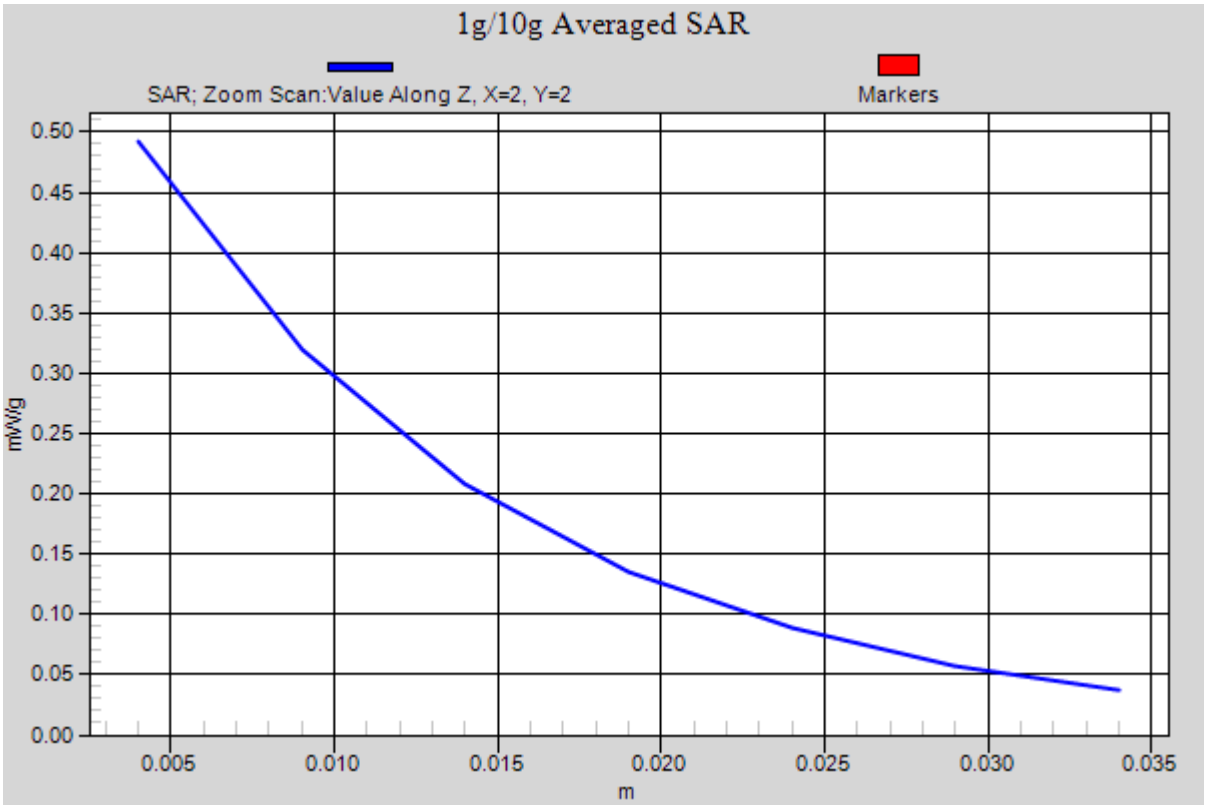


Figure 58 Body, Towards Ground, WCDMA Band II Channel 9538

WCDMA Band II Towards Ground Middle (Open)

Date/Time: 5/14/2012 11:19:29 PM
Communication System: WCDMA ; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.54 mho/m; ε_r = 52.2; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Flat Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(7.57, 7.57, 7.57); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM2; Type: SAM; Serial: TP-1524
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Towards Ground Middle/Area Scan (51x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.522 mW/g

Towards Ground Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14 V/m; Power Drift = -0.044 dB
Peak SAR (extrapolated) = 0.688 W/kg
SAR(1 g) = 0.438 mW/g; SAR(10 g) = 0.255 mW/g
Maximum value of SAR (measured) = 0.474 mW/g

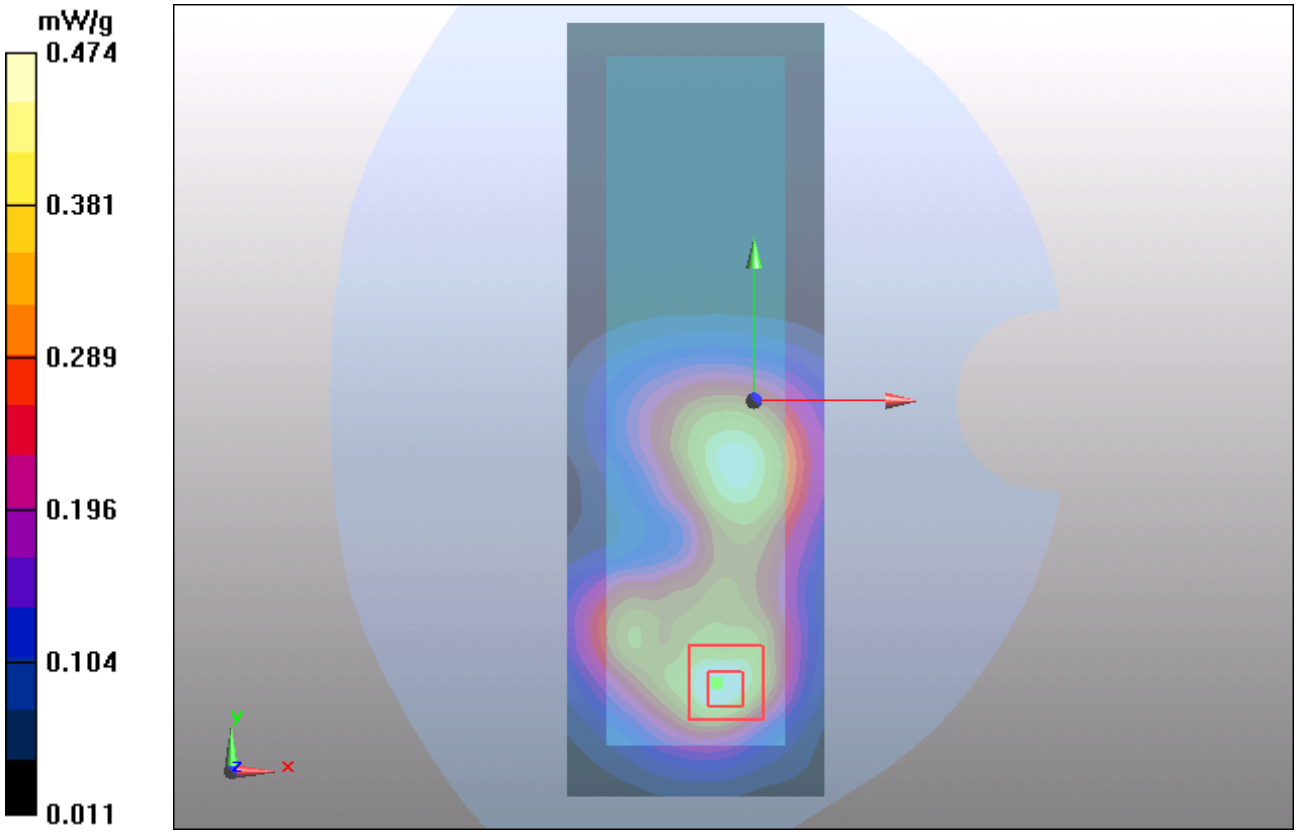


Figure 59 Body, Towards Ground, WCDMA Band II Channel 9400

WCDMA Band II Towards Ground Low (Open)

Date/Time: 5/15/2012 9:24:53 AM
Communication System: WCDMA ; Frequency: 1852.4 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.51 mho/m; ε_r = 52.3; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Flat Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(7.57, 7.57, 7.57); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM2; Type: SAM; Serial: TP-1524
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Towards Ground Low/Area Scan (51x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.402 mW/g

Towards Ground Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.5 V/m; Power Drift = 0.078 dB
Peak SAR (extrapolated) = 0.580 W/kg
SAR(1 g) = 0.359 mW/g; SAR(10 g) = 0.206 mW/g
Maximum value of SAR (measured) = 0.394 mW/g

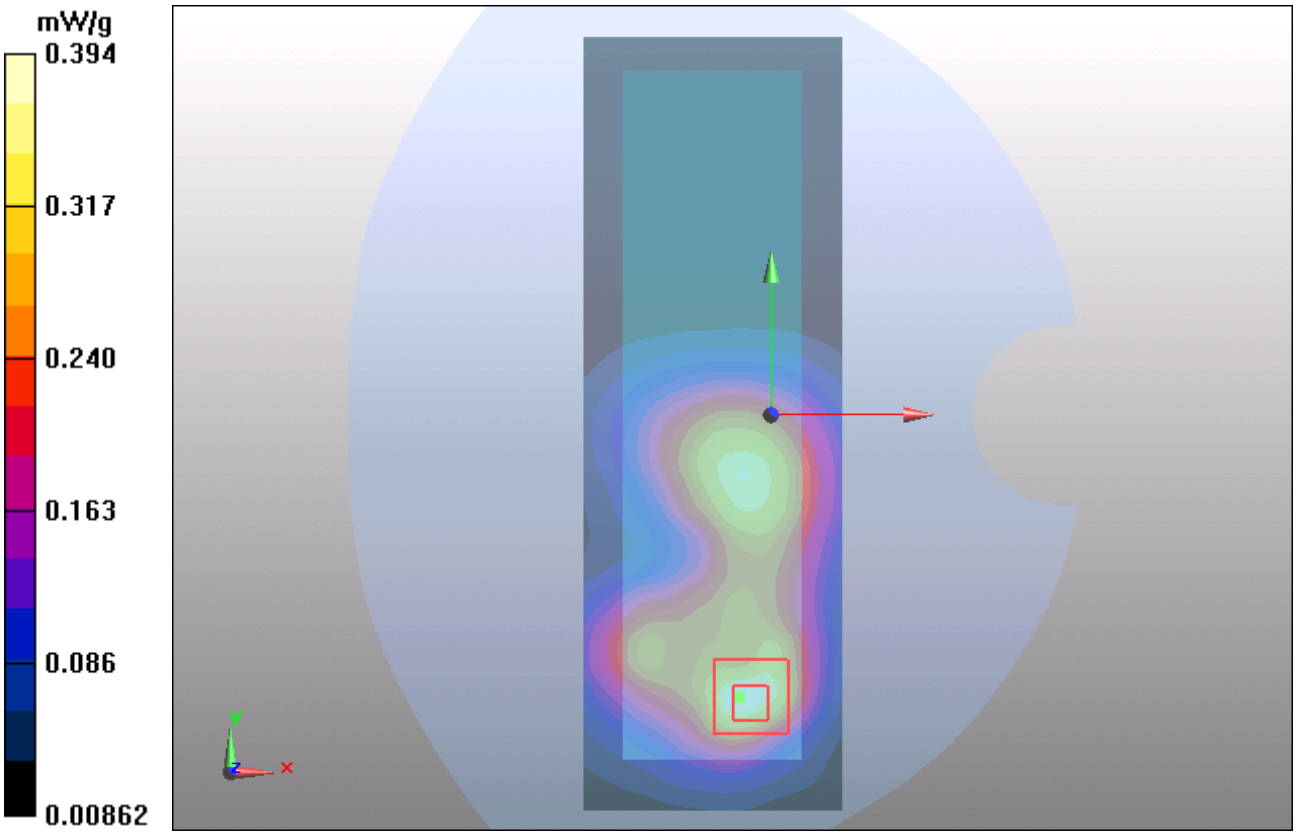


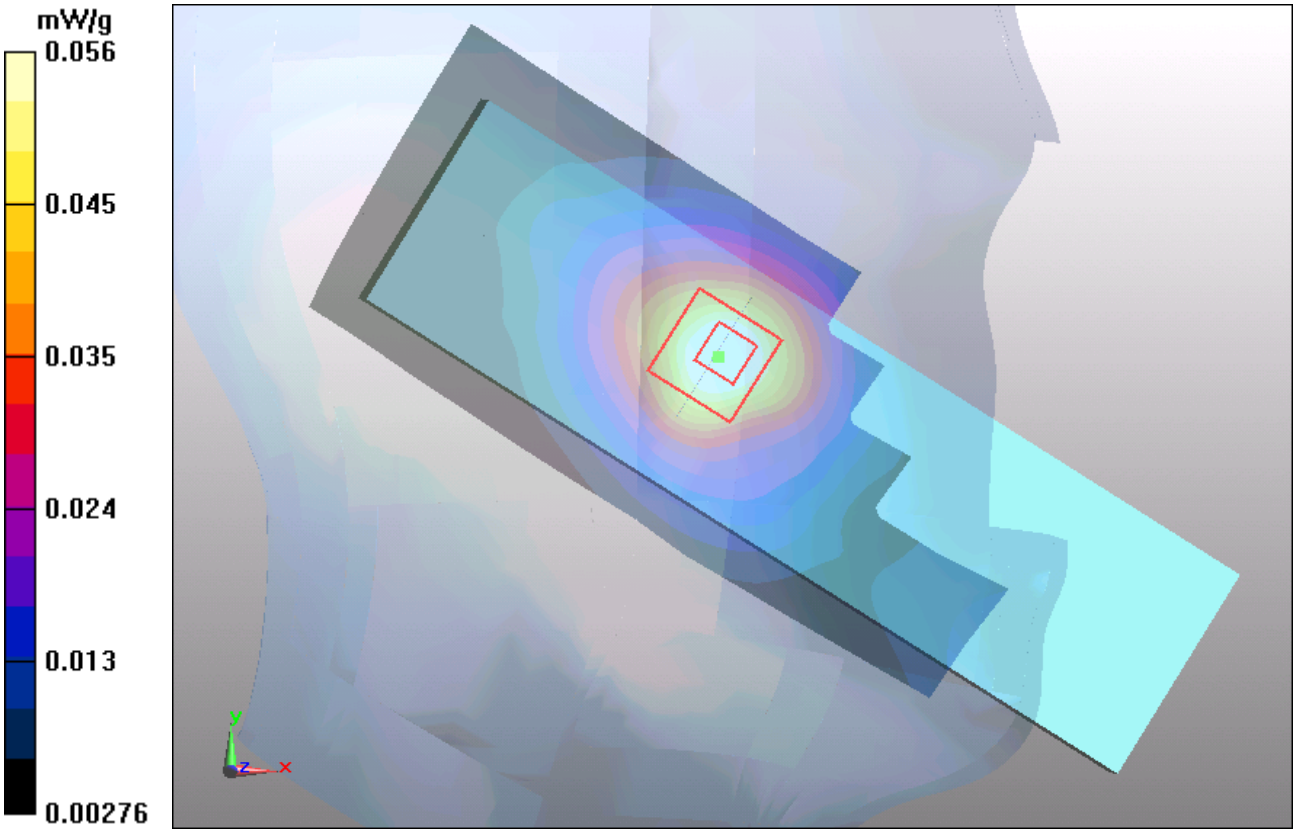
Figure 60 Body, Towards Ground, WCDMA Band II Channel 9262

WCDMA Band V Left Cheek High (Open)

Date/Time: 5/16/2012 2:11:22 PM
Communication System: WCDMA ; Frequency: 846.6 MHz;Duty Cycle: 1:1
Medium parameters used: f = 847 MHz; σ = 0.911 mho/m; ε_r = 41.2; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Left Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(9.02, 9.02, 9.02); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM1; Type: SAM; Serial: TP-1534
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

WCDMA V Left/Cheek High/Area Scan (51x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.061 mW/g

WCDMA V Left/Cheek High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.6 V/m; Power Drift = -0.177 dB
Peak SAR (extrapolated) = 0.083 W/kg
SAR(1 g) = 0.053 mW/g; SAR(10 g) = 0.035 mW/g
Maximum value of SAR (measured) = 0.056 mW/g



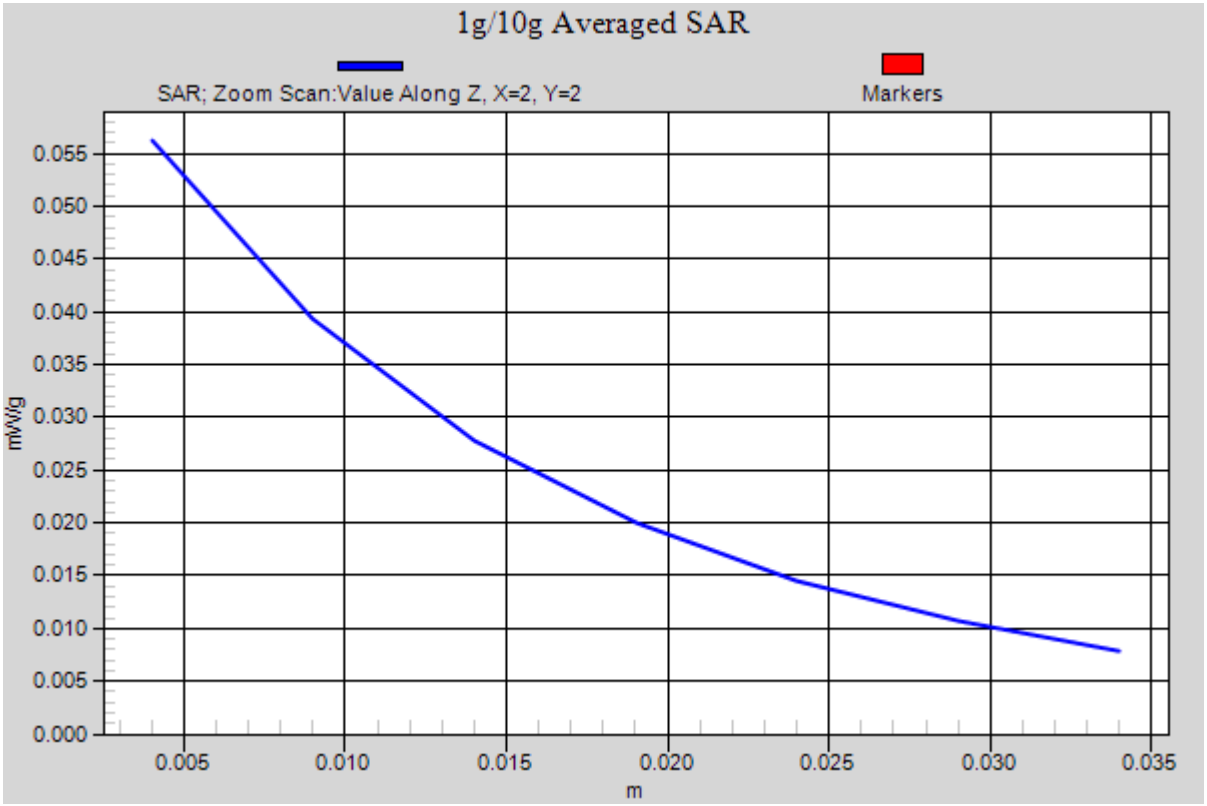


Figure 61 Left Hand Touch Cheek WCDMA Band V Channel 4233

WCDMA Band V Left Cheek Middle (Open)

Date/Time: 5/16/2012 1:00:24 PM
Communication System: WCDMA ; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used: f = 837 MHz; σ = 0.9 mho/m; ε_r = 41.3; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Left Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(9.02, 9.02, 9.02); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM1; Type: SAM; Serial: TP-1534
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

WCDMA V Left/Cheek Middle/Area Scan (51x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.046 mW/g

WCDMA V Left/Cheek Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.53 V/m; Power Drift = 0.164 dB
Peak SAR (extrapolated) = 0.065 W/kg
SAR(1 g) = 0.043 mW/g; SAR(10 g) = 0.029 mW/g
Maximum value of SAR (measured) = 0.046 mW/g

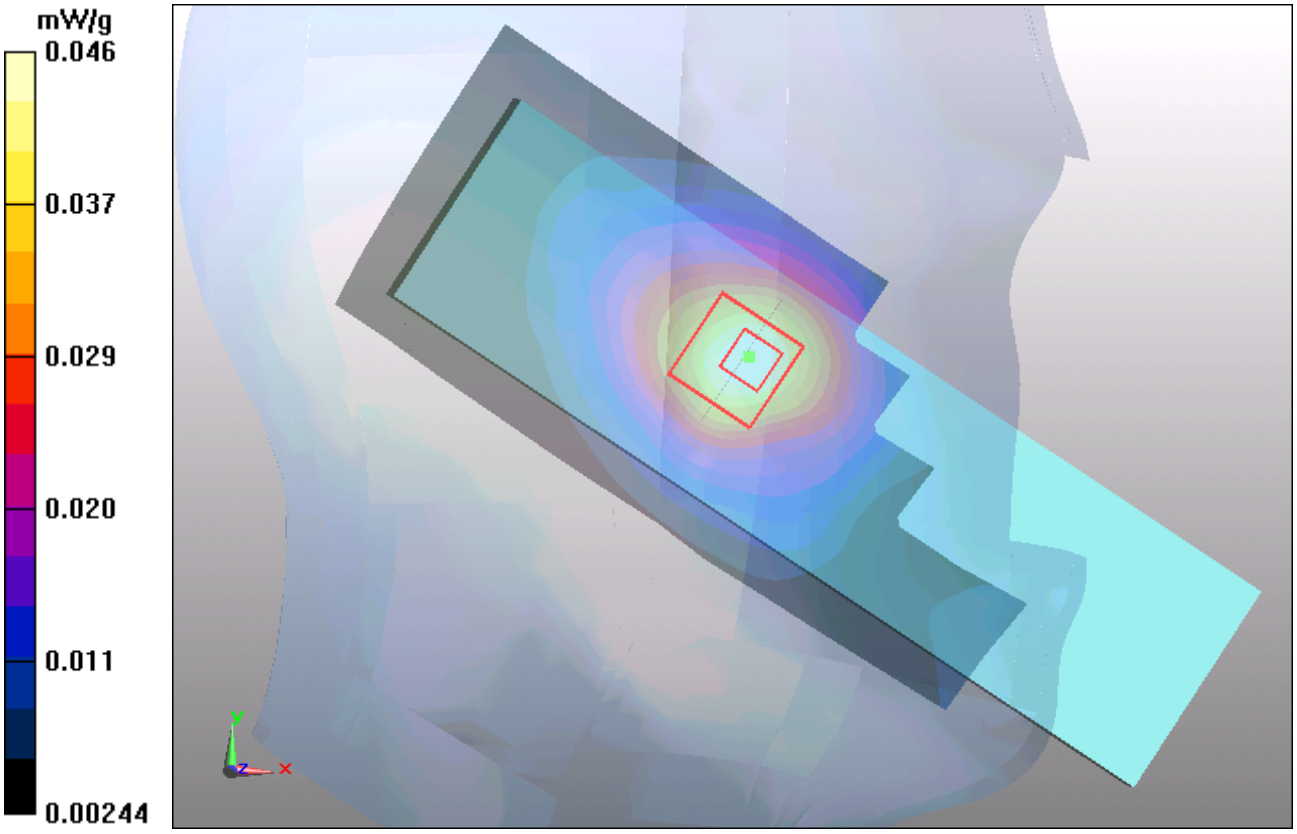


Figure 62 Left Hand Touch Cheek WCDMA Band V Channel 4183

WCDMA Band V Left Cheek Low (Open)

Date/Time: 5/16/2012 2:27:29 PM
Communication System: WCDMA ; Frequency: 826.4 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 826.4 MHz; σ = 0.888 mho/m; ε_r = 41.5; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Left Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(9.02, 9.02, 9.02); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM1; Type: SAM; Serial: TP-1534
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

WCDMA V Left/Cheek Low/Area Scan (51x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.038 mW/g

WCDMA V Left/Cheek Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.03 V/m; Power Drift = -0.065 dB
Peak SAR (extrapolated) = 0.054 W/kg
SAR(1 g) = 0.035 mW/g; SAR(10 g) = 0.023 mW/g
Maximum value of SAR (measured) = 0.036 mW/g

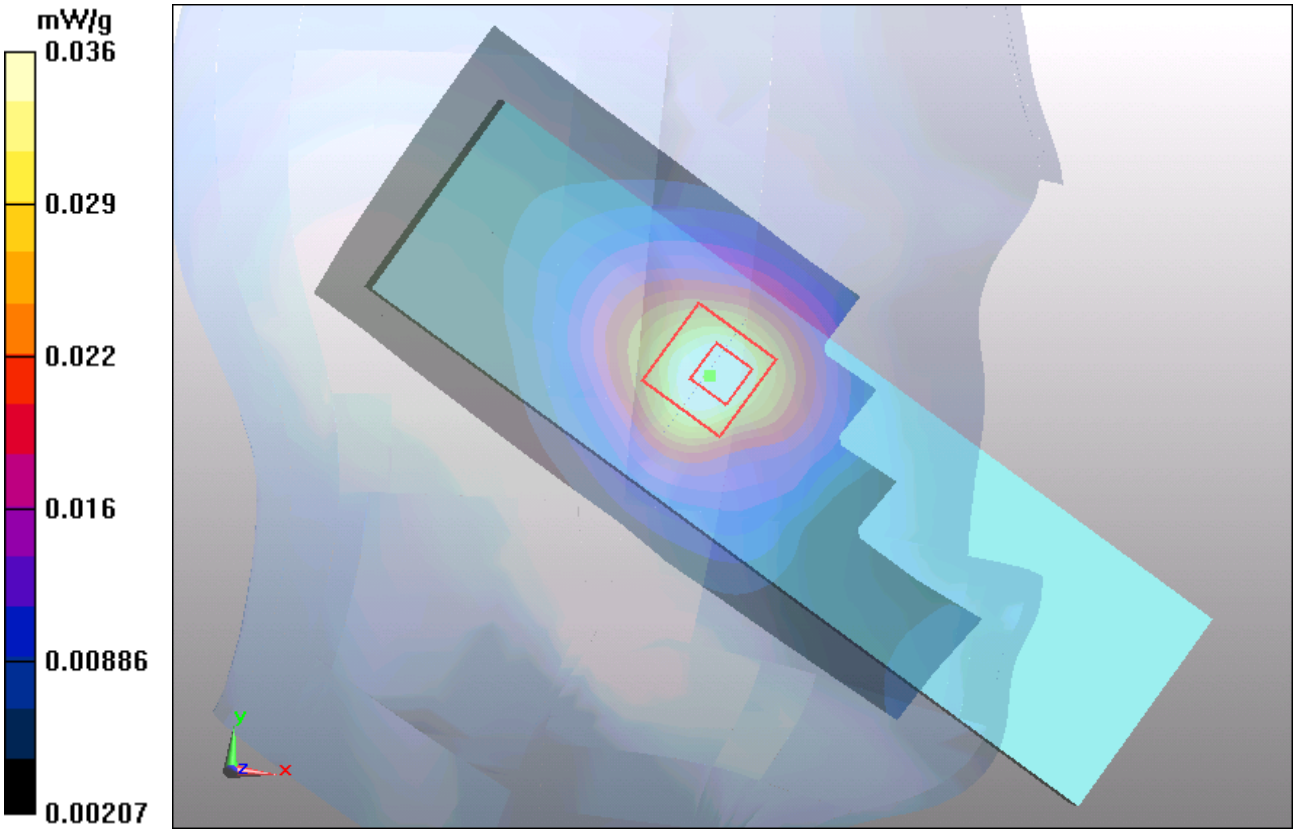


Figure 63 Left Hand Touch Cheek WCDMA Band V Channel 4132

WCDMA Band V Left Tilt Middle (Open)

Date/Time: 5/16/2012 1:16:13 PM
Communication System: WCDMA ; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used: f = 837 MHz; σ = 0.9 mho/m; ε_r = 41.3; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Left Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(9.02, 9.02, 9.02); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM1; Type: SAM; Serial: TP-1534
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

WCDMA V Left/Tilt Middle/Area Scan (51x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.022 mW/g

WCDMA V Left/Tilt Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.54 V/m; Power Drift = -0.038 dB
Peak SAR (extrapolated) = 0.018 W/kg
SAR(1 g) = 0.013 mW/g; SAR(10 g) = 0.009 mW/g
Maximum value of SAR (measured) = 0.013 mW/g

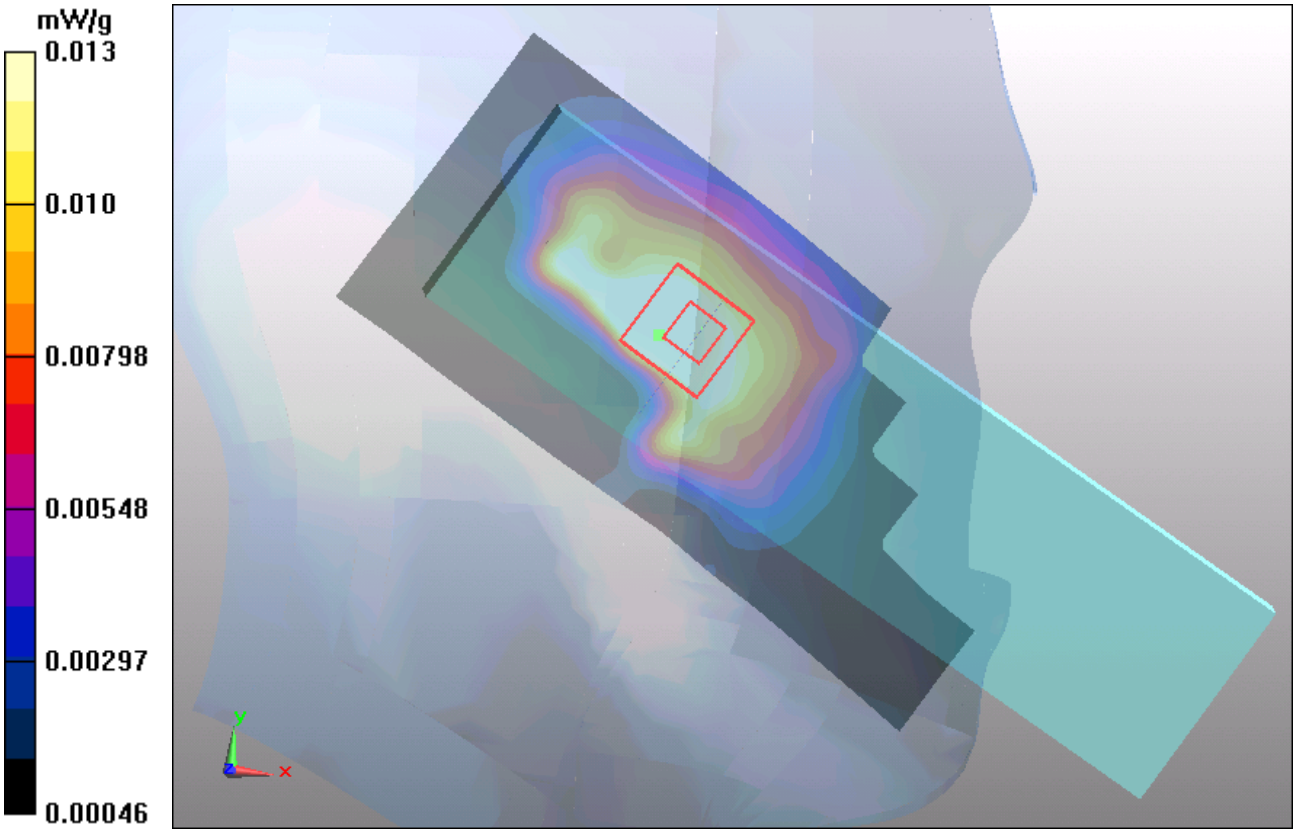


Figure 64 Left Hand Tilt 15° WCDMA Band V Channel 4183

WCDMA Band V Right Cheek Middle (Open)

Date/Time: 5/16/2012 1:36:01 PM
Communication System: WCDMA ; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used: f = 837 MHz; σ = 0.9 mho/m; ε_r = 41.3; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Right Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(9.02, 9.02, 9.02); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM1; Type: SAM; Serial: TP-1534
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

WCDMA V Right/Cheek Middle/Area Scan (51x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.021 mW/g

WCDMA V Right/Cheek Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.18 V/m; Power Drift = 0.057 dB
Peak SAR (extrapolated) = 0.027 W/kg
SAR(1 g) = 0.020 mW/g; SAR(10 g) = 0.014 mW/g
Maximum value of SAR (measured) = 0.021 mW/g

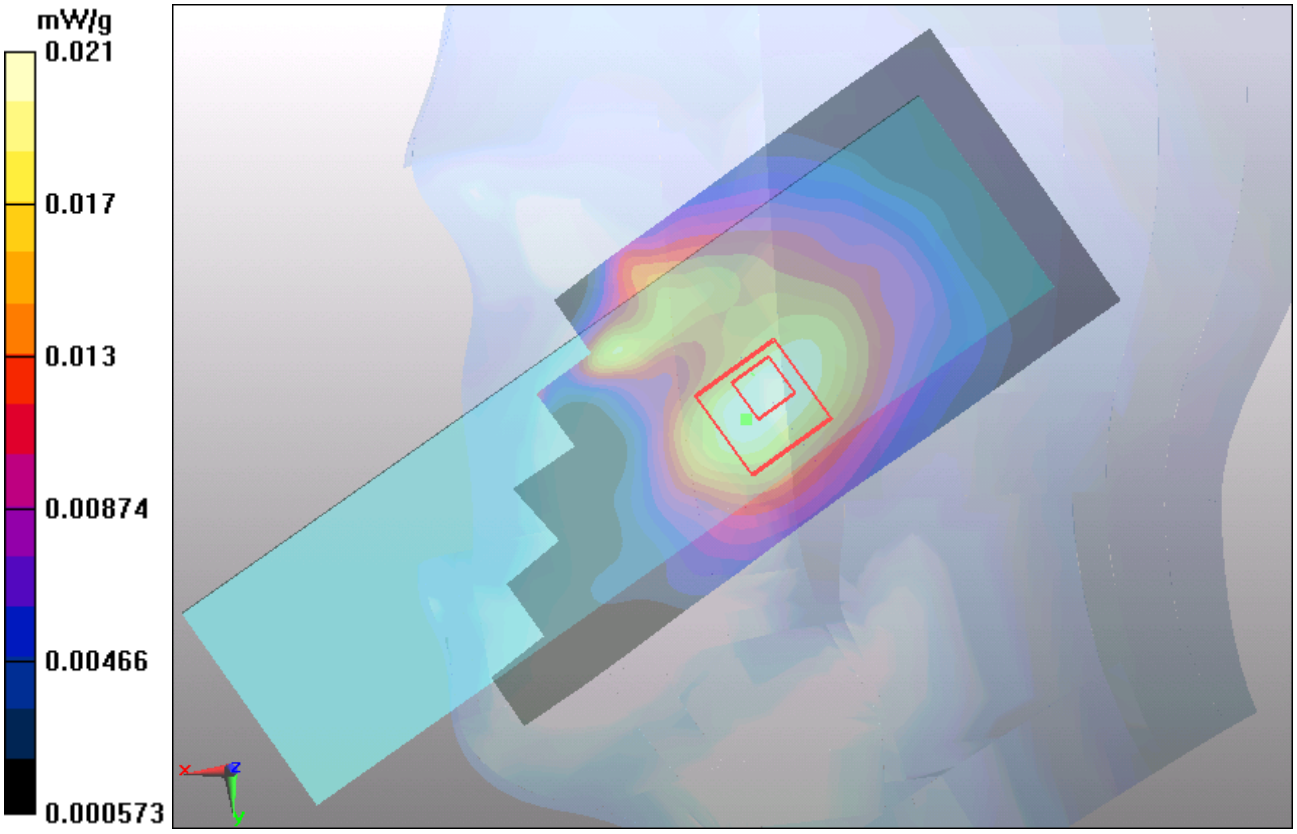


Figure 65 Right Hand Touch Cheek WCDMA Band V Channel 4183

WCDMA Band V Right Tilt Middle (Open)

Date/Time: 5/16/2012 1:52:37 PM
Communication System: WCDMA ; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used: f = 837 MHz; σ = 0.9 mho/m; ε_r = 41.3; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Right Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(9.02, 9.02, 9.02); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM1; Type: SAM; Serial: TP-1534
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

WCDMA V Right/Tilt Middle/Area Scan (51x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.017 mW/g

WCDMA V Right/Tilt Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.81 V/m; Power Drift = -0.024 dB
Peak SAR (extrapolated) = 0.022 W/kg
SAR(1 g) = 0.016 mW/g; SAR(10 g) = 0.011 mW/g
Maximum value of SAR (measured) = 0.016 mW/g

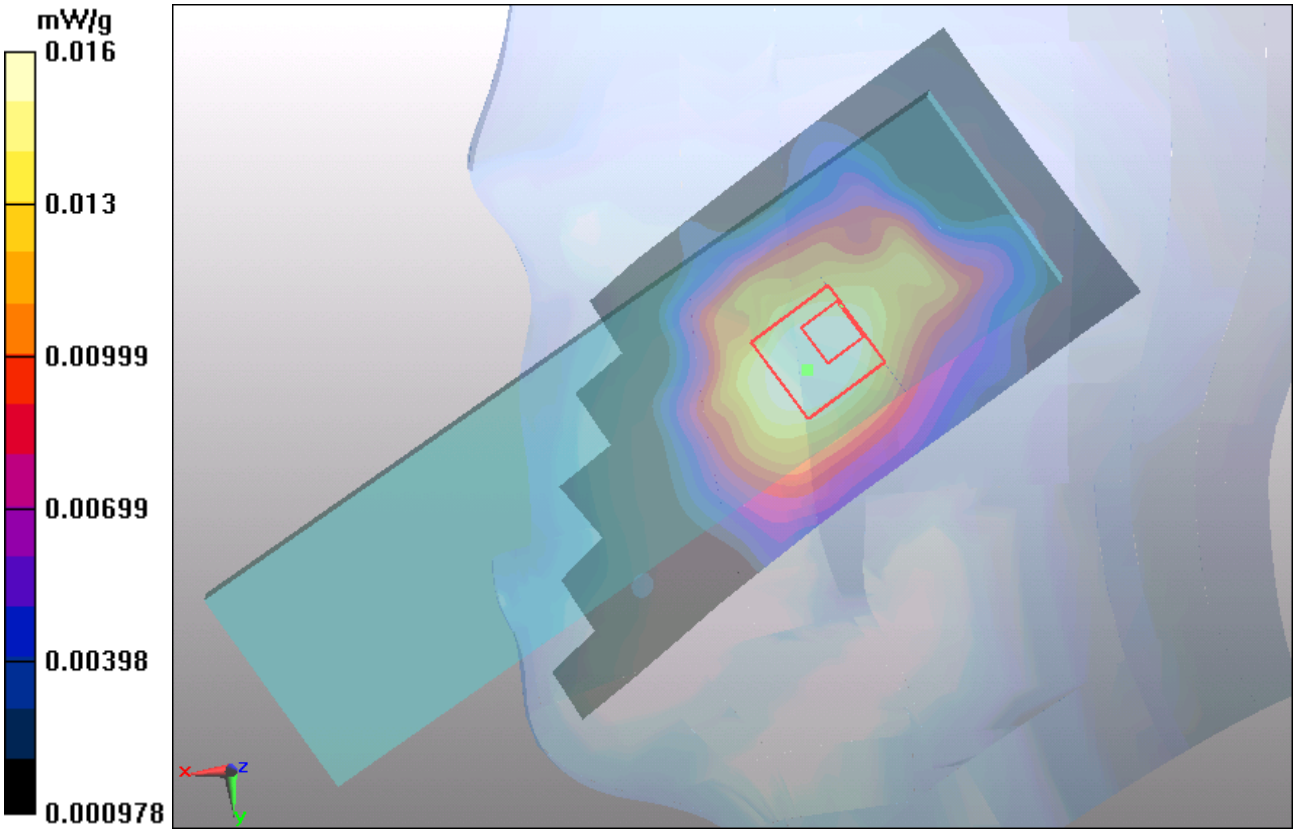


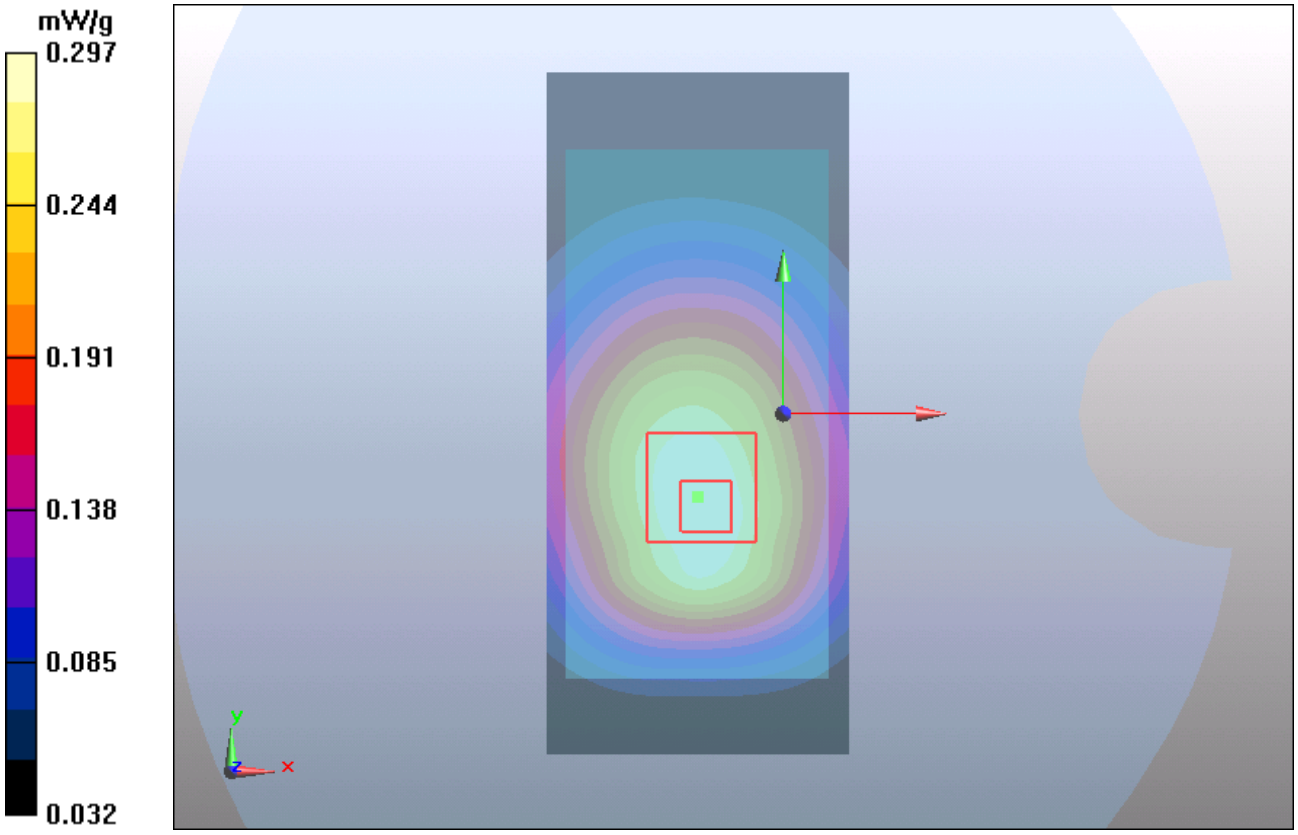
Figure 66 Right Hand Tilt 15° WCDMA Band V Channel 4183

WCDMA Band V Towards Ground High (Closed)

Date/Time: 5/15/2012 2:01:14 PM
Communication System: WCDMA ; Frequency: 846.6 MHz;Duty Cycle: 1:1
Medium parameters used: f = 847 MHz; σ = 1.01 mho/m; ε_r = 54.7; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Flat Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(9.18, 9.18, 9.18); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM1; Type: SAM; Serial: TP-1534
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Towards Ground High/Area Scan (41x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.300 mW/g

Towards Ground High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.8 V/m; Power Drift = -0.096 dB
Peak SAR (extrapolated) = 0.361 W/kg
SAR(1 g) = 0.282 mW/g; SAR(10 g) = 0.209 mW/g
Maximum value of SAR (measured) = 0.297 mW/g



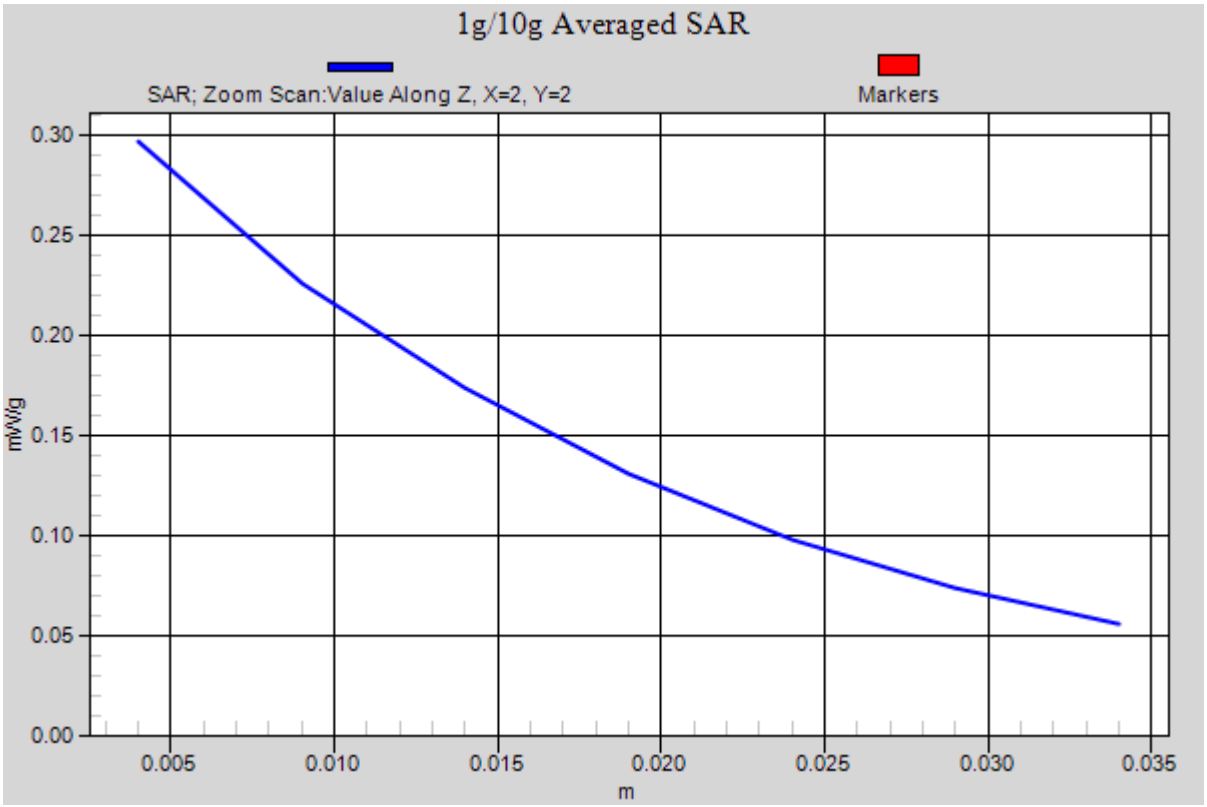


Figure 67 Body, Towards Ground, WCDMA Band V Channel 4233

WCDMA Band V Towards Ground Middle (Closed)

Date/Time: 5/15/2012 1:46:10 PM
Communication System: WCDMA ; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used: f = 837 MHz; σ = 1 mho/m; ε_r = 54.8; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Flat Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(9.18, 9.18, 9.18); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM1; Type: SAM; Serial: TP-1534
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Towards Ground Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.291 mW/g

Towards Ground Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.8 V/m; Power Drift = 0.056 dB
Peak SAR (extrapolated) = 0.343 W/kg
SAR(1 g) = 0.268 mW/g; SAR(10 g) = 0.197 mW/g
Maximum value of SAR (measured) = 0.282 mW/g

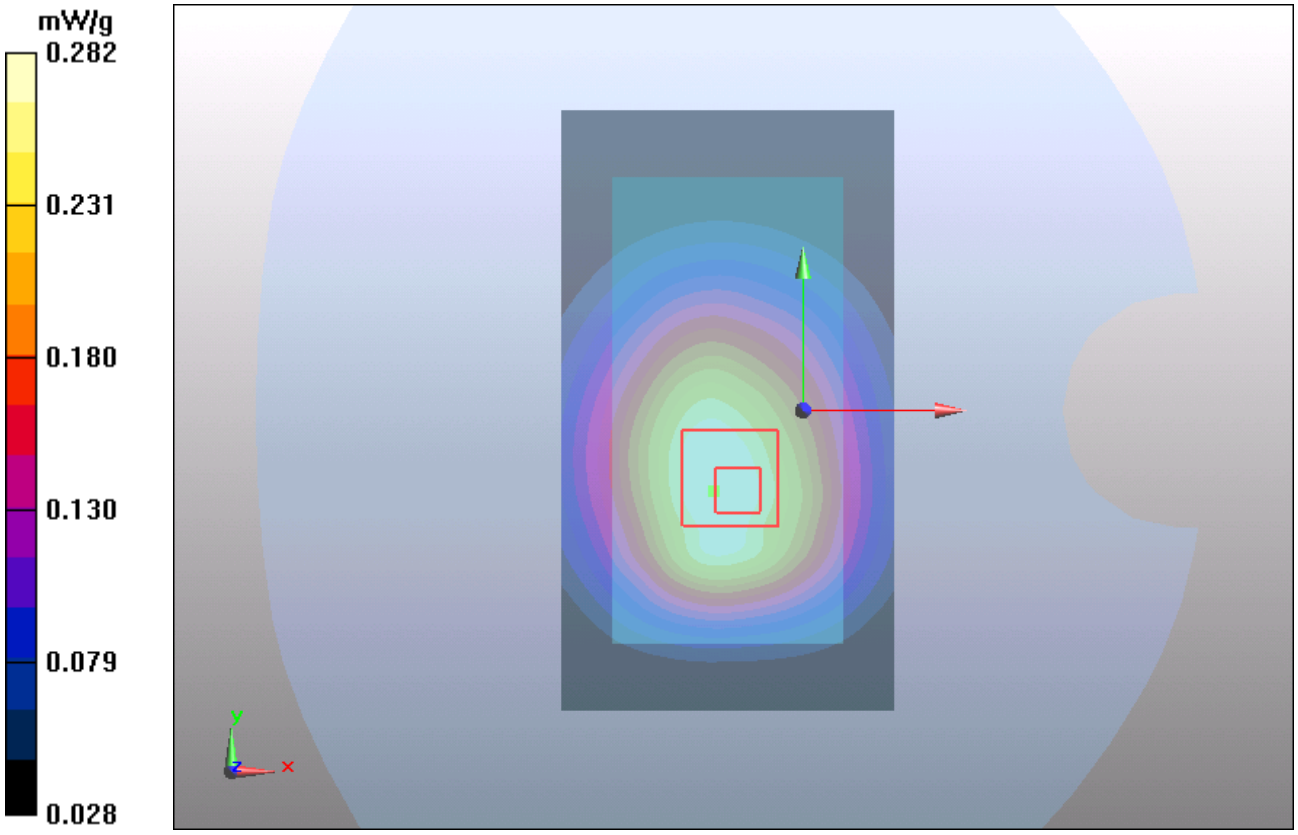


Figure 68 Body, Towards Ground, WCDMA Band V Channel 4183

WCDMA Band V Towards Ground Low (Closed)

Date/Time: 5/15/2012 1:30:55 PM
Communication System: WCDMA ; Frequency: 826.4 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 826.4 MHz; σ = 0.99 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Flat Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(9.18, 9.18, 9.18); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM1; Type: SAM; Serial: TP-1534
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Towards Ground Low/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.183 mW/g

Towards Ground Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.6 V/m; Power Drift = -0.014 dB
Peak SAR (extrapolated) = 0.218 W/kg
SAR(1 g) = 0.170 mW/g; SAR(10 g) = 0.125 mW/g
Maximum value of SAR (measured) = 0.177 mW/g

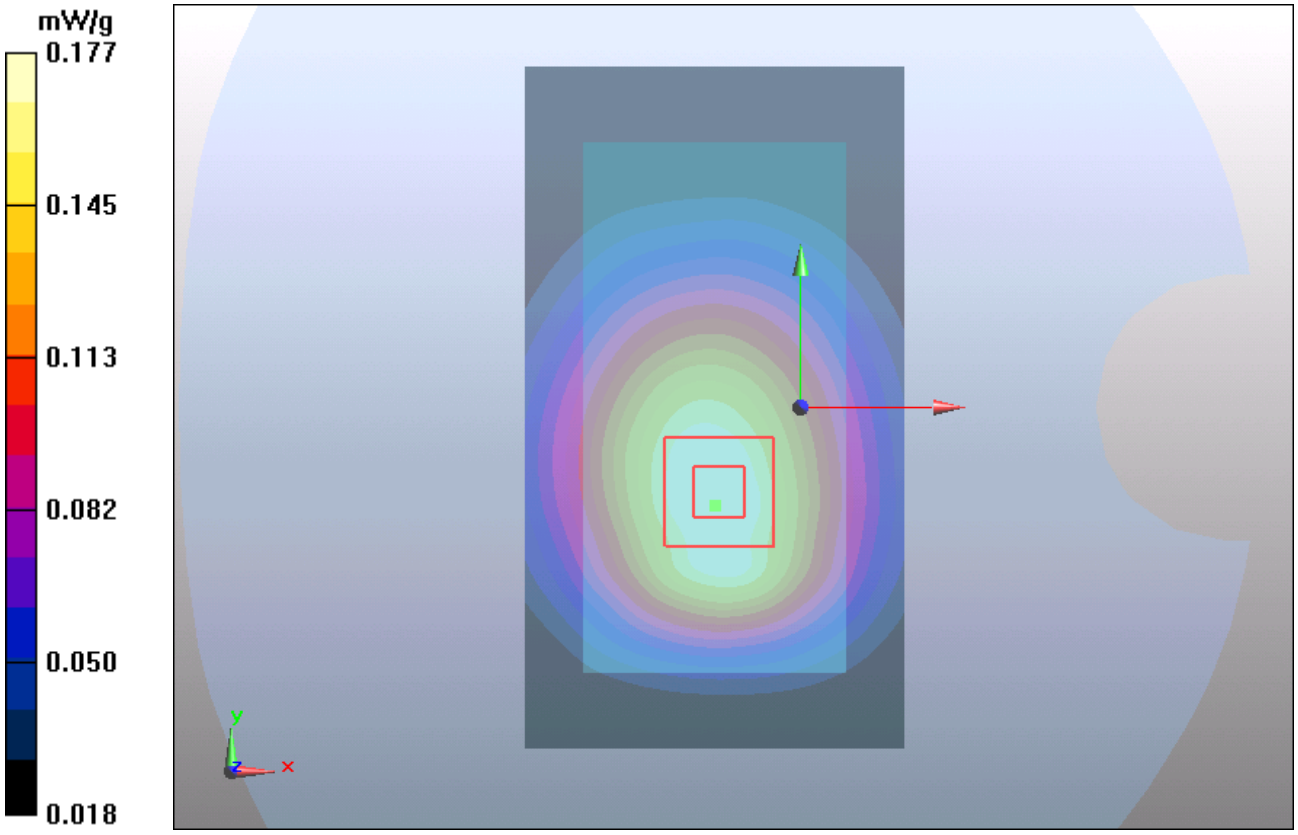


Figure 69 Body, Towards Ground, WCDMA Band V Channel 4132

WCDMA Band V Towards Phantom High (Closed)

Date/Time: 5/15/2012 4:19:06 PM
Communication System: WCDMA ; Frequency: 846.6 MHz;Duty Cycle: 1:1
Medium parameters used: f = 847 MHz; σ = 1.01 mho/m; ε_r = 54.7; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Flat Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(9.18, 9.18, 9.18); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM1; Type: SAM; Serial: TP-1534
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Towards Phantom High/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.097 mW/g

Towards Phantom High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.39 V/m; Power Drift = -0.124 dB
Peak SAR (extrapolated) = 0.119 W/kg
SAR(1 g) = 0.091 mW/g; SAR(10 g) = 0.067 mW/g
Maximum value of SAR (measured) = 0.096 mW/g

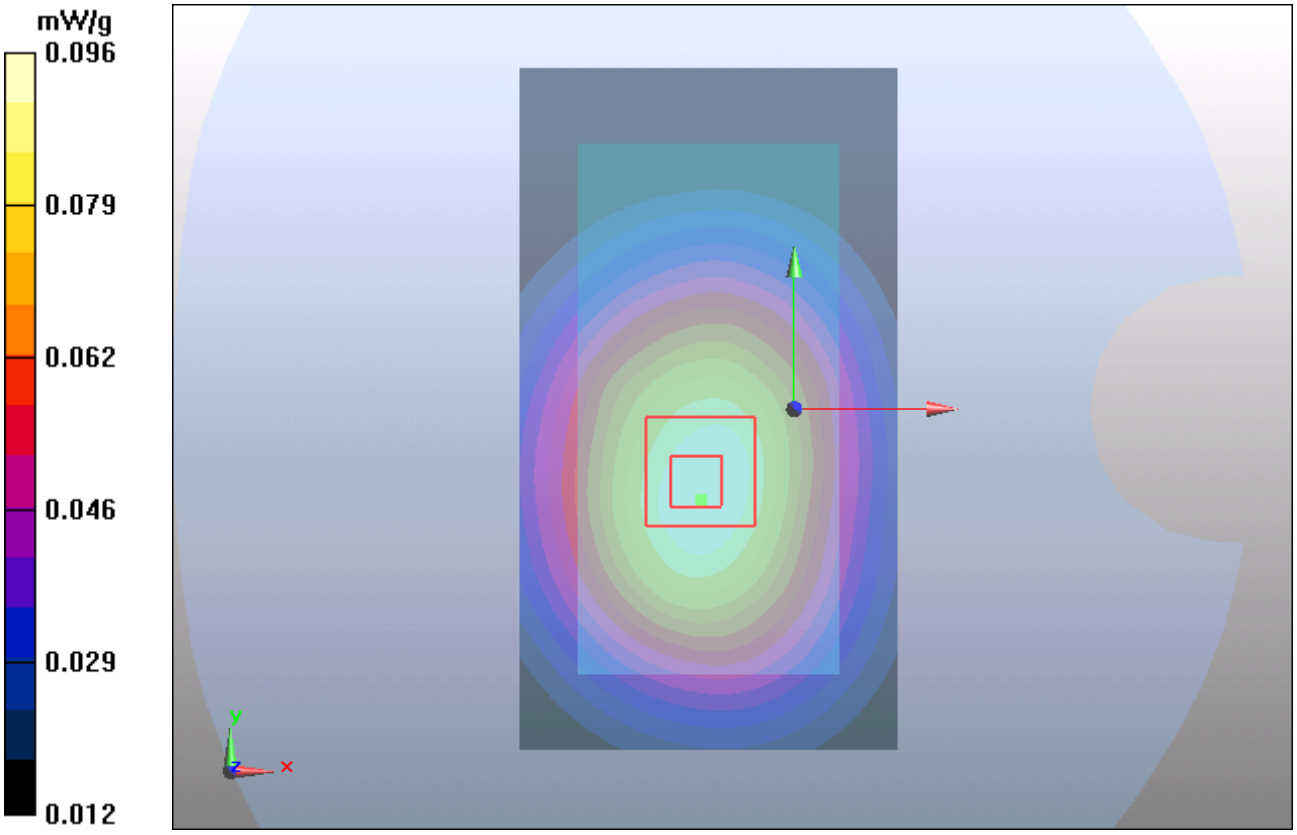


Figure 70 Body, Towards Phantom, WCDMA Band V Channel 4233

WCDMA Band V Towards Phantom Middle (Closed)

Date/Time: 5/15/2012 4:03:44 PM
Communication System: WCDMA ; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used: f = 837 MHz; σ = 1 mho/m; ε_r = 54.8; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Flat Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(9.18, 9.18, 9.18); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM1; Type: SAM; Serial: TP-1534
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Towards Phantom Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.083 mW/g

Towards Phantom Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.48 V/m; Power Drift = 0.021 dB
Peak SAR (extrapolated) = 0.102 W/kg
SAR(1 g) = 0.078 mW/g; SAR(10 g) = 0.057 mW/g
Maximum value of SAR (measured) = 0.082 mW/g

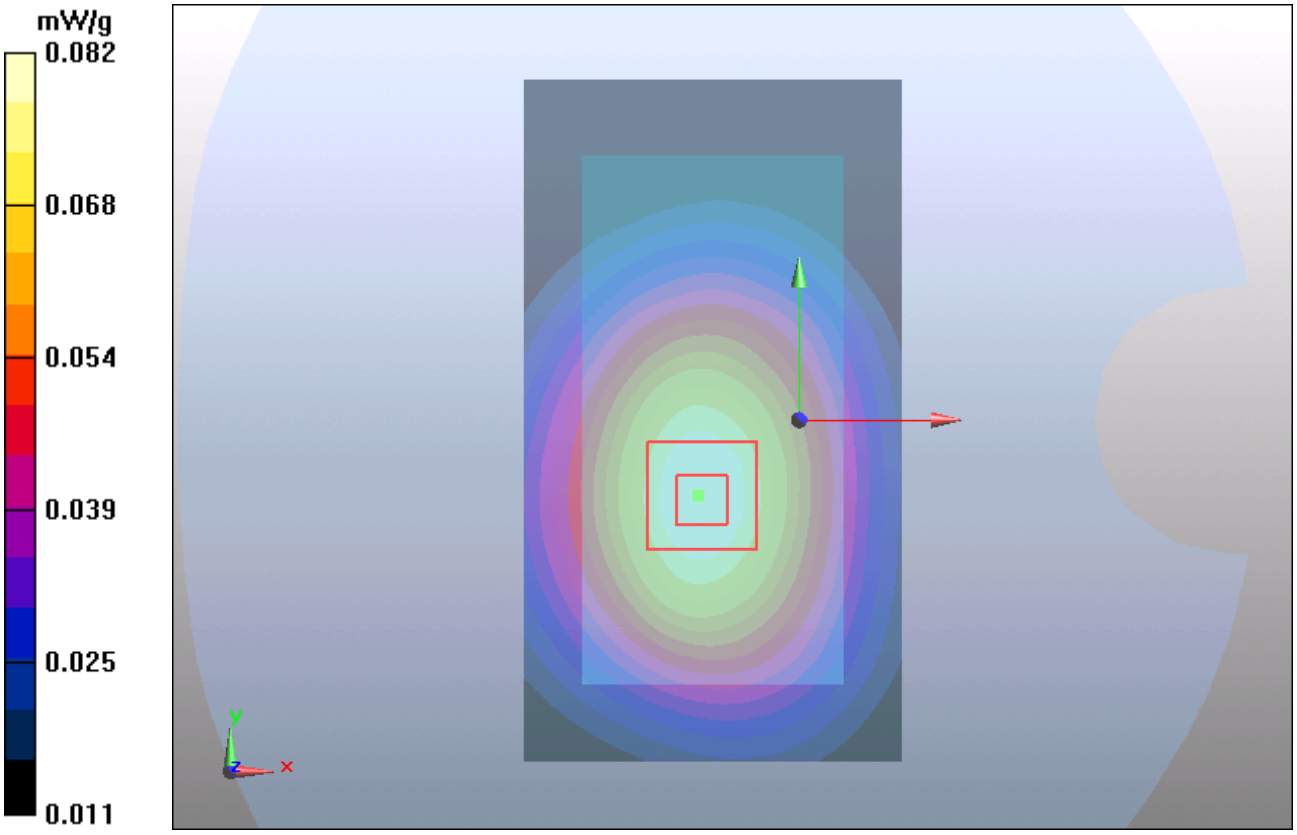


Figure 71 Body, Towards Phantom, WCDMA Band V Channel 4183

WCDMA Band V Towards Phantom Low (Closed)

Date/Time: 5/15/2012 4:34:10 PM
Communication System: WCDMA ; Frequency: 826.4 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 826.4 MHz; σ = 0.99 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Flat Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(9.18, 9.18, 9.18); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM1; Type: SAM; Serial: TP-1534
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Towards Phantom Low/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.055 mW/g

Towards Phantom Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.01 V/m; Power Drift = 0.046 dB
Peak SAR (extrapolated) = 0.067 W/kg
SAR(1 g) = 0.051 mW/g; SAR(10 g) = 0.037 mW/g
Maximum value of SAR (measured) = 0.054 mW/g

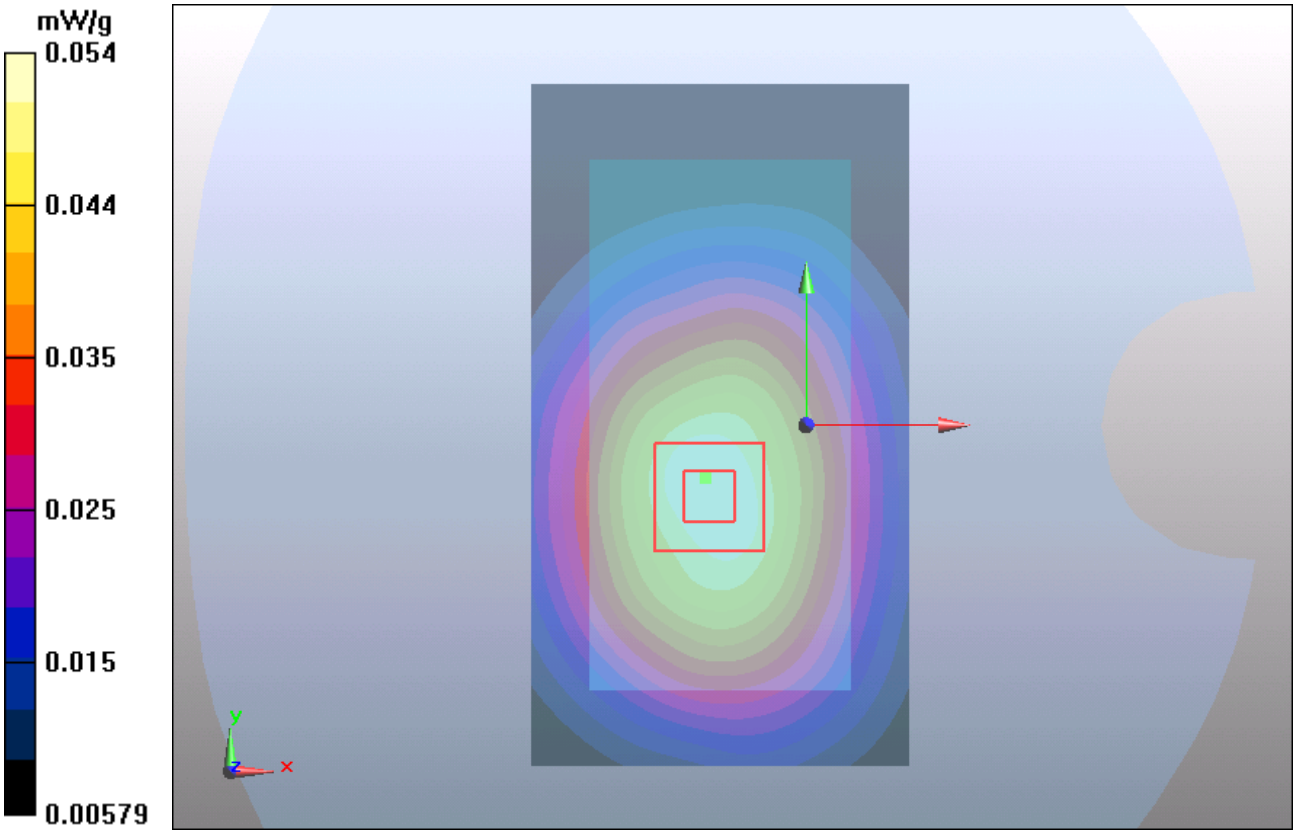


Figure 72 Body, Towards Phantom, WCDMA Band V Channel 4132

WCDMA Band V Towards Ground High (Open)

Date/Time: 5/15/2012 12:51:21 PM
Communication System: WCDMA ; Frequency: 846.6 MHz;Duty Cycle: 1:1
Medium parameters used: f = 847 MHz; σ = 1.01 mho/m; ε_r = 54.7; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Flat Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(9.18, 9.18, 9.18); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM1; Type: SAM; Serial: TP-1534
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Towards Ground High/Area Scan (41x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.150 mW/g

Towards Ground High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.46 V/m; Power Drift = 0.176 dB
Peak SAR (extrapolated) = 0.173 W/kg
SAR(1 g) = 0.126 mW/g; SAR(10 g) = 0.087 mW/g
Maximum value of SAR (measured) = 0.134 mW/g

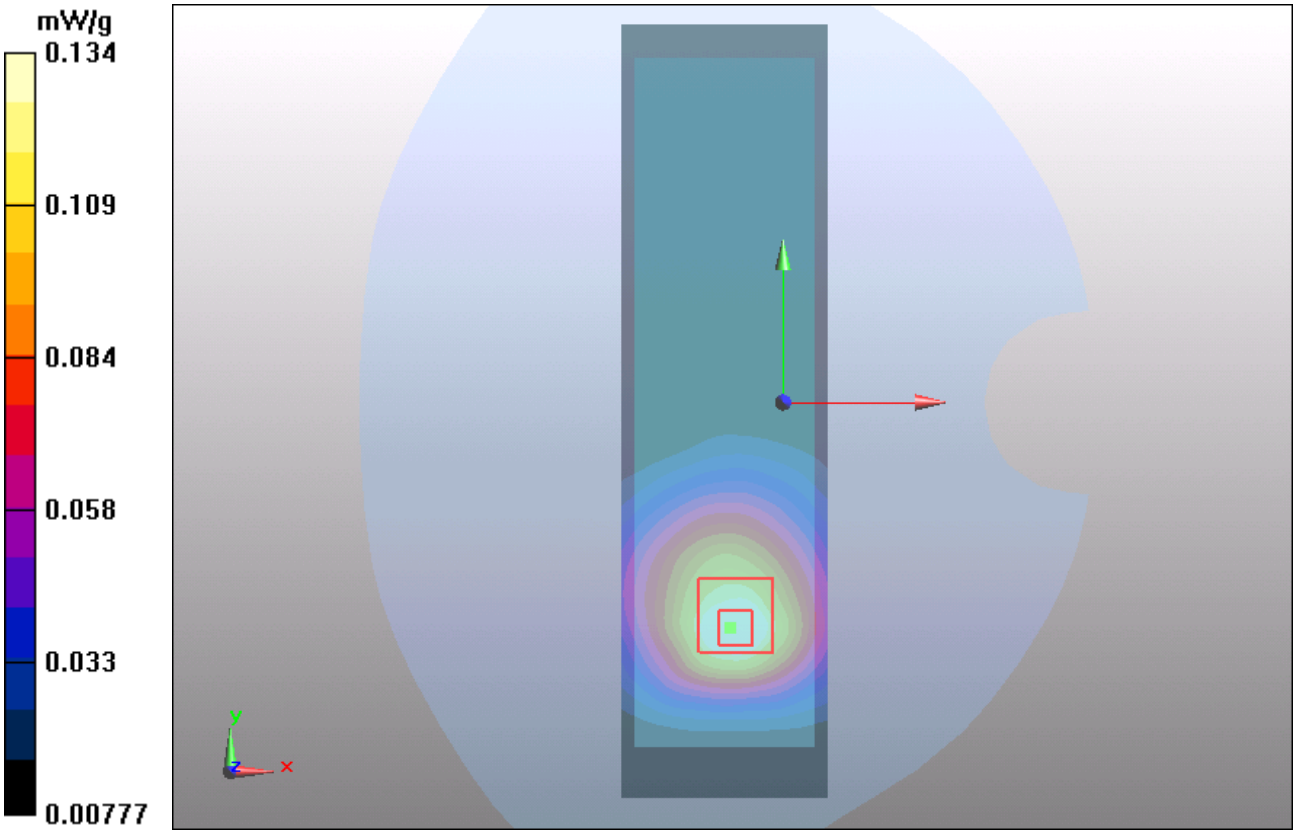


Figure 73 Body, Towards Ground, WCDMA Band V Channel 4233

WCDMA Band V Towards Ground Middle (Open)

Date/Time: 5/15/2012 12:24:24 PM
Communication System: WCDMA ; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used: f = 837 MHz; σ = 1 mho/m; ε_r = 54.8; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Flat Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(9.18, 9.18, 9.18); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM1; Type: SAM; Serial: TP-1534
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Towards Ground Middle/Area Scan (51x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.115 mW/g

Towards Ground Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.23 V/m; Power Drift = 0.165 dB
Peak SAR (extrapolated) = 0.149 W/kg
SAR(1 g) = 0.108 mW/g; SAR(10 g) = 0.075 mW/g
Maximum value of SAR (measured) = 0.113 mW/g

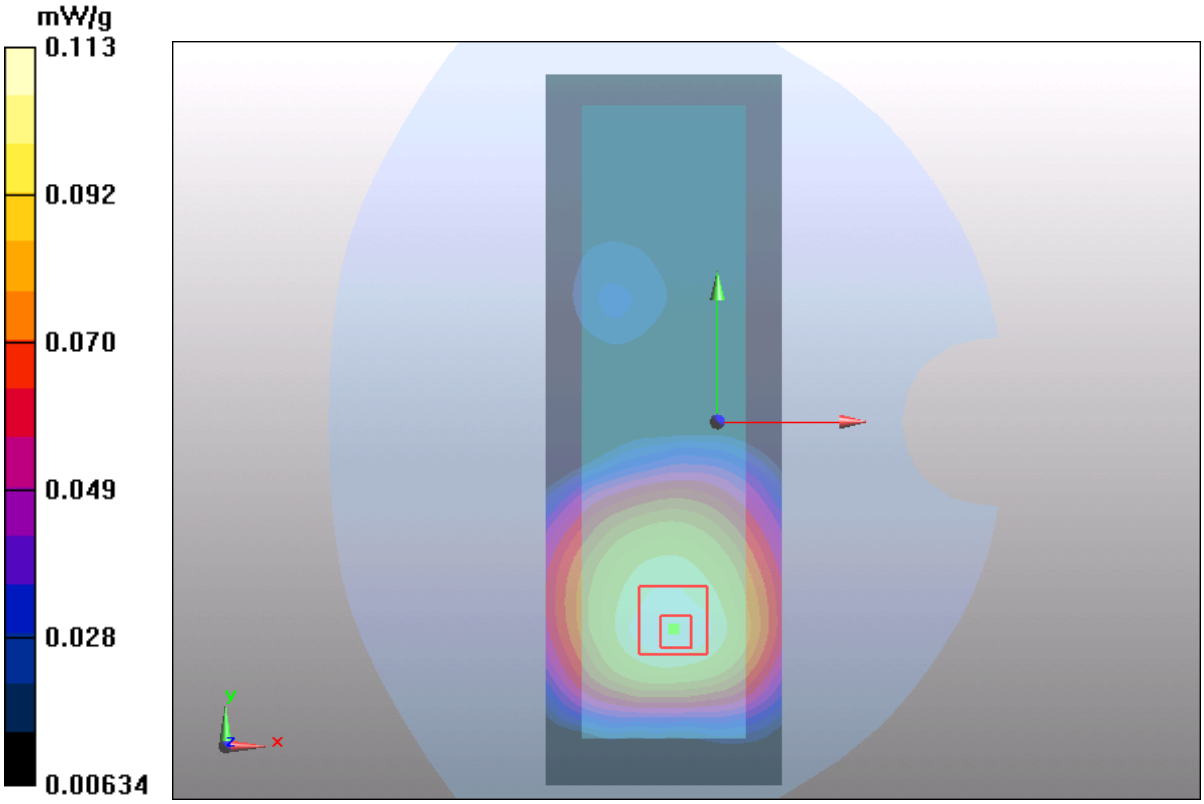


Figure 74 Body, Towards Ground, WCDMA Band V Channel 4183

WCDMA Band V Towards Ground Low (Open)

Date/Time: 5/15/2012 1:10:34 PM
Communication System: WCDMA ; Frequency: 826.4 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 826.4 MHz; σ = 0.99 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Ambient Temperature:22.3 ℃ Liquid Temperature: 21.5℃
Phantom section: Flat Section
DASY5 Configuration:
Probe: EX3DV4 - SN3753; ConvF(9.18, 9.18, 9.18); Calibrated: 1/4/2012
Electronics: DAE4 Sn871; Calibrated: 11/22/2011
Phantom: SAM1; Type: SAM; Serial: TP-1534
Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 59

Towards Ground Low/Area Scan (51x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.080 mW/g

Towards Ground Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.82 V/m; Power Drift = -0.150 dB
Peak SAR (extrapolated) = 0.094 W/kg
SAR(1 g) = 0.069 mW/g; SAR(10 g) = 0.048 mW/g
Maximum value of SAR (measured) = 0.072 mW/g

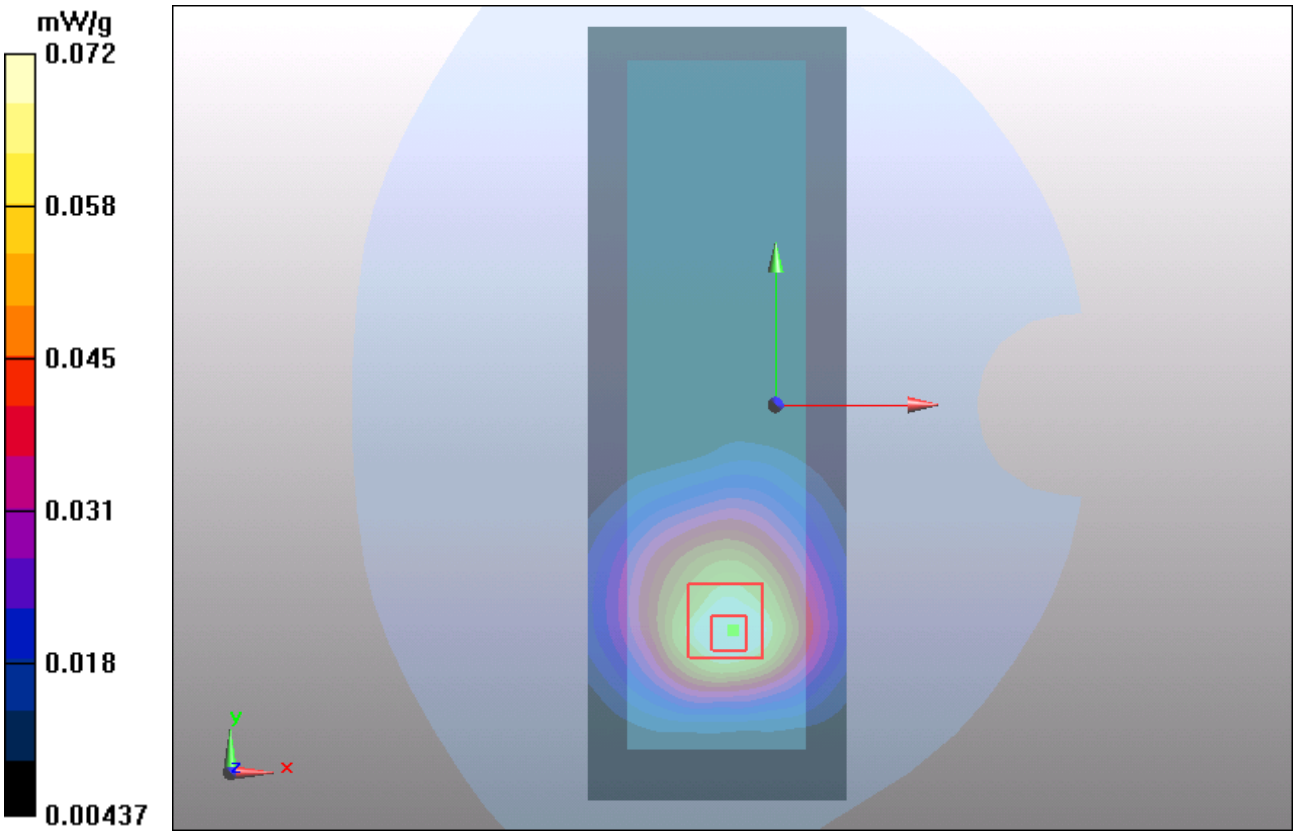


Figure 75 Body, Towards Ground, WCDMA Band V Channel 4132

ANNEX D: Probe Calibration Certificate

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

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

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

Accreditation No.: SCS 108

Client **Auden**

Certificate No: **EX3-3753_Jan12**

CALIBRATION CERTIFICATE

Object EX3DV4 - SN:3753

Calibration procedure(s) QA CAL-01.v8, QA CAL-14.v3, QA CAL-23.v4, QA CAL-25.v4
Calibration procedure for dosimetric E-field probes

Calibration date: January 4, 2012

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	31-Mar-11 (No. 217-01372)	Apr-12
Power sensor E4412A	MY41496087	31-Mar-11 (No. 217-01372)	Apr-12
Reference 3 dB Attenuator	SN: S5054 (3c)	29-Mar-11 (No. 217-01369)	Apr-12
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-11 (No. 217-01367)	Apr-12
Reference 30 dB Attenuator	SN: S5129 (30b)	29-Mar-11 (No. 217-01370)	Apr-12
Reference Probe ES3DV2	SN: 3013	29-Dec-11 (No. ES3-3013_Dec11)	Dec-12
DAE4	SN: 654	3-May-11 (No. DAE4-654_May11)	May-12
Secondary Standards	ID	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Apr-11)	In house check: Apr-13
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-11)	In house check: Oct-12

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: January 4, 2012

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

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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

Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConvF	sensitivity in TSL / NORMx,y,z
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C	modulation dependent linearization parameters
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 affect 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 with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- *PAR:* PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- *Ax,y,z; Bx,y,z; Cx,y,z, VRx,y,z: A, B, C* are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. *VR* is the maximum calibration range expressed in RMS voltage across the diode.
- *ConvF and Boundary Effect Parameters:* Assessed in flat phantom using E-field (or Temperature Transfer Standard for f ≤ 800 MHz) and inside waveguide using analytical field distributions based on power measurements for f > 800 MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to *NORMx,y,z * ConvF* whereby the uncertainty corresponds to that given for *ConvF*. A frequency dependent *ConvF* is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- *Spherical isotropy (3D deviation from isotropy)*: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- *Sensor Offset*: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.

Probe EX3DV4

SN:3753

Manufactured: March 16, 2010
Calibrated: January 4, 2012

Calibrated for DASY/EASY Systems
(Note: non-compatible with DASY2 system!)

EX3DV4– SN:3753 January 4, 2012

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3753

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	0.33	0.49	0.53	± 10.1 %
DCP (mV)[B]	103.0	96.0	100.6	

Modulation Calibration Parameters

UID	Communication System Name	PAR		A dB	B dB	C dB	VR mV	Unc[E] (k=2)
10000	CW	0.00	X	0.00	0.00	1.00	119.0	±2.7 %
			Y	0.00	0.00	1.00	115.7	
			Z	0.00	0.00	1.00	116.2	

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 Pages 5 and 6).
[B] Numerical linearization parameter: uncertainty not required.
[E] Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

EX3DV4– SN:3753 January 4, 2012

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3753

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
750	41.9	0.89	9.43	9.43	9.43	0.39	0.87	± 12.0 %
835	41.5	0.90	9.02	9.02	9.02	0.39	0.79	± 12.0 %
1750	40.1	1.37	8.37	8.37	8.37	0.10	1.14	± 12.0 %
1900	40.0	1.40	8.05	8.05	8.05	0.54	0.70	± 12.0 %
2000	40.0	1.40	7.94	7.94	7.94	0.10	0.89	± 12.0 %
2450	39.2	1.80	6.89	6.89	6.89	0.34	0.90	± 12.0 %
5200	36.0	4.66	4.83	4.83	4.83	0.36	1.80	± 13.1 %
5300	35.9	4.76	4.58	4.58	4.58	0.40	1.80	± 13.1 %
5500	35.6	4.96	4.63	4.63	4.63	0.40	1.80	± 13.1 %
5600	35.5	5.07	4.23	4.23	4.23	0.50	1.80	± 13.1 %
5800	35.3	5.27	4.26	4.26	4.26	0.50	1.80	± 13.1 %

[C] Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.
[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3753

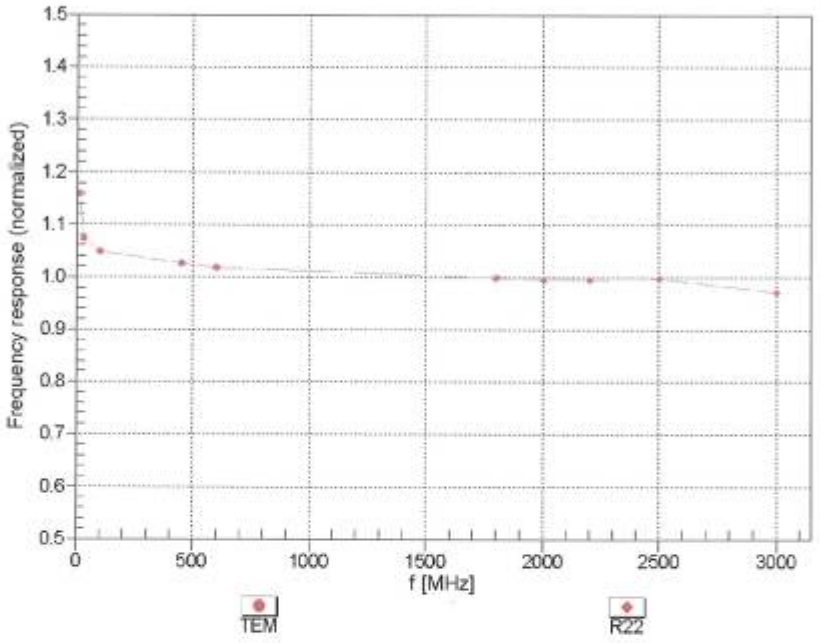
Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
750	55.5	0.96	9.29	9.29	9.29	0.30	1.11	± 12.0 %
835	55.2	0.97	9.18	9.18	9.18	0.47	0.85	± 12.0 %
1750	53.4	1.49	8.00	8.00	8.00	0.62	0.69	± 12.0 %
1900	53.3	1.52	7.57	7.57	7.57	0.31	0.93	± 12.0 %
2000	53.3	1.52	7.52	7.52	7.52	0.48	0.76	± 12.0 %
2300	52.9	1.81	7.20	7.20	7.20	0.49	0.75	± 12.0 %
2450	52.7	1.95	7.03	7.03	7.03	0.80	0.50	± 12.0 %
2600	52.5	2.16	6.75	6.75	6.75	0.80	0.50	± 12.0 %
3500	51.3	3.31	6.04	6.04	6.04	0.29	1.45	± 13.1 %
5200	49.0	5.30	4.30	4.30	4.30	0.50	1.90	± 13.1 %
5300	48.9	5.42	3.96	3.96	3.96	0.60	1.90	± 13.1 %
5500	48.6	5.65	3.67	3.67	3.67	0.60	1.90	± 13.1 %
5600	48.5	5.77	3.36	3.36	3.36	0.70	1.90	± 13.1 %
5800	48.2	6.00	3.86	3.86	3.86	0.60	1.90	± 13.1 %

[C] Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.
[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

EX3DV4– SN:3753 January 4, 2012

Frequency Response of E-Field
(TEM-Cell:ifi110 EXX, Waveguide: R22)

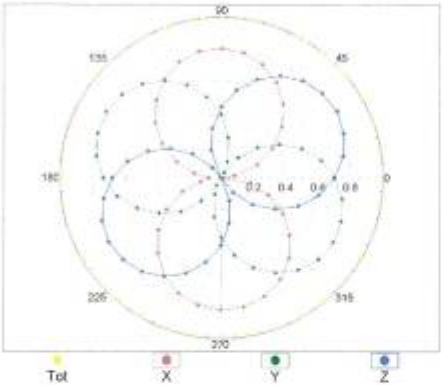


Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

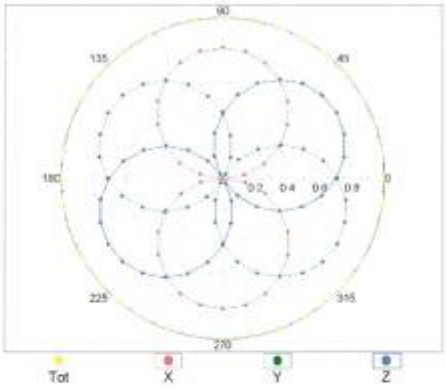
EX3DV4– SN:3753 January 4, 2012

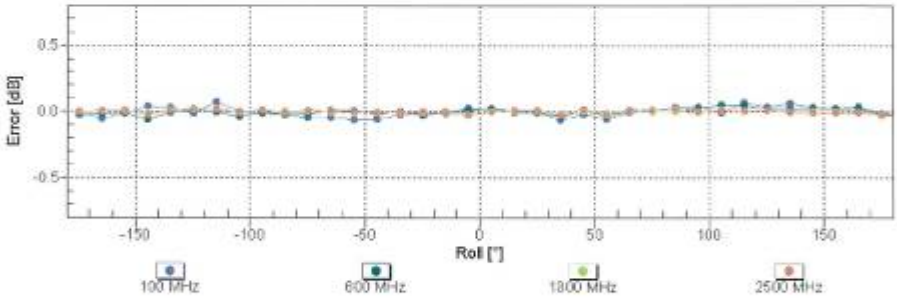
Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM



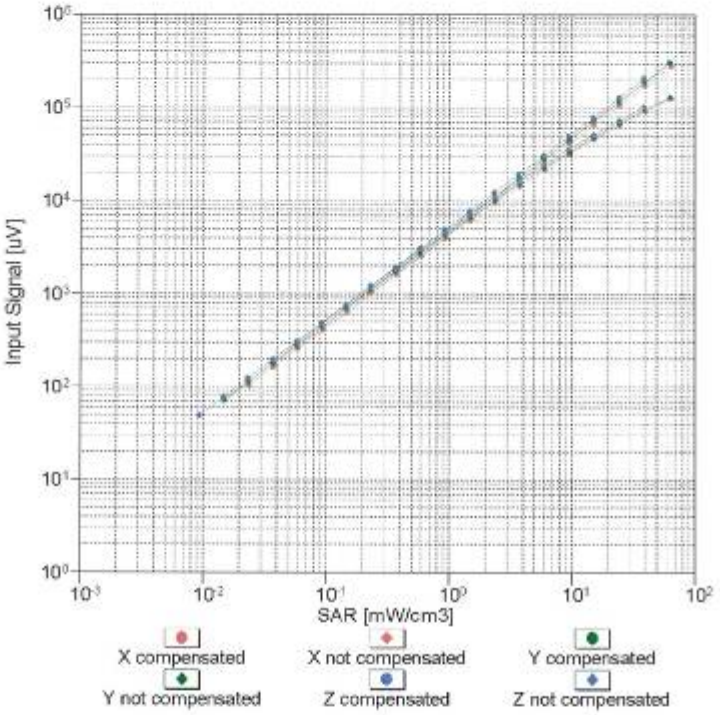
f=1800 MHz,R22

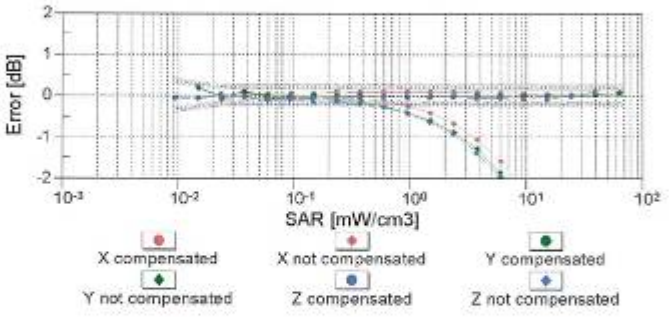




Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

Dynamic Range f(SAR_{head})
(TEM cell , f = 900 MHz)



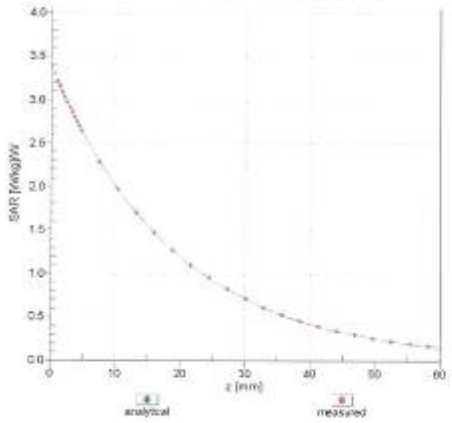


Uncertainty of Linearity Assessment: ± 0.6% (k=2)

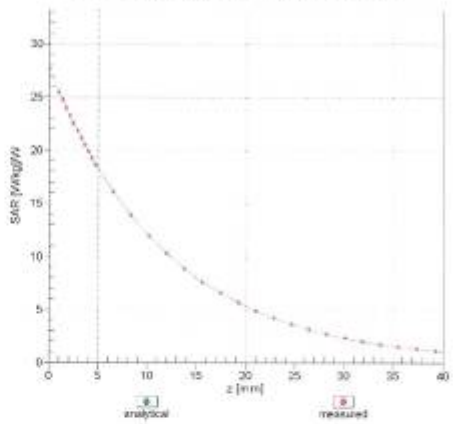
EX3DV4– SN:3753 January 4, 2012

Conversion Factor Assessment

f = 835 MHz,WGLS R9 (H_convF)

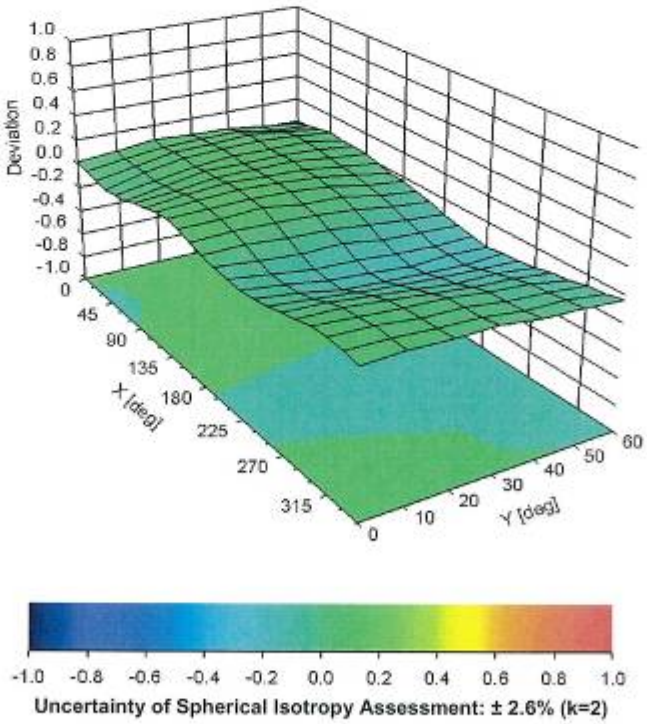


f = 1900 MHz,WGLS R22 (H_convF)



Deviation from Isotropy in Liquid

Error (ϕ, ϑ), f = 900 MHz



Uncertainty of Spherical Isotropy Assessment: ± 2.6% (k=2)

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3753

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	Not applicable
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	9 mm
Tip Diameter	2.5 mm
Probe Tip to Sensor X Calibration Point	1 mm
Probe Tip to Sensor Y Calibration Point	1 mm
Probe Tip to Sensor Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	2 mm

ANNEX E: D835V2 Dipole Calibration Certificate

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

S Schweizerischer Kalibrierdienst
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The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 108

Client TA-Shanghai (Auden)

Certificate No: D835V2-4d020_Aug11

CALIBRATION CERTIFICATE

Object: D835V2 - SN: 4d020

Calibration procedure(s): QA CAL-05.v8
Calibration procedure for dipole validation kits above 700 MHz

Calibration date: August 26, 2011

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-10 (No. 217-01266)	Oct-11
Power sensor HP 8481A	US37292783	06-Oct-10 (No. 217-01266)	Oct-11
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-11 (No. 217-01367)	Apr-12
Type-N mismatch combination	SN: 5047.2 / 06327	29-Mar-11 (No. 217-01371)	Apr-12
Reference Probe ES3DV3	SN: 3205	29-Apr-11 (No. ES3-3205_Apr11)	Apr-12
DAE4	SN: 601	04-Jul-11 (No. DAE4-601_Jul11)	Jul-12

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	04-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-10)	In house check: Oct-11

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: August 26, 2011

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

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The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

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.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.6.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	835 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	41.5	0.90 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	41.1 ± 6 %	0.89 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.32 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**9.34 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.52 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**6.11 mW /g ± 16.5 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	55.2	0.97 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	53.4 ± 6 %	0.99 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.42 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**9.46 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.59 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**6.26 mW / g ± 16.5 % (k=2)**

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	52.9 Ω - 3.1 jΩ
Return Loss	- 27.7 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	48.7 Ω - 5.4 jΩ
Return Loss	- 25.1 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.391 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	April 22, 2004

DASY5 Validation Report for Head TSL

Date: 25.08.2011

Test Laboratory: SPEAG, Zurich, Switzerland

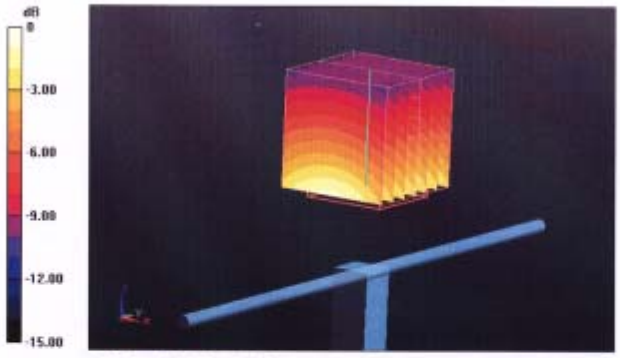
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d020

Communication System: CW; Frequency: 835 MHz
Medium parameters used: f = 835 MHz; σ = 0.89 mho/m; ε_r = 41.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

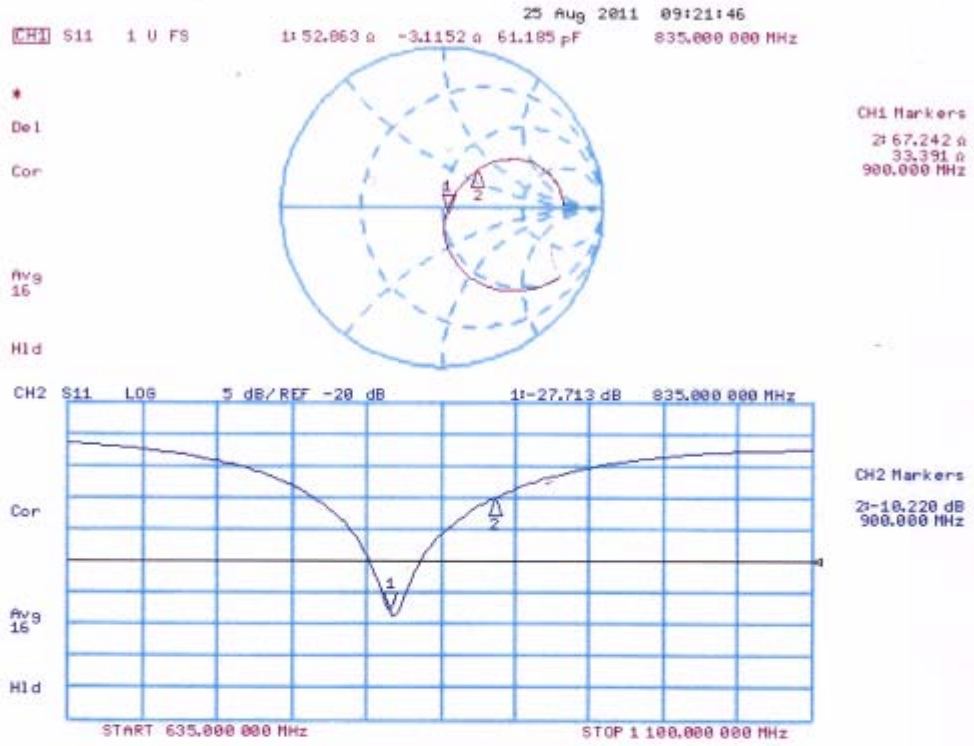
- Probe: ES3DV3 - SN3205; ConvF(6.07, 6.07, 6.07); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

Dipole Calibration for Head Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 56.930 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 3.421 W/kg
SAR(1 g) = 2.32 mW/g; SAR(10 g) = 1.52 mW/g
Maximum value of SAR (measured) = 2.708 mW/g



0 dB = 2.710mW/g

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 26.08.2011

Test Laboratory: SPEAG, Zurich, Switzerland

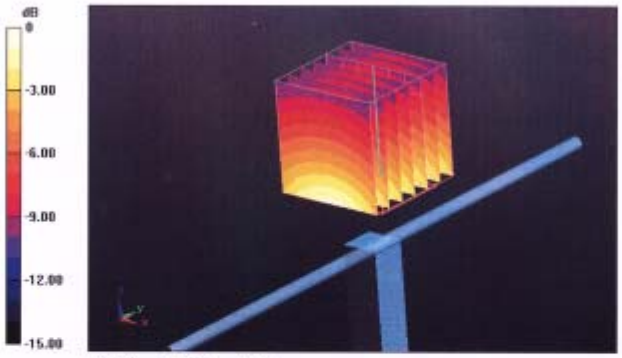
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d020

Communication System: CW; Frequency: 835 MHz
Medium parameters used: f = 835 MHz; σ = 0.99 mho/m; ε_r = 53.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

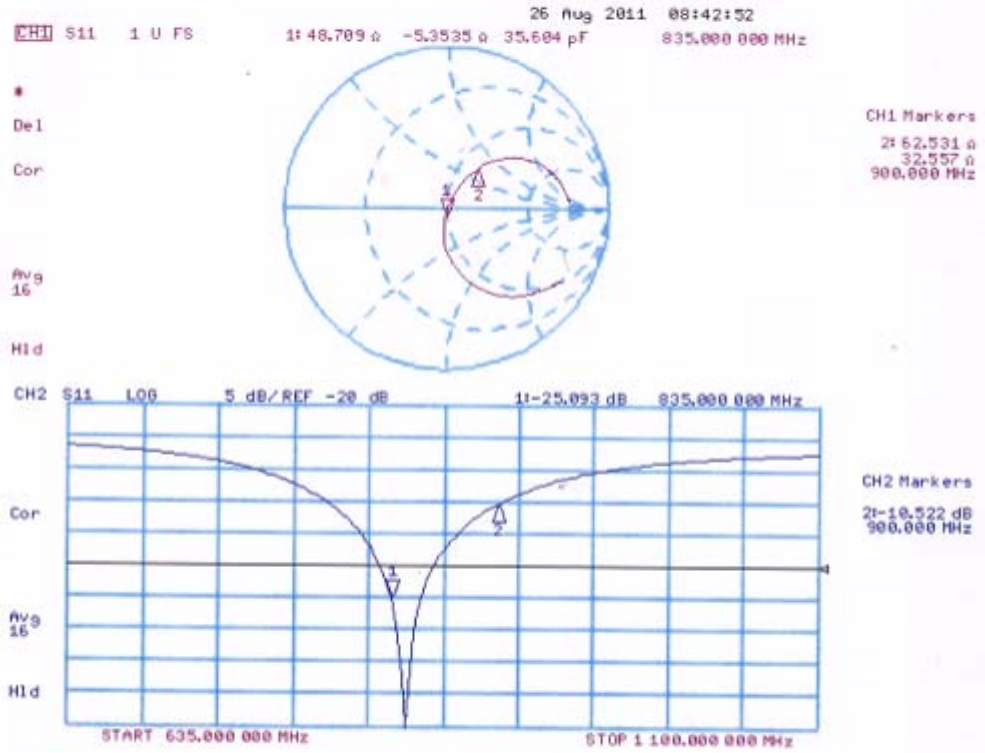
- Probe: ES3DV3 - SN3205; ConvF(6.02, 6.02, 6.02); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

Dipole Calibration for Body Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 55.406 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 3.509 W/kg
SAR(1 g) = 2.42 mW/g; SAR(10 g) = 1.59 mW/g
Maximum value of SAR (measured) = 2.827 mW/g



0 dB = 2.830mW/g

Impedance Measurement Plot for Body TSL



ANNEX F: D1900V2 Dipole Calibration Certificate

Calibration Laboratory of
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Accreditation No.: SCS 108

Client **TA-Shanghai (Auden)** Certificate No: **D1900V2-5d060_Aug11**

CALIBRATION CERTIFICATE

Object	D1900V2 - SN: 5d060
Calibration procedure(s)	QA CAL-05.v8 Calibration procedure for dipole validation kits above 700 MHz
Calibration date:	August 31, 2011

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-10 (No. 217-01266)	Oct-11
Power sensor HP 8481A	US37292783	06-Oct-10 (No. 217-01266)	Oct-11
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-11 (No. 217-01367)	Apr-12
Type-N mismatch combination	SN: 5047.2 / 06327	29-Mar-11 (No. 217-01371)	Apr-12
Reference Probe ES3DV3	SN: 3205	29-Apr-11 (No. ES3-3205_Apr11)	Apr-12
DAE4	SN: 601	04-Jul-11 (No. DAE4-601_Jul11)	Jul-12

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	04-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-10)	In house check: Oct-11

	Name	Function	Signature
Calibrated by:	Dimce Iliev	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: August 31, 2011

Calibration Laboratory of
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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.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.6.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1900 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	40.0	1.40 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	39.5 ± 6 %	1.42 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	10.2 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**40.3 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	5.30 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**21.1 mW /g ± 16.5 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	53.3	1.52 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	53.9 ± 6 %	1.57 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	10.6 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**41.7 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.55 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**22.0 mW / g ± 16.5 % (k=2)**

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	52.6 Ω + 7.5 jΩ
Return Loss	- 22.3 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	47.3 Ω + 7.9 jΩ
Return Loss	- 21.3 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.194 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	December 10, 2004

DASY5 Validation Report for Head TSL

Date: 30.08.2011

Test Laboratory: SPEAG, Zurich, Switzerland

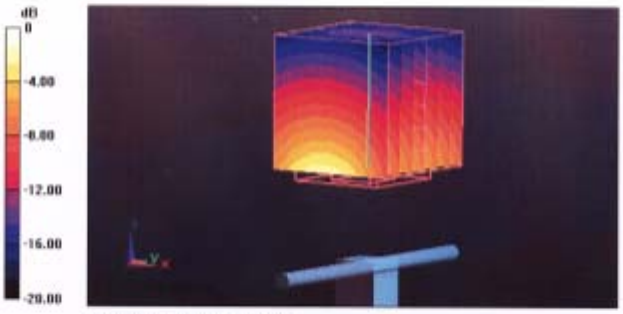
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d060

Communication System: CW; Frequency: 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.42 mho/m; ε_r = 39.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

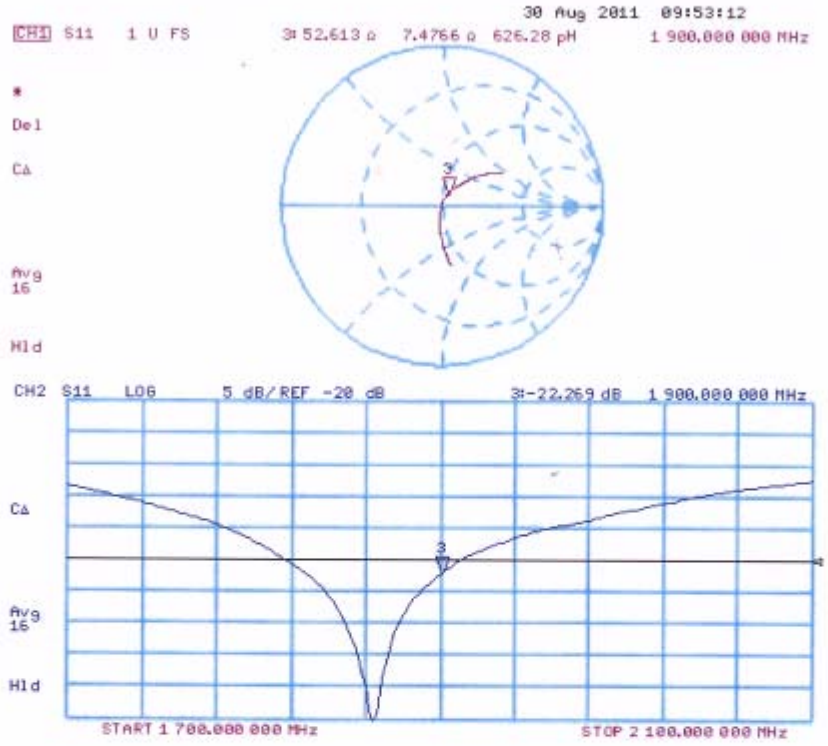
- Probe: ES3DV3 - SN3205; ConvF(5.01, 5.01, 5.01); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 97.636 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 18.535 W/kg
SAR(1 g) = 10.2 mW/g; SAR(10 g) = 5.3 mW/g
Maximum value of SAR (measured) = 12.600 mW/g



0 dB = 12.600mW/g

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 31.08.2011

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d060

Communication System: CW; Frequency: 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.57 mho/m; ε_r = 53.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

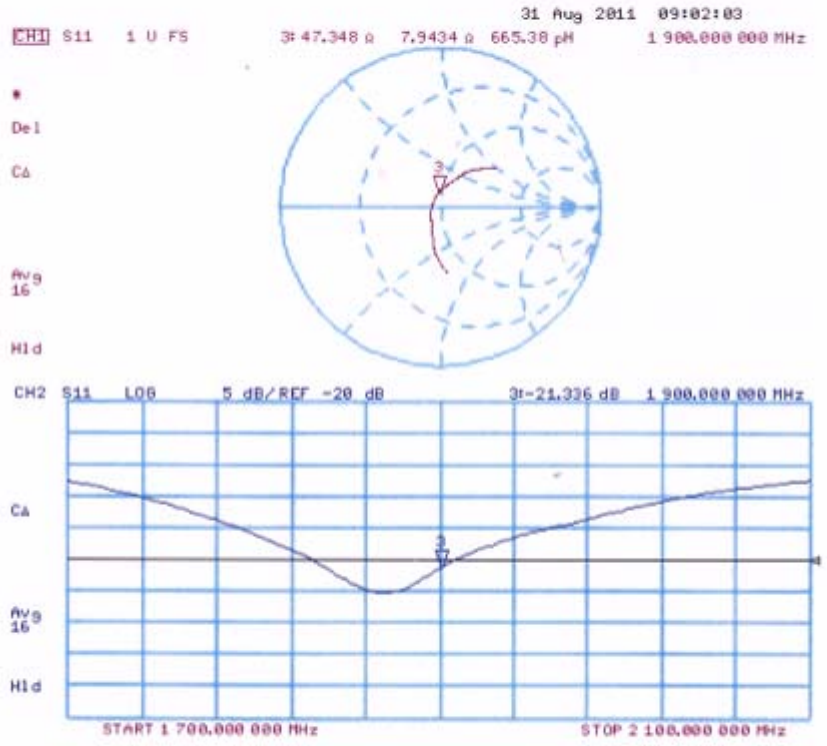
DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.62, 4.62, 4.62); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 96.435 V/m; Power Drift = -0.0099 dB
Peak SAR (extrapolated) = 18.663 W/kg
SAR(1 g) = 10.6 mW/g; SAR(10 g) = 5.55 mW/g
Maximum value of SAR (measured) = 13.397 mW/g

0 dB = 13.400mW/g

Impedance Measurement Plot for Body TSL



ANNEX G: DAE4 Calibration Certificate

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

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Accreditation No.: SCS 108

Client TA – SH (Auden) **Certificate No: DAE4-871_Nov11**

CALIBRATION CERTIFICATE

Object	DAE4 - SD 000 D04 BJ - SN: 871
Calibration procedure(s)	QA CAL-06.v23 Calibration procedure for the data acquisition electronics (DAE)
Calibration date:	November 22, 2011

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
Keithley Multimeter Type 2001	SN: 0810278	28-Sep-11 (No:11450)	Sep-12
Secondary Standards	**ID #**	**Check Date (in house)**	**Scheduled Check**
Calibrator Box V1.1	SE UMS 006 AB 1004	08-Jun-11 (in house check)	In house check: Jun-12

	Name	Function	Signature
Calibrated by:	Andrea Guntli	Technician	
Approved by:	Fin Bomholt	R&D Director	i.V.

Issued: November 22, 2011

Calibration Laboratory of
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Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

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Accreditation No.: SCS 108

Glossary

DAE	data acquisition electronics
Connector angle	information used in DASY system to align probe sensor X to the robot coordinate system.

Methods Applied and Interpretation of Parameters

- *DC Voltage Measurement:* Calibration Factor assessed for use in DASY system by comparison with a calibrated instrument traceable to national standards. The figure given corresponds to the full scale range of the voltmeter in the respective range.
- *Connector angle*: The angle of the connector is assessed measuring the angle mechanically by a tool inserted. Uncertainty is not required.
- The following parameters as documented in the Appendix contain technical information as a result from the performance test and require no uncertainty.
  - *DC Voltage Measurement Linearity:* Verification of the Linearity at +10% and -10% of the nominal calibration voltage. Influence of offset voltage is included in this measurement.
  - *Common mode sensitivity:* Influence of a positive or negative common mode voltage on the differential measurement.
  - *Channel separation:* Influence of a voltage on the neighbor channels not subject to an input voltage.
  - *AD Converter Values with inputs shorted:* Values on the internal AD converter corresponding to zero input voltage
  - *Input Offset Measurement*: Output voltage and statistical results over a large number of zero voltage measurements.
  - *Input Offset Current:* Typical value for information; Maximum channel input offset current, not considering the input resistance.
  - *Input resistance:* Typical value for information: DAE input resistance at the connector, during internal auto-zeroing and during measurement.
  - *Low Battery Alarm Voltage:* Typical value for information. Below this voltage, a battery alarm signal is generated.
  - *Power consumption:* Typical value for information. Supply currents in various operating modes.

DC Voltage Measurement

A/D - Converter Resolution nominal

High Range:	1LSB =	6.1μV ,	full range =	-100...+300 mV
Low Range:	1LSB =	61nV ,	full range =	-1.....+3mV

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Calibration Factors	X	Y	Z
High Range	404.749 ± 0.1% (k=2)	404.733 ± 0.1% (k=2)	405.174 ± 0.1% (k=2)
Low Range	3.98175 ± 0.7% (k=2)	3.93601 ± 0.7% (k=2)	3.96830 ± 0.7% (k=2)

Connector Angle

Connector Angle to be used in DASY system	90.0 ° ± 1 °

Appendix

1. DC Voltage Linearity

High Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	199991.9	-0.91	-0.00
Channel X	+ Input	20000.28	0.48	0.00
Channel X	- Input	-19998.51	0.59	-0.00
Channel Y	+ Input	200003.0	1.24	0.00
Channel Y	+ Input	19999.67	0.17	0.00
Channel Y	- Input	-20000.04	-0.34	0.00
Channel Z	+ Input	200010.1	-0.11	-0.00
Channel Z	+ Input	19999.33	-0.07	-0.00
Channel Z	- Input	-20001.45	-0.85	0.00

Low Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	2000.0	0.05	0.00
Channel X	+ Input	199.81	-0.09	-0.04
Channel X	- Input	-199.63	0.37	-0.19
Channel Y	+ Input	1999.9	-0.22	-0.01
Channel Y	+ Input	198.81	-1.19	-0.59
Channel Y	- Input	-201.62	-1.72	0.86
Channel Z	+ Input	2000.4	0.48	0.02
Channel Z	+ Input	199.30	-0.70	-0.35
Channel Z	- Input	-200.86	-1.06	0.53

2. Common mode sensitivity

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Common mode Input Voltage (mV)	High Range Average Reading (μV)	Low Range Average Reading (μV)
Channel X	200	14.43	13.13
	- 200	-12.22	-13.72
Channel Y	200	-10.07	-9.78
	- 200	9.61	8.66
Channel Z	200	-0.56	-0.83
	- 200	-0.01	0.11

3. Channel separation

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Input Voltage (mV)	Channel X (μV)	Channel Y (μV)	Channel Z (μV)
Channel X	200	-	3.08	0.09
Channel Y	200	3.19	-	4.59
Channel Z	200	0.90	-0.06	-

4. AD-Converter Values with inputs shorted

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	High Range (LSB)	Low Range (LSB)
Channel X	15920	15519
Channel Y	16179	17567
Channel Z	15791	15270

5. Input Offset Measurement

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec
Input 10MΩ

	Average (μV)	min. Offset (μV)	max. Offset (μV)	Std. Deviation (μV)
Channel X	0.03	-1.16	2.66	0.46
Channel Y	-0.63	-3.22	0.29	0.46
Channel Z	-0.87	-2.03	0.28	0.46

6. Input Offset Current

Nominal Input circuitry offset current on all channels: <25fA

7. Input Resistance (Typical values for information)

	Zeroing (kOhm)	Measuring (MOhm)
Channel X	200	200
Channel Y	200	200
Channel Z	200	200

8. Low Battery Alarm Voltage (Typical values for information)

Typical values	Alarm Level (VDC)
Supply (+ Vcc)	+7.9
Supply (- Vcc)	-7.6

9. Power Consumption (Typical values for information)

Typical values	Switched off (mA)	Stand by (mA)	Transmitting (mA)
Supply (+ Vcc)	+0.01	+6	+14
Supply (- Vcc)	-0.01	-8	-9

ANNEX H: The EUT Appearances and Test Configuration

a-1:Open

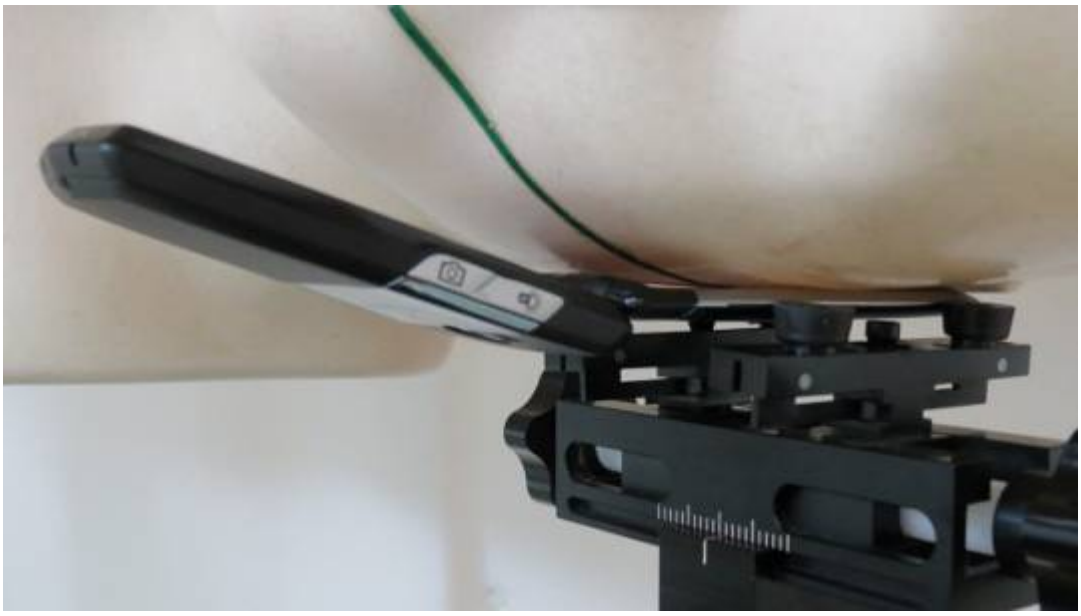
a-2:Closed

a: EUT

b: Battery

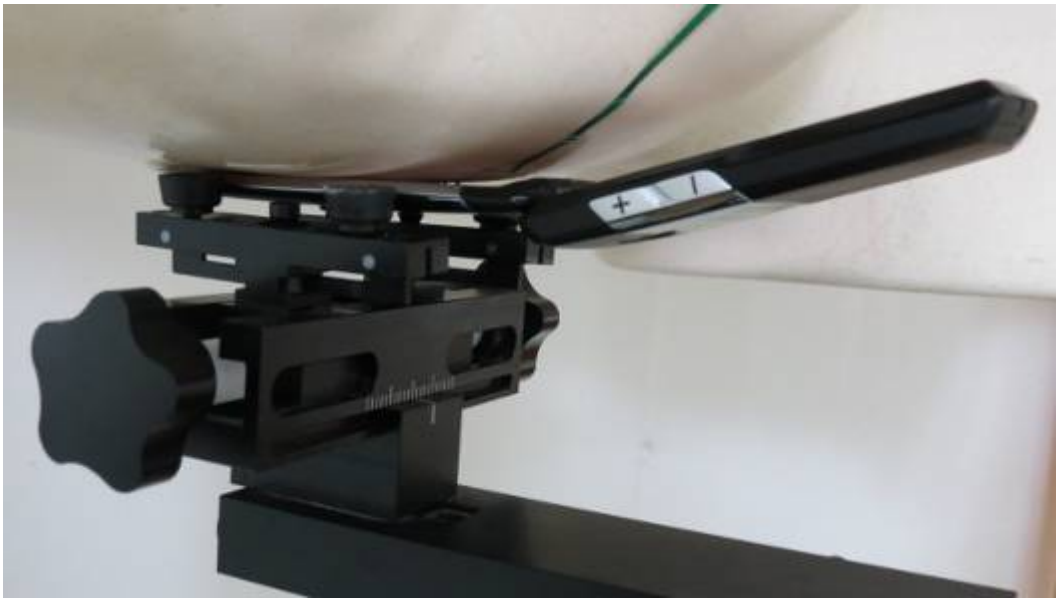
d: Back View

Picture 6: Constituents of EUT



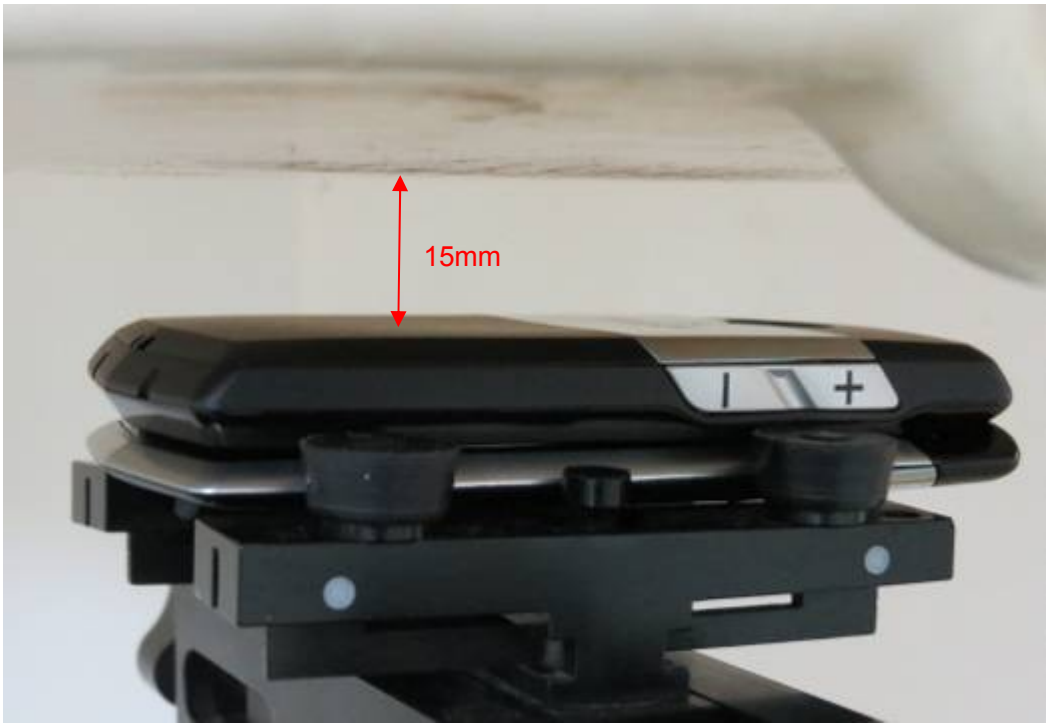
Picture 7: Left Hand Touch Cheek Position

Picture 8: Left Hand Tilt 15 Degree Position

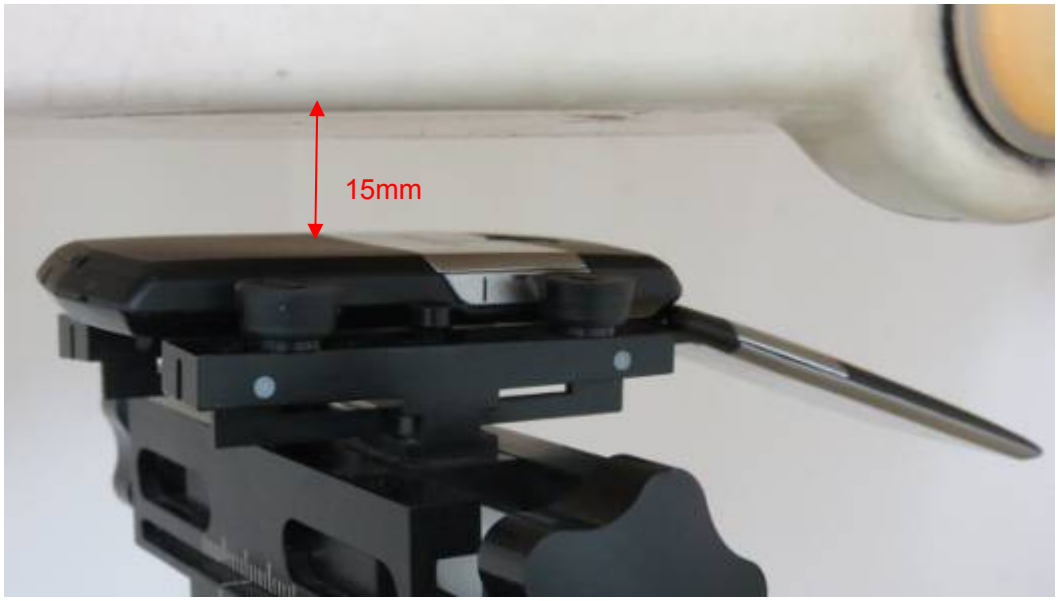


Picture 9: Right Hand Touch Cheek Position

Picture 10: Right Hand Tilt 15 Degree Position



Picture 11: Body, The EUT display towards ground, the distance from EUT to the bottom of the Phantom is 15mm (Closed)



Picture 12: Body, The EUT display towards ground, the distance from EUT to the bottom of the Phantom is 15mm (Open)

Picture 13: Body, The EUT display towards phantom, the distance from EUT to the bottom of the Phantom is 15mm (Closed)