SAR TEST REPORT

Test item	:	Cellular/PCS Phone
Model No.	:	LG-A175a, A175a
Order No.	:	1010-01062
Date of receipt	:	2010-10-19
Test duration	:	2010-11-03 ~ 2010-11-04
Date of issue	:	2010-11-12
Use of report	:	FCC Original Grant

Applicant : LG Electronics, Inc.
60-39, Gasan-Dong, Gumchon-Gu, Seoul 153-023, Korea

Test laboratory : Digital EMC Co., Ltd.
683-3, Yubang-Dong, Cheoin-Gu, Yongin-Si, Kyunggi-Do, 449-080, Korea

Test specification	:	§2.1093, FCC/OET Bulletin 65 Supplement C[July 2001]
Test environment	:	See appended test report
Test result	:	☒ Pass ☐ Fail

The test results presented in this test report are limited only to the sample supplied by applicant and the use of this test report is inhibited other than its purpose. This test report shall not be reproduced except in full, without the written approval of DIGITAL EMC CO., LTD.

Tested by:	Witnessed by:	Reviewed by:
Engineer S.K.Ryu	N/A	Manager W.J. Lee

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1. INTROCUCTION

In 1974, the International Radiation Protection Association (IRPA) formed a working group on non-ionizing radiation (NIR), which examined the problems arising in the field of Protection against the various types of NIR. At the IRPA Congress in Paris in 1977, this working group because the International Non-Ionizing Radiation Committee (INIRC).

In cooperation with the Environmental Health Division of the World Health Organization (WHO), the IRPA/INIRC developed a number of health criteria documents on NIR as part of WHO'S Environmental Health Criteria Programme, sponsored by the United Nations Environment Programme (UNEP). Each document includes an overview of the physical characteristics, measurement and instrumentation, sources, and applications of NIR, a thorough review of the literature on biological effects, and an evaluation of the health risks of exposure to NIR. These health criteria have provided the scientific database for the subsequent development of exposure limits and codes of practice relating to NIR.

At the Eighth International Congress of the IRPA (Montreal, 18-22 May 1992), a new, independent scientific organization-the International Commission on Non-Ionizing Radiation Protection (ICNIRP)-was established as a successor to the IRPA/INIRC. The functions of the Commission are to investigate the hazards that may be association with the different forms of NIR, develop international guidelines on NIR exposure to static and extremely-low-frequency (ELF) electric and magnetic field have been reviewed by UNEP/WHO/IRPA (1984, 1987). Those publications and a number of others, including UNEP/WHO/IRPA (1993) and Allen et al. (1991), provided the scientific rationale for these guidelines.

A glossary of terms appears in the Appendix.

SAR Definition

Specific Absorption Rate (SAR) is defined as the time derivative (rate) of the incremental energy (dU)absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dV) of a given density (ρ) It is also defined as the rate of RF energy absorption per unit mass at a point in an absorbing body (see Fig. 1.1)

$$SAR = \frac{d}{dt}\left(\frac{dU}{dm}\right) = \frac{d}{dt}\left(\frac{dU}{\rho\, dv}\right)$$

Figure 1.1
SAR Mathematical Equation

SAR is expressed in units of Watts per Kilogram (W/kg).

SAR = $\sigma E^2 / \rho$

Where:
- σ = conductivity of the tissue-simulant material (S/m)
- ρ = mass density of the tissue-simulant material (kg/m3)
- E = Total RMS electric field strength (V/m)

NOTE: The primary factors that control rate of energy absorption were found to be the wavelength of the incident field in relations to the dimensions and geometry of the irradiated organism, the orientation of the organism in relation to the polarity of field vectors, the presence of reflecting surfaces, and whether conductive contact is made by the organism with a ground plane.

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2. DESCRIPTION OF DEVICE

Environmental evaluation measurements of specific absorption rate (SAR) distributions in emulated human head and body tissues exposed to radio frequency (RF) radiation from wireless portable devices for compliance with the rules and regulations of the U.S. Federal Communications Commission (FCC).

General Information

Equipment type	Cellular/PCS GSM Phone
FCC ID:	BEJA175A
Equipment model name	LG-A175a
Equipment add model name	A175a
Equipment serial no.	Identical prototype
Mode(s) of Operation	GSM850, PCS1900
TX Frequency Range	824.2 ~ 848.4 MHz(Cellular Band) 1850.2 ~ 1909.8 MHz(PCS Band)
RX Frequency Range	869.2 ~ 893.8 MHz(Cellular Band) 1930.2 ~ 1989.8 MHz(PCS Band)
Max. SAR Measurement	**0.202** mW/g GSM850 Head SAR **0.238** mW/g GSM850 Body SAR **0.656** mW/g PCS1900 Head SAR **0.209** mW/g PCS1900 Body SAR
FCC Equipment Class	Licensed Non-Broadcast Station Transmitter(PCB)
Date(s) of Tests	2010-11-03 ~ 2010-11-04
Antenna Type	Intenna

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3. DESCRIPTION OF TEST EQUIPMENT

3.1 SAR MEASUREMENT SETUP

Measurements are performed using the DASY4 automated dosimetric assessment system. The DASY4 is made by Schmid & Partner Engineering AG (SPEAG) in Zurich, Switzerland and consists of high precision robotics system (Staubli), robot controller, Pentium III computer, near-field probe, probe alignment sensor, and the generic twin phantom containing the brain equivalent material. The robot is a six-axis industrial robot performing precise movements to position the probe to the location (points) of maximum electromagnetic field (EMF) (see Fig. 3.1).

A cell controller system contains the power supply, robot controller teach pendant (Joystick), and a remote control used to drive the robot motors. The PC consists of the Micron Pentium IV 500 MHz computer with Windows NT system and SAR Measurement Software DASY4, A/D interface card, monitor, mouse, and keyboard. The Staubli Robot is connected to the cell controller to allow software manipulation of the robot. A data acquisition electronic (DAE) circuit that performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. is connected to the Electro-optical coupler (EOC). The EOC performs the conversion from the optical into digital electric signal of the DAE and transfers data to the PC plug-in card.

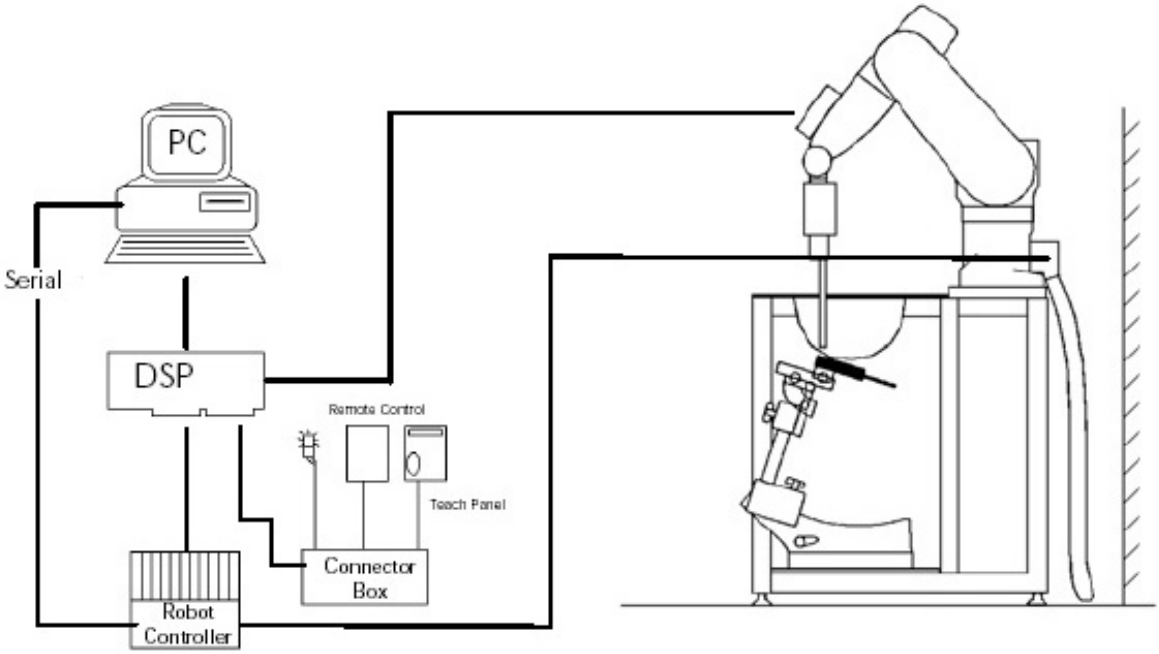

Figure 3.1 SAR Measurement System Setup

The DAE3 consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder and control logic unit. Transmission to the PC-card is accomplished through an optical downlink for data and status information and an optical uplink for commands and clock lines. The mechanical probe mounting device includes two different sensor systems for frontal and sidewise probe contacts. They are also used for mechanical surface detection and probe collision detection. The robot uses its own controller with a built in VME-bus computer. The system is described in detail.

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3.2 EX3DV4 Probe Specification

Calibration: In air from 10 MHz to 6.0 GHz
In brain and muscle simulating tissue at Frequencies of
835 MHz, 1750 MHz, 1900 MHz, 2450 MHz, 2600 MHz, 3500 MHz

Frequency: 10 MHz to 6 GHz

Linearity: ±0.2dB (30 MHz to 6 GHz)

Dynamic: 10 mW/kg to 100 W/kg

Range: Linearity: ±0.2dB

Dimensions: Overall length: 330 mm

Tip length: 20 mm

Body diameter: 12 mm

Tip diameter: 2.5 mm

Distance from probe tip to sensor center: 1 mm

Application: SAR Dosimetry Testing
Compliance tests of mobile phones

DAE System

The SAR measurements were conducted with the dosimetric probe EX3DV4, designed in the classical triangular configuration(see Fig. 3.2) and optimized for dosimetric evaluation. The probe is constructed using the thick film technique; with printed resistive lines on ceramic substrates. The probe is equipped with an optical multi fiber line ending at the front of the probe tip (see Fig. 3.3). It is connected to the EOC box on the robot arm and provides an automatic detection of the phantom surface. Half of the fibers are connected to a pulsed infrared transmitter, the other half to a synchronized receiver. As the probe approaches the surface, the reflection from the surface produces a coupling from the transmitting to the receiving fibers. This reflection increases first during the approach, reaches maximum and then decreases. If the probe is flatly touching the surface, the coupling is zero. The distance of the coupling maximum to the surface is independent of the surface reflectivity and largely independent of the surface to probe angle. The DASY4 software reads the reflection during a software approach and looks for the maximum using a 2nd order fitting. The approach is stopped at reaching the maximum.

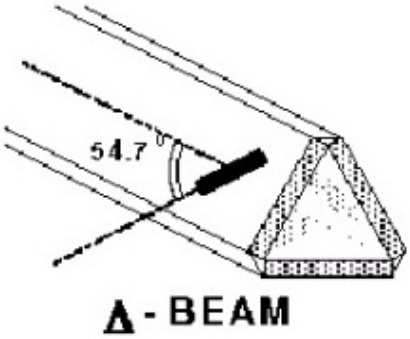

Figure 3.2 Triangular Probe Configurations

Figure 3.3 Probe Thick-Film Technique

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3.3 Probe Calibration Process

3.3.1 E-Probe Calibration

Dosimetric Assessment Procedure

Each probe is calibrated according to a dosimetric assessment procedure with accuracy better than +/- 10%. The spherical isotropy was evaluated with the procedure 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 is tested.

Free Space Assessment

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

Temperature Assessment *

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 the rmistor 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.

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

where:

σ = simulated tissue conductivity,

ρ = Tissue density (1.25 g/cm^3 for brain tissue)

SAR is proportional to ΔT / Δt , the initial rate of tissue heating, before thermal diffusion takes place. Now it's possible to quantify the electric field in the simulated tissue by equating the thermally derived SAR to the E- field;

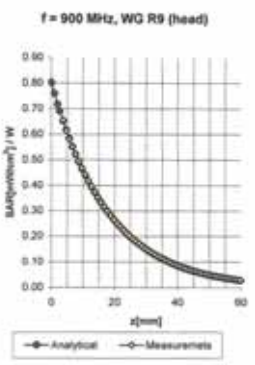

Figure 3.4 E-Field and Temperature Measurements at 900MHz[7]

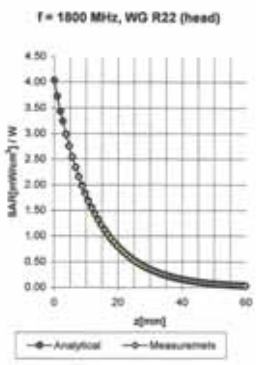

Figure 3.5 E-Field and Temperature Measurements at 1800MHz[7]

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3.4 Data Extrapolation

The DASY4 software automatically executes the following procedures to calculate the field units from the microvolt readings at the probe connector. 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 like below;

$$V_i = U_i + U_i^2 \cdot \frac{cf}{dcp_i}$$

with
V_i = compensated signal of channel i (i=x,y,z)
U_i = input signal of channel i (i=x,y,z)
cf = crest factor of exciting field (DASY parameter)
dcp_i = diode compression point (DASY parameter)

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

E-field probes:

$$E_i = \sqrt{\frac{V_i}{Norm_i \cdot ConvF}}$$

with
V_i = compensated signal of channel i (i = x,y,z)
$Norm_i$ = sensor sensitivity of channel i (i = x,y,z) $\mu V/(V/m)^2$ for E-field probes
ConvF = sensitivity of enhancement in solution
E_i = electric field strength of channel i in V/m

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

$$E_{tot} = \sqrt{E_x^2 + E_y^2 + E_z^2}$$

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

$$SAR = E_{tot}^2 \cdot \frac{\sigma}{\rho \cdot 1000}$$

with
SAR = local specific absorption rate in W/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

The power flow density is calculated assuming the excitation field to be a free space field.

$$P_{pwe} = \frac{E_{tot}^2}{3770}$$

with
P_{pwe} = equivalent power density of a plane wave in W/cm^2
E_{tot} = total electric field strength in V/m

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3.5 SAM PHANTOM

The SAM Twin Phantom V4.0 is constructed of a fiberglass shell integrated in a wooden table. The shape of the shell is based on data from an anatomical study designed to determine the maximum exposure in at least 90% of all users. It enables the dosimetric evaluation of left and right hand phone usage as well as body mounted usage at the flat phantom region. A cover prevents the evaporation of the liquid.
Reference markings on the Phantom allow the complete setup of all predefined phantom positions and measurement grids by manually teaching three points in the robot. (see Fig. 3.6)

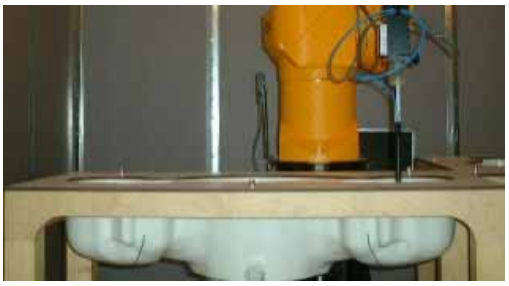

Figure 3.6 SAM Twin Phantom

3.6 Device Holder for Transmitters

In combination with the SAM Twin Phantom V4.0 the Mounting Device (see Fig. 3.6), enables the rotation of the mounted transmitter in spherical coordinates whereby the rotation point is the ear opening. The devices can be easily, accurately, and repeat ably be positioned according to the FCC specifications. The device holder can be locked at different phantom locations (left head, right head, flat phantom).

Note: A simulating human hand is not used due to the complex anatomical and geometrical structure of the hand that may produce infinite number of configurations. To produce the worst-case condition (the hand absorbs antenna output power), the hand is omitted during the tests.

Figure 3.7 Mounting Device

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3.7 Brain & Muscle Simulation Mixture Characterization

Figure 3.8 Simulated Tissue

The brain and muscle mixtures consist of a viscous gel using hydrox-ethyl cellulose (HEC) gelling agent and saline solution (see Table 3.1). Preservation with a bacteriacide is added and visual inspection is made to make sure air bubbles are not trapped during the mixing process. The mixture is calibrated to obtain proper dielectric constant (permittivity) and conductivity of the desired tissue. The mixture characterizations used for the brain and muscle tissue simulating liquids are according to the data by C. Gabriel and G. Harts grove.

Table 3.1 Composition of the Muscle Tissue Equivalent Matter

INGREDIENTS		SIMULATING TISSUE			
		835 MHz Brain	835 MHz Muscle	1900 MHz Brain	1900 MHz Muscle
Mixture Percentage					
WATER		41.45	52.40	54.90	40.40
DGBE		0.000	0.000	44.92	58.00
SUGAR		56.00	45.00	0.000	0.000
SALT		1.450	1.400	0.180	0.500
BACTERICIDE		0.100	0.100	0.000	0.100
HEC		1.000	1.000	0.000	1.000
Dielectric Constant	Target	**41.50**	**55.20**	**40.00**	**53.30**
Conductivity (S/m)	Target	**0.900**	**0.970**	**1.400**	**1.520**

Salt: 99 % Pure Sodium Chloride Sugar: 98 % Pure Sucrose

Water: De-ionized, 16M resistivity HEC: Hydroxyethyl Cellulose

DGBE: 99 % Di(ethylene glycol) butyl ether,[2-(2-butoxyethoxy) ethanol]

Triton X-100(ultra pure): Polyethylene glycol mono [4-(1,1,3,3-tetramethylbutyl)phenyl]

Table 3.1 Composition of the Tissue Equivalent Matter

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3.8 SAR TEST EQUIPMENT

Table 3.2 Test Equipment Calibration

EQUIPMENT SPECIFICATIONS			
Type	**Calibration Date**	**Next Calibration Date**	**Serial Number**
Robot	N/A	N/A	F02/5Q85A1/A/01
Robot Controller	N/A	N/A	F02/5Q85A1/C/01
Joystick	N/A	N/A	D221340031
Hicron Computer 1.1GHz Pentium Celeron ,Window 2000	N/A	N/A	N/A
Data Acquisition Electronics	November 19, 2009	November 19, 2010	520
Dosimetric E-Field Probe	January 26, 2010	January 26, 2011	3643
Dummy Probe	N/A	N/A	N/A
Sam Phantom	N/A	N/A	N/A
Probe Alignment Unit LB	N/A	N/A	321
SPEAG Validation Dipole D835 MHz	March 22, 2010	March 22, 2012	464
SPEAG Validation Dipole D1900 MHz	March 23, 2010	March 23, 2012	5d029
Head/Body Equivalent Matter(835MHz)	January 2010	January 2011	N/A
Head/Body Equivalent Matter(1900MHz)	January 2010	January 2011	N/A
HP EPM-442A Power Meter	March 12, 2010	March 12, 2011	GB37170267
HP ESG-3000A Signal Generator	July 01, 2010	July 01, 2011	US37230529
Attenuator (10dB)	January 11, 2010	January 11, 2011	BP4387
Attenuator (3dB)	July 01, 2010	July 01,2011	MY39260700
Low pass filter (1.5GHz)	January 11, 2010	January 11, 2011	N/A
Low pass filter (3.0GHz)	October 04, 2010	October 04, 2011	N/A
Dual Directional Coupler	January 11, 2010	January 11, 2011	50228
Amplifier	October 04, 2010	October 04, 2011	1020 D/C 0221
Network Analyzer	March 12, 2010	March 12, 2011	3410J01204
HP85070D Dielectric Probe Kit	N/A	N/A	LISO1440118
SEMITEC Engineering	N/A	N/A	Shield Room
8960Series 10 Wireless Comms Test Set	July 02, 2010	July 02, 2011	GB43461134

NOTE:

The E-field probe was calibrated by SPEAG, by temperature measurement procedure. Dipole Validation measurement is performed by Digital EMC. before each test. The brain simulating material is calibrated by Digital EMC using the dielectric probe system and network analyzer to determine the conductivity and permittivity (dielectric constant) of the brain-equivalent material.

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4. TEST SYSTEM SPECIFICATIONS

Automated Test System Specifications

Positioner

Robot: StäubliUnimation Corp. Robot Model: RX60L
Repeatability: 0.02 mm
No. of axis: 6

Figure 4.1 DASY4 Test System

Data Acquisition Electronic (DAE) System
Cell Controller

Processor: Pentium 4 CPU
Clock Speed: 3 GHz
Operating System: Window 2000
Data Card: DASY4 PC-Board

Data Converter

Features: Signal, multiplexer, A/D converter. & control logic
Software: DASY4
Connecting Lines: Optical downlink for data and status info
Optical uplink for commands and clock

PC Interface Card

Function: 24 bit (64 MHz) DSP for real time processing
Link to DAE 3
16 bit A/D converter for surface detection system
serial link to robot
direct emergency stop output for robot

E-Field Probes

Model: EX3DV4 S/N: 3643
Construction: Triangular core fiber optic detection system
Frequency: 10 MHz to 6 GHz
Linearity: ±0.2dB (30MHz to 6GHz)

Phantom

Phantom: SAM Twin Phantom (V4.0)
Shell Material: Vivac Composite
Thickness: 2.0 ± 0.2 mm

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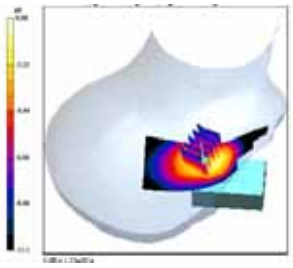
5. SAR MEASUREMENT PROCEDURE

The evaluation was performed using the following procedure:



Sample SAR Area Scan

1. The SAR measurement was taken at a selected spatial reference point to monitor power variations during testing. This fixed location point was measured and used as a reference value.

2. The SAR distribution at the exposed side of the head was measured at a distance of 3.9mm from the Inner surface of the shell. The area covered the entire dimension of the head and the horizontal grid spacing was 15 mm x 15 mm.

3. Based on the area scan data, the area of the maximum absorption was determined by sp line interpolation. Around this point, a volume of 32 mm x32 mm x 30 mm (fine resolution volume scan, zoom scan) was assessed by measuring 5 x 5 x 7 points. On this basis of this data set, the spatial peak SAR value was evaluated with the following procedure (see Sample SAR Area Scan):

   a. The data at the surface was extrapolated, since the center of the dipoles is 2.5 mm away from the tip of the probe and the distance between the surface and the lowest measuring point is 1.2mm. The extrapolation was based on a least square algorithm. A polynomial of the fourth order was calculated through the points in z-axes. This polynomial was then used to evaluate the points between the surface and the probe tip.

   b. The maximum interpolated value was searched with a straight-forward algorithm. Around this maximum the SAR values averaged over the spatial volumes (1g or 10g) were computed using the 3D-Spline interpolation algorithm. The 3D-spline is composed of three one-dimensional sp lines with the “Not a knot” condition (in x, y, and z directions). The volume was integrated with the trapezoidal algorithm. One thousand points (10 x 10x 10) were interpolated to calculate the average.

   c. All neighboring volumes were evaluated until no neighboring volume with a higher average value was found.

4. The SAR reference value, at the same location as procedure #1, was re-measured. If the value changed by more than 5%, the evaluation is repeated.

Specific Anthropomorphic Mannequin (SAM) Specifications

The phantom for handset SAR assessment testing is a low-loss dielectric shell, with shape and dimensions derived from the anthropometric data of the 90th percentile adult male head dimensions as tabulated by the US Army. The SAM Twin Phantom shell is bisected along the mid-sagittal plane into right and left halves (see Fig. 5.1). The perimeter side walls of each phantom halves are extended to allow filling with liquid to a depth that is sufficient to minimized reflections from the upper surface. The liquid depth is maintained at a minimum depth of 15cm to minimize reflections from the upper surface.

Figure 5.1 Sam Twin Phantom shell

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6. DESCRIPTION OF TEST POSITION

6.1 HEAD POSITION

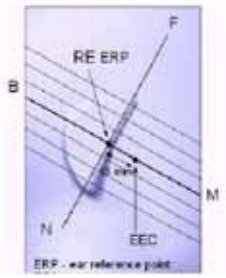

Figure 6.2 Close-up side view of ERPs

Figure 6.1 shows the front, back and side views of the SAM Twin Phantom. The point"M" is the reference point for the center of the mouth, "LE" is the left ear reference point(ERP), and "RE" is the right ERP. The ERPs are 15mm posterior to the entrance to the Ear canal (EEC) along the B-M line (Back-Mouth), as shown in Figure 6.5. The plane Passing, through the two ear canals and M is defined as the Reference Plane. The line N-F (Neck- Front) is perpendicular to the reference plane and passing through the RE (or LE) is called the Reference Pivoting Line (see Figure 6.2). Line B-M is perpendicular to the N-F line. Both N-F and B-M lines are marked on the external phantom shell to facilitate handset positioning.

Figure 6.1 Front, back and side view SAM Twin Phantom

Handset Reference Points

Two imaginary lines on the handset were established: the vertical centerline and the horizontal line. The test device was placed in a normal operating position with the "test device reference point" located along the "vertical centerline" on the front of the device aligned to the "ear reference point" (See Fig. 6.3). The "test device reference point" was than located at the same level as the center of the ear reference point. The test device was positioned so that the "vertical centerline" was bisecting the front surface of the handset at it's top and bottom edges, positioning the "ear reference point" on the outer surface of the both the left and right head phantoms on the ear reference point.

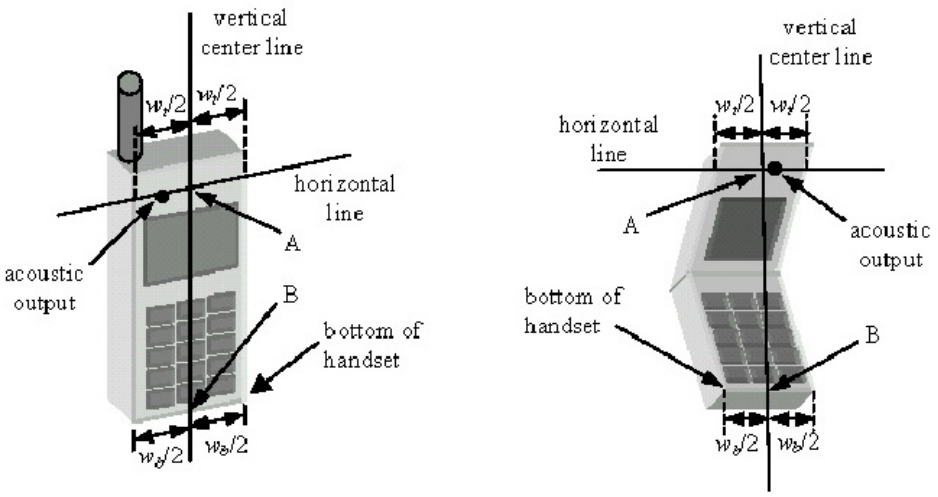

Figure 6.3 Handset Vertical Center & Horizontal Line Reference Points

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6.2 Positioning for Cheek/Touch

1. The test device was positioned with the handset close to the surface of the phantom such that point A is on the (virtual) extension of the line passing through points RE and LE on the phantom (see Figure 6.4), such that the plane defined by the vertical center line and the horizontal line of the phone is approximately parallel to the sagittal plane of the phantom.

Figure 6.4 Front, Side and Top View of Cheek/Touch Position

2. The handset was translated towards the phantom along the line passing through RE & LE until the handset touches the ear.

3. While maintaining the handset in this plane, the handset was rotated around the LE-RE line until the vertical centerline was in the plane normal to MB-NF including the line MB (reference plane).

4. The phone was hen rotated around the vertical centerline until the phone (horizontal line) was symmetrical was respect to the line NF.

5. While maintaining the vertical centerline in the reference plane, keeping point A on the line passing through RE and LE, and maintaining the phone contact with the ear, the handset was rotated about the line NF until any point on the handset made contact with a phantom point below the ear (cheek). (See Figure 6.5)

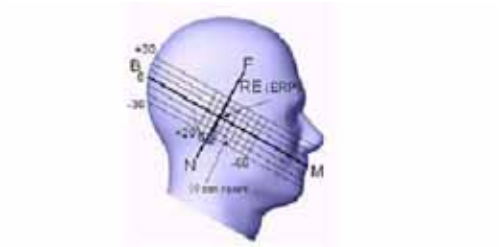

Figure 6.5 Side view w/relevant markings

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6.3 Positioning for Ear / 15 ° Tilt

With the test device aligned in the "Cheek/Touch Position":
1. While maintaining the orientation of the phone, the phone was retracted parallel to the reference plane far enough to enable a rotation of the phone by 15degree.
2. The phone was then rotated around the horizontal line by 15 degree.
3. While maintaining the orientation of the phone, the phone was moved parallel to the reference plane until any part of the phone touches the head. (In this position, point A was located on the line RE-LE). The tilted position is obtained when the contact is on the pinna. If the contact was at any location other than the pinna, the angle of the phone would then be reduced. The tilted position was obtained when any part of the phone was in contact of the ear as well as a second part of the phone was in contact with the head (see Figure 6.6).

Figure 6.6 Front, Side and Top View of Ear/15° Position

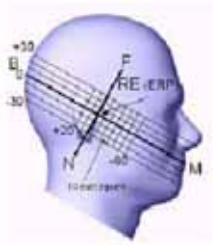

Figure 6.7 Side view w/relevant markings

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6.4 Body Holster /Belt Clip Configurations

Body-worn operating configurations are tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in a normal use configuration (see Figure 6.8). A device with a headset output is tested with a headset connected to the device. Body dielectric parameters are used.

Accessories for Body-worn operation configurations are divided into two categories: those that do not contain metallic components and those that do contain metallic components. When multiple accessories that do not contain metallic components are supplied with the device, the device is tested with only the accessory that dictates the closest spacing to the body. Then multiple accessories that contain metallic components are supplied with the device, the device is tested with each accessory that contains a unique metallic component. If multiple accessories share an identical metallic component (i.e. the same metallic belt-clip used with different holsters with no other metallic components) only the accessory that dictates the closest spacing to the body is tested.

Figure 6.8 Body Belt Clip & Holster Configurations

Body-worn accessories may not always be supplied or available as options for some Devices intended to be authorized for body-worn use. In this case, a test configuration where a separation distance between the back of the device and the flat phantom is used. All test position spacings are documented.

Transmitters that are designed to operate in front of a person's face, as in push-to-talk configurations, are tested for SAR compliance with the front of the device positioned to face the flat phantom. For devices that are carried next to the body such as a shoulder, waist or chest-worn transmitters, SAR compliance is tested with the accessory(ies),including headsets and microphones, attached to the device and positioned against a flat phantom in a normal use configuration.

In all cases SAR measurements are performed to investigate the worst-case positioning. Worst-case positioning is then documented and used to perform Body SAR testing. In order for users to be aware of the body-worn operating requirements for meeting RF exposure compliance, operating instructions and cautions statements are included in the user's manual.

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7. IEEE P1528 – MEASUREMENT UNCERTAINTIES

Error Description	Uncertaint value ±%	Probability Distribution	Divisor	(Ci) 1g	Standard (1g)	vi 2 or Veff
Measurement System						
Probe calibration	± 4.8	Normal	1	1	± 4.8 %	∞
Axial isotropy	± 4.7	Rectangular	√3	0.7	± 2.7 %	∞
Hemispherical isotropy	± 9.6	Rectangular	√3	0.7	± 5.5 %	∞
Boundary Effects	± 0.8	Rectangular	√3	1	± 0.5 %	∞
Probe Linearity	± 4.7	Rectangular	√3	1	± 2.7 %	∞
Detection limits	± 0.25	Rectangular	√3	1	± 0.14 %	∞
Readout Electronics	± 1.0	Normal	1	1	± 1.0 %	∞
Response time	± 0.8	Rectangular	√3	1	± 0.5 %	∞
Integration time	± 2.6	Rectangular	√3	1	± 1.5 %	∞
RF Ambient Conditions	± 3.0	Rectangular	√3	1	± 1.7 %	∞
Probe Positioner	± 0.4	Rectangular	√3	1	± 0.2 %	∞
Probe Positioning	± 2.9	Rectangular	√3	1	± 1.7 %	∞
Algorithms for Max. SAR Eval.	± 1.0	Rectangular	√3	1	± 0.6 %	∞
Test Sample Related						
Device Positioning	± 2.9	Normal	1	1	± 2.9 %	145
Device Holder	± 3.6	Normal	1	1	± 3.6 %	5
Power Drift	± 5.0	Rectangular	√3	1	± 2.9 %	∞
Physical Parameters						
Phantom Shell	± 4.0	Rectangular	√3	1	± 2.3 %	∞
Liquid conductivity (Target)	± 5.0	Rectangular	√3	0.64	± 1.8 %	∞
Liquid conductivity (Meas.)	± 5.0	Normal	1	0.64	± 1.6 %	∞
Liquid permittivity (Target)	± 5.0	Rectangular	√3	0.6	± 1.7 %	∞
Liquid permittivity (Meas.)	± 5.0	Normal	1	0.6	± 1.5 %	∞
CombinedStandard Uncertainty					**± 11.8 %**	330
Expanded Uncertainty (k=2)					**± 23.6 %**	

The above measurement uncertainties are according to IEEE P1528 (2003)

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8. ANSI / IEEE C95.1-2005 RF EXPOSURE LIMITS

Uncontrolled Environment

UNCONTROLLED ENVIRONMENTS are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure. The general population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity.

Controlled Environment

CONTROLLED ENVIRONMENTS are defined as locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, (i.e. as a result of employment or occupation). In general, occupational/controlled exposure limits are employment, who have been made fully aware of the potential for exposure and can exercise control over their exposure. This exposure category is also applicable when the exposure is of a transient nature due to incidental passage through a location where the exposure levels may be higher than the general population/uncontrolled limits, but the exposed person is fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Table 8.1.SAR Human Exposure Specified in ANSI/IEEE C95.1-2005

	HUMAN EXPOSURE LIMITS	
	General Public Exposure (W/kg) or (mW/g)	Occupational Exposure (W/kg) or (mW/g)
SPATIAL PEAK SAR * (Brain)	1.60	8.00
SPATIAL AVERAGE SAR ** (Whole Body)	0.08	0.40
SPATIAL PEAK SAR *** (Hands / Feet / Ankle / Wrist)	4.00	20.0

NOTES:

* The Spatial Peak value of the SAR averaged over any 1 g of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.

** The Spatial Average value of the SAR averaged over the whole-body.

*** The Spatial Peak value of the SAR averaged over any 10 g of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.

Uncontrolled Environments are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure.

Controlled Environments are defined as locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, (i.e.as a result of employment or occupation).

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9. SYSTEM VERIFICATION

9.1 Tissue Verification

MEASURED TISSUE PARAMETERS								
Freq. [MHz]	Date(s)	Liquid	Liquid Temp.[°C]	Parameters	Target Value	Measured Value	Deviation [%]	Limit [%]
835	Nov.3,2010	Head	23.0	εr	41.50	41.10	-0.96	± 5
				σ	0.900	0.899	-0.11	± 5
835	Nov.3,2010	Body	23.0	εr	55.20	53.94	-2.28	± 5
				σ	0.970	0.960	-1.03	± 5
1900	Nov.4,2010	Head	22.5	εr	40.00	39.80	-0.50	± 5
				σ	1.400	1.440	2.86	± 5
1900	Nov.4,2010	Body	22.5	εr	53.30	53.54	0.45	± 5
				σ	1.520	1.527	0.46	± 5

※The tissue is verified to the ± 5 % of the specifications (Target) at 835 MHz, 1900 MHz by using the HP85070D Dielectric Probe Kit

9.2 Test System Validation

Prior to assessment, the system is verified to the ±10% of the specifications at 835 MHz and 1900 MHz by using the system validation kit(s). (Graphic Plots Attached)

SYSTEM DIPOLE VALIDATION TARGET & MEASURED (835 MHz / 1900 MHz values are normalized to a forward power of 1/4 W)								
Freq. [MHz]	Date(s)	Liquid	Liquid Temp.[°C]	SAR Average	Targeted SAR_{1g} (mW/g)	Measured SAR_{1g} (mW/g)	Deviation [%]	Limit [%]
835	Nov.3,2010	Head	23.0	1g	2.44	2.52	3.28	± 10
1900	Nov.4,2010	Head	22.5	1g	9.85	9.48	-3.76	± 10

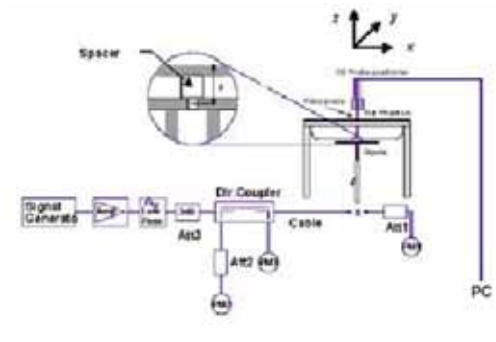

Figure 9.1 Dipole Validation Test Setup

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10. SAR TEST DATA SUMMARY AND POWER TABLE

See Measurement Result Data Pages

Procedures Used To Establish Test Signal

The EUT was placed into simulated call mode (GSM850, PCS1900) using manufacturers test codes. Such test signals offer a consistent means for testing SAR and are recommended for evaluating SAR [4]. When test modes are not available or inappropriate for testing a EUT, the actual transmission is activated through a base station simulator or similar equipment. See data pages for actual procedure used in measurement.

Device Test Conditions

The EUT is battery operated. Each SAR measurement was taken with a fully charged battery.

In order to verify that the device was tested at full power, conducted output power measurements were performed before and after each SAR measurement to confirm the output power. If a conducted power deviation of more than 5% occurred, the test was repeated.

10.1 Max. Power Output Table for LG-A175a

Band	Channel	Test Result(dBm)				
		GSM (dBm)	GPRS 1 TX Slot (dBm)	GPRS 2 TX Slot (dBm)	GPRS 3 TX Slot (dBm)	GPRS 4 TX Slot (dBm)
GSM 850	128	33.2	N/A	N/A	N/A	N/A
	190	33.1	N/A	N/A	N/A	N/A
	251	33.0	N/A	N/A	N/A	N/A
GSM 1900	512	30.2	N/A	N/A	N/A	N/A
	661	30.5	N/A	N/A	N/A	N/A
	810	30.3	N/A	N/A	N/A	N/A

Table 10.1 The power was measured E5515C (call equipment)

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11. SAR TEST DATA SUMMARY

11.1 Measurement Results (GSM850 Head SAR Touch)

FREQUENCY		Modulation	Begin Power (dBm)	Drift Power (dB)	Battery	Phantom Position	Antenna Type	SAR (W/kg)
MHz	Ch							
836.6	190(Mid)	GSM850	33.1	0.127	Standard	Left Ear	Internal	0.113
824.2	128(Low)	GSM850	33.2	0.338	Standard	Right Ear	Internal	0.082
836.6	190(Mid)	GSM850	33.1	0.341	Standard	Right Ear	Internal	0.114
848.8	251(High)	GSM850	33.0	-0.059	Standard	Right Ear	Internal	0.202
ANSI / IEEE C95.1 1992 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/ General Population Exposure						**Head 1.6 W/kg (mW/g)** averaged over 1 gram		

NOTE:

1. The test data reported are the worst-case SAR value with the antenna-head position set in a typical configuration. Test procedures used are according to FCC/OET Bulletin 65, Supp.C [July 2001].
2. All modes of operation were investigated, and worst-case results are reported.
3. Prior to testing the conducted output power was measured.
4. The EUT is tested 2nd hot-spot peak, if it is less than 2dB below the highest peak.
5. Test Signal Call Mode □ Continuous Tx On □ Manu.Test Codes ▣BaseStation Simulator
6. Tissue parameters and temperatures are listed on the SAR plots.
7. Liquid tissue depth is 15.0cm.±0.1
8. Justification for reduced test configurations: per FCC/OET Supplement C (July, 2001), if the SAR measured at the middle channel for each test configuration (Left, right, cheek/touch, tilt/ear, extended and retracted) is at least 3.0 dB lower than the SAR limit, testing at the high and low channels is optional for such test configuration(s).

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11.2 Measurement Results (GSM850 Head SAR Tilt)

FREQUENCY		Modulation	Begin Power (dBm)	Drift Power (dB)	Battery	Phantom Position	Antenna Type	SAR (W/kg)
MHz	Ch							
836.6	190(Mid)	GSM850	33.1	0.124	Standard	Left Tilt 15°	Internal	0.017
836.6	190(Mid)	GSM850	33.1	0.245	Standard	Right Tilt 15°	Internal	0.030
ANSI / IEEE C95.1 1992 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/ General Population Exposure						**Head 1.6 W/kg (mW/g)** averaged over 1 gram		

NOTE:

1. The test data reported are the worst-case SAR value with the antenna-head position set in a typical configuration. Test procedures used are according to FCC/OET Bulletin 65, Supp.C [July 2001].
2. All modes of operation were investigated, and worst-case results are reported.
3. Prior to testing the conducted output power was measured.
4. The EUT is tested 2nd hot-spot peak, if it is less than 2dB below the highest peak.
5. Test Signal Call Mode □ Continuous Tx On □ Manu.Test Codes ▣BaseStation Simulator
6. Tissue parameters and temperatures are listed on the SAR plots.
7. Liquid tissue depth is 15.0cm.±0.1
8. Justification for reduced test configurations: per FCC/OET Supplement C (July, 2001), if the SAR measured at the middle channel for each test configuration (Left, right, cheek/touch, tilt/ear, extended and retracted) is at least 3.0 dB lower than the SAR limit, testing at the high and low channels is optional for such test configuration(s).

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11.3 Measurement Results (PCS1900 Head SAR Touch)

FREQUENCY		Modulation	Begin Power (dBm)	Drift Power (dB)	Battery	Phantom Position	Antenna Type	SAR (W/kg)
MHz	Ch							
1880.0	661(Mid)	PCS1900	30.5	0.133	Standard	Left Ear	Internal	0.241
1850.2	512(Low)	PCS1900	30.2	-0.125	Standard	Right Ear	Internal	0.656
1880.0	661(Mid)	PCS1900	30.5	-0.342	Standard	Right Ear	Internal	0.603
1909.8	810(High)	PCS1900	30.3	0.014	Standard	Right Ear	Internal	0.575
ANSI / IEEE C95.1 1992 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/ General Population Exposure						**Head 1.6 W/kg (mW/g)** averaged over 1 gram		

NOTE:

1. The test data reported are the worst-case SAR value with the antenna-head position set in a typical configuration. Test procedures used are according to FCC/OET Bulletin 65, Supp.C [July 2001].
2. All modes of operation were investigated, and worst-case results are reported.
3. Prior to testing the conducted output power was measured.
4. The EUT is tested 2nd hot-spot peak, if it is less than 2dB below the highest peak.
5. Test Signal Call Mode □ Continuous Tx On □Manu.Test Codes ▣BaseStation Simulator
6. Tissue parameters and temperatures are listed on the SAR plots.
7. Liquid tissue depth is 15.0cm.±0.1
8. Justification for reduced test configurations: per FCC/OET Supplement C (July, 2001), if the SAR measured at the middle channel for each test configuration (Left, right, cheek/touch, tilt/ear, extended and retracted) is at least 3.0 dB lower than the SAR limit, testing at the high and low channels is optional for such test configuration(s).

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11.4 Measurement Results (PCS1900 Head SAR Tilt)

FREQUENCY		Modulation	Begin Power (dBm)	Drift Power (dB)	Battery	Phantom Position	Antenna Type	SAR (W/kg)
MHz	Ch							
1880.0	661(Mid)	PCS1900	30.5	-0.157	Standard	Left Tilt 15˚	Internal	0.041
1880.0	661(Mid)	PCS1900	30.5	0.131	Standard	Right Tilt 15˚	Internal	0.051
ANSI / IEEE C95.1 1992 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/ General Population Exposure						**Head 1.6 W/kg (mW/g)** averaged over 1 gram		

NOTE:

1. The test data reported are the worst-case SAR value with the antenna-head position set in a typical configuration. Test procedures used are according to FCC/OET Bulletin 65, Supp.C [July 2001].
2. All modes of operation were investigated, and worst-case results are reported.
3. Prior to testing the conducted output power was measured.
4. The EUT is tested 2nd hot-spot peak, if it is less than 2dB below the highest peak.
5. Test Signal Call Mode □ Continuous Tx On □Manu.Test Codes ▣BaseStation Simulator
6. Tissue parameters and temperatures are listed on the SAR plots.
7. Liquid tissue depth is 15.0cm.±0.1
8. Justification for reduced test configurations: per FCC/OET Supplement C (July, 2001), if the SAR measured at the middle channel for each test configuration (Left, right, cheek/touch, tilt/ear, extended and retracted) is at least 3.0 dB lower than the SAR limit, testing at the high and low channels is optional for such test configuration(s).

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11.5 Measurement Results (GSM850 Body SAR)

FREQUENCY		Modulation	Begin Power (dBm)	Drift Power (dB)	Configuration	Phantom Position	Antenna Type	SAR (W/kg)
MHz	Ch							
824.2	128(Low)	GSM850	33.2	0.225	Rear	2.0 cm without Holster	Internal	0.117
836.6	190(Mid)	GSM850	33.1	-0.104	Rear	2.0 cm without Holster	Internal	0.133
848.8	251(High)	GSM850	33.0	0.070	Rear	2.0 cm without Holster	Internal	0.238
836.6	190(Mid)	GSM850	33.1	0.285	Front	2.0 cm without Holster	Internal	0.101
ANSI / IEEE C95.1 1992 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/ General Population Exposure						**Body 1.6 W/kg (mW/g)** averaged over 1 gram		

NOTE:

1. The test data reported are the worst-case SAR value with the antenna-body position set in a typical configuration. Test procedures used are according to FCC/OET Bulletin 65, Supp.C [July 2001].
2. All modes of operation were investigated, and worst-case results are reported.
3. Prior to testing the conducted output power was measured.
4. The EUT is tested 2nd hot-spot peak, if it is less than 2dB below the highest peak.
5. Battery is fully charged for all readings.
6. Test Signal Call Mode □ Continuous Tx On □Manu.Test Codes ▣Base Station Simulator
7. Tissue parameters and temperatures are listed on the SAR plots.
8. Liquid tissue depth is 15.0cm.±0.1
9. Justification for reduced test configurations: per FCC/OET Supplement C (July, 2001), if the SAR measured at the middle channel for each test configuration (Left, right, cheek/touch, tilt/ear, extended and retracted) is at least 3.0 dB lower than the SAR limit, testing at the high and low channels is optional for such test configuration(s).
10. Front body SAR was tested since user may install the handset in folded into a belt clip both front and rear side and user make a call using the ear microphone.

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11.6 Measurement Results (PCS1900 Body SAR)

FREQUENCY		Modulation	Begin Power (dBm)	Drift Power (dB)	Configuration	Phantom Position	Antenna Type	SAR (W/kg)
MHz	Ch							
1850.2	512(Low)	PCS1900	30.2	-0.013	Rear	2.0 cm without Holster	Internal	0.178
1880.0	661(Mid)	PCS1900	30.5	0.078	Rear	2.0 cm without Holster	Internal	0.195
1909.8	810(High)	PCS1900	30.3	0.053	Rear	2.0 cm without Holster	Internal	0.209
1880.0	661(Mid)	PCS1900	30.5	-0.238	Front	2.0 cm without Holster	Internal	0.096
ANSI / IEEE C95.1 1992 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/ General Population Exposure						**Body 1.6 W/kg (mW/g)** averaged over 1 gram		

NOTE:

1. The test data reported are the worst-case SAR value with the antenna-body position set in a typical configuration. Test procedures used are according to FCC/OET Bulletin 65, Supp.C [July 2001].
2. All modes of operation were investigated, and worst-case results are reported.
3. Prior to testing the conducted output power was measured.
4. The EUT is tested 2nd hot-spot peak, if it is less than 2dB below the highest peak.
5. Battery is fully charged for all readings.
6. Test Signal Call Mode □ Continuous Tx On □Manu.Test Codes ▣Base Station Simulator
7. Tissue parameters and temperatures are listed on the SAR plots.
8. Liquid tissue depth is 15.0cm.±0.1
9. Justification for reduced test configurations: per FCC/OET Supplement C (July, 2001), if the SAR measured at the middle channel for each test configuration (Left, right, cheek/touch, tilt/ear, extended and retracted) is at least 3.0 dB lower than the SAR limit, testing at the high and low channels is optional for such test configuration(s).
10. Front body SAR was tested since user may install the handset in folded into a belt clip both front and rear side and user make a call using the ear microphone.

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12. CONCLUSION

Measurement Conclusion

The SAR measurement indicates that the EUT complies with the RF radiation exposure limits of the FCC. These measurements are taken to simulate the RF effects exposure under the worst-case conditions. Precise laboratory measures were taken to assure repeatability of the tests. The tested device complies with the requirements in respect to all parameters subject to the test. The test results and statements relate only to the item(s) tested.

Please note that the absorption and distribution of electromagnetic energy in the body are very complex phenomena that depend on the mass, shape, and size of the body, the orientation of the body with respect to the field vectors, and the electrical properties of both the body and the environment. Other variables that may play a substantial role impossible biological effects are those that characterize the environment (e.g. ambient temperature, air velocity, relative humidity, and body insulation) and those that characterize the individual (e.g. age, gender, activity level, debilitation, or disease).

Because innumerable factors may interact to determine the specific biological outcome of an exposure to electromagnetic fields, any protection guide shall consider maximal amplification of biological effects as a result of field-body interactions, environmental conditions, and physiological variables.

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[21] FCC SAR Measurement Procedures for 3G Devices v2.0, October 2007

[22] FCC SAR Considerations for Cell Phones with Multiple Transmitters v01r02 #648474, April 2008

[23] 447498 D01 Mobile Portable RF Exposure v04, Published on: Nov 16 2009

[24] 447498 D02 SAR Procedures for Dongle Xmtr v02, Published on: Nov 16 2009

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Attachment 1. – Dipole Validation Plots

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DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:464

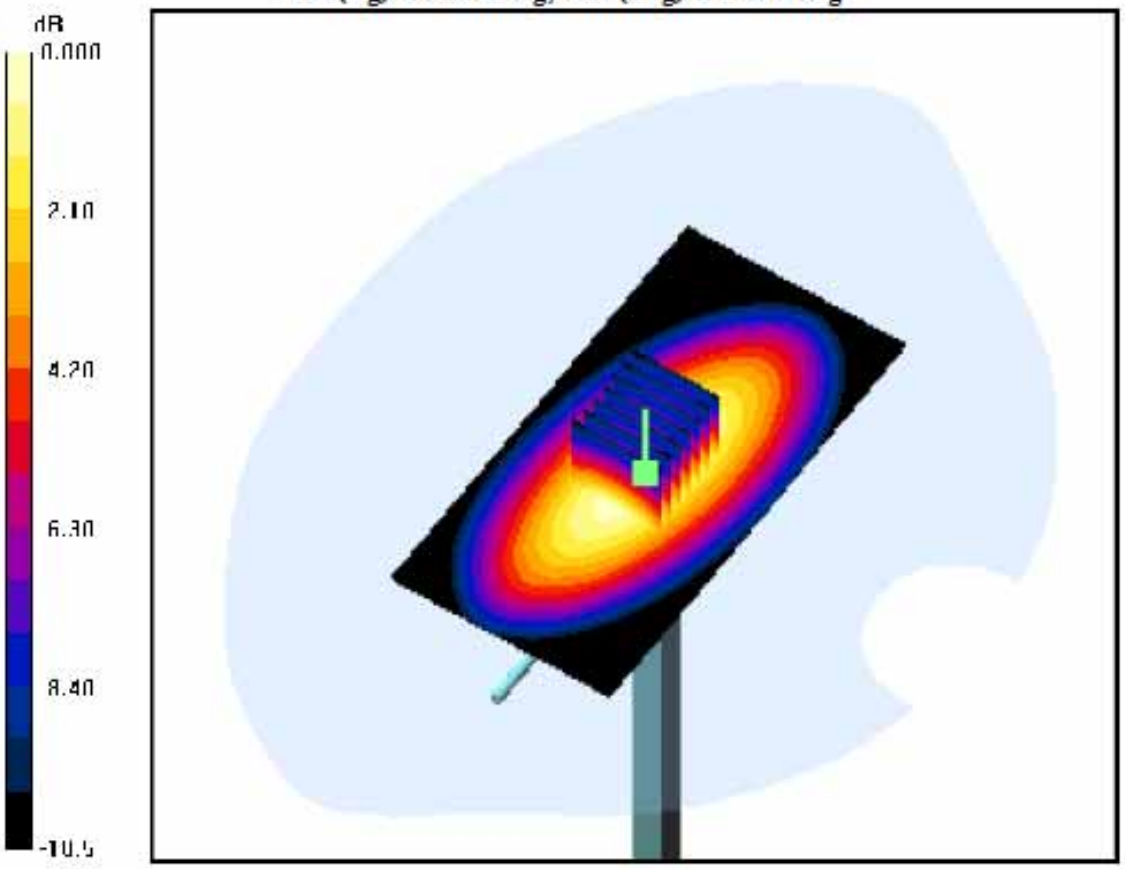
Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used: f = 835 MHz; σ = 0.899 mho/m; ε_r = 41.1; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
Probe: EX3DV4 - SN3643; ConvF(8.59, 8.59, 8.59); Calibrated: 2009-01-14; Electronics: DAE3 Sn479
Phantom: SAM with 835MHz; Type: SAM; Serial: TP-1223
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Test Date: 2010-11-03; Ambient Temp: 22.5; Tissue Temp: 23.0

Dipole Validation

Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Power Drift = -0.002 dB
Peak SAR (extrapolated) = 3.83 W/kg
SAR(1 g) = 2.52 mW/g; SAR(10 g) = 1.65 mW/g



0 dB = 2.72mW/g

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DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d029

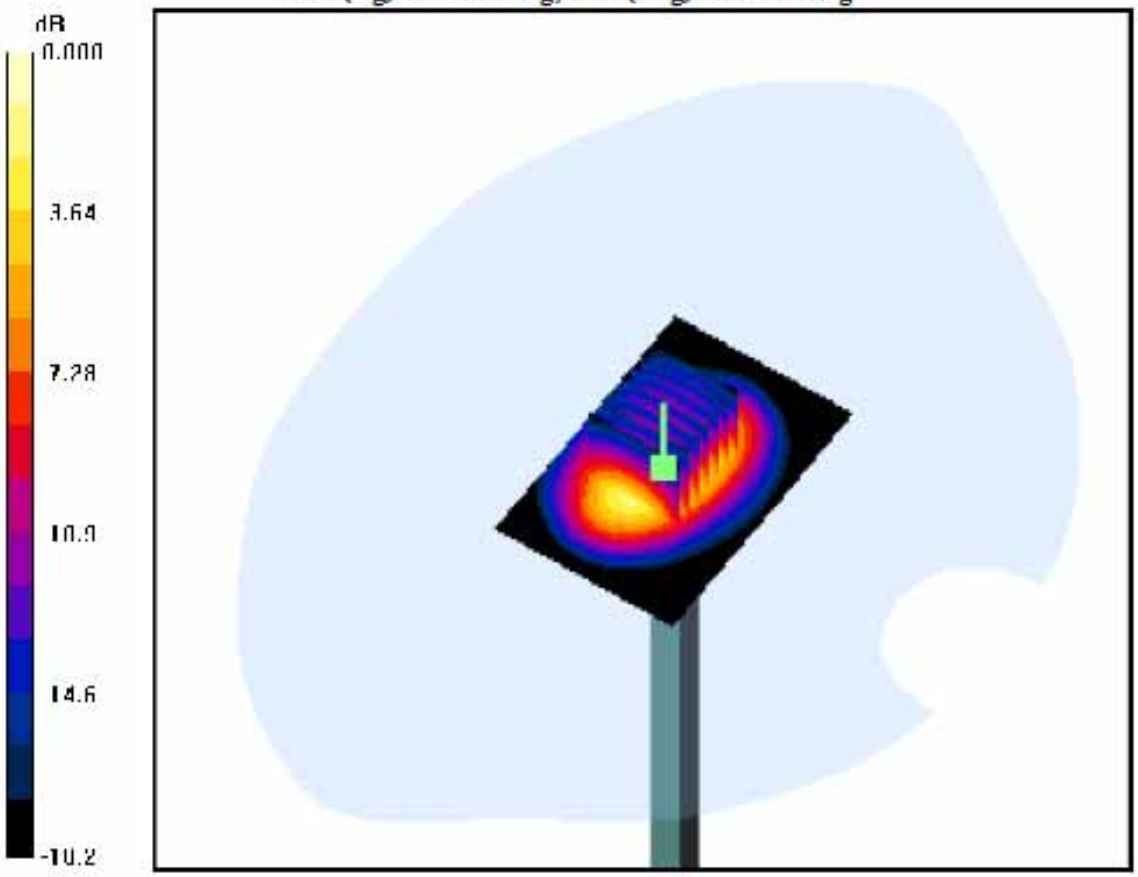
Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.44 mho/m; ε_r = 39.8; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
Probe: EX3DV4 - SN3643; ConvF(7.86, 7.86, 7.86); Calibrated: 2010-01-26; Electronics: DAE3 Sn520
Phantom: SAM 1800/1900 MHz; Type: SAM; Serial: TP-1224
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Test Date: 2010-11-04; Ambient Temp: 22.0; Tissue Temp: 22.5

Dipole Validation

Area Scan (61x91x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Power Drift = 0.056 dB
Peak SAR (extrapolated) = 18.3 W/kg
SAR(1 g) = 9.48 mW/g; SAR(10 g) = 4.77 mW/g



0 dB = 13.1mW/g

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Attachment 2. – SAR Test Plots

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DUT: LG-A175a; Type: Folder

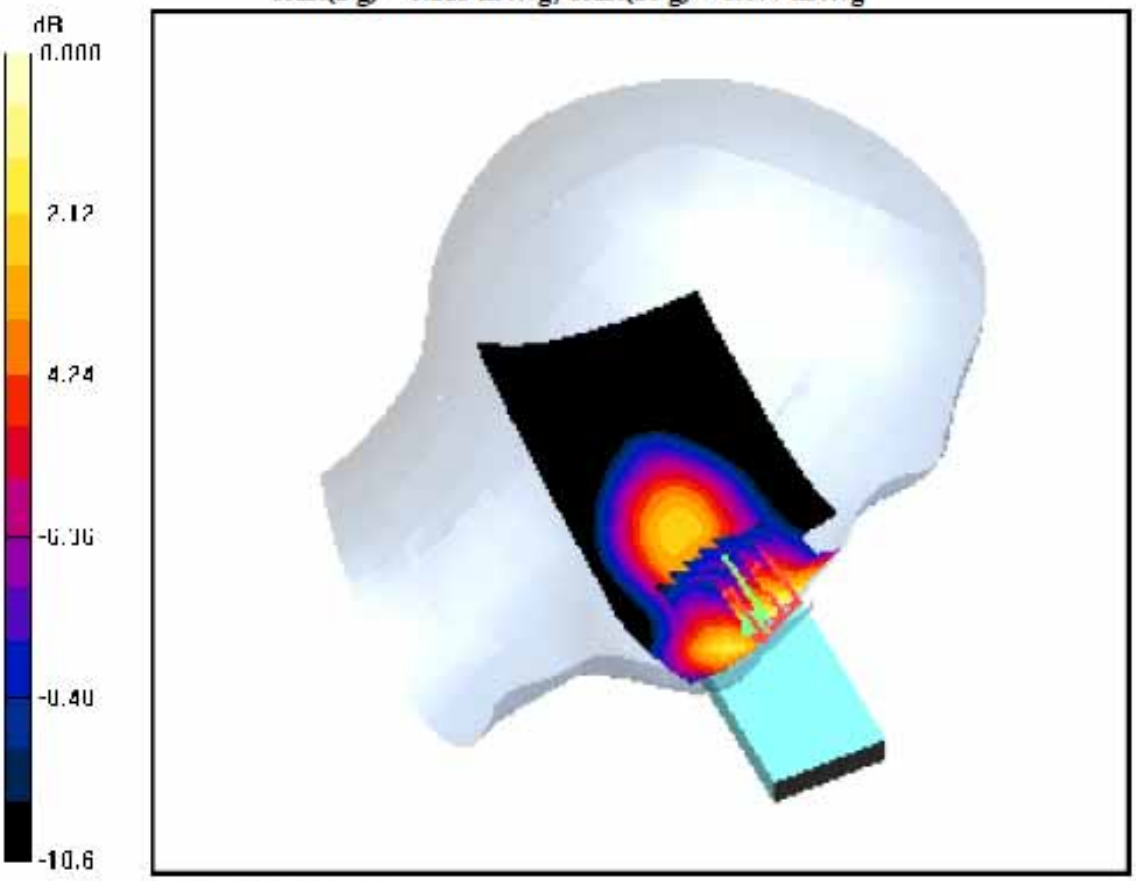
Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 836.6 MHz; σ = 0.9 mho/m; ε_r = 41.1; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY4 Configuration:
Probe: EX3DV4 - SN3643; ConvF(9.41, 9.41, 9.41); Calibrated: 2010-01-26; Electronics: DAE3 Sn520
Phantom: SAM with 835MHz; Type: SAM; Serial: TP-1223
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Date: 2010-11-03; Ambient Temp: 22.5; Tissue Temp:23.0

Left Touch, GSM850 Ch. 190, Ant Internal, Standard Battery

Area Scan (61x161x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Power Drift = 0.127 dB
Peak SAR (extrapolated) = 0.169 W/kg
SAR(1 g) = 0.113 mW/g; SAR(10 g) = 0.077 mW/g



0 dB = 0.131mW/g

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DUT: LG-A175a; Type: Folder

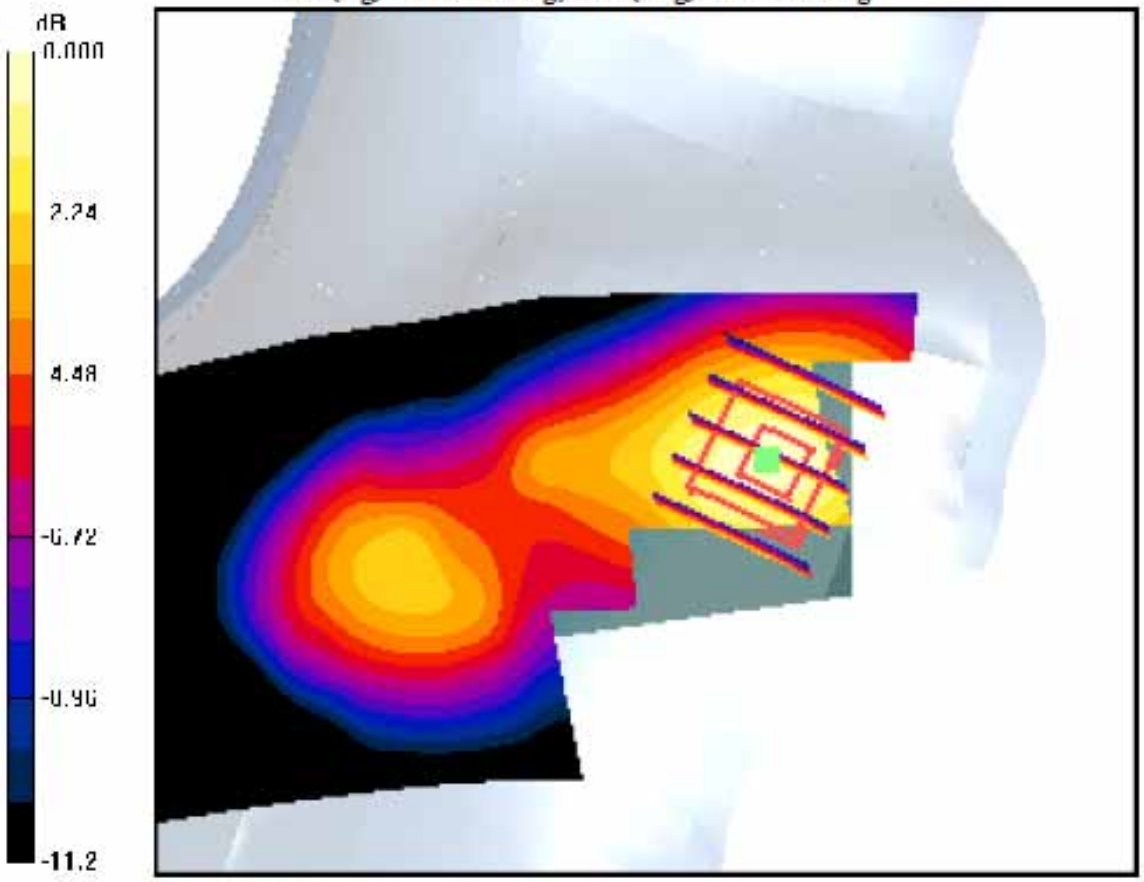
Communication System: GSM 850; Frequency: 824.2 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 824.2 MHz; σ = 0.89 mho/m; ε_r = 41; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY4 Configuration:
Probe: EX3DV4 - SN3643; ConvF(9.41, 9.41, 9.41); Calibrated: 2010-01-26; Electronics: DAE3 Sn520
Phantom: SAM with 835MHz; Type: SAM; Serial: TP-1223
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Date: 2010-11-03; Ambient Temp: 22.5; Tissue Temp:23.0

Right Touch, GSM850 Ch. 128, Ant Internal, Standard Battery

Area Scan (61x161x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Power Drift = 0.338 dB
Peak SAR (extrapolated) = 0.121 W/kg
SAR(1 g) = 0.082 mW/g; SAR(10 g) = 0.055 mW/g



0 dB = 0.099mW/g

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DUT: LG-A175a; Type: Folder

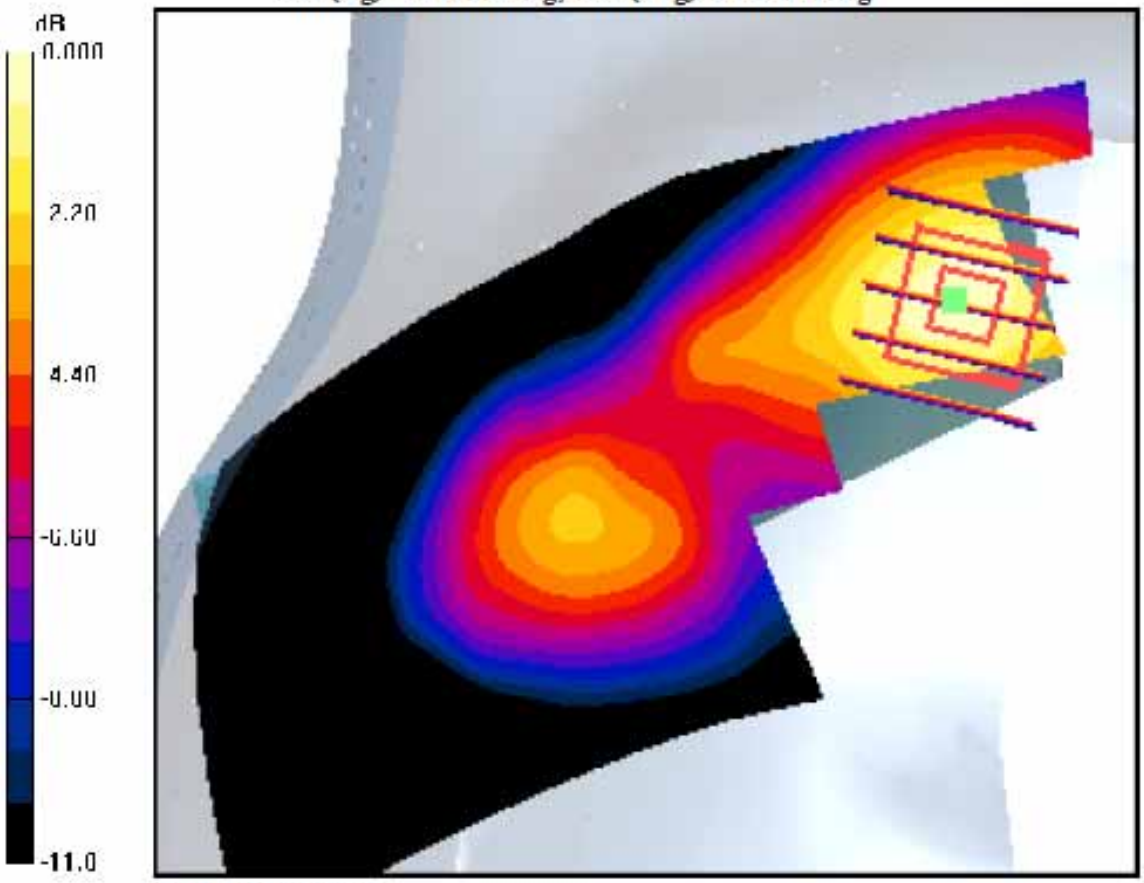
Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 836.6 MHz; σ = 0.9 mho/m; ε_r = 41.1; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY4 Configuration:
Probe: EX3DV4 - SN3643; ConvF(9.41, 9.41, 9.41); Calibrated: 2010-01-26; Electronics: DAE3 Sn520
Phantom: SAM with 835MHz; Type: SAM; Serial: TP-1223
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Date: 2010-11-03; Ambient Temp: 22.5; Tissue Temp:23.0

Right Touch, GSM850 Ch. 190, Ant Internal, Standard Battery

Area Scan (61x161x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Power Drift = 0.341 dB
Peak SAR (extrapolated) = 0.170 W/kg
SAR(1 g) = 0.114 mW/g; SAR(10 g) = 0.076 mW/g



0 dB = 0.139mW/g

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DUT: LG-A175a; Type: Folder

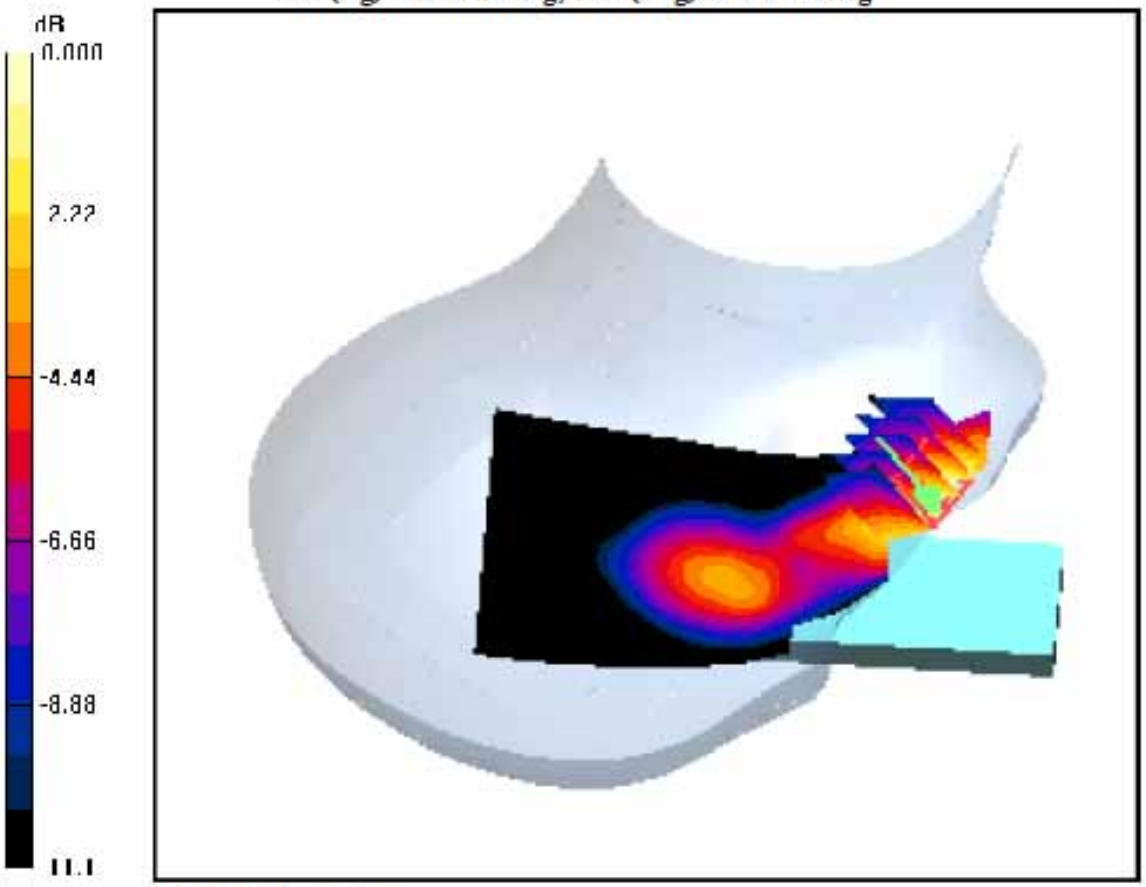
Communication System: GSM 850; Frequency: 848.8 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 848.8 MHz; σ = 0.91 mho/m; ε_r = 41.2; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY4 Configuration:
Probe: EX3DV4 - SN3643; ConvF(9.41, 9.41, 9.41); Calibrated: 2010-01-26; Electronics: DAE3 Sn520
Phantom: SAM with 835MHz; Type: SAM; Serial: TP-1223
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Date: 2010-11-03; Ambient Temp: 22.5; Tissue Temp:23.0

Right Touch, GSM850 Ch. 251, Ant Internal, Standard Battery

Area Scan (61x161x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Power Drift = -0.059 dB
Peak SAR (extrapolated) = 0.300 W/kg
SAR(1 g) = 0.202 mW/g; SAR(10 g) = 0.133 mW/g



0 dB = 0.247mW/g

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DUT: LG-A175a; Type: Folder

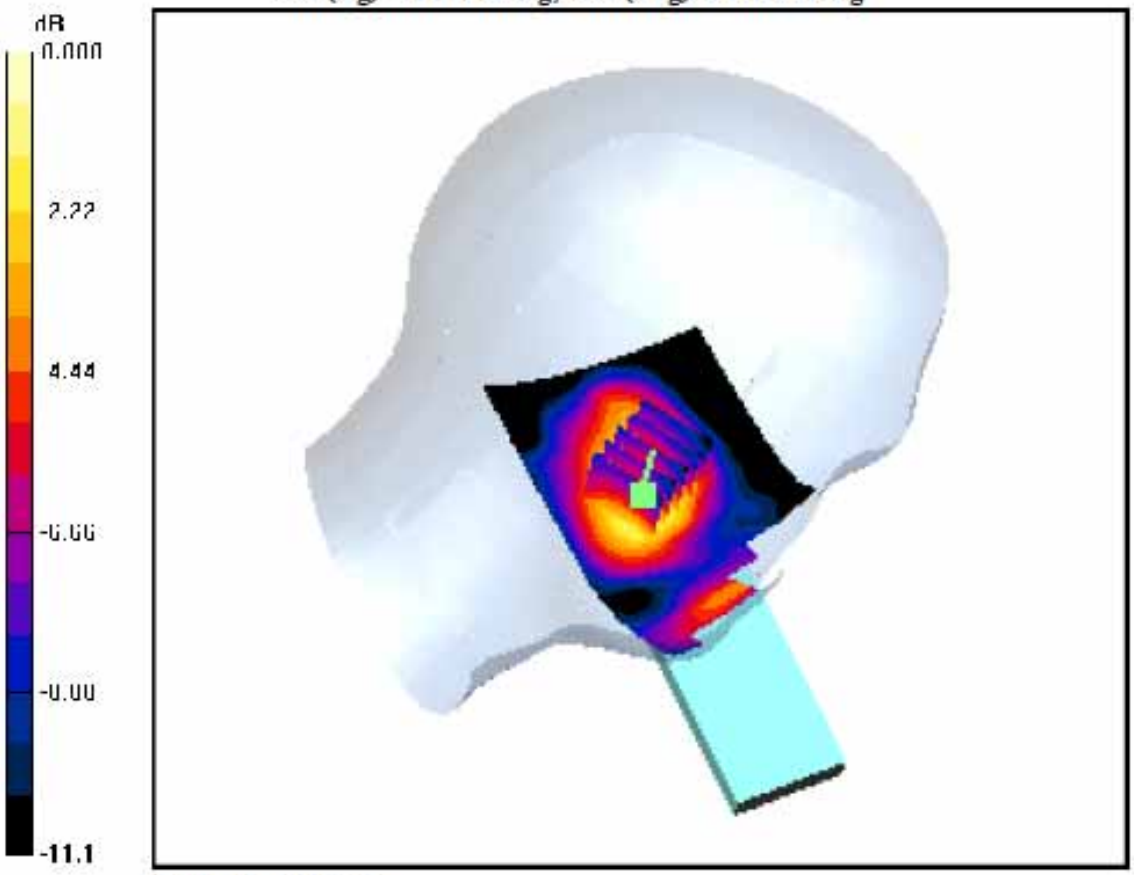
Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 836.6 MHz; σ = 0.9 mho/m; ε_r = 41.1; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY4 Configuration:
Probe: EX3DV4 - SN3643; ConvF(9.41, 9.41, 9.41); Calibrated: 2010-01-26; Electronics: DAE3 Sn520
Phantom: SAM with 835MHz; Type: SAM; Serial: TP-1223
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Date: 2010-11-03; Ambient Temp: 22.5; Tissue Temp:23.0

Left Tilt, GSM850 Ch. 190, Ant Internal, Standard Battery

Area Scan (61x141x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Power Drift = 0.124 dB
Peak SAR (extrapolated) = 0.025 W/kg
SAR(1 g) = 0.017 mW/g; SAR(10 g) = 0.012 mW/g



0 dB = 0.021mW/g

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DUT: LG-A175a; Type: Folder

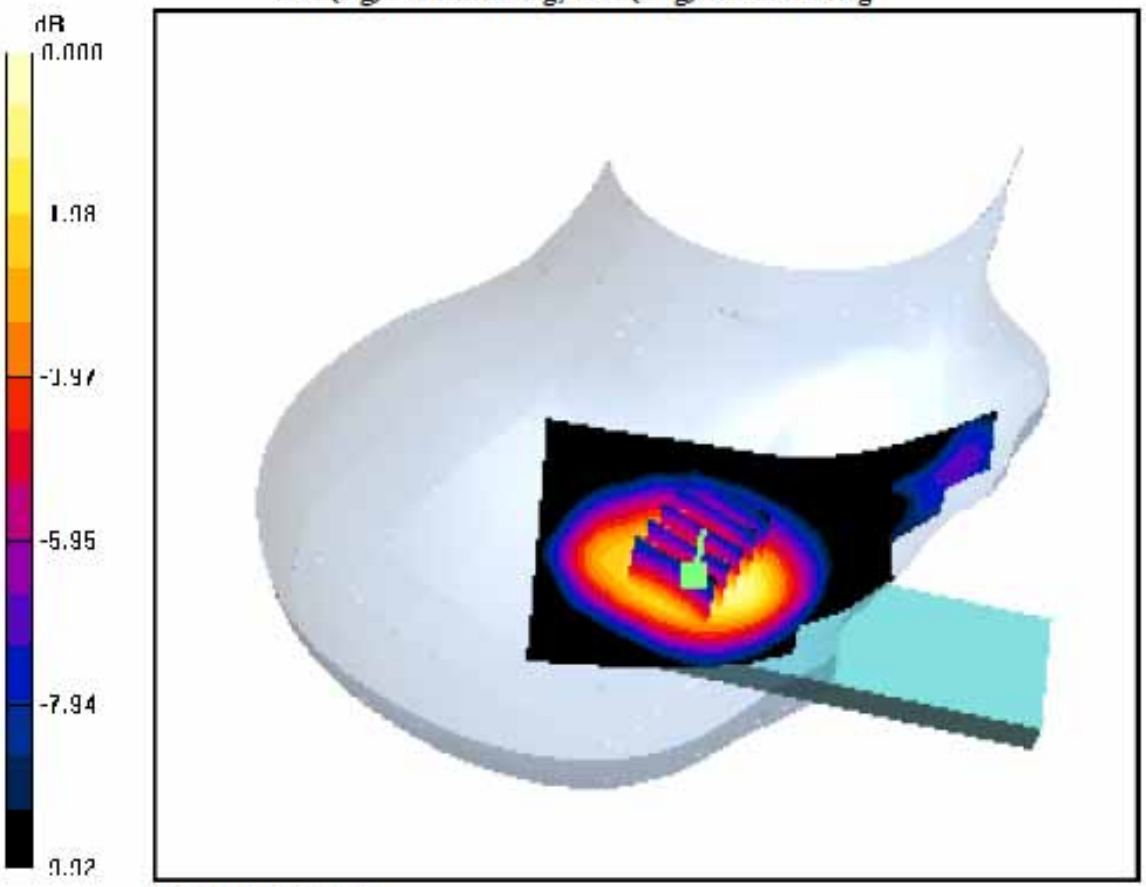
Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 836.6 MHz; σ = 0.9 mho/m; ε_r = 41.1; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY4 Configuration:
Probe: EX3DV4 - SN3643; ConvF(9.41, 9.41, 9.41); Calibrated: 2010-01-26; Electronics: DAE3 Sn520
Phantom: SAM with 835MHz; Type: SAM; Serial: TP-1223
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Date: 2010-11-03; Ambient Temp: 22.5; Tissue Temp:23.0

Right Tilt, GSM850 Ch. 190, Ant Internal, Standard Battery

Area Scan (61x131x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Power Drift = 0.245 dB
Peak SAR (extrapolated) = 0.041 W/kg
SAR(1 g) = 0.030 mW/g; SAR(10 g) = 0.021 mW/g



0 dB = 0.035mW/g

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DUT: LG-A175a; Type: Folder

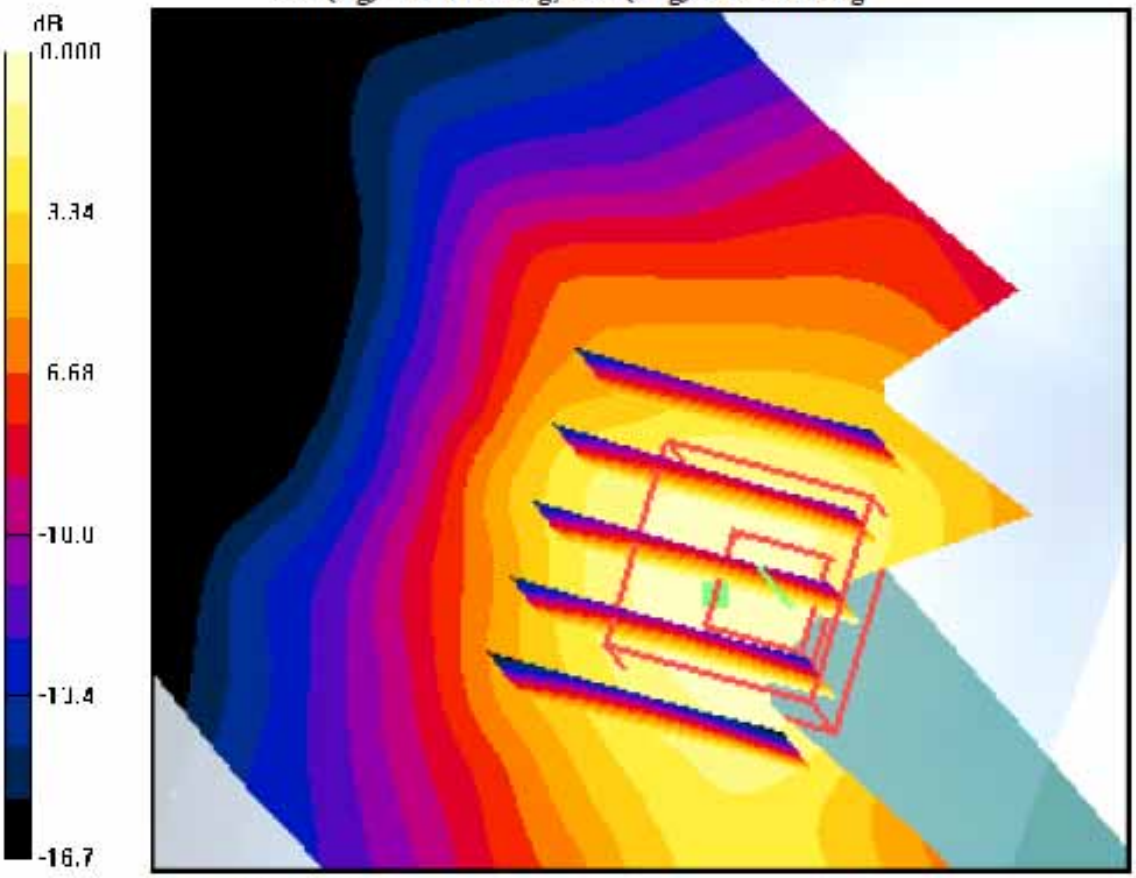
Communication System: PCS1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1880 MHz; σ = 1.43 mho/m; ε_r = 39.7; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY4 Configuration:
Probe: EX3DV4 - SN3643; ConvF(7.86, 7.86, 7.86); Calibrated: 2010-01-26; Electronics: DAE3 Sn520
Phantom: SAM 1800/1900 MHz; Type: SAM; Serial: TP-1224
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Date: 2010-11-04; Ambient Temp: 22.0; Tissue Temp:22.5

Left Touch, PCS1900 Ch. 661, Ant Internal, Standard Battery

Area Scan (61x141x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Power Drift = 0.133 dB
Peak SAR (extrapolated) = 0.343 W/kg
SAR(1 g) = 0.241 mW/g; SAR(10 g) = 0.154 mW/g



0 dB = 0.289mW/g

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DUT: LG-A175a; Type: Folder

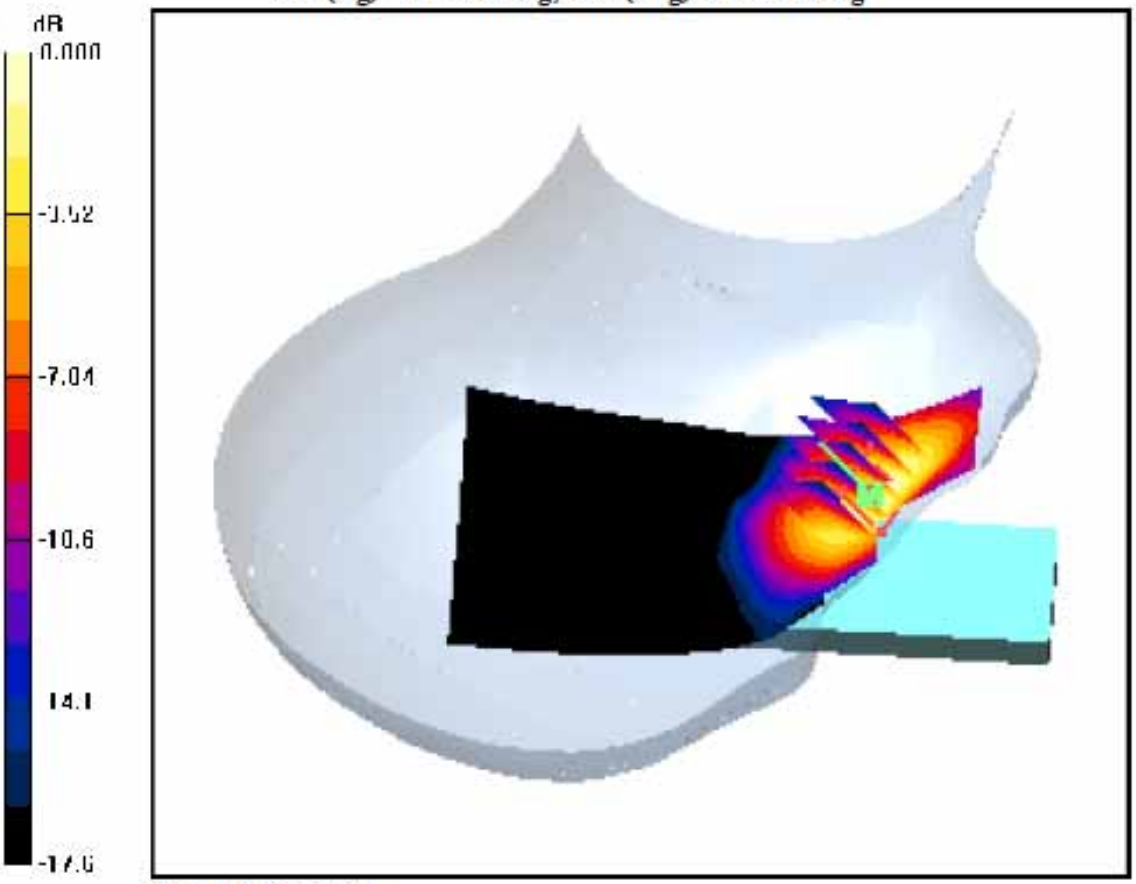
Communication System: PCS1900; Frequency: 1850.2 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1850.2 MHz; σ = 1.42 mho/m; ε_r = 39.6; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY4 Configuration:
Probe: EX3DV4 - SN3643; ConvF(7.86, 7.86, 7.86); Calibrated: 2010-01-26; Electronics: DAE3 Sn520
Phantom: SAM 1800/1900 MHz; Type: SAM; Serial: TP-1224
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Date: 2010-11-04; Ambient Temp: 22.0; Tissue Temp:22.5

Right Touch, PCS1900 Ch. 512, Ant Internal, Standard Battery

Area Scan (61x141x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Power Drift = -0.125 dB
Peak SAR (extrapolated) = 1.00 W/kg
SAR(1 g) = 0.656 mW/g; SAR(10 g) = 0.391 mW/g



0 dB = 0.803mW/g

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DUT: LG-A175a; Type: Folder

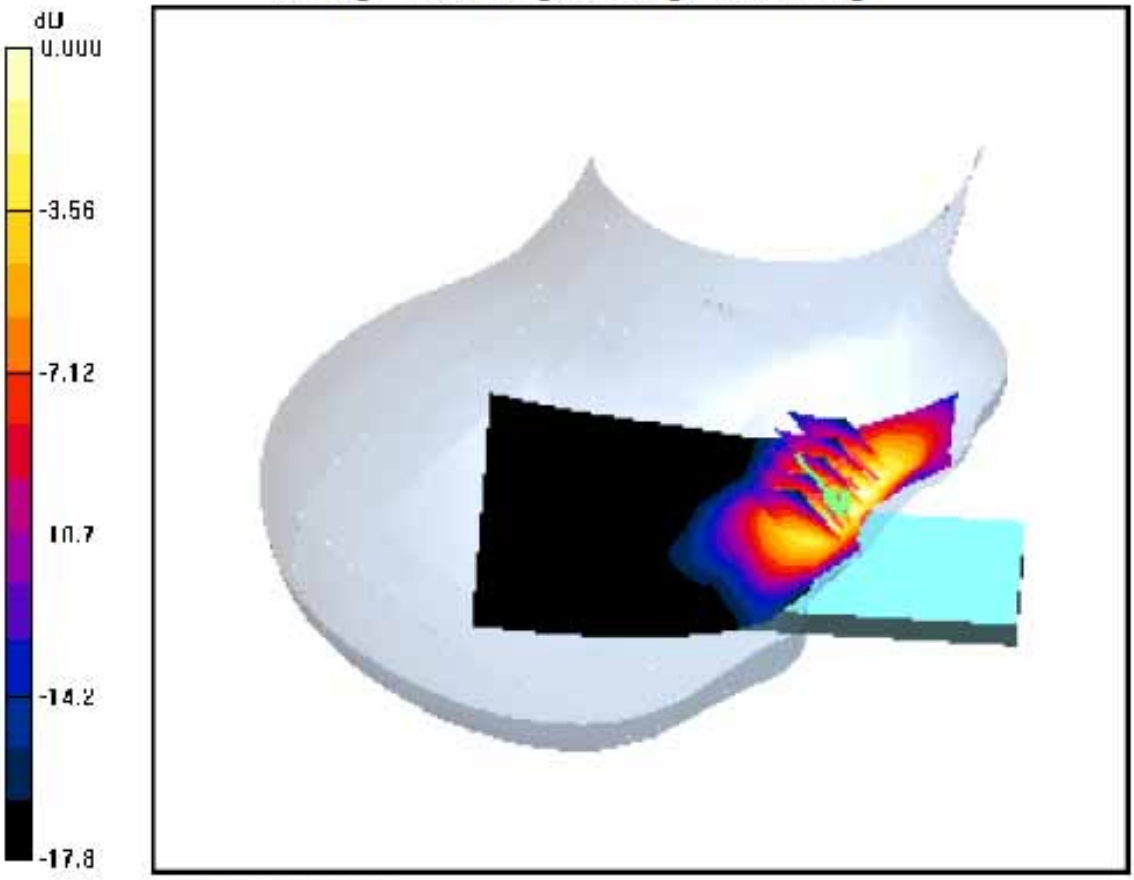
Communication System: PCS1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1880 MHz; σ = 1.43 mho/m; ε_r = 39.7; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY4 Configuration:
Probe: EX3DV4 - SN3643; ConvF(7.86, 7.86, 7.86); Calibrated: 2010-01-26; Electronics: DAE3 Sn520
Phantom: SAM 1800/1900 MHz; Type: SAM; Serial: TP-1224
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Date: 2010-11-04; Ambient Temp: 22.0; Tissue Temp:22.5

Right Touch, PCS1900 Ch. 661, Ant Internal, Standard Battery

Area Scan (61x141x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Power Drift = -0.341 dB
Peak SAR (extrapolated) = 0.912 W/kg
SAR(1 g) = 0.603 mW/g; SAR(10 g) = 0.359 mW/g



0 dB = 0.735mW/g

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DUT: LG-A175a; Type: Folder

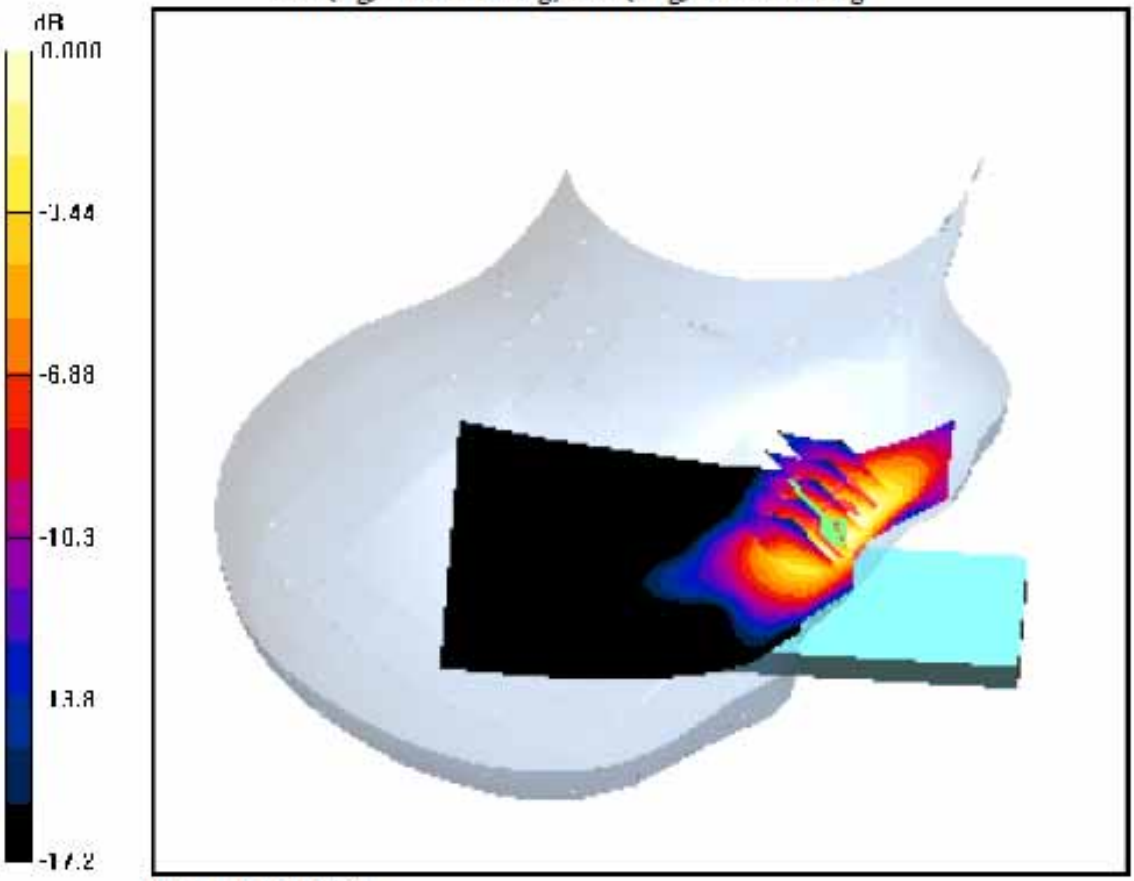
Communication System: PCS1900; Frequency: 1909.8 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1909.8 MHz; σ = 1.45 mho/m; ε_r = 39.9; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY4 Configuration:
Probe: EX3DV4 - SN3643; ConvF(7.86, 7.86, 7.86); Calibrated: 2010-01-26; Electronics: DAE3 Sn520
Phantom: SAM 1800/1900 MHz; Type: SAM; Serial: TP-1224
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Date: 2010-11-04; Ambient Temp: 22.0; Tissue Temp:22.5

Right Touch, PCS1900 Ch. 810, Ant Internal, Standard Battery

Area Scan (61x141x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Power Drift = 0.014 dB
Peak SAR (extrapolated) = 0.878 W/kg
SAR(1 g) = 0.575 mW/g; SAR(10 g) = 0.343 mW/g



0 dB = 0.705mW/g

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DUT: LG-A175a; Type: Folder

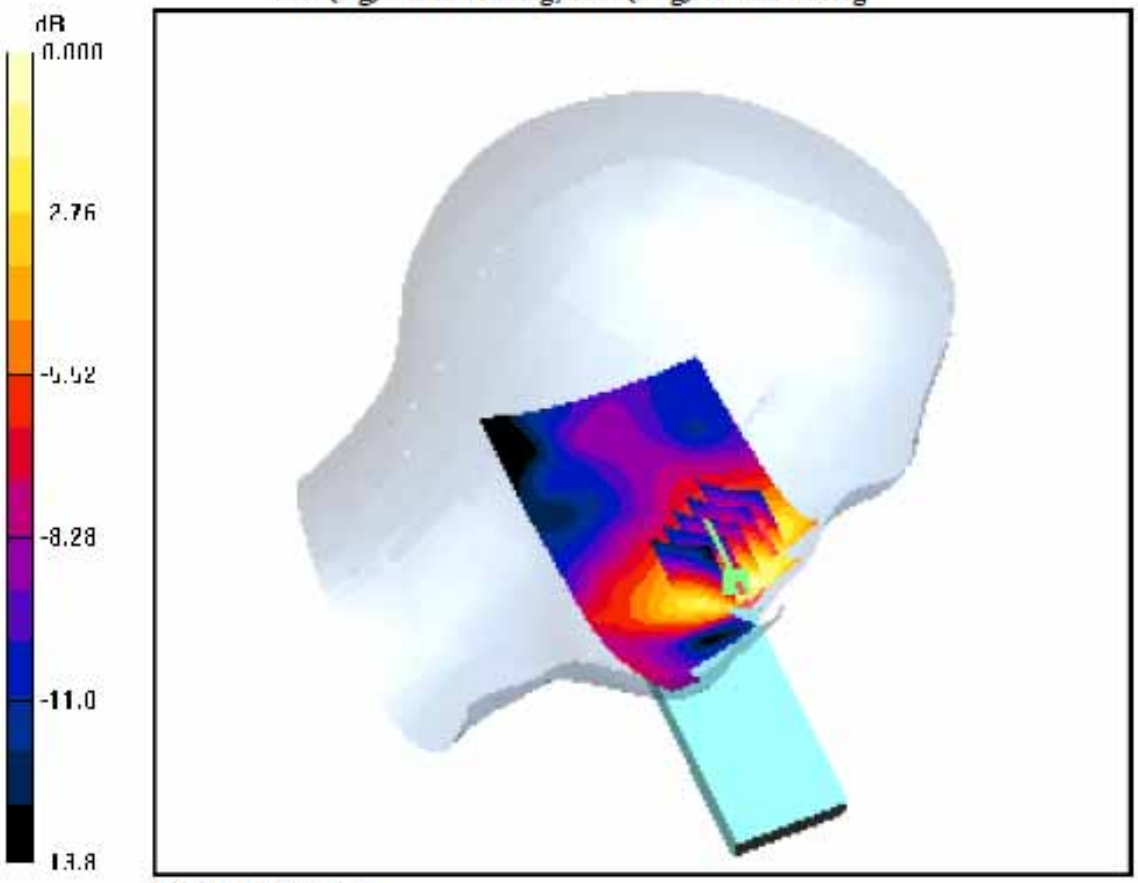
Communication System: PCS1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1880 MHz; σ = 1.43 mho/m; ε_r = 39.7; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY4 Configuration:
Probe: EX3DV4 - SN3643; ConvF(7.86, 7.86, 7.86); Calibrated: 2010-01-26; Electronics: DAE3 Sn520
Phantom: SAM 1800/1900 MHz; Type: SAM; Serial: TP-1224
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Date: 2010-11-04; Ambient Temp: 22.0; Tissue Temp:22.5

Left Tilt, PCS1900 Ch. 661, Ant Internal, Standard Battery

Area Scan (61x141x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Power Drift = -0.157 dB
Peak SAR (extrapolated) = 0.061 W/kg
SAR(1 g) = 0.041 mW/g; SAR(10 g) = 0.027 mW/g



0 dB = 0.050mW/g

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DUT: LG-A175a; Type: Folder

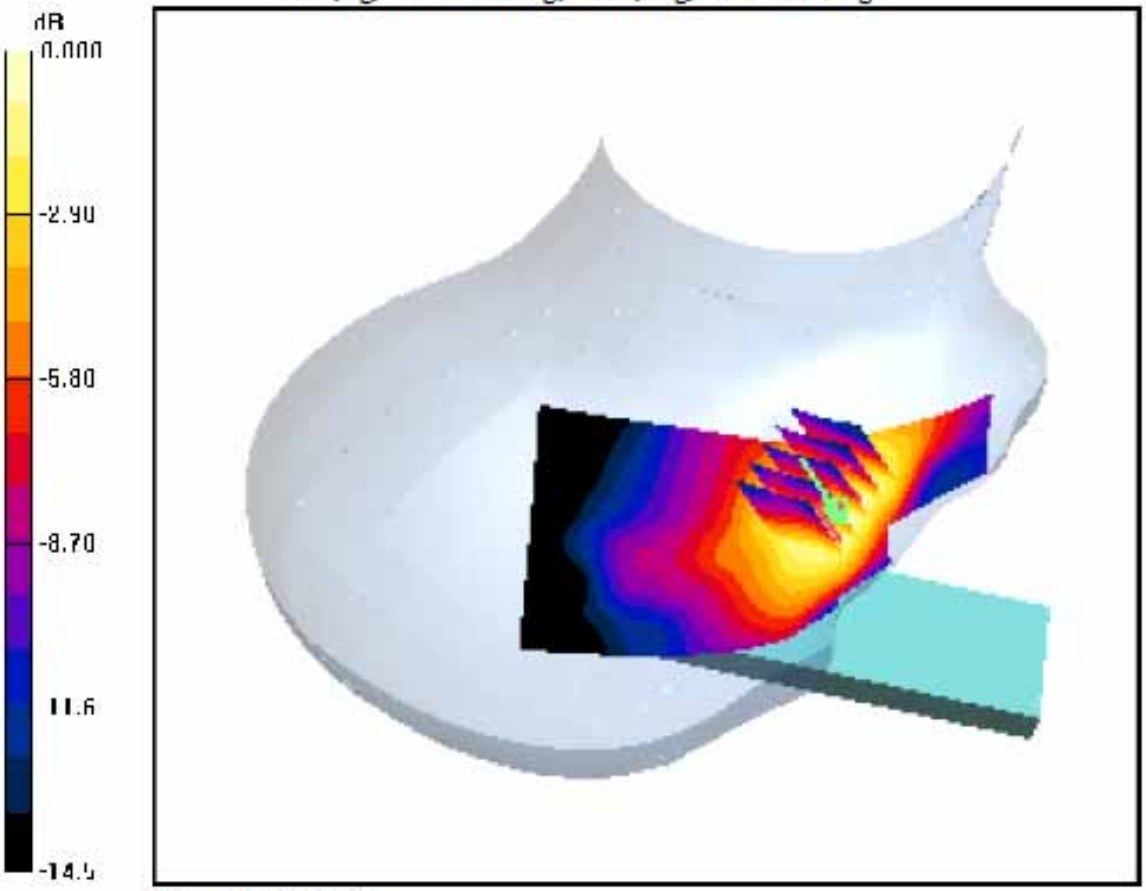
Communication System: PCS1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1880 MHz; σ = 1.43 mho/m; ε_r = 39.7; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY4 Configuration:
Probe: EX3DV4 - SN3643; ConvF(7.86, 7.86, 7.86); Calibrated: 2010-01-26; Electronics: DAE3 Sn520
Phantom: SAM 1800/1900 MHz; Type: SAM; Serial: TP-1224
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Date: 2010-11-04; Ambient Temp: 22.0; Tissue Temp:22.5

Right Tilt, PCS1900 Ch. 661, Ant Internal, Standard Battery

Area Scan (61x131x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Power Drift = 0.131 dB
Peak SAR (extrapolated) = 0.075 W/kg
SAR(1 g) = 0.051 mW/g; SAR(10 g) = 0.032 mW/g



0 dB = 0.061mW/g

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DUT: LG-A175a; Type: Folder

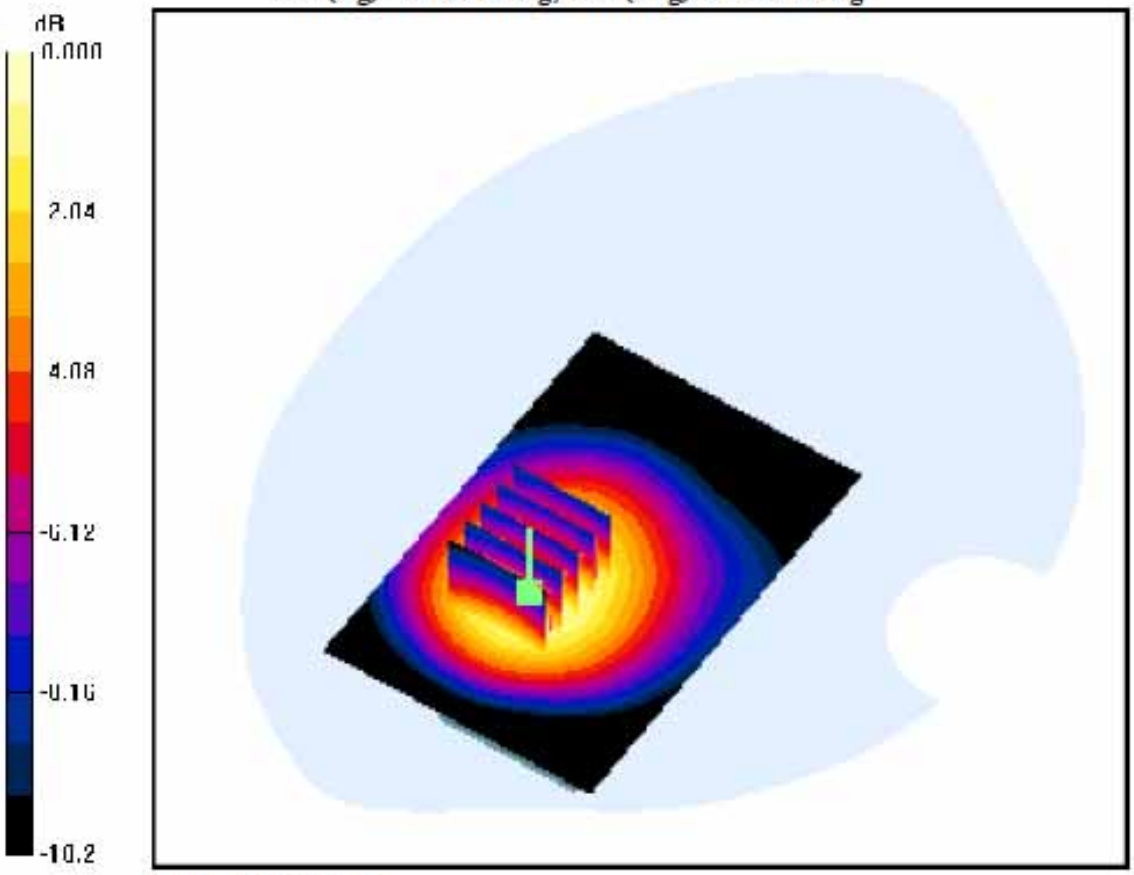
Communication System: GSM 850; Frequency: 824.2 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 824.2 MHz; σ = 0.957 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
Probe: EX3DV4 - SN3643; ConvF(9.31, 9.31, 9.31); Calibrated: 2010-01-26; Electronics: DAE3 Sn520
Phantom: SAM with 835MHz; Type: SAM; Serial: TP-1223
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Test Date: 2010-11-03; Ambient Temp: 22.5; Tissue Temp: 23.0

2cm space from Body, Rear, GSM850 Ch. 128, Ant Internal, Standard Battery

Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Power Drift = 0.225 dB
Peak SAR (extrapolated) = 0.160 W/kg
SAR(1 g) = 0.117 mW/g; SAR(10 g) = 0.082 mW/g



0 dB = 0.136mW/g

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DUT: LG-A175a; Type: Folder

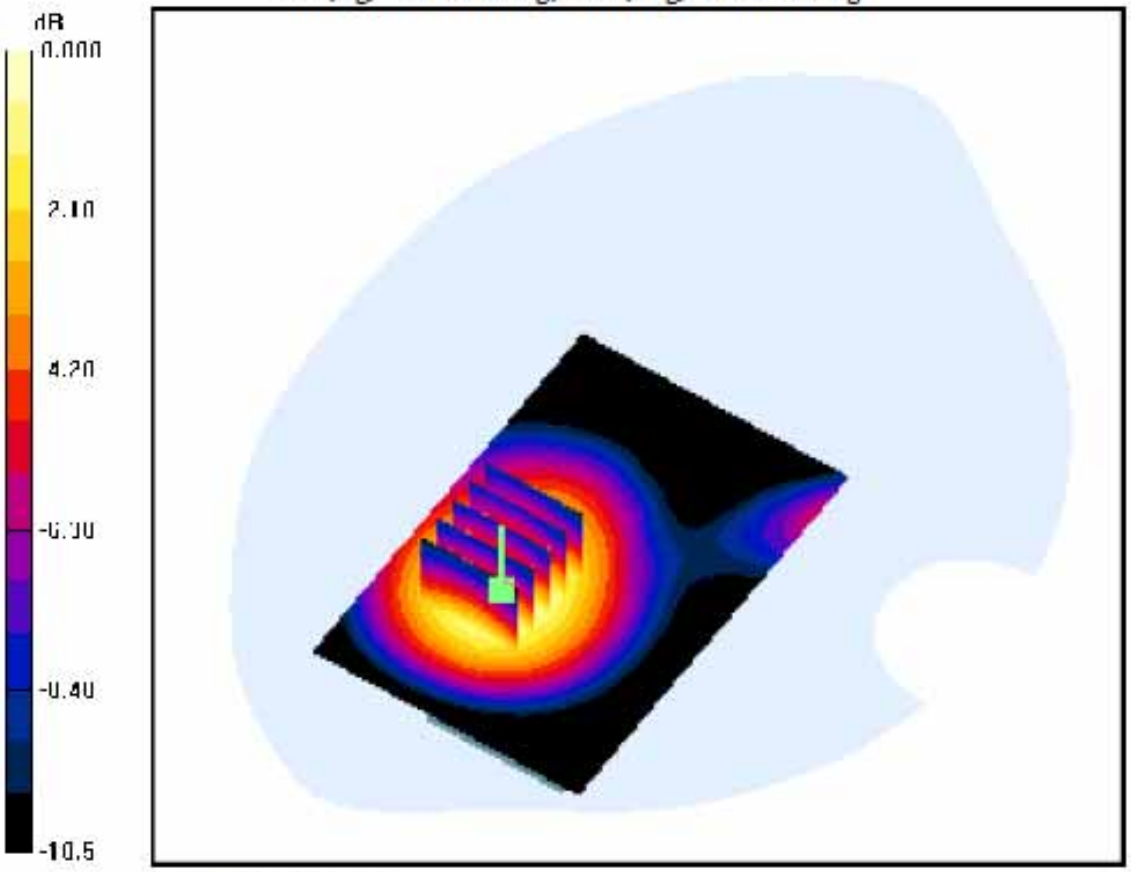
Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 836.6 MHz; σ = 0.959 mho/m; ε_r = 55; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
Probe: EX3DV4 - SN3643; ConvF(9.31, 9.31, 9.31); Calibrated: 2010-01-26; Electronics: DAE3 Sn520
Phantom: SAM with 835MHz; Type: SAM; Serial: TP-1223
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Test Date: 2010-11-03; Ambient Temp: 22.5; Tissue Temp: 23.0

2cm space from Body, Rear, GSM850 Ch. 190, Ant Internal, Standard Battery

Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Power Drift = -0.104 dB
Peak SAR (extrapolated) = 0.184 W/kg
SAR(1 g) = 0.133 mW/g; SAR(10 g) = 0.093 mW/g



0 dB = 0.156mW/g

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DUT: LG-A175a; Type: Folder

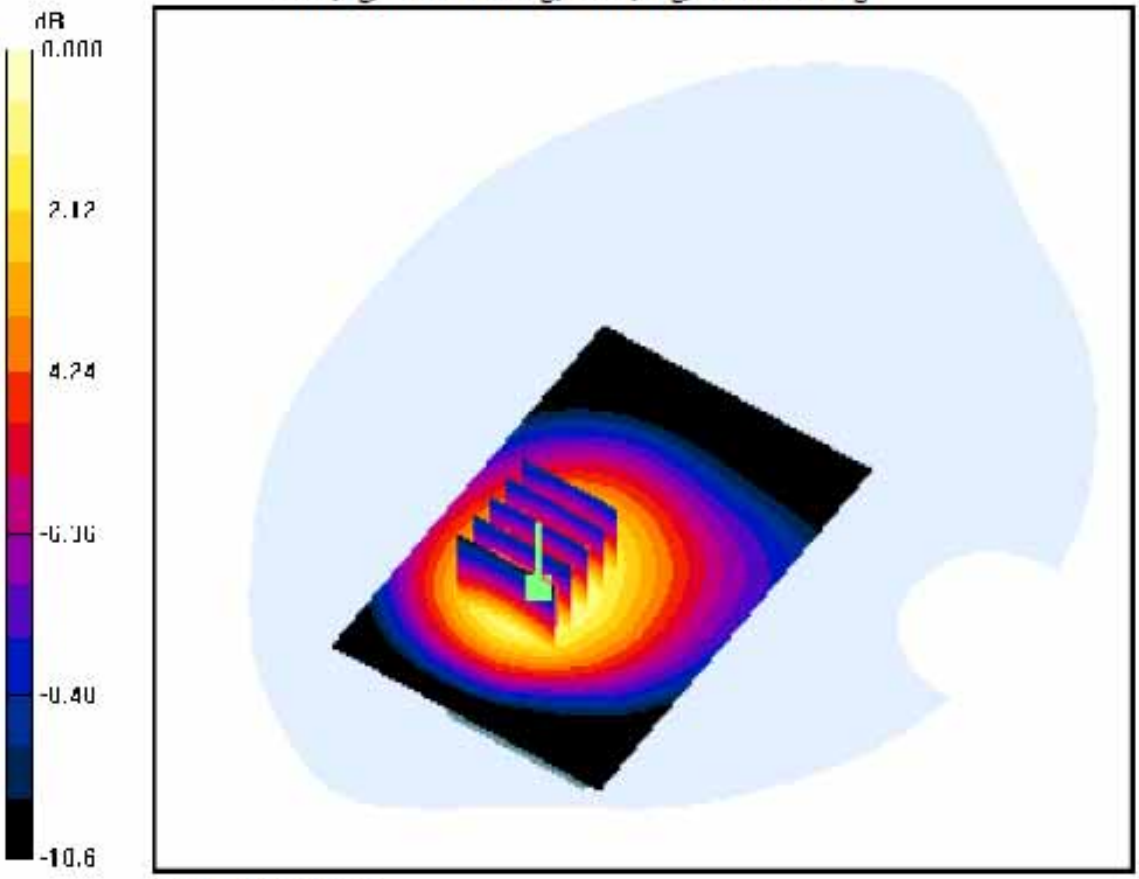
Communication System: GSM 850; Frequency: 848.8 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 848.8 MHz; σ = 0.961 mho/m; ε_r = 55.1; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
Probe: EX3DV4 - SN3643; ConvF(9.31, 9.31, 9.31); Calibrated: 2010-01-26; Electronics: DAE3 Sn520
Phantom: SAM with 835MHz; Type: SAM; Serial: TP-1223
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Test Date: 2010-11-03; Ambient Temp: 22.5; Tissue Temp: 23.0

2cm space from Body, Rear, GSM850 Ch. 251, Ant Internal, Standard Battery

Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Power Drift = 0.070 dB
Peak SAR (extrapolated) = 0.333 W/kg
SAR(1 g) = 0.238 mW/g; SAR(10 g) = 0.165 mW/g



0 dB = 0.281mW/g

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DUT: LG-A175a; Type: Folder

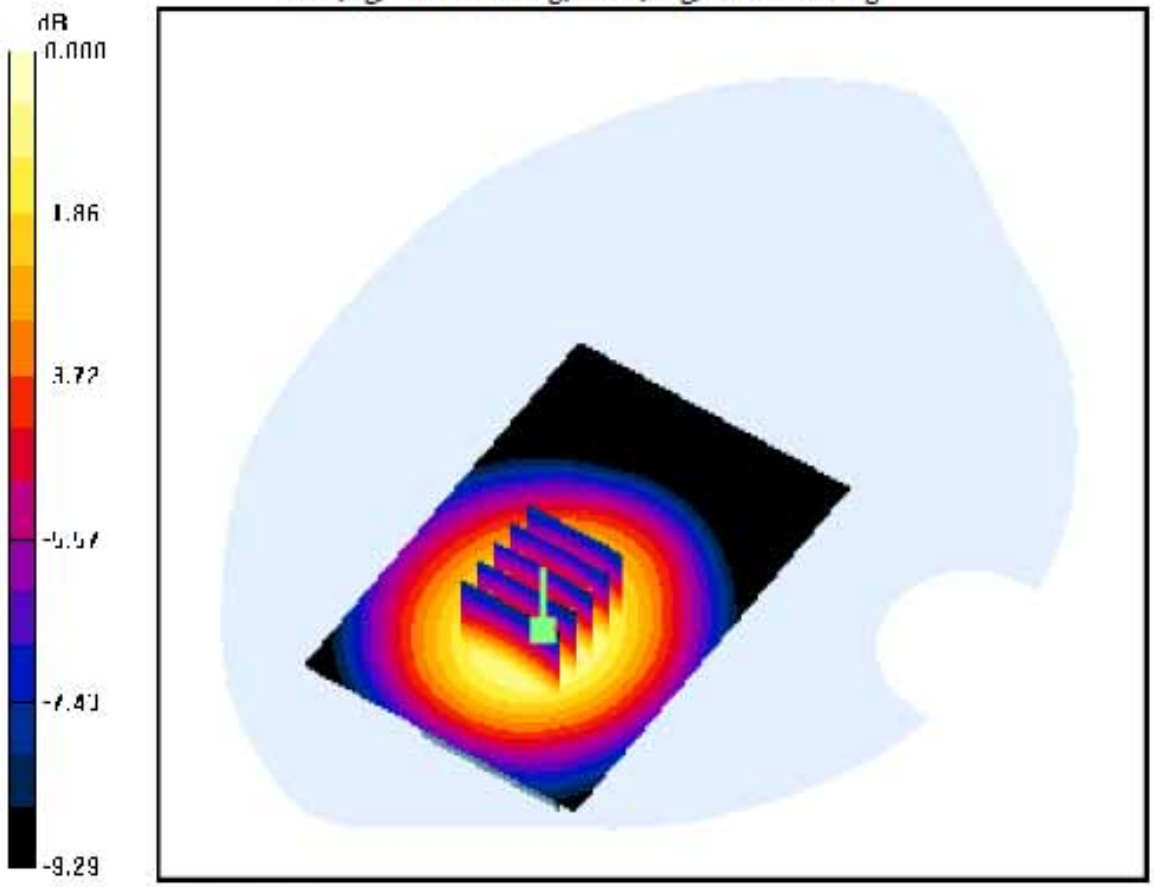
Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 836.6 MHz; σ = 0.959 mho/m; ε_r = 55; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
Probe: EX3DV4 - SN3643; ConvF(9.31, 9.31, 9.31); Calibrated: 2010-01-26; Electronics: DAE3 Sn520
Phantom: SAM with 835MHz; Type: SAM; Serial: TP-1223
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Test Date: 2010-11-03; Ambient Temp: 22.5; Tissue Temp: 23.0

2cm space from Body, Front, GSM850 Ch. 190, Ant Internal, Standard Battery

Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Power Drift = 0.285 dB
Peak SAR (extrapolated) = 0.134 W/kg
SAR(1 g) = 0.101 mW/g; SAR(10 g) = 0.073 mW/g



0 dB = 0.116mW/g

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DUT: LG-A175a; Type: Folder

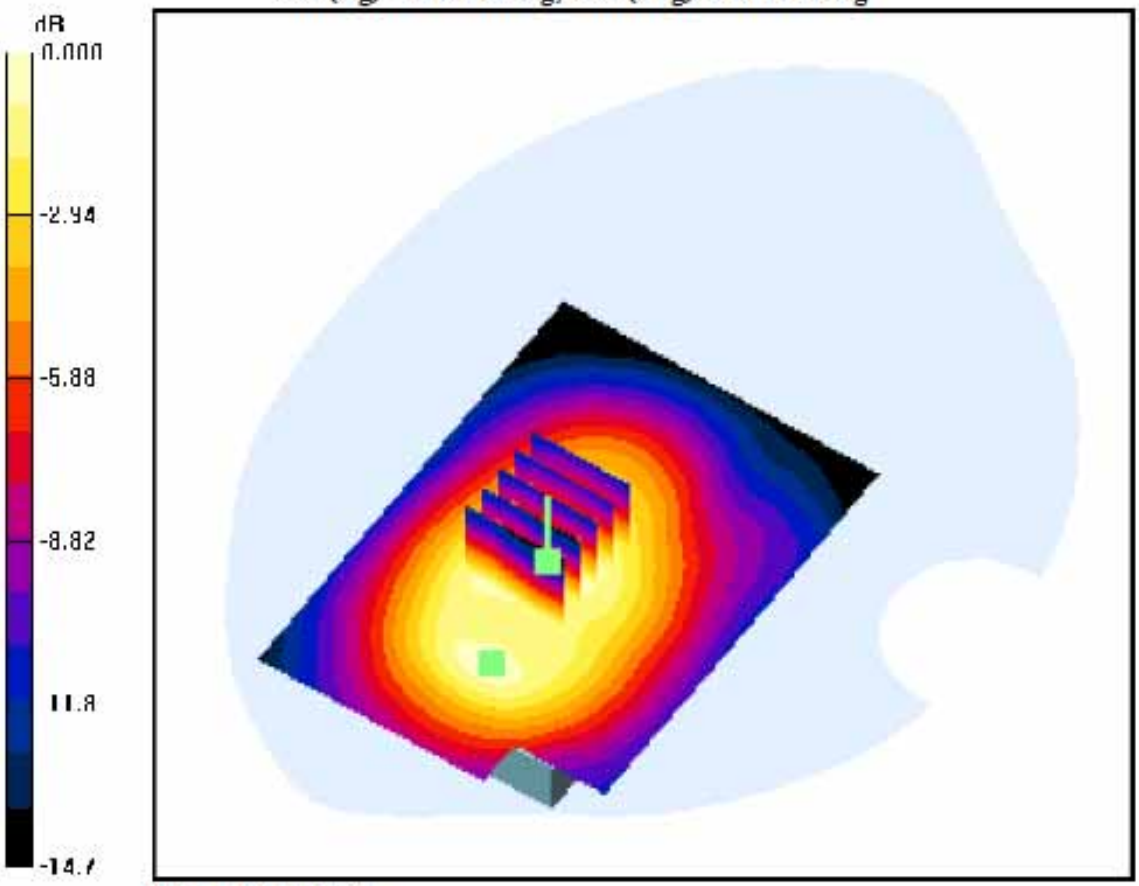
Communication System: PCS1900; Frequency: 1850.2 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1850.2 MHz; σ = 1.5 mho/m; ε_r = 53.3; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
Probe: EX3DV4 - SN3643; ConvF(7.59, 7.59, 7.59); Calibrated: 2010-01-26; Electronics: DAE3 Sn520
Phantom: SAM 1800/1900 MHz; Type: SAM; Serial: TP-1224
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Test Date: 2010-11-04; Ambient Temp: 22.0; Tissue Temp: 22.5

2cm space from Body, Rear, PCS1900 Ch. 512, Ant Internal, Standard Battery

Area Scan (71x101x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Power Drift = -0.013 dB
Peak SAR (extrapolated) = 0.283 W/kg
SAR(1 g) = 0.178 mW/g; SAR(10 g) = 0.111 mW/g



0 dB = 0.217mW/g

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DUT: LG-A175a; Type: Folder

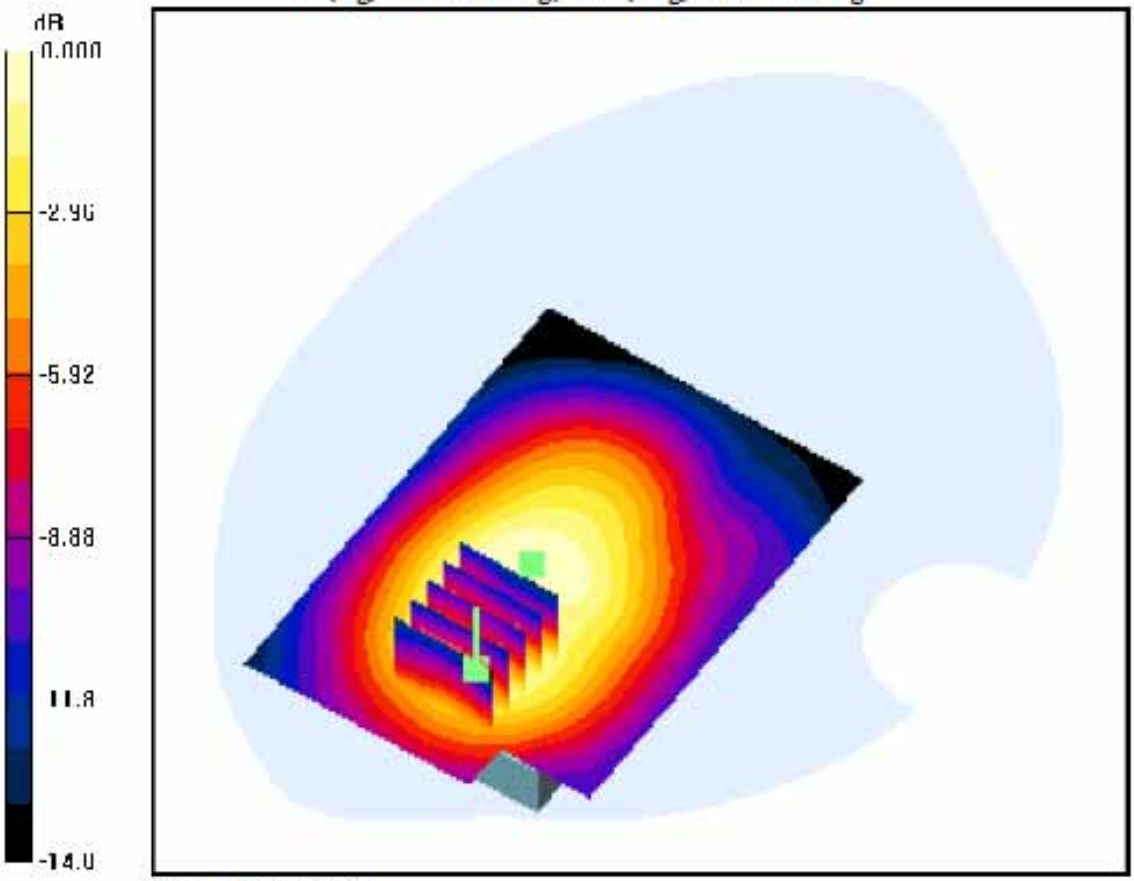
Communication System: PCS1900; Frequency: 1850.2 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1850.2 MHz; σ = 1.5 mho/m; ε_r = 53.3; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
Probe: EX3DV4 - SN3643; ConvF(7.59, 7.59, 7.59); Calibrated: 2010-01-26; Electronics: DAE3 Sn520
Phantom: SAM 1800/1900 MHz; Type: SAM; Serial: TP-1224
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Test Date: 2010-11-04; Ambient Temp: 22.0; Tissue Temp: 22.5

2cm space from Body, Rear, PCS1900 Ch. 512, Ant Internal, Standard Battery

Area Scan (71x101x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Power Drift = -0.013 dB
Peak SAR (extrapolated) = 0.259 W/kg
SAR(1 g) = 0.169 mW/g; SAR(10 g) = 0.103 mW/g



0 dB = 0.209mW/g

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DUT: LG-A175a; Type: Folder

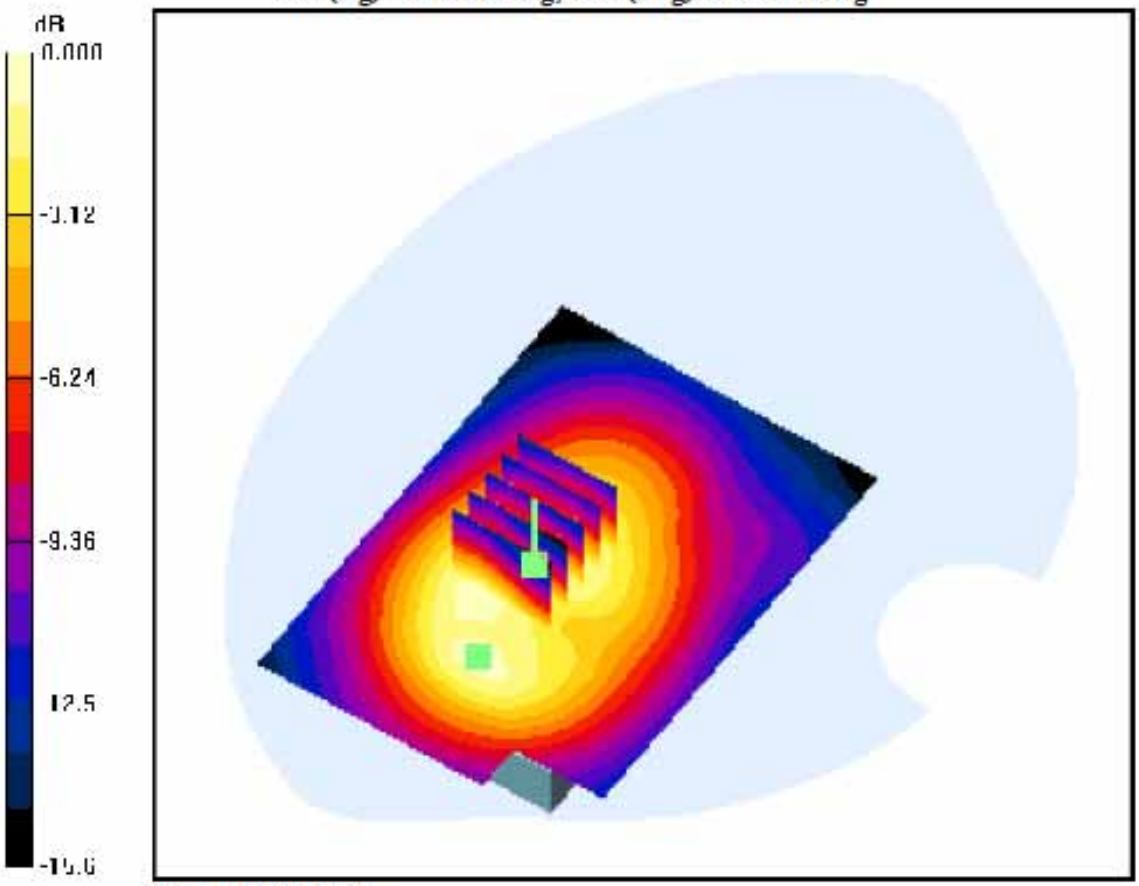
Communication System: PCS1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1880 MHz; σ = 1.51 mho/m; ε_r = 53.4; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
Probe: EX3DV4 - SN3643; ConvF(7.59, 7.59, 7.59); Calibrated: 2010-01-26; Electronics: DAE3 Sn520
Phantom: SAM 1800/1900 MHz; Type: SAM; Serial: TP-1224
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Test Date: 2010-11-04; Ambient Temp: 22.0; Tissue Temp: 22.5

2cm space from Body, Rear, PCS1900 Ch. 661, Ant Internal, Standard Battery

Area Scan (71x101x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Power Drift = 0.078 dB
Peak SAR (extrapolated) = 0.309 W/kg
SAR(1 g) = 0.195 mW/g; SAR(10 g) = 0.120 mW/g



0 dB = 0.240mW/g

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DIGITAL EMC CO., LTD

DUT: LG-A175a; Type: Folder

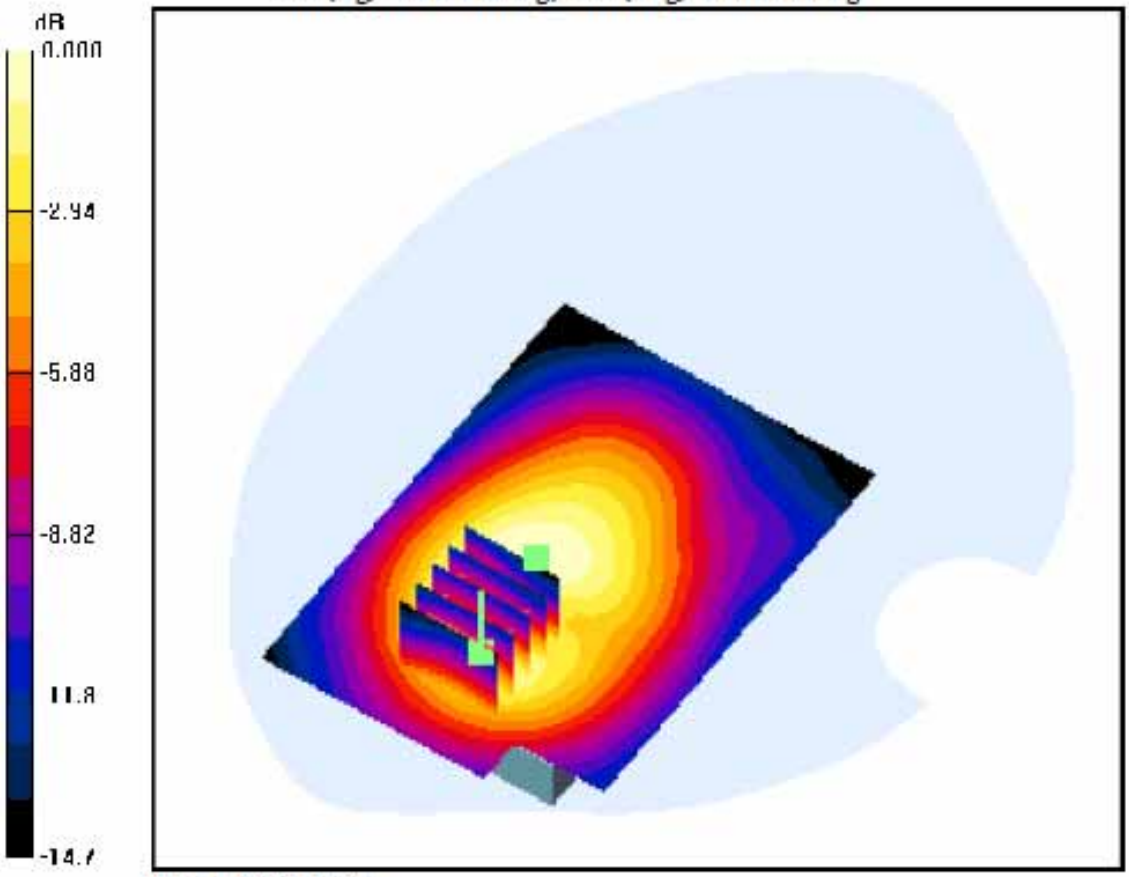
Communication System: PCS1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1880 MHz; σ = 1.51 mho/m; ε_r = 53.4; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
Probe: EX3DV4 - SN3643; ConvF(7.59, 7.59, 7.59); Calibrated: 2010-01-26; Electronics: DAE3 Sn520
Phantom: SAM 1800/1900 MHz; Type: SAM; Serial: TP-1224
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Test Date: 2010-11-04; Ambient Temp: 22.0; Tissue Temp: 22.5

2cm space from Body, Rear, PCS1900 Ch. 661, Ant Internal, Standard Battery

Area Scan (71x101x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Power Drift = 0.078 dB
Peak SAR (extrapolated) = 0.280 W/kg
SAR(1 g) = 0.178 mW/g; SAR(10 g) = 0.107 mW/g



0 dB = 0.226mW/g

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DUT: LG-A175a; Type: Folder

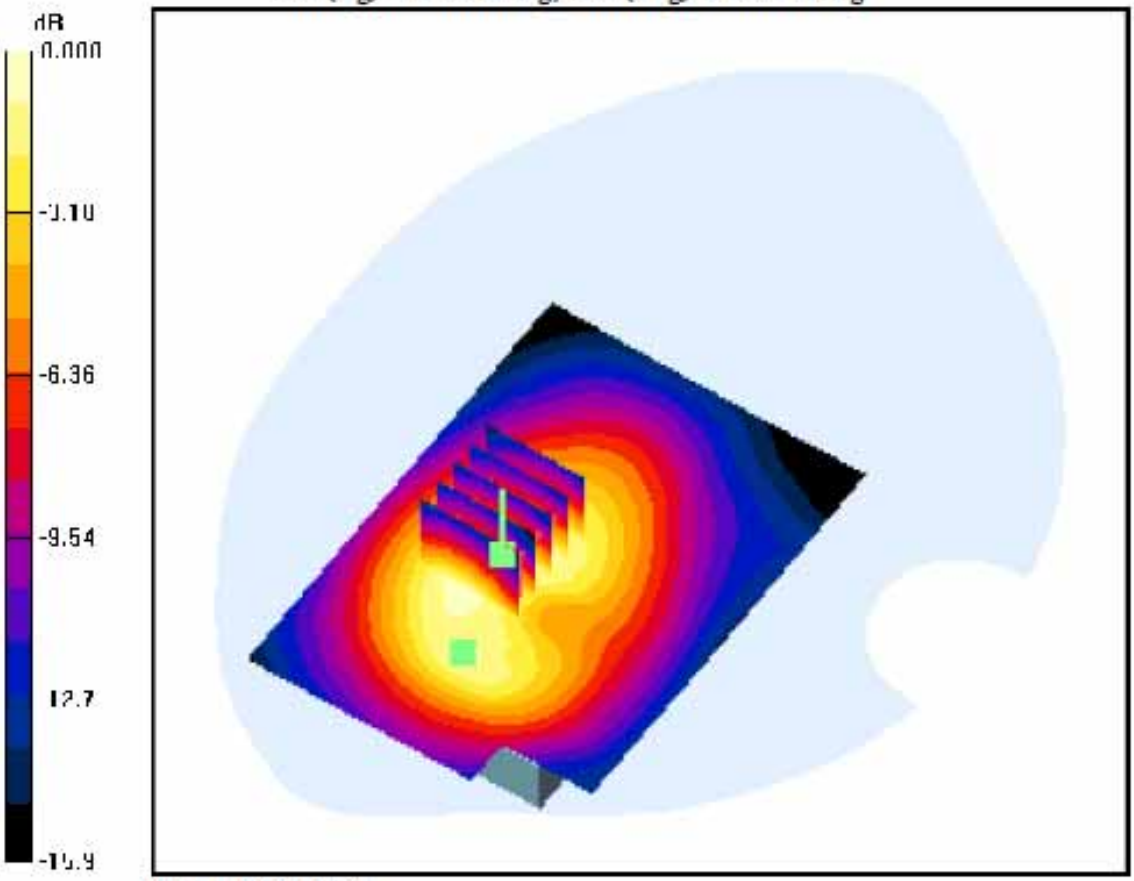
Communication System: PCS1900; Frequency: 1909.8 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1909.8 MHz; σ = 1.53 mho/m; ε_r = 53.6; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
Probe: EX3DV4 - SN3643; ConvF(7.59, 7.59, 7.59); Calibrated: 2010-01-26; Electronics: DAE3 Sn520
Phantom: SAM 1800/1900 MHz; Type: SAM; Serial: TP-1224
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Test Date: 2010-11-04; Ambient Temp: 22.0; Tissue Temp: 22.5

2cm space from Body, Rear, PCS1900 Ch. 810, Ant Internal, Standard Battery

Area Scan (71x101x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Power Drift = 0.053 dB
Peak SAR (extrapolated) = 0.336 W/kg
SAR(1 g) = 0.209 mW/g; SAR(10 g) = 0.128 mW/g



0 dB = 0.260mW/g

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DUT: LG-A175a; Type: Folder

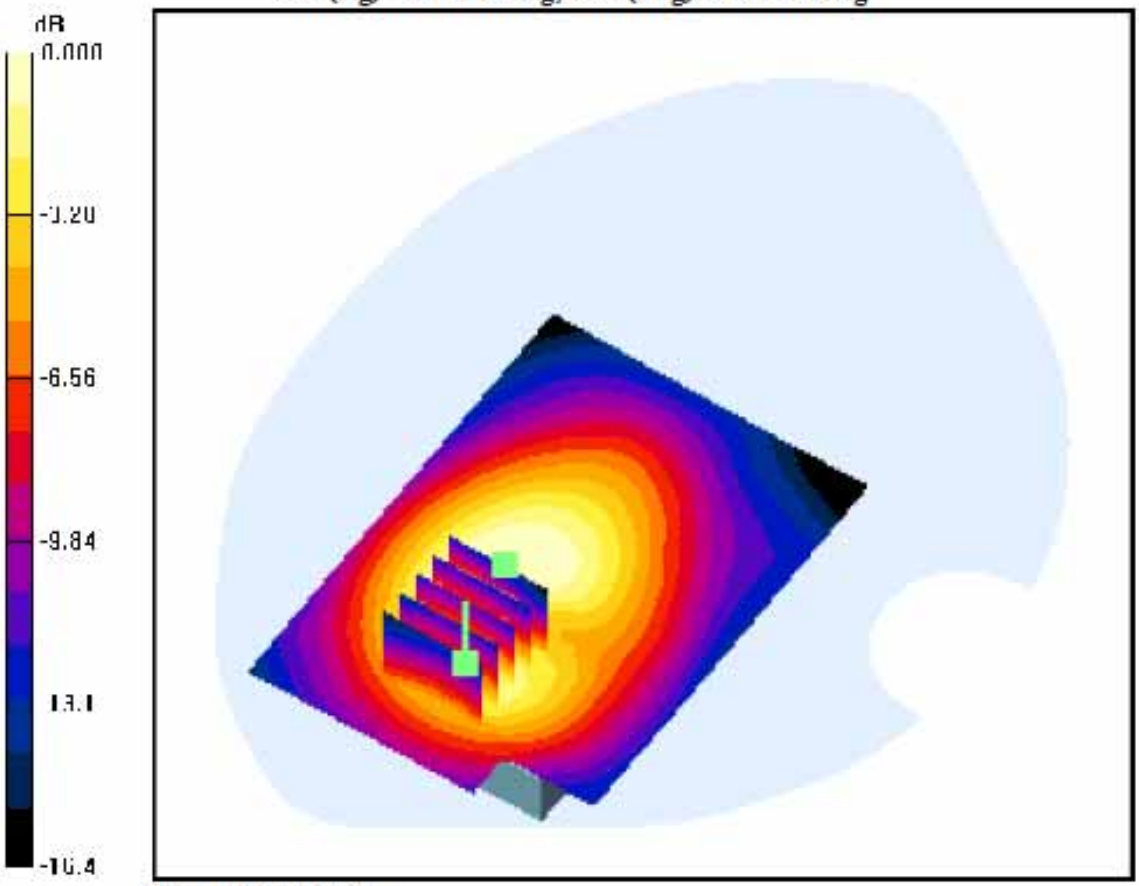
Communication System: PCS1900; Frequency: 1909.8 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1909.8 MHz; σ = 1.53 mho/m; ε_r = 53.6; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
Probe: EX3DV4 - SN3643; ConvF(7.59, 7.59, 7.59); Calibrated: 2010-01-26; Electronics: DAE3 Sn520
Phantom: SAM 1800/1900 MHz; Type: SAM; Serial: TP-1224
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Test Date: 2010-11-04; Ambient Temp: 22.0; Tissue Temp: 22.5

2cm space from Body, Rear, PCS1900 Ch. 810, Ant Internal, Standard Battery

Area Scan (71x101x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Power Drift = 0.053 dB
Peak SAR (extrapolated) = 0.292 W/kg
SAR(1 g) = 0.181 mW/g; SAR(10 g) = 0.109 mW/g



0 dB = 0.229mW/g

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DUT: LG-A175a; Type: Folder

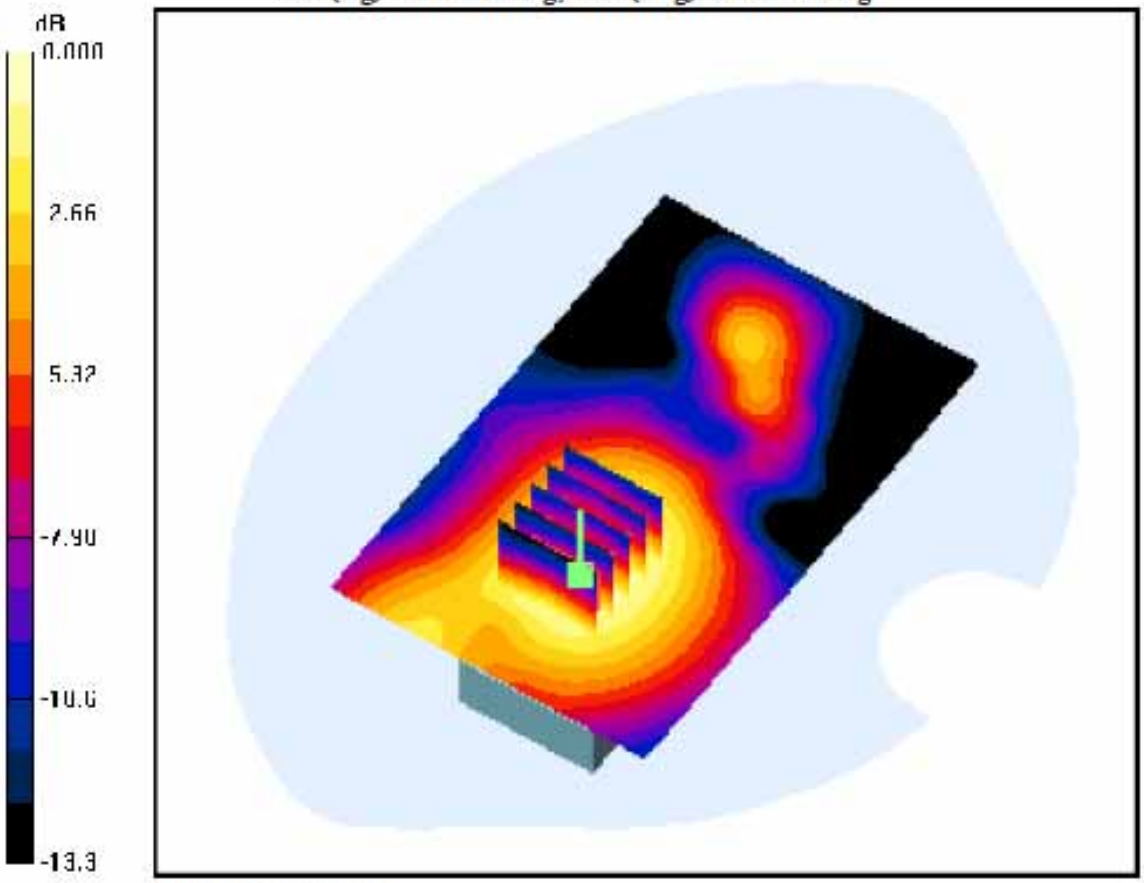
Communication System: PCS1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1880 MHz; σ = 1.51 mho/m; ε_r = 53.4; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
Probe: EX3DV4 - SN3643; ConvF(7.59, 7.59, 7.59); Calibrated: 2010-01-26; Electronics: DAE3 Sn520
Phantom: SAM 1800/1900 MHz; Type: SAM; Serial: TP-1224
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Test Date: 2010-11-04; Ambient Temp: 22.0; Tissue Temp: 22.5

2cm space from Body, Front, PCS1900 Ch. 661, Ant Internal, Standard Battery

Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Power Drift = -0.238 dB
Peak SAR (extrapolated) = 0.146 W/kg
SAR(1 g) = 0.096 mW/g; SAR(10 g) = 0.063 mW/g



0 dB = 0.117mW/g

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DUT: LG-A175a; Type: Folder

Communication System: GSM 850; Frequency: 848.8 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 848.8 MHz; σ = 0.91 mho/m; ε_r = 41.2; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY4 Configuration:
Probe: EX3DV4 - SN3643; ConvF(9.41, 9.41, 9.41); Calibrated: 2010-01-26; Electronics: DAE3 Sn520
Phantom: SAM with 835MHz; Type: SAM; Serial: TP-1223
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Date: 2010-11-03; Ambient Temp: 22.5; Tissue Temp:23.0

Right Touch, GSM850 Ch. 251, Ant Internal, Standard Battery

Area Scan (61x161x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Power Drift = -0.059 dB
Peak SAR (extrapolated) = 0.300 W/kg
SAR(1 g) = 0.202 mW/g; SAR(10 g) = 0.133 mW/g

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DUT: LG-A175a; Type: Folder

Communication System: PCS1900; Frequency: 1850.2 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1850.2 MHz; σ = 1.42 mho/m; ε_r = 39.6; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY4 Configuration:
Probe: EX3DV4 - SN3643; ConvF(7.86, 7.86, 7.86); Calibrated: 2010-01-26; Electronics: DAE3 Sn520
Phantom: SAM 1800/1900 MHz; Type: SAM; Serial: TP-1224
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Date: 2010-11-04; Ambient Temp: 22.0; Tissue Temp:22.5

Right Touch, PCS1900 Ch. 512, Ant Internal, Standard Battery

Area Scan (61x141x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Power Drift = -0.125 dB
Peak SAR (extrapolated) = 1.00 W/kg
SAR(1 g) = 0.656 mW/g; SAR(10 g) = 0.391 mW/g

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DUT: LG-A175a; Type: Folder

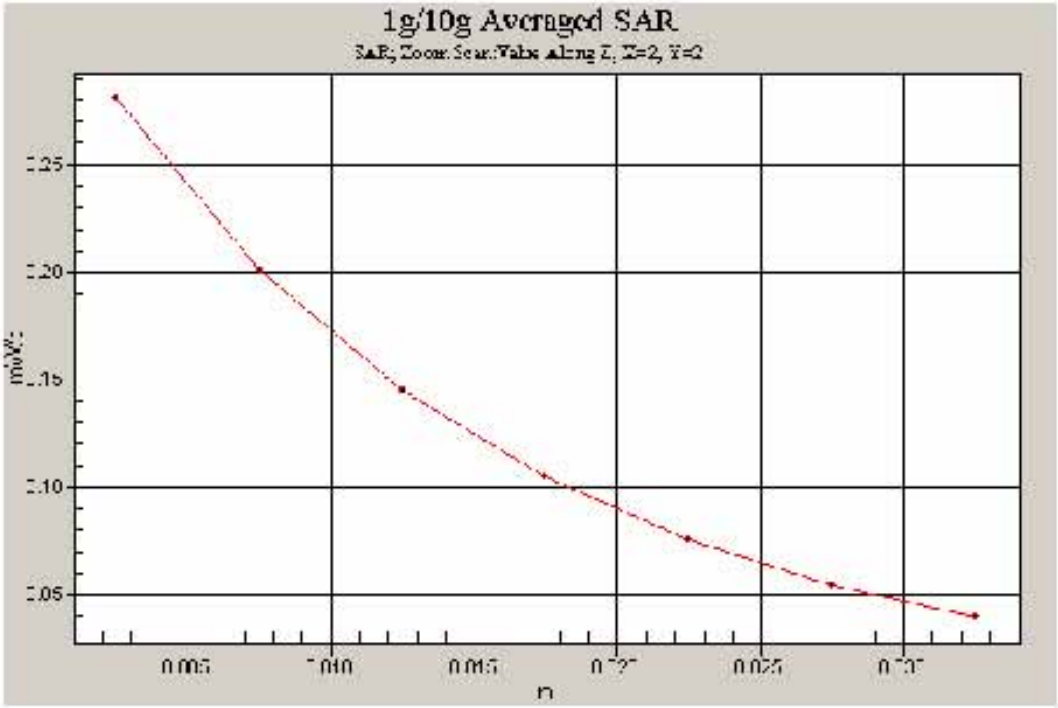
Communication System: GSM 850; Frequency: 848.8 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 848.8 MHz; σ = 0.961 mho/m; ε_r = 55.1; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
Probe: EX3DV4 - SN3643; ConvF(9.31, 9.31, 9.31); Calibrated: 2010-01-26; Electronics: DAE3 Sn520
Phantom: SAM with 835MHz; Type: SAM; Serial: TP-1223
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Test Date: 2010-11-03; Ambient Temp: 22.5; Tissue Temp: 23.0

2cm space from Body, Rear, GSM850 Ch. 251, Ant Internal, Standard Battery

Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Power Drift = 0.070 dB
Peak SAR (extrapolated) = 0.333 W/kg
SAR(1 g) = 0.238 mW/g; SAR(10 g) = 0.165 mW/g



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DUT: LG-A175a; Type: Folder

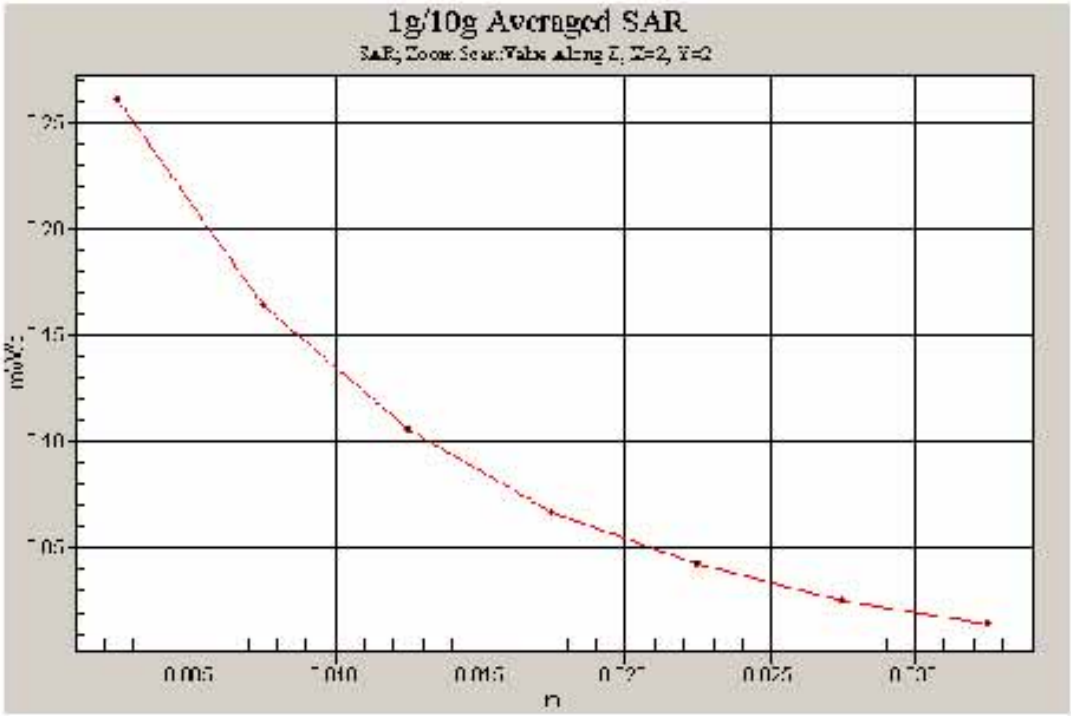
Communication System: PCS1900; Frequency: 1909.8 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1909.8 MHz; σ = 1.53 mho/m; ε_r = 53.6; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
Probe: EX3DV4 - SN3643; ConvF(7.59, 7.59, 7.59); Calibrated: 2010-01-26; Electronics: DAE3 Sn520
Phantom: SAM 1800/1900 MHz; Type: SAM; Serial: TP-1224
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Test Date: 2010-11-04; Ambient Temp: 22.0; Tissue Temp: 22.5

2cm space from Body, Rear, PCS1900 Ch. 810, Ant Internal, Standard Battery

Area Scan (71x101x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Power Drift = 0.053 dB
Peak SAR (extrapolated) = 0.336 W/kg
SAR(1 g) = 0.209 mW/g; SAR(10 g) = 0.128 mW/g



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DUT: LG-A175a; Type: Folder

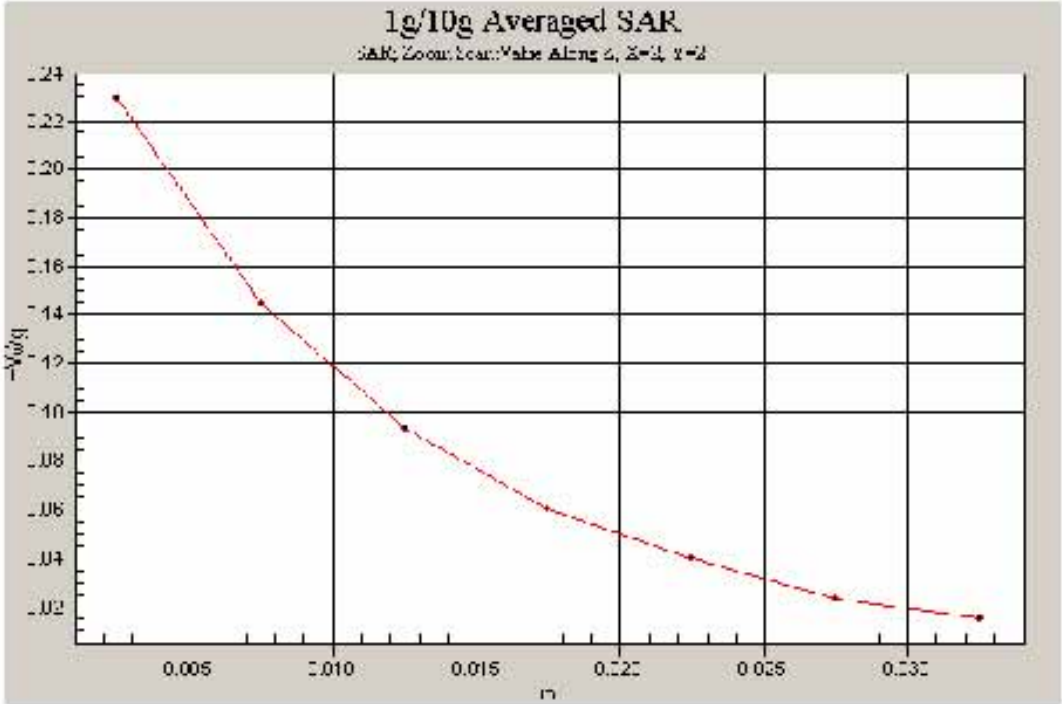
Communication System: PCS1900; Frequency: 1909.8 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1909.8 MHz; σ = 1.53 mho/m; ε_r = 53.6; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
Probe: EX3DV4 - SN3643; ConvF(7.59, 7.59, 7.59); Calibrated: 2010-01-26; Electronics: DAE3 Sn520
Phantom: SAM 1800/1900 MHz; Type: SAM; Serial: TP-1224
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Test Date: 2010-11-04; Ambient Temp: 22.0; Tissue Temp: 22.5

2cm space from Body, Rear, PCS1900 Ch. 810, Ant Internal, Standard Battery

Area Scan (71x101x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Power Drift = 0.053 dB
Peak SAR (extrapolated) = 0.292 W/kg
SAR(1 g) = 0.181 mW/g; SAR(10 g) = 0.109 mW/g



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