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SAR COMPLIANCE EVALUATION REPORT

Applicant Name:
Samsung Electronics, Co. Ltd.
18600 Broadwick St.
Rancho Dominguez, CA 90220
United States

Date of Testing:
08/29/11 - 10/17/11
Test Site/Location:
PCTEST Lab, Columbia, MD, USA
Test Report Serial No.:
0Y1109011504-R2.A3L

FCC ID:	**A3LSCHI515**
APPLICANT:	**SAMSUNG ELECTRONICS, CO. LTD.**

EUT Type:	Portable Handset
Application Type:	Certification
FCC Rule Part(s):	CFR §2.1093; FCC/OET Bulletin 65 Supplement C [June 2001]
Model(s):	SCH-I515
Test Device Serial No.:	Pre-Production [S/N: FCC#SAR1, SAR#2]

Band & Mode	Tx Frequency	Conducted Power [dBm]	SAR		
			1 gm Head (W/kg)	1 gm Body-Worn (W/kg)	1 gm Hotspot (W/kg)
Cell. CDMA/EVDO	824.70 - 848.31 MHz	24.90	0.27	0.48	0.60
PCS CDMA/EVDO	1851.25 - 1908.75 MHz	24.65	0.58	0.88	1.01
LTE	782 MHz	22.35	0.63	0.24	0.24
2.4 GHz WLAN	2412 - 2462 MHz	14.80	0.14	0.13	0.15
5.2 GHz WLAN	5180 - 5240 MHz	14.84	0.09	0.36	
5.3 GHz WLAN	5260 - 5320 MHz	14.95	0.12	0.51	
5.5 GHz WLAN	5500 - 5700 MHz	14.70	0.21	0.40	
5.8 GHz WLAN	5745 - 5825 MHz	14.60	0.12	0.34	
Bluetooth	2402 - 2480 MHz	10.24	N/A		
Simultaneous SAR per KDB 690783 DR01:			1.39 W/kg		

Note: Powers in the above table represent output powers for the SAR test configurations applicable and may not represent the highest output powers for all capabilities.

This wireless portable device has been shown to be capable of compliance for localized specific absorption rate (SAR) for uncontrolled environment/general population exposure limits specified in ANSI/IEEE C95.1-1992 and has been tested in accordance with the measurement procedures specified in FCC/OET Bulletin 65 Supplement C (2001), IEEE 1528-2003 and in applicable Industry Canada Radio Standards Specifications (RSS); for North American frequency bands only.

Note: This revised Test Report (S/N: 0Y1109011504-R2.A3L) supersedes and replaces the previously issued test report on the same subject EUT for the same type of testing as indicated. Please discard or destroy the previously issued test report(s) and dispose of it accordingly.

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them. Test results reported herein relate only to the item(s) tested.

PCTEST certifies that no party to this application has been subject to a denial of Federal benefits that includes FCC benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C. 862.

Randy Ortanez
President

ACCREDITED
TESTING LABORATORY
CERTIFICATE #2041.01

TABLE OF CONTENTS

1 LTE INFORMATION PER FCC KDB 941225 D05

LTE Device Information per KDB Publication 941225 D05

KDB Sec.			Info
	FCC ID		**A3LSCHI515**
	Form Factor		Handset
1)	Frequency Range of each LTE transmission band		Band:13 : 782 MHz
2)	Channel Bandwidths		10 MHz
3)	Channel numbers and frequencies		Channel 23230 / 782 MHz
4)(a)	UE Category		Category 3
(b)	Modulations Supported in UL		QPSK, 16QAM
5)	Description of LTE Tx and Ant. Implementation		1 Tx/Rx Ant, 1 Rx Ant
6)	LTE Voice available ? Data Modes		No, but VoIP via 3rd party apps possible
	Hotspot with LTE+WIFI		Yes
	Hotspot with LTE+WIFI active with 1x Voice sessions?		Yes
7)	LTE MPR Permanently implemented per 3GPP TS 36.101 section 6.2.3~6.2.5? (manufacturer attestation to be provided)		Yes
	A-MPR (Additional MPR) disabled for SAR Testing?		Yes
8)	Conducted power Table provided for 1RB (low and high offset), 50% RB (centered), 100% RB		Yes
9-10)	Non-LTE US Wireless Operating Modes/Bands	RF Output Power	RF Exposure Configurations
	835 MHz CDMA	See Section 15	See Section 18
	1900 MHz CDMA		
	2.4 GHz Bluetooth		
	2.4 GHz WI-FI		
	5 GHz WI-FI		
11)	Simultaneous Tx Conditions (Voice and Data Configurations)		See Section 18
12)	Power Reduction used for SAR Compliance?		No
13-15)	N/A		

2 INTRODUCTION

The FCC has adopted the guidelines for evaluating the environmental effects of radio frequency (RF) radiation in ET Docket 93-62 on Aug. 6, 1996 to protect the public and workers from the potential hazards of RF emissions due to FCC-regulated portable devices. [1]

The safety limits used for the environmental evaluation measurements are based on the criteria published by the American National Standards Institute (ANSI) for localized specific absorption rate (SAR) in IEEE/ANSI C95.1-1992 Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz [3] and Health Canada RF Exposure Guidelines Safety Code 6 [24]. The measurement procedure described in IEEE/ANSI C95.3-2002 Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave [4] is used for guidance in measuring the Specific Absorption Rate (SAR) due to the RF radiation exposure from the Equipment Under Test (EUT). These criteria for SAR evaluation are similar to those recommended by the International Committee for Non-Ionizing Radiation Protection (ICNIRP) in Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields," Report No. Vol 74. SAR is a measure of the rate of energy absorption due to exposure to an RF transmitting source. SAR values have been related to threshold levels for potential biological hazards.

2.1 SAR Definition

Specific Absorption Rate 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 2-1
SAR Mathematical Equation

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

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

where:

σ = conductivity of the tissue-simulating material (S/m)
ρ = mass density of the tissue-simulating material (kg/m^3)
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 relation 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.[6]

3 TEST SITE LOCATION

3.1 INTRODUCTION

The map at the right shows the location of the PCTEST LABORATORY in Columbia, Maryland. It is in proximity to the FCC Laboratory, the Baltimore-Washington International (BWI) airport, the city of Baltimore and Washington, DC.

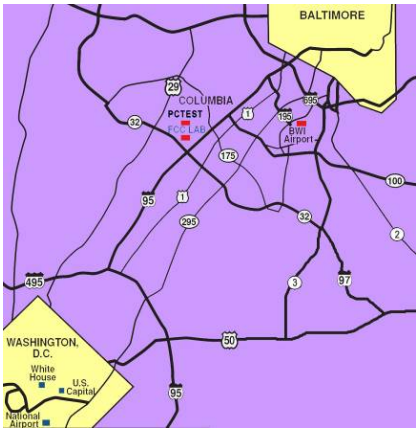


Figure 3-1
Map of the Greater Baltimore and Metropolitan Washington, D.C. area

These measurement tests were conducted at the PCTEST Engineering Laboratory, Inc. facility in New Concept Business Park, Guilford Industrial Park, Columbia, Maryland. The site address is 6660-B Dobbin Road, Columbia, MD 21045. The test site is one of the highest points in the Columbia area with an elevation of 390 feet above mean sea level. The site coordinates are 39° 11'15" N latitude and 76° 49' 38" W longitude. The facility is 1.5 miles north of the FCC laboratory, and the ambient signal and ambient signal strength are approximately equal to those of the FCC laboratory. There are no FM or TV transmitters within 15 miles of the site. The detailed description of the measurement facility was found to be in compliance with the requirements of § 2.948 according to ANSI C63.4 on January 27, 2006 and Industry Canada.

3.2 Test Facility / Accreditations:

Measurements were performed at an independent accredited PCTEST Engineering Lab located in Columbia, MD 21045, U.S.A.

- PCTEST Lab is accredited to ISO 17025-2005 by the American Association for Laboratory Accreditation (A2LA) in Specific Absorption Rate (SAR) testing, Hearing-Aid Compatibility (HAC), Battery Safety, CTIA Test Plans, and wireless testing for FCC and Industry Canada Rules.
- PCTEST Lab is accredited to ISO 17025 by U.S. National Institute of Standards and Technology (NIST) under the National Voluntary Laboratory Accreditation Program (NVLAP Lab code: 100431-0) in EMC, FCC and Telecommunications.
- PCTEST facility is an FCC registered (PCTEST Reg. No. 90864) test facility with the site description report on file and has met all the requirements specified in Section 2.948 of the FCC Rules and Industry Canada (IC-2451).
- PCTEST Lab is a recognized U.S. Conformity Assessment Body (CAB) in EMC and R&TTE (n.b. 0982) under the U.S.-EU Mutual Recognition Agreement (MRA).
- PCTEST TCB is a Telecommunication Certification Body (TCB) accredited to ISO/IEC Guide 65 by the American National Standards Institute (ANSI) in all scopes of FCC Rules and all Industry Canada Standards (RSS).

- PCTEST facility is an IC registered (IC-2451) test laboratory with the site description on file at Industry Canada.
- PCTEST is a CTIA Authorized Test Laboratory (CATL) for AMPS and CDMA, and EvDO mobile phones.
- PCTEST is a CTIA Authorized Test Laboratory (CATL) for Over-the-Air (OTA) Antenna Performance testing for AMPS, CDMA, GSM, GPRS, EGPRS, UMTS (W-CDMA), CDMA 1xEVDO Data, CDMA 1xRTT Data

4 SAR MEASUREMENT SETUP

4.1 Robotic System

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 a high precision robotics system (Staubli), robot controller, desktop computer, near-field probe, probe alignment sensor, and the SAM phantom containing the head or body 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 Figure 4-1).

4.2 System Hardware

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 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, A/D 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 from the DAE and transfers data to the PC card.

4.3 System Electronics

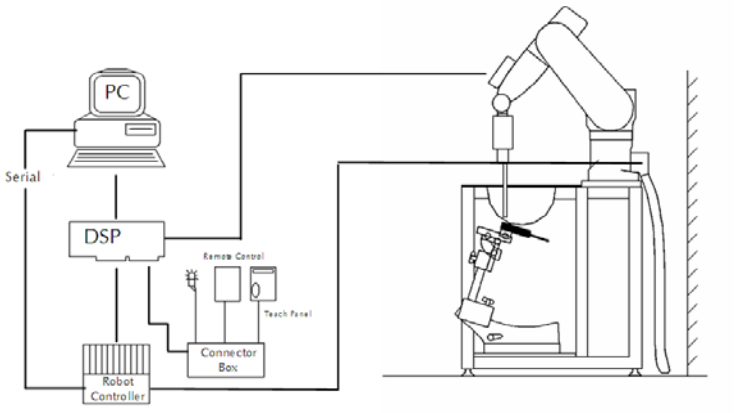


Figure 4-1
SAR Measurement System Setup

The DAE consists of a highly sensitive electrometer-grade auto-zeroing preamplifier, 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.

4.4 Automated Test System Specifications

Test Software:	SPEAG DASY4 version 4.7 Measurement Software
Robot:	Stäubli Unimation Corp. Robot RX60L
Repeatability:	0.02 mm
No. of Axes:	6

Data Acquisition Electronic System (DAE)

Data Converter

Features:	Signal Amplifier, multiplexer, A/D converter & control logic
Software:	SEMCAD software
Connecting Lines:	Optical Downlink for data and status info Optical upload for commands and clock

PC Interface Card

Function:	Link to DAE 16-bit A/D converter for surface detection system Two Serial & Ethernet link to robotics Direct emergency stop output for robot

Phantom

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

Figure 4-2
SAR Measurement System

5 DASY E-FIELD PROBE SYSTEM

5.1 Probe Measurement System

Figure 5-1
SAR System

The SAR measurements were conducted with the dosimetric probe designed in the classical triangular configuration (see Figure 5-3) and optimized for dosimetric evaluation [9]. 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. 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 curve fitting (see Figure 6-1). The approach is stopped at reaching the maximum.

5.2 Probe Specifications

Model(s):	ES3DV2, ES3DV3, EX3DV4
Frequency Range:	10 MHz – 6.0 GHz (EX3DV4) 10 MHz – 4 GHz (ES3DV3)
Calibration:	In head and body simulating tissue at Frequencies from 300 up to 6000MHz
Linearity:	± 0.2 dB (30 MHz to 6 GHz) for EX3DV4 ± 0.2 dB (30 MHz to 4 GHz) for ES3DV3
Dynamic Range:	10 mW/kg – 100 W/kg
Probe Length:	330 mm
Probe Tip Length:	20 mm
Body Diameter:	12 mm
Tip Diameter:	2.5 mm (3.9mm for ES3DV3)
Tip-Center:	1 mm (2.0 mm for ES3DV3)
Application:	SAR Dosimetry Testing Compliance tests of mobile phones Dosimetry in strong gradient fields

Figure 5-2
Near-Field Probe

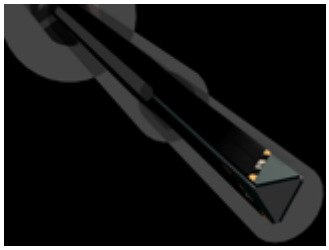


Figure 5-3
Triangular Probe Configuration

6 PROBE CALIBRATION PROCESS

6.1 Dosimetric Assessment Procedure

Each E-Probe/Probe Amplifier combination has unique calibration parameters. A TEM cell calibration procedure is conducted to determine the proper amplifier settings to enter in the probe parameters. The amplifier settings are determined for a given frequency by subjecting the probe to a known E-field density (1 mW/cm^2) using an RF Signal generator, TEM cell, and RF Power Meter.

6.2 Free Space Assessment

The free space E-field from amplified probe outputs is determined in a test chamber. This calibration can be performed in a TEM cell if the frequency is below 1 GHz and in a waveguide or other methodologies 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 rotated 360 degrees until the three channels show the maximum reading. The power density readings equates to 1 mW/cm^2.

6.3 Temperature Assessment

E-field temperature correlation calibration is performed in a flat phantom filled with the appropriate simulated head tissue. The E-field in the medium correlates with the temperature rise in the 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.

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

where:

σ = simulated tissue conductivity,
ρ = Tissue density (1.25 g/cm^3 for brain tissue)

SAR is proportional to $\Delta T/\Delta t$, the initial rate of tissue heating, before thermal diffusion takes place. The electric field in the simulated tissue can be used to estimate SAR by equating the thermally derived SAR to that with the E- field component.

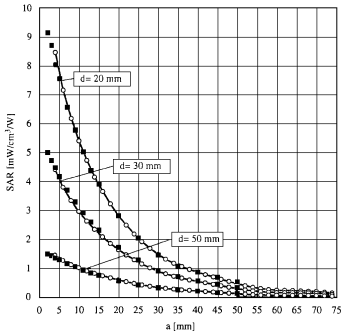


Figure 6-1 E-Field and Temperature measurements at 900MHz [9]

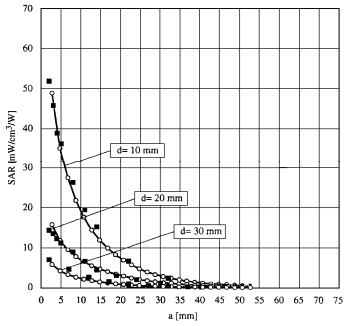


Figure 6-2 E-Field and temperature measurements at 1.9GHz [9]

7 PHANTOM AND EQUIVALENT TISSUES

7.1 SAM Phantoms

Figure 7-1
SAM Phantoms

The SAM Twin Phantom V4.0 is constructed of a fiberglass shell integrated in a table. The shape of the shell is based on data from an anatomical study designed to represent the 90th percentile of the population [12][13]. The phantom enables the dosimetric evaluation of SAR for both left and right handed handset usage, as well as body-worn usage using the flat phantom region. 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. The shell phantom has a 2mm shell thickness (except the ear region where shell thickness increases to 6 mm).

7.2 Tissue Simulating Mixture Characterization

Figure 7-2
SAM Phantom with Simulating Tissue

The mixture is characterized to obtain proper dielectric constant (permittivity) and conductivity of the tissue of interest. The tissue dielectric parameters recommended in IEEE 1528 and IEC 62209 have been used as targets for the compositions, and are to match within 5%, per the FCC recommendations.

Table 7-1
Composition of 835 – 5800 MHz Tissue Equivalent Matter

Frequency (MHz)	835	835	1900	1900	2450	2450	5200-5800	5200-5800
Tissue	Head	Body	Head	Body	Head	Body	Head	Body
Ingredients (% by weight)								
Bactericide	0.1	0.1						
DGBE			44.92	29.44	7.99	26.7		
HEC	1	1						
NaCl	1.45	0.94	0.18	0.39	0.16	0.1		
Sucrose	57	44.9						
Triton X-100					19.97		17.24	10.67
Diethylenglycol monohexylether							17.24	10.67
Water	40.45	53.06	54.9	70.17	71.88	73.2	65.52	78.66

See next page for 750 MHz Tissue Composition

Table 7-2
Composition of 750 MHz Head and Body Tissue Equivalent Matter

2 Composition / Information on ingredients	
The Item is composed of the following ingredients:	
H_2O	Water, 35 – 58%
Sucrose	Sugar, white, refined, 40 – 60%
NaCl	Sodium Chloride, 0 – 6%
Hydroxyethyl-cellulose	Medium Viscosity (CAS# 9004-62-0), <0.3%
Preventol-D7	Preservative: aqueous preparation, (CAS# 55965-84-9), containing 5-chloro-2-methyl-3(2H)-isothiazolone and 2-methyyl-3(2H)-isothiazolone, 0.1 – 0.7% Relevant for safety; Refer to the respective Safety Data Sheet*.

Note: 750MHz liquid recipes are proprietary SPEAG. The composition is approximate to the actual liquids utilized. Thus the manufacturer production sheets are provided below.

Figure 7-1
750MHz Body Tissue Equivalent Matter

Measurement Certificate / Material Test

Item Name	**Body Tissue Simulating Liquid (MSL 750)**
Product No.	SL AAM 075 AA (Charge: 110606-1)
Manufacturer	SPEAG

Measurement Method
TSL dielectric parameters measured using calibrated OCP probe (type DAK).

Target Parameters
Target parameters as defined in the IEEE 1528 and IEC 62209 compliance standards.

Test Condition

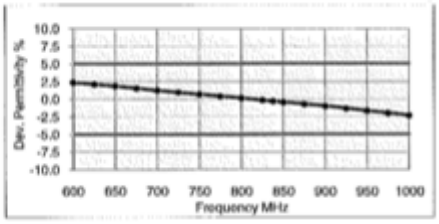
Ambient Condition	22°C ; 30% humidity
TSL Temperature	22°C
Test Date	8-Jun-11

Additional Information

TSL Density	1.212 g/cm^3
TSL Heat-capacity	3.006 kJ/(kg*K)

Results

	Measured			Target		Diff.to Target [%]	
f [MHz]	HP-e'	HP-e"	sigma	eps	sigma	Δ-eps	Δ-sigma
600	57.4	24.89	0.83	56.1	0.95	2.4	-12.7
625	57.2	24.53	0.85	56.0	0.95	2.1	-10.6
650	57.0	24.18	0.87	55.9	0.96	1.8	-8.5
675	56.7	23.90	0.90	55.8	0.96	1.5	-6.3
700	56.4	23.61	0.92	55.7	0.96	1.2	-4.2
725	56.2	23.37	0.94	55.6	0.96	0.9	-2.0
750	55.9	23.12	0.96	55.5	0.96	0.7	0.1
775	55.7	22.95	0.99	55.4	0.97	0.4	2.5
800	55.4	22.78	1.01	55.3	0.97	0.1	4.6
825	55.2	22.61	1.04	55.2	0.98	-0.2	6.1
838	55.0	22.52	1.05	55.2	0.98	-0.3	6.7
850	54.9	22.44	1.06	55.2	0.99	-0.4	7.3
875	54.7	22.30	1.09	55.1	1.02	-0.7	6.5
900	54.5	22.17	1.11	55.0	1.05	-1.0	5.7
925	54.2	22.05	1.13	55.0	1.06	-1.3	6.8
950	54.0	21.94	1.16	54.9	1.08	-1.7	7.8
975	53.8	21.85	1.18	54.9	1.09	-2.0	9.0
1000	53.6	21.75	1.21	54.8	1.10	-2.3	10.2



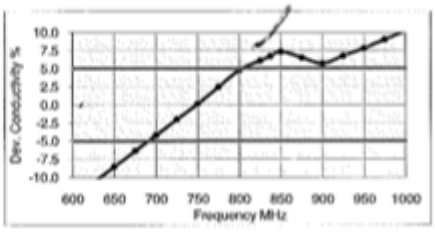


Figure 7-2
750MHz Head Tissue Equivalent Matter

Measurement Certificate / Material Test

Item Name	**Head Tissue Simulating Liquid (HSL 750)**
Product No.	SL AAH 075 (Charge: 110601-1)
Manufacturer	SPEAG

Measurement Method

TSL dielectric parameters measured using calibrated OCP probe (type DAK).

Target Parameters

Target parameters as defined in the IEEE 1528 and IEC 62209 compliance standards.

Test Condition

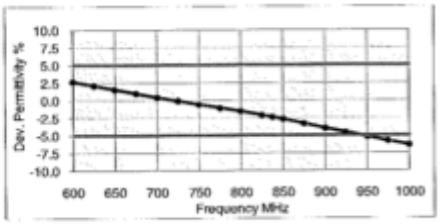
Ambient Condition	22°C ; 30% humidity
TSL Temperature	22°C
Test Date	8-Jun-11

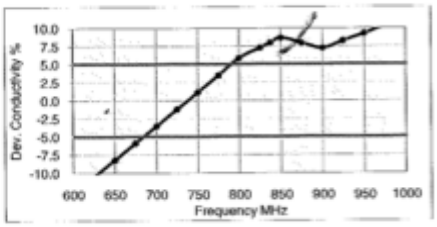
Additional Information

TSL Density	1.284 g/cm^3
TSL Heat-capacity	2.701 kJ/(kg*K)

Results

	Measured			Target		Diff.to Target [%]	
f [MHz]	HP-e'	HP-e"	sigma	eps	sigma	Δ-eps	Δ-sigma
600	43.9	23.01	0.77	42.7	0.88	2.7	-12.9
625	43.5	22.75	0.79	42.6	0.88	2.1	-10.5
650	43.1	22.49	0.81	42.5	0.89	1.5	-8.2
675	42.7	22.26	0.84	42.3	0.89	1.0	-5.9
700	42.4	22.03	0.86	42.2	0.89	0.4	-3.5
725	42.0	21.84	0.88	42.1	0.89	-0.1	-1.2
750	41.7	21.65	0.90	41.9	0.89	-0.6	1.1
775	41.4	21.50	0.93	41.8	0.90	-1.1	3.5
800	41.0	21.34	0.95	41.7	0.90	-1.6	5.9
825	40.7	21.19	0.97	41.6	0.91	-2.1	7.3
838	40.5	21.12	0.98	41.5	0.91	-2.4	8.0
850	40.4	21.05	1.00	41.5	0.92	-2.7	8.6
875	40.1	20.91	1.02	41.5	0.94	-3.3	7.9
900	39.8	20.77	1.04	41.5	0.97	-4.0	7.2
925	39.6	20.66	1.06	41.5	0.98	-4.6	8.2
950	39.3	20.55	1.09	41.4	0.99	-5.2	9.2
975	39.0	20.44	1.11	41.4	1.00	-5.8	10.3
1000	38.7	20.32	1.13	41.3	1.01	-6.4	11.4





8 DOSIMETRIC ASSESSMENT & PHANTOM SPECS

8.1 Measurement Procedure

The evaluation was performed using the following procedure:

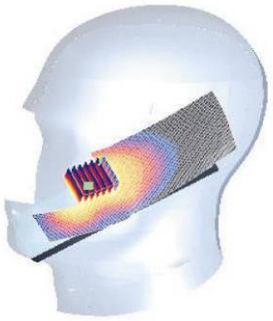


Figure 8-1
Sample SAR Area Scan

1. The SAR distribution at the exposed side of the head was measured at a distance no greater than 5.0 mm from the inner surface of the shell. The area covered the entire dimension of the head and the horizontal grid spacing was 15mm x 15mm.
2. The point SAR measurement was taken at the maximum SAR region determined from Step 1 to enable the monitoring of SAR fluctuations/drifts during testing the 1 gram cube. This fixed point was measured and used as a reference value.
3. Based on the area scan data, the area of the maximum absorption was determined by spline interpolation. Around this point, a volume of 32mm x 32mm x 30mm (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 references or the DASY manual for more details):
   a. The data was extrapolated to the surface of the outer-shell of the phantom. The combined distance extrapolated was the combined distance from the center of the dipoles 2.7mm away from the tip of the probe housing plus the 1.2 mm distance between the surface and the lowest measuring point. The extrapolation was based on a least-squares algorithm. A polynomial of the fourth order was calculated through the points in the z-axis (normal to the phantom shell).
   b. After the maximum interpolated values were calculated between the points in the cube, the SAR was averaged over the spatial volume (1g or 10g) using a 3D-Spline interpolation algorithm. The 3D-spline is composed of three one-dimensional splines with the "Not a knot" condition (in x, y, and z directions). The volume was then integrated with the trapezoidal algorithm. One thousand points (10 x 10 x 10) were obtained through interpolation, in order to calculate the averaged SAR.
   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 step 2, was re-measured after the zoom scan was complete. If the value deviated by more than 5%, the evaluation was repeated.
5. For 5 GHz testing finer resolution zoom scans were performed as specified by FCC SAR Measurement Requirements for 3 – 6 GHz, KDB pub 865664. The 5 GHz zoom scan requires a minimum volume of 24mm x 24mm x 20mm and 7 x 7 x 11 points.

8.2 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 Figure 8-2). The perimeter sidewalls of each phantom halves are extended to allow filling with liquid to a depth that is sufficient to minimize reflections from the upper surface. The liquid depth is maintained at a minimum depth of 15 cm.

Figure 8-2
SAM Twin Phantom Shell

9 DEFINITION OF REFERENCE POINTS

9.1 EAR REFERENCE POINT

Figure 8-1 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 ERP is 15mm posterior to the entrance to the ear canal (EEC) along the B-M line (Back-Mouth), as shown in Figure 8-1. 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 9-2). 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 [5].

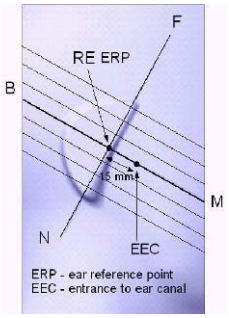


Figure 9-1
Close-Up Side view of ERP

9.2 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 Figure 9-3). 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 9-2
Front, back and side view of SAM Twin Phantom

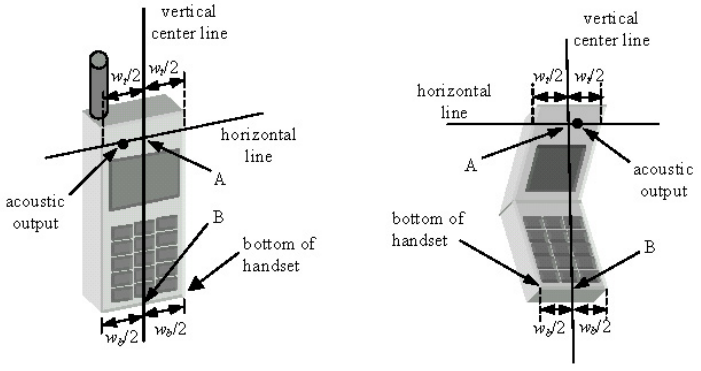


Figure 9-3
Handset Vertical Center & Horizontal Line Reference Points

10 TEST CONFIGURATION POSITIONS

10.1 Device Holder

The DASY device holder has been made out of low-loss POM material having the following dielectric parameters: relative permittivity ε = 3 and loss tangent δ = 0.02.

10.2 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 10-1), 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.

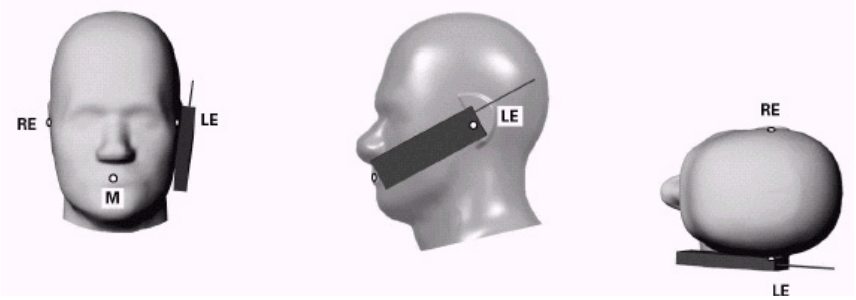


Figure 10-1 Front, Side and Top View of Cheek/Touch Position

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 10-2).

10.3 Positioning for Ear / 15º 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 10-2).

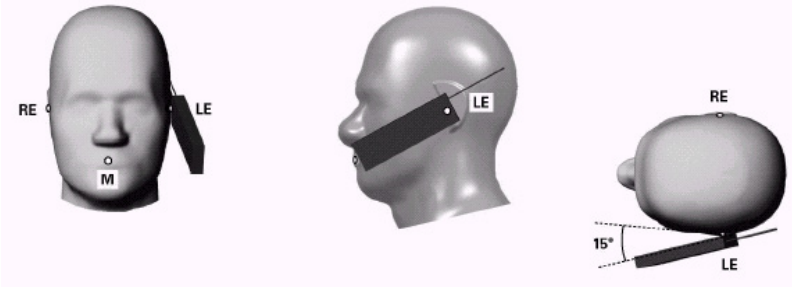


Figure 10-2 Front, Side and Top View of Ear/15º Tilt Position

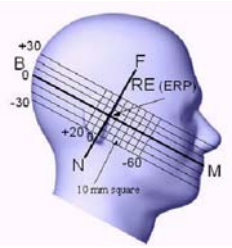


Figure 10-3
Side view w/ relevant markings

Figure 10-4 Body SAR Sample Photo
(Not Actual EUT)

10.4 SAR Evaluations near the Mouth/Jaw Regions of the SAM Phantom

Antennas located near the bottom of a phone may require SAR measurements around the mouth and jaw regions of the SAM head phantom. This typically applies to clam-shell style phones that are generally longer in the unfolded normal use positions or to certain older style long rectangular phones. It has been known for some time that there are SAR measurement difficulties in these regions of the SAM phantom. SAR probes are calibrated in tissue equivalent liquids with sufficient separation between the probe sensors and nearby physical boundaries to ensure scattering does not affect probe calibration. When the probe tip is moved into tight regions with multiple boundaries surrounding its sensors, probe calibration and measurement accuracy can become questionable. In addition, these measurement locations often require a probe to be tilted at steep angles, where it may no longer comply with calibration requirements and measurement protocols, or satisfy the required measurement uncertainty. In some situations it is not feasible to tilt the probe or rotate the phantom, as suggested by measurement standards, to conduct these measurements.

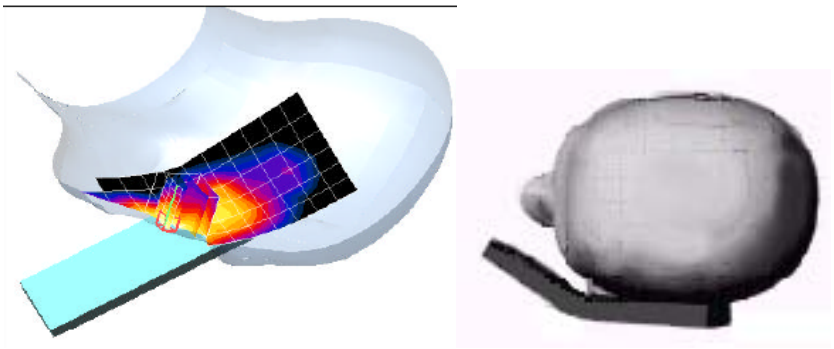


Figure 10-5
SAR Scans near the Jaw/Mouth

In order to ensure there is sufficient conservativeness for ensuring compliance until practical solutions are available, additional measurement considerations are necessary to address these technical difficulties. When measurements are required near the mouth, nose, jaw or similar tight regions of the SAM phantom,

area or zoom scans are often unable to fully enclose the peak SAR location as required by IEEE 1528 and Supplement C, due to probe orientation and positioning difficulties. Even when limited measurements are possible, the test results could be questionable due to probe calibration and measurement uncertainty issues. Under these circumstances, the following procedures apply, adopted from the FCC guidance on SAR handsets document publication 648474. The SAR required in these regions of SAM should be measured using a flat phantom. **Rectangular shaped phones** should be positioned with its bottom edge positioned from the flat phantom with the same distance provided by the cheek touching position using SAM. The ear reference point (ERP, as defined for SAM) of the phone should be positioned ½ cm from the flat phantom shell. **Clam-shell phones** should be positioned with the hinge against a smooth edge of the flat phantom where the upper half of the phone is unfolded and extended beyond the phantom side wall. The lower half of the phone is secured in the test device holder at a fixed distance below the flat phantom determined by the minimum separation along the lower edge of the phone in the cheek touching position using SAM. Any case with substantial variation in separation distance along the lower edge of a clam shell is discussed with the FCC for best-to-use methodology.

The flat phantom data should allow test results to be compared uniformly across measurement systems, until suitable solutions are available in measurement standards to address certain probe calibration and positioning issues, due to implementation differences between horizontal and upright SAM configurations. These flat phantom procedures are only applicable for stand-alone SAR evaluation in tight regions of the SAM phantom, where measurement is not feasible or test results can be questionable due to probe calibration and accessibility issues. Details on device positioning and photos showing how separation distances are determined are included in the SAR report Photographs. SAR for other regions of the head must be evaluated using SAM; therefore, a phone with antennas at different locations may require flat and SAM phantom evaluation for the different antennas.

10.5 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 10-4). A device with a headset output is tested with a headset connected to the device.

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 tested with the device with each accessory. 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.

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 with a separation distance between the back of the device and the flat phantom is used. Test position spacing was 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 in head fluid. For devices that are carried next to the body such as a shoulder, waist or chest-worn transmitters, SAR compliance is tested with the accessories, including headsets and microphones, attached to the device and positioned against a flat phantom in a normal use configuration.

11 FCC RF EXPOSURE LIMITS

11.1 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.

11.2 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 applicable to situations in which persons are exposed as a consequence of their 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 11-1
SAR Human Exposure Specified in ANSI/IEEE C95.1-1992 and Health Canada Safety Code 6

HUMAN EXPOSURE LIMITS		
	UNCONTROLLED ENVIRONMENT *General Population* (W/kg) or (mW/g)	CONTROLLED ENVIRONMENT *Occupational* (W/kg) or (mW/g)
SPATIAL PEAK SAR Brain	1.6	8.0
SPATIAL AVERAGE SAR Whole Body	0.08	0.4
SPATIAL PEAK SAR Hands, Feet, Ankles, Wrists	4.0	20

1. The Spatial Peak value of the SAR averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.
2. The Spatial Average value of the SAR averaged over the whole body.
3. The Spatial Peak value of the SAR averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.

12 POWER MEASUREMENT PROCEDURES

12.1 Procedures Used to Establish RF Signal for SAR

The following procedures are according to FCC KDB 941225 D01 “SAR Measurement Procedures for 3G Devices v02”.

The device was placed into a simulated call using a base station simulator in a RF shielded chamber. Establishing connections in this manner ensure a consistent means for testing SAR and are recommended for evaluating SAR [4]. Devices under test were evaluated prior to testing, with a fully charged battery and were configured to operate at maximum output power. In order to verify that the device was tested throughout the SAR test at maximum output power, the SAR measurement system measures a “point SAR” at an arbitrary reference point at the start and end of the 1 gram SAR evaluation, to assess for any power drifts during the evaluation. Any SAR tests with power drifts greater than 5% were repeated.

12.2 SAR Measurement Conditions for LTE

LTE modes were tested according to FCC KDB 941225 D05 publication. Please see notes following SAR data for required test configurations. Establishing connections with base station simulators ensure a consistent means for testing SAR and are recommended for evaluating SAR [4]. The R&S CMW500 was used for LTE output power measurements and SAR testing. Closed loop power control was used so the UE transmits with maximum output power during SAR testing.

12.2.1 MPR

MPR is permanently implemented for this device. The specific manufacturer target MPR is indicated alongside the SAR results. With the MPR permanently implemented, this device will never operate at higher power levels. MPR is enabled for this device, according to 3GPP TS36.101 Section 6.2.3 – 6.2.5 under Table 6.2.3-1.

12.2.2 A-MPR

A-MPR (Additional MPR) has been disabled for all SAR tests

12.2.3 Required RB Size and RB Offsets for SAR Testing

According to FCC KDB 941225 D05:

1. Per KDB Publication 941225 D05 Page 4, 3) A), QPSK with 50% RB is required.
2. Per KDB Publication 941225 D05 Page 4, 3) B), QPSK with 1 RB for both channel edges are required.
3. Per KDB Publication 941225 D05 Page 4, 4) A), 16QAM with 50% RB is required.
4. Per KDB Publication 941225 D05 Page 4, 4) B), 16QAM with 1RB for both channel edges are required.
5. Per KDB Publication 941225 D05 Page 4, A) I), 100% RB Allocation is not required to be tested since SAR is not > 1.45 W/kg.

12.2.4 Power Reduction for LTE

This model implements a dynamic power reduction scheme for non-SAR related purposes. See Section 19 for addressing SAR aspects due to power reduction.

12.3 SAR Measurement Conditions for CDMA2000

The following procedures were performed according to FCC KDB Publication 941225 D01 "SAR Measurement Procedures for 3G Devices" v02, October 2007.

12.3.1 Output Power Verification

See 3GPP2 C.S0011/TIA-98-E as recommended by "SAR Measurement Procedures for 3G Devices" v02, October 2007. Maximum output power is verified on the High, Middle and Low channels according to procedures in section 4.4.5.2 of 3GPP2 C.S0011/TIA-98-E. SO55 tests were measured with power control bits in the "All Up" condition.

1. If the mobile station (MS) supports Reverse TCH RC 1 and Forward TCH RC 1, set up a call using Fundamental Channel Test Mode 1 (RC=1/1) with 9600 bps data rate only.
2. Under RC1, C.S0011 Table 4.4.5.2-1, **Error! Reference source not found.** parameters were applied.
3. If the MS supports the RC 3 Reverse FCH, RC3 Reverse SCH_0 and demodulation of RC 3,4, or 5, set up a call using Supplemental Channel Test Mode 3 (RC 3/3) with 9600 bps Fundamental Channel and 9600 bps SCH0 data rate.
4. Under RC3, C.S0011 Table 4.4.5.2-2, Table 13-2 was applied.
5. FCHs were configured at full rate for maximum SAR with "All Up" power control bits.

Table 12-1
Parameters for Max. Power for RC1

Parameter	Units	Value
$\hat{I}_{or}$	dBm/1.23 MHz	-104
$\frac{\text{Pilot } E_c}{I_{or}}$	dB	-7
$\frac{\text{Traffic } E_c}{I_{or}}$	dB	-7.4

Table 12-2
Parameters for Max. Power for RC3

Parameter	Units	Value
$\hat{I}_{or}$	dBm/1.23 MHz	-86
$\frac{\text{Pilot } E_c}{I_{or}}$	dB	-7
$\frac{\text{Traffic } E_c}{I_{or}}$	dB	-7.4

12.3.2 Head SAR Measurements

SAR for head exposure configurations is measured in RC3 with the DUT configured to transmit at full rate using Loopback Service Option SO55. SAR for RC1 is not required when the maximum average output of each channel is less than ¼ dB higher than that measured in RC3. Otherwise, SAR is measured on the maximum output channel in RC1 using the exposure configuration that results in the highest SAR for that channel in RC3.

12.3.3 Body SAR Measurements

SAR for body exposure configurations is measured in RC3 with the DUT configured to transmit at full rate on FCH with all other code channels disabled using TDSO / SO32. SAR for multiple code channels (FCH + SCH_n) is not required when the maximum average output of each RF channel is less than ¼ dB higher than that measured with FCH only. Otherwise, SAR is measured on the maximum output channel (FCH + SCH_n) with FCH at full rate and SCH_0 enabled at 9600 bps using the exposure configuration that results in the highest SAR for that channel with FCH only. When multiple code channels are enabled, the DUT output may shift by more than 0.5 dB and lead to higher SAR drifts and SCH dropouts. Body SAR was measured using TDSO / SO32 with power control bits in the "All Up"

Body SAR in RC1 is not required when the maximum average output of each channel is less than ¼ dB higher than that measured in RC3. Otherwise, SAR is measured on the maximum output channel in RC1; with Loopback Service Option SO55, at full rate, using the body exposure configuration that results in the highest SAR for that channel in RC3.

12.3.4 Handsets with EVDO

For handsets with Ev-Do capabilities, when the maximum average output of each channel in Rev. 0 is less than ¼ dB higher than that measured in RC3 (1x RTT), body SAR for EV-DO is not required. Otherwise, SAR for Rev. 0 is measured on the maximum output channel at 153.6 kbps using the body exposure configuration that results in the highest SAR for that channel in RC3. SAR for Rev. A is not required when the maximum average output of each channel is less than that measured in Rev. 0 or less than ¼ dB higher than that measured in RC3. Otherwise, SAR is measured on the maximum output channel for Rev. A using a Reverse Data Channel payload size of 4096 bits and a Termination Target of 16 slots defined for Subtype 2 Physical Layer configurations. A Forward Traffic Channel data rate corresponding to the 2-slot version of 307.2 kbps with the ACK Channel transmitting in all slots would be configured in the downlink for both Rev. 0 and Rev. A.

12.3.5 Body SAR Measurements for EVDO Hotspot

Hotspot Body SAR is measured using Subtype 0/1 Physical Layer configurations for Rev. 0. SAR for Subtype 2 Physical layer configurations is not required for Rev. A when the maximum average output of each RF channels is less than that measured in Subtype 0/1 Physical layer configurations. Otherwise, SAR is measured on the maximum output channel for Rev. A using the exposure configuration that results in the highest SAR for the RF channels in Rev. 0. The AT is tested with a Reverse Data Channel rate of 153.6 kbps in Subtype 0/1 Physical Layer configurations; and a Reverse Data Channel payload size of 4096 bits and Termination Target of 16 slots in Subtype 2 Physical Layer configurations. Both FTAP and FETAP are configured with a Forward Traffic Channel data rate corresponding to the 2-slot version of 307.2 kbps with the ACK Channel transmitting in all slots. AT power control should be in “All Bits Up” conditions for TAP/ETAP.

12.4 SAR Measurements for 802.11 modes

The SAR test procedures for devices with 802.11 modes are adopted from FCC KDB 248227 publication.

Normal network operating configurations are not suitable for measuring the SAR of 802.11 modes. Unpredictable fluctuations in network traffic and antenna diversity conditions can introduce undesirable variations in SAR results. The SAR for these devices is therefore measured using chipset based test mode software to ensure the results are consistent and reliable.

12.4.1 General Device Setup

Chipset based test mode software is hardware dependent and generally varies among manufacturers. According to KDB 248227, the device operating parameters established in test mode for SAR measurements must be identical to those programmed in production units, including output power levels, amplifier gain settings and other RF performance tuning parameters.

The test frequencies correspond to actual channel frequencies defined for domestic use. If the device has switched diversity, SAR is measured with only one antenna transmitting at a time during each SAR measurement, with a fixed modulation and data rate, and antenna pattern. The same data pattern was used for all measurements.

12.4.2 2.4 GHz and 5 GHz Frequency Channel Requirements

802.11 modes are tested independently according to the service requirements in each frequency band.

802.11a is tested for UNII operations on channels listed on Table 12-3 with a check mark. These are referred to as the “default test channels”. Adjacent channels marked with an asterisk represent channels to be tested if the powers are greater than that of the check marked channels.

If the SAR < 0.8 W/kg within a colored 5 GHz band, then only testing SAR at the highest output channel is required.

2.4 GHz 802.11g/n mode was evaluated only if the output power was 0.25 dB higher than the 802.11b mode. 5 GHz 802.11n mode was evaluated only if the output power was 0.25 dB higher than 802.11a mode.

Table 12-3 IEEE 802.11 Default Test Channels

Mode		GHz	Channel	Turbo Channel	“Default Test Channels” §15.247 802.11b	§15.247 802.11g	UNII	
802.11 b/g		2.412	1		√	∇		
		2.437	6	6	√	∇		
		2.462	11		√	∇		
802.11a	UNII	5.18	36				√	
		5.20	40	42 (5.21 GHz)				*
		5.22	44					*
		5.24	48	50 (5.25 GHz)			√	
		5.26	52				√	
		5.28	56	58 (5.29 GHz)				*
		5.30	60					*
		5.32	64				√	
		5.500	100	Unknown				*
		5.520	104				√	
		5.540	108					*
		5.560	112					*
		5.580	116				√	
		5.600	120					*
		5.620	124				√	
		5.640	128					*
		5.660	132					*
		5.680	136				√	
		5.700	140					*
	UNII or §15.247	5.745	149		√		√	
		5.765	153	152 (5.76 GHz)		*		*
		5.785	157		√			*
		5.805	161	160 (5.80 GHz)		*	√	
	§15.247	5.825	165		√			

Per FCC KDB Publication 443999, 5600-5650 MHz operation is prohibited in master or client operations.

13 FCC PERSONAL WIRELESS ROUTER CONFIGURATIONS

13.1 Personal Wireless Router Considerations

The FCC has provided guidance in KDB Publication 941225 D06 for battery-operated handsets that have the capability to transmit and receive Internet connectivity through simultaneous transmission of WIFI in conjunction with another transmitter. SAR test considerations are based on a standard composite test separation distance of 10 mm from the edges, front and back of the device (L x W ≥ 9cm x 5cm) with antennas 2.5 cm or closer to the edge of the device. This has been determined by the FCC from general mixed use conditions for this type of devices. If the device is smaller, then a 5mm distance is required.

13.2 SAR Test Setup for Personal Wireless Router Features

When the user enables the personal wireless router functions for the handset, actual operations include simultaneous transmission of both the WIFI transmitter and another licensed transmitter. Both transmitters often do not transmit at the same transmitting frequency and thus cannot be evaluated for SAR under actual use conditions. Therefore, SAR must be evaluated for each frequency transmission and mode separately and summed with the WIFI transmitter according to KDB 648474 publication procedures. The “Portable Hotspot” feature on the handset was NOT activated, to ensure the SAR measurements were evaluated for a single transmission frequency RF signal.

The standalone head and body-worn accessory SAR data for the applicable voice and data configurations in each wireless mode and frequency band is analyzed separately to determine simultaneous transmission SAR test exclusion according to the procedures in KDB 648474 publication.

When the hotspot feature is enabled or active, all 5 GHz bands WIFI operations are disabled and cannot be used, including 5 GHz bands WIFI with 1x Voice operations.

13.3 Head and Body-Worn Accessory SAR with Hotspot Mode

When hotspot mode use is not restricted during voice calls, SAR compliance is addressed for the simultaneous voice and hotspot data configurations in both head and body-worn accessory use conditions.

This model supports Simultaneous Voice and Data with CDMA Voice and LTE data. Additionally, CDMA voice can transmit with LTE Hotspot without restriction.

13.4 Power Reduction for Portable Hotspot Mode

When portable hotspot mode is enabled, **the hotspot mode itself does not activate any power reduction scheme for SAR**.

13.5 Applicable Router Modes

This device supports router operations for CDMA/EVDO and LTE modes. In addition to these standard wireless router modes, CDMA 1X-RTT voice may operate in conjunction with LTE WIFI Hotspot. Therefore, CDMA 1X-RTT was tested for hotspot SAR test conditions per 941225 D06.

13.6 SAR Test Configurations

Table 13-1
Hotspot Sides for SAR Testing

Mobile Hotspot Sides for SAR Testing per KDB 941225 D06						
Mode	Back	Front	Top	Bottom	Right	Left
Cell. CDMA	Yes	Yes	No	Yes	No	Yes
PCS CDMA	Yes	Yes	No	Yes	No	Yes
LTE-750	Yes	Yes	Yes	No	No	Yes
2.4 GHz WLAN	Yes	Yes	No	No	Yes	No

Particular DUT edges were not necessary to be evaluated for Wireless Router SAR if the edges were greater than 2.5 cm from the transmitting antenna according to FCC KDB Publication 941225 D06 guidance, page 2.

Note: When Hotspot mode is active, all 5 GHz WIFI bands are disabled by manufacturer software. Therefore, the 5 GHz operations are not considered for Hotspot SAR.

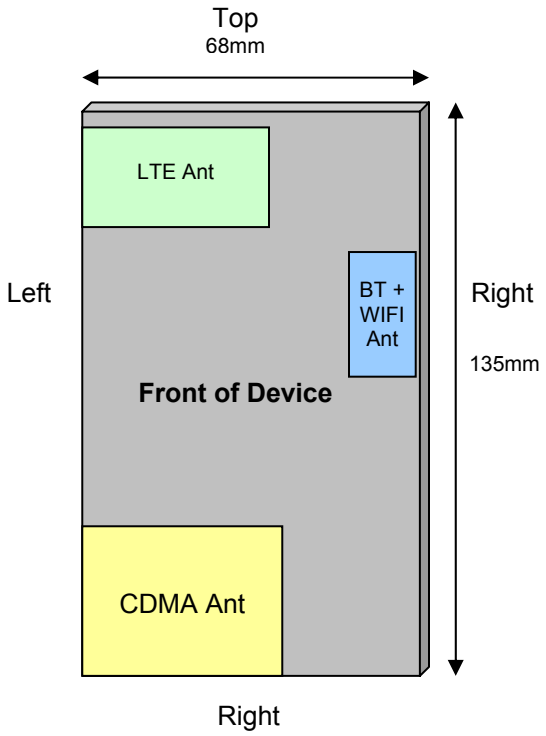


Figure 13-1
Identification of Sides for SAR Testing

Note: According to KDB Publication 941225 D06 guidance page 2, it was not necessary to evaluate particular DUT edges for Wireless Router SAR if those edges were greater than 2.5 cm from the transmitting antenna, The antenna distance documents show the distances from antennas to the edges of the device.

14 FCC MULTI-TX AND ANTENNA SAR CONSIDERATIONS

14.1 Introduction

The following procedures adopted from "FCC SAR Considerations for Cell Phones with Multiple Transmitters" FCC KDB Publication 648474 are applicable to handsets with built-in unlicensed transmitters such as 802.11a/b/g and Bluetooth devices which may simultaneously transmit with the licensed transmitter.

14.2 FCC Power Tables & Conditions

	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.				

Figure 14-1
Output Power Thresholds for Unlicensed Transmitters

	Individual Transmitter	Simultaneous Transmission
Licensed Transmitters	Routine evaluation required	SAR not required: Unlicensed only ○ when stand-alone 1-g SAR is not required and antenna is ≥ 5 cm from other antennas Licensed & Unlicensed ○ when the sum of the 1-g SAR is < 1.6 W/kg for all simultaneous transmitting antennas ○ when SAR to peak location separation ratio of simultaneous transmitting antenna pair is < 0.3
Unlicensed Transmitters	When there is no simultaneous transmission – ○ output ≤ 60/f: SAR not required ○ output > 60/f: stand-alone SAR required When there is simultaneous transmission – Stand-alone SAR not required when ○ output ≤ 2·P_{Ref} and antenna is ≥ 5.0 cm from other antennas ○ output ≤ P_{Ref} and antenna is ≥ 2.5 cm from other antennas ○ output ≤ P_{Ref} and antenna is < 2.5 cm from other antennas, each with either output power ≤ P_{Ref} or 1-g SAR < 1.2 W/kg Otherwise stand-alone SAR is required When stand-alone SAR is required ○ test SAR on highest output channel for each wireless mode and exposure condition ○ if SAR for highest output channel is > 50% of SAR limit, evaluate all channels according to normal procedures	SAR required: Licensed & Unlicensed antenna pairs with SAR to peak location separation ratio ≥ 0.3; test is only required for the configuration that results in the highest SAR in stand-alone configuration for each wireless mode and exposure condition Note: simultaneous transmission exposure conditions for head and body can be different for different style phones; therefore, different test requirements may apply

Figure 14-2
SAR Evaluation Requirements for Multiple Transmitter Handsets

15 OUTPUT POWER MEASUREMENTS

15.1 LTE Conducted Powers

Table 15-1
LTE Band 13 RF Output Conducted Powers

Frequency	BW	Modulation	RB Size	RB Offset	Maximum Average Power [dBm]	Target MPR [dBm]	Allowed MPR per 3GPP
782 MHz	10 MHz	QPSK	1	0	22.35	0	0
		16QAM	1	0	21.55	1	0-1
		QPSK	1	49	21.95	0	0
		16QAM	1	49	21.20	1	0-1
		QPSK	25	12	22.28	0	0-1
		16QAM	25	12	21.35	1	0-2
		QPSK	50	0	21.98	0	0-1
		16QAM	50	0	20.91	1	0-2

Note: Differences from expected MPR levels are a result of measurement uncertainty. Per the manufacturer, the measured powers are acceptable for use within the intended network infrastructure. Powers measured below the expected levels on the devices were extrapolated to ensure compliance for SAR.

LTE test configurations are determined according to SAR Test Considerations for LTE handsets and Data Modems KDB 941225 D05 Publication:

- Per KDB Publication 941225 D05 Page 4, 3) A), QPSK with 50% RB is required for the highest bandwidth (10 MHz).
- Per KDB Publication 941225 D05 Page 4, 3) B), QPSK with 1 RB for both channel edges are required for the highest bandwidth (10 MHz).
- Per KDB Publication 941225 D05 Page 4, 4) A), 16QAM with 50% RB is required for the highest bandwidth (10 MHz).
- Per KDB Publication 941225 D05 Page 4, 4) B), 16QAM with 1RB for both channel edges are required for the highest bandwidth (10 MHz).
- Per KDB Publication 941225 D05 Page 4, A) I), 100% RB Allocation is not required to be tested since SAR is not > 1.45 W/kg for the highest bandwidth (10 MHz).

Figure 15-1
Power Measurement Setup

15.2 CDMA Conducted Powers

Table 15-2
CDMA/EVDO RF Output Conducted Powers

Band	Channel	Frequency	SO55 [dBm]	SO55 [dBm]	TDSO SO32 [dBm]	TDSO SO32 [dBm]	1x EvDO Rev. 0 [dBm]	1x EvDO Rev. A [dBm]
	F-RC	MHz	RC1	RC3	FCH+SCH	FCH	(RTAP)	(RETAP)
	1013	824.7	24.84	24.85	24.69	24.82	24.68	24.65
	384	835.52	24.89	24.90	24.72	24.80	24.75	24.68
	777	848.31	24.47	24.49	24.39	24.46	24.38	24.31
PCS	25	1851.25	24.14	24.06	24.31	24.10	24.06	24.05
	600	1880	24.76	24.58	24.76	24.65	24.54	24.58
	1175	1908.75	24.54	24.51	24.56	24.48	24.41	24.36

Note: RC1 is only applicable for IS-95 compatibility.

Per KDB Publication 941225 D01:

1. Head SAR was tested with SO55 RC3. SO55 RC1 was not required since the average output power was not more than 0.25 dB than the SO55 RC3 powers.
2. Body-Worn SAR was tested with TDSO32 FCH. EVDO and TDSO32 FCH+SCH SAR tests were not required since the average output power was not more than 0.25 dB higher than the TDSO32 FCH powers.
3. CDMA Hotspot SAR was tested with EVDO Rev 0 and TDSO32. TDSO32 SAR tests were evaluated for wireless router edges/sides to address the body-worn CDMA Voice + LTE WIFI Hotspot simultaneous transmission scenario. EVDO Rev A and TDSO32+SCH SAR tests were not required since the average output power was not more than 0.25 dB higher than the EVDO Rev. 0 powers.

Figure 15-2
Power Measurement Setup

15.3 WLAN Conducted Powers

Table 15-3
IEEE 802.11b Average RF Power

Mode	Freq [MHz]	Channel	Conducted Power [dBm] Data Rate [Mbps] 1	2	5.5	11
802.11b	2412	1	11.36	11.43	11.57	11.47
802.11b	2437	6	11.89	11.60	11.73	11.33
802.11b	2462	11	**11.89**	11.77	12.03	11.99

Table 15-4
IEEE 802.11g Average RF Power

Mode	Freq [MHz]	Channel	Conducted Power [dBm] Data Rate [Mbps] 6	9	12	18	24	36	48	54
802.11g	2412	1	14.70	14.48	14.78	14.61	14.49	14.74	14.02	14.74
802.11g	2437	6	14.75	14.79	15.03	14.87	14.98	14.77	14.55	14.41
802.11g	2462	11	**14.80**	14.58	14.54	14.87	14.95	14.63	15.01	14.69

Table 15-5
IEEE 802.11n Average RF Power

Mode	Freq [MHz]	Channel	Conducted Power [dBm] Data Rate [Mbps] 6.5	13	20	26	39	52	58	65
802.11n	2412	1	13.35	13.54	13.47	13.48	13.33	13.24	13.54	13.61
802.11n	2437	6	13.06	13.61	13.58	13.81	13.45	13.93	13.57	13.80
802.11n	2462	11	**13.92**	13.75	13.76	13.69	13.66	13.93	13.86	13.60

Table 15-6
IEEE 802.11a Average RF Power

Mode	Freq [MHz]	Channel	Conducted Power [dBm] Data Rate [Mbps] 6	9	12	18	24	36	48	54
802.11a	5180	36	14.83	14.79	14.79	14.98	14.84	14.85	14.81	14.87
802.11a	5200	40	**14.84**	14.77	14.66	14.79	14.90	14.93	14.74	14.90
802.11a	5220	44	14.16	14.64	14.24	14.57	14.50	14.47	14.40	14.39
802.11a	5240	48	14.62	14.93	14.74	14.92	14.84	14.86	14.65	14.81
802.11a	5260	52	14.66	14.84	14.94	14.72	14.98	14.95	14.98	14.74
802.11a	5280	56	**14.95**	14.87	14.87	14.80	14.84	14.61	14.73	14.79
802.11a	5300	60	14.37	14.46	14.45	14.47	14.32	14.30	14.31	14.48
802.11a	5320	64	14.71	14.92	14.94	14.80	14.71	14.93	14.77	14.77
802.11a	5500	100	**14.70**	14.66	14.78	14.68	14.70	14.83	14.69	14.77
802.11a	5520	104	14.45	14.31	14.35	14.36	14.29	14.54	14.39	14.55
802.11a	5540	108	14.41	14.30	14.31	14.37	14.44	14.42	14.33	14.47
802.11a	5560	112	14.36	14.45	14.39	14.41	14.25	14.31	14.39	14.44
802.11a	5580	116	14.32	14.28	14.54	14.43	14.41	14.58	14.42	14.61
802.11a	5660	132	14.37	14.37	14.44	14.51	14.55	14.53	14.31	14.48
802.11a	5680	136	14.47	14.51	14.61	14.57	14.62	14.66	14.59	14.48
802.11a	5700	140	14.66	14.90	14.76	14.69	14.53	14.80	14.73	14.76
802.11a	5745	149	**14.60**	14.48	14.39	14.44	14.45	14.41	14.49	14.43
802.11a	5765	153	14.39	14.29	14.34	14.30	14.57	14.50	14.25	14.35
802.11a	5785	157	14.45	14.41	14.41	14.46	14.40	14.23	14.56	14.47
802.11a	5805	161	14.27	14.18	14.26	14.28	14.31	14.31	14.33	14.22
802.11a	5825	165	14.38	14.51	14.54	14.39	14.64	14.70	14.27	14.29

Table 15-7
IEEE 802.11n Average RF Power

Mode	Freq	Channel	Conducted Power [dBm]							
			Data Rate [Mbps]							
	[MHz]		6.5	13	20	26	39	52	58	65
802.11n	5180	36	14.68	14.65	14.83	14.49	14.70	14.68	14.74	14.82
802.11n	5200	40	14.60	14.61	14.62	14.81	14.78	14.56	14.71	14.55
802.11n	5220	44	14.37	14.11	14.18	14.13	14.14	14.14	14.21	14.17
802.11n	5240	48	14.71	14.61	14.50	14.86	14.72	14.93	14.72	14.62
802.11n	5260	52	14.76	14.55	14.70	14.85	14.91	14.98	14.80	14.81
802.11n	5280	56	14.84	14.84	14.56	14.87	14.67	14.81	14.92	14.73
802.11n	5300	60	14.37	14.34	14.53	14.44	14.33	14.31	14.42	14.48
802.11n	5320	64	14.73	14.74	14.72	14.94	14.80	14.89	14.89	14.88
802.11n	5500	100	14.67	14.62	14.55	14.65	14.65	14.65	14.42	14.63
802.11n	5520	104	14.26	14.34	14.48	14.51	14.50	14.28	14.44	14.51
802.11n	5540	108	14.45	14.33	14.33	14.45	14.40	14.56	14.67	14.41
802.11n	5560	112	14.35	14.54	14.42	14.53	14.60	14.37	14.58	14.77
802.11n	5580	116	14.64	14.40	14.52	14.48	14.45	14.37	14.47	14.55
802.11n	5660	132	14.53	14.55	14.49	14.38	14.35	14.40	14.44	14.28
802.11n	5680	136	14.47	14.38	14.44	14.55	14.38	14.61	14.46	14.51
802.11n	5700	140	14.50	14.53	14.46	14.55	14.70	14.61	14.65	14.58
802.11n	5745	149	14.40	14.61	14.72	14.92	14.47	14.39	14.42	14.68
802.11n	5765	153	14.10	14.18	14.37	14.37	14.43	14.31	14.38	14.28
802.11n	5785	157	14.37	14.31	14.42	14.59	14.69	14.91	14.53	14.46
802.11n	5805	161	14.29	14.27	14.31	14.31	14.27	14.32	14.36	14.47
802.11n	5825	165	14.32	14.32	14.62	14.40	14.37	14.32	14.26	14.37

Note: Per the manufacturer's NII DFS attestation and the DFS report, this device does not transmit any beacons or initiate any transmissions in the 5500-5700 MHz band. Per FCC KDB Publication 443999, 5600-5650 MHz operation is prohibited per FCC even as a client.

Justification for reduced test configurations for WIFI channels per KDB Publication 248227 and April 2010 FCC/TCB Meeting Notes:

- For 2.4 GHz, highest average RF output power channel for the lowest data rate for IEEE 802.11b were selected for SAR evaluation. IEEE 802.11 g/n modes were investigated since the average output powers were greater than 0.25 dB than that of the tested channel in the lowest data rate IEEE 802.11b mode.
- For 5 GHz, highest average RF output power channel for the lowest data rate for IEEE 802.11a were selected for SAR evaluation. IEEE 802.11 n modes were not investigated since the average output powers were not greater than 0.25 dB than that of the tested channel in the lowest data rate IEEE 802.11a mode.
- The bolded data rate and channel above were tested for SAR.

Figure 15-3
Power Measurement Setup

16 SYSTEM VERIFICATION

16.1 Tissue Verification

Table 16-1
Measured Tissue Properties

Calibrated for Tests Performed on:	Tissue Type	Measured Frequency (MHz)	Measured Conductivity, σ (S/m)	Measured Dielectric Constant, ε	TARGET Conductivity, σ (S/m)	TARGET Dielectric Constant, ε	Tissue Temp During Calibration (C°)	% dev σ
09/08/2011	750H	725	0.847	41.68	0.888	42.033	22.2	-4.62%
		740	0.855	41.38	0.889	41.953		-3.82%
		755	0.875	41.21	0.891	41.876		-1.80%
		770	0.887	41.02	0.892	41.806		-0.56%
		785	0.899	40.90	0.894	41.735		0.56%
		800	0.913	40.81	0.896	41.665		1.90%
09/07/2011	750B	725	0.923	55.11	0.960	55.817	22.2	-3.85%
		740	0.945	54.96	0.961	55.733		-1.66%
		755	0.942	55.10	0.963	55.649		-2.18%
		770	0.956	54.77	0.964	55.564		-0.83%
		785	0.959	54.63	0.965	55.480		-0.62%
		800	0.991	54.51	0.967	55.396		2.48%
09/07/2011	835H	820	0.870	41.93	0.898	41.571	22.0	-3.12%
		835	0.886	41.85	0.900	41.500		-1.56%
		850	0.895	41.55	0.916	41.500		-2.29%
10/17/2011	835H	820	0.884	43.47	0.898	41.571	22.9	-1.56%
		835	0.902	43.31	0.900	41.500		0.22%
		850	0.916	43.34	0.916	41.500		0.00%
08/29/2011	835B	820	0.960	53.95	0.969	55.284	22.5	-0.93%
		835	0.974	53.64	0.970	55.200		0.41%
		850	0.992	53.60	0.988	55.154		0.40%
09/13/2011	835B	820	0.946	53.60	0.969	55.284	22.5	-2.37%
		835	0.960	54.00	0.970	55.200		-1.03%
		850	0.985	53.73	0.988	55.154		-0.30%
10/17/2011	835B	820	0.955	53.41	0.969	55.284	21.9	-1.44%
		835	0.963	53.40	0.970	55.200		-0.72%
		850	0.979	53.17	0.988	55.154		-0.91%
09/06/2011	1900H	1850	1.388	39.42	1.400	40.000	23.5	-0.86%
		1880	1.414	39.32	1.400	40.000		1.00%
		1910	1.441	39.22	1.400	40.000		2.93%
09/01/2011	1900B	1850	1.476	53.80	1.520	53.300	23.6	-2.89%
		1880	1.501	53.61	1.520	53.300		-1.25%
		1910	1.527	53.56	1.520	53.300		0.46%
09/13/2011	1900B	1850	1.477	51.09	1.520	53.300	23.8	-2.83%
		1880	1.518	50.92	1.520	53.300		-0.13%
		1910	1.554	50.89	1.520	53.300		2.24%
09/12/2011	2450H	2401	1.759	40.16	1.758	39.298	23.0	0.06%
		2450	1.825	39.55	1.800	39.200		1.39%
		2499	1.882	39.58	1.852	39.135		1.62%
09/12/2011	2450B	2401	1.922	51.32	1.903	52.765	23.3	1.00%
		2450	1.986	50.93	1.950	52.700		1.85%
		2499	2.058	50.84	2.019	52.638		1.93%
09/12/2011	5200H-5800H	5170	4.571	34.66	4.629	36.030	22.9	-1.25%
		5210	4.563	34.56	4.670	35.990		-2.29%
		5250	4.628	34.52	4.710	35.950		-1.74%
		5270	4.665	34.50	4.730	35.930		-1.37%
		5310	4.700	34.49	4.770	35.890		-1.47%
		5350	4.785	34.33	4.810	35.850		-0.52%
		5470	4.870	34.28	4.934	35.695		-1.30%
		5510	4.925	34.08	4.976	35.635		-1.02%
		5550	4.956	34.11	5.018	35.575		-1.24%
		5570	4.987	34.07	5.039	35.545		-1.03%
		5610	5.048	34.00	5.080	35.490		-0.63%
		5650	5.066	33.95	5.120	35.450		-1.05%
		5670	5.098	33.85	5.140	35.430		-0.82%
		5710	5.148	33.93	5.180	35.390		-0.62%
		5750	5.186	33.70	5.220	35.350		-0.65%
		5770	5.191	33.69	5.240	35.330		-0.94%
		5810	5.252	33.73	5.281	35.290		-0.55%
		5850	5.272	33.56	5.323	35.250		-0.96%
09/12/2011	5200B-5800B	5170	5.113	47.04	5.264	49.055	22.4	-2.87%
		5210	5.159	47.01	5.311	49.001		-2.86%
		5250	5.231	46.85	5.358	48.946		-2.37%
		5270	5.275	46.83	5.381	48.919		-1.97%
		5310	5.263	46.96	5.428	48.865		-3.04%
		5350	5.369	46.65	5.470	48.811		-1.85%
		5470	5.511	46.66	5.615	48.648		-1.85%
		5510	5.544	46.55	5.661	48.594		-2.07%
		5550	5.630	46.46	5.708	48.539		-1.37%
		5570	5.596	46.48	5.731	48.512		-2.36%
		5610	5.733	46.41	5.778	48.458		-0.78%
		5650	5.748	46.32	5.825	48.404		-1.32%
		5670	5.760	46.22	5.848	48.376		-1.50%
		5710	5.810	46.17	5.895	48.322		-1.44%
		5750	5.838	46.09	5.942	48.268		-1.75%
		5770	5.911	46.10	5.965	48.241		-0.91%
		5810	5.946	46.02	6.012	48.186		-1.10%
		5850	6.009	45.85	6.058	48.132		-0.81%

Note: KDB Publication 450824 was ensured to be applied for probe calibration frequencies greater than or equal to 50 MHz of the DUT frequencies.

The above measured tissue parameters were used in the DASY software to perform interpolation via the DASY software to determine actual dielectric parameters at the test frequencies (per IEEE 1528 6.6.1.2). The SAR test plots may slightly differ from the table above since the DASY software rounds to three significant digits.

Probe calibration used within ±100 MHz of the test frequency in either 5.725 - 5.85 or 5.47-5.725 GHz is acceptable per KDB Publication 865664 since the design of the SAR probe supports the extended frequency, provided the DASY software version recommended is used for the tests, and the expanded calibration uncertainty (k=2) is less than or equal to 15% (See SAR probe calibration certificate for this information). The dielectric and conductivities measured are within 10% and 5% respectively of the target parameters specified in Supplement C 01-01.

The above measured tissue parameters were used in the DASY software to perform interpolation via the DASY software to determine actual dielectric parameters at the test frequencies (per IEEE 1528 6.6.1.2). The SAR test plots may slightly differ from the table above since the DASY software rounds to three significant digits.

16.2 Measurement Procedure for Tissue verification

1) The network analyzer and probe system was configured and calibrated.
2) The probe was immersed in the sample which was placed in a nonmetallic container. Trapped air bubbles beneath the flange were minimized by placing the probe at a slight angle.
3) The complex admittance with respect to the probe aperture was measured
4) The complex relative permittivity , for example from the below equation (Pournaropoulos and Misra):

$$Y = \frac{j2\omega\varepsilon_r\varepsilon_0}{\left[\ln(b/a)\right]^2}\int_a^b\int_a^b\int_0^\pi \cos\phi' \frac{\exp\left[-j\omega r(\mu_0\varepsilon_r^{'}\varepsilon_0)^{1/2}\right]}{r} d\phi' d\rho' d\rho$$

where *Y* is the admittance of the probe in contact with the sample, the primed and unprimed coordinates refer to source and observation points, respectively, $r^2 = \rho^2 + \rho'^2 - 2\rho\rho'\cos\phi'$, ω is the angular frequency, and $j = \sqrt{-1}$.

16.3 Test System Verification

Prior to assessment, the system is verified to ±10% of the manufacturer SAR measurement on the reference dipole at the time of calibration.

Table 16-2
System Verification Results

System Verification TARGET & MEASURED											
Date:	Amb. Temp (°C)	Liquid Temp (°C)	Input Power (W)	Tissue Frequency (MHz)	Dipole SN	Probe SN	Tissue Type	Measured SAR_{1g} (W/kg)	1 W Target SAR_{1g} (W/kg)	1 W Normalized SAR_{1g} (W/kg)	Deviation (%)
09/07/2011	22.8	22.9	0.100	835	4d047	3258	Head	0.899	9.530	8.990	-5.67%
10/17/2011	24.1	22.5	0.100	835	4d047	3258	Head	0.919	9.530	9.190	-3.57%
08/29/2011	23.5	22.2	0.250	835	4d047	3258	Body	2.55	9.850	10.200	3.55%
09/13/2011	23.8	22.0	0.100	835	4d047	3258	Body	0.948	9.850	9.480	-3.76%
10/17/2011	24.0	22.2	0.100	835	4d047	3258	Body	0.951	9.850	9.510	-3.45%
09/06/2011	23.8	22.3	0.040	1900	5d080	3550	Head	1.56	39.900	39.000	-2.26%
09/01/2011	24.2	22.9	0.040	1900	502	3550	Body	1.54	41.100	38.500	-6.33%
09/13/2011	23.4	21.6	0.100	1900	5d080	3209	Body	4.31	40.900	43.100	5.38%
09/08/2011	22.5	21.4	0.250	750	1003	3209	Head	1.95	8.370	7.800	-6.81%
09/07/2011	23.8	21.9	0.250	750	1003	3209	Body	2.07	8.850	8.280	-6.44%
09/12/2011	23.7	21.9	0.0158	2450	719	3209	Head	0.873	53.800	55.253	2.70%
09/12/2011	23.5	21.6	0.0158	2450	719	3209	Body	0.848	51.300	53.671	4.62%
09/12/2011	22.6	21.7	0.100	5200	1057	3550	Head	8.62	83.100	86.200	3.73%
09/12/2011	23.3	22.5	0.100	5200	1057	3550	Body	8.43	77.700	84.300	8.49%
09/12/2011	22.8	21.9	0.100	5500	1057	3550	Head	9.63	90.100	96.300	6.88%
09/12/2011	23.5	22.5	0.100	5500	1057	3550	Body	8.17	84.400	81.700	-3.20%
09/12/2011	23.1	22.3	0.100	5800	1057	3550	Head	8.66	82.900	86.600	4.46%
09/12/2011	23.6	22.7	0.100	5800	1057	3550	Body	7.56	75.000	75.600	0.80%

Note: Per KDB Publication 865664, when a reference dipole is not defined within ±100MHz of the test frequency, the system verification may be conducted within ± 200 MHz of the center frequency of the measurement frequencies if the SAR probe calibration is valid and the same tissue-equivalent matter is used for verification and test measurements.

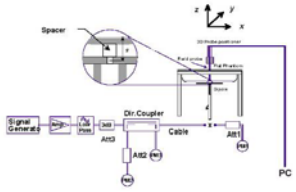


Figure 16-1
System Verification Setup Diagram

Figure 16-2
System Verification Setup Photo

17 SAR DATA SUMMARY

17.1 Head SAR Test Data

Table 17-1
Cell. CDMA Head SAR Results

MEASUREMENT RESULTS								
FREQUENCY		Mode/Band	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Serial Number	SAR (1g)
MHz	Ch.							(W/kg)
836.52	384	Cell. CDMA	24.90	0.03	Right	Touch	FCC#SAR1	0.261
836.52	384	Cell. CDMA	24.90	0.05	Right	Tilt	FCC#SAR1	0.160
836.52	384	Cell. CDMA	24.90	0.08	Left	Touch	FCC#SAR1	0.271
836.52	384	Cell. CDMA	24.90	0.05	Left	Tilt	FCC#SAR1	0.166
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population					Head 1.6 W/kg (mW/g) averaged over 1 gram			

Table 17-2
PCS CDMA Head SAR Results

MEASUREMENT RESULTS								
FREQUENCY		Mode/Band	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Serial Number	SAR (1g)
MHz	Ch.							(W/kg)
1880.00	600	PCS CDMA	24.58	-0.03	Right	Touch	FCC#SAR1	0.245
1880.00	600	PCS CDMA	24.58	0.03	Right	Tilt	FCC#SAR1	0.178
1880.00	600	PCS CDMA	24.58	-0.07	Left	Touch	FCC#SAR1	0.580
1880.00	600	PCS CDMA	24.58	0.09	Left	Tilt	FCC#SAR1	0.133
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population					Head 1.6 W/kg (mW/g) averaged over 1 gram			

Table 17-3
LTE Head SAR Results

MEASUREMENT RESULTS												
FREQUENCY		Mode/Band	Modulation	Conducted Power [dBm]	Power Drift [dB]	Target MPR [dB]	Side	Test Position	# of Resource Blocks	RB Offset	Serial Number	SAR (1g)
MHz	Ch.											(W/kg)
782	23230	LTE	QPSK	22.28	-0.06	0	Right	Touch	25	12	SAR#2	0.631
782	23230	LTE	QPSK	22.35	-0.01	0	Right	Touch	1	0	SAR#2	0.634
782	23230	LTE	QPSK	21.95	0.01	0	Right	Touch	1	49	SAR#2	0.563
782	23230	LTE	16QAM	21.35	0.02	1	Right	Touch	25	12	SAR#2	0.499
782	23230	LTE	16QAM	21.55	0.01	1	Right	Touch	1	0	SAR#2	0.531
782	23230	LTE	16QAM	21.20	-0.06	1	Right	Touch	1	49	SAR#2	0.451
782	23230	LTE	QPSK	22.28	0.07	0	Right	Tilt	25	12	SAR#2	0.485
782	23230	LTE	QPSK	22.35	-0.04	0	Right	Tilt	1	0	SAR#2	0.508
782	23230	LTE	QPSK	21.95	0.04	0	Right	Tilt	1	49	SAR#2	0.455
782	23230	LTE	16QAM	21.35	0.00	1	Right	Tilt	25	12	SAR#2	0.393
782	23230	LTE	16QAM	21.55	-0.09	1	Right	Tilt	1	0	SAR#2	0.392
782	23230	LTE	16QAM	21.20	0.02	1	Right	Tilt	1	49	SAR#2	0.350
782	23230	LTE	QPSK	22.28	-0.02	0	Left	Touch	25	12	SAR#2	0.542
782	23230	LTE	QPSK	22.35	0.02	0	Left	Touch	1	0	SAR#2	0.592
782	23230	LTE	QPSK	21.95	-0.03	0	Left	Touch	1	49	SAR#2	0.476
782	23230	LTE	16QAM	21.35	0.05	1	Left	Touch	25	12	SAR#2	0.431
782	23230	LTE	16QAM	21.55	0.04	1	Left	Touch	1	0	SAR#2	0.454
782	23230	LTE	16QAM	21.20	0.05	1	Left	Touch	1	49	SAR#2	0.398
782	23230	LTE	QPSK	22.28	0.01	0	Left	Tilt	25	12	SAR#2	0.376
782	23230	LTE	QPSK	22.35	0.05	0	Left	Tilt	1	0	SAR#2	0.411
782	23230	LTE	QPSK	21.95	-0.06	0	Left	Tilt	1	49	SAR#2	0.367
782	23230	LTE	16QAM	21.35	0.04	1	Left	Tilt	25	12	SAR#2	0.305
782	23230	LTE	16QAM	21.55	-0.02	1	Left	Tilt	1	0	SAR#2	0.323
782	23230	LTE	16QAM	21.20	0.06	1	Left	Tilt	1	49	SAR#2	0.293
ANSI / IEEE C95.1 1992 - SAFETY LIMIT **Spatial Peak** **Uncontrolled Exposure/General Population**							**Head** **1.6 W/kg (mW/g)** averaged over 1 gram					

Table 17-4
2.4 GHz WLAN Head SAR Results

MEASUREMENT RESULTS										
FREQUENCY		Mode	Service	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Serial Number	Data Rate (Mbps)	SAR (1g)
MHz	Ch.									(W/kg)
2462	11	IEEE 802.11b	DSSS	11.89	0.06	Right	Touch	FCC#SAR1	1	0.031
2462	11	IEEE 802.11g	OFDM	14.80	0.01	Right	Touch	FCC#SAR1	6	0.062
2462	11	IEEE 802.11n	OFDM	13.92	-0.02	Right	Touch	FCC#SAR1	6.5	0.048
2462	11	IEEE 802.11b	DSSS	11.89	0.07	Right	Tilt	FCC#SAR1	1	0.020
2462	11	IEEE 802.11g	OFDM	14.80	0.05	Right	Tilt	FCC#SAR1	6	0.039
2462	11	IEEE 802.11n	OFDM	13.92	0.07	Right	Tilt	FCC#SAR1	6.5	0.030
2462	11	IEEE 802.11b	DSSS	11.89	0.09	Left	Touch	FCC#SAR1	1	0.076
2462	11	IEEE 802.11g	OFDM	14.80	0.02	Left	Touch	FCC#SAR1	6	0.144
2462	11	IEEE 802.11n	OFDM	13.92	0.05	Left	Touch	FCC#SAR1	6.5	0.115
2462	11	IEEE 802.11b	DSSS	11.89	0.07	Left	Tilt	FCC#SAR1	1	0.029
2462	11	IEEE 802.11g	OFDM	14.80	0.04	Left	Tilt	FCC#SAR1	6	0.059
2462	11	IEEE 802.11n	OFDM	13.92	0.02	Left	Tilt	FCC#SAR1	6.5	0.045
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						Head 1.6 W/kg (mW/g) averaged over 1 gram				

Table 17-5
5.2 GHz WLAN Head SAR Results

MEASUREMENT RESULTS										
FREQUENCY		Mode	Service	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Serial Number	Data Rate (Mbps)	SAR (1g)
MHz	Ch.									(W/kg)
5200	40	IEEE 802.11a	OFDM	14.84	0.02	Right	Touch	FCC#SAR1	6	0.017
5200	40	IEEE 802.11a	OFDM	14.84	0.09	Right	Tilt	FCC#SAR1	6	0.018
5200	40	IEEE 802.11a	OFDM	14.84	0.05	Left	Touch	FCC#SAR1	6	0.092
5200	40	IEEE 802.11a	OFDM	14.84	0.08	Left	Tilt	FCC#SAR1	6	0.037
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						Head 1.6 W/kg (mW/g) averaged over 1 gram				

Table 17-6
5.3 GHz Head SAR Results

MEASUREMENT RESULTS										
FREQUENCY		Mode	Service	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Serial Number	Data Rate (Mbps)	SAR (1g)
MHz	Ch.									(W/kg)
5280	56	IEEE 802.11a	OFDM	14.95	0.02	Right	Touch	FCC#SAR1	6	0.020
5280	56	IEEE 802.11a	OFDM	14.95	0.07	Right	Tilt	FCC#SAR1	6	0.024
5280	56	IEEE 802.11a	OFDM	14.95	0.05	Left	Touch	FCC#SAR1	6	0.109
5280	56	IEEE 802.11a	OFDM	14.95	0.08	Left	Tilt	FCC#SAR1	6	0.124
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						Head 1.6 W/kg (mW/g) averaged over 1 gram				

Table 17-7
5.5 GHz Head SAR Results

MEASUREMENT RESULTS										
FREQUENCY		Mode	Service	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Serial Number	Data Rate (Mbps)	SAR (1g)
MHz	Ch.									(W/kg)
5500	100	IEEE 802.11a	OFDM	14.70	0.02	Right	Touch	FCC#SAR1	6	0.032
5500	100	IEEE 802.11a	OFDM	14.70	0.09	Right	Tilt	FCC#SAR1	6	0.038
5500	100	IEEE 802.11a	OFDM	14.70	0.05	Left	Touch	FCC#SAR1	6	0.205
5500	100	IEEE 802.11a	OFDM	14.70	0.04	Left	Tilt	FCC#SAR1	6	0.084
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						Head 1.6 W/kg (mW/g) averaged over 1 gram				

Table 17-8
5.8 GHz Head SAR Results

MEASUREMENT RESULTS										
FREQUENCY		Mode	Service	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Serial Number	Data Rate (Mbps)	SAR (1g)
MHz	Ch.									(W/kg)
5745	149	IEEE 802.11a	OFDM	14.60	0.02	Right	Touch	FCC#SAR1	6	0.049
5745	149	IEEE 802.11a	OFDM	14.60	0.08	Right	Tilt	FCC#SAR1	6	0.032
5745	149	IEEE 802.11a	OFDM	14.60	0.05	Left	Touch	FCC#SAR1	6	0.065
5745	149	IEEE 802.11a	OFDM	14.60	0.04	Left	Tilt	FCC#SAR1	6	0.120
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						Head 1.6 W/kg (mW/g) averaged over 1 gram				

17.2 Body-Worn SAR Test Data

Table 17-9
CDMA Body-Worn SAR Results

MEASUREMENT RESULTS										
FREQUENCY		Mode	Service	Conducted Power [dBm]	Power Drift [dB]	Position	Spacing	Serial Number	Side	SAR (1g)
MHz	Ch.									(W/kg)
836.52	384	Cell. CDMA	TDSO32	24.80	0.05	Body	1.0 cm	FCC#SAR1	back	0.479
1851.25	25	PCS CDMA	TDSO32	24.10	-0.08	Body	1.0 cm	FCC#SAR1	back	0.440
1880.00	600	PCS CDMA	TDSO32	24.65	-0.06	Body	1.0 cm	FCC#SAR1	back	0.879
1908.75	1175	PCS CDMA	TDSO32	24.48	-0.05	Body	1.0 cm	FCC#SAR1	back	0.811
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Body 1.6 W/kg (mW/g) averaged over 1 gram			

Table 17-10
LTE Body-Worn SAR Results

MEASUREMENT RESULTS													
FREQUENCY		Mode	Service	Conducted Power [dBm]	Power Drift [dB]	Target MPR [dB]	Position	Spacing	Serial Number	# of Resource Blocks	RB Offset	Side	SAR (1g)
MHz	Ch.												(W/kg)
782	23230	LTE	QPSK	22.28	0.08	0	Body	1.0 cm	SAR#2	25	12	back	0.206
782	23230	LTE	QPSK	22.35	0.04	0	Body	1.0 cm	SAR#2	1	0	back	0.244
782	23230	LTE	QPSK	21.95	-0.08	0	Body	1.0 cm	SAR#2	1	49	back	0.170
782	23230	LTE	16QAM	21.35	0.09	1	Body	1.0 cm	SAR#2	25	12	back	0.163
782	23230	LTE	16QAM	21.55	-0.02	1	Body	1.0 cm	SAR#2	1	0	back	0.202
782	23230	LTE	16QAM	21.20	0.01	1	Body	1.0 cm	SAR#2	1	49	back	0.137
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Body 1.6 W/kg (mW/g) averaged over 1 gram						

Table 17-11
2.4 GHz WLAN Body-Worn SAR Results

MEASUREMENT RESULTS											
FREQUENCY		Mode	Service	Conducted Power [dBm]	Power Drift [dB]	Position	Spacing	Serial Number	Data Rate (Mbps)	Side	SAR (1g)
MHz	Ch.										(W/kg)
2462	11	IEEE 802.11b	DSSS	11.89	-0.01	Body	1.0 cm	FCC#SAR1	1	back	0.048
2462	11	IEEE 802.11g	OFDM	14.80	0.01	Body	1.0 cm	FCC#SAR1	6	back	0.130
2462	11	IEEE 802.11n	OFDM	13.92	-0.07	Body	1.0 cm	FCC#SAR1	6.5	back	0.114
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Body 1.6 W/kg (mW/g) averaged over 1 gram				

Table 17-12
5 GHz WLAN Body-Worn SAR Results

MEASUREMENT RESULTS											
FREQUENCY		Mode	Service	Conducted Power [dBm]	Power Drift [dB]	Position	Spacing	Serial Number	Data Rate (Mbps)	Side	SAR (1g)
MHz	Ch.										(W/kg)
5200	40	IEEE 802.11a	OFDM	14.84	0.09	Body	1.0 cm	FCC#SAR1	6	back	0.359
5280	56	IEEE 802.11a	OFDM	14.95	0.09	Body	1.0 cm	FCC#SAR1	6	back	0.511
5500	100	IEEE 802.11a	OFDM	14.70	0.08	Body	1.0 cm	FCC#SAR1	6	back	0.401
5745	149	IEEE 802.11a	OFDM	14.60	0.06	Body	1.0 cm	FCC#SAR1	6	back	0.337
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Body 1.6 W/kg (mW/g) averaged over 1 gram				

17.3 Hotspot SAR Data

Table 17-13
CDMA Hotspot Body SAR Results

MEASUREMENT RESULTS										
FREQUENCY		Mode	Service	Conducted Power [dBm]	Power Drift [dB]	Position	Spacing	Serial Number	Side	SAR (1g)
MHz	Ch.									(W/kg)
836.52	384	Cell. CDMA	TDSO32	24.80	0.05	Body	1.0 cm	FCC#SAR1	back	0.479
836.52	384	Cell. CDMA	TDSO32	24.80	-0.02	Body	1.0 cm	FCC#SAR1	front	0.384
836.52	384	Cell. CDMA	TDSO32	24.80	0.01	Body	1.0 cm	FCC#SAR1	bottom	0.197
836.52	384	Cell. CDMA	TDSO32	24.80	0.01	Body	1.0 cm	FCC#SAR1	left	0.602
836.52	384	Cell. CDMA	EVDO	24.75	0.03	Body	1.0 cm	FCC#SAR1	back	0.433
836.52	384	Cell. CDMA	EVDO	24.75	-0.03	Body	1.0 cm	FCC#SAR1	front	0.369
836.52	384	Cell. CDMA	EVDO	24.75	-0.04	Body	1.0 cm	FCC#SAR1	bottom	0.211
836.52	384	Cell. CDMA	EVDO	24.75	0.01	Body	1.0 cm	FCC#SAR1	left	0.552
1851.25	25	PCS CDMA	TDSO32	24.10	-0.08	Body	1.0 cm	FCC#SAR1	back	0.440
1880.00	600	PCS CDMA	TDSO32	24.65	-0.05	Body	1.0 cm	FCC#SAR1	back	0.879
1908.75	1175	PCS CDMA	TDSO32	24.48	-0.05	Body	1.0 cm	FCC#SAR1	back	0.811
1880.00	600	PCS CDMA	TDSO32	24.65	0.03	Body	1.0 cm	FCC#SAR1	front	0.693
1851.25	25	PCS CDMA	TDSO32	24.10	0.04	Body	1.0 cm	FCC#SAR1	bottom	0.583
1880.00	600	PCS CDMA	TDSO32	24.65	-0.06	Body	1.0 cm	FCC#SAR1	bottom	1.010
1908.75	1175	PCS CDMA	TDSO32	24.48	-0.08	Body	1.0 cm	FCC#SAR1	bottom	0.914
1880.00	600	PCS CDMA	TDSO32	24.65	-0.04	Body	1.0 cm	FCC#SAR1	left	0.386
1851.25	25	PCS CDMA	EVDO	24.06	-0.06	Body	1.0 cm	FCC#SAR1	back	0.448
1880.00	600	PCS CDMA	EVDO	24.54	-0.01	Body	1.0 cm	FCC#SAR1	back	0.957
1908.75	1175	PCS CDMA	EVDO	24.41	-0.03	Body	1.0 cm	FCC#SAR1	back	0.753
1880.00	600	PCS CDMA	EVDO	24.54	0.02	Body	1.0 cm	FCC#SAR1	front	0.637
1880.00	600	PCS CDMA	EVDO	24.54	-0.09	Body	1.0 cm	FCC#SAR1	bottom	0.758
1880.00	600	PCS CDMA	EVDO	24.54	0.00	Body	1.0 cm	FCC#SAR1	left	0.346

Table 17-14
LTE Hotspot Body SAR Results

MEASUREMENT RESULTS													
FREQUENCY		Mode	Service	Conducted Power [dBm]	Power Drift [dB]	Target MPR [dB]	Position	Spacing	Serial Number	# of Resource Blocks	RB Offset	Side	SAR (1g)
MHz	Ch.												(W/kg)
782	23230	LTE	QPSK	22.28	0.08	0	Body	1.0 cm	SAR#2	25	12	back	0.206
782	23230	LTE	QPSK	22.35	0.04	0	Body	1.0 cm	SAR#2	1	0	back	0.244
782	23230	LTE	QPSK	21.95	-0.08	0	Body	1.0 cm	SAR#2	1	49	back	0.170
782	23230	LTE	16QAM	21.35	0.09	1	Body	1.0 cm	SAR#2	25	12	back	0.163
782	23230	LTE	16QAM	21.55	-0.02	1	Body	1.0 cm	SAR#2	1	0	back	0.202
782	23230	LTE	16QAM	21.20	0.01	1	Body	1.0 cm	SAR#2	1	49	back	0.137
782	23230	LTE	QPSK	22.28	-0.04	0	Body	1.0 cm	SAR#2	25	12	front	0.189
782	23230	LTE	QPSK	22.35	-0.06	0	Body	1.0 cm	SAR#2	1	0	front	0.230
782	23230	LTE	QPSK	21.95	0.06	0	Body	1.0 cm	SAR#2	1	49	front	0.155
782	23230	LTE	16QAM	21.35	0.10	1	Body	1.0 cm	SAR#2	25	12	front	0.150
782	23230	LTE	16QAM	21.55	0.00	1	Body	1.0 cm	SAR#2	1	0	front	0.186
782	23230	LTE	16QAM	21.20	0.04	1	Body	1.0 cm	SAR#2	1	49	front	0.123
782	23230	LTE	QPSK	22.28	-0.06	0	Body	1.0 cm	SAR#2	25	12	top	0.057
782	23230	LTE	QPSK	22.35	0.07	0	Body	1.0 cm	SAR#2	1	0	top	0.064
782	23230	LTE	QPSK	21.95	0.05	0	Body	1.0 cm	SAR#2	1	49	top	0.063
782	23230	LTE	16QAM	21.35	-0.03	1	Body	1.0 cm	SAR#2	25	12	top	0.043
782	23230	LTE	16QAM	21.55	-0.04	1	Body	1.0 cm	SAR#2	1	0	top	0.050
782	23230	LTE	16QAM	21.20	-0.07	1	Body	1.0 cm	SAR#2	1	49	top	0.048
782	23230	LTE	QPSK	22.28	-0.02	0	Body	1.0 cm	SAR#2	25	12	left	0.199
782	23230	LTE	QPSK	22.35	-0.08	0	Body	1.0 cm	SAR#2	1	0	left	0.243
782	23230	LTE	QPSK	21.95	-0.03	0	Body	1.0 cm	SAR#2	1	49	left	0.128
782	23230	LTE	16QAM	21.35	0.07	1	Body	1.0 cm	SAR#2	25	12	left	0.164
782	23230	LTE	16QAM	21.55	-0.02	1	Body	1.0 cm	SAR#2	1	0	left	0.187
782	23230	LTE	16QAM	21.20	0.00	1	Body	1.0 cm	SAR#2	1	49	left	0.107
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Body 1.6 W/kg (mW/g) averaged over 1 gram					

Table 17-15
2.4 GHz WLAN Hotspot Body SAR Results

MEASUREMENT RESULTS											
FREQUENCY		Mode	Service	Conducted Power [dBm]	Power Drift [dB]	Position	Spacing	Data Rate (Mbps)	Serial Number	Side	SAR (1g)
MHz	Ch.										(W/kg)
2462	11	IEEE 802.11b	DSSS	11.89	-0.01	Body	1.0 cm	1	FCC#SAR1	back	0.048
2462	11	IEEE 802.11g	OFDM	14.80	0.01	Body	1.0 cm	6	FCC#SAR1	back	0.130
2462	11	IEEE 802.11n	OFDM	13.92	0.00	Body	1.0 cm	6.5	FCC#SAR1	back	0.114
2462	11	IEEE 802.11b	DSSS	11.89	0.08	Body	1.0 cm	1	FCC#SAR1	front	0.020
2462	11	IEEE 802.11g	OFDM	14.80	0.04	Body	1.0 cm	6	FCC#SAR1	front	0.043
2462	11	IEEE 802.11n	OFDM	13.92	0.02	Body	1.0 cm	6.5	FCC#SAR1	front	0.033
2462	11	IEEE 802.11b	DSSS	11.89	0.08	Body	1.0 cm	1	FCC#SAR1	right	0.069
2462	11	IEEE 802.11g	OFDM	14.80	0.07	Body	1.0 cm	6	FCC#SAR1	right	0.148
2462	11	IEEE 802.11n	OFDM	13.92	-0.02	Body	1.0 cm	6.5	FCC#SAR1	right	0.103
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Body 1.6 W/kg (mW/g) averaged over 1 gram				

17.4 SAR Testing Notes

General Notes:

1. The test data reported are the worst-case SAR value with the position set in a typical configuration. Test procedures used were according to FCC/OET Bulletin 65, Supplement C.
2. Batteries are fully charged for all readings.
3. Tissue parameters and temperatures are listed on the SAR plots.
4. Liquid tissue depth was at least 15.0 cm.
5. Device was tested using a fixed spacing for body-worn testing. A separation distance of 10 mm was tested because the manufacturer has determined that there will be body-worn accessories available in the marketplace for users to support this separation distance.
6. Samples tested for CDMA, WIFI, and LTE were electrically identical per the applicant.
7. The standard battery contains a near field communications (NFC) antenna, and is the only battery that comes with the device. Per KDB Inquiry 277820, all tests were performed using the standard NFC battery. The technical description contains detailed information about the near field communications antenna. As described in Operational Description, the device does not allow any other battery other than model: EB-L1D7IVZ.

CDMA/EVDO Notes:

1. Per FCC/OET Bulletin 65 Supplement C and Public Notice DA-02-1438, if the SAR measured at the middle channel for each test configuration 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).
2. Head SAR was tested with SO55 RC3. SO55 RC1 was not required since the average output power was not more than 0.25 dB than the SO55 RC3 powers.
3. Body-Worn SAR was tested with TDSO32 FCH. TDSO32 FCH+SCH and EVDO SAR tests for body-worn were not required since the maximum average output powers were not more than 0.25 dB higher than the maximum average powers for TDSO32 FCH.

LTE Notes:

1. Considerations: LTE test configurations are determined according to SAR Test Considerations for LTE handsets and Data Modems KDB 941225 D05 Publication:
   a. Per KDB Publication 941225 D05 Page 4, 3) A), QPSK with 50% RB is required for the highest bandwidth (10 MHz).
   b. Per KDB Publication 941225 D05 Page 4, 3) B), QPSK with 1 RB for both channel edges are required for the highest bandwidth (10 MHz).
   c. Per KDB Publication 941225 D05 Page 4, 4) A), 16QAM with 50% RB is required for the highest bandwidth (10 MHz).
   d. Per KDB Publication 941225 D05 Page 4, 4) B), 16QAM with 1RB for both channel edges are required for the highest bandwidth (10 MHz).
   e. Per KDB Publication 941225 D05 Page 4, A) I), 100% RB Allocation is not required to be tested since SAR is not > 1.45 W/kg for the highest bandwidth (10 MHz).
2. There is a permanently applied MPR implemented by the manufacturer. MPR is enabled for this device, according to 3GPP TS36.101 Section 6.2.3 – 6.2.5 under Table 6.2.3-1. The differences noted are not cases of implemented MPR but rather associated with measurement uncertainty and allowable tolerances per 3GPP standard and the manufacturer.
3. A-MPR was disabled for all SAR tests.
4. LTE Head SAR was evaluated to cover third-party VOIP applications that may result in LTE being used held to the ear, in addition to possible simultaneous transmission scenarios when LTE data transmits with CDMA Voice operations (i.e. SVLTE). See Section 18.1.
5. Standalone LTE SAR was tested at maximum power.

Bluetooth/WLAN Notes

1. Justification for reduced test configurations for WIFI channels per KDB Publication 248227 and April 2010 FCC/TCB Meeting Notes:
   a. For 2.4 GHz, highest average RF output power channel for the lowest data rate were selected for SAR evaluation for each IEEE 802.11 mode. Higher data rates were not tested since the average output powers were not greater than 0.25 dB than that of the tested channel in the lowest data rate IEEE 802.11b mode. IEEE 802.11g and IEEE 802.11n modes were tested since the average output powers were more than 0.25 dB than that of the tested channel in the lowest data rate IEEE 802.11b mode.
   b. For 5 GHz WLAN, highest average RF output power channel for the lowest data rate were selected for SAR evaluation. IEEE 802.11n and higher data rates were not investigated since the average output powers were not greater than 0.25 dB than that of the tested channel in the lowest data rate IEEE 802.11a mode.
2. WLAN transmission was verified using a spectrum analyzer.
3. RF Conducted power of Bluetooth was measured to be 10.57 mW. Based on the output power, antenna separation distance, and the Body SAR, per KDB 648474 publication, a stand-alone Bluetooth SAR test is not required.
4. When the hotspot feature is enabled or active, all 5 GHz bands WIFI operations are disabled and cannot be used, including 5 GHz bands WIFI with 1x Voice operations.

Hotspot Notes:

1. SAR was evaluated for each frequency transmission and mode separately and summed with the WIFI transmitter according to KDB 648474 publication procedures. The “Portable Hotspot” feature on the handset was NOT activated, to ensure the SAR measurements were evaluated for a single transmission frequency RF signal. When the hotspot feature is enabled or active, all 5 GHz bands WIFI operations are disabled and cannot be used, including 5 GHz bands WIFI with 1x Voice operations.
2. CDMA Hotspot SAR was tested with EVDO Rev 0 and TDSO32. TDSO32 SAR tests were evaluated for wireless router edges/sides to address the body-worn CDMA Voice + LTE WIFI Hotspot simultaneous transmission scenario. EVDO Rev A and TDSO32+SCH SAR tests were not required since the average output power was not more than 0.25 dB higher than the EVDO Rev. 0 powers.
3. Per FCC KDB Publication 941225 D06, when the same wireless modes and device transmission configurations are required for body-worn accessories and hotspot mode, it is not necessary to additionally test body-worn accessory SAR for the same device orientation. Therefore, the hotspot data for the back side configuration additionally shows body-worn compliance for WLAN and LTE.

18 SIMULTANEOUS TRANSMISSION ANALYSIS

18.1 Simultaneous Transmission Scenarios

The following table shows exposure conditions for all transmitters operating in the DUT:

Table 18-1
Simultaneous Transmission Scenarios

Capable Transmit Configurations	Head	Body-Worn Accessory	Hot Spot	Note
	IEEE 1528, Supp C	Supplement C	FCC KDB 941225 D06 edges/sides	
1X CDMA 850 Voice + LTE 782 MHz Data	√	√	N/A	SVLTE
1X CDMA 1900 Voice + LTE 782 MHz Data	√	√	N/A	SVLTE
1X CDMA 850 Voice + LTE 782 MHz Data + 2.4 GHz WIFI	√	√	√	Voice and LTE+WIFI Hotspot
1X CDMA 1900 Voice + LTE 782 MHz Data + 2.4 GHz WIFI	√	√	√	Voice and LTE+WIFI Hotspot
1X CDMA 850 Voice + 2.4 GHz WIFI	√	√	N/A	1X voice and WiFi Data
1X CDMA 1900 Voice + 2.4 GHz WIFI	√	√	N/A	1X voice and WiFi Data
1X CDMA 850 Voice + 5 GHz WIFI	√	√	N/A	1X voice and WiFi Data
1X CDMA 1900 Voice + 5 GHz WIFI	√	√	N/A	1X voice and WiFi Data
1X/EVDO 850 Data + 2.4 GHz WIFI	N/A	N/A	√	EVDO+WIFI Hotspot
1X/EVDO 1900 Data + 2.4 GHz WIFI	N/A	N/A	√	EVDO+WIFI Hotspot
LTE 782 MHz Data + 2.4 GHz WIFI	N/A	N/A	√	LTE+WIFI Hotspot
LTE 782 MHz Data + 2.4 GHz WIFI VoIP	√	√	N/A	LTE+2.4G WIFI VoIP
LTE 782 MHz Data + 5 GHz WIFI VoIP	√	√	N/A	LTE+5G WIFI VoIP

CDMA/EVDO share the same antenna path and cannot transmit simultaneously. Bluetooth, 2.4 GHz WLAN and 5 GHz WLAN share the same antenna path and cannot transmit simultaneously. The device does not support EVDO + WIFI Voice simultaneously.

18.2 Held to Ear Simultaneous Transmission Scenarios

Table 18-2
Held to Ear Simultaneous Transmission (CDMA, 2.4 GHz WIFI, LTE)

Simult Tx	Configuration	Cell. CDMA SAR (W/kg)	2.4 GHz WIFI SAR (W/kg)	LTE SAR (W/kg)	Σ SAR (W/kg)			
		1	2	3	1+2	2+3	1+3	1+2+3
Head SAR	Right Cheek	0.261	0.062	0.634	0.323	0.696	0.895	0.957
	Right Tilt	0.160	0.039	0.508	0.199	0.547	0.668	0.707
	Left Cheek	0.271	0.144	0.592	0.415	0.736	0.863	**1.007**
	Left Tilt	0.166	0.059	0.411	0.225	0.470	0.577	0.636

Simult Tx	Configuration	PCS CDMA SAR (W/kg)	2.4 GHz WIFI SAR (W/kg)	LTE SAR (W/kg)	Σ SAR (W/kg)			
		1	2	3	1+2	2+3	1+3	1+2+3
Head SAR	Right Cheek	0.245	0.062	0.634	0.307	0.696	0.879	0.941
	Right Tilt	0.178	0.039	0.508	0.217	0.547	0.686	0.725
	Left Cheek	0.580	0.144	0.592	0.724	0.736	1.172	**1.316**
	Left Tilt	0.133	0.059	0.411	0.192	0.470	0.544	0.603

Table 18-3
Held to Ear Simultaneous Transmission (CDMA, 5 GHz WIFI, LTE)

Simult Tx	Configuration	Cell. CDMA SAR (W/kg)	5 GHz WIFI SAR (W/kg)	LTE SAR (W/kg)	∑ SAR (W/kg)			
		1	2	3	1+2	2+3	1+3	1+2+3
Head SAR	Right Cheek	0.261	0.049	0.634	0.310	0.683	**0.895**	N/A
	Right Tilt	0.160	0.038	0.508	0.198	0.546	0.668	N/A
	Left Cheek	0.271	0.205	0.592	0.476	0.797	0.863	N/A
	Left Tilt	0.166	0.124	0.411	0.290	0.535	0.577	N/A

Simult Tx	Configuration	PCS CDMA SAR (W/kg)	5 GHz WIFI SAR (W/kg)	LTE SAR (W/kg)	∑ SAR (W/kg)			
		1	2	3	1+2	2+3	1+3	1+2+3
Head SAR	Right Cheek	0.245	0.049	0.634	0.294	0.683	0.879	N/A
	Right Tilt	0.178	0.038	0.508	0.216	0.546	0.686	N/A
	Left Cheek	0.580	0.205	0.592	0.785	0.797	**1.172**	N/A
	Left Tilt	0.133	0.124	0.411	0.257	0.535	0.544	N/A

18.3 Body-Worn Accessory Simultaneous Transmission Scenarios

Table 18-4
Body-Worn Simultaneous Transmission (CDMA, 2.4 GHz WIFI, LTE)

Configuration	Mode	1x CDMA SAR (W/kg)	2.4 GHz WIFI SAR (W/kg)	LTE SAR (W/kg)	∑ SAR (W/kg)			
		1	2	3	1+2	1+3	2+3	1+2+3
Back Side	Cell CDMA	0.479	0.130	0.244	0.609	0.723	0.374	0.853
Back Side	PCS CDMA	0.879	0.130	0.244	1.009	1.123	0.374	**1.253**

Table 18-5
Body-Worn Simultaneous Transmission (CDMA, 5 GHz WIFI, LTE)

Configuration	Mode	1x CDMA SAR (W/kg)	5 GHz WIFI SAR (W/kg)	LTE SAR (W/kg)	∑ SAR (W/kg)			
		1	2	3	1+2	1+3	2+3	1+2+3
Back Side	Cell CDMA	0.479	0.511	0.244	0.990	0.511	0.755	N/A
Back Side	PCS CDMA	0.879	0.511	0.244	**1.390**	0.511	0.755	N/A

18.4 Hotspot Simultaneous Transmission Scenarios

Table 18-6
Hotspot Simultaneous Transmission Scenarios (CDMA, 2.4 GHz WIFI, LTE)

Simult Tx	Configuration	Cell. 1x Voice CDMA SAR (W/kg)	2.4 GHz WIFI SAR (W/kg)	LTE SAR (W/kg)	Σ SAR (W/kg)	
		1	2	3	2+3	1+2+3
Body SAR	Back	0.479	0.130	0.244	0.374	**0.853**
	Front	0.384	0.043	0.230	0.273	0.657
	Top	-	-	0.064	0.064	0.064
	Bottom	0.197	-	-	0.000	0.197
	Right	-	0.148	-	0.148	0.148
	Left	0.602	-	0.243	0.243	0.845

Simult Tx	Configuration	PCS 1x Voice CDMA SAR (W/kg)	2.4 GHz WIFI SAR (W/kg)	LTE SAR (W/kg)	Σ SAR (W/kg)	
		1	2	3	2+3	1+2+3
Body SAR	Back	0.879	0.130	0.244	0.374	**1.253**
	Front	0.693	0.043	0.230	0.273	0.966
	Top	-	-	0.064	0.064	0.064
	Bottom	0.101	-	-	0.000	0.101
	Right	-	0.148	-	0.148	0.148
	Left	0.386	-	0.243	0.243	0.629

Simult Tx	Configuration	Cell. EVDO CDMA SAR (W/kg)	2.4 GHz WIFI SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Body SAR	Back	0.433	0.130	**0.563**
	Front	0.369	0.043	0.412
	Top	-	-	0.000
	Bottom	0.211	-	0.211
	Right	-	0.148	0.148
	Left	0.552	-	0.552

Simult Tx	Configuration	PCS EVDO CDMA SAR (W/kg)	2.4 GHz WIFI SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Body SAR	Back	0.957	0.130	**1.087**
	Front	0.637	0.043	0.680
	Top	-	-	0.000
	Bottom	0.758	-	0.758
	Right	-	0.148	0.148
	Left	0.346	-	0.346

Note: "-" indicates a configuration that was not required to be measured according to Section 13.6 and is 0 W/kg for summation analysis.

18.5 Simultaneous Transmission Conclusion

The numerical summed SAR calculations for simultaneous transmissions were below the SAR limit. Therefore, the above analysis is sufficient to determine that actual simultaneous transmissions will not exceed the SAR limit. No volumetric SAR summation is required according to FCC KDB Publication 648474.

19 SVLTE POWER REDUCTION CONSIDERATIONS

19.1 Introduction

This DUT is capable of Simultaneous Voice and LTE (SVLTE) calls, with the voice call supported by a CDMA 1xRTT transmitter and the data connection supported by a LTE transmitter. The transmitters have separate transmit antennas and RF circuitry (PA, RF filtering), however a dynamic LTE power reduction scheme is applied during a SVLTE call with the 1xRTT voice call in the cell band for any channel between 1013 and 400 (824.75 – 837 MHz). This LTE power reduction can be controlled by CDMA Received Signal Strength Indicator (RSSI) and Ec/Io levels. RSSI is a relative indicator of the power level being received by the antenna. Ec/Io is a ratio of signal power to total power, demonstrating the level of signal quality. Power reduction is only applicable for LTE modes and not for CDMA modes during SVLTE calls. The device also operates in the PCS band but LTE power reduction is not applied during PCS band 1xRTT calls. LTE does not operate simultaneously with EVDO in both cell and PCS bands. LTE power reduction is not implemented for SAR compliance.

19.2 LTE Power Reduction and SVLTE Test and Setup Configuration

The LTE power reduction was investigated by simultaneously connecting the DUT to both LTE and CDMA base station simulators. LTE output powers were measured through conducted RF connections by first placing the LTE data call and then the cell band 1xRTT call. CDMA RSSI and Ec/Io levels were controlled using the 8960 base station simulator and verified on the DUT with a monitoring mode while conducted powers were measured. Per KDB Inquiry 834288, SVLTE SAR was evaluated at 22.5 dBm and 19 dBm to verify that there are no noticeable changes in the SAR distribution characteristics due to conditions that require LTE power reduction. Since CDMA RSSI and Ec/Io cannot be maintained in a radiated environment, LTE power was fixed during SAR tests to ensure a constant power throughout the evaluation.

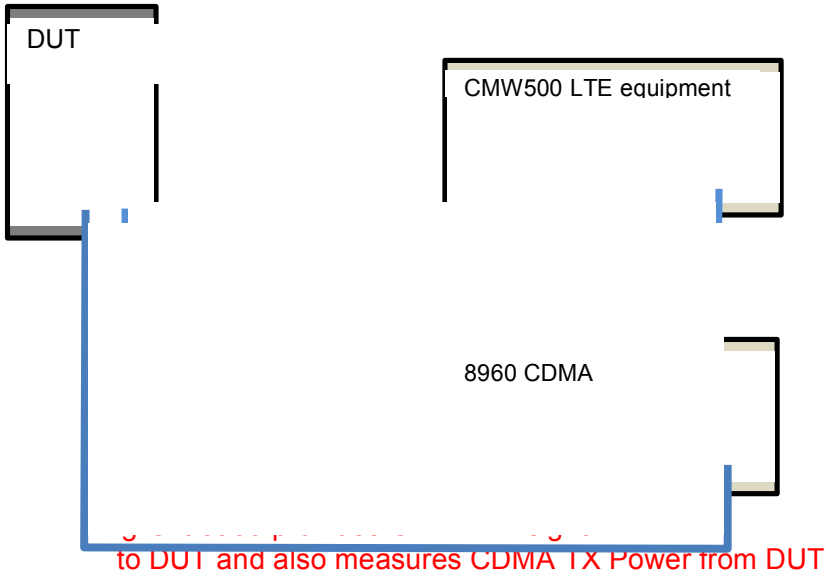


Figure 19-1
SVLTE Conducted Test Setup Diagram

19.3 LTE Power Reduction

19.3.1 LTE Power Reduction Data

Table 19-1
Allowed LTE Powers during SVLTE mode (dBm)

RSSI	Ec/Io(dB)			
(dBm)	≥-9	-10,-11	-12,-13	≤-14
≥-89	22.5	22.5	22.5	22.5
-90~-94		19	15	8
≤-95	8	8	8	

Tolerance ± 0.5 dB

Table 19-2
Measured LTE Powers during SVLTE mode (dBm)

RSSI	Ec/Io(dB)			
(dBm)	≥-9	-10,-11	-12,-13	≤-14
≥-89	22.76	22.6	22.79	22.70
-90~-94		19.30	15.43	8.30
≤-95	8.23	8.19	8.22	

With a CDMA Voice call and LTE Data session active, CDMA RSSI and Ec/Io levels were configured using the Agilent 8960 base station simulator through a DUT monitoring mode while LTE conducted powers were measured and verified at the various RSSI and Ec/Io levels.

There are 4 conditions of RSSI and Ec/Io combinations that can trigger the 22.5 dBm LTE output. The evaluation of SVLTE at 22.5 and 19 dBm are based on conditions that would result in worst-case SAR to verify that there is no noticeable change in the SAR distribution characteristics due to the conditions that require LTE power reduction per KDB Inquiry 834288.

19.4 SVLTE SAR Test Data per the KDB FCC Lab Inquiry 834288

Test Config	Mode	CDMA Channel	CDMA RC/SO	LTE Config	SAR (W/kg)	
					19 dBm LTE	23 dBm LTE
Left Touch	SVLTE	384	RC3/SO55	QPSK, RB1, RB Offset 0	0.372	0.681
Right Touch	SVLTE	384	RC3/SO55	QPSK, RB1, RB Offset 0	0.434	0.826
Right Touch	SVLTE	1013	RC3/SO55	QPSK, RB1, RB Offset 0	0.422	0.799
Body-worn, Back	SVLTE	384	RC3/SO32	QPSK, RB1, RB Offset 0	0.483	0.616
Body-worn, Back	SVLTE	1013	RC3/SO32	QPSK, RB1, RB Offset 0	0.511	0.71

SVLTE SAR Notes per Lab KDB Inquiry 834228:

1. SVLTE was evaluated with a 1xRTT voice call on cell CDMA channel 384 at maximum output conditions with LTE transmitting for left and right touch and body-worn positions. SVLTE SAR was additionally evaluated on cell CDMA channel 1013 for the highest head and body SAR configurations measured with channel 384.
2. The LTE configuration of QPSK, RB1, RB Offset 0 represented the worst case condition according to the standalone SAR results for each particular test configuration (Left Touch, Right Touch, and Body-worn Back).
3. SVLTE was tested with LTE in QPSK mode since maximum output powers for 16QAM were not more than 0.25 dB greater than QPSK powers.
4. SVLTE with LTE 50% RB allocation was not tested since standalone SAR for LTE 50% RB allocation was not higher than 0.8 W/kg nor maximum output power more than 0.5 dB higher than tested 1 RB conditions.
5. The same tissue-equivalent liquid and probe calibration factors for cell band 1xRTT was used for simultaneous 1xRTT and LTE SAR tests.
6. See Figure 13-1 (p.24) for antenna locations and SAR Plots on pp. 57, 60, 62, 64, 97 and 102 for standalone 1xRTT and LTE SAR distribution plots. See SAR plots pp. 90-96 and 134-137 for SVLTE head and body plots.
7. SVLTE SAR was investigated at LTE powers of 22.5 dBm and 19 dBm. A sample was modified by a non-volatile (NV) software change to fix the EUT at these power levels.

19.5 KDB Inquiry 834288 Conclusions for the SVLTE Power Reduction

The evaluation of SVLTE at 22.5 and 19 dBm are based on conditions that would result in worst-case SAR to verify that there is no noticeable change in the SAR distribution characteristics due to the conditions that require LTE power reduction per KDB Inquiry 834288.

20 EQUIPMENT LIST

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent	8648D	(9kHz-4GHz) Signal Generator	10/13/2010	Annual	10/13/2011	3613A00315
Agilent	8753E	(30kHz-6GHz) Network Analyzer	4/21/2011	Annual	4/21/2012	JP38020182
Agilent	E5515C	Wireless Communications Test Set	10/11/2010	Annual	10/11/2011	GB46110872
Agilent	E5515C	Wireless Communications Test Set	10/8/2010	Annual	10/8/2011	GB46310798
Agilent	E5515C	Wireless Communications Test Set	7/6/2011	Annual	7/6/2012	GB41450275
Agilent	E8257D	(250kHz-20GHz) Signal Generator	4/8/2011	Annual	4/8/2012	MY45470194
Gigatronics	80701A	(0.05-18GHz) Power Sensor	10/11/2010	Annual	10/11/2011	1833460
Gigatronics	8651A	Universal Power Meter	10/11/2010	Annual	10/11/2011	8650319
Index SAR	IXTL-010	Dielectric Measurement Kit	N/A		N/A	N/A
Index SAR	IXTL-030	30MM TEM line for 6 GHz	N/A		N/A	N/A
Pasternack	PE2208-6	Bidirectional Coupler	N/A		N/A	N/A
Pasternack	PE2209-10	Bidirectional Coupler	N/A		N/A	N/A
Rohde & Schwarz	CMU200	Base Station Simulator	11/11/2010	Annual	11/11/2011	836371/0079
Rohde & Schwarz	CMU200	Base Station Simulator	6/1/2011	Annual	6/1/2012	833855/0010
Rohde & Schwarz	CMU200	Base Station Simulator	4/19/2011	Annual	4/19/2012	107826
Rohde & Schwarz	NRVD	Dual Channel Power Meter	4/8/2011	Biennial	4/8/2013	101695
SPEAG	D1900V2	1900 MHz SAR Dipole	2/17/2011	Annual	2/17/2012	502
SPEAG	D1900V2	1900 MHz SAR Dipole	7/22/2011	Annual	7/22/2012	5d080
SPEAG	D2450V2	2450 MHz SAR Dipole	8/19/2011	Annual	8/19/2012	719
SPEAG	D5GHzV2	5 GHz SAR Dipole	2/11/2011	Annual	2/11/2012	1057
SPEAG	D835V2	835 MHz SAR Dipole	2/9/2011	Annual	2/9/2012	4d047
SPEAG	DAE4	Dasy Data Acquisition Electronics	4/20/2011	Annual	4/20/2012	665
SPEAG	DAE4	Dasy Data Acquisition Electronics	2/21/2011	Annual	2/21/2012	649
SPEAG	ES3DV2	SAR Probe	8/25/2011	Annual	8/25/2012	3022
SPEAG	EX3DV4	SAR Probe	2/14/2011	Annual	2/14/2012	3550
SPEAG	DAE4	Dasy Data Acquisition Electronics	5/19/2011	Annual	5/19/2012	859
SPEAG	D750V3	750 MHz Dipole	2/14/2011	Annual	2/14/2012	1003
SPEAG	ES3DV3	SAR Probe	4/18/2011	Annual	4/18/2012	3209
Rohde & Schwarz	SMIQ03B	Signal Generator	4/6/2011	Annual	4/6/2012	DE27259
SPEAG	ES3DV3	SAR Probe	4/8/2011	Annual	4/8/2012	3258
Anritsu	MA2481A	Power Sensor	2/7/2011	Annual	2/7/2012	5442
Anritsu	ML2438A	Power Meter	2/7/2011	Annual	2/7/2012	1190013
Anritsu	ML2438A	Power Meter	2/7/2011	Annual	2/7/2012	98150041
Agilent	8648D	Signal Generator	4/5/2011	Annual	4/5/2012	3629U00687
Anritsu	ML2438A	Power Meter	2/7/2011	Annual	2/7/2012	1070030
Anritsu	MA2481A	Power Sensor	2/7/2011	Annual	2/7/2012	5821
Anritsu	MA2481A	Power Sensor	2/7/2011	Annual	2/7/2012	8013
Anritsu	MA2481A	Power Sensor	2/7/2011	Annual	2/7/2012	5605
Anritsu	MA2481A	Power Sensor	2/7/2011	Annual	2/7/2012	2400
Agilent	E5515C	Wireless Communications Test Set	7/6/2011	Annual	7/6/2012	GB43304447
Agilent	E5515C	Wireless Communications Tester	4/21/2011	Annual	4/21/2012	US41140256
Amplifier Research	5S1G4	5W, 800MHz-4.2GHz	N/A			21910
Mini-Circuits	BW-N20W5+	DC to 18 GHz Precision Fixed 20 dB Attenuator	N/A			N/A
Agilent	E5515C	Wireless Communications Test Set	2/8/2011	Annual	2/8/2012	GB45360985
Rohde & Schwarz	CMW500	LTE Radio Communication Tester	3/11/2011	Annual	3/11/2012	103962
Control Company	61220-416	Long-Stem Thermometer	2/15/2011	Biennial	2/15/2013	111331322
Control Company	61220-416	Long-Stem Thermometer	2/15/2011	Biennial	2/15/2013	111331323
Control Company	61220-416	Long-Stem Thermometer	2/15/2011	Biennial	2/15/2013	111331330
Control Company	61220-416	Long-Stem Thermometer	2/15/2011	Biennial	2/15/2013	111331332
Control Company	61220-416	Long-Stem Thermometer	3/16/2011	Biennial	3/16/2013	111391601
VWR	36934-158	Wall-Mounted Thermometer	1/21/2011	Biennial	1/21/2013	111286445
VWR	36934-158	Wall-Mounted Thermometer	1/21/2011	Biennial	1/21/2013	111286460
VWR	36934-158	Wall-Mounted Thermometer	5/26/2010	Biennial	5/26/2012	101718589
VWR	36934-158	Wall-Mounted Thermometer	1/21/2011	Biennial	1/21/2013	111286454
VWR	36934-158	Wall-Mounted Thermometer	2/26/2010	Biennial	2/26/2012	101536273
MiniCircuits	SLP-2400+	Low Pass Filter	N/A			R8979500903
Narda	4772-3	Attenuator (3dB)	N/A			9406
Narda	BW-S3W2	Attenuator (3dB)	N/A			120

21 MEASUREMENT UNCERTAINTIES

Applicable for 750 – 3000 MHz.

a	b	c	d	e= f(d,k)	f	g	h = c x f/e	i = c x g/e	k
Uncertainty Component	**IEEE 1528 Sec.**	**Tol. (± %)**	**Prob. Dist.**	**Div.**	**c_i 1gm**	**c_i 10 gms**	**1gm u_i (± %)**	**10gms u_i (± %)**	**v_i**
Measurement System									
Probe Calibration	E.2.1	6.0	N	1	1.0	1.0	6.0	6.0	∞
Axial Isotropy	E.2.2	0.25	N	1	0.7	0.7	0.2	0.2	∞
Hemishperical Isotropy	E.2.2	1.3	N	1	1.0	1.0	1.3	1.3	∞
Boundary Effect	E.2.3	0.4	N	1	1.0	1.0	0.4	0.4	∞
Linearity	E.2.4	0.3	N	1	1.0	1.0	0.3	0.3	∞
System Detection Limits	E.2.5	5.1	N	1	1.0	1.0	5.1	5.1	∞
Readout Electronics	E.2.6	1.0	N	1	1.0	1.0	1.0	1.0	∞
Response Time	E.2.7	0.8	R	1.73	1.0	1.0	0.5	0.5	∞
Integration Time	E.2.8	2.6	R	1.73	1.0	1.0	1.5	1.5	∞
RF Ambient Conditions	E.6.1	3.0	R	1.73	1.0	1.0	1.7	1.7	∞
Probe Positioner Mechanical Tolerance	E.6.2	0.4	R	1.73	1.0	1.0	0.2	0.2	∞
Probe Positioning w/ respect to Phantom	E.6.3	2.9	R	1.73	1.0	1.0	1.7	1.7	∞
Extrapolation, Interpolation & Integration algorithms for Max. SAR Evaluation	E.5	1.0	R	1.73	1.0	1.0	0.6	0.6	∞
Test Sample Related									
Test Sample Positioning	E.4.2	6.0	N	1	1.0	1.0	6.0	6.0	287
Device Holder Uncertainty	E.4.1	3.32	R	1.73	1.0	1.0	1.9	1.9	∞
Output Power Variation - SAR drift measurement	6.6.2	5.0	R	1.73	1.0	1.0	2.9	2.9	∞
Phantom & Tissue Parameters									
Phantom Uncertainty (Shape & Thickness tolerances)	E.3.1	4.0	R	1.73	1.0	1.0	2.3	2.3	∞
Liquid Conductivity - deviation from target values	E.3.2	5.0	R	1.73	0.64	0.43	1.8	1.2	∞
Liquid Conductivity - measurement uncertainty	E.3.3	3.8	N	1	0.64	0.43	2.4	1.6	6
Liquid Permittivity - deviation from target values	E.3.2	5.0	R	1.73	0.60	0.49	1.7	1.4	∞
Liquid Permittivity - measurement uncertainty	E.3.3	4.5	N	1	0.60	0.49	2.7	2.2	6
Combined Standard Uncertainty (k=1)			RSS				12.1	11.7	299
Expanded Uncertainty (95% CONFIDENCE LEVEL)			k=2				24.2	23.5	

The above measurement uncertainties are according to IEEE Std. 1528-2003

Applicable for 5 GHz.

a	b	c	d	e= f(d,k)	f	g	h = c x f/e	i = c x g/e	k
Uncertainty Component	**IEEE 1528 Sec.**	**Tol. (± %)**	**Prob. Dist.**	**Div.**	**c_i 1gm**	**c_i 10 gms**	**1gm u_i (± %)**	**10gms u_i (± %)**	**v_i**
Measurement System									
Probe Calibration	E.2.1	6.55	N	1	1.0	1.0	6.6	6.6	∞
Axial Isotropy	E.2.2	0.25	N	1	0.7	0.7	0.2	0.2	∞
Hemishperical Isotropy	E.2.2	1.3	N	1	1.0	1.0	1.3	1.3	∞
Boundary Effect	E.2.3	0.4	N	1	1.0	1.0	0.4	0.4	∞
Linearity	E.2.4	0.3	N	1	1.0	1.0	0.3	0.3	∞
System Detection Limits	E.2.5	5.1	N	1	1.0	1.0	5.1	5.1	∞
Readout Electronics	E.2.6	1.0	N	1	1.0	1.0	1.0	1.0	∞
Response Time	E.2.7	0.8	R	1.73	1.0	1.0	0.5	0.5	∞
Integration Time	E.2.8	2.6	R	1.73	1.0	1.0	1.5	1.5	∞
RF Ambient Conditions	E.6.1	3.0	R	1.73	1.0	1.0	1.7	1.7	∞
Probe Positioner Mechanical Tolerance	E.6.2	0.4	R	1.73	1.0	1.0	0.2	0.2	∞
Probe Positioning w/ respect to Phantom	E.6.3	2.9	R	1.73	1.0	1.0	1.7	1.7	∞
Extrapolation, Interpolation & Integration algorithms for Max. SAR Evaluation	E.5	1.0	R	1.73	1.0	1.0	0.6	0.6	∞
Test Sample Related									
Test Sample Positioning	E.4.2	6.0	N	1	1.0	1.0	6.0	6.0	287
Device Holder Uncertainty	E.4.1	3.32	R	1.73	1.0	1.0	1.9	1.9	∞
Output Power Variation - SAR drift measurement	6.6.2	5.0	R	1.73	1.0	1.0	2.9	2.9	∞
Phantom & Tissue Parameters									
Phantom Uncertainty (Shape & Thickness tolerances)	E.3.1	4.0	R	1.73	1.0	1.0	2.3	2.3	∞
Liquid Conductivity - deviation from target values	E.3.2	5.0	R	1.73	0.64	0.43	1.8	1.2	∞
Liquid Conductivity - measurement uncertainty	E.3.3	3.8	N	1	0.64	0.43	2.4	1.6	6
Liquid Permittivity - deviation from target values	E.3.2	5.0	R	1.73	0.60	0.49	1.7	1.4	∞
Liquid Permittivity - measurement uncertainty	E.3.3	4.5	N	1	0.60	0.49	2.7	2.2	6
Combined Standard Uncertainty (k=1)			RSS				12.4	12.0	299
Expanded Uncertainty (95% CONFIDENCE LEVEL)			k=2				24.7	24.0	

The above measurement uncertainties are according to IEEE Std. 1528-2003

22 CONCLUSION

22.1 Measurement Conclusion

The SAR evaluation indicates that the EUT complies with the RF radiation exposure limits of the FCC and Industry Canada, with respect to all parameters subject to this test. These measurements were taken to simulate the RF effects of RF exposure under worst-case conditions. Precise laboratory measures were taken to assure repeatability of the tests. The 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 in possible 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 various factors may interact with one another to vary the specific biological outcome of an exposure to electromagnetic fields, any protection guide should consider maximal amplification of biological effects as a result of field-body interactions, environmental conditions, and physiological variables. [3]

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APPENDIX A: SAR TEST DATA

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: SAR #2

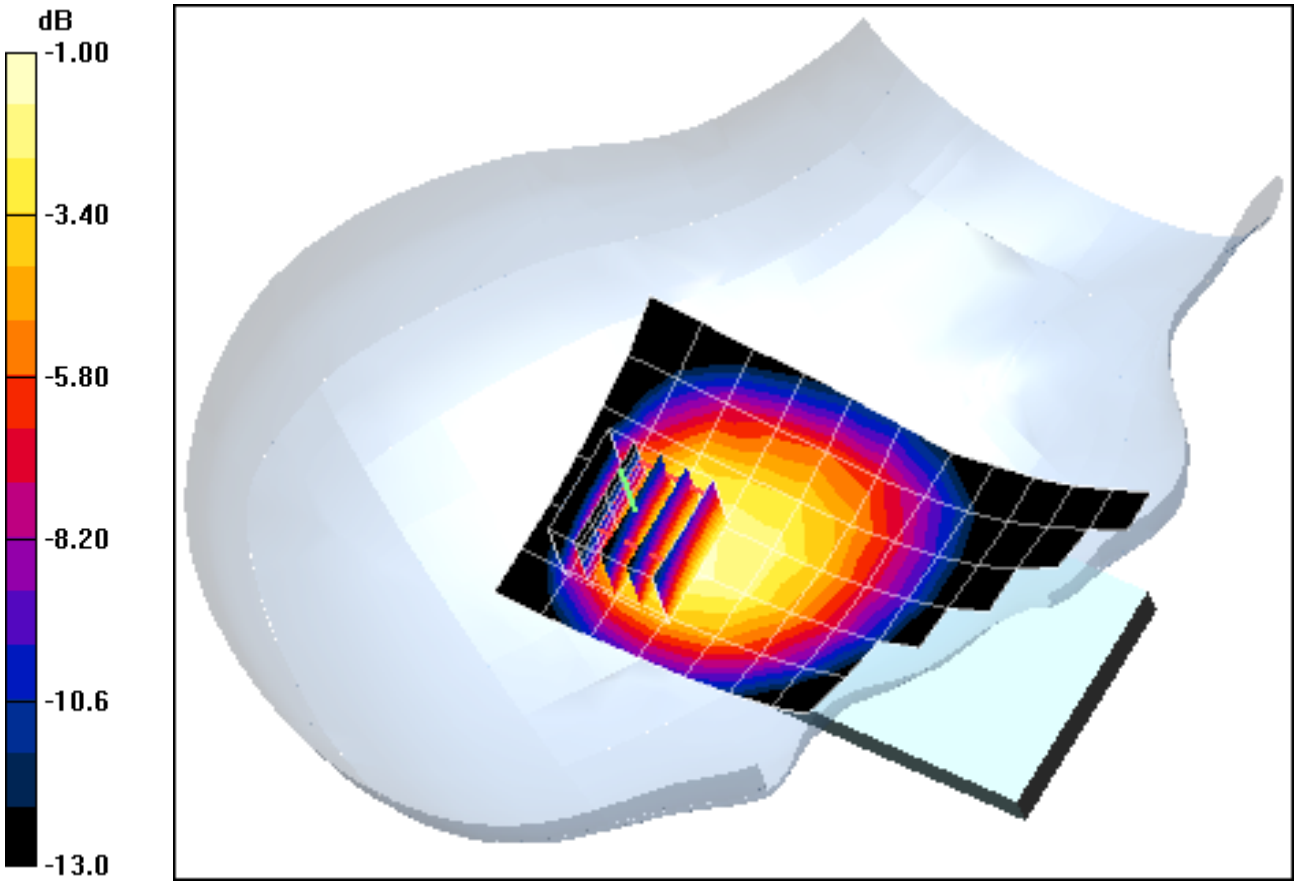
Communication System: LTE RF; Frequency: 782 MHz;Duty Cycle: 1:1
Medium: 785 Head; Medium parameters used (interpolated):
f = 782 MHz; σ = 0.897 mho/m; ε_r = 40.9; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 09-08-2011; Ambient Temp: 22.5 °C; Tissue Temp: 21.4 °C

Probe: ES3DV3 - SN3209; ConvF(6.42, 6.42, 6.42); Calibrated: 4/18/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM Sub Dasy B; Type: SAM 4.0; Serial: TP-1626
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: LTE, Right Head, Touch, Mid.ch, QPSK, 1 RBs, 0 RB Offset

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 26.5 V/m
Peak SAR (extrapolated) = 1.49 W/kg
SAR(1 g) = 0.634 mW/g; SAR(10 g) = 0.346 mW/g



0 dB = 0.692mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: SAR #2

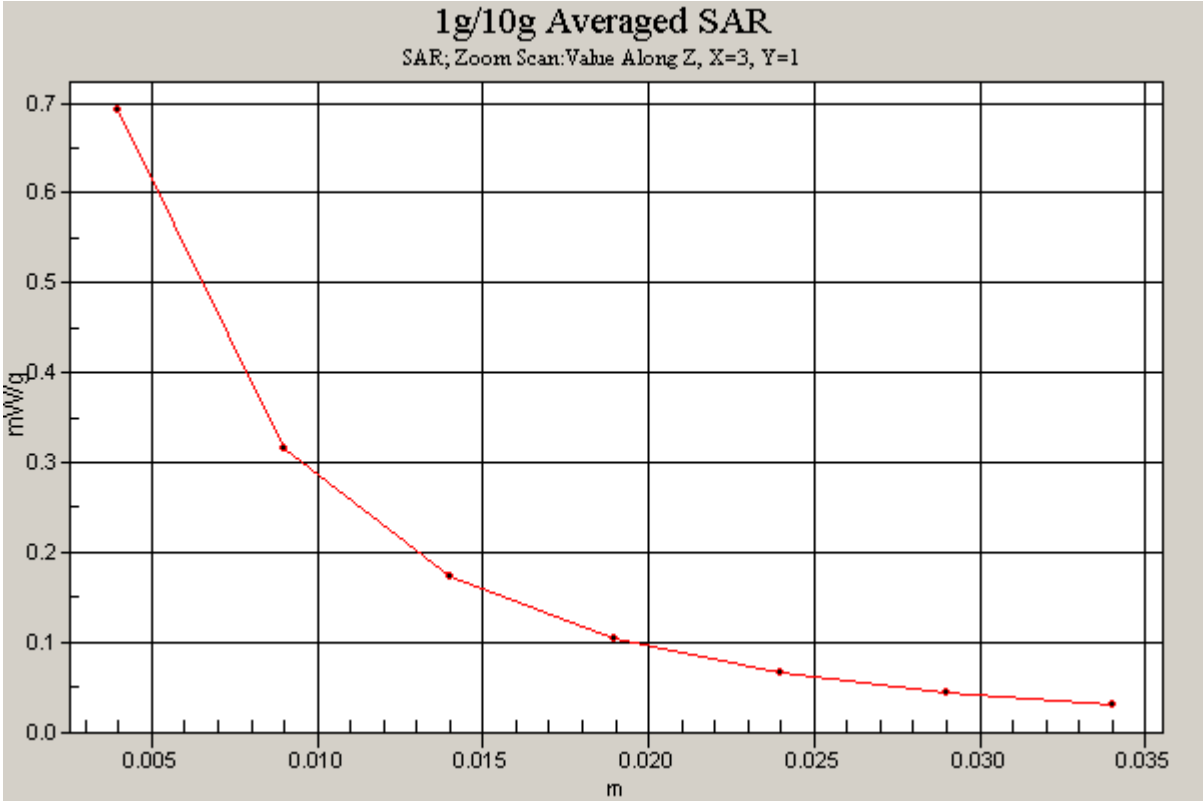
Communication System: LTE RF; Frequency: 782 MHz;Duty Cycle: 1:1
Medium: 785 Head; Medium parameters used (interpolated):
f = 782 MHz; σ = 0.897 mho/m; ε_r = 40.9; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 09-08-2011; Ambient Temp: 22.5 °C; Tissue Temp: 21.4 °C

Probe: ES3DV3 - SN3209; ConvF(6.42, 6.42, 6.42); Calibrated: 4/18/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM Sub Dasy B; Type: SAM 4.0; Serial: TP-1626
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: LTE, Right Head, Touch, Mid.ch, QPSK, 1 RBs, 0 RB Offset

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 26.5 V/m
Peak SAR (extrapolated) = 1.49 W/kg
SAR(1 g) = 0.634 mW/g; SAR(10 g) = 0.346 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: SAR #2

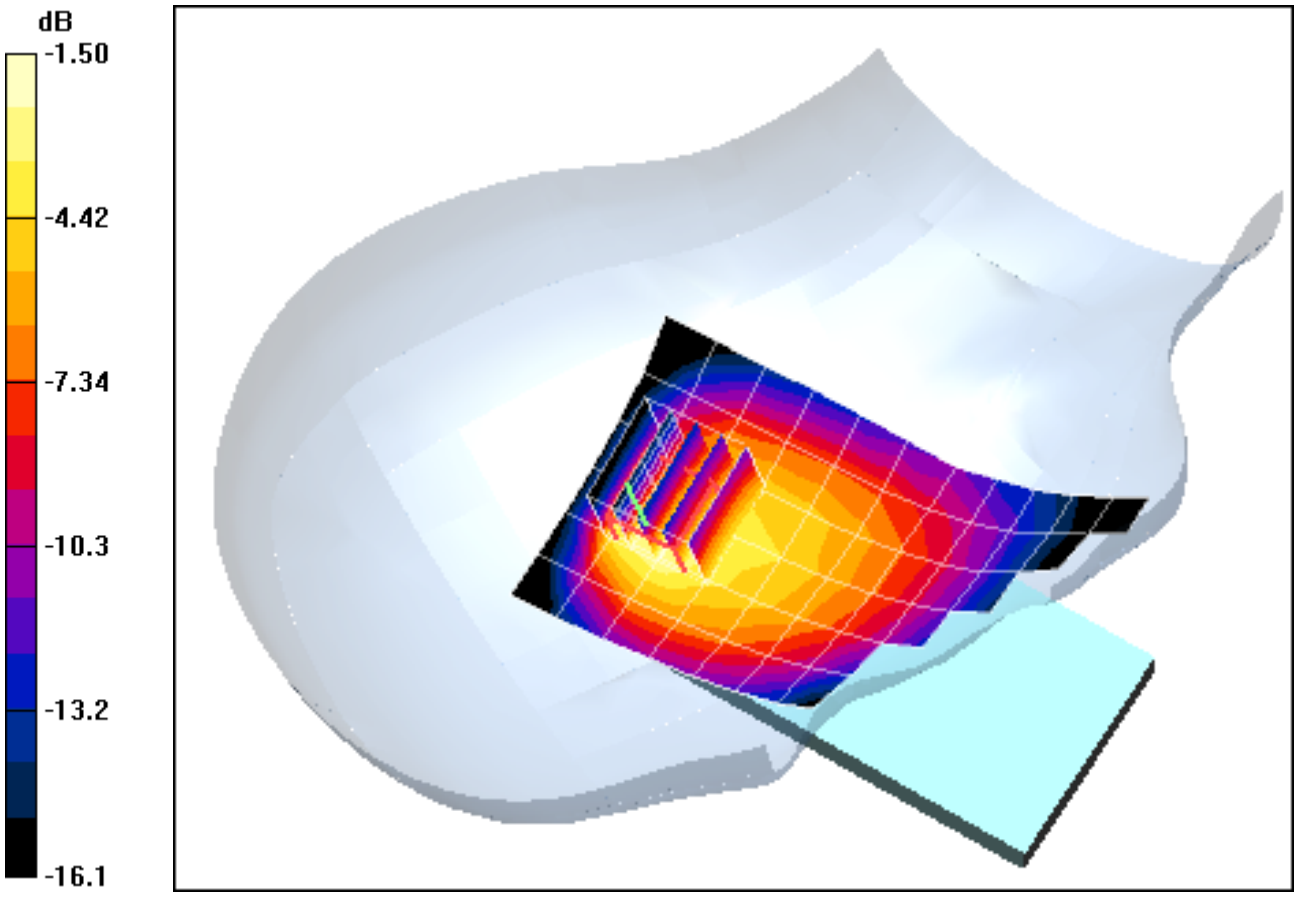
Communication System: LTE RF; Frequency: 782 MHz;Duty Cycle: 1:1
Medium: 785 Head; Medium parameters used (interpolated):
f = 782 MHz; σ = 0.897 mho/m; ε_r = 40.9; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 09-08-2011; Ambient Temp: 22.5 °C; Tissue Temp: 21.4 °C

Probe: ES3DV3 - SN3209; ConvF(6.42, 6.42, 6.42); Calibrated: 4/18/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM Sub Dasy B; Type: SAM 4.0; Serial: TP-1626
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: LTE, Right Head, Tilt, Mid.ch, QPSK, 1 RBs, 0 RB Offset

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.1 V/m
Peak SAR (extrapolated) = 1.37 W/kg
SAR(1 g) = 0.508 mW/g; SAR(10 g) = 0.242 mW/g



0 dB = 0.583mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: SAR#2

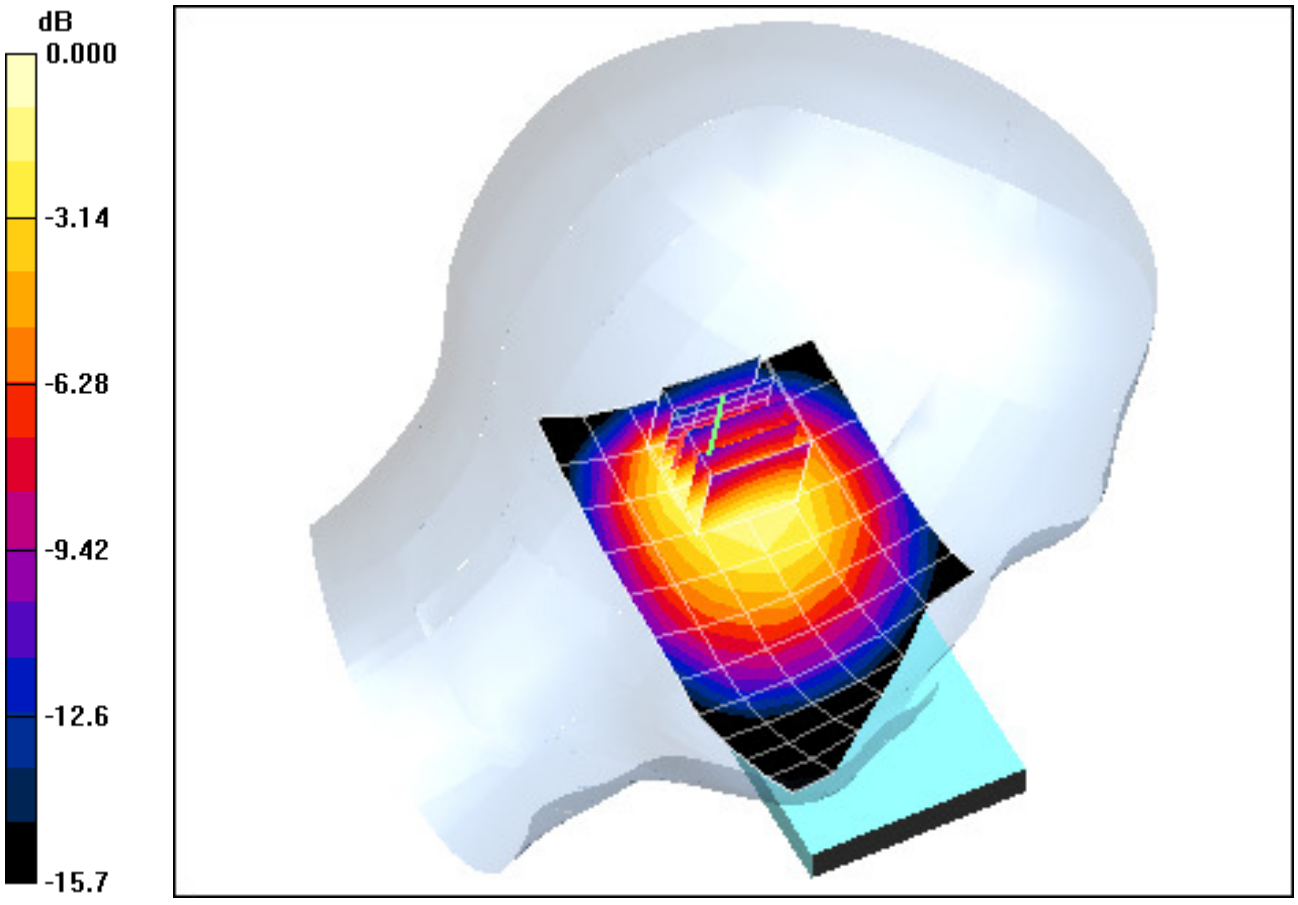
Communication System: LTE RF; Frequency: 782 MHz;Duty Cycle: 1:1
Medium: 785 Head; Medium parameters used (interpolated):
f = 782 MHz; σ = 0.897 mho/m; ε_r = 40.9; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 09-08-2011; Ambient Temp: 22.5 °C; Tissue Temp: 21.4 °C

Probe: ES3DV3 - SN3209; ConvF(6.42, 6.42, 6.42); Calibrated: 4/18/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM Sub Dasy B; Type: SAM 4.0; Serial: TP-1626
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: LTE, Left Head, Touch, Mid. Ch, QPSK, 1 RBs, 0 RB Offset

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 27.9 V/m
Peak SAR (extrapolated) = 1.22 W/kg
SAR(1 g) = 0.592 mW/g; SAR(10 g) = 0.348 mW/g



0 dB = 0.595mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: SAR#2

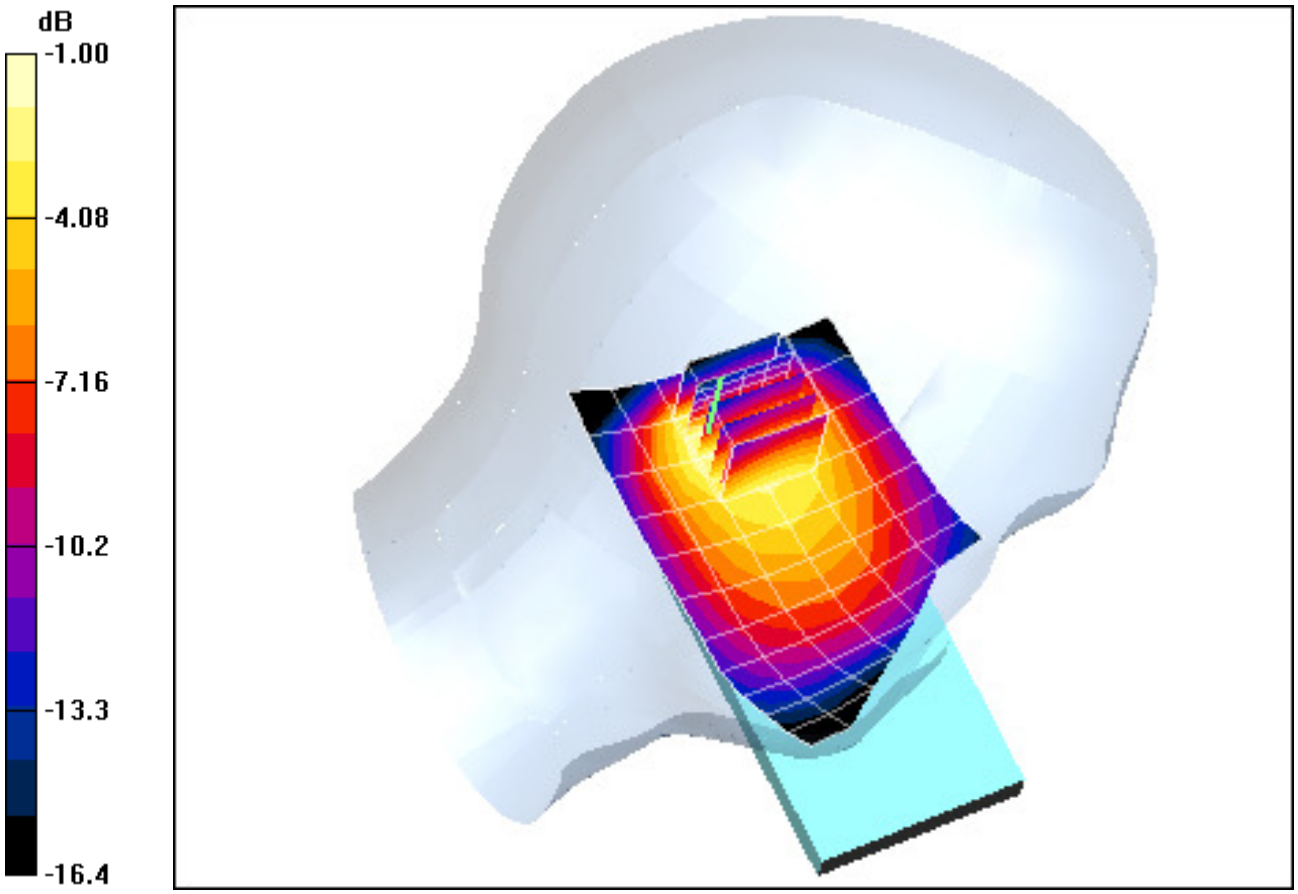
Communication System: LTE RF; Frequency: 782 MHz;Duty Cycle: 1:1
Medium: 785 Head; Medium parameters used (interpolated):
f = 782 MHz; σ = 0.897 mho/m; ε_r = 40.9; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 09-08-2011; Ambient Temp: 22.5 °C; Tissue Temp: 21.4 °C

Probe: ES3DV3 - SN3209; ConvF(6.42, 6.42, 6.42); Calibrated: 4/18/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM Sub Dasy B; Type: SAM 4.0; Serial: TP-1626
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: LTE, Left Head, Tilt, Mid.ch, QPSK, 1 RBs, 0 RB Offset

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.5 V/m
Peak SAR (extrapolated) = 0.937 W/kg
SAR(1 g) = 0.411 mW/g; SAR(10 g) = 0.220 mW/g



0 dB = 0.445mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

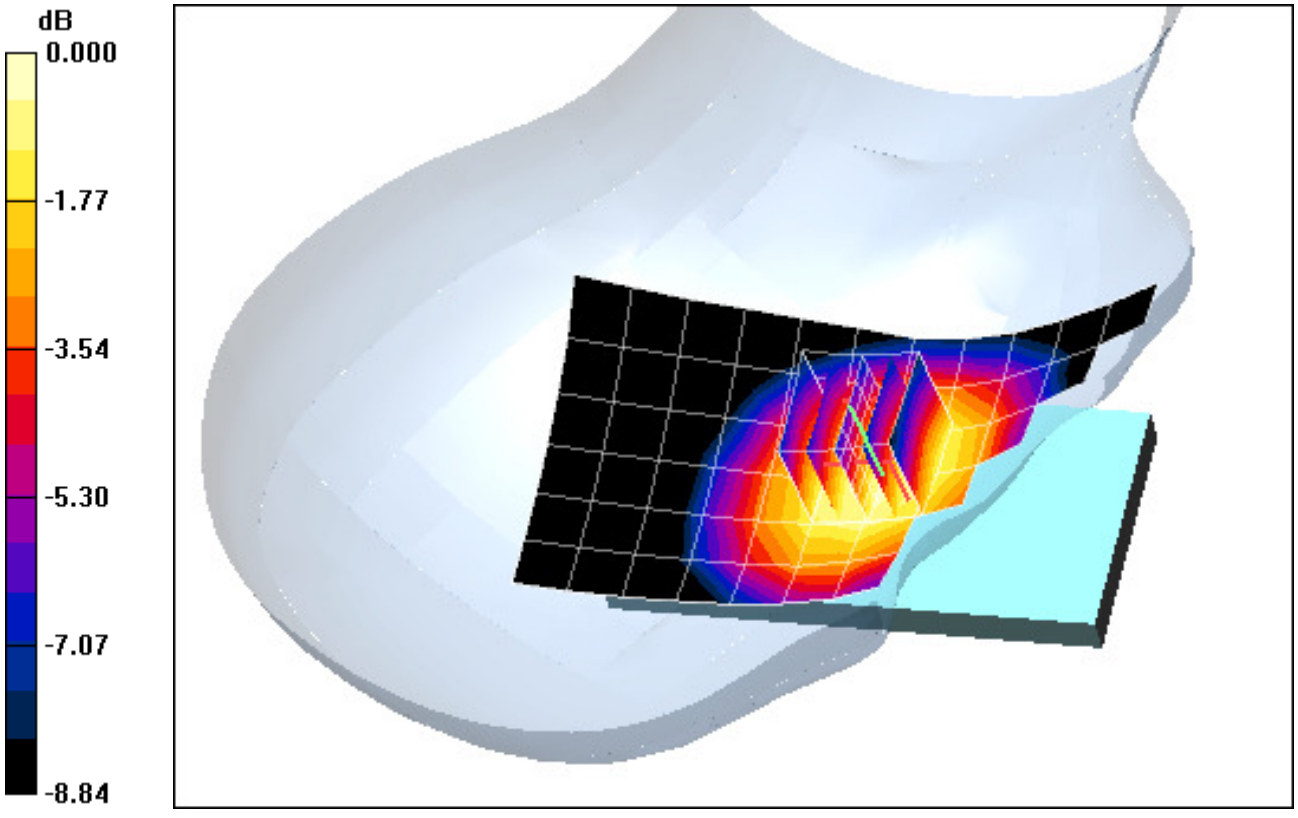
Communication System: Cellular CDMA; Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
f = 836.52 MHz; σ = 0.884 mho/m; ε_r = 40.3; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 09-07-2011; Ambient Temp: 22.8 °C; Tissue Temp: 22.9 °C

Probe: ES3DV3 - SN3258; ConvF(6.18, 6.18, 6.18); Calibrated: 4/8/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 2/21/2011
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1403
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: Cellular CDMA, Right Head, Touch, Mid.ch

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.2 V/m
Peak SAR (extrapolated) = 0.332 W/kg
SAR(1 g) = 0.261 mW/g; SAR(10 g) = 0.195 mW/g



0 dB = 0.273mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

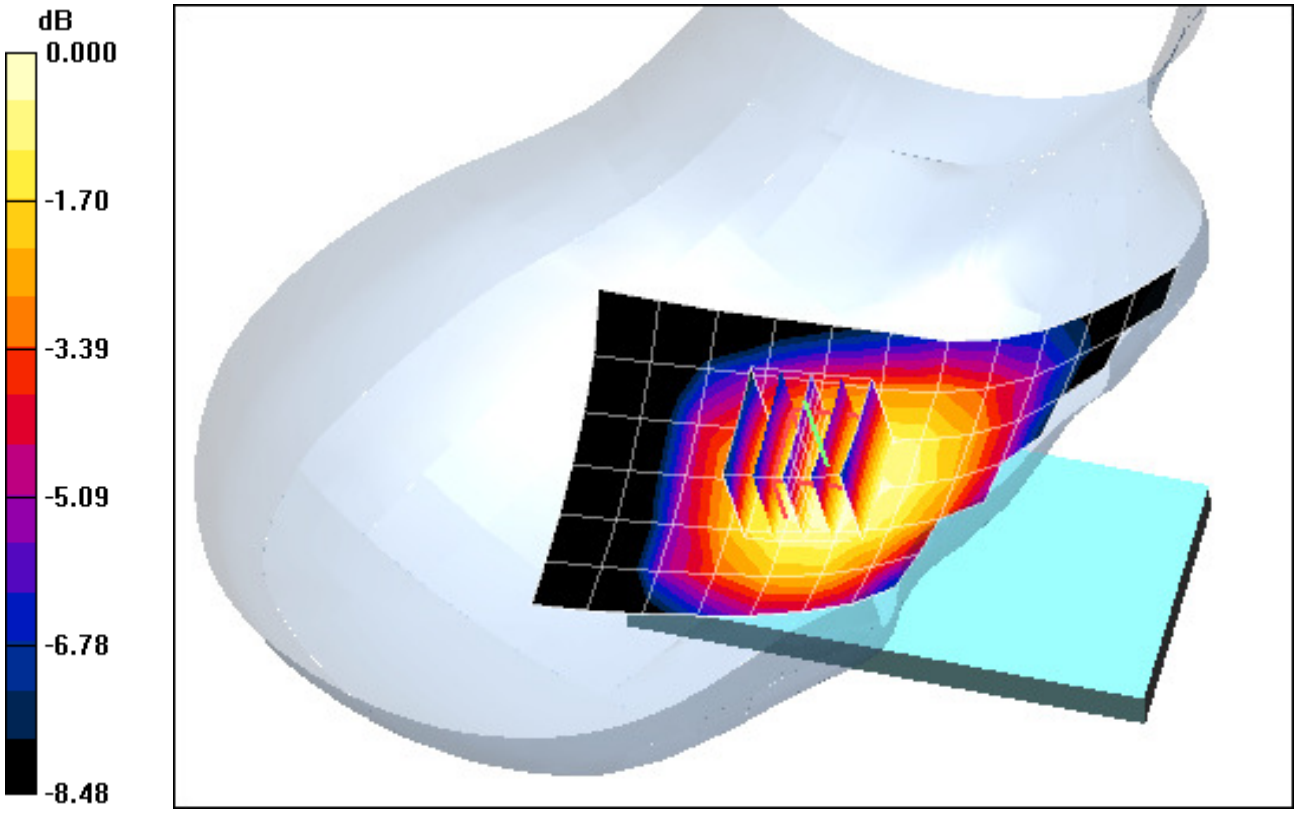
Communication System: Cellular CDMA; Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
f = 836.52 MHz; σ = 0.884 mho/m; ε_r = 40.3; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 09-07-2011; Ambient Temp: 22.8 °C; Tissue Temp: 22.9 °C

Probe: ES3DV3 - SN3258; ConvF(6.18, 6.18, 6.18); Calibrated: 4/8/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 2/21/2011
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1403
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: Cellular CDMA, Right Head, Tilt, Mid.ch

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.3 V/m
Peak SAR (extrapolated) = 0.200 W/kg
SAR(1 g) = 0.160 mW/g; SAR(10 g) = 0.124 mW/g



0 dB = 0.166mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

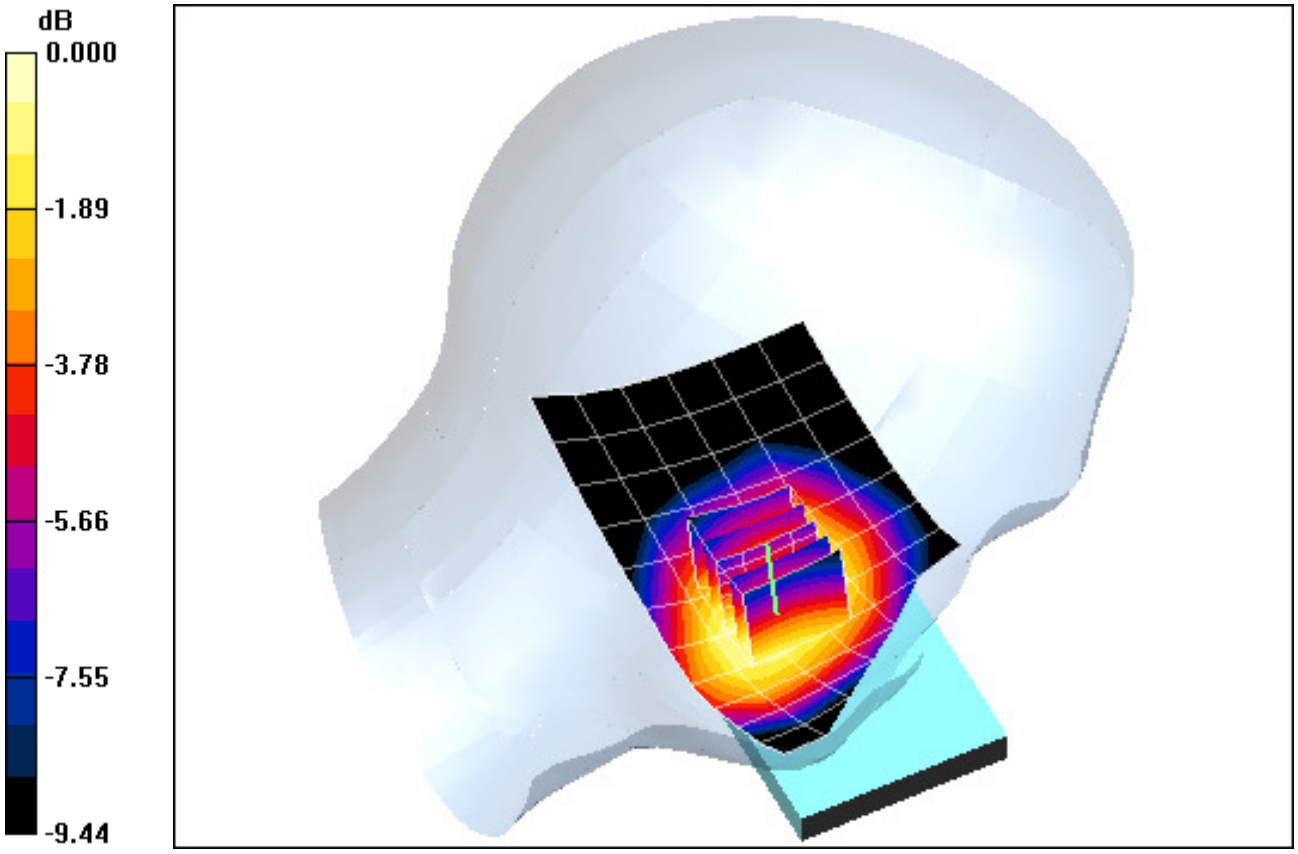
Communication System: Cellular CDMA; Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
f = 836.52 MHz; σ = 0.884 mho/m; ε_r = 40.3; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 09-07-2011; Ambient Temp: 22.8 °C; Tissue Temp: 22.9 °C

Probe: ES3DV3 - SN3258; ConvF(6.18, 6.18, 6.18); Calibrated: 4/8/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 2/21/2011
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1403
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: Cellular CDMA, Left Head, Touch, Mid.ch

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.49 V/m
Peak SAR (extrapolated) = 0.340 W/kg
SAR(1 g) = 0.271 mW/g; SAR(10 g) = 0.205 mW/g



0 dB = 0.285mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

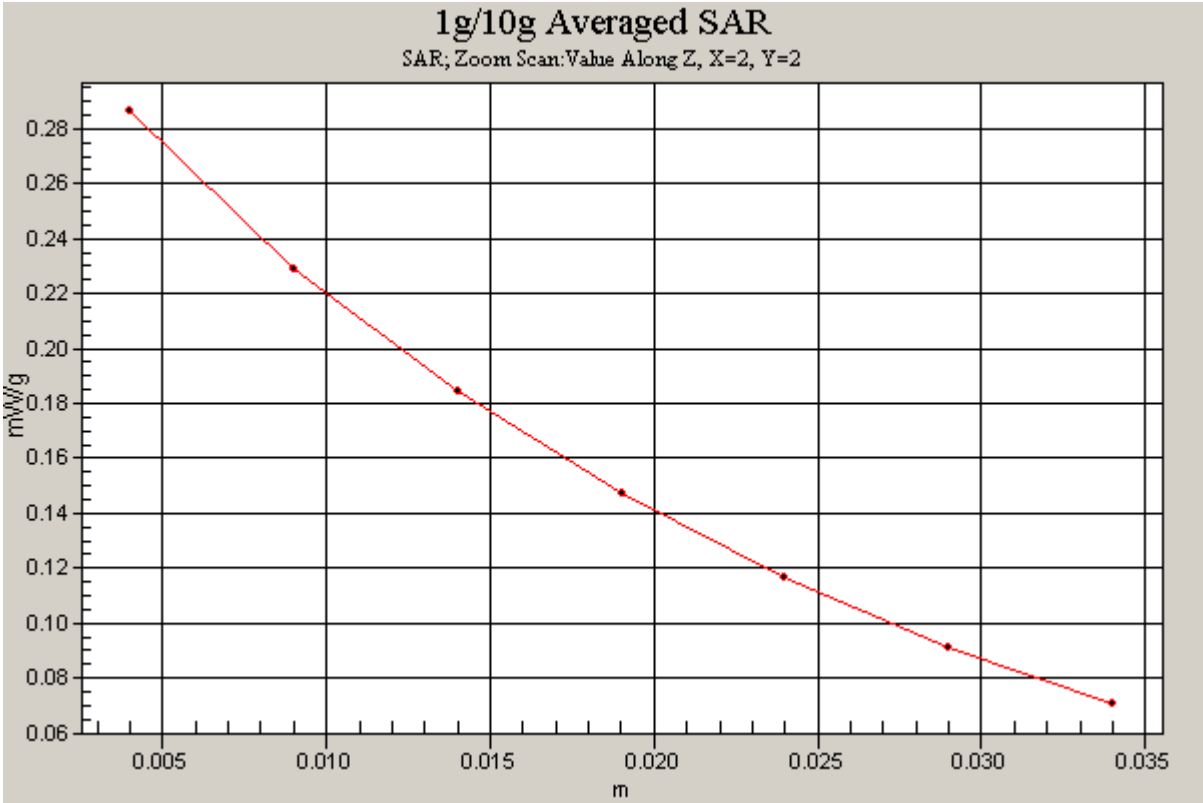
Communication System: Cellular CDMA; Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
f = 836.52 MHz; σ = 0.884 mho/m; ε_r = 40.3; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 09-07-2011; Ambient Temp: 22.8 °C; Tissue Temp: 22.9 °C

Probe: ES3DV3 - SN3258; ConvF(6.18, 6.18, 6.18); Calibrated: 4/8/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 2/21/2011
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1403
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: Cellular CDMA, Left Head, Touch, Mid.ch

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.49 V/m
Peak SAR (extrapolated) = 0.340 W/kg
SAR(1 g) = 0.271 mW/g; SAR(10 g) = 0.205 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

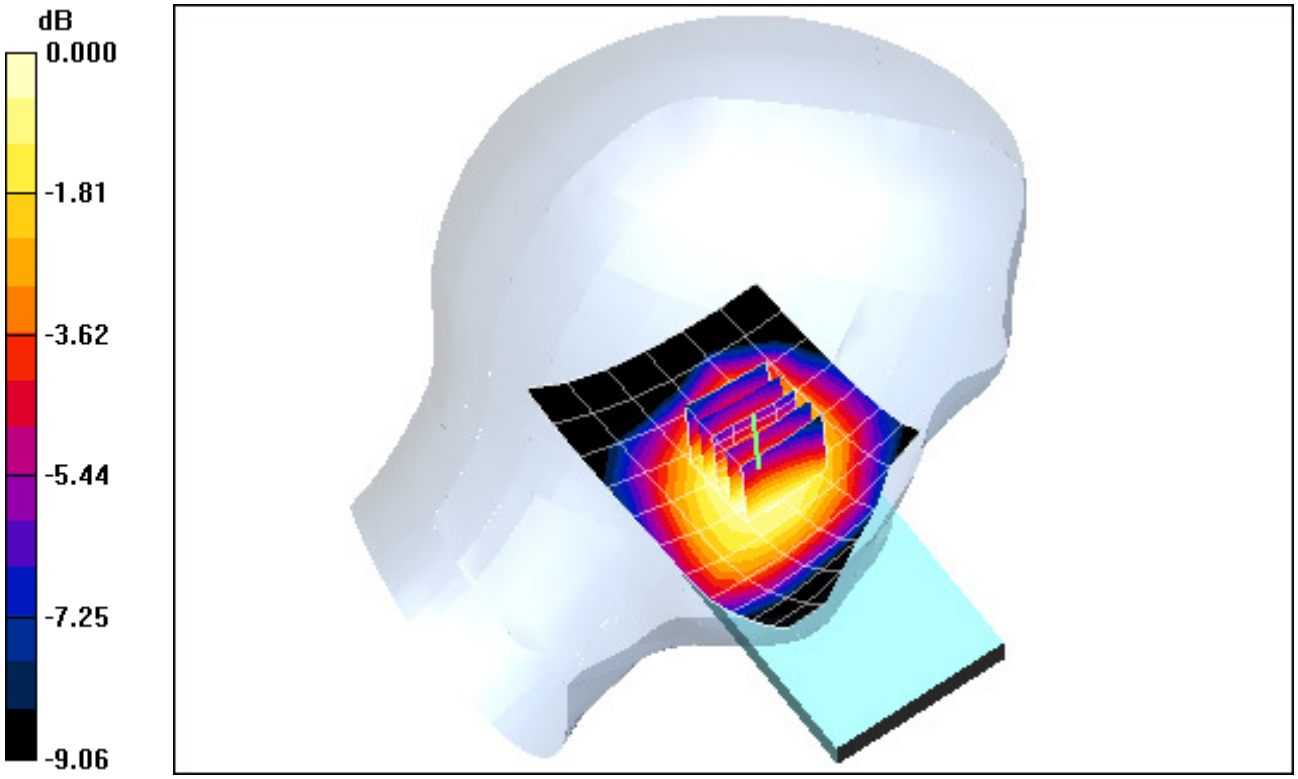
Communication System: Cellular CDMA; Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
f = 836.52 MHz; σ = 0.884 mho/m; ε_r = 40.3; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 09-07-2011; Ambient Temp: 22.8 °C; Tissue Temp: 22.9 °C

Probe: ES3DV3 - SN3258; ConvF(6.18, 6.18, 6.18); Calibrated: 4/8/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 2/21/2011
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1403
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: Cellular CDMA, Left Head, Tilt, Mid.ch

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.02 V/m
Peak SAR (extrapolated) = 0.209 W/kg
SAR(1 g) = 0.166 mW/g; SAR(10 g) = 0.127 mW/g



0 dB = 0.173mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

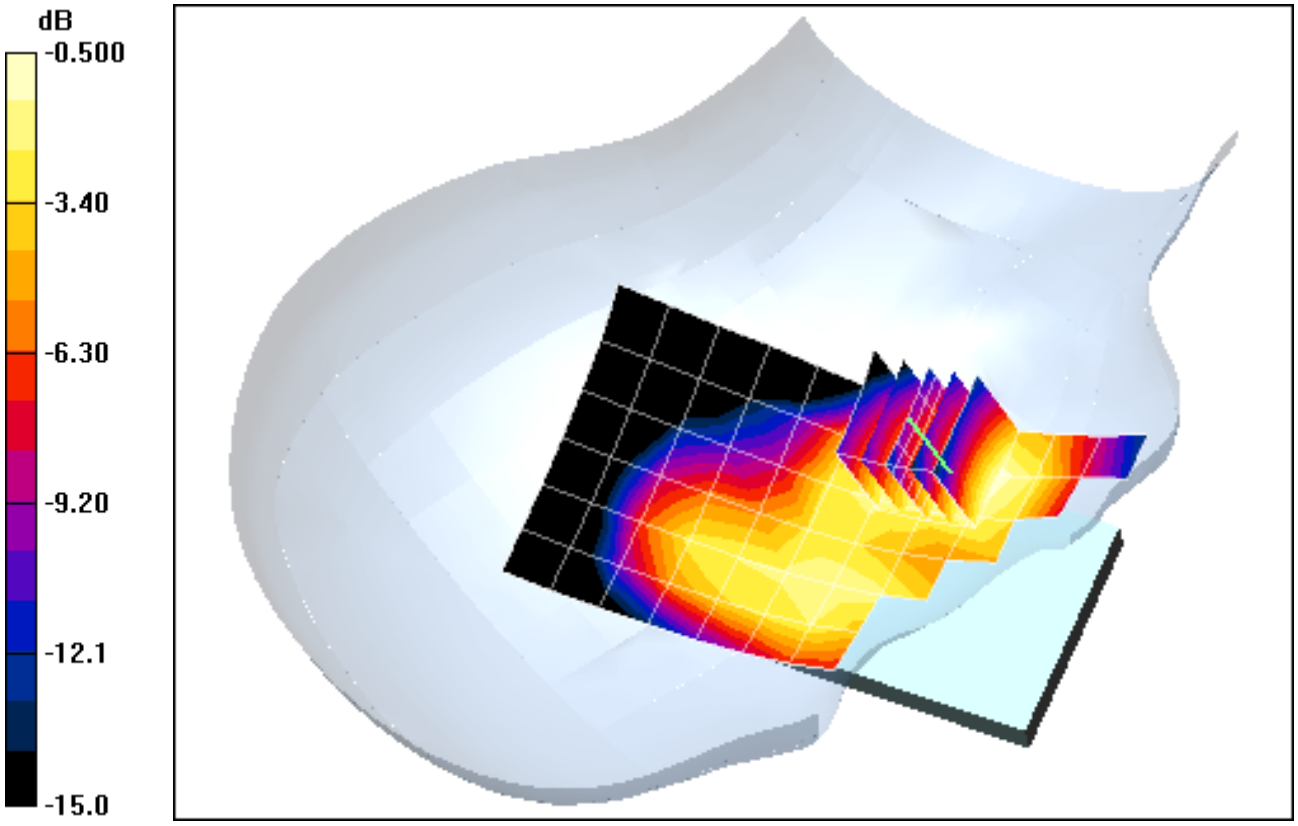
Communication System: PCS CDMA; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: 1900 Head; Medium parameters used:
f = 1880 MHz; σ = 1.41 mho/m; ε_r = 39.3; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 09-06-2011; Ambient Temp: 23.8 °C; Tissue Temp: 22.3 °C

Probe: EX3DV4 - SN3550; ConvF(7.01, 7.01, 7.01); Calibrated: 2/14/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/20/2011
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: PCS CDMA, Right Head, Touch, Mid.ch

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.4 V/m
Peak SAR (extrapolated) = 0.370 W/kg
SAR(1 g) = 0.245 mW/g; SAR(10 g) = 0.155 mW/g



0 dB = 0.268mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

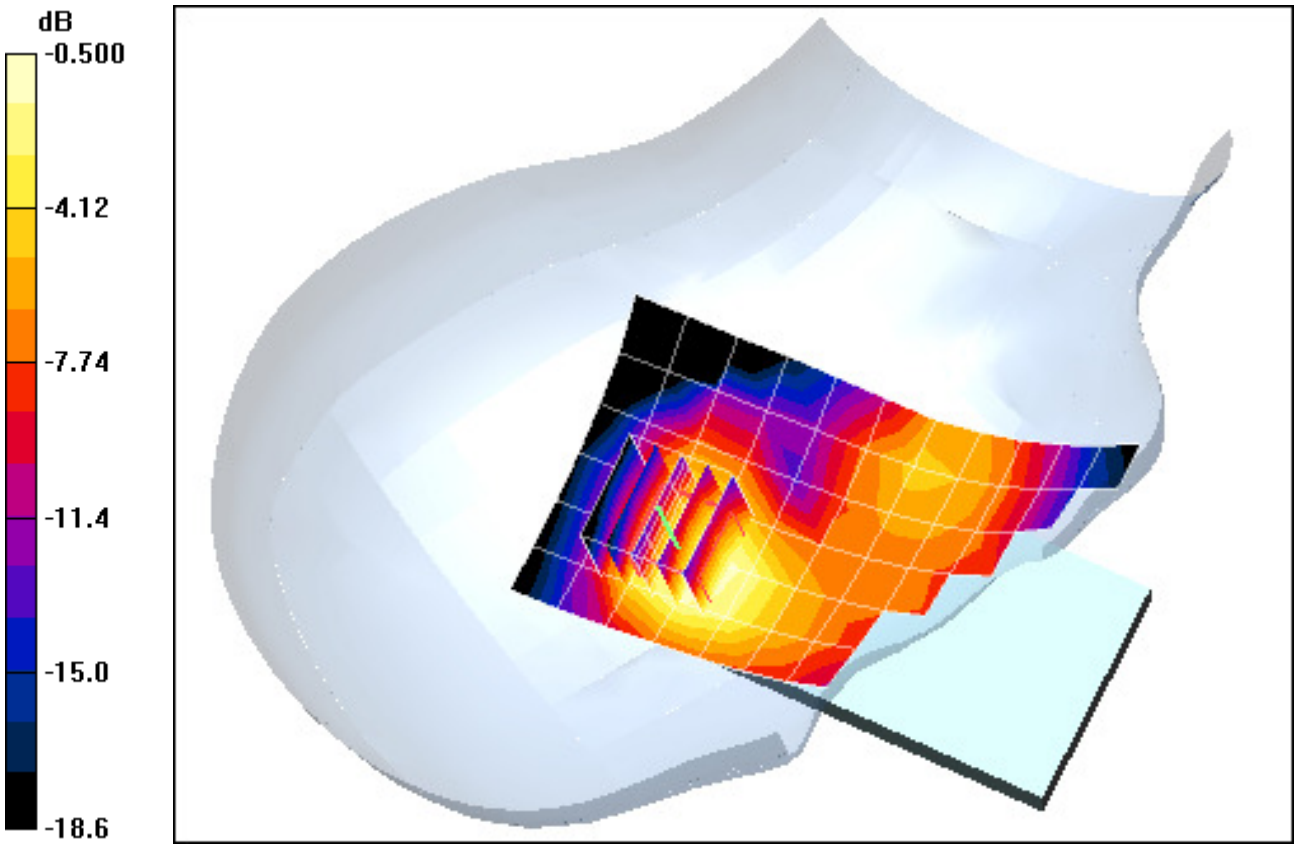
Communication System: PCS CDMA; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: 1900 Head; Medium parameters used:
f = 1880 MHz; σ = 1.41 mho/m; ε_r = 39.3; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 09-06-2011; Ambient Temp: 23.8 °C; Tissue Temp: 22.3 °C

Probe: EX3DV4 - SN3550; ConvF(7.01, 7.01, 7.01); Calibrated: 2/14/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/20/2011
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: PCS CDMA, Right Head, Tilt, Mid.ch

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.7 V/m
Peak SAR (extrapolated) = 0.273 W/kg
SAR(1 g) = 0.178 mW/g; SAR(10 g) = 0.107 mW/g



0 dB = 0.188mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

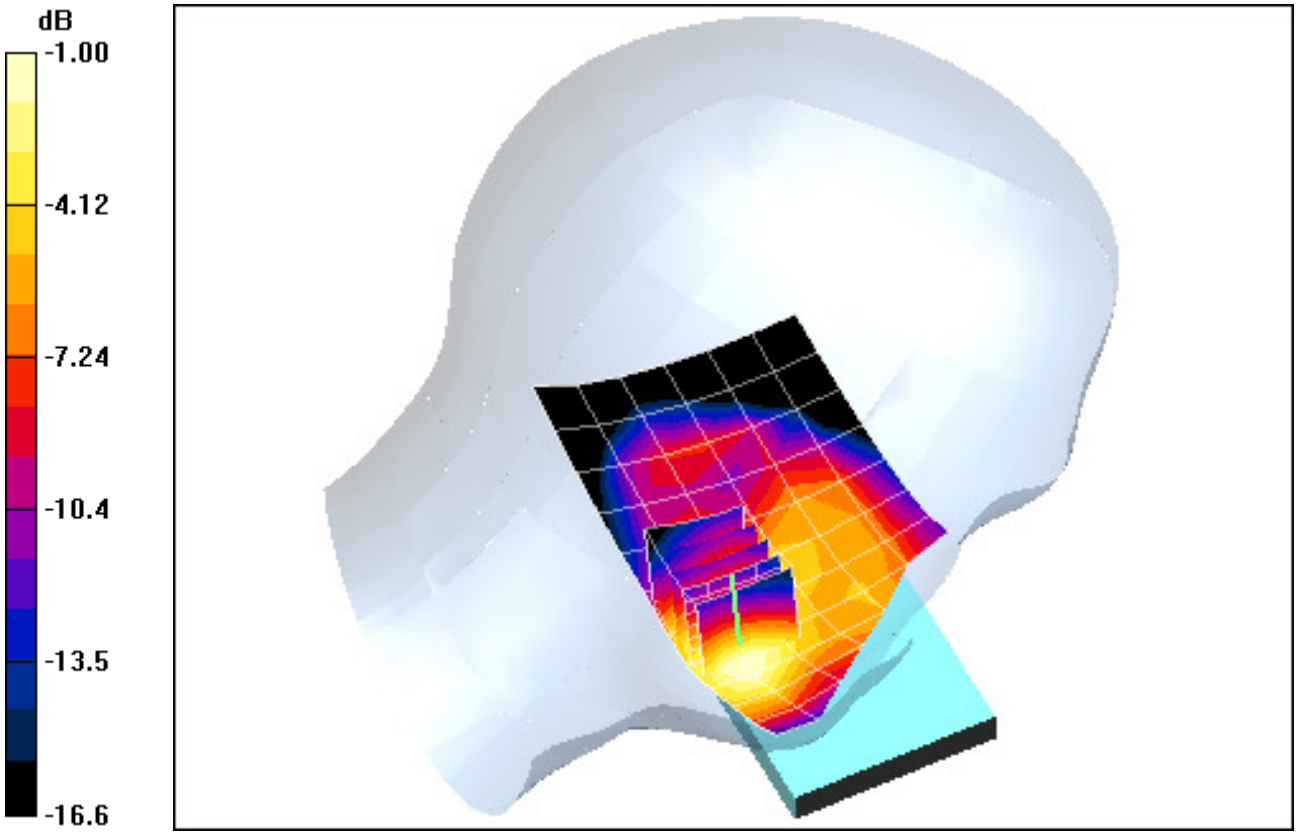
Communication System: PCS CDMA; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: 1900 Head; Medium parameters used:
f = 1880 MHz; σ = 1.41 mho/m; ε_r = 39.3; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 09-06-2011; Ambient Temp: 23.8 °C; Tissue Temp: 22.3 °C

Probe: EX3DV4 - SN3550; ConvF(7.01, 7.01, 7.01); Calibrated: 2/14/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/20/2011
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: PCS CDMA, Left Head, Touch, Mid.ch

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.7 V/m
Peak SAR (extrapolated) = 0.907 W/kg
SAR(1 g) = 0.580 mW/g; SAR(10 g) = 0.348 mW/g



0 dB = 0.627mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

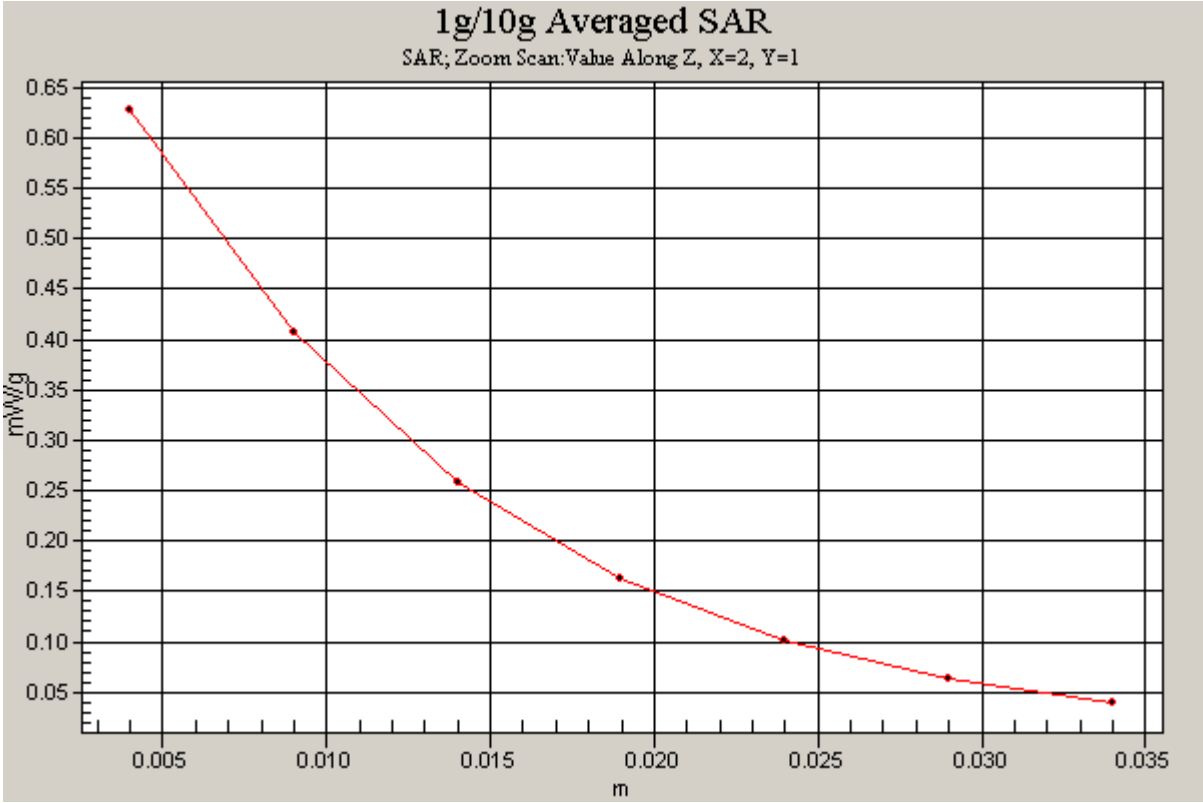
Communication System: PCS CDMA; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: 1900 Head; Medium parameters used:
f = 1880 MHz; σ = 1.41 mho/m; ε_r = 39.3; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 09-06-2011; Ambient Temp: 23.8 °C; Tissue Temp: 22.3 °CC

Probe: EX3DV4 - SN3550; ConvF(7.01, 7.01, 7.01); Calibrated: 2/14/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/20/2011
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: PCS CDMA, Left Head, Touch, Mid.ch

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.7 V/m
Peak SAR (extrapolated) = 0.907 W/kg
SAR(1 g) = 0.580 mW/g; SAR(10 g) = 0.348 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

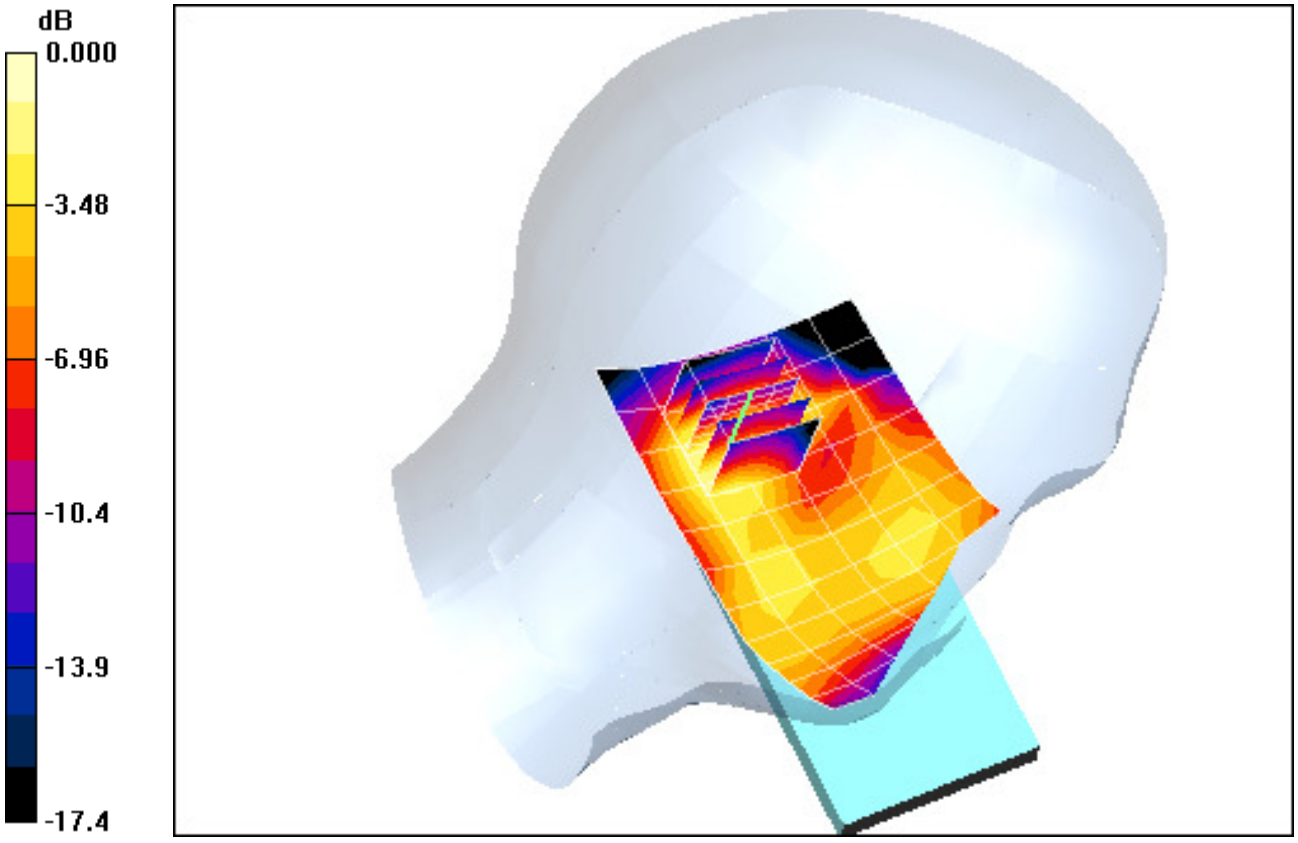
Communication System: PCS CDMA; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: 1900 Head; Medium parameters used:
f = 1880 MHz; σ = 1.41 mho/m; ε_r = 39.3; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 09-06-2011; Ambient Temp: 23.8 °C; Tissue Temp: 22.3 °C

Probe: EX3DV4 - SN3550; ConvF(7.01, 7.01, 7.01); Calibrated: 2/14/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/20/2011
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: PCS CDMA, Left Head, Tilt, Mid.ch

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.7 V/m
Peak SAR (extrapolated) = 0.203 W/kg
SAR(1 g) = 0.133 mW/g; SAR(10 g) = 0.079 mW/g



0 dB = 0.144mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

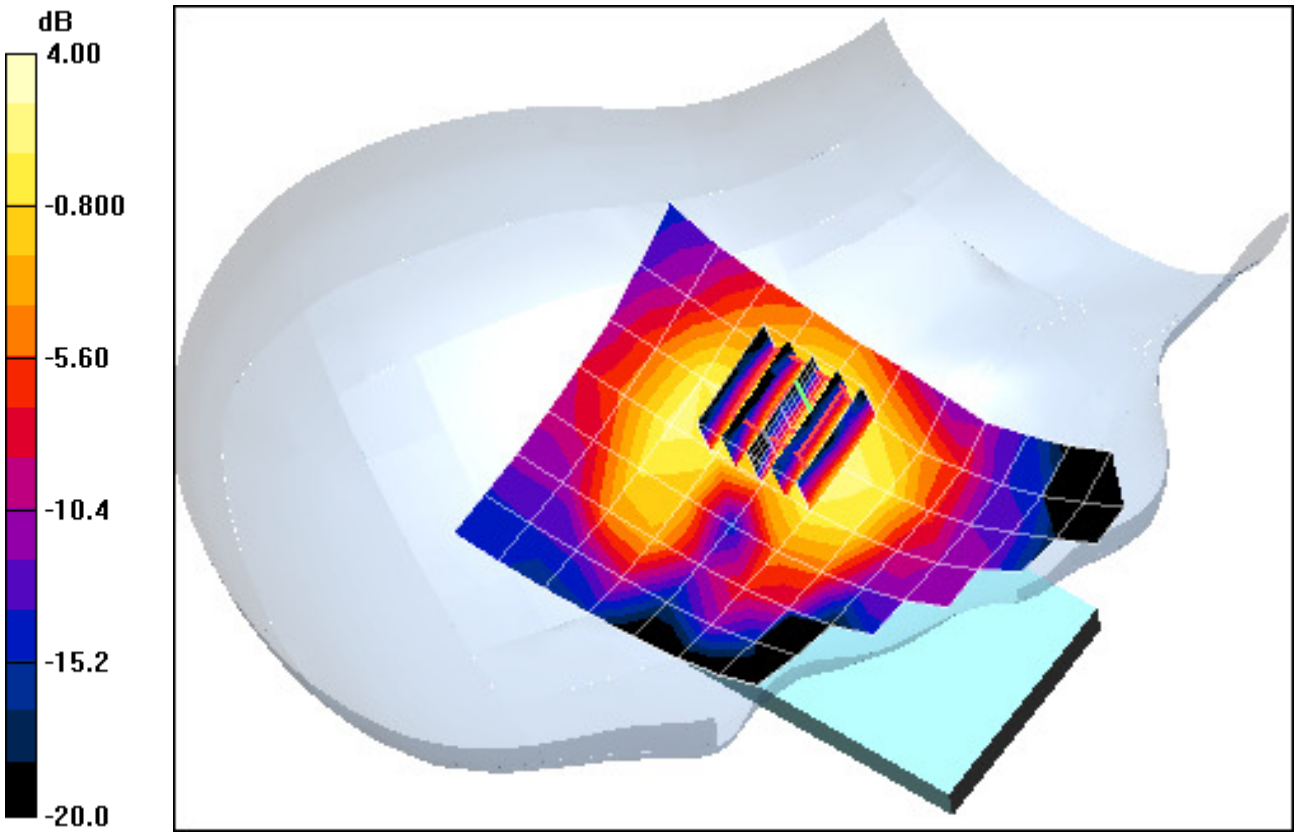
Communication System: IEEE 802.11b; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium: 2450 Head; Medium parameters used (interpolated):
f = 2462 MHz; σ = 1.84 mho/m; ε_r = 39.6; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 09-12-2011; Ambient Temp: 23.7 °C; Tissue Temp: 21.9 °C

Probe: ES3DV3 - SN3209; ConvF(4.52, 4.52, 4.52); Calibrated: 4/18/2011
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM Sub Dasy B; Type: SAM 4.0; Serial: TP-1626
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: IEEE 802.11b, Right Head, Touch, Ch 11, 1 Mbps

Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.17 V/m
Peak SAR (extrapolated) = 0.066 W/kg
SAR(1 g) = 0.031 mW/g; SAR(10 g) = 0.015 mW/g



0 dB = 0.039mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

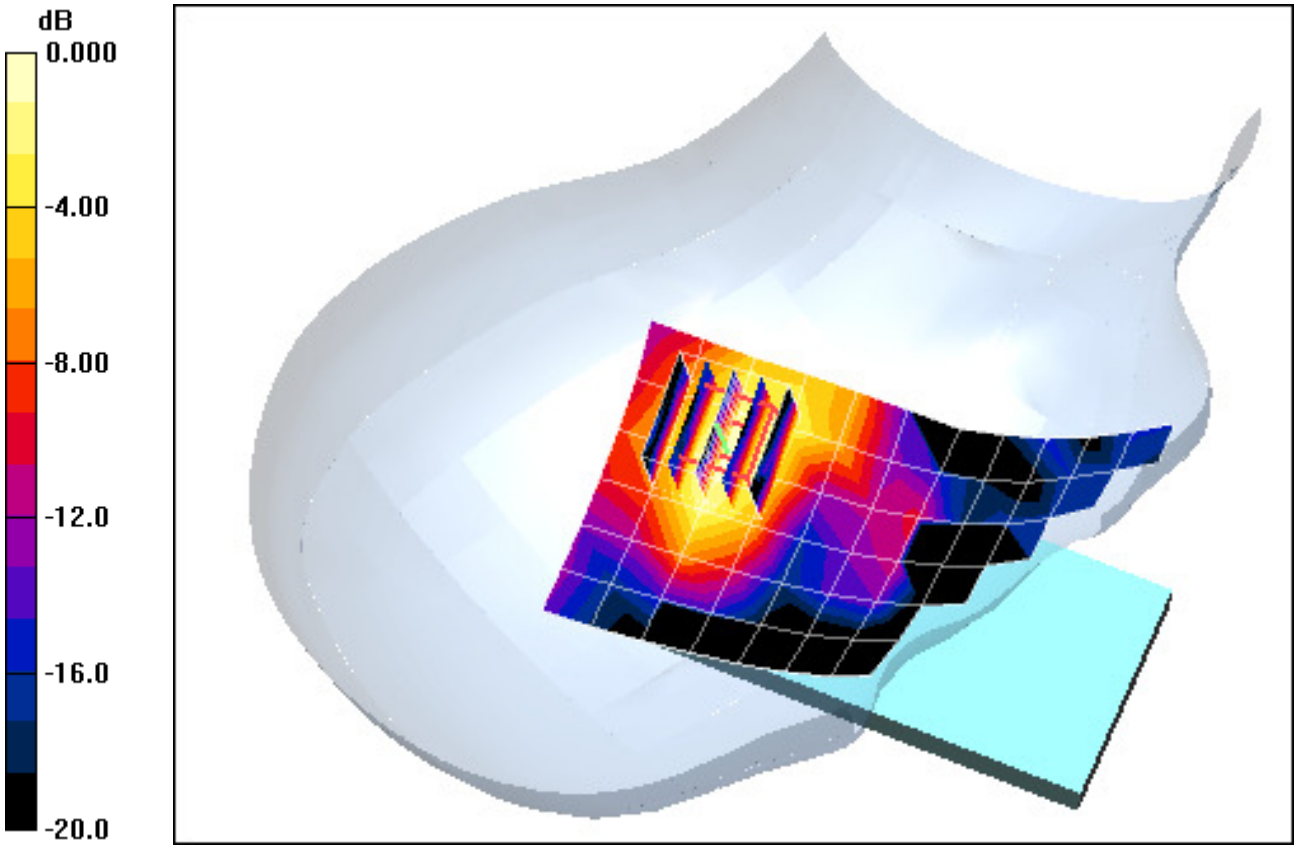
Communication System: IEEE 802.11b; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium: 2450 Head; Medium parameters used (interpolated):
f = 2462 MHz; σ = 1.84 mho/m; ε_r = 39.6; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 09-12-2011; Ambient Temp: 23.7 °C; Tissue Temp: 21.9 °C

Probe: ES3DV3 - SN3209; ConvF(4.52, 4.52, 4.52); Calibrated: 4/18/2011
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM Sub Dasy B; Type: SAM 4.0; Serial: TP-1626
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: IEEE 802.11b, Right Head, Tilt, Ch 11, 1 Mbps

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.50 V/m
Peak SAR (extrapolated) = 0.035 W/kg
SAR(1 g) = 0.020 mW/g; SAR(10 g) = 0.0098 mW/g



0 dB = 0.025mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

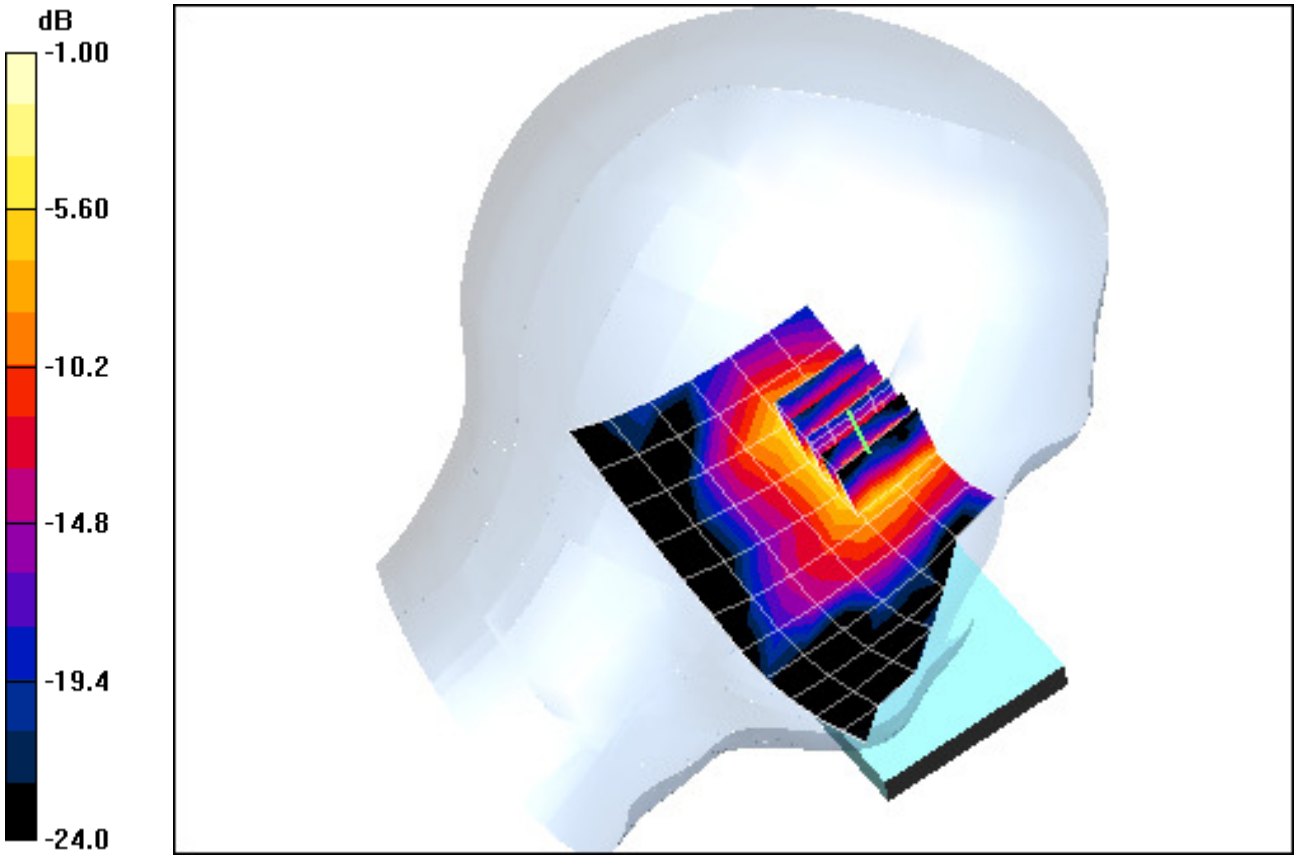
Communication System: IEEE 802.11b; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium: 2450 Head; Medium parameters used (interpolated):
f = 2462 MHz; σ = 1.84 mho/m; ε_r = 39.6; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 09-12-2011; Ambient Temp: 23.7 °C; Tissue Temp: 21.9 °C

Probe: ES3DV3 - SN3209; ConvF(4.52, 4.52, 4.52); Calibrated: 4/18/2011
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM Sub Dasy B; Type: SAM 4.0; Serial: TP-1626
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: IEEE 802.11b, Left Head, Touch, Ch 11, 1 Mbps

Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.09 V/m
Peak SAR (extrapolated) = 0.174 W/kg
SAR(1 g) = 0.076 mW/g; SAR(10 g) = 0.034 mW/g



0 dB = 0.103mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

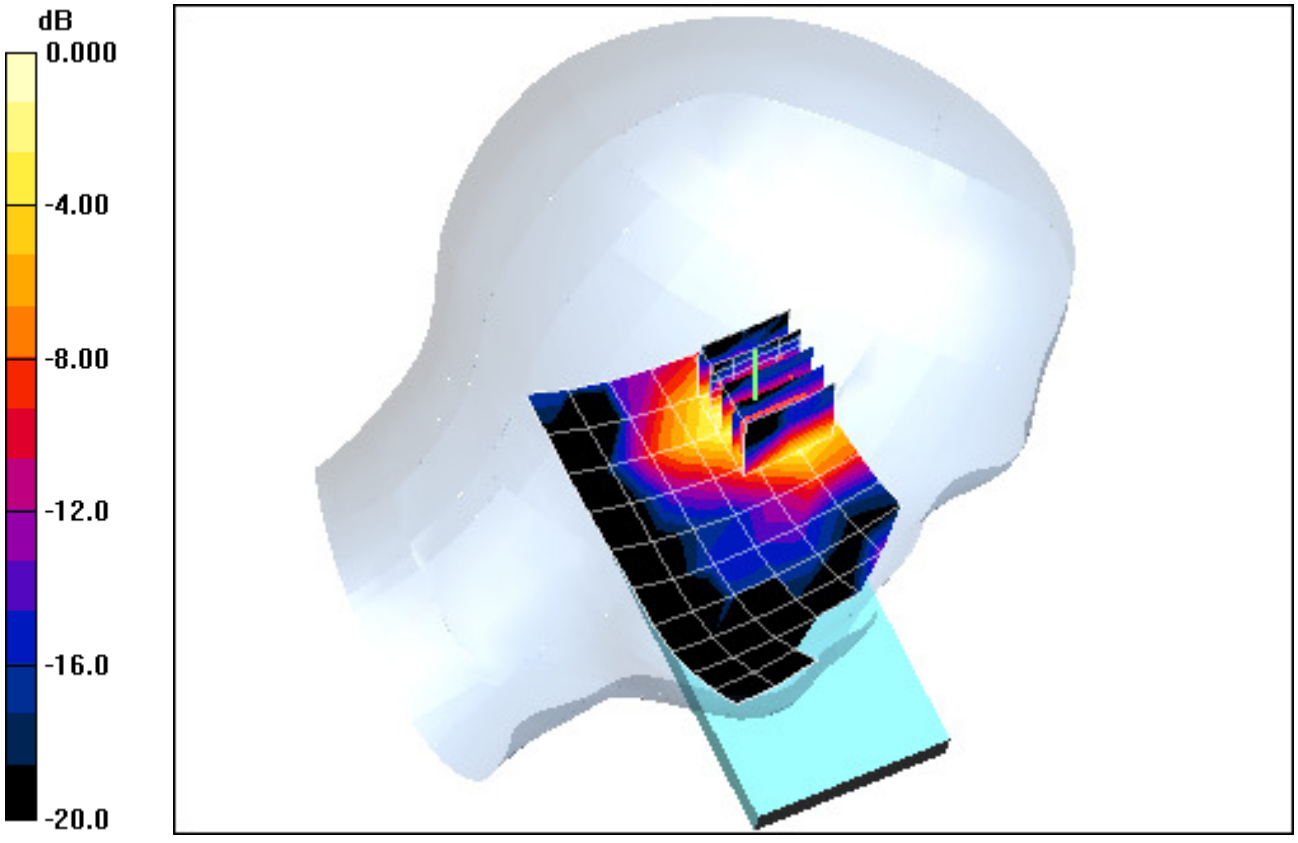
Communication System: IEEE 802.11b; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium: 2450 Head; Medium parameters used (interpolated):
f = 2462 MHz; σ = 1.84 mho/m; ε_r = 39.6; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 09-12-2011; Ambient Temp: 23.7 °C; Tissue Temp: 21.9 °C

Probe: ES3DV3 - SN3209; ConvF(4.52, 4.52, 4.52); Calibrated: 4/18/2011
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM Sub Dasy B; Type: SAM 4.0; Serial: TP-1626
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: IEEE 802.11b, Left Head, Tilt, Ch 11, 1 Mbps

Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.96 V/m
Peak SAR (extrapolated) = 0.056 W/kg
SAR(1 g) = 0.029 mW/g; SAR(10 g) = 0.015 mW/g



0 dB = 0.036mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

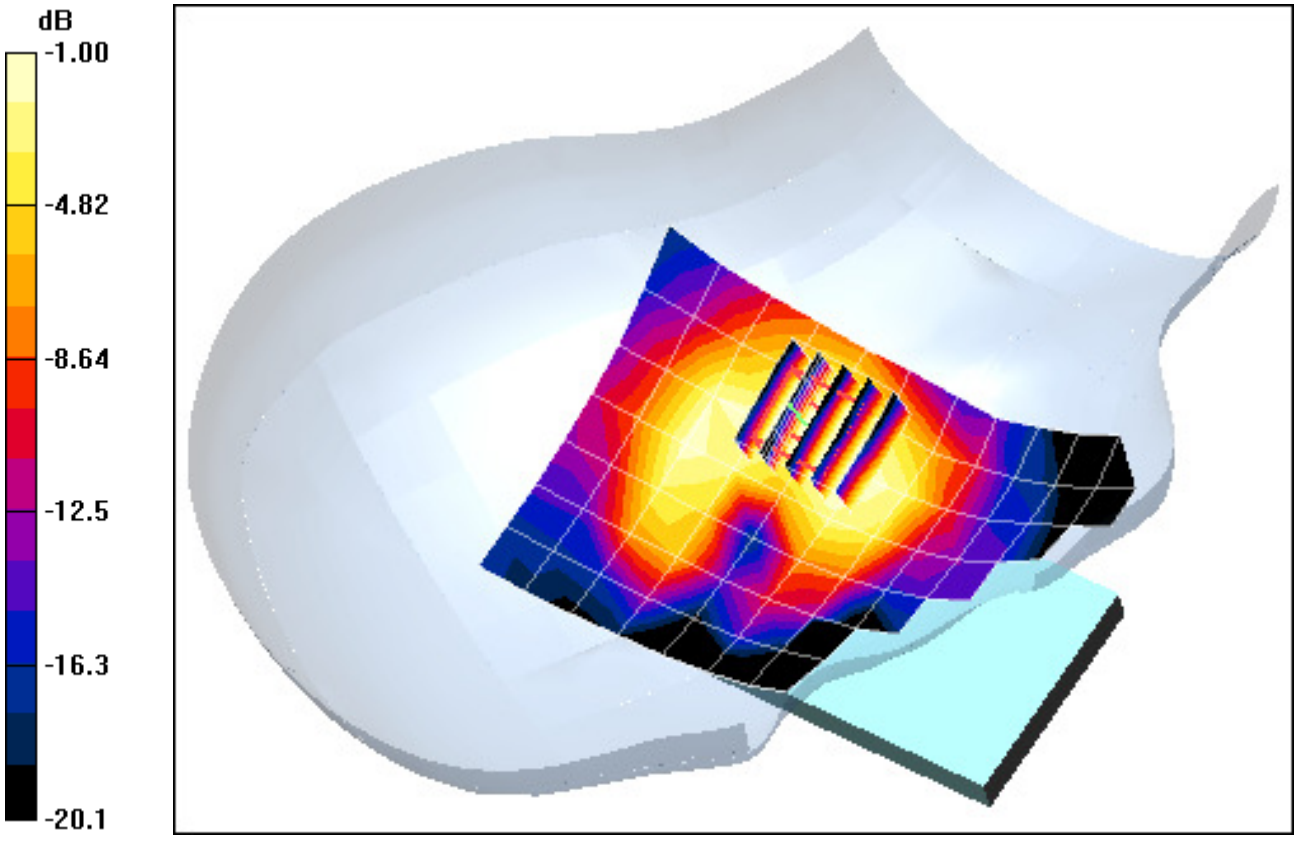
Communication System: IEEE 802.11G; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium: 2450 Head; Medium parameters used (interpolated):
f = 2462 MHz; σ = 1.84 mho/m; ε_r = 39.6; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 09-12-2011; Ambient Temp: 23.7 °C; Tissue Temp: 21.9 °C

Probe: ES3DV3 - SN3209; ConvF(4.52, 4.52, 4.52); Calibrated: 4/18/2011
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM Sub Dasy B; Type: SAM 4.0; Serial: TP-1626
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: IEEE 802.11g, Right Head, Touch, Ch 11, 6 Mbps

Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.92 V/m
Peak SAR (extrapolated) = 0.130 W/kg
SAR(1 g) = 0.062 mW/g; SAR(10 g) = 0.031 mW/g



0 dB = 0.080mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

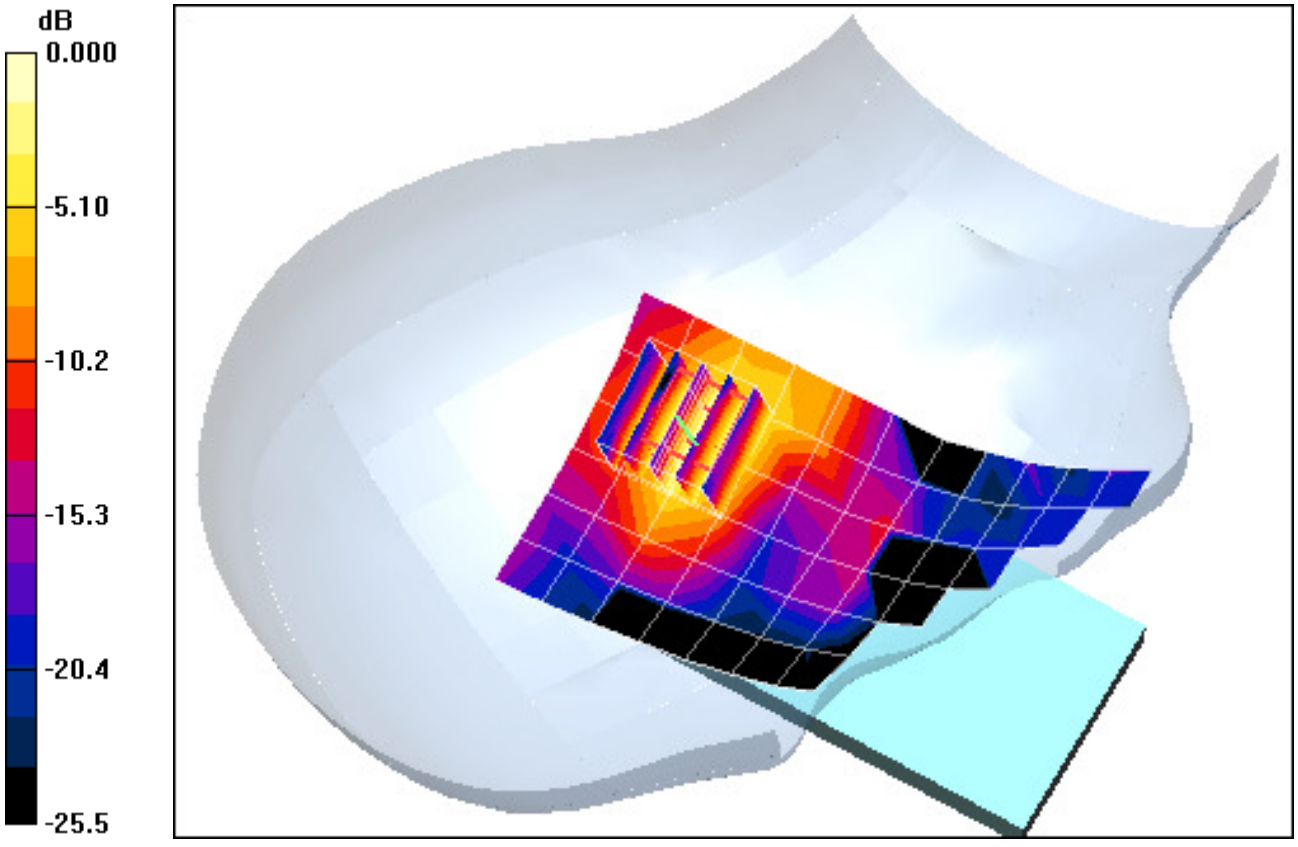
Communication System: IEEE 802.11g; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium: 2450 Head; Medium parameters used (interpolated):
f = 2462 MHz; σ = 1.84 mho/m; ε_r = 39.6; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 09-12-2011; Ambient Temp: 23.7 °C; Tissue Temp: 21.9 °C

Probe: ES3DV3 - SN3209; ConvF(4.52, 4.52, 4.52); Calibrated: 4/18/2011
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM Sub Dasy B; Type: SAM 4.0; Serial: TP-1626
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: IEEE 802.11g, Right Head, Tilt, Ch 11, 6 Mbps

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.94 V/m
Peak SAR (extrapolated) = 0.071 W/kg
SAR(1 g) = 0.039 mW/g; SAR(10 g) = 0.021 mW/g



0 dB = 0.048mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

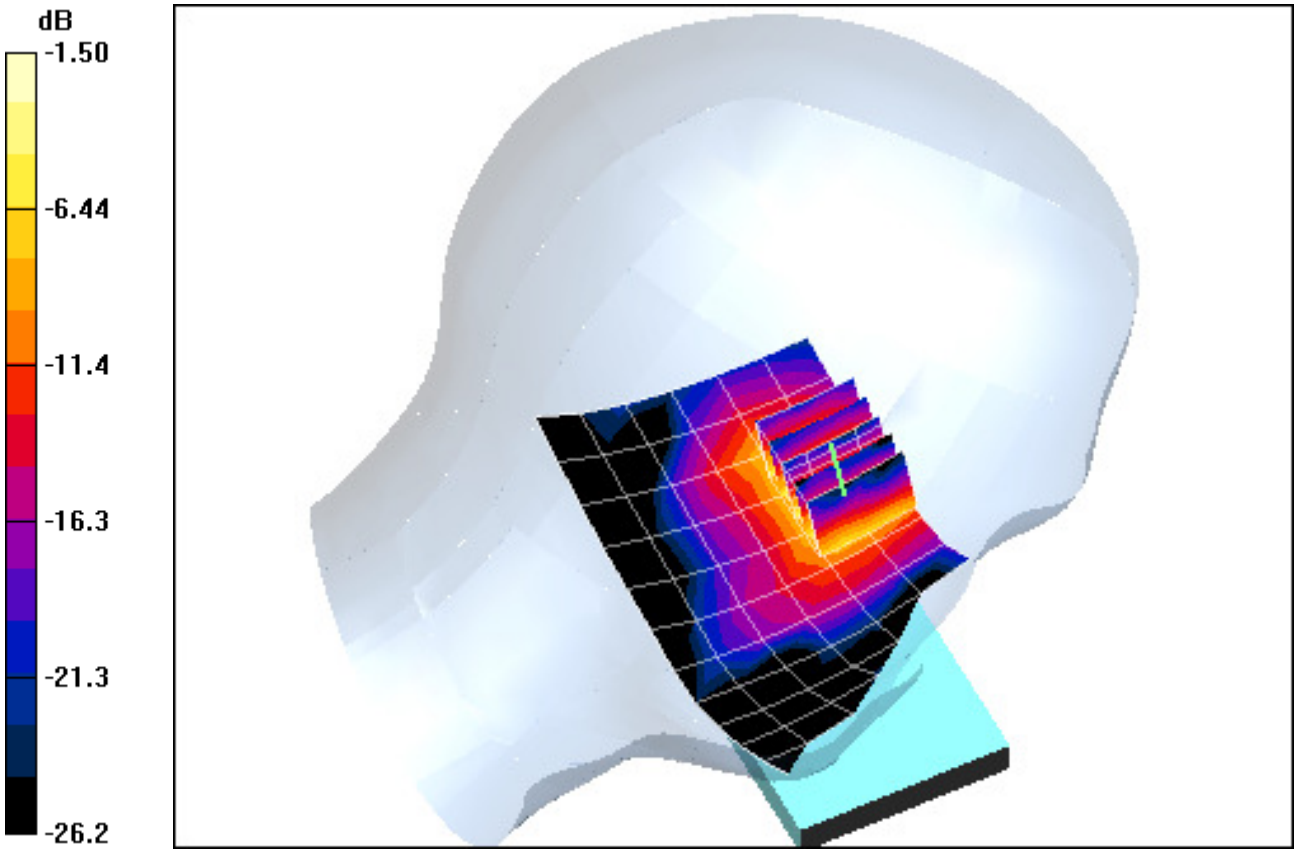
Communication System: IEEE 802.11g; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium: 2450 Head; Medium parameters used (interpolated):
f = 2462 MHz; σ = 1.84 mho/m; ε_r = 39.6; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 09-12-2011; Ambient Temp: 23.7 °C; Tissue Temp: 21.9 °C

Probe: ES3DV3 - SN3209; ConvF(4.52, 4.52, 4.52); Calibrated: 4/18/2011
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM Sub Dasy B; Type: SAM 4.0; Serial: TP-1626
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: IEEE 802.11g, Left Head, Touch, Ch 11, 6 Mbps

Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.42 V/m
Peak SAR (extrapolated) = 0.334 W/kg
SAR(1 g) = 0.144 mW/g; SAR(10 g) = 0.065 mW/g



0 dB = 0.194mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

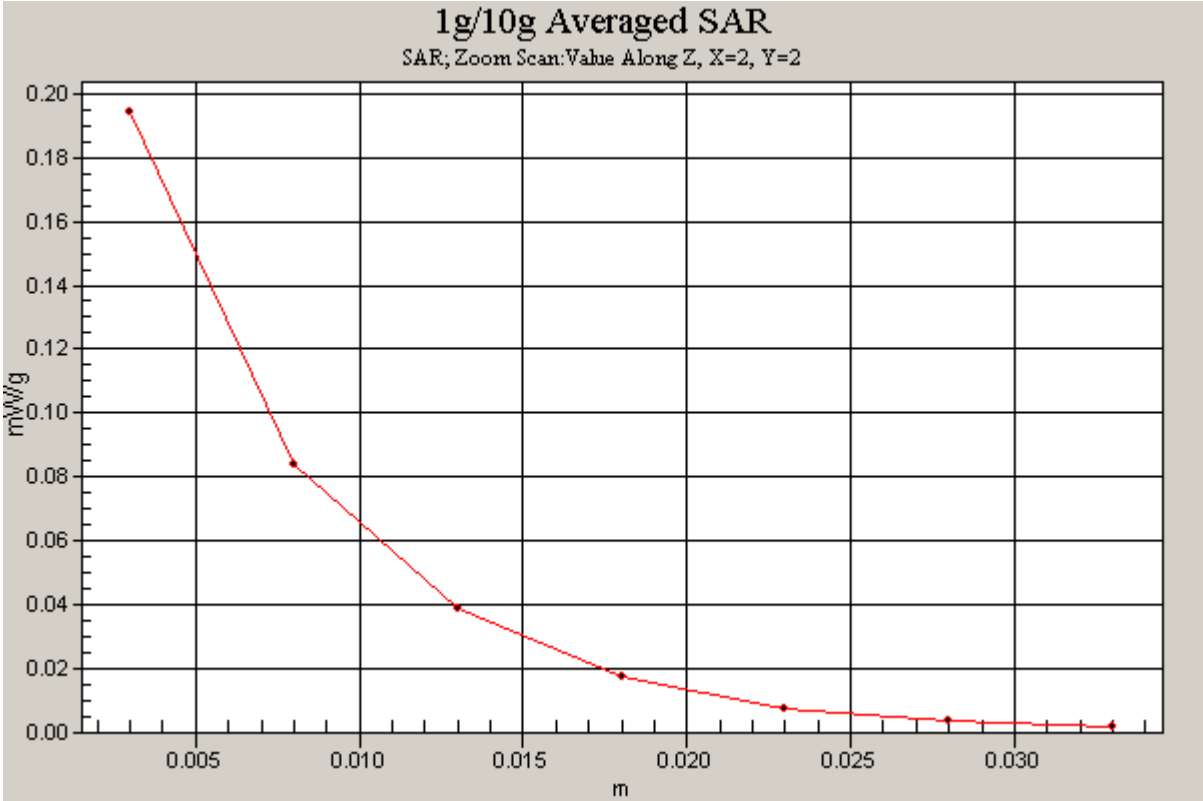
Communication System: IEEE 802.11g; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium: 2450 Head; Medium parameters used (interpolated):
f = 2462 MHz; σ = 1.84 mho/m; ε_r = 39.6; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 09-12-2011; Ambient Temp: 23.7 °C; Tissue Temp: 21.9 °C

Probe: ES3DV3 - SN3209; ConvF(4.52, 4.52, 4.52); Calibrated: 4/18/2011
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM Sub Dasy B; Type: SAM 4.0; Serial: TP-1626
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: IEEE 802.11g, Left Head, Touch, Ch 11, 6 Mbps

Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.42 V/m
Peak SAR (extrapolated) = 0.334 W/kg
SAR(1 g) = 0.144 mW/g; SAR(10 g) = 0.065 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

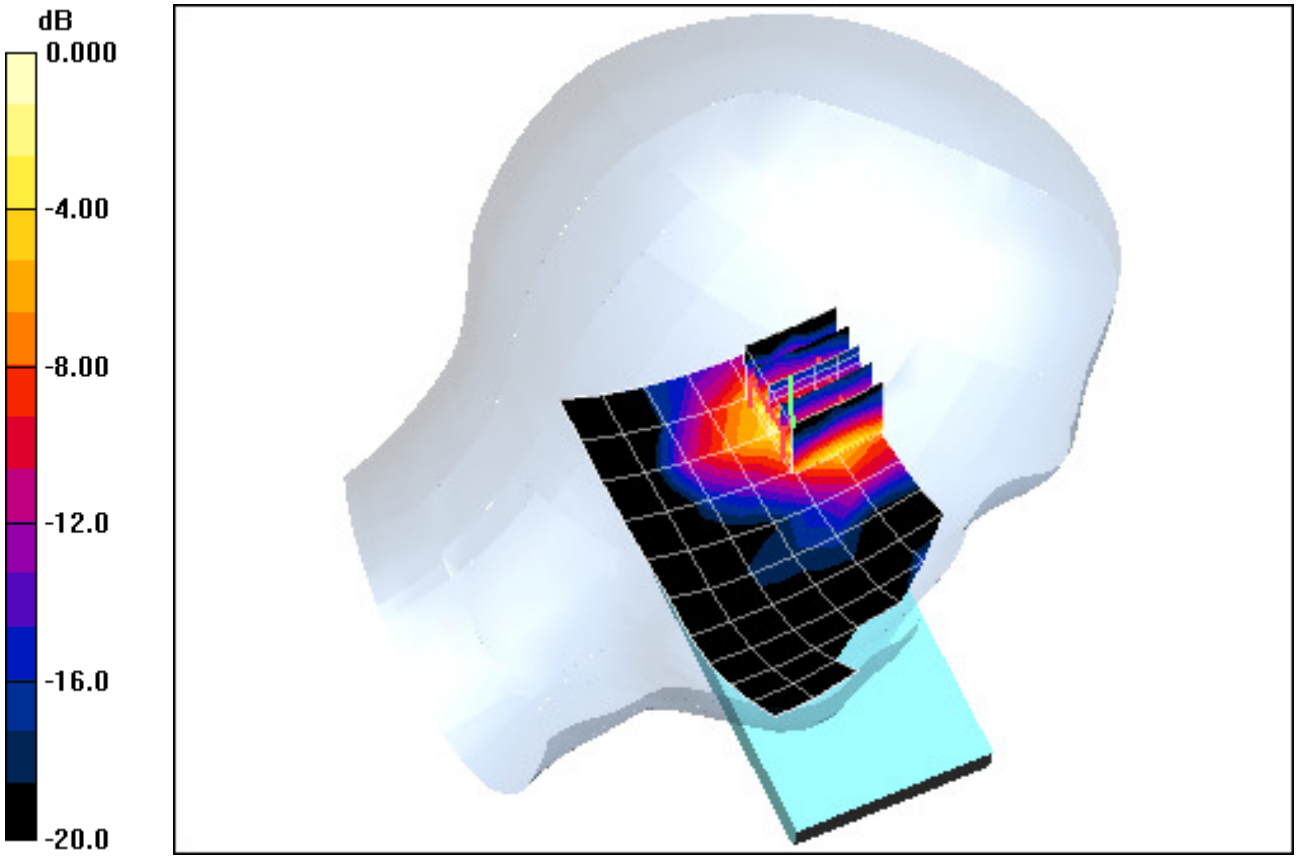
Communication System: IEEE 802.11g; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium: 2450 Head; Medium parameters used (interpolated):
f = 2462 MHz; σ = 1.84 mho/m; ε_r = 39.6; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 09-12-2011; Ambient Temp: 23.7 °C; Tissue Temp: 21.9 °C

Probe: ES3DV3 - SN3209; ConvF(4.52, 4.52, 4.52); Calibrated: 4/18/2011
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM Sub Dasy B; Type: SAM 4.0; Serial: TP-1626
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: IEEE 802.11g, Left Head, Tilt, Ch 11, 6 Mbps

Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.63 V/m
Peak SAR (extrapolated) = 0.114 W/kg
SAR(1 g) = 0.059 mW/g; SAR(10 g) = 0.029 mW/g



0 dB = 0.070mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

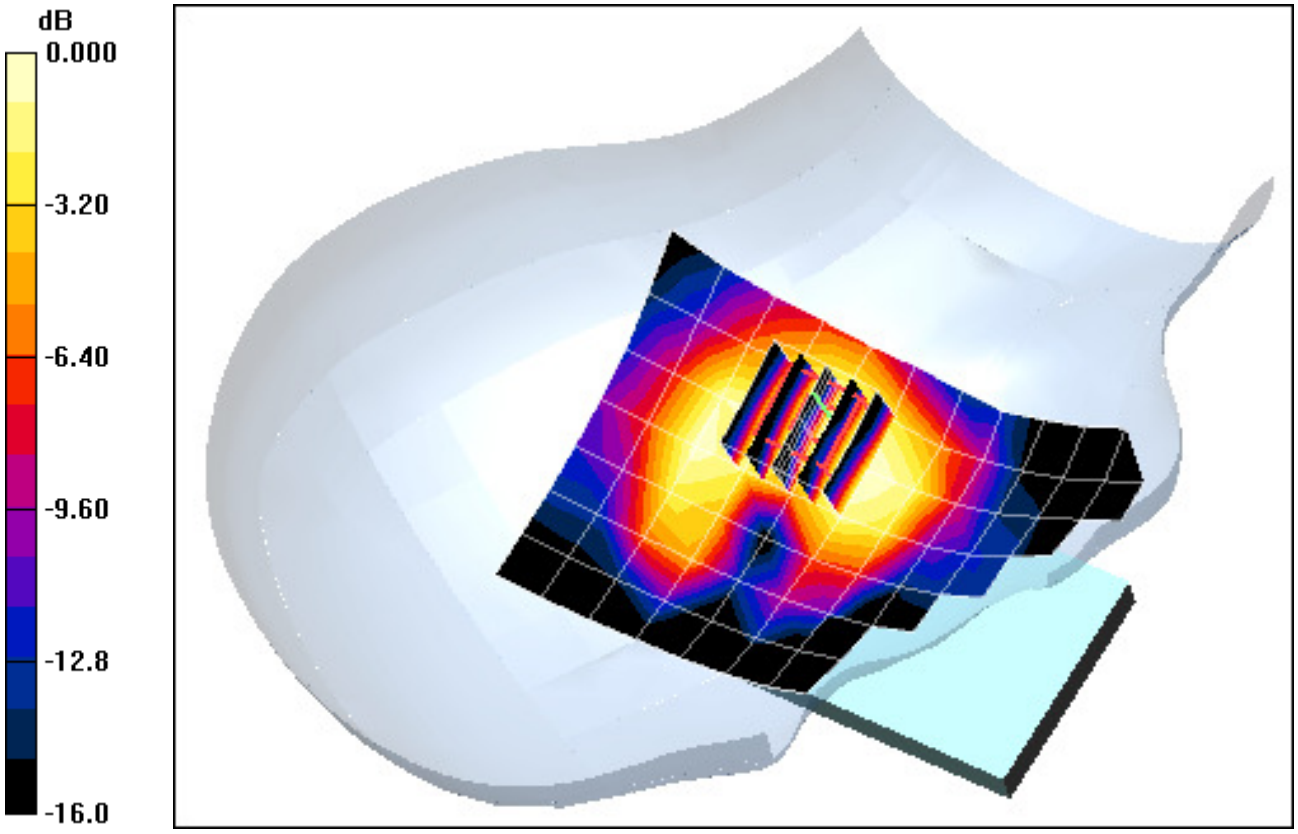
Communication System: IEEE 802.11n; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium: 2450 Head; Medium parameters used (interpolated):
f = 2462 MHz; σ = 1.84 mho/m; ε_r = 39.6; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 09-12-2011; Ambient Temp: 23.7 °C; Tissue Temp: 21.9 °C

Probe: ES3DV3 - SN3209; ConvF(4.52, 4.52, 4.52); Calibrated: 4/18/2011
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM Sub Dasy B; Type: SAM 4.0; Serial: TP-1626
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: IEEE 802.11n, Right Head, Touch, Ch 11, 6.5 Mbps

Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.30 V/m
Peak SAR (extrapolated) = 0.103 W/kg
SAR(1 g) = 0.048 mW/g; SAR(10 g) = 0.024 mW/g



0 dB = 0.061mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

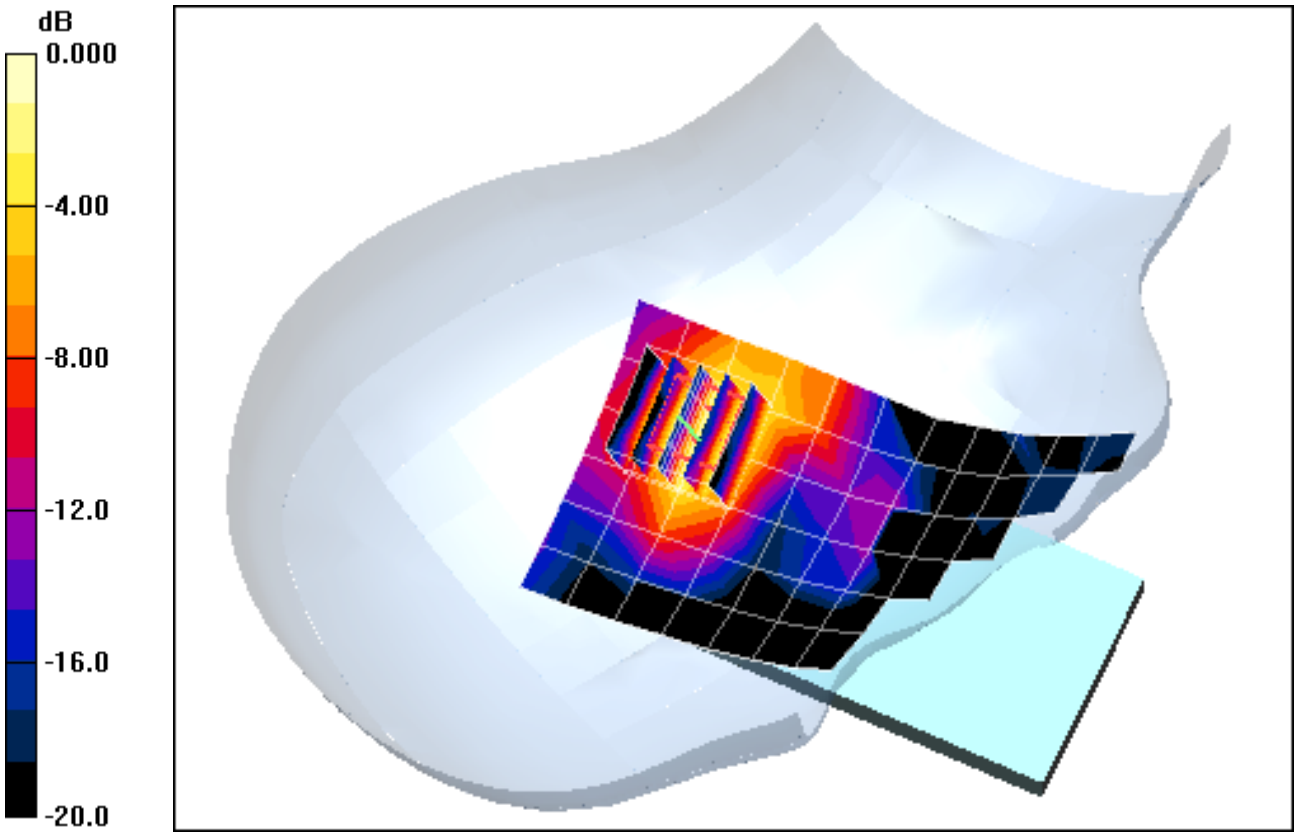
Communication System: IEEE 802.11n; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium: 2450 Head; Medium parameters used (interpolated):
f = 2462 MHz; σ = 1.84 mho/m; ε_r = 39.6; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 09-12-2011; Ambient Temp: 23.7 °C; Tissue Temp: 21.9 °C

Probe: ES3DV3 - SN3209; ConvF(4.52, 4.52, 4.52); Calibrated: 4/18/2011
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM Sub Dasy B; Type: SAM 4.0; Serial: TP-1626
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: IEEE 802.11n, Right Head, Tilt, Ch 11, 6.5 Mbps

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.34 V/m
Peak SAR (extrapolated) = 0.056 W/kg
SAR(1 g) = 0.030 mW/g; SAR(10 g) = 0.016 mW/g



0 dB = 0.037mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

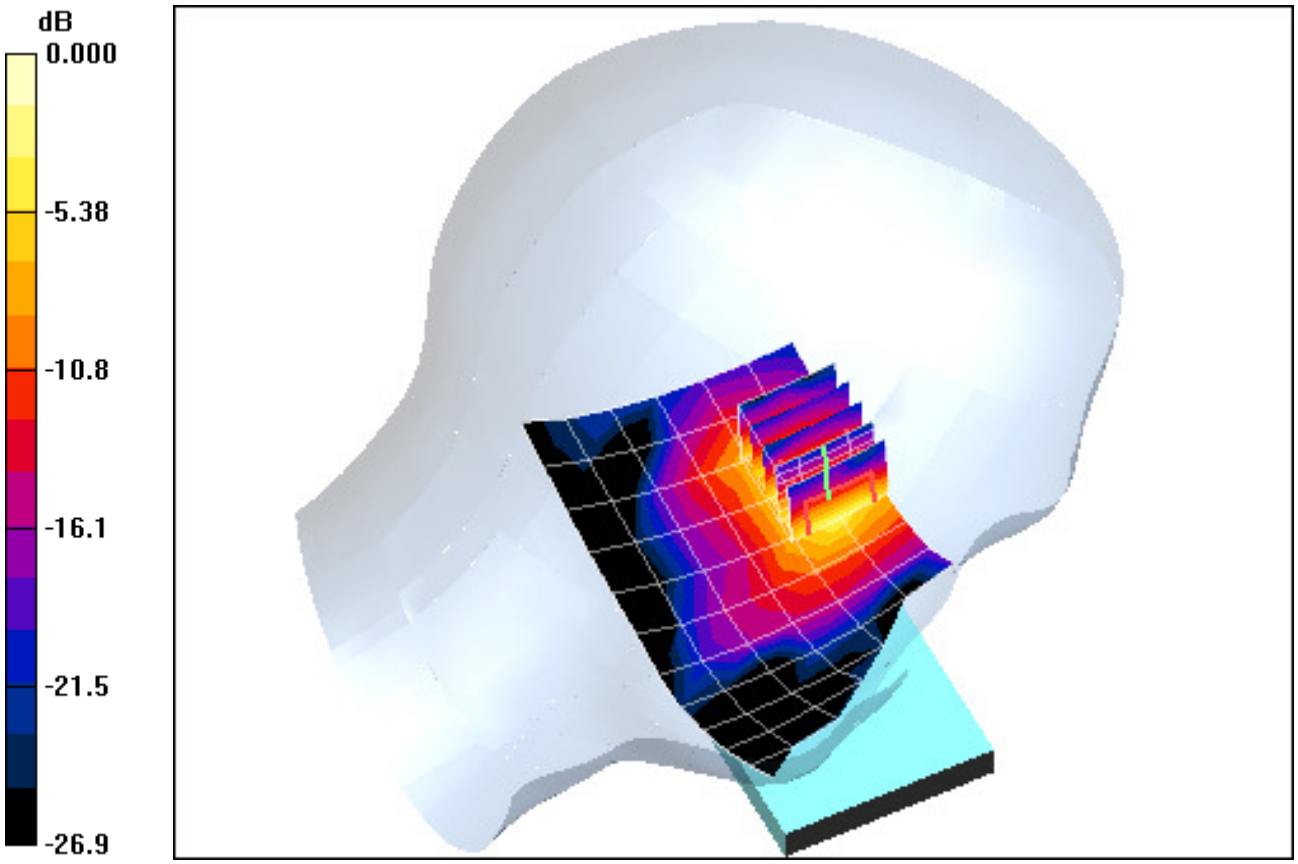
Communication System: IEEE 802.11n; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium: 2450 Head; Medium parameters used (interpolated):
f = 2462 MHz; σ = 1.84 mho/m; ε_r = 39.6; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 09-12-2011; Ambient Temp: 23.7 °C; Tissue Temp: 21.9 °C

Probe: ES3DV3 - SN3209; ConvF(4.52, 4.52, 4.52); Calibrated: 4/18/2011
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM Sub Dasy B; Type: SAM 4.0; Serial: TP-1626
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: IEEE 802.11n, Left Head, Touch, Ch 11, 6.5 Mbps

Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.75 V/m
Peak SAR (extrapolated) = 0.263 W/kg
SAR(1 g) = 0.115 mW/g; SAR(10 g) = 0.051 mW/g



0 dB = 0.158mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

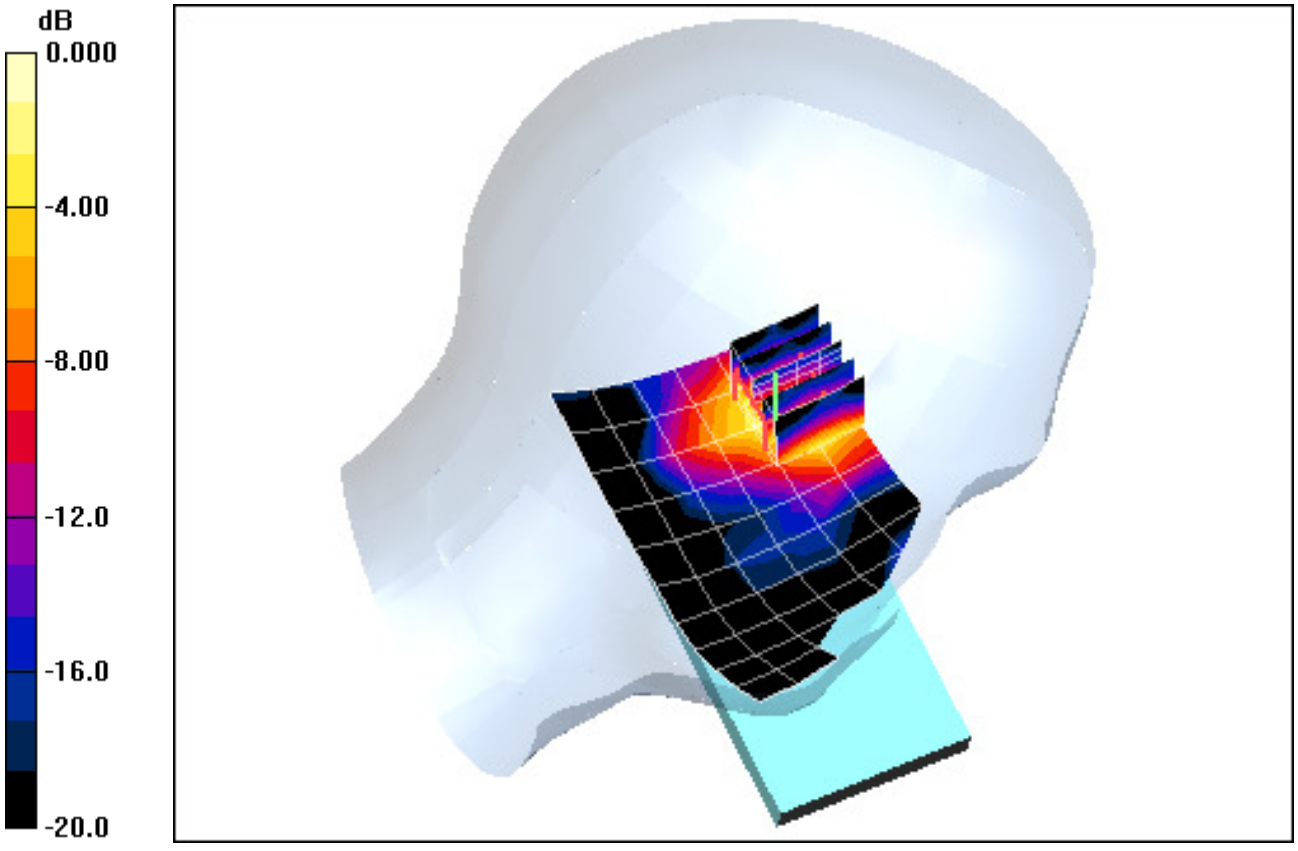
Communication System: IEEE 802.11n; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium: 2450 Head; Medium parameters used (interpolated):
f = 2462 MHz; σ = 1.84 mho/m; ε_r = 39.6; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 09-12-2011; Ambient Temp: 23.7 °C; Tissue Temp: 21.9 °C

Probe: ES3DV3 - SN3209; ConvF(4.52, 4.52, 4.52); Calibrated: 4/18/2011
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM Sub Dasy B; Type: SAM 4.0; Serial: TP-1626
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: IEEE 802.11n, Left Head, Tilt, Ch 11, 6.5 Mbps

Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.94 V/m
Peak SAR (extrapolated) = 0.091 W/kg
SAR(1 g) = 0.045 mW/g; SAR(10 g) = 0.022 mW/g



0 dB = 0.055mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type:Portable Handset; Serial: FCC#SAR1

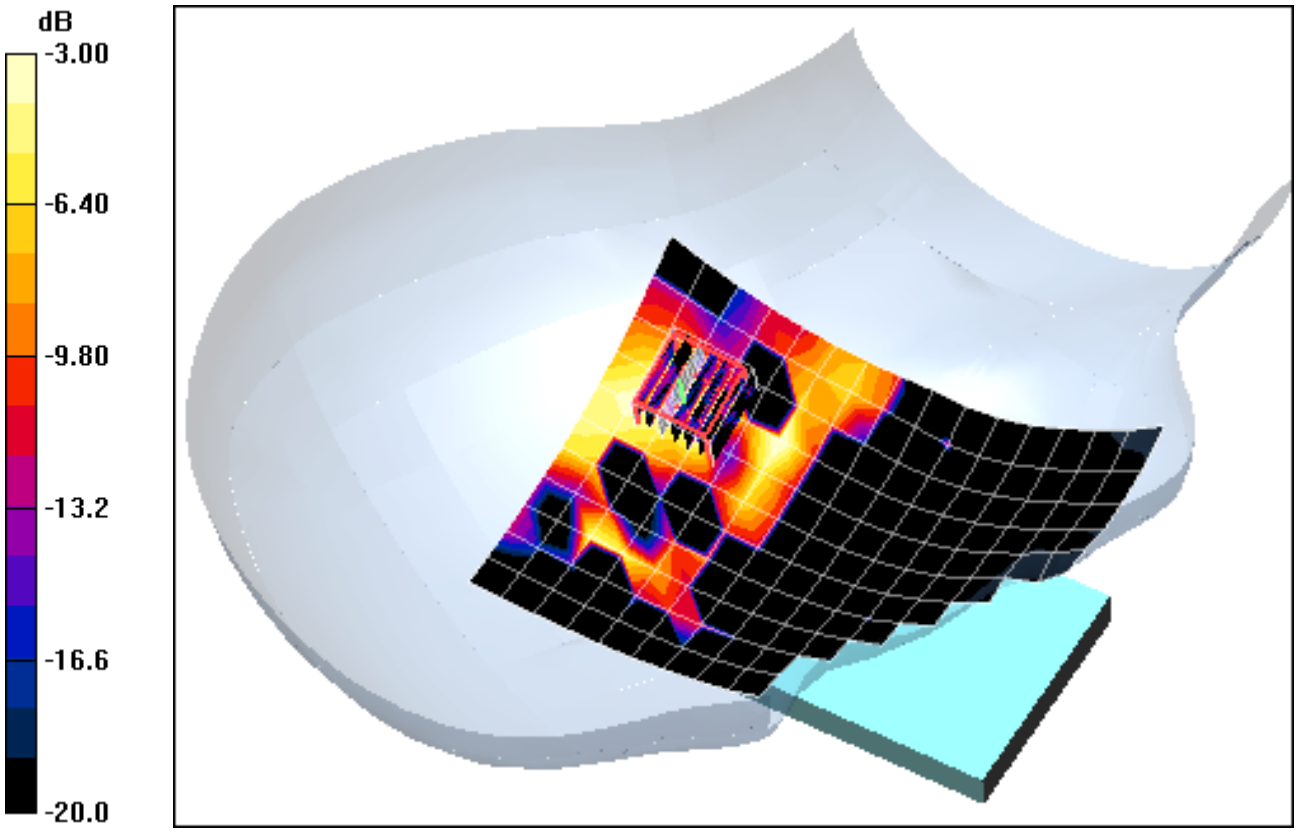
Communication System: IEEE 802.11a 5.2-5.8 GHz Band; Frequency: 5745 MHz;Duty Cycle: 1:1
Medium: 5 GHz Head; Medium parameters used (interpolated):
f = 5745 MHz; σ = 5.18 mho/m; ε_r = 33.7; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 09-12-2011; Ambient Temp: 23.1 °C; Tissue Temp: 22.3 °C

Probe: EX3DV4 - SN3550; ConvF(3.64, 3.64, 3.64); Calibrated: 2/14/2011
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/20/2011
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: IEEE 802.11a 5.8 GHz, Right Head, Touch, Ch 149, 6 Mbps

Area Scan (12x16x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 3.05 V/m
Peak SAR (extrapolated) = 0.361 W/kg
SAR(1 g) = 0.049 mW/g; SAR(10 g) = 0.013 mW/g



0 dB = 0.117mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

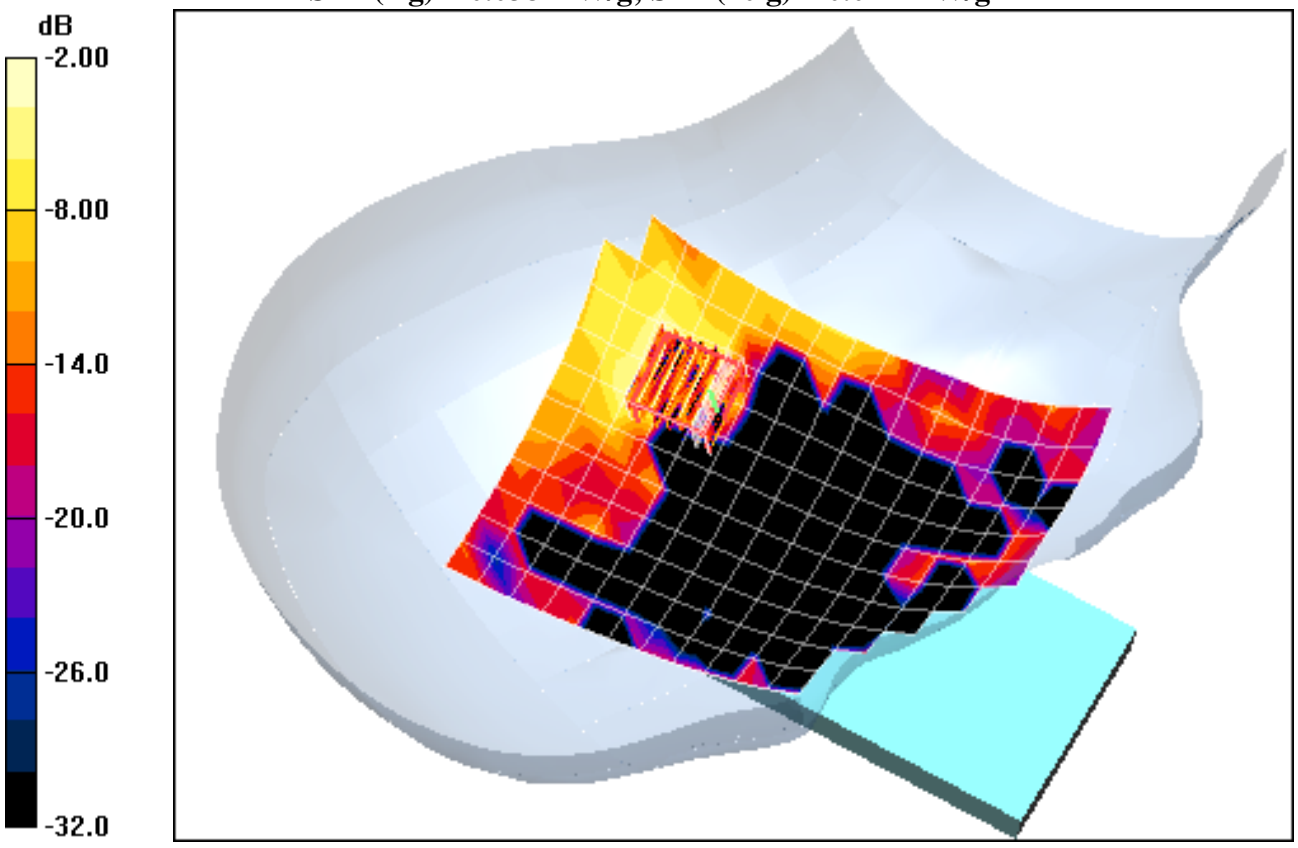
Communication System: IEEE 802.11a 5.2-5.8 GHz Band; Frequency: 5500 MHz;Duty Cycle: 1:1
Medium: 5 GHz Head; Medium parameters used (interpolated):
f = 5500 MHz; σ = 4.91 mho/m; ε_r = 34.1; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 09-12-2011; Ambient Temp: 22.8 °C; Tissue Temp: 21.9 °C

Probe: EX3DV4 - SN3550; ConvF(3.77, 3.77, 3.77); Calibrated: 2/14/2011
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/20/2011
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: IEEE 802.11a 5.5 GHz, Right Head, Tilt, Ch 100, 6 Mbps

Area Scan (12x16x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 2.76 V/m
Peak SAR (extrapolated) = 0.208 W/kg
SAR(1 g) = 0.038 mW/g; SAR(10 g) = 0.012 mW/g



0 dB = 0.091mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

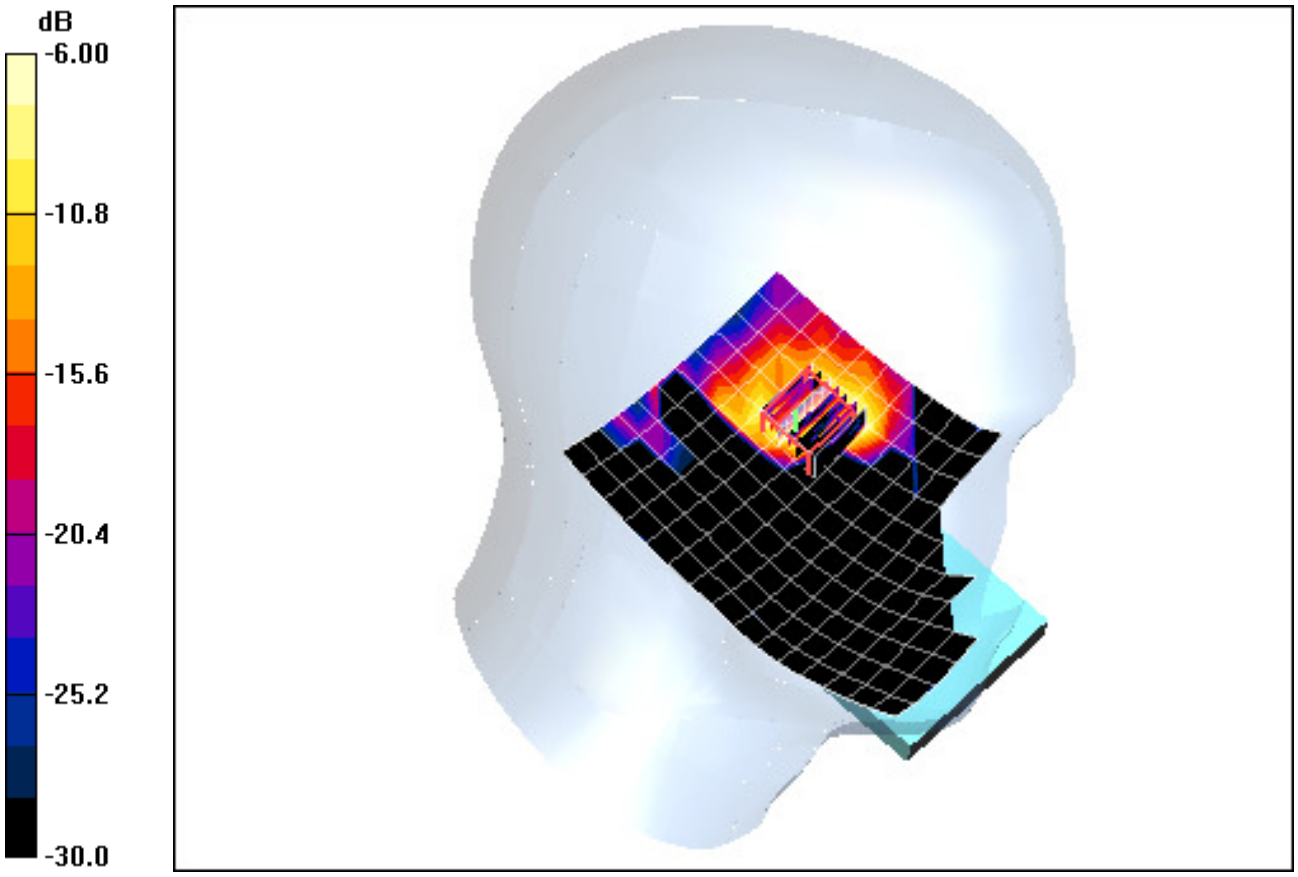
Communication System: IEEE 802.11a 5.2-5.8 GHz Band; Frequency: 5500 MHz;Duty Cycle: 1:1
Medium: 5 GHz Head; Medium parameters used (interpolated):
f = 5500 MHz; σ = 4.91 mho/m; ε_r = 34.1; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 09-12-2011; Ambient Temp: 22.8 ° C; Tissue Temp: 21.9 ° C

Probe: EX3DV4 - SN3550; ConvF(3.77, 3.77, 3.77); Calibrated: 2/14/2011
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/20/2011
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: IEEE 802.11a, 5.5 GHz Left Head, Touch, Ch 100, 6 Mbps

Area Scan (12x16x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 2.55 V/m
Peak SAR (extrapolated) = 0.871 W/kg
SAR(1 g) = 0.205 mW/g; SAR(10 g) = 0.049 mW/g



0 dB = 0.447mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

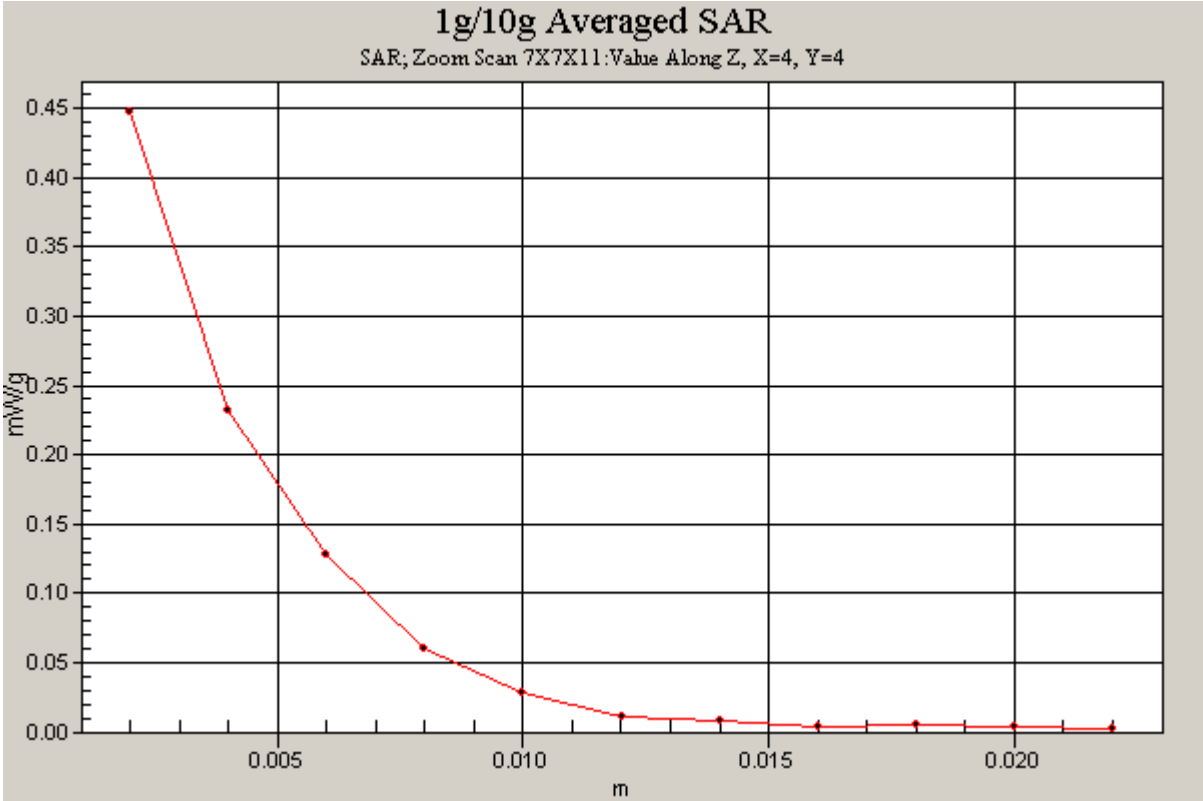
Communication System: IEEE 802.11a 5.2-5.8 GHz Band; Frequency: 5500 MHz;Duty Cycle: 1:1
Medium: 5 GHz Head; Medium parameters used (interpolated):
f = 5500 MHz; σ = 4.91 mho/m; ε_r = 34.1; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 09-12-2011; Ambient Temp: 23.1°C; Tissue Temp: 22.3°C

Probe: EX3DV4 - SN3550; ConvF(3.77, 3.77, 3.77); Calibrated: 2/14/2011
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/20/2011
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: IEEE 802.11a, 5.5 GHz Left Head, Touch, Ch 40, 6 Mbps

Area Scan (12x16x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 2.55 V/m
Peak SAR (extrapolated) = 0.871 W/kg
SAR(1 g) = 0.205 mW/g; SAR(10 g) = 0.049 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

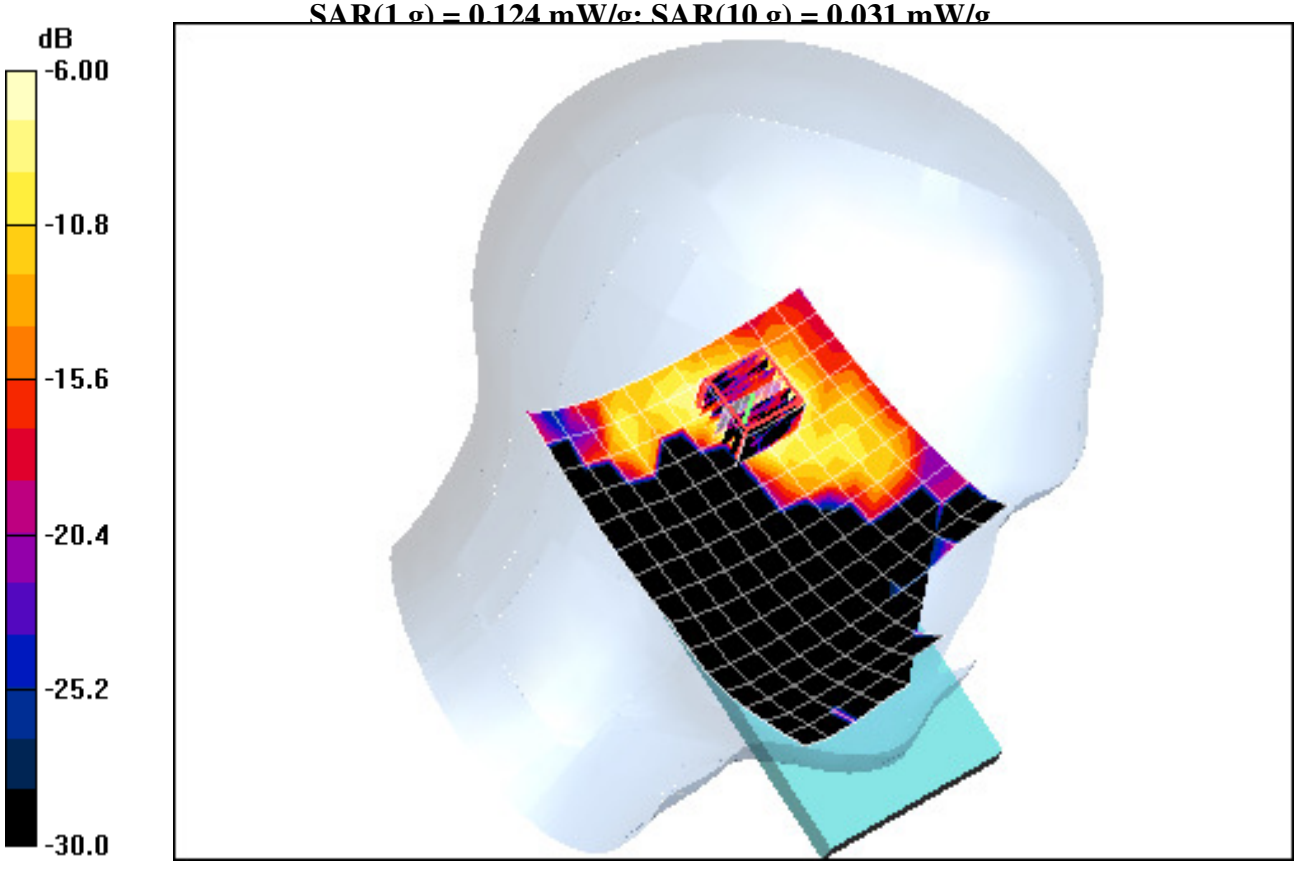
Communication System: IEEE 802.11a 5.2-5.8 GHz Band; Frequency: 5280 MHz;Duty Cycle: 1:1
Medium: 5 GHz Head; Medium parameters used (interpolated):
f = 5280 MHz; σ = 5.27 mho/m; ε_r = 46.8; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 09-12-2011; Ambient Temp: 23.1 °C; Tissue Temp: 22.3 °C

Probe: EX3DV4 - SN3550; ConvF(3.92, 3.92, 3.92); Calibrated: 2/14/2011
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/20/2011
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: IEEE 802.11a, 5.3 GHz Left Head, Tilt, Ch 56, 6 Mbps

Area Scan (12x16x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 2.15 V/m
Peak SAR (extrapolated) = 0.638 W/kg
SAR(1 g) = 0.124 mW/g; SAR(10 g) = 0.031 mW/g



0 dB = 0.263mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial:FCC#SAR1

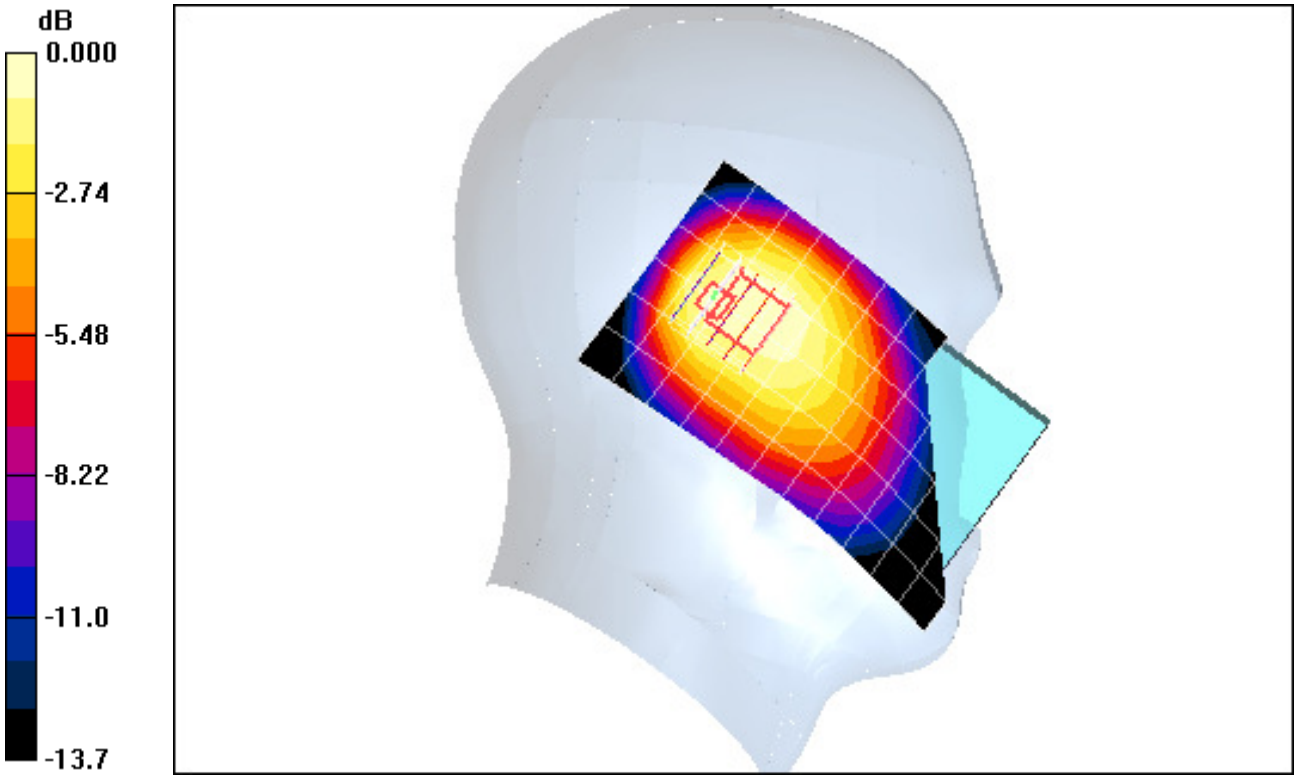
Communication System: Cellular CDMA; Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
f = 836.52 MHz; σ = 0.887 mho/m; ε_r = 41.8; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 10-17-2011; Ambient Temp: 24.1 °C; Tissue Temp: 22.5 °C

Probe: ES3DV3 - SN3258; ConvF(6.18, 6.18, 6.18); Calibrated: 4/8/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 2/21/2011
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1403
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: SVLTE, Mid.ch Cell CDMA, LTE, 10MHz BW, RB 1, RB Offset 0, 22.5 dBm, Left Head, Touch

Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 31.4 V/m
Peak SAR (extrapolated) = 1.21 W/kg
SAR(1 g) = 0.681 mW/g; SAR(10 g) = 0.469 mW/g



0 dB = 0.731mW/g

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

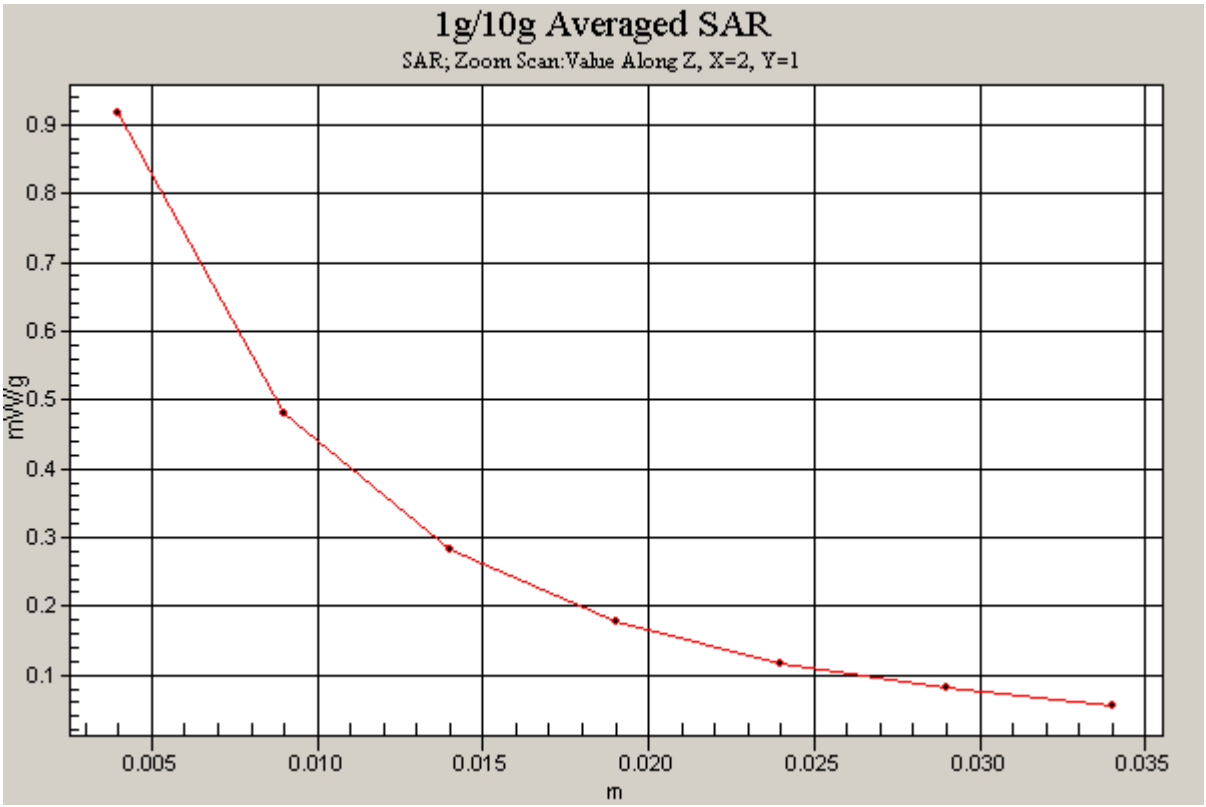
Communication System: Cellular CDMA; Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
f = 836.52 MHz; σ = 0.887 mho/m; ε_r = 41.8; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 10-17-2011; Ambient Temp: 24.1 °C; Tissue Temp: 22.5 °C

Probe: ES3DV3 - SN3258; ConvF(6.18, 6.18, 6.18); Calibrated: 4/8/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 2/21/2011
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1403
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: SVLTE, Mid.ch Cell CDMA, LTE, 10MHz BW, RB 1, RB Offset 0, 22.5 dBm, Right Head, Touch

Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 31.0 V/m
Peak SAR (extrapolated) = 1.76 W/kg
SAR(1 g) = 0.826 mW/g; SAR(10 g) = 0.500 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

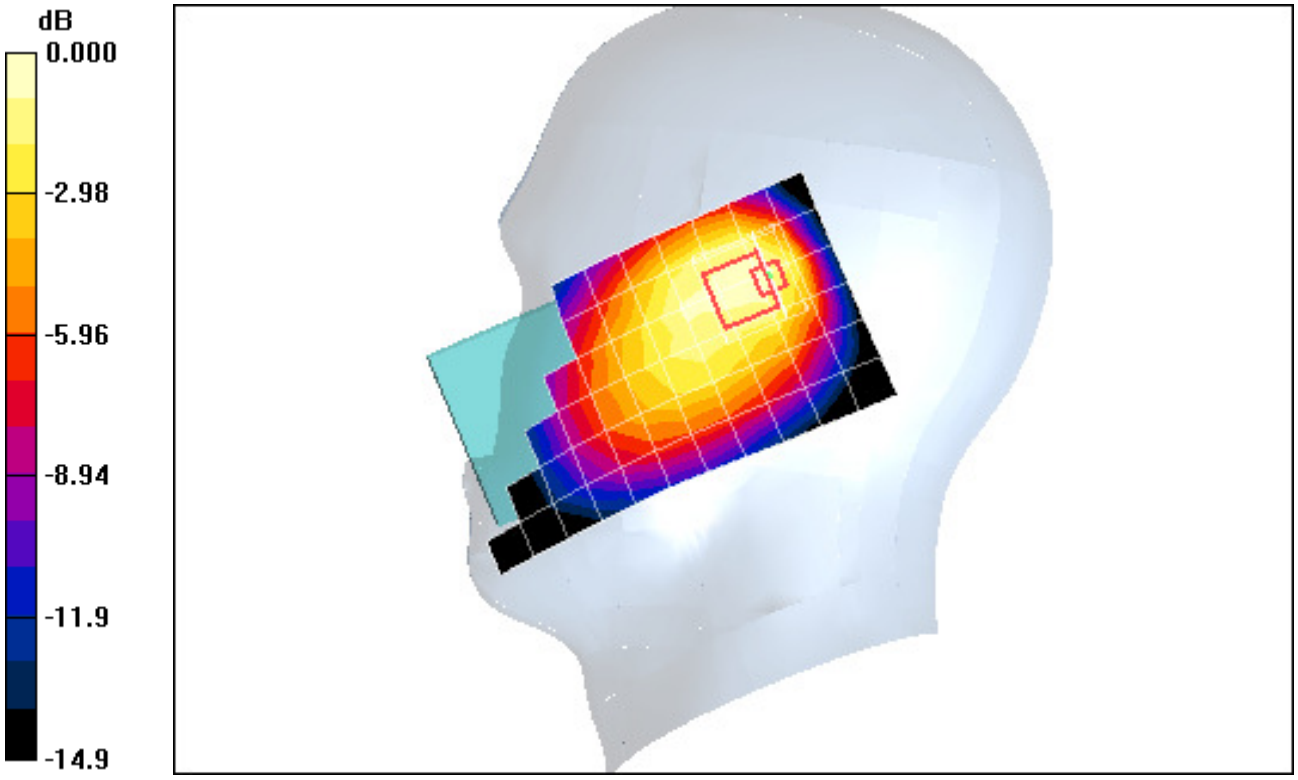
Communication System: Cellular CDMA; Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
f = 836.52 MHz; σ = 0.887 mho/m; ε_r = 41.8; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 10-17-2011; Ambient Temp: 24.1 °C; Tissue Temp: 22.5 °C

Probe: ES3DV3 - SN3258; ConvF(6.18, 6.18, 6.18); Calibrated: 4/8/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 2/21/2011
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1403
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: SVLTE, Mid.ch Cell CDMA, LTE, 10MHz BW, RB 1, RB Offset 0, 22.5 dBm, Right Head, Touch

Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 31.0 V/m
Peak SAR (extrapolated) = 1.76 W/kg
SAR(1 g) = 0.826 mW/g; SAR(10 g) = 0.500 mW/g



0 dB = 0.916mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

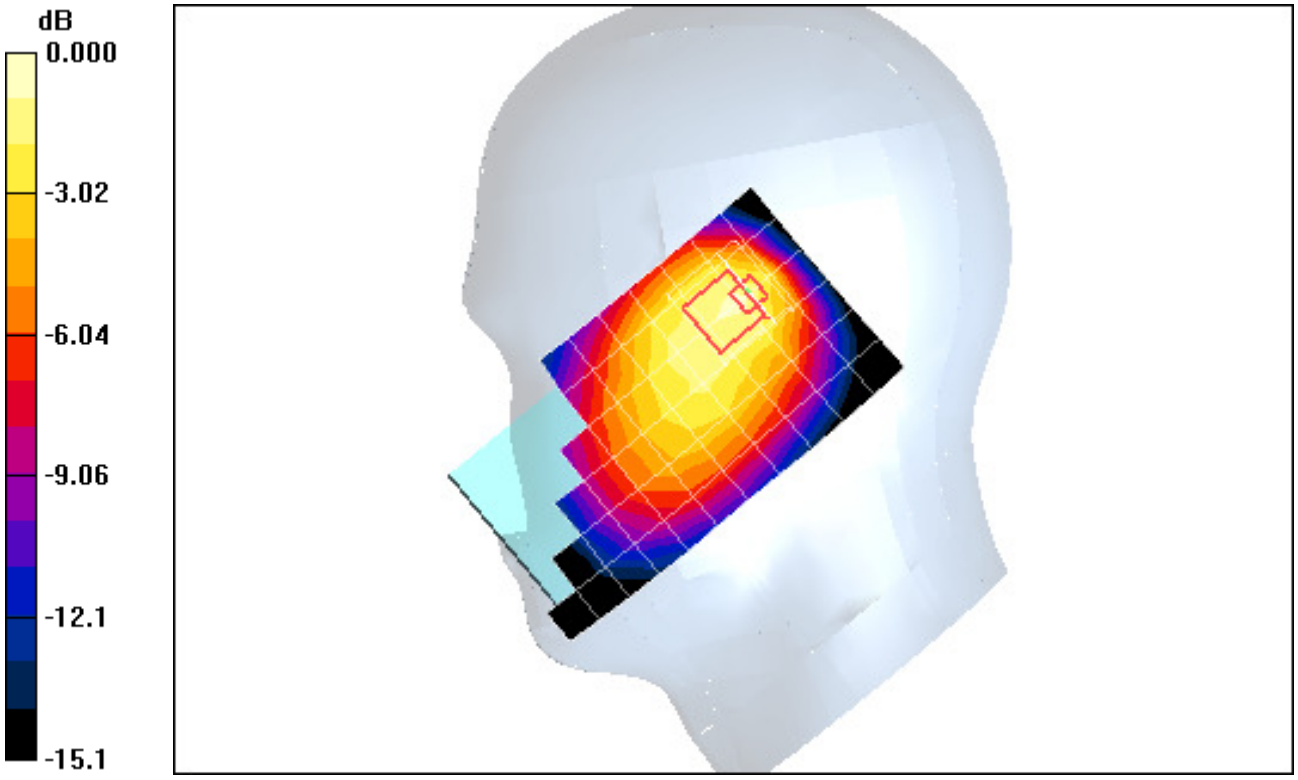
Communication System: Cellular CDMA; Frequency: 824.7 MHz;Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
f = 824.7 MHz; σ = 0.875 mho/m; ε_r = 41.9; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 10-17-2011; Ambient Temp: 24.1 °C; Tissue Temp: 22.5 °C

Probe: ES3DV3 - SN3258; ConvF(6.18, 6.18, 6.18); Calibrated: 4/8/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 2/21/2011
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1403
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: SVLTE, Low.ch Cell CDMA, LTE, 10MHz BW, RB 1, RB Offset 0, 22.5 dBm, Right Head, Touch

Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 30.2 V/m
Peak SAR (extrapolated) = 1.72 W/kg
SAR(1 g) = 0.799 mW/g; SAR(10 g) = 0.478 mW/g



0 dB = 0.900mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

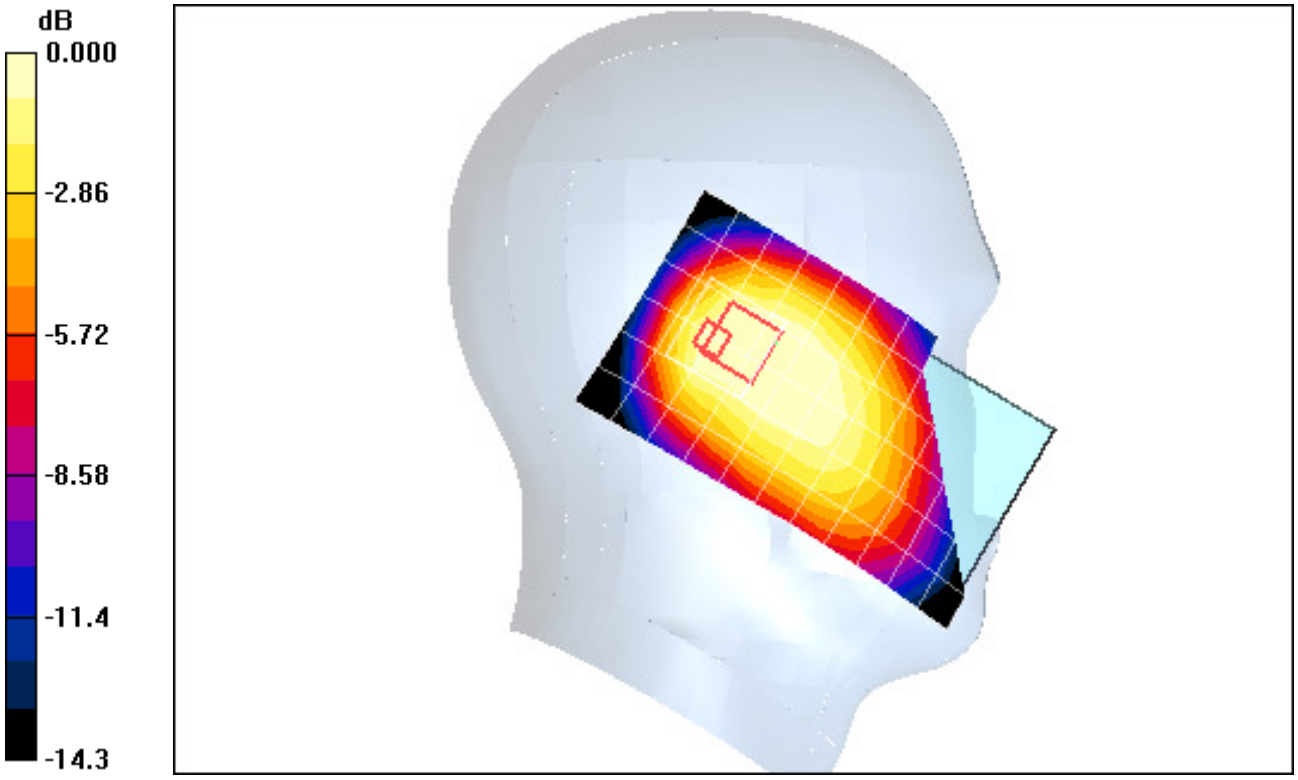
Communication System: Cellular CDMA; Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
f = 836.52 MHz; σ = 0.887 mho/m; ε_r = 41.8; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 10-17-2011; Ambient Temp: 24.1 °C; Tissue Temp: 22.5 °C

Probe: ES3DV3 - SN3258; ConvF(6.18, 6.18, 6.18); Calibrated: 4/8/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 2/21/2011
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1403
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: SVLTE, Mid.ch Cell CDMA, LTE, 10MHz BW, RB 1, RB Offset 0, 19 dBm, Left Head, Touch

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 23.2 V/m
Peak SAR (extrapolated) = 0.671 W/kg
SAR(1 g) = 0.372 mW/g; SAR(10 g) = 0.265 mW/g



0 dB = 0.400mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

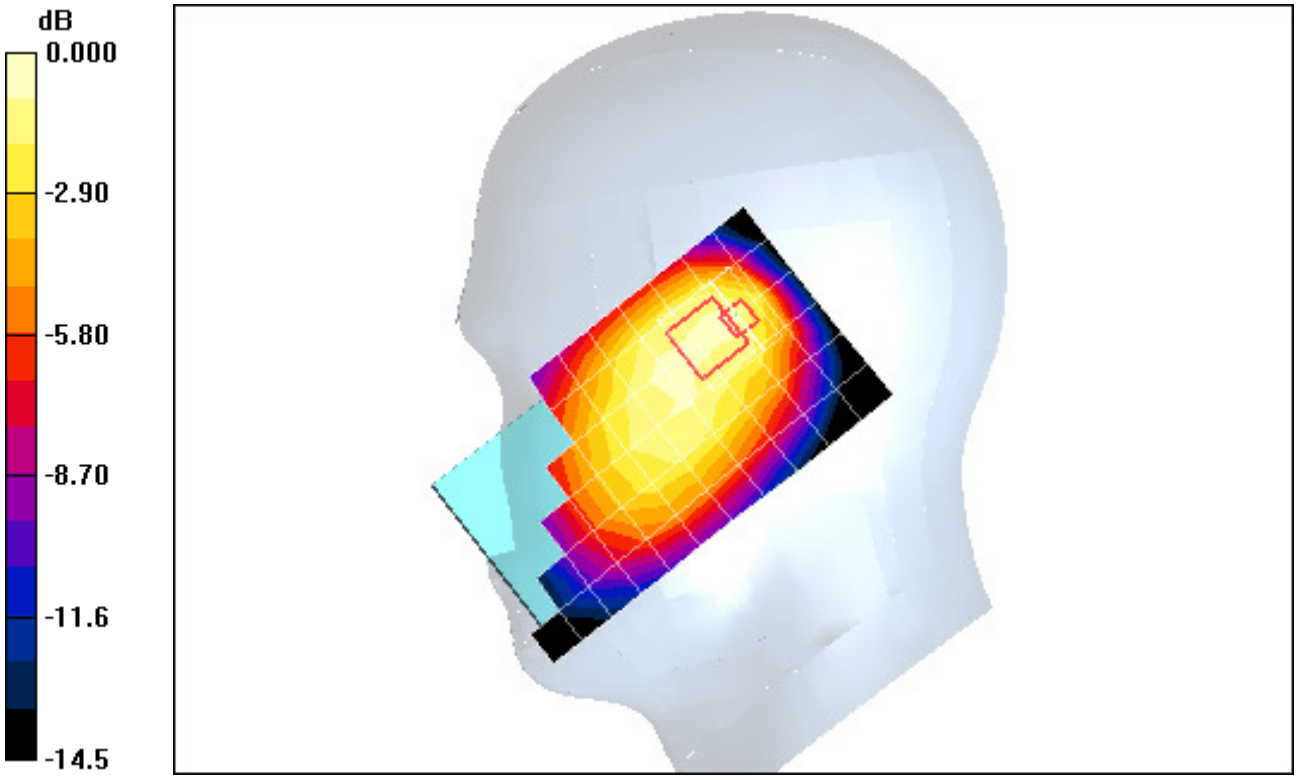
Communication System: Cellular CDMA; Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
f = 836.52 MHz; σ = 0.887 mho/m; ε_r = 41.8; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 10-17-2011; Ambient Temp: 24.1 °C; Tissue Temp: 22.5 °C

Probe: ES3DV3 - SN3258; ConvF(6.18, 6.18, 6.18); Calibrated: 4/8/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 2/21/2011
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1403
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: SVLTE, Mid.ch Cell CDMA, LTE, 10MHz BW, RB 1, RB Offset 0, 19 dBm, Right Head, Touch

Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.4 V/m
Peak SAR (extrapolated) = 0.898 W/kg
SAR(1 g) = 0.434 mW/g; SAR(10 g) = 0.287 mW/g



0 dB = 0.479mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

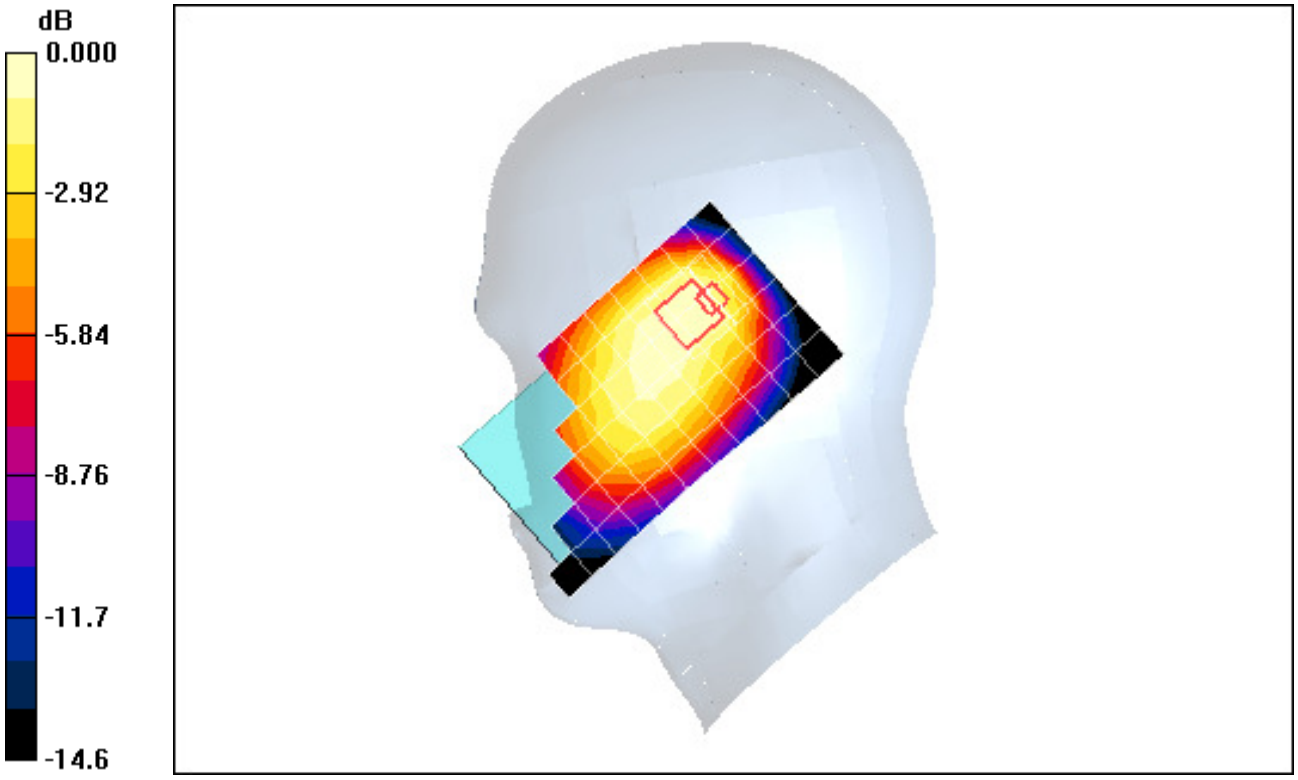
Communication System: Cellular CDMA; Frequency: 824.7 MHz;Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
f = 824.7 MHz; σ = 0.875 mho/m; ε_r = 41.9; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 10-17-2011; Ambient Temp: 24.1 °C; Tissue Temp: 22.5 °C

Probe: ES3DV3 - SN3258; ConvF(6.18, 6.18, 6.18); Calibrated: 4/8/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 2/21/2011
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1403
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: SVLTE, Low.ch Cell CDMA, LTE, 10MHz BW, RB 1, RB Offset 0, 19 dBm, Right Head, Touch

Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.8 V/m
Peak SAR (extrapolated) = 0.854 W/kg
SAR(1 g) = 0.422 mW/g; SAR(10 g) = 0.280 mW/g



0 dB = 0.461mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: SAR #2

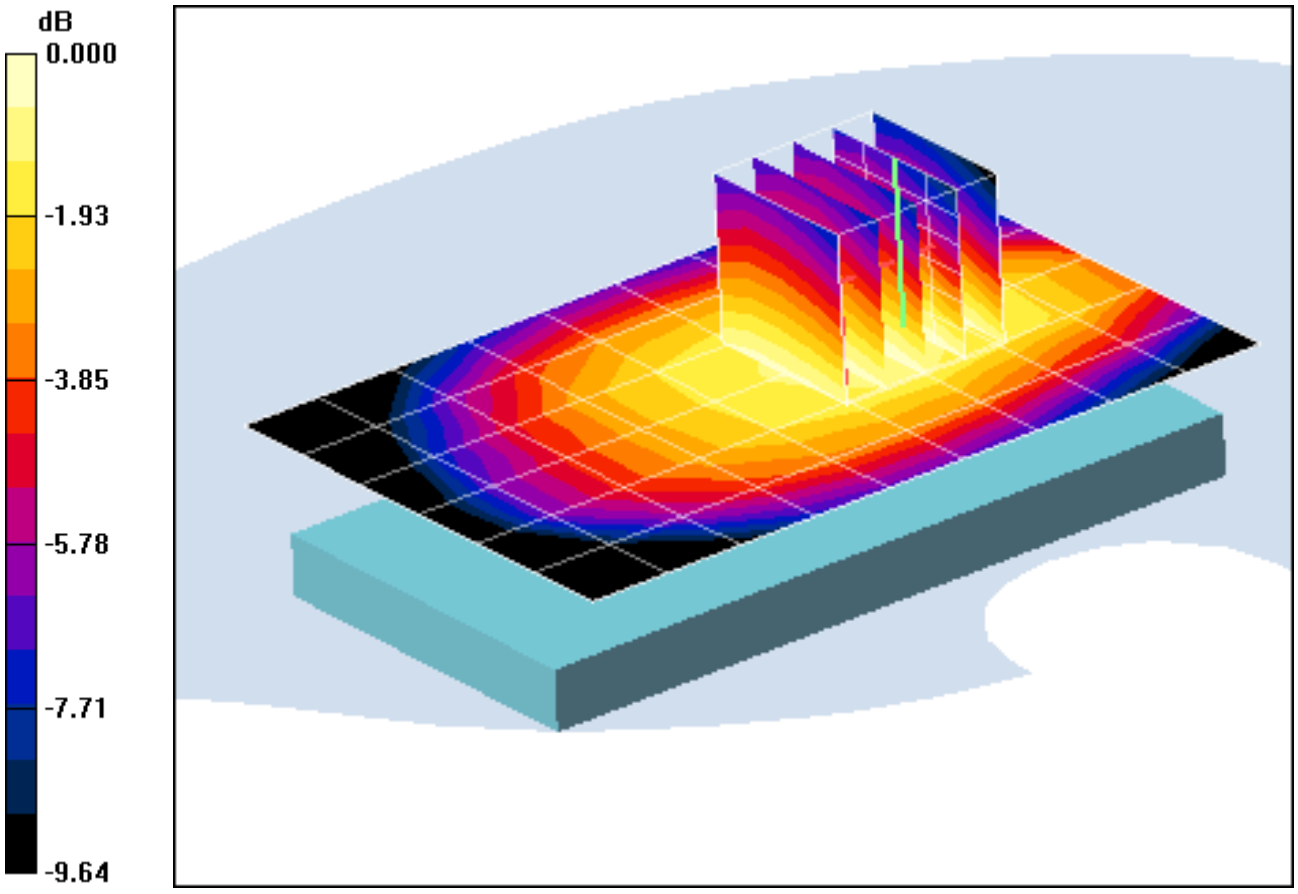
Communication System: LTE RF; Frequency: 782 MHz;Duty Cycle: 1:1
Medium: 785 Body; Medium parameters used (interpolated):
f = 782 MHz; σ = 0.958 mho/m; ε_r = 54.7; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-07-2011; Ambient Temp: 23.8 °C; Tissue Temp: 21.9 °C

Probe: ES3DV3 - SN3209; ConvF(6.18, 6.18, 6.18); Calibrated: 4/18/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM with CRP; Type: SAM; Serial: TP1375
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: LTE, Body SAR, Back side, Mid.ch, QPSK, 1RB, 0 RB Offset

Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.6 V/m
Peak SAR (extrapolated) = 0.311 W/kg
SAR(1 g) = 0.244 mW/g; SAR(10 g) = 0.185 mW/g



0 dB = 0.253mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: SAR #2

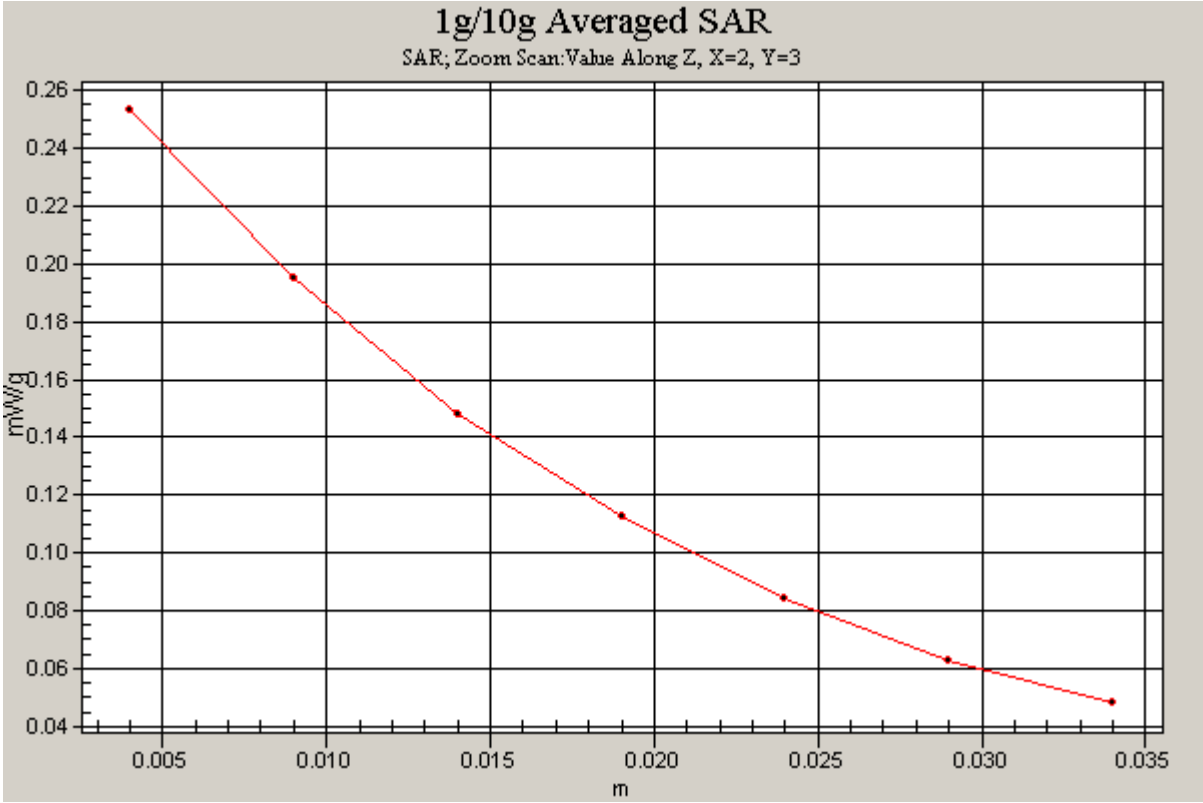
Communication System: LTE RF; Frequency: 782 MHz;Duty Cycle: 1:1
Medium: 785 Body; Medium parameters used (interpolated):
f = 782 MHz; σ = 0.958 mho/m; ε_r = 54.7; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-07-2011; Ambient Temp: 23.8 °C; Tissue Temp: 21.9 °C

Probe: ES3DV3 - SN3209; ConvF(6.18, 6.18, 6.18); Calibrated: 4/18/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM with CRP; Type: SAM; Serial: TP1375
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: LTE, Body SAR, Back side, Mid.ch, QPSK, 1RB, 0 RB Offset

Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.6 V/m
Peak SAR (extrapolated) = 0.311 W/kg
SAR(1 g) = 0.244 mW/g; SAR(10 g) = 0.185 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: SAR #2

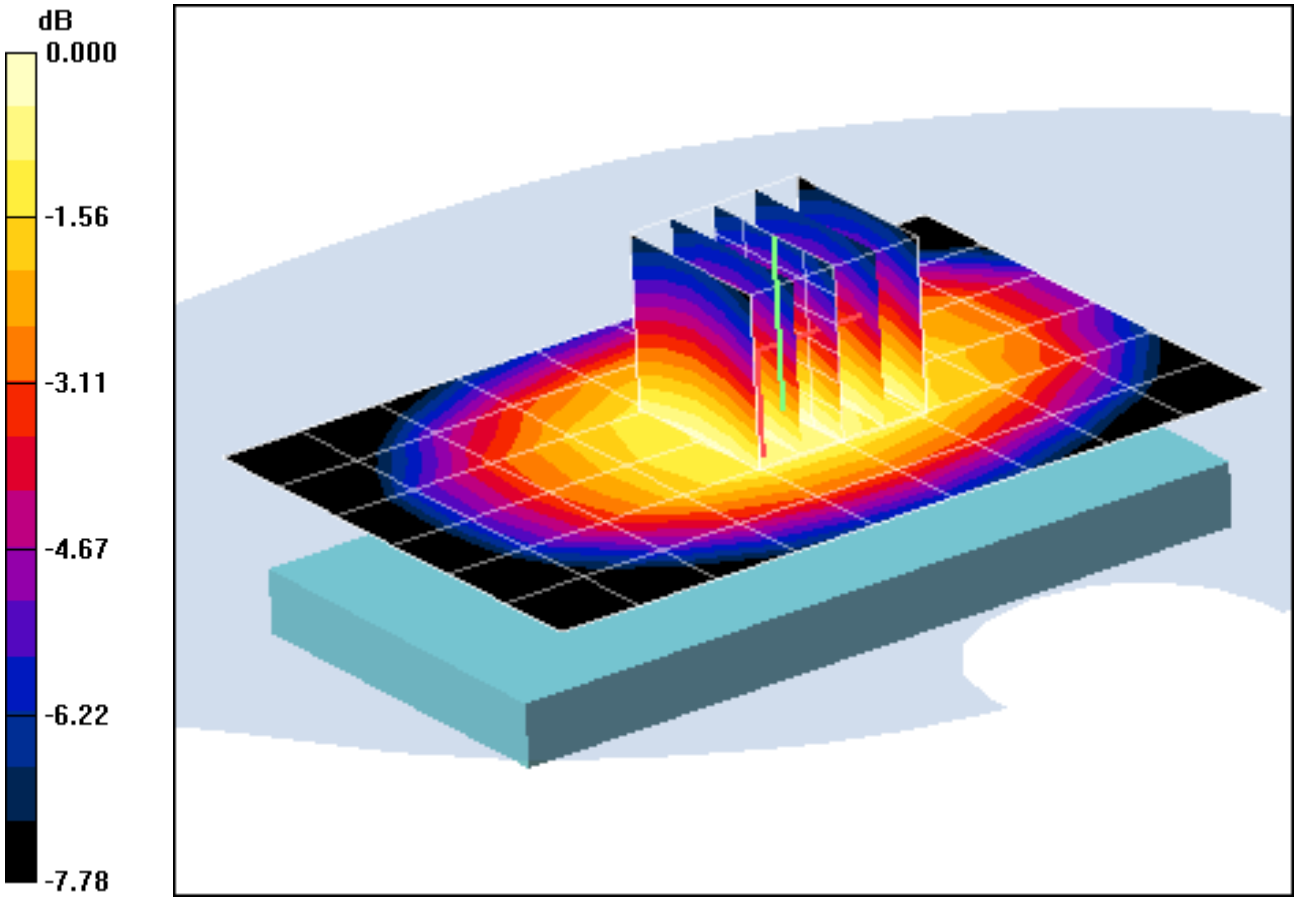
Communication System: LTE RF; Frequency: 782 MHz;Duty Cycle: 1:1
Medium: 785 Body; Medium parameters used (interpolated):
f = 782 MHz; σ = 0.958 mho/m; ε_r = 54.7; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-07-2011; Ambient Temp: 23.8 °C; Tissue Temp: 21.9 °C

Probe: ES3DV3 - SN3209; ConvF(6.18, 6.18, 6.18); Calibrated: 4/18/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM with CRP; Type: SAM; Serial: TP1375
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: LTE, Body SAR, Front side, Mid.ch, QPSK, 1 RB, 0 RB Offset

Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.3 V/m
Peak SAR (extrapolated) = 0.285 W/kg
SAR(1 g) = 0.230 mW/g; SAR(10 g) = 0.178 mW/g



0 dB = 0.242mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: SAR #2

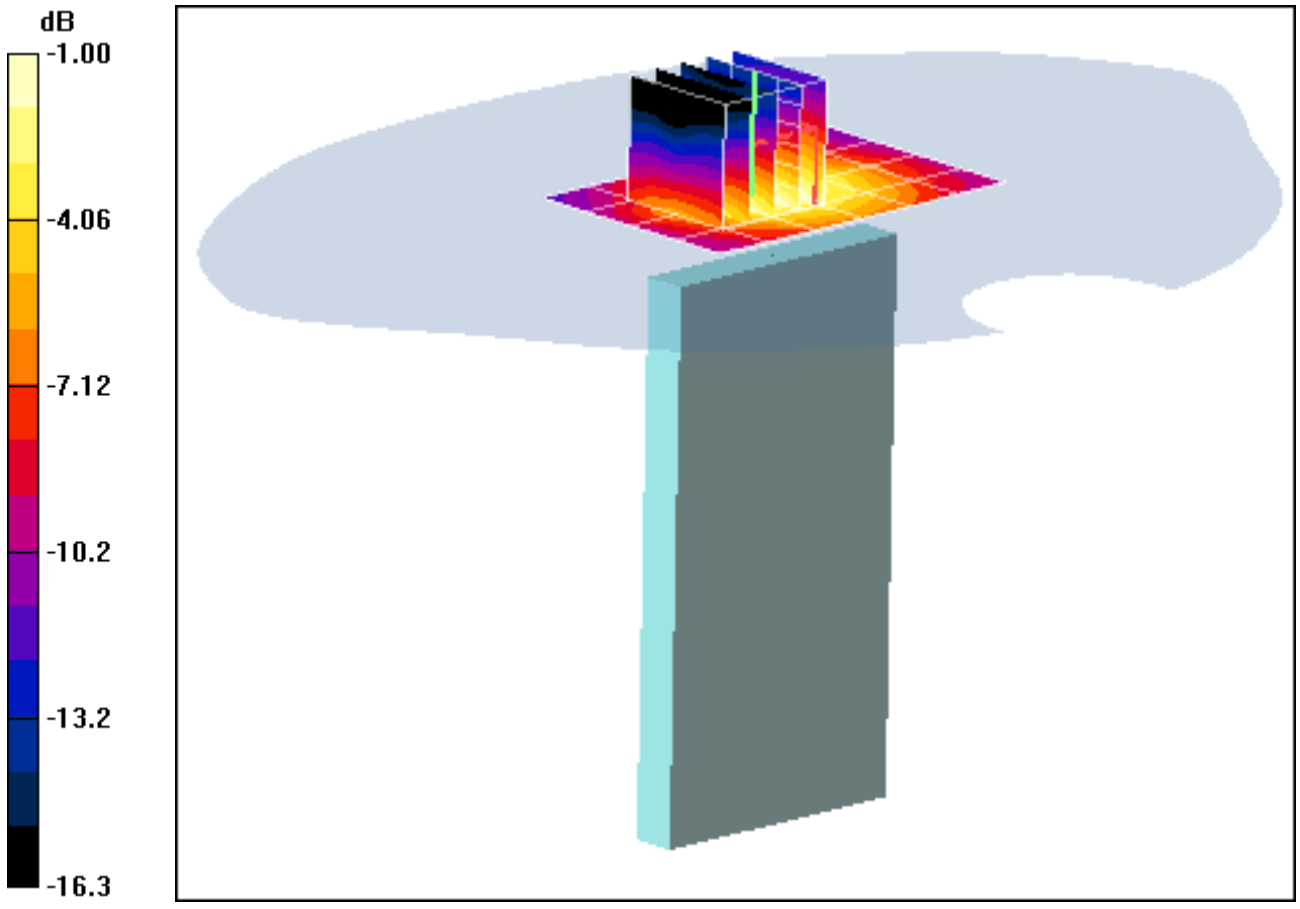
Communication System: LTE RF; Frequency: 782 MHz;Duty Cycle: 1:1
Medium: 785 Body; Medium parameters used (interpolated):
f = 782 MHz; σ = 0.958 mho/m; ε_r = 54.7; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-07-2011; Ambient Temp: 23.8 °C; Tissue Temp: 21.9 °C

Probe: ES3DV3 - SN3209; ConvF(6.18, 6.18, 6.18); Calibrated: 4/18/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM with CRP; Type: SAM; Serial: TP1375
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: LTE, Body SAR, Top Edge, Mid.ch, QPSK, 1 RB, 0 RB Offset

Area Scan (5x7x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.37 V/m
Peak SAR (extrapolated) = 0.135 W/kg
SAR(1 g) = 0.064 mW/g; SAR(10 g) = 0.033 mW/g



0 dB = 0.071mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: SAR #2

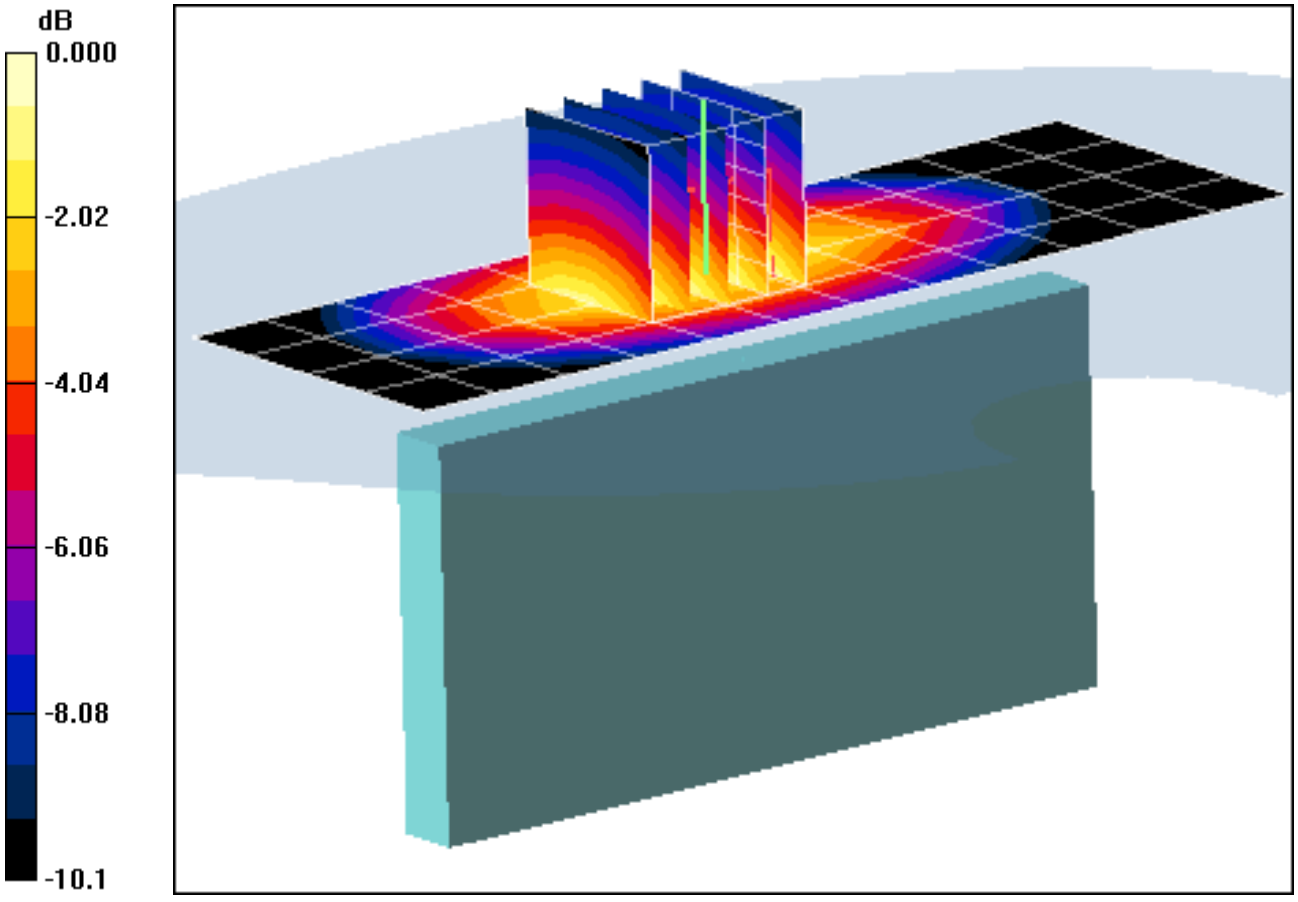
Communication System: LTE RF; Frequency: 782 MHz;Duty Cycle: 1:1
Medium: 785 Body; Medium parameters used (interpolated):
f = 782 MHz; σ = 0.958 mho/m; ε_r = 54.7; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-07-2011; Ambient Temp: 23.8 °C; Tissue Temp: 21.9 °C

Probe: ES3DV3 - SN3209; ConvF(6.18, 6.18, 6.18); Calibrated: 4/18/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM with CRP; Type: SAM; Serial: TP1375
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: LTE, Body SAR, Left Edge, Mid.ch, QPSK, 1 RB, 0 RB Offset

Area Scan (5x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.5 V/m
Peak SAR (extrapolated) = 0.344 W/kg
SAR(1 g) = 0.243 mW/g; SAR(10 g) = 0.165 mW/g



0 dB = 0.256mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

Communication System: Cellular CDMA; Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 836.52 MHz; σ = 0.963 mho/m; ε_r = 54; ρ = 1000 kg/m^3

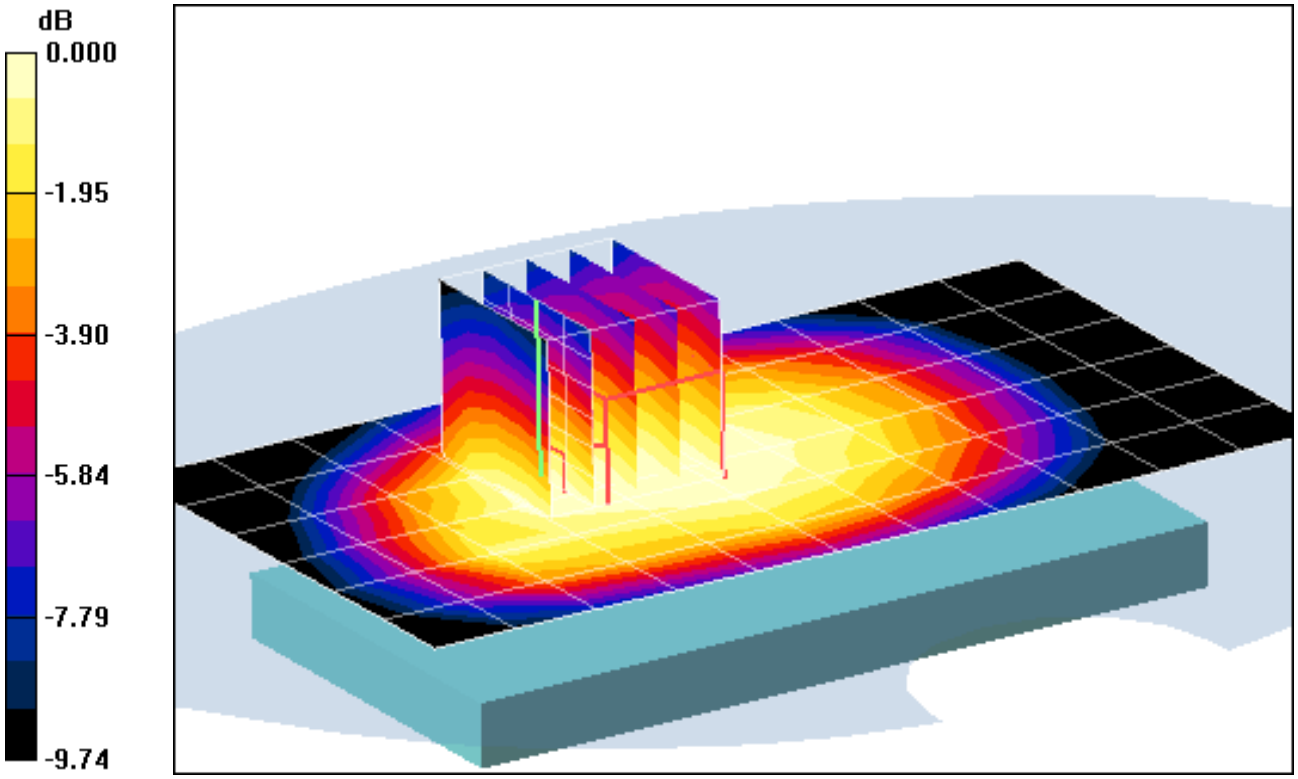
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-13-2011; Ambient Temp: 23.8 °C; Tissue Temp: 22.0 °C

Probe: ES3DV3 - SN3258; ConvF(6.12, 6.12, 6.12); Calibrated: 4/8/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 2/21/2011
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: Cellular TDSO32, Body SAR, Back side, Mid.ch

Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 23.1 V/m
Peak SAR (extrapolated) = 0.610 W/kg
SAR(1 g) = 0.479 mW/g; SAR(10 g) = 0.366 mW/g



0 dB = 0.502mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

Communication System: Cellular CDMA; Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 836.52 MHz; σ = 0.963 mho/m; ε_r = 54; ρ = 1000 kg/m^3

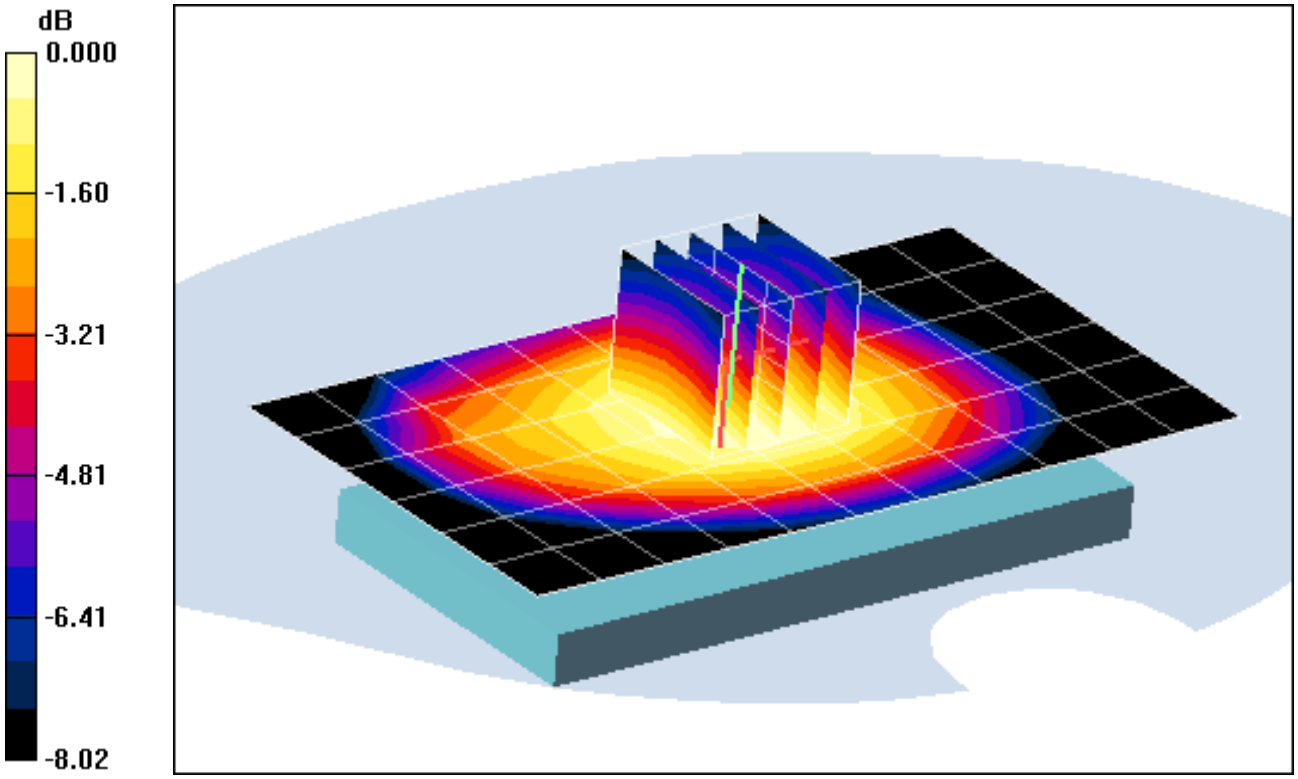
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-13-2011; Ambient Temp: 23.8 °C; Tissue Temp: 22.0 °C

Probe: ES3DV3 - SN3258; ConvF(6.12, 6.12, 6.12); Calibrated: 4/8/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 2/21/2011
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: Cellular TDSO32, Body SAR, Front side, Mid.ch

Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.5 V/m
Peak SAR (extrapolated) = 0.478 W/kg
SAR(1 g) = 0.384 mW/g; SAR(10 g) = 0.294 mW/g



0 dB = 0.401mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

Communication System: Cellular CDMA; Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 836.52 MHz; σ = 0.963 mho/m; ε_r = 54; ρ = 1000 kg/m^3

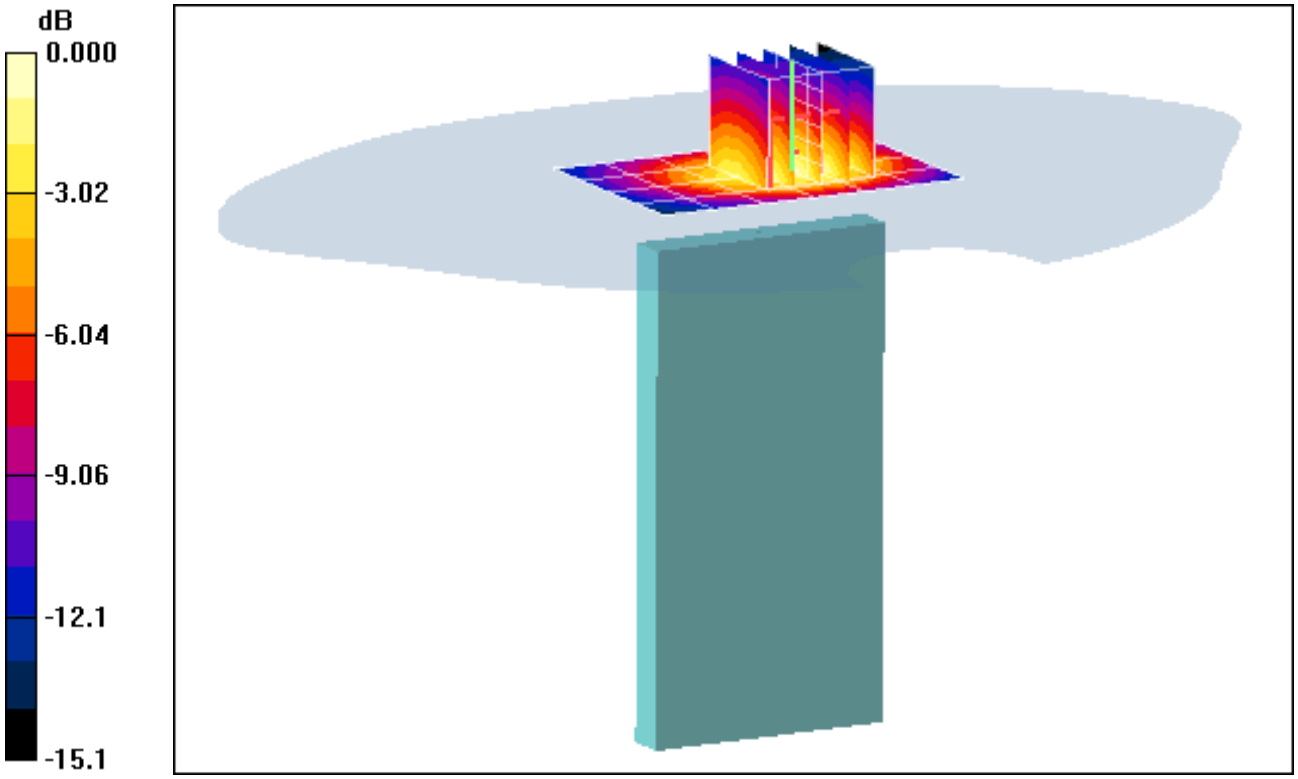
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-13-2011; Ambient Temp: 23.8 °C; Tissue Temp: 22.0 °C

Probe: ES3DV3 - SN3258; ConvF(6.12, 6.12, 6.12); Calibrated: 4/8/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 2/21/2011
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: Cellular TDSO32, Body SAR, Bottom Edge, Mid.ch

Area Scan (5x7x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.2 V/m
Peak SAR (extrapolated) = 0.346 W/kg
SAR(1 g) = 0.197 mW/g; SAR(10 g) = 0.115 mW/g



0 dB = 0.215mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

Communication System: Cellular CDMA; Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 836.52 MHz; σ = 0.963 mho/m; ε_r = 54; ρ = 1000 kg/m^3

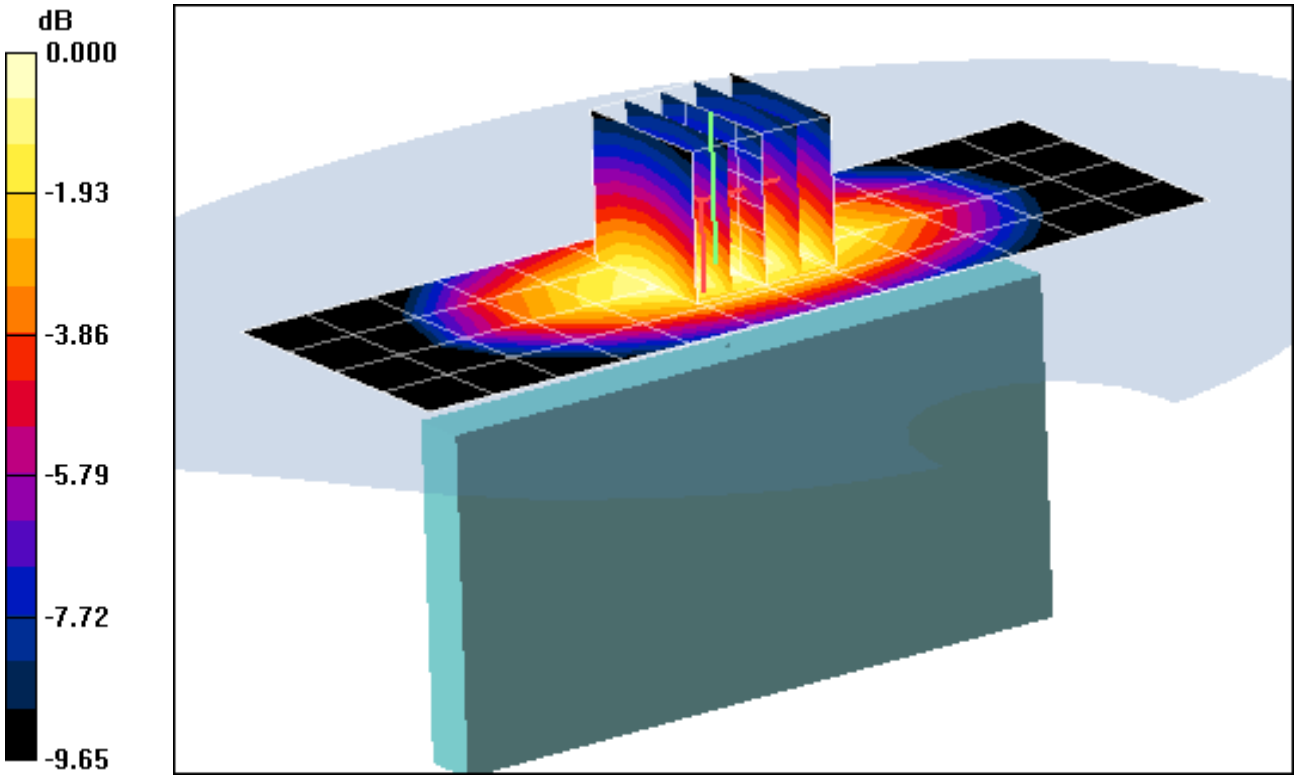
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-13-2011; Ambient Temp: 23.8 °C; Tissue Temp: 22.0 °C

Probe: ES3DV3 - SN3258; ConvF(6.12, 6.12, 6.12); Calibrated: 4/8/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 2/21/2011
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: Cellular TDSO32, Body SAR, Left Edge, Mid.ch

Area Scan (5x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 27.3 V/m
Peak SAR (extrapolated) = 0.862 W/kg
SAR(1 g) = 0.602 mW/g; SAR(10 g) = 0.412 mW/g



0 dB = 0.644mW/g

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

Communication System: Cellular CDMA; Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 836.52 MHz; σ = 0.963 mho/m; ε_r = 54; ρ = 1000 kg/m^3

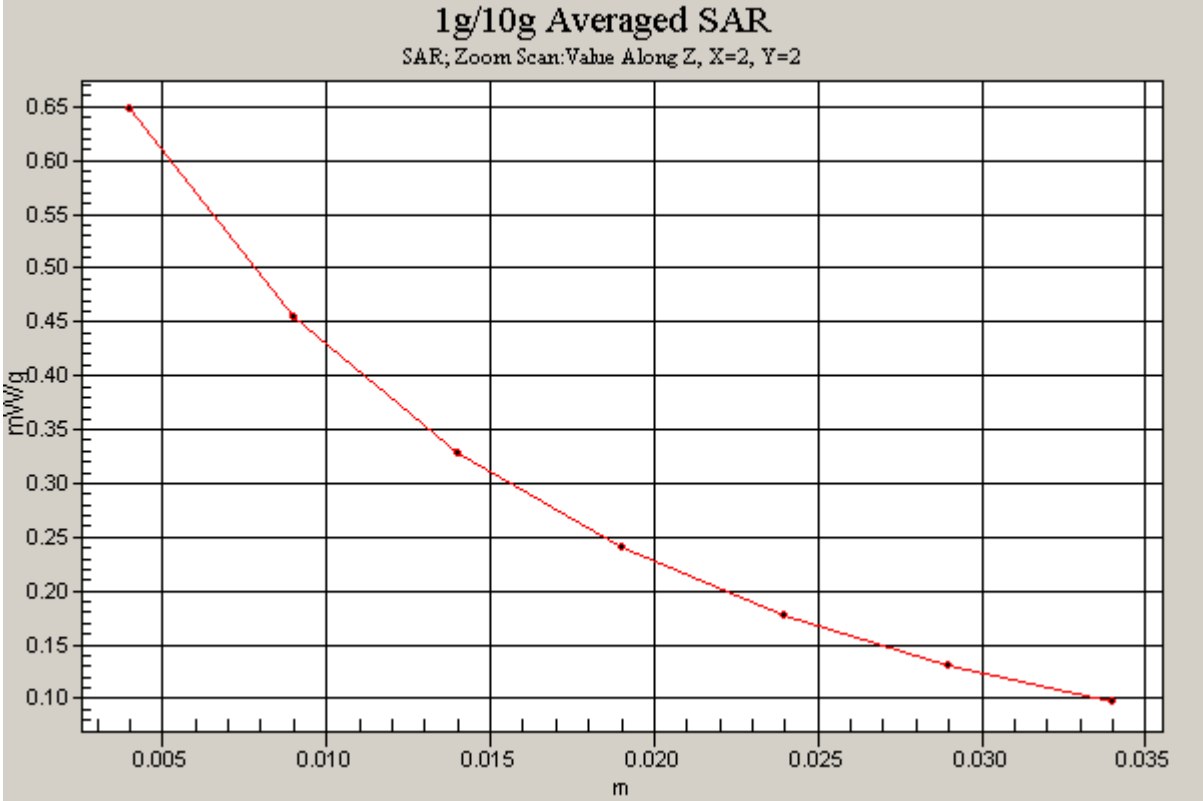
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-13-2011; Ambient Temp: 23.8 °C; Tissue Temp: 22.0 °C

Probe: ES3DV3 - SN3258; ConvF(6.12, 6.12, 6.12); Calibrated: 4/8/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 2/21/2011
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: Cellular TDSO32, Body SAR, Left Edge, Mid.ch

Area Scan (5x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 27.3 V/m
Peak SAR (extrapolated) = 0.862 W/kg
SAR(1 g) = 0.602 mW/g; SAR(10 g) = 0.412 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

Communication System: Cellular CDMA; Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 836.52 MHz; σ = 0.976 mho/m; ε_r = 53.6; ρ = 1000 kg/m^3

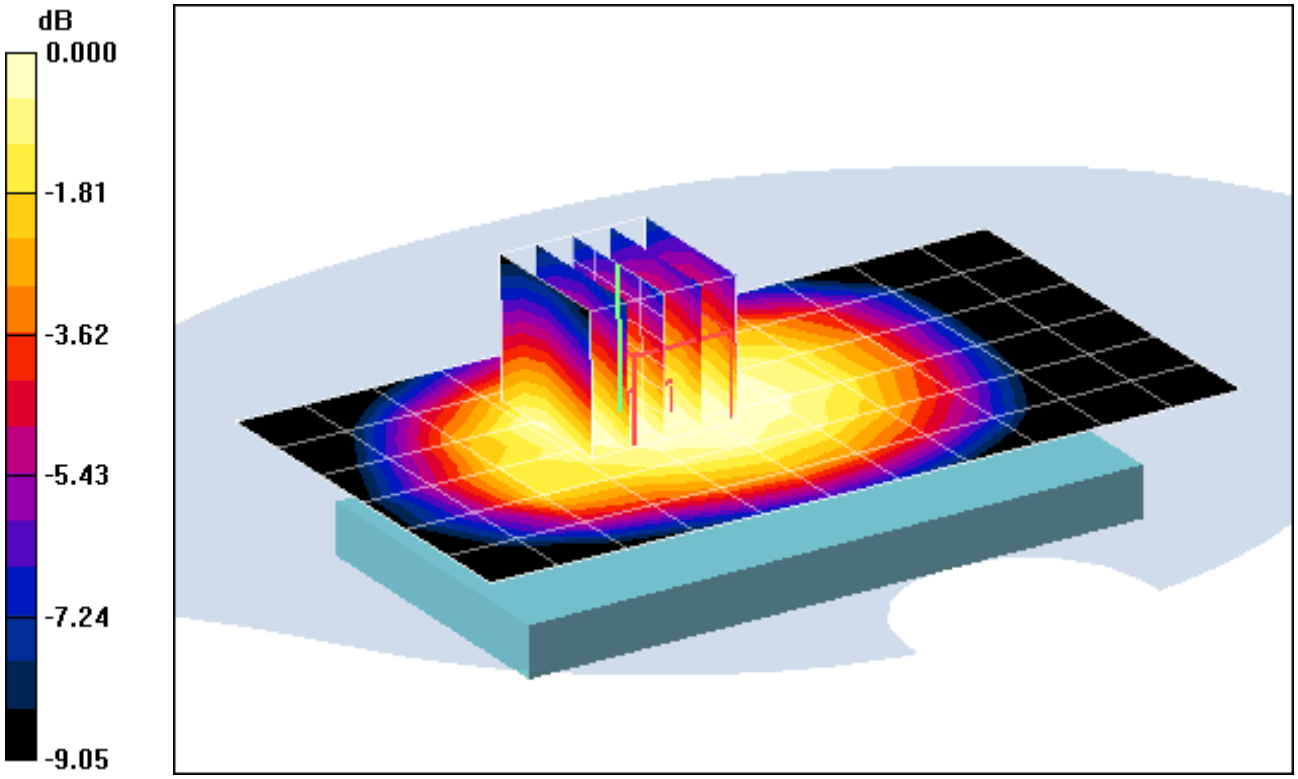
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-29-2011; Ambient Temp: 23.5 °C; Tissue Temp: 22.2 °C

Probe: ES3DV3 - SN3258; ConvF(6.12, 6.12, 6.12); Calibrated: 4/8/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 2/21/2011
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: Cellular EVDO, Body SAR, Back side, Mid.ch

Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.3 V/m
Peak SAR (extrapolated) = 0.545 W/kg
SAR(1 g) = 0.433 mW/g; SAR(10 g) = 0.334 mW/g



0 dB = 0.456mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

Communication System: Cellular CDMA; Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 836.52 MHz; σ = 0.976 mho/m; ε_r = 53.6; ρ = 1000 kg/m^3

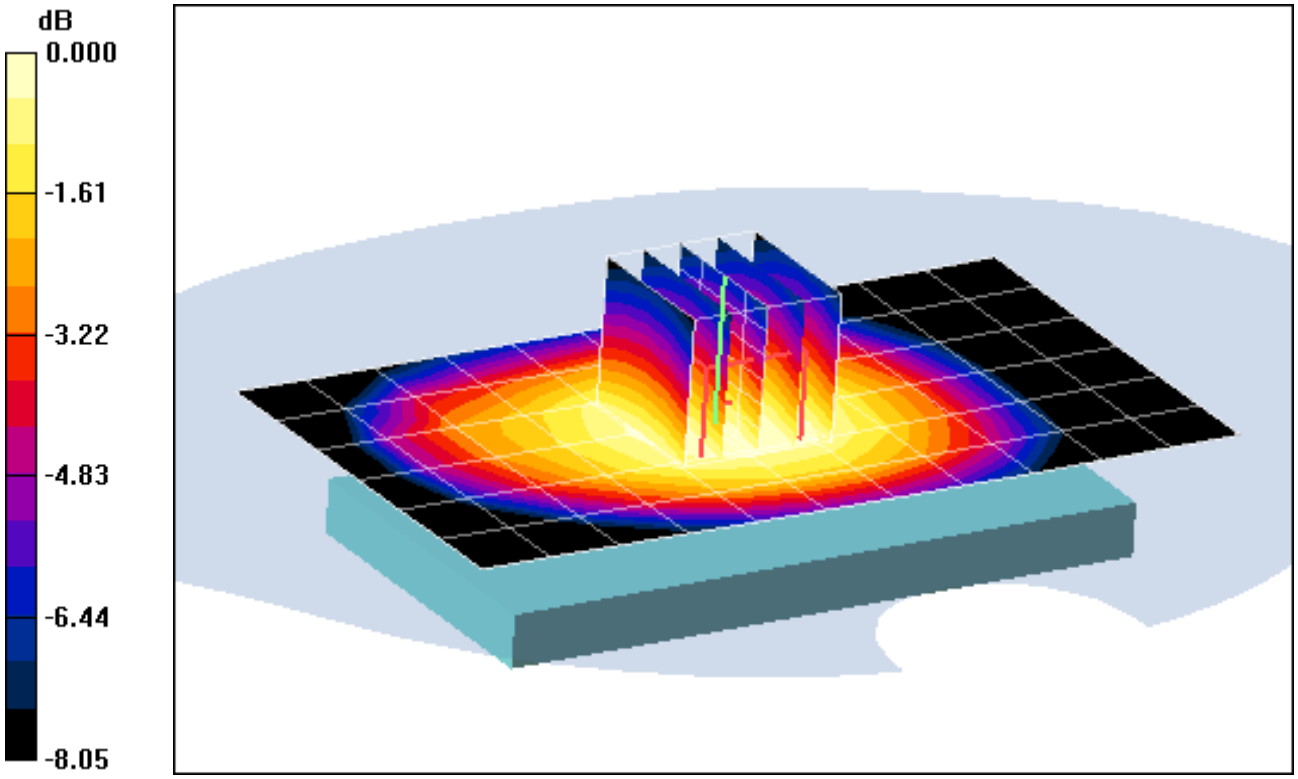
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-29-2011; Ambient Temp: 23.5 °C; Tissue Temp: 22.2 °C

Probe: ES3DV3 - SN3258; ConvF(6.12, 6.12, 6.12); Calibrated: 4/8/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 2/21/2011
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: Cellular EVDO, Body SAR, Front side, Mid.ch

Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.0 V/m
Peak SAR (extrapolated) = 0.461 W/kg
SAR(1 g) = 0.369 mW/g; SAR(10 g) = 0.283 mW/g



0 dB = 0.386mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

Communication System: Cellular CDMA; Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 836.52 MHz; σ = 0.976 mho/m; ε_r = 53.6; ρ = 1000 kg/m^3

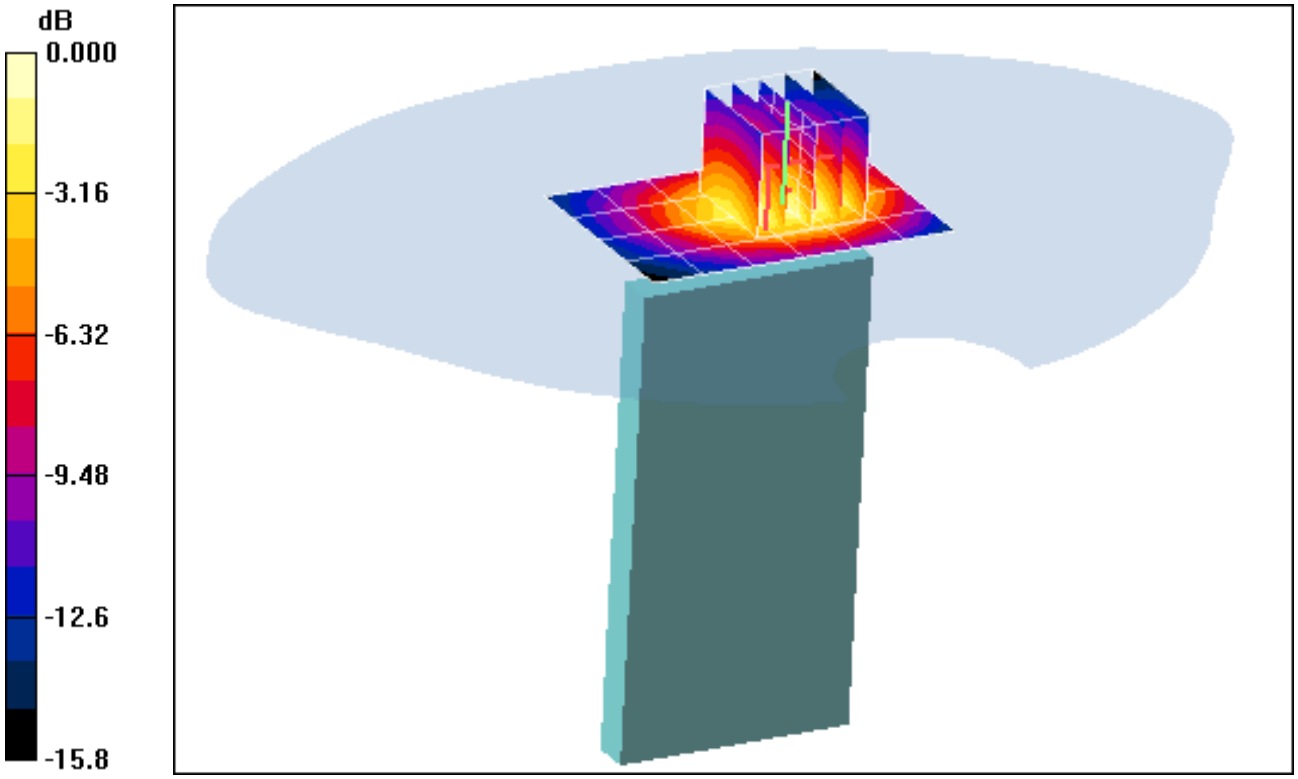
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-29-2011; Ambient Temp: 23.5 °C; Tissue Temp: 22.2 °C

Probe: ES3DV3 - SN3258; ConvF(6.12, 6.12, 6.12); Calibrated: 4/8/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 2/21/2011
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: Cellular EVDO, Body SAR, Bottom Edge, Mid.ch

Area Scan (5x7x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.7 V/m
Peak SAR (extrapolated) = 0.380 W/kg
SAR(1 g) = 0.211 mW/g; SAR(10 g) = 0.121 mW/g



0 dB = 0.232mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

Communication System: Cellular CDMA; Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 836.52 MHz; σ = 0.976 mho/m; ε_r = 53.6; ρ = 1000 kg/m^3

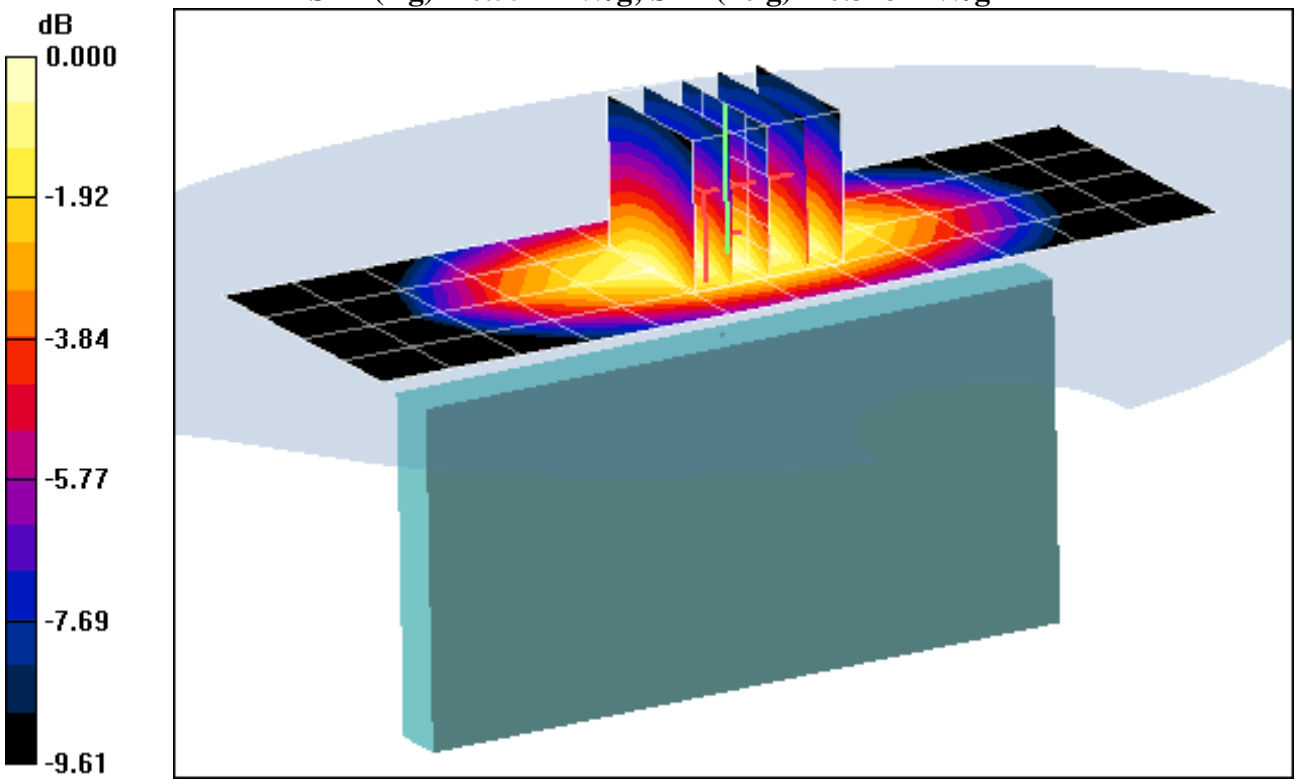
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-29-2011; Ambient Temp: 23.5 °C; Tissue Temp: 22.2 °C

Probe: ES3DV3 - SN3258; ConvF(6.12, 6.12, 6.12); Calibrated: 4/8/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 2/21/2011
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: Cellular EVDO, Body SAR, Left Edge, Mid.ch

Area Scan (5x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 26.3 V/m
Peak SAR (extrapolated) = 0.790 W/kg
SAR(1 g) = 0.552 mW/g; SAR(10 g) = 0.378 mW/g



0 dB = 0.592mW/g

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

Communication System: Cellular CDMA; Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 836.52 MHz; σ = 0.976 mho/m; ε_r = 53.6; ρ = 1000 kg/m^3

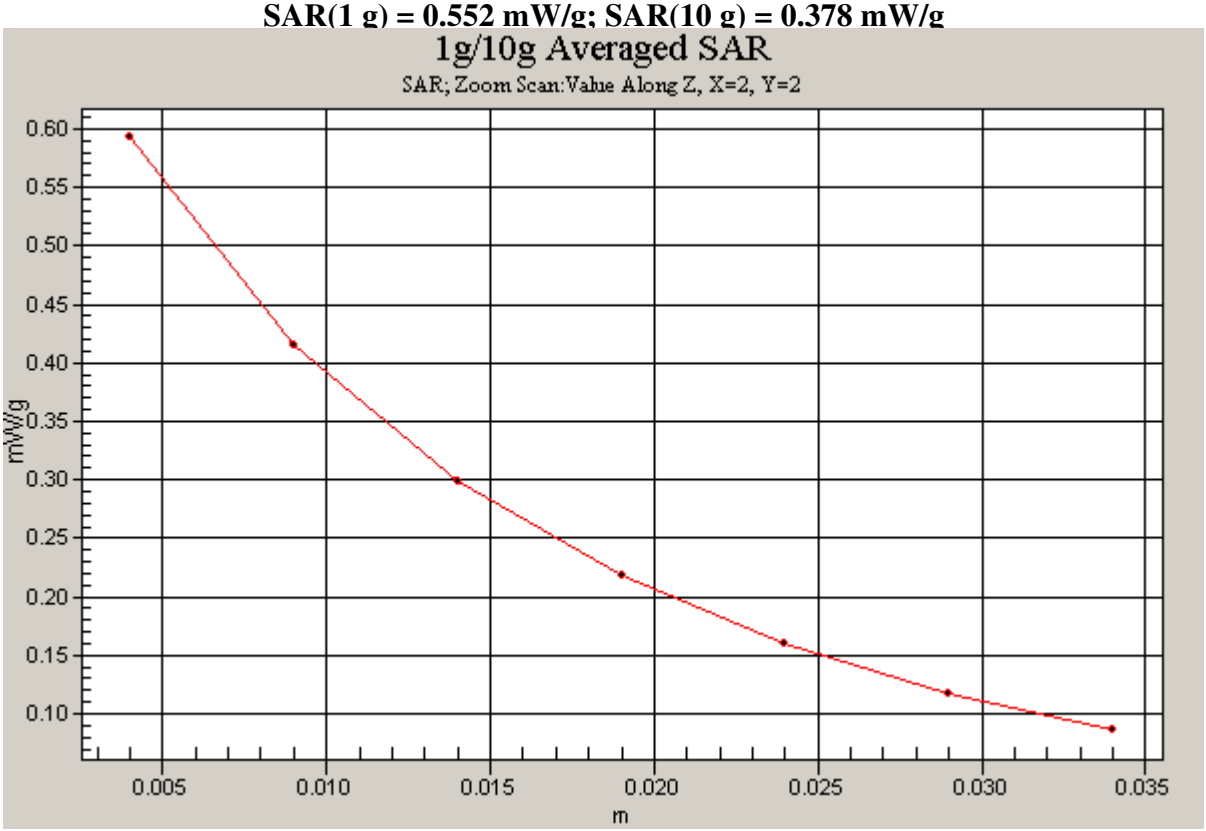
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-29-2011; Ambient Temp: 23.5 °C; Tissue Temp: 22.2 °C

Probe: ES3DV3 - SN3258; ConvF(6.12, 6.12, 6.12); Calibrated: 4/8/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 2/21/2011
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: Cellular EVDO, Body SAR, Left Edge, Mid.ch

Area Scan (5x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 26.3 V/m
Peak SAR (extrapolated) = 0.790 W/kg
SAR(1 g) = 0.552 mW/g; SAR(10 g) = 0.378 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC #SAR1

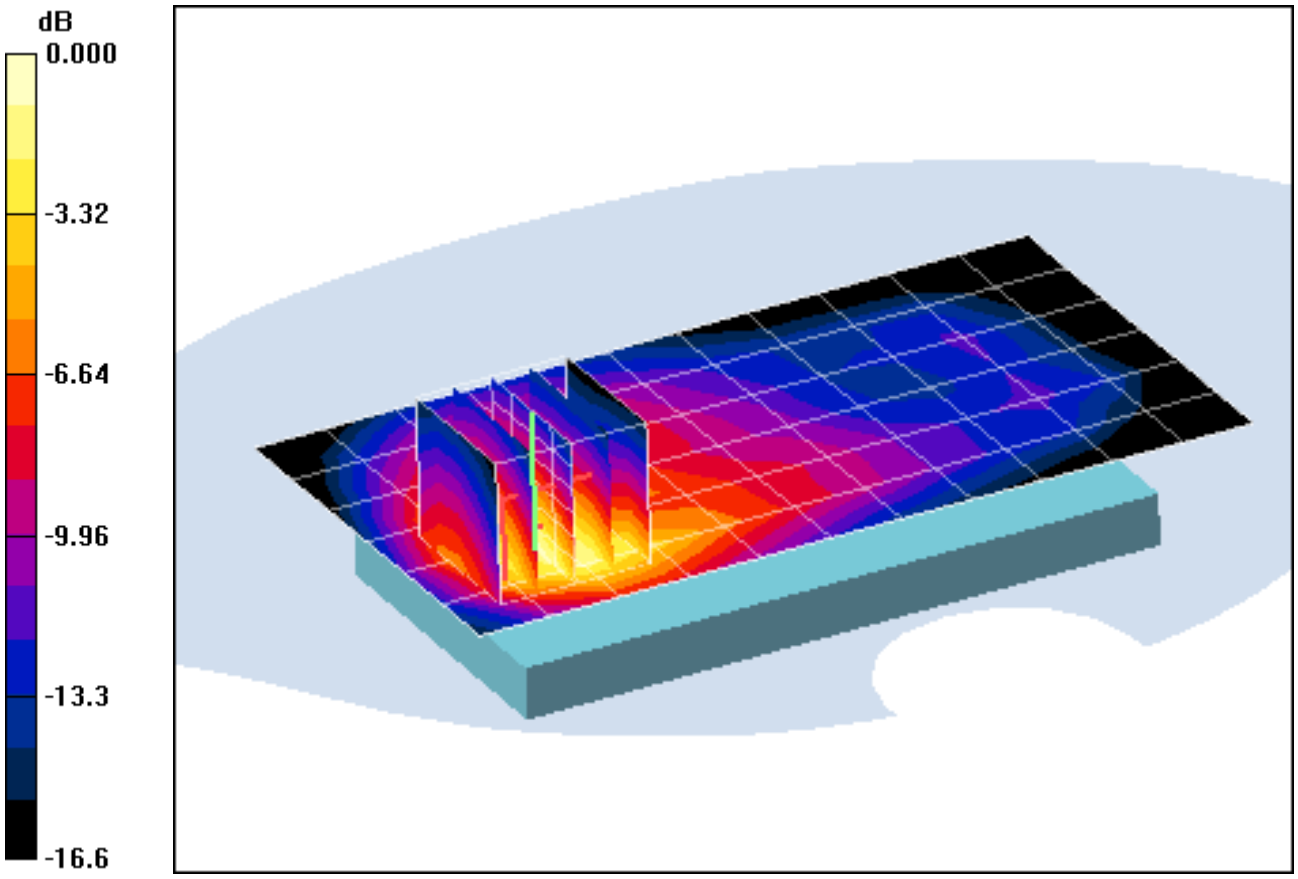
Communication System: PCS CDMA; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.52 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-13-2011; Ambient Temp: 23.4°C; Tissue Temp: 21.6°C

Probe: EX3DV3 - SN3209; ConvF(4.48, 4.48, 4.48); Calibrated: 4/18/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM Sub Dasy B; Type: SAM 4.0; Serial: TP-1626
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: PCS TDSO32, Body SAR, Back side, Mid.ch

Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 24.8 V/m
Peak SAR (extrapolated) = 1.48 W/kg
SAR(1 g) = 0.879 mW/g; SAR(10 g) = 0.471 mW/g



0 dB = 0.988mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC #SAR1

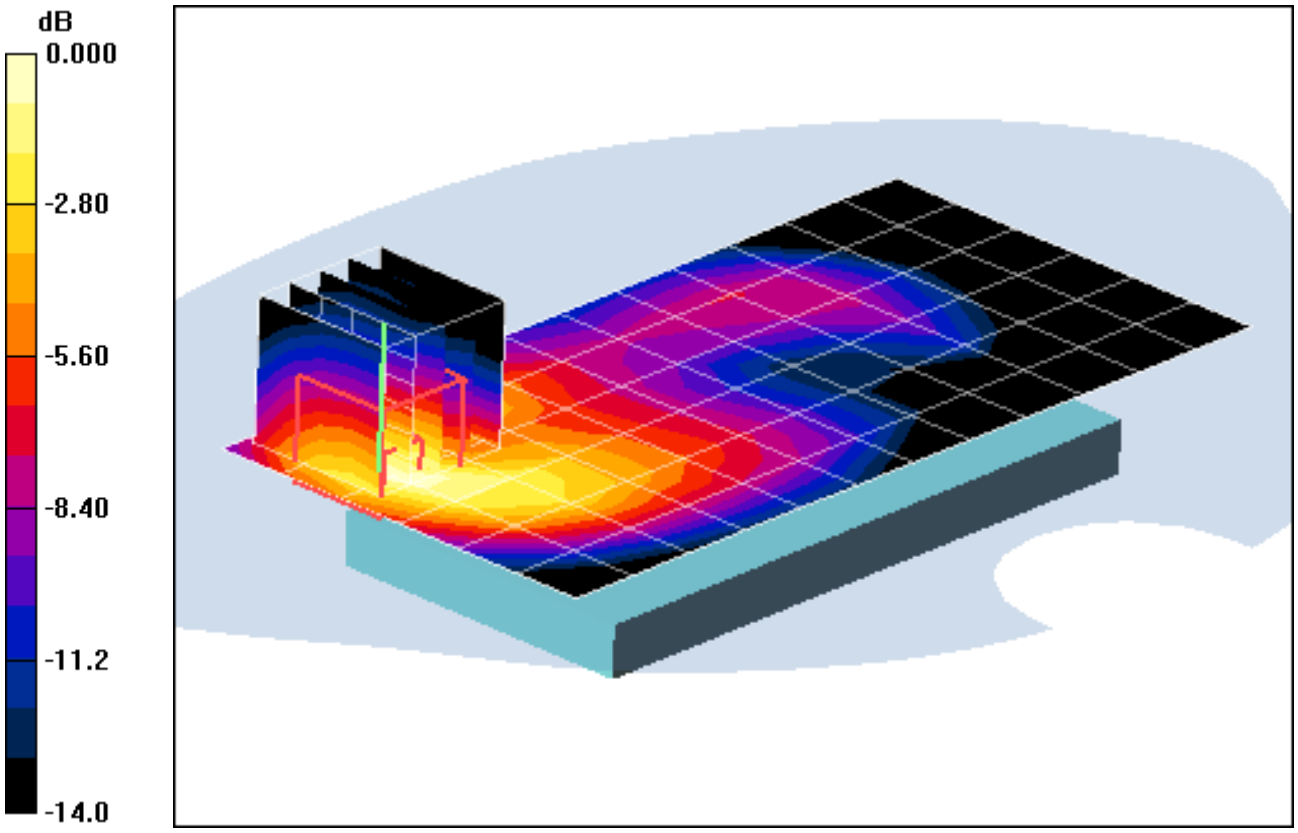
Communication System: PCS CDMA; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: 1900 Body; Medium parameters used:
f = 1880 MHz; σ = 1.52 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-13-2011; Ambient Temp: 23.4 °C; Tissue Temp: 21.6 °C

Probe: ES3DV3 - SN3209; ConvF(4.48, 4.48, 4.48); Calibrated: 4/18/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM Sub Dasy B; Type: SAM 4.0; Serial: TP-1626
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: PCS TDSO32, Body SAR, Front side, Mid.ch

Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 23.5 V/m
Peak SAR (extrapolated) = 1.17 W/kg
SAR(1 g) = 0.693 mW/g; SAR(10 g) = 0.388 mW/g



0 dB = 0.768mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC #SAR1

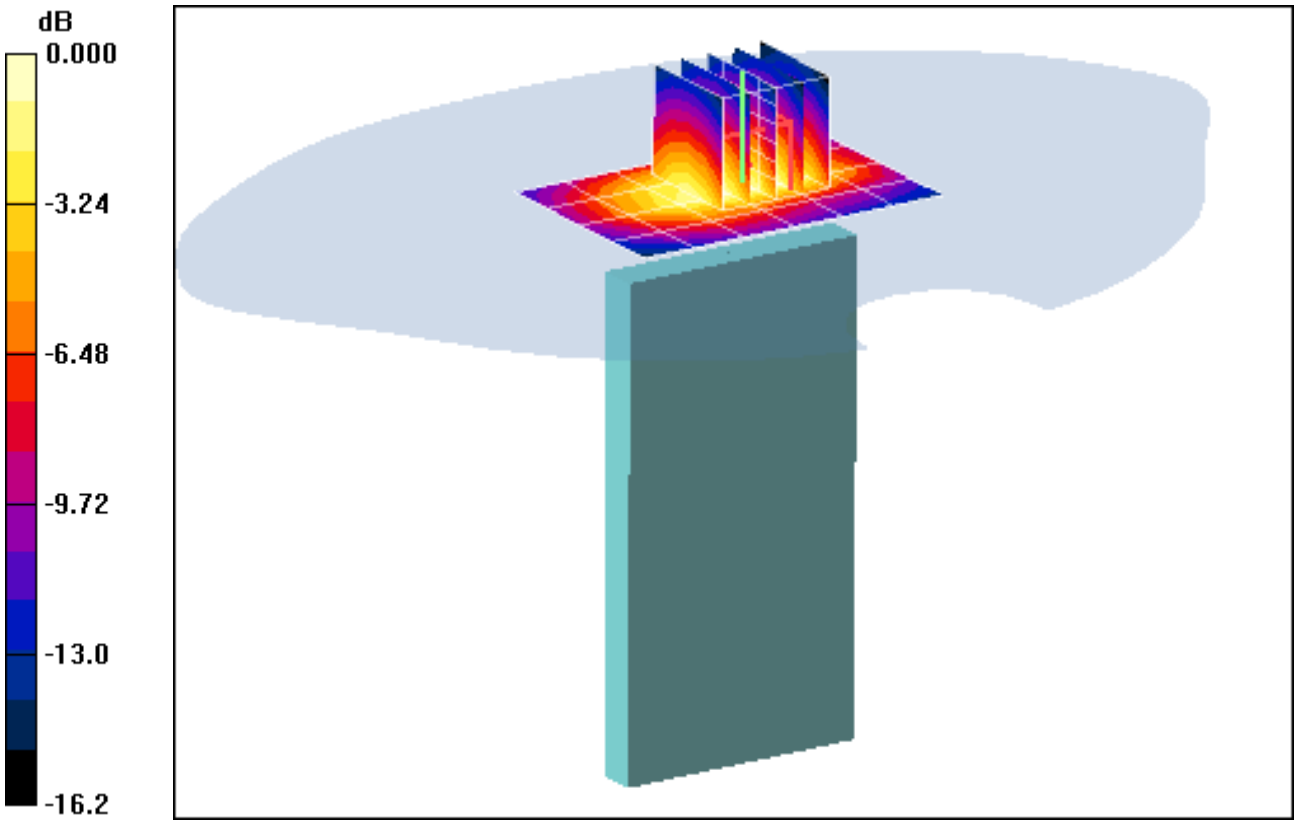
Communication System: PCS CDMA; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: 1900 Body; Medium parameters used:
f = 1880 MHz; σ = 1.52 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-13-2011; Ambient Temp: 23.4 °C; Tissue Temp: 21.6 °C

Probe: ES3DV3 - SN3209; ConvF(4.48, 4.48, 4.48); Calibrated: 4/18/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM Sub Dasy B; Type: SAM 4.0; Serial: TP-1626
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: PCS TDSO32, Body SAR, Bottom Edge, Mid.ch

Area Scan (5x7x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 27.3 V/m
Peak SAR (extrapolated) = 1.70 W/kg
SAR(1 g) = 1.01 mW/g; SAR(10 g) = 0.566 mW/g



0 dB = 1.13mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC #SAR1

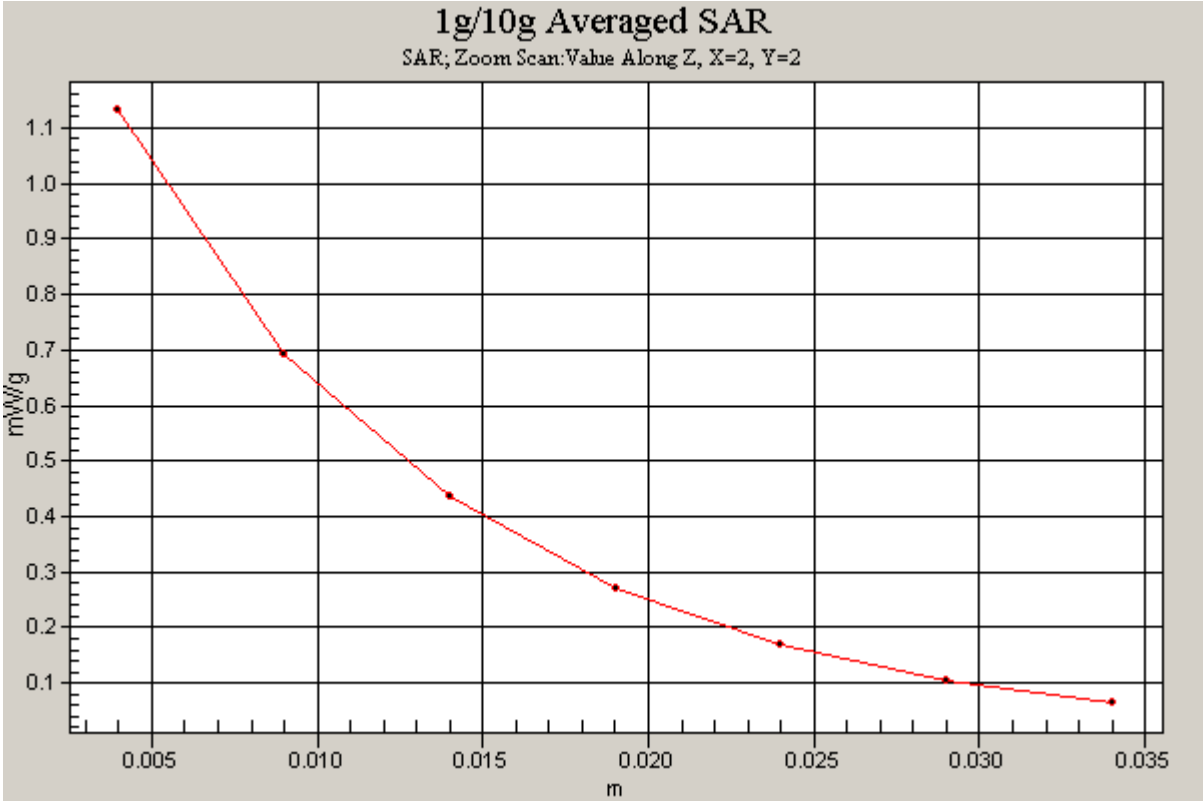
Communication System: PCS CDMA; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.52 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0

Test Date: 09-13-2011; Ambient Temp: 23.4°C; Tissue Temp: 21.6°C

Probe: ES3DV3 - SN3209; ConvF(4.48, 4.48, 4.48); Calibrated: 4/18/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM Sub Dasy B; Type: SAM 4.0; Serial: TP-1626
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: PCS TDSO32, Body SAR, Bottom Edge, Mid.ch

Area Scan (5x7x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 27.3 V/m
Peak SAR (extrapolated) = 1.70 W/kg
SAR(1 g) = 1.01 mW/g; SAR(10 g) = 0.566 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

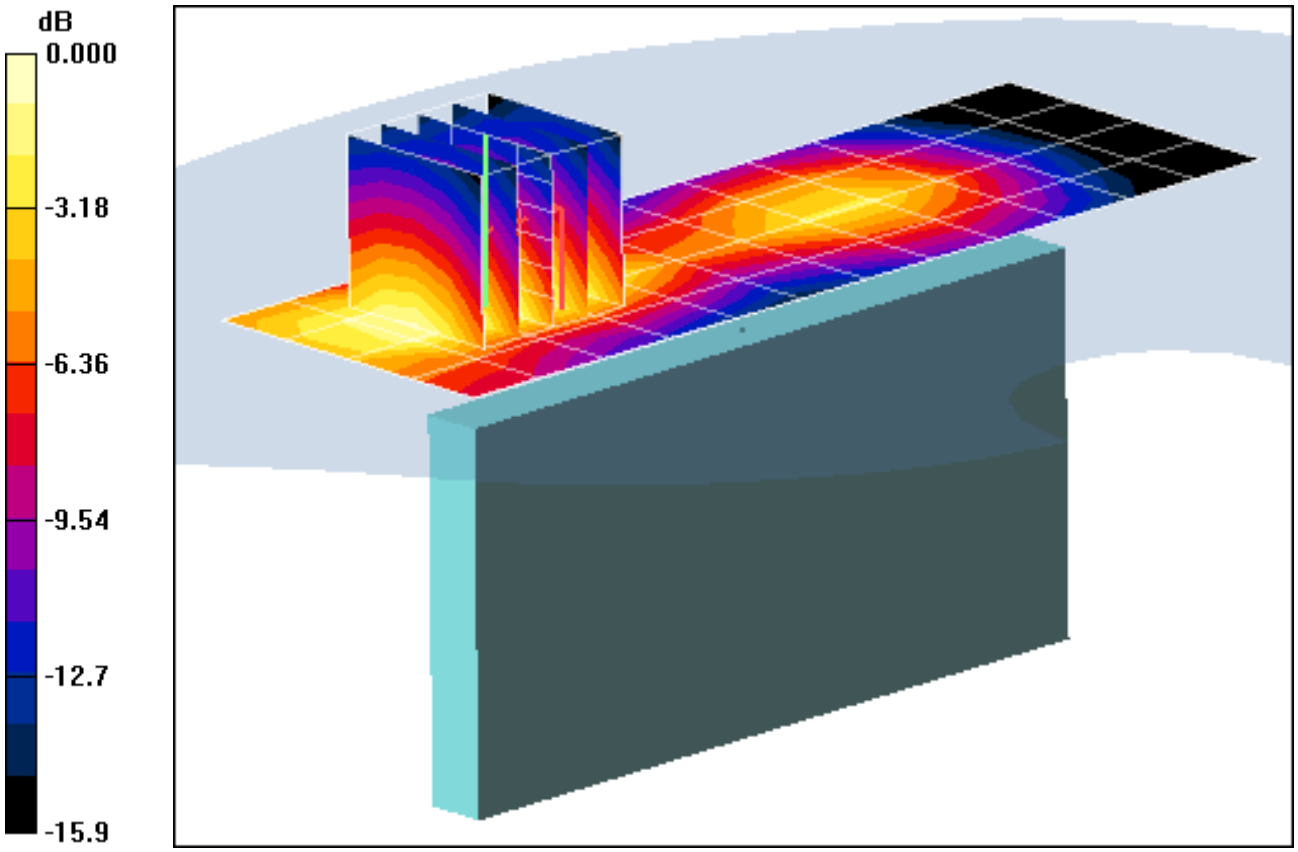
Communication System: PCS CDMA; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: 1900 Body; Medium parameters used:
f = 1880 MHz; σ = 1.52 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-13-2011; Ambient Temp: 23.4 °C; Tissue Temp: 21.6 °C

Probe: ES3DV3 - SN3209; ConvF(4.48, 4.48, 4.48); Calibrated: 4/18/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM Sub Dasy B; Type: SAM 4.0; Serial: TP-1626
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: PCS TDSO32, Body SAR, Left Edge, Mid.ch

Area Scan (5x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.0 V/m
Peak SAR (extrapolated) = 0.654 W/kg
SAR(1 g) = 0.386 mW/g; SAR(10 g) = 0.218 mW/g



0 dB = 0.428mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC #SAR1

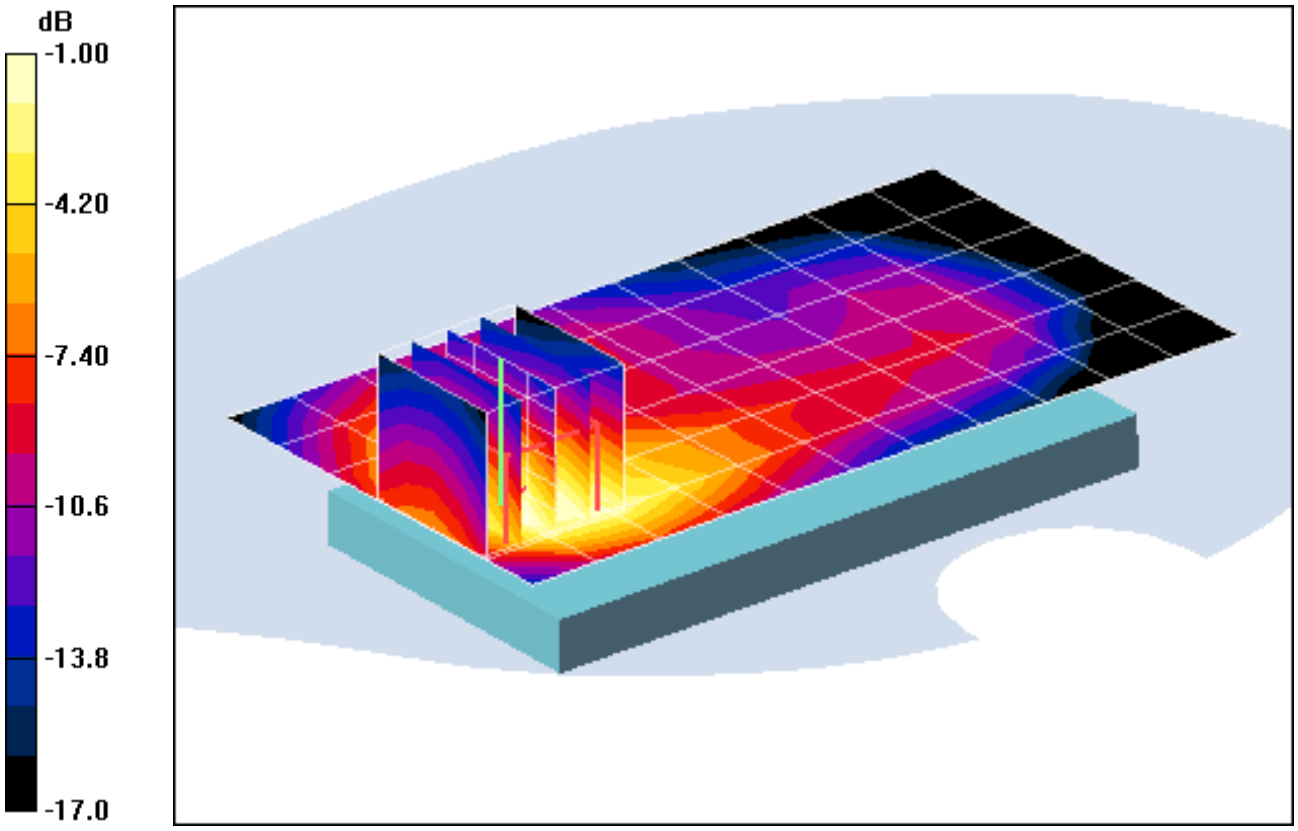
Communication System: PCS CDMA; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: 1900 Body; Medium parameters used:
f = 1880 MHz; σ = 1.5 mho/m; ε_r = 53.6; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-01-2011; Ambient Temp: 24.2 °C; Tissue Temp: 22.9 °C

Probe: EX3DV4 - SN3550; ConvF(6.77, 6.77, 6.77); Calibrated: 2/14/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/20/2011
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: PCS EVDO, Body SAR, Back side, Mid.ch

Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 27.5 V/m
Peak SAR (extrapolated) = 1.61 W/kg
SAR(1 g) = 0.957 mW/g; SAR(10 g) = 0.522 mW/g



0 dB = 1.08mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC #SAR1

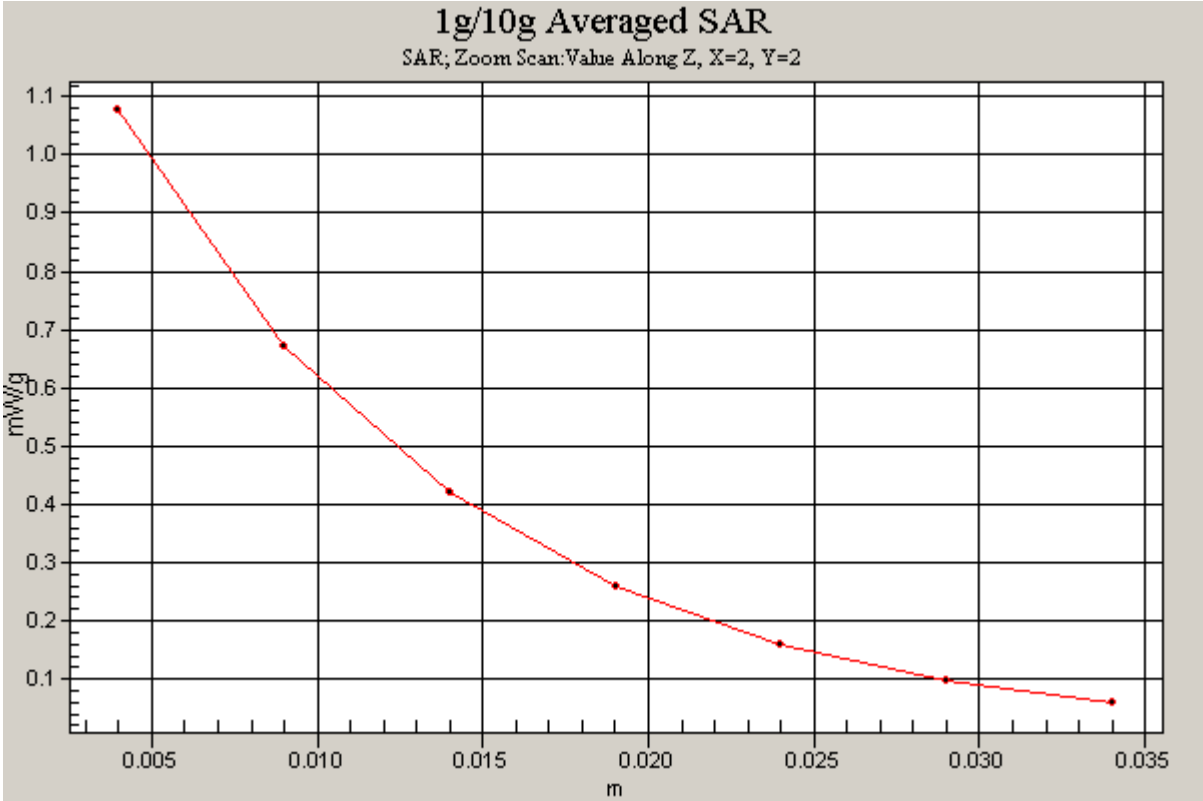
Communication System: PCS CDMA; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.5 mho/m; ε_r = 53.6; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-01-2011; Ambient Temp: 24.2°C; Tissue Temp: 22.9°C

Probe: EX3DV4 - SN3550; ConvF(6.77, 6.77, 6.77); Calibrated: 2/14/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/20/2011
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: PCS EVDO, Body SAR, Back side, Mid.ch

Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 27.5 V/m
Peak SAR (extrapolated) = 1.61 W/kg
SAR(1 g) = 0.957 mW/g; SAR(10 g) = 0.522 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

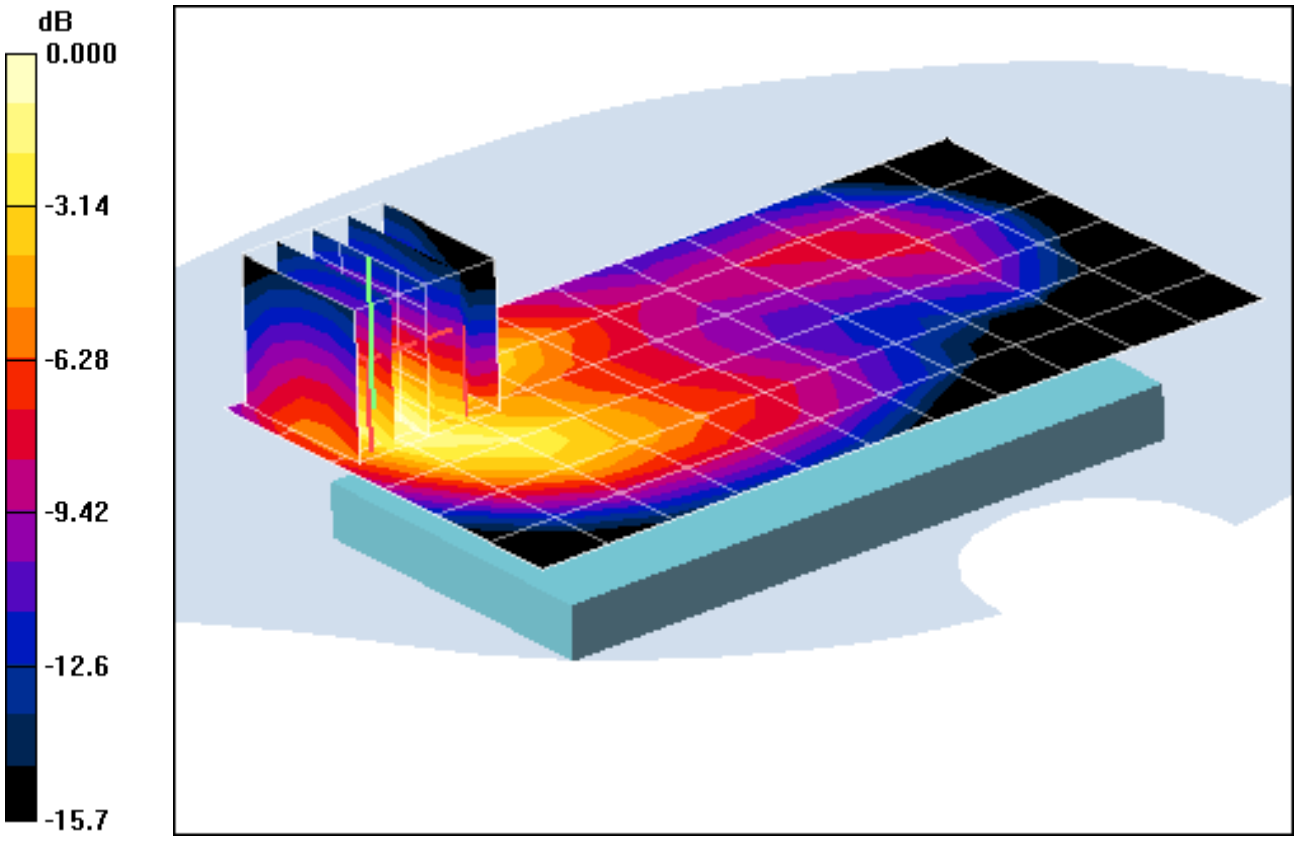
Communication System: PCS CDMA; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: 1900 Body; Medium parameters used:
f = 1880 MHz; σ = 1.5 mho/m; ε_r = 53.6; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-01-2011; Ambient Temp: 24.2 °C; Tissue Temp: 22.9 °C

Probe: EX3DV4 - SN3550; ConvF(6.77, 6.77, 6.77); Calibrated: 2/14/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/20/2011
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: PCS EVDO, Body SAR, Front side, Mid.ch

Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.5 V/m
Peak SAR (extrapolated) = 1.10 W/kg
SAR(1 g) = 0.637 mW/g; SAR(10 g) = 0.346 mW/g



0 dB = 0.730mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC #SAR1

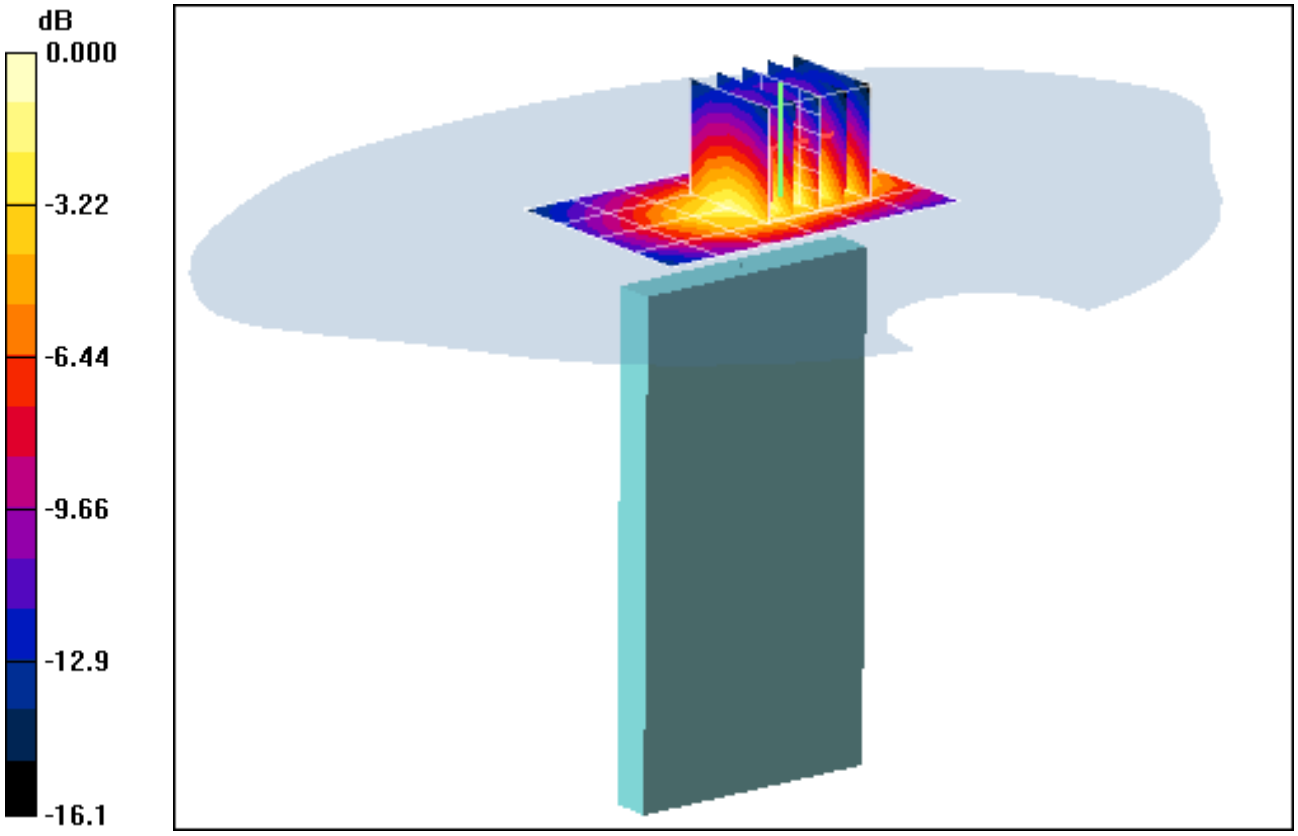
Communication System: PCS CDMA; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: 1900 Body; Medium parameters used:
f = 1880 MHz; σ = 1.5 mho/m; ε_r = 53.6; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-01-2011; Ambient Temp: 24.2 °C; Tissue Temp: 22.9 °C

Probe: EX3DV4 - SN3550; ConvF(6.77, 6.77, 6.77); Calibrated: 2/14/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/20/2011
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: PCS EVDO, Body SAR, Bottom Edge, Mid.ch

Area Scan (5x7x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 25.2 V/m
Peak SAR (extrapolated) = 1.25 W/kg
SAR(1 g) = 0.758 mW/g; SAR(10 g) = 0.428 mW/g



0 dB = 0.850mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC #SAR1

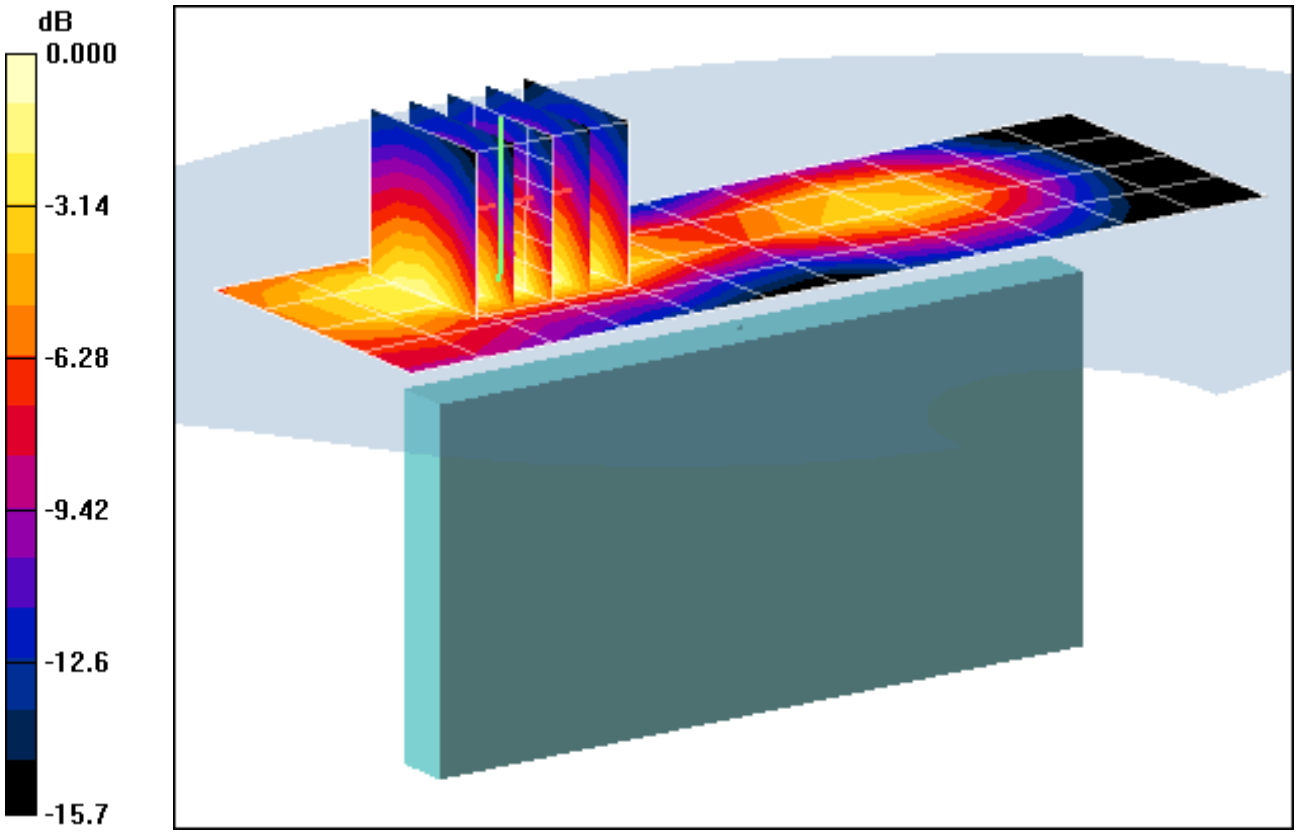
Communication System: PCS CDMA; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: 1900 Body; Medium parameters used:
f = 1880 MHz; σ = 1.5 mho/m; ε_r = 53.6; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-01-2011; Ambient Temp: 24.2 °C; Tissue Temp: 22.9 °C

Probe: EX3DV4 - SN3550; ConvF(6.77, 6.77, 6.77); Calibrated: 2/14/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/20/2011
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: PCS EVDO, Body SAR, Left Edge, Mid.ch

Area Scan (5x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.0 V/m
Peak SAR (extrapolated) = 0.577 W/kg
SAR(1 g) = 0.346 mW/g; SAR(10 g) = 0.195 mW/g



0 dB = 0.387mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

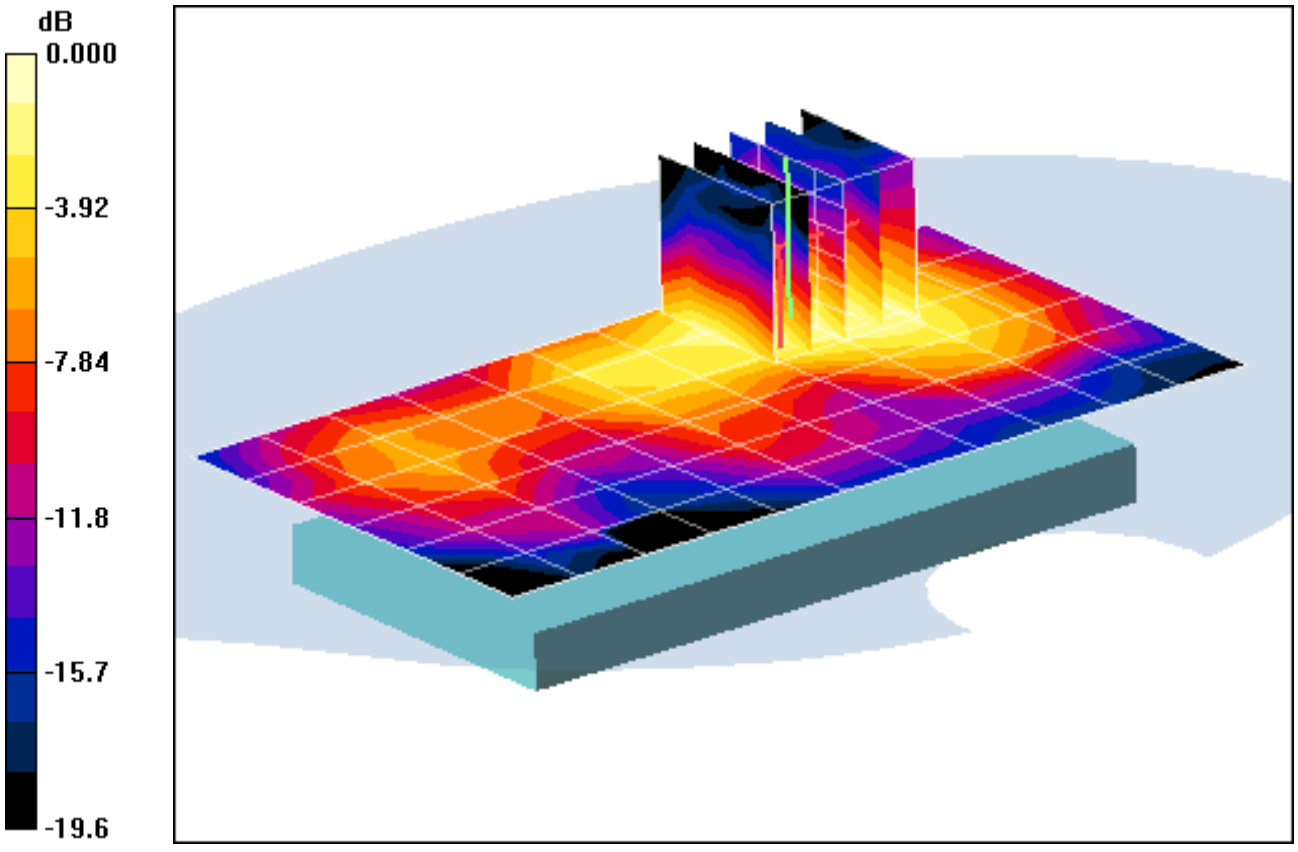
Communication System: IEEE 802.11b; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium: 2450 Body; Medium parameters used (interpolated):
f = 2462 MHz; σ = 2 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-12-2011; Ambient Temp: 23.5 °C; Tissue Temp: 21.6 °C

Probe: ES3DV3 - SN3209; ConvF(4.15, 4.15, 4.15); Calibrated: 4/18/2011
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM with CRP; Type: SAM; Serial: TP1375
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: IEEE 802.11b, Body SAR, Ch 11, 1 Mbps, Back Side

Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.14 V/m
Peak SAR (extrapolated) = 0.094 W/kg
SAR(1 g) = 0.048 mW/g; SAR(10 g) = 0.026 mW/g



0 dB = 0.058mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

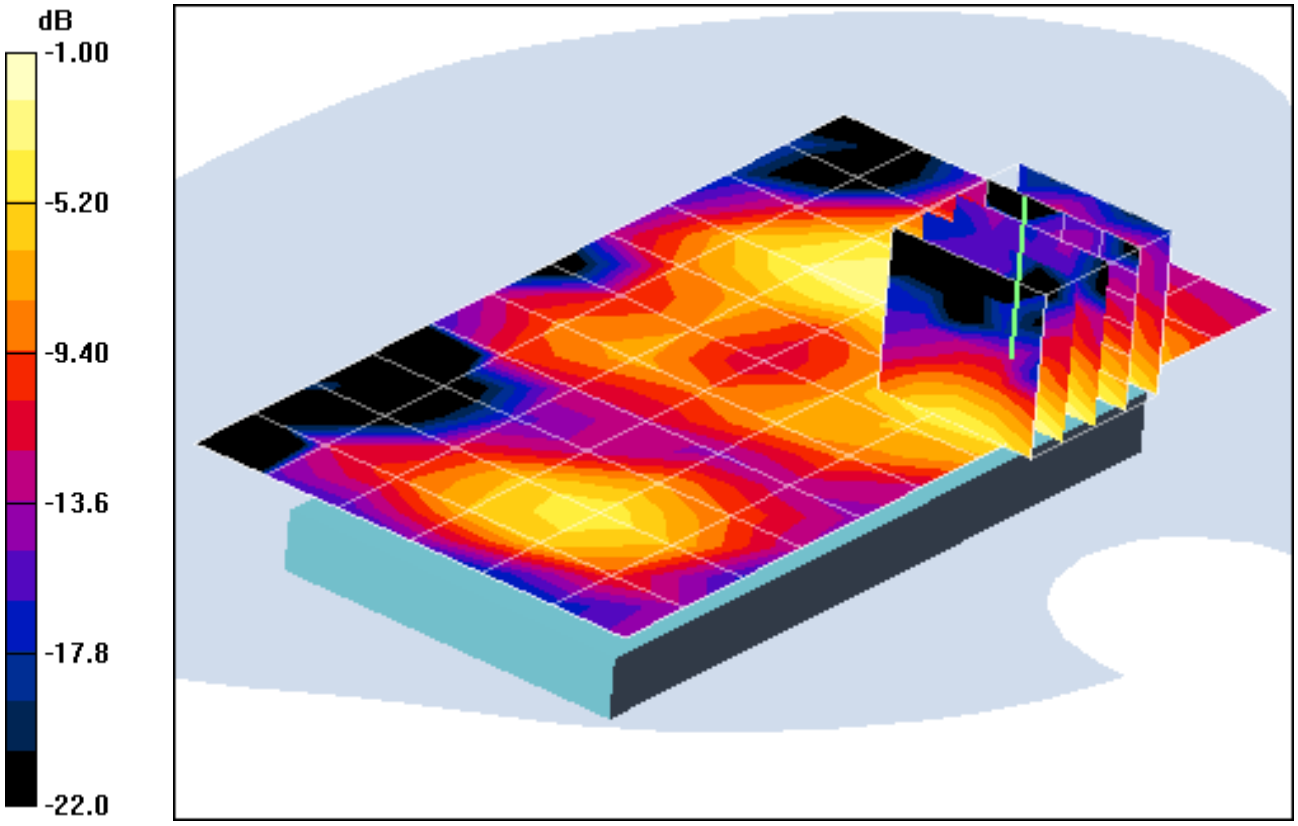
Communication System: IEEE 802.11b; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium: 2450 Body; Medium parameters used (interpolated):
f = 2462 MHz; σ = 2 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-12-2011; Ambient Temp: 23.5 °C; Tissue Temp: 21.6 °C

Probe: ES3DV3 - SN3209; ConvF(4.15, 4.15, 4.15); Calibrated: 4/18/2011
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM with CRP; Type: SAM; Serial: TP1375
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: IEEE 802.11b, Body SAR, Ch 11, 1 Mbps, Front Side

Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.35 V/m
Peak SAR (extrapolated) = 0.040 W/kg
SAR(1 g) = 0.020 mW/g; SAR(10 g) = 0.010 mW/g



0 dB = 0.025mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

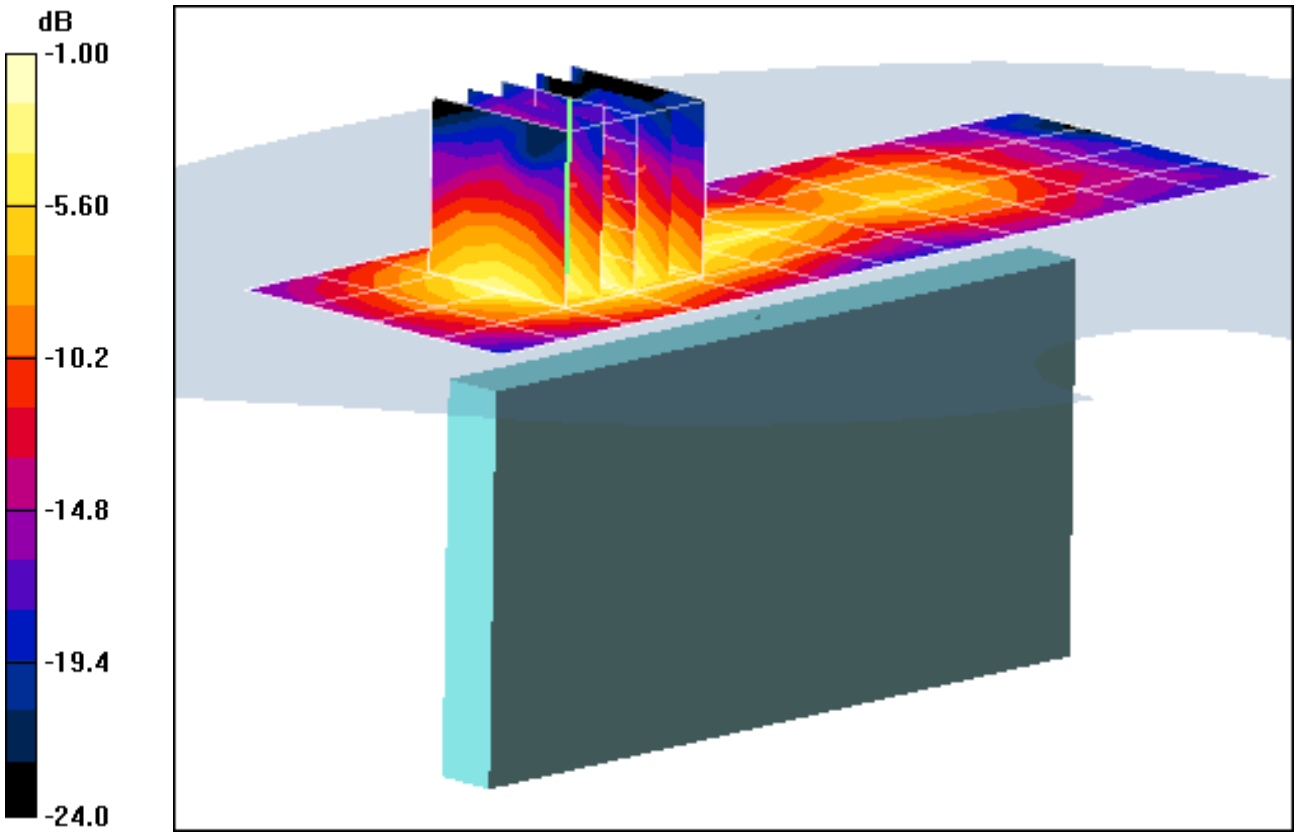
Communication System: IEEE 802.11b; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium: 2450 Body; Medium parameters used (interpolated):
f = 2462 MHz; σ = 2 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-12-2011; Ambient Temp: 23.5 °C; Tissue Temp: 21.6 °C

Probe: ES3DV3 - SN3209; ConvF(4.15, 4.15, 4.15); Calibrated: 4/18/2011
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM with CRP; Type: SAM; Serial: TP1375
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: IEEE 802.11b, Body SAR, Ch 11, 1 Mbps, Right Edge

Area Scan (5x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.08 V/m
Peak SAR (extrapolated) = 0.143 W/kg
SAR(1 g) = 0.069 mW/g; SAR(10 g) = 0.033 mW/g



0 dB = 0.087mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

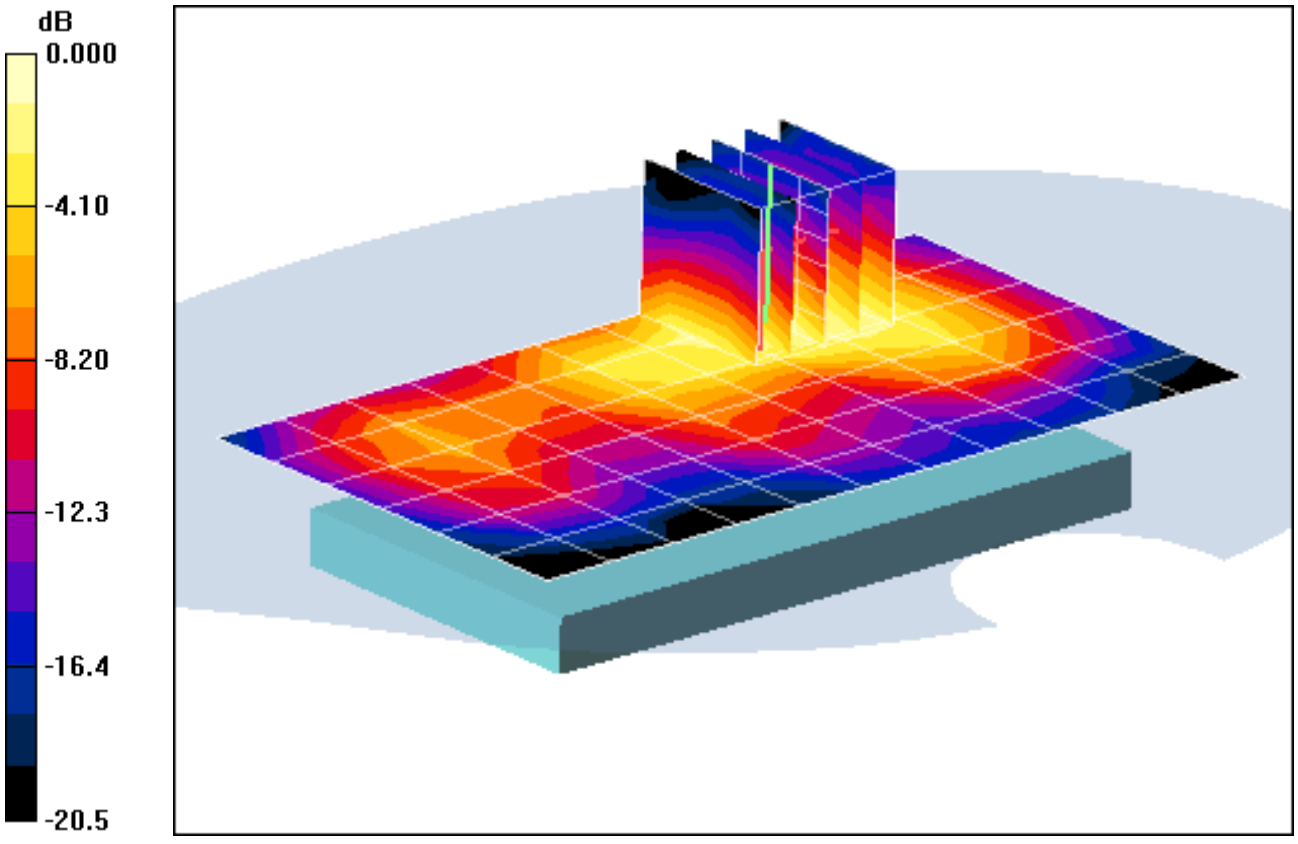
Communication System: IEEE 802.11g; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium: 2450 Body; Medium parameters used (interpolated):
f = 2462 MHz; σ = 2 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-12-2011; Ambient Temp: 23.5 °C; Tissue Temp: 21.6 °C

Probe: ES3DV3 - SN3209; ConvF(4.15, 4.15, 4.15); Calibrated: 4/18/2011
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM with CRP; Type: SAM; Serial: TP1375
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: IEEE 802.11g, Body SAR, Ch 11, 6 Mbps, Back Side

Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.20 V/m
Peak SAR (extrapolated) = 0.273 W/kg
SAR(1 g) = 0.130 mW/g; SAR(10 g) = 0.068 mW/g



0 dB = 0.157mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

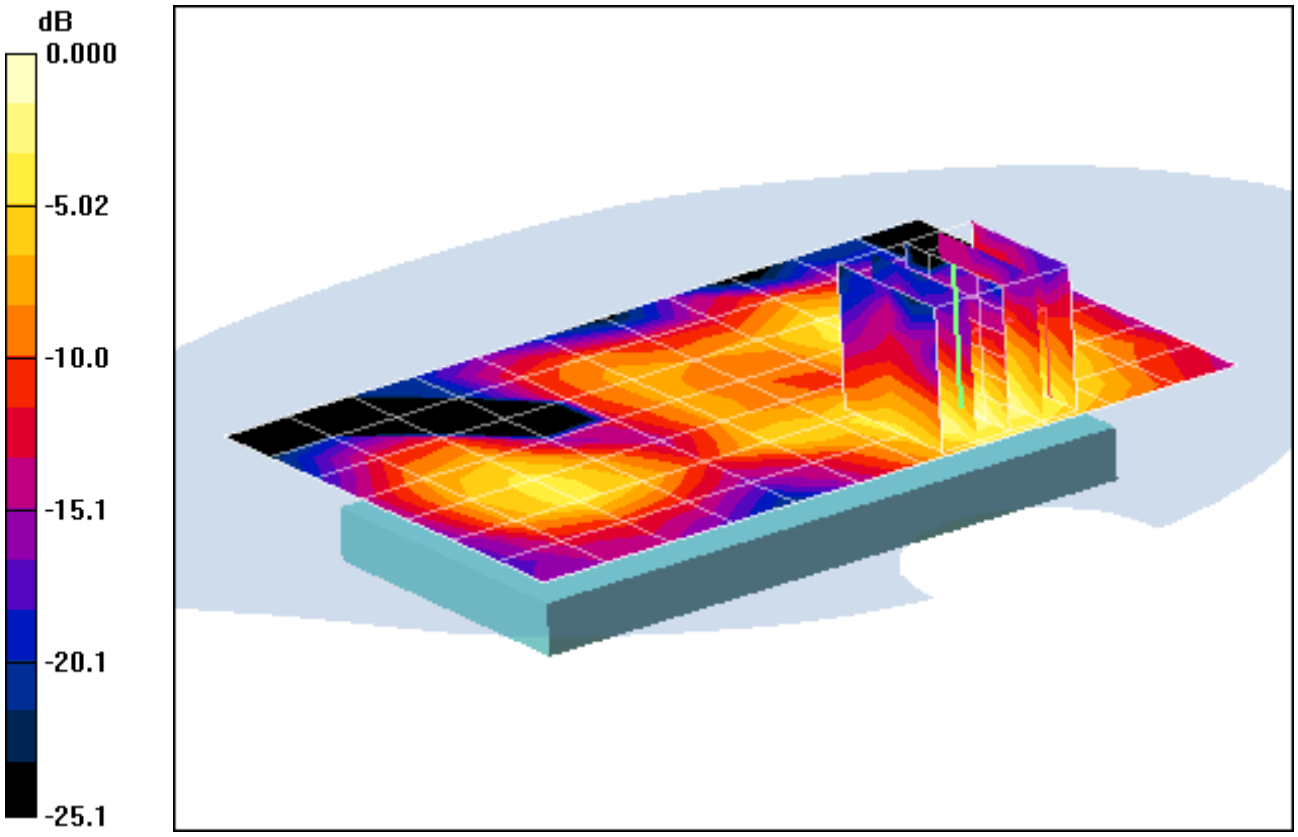
Communication System: IEEE 802.11g; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium: 2450 Body; Medium parameters used (interpolated):
f = 2462 MHz; σ = 2 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-12-2011; Ambient Temp: 23.5 °C; Tissue Temp: 21.6 °C

Probe: ES3DV3 - SN3209; ConvF(4.15, 4.15, 4.15); Calibrated: 4/18/2011
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM with CRP; Type: SAM; Serial: TP1375
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: IEEE 802.11g, Body SAR, Ch 11, 6 Mbps, Front Side

Area Scan (8x12x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.75 V/m
Peak SAR (extrapolated) = 0.085 W/kg
SAR(1 g) = 0.043 mW/g; SAR(10 g) = 0.023 mW/g



0 dB = 0.052mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

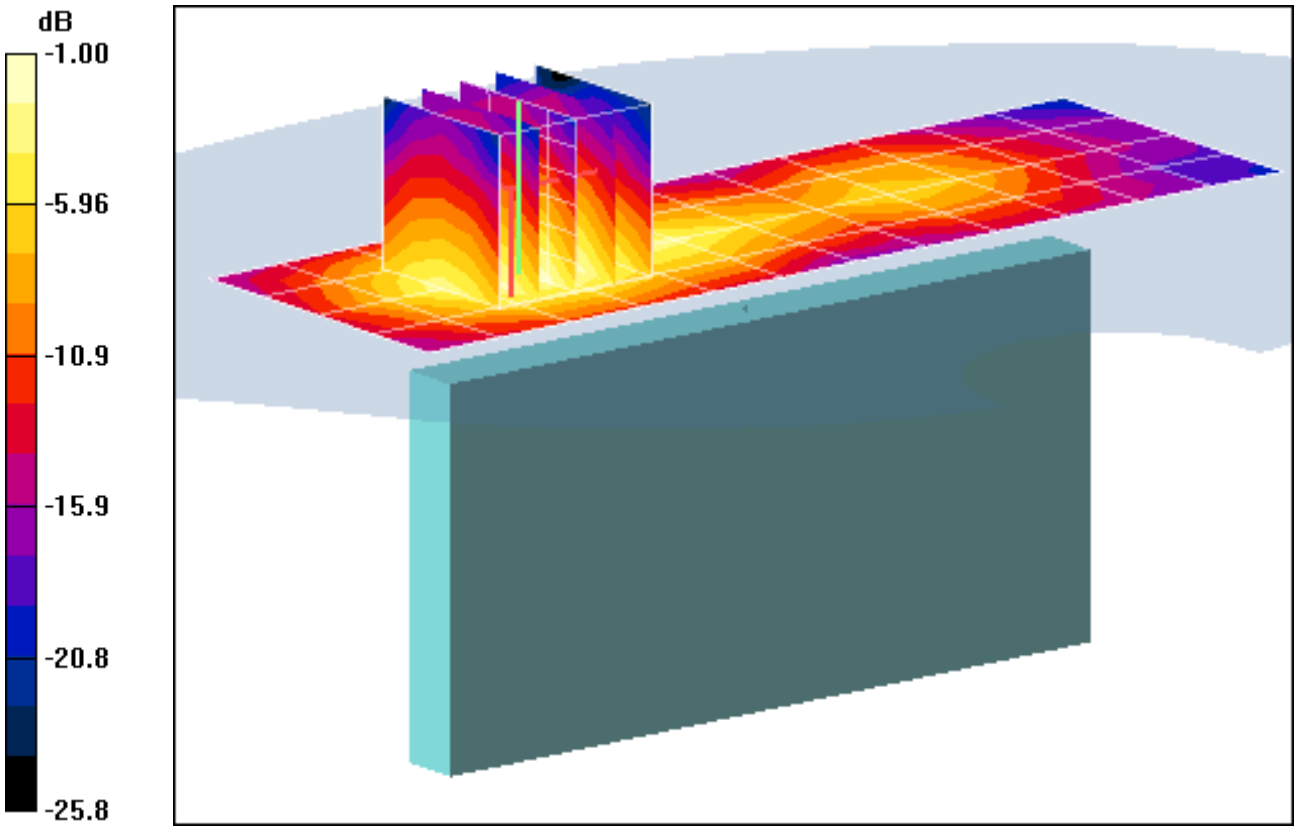
Communication System: IEEE 802.11g; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium: 2450 Body; Medium parameters used (interpolated):
f = 2462 MHz; σ = 2 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-12-2011; Ambient Temp: 23.5 °C; Tissue Temp: 21.6 °C

Probe: ES3DV3 - SN3209; ConvF(4.15, 4.15, 4.15); Calibrated: 4/18/2011
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM with CRP; Type: SAM; Serial: TP1375
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: IEEE 802.11g, Body SAR, Ch 11, 6 Mbps, Right Edge

Area Scan (5x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.25 V/m
Peak SAR (extrapolated) = 0.307 W/kg
SAR(1 g) = 0.148 mW/g; SAR(10 g) = 0.072 mW/g



0 dB = 0.185mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

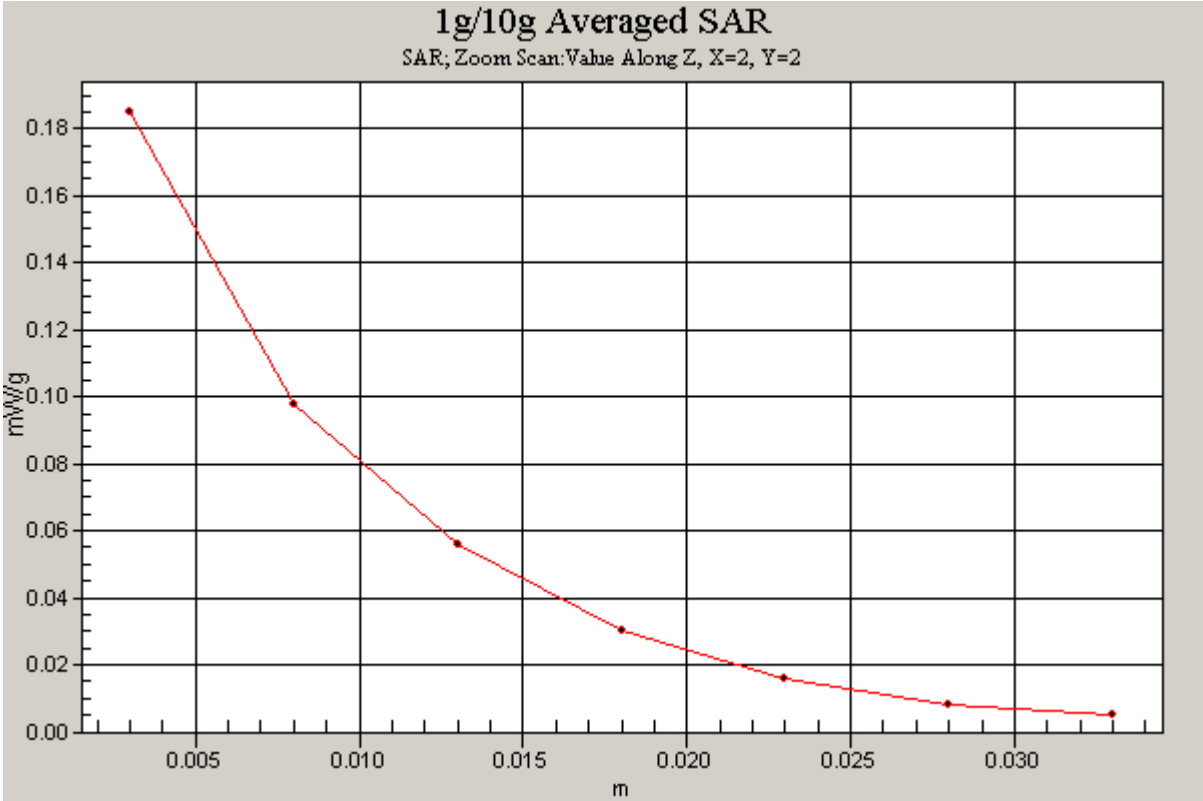
Communication System: IEEE 802.11g; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium: 2450 Body; Medium parameters used (interpolated):
f = 2462 MHz; σ = 2 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-12-2011; Ambient Temp: 23.5 °C; Tissue Temp: 21.6 °C

Probe: ES3DV3 - SN3209; ConvF(4.15, 4.15, 4.15); Calibrated: 4/18/2011
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM with CRP; Type: SAM; Serial: TP1375
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: IEEE 802.11g, Body SAR, Ch 11, 6 Mbps, Right Edge

Area Scan (5x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.25 V/m
Peak SAR (extrapolated) = 0.307 W/kg
SAR(1 g) = 0.148 mW/g; SAR(10 g) = 0.072 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

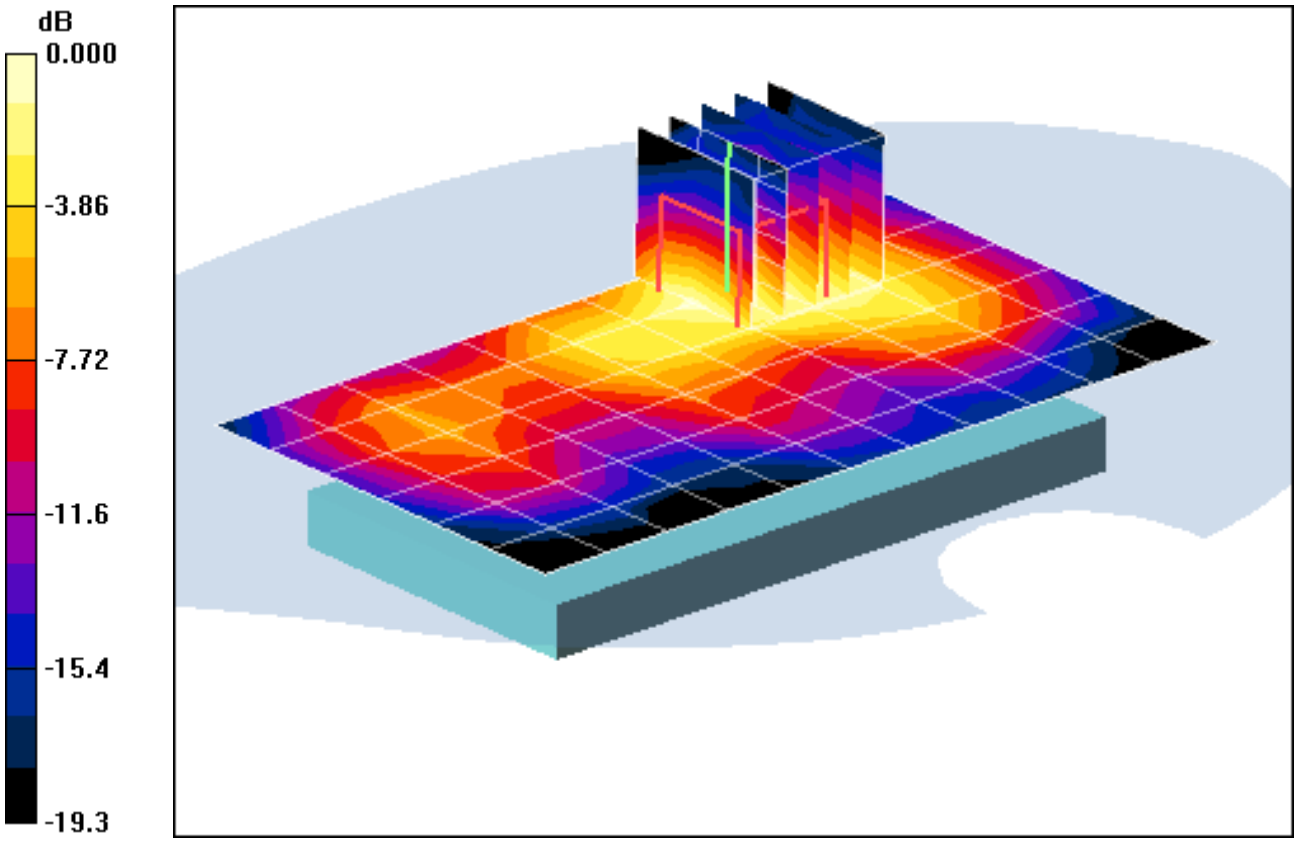
Communication System: IEEE 802.11n; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium: 2450 Body; Medium parameters used (interpolated):
f = 2462 MHz; σ = 2 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-12-2011; Ambient Temp: 23.5 °C; Tissue Temp: 21.6 °C

Probe: ES3DV3 - SN3209; ConvF(4.15, 4.15, 4.15); Calibrated: 4/18/2011
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM with CRP; Type: SAM; Serial: TP1375
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: IEEE 802.11n, Body SAR, Ch 11, 6.5 Mbps, Back Side

Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.50 V/m
Peak SAR (extrapolated) = 0.236 W/kg
SAR(1 g) = 0.114 mW/g; SAR(10 g) = 0.059 mW/g



0 dB = 0.146mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

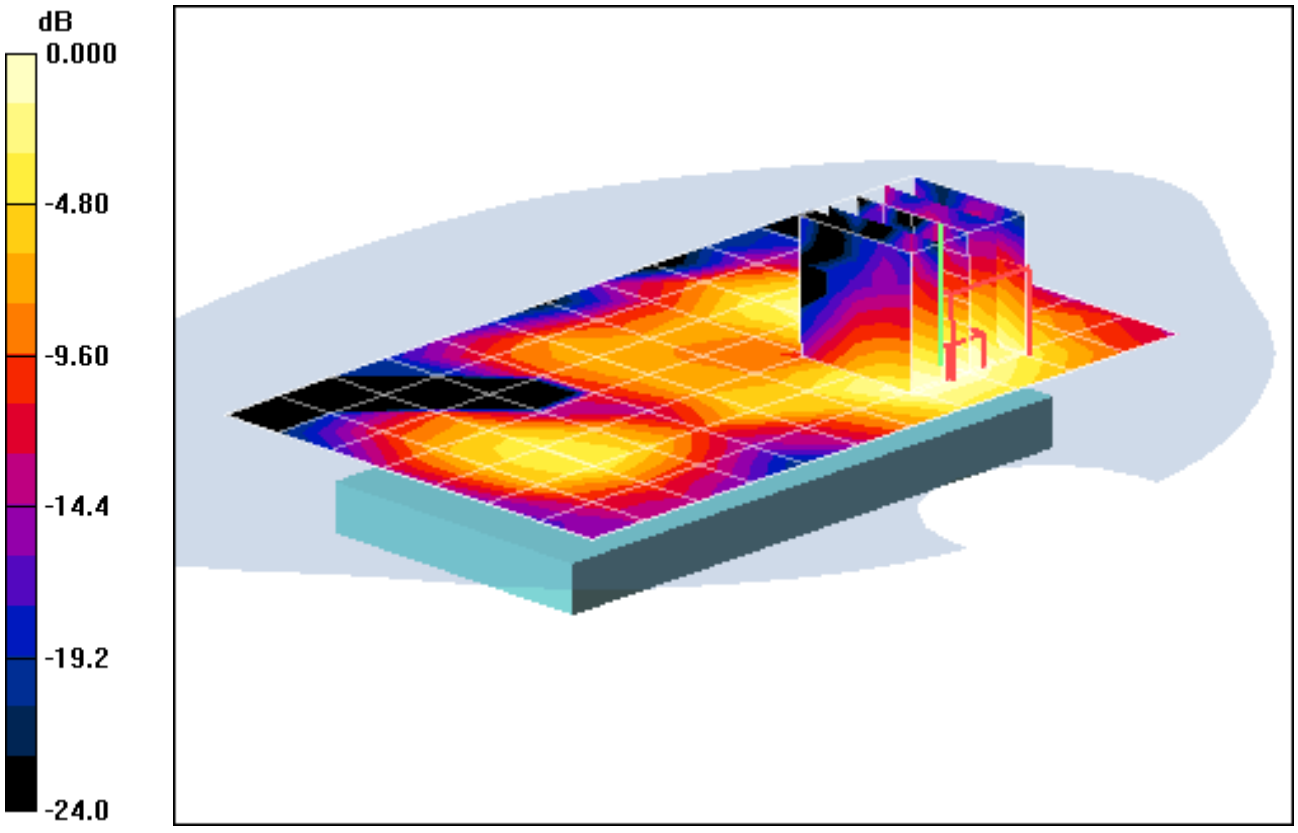
Communication System: IEEE 802.11n; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium: 2450 Body; Medium parameters used (interpolated):
f = 2462 MHz; σ = 2 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-12-2011; Ambient Temp: 23.5 °C; Tissue Temp: 21.6 °C

Probe: ES3DV3 - SN3209; ConvF(4.15, 4.15, 4.15); Calibrated: 4/18/2011
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM with CRP; Type: SAM; Serial: TP1375
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: IEEE 802.11n, Body SAR, Ch 11, 6.5 Mbps, Front Side

Area Scan (8x12x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.64 V/m
Peak SAR (extrapolated) = 0.066 W/kg
SAR(1 g) = 0.033 mW/g; SAR(10 g) = 0.017 mW/g



0 dB = 0.041mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

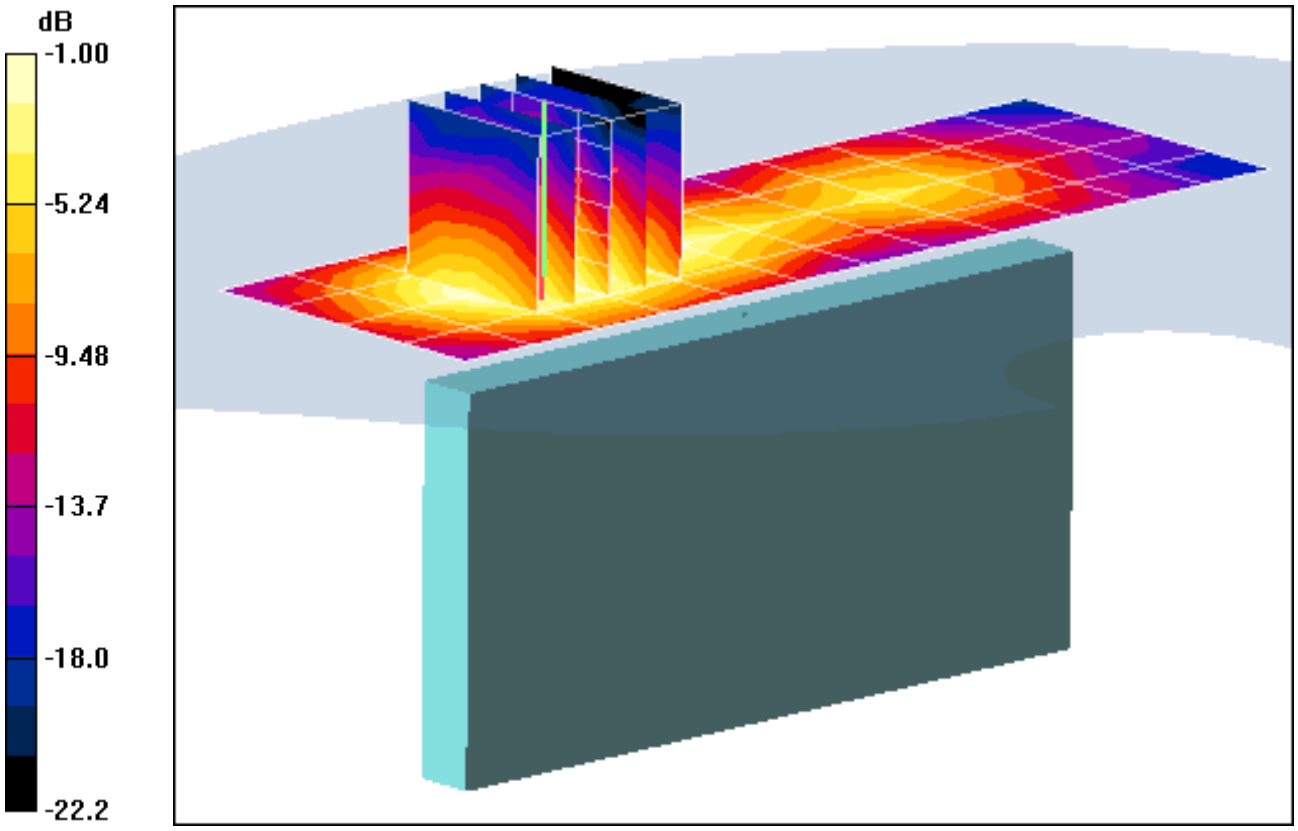
Communication System: IEEE 802.11n; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium: 2450 Body; Medium parameters used (interpolated):
f = 2462 MHz; σ = 2 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-12-2011; Ambient Temp: 23.5 °C; Tissue Temp: 21.6 °C

Probe: ES3DV3 - SN3209; ConvF(4.15, 4.15, 4.15); Calibrated: 4/18/2011
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM with CRP; Type: SAM; Serial: TP1375
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: IEEE 802.11n, Body SAR, Ch 11, 6.5 Mbps, Right Edge

Area Scan (5x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.47 V/m
Peak SAR (extrapolated) = 0.215 W/kg
SAR(1 g) = 0.103 mW/g; SAR(10 g) = 0.050 mW/g



0 dB = 0.125mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

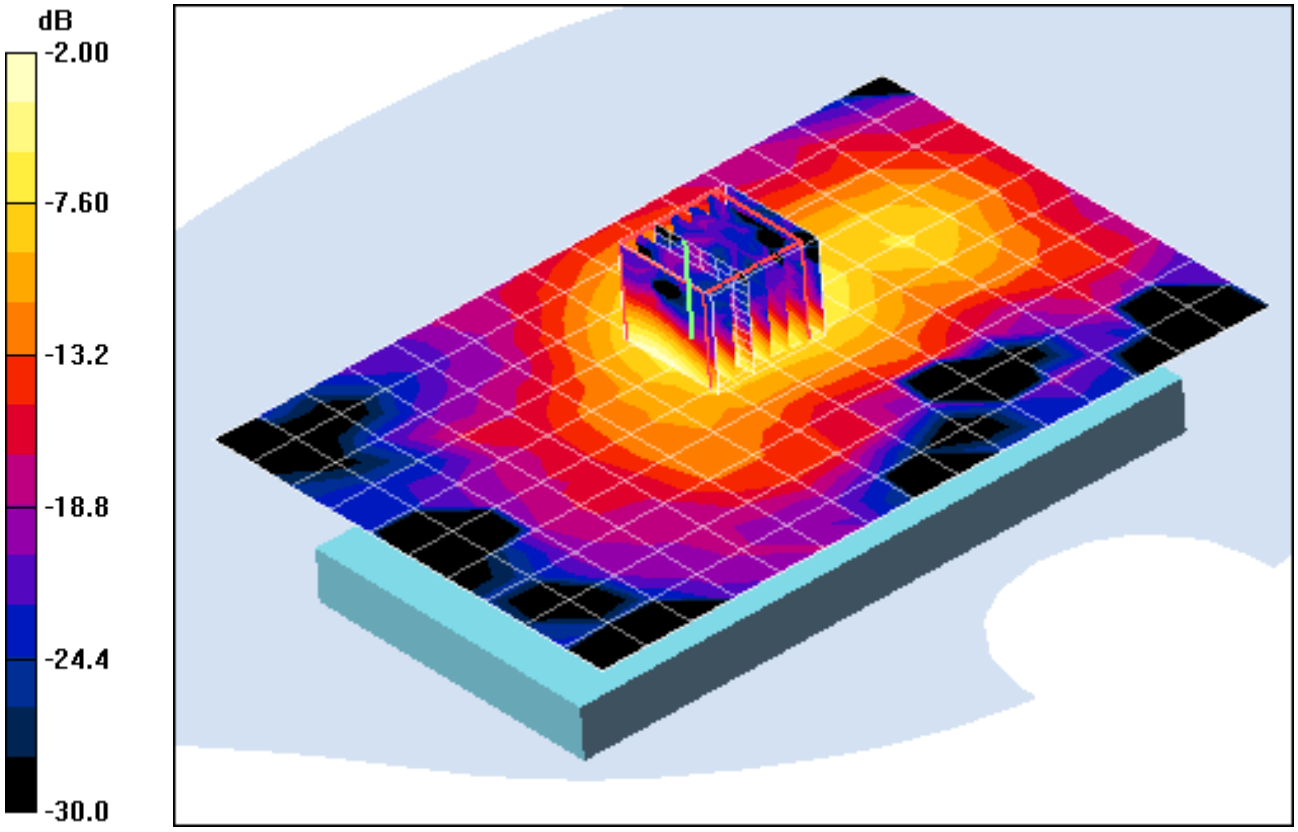
Communication System: IEEE 802.11a 5.2-5.8 GHz Band; Frequency: 5280 MHz;Duty Cycle: 1:1
Medium: 5 GHz Body; Medium parameters used (interpolated):
f = 5280 MHz; σ = 5.27 mho/m; ε_r = 46.9; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-12-2011; Ambient Temp: 23.3 °C; Tissue Temp: 22.5 °C

Probe: EX3DV4 - SN3550; ConvF(3.31, 3.31, 3.31); Calibrated: 2/14/2011
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/20/2011
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: IEEE 802.11a, 5.3 GHz, Body SAR, Ch 56, 6 Mbps, Back Side

Area Scan (11x16x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 9.28 V/m
Peak SAR (extrapolated) = 1.87 W/kg
SAR(1 g) = 0.511 mW/g; SAR(10 g) = 0.158 mW/g



0 dB = 0.959mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

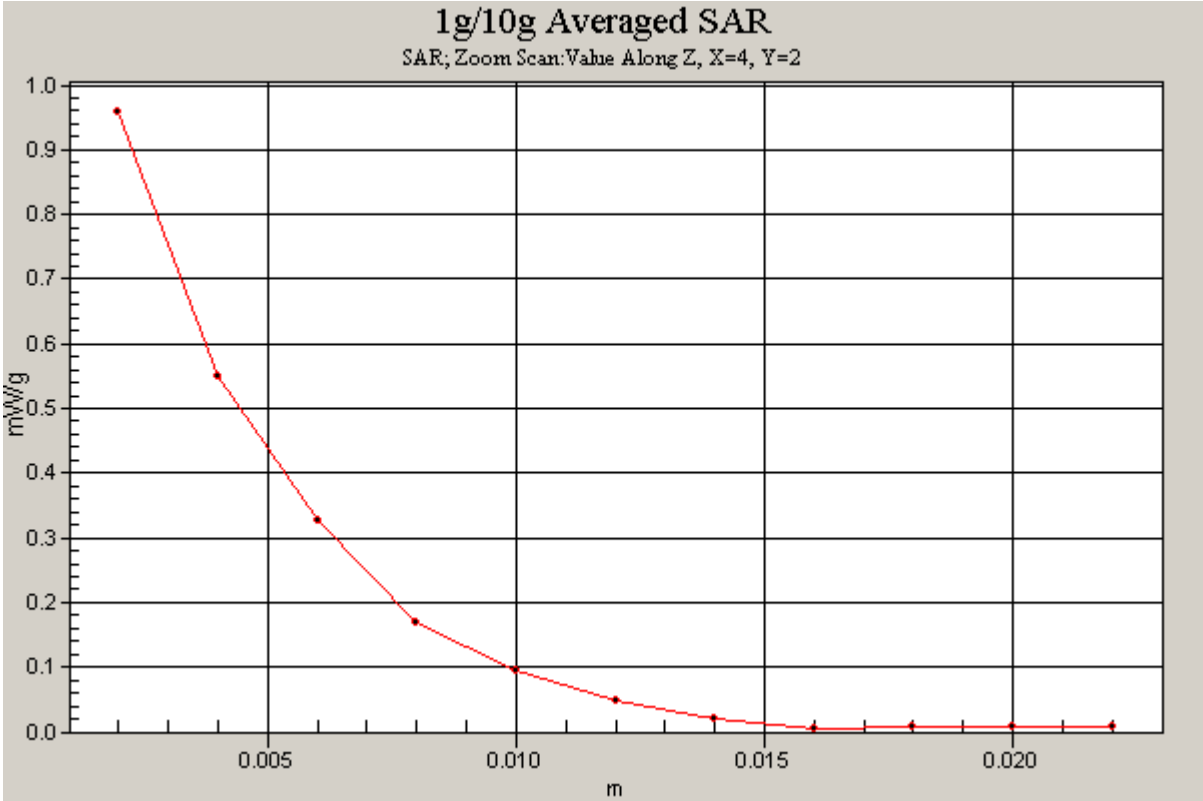
Communication System: IEEE 802.11a 5.2-5.8 GHz Band; Frequency: 5280 MHz;Duty Cycle: 1:1
Medium: 5 GHz Body; Medium parameters used (interpolated):
f = 5280 MHz; σ = 5.27 mho/m; ε_r = 46.9; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-12-2011; Ambient Temp: 23.3 °C; Tissue Temp: 22.5 °C

Probe: EX3DV4 - SN3550; ConvF(3.31, 3.31, 3.31); Calibrated: 2/14/2011
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/20/2011
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: IEEE 802.11a, 5.3 GHz, Body SAR, Ch 56, 6 Mbps, Back Side

Area Scan (11x16x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 9.28 V/m
Peak SAR (extrapolated) = 1.87 W/kg
SAR(1 g) = 0.511 mW/g; SAR(10 g) = 0.158 mW/g



DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

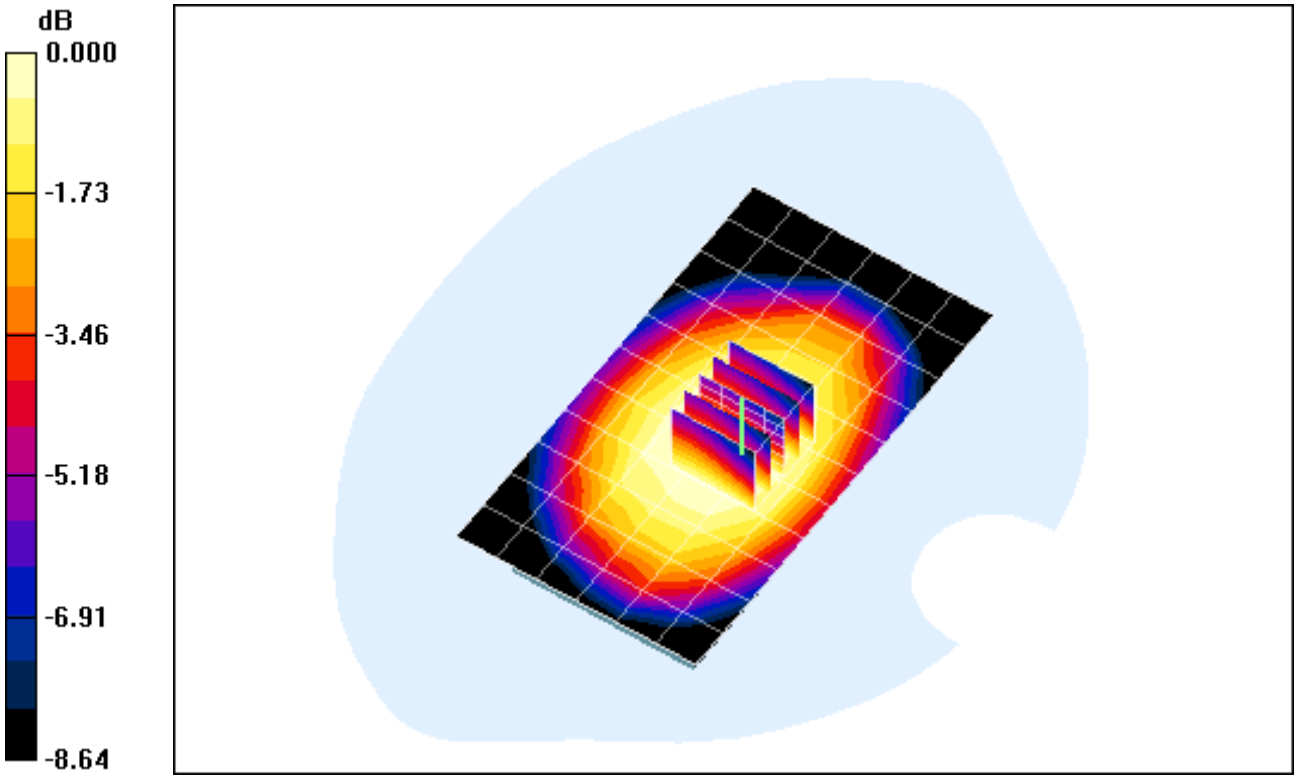
Communication System: Cellular CDMA; Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 836.52 MHz; σ = 0.965 mho/m; ε_r = 53.4; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 10-17-2011; Ambient Temp: 24.0 °C; Tissue Temp: 22.2 °C

Probe: ES3DV3 - SN3258; ConvF(6.12, 6.12, 6.12); Calibrated: 4/8/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 2/21/2011
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: SVLTE, Mid.ch Cell CDMA, LTE, 10 MHz, RB 1, Offset 0, 22.5 dBm, Body SAR, Back Side

Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 26.9 V/m
Peak SAR (extrapolated) = 0.788 W/kg
SAR(1 g) = 0.616 mW/g; SAR(10 g) = 0.479 mW/g



0 dB = 0.640mW/g

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

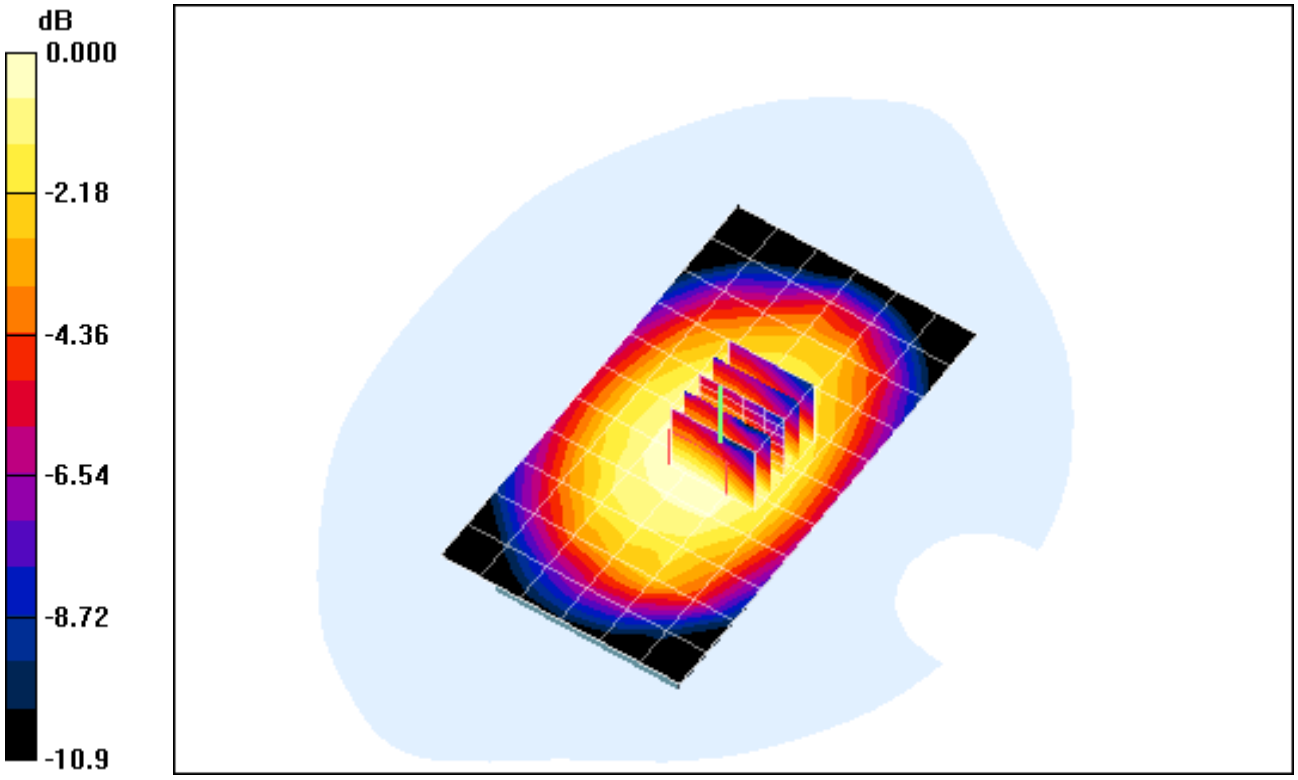
Communication System: Cellular CDMA; Frequency: 824.7 MHz;Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 824.7 MHz; σ = 0.958 mho/m; ε_r = 53.4; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 10-17-2011; Ambient Temp: 24.0 °C; Tissue Temp: 22.2 °C

Probe: ES3DV3 - SN3258; ConvF(6.12, 6.12, 6.12); Calibrated: 4/8/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 2/21/2011
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: SVLTE, Low.ch Cell CDMA, LTE, 10 MHz, RB 1, Offset 0, 22.5 dBm, Body SAR, Back Side

Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 27.3 V/m
Peak SAR (extrapolated) = 0.923 W/kg
SAR(1 g) = 0.710 mW/g; SAR(10 g) = 0.543 mW/g



0 dB = 0.735mW/g

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

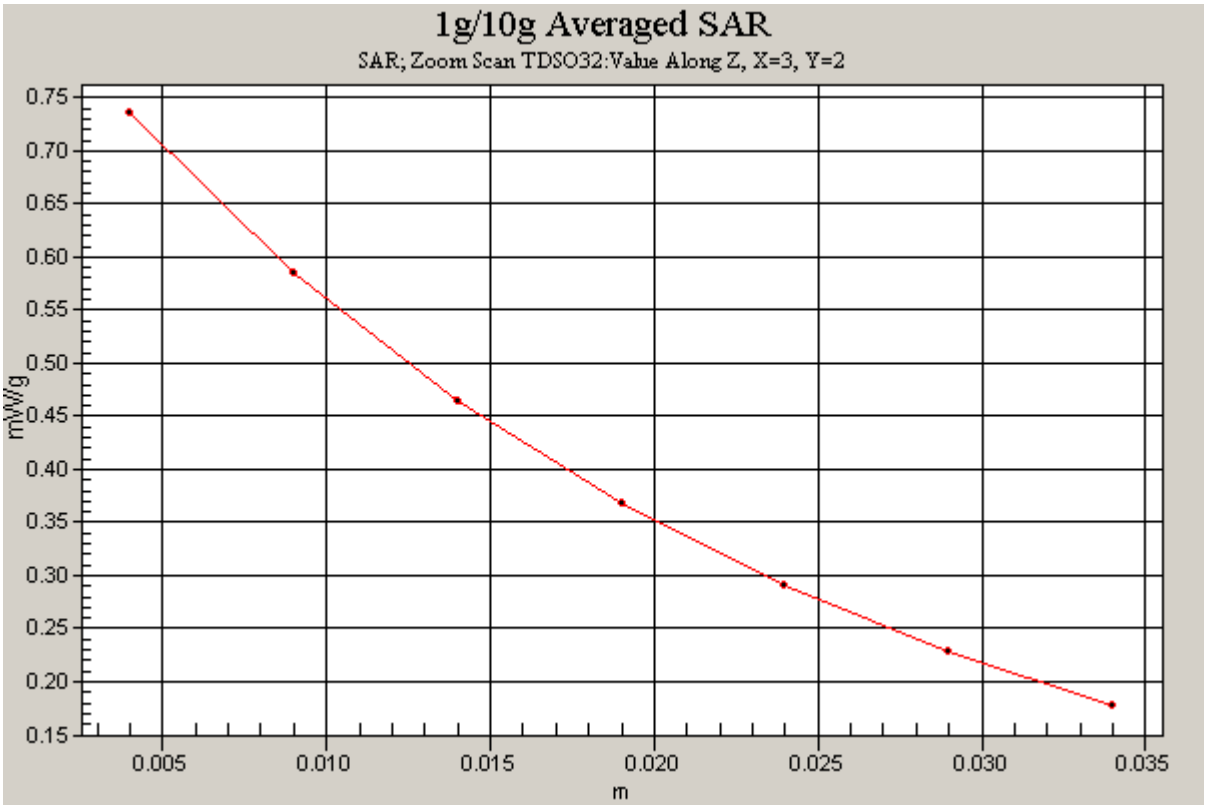
Communication System: Cellular CDMA; Frequency: 824.7 MHz;Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 824.7 MHz; σ = 0.958 mho/m; ε_r = 53.4; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 10-17-2011; Ambient Temp: 24.0 °C; Tissue Temp: 22.2 °C

Probe: ES3DV3 - SN3258; ConvF(6.12, 6.12, 6.12); Calibrated: 4/8/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 2/21/2011
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: SVLTE, Low.ch Cell CDMA, LTE, 10 MHz, RB 1, Offset 0, 22.5 dBm, Body SAR, Back Side

Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 27.3 V/m
Peak SAR (extrapolated) = 0.923 W/kg
SAR(1 g) = 0.710 mW/g; SAR(10 g) = 0.543 mW/g



DUT: A3LSCHI515; Type: Portable Handset; Serial:FCC#SAR1

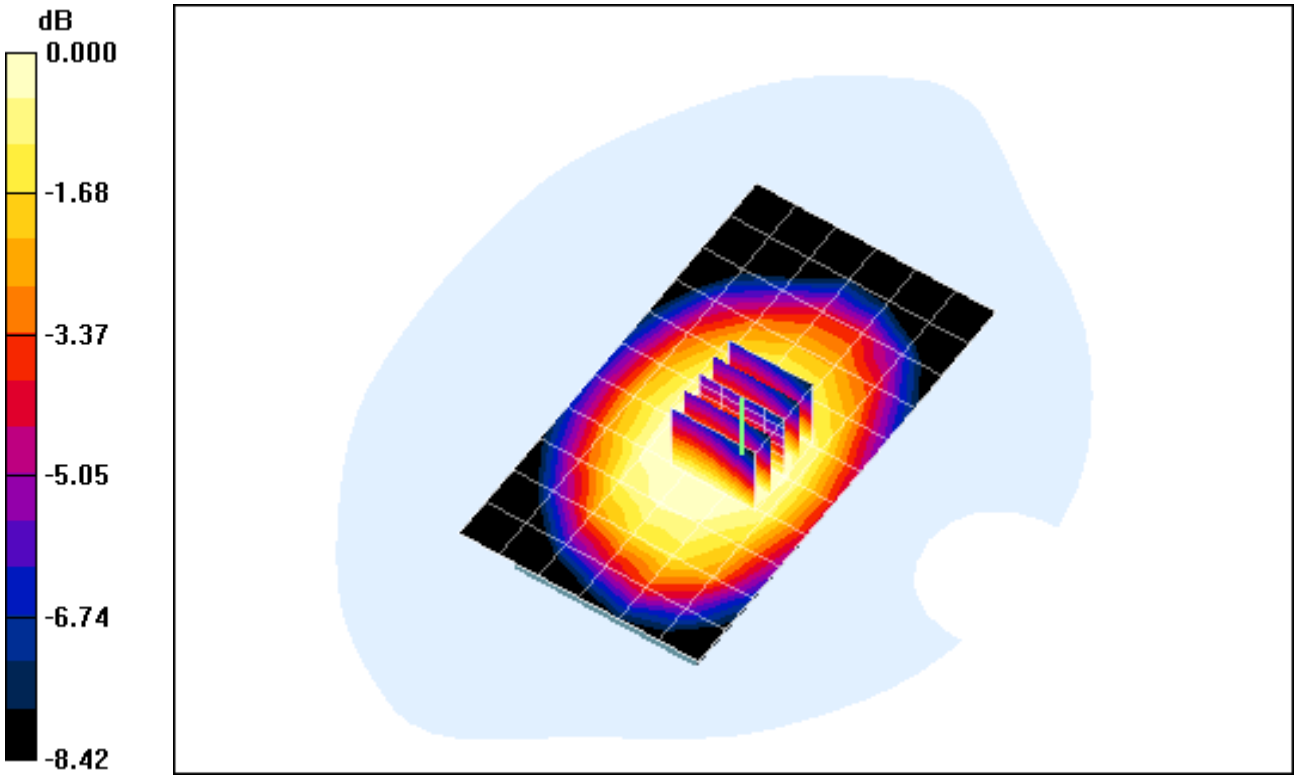
Communication System: Cellular CDMA; Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 836.52 MHz; σ = 0.965 mho/m; ε_r = 53.4; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 10-17-2011; Ambient Temp: 24.0 °C; Tissue Temp: 22.2 °C

Probe: ES3DV3 - SN3258; ConvF(6.12, 6.12, 6.12); Calibrated: 4/8/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 2/21/2011
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: SVLTE, Mid.ch Cell CDMA, LTE, 10 MHz, RB 1, Offset 0, 19 dBm, Body SAR, Back Side

Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 24.2 V/m
Peak SAR (extrapolated) = 0.623 W/kg
SAR(1 g) = 0.483 mW/g; SAR(10 g) = 0.378 mW/g



0 dB = 0.503mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHI515; Type: Portable Handset; Serial: FCC#SAR1

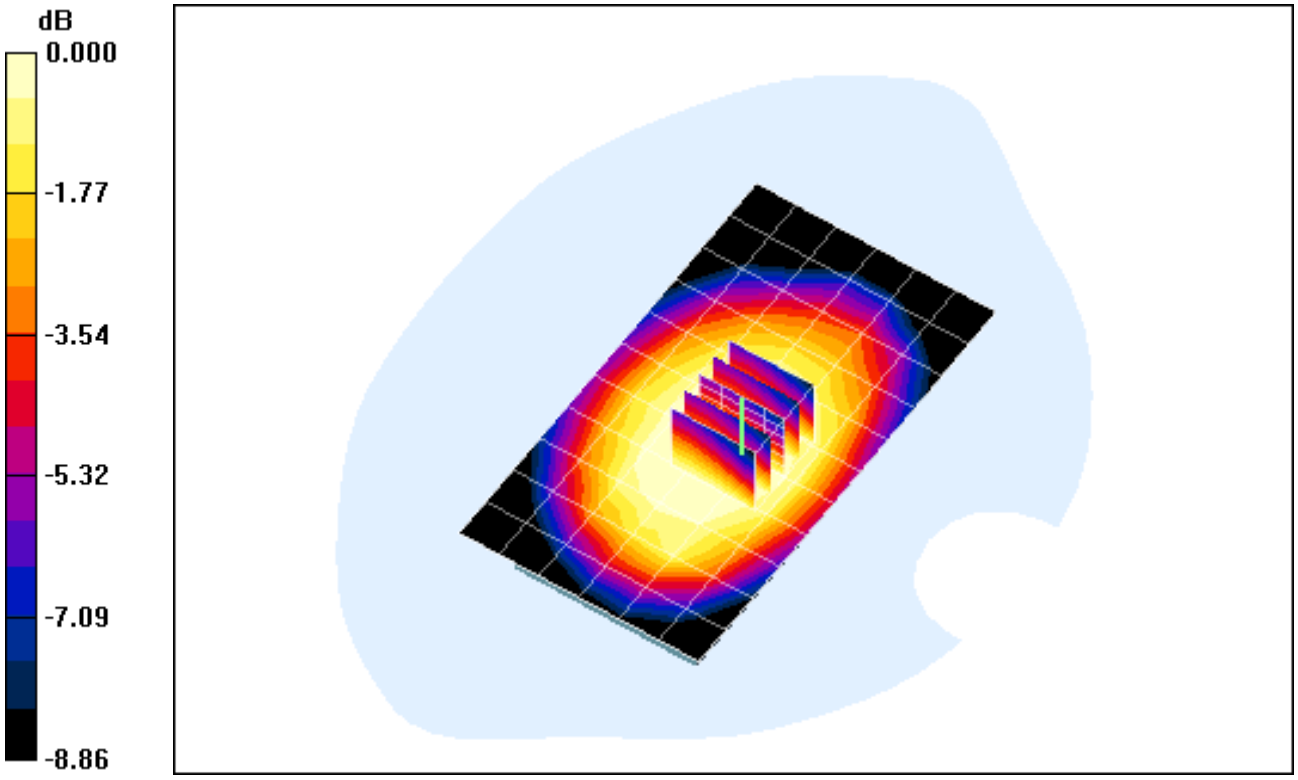
Communication System: Cellular CDMA; Frequency: 824.7 MHz;Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 824.7 MHz; σ = 0.958 mho/m; ε_r = 53.4; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 10-17-2011; Ambient Temp: 24.0 °C; Tissue Temp: 22.2 °C

Probe: ES3DV3 - SN3258; ConvF(6.12, 6.12, 6.12); Calibrated: 4/8/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 2/21/2011
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: SVLTE, Low.ch Cell CDMA, LTE, 10 MHz, RB 1, Offset 0, 19 dBm, Body SAR, Back Side

Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 25.3 V/m
Peak SAR (extrapolated) = 0.656 W/kg
SAR(1 g) = 0.511 mW/g; SAR(10 g) = 0.398 mW/g



0 dB = 0.532mW/g

APPENDIX B: DIPOLE VALIDATION

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 750 MHz; Type: D750V3; Serial: 1003

Communication System: CW; Frequency: 750 MHz;Duty Cycle: 1:1
Medium: 740 Head Medium parameters used (interpolated):
f = 750 MHz; σ = 0.868 mho/m; ε_r = 41.3; ρ = 1000 kg/m^3

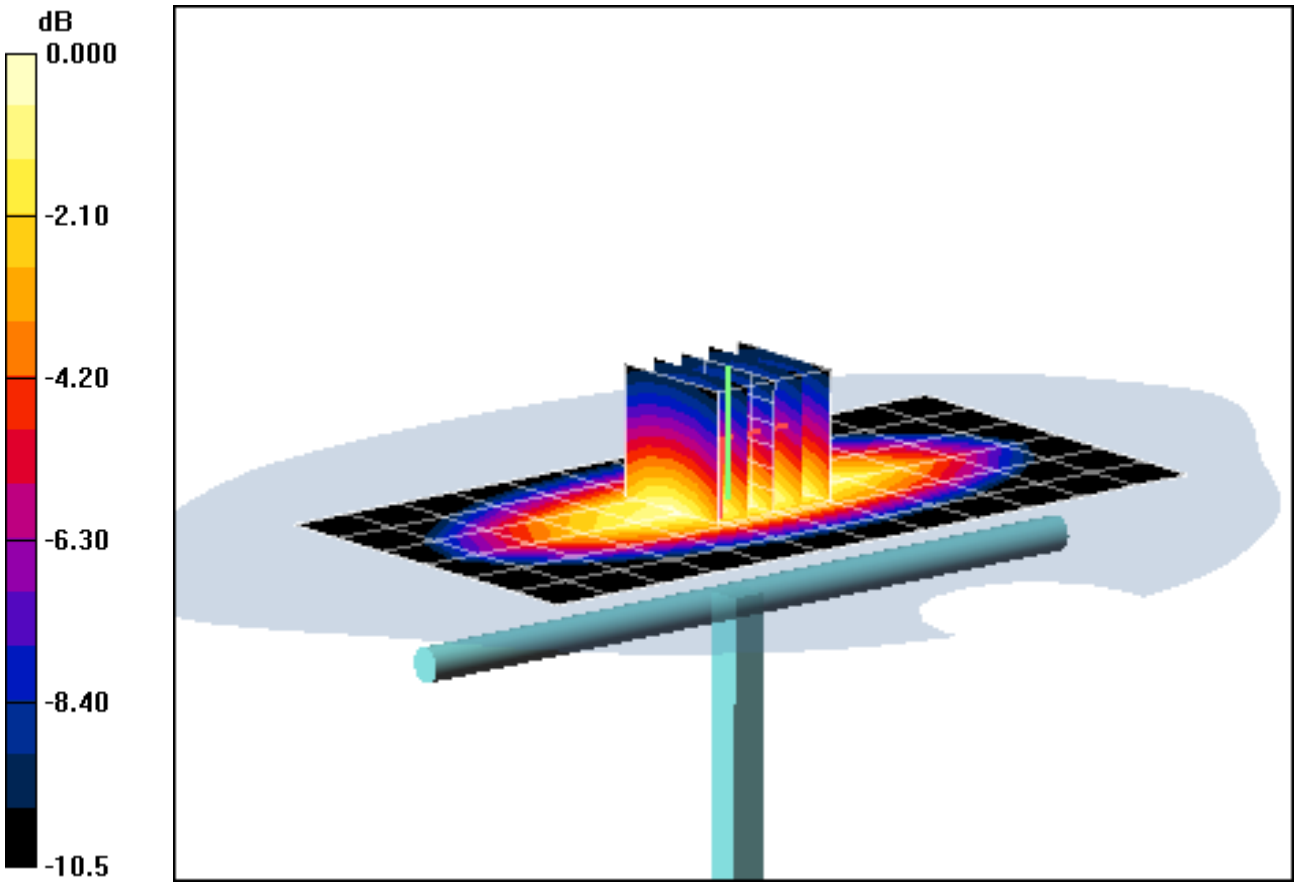
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 09-08-2011; Ambient Temp: 22.5 °C; Tissue Temp: 21.4 °C

Probe: ES3DV3 - SN3209; ConvF(6.42, 6.42, 6.42); Calibrated: 4/18/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM Sub Dasy B; Type: SAM 4.0; Serial: TP-1626
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

750MHz System Verification

Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Input Power = 24.0 dBm (250 mW)
SAR(1 g) = 1.95 mW/g; SAR(10 g) = 1.28 mW/g
Deviation = -6.81 %



0 dB = 2.10mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 750 MHz; Type: D750V3; Serial: 1003

Communication System: CW; Frequency: 750 MHz;Duty Cycle: 1:1
Medium: 740 Body Medium parameters used (interpolated):
f = 750 MHz; σ = 0.943 mho/m; ε_r = 55.1; ρ = 1000 kg/m^3

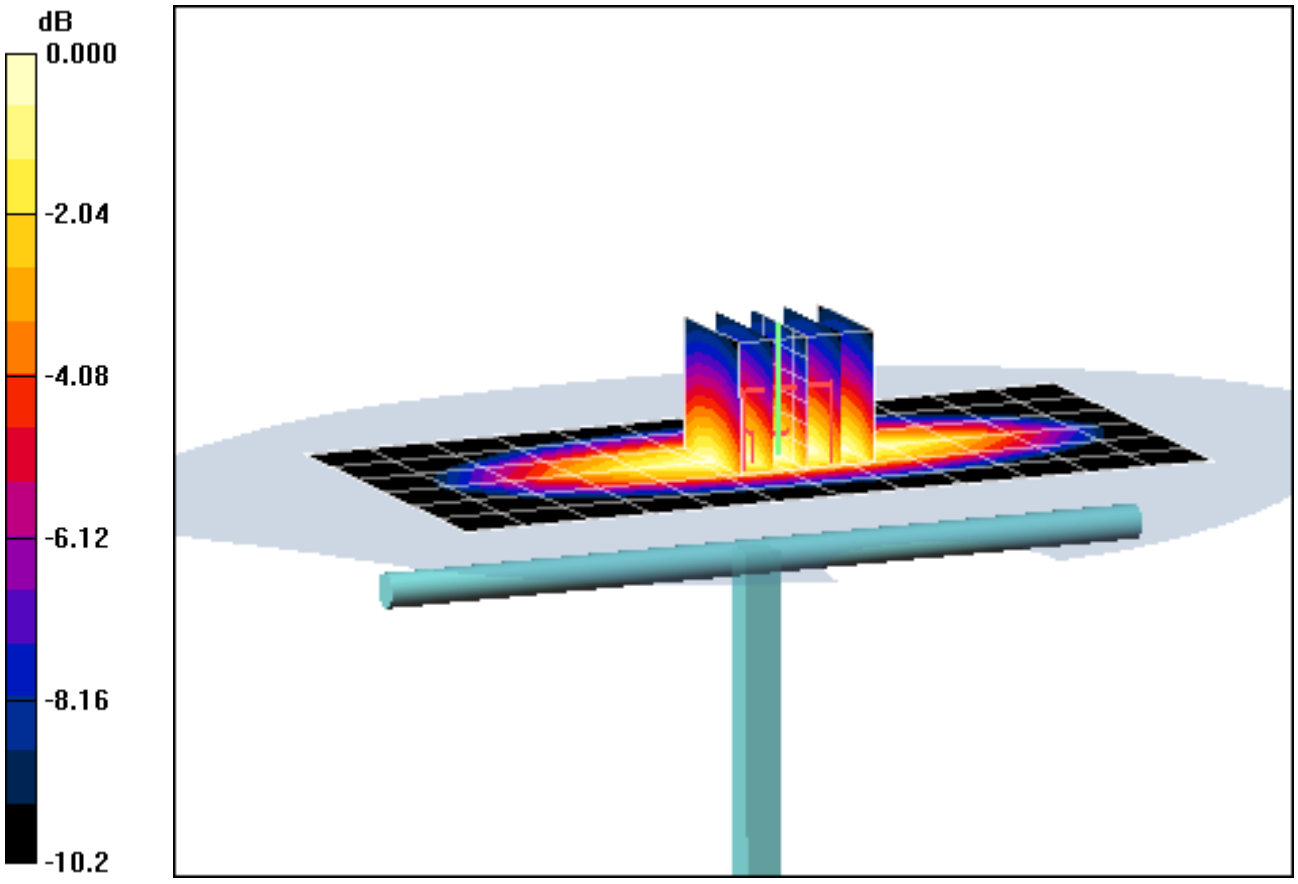
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 09-07-2011; Ambient Temp: 23.8 °C; Tissue Temp: 21.9 °C

Probe: ES3DV3 - SN3209; ConvF(6.18, 6.18, 6.18); Calibrated: 4/18/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM with CRP; Type: SAM; Serial: TP1375
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

750MHz System Verification

Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Input Power = 24.0 dBm (250 mW)
SAR(1 g) = 2.07 mW/g; SAR(10 g) = 1.37 mW/g
Deviation = -6.44 %



0 dB = 2.23mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d047

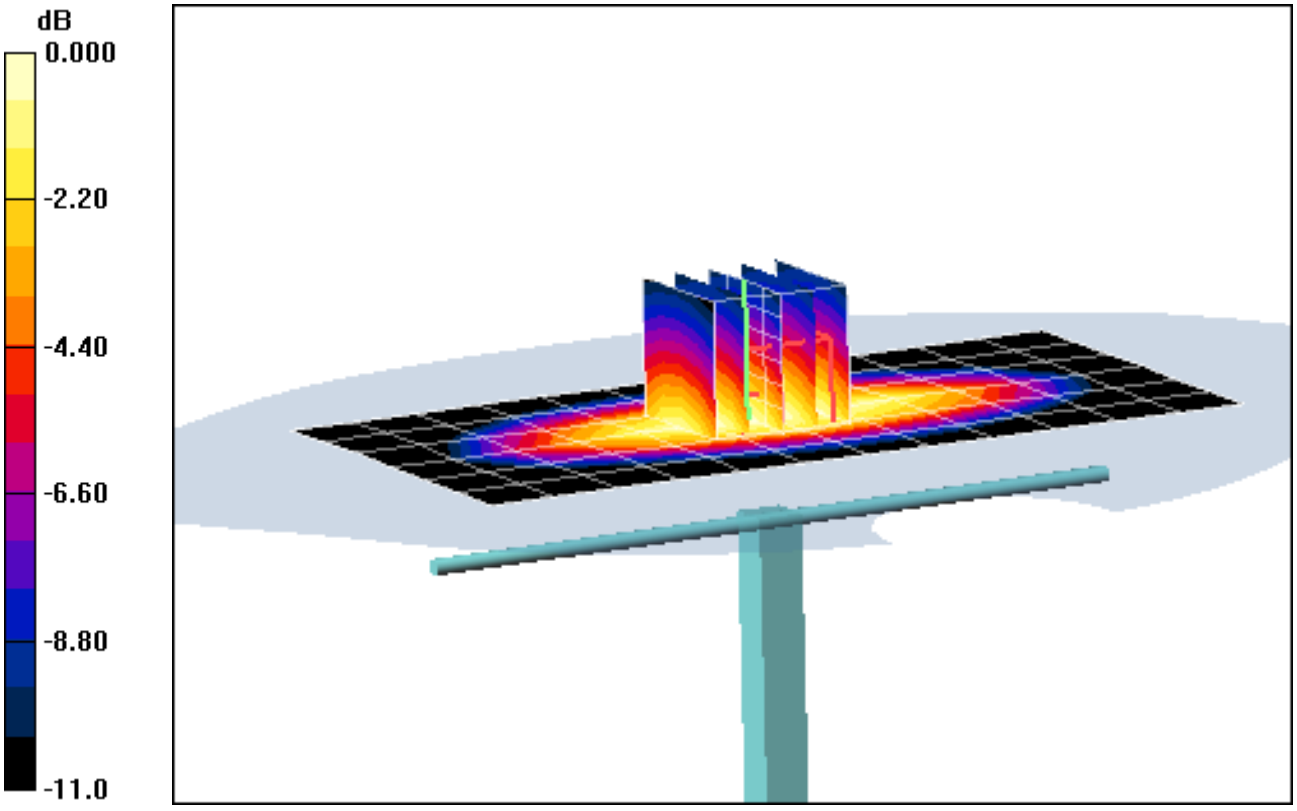
Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium: 835 Head Medium parameters used:
f = 835 MHz; σ = 0.886 mho/m; ε_r = 42.66; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 09-07-2011; Ambient Temp: 22.8 °C; Tissue Temp: 22.9 °C

Probe: ES3DV3 - SN3258; ConvF(6.18, 6.18, 6.18); Calibrated: 4/8/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 2/21/2011
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1403
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

835MHz System Verification

Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Input Power = 20.0 dBm (100 mW)
SAR(1 g) = 0.899 mW/g; SAR(10 g) = 0.587 mW/g
Deviation = -5.67 %



0 dB = 0.972mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d047

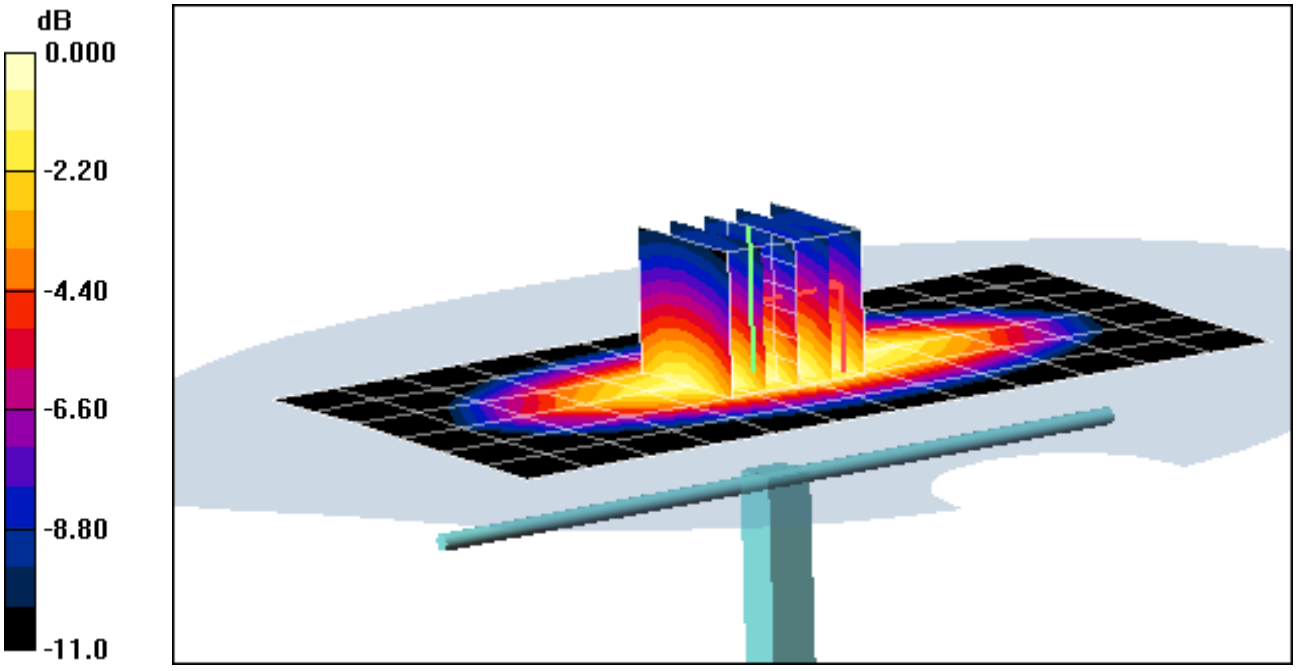
Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium: 835 Head Medium parameters used:
f = 835 MHz; σ = 0.886 mho/m; ε_r = 41.9; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 10-17-2011; Ambient Temp: 24.1 °C; Tissue Temp: 22.5 °C

Probe: ES3DV3 - SN3258; ConvF(6.18, 6.18, 6.18); Calibrated: 4/8/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 2/21/2011
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1403
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

835MHz System Verification

Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Input Power = 20.0 dBm (100 mW)
SAR(1 g) = 0.919 mW/g; SAR(10 g) = 0.600 mW/g
Deviation = -3.57 %



0 dB = 0.995mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d047

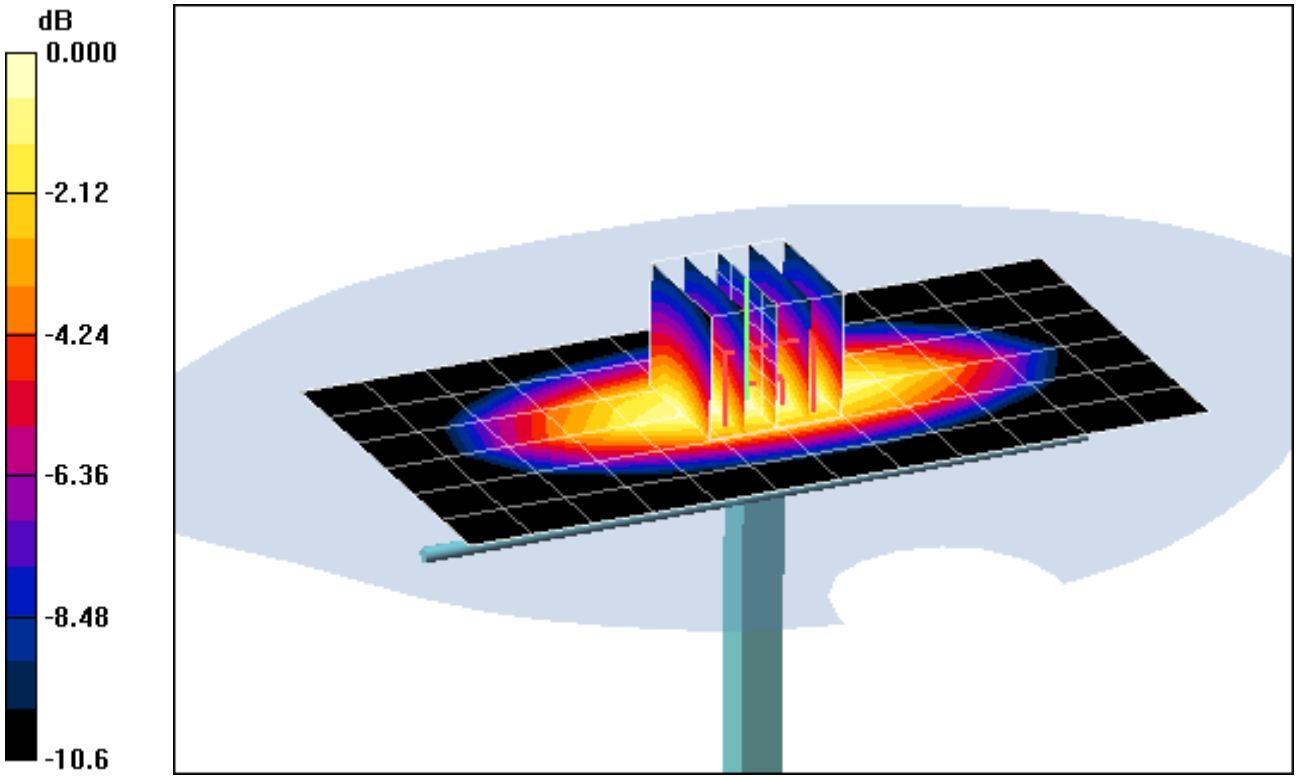
Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium: 835 Body Medium parameters used:
f = 835 MHz; σ = 0.974 mho/m; ε_r = 53.6; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 08-29-2011; Ambient Temp: 23.5 °C; Tissue Temp: 22.2 °C

Probe: ES3DV3 - SN3258; ConvF(6.12, 6.12, 6.12); Calibrated: 4/8/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 2/21/2011
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

835MHz System Verification

Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Input Power = 24.0 dBm (250 mW)
SAR(1 g) = 2.55 mW/g; SAR(10 g) = 1.66 mW/g
Deviation = 3.55 %



0 dB = 2.75mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d047

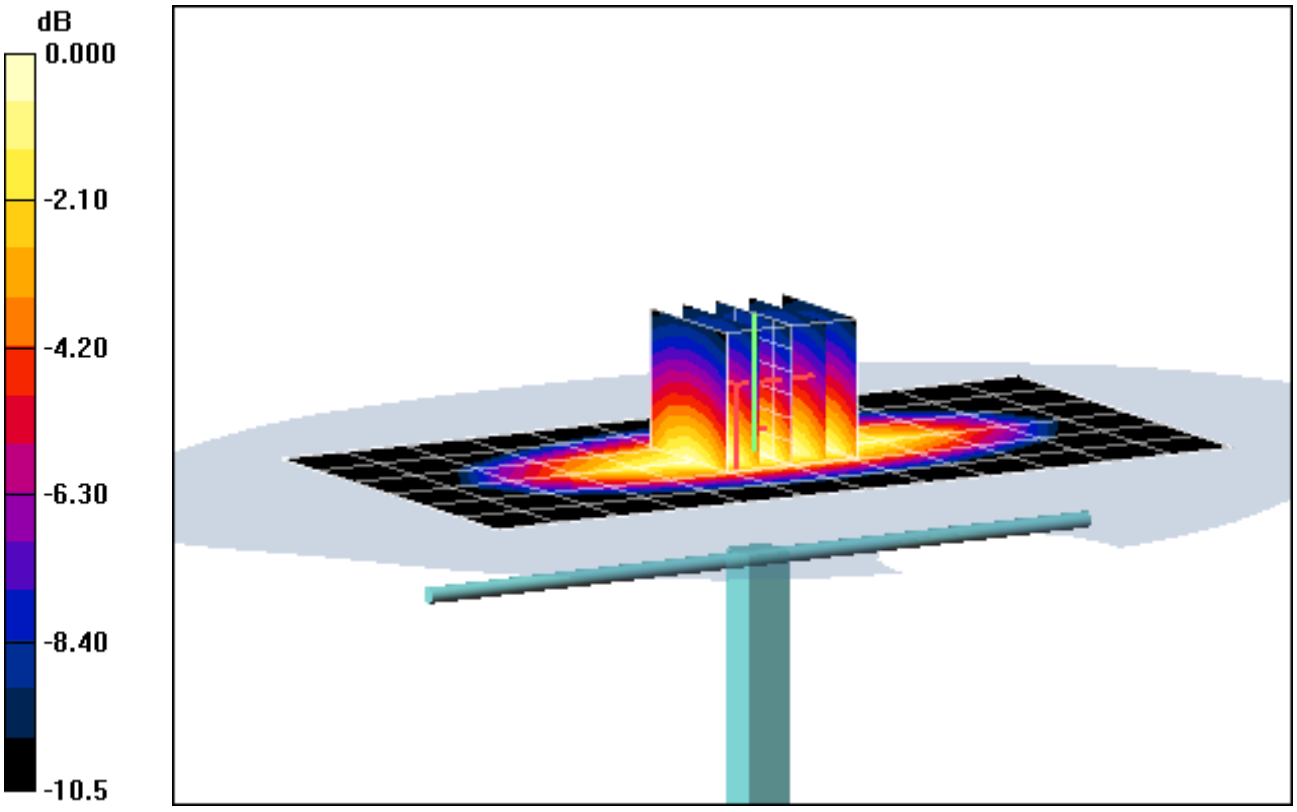
Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium: 835 Body Medium parameters used:
f = 835 MHz; σ = 0.96 mho/m; ε_r = 54; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 09-13-2011; Ambient Temp: 23.8 °C; Tissue Temp: 22.0 °C

Probe: ES3DV3 - SN3258; ConvF(6.12, 6.12, 6.12); Calibrated: 4/8/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 2/21/2011
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

835MHz System Verification

Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Input Power = 20.0 dBm (100 mW)
SAR(1 g) = 0.948 mW/g; SAR(10 g) = 0.618 mW/g
Deviation = -3.76 %



0 dB = 1.02mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d047

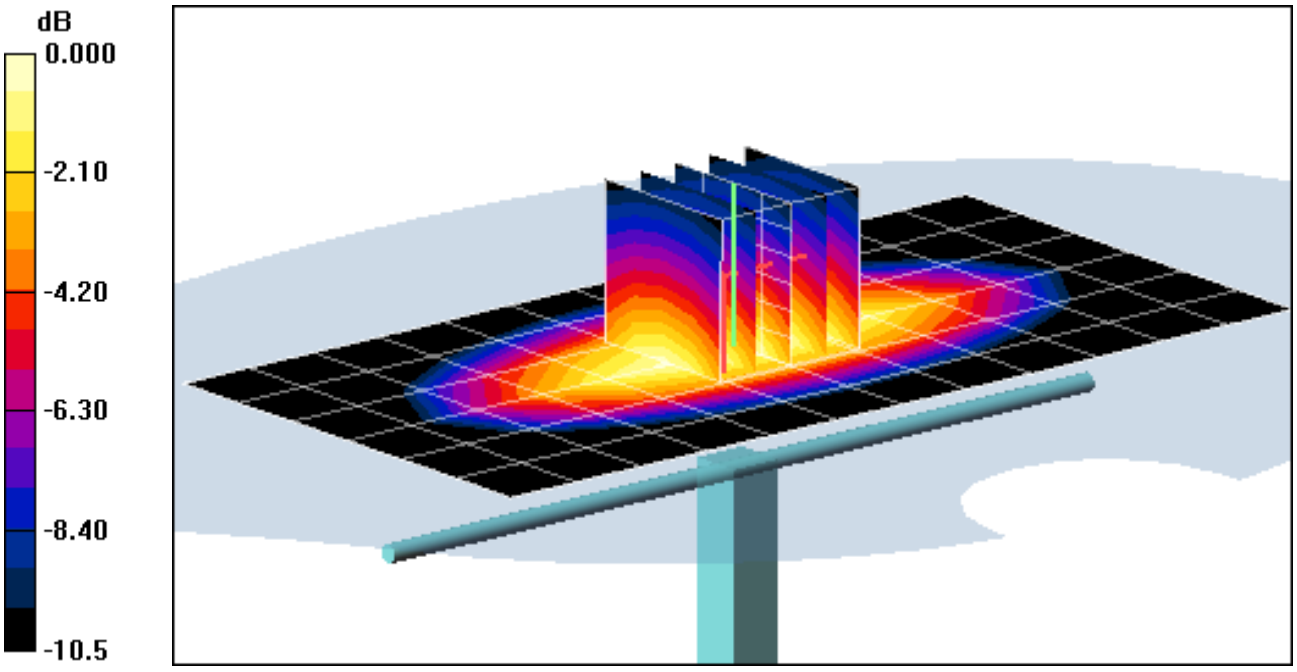
Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium: 835 Body Medium parameters used:
f = 835 MHz; σ = 0.963 mho/m; ε_r = 53.4; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 10-17-2011; Ambient Temp: 24.0 °C; Tissue Temp: 22.2 °C

Probe: ES3DV3 - SN3258; ConvF(6.12, 6.12, 6.12); Calibrated: 4/8/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 2/21/2011
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

835MHz System Verification

Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Input Power = 20.0 dBm (100 mW)
SAR(1 g) = 0.951 mW/g; SAR(10 g) = 0.620 mW/g
Deviation = -3.45 %



0 dB = 1.03mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: SAR Dipole 1900 MHz; Type: D1900V2; Serial: 5d080

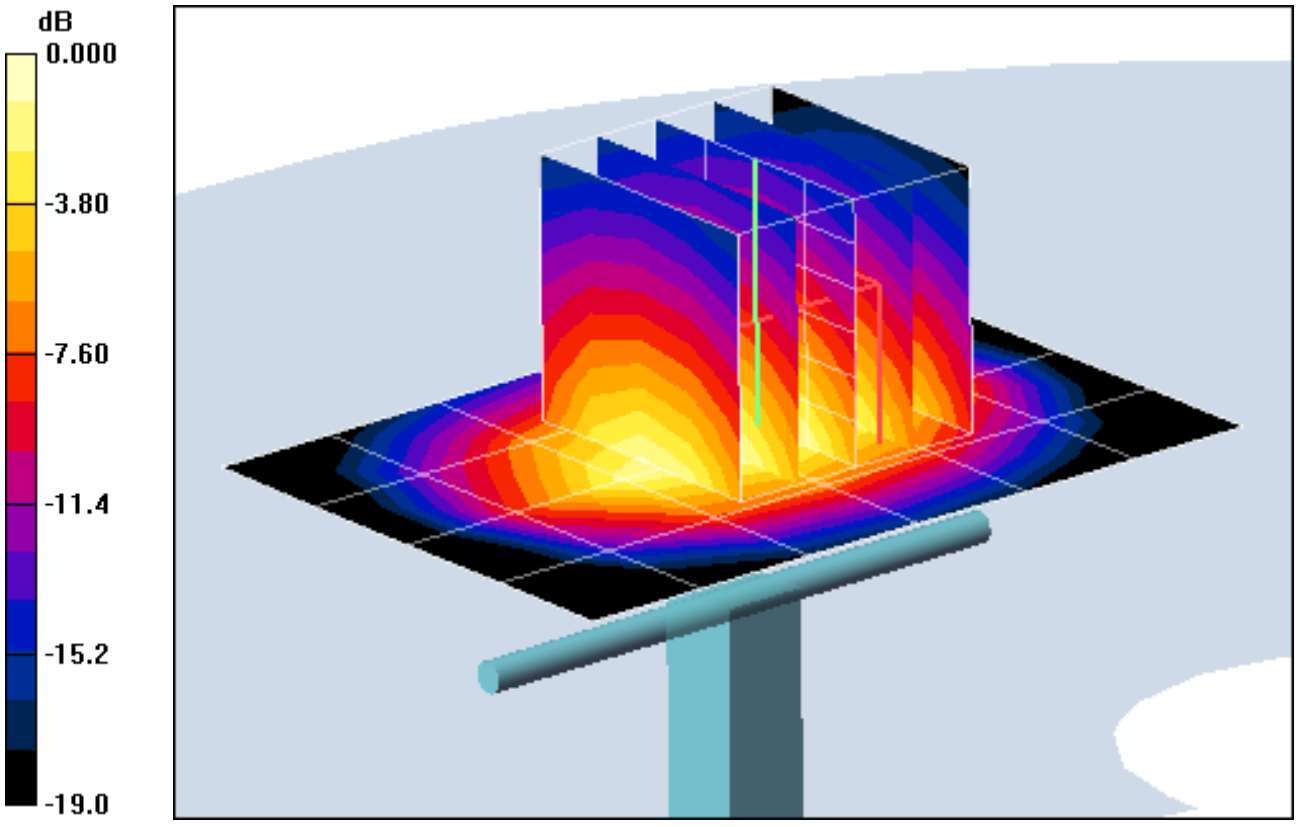
Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: 1900 Head; Medium parameters used (interpolated):
f = 1900 MHz; σ = 1.43 mho/m; ε_r = 39.3; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-06-2011; Ambient Temp: 23.8 °C; Tissue Temp: 22.3 °C

Probe: EX3DV4 - SN3550; ConvF(7.01, 7.01, 7.01); Calibrated: 2/14/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/20/2011
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

1900MHz System Verification

Area Scan (5x7x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Input Power = 16.0 dBm (40 mW)
SAR(1 g) = 1.56 mW/g; SAR(10 g) = 0.801 mW/g
Deviation = -2.26 %



0 dB = 1.71mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: SAR Dipole 1900 MHz; Type: D1900V2; Serial: 502

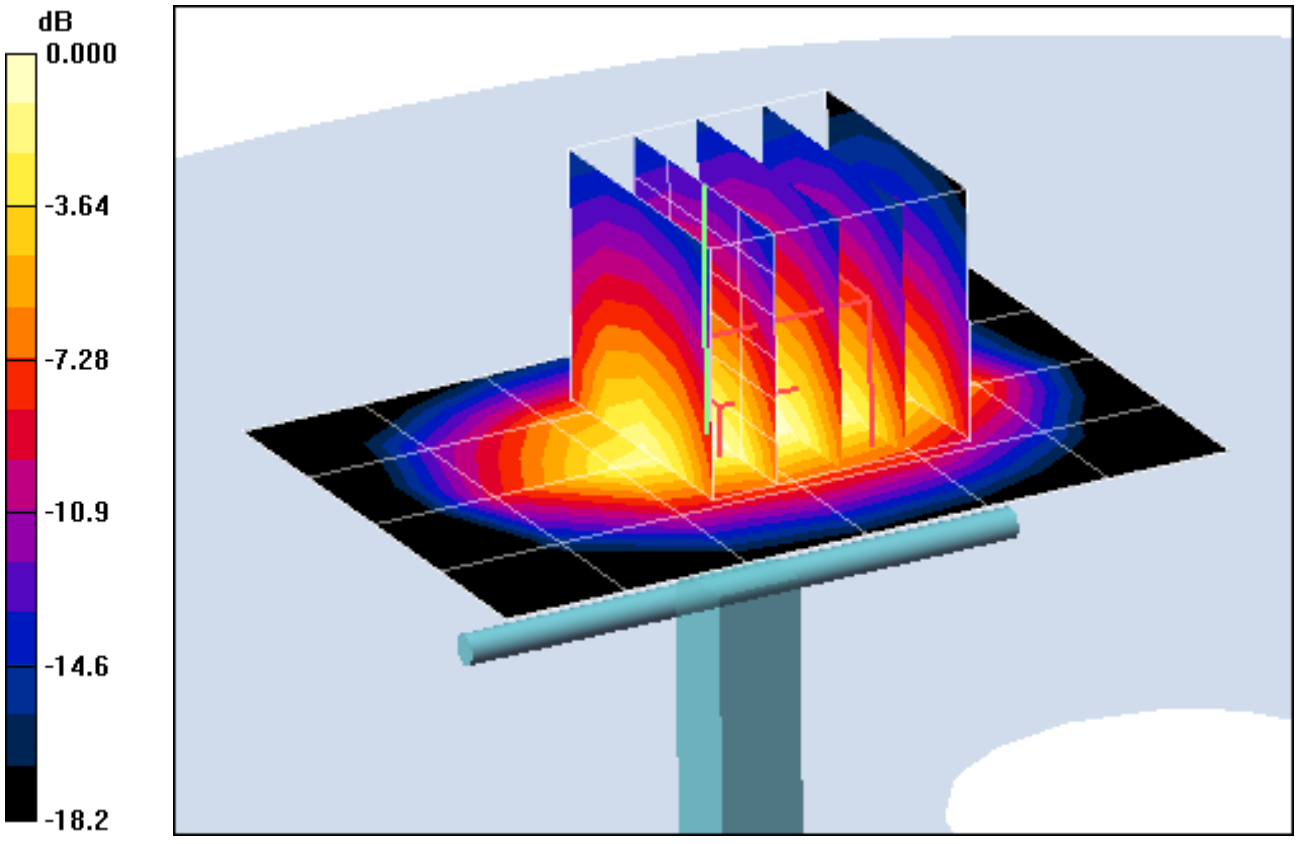
Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: 1900 Body; Medium parameters used (interpolated):
f = 1900 MHz; σ = 1.52 mho/m; ε_r = 53.6; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-01-2011; Ambient Temp: 24.2 °C; Tissue Temp: 22.9 °C

Probe: EX3DV4 - SN3550; ConvF(6.77, 6.77, 6.77); Calibrated: 2/14/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/20/2011
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

1900MHz System Verification

Area Scan (5x7x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Input Power = 16.0 dBm (40 mW)
SAR(1 g) = 1.54 mW/g; SAR(10 g) = 0.803 mW/g
Deviation = -6.33 %



0 dB = 1.70mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: SAR Dipole 1900 MHz; Type: D1900V2; Serial: 5d080

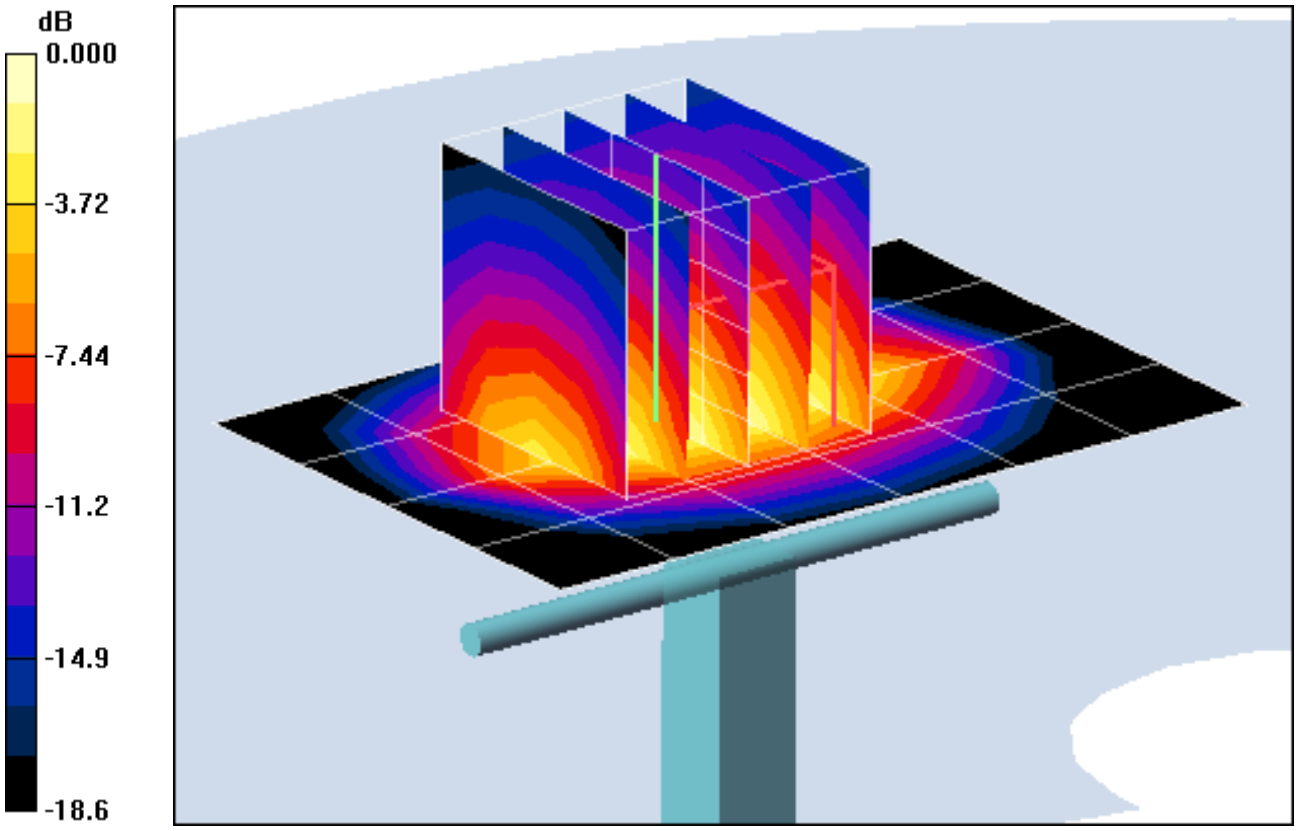
Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: 1900 Body; Medium parameters used (interpolated):
f = 1900 MHz; σ = 1.54 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-13-2011; Ambient Temp: 23.4 °C; Tissue Temp: 21.6 °C

Probe: ES3DV3 - SN3209; ConvF(4.48, 4.48, 4.48); Calibrated: 4/18/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM Sub Dasy B; Type: SAM 4.0; Serial: TP-1626
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

1900MHz System Verification

Area Scan (5x7x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Input Power = 20.0 dBm (100 mW)
SAR(1 g) = 4.31 mW/g; SAR(10 g) = 2.25 mW/g
Deviation = 5.38 %



0 dB = 4.76mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: SAR Dipole 2450 MHz; Type: D2450V2; Serial: 719

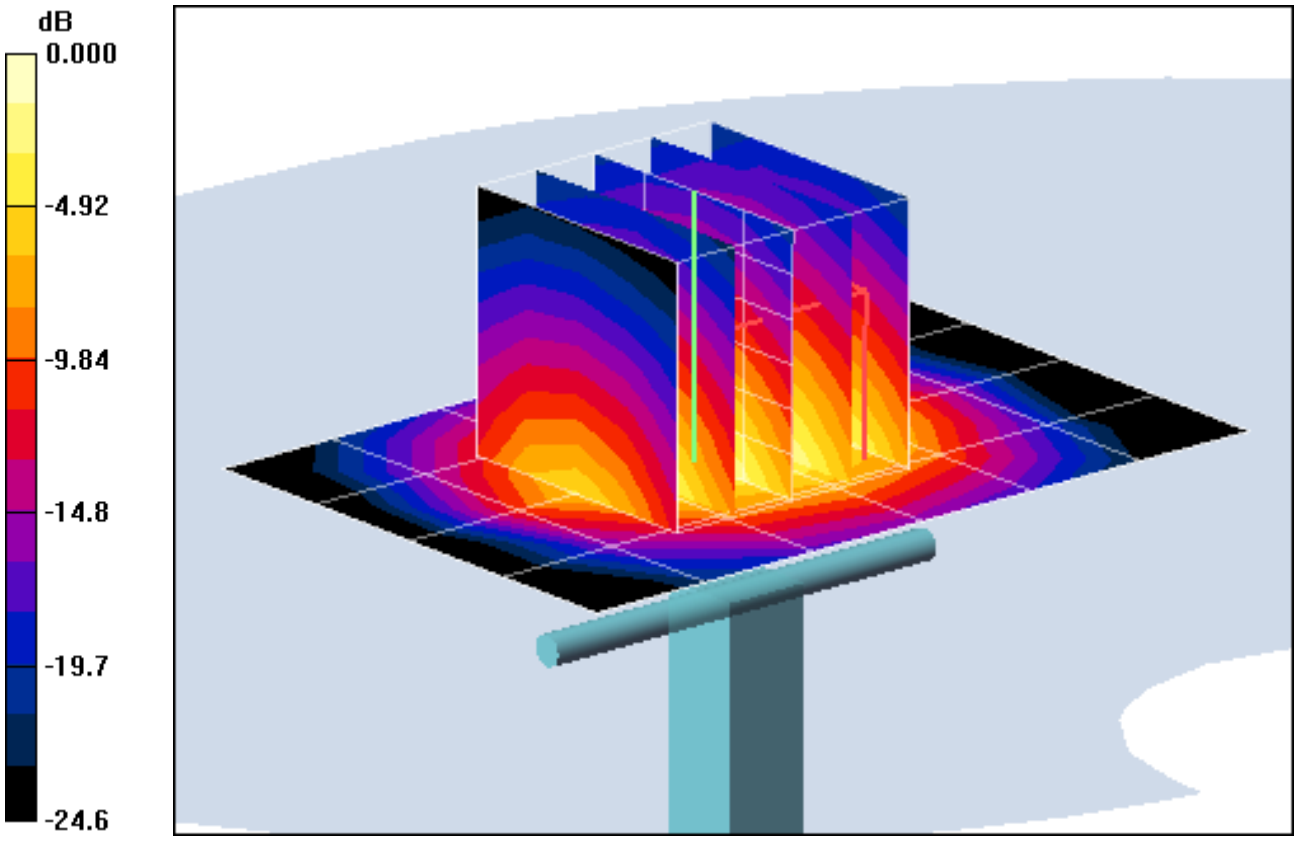
Communication System: CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium: 2450 Head; Medium parameters used:
f = 2450 MHz; σ = 1.83 mho/m; ε_r = 39.55; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-12-2011; Ambient Temp: 23.7 °C; Tissue Temp: 21.9 °C

Probe: ES3DV3 - SN3209; ConvF(4.52, 4.52, 4.52); Calibrated: 4/18/2011
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM Sub Dasy B; Type: SAM 4.0; Serial: TP-1626
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

2450MHz System Verification

Area Scan (5x7x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Input Power = 12.0 dBm (15.8 mW)
SAR(1 g) = 0.873 mW/g; SAR(10 g) = 0.401 mW/g
Deviation = 2.70%



0 dB = 1.12mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: SAR Dipole 2450 MHz; Type: D2450V2; Serial: 719

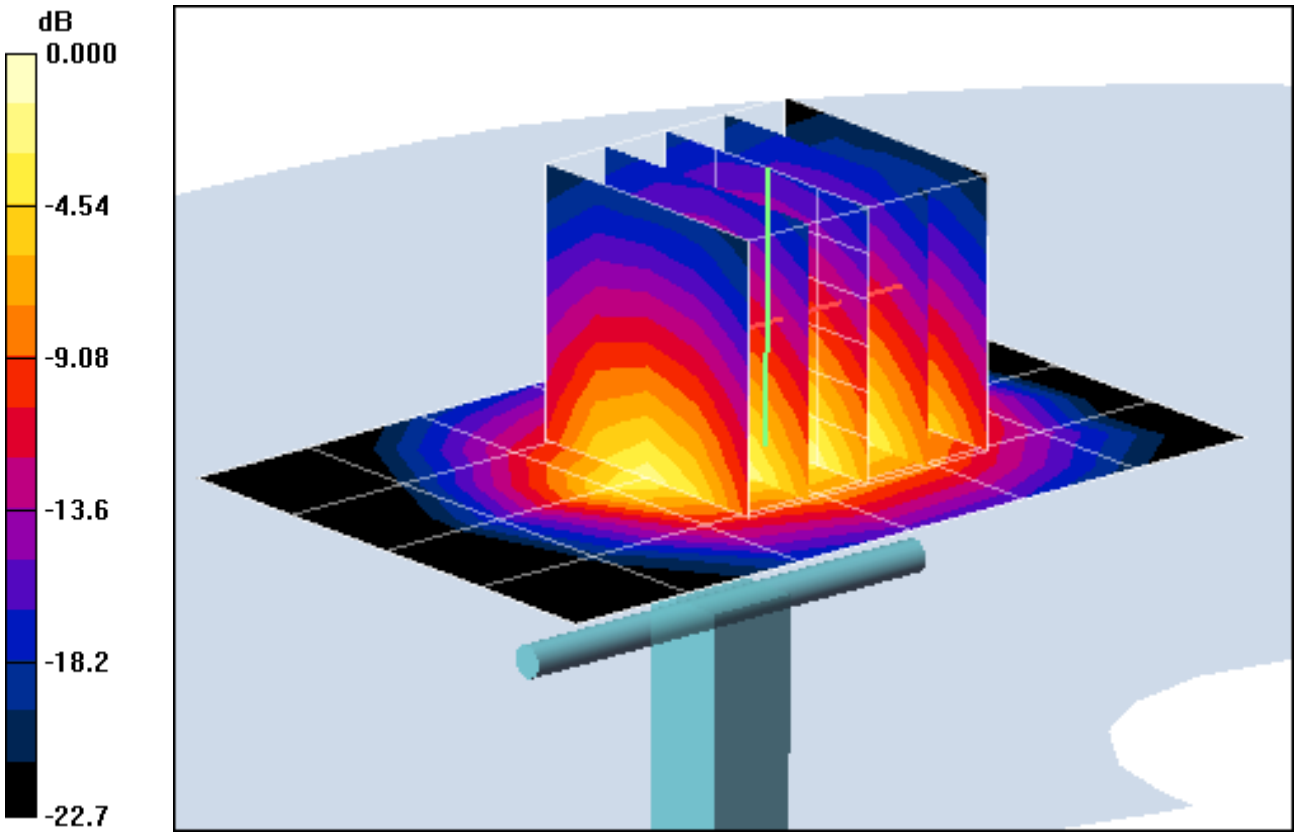
Communication System: CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium: 2450 Body; Medium parameters used:
f = 2450 MHz; σ = 1.99 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-12-2011; Ambient Temp: 23.5 °C; Tissue Temp: 21.6 °C

Probe: ES3DV3 - SN3209; ConvF(4.15, 4.15, 4.15); Calibrated: 4/18/2011
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM with CRP; Type: SAM; Serial: TP1375
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

2450MHz System Verification

Area Scan (5x7x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Input Power = 12.0 dBm (15.8 mW)
SAR(1 g) = 0.848 mW/g; SAR(10 g) = 0.394 mW/g
Deviation = 4.62 %



0 dB = 1.10mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5200 MHz; Type: D5GHzV2; Serial: 1057

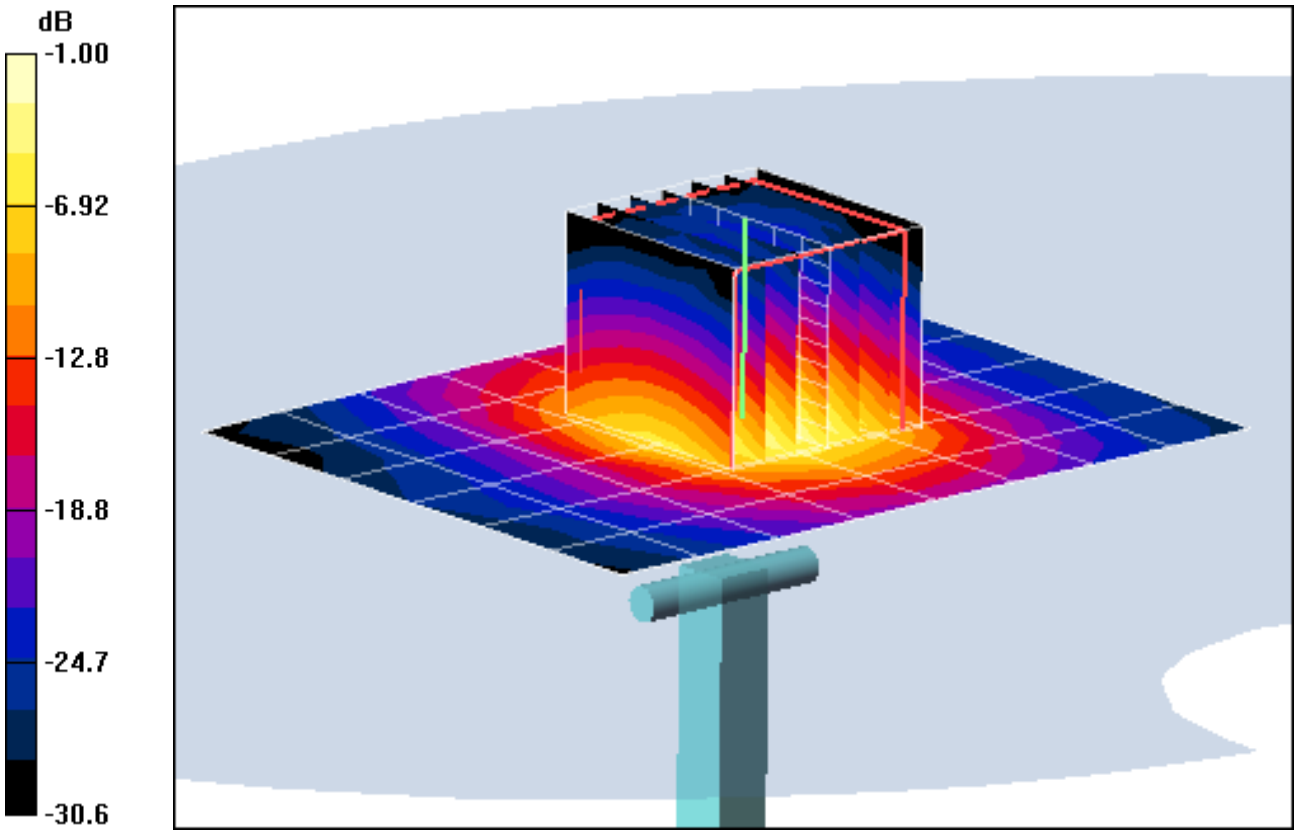
Communication System: CW; Frequency: 5200 MHz;Duty Cycle: 1:1
Medium: 5 GHz Head; Medium parameters used (interpolated):
f = 5200 MHz; σ = 4.56 mho/m; ε_r = 34.6; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-12-2011; Ambient Temp: 22.6 °C; Tissue Temp: 21.7 °C

Probe: EX3DV4 - SN3550; ConvF(4.06, 4.06, 4.06); Calibrated: 2/14/2011
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/20/2011
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

5200MHz System Verification

Area Scan (7x9x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Input Power = 20.0 dBm (100 mW)
SAR(1 g) = 8.62 mW/g; SAR(10 g) = 2.46 mW/g
Deviation = 3.73 %



0 dB = 17.4mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5200 MHz; Type: D5GHzV2; Serial: 1057

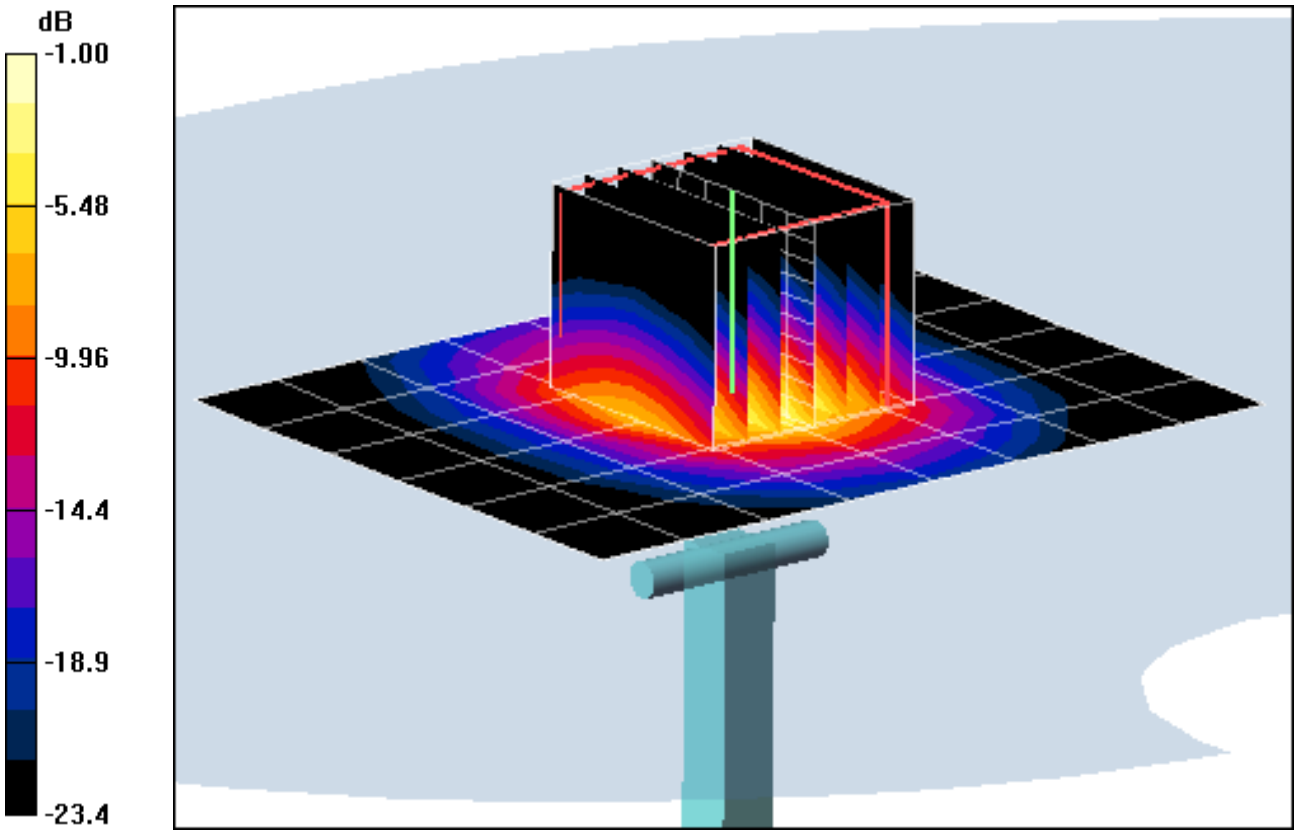
Communication System: CW; Frequency: 5200 MHz;Duty Cycle: 1:1
Medium: 5 GHz Body; Medium parameters used (interpolated):
f = 5200 MHz; σ = 5.15 mho/m; ε_r = 47; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-12-2011; Ambient Temp: 23.3 °C; Tissue Temp: 22.5 °C

Probe: EX3DV4 - SN3550; ConvF(3.58, 3.58, 3.58); Calibrated: 2/14/2011
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/20/2011
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

5200MHz System Verification

Area Scan (7x9x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Input Power = 20.0 dBm (100 mW)
SAR(1 g) = 8.43 mW/g; SAR(10 g) = 2.35 mW/g
Deviation = 8.49 %



0 dB = 17.2mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5500 MHz; Type: D5GHzV2; Serial: 1057

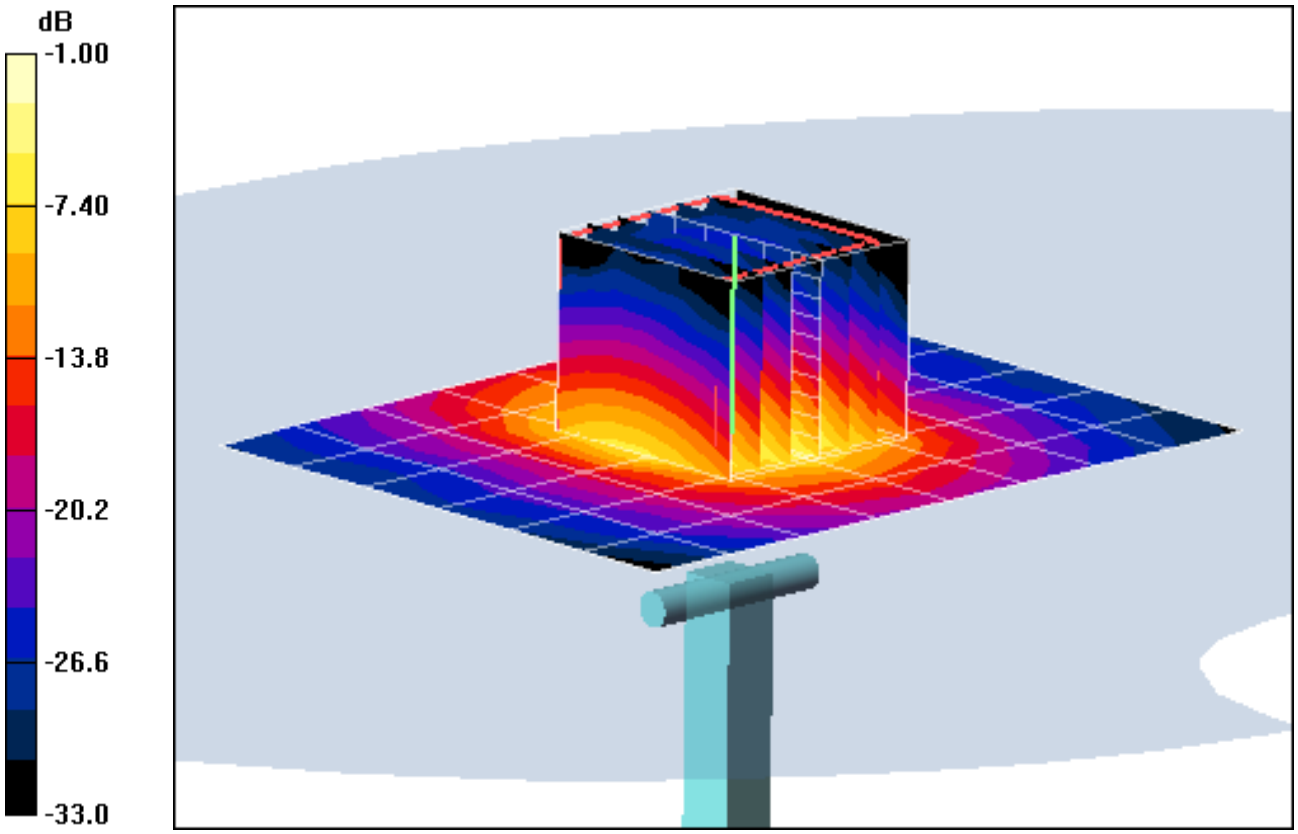
Communication System: CW; Frequency: 5500 MHz;Duty Cycle: 1:1
Medium: 5 GHz Head; Medium parameters used (interpolated):
f = 5500 MHz; σ = 4.91 mho/m; ε_r = 34.1; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-12-2011; Ambient Temp: 22.8 °C; Tissue Temp: 21.9 °C

Probe: EX3DV4 - SN3550; ConvF(3.77, 3.77, 3.77); Calibrated: 2/14/2011
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/20/2011
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

5500MHz System Verification

Area Scan (7x9x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Input Power = 20.0 dBm (100 mW)
SAR(1 g) = 9.63 mW/g; SAR(10 g) = 2.7 mW/g
Deviation = 6.88 %



0 dB = 19.6mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5500 MHz; Type: D5GHzV2; Serial: 1057

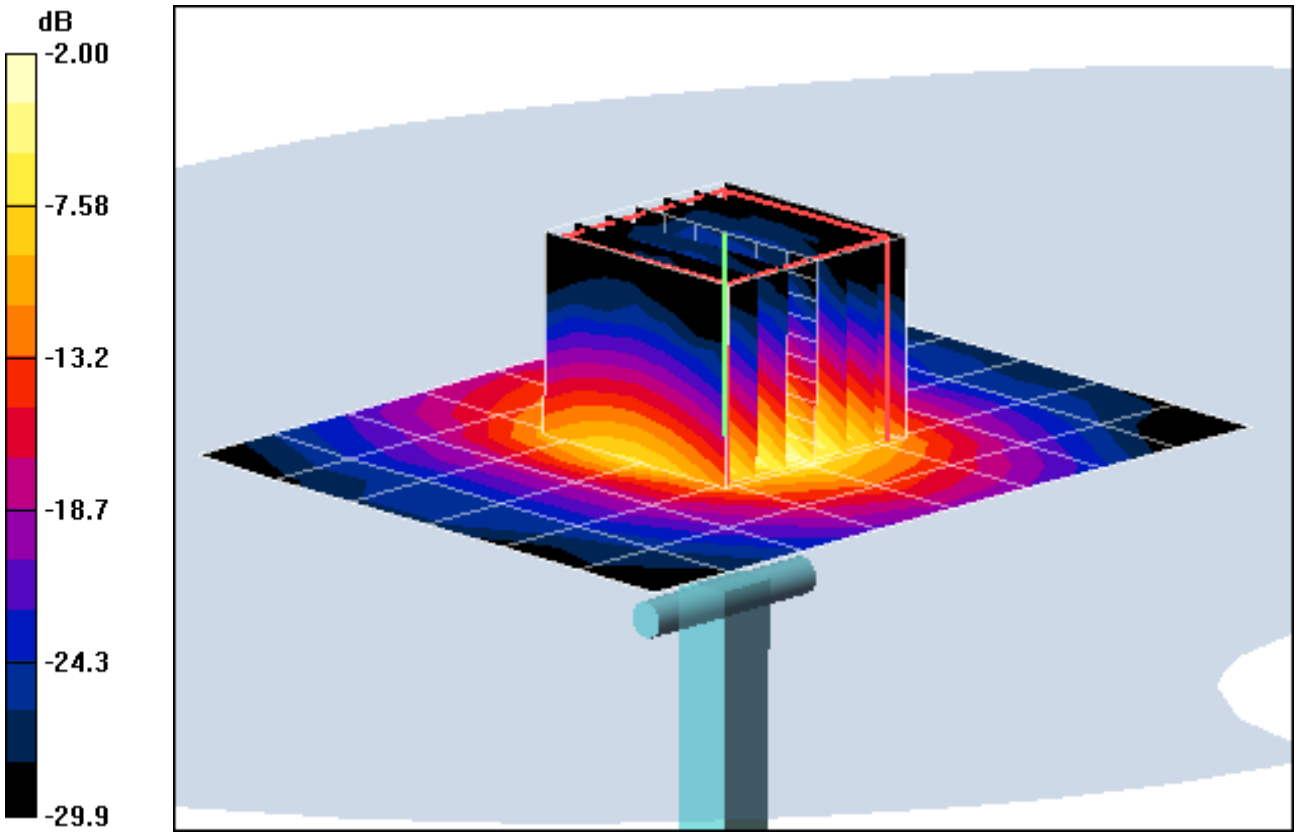
Communication System: CW; Frequency: 5500 MHz;Duty Cycle: 1:1
Medium: 5 GHz Body; Medium parameters used (interpolated):
f = 5500 MHz; σ = 5.54 mho/m; ε_r = 46.6; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-12-2011; Ambient Temp: 23.5 °C ; Tissue Temp: 22.5 °C

Probe: EX3DV4 - SN3550; ConvF(3.21, 3.21, 3.21); Calibrated: 2/14/2011
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/20/2011
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

5500MHz System Verification

Area Scan (7x9x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Input Power = 20.0 dBm (100 mW)
SAR(1 g) = 8.17 mW/g; SAR(10 g) = 2.25 mW/g
Deviation = -3.20 %



0 dB = 17.1mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5800 MHz; Type: D5GHzV2; Serial: 1057

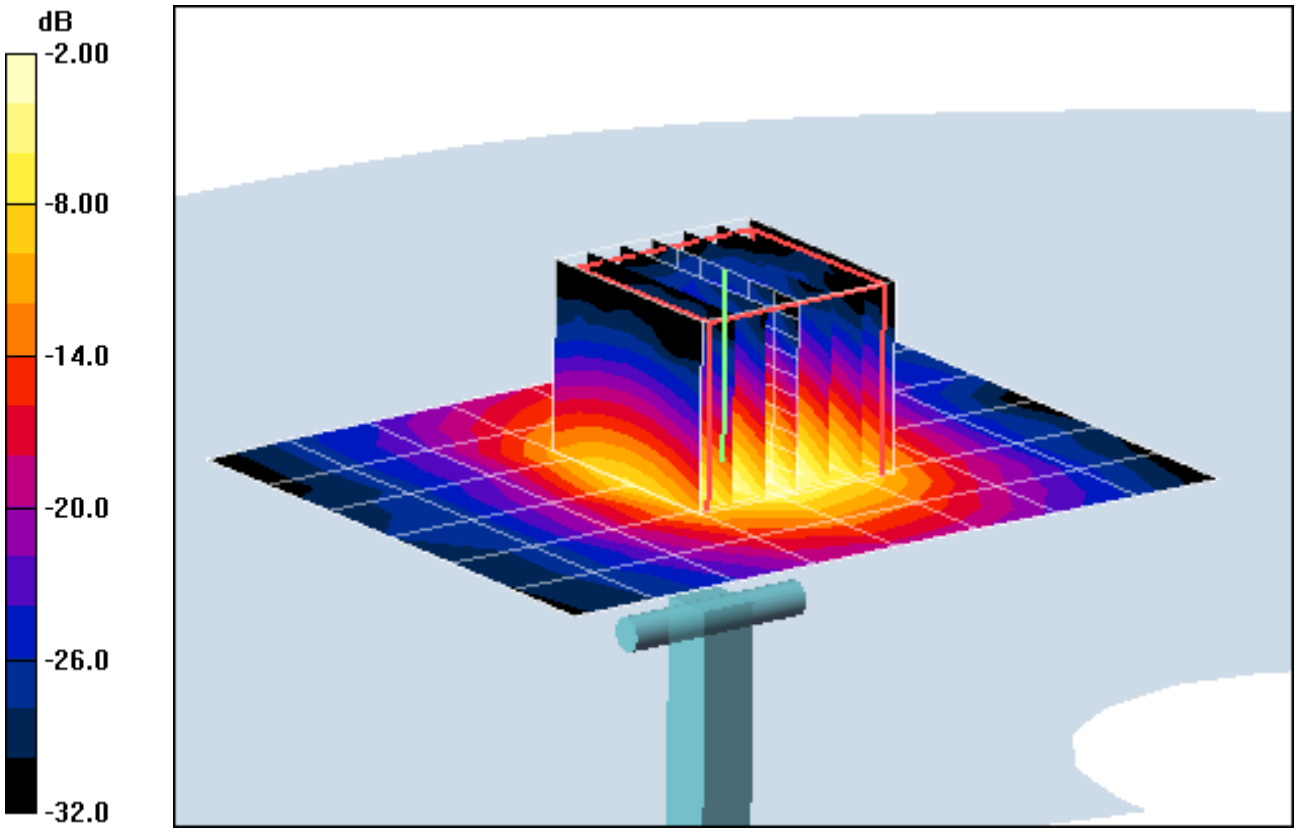
Communication System: CW; Frequency: 5800 MHz;Duty Cycle: 1:1
Medium: 5 GHz Head; Medium parameters used (interpolated):
f = 5800 MHz; σ = 5.24 mho/m; ε_r = 33.7; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-12-2011; Ambient Temp: 23.1 °C; Tissue Temp: 22.3 °C

Probe: EX3DV4 - SN3550; ConvF(3.64, 3.64, 3.64); Calibrated: 2/14/2011
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/20/2011
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

5800MHz System Verification

Area Scan (7x9x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Input Power = 20.0 dBm (100 mW)
SAR(1 g) = 8.66 mW/g; SAR(10 g) = 2.43 mW/g
Deviation = 4.46 %



0 dB = 18.1mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5800 MHz; Type: D5GHzV2; Serial: 1057

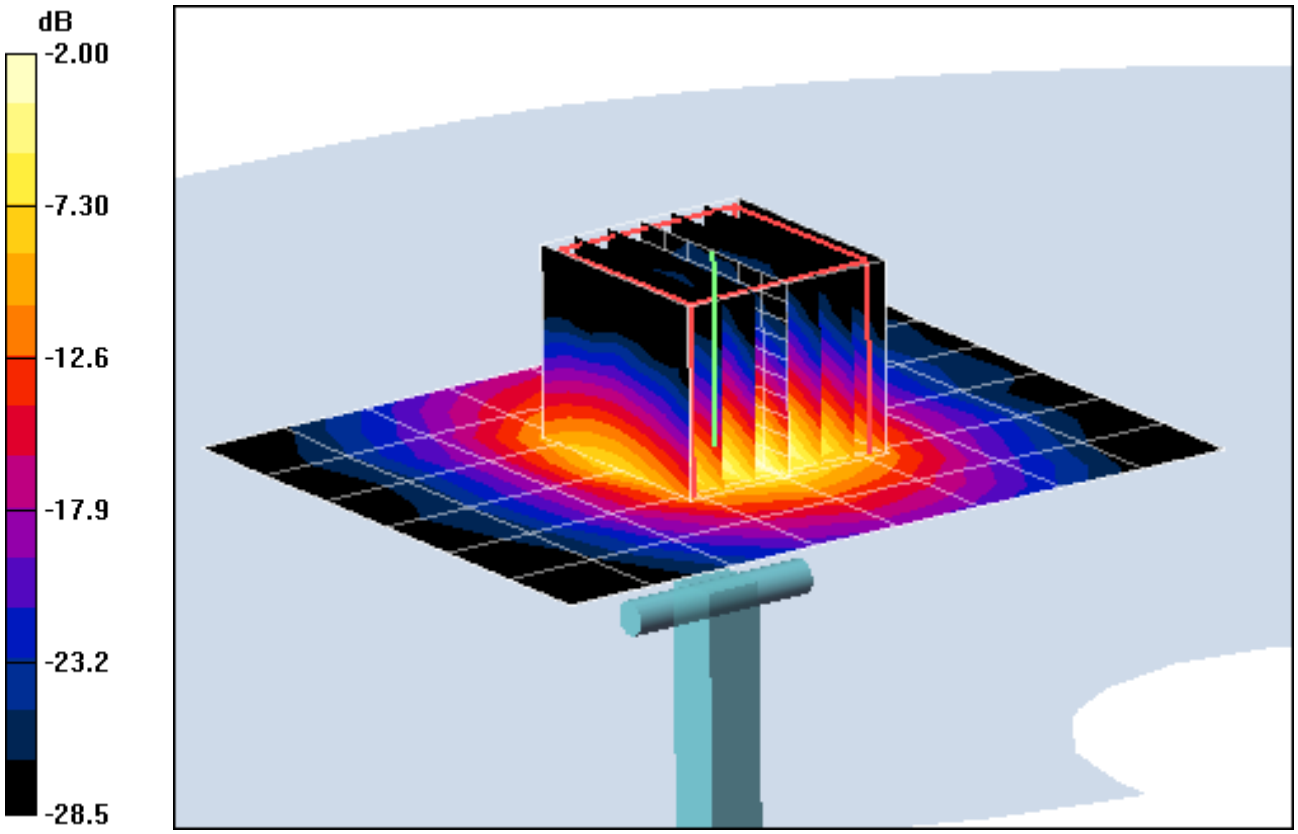
Communication System: CW; Frequency: 5800 MHz;Duty Cycle: 1:1
Medium: 5 GHz Body; Medium parameters used (interpolated):
f = 5800 MHz; σ = 5.94 mho/m; ε_r = 46; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-12-2011; Ambient Temp: 23.6 °C; Tissue Temp: 22.7 °C

Probe: EX3DV4 - SN3550; ConvF(3.29, 3.29, 3.29); Calibrated: 2/14/2011
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/20/2011
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

5800MHz System Verification

Area Scan (7x9x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Input Power = 20.0 dBm (100 mW)
SAR(1 g) = 7.56 mW/g; SAR(10 g) = 2.1 mW/g
Deviation = 0.80 %



0 dB = 15.9mW/g