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SAR COMPLIANCE EVALUATION REPORT

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

Date of Testing:
07/27/11 - 08/08/11
Test Site/Location:
PCTEST Lab, Columbia, MD, USA
Test Report Serial No.:
0Y1107281311-R3.A3L

FCC ID: **A3LSGHI727**

APPLICANT: **SAMSUNG ELECTRONICS CO LTD**

Model(s): SGH-I727
DUT Type: Portable Handset
Test Device Serial No.: Pre-Production [S/N: IMEI: 357288040038531, IMEI: 357288040025710, IMEI: 357288050025835]
Applicable FCC Rules: CFR §2.1093
Report Type: Certification

Band & Mode	Tx Frequency	Conducted Power [dBm]	SAR		
			1 gm Head (W/kg)	1 gm Body-Worn (W/kg)	1 gm Hotspot (W/kg)
GSM/GPRS/EDGE 850	824.20 - 848.80 MHz	32.95	0.27	0.36	0.85
GSM/GPRS/EDGE 1900	1850.20 - 1909.80 MHz	30.17	0.19	0.47	0.62
WCDMA/HSPA 850	826.40 - 846.60 MHz	22.68	0.24	0.44	0.44
WCDMA/HSPA 1900	1852.4 - 1907.6 MHz	23.61	0.30	0.42	0.42
700 MHz LTE	706.5 - 713.5 MHz	23.02	0.10	0.21	0.21
LTE AWS	1712.5 - 1752.5 MHz	22.81	0.28	0.55	0.57
2.4 GHz WLAN	2412 - 2462 MHz	15.87	0.09	0.02	0.03
5.2 GHz WLAN	5180 - 5240 MHz	9.81	0.03	0.03	
5.3 GHz WLAN	5260 - 5320 MHz	9.70	0.03	0.04	
5.5 GHz WLAN	5500 - 5700 MHz	10.13	0.05	0.08	
5.8 GHz WLAN	5745 - 5825 MHz	10.29	0.13	0.05	

Note: This revised Test Report (S/N: 0Y1107281311-R3.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 and dispose of it accordingly.

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 applicable Industry Canada Radio Standards Specifications (RSS); for North American frequency bands only.

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

Per KDB 941225 D05	Info
FCC ID	A3LSGHI727
Form Factor	Mobile Phone
Frequency Range of each LTE transmission band	BAND17(704-716 MHz), BAND4(1710-1755 MHz)
Channel Bandwidths	Band17: 5 and 10 MHz BW; Band 4: 5 and 10 MHz BW
Channel numbers and frequencies	Band 4: 10 MHz BW (CH 20000, 20175, 20350; 1715MHz,1732.5MHz,1750 MHz) Band 4: 5 MHz BW (CH 19975, 20175, 20375; 1712.5 MHz, 1732.5 MHz, 1752.5 MHz) Band 17 : 10 MHz BW UL(CH 23790, 710MHz) Band17: 5 MHz BW UL(CH 23755, 23825; 706.5MHz, 713.5MHz)
UE Category	Category 3
Modulations Supported in UL	QPSK, 16QAM
LTE Transmitter and Antenna Implementation	One Transmitter Path for GSM/WCDMA/LTE
Description of LTE Tx and Ant. Implementation	1Tx/Rx Antenna and 1Rx Antenna
LTE Voice available?	Data only. Voice is possible with VOIP apps

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 Device Under Test (DUT). 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 (*d*U) absorbed by (dissipated in) an incremental mass (*d*m) contained in a volume element (*d*V) 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.

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

Figure 2-1
SAR Mathematical Equation

SAR is expressed in units of Watts per Kilogram W/kg or mW/g.

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

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.

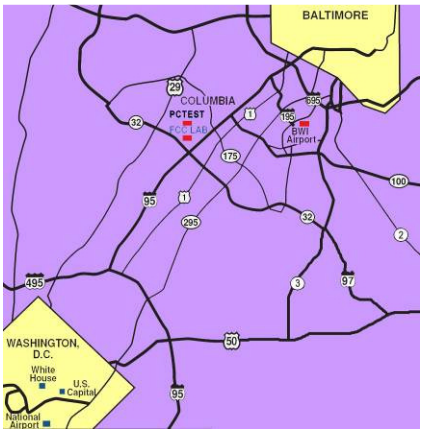

Figure 3-1
Map of the Greater Baltimore and Metropolitan Washington, D.C. area

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 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 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 DASY automated dosimetric assessment system. The DASY 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, 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

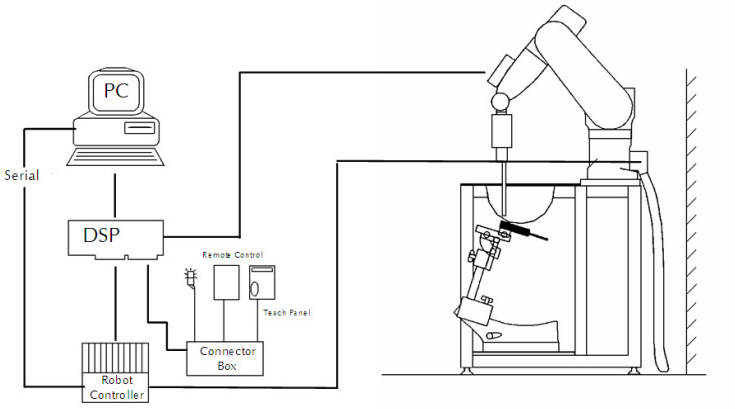

Figure 4-1
SAR Measurement System Setup

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 or RX90
Repeatability:	0.02 mm
No. of Axes:	6

Data Acquisition Electronic System (DAE)

Description:	Signal amplifier, multiplexer, A/D converter and control logic
Measurement Range:	-100 to +300 mV (16 bit resolution and two range settings: 4mV, 400mV)
Input Resistance:	200 MΩ

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

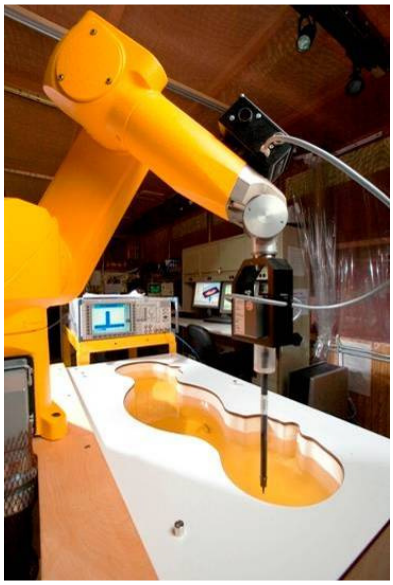

Figure 4-2
SAR Measurement System

5 E-FIELD MEASUREMENT & PROBE

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 measurement software reads the reflection during a software approach and looks for the maximum using a 2nd order curve fitting (see Figure 5-2). 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, ES3DV2)
Calibration:	In head and body simulating tissue at Frequencies from 300 up to 6000 MHz
Linearity:	± 0.2 dB (30 MHz to 6 GHz) for EX3DV4 ± 0.2 dB (30 MHz to 4 GHz) for ES3DV3. ES3DV2
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 (3.9 mm 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

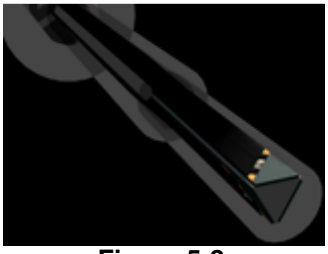

Figure 5-3
Triangular Probe Configuration

6 SAR PHANTOM AND EQUIVALENT TISSUES

6.1 SAR Phantom

The SAM Twin Phantom V4.0 is constructed of Vinylester, a glass fiber reinforced (VE-GF) material integrated in a table. The shell corresponds to the specifications of the Specific Anthropomorphic Mannequin (SAM) phantom defined in IEEE 1528 and IEC 62209-1.

Figure 6-1 Twin SAM SAR Phantom

The shape of the shell is based on data from an anatomical study designed to represent the 90th percentile of adult male head dimensions as tabulated by the US Army [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. The SAM Twin Phantom shell is bisected along the mid-sagittal plane into right and left halves. 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.

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 2 mm ± 0.2 mm shell thickness (except the ear region where shell thickness increases to 6 mm ± 0.2 mm).

6.2 Tissue Simulating Mixture Characterization

Figure 6-2
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 FCC recommendations.

Table 6-1
Composition of the Tissue Equivalent Matter

Frequency (MHz)	835	835	1750	1750	1900	1900	2450	2450	5200-5800	5200-5800
Tissue	Head	Body	Head	Body	Head	Body	Head	Body	Head	Body
Ingredients (% by weight)										
Bactericide	0.1	0.1								
DGBE			47	31	44.92	29.44	7.99	26.7		
HEC	1	1								
NaCl	1.45	0.94	0.4	0.2	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	52.6	68.8	54.9	70.17	71.88	73.2	65.52	78.66

See next page for 750 MHz Tissue Recipes

Table 6-2
Composition of the 750MHz 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 – 8%
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.

f [MHz]	HP-e'	HP-e"	sigma
300	61.02	35.43	0.58
350	60.21	32.13	0.63
400	59.50	29.71	0.66
450	58.79	28.00	0.70
500	58.16	26.60	0.74
550	57.57	25.54	0.78
600	56.99	24.68	0.82
650	56.43	23.97	0.87
700	55.88	23.46	0.91
750	55.35	22.91	0.96
800	55.02	22.56	1.00
850	54.50	22.31	1.06
900	54.02	22.08	1.11
950	53.55	21.89	1.16
1000	53.05	21.70	1.21

P/N:	SL AAM 075	TARGET PARAMETERS		
Charge:	090224-1	f [MHz]	eps	sigma
Mea Date:	05-Mrz-09	700	55.7	0.96
Temp [°C]	22	750	55.5	0.96
		800	55.3	0.97

Figure 6-2
750MHz Body Tissue Equivalent Matter

f [MHz]	HP-e'	HP-e"	sigma
300	50.56	30.29	0.51
350	49.28	28.08	0.55
400	48.08	26.44	0.59
450	47.00	25.25	0.63
500	46.03	24.24	0.67
550	45.14	23.46	0.72
600	44.32	22.89	0.78
650	43.51	22.32	0.81
700	42.78	21.89	0.85
750	42.07	21.44	0.89
800	41.53	21.13	0.94
850	40.88	20.89	0.99
900	40.28	20.65	1.03
950	39.68	20.42	1.08
1000	39.11	20.20	1.12

P/N:	SL AAH 075	TARGET PARAMETERS		
Charge:	090224-2	f [MHz]	eps	sigma
Mea Date:	05-Mrz-09	700	42.2	0.89
Temp [°C]	22	750	41.9	0.89
		800	41.7	0.90

Figure 6-3
750MHz Head Tissue Equivalent Matter

7 DOSIMETRIC SAR ASSESSMENT PROCEDURE

7.1 Measurement Procedure

The evaluation was performed using the following procedure (according to IEEE 1528 and Supplement C):

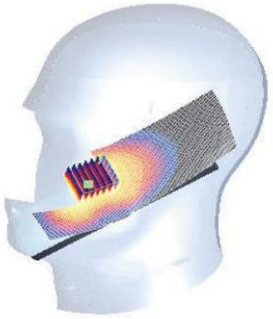

Figure 7-1
Sample SAR Area Scan

1. The SAR distribution at the exposed side of the phantom was measured at a distance no greater than 4.0 mm from the inner surface of the shell. The horizontal grid spacing was 15mm x 15mm (10mm x 10mm for 5 GHz)
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 location 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. From this zoom scan, the spatial peak SAR value was evaluated per IEEE 1528 procedures:
   a. The data was extrapolated to the surface of the outer-shell of the phantom. The total distance extrapolated was the combined distance from the center of the diodes 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 within 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 measured after the zoom scan was complete. This is the drift of the 1 gram SAR assessment. If this value drifted by more than 5%, the evaluation was repeated.
5. For 5 GHz testing finer resolution zoom scans were preformed 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 DEFINITION OF REFERENCE POINTS

8.1 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 8-2). 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].

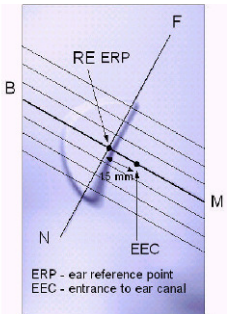

Figure 8-1
Close-Up Side view of ERP

8.2 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 8-3). 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.

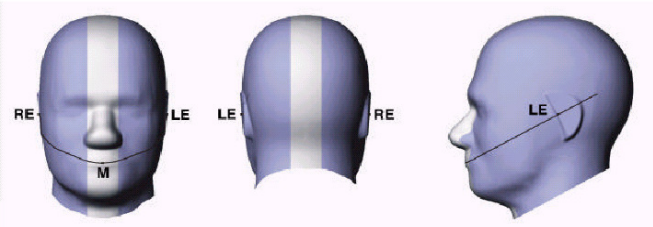

Figure 8-2
Front, back and side view of SAM Twin Phantom

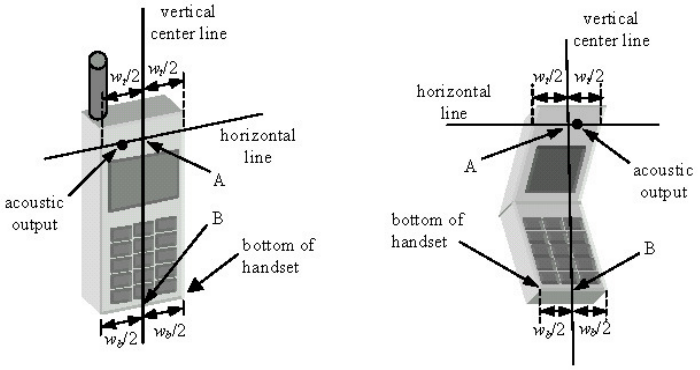

Figure 8-3
Handset Vertical Center & Horizontal Line Reference Points

9 TEST CONFIGURATION POSITIONS

9.1 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.

9.2 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 9-1), 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.

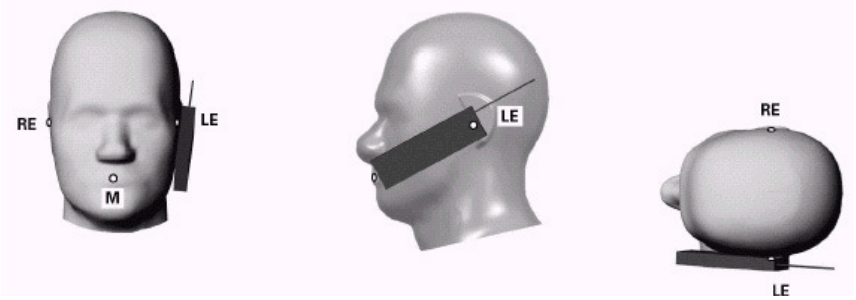

Figure 9-1 Front, Side and Top View of Cheek/Touch Position

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 9-2).

9.3 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 9-2).

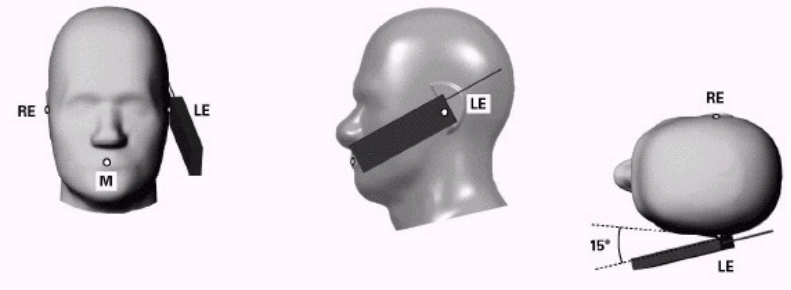

Figure 9-2 Front, Side and Top View of Ear/15º Tilt Position

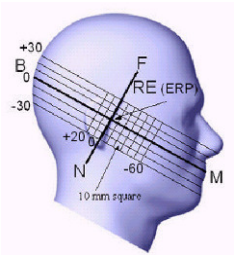

Figure 9-3
Side view w/ relevant markings

Figure 9-4 Body SAR Sample Photo
(Not Actual DUT)

9.4 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.

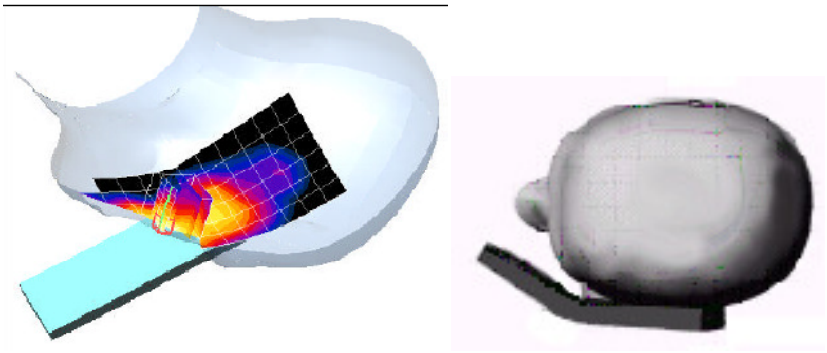

Figure 9-5
SAR Scans near the Jaw/Mouth

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.

9.5 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 9-4). 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.

10 FCC RF EXPOSURE LIMITS

10.1 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.

10.2 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 10-1
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.

11 POWER MEASUREMENT PROCEDURES

11.1 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 power drifts of greater than 5% were repeated.

11.2 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.

11.2.1 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.

11.2.2 A-MPR

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

11.2.3 Required RB Size and RB Offsets for SAR Testing

According to FCC KDB 941225 D05:

1. Per KDB Publication 941225 D05 Page 4, footnote 2, Since the maximum output power variations across H, M and L channels is ≤1/2 dB and SAR is ≤0.8 W/kg, low and high channels were not required.
2. Per KDB Publication 941225 D05 Page 4, 3) A), QPSK with 50% RB is required.
3. Per KDB Publication 941225 D05 Page 4, 3) B), QPSK with 1 RB for both channel edges are required.
4. Per KDB Publication 941225 D05 Page 4, 4) A), 16QAM with 50% RB is required.
5. Per KDB Publication 941225 D05 Page 4, 4) B), 16QAM with 1RB for both channel edges are required.
6. 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.

11.2.4 Power Reduction for LTE

There is no power reduction scheme implemented for LTE operations for this model.

11.3 SAR Measurement Conditions for WCDMA per FCC KDB Pub. 941225

11.3.1 Output Power Verification

Maximum output power is measured on the High, Middle and Low channels for each applicable transmission band according to the general descriptions in section 5.2 of 3GPP TS 34.121, using the appropriate RMC or AMR with TPC (transmit power control) set to all "1s".

Maximum output power is verified on the High, Middle and Low channels according to the general descriptions in section 5.2 of 3GPP TS 34.121 (release 5), using the appropriate RMC with TPC (transmit power control) set to all "1s". Results for all applicable physical channel configurations (DPCCH, DPDCHn and spreading codes, HS-DPCCH) is tabulated in the test report. All configurations that are not supported by the DUT or cannot be measured due to technical or equipment limitations is identified.

11.3.2 Head SAR Measurements for Handsets

SAR for head exposure configurations is measured using the 12.2 kbps RMC with TPC bits configured to all "1s". SAR in AMR configurations is not required when the maximum average output of each RF channel for 12.2 kbps AMR is less than 0.25 dB higher than that measured in 12.2 kbps RMC. Otherwise, SAR is measured on the maximum output channel in 12.2 AMR with a 3.4 kbps SRB (signaling radio bearer) using the exposure configuration that resulted in the highest SAR for that RF channel in the 12.2 kbps RMC mode.

11.3.3 Body SAR Measurements

SAR for body exposure configurations is measured using the 12.2 kbps RMC with the TPC bits all "1s".

11.3.4 SAR Measurements for Handsets with Rel 5 HSDPA

Body SAR for HSDPA is not required for handsets with HSDPA capabilities when the maximum average output power of each RF channel with HSDPA active is less than 0.25 dB higher than that measured without HSDPA using 12.2 kbps RMC and the maximum SAR for 12.2 kbps RMC is $\leq$ 75% of the SAR limit. Otherwise, SAR is measured for HSDPA, using an FRC with H-Set 1 in Sub-test 1 and a 12.2 kbps RMC configured in Test Loop Mode 1, using the highest body SAR configuration measured in 12.2 kbps RMC without HSDPA, on the maximum output channel with the body exposure configuration that resulted in the highest SAR in 12.2 kbps RMC mode for that RF channel.

The H-set used in FRC for HSDPA should be configured according to the UE category of a test device. The number of HS-DSCH/HSPDSCHs, HARQ processes, minimum inter-TTI interval, transport block sizes and RV coding sequence are defined by the applicable H-set. To maintain a consistent test configuration and stable transmission conditions, QPSK is used in the FRC for SAR testing. HS-DPCCH should be configured with a CQI feedback cycle of 2 ms to maintain a constant rate of active CQI slots. DPCCH and DPDCH gain factors of βc=9 and βd=15, and power offset parameters of ΔACK= ΔNACK =5 and ΔCQI=2 is used. The CQI value is determined by the UE category, transport block size, number of HS-PDSCHs and modulation used in the FRC.

11.3.5 SAR Measurements for Handsets with Rel 6 HSUPA

Body SAR for HSUPA is not required when the maximum average output of each RF channel with HSUPA/HSDPA active is less than 0.25 dB higher than as measured without HSUPA/HSDPA using 12.2 kbps RMC and maximum SAR for 12.2 kbps RMC is ≤ 75 % of the SAR limit. Otherwise SAR is measured on the maximum output channel for the body exposure configuration produced highest SAR in 12.2 kbps RMC for that RF channel, using the additional procedures under "Release 6 HSPA data devices"

Head SAR for VOIP operations under HSPA is not required when maximum average output of each RF channel with HSPA is less than 0.25 dB higher than as measured using 12.2 kbps RMC. Otherwise SAR is measured using same HSPA configuration as used for body SAR.

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{hs} (1)	β_{ec}	β_{ed}	β_{ed} (SF)	β_{ed} (codes)	CM (2) (dB)	MPR (dB)	AG (4) Index	E-TFCI
1	11/15 (3)	15/15 (3)	64	11/15 (3)	22/15	209/225	1039/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	β_{ed1}: 47/15 β_{ed2}: 47/15	4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15 (4)	15/15 (4)	64	15/15 (4)	30/15	24/15	134/15	4	1	1.0	0.0	21	81

Note 1: Δ_{ACK}, Δ_{NACK} and $\Delta_{CQI} = 8 \Leftrightarrow A_{hs} = \beta_{hs}/\beta_c = 30/15 \Leftrightarrow \beta_{hs} = 30/15 * \beta_c$.
Note 2: CM = 1 for β_c/β_d =12/15, β_{hs}/β_c=24/15. For all other combinations of DPDCH, DPCCH, HS- DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.
Note 3: For subtest 1 the β_c/β_d ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signaled gain factors for the reference TFC (TF1, TF1) to β_c = 10/15 and β_d = 15/15.
Note 4: For subtest 5 the β_c/β_d ratio of 15/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signaled gain factors for the reference TFC (TF1, TF1) to β_c = 14/15 and β_d = 15/15.
Note 5: Testing UE using E-DPDCH Physical Layer category 1 Sub-test 3 is not required according to TS 25.306 Table 5.1g.
Note 6: β_{ed} can not be set directly; it is set by Absolute Grant Value.

11.4 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.

11.4.1 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.

11.4.2 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 11-1 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 11-1 IEEE 802.11 Default Test Channels

Mode		GHz	Channel	Channel	§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		√			

12 FCC PERSONAL WIRELESS ROUTER CONFIGURATIONS

12.1 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.

12.2 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 valid within a single transmission frequency.

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.

12.3 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 does not support Simultaneous Voice and Data in any modes except in WCDMA Multi-RAB conditions where transmission is shared on a single physical channel. DTM is disabled. Voice operations cannot simultaneously transmit with LTE since they utilize the same transmission path.

12.4 Power Reduction for Portable Hotspot Mode

When the portable hotspot mode is enabled it does not apply any power reduction scheme for SAR.

12.5 Applicable Router Modes

This device supports router operations for all data modes.

12.6 SAR Test Configurations

Table 12-1
Hotspot Sides for SAR Testing

Mobile Hotspot Sides for SAR Testing						
Mode	Back	Front	Top	Bottom	Right	Left
GPRS 850	Yes	Yes	No	Yes	Yes	No
GPRS 1900	Yes	Yes	No	Yes	Yes	No
WCDMA 850	Yes	Yes	No	Yes	Yes	No
WCDMA 1900	Yes	Yes	No	Yes	Yes	No
700 MHz LTE	Yes	Yes	No	Yes	Yes	No
LTE AWS	Yes	Yes	No	Yes	Yes	No
2.4 GHz WLAN	Yes	Yes	No	No	No	Yes

Note: When Hotspot mode is active, all 5 GHz WIFI bands are disabled. Therefore the 5 GHz operations do not need to be considered for Hotspot SAR.

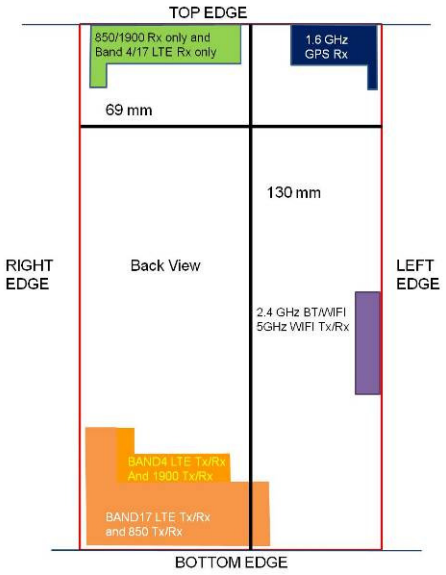

Figure 12-1
Identification of Sides/Edges for SAR Testing (Back View)

Note: Per FCC KDB Publication 941225 D06, the edges with antennas within 2.5 cm are required to be evaluated for SAR. The antenna document contains the distances from the antennas to the edges of the devices.

13 FCC MULTI-TX AND ANTENNA SAR CONSIDERATIONS

13.1 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/n and Bluetooth devices which may simultaneously transmit with the licensed transmitter.

13.2 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 13-1
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 13-2
SAR Evaluation Requirements for Multiple Transmitter Handsets

14 OUTPUT POWER MEASUREMENTS

14.1 LTE Mode

Table 14-1
Band 17 LTE RF Output Conducted Powers

Freq. (Mhz)	Uplink Channel Number	Modulation	Bandwidth	# of Resource Blocks	Resource Block Offset	Target Power [dB]	MPR Allowed by 3GPP	Target MPR [dB]	Maximum Average Power [dBm]
706.5	23755	QPSK	5 MHz	1	0	23	0	0	23.14
706.5	23755	16QAM	5 MHz	1	0	22	0-1	1	21.96
706.5	23755	QPSK	5 MHz	1	24	23	0	0	22.83
706.5	23755	16QAM	5 MHz	1	24	22	0-1	1	21.66
706.5	23755	QPSK	5 MHz	12	6	22	0-1	1	21.87
706.5	23755	16QAM	5 MHz	12	6	21	0-2	2	20.88
706.5	23755	QPSK	5 MHz	25	0	22	0-1	1	21.92
706.5	23755	16QAM	5 MHz	25	0	21	0-2	2	21.52
713.5	23825	QPSK	5 MHz	1	0	23	0	0	22.84
713.5	23825	16QAM	5 MHz	1	0	22	0-1	1	21.62
713.5	23825	QPSK	5 MHz	1	24	23	0	0	22.83
713.5	23825	16QAM	5 MHz	1	24	22	0-1	1	21.34
713.5	23825	QPSK	5 MHz	12	6	22	0-1	1	21.88
713.5	23825	16QAM	5 MHz	12	6	21	0-2	2	20.92
713.5	23825	QPSK	5 MHz	25	0	22	0-1	1	22.03
713.5	23825	16QAM	5 MHz	25	0	21	0-2	2	21.60
710	23790	QPSK	10 MHz	1	0	23	0	0	23.02
710	23790	16QAM	10 MHz	1	0	22	0-1	1	21.68
710	23790	QPSK	10 MHz	1	49	23	0	0	22.75
710	23790	16QAM	10 MHz	1	49	22	0-1	1	21.61
710	23790	QPSK	10 MHz	25	13	22	0-1	1	21.75
710	23790	16QAM	10 MHz	25	13	21	0-2	2	21.45
710	23790	QPSK	10 MHz	50	0	22	0-1	1	21.82
710	23790	16QAM	10 MHz	50	0	21	0-2	2	21.06

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.

Table 14-2
Band 4 LTE Low Ch. RF Output Conducted Powers

Freq. (Mhz)	Uplink Channel Number	Modulation	Bandwidth	# of Resource Blocks	Resource Block Offset	Target Power [dB]	MPR Allowed by 3GPP	Target MPR [dB]	Maximum Average Power [dBm]
1712.5	20175	QPSK	5 MHz	1	0	23	0	0	22.83
1712.5	20175	16QAM	5 MHz	1	0	22	0-1	1	21.72
1712.5	20175	QPSK	5 MHz	1	24	23	0	0	22.82
1712.5	20175	16QAM	5 MHz	1	24	22	0-1	1	21.67
1712.5	20175	QPSK	5 MHz	12	6	22	0-1	1	21.90
1712.5	20175	16QAM	5 MHz	12	6	21	0-2	2	21.01
1712.5	20175	QPSK	5 MHz	25	0	22	0-1	1	21.96
1712.5	20175	16QAM	5 MHz	25	0	21	0-2	2	21.50
1712.5	20175	QPSK	10 MHz	1	0	23	0	0	22.73
1712.5	20175	16QAM	10 MHz	1	0	22	0-1	1	21.60
1712.5	20175	QPSK	10 MHz	1	49	23	0	0	22.86
1712.5	20175	16QAM	10 MHz	1	49	22	0-1	1	21.73
1712.5	20175	QPSK	10 MHz	25	12	22	0-1	1	22.02
1712.5	20175	16QAM	10 MHz	25	12	21	0-2	2	21.54
1712.5	20175	QPSK	10 MHz	50	0	22	0-1	1	22.05
1712.5	20175	16QAM	10 MHz	50	0	21	0-2	2	21.10

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.

Table 14-3
Band 4 LTE Mid Ch. RF Output Conducted Powers

Freq. (Mhz)	Uplink Channel Number	Modulation	Bandwidth	# of Resource Blocks	Resource Block Offset	Target Power [dB]	MPR Allowed by 3GPP	Target MPR [dB]	Maximum Average Power [dBm]
1732.5	19975	QPSK	5 MHz	1	0	23	0	0	22.83
1732.5	19975	16QAM	5 MHz	1	0	22	0-1	1	21.63
1732.5	19975	QPSK	5 MHz	1	24	23	0	0	22.81
1732.5	19975	16QAM	5 MHz	1	24	22	0-1	1	21.57
1732.5	19975	QPSK	5 MHz	12	6	22	0-1	1	21.80
1732.5	19975	16QAM	5 MHz	12	6	21	0-2	2	20.92
1732.5	19975	QPSK	5 MHz	25	0	22	0-1	1	21.79
1732.5	19975	16QAM	5 MHz	25	0	21	0-2	2	21.45
1732.5	20000	QPSK	10 MHz	1	0	23	0	0	22.73
1732.5	20000	16QAM	10 MHz	1	0	22	0-1	1	21.64
1732.5	20000	QPSK	10 MHz	1	49	23	0	0	22.81
1732.5	20000	16QAM	10 MHz	1	49	22	0-1	1	21.70
1732.5	20000	QPSK	10 MHz	25	12	22	0-1	1	21.94
1732.5	20000	16QAM	10 MHz	25	12	21	0-2	2	21.43
1732.5	20000	QPSK	10 MHz	50	0	22	0-1	1	21.96
1732.5	20000	16QAM	10 MHz	50	0	21	0-2	2	21.08

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.

Table 14-4
Band 4 LTE High Ch. RF Output Conducted Powers

Freq. (Mhz)	Uplink Channel Number	Modulation	Bandwidth	# of Resource Blocks	Resource Block Offset	Target Power [dB]	MPR Allowed by 3GPP	Target MPR [dB]	Maximum Average Power [dBm]
1752.5	20375	QPSK	5 MHz	1	0	23	0	0	22.97
1752.5	20375	16QAM	5 MHz	1	0	22	0-1	1	21.59
1752.5	20375	QPSK	5 MHz	1	24	23	0	0	22.90
1752.5	20375	16QAM	5 MHz	1	24	22	0-1	1	21.58
1752.5	20375	QPSK	5 MHz	12	6	22	0-1	1	21.79
1752.5	20375	16QAM	5 MHz	12	6	23	0-2	2	20.93
1752.5	20375	QPSK	5 MHz	25	0	22	0-1	1	21.90
1752.5	20375	16QAM	5 MHz	25	0	21	0-2	2	21.44
1750	20350	QPSK	10 MHz	1	0	23	0	0	22.95
1750	20350	16QAM	10 MHz	1	0	22	0-1	1	21.77
1750	20350	QPSK	10 MHz	1	49	23	0	0	22.75
1750	20350	16QAM	10 MHz	1	49	22	0-1	1	21.61
1750	20350	QPSK	10 MHz	25	12	22	0-1	1	21.77
1750	20350	16QAM	10 MHz	25	12	21	0-2	2	21.45
1750	20350	QPSK	10 MHz	50	0	23	0-1	1	21.80
1750	20350	16QAM	10 MHz	50	0	21	0-2	2	21.06

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.

14.2 GSM Conducted Powers

		Maximum Burst-Averaged Output Power				
		Voice	*GPRS/EDGE Data (GMSK)*		*EDGE Data (8-PSK)*	
Band	**Channel**	**GSM [dBm] CS (1 Slot)**	**GPRS [dBm] 1 Tx Slot**	**GPRS [dBm] 2 Tx Slot**	**EDGE [dBm] 1 Tx Slot**	**EDGE [dBm] 2 Tx Slot**
Cellular	128	32.51	32.53	**32.16**	27.55	27.27
	190	32.72	32.82	**32.45**	27.56	27.29
	251	32.91	32.95	**32.61**	27.61	27.35
PCS	512	30.11	30.17	**30.04**	27.36	27.14
	661	29.84	29.89	**29.80**	27.21	27.03
	810	30.15	30.17	**30.11**	27.34	27.20

		Calculated Maximum Frame-Averaged Output Power				
		Voice	*GPRS/EDGE Data (GMSK)*		*EDGE Data (8-PSK)*	
Band	**Channel**	**GSM [dBm] CS (1 Slot)**	**GPRS [dBm] 1 Tx Slot**	**GPRS [dBm] 2 Tx Slot**	**EDGE [dBm] 1 Tx Slot**	**EDGE [dBm] 2 Tx Slot**
Cellular	128	23.48	23.50	**26.14**	18.52	21.25
	190	23.69	23.79	**26.43**	18.53	21.27
	251	23.88	23.92	**26.59**	18.58	21.33
PCS	512	21.08	21.14	**24.02**	18.33	21.12
	661	20.81	20.86	**23.78**	18.18	21.01
	810	21.12	21.14	**24.09**	18.31	21.18

Note: Both burst-averaged and calculated frame-averaged powers are included. The frame-averaged power was calculated from the measured burst averaged power by converting the slot powers into linear units and calculating the energy over 8 time slots. The bolded GPRS/EDGE mode was selected according to the highest frame-averaged output power table according to KDB Publication 941225 D03.

GPRS/EDGE (GMSK) conducted powers were measured with CS1 and EDGE (8-PSK) conducted powers were measured with MCS7.

GSM Class: B

GPRS Multislot class: 10 (max 2 Tx Uplink slots)

EDGE Multislot class: 10 (max 2Tx Uplink slots)

DTM Multislot Class: N/A

14.3 WCDMA Conducted Powers

3GPP Release Version	Mode	3GPP 34.121 Subtest	Cellular Band [dBm]			PCS Band [dBm]			MPR
			4132	4183	4233	9262	9400	9538	
99	WCDMA	12.2 kbps RMC	22.63	22.60	**22.68**	**23.61**	23.35	23.42	-
99		12.2 kbps AMR	22.53	22.57	22.57	23.53	23.42	23.35	-
6	HSDPA	Subtest 1	22.06	22.05	22.10	22.92	22.80	22.89	0
6		Subtest 2	22.11	22.02	**22.30**	23.13	22.85	**23.15**	0
6		Subtest 3	21.69	21.70	21.71	22.55	22.37	22.64	0.5
6		Subtest 4	21.64	21.60	21.70	22.64	22.40	22.44	0.5
6	HSUPA	Subtest 1	21.60	21.64	21.74	22.37	22.43	22.26	0
6		Subtest 2	20.67	20.64	20.74	21.67	21.60	21.61	2
6		Subtest 3	20.72	20.84	20.92	21.56	21.43	21.55	1
6		Subtest 4	21.08	20.95	21.38	22.20	21.87	21.73	2
6		Subtest 5	22.17	22.15	**22.26**	**22.93**	22.91	22.87	0

WCDMA SAR was tested under RMC 12.2 kbps with HSPA Inactive per KDB Publication 941225 D01. HSPA SAR was not required since the average output power of the HSPA subtests was not more than 0.25 dB higher than the RMC level and SAR was less than 1.2 W/kg.

It was confirmed with the manufacturer that the MPR for this model would deviate from the expected 3GPP levels (ie: up to 1 dB more reduction possible than 3GPP expected but also as low as 0 dB power reduction according to the Qualcomm chipset implementation in this model).

Note: This device is only capable of HSUPA in the uplink (QPSK in the uplink), but is capable of HSPA+ in the downlink. Information about the uplink and downlink capabilities are explained in further detail in the technical descriptions for this model.

Figure 14-1
Power Measurement Setup

14.4 WIFI Mode

Table 14-5
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	15.28	15.28	15.29	15.29
802.11b	2437	6	15.71	15.71	15.72	15.72
802.11b	2462	11	**15.87**	15.88	15.85	15.87

Table 14-6
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	13.87	13.82	13.78	13.83	13.78	13.81	13.85	13.76
802.11g	2437	6	14.11	14.11	14.10	14.05	14.04	14.10	14.04	14.09
802.11g	2462	11	14.22	14.23	14.32	14.23	14.28	14.24	14.20	14.15

Table 14-7
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	9.98	9.99	10.00	9.96	9.96	9.93	9.98	9.95
802.11n	2437	6	10.37	10.35	10.33	10.32	10.30	10.26	10.37	10.36
802.11n	2462	11	10.44	10.47	10.48	10.47	10.40	10.38	10.43	10.46

Table 14-8
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*	9.78	9.88	9.87	9.91	9.89	9.89	10.03	9.98
802.11a	5200	40	**9.81**	9.76	9.81	9.81	9.89	9.91	9.93	9.95
802.11a	5220	44	9.73	9.70	9.74	9.74	9.86	9.91	9.97	9.93
802.11a	*5240*	*48*	9.74	9.70	9.73	9.75	9.84	9.90	9.97	9.98
802.11a	*5260*	*52*	9.68	9.54	9.53	9.72	9.74	9.81	9.81	9.93
802.11a	5280	56	**9.70**	9.64	9.66	9.76	9.67	9.81	9.85	9.81
802.11a	5300	60	9.60	9.58	9.65	9.68	9.69	9.74	9.80	9.83
802.11a	*5320*	*64*	9.54	9.70	9.53	9.61	9.60	9.65	9.75	9.75
802.11a	5500	100	**10.13**	10.25	10.32	10.30	10.32	10.34	10.38	10.36
802.11a	*5520*	*104*	10.12	10.14	10.15	10.13	10.28	10.32	10.34	10.36
802.11a	5540	108	10.11	10.07	10.12	10.21	10.18	10.24	10.31	10.30
802.11a	5560	112	10.05	10.08	10.09	10.09	10.13	10.12	10.18	10.25
802.11a	*5580*	*116*	10.02	10.06	10.00	10.05	10.05	10.15	10.13	10.19
802.11a	5660	132	9.71	9.72	9.76	9.81	9.81	9.90	9.86	9.92
802.11a	*5680*	*136*	9.63	9.68	9.67	9.70	9.72	9.74	9.83	9.83
802.11a	5700	140	9.66	9.65	9.61	9.65	9.68	9.78	9.74	9.79
802.11a	*5745*	*149*	**10.29**	10.26	10.33	10.30	10.33	10.30	10.42	10.45
802.11a	5765	153	10.12	10.19	10.23	10.24	10.29	10.25	10.26	10.30
802.11a	*5785*	*157*	10.16	10.16	10.14	10.13	10.22	10.22	10.36	10.27
802.11a	*5805*	*161*	10.09	10.08	10.13	10.10	10.10	10.16	10.24	10.29
802.11a	5825	165	10.09	10.06	10.11	10.19	10.12	10.18	10.21	10.24

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.

Table 14-9
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	*5180*	*36*	9.62	9.72	9.81	9.79	9.89	9.87	9.98	9.95
802.11n	5200	40	9.61	9.68	9.71	9.67	9.78	9.84	9.87	9.84
802.11n	5220	44	9.60	9.69	9.71	9.79	9.78	9.80	9.79	9.86
802.11n	*5240*	*48*	9.59	9.69	9.63	9.76	9.79	9.83	9.78	9.90
802.11n	*5260*	*52*	9.53	9.65	9.61	9.57	9.75	9.73	9.75	9.77
802.11n	5280	56	9.48	9.48	9.57	9.62	9.68	9.71	9.68	9.74
802.11n	5300	60	9.50	9.45	9.56	9.50	9.66	9.66	9.68	9.72
802.11n	*5320*	*64*	9.41	9.43	9.54	9.45	9.63	9.68	9.63	9.64
802.11n	5500	100	10.09	10.08	10.16	10.21	10.25	10.36	10.36	10.34
802.11n	*5520*	*104*	10.05	10.11	10.12	10.11	10.21	10.18	10.28	10.30
802.11n	5540	108	10.03	9.99	10.05	9.99	10.10	10.19	10.13	10.15
802.11n	5560	112	9.95	9.96	10.02	10.03	10.07	10.09	10.10	10.13
802.11n	*5580*	*116*	9.91	9.89	9.92	9.90	9.97	9.97	10.07	10.02
802.11n	5660	132	9.60	9.60	9.72	9.74	9.71	9.77	9.77	9.79
802.11n	*5680*	*136*	9.54	9.58	9.64	9.64	9.71	9.67	9.76	9.77
802.11n	5700	140	9.45	9.48	9.64	9.62	9.63	9.64	9.68	9.68
802.11n	*5745*	*149*	10.13	10.08	10.17	10.27	10.29	10.20	10.26	10.24
802.11n	5765	153	10.07	10.09	10.15	10.19	10.17	10.26	10.39	10.27
802.11n	*5785*	*157*	10.05	10.05	10.08	10.15	10.17	10.23	10.19	10.32
802.11n	*5805*	*161*	10.03	10.06	10.07	10.07	10.16	10.17	10.15	10.24
802.11n	5825	165	10.06	10.06	10.02	10.06	10.10	10.22	10.08	10.21

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.

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

15 SYSTEM VERIFICATION

15.1 Tissue Verification

Table 15-1
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	% dev σ	% dev ε
08/08/2011	700H	680	0.843	43.71	0.885	42.273	-4.75%	3.40%
		695	0.855	43.33	0.886	42.193	-3.50%	2.69%
		710	0.871	43.02	0.887	42.113	-1.80%	2.15%
		725	0.885	42.95	0.888	42.033	-0.34%	2.18%
		740	0.901	42.61	0.889	41.953	1.35%	1.57%
		755	0.910	42.62	0.891	41.876	2.13%	1.78%
08/05/2011	700B	680	0.919	56.88	0.956	56.069	-3.87%	1.45%
		695	0.931	56.73	0.957	55.985	-2.72%	1.33%
		710	0.947	56.60	0.958	55.901	-1.15%	1.25%
		725	0.958	56.56	0.960	55.817	-0.21%	1.33%
		740	0.981	56.42	0.961	55.733	2.08%	1.23%
		755	0.991	56.11	0.963	55.649	2.91%	0.83%
07/27/2011	835H	820	0.861	40.10	0.898	41.571	-4.12%	-3.54%
		835	0.866	40.01	0.900	41.500	-3.78%	-3.59%
		850	0.879	39.87	0.916	41.500	-4.04%	-3.93%
07/27/2011	835B	820	0.977	54.70	0.969	55.284	0.83%	-1.06%
		835	0.989	54.63	0.970	55.200	1.96%	-1.03%
		850	0.998	54.47	0.988	55.154	1.01%	-1.24%
08/08/2011	1750H	1710	1.354	39.38	1.348	40.136	0.45%	-1.88%
		1750	1.399	39.48	1.370	40.100	2.12%	-1.55%
		1790	1.416	39.32	1.394	40.020	1.58%	-1.75%
08/08/2011	1750B	1710	1.479	52.67	1.460	53.540	1.30%	-1.62%
		1750	1.517	52.80	1.490	53.430	1.81%	-1.18%
		1790	1.544	52.59	1.510	53.330	2.25%	-1.39%
07/30/2011	1900H	1850	1.384	41.15	1.400	40.000	-1.14%	2.88%
		1880	1.406	41.16	1.400	40.000	0.43%	2.90%
		1910	1.437	40.73	1.400	40.000	2.64%	1.82%
08/01/2011	1900B	1850	1.459	52.47	1.520	53.300	-4.01%	-1.56%
		1880	1.484	52.34	1.520	53.300	-2.37%	-1.80%
		1910	1.520	52.32	1.520	53.300	0.00%	-1.84%
08/04/2011	1900B	1850	1.455	51.55	1.520	53.300	-4.28%	-3.28%
		1880	1.476	51.41	1.520	53.300	-2.89%	-3.55%
		1910	1.475	51.10	1.520	53.300	-2.96%	-4.13%
08/01/2011	2450H	2401	1.710	39.47	1.758	39.298	-2.73%	0.44%
		2450	1.784	38.63	1.800	39.200	-0.89%	-1.45%
		2499	1.856	39.00	1.852	39.135	0.22%	-0.34%
08/01/2011	2450B	2401	1.824	52.07	1.903	52.765	-4.15%	-1.32%
		2450	1.883	52.14	1.950	52.700	-3.44%	-1.06%
		2499	1.931	51.72	2.019	52.638	-4.36%	-1.74%
07/27/2011	5200H-5800H	5170	4.789	35.31	4.629	36.030	3.46%	-2.00%
		5210	4.808	35.26	4.670	35.990	2.96%	-2.03%
		5250	4.883	35.16	4.710	35.950	3.67%	-2.20%
		5270	4.879	35.20	4.730	35.930	3.15%	-2.03%
		5310	4.937	35.12	4.770	35.890	3.50%	-2.15%
		5350	4.978	34.99	4.810	35.850	3.49%	-2.40%
		5470	5.114	34.75	4.934	35.695	3.65%	-2.65%
		5510	5.160	34.75	4.976	35.635	3.70%	-2.48%
		5550	5.216	34.71	5.018	35.575	3.95%	-2.43%
		5570	5.236	34.63	5.039	35.545	3.91%	-2.57%
		5610	5.287	34.49	5.080	35.490	4.07%	-2.82%
		5650	5.329	34.52	5.120	35.450	4.08%	-2.62%
		5670	5.352	34.50	5.140	35.430	4.12%	-2.62%
		5710	5.390	34.48	5.180	35.390	4.05%	-2.57%
		5750	5.415	34.28	5.220	35.350	3.74%	-3.03%
		5770	5.459	34.25	5.240	35.330	4.18%	-3.06%
		5810	5.537	34.18	5.281	35.290	4.85%	-3.15%
		5850	5.567	34.12	5.323	35.250	4.58%	-3.21%
07/28/2011	5200B-5800B	5170	5.293	47.88	5.264	49.055	0.55%	-2.40%
		5210	5.315	47.88	5.311	49.001	0.08%	-2.29%
		5250	5.395	47.80	5.358	48.946	0.69%	-2.34%
		5270	5.404	47.58	5.381	48.919	0.43%	-2.74%
		5310	5.429	47.66	5.428	48.865	0.02%	-2.47%
		5350	5.537	47.61	5.470	48.811	1.22%	-2.46%
		5470	5.701	47.44	5.615	48.648	1.53%	-2.48%
		5510	5.728	47.30	5.661	48.594	1.18%	-2.66%
		5550	5.798	47.30	5.708	48.539	1.58%	-2.55%
		5570	5.822	47.32	5.731	48.512	1.59%	-2.46%
		5610	5.840	47.10	5.778	48.458	1.07%	-2.80%
		5650	5.922	47.05	5.825	48.404	1.67%	-2.80%
		5670	5.930	47.05	5.848	48.376	1.40%	-2.74%
		5710	5.984	47.07	5.895	48.322	1.51%	-2.59%
		5750	6.061	46.96	5.942	48.268	2.00%	-2.71%
		5770	6.109	46.76	5.965	48.241	2.41%	-3.07%
		5810	6.162	46.89	6.012	48.186	2.50%	-2.69%
		5850	6.206	46.86	6.058	48.132	2.44%	-2.64%

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.

15.2 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):

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

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 $j = \sqrt{-1}$.

15.3 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 15-2
System Verification Results

System Verification TARGET & MEASURED										
Date:	Amb. Temp (°C)	Liquid Temp (°C)	Input Power (W)	Tissue Frequency (MHz)	Dipole SN	Tissue Type	Measured SAR_{1g} (W/kg)	1 W Target SAR_{1g} (W/kg)	1 W Normalized SAR_{1g} (W/kg)	Deviation (%)
08/08/2011	24.0	22.4	0.250	750	1003	Head	2.25	8.370	9.000	7.53%
08/05/2011	23.6	21.9	0.250	750	1003	Body	2.21	8.850	8.840	-0.11%
07/27/2011	23.8	22.2	0.063	835	4d047	Head	0.616	9.530	9.778	2.60%
07/27/2011	23.7	22.6	0.063	835	4d047	Body	0.653	9.850	10.365	5.23%
08/08/2011	24.2	22.7	0.100	1750	1051	Head	3.52	37.000	35.200	-4.86%
08/08/2011	24.3	23.0	0.100	1750	1051	Body	3.84	37.000	38.400	3.78%
07/30/2011	24.0	23.1	0.040	1900	502	Head	1.62	40.200	40.500	0.75%
08/01/2011	23.2	21.9	0.100	1900	502	Body	4.29	41.100	42.900	4.38%
08/04/2011	24.7	23.1	0.100	1900	502	Body	4.04	41.100	40.400	-1.70%
08/01/2011	23.7	22.3	0.040	2450	797	Head	2.3	53.300	57.500	7.88%
08/01/2011	23.9	22.5	0.040	2450	797	Body	2.18	52.300	54.500	4.21%
07/27/2011	22.3	20.4	0.025	5200	1057	Head	2.27	83.100	90.800	9.27%
07/28/2011	22.2	20.5	0.100	5200	1057	Body	8.11	77.700	81.100	4.38%
07/27/2011	22.6	20.3	0.100	5500	1057	Head	9.76	90.100	97.600	8.32%
07/28/2011	22.3	20.7	0.100	5500	1057	Body	7.9	84.400	79.000	-6.40%
07/27/2011	22.6	20.8	0.100	5800	1057	Head	9.04	82.900	90.400	9.05%
07/28/2011	22.7	20.9	0.100	5800	1057	Body	7.72	75.000	77.200	2.93%

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.

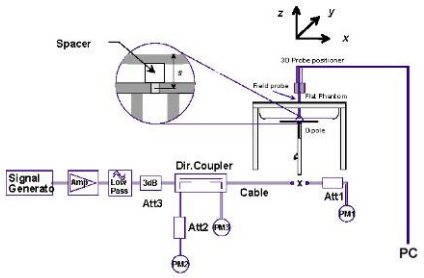

Figure 15-1
System Verification Setup Diagram

Figure 15-2
System Verification Setup Photo

16 SAR DATA SUMMARY

Table 16-1
GSM 850 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)
836.60	190	GSM 850	32.72	-0.01	Right	Touch	IMEI: 357288040038531	0.273
836.60	190	GSM 850	32.72	-0.01	Right	Tilt	IMEI: 357288040038531	0.166
836.60	190	GSM 850	32.72	-0.08	Left	Touch	IMEI: 357288040038531	0.205
836.60	190	GSM 850	32.72	0.02	Left	Tilt	IMEI: 357288040038531	0.141
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 16-2
GSM 1900 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	661	GSM 1900	29.84	0.05	Right	Touch	IMEI: 357288040038531	0.192
1880.00	661	GSM 1900	29.84	0.00	Right	Tilt	IMEI: 357288040038531	0.059
1880.00	661	GSM 1900	29.84	-0.07	Left	Touch	IMEI: 357288040038531	0.120
1880.00	661	GSM 1900	29.84	0.05	Left	Tilt	IMEI: 357288040038531	0.064
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 16-3
WCDMA 850 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)
836.60	4183	WCDMA 850	22.60	0.00	Right	Touch	IMEI: 357288040038531	0.240
836.60	4183	WCDMA 850	22.60	-0.01	Right	Tilt	IMEI: 357288040038531	0.154
836.60	4183	WCDMA 850	22.60	0.07	Left	Touch	IMEI: 357288040038531	0.188
836.60	4183	WCDMA 850	22.60	0.10	Left	Tilt	IMEI: 357288040038531	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 16-4
WCDMA 1900 Head SAR Results

MEASUREMENT RESULTS								
FREQUENCY		Mode	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Serial Number	SAR (1g)
MHz	Ch.							(W/kg)
1880.00	9400	WCDMA 1900	23.35	-0.03	Right	Touch	IMEI: 357288040038531	0.301
1880.00	9400	WCDMA 1900	23.35	0.02	Right	Tilt	IMEI: 357288040038531	0.088
1880.00	9400	WCDMA 1900	23.35	0.08	Left	Touch	IMEI: 357288040038531	0.215
1880.00	9400	WCDMA 1900	23.35	0.03	Left	Tilt	IMEI: 357288040038531	0.096
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 16-5
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	15.87	0.05	Right	Touch	IMEI: 357288040038531	1	0.033
2462	11	IEEE 802.11b	DSSS	15.87	0.09	Right	Tilt	IMEI: 357288040038531	1	0.024
2462	11	IEEE 802.11b	DSSS	15.87	0.00	Left	Touch	IMEI: 357288040038531	1	0.093
2462	11	IEEE 802.11b	DSSS	15.87	0.06	Left	Tilt	IMEI: 357288040038531	1	0.018
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 16-6
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	9.81	0.07	Right	Touch	IMEI: 357288040038531	6	0.028
5200	40	IEEE 802.11a	OFDM	9.81	0.02	Right	Tilt	IMEI: 357288040038531	6	0.009
5200	40	IEEE 802.11a	OFDM	9.81	0.02	Left	Touch	IMEI: 357288040038531	6	0.001
5200	40	IEEE 802.11a	OFDM	9.81	0.00	Left	Tilt	IMEI: 357288040038531	6	0.000
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 16-7
5.3 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)
5280	56	IEEE 802.11a	OFDM	9.70	0.02	Right	Touch	IMEI: 357288040038531	6	0.029
5280	56	IEEE 802.11a	OFDM	9.70	0.02	Right	Tilt	IMEI: 357288040038531	6	0.010
5280	56	IEEE 802.11a	OFDM	9.70	0.00	Left	Touch	IMEI: 357288040038531	6	0.001
5280	56	IEEE 802.11a	OFDM	9.70	-0.10	Left	Tilt	IMEI: 357288040038531	6	0.000
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 16-8
5.5 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)
5500	100	IEEE 802.11a	OFDM	10.13	0.03	Right	Touch	IMEI: 357288040038531	6	0.045
5500	100	IEEE 802.11a	OFDM	10.13	0.04	Right	Tilt	IMEI: 357288040038531	6	0.001
5500	100	IEEE 802.11a	OFDM	10.13	0.06	Left	Touch	IMEI: 357288040038531	6	0.038
5500	100	IEEE 802.11a	OFDM	10.13	0.03	Left	Tilt	IMEI: 357288040038531	6	0.000
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 16-9
5.8 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)
5745	149	IEEE 802.11a	OFDM	10.29	0.02	Right	Touch	IMEI: 357288040038531	6	0.126
5745	149	IEEE 802.11a	OFDM	10.29	0.07	Right	Tilt	IMEI: 357288040038531	6	0.023
5745	149	IEEE 802.11a	OFDM	10.29	0.06	Left	Touch	IMEI: 357288040038531	6	0.101
5745	149	IEEE 802.11a	OFDM	10.29	-0.09	Left	Tilt	IMEI: 357288040038531	6	0.026
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 16-10
700 MHz LTE Head SAR Results

MEASUREMENT RESULTS													
FREQUENCY		Mode	Bandwidth [MHz]	Modulation	Target MPR [dB]	Conducted Power [dBm]	Power Drift [dB]	# of Resource Blocks	RB Offset	Side	Test Position	Serial Number	SAR (1g)
MHz	Ch.												(W/kg)
710.00	23790	700 MHz LTE	10	QPSK	1	21.75	0.02	25	12	Right	Touch	IMEI: 357288040025710	0.086
710.00	23790	700 MHz LTE	10	QPSK	0	23.02	0.05	1	0	Right	Touch	IMEI: 357288040025710	0.090
710.00	23790	700 MHz LTE	10	QPSK	0	22.75	0.00	1	49	Right	Touch	IMEI: 357288040025710	0.101
710.00	23790	700 MHz LTE	10	16 QAM	2	21.45	0.03	25	12	Right	Touch	IMEI: 357288040025710	0.078
710.00	23790	700 MHz LTE	10	16 QAM	1	21.68	0.01	1	0	Right	Touch	IMEI: 357288040025710	0.069
710.00	23790	700 MHz LTE	10	16 QAM	1	21.61	0.03	1	49	Right	Touch	IMEI: 357288040025710	0.079
710.00	23790	700 MHz LTE	10	QPSK	1	21.75	0.05	25	12	Right	Tilt	IMEI: 357288040025710	0.042
710.00	23790	700 MHz LTE	10	QPSK	0	23.02	0.05	1	0	Right	Tilt	IMEI: 357288040025710	0.046
710.00	23790	700 MHz LTE	10	QPSK	0	22.75	0.05	1	49	Right	Tilt	IMEI: 357288040025710	0.050
710.00	23790	700 MHz LTE	10	16 QAM	2	21.45	0.07	25	12	Right	Tilt	IMEI: 357288040025710	0.039
710.00	23790	700 MHz LTE	10	16 QAM	1	21.68	0.08	1	0	Right	Tilt	IMEI: 357288040025710	0.004
710.00	23790	700 MHz LTE	10	16 QAM	1	21.61	0.10	1	49	Right	Tilt	IMEI: 357288040025710	0.038
710.00	23790	700 MHz LTE	10	QPSK	1	21.75	0.09	25	12	Left	Touch	IMEI: 357288040025710	0.064
710.00	23790	700 MHz LTE	10	QPSK	0	23.02	0.06	1	0	Left	Touch	IMEI: 357288040025710	0.067
710.00	23790	700 MHz LTE	10	QPSK	0	22.75	0.08	1	49	Left	Touch	IMEI: 357288040025710	0.074
710.00	23790	700 MHz LTE	10	16 QAM	2	21.45	0.06	25	12	Left	Touch	IMEI: 357288040025710	0.058
710.00	23790	700 MHz LTE	10	16 QAM	1	21.68	0.07	1	0	Left	Touch	IMEI: 357288040025710	0.051
710.00	23790	700 MHz LTE	10	16 QAM	1	21.61	0.06	1	49	Left	Touch	IMEI: 357288040025710	0.054
710.00	23790	700 MHz LTE	10	QPSK	1	21.75	0.07	25	12	Left	Tilt	IMEI: 357288040025710	0.036
710.00	23790	700 MHz LTE	10	QPSK	0	23.02	0.06	1	0	Left	Tilt	IMEI: 357288040025710	0.038
710.00	23790	700 MHz LTE	10	QPSK	0	22.75	0.09	1	49	Left	Tilt	IMEI: 357288040025710	0.040
710.00	23790	700 MHz LTE	10	16 QAM	2	21.45	0.06	25	12	Left	Tilt	IMEI: 357288040025710	0.033
710.00	23790	700 MHz LTE	10	16 QAM	1	21.68	0.09	1	0	Left	Tilt	IMEI: 357288040025710	0.033
710.00	23790	700 MHz LTE	10	16 QAM	1	21.61	0.05	1	49	Left	Tilt	IMEI: 357288040025710	0.033
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 16-11
AWS LTE Head SAR Results

MEASUREMENT RESULTS													
FREQUENCY		Mode	Bandwidth [MHz]	Modulation	Target MPR [dB]	Conducted Power [dBm]	Power Drift [dB]	# of Resource Blocks	RB Offset	Side	Test Position	Serial Number	SAR (1g)
MHz	Ch.												(W/kg)
1732.50	20000	LTE AWS	10	QPSK	1	21.94	0.02	25	12	Right	Touch	IMEI: 357288050025835	0.203
1732.50	20000	LTE AWS	10	QPSK	0	22.73	0.01	1	0	Right	Touch	IMEI: 357288050025835	0.228
1732.50	20000	LTE AWS	10	QPSK	0	22.81	0.07	1	49	Right	Touch	IMEI: 357288050025835	0.276
1732.50	20000	LTE AWS	10	16 QAM	2	21.43	0.02	25	12	Right	Touch	IMEI: 357288050025835	0.180
1732.50	20000	LTE AWS	10	16 QAM	1	21.64	0.01	1	0	Right	Touch	IMEI: 357288050025835	0.181
1732.50	20000	LTE AWS	10	16 QAM	1	21.70	0.00	1	49	Right	Touch	IMEI: 357288050025835	0.215
1732.50	20000	LTE AWS	10	QPSK	1	21.94	0.01	25	12	Right	Tilt	IMEI: 357288050025835	0.071
1732.50	20000	LTE AWS	10	QPSK	0	22.73	0.02	1	0	Right	Tilt	IMEI: 357288050025835	0.073
1732.50	20000	LTE AWS	10	QPSK	0	22.81	0.02	1	49	Right	Tilt	IMEI: 357288050025835	0.096
1732.50	20000	LTE AWS	10	16 QAM	2	21.43	-0.01	25	12	Right	Tilt	IMEI: 357288050025835	0.058
1732.50	20000	LTE AWS	10	16 QAM	1	21.64	0.07	1	0	Right	Tilt	IMEI: 357288050025835	0.060
1732.50	20000	LTE AWS	10	16 QAM	1	21.70	-0.09	1	49	Right	Tilt	IMEI: 357288050025835	0.075
1732.50	20000	LTE AWS	10	QPSK	1	21.94	-0.04	25	12	Left	Touch	IMEI: 357288050025835	0.186
1732.50	20000	LTE AWS	10	QPSK	0	22.73	0.07	1	0	Left	Touch	IMEI: 357288050025835	0.205
1732.50	20000	LTE AWS	10	QPSK	0	22.81	0.00	1	49	Left	Touch	IMEI: 357288050025835	0.233
1732.50	20000	LTE AWS	10	16 QAM	2	21.43	0.08	25	12	Left	Touch	IMEI: 357288050025835	0.166
1732.50	20000	LTE AWS	10	16 QAM	1	21.64	0.09	1	0	Left	Touch	IMEI: 357288050025835	0.160
1732.50	20000	LTE AWS	10	16 QAM	1	21.70	0.08	1	49	Left	Touch	IMEI: 357288050025835	0.191
1732.50	20000	LTE AWS	10	QPSK	1	21.94	0.03	25	12	Left	Tilt	IMEI: 357288050025835	0.068
1732.50	20000	LTE AWS	10	QPSK	0	22.73	0.05	1	0	Left	Tilt	IMEI: 357288050025835	0.075
1732.50	20000	LTE AWS	10	QPSK	0	22.81	-0.05	1	49	Left	Tilt	IMEI: 357288050025835	0.101
1732.50	20000	LTE AWS	10	16 QAM	2	21.43	0.07	25	12	Left	Tilt	IMEI: 357288050025835	0.060
1732.50	20000	LTE AWS	10	16 QAM	1	21.64	0.03	1	0	Left	Tilt	IMEI: 357288050025835	0.066
1732.50	20000	LTE AWS	10	16 QAM	1	21.70	0.04	1	49	Left	Tilt	IMEI: 357288050025835	0.081
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 16-12
GPRS/WCDMA Body-Worn SAR Results

MEASUREMENT RESULTS										
FREQUENCY		Mode	Service	Conducted Power [dBm]	Power Drift [dB]	Spacing	Serial Number	# of Time Slots	Side	SAR (1g)
MHz	Ch.									(W/kg)
836.60	190	GSM 850	GSM	32.72	0.07	1.0 cm	IMEI: 357288040038531	1	back	0.356
1880.00	661	GSM 1900	GSM	29.84	0.02	1.0 cm	IMEI: 357288040038531	1	back	0.467
836.60	4183	WCDMA 850	RMC	22.60	0.01	1.0 cm	IMEI: 357288040038531	N/A	back	0.436
1880.00	9400	WCDMA 1900	RMC	23.35	0.00	1.0 cm	IMEI: 357288040038531	N/A	back	0.424
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 16-13
WLAN Body-Worn SAR Results

MEASUREMENT RESULTS										
FREQUENCY		Mode	Service	Conducted Power [dBm]	Power Drift [dB]	Spacing	Serial Number	Data Rate (Mbps)	Side	SAR (1g)
MHz	Ch.									(W/kg)
2462	11	IEEE 802.11a	DSSS	15.87	0.04	1.0 cm	IMEI: 357288040038531	1	back	0.022
5200	40	IEEE 802.11a	OFDM	9.81	-0.01	1.0 cm	IMEI: 357288040038531	6	back	0.027
5280	56	IEEE 802.11a	OFDM	9.70	-0.09	1.0 cm	IMEI: 357288040038531	6	back	0.035
5500	100	IEEE 802.11a	OFDM	10.13	-0.09	1.0 cm	IMEI: 357288040038531	6	back	0.083
5745	149	IEEE 802.11a	DSSS	10.29	-0.08	1.0 cm	IMEI: 357288040038531	6	back	0.053
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 16-14
LTE Body-Worn SAR Results

MEASUREMENT RESULTS													
FREQUENCY		Mode	Bandwidth [MHz]	Modulation	Target MPR [dB]	Conducted Power [dBm]	Power Drift [dB]	# of Resource Blocks	RB Offset	Spacing	Serial Number	Side	SAR (1g)
MHz	Ch.												(W/kg)
710.00	23790	700 MHz LTE	10	QPSK	1	21.75	-0.05	25	12	1.0 cm	IMEI: 357288040025710	back	0.192
710.00	23790	700 MHz LTE	10	QPSK	0	23.02	0.00	1	0	1.0 cm	IMEI: 357288040025710	back	0.196
710.00	23790	700 MHz LTE	10	QPSK	0	22.75	0.00	1	49	1.0 cm	IMEI: 357288040025710	back	0.209
710.00	23790	700 MHz LTE	10	16 QAM	2	21.45	0.00	25	12	1.0 cm	IMEI: 357288040025710	back	0.160
710.00	23790	700 MHz LTE	10	16 QAM	1	21.68	0.03	1	0	1.0 cm	IMEI: 357288040025710	back	0.153
710.00	23790	700 MHz LTE	10	16 QAM	1	21.61	-0.02	1	49	1.0 cm	IMEI: 357288040025710	back	0.161
1732.50	20000	LTE AWS	10	QPSK	1	21.94	0.04	25	12	1.0 cm	IMEI: 357288050025835	back	0.404
1732.50	20000	LTE AWS	10	QPSK	0	22.73	0.04	1	0	1.0 cm	IMEI: 357288050025835	back	0.465
1732.50	20000	LTE AWS	10	QPSK	0	22.81	0.02	1	49	1.0 cm	IMEI: 357288050025835	back	0.553
1732.50	20000	LTE AWS	10	16 QAM	2	21.43	-0.02	25	12	1.0 cm	IMEI: 357288050025835	back	0.361
1732.50	20000	LTE AWS	10	16 QAM	1	21.64	0.03	1	0	1.0 cm	IMEI: 357288050025835	back	0.367
1732.50	20000	LTE AWS	10	16 QAM	1	21.70	0.03	1	49	1.0 cm	IMEI: 357288050025835	back	0.433
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 16-15
GPRS Hotspot Body SAR Results

MEASUREMENT RESULTS										
FREQUENCY		Mode	Service	Conducted Power [dBm]	Power Drift [dB]	Spacing	Serial Number	# of GPRS Slots	Side	SAR (1g)
MHz	Ch.									(W/kg)
824.20	128	GSM 850	GPRS	32.16	-0.02	1.0 cm	IMEI: 357288040038531	2	back	0.767
836.60	190	GSM 850	GPRS	32.45	0.00	1.0 cm	IMEI: 357288040038531	2	back	0.845
848.80	251	GSM 850	GPRS	32.61	0.02	1.0 cm	IMEI: 357288040038531	2	back	0.817
836.60	190	GSM 850	GPRS	32.45	0.06	1.0 cm	IMEI: 357288040038531	2	front	0.529
836.60	190	GSM 850	GPRS	32.45	-0.02	1.0 cm	IMEI: 357288040038531	2	bottom	0.264
824.20	128	GSM 850	GPRS	32.16	0.00	1.0 cm	IMEI: 357288040038531	2	right	0.703
836.60	190	GSM 850	GPRS	32.45	0.01	1.0 cm	IMEI: 357288040038531	2	right	0.839
848.80	251	GSM 850	GPRS	32.61	-0.02	1.0 cm	IMEI: 357288040038531	2	right	0.847
1880.00	661	GSM 1900	GPRS	29.80	-0.05	1.0 cm	IMEI: 357288040038531	2	back	0.466
1880.00	661	GSM 1900	GPRS	29.80	-0.01	1.0 cm	IMEI: 357288040038531	2	front	0.502
1880.00	661	GSM 1900	GPRS	29.80	-0.03	1.0 cm	IMEI: 357288040038531	2	bottom	0.620
1880.00	661	GSM 1900	GPRS	29.80	0.00	1.0 cm	IMEI: 357288040038531	2	right	0.285
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 16-16
WCDMA Hotspot Body SAR Results

MEASUREMENT RESULTS									
FREQUENCY		Mode	Service	Conducted Power [dBm]	Power Drift [dB]	Spacing	Serial Number	Side	SAR (1g)
MHz	Ch.								(W/kg)
836.60	4183	WCDMA 850	RMC	22.60	0.01	1.0 cm	IMEI: 357288040038531	back	0.436
836.60	4183	WCDMA 850	RMC	22.60	0.00	1.0 cm	IMEI: 357288040038531	front	0.299
836.60	4183	WCDMA 850	RMC	22.60	0.00	1.0 cm	IMEI: 357288040038531	bottom	0.127
836.60	4183	WCDMA 850	RMC	22.60	0.01	1.0 cm	IMEI: 357288040038531	right	0.428
1880.00	9400	WCDMA 1900	RMC	23.35	0.00	1.0 cm	IMEI: 357288040038531	back	0.424
1880.00	9400	WCDMA 1900	RMC	23.35	0.00	1.0 cm	IMEI: 357288040038531	front	0.153
1880.00	9400	WCDMA 1900	RMC	23.35	0.01	1.0 cm	IMEI: 357288040038531	bottom	0.227
1880.00	9400	WCDMA 1900	RMC	23.35	0.01	1.0 cm	IMEI: 357288040038531	right	0.253
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 16-17
Hotspot 2.4 GHz WLAN Body SAR Results

MEASUREMENT RESULTS										
FREQUENCY		Mode	Service	Conducted Power [dBm]	Power Drift [dB]	Spacing	Serial Number	Data Rate (Mbps)	Side	SAR (1g)
MHz	Ch.									(W/kg)
2462	11	IEEE 802.11b	DSSS	15.87	0.04	1.0 cm	IMEI: 357288040038531	1	back	0.022
2462	11	IEEE 802.11b	DSSS	15.87	-0.08	1.0 cm	IMEI: 357288040038531	1	front	0.015
2462	11	IEEE 802.11b	DSSS	15.87	0.09	1.0 cm	IMEI: 357288040038531	1	bottom	0.003
2462	11	IEEE 802.11b	DSSS	15.87	0.05	1.0 cm	IMEI: 357288040038531	1	left	0.032
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 16-18
700 MHz LTE Hotspot Body SAR Results

MEASUREMENT RESULTS													
FREQUENCY		Mode	Bandwidth [MHz]	Modulation	Target MPR [dB]	Conducted Power [dBm]	Power Drift [dB]	# of Resource Blocks	RB Offset	Spacing	Serial Number	Side	SAR (1g)
MHz	Ch.												(W/kg)
710.00	23790	700 MHz LTE	10	QPSK	1	21.75	-0.05	25	12	1.0 cm	IMEI: 357288040025710	back	0.192
710.00	23790	700 MHz LTE	10	QPSK	0	23.02	0.00	1	0	1.0 cm	IMEI: 357288040025710	back	0.196
710.00	23790	700 MHz LTE	10	QPSK	0	22.75	0.00	1	49	1.0 cm	IMEI: 357288040025710	back	0.209
710.00	23790	700 MHz LTE	10	16 QAM	2	21.45	0.00	25	12	1.0 cm	IMEI: 357288040025710	back	0.160
710.00	23790	700 MHz LTE	10	16 QAM	1	21.68	0.03	1	0	1.0 cm	IMEI: 357288040025710	back	0.153
710.00	23790	700 MHz LTE	10	16 QAM	1	21.61	-0.02	1	49	1.0 cm	IMEI: 357288040025710	back	0.161
710.00	23790	700 MHz LTE	10	QPSK	1	21.75	-0.01	25	12	1.0 cm	IMEI: 357288040025710	front	0.090
710.00	23790	700 MHz LTE	10	QPSK	0	23.02	0.00	1	0	1.0 cm	IMEI: 357288040025710	front	0.094
710.00	23790	700 MHz LTE	10	QPSK	0	22.75	0.03	1	49	1.0 cm	IMEI: 357288040025710	front	0.104
710.00	23790	700 MHz LTE	10	16 QAM	2	21.45	0.01	25	12	1.0 cm	IMEI: 357288040025710	front	0.082
710.00	23790	700 MHz LTE	10	16 QAM	1	21.68	0.02	1	0	1.0 cm	IMEI: 357288040025710	front	0.073
710.00	23790	700 MHz LTE	10	16 QAM	1	21.61	0.02	1	49	1.0 cm	IMEI: 357288040025710	front	0.078
710.00	23790	700 MHz LTE	10	QPSK	1	21.75	0.03	25	12	1.0 cm	IMEI: 357288040025710	bottom	0.059
710.00	23790	700 MHz LTE	10	QPSK	0	23.02	0.02	1	0	1.0 cm	IMEI: 357288040025710	bottom	0.062
710.00	23790	700 MHz LTE	10	QPSK	0	22.75	0.02	1	49	1.0 cm	IMEI: 357288040025710	bottom	0.068
710.00	23790	700 MHz LTE	10	16 QAM	2	21.45	-0.01	25	12	1.0 cm	IMEI: 357288040025710	bottom	0.053
710.00	23790	700 MHz LTE	10	16 QAM	1	21.68	0.01	1	0	1.0 cm	IMEI: 357288040025710	bottom	0.047
710.00	23790	700 MHz LTE	10	16 QAM	1	21.61	-0.01	1	49	1.0 cm	IMEI: 357288040025710	bottom	0.051
710.00	23790	700 MHz LTE	10	QPSK	1	21.75	0.01	25	12	1.0 cm	IMEI: 357288040025710	right	0.113
710.00	23790	700 MHz LTE	10	QPSK	0	23.02	-0.01	1	0	1.0 cm	IMEI: 357288040025710	right	0.124
710.00	23790	700 MHz LTE	10	QPSK	0	22.75	-0.02	1	49	1.0 cm	IMEI: 357288040025710	right	0.128
710.00	23790	700 MHz LTE	10	16 QAM	2	21.45	0.00	25	12	1.0 cm	IMEI: 357288040025710	right	0.103
710.00	23790	700 MHz LTE	10	16 QAM	1	21.68	0.02	1	0	1.0 cm	IMEI: 357288040025710	right	0.102
710.00	23790	700 MHz LTE	10	16 QAM	1	21.61	0.03	1	49	1.0 cm	IMEI: 357288040025710	right	0.097
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 16-19
AWS LTE Hotspot Body SAR Results

MEASUREMENT RESULTS													
FREQUENCY		Mode	Bandwidth [MHz]	Modulation	Target MPR [dB]	Conducted Power [dBm]	Power Drift [dB]	# of Resource Blocks	RB Offset	Spacing	Serial Number	Side	SAR (1g)
MHz	Ch.												(W/kg)
1732.50	20000	LTE AWS	10	QPSK	1	21.94	0.04	25	12	1.0 cm	IMEI: 357288050025835	back	0.404
1732.50	20000	LTE AWS	10	QPSK	0	22.73	0.04	1	0	1.0 cm	IMEI: 357288050025835	back	0.465
1732.50	20000	LTE AWS	10	QPSK	0	22.81	0.02	1	49	1.0 cm	IMEI: 357288050025835	back	0.553
1732.50	20000	LTE AWS	10	16 QAM	2	21.43	-0.02	25	12	1.0 cm	IMEI: 357288050025835	back	0.361
1732.50	20000	LTE AWS	10	16 QAM	1	21.64	0.03	1	0	1.0 cm	IMEI: 357288050025835	back	0.367
1732.50	20000	LTE AWS	10	16 QAM	1	21.70	0.03	1	49	1.0 cm	IMEI: 357288050025835	back	0.433
1732.50	20000	LTE AWS	10	QPSK	2	21.94	-0.01	25	12	1.0 cm	IMEI: 357288050025835	front	0.226
1732.50	20000	LTE AWS	10	QPSK	1	22.73	-0.02	1	0	1.0 cm	IMEI: 357288050025835	front	0.259
1732.50	20000	LTE AWS	10	QPSK	1	22.81	-0.03	1	49	1.0 cm	IMEI: 357288050025835	front	0.305
1732.50	20000	LTE AWS	10	16 QAM	1	21.43	-0.02	25	12	1.0 cm	IMEI: 357288050025835	front	0.196
1732.50	20000	LTE AWS	10	16 QAM	0	21.64	0.04	1	0	1.0 cm	IMEI: 357288050025835	front	0.199
1732.50	20000	LTE AWS	10	16 QAM	0	21.70	-0.02	1	49	1.0 cm	IMEI: 357288050025835	front	0.238
1732.50	20000	LTE AWS	10	QPSK	2	21.94	-0.01	25	12	1.0 cm	IMEI: 357288050025835	bottom	0.432
1732.50	20000	LTE AWS	10	QPSK	1	22.73	0.00	1	0	1.0 cm	IMEI: 357288050025835	bottom	0.500
1732.50	20000	LTE AWS	10	QPSK	1	22.81	0.00	1	49	1.0 cm	IMEI: 357288050025835	bottom	0.574
1732.50	20000	LTE AWS	10	16 QAM	1	21.43	0.00	25	12	1.0 cm	IMEI: 357288050025835	bottom	0.383
1732.50	20000	LTE AWS	10	16 QAM	0	21.64	-0.01	1	0	1.0 cm	IMEI: 357288050025835	bottom	0.386
1732.50	20000	LTE AWS	10	16 QAM	0	21.70	0.02	1	49	1.0 cm	IMEI: 357288050025835	bottom	0.448
1732.50	20000	LTE AWS	10	QPSK	1	21.94	0.07	25	12	1.0 cm	IMEI: 357288050025835	right	0.144
1732.50	20000	LTE AWS	10	QPSK	0	22.73	0.03	1	0	1.0 cm	IMEI: 357288050025835	right	0.166
1732.50	20000	LTE AWS	10	QPSK	0	22.81	0.03	1	49	1.0 cm	IMEI: 357288050025835	right	0.199
1732.50	20000	LTE AWS	10	16 QAM	2	21.43	-0.05	25	12	1.0 cm	IMEI: 357288050025835	right	0.128
1732.50	20000	LTE AWS	10	16 QAM	1	21.64	-0.03	1	0	1.0 cm	IMEI: 357288050025835	right	0.128
1732.50	20000	LTE AWS	10	16 QAM	1	21.70	-0.09	1	49	1.0 cm	IMEI: 357288050025835	right	0.149
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population											Body 1.6 W/kg (mW/g) averaged over 1 gram		

General SAR 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 [June 2001].
2. All modes of operation were investigated, and worst-case results are reported.
3. Batteries are fully charged for all readings. Standard battery was used.
4. Tissue parameters and temperatures are listed on the SAR plots.
5. Liquid tissue depth is was at least 15.0 cm.
6. Device was tested using a fixed spacing for body-worn and hotspot testing. A separation distance of 10 mm is chosen because the manufacturer has determined that it supports the types of body-worn accessories available in the marketplace to users for this handset.
7. All samples tested for GSM, WCDMA, WIFI, and LTE were electrically identical with one another per the applicant.
8. 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 RFID 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: ICP565154M.

GSM/GPRS Notes:

1. Justification for reduced test configurations: Per FCC/OET Bulletin 65 Supplement C (June 2001) 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. Justification for reduced test configurations: Per FCC/OET Bulletin 65 Supplement C (June 2001) and Public Notice DA-02-1438, if the SAR measured at the middle channel for each test configuration (left, right, cheek/touch, tilt/ear, extended and retracted) is at least 3.0 dB lower than the SAR limit, testing at the high and low channels is optional for such test configuration(s).
3. Body-Worn accessory testing is typically associated with voice operations. Therefore body-worn SAR testing was performed in GSM voice mode only. GPRS Data mode is covered in the Hotspot SAR Testing at the same test distance.
4. Justification for reduced test configurations per KDB Publication 941225 D03: The source-based time-averaged output power was evaluated for all multi-slot operations. In addition to the worst-case reported, all source-based time-averaged powers within 10% of the worst-case were additionally included in the evaluation for hotspot body SAR.

WCDMA Notes:

1. Justification for reduced test configurations: Per FCC/OET Bulletin 65 Supplement C (June 2001) 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. WCDMA mode was tested under RMC 12.2 kbps with HSPA Inactive per KDB Publication 941225 D01. HSPA SAR for the body was not required since the average output power of the HSPA subtests was not more than 0.25 dB higher than the RMC level and SAR was less than 1.2 W/kg.

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).
   f. Per KDB Publication 941225 D05 Page 5, 5) B), 5 MHz BW is not required to be tested for SAR since 5 MHz BW output powers are within ½ dB higher or lower of the 10 MHz BW, and also SAR is not > 1.45 W/kg
   g. Per KDB Publication 941225 D05, Low and high channel were not required for AWS LTE since the SAR was <0.8 W/kg and the power variation across all three channels was ≤ 0.5 dB for all configurations.
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. AWS LTE SAR was measured with a probe calibrated at 1750 MHz and is valid for measuring SAR within 50 MHz. The 1750MHz specific liquid was verified with specific probe calibration factors as required per FCC KDB Publication 450824.
4. LTE Head was evaluated to cover third-party VOIP applications that may result in LTE being used held to the ear.

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 WLAN, highest average RF output power channel for the lowest data rate were selected for SAR evaluation. Other IEEE 802.11 modes (including 802.11 g/n) were not investigated since the average output powers were not greater than 0.25 dB than that of the corresponding 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. Other IEEE 802.11 modes (including 802.11 n) were not investigated since the average output powers were not greater than 0.25 dB than that of the corresponding 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 is 7.228 mW. Based on the output power, antenna separation distance, and the Body SAR of the dominant transmitter, a stand-alone Bluetooth SAR test is not required.

Hotspot Notes

1. For Hotspot SAR testing, transmission modes were evaluated separately for SAR.
2. SAR evaluation requires a single frequency of measurement for valid measurements using the SAR probe and tissue calibrated which are calibrated for specific limited frequency ranges. Therefore, during SAR evaluation it was ensured that the WIFI transmission was disabled by the manufacturer to assess the standalone SAR to be evaluated for SAR. WIFI SAR was separately evaluated to account for the WIFI SAR for portable hotspot exposure conditions (See Section 12).
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 configurations for WCDMA, 2.4 GHz WLAN, and LTE additionally show body-worn compliance.

17 SIMULTANEOUS TRANSMISSION ANALYSIS

The following table shows exposure conditions for all transmitters:

Table 17-1
Enabled Transmission Scenarios

No.	Capable Transmit Configurations	Head	Body-Worn Accessory	Hot Spot	Note
		IEEE 1528, Supp C	Supp C	FCC KDB 941225 D06 edges/sides	
1	GSM 850/1900 MHz Voice + WiFi 2.4GHz	Yes	10mm		
2	850/1900 WCDMA Voice + WiFi 2.4GHz	Yes	10mm		
3	850/1900 MHz GPRS/EDGE Data + WIFI 2.4 GHz			Yes	2G Hotspot
4	850/1900 MHz WCDMA/HSPA Data + WIFI 2.4 GHz	Yes*	10 mm*	Yes	3G Hotspot
5	700/1750 MHz Band17/4 LTE Data + WIFI 2.4 GHz	Yes*	10 mm*	Yes	4G Hotspot
6	GSM 850/1900 MHz Voice + WiFi 5GHz	Yes	10mm		5GHz Client only
7	850/1900 MHz WCDMA Voice + WIFI 5 GHz	Yes	10mm		5GHz Client only

GSM/WCDMA/LTE use one chip and one Tx path. So GSM/WCDMA/LTE can not transmit simultaneously.

This model cannot act as a master device in 5GHz WiFi, so this model is not capable of 5GHz WiFi hotspot. This cannot be changed by any S/W modification by any party after it is manufactured.

(*) = for VoIP 3rd party apps possibly installed by end-user. LTE (VoIP) + WIFI 5 GHz is not a possible simultaneous transmission scenario since VoIP applications will choose WIFI over the LTE network.

Bluetooth, 2.4 GHz WLAN and 5 GHz WLAN share the same antenna path and cannot transmit simultaneously.

Additionally, WCDMA/HSPA hotspot may be active during voice WDCMA mode because, in WCDMA, both voice and data use the same physical channel. When doing multiple services (multi-Radio Access Bearer or multi-RAB), the power control will be based on a physical control channel (dedicated Physical Control Channel [DPCCH]) and power control will be adjusted to meet the needs of both services. Therefore, the WCDMA+WLAN sum also represents the WCDMA Voice + WCDMA/HSPA + WLAN scenario.

Table 17-2
Simultaneous Transmission Scenario (Held to Ear)

Simult Tx	Configuration	GSM 850 SAR (W/kg)	2.4 GHz WIFI SAR (W/kg)	ΣSAR (W/kg)
Head SAR	Right Cheek	0.273	0.033	**0.306**
	Right Tilt	0.166	0.024	**0.190**
	Left Cheek	0.205	0.093	**0.298**
	Left Tilt	0.141	0.018	**0.159**

Simult Tx	Configuration	GSM 1900 SAR (W/kg)	2.4 GHz WIFI SAR (W/kg)	ΣSAR (W/kg)
Head SAR	Right Cheek	0.192	0.033	**0.225**
	Right Tilt	0.059	0.024	**0.083**
	Left Cheek	0.120	0.093	**0.213**
	Left Tilt	0.064	0.018	**0.082**

Simult Tx	Configuration	WCDMA 850 SAR (W/kg)	2.4 GHz WIFI SAR (W/kg)	ΣSAR (W/kg)
Head SAR	Right Cheek	0.240	0.033	**0.273**
	Right Tilt	0.154	0.024	**0.178**
	Left Cheek	0.188	0.093	**0.281**
	Left Tilt	0.124	0.018	**0.142**

Simult Tx	Configuration	WCDMA 1900 SAR (W/kg)	2.4 GHz WIFI SAR (W/kg)	ΣSAR (W/kg)
Head SAR	Right Cheek	0.301	0.033	**0.334**
	Right Tilt	0.088	0.024	**0.112**
	Left Cheek	0.215	0.093	**0.308**
	Left Tilt	0.096	0.018	**0.114**

Simult Tx	Configuration	700 MHz LTE SAR (W/kg)	2.4 GHz WIFI SAR (W/kg)	ΣSAR (W/kg)
Head SAR	Right Cheek	0.101	0.033	**0.134**
	Right Tilt	0.050	0.024	**0.074**
	Left Cheek	0.074	0.093	**0.167**
	Left Tilt	0.040	0.018	**0.058**

Simult Tx	Configuration	LTE AWS SAR (W/kg)	2.4 GHz WIFI SAR (W/kg)	ΣSAR (W/kg)
Head SAR	Right Cheek	0.276	0.033	**0.309**
	Right Tilt	0.096	0.024	**0.120**
	Left Cheek	0.233	0.093	**0.326**
	Left Tilt	0.101	0.018	**0.119**

Simult Tx	Configuration	GSM 850 SAR (W/kg)	5 GHz WIFI SAR (W/kg)	ΣSAR (W/kg)
Head SAR	Right Cheek	0.273	0.126	**0.399**
	Right Tilt	0.166	0.023	**0.189**
	Left Cheek	0.205	0.101	**0.306**
	Left Tilt	0.141	0.026	**0.167**

Simult Tx	Configuration	GSM 1900 SAR (W/kg)	5 GHz WIFI SAR (W/kg)	ΣSAR (W/kg)
Head SAR	Right Cheek	0.192	0.126	**0.318**
	Right Tilt	0.059	0.023	**0.082**
	Left Cheek	0.120	0.101	**0.221**
	Left Tilt	0.064	0.026	**0.090**

Simult Tx	Configuration	WCDMA 850 SAR (W/kg)	5 GHz WIFI SAR (W/kg)	ΣSAR (W/kg)
Head SAR	Right Cheek	0.240	0.126	**0.366**
	Right Tilt	0.154	0.023	**0.177**
	Left Cheek	0.188	0.101	**0.289**
	Left Tilt	0.124	0.026	**0.150**

Simult Tx	Configuration	WCDMA 1900 SAR (W/kg)	5 GHz WIFI SAR (W/kg)	ΣSAR (W/kg)
Head SAR	Right Cheek	0.301	0.126	**0.427**
	Right Tilt	0.088	0.023	**0.111**
	Left Cheek	0.215	0.101	**0.316**
	Left Tilt	0.096	0.026	**0.122**

The device when used in Voice will fall back all LTE data sessions into WCDMA Data only, if available. It will not fall back to any 2G modes nor continue to transmit LTE due to the single transmission path of this model.

The above tables represent a held to ear voice call with WIFI.

Table 17-3
Body-Worn Simultaneous Transmission Scenario

Configuration	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WIFI SAR (W/kg)	ΣSAR (W/kg)
Back Side	GSM 850	0.356	0.022	**0.378**
Back Side	GSM 1900	0.467	0.022	**0.489**
Back Side	WCDMA 850	0.436	0.022	**0.458**
Back Side	WCDMA 1900	0.424	0.022	**0.446**
Back Side	700 MHz LTE	0.209	0.022	**0.231**
Back Side	LTE AWS	0.553	0.022	**0.575**

Configuration	Mode	2G/3G SAR (W/kg)	5 GHz WIFI SAR (W/kg)	ΣSAR (W/kg)
Back Side	GSM 850	0.356	0.083	**0.439**
Back Side	GSM 1900	0.467	0.083	**0.550**
Back Side	WCDMA 850	0.436	0.083	**0.519**
Back Side	WCDMA 1900	0.424	0.083	**0.507**

The above tables represent a body-worn voice call with WIFI.

Table 17-4
Hotspot Simultaneous Transmission Scenario

Simult Tx	Configuration	GPRS 850 SAR (W/kg)	2.4 GHz WIFI SAR (W/kg)	ΣSAR (W/kg)
Body SAR	Back	0.845	0.022	**0.867**
	Front	0.529	0.015	**0.544**
	Top	-	-	-
	Bottom	0.264	0.003	**0.267**
	Right	0.847	-	**0.847**
	Left	-	0.032	**0.032**

Simult Tx	Configuration	GPRS 1900 SAR (W/kg)	2.4 GHz WIFI SAR (W/kg)	ΣSAR (W/kg)
Body SAR	Back	0.466	0.022	**0.488**
	Front	0.502	0.015	**0.517**
	Top	-	-	-
	Bottom	0.620	0.003	**0.623**
	Right	0.285	-	**0.285**
	Left	-	0.032	**0.032**

Simult Tx	Configuration	WCDMA 850 SAR (W/kg)	2.4 GHz WIFI SAR (W/kg)	ΣSAR (W/kg)
Body SAR	Back	0.436	0.022	**0.458**
	Front	0.299	0.015	**0.314**
	Top	-	-	-
	Bottom	0.127	0.003	**0.130**
	Right	0.428	-	**0.428**
	Left	-	0.032	**0.032**

Simult Tx	Configuration	WCDMA 1900 SAR (W/kg)	2.4 GHz WIFI SAR (W/kg)	ΣSAR (W/kg)
Body SAR	Back	0.424	0.022	**0.446**
	Front	0.153	0.015	**0.168**
	Top	-	-	-
	Bottom	0.227	0.003	**0.230**
	Right	0.253	-	**0.253**
	Left	-	0.032	**0.032**

Simult Tx	Configuration	700 MHz LTE SAR (W/kg)	2.4 GHz WIFI SAR (W/kg)	ΣSAR (W/kg)
Body SAR	Back	0.209	0.022	**0.231**
	Front	0.104	0.015	**0.119**
	Top	-	-	-
	Bottom	0.068	0.003	**0.071**
	Right	0.128	-	**0.128**
	Left	-	0.032	**0.032**

Simult Tx	Configuration	LTE AWS SAR (W/kg)	2.4 GHz WIFI SAR (W/kg)	ΣSAR (W/kg)
Body SAR	Back	0.553	0.022	**0.575**
	Front	0.305	0.015	**0.320**
	Top	-	-	-
	Bottom	0.574	0.003	**0.577**
	Right	0.199	-	**0.199**
	Left	-	0.032	**0.032**

Note 1: Per FCC KDB Publication 941225 D06, the edges with antennas more than 2.5 cm are not required to be evaluated for SAR ("-" denoted). 0 W/kg was used for the sum SAR calculations for those entries). When hotspot is enabled, all 5 GHz WIFI bands are disabled.

The above tables represent a portable hotspot configuration.

17.1 Simultaneous Transmission Conclusion

The above numerical summed SAR was below the SAR limit. Therefore, the above analysis is sufficient to determine that simultaneous transmission cases will not exceed the SAR limit. No volumetric SAR summation is required per FCC KDB Publication 648474.

18 EQUIPMENT LIST

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent	85070B	Dielectric Probe Kit	8/22/2010	Annual	8/22/2011	US33020316
Agilent	8648D	(9kHz-4GHz) Signal Generator	10/13/2010	Annual	10/13/2011	3613A00315
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	8/13/2010	Annual	8/13/2011	GB41450275
Agilent	E8257D	(250kHz-20GHz) Signal Generator	4/5/2011	Annual	4/5/2012	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
Rohde & Schwarz	CMU200	Base Station Simulator	11/11/2010	Annual	11/11/2011	836371/0079
SPEAG	D1900V2	1900 MHz SAR Dipole	2/17/2011	Annual	2/17/2012	502
SPEAG	D1900V2	1900 MHz SAR Dipole	8/18/2009	Biennial	8/18/2011	5d080
SPEAG	D2450V2	2450 MHz SAR Dipole	8/27/2009	Biennial	8/27/2011	719
SPEAG	D2450V2	2450 MHz SAR Dipole	2/8/2011	Annual	2/8/2012	797
SPEAG	D2600V2	2600 MHz SAR Dipole	4/15/2011	Biennial	4/15/2013	1004
SPEAG	D5GHzV2	5 GHz SAR Dipole	8/19/2009	Biennial	8/19/2011	1007
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	D835V2	835 MHz SAR Dipole	8/24/2009	Biennial	8/24/2011	4d026
SPEAG	DAE3	Dasy Data Acquisition Electronics	11/18/2010	Annual	11/18/2011	455
SPEAG	DAE4	Dasy Data Acquisition Electronics	3/17/2011	Annual	3/17/2012	704
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	9/21/2010	Annual	9/21/2011	3022
SPEAG	EX3DV4	SAR Probe	8/19/2010	Annual	8/19/2011	3561
SPEAG	EX3DV4	SAR Probe	2/14/2011	Annual	2/14/2012	3550
SPEAG	D750V3	750 MHz Dipole	2/14/2011	Annual	2/14/2012	1003
SPEAG	ES3DV3	SAR Probe	3/24/2011	Annual	3/24/2012	3213
SPEAG	ES3DV3	SAR Probe	4/18/2011	Annual	4/18/2012	3209
SPEAG	D1640V2	1640 MHz Dipole	8/17/2010	Biennial	8/17/2012	321
Rohde & Schwarz	CMW500	LTE Radio Communication Tester	8/30/2010	Annual	8/30/2011	100976
Anritsu	MA2481A	Power Sensor	2/7/2011	Annual	2/7/2012	5318
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
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	2400
Agilent	E5515C	Wireless Communications Test Set	8/13/2010	Annual	8/13/2011	GB43304447
Amplifier Research	5S1G4	5W, 800MHz-4.2GHz	N/A			17042
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
Speag	D3700V2	3700 MHz SAR Dipole	2/16/2011	Annual	2/16/2012	1002
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
Speag	D2600V2	2600 MHz SAR Dipole	N/A			1027

19 MEASUREMENT UNCERTAINTIES

Applicable for 700 – 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

20 CONCLUSION

20.1 Measurement Conclusion

The SAR evaluation indicates that the DUT 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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[37] FCC SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities v01, KDB Publication 941225 D06.

APPENDIX A: SAR TEST DATA

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288040038531

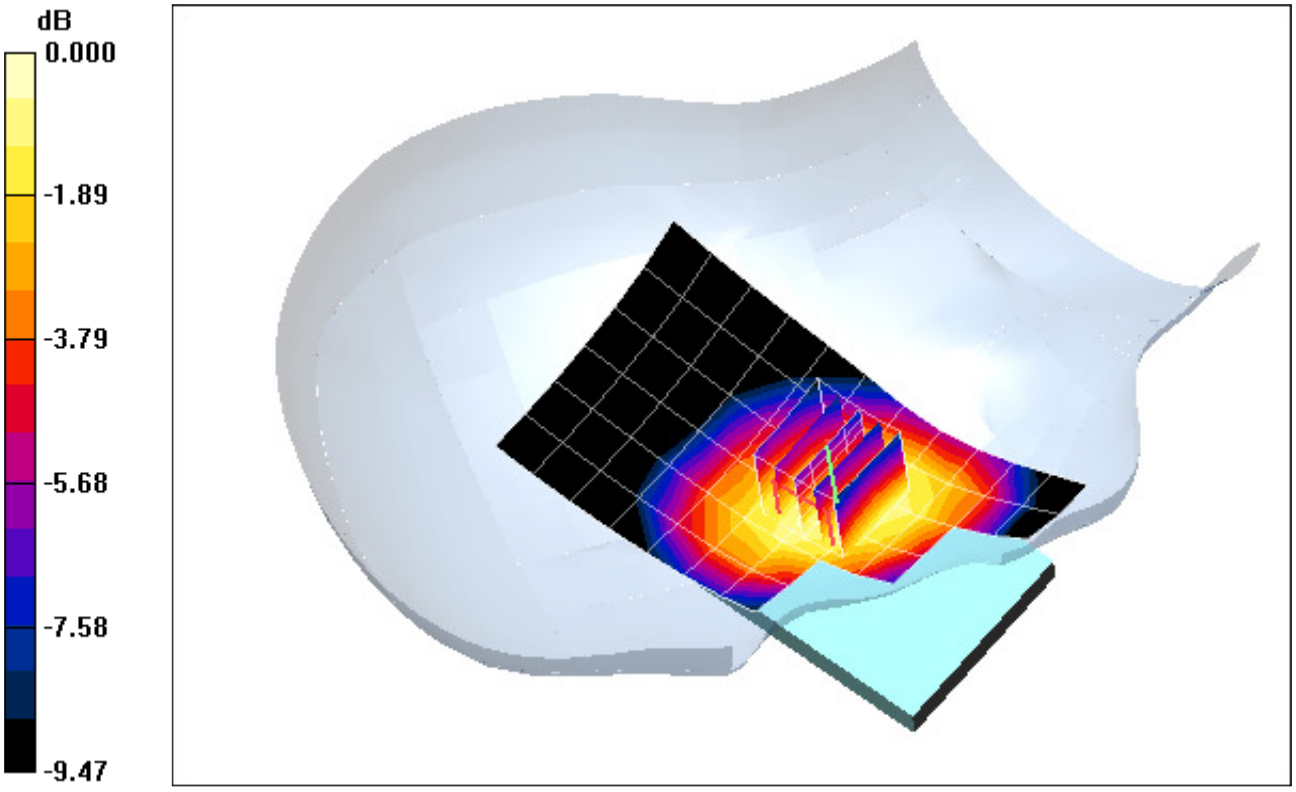
Communication System: GSM850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium: 835 Head Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.867 mho/m; ε_r = 40; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 07-27-2011; Ambient Temp: 23.8°C; Tissue Temp: 22.2°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: GSM 850, 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 = 18.1 V/m
Peak SAR (extrapolated) = 0.355 W/kg
SAR(1 g) = 0.273 mW/g; SAR(10 g) = 0.204 mW/g



0 dB = 0.288mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288040038531

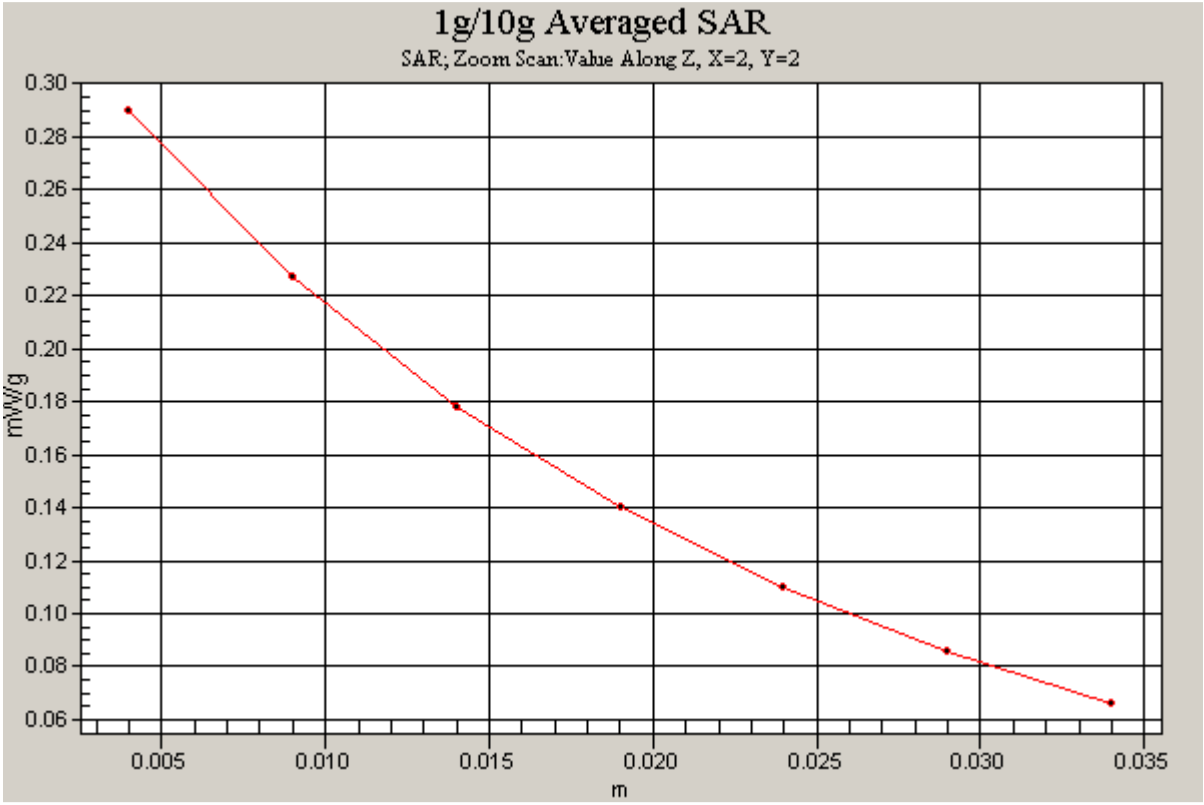
Communication System: GSM850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium: 835 Head Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.867 mho/m; ε_r = 40; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 07-27-2011; Ambient Temp: 23.8°C; Tissue Temp: 22.2°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: GSM 850, 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 = 18.1 V/m
Peak SAR (extrapolated) = 0.355 W/kg
SAR(1 g) = 0.273 mW/g; SAR(10 g) = 0.204 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288040038531

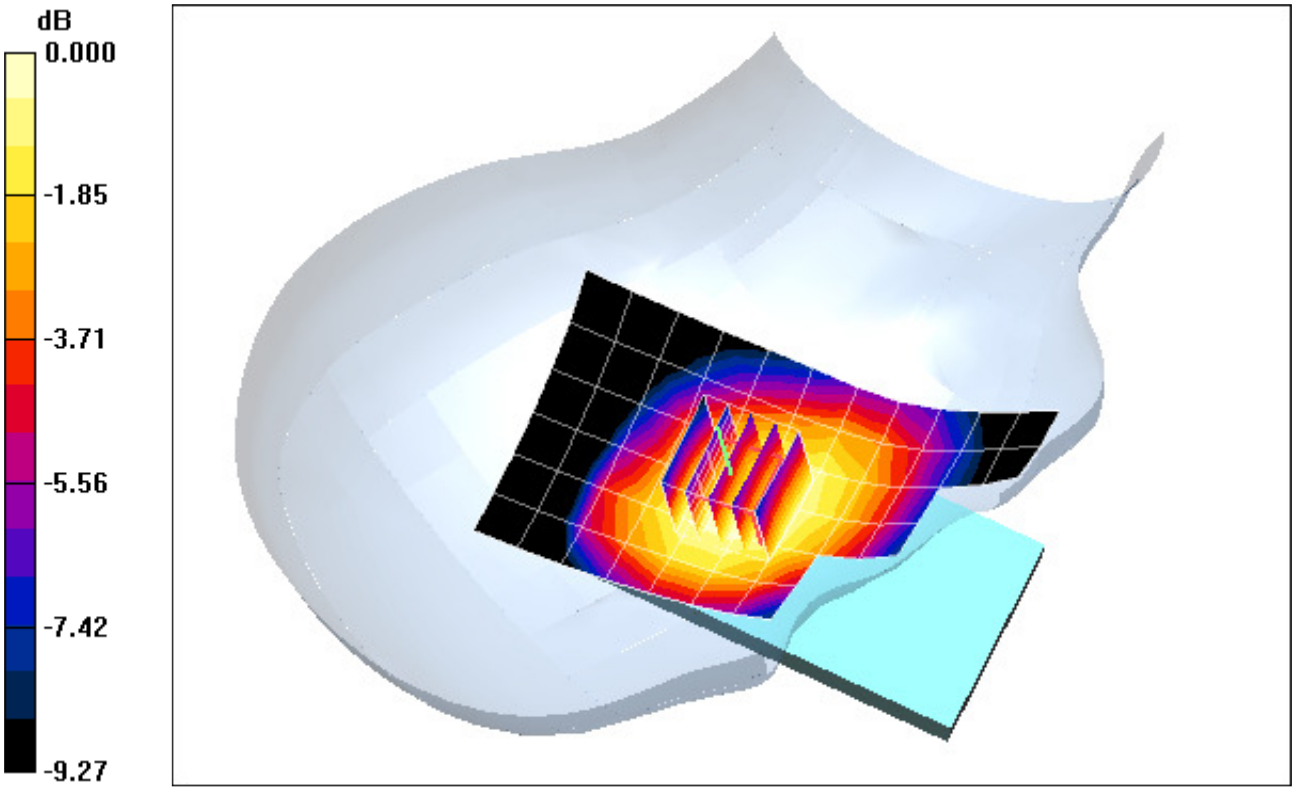
Communication System: GSM850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium: 835 Head Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.867 mho/m; ε_r = 40; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 07-27-2011; Ambient Temp: 23.8°C; Tissue Temp: 22.2°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: GSM 850, 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 = 14.0 V/m
Peak SAR (extrapolated) = 0.226 W/kg
SAR(1 g) = 0.166 mW/g; SAR(10 g) = 0.128 mW/g



0 dB = 0.173mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288040038531

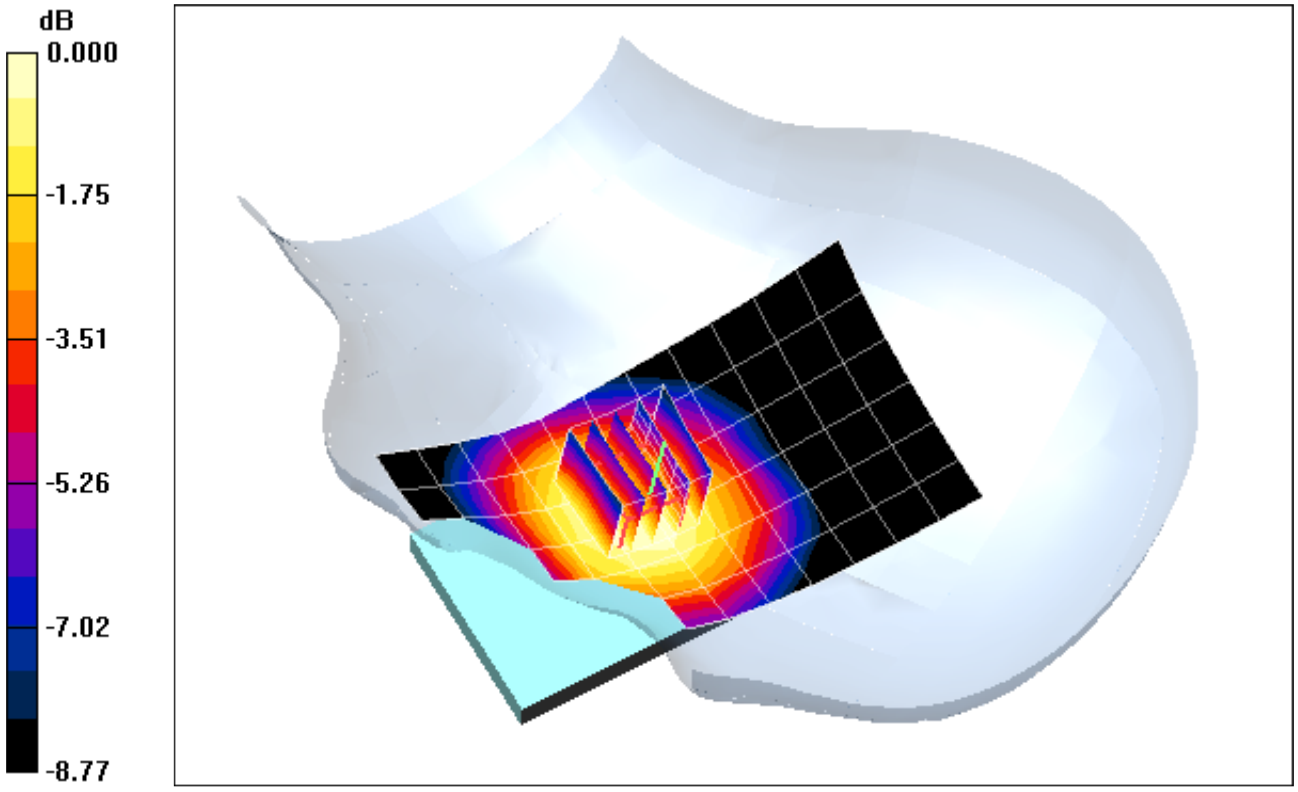
Communication System: GSM850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium: 835 Head Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.867 mho/m; ε_r = 40; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 07-27-2011; Ambient Temp: 23.8°C; Tissue Temp: 22.2°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: GSM 850, 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 = 4.08 V/m
Peak SAR (extrapolated) = 0.252 W/kg
SAR(1 g) = 0.205 mW/g; SAR(10 g) = 0.158 mW/g



0 dB = 0.216mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IME: 357288040038531

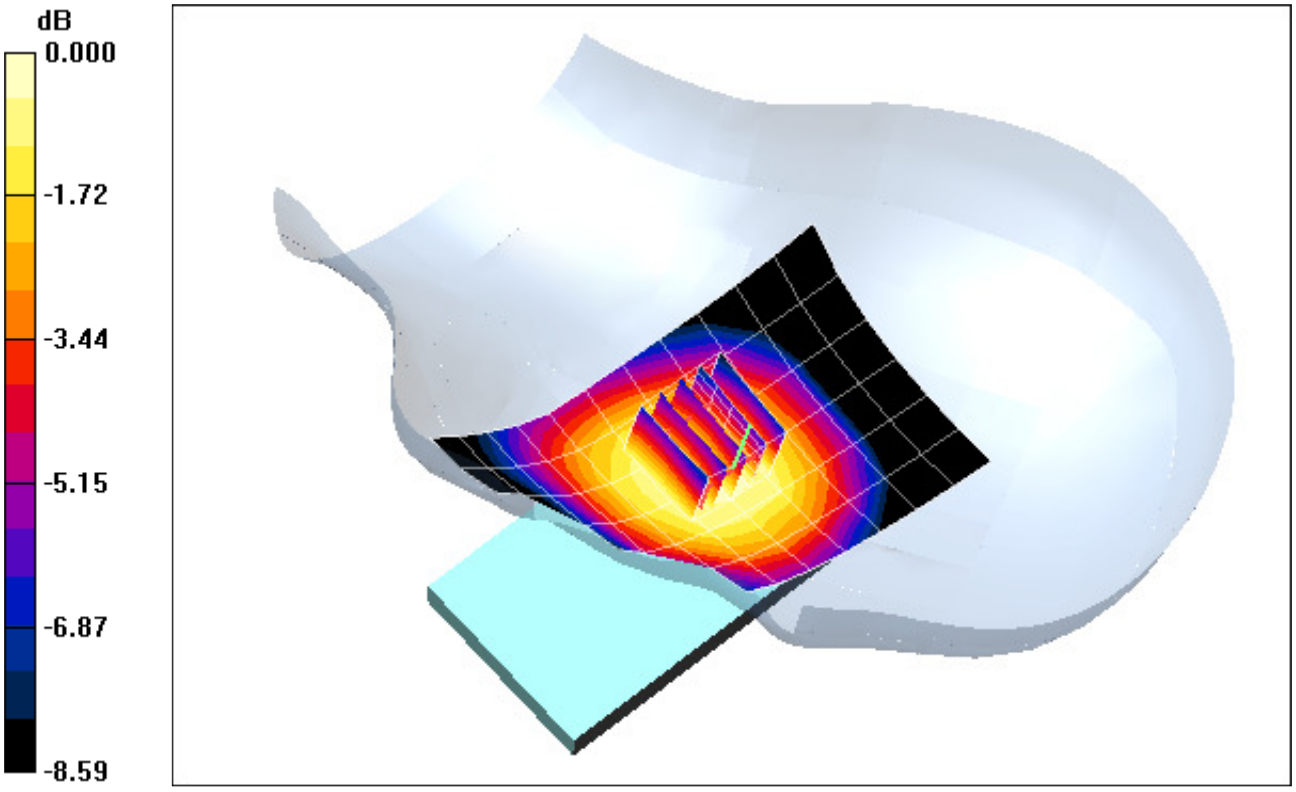
Communication System: GSM850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium: 835 Head Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.867 mho/m; ε_r = 40; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 07-27-2011; Ambient Temp: 23.8°C; Tissue Temp: 22.2°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: GSM 850, 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 = 7.98 V/m
Peak SAR (extrapolated) = 0.174 W/kg
SAR(1 g) = 0.141 mW/g; SAR(10 g) = 0.110 mW/g



0 dB = 0.146mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288040038531

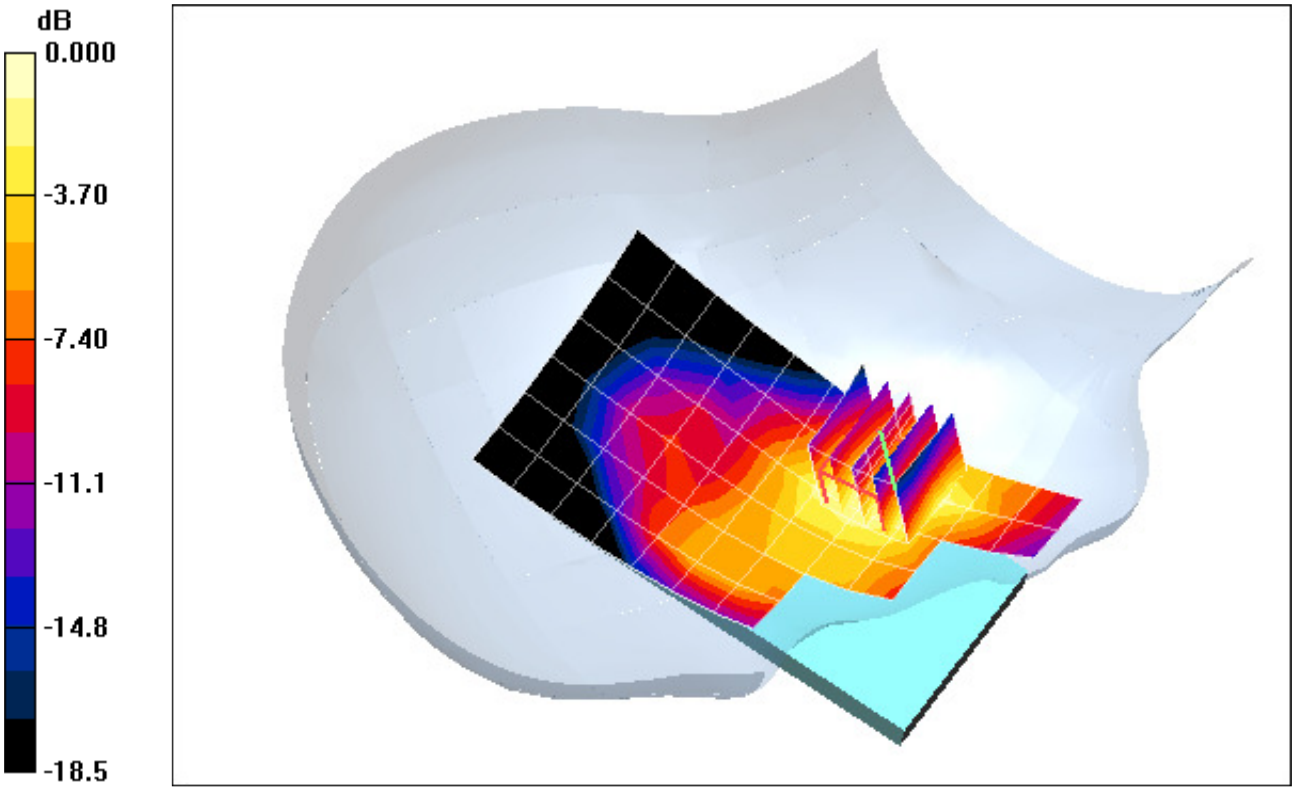
Communication System: GSM1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium: 1900 Head Medium parameters used:
f = 1880 MHz; σ = 1.41 mho/m; ε_r = 41.16; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 07-30-2011; Ambient Temp: 24.0°C; Tissue Temp: 23.1°C

Probe: ES3DV3 - SN3258; ConvF(5.15, 5.15, 5.15); 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: GSM 1900, 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 = 11.5 V/m
Peak SAR (extrapolated) = 0.304 W/kg
SAR(1 g) = 0.192 mW/g; SAR(10 g) = 0.116 mW/g



0 dB = 0.206mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288040038531

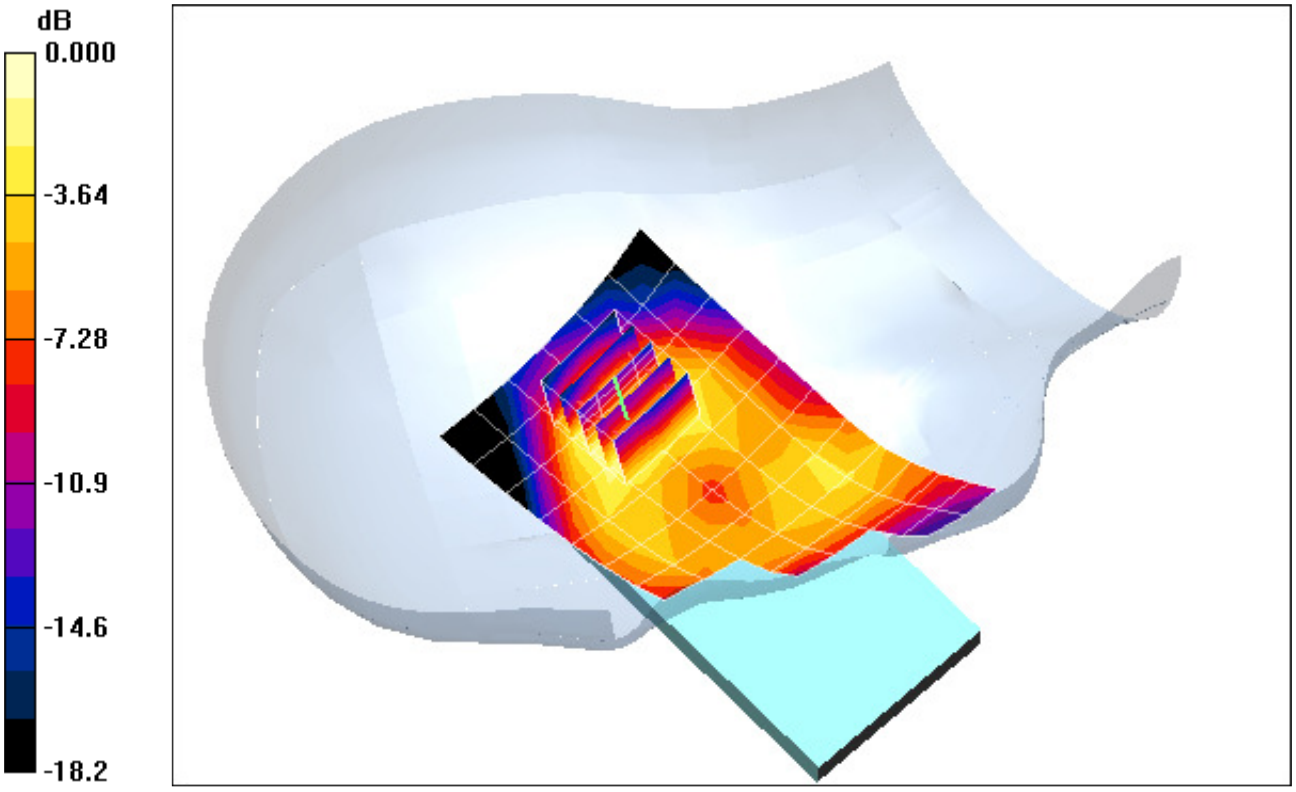
Communication System: GSM1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium: 1900 Head Medium parameters used:
f = 1880 MHz; σ = 1.41 mho/m; ε_r = 41.16; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 07-30-2011; Ambient Temp: 24.0°C; Tissue Temp: 23.1°C

Probe: ES3DV3 - SN3258; ConvF(5.15, 5.15, 5.15); 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: GSM 1900, 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 = 6.39 V/m
Peak SAR (extrapolated) = 0.096 W/kg
SAR(1 g) = 0.059 mW/g; SAR(10 g) = 0.034 mW/g



0 dB = 0.063mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288040038531

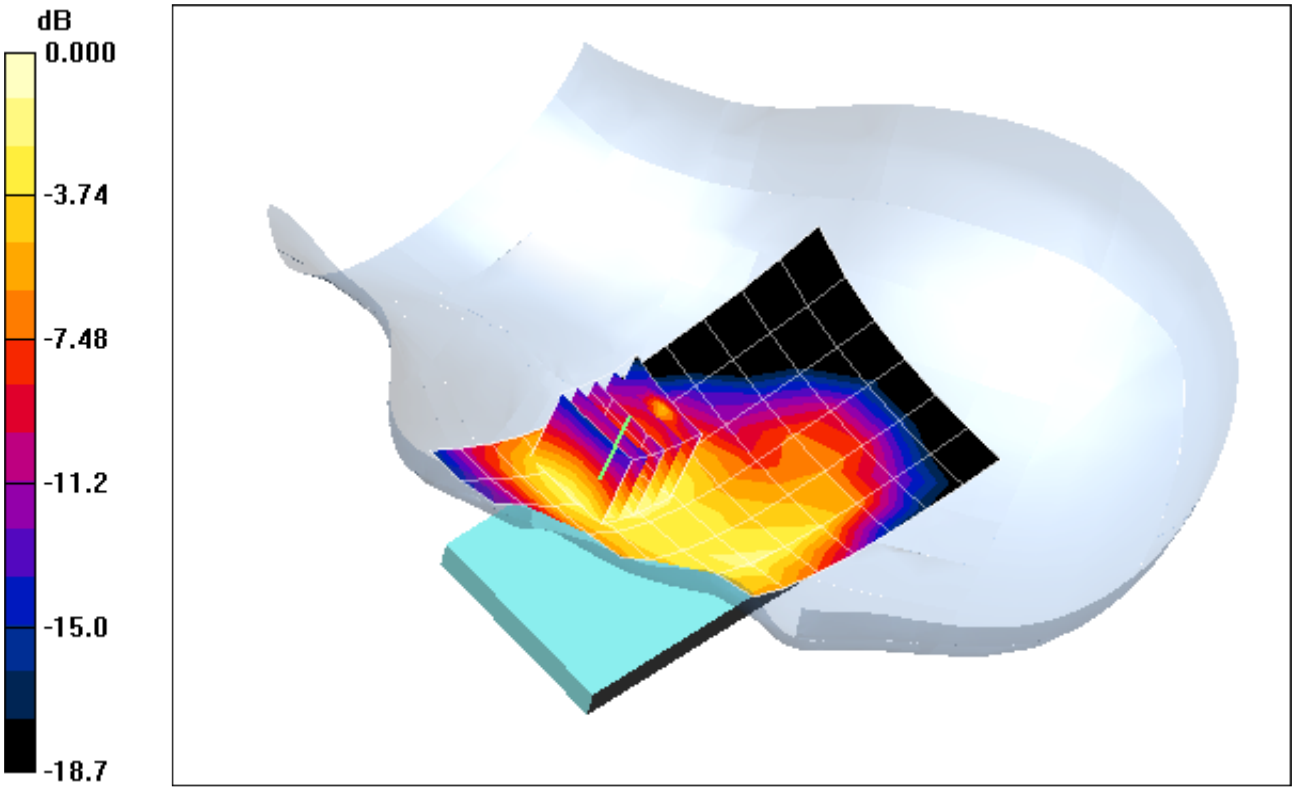
Communication System: GSM1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium: 1900 Head Medium parameters used:
f = 1880 MHz; σ = 1.41 mho/m; ε_r = 41.16; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 07-30-2011; Ambient Temp: 24.0°C; Tissue Temp: 23.1°C

Probe: ES3DV3 - SN3258; ConvF(5.15, 5.15, 5.15); 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: GSM 1900, 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 = 3.69 V/m
Peak SAR (extrapolated) = 0.249 W/kg
SAR(1 g) = 0.120 mW/g; SAR(10 g) = 0.075 mW/g



0 dB = 0.133mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288040038531

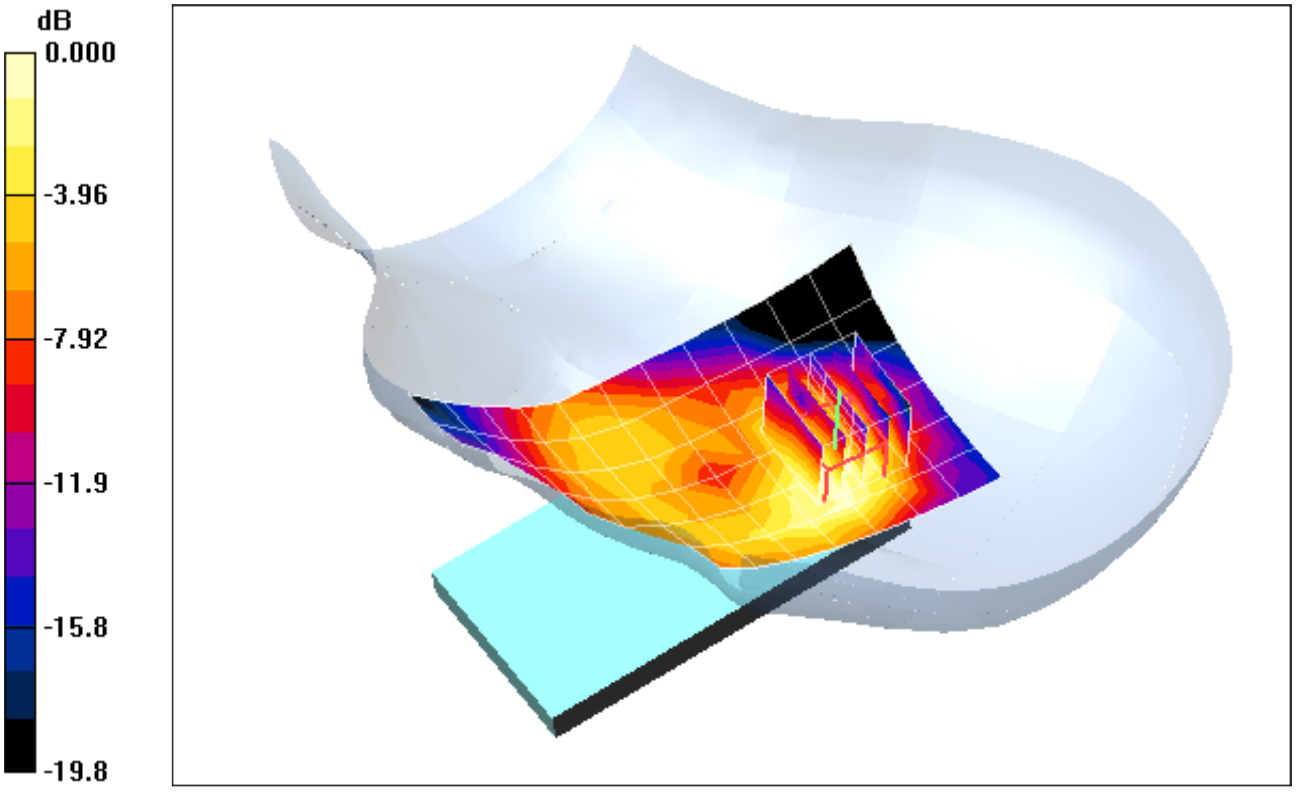
Communication System: GSM1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium: 1900 Head Medium parameters used:
f = 1880 MHz; σ = 1.41 mho/m; ε_r = 41.16; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 07-30-2011; Ambient Temp: 24.0°C; Tissue Temp: 23.1°C

Probe: ES3DV3 - SN3258; ConvF(5.15, 5.15, 5.15); 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: GSM 1900, 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 = 5.83 V/m
Peak SAR (extrapolated) = 0.243 W/kg
SAR(1 g) = 0.064 mW/g; SAR(10 g) = 0.033 mW/g



0 dB = 0.059mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset;Serial: IMEI: 357288040038531

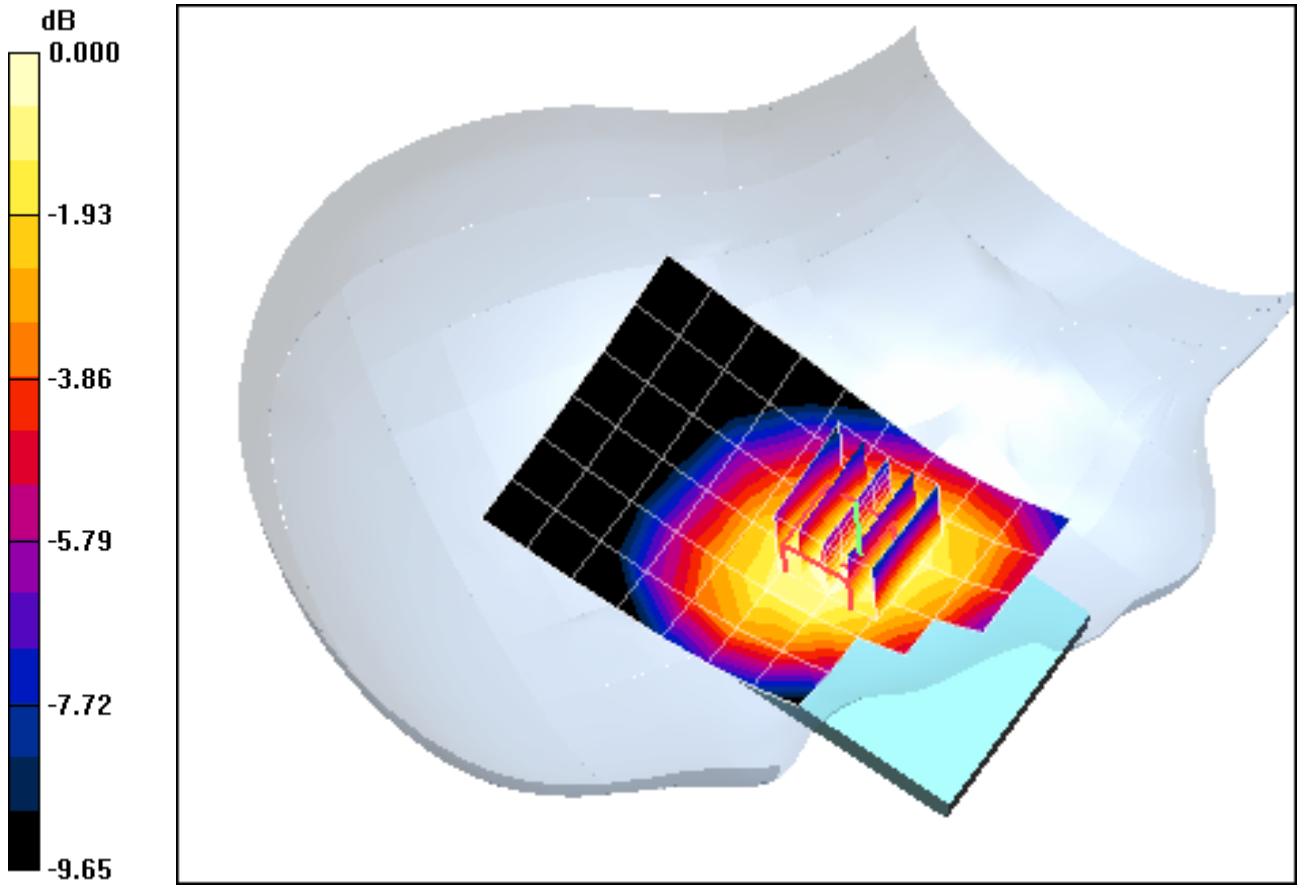
Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium: 835 Head; Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.867 mho/m; ε_r = 40; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 07-27-2011; Ambient Temp: 23.8°C; Tissue Temp: 22.2°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: WCDMA 850, Right Head, Touch, Mid.ch

Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.9 V/m
Peak SAR (extrapolated) = 0.317 W/kg
SAR(1 g) = 0.240 mW/g; SAR(10 g) = 0.180 mW/g



0 dB = 0.254mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288040038531

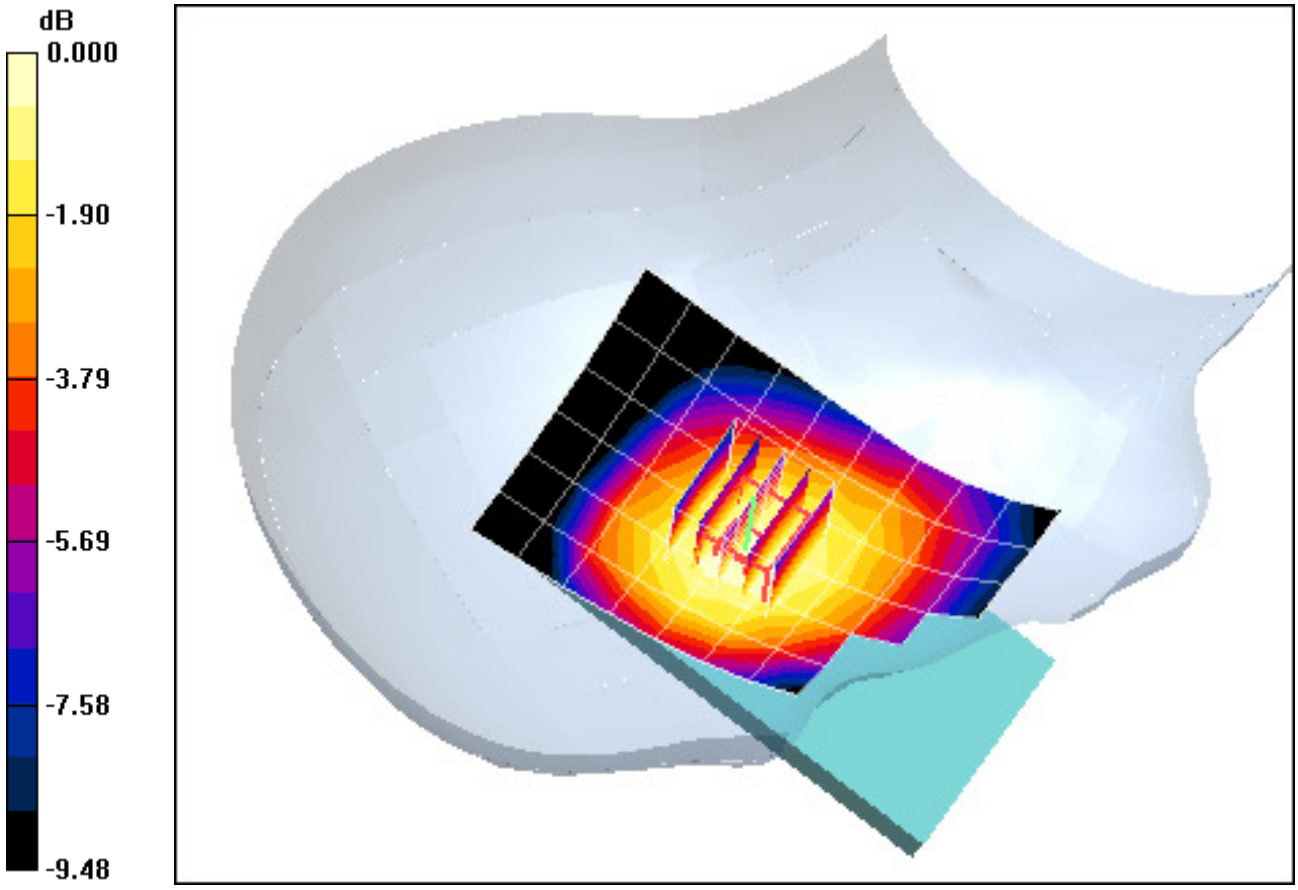
Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium: 835 Head; Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.867 mho/m; ε_r = 40; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 07-27-2011; Ambient Temp: 23.8°C; Tissue Temp: 22.2°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: WCDMA 850, Right Head, Tilt, Mid.ch

Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.5 V/m
Peak SAR (extrapolated) = 0.193 W/kg
SAR(1 g) = 0.154 mW/g; SAR(10 g) = 0.119 mW/g



0 dB = 0.161mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288040038531

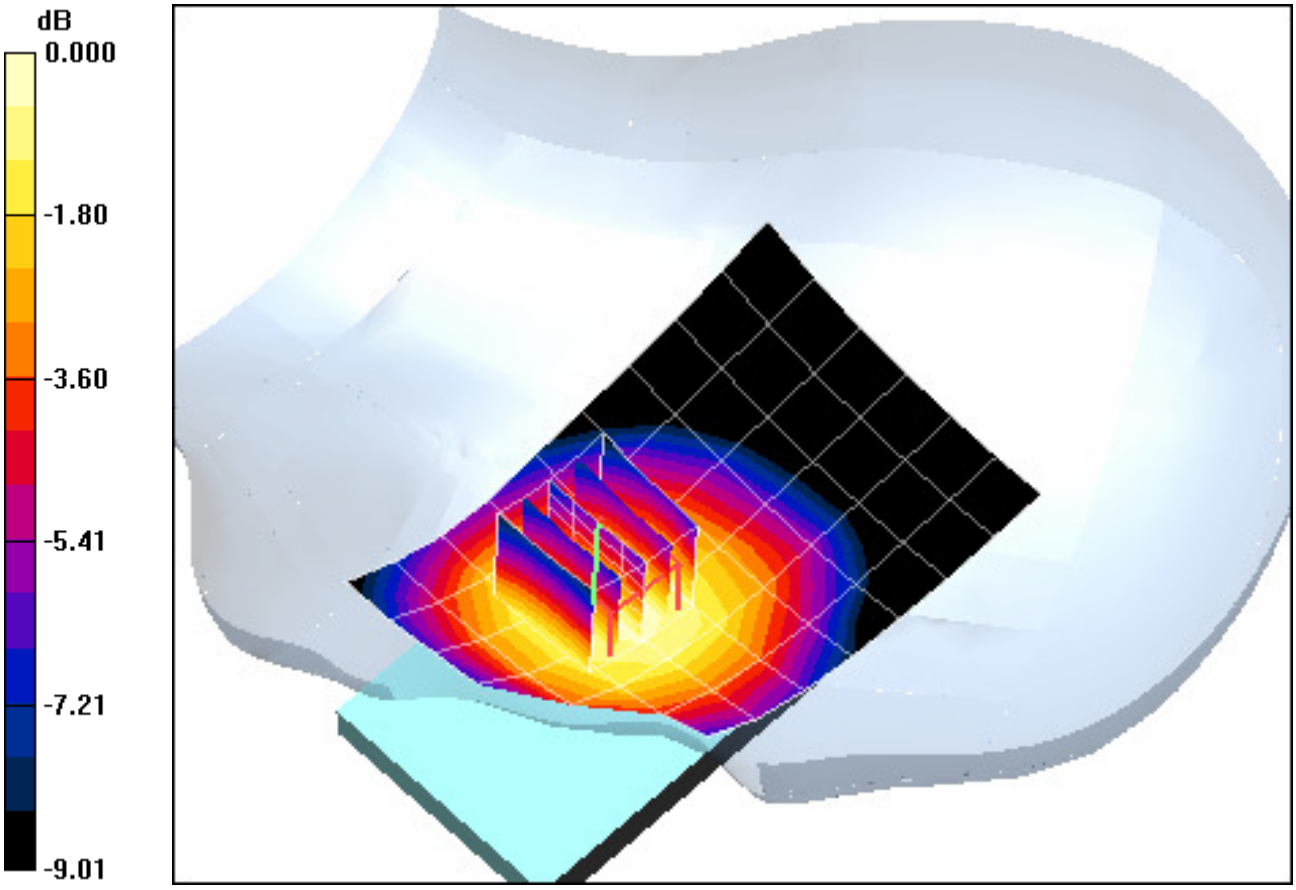
Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium: 835 Head; Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.867 mho/m; ε_r = 40; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 07-27-2011; Ambient Temp: 23.8°C; Tissue Temp: 22.2°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: WCDMA 850, Left Head, Touch, Mid.ch

Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.10 V/m
Peak SAR (extrapolated) = 0.232 W/kg
SAR(1 g) = 0.188 mW/g; SAR(10 g) = 0.144 mW/g



0 dB = 0.197mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288040038531

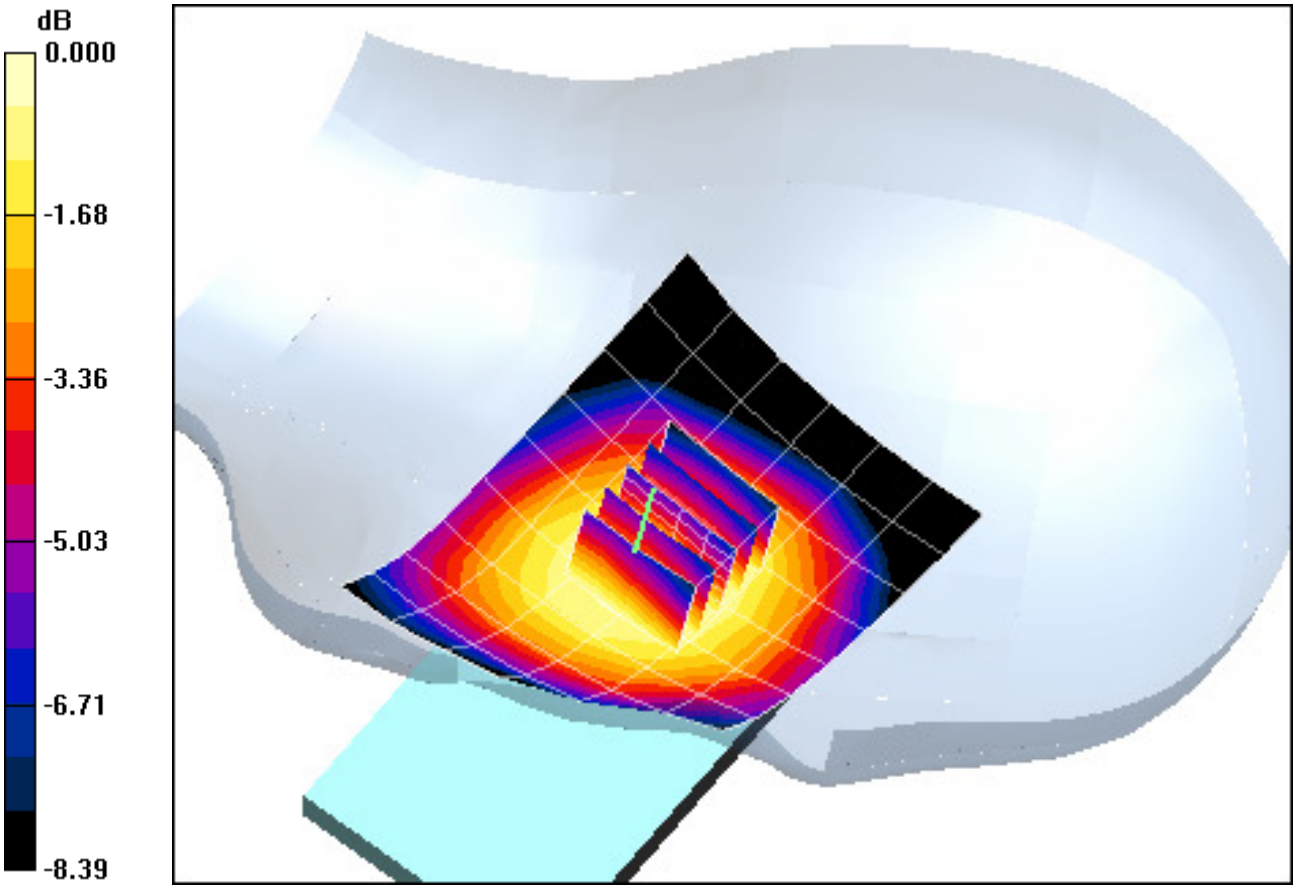
Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium: 835 Head; Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.867 mho/m; ε_r = 40; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 07-27-2011; Ambient Temp: 23.8°C; Tissue Temp: 22.2°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: WCDMA 850, Left Head, Tilt, Mid.ch

Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.85 V/m
Peak SAR (extrapolated) = 0.159 W/kg
SAR(1 g) = 0.124 mW/g; SAR(10 g) = 0.096 mW/g



0 dB = 0.129mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288040038531

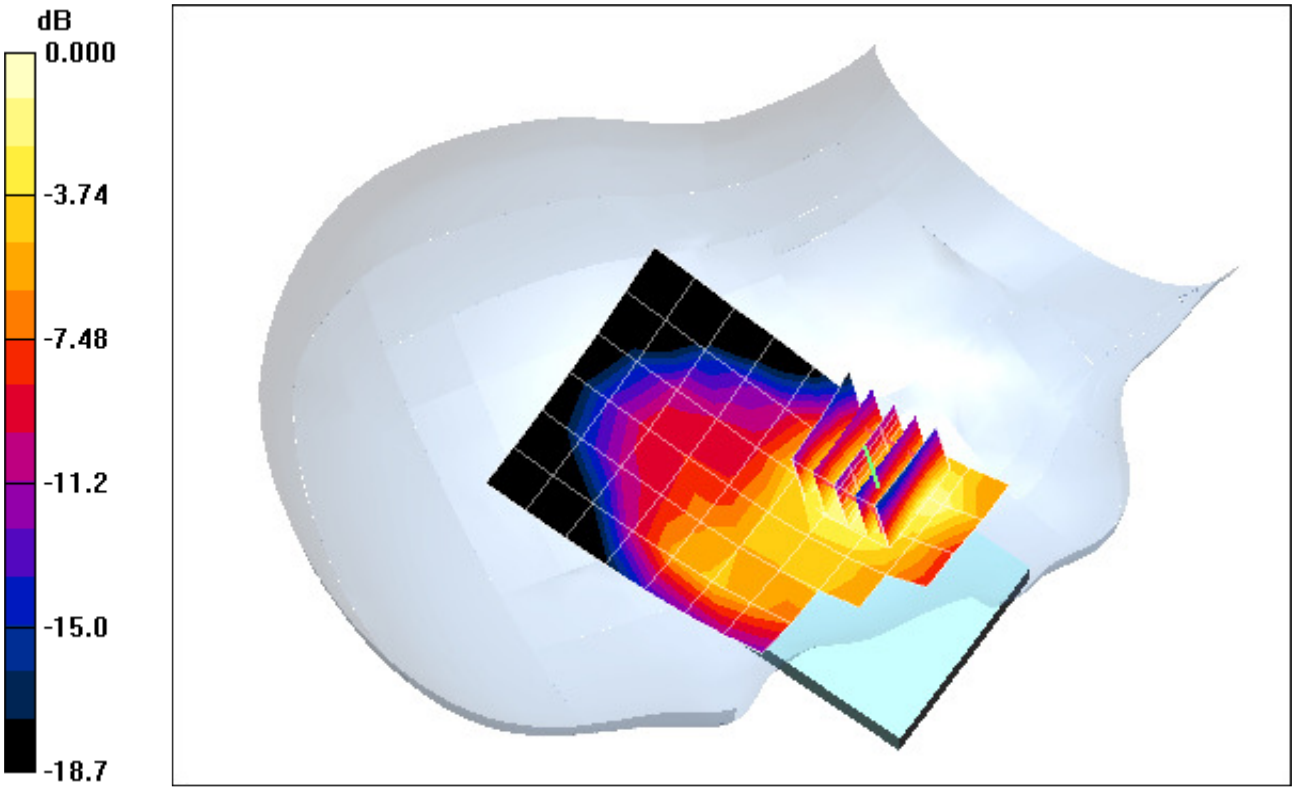
Communication System: WCDMA1900; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: 1900 Head Medium parameters used:
f = 1880 MHz; σ = 1.41 mho/m; ε_r = 41.16; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 07-30-2011; Ambient Temp: 24.0°C; Tissue Temp: 23.1°C

Probe: ES3DV3 - SN3258; ConvF(5.15, 5.15, 5.15); 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: WCDMA 1900, Right Head, Touch, Mid.ch

Area Scan (7x10x1): 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) = 0.475 W/kg
SAR(1 g) = 0.301 mW/g; SAR(10 g) = 0.181 mW/g



0 dB = 0.333mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288040038531

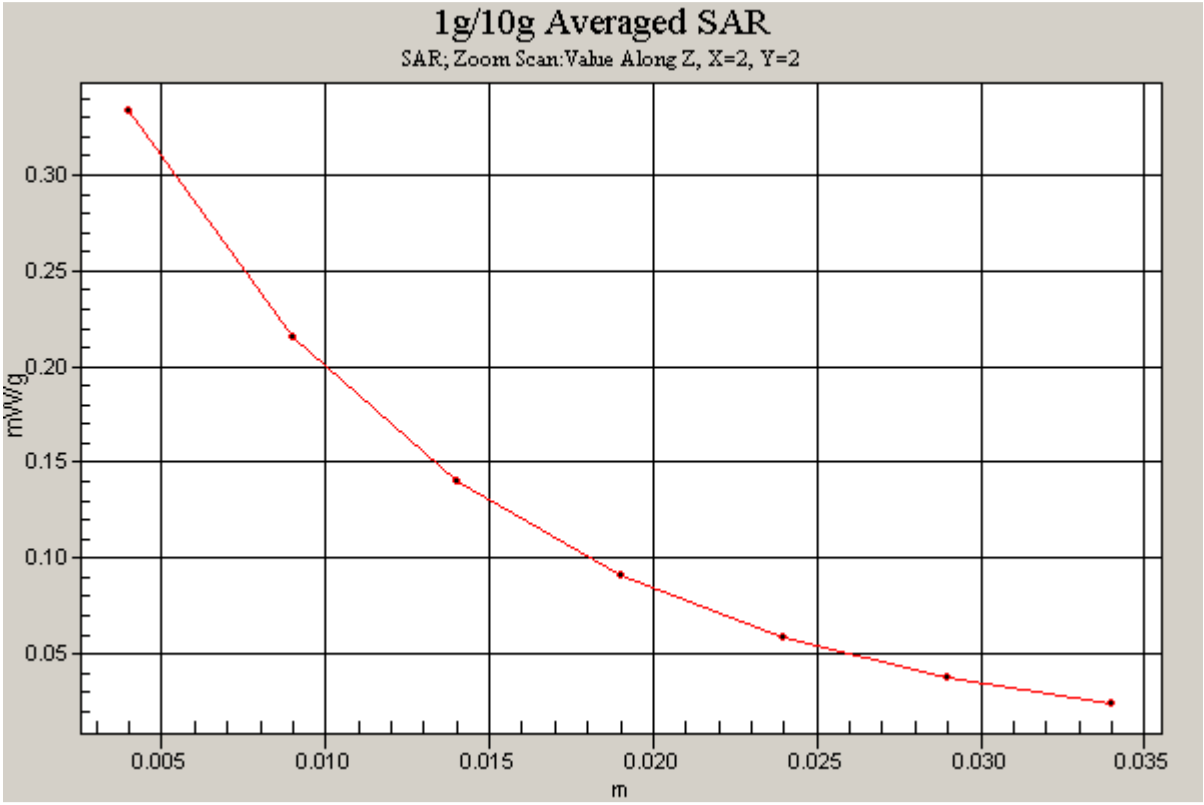
Communication System: WCDMA1900; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: 1900 Head Medium parameters used:
f = 1880 MHz; σ = 1.41 mho/m; ε_r = 41.16; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 07-30-2011; Ambient Temp: 24.0°C; Tissue Temp: 23.1°C

Probe: ES3DV3 - SN3258; ConvF(5.15, 5.15, 5.15); 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: WCDMA 1900, Right Head, Touch, Mid.ch

Area Scan (7x10x1): 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) = 0.475 W/kg
SAR(1 g) = 0.301 mW/g; SAR(10 g) = 0.181 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288040038531

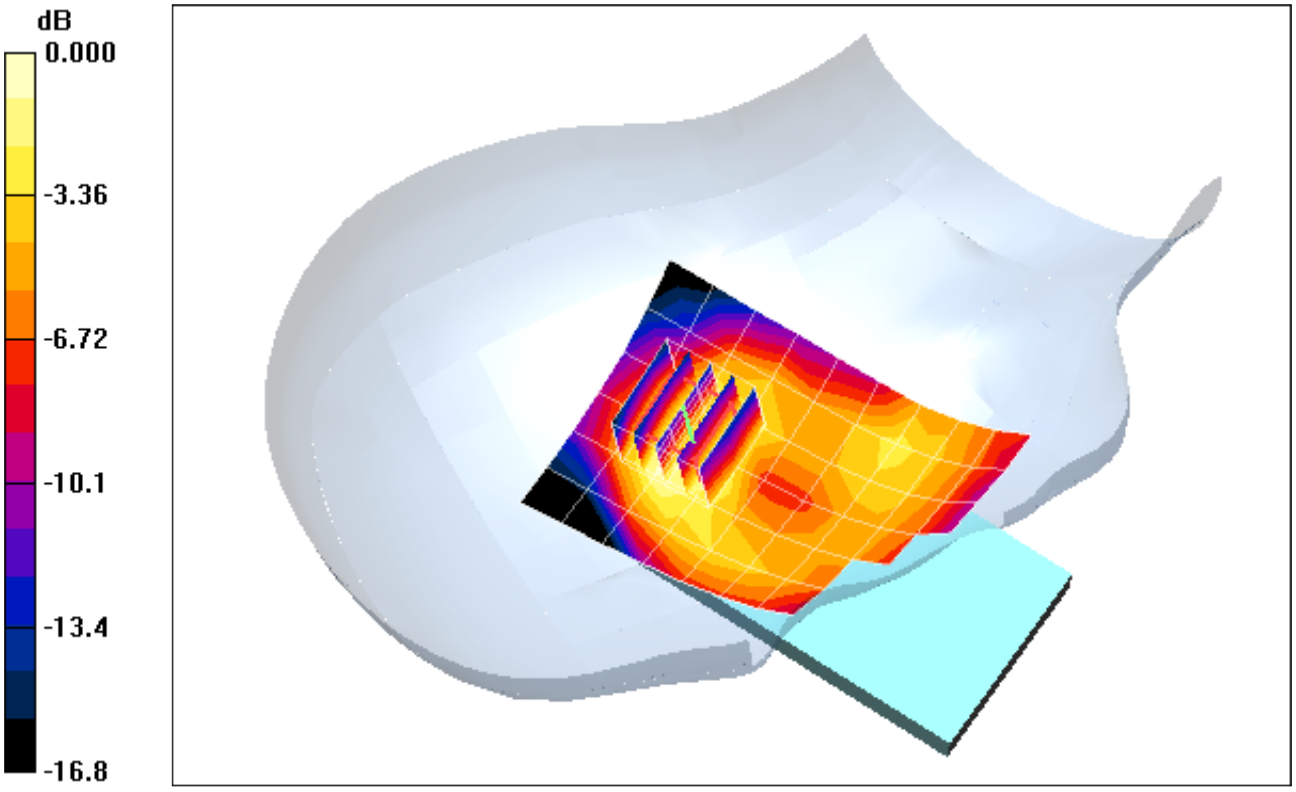
Communication System: WCDMA1900; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: 1900 Head Medium parameters used:
f = 1880 MHz; σ = 1.41 mho/m; ε_r = 41.16; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 07-30-2011; Ambient Temp: 24.0°C; Tissue Temp: 23.1°C

Probe: ES3DV3 - SN3258; ConvF(5.15, 5.15, 5.15); 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: WCDMA 1900, Right Head, Tilt, Mid.ch

Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.39 V/m
Peak SAR (extrapolated) = 0.142 W/kg
SAR(1 g) = 0.088 mW/g; SAR(10 g) = 0.053 mW/g



0 dB = 0.095mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288040038531

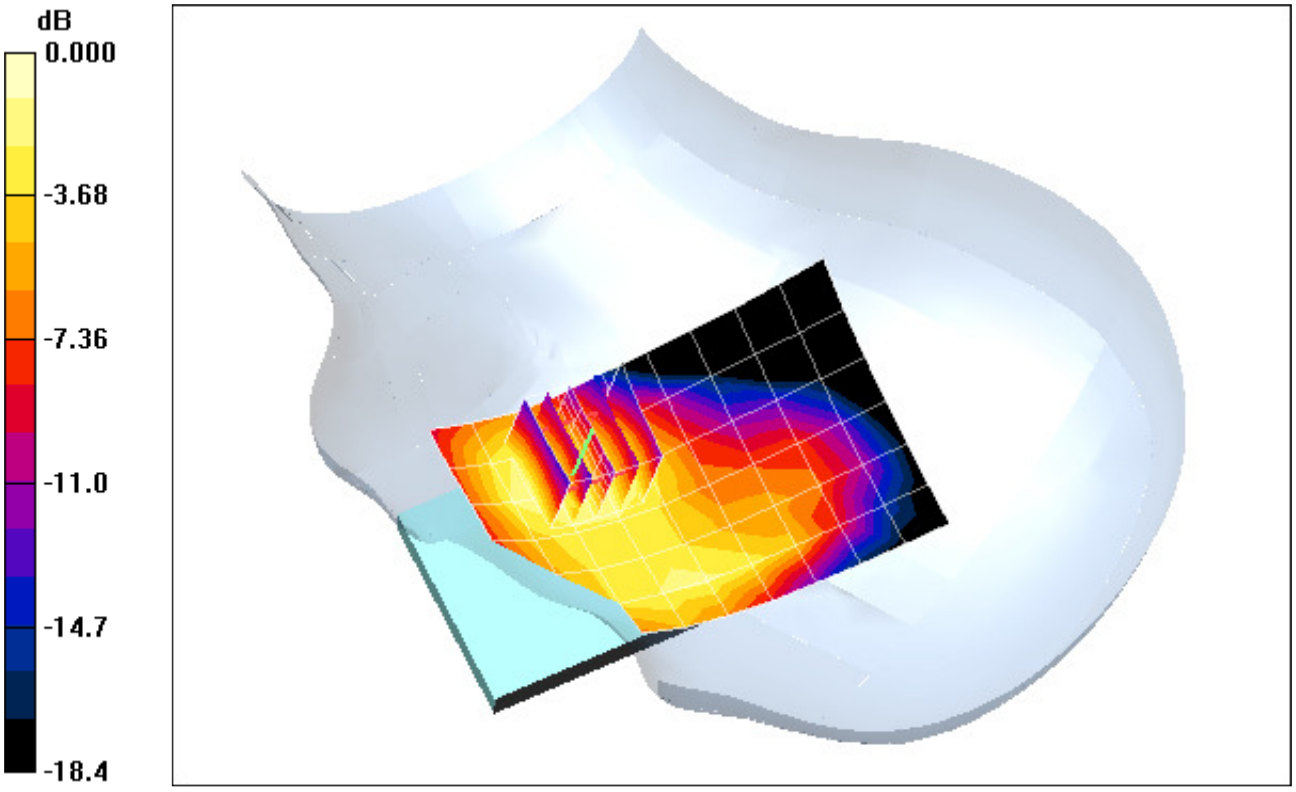
Communication System: WCDMA1900; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: 1900 Head Medium parameters used:
f = 1880 MHz; σ = 1.41 mho/m; ε_r = 41.16; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 07-30-2011; Ambient Temp: 24.0°C; Tissue Temp: 23.1°C

Probe: ES3DV3 - SN3258; ConvF(5.15, 5.15, 5.15); 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: WCDMA 1900, Left Head, Touch, Mid.ch

Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.0 V/m
Peak SAR (extrapolated) = 0.334 W/kg
SAR(1 g) = 0.215 mW/g; SAR(10 g) = 0.134 mW/g



0 dB = 0.231mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288040038531

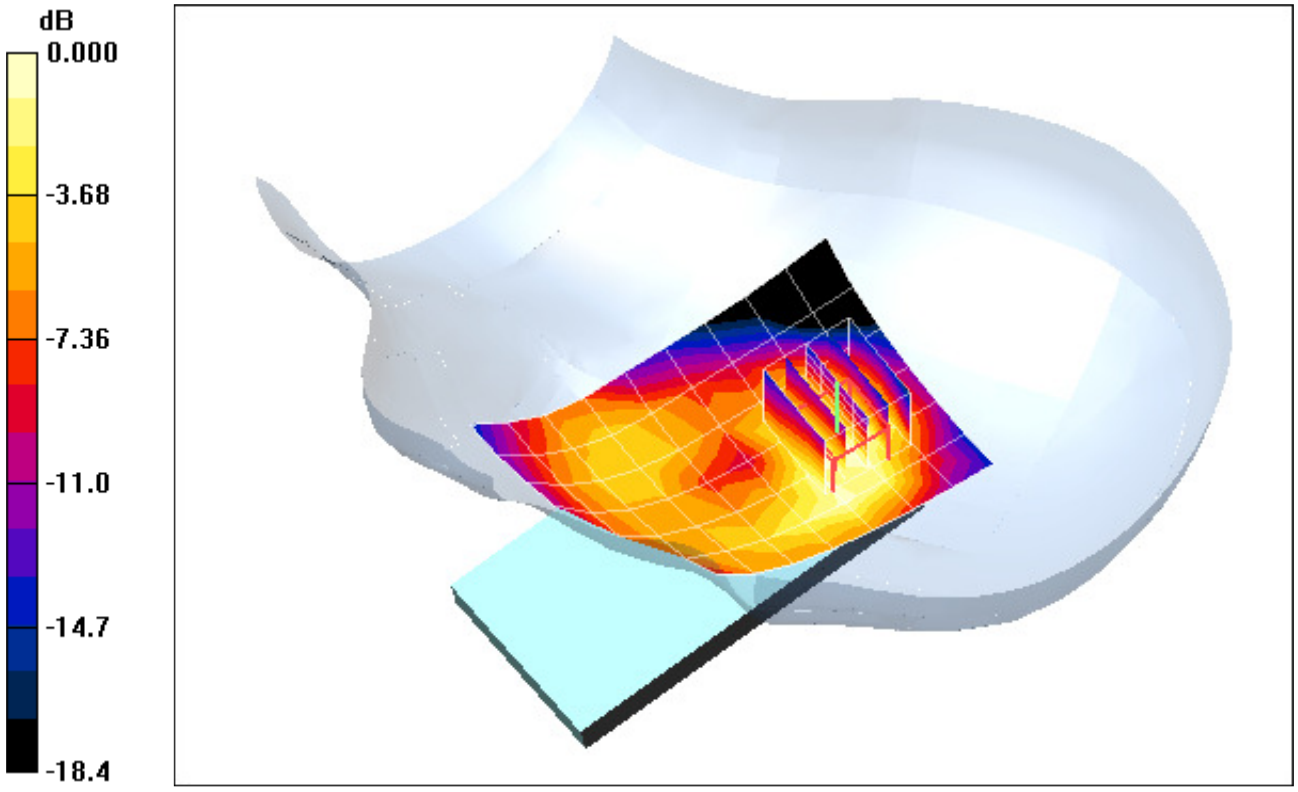
Communication System: WCDMA1900; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: 1900 Head Medium parameters used:
f = 1880 MHz; σ = 1.41 mho/m; ε_r = 41.16; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 07-30-2011; Ambient Temp: 24.0°C; Tissue Temp: 23.1°C

Probe: ES3DV3 - SN3258; ConvF(5.15, 5.15, 5.15); 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: WCDMA 1900, Left Head, Tilt, Mid.ch

Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.66 V/m
Peak SAR (extrapolated) = 0.152 W/kg
SAR(1 g) = 0.096 mW/g; SAR(10 g) = 0.058 mW/g



0 dB = 0.102mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288040038531

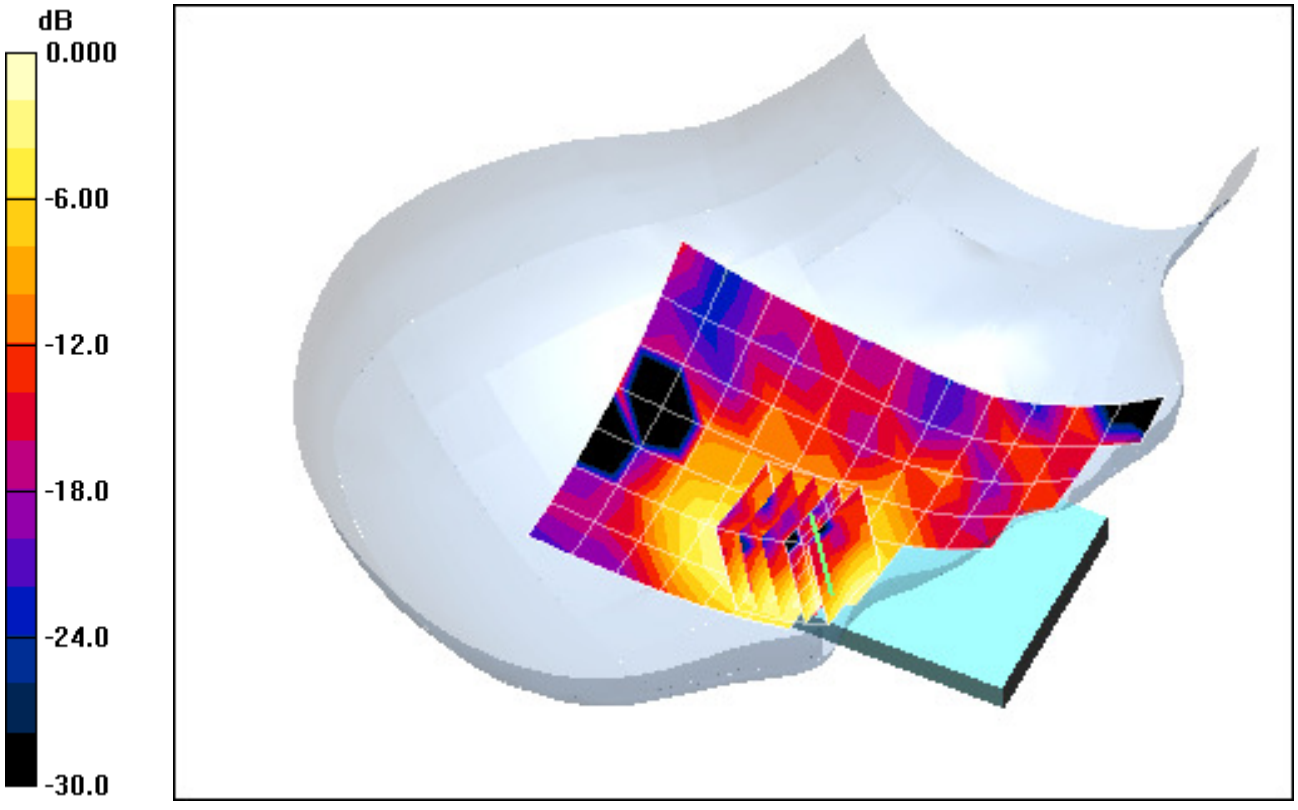
Communication System: IEEE 802.11b; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium: 2450 Head Medium parameters used (interpolated):
f = 2462 MHz; σ = 1.8 mho/m; ε_r = 38.7; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 08-01-2011; Ambient Temp: 23.7°C; Tissue Temp: 22.3°C

Probe: EX3DV4 - SN3550; ConvF(6.29, 6.29, 6.29); Calibrated: 2/14/2011
Sensor-Surface: 3mm (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 802.11b, Right Head, Touch, Ch 11, 1 Mbps

Area Scan (8x12x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.33 V/m
Peak SAR (extrapolated) = 0.060 W/kg
SAR(1 g) = 0.033 mW/g; SAR(10 g) = 0.018 mW/g



0 dB = 0.041mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288040038531

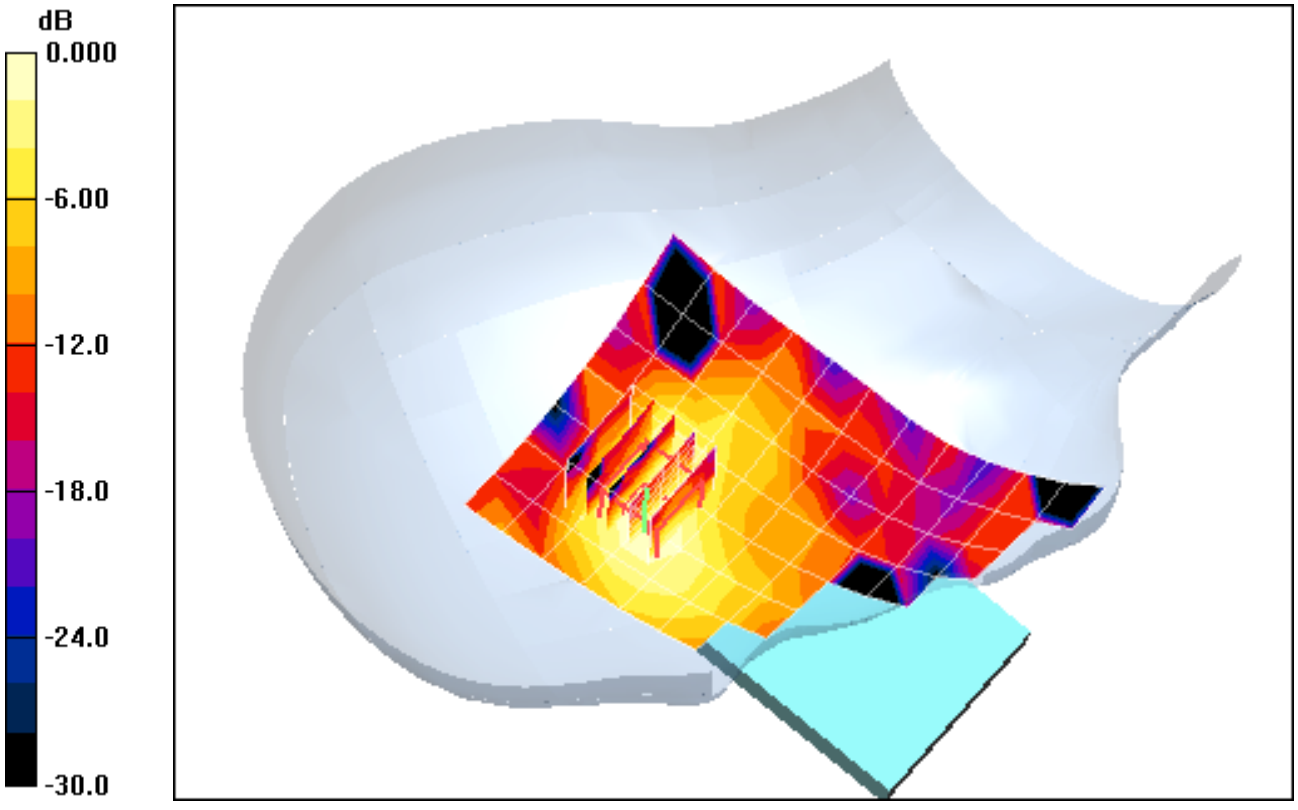
Communication System: IEEE 802.11b; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium: 2450 Head Medium parameters used (interpolated):
f = 2462 MHz; σ = 1.8 mho/m; ε_r = 38.7; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 08-01-2011; Ambient Temp: 23.7°C; Tissue Temp: 22.3°C

Probe: EX3DV4 - SN3550; ConvF(6.29, 6.29, 6.29); Calibrated: 2/14/2011
Sensor-Surface: 3mm (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 802.11b, Right Head, Tilt, Ch 11, 1 Mbps

Area Scan (8x12x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.85 V/m
Peak SAR (extrapolated) = 0.043 W/kg
SAR(1 g) = 0.024 mW/g; SAR(10 g) = 0.013 mW/g



0 dB = 0.029mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288040038531

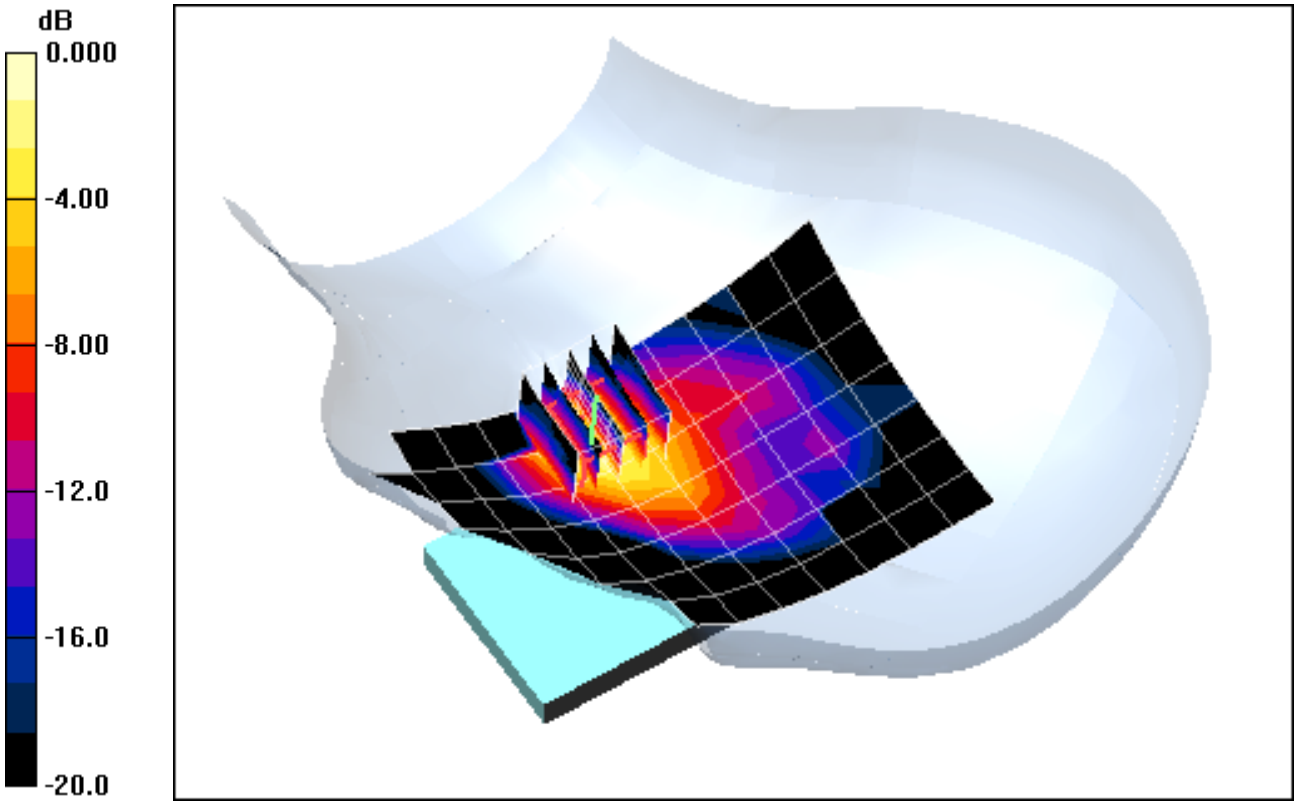
Communication System: IEEE 802.11b; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium: 2450 Head Medium parameters used (interpolated):
f = 2462 MHz; σ = 1.8 mho/m; ε_r = 38.7; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 08-01-2011; Ambient Temp: 23.7°C; Tissue Temp: 22.3°C

Probe: EX3DV4 - SN3550; ConvF(6.29, 6.29, 6.29); Calibrated: 2/14/2011
Sensor-Surface: 3mm (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 802.11b, Left Head, Touch, Ch 11, 1 Mbps

Area Scan (8x12x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.55 V/m
Peak SAR (extrapolated) = 0.206 W/kg
SAR(1 g) = 0.093 mW/g; SAR(10 g) = 0.042 mW/g



0 dB = 0.123mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288040038531

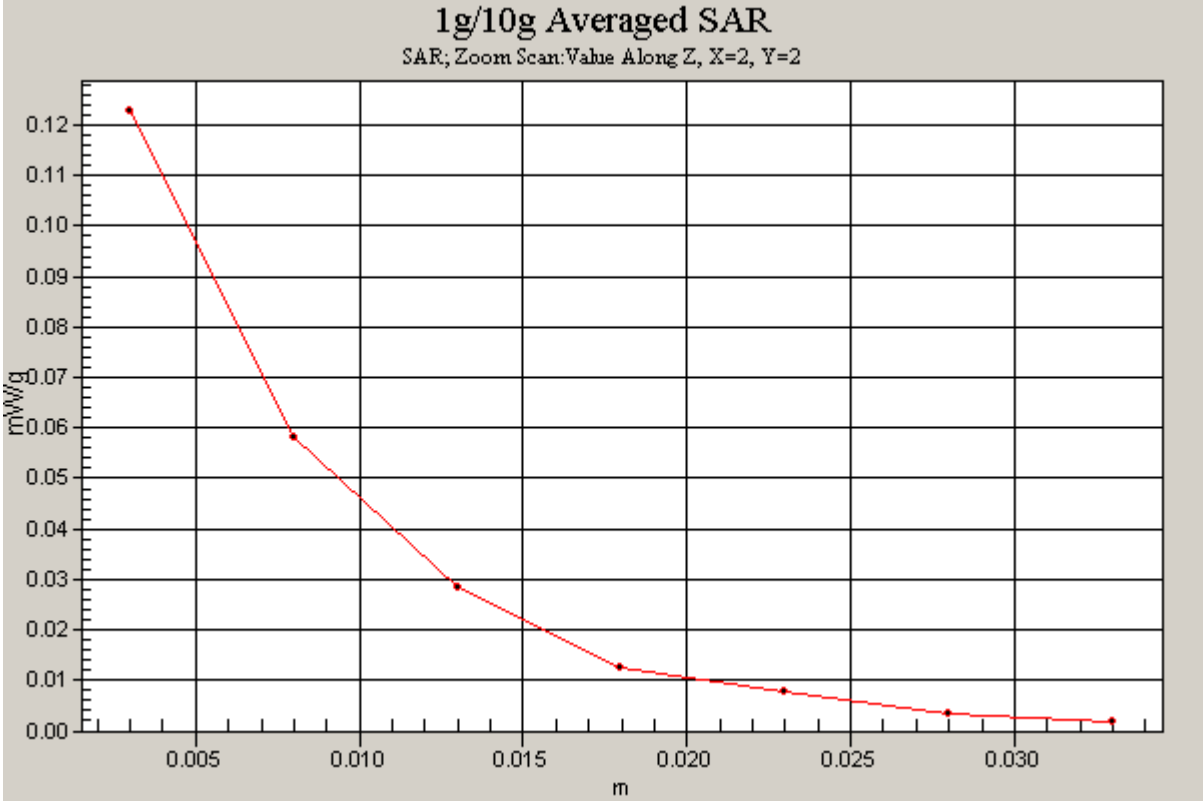
Communication System: IEEE 802.11b; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium: 2450 Head Medium parameters used (interpolated):
f = 2462 MHz; σ = 1.8 mho/m; ε_r = 38.7; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 08-01-2011; Ambient Temp: 23.7°C; Tissue Temp: 22.3°C

Probe: EX3DV4 - SN3550; ConvF(6.29, 6.29, 6.29); Calibrated: 2/14/2011
Sensor-Surface: 3mm (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 802.11b, Left Head, Touch, Ch 11, 1 Mbps

Area Scan (8x12x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.55 V/m
Peak SAR (extrapolated) = 0.206 W/kg
SAR(1 g) = 0.093 mW/g; SAR(10 g) = 0.042 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288040038531

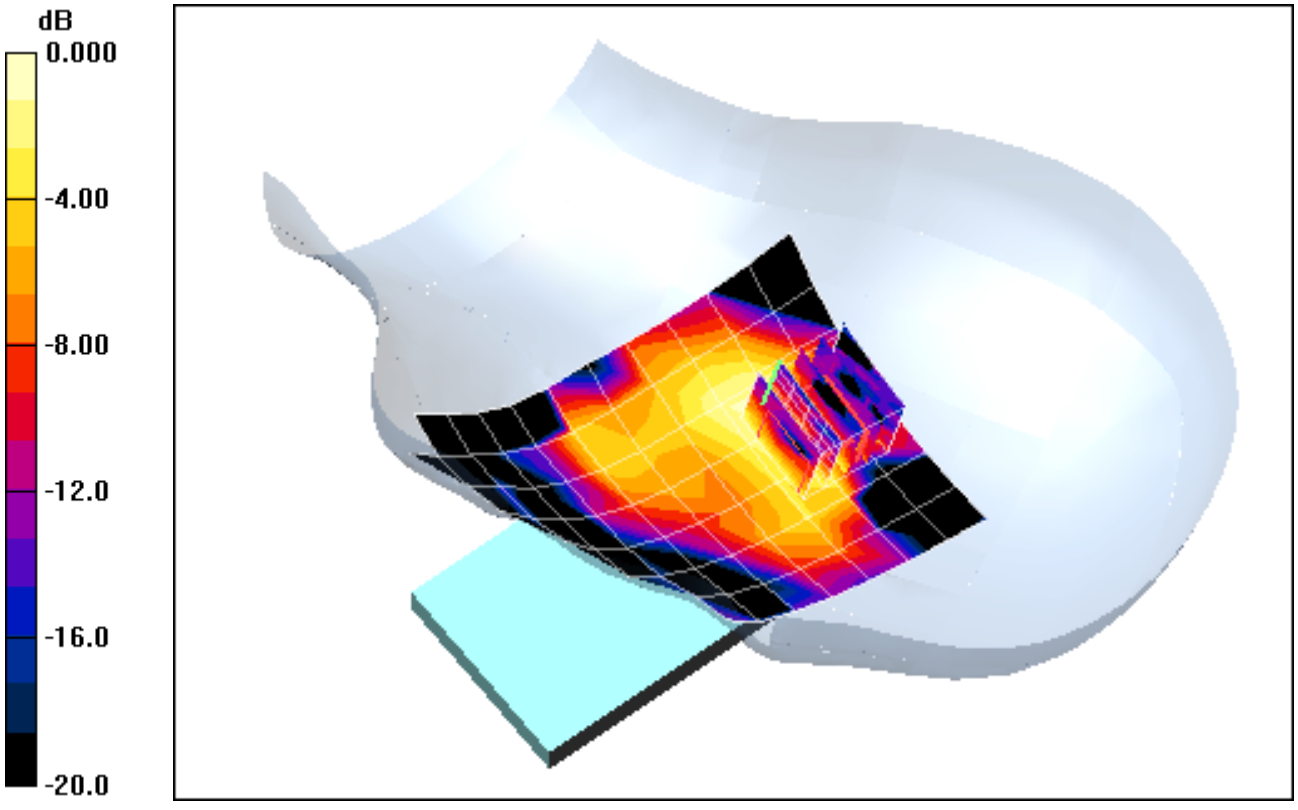
Communication System: IEEE 802.11b; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium: 2450 Head Medium parameters used (interpolated):
f = 2462 MHz; σ = 1.8 mho/m; ε_r = 38.7; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 08-01-2011; Ambient Temp: 23.7°C; Tissue Temp: 22.3°C

Probe: EX3DV4 - SN3550; ConvF(6.29, 6.29, 6.29); Calibrated: 2/14/2011
Sensor-Surface: 3mm (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 802.11b, Left Head, Tilt, Ch 11, 1 Mbps

Area Scan (8x12x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.19 V/m
Peak SAR (extrapolated) = 0.053 W/kg
SAR(1 g) = 0.018 mW/g; SAR(10 g) = 0.00725 mW/g



0 dB = 0.023mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288040038531

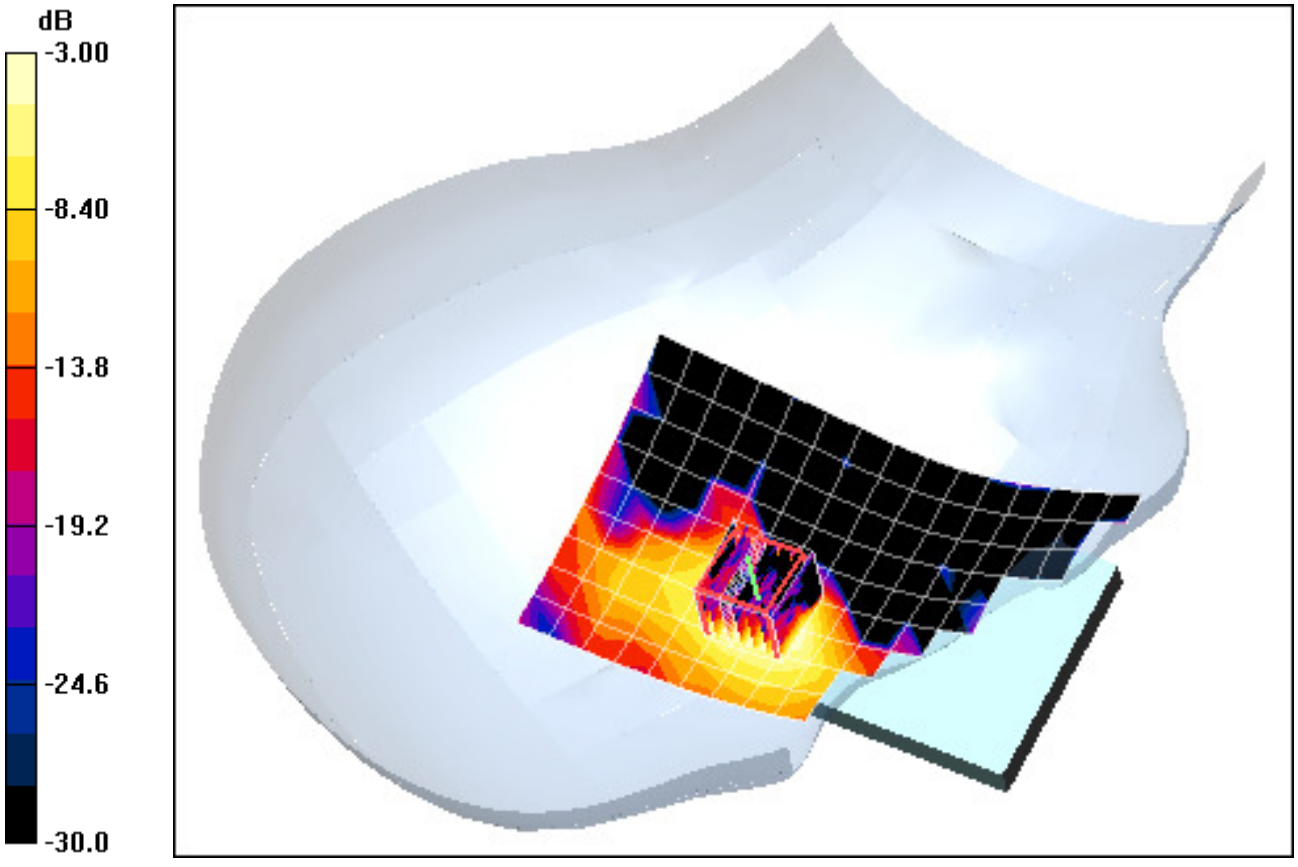
Communication System: IEEE 802.11a 5.2-5.8 GHz Band; Frequency: 5745 MHz;Duty Cycle: 1:1
Medium: 5 GHz Head; Medium parameters used (interpolated):
f = 5745 MHz; σ = 5.41 mho/m; ε_r = 34.3; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 07-27-2011; Ambient Temp: 22.6 °C; Tissue Temp: 20.8 °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 (10x16x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 5.25 V/m
Peak SAR (extrapolated) = 0.446 W/kg
SAR(1 g) = 0.126 mW/g; SAR(10 g) = 0.039 mW/g



0 dB = 0.285mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288040038531

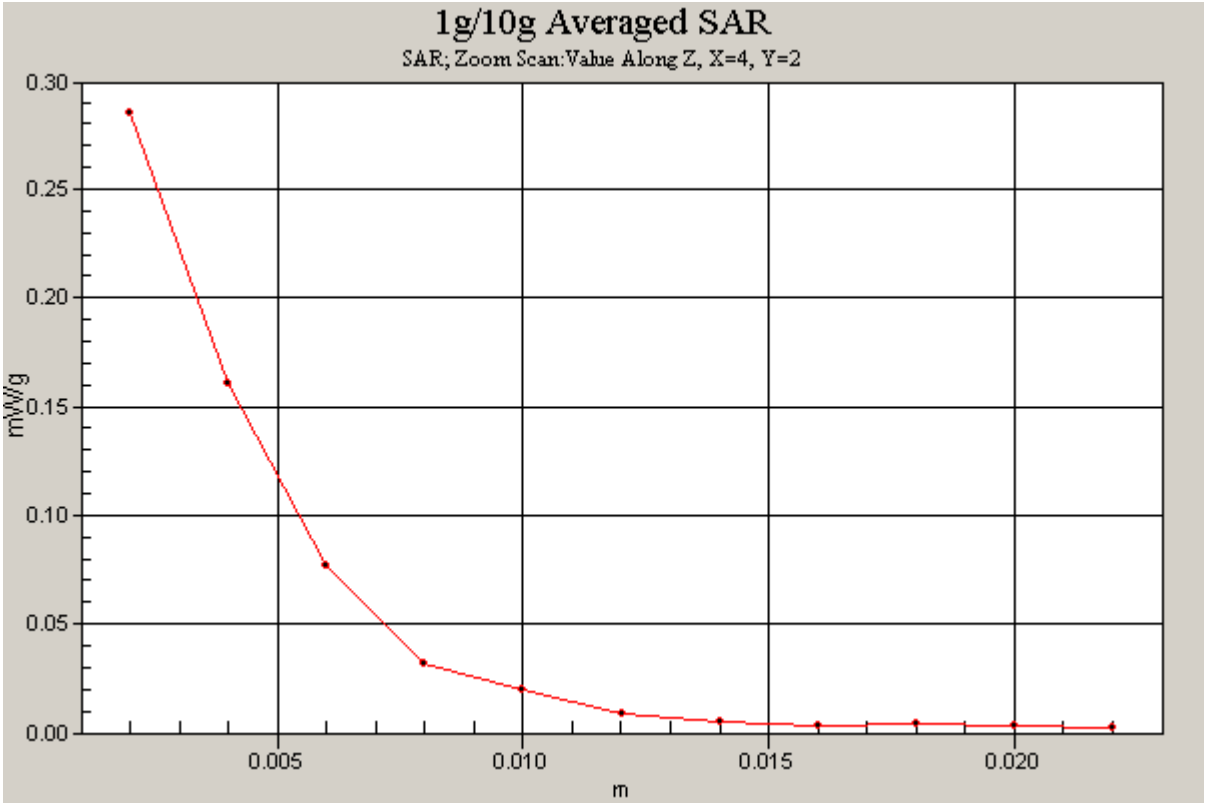
Communication System: IEEE 802.11a 5.2-5.8 GHz Band; Frequency: 5745 MHz;Duty Cycle: 1:1
Medium: 5 GHz Head; Medium parameters used (interpolated):
f = 5745 MHz; σ = 5.41 mho/m; ε_r = 34.3; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 07-27-2011; Ambient Temp: 22.6 °C; Tissue Temp: 20.8 °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 (10x16x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 5.25 V/m
Peak SAR (extrapolated) = 0.446 W/kg
SAR(1 g) = 0.126 mW/g; SAR(10 g) = 0.039 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Poratble Handset; Serial: IMEI: 357288040038531

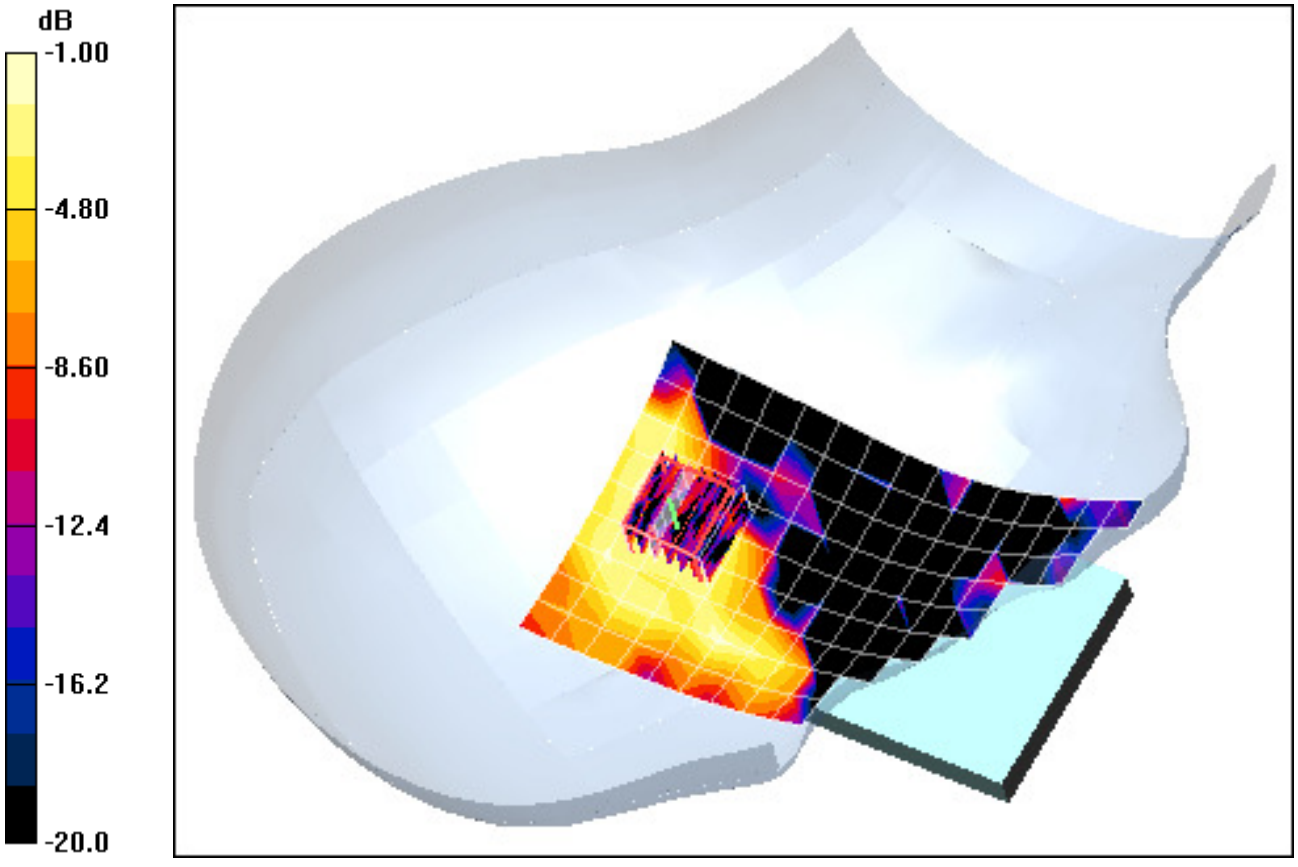
Communication System: IEEE 802.11a 5.2-5.8 GHz Band; Frequency: 5745 MHz;Duty Cycle: 1:1
Medium: 5 GHz Head; Medium parameters used (interpolated):
f = 5745 MHz; σ = 5.41 mho/m; ε_r = 34.3; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 07-27-2011; Ambient Temp: 22.6 °C; Tissue Temp: 20.8 °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, Tilt, Ch 149, 6 Mbps

Area Scan (10x16x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 1.33 V/m
Peak SAR (extrapolated) = 0.234 W/kg
SAR(1 g) = 0.0225 mW/g; SAR(10 g) = 0.00847 mW/g



0 dB = 0.053mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset;Serial: IMEI: 357288040038531

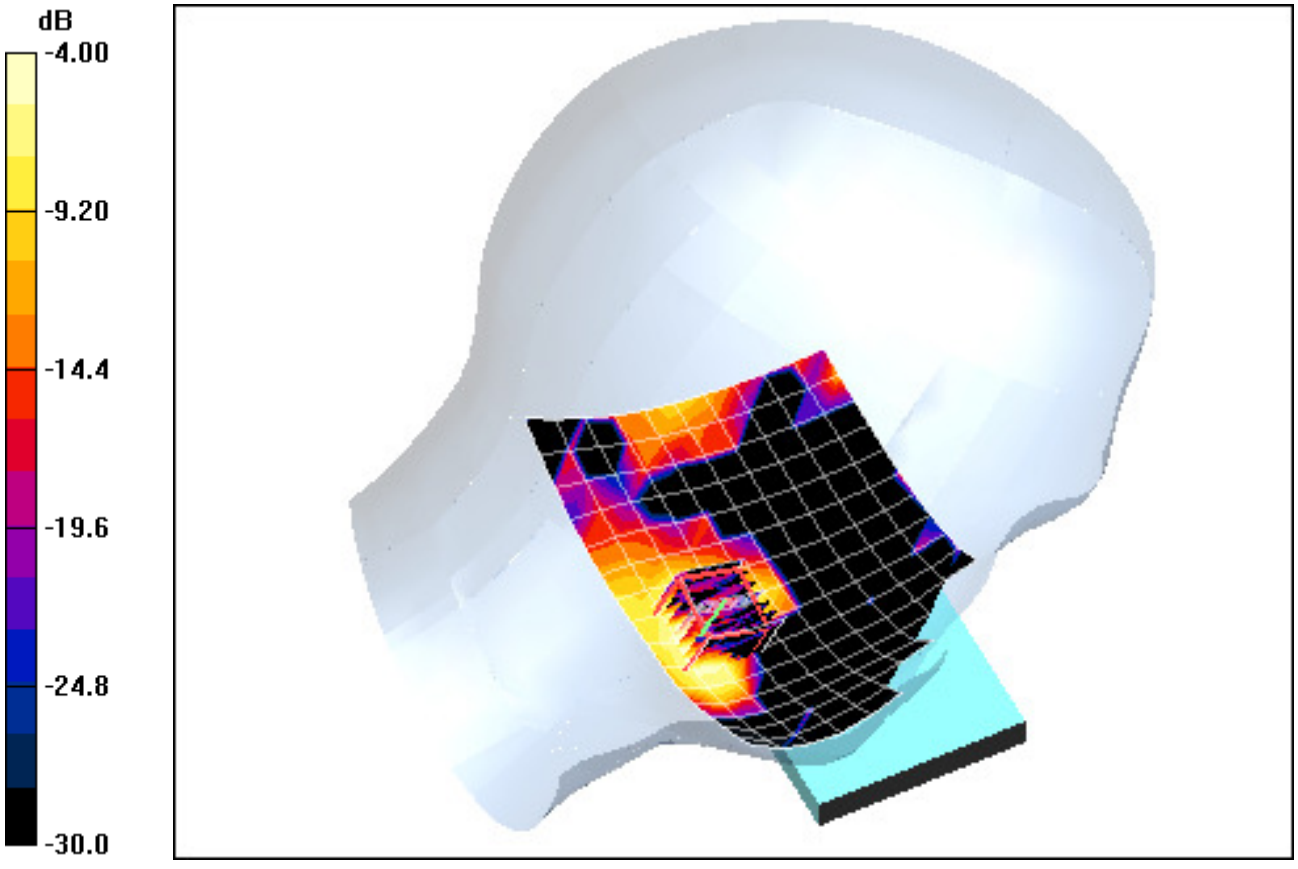
Communication System: IEEE 802.11a 5.2-5.8 GHz Band; Frequency: 5745 MHz;Duty Cycle: 1:1
Medium: 5 GHz Head; Medium parameters used (interpolated):
f = 5745 MHz; σ = 5.41 mho/m; ε_r = 34.3; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 07-27-2011; Ambient Temp: 22.6 °C; Tissue Temp: 20.8 °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 Left Head, Touch, Ch 149, 6 Mbps

Area Scan (11x16x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 4.96 V/m
Peak SAR (extrapolated) = 0.390 W/kg
SAR(1 g) = 0.101 mW/g; SAR(10 g) = 0.031 mW/g



0 dB = 0.222mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288040038531

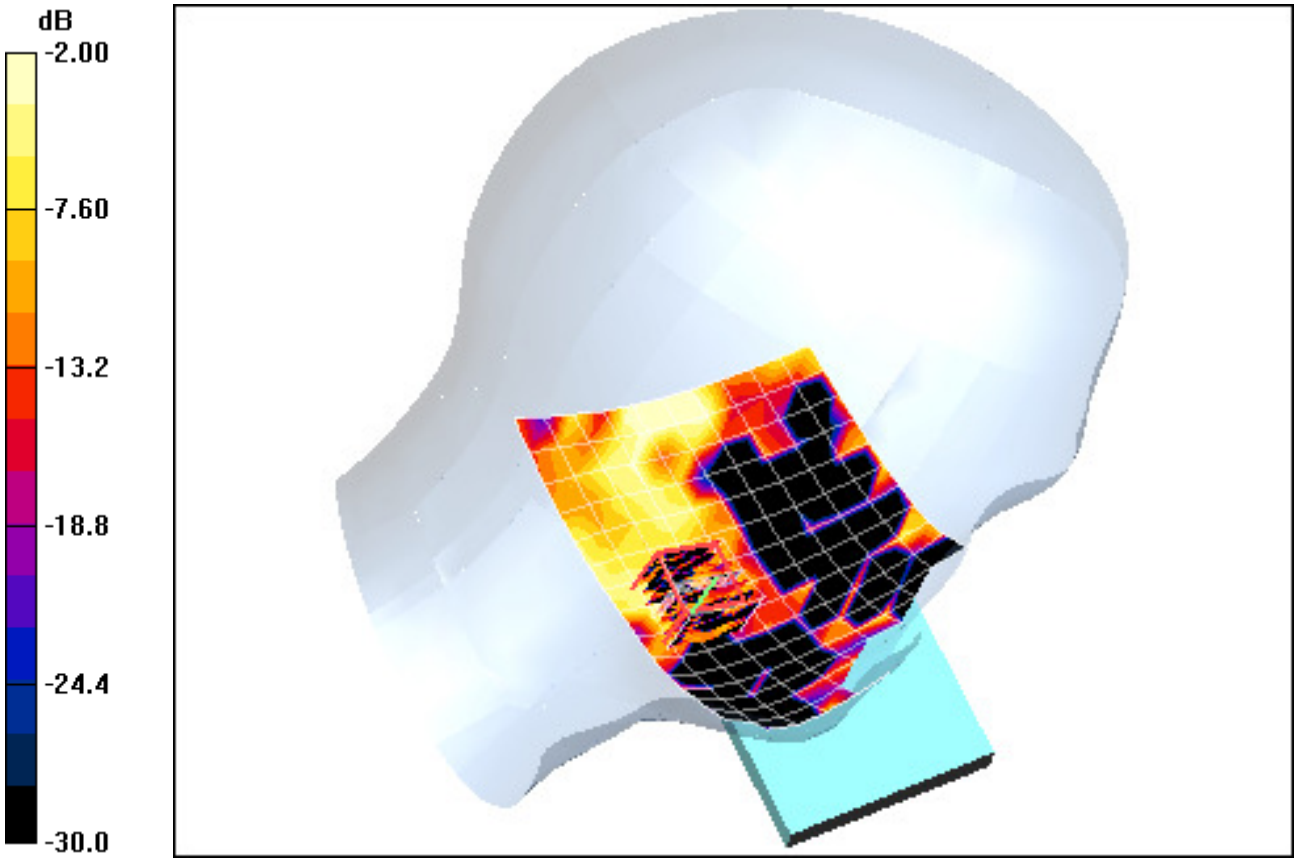
Communication System: IEEE 802.11a 5.2-5.8 GHz Band; Frequency: 5745 MHz;Duty Cycle: 1:1
Medium: 5 GHz Head; Medium parameters used (interpolated):
f = 5745 MHz; σ = 5.41 mho/m; ε_r = 34.3; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 07-27-2011; Ambient Temp: 22.6 °C; Tissue Temp: 20.8 °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 Left Head, Tilt, Ch 149, 6 Mbps

Area Scan (11x16x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 2.09 V/m
Peak SAR (extrapolated) = 0.327 W/kg
SAR(1 g) = 0.026 mW/g; SAR(10 g) = 0.00703 mW/g



0 dB = 0.043mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288040025710

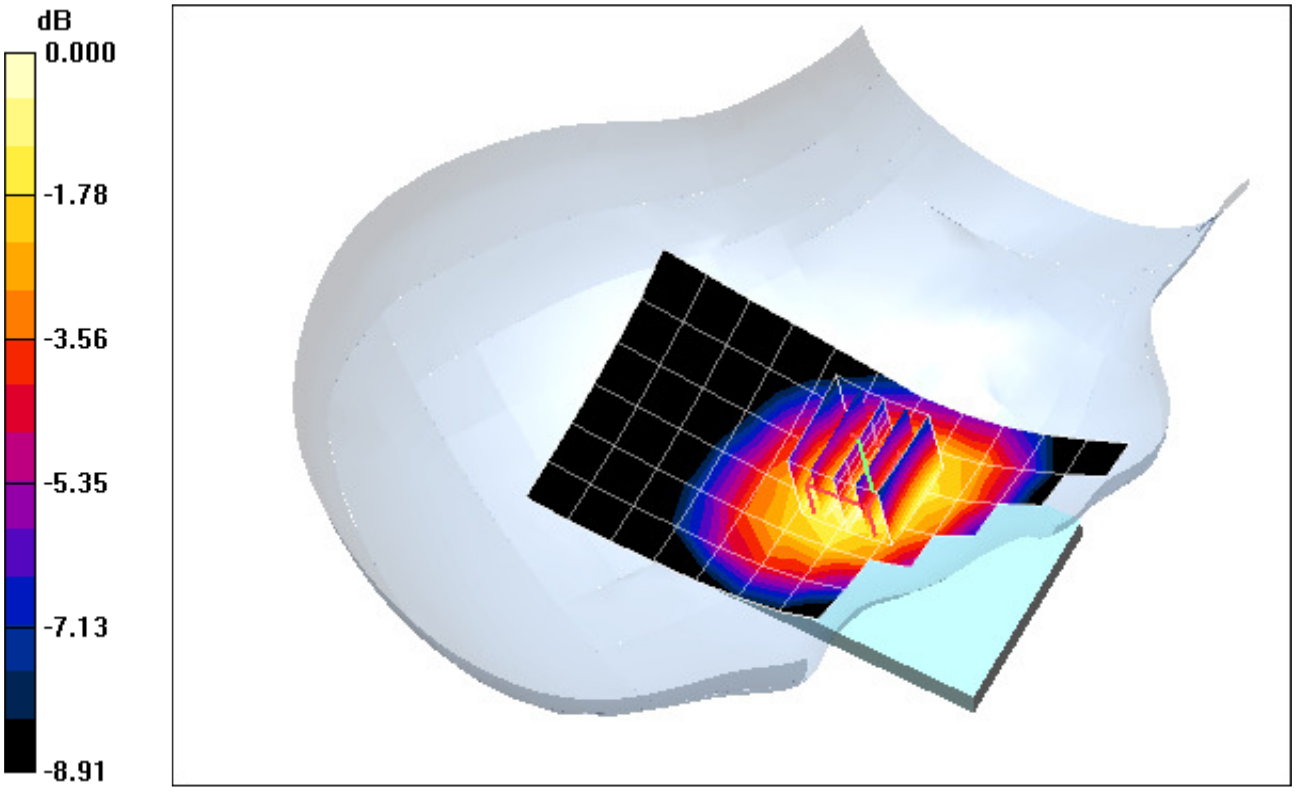
Communication System: LTE BAND 17; Frequency: 710 MHz;Duty Cycle: 1:1
Medium: 750 Head Medium parameters used:
f = 710 MHz; σ = 0.871 mho/m; ε_r = 43.02; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 08-08-2011; Ambient Temp: 24.0 °C; Tissue Temp: 22.4 °C

Probe: ES3DV3 - SN3258; ConvF(6.41, 6.41, 6.41); 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: LTE 700 MHz, Right Head, Touch, Mid.ch, QPSK, 10 MHz BW, 1 RB, RB Offset 49

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.6 V/m
Peak SAR (extrapolated) = 0.133 W/kg
SAR(1 g) = 0.101 mW/g; SAR(10 g) = 0.077 mW/g



0 dB = 0.105mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288040025710

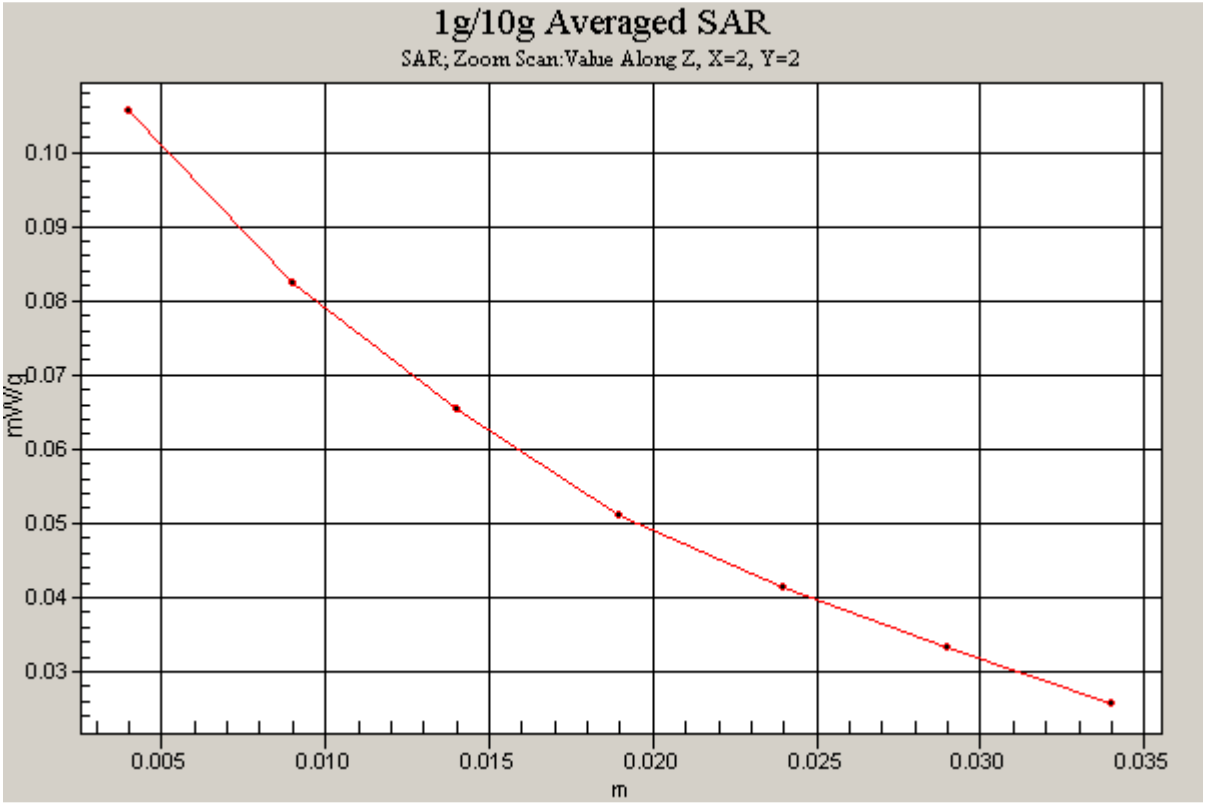
Communication System: LTE BAND 17; Frequency: 710 MHz;Duty Cycle: 1:1
Medium: 750 Head Medium parameters used:
f = 710 MHz; σ = 0.871 mho/m; ε_r = 43.02; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 08-08-2011; Ambient Temp: 24.0 °C; Tissue Temp: 22.4 °C

Probe: ES3DV3 - SN3258; ConvF(6.41, 6.41, 6.41); 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: LTE 700 MHz, Right Head, Touch, Mid.ch, QPSK, 10 MH BW, 1 RB, RB Offset 49

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.6 V/m
Peak SAR (extrapolated) = 0.133 W/kg
SAR(1 g) = 0.101 mW/g; SAR(10 g) = 0.077 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288040025710

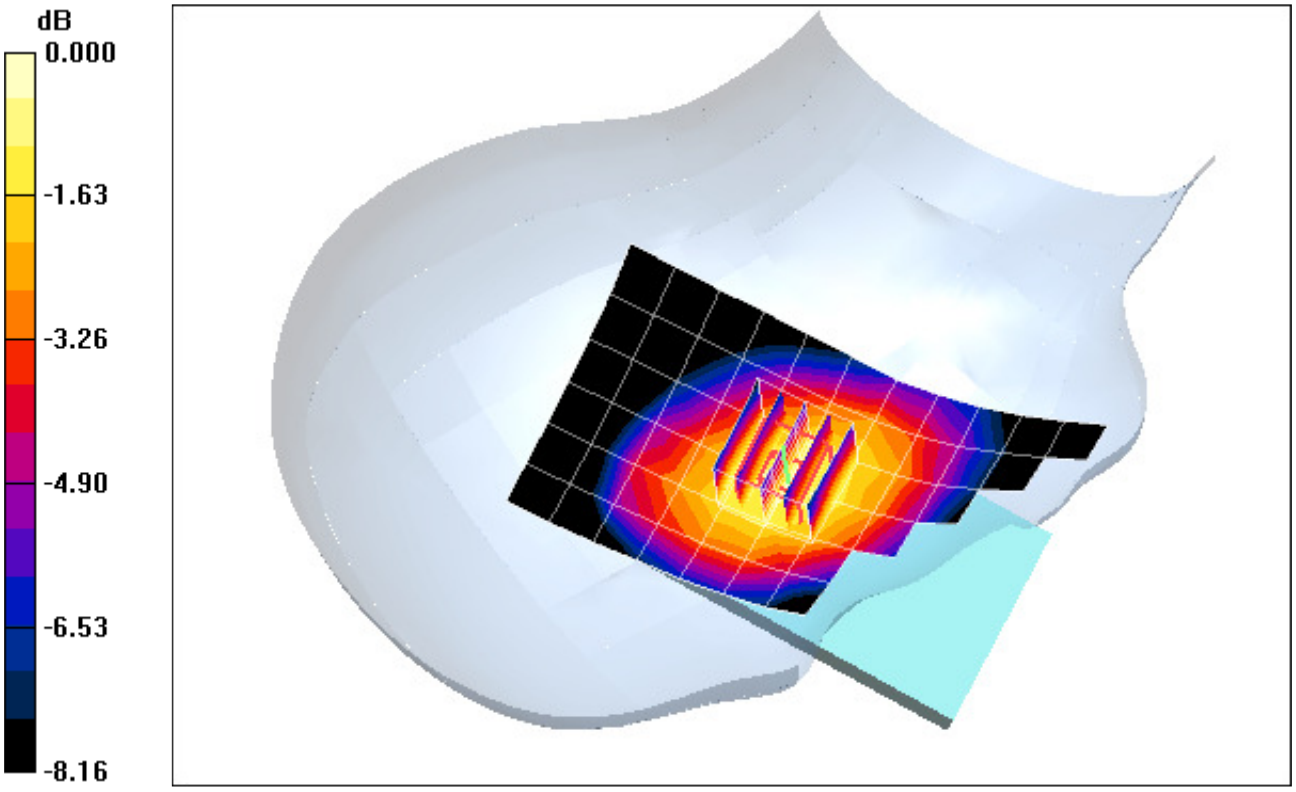
Communication System: LTE BAND 17; Frequency: 710 MHz;Duty Cycle: 1:1
Medium: 750 Head Medium parameters used:
f = 710 MHz; σ = 0.871 mho/m; ε_r = 43.02; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 08-08-2011; Ambient Temp: 24.0 °C; Tissue Temp: 22.4 °C

Probe: ES3DV3 - SN3258; ConvF(6.41, 6.41, 6.41); 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: LTE 700 MHz, Right Head, Tilt, Mid.ch, QPSK, 10 MHz BW, 1 RB, RB Offset 49

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.05 V/m
Peak SAR (extrapolated) = 0.064 W/kg
SAR(1 g) = 0.0504 mW/g; SAR(10 g) = 0.039 mW/g



0 dB = 0.053mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288040025710

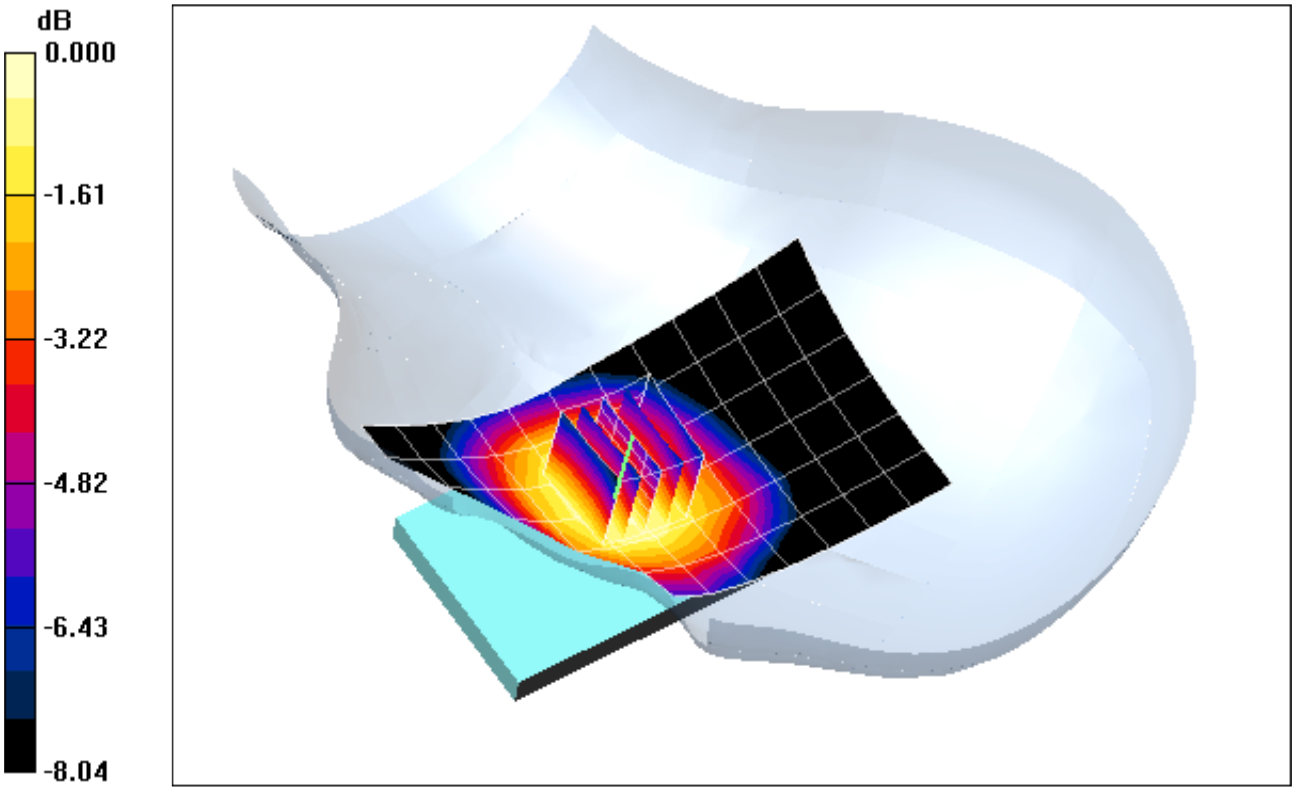
Communication System: LTE BAND 17; Frequency: 710 MHz;Duty Cycle: 1:1
Medium: 750 Head Medium parameters used:
f = 710 MHz; σ = 0.871 mho/m; ε_r = 43.02; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 08-08-2011; Ambient Temp: 24.0 °C; Tissue Temp: 22.4 °C

Probe: ES3DV3 - SN3258; ConvF(6.41, 6.41, 6.41); 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: LTE 700 MHz, Left Head, Touch, Mid.ch, 10 MHz BW, QPSK, 1 RB, RB Offset 49

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.32 V/m
Peak SAR (extrapolated) = 0.089 W/kg
SAR(1 g) = 0.0744 mW/g; SAR(10 g) = 0.058 mW/g



0 dB = 0.078mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288040025710

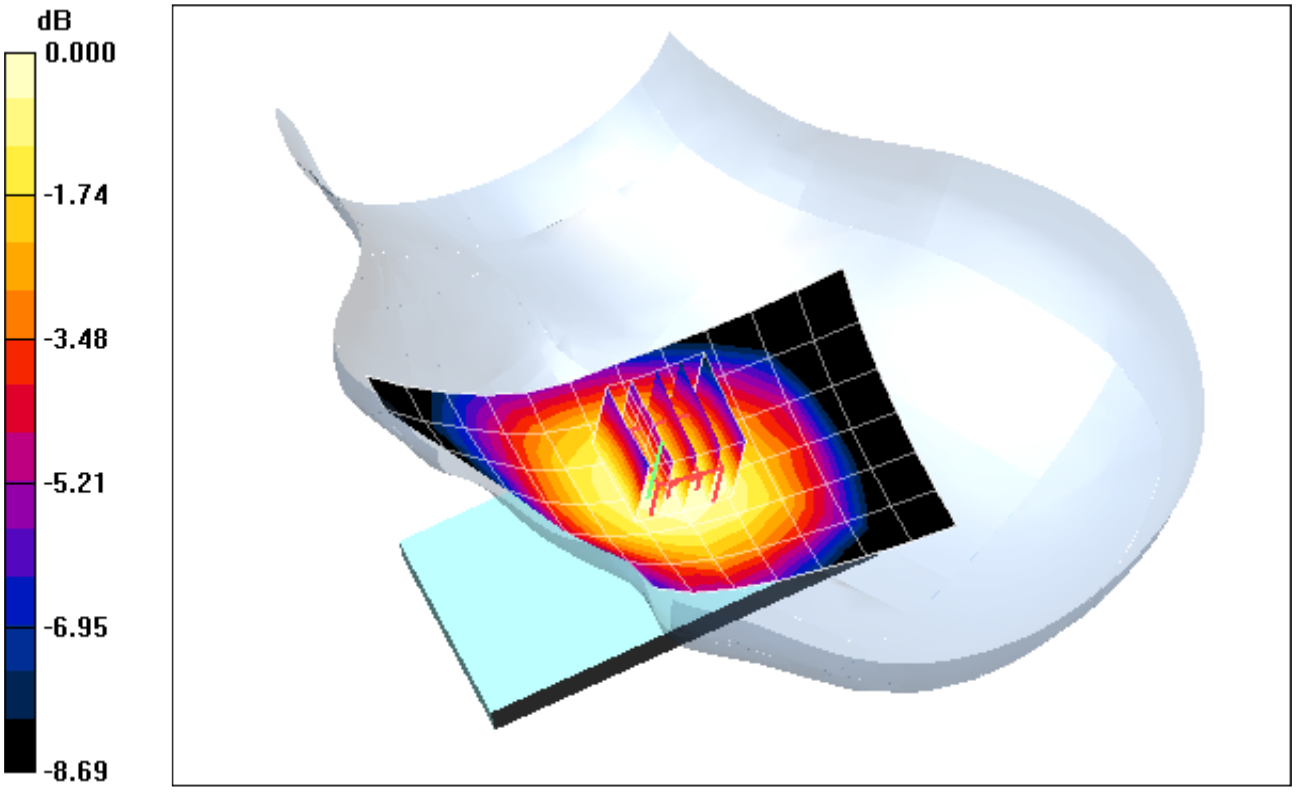
Communication System: LTE BAND 17; Frequency: 710 MHz;Duty Cycle: 1:1
Medium: 750 Head Medium parameters used:
f = 710 MHz; σ = 0.871 mho/m; ε_r = 43.02; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 08-08-2011; Ambient Temp: 24.0 °C; Tissue Temp: 22.4 °C

Probe: ES3DV3 - SN3258; ConvF(6.41, 6.41, 6.41); 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: LTE 700 MHz, Left Head, Tilt, Mid.ch, QPSK, 10 MHz BW, 1 RB, RB Offset 49

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.38 V/m
Peak SAR (extrapolated) = 0.048 W/kg
SAR(1 g) = 0.0398 mW/g; SAR(10 g) = 0.032 mW/g



0 dB = 0.041mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288050025835

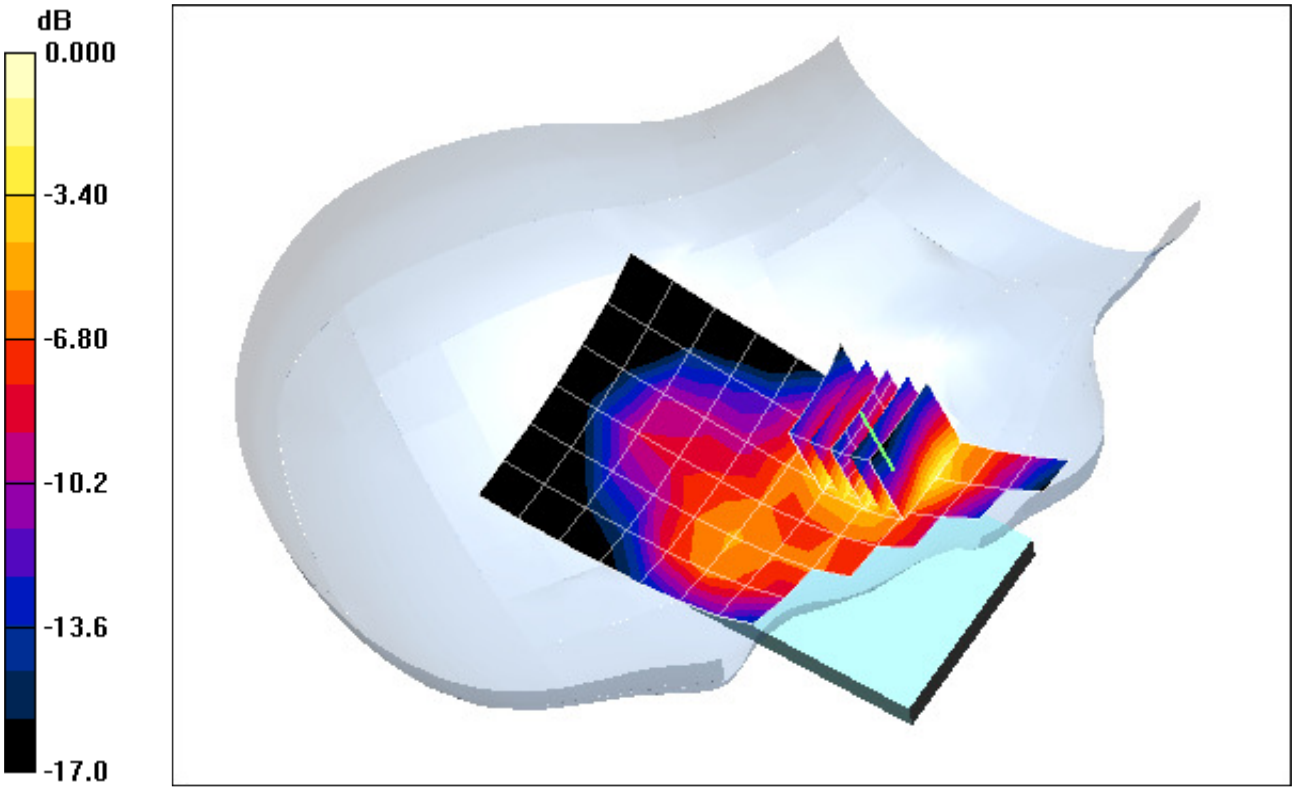
Communication System: LTE RF; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium: 1750 Head Medium parameters used (interpolated):
f = 1732.5 MHz; σ = 1.38 mho/m; ε_r = 39.4; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 08-08-2011; Ambient Temp: 24.2°C; Tissue Temp: 22.7°C

Probe: ES3DV3 - SN3258; ConvF(5.32, 5.32, 5.32); 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: AWS LTE, Right Head, Touch, Mid.ch, QPSK,10 MHz BW, 1 RB, RB Offset 49

Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.8 V/m
Peak SAR (extrapolated) = 0.454 W/kg
SAR(1 g) = 0.276 mW/g; SAR(10 g) = 0.162 mW/g



0 dB = 0.305mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288050025835

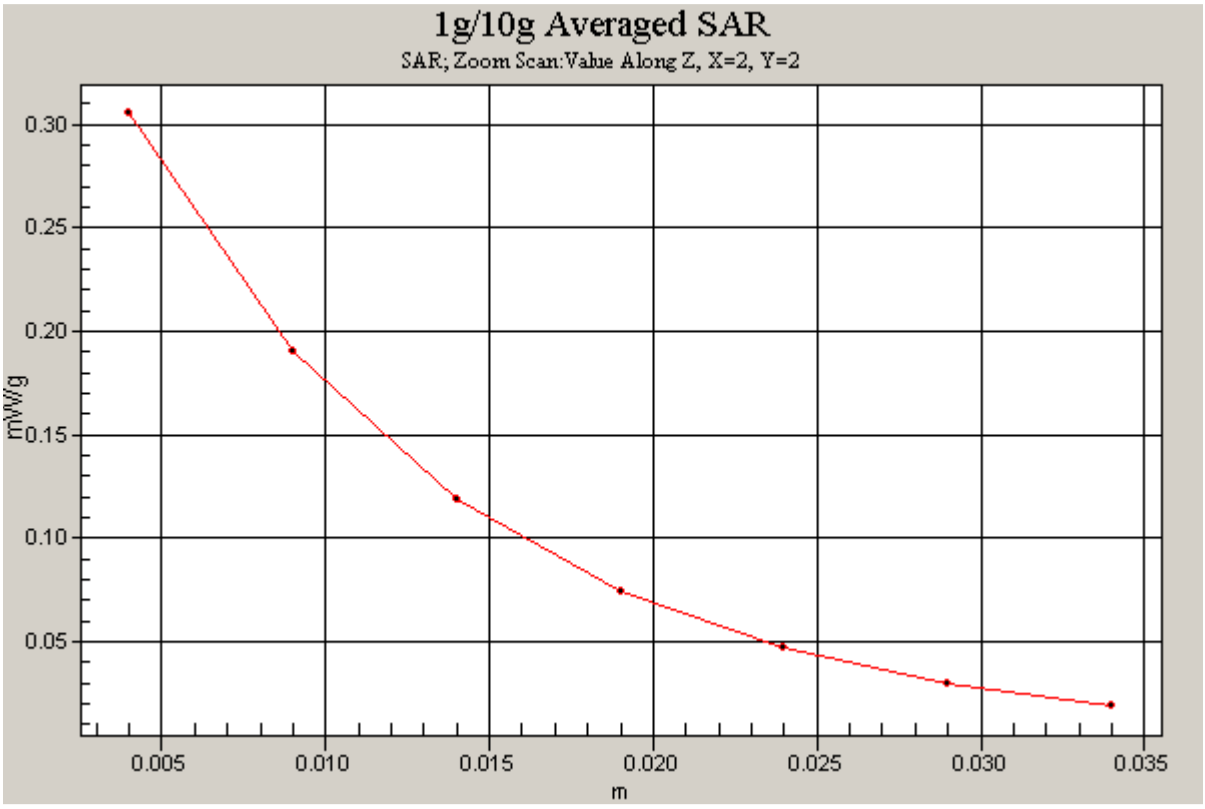
Communication System: LTE RF; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium: 1750 Head Medium parameters used (interpolated):
f = 1732.5 MHz; σ = 1.38 mho/m; ε_r = 39.4; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 08-08-2011; Ambient Temp: 24.2°C; Tissue Temp: 22.7°C

Probe: ES3DV3 - SN3258; ConvF(5.32, 5.32, 5.32); 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: AWS LTE, Right Head, Touch, Mid.ch, QPSK, 10 MHz BW, 1 RB, RB Offset 49

Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.8 V/m
Peak SAR (extrapolated) = 0.454 W/kg
SAR(1 g) = 0.276 mW/g; SAR(10 g) = 0.162 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288050025835

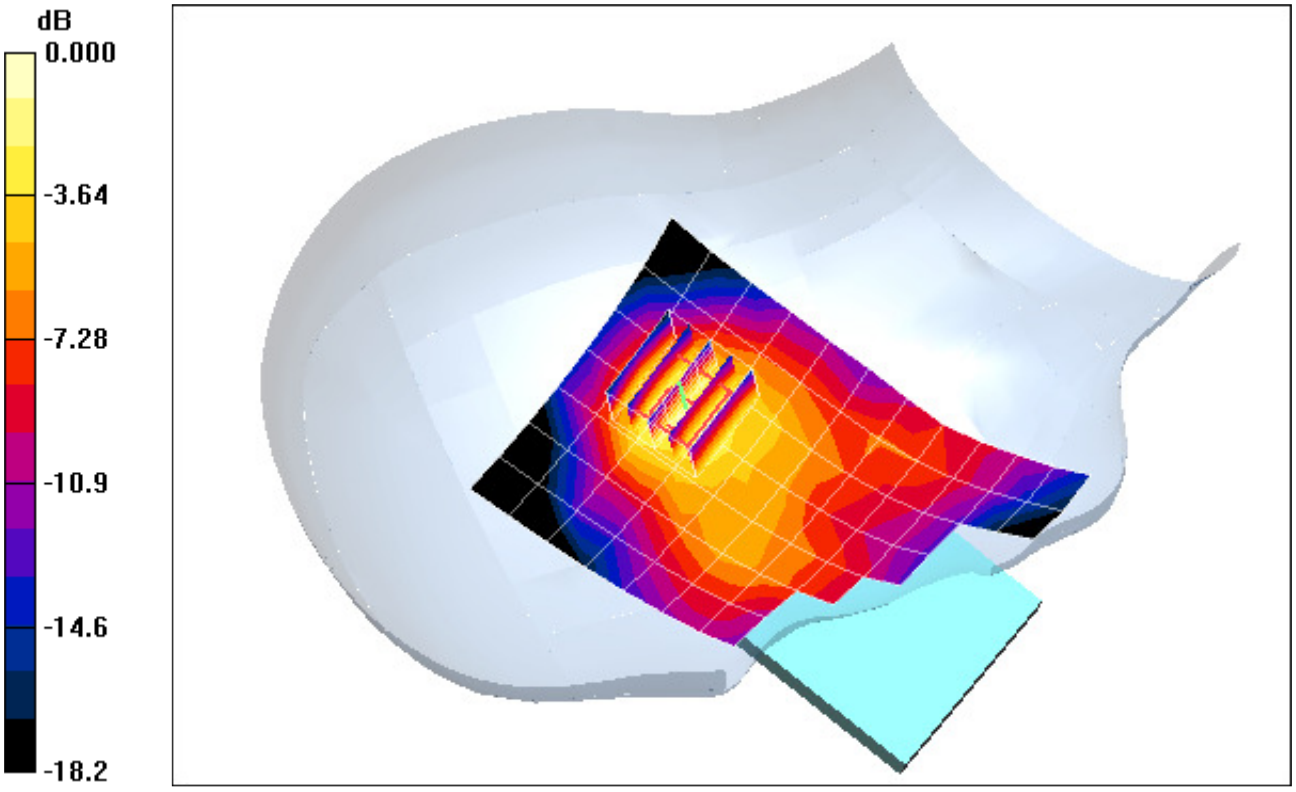
Communication System: LTE RF; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium: 1750 Head Medium parameters used (interpolated):
f = 1732.5 MHz; σ = 1.38 mho/m; ε_r = 39.4; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 08-08-2011; Ambient Temp: 24.2°C; Tissue Temp: 22.7°C

Probe: ES3DV3 - SN3258; ConvF(5.32, 5.32, 5.32); 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: AWS LTE, Right Head, Tilt, Mid.ch, QPSK, 10 MHz BW, 1 RB, RB Offset 49

Area Scan (8x12x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.20 V/m
Peak SAR (extrapolated) = 0.157 W/kg
SAR(1 g) = 0.096 mW/g; SAR(10 g) = 0.058 mW/g



0 dB = 0.103mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288050025835

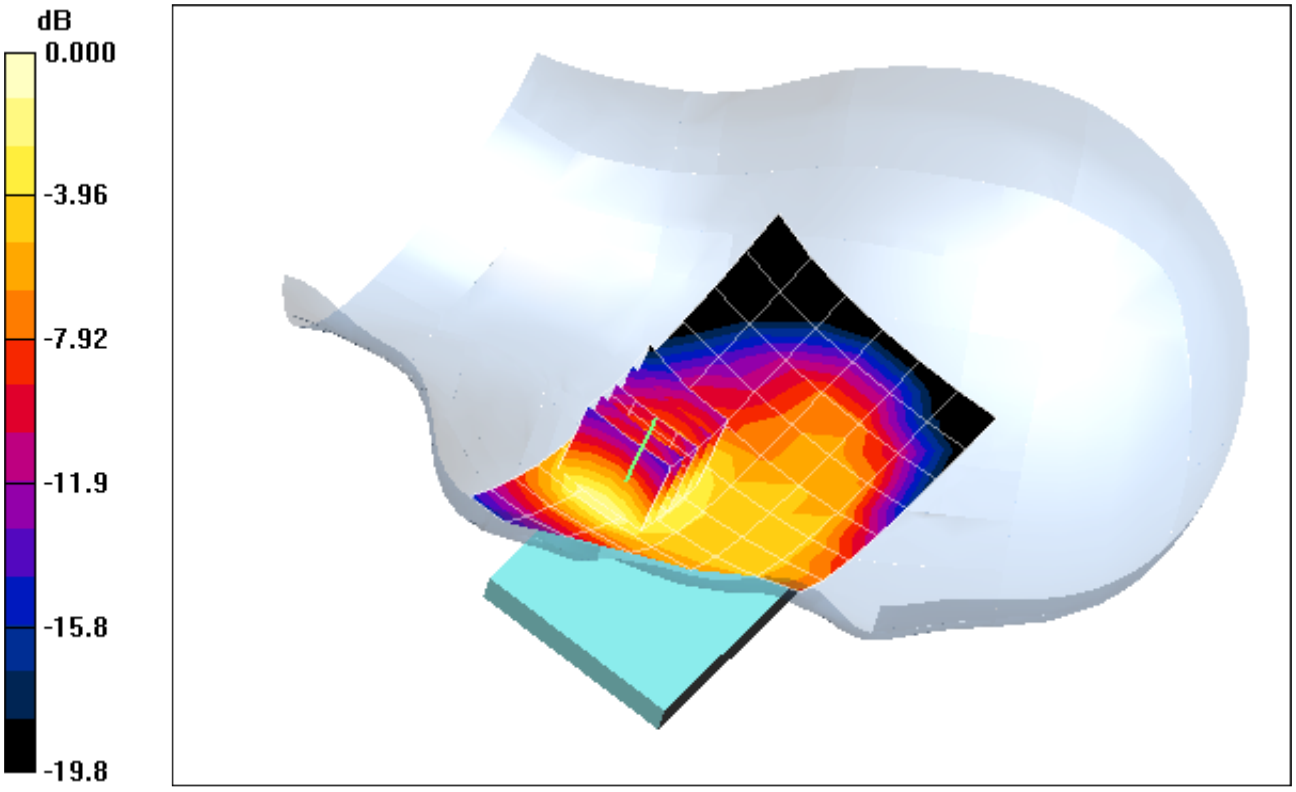
Communication System: LTE RF; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium: 1750 Head Medium parameters used (interpolated):
f = 1732.5 MHz; σ = 1.38 mho/m; ε_r = 39.4; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 08-08-2011; Ambient Temp: 24.2°C; Tissue Temp: 22.7°C

Probe: ES3DV3 - SN3258; ConvF(5.32, 5.32, 5.32); 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: AWS LTE , Left Head, Touch, Mid.ch, QPSK, 10 MHz BW, 1 RB, RB Offset 49

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.71 V/m
Peak SAR (extrapolated) = 0.352 W/kg
SAR(1 g) = 0.233 mW/g; SAR(10 g) = 0.146 mW/g



0 dB = 0.253mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288040025835

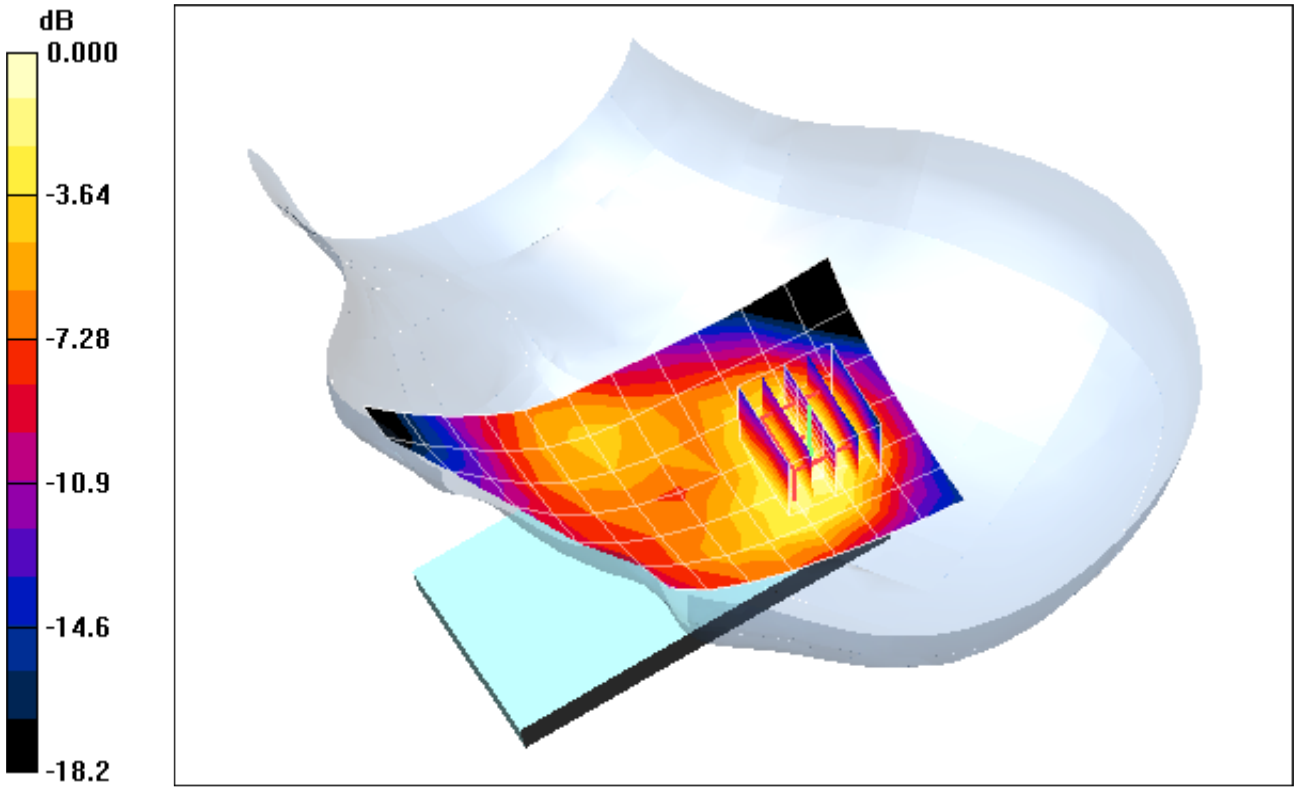
Communication System: LTE RF; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium: 1750 Head Medium parameters used (interpolated):
f = 1732.5 MHz; σ = 1.38 mho/m; ε_r = 39.4; ρ = 1000 kg/m^3
Phantom section: Left Section; Space: 1.0 cm

Test Date: 08-08-2011; Ambient Temp: 24.2°C; Tissue Temp: 22.7°C

Probe: ES3DV3 - SN3258; ConvF(5.32, 5.32, 5.32); 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: LTE AWS, Left Head, Tilt, Mid.ch, QPSK, 10 MHz BW, 1 RB, RB Offset 49

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.08 V/m
Peak SAR (extrapolated) = 0.161 W/kg
SAR(1 g) = 0.101 mW/g; SAR(10 g) = 0.060 mW/g



0 dB = 0.112mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset ; Serial: IME: 357288040038531

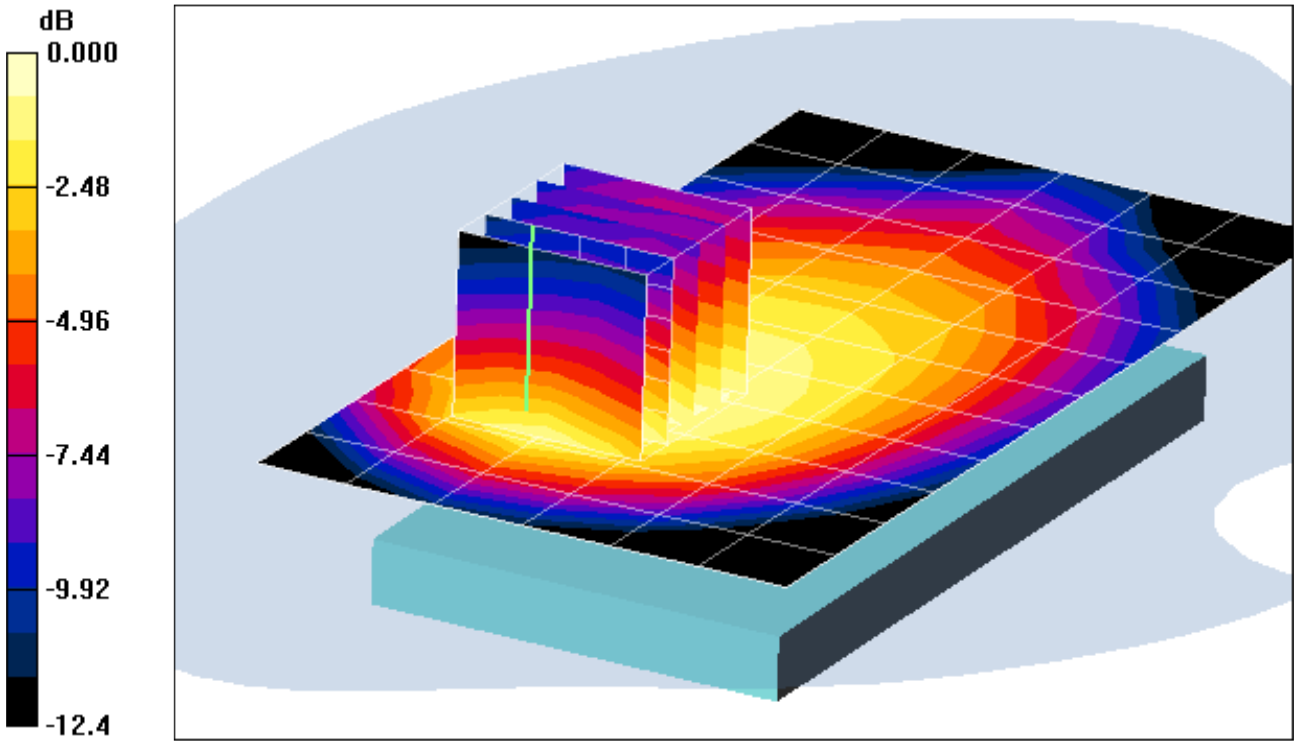
Communication System: GSM850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium: 835 Body Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.99 mho/m; ε_r = 54.6; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 07-27-2011; Ambient Temp: 23.7°C; Tissue Temp: 22.6°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: GSM 850, 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 = 16.5 V/m
Peak SAR (extrapolated) = 0.541 W/kg
SAR(1 g) = 0.356 mW/g; SAR(10 g) = 0.241 mW/g



0 dB = 0.378mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288040038531

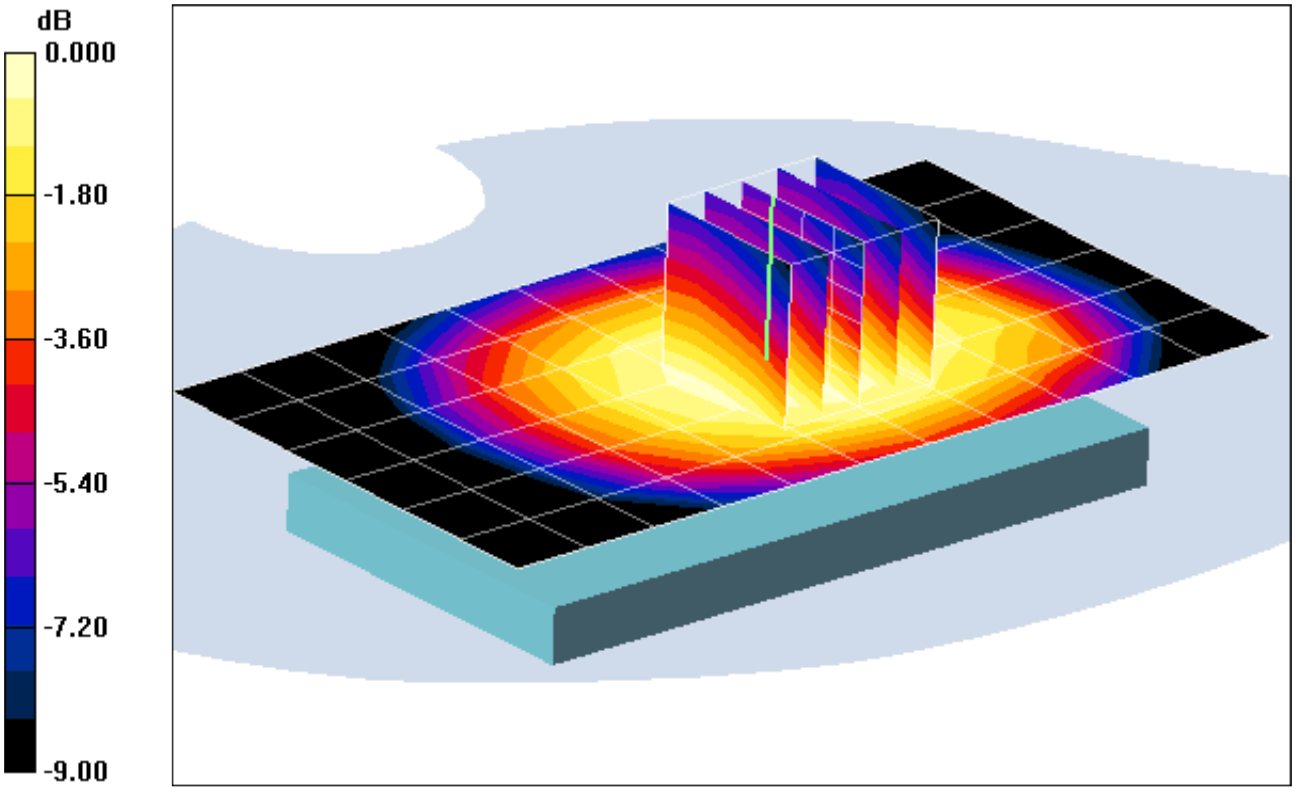
Communication System: GSM850 GPRS; 2 Tx slots; Frequency: 836.6 MHz;Duty Cycle: 1:4.15
Medium: 835 Body Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.99 mho/m; ε_r = 54.6; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 07-27-2011; Ambient Temp: 23.7°C; Tissue Temp: 22.6°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: GPRS 850, Body SAR, Back side, Mid.ch, 2 Tx Slots

Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 29.7 V/m
Peak SAR (extrapolated) = 1.06 W/kg
SAR(1 g) = 0.845 mW/g; SAR(10 g) = 0.648 mW/g



0 dB = 0.883mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288040038531

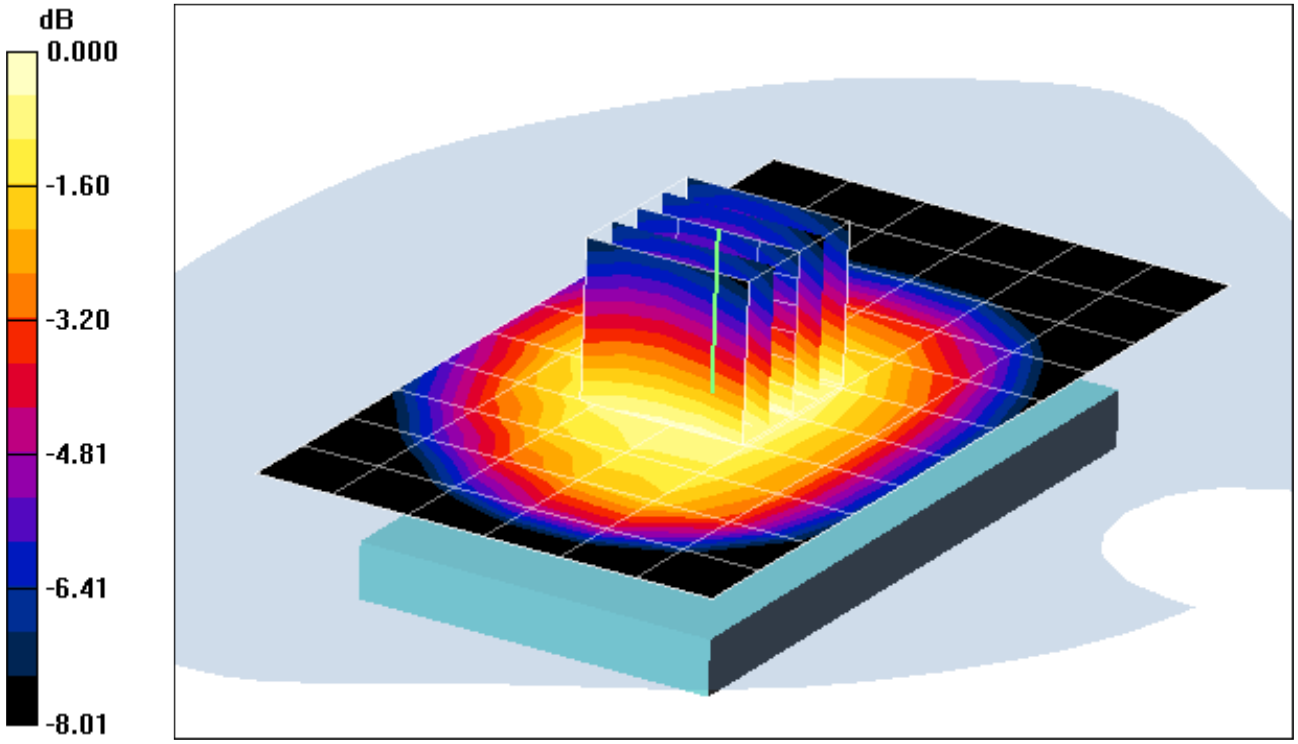
Communication System: GSM850 GPRS; 2 Tx slots; Frequency: 836.6 MHz;Duty Cycle: 1:4.15
Medium: 835 Body Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.99 mho/m; ε_r = 54.6; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 07-27-2011; Ambient Temp: 23.7°C; Tissue Temp: 22.6°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: GPRS 850, Body SAR, Front side, Mid.ch, 2 Tx Slots

Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 23.0 V/m
Peak SAR (extrapolated) = 0.700 W/kg
SAR(1 g) = 0.529 mW/g; SAR(10 g) = 0.407 mW/g



0 dB = 0.552mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288040038531

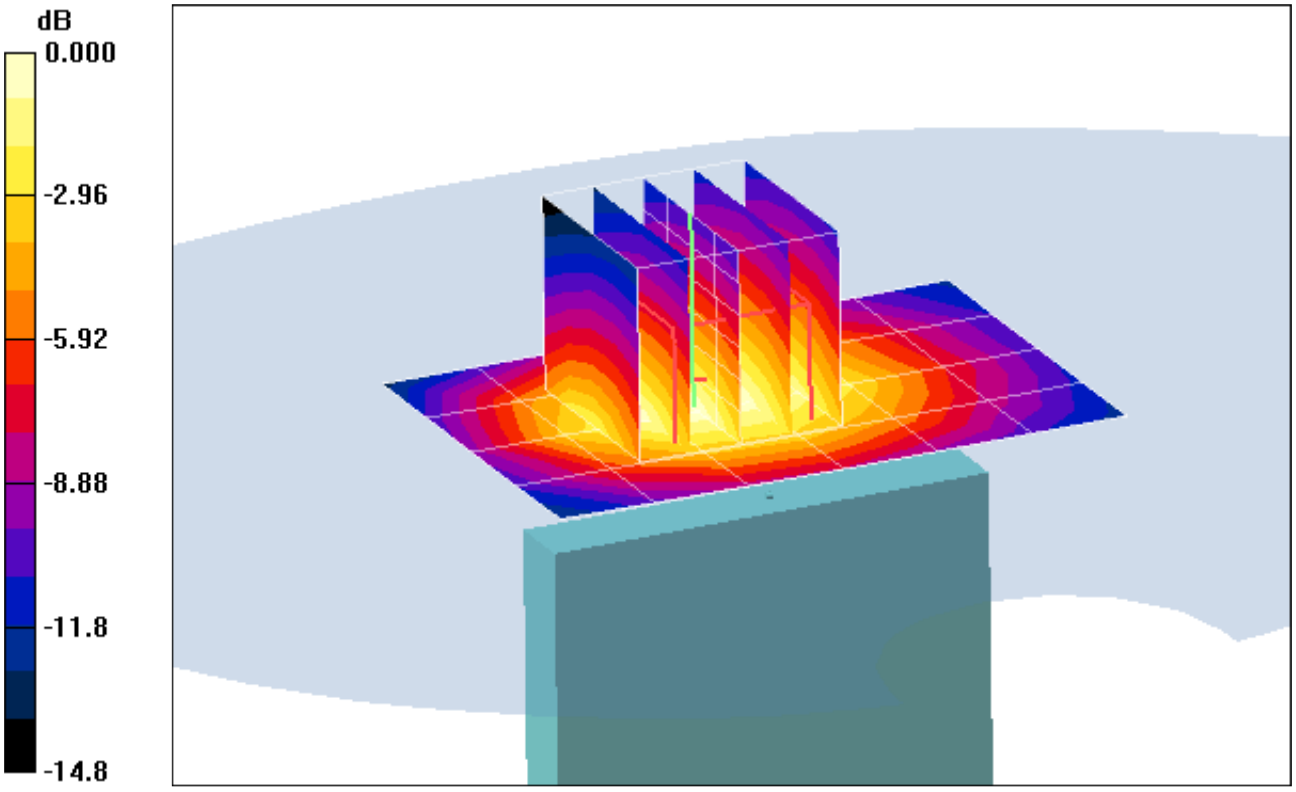
Communication System: GSM850 GPRS; 2 Tx slots; Frequency: 836.6 MHz;Duty Cycle: 1:4.15
Medium: 835 Body Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.99 mho/m; ε_r = 54.6; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 07-27-2011; Ambient Temp: 23.7°C; Tissue Temp: 22.6°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: GPRS 850, Body SAR, Bottom Edge, Mid.ch, 2 Tx Slots

Area Scan (5x7x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.4 V/m
Peak SAR (extrapolated) = 0.449 W/kg
SAR(1 g) = 0.264 mW/g; SAR(10 g) = 0.159 mW/g



0 dB = 0.287mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288040038531

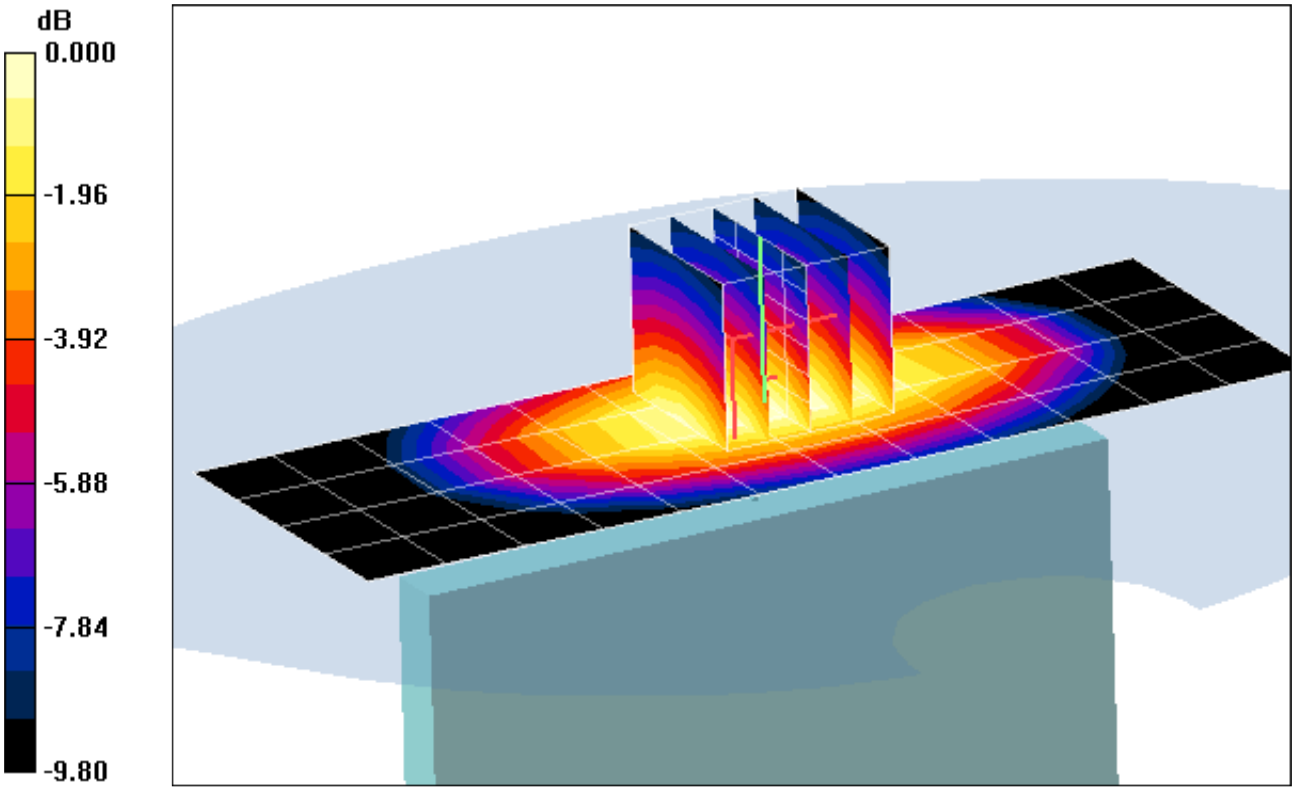
Communication System: GSM850 GPRS; 2 Tx slots; Frequency: 848.8 MHz;Duty Cycle: 1:4.15
Medium: 835 Body Medium parameters used (interpolated):
f = 848.8 MHz; σ = 0.997 mho/m; ε_r = 54.5; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 07-27-2011; Ambient Temp: 23.7°C; Tissue Temp: 22.6°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: GPRS 850, Body SAR, Right Edge, High.ch, 2 Tx Slots

Area Scan (5x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 30.6 V/m
Peak SAR (extrapolated) = 1.21 W/kg
SAR(1 g) = 0.847 mW/g; SAR(10 g) = 0.580 mW/g



0 dB = 0.901mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288040038531

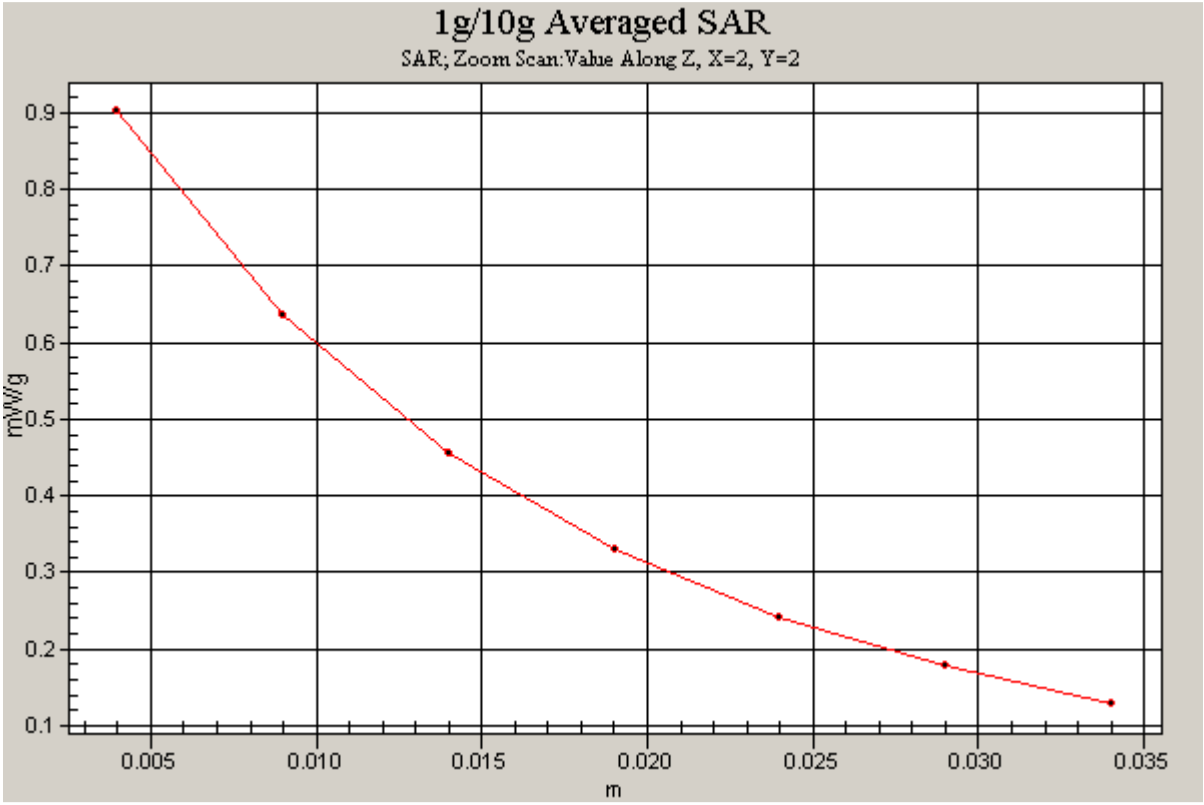
Communication System: GSM850 GPRS; 2 Tx slots; Frequency: 848.8 MHz;Duty Cycle: 1:4.15
Medium: 835 Body Medium parameters used (interpolated):
f = 848.8 MHz; σ = 0.997 mho/m; ε_r = 54.5; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 07-27-2011; Ambient Temp: 23.7°C; Tissue Temp: 22.6°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: GPRS 850, Body SAR, Right Edge, High.ch, 2 Tx Slots

Area Scan (5x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 30.6 V/m
Peak SAR (extrapolated) = 1.21 W/kg
SAR(1 g) = 0.847 mW/g; SAR(10 g) = 0.580 mW/g



PCTEST ENGINEERING LABORATORY, INC.

Type: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288040038531

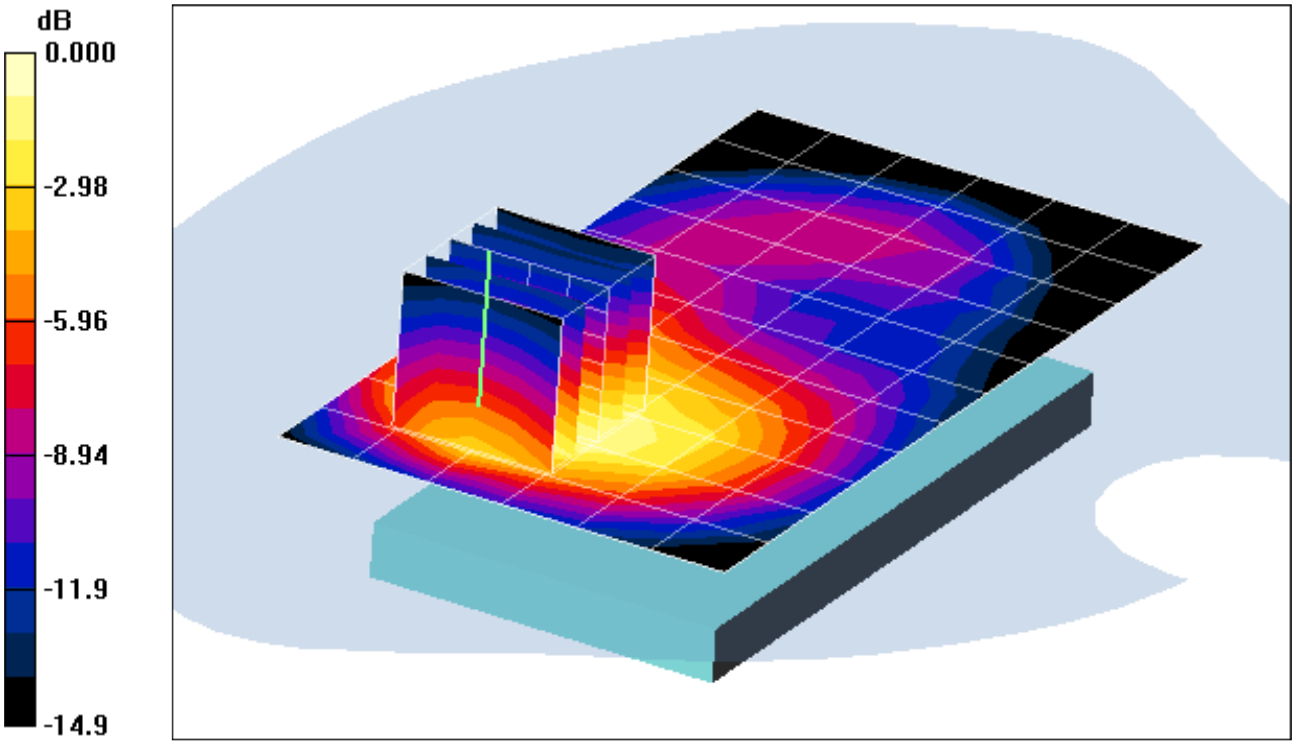
Communication System: GSM1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.476 mho/m; ε_r = 51.4; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-04-2011; Ambient Temp: 24.7°C; Tissue Temp: 23.1°C

Probe: ES3DV2 - SN3022; ConvF(4.34, 4.34, 4.34); Calibrated: 9/21/2010
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn704; Calibrated: 3/17/2011
Phantom: SAM with CRP; Type: SAM; Serial: TP1375
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: GSM 1900, 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 = 19.0 V/m
Peak SAR (extrapolated) = 0.747 W/kg
SAR(1 g) = 0.467 mW/g; SAR(10 g) = 0.265 mW/g



0 dB = 0.497mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288040038531

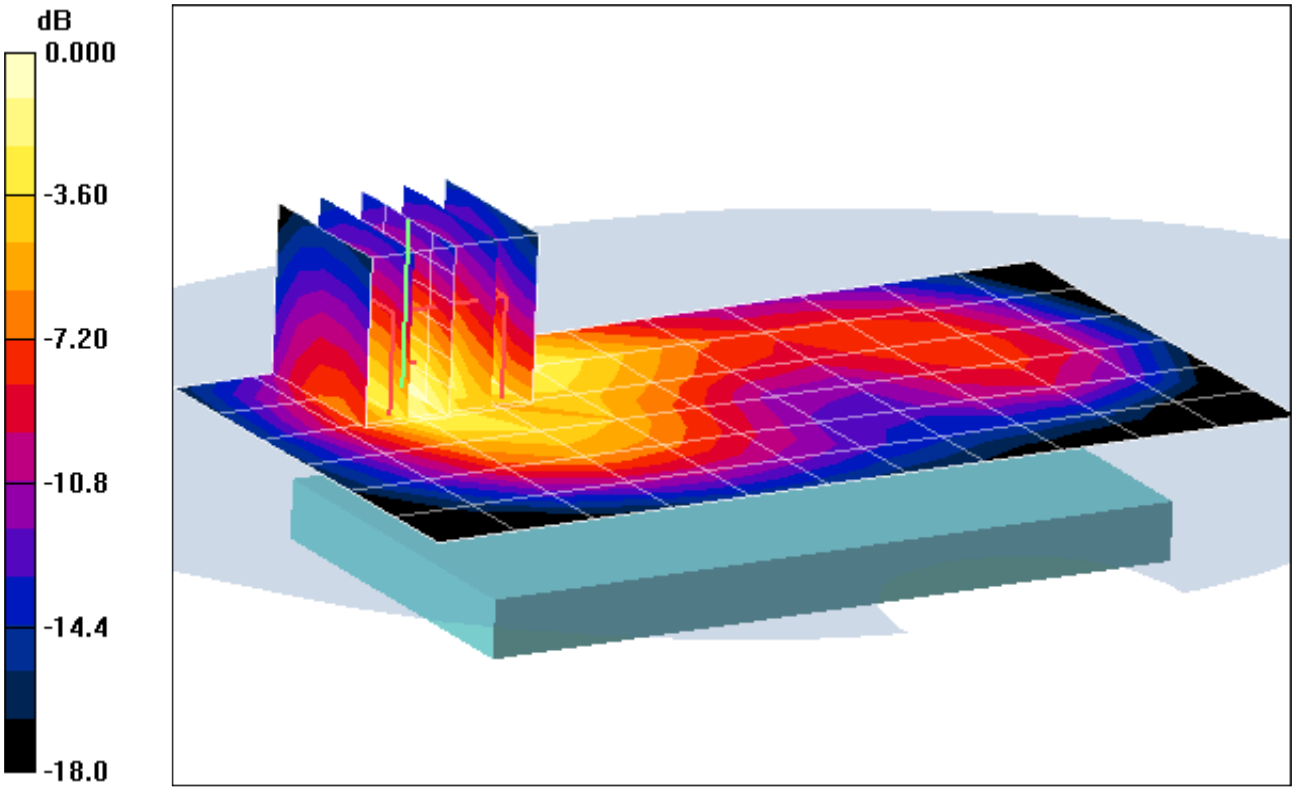
Communication System: GSM1900 GPRS; 2 Tx slots; Frequency: 1880 MHz;Duty Cycle: 1:4.15
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.48 mho/m; ε_r = 52.34; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-01-2011; Ambient Temp: 23.2°C; Tissue Temp: 21.9°C

Probe: ES3DV2 - SN3022; ConvF(4.34, 4.34, 4.34); Calibrated: 9/21/2010
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn704; Calibrated: 3/17/2011
Phantom: SAM with CRP; Type: SAM; Serial: TP1375
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: GPRS 1900, Body SAR, Back side, Mid.ch, 2 Tx Slots

Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.6 V/m
Peak SAR (extrapolated) = 0.768 W/kg
SAR(1 g) = 0.466 mW/g; SAR(10 g) = 0.251 mW/g



0 dB = 0.545mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288040038531

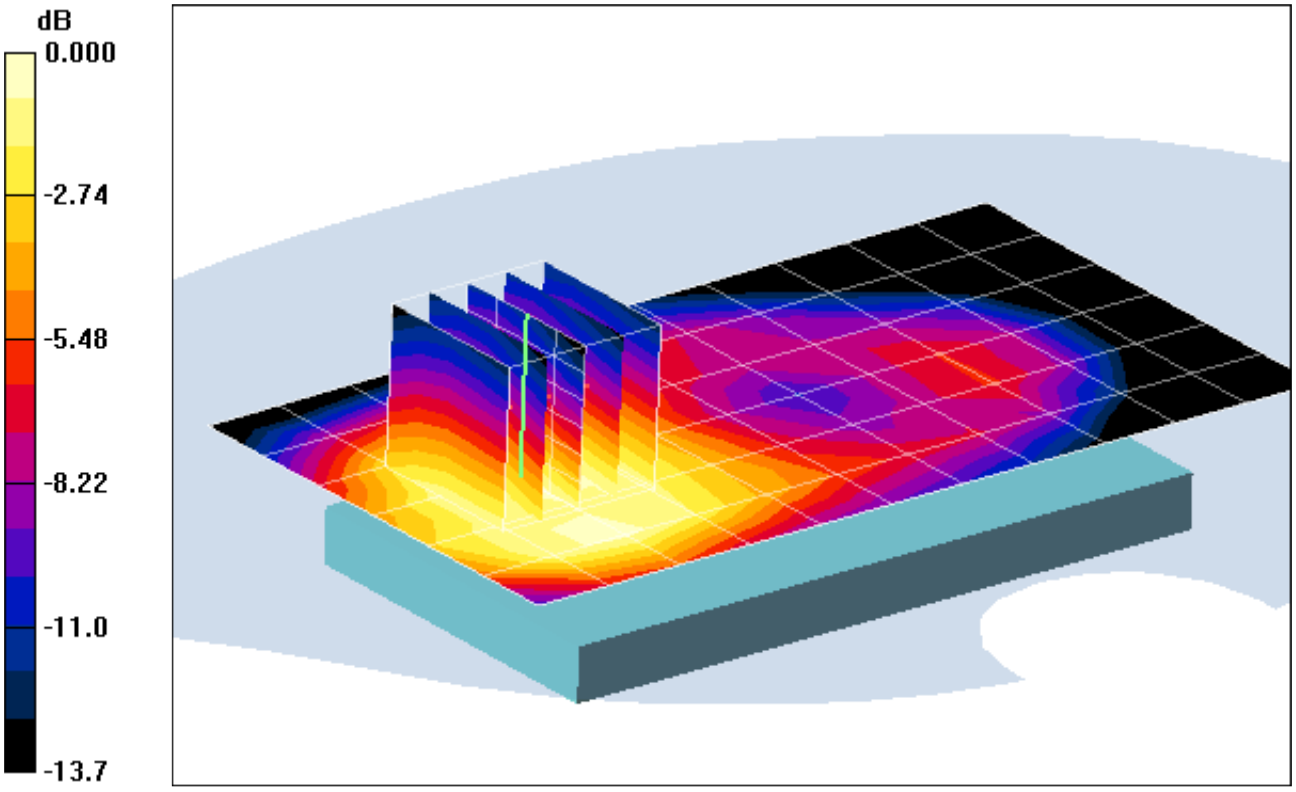
Communication System: GSM1900 GPRS; 2 Tx slots; Frequency: 1880 MHz;Duty Cycle: 1:4.15
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.48 mho/m; ε_r = 52.34; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-01-2011; Ambient Temp: 23.2°C; Tissue Temp: 21.9°C

Probe: ES3DV2 - SN3022; ConvF(4.34, 4.34, 4.34); Calibrated: 9/21/2010
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn704; Calibrated: 3/17/2011
Phantom: SAM with CRP; Type: SAM; Serial: TP1375
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: GPRS 1900, Body SAR, Front side, Mid.ch, 2 Tx Slots

Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.0 V/m
Peak SAR (extrapolated) = 0.729 W/kg
SAR(1 g) = 0.502 mW/g; SAR(10 g) = 0.315 mW/g



0 dB = 0.535mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288040038531

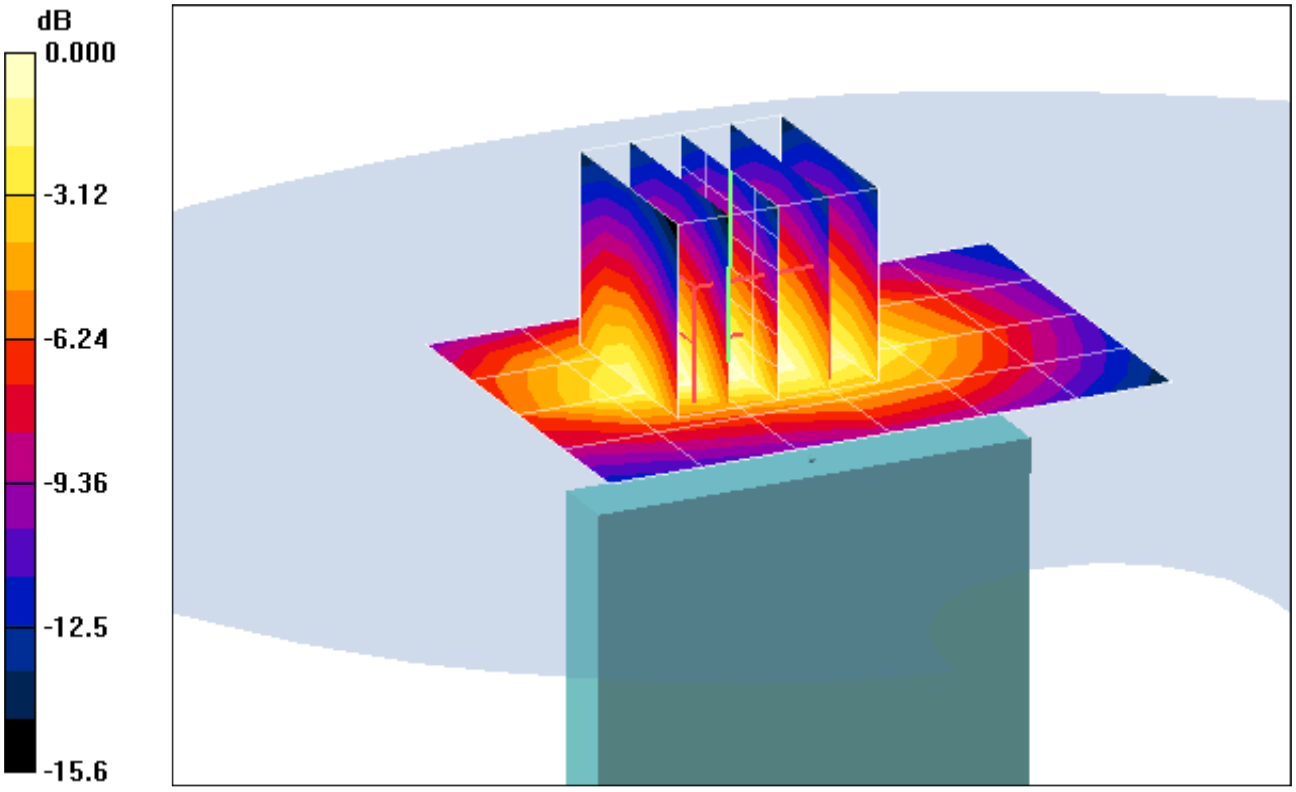
Communication System: GSM1900 GPRS; 2 Tx slots; Frequency: 1880 MHz;Duty Cycle: 1:4.15
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.48 mho/m; ε_r = 52.34; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-01-2011; Ambient Temp: 23.2°C; Tissue Temp: 21.9°C

Probe: ES3DV2 - SN3022; ConvF(4.34, 4.34, 4.34); Calibrated: 9/21/2010
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn704; Calibrated: 3/17/2011
Phantom: SAM with CRP; Type: SAM; Serial: TP1375
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: GPRS 1900, Body SAR, Bottom Edge, Mid.ch, 2 Tx Slots

Area Scan (5x7x1): 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) = 0.949 W/kg
SAR(1 g) = 0.620 mW/g; SAR(10 g) = 0.362 mW/g



0 dB = 0.689mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288040038531

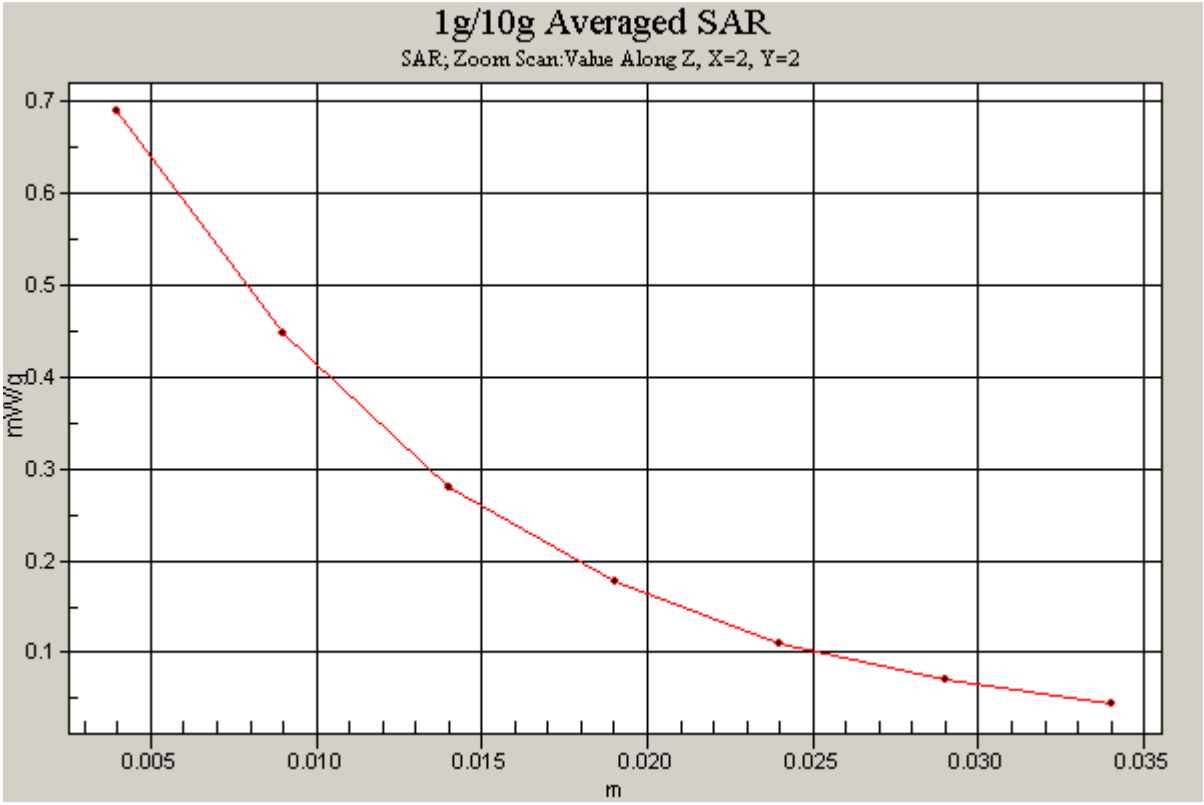
Communication System: GSM1900 GPRS; 2 Tx slots; Frequency: 1880 MHz;Duty Cycle: 1:4.15
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.48 mho/m; ε_r = 52.34; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-01-2011; Ambient Temp: 23.2°C; Tissue Temp: 21.9°C

Probe: ES3DV2 - SN3022; ConvF(4.34, 4.34, 4.34); Calibrated: 9/21/2010
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn704; Calibrated: 3/17/2011
Phantom: SAM with CRP; Type: SAM; Serial: TP1375
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: GPRS 1900, Body SAR, Bottom Edge, Mid.ch, 2 Tx Slots

Area Scan (5x7x1): 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) = 0.949 W/kg
SAR(1 g) = 0.620 mW/g; SAR(10 g) = 0.362 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288040038531

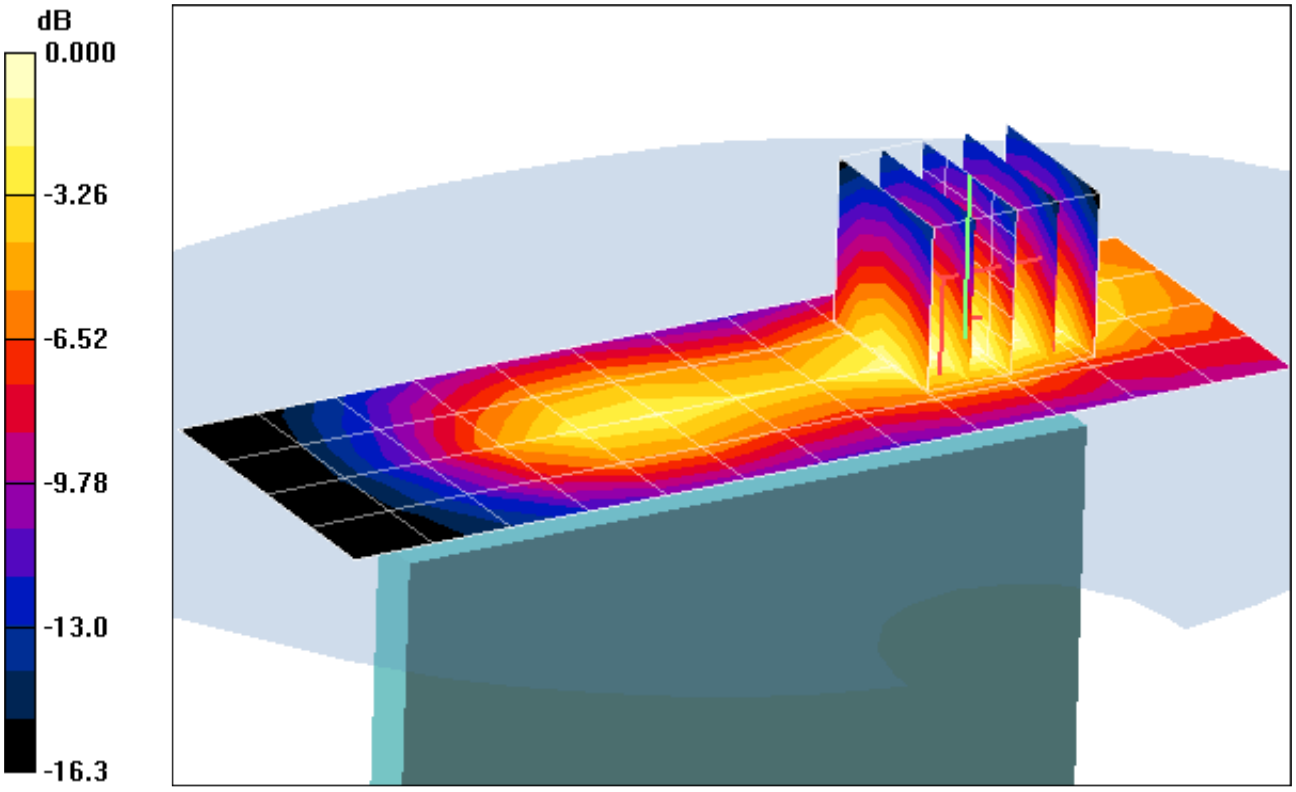
Communication System: GSM1900 GPRS; 2 Tx slots; Frequency: 1880 MHz;Duty Cycle: 1:4.15
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.48 mho/m; ε_r = 52.34; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-01-2011; Ambient Temp: 23.2°C; Tissue Temp: 21.9°C

Probe: ES3DV2 - SN3022; ConvF(4.34, 4.34, 4.34); Calibrated: 9/21/2010
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn704; Calibrated: 3/17/2011
Phantom: SAM with CRP; Type: SAM; Serial: TP1375
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: GPRS 1900, Body SAR, Right Edge, Mid.ch, 2 Tx Slots

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) = 0.442 W/kg
SAR(1 g) = 0.285 mW/g; SAR(10 g) = 0.166 mW/g



0 dB = 0.318mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288040038531

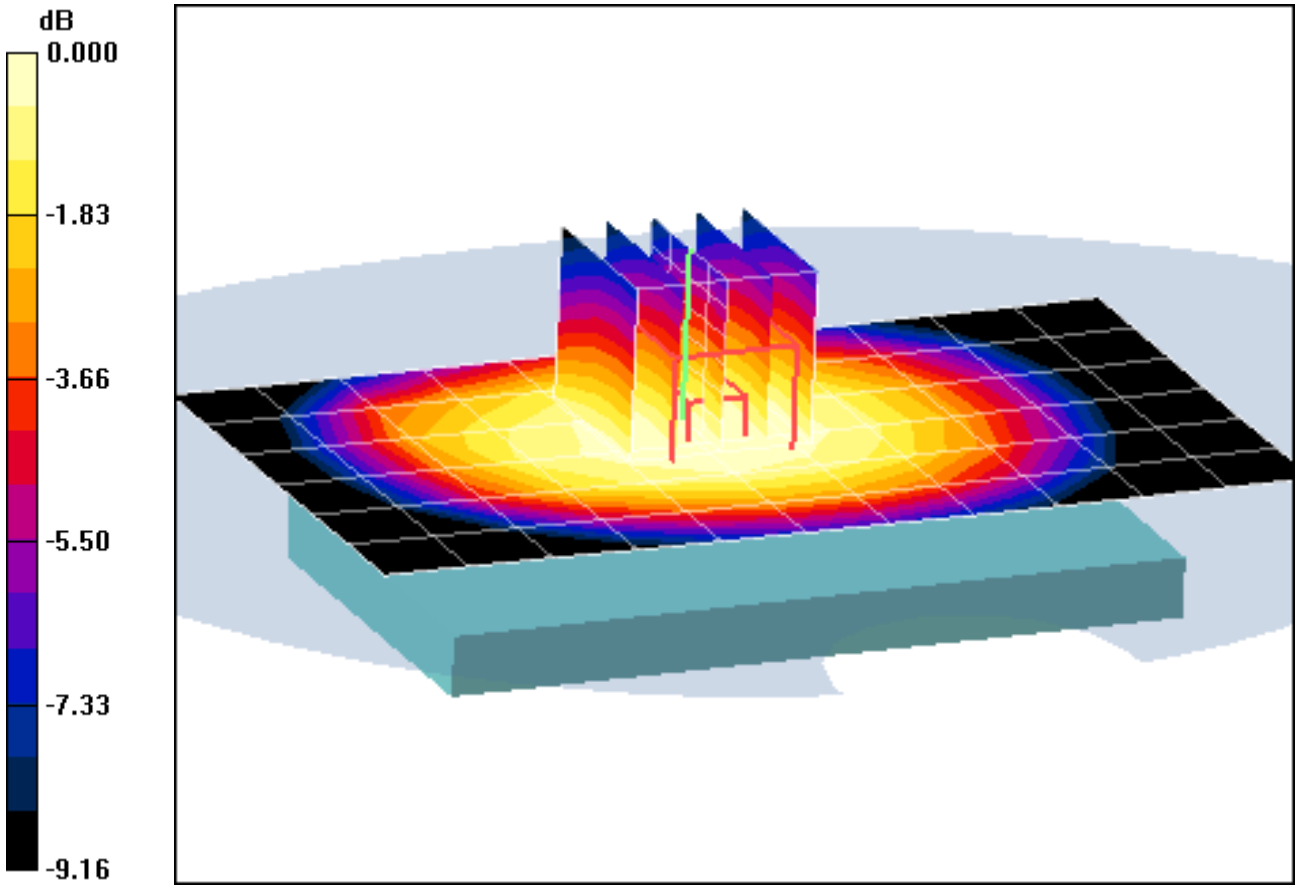
Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium: 835 Body; Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.99 mho/m; ε_r = 54.6; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 07-27-2011; Ambient Temp: 23.7°C; Tissue Temp: 22.6°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: WCDMA 850, 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 = 21.3 V/m
Peak SAR (extrapolated) = 0.559 W/kg
SAR(1 g) = 0.436 mW/g; SAR(10 g) = 0.335 mW/g



0 dB = 0.455mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial:IMEI: 357288040038531

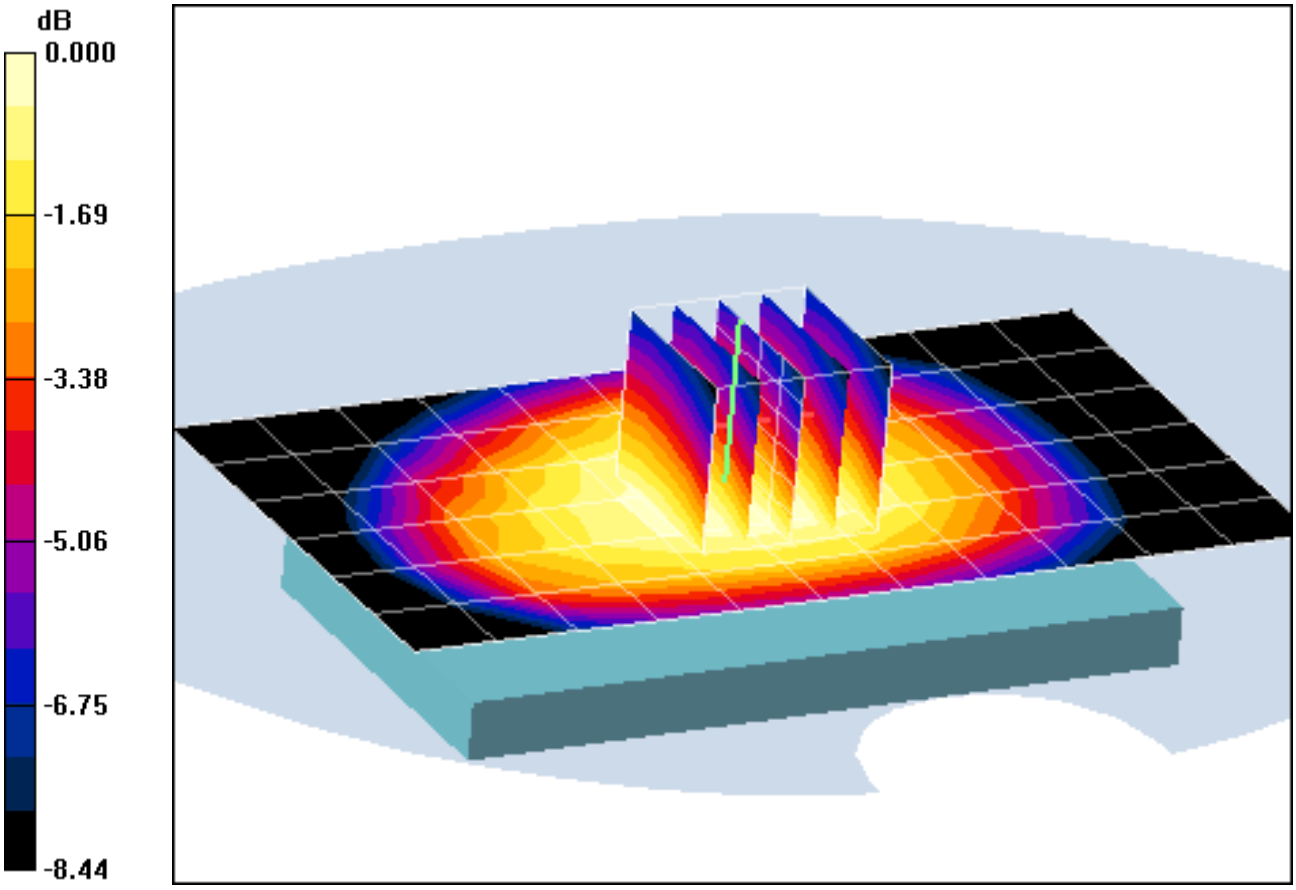
Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium: 835 Body; Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.99 mho/m; ε_r = 54.6; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 07-27-2011; Ambient Temp: 23.7°C; Tissue Temp: 22.6°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: WCDMA 850, 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 = 17.8 V/m
Peak SAR (extrapolated) = 0.375 W/kg
SAR(1 g) = 0.299 mW/g; SAR(10 g) = 0.230 mW/g



0 dB = 0.312mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288040038531

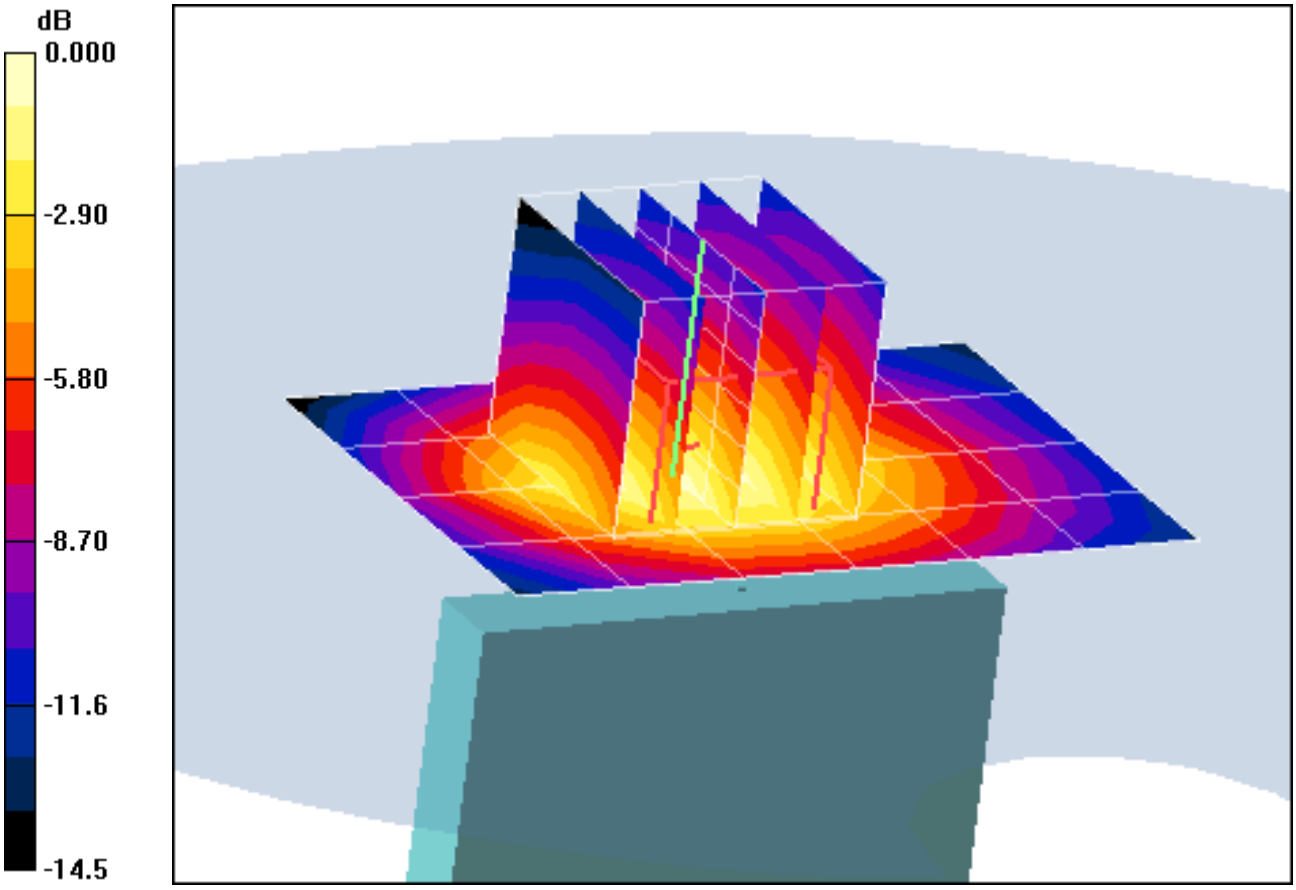
Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium: 835 Body; Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.99 mho/m; ε_r = 54.6; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 07-27-2011; Ambient Temp: 23.7°C; Tissue Temp: 22.6°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: WCDMA 850, 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 = 11.7 V/m
Peak SAR (extrapolated) = 0.210 W/kg
SAR(1 g) = 0.127 mW/g; SAR(10 g) = 0.077 mW/g



0 dB = 0.139mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IME: 357288040038531

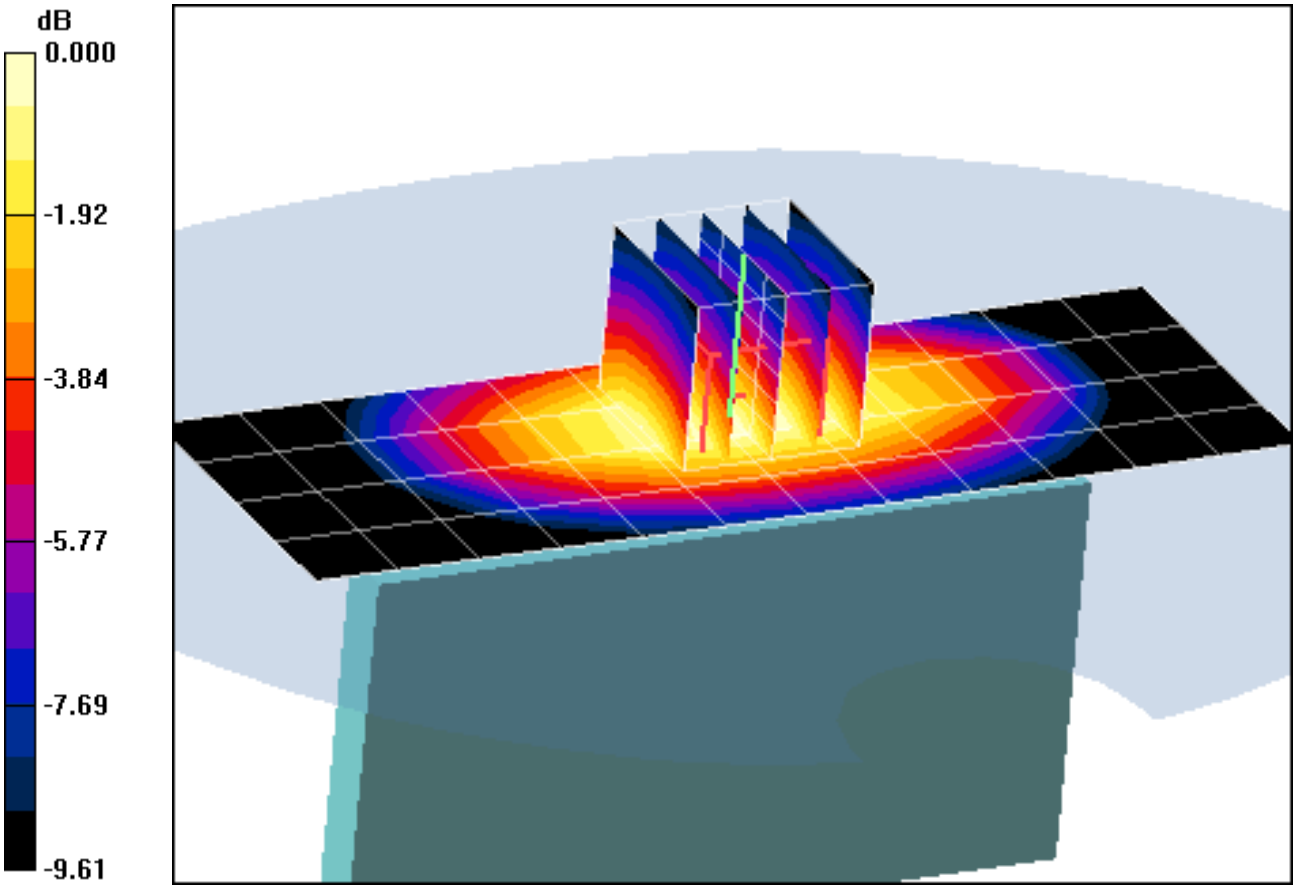
Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium: 835 Body; Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.99 mho/m; ε_r = 54.6; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 07-27-2011; Ambient Temp: 23.7°C; Tissue Temp: 22.6°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: WCDMA 850, Body SAR, Right 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 = 20.6 V/m
Peak SAR (extrapolated) = 0.619 W/kg
SAR(1 g) = 0.428 mW/g; SAR(10 g) = 0.293 mW/g



0 dB = 0.457mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288040038531

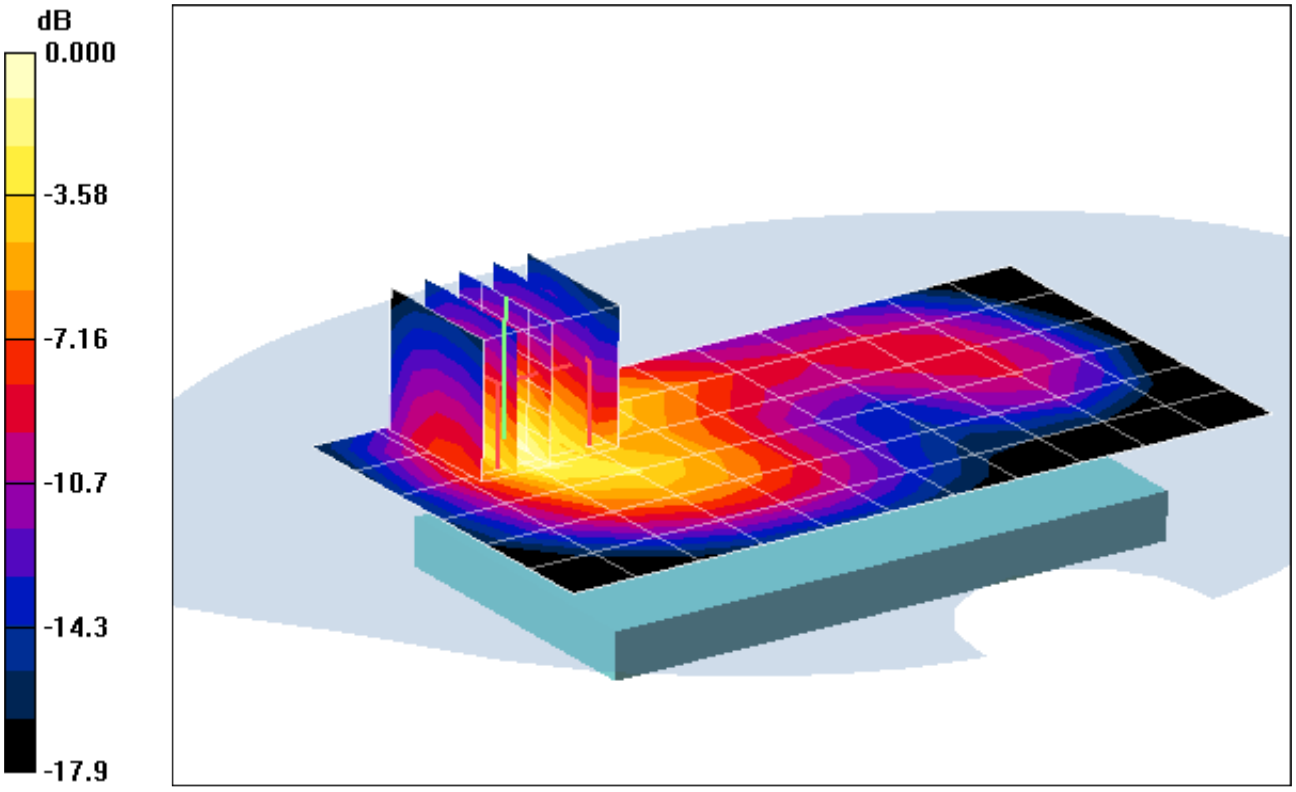
Communication System: WCDMA1900; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.48 mho/m; ε_r = 52.34; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-01-2011; Ambient Temp: 23.2°C; Tissue Temp: 21.9°C

Probe: ES3DV2 - SN3022; ConvF(4.34, 4.34, 4.34); Calibrated: 9/21/2010
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn704; Calibrated: 3/17/2011
Phantom: SAM with CRP; Type: SAM; Serial: TP1375
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: WCDMA 1900, 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 = 16.9 V/m
Peak SAR (extrapolated) = 0.689 W/kg
SAR(1 g) = 0.424 mW/g; SAR(10 g) = 0.225 mW/g



0 dB = 0.493mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288040038531

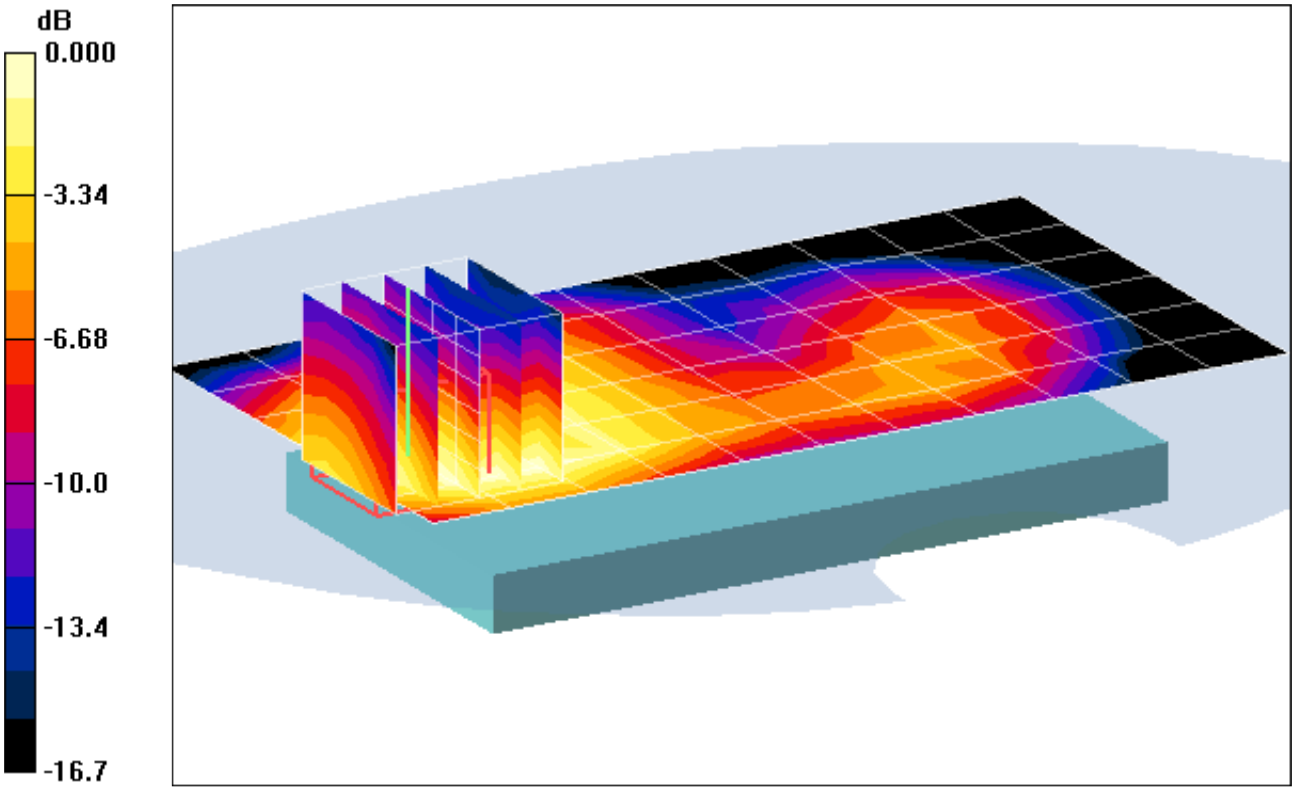
Communication System: WCDMA1900; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.48 mho/m; ε_r = 52.34; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-01-2011; Ambient Temp: 23.2°C; Tissue Temp: 21.9°C

Probe: ES3DV2 - SN3022; ConvF(4.34, 4.34, 4.34); Calibrated: 9/21/2010
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn704; Calibrated: 3/17/2011
Phantom: SAM with CRP; Type: SAM; Serial: TP1375
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: WCDMA 1900, 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 = 10.7 V/m
Peak SAR (extrapolated) = 0.232 W/kg
SAR(1 g) = 0.153 mW/g; SAR(10 g) = 0.089 mW/g



0 dB = 0.163mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288040038531

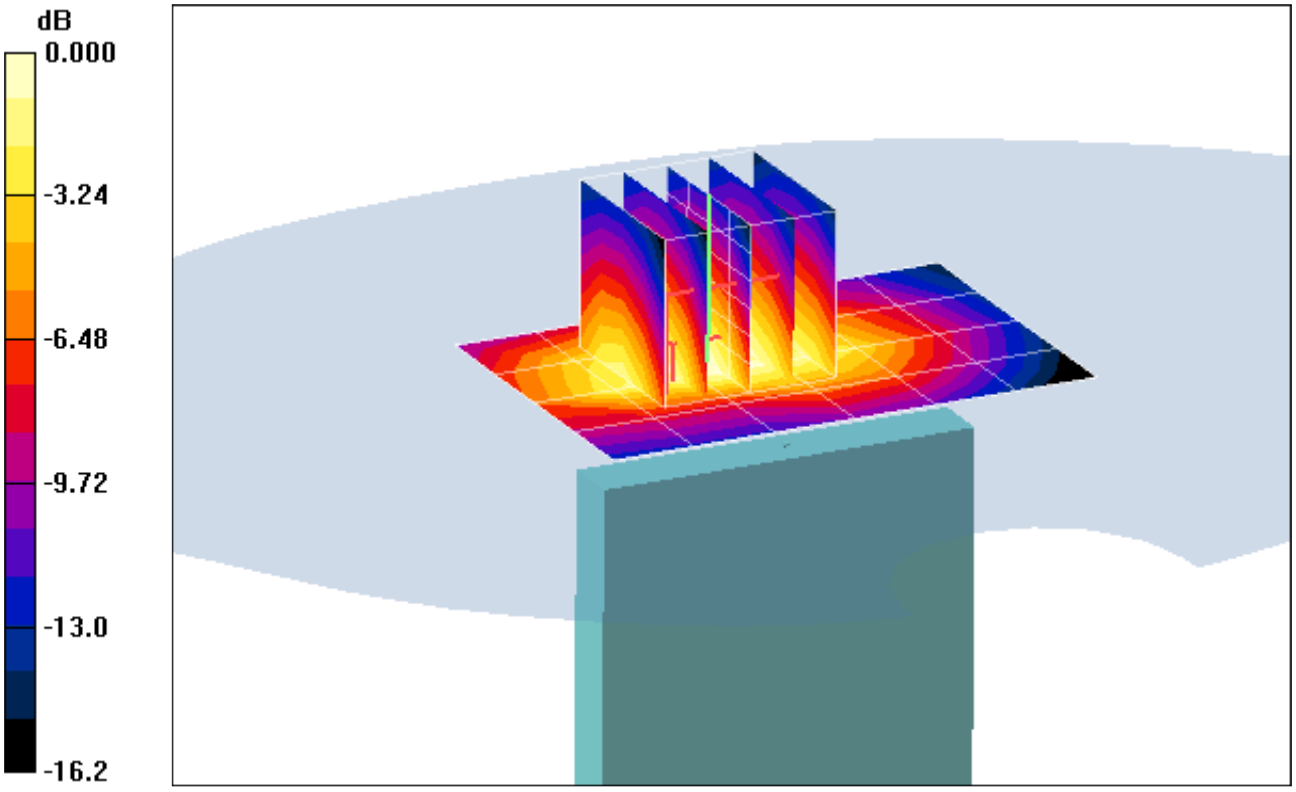
Communication System: WCDMA1900; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.48 mho/m; ε_r = 52.34; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-01-2011; Ambient Temp: 23.2°C; Tissue Temp: 21.9°C

Probe: ES3DV2 - SN3022; ConvF(4.34, 4.34, 4.34); Calibrated: 9/21/2010
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn704; Calibrated: 3/17/2011
Phantom: SAM with CRP; Type: SAM; Serial: TP1375
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: WCDMA 1900, 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 = 12.6 V/m
Peak SAR (extrapolated) = 0.349 W/kg
SAR(1 g) = 0.227 mW/g; SAR(10 g) = 0.130 mW/g



0 dB = 0.251mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288040038531

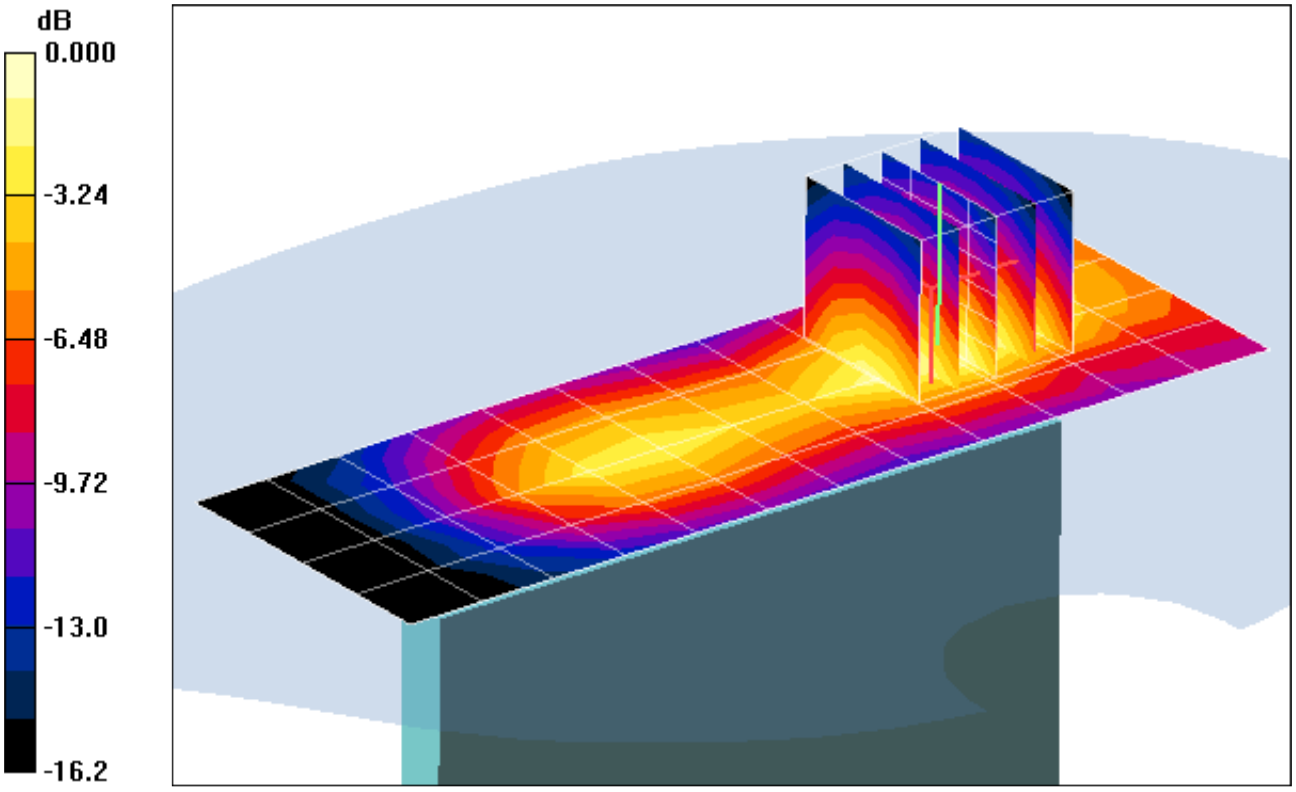
Communication System: WCDMA1900; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.48 mho/m; ε_r = 52.34; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-01-2011; Ambient Temp: 23.2°C; Tissue Temp: 21.9°C

Probe: ES3DV2 - SN3022; ConvF(4.34, 4.34, 4.34); Calibrated: 9/21/2010
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn704; Calibrated: 3/17/2011
Phantom: SAM with CRP; Type: SAM; Serial: TP1375
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: WCDMA 1900, Body SAR, Right 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 = 14.1 V/m
Peak SAR (extrapolated) = 0.387 W/kg
SAR(1 g) = 0.253 mW/g; SAR(10 g) = 0.147 mW/g



0 dB = 0.283mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288040038531

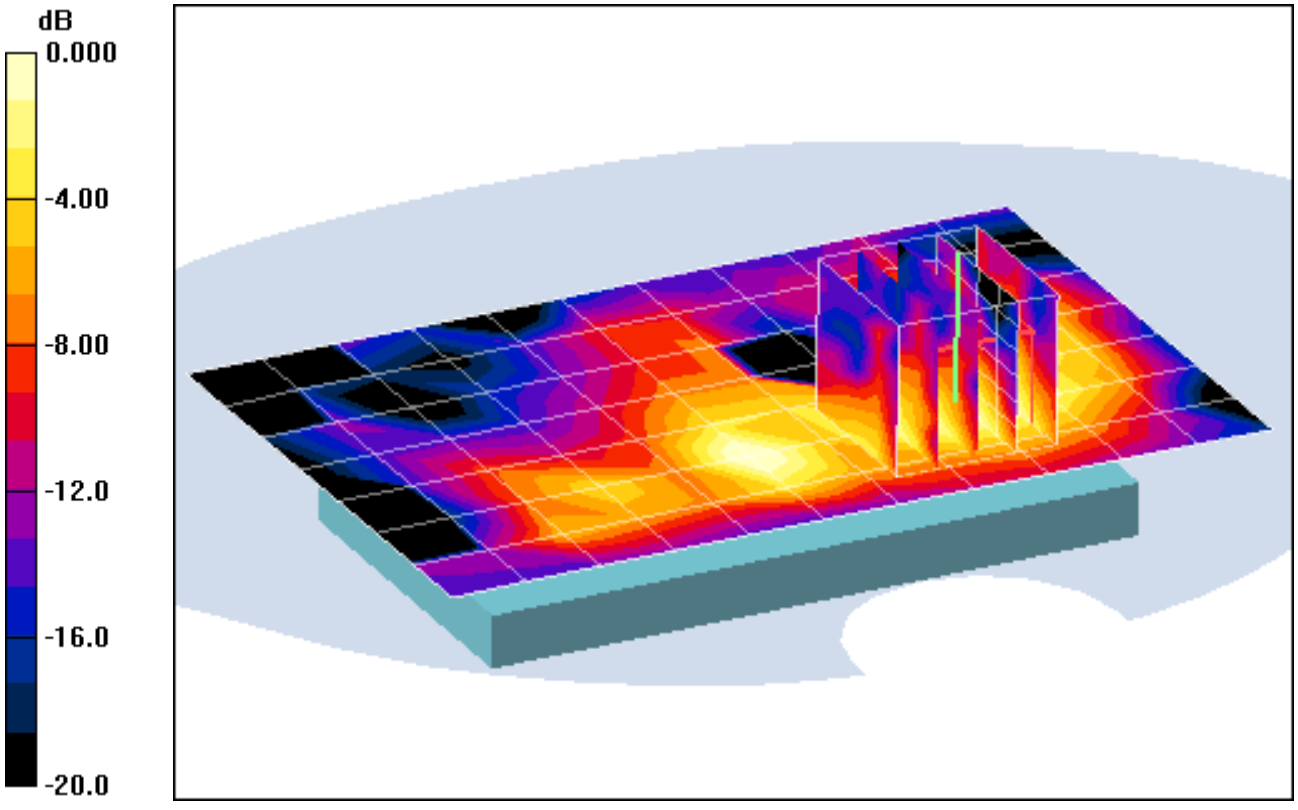
Communication System: IEEE 802.11b; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used (interpolated):
f = 2462 MHz; σ = 1.89 mho/m; ε_r = 52; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-01-2011; Ambient Temp: 23.9°C; Tissue Temp: 22.5°C

Probe: EX3DV4 - SN3550; ConvF(6.25, 6.25, 6.29); Calibrated: 2/14/2011
Sensor-Surface: 3mm (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 802.11b, Body SAR, Ch 11, 1 Mbps, Back 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 = 4.02 V/m
Peak SAR (extrapolated) = 0.036 W/kg
SAR(1 g) = 0.022 mW/g; SAR(10 g) = 0.010 mW/g



0 dB = 0.026mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288040038531

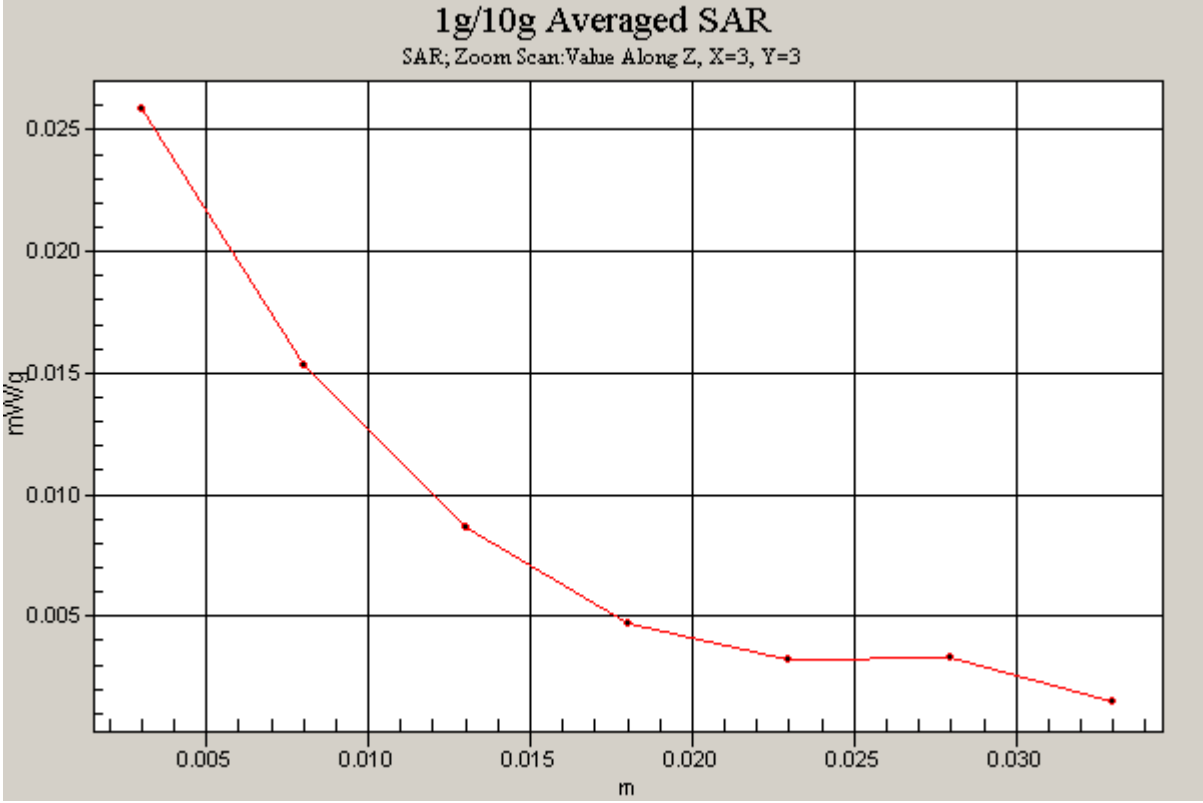
Communication System: IEEE 802.11b; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used (interpolated):
f = 2462 MHz; σ = 1.89 mho/m; ε_r = 52; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-01-2011; Ambient Temp: 23.9°C; Tissue Temp: 22.5°C

Probe: EX3DV4 - SN3550; ConvF(6.25, 6.25, 6.25); Calibrated: 2/14/2011
Sensor-Surface: 3mm (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 802.11b, Body SAR, Ch 11, 1 Mbps, Back 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 = 4.02 V/m
Peak SAR (extrapolated) = 0.036 W/kg
SAR(1 g) = 0.022 mW/g; SAR(10 g) = 0.010 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288040038531

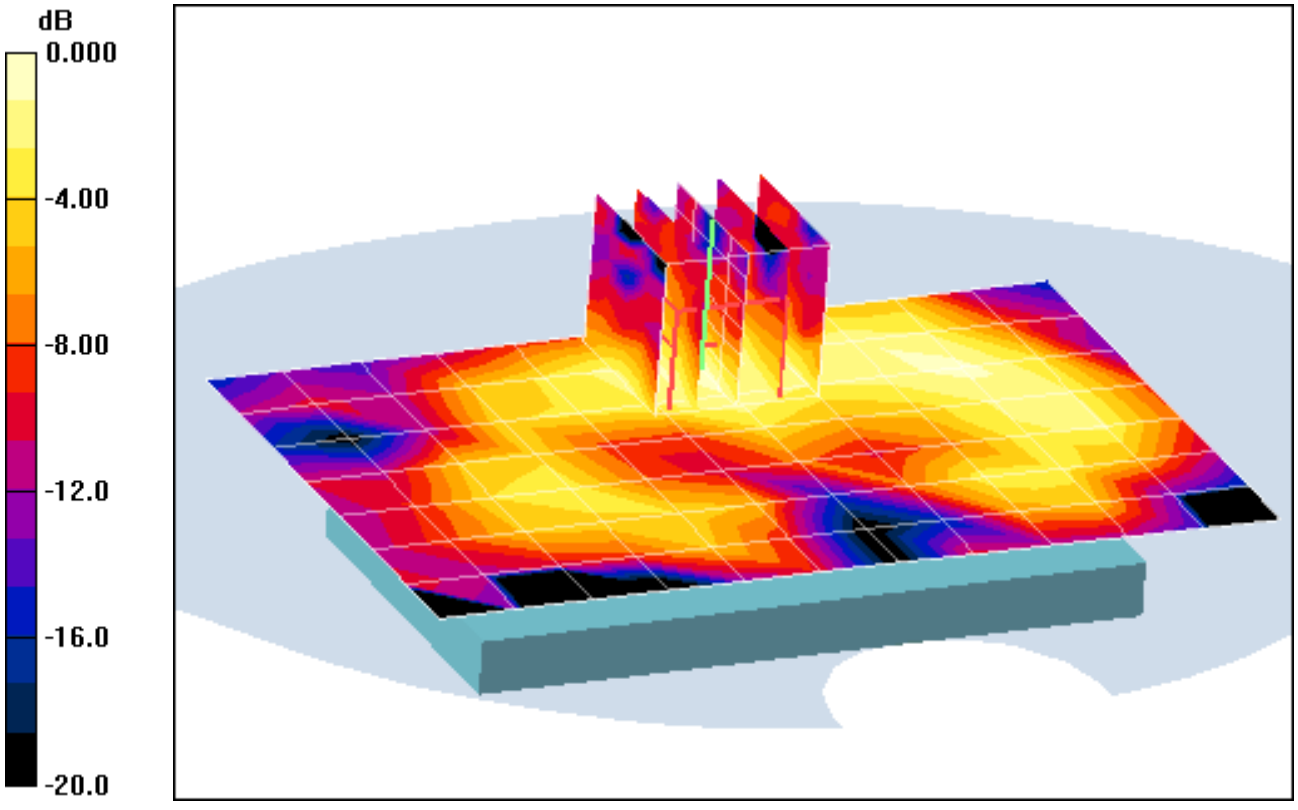
Communication System: IEEE 802.11b; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used (interpolated):
f = 2462 MHz; σ = 1.89 mho/m; ε_r = 52; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-01-2011; Ambient Temp: 23.9°C; Tissue Temp: 22.5°C

Probe: EX3DV4 - SN3550; ConvF(6.25, 6.25, 6.25); Calibrated: 2/14/2011
Sensor-Surface: 3mm (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 802.11b, Body SAR, Ch 11, 1 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 = 2.92 V/m
Peak SAR (extrapolated) = 0.029 W/kg
SAR(1 g) = 0.015 mW/g; SAR(10 g) = 0.00838 mW/g



0 dB = 0.020mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288040038531

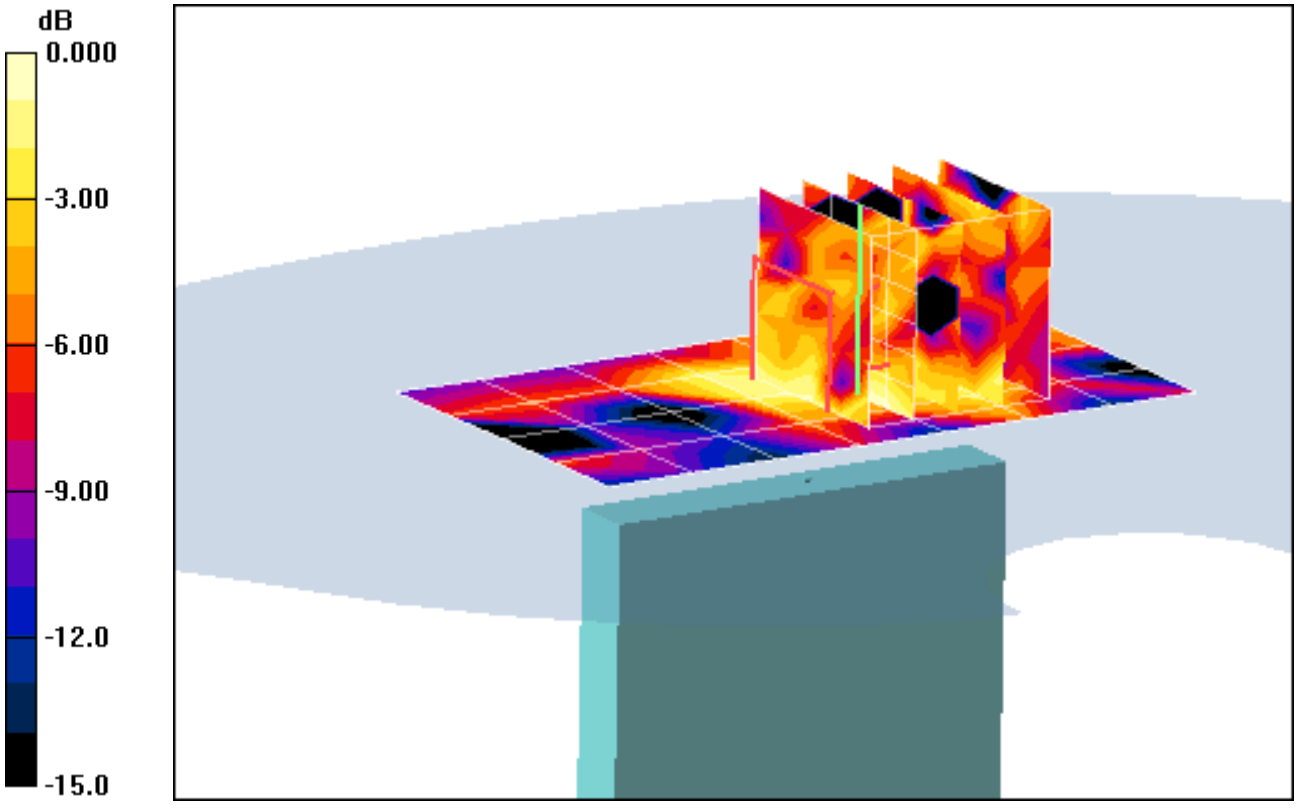
Communication System: IEEE 802.11b; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used (interpolated):
f = 2462 MHz; σ = 1.89 mho/m; ε_r = 52; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-01-2011; Ambient Temp: 23.9°C; Tissue Temp: 22.5°C

Probe: EX3DV4 - SN3550; ConvF(6.25, 6.25, 6.25); Calibrated: 2/14/2011
Sensor-Surface: 3mm (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 802.11b, Body SAR, Ch 11, 1 Mbps, Bottom Edge

Area Scan (5x8x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.31 V/m
Peak SAR (extrapolated) = 0.009 W/kg
SAR(1 g) = 0.00281 mW/g; SAR(10 g) = 0.00113 mW/g



0 dB = 0.004mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288040038531

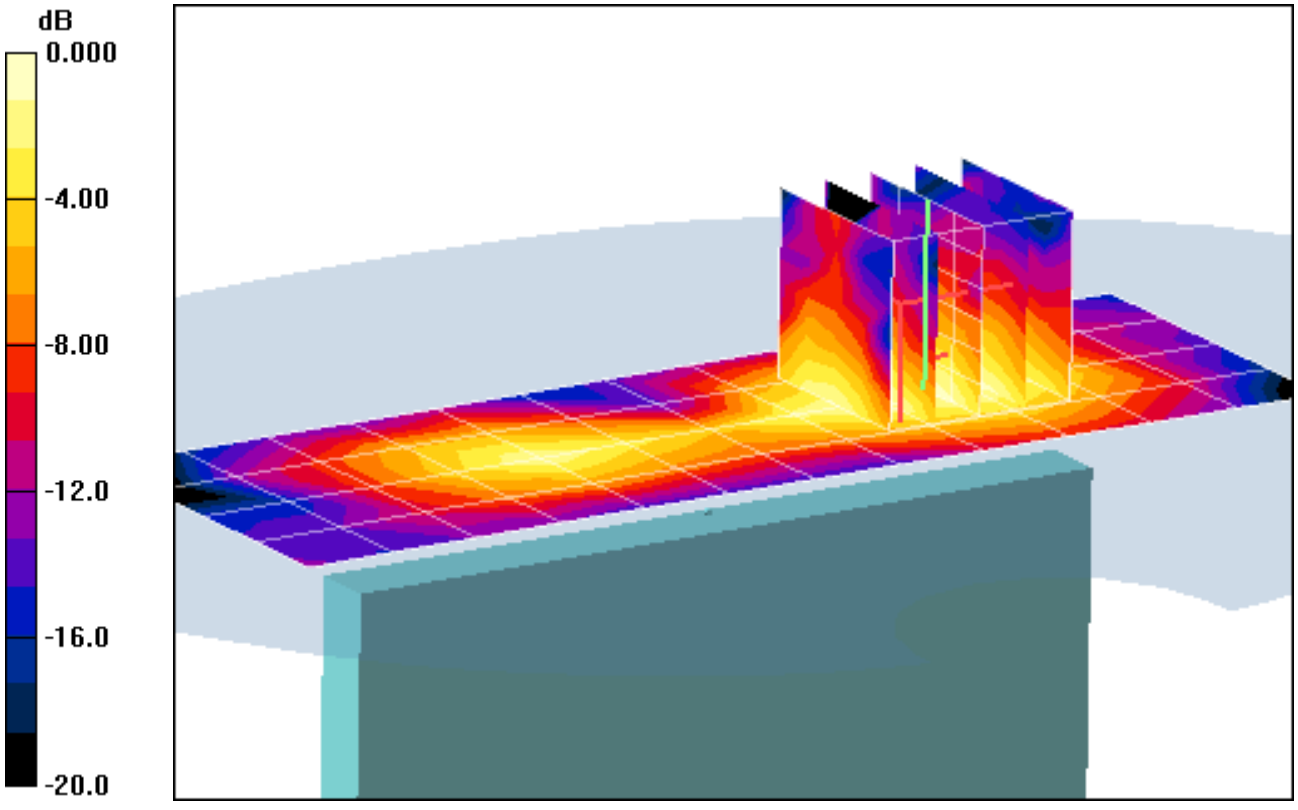
Communication System: IEEE 802.11b; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used (interpolated):
f = 2462 MHz; σ = 1.89 mho/m; ε_r = 52; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-01-2011; Ambient Temp: 23.9°C; Tissue Temp: 22.5°C

Probe: EX3DV4 - SN3550; ConvF(6.25, 6.25, 6.25); Calibrated: 2/14/2011
Sensor-Surface: 3mm (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 802.11b, Body SAR, Ch 11, 1 Mbps, Left 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 = 4.17 V/m
Peak SAR (extrapolated) = 0.057 W/kg
SAR(1 g) = 0.032 mW/g; SAR(10 g) = 0.017 mW/g



0 dB = 0.040mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288040038531

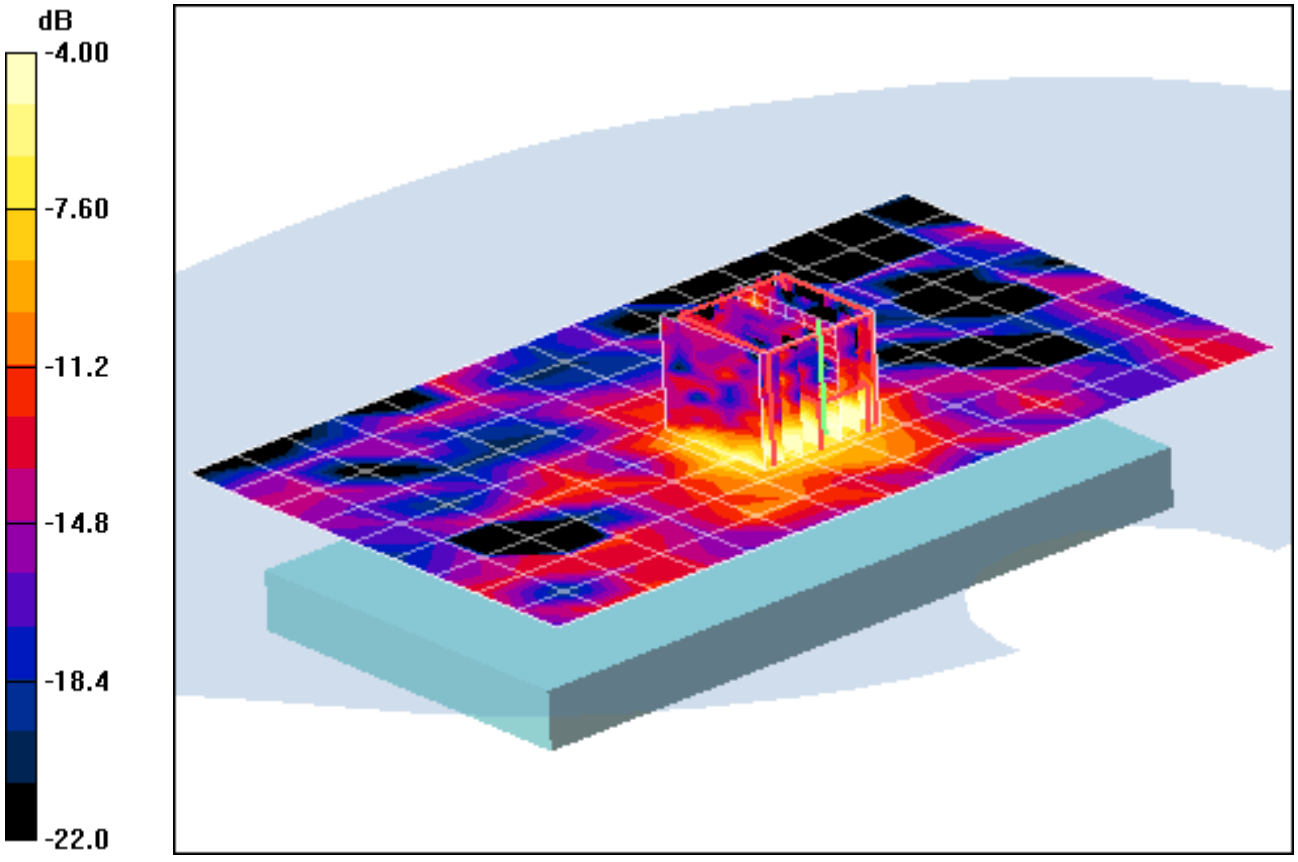
Communication System: IEEE 802.11a 5.2-5.8 GHz Band; Frequency: 5500 MHz;Duty Cycle: 1:1
Medium: 5 GHz Body; Medium parameters used (interpolated):
f = 5500 MHz; σ = 5.72 mho/m; ε_r = 47.3; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 07-28-2011; Ambient Temp: 22.3 °C; Tissue Temp: 20.7 °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

Mode: IEEE 802.11a, 5.5 GHz, Body SAR, Ch 100, 6 Mbps, Back Side

Area Scan (10x16x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 3.03 V/m
Peak SAR (extrapolated) = 0.360 W/kg
SAR(1 g) = 0.083 mW/g; SAR(10 g) = 0.022 mW/g



0 dB = 0.166mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288040038531

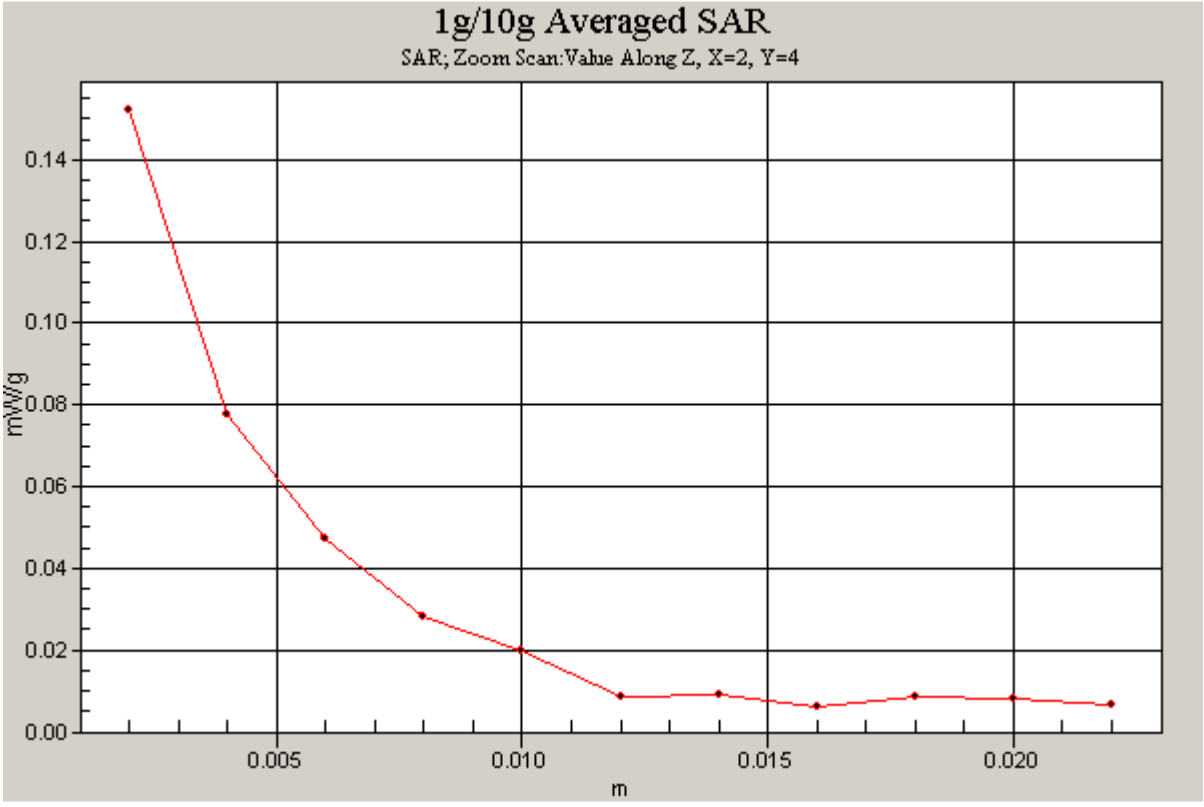
Communication System: IEEE 802.11a 5.2-5.8 GHz Band; Frequency: 5500 MHz;Duty Cycle: 1:1
Medium: 5 GHz Body Medium parameters used (interpolated):
f = 5500 MHz; σ = 5.72 mho/m; ε_r = 47.3; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 07-28-2011; Ambient Temp: 22.3 °C; Tissue Temp: 20.7 °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

Mode: IEEE 802.11a, 5.5 GHz, Body SAR, Ch 100, 6 Mbps, Back Side

Area Scan (10x16x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 3.03 V/m
Peak SAR (extrapolated) = 0.360 W/kg
SAR(1 g) = 0.083 mW/g; SAR(10 g) = 0.022 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288050025835

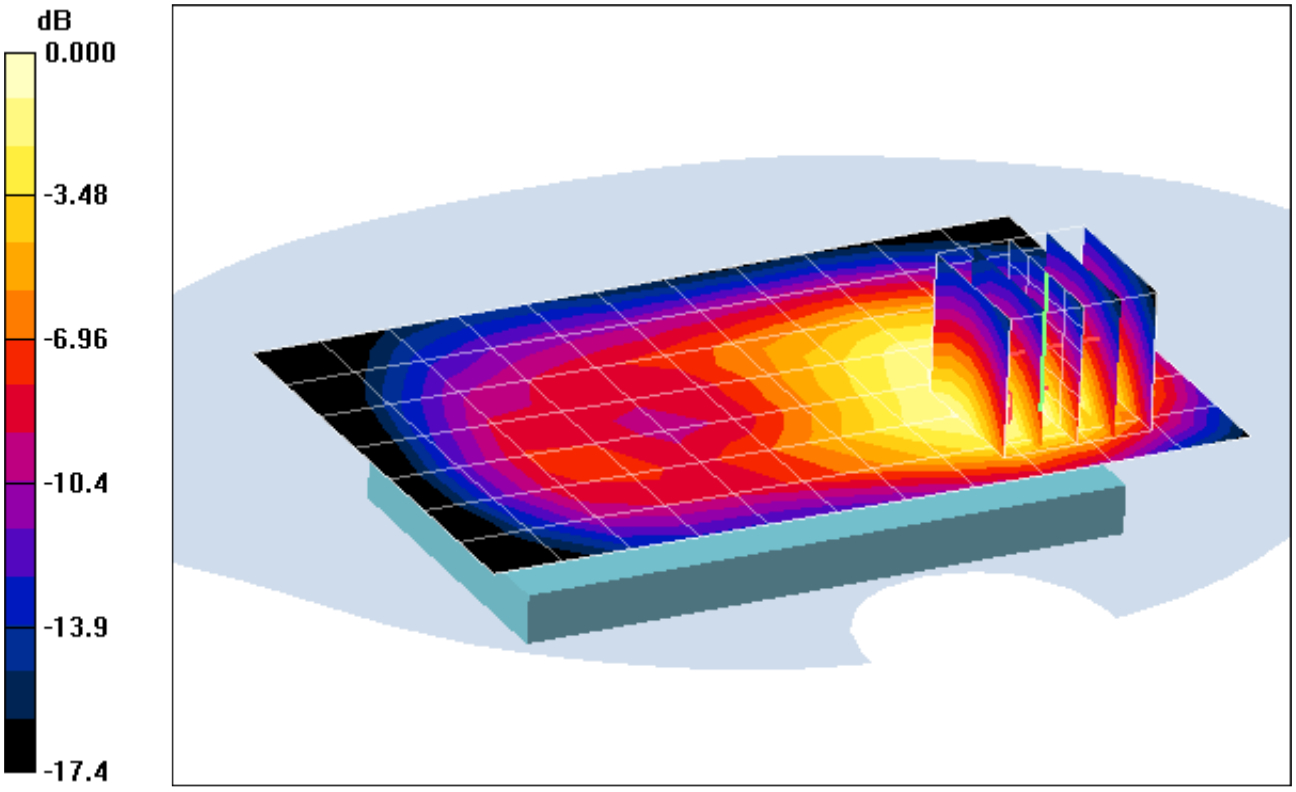
Communication System: LTE RF; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
f = 1732.5 MHz; σ = 1.5 mho/m; ε_r = 52.7; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-08-2011; Ambient Temp: 24.3°C; Tissue Temp: 23.0°C

Probe: ES3DV3 - SN3258; ConvF(5, 5, 5); 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: AWS LTE, Body SAR, Back side, Mid.ch, QPSK, 10 MHz BW, 1 RB, RB Offset 49

Area Scan (8x12x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.2 V/m
Peak SAR (extrapolated) = 1.02 W/kg
SAR(1 g) = 0.553 mW/g; SAR(10 g) = 0.297 mW/g



0 dB = 0.584mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288050025835

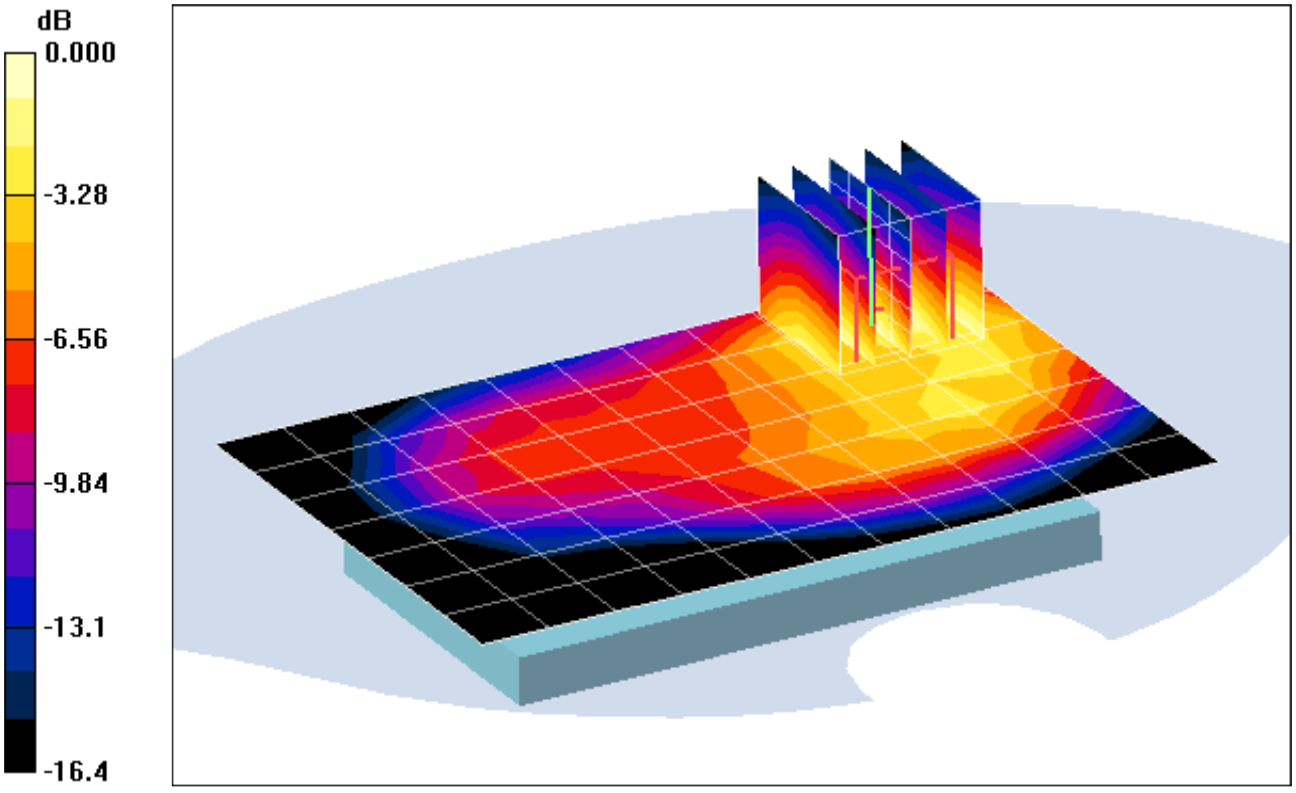
Communication System: LTE RF; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
f = 1732.5 MHz; σ = 1.5 mho/m; ε_r = 52.7; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-08-2011; Ambient Temp: 24.3°C; Tissue Temp: 23.0°C

Probe: ES3DV3 - SN3258; ConvF(5, 5, 5); 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: AWS LTE, Body SAR, Front side, Mid.ch, QPSK, 10 MHz BW, 1 RB, RB Offset 49

Area Scan (8x12x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.5 V/m
Peak SAR (extrapolated) = 0.544 W/kg
SAR(1 g) = 0.305 mW/g; SAR(10 g) = 0.169 mW/g



0 dB = 0.342mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type:Portable Handset; Serial: IMEI: 357288050025835

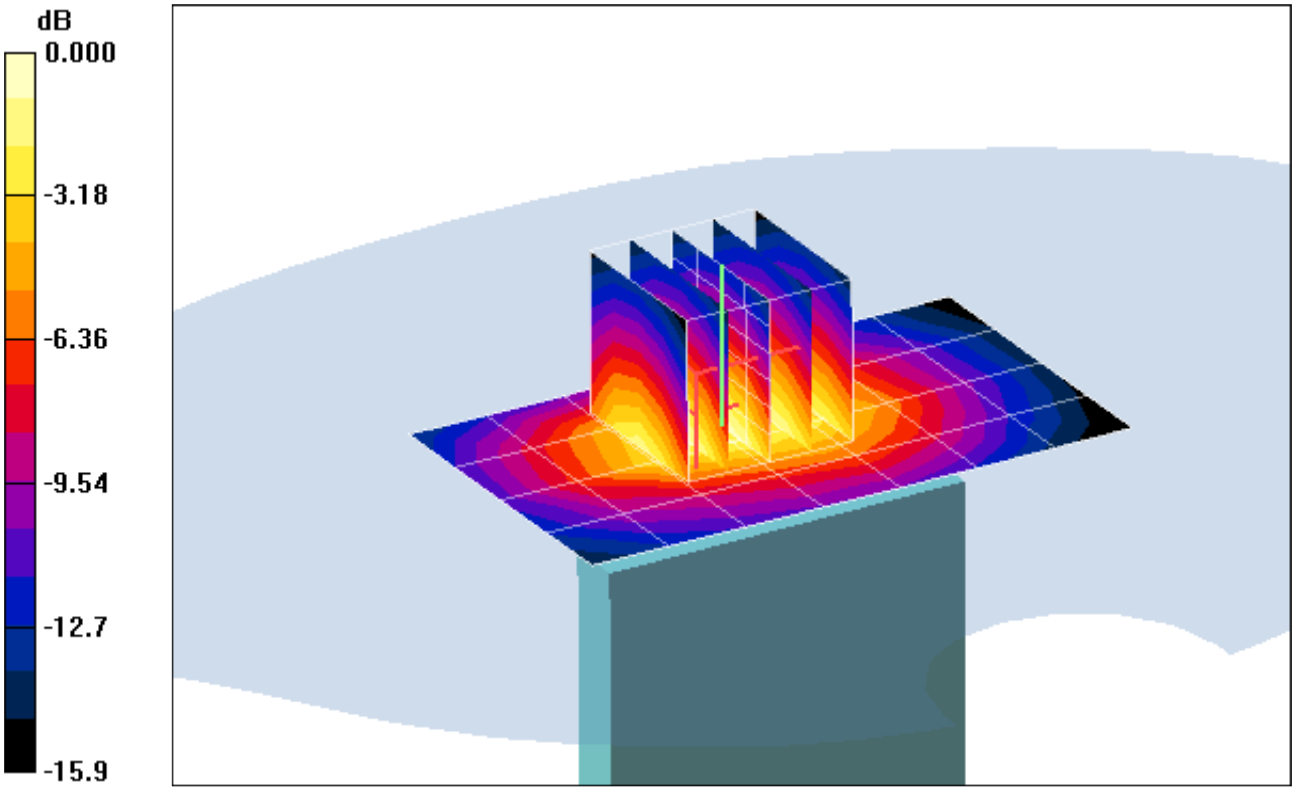
Communication System: LTE RF; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
f = 1732.5 MHz; σ = 1.5 mho/m; ε_r = 52.7; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-08-2011; Ambient Temp: 24.3°C; Tissue Temp: 23.0°C

Probe: ES3DV3 - SN3258; ConvF(5, 5, 5); 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: AWS LTE, Body SAR, Bottom Edge, Mid.ch, QPSK, 10 MHz BW, 1 RB, RB Offset 49

Area Scan (5x8x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.1 V/m
Peak SAR (extrapolated) = 0.959 W/kg
SAR(1 g) = 0.574 mW/g; SAR(10 g) = 0.324 mW/g



0 dB = 0.635mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288050025835

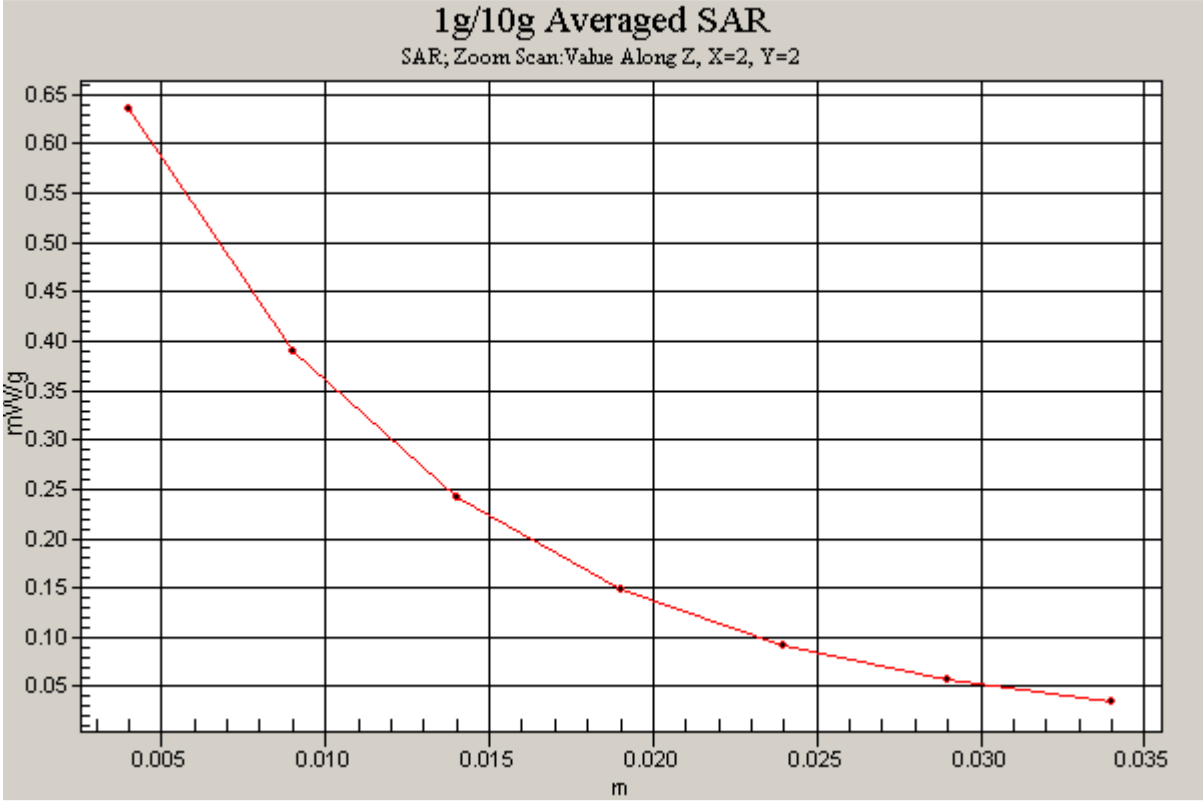
Communication System: LTE RF; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
f = 1732.5 MHz; σ = 1.5 mho/m; ε_r = 52.7; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-08-2011; Ambient Temp: 24.3°C; Tissue Temp: 23.0°C

Probe: ES3DV3 - SN3258; ConvF(5, 5, 5); 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: AWS LTE, Body SAR, Bottom Edge, Mid.ch, QPSK, 10 MHz BW, 1 RB, RB Offset 49

Area Scan (5x8x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.1 V/m
Peak SAR (extrapolated) = 0.959 W/kg
SAR(1 g) = 0.574 mW/g; SAR(10 g) = 0.324 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288050025835

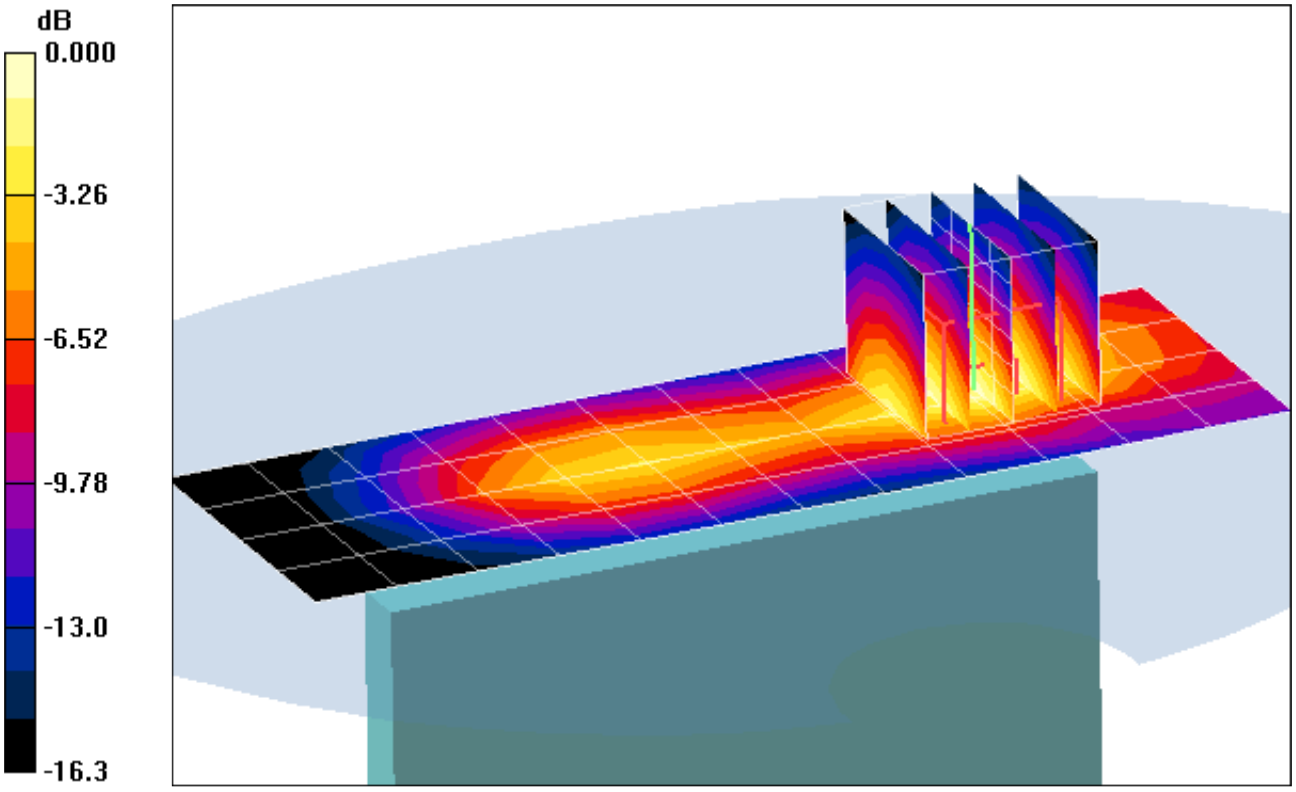
Communication System: LTE RF; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
f = 1732.5 MHz; σ = 1.5 mho/m; ε_r = 52.7; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-08-2011; Ambient Temp: 24.3°C; Tissue Temp: 23.0°C

Probe: ES3DV3 - SN3258; ConvF(5, 5, 5); 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: AWS LTE, Body SAR, Right Edge, Mid.ch, QPSK, 10 MHz BW, 1 RB, RB Offset 49

Area Scan (5x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.4 V/m
Peak SAR (extrapolated) = 0.337 W/kg
SAR(1 g) = 0.199 mW/g; SAR(10 g) = 0.110 mW/g



0 dB = 0.222mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288040025710

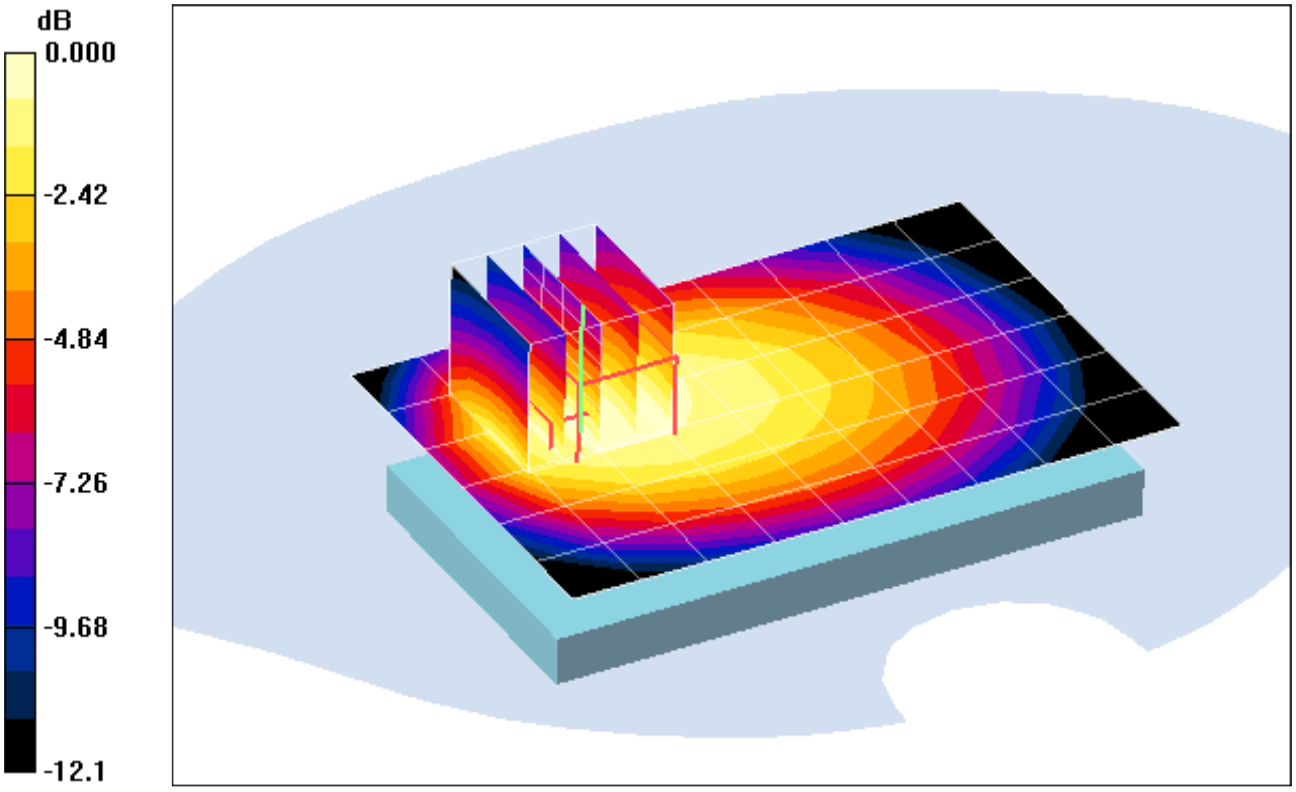
Communication System: LTE BAND 17; Frequency: 710 MHz;Duty Cycle: 1:1
Medium: 750 Body Medium parameters used:
f = 710 MHz; σ = 0.947 mho/m; ε_r = 56.6; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-05-2011; Ambient Temp: 23.6°C; Tissue Temp: 21.9°C

Probe: ES3DV3 - SN3258; ConvF(6.16, 6.16, 6.16); 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: LTE 700 MHz , Body SAR, Back side, Mid.ch, QPSK, 10 MHz BW, 1 RB, RB Offset 49

Area Scan (7x10x1): 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) = 0.308 W/kg
SAR(1 g) = 0.209 mW/g; SAR(10 g) = 0.153 mW/g



0 dB = 0.217mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288040025710

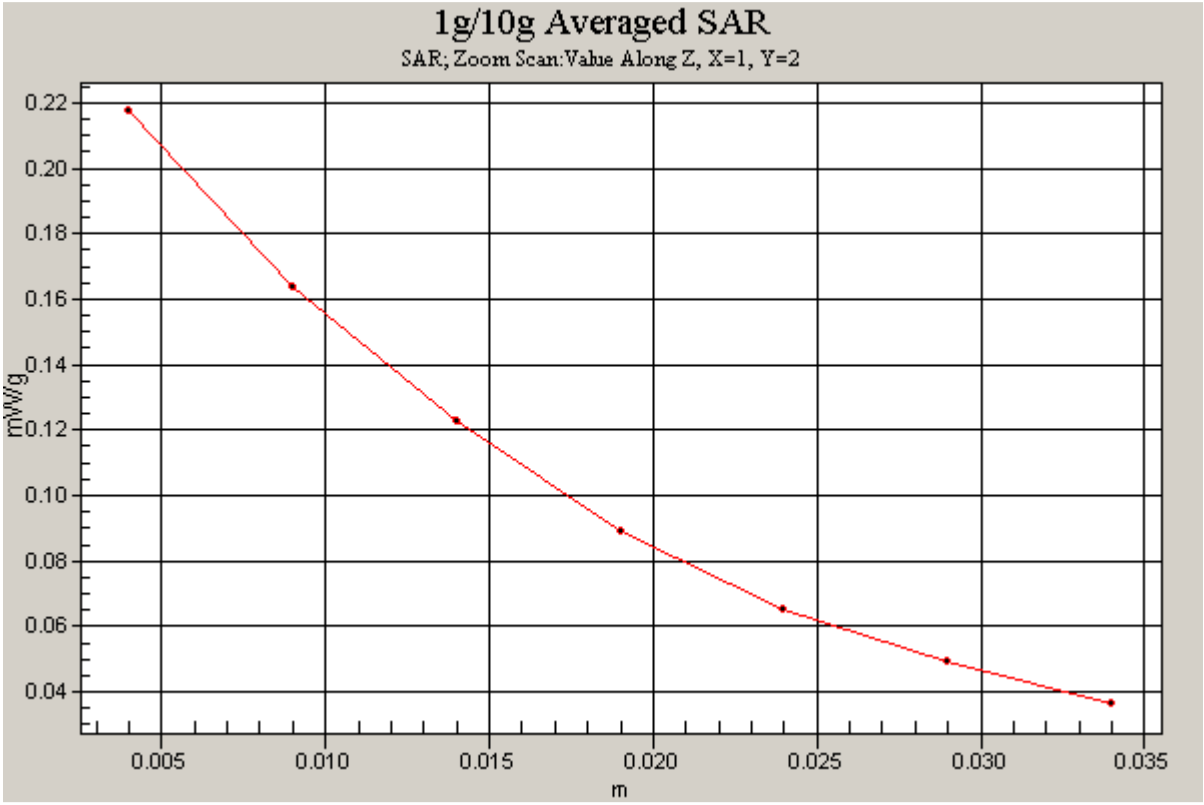
Communication System: LTE BAND 17; Frequency: 710 MHz;Duty Cycle: 1:1
Medium: 750 Body Medium parameters used:
f = 710 MHz; σ = 0.947 mho/m; ε_r = 56.6; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-05-2011; Ambient Temp: 23.6°C; Tissue Temp: 21.9°C

Probe: ES3DV3 - SN3258; ConvF(6.16, 6.16, 6.16); 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: LTE 700 MHz, Body SAR, Back side, Mid.ch, QPSK, 10 MHz BW, 1 RB, RB Offset 49

Area Scan (7x10x1): 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) = 0.308 W/kg
SAR(1 g) = 0.209 mW/g; SAR(10 g) = 0.153 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288040025710

Communication System: LTE BAND 17; Frequency: 710 MHz; Duty Cycle: 1:1

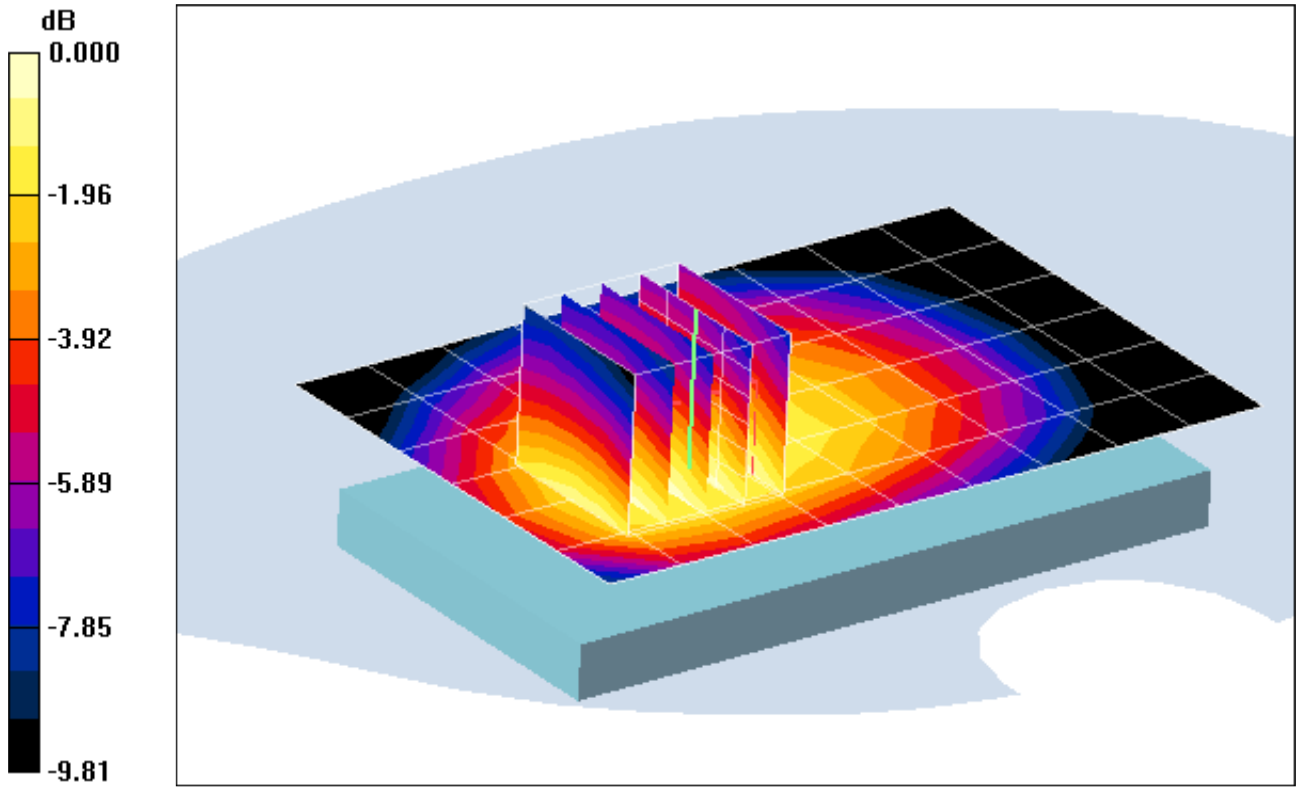
Medium: 750 Body Medium parameters used:
f = 710 MHz; σ = 0.947 mho/m; ε_r = 56.6; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-05-2011; Ambient Temp: 23.6°C; Tissue Temp: 21.9°C

Probe: ES3DV3 - SN3258; ConvF(6.16, 6.16, 6.16); 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: LTE 700 MHz, Body SAR, Front side, Mid.ch, QPSK, 10 MHz BW, 1 RB, RB Offset 49

Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.73 V/m
Peak SAR (extrapolated) = 0.140 W/kg
SAR(1 g) = 0.104 mW/g; SAR(10 g) = 0.0795 mW/g



0 dB = 0.116mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288040025710

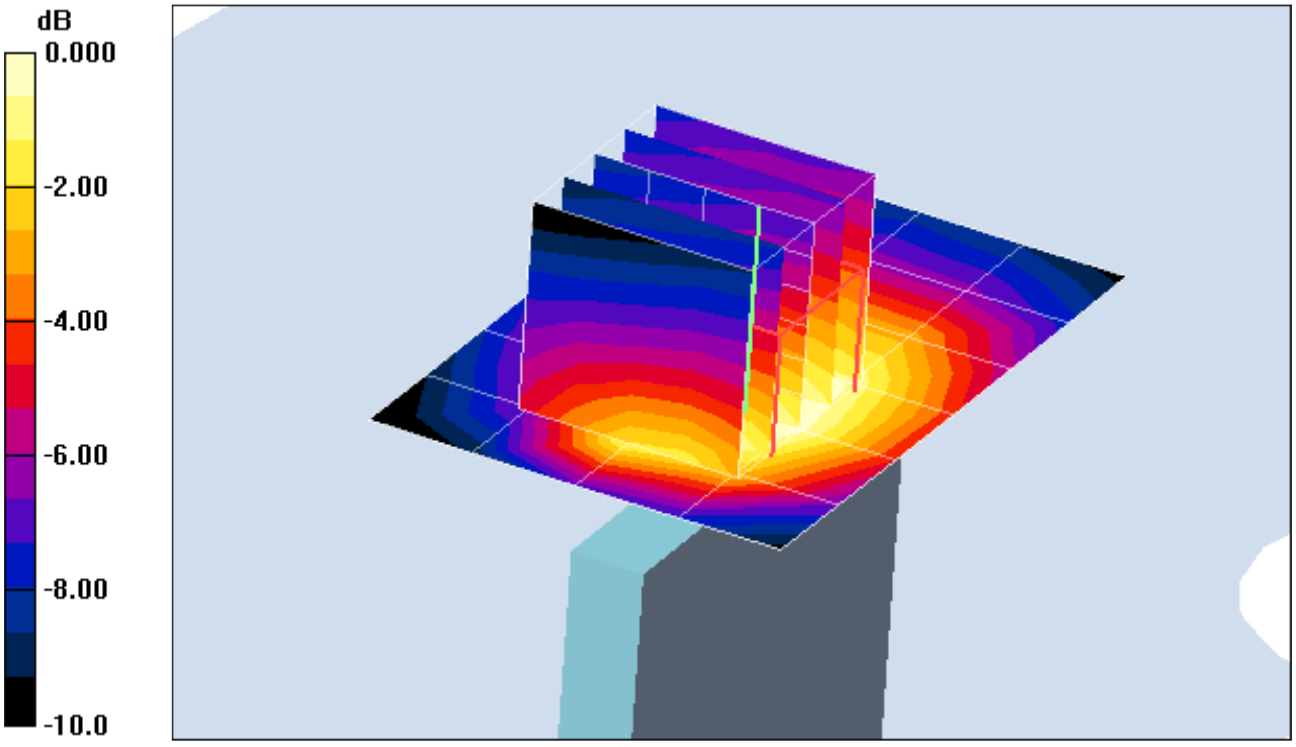
Communication System: LTE BAND 17; Frequency: 710 MHz;Duty Cycle: 1:1
Medium: 750 Body Medium parameters used:
f = 710 MHz; σ = 0.947 mho/m; ε_r = 56.6; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-05-2011; Ambient Temp: 23.6°C; Tissue Temp: 21.9°C

Probe: ES3DV3 - SN3258; ConvF(6.16, 6.16, 6.16); 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: LTE 700 MHz, Body SAR, Bottom Edge, Mid.ch, QPSK, 10 MHz BW, 1 RB, RB Offset 49

Area Scan (5x7x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.45 V/m
Peak SAR (extrapolated) = 0.128 W/kg
SAR(1 g) = 0.068 mW/g; SAR(10 g) = 0.040 mW/g



0 dB = 0.073mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI727; Type: Portable Handset; Serial: IMEI: 357288040025710

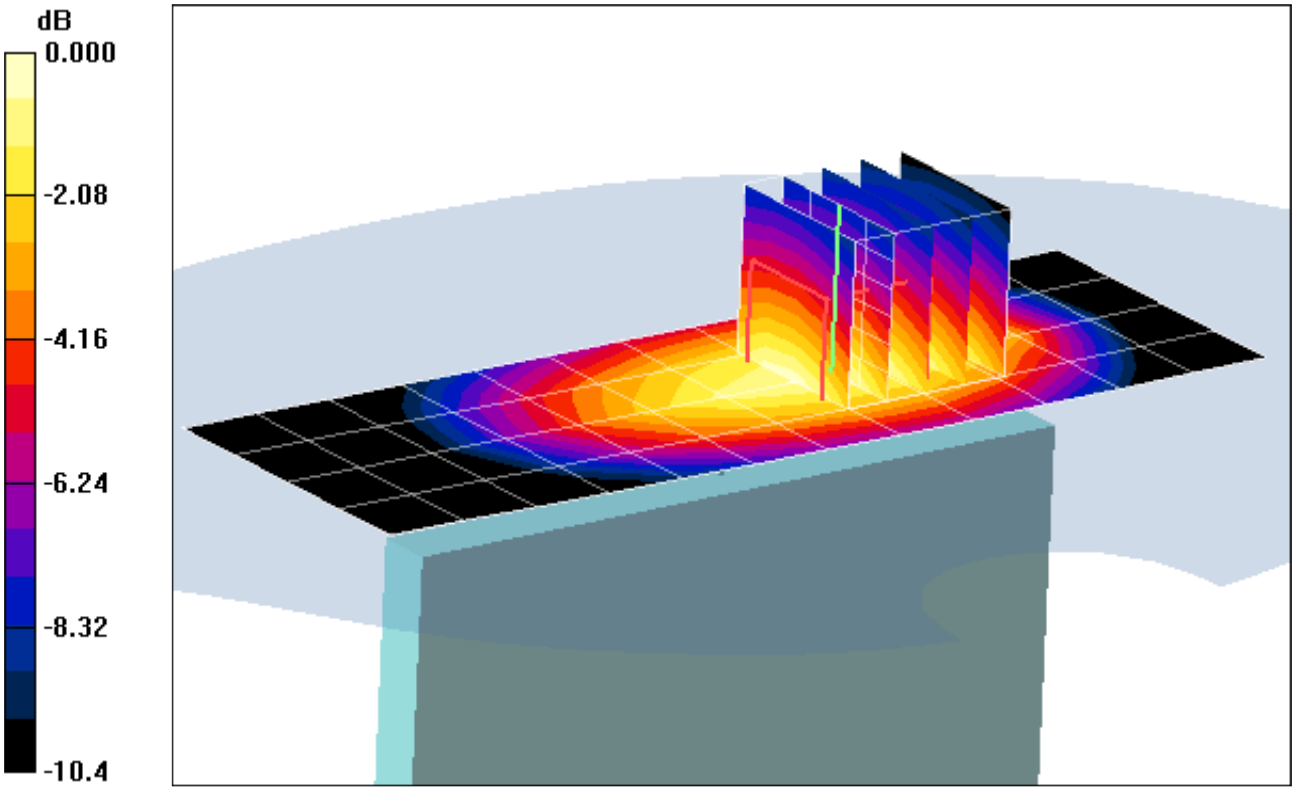
Communication System: LTE BAND 17; Frequency: 710 MHz;Duty Cycle: 1:1
Medium: 750 Body Medium parameters used:
f = 710 MHz; σ = 0.947 mho/m; ε_r = 56.6; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-05-2011; Ambient Temp: 23.6°C; Tissue Temp: 21.9°C

Probe: ES3DV3 - SN3258; ConvF(6.16, 6.16, 6.16); 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:LTE 700 MHz, Body SAR, Right Edge, Mid.ch, QPSK, 10 MHz BW 1 RB, RB Offset 49

Area Scan (5x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.1 V/m
Peak SAR (extrapolated) = 0.182 W/kg
SAR(1 g) = 0.128 mW/g; SAR(10 g) = 0.089 mW/g



0 dB = 0.137mW/g

APPENDIX B: DIPOLE VALIDATION

PCTEST ENGINEERING LABORATORY, INC.

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

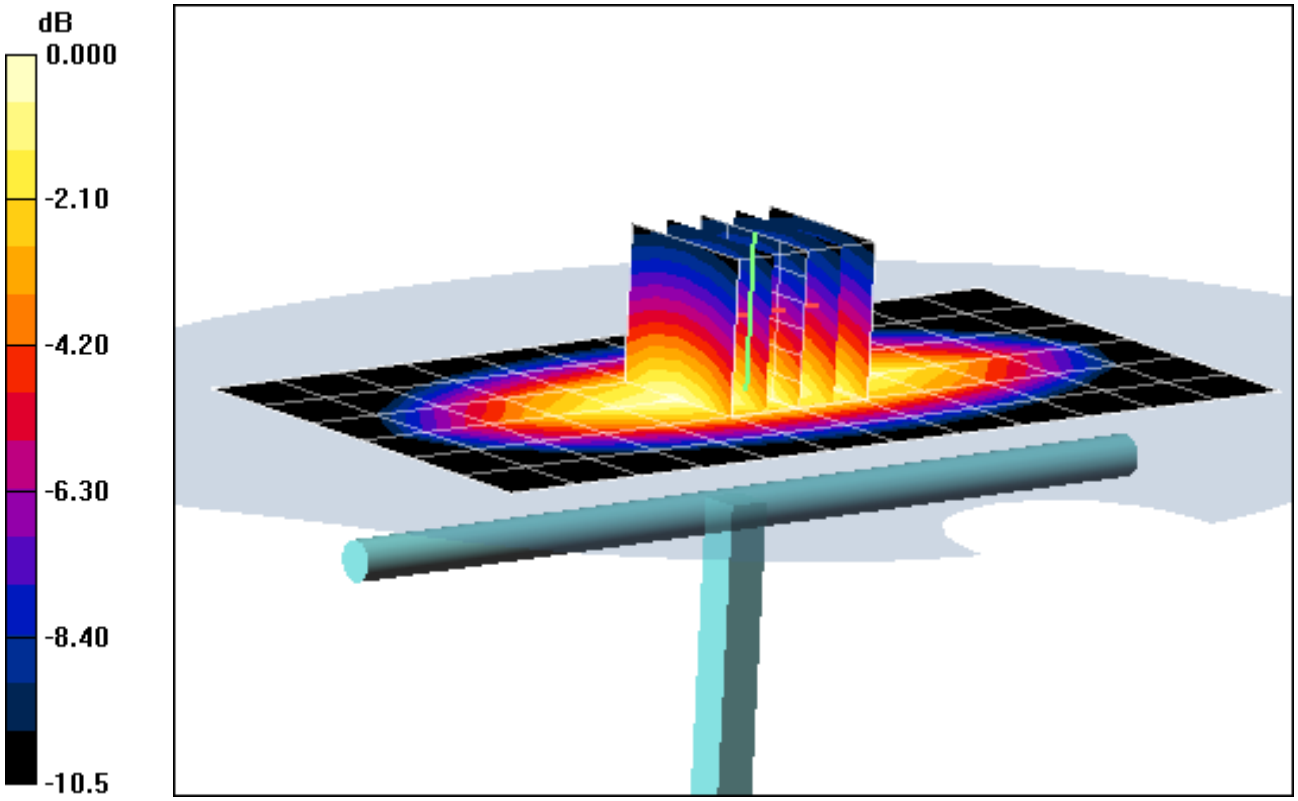
Communication System: CW; Frequency: 750 MHz;Duty Cycle: 1:1
Medium: 750 Head Medium parameters used (interpolated):
f = 750 MHz; σ = 0.907 mho/m; ε_r = 42.62; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 08-08-2011; Ambient Temp: 24.0 °C; Tissue Temp: 22.4 °C

Probe: ES3DV3 - SN3258; ConvF(6.41, 6.41, 6.41); 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

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 dBm (250 mW)
SAR(1 g) = 2.25 mW/g; SAR(10 g) = 1.47 mW/g
Deviation = 7.53%



0 dB = 2.42mW/g

PCTEST ENGINEERING LABORATORY, INC.

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

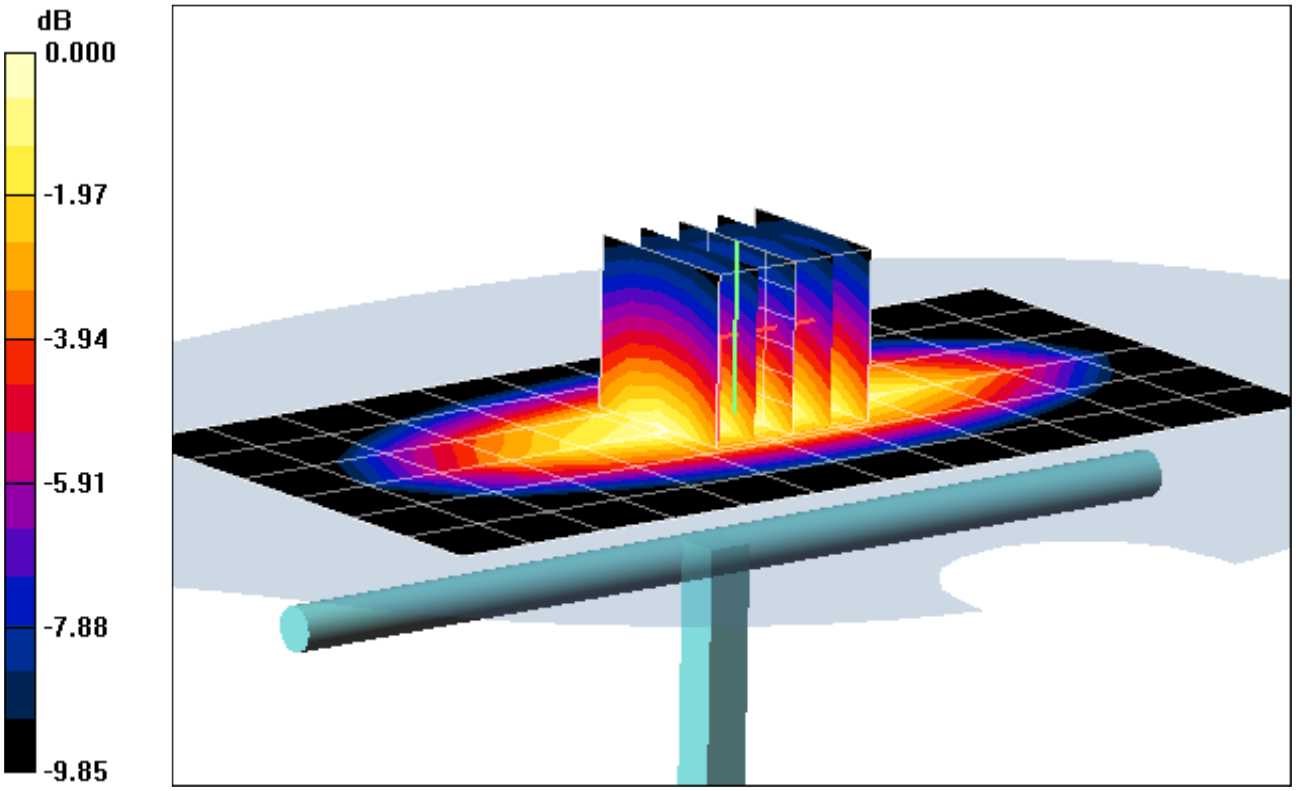
Communication System: CW; Frequency: 750 MHz;Duty Cycle: 1:1
Medium: 750 Muscle Medium parameters used (interpolated):
f = 750 MHz; σ = 0.988 mho/m; ε_r = 56.2; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 08-05-2011; Ambient Temp: 23.6°C; Tissue Temp: 21.9°C

Probe: ES3DV3 - SN3258; ConvF(6.16, 6.16, 6.16); 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

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 dBm (250 mW)
SAR(1 g) = 2.21 mW/g; SAR(10 g) = 1.47 mW/g
Deviation = -0.11%



0 dB = 2.39mW/g

PCTEST ENGINEERING LABORATORY, INC.

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

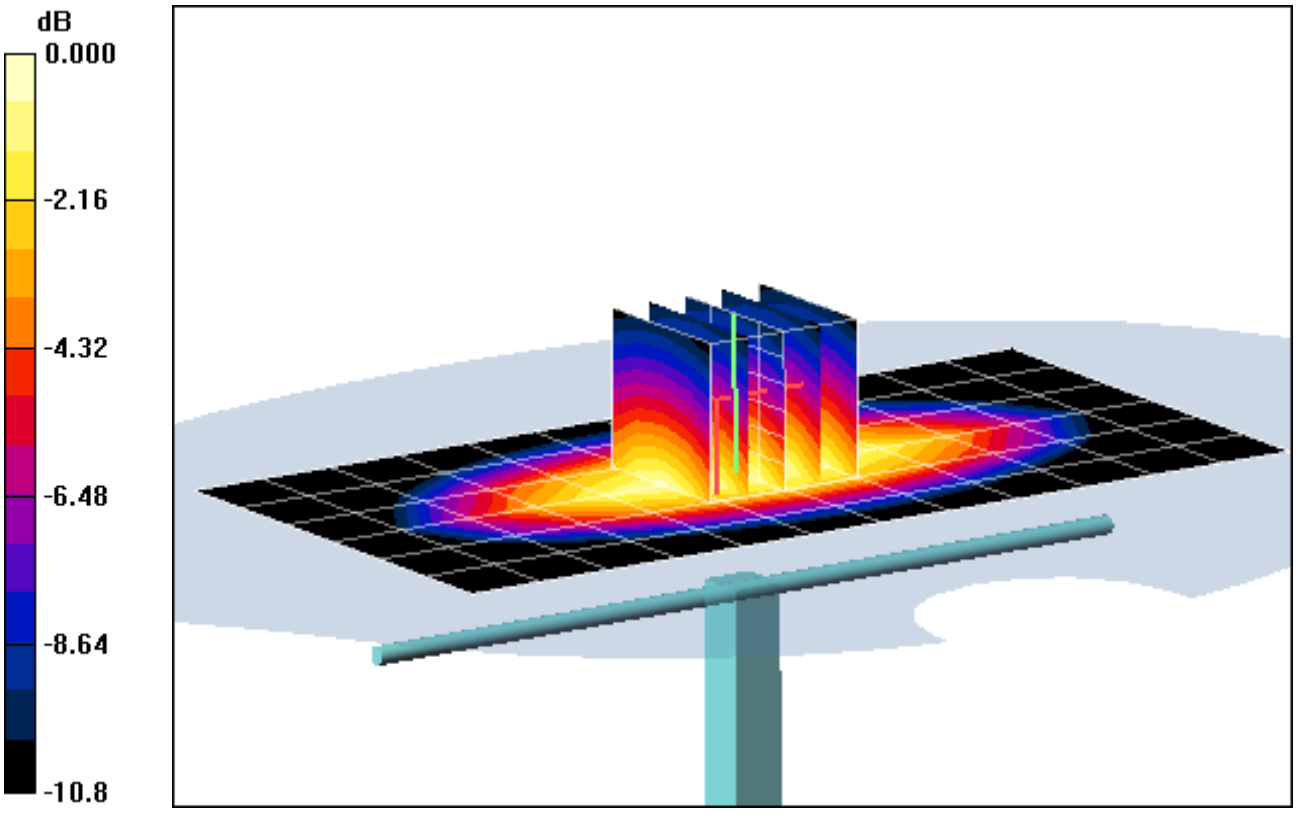
Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium: 835 Head Medium parameters used:
f = 835 MHz; σ = 0.866 mho/m; ε_r = 40; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 07-27-2011; Ambient Temp: 23.8 °C; Tissue Temp: 22.2 °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 = 18.0 dBm (63 mW)
SAR(1 g) = 0.616 mW/g; SAR(10 g) = 0.399 mW/g
Deviation = 2.60 %



0 dB = 0.665mW/g

PCTEST ENGINEERING LABORATORY, INC.

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

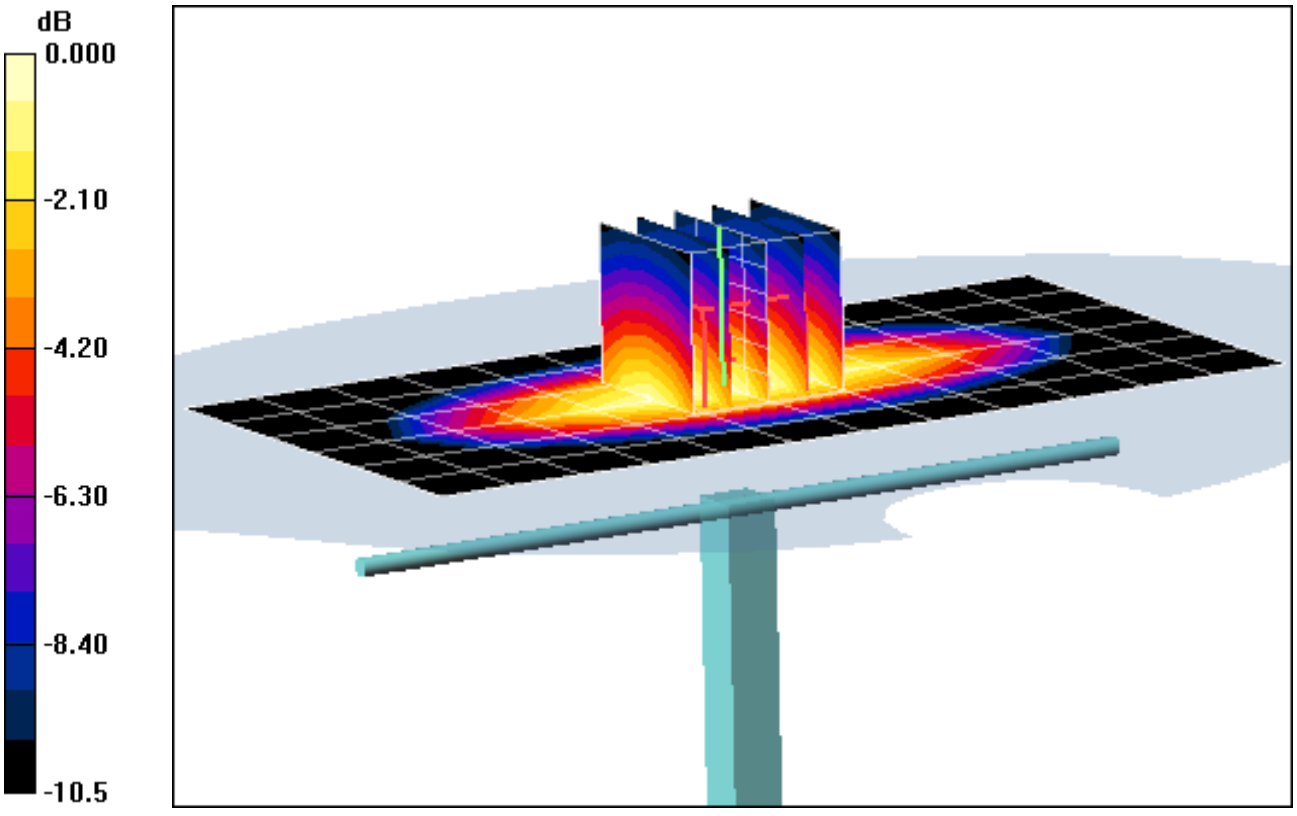
Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium: 835 Body Medium parameters used:
f = 835 MHz; σ = 0.989 mho/m; ε_r = 54.6; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 07-27-2011; Ambient Temp: 23.7 °C; Tissue Temp: 22.6 °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 = 18.0 dBm (63 mW)
SAR(1 g) = 0.653 mW/g; SAR(10 g) = 0.426 mW/g
Deviation = 5.23 %



0 dB = 0.706mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 1750 MHz; Type: D1750V2; Serial: 1051

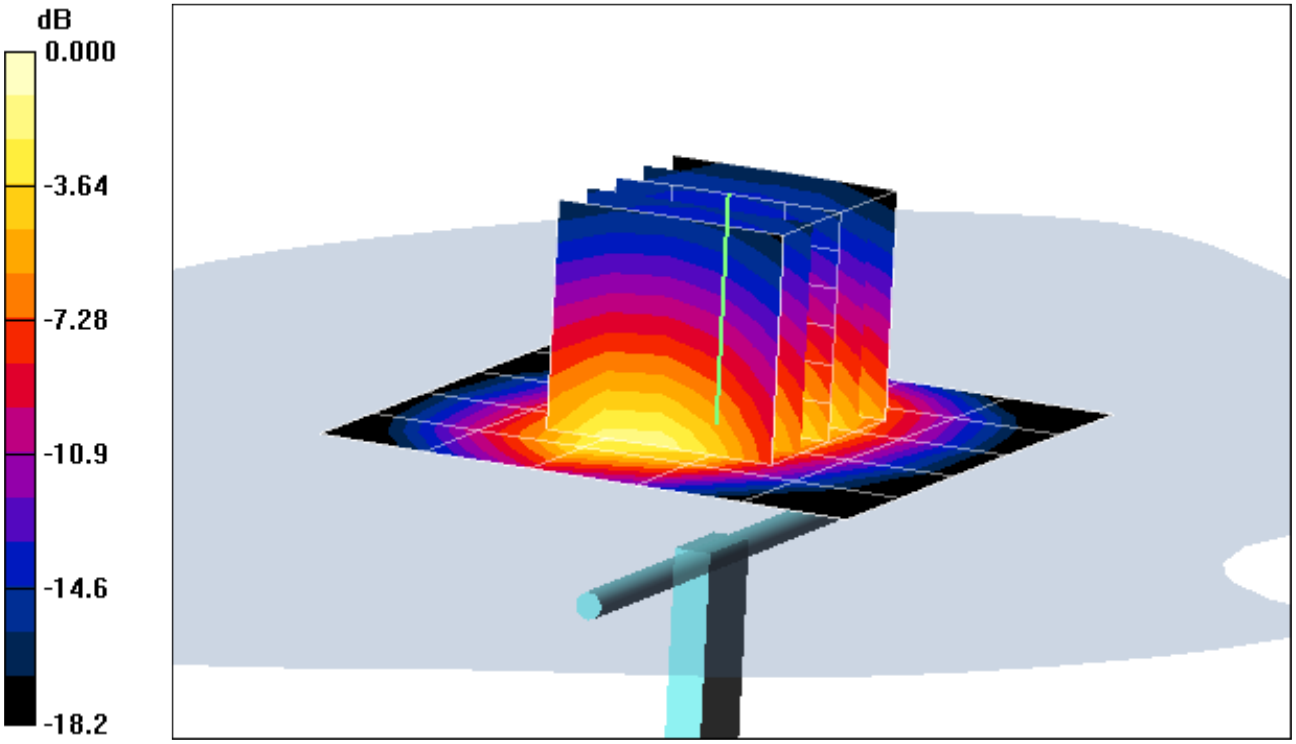
Communication System: CW; Frequency: 1750 MHz;Duty Cycle: 1:1
Medium: 1750 Head Medium parameters used:
f = 1750 MHz; σ = 1.4 mho/m; ε_r = 39.48; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-08-2011; Ambient Temp: 24.2°C; Tissue Temp: 22.7°C

Probe: ES3DV3 - SN3258; ConvF(5.32, 5.32, 5.32); 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

1750 MHz System Verification

Area Scan (6x6x1): 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) = 3.52 mW/g; SAR(10 g) = 1.83 mW/g
Deviation = -4.86 %



0 dB = 3.95mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 1750 MHz; Type: D1750V2; Serial: 1051

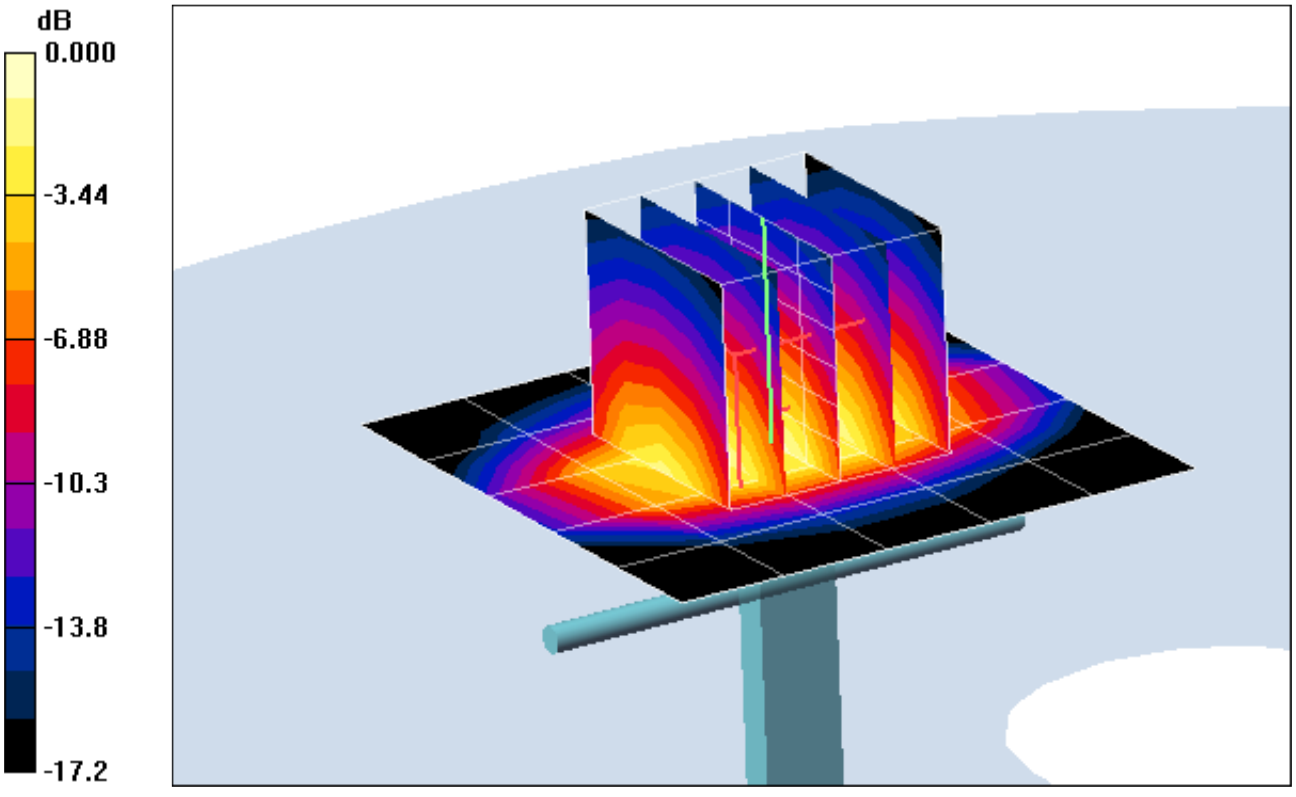
Communication System: CW; Frequency: 1750 MHz;Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used:
f = 1750 MHz; σ = 1.52 mho/m; ε_r = 52.8; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-08-2011; Ambient Temp: 24.3°C; Tissue Temp: 23.0°C

Probe: ES3DV3 - SN3258; ConvF(5, 5, 5); 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

1750 MHz System Verification

Area Scan (6x6x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Input Power = 20 dBm (100 mW)
SAR(1 g) = 3.84 mW/g; SAR(10 g) = 2.01 mW/g
Deviation = 3.78%



0 dB = 4.31mW/g

PCTEST ENGINEERING LABORATORY, INC.

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

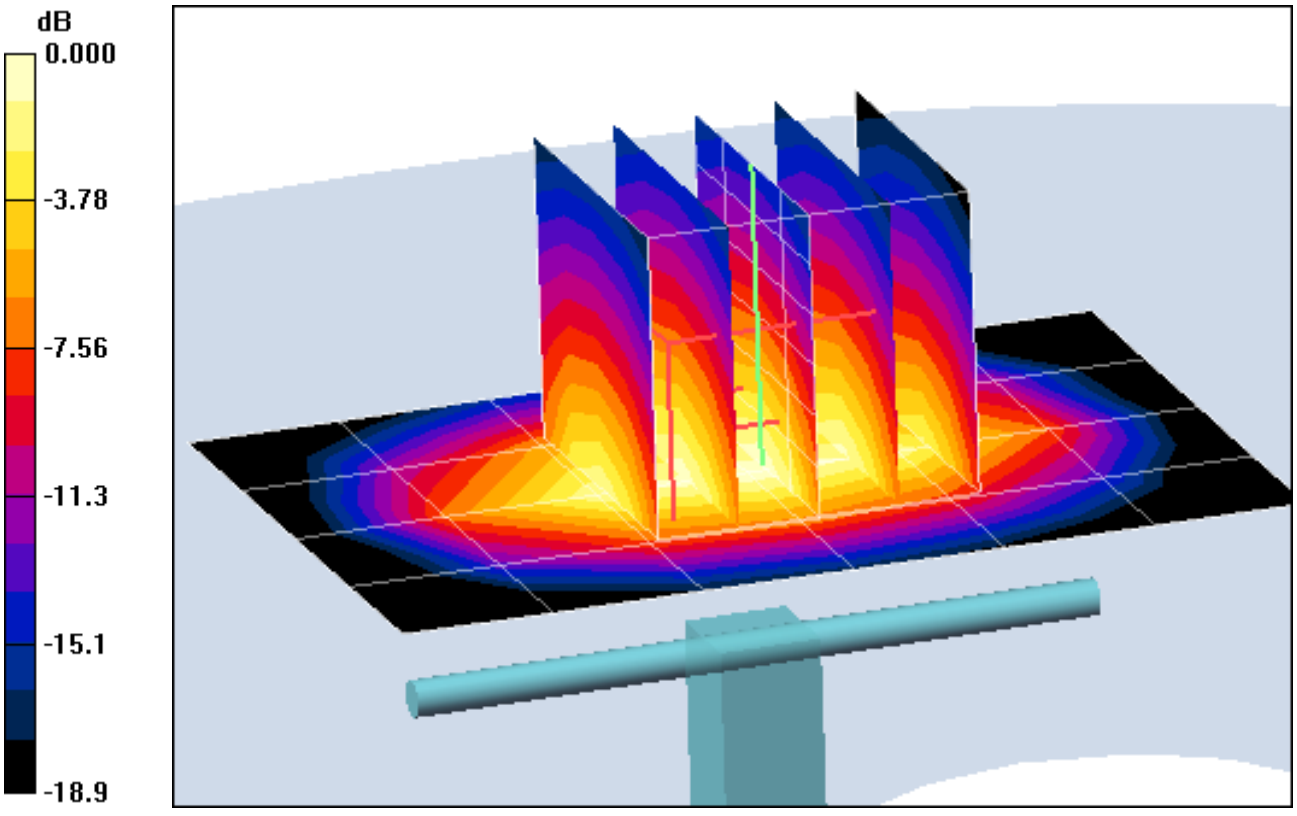
Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: 1900 Head Medium parameters used (interpolated):
f = 1900 MHz; σ = 1.43 mho/m; ε_r = 40.9; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 07-30-2011; Ambient Temp: 24.0°C; Tissue Temp: 23.1°C

Probe: ES3DV3 - SN3258; ConvF(5.15, 5.15, 5.15); 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

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) = 1.62 mW/g; SAR(10 g) = 0.827 mW/g
Deviation = 0.75 %



0 dB = 1.82mW/g

PCTEST ENGINEERING LABORATORY, INC.

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

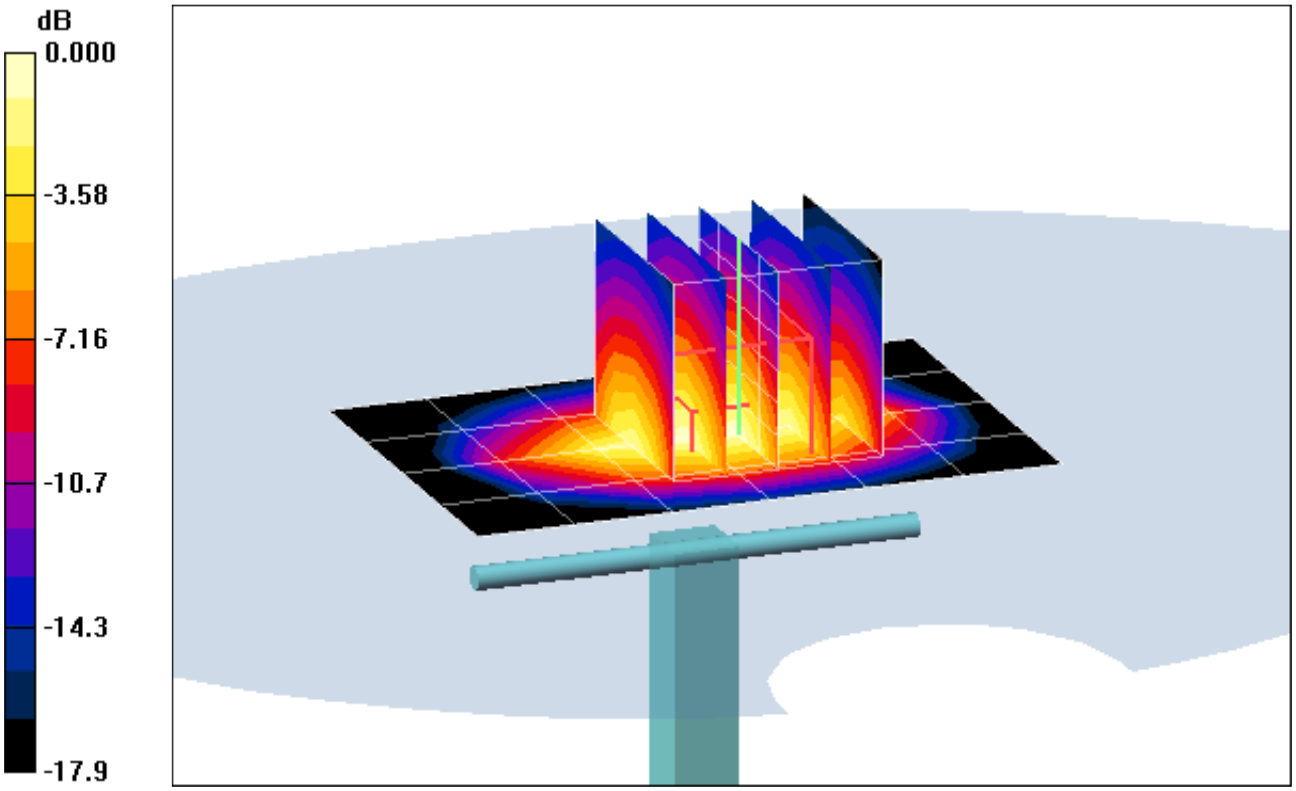
Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1900 MHz; σ = 1.51 mho/m; ε_r = 52.26; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-01-2011; Ambient Temp: 23.2°C; Tissue Temp: 21.9°C

Probe: ES3DV2 - SN3022; ConvF(4.34, 4.34, 4.34); Calibrated: 9/21/2010
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn704; Calibrated: 3/17/2011
Phantom: SAM with CRP; Type: SAM; Serial: TP1375
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 dBm (100 mW)
SAR(1 g) = 4.29 mW/g; SAR(10 g) = 2.25 mW/g
Deviation = 4.38%



0 dB = 4.78mW/g

PCTEST ENGINEERING LABORATORY, INC.

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

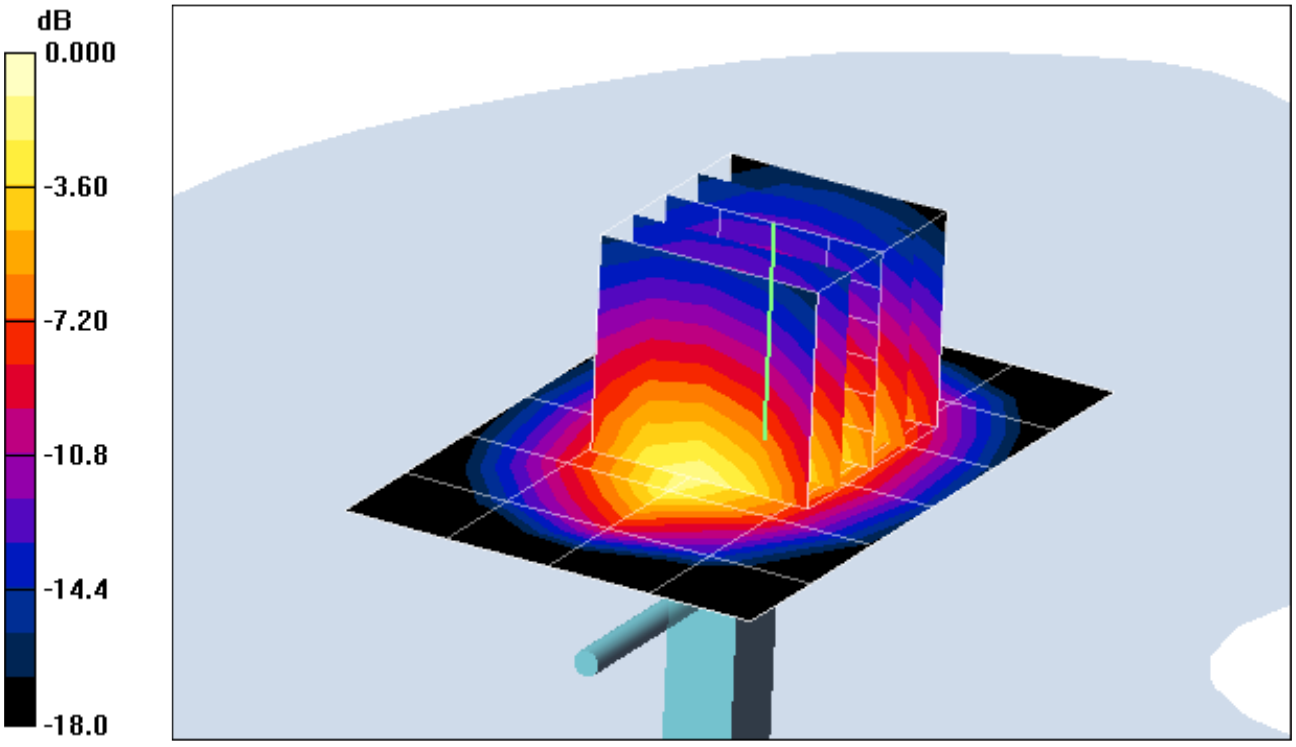
Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1900 MHz; σ = 1.475 mho/m; ε_r = 51.2; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-04-2011; Ambient Temp: 24.7°C; Tissue Temp: 23.1°C

Probe: ES3DV2 - SN3022; ConvF(4.34, 4.34, 4.34); Calibrated: 9/21/2010
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn704; Calibrated: 3/17/2011
Phantom: SAM with CRP; Type: SAM; Serial: TP1375
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) = 4.04 mW/g; SAR(10 g) = 2.11 mW/g
Deviation = -1.70 %



0 dB = 4.50mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: SAR Dipole 2450 MHz; Type: D2450V2; Serial: 797

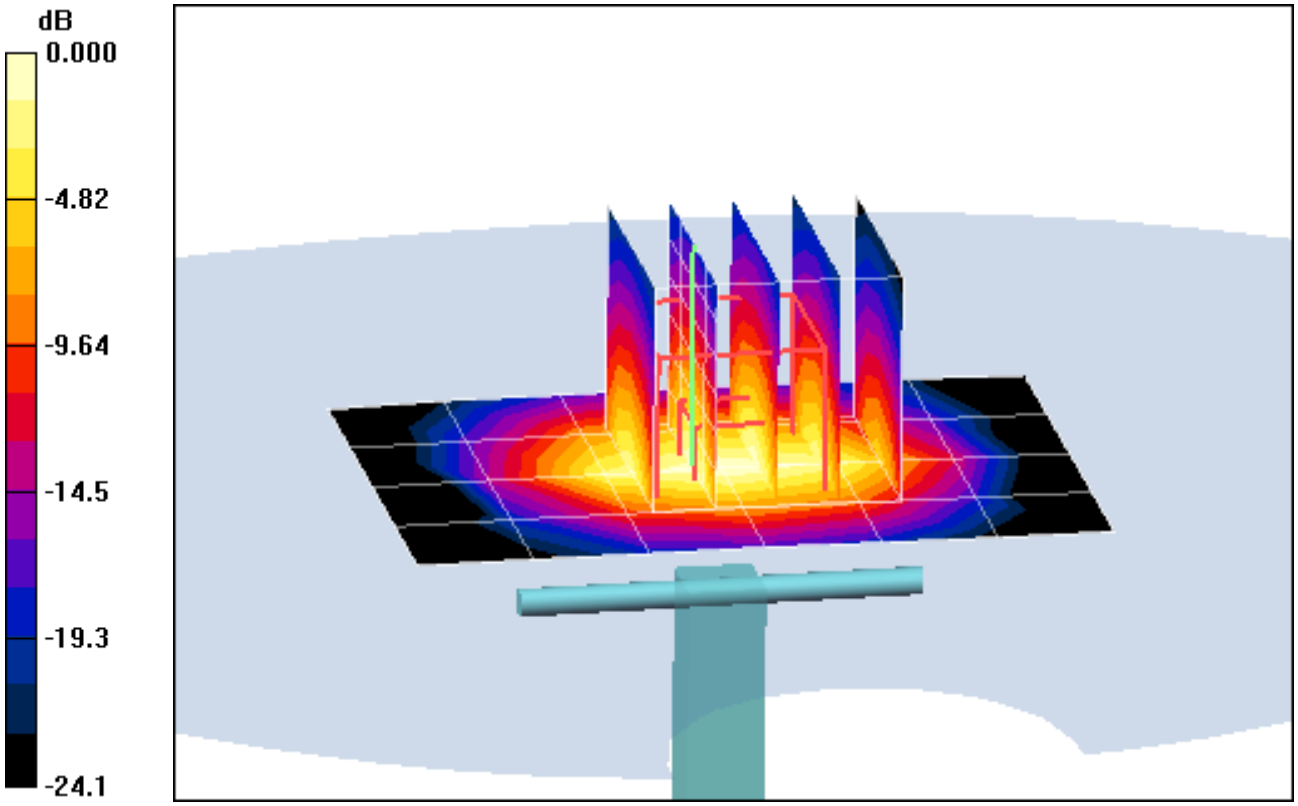
Communication System: CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium: 2450 Head Medium parameters used:
f = 2450 MHz; σ = 1.78 mho/m; ε_r = 38.63; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-01-2011; Ambient Temp: 23.7°C; Tissue Temp: 22.3°C

Probe: EX3DV4 - SN3550; ConvF(6.29, 6.29, 6.29); Calibrated: 2/14/2011
Sensor-Surface: 3mm (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

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 = 16 dBm (40 mW)
SAR(1 g) = 2.3 mW/g; SAR(10 g) = 1.04 mW/g
Deviation = 7.88 %



0 dB = 2.96mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: SAR Dipole 2450 MHz; Type: D2450V2; Serial: 797

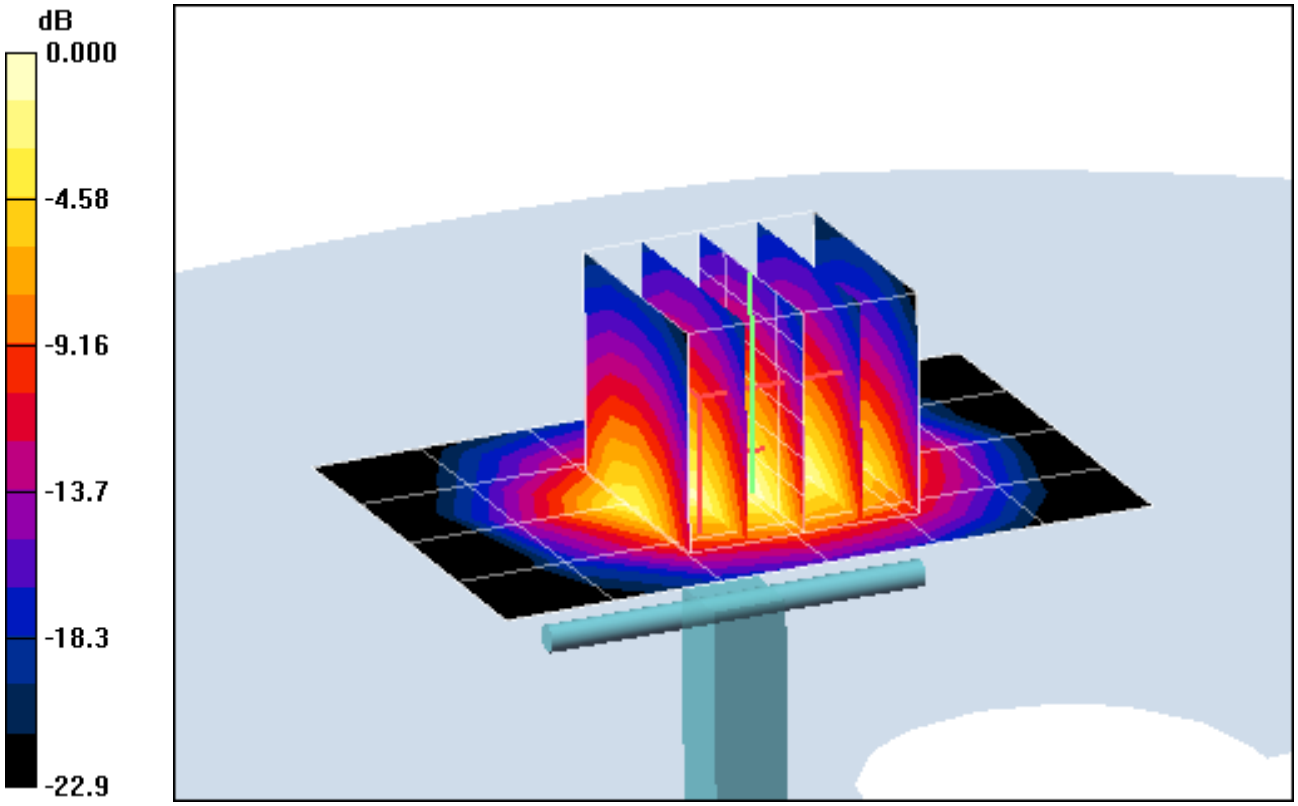
Communication System: CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used:
f = 2450 MHz; σ = 1.88 mho/m; ε_r = 52.1; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-01-2011; Ambient Temp: 23.9°C; Tissue Temp: 22.5°C

Probe: EX3DV4 - SN3550; ConvF(6.25, 6.25, 6.25); Calibrated: 2/14/2011
Sensor-Surface: 3mm (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

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 = 16 dBm (40 mW)
SAR(1 g) = 2.18 mW/g; SAR(10 g) = 1 mW/g
Deviation = 4.21 %



0 dB = 2.85mW/g

PCTEST ENGINEERING LABORATORY, INC.

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

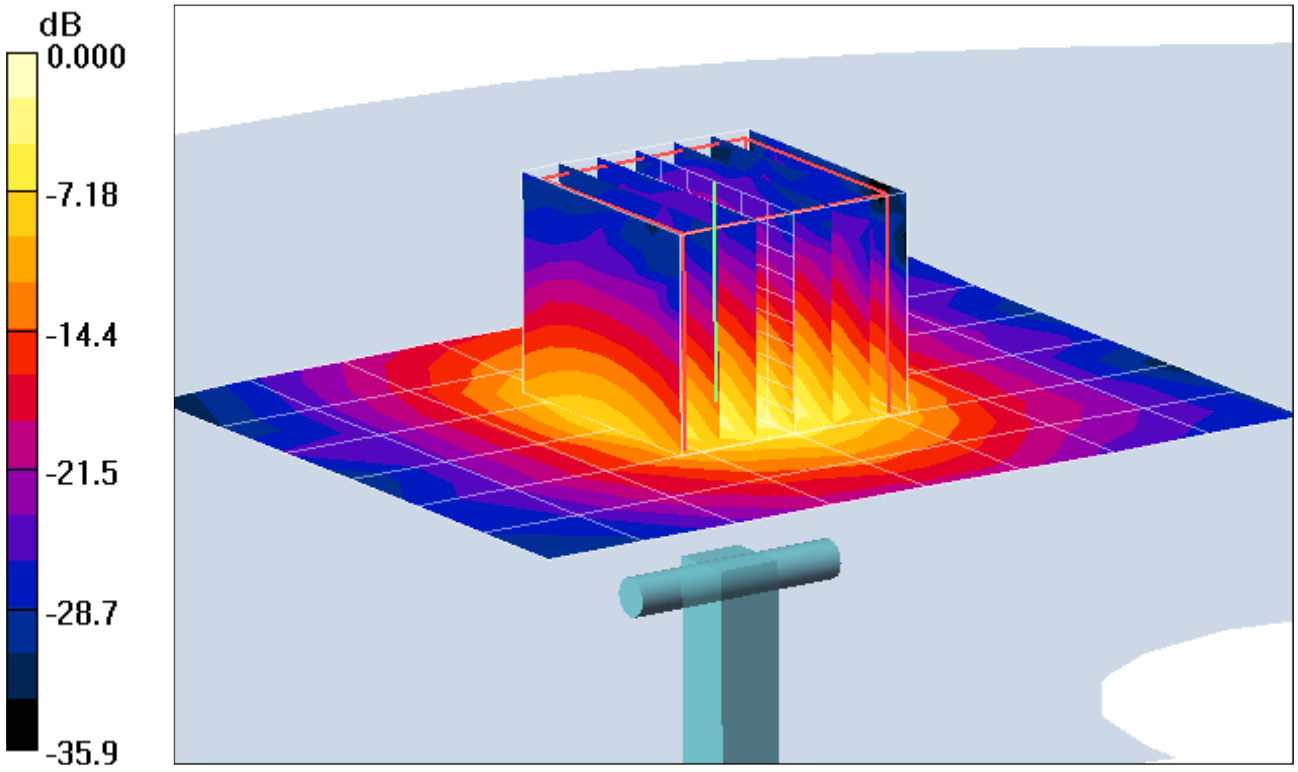
Communication System: CW; Frequency: 5200 MHz;Duty Cycle: 1:1
Medium: 5 GHz Head Medium parameters used (interpolated):
f = 5200 MHz; σ = 4.8 mho/m; ε_r = 35.3; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 07-27-2011; Ambient Temp: 22.3 °C; Tissue Temp: 20.4 °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 = 14 dBm (25 mW)
SAR(1 g) = 2.27 mW/g; SAR(10 g) = 0.643 mW/g
Deviation = 9.27%



0 dB = 4.69mW/g

PCTEST ENGINEERING LABORATORY, INC.

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

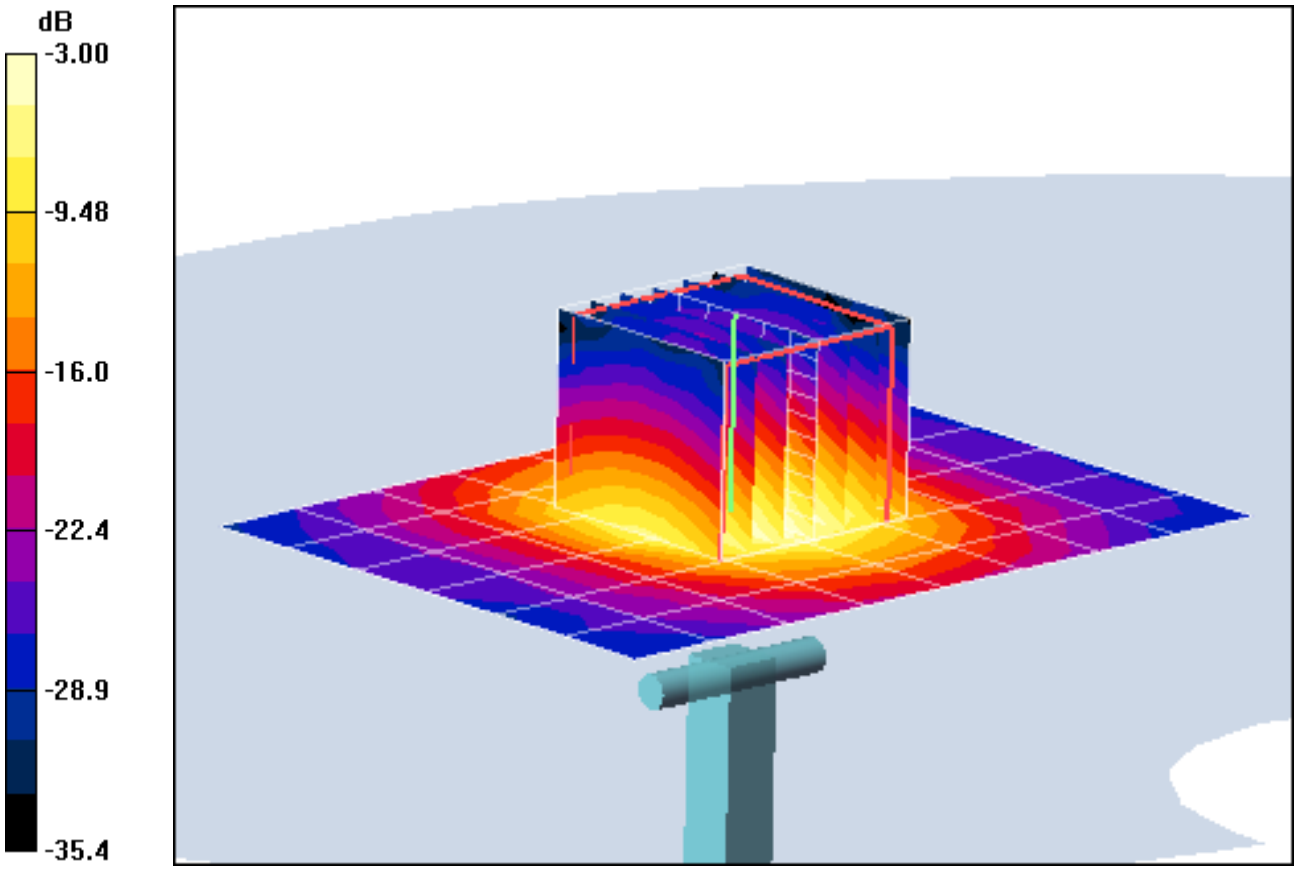
Communication System: CW; Frequency: 5200 MHz;Duty Cycle: 1:1
Medium: 5 GHz Body; Medium parameters used (interpolated):
f = 5200 MHz; σ = 5.31 mho/m; ε_r = 47.88; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 07-28-2011; Ambient Temp: 22.2 °C; Tissue Temp: 20.5°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) = 8.11 mW/g; SAR(10 g) = 2.23 mW/g
Deviation = 4.38 %



0 dB = 16.5mW/g

PCTEST ENGINEERING LABORATORY, INC.

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

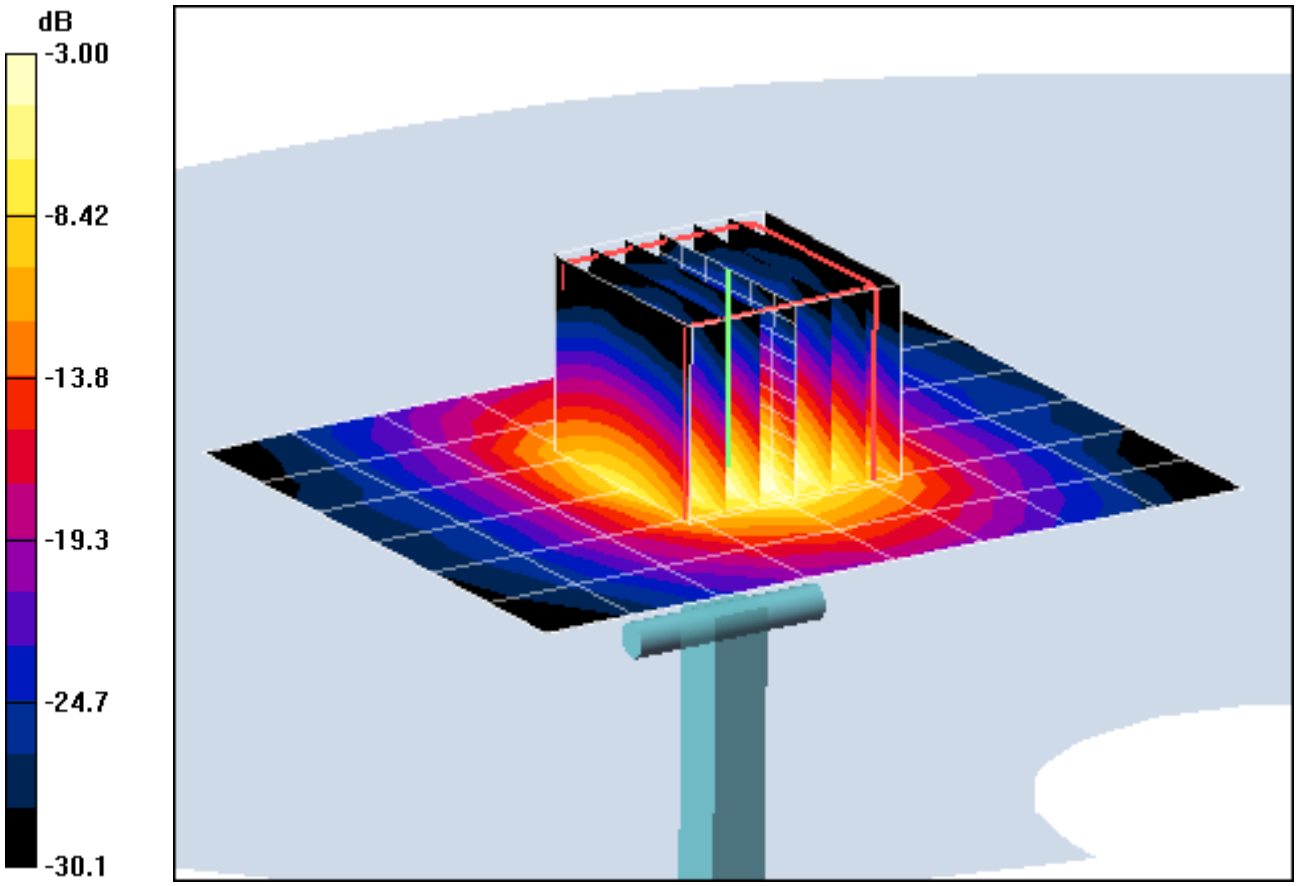
Communication System: CW; Frequency: 5500 MHz;Duty Cycle: 1:1
Medium: 5 GHz Head; Medium parameters used (interpolated):
f = 5500 MHz; σ = 5.15 mho/m; ε_r = 34.8; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 07-27-2011; Ambient Temp: 22.6 °C; Tissue Temp: 20.3 °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

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) = 9.76 mW/g; SAR(10 g) = 2.74 mW/g
Deviation = 8.32 %



0 dB = 20.4mW/g

PCTEST ENGINEERING LABORATORY, INC.

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

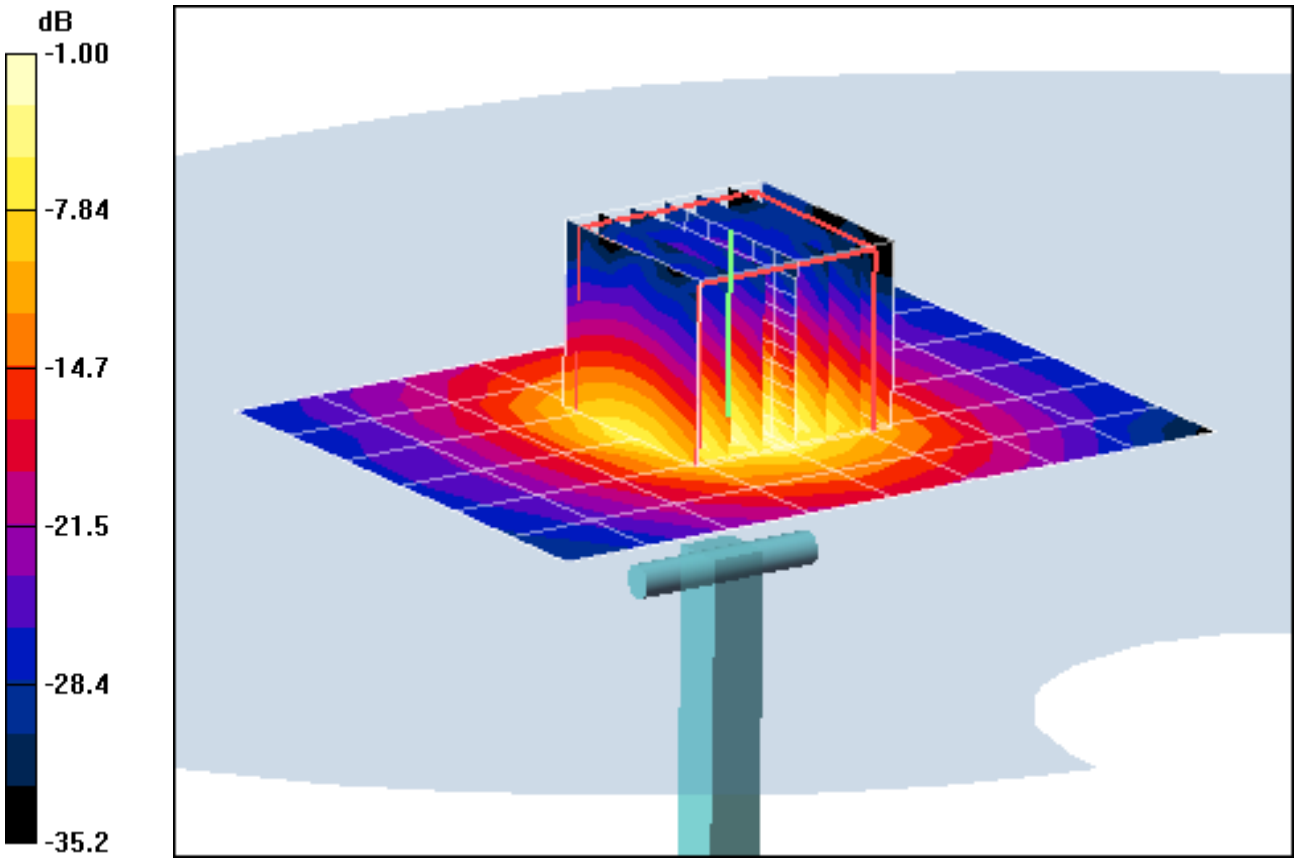
Communication System: CW; Frequency: 5500 MHz;Duty Cycle: 1:1
Medium: 5 GHz Body; Medium parameters used (interpolated):
f = 5500 MHz; σ = 5.72 mho/m; ε_r = 47.3; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 07-28-2011; Ambient Temp: 22.3 °C; Tissue Temp: 20.7 °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) = 7.9 mW/g; SAR(10 g) = 2.16 mW/g
Deviation = -6.40 %



0 dB = 16.2mW/g

PCTEST ENGINEERING LABORATORY, INC.

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

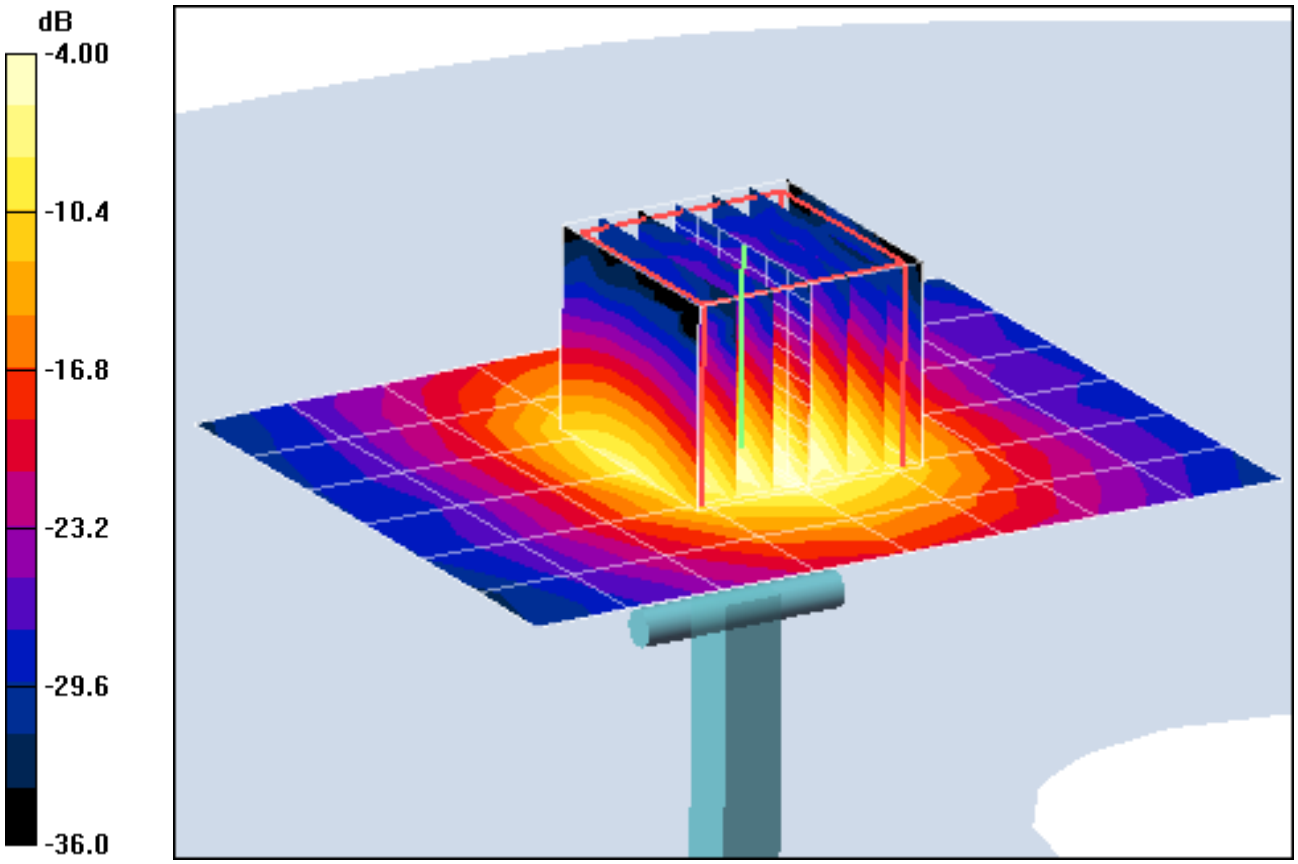
Communication System: CW; Frequency: 5800 MHz;Duty Cycle: 1:1
Medium: 5 GHz Head; Medium parameters used (interpolated):
f = 5800 MHz; σ = 5.51 mho/m; ε_r = 34.2; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 07-27-2011; Ambient Temp: 22.6 °C; Tissue Temp: 20.8 °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) = 9.04 mW/g; SAR(10 g) = 2.51 mW/g
Deviation = 9.05 %



0 dB = 19.4mW/g

PCTEST ENGINEERING LABORATORY, INC.

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

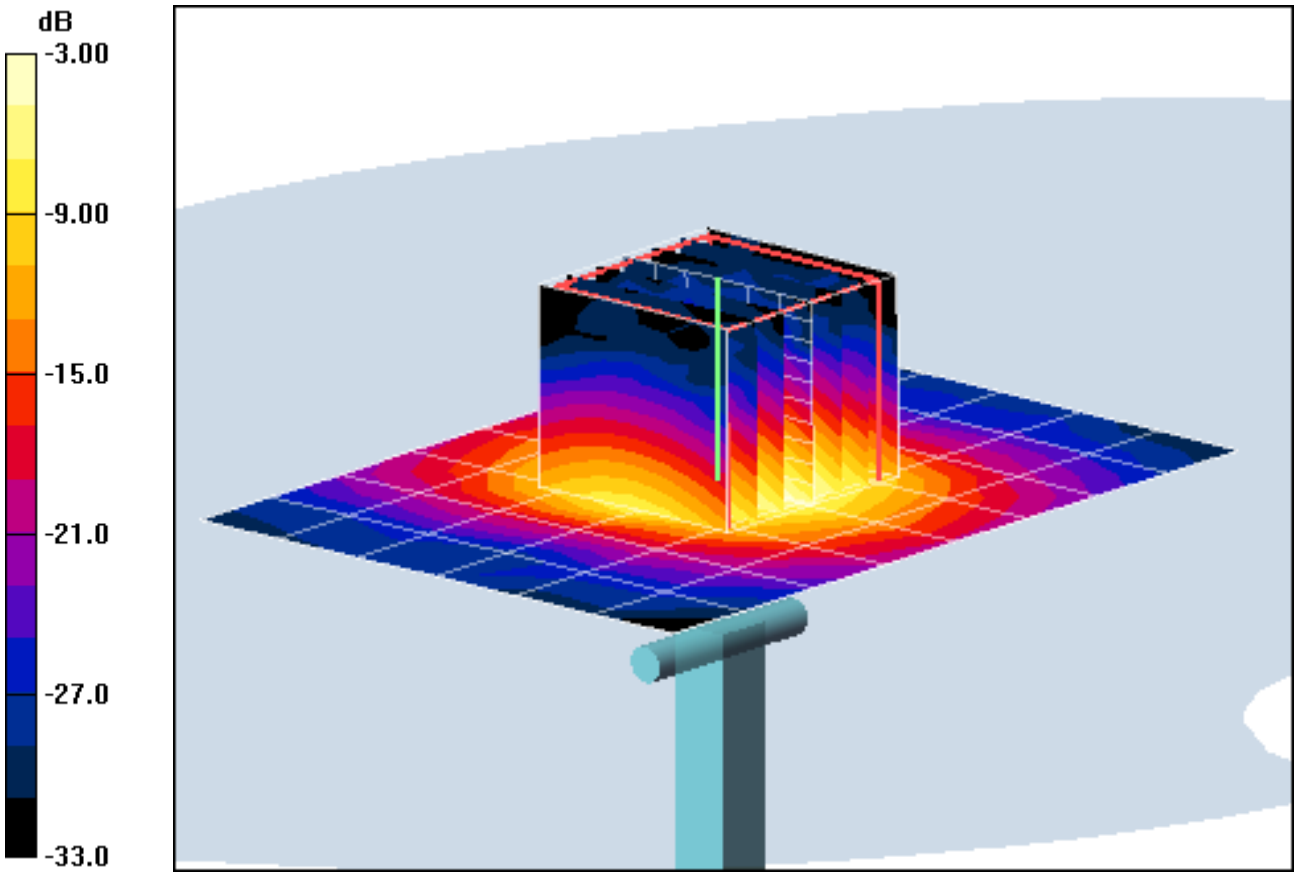
Communication System: CW; Frequency: 5800 MHz;Duty Cycle: 1:1
Medium: 5 GHz Body; Medium parameters used (interpolated):
f = 5800 MHz; σ = 6.15 mho/m; ε_r = 46.89; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 07-28-2011; Ambient Temp: 22.7 °C; Tissue Temp: 20.9 °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) = 7.72 mW/g; SAR(10 g) = 2.1 mW/g
Deviation = 2.93 %



0 dB = 16.4mW/g