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SAR COMPLIANCE EVALUATION REPORT

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

Date of Testing:
08/23/11 - 09/06/11, 10/10/11-10/20/11
Test Site/Location:
PCTEST Lab, Columbia, MD, USA
Test Report Serial No.:
0Y1108101404-R2.A3L

FCC ID: A3LSGHI957

APPLICANT: SAMSUNG ELECTRONICS, CO. LTD.

EUT Type: Portable Tablet Computer
Application Type: Certification
FCC Rule Part(s): CFR §2.1093; FCC/OET Bulletin 65 Supplement C [June 2001]
Model(s): SGH-I957
Test Device Serial No.: S/N: Pre-Production [IMEI 358444040012161, IMEI 358444040009670, IMEI 358444040012104, IMEI 358444040012112, IMEI 358444040012138, IMEI 358444040012153]

Band & Mode	Tx Frequency	Conducted Power [dBm]	SAR 1 gm Body (W/kg)
GPRS/EDGE 850	824.20 - 848.80 MHz	30.55	0.93
GPRS/EDGE 1900	1850.20 - 1909.80 MHz	27.10	1.04
WCDMA/HSPA 850	826.40 - 846.60 MHz	22.78	0.68
WCDMA/HSPA 1900	1852.4 - 1907.6 MHz	22.21	0.96
Band 17 LTE	706.5 - 713.5 MHz	22.23	0.39
Band 4 (AWS) LTE	1712.5 - 1752.5 MHz	22.70	0.94
2.4 GHz WLAN	2412 - 2462 MHz	13.48	0.70
5.2 GHz WLAN	5180 - 5240 MHz	10.37	0.75
5.3 GHz WLAN	5260 - 5320 MHz	10.54	0.74
5.5 GHz WLAN	5500 - 5700 MHz	10.79	0.82
5.8 GHz WLAN	5745 - 5825 MHz	11.15	0.88
Bluetooth	2402 - 2480 MHz	10.46	N/A

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

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

Note: This revised Test Report (S/N: 0Y1108101404-R2.A3L) supersedes and replaces the previously issued test report on the same subject EUT for the same type of testing as indicated. Please discard or destroy the previously issued test report(s) and dispose of it accordingly.

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

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

Randy Ortanez
President

ACCREDITED
TESTING LABORATORY
CERTIFICATE #2041.01

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TABLE OF CONTENTS

1 LTE INFORMATION PER FCC KDB 941225 D05 3

2 INTRODUCTION 4

3 TEST SITE LOCATION 5

4 SAR MEASUREMENT SETUP 6

5 DASY E-FIELD PROBE SYSTEM 8

6 PROBE CALIBRATION PROCESS 9

7 PHANTOM AND EQUIVALENT TISSUES 10

8 DOSIMETRIC ASSESSMENT & PHANTOM SPECS 12

9 FCC RF EXPOSURE LIMITS 13

10 ANTENNA LOCATIONS AND KEY FEATURES 14

11 FCC MEASUREMENT PROCEDURES 31

12 SAR TESTING WITH IEEE 802.11 TRANSMITTERS 41

13 SYSTEM VERIFICATION 44

14 SAR DATA SUMMARY 48

15 SIMULTANEOUS TRANSMISSION ANALYSIS 56

16 VERTEX SAR TESTS 57

17 EQUIPMENT LIST 58

18 MEASUREMENT UNCERTAINTIES 60

19 CONCLUSION 62

20 REFERENCES 63

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1 LTE INFORMATION PER FCC KDB 941225 D05

LTE Device Information per KDB pub (07/09/2011)

		Info
KDB Sec.	FCC ID	A3LSGHI957
	Form Factor	Tablet
1)	Frequency Range of each LTE transmission band	BAND17 (704-716 MHz), BAND4 (1710-1755 MHz)
2)	Channel Bandwidths	FDD17 (5MHz / 10MHz), FDD4 (5MHz / 10MHz)
3)	H, M, L channel numbers and frequencies	

Low	Mid	High

	BW	Tx	Low	Mid.	High
Band4	10MHz	Channel	20000 Ch.	20175 Ch.	20350 Ch.
		Freq.	1715 MHz	1732.5MHz	1750 MHz
Band4	5MHz	Channel	19975 Ch.	20175 Ch.	20375 Ch.
		Freq.	1712.5 MHz	1732.5MHz	1752.5 MHz
Band17	10MHz	Channel	23780 Ch.	23790 Ch.	23800 Ch.
		Freq.	709 MHz	710 MHz	711 MHz
Band17	5MHz	Channel	23755 Ch.	23790 Ch.	23825 Ch.
		Freq.	706.5 MHz	710 MHz	713.5 MHz

4)(a)	UE Category	Category 3	
(b)	Modulations Supported in UL	QPSK, 16QAM	
5)	Description of LTE Tx and Ant. Implementation	1Tx/Rx, 1Rx. No Transmit Diversity.	
6)	LTE Voice available ? Data Modes	No(Only Data mode)	
7)	LTE MPR Permanently implemented per 3GPP TS 36.101 section 6.2.3~6.2.5? (manufacturer attestation to be provided)	Yes	
	A-MPR (Additional MPR) disabled for SAR Testing?	Yes	
8)	Conducted power Table provided for 1RB (low and high offset), 50% RB (centered), 100% RB	Yes	
9-10)	Non-LTE US Wireless Operating Modes/Bands	RF Output Power	RF Exposure Configurations
	850 MHz GSM	See Page 1	Body
	1.9 GHz PCS	See Page 1	Body
	1.9GHz WCDMA BAND2	See Page 1	Body
	850 MHz WCDMA BAND5	See Page 1	Body
	2.4 GHz Bluetooth	See Page 1	Body
	2.4 GHz WI-FI	See Page 1	Body
	5 GHz WI-FI	See Page 1	Body
11)	Simultaneous Tx conditions (Voice and Data Configurations)	See Section 15	
12)	Power Reduction used for SAR Compliance?	Yes; proximity sensor	

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2 INTRODUCTION

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

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

2.1 SAR Definition

Specific Absorption Rate is defined as the time derivative (rate) of the incremental energy (dU) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dV) of a given density (ρ). It is also defined as the rate of RF energy absorption per unit mass at a point in an absorbing body (see Fig. 1-1).

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

Figure 2-1
SAR Mathematical Equation

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

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

where:

σ = conductivity of the tissue-simulating material (S/m)
ρ = mass density of the tissue-simulating material (kg/m^3)
E = Total RMS electric field strength (V/m)

NOTE: The primary factors that control rate of energy absorption were found to be the wavelength of the incident field in relation to the dimensions and geometry of the irradiated organism, the orientation of the organism in relation to the polarity of field vectors, the presence of reflecting surfaces, and whether conductive contact is made by the organism swith a ground plane.[6]

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3 TEST SITE LOCATION

3.1 INTRODUCTION

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

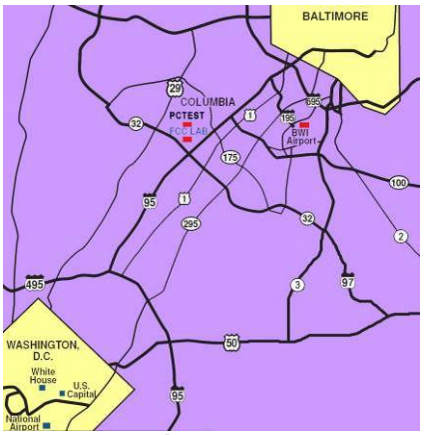

Figure 3-1
Map of the Greater Baltimore and Metropolitan Washington, D.C. area

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

3.2 Test Facility / Accreditations:

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

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

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

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4 SAR MEASUREMENT SETUP

4.1 Robotic System

Measurements are performed using the DASY4 automated dosimetric assessment system. The DASY4 is made by Schmid & Partner Engineering AG (SPEAG) in Zurich, Switzerland and consists of a high precision robotics system (Staubli), robot controller, desktop computer, near-field probe, probe alignment sensor, and the SAM phantom containing the head or body equivalent material. The robot is a six-axis industrial robot, performing precise movements to position the probe to the location (points) of maximum electromagnetic field (EMF) (see Figure 4-1).

4.2 System Hardware

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

4.3 System Electronics

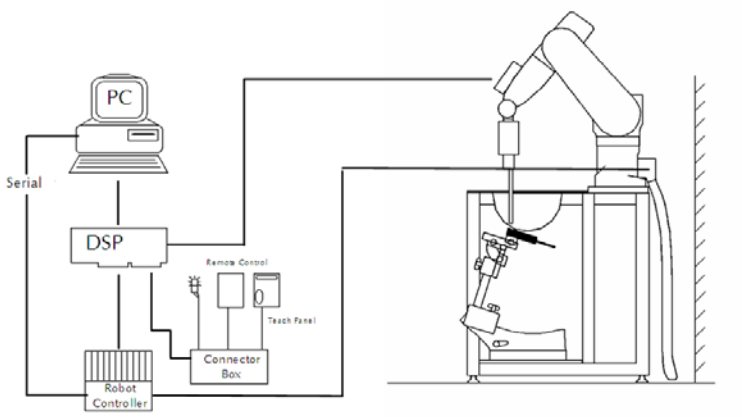

Figure 4-1
SAR Measurement System Setup

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

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4.4 Automated Test System Specifications

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

Data Acquisition Electronic System (DAE)

Data Converter

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

PC Interface Card

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

Phantom

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

Figure 4-2
SAR Measurement System

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5 DASY E-FIELD PROBE SYSTEM

5.1 Probe Measurement System

Figure 5-1
SAR System

The SAR measurements were conducted with the dosimetric probe designed in the classical triangular configuration (see Figure 5-3) and optimized for dosimetric evaluation [9]. The probe is constructed using the thick film technique; with printed resistive lines on ceramic substrates. The probe is equipped with an optical multi-fiber line ending at the front of the probe tip. It is connected to the EOC box on the robot arm and provides an automatic detection of the phantom surface. Half of the fibers are connected to a pulsed infrared transmitter, the other half to a synchronized receiver. As the probe approaches the surface, the reflection from the surface produces a coupling from the transmitting to the receiving fibers. This reflection increases first during the approach, reaches maximum and then decreases. If the probe is flatly touching the surface, the coupling is zero. The distance of the coupling maximum to the surface is independent of the surface reflectivity and largely independent of the surface to probe angle. The DASY4 software reads the reflection during a software approach and looks for the maximum using a 2nd order curve fitting (see Figure 6-1). The approach is stopped at reaching the maximum.

5.2 Probe Specifications

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

Figure 5-2
Near-Field Probe

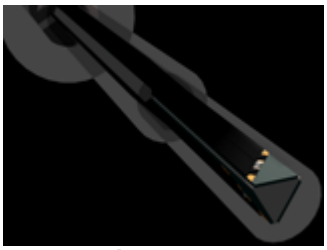

Figure 5-3
Triangular Probe Configuration

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6 PROBE CALIBRATION PROCESS

6.1 Dosimetric Assessment Procedure

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

6.2 Free Space Assessment

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

6.3 Temperature Assessment

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

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

where:

Δt = exposure time (30 seconds),
C = heat capacity of tissue (brain or muscle),
ΔT = temperature increase due to RF exposure.

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

where:

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

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

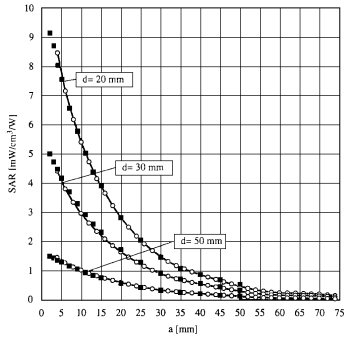

Figure 6-1 E-Field and Temperature measurements at 900MHz [9]

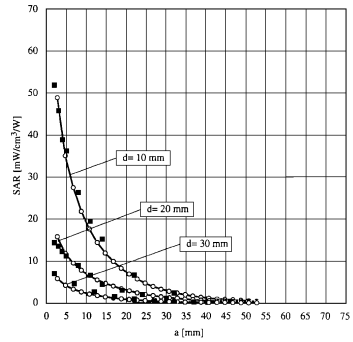

Figure 6-2 E-Field and temperature measurements at 1.9GHz [9]

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7 PHANTOM AND EQUIVALENT TISSUES

7.1 SAM Phantoms

Figure 6-1
SAM Phantoms

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

7.2 Tissue Simulating Mixture Characterization

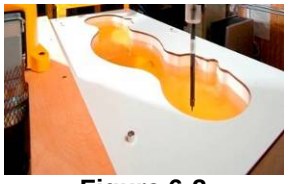

Figure 6-2
SAM Phantom with Simulating Tissue

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 5%, per the FCC recommendations.

Table 7-1
Composition of the Tissue Equivalent Matter

Frequency (MHz)	835	1750	1900	2450	5200-5800
Tissue	Body	Body	Body	Body	Body
Ingredients (% by weight)					
Bactericide	0.1				
DGBE		31	29.44	26.7	
HEC	1				
NaCl	0.94	0.2	0.39	0.1	
Sucrose	44.9				
Triton X-100					10.67
Diethylenglycol monohexylether					10.67
Water	53.06	68.8	70.17	73.2	78.66

See next page for 700 MHz tissue info.

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Table 7-2
Composition of the 700MHz Body Tissue Equivalent Matter

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

Note: 700MHz liquid recipes are proprietary SPEAG. The composition is approximate to the actual liquids utilized. Thus the manufacturer production sheets are provided below.

Measurement Certificate / Material Test

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

Measurement Method

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

Target Parameters

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

Test Condition

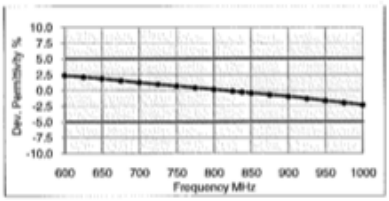
Ambient Condition	22°C ; 30% humidity
TSL Temperature	22°C
Test Date	8-Jun-11

Additional Information

TSL Density	1.212 g/cm³
TSL Heat-capacity	3.006 kJ/(kg*K)

Results

	Measured			Target		Diff.to Target [%]	
f [MHz]	HP-e'	HP-e"	sigma	eps	sigma	Δ-eps	Δ-sigma
600	57.4	24.88	0.83	56.1	0.95	2.4	-12.7
625	57.2	24.53	0.85	56.0	0.95	2.1	-10.6
650	57.0	24.18	0.87	55.9	0.96	1.8	-8.5
675	56.7	23.90	0.90	55.8	0.96	1.5	-6.3
700	56.4	23.61	0.92	55.7	0.96	1.2	-4.2
725	56.2	23.37	0.94	55.6	0.96	0.9	-2.0
750	55.9	23.12	0.96	55.5	0.96	0.7	0.1
775	55.7	22.95	0.99	55.4	0.97	0.4	2.5
800	55.4	22.78	1.01	55.3	0.97	0.1	4.8
825	55.2	22.61	1.04	55.2	0.98	-0.2	6.1
838	55.0	22.52	1.05	55.2	0.98	-0.3	6.7
850	54.9	22.44	1.06	55.2	0.99	-0.4	7.3
875	54.7	22.30	1.09	55.1	1.02	-0.7	6.5
900	54.5	22.17	1.11	55.0	1.05	-1.0	5.7
925	54.2	22.05	1.13	55.0	1.06	-1.3	6.8
950	54.0	21.94	1.16	54.9	1.08	-1.7	7.8
975	53.8	21.85	1.18	54.9	1.09	-2.0	9.0
1000	53.6	21.75	1.21	54.8	1.10	-2.3	10.2



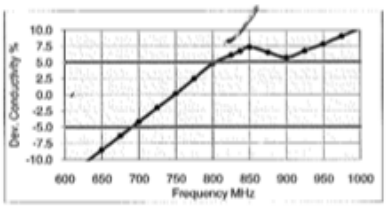


Figure 7-1
700 MHz Body Tissue Equivalent Matter

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8 DOSIMETRIC ASSESSMENT & PHANTOM SPECS

8.1 Measurement Procedure

The evaluation was performed using the following procedure:

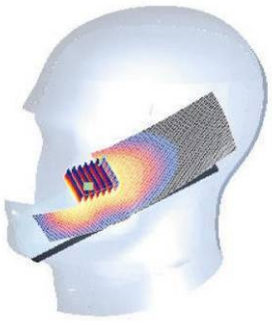

Figure 8-1
Sample SAR Area Scan

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

8.2 Specific Anthropomorphic Mannequin (SAM) Specifications

The phantom for handset SAR assessment testing is a low-loss dielectric shell, with shape and dimensions derived from the anthropometric data of the 90th percentile adult male head dimensions as tabulated by the US Army. The SAM Twin Phantom shell is bisected along the mid-sagittal plane into right and left halves (see Figure 8-2). The perimeter sidewalls of each phantom halves are extended to allow filling with liquid to a depth that is sufficient to minimize reflections from the upper surface. The liquid depth is maintained at a minimum depth of 15 cm.

Figure 8-2
SAM Twin Phantom Shell

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9 FCC RF EXPOSURE LIMITS

9.1 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.

9.2 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 9-1
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.

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10 ANTENNA LOCATIONS AND KEY FEATURES

10.1 Antenna and Key Feature Information

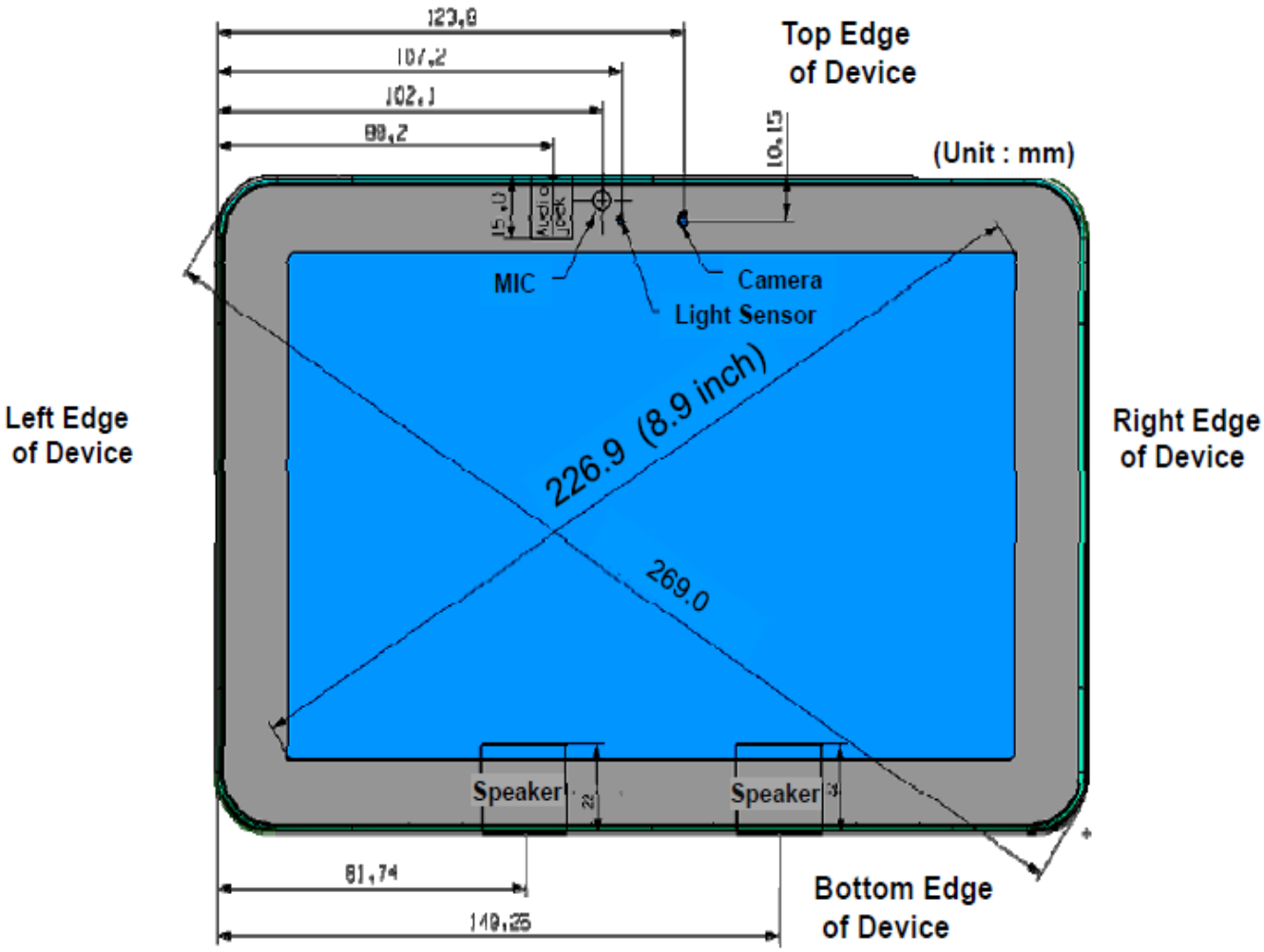

Figure 10-1
Front View of Device

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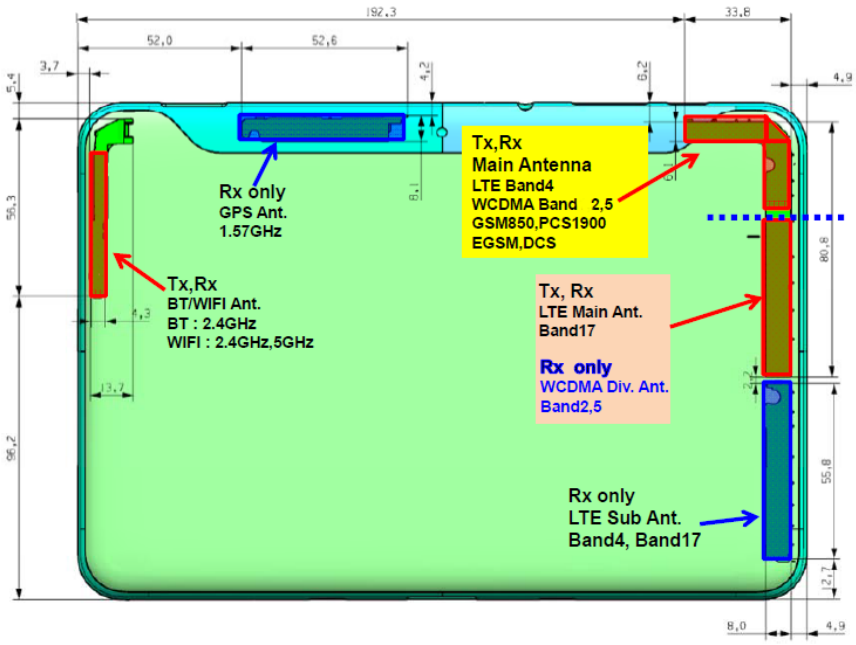

Figure 10-3
Back View of Device

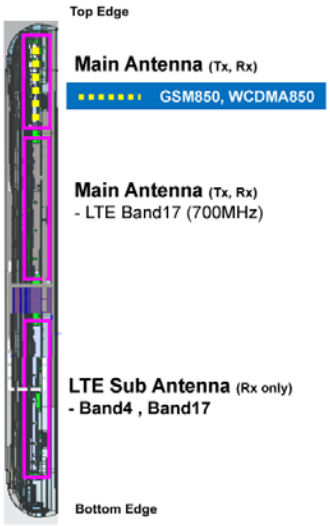

Figure 10-4
Left View of Device

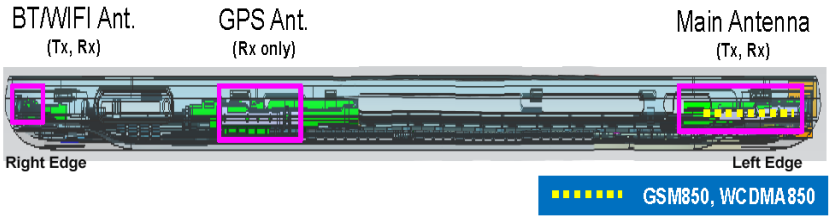

Figure 10-5
Top View of Device

The operational description contains information about designs including sensor sizes and locations.

Notes:

- Rear camera is not for video calls but for standard digital functions.
- 710 MHz and 850/1900/1750 MHz Antennas are shared between one chip (via a switch) and therefore cannot transmit simultaneously. Transmit diversity is not applicable.

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10.2 SAR Testing for Tablet per KDB Publication 447498 Section 4

Per KDB 447498 4) b) i), the bottom face (back of the device) is required to be tested touching the flat phantom.

Per KDB Publication 447498 4) b) ii) (2), SAR testing applies for the tablet edges with antennas located within 5 cm of each tablet edge closest to the user (with KDB Publication 616217 applied to edges with antennas located ≥ 5 cm from the user). According to KDB Publication 447498 4) b) ii) (2), for each antenna, SAR is only required for the edge with the most conservative exposure condition.

10.3 Tablet Testing for SAR

Lap-touching devices that have transmitting antennas located less than 20 cm from the body of the user require routine SAR evaluation. Such devices are considered portable, and are capable of being held to the body. Devices are to be setup according to KDB publication 447498 requirements and are configured with maximum output power during SAR assessment for a worst-case SAR evaluation.

10.4 HSPA Test Considerations for SAR Testing

Since the SAR test setup for HSPA is typically problematic due to static ETFCI and AG requirements for the duration of the SAR test, as long as the maximum average output power for WCDMA and HSPA are similar, testing in WCDMA mode is performed, which also facilitates the exclusion of HSPA testing. HSPA testing was excluded based on the conducted power measurement and SAR results according to KDB 941225 Publication. HSPA+ operations are in the downlink only.

10.5 Proximity Sensor Information

The sensors pads are located near the upper half of the device to cover exposure conditions to the main antennas and along the left edge. The technical description contains information about sensors size and locations. Power reduction levels are provided in Table 11-9, Table 11-12 and Table 11-15.

10.6 Display Orientation Capabilities

This device is capable of multiple display orientations supporting both portrait and landscape positions. Therefore per KDB 447498 4) b) ii) (2), SAR testing applies for the tablet edges with antennas located within 5 cm of each tablet edge closest to the user (with KDB 616217 applied to edges with antennas located ≥ 5 cm from the user). According to KDB 447498 4) b) ii) (2), for each antenna, SAR is only required for the edge with the most conservative exposure condition.

10.7 Additional SAR Testing for the Back, Top and Left of the Device

Based on the type and implementation of the sensors, April 2011 FCC-TCB conference notes requires sensor information regarding: (1) additional SAR evaluation at a conservative distance from the device where power reduction is de-activated and (2) reliability sensor activation data. Reliability sensor activation data is provided for both the back, top and left edges of the tablet at 0° to cover direct usage and also at 60° to cover angled usage (See Table 10-4 and Table 10-5).

Since the back-off sensors activation distances for back was 11 mm, a conservative distance of 10 mm was tested for the back side. Since the back-off sensor activation distance was 6 mm for the top and left edges, a conservative distance of 5 mm was tested. Details about sensing mechanism and sensor pad locations are included in the technical description.

The sensors are designed to support sufficient detection range and sensitivity to cover regions of the sensors in all applicable directions.

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Table 10-1
Distance from Back of Tablet

distance in mm	9	10	11	12	13	14
Condition of Sensors with respect to the back of the device	on	on	on	off	off	off

Please see Figure 10-6 through Figure 10-9 for Target Power vs. Back-off distance plots for each LTE, GPRS/EDGE multi-slot and WCDMA mode.

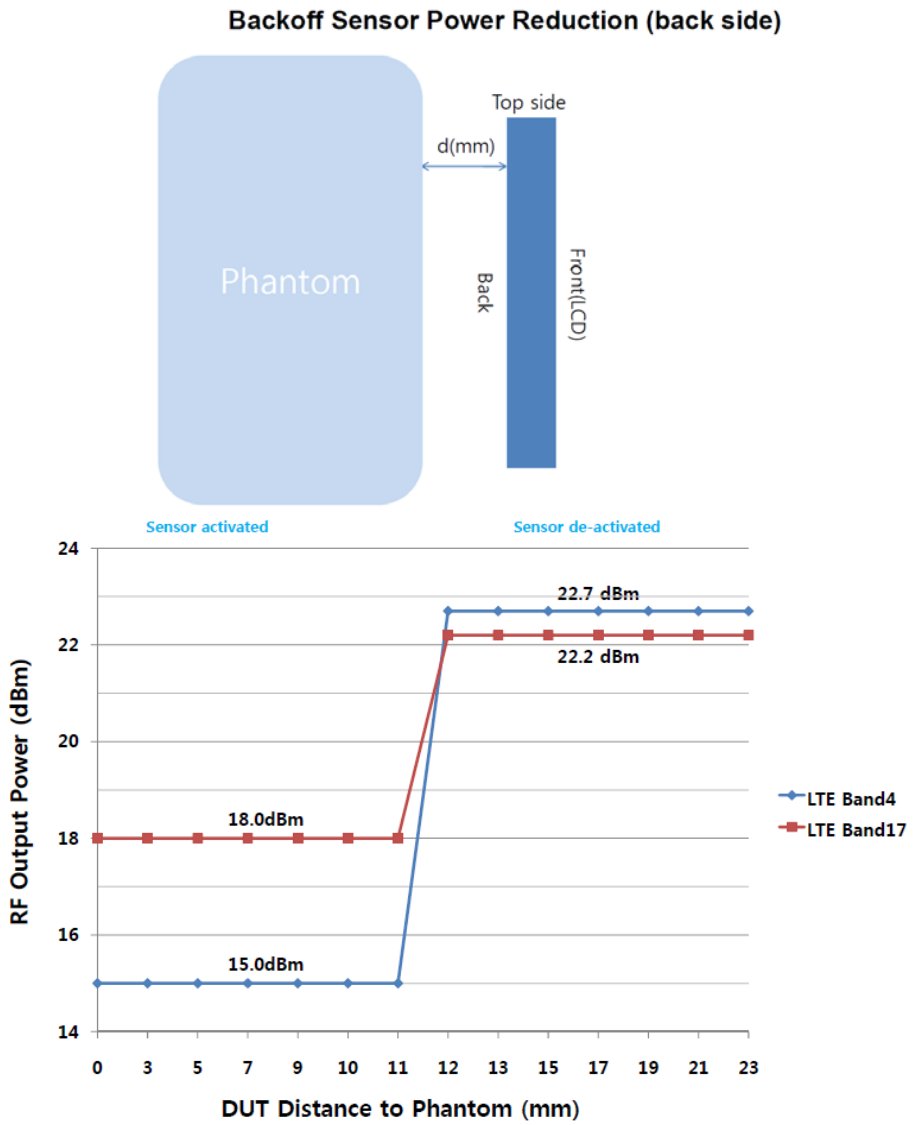

Figure 10-6
LTE Bands 4 and 17 Back off Power Reduction Graph - Back Side

Data in Figure 10-6 demonstrates reduced fixed LTE power levels at a distance of 11 mm and less, from the back

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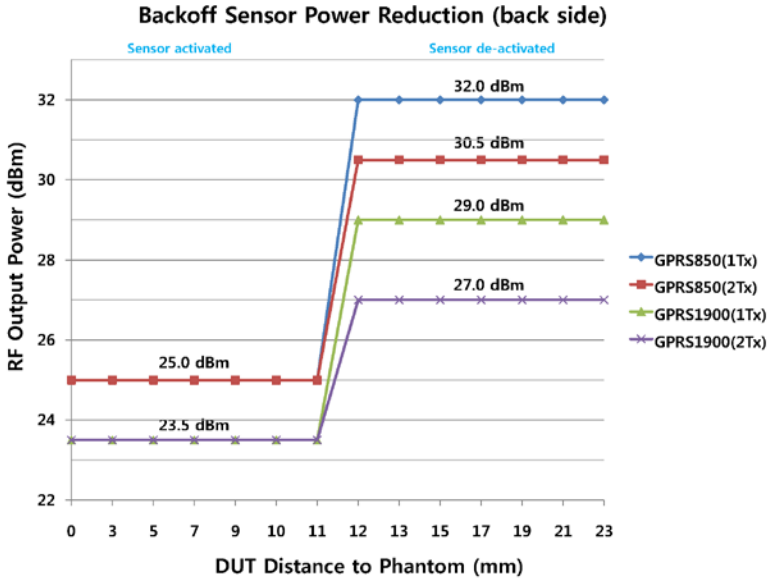

Figure 10-7
GPRS/EDGE (GMSK) 850 and 1900 Back off Power Reduction Graph - Back side

Data in Figure 10-7 demonstrates reduced fixed GPRS/EDGE (GMSK) power levels at a distance of 11 mm and less from the back

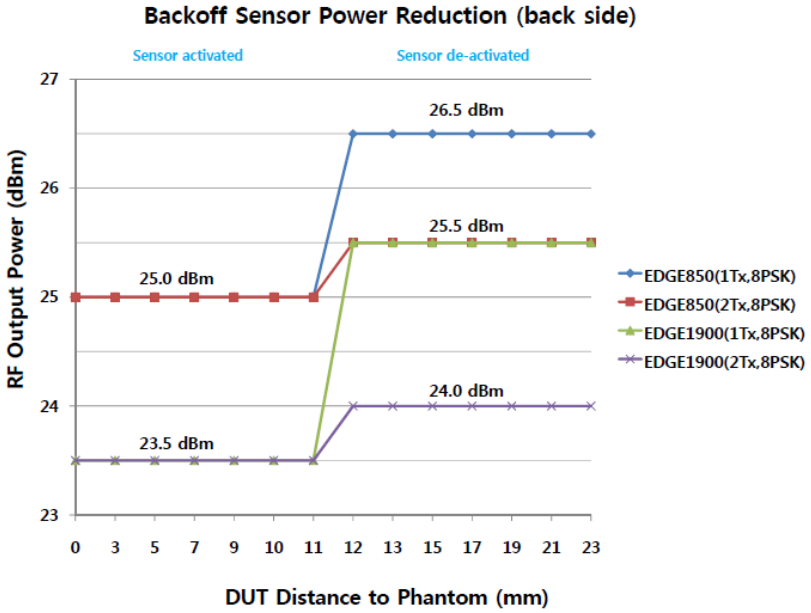

Figure 10-8
EDGE (8-PSK) 850 and 1900 Back off Power Reduction Graph - Back side

Data in Figure 10-8 demonstrates reduced fixed power levels for EDGE (8-PSK) at a distance of 11 mm and closer, from the back.

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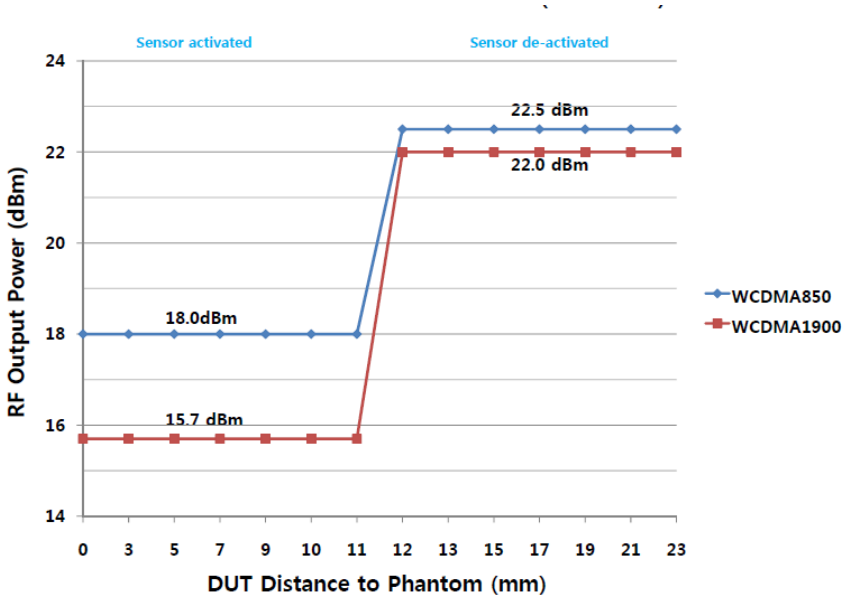


Figure 10-9
WCDMA 850/1900 Back off Power Reduction Graph - Back Side

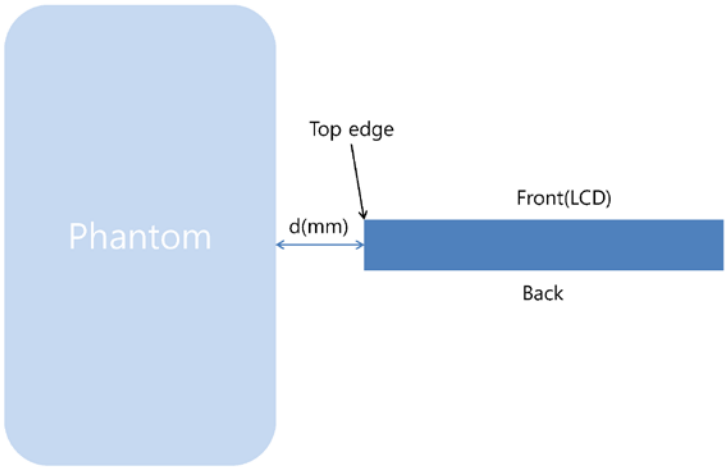
Data in Figure 10-9 demonstrates reduced fixed power levels at a distance of 11 mm and less, from the back.

Table 10-2
Distance from Top Edge of Tablet - 0° Angle

distance in mm	5	6	7	8	9	10
Condition of Sensor in the top edge of the device	on	on	off	off	off	off

Please see Figure 10-10 through Figure 10-13 for target power vs. back-off distance plots for each LTE, GPRS/EDGE multi-slot and WCDMA mode.

Backoff Sensor Power Reduction (Top side, 0° tilted)



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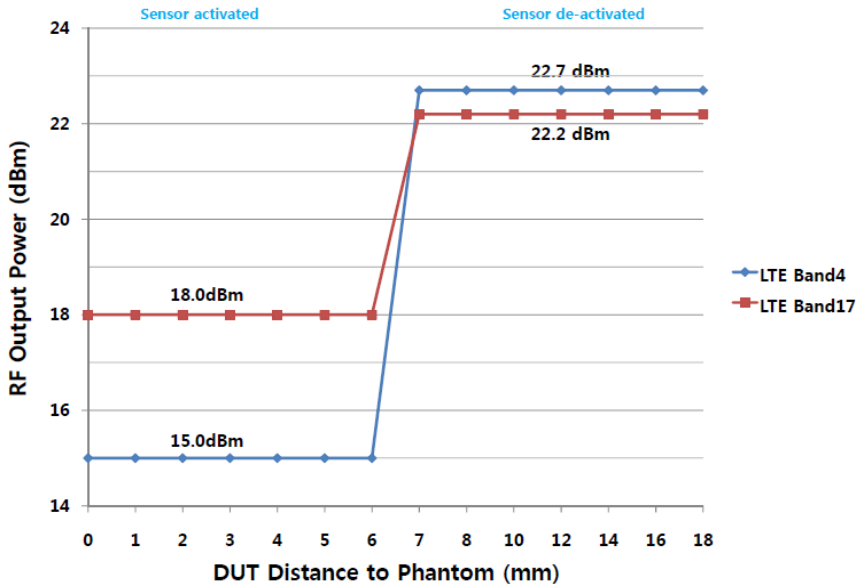

Figure 10-10
LTE Bands 4 and 17 Back off Power Reduction Graph - Top Edge at 0° Angle

Data in Figure 10-10 demonstrates reduced fixed power levels at a distance of 6 mm and less, from the top edge of the device.

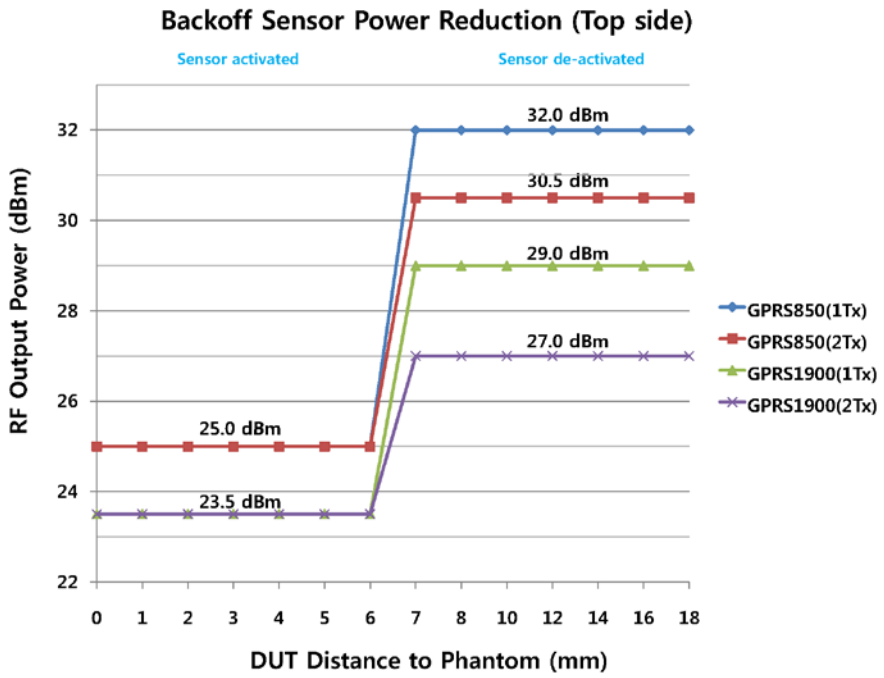

Figure 10-11
GPRS/EDGE (GMSK) 850/1900 Back off Power Reduction Graph - Top Edge at 0° Angle

Data in Figure 10-11 demonstrates reduced fixed GPRS/EDGE (GMSK) power levels at a distance of 6 mm and less, from the top edge of the device.

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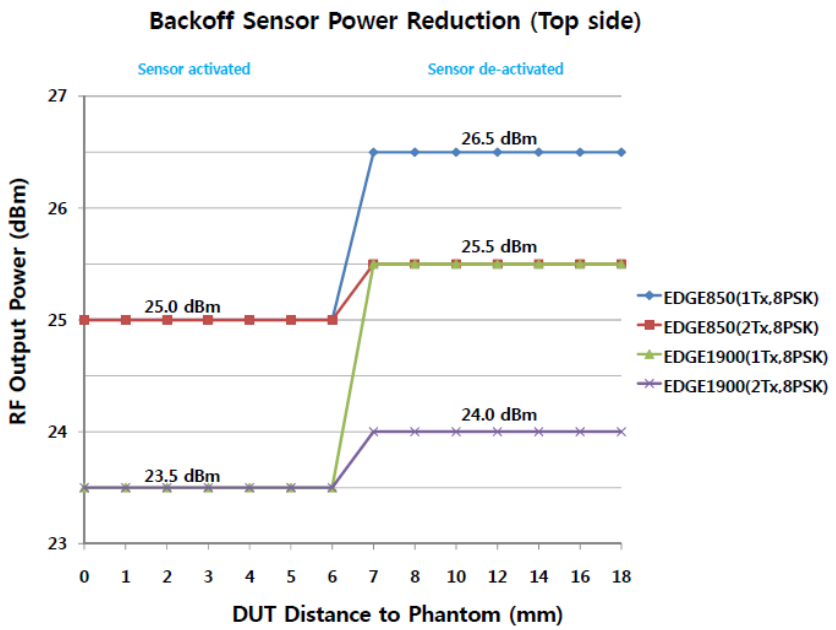

Figure 10-12
EDGE (8-PSK) 850 and 1900 Back off Power Reduction Graph - Top Edge at 0° Angle

Data in Figure 10-12 demonstrates reduced fixed EDGE (8-PSK) power levels at a distance of 6 mm and less, from the top edge.

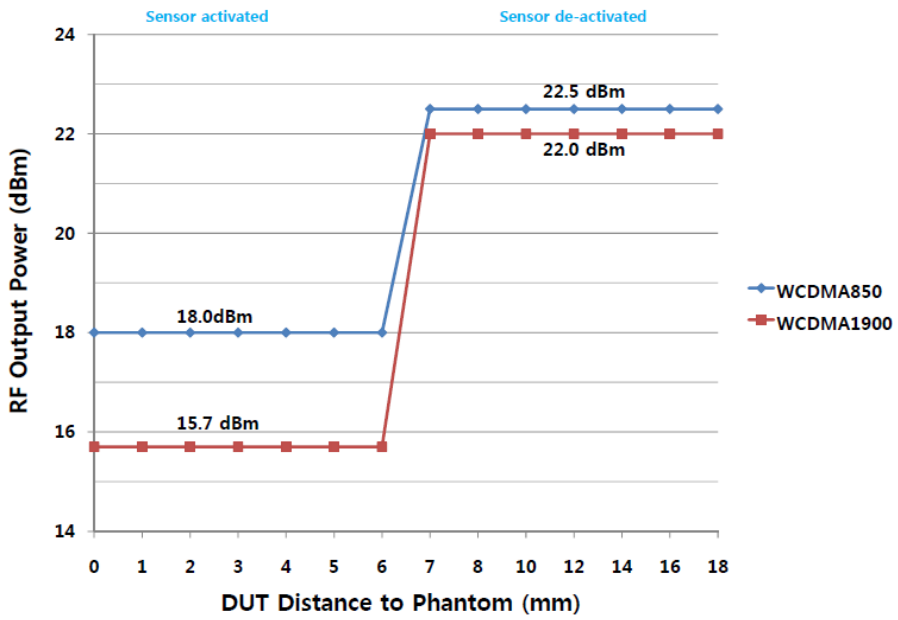

Figure 10-13
WCDMA 850/1900 Back off Power Reduction Graph - Top Edge at 0° Angle

Data in Figure 10-13 demonstrates reduced fixed WCDMA power levels at a distance of 6 mm and less, from the top edge of the device.

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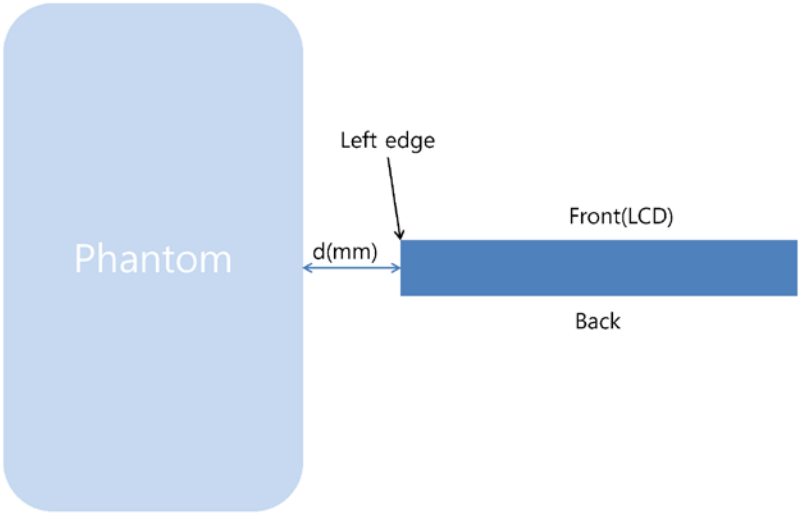
Table 10-3
Distance from Left Edge of Tablet - 0° Angle

distance in mm	5	6	7	8	9	10
Condition of Sensor in the left edge of the device	on	on	off	off	off	off

Please see Figure 10-14 through Figure 10-17 for target power vs. back-off distance plots for each LTE, GPRS/EDGE multi-slot and WCDMA mode.

Backoff Sensor Power Reduction (Left side, 0° tilted)



Backoff Sensor Power Reduction (Left side)

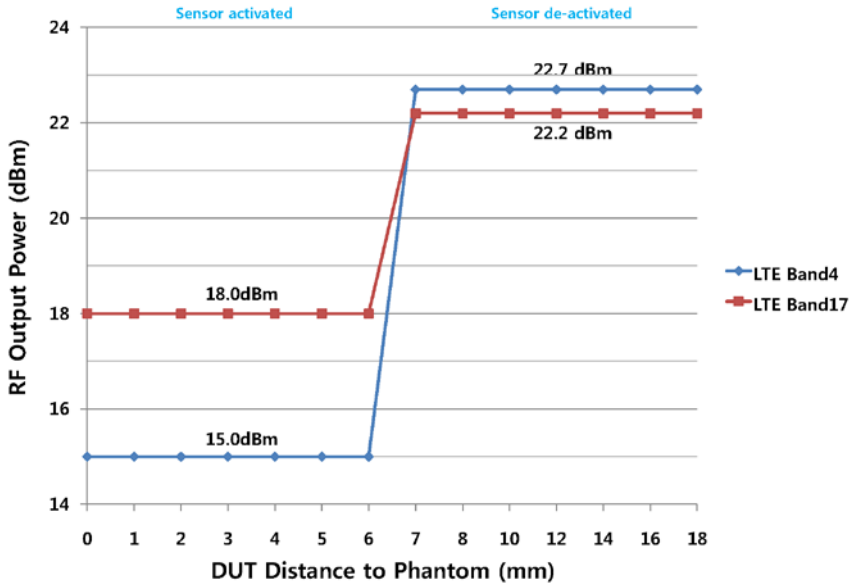


Figure 10-14
LTE Bands 4 and 17 Back off Power Reduction Graph - Left Edge at 0° Angle

Data in Figure 10-14 demonstrates a reduced fixed LTE power level at a distance of 6 mm and less, from the left edge of the device.

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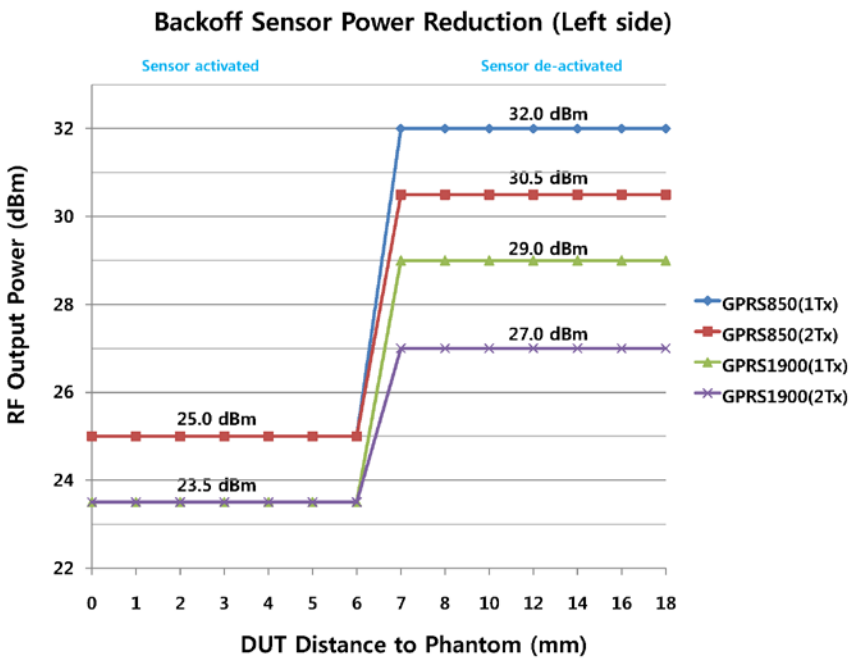

Figure 10-15
GPRS/EDGE (GMSK) 850/1900 Back off Power Reduction Graph - Left Edge at 0° Angle

Data in Figure 10-15 demonstrates a reduced fixed GPRS/EDGE (GMSK) power level at a distance of 6 mm and less, from the left edge of the device.

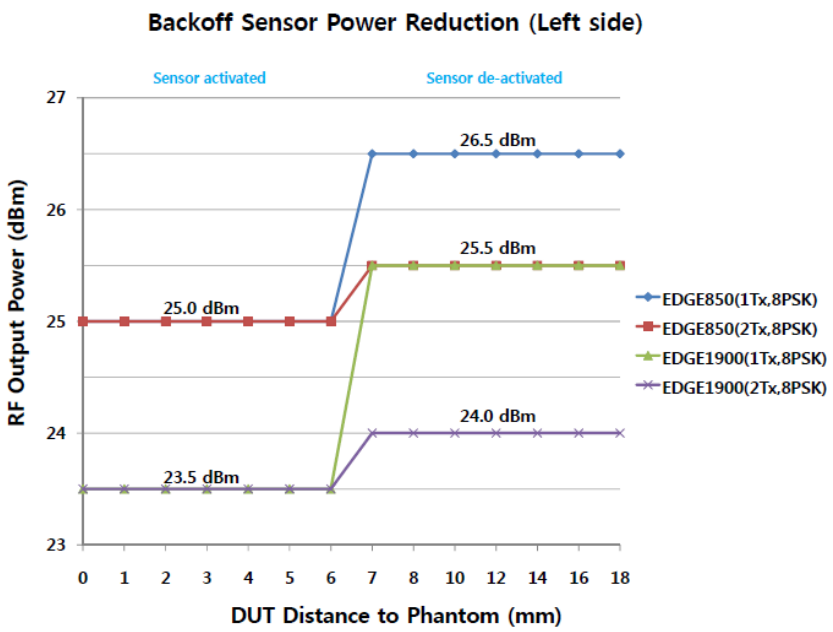

Figure 10-16
EDGE (8-PSK) 850 and 1900 Back off Power Reduction Graph - Left Edge at 0° Angle

Data in Figure 10-16 demonstrates a reduced fixed EDGE (8-PSK) power level at a distance of 6 mm and less, from the left edge of the device.

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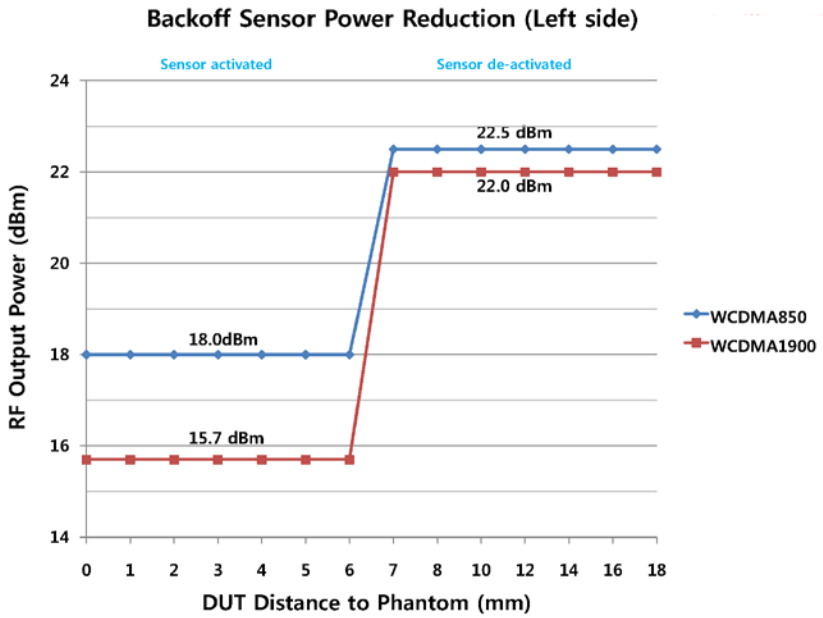

Figure 10-17
WCDMA 850/1900 Back off Power Reduction Graph - Left Edge at 0° Angle

Data in Figure 10-17 demonstrates a reduced fixed WCDMA power level at a distance of 6 mm and less, as shown in Table 10-3.

Table 10-4
Distance from Top Edge of Tablet - 60° Angle

distance in mm	5	6	7	8	9	10
Condition of Sensor in the top edge of the device	on	on	off	off	off	off

Please see Figure 10-18 through Figure 10-21 for target power vs. backoff distance plots for each LTE, GPRS/EDGE multi-slot, and WCDMA mode.

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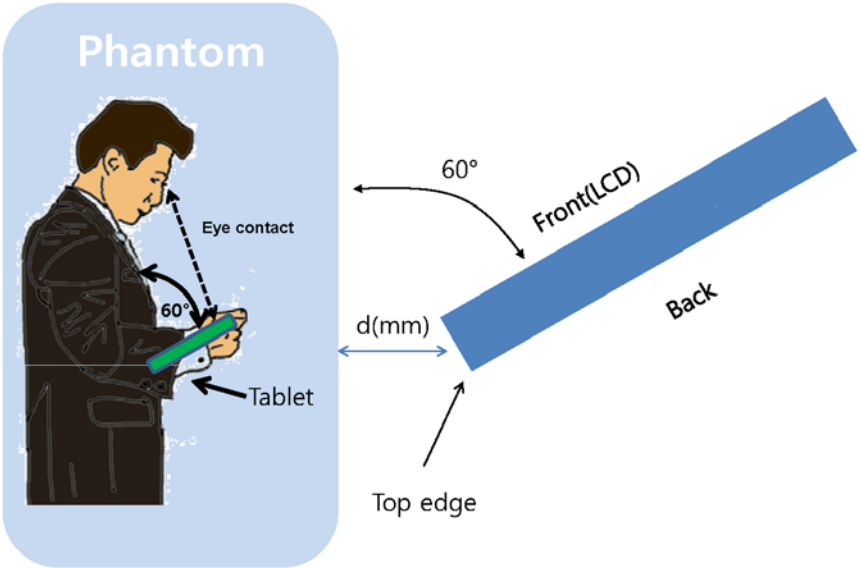
Backoff Sensor Power Reduction (Top side, 60° tilted)



Note: Angle mentioned for top edge description is the perpendicular angle.

Above figure represents “60 degrees” between the screen face and phantom face.
Please note that the 60 degree angle tilt has been used to identify proximity sensor coverage for the top edge, since this angle is consistent with device use conditions and sensor implementation according to the manufacturer. All relevant directions of coverage, as described in the April 2011 TCB workshop slides, have been considered in order to determine the worst case activation and deactivation test distances.

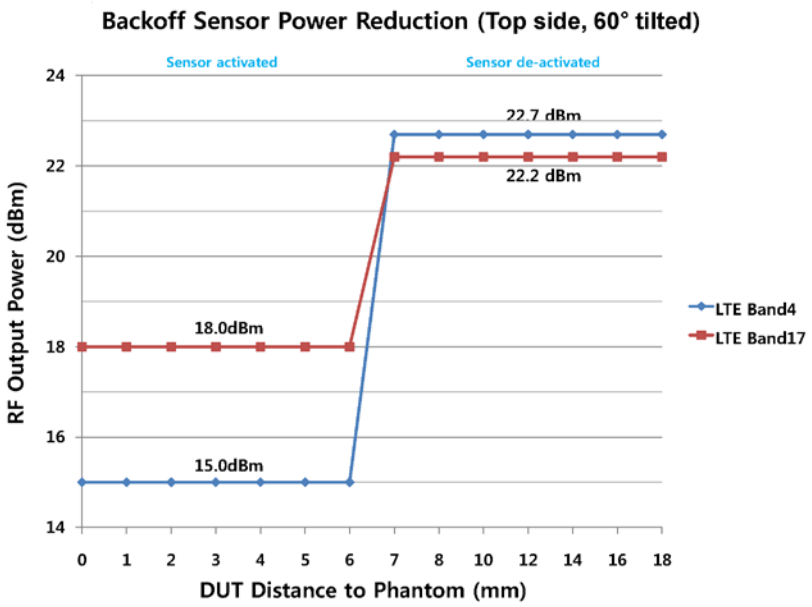


Figure 10-18
LTE Bands 4 and 17 Back off Power Reduction Graph - Top Edge at 60° Angle

Data in Figure 10-18 demonstrates a reduced fixed LTE power level at a distance of 6 mm and less, from the top edge at a 60 degree angle.

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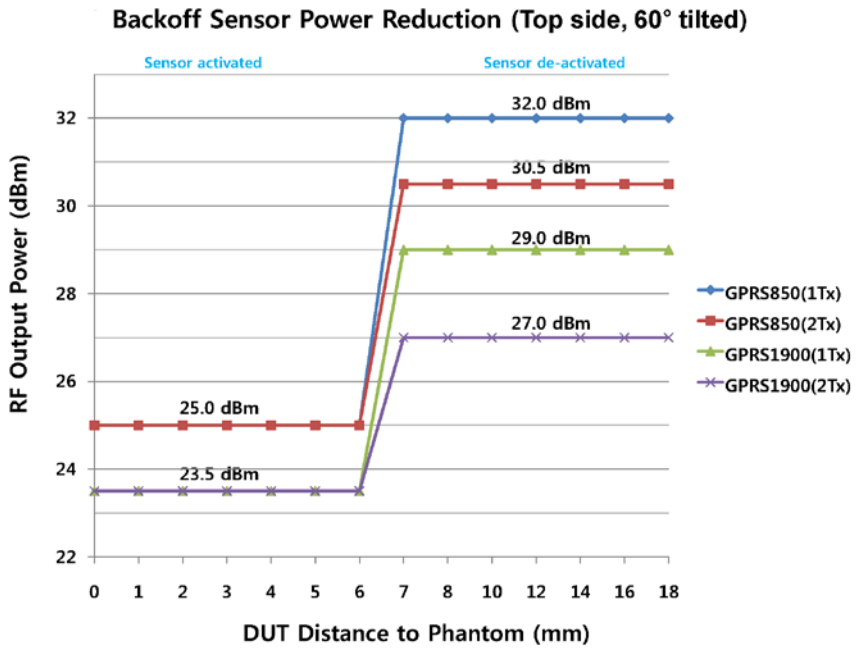

Figure 10-19
GPRS/EDGE (GMSK) 850/1900 Back off Power Reduction Graph - Top Edge at 60° Angle

Data in Figure 10-19 demonstrates a reduced fixed GPRS/EDGE (GMSK) power level at a distance of 6 mm and less, from the top edge at a 60 degree angle.

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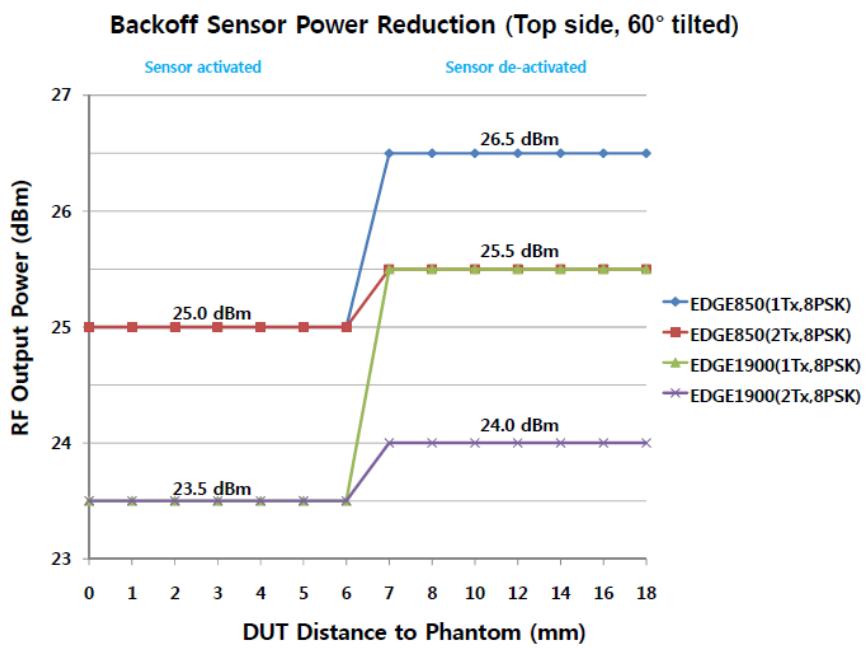

Figure 10-20
EDGE (8-PSK) 850 and 1900 Back off Power Reduction Graph - Top Edge at 60° Angle

Data in Figure 10-20 demonstrates a reduced fixed EDGE (8PSK) power level at a distance of 6 mm and less, from the top edge at a 60 degree angle.

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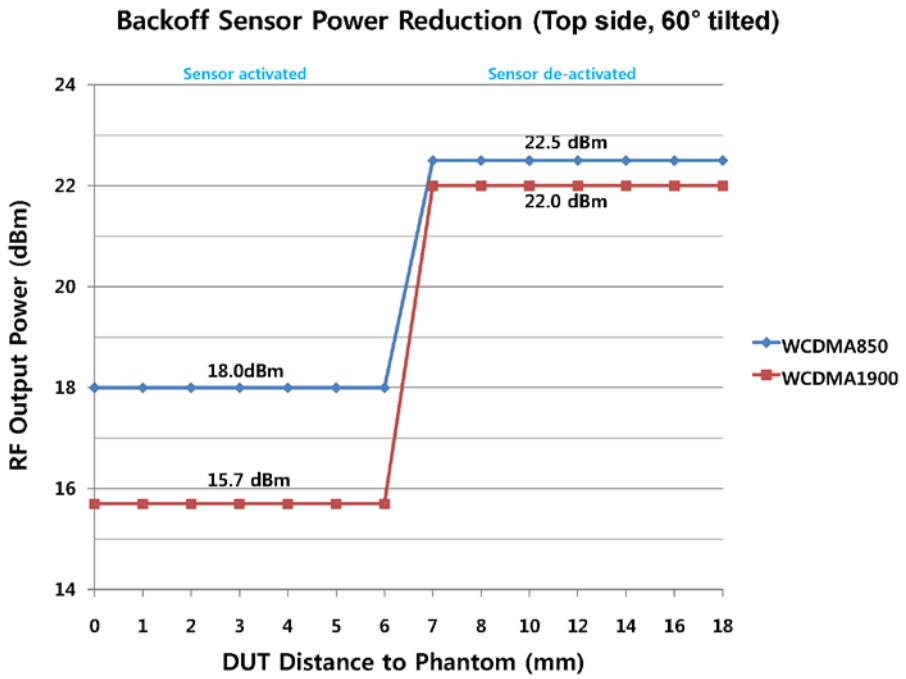

Figure 10-21
WCDMA 850/1900 Back off Power Reduction Graph - Top Edge at 60° Angle

Data in Figure 10-21 demonstrates a reduced fixed WCDMA power level at a distance of 6 mm and less, from the top edge at a 60 degree angle.

Table 10-5
Distance from Left Edge of Tablet - 60° Angle

distance in mm	5	6	7	8	9	10
Condition of Sensor in the left edge of the device	on	on	off	off	off	off

Please see Figure 10-22 through Figure 10-25 for target power vs. backoff distance plots for each LTE, GPRS/EDGE multi-slot, and WCDMA mode.

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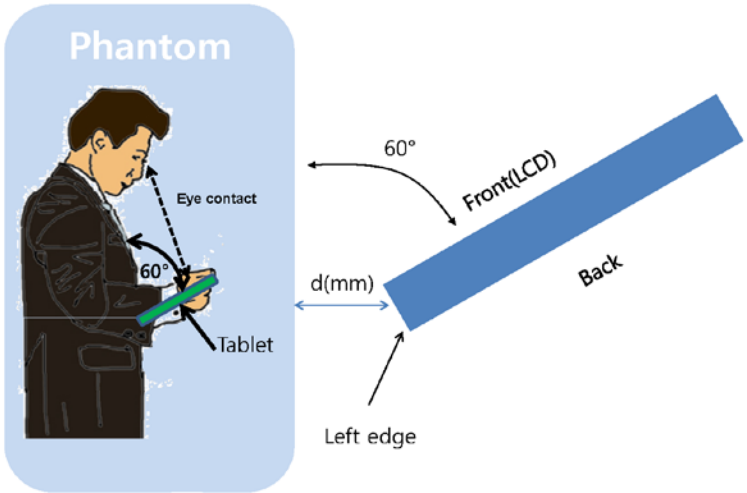
Backoff Sensor Power Reduction (Left side, 60° tilted)



Note: Angle mentioned for top edge description is the perpendicular angle.
Above figure represents "60 degrees" between the screen face and phantom face.
Please note that the 60 degree angle tilt has been used to identify proximity sensor coverage for the top edge, since this angle is consistent with device use conditions and sensor implementation. All relevant directions of coverage, as described in the April 2011 TCB workshop slides, have been considered in order to determine the worst case activation and deactivation test distances

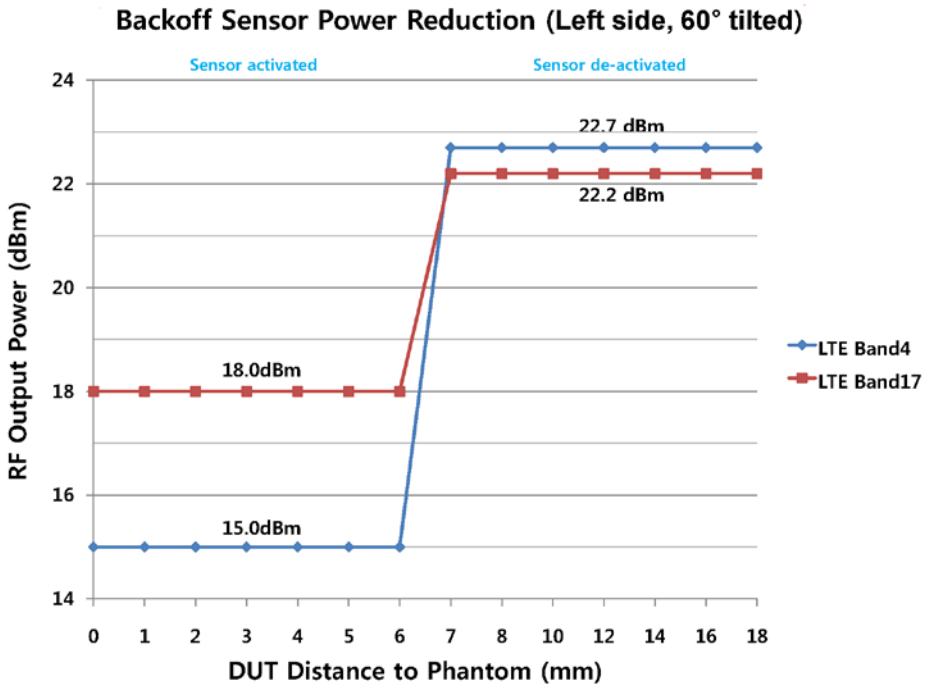


Figure 10-22
LTE Bands 4 and 17 Back off Power Reduction Graph Left Edge at 60° Angle

Data in Figure 10-22 demonstrates a reduced fixed LTE power level at a distance of 6 mm and less, from the left edge at a 60 degree angle.

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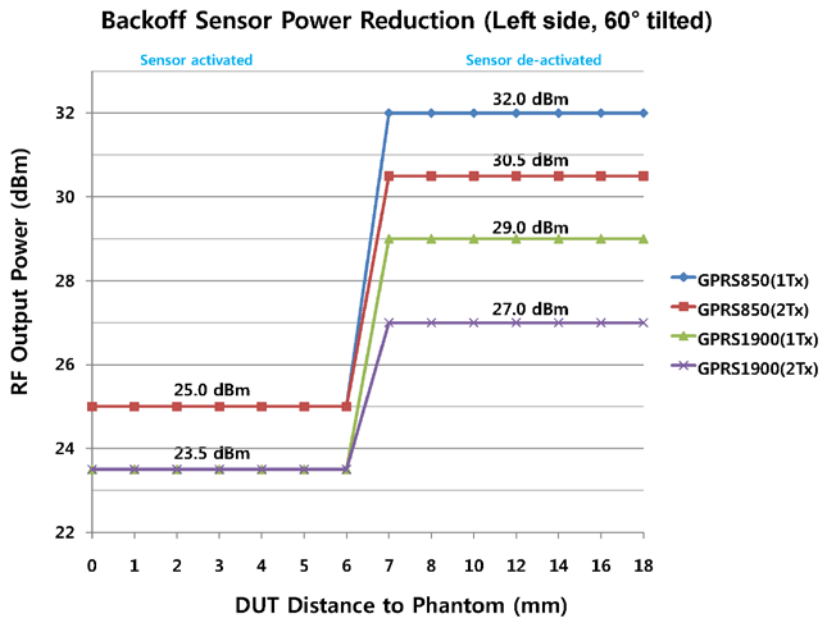

Figure 10-23
GPRS/EDGE (GMSK) 850/1900 Back off Power Reduction Graph - Left Edge at 60° Angle

Data in Figure 10-23 demonstrates a reduced fixed GPRS/EDGE (GMSK) power level at a distance of 6 mm and less, from the left edge at a 60 degree angle.

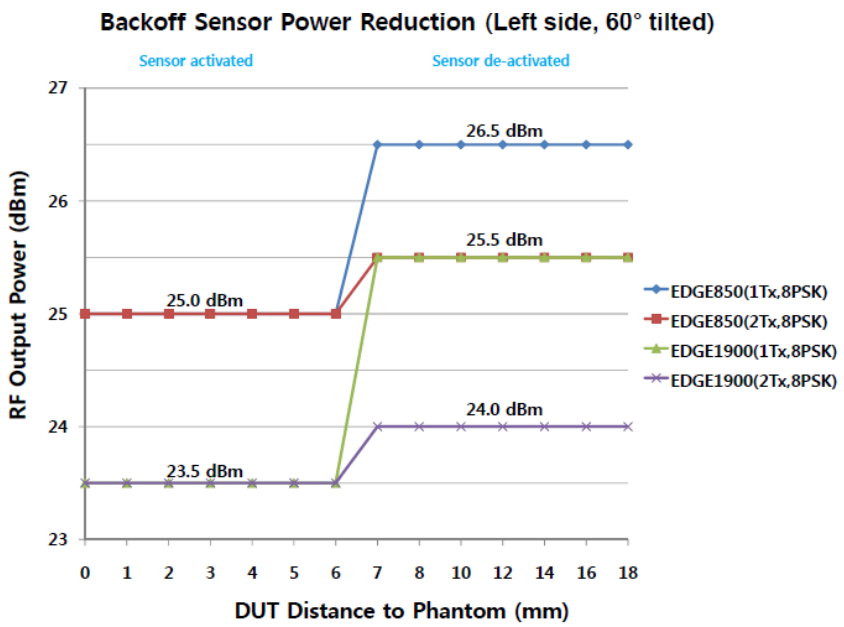

Figure 10-24
EDGE (8-PSK) 850 and 1900 Back off Power Reduction Graph - Left Edge at 60° Angle

Data in Figure 10-24 demonstrates a reduced fixed EDGE (8PSK) power level at a distance of 6 mm and less, from the left edge at a 60 degree angle.

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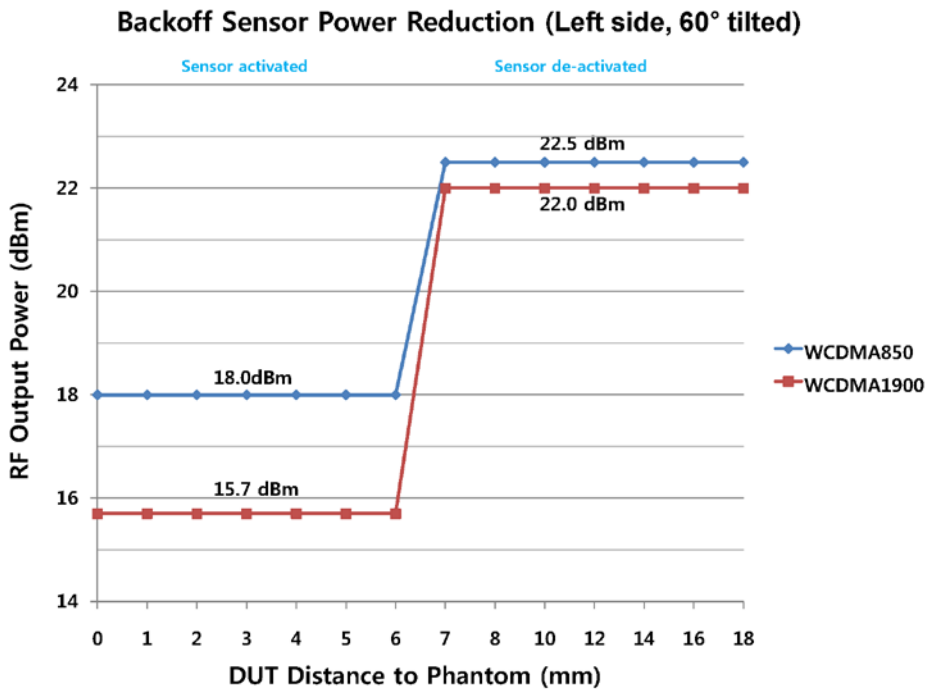

Figure 10-25
WCDMA 850/1900 Back off Power Reduction Graph - Left Edge at 60° Angle

Data in Figure 10-25 demonstrates a reduced fixed WCDMA power level at a distance of 6 mm and less, from the left edge at a 60 degree angle.

10.8 Method of SAR measurement with Power Reduction

This tablet was tested in accordance with April 2011 TCB workshop notes for proximity sensor and power reduction.

Based on the power-reduction activation vs. distance results for the sensors, the device was tested at 0mm distance from the phantom with the sensor activated and additionally at a conservative 10 mm distance with the sensor de-activated (max power, no power reduction) from the back side; and 5 mm from the top and left edges with the sensor de-activated (max power, no power reduction).

To test SAR with power back-off sensor active while touching (GPRS and WCDMA 850 using IMEI 358444040012104, GPRS and WCDMA 1900, and LTE 700 and AWS using IMEI 358444040012112), the device was placed in maximum power transmit mode with a base station simulator. The device was then positioned to touching position under the tissue equivalent liquid-filled flat phantom so that the proximity sensor was activated, reducing the power level.

For the additional SAR measurements with the sensors de-activated when the device is positioned away from the user (GSM and WCDMA 850 and 1900 using IMEI 358444040012138, and LTE 700 and AWS using IMEI 358444040012153), SAR is needed to be evaluated without power back-off at 10 mm (from the back) and 5mm (from the top and left edges). Since the device sensor detection mechanism is active at these distances, the sensor had to be disabled via manufacturer test software for SAR test purposes. The device was then placed in maximum power transmit mode with a base station simulator under the tissue equivalent liquid-filled flat phantom at a distance of 10 mm for the back and 5 mm for the top and left edges with the sensor deactivated (via manufacturer test software) and then tested at maximum power.

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11 FCC MEASUREMENT PROCEDURES

Power measurements were performed using a base station simulator under digital average power.

11.1 Procedures Used to Establish RF Signal for SAR

The following procedures are according to FCC KDB Publication 941225 D01 “SAR Measurement Procedures for 3G Devices” v02, October 2007.

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

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

There is an applied MPR implemented by the manufacturer when the proximity sensor is not active (maximum power scenarios). 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. There is no MPR applied when the proximity sensor is active (reduced power scenarios).

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, when 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.

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11.3 SAR Measurement Conditions for WCDMA per FCC KDB Publication 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 Procedures Used to Establish RF Signal for SAR HSDPA Data Devices

The following procedures are applicable to HSDPA data devices operating under 3GPP Release 5. Body exposure conditions are typically applicable to these devices, including handsets and data modems operating in various electronic devices. HSDPA operates in conjunction with WCDMA and requires an active DPCCH. The default test configuration is to measure SAR in WCDMA without HSDPA, with an established radio link between the DUT and a communication test set with 12.2 kbps RMC mode configured in Test Loop Mode 1; and tested with HSDPA with FRC and a 12.2 kbps RMC using the highest SAR configuration in WCDMA. SAR is selectively confirmed for other physical channel configurations according to output power, exposure conditions and device operating capabilities. Maximum output power is verified according to 3GPP TS 23.121 (Release 5) and SAR must be measured according to these maximum output conditions.

11.3.3 SAR Measurement Conditions for HSUPA Data Devices

SAR for body exposure configurations are measured according to the ‘Body SAR Measurements’ procedures in the ‘WCDMA Handsets’ section of the KDB 941225 D01 FCC 3G document. In addition, Body SAR is also measured for HSPA when the maximum average output of each RF channel with HSPA active is at least ¼ dB higher of that measured without HSPA in 12.2 kbps RMC mode or the maximum SAR for 12.2 kbps RMC is above 75% of the SAR limit. Body SAR for HSPA is measured with E-DCH Sub-test 5, using H-Set 1 and QPSK for FRC and a 12.2 kbps RMC configured in Test Loop Mode 1 with power control algorithm 2, according to the highest body SAR configuration in 12.2 kbps RMC without HSPA. When VOIP is applicable for head exposure, SAR is not required when the maximum output of each RF channel with HSPA is less than ¼ dB higher than that measured using 12.2 kbps RMC; otherwise, the same HSPA configuration used for body measurements should be used to test for head exposure.

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Due to inner loop power control requirements in HSPA, a commercial communication test set should be used for the output power and SAR tests. The 12.2 kbps RMC, FRC H-set 1 and EDCH configurations for HSPA should be configured according to the β values indicated below as well as other applicable procedures described in the 'WCDMA Handset' and 'Release 5 HSDPA Data Devices' sections of the FCC 3G document.

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.

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11.4 RF Conducted Powers

11.4.1 LTE Mode

Table 11-1 LTE Band 17, 5 MHz, Max Power

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	22.2	0	0	**22.61**
706.5	23755	16QAM	5 MHz	1	0	21.2	0-1	1	21.35
706.5	23755	QPSK	5 MHz	1	24	22.2	0	0	22.33
706.5	23755	16QAM	5 MHz	1	24	21.2	0-1	1	21.17
706.5	23755	QPSK	5 MHz	12	6	21.2	0-1	1	21.45
706.5	23755	16QAM	5 MHz	12	6	20.2	0-2	2	20.52
706.5	23755	QPSK	5 MHz	25	0	21.2	0-1	1	21.40
706.5	23755	16QAM	5 MHz	25	0	21.2	0-2	1	21.11
713.5	23825	QPSK	5 MHz	1	0	22.2	0	0	**22.63**
713.5	23825	16QAM	5 MHz	1	0	21.2	0-1	1	21.35
713.5	23825	QPSK	5 MHz	1	24	22.2	0	0	22.55
713.5	23825	16QAM	5 MHz	1	24	21.2	0-1	1	21.17
713.5	23825	QPSK	5 MHz	12	6	21.2	0-1	1	21.84
713.5	23825	16QAM	5 MHz	12	6	20.2	0-2	2	20.63
713.5	23825	QPSK	5 MHz	25	0	21.2	0-1	1	21.77
713.5	23825	16QAM	5 MHz	25	0	21.2	0-2	1	21.18

Table 11-2 LTE Band 17, 10 MHz, Max Power

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]
710	23790	QPSK	10 MHz	1	0	22.2	0	0	**22.22**
710	23790	16QAM	10 MHz	1	0	21.2	0-1	1	21.01
710	23790	QPSK	10 MHz	1	49	22.2	0	0	22.23
710	23790	16QAM	10 MHz	1	49	21.2	0-1	1	21.10
710	23790	QPSK	10 MHz	25	12	21.2	0-1	1	21.57
710	23790	16QAM	10 MHz	25	12	21.2	0-2	1	20.99
710	23790	QPSK	10 MHz	50	0	21.2	0-1	1	21.55
710	23790	16QAM	10 MHz	50	0	20.2	0-2	2	20.50

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.

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Table 11-3 LTE Band 17, 5 MHz, Reduced Power

Freq. (Mhz)	Uplink Channel Number	Modulation	Bandwidth	# of Resource Blocks	Resource Block Offset	Target Power [dB]	Maximum Average Power [dBm]
706.5	23755	QPSK	5 MHz	1	0	18	**16.96**
706.5	23755	16QAM	5 MHz	1	0	18	17.21
706.5	23755	QPSK	5 MHz	1	24	18	17.58
706.5	23755	16QAM	5 MHz	1	24	18	17.05
706.5	23755	QPSK	5 MHz	12	6	18	17.30
706.5	23755	16QAM	5 MHz	12	6	18	17.63
706.5	23755	QPSK	5 MHz	25	0	18	17.24
706.5	23755	16QAM	5 MHz	25	0	18	17.48
713.5	23825	QPSK	5 MHz	1	0	18	**17.44**
713.5	23825	16QAM	5 MHz	1	0	18	17.29
713.5	23825	QPSK	5 MHz	1	24	18	17.22
713.5	23825	16QAM	5 MHz	1	24	18	17.14
713.5	23825	QPSK	5 MHz	12	6	18	18.07
713.5	23825	16QAM	5 MHz	12	6	18	17.74
713.5	23825	QPSK	5 MHz	25	0	18	17.70
713.5	23825	16QAM	5 MHz	25	0	18	17.45

Per the manufacturer, there no MPR is applied in reduced power conditions.

Table 11-4 LTE Band 17, 10 MHz, Reduced Power

Freq. (Mhz)	Uplink Channel Number	Modulation	Bandwidth	# of Resource Blocks	Resource Block Offset	Target Power [dB]	Maximum Average Power [dBm]
710	23790	QPSK	10 MHz	1	0	18	**17.80**
710	23790	16QAM	10 MHz	1	0	18	17.54
710	23790	QPSK	10 MHz	1	49	18	17.69
710	23790	16QAM	10 MHz	1	49	18	17.58
710	23790	QPSK	10 MHz	25	12	18	17.65
710	23790	16QAM	10 MHz	25	12	18	18.33
710	23790	QPSK	10 MHz	50	0	18	17.79
710	23790	16QAM	10 MHz	50	0	18	18.84

Per the manufacturer, there no MPR is applied in reduced power conditions.

Note: Per KDB 947498 6c) there are 2 channels for LTE Band 17, 5 MHz bandwidth and 1 channel for 10 MHz Bandwidth.

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Table 11-5 LTE Band 4, 5 MHz, Max Power

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	19975	QPSK	5 MHz	1	0	22.7	0	0	**22.85**
1712.5	19975	16QAM	5 MHz	1	0	21.7	0-1	1	21.65
1712.5	19975	QPSK	5 MHz	1	24	22.7	0	0	22.75
1712.5	19975	16QAM	5 MHz	1	24	21.7	0-1	1	21.51
1712.5	19975	QPSK	5 MHz	12	6	21.7	0-1	1	21.98
1712.5	19975	16QAM	5 MHz	12	6	20.7	0-2	2	21.00
1712.5	19975	QPSK	5 MHz	25	0	21.7	0-1	1	22.01
1712.5	19975	16QAM	5 MHz	25	0	21.7	0-2	1	21.56
1732.5	20175	QPSK	5 MHz	1	0	22.7	0	0	**22.79**
1732.5	20175	16QAM	5 MHz	1	0	21.7	0-1	1	21.66
1732.5	20175	QPSK	5 MHz	1	24	22.7	0	0	22.67
1732.5	20175	16QAM	5 MHz	1	24	21.7	0-1	1	21.63
1732.5	20175	QPSK	5 MHz	12	6	21.7	0-1	1	21.81
1732.5	20175	16QAM	5 MHz	12	6	20.7	0-2	2	20.93
1732.5	20175	QPSK	5 MHz	25	0	21.7	0-1	1	21.78
1732.5	20175	16QAM	5 MHz	25	0	21.7	0-2	1	21.43
1752.5	20375	QPSK	5 MHz	1	0	22.7	0	0	**22.78**
1752.5	20375	16QAM	5 MHz	1	0	21.7	0-1	1	21.58
1752.5	20375	QPSK	5 MHz	1	24	22.7	0	0	22.67
1752.5	20375	16QAM	5 MHz	1	24	21.7	0-1	1	21.53
1752.5	20375	QPSK	5 MHz	12	6	21.7	0-1	1	21.87
1752.5	20375	16QAM	5 MHz	12	6	20.7	0-2	2	20.90
1752.5	20375	QPSK	5 MHz	25	0	21.7	0-1	1	21.91
1752.5	20375	16QAM	5 MHz	25	0	21.7	0-2	1	21.40

Table 11-6 LTE Band 4, 10 MHz, Max Power

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]
1715	20000	QPSK	10 MHz	1	0	22.7	0	0	**23.00**
1715	20000	16QAM	10 MHz	1	0	21.7	0-1	1	21.55
1715	20000	QPSK	10 MHz	1	49	22.7	0	0	22.88
1715	20000	16QAM	10 MHz	1	49	21.7	0-1	1	21.45
1715	20000	QPSK	10 MHz	25	12	21.7	0-1	1	21.89
1715	20000	16QAM	10 MHz	25	12	21.7	0-2	1	21.38
1715	20000	QPSK	10 MHz	50	0	21.7	0-1	1	21.94
1715	20000	16QAM	10 MHz	50	0	20.7	0-2	2	20.99
1732.5	20175	QPSK	10 MHz	1	0	22.7	0	0	**22.54**
1732.5	20175	16QAM	10 MHz	1	0	21.7	0-1	1	21.60
1732.5	20175	QPSK	10 MHz	1	49	22.7	0	0	22.70
1732.5	20175	16QAM	10 MHz	1	49	21.7	0-1	1	21.52
1732.5	20175	QPSK	10 MHz	25	12	21.7	0-1	1	21.81
1732.5	20175	16QAM	10 MHz	25	12	21.7	0-2	1	21.44
1732.5	20175	QPSK	10 MHz	50	0	21.7	0-1	1	21.83
1732.5	20175	16QAM	10 MHz	50	0	20.7	0-2	2	20.98
1750	20350	QPSK	10 MHz	1	0	22.7	0	0	**22.82**
1750	20350	16QAM	10 MHz	1	0	21.7	0-1	1	21.64
1750	20350	QPSK	10 MHz	1	49	22.7	0	0	22.72
1750	20350	16QAM	10 MHz	1	49	21.7	0-1	1	21.54
1750	20350	QPSK	10 MHz	25	12	21.7	0-1	1	21.94
1750	20350	16QAM	10 MHz	25	12	21.7	0-2	1	21.50
1750	20350	QPSK	10 MHz	50	0	21.7	0-1	1	22.02
1750	20350	16QAM	10 MHz	50	0	20.7	0-2	2	21.02

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.

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Table 11-7 LTE Band 4, 5 MHz, Reduced Power

Freq. (Mhz)	Uplink Channel Number	Modulation	Bandwidth	# of Resource Blocks	Resource Block Offset	Target Power [dB]	Maximum Average Power [dBm]
1712.5	19975	QPSK	5 MHz	1	0	15	**15.16**
1712.5	19975	16QAM	5 MHz	1	0	15	14.61
1712.5	19975	QPSK	5 MHz	1	24	15	14.90
1712.5	19975	16QAM	5 MHz	1	24	15	14.60
1712.5	19975	QPSK	5 MHz	12	6	15	15.26
1712.5	19975	16QAM	5 MHz	12	6	15	15.07
1712.5	19975	QPSK	5 MHz	25	0	15	15.19
1712.5	19975	16QAM	5 MHz	25	0	15	14.91
1732.5	20175	QPSK	5 MHz	1	0	15	**15.02**
1732.5	20175	16QAM	5 MHz	1	0	15	14.84
1732.5	20175	QPSK	5 MHz	1	24	15	15.05
1732.5	20175	16QAM	5 MHz	1	24	15	15.05
1732.5	20175	QPSK	5 MHz	12	6	15	15.38
1732.5	20175	16QAM	5 MHz	12	6	15	15.08
1732.5	20175	QPSK	5 MHz	25	0	15	15.24
1732.5	20175	16QAM	5 MHz	25	0	15	14.95
1752.5	20375	QPSK	5 MHz	1	0	15	**15.40**
1752.5	20375	16QAM	5 MHz	1	0	15	15.14
1752.5	20375	QPSK	5 MHz	1	24	15	15.32
1752.5	20375	16QAM	5 MHz	1	24	15	15.09
1752.5	20375	QPSK	5 MHz	12	6	15	15.33
1752.5	20375	16QAM	5 MHz	12	6	15	14.99
1752.5	20375	QPSK	5 MHz	25	0	15	15.43
1752.5	20375	16QAM	5 MHz	25	0	15	15.28

Per the manufacturer, there no MPR is applied in reduced power conditions.

Table 11-8 LTE Band 4, 10 MHz, Reduced Power

Freq. (Mhz)	Uplink Channel Number	Modulation	Bandwidth	# of Resource Blocks	Resource Block Offset	Target Power [dB]	Maximum Average Power [dBm]
1715	20000	QPSK	10 MHz	1	0	15	**14.95**
1715	20000	16QAM	10 MHz	1	0	15	14.58
1715	20000	QPSK	10 MHz	1	49	15	14.79
1715	20000	16QAM	10 MHz	1	49	15	14.63
1715	20000	QPSK	10 MHz	25	12	15	15.33
1715	20000	16QAM	10 MHz	25	12	15	14.89
1715	20000	QPSK	10 MHz	50	0	15	15.31
1715	20000	16QAM	10 MHz	50	0	15	14.96
1732.5	20175	QPSK	10 MHz	1	0	15	**14.75**
1732.5	20175	16QAM	10 MHz	1	0	15	14.58
1732.5	20175	QPSK	10 MHz	1	49	15	14.81
1732.5	20175	16QAM	10 MHz	1	49	15	14.75
1732.5	20175	QPSK	10 MHz	25	12	15	15.21
1732.5	20175	16QAM	10 MHz	25	12	15	14.94
1732.5	20175	QPSK	10 MHz	50	0	15	15.17
1732.5	20175	16QAM	10 MHz	50	0	15	14.79
1750	20350	QPSK	10 MHz	1	0	15	**14.98**
1750	20350	16QAM	10 MHz	1	0	15	14.92
1750	20350	QPSK	10 MHz	1	49	15	14.97
1750	20350	16QAM	10 MHz	1	49	15	14.88
1750	20350	QPSK	10 MHz	25	12	15	15.50
1750	20350	16QAM	10 MHz	25	12	15	15.23
1750	20350	QPSK	10 MHz	50	0	15	15.36
1750	20350	16QAM	10 MHz	50	0	15	15.17

Per the manufacturer, there no MPR is applied in reduced power conditions.

LTE Summary of Power Reduction due to Proximity Sensor

Table 11-9
Power Reduction Summary

Band	Reduced Power Target [dBm]
LTE AWS	**15**
700 MHz LTE	**18**

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11.4.2 GPRS/EDGE Mode

Table 11-10
Maximum GPRS/EDGE Powers (Proximity Sensor Inactive)

		Burst-Averaged Output Power			
		GPRS/EDGE Data (GMSK)		*EDGE Data (8-PSK)*	
Band	**Channel**	**GPRS [dBm] 1 Tx Slot**	**GPRS [dBm] 2 Tx Slot**	**EDGE [dBm] 1 Tx Slot**	**EDGE [dBm] 2 Tx Slot**
Cellular	128	31.71	**30.54**	26.06	25.25
	190	31.72	**30.48**	26.26	25.37
	251	31.91	**30.55**	26.52	25.58
PCS	512	28.85	**27.05**	25.20	23.99
	661	29.01	**27.10**	25.41	24.15
	810	29.02	**27.27**	25.61	24.18
		Calculated Frame-Averaged Output Power			
		GPRS/EDGE Data (GMSK)		*EDGE Data (8-PSK)*	
Band	**Channel**	**GPRS [dBm] 1 Tx Slot**	**GPRS [dBm] 2 Tx Slot**	**EDGE [dBm] 1 Tx Slot**	**EDGE [dBm] 2 Tx Slot**
Cellular	128	22.68	**24.52**	17.03	19.23
	190	22.69	**24.46**	17.23	19.35
	251	22.88	**24.53**	17.49	19.56
PCS	512	19.82	**21.03**	16.17	17.97
	661	19.98	**21.08**	16.38	18.13
	810	19.99	**21.25**	16.58	18.16

Notes:

- Both burst-averaged and calculated frame-averaged powers are included. 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 timeslots.
- The bolded GPRS/EDGE modes were selected according to the highest frame-averaged output power table according to KDB 941225 D03.
- GPRS/EDGE (GMSK) output powers were measured with CS1. EDGE (8-PSK) powers were measured with MCS7.

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Table 11-11
Reduced GPRS/EDGE Powers (Proximity Sensor Active)

		Burst-Averaged Output Power			
		GPRS/EDGE Data (GMSK)		*EDGE Data (8-PSK)*	
Band	**Channel**	**GPRS [dBm] 1 Tx Slot**	**GPRS [dBm] 2 Tx Slot**	**EDGE [dBm] 1 Tx Slot**	**EDGE [dBm] 2 Tx Slot**
Cellular	128	24.63	**24.52**	24.66	**24.55**
	190	24.92	**24.74**	24.85	**24.63**
	251	25.00	**24.82**	25.01	**24.85**
PCS	512	23.40	**23.34**	23.62	**23.45**
	661	23.60	**23.52**	23.73	**23.62**
	810	23.85	**23.69**	23.81	**23.72**
		Calculated Frame-Averaged Output Power			
		GPRS/EDGE Data (GMSK)		*EDGE Data (8-PSK)*	
Band	**Channel**	**GPRS [dBm] 1 Tx Slot**	**GPRS [dBm] 2 Tx Slot**	**EDGE [dBm] 1 Tx Slot**	**EDGE [dBm] 2 Tx Slot**
Cellular	128	15.60	**18.50**	15.63	**18.53**
	190	15.89	**18.72**	15.82	**18.61**
	251	15.97	**18.80**	15.98	**18.83**
PCS	512	14.37	**17.32**	14.59	**17.43**
	661	14.57	**17.50**	14.70	**17.60**
	810	14.82	**17.67**	14.78	**17.70**

Notes:

- Both burst-averaged and calculated frame-averaged powers are included. 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 timeslots.
- The bolded GPRS/EDGE modes were selected according to the highest frame-averaged output power table according to KDB 941225 D03.
- GPRS/EDGE (GMSK) output powers were measured with CS1. EDGE (8-PSK) powers were measured with MCS7.

GSM Class: C (data only, not capable of voice)
GPRS Multislot class: 10 (max 2 Tx Uplink slots)
EDGE Multislot class: 10 (max 2Tx Uplink slots)
DTM Multislot Class: N/A

GSM/GPRS Summary of Power Reduction due to Proximity Sensor

Table 11-12
Power Reduction Summary

Band	Reduced Power Target [dBm]
Cellular	**25.00**
PCS	**23.50**

Note: All GPRS/EDGE Multi-slot configurations reduce to the above target powers.

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11.4.3 HSPA Conducted Powers

Table 11-13
Maximum WCDMA Powers (Proximity Sensor Inactive)

3GPP Release Version	Mode	3GPP 34.121 Subtest	Cellular Band [dBm]			PCS Band [dBm]			βc	βd	MPR
			4132	4183	4233	9262	9400	9538			
99	WCDMA	12.2 kbps RMC	22.75	22.78	**22.79**	22.20	22.21	**22.24**	-	-	-
6	HSDPA	Subtest 1	22.50	22.45	**22.60**	22.02	22.09	**22.17**	2	15	0
6		Subtest 2	22.32	22.42	22.42	21.83	21.56	21.84	11	15	0
6		Subtest 3	21.99	21.96	21.90	21.38	21.01	21.41	15	8	0.5
6		Subtest 4	22.08	21.95	22.04	21.40	21.05	21.36	15	4	0.5
6	HSUPA	Subtest 1	21.72	21.73	21.61	21.70	21.79	**21.86**	10	15	0
6		Subtest 2	20.93	20.98	21.22	20.29	20.30	20.91	6	15	2
6		Subtest 3	20.83	21.02	20.90	20.17	20.16	20.71	15	9	1
6		Subtest 4	21.31	21.77	21.48	20.54	20.65	21.11	2	15	2
6		Subtest 5	**22.39**	22.37	22.36	20.98	20.88	21.23	14	15	0

Table 11-14
Reduced WCDMA Powers (Proximity Sensor Active)

3GPP Release Version	Mode	3GPP 34.121 Subtest	Cellular Band [dBm]			PCS Band [dBm]			βc	βd	MPR
			4132	4183	4233	9262	9400	9538			
99	WCDMA	12.2 kbps RMC	**18.36**	18.34	18.19	15.85	**16.06**	15.95	-	-	-
6	HSDPA	Subtest 1	17.68	17.71	17.60	15.15	**15.46**	15.20	2	15	0
6		Subtest 2	17.73	**17.80**	**17.80**	15.18	15.37	15.27	11	15	0
6		Subtest 3	17.26	17.23	17.21	14.70	14.86	14.75	15	8	0.5
6		Subtest 4	17.26	17.22	17.21	14.72	14.88	14.74	15	4	0.5
6	HSUPA	Subtest 1	17.58	17.45	17.48	15.21	15.27	15.26	10	15	0
6		Subtest 2	16.74	16.48	16.52	13.65	13.82	13.90	6	15	2
6		Subtest 3	16.72	16.53	16.67	14.13	14.28	14.28	15	9	1
6		Subtest 4	17.18	17.12	16.87	13.95	14.14	14.15	2	15	2
6		Subtest 5	**17.70**	17.47	16.98	15.15	**15.39**	15.31	14	15	0

This device does not support WCDMA Voice.

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 description for this model.

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 is expected by the manufacturer that MPR for some HSUPA subtests may be up to 1 dB more than specified by 3GPP, but also as low as 0 dB according to the chipset implementation in this model. Detailed information is included in the operational description explaining how the MPR is applied for this model.

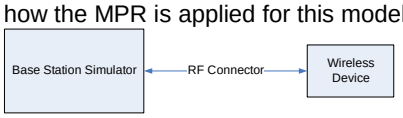

Figure 11-1
Power Measurement Setup

WCDMA Summary of Power Reduction due to Proximity Sensor

Table 11-15
Power Reduction Summary

Band	Reduced Power Target [dBm]
WCDMA 850	18
WCDMA 1900	15.7

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12 SAR TESTING WITH IEEE 802.11 TRANSMITTERS

Normal network operating configurations are not suitable for measuring the SAR of 802.11 a/b/g/n transmitters. Unpredictable fluctuations in network traffic and antenna diversity conditions can introduce undesirable variations in SAR results. The SAR for these devices should be measured using chipset based test mode software to ensure the results are consistent and reliable.

12.1 General Device Setup

Chipset based test mode software is hardware dependent and generally varies among manufacturers. 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 should correspond to actual channel frequencies defined for domestic use. SAR for devices with switched diversity should be measured with only one antenna transmitting at a time during each SAR measurement, according to a fixed modulation and data rate. The same data pattern should be used for all measurements.

12.2 Frequency Channel Configurations [27]

802.11 a/b/g and 5GHz operating modes are tested independently according to the service requirements in each frequency band. 802.11 b/g/n modes are tested on channels 1, 6 and 11. 802.11a is tested for UNII operations on channels 36 and 48 in the 5.15-5.25 GHz band; channels 52 and 64 in the 5.25-5.35 GHz band; channels 104, 116, 124 and 136 in the 5.470-5.725 GHz band; and channels 149 and 161 in the 5.8 GHz band. When 5.8 GHz §15.247 is also available, channels 149, 157 and 165 should be tested instead of the UNII channels. These are referred to as the "default test channels". For 2.4 GHz, 802.11g/n modes were evaluated only if the output power was 0.25 dB higher than the 802.11b mode. For 5 GHz, 802.11n modes were evaluated only if the output power was 0.25 dB higher than the 802.11a mode.

Table 12-1
802.11 Test Channels per FCC Requirements

Mode		GHz	Channel	Turbo Channel	"Default Test Channels" §15.247 802.11b	§15.247 802.11g	UNII	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		√			

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Table 12-2
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	12.91	12.92	12.86	12.89
802.11b	2437	6	13.26	13.26	13.27	13.28
802.11b	2462	11	**13.48**	13.34	13.47	13.45

Table 12-3
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	12.51	12.57	12.49	12.51	12.53	12.46	12.48	12.47
802.11g	2437	6	12.82	12.91	12.94	12.85	12.89	12.93	12.92	12.86
802.11g	2462	11	13.08	13.06	13.21	12.22	13.26	13.24	13.28	13.23

Table 12-4
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	12.69	12.71	12.63	12.65	12.56	12.55	12.48	12.61
802.11n	2437	6	13.04	13.11	12.98	13.12	13.09	13.14	13.12	13.07
802.11n	2462	11	13.27	13.26	13.28	13.28	13.25	13.24	13.22	13.24

Table 12-5
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**	10.26	10.31	10.24	10.27	10.36	10.31	10.33	10.27
802.11a	5200	40	10.36	10.33	10.36	10.26	10.27	10.28	10.23	10.26
802.11a	5220	44	10.34	10.38	10.43	10.36	10.43	10.47	10.39	10.39
802.11a	**5240**	**48**	10.37	10.42	10.44	10.38	10.41	10.39	10.36	10.43
802.11a	**5260**	**52**	10.36	10.34	10.38	10.33	10.39	10.41	10.42	10.43
802.11a	5280	56	10.32	10.37	10.34	10.38	10.34	10.41	10.43	10.39
802.11a	5300	60	10.41	10.25	10.31	10.34	10.58	10.58	10.56	10.31
802.11a	**5320**	**64**	10.54	10.70	10.57	10.51	10.53	10.55	10.38	10.70
802.11a	5500	100	10.61	10.71	10.45	10.44	10.79	10.52	10.67	10.78
802.11a	**5520**	**104**	10.75	10.81	10.78	10.68	10.77	10.78	10.63	10.74
802.11a	5540	108	10.76	10.66	10.58	10.86	10.71	10.78	10.69	10.72
802.11a	5560	112	10.79	10.77	10.92	10.93	10.94	10.61	10.80	10.94
802.11a	**5580**	**116**	10.77	10.86	10.59	10.81	10.94	10.84	10.76	10.73
802.11a	5660	132	10.83	10.96	10.97	10.92	10.66	10.95	10.77	11.02
802.11a	**5680**	**136**	10.73	10.62	10.85	10.58	10.89	10.86	10.60	10.73
802.11a	5700	140	10.78	10.77	10.96	10.89	10.81	10.65	10.87	10.85
802.11a	**5745**	**149**	11.15	11.34	11.32	11.18	10.98	11.34	11.06	11.18
802.11a	5765	153	11.03	11.17	11.16	11.12	11.07	11.02	11.13	10.83
802.11a	**5785**	**157**	11.02	10.89	11.16	11.14	11.08	11.06	10.95	11.15
802.11a	**5805**	**161**	10.94	11.01	11.14	10.93	11.02	10.77	11.05	10.83
802.11a	5825	165	11.02	10.92	10.83	10.84	10.84	11.04	11.12	10.93

Note: This device does not transmit any beacons or initiate any transmissions in 5.2 and 5.5 GHz Bands.

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Table 12-6
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**	9.87	9.96	9.79	10.01	9.82	10.01	9.82	10.00
802.11n	5200	40	9.96	10.00	9.86	9.94	10.06	9.86	10.10	9.93
802.11n	5220	44	10.01	9.88	10.13	10.00	10.05	10.03	10.03	10.02
802.11n	**5240**	**48**	10.02	9.88	10.15	10.12	10.15	10.04	9.87	9.85
802.11n	**5260**	**52**	10.00	9.90	9.85	9.92	9.97	9.99	9.81	10.03
802.11n	5280	56	10.09	10.26	10.18	10.18	10.13	9.97	10.03	9.95
802.11n	5300	60	10.21	10.02	10.39	10.06	10.15	10.06	10.34	10.04
802.11n	**5320**	**64**	10.24	10.17	10.21	10.09	10.16	10.08	10.11	10.10
802.11n	5500	100	10.69	10.85	10.66	10.50	10.77	10.69	10.58	10.65
802.11n	**5520**	**104**	10.74	10.76	10.62	10.85	10.86	10.64	10.88	10.71
802.11n	5540	108	10.59	10.48	10.74	10.74	10.49	10.51	10.67	10.57
802.11n	5560	112	10.71	10.87	10.69	10.57	10.81	10.71	10.61	10.62
802.11n	**5580**	**116**	10.72	10.76	10.84	10.68	10.90	10.69	10.87	10.69
802.11n	5660	132	10.51	10.37	10.54	10.32	10.43	10.34	10.33	10.46
802.11n	**5680**	**136**	10.54	10.35	10.44	10.42	10.74	10.44	10.71	10.68
802.11n	5700	140	10.37	10.45	10.41	10.52	10.27	10.26	10.53	10.39
802.11n	**5745**	**149**	10.96	10.85	10.84	10.80	11.09	11.12	10.94	10.88
802.11n	5765	153	11.03	10.86	10.95	10.96	10.94	11.13	11.19	10.95
802.11n	**5785**	**157**	10.76	10.68	10.68	10.91	10.74	10.80	10.63	10.62
802.11n	**5805**	**161**	10.71	10.56	10.73	10.88	10.58	10.81	10.66	10.87
802.11n	5825	165	10.68	10.48	10.72	10.68	10.58	10.83	10.50	10.76

Note: This device does not transmit any beacons or initiate any transmissions in 5.2 and 5.5 GHz Bands.

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

- For 2.4 GHz, highest average RF output power channel for the lowest data rate for IEEE 802.11b were selected for SAR evaluation. IEEE 802.11 g/n modes were 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 for IEEE 802.11a were selected for SAR evaluation. IEEE 802.11 n modes were not investigated since the average output powers were not greater than 0.25 dB than that of the corresponding channel in the lowest data rate IEEE 802.11a mode.
- Per FCC Publication 248227 D01 when the maximum extrapolated peak SAR of the zoom scan for the maximum output channel is >1.6 W/kg or the 1g averaged SAR is >0.8 W/kg, SAR testing was also performed in the default test channels.
- The underlined data rate and channel above were tested for SAR.

Figure 12-1
Power Measurement Setup

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13 SYSTEM VERIFICATION

13.1 Tissue Verification

Table 13-1
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
08/31/2011	700B	680	0.914	56.45	**0.96**	**56.07**	*-4.39%*	*0.68%*
		695	0.925	56.78	**0.96**	**55.99**	*-3.34%*	*1.42%*
		710	0.915	56.91	**0.96**	**55.90**	*-4.49%*	*1.80%*
		725	0.926	56.29	**0.96**	**55.82**	*-3.54%*	*0.85%*
		740	0.928	56.75	**0.96**	**55.73**	*-3.43%*	*1.82%*
		755	0.949	56.67	**0.96**	**55.65**	*-1.45%*	*1.83%*
08/24/2011	835B	820	0.973	55.18	**0.97**	**55.28**	*0.41%*	*-0.19%*
		835	0.999	54.89	**0.97**	**55.20**	*2.99%*	*-0.56%*
		850	1.008	54.66	**0.99**	**55.15**	*2.02%*	*-0.90%*
09/06/2011	835B	820	0.963	53.78	**0.97**	**55.28**	*-0.62%*	*-2.72%*
		835	0.971	53.71	**0.97**	**55.20**	*0.10%*	*-2.70%*
		850	0.986	53.48	**0.99**	**55.15**	*-0.20%*	*-3.04%*
08/30/2011	1750B	1710	1.492	52.95	**1.46**	**53.54**	*2.19%*	*-1.10%*
		1750	1.526	53.00	**1.49**	**53.43**	*2.42%*	*-0.80%*
		1790	1.583	52.68	**1.51**	**53.33**	*4.83%*	*-1.22%*
09/03/2011	1750B	1710	1.495	52.29	**1.46**	**53.54**	*2.40%*	*-2.33%*
		1750	1.537	52.12	**1.49**	**53.43**	*3.15%*	*-2.45%*
		1790	1.582	52.00	**1.51**	**53.33**	*4.77%*	*-2.49%*
08/23/2011	1900B	1850	1.483	50.83	**1.52**	**53.30**	*-2.43%*	*-4.63%*
		1880	1.508	50.86	**1.52**	**53.30**	*-0.79%*	*-4.58%*
		1910	1.528	50.70	**1.52**	**53.30**	*0.53%*	*-4.88%*
08/29/2011	1900B	1850	1.467	50.94	**1.52**	**53.30**	*-3.49%*	*-4.43%*
		1880	1.490	50.82	**1.52**	**53.30**	*-1.97%*	*-4.65%*
		1910	1.537	50.64	**1.52**	**53.30**	*1.12%*	*-4.99%*
09/07/2011	1900B	1850	1.481	53.79	**1.52**	**53.30**	*-2.57%*	*0.92%*
		1880	1.507	53.67	**1.52**	**53.30**	*-0.86%*	*0.69%*
		1910	1.540	53.52	**1.52**	**53.30**	*1.32%*	*0.41%*
08/31/2011	2450B	2401	1.837	50.93	**1.90**	**52.77**	*-3.47%*	*-3.48%*
		2450	1.905	50.90	**1.95**	**52.70**	*-2.31%*	*-3.42%*
		2499	1.960	50.72	**2.02**	**52.64**	*-2.92%*	*-3.64%*
08/26/2011	5200B-5800B	5170	5.347	47.15	**5.26**	**49.06**	*1.58%*	*-3.88%*
		5210	5.374	47.12	**5.31**	**49.00**	*1.19%*	*-3.84%*
		5250	5.411	46.96	**5.36**	**48.95**	*0.99%*	*-4.06%*
		5270	5.448	46.96	**5.38**	**48.92**	*1.25%*	*-4.00%*
		5310	5.516	46.89	**5.43**	**48.87**	*1.62%*	*-4.04%*
		5350	5.548	46.94	**5.47**	**48.81**	*1.43%*	*-3.83%*
		5470	5.744	46.62	**5.62**	**48.65**	*2.30%*	*-4.17%*
		5510	5.793	46.39	**5.66**	**48.59**	*2.33%*	*-4.54%*
		5550	5.829	46.47	**5.71**	**48.54**	*2.12%*	*-4.26%*
		5570	5.867	46.43	**5.73**	**48.51**	*2.37%*	*-4.29%*
		5610	5.895	46.37	**5.78**	**48.46**	*2.02%*	*-4.31%*
		5650	5.983	46.27	**5.83**	**48.40**	*2.71%*	*-4.41%*
		5670	6.033	46.27	**5.85**	**48.38**	*3.16%*	*-4.35%*
		5710	6.048	46.07	**5.90**	**48.32**	*2.60%*	*-4.66%*
		5750	6.121	45.95	**5.94**	**48.27**	*3.01%*	*-4.80%*
		5770	6.172	45.89	**5.97**	**48.24**	*3.47%*	*-4.87%*
		5810	6.195	45.89	**6.01**	**48.19**	*3.04%*	*-4.76%*
		5850	6.278	45.87	**6.06**	**48.13**	*3.63%*	*-4.70%*

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Table 13-2
Measured Tissue Properties for Vertex Testing

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
10/20/2011	700B	695	0.910	55.28	**0.96**	**55.99**	*-4.91%*	*-1.26%*
		710	0.926	55.31	**0.96**	**55.90**	*-3.34%*	*-1.06%*
		725	0.947	55.13	**0.96**	**55.82**	*-1.35%*	*-1.23%*
		740	0.954	55.07	**0.96**	**55.73**	*-0.73%*	*-1.19%*
		755	0.959	54.77	**0.96**	**55.65**	*-0.42%*	*-1.58%*
10/10/2011	835B	820	0.949	52.72	**0.97**	**55.28**	*-2.06%*	*-4.64%*
		835	0.963	52.68	**0.97**	**55.20**	*-0.72%*	*-4.57%*
		850	0.977	52.65	**0.99**	**55.15**	*-1.11%*	*-4.54%*
10/20/2011	1750B	1710	1.495	53.19	**1.46**	**53.54**	*2.40%*	*-0.65%*
		1750	1.543	53.08	**1.49**	**53.43**	*3.56%*	*-0.66%*
		1790	1.570	52.88	**1.51**	**53.33**	*3.97%*	*-0.84%*
10/12/2011	1900B	1850	1.447	51.41	**1.52**	**53.30**	*-4.80%*	*-3.55%*
		1880	1.477	51.49	**1.52**	**53.30**	*-2.83%*	*-3.40%*
		1910	1.506	51.35	**1.52**	**53.30**	*-0.92%*	*-3.66%*

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

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

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

13.2 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 $j = \sqrt{-1}$.

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13.3 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 13-3
System Verification Results

System Verification TARGET & MEASURED											
Date:	Amb. Temp (°C)	Liquid Temp (°C)	Input Power (W)	Tissue Frequency (MHz)	Probe SN	Dipole SN	Tissue Type	Measured SAR_{1g} (W/kg)	1 W Target SAR_{1g} (W/kg)	1 W Normalized SAR_{1g} (W/kg)	Deviation (%)
08/31/2011	23.7	22.1	0.100	750	3550	1003	Body	0.815	8.850	8.150	-7.91%
08/24/2011	23.9	22.7	0.250	835	3258	4d047	Body	2.61	9.850	10.440	5.99%
09/06/2011	23.0	21.8	0.250	835	3258	4d047	Body	2.42	9.850	9.680	-1.73%
08/30/2011	23.4	21.9	0.100	1750	3209	1051	Body	3.91	37.000	39.100	5.68%
09/03/2011	24.1	23.5	0.100	1750	3209	1051	Body	3.93	37.000	39.300	6.22%
08/23/2011	23.8	22.6	0.040	1900	3550	502	Body	1.64	41.100	41.000	-0.24%
08/29/2011	24.1	22.8	0.040	1900	3550	502	Body	1.57	41.100	39.250	-4.50%
09/07/2011	24.9	23.7	0.040	1900	3550	502	Body	1.59	41.100	39.750	-3.28%
08/31/2011	23.4	21.8	0.0158	2450	3209	797	Body	0.89	52.300	56.329	7.70%
08/26/2011	23.5	22.4	0.100	5200	3550	1057	Body	8.52	77.700	85.200	9.65%
08/26/2011	23.7	22.6	0.100	5500	3550	1057	Body	8.53	84.400	85.300	1.07%
08/26/2011	23.8	22.7	0.100	5800	3550	1057	Body	7.88	75.000	78.800	5.07%

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Table 13-4
System Verification Results for Vertex SAR Tests

System Verification TARGET & MEASURED											
Date:	**Amb. Temp (°C)**	**Liquid Temp (°C)**	**Input Power (W)**	**Tissue Frequency (MHz)**	**Probe SN**	**Dipole SN**	**Tissue Type**	**Measured SAR_{1g} (W/kg)**	**1 W Target SAR_{1g} (W/kg)**	**1 W Normalized SAR_{1g} (W/kg)**	**Deviation (%)**
10/20/2011	22.5	21.9	0.250	750	3209	1003	Body	2.11	8.850	8.440	-4.63%
10/10/2011	23.6	21.8	0.100	835	3258	4d047	Body	0.986	9.850	9.860	0.10%
10/20/2011	24.3	22.4	0.100	1750	3209	1051	Body	4.04	37.000	40.400	9.19%
10/12/2011	23.9	22.1	0.100	1900	3209	502	Body	4.33	41.100	43.300	5.35%

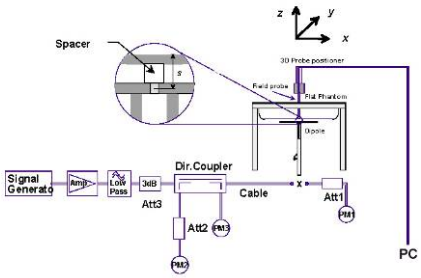

Figure 13-1
System Verification Setup Diagram

Figure 13-2
System Verification Setup Photo

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.

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14 SAR DATA SUMMARY

Table 14-1
GPRS/EDGE Body SAR Results

MEASUREMENT RESULTS											
FREQUENCY		Mode	Service	Conducted Power [dBm]	Power Drift [dB]	Target Power [dBm]	Spacing	Serial Number	# of Tx Slots	Side	SAR (1g)
MHz	Ch.										(W/kg)
836.60	190	GSM 850	GPRS	24.74	0.09	25.0	0.0 cm	IMEI 358444040012104	2	back*	0.642
836.60	190	GSM 850	EDGE	24.63	0.09	25.0	0.0 cm	IMEI 358444040012104	2	back*	0.647
824.20	128	GSM 850	GPRS	30.54	-0.05	30.5	1.0 cm	IMEI 358444040012138	2	back	0.873
836.60	190	GSM 850	GPRS	30.48	0.08	30.5	1.0 cm	IMEI 358444040012138	2	back	0.926
848.80	251	GSM 850	GPRS	30.55	-0.07	30.5	1.0 cm	IMEI 358444040012138	2	back	0.826
836.60	190	GSM 850	GPRS	24.74	0.02	25.0	0.0 cm	IMEI 358444040012138	2	top*	0.243
836.60	190	GSM 850	EDGE	24.63	0.10	25.0	0.0 cm	IMEI 358444040012104	2	top*	0.265
836.60	190	GSM 850	GPRS	30.48	-0.02	30.5	0.5 cm	IMEI 358444040012138	2	top	0.541
836.60	190	GSM 850	GPRS	24.74	0.04	25.0	0.0 cm	IMEI 358444040012104	2	left*	0.186
836.60	190	GSM 850	EDGE	24.63	0.01	25.0	0.0 cm	IMEI 358444040012104	2	left*	0.189
836.60	190	GSM 850	GPRS	30.48	0.07	30.5	0.5 cm	IMEI 358444040012138	2	left	0.511
1850.20	512	GSM 1900	GPRS	23.34	0.00	23.5	0.0 cm	IMEI 358444040012112	2	back*	0.846
1880.00	661	GSM 1900	GPRS	23.52	0.04	23.5	0.0 cm	IMEI 358444040012112	2	back*	0.841
1909.80	810	GSM 1900	GPRS	23.69	0.01	23.5	0.0 cm	IMEI 358444040012112	2	back*	1.010
1850.20	512	GSM 1900	EDGE	23.45	0.02	23.5	0.0 cm	IMEI 358444040012112	2	back*	0.895
1880.00	661	GSM 1900	EDGE	23.62	-0.06	23.5	0.0 cm	IMEI 358444040012112	2	back*	0.951
1909.80	810	GSM 1900	EDGE	23.72	-0.01	23.5	0.0 cm	IMEI 358444040012112	2	back*	1.040
1880.00	661	GSM 1900	GPRS	27.10	-0.03	27.0	1.0 cm	IMEI 358444040012138	2	back	0.188
1880.00	661	GSM 1900	GPRS	23.52	-0.09	23.5	0.0 cm	IMEI 358444040012112	2	top*	0.101
1880.00	661	GSM 1900	EDGE	23.62	0.07	23.5	0.0 cm	IMEI 358444040012112	2	top*	0.105
1880.00	661	GSM 1900	GPRS	27.10	0.07	27.0	0.5 cm	IMEI 358444040012138	2	top	0.126
1880.00	661	GSM 1900	GPRS	23.52	-0.10	23.5	0.0 cm	IMEI 358444040012112	2	left*	0.177
1880.00	661	GSM 1900	EDGE	23.62	-0.05	23.5	0.0 cm	IMEI 358444040012112	2	left*	0.174
1880.00	661	GSM 1900	GPRS	27.10	0.06	27.0	0.5 cm	IMEI 358444040012138	2	left	0.161
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Body 1.6 W/kg (mW/g) averaged over 1 gram				

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. Per KDB publication 447498 4) b) i) the back side is required to be tested touching the flat phantom.
3. This device is capable of multiple display orientations supporting both portrait and landscape positions. Therefore per KDB publication 447498 4) b) ii) (2), SAR testing applies for the tablet edges with antennas located within 5 cm of each tablet edge closest to the user (with KDB publication 616217 applied to edges with antennas located ≥ 5 cm from the user). According to KDB publication 447498 4) b) ii) (2), for each antenna, SAR is only required for the edge with the most conservative exposure condition.
4. All modes of operation were investigated, and worst-case results are reported.
5. Tissue parameters and temperatures are listed on the SAR plots.
6. Batteries are fully charged for all readings.
7. Liquid tissue depth was at least 15.0 cm.
8. 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.
9. Justification for reduced test configurations: Per KDB publication 447498 D01 1) e) i), when the SAR procedures require multiple channels to be tested and the 1-g SAR for the highest output channel is less than 0.8 W/kg, the other channels are not required.
10. Asterisk (*) denotes power reduction activated.
11. Per April 2011 TCB-FCC Workshop Notes, in addition to the 0 mm test distance required for tablet devices under KDB 447498, a conservative additional test distance of 10 mm from the back and 5 mm from the top and left edges were tested for SAR at maximum output power with the sensors deactivated. See Section 10.7for more details.

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Table 14-2
WCDMA Body SAR Results

MEASUREMENT RESULTS										
FREQUENCY		Mode	Service	Conducted Power [dBm]	Power Drift [dB]	Target Power [dBm]	Spacing	Serial Number	Side	SAR (1g)
MHz	Ch.									(W/kg)
836.60	4183	WCDMA 850	RMC	18.34	0.06	18.0	0.0 cm	IMEI 358444040012104	back*	0.652
836.60	4183	WCDMA 850	RMC	22.78	0.05	22.5	1.0 cm	IMEI 358444040012138	back	0.676
836.60	4183	WCDMA 850	RMC	18.34	0.03	18.0	0.0 cm	IMEI 358444040012104	top*	0.222
836.60	4183	WCDMA 850	RMC	22.78	0.02	22.5	0.5 cm	IMEI 358444040012138	top	0.437
836.60	4183	WCDMA 850	RMC	18.34	0.08	18.0	0.0 cm	IMEI 358444040012104	left*	0.228
836.60	4183	WCDMA 850	RMC	22.78	-0.02	22.5	0.5 cm	IMEI 358444040012138	left	0.405
1852.40	9262	WCDMA 1900	RMC	15.85	0.06	15.7	0.0 cm	IMEI 358444040012112	back*	0.627
1880.00	9400	WCDMA 1900	RMC	16.06	0.06	15.7	0.0 cm	IMEI 358444040012112	back*	0.904
1907.60	9538	WCDMA 1900	RMC	15.95	-0.07	15.7	0.0 cm	IMEI 358444040012112	back*	0.956
1880.00	9400	WCDMA 1900	RMC	22.21	-0.08	22.0	1.0 cm	IMEI 358444040012138	back	0.281
1880.00	9400	WCDMA 1900	RMC	16.06	-0.05	15.7	0.0 cm	IMEI 358444040012112	top*	0.110
1880.00	9400	WCDMA 1900	RMC	22.21	-0.09	22.0	0.5 cm	IMEI 358444040012138	top	0.099
1880.00	9400	WCDMA 1900	RMC	16.06	-0.07	15.7	0.0 cm	IMEI 358444040012112	left*	0.202
1880.00	9400	WCDMA 1900	RMC	22.21	0.01	22.0	0.5 cm	IMEI 358444040012138	left	0.291
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							**Body 1.6 W/kg (mW/g)** averaged over 1 gram			

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. Per KDB publication 447498 4) b) i) the back side is required to be tested touching the flat phantom.
3. This device is capable of multiple display orientations supporting both portrait and landscape positions. Therefore per KDB publication 447498 4) b) ii) (2), SAR testing applies for the tablet edges with antennas located within 5 cm of each tablet edge closest to the user (with KDB publication 616217 applied to edges with antennas located ≥ 5 cm from the user). According to KDB publication 447498 4) b) ii) (2), for each antenna, SAR is only required for the edge with the most conservative exposure condition.
4. All modes of operation were investigated, and worst-case results are reported.
5. Tissue parameters and temperatures are listed on the SAR plots.
6. Batteries are fully charged for all readings.
7. Liquid tissue depth was at least 15.0 cm.
8. 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.
9. Justification for reduced test configurations: Per KDB publication 447498 D01 1) e) i), when the SAR procedures require multiple channels to be tested and the 1-g SAR for the highest output channel is less than 0.8 W/kg, the other channels are not required.
10. Asterisk (*) denotes power reduction activated.
11. Per April 2011 TCB-FCC Workshop Notes, in addition to the 0 mm test distance required for tablet devices under KDB 447498, a conservative additional test distance of 10 mm from the back and 5 mm from the top and left edges were tested for SAR at maximum output power with the sensors deactivated. See Section 10.7 for more details.

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Table 14-3
LTE 700 Body SAR Results

MEASUREMENT RESULTS														
FREQUENCY		Mode	Service	Bandwidth [MHz]	Conducted Power [dBm]	Power Drift [dB]	Target Power [dBm]	MPR Target [dB]	Spacing	Serial Number	# of Resource Blocks	RB Offset	Side	SAR (1g)
MHz	Ch.													(W/kg)
710.0	23790	700 MHz LTE	QPSK	10	17.65	0.09	18	N/A	0.0 cm	IMEI 358444040012112	25	12	back*	0.376
710.0	23790	700 MHz LTE	QPSK	10	17.80	0.03	18	N/A	0.0 cm	IMEI 358444040012112	1	0	back*	0.361
710.0	23790	700 MHz LTE	QPSK	10	17.69	0.07	18	N/A	0.0 cm	IMEI 358444040012112	1	49	back*	0.386
710.0	23790	700 MHz LTE	16QAM	10	18.33	0.06	18	N/A	0.0 cm	IMEI 358444040012112	25	12	back*	0.374
710.0	23790	700 MHz LTE	16QAM	10	17.54	0.01	18	N/A	0.0 cm	IMEI 358444040012112	1	0	back*	0.363
710.0	23790	700 MHz LTE	16QAM	10	17.58	-0.03	18	N/A	0.0 cm	IMEI 358444040012112	1	49	back*	0.385
710.0	23790	700 MHz LTE	QPSK	10	21.57	-0.01	21.2	1	1.0 cm	IMEI 358444040012153	25	12	back	0.225
710.0	23790	700 MHz LTE	QPSK	10	22.22	-0.05	22.2	0	1.0 cm	IMEI 358444040012153	1	0	back	0.249
710.0	23790	700 MHz LTE	QPSK	10	22.23	-0.03	22.2	0	1.0 cm	IMEI 358444040012153	1	49	back	0.298
710.0	23790	700 MHz LTE	16QAM	10	20.99	0.08	21.2	1	1.0 cm	IMEI 358444040012153	25	12	back	0.184
710.0	23790	700 MHz LTE	16QAM	10	21.01	0.06	21.2	1	1.0 cm	IMEI 358444040012153	1	0	back	0.191
710.0	23790	700 MHz LTE	16QAM	10	21.10	0.00	21.2	1	1.0 cm	IMEI 358444040012153	1	49	back	0.159
710.0	23790	700 MHz LTE	QPSK	10	17.65	0.09	18	N/A	0.0 cm	IMEI 358444040012112	25	12	top*	0.013
710.0	23790	700 MHz LTE	QPSK	10	17.80	0.07	18	N/A	0.0 cm	IMEI 358444040012112	1	0	top*	0.011
710.0	23790	700 MHz LTE	QPSK	10	17.69	0.04	18	N/A	0.0 cm	IMEI 358444040012112	1	49	top*	0.015
710.0	23790	700 MHz LTE	16QAM	10	18.33	0.08	18	N/A	0.0 cm	IMEI 358444040012112	25	12	top*	0.014
710.0	23790	700 MHz LTE	16QAM	10	17.54	0.07	18	N/A	0.0 cm	IMEI 358444040012112	1	0	top*	0.011
710.0	23790	700 MHz LTE	16QAM	10	17.58	0.06	18	N/A	0.0 cm	IMEI 358444040012112	1	49	top*	0.015
710.0	23790	700 MHz LTE	QPSK	10	21.57	0.05	21.2	1	0.5 cm	IMEI 358444040012153	25	12	top	0.012
710.0	23790	700 MHz LTE	QPSK	10	22.22	-0.07	22.2	0	0.5 cm	IMEI 358444040012153	1	0	top	0.012
710.0	23790	700 MHz LTE	QPSK	10	22.23	-0.09	22.2	0	0.5 cm	IMEI 358444040012153	1	49	top	0.019
710.0	23790	700 MHz LTE	16QAM	10	20.99	0.09	21.2	1	0.5 cm	IMEI 358444040012153	25	12	top	0.010
710.0	23790	700 MHz LTE	16QAM	10	21.01	-0.03	21.2	1	0.5 cm	IMEI 358444040012153	1	0	top	0.010
710.0	23790	700 MHz LTE	16QAM	10	21.10	0.10	21.2	1	0.5 cm	IMEI 358444040012153	1	49	top	0.014
710.0	23790	700 MHz LTE	QPSK	10	17.65	-0.09	18	N/A	0.0 cm	IMEI 358444040012112	25	12	left*	0.188
710.0	23790	700 MHz LTE	QPSK	10	17.80	-0.09	18	N/A	0.0 cm	IMEI 358444040012112	1	0	left*	0.176
710.0	23790	700 MHz LTE	QPSK	10	17.69	-0.06	18	N/A	0.0 cm	IMEI 358444040012112	1	49	left*	0.199
710.0	23790	700 MHz LTE	16QAM	10	18.33	-0.07	18	N/A	0.0 cm	IMEI 358444040012112	25	12	left*	0.186
710.0	23790	700 MHz LTE	16QAM	10	17.54	-0.07	18	N/A	0.0 cm	IMEI 358444040012112	1	0	left*	0.177
710.0	23790	700 MHz LTE	16QAM	10	17.58	-0.08	18	N/A	0.0 cm	IMEI 358444040012112	1	49	left*	0.205
710.0	23790	700 MHz LTE	QPSK	10	21.57	-0.06	21.2	1	0.5 cm	IMEI 358444040012153	25	12	left	0.203
710.0	23790	700 MHz LTE	QPSK	10	22.22	-0.05	22.2	0	0.5 cm	IMEI 358444040012153	1	0	left	0.228
710.0	23790	700 MHz LTE	QPSK	10	22.23	-0.09	22.2	0	0.5 cm	IMEI 358444040012153	1	49	left	0.272
710.0	23790	700 MHz LTE	16QAM	10	20.99	-0.05	21.2	1	0.5 cm	IMEI 358444040012153	25	12	left	0.160
710.0	23790	700 MHz LTE	16QAM	10	21.01	-0.07	21.2	1	0.5 cm	IMEI 358444040012153	1	0	left	0.168
710.0	23790	700 MHz LTE	16QAM	10	21.10	-0.08	21.2	1	0.5 cm	IMEI 358444040012153	1	49	left	0.204
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Body 1.6 W/kg (mW/g) averaged over 1 gram					

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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. Per KDB publication 447498 4) b) i) the back side is required to be tested touching the flat phantom.
3. This device is capable of multiple display orientations supporting both portrait and landscape positions. Therefore per KDB publication 447498 4) b) ii) (2), SAR testing applies for the tablet edges with antennas located within 5 cm of each tablet edge closest to the user (with KDB publication 616217 applied to edges with antennas located ≥ 5 cm from the user). According to KDB publication 447498 4) b) ii) (2), for each antenna, SAR is only required for the edge with the most conservative exposure condition.
4. All modes of operation were investigated, and worst-case results are reported.
5. Tissue parameters and temperatures are listed on the SAR plots.
6. Batteries are fully charged for all readings.
7. Liquid tissue depth was at least 15.0 cm.
8. 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 947498 6c) there are 2 channels for LTE Band 17, 5 MHz bandwidth and 1 channel for 10 MHz Bandwidth.
9. There is an applied MPR implemented by the manufacturer when the proximity sensor is not active (maximum power scenarios). 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. There is no MPR applied when the proximity sensor is active (reduced power scenarios).
10. Justification for reduced test configurations: Per KDB publication 447498 D01 1) e) i), when the SAR procedures require multiple channels to be tested and the 1-g SAR for the highest output channel is less than 0.8 W/kg, the other channels are not required.
11. Asterisk (*) denotes power reduction activated.
12. Per April 2011 TCB-FCC Workshop Notes, in addition to the 0 mm test distance required for tablet devices under KDB 447498, a conservative additional test distance of 10 mm from the back and 5 mm from the top and left edges were tested for SAR at maximum output power with the sensors deactivated. See Section 10.7 for more details.

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Table 14-4
LTE AWS Body SAR Results

MEASUREMENT RESULTS													
FREQUENCY		Mode	Service	Conducted Power [dBm]	Power Drift [dB]	Target Power [dBm]	MPR Target [dB]	Spacing	Serial Number	# of Resource Blocks	RB Offset	Side	SAR (1g)
MHz	Ch.												(W/kg)
1715.0	20000	LTE AWS	QPSK	15.33	0.02	15	N/A	0.0 cm	IMEI 358444040012112	25	12	back*	0.660
1732.5	20175	LTE AWS	QPSK	15.21	0.00	15	N/A	0.0 cm	IMEI 358444040012112	25	12	back*	0.935
1750.0	20350	LTE AWS	QPSK	15.50	0.02	15	N/A	0.0 cm	IMEI 358444040012112	25	12	back*	0.804
1732.5	20175	LTE AWS	QPSK	14.75	0.02	15	N/A	0.0 cm	IMEI 358444040012112	1	0	back*	0.755
1715.0	20000	LTE AWS	QPSK	14.79	0.02	15	N/A	0.0 cm	IMEI 358444040012112	1	49	back*	0.622
1732.5	20175	LTE AWS	QPSK	14.81	0.02	15	N/A	0.0 cm	IMEI 358444040012112	1	49	back*	0.831
1750.0	20350	LTE AWS	QPSK	14.97	0.03	15	N/A	0.0 cm	IMEI 358444040012112	1	49	back*	0.726
1715.0	20000	LTE AWS	16QAM	14.89	0.01	15	N/A	0.0 cm	IMEI 358444040012112	25	12	back*	0.635
1732.5	20175	LTE AWS	16QAM	14.94	0.00	15	N/A	0.0 cm	IMEI 358444040012112	25	12	back*	0.888
1750.0	20350	LTE AWS	16QAM	15.23	0.01	15	N/A	0.0 cm	IMEI 358444040012112	25	12	back*	0.758
1732.5	20175	LTE AWS	16QAM	14.58	0.01	15	N/A	0.0 cm	IMEI 358444040012112	1	0	back*	0.785
1715.0	20000	LTE AWS	16QAM	14.63	0.02	15	N/A	0.0 cm	IMEI 358444040012112	1	49	back*	0.629
1732.5	20175	LTE AWS	16QAM	14.75	0.01	15	N/A	0.0 cm	IMEI 358444040012112	1	49	back*	0.896
1750.0	20350	LTE AWS	16QAM	14.88	0.00	15	N/A	0.0 cm	IMEI 358444040012112	1	49	back*	0.737
1732.5	20175	LTE AWS	QPSK	21.81	0.05	21.7	1	1.0 cm	IMEI 358444040012153	25	12	back	0.318
1732.5	20175	LTE AWS	QPSK	22.54	-0.07	22.7	0	1.0 cm	IMEI 358444040012153	1	0	back	0.362
1732.5	20175	LTE AWS	QPSK	22.70	0.02	22.7	0	1.0 cm	IMEI 358444040012153	1	49	back	0.415
1732.5	20175	LTE AWS	16QAM	21.44	0.02	21.7	1	1.0 cm	IMEI 358444040012153	25	12	back	0.255
1732.5	20175	LTE AWS	16QAM	21.60	0.01	21.7	1	1.0 cm	IMEI 358444040012153	1	0	back	0.277
1732.5	20175	LTE AWS	16QAM	21.52	0.02	21.7	1	1.0 cm	IMEI 358444040012153	1	49	back	0.310
1732.5	20175	LTE AWS	QPSK	15.21	0.04	15	N/A	0.0 cm	IMEI 358444040012112	25	12	top*	0.055
1732.5	20175	LTE AWS	QPSK	14.75	0.02	15	N/A	0.0 cm	IMEI 358444040012112	1	0	top*	0.046
1732.5	20175	LTE AWS	QPSK	14.81	0.01	15	N/A	0.0 cm	IMEI 358444040012112	1	49	top*	0.050
1732.5	20175	LTE AWS	16QAM	14.94	0.01	15	N/A	0.0 cm	IMEI 358444040012112	25	12	top*	0.052
1732.5	20175	LTE AWS	16QAM	14.58	0.02	15	N/A	0.0 cm	IMEI 358444040012112	1	0	top*	0.045
1732.5	20175	LTE AWS	16QAM	14.75	0.00	15	N/A	0.0 cm	IMEI 358444040012112	1	49	top*	0.051
1732.5	20175	LTE AWS	QPSK	21.81	-0.01	21.7	1	0.5 cm	IMEI 358444040012153	25	12	top	0.061
1732.5	20175	LTE AWS	QPSK	22.54	0.02	22.7	0	0.5 cm	IMEI 358444040012153	1	0	top	0.073
1732.5	20175	LTE AWS	QPSK	22.70	-0.02	22.7	0	0.5 cm	IMEI 358444040012153	1	49	top	0.082
1732.5	20175	LTE AWS	16QAM	21.44	0.04	21.7	1	0.5 cm	IMEI 358444040012153	25	12	top	0.049
1732.5	20175	LTE AWS	16QAM	21.60	-0.04	21.7	1	0.5 cm	IMEI 358444040012153	1	0	top	0.057
1732.5	20175	LTE AWS	16QAM	21.52	0.00	21.7	1	0.5 cm	IMEI 358444040012153	1	49	top	0.064
1732.5	20175	LTE AWS	QPSK	15.21	0.00	15	N/A	0.0 cm	IMEI 358444040012112	25	12	left*	0.272
1732.5	20175	LTE AWS	QPSK	14.75	0.01	15	N/A	0.0 cm	IMEI 358444040012112	1	0	left*	0.239
1732.5	20175	LTE AWS	QPSK	14.81	0.01	15	N/A	0.0 cm	IMEI 358444040012112	1	49	left*	0.238
1732.5	20175	LTE AWS	16QAM	14.94	0.00	15	N/A	0.0 cm	IMEI 358444040012112	25	12	left*	0.254
1732.5	20175	LTE AWS	16QAM	14.58	-0.01	15	N/A	0.0 cm	IMEI 358444040012112	1	0	left*	0.229
1732.5	20175	LTE AWS	16QAM	14.75	0.01	15	N/A	0.0 cm	IMEI 358444040012112	1	49	left*	0.239
1732.5	20175	LTE AWS	QPSK	21.81	-0.10	21.7	1	0.5 cm	IMEI 358444040012112	25	12	left	0.008
1732.5	20175	LTE AWS	QPSK	22.54	-0.04	22.7	0	0.5 cm	IMEI 358444040012112	1	0	left	0.010
1732.5	20175	LTE AWS	QPSK	22.70	-0.02	22.7	0	0.5 cm	IMEI 358444040012112	1	49	left	0.012
1732.5	20175	LTE AWS	16QAM	21.44	-0.08	21.7	1	0.5 cm	IMEI 358444040012112	25	12	left	0.007
1732.5	20175	LTE AWS	16QAM	21.60	-0.06	21.7	1	0.5 cm	IMEI 358444040012112	1	0	left	0.007
1732.5	20175	LTE AWS	16QAM	21.52	0.09	21.7	1	0.5 cm	IMEI 358444040012112	1	49	left	0.009
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Body 1.6 W/kg (mW/g) averaged over 1 gram					

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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. Per KDB publication 447498 4) b) i) the back side is required to be tested touching the flat phantom.
3. This device is capable of multiple display orientations supporting both portrait and landscape positions. Therefore per KDB publication 447498 4) b) ii) (2), SAR testing applies for the tablet edges with antennas located within 5 cm of each tablet edge closest to the user (with KDB publication 616217 applied to edges with antennas located ≥ 5 cm from the user). According to KDB publication 447498 4) b) ii) (2), for each antenna, SAR is only required for the edge with the most conservative exposure condition.
4. All modes of operation were investigated, and worst-case results are reported.
5. Tissue parameters and temperatures are listed on the SAR plots.
6. Batteries are fully charged for all readings.
7. Liquid tissue depth was at least 15.0 cm.
8. 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
9. There is an applied MPR implemented by the manufacturer when the proximity sensor is not active (maximum power scenarios). 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. There is no MPR applied when the proximity sensor is active (reduced power scenarios).
10. 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.
11. Justification for reduced test configurations: Per KDB publication 447498 D01 1) e) i), when the SAR procedures require multiple channels to be tested and the 1-g SAR for the highest output channel is less than 0.8 W/kg, the other channels are not required.
12. Asterisk (*) denotes power reduction activated.
13. Per April 2011 TCB-FCC Workshop Notes, in addition to the 0 mm test distance required for tablet devices under KDB 447498, a conservative additional test distance of 10 mm from the back and 5 mm from the top and left edges were tested for SAR at maximum output power with the sensors deactivated. See Section 10.7 for more details.

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Table 14-5
2.4 GHz 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)
2412	1	IEEE 802.11b	DSSS	12.91	0.08	0.0 cm	IMEI 358444040012161	1	back	0.683
2437	6	IEEE 802.11b	DSSS	13.26	-0.05	0.0 cm	IMEI 358444040012161	1	back	0.699
2462	11	IEEE 802.11b	DSSS	13.48	-0.03	0.0 cm	IMEI 358444040012161	1	back	0.607
2462	11	IEEE 802.11b	DSSS	13.48	0.06	0.0 cm	IMEI 358444040012161	1	top	0.036
2462	11	IEEE 802.11b	DSSS	13.48	0.00	0.0 cm	IMEI 358444040012161	1	right	0.316
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						**Body 1.6 W/kg (mW/g)** averaged over 1 gram				

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. Per KDB Pub. 448498 4) b) i) the back side is required to be tested touching the flat phantom.
3. This device is capable of multiple display orientations supporting both portrait and landscape positions. Therefore per KDB Pub. 447498 4) b) ii) (2), SAR testing applies for the tablet edges with antennas located within 5 cm of each tablet edge closest to the user (with KDB Pub. 616217 applied to edges with antennas located ≥ 5 cm from the user). According to KDB Pub. 447498 4) b) ii) (2), for each antenna, SAR is only required for the edge with the most conservative exposure condition.
4. All modes of operation were investigated, and worst-case results are reported.
5. Batteries are fully charged for all readings.
6. Tissue parameters and temperatures are listed on the SAR plots.
7. Liquid tissue depth is was at least 15.0 cm.
8. Device was tested using a fixed spacing.
9. Justification for reduced test configurations for WIFI channels per KDB Publication 248227 and April 2010 FCC/TCB Meeting Notes: Highest average RF output power channel for the lowest data rate were selected for SAR evaluation (as the default channel). Other IEEE 802.11 modes (including 802.11g/n and higher data rates) 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 modes.
10. There is no power reduction for WIFI.
11. Per the manufacturer all samples are electrically identical for WLAN.
12. Additional channels were tested when the maximum extrapolated peak SAR of the zoom scan was >1.6 W/kg.

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Table 14-6
5 GHz 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)
5200	40	IEEE 802.11a	OFDM	10.36	-0.09	0.0 cm	IMEI 358444040009670	6	back	0.617
5240	48	IEEE 802.11a	OFDM	10.37	-0.02	0.0 cm	IMEI 358444040009670	6	back	0.629
5240	48	IEEE 802.11a	OFDM	10.37	0.07	0.0 cm	IMEI 358444040009670	6	top	0.027
5200	40	IEEE 802.11a	OFDM	10.36	-0.01	0.0 cm	IMEI 358444040009670	6	right	0.740
5240	48	IEEE 802.11a	OFDM	10.37	0.02	0.0 cm	IMEI 358444040009670	6	right	0.745
5260	52	IEEE 802.11a	OFDM	10.36	0.10	0.0 cm	IMEI 358444040009670	6	back	0.583
5320	64	IEEE 802.11a	OFDM	10.54	0.07	0.0 cm	IMEI 358444040009670	6	back	0.586
5320	64	IEEE 802.11a	OFDM	10.54	-0.06	0.0 cm	IMEI 358444040009670	6	top	0.020
5260	52	IEEE 802.11a	OFDM	10.36	0.03	0.0 cm	IMEI 358444040009670	6	right	0.738
5320	64	IEEE 802.11a	OFDM	10.54	-0.04	0.0 cm	IMEI 358444040009670	6	right	0.690
5540	108	IEEE 802.11a	OFDM	10.76	-0.06	0.0 cm	IMEI 358444040009670	6	back	0.628
5560	112	IEEE 802.11a	OFDM	10.79	0.07	0.0 cm	IMEI 358444040009670	6	back	0.705
5560	112	IEEE 802.11a	OFDM	10.79	0.08	0.0 cm	IMEI 358444040009670	6	top	0.031
5540	108	IEEE 802.11a	OFDM	10.76	0.06	0.0 cm	IMEI 358444040009670	6	right	0.809
5560	112	IEEE 802.11a	OFDM	10.79	-0.07	0.0 cm	IMEI 358444040009670	6	right	0.824
5745	149	IEEE 802.11a	OFDM	11.15	0.05	0.0 cm	IMEI 358444040009670	6	back	0.729
5765	153	IEEE 802.11a	OFDM	11.03	0.06	0.0 cm	IMEI 358444040009670	6	back	0.615
5825	165	IEEE 802.11a	OFDM	11.02	0.05	0.0 cm	IMEI 358444040009670	6	back	0.603
5745	149	IEEE 802.11a	OFDM	11.15	-0.07	0.0 cm	IMEI 358444040009670	6	top	0.041
5745	149	IEEE 802.11a	OFDM	11.15	-0.06	0.0 cm	IMEI 358444040009670	6	right	0.882
5765	153	IEEE 802.11a	OFDM	11.03	-0.05	0.0 cm	IMEI 358444040009670	6	right	0.830
5825	165	IEEE 802.11a	OFDM	11.02	0.05	0.0 cm	IMEI 358444040009670	6	right	0.788
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						Body 1.6 W/kg (mW/g) averaged over 1 gram				

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. Per KDB Pub. 448498 4) b) i) the back side is required to be tested touching the flat phantom.
3. This device is capable of multiple display orientations supporting both portrait and landscape positions. Therefore per KDB Pub. 447498 4) b) ii) (2), SAR testing applies for the tablet edges with antennas located within 5 cm of each tablet edge closest to the user (with KDB Pub. 616217 applied to edges with antennas located ≥ 5 cm from the user). According to KDB Pub. 447498 4) b) ii) (2), for each antenna, SAR is only required for the edge with the most conservative exposure condition.
4. All modes of operation were investigated, and worst-case results are reported.
5. Batteries are fully charged for all readings.
6. Tissue parameters and temperatures are listed on the SAR plots.
7. Liquid tissue depth is was at least 15.0 cm.
8. Device was tested using a fixed spacing.
9. Justification for reduced test configurations for WIFI channels per KDB Publication 248227 and April 2010 FCC/TCB Meeting Notes: Highest average RF output power channel for the lowest data rate were selected for SAR evaluation as the default channel. Other IEEE 802.11 modes (including 802.11n and higher data rates) were not investigated since the average output powers were not greater than 0.25 dB than that of the corresponding channel in the lowest data rate IEEE 802.11a modes.
10. There is no power reduction for WIFI.
11. Additional channels were tested when the maximum extrapolated peak SAR of the zoom scan was >1.6 W/kg and SAR was >0.8 W/kg for some configurations.
12. Per the manufacturer all samples are electrically identical for WLAN.

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15 SIMULTANEOUS TRANSMISSION ANALYSIS

15.1 Simultaneous Transmission Information

This device contains multiple transmitters that may not operate simultaneously and therefore, do not require a simultaneous transmission analysis according to KDB publication 447498 4) b) iii) procedures (See Section 10.2).

This device does not support hotspot.

Bluetooth and 2.4 GHz WIFI cannot transmit simultaneously since it shares the same circuit path and are switched by the radio. Bluetooth can transmit simultaneously with 5 GHz WIFI and the 2G/3G/4G antennas.

5GHz WIFI cannot transmit simultaneously with the 2G/3G/4G antennas.

LTE Band 4 and main antenna share the same circuit path therefore they cannot transmit simultaneously.

Per KDB publication 447498 4) b) since the output power of the antenna is ≤ 60/f (GHz), Bluetooth SAR is not required for both back side and edge exposure conditions. No further analysis was required to determine that simultaneous transmission cases would not exceed the SAR limit.

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16 VERTEX SAR TESTS

According to subject FCC correspondences, the proximity sensor coverage for the top-left corner of the tablet was assessed for appropriate coverage and SAR. Please find below SAR results with the tablet touching at the top left corner vertex at maximum output powers.

Table 16-1
Main Antenna Vertex SAR Results

MEASUREMENT RESULTS										
FREQUENCY		Mode	Service	Conducted Power [dBm]	Power Drift [dB]	Spacing	Serial Number	# of GPRS Slots	Position	SAR (1g)
MHz	Ch.									(W/kg)
836.60	190	GSM 850	GPRS	30.48	-0.02	0.0 cm	IMEI 358444040012138	2	Vertex, 45˚	0.584
836.60	4183	WCDMA 850	RMC	22.78	0.01	0.0 cm	IMEI 358444040012138	N/A	Vertex, 45˚	0.486
1880.00	661	GSM 1900	GPRS	27.10	-0.04	0.0 cm	IMEI 358444040012138	2	Vertex, 45˚	0.227
1880.00	9400	WCDMA 1900	RMC	22.21	0.05	0.0 cm	IMEI 358444040012138	N/A	Vertex, 45˚	0.374
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 16-2
LTE Vertex SAR Results

MEASUREMENT RESULTS												
FREQUENCY		Mode	Service	Conducted Power [dBm]	Power Drift [dB]	MPR Target [dB]	Spacing	Serial Number	# of Resource Blocks	RB Offset	Side	SAR (1g)
MHz	Ch.											(W/kg)
710.0	23790	700 MHz LTE	QPSK	22.23	-0.02	0	0.0 cm	IMEI 358444040012153	1	49	Vertex, 45˚	0.043
1732.5	20175	LTE AWS	QPSK	22.70	0.03	0	0.0 cm	IMEI 358444040012153	1	49	Vertex, 45˚	0.258
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Body 1.6 W/kg (mW/g) averaged over 1 gram					

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17 EQUIPMENT LIST

Applicable for 08/23/11-09/06/2011

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent	8648D	(9kHz-4GHz) Signal Generator	10/13/2010	Annual	10/13/2011	3613A00315
Agilent	8753E	(30kHz-6GHz) Network Analyzer	4/21/2011	Annual	4/21/2012	JP38020182
Agilent	E5515C	Wireless Communications Test Set	10/11/2010	Annual	10/11/2011	GB46110872
Agilent	E5515C	Wireless Communications Test Set	10/8/2010	Annual	10/8/2011	GB46310798
Agilent	E5515C	Wireless Communications Test Set	7/6/2011	Annual	7/6/2012	GB41450275
Agilent	E8257D	(250kHz-20GHz) Signal Generator	4/8/2011	Annual	4/8/2012	MY45470194
Gigatronics	80701A	(0.05-18GHz) Power Sensor	10/11/2010	Annual	10/11/2011	1833460
Gigatronics	8651A	Universal Power Meter	10/11/2010	Annual	10/11/2011	8650319
Index SAR	IXTL-010	Dielectric Measurement Kit	N/A		N/A	N/A
Index SAR	IXTL-030	30MM TEM line for 6 GHz	N/A		N/A	N/A
Pasternack	PE2208-6	Bidirectional Coupler	N/A		N/A	N/A
Pasternack	PE2209-10	Bidirectional Coupler	N/A		N/A	N/A
Rohde & Schwarz	CMU200	Base Station Simulator	11/11/2010	Annual	11/11/2011	836371/0079
Rohde & Schwarz	CMU200	Base Station Simulator	6/1/2011	Annual	6/1/2012	833855/0010
Rohde & Schwarz	CMU200	Base Station Simulator	4/19/2011	Annual	4/19/2012	107826
Rohde & Schwarz	NRVD	Dual Channel Power Meter	4/8/2011	Biennial	4/8/2013	101695
SPEAG	D1765V2	1765 MHz SAR Dipole	6/16/2011	Annual	6/16/2012	1008
SPEAG	D1900V2	1900 MHz SAR Dipole	2/17/2011	Annual	2/17/2012	502
SPEAG	D1900V2	1900 MHz SAR Dipole	7/22/2011	Annual	7/22/2012	5d080
SPEAG	D2450V2	2450 MHz SAR Dipole	8/19/2011	Annual	8/19/2012	719
SPEAG	D2450V2	2450 MHz SAR Dipole	2/8/2011	Annual	2/8/2012	797
SPEAG	D2600V2	2600 MHz SAR Dipole	4/15/2011	Annual	4/15/2012	1004
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	8/15/2011	Annual	8/15/2012	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	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	4/18/2011	Annual	4/18/2012	3209
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
Agilent	8648D	Signal Generator	4/5/2011	Annual	4/5/2012	3629U00687
Anritsu	ML2438A	Power Meter	2/7/2011	Annual	2/7/2012	1070030
Anritsu	MA2481A	Power Sensor	2/7/2011	Annual	2/7/2012	5821
Anritsu	MA2481A	Power Sensor	2/7/2011	Annual	2/7/2012	8013
Anritsu	MA2481A	Power Sensor	2/7/2011	Annual	2/7/2012	5605
Anritsu	MA2481A	Power Sensor	2/7/2011	Annual	2/7/2012	2400
Agilent	E5515C	Wireless Communications Test Set	7/6/2011	Annual	7/6/2012	GB43304447
Agilent	E5515C	Wireless Communications Tester	4/21/2011	Annual	4/21/2012	US41140256
Amplifier Research	5S1G4	5W, 800MHz-4.2GHz	N/A			21910
Mini-Circuits	BW-N20W5+	DC to 18 GHz Precision Fixed 20 dB Attenuator	N/A			N/A
Agilent	E5515C	Wireless Communications Test Set	2/8/2011	Annual	2/8/2012	GB45360985
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
VWR	36934-158	Wall-Mounted Thermometer	1/21/2011	Biennial	1/21/2013	111286445
VWR	36934-158	Wall-Mounted Thermometer	1/21/2011	Biennial	1/21/2013	111286460
VWR	36934-158	Wall-Mounted Thermometer	5/26/2010	Biennial	5/26/2012	101718589
VWR	36934-158	Wall-Mounted Thermometer	1/21/2011	Biennial	1/21/2013	111286454
VWR	36934-158	Wall-Mounted Thermometer	2/26/2010	Biennial	2/26/2012	101536273
SPEAG	ES3DV3	SAR Probe	4/8/2011	Annual	4/8/2012	3258
SPEAG	D1750V2	1750 MHz SAR Dipole	5/24/2011	Annual	5/24/2012	1051
MiniCircuits	SLP-2400+	Low Pass Filter	N/A			R8979500903
Narda	4772-3	Attenuator (3dB)	N/A			9406
Narda	BW-S3W2	Attenuator (3dB)	N/A			120
Rohde & Schwarz	CMW500	LTE Radio Communication Tester	8/5/2011	Annual	8/5/2012	112347

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Applicable for 10/10/11-10/20/2011

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Rohde & Schwarz	CMU200	Base Station Simulator	11/11/2010	Annual	11/11/2011	836371/0079
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	5605
Anritsu	MA2481A	Power Sensor	2/7/2011	Annual	2/7/2012	2400
Agilent	E5515C	Wireless Communications Test Set	2/8/2011	Annual	2/8/2012	GB45360985
SPEAG	D835V2	835 MHz SAR Dipole	2/9/2011	Annual	2/9/2012	4d047
SPEAG	D750V3	750 MHz Dipole	2/14/2011	Annual	2/14/2012	1003
SPEAG	D1900V2	1900 MHz SAR Dipole	2/17/2011	Annual	2/17/2012	502
SPEAG	DAE4	Dasy Data Acquisition Electronics	2/21/2011	Annual	2/21/2012	649
VWR	36934-158	Wall-Mounted Thermometer	2/26/2010	Biennial	2/26/2012	101536273
Agilent	8648D	Signal Generator	4/5/2011	Annual	4/5/2012	3629U00687
Rohde & Schwarz	SMIQ03B	Signal Generator	4/6/2011	Annual	4/6/2012	DE27259
Agilent	E8257D	(250kHz-20GHz) Signal Generator	4/8/2011	Annual	4/8/2012	MY45470194
SPEAG	ES3DV3	SAR Probe	4/8/2011	Annual	4/8/2012	3258
SPEAG	ES3DV3	SAR Probe	4/18/2011	Annual	4/18/2012	3209
Rohde & Schwarz	CMU200	Base Station Simulator	4/19/2011	Annual	4/19/2012	107826
SPEAG	DAE4	Dasy Data Acquisition Electronics	4/20/2011	Annual	4/20/2012	665
Agilent	8753E	(30kHz-6GHz) Network Analyzer	4/21/2011	Annual	4/21/2012	JP38020182
Agilent	E5515C	Wireless Communications Tester	4/21/2011	Annual	4/21/2012	US41140256
SPEAG	DAE4	Dasy Data Acquisition Electronics	5/19/2011	Annual	5/19/2012	859
SPEAG	D1750V2	1750 MHz SAR Dipole	5/24/2011	Annual	5/24/2012	1051
VWR	36934-158	Wall-Mounted Thermometer	5/26/2010	Biennial	5/26/2012	101718589
Rohde & Schwarz	CMU200	Base Station Simulator	6/1/2011	Annual	6/1/2012	833855/0010
Agilent	E5515C	Wireless Communications Test Set	7/6/2011	Annual	7/6/2012	GB41450275
Agilent	E5515C	Wireless Communications Test Set	7/6/2011	Annual	7/6/2012	GB43304447
Rohde & Schwarz	CMW500	LTE Radio Communication Tester	8/5/2011	Annual	8/5/2012	112347
Rohde & Schwarz	CMW500	LTE Radio Communication Tester	10/7/2011	Annual	10/7/2012	103962
Agilent	8648D	(9kHz-4GHz) Signal Generator	10/10/2011	Annual	10/10/2012	3613A00315
Agilent	E5515C	Wireless Communications Test Set	10/10/2011	Annual	10/10/2012	GB46110872
Gigatronics	80701A	(0.05-18GHz) Power Sensor	10/12/2011	Annual	10/12/2012	1833460
Gigatronics	8651A	Universal Power Meter	10/12/2011	Annual	10/12/2012	8650319
VWR	36934-158	Wall-Mounted Thermometer	1/21/2011	Biennial	1/21/2013	111286445
VWR	36934-158	Wall-Mounted Thermometer	1/21/2011	Biennial	1/21/2013	111286460
VWR	36934-158	Wall-Mounted Thermometer	1/21/2011	Biennial	1/21/2013	111286454
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
Rohde & Schwarz	NRVD	Dual Channel Power Meter	4/8/2011	Biennial	4/8/2013	101695
Index SAR	IXTL-010	Dielectric Measurement Kit	N/A		N/A	N/A
Index SAR	IXTL-030	30MM TEM line for 6 GHz	N/A		N/A	N/A
Pasternack	PE2208-6	Bidirectional Coupler	N/A		N/A	N/A
Pasternack	PE2209-10	Bidirectional Coupler	N/A		N/A	N/A
Amplifier Research	5S1G4	5W, 800MHz-4.2GHz	N/A		N/A	21910
Mini-Circuits	BW-N20W5+	DC to 18 GHz Precision Fixed 20 dB Attenuator	N/A		N/A	N/A
MiniCircuits	SLP-2400+	Low Pass Filter	N/A		N/A	R8979500903
Narda	4772-3	Attenuator (3dB)	N/A		N/A	9406
Narda	BW-S3W2	Attenuator (3dB)	N/A		N/A	120
Mini-Circuits	NLP-2950+	Low Pass Filter DC to 2700 MHz	N/A		N/A	N/A
Mini-Circuits	NLP-1200+	Low Pass Filter DC to 1000 MHz	N/A		N/A	N/A

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18 MEASUREMENT UNCERTAINTIES

Applicable for 750 – 3000 MHz.

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

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

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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

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19 CONCLUSION

19.1 Measurement Conclusion

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

Please note that the absorption and distribution of electromagnetic energy in the body are very complex phenomena that depend on the mass, shape, and size of the body, the orientation of the body with respect to the field vectors, and the electrical properties of both the body and the environment. Other variables that may play a substantial role in possible biological effects are those that characterize the environment (e.g. ambient temperature, air velocity, relative humidity, and body insulation) and those that characterize the individual (e.g. age, gender, activity level, debilitation, or disease). Because various factors may interact with one another to vary the specific biological outcome of an exposure to electromagnetic fields, any protection guide should consider maximal amplification of biological effects as a result of field-body interactions, environmental conditions, and physiological variables. [3]

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20 REFERENCES

[1] Federal Communications Commission, ET Docket 93-62, Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation, Aug. 1996.

[2] ANSI/IEEE C95.1-2005, American National Standard safety levels with respect to human exposure to radio frequency electromagnetic fields, 300kHz to 100GHz, New York: IEEE, 2006.

[3] ANSI/IEEE C95.1-1992, American National Standard safety levels with respect to human exposure to radio frequency electromagnetic fields, 300kHz to 100GHz, New York: IEEE, Sept. 1992.

[4] ANSI/IEEE C95.3-2002, IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave, New York: IEEE, December 2002.

[5] Federal Communications Commission, OET Bulletin 65 (Edition 97-01), Supplement C (Edition 01-01), Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields, June 2001.

[6] IEEE Standards Coordinating Committee 34 – IEEE Std. 1528-2003, Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Body Due to Wireless Communications Devices.

[7] NCRP, National Council on Radiation Protection and Measurements, Biological Effects and Exposure Criteria for RadioFrequency Electromagnetic Fields, NCRP Report No. 86, 1986. Reprinted Feb. 1995.

[8] T. Schmid, O. Egger, N. Kuster, Automated E-field scanning system for dosimetric assessments, IEEE Transaction on Microwave Theory and Techniques, vol. 44, Jan. 1996, pp. 105-113.

[9] K. Pokovic, T. Schmid, N. Kuster, Robust setup for precise calibration of E-field probes in tissue simulating liquids at mobile communications frequencies, ICECOM97, Oct. 1997, pp. 120-124.

[10] K. Pokovic, T. Schmid, and N. Kuster, E-field Probe with improved isotropy in brain simulating liquids, Proceedings of the ELMAR, Zadar, Croatia, June 23-25, 1996, pp. 172-175.

[11] Schmid & Partner Engineering AG, Application Note: Data Storage and Evaluation, June 1998, p2.

[12] V. Hombach, K. Meier, M. Burkhardt, E. Kuhn, N. Kuster, The Dependence of EM Energy Absorption upon Human Head Modeling at 900 MHz, IEEE Transaction on Microwave Theory and Techniques, vol. 44 no. 10, Oct. 1996, pp. 1865-1873.

[13] N. Kuster and Q. Balzano, Energy absorption mechanism by biological bodies in the near field of dipole antennas above 300MHz, IEEE Transaction on Vehicular Technology, vol. 41, no. 1, Feb. 1992, pp. 17-23.

[14] G. Hartsgrove, A. Kraszewski, A. Surowiec, Simulated Biological Materials for Electromagnetic Radiation Absorption Studies, University of Ottawa, Bioelectromagnetics, Canada: 1987, pp. 29-36.

[15] Q. Balzano, O. Garay, T. Manning Jr., Electromagnetic Energy Exposure of Simulated Users of Portable Cellular Telephones, IEEE Transactions on Vehicular Technology, vol. 44, no.3, Aug. 1995.

[16] W. Gander, Computermathematick, Birkhaeuser, Basel, 1992.

[17] W.H. Press, S.A. Teukolsky, W.T. Vetterling, and B.P. Flannery, Numerical Recipes in C, The Art of Scientific Computing, Second edition, Cambridge University Press, 1992.

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[18] Federal Communications Commission, OET Bulletin 65, Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields. Supplement C, Dec. 1997.

[19] N. Kuster, R. Kastle, T. Schmid, Dosimetric evaluation of mobile communications equipment with known precision, IEEE Transaction on Communications, vol. E80-B, no. 5, May 1997, pp. 645-652.

[20] CENELEC CLC/SC111B, European Prestandard (prENV 50166-2), Human Exposure to Electromagnetic Fields High-frequency: 10kHz-300GHz, Jan. 1995.

[21] Prof. Dr. Niels Kuster, ETH, Eidgenössische Technische Hoschschule Zürich, Dosimetric Evaluation of the Cellular Phone.

[22] IEC 62209-1, Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Human models, instrumentation, and procedures - Part 1: Procedure to determine the specific absorption rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz), Feb. 2005.

[23] Industry Canada RSS-102 Radio Frequency Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands) Issue 4, March 2010.

[24] Health Canada Safety Code 6 Limits of Human Exposure to Radio Frequency Electromagnetic Fields in the Frequency Range from 3 kHz – 300 GHz, 2009

[25] FCC Public Notice DA-02-1438. Office of Engineering and Technology Announces a Transition Period for the Phantom Requirements of Supplement C to OET Bulletin 65, June 19, 2002

[26] FCC SAR Measurement Procedures for 3G Devices KDB Publication 941225

[27] SAR Measurement procedures for IEEE 802.11a/b/g KDB Publication 248227

[28] FCC SAR Considerations for Handsets with Multiple Transmitters and Antennas, KDB Publication 648474

[29] FCC Application Note for SAR Probe Calibration and System Verification Consideration for Measurements at 150 MHz – 3 GHz, KDB Publication 450824

[30] FCC SAR Evaluation Considerations for Laptop Computers with Antennas Built-in on Display Screens, KDB Publication 616217

[31] FCC SAR Measurement Requirements for 3 – 6 GHz, KDB Publication 865664

[32] FCC Mobile Portable RF Exposure Procedure, KDB Publication 447498

[33] FCC SAR Procedures for Dongle Transmitters, KDB Publication 447498

[34] Anexo à Resolução No. 533, de 10 de Septembro de 2009.

[35] FCC SAR Test Considerations for LTE Handsets and Data Modems, KDB Publication 941225.

[36] IEC 62209-2, Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Human models, instrumentation, and procedures - Part 2: Procedure to determine the specific absorption rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz), Mar. 2010.

[37] FCC Hot Spot SAR v01, KDB Publication 941225 D06.

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APPENDIX A: SAR TEST DATA

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PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040012104

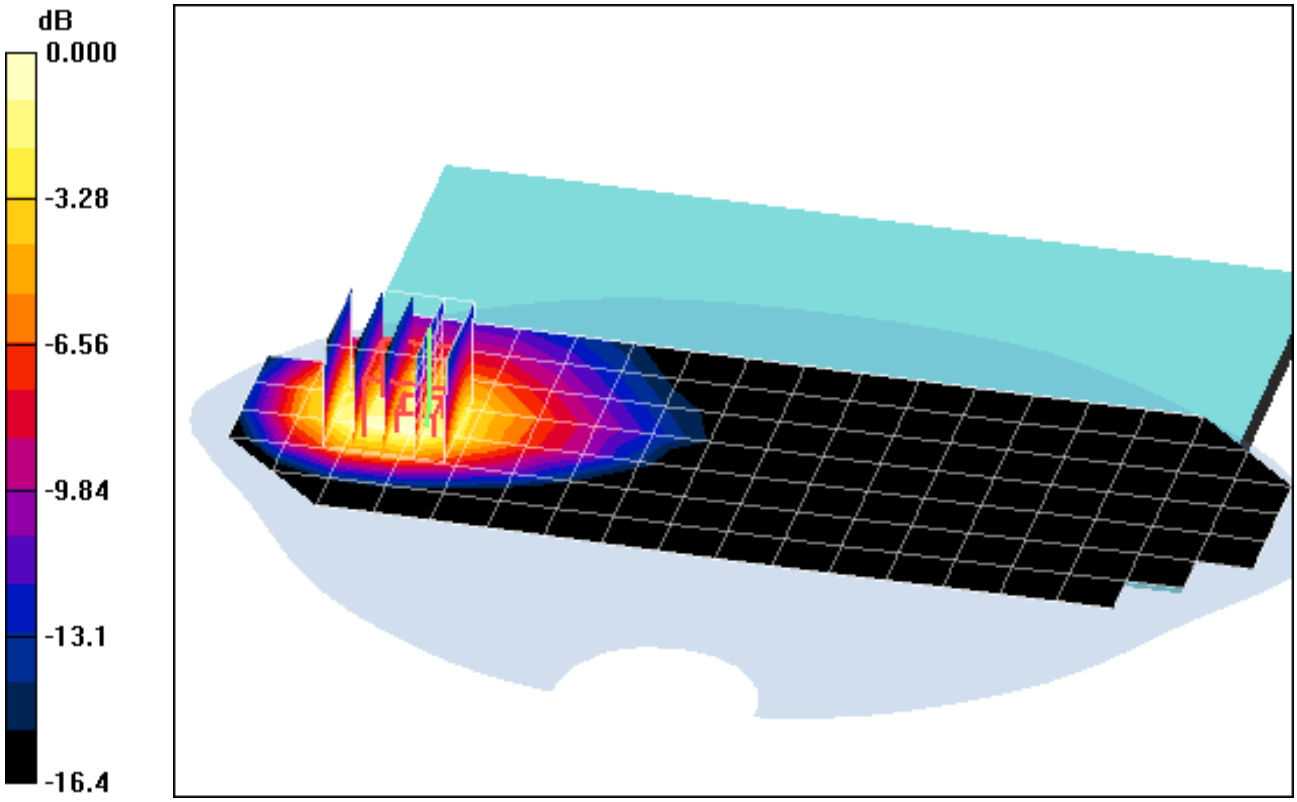
Communication System: GSM850 GPRS; 2 Tx slots; Frequency: 836.6 MHz;Duty Cycle: 1:4.15
Medium: 835 Body; Medium parameters used (interpolated):
f = 836.6 MHz; σ = 1 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 08-24-2011; Ambient Temp: 23.9°C; Tissue Temp: 22.7°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 (8x19x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.82 V/m
Peak SAR (extrapolated) = 1.33 W/kg
SAR(1 g) = 0.642 mW/g; SAR(10 g) = 0.339 mW/g



0 dB = 0.715mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040012104

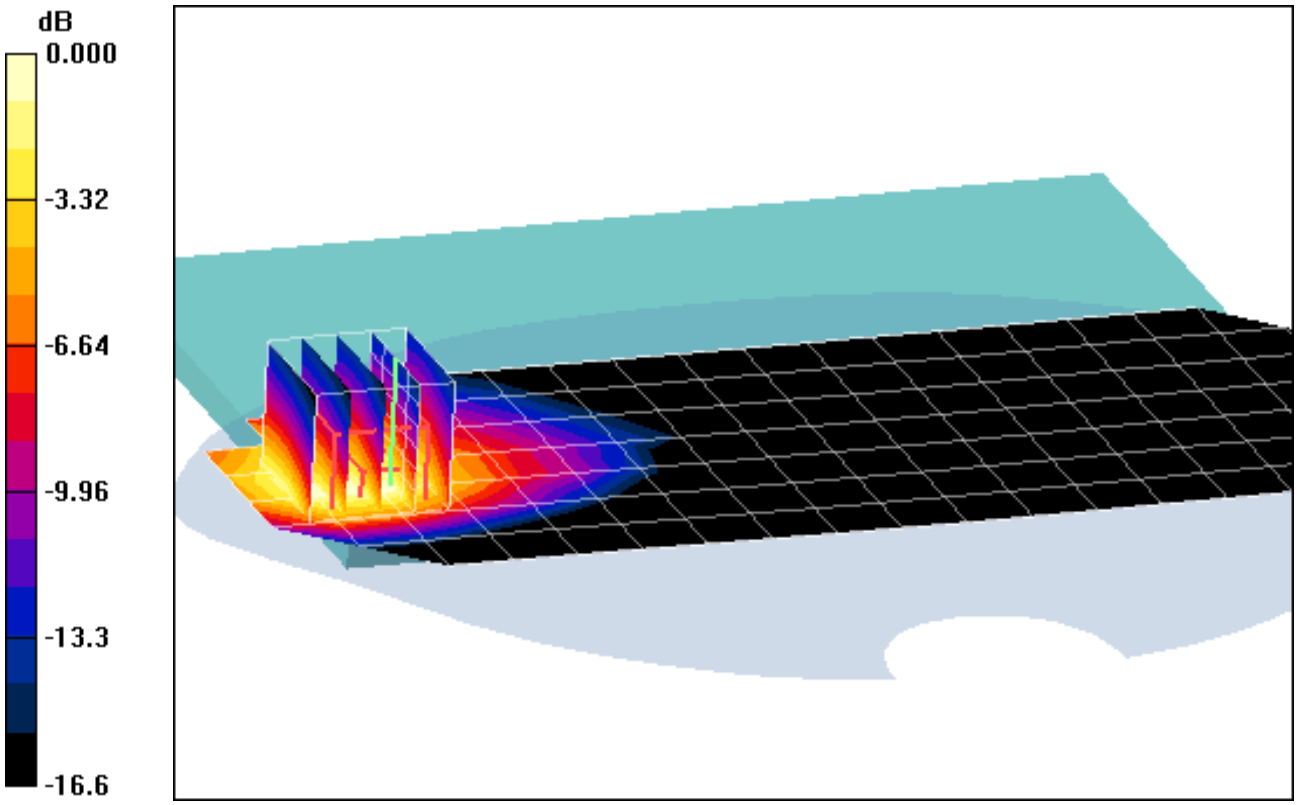
Communication System: GSM850 EGPRS; 2 Tx slots; Frequency: 836.6 MHz;Duty Cycle: 1:4.15
Medium: 835 Body; Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.973 mho/m; ε_r = 53.7; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 09-06-2011; Ambient Temp: 23.0°C; Tissue Temp: 21.8°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: EDGE 850, Body SAR, Back side, Mid.ch, 2 Tx slots

Area Scan (8x19x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.26 V/m
Peak SAR (extrapolated) = 1.32 W/kg
SAR(1 g) = 0.647 mW/g; SAR(10 g) = 0.342 mW/g



0 dB = 0.721mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040012104

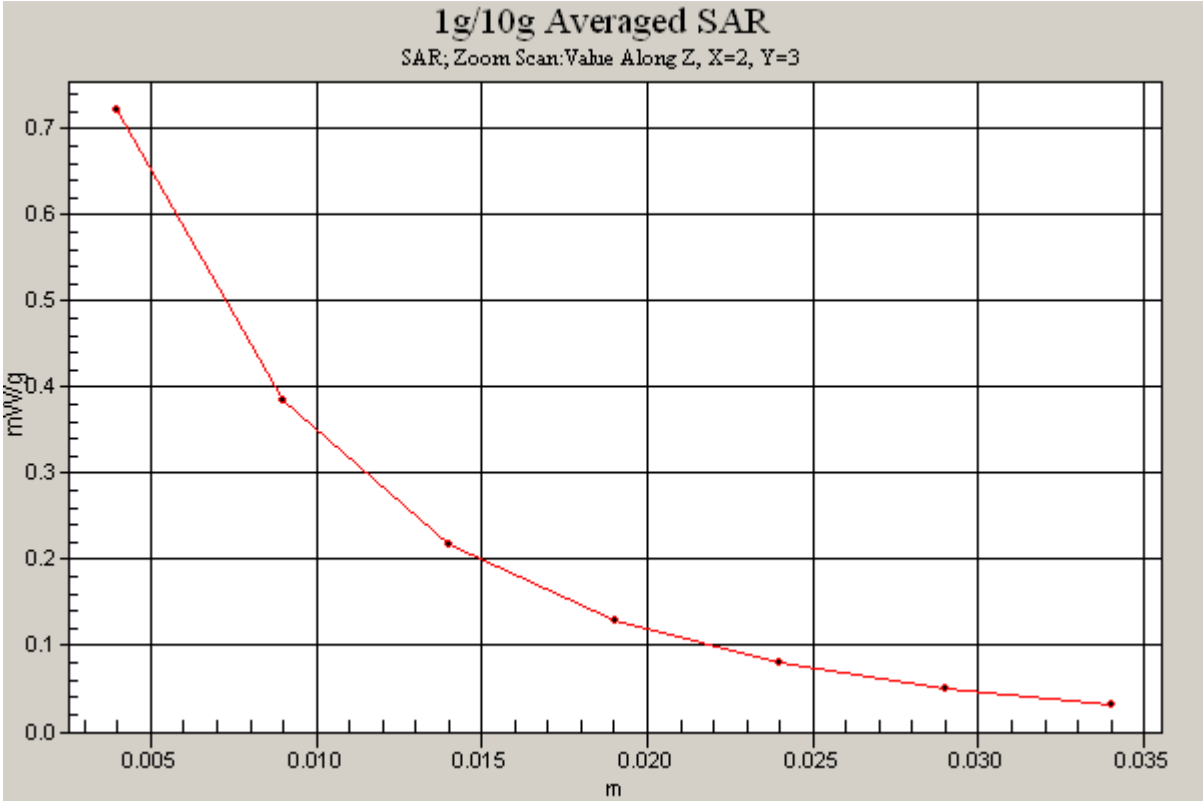
Communication System: GSM850 EGPRS; 2 Tx slots; Frequency: 836.6 MHz;Duty Cycle: 1:4.15
Medium: 835 Body Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.973 mho/m; ε_r = 53.7; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 09-06-2011; Ambient Temp: 23.0°C; Tissue Temp: 21.8°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: EDGE 850, Body SAR, Back side, Mid.ch, 2 Tx slots

Area Scan (8x19x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.26 V/m
Peak SAR (extrapolated) = 1.32 W/kg
SAR(1 g) = 0.647 mW/g; SAR(10 g) = 0.342 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040012138

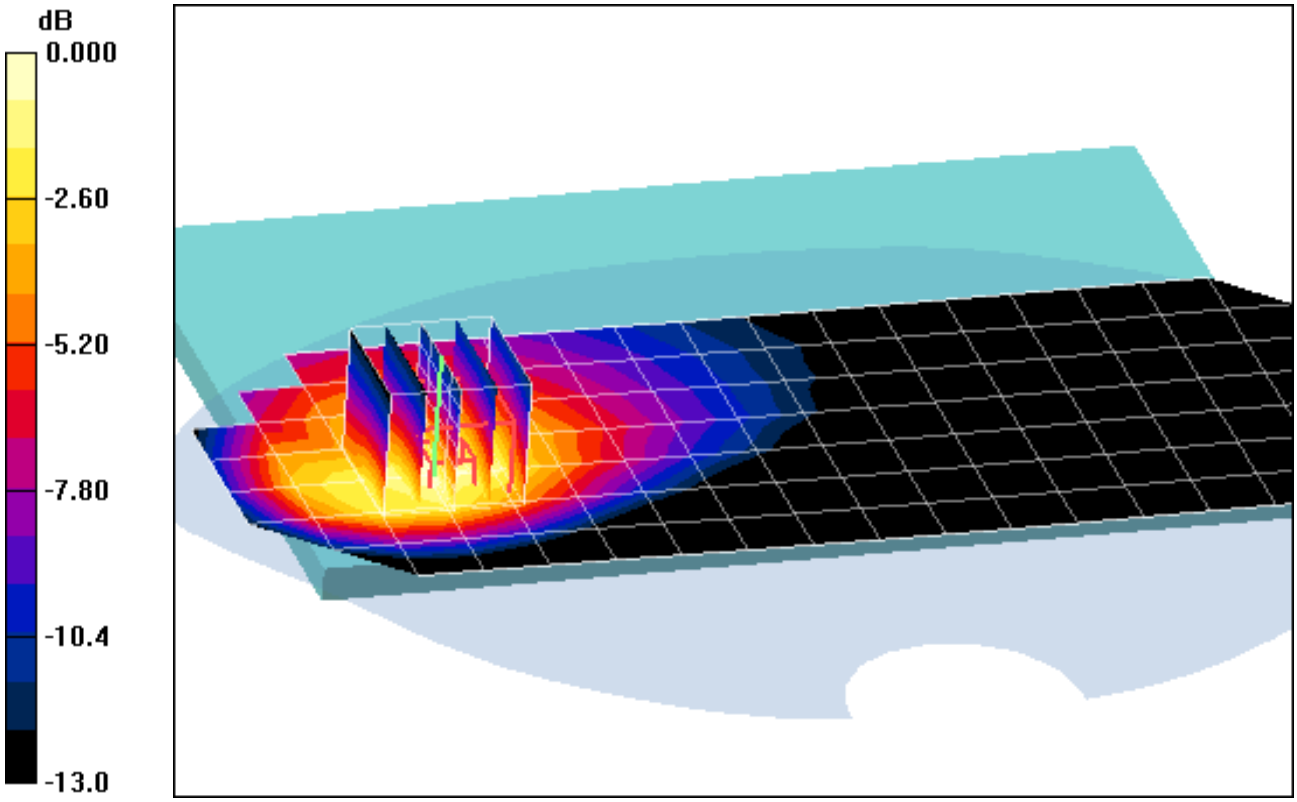
Communication System: GSM850 GPRS; 2 Tx slots; Frequency: 836.6 MHz;Duty Cycle: 1:4.15
Medium: 835 Body; Medium parameters used (interpolated):
f = 836.6 MHz; σ = 1 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-24-2011; Ambient Temp: 23.9°C; Tissue Temp: 22.7°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 (8x19x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.96 V/m
Peak SAR (extrapolated) = 1.57 W/kg
SAR(1 g) = 0.926 mW/g; SAR(10 g) = 0.549 mW/g



0 dB = 1.01mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040012138

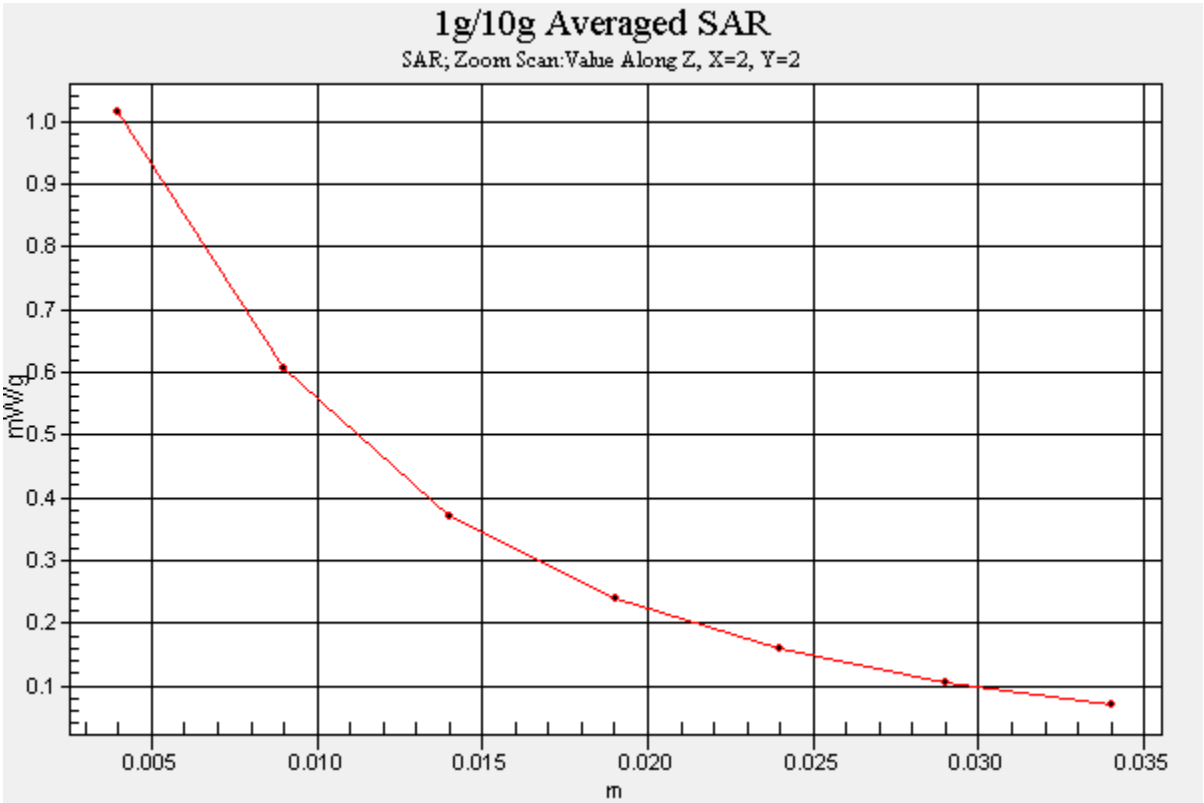
Communication System: GSM850 GPRS; 2 Tx slots; Frequency: 836.6 MHz;Duty Cycle: 1:4.15
Medium: 835 Body; Medium parameters used (interpolated):
f = 836.6 MHz; σ = 1 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-24-2011; Ambient Temp: 23.9°C; Tissue Temp: 22.7°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 (8x19x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.96 V/m
Peak SAR (extrapolated) = 1.57 W/kg
SAR(1 g) = 0.926 mW/g; SAR(10 g) = 0.549 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040012104

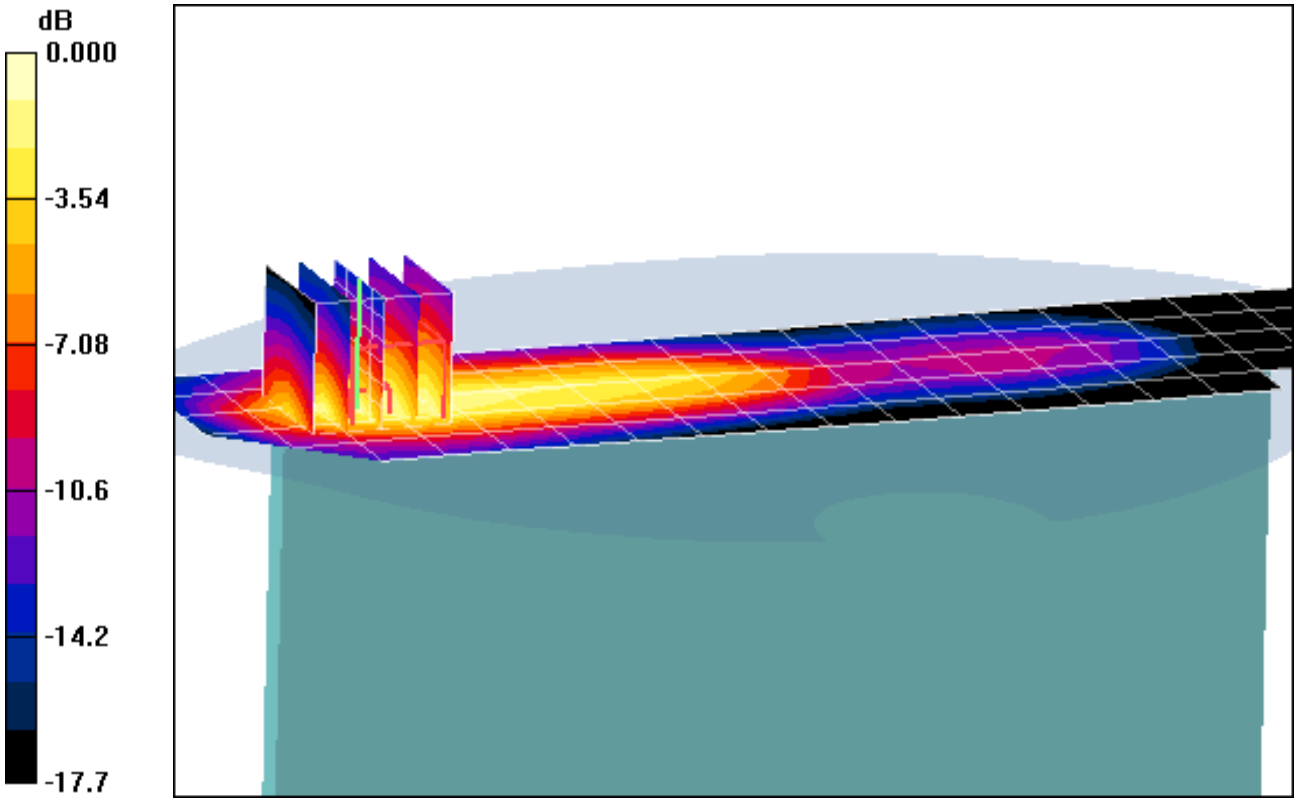
Communication System: GSM850 GPRS; 2 Tx slots; Frequency: 836.6 MHz;Duty Cycle: 1:4.15
Medium: 835 Body; Medium parameters used (interpolated):
f = 836.6 MHz; σ = 1 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 08-24-2011; Ambient Temp: 23.9°C; Tissue Temp: 22.7°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, Top Edge, Mid.ch, 2 Tx slots

Area Scan (6x19x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.8 V/m
Peak SAR (extrapolated) = 0.518 W/kg
SAR(1 g) = 0.243 mW/g; SAR(10 g) = 0.131 mW/g



0 dB = 0.282mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040012104

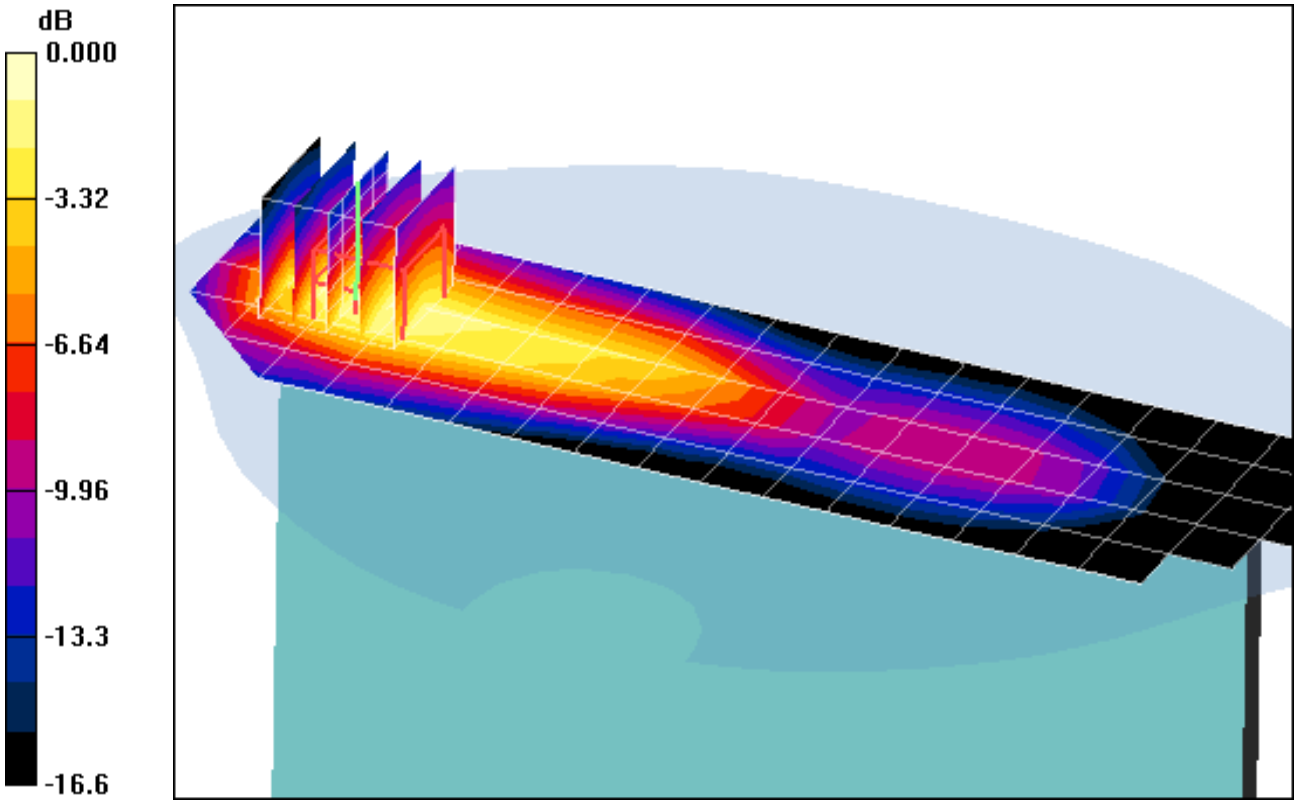
Communication System: GSM850 EGPRS; 2 Tx slots; Frequency: 836.6 MHz;Duty Cycle: 1:4.15
Medium: 835 Body Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.973 mho/m; ε_r = 53.7; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 09-06-2011; Ambient Temp: 23.0°C; Tissue Temp: 21.8°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: EDGE 850, Body SAR, Top Edge, Mid.ch, 2 Tx slots

Area Scan (6x19x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.93 V/m
Peak SAR (extrapolated) = 0.554 W/kg
SAR(1 g) = 0.265 mW/g; SAR(10 g) = 0.143 mW/g



0 dB = 0.299mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040012138

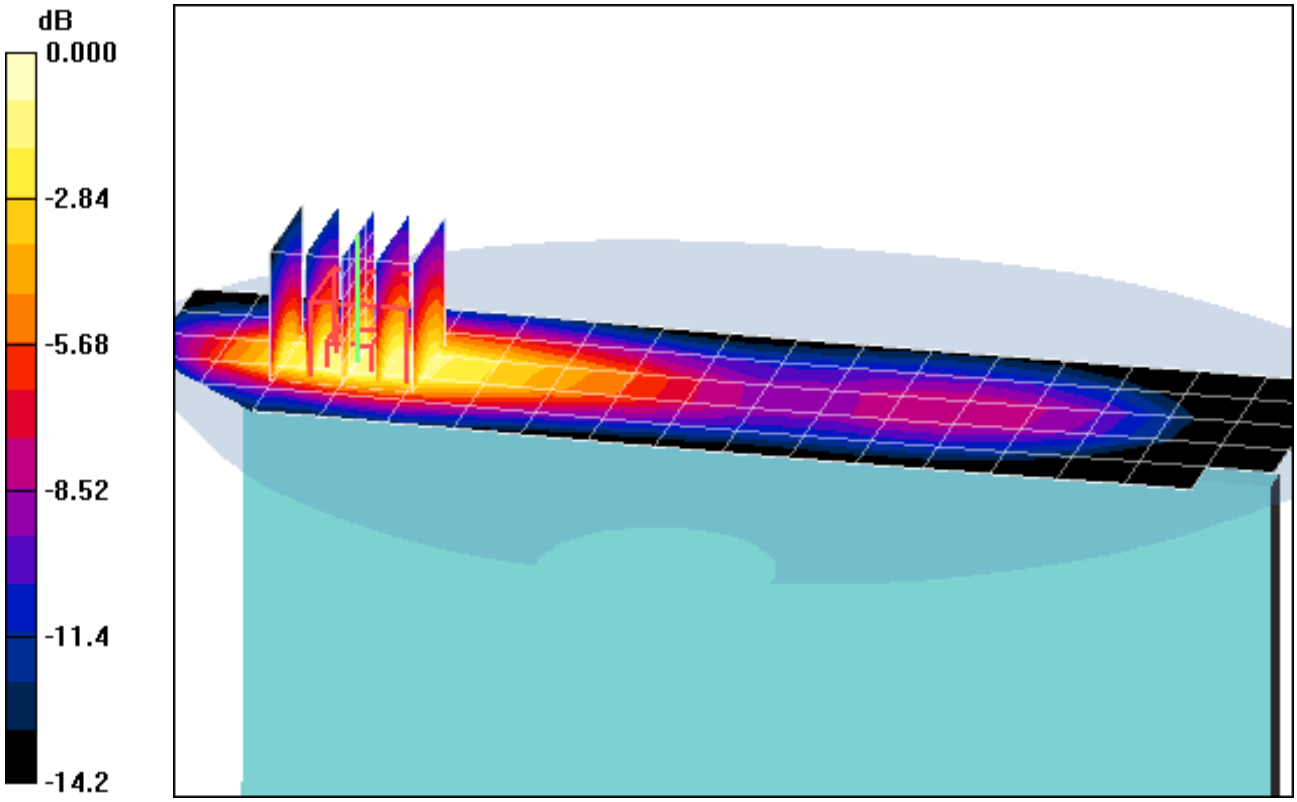
Communication System: GSM850 GPRS; 2 Tx slots; Frequency: 836.6 MHz;Duty Cycle: 1:4.15
Medium: 835 Body; Medium parameters used (interpolated):
f = 836.6 MHz; σ = 1 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.5 cm

Test Date: 08-24-2011; Ambient Temp: 23.9°C; Tissue Temp: 22.7°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, Top Edge, Mid.ch, 2 Tx Slots

Area Scan (6x19x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.21 V/m
Peak SAR (extrapolated) = 0.942 W/kg
SAR(1 g) = 0.541 mW/g; SAR(10 g) = 0.325 mW/g



0 dB = 0.596mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040012104

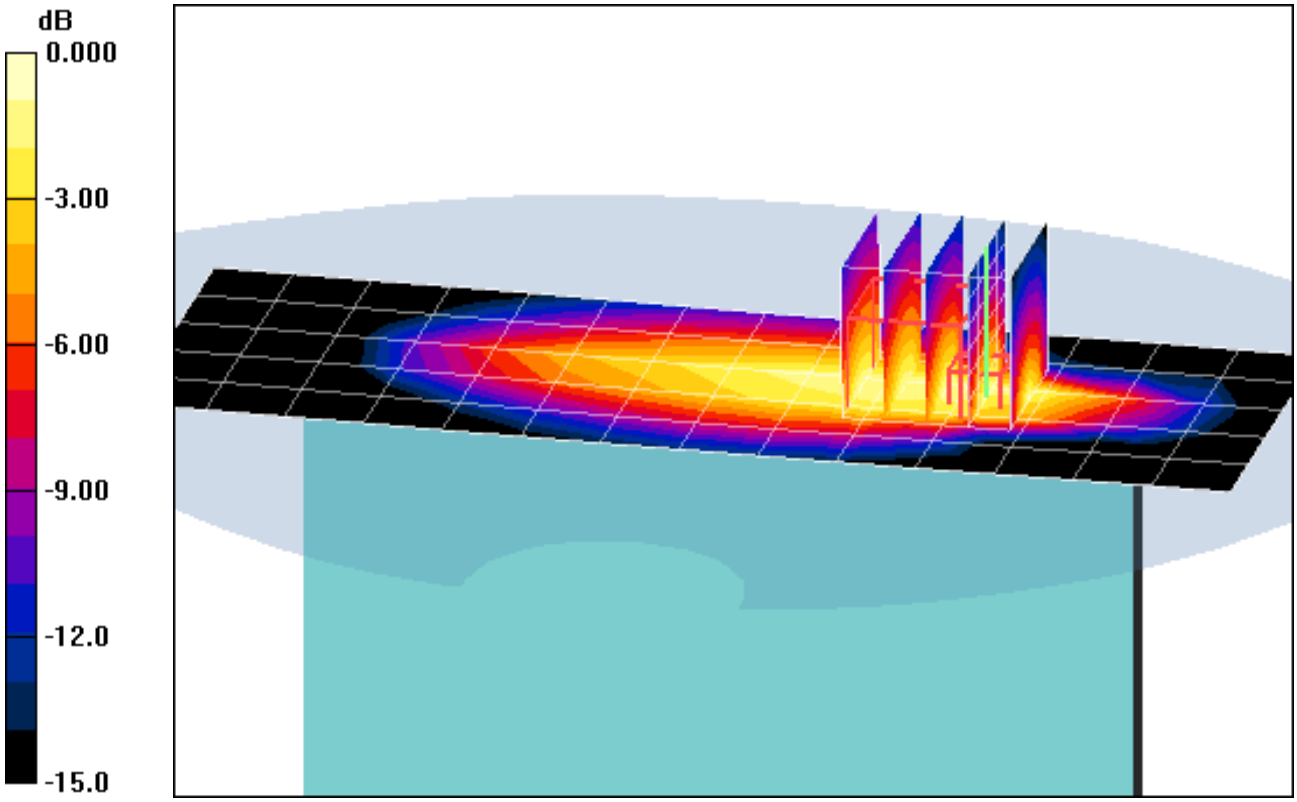
Communication System: GSM850 GPRS; 2 Tx slots; Frequency: 836.6 MHz;Duty Cycle: 1:4.15
Medium: 835 Body; Medium parameters used (interpolated):
f = 836.6 MHz; σ = 1 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 08-24-2011; Ambient Temp: 23.9°C; Tissue Temp: 22.7°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, Left Edge, Mid.ch, 2 Tx slots

Area Scan (6x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.8 V/m
Peak SAR (extrapolated) = 0.372 W/kg
SAR(1 g) = 0.186 mW/g; SAR(10 g) = 0.105 mW/g



0 dB = 0.215mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040012104

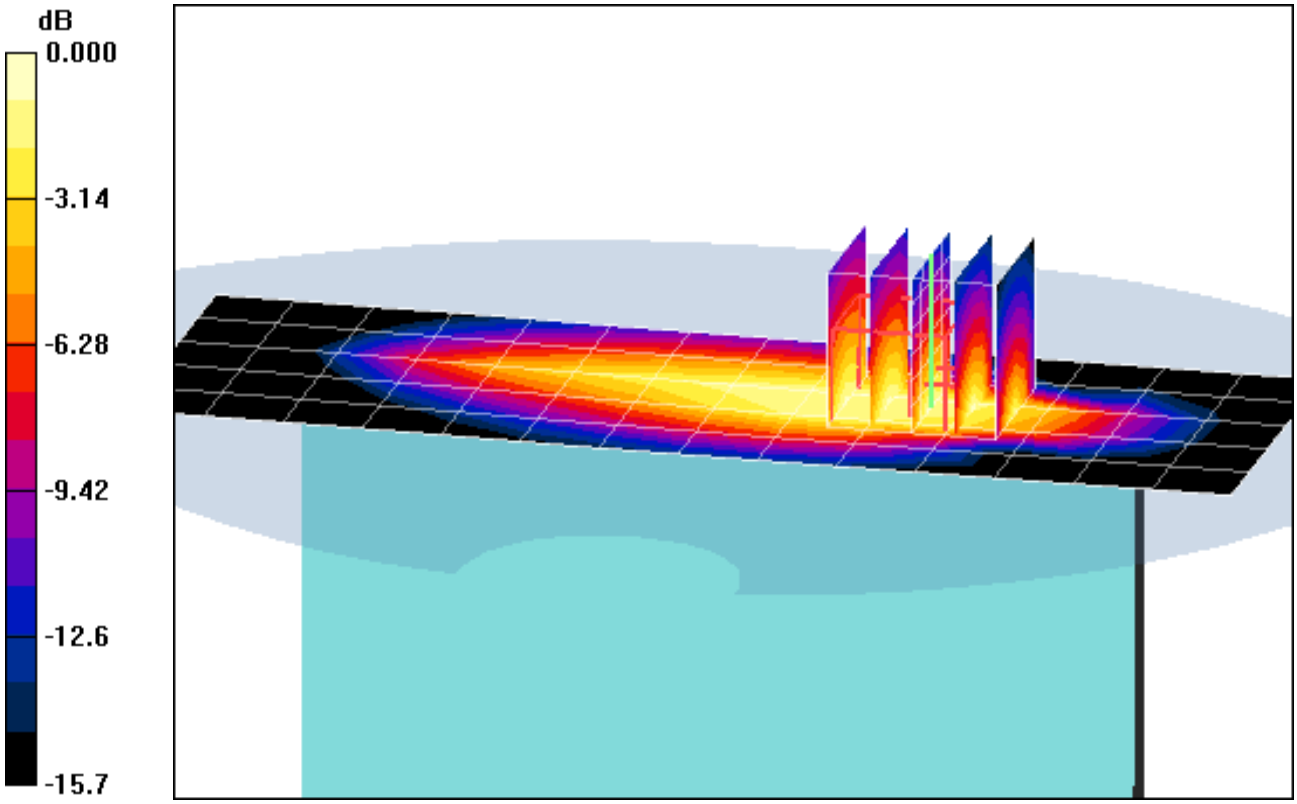
Communication System: GSM850 EGPRS; 2 Tx slots; Frequency: 836.6 MHz;Duty Cycle: 1:4.15
Medium: 835 Body; Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.973 mho/m; ε_r = 53.7; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 09-06-2011; Ambient Temp: 23.0°C; Tissue Temp: 21.8°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: EDGE 850, Body SAR, Left Edge, Mid.ch, 2 Tx slots

Area Scan (6x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.8 V/m
Peak SAR (extrapolated) = 0.374 W/kg
SAR(1 g) = 0.189 mW/g; SAR(10 g) = 0.107 mW/g



0 dB = 0.215mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040012138

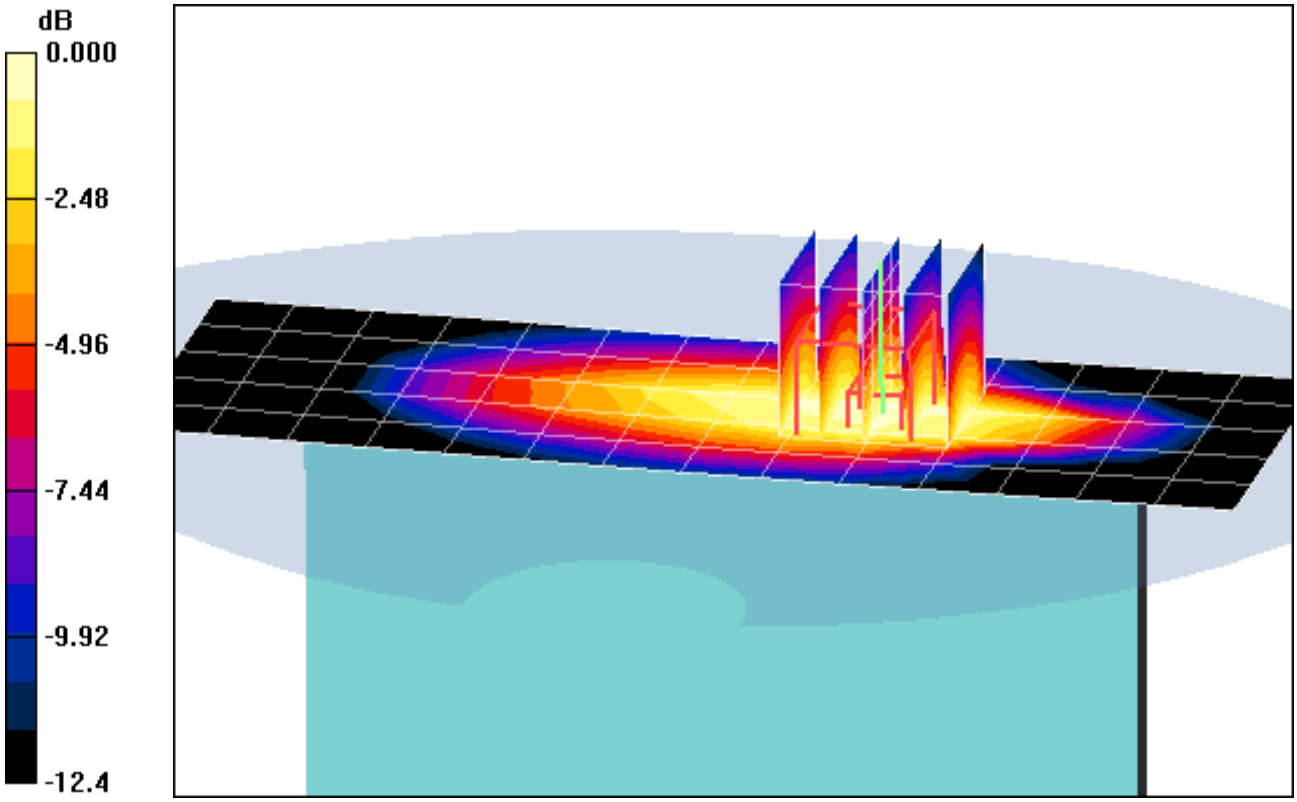
Communication System: GSM850 GPRS; 2 Tx slots; Frequency: 836.6 MHz;Duty Cycle: 1:4.15
Medium: 835 Body; Medium parameters used (interpolated):
f = 836.6 MHz; σ = 1 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.5 cm

Test Date: 08-24-2011; Ambient Temp: 23.9°C; Tissue Temp: 22.7°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, Left Edge, Mid.ch, 2 Tx Slots

Area Scan (6x15x1): 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) = 0.779 W/kg
SAR(1 g) = 0.511 mW/g; SAR(10 g) = 0.333 mW/g



0 dB = 0.548mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: 358444040012138

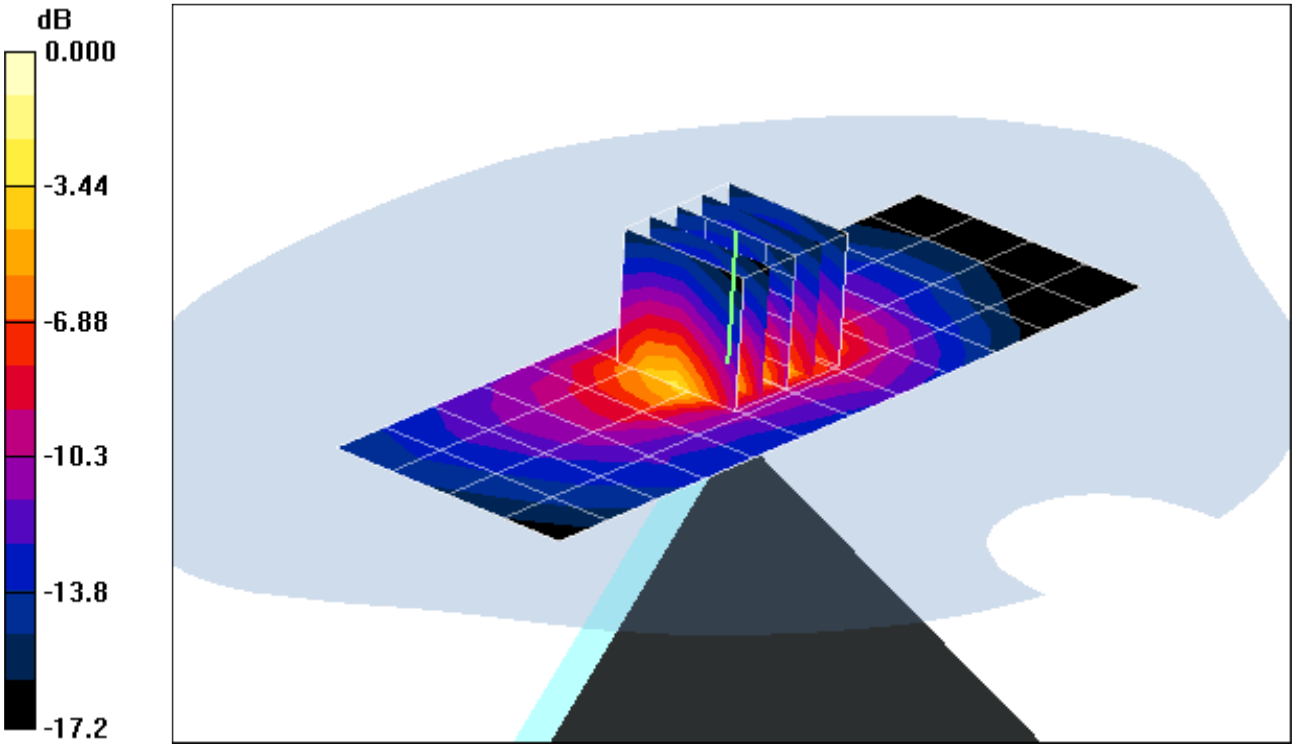
Communication System: GSM850 GPRS; 2 Tx slots; Frequency: 836.6 MHz;Duty Cycle: 1:4.15
Medium: 835 Body Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.964 mho/m; ε_r = 52.7; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 10-10-2011; Ambient Temp: 23.6 °C; Tissue Temp: 21.8 °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, Vertex, Mid.ch, 2 Tx Slots, 45 degrees

Area Scan (5x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 25.0 V/m
Peak SAR (extrapolated) = 1.50 W/kg
SAR(1 g) = 0.594 mW/g; SAR(10 g) = 0.252 mW/g



0 dB = 0.718mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI: 358444040012138

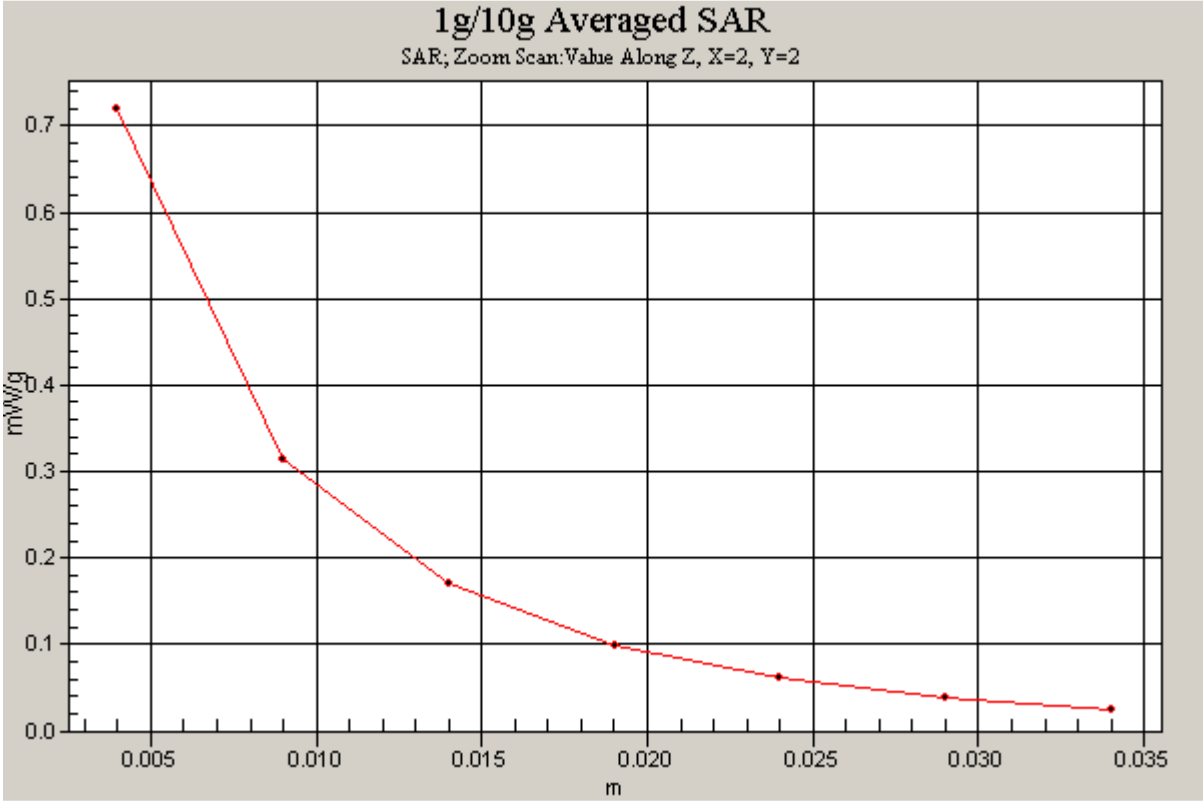
Communication System: GSM850 GPRS; 2 Tx slots; Frequency: 836.6 MHz;Duty Cycle: 1:4.15
Medium: 835 Body Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.964 mho/m; ε_r = 52.7; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 10-10-2011; Ambient Temp: 23.6 °C; Tissue Temp: 21.8 °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, Vertex, Mid.ch, 2 Tx Slots, 45 degrees

Area Scan (5x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 25.0 V/m
Peak SAR (extrapolated) = 1.50 W/kg
SAR(1 g) = 0.594 mW/g; SAR(10 g) = 0.252 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040012112

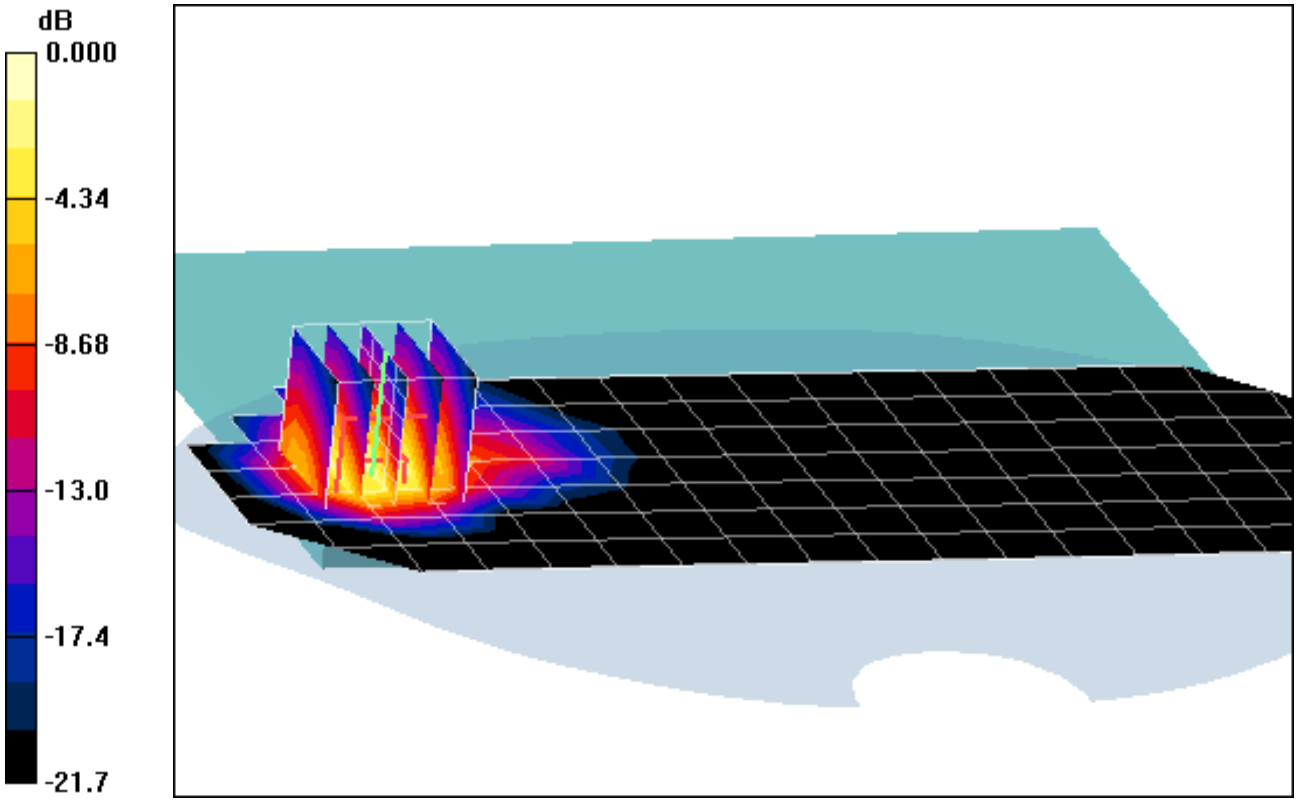
Communication System:GSM1900 GPRS;2 Tx slots;Frequency: 1909.8 MHz;Duty Cycle: 1:4.15
Medium: 1900 Body; Medium parameters used:
f = 1910 MHz; σ = 1.537 mho/m; ε_r = 50.64; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 08-29-2011; Ambient Temp: 24.1°C; Tissue Temp: 22.8°C

Probe: EX3DV4 - SN3550; ConvF(6.77, 6.77, 6.77); Calibrated: 2/14/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/20/2011
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

Area Scan (8x19x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 26.5 V/m
Peak SAR (extrapolated) = 2.23 W/kg
SAR(1 g) = 1.01 mW/g; SAR(10 g) = 0.480 mW/g



0 dB = 1.09mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040012112

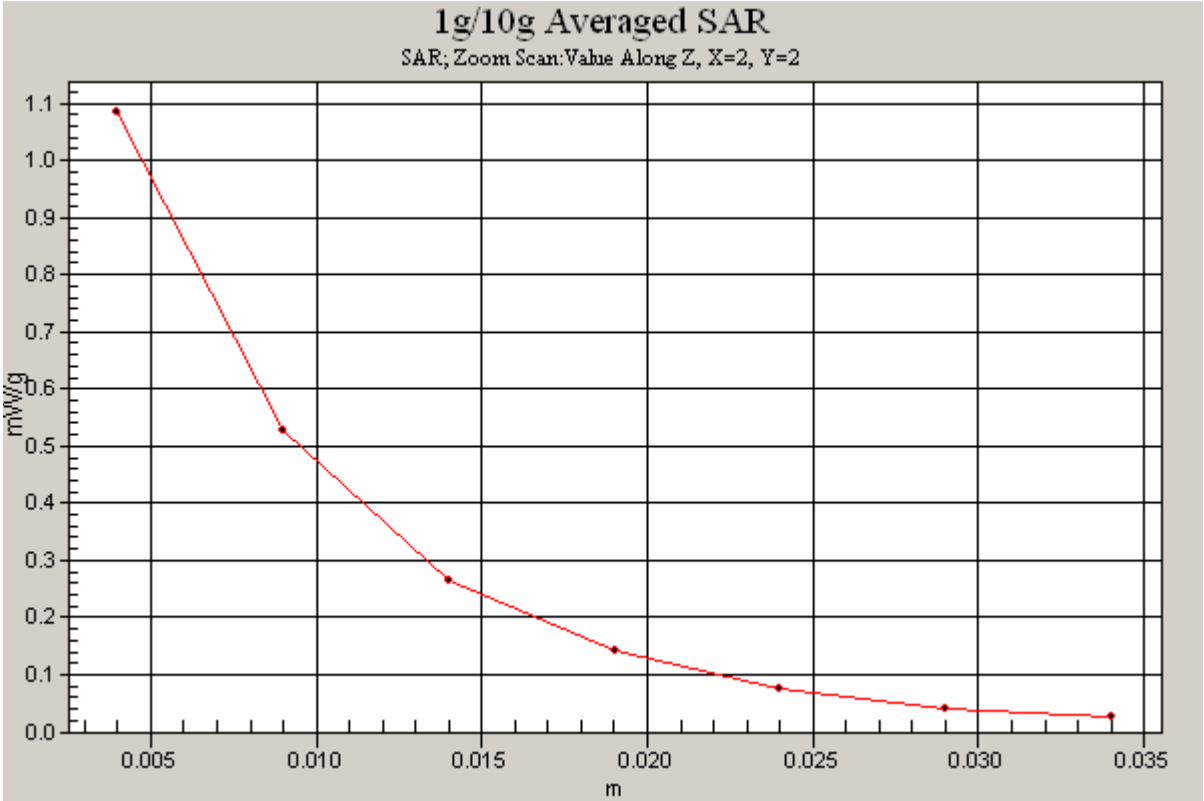
Communication System: GSM1900 GPRS; 2 Tx slots; Frequency: 1909.8 MHz;Duty Cycle: 1:4.15
Medium: 1900 Body Medium parameters used:
f = 1910 MHz; σ = 1.537 mho/m; ε_r = 50.64; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 08-29-2011; Ambient Temp: 24.1°C; Tissue Temp: 22.8°C

Probe: EX3DV4 - SN3550; ConvF(6.77, 6.77, 6.77); Calibrated: 2/14/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/20/2011
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

Area Scan (8x19x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 26.5 V/m
Peak SAR (extrapolated) = 2.23 W/kg
SAR(1 g) = 1.01 mW/g; SAR(10 g) = 0.480 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040012112

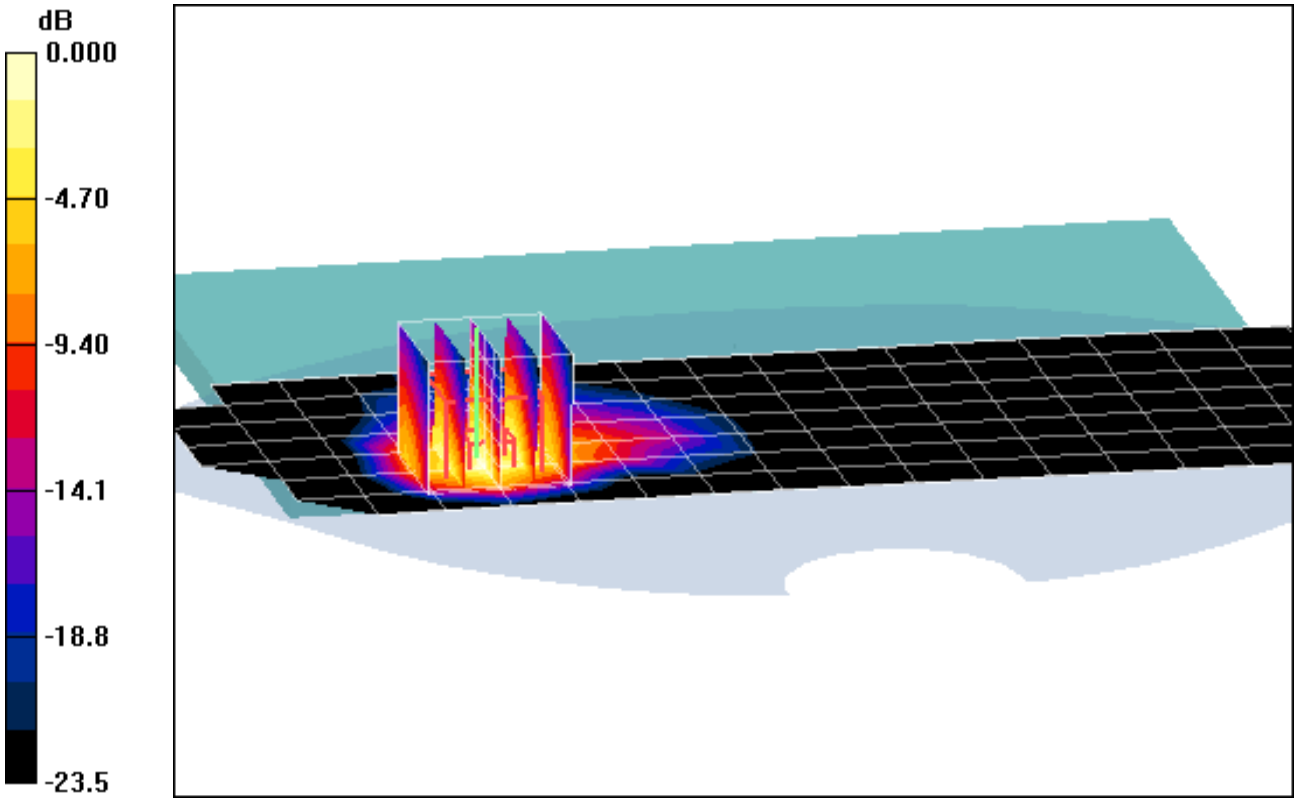
Communication System:GSM1900 EGPRS;2 Tx slots;Frequency: 1909.8 MHz;Duty Cycle: 1:4.15
Medium: 1900 Body; Medium parameters used:
f = 1910 MHz; σ = 1.54 mho/m; ε_r = 53.52; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 09-07-2011; Ambient Temp: 24.9°C; Tissue Temp: 23.7°C

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

Mode: EDGE 1900, Body SAR, Back side, High.ch, 2 Tx Slots

Area Scan (8x19x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 25.5 V/m
Peak SAR (extrapolated) = 2.33 W/kg
SAR(1 g) = 1.04 mW/g; SAR(10 g) = 0.496 mW/g



0 dB = 1.05mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040012112

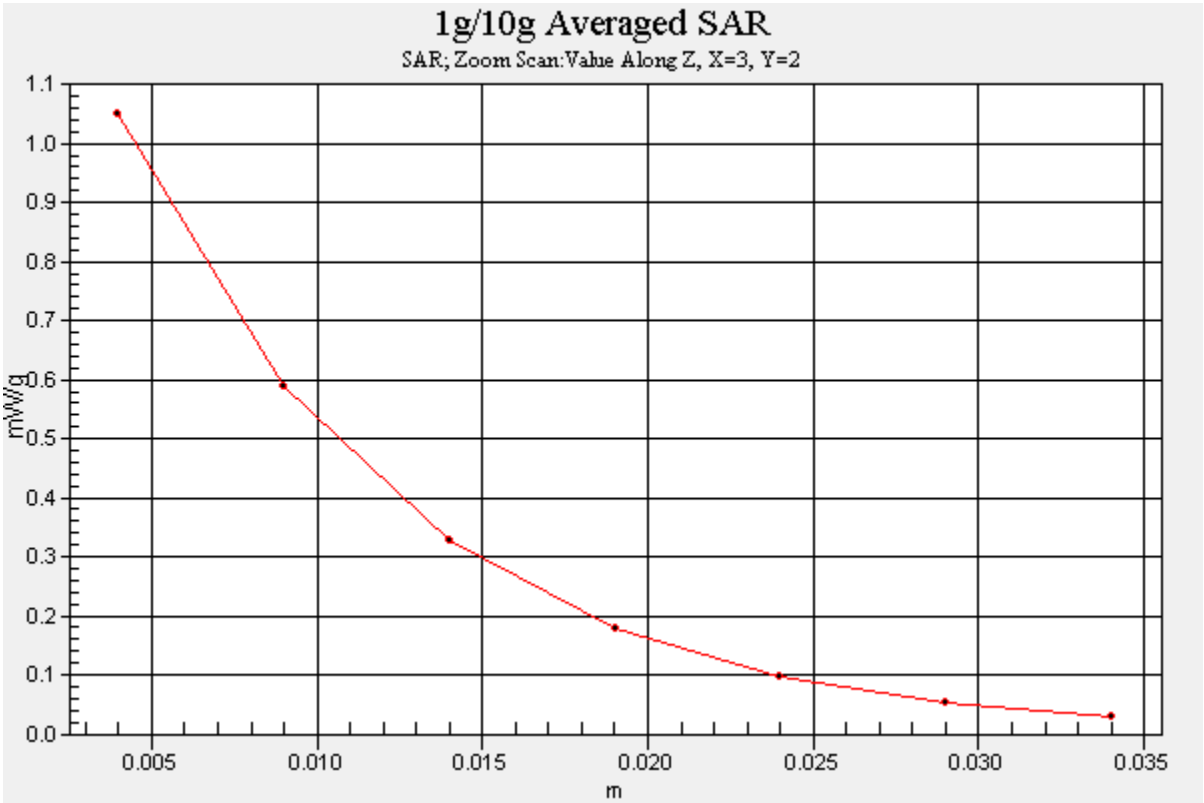
Communication System:GSM1900 EGPRS;2 Tx slots;Frequency: 1909.8 MHz;Duty Cycle: 1:4.15
Medium: 1900 Body; Medium parameters used:
f = 1910 MHz; σ = 1.54 mho/m; ε_r = 53.52; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 09-07-2011; Ambient Temp: 24.9°C; Tissue Temp: 23.7°C

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

Mode: EDGE 1900, Body SAR, Back side, High.ch, 2 Tx Slots

Area Scan (8x19x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 25.5 V/m
Peak SAR (extrapolated) = 2.33 W/kg
SAR(1 g) = 1.04 mW/g; SAR(10 g) = 0.496 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040012138

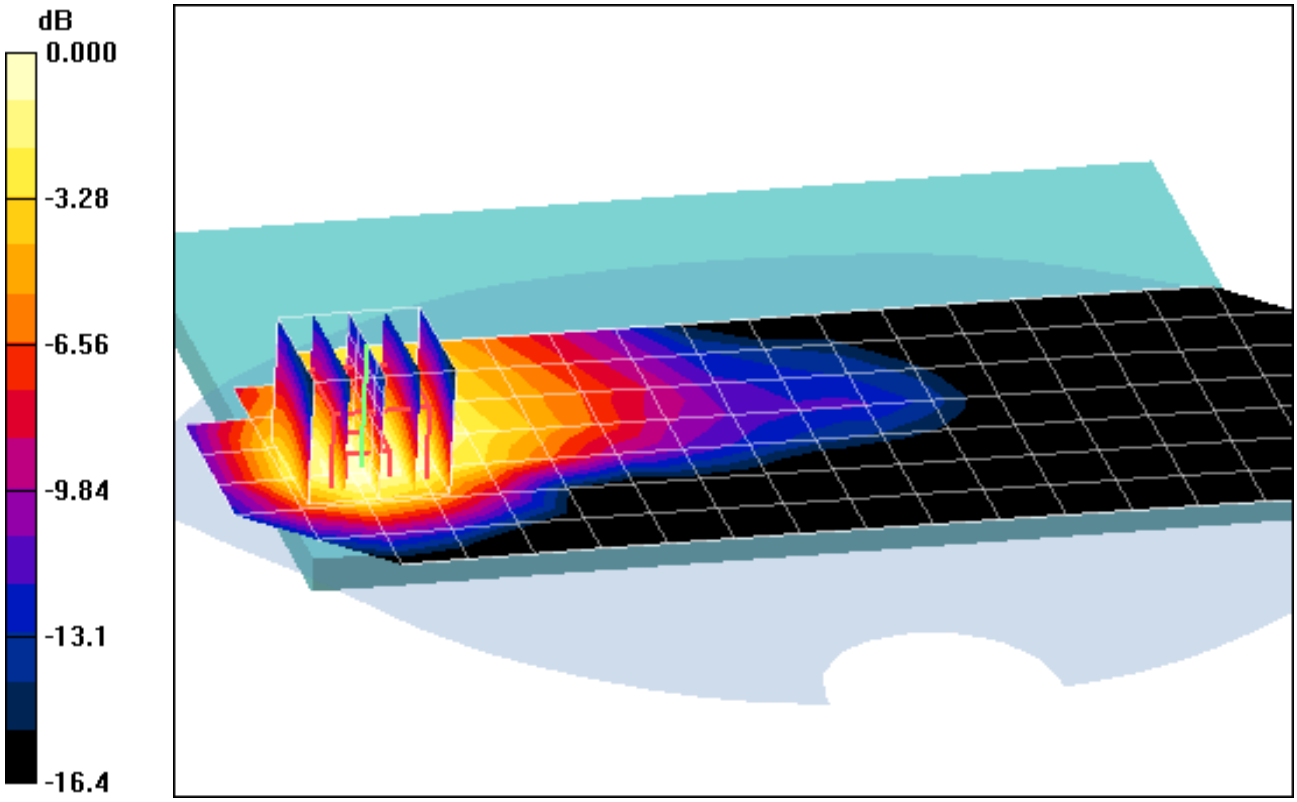
Communication System: GSM1900 GPRS; 2 Tx slots; Frequency: 1880 MHz;Duty Cycle: 1:4.15
Medium: 1900 Body; Medium parameters used:
f = 1880 MHz; σ = 1.508 mho/m; ε_r = 50.86; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-23-2011; Ambient Temp: 23.8°C; Tissue Temp: 22.6°C

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

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

Area Scan (8x19x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.2 V/m
Peak SAR (extrapolated) = 0.319 W/kg
SAR(1 g) = 0.188 mW/g; SAR(10 g) = 0.110 mW/g



0 dB = 0.202mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040012112

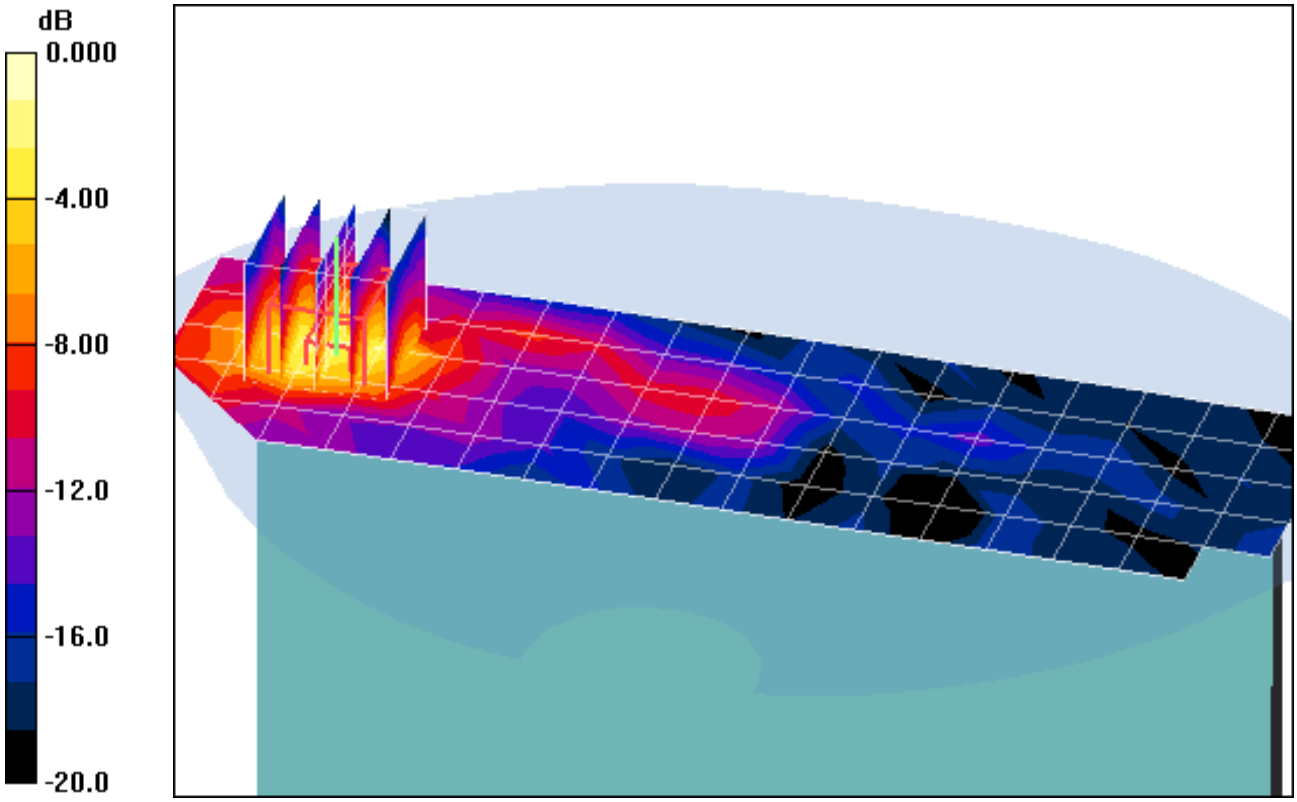
Communication System: GSM1900 GPRS; 2 Tx slots; Frequency: 1880 MHz;Duty Cycle: 1:4.15
Medium: 1900 Body; Medium parameters used:
f = 1880 MHz; σ = 1.49 mho/m; ε_r = 50.82; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 08-29-2011; Ambient Temp: 24.1°C; Tissue Temp: 22.8°C

Probe: EX3DV4 - SN3550; ConvF(6.77, 6.77, 6.77); Calibrated: 2/14/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/20/2011
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

Area Scan (6x19x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.68 V/m
Peak SAR (extrapolated) = 0.207 W/kg
SAR(1 g) = 0.101 mW/g; SAR(10 g) = 0.046 mW/g



0 dB = 0.122mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040012112

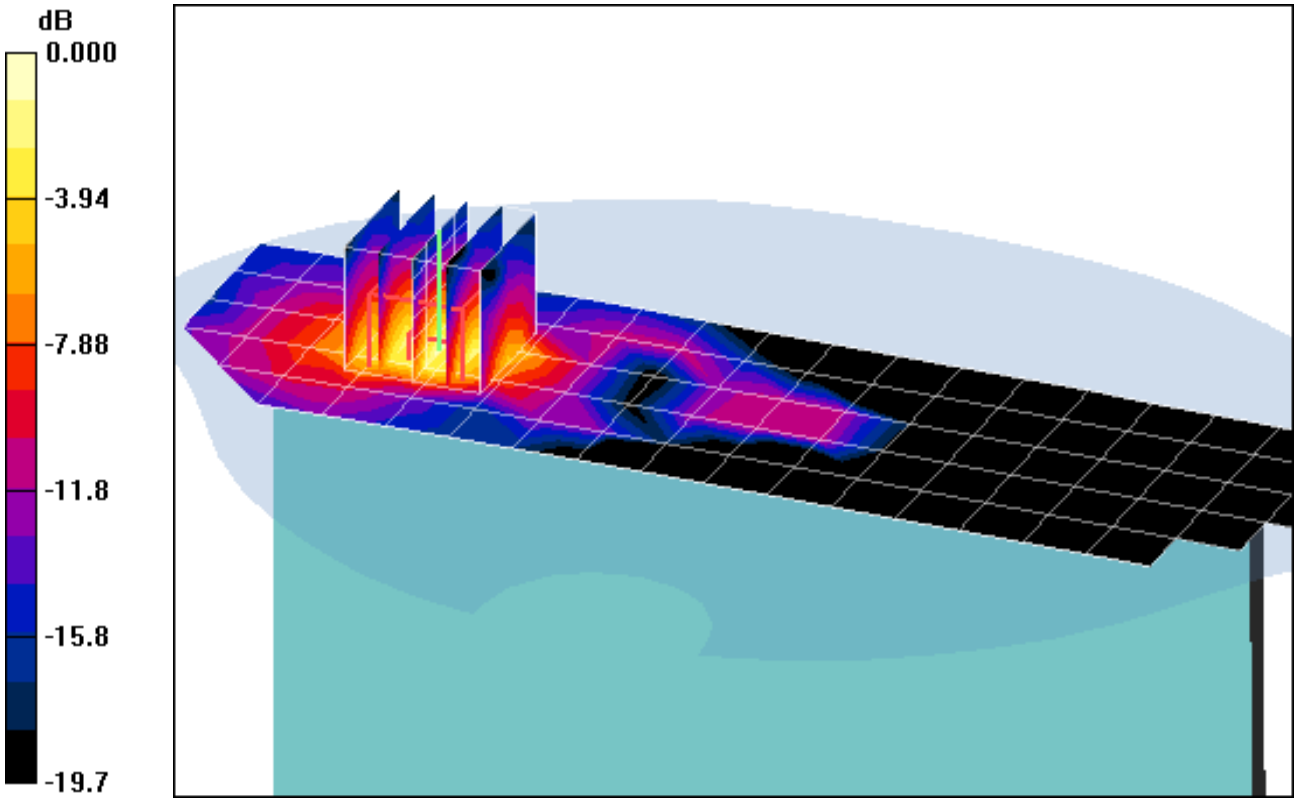
Communication System: GSM1900 EGPRS; 2 Tx slots; Frequency: 1880 MHz;Duty Cycle: 1:4.15
Medium: 1900 Body; Medium parameters used:
f = 1880 MHz; σ = 1.507 mho/m; ε_r = 53.67; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 09-07-2011; Ambient Temp: 24.9°C; Tissue Temp: 23.7°C

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

Mode: EDGE 1900, Body SAR, Top Edge, Mid.ch, 2 Tx Slots

Area Scan (6x19x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.19 V/m
Peak SAR (extrapolated) = 0.214 W/kg
SAR(1 g) = 0.105 mW/g; SAR(10 g) = 0.046 mW/g



0 dB = 0.126mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040012138

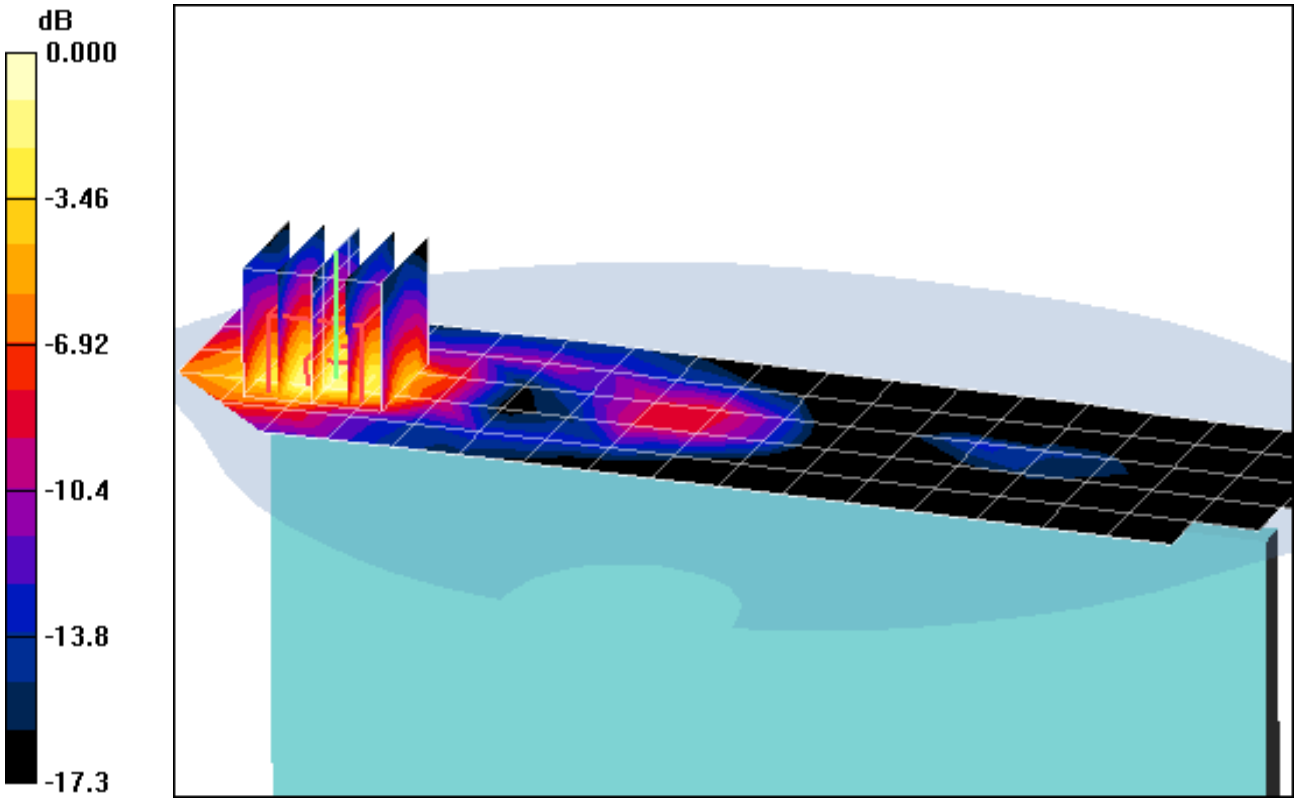
Communication System: GSM1900 GPRS; 2 Tx slots; Frequency: 1880 MHz;Duty Cycle: 1:4.15
Medium: 1900 Body; Medium parameters used:
f = 1880 MHz; σ = 1.508 mho/m; ε_r = 50.86; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.5 cm

Test Date: 08-23-2011; Ambient Temp: 23.8°C; Tissue Temp: 22.6°C

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

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

Area Scan (6x19x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.51 V/m
Peak SAR (extrapolated) = 0.227 W/kg
SAR(1 g) = 0.126 mW/g; SAR(10 g) = 0.062 mW/g



0 dB = 0.151mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040012112

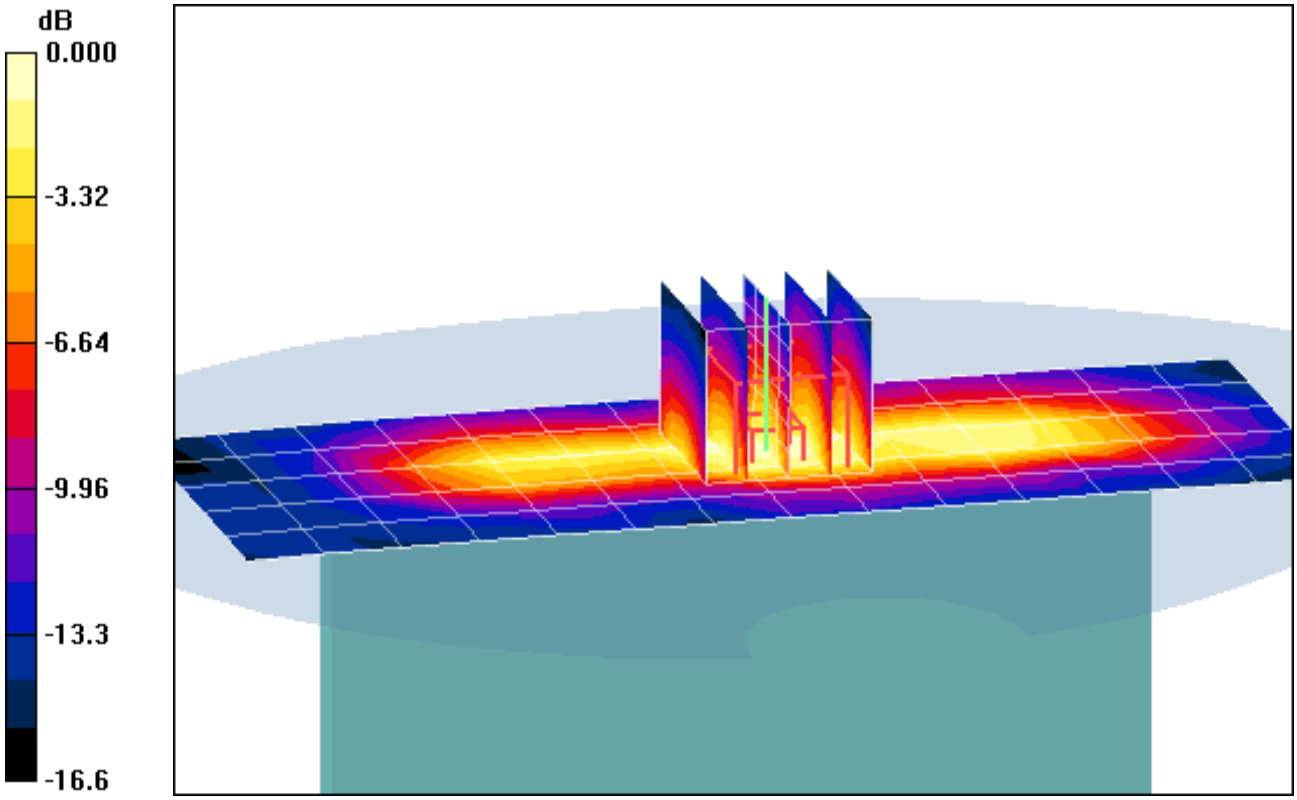
Communication System: GSM1900 GPRS; 2 Tx slots; Frequency: 1880 MHz;Duty Cycle: 1:4.15
Medium: 1900 Body; Medium parameters used:
f = 1880 MHz; σ = 1.49 mho/m; ε_r = 50.82; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 08-29-2011; Ambient Temp: 24.1°C; Tissue Temp: 22.8°C

Probe: EX3DV4 - SN3550; ConvF(6.77, 6.77, 6.77); Calibrated: 2/14/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/20/2011
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

Area Scan (6x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.92 V/m
Peak SAR (extrapolated) = 0.318 W/kg
SAR(1 g) = 0.177 mW/g; SAR(10 g) = 0.094 mW/g



0 dB = 0.151mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040012112

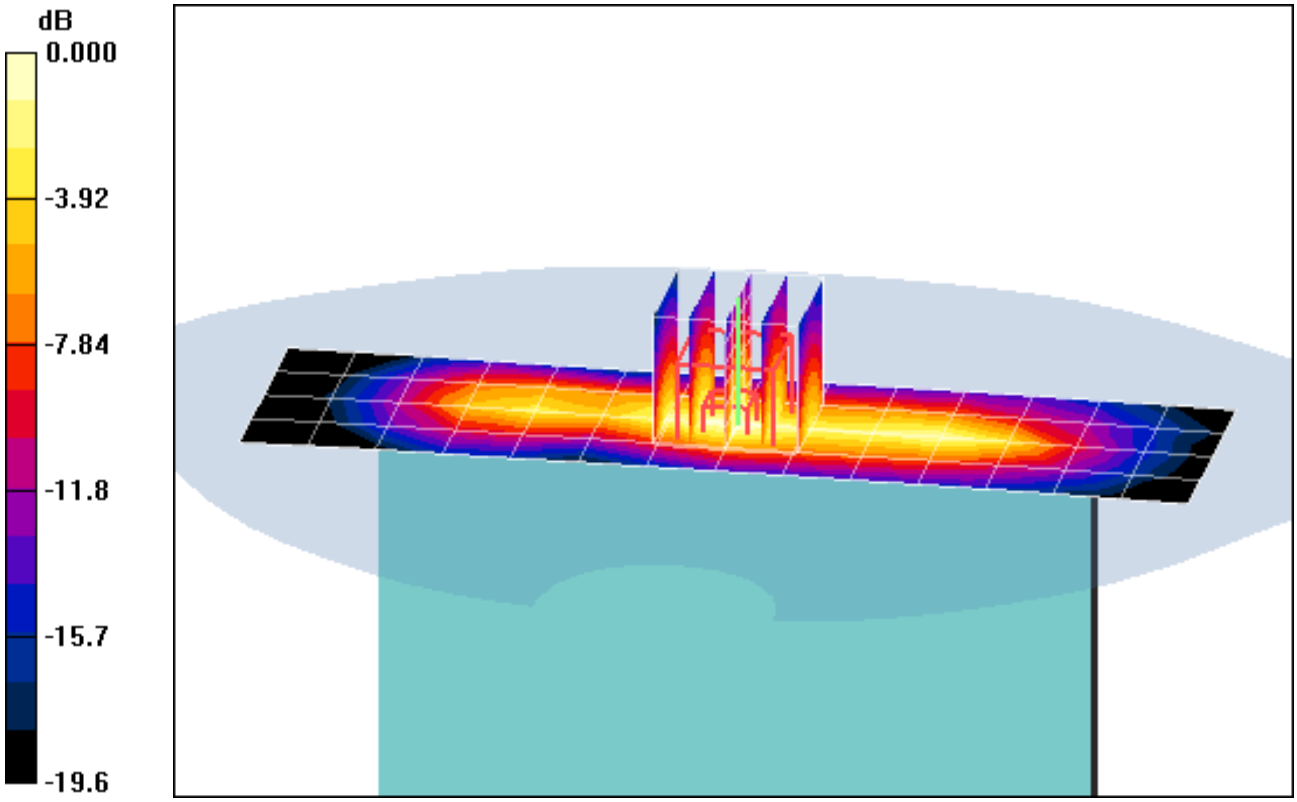
Communication System: GSM1900 EGPRS; 2 Tx slots; Frequency: 1880 MHz;Duty Cycle: 1:4.15
Medium: 1900 Body; Medium parameters used:
f = 1880 MHz; σ = 1.507 mho/m; ε_r = 53.67; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 09-07-2011; Ambient Temp: 24.9°C; Tissue Temp: 23.7°C

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

Mode: EDGE 1900, Body SAR, Left Edge, Mid.ch, 2 Tx Slots

Area Scan (5x15x1): 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) = 0.307 W/kg
SAR(1 g) = 0.174 mW/g; SAR(10 g) = 0.090 mW/g



0 dB = 0.198mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040012138

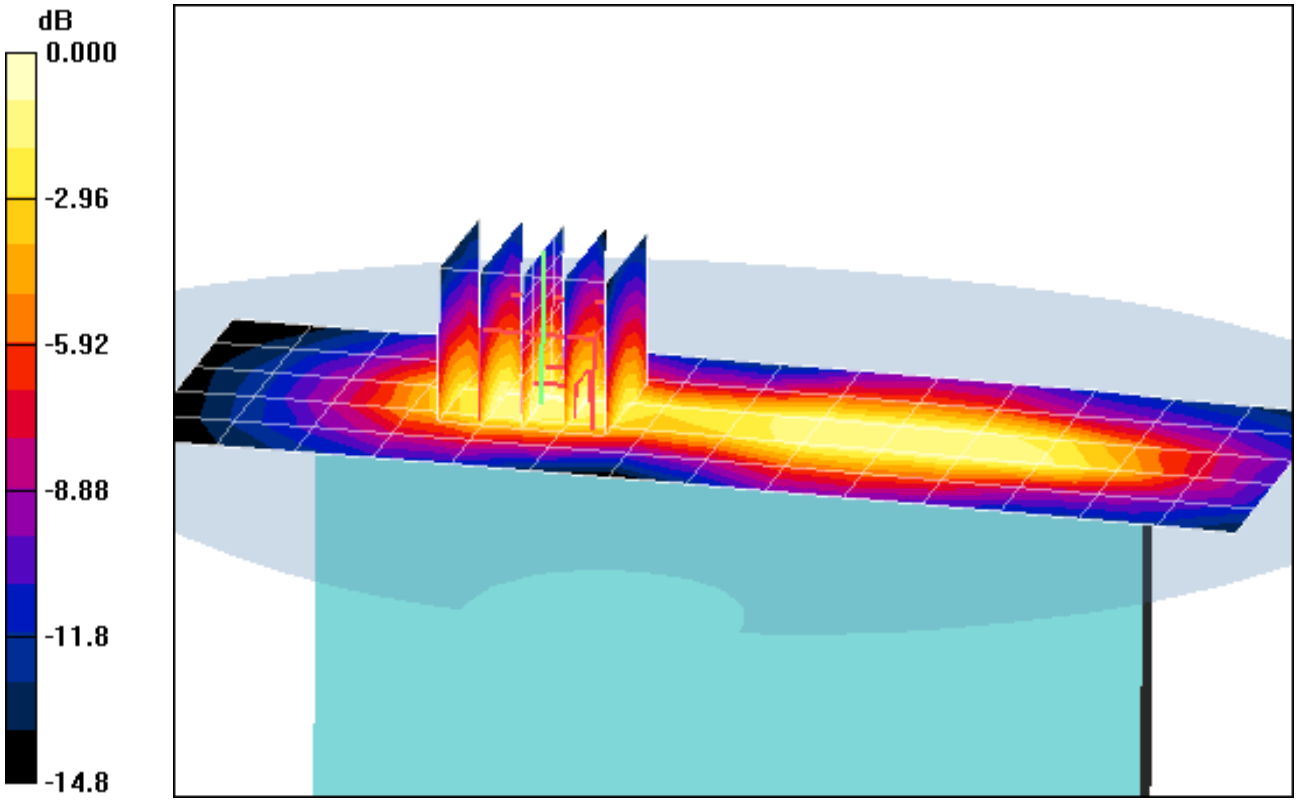
Communication System: GSM1900 GPRS; 2 Tx slots; Frequency: 1880 MHz;Duty Cycle: 1:4.15
Medium: 1900 Body; Medium parameters used:
f = 1880 MHz; σ = 1.508 mho/m; ε_r = 50.86; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.5 cm

Test Date: 08-23-2011; Ambient Temp: 23.8°C; Tissue Temp: 22.6°C

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

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

Area Scan (6x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.95 V/m
Peak SAR (extrapolated) = 0.265 W/kg
SAR(1 g) = 0.161 mW/g; SAR(10 g) = 0.094 mW/g



0 dB = 0.175mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040012138

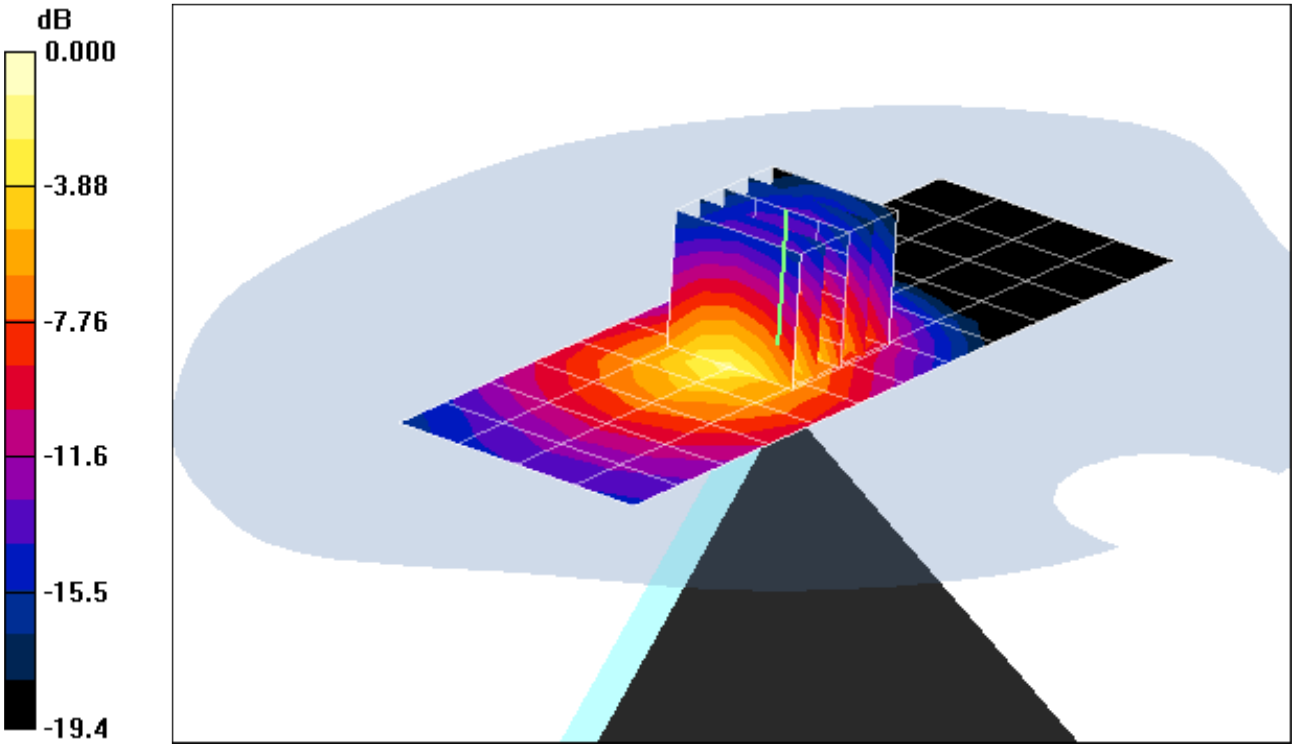
Communication System: GSM1900 GPRS; 2 Tx slots; Frequency: 1880 MHz;Duty Cycle: 1:4.15
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.48 mho/m; ε_r = 51.49; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 10-12-2011; Ambient Temp: 23.9°C; Tissue Temp: 22.1°C

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

Mode: GPRS 1900, Body SAR, Vertex, Mid.ch, 2 Tx Slots, 45 degrees

Area Scan (5x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.3 V/m
Peak SAR (extrapolated) = 0.444 W/kg
SAR(1 g) = 0.227 mW/g; SAR(10 g) = 0.109 mW/g



0 dB = 0.272mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; IMEI: Serial: 358444040012138

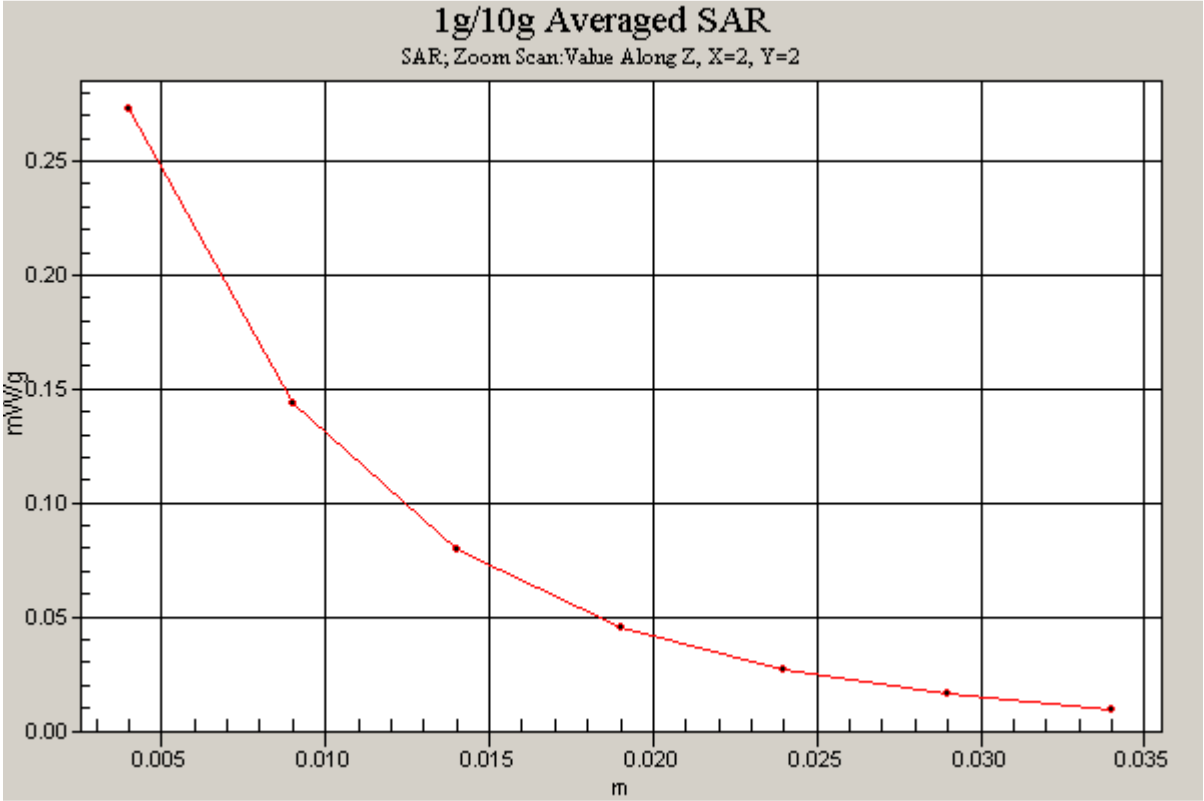
Communication System: GSM1900 GPRS; 2 Tx slots; Frequency: 1880 MHz;Duty Cycle: 1:4.15
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.48 mho/m; ε_r = 51.49; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 10-12-2011; Ambient Temp: 23.9°C; Tissue Temp: 22.1°C

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

Mode: GPRS 1900, Body SAR, Vertex, Mid.ch, 2 Tx Slots, 45 degrees

Area Scan (5x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.3 V/m
Peak SAR (extrapolated) = 0.444 W/kg
SAR(1 g) = 0.227 mW/g; SAR(10 g) = 0.109 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040012104

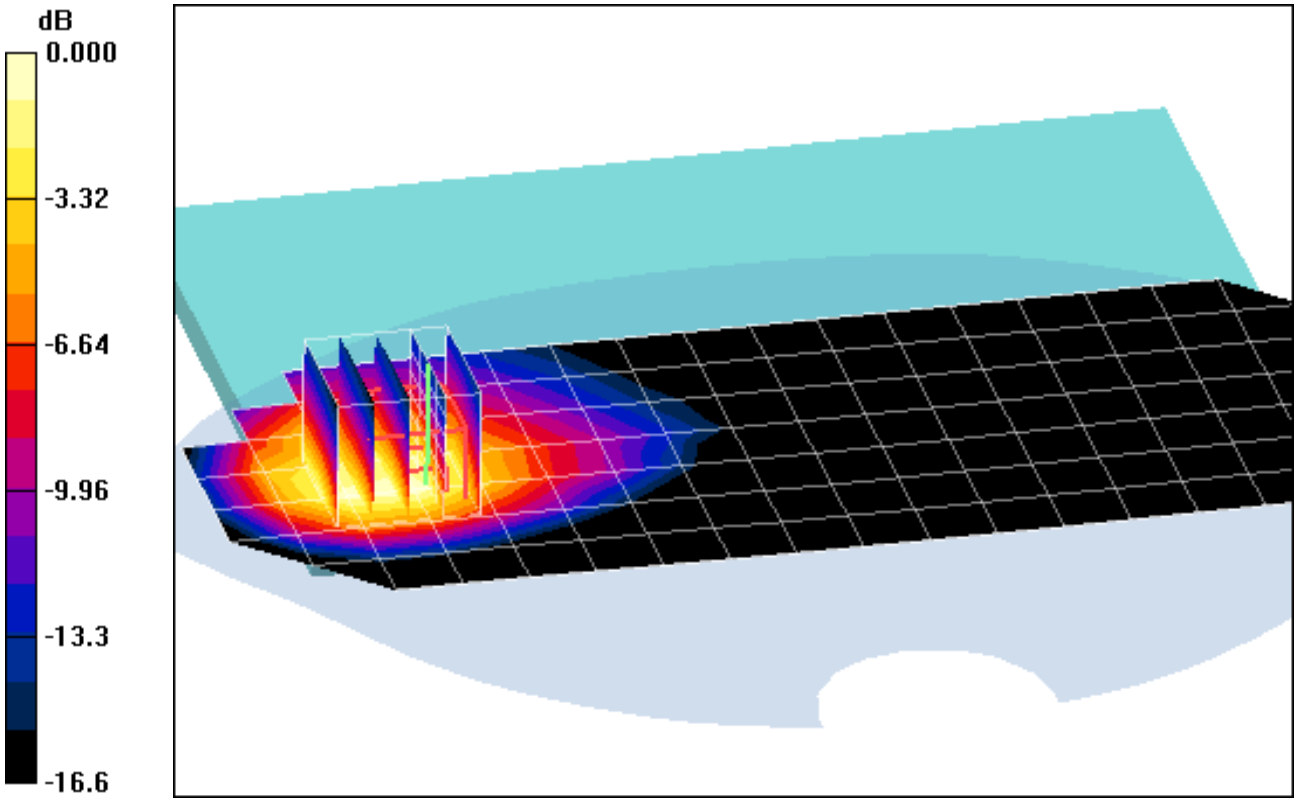
Communication System: WCDMA850; Frequency: 836.6 MHz; Duty Cycle: 1:1
Medium: 835 Body; Medium parameters used (interpolated):
f = 836.6 MHz; σ = 1 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 08-24-2011; Ambient Temp: 23.9°C; Tissue Temp: 22.7°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 (8x19x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.79 V/m
Peak SAR (extrapolated) = 1.37 W/kg
SAR(1 g) = 0.652 mW/g; SAR(10 g) = 0.338 mW/g



0 dB = 0.745mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040012138

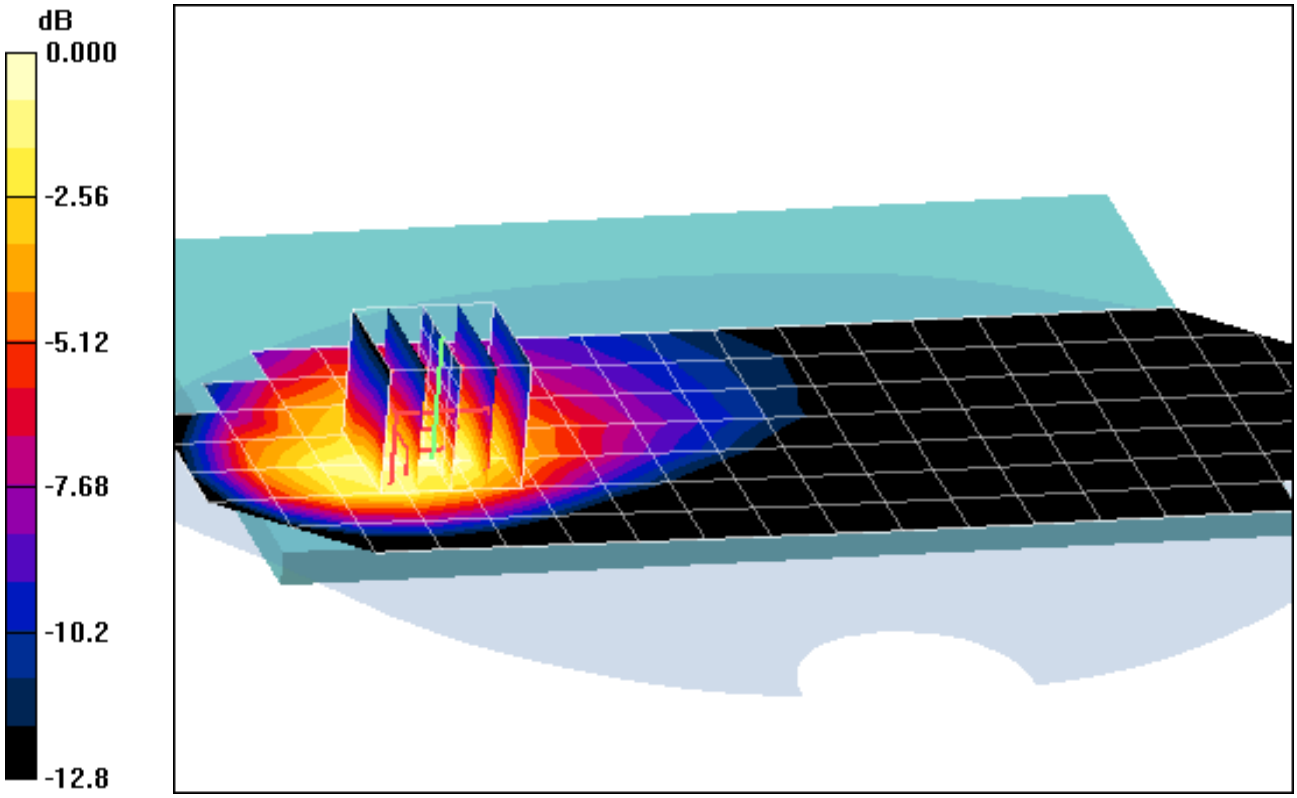
Communication System: WCDMA850; Frequency: 836.6 MHz; Duty Cycle: 1:1
Medium: 835 Body; Medium parameters used (interpolated):
f = 836.6 MHz; σ = 1 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-24-2011; Ambient Temp: 23.9°C; Tissue Temp: 22.7°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 (8x19x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.83 V/m
Peak SAR (extrapolated) = 1.16 W/kg
SAR(1 g) = 0.676 mW/g; SAR(10 g) = 0.402 mW/g



0 dB = 0.728mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040012104

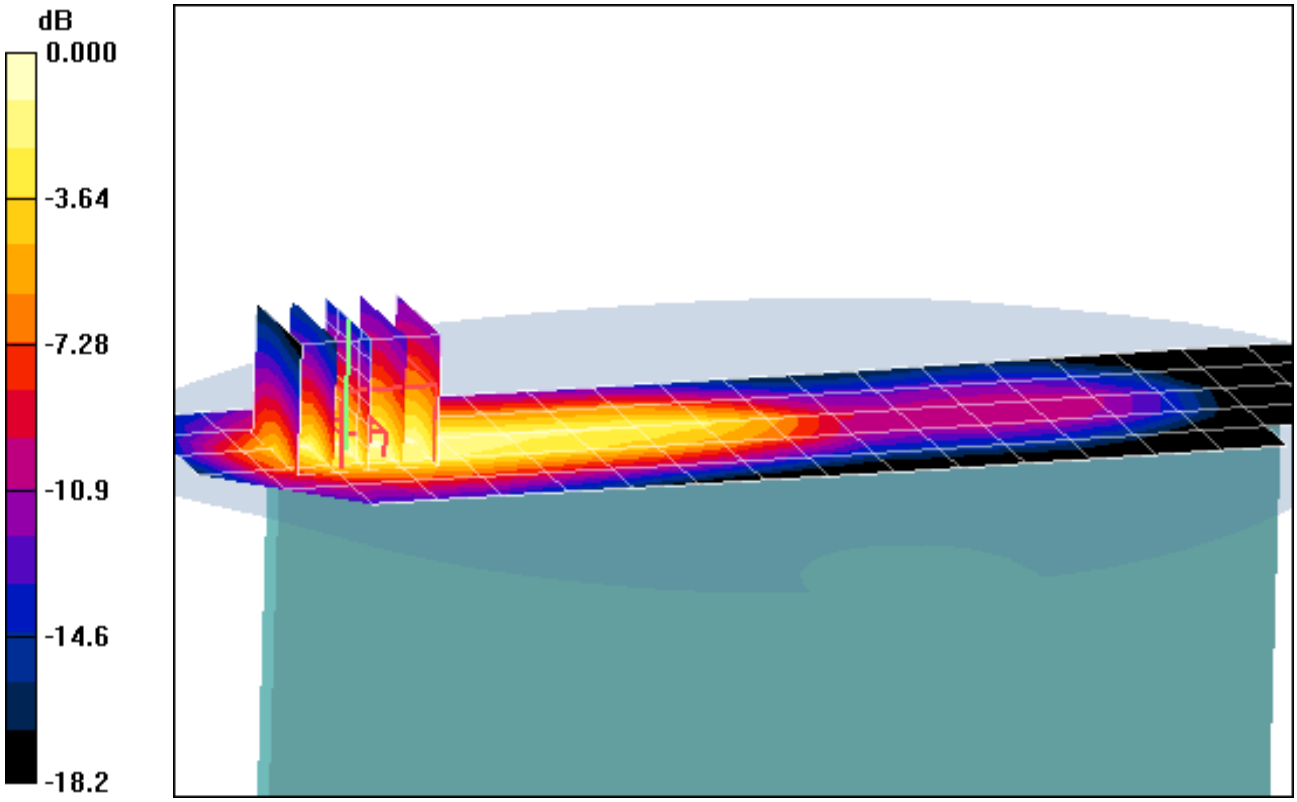
Communication System: WCDMA850; Frequency: 836.6 MHz; Duty Cycle: 1:1
Medium: 835 Body; Medium parameters used (interpolated):
f = 836.6 MHz; σ = 1 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 08-24-2011; Ambient Temp: 23.9°C; Tissue Temp: 22.7°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, Top Edge, Mid.ch

Area Scan (6x19x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.3 V/m
Peak SAR (extrapolated) = 0.474 W/kg
SAR(1 g) = 0.222 mW/g; SAR(10 g) = 0.119 mW/g



0 dB = 0.252mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040012138

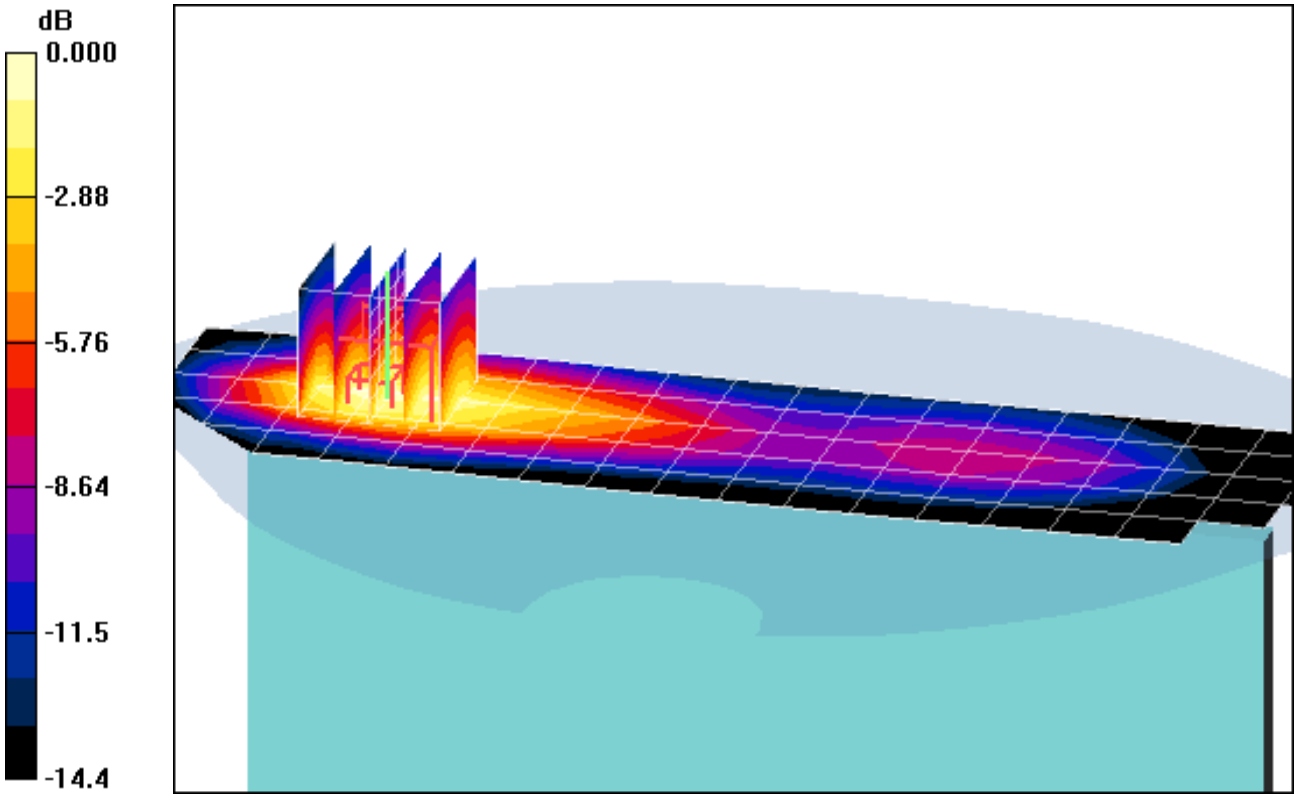
Communication System: WCDMA850; Frequency: 836.6 MHz; Duty Cycle: 1:1
Medium: 835 Body; Medium parameters used (interpolated):
f = 836.6 MHz; σ = 1 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.5 cm

Test Date: 08-24-2011; Ambient Temp: 23.9°C; Tissue Temp: 22.7°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, Top Edge, Mid.ch

Area Scan (6x19x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.29 V/m
Peak SAR (extrapolated) = 0.774 W/kg
SAR(1 g) = 0.437 mW/g; SAR(10 g) = 0.256 mW/g



0 dB = 0.478mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040012104

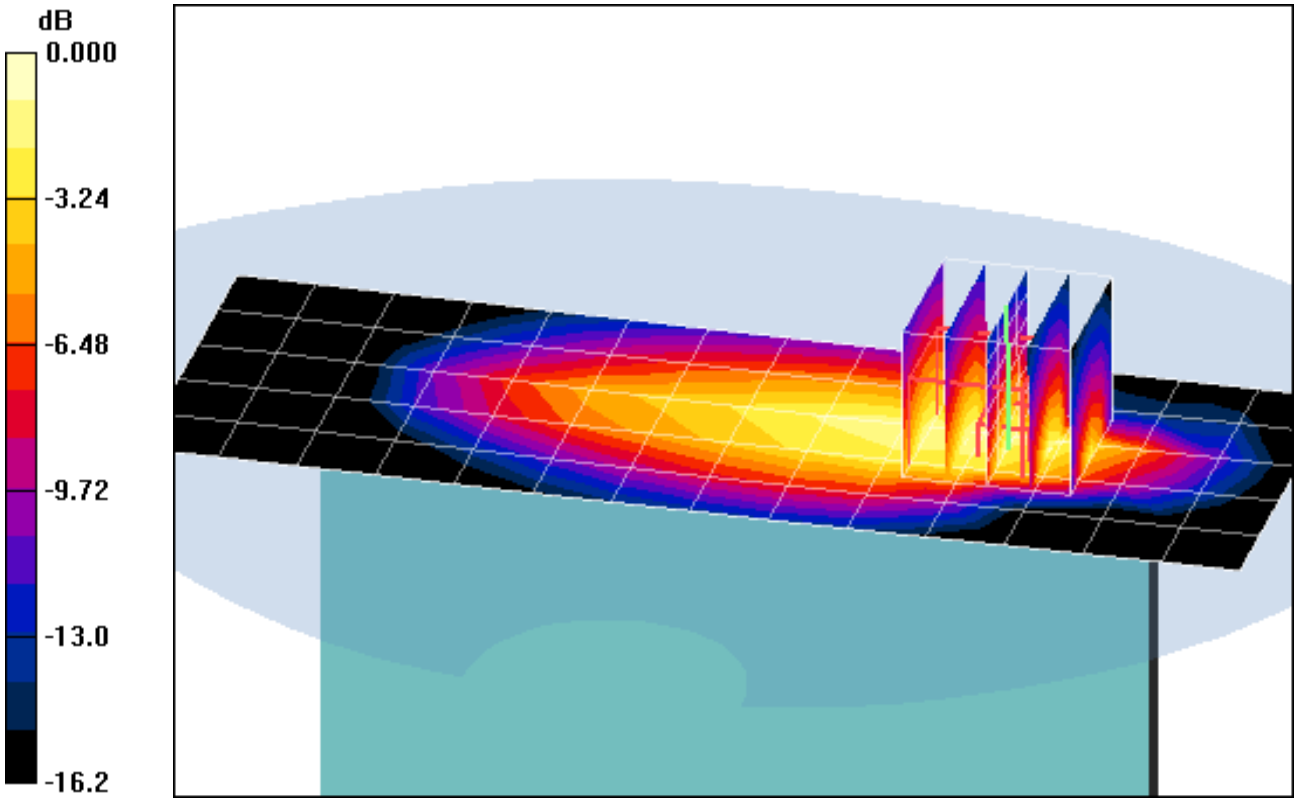
Communication System: WCDMA850; Frequency: 836.6 MHz; Duty Cycle: 1:1
Medium: 835 Body; Medium parameters used (interpolated):
f = 836.6 MHz; σ = 1 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 08-24-2011; Ambient Temp: 23.9°C; Tissue Temp: 22.7°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, Left Edge, Mid.ch

Area Scan (6x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.9 V/m
Peak SAR (extrapolated) = 0.473 W/kg
SAR(1 g) = 0.228 mW/g; SAR(10 g) = 0.122 mW/g



0 dB = 0.267mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040012138

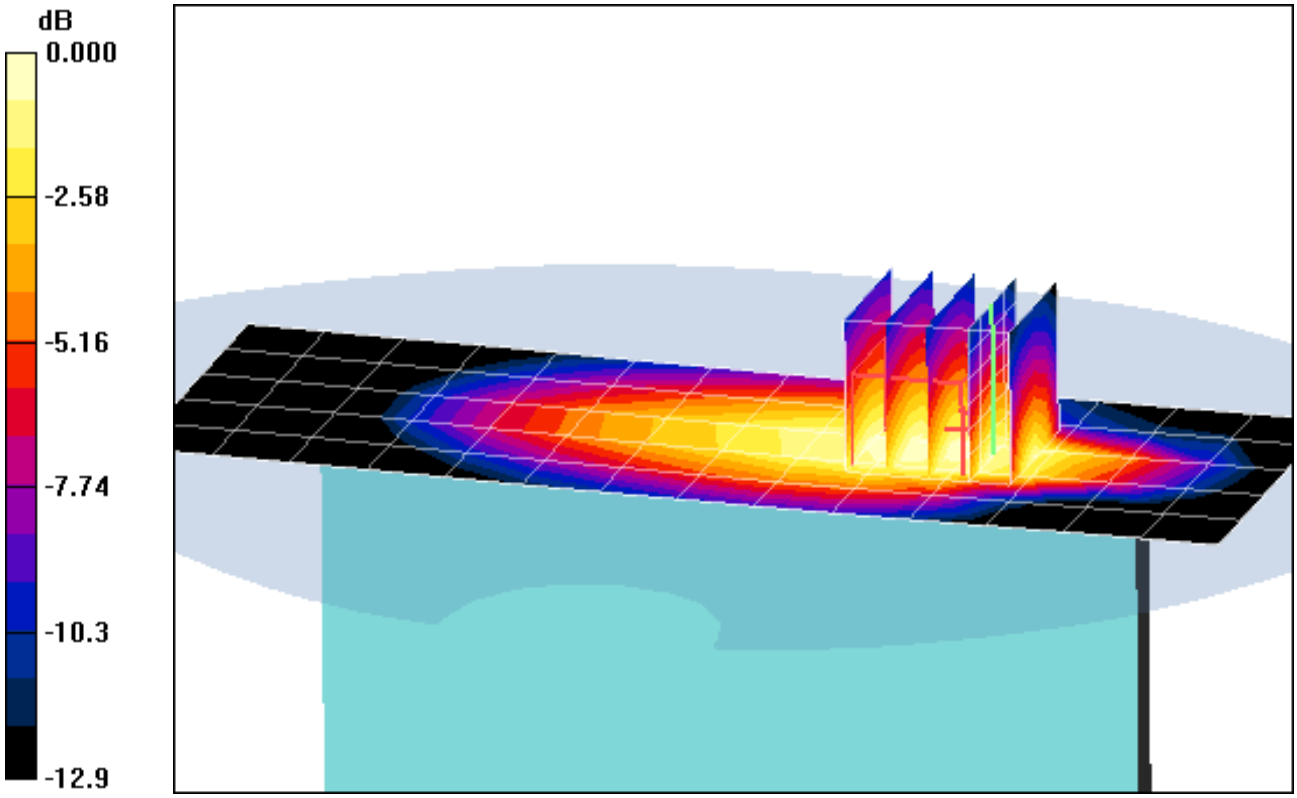
Communication System: WCDMA850; Frequency: 836.6 MHz; Duty Cycle: 1:1
Medium: 835 Body; Medium parameters used (interpolated):
f = 836.6 MHz; σ = 1 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.5 cm

Test Date: 08-24-2011; Ambient Temp: 23.9°C; Tissue Temp: 22.7°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, Left Edge, Mid.ch

Area Scan (6x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.0 V/m
Peak SAR (extrapolated) = 0.642 W/kg
SAR(1 g) = 0.405 mW/g; SAR(10 g) = 0.261 mW/g



0 dB = 0.439mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040012138

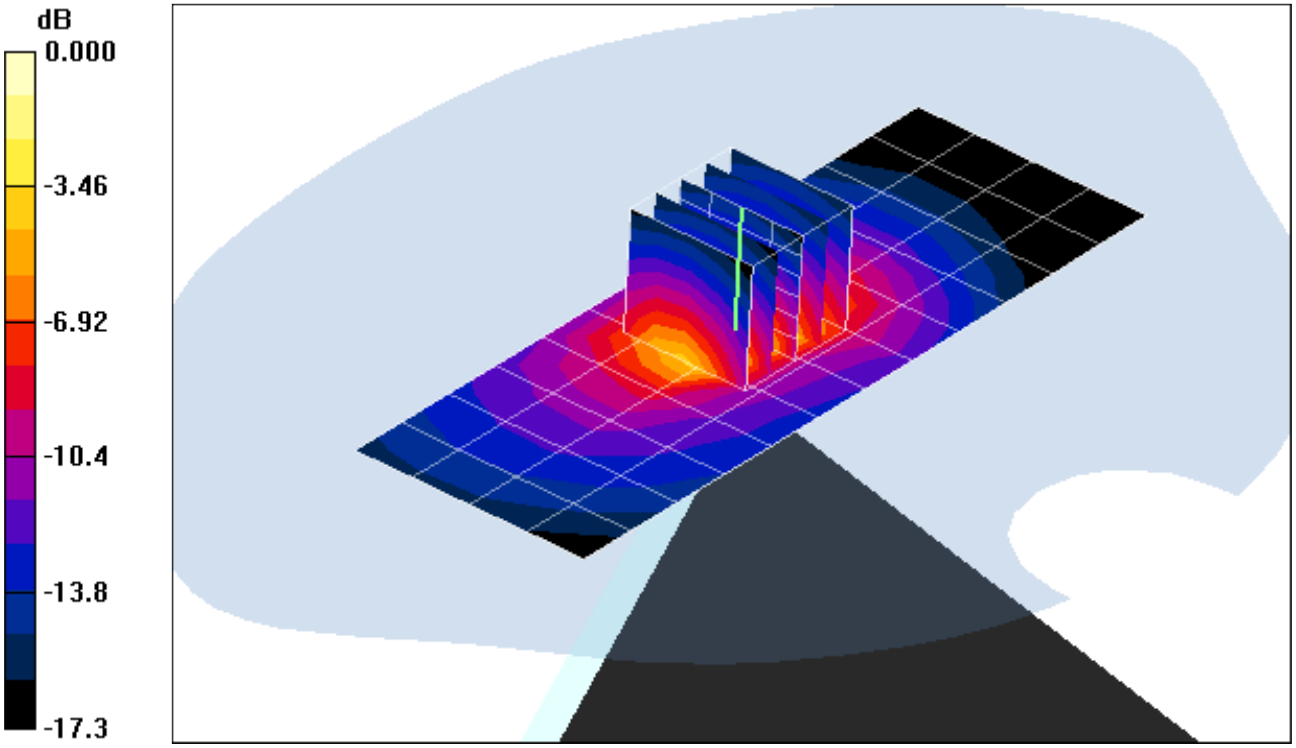
Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.964 mho/m; ε_r = 52.7; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 10-10-2011; Ambient Temp: 23.6 °C; Tissue Temp: 21.8 °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, Vertex, Mid.ch, 2 Tx Slots, 45 degrees

Area Scan (5x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.3 V/m
Peak SAR (extrapolated) = 1.24 W/kg
SAR(1 g) = 0.486 mW/g; SAR(10 g) = 0.206 mW/g



0 dB = 0.614mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: 358444040012138

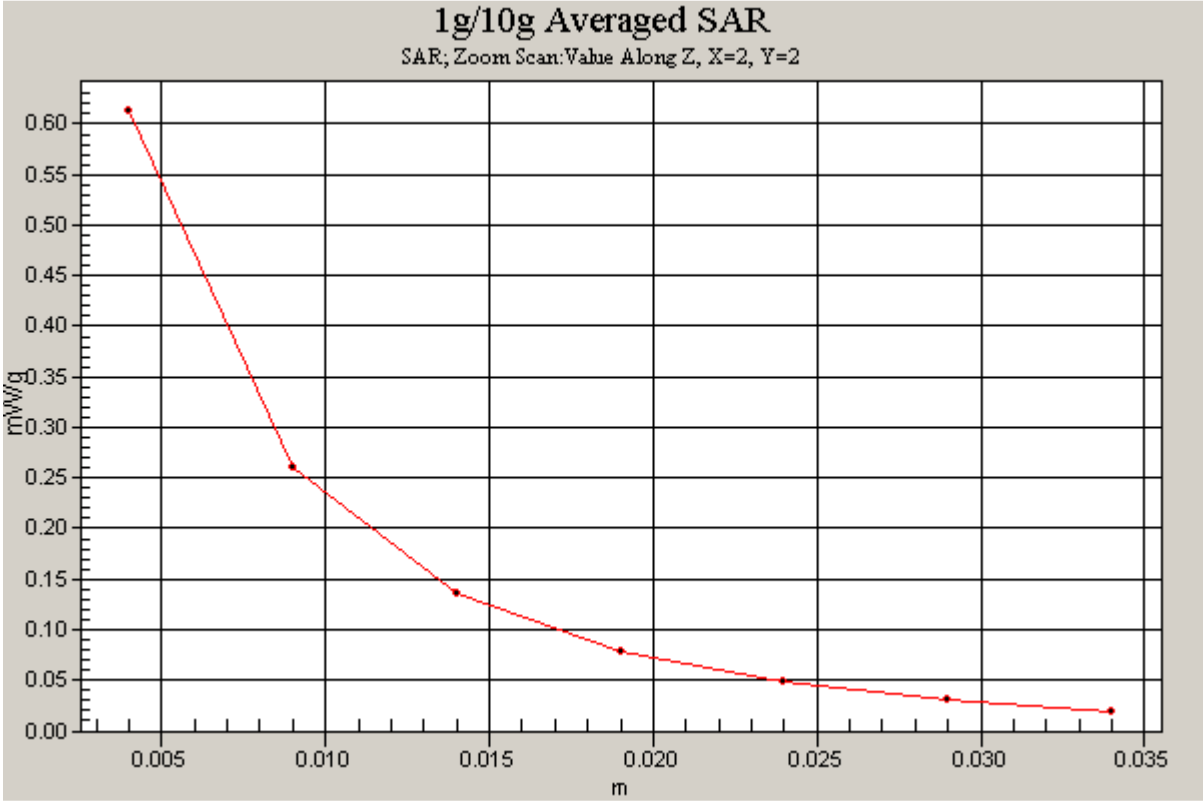
Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.964 mho/m; ε_r = 52.7; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 10-10-2011; Ambient Temp: 23.6 °C; Tissue Temp: 21.8 °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, Vertex, Mid.ch, 2 Tx Slots, 45 degrees

Area Scan (5x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.3 V/m
Peak SAR (extrapolated) = 1.24 W/kg
SAR(1 g) = 0.486 mW/g; SAR(10 g) = 0.206 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040012112

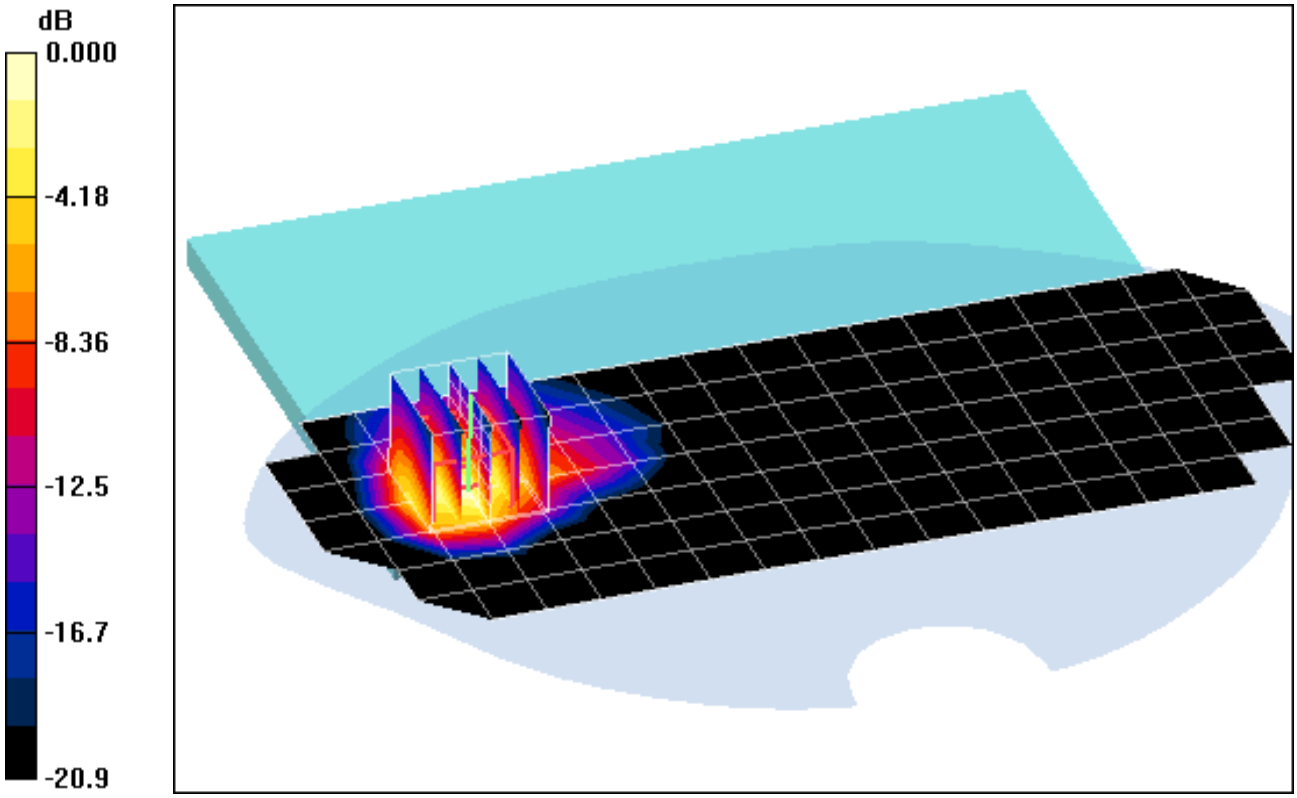
Communication System: WCDMA1900; Frequency: 1907.6 MHz; Duty Cycle: 1:1
Medium: 1900 Body; Medium parameters used (interpolated):
f = 1907.6 MHz; σ = 1.54 mho/m; ε_r = 53.52; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 09-07-2011; Ambient Temp: 24.9°C; Tissue Temp: 23.7°C

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

Mode: WCDMA 1900, Body SAR, Back side, High.ch

Area Scan (8x19x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 27.2 V/m
Peak SAR (extrapolated) = 2.08 W/kg
SAR(1 g) = 0.956 mW/g; SAR(10 g) = 0.447 mW/g



0 dB = 1.11mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040012138

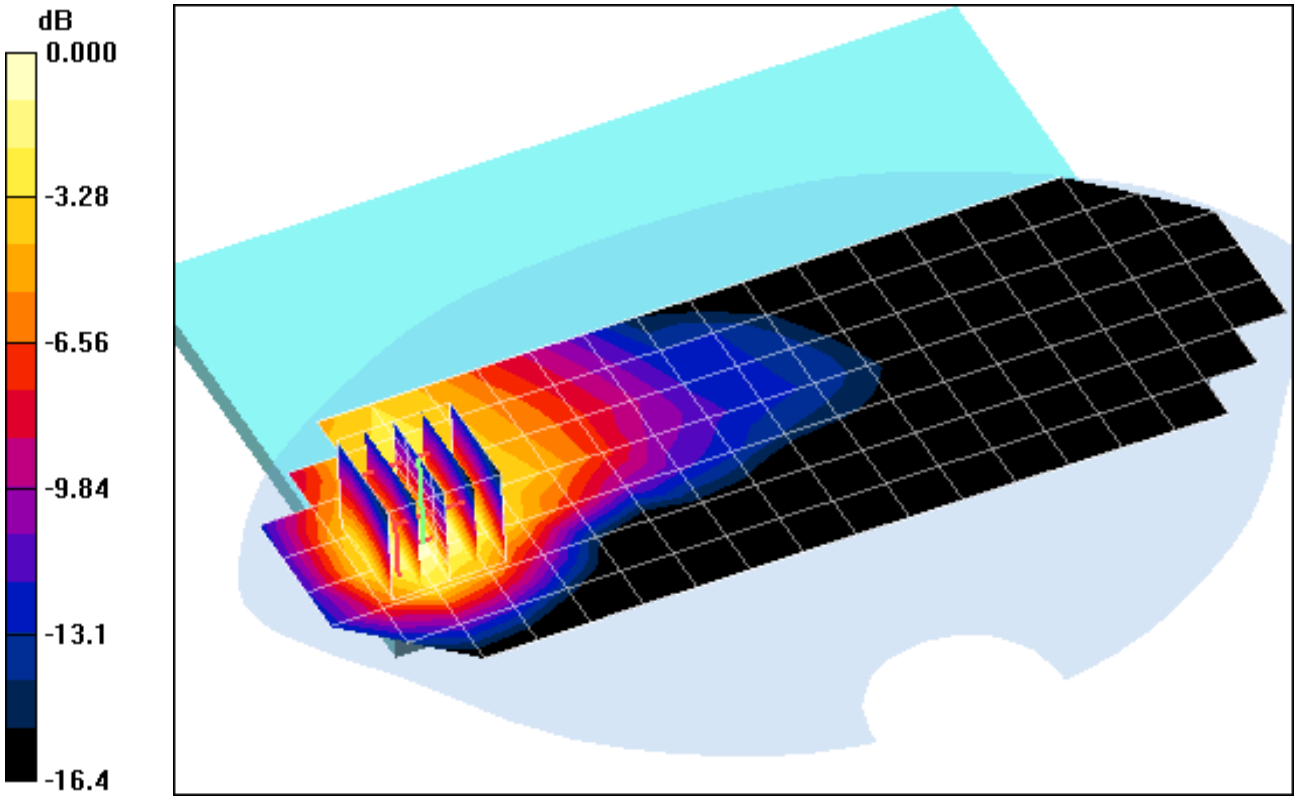
Communication System: WCDMA1900; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Body; Medium parameters used:
f = 1880 MHz; σ = 1.508 mho/m; ε_r = 50.86; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-23-2011; Ambient Temp: 23.8°C; Tissue Temp: 22.6°C

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

Mode: WCDMA 1900, Body SAR, Back side, Mid.ch

Area Scan (8x19x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.4 V/m
Peak SAR (extrapolated) = 0.485 W/kg
SAR(1 g) = 0.281 mW/g; SAR(10 g) = 0.164 mW/g



0 dB = 0.302mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040012112

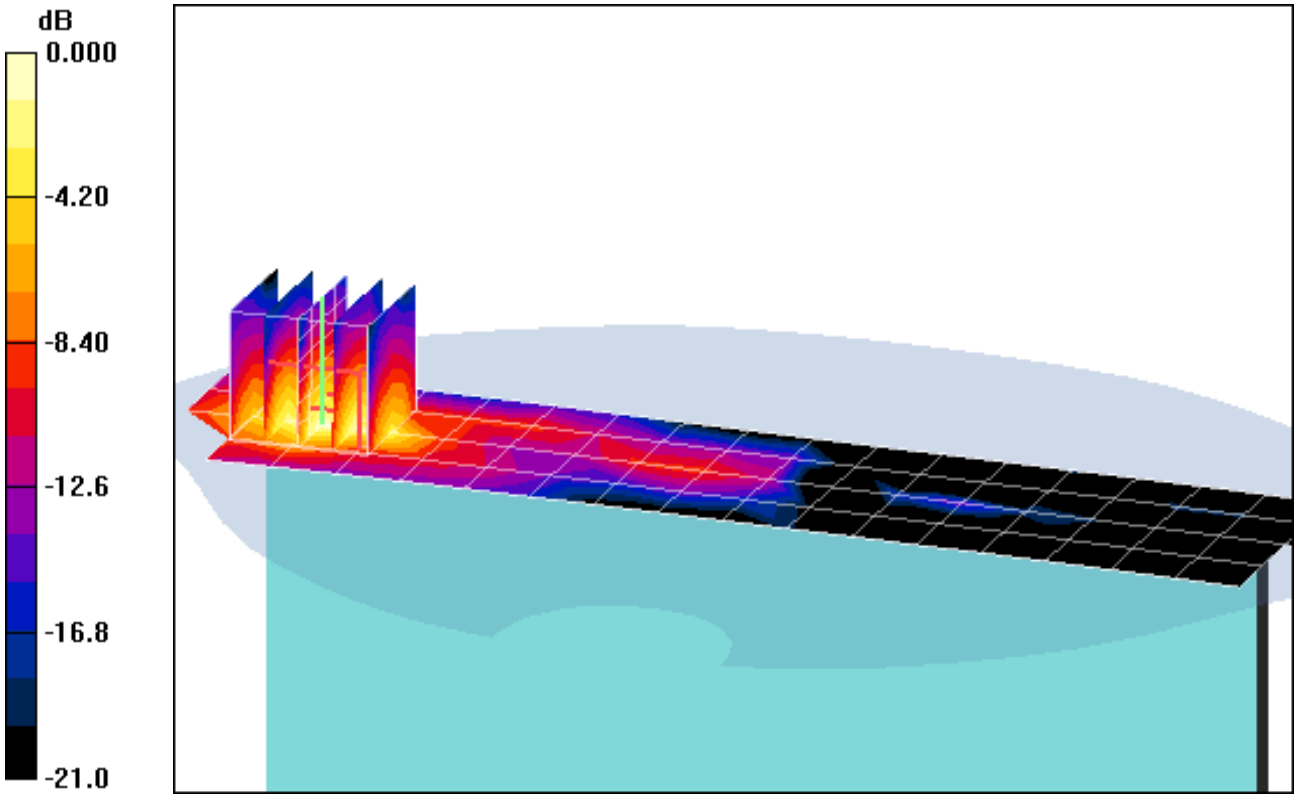
Communication System: WCDMA1900; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Body; Medium parameters used:
f = 1880 MHz; σ = 1.507 mho/m; ε_r = 53.67; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 09-07-2011; Ambient Temp: 24.9°C; Tissue Temp: 23.7°C

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

Mode: WCDMA 1900, Body SAR, Top Edge, Mid.ch

Area Scan (5x21x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.04 V/m
Peak SAR (extrapolated) = 0.228 W/kg
SAR(1 g) = 0.110 mW/g; SAR(10 g) = 0.050 mW/g



0 dB = 0.126mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040012138

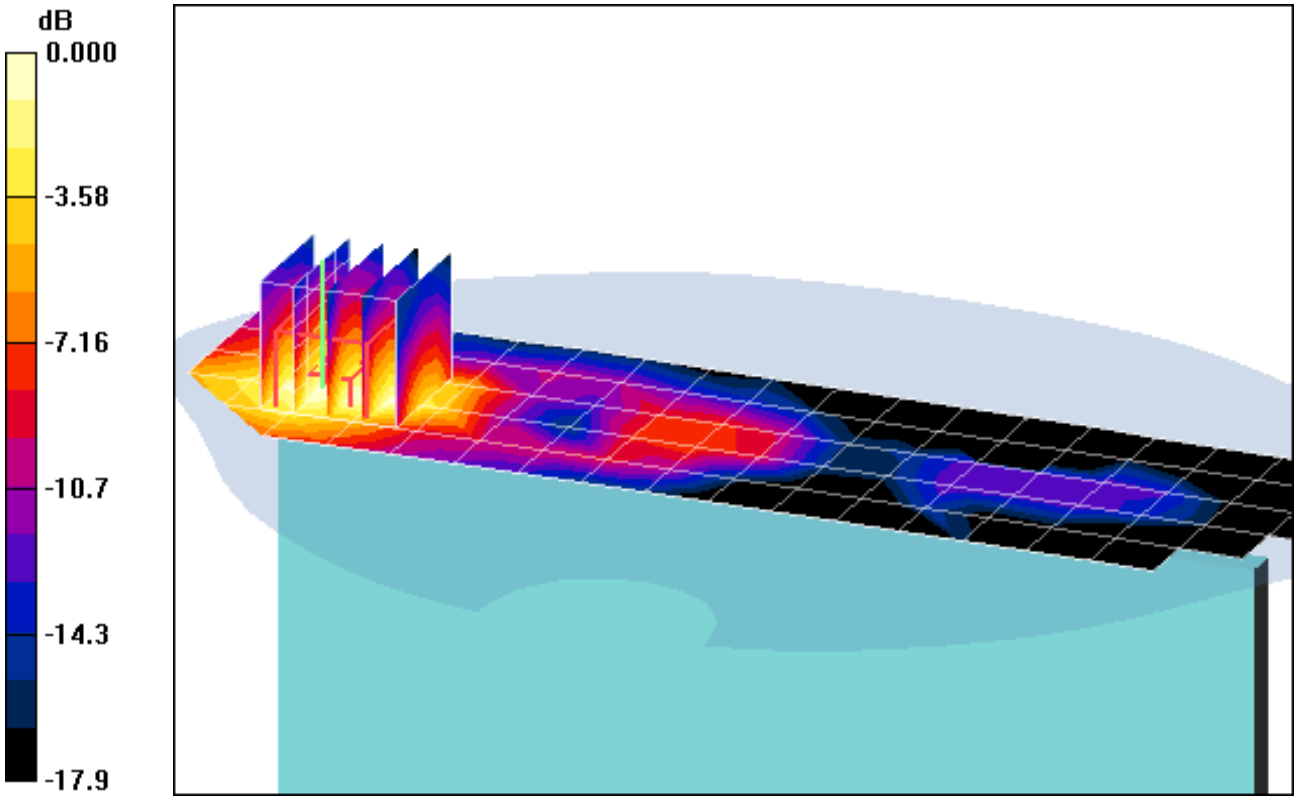
Communication System: WCDMA1900; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Body; Medium parameters used:
f = 1880 MHz; σ = 1.508 mho/m; ε_r = 50.86; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.5 cm

Test Date: 08-23-2011; Ambient Temp: 23.8°C; Tissue Temp: 22.6°C

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

Mode: WCDMA 1900, Body SAR, Top Edge, Mid.ch

Area Scan (6x19x1): 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) = 0.174 W/kg
SAR(1 g) = 0.099 mW/g; SAR(10 g) = 0.052 mW/g



0 dB = 0.109mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040012112

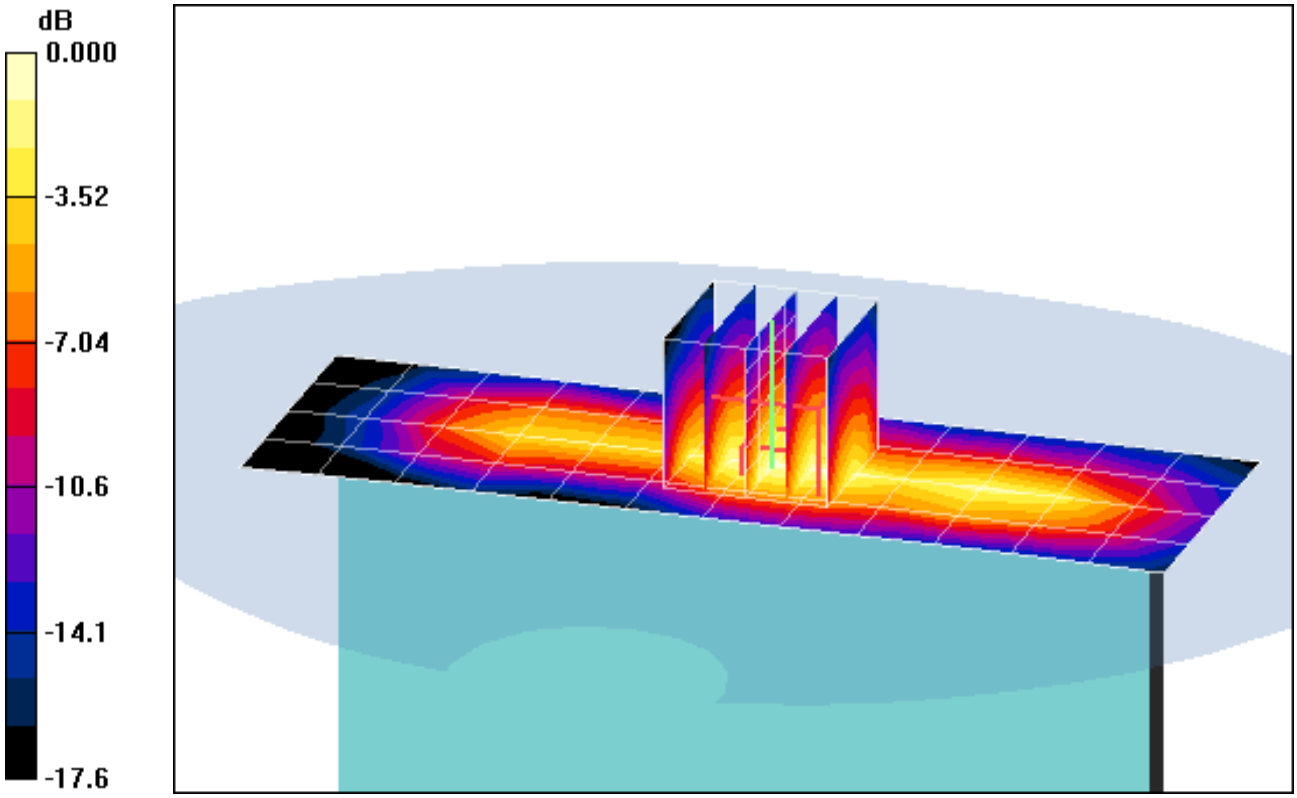
Communication System: WCDMA1900; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Body; Medium parameters used:
f = 1880 MHz; σ = 1.507 mho/m; ε_r = 53.67; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 09-07-2011; Ambient Temp: 24.9°C; Tissue Temp: 23.7°C

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

Mode: WCDMA 1900, Body SAR, Left Edge, Mid.ch

Area Scan (5x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.9 V/m
Peak SAR (extrapolated) = 0.360 W/kg
SAR(1 g) = 0.202 mW/g; SAR(10 g) = 0.105 mW/g



0 dB = 0.231mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040012138

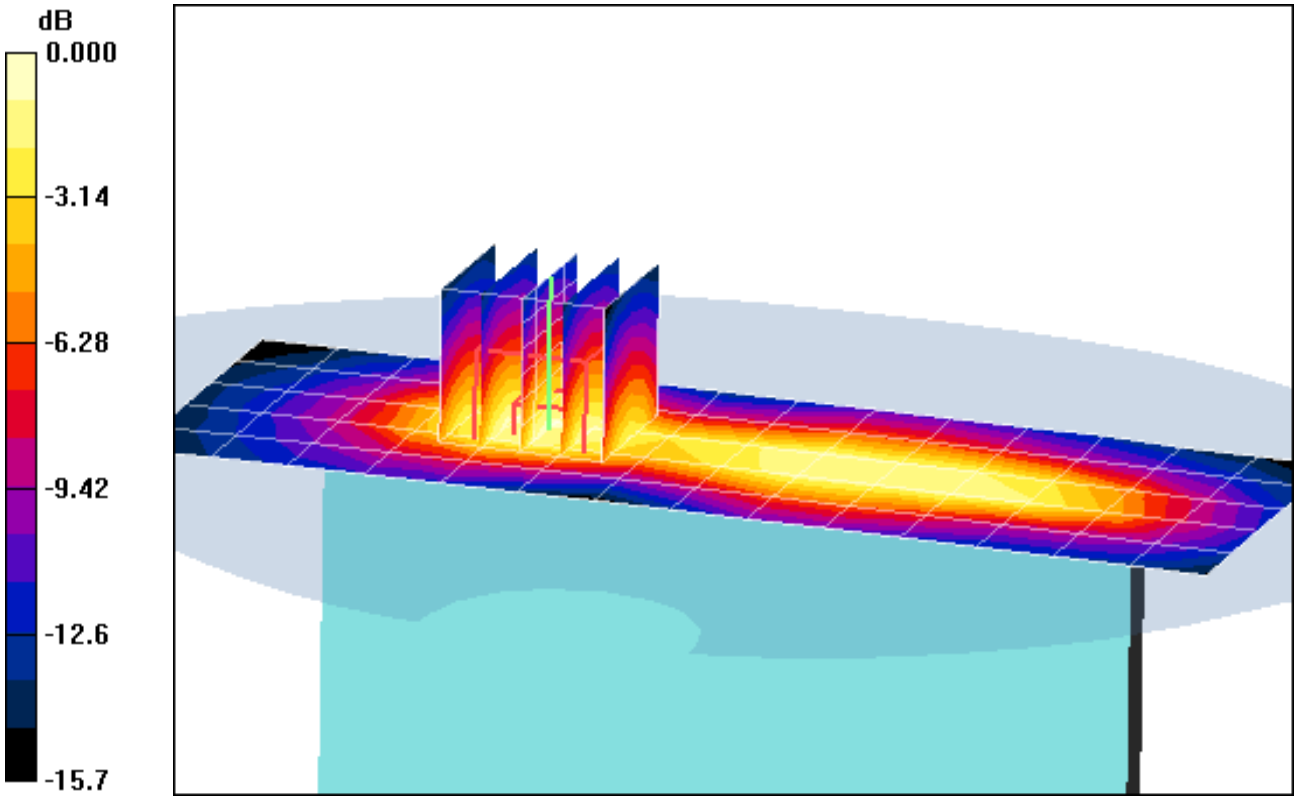
Communication System: WCDMA1900; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Body; Medium parameters used:
f = 1880 MHz; σ = 1.508 mho/m; ε_r = 50.86; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.5 cm

Test Date: 08-23-2011; Ambient Temp: 23.8°C; Tissue Temp: 22.6°C

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

Mode: WCDMA 1900, Body SAR, Left Edge, Mid.ch

Area Scan (6x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.3 V/m
Peak SAR (extrapolated) = 0.486 W/kg
SAR(1 g) = 0.291 mW/g; SAR(10 g) = 0.165 mW/g



0 dB = 0.322mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: Serial: IMEI 358444040012138

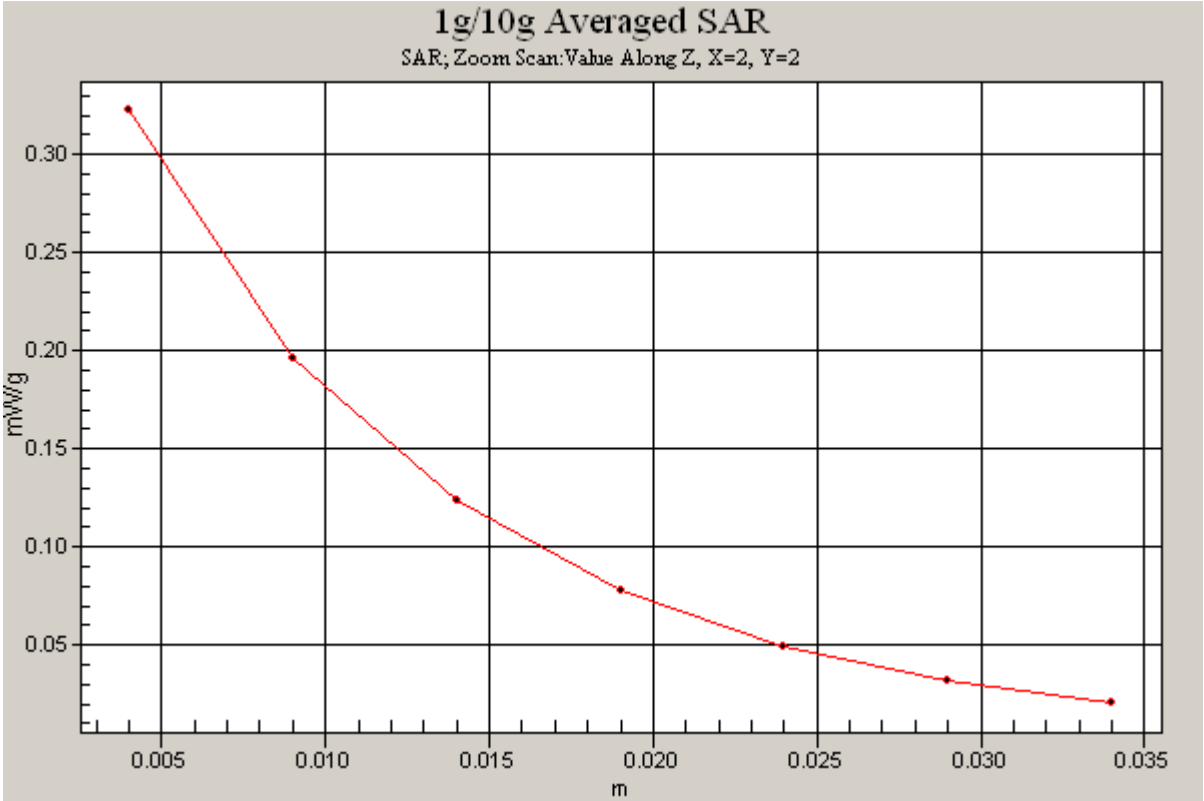
Communication System: WCDMA1900; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.51 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 08-23-2011; Ambient Temp: 23.8°C; Tissue Temp: 22.6°C

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

Mode: WCDMA 1900, Body SAR, Left Edge, Mid.ch

Area Scan (6x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.3 V/m
Peak SAR (extrapolated) = 0.486 W/kg
SAR(1 g) = 0.291 mW/g; SAR(10 g) = 0.165 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040012138

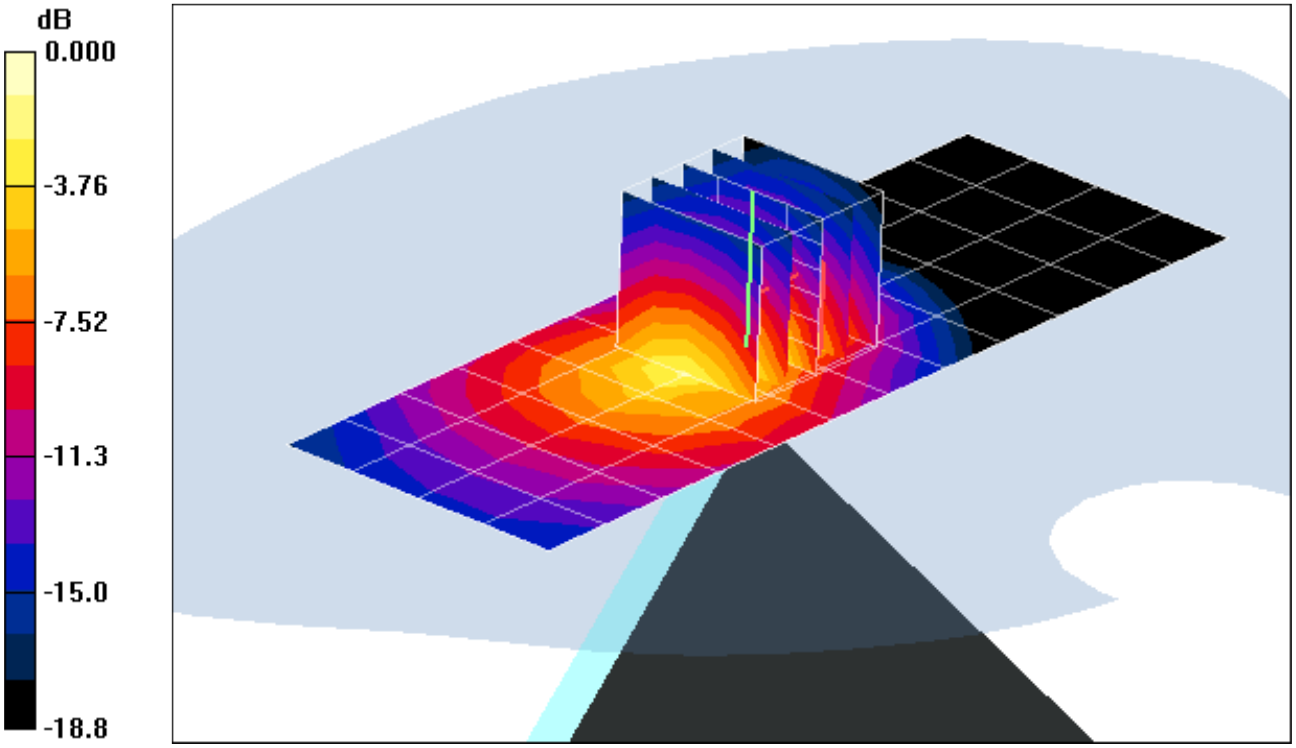
Communication System: WCDMA1900; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.48 mho/m; ε_r = 51.49; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 10-12-2011; Ambient Temp: 23.9°C; Tissue Temp: 22.1°C

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

Mode: WCDMA 1900, Body SAR, Vertex, Mid.ch, 45 degrees

Area Scan (5x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.9 V/m
Peak SAR (extrapolated) = 0.749 W/kg
SAR(1 g) = 0.374 mW/g; SAR(10 g) = 0.178 mW/g



0 dB = 0.453mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI: 358444040012138

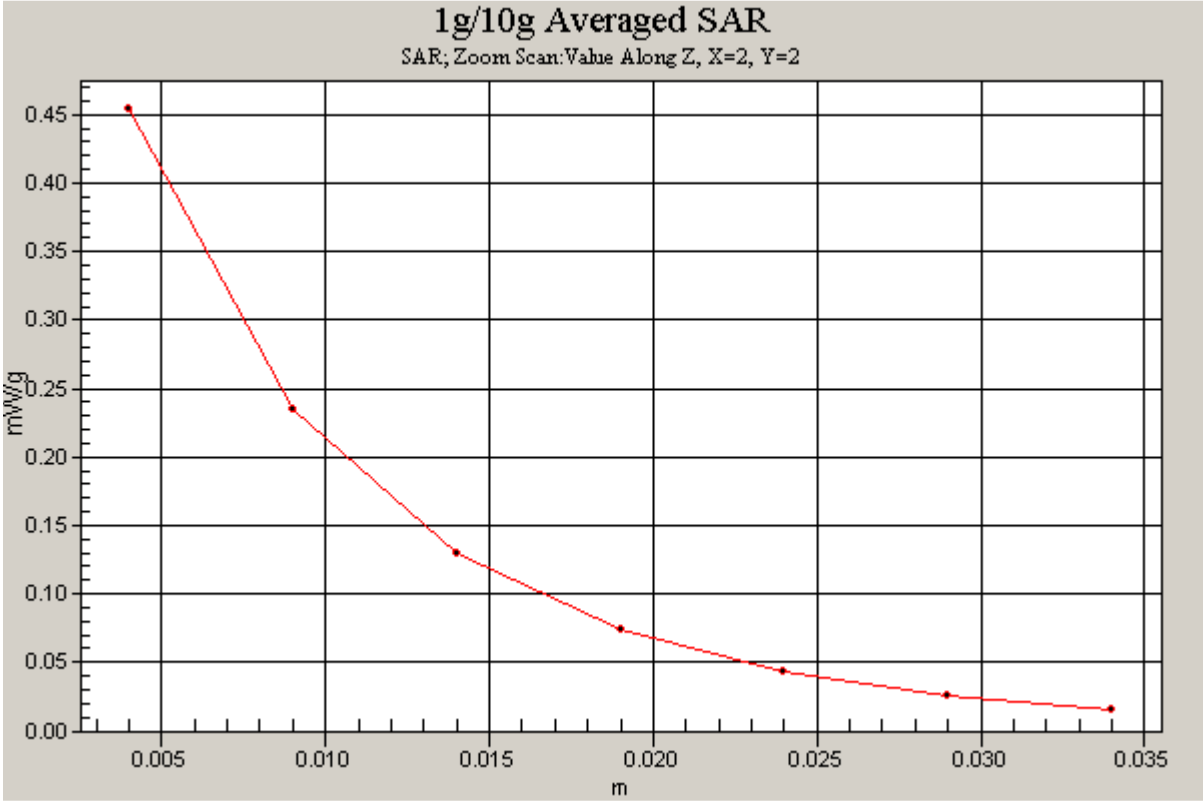
Communication System: WCDMA1900; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.48 mho/m; ε_r = 51.5; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 10-12-2011; Ambient Temp: 23.9°C; Tissue Temp: 22.1°C

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

Mode: WCDMA 1900, Body SAR, Vertex, Mid.ch, 45 degrees

Area Scan (5x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.9 V/m
Peak SAR (extrapolated) = 0.749 W/kg
SAR(1 g) = 0.374 mW/g; SAR(10 g) = 0.178 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040012112

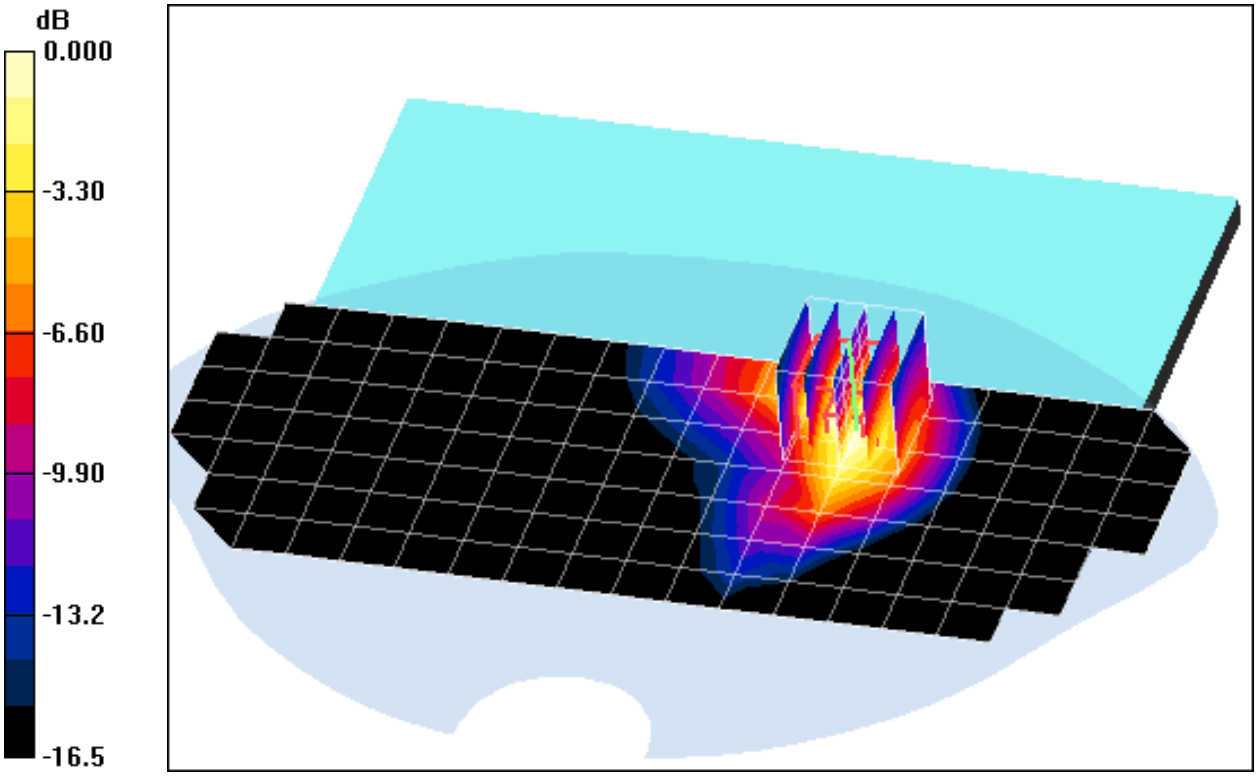
Communication System: LTE BAND 17; Frequency: 710 MHz; Duty Cycle: 1:1
Medium: 750 Body; Medium parameters used:
f = 710 MHz; σ = 0.915 mho/m; ε_r = 56.91; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 08-31-2011; Ambient Temp: 23.7°C; Tissue Temp: 22.1°C

Probe: EX3DV4 - SN3550; ConvF(8.18, 8.18, 8.18); Calibrated: 2/14/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/20/2011
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: LTE 700, Body SAR, Back side, Mid.ch, QPSK,
1 RB, 49 RB Offset, 10MHz Bandwidth

Area Scan (8x19x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.4 V/m
Peak SAR (extrapolated) = 0.764 W/kg
SAR(1 g) = 0.386 mW/g; SAR(10 g) = 0.205 mW/g



0 dB = 0.429mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040012112

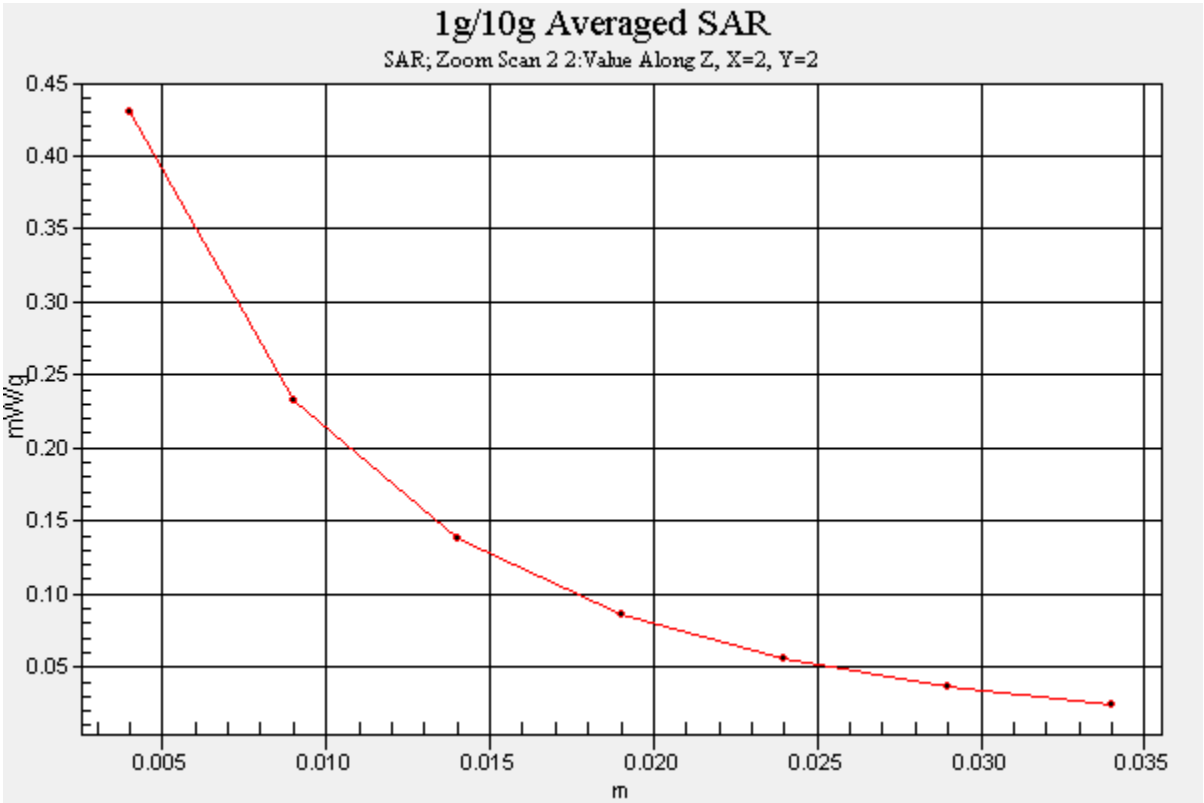
Communication System: LTE BAND 17; Frequency: 710 MHz; Duty Cycle: 1:1
Medium: 750 Body; Medium parameters used:
f = 710 MHz; σ = 0.915 mho/m; ε_r = 56.91; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 08-31-2011; Ambient Temp: 23.7°C; Tissue Temp: 22.1°C

Probe: EX3DV4 - SN3550; ConvF(8.18, 8.18, 8.18); Calibrated: 2/14/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/20/2011
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: LTE 700, Body SAR, Back side, Mid.ch, QPSK,
1 RB, 49 RB Offset, 10MHz Bandwidth

Area Scan (8x19x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.4 V/m
Peak SAR (extrapolated) = 0.764 W/kg
SAR(1 g) = 0.386 mW/g; SAR(10 g) = 0.205 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040012153

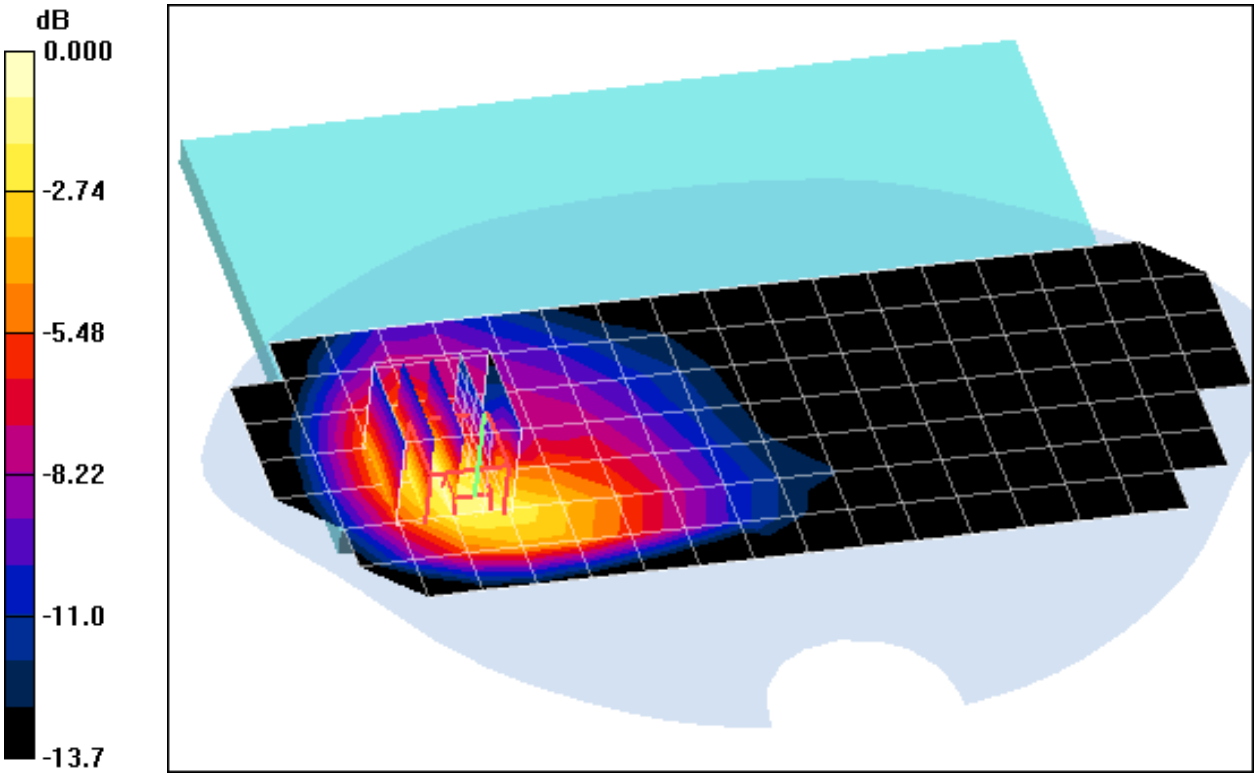
Communication System: LTE BAND 17; Frequency: 710 MHz; Duty Cycle: 1:1
Medium: 750 Body; Medium parameters used:
f = 710 MHz; σ = 0.915 mho/m; ε_r = 56.91; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-31-2011; Ambient Temp: 23.7°C; Tissue Temp: 22.1°C

Probe: EX3DV4 - SN3550; ConvF(8.18, 8.18, 8.18); Calibrated: 2/14/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/20/2011
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: LTE 700, Body SAR, Back side, Mid.ch, QPSK,
1 RB, 49 RB Offset. 10MHz Bandwidth

Area Scan (8x19x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.5 V/m
Peak SAR (extrapolated) = 0.499 W/kg
SAR(1 g) = 0.298 mW/g; SAR(10 g) = 0.176 mW/g



0 dB = 0.314mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040012112

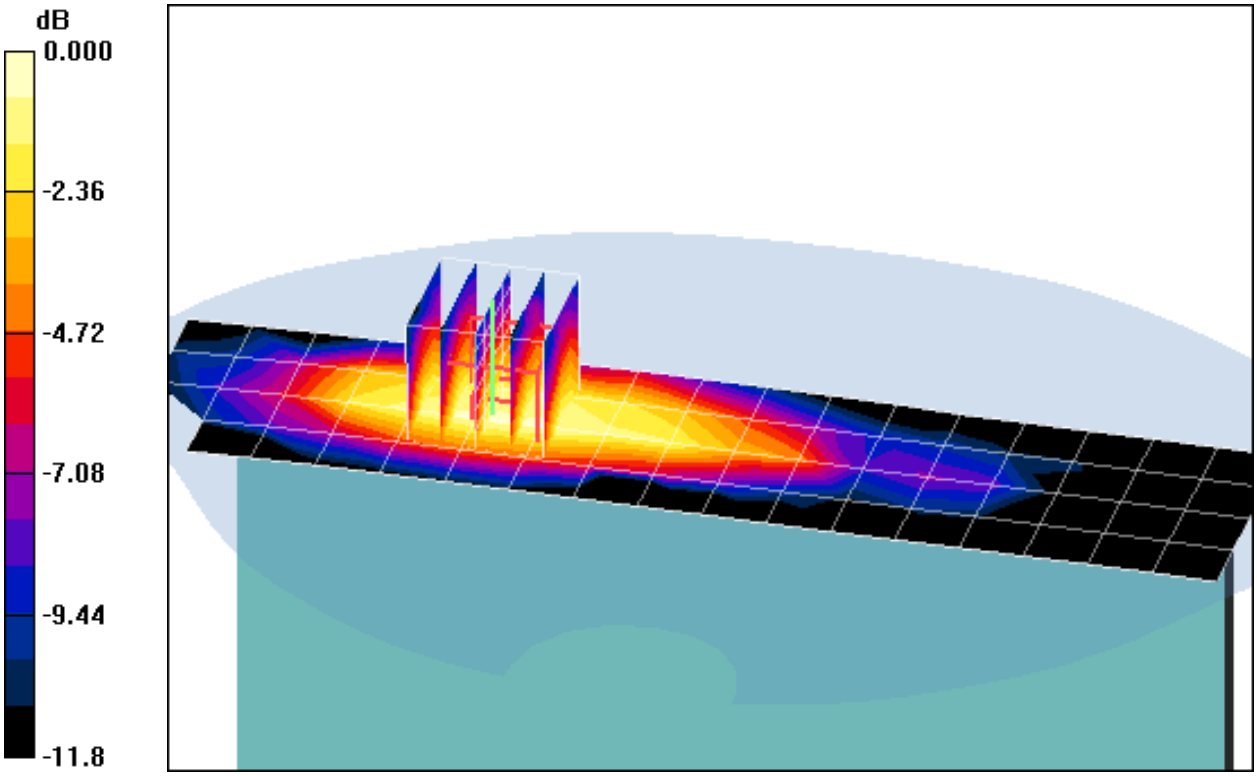
Communication System: LTE BAND 17; Frequency: 710 MHz; Duty Cycle: 1:1
Medium: 750 Body; Medium parameters used:
f = 710 MHz; σ = 0.915 mho/m; ε_r = 56.91; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 08-31-2011; Ambient Temp: 23.7°C; Tissue Temp: 22.1°C

Probe: EX3DV4 - SN3550; ConvF(8.18, 8.18, 8.18); Calibrated: 2/14/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/20/2011
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: LTE 700, Body SAR, Top Edge, Mid.ch, QPSK,
1 RB, 49 RB Offset, 10MHz Bandwidth

Area Scan (5x21x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.19 V/m
Peak SAR (extrapolated) = 0.022 W/kg
SAR(1 g) = 0.015 mW/g; SAR(10 g) = 0.0097 mW/g



0 dB = 0.016mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040012153

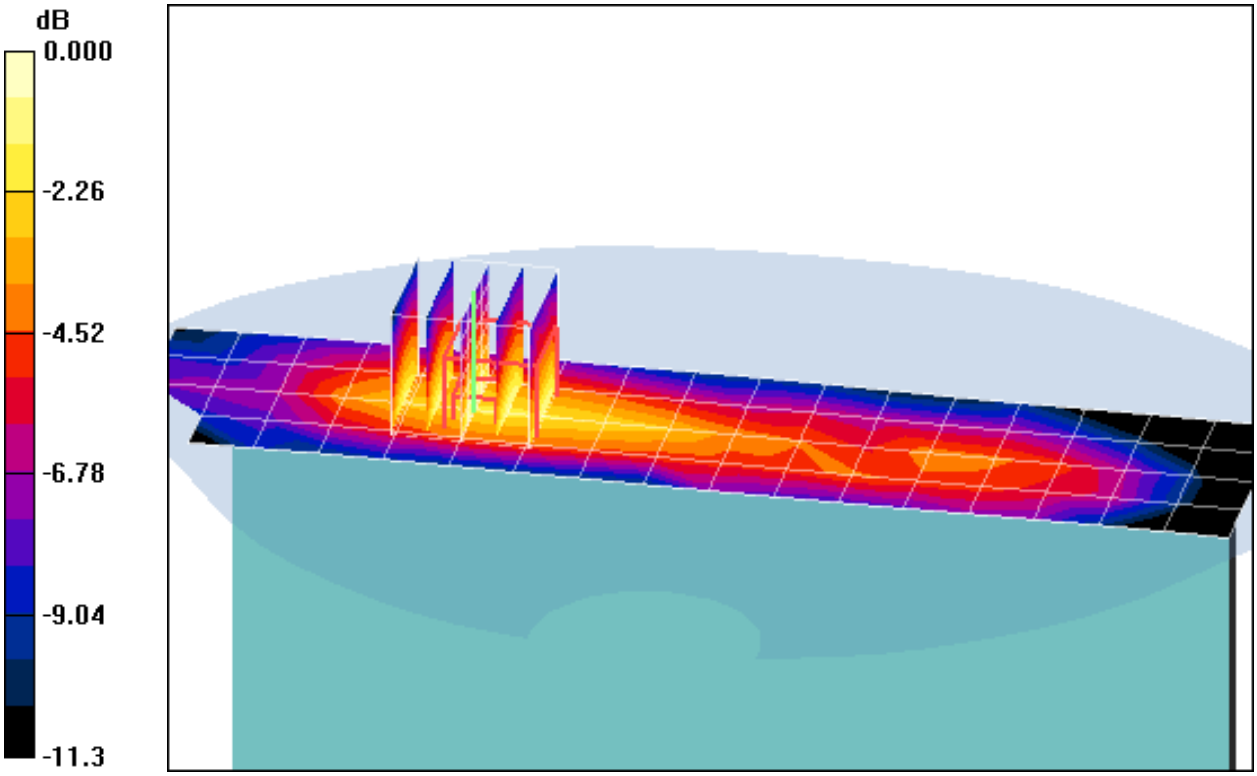
Communication System: LTE BAND 17; Frequency: 710 MHz; Duty Cycle: 1:1
Medium: 750 Body; Medium parameters used:
f = 710 MHz; σ = 0.915 mho/m; ε_r = 56.91; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.5 cm

Test Date: 08-31-2011; Ambient Temp: 23.7°C; Tissue Temp: 22.1°C

Probe: EX3DV4 - SN3550; ConvF(8.18, 8.18, 8.18); Calibrated: 2/14/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/20/2011
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: LTE 700, Body SAR, Top Edge, Mid.ch, QPSK,
1 RB, 49 RB Offset, 10MHz Bandwidth

Area Scan (5x21x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.83 V/m
Peak SAR (extrapolated) = 0.025 W/kg
SAR(1 g) = 0.019 mW/g; SAR(10 g) = 0.013 mW/g



0 dB = 0.020mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040012112

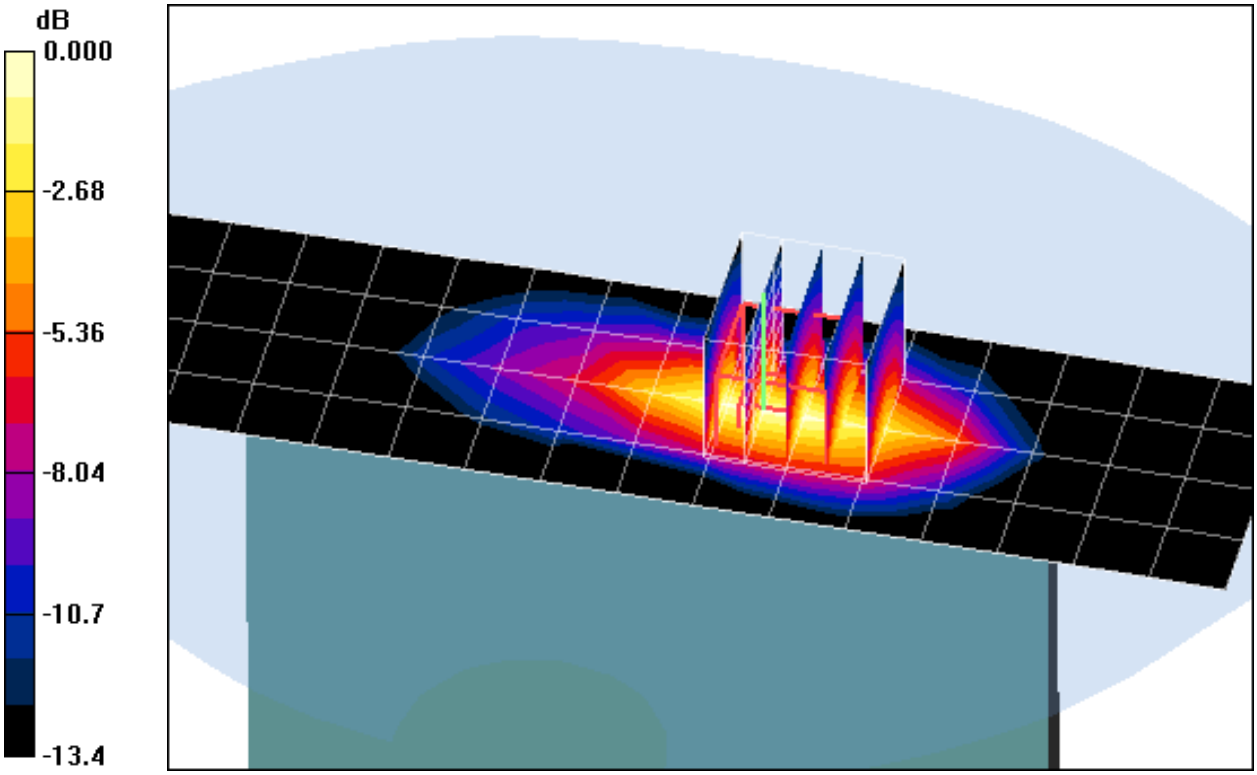
Communication System: LTE BAND 17; Frequency: 710 MHz; Duty Cycle: 1:1
Medium: 750 Body; Medium parameters used:
f = 710 MHz; σ = 0.915 mho/m; ε_r = 56.91; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 08-31-2011; Ambient Temp: 23.7°C; Tissue Temp: 22.1°C

Probe: EX3DV4 - SN3550; ConvF(8.18, 8.18, 8.18); Calibrated: 2/14/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/20/2011
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: LTE 700, Body SAR, Left Edge, Mid.ch, QPSK,
1 RB, 49 RB Offset, 10MHz Bandwidth

Area Scan (5x21x1): 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) = 0.372 W/kg
SAR(1 g) = 0.199 mW/g; SAR(10 g) = 0.106 mW/g



0 dB = 0.231mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040012153

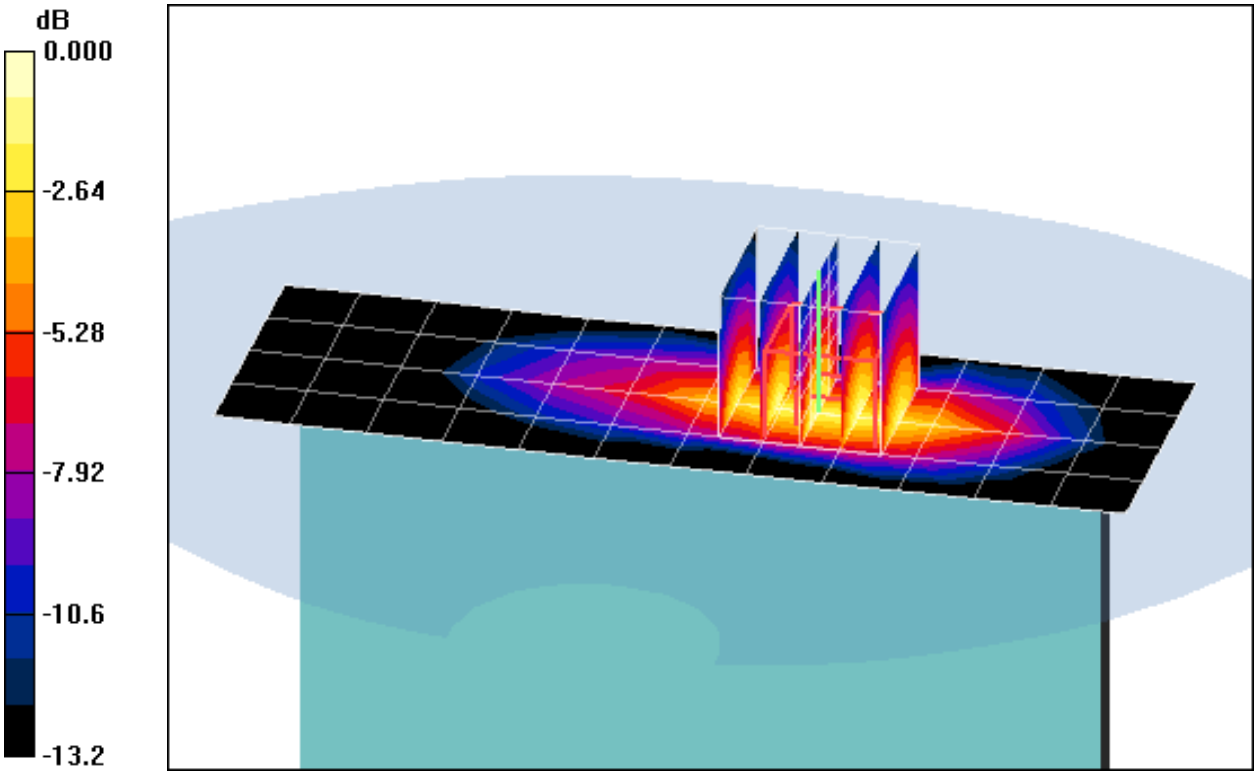
Communication System: LTE BAND 17; Frequency: 710 MHz; Duty Cycle: 1:1
Medium: 750 Body; Medium parameters used:
f = 710 MHz; σ = 0.915 mho/m; ε_r = 56.91; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.5 cm

Test Date: 08-31-2011; Ambient Temp: 23.7°C; Tissue Temp: 22.1°C

Probe: EX3DV4 - SN3550; ConvF(8.18, 8.18, 8.18); Calibrated: 2/14/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/20/2011
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: LTE 700, Body SAR, Left Edge, Mid.ch, QPSK,
1 RB, 49 RB Offset, 10MHz Bandwidth

Area Scan (5x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.4 V/m
Peak SAR (extrapolated) = 0.458 W/kg
SAR(1 g) = 0.272 mW/g; SAR(10 g) = 0.155 mW/g



0 dB = 0.305mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMIE: 358444040012153

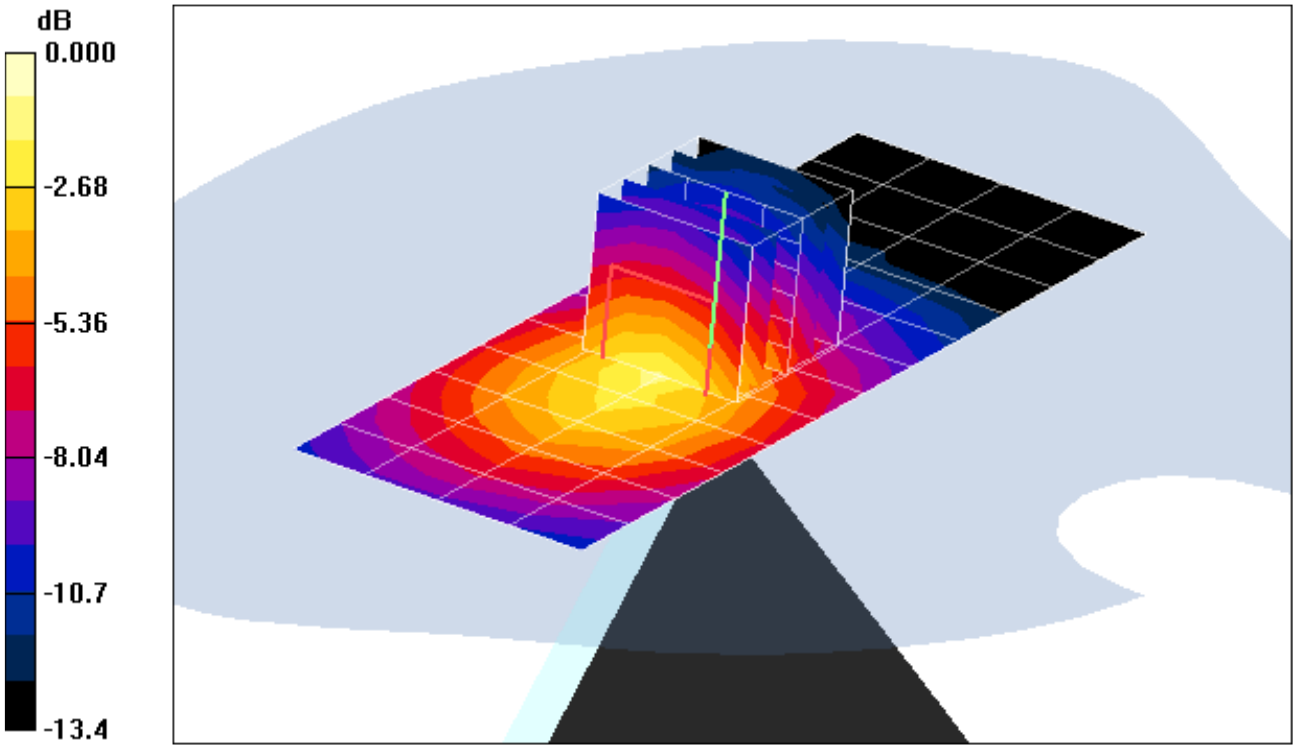
Communication System: LTE BAND 17; Frequency: 710 MHz;Duty Cycle: 1:1
Medium: 695 Body Medium parameters used:
f = 710 MHz; σ = 0.926 mho/m; ε_r = 55.3; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 10-20-2011; Ambient Temp: 22.5°C; Tissue Temp: 21.9°C

Probe: ES3DV3 - SN3209; ConvF(6.18, 6.18, 6.18); Calibrated: 4/18/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM Sub Dasy B; Type: SAM 4.0; Serial: TP-1626
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: LTE 700, Body SAR, Vertex, Mid.ch, 45 degrees, QPSK
1 RB, 49 RB Offset, 10 MHz Bandwidth

Area Scan (5x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.27 V/m
Peak SAR (extrapolated) = 0.081 W/kg
SAR(1 g) = 0.042 mW/g; SAR(10 g) = 0.024 mW/g



0 dB = 0.052mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMIE: 358444040012153

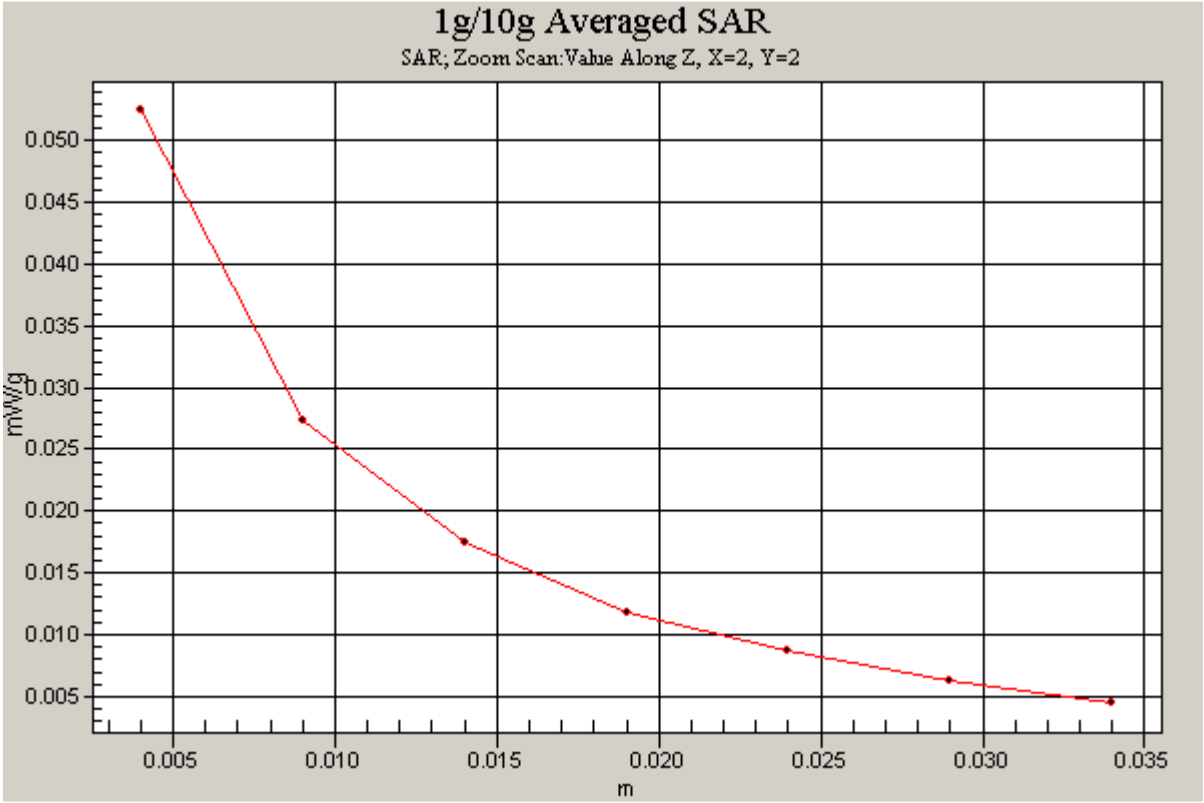
Communication System: LTE BAND 17; Frequency: 710 MHz;Duty Cycle: 1:1
Medium: 695 Body Medium parameters used:
f = 710 MHz; σ = 0.926 mho/m; ε_r = 55.3; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 10-20-2011; Ambient Temp: 22.5°C; Tissue Temp: 21.9°C

Probe: ES3DV3 - SN3209; ConvF(6.18, 6.18, 6.18); Calibrated: 4/18/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM Sub Dasy B; Type: SAM 4.0; Serial: TP-1626
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: LTE 700, Body SAR, Vertex, Mid.ch, 45 degrees, QPSK
1 RB, 49 RB Offset, 10 MHz Bandwidth

Area Scan (5x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.27 V/m
Peak SAR (extrapolated) = 0.081 W/kg
SAR(1 g) = 0.042 mW/g; SAR(10 g) = 0.024 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040012112

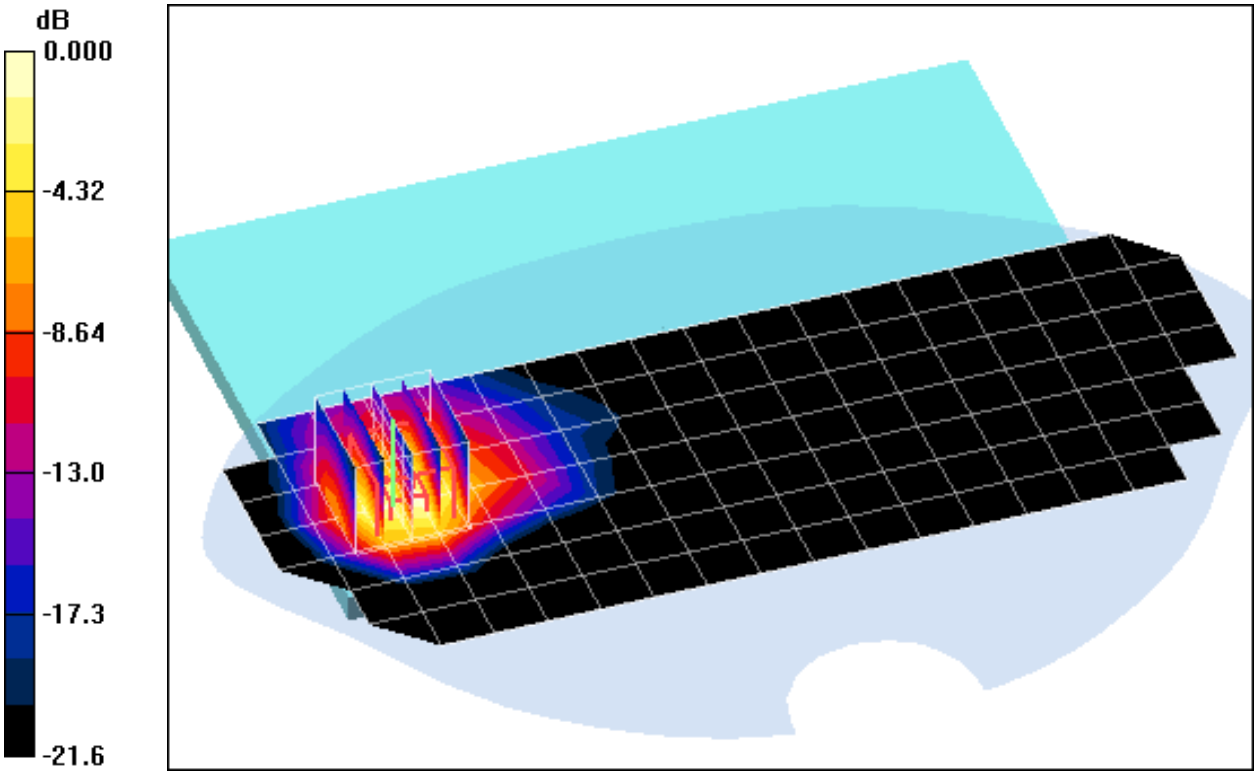
Communication System: LTE RF; Frequency: 1732.5 MHz; Duty Cycle: 1:1
Medium: 1750 Body; Medium parameters used (interpolated):
f = 1732.5 MHz; σ = 1.52 mho/m; ε_r = 52.2; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 09-03-2011; Ambient Temp: 24.1°C; Tissue Temp: 23.5°C

Probe: ES3DV3 - SN3209; ConvF(4.75, 4.75, 4.75); Calibrated: 4/18/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM Sub Dasy B; Type: SAM 4.0; Serial: TP-1626
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: LTE AWS, Body SAR, Back side, Mid.ch, QPSK,
25 RB, 12 RB Offset, 10MHz Bandwidth

Area Scan (8x19x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 26.6 V/m
Peak SAR (extrapolated) = 1.87 W/kg
SAR(1 g) = 0.935 mW/g; SAR(10 g) = 0.446 mW/g



0 dB = 1.02mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040012112

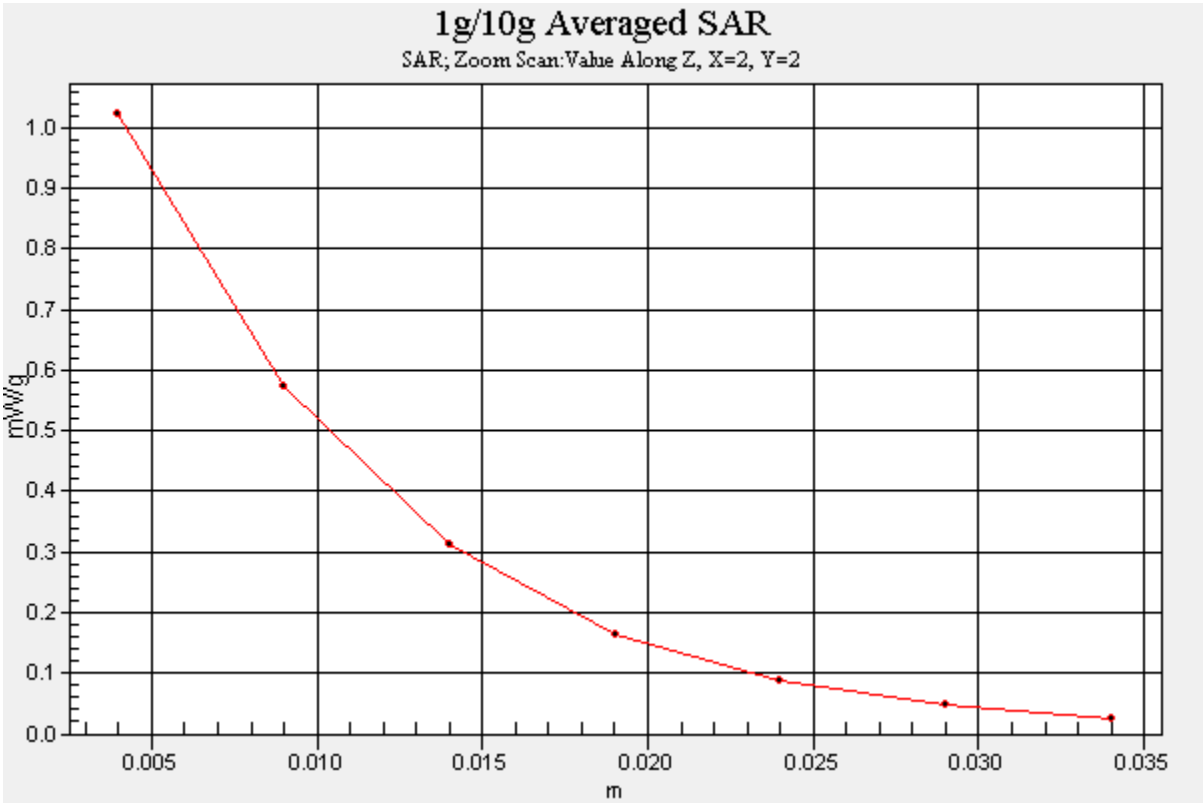
Communication System: LTE RF; Frequency: 1732.5 MHz; Duty Cycle: 1:1
Medium: 1750 Body; Medium parameters used (interpolated):
f = 1732.5 MHz; σ = 1.52 mho/m; ε_r = 52.2; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 09-03-2011; Ambient Temp: 24.1°C; Tissue Temp: 23.5°C

Probe: ES3DV3 - SN3209; ConvF(4.75, 4.75, 4.75); Calibrated: 4/18/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM Sub Dasy B; Type: SAM 4.0; Serial: TP-1626
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: LTE AWS, Body SAR, Back side, Mid.ch, QPSK,
25 RB, 12 RB Offset, 10MHz Bandwidth

Area Scan (8x19x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 26.6 V/m
Peak SAR (extrapolated) = 1.87 W/kg
SAR(1 g) = 0.935 mW/g; SAR(10 g) = 0.446 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040012153

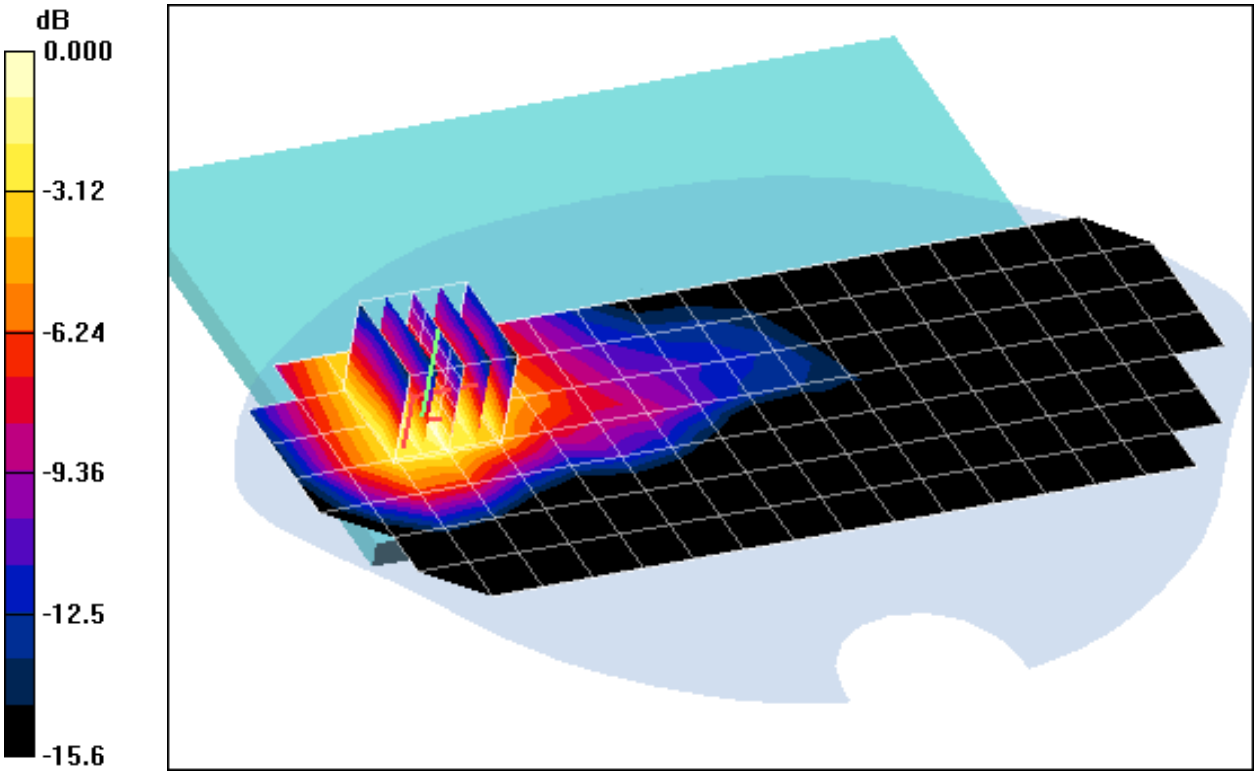
Communication System: LTE RF; Frequency: 1732.5 MHz; Duty Cycle: 1:1
Medium: 1750 Body; Medium parameters used (interpolated):
f = 1732.5 MHz; σ = 1.51 mho/m; ε_r = 53; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-30-2011; Ambient Temp: 23.4°C; Tissue Temp: 21.9°C

Probe: ES3DV3 - SN3209; ConvF(4.75, 4.75, 4.75); Calibrated: 4/18/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM Sub Dasy B; Type: SAM 4.0; Serial: TP-1626
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: LTE AWS, Body SAR, Back side, Mid.ch, QPSK,
1 RB, 49 RB Offset, 10MHz Bandwidth

Area Scan (8x19x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.4 V/m
Peak SAR (extrapolated) = 0.672 W/kg
SAR(1 g) = 0.415 mW/g; SAR(10 g) = 0.253 mW/g



0 dB = 0.445mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040012153

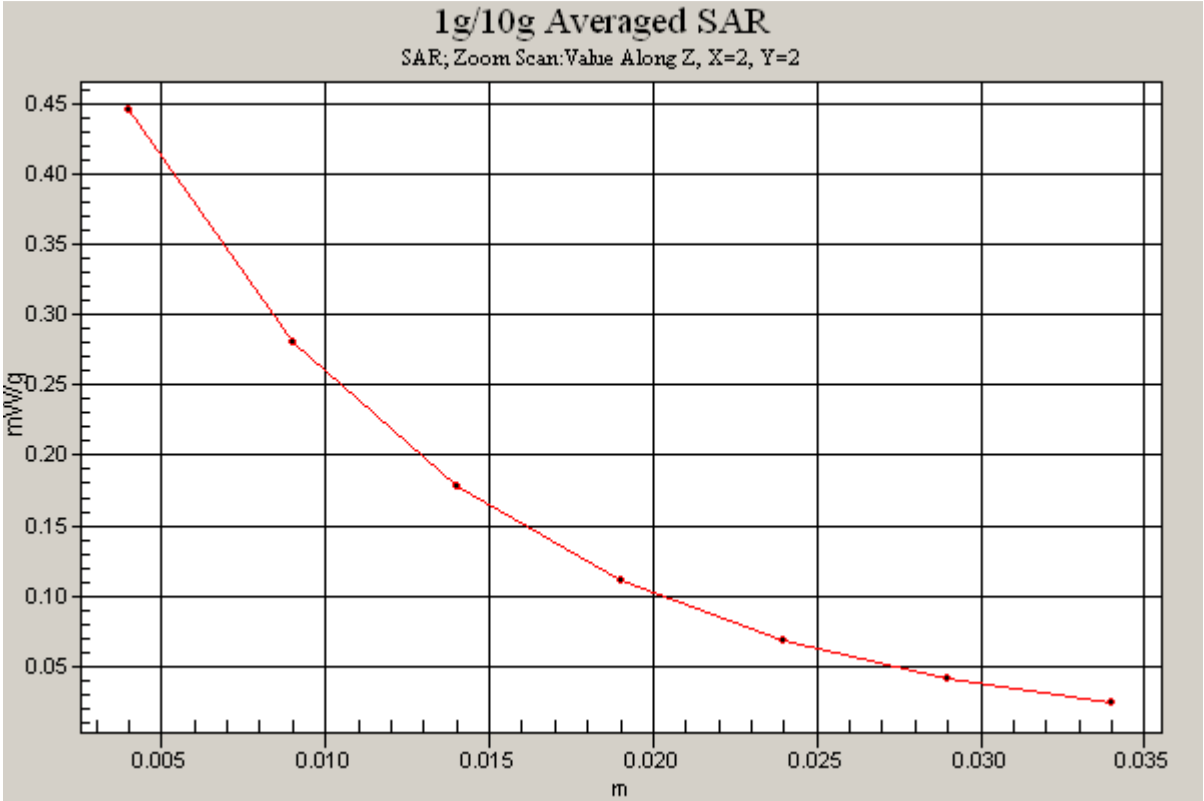
Communication System: LTE RF; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
f = 1732.5 MHz; σ = 1.51 mho/m; ε_r = 53; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 08-30-2011; Ambient Temp: 23.4°C; Tissue Temp: 21.9°C

Probe: ES3DV3 - SN3209; ConvF(4.75, 4.75, 4.75); Calibrated: 4/18/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM Sub Dasy B; Type: SAM 4.0; Serial: TP-1626
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: LTE AWS, Body SAR, Back side, Mid.ch, QPSK
1 RB, 49 RB Offset, 10MHz Bandwidth,

Area Scan (8x19x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.4 V/m
Peak SAR (extrapolated) = 0.672 W/kg
SAR(1 g) = 0.415 mW/g; SAR(10 g) = 0.253 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040012112

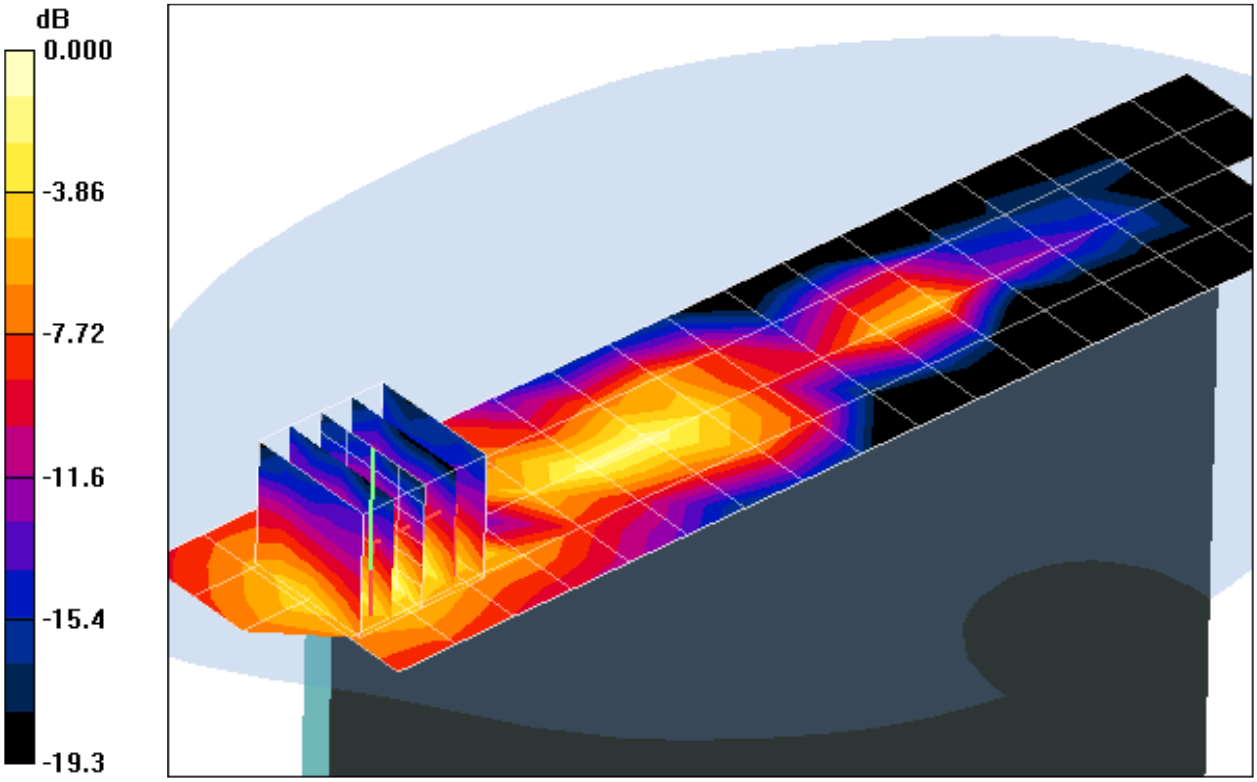
Communication System: LTE RF; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
f = 1732.5 MHz; σ = 1.52 mho/m; ε_r = 52.2; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 09-03-2011; Ambient Temp: 24.1°C; Tissue Temp: 23.5°C

Probe: ES3DV3 - SN3209; ConvF(4.75, 4.75, 4.75); Calibrated: 4/18/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM Sub Dasy B; Type: SAM 4.0; Serial: TP-1626
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: LTE AWS, Body SAR, Top Edge, Mid.ch, QPSK
25 RB, 12 RB Offset, 10 MHz Bandwidth

Area Scan (5x21x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.32 V/m
Peak SAR (extrapolated) = 0.112 W/kg
SAR(1 g) = 0.055 mW/g; SAR(10 g) = 0.026 mW/g



0 dB = 0.064mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040012153

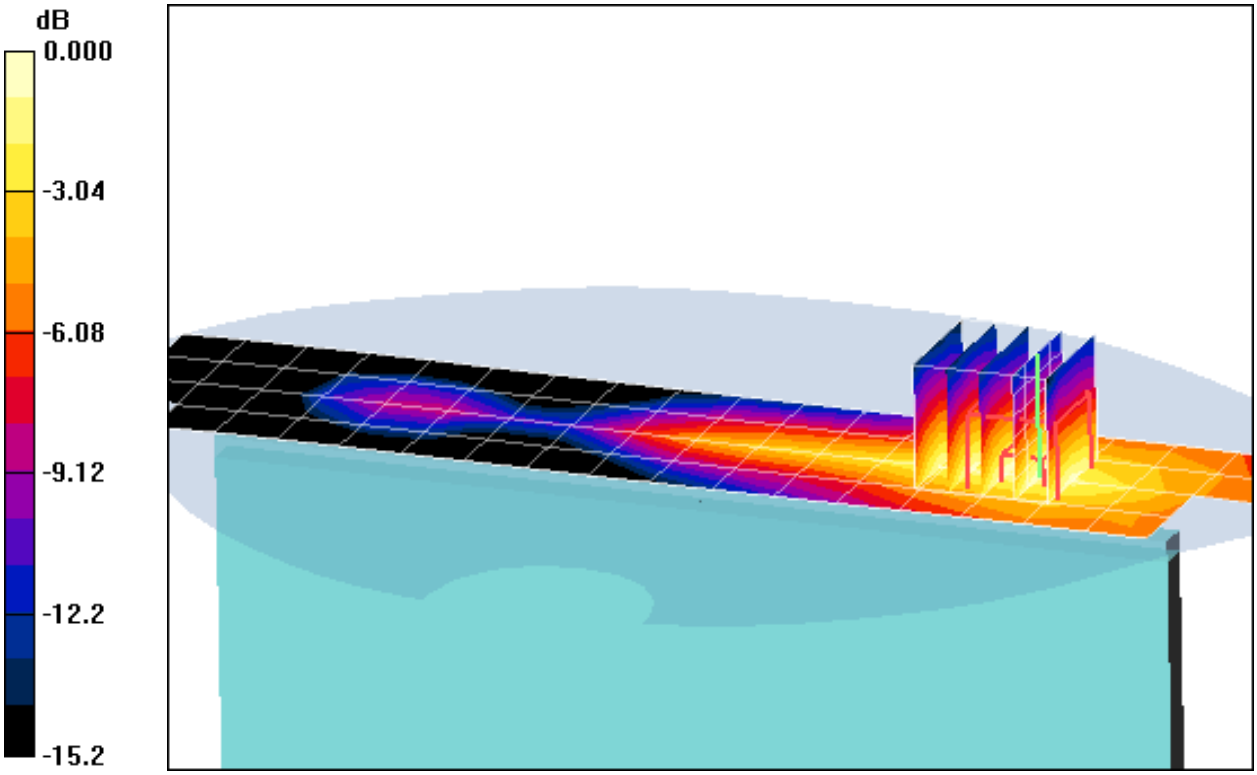
Communication System: LTE RF; Frequency: 1732.5 MHz; Duty Cycle: 1:1
Medium: 1750 Body; Medium parameters used (interpolated):
f = 1732.5 MHz; σ = 1.51 mho/m; ε_r = 53; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.5 cm

Test Date: 08-30-2011; Ambient Temp: 23.4°C; Tissue Temp: 21.9°C

Probe: ES3DV3 - SN3209; ConvF(4.75, 4.75, 4.75); Calibrated: 4/18/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM Sub Dasy B; Type: SAM 4.0; Serial: TP-1626
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: LTE AWS, Body SAR, Top Edge, Mid.ch, QPSK,
1 RB, 49 RB Offset, 10MHz Bandwidth

Area Scan (5x21x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.88 V/m
Peak SAR (extrapolated) = 0.131 W/kg
SAR(1 g) = 0.082 mW/g; SAR(10 g) = 0.050 mW/g



0 dB = 0.088mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040012112

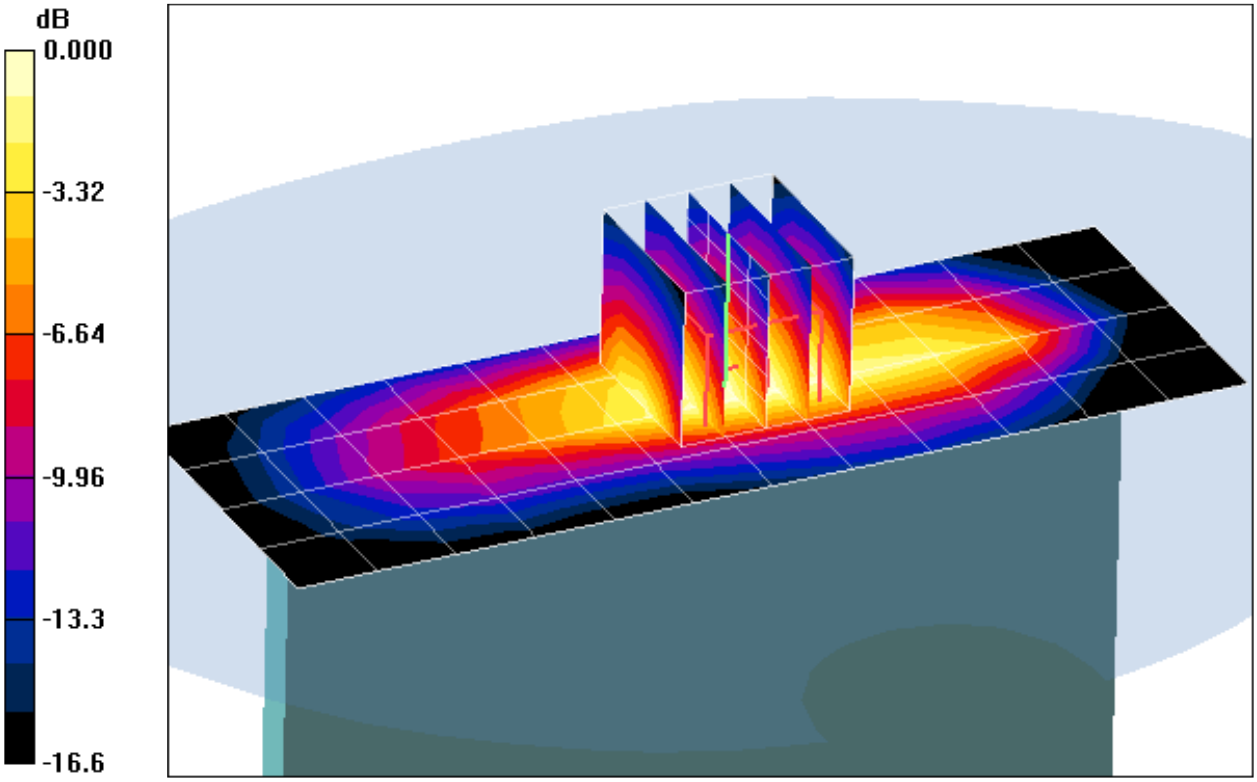
Communication System: LTE RF; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
f = 1732.5 MHz; σ = 1.52 mho/m; ε_r = 52.2; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 09-03-2011; Ambient Temp: 24.1°C; Tissue Temp: 23.5°C

Probe: ES3DV3 - SN3209; ConvF(4.75, 4.75, 4.75); Calibrated: 4/18/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM Sub Dasy B; Type: SAM 4.0; Serial: TP-1626
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: LTE AWS, Body SAR, Left Edge, Mid.ch, QPSK
25 RB, 12 RB Offset, 10 MHz Bandwidth

Area Scan (5x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.9 V/m
Peak SAR (extrapolated) = 0.477 W/kg
SAR(1 g) = 0.272 mW/g; SAR(10 g) = 0.148 mW/g



0 dB = 0.309mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040012112

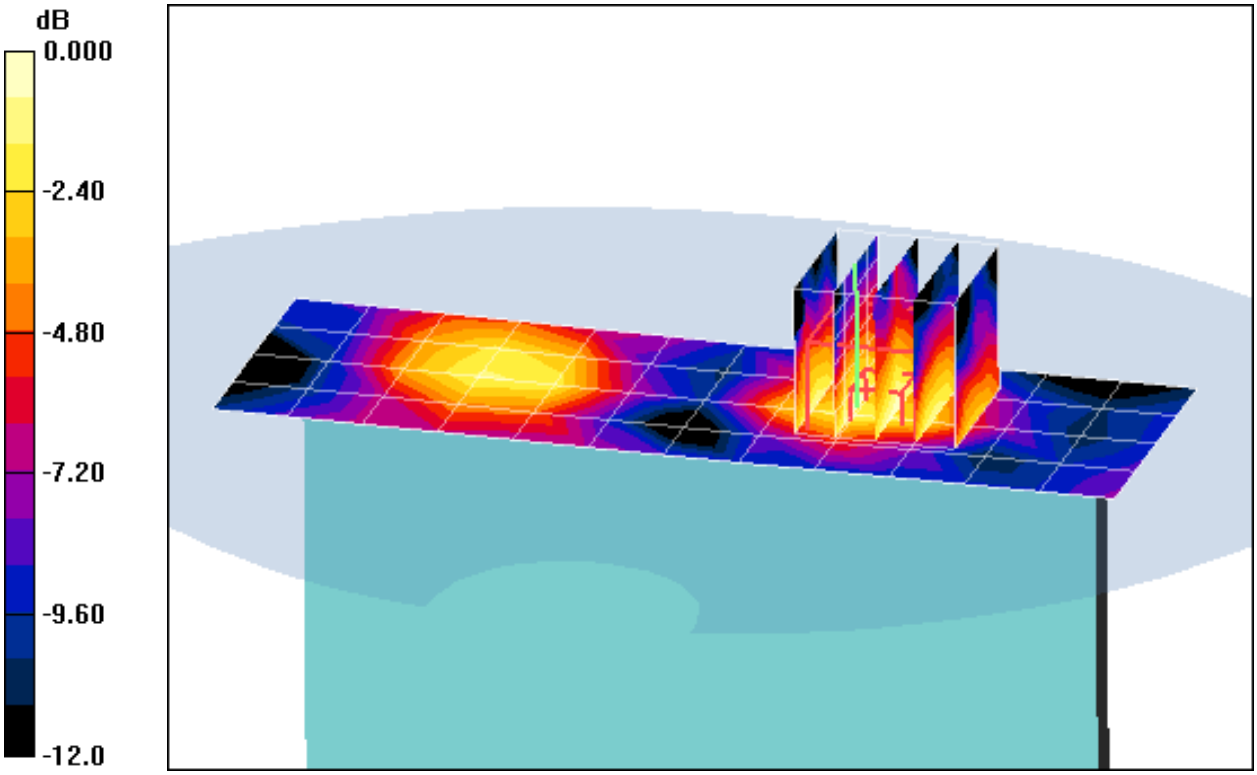
Communication System: LTE RF; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium: 1750 Body; Medium parameters used (interpolated):
f = 1732.5 MHz; σ = 1.51 mho/m; ε_r = 53; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.5 cm

Test Date: 08-30-2011; Ambient Temp: 23.4°C; Tissue Temp: 21.9°C

Probe: ES3DV3 - SN3209; ConvF(4.75, 4.75, 4.75); Calibrated: 4/18/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM Sub Dasy B; Type: SAM 4.0; Serial: TP-1626
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: LTE AWS, Body SAR, Left Edge, Mid.ch, QPSK,
1 RB, 49 RB Offset, 10MHz Bandwidth

Area Scan (5x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.99 V/m
Peak SAR (extrapolated) = 0.018 W/kg
SAR(1 g) = 0.012 mW/g; SAR(10 g) = 0.00712 mW/g



0 dB = 0.013mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI: 358444040012153

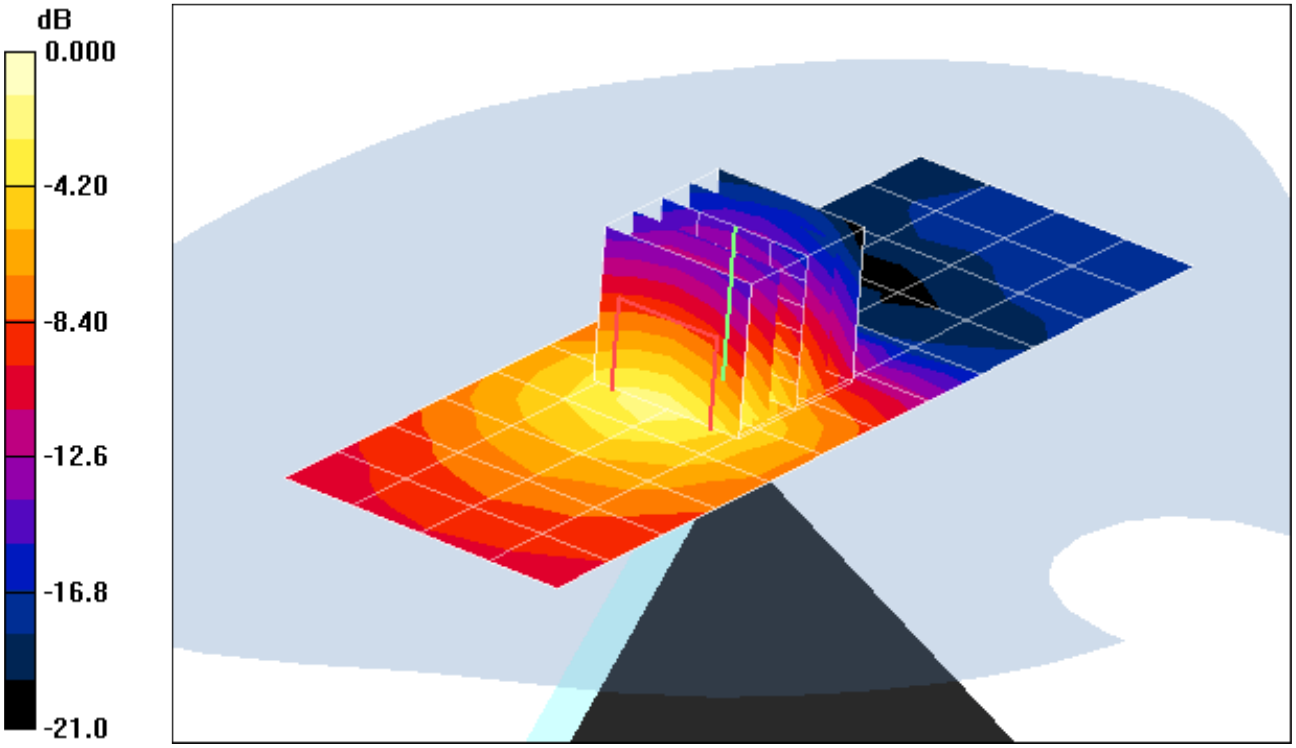
Communication System: LTE RF; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
f = 1732.5 MHz; σ = 1.52 mho/m; ε_r = 53.1; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 10-20-2011; Ambient Temp: 24.3°C; Tissue Temp: 22.4°C

Probe: ES3DV3 - SN3209; ConvF(4.75, 4.75, 4.75); Calibrated: 4/18/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM Sub Dasy B; Type: SAM 4.0; Serial: TP-1626
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: LTE AWS, Body SAR, Vertex, Mid.ch, 45 degrees, QPSK
1 RB, 49 RB Offset, 10 MHz Bandwidth

Area Scan (5x13x1): 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) = 0.490 W/kg
SAR(1 g) = 0.258 mW/g; SAR(10 g) = 0.134 mW/g



0 dB = 0.307mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI: 358444040012153

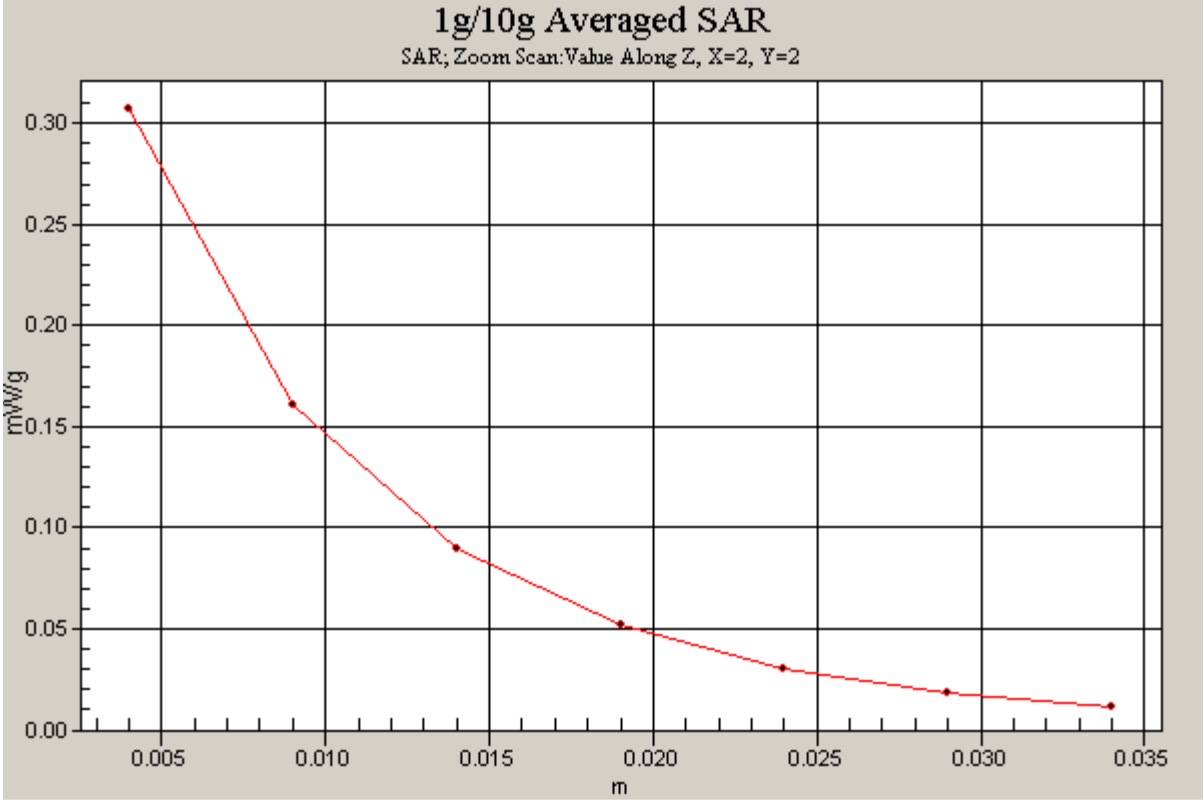
Communication System: LTE RF; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
f = 1732.5 MHz; σ = 1.52 mho/m; ε_r = 53.1; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 10-20-2011; Ambient Temp: 24.3°C; Tissue Temp: 22.4°C

Probe: ES3DV3 - SN3209; ConvF(4.75, 4.75, 4.75); Calibrated: 4/18/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM Sub Dasy B; Type: SAM 4.0; Serial: TP-1626
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: LTE AWS, Body SAR, Vertex, Mid.ch, 45 degrees, QPSK
1 RB, 49 RB Offset, 10 MHz Bandwidth

Area Scan (5x13x1): 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) = 0.490 W/kg
SAR(1 g) = 0.258 mW/g; SAR(10 g) = 0.134 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040012161

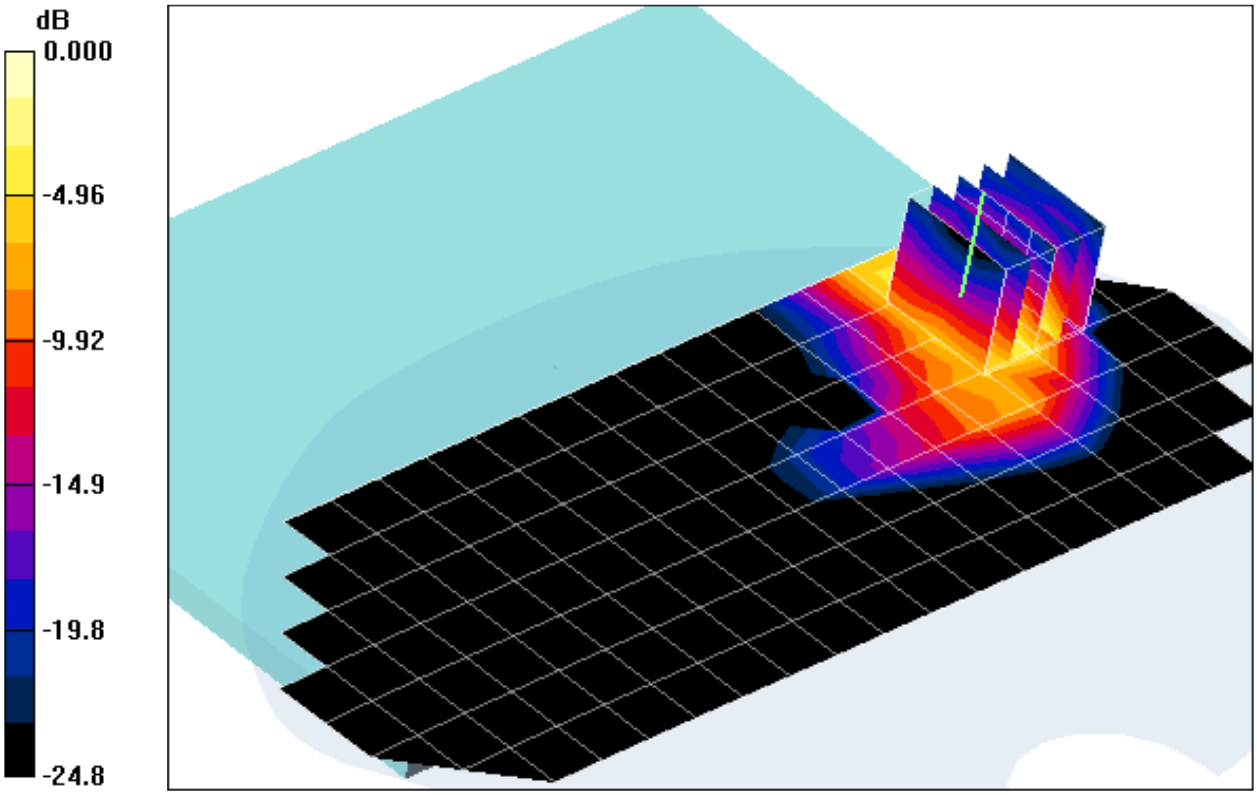
Communication System: IEEE 802.11b; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used (interpolated):
f = 2437 MHz; σ = 1.89 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 08-31-2011; Ambient Temp: 23.4°C; Tissue Temp: 21.8°C

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

Mode: IEEE 802.11b, Body SAR, Ch.06, 1Mbps, Back Side

Area Scan (8x20x1): 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) = 1.69 W/kg
SAR(1 g) = 0.699 mW/g; SAR(10 g) = 0.293 mW/g



0 dB = 0.909mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040012161

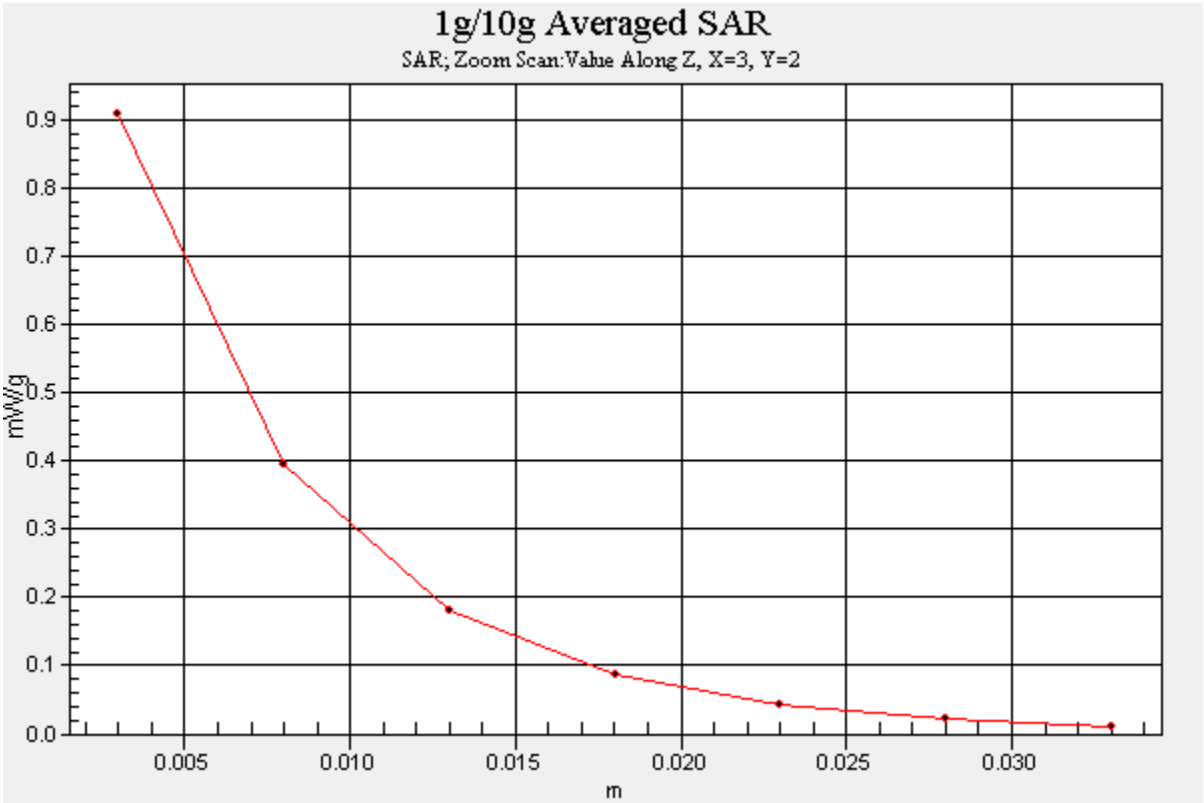
Communication System: IEEE 802.11b; Frequency: 2437 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used (interpolated):
f = 2437 MHz; σ = 1.89 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 08-31-2011; Ambient Temp: 23.4°C; Tissue Temp: 21.8°C

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

Mode: IEEE 802.11b, Body SAR, Ch.06, 1Mbps, Back Side

Area Scan (8x20x1): 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) = 1.69 W/kg
SAR(1 g) = 0.699 mW/g; SAR(10 g) = 0.293 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040012161

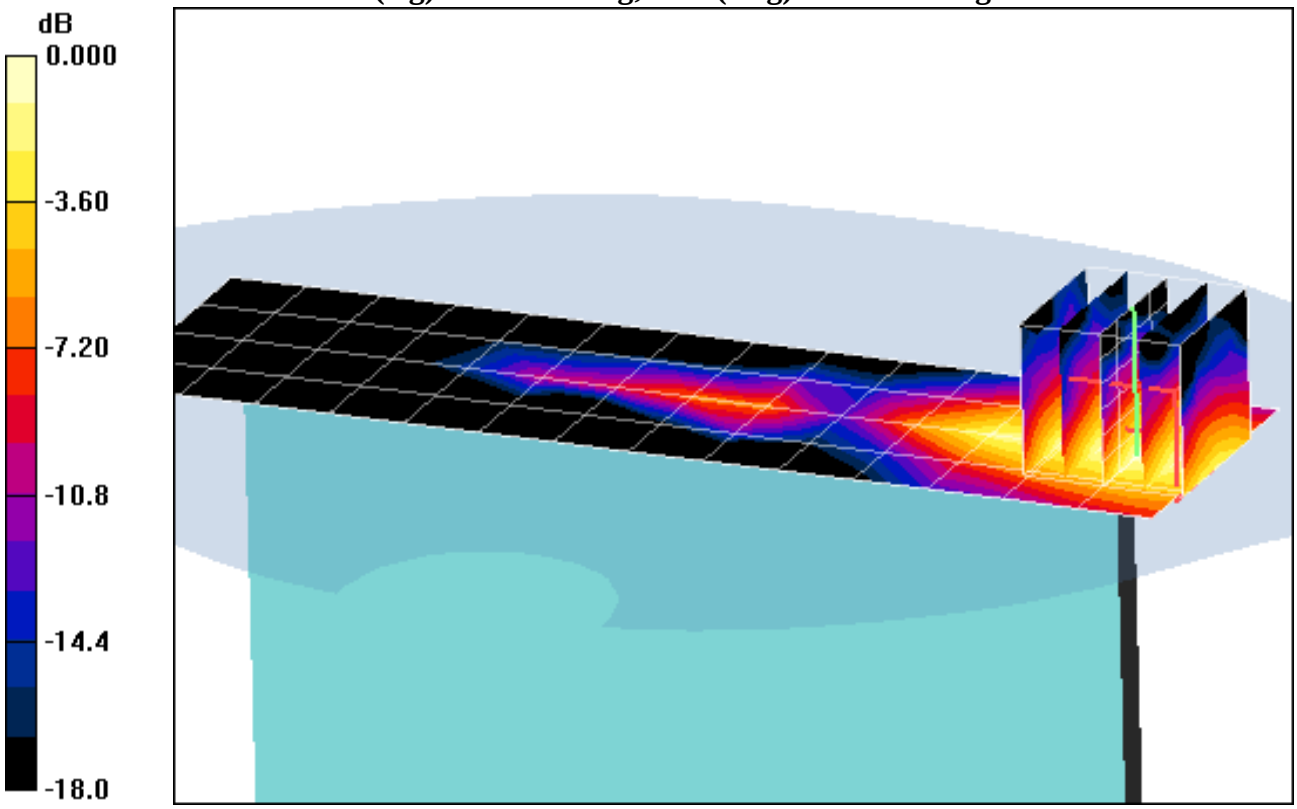
Communication System: IEEE 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used (interpolated):
f = 2462 MHz; σ = 1.92 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 08-31-2011; Ambient Temp: 23.4°C; Tissue Temp: 21.8°C

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

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

Area Scan (5x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.53 V/m
Peak SAR (extrapolated) = 0.078 W/kg
SAR(1 g) = 0.036 mW/g; SAR(10 g) = 0.017 mW/g



0 dB = 0.048mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040012161

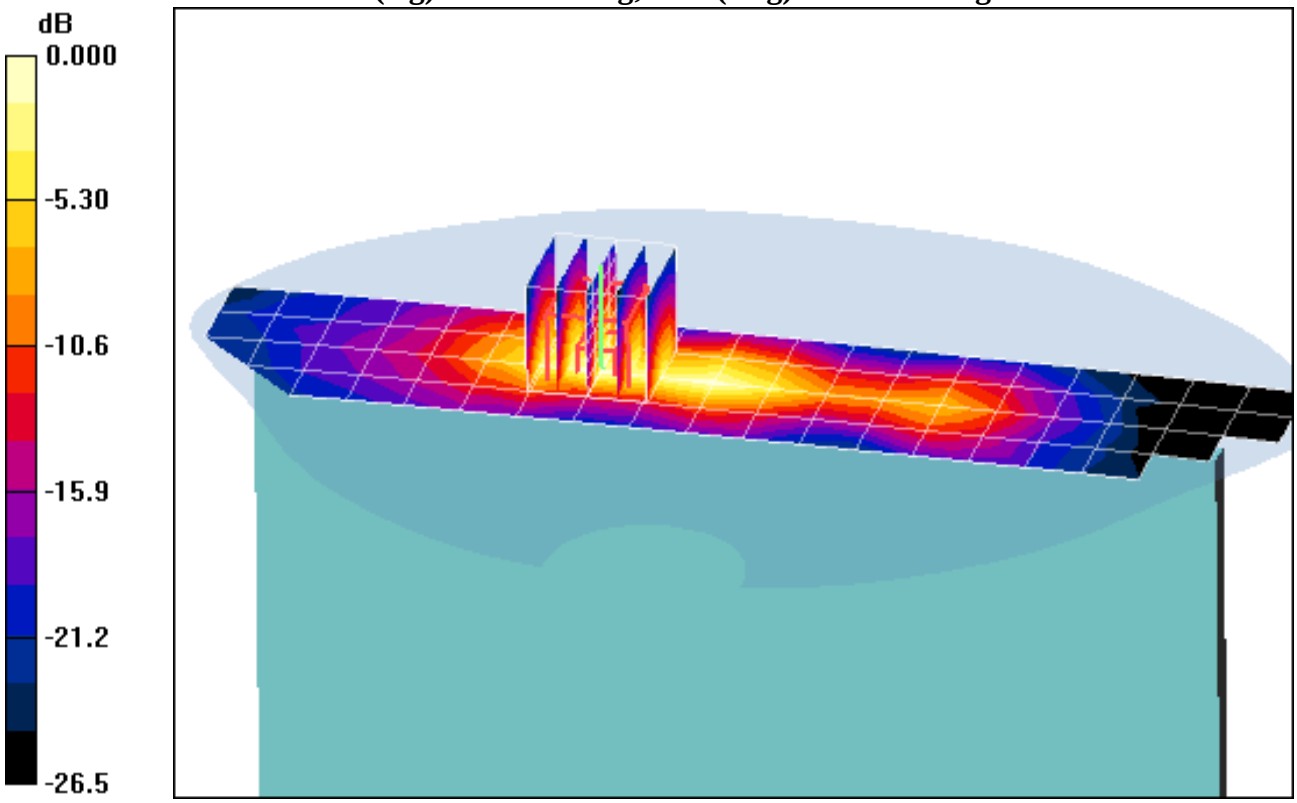
Communication System: IEEE 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used (interpolated):
f = 2462 MHz; σ = 1.92 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 08-31-2011; Ambient Temp: 23.4°C; Tissue Temp: 21.8°C

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

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

Area Scan (5x20x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.2 V/m
Peak SAR (extrapolated) = 0.806 W/kg
SAR(1 g) = 0.316 mW/g; SAR(10 g) = 0.122 mW/g



0 dB = 0.418mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040009670

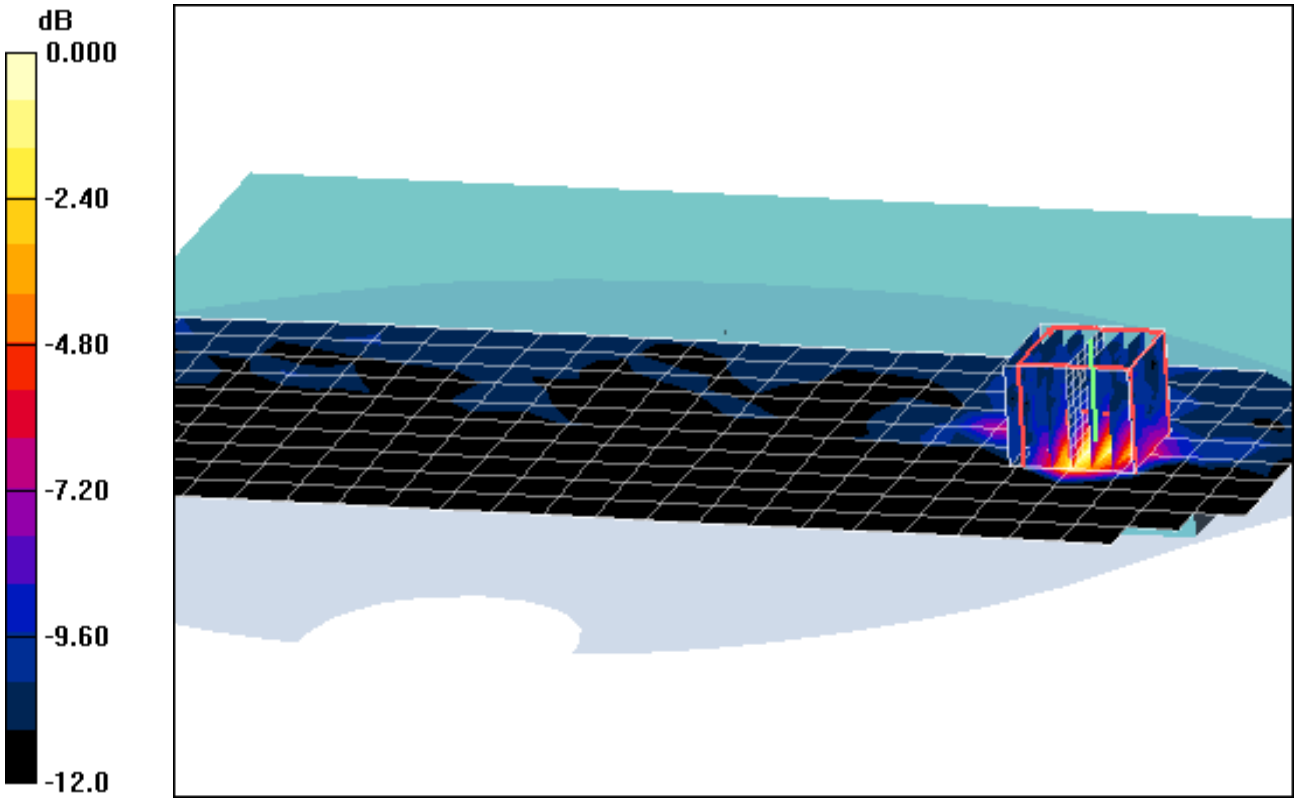
Communication System: IEEE 802.11a 5.2-5.8 GHz Band; Frequency: 5745 MHz;Duty Cycle: 1:1
Medium: 5 GHz Body; Medium parameters used (interpolated):
f = 5745 MHz; σ = 6.11 mho/m; ε_r = 46; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 08-26-2011; Ambient Temp: 23.8°C; Tissue Temp: 22.7°C

Probe: EX3DV4 - SN3550; ConvF(3.29, 3.29, 3.29); Calibrated: 2/14/2011
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/20/2011
Phantom: SAM 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, Body SAR, Ch 149, 6 Mbps, Back Side

Area Scan (11x27x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 10.5 V/m
Peak SAR (extrapolated) = 3.41 W/kg
SAR(1 g) = 0.729 mW/g; SAR(10 g) = 0.296 mW/g



0 dB = 1.51mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040009670

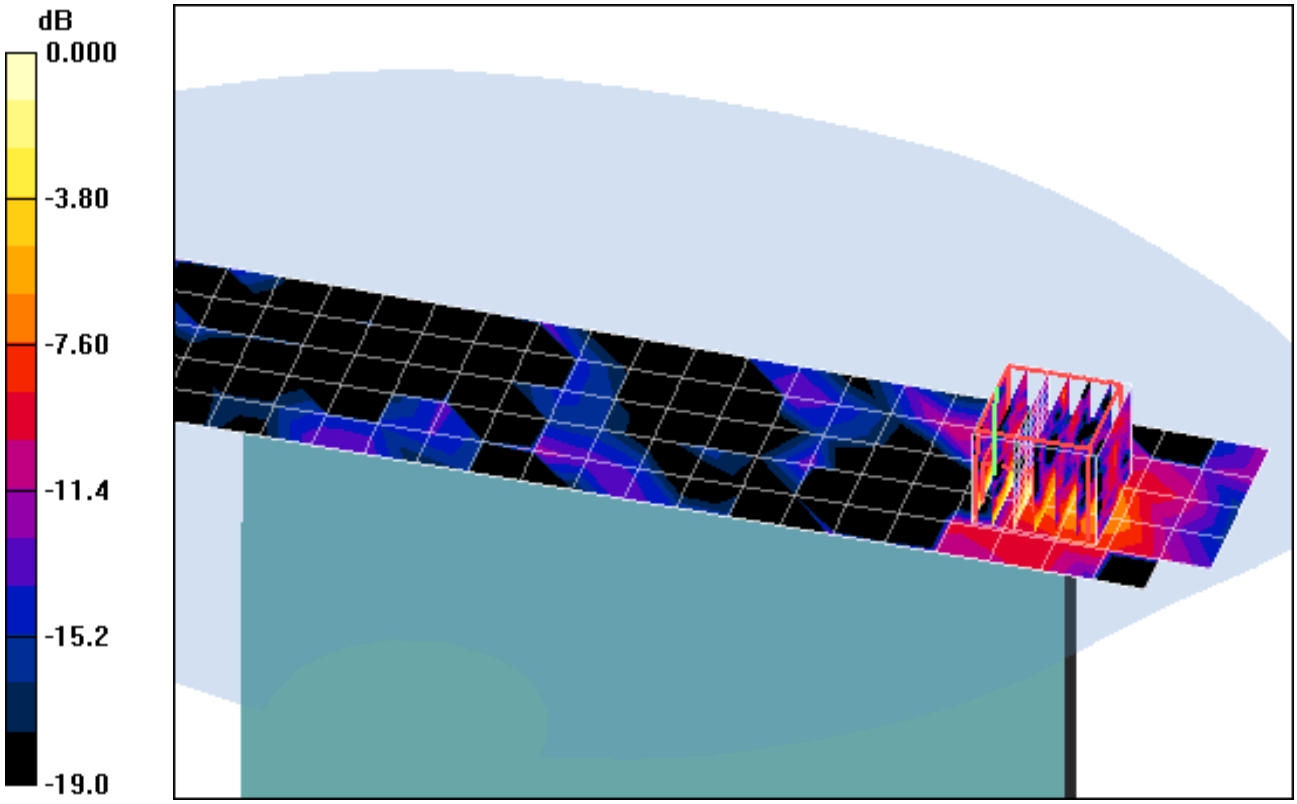
Communication System: IEEE 802.11a 5.2-5.8 GHz Band; Frequency: 5745 MHz;Duty Cycle: 1:1
Medium: 5 GHz Body Medium parameters used (interpolated):
f = 5745 MHz; σ = 6.11 mho/m; ε_r = 46; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 08-26-2011; Ambient Temp: 23.8°C; Tissue Temp: 22.7°C

Probe: EX3DV4 - SN3550; ConvF(3.29, 3.29, 3.29); Calibrated: 2/14/2011
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/20/2011
Phantom: SAM 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, Body SAR, Ch 149, 6 Mbps, Top Side

Area Scan (6x27x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 2.85 V/m
Peak SAR (extrapolated) = 0.304 W/kg
SAR(1 g) = 0.041 mW/g; SAR(10 g) = 0.012 mW/g



0 dB = 0.097mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040009670

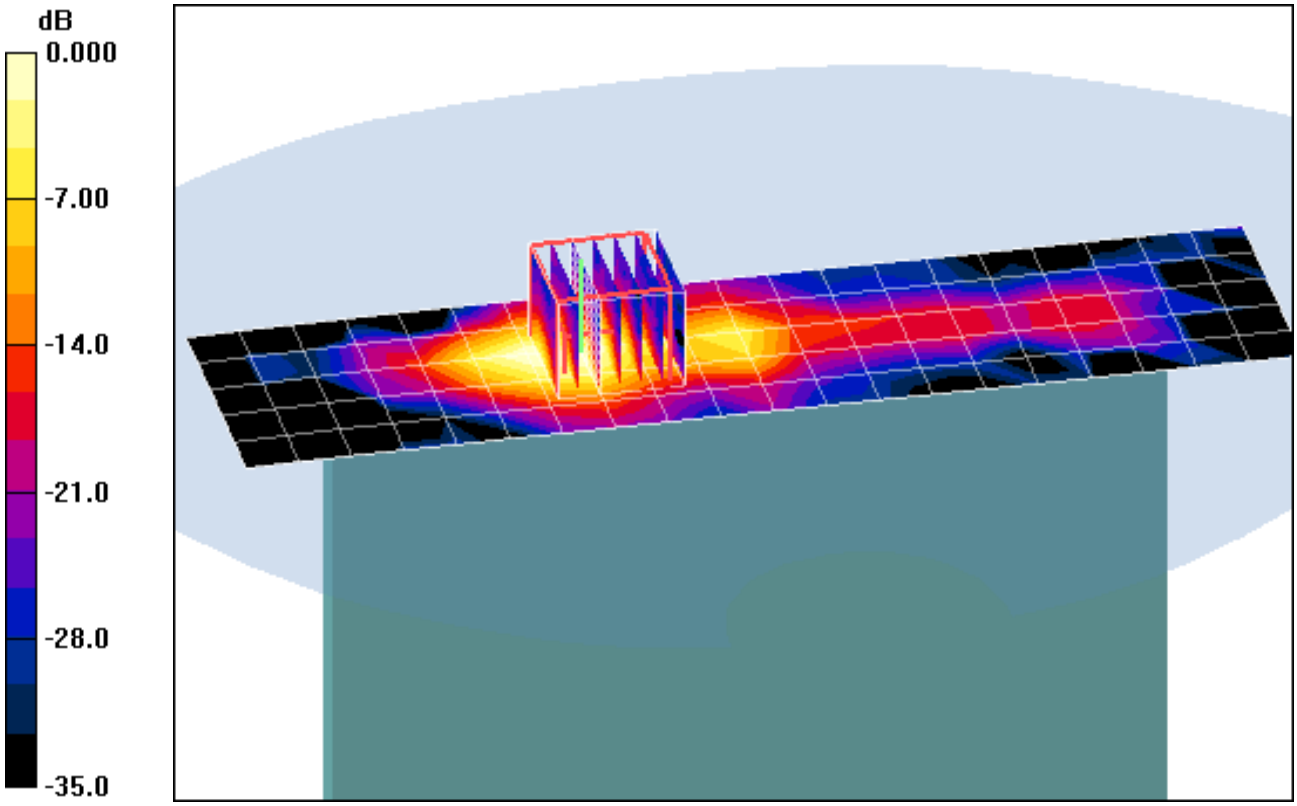
Communication System: IEEE 802.11a 5.2-5.8 GHz Band; Frequency: 5745 MHz;Duty Cycle: 1:1
Medium: 5 GHz Body; Medium parameters used (interpolated):
f = 5745 MHz; σ = 6.11 mho/m; ε_r = 46; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 08-26-2011; Ambient Temp: 23.8°C; Tissue Temp: 22.7°C

Probe: EX3DV4 - SN3550; ConvF(3.29, 3.29, 3.29); Calibrated: 2/14/2011
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/20/2011
Phantom: SAM 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, Body SAR, Ch 149, 6 Mbps, Right Side

Area Scan (6x21x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 13.0 V/m
Peak SAR (extrapolated) = 3.96 W/kg
SAR(1 g) = 0.882 mW/g; SAR(10 g) = 0.216 mW/g



0 dB = 1.81mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSGHI957; Type: Portable Tablet Computer; Serial: IMEI 358444040009670

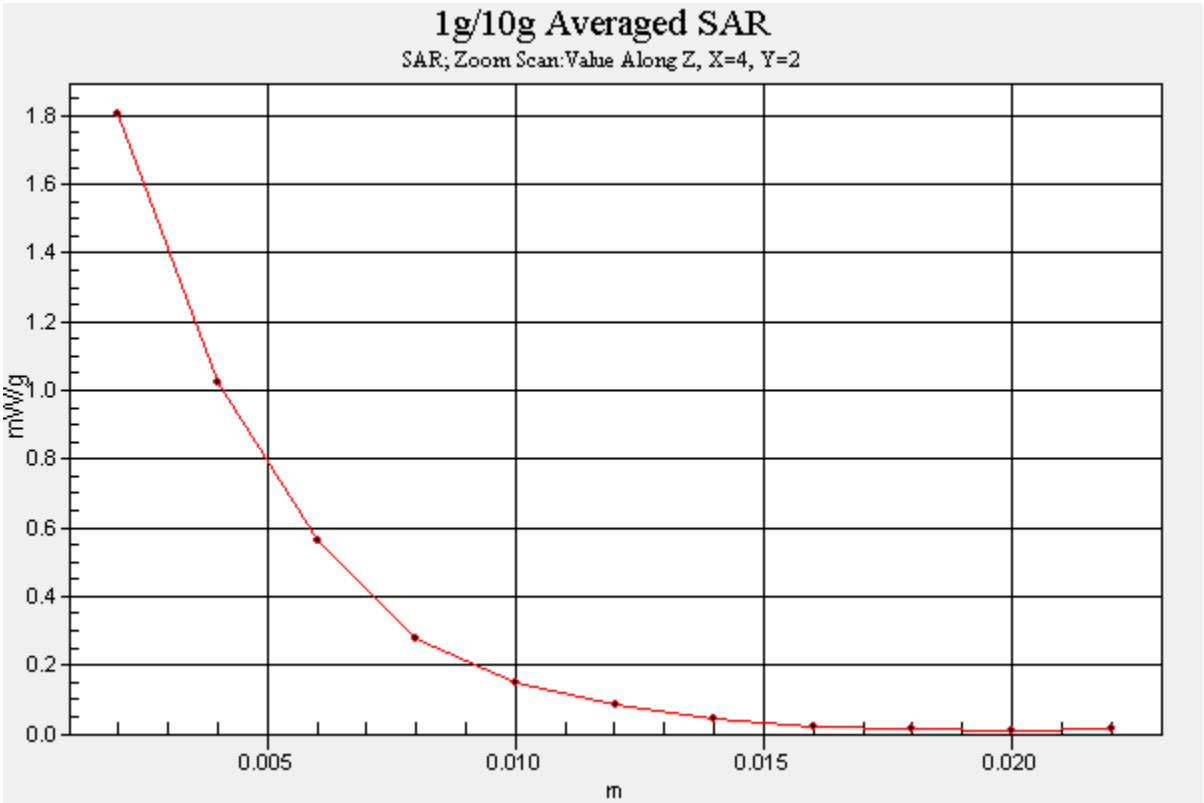
Communication System: IEEE 802.11a 5.2-5.8 GHz Band; Frequency: 5745 MHz;Duty Cycle: 1:1
Medium: 5 GHz Body Medium parameters used (interpolated):
f = 5745 MHz; σ = 6.11 mho/m; ε_r = 46; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 08-26-2011; Ambient Temp: 23.8°C; Tissue Temp: 22.7°C

Probe: EX3DV4 - SN3550; ConvF(3.29, 3.29, 3.29); Calibrated: 2/14/2011
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/20/2011
Phantom: SAM 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, Body SAR, Ch 149, 6 Mbps, Right Side

Area Scan (6x21x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 13.0 V/m
Peak SAR (extrapolated) = 3.96 W/kg
SAR(1 g) = 0.882 mW/g; SAR(10 g) = 0.216 mW/g



APPENDIX B: DIPOLE VALIDATION

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PCTEST ENGINEERING LABORATORY, INC.

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

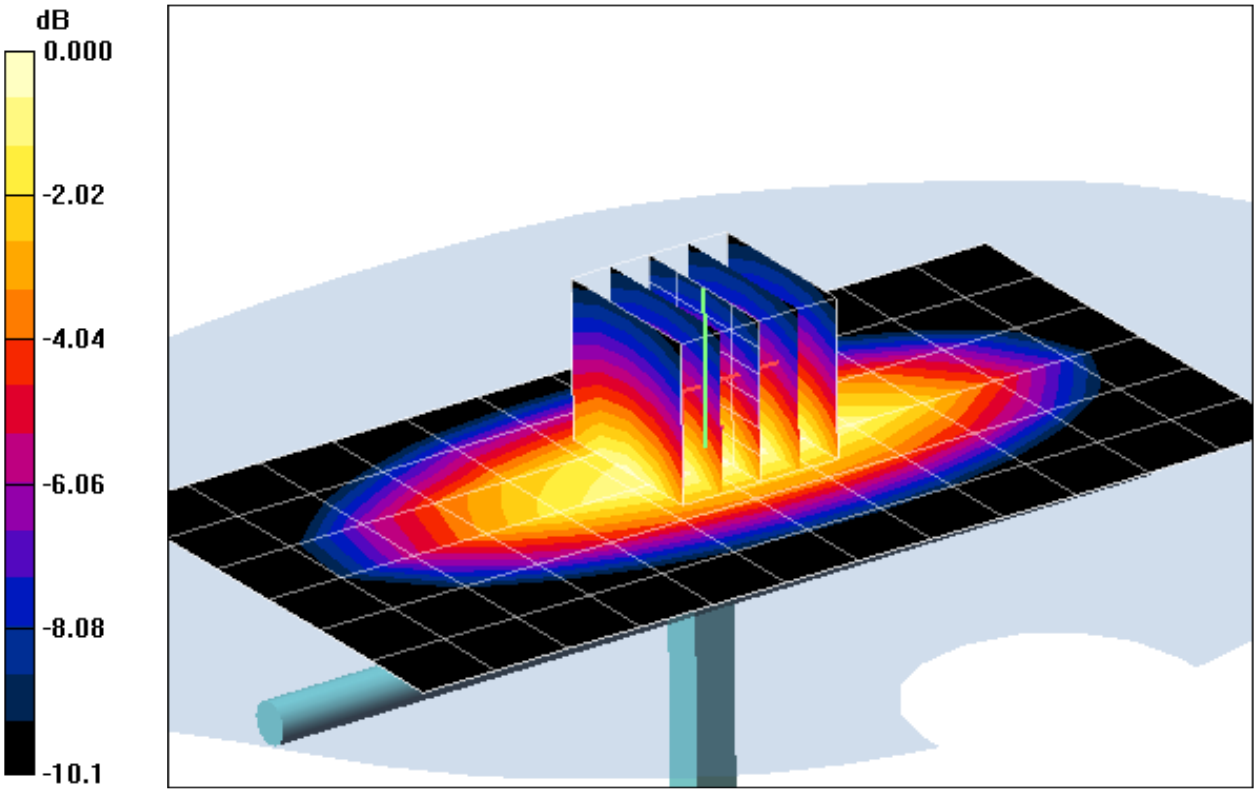
Communication System: CW; Frequency: 750 MHz;Duty Cycle: 1:1
Medium: 750 Body Medium parameters used (interpolated):
f = 750 MHz; σ = 0.942 mho/m; ε_r = 56.7; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 08-31-2011; Ambient Temp: 23.7°C; Tissue Temp:22.1 °C

Probe: EX3DV4 - SN3550; ConvF(8.18, 8.18, 8.18); Calibrated: 2/14/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/20/2011
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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 = 20 dBm (100 mW)
SAR(1 g) = 0.815 mW/g; SAR(10 g) = 0.540 mW/g
Deviation = -7.91%



0 dB = 0.879mW/g

PCTEST ENGINEERING LABORATORY, INC.

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

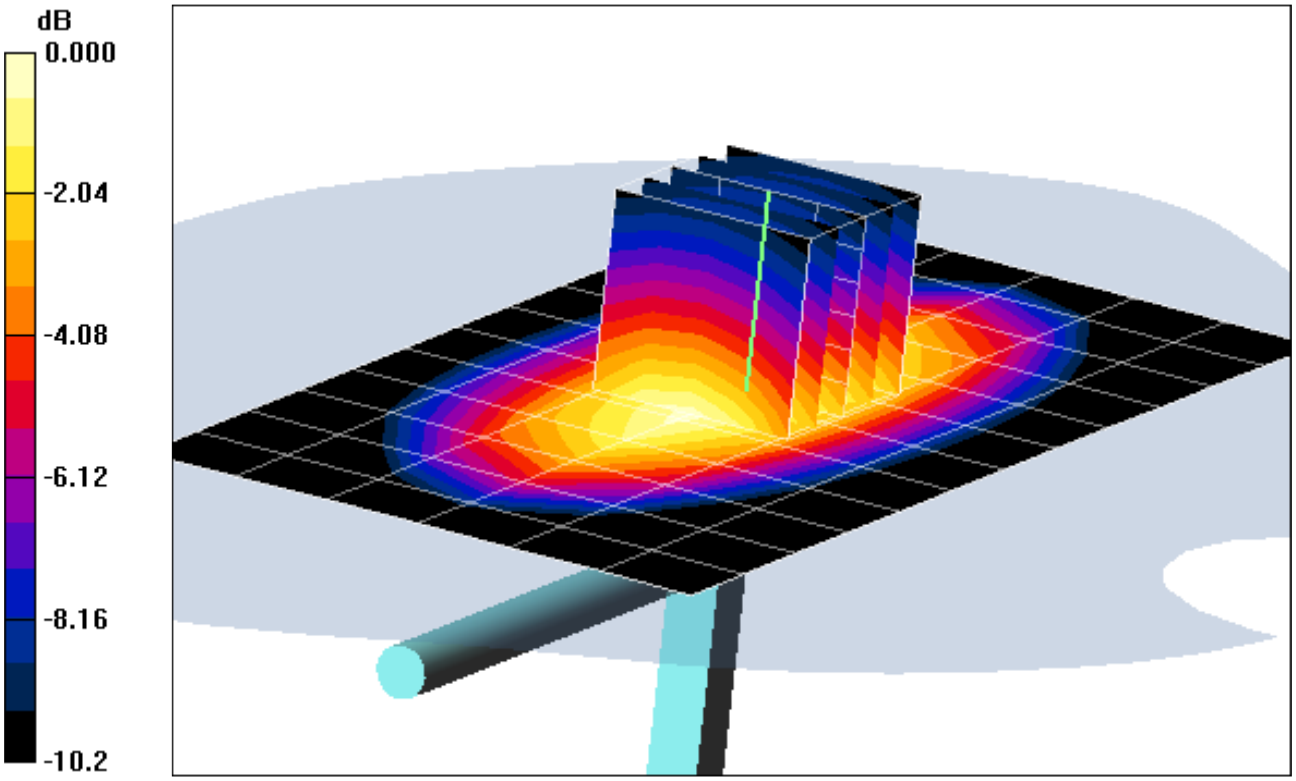
Communication System: CW; Frequency: 750 MHz;Duty Cycle: 1:1
Medium: 740 Body Medium parameters used (interpolated):
f = 750 MHz; σ = 0.957 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 10-20-2011; Ambient Temp: 22.5°C; Tissue Temp: 21.9°C

Probe: ES3DV3 - SN3209; ConvF(6.18, 6.18, 6.18); Calibrated: 4/18/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM Sub Dasy B; Type: SAM 4.0; Serial: TP-1626
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

750MHz System Verification

Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Input Power = 24.0 dBm (250 mW)
SAR(1 g) = 2.11 mW/g; SAR(10 g) = 1.39 mW/g
Deviation = -4.63%



0 dB = 2.27mW/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 = 0.999 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3

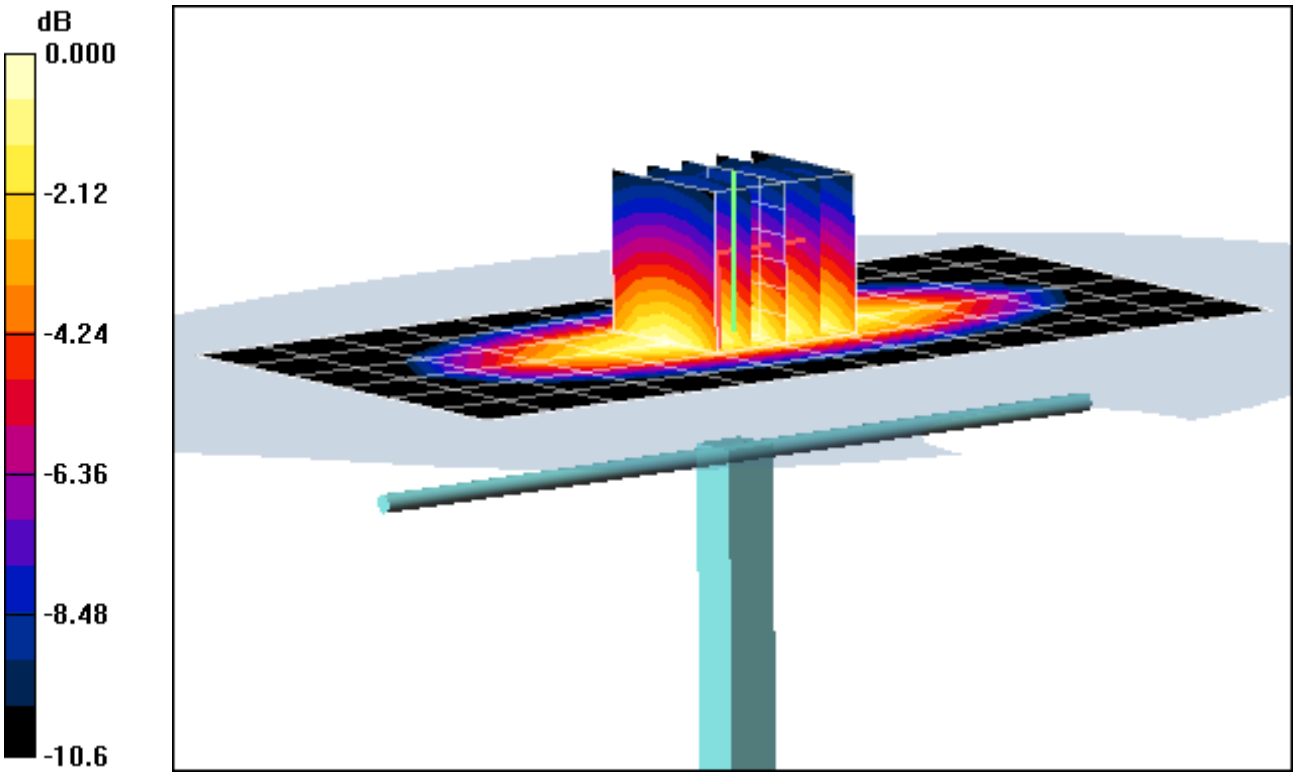
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 08-24-2011; Ambient Temp: 23.9 ° C; Tissue Temp: 22.7 °C

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

835MHz System Verification

Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Input Power = 24.0 dBm (250 mW)
SAR(1 g) = 2.61 mW/g; SAR(10 g) = 1.71 mW/g
Deviation = 5.99 %



0 dB = 2.82mW/g

PCTEST ENGINEERING LABORATORY, INC.

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

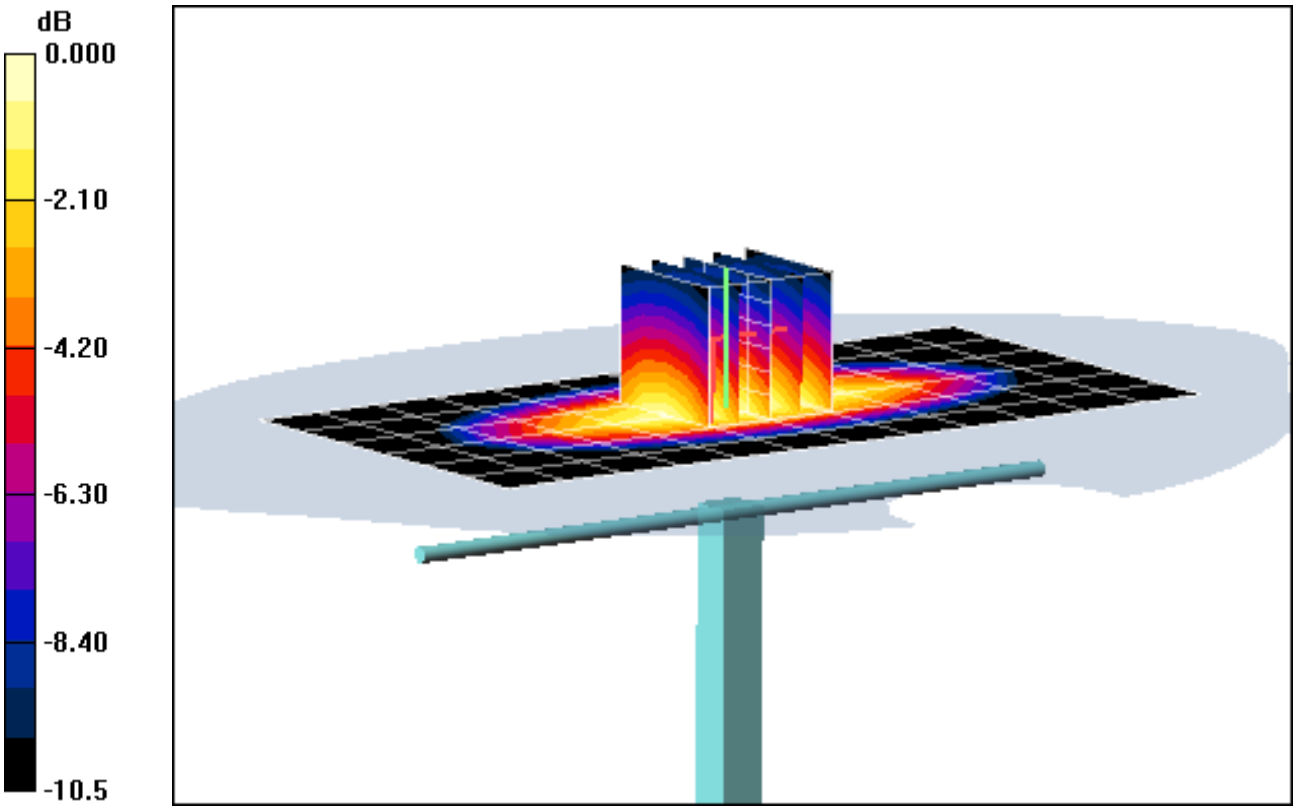
Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium: 835 Body Medium parameters used:
f = 835 MHz; σ = 0.971 mho/m; ε_r = 53.7; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 09-06-2011; Ambient Temp: 23.0 °C; Tissue Temp: 21.8 °C

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

835MHz System Verification

Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Input Power = 24.0 dBm (250 mW)
SAR(1 g) = 2.42 mW/g; SAR(10 g) = 1.58 mW/g
Deviation = -1.73 %



0 dB = 2.62mW/g

PCTEST ENGINEERING LABORATORY, INC.

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

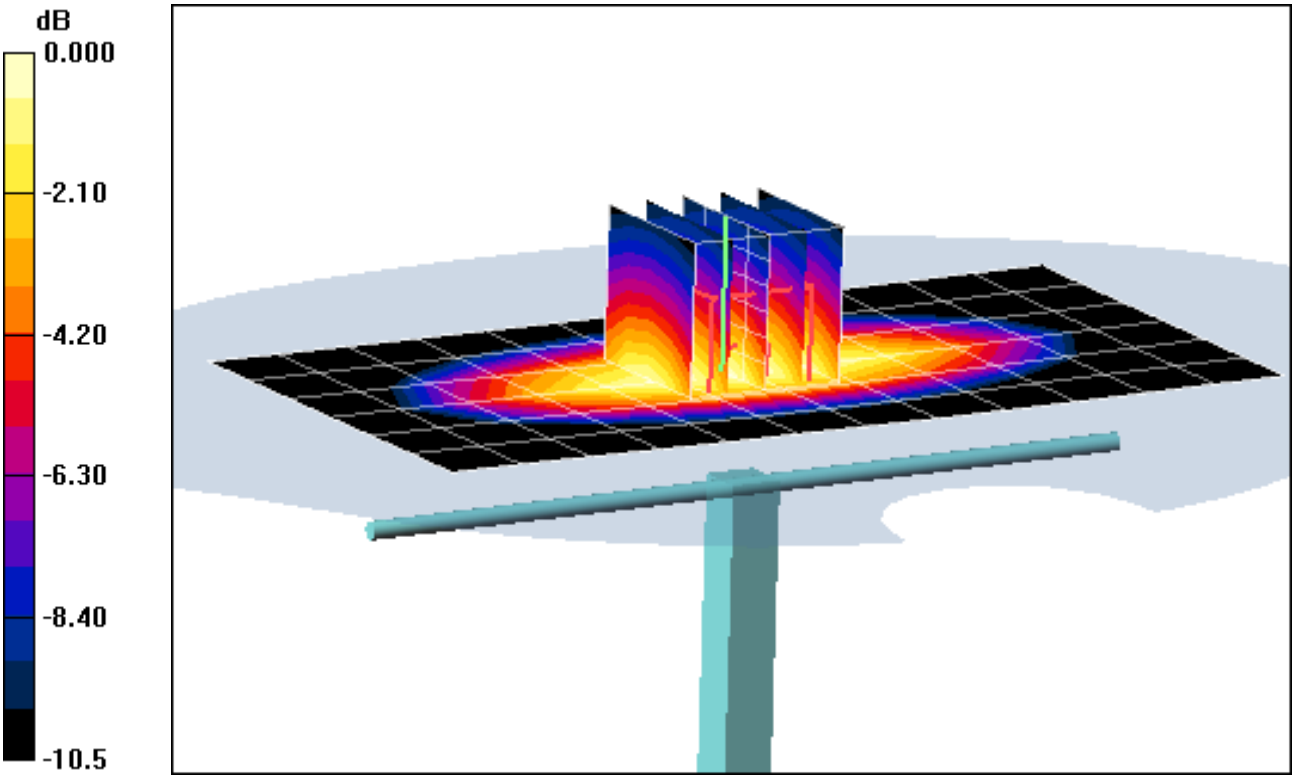
Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium: 835 Body Medium parameters used:
f = 835 MHz; σ = 0.963 mho/m; ε_r = 52.7; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 10-10-2011; Ambient Temp: 23.6 °C; Tissue Temp: 21.8 °C

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

835MHz System Verification

Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Input Power = 20.0 dBm (100 mW)
SAR(1 g) = 0.986 mW/g; SAR(10 g) = 0.643 mW/g
Deviation = 0.10 %



0 dB = 1.06mW/g

PCTEST ENGINEERING LABORATORY, INC.

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

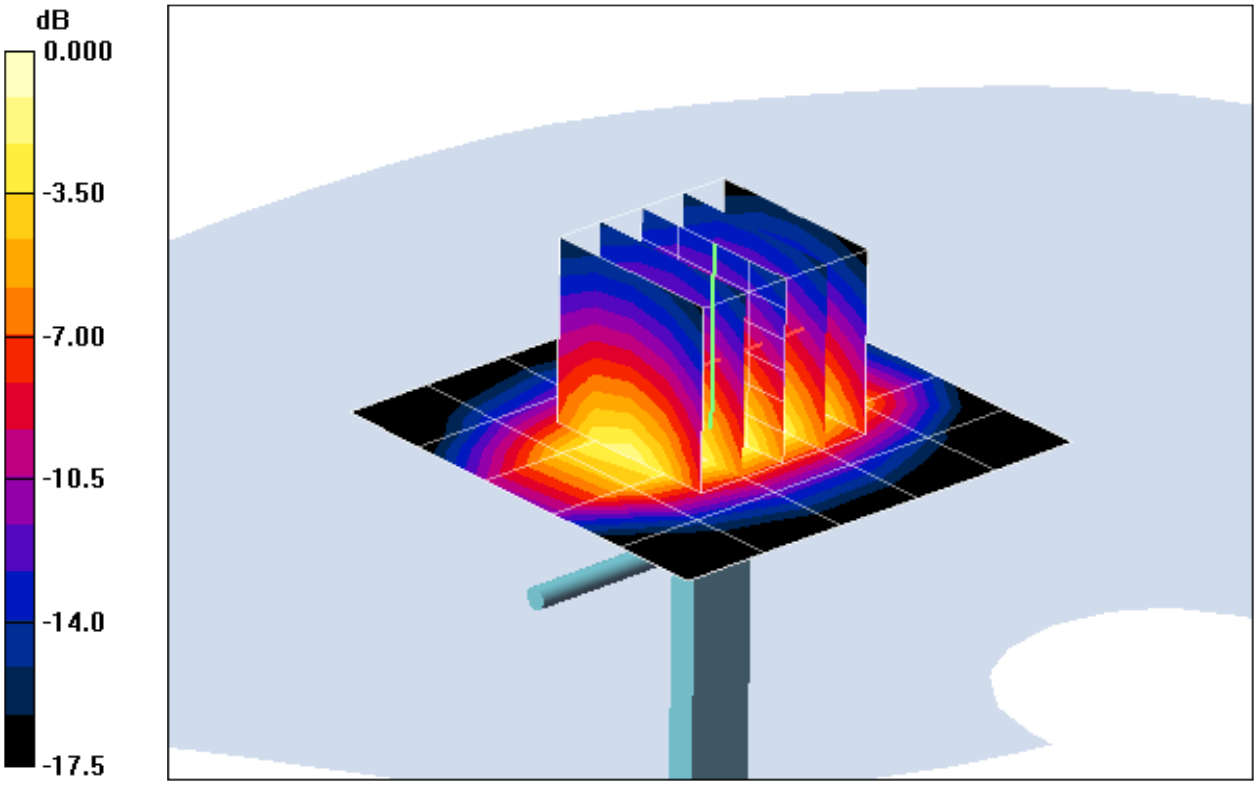
Communication System: CW; Frequency: 1750 MHz;Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used:
f = 1750 MHz; σ = 1.53 mho/m; ε_r = 53; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-30-2011; Ambient Temp: 23.4°C; Tissue Temp: 21.9°C

Probe: ES3DV3 - SN3209; ConvF(4.75, 4.75, 4.75); Calibrated: 4/18/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM Sub Dasy B; Type: SAM 4.0; Serial: TP-1626
Measurement SW: DASY4, V4.7 Build 53; 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) = 3.91 mW/g; SAR(10 g) = 2.03 mW/g
Deviation = 5.68 %



0 dB = 4.37mW/g

PCTEST ENGINEERING LABORATORY, INC.

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

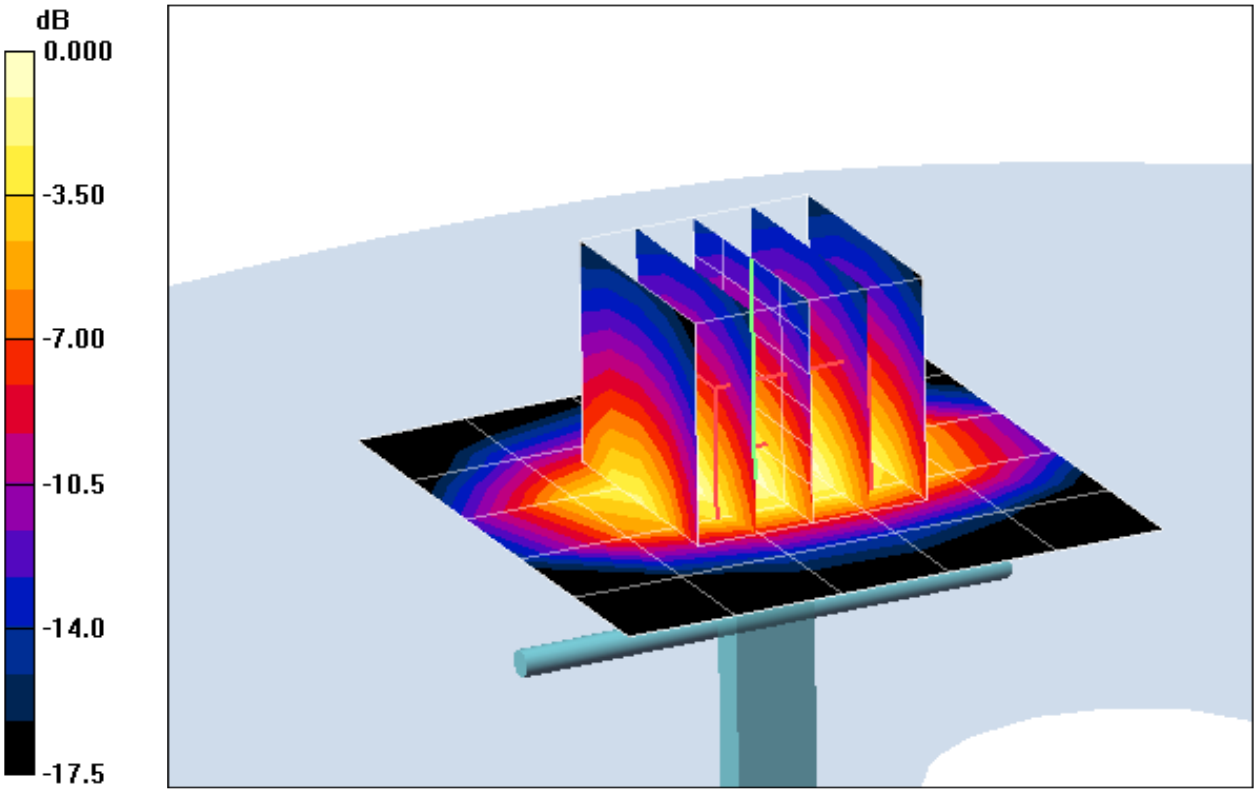
Communication System: CW; Frequency: 1750 MHz;Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used:
f = 1750 MHz; σ = 1.54 mho/m; ε_r = 52.1; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-03-2011; Ambient Temp: 24.1°C; Tissue Temp: 23.5°C

Probe: ES3DV3 - SN3209; ConvF(4.75, 4.75, 4.75); Calibrated: 4/18/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM Sub Dasy B; Type: SAM 4.0; Serial: TP-1626
Measurement SW: DASY4, V4.7 Build 53; 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) = 3.93 mW/g; SAR(10 g) = 2.04 mW/g
Deviation = 6.22 %



0 dB = 4.33mW/g

PCTEST ENGINEERING LABORATORY, INC.

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

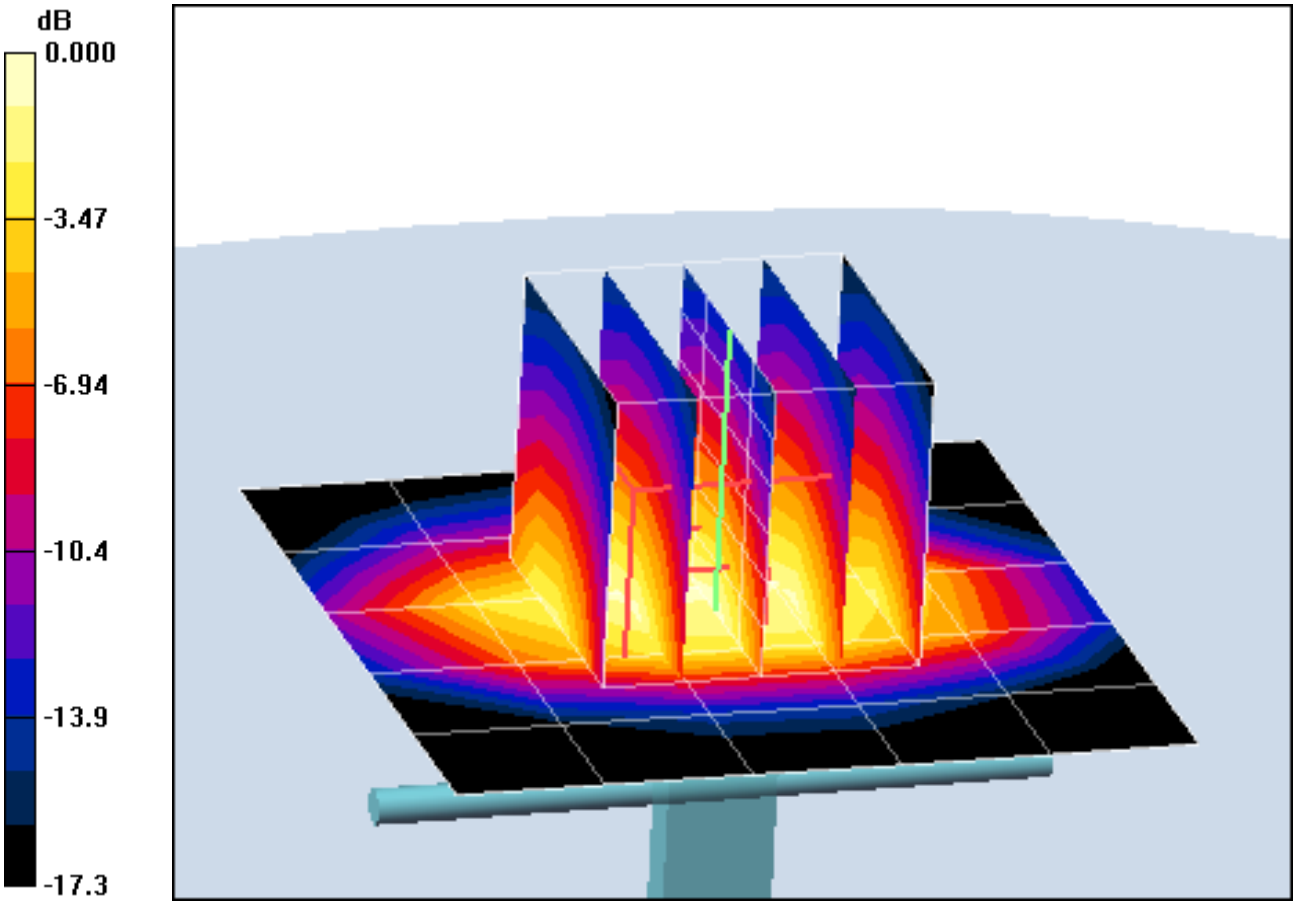
Communication System: CW; Frequency: 1750 MHz;Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used:
f = 1750 MHz; σ = 1.54 mho/m; ε_r = 53.1; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 10-20-2011; Ambient Temp: 24.3°C; Tissue Temp: 22.4°C

Probe: ES3DV3 - SN3209; ConvF(4.75, 4.75, 4.75); Calibrated: 4/18/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM Sub Dasy B; Type: SAM 4.0; Serial: TP-1626
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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) = 4.04 mW/g; SAR(10 g) = 2.09 mW/g
Deviation = 9.19 %



0 dB = 4.47mW/g

PCTEST ENGINEERING LABORATORY, INC.

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

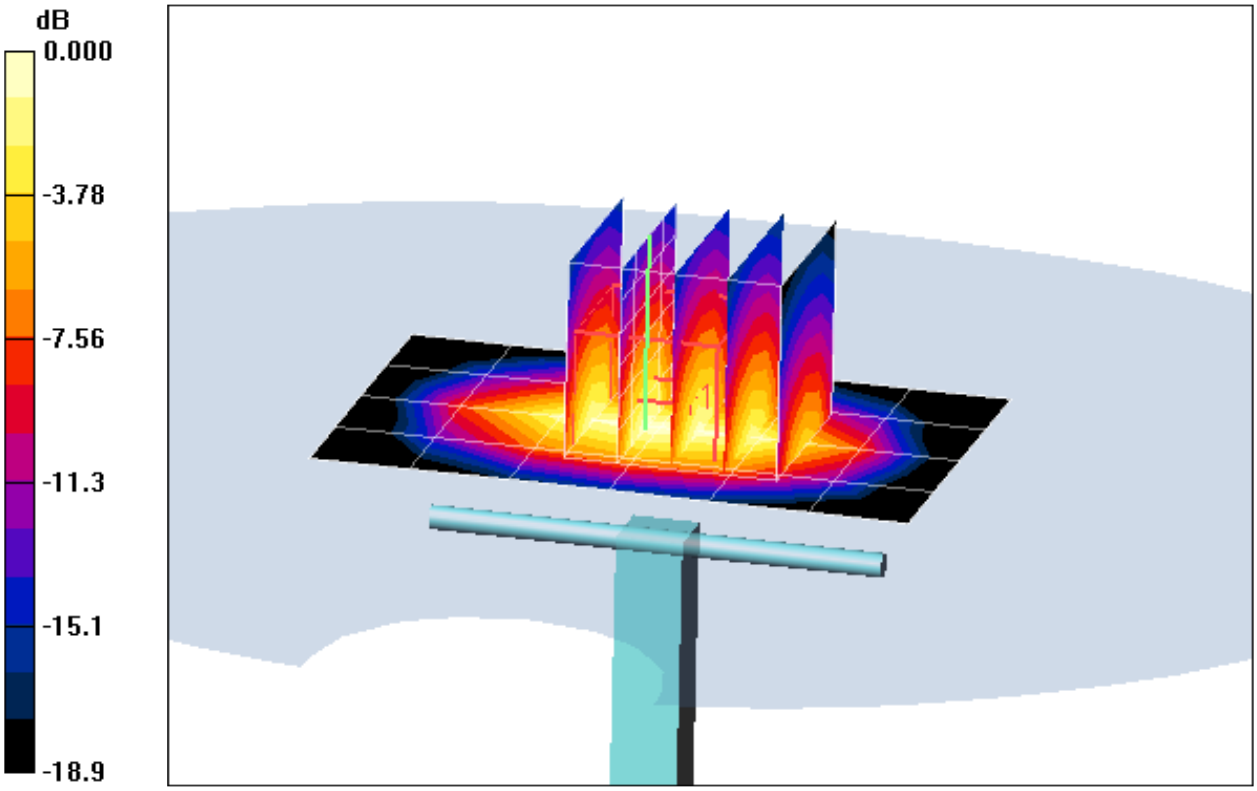
Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1900 MHz; σ = 1.52 mho/m; ε_r = 50.8; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-23-2011; Ambient Temp: 23.8°C; Tissue Temp: 22.6°C

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

1900MHz System Verification

Area Scan (5x7x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Input Power = 16 dBm (40 mW)
SAR(1 g) = 1.64 mW/g; SAR(10 g) = 0.843 mW/g
Deviation = -0.24%



0 dB = 1.84mW/g

PCTEST ENGINEERING LABORATORY, INC.

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

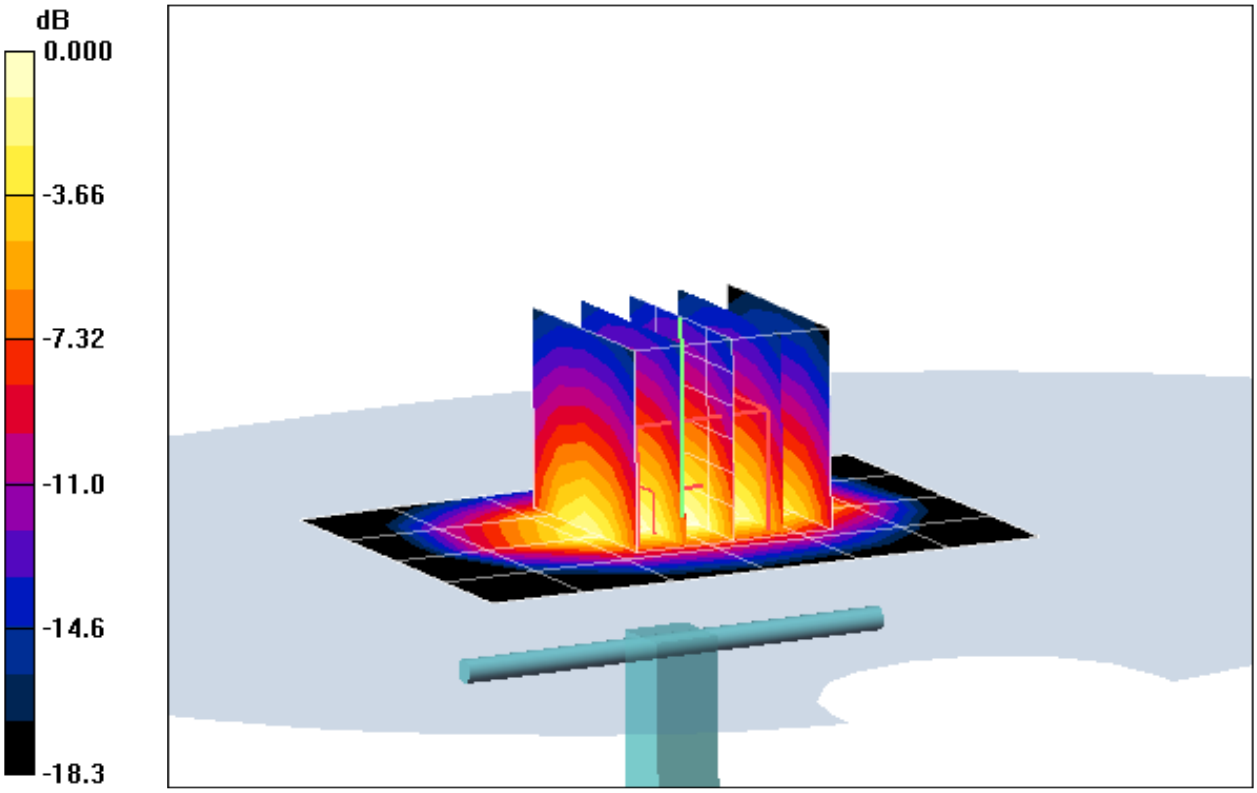
Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1900 MHz; σ = 1.52 mho/m; ε_r = 50.7; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-29-2011; Ambient Temp: 24.1°C; Tissue Temp: 22.8°C

Probe: EX3DV4 - SN3550; ConvF(6.77, 6.77, 6.77); Calibrated: 2/14/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/20/2011
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

1900MHz System Verification

Area Scan (5x7x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Input Power = 16 dBm (40 mW)
SAR(1 g) = 1.57 mW/g; SAR(10 g) = 0.805 mW/g
Deviation = -4.50%



0 dB = 1.74mW/g

PCTEST ENGINEERING LABORATORY, INC.

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

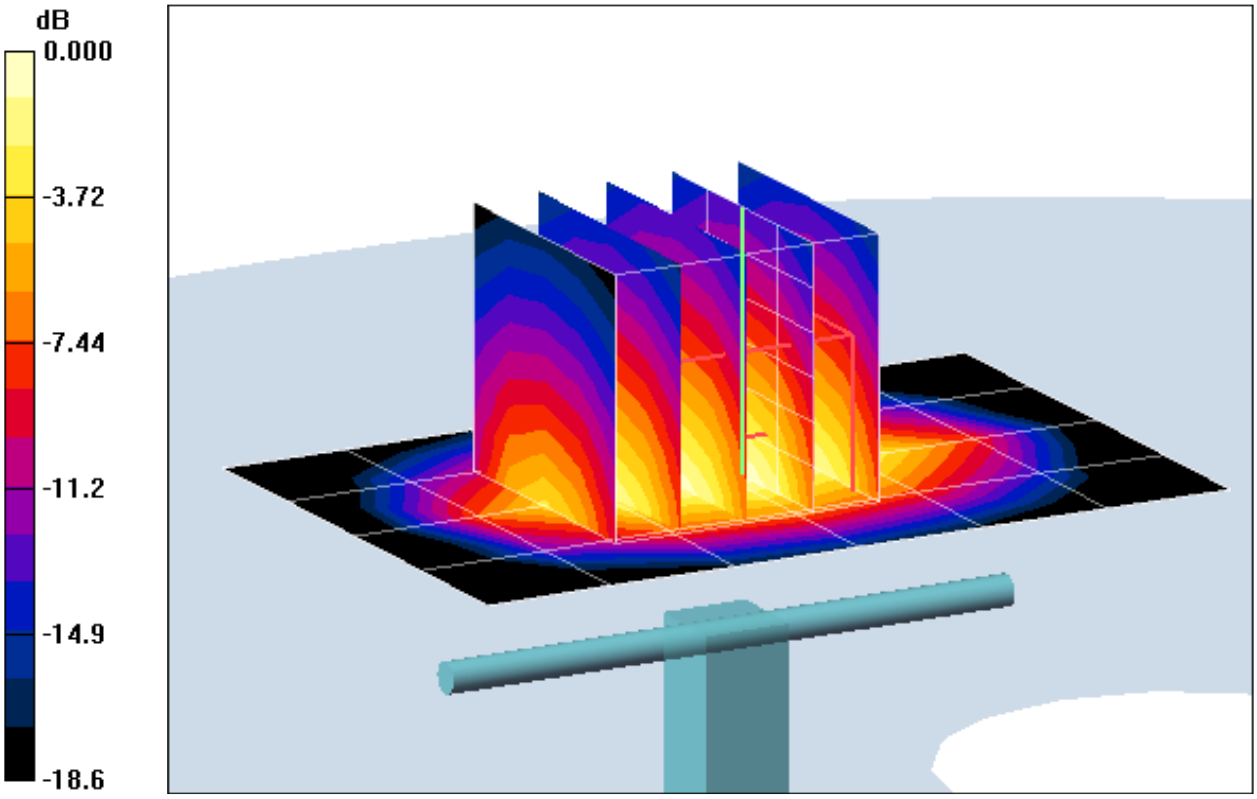
Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1900 MHz; σ = 1.53 mho/m; ε_r = 53.6; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-07-2011; Ambient Temp: 24.9°C; Tissue Temp: 23.7°C

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

1900MHz System Verification

Area Scan (5x7x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Input Power = 16 dBm (40 mW)
SAR(1 g) = 1.59 mW/g; SAR(10 g) = 0.823 mW/g
Deviation = -3.28%



0 dB = 1.78mW/g

PCTEST ENGINEERING LABORATORY, INC.

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

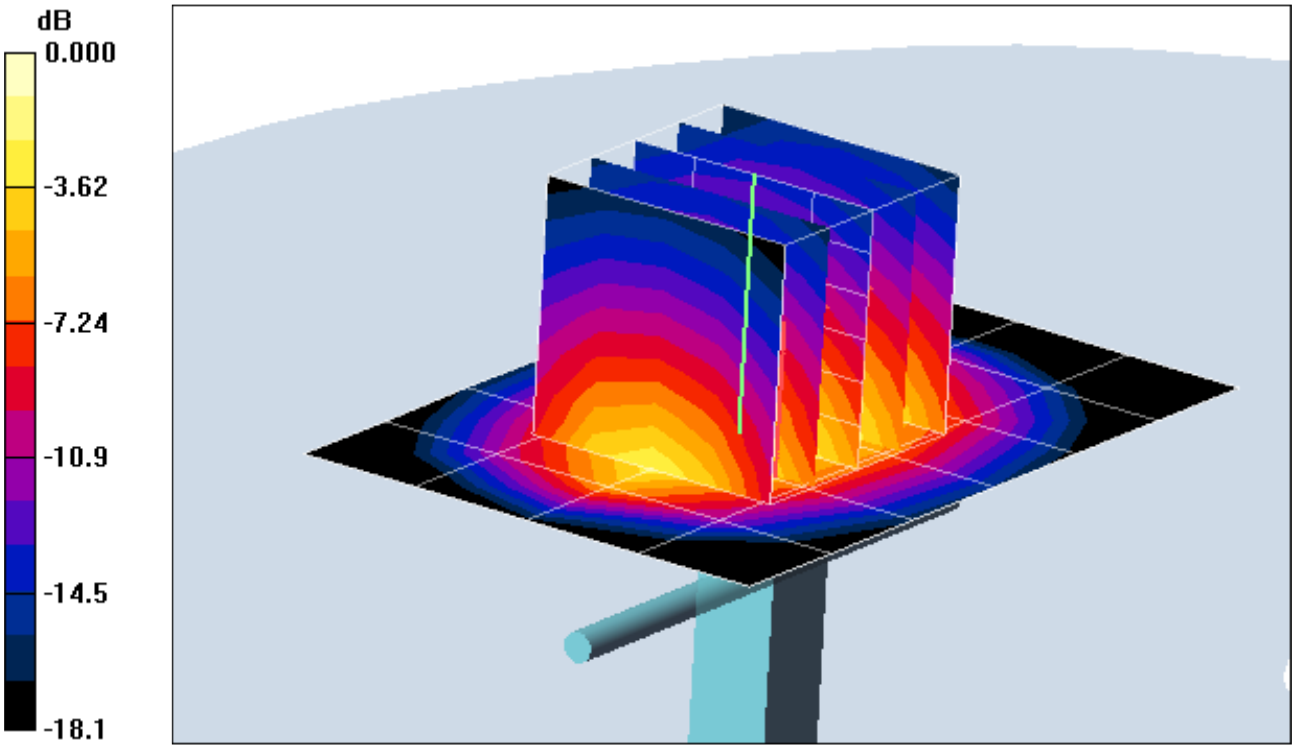
Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1900 MHz; σ = 1.5 mho/m; ε_r = 51.4; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 10-12-2011; Ambient Temp: 23.9°C; Tissue Temp: 22.1°C

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

1900MHz System Verification

Area Scan (5x7x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Input Power = 20.0 dBm (100 mW)
SAR(1 g) = 4.33 mW/g; SAR(10 g) = 2.25 mW/g
Deviation = 5.35 %



0 dB = 4.83mW/g

PCTEST ENGINEERING LABORATORY, INC.

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

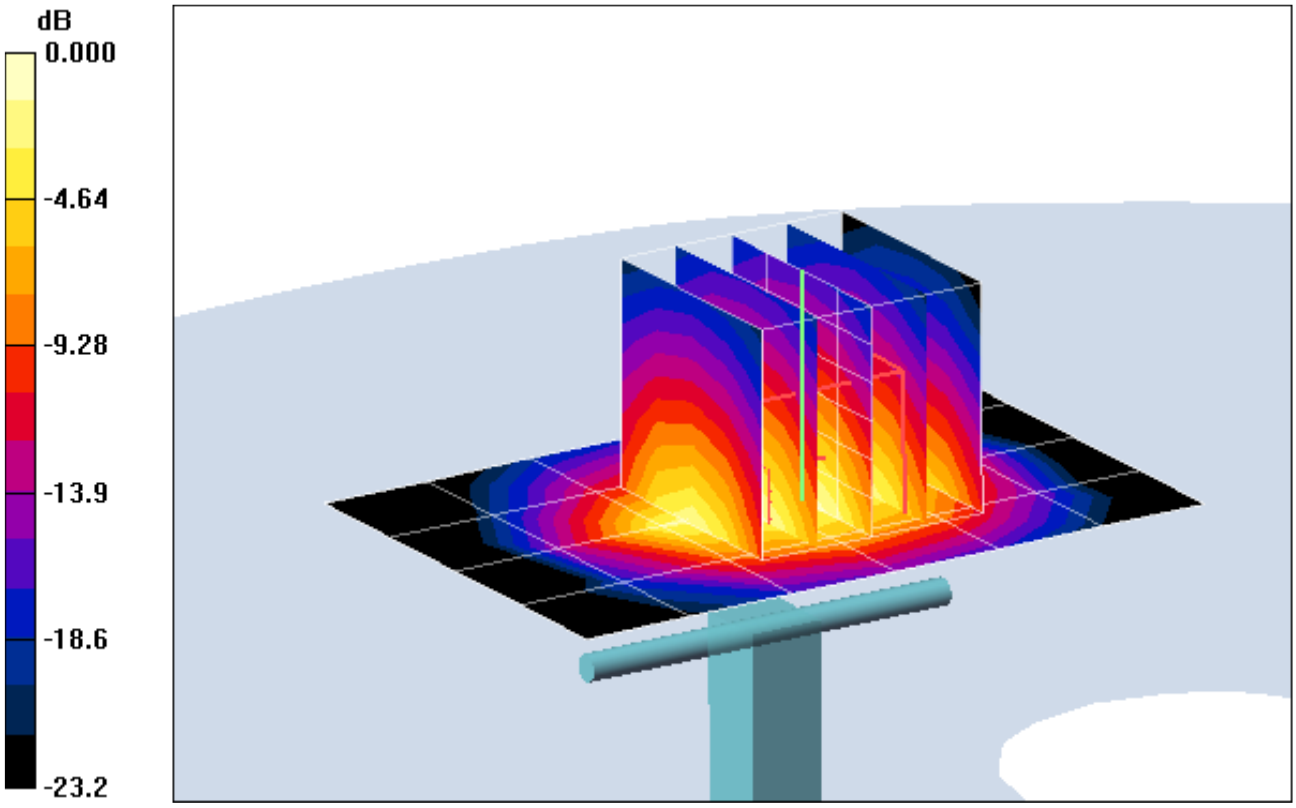
Communication System: CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used:
f = 2450 MHz; σ = 1.91 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-31-2011; Ambient Temp: 23.4°C; Tissue Temp: 21.8°C

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

2450MHz System Verification

Area Scan (5x7x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Input Power = 12 dBm (15.8 mW)
SAR(1 g) = 0.890 mW/g; SAR(10 g) = 0.412 mW/g
Deviation = 7.70%



0 dB = 1.14mW/g

PCTEST ENGINEERING LABORATORY, INC.

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

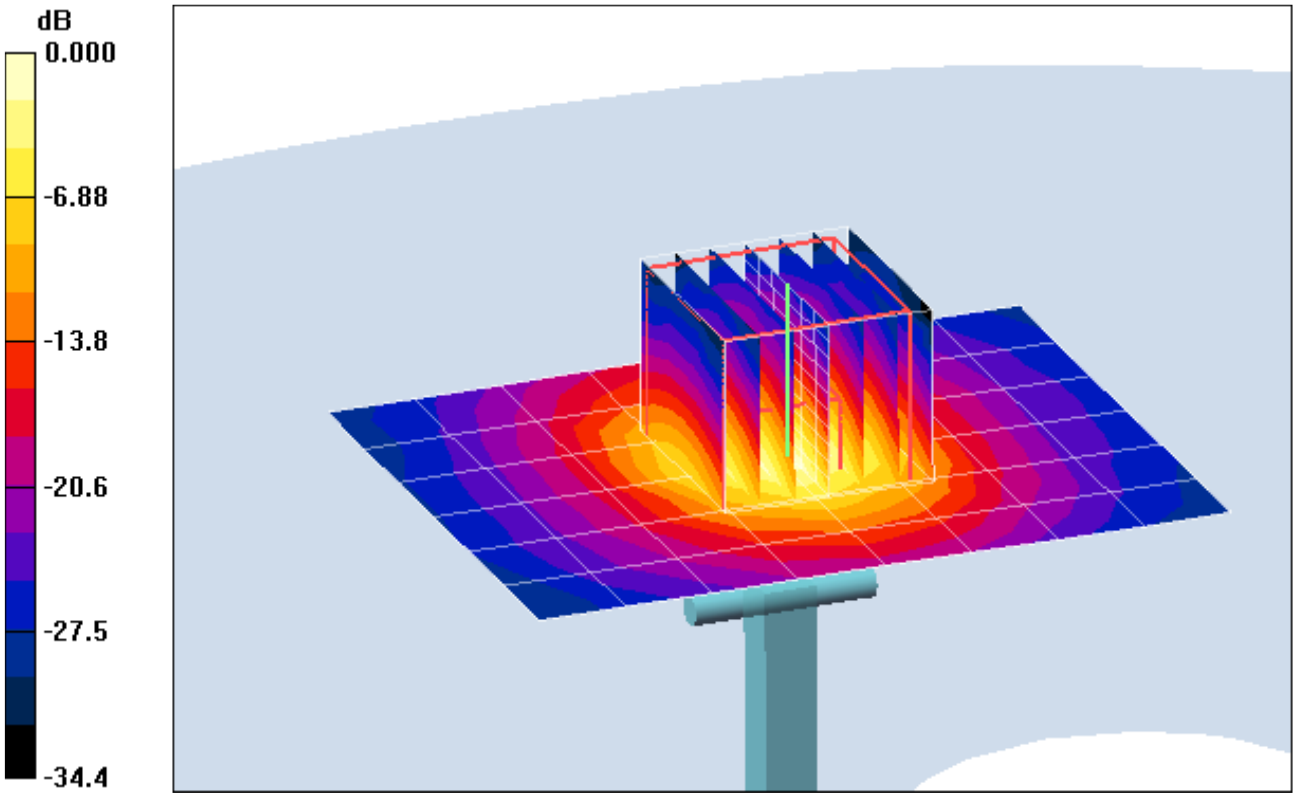
Communication System: CW; Frequency: 5200 MHz;Duty Cycle: 1:1
Medium: 5 GHz Body Medium parameters used (interpolated):
f = 5200 MHz; σ = 5.37 mho/m; ε_r = 47.1; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-26-2011; Ambient Temp: 23.5°C; Tissue Temp: 22.4°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 Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

5200MHz System Verification

Area Scan (7x9x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Input Power = 20 dBm (100 mW)
SAR(1 g) = 8.52 mW/g; SAR(10 g) = 2.39 mW/g
Deviation = 9.65 %



0 dB = 18.0mW/g

PCTEST ENGINEERING LABORATORY, INC.

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

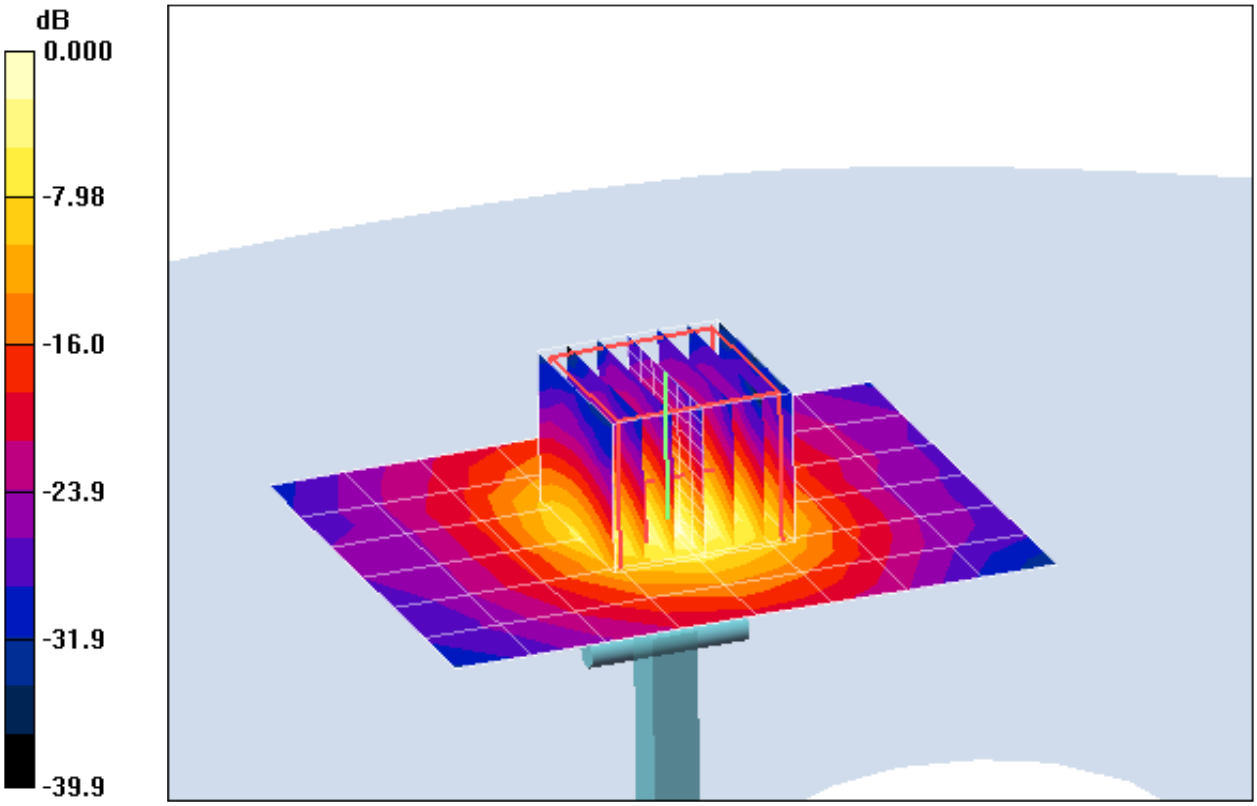
Communication System: CW; Frequency: 5500 MHz;Duty Cycle: 1:1
Medium: 5 GHz Body Medium parameters used (interpolated):
f = 5500 MHz; σ = 5.78 mho/m; ε_r = 46.4; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-26-2011; Ambient Temp: 23.7°C; Tissue Temp: 22.6°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 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 dBm (100 mW)
SAR(1 g) = 8.53 mW/g; SAR(10 g) = 2.35 mW/g
Deviation = 1.07 %



0 dB = 17.9mW/g

PCTEST ENGINEERING LABORATORY, INC.

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

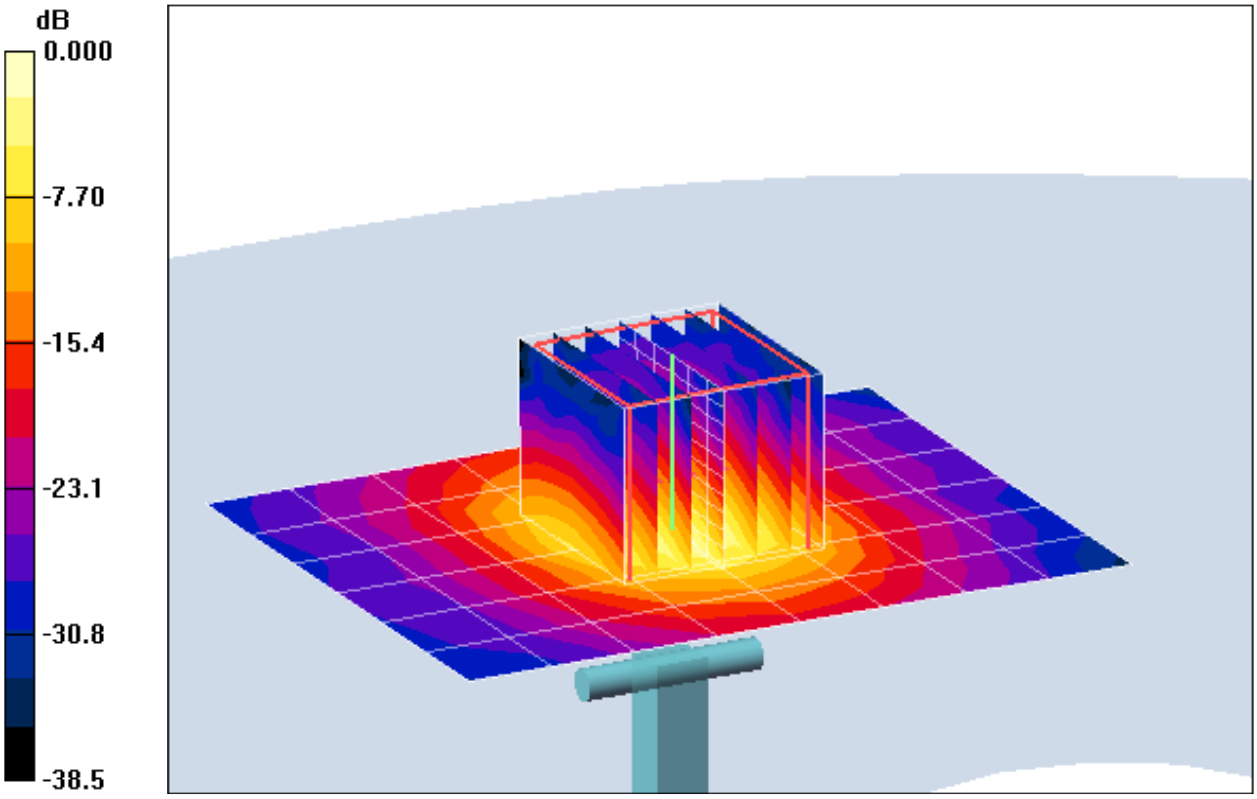
Communication System: CW; Frequency: 5800 MHz;Duty Cycle: 1:1
Medium: 5 GHz Body Medium parameters used (interpolated):
f = 5800 MHz; σ = 6.19 mho/m; ε_r = 45.9; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 08-26-2011; Ambient Temp: 23.8°C; Tissue Temp: 22.7°C

Probe: EX3DV4 - SN3550; ConvF(3.29, 3.29, 3.29); Calibrated: 2/14/2011
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/20/2011
Phantom: SAM 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 dBm (100 mW)
SAR(1 g) = 7.88 mW/g; SAR(10 g) = 2.19 mW/g
Deviation = 5.07 %



0 dB = 16.6mW/g