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SAR COMPLIANCE EVALUATION REPORT

Applicant Name:
NEC Corporation of America
Radio Communications Systems Division
6535 N. State Highway 161
Irving, TX 75039-2402 USA

Date of Testing:
01/17/12 - 01/23/12
Test Site/Location:
PCTEST Lab, Columbia, MD, USA
Test Report Serial No.:
0Y1201110054.A98

FCC ID:	**A98-CUL7580**
APPLICANT:	**NEC Corporation of America**

EUT Type:	Portable Tablet
Application Type:	Certification
FCC Rule Part(s):	CFR §2.1093
Model(s):	KMP7R4C1-1A
Test Device Serial No.:	Pre-Production [S/N: IMEI 004401200800361]

Band & Mode	Tx Frequency	Conducted Power [dBm]	SAR	
			1 gm Head (W/kg)	1 gm Body (W/kg)
GSM/GPRS 850	824.20 - 848.80 MHz	27.38	0.03	0.69
WCDMA/HSPA 850	826.40 - 846.60 MHz	18.99	0.04	0.92
GSM/GPRS 1900	1850.20 - 1909.80 MHz	23.55	0.01	0.64
2.4 GHz WLAN	2412 - 2462 MHz	13.21	0.01	0.65
Bluetooth	2402 - 2480 MHz	1.81	N/A	
Simultaneous SAR per KDB 690783 D01:			0.04	1.57

Note: Powers in the above table represent output powers for the SAR test configurations 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.

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.

Randy Ortanez
President

ACCREDITED
TESTING LABORATORY
CERTIFICATE #2041.01

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1 DEVICE UNDER TEST

1.1 Device Overview

Band & Mode	Tx Frequency
GSM/GPRS 850	824.20 - 848.80 MHz
WCDMA/HSPA 850	826.40 - 846.60 MHz
GSM/GPRS 1900	1850.20 - 1909.80 MHz
2.4 GHz WLAN	2412 - 2462 MHz
Bluetooth	2402 - 2480 MHz
NFC	13.56 MHz

1.2 Near Field Communications (NFC) Antenna

This DUT has NFC operations. The NFC antenna is on a non-removable part of the device. The NFC mode was not active for all SAR measurements.

1.3 DUT Antenna Locations

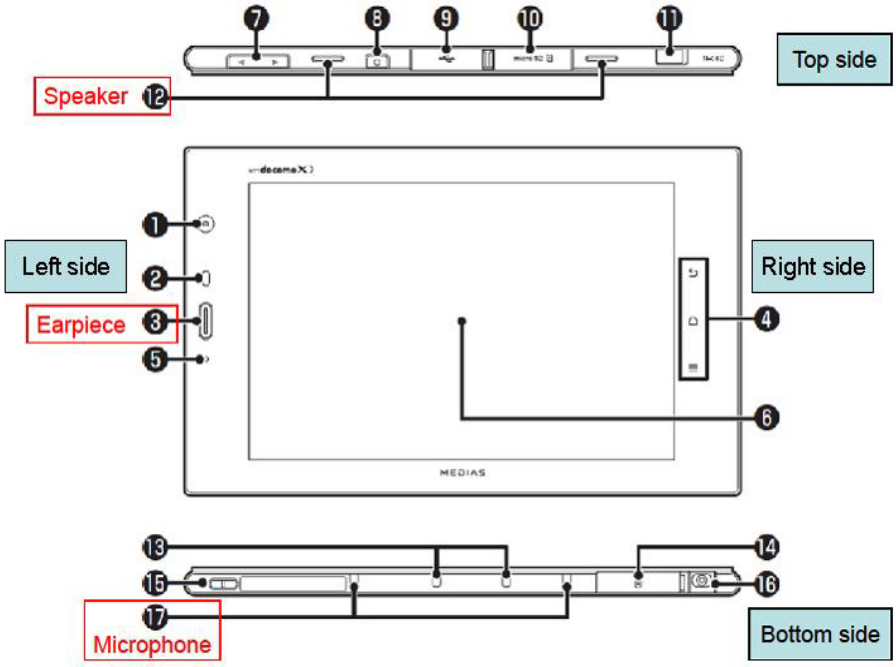

Figure 1-1
Front View of the Device

Head SAR testing was required for this tablet because it has a speaker/receiver and a microphone positioned in a way that allows for a held-to-ear configuration usage. Body-worn accessories are not applicable for this device. Per KDB Publication 447498 4)c)i), head SAR was tested according to the handset procedures in the IEEE Std 1528-2003 and OET Bulletin 65 Supplement C 01-01.

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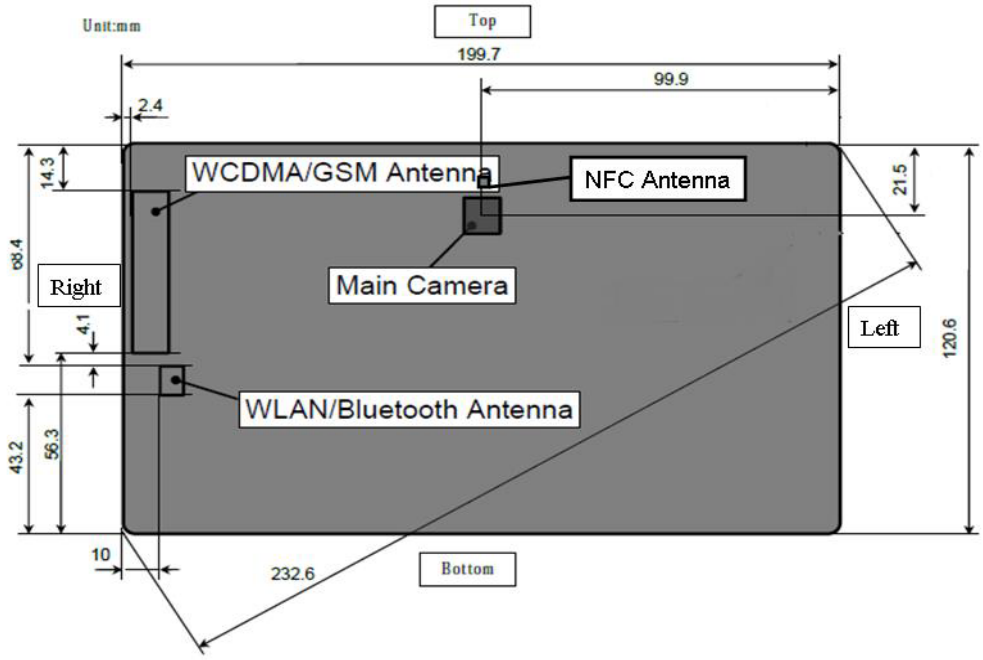

Figure 1-2
Rear View of the Device

Note: The rear camera is not for video calls but for standard digital functions.

1.4 Simultaneous Transmission Capabilities

Simultaneous transmissions according to KDB Publication 447498, except for transmissions during network hand-offs, with maximum hand-off duration less than 30 seconds, transmitters are considered to be transmitting simultaneously when there is overlapping transmission.

This device contains multiple transmitters that may operate simultaneously and therefore, requires a simultaneous transmission analysis according to KDB Publication 447498 4) b) iii) procedures.

Table 1-1
Possible Simultaneous Transmission Scenario Supported by DUT

No.	Capable Transmit Configurations	Head	Body SAR	Note
		IEEE 1528, Supp C	Tablet Configuration per April 2011 FCC-TCB Workshop and KDB 447498	
1	850/1900 MHz GSM Voice + WIFI 2.4 GHz	Yes	Yes	-
2	850 MHz WCDMA/HSPA Voice/Data + WIFI 2.4 GHz	Yes	Yes	3G Hotspot*
3	850/1900 MHz GPRS Data + WIFI 2.4 GHz	-	Yes	2G Hotspot

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

The tablet procedures required by KDB Publication 447498 generally do not require separate hotspot mode testing.

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1.5 Device Restrictions Applicable for SAR Testing

(A) WIFI/BT Testing

The separation between the main antenna and the Bluetooth/WLAN antenna is 4.1 mm.
RF Conducted Power of Bluetooth Tx is 1.517 mW. RF Conducted Power of WLAN is 22.13mW.

Per KDB Publication 447498 4) b), SAR is not required when the average output power is less than 60/f (GHz). Therefore, Bluetooth SAR was not required since the maximum conducted power of Bluetooth Tx is 1.517 mW. WLAN SAR was also not required but additionally tested and included per the applicant.

(B) GSM/WCDMA Testing

This model does not support Simultaneous Voice and Data for the licensed transmitter in any modes except in WCDMA that allows Multi-RAB transmissions that share voice and data operations on a single physical channel.

GSM/GPRS DTM is not supported. Therefore GSM Voice cannot transmit simultaneously with GPRS Data.

1.6 Power Reduction for SAR

There is no power reduction (i.e. proximity sensor, etc.) for any band/mode implemented in this device for SAR purposes.

1.7 FCC Guidance Applied

- FCC OET Supplement C
- IEEE 1528-2003
- FCC KDB 941225
- FCC KDB 447498 Section 4 (Tablet SAR Considerations)
- FCC KDB 248227 (802.11 SAR considersation)
- April 2011 TCB Workshop Notes

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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 with 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.

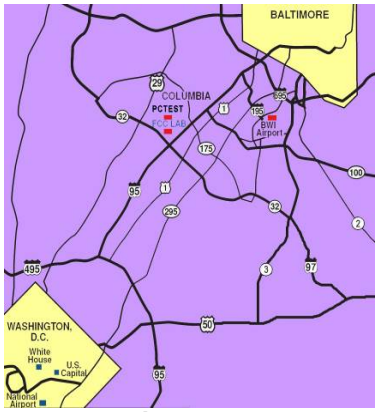

Figure 3-1
Map of the Greater Baltimore and Metropolitan Washington, D.C. area

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

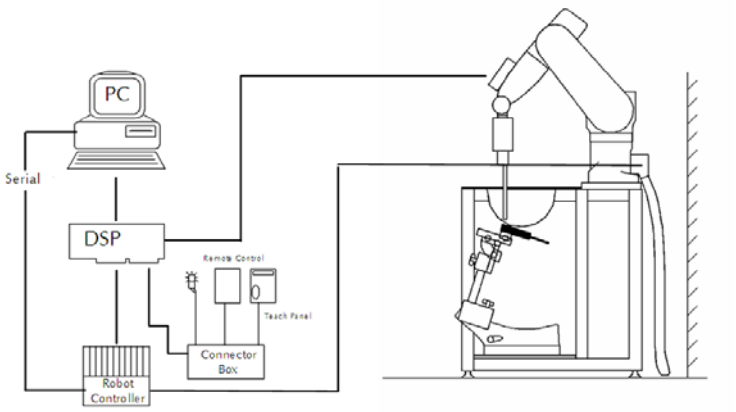

Figure 4-1
SAR Measurement System Setup

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 and V5.0)
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. The approach is stopped at reaching the maximum.

5.2 Probe Specifications

Model(s):	ES3DV2, ES3DV3, EX3DV4
Frequency Range:	10 MHz – 6.0 GHz (EX3DV4) 10 MHz – 4 GHz (ES3DV3, ES3DV2)
Calibration:	In head and body simulating tissue at Frequencies from 300 up to 6000MHz
Linearity:	± 0.2 dB (30 MHz to 6 GHz) for EX3DV4 ± 0.2 dB (30 MHz to 4 GHz) for ES3DV3, ES3DV2
Dynamic Range:	10 mW/kg – 100 W/kg
Probe Length:	330 mm
Probe Tip Length:	20 mm
Body Diameter:	12 mm
Tip Diameter:	2.5 mm (3.9mm 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

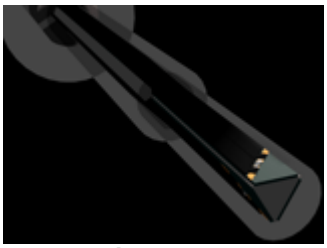

Figure 5-3
Triangular Probe Configuration

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6 PHANTOM AND EQUIVALENT TISSUES

6.1 SAM Phantoms

Figure 6-1
SAM Phantoms

The SAM Twin Phantom V4.0 and V5.0 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).

6.2 Tissue Simulating Mixture Characterization

Figure 6-2
SAM Phantom with Simulating Tissue

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

Table 6-1
Composition of the Tissue Equivalent Matter

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

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7 DOSIMETRIC ASSESSMENT & PHANTOM SPECS

7.1 Measurement Procedure

The evaluation was performed using the following procedure:

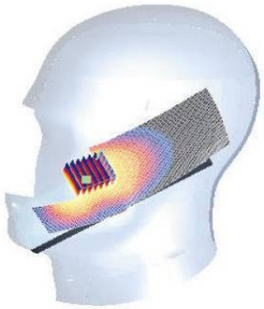

Figure 7-1
Sample SAR Area Scan

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 SAR distribution area was ensured to cover the entire dimension of the body phantom area with the DUT positioned against the phantom. The horizontal grid resolution was 15 mm x 15 mm for up to 3 GHz frequencies.
3. 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.
4. 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.
5. The SAR reference value, at the same location as step 3, was re-measured after the zoom scan was complete to calculate the SAR drift. If the drift deviated by more than 5%, the SAR test and drift measurements were repeated.

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8 TEST CONFIGURATION POSITIONS

8.1 Device Holder

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

8.2 SAR Test for Tablet per KDB Publication 447498 Section 4

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.

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

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. 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. Since the diagonal dimension of the device is more than 20 cm (23.26 cm). This device is a tablet (not a mini-tablet).

8.3 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. According to KDB 447498 4) b) ii) (2), for each antenna, SAR is only required for the edge with the most conservative exposure condition.

8.4 SAR Test for Tablet in Held-to-Ear Configuration

Head SAR testing was required for this tablet because it has a speaker/receiver and a microphone positioned in a way that allows for a held-to-ear configuration usage. Body-worn accessories are not applicable for this device. Per KDB Publication 447498 4)c)i), head SAR was tested according to the handset procedures in the IEEE Std 1528-2003 and OET Bulletin 65 Supplement C 01-01.

8.4.1 Positioning for Cheek/Touch

1. The test device was positioned with the handset close to the surface of the phantom such that point A is on the (virtual) extension of the line passing through points RE and LE on the phantom (see Figure 8-1), such that the plane defined by the vertical center line and the horizontal line of the phone is approximately parallel to the sagittal plane of the phantom.

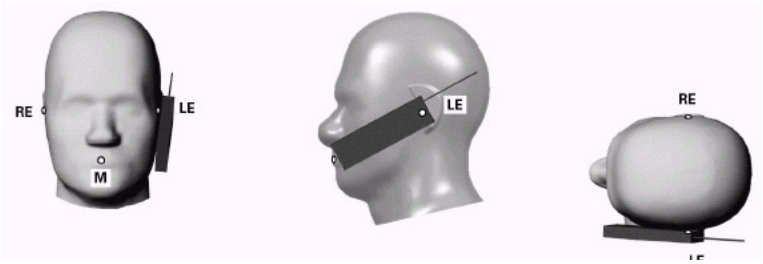

Figure 8-1 Front, Side and Top View of Cheek/Touch Position

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

3. While maintaining the handset in this plane, the handset was rotated around the LE-RE line until the vertical centerline was in the plane normal to MB-NF including the line MB (reference plane).
4. The phone was hen rotated around the vertical centerline until the phone (horizontal line) was symmetrical was respect to the line NF.
5. While maintaining the vertical centerline in the reference plane, keeping point A on the line passing through RE and LE, and maintaining the phone contact with the ear, the handset was rotated about the line NF until any point on the handset made contact with a phantom point below the ear (cheek) (See Figure 8-2).

8.4.2 Positioning for Ear / 15º Tilt

With the test device aligned in the "Cheek/Touch Position":

1. While maintaining the orientation of the phone, the phone was retracted parallel to the reference plane far enough to enable a rotation of the phone by 15degree.
2. The phone was then rotated around the horizontal line by 15 degree.
3. While maintaining the orientation of the phone, the phone was moved parallel to the reference plane until any part of the phone touches the head. (In this position, point A was located on the line RE-LE). The tilted position is obtained when the contact is on the pinna. If the contact was at any location other than the pinna, the angle of the phone would then be reduced. The tilted position was obtained when any part of the phone was in contact of the ear as well as a second part of the phone was in contact with the head (see Figure 8-2).

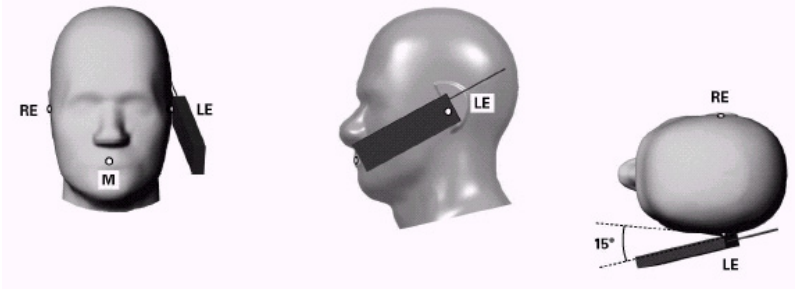

Figure 8-2 Front, Side and Top View of Ear/15º Tilt Position

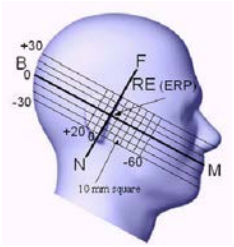

Figure 8-3
Side view w/ relevant markings

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9 DEFINITION OF REFERENCE POINTS

9.1 EAR REFERENCE POINT

Figure 9-1 shows the front, back and side views of the SAM Twin Phantom. The point "M" is the reference point for the center of the mouth, "LE" is the left ear reference point (ERP), and "RE" is the right ERP. The ERP is 15mm posterior to the entrance to the ear canal (EEC) along the B-M line (Back-Mouth), as shown in Figure 9-1. The plane passing through the two ear canals and M is defined as the Reference Plane. The line N-F (Neck-Front) is perpendicular to the reference plane and passing through the RE (or LE) is called the Reference Pivoting Line (see Figure 9-2). Line B-M is perpendicular to the N-F line. Both N-F and B-M lines are marked on the external phantom shell to facilitate handset positioning [5].

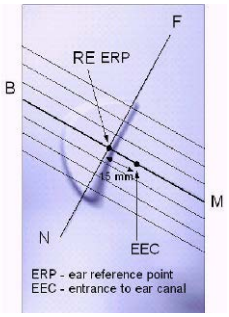

Figure 9-1
Close-Up Side view of ERP

9.2 HANDSET REFERENCE POINTS

Two imaginary lines on the handset were established: the vertical centerline and the horizontal line. The test device was placed in a normal operating position with the "test device reference point" located along the "vertical centerline" on the front of the device aligned to the "ear reference point" (See Figure 9-3). The "test device reference point" was than located at the same level as the center of the ear reference point. The test device was positioned so that the "vertical centerline" was bisecting the front surface of the handset at it's top and bottom edges, positioning the "ear reference point" on the outer surface of the both the left and right head phantoms on the ear reference point.

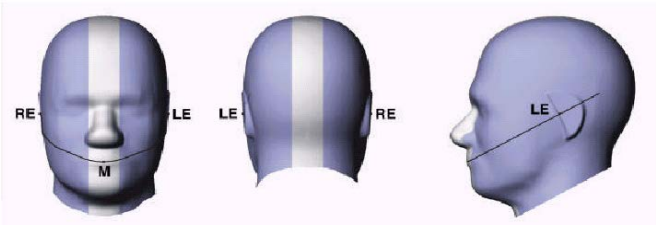

Figure 9-2
Front, back and side view of SAM Twin Phantom

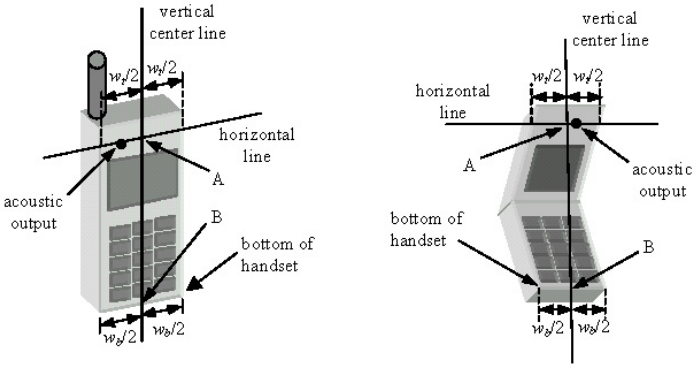

Figure 9-3
Handset Vertical Center & Horizontal Line Reference Points

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10 FCC RF EXPOSURE LIMITS

10.1 Uncontrolled Environment

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

10.2 Controlled Environment

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

Table 10-1
SAR Human Exposure Specified in ANSI/IEEE C95.1-1992 and Health Canada Safety Code 6

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

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

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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. If the power drift deviated by more than 5%, the SAR test and drift measurements were repeated.

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

11.2.1 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".

11.2.2 Head SAR Measurements for Portable Device

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

11.2.3 Body SAR Measurements

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

11.2.4 SAR Measurements for Data Devices with Rel 5 HSDPA

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

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

11.2.5 SAR Measurements for Data Devices with Rel 6 HSUPA

Body SAR for HSUPA is not required when the maximum average output of each RF channel with HSUPA/HSDPA active is less than 0.25 dB higher than as measured without HSUPA/HSDPA using 12.2 kbps RMC and maximum SAR for 12.2 kbps RMC is ≤ 75 % of the SAR limit.

Otherwise SAR is measured on the maximum output channel for the body exposure configuration produced highest SAR in 12.2 kbps RMC for that RF channel, using the additional procedures under “Release 6 HSPA data devices”

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

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

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

11.3 SAR Testing with 802.11 Transmitters

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

Normal network operating configurations are not suitable for measuring the SAR of 802.11 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. See KDB Publication 248227 for more details.

11.3.1 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

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SAR measurement, according to a fixed modulation and data rate. The same data pattern should be used for all measurements.

11.3.2 Frequency Channel Configurations [27]

802.11 b/g/n 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. 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. When the maximum extrapolated peak SAR of the zoom scan for the maximum output channel is <1.6 W/kg and the 1g averaged SAR is <0.8 W/kg, SAR testing on other channels is not required. Otherwise, the other default (or corresponding required) test channels were additionally tested using the lowest data rate.

Table 11-1
802.11 Test Channels per FCC KDB Publication 248227

Mode	GHz	Channel	Turbo Channel	"Default Test Channels"			
				§15.247		UNII	
				802.11b	802.11g		
802.11 b/g	2.412	1		√	∇		
	2.437	6	6	√	∇		
	2.462	11		√	∇		

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12 RF CONDUCTED POWERS

12.1 GSM Conducted Powers

		Maximum Burst-Averaged Output Power	
		Voice	*GPRS Data (GMSK)*
Band	**Channel**	**GSM [dBm] CS (1 Slot)**	**GPRS [dBm] 1 Tx Slot**
Cellular	128	27.43	**27.39**
	190	27.38	**27.33**
	251	27.47	**27.47**
PCS	512	23.28	**23.39**
	661	23.41	**23.55**
	810	23.40	**23.51**

		Calculated Maximum Frame-Averaged Output Power	
		Voice	*GPRS Data (GMSK)*
Band	**Channel**	**GSM [dBm] CS (1 Slot)**	**GPRS [dBm] 1 Tx Slot**
Cellular	128	18.40	**18.36**
	190	18.35	**18.30**
	251	18.44	**18.44**
PCS	512	14.25	**14.36**
	661	14.38	**14.52**
	810	14.37	**14.48**

Note:

1. 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.

2. The bolded GPRS Data modes were selected according to the highest frame-averaged output power table according to KDB 941225 D03.

3. GPRS (GMSK) output powers were measured with CS1 on the base station simulator.

GSM Class: B
GPRS Multislot class: 8 (max 1 Tx Uplink slots)
EDGE Multislot class: N/A
DTM Multislot Class: N/A

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12.2 WCDMA Conducted Powers

3GPP Release Version	Mode	3GPP 34.121 Subtest	Cellular Band [dBm]			βc	βd	MPR [dB]
			4132	4183	4233			
99	WCDMA	12.2 kbps RMC	18.65	18.75	18.99	-	-	-
99		12.2 kbps AMR	18.64	18.78	**19.00**	-	-	-
6	HSDPA	Subtest 1	18.60	18.75	19.00	2	15	0
6		Subtest 2	18.77	18.85	**19.04**	11	15	0
6		Subtest 3	18.28	18.42	18.58	15	8	0.5
6		Subtest 4	18.29	18.45	18.61	15	4	0.5
6	HSUPA	Subtest 1	18.17	18.65	**18.90**	10	15	0
6		Subtest 2	17.31	17.35	17.49	6	15	2
6		Subtest 3	17.77	17.72	17.93	15	9	1
6		Subtest 4	17.26	17.27	17.44	2	15	2
6		Subtest 5	18.14	18.38	18.68	14	15	0

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

It is expected by the manufacturer that MPR for some HSPA 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.

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 is explained in further detail in the technical descriptions for this model.

Figure 12-1
Power Measurement Setup

12.3 WLAN Conducted Powers

Table 12-1
IEEE 802.11b Average RF Power

Freq [MHz]	Channel	Data Rate [Mbps]	Average Power (dBm)
2412	**1**	**1**	**13.21**
		2	13.3
		5.5	13.43
		11	13.45
2437	6	1	12.71
		2	12.73
		5.5	12.78
		11	12.91
2462	11	1	11.83
		2	11.7
		5.5	11.75
		11	11.82

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Table 12-2
IEEE 802.11g Average RF Power

Freq [MHz]	Channel	Data Rate [Mbps]	Average Power (dBm)
2412	1	6	13.25
		9	13.05
		12	13.12
		18	13.19
		24	13.15
		36	13.3
		48	13.15
		54	13.05
2437	6	6	12.72
		9	12.4
		12	12.75
		18	12.48
		24	12.45
		36	12.52
		48	12.7
		54	12.75
2462	11	6	11.7
		9	11.7
		12	11.7
		18	11.68
		24	11.82
		36	11.82
		48	11.8
		54	11.8

Table 12-3
IEEE 802.11n Average RF Power

Freq [MHz]	Channel	Data Rate [Mbps]	Average Power (dBm)
2412	1	6.5/7.2	11.6
		13/14.40	11.6
		19.5/21.70	11.6
		26/28.90	11.66
		29/43.3	11.6
		52/57.80	11.7
		58.50/65	11.61
		65/72.2	11.65
2437	6	6.5/7.2	11.52
		13/14.40	11.6
		19.5/21.70	11.65
		26/28.90	11.55
		29/43.3	11.65
		52/57.80	11.6
		58.50/65	11.7
		65/72.2	11.67
2462	11	6.5/7.2	11.62
		13/14.40	11.65
		19.5/21.70	11.63
		26/28.90	11.6
		29/43.3	11.65
		52/57.80	11.71
		58.50/65	11.58
		65/72.2	11.63

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. Other IEEE 802.11 modes (including 802.11g/n) were not investigated since the average output powers over all channels and data rates were not more than 0.25 dB higher than the tested channel in the lowest data rate of IEEE 802.11b mode.
- When the maximum extrapolated peak SAR of the zoom scan for the maximum output channel is <1.6 W/kg and the 1g averaged SAR is < 0.8 W/kg, SAR testing on other channels is not required. Otherwise, the other default (or corresponding required) test channels were additionally tested using the lowest data rate.
- The bolded data rate and channel above were tested for SAR.

Figure 12-2
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	Tissue Temp During Calibration (C°)	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
01/18/2012	835H	23.2	820	0.862	40.17	0.898	41.571	-4.01%	-3.37%
			835	0.879	39.74	0.900	41.500	-2.33%	-4.24%
			850	0.890	39.63	0.916	41.500	-2.84%	-4.51%
01/19/2012	1900H	21.4	1850	1.361	39.92	1.400	40.000	-2.79%	-0.20%
			1880	1.399	39.76	1.400	40.000	-0.07%	-0.60%
			1910	1.422	39.59	1.400	40.000	1.57%	-1.02%
01/19/2012	2450H	22.5	2401	1.785	40.13	1.758	39.298	1.54%	2.12%
			2450	1.841	39.89	1.800	39.200	2.28%	1.76%
			2499	1.902	39.75	1.852	39.135	2.70%	1.57%
01/19/2012	835B	21.9	820	0.963	54.41	0.969	55.284	-0.62%	-1.58%
			835	0.981	54.22	0.970	55.200	1.13%	-1.78%
			850	0.996	54.10	0.988	55.154	0.81%	-1.91%
01/23/2012	835B	20.2	820	0.945	53.08	0.969	55.284	-2.48%	-3.99%
			835	0.958	52.90	0.970	55.200	-1.24%	-4.17%
			850	0.977	52.65	0.988	55.154	-1.11%	-4.54%
01/19/2012	1900B	20.6	1850	1.501	53.19	1.520	53.300	-1.25%	-0.21%
			1880	1.542	53.04	1.520	53.300	1.45%	-0.49%
			1910	1.574	52.82	1.520	53.300	3.55%	-0.90%
01/17/2012	2450B	22.7	2401	1.940	50.52	1.903	52.765	1.94%	-4.25%
			2450	2.018	50.39	1.950	52.700	3.49%	-4.38%
			2499	2.086	50.22	2.019	52.638	3.32%	-4.59%

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

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

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):

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

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

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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 13-2
System Verification Results

System Verification TARGET & MEASURED											
Tissue Frequency (MHz)	Tissue Type	Date:	Amb. Temp (°C)	Liquid Temp (°C)	Input Power (W)	Dipole SN	Probe SN	Measured SAR_{1g} (W/kg)	1 W Target SAR_{1g} (W/kg)	1 W Normalized SAR_{1g} (W/kg)	Deviation (%)
835	Head	01/18/2012	23.1	22.2	0.100	4d119	3258	0.95	9.400	9.500	1.06%
1900	Head	01/19/2012	22.6	20.7	0.100	502	3209	4.08	40.200	40.800	1.49%
2450	Head	01/19/2012	22.3	21.0	0.040	719	3561	2.08	53.800	52.000	-3.35%
835	Body	01/19/2012	21.6	19.9	0.100	4d119	3258	0.973	9.540	9.730	1.99%
835	Body	01/23/2012	22.3	20.4	0.100	4d119	3258	0.983	9.540	9.830	3.04%
1900	Body	01/19/2012	21.9	20.3	0.100	502	3209	4.3	41.100	43.000	4.62%
2450	Body	01/17/2012	23.0	22.1	0.040	719	3561	2.12	51.300	53.000	3.31%

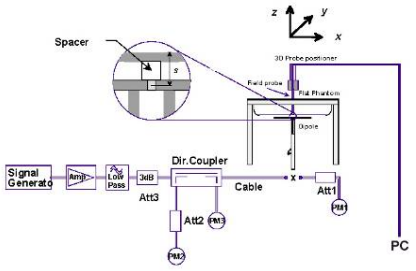

Figure 13-1
System Verification Setup Diagram

Figure 13-2
System Verification Setup Photo

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14 SAR DATA SUMMARY

14.1 Head SAR Data

Table 14-1
GSM 850 Head SAR Results

MEASUREMENT RESULTS							
FREQUENCY		Mode/Band	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	SAR (1g)
MHz	Ch.						(W/kg)
836.60	190	GSM 850	27.38	-0.03	Right	Touch	0.024
836.60	190	GSM 850	27.38	-0.19	Right	Tilt	0.026
836.60	190	GSM 850	27.38	-0.19	Left	Touch	0.027
836.60	190	GSM 850	27.38	0.20	Left	Tilt	0.028
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population					Head 1.6 W/kg (mW/g) averaged over 1 gram		

Table 14-2
WCDMA 850 Head SAR Results

MEASUREMENT RESULTS							
FREQUENCY		Mode/Band	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	SAR (1g)
MHz	Ch.						(W/kg)
836.60	4183	WCDMA 850	18.75	0.05	Right	Touch	0.028
836.60	4183	WCDMA 850	18.75	0.08	Right	Tilt	0.033
836.60	4183	WCDMA 850	18.75	0.04	Left	Touch	0.036
836.60	4183	WCDMA 850	18.75	0.06	Left	Tilt	0.038
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population					Head 1.6 W/kg (mW/g) averaged over 1 gram		

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Table 14-3
GSM 1900 Head SAR Results

MEASUREMENT RESULTS							
FREQUENCY		Mode/Band	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	SAR (1g)
MHz	Ch.						(W/kg)
1880.00	661	GSM 1900	23.41	0.08	Right	Touch	0.009
1880.00	661	GSM 1900	23.41	-0.14	Right	Tilt	0.005
1880.00	661	GSM 1900	23.41	0.05	Left	Touch	0.007
1880.00	661	GSM 1900	23.41	-0.09	Left	Tilt	0.005
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population					Head 1.6 W/kg (mW/g) averaged over 1 gram		

Table 14-4
2.4 GHz WLAN Head SAR Results

MEASUREMENT RESULTS									
FREQUENCY		Mode	Service	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Data Rate (Mbps)	SAR (1g)
MHz	Ch.								(W/kg)
2412	1	IEEE 802.11b	DSSS	13.21	-0.04	Right	Touch	1	0.001
2412	1	IEEE 802.11b	DSSS	13.21	0.11	Right	Tilt	1	0.007
2412	1	IEEE 802.11b	DSSS	13.21	0.06	Left	Touch	1	0.007
2412	1	IEEE 802.11b	DSSS	13.21	-0.13	Left	Tilt	1	0.004
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						Head 1.6 W/kg (mW/g) averaged over 1 gram			

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14.2 Body SAR Data

Table 14-5
Licensed Transmitter Body SAR Results

MEASUREMENT RESULTS									
FREQUENCY		Mode	Service	Conducted Power [dBm]	Power Drift [dB]	Spacing	# of Time Slots	Side	SAR (1g)
MHz	Ch.								(W/kg)
836.60	190	GSM 850	GSM	27.38	-0.04	0.0 cm	1	back	0.649
836.60	190	GSM 850	GPRS	27.33	0.01	0.0 cm	1	back	**0.689**
836.60	190	GSM 850	GSM	27.38	0.03	0.0 cm	1	top	0.099
836.60	190	GSM 850	GPRS	27.33	-0.12	0.0 cm	1	top	0.110
836.60	190	GSM 850	GSM	27.38	0.07	0.0 cm	1	right	0.308
836.60	190	GSM 850	GPRS	27.33	0.11	0.0 cm	1	right	0.287
826.40	4132	WCDMA 850	RMC	18.65	0.08	0.0 cm	N/A	back	0.861
836.60	4183	WCDMA 850	RMC	18.75	0.09	0.0 cm	N/A	back	0.903
846.60	4233	WCDMA 850	RMC	18.99	0.06	0.0 cm	N/A	back	**0.921**
836.60	4183	WCDMA 850	RMC	18.75	0.14	0.0 cm	N/A	top	0.162
836.60	4183	WCDMA 850	RMC	18.75	-0.06	0.0 cm	N/A	right	0.466
1880.00	661	GSM 1900	GSM	23.41	-0.02	0.0 cm	1	back	**0.641**
1880.00	661	GSM 1900	GPRS	23.55	-0.01	0.0 cm	1	back	0.631
1880.00	661	GSM 1900	GSM	23.41	0.05	0.0 cm	1	top	0.102
1880.00	661	GSM 1900	GPRS	23.55	-0.07	0.0 cm	1	top	0.089
1880.00	661	GSM 1900	GSM	23.41	0.00	0.0 cm	1	right	0.372
1880.00	661	GSM 1900	GPRS	23.55	0.05	0.0 cm	1	right	0.360
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 14-6
WLAN Body SAR Results

MEASUREMENT RESULTS									
FREQUENCY		Mode	Service	Conducted Power [dBm]	Power Drift [dB]	Spacing	Data Rate (Mbps)	Side	SAR (1g)
MHz	Ch.								(W/kg)
2412	1	IEEE 802.11b	DSSS	13.21	-0.02	0.0 cm	1	back	0.648
2412	1	IEEE 802.11b	DSSS	13.21	0.01	0.0 cm	1	right	0.319
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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14.3 SAR Test Notes

General Notes:

1. The test data reported are the worst-case SAR value with the position set in a typical configuration. Test procedures used were according to FCC/OET Bulletin 65, Supplement C [June 2001].
2. Batteries are fully charged for all readings.
3. Tissue parameters and temperatures are listed on the SAR plots.
4. Liquid tissue depth was at least 15.0 cm.
5. To confirm the proper SAR liquid depth, the z-axis plots from the system verifications were included since the system verifications were performed using the same liquid, probe and DAE as the SAR tests in the same time period.
6. **Head SAR testing was required** for this tablet because it has a speaker/receiver and a microphone positioned in a way that allows for a held-to-ear configuration usage.
7. This device has an NFC antenna on a non-removable part of the device. The **NFC mode was not active** during all SAR measurements.

GSM Notes:

1. Justification for reduced test configurations: Per FCC/OET Bulletin 65 Supplement C (June 2001) and Public Notice DA-02-1438, if the SAR measured at the middle channel for each test configuration is at least 3.0 dB lower than the SAR limit, testing at the high and low channels is optional for such test configuration(s).

WCDMA Notes:

1. Justification for reduced test configurations: Per FCC/OET Bulletin 65 Supplement C (June 2001) and Public Notice DA-02-1438, if the SAR measured at the middle channel for each test configuration is at least 3.0 dB lower than the SAR limit, testing at the high and low channels is optional for such test configuration(s).
2. WCDMA mode in Body 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.

WLAN Notes:

1. Justification for reduced test configurations for WIFI channels per KDB Publication 248227 and April 2010 FCC/TCB Meeting Notes for 2.4 GHz WIFI: Highest average RF output power channel for the lowest data rate was selected for SAR evaluation in 802.11b. Other IEEE 802.11 modes (including 802.11g/n) were not investigated since the average output powers over all channels and data rates were not more than 0.25 dB higher than the tested channel in the lowest data rate of IEEE 802.11b mode.
2. WLAN transmission was verified using a spectrum analyzer
3. When the maximum extrapolated peak SAR of the zoom scan for the maximum output channel is <1.6 W/kg and the 1g averaged SAR is <0.8 W/kg, SAR testing on other channels is not required. Otherwise, the other default (or corresponding required) test channels were additionally tested using the lowest data rate.

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15 FCC MULTI-TX ANTENNA SAR CONSIDERATIONS

15.1 Simultaneous Transmission Capabilities

This device contains multiple transmitters that may operate simultaneously and therefore, requires a simultaneous transmission analysis according to KDB Publication 447498 4) b) iii) procedures.

See Section 1.4 for possible simultaneous transmission scenarios supported by the DUT.

15.2 Simultaneous Transmission Analysis

Per KDB Publication 447498, Bluetooth SAR is not required since the average output power is < 60/f.

Table 15-1
Simultaneous Transmission Scenario (Held to Ear)

Simult Tx	Configuration	GSM 850 SAR (W/kg)	2.4 GHz WIFI SAR (W/kg)	Σ SAR (W/kg)
Head SAR	Right Cheek	0.024	0.001	0.025
	Right Tilt	0.026	0.007	0.033
	Left Cheek	0.027	0.007	**0.034**
	Left Tilt	0.028	0.004	0.032

Simult Tx	Configuration	GSM 1900 SAR (W/kg)	2.4 GHz WIFI SAR (W/kg)	Σ SAR (W/kg)
Head SAR	Right Cheek	0.009	0.001	0.010
	Right Tilt	0.005	0.007	0.012
	Left Cheek	0.007	0.007	**0.014**
	Left Tilt	0.005	0.004	0.009

Simult Tx	Configuration	WCDMA 850 SAR (W/kg)	2.4 GHz WIFI SAR (W/kg)	Σ SAR (W/kg)
Head SAR	Right Cheek	0.028	0.001	0.029
	Right Tilt	0.033	0.007	0.040
	Left Cheek	0.036	0.007	**0.043**
	Left Tilt	0.038	0.004	0.042

The above tables represent 2.4 GHz WLAN Client data simultaneously transmitting while being held to ear during a voice call.
When the user utilizes multiple services in WCDMA 3G mode (multi-Radio Access Bearer or multi-RAB), the power control will be based on a physical control channel (dedicated Physical Control Channel [DPCCH]) and power control will be adjusted to meet the needs of both services. Therefore, the WCDMA+WLAN sum also represents the WCDMA Voice/Data + WLAN Hotspot scenario.

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Table 15-2
Simultaneous Transmission Scenario with Voice/Data and 2.4 WIFI at 0.0 cm

Simult Tx	Configuration	GSM 850 SAR (W/kg)	2.4 GHz WIFI SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	GSM 1900 SAR (W/kg)	2.4 GHz WIFI SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.649	0.648	**1.297**	Body SAR	Back	0.641	0.648	**1.289**
	Front	-	-	0.000		Front	-	-	0.000
	Top	0.099	-	0.099		Top	0.102	-	0.102
	Bottom	-	-	0.000		Bottom	-	-	0.000
	Right	0.308	0.319	0.627		Right	0.372	0.319	0.691
	Left	-	-	0.000		Left	-	-	0.000

Simult Tx	Configuration	GPRS 850 SAR (W/kg)	2.4 GHz WIFI SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	GPRS 1900 SAR (W/kg)	2.4 GHz WIFI SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.689	0.648	**1.337**	Body SAR	Back	0.631	0.648	**1.279**
	Front	-	-	0.000		Front	-	-	0.000
	Top	0.110	-	0.110		Top	0.089	-	0.089
	Bottom	-	-	0.000		Bottom	-	-	0.000
	Right	0.287	0.319	0.606		Right	0.360	0.319	0.679
	Left	-	-	0.000		Left	-	-	0.000

Simult Tx	Configuration	WCDMA 850 SAR (W/kg)	2.4 GHz WIFI SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.921	0.648	**1.569**
	Front	-	-	0.000
	Top	0.162	-	0.162
	Bottom	-	-	0.000
	Right	0.466	0.319	0.785
	Left	-	-	0.000

Note: ("-") SAR results shown in table are zero for summation purposes. SAR measurements are not required due to exclusions mentioned in Section 8.2 – SAR Testing for Tablets. The above tables represent a voice call possibly simultaneously transmitting 2.4 GHz WIFI data on the body or a portable hotspot scenario.

When the user utilizes multiple services in WCDMA 3G mode (multi-Radio Access Bearer or multi-RAB), the power control will be based on a physical control channel (dedicated Physical Control Channel [DPCCH]) and power control will be adjusted to meet the needs of both services. Therefore, the WCDMA+WLAN sum also represents the WCDMA Voice/Data + WLAN Hotspot scenario.

15.3 Simultaneous Transmission Conclusion

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

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16 EQUIPMENT LIST

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent	8648D	(9kHz-4GHz) Signal Generator	10/10/2011	Annual	10/10/2012	3613A00315
Agilent	8753E	(30kHz-6GHz) Network Analyzer	4/21/2011	Annual	4/21/2012	JP38020182
Agilent	E5515C	Wireless Communications Test Set	10/10/2011	Annual	10/10/2012	GB46110872
Agilent	E5515C	Wireless Communications Test Set	10/20/2011	Annual	10/20/2012	GB46310798
Agilent	E5515C	Wireless Communications Test Set	10/14/2011	Annual	10/14/2012	GB41450275
Agilent	E8257D	(250kHz-20GHz) Signal Generator	4/8/2011	Annual	4/8/2012	MY45470194
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
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
Rohde & Schwarz	CMU200	Base Station Simulator	6/1/2011	Annual	6/1/2012	833855/0010
Rohde & Schwarz	CMU200	Base Station Simulator	4/19/2011	Annual	4/19/2012	107826
Rohde & Schwarz	NRVD	Dual Channel Power Meter	4/8/2011	Biennial	4/8/2013	101695
SPEAG	D1900V2	1900 MHz SAR Dipole	2/17/2011	Annual	2/17/2012	502
SPEAG	D2450V2	2450 MHz SAR Dipole	8/19/2011	Annual	8/19/2012	719
SPEAG	DAE4	Dasy Data Acquisition Electronics	4/20/2011	Annual	4/20/2012	665
SPEAG	DAE4	Dasy Data Acquisition Electronics	2/21/2011	Annual	2/21/2012	649
SPEAG	EX3DV4	SAR Probe	7/27/2011	Annual	7/27/2012	3561
SPEAG	DAE4	Dasy Data Acquisition Electronics	5/19/2011	Annual	5/19/2012	859
SPEAG	ES3DV3	SAR Probe	4/18/2011	Annual	4/18/2012	3209
Rohde & Schwarz	SMIQ03B	Signal Generator	4/6/2011	Annual	4/6/2012	DE27259
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	10/13/2011	Annual	10/13/2012	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	10/14/2011	Annual	10/14/2012	GB43304447
Agilent	E5515C	Wireless Communications Tester	4/21/2011	Annual	4/21/2012	US41140256
Anritsu	MA2411B	Pulse Sensor	10/13/2011	Annual	10/13/2012	1027293
Anritsu	ML2495A	Power Meter	10/13/2011	Annual	10/13/2012	1039008
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	CBT		N/A	N/A
Agilent	E5515C	Wireless Communications Test Set	2/8/2011	Annual	2/8/2012	GB45360985
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
MiniCircuits	SLP-2400+	Low Pass Filter	CBT		N/A	R8979500903
Narda	4772-3	Attenuator (3dB)	CBT		N/A	9406
Narda	BW-S3W2	Attenuator (3dB)	CBT		N/A	120
Mini-Circuits	NLP-2950+	Low Pass Filter DC to 2700 MHz	CBT		N/A	N/A
Mini-Circuits	NLP-1200+	Low Pass Filter DC to 1000 MHz	CBT		N/A	N/A
SPEAG	D835V2	835 MHz SAR Dipole	12/21/2011	Annual	12/21/2012	4d119

Note: CBT (Calibrated Before Testing). Prior to testing, the measurement paths containing a cable, attenuator, coupler or filter were connected to a calibrated source (i.e. a signal generator) to determine the losses of the measurement path. The power meter offset was then adjusted to compensate for the measurement system losses. This level offset is stored within the power meter before measurements are made. This calibration verification procedure applies to the system verification and output power measurements. The calibrated reading is then taken directly from the power meter after compensation of the losses for all final power measurements.

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17 MEASUREMENT UNCERTAINTIES

Applicable for frequencies less than 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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18 CONCLUSION

18.1 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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[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: A98-CUL7580; Type: Portable Tablet; Serial: IMEI 004401200800361

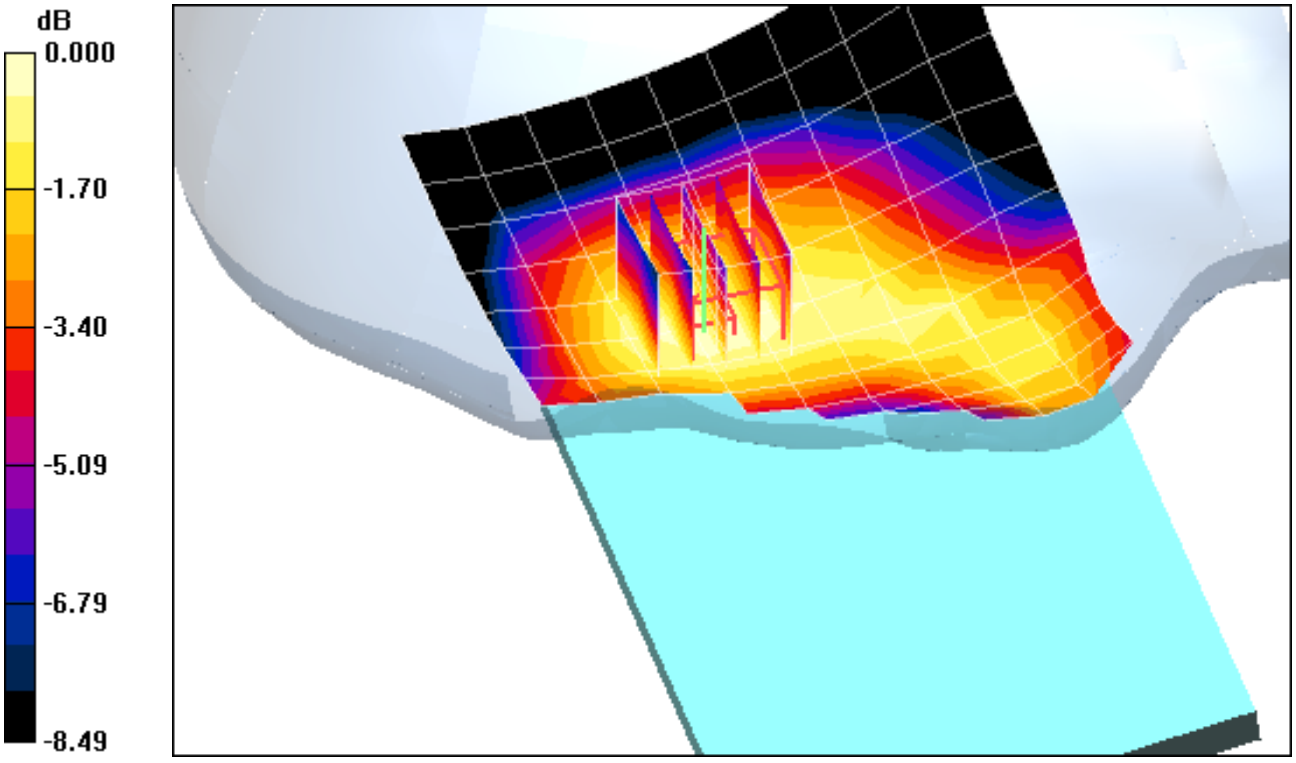
Communication System: GSM850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium: 835 Head Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.88 mho/m; ε_r = 39.7; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 01-18-2012; Ambient Temp: 23.1°C; Tissue Temp: 22.2°C

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

Mode: GSM 850, Right Head, Touch, Mid.ch

Area Scan (10x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.40 V/m; Power Drift = -0.026 dB
Peak SAR (extrapolated) = 0.030 W/kg
SAR(1 g) = 0.024 mW/g; SAR(10 g) = 0.019 mW/g



0 dB = 0.025mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A98-CUL7580; Type: Portable Tablet; Serial: IMEI 004401200800361

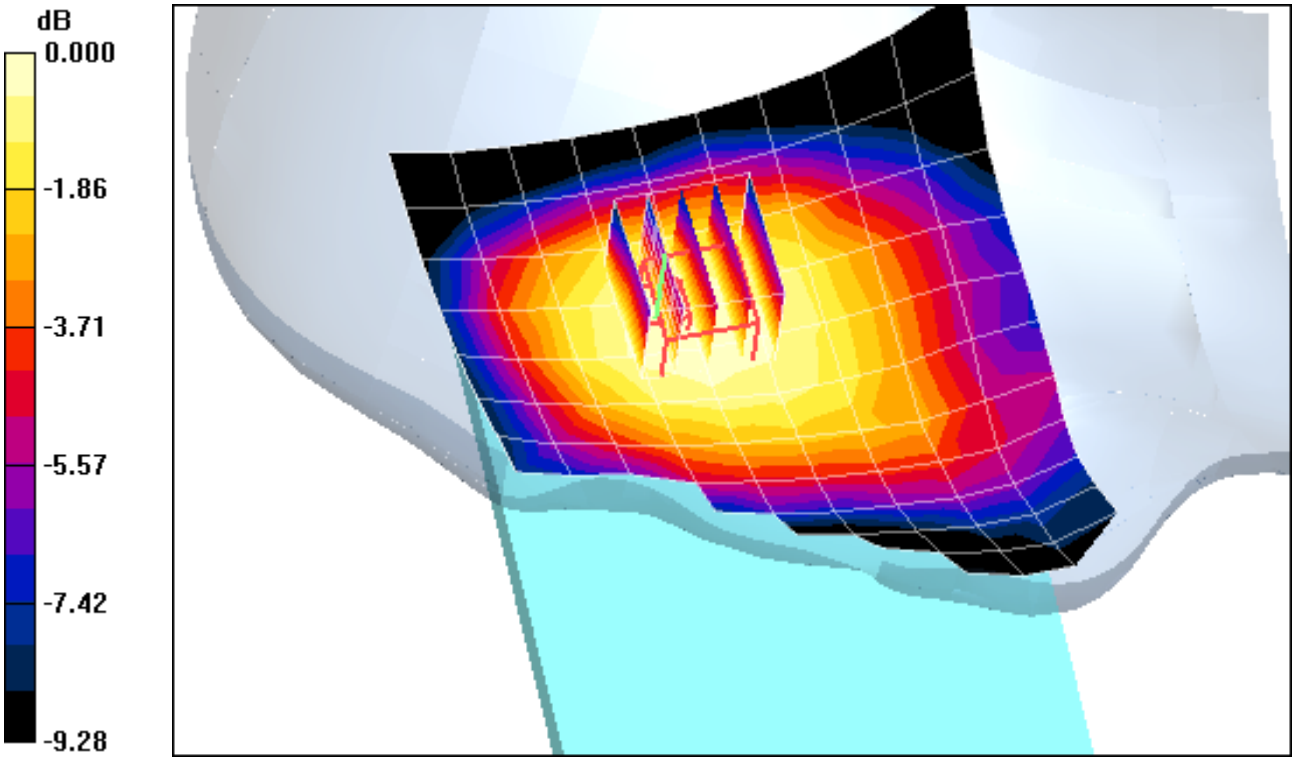
Communication System: GSM850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium: 835 Head Medium parameters used (interpolated):
$f = 836.6$ MHz; $\sigma = 0.88$ mho/m; $\varepsilon_r = 39.7$; $\rho = 1000$ kg/m^3
Phantom section: Right Section

Test Date: 01-18-2012; Ambient Temp: 23.1°C; Tissue Temp: 22.2°C

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

Mode: GSM 850, Right Head, Tilt, Mid.ch

Area Scan (10x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.61 V/m; Power Drift = -0.189 dB
Peak SAR (extrapolated) = 0.034 W/kg
SAR(1 g) = 0.026 mW/g; SAR(10 g) = 0.020 mW/g



0 dB = 0.028mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A98-CUL7580; Type: Portable Tablet; Serial: IMEI 004401200800361

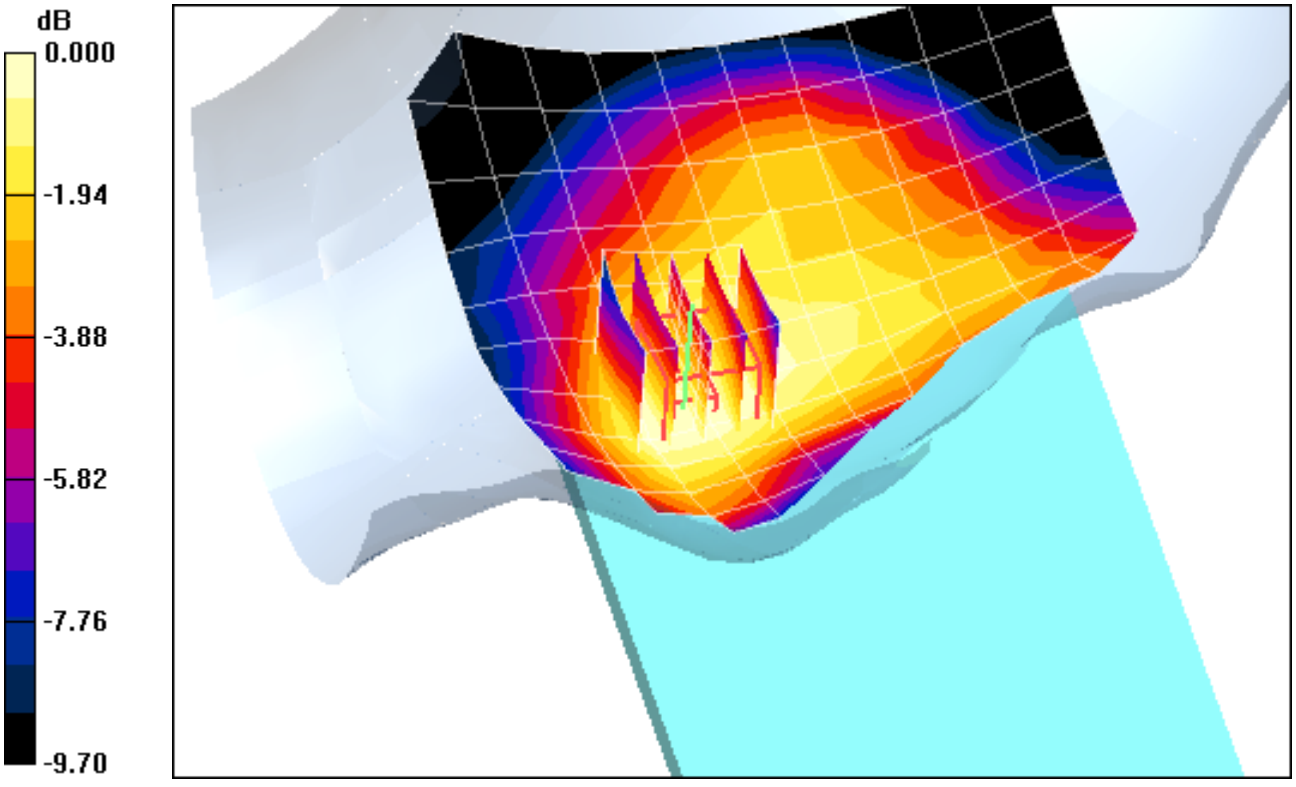
Communication System: GSM850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium: 835 Head Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.88 mho/m; ε_r = 39.7; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 01-18-2012; Ambient Temp: 23.1°C; Tissue Temp: 22.2°C

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

Mode: GSM 850, Left Head, Touch, Mid.ch

Area Scan (11x16x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.90 V/m; Power Drift = -0.193 dB
Peak SAR (extrapolated) = 0.033 W/kg
SAR(1 g) = 0.027 mW/g; SAR(10 g) = 0.021 mW/g



0 dB = 0.028mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A98-CUL7580; Type: Portable Tablet; Serial: IMEI 004401200800361

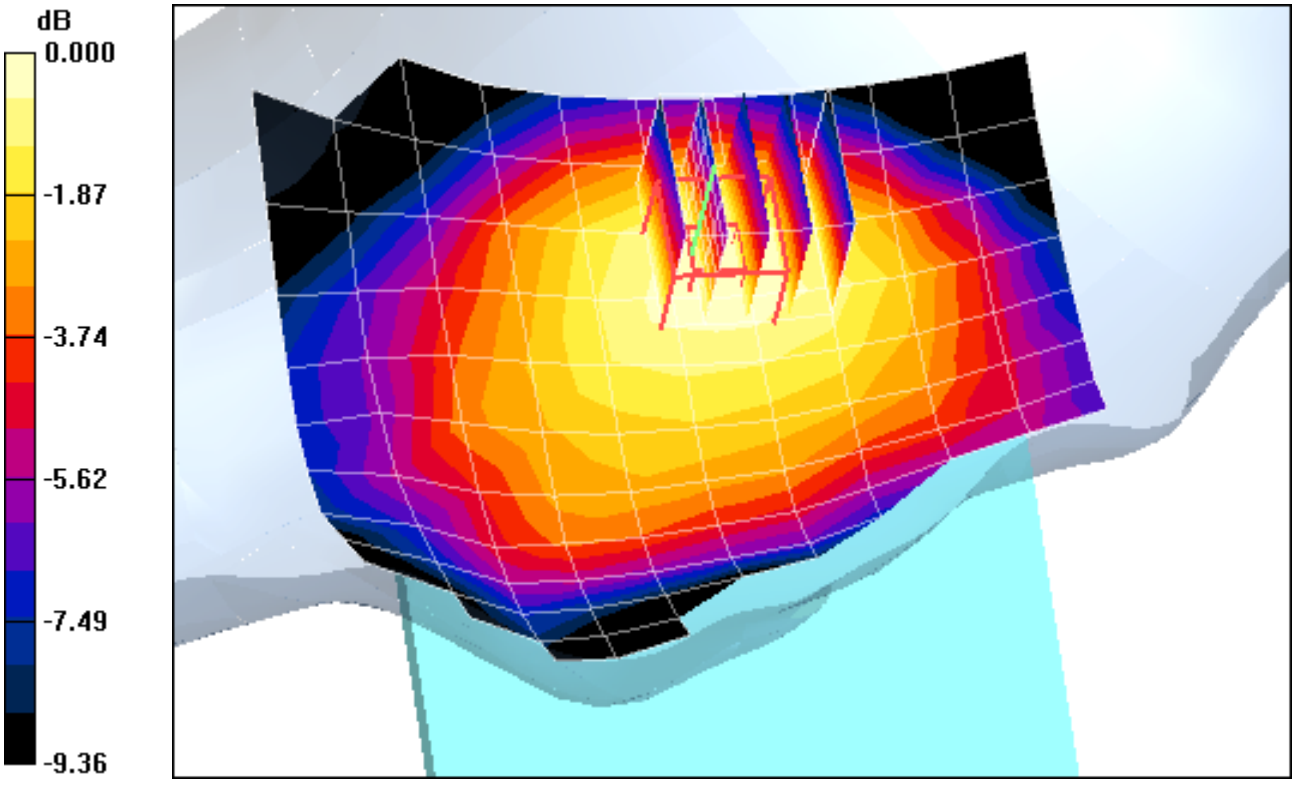
Communication System: GSM850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium: 835 Head Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.88 mho/m; ε_r = 39.7; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 01-18-2012; Ambient Temp: 23.1°C; Tissue Temp: 22.2°C

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

Mode: GSM 850, Left Head, Tilt, Mid.ch

Area Scan (11x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.64 V/m; Power Drift = 0.202 dB
Peak SAR (extrapolated) = 0.037 W/kg
SAR(1 g) = 0.028 mW/g; SAR(10 g) = 0.021 mW/g



0 dB = 0.030mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A98-CUL7580; Type: Portable Tablet; Serial: IMEI 004401200800361

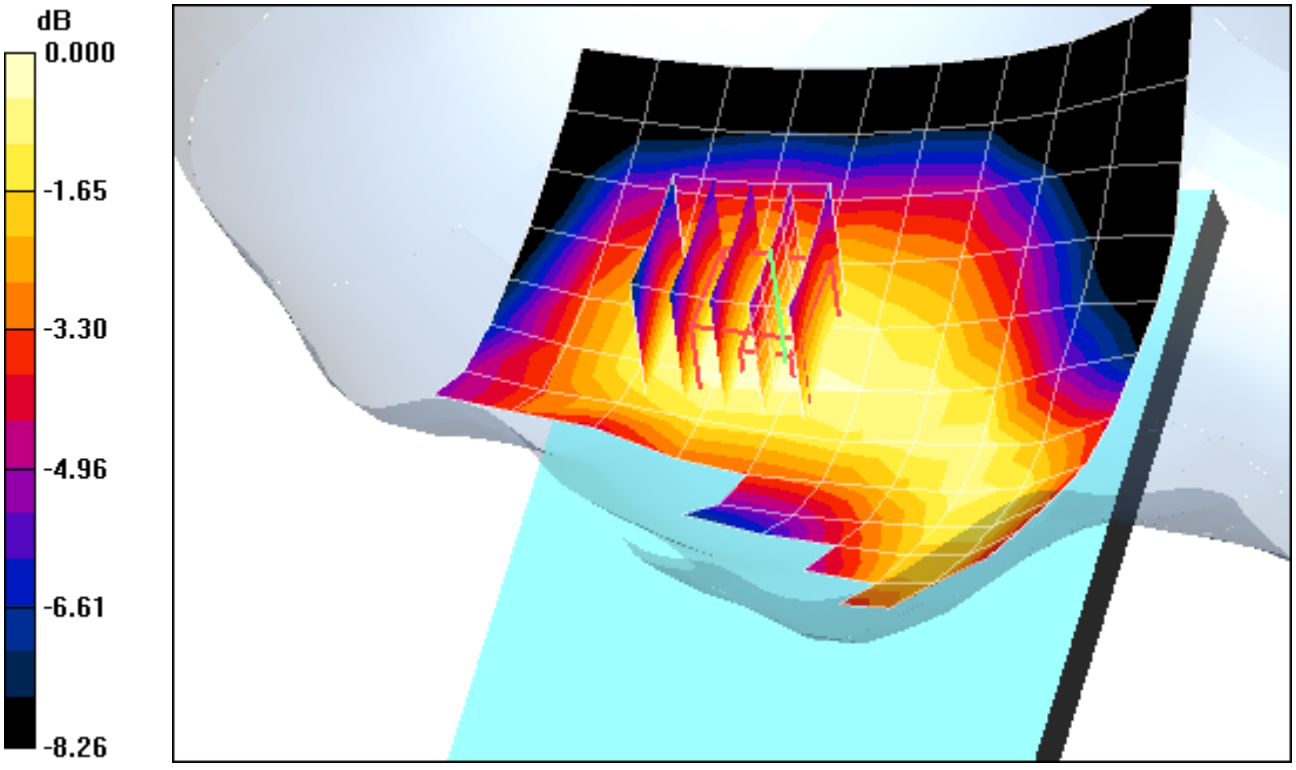
Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.88 mho/m; ε_r = 39.7; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 01-18-2012; Ambient Temp: 23.1°C; Tissue Temp: 22.2°C

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

Mode: WCDMA 850, Right Head, Touch, Mid.ch

Area Scan (10x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.67 V/m; Power Drift = 0.049 dB
Peak SAR (extrapolated) = 0.035 W/kg
SAR(1 g) = 0.028 mW/g; SAR(10 g) = 0.022 mW/g



0 dB = 0.029mW/g

DUT: A98-CUL7580; Type: Portable Tablet; Serial: IMEI 004401200800361

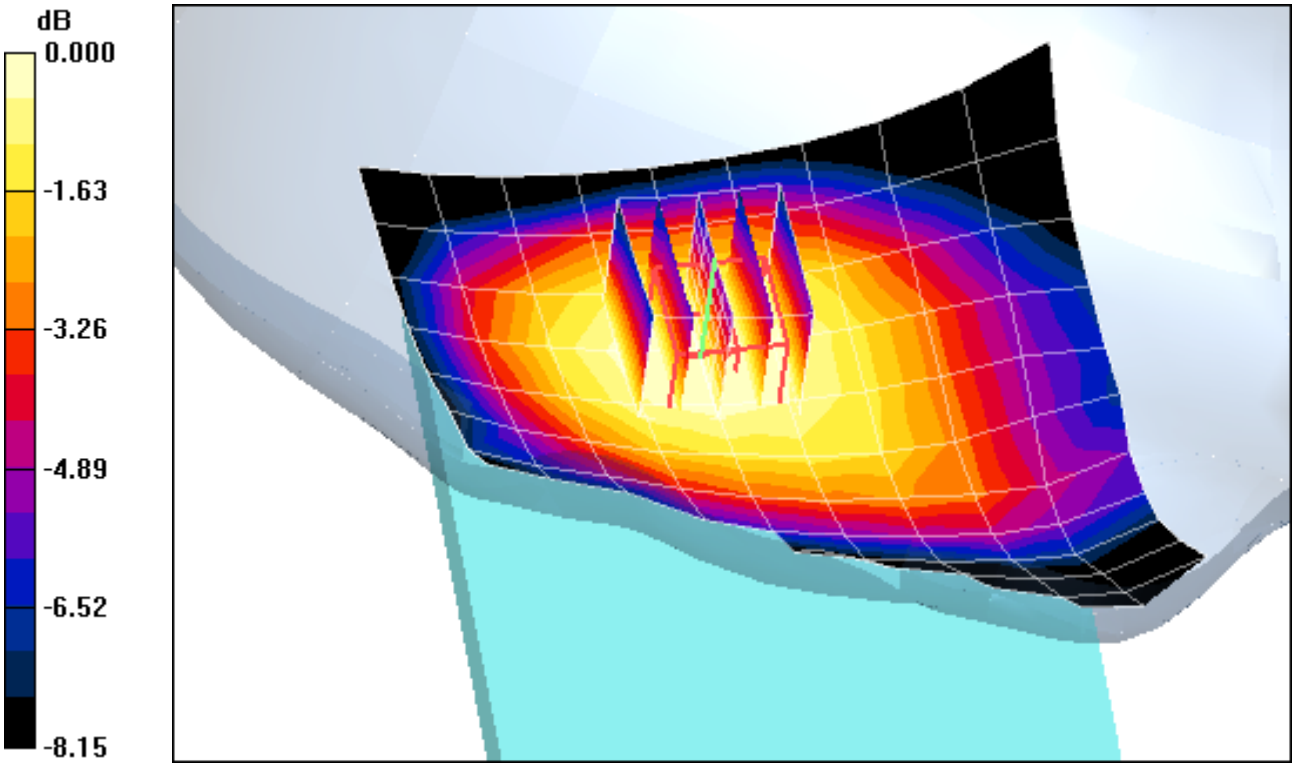
Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
$f = 836.6$ MHz; $\sigma = 0.88$ mho/m; $\varepsilon_r = 39.7$; $\rho = 1000$ kg/m^3
Phantom section: Right Section

Test Date: 01-18-2012; Ambient Temp: 23.1°C; Tissue Temp: 22.2°C

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

Mode: WCDMA 850, Right Head, Tilt, Mid.ch

Area Scan (10x13x1): 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; Power Drift = 0.079 dB
Peak SAR (extrapolated) = 0.042 W/kg
SAR(1 g) = 0.033 mW/g; SAR(10 g) = 0.025 mW/g



0 dB = 0.034mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A98-CUL7580; Type: Portable Tablet; Serial: IMEI 004401200800361

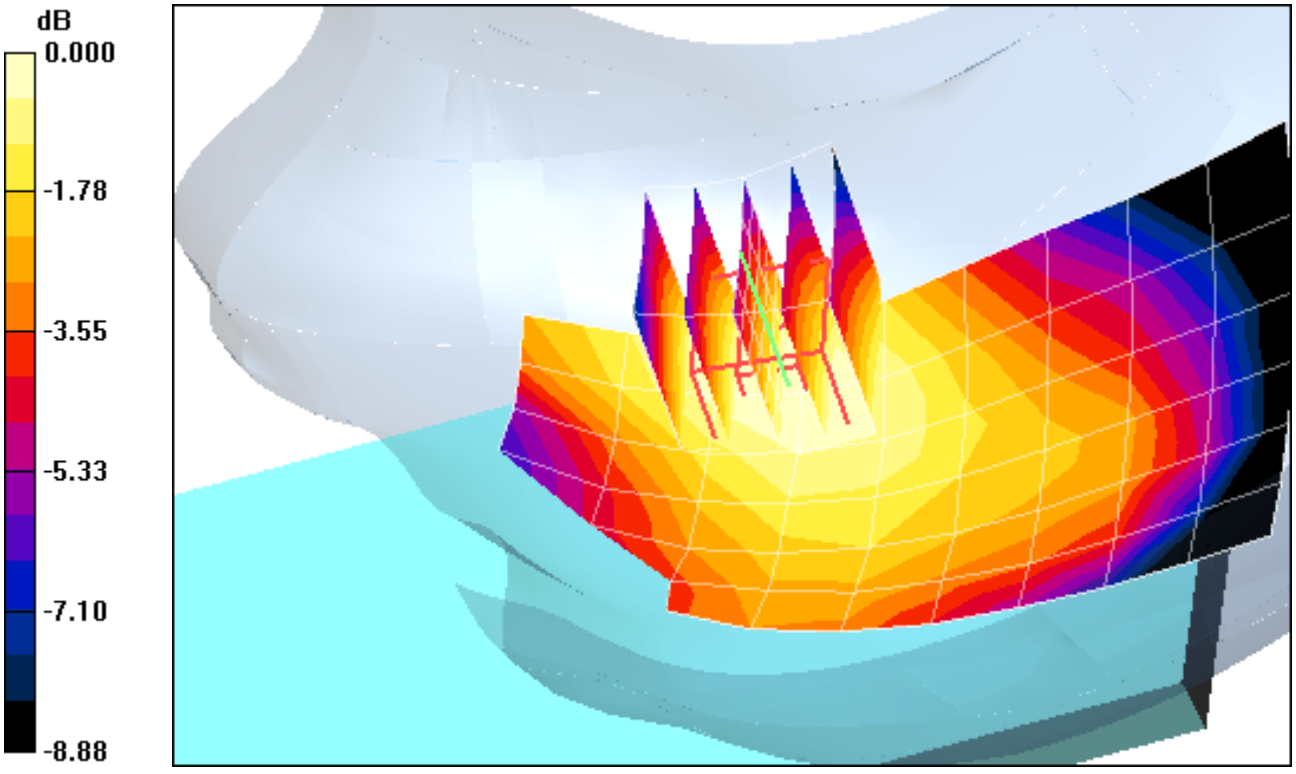
Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.88 mho/m; ε_r = 39.7; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 01-18-2012; Ambient Temp: 23.1°C; Tissue Temp: 22.2°C

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

Mode: WCDMA 850, Left Head, Touch, Mid.ch

Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.54 V/m; Power Drift = 0.036 dB
Peak SAR (extrapolated) = 0.044 W/kg
SAR(1 g) = 0.036 mW/g; SAR(10 g) = 0.028 mW/g



0 dB = 0.037mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A98-CUL7580; Type: Portable Tablet; Serial: IMEI 004401200800361

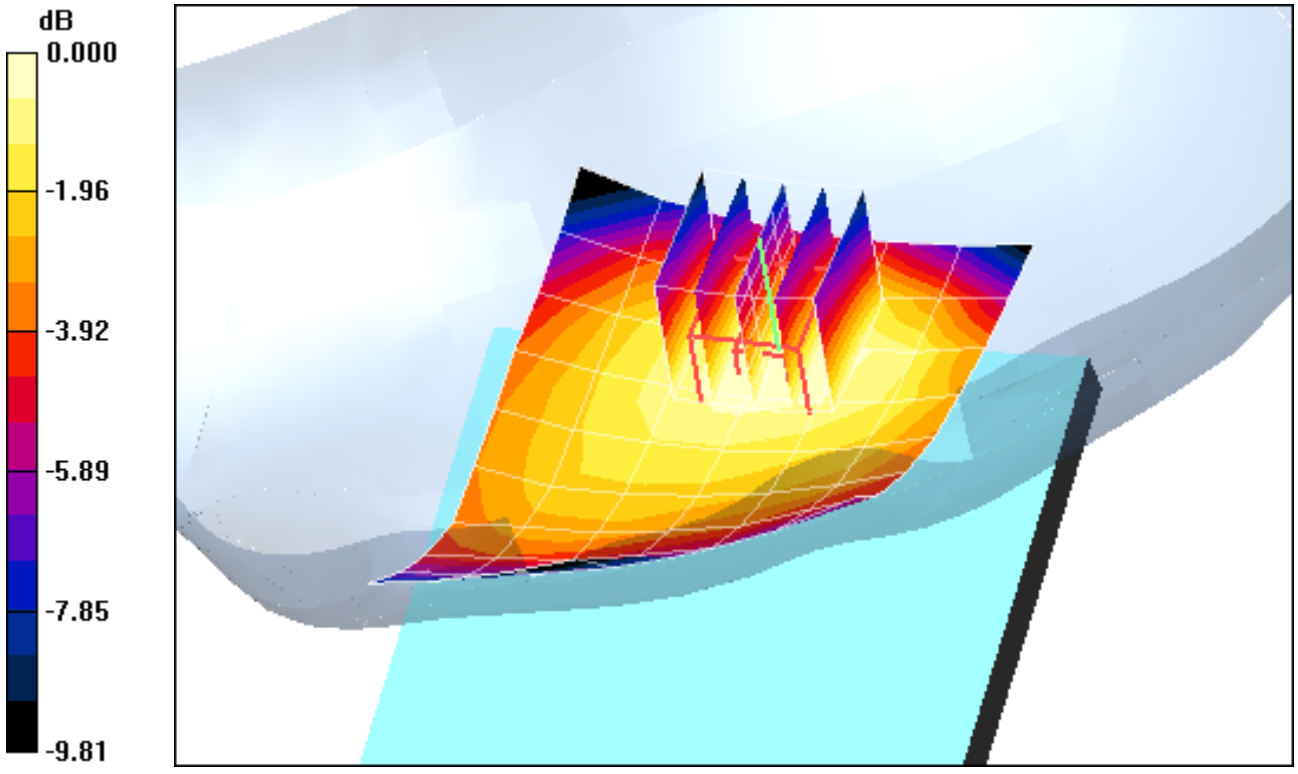
Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
$f = 836.6$ MHz; $\sigma = 0.88$ mho/m; $\varepsilon_r = 39.7$; $\rho = 1000$ kg/m^3
Phantom section: Left Section

Test Date: 01-18-2012; Ambient Temp: 23.1°C; Tissue Temp: 22.2°C

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

Mode: WCDMA 850, Left Head, Tilt, Mid.ch

Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.73 V/m; Power Drift = 0.056 dB
Peak SAR (extrapolated) = 0.051 W/kg
SAR(1 g) = 0.038 mW/g; SAR(10 g) = 0.028 mW/g



0 dB = 0.040mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A98-CUL7580; Type: Portable Tablet; Serial: IMEI 004401200800361

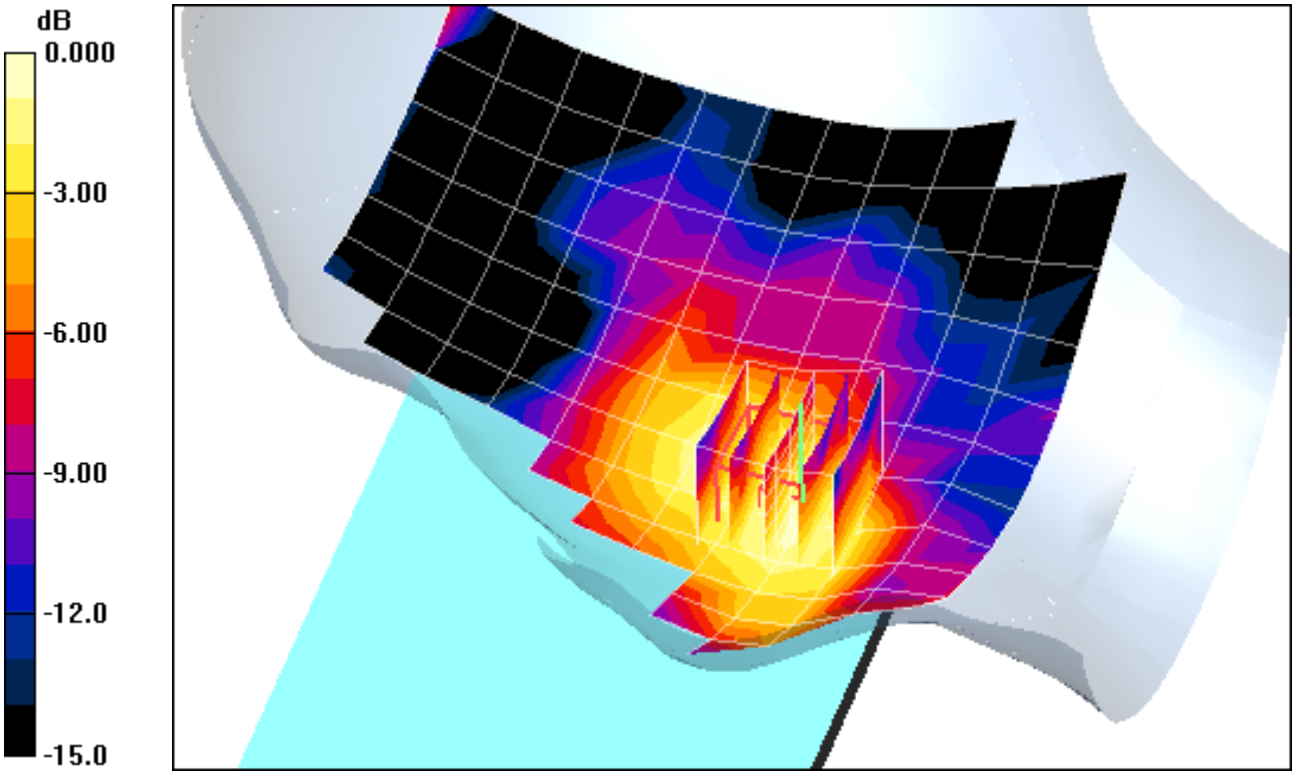
Communication System: GSM1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium: 1900 Head Medium parameters used:
f = 1880 MHz; σ = 1.4 mho/m; ε_r = 39.8; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 01-19-2012; Ambient Temp: 22.6°C; Tissue Temp: 20.7°C

Probe: ES3DV3 - SN3209; ConvF(5.11, 5.11, 5.11); Calibrated: 4/18/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM with CRP; Type: SAM 4.0; Serial: TP1375
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: GSM 1900, Right Head, Touch, Mid.ch

Area Scan (12x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.66 V/m; Power Drift = 0.078 dB
Peak SAR (extrapolated) = 0.013 W/kg
SAR(1 g) = 0.00939 mW/g; SAR(10 g) = 0.006 mW/g



0 dB = 0.010mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A98-CUL7580; Type: Portable Tablet; Serial: IMEI 004401200800361

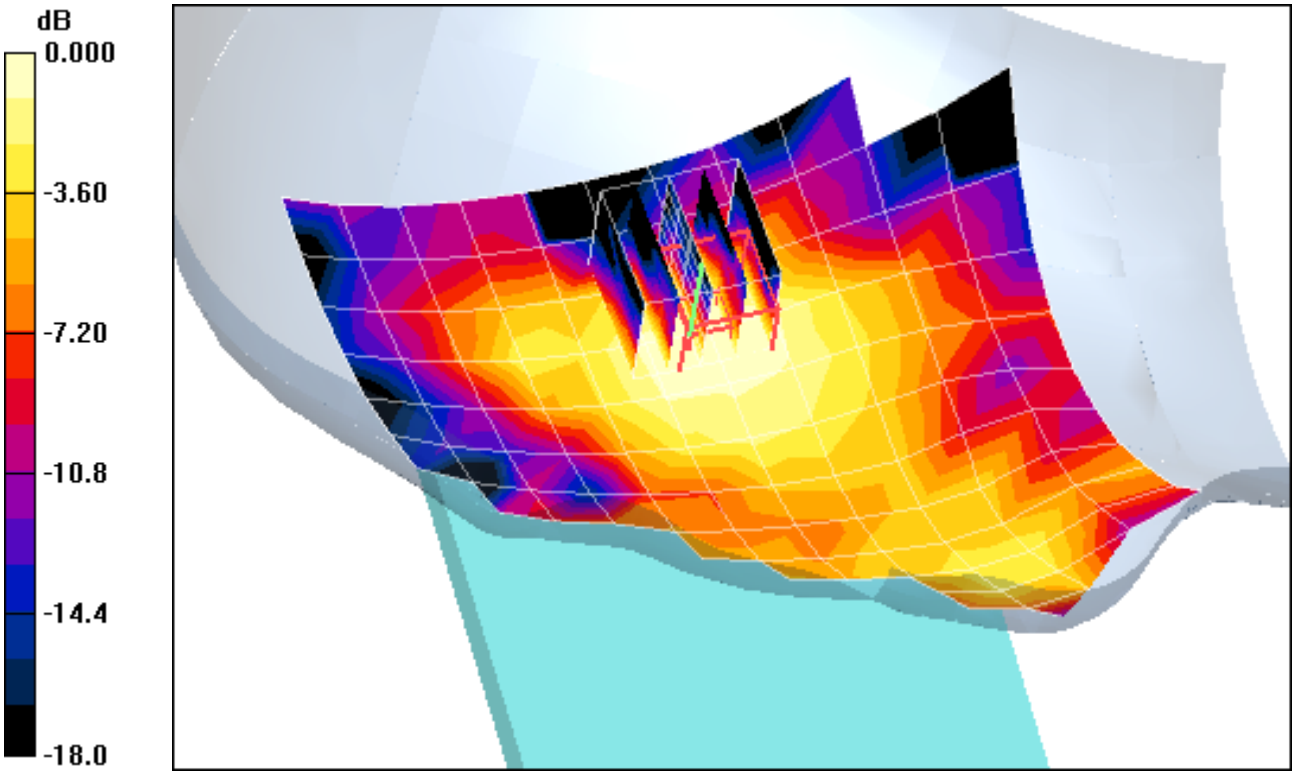
Communication System: GSM1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium: 1900 Head Medium parameters used:
f = 1880 MHz; σ = 1.4 mho/m; ε_r = 39.8; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 01-19-2012; Ambient Temp: 22.6°C; Tissue Temp: 20.7°C

Probe: ES3DV3 - SN3209; ConvF(5.11, 5.11, 5.11); Calibrated: 4/18/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM with CRP; Type: SAM 4.0; Serial: TP1375
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: GSM 1900, Right Head, Tilt, Mid.ch

Area Scan (12x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.94 V/m; Power Drift = -0.143 dB
Peak SAR (extrapolated) = 0.008 W/kg
SAR(1 g) = 0.00476 mW/g; SAR(10 g) = 0.0029 mW/g



0 dB = 0.005mW/g

DUT: A98-CUL7580; Type: Portable Tablet; Serial: IMEI 004401200800361

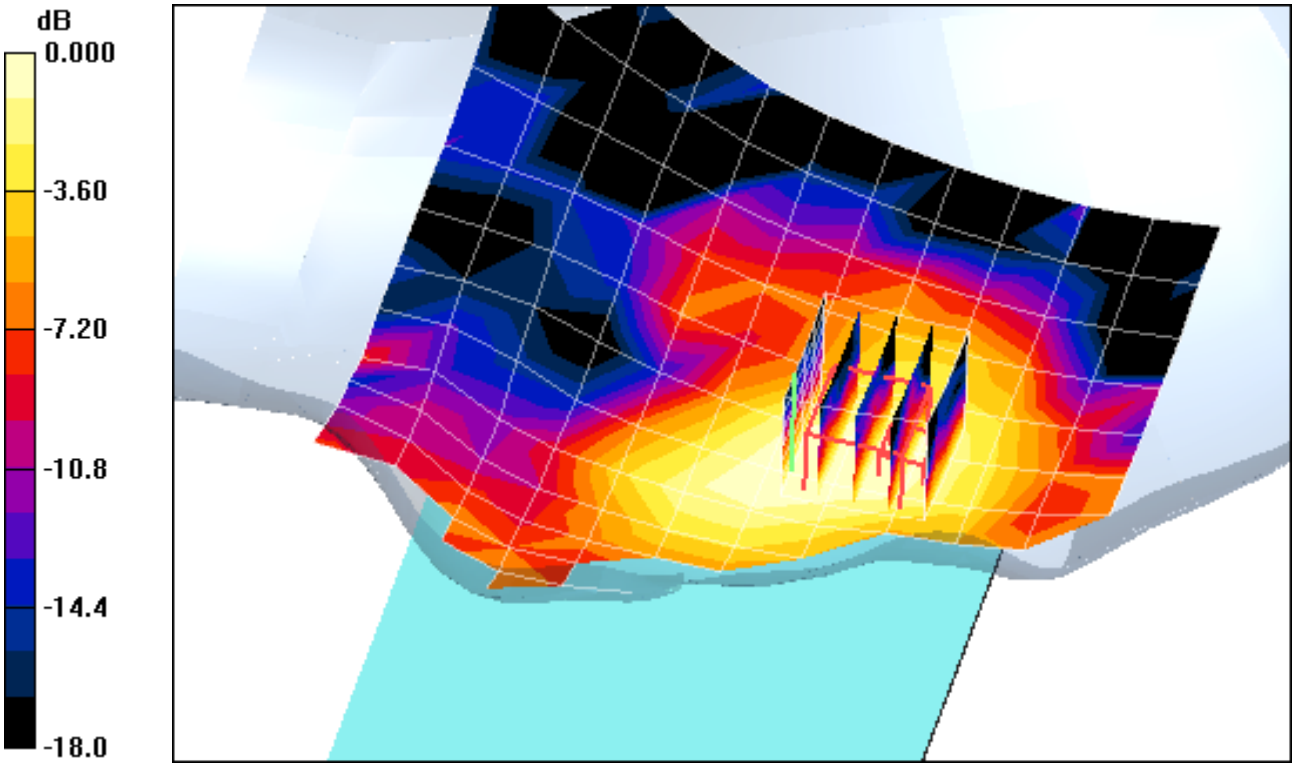
Communication System: GSM1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium: 1900 Head Medium parameters used:
f = 1880 MHz; σ = 1.4 mho/m; ε_r = 39.8; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 01-19-2012; Ambient Temp: 22.6°C; Tissue Temp: 20.7°C

Probe: ES3DV3 - SN3209; ConvF(5.11, 5.11, 5.11); Calibrated: 4/18/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM with CRP; Type: SAM 4.0; Serial: TP1375
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: GSM 1900, Left Head, Touch, Mid.ch

Area Scan (12x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.35 V/m; Power Drift = 0.052dB
Peak SAR (extrapolated) = 0.012 W/kg
SAR(1 g) = 0.00723 mW/g; SAR(10 g) = 0.00464 mW/g



0 dB = 0.008mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A98-CUL7580; Type: Portable Tablet; Serial: IMEI 004401200800361

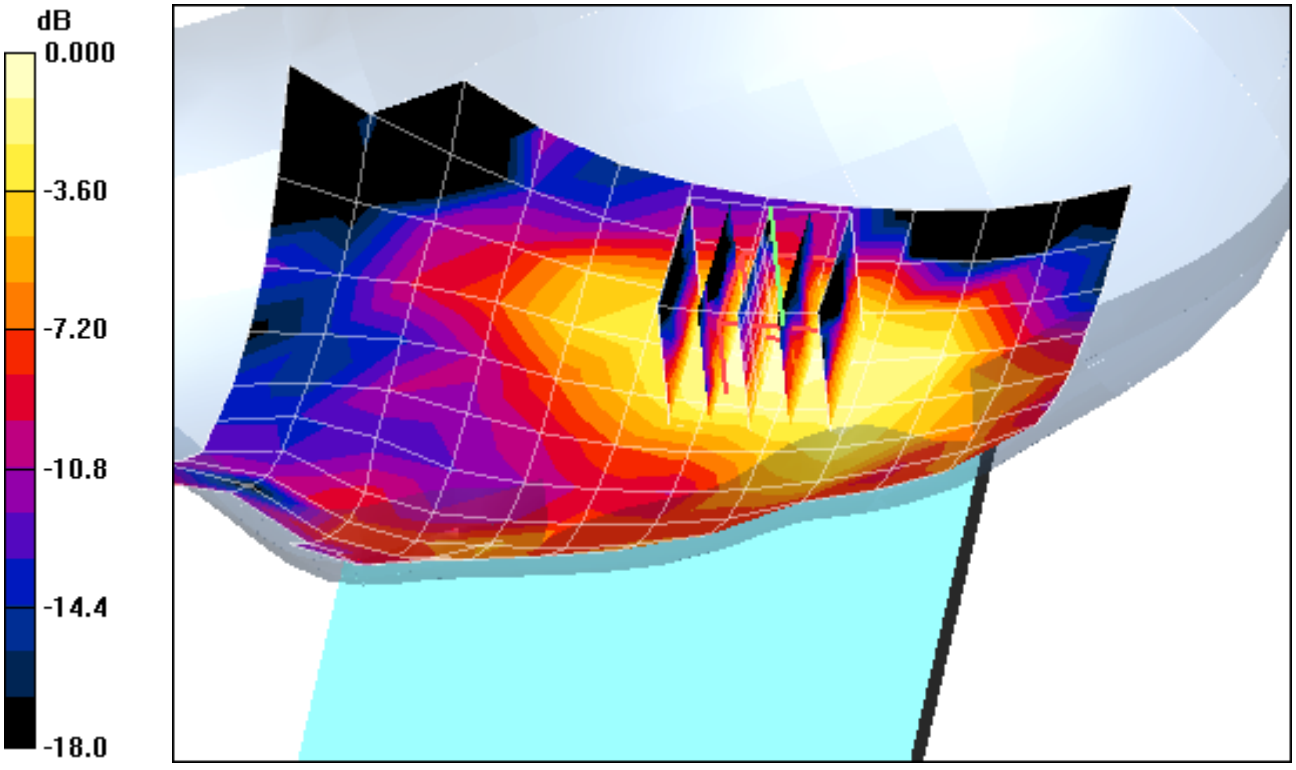
Communication System: GSM1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium: 1900 Head Medium parameters used:
f = 1880 MHz; σ = 1.4 mho/m; ε_r = 39.8; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 01-19-2012; Ambient Temp: 22.6°C; Tissue Temp: 20.7°C

Probe: ES3DV3 - SN3209; ConvF(5.11, 5.11, 5.11); Calibrated: 4/18/2011
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/19/2011
Phantom: SAM with CRP; Type: SAM 4.0; Serial: TP1375
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: GSM 1900, Left Head, Tilt, Mid.ch

Area Scan (12x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.08 V/m; Power Drift = -0.090 dB
Peak SAR (extrapolated) = 0.008 W/kg
SAR(1 g) = 0.00529 mW/g; SAR(10 g) = 0.00338 mW/g



0 dB = 0.006mW/g

DUT: A98-CUL7580; Type: Portable Tablet; Serial: IMEI 004401200800361

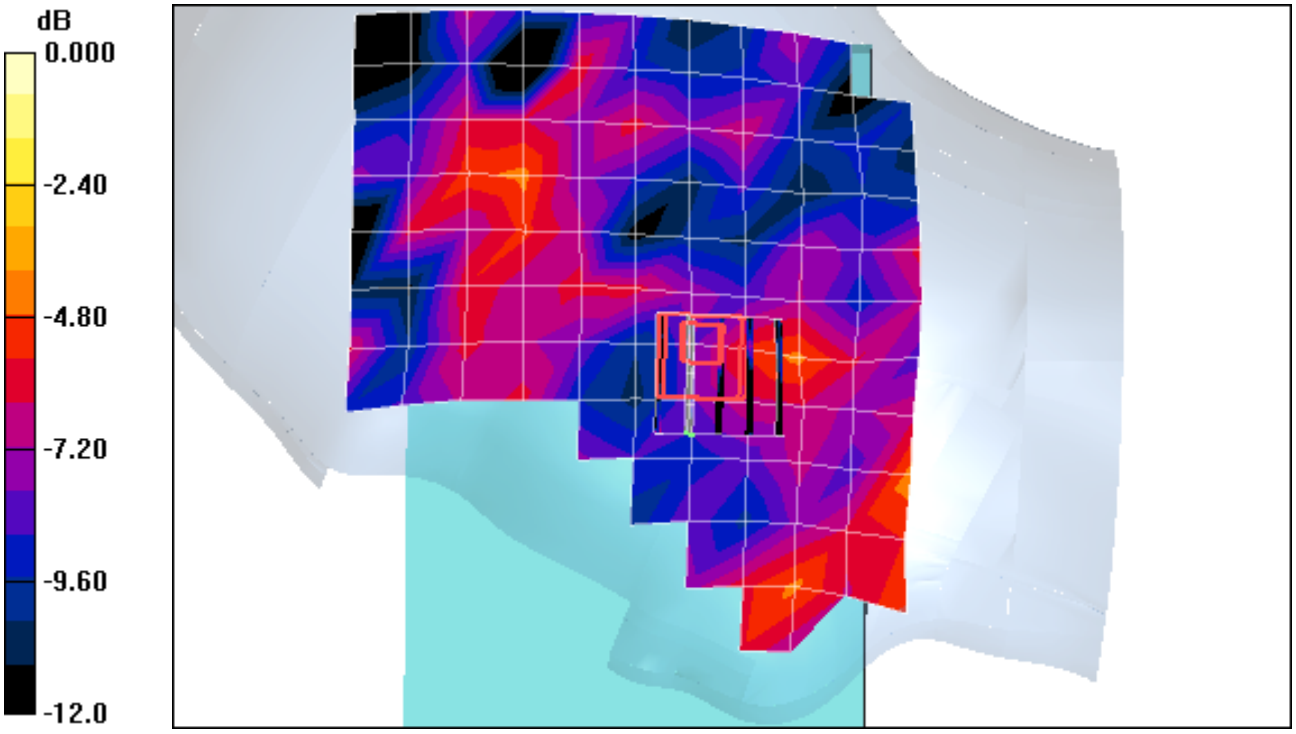
Communication System: IEEE 802.11b; Frequency: 2412 MHz;Duty Cycle: 1:1
Medium: 2450 Head Medium parameters used (interpolated):
f = 2412 MHz; σ = 1.8 mho/m; ε_r = 40.1; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 01-19-2012; Ambient Temp: 22.3°C; Tissue Temp: 21.0°C

Probe: EX3DV4 - SN3561; ConvF(6.42, 6.42, 6.42); Calibrated: 7/27/2011
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/20/2011
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: IEEE 802.11b, Right Head, Touch, Ch 01, 1 Mbps

Area Scan (11x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.61 V/m; Power Drift = -0.035 dB
Peak SAR (extrapolated) = 0.019 W/kg
SAR(1 g) = 0.00119 mW/g; SAR(10 g) = 0.000197 mW/g



0 dB = 0.019mW/g

DUT: A98-CUL7580; Type: Portable Tablet; Serial: IMEI 004401200800361

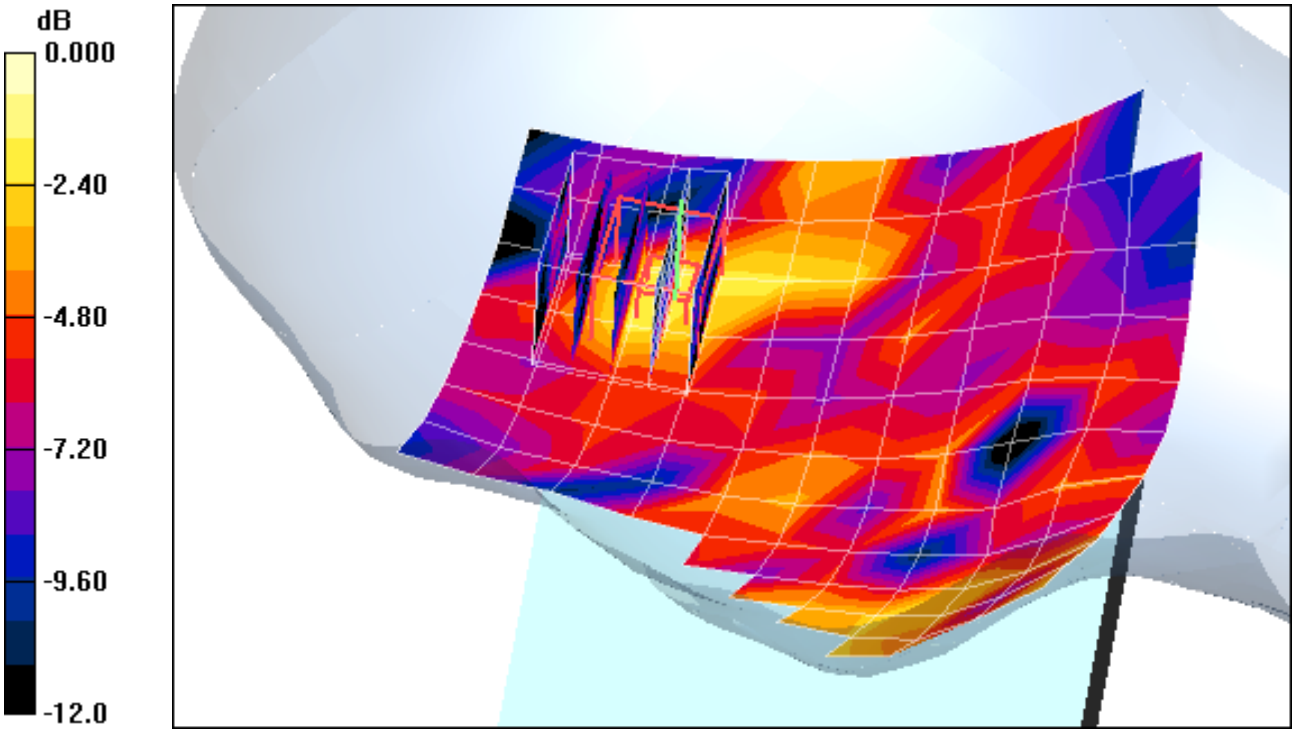
Communication System: IEEE 802.11b; Frequency: 2412 MHz;Duty Cycle: 1:1
Medium: 2450 Head Medium parameters used (interpolated):
f = 2412 MHz; σ = 1.8 mho/m; ε_r = 40.1; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 01-19-2012; Ambient Temp: 22.3°C; Tissue Temp: 21.0°C

Probe: EX3DV4 - SN3561; ConvF(6.42, 6.42, 6.42); Calibrated: 7/27/2011
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/20/2011
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: IEEE 802.11b, Right Head, Tilt, Ch 01, 1 Mbps

Area Scan (11x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.66 V/m; Power Drift = 0.112 dB
Peak SAR (extrapolated) = 0.013 W/kg
SAR(1 g) = 0.00741 mW/g; SAR(10 g) = 0.00304 mW/g



0 dB = 0.011mW/g

DUT: A98-CUL7580; Type: Portable Tablet; Serial: IMEI 004401200800361

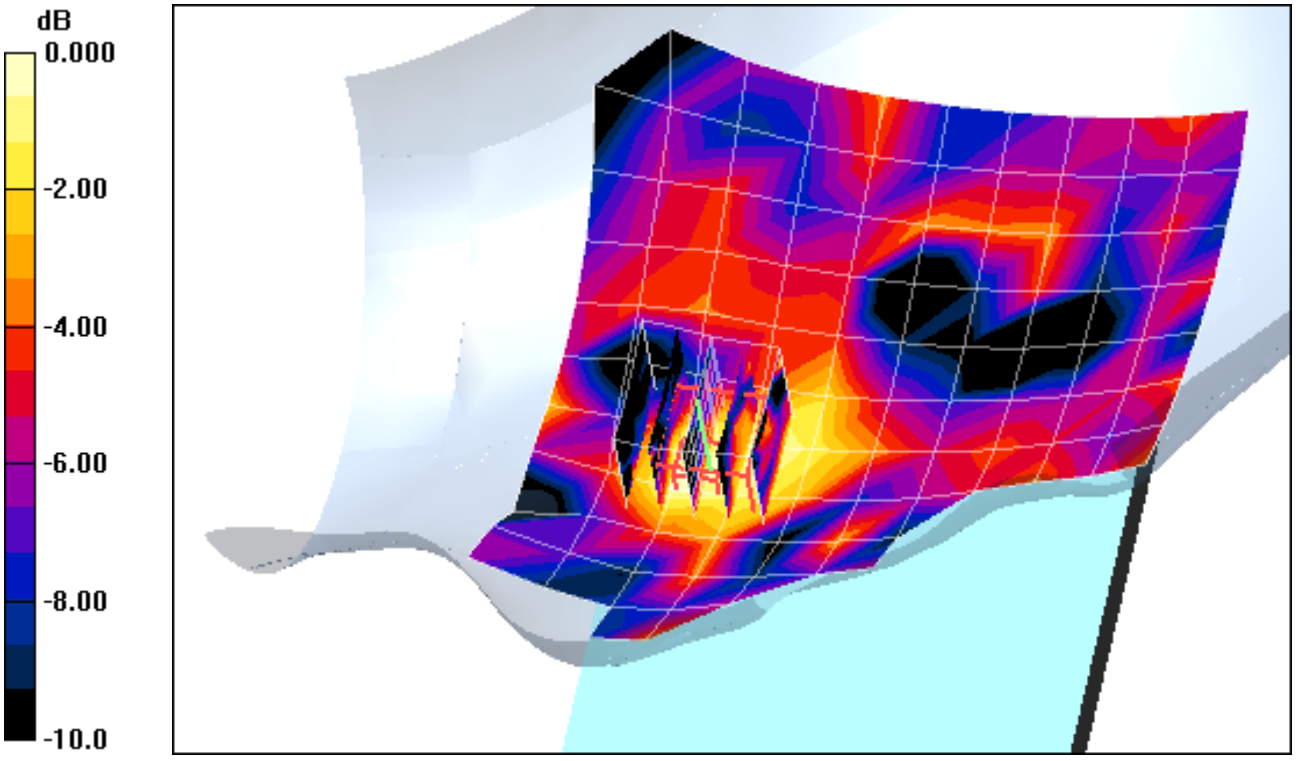
Communication System: IEEE 802.11b; Frequency: 2412 MHz;Duty Cycle: 1:1
Medium: 2450 Head Medium parameters used (interpolated):
f = 2412 MHz; σ = 1.8 mho/m; ε_r = 40.1; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 01-19-2012; Ambient Temp: 22.3°C; Tissue Temp: 21.0°C

Probe: EX3DV4 - SN3561; ConvF(6.42, 6.42, 6.42); Calibrated: 7/27/2011
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/20/2011
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: IEEE 802.11b, Left Head, Touch, Ch 01, 1 Mbps

Area Scan (11x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.87 V/m; Power Drift = 0.056 dB
Peak SAR (extrapolated) = 0.013 W/kg
SAR(1 g) = 0.00716 mW/g; SAR(10 g) = 0.00385 mW/g



0 dB = 0.008mW/g

DUT: A98-CUL7580; Type: Portable Tablet; Serial: IMEI 004401200800361

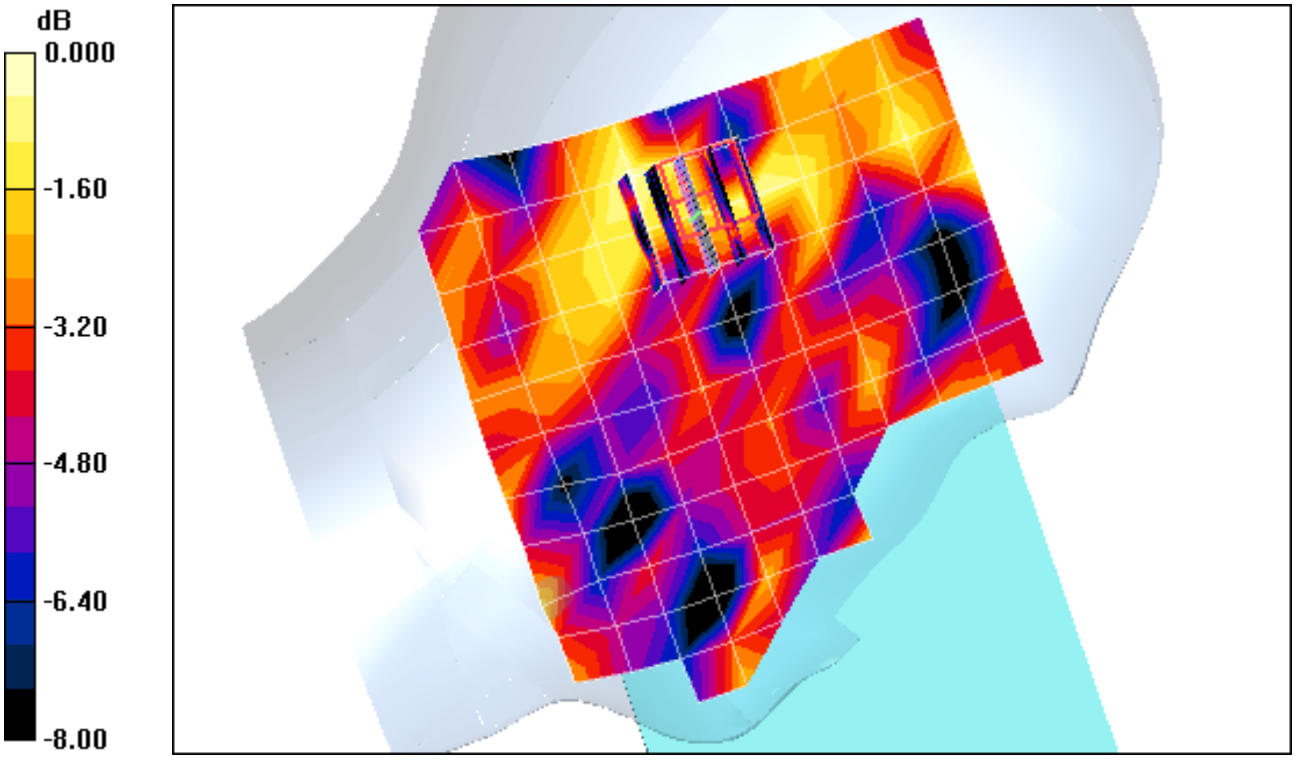
Communication System: IEEE 802.11b; Frequency: 2412 MHz;Duty Cycle: 1:1
Medium: 2450 Head Medium parameters used (interpolated):
f = 2412 MHz; σ = 1.8 mho/m; ε_r = 40.1; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 01-19-2012; Ambient Temp: 22.3°C; Tissue Temp: 21.0°C

Probe: EX3DV4 - SN3561; ConvF(6.42, 6.42, 6.42); Calibrated: 7/27/2011
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/20/2011
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: IEEE 802.11b, Left Head, Tilt, Ch 01, 1 Mbps

Area Scan (11x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan 5 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.50 V/m; Power Drift = -0.131 dB
Peak SAR (extrapolated) = 0.008 W/kg
SAR(1 g) = 0.00435 mW/g; SAR(10 g) = 0.00201 mW/g



0 dB = 0.006mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A98-CUL7580; Type: Portable Tablet; Serial: IMEI 004401200800361

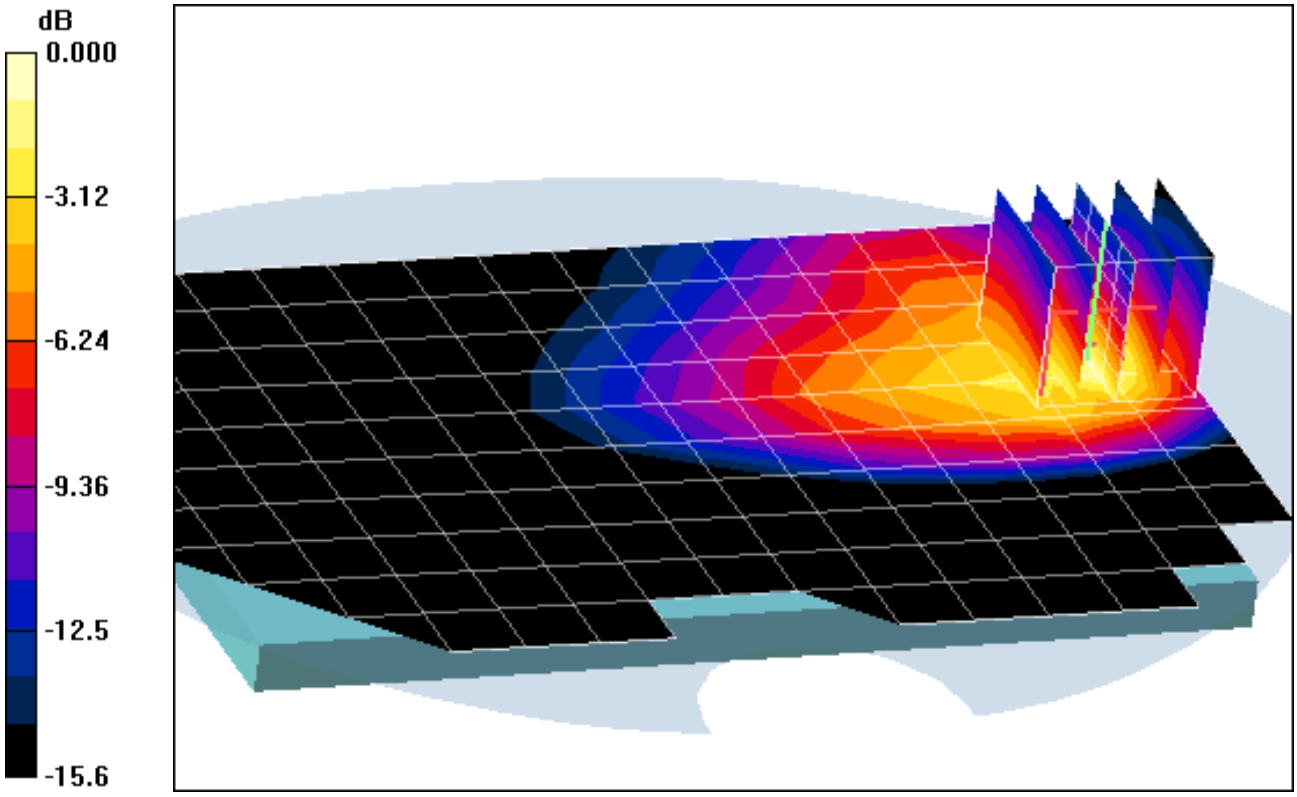
Communication System: GSM850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3
Medium: 835 Body; Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.983 mho/m; ε_r = 54.2; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 01-19-2012; Ambient Temp: 21.6°C; Tissue Temp: 19.9°C

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

Mode: GSM 850, Body SAR, Back side, Mid.ch

Area Scan (11x16x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 26.3 V/m; Power Drift = -0.035 dB
Peak SAR (extrapolated) = 1.43 W/kg
SAR(1 g) = 0.649 mW/g; SAR(10 g) = 0.327 mW/g



0 dB = 0.662mW/g

DUT: A98-CUL7580; Type: Portable Tablet; Serial: IMEI 004401200800361

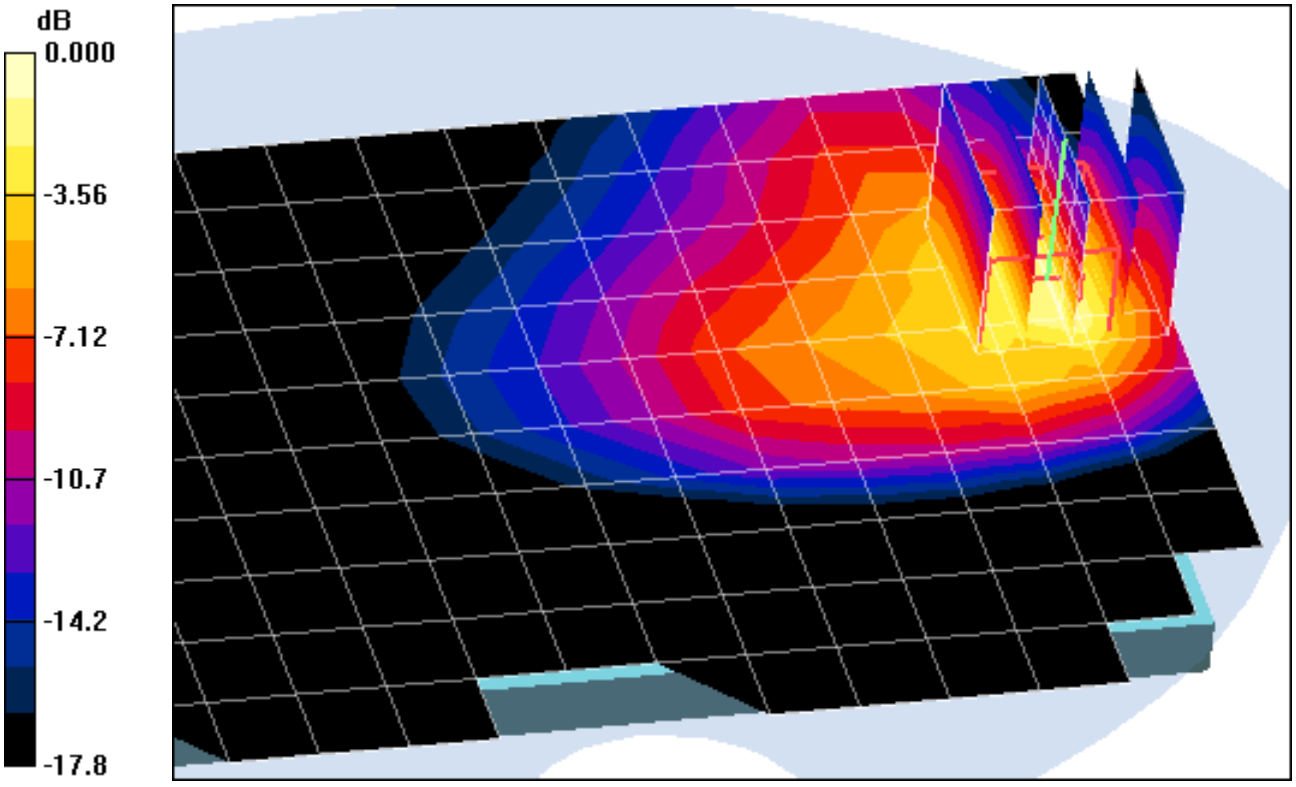
Communication System: GSM850 GPRS; 1 Tx slots; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium: 835 Body Medium parameters used (interpolated):
$f = 836.6$ MHz; $\sigma = 0.983$ mho/m; $\varepsilon_r = 54.2$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 01-19-2012; Ambient Temp: 21.6°C; Tissue Temp: 19.9°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, 1 Tx Slot

Area Scan (11x16x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 24.7 V/m; Power Drift = 0.012 dB
Peak SAR (extrapolated) = 1.60 W/kg
SAR(1 g) = 0.689 mW/g; SAR(10 g) = 0.334 mW/g



0 dB = 0.685mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A98-CUL7580; Type: Portable Tablet; Serial: IMEI 004401200800361

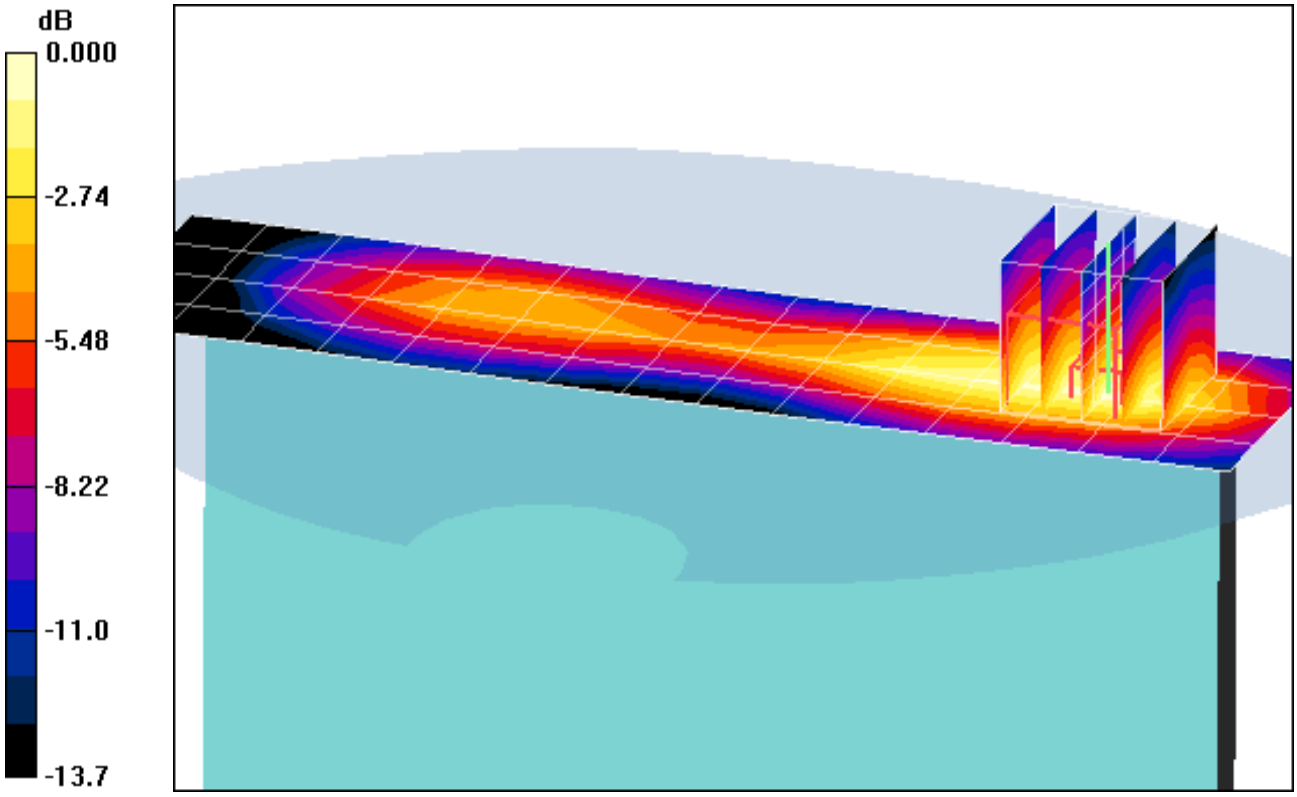
Communication System: GSM850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3
Medium: 835 Body; Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.983 mho/m; ε_r = 54.2; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 01-19-2012; Ambient Temp: 21.6°C; Tissue Temp: 19.9°C

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

Mode: GSM 850, Body SAR, Top Edge, Mid.ch

Area Scan (5x16x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.66 V/m; Power Drift = 0.0299 dB
Peak SAR (extrapolated) = 0.181 W/kg
SAR(1 g) = 0.099 mW/g; SAR(10 g) = 0.058 mW/g



0 dB = 0.112mW/g

DUT: A98-CUL7580; Type: Portable Tablet; Serial: IMEI 004401200800361

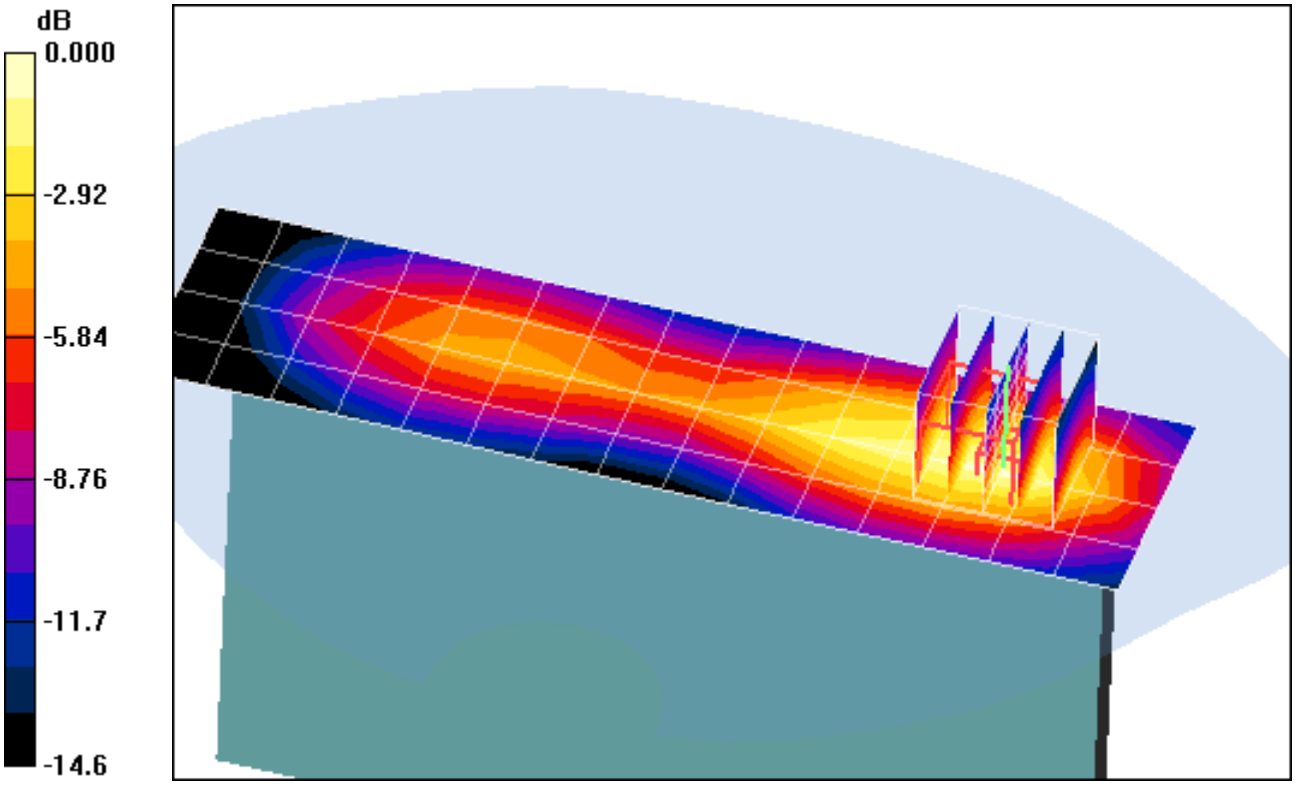
Communication System: GSM850 GPRS; 1 Tx slots; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium: 835 Body Medium parameters used (interpolated):
$f = 836.6$ MHz; $\sigma = 0.983$ mho/m; $\varepsilon_r = 54.2$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 01-19-2012; Ambient Temp: 21.6°C; Tissue Temp: 19.9°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, 1 Tx Slot

Area Scan (5x16x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.6 V/m; Power Drift = -0.118 dB
Peak SAR (extrapolated) = 0.209 W/kg
SAR(1 g) = 0.110 mW/g; SAR(10 g) = 0.062 mW/g



0 dB = 0.127mW/g

DUT: A98-CUL7580; Type: Portable Tablet; Serial: IMEI 004401200800361

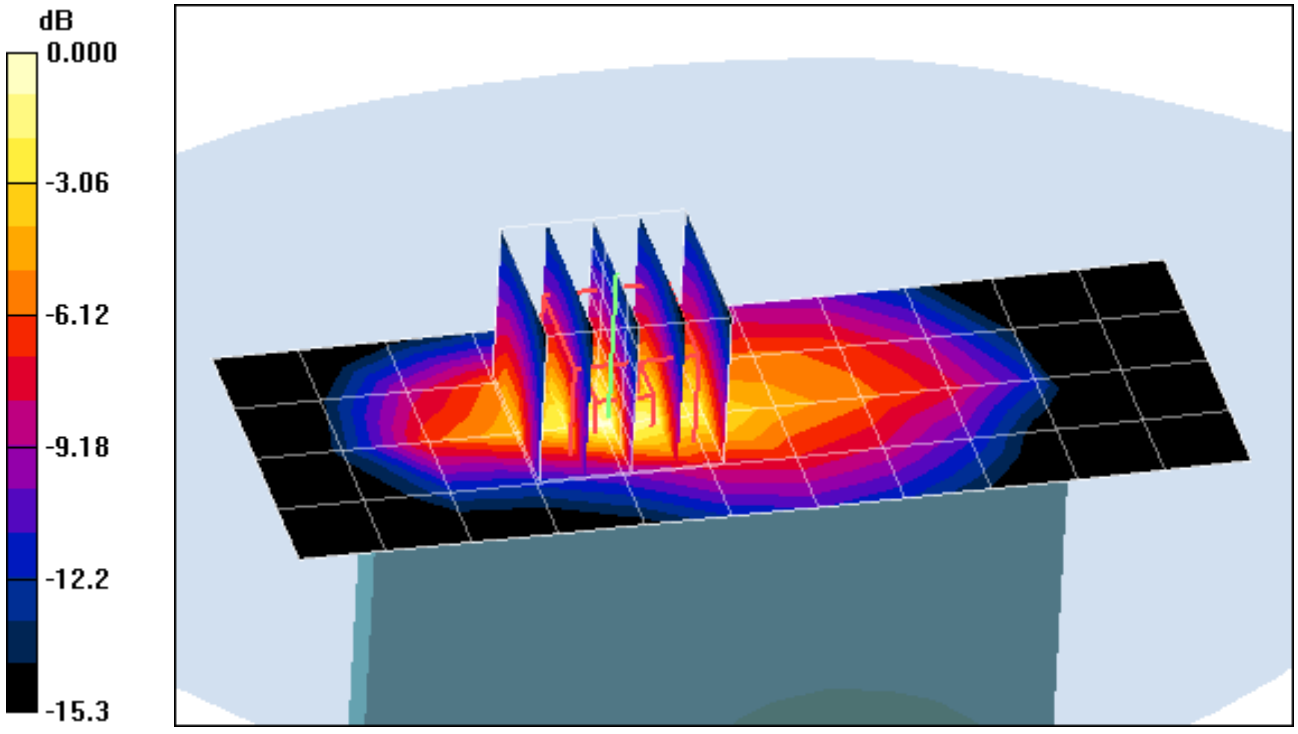
Communication System: GSM850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium: 835 Body Medium parameters used (interpolated):
$f = 836.6$ MHz; $\sigma = 0.983$ mho/m; $\varepsilon_r = 54.2$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 01-19-2012; Ambient Temp: 21.6°C; Tissue Temp: 19.9°C

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

Mode: GSM 850, Body SAR, Right Edge, Mid.ch

Area Scan (5x12x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.1 V/m; Power Drift = 0.071 dB
Peak SAR (extrapolated) = 0.752 W/kg
SAR(1 g) = 0.308 mW/g; SAR(10 g) = 0.142 mW/g



0 dB = 0.359mW/g

DUT: A98-CUL7580; Type: Portable Tablet; Serial: IMEI 004401200800361

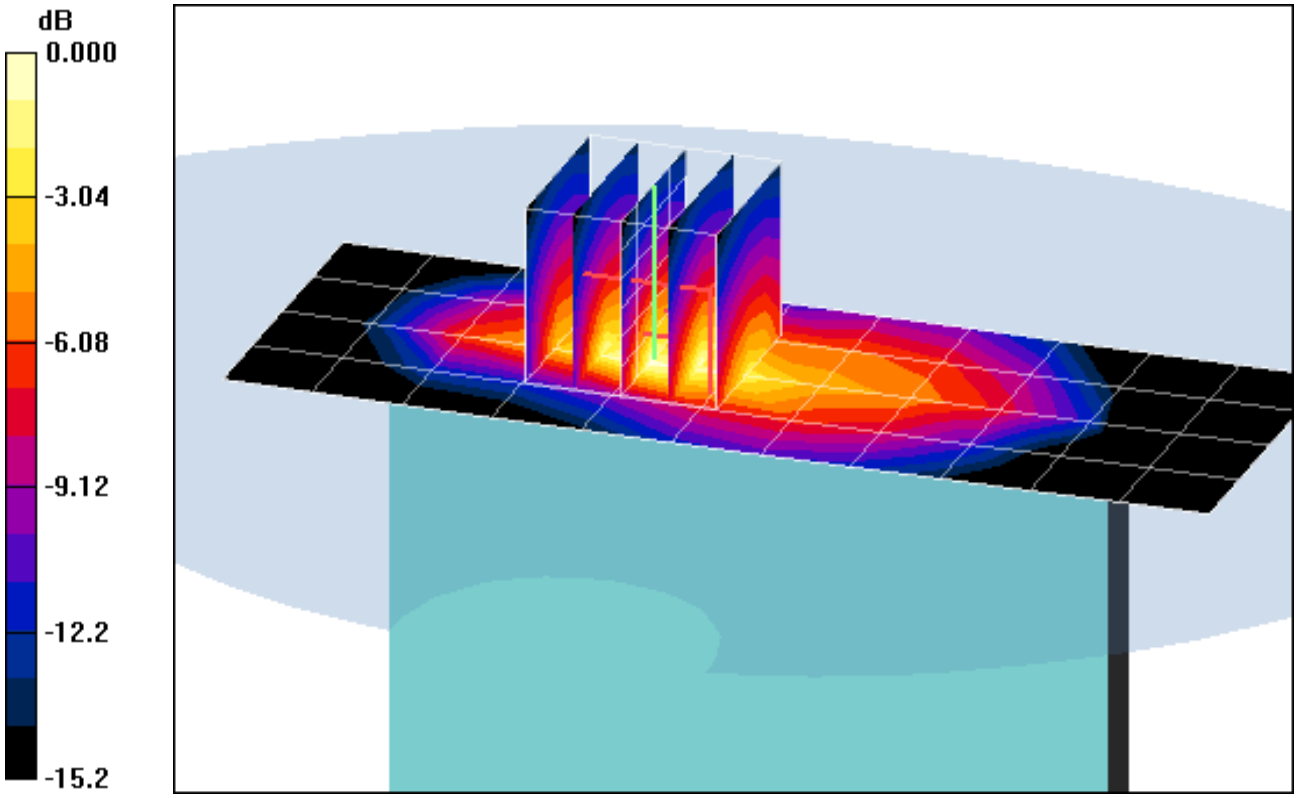
Communication System: GSM850 GPRS; 1 Tx slots; Frequency: 836.6 MHz; Duty Cycle: 1: 8.3
Medium: 835 Body; Medium parameters used (interpolated):
$f = 836.6$ MHz; $\sigma = 0.983$ mho/m; $\varepsilon_r = 54.2$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 01-19-2012; Ambient Temp: 21.6°C; Tissue Temp: 19.9°C

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

Mode: GPRS 850, Body SAR, Right Edge, Mid.ch, 1 Tx Slots

Area Scan (5x12x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.9 V/m; Power Drift = 0.112 dB
Peak SAR (extrapolated) = 0.695 W/kg
SAR(1 g) = 0.287 mW/g; SAR(10 g) = 0.134 mW/g



0 dB = 0.341mW/g

DUT: A98-CUL7580; Type: Portable Tablet; Serial: IMEI 004401200800361

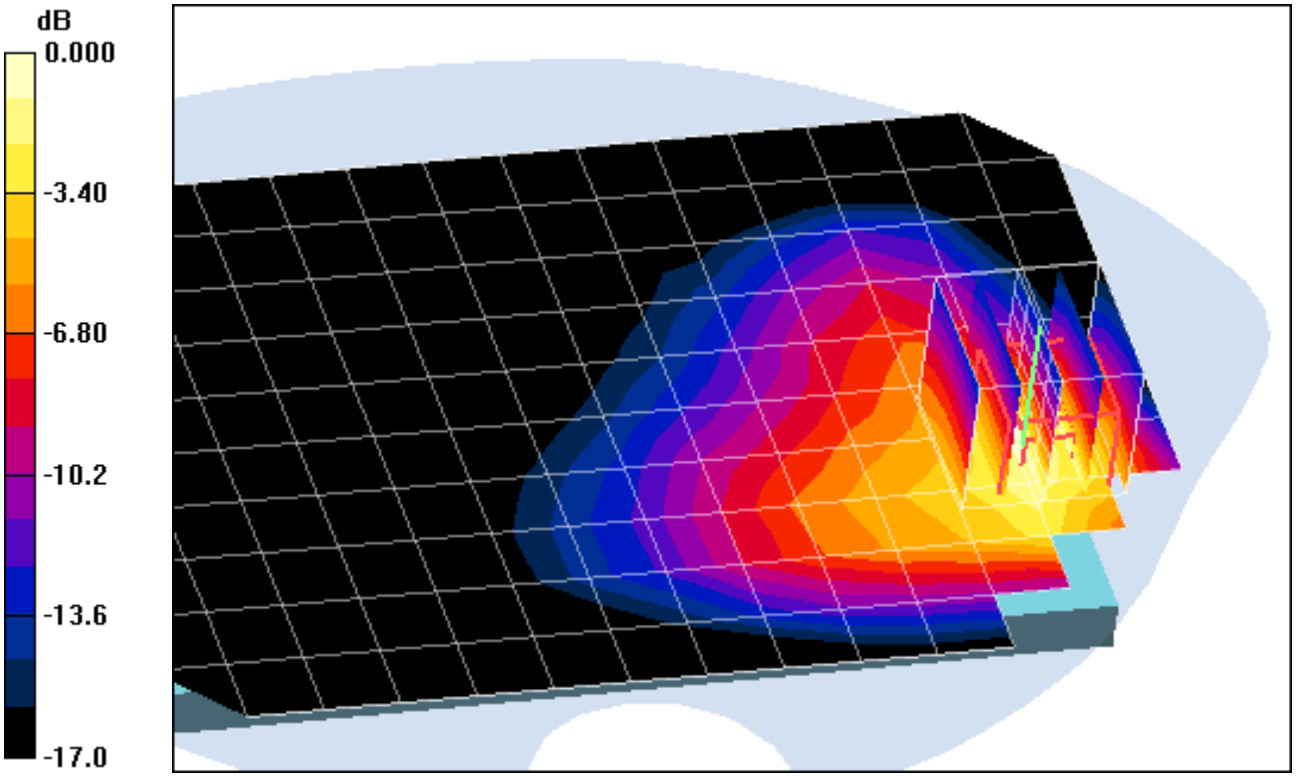
Communication System: WCDMA850; Frequency: 846.6 MHz;Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
$f = 846.6$ MHz; $\sigma = 0.973$ mho/m; $\varepsilon_r = 52.7$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 01-23-2012; Ambient Temp: 22.3°C; Tissue Temp: 20.4°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, High.ch

Area Scan (11x17x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 31.3 V/m; Power Drift = 0.064 dB
Peak SAR (extrapolated) = 2.20 W/kg
SAR(1 g) = 0.921 mW/g; SAR(10 g) = 0.441 mW/g



0 dB = 0.904mW/g

DUT: A98-CUL7580; Type: Portable Tablet; Serial: IMEI 004401200800361

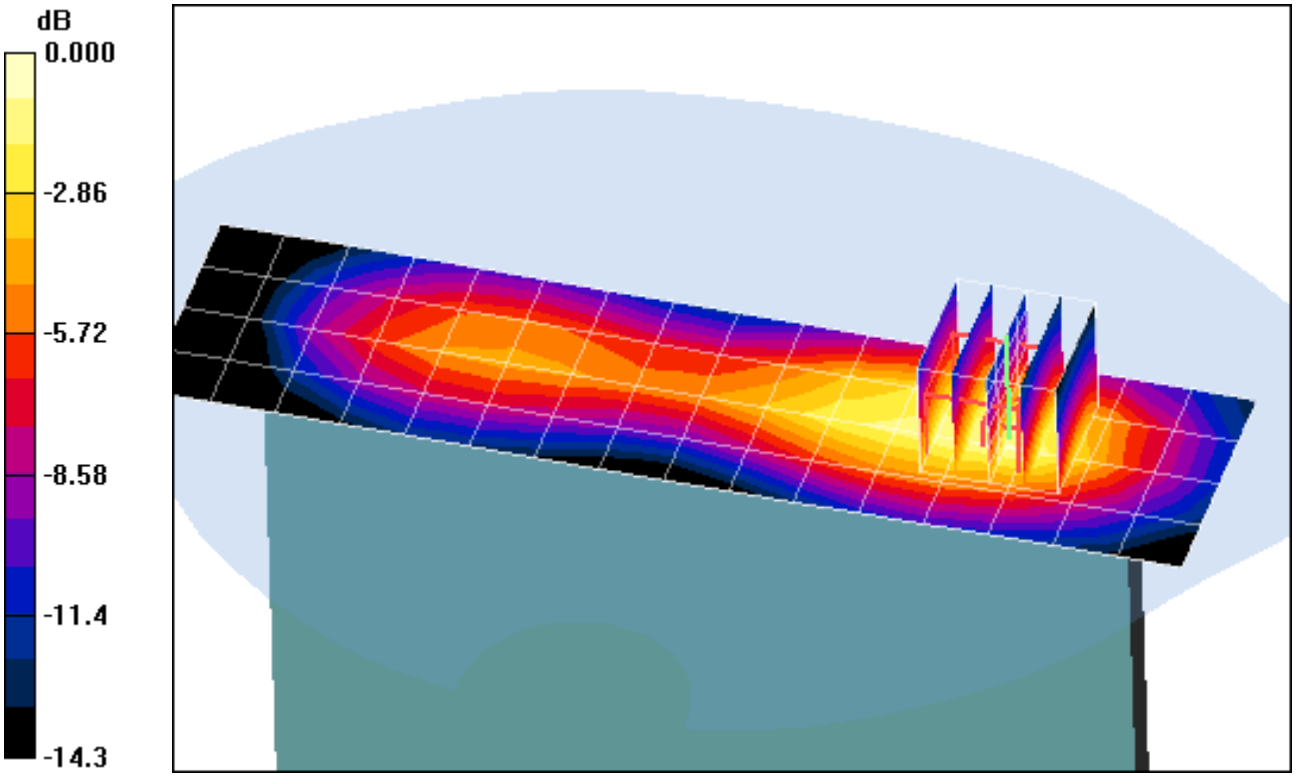
Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.96 mho/m; ε_r = 52.9; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 01-23-2012; Ambient Temp: 22.3°C; Tissue Temp: 20.4°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 (5x17x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.7 V/m; Power Drift = 0.140 dB
Peak SAR (extrapolated) = 0.312 W/kg
SAR(1 g) = 0.162 mW/g; SAR(10 g) = 0.091 mW/g



0 dB = 0.184mW/g

DUT: A98-CUL7580; Type: Portable Tablet; Serial: IMEI 004401200800361

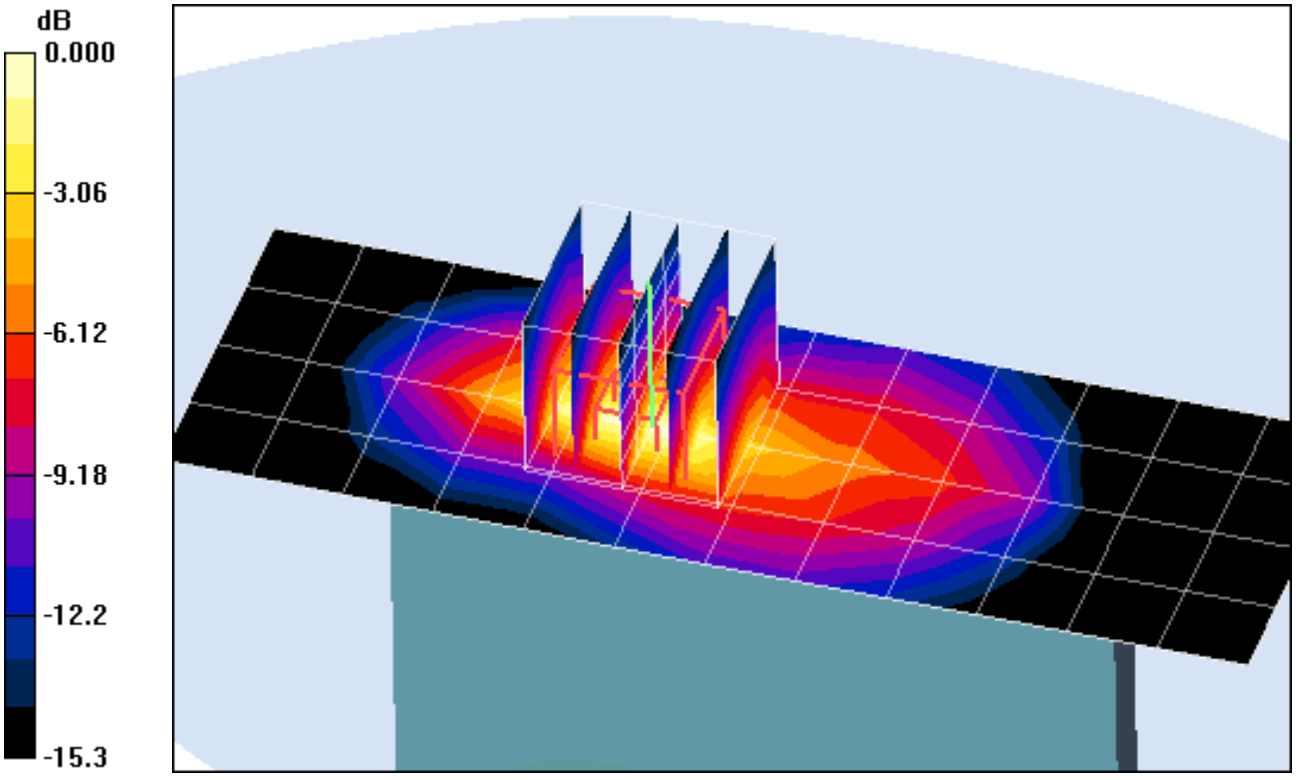
Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.96 mho/m; ε_r = 52.9; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 01-23-2012; Ambient Temp: 22.3°C; Tissue Temp: 20.4°C

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

Mode: WCDMA 850, Body SAR, Right Edge, Mid.ch

Area Scan (5x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 24.2 V/m; Power Drift = -0.062 dB
Peak SAR (extrapolated) = 1.17 W/kg
SAR(1 g) = 0.466 mW/g; SAR(10 g) = 0.211 mW/g



0 dB = 0.557mW/g

DUT: A98-CUL7580; Type: Portable Tablet; Serial: IMEI 004401200800361

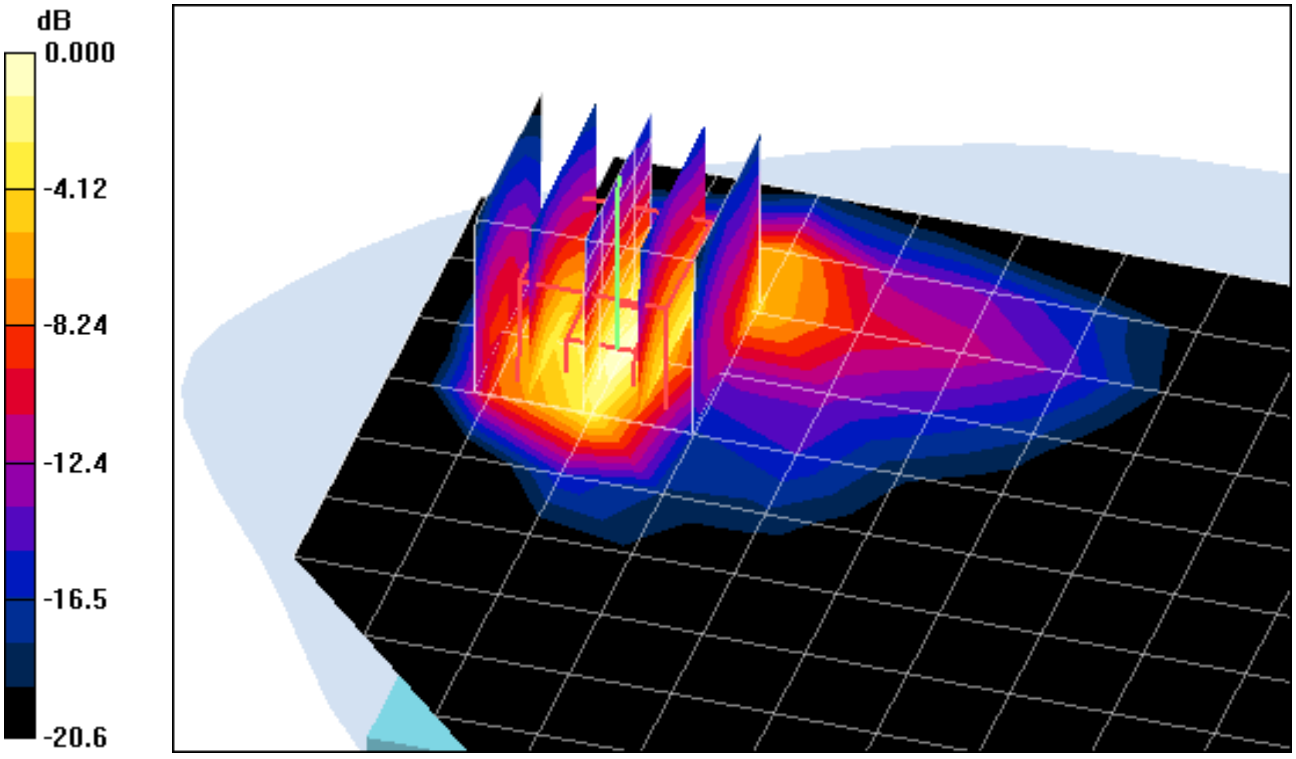
Communication System: GSM1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.54 mho/m; ε_r = 53; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 01-19-2012; Ambient Temp: 21.9°C; Tissue Temp: 20.3°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 5.0; Serial: TP-1626
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

Area Scan (11x17x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.7 V/m; Power Drift = -0.015 dB
Peak SAR (extrapolated) = 1.35 W/kg
SAR(1 g) = 0.641 mW/g; SAR(10 g) = 0.292 mW/g



0 dB = 0.716mW/g

DUT: A98-CUL7580; Type: Portable Tablet; Serial: IMEI 004401200800361

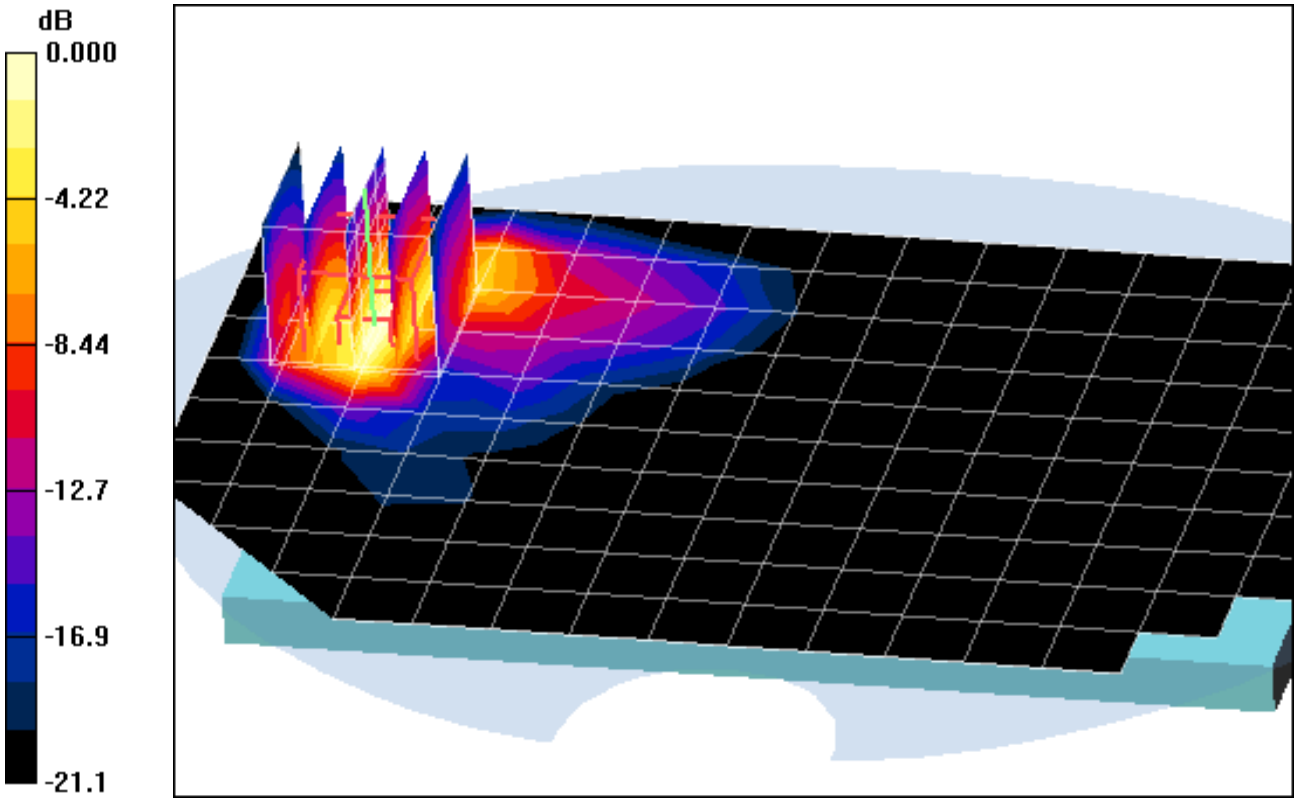
Communication System: GSM1900 GPRS; 1 Tx slots; Frequency: 1880 MHz; Duty Cycle: 1:8.3
Medium: 1900 Body; Medium parameters used:
f = 1880 MHz; σ = 1.54 mho/m; ε_r = 53; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 01-19-2012; Ambient Temp: 21.9°C; Tissue Temp: 20.3°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 5.0; Serial: TP-1626
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: GPRS 1900, Body SAR, Back side, Mid.ch, 1 Tx Slots

Area Scan (11x17x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.7 V/m; Power Drift = -0.005 dB
Peak SAR (extrapolated) = 1.33 W/kg
SAR(1 g) = 0.631 mW/g; SAR(10 g) = 0.289 mW/g



0 dB = 0.715mW/g

DUT: A98-CUL7580; Type: Portable Tablet; Serial: IMEI 004401200800361

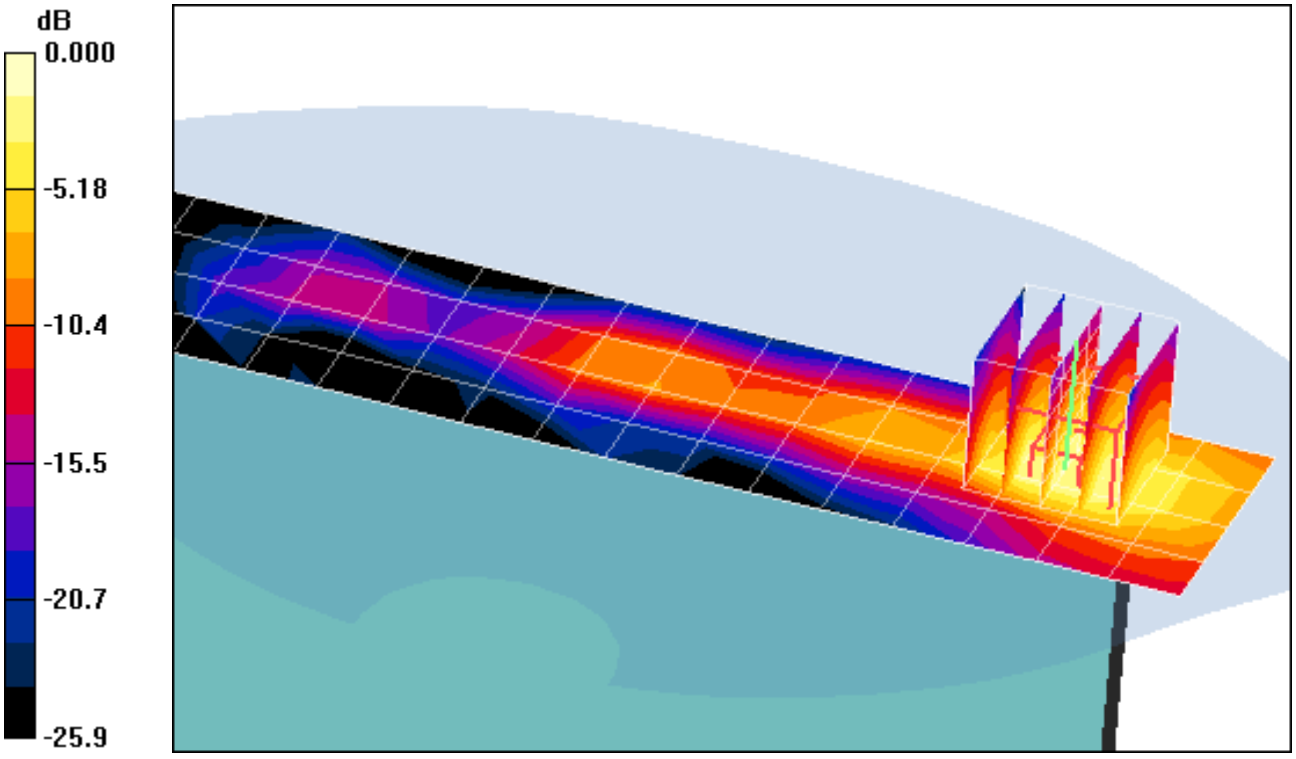
Communication System: GSM1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.54 mho/m; ε_r = 53; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 01-19-2012; Ambient Temp: 21.9°C; Tissue Temp: 20.3°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 5.0; Serial: TP-1626
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

Area Scan (5x17x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.26 V/m; Power Drift = 0.052 dB
Peak SAR (extrapolated) = 0.206 W/kg
SAR(1 g) = 0.102 mW/g; SAR(10 g) = 0.047 mW/g



0 dB = 0.118mW/g

DUT: A98-CUL7580; Type: Portable Tablet; Serial: IMEI 004401200800361

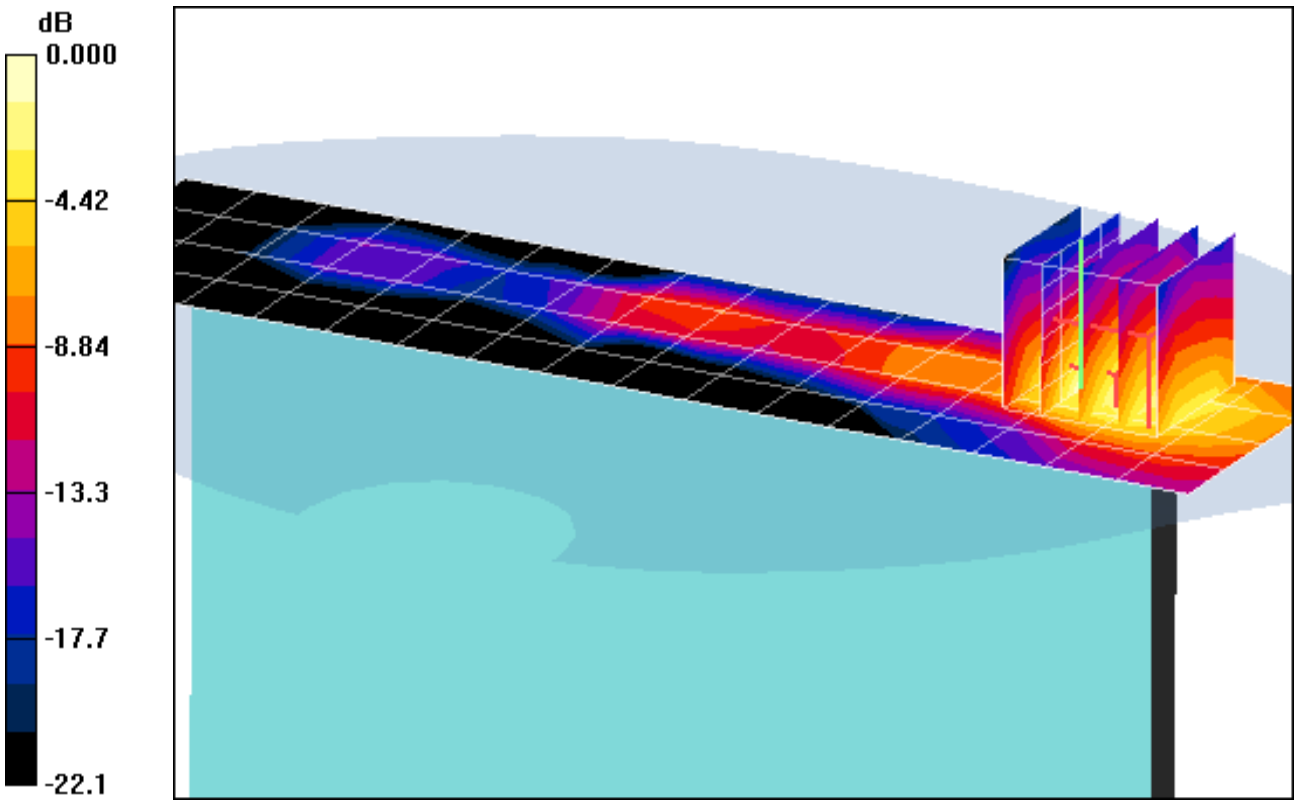
Communication System: GSM1900 GPRS; 1 Tx slots; Frequency: 1880 MHz; Duty Cycle: 1:8.3
Medium: 1900 Body; Medium parameters used:
f = 1880 MHz; σ = 1.54 mho/m; ε_r = 53; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 01-19-2012; Ambient Temp: 21.9°C; Tissue Temp: 20.3°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 5.0; Serial: TP-1626
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: GPRS 1900, Body SAR, Top Edge, Mid.ch, 1 Tx Slot

Area Scan (5x17x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.55 V/m; Power Drift = -0.066 dB
Peak SAR (extrapolated) = 0.184 W/kg
SAR(1 g) = 0.089 mW/g; SAR(10 g) = 0.043 mW/g



0 dB = 0.110mW/g

DUT: A98-CUL7580; Type: Portable Tablet; Serial: IMEI 004401200800361

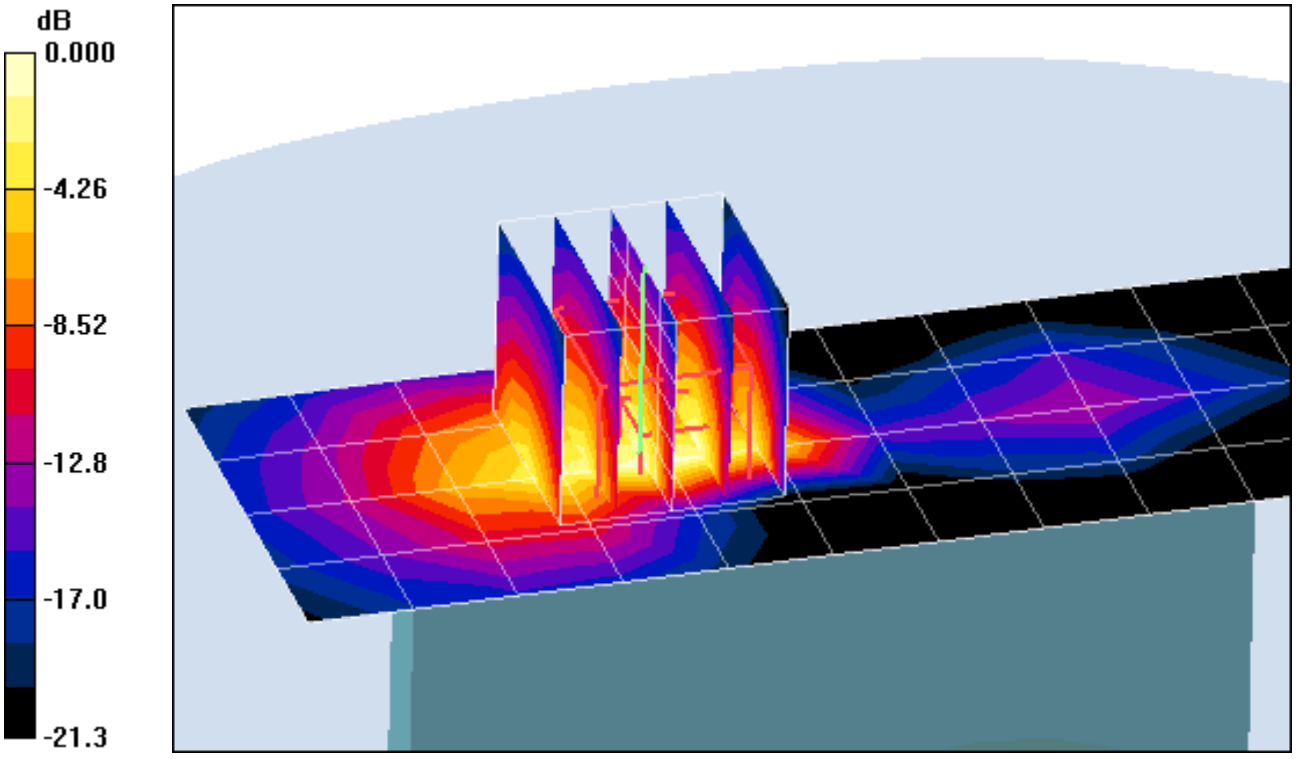
Communication System: GSM1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.54 mho/m; ε_r = 53; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 01-19-2012; Ambient Temp: 21.9°C; Tissue Temp: 20.3°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 5.0; Serial: TP-1626
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: GSM 1900, Body SAR, Right Edge, Mid.ch

Area Scan (5x12x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.2 V/m; Power Drift = 0.001 dB
Peak SAR (extrapolated) = 0.803 W/kg
SAR(1 g) = 0.372 mW/g; SAR(10 g) = 0.159 mW/g



0 dB = 0.430mW/g

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DUT: A98-CUL7580; Type: Portable Tablet; Serial: IMEI 004401200800361

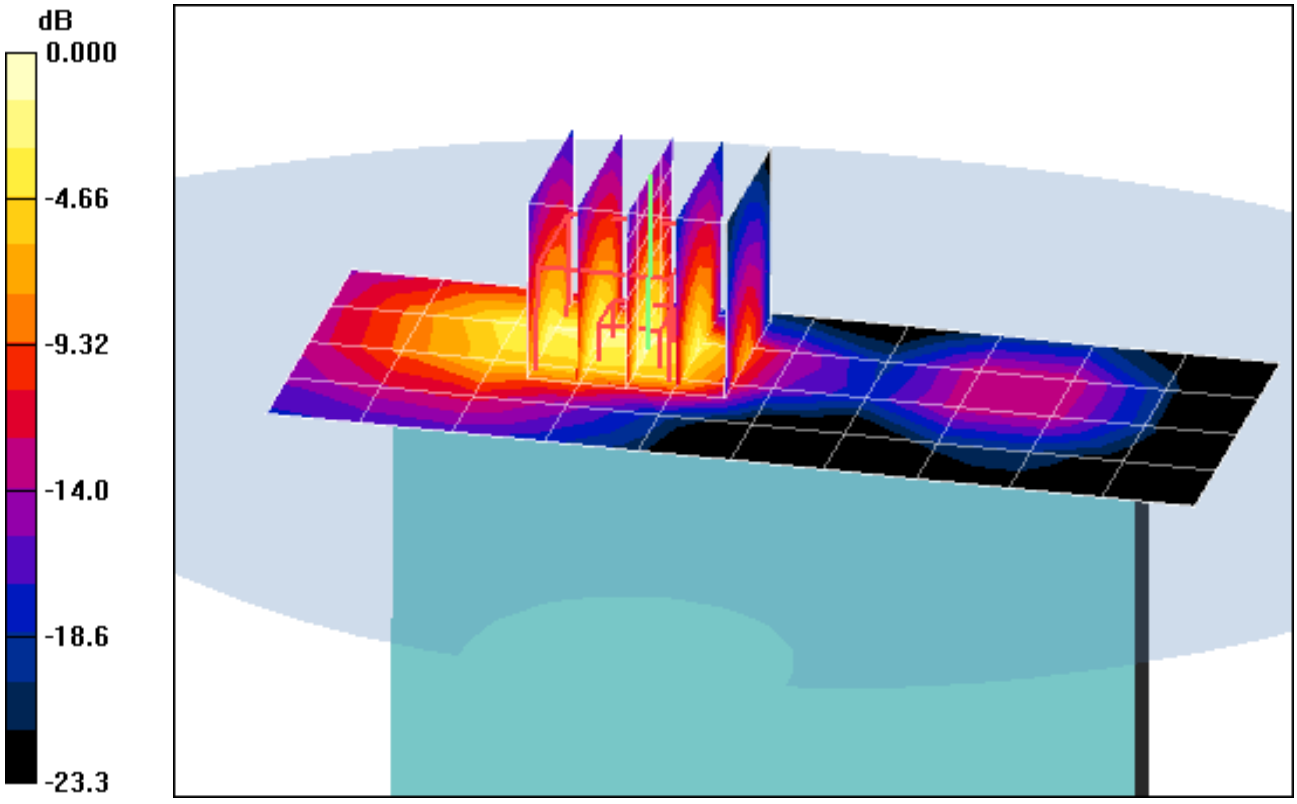
Communication System: GSM1900 GPRS; 1 Tx slots; Frequency: 1880 MHz; Duty Cycle: 1:8.3
Medium: 1900 Body; Medium parameters used:
f = 1880 MHz; σ = 1.54 mho/m; ε_r = 53; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 01-19-2012; Ambient Temp: 21.9°C; Tissue Temp: 20.3°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 5.0; Serial: TP-1626
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: GPRS 1900, Body SAR, Right Edge, Mid.ch, 1 Tx Slot

Area Scan (5x11x1): 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; Power Drift = 0.051 dB
Peak SAR (extrapolated) = 0.742 W/kg
SAR(1 g) = 0.360 mW/g; SAR(10 g) = 0.161 mW/g



0 dB = 0.424mW/g

DUT: A98-CUL7580; Type: Portable Tablet; Serial: IMEI 004401200800361

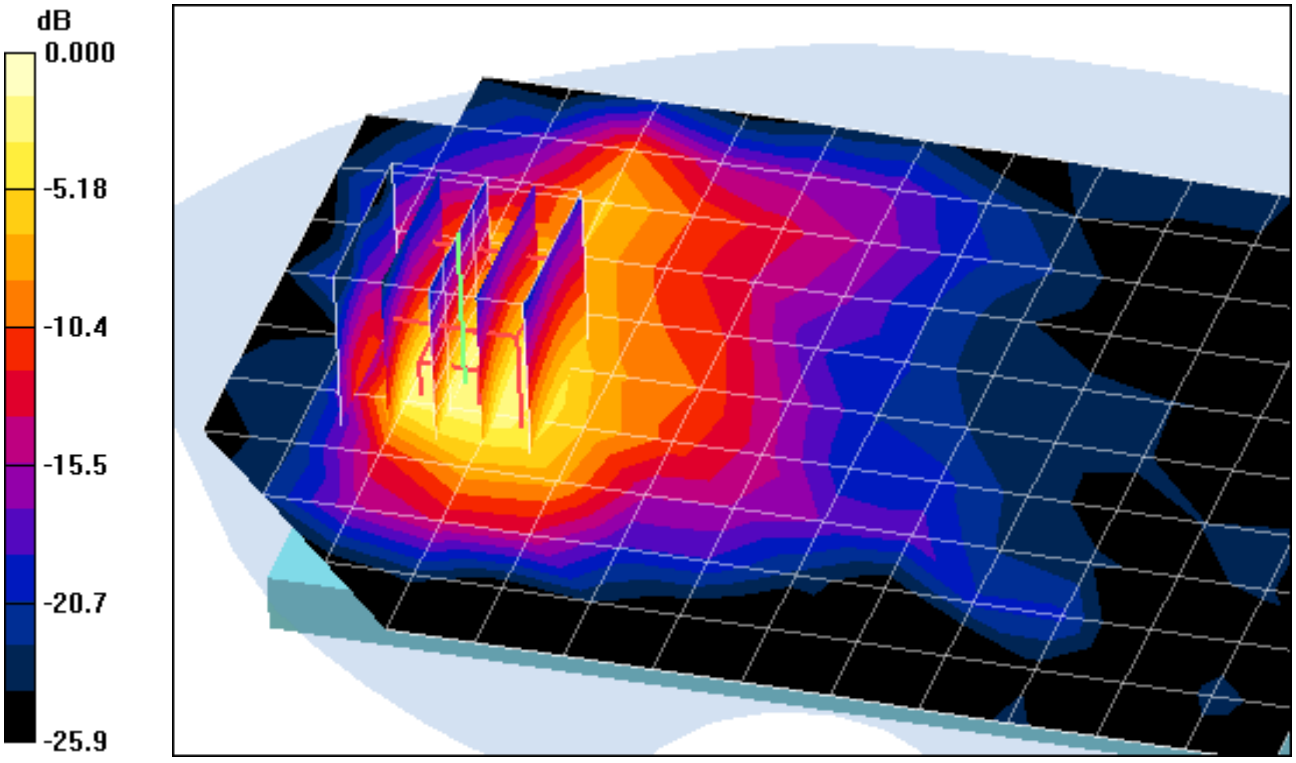
Communication System: IEEE 802.11b; Frequency: 2412 MHz;Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used (interpolated):
$f = 2412$ MHz; $\sigma = 1.96$ mho/m; $\varepsilon_r = 50.5$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 01-17-2012; Ambient Temp: 23.0°C; Tissue Temp: 22.1°C

Probe: EX3DV4 - SN3561; ConvF(6.26, 6.26, 6.26); Calibrated: 7/27/2011
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/20/2011
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: IEEE 802.11b, Body SAR, Back Side, Ch 01, 1 Mbps

Area Scan (11x17x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.7 V/m; Power Drift = -0.023 dB
Peak SAR (extrapolated) = 1.59 W/kg
SAR(1 g) = 0.648 mW/g; SAR(10 g) = 0.289 mW/g



0 dB = 0.805mW/g

DUT: A98-CUL7580; Type: Portable Tablet; Serial: IMEI 004401200800361

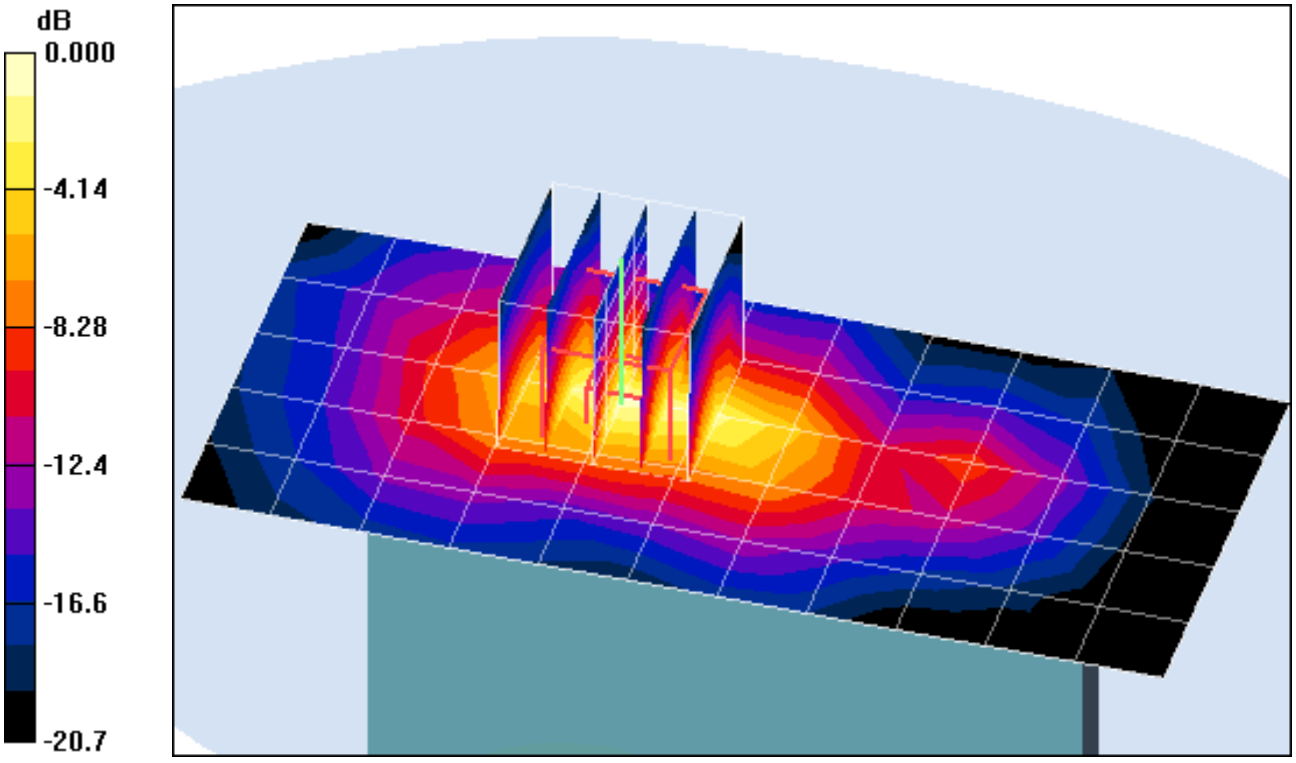
Communication System: IEEE 802.11b; Frequency: 2412 MHz;Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used (interpolated):
$f = 2412$ MHz; $\sigma = 1.96$ mho/m; $\varepsilon_r = 50.5$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 01-17-2012; Ambient Temp: 23.0°C; Tissue Temp: 22.1°C

Probe: EX3DV4 - SN3561; ConvF(6.26, 6.26, 6.26); Calibrated: 7/27/2011
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 4/20/2011
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: IEEE 802.11b, Body SAR, Right Edge, Ch 01, 1 Mbps

Area Scan (6x12x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.6 V/m; Power Drift = 0.007 dB
Peak SAR (extrapolated) = 0.700 W/kg
SAR(1 g) = 0.319 mW/g; SAR(10 g) = 0.140 mW/g



0 dB = 0.446mW/g

APPENDIX B: DIPOLE VALIDATION

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DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d119

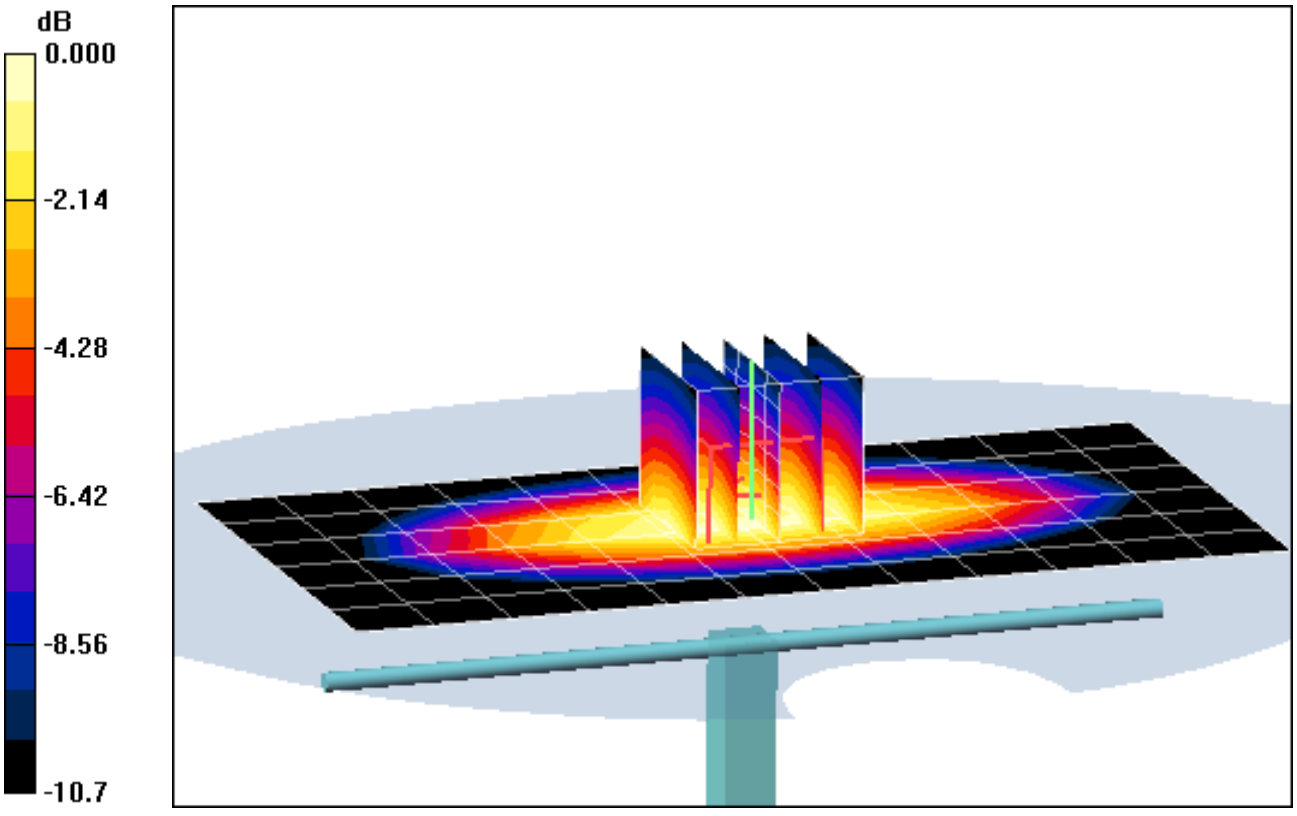
Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium: 835 Head Medium parameters used:
f = 835 MHz; σ = 0.879 mho/m; ε_r = 39.7; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 01-18-2012; Ambient Temp: 23.1°C; Tissue Temp: 22.2°C

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

835MHz System Verification

Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Input Power = 20 dBm (100 mW)
SAR(1 g) = 0.950 mW/g; SAR(10 g) = 0.619 mW/g
Deviation = 1.06 %



0 dB = 1.03mW/g

DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d119

Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium: 835 Head Medium parameters used:
f = 835 MHz; σ = 0.879 mho/m; ε_r = 39.7; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 01-18-2012; Ambient Temp: 23.1°C; Tissue Temp: 22.2°C

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

835MHz System Verification

Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Input Power = 20 dBm (100 mW)
SAR(1 g) = 0.950 mW/g; SAR(10 g) = 0.619 mW/g
Deviation = 1.06 %