



SAR EVALUATION REPORT

Applicant Name:

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

Date of Testing:

03/13/12 - 03/26/12

Test Site/Location:

PCTEST Lab, Columbia, MD, USA

Document Serial No.:

0Y1203140289.A3L

FCC ID:

A3LSCHR390

APPLICANT:

SAMSUNG ELECTRONICS, CO. LTD.

DUT Type:

Portable Handset

Application Type:

Certification

FCC Rule Part(s):

CFR §2.1093

Model(s):

SCH-R390

Test Device Serial No.:

Pre-Production [S/N: FJ-060-A]

Band & Mode	Tx Frequency	Conducted Power [dBm]	SAR	
			1 gm Head (W/kg)	1 gm Body-Worn (W/kg)
Cell. CDMA	824.70 - 848.31 MHz	24.52	0.97	1.07
AWS CDMA	1711.25 - 1753.75 MHz	24.38	0.60	0.63
PCS CDMA	1851.25 - 1908.75 MHz	24.35	0.66	0.56
Bluetooth	2402 - 2480 MHz	11.16	N/A	0.00
Simultaneous SAR per KDB 690783 D01:				1.07

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

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.

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


Randy Ortanez
President

FCC ID: A3LSCHR390		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1203140289.A3L	Test Dates: 03/13/12 - 03/26/12	DUT Type: Portable Handset		Page 1 of 27

T A B L E O F C O N T E N T S

1	DEVICE UNDER TEST	3
2	INTRODUCTION	5
3	SAR MEASUREMENT SETUP	6
4	DOSIMETRIC ASSESSMENT	7
5	DEFINITION OF REFERENCE POINTS	8
6	TEST CONFIGURATION POSITIONS FOR HANDSETS	9
7	FCC RF EXPOSURE LIMITS.....	12
8	FCC MEASUREMENT PROCEDURES.....	13
9	RF CONDUCTED POWERS.....	15
10	SYSTEM VERIFICATION.....	16
11	SAR DATA SUMMARY	18
12	FCC MULTI-TX AND ANTENNA SAR CONSIDERATIONS.....	21
13	EQUIPMENT LIST	22
14	MEASUREMENT UNCERTAINTIES	24
15	CONCLUSION.....	25
16	REFERENCES	26

FCC ID: A3LSCHR390		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1203140289.A3L	Test Dates: 03/13/12 - 03/26/12	DUT Type: Portable Handset		Page 2 of 27

1 DEVICE UNDER TEST

1.1 Device Overview

Band & Mode	Tx Frequency
Cell. CDMA	824.70 - 848.31 MHz
AWS CDMA	1711.25 - 1753.75 MHz
PCS CDMA	1851.25 - 1908.75 MHz
Bluetooth	2402 - 2480 MHz

1.2 DUT Antenna Locations

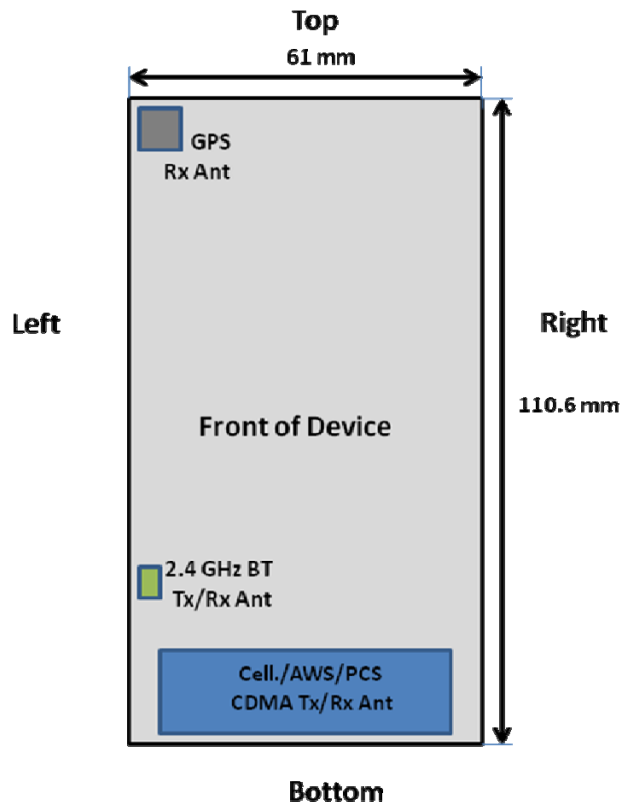


Figure 1-1
DUT Antenna Locations

FCC ID: A3LSCHR390		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1203140289.A3L	Test Dates: 03/13/12 - 03/26/12	DUT Type: Portable Handset		Page 3 of 27

1.3 SAR Test Exclusions Applied

(A) BT

The separation between the main antenna and the Bluetooth Antenna is 7.5 mm.
Maximum Average RF Conducted Power of Bluetooth Tx is 13.06 mW.

Per KDB Publication 648474, **Bluetooth SAR was required** based on the maximum average conducted power, the Bluetooth to main antenna separation distance and Body-SAR of the main antenna.

(B) Licensed Transmitter(s)

For head RC1 SAR tests were not required since the average output power was not more than 0.25 dB than the SO55 RC3 powers.

For body TDSO / SO32 FCH+SCH SAR tests were not required since the average output power was not more than 0.25 dB higher than the TDSO / SO32 FCH only powers.

1.4 Power Reduction for SAR

There is no power reduction for any band/mode implemented in this device for SAR purposes.

1.5 FCC Guidance Applied

- FCC OET Bulletin 65 Supplement C [June 2001]
- IEEE 1528-2003
- FCC KDB 941225 (2G)
- FCC KDB 648474 (Simultaneous)

FCC ID: A3LSCHR390		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1203140289.A3L	Test Dates: 03/13/12 - 03/26/12	DUT Type: Portable Handset		Page 4 of 27

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 Equation 2-1).

Equation 2-1
SAR Mathematical Equation

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

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]

FCC ID: A3LSCHR390		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1203140289.A3L	Test Dates: 03/13/12 - 03/26/12	DUT Type: Portable Handset		Page 5 of 27

3 SAR MEASUREMENT SETUP

3.1 Automated SAR Measurement System

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



Figure 3-1
SAR Measurement System



Figure 3-2
Near-Field Probe

Table 3-1
Composition of the Tissue Equivalent Matter

Frequency (MHz)	835	835	1750	1750	1900	1900	2450
Tissue	Head	Body	Head	Body	Head	Body	Body
Ingredients (% by weight)							
Bactericide	0.1	0.1					
DGBE			47	31	44.92	29.44	26.7
HEC	1	1					
NaCl	1.45	0.94	0.4	0.2	0.18	0.39	0.1
Sucrose	57	44.9					
Water	40.45	53.06	52.6	68.8	54.9	70.17	73.2

FCC ID: A3LSCHR390		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1203140289.A3L	Test Dates: 03/13/12 - 03/26/12	DUT Type: Portable Handset		Page 6 of 27

4 DOSIMETRIC ASSESSMENT

4.1 Measurement Procedure

The evaluation was performed using the following procedure:

1. The SAR distribution at the exposed side of the head or body 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 device-head interface and the horizontal grid resolution was 15mm and 15mm for frequencies < 3 GHz in the x and y directions respectively. When applicable, for frequencies above 3 GHz, a 10 mm by 10 mm resolution was used.
2. The point SAR measurement was taken at the maximum SAR region determined from Step 1 to enable the monitoring of SAR fluctuations/drifts during the 1 gram cube evaluation. SAR at this fixed point was measured and used as a reference value.
3. Based on the area scan data, the peak 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 at least 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 online for more details):
 - a. The data was extrapolated to the surface of the outer-shell of the phantom. The combined distance extrapolated was the combined distance from the center of the dipoles 2.7mm away from the tip of the probe housing plus the 1.2 mm distance between the surface and the lowest measuring point. The extrapolation was based on a least-squares algorithm. A polynomial of the fourth order was calculated through the points in the z-axis (normal to the phantom shell).
 - b. After the maximum interpolated values were calculated between the points in the cube, the SAR was averaged over the spatial volume (1g or 10g) using a 3D-Spline interpolation algorithm. The 3D-spline is composed of three one-dimensional splines with the "Not a knot" condition (in x, y, and z directions). The volume was then integrated with the trapezoidal algorithm. One thousand points (10 x 10 x 10) were obtained through interpolation, in order to calculate the averaged SAR.
 - c. All neighboring volumes were evaluated until no neighboring volume with a higher average value was found.
4. The SAR reference value, at the same location as step 2, was re-measured after the zoom scan was complete to calculate the SAR drift. If the drift deviated by more than 5%, the SAR test and drift measurements were repeated.

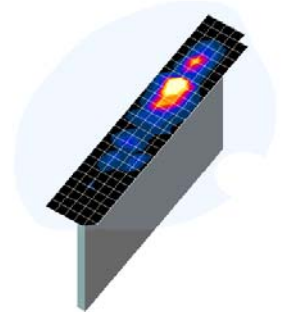


Figure 4-1
Sample SAR Area Scan

FCC ID: A3LSCHR390		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1203140289.A3L	Test Dates: 03/13/12 - 03/26/12	DUT Type: Portable Handset		Page 7 of 27

5

DEFINITION OF REFERENCE POINTS

5.1 EAR REFERENCE POINT

Figure 8-1 shows the front, back and side views of the SAM Twin Phantom. The point “M” is the reference point for the center of the mouth, “LE” is the left ear reference point (ERP), and “RE” is the right ERP. The ERP is 15mm posterior to the entrance to the ear canal (EEC) along the B-M line (Back-Mouth), as shown in Figure 8-1. The plane passing through the two ear canals and M is defined as the Reference Plane. The line N-F (Neck-Front) is perpendicular to the reference plane and passing through the RE (or LE) is called the Reference Pivoting Line (see Figure 5-2). 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].

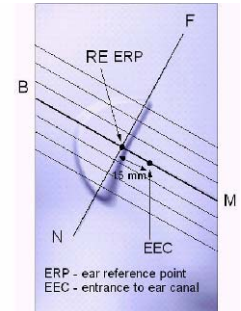


Figure 5-1
Close-Up Side view
of ERP

5.2 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 5-3). The “test device reference point” was then 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 5-2
Front, back and side view of SAM Twin Phantom

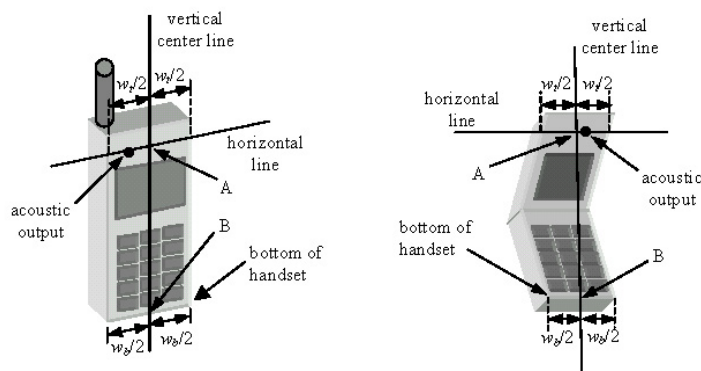


Figure 5-3
Handset Vertical Center & Horizontal Line Reference Points

FCC ID: A3LSCHR390	 PCTEST ENGINEERING LABORATORY, INC.	SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1203140289.A3L	Test Dates: 03/13/12 - 03/26/12	DUT Type: Portable Handset		Page 8 of 27

6 TEST CONFIGURATION POSITIONS FOR HANDSETS

6.1 Device Holder

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

6.2 Positioning for Cheek/Touch

1. The test device was positioned with the handset close to the surface of the phantom such that point A is on the (virtual) extension of the line passing through points RE and LE on the phantom (see Figure 6-1), 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.

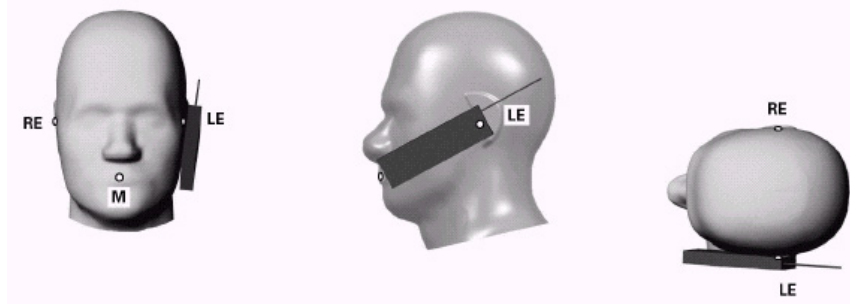


Figure 6-1 Front, Side and Top View of Cheek/Touch Position

2. The handset was translated towards the phantom along the line passing through RE & LE until the handset touches the ear.
3. While maintaining the handset in this plane, the handset was rotated around the LE-RE line until the vertical centerline was in the plane normal to MB-NF including the line MB (reference plane).
4. The phone was then rotated around the vertical centerline until the phone (horizontal line) was symmetrical with respect to the line NF.
5. While maintaining the vertical centerline in the reference plane, keeping point A on the line passing through RE and LE, and maintaining the phone contact with the ear, the handset was rotated about the line NF until any point on the handset made contact with a phantom point below the ear (cheek) (See Figure 6-2).

6.3 Positioning for Ear / 15° Tilt

With the test device aligned in the “Cheek/Touch Position”:

1. While maintaining the orientation of the phone, the phone was retracted parallel to the reference plane far enough to enable a rotation of the phone by 15degree.
2. The phone was then rotated around the horizontal line by 15 degree.
3. While maintaining the orientation of the phone, the phone was moved parallel to the reference plane until any part of the phone touches the head. (In this position, point A was located on the line RE-LE). The tilted position is obtained when the contact is on the pinna. If the contact was at any location other than the pinna, the angle of the phone would then be reduced. The tilted position was obtained when any part of the phone was in contact of the ear as well as a second part of the phone was in contact with the head (see Figure 6-2).

FCC ID: A3LSCHR390	 PCTEST ENGINEERING LABORATORY, INC.	SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1203140289.A3L	Test Dates: 03/13/12 - 03/26/12	DUT Type: Portable Handset		Page 9 of 27

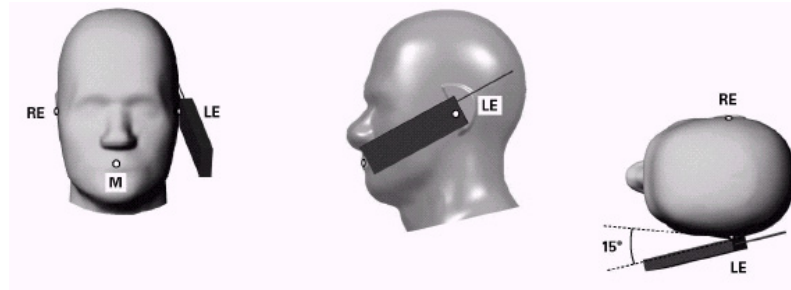


Figure 6-2 Front, Side and Top View of Ear/15° Tilt Position

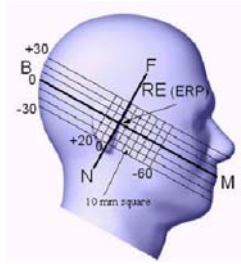


Figure 6-3
Side view w/ relevant markings



Figure 6-4 Body SAR Sample Photo
(Not Actual EUT)

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

Antennas located near the bottom of a phone may require SAR measurements around the mouth and jaw regions of the SAM head phantom. This typically applies to clam-shell style phones that are generally longer in the unfolded normal use positions or to certain older style long rectangular phones.

Under these circumstances, the following procedures apply, adopted from the FCC guidance on SAR handsets document publication 648474. The SAR required in these regions of SAM should be measured using a flat phantom. **Rectangular shaped phones** should be positioned with its bottom edge positioned from the flat phantom with the same distance provided by the cheek touching position using SAM. The ear reference point (ERP, as defined for SAM) of the phone should be positioned ½ cm from the flat phantom shell. **Clam-shell phones** should be positioned with the hinge against a smooth edge of the flat phantom where the upper half of the phone is unfolded and extended beyond the phantom side wall. The lower half of the phone is secured in the test device holder at a fixed distance below the flat phantom determined by the minimum separation along the lower edge of the phone in the cheek touching position using SAM. Any case with substantial variation in separation distance along the lower edge of a clam shell is discussed with the FCC for best-to-use methodology.

The latest IEEE 1528 committee developments propose the usage of a tilted phantom when the antenna of the phone is mounted at the bottom or in all cases the peak absorption is in the chin region. Both SAM heads of the TwinSAM-Chin20 are rotated 20 degrees around the NF line. Each head can be removed individually from the table for emptying and cleaning.

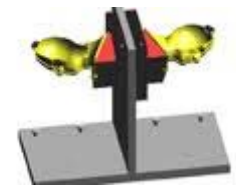


Figure 6-5 Twin SAM
Chin20

6.5 Body-Worn Accessory Configurations

Body-worn operating configurations are tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in a normal use configuration (see Figure 6-4). A device with a headset output is tested with a headset connected to the device.

FCC ID: A3LSCHR390	 PCTEST ENGINEERING LABORATORY, INC.	SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1203140289.A3L	Test Dates: 03/13/12 - 03/26/12	DUT Type: Portable Handset		Page 10 of 27

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

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

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

FCC ID: A3LSCHR390		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1203140289.A3L	Test Dates: 03/13/12 - 03/26/12	DUT Type: Portable Handset		Page 11 of 27

7 FCC RF EXPOSURE LIMITS

7.1 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.

7.2 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 7-1
SAR Human Exposure Specified in ANSI/IEEE C95.1-1992 and Health Canada Safety Code 6

HUMAN EXPOSURE LIMITS		
	UNCONTROLLED ENVIRONMENT <i>General Population</i> (W/kg) or (mW/g)	CONTROLLED ENVIRONMENT <i>Occupational</i> (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.

FCC ID: A3LSCHR390		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1203140289.A3L	Test Dates: 03/13/12 - 03/26/12	DUT Type: Portable Handset		Page 12 of 27

8 FCC MEASUREMENT PROCEDURES

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

8.1 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.

8.2 SAR Measurement Conditions for CDMA2000

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

8.2.1 Output Power Verification

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

1. If the mobile station (MS) supports Reverse TCH RC 1 and Forward TCH RC 1, set up a call using Fundamental Channel Test Mode 1 (RC=1/1) with 9600 bps data rate only.
2. Under RC1, C.S0011 Table 4.4.5.2-1, Table 8-1 parameters were applied.
3. If the MS supports the RC 3 Reverse FCH, RC3 Reverse SCH₀ and demodulation of RC 3,4, or 5, set up a call using Supplemental Channel Test Mode 3 (RC 3/3) with 9600 bps Fundamental Channel and 9600 bps SCH0 data rate.
4. Under RC3, C.S0011 Table 4.4.5.2-2, Table 8-2 was applied.
5. FCHs were configured at full rate for maximum SAR with "All Up" power control bits.

Table 8-1
Parameters for Max. Power for RC1

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

Table 8-2
Parameters for Max. Power for RC3

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

8.2.2 Head SAR Measurements

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

FCC ID: A3LSCHR390	 PCTEST Engineering Laboratory, Inc.	SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1203140289.A3L	Test Dates: 03/13/12 - 03/26/12	DUT Type: Portable Handset		Page 13 of 27

8.2.3 Body SAR Measurements

SAR for body exposure configurations is measured in RC3 with the DUT configured to transmit at full rate on FCH with all other code channels disabled using TDSO / SO32. SAR for multiple code channels (FCH + SCH_n) is not required when the maximum average output of each RF channel is less than ¼ dB higher than that measured with FCH only. Otherwise, SAR is measured on the maximum output channel (FCH + SCH_n) with FCH at full rate and SCH₀ enabled at 9600 bps using the exposure configuration that results in the highest SAR for that channel with FCH only. When multiple code channels are enabled, the DUT output may shift by more than 0.5 dB and lead to higher SAR drifts and SCH dropouts. Body SAR was measured using TDSO / SO32 with power control bits in the “All Up”

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

FCC ID: A3LSCHR390		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1203140289.A3L	Test Dates: 03/13/12 - 03/26/12	DUT Type: Portable Handset		Page 14 of 27

9 RF CONDUCTED POWERS

9.1 CDMA Conducted Powers

Band	Channel	Frequency	SO55 [dBm]	SO55 [dBm]	TDSO SO32 [dBm]	TDSO SO32 [dBm]
	F-RC	MHz	RC1	RC3	FCH+SCH	FCH
Cellular	1013	824.7	24.35	24.31	24.33	24.31
	384	836.52	24.57	24.52	24.52	24.46
	777	848.31	24.55	24.50	24.55	24.51
AWS	25	1711.25	24.62	24.56	24.54	24.54
	450	1732.5	24.42	24.36	24.35	24.38
	875	1753.75	24.47	24.37	24.38	24.42
PCS	25	1851.25	24.27	24.31	24.26	24.28
	600	1880	24.40	24.35	24.40	24.33
	1175	1908.75	24.33	24.26	24.28	24.27

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

Per KDB Publication 941225 D01:

1. Head SAR was tested with SO55 RC3. SO55 RC1 was not required since the average output power was not more than 0.25 dB higher than the SO55 RC3 powers.
2. Body-Worn SAR was tested with 1x RTT with TDSO / SO32 FCH Only. TDSO / SO32 FCH+SCH SAR tests were not required since the average output power was not more than 0.25 dB higher than the TDSO / SO32 FCH only powers.

9.2 Bluetooth Conducted Powers

Frequency [MHz]	Data Rate [Mbps]	Channel No.	Peak Conducted Power		Avg Conducted Power	
			[dBm]	[mW]	[dBm]	[mW]
2402	1.0	0	11.37	13.699	11.16	13.062
2441	1.0	39	11.07	12.794	10.86	12.190
2480	1.0	78	10.99	12.560	10.75	11.885
2402	2.0	0	11.53	14.223	9.68	9.290
2441	2.0	39	11.21	13.213	9.32	8.551
2480	2.0	78	11.09	12.853	9.23	8.375
2402	3.0	0	11.50	14.125	9.68	9.290
2441	3.0	39	10.79	11.995	8.45	6.998
2480	3.0	78	10.42	11.015	8.39	6.902



Figure 9-1
Power Measurement Setup

FCC ID: A3LSCHR390		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1203140289.A3L	Test Dates: 03/13/12 - 03/26/12	DUT Type: Portable Handset		Page 15 of 27

10 SYSTEM VERIFICATION

10.1 Tissue Verification

Table 10-1
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
03/13/2012	835H	23.2	820	0.866	40.55	0.90	41.57	-3.56%	-2.46%
			835	0.879	40.35	0.90	41.50	-2.33%	-2.77%
			850	0.890	40.06	0.92	41.50	-2.84%	-3.47%
03/19/2012	835H	23.6	820	0.916	42.76	0.90	41.57	2.00%	2.86%
			835	0.927	42.48	0.90	41.50	3.00%	2.36%
			850	0.940	42.40	0.92	41.50	2.62%	2.17%
03/16/2012	1750H	23.4	1710	1.309	39.31	1.35	40.14	-2.89%	-2.06%
			1750	1.354	38.62	1.37	40.10	-1.17%	-3.69%
			1790	1.400	38.12	1.39	40.02	0.43%	-4.75%
03/14/2012	1900H	23.5	1850	1.360	41.28	1.40	40.00	-2.86%	3.20%
			1880	1.391	41.16	1.40	40.00	-0.64%	2.90%
			1910	1.419	41.06	1.40	40.00	1.36%	2.65%
03/17/2012	835B	24.6	820	0.991	53.57	0.97	55.28	2.27%	-3.10%
			835	1.006	53.42	0.97	55.20	3.71%	-3.22%
			850	1.020	53.29	0.99	55.15	3.24%	-3.38%
03/23/2012	835B	23.3	820	0.948	53.71	0.97	55.28	-2.17%	-2.85%
			835	0.969	53.64	0.97	55.20	-0.10%	-2.83%
			850	0.980	53.44	0.99	55.15	-0.81%	-3.11%
03/16/2012	1750B	22.8	1710	1.417	53.24	1.46	53.54	-2.95%	-0.56%
			1750	1.464	53.05	1.49	53.43	-1.74%	-0.71%
			1790	1.507	52.89	1.51	53.33	-0.20%	-0.83%
03/26/2012	1750B	23.1	1710	1.449	52.20	1.46	53.54	-0.75%	-2.50%
			1750	1.504	52.17	1.49	53.43	0.94%	-2.36%
			1790	1.534	52.01	1.51	53.33	1.59%	-2.48%
03/14/2012	1900B	22.8	1850	1.503	51.16	1.52	53.30	-1.12%	-4.02%
			1880	1.533	50.94	1.52	53.30	0.86%	-4.43%
			1910	1.573	50.85	1.52	53.30	3.49%	-4.60%
03/24/2012	1900B	23.7	1850	1.447	51.46	1.52	53.30	-4.80%	-3.45%
			1880	1.469	51.40	1.52	53.30	-3.36%	-3.56%
			1910	1.502	51.28	1.52	53.30	-1.18%	-3.79%
03/19/2012	2450B	23.1	2401	1.985	51.19	1.90	52.77	4.31%	-2.98%
			2450	2.044	51.11	1.95	52.70	4.82%	-3.02%
			2499	2.115	50.98	2.02	52.64	4.75%	-3.15%

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.

10.2 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

FCC ID: A3LSCHR390	 PCTEST ENGINEERING LABORATORY, INC.	SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1203140289.A3L	Test Dates: 03/13/12 - 03/26/12	DUT Type: Portable Handset		Page 16 of 27

- $$Y = \frac{j2\omega\epsilon_r\epsilon_0}{[\ln(b/a)]^2} \int_a^b \int_a^b \int_0^\pi \cos\phi' \frac{\exp[-j\omega r(\mu_0\epsilon_r'\epsilon_0)^{1/2}]}{r} d\phi' d\rho' d\rho$$

10.3 Test System Verification

Table 10-2 System Verification Results

REV 11.1 M
02/20/2012

11 SAR DATA SUMMARY

11.1 Standalone Head SAR Data

Table 11-1
Cell. CDMA Head SAR Results

MEASUREMENT RESULTS							
FREQUENCY		Mode/Band	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	SAR (1g)
MHz	Ch.						(W/kg)
824.70	1013	Cell. CDMA	24.31	-0.03	Right	Touch	0.802
836.52	384	Cell. CDMA	24.52	-0.09	Right	Touch	0.966
848.31	777	Cell. CDMA	24.50	0.02	Right	Touch	0.783
836.52	384	Cell. CDMA	24.52	0.13	Right	Tilt	0.542
836.52	384	Cell. CDMA	24.52	-0.01	Left	Touch	0.796
836.52	384	Cell. CDMA	24.52	-0.10	Left	Tilt	0.490
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 11-2
AWS CDMA Head SAR Results

MEASUREMENT RESULTS							
FREQUENCY		Mode/Band	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	SAR (1g)
MHz	Ch.						(W/kg)
1732.50	450	AWS CDMA	24.36	0.12	Right	Touch	0.364
1732.50	450	AWS CDMA	24.36	0.04	Right	Tilt	0.221
1732.50	450	AWS CDMA	24.36	0.10	Left	Touch	0.603
1732.50	450	AWS CDMA	24.36	-0.01	Left	Tilt	0.228
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population					Head 1.6 W/kg (mW/g) averaged over 1 gram		

FCC ID: A3LSCHR390		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1203140289.A3L	Test Dates: 03/13/12 - 03/26/12	DUT Type: Portable Handset		Page 18 of 27

Table 11-3
PCS CDMA 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	600	PCS CDMA	24.35	0.11	Right	Touch	0.473
1880.00	600	PCS CDMA	24.35	-0.05	Right	Tilt	0.375
1880.00	600	PCS CDMA	24.35	0.16	Left	Touch	0.656
1880.00	600	PCS CDMA	24.35	0.07	Left	Tilt	0.328
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population					Head 1.6 W/kg (mW/g) averaged over 1 gram		

11.2 Standalone Body-Worn SAR Data

Table 11-4
Licensed Transmitter Body-Worn SAR Results

MEASUREMENT RESULTS									
FREQUENCY		Mode	Service	Conducted Power [dBm]	Power Drift [dB]	Spacing	Headphones	Side	SAR (1g)
MHz	Ch.								(W/kg)
824.70	1013	Cell. CDMA	TDSO / SO32	24.31	-0.02	1.5 cm	Yes	back	0.700
836.52	384	Cell. CDMA	TDSO / SO32	24.46	-0.15	1.5 cm	Yes	back	0.877
848.31	777	Cell. CDMA	TDSO / SO32	24.51	0.04	1.5 cm	Yes	back	0.629
824.70	1013	Cell. CDMA	TDSO / SO32	24.31	0.06	1.5 cm	No	back	0.904
836.52	384	Cell. CDMA	TDSO / SO32	24.46	-0.04	1.5 cm	No	back	1.070
848.31	777	Cell. CDMA	TDSO / SO32	24.51	0.01	1.5 cm	No	back	0.858
1732.50	450	AWS CDMA	TDSO / SO32	24.38	0.08	1.5 cm	Yes	back	0.536
1732.50	450	AWS CDMA	TDSO / SO32	24.38	0.02	1.5 cm	No	back	0.634
1880.00	600	PCS CDMA	TDSO / SO32	24.33	0.10	1.5 cm	Yes	back	0.256
1880.00	600	PCS CDMA	TDSO / SO32	24.33	0.07	1.5 cm	No	back	0.558
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 11-5
Bluetooth Body-Worn SAR Results

MEASUREMENT RESULTS									
FREQUENCY		Mode	Service	Conducted Power [dBm]	Power Drift [dB]	Position	Spacing	Side	SAR (1g)
MHz	Ch.								(W/kg)
2402	0	Bluetooth	FHSS	11.16	-0.12	Body	1.5 cm	back	0.004
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Body 1.6 W/kg (mW/g) averaged over 1 gram		

FCC ID: A3LSCHR390		SAR EVALUATION REPORT					Reviewed by: Quality Manager
Document S/N: 0Y1203140289.A3L	Test Dates: 03/13/12 - 03/26/12	DUT Type: Portable Handset				Page 19 of 27	

11.3 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. The standard battery was used.
3. Tissue parameters and temperatures are listed on the SAR plots.
4. Liquid tissue depth was at least 15.0 cm. 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.
5. Device was tested using a fixed spacing for body-worn accessory testing. A separation distance of 15 mm was tested because the manufacturer has determined that there will be body-worn accessories available in the marketplace for users to support this separation distance.

CDMA Notes:

1. Head SAR for CDMA2000 mode was tested under RC3/SO55 per KDB Publication 941225 D01.
2. Body-Worn SAR was tested with 1x RTT with TDSO / SO32 FCH Only. TDSO / SO32 FCH+SCH SAR tests were not required since the average output power was not more than 0.25 dB higher than the TDSO / SO32 FCH only powers.
3. Body-Worn SAR was additionally tested without headphones to account for the CDMA+BT summation scenario.
4. AWS CDMA SAR was measured with a probe calibrated at 1750 MHz and is valid for measuring SAR from ± 50 MHz. The 1750MHz specific liquid was verified with specific probe calibration factors as required per FCC KDB Publication 450824 D01.
5. All samples tested were electrically identical per the applicant. Per FCC/OET Bulletin 65 Supplement C and Public Notice DA-02-1438, if the SAR measured at the middle channel for each test configuration is at least 3.0 dB lower than the SAR limit, testing at the high and low channels is optional for such test configuration(s).

Bluetooth Note:

1. All samples tested were electrically identical per the applicant. Per FCC KDB Publication 648474 the highest average output power channel was tested.

FCC ID: A3LSCHR390		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1203140289.A3L	Test Dates: 03/13/12 - 03/26/12	DUT Type: Portable Handset		Page 20 of 27

12 FCC MULTI-TX AND ANTENNA SAR CONSIDERATIONS

12.1 Introduction

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

12.2 FCC Power Tables & Conditions

	2.45	5.15 - 5.35	5.47 - 5.85	GHz
P_{Ref}	12	6	5	mW
Device output power should be rounded to the nearest mW to compare with values specified in this table.				

Figure 12-1
Output Power Thresholds for Unlicensed Transmitters

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

Figure 12-2
SAR Evaluation Requirements for Multiple Transmitter Handsets

According to Figure 12-1 and Figure 12-2, simultaneous transmission analysis of SAR was required for this device for the licensed and unlicensed transmitters. Possible simultaneous transmissions for this device were numerically summed using stand-alone SAR data and are shown in the following tables.

FCC ID: A3LSCHR390		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1203140289.A3L	Test Dates: 03/13/12 - 03/26/12	DUT Type: Portable Handset		Page 21 of 27

12.3 Body-Worn Simultaneous Transmission Analysis

Table 12-1
Simultaneous Transmission Scenario (Body-Worn at 1.5 cm)

Configuration	Mode	CDMA SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
Back Side	Cell. CDMA	1.070	0.004	1.074
Back Side	AWS CDMA	0.634	0.004	0.638
Back Side	PCS CDMA	0.558	0.004	0.562

The above tables represent a body-worn voice call potentially simultaneously operating with 2.4 GHz Bluetooth.

12.4 Simultaneous Transmission Conclusion

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

FCC ID: A3LSCHR390		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1203140289.A3L	Test Dates: 03/13/12 - 03/26/12	DUT Type: Portable Handset		Page 22 of 27

13 EQUIPMENT LIST

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent	E8257D	(250kHz-20GHz) Signal Generator	4/8/2011	Annual	4/8/2012	MY45470194
Agilent	8753E	(30kHz-6GHz) Network Analyzer	4/21/2011	Annual	4/21/2012	JP38020182
Agilent	8648D	(9kHz-4GHz) Signal Generator	10/10/2011	Annual	10/10/2012	3613A00315
Agilent	8648D	Signal Generator	4/5/2011	Annual	4/5/2012	3629U00687
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	E5515C	Wireless Communications Test Set	2/14/2012	Annual	2/14/2013	GB43304447
Agilent	E5515C	Wireless Communications Test Set	2/12/2012	Annual	2/12/2013	GB45360985
Agilent	E5515C	Wireless Communications Test Set	2/14/2012	Annual	2/14/2013	GB43163447
Agilent	E5515C	Wireless Communications Test Set	2/9/2012	Annual	2/9/2013	GB43460554
Agilent	E5515C	Wireless Communications Tester	4/21/2011	Annual	4/21/2012	US41140256
Amplifier Research	551G4	5W, 800MHz-4.2GHz	N/A		N/A	21910
Anritsu	ML2438A	Power Meter	2/14/2012	Annual	2/14/2013	1190013
Anritsu	ML2438A	Power Meter	2/14/2012	Annual	2/14/2013	98150041
Anritsu	ML2438A	Power Meter	10/13/2011	Annual	10/13/2012	1070030
Anritsu	MA2481A	Power Sensor	2/14/2012	Annual	2/14/2013	5318
Anritsu	MA2481A	Power Sensor	2/14/2012	Annual	2/14/2013	5442
Anritsu	MA2481A	Power Sensor	2/14/2012	Annual	2/14/2013	5821
Anritsu	MA2481A	Power Sensor	2/14/2012	Annual	2/14/2013	8013
Anritsu	MA2481A	Power Sensor	2/14/2012	Annual	2/14/2013	2400
Anritsu	MT8820C	Radio Communication Tester	11/11/2011	Annual	11/11/2012	6200901190
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
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-030	30MM TEM line for 6 GHz	CBT		N/A	N/A
Index SAR	IXTL-010	Dielectric Measurement Kit	CBT		N/A	N/A
MiniCircuits	SLP-2400+	Low Pass Filter	CBT		N/A	R8979500903
MiniCircuits	VLF-6000+	Low Pass Filter	CBT		N/A	N/A
MiniCircuits	VLF-6000+	Low Pass Filter	CBT		N/A	N/A
Mini-Circuits	BW-N20W5+	DC to 18 GHz Precision Fixed 20 dB Attenuator	CBT		N/A	N/A
Mini-Circuits	NLP-1200+	Low Pass Filter DC to 1000 MHz	CBT		N/A	N/A
Mini-Circuits	NLP-2950+	Low Pass Filter DC to 2700 MHz	CBT		N/A	N/A
Narda	4014C-6	4 - 8 GHz SMA 6 dB Directional Coupler	CBT		N/A	N/A
Narda	4772-3	Attenuator (3dB)	CBT		N/A	9406
Narda	BW-S3W2	Attenuator (3dB)	CBT		N/A	120
Pasternack	PE2208-6	Bidirectional Coupler	6/3/2011	Annual	6/3/2012	N/A
Pasternack	PE2209-10	Bidirectional Coupler	6/3/2011	Annual	6/3/2012	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
Rohde & Schwarz	SMI038	Signal Generator	4/6/2011	Annual	4/6/2012	DE27259
SPEAG	D1750V2	1750 MHz SAR Dipole	5/24/2011	Annual	5/24/2012	1051
SPEAG	D1900V2	1900 MHz SAR Dipole	7/22/2011	Annual	7/22/2012	5d080
SPEAG	D1900V2	1900 MHz SAR Dipole	7/11/2011	Annual	7/11/2012	5d141
SPEAG	D2450V2	2450 MHz SAR Dipole	8/19/2011	Annual	8/19/2012	719
SPEAG	D835V2	835 MHz SAR Dipole	8/15/2011	Annual	8/15/2012	4d026
SPEAG	DAE3	Dasy Data Acquisition Electronics	11/9/2011	Annual	11/9/2012	455
SPEAG	DAE4	Dasy Data Acquisition Electronics	2/20/2012	Annual	2/20/2013	649
SPEAG	DAE4	Dasy Data Acquisition Electronics	5/19/2011	Annual	5/19/2012	859
SPEAG	DAE4	Dasy Data Acquisition Electronics	1/18/2012	Annual	1/18/2013	1272
Speag	DAK-3.5	Dielectric Assessment Kit	12/1/2011	Annual	12/1/2012	1031
SPEAG	ES3DV2	SAR Probe	8/25/2011	Annual	8/25/2012	3022
SPEAG	ES3DV4	SAR Probe	7/27/2011	Annual	7/27/2012	3561
SPEAG	ES3DV3	SAR Probe	2/21/2012	Annual	2/21/2013	3258
SPEAG	ES3DV3	SAR Probe	11/18/2011	Annual	11/18/2012	3263
VWR	61220-416	Long Stem Thermometer	7/1/2011	Biennial	7/1/2013	111642834
VWR	61220-416	Long stem thermometer	7/1/2011	Biennial	7/1/2013	111642916
VWR	61220-416	Long Stem Thermometer	7/1/2011	Biennial	7/1/2013	111642941
VWR	36934-158	Wall Thermometer	9/30/2011	Biennial	9/30/2013	111859323
VWR	36934-158	Wall Thermometer	9/30/2011	Biennial	9/30/2013	111859332
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

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.

FCC ID: A3LSCHR390		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1203140289.A3L	Test Dates: 03/13/12 - 03/26/12	DUT Type: Portable Handset		Page 23 of 27

14 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
Expanded Uncertainty (95% CONFIDENCE LEVEL)							k=2	24.2	23.5

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

FCC ID: A3LSCHR390	 PCTEST ENGINEERING LABORATORY, INC.	SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1203140289.A3L	Test Dates: 03/13/12 - 03/26/12	DUT Type: Portable Handset		Page 24 of 27

15 CONCLUSION

15.1 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]

FCC ID: A3LSCHR390		SAR EVALUATION REPORT		Reviewed by: Quality Manager
Document S/N: 0Y1203140289.A3L	Test Dates: 03/13/12 - 03/26/12	DUT Type: Portable Handset		Page 25 of 27

APPENDIX A: SAR TEST DATA

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR390; Type: Portable Handset; Serial: FJ-060-A

Communication System: Cellular CDMA; Frequency: 836.52 MHz; Duty Cycle: 1:1

Medium: 835 Head Medium parameters used (interpolated):

$f = 836.52 \text{ MHz}$; $\sigma = 0.88 \text{ mho/m}$; $\epsilon_r = 40.321$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Test Date: 03-13-2012; Ambient Temp: 23.4 °C; Tissue Temp: 22.4 °C

Probe: ES3DV3 - SN3258; ConvF(6.01, 6.01, 6.01); Calibrated: 2/21/2012

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1272; Calibrated: 1/18/2012

Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1403

Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

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

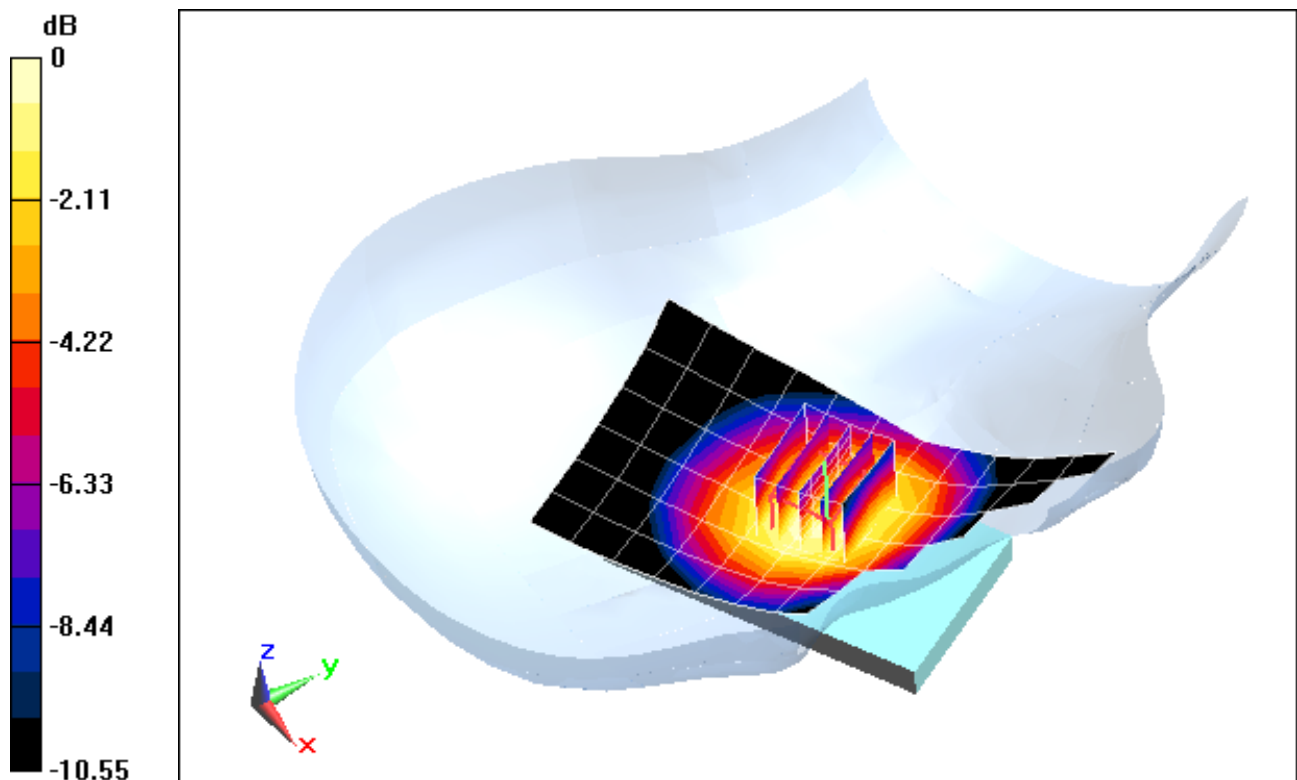
Area Scan (7x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 35.708 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 1.1850 mW/g

SAR(1 g) = 0.966 mW/g; SAR(10 g) = 0.713 mW/g



0 dB = 1.030mW/g = 0.26 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR390; Type: Portable Handset; Serial: FJ-060-A

Communication System: Cellular CDMA; Frequency: 836.52 MHz; Duty Cycle: 1:1

Medium: 835 Head Medium parameters used (interpolated):

$f = 836.52 \text{ MHz}$; $\sigma = 0.928 \text{ mho/m}$; $\epsilon_r = 42.472$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Test Date: 03-19-2012; Ambient Temp: 24.7°C; Tissue Temp: 22.9°C

Probe: ES3DV3 - SN3258; ConvF(6.01, 6.01, 6.01); Calibrated: 2/21/2012

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1272; Calibrated: 1/18/2012

Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1403

Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.4 (4989)

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

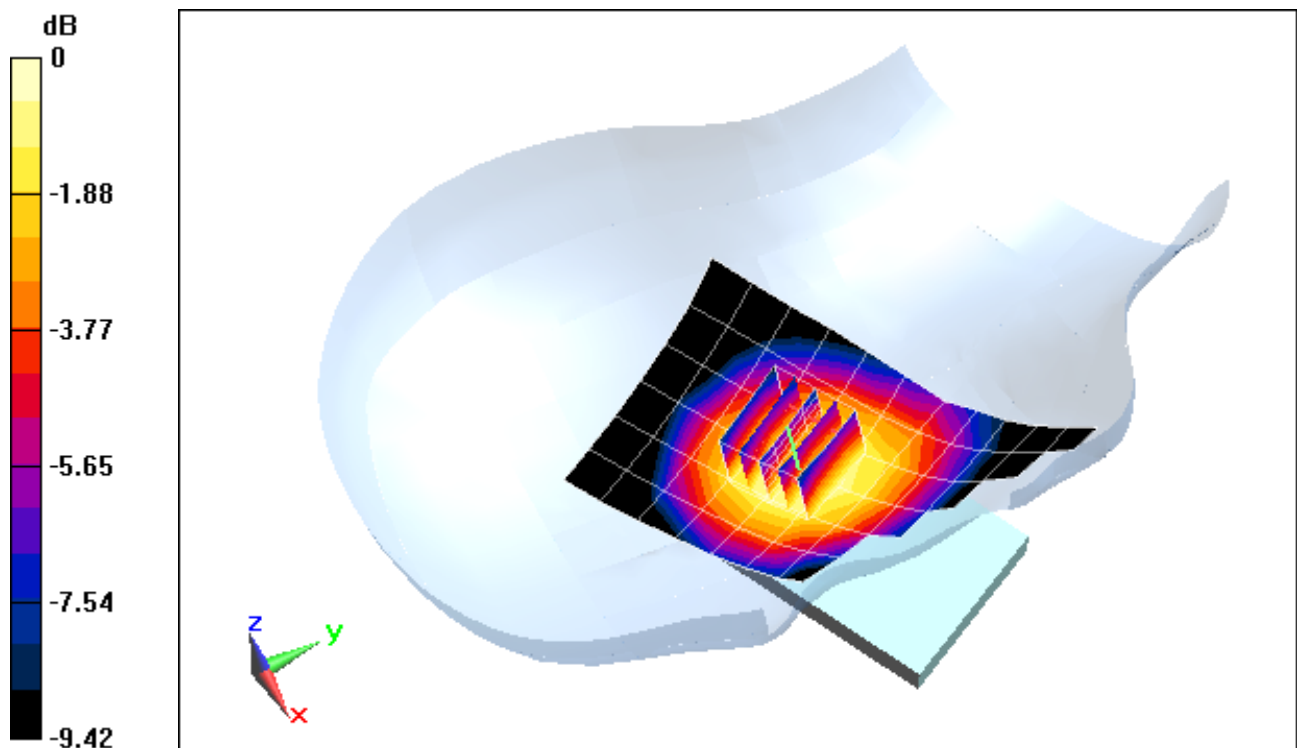
Area Scan (7x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 26.112 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 0.6720 mW/g

SAR(1 g) = 0.542 mW/g; SAR(10 g) = 0.404 mW/g



0 dB = 0.570mW/g = -4.88 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR390; Type: Portable Handset; Serial: FJ-060-A

Communication System: Cellular CDMA; Frequency: 836.52 MHz; Duty Cycle: 1:1

Medium: 835 Head Medium parameters used (interpolated):

$f = 836.52 \text{ MHz}$; $\sigma = 0.88 \text{ mho/m}$; $\epsilon_r = 40.321$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Test Date: 03-13-2012; Ambient Temp: 23.4 °C; Tissue Temp: 22.4 °C

Probe: ES3DV3 - SN3258; ConvF(6.01, 6.01, 6.01); Calibrated: 2/21/2012

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1272; Calibrated: 1/18/2012

Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1403

Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.4 (4989)

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

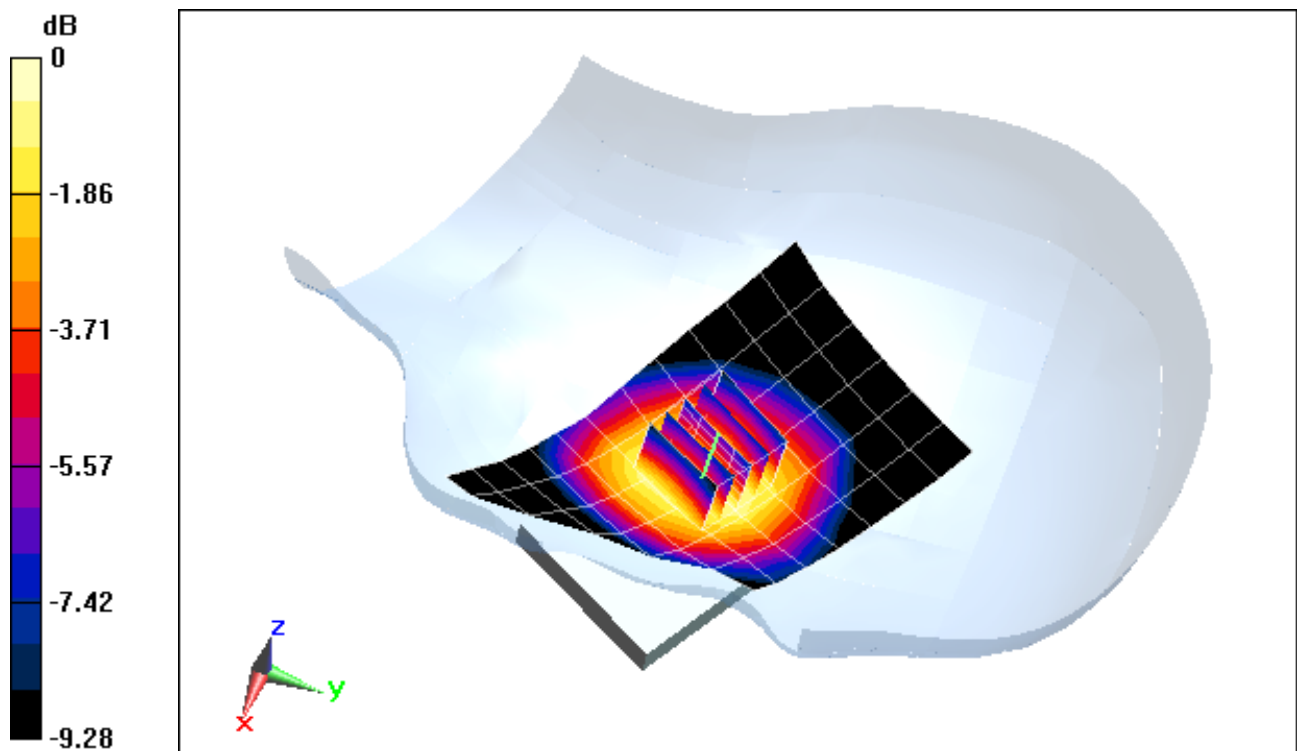
Area Scan (7x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 32.814 V/m; Power Drift = -0.0058 dB

Peak SAR (extrapolated) = 0.9980 mW/g

SAR(1 g) = 0.796 mW/g; SAR(10 g) = 0.597 mW/g



0 dB = 0.850mW/g = -1.41 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR390; Type: Portable Handset; Serial: FJ-060-A

Communication System: Cellular CDMA; Frequency: 836.52 MHz; Duty Cycle: 1:1

Medium: 835 Head Medium parameters used (interpolated):

$f = 836.52 \text{ MHz}$; $\sigma = 0.88 \text{ mho/m}$; $\epsilon_r = 40.321$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Test Date: 03-13-2012; Ambient Temp: 23.4 °C; Tissue Temp: 22.4 °C

Probe: ES3DV3 - SN3258; ConvF(6.01, 6.01, 6.01); Calibrated: 2/21/2012

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1272; Calibrated: 1/18/2012

Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1403

Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.4 (4989)

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

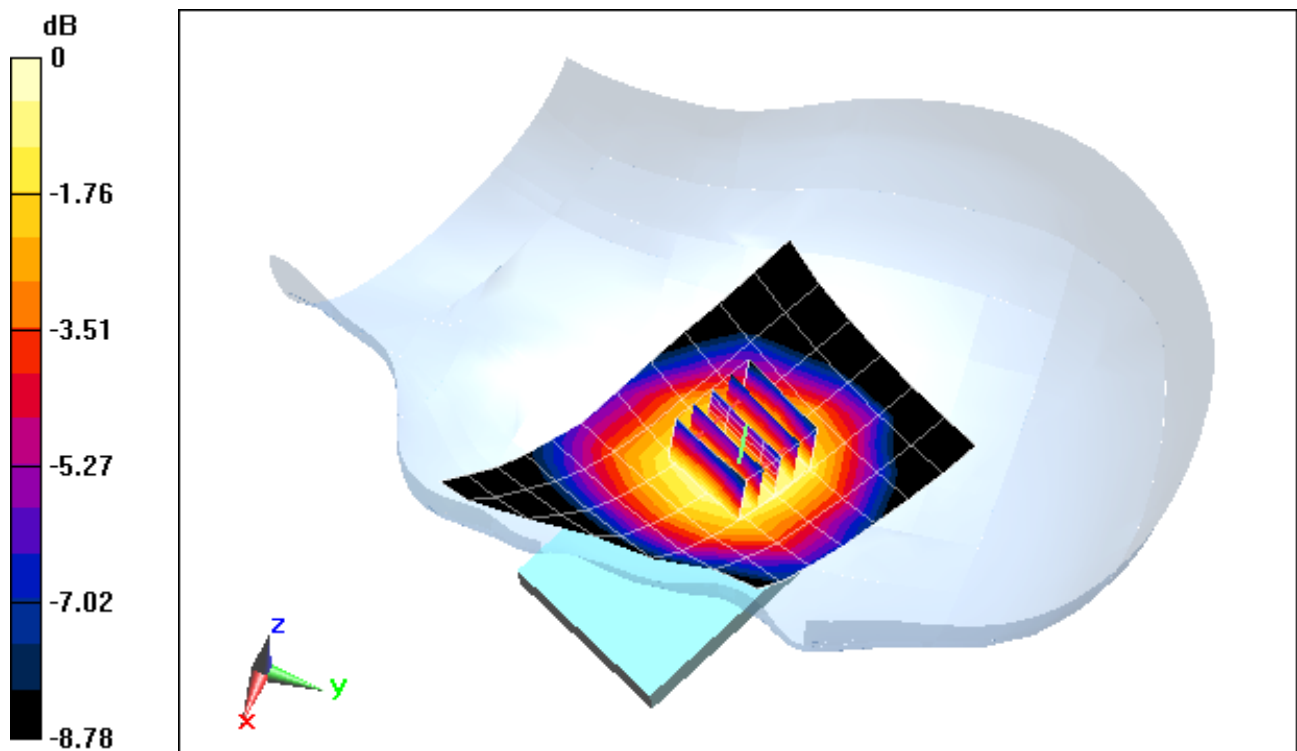
Area Scan (7x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 25.611 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 0.6210 mW/g

SAR(1 g) = 0.490 mW/g; SAR(10 g) = 0.364 mW/g



0 dB = 0.510 mW/g = -5.85 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR390; Type: Portable Handset; Serial: FJ-060-A

Communication System: AWS CDMA; Frequency: 1732.5 MHz; Duty Cycle: 1:1

Medium: 1750 Head Medium parameters used (interpolated):

$f = 1732.5 \text{ MHz}$; $\sigma = 1.334 \text{ mho/m}$; $\epsilon_r = 38.922$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Test Date: 03-16-2012; Ambient Temp: 23.8°C; Tissue Temp: 22.6°C

Probe: ES3DV3 - SN3263; ConvF(5.38, 5.38, 5.38); Calibrated: 11/18/2011

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 2/20/2012

Phantom: SAM v5.0 front; Type: QD000P40CD; Serial: TP-1646

Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

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

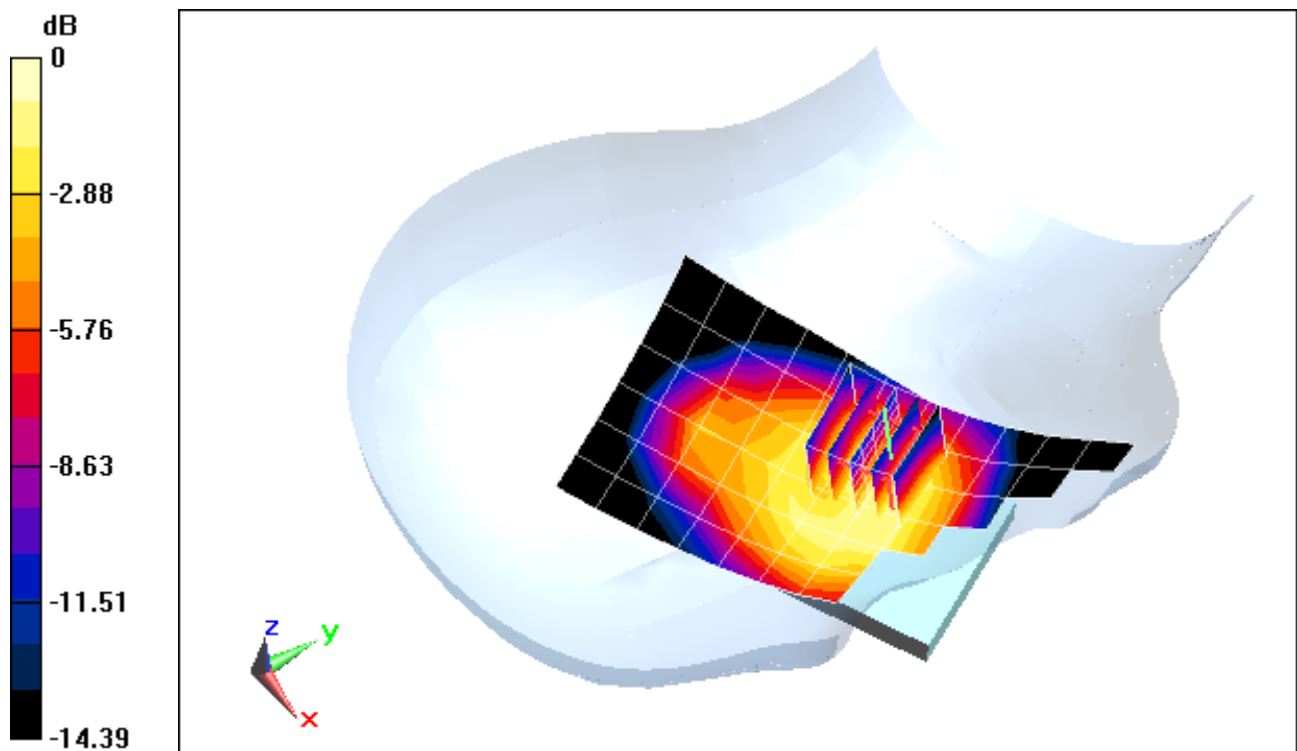
Area Scan (7x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 17.959 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 0.6640 mW/g

SAR(1 g) = 0.364 mW/g; SAR(10 g) = 0.223 mW/g



0 dB = 0.430mW/g = -7.33 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR390; Type: Portable Handset; Serial: FJ-060-A

Communication System: AWS CDMA; Frequency: 1732.5 MHz; Duty Cycle: 1:1

Medium: 1750 Head Medium parameters used (interpolated):

$f = 1732.5 \text{ MHz}$; $\sigma = 1.334 \text{ mho/m}$; $\epsilon_r = 38.922$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Test Date: 03-16-2012; Ambient Temp: 23.8°C; Tissue Temp: 22.6°C

Probe: ES3DV3 - SN3263; ConvF(5.38, 5.38, 5.38); Calibrated: 11/18/2011

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 2/20/2012

Phantom: SAM v5.0 front; Type: QD000P40CD; Serial: TP-1646

Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

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

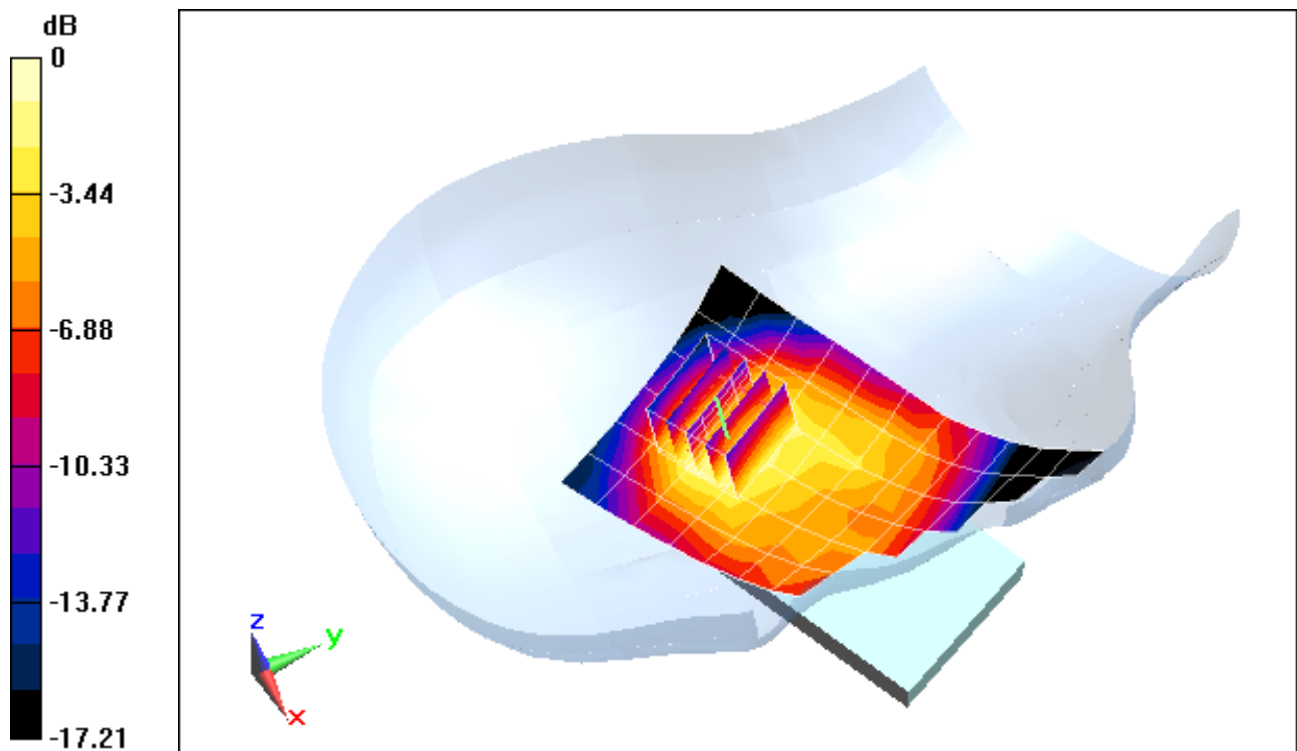
Area Scan (7x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 13.972 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.3510 mW/g

SAR(1 g) = 0.221 mW/g; SAR(10 g) = 0.135 mW/g



0 dB = 0.240mW/g = -12.40 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR390; Type: Portable Handset; Serial: FJ-060-A

Communication System: AWS CDMA; Frequency: 1732.5 MHz; Duty Cycle: 1:1

Medium: 1750 Head Medium parameters used (interpolated):

$f = 1732.5 \text{ MHz}$; $\sigma = 1.334 \text{ mho/m}$; $\epsilon_r = 38.922$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Test Date: 03-16-2012; Ambient Temp: 23.8°C; Tissue Temp: 22.6°C

Probe: ES3DV3 - SN3263; ConvF(5.38, 5.38, 5.38); Calibrated: 11/18/2011

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 2/20/2012

Phantom: SAM v5.0 front; Type: QD000P40CD; Serial: TP-1646

Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

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

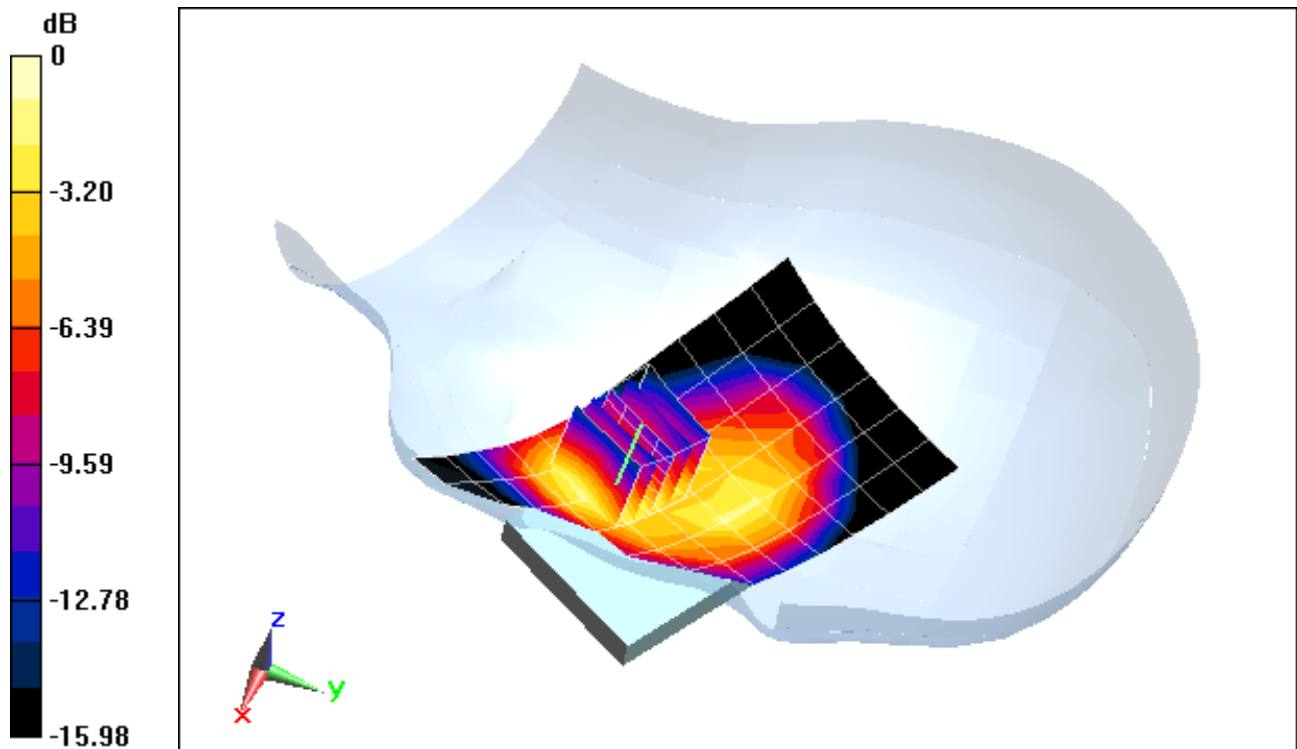
Area Scan (7x12x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 21.897 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 0.9780 mW/g

SAR(1 g) = 0.603 mW/g; SAR(10 g) = 0.368 mW/g



0 dB = 0.640mW/g = -3.88 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR390; Type: Portable Handset; Serial: FJ-060-A

Communication System: AWS CDMA; Frequency: 1732.5 MHz; Duty Cycle: 1:1

Medium: 1750 Head Medium parameters used (interpolated):

$f = 1732.5 \text{ MHz}$; $\sigma = 1.334 \text{ mho/m}$; $\epsilon_r = 38.922$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Test Date: 03-16-2012; Ambient Temp: 23.8°C; Tissue Temp: 22.6°C

Probe: ES3DV3 - SN3263; ConvF(5.38, 5.38, 5.38); Calibrated: 11/18/2011

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 2/20/2012

Phantom: SAM v5.0 front; Type: QD000P40CD; Serial: TP-1646

Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

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

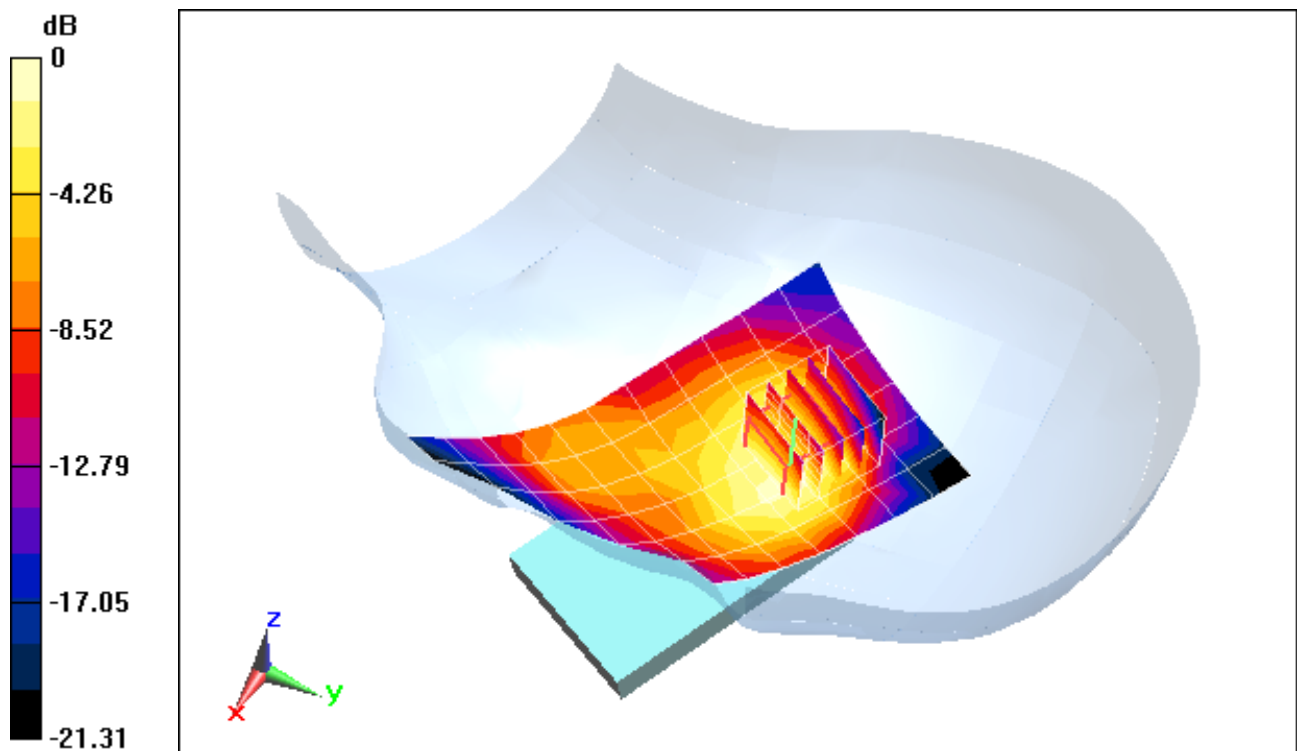
Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 13.727 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.3540 mW/g

SAR(1 g) = 0.228 mW/g; SAR(10 g) = 0.145 mW/g



0 dB = 0.250mW/g = -12.04 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR390; Type: Portable Handset; Serial: FJ-060-A

Communication System: CDMA; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: 1900 Head Medium parameters used:

$f = 1880 \text{ MHz}$; $\sigma = 1.391 \text{ mho/m}$; $\epsilon_r = 41.16$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Test Date: 03-14-2012; Ambient Temp: 23.7°C; Tissue Temp: 22.4°C

Probe: EX3DV4 - SN3561; ConvF(7.16, 7.16, 7.16); Calibrated: 7/27/2011

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE3 Sn455; Calibrated: 11/9/2011

Phantom: SAM V5.0 Right; Type: QD000P40CD; Serial: 1647

Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

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

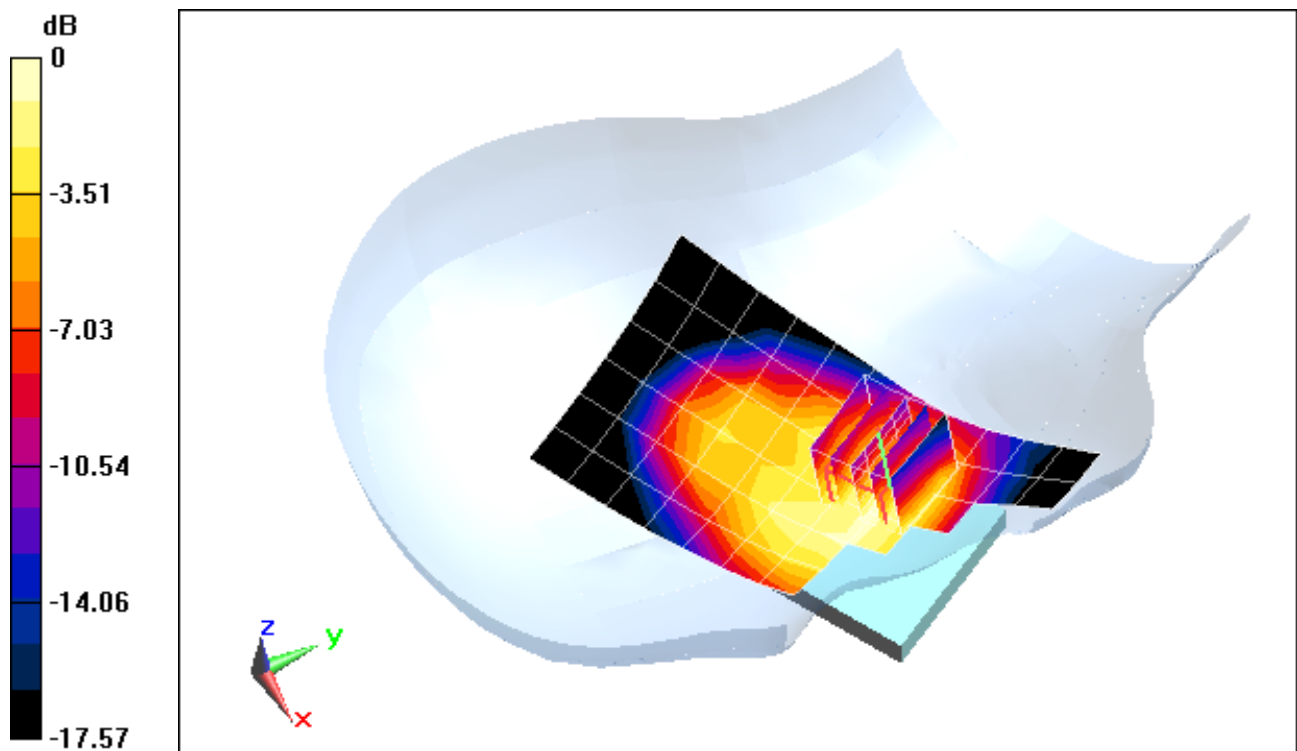
Area Scan (7x12x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 18.411 V/m; Power Drift = 0.114 dB

Peak SAR (extrapolated) = 0.7360 mW/g

SAR(1 g) = 0.473 mW/g; SAR(10 g) = 0.299 mW/g



0 dB = 0.490 mW/g = -6.20 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR390; Type: Portable Handset; Serial: FJ-060-A

Communication System: CDMA; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: 1900 Head Medium parameters used:

$f = 1880 \text{ MHz}$; $\sigma = 1.391 \text{ mho/m}$; $\epsilon_r = 41.16$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Test Date: 03-14-2012; Ambient Temp: 23.7°C; Tissue Temp: 22.4°C

Probe: EX3DV4 - SN3561; ConvF(7.16, 7.16, 7.16); Calibrated: 7/27/2011

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE3 Sn455; Calibrated: 11/9/2011

Phantom: SAM V5.0 Right; Type: QD000P40CD; Serial: 1647

Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

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

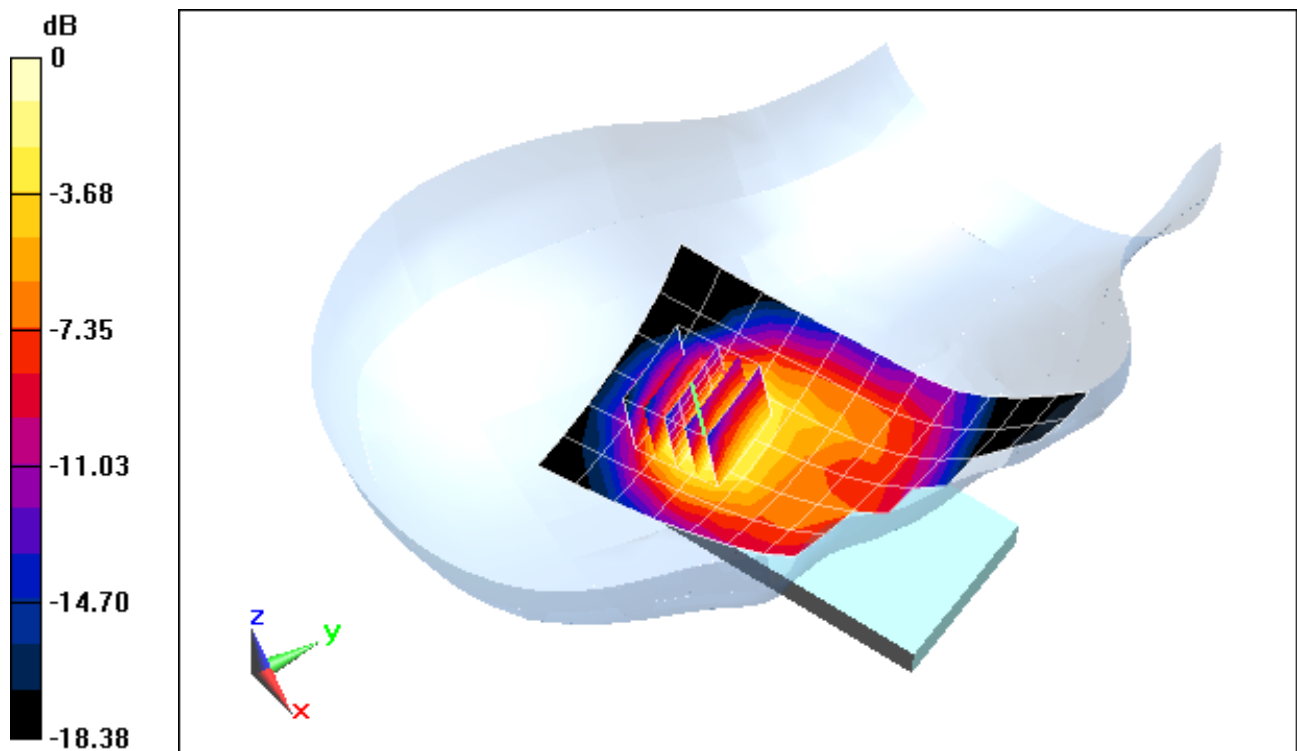
Area Scan (7x12x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 16.461 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 0.6080 mW/g

SAR(1 g) = 0.375 mW/g; SAR(10 g) = 0.219 mW/g



0 dB = 0.400mW/g = -7.96 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR390; Type: Portable Handset; Serial: FJ-060-A

Communication System: CDMA; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: 1900 Head Medium parameters used:

$f = 1880 \text{ MHz}$; $\sigma = 1.391 \text{ mho/m}$; $\epsilon_r = 41.16$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Test Date: 03-14-2012; Ambient Temp: 23.7°C; Tissue Temp: 22.4°C

Probe: EX3DV4 - SN3561; ConvF(7.16, 7.16, 7.16); Calibrated: 7/27/2011

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE3 Sn455; Calibrated: 11/9/2011

Phantom: SAM V5.0 Right; Type: QD000P40CD; Serial: 1647

Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

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

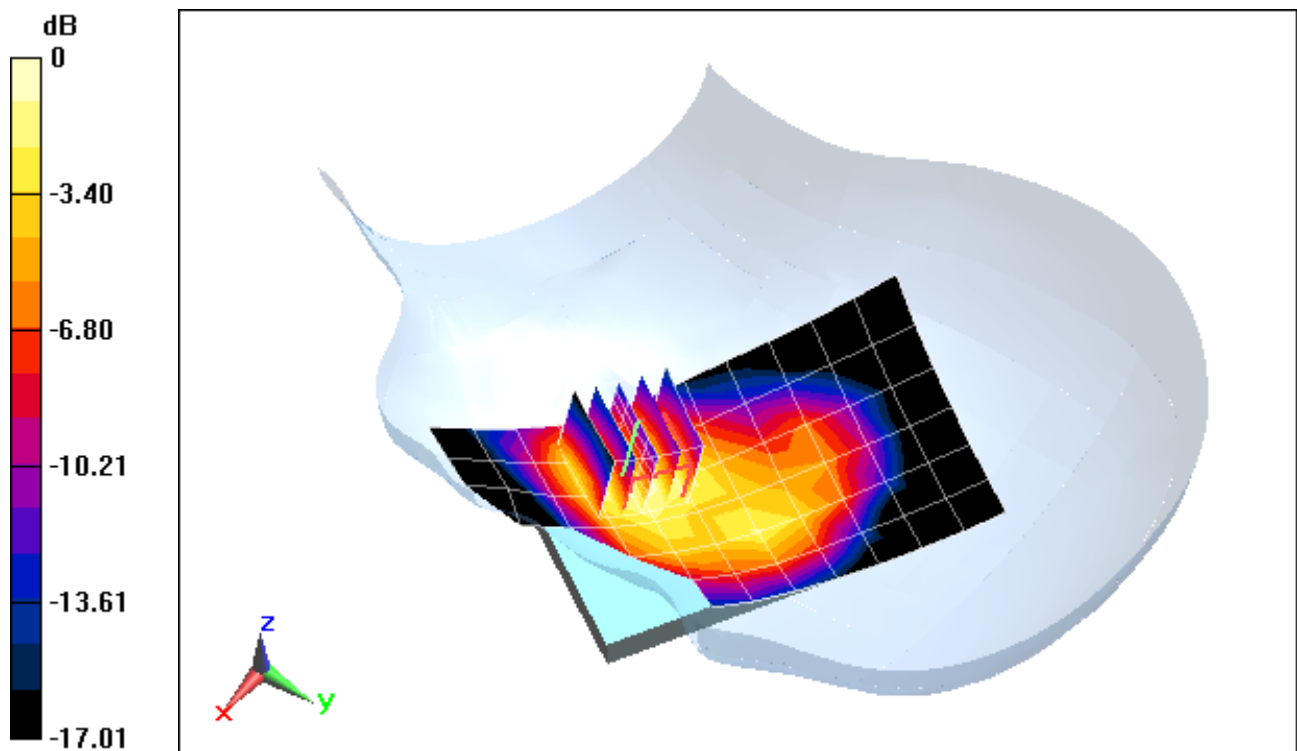
Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 21.539 V/m; Power Drift = 0.16 dB

Peak SAR (extrapolated) = 0.9980 mW/g

SAR(1 g) = 0.656 mW/g; SAR(10 g) = 0.395 mW/g



0 dB = 0.700mW/g = -3.10 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR390; Type: Portable Handset; Serial: FJ-060-A

Communication System: CDMA; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: 1900 Head Medium parameters used:

$f = 1880 \text{ MHz}$; $\sigma = 1.391 \text{ mho/m}$; $\epsilon_r = 41.16$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Test Date: 03-14-2012; Ambient Temp: 23.7°C; Tissue Temp: 22.4°C

Probe: EX3DV4 - SN3561; ConvF(7.16, 7.16, 7.16); Calibrated: 7/27/2011

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE3 Sn455; Calibrated: 11/9/2011

Phantom: SAM V5.0 Right; Type: QD000P40CD; Serial: 1647

Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

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

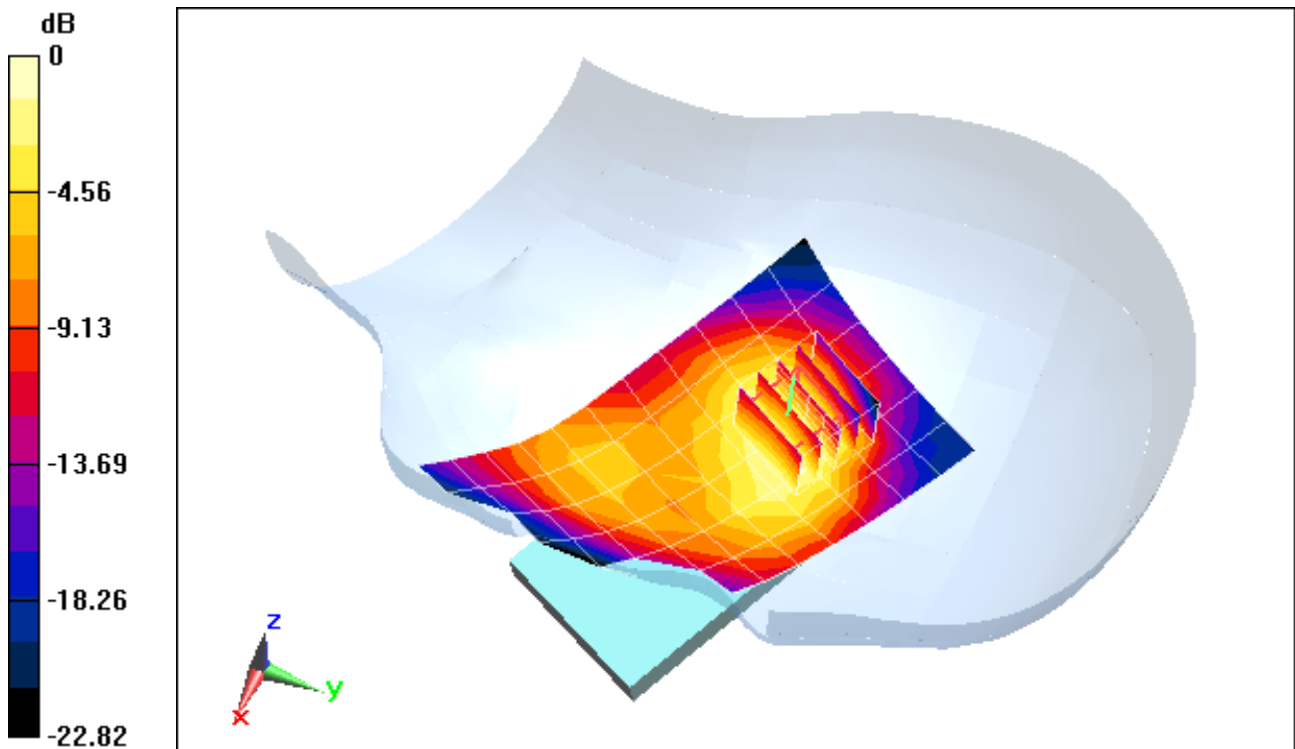
Area Scan (7x12x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 15.097 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 0.5380 mW/g

SAR(1 g) = 0.328 mW/g; SAR(10 g) = 0.197 mW/g



0 dB = 0.340mW/g = -9.37 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR390; Type: Portable Handset; Serial: FJ-060-A

Communication System: Cellular CDMA; Frequency: 836.52 MHz; Duty Cycle: 1:1

Medium: 835 Body Medium parameters used (interpolated):

$f = 836.52 \text{ MHz}$; $\sigma = 1.007 \text{ mho/m}$; $\epsilon_r = 53.407$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 03-17-2012; Ambient Temp: 24.5°C; Tissue Temp: 23.0°C

Probe: ES3DV3 - SN3258; ConvF(6.06, 6.06, 6.06); Calibrated: 2/21/2012

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1272; Calibrated: 1/18/2012

Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406

Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.4 (4989)

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

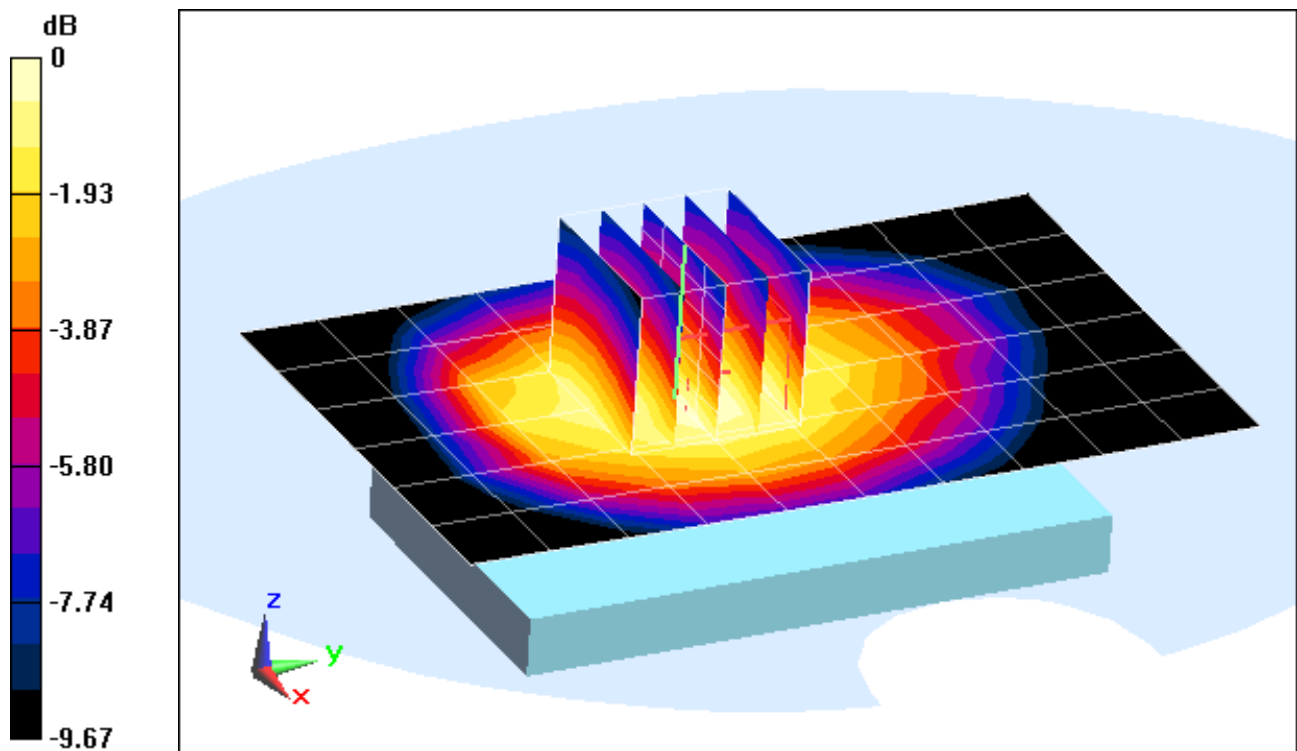
Area Scan (7x11x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 32.202 V/m; Power Drift = -0.15 dB

Peak SAR (extrapolated) = 1.1960 mW/g

SAR(1 g) = 0.877 mW/g; SAR(10 g) = 0.639 mW/g



0 dB = 0.930mW/g = -0.63 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR390; Type: Portable Handset; Serial: FJ-060-A

Communication System: Cellular CDMA; Frequency: 836.52 MHz; Duty Cycle: 1:1

Medium: 835 Body Medium parameters used (interpolated):

$f = 836.52 \text{ MHz}$; $\sigma = 0.97 \text{ mho/m}$; $\epsilon_r = 53.6$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 03-23-2012; Ambient Temp: 24.0°C; Tissue Temp: 23.3°C

Probe: ES3DV3 - SN3258; ConvF(6.06, 6.06, 6.06); Calibrated: 2/21/2012

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1272; Calibrated: 1/18/2012

Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

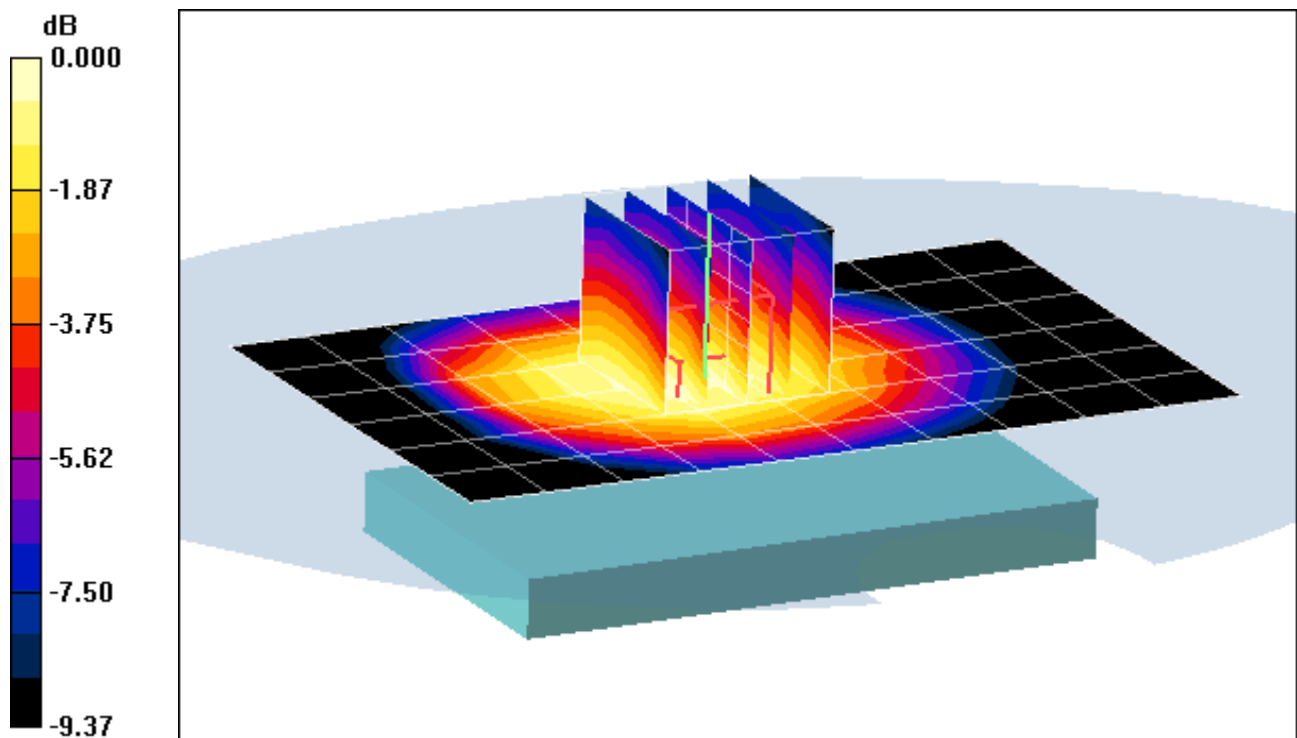
Area Scan (7x11x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 36.4 V/m; Power Drift = -0.045 dB

Peak SAR (extrapolated) = 1.37 W/kg

SAR(1 g) = 1.07 mW/g; SAR(10 g) = 0.778 mW/g



0 dB = 1.13mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR390; Type: Portable Handset; Serial: FJ-060-A

Communication System: CDMA; Frequency: 1732.5 MHz; Duty Cycle: 1:1

Medium: 1750 Body; Medium parameters used (interpolated):

$f = 1732.5 \text{ MHz}$; $\sigma = 1.443 \text{ mho/m}$; $\epsilon_r = 53.133$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Center Section; Space: 1.5 cm

Test Date: 03-16-2012; Ambient Temp: 24.4°C; Tissue Temp: 22.5°C

Probe: EX3DV4 - SN3561; ConvF(7.14, 7.14, 7.14); Calibrated: 7/27/2011

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE3 Sn455; Calibrated: 11/9/2011

Phantom: Triple Flat Phantom 5.1; Type: SAM v5.0; Serial: 1001

Measurement SW: DASY52, Version 52.8 (0);SEMCAD X Version 14.6.4 (4989)

Mode: AWS CDMA, Body SAR, Back side, Mid.ch

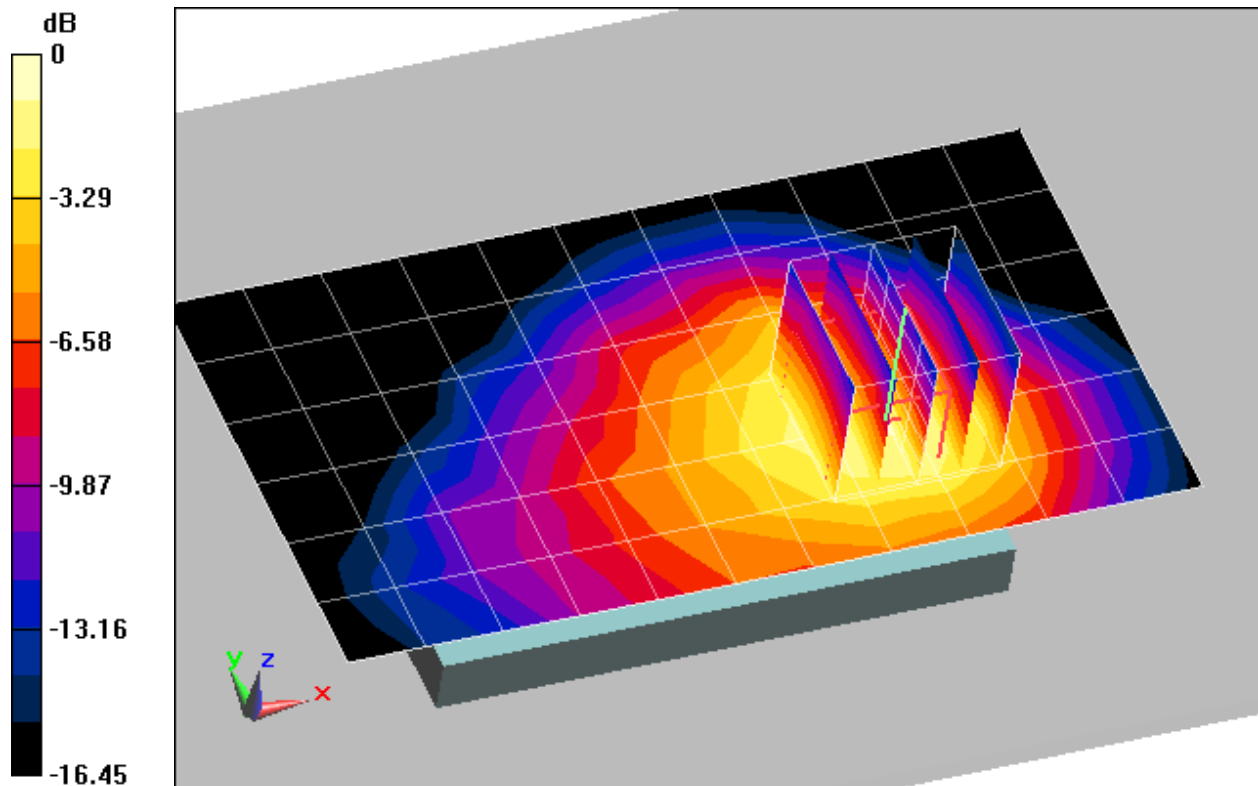
Area Scan (7x12x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 18.733 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 0.9520 W/kg mW/g

SAR(1 g) = 0.536 mW/g; SAR(10 g) = 0.319 mW/g



0 dB = 0.630mW/g = -4.01 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR390; Type: Portable Handset; Serial: FJ-060-A

Communication System: AWS CDMA; Frequency: 1732.5 MHz; Duty Cycle: 1:1

Medium: 1750 Body Medium parameters used (interpolated):

$f = 1732.5 \text{ MHz}$; $\sigma = 1.48 \text{ mho/m}$; $\epsilon_r = 52.2$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 03-26-2012; Ambient Temp: 23.0°C; Tissue Temp: 21.9°C

Probe: ES3DV3 - SN3258; ConvF(4.99, 4.99, 4.99); Calibrated: 2/21/2012

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1272; Calibrated: 1/18/2012

Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: AWS CDMA, Body SAR, Back side, Mid.ch

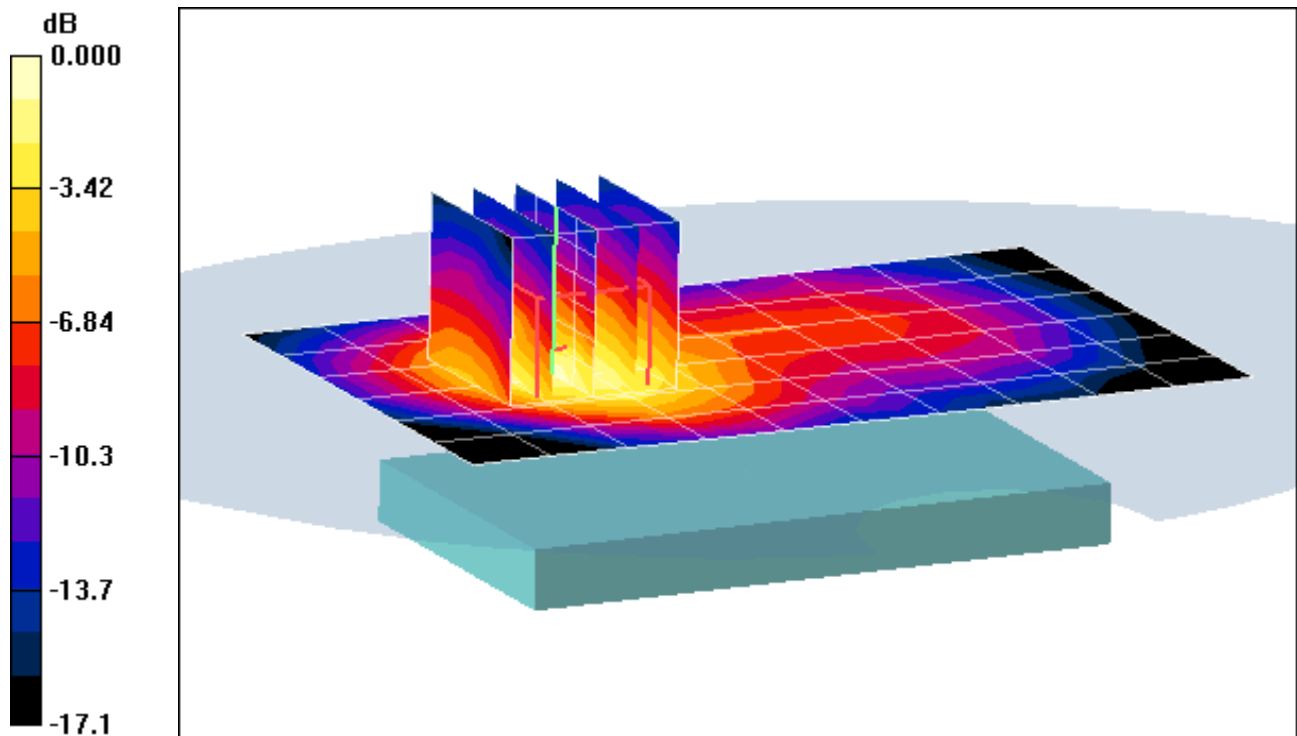
Area Scan (7x11x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 21.8 V/m; Power Drift = 0.016 dB

Peak SAR (extrapolated) = 1.17 W/kg

SAR(1 g) = 0.634 mW/g; SAR(10 g) = 0.354 mW/g



0 dB = 0.772mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR390; Type: Portable Handset; Serial: FJ-060-A

Communication System: PCS CDMA; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: 1900 Body Medium parameters used:

$f = 1880 \text{ MHz}$; $\sigma = 1.533 \text{ mho/m}$; $\epsilon_r = 50.94$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 03-14-2012; Ambient Temp: 23.6°C; Tissue Temp: 22.5°C

Probe: ES3DV2 - SN3022; ConvF(4.41, 4.41, 4.41); Calibrated: 8/25/2011

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, Version 4.7 (80); SEMCAD X Version 14.6.4 (4989)

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

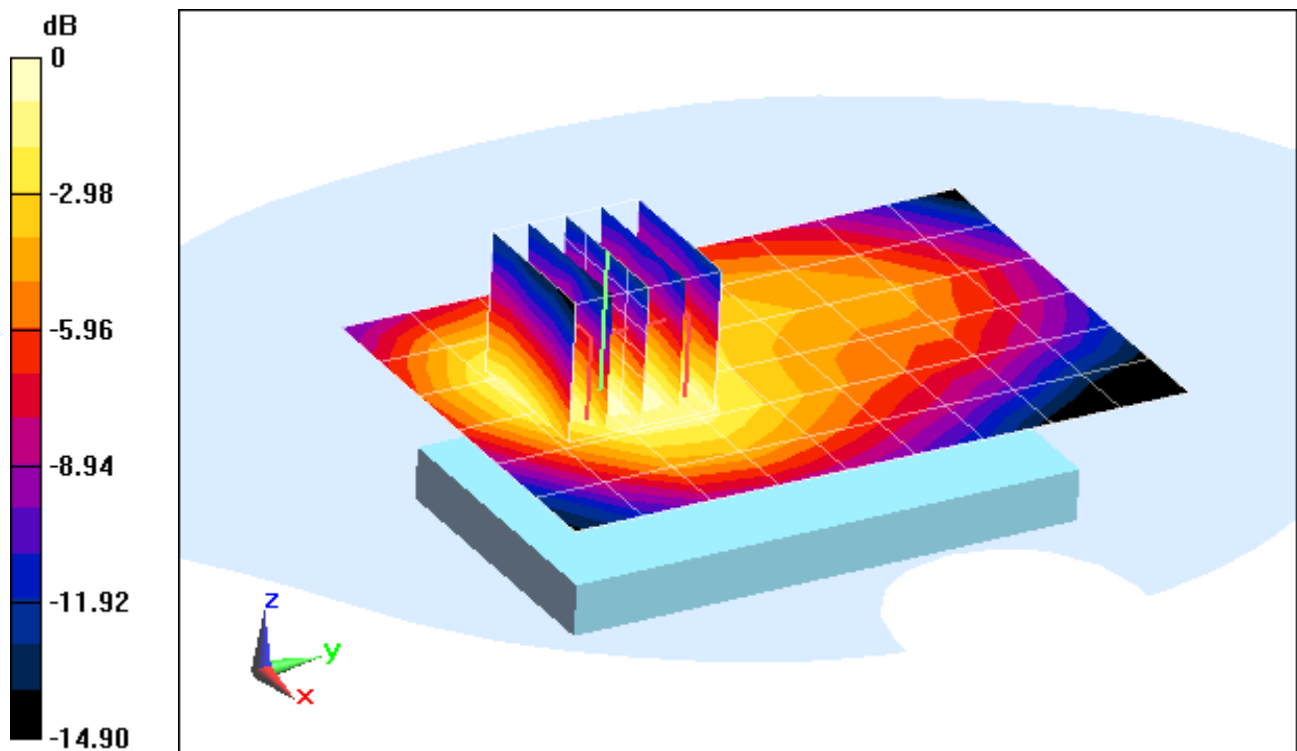
Area Scan (7x10x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 14.315 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 0.4740 mW/g

SAR(1 g) = 0.256 mW/g; SAR(10 g) = 0.162 mW/g



0 dB = 0.280mW/g = -11.06 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR390; Type: Portable Handset; Serial: FJ-060-A

Communication System: PCS CDMA; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: 1900 Body Medium parameters used:

$f = 1880 \text{ MHz}$; $\sigma = 1.47 \text{ mho/m}$; $\epsilon_r = 51.4$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 03-24-2012; Ambient Temp: 24.0°C; Tissue Temp: 23.3°C

Probe: ES3DV3 - SN3258; ConvF(4.7, 4.7, 4.7); Calibrated: 2/21/2012

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1272; Calibrated: 1/18/2012

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: PCS CDMA, Body SAR, Back side, Mid.ch

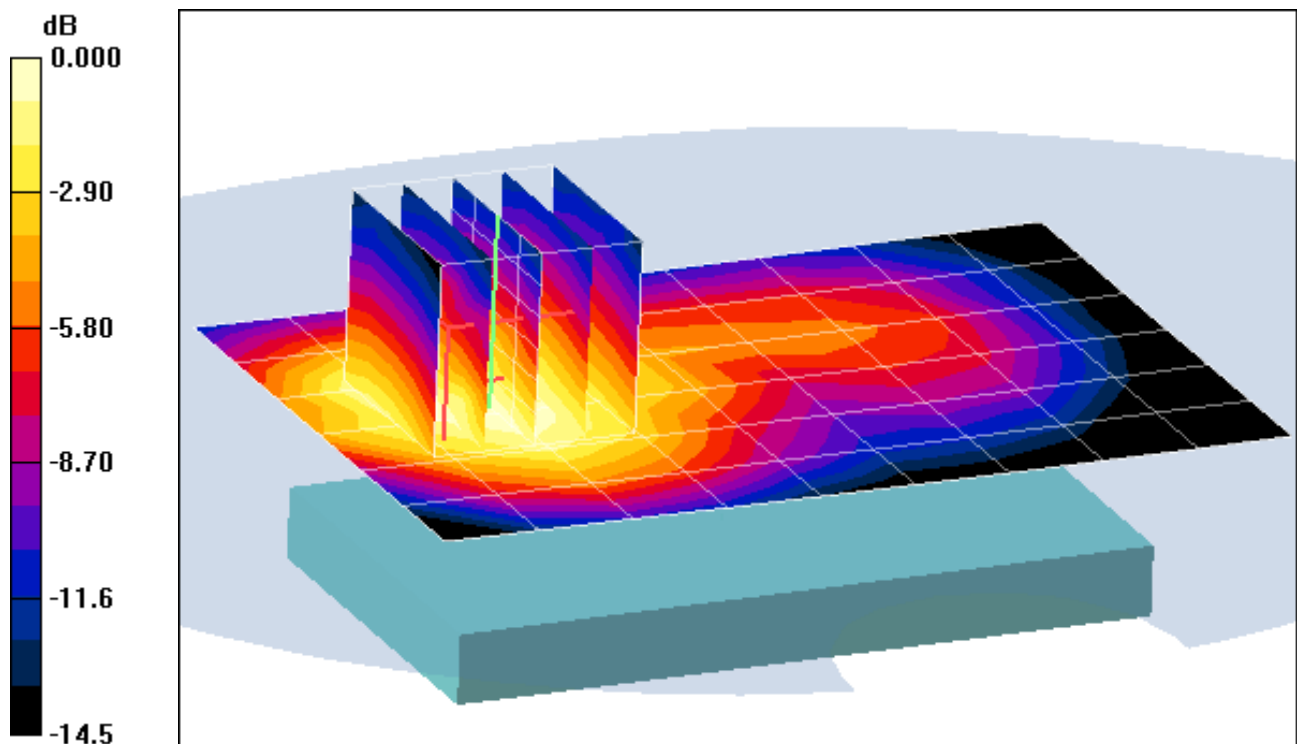
Area Scan (7x10x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 21.6 V/m; Power Drift = 0.069 dB

Peak SAR (extrapolated) = 0.897 W/kg

SAR(1 g) = 0.558 mW/g; SAR(10 g) = 0.348 mW/g



0 dB = 0.606mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSCHR390; Type: Portable Handset; Serial: FJ-060-A

Communication System: Bluetooth; Frequency: 2441 MHz; Duty Cycle: 1:1

Medium: 2450 Body Medium parameters used (interpolated):

$f = 2441 \text{ MHz}$; $\sigma = 2.033 \text{ mho/m}$; $\epsilon_r = 51.125$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 03-19-2012; Ambient Temp: 24.1°C; Tissue Temp: 23.2°C

Probe: ES3DV2 - SN3022; ConvF(4.01, 4.01, 4.01); Calibrated: 8/25/2011

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn859; Calibrated: 5/19/2011

Phantom: SAM with CRP; Type: SAM 4.0; Serial: TP1375

Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

Mode: Bluetooth, Body SAR, Mid Ch., Back Side

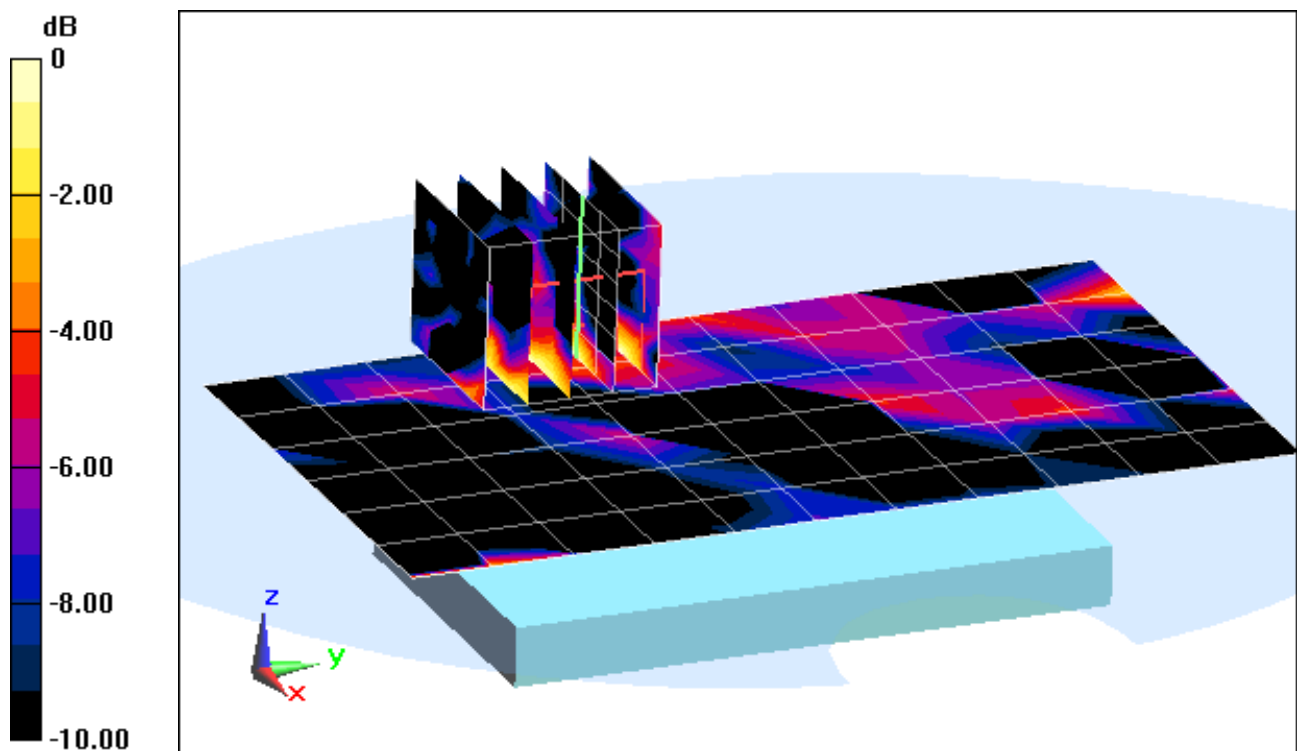
Area Scan (7x12x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 1.367 V/m; Power Drift = -0.119 dB

Peak SAR (extrapolated) = 0.0130 mW/g

SAR(1 g) = 0.00356 mW/g; SAR(10 g) = 0.00129 mW/g



0 dB = 0.0044mW/g = -47.13 dB mW/g

APPENDIX B: SYSTEM VERIFICATION

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d026

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium: 835 Head Medium parameters used:

$f = 835 \text{ MHz}$; $\sigma = 0.879 \text{ mho/m}$; $\epsilon_r = 40.4$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 03-13-2012; Ambient Temp: 23.4 °C; Tissue Temp: 22.4 °C

Probe: ES3DV3 - SN3258; ConvF(6.01, 6.01, 6.01); Calibrated: 2/21/2012

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1272; Calibrated: 1/18/2012

Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1403

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

835MHz System Verification

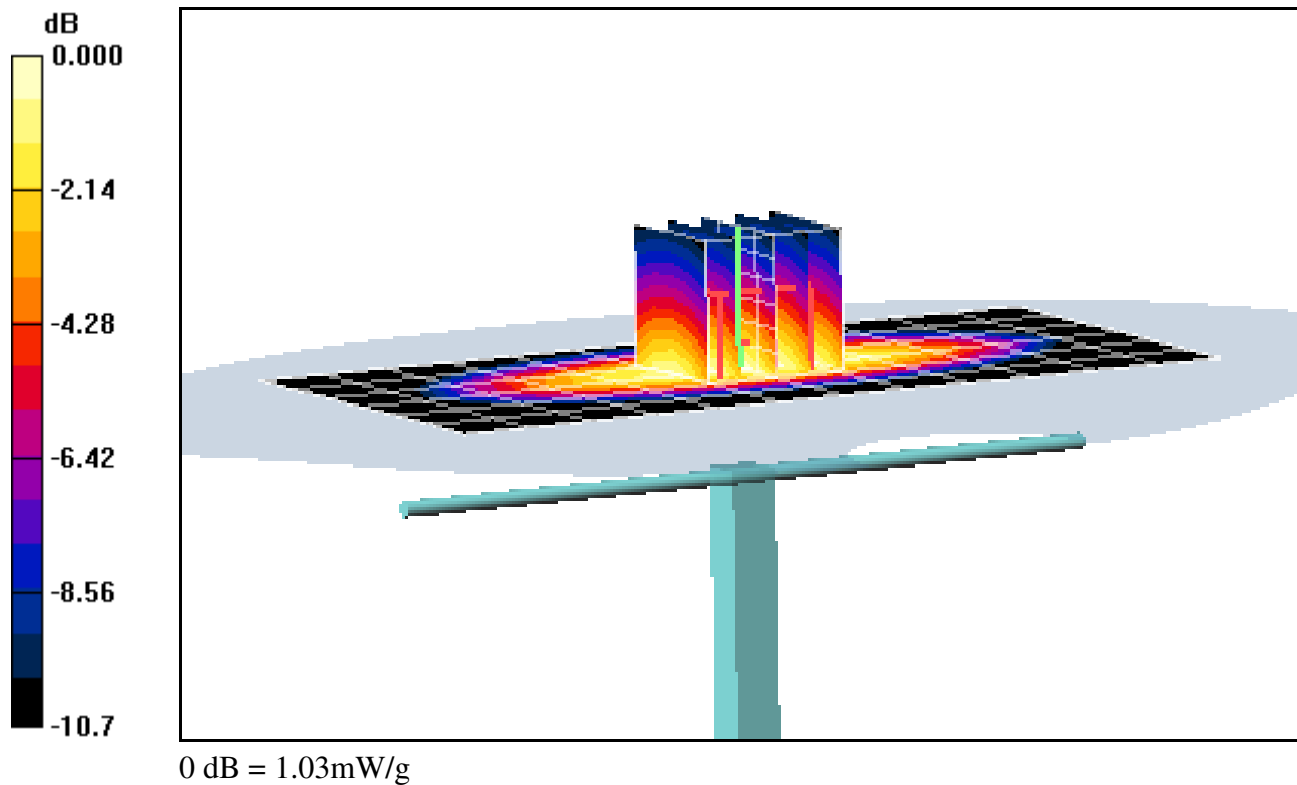
Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Input Power = 20.0 dBm (100 mW)

SAR(1 g) = 0.955 mW/g; SAR(10 g) = 0.623 mW/g

Deviation = 0.95 %



PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d026

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium: 835 Head Medium parameters used:

$f = 835 \text{ MHz}$; $\sigma = 0.879 \text{ mho/m}$; $\epsilon_r = 40.4$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 03-13-2012; Ambient Temp: 23.4 °C; Tissue Temp: 22.4 °C

Probe: ES3DV3 - SN3258; ConvF(6.01, 6.01, 6.01); Calibrated: 2/21/2012

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1272; Calibrated: 1/18/2012

Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1403

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

835MHz System Verification

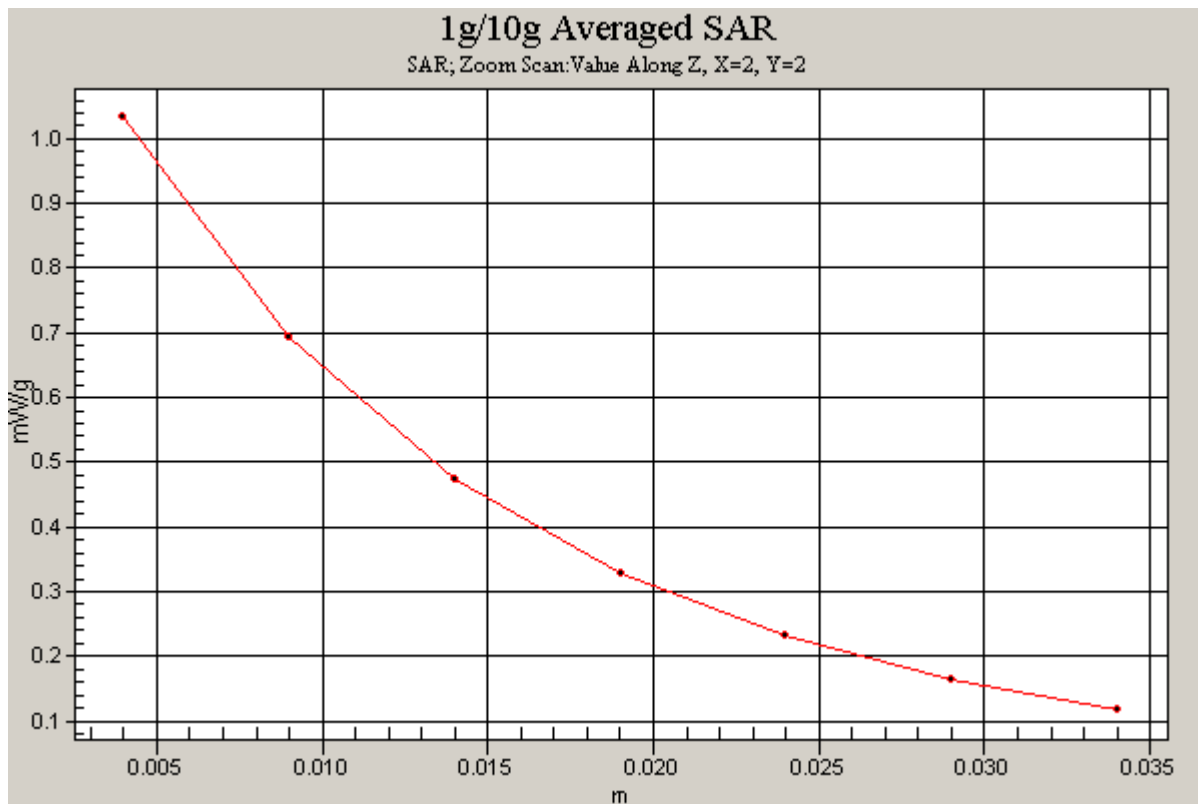
Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Input Power = 20.0 dBm (100 mW)

SAR(1 g) = 0.955 mW/g; SAR(10 g) = 0.623 mW/g

Deviation = 0.95 %



PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d026

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium: 835 Head Medium parameters used:

$f = 835 \text{ MHz}$; $\sigma = 0.927 \text{ mho/m}$; $\epsilon_r = 42.5$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 03-19-2012; Ambient Temp: 24.7°C; Tissue Temp: 22.9°C

Probe: ES3DV3 - SN3258; ConvF(6.01, 6.01, 6.01); Calibrated: 2/21/2012

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1272; Calibrated: 1/18/2012

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

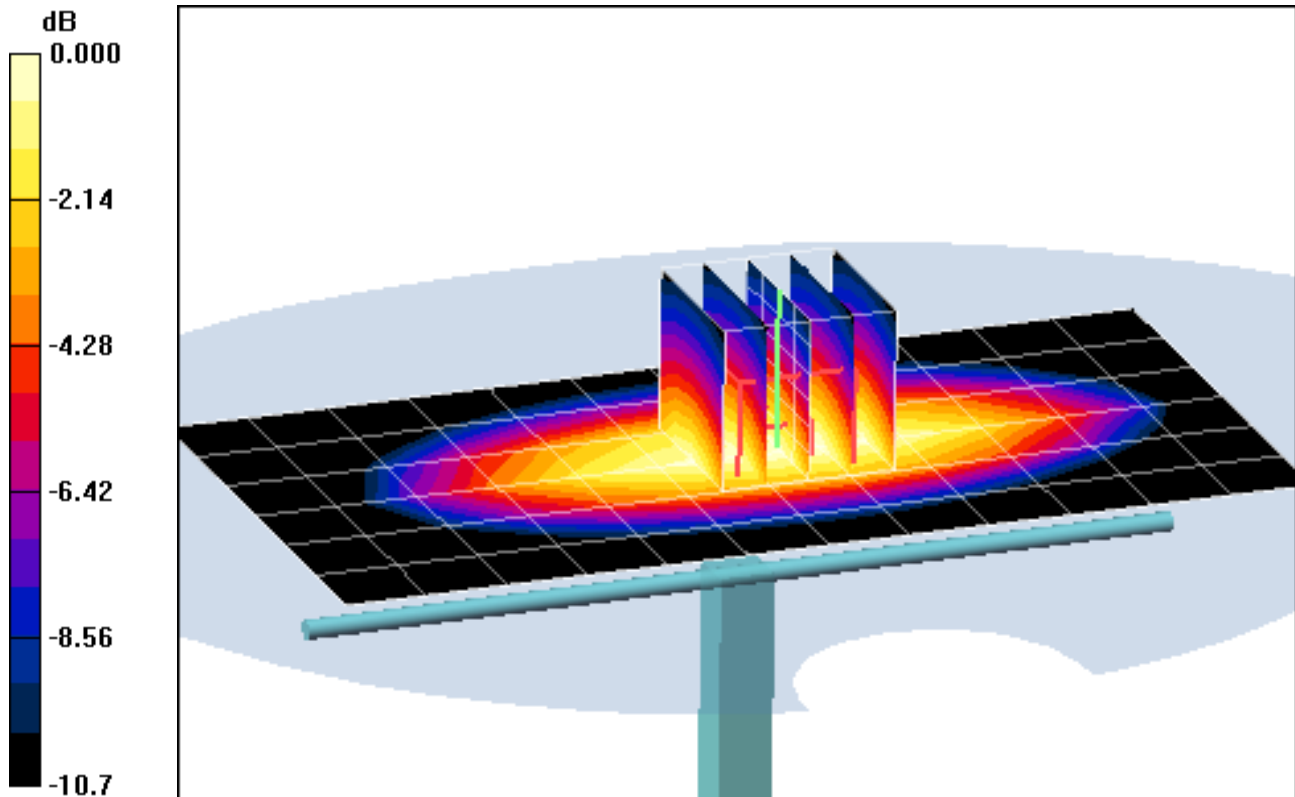
Area Scan (7x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Input Power = 20 dBm (100 mW)

SAR(1 g) = 1.01 mW/g; SAR(10 g) = 0.658 mW/g

Deviation = 6.77%



0 dB = 1.09mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d026

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium: 835 Head Medium parameters used:

$f = 835 \text{ MHz}$; $\sigma = 0.927 \text{ mho/m}$; $\epsilon_r = 42.5$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 03-19-2012; Ambient Temp: 24.7°C; Tissue Temp: 22.9°C

Probe: ES3DV3 - SN3258; ConvF(6.01, 6.01, 6.01); Calibrated: 2/21/2012

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1272; Calibrated: 1/18/2012

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

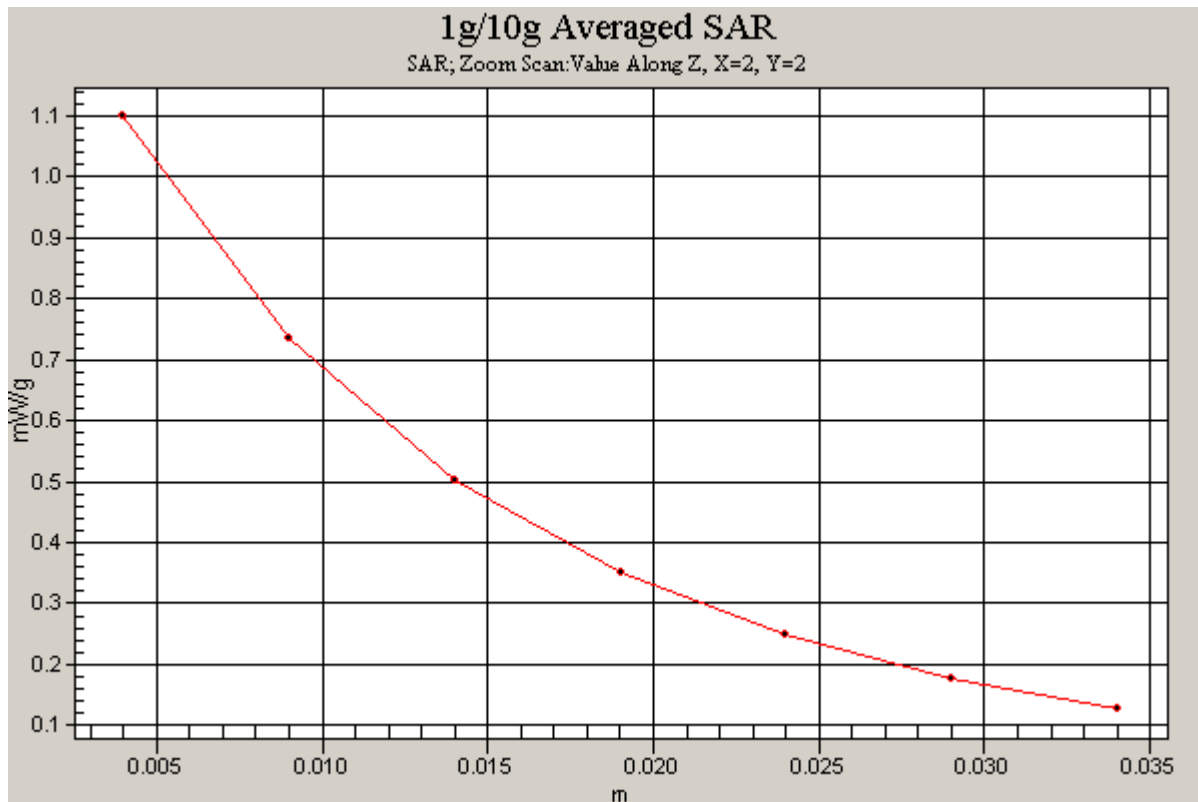
Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Input Power = 20 dBm (100 mW)

SAR(1 g) = 1.01 mW/g; SAR(10 g) = 0.658 mW/g

Deviation = 6.77%



PCTEST ENGINEERING LABORATORY, INC.

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

Communication System: CW; Frequency: 1750 MHz; Duty Cycle: 1:1

Medium: 1750 Head; Medium parameters used:

$f = 1750 \text{ MHz}$; $\sigma = 1.354 \text{ mho/m}$; $\epsilon_r = 38.62$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-16-2012; Ambient Temp: 23.8°C; Tissue Temp: 22.6°C

Probe: ES3DV3 - SN3263; ConvF(5.38, 5.38, 5.38); Calibrated: 11/18/2011

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 2/20/2012

Phantom: SAM v5.0 front; Type: SAM v5.0; Serial: TP-1646

Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

1750 MHz System Verification

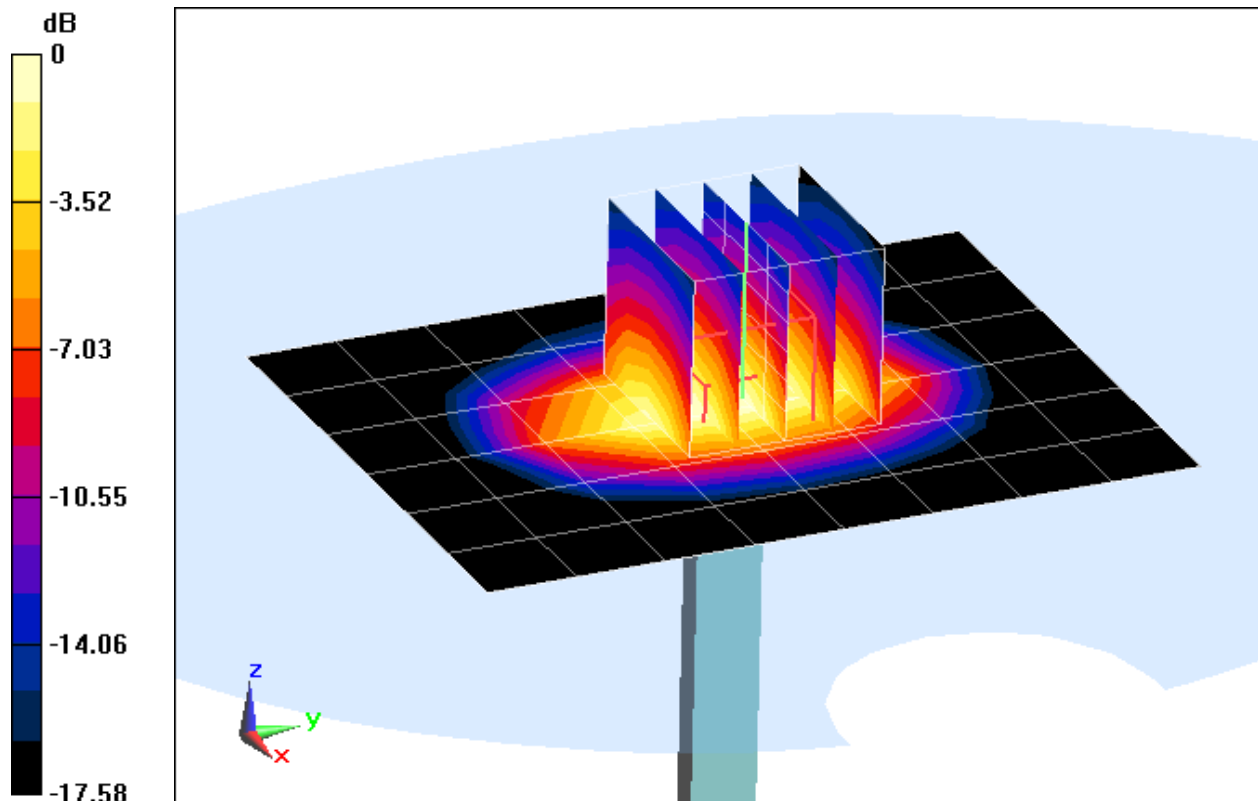
Area Scan (7x9x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Input Power = 20.0 dBm (100 mW)

SAR(1 g) = 3.64 mW/g; SAR(10 g) = 1.92 mW/g

Deviation = -1.62%



0 dB = 3.980mW/g = 12.00 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

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

Communication System: CW; Frequency: 1750 MHz; Duty Cycle: 1:1

Medium: 1750 Head; Medium parameters used:

$f = 1750 \text{ MHz}$; $\sigma = 1.354 \text{ mho/m}$; $\epsilon_r = 38.62$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-16-2012; Ambient Temp: 23.8°C; Tissue Temp: 22.6°C

Probe: ES3DV3 - SN3263; ConvF(5.38, 5.38, 5.38); Calibrated: 11/18/2011

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn649; Calibrated: 2/20/2012

Phantom: SAM v5.0 front; Type: SAM v5.0; Serial: TP-1646

Measurement SW: DASY52, Version 52.8 (0);SEMCAD X Version 14.6.4 (4989)

1750 MHz System Verification

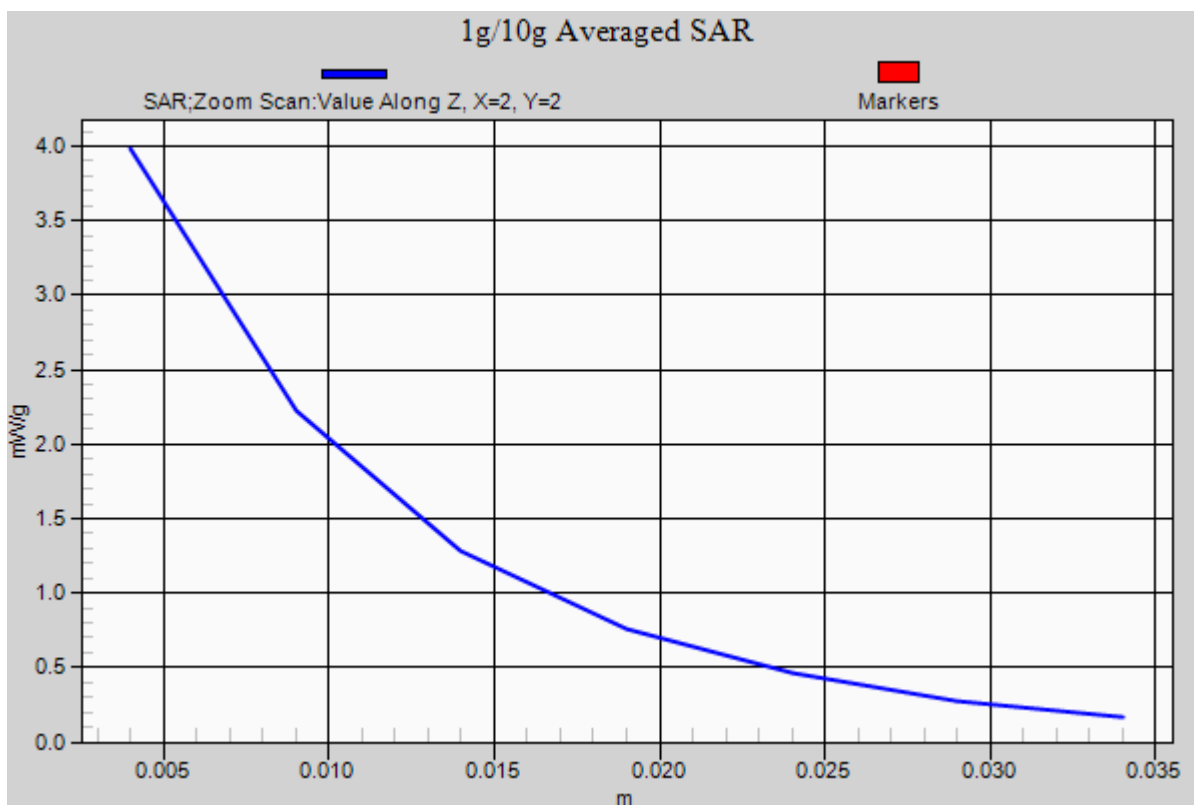
Area Scan (7x9x1): Measurement grid: dx=15mm, dy=15mm

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Input Power = 20.0 dBm (100 mW)

SAR(1 g) = 3.64 mW/g; SAR(10 g) = 1.92 mW/g

Deviation = -1.62%



PCTEST ENGINEERING LABORATORY, INC.

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

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: 1900 Head; Medium parameters used (interpolated):

$f = 1900 \text{ MHz}$; $\sigma = 1.41 \text{ mho/m}$; $\epsilon_r = 41.093$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-14-2012; Ambient Temp: 23.7°C; Tissue Temp: 22.4°C

Probe: EX3DV4 - SN3561; ConvF(7.16, 7.16, 7.16); Calibrated: 7/27/2011

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE3 Sn455; Calibrated: 11/9/2011

Phantom: SAM V5.0 Right; Type: SAM v5.0; Serial: 1647

Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

1900 MHz System Verification

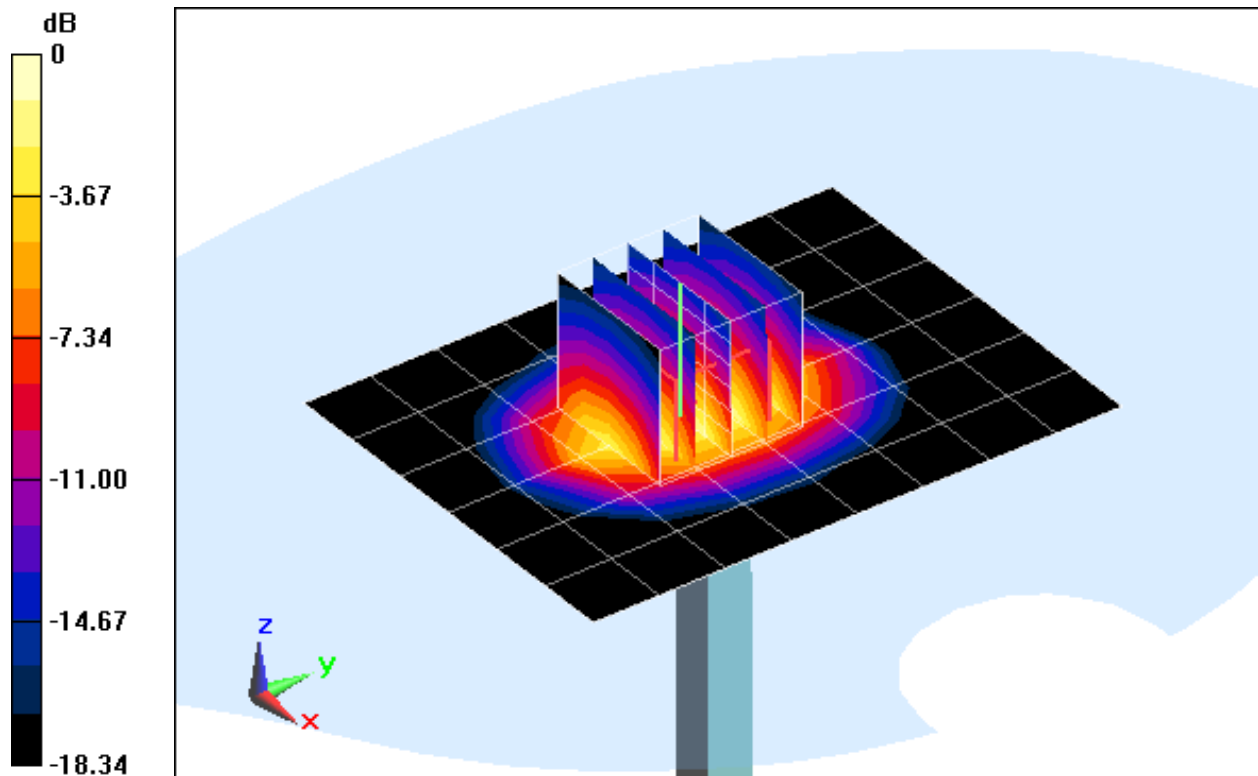
Area Scan (7x9x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Input Power = 20.0 dBm (100 mW)

SAR(1 g) = 4.12 mW/g; SAR(10 g) = 2.12 mW/g

Deviation = 3.26%



0 dB = 4.580mW/g = 13.22 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

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

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: 1900 Head; Medium parameters used (interpolated):

$f = 1900 \text{ MHz}$; $\sigma = 1.41 \text{ mho/m}$; $\epsilon_r = 41.093$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-14-2012; Ambient Temp: 23.7°C; Tissue Temp: 22.4°C

Probe: EX3DV4 - SN3561; ConvF(7.16, 7.16, 7.16); Calibrated: 7/27/2011

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE3 Sn455; Calibrated: 11/9/2011

Phantom: SAM V5.0 Right; Type: SAM v5.0; Serial: 1647

Measurement SW: DASY52, Version 52.8 (0);SEMCAD X Version 14.6.4 (4989)

1900 MHz System Verification

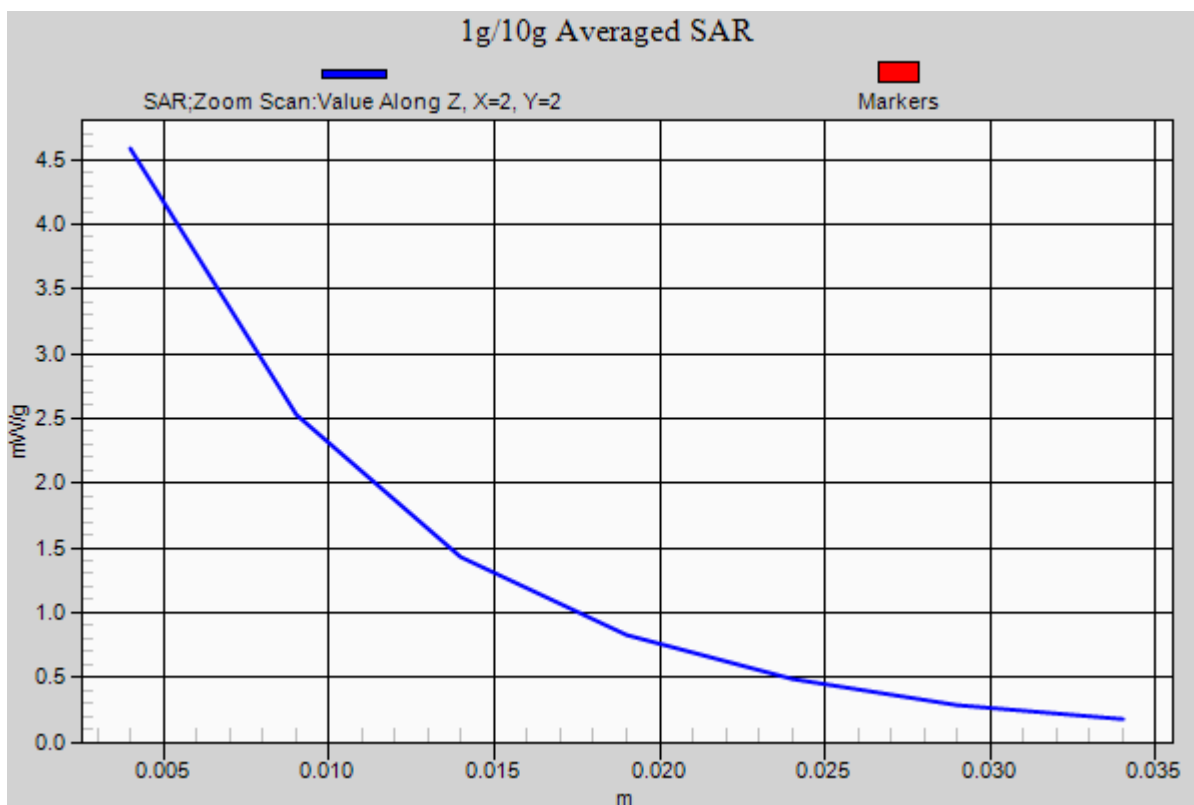
Area Scan (7x9x1): Measurement grid: dx=15mm, dy=15mm

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Input Power = 20.0 dBm (100 mW)

SAR(1 g) = 4.12 mW/g; SAR(10 g) = 2.12 mW/g

Deviation = 3.26%



PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d026

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium: 835 Body Medium parameters used:

$f = 835 \text{ MHz}$; $\sigma = 1.01 \text{ mho/m}$; $\epsilon_r = 53.4$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 03-17-2012; Ambient Temp: 24.5°C; Tissue Temp: 23.0°C

Probe: ES3DV3 - SN3258; ConvF(6.06, 6.06, 6.06); Calibrated: 2/21/2012

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1272; Calibrated: 1/18/2012

Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

835MHz System Verification

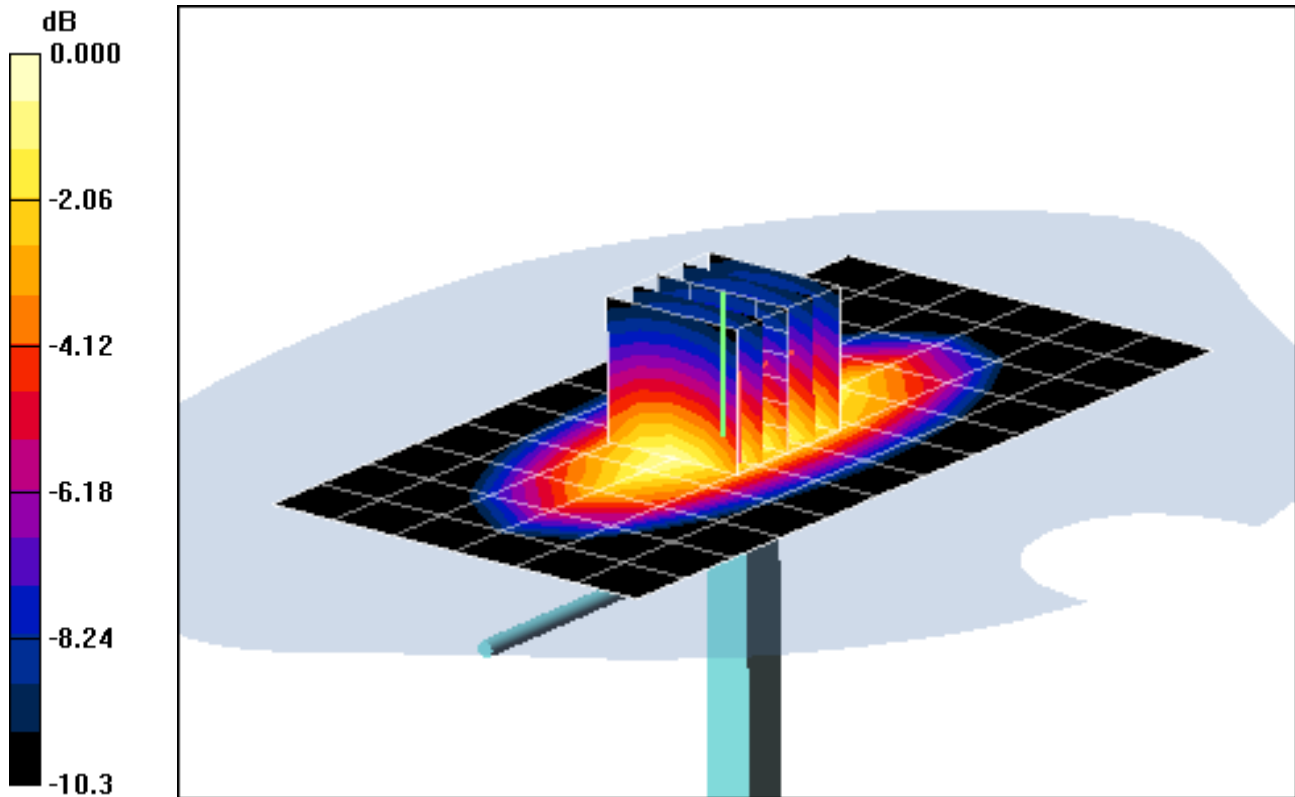
Area Scan (7x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Input Power: 20.0 dBm (100 mW)

SAR(1 g) = 1.01 mW/g; SAR(10 g) = 0.663 mW/g

Deviation: 4.55%



0 dB = 1.09mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d026

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium: 835 Body Medium parameters used:

$f = 835 \text{ MHz}$; $\sigma = 1.01 \text{ mho/m}$; $\epsilon_r = 53.4$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 03-17-2012; Ambient Temp: 24.5°C; Tissue Temp: 23.0°C

Probe: ES3DV3 - SN3258; ConvF(6.06, 6.06, 6.06); Calibrated: 2/21/2012

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1272; Calibrated: 1/18/2012

Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

835MHz System Verification

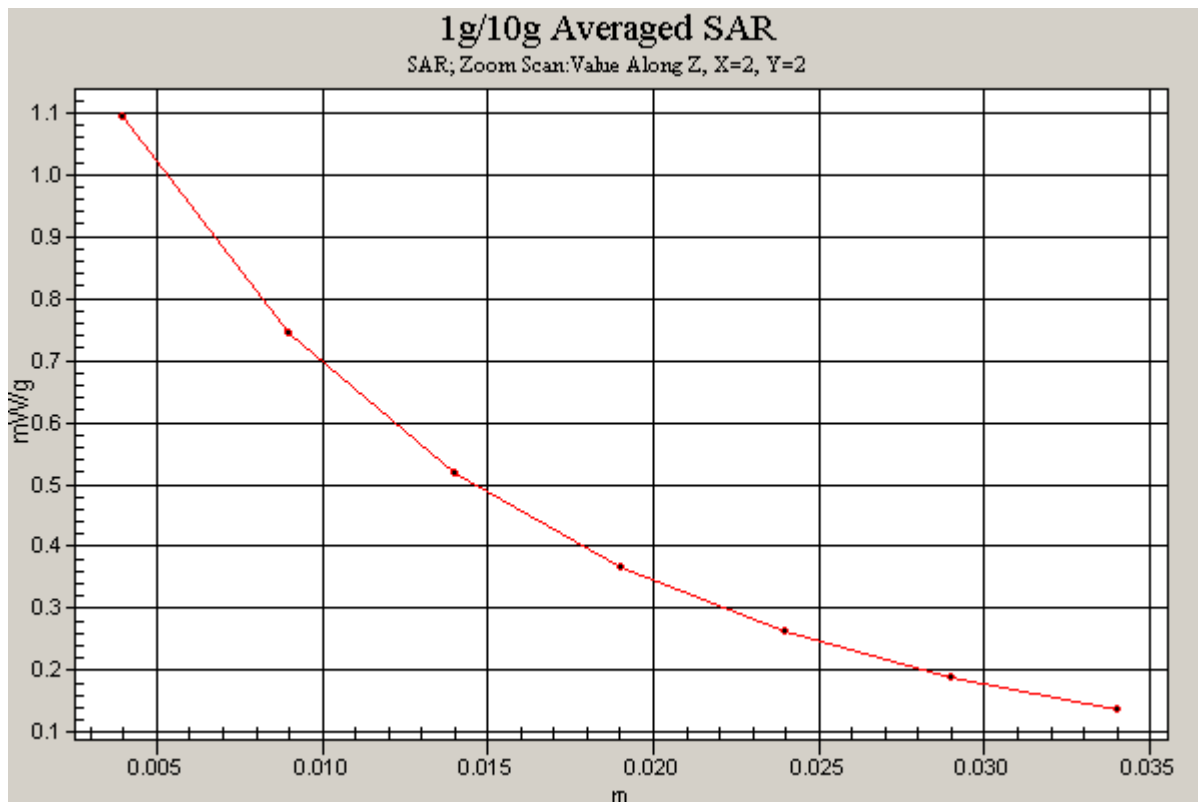
Area Scan (7x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Input Power: 20.0 dBm (100 mW)

SAR(1 g) = 1.01 mW/g; SAR(10 g) = 0.663 mW/g

Deviation: 4.55%



PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d026

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium: 835 Body Medium parameters used:

$f = 835 \text{ MHz}$; $\sigma = 0.969 \text{ mho/m}$; $\epsilon_r = 53.6$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 03-23-2012; Ambient Temp: 24.0°C; Tissue Temp: 23.3°C

Probe: ES3DV3 - SN3258; ConvF(6.06, 6.06, 6.06); Calibrated: 2/21/2012

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1272; Calibrated: 1/18/2012

Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

835MHz System Verification

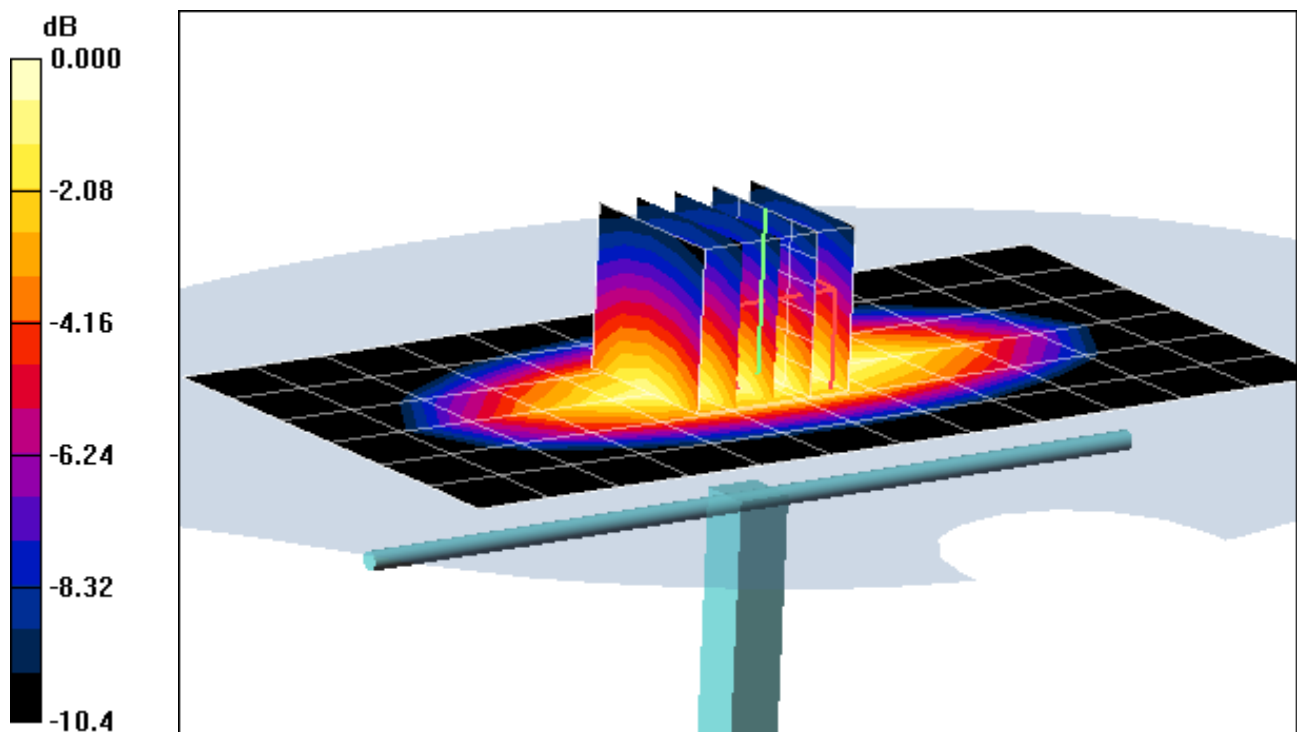
Area Scan (7x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Input Power = 20 dBm (100 mW)

SAR(1 g) = 0.984 mW/g; SAR(10 g) = 0.649 mW/g

Deviation = 1.86%



0 dB = 1.07mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d026

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium: 835 Body Medium parameters used:

$f = 835 \text{ MHz}$; $\sigma = 0.969 \text{ mho/m}$; $\epsilon_r = 53.6$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 03-23-2012; Ambient Temp: 24.0°C; Tissue Temp: 23.3°C

Probe: ES3DV3 - SN3258; ConvF(6.06, 6.06, 6.06); Calibrated: 2/21/2012

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1272; Calibrated: 1/18/2012

Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

835MHz System Verification

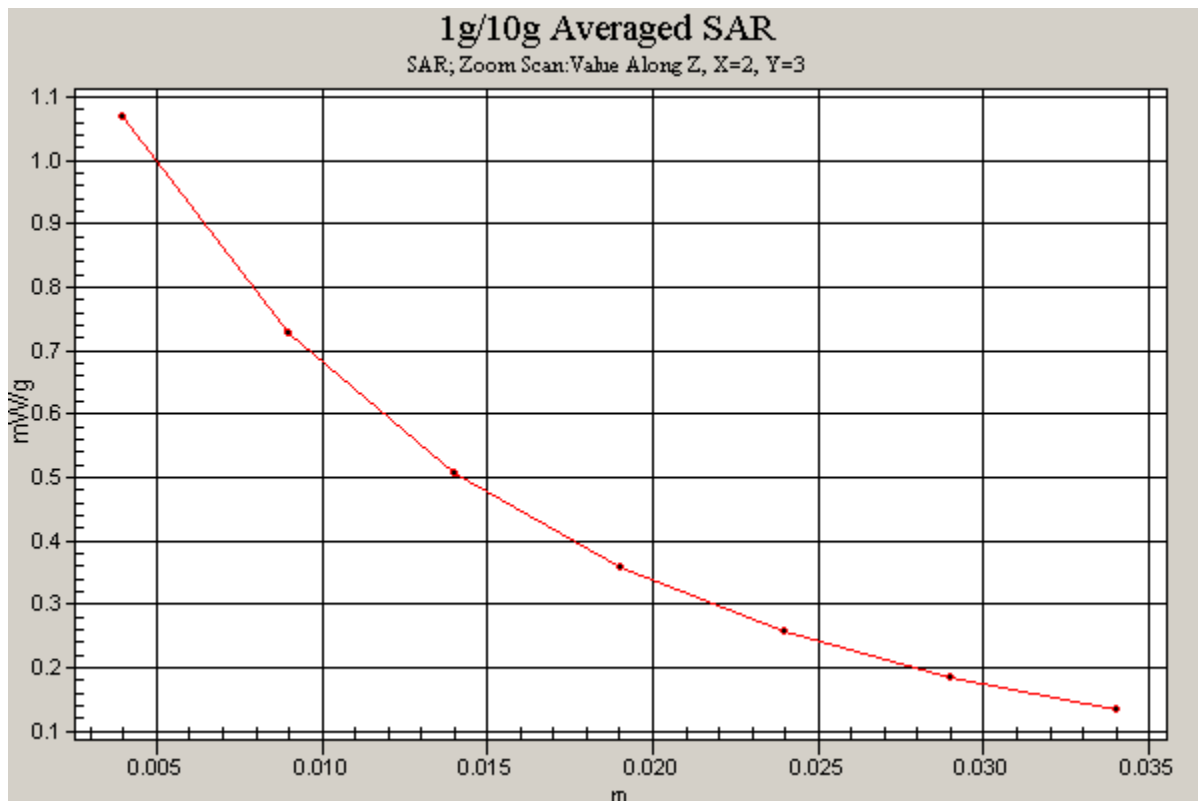
Area Scan (7x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Input Power = 20 dBm (100 mW)

SAR(1 g) = 0.984 mW/g; SAR(10 g) = 0.649 mW/g

Deviation = 1.86%



PCTEST ENGINEERING LABORATORY, INC.

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

Communication System: CW; Frequency: 1750 MHz; Duty Cycle: 1:1

Medium: 1750 Body Medium parameters used:

$f = 1750 \text{ MHz}$; $\sigma = 1.464 \text{ mho/m}$; $\epsilon_r = 53.05$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Center Section; Space: 1.0 cm

Test Date: 03-16-2012; Ambient Temp: 24.4°C; Tissue Temp: 22.5°C

Probe: EX3DV4 - SN3561; ConvF(7.14, 7.14, 7.14); Calibrated: 7/27/2011

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE3 Sn455; Calibrated: 11/9/2011

Phantom: Triple Flat Phantom 5.1; Type: Triple Flat Phantom 5.1; Serial: 1001

Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

1750 MHz System Verification

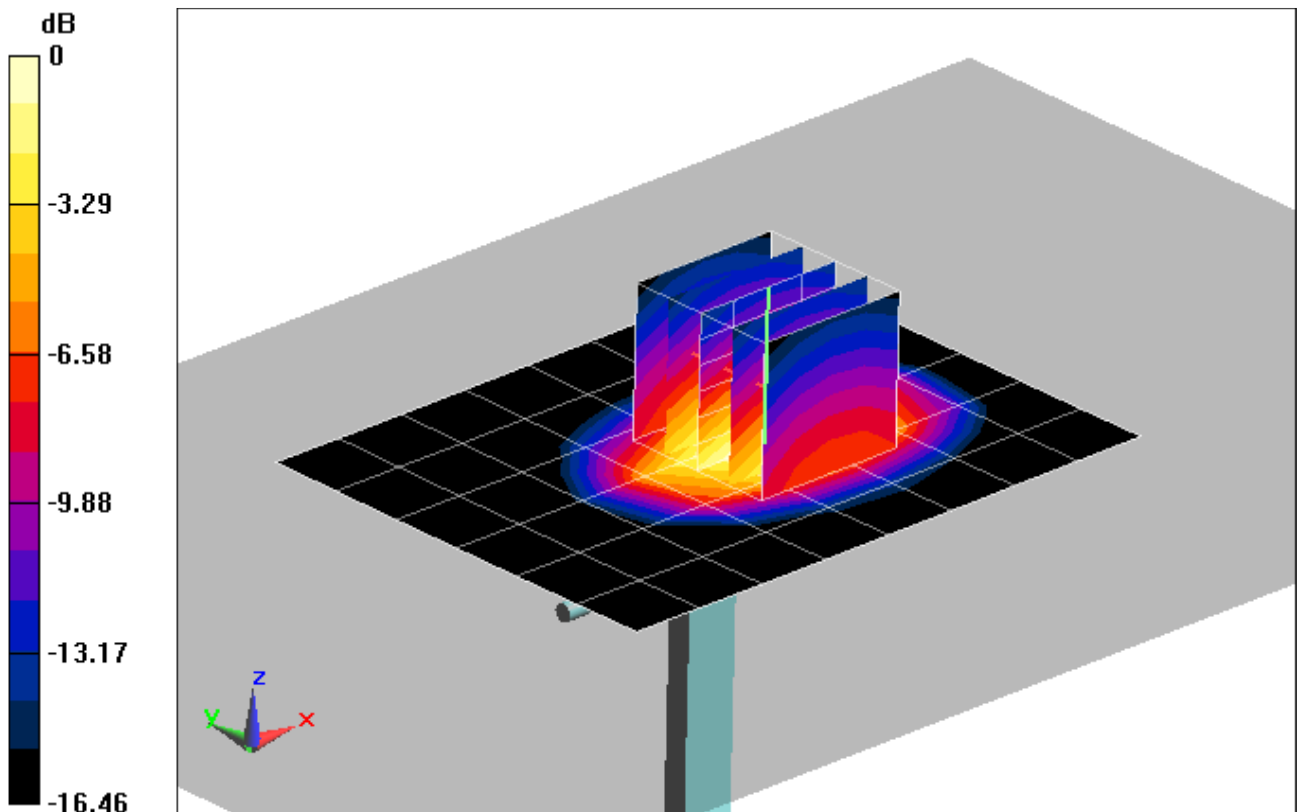
Area Scan (7x9x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Input Power = 20.0 dBm (100 mW)

SAR(1 g) = 3.61 mW/g; SAR(10 g) = 1.93 mW/g

Deviation = -2.43 %



PCTEST ENGINEERING LABORATORY, INC.

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

Communication System: CW; Frequency: 1750 MHz; Duty Cycle: 1:1

Medium: 1750 Body Medium parameters used:

$f = 1750 \text{ MHz}$; $\sigma = 1.464 \text{ mho/m}$; $\epsilon_r = 53.05$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Center Section; Space: 1.0 cm

Test Date: 03-16-2012; Ambient Temp: 24.4°C; Tissue Temp: 22.5°C

Probe: EX3DV4 - SN3561; ConvF(7.14, 7.14, 7.14); Calibrated: 7/27/2011

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE3 Sn455; Calibrated: 11/9/2011

Phantom: Triple Flat Phantom 5.1; Type: Triple Flat Phantom 5.1; Serial: 1001

Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.4 (4989)

1750 MHz System Verification

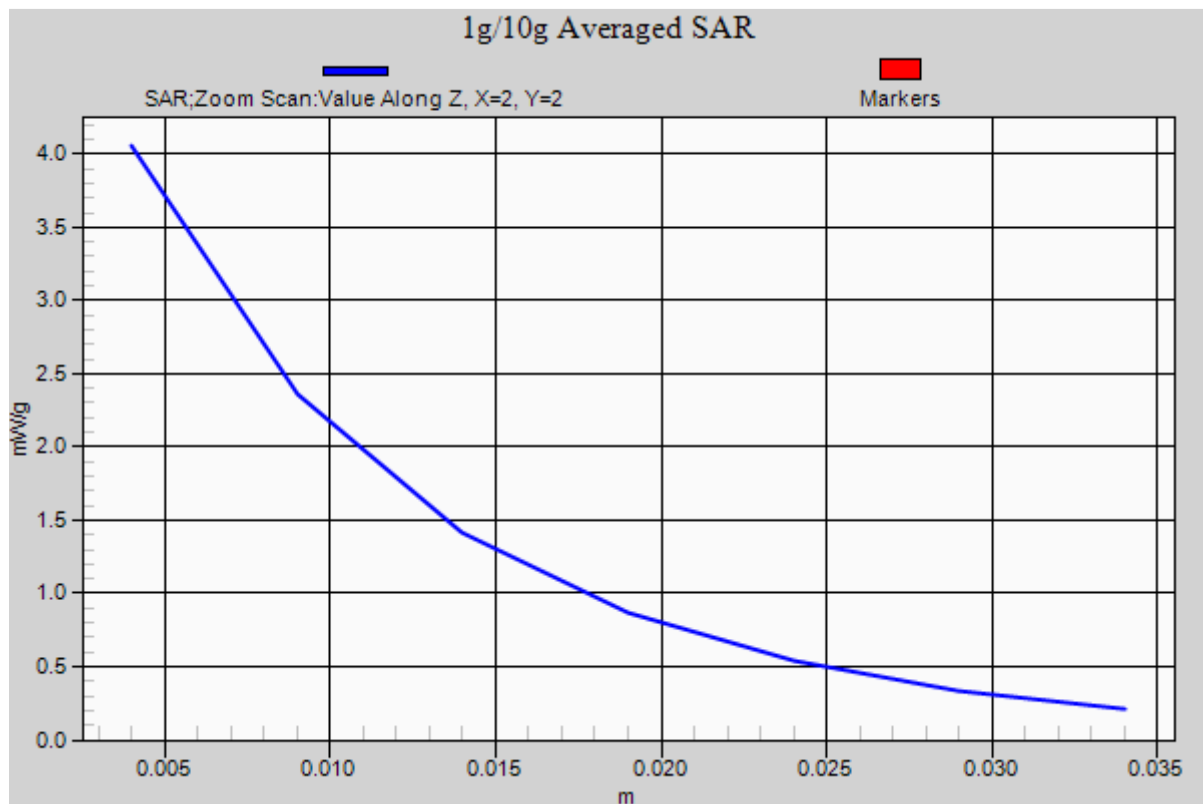
Area Scan (7x9x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Input Power = 20.0 dBm (100 mW)

SAR(1 g) = 3.61 mW/g; SAR(10 g) = 1.93 mW/g

Deviation = -2.43 %



PCTEST ENGINEERING LABORATORY, INC.

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

Communication System: CW; Frequency: 1750 MHz; Duty Cycle: 1:1

Medium: 1750 Body Medium parameters used:

$f = 1750 \text{ MHz}$; $\sigma = 1.5 \text{ mho/m}$; $\epsilon_r = 52.2$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-26-2012; Ambient Temp: 23.0°C; Tissue Temp: 21.9°C

Probe: ES3DV3 - SN3258; ConvF(4.99, 4.99, 4.99); Calibrated: 2/21/2012

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1272; Calibrated: 1/18/2012

Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

1750 MHz System Verification

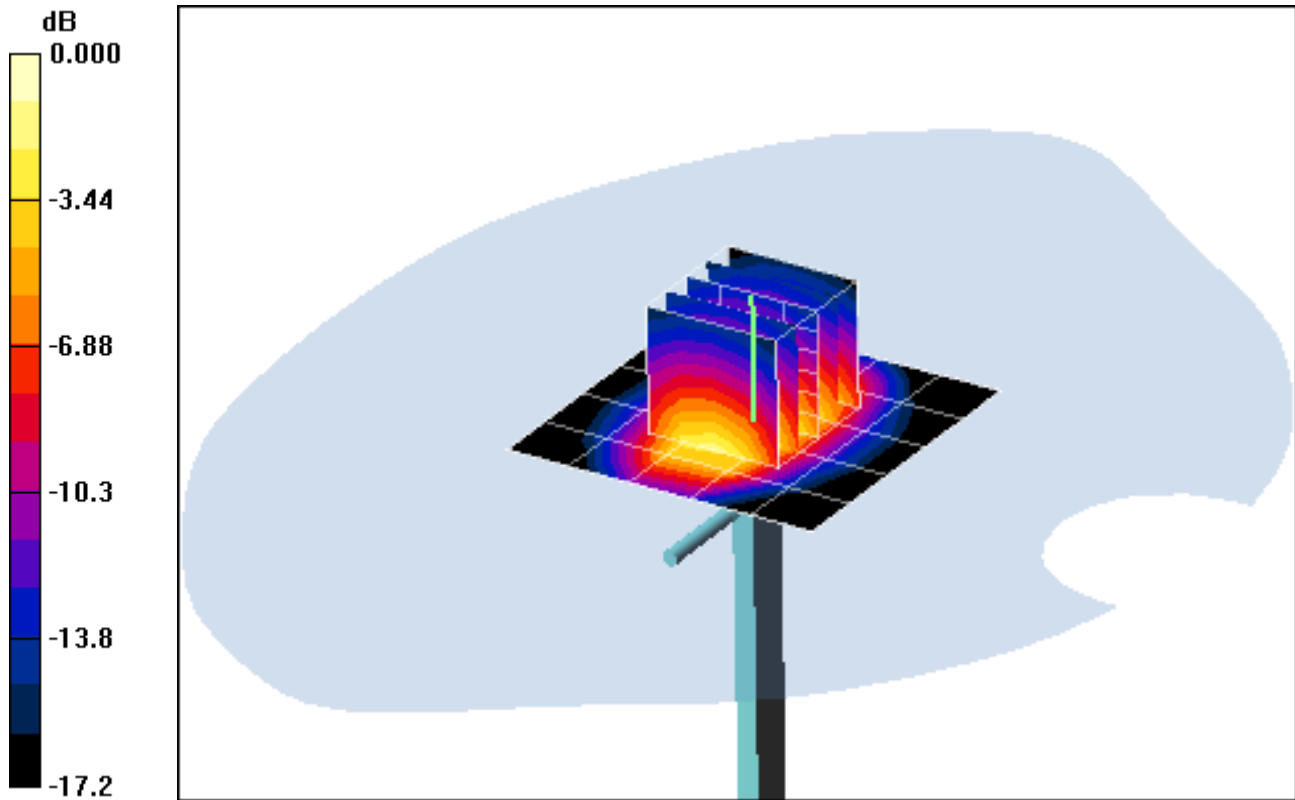
Area Scan (6x6x1): Measurement grid: dx=15mm, dy=15mm

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Input Power: 20.0 dBm (100 mW)

SAR(1 g) = 3.89 mW/g; SAR(10 g) = 2.05 mW/g

Deviation: 5.14%



0 dB = 4.39mW/g

PCTEST ENGINEERING LABORATORY, INC.

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

Communication System: CW; Frequency: 1750 MHz; Duty Cycle: 1:1

Medium: 1750 Body Medium parameters used:

$f = 1750 \text{ MHz}$; $\sigma = 1.5 \text{ mho/m}$; $\epsilon_r = 52.2$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-26-2012; Ambient Temp: 23.0°C; Tissue Temp: 21.9°C

Probe: ES3DV3 - SN3258; ConvF(4.99, 4.99, 4.99); Calibrated: 2/21/2012

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1272; Calibrated: 1/18/2012

Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

1750 MHz System Verification

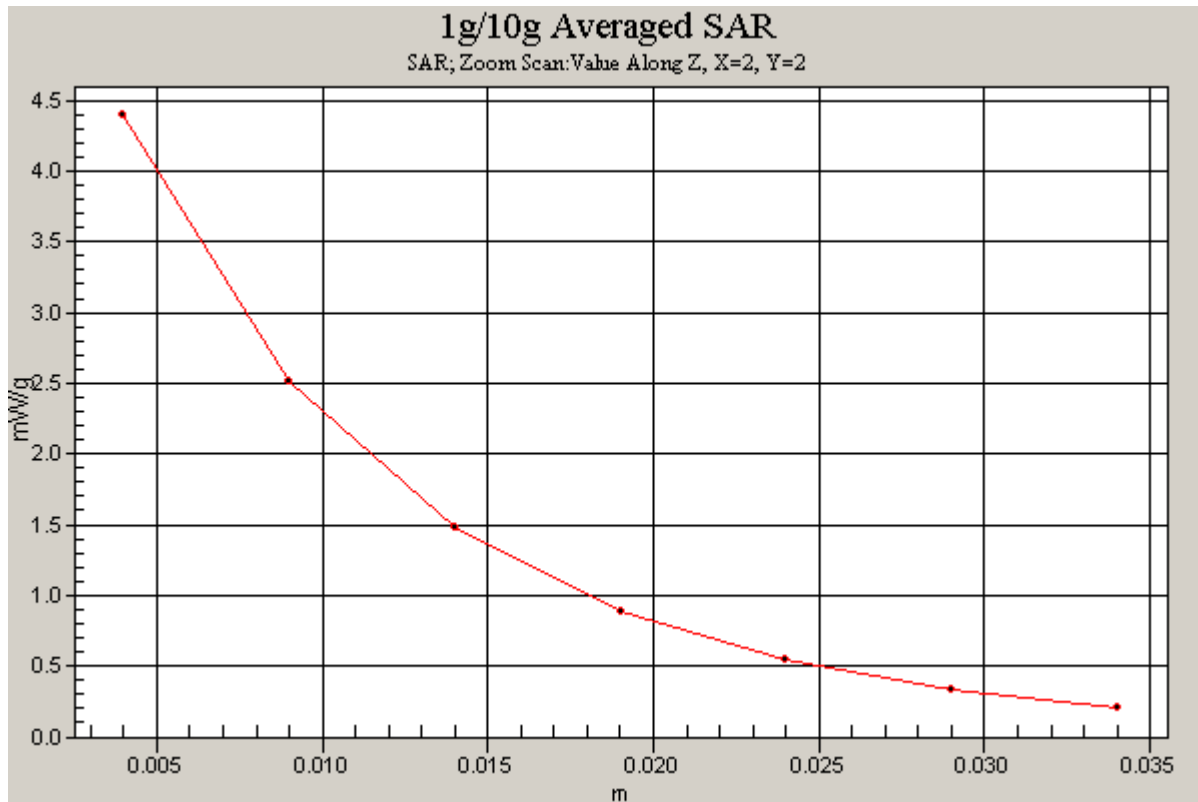
Area Scan (6x6x1): Measurement grid: dx=15mm, dy=15mm

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Input Power: 20.0 dBm (100 mW)

SAR(1 g) = 3.89 mW/g; SAR(10 g) = 2.05 mW/g

Deviation: 5.14%



PCTEST ENGINEERING LABORATORY, INC.

DUT: SAR Dipole 1900 MHz; Type: D1900V2; Serial: 5d141

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: 1900 Body; Medium parameters used (interpolated):

$f = 1900 \text{ MHz}$; $\sigma = 1.56 \text{ mho/m}$; $\epsilon_r = 50.88$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-14-2012; Ambient Temp: 23.6°C; Tissue Temp: 22.5°C

Probe: ES3DV2 - SN3022; ConvF(4.41, 4.41, 4.41); Calibrated: 8/25/2011

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, Version 4.7 (80);SEMCAD X Version 14.6.4 (4989)

1900MHz System Verification

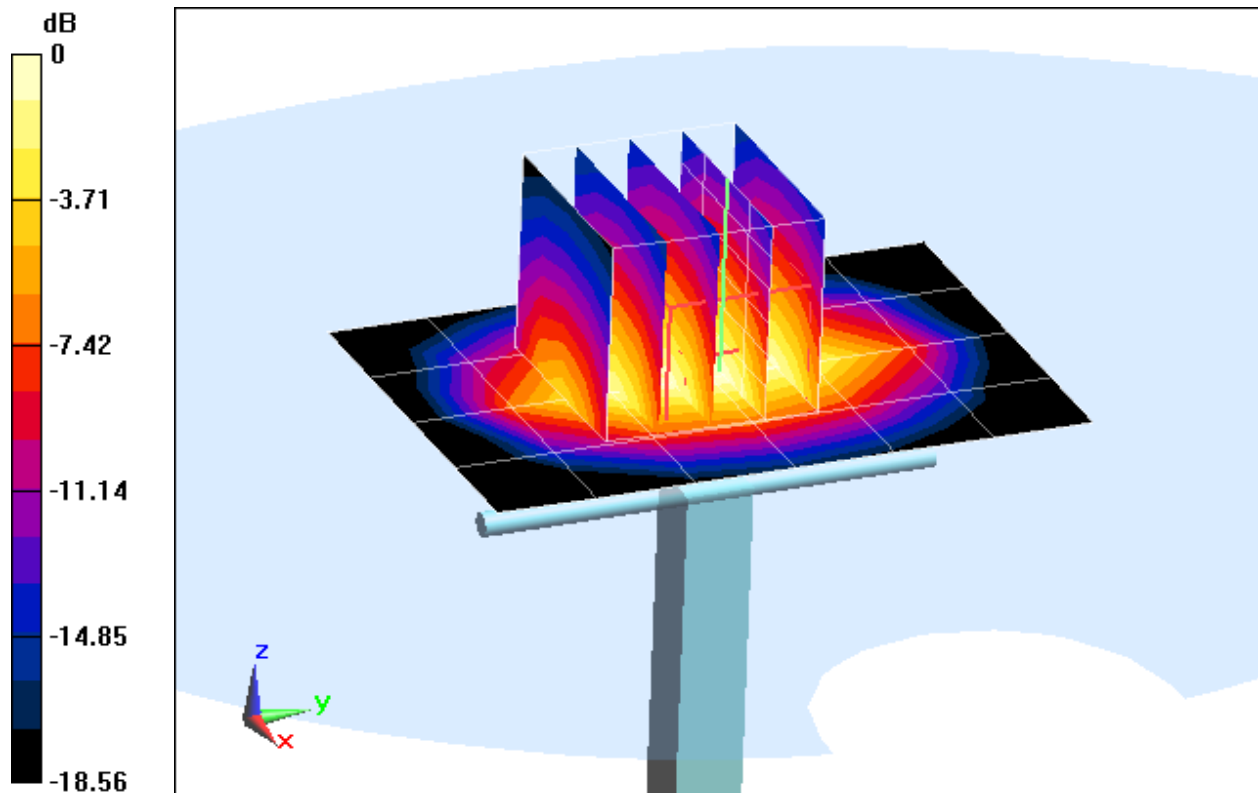
Area Scan (5x7x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Input Power = 16.0 dBm (40 mW)

SAR(1 g) = 1.7 mW/g; SAR(10 g) = 0.899 mW/g

Deviation = 2.66%



0 dB = 1.900mW/g = 5.58 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: SAR Dipole 1900 MHz; Type: D1900V2; Serial: 5d141

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: 1900 Body; Medium parameters used (interpolated):

$f = 1900 \text{ MHz}$; $\sigma = 1.56 \text{ mho/m}$; $\epsilon_r = 50.88$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-14-2012; Ambient Temp: 23.6°C; Tissue Temp: 22.5°C

Probe: ES3DV2 - SN3022; ConvF(4.41, 4.41, 4.41); Calibrated: 8/25/2011

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, Version 4.7 (80); SEMCAD X Version 14.6.4 (4989)

1900MHz System Verification

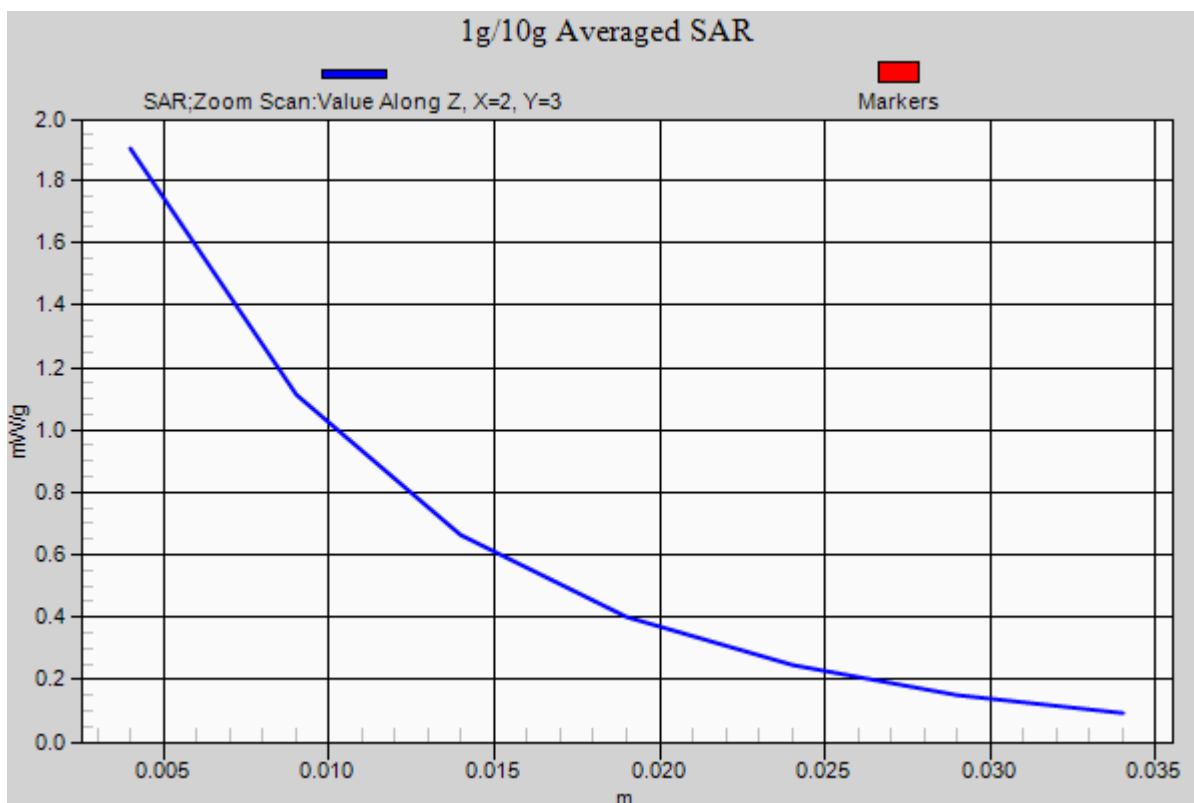
Area Scan (5x7x1): Measurement grid: dx=15mm, dy=15mm

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Input Power = 16.0 dBm (40 mW)

SAR(1 g) = 1.7 mW/g; SAR(10 g) = 0.899 mW/g

Deviation = 2.66%



PCTEST ENGINEERING LABORATORY, INC.

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

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: 1900 Body Medium parameters used (interpolated):

$f = 1900 \text{ MHz}$; $\sigma = 1.49 \text{ mho/m}$; $\epsilon_r = 51.3$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-24-2012; Ambient Temp: 24.0°C; Tissue Temp: 23.3°C

Probe: ES3DV3 - SN3258; ConvF(4.7, 4.7, 4.7); Calibrated: 2/21/2012

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1272; Calibrated: 1/18/2012

Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

1900MHz System Verification

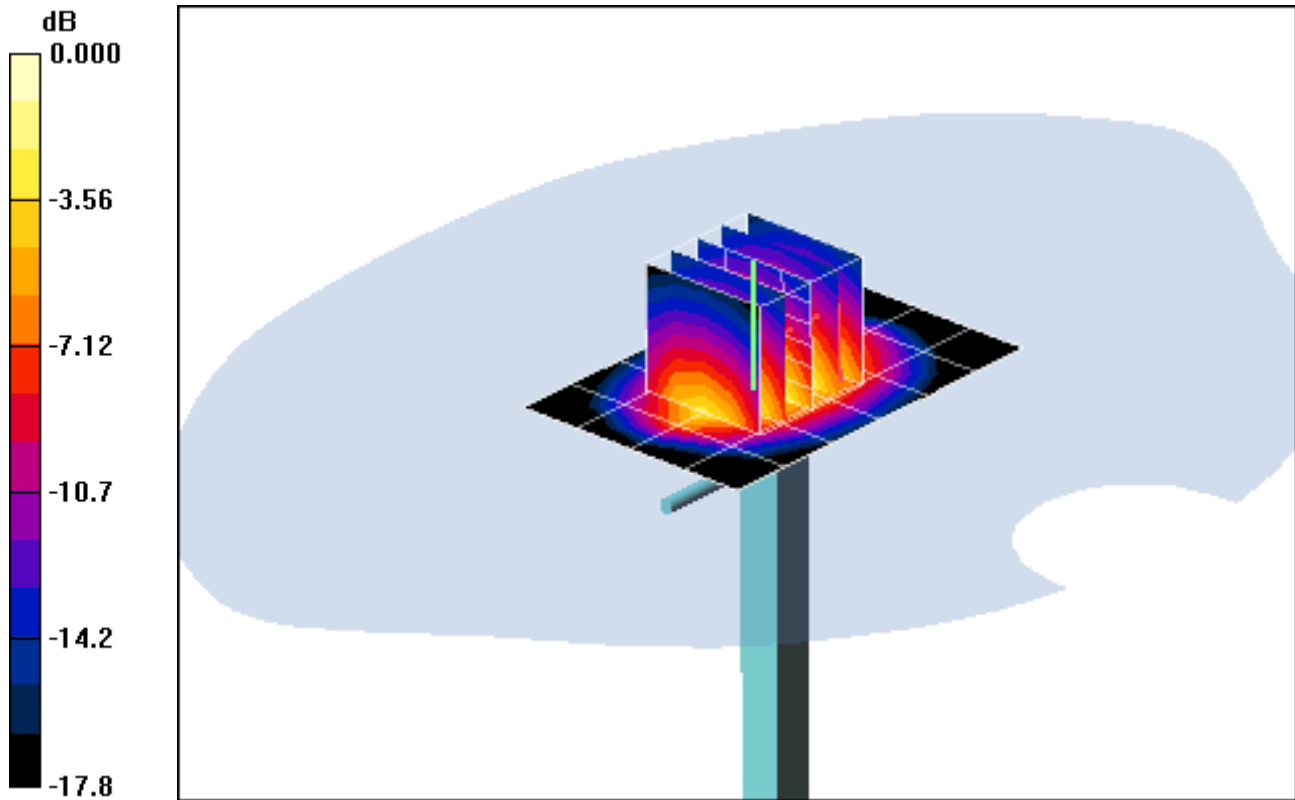
Area Scan (5x7x1): Measurement grid: dx=15mm, dy=15mm

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Input Power: 20.0 dBm (100 mW)

SAR(1 g) = 4.11 mW/g; SAR(10 g) = 2.15 mW/g

Deviation: 5.66%



0 dB = 4.62mW/g

PCTEST ENGINEERING LABORATORY, INC.

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

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: 1900 Body Medium parameters used (interpolated):

$f = 1900 \text{ MHz}$; $\sigma = 1.49 \text{ mho/m}$; $\epsilon_r = 51.3$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-24-2012; Ambient Temp: 24.0°C; Tissue Temp: 23.3°C

Probe: ES3DV3 - SN3258; ConvF(4.7, 4.7, 4.7); Calibrated: 2/21/2012

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1272; Calibrated: 1/18/2012

Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1406

Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

1900MHz System Verification

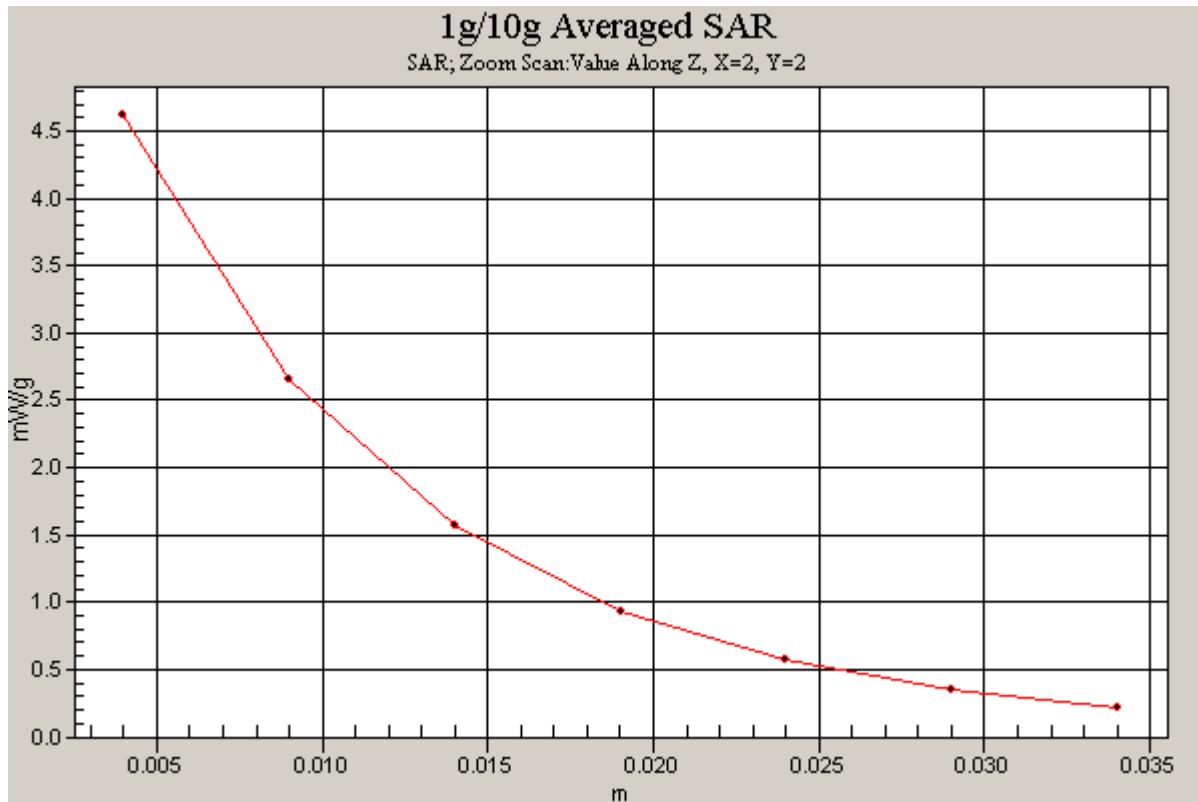
Area Scan (5x7x1): Measurement grid: dx=15mm, dy=15mm

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Input Power: 20.0 dBm (100 mW)

SAR(1 g) = 4.11 mW/g; SAR(10 g) = 2.15 mW/g

Deviation: 5.66%



PCTEST ENGINEERING LABORATORY, INC.

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

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: 2450 Body Medium parameters used:

$f = 2450 \text{ MHz}$; $\sigma = 2.044 \text{ mho/m}$; $\epsilon_r = 51.11$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-19-2012; Ambient Temp: 24.1°C; Tissue Temp: 23.2°C

Probe: ES3DV2 - SN3022; ConvF(4.01, 4.01, 4.01); Calibrated: 8/25/2011

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn859; Calibrated: 5/19/2011

Phantom: SAM with CRP; Type: SAM; Serial: TP1375

Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.4 (4989)

2450MHz System Verification

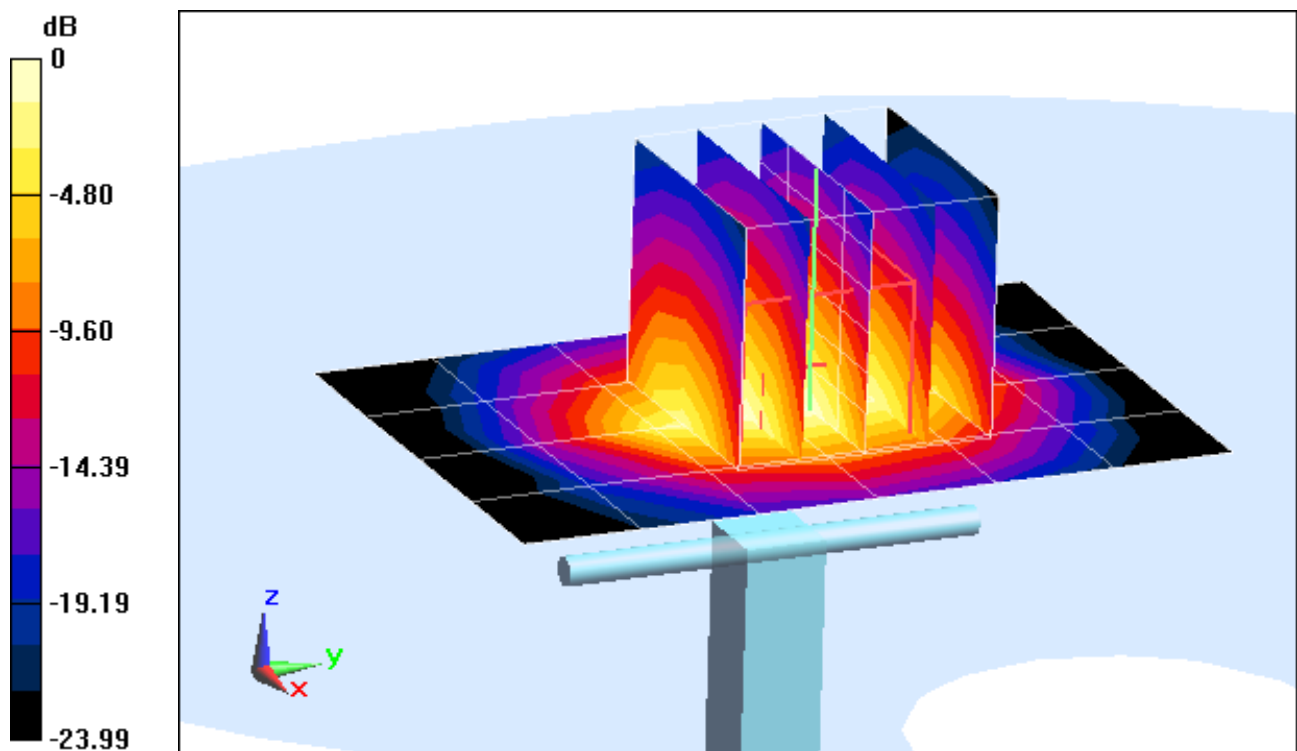
Area Scan (5x7x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Input Power = 16 dBm (40 mW)

SAR(1 g) = 2.15 mW/g; SAR(10 g) = 0.979 mW/g

Deviation = 4.78%



0 dB = 2.830mW/g = 9.04 dB mW/g

PCTEST ENGINEERING LABORATORY, INC.

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

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: 2450 Body Medium parameters used:

$f = 2450 \text{ MHz}$; $\sigma = 2.044 \text{ mho/m}$; $\epsilon_r = 51.11$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-19-2012; Ambient Temp: 24.1°C; Tissue Temp: 23.2°C

Probe: ES3DV2 - SN3022; ConvF(4.01, 4.01, 4.01); Calibrated: 8/25/2011

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn859; Calibrated: 5/19/2011

Phantom: SAM with CRP; Type: SAM; Serial: TP1375

Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.4 (4989)

2450MHz System Verification

Area Scan (5x7x1): Measurement grid: dx=15mm, dy=15mm

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Input Power = 16 dBm (40 mW)

SAR(1 g) = 2.15 mW/g; SAR(10 g) = 0.979 mW/g

Deviation = 4.78%

