



OET 65

TEST REPORT

Product Name	CDMA 1X-EVDO Digital Mobile Phone
Model	ZTE N762
FCC ID	Q78-ZTEN762
IC	5200A- ZTEN762
Client	ZTE CORPORATION

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GENERAL SUMMARY

Product Name	CDMA 1X-EVDO Digital Mobile Phone	Model	ZTE N762
FCC ID	Q78-ZTEN762	IC	5200A- ZTEN762
Report No.	RZA1110-1769SAR01R1		
Client	ZTE CORPORATION		
Manufacturer	ZTE CORPORATION		
Standard(s)	<p>IEEE Std C95.1, 1999: IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz.</p> <p>IEEE Std 1528™-2003: IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques.</p> <p>SUPPLEMENT C Edition 01-01 to OET BULLETIN 65 Edition 97-01 June 2001 including DA 02-1438 June 19, 2002: Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields Additional Information for Evaluation Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions.</p> <p>RSS-102 Issue 4 March 2010: Radio Frequency (RF) Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands).</p> <p>KDB941225 D01 SAR test for 3G devices v02: SAR Measurement Procedures CDMA 20001x RTT, 1x Ev-Do, WCDMA, HSDPA/HSPA</p>		
Conclusion	<p>This portable wireless equipment has been measured in all cases requested by the relevant standards. Test results in Chapter 7 of this test report are below limits specified in the relevant standards.</p> <p>General Judgment: Pass</p> <p style="text-align: right;">(Stamp) Date of issue: November 3rd, 2011</p>		
Comment	The test result only responds to the measured sample.		

Approved by 杨伟中
Director

Revised by 凌敏宝
SAR Manager

Performed by 张先金
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1. General Information

1.1. Notes of the Test Report

TA Technology (Shanghai) Co., Ltd. guarantees the reliability of the data presented in this test report, which is the results of measurements and tests performed for the items under test on the date and under the conditions stated in this test report and is based on the knowledge and technical facilities available at TA Technology (Shanghai) Co., Ltd. at the time of execution of the test.

TA Technology (Shanghai) Co., Ltd. is liable to the client for the maintenance by its personnel of the confidentiality of all information related to the items under test and the results of the test. This report only refers to the item that has undergone the test.

This report standalone dose not constitute or imply by its own an approval of the product by the certification Bodies or competent Authorities. This report cannot be used partially or in full for publicity and/or promotional purposes without previous written approval of **TA Technology (Shanghai) Co., Ltd.** and the Accreditation Bodies, if it applies.

If the electrical report is inconsistent with the printed one, it should be subject to the latter.

1.2. Testing Laboratory

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1.3. Applicant Information

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1.5. Information of EUT

General Information

Device Type:	Portable Device		
Exposure Category:	Uncontrolled Environment / General Population		
State of Sample:	Prototype Unit		
Product Name:	CDMA 1X-EVDO Digital Mobile Phone		
MEID:	A10000020AB6902		
Hardware Version:	c5mA		
Software Version:	N762V0.0.0B01		
Antenna Type:	Internal Antenna		
Device Operating Configurations:			
Supporting Mode(s):	CDMA Cellular; (tested) CDMA PCS; (tested) CDMA US PCS; (tested) 802.11b/g; (tested) Bluetooth; (untested)		
Test Modulation:	QPSK		
Power Class:	CDMA Cellular: Tested with Power Control All up bits		
	CDMA PCS: Tested with Power Control All up bits		
	CDMA US PCS: Tested with Power Control All up bits		
Operating Frequency Range(s):	Mode	Tx (MHz)	Rx (MHz)
	CDMA Cellular	824.7 ~ 848.31	869.7 ~ 893.31
	CDMA PCS	1851.25 ~ 1908.75	1931.25 ~ 1988.75
	CDMA US PCS	1911.25 ~ 1913.75	1991.25 ~ 1993.75
Test Channel: (Low - Middle - High)	1013 - 384 - 777	(CDMA Cellular)	(tested)
	25 - 600 - 1175	(CDMA PCS)	(tested)
	1225 - 1250 - 1275	(CDMA US PCS)	(tested)
	1- 6 - 11	(802.11b)	(tested)

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Auxiliary Equipment Details

AE1:Battery

Model: Li3715T42P3h415266

Manufacturer: ZTE CORPORATION

SN: 60201103250071457

Equipment Under Test (EUT) is a model of CDMA 1X-EVDO Digital Mobile Phone. The device has an internal antennas for CDMA Tx/Rx, BT/WIFI antenna that can be used for Tx/Rx and GPS antenna that can be used only for Rx. The detail about Mobile phone and Battery is in chapter 1.5 in this report. SAR is tested for CDMA Cellular, CDMA PCS, CDMA US PCS and WiFi function.

The sample under test was selected by the Client.

Components list please refer to documents of the manufacturer.

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1.6. The Maximum SAR_{1g} Values and Conducted Power of each tested Mode

Head Configuration

Mode	Channel	Position	SAR _{1g} (W/kg)
CDMA Cellular	Middle/384	Left, Cheek	1.030
CDMA PCS	Low/25	Left, Cheek	0.942
CDMA US PCS	Low/1225	Right, Cheek	0.644
802.11b	Middle/6	Right, Cheek	0.181

Body Worn Configuration

Mode	Channel	Separation distance	SAR _{1g} (W/kg)
CDMA Cellular	Middle/384	15mm	0.872
CDMA PCS	Middle/600	15mm	0.406
CDMA US PCS	Middle/1250	15mm	0.308
802.11b	High/11	15mm	0.049

The Maximum Power

Band	Maximum Conducted Power (dBm)
CDMA Cellular	24.07
CDMA PCS	23.54
CDMA US PCS	22.95
802.11b	13.98

Note: The detail Power refers to Table 5 (Power Measurement Results).

1.7. Test Date

The test is performed from October 26, 2011 to October 28, 2011.

2. Operational Conditions during Test

2.1. General Description of Test Procedures

A communication link is set up with a System Simulator (SS) by air link, and a call is established. The Absolute Radio Frequency Channel Number (ARFCN) is allocated to 1013, 384 and 777 respectively in the case of CDMA Cellular, to 25, 600 and 1175 respectively in the case of CDMA PCS, to 1225, 1250 and 1275 respectively in the case of CDMA US PCS. The EUT is commanded to operate at maximum transmitting power.

Connection to the EUT is established via air interface with E5515C, and the EUT is set to maximum output power by E5515C. Using the E5515C Power control is set "All Up Bits" in SAR of CDMA. The EUT battery must be fully charged and checked periodically during the test to ascertain uniform power output. The antenna connected to the output of the base station simulator shall be placed at least 50 cm away from the EUT. The signal transmitted by the simulator to the antenna feeding point shall be lower than the output power level of the EUT by at least 30 dB.

2.2. Information for the Measurement of CDMA 1x Devices

2.2.1. Output Power Verification

Test Parameter setup for maximum RF output power according to section 4.4.5 of 3GPP2

Parameter	Units	Value
I or	dBm/1.23MHz	-104
PilotE c /I or	dB	-7
TrafficE c /I or	dB	-7.4

For SAR test, the maximum power output is very important and essential; it is identical under the measurement uncertainty. It is proper to use typical Test Mode 3 (FW RC3, RVS RC3, SO55) as the worst case for SAR test.

2.2.2. Head SAR Measurement

SAR is measured in RC3 with the DUT configured to transmit at full rate using Loopback Service Option SO55. SAR for RC1 is not required because the maximum average output of each channel is less than 0.25 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.

2.2.3. Body SAR Measurement

SAR is measured in RC3 with the EUT configured to transmit at full rate using TDSO/SO32, transmit at full rate on FCH with all other code channels disabled. SAR for multiple code channels (FCH+SCHn) is not required when the maximum average output of each RF channel is less than 0.25dB higher than measured with FCH only.

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Body SAR in RC1 is not required because the maximum average output of each channel is less than 0.25 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.

Test communication setup meet as followings:

Communication standard between mobile station and base station simulator	3GPP2 C.S0011-B
Radio configuration	RC3 (Supporting CDMA 1X)
Spreading Rate	SR1
Data Rate	9600bps
Service Options	SO55 (loop back mode)
Service Options	SO32 (test data service mode)
Multiplex Options	The mobile station does not support this service.

2.3. Handsets with Ev-Do

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

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2.4. WIFI Test Configuration

For the 802.11b/g SAR tests, a communication link is set up with the test mode software for WIFI mode test. The Absolute Radio Frequency Channel Number (ARFCN) is allocated to 1, 6 and 11 respectively in the case of 2450 MHz. During the test, at the each test frequency channel, the EUT is operated at the RF continuous emission mode. Each channel should be tested at the lowest data rate. Testing at higher data rates is not required when the maximum average output power is less than 0.25dB higher than those measured at the lowest data rate.

802.11b/g operating modes are tested independently according to the service requirements in each frequency band. 802.11b/g modes are tested on channels 1, 6, 11; however, if output power reduction is necessary for channels 1 and /or 11 to meet restricted band requirements the highest output channels closest to each of these channels must be tested instead.

SAR is not required for 802.11g channels when the maximum average output power is less than 0.25dB higher than that measured on the corresponding 802.11b channels. When the maximum average output channel in each frequency band is not included in the “default test channels”, the maximum channel should be tested instead of an adjacent “default test channels”, these are referred to as the “required test channels” and are illustrated in Table 1.

Table 1: “Default Test Channels”

Mode	GHz	Channel	Turbo Channel	“Default Test Channels”			
				15.247		UNII	
				802.11b	802.11g		
802.11b/g	2.412	1 [#]		√	*		
	2.437	6	6	√	*		
	2.462	11 [#]		√	*		

Note: [#]=when output power is reduced for channel 1 and /or 11 to meet restricted band requirements the highest out put channels closet to each of these channels should be tested.

√= “default test channels”

* =possible 802.11g channels with maximum average output 0.25dB>=the “default test channels”

2.5. Test Positions

2.5.1. Against Phantom Head

Measurements were made in “cheek” and “tilt” positions on both the left hand and right hand sides of the phantom.

The positions used in the measurements were according to IEEE 1528 - 2003 "IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate(SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques".

2.5.2. Body Worn Configuration

Body-worn operating configurations should be tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in normal use configurations. Devices with a headset output should be tested with a headset connected to the device. The distance between the device and the phantom was kept 15mm.

3. SAR Measurements System Configuration

3.1. SAR Measurement Set-up

The DASY4 system for performing compliance tests consists of the following items:

- A standard high precision 6-axis robot (Stäubli RX family) with controller and software. An arm extension for accommodating the data acquisition electronics (DAE).
- A dosimetric probe, i.e. an isotropic E-field probe optimized and calibrated for usage in tissue simulating liquid. The probe is equipped with an optical surface detector system.
- A data acquisition electronic (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- A unit to operate the optical surface detector which is connected to the EOC.
- The Electro-Optical Coupler (EOC) performs the conversion from the optical into a digital electric signal of the DAE. The EOC is connected to the DASY4 measurement server.
- The DASY4 measurement server, which performs all real-time data evaluation for field measurements and surface detection, controls robot movements and handles safety operation. A computer operating Windows 2003
- DASY4 software and SEMCAD data evaluation software.
- Remote control with teach panel and additional circuitry for robot safety such as warning lamps, etc.
- The generic twin phantom enabling the testing of left-hand and right-hand usage.
- The device holder for handheld mobile phones.
- Tissue simulating liquid mixed according to the given recipes.
- System validation dipoles allowing to validate the proper functioning of the system.

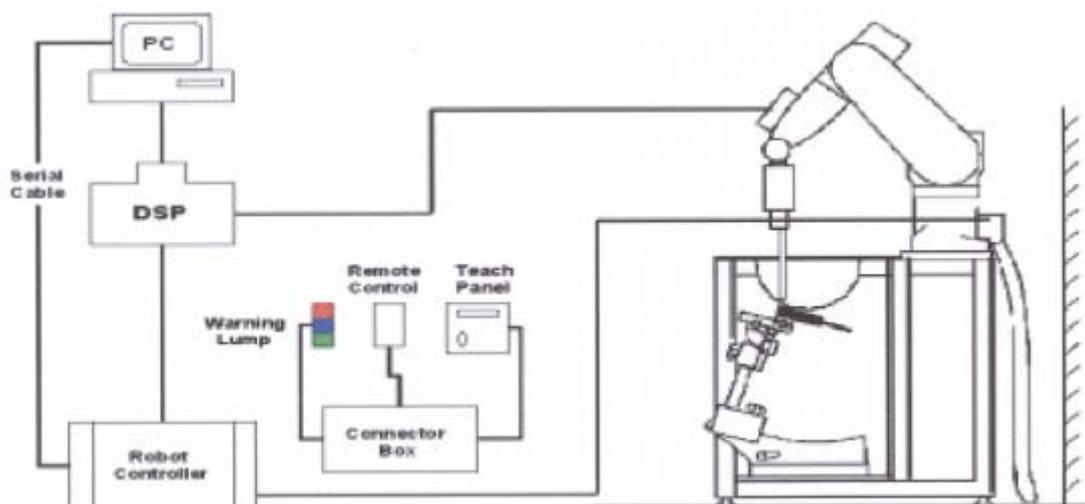


Figure 1. SAR Lab Test Measurement Set-up

3.2. DASY4 E-field Probe System

The SAR measurements were conducted with the dosimetric probe EX3DV4 (manufactured by SPEAG), designed in the classical triangular configuration and optimized for dosimetric evaluation.

3.2.1. EX3DV4 Probe Specification

Construction	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Calibration	ISO/IEC 17025 calibration service available
Frequency	10 MHz to > 6 GHz Linearity: ± 0.2 dB (30 MHz to 6 GHz)
Directivity	± 0.3 dB in HSL (rotation around probe axis) ± 0.5 dB in tissue material (rotation normal to probe axis)
Dynamic Range	10 μ W/g to > 100 mW/g Linearity: ± 0.2 dB (noise: typically < 1 μ W/g)
Dimensions	Overall length: 330 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm
Application	High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields). Only probe which enables compliance testing for frequencies up to 6 GHz with precision of better 30%.



Figure 2. EX3DV4 E-field Probe



Figure 3. EX3DV4 E-field probe

3.2.2. E-field Probe Calibration

Each probe is calibrated according to a dosimetric assessment procedure with accuracy better than $\pm 10\%$. The spherical isotropy was evaluated and found to be better than $\pm 0.25\text{dB}$. The sensitivity parameters (NormX, NormY, NormZ), the diode compression parameter (DCP) and the conversion factor (ConvF) of the probe are tested.

The free space E-field from amplified probe outputs is determined in a test chamber. This is performed in a TEM cell for frequencies below 1 GHz, and in a wave guide above 1 GHz for free space. For the free space calibration, the probe is placed in the volumetric center of the cavity and at the proper orientation with the field. The probe is then rotated 360 degrees.

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

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

Where: Δt = Exposure time (30 seconds),
C = Heat capacity of tissue (brain or muscle),
 ΔT = Temperature increase due to RF exposure.
Or

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

Where:
 σ = Simulated tissue conductivity,
 ρ = Tissue density (kg/m³).

3.3. Other Test Equipment

3.3.1. Device Holder for Transmitters

The DASY device holder is designed to cope with the die rent positions given in the standard. It has two scales for device rotation (with respect to the body axis) and device inclination (with respect to the line between the ear reference points). The rotation centers for both scales is the ear reference point (ERP). Thus the device needs no repositioning when changing the angles. The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the inference of the clamp on the test results could thus be lowered.



Figure 4. Device Holder

3.3.2. Phantom

The Generic Twin Phantom is constructed of a fiberglass shell integrated in a wooden Figure. The shape of the shell is based on data from an anatomical study designed to determine the maximum exposure in at least 90% of all users. It enables the dosimetric evaluation of left and right hand phone usage as well as body mounted usage at the flat phantom region. A cover prevents the evaporation of the liquid. Reference markings on the Phantom allow the complete setup of all predefined phantom positions and measurement grids by manually teaching three points in the robot.

Shell Thickness	2±0.1 mm
Filling Volume	Approx. 20 liters
Dimensions	810 x 1000 x 500 mm (H x L x W)
Available	Special



Figure 5. Generic Twin Phantom

3.4. Scanning Procedure

The DASY4 installation includes predefined files with recommended procedures for measurements and validation. They are read-only document files and destined as fully defined but unmeasured masks. All test positions (head or body-worn) are tested with the same configuration of test steps differing only in the grid definition for the different test positions.

- The “reference” and “drift” measurements are located at the beginning and end of the batch process. They measure the field drift at one single point in the liquid over the complete procedure. The indicated drift is mainly the variation of the DUT’s output power and should vary max. ± 5 %.
- The “surface check” measurement tests the optical surface detection system of the DASY4 system by repeatedly detecting the surface with the optical and mechanical surface detector and comparing the results. The output gives the detecting heights of both systems, the difference between the two systems and the standard deviation of the detection repeatability. Air bubbles or refraction in the liquid due to separation of the sugar-water mixture gives poor repeatability (above ± 0.1mm). To prevent wrong results tests are only executed when the liquid is free of air bubbles. The difference between the optical surface detection and the actual surface depends on the probe and is specified with each probe. (It does not depend on the surface reflectivity or the probe angle to the surface within ± 30°.)
- Area Scan
The Area Scan is used as a fast scan in two dimensions to find the area of high field values before running a detailed measurement around the hot spot. Before starting the area scan a grid

spacing of 15 mm x 15 mm is set. During the scan the distance of the probe to the phantom remains unchanged.

After finishing area scan, the field maxima within a range of 2 dB will be ascertained.

- Zoom Scan

Zoom Scans are used to estimate the peak spatial SAR values within a cubic averaging volume containing 1 g and 10 g of simulated tissue. The default Zoom Scan is done by 7x7x7 points within a cube whose base is centered around the maxima found in the preceding area scan.

- Spatial Peak Detection

The procedure for spatial peak SAR evaluation has been implemented and can determine values of masses of 1g and 10g, as well as for user-specific masses. The DASY4 system allows evaluations that combine measured data and robot positions, such as:

- maximum search
- extrapolation
- boundary correction
- peak search for averaged SAR

During a maximum search, global and local maxima searches are automatically performed in 2-D after each Area Scan measurement with at least 6 measurement points. It is based on the evaluation of the local SAR gradient calculated by the Quadratic Shepard's method. The algorithm will find the global maximum and all local maxima within -2 dB of the global maxima for all SAR distributions.

Extrapolation routines are used to obtain SAR values between the lowest measurement points and the inner phantom surface. The extrapolation distance is determined by the surface detection distance and the probe sensor offset. Several measurements at different distances are necessary for the extrapolation. Extrapolation routines require at least 10 measurement points in 3-D space. They are used in the Zoom Scan to obtain SAR values between the lowest measurement points and the inner phantom surface. The routine uses the modified Quadratic Shepard's method for extrapolation. For a grid using 7x7x7 measurement points with 5mm resolution amounting to 343 measurement points, the uncertainty of the extrapolation routines is less than 1% for 1g and 10g cubes.

- A Z-axis scan measures the total SAR value at the x-and y-position of the maximum SAR value found during the cube 7x7x7 scan. The probe is moved away in z-direction from the bottom of the SAM phantom in 5mm steps.

3.5. Data Storage and Evaluation

3.5.1. Data Storage

The DASY4 software stores the acquired data from the data acquisition electronics as raw data (in microvolt readings from the probe sensors), together with all necessary software parameters for the data evaluation (probe calibration data, liquid parameters and device frequency and modulation data) in measurement files with the extension “.DA4”. The software evaluates the desired unit and format for output each time the data is visualized or exported. This allows verification of the complete software setup even after the measurement and allows correction of incorrect parameter settings. For example, if a measurement has been performed with a wrong crest factor parameter in the device setup, the parameter can be corrected afterwards and the data can be re-evaluated.

The measured data can be visualized or exported in different units or formats, depending on the selected probe type ([V/m], [A/m], [°C], [mW/g], [mW/cm²], [dBrel], etc.). Some of these units are not available in certain situations or show meaningless results, e.g., a SAR output in a lossless media will always be zero. Raw data can also be exported to perform the evaluation with other software packages.

3.5.2. Data Evaluation by SEMCAD

The SEMCAD software automatically executes the following procedures to calculate the field units from the microvolt readings at the probe connector. The parameters used in the evaluation are stored in the configuration modules of the software:

Probe parameters:	- Sensitivity	Normi, a _{i0} , a _{i1} , a _{i2}
	- Conversion factor	ConvF _i
	- Diode compression point	Dcp _i
Device parameters:	- Frequency	f
	- Crest factor	cf
Media parameters:	- Conductivity	
	- Density	

These parameters must be set correctly in the software. They can be found in the component documents or they can be imported into the software from the configuration files issued for the DASY4 components. In the direct measuring mode of the multimeter option, the parameters of the actual system setup are used. In the scan visualization and export modes, the parameters stored in the corresponding document files are used.

The first step of the evaluation is a linearization of the filtered input signal to account for the compression characteristics of the detector diode. The compensation depends on the input signal, the diode type and the DC-transmission factor from the diode to the evaluation electronics.

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If the exciting field is pulsed, the crest factor of the signal must be known to correctly compensate for peak power. The formula for each channel can be given as:

$$V_i = U_i + U_i^2 \cdot c f / d c p_i$$

With V_i = compensated signal of channel i (i = x, y, z)

U_i = input signal of channel i (i = x, y, z)

cf = crest factor of exciting field (DASY parameter)

dcp_i = diode compression point (DASY parameter)

From the compensated input signals the primary field data for each channel can be evaluated:

E-field probes: $E_i = (V_i / Norm_i \cdot ConvF)^{1/2}$

H-field probes: $H_i = (V_i)^{1/2} \cdot (a_{i0} + a_{i1} f + a_{i2} f^2) / f$

With V_i = compensated signal of channel i (i = x, y, z)

$Norm_i$ = sensor sensitivity of channel i (i = x, y, z)
[mV/(V/m)²] for E-field Probes

$ConvF$ = sensitivity enhancement in solution

a_{ij} = sensor sensitivity factors for H-field probes

f = carrier frequency [GHz]

E_i = electric field strength of channel i in V/m

H_i = magnetic field strength of channel i in A/m

The RSS value of the field components gives the total field strength (Hermitian magnitude):

$$E_{tot} = (E_x^2 + E_y^2 + E_z^2)^{1/2}$$

The primary field data are used to calculate the derived field units.

$$SAR = (E_{tot}^2 \cdot \rho) / (\cdot 1000)$$

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with **SAR** = local specific absorption rate in mW/g

E_{tot} = total field strength in V/m

σ = conductivity in [mho/m] or [Siemens/m]

ρ = equivalent tissue density in g/cm³

Note that the density is normally set to 1 (or 1.06), to account for actual brain density rather than the density of the simulation liquid. The power flow density is calculated assuming the excitation field to be a free space field.

$$P_{pwe} = E_{tot}^2 / 3770 \quad \text{or} \quad P_{pwe} = H_{tot}^2 \cdot 37.7$$

with **P_{pwe}** = equivalent power density of a plane wave in mW/cm²

E_{tot} = total electric field strength in V/m

H_{tot} = total magnetic field strength in A/m

3.6. System Check

The manufacturer calibrates the probes annually. Dielectric parameters of the tissue simulants were measured every day using the dielectric probe kit and the network analyser. A system check measurement was made following the determination of the dielectric parameters of the simulant, using the dipole validation kit. A power level of 250 mW was supplied to the dipole antenna, which was placed under the flat section of the twin SAM phantom. The system check results (dielectric parameters and SAR values) are given in the table 8 and table 9.

System check results have to be equal or near the values determined during dipole calibration with the relevant liquids and test system ($\pm 10\%$).

System check is performed regularly on all frequency bands where tests are performed with the DASY4 system.

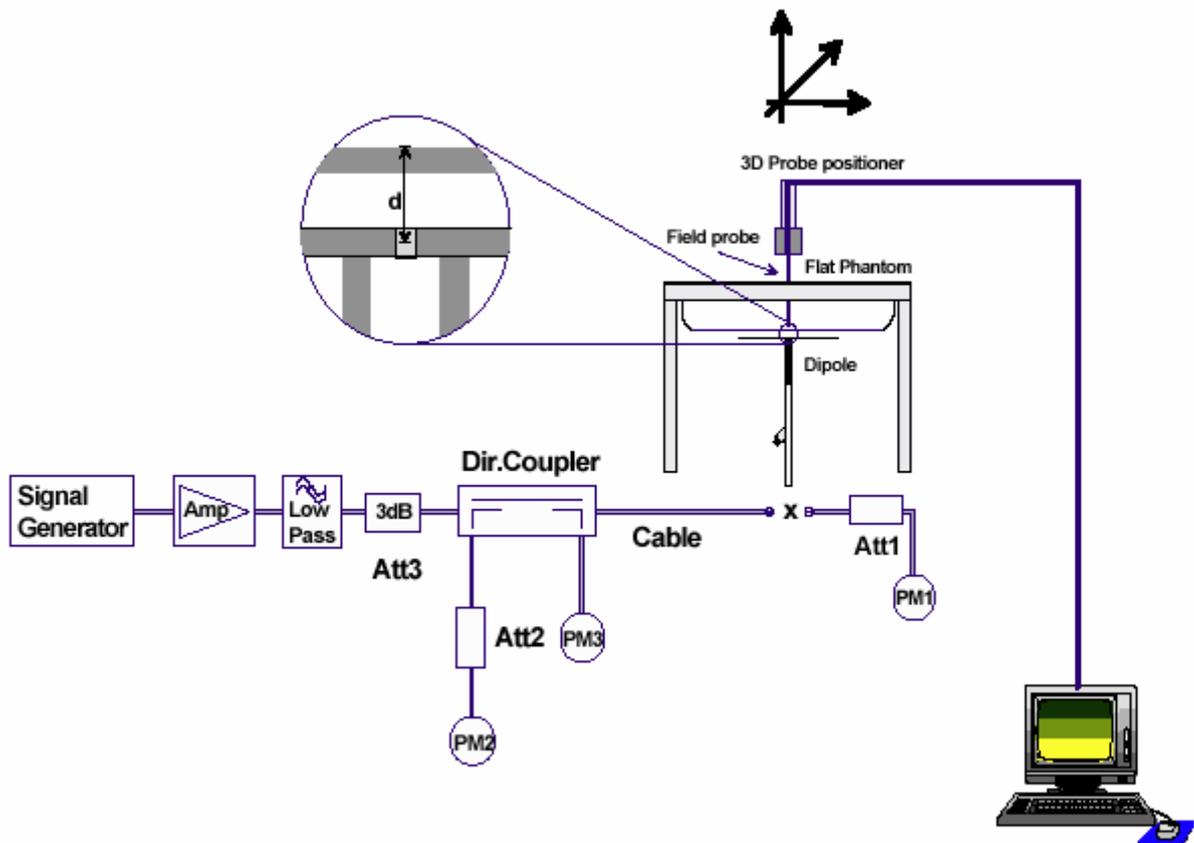


Figure 6. System Check Set-up

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3.7. Equivalent Tissues

The liquid is consisted of water, sugar, salt, Preventol, Glycol and Cellulose. The liquid has previously been proven to be suited for worst-case. The Table 2 and Table 3 show the detail solution. It's satisfying the latest tissue dielectric parameters requirements proposed by the OET 65.

Table 2: Composition of the Head Tissue Equivalent Matter

MIXTURE%	FREQUENCY(Brain) 835MHz
Water	41.45
Sugar	56
Salt	1.45
Preventol	0.1
Cellulose	1.0
Dielectric Parameters Target Value	f=835MHz $\epsilon=41.5$ $\sigma=0.9$

MIXTURE%	FREQUENCY(Brain) 1900MHz
Water	55.242
Glycol monobutyl	44.452
Salt	0.306
Dielectric Parameters Target Value	f=1900MHz $\epsilon=40.0$ $\sigma=1.40$

MIXTURE%	FREQUENCY(Brain) 2450MHz
Water	62.7
Glycol	36.8
Salt	0.5
Dielectric Parameters Target Value	f=2450MHz $\epsilon=39.20$ $\sigma=1.80$

Table 3: Composition of the Body Tissue Equivalent Matter

MIXTURE%	FREQUENCY(Body) 835MHz
Water	52.5
Sugar	45
Salt	1.4
Preventol	0.1
Cellulose	1.0
Dielectric Parameters Target Value	f=835MHz $\epsilon=55.2$ $\sigma=0.97$

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MIXTURE%	FREQUENCY(Body) 1900MHz
Water	69.91
Glycol	29.96
Salt	0.13
Dielectric Parameters Target Value	f=1900MHz $\epsilon=53.3$ $\sigma=1.52$

MIXTURE%	FREQUENCY(Body) 2450MHz
Water	73.2
Glycol	26.7
Salt	0.1
Dielectric Parameters Target Value	f=2450MHz $\epsilon=52.70$ $\sigma=1.95$

4. Laboratory Environment

Table 4: The Ambient Conditions during Test

Temperature	Min. = 20°C, Max. = 25 °C
Relative humidity	Min. = 30%, Max. = 70%
Ground system resistance	< 0.5 Ω
Ambient noise is checked and found very low and in compliance with requirement of standards. Reflection of surrounding objects is minimized and in compliance with requirement of standards.	

5. Characteristics of the Test

5.1. Applicable Limit Regulations

IEEE Std C95.1, 1999: IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 KHz to 300 GHz.

5.2. Applicable Measurement Standards

IEEE Std 1528™-2003: IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques.

SUPPLEMENT C Edition 01-01 to OET BULLETIN 65 Edition 97-01 June 2001 including DA 02-1438 June 19, 2002: Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields Additional Information for Evaluation Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions.

RSS-102 Issue 4 March 2010: Radio Frequency (RF) Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands).

KDB941225 D01 SAR test for 3G devices v02: SAR Measurement Procedures CDMA 20001x RTT, 1x Ev-Do, WCDMA, HSDPA/HSPA

6. Conducted Output Power Measurement

6.1. Summary

The DUT is tested using an E5515C communications tester as controller unit to set test channels and maximum output power to the DUT, as well as for measuring the conducted power.

Conducted output power was measured using an integrated RF connector and attached RF cable.

This result contains conducted output power for the EUT.

6.2. Conducted Power Results

Table 5: Conducted Power Measurement Results

CDMA Cellular	Conducted Power(dBm)		
	Channel 1013	Channel 384	Channel 777
RC3	23.95	23.91	23.87
RC1	23.93	23.8	23.86
EVDO.0	23.97	23.89	23.92
EVDO.A	24.1	24.05	24.07
CDMA PCS	Conducted Power(dBm)		
	Channel 25	Channel 600	Channel 1175
RC3	23.29	23.54	23.32
RC1	23.17	23.32	23.1
EVDO.0	23.24	23.32	23.21
EVDO.A	23.38	23.45	23.34
CDMA US PCS	Conducted Power(dBm)		
	Channel 1225	Channel 1250	Channel 1275
RC3	22.87	22.95	22.75
RC1	22.73	22.92	22.65
EVDO.0	22.77	22.76	22.7
EVDO.A	22.91	22.89	22.73

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7. Test Results

7.1. Dielectric Performance

Table 6: Dielectric Performance of Head Tissue Simulating Liquid

Frequency	Description	Dielectric Parameters		Temp ℃
		ϵ_r	σ (s/m)	
824MHz (Low)	Target value ± 5% window	41.56 39.48 — 43.64	0.90 0.86 — 0.95	/
	Measurement value 2011-10-27	41.4	0.90	21.7
837MHz (Middle)	Target value ± 5% window	41.50 39.43 — 43.58	0.90 0.86 — 0.95	/
	Measurement value 2011-10-27	41.2	0.91	21.7
849MHz (High)	Target value ± 5% window	41.50 39.43 — 43.58	0.92 0.874 — 0.966	/
	Measurement value 2011-10-27	41.1	0.92	21.7
1851MHz (Low)	Target value ±5% window	40.00 38.00 — 42.00	1.40 1.33 — 1.47	/
	Measurement value 2011-10-26	40	1.39	21.8
1880MHz (Middle)	Target value ±5% window	40.00 38.00 — 42.00	1.40 1.33 — 1.47	/
	Measurement value 2011-10-26	40	1.41	21.8
1909MHz (High)	Target value ±5% window	40.00 38.00 — 42.00	1.40 1.33 — 1.47	/
	Measurement value 2011-10-26	39.9	1.44	21.8
2412MHz (Low)	Target value ±5% window	39.27 37.3 — 41.23	1.77 1.68 — 1.86	/
	Measurement value 2011-10-27	39.4	1.76	21.8
2437MHz (Middle)	Target value ±5% window	39.20 37.24 — 41.16	1.79 1.70 — 1.88	/
	Measurement value 2011-10-27	39.3	1.79	21.8
2462MHz (High)	Target value ±5% window	39.20 37.24 — 41.16	1.81 1.72 — 1.90	/
	Measurement value 2011-10-27	39.2	1.82	21.8

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Table 7: Dielectric Performance of Body Tissue Simulating Liquid

Frequency	Description	Dielectric Parameters		Temp ℃
		ϵ_r	σ (s/m)	
824MHz (Low)	Target value ±5% window	55.24 52.48— 58.00	0.97 0.92 — 1.02	/
	Measurement value 2011-10-28	56	1.00	21.7
837MHz (Middle)	Target value ±5% window	55.20 52.44 — 57.96	0.97 0.92 — 1.02	/
	Measurement value 2011-10-28	55.9	1.01	21.7
849MHz (High)	Target value ±5% window	55.20 52.44 — 57.96	0.99 0.94 — 1.04	/
	Measurement value 2011-10-28	55.8	1.02	21.7
1851MHz (Low)	Target value ±5% window	53.30 50.64 — 55.97	1.52 1.44 — 1.60	/
	Measurement value 2011-10-26	52.1	1.51	21.8
1880MHz (Middle)	Target value ±5% window	53.30 50.64 — 55.97	1.52 1.44 — 1.60	/
	Measurement value 2011-10-26	52	1.54	21.8
1909MHz (High)	Target value ±5% window	53.30 50.64 — 55.97	1.52 1.44 — 1.60	/
	Measurement value 2011-10-26	52	1.57	21.8
2412MHz (Low)	Target value ±5% window	52.75 50.11 — 55.39	1.91 1.81 — 2.01	/
	Measurement value 2011-10-27	51.8	1.92	21.9
2437MHz (Middle)	Target value ±5% window	52.70 50.07 — 55.34	1.94 1.85 — 2.04	/
	Measurement value 2011-10-27	51.7	1.94	21.9
2462MHz (High)	Target value ±5% window	52.68 50.05 — 55.31	1.97 1.87 — 2.07	/
	Measurement value 2011-10-27	51.6	1.97	21.9

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7.2. System Check

Table 8: System Checking for Head Tissue Simulating Liquid

Frequency	Description	SAR(W/kg)		Dielectric Parameters		Temp
		10g	1g	ϵ_r	σ (s/m)	°C
835MHz	Recommended value ±10% window	1.52 1.37 – 1.67	2.32 2.09 – 2.55	41.1	0.89	/
	Measurement value 2011-10-27	1.51	2.32	41.27	0.91	21.7
1900 MHz	Recommended value ±10% window	5.3 4.77 – 5.83	10.2 9.18 – 11.22	39.5	1.42	/
	Measurement value 2011-10-26	5.45	10.58	39.92	1.43	21.8
2450 MHz	Recommended result ±10% window	6.41 5.77 – 7.05	13.7 12.33—15.07	38.4	1.85	/
	Measurement value 2011-10-27	6.52	14.06	39.27	1.81	21.8

Note: 1. The graph results see ANNEX B.

2. Recommended Values used derive from the calibration certificate and 250 mW is used as feeding power to the calibrated dipole.

Table 9: System Check for Body Tissue Simulating Liquid

Frequency	Description	SAR(W/kg)		Dielectric Parameters		Temp
		10g	1g	ϵ_r	σ (s/m)	°C
835MHz	Recommended value ±10% window	1.59 1.43 – 1.75	2.42 2.18 – 2.66	53.4	0.99	/
	Measurement value 2011-10-28	1.59	2.41	55.89	1.01	21.7
1900 MHz	Recommended value ±10% window	5.55 4.50 – 6.11	10.6 9.54 – 11.66	53.9	1.57	/
	Measurement value 2011-10-26	5.35	10.12	51.98	1.56	21.8
2450 MHz	Recommended result ±10% window	6.1 5.49 – 6.71	13.2 11.88—14.52	51.8	2.02	/
	Measurement value 2011-10-27	6.48	14.01	51.63	1.96	21.9

Note: 1. The graph results see ANNEX B.

2. Recommended Values used derive from the calibration certificate and 250 mW is used as feeding power to the calibrated dipole.

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7.3. Summary of Measurement Results

7.3.1. CDMA Cellular

Table 10: SAR Values (CDMA Cellular)

Limit of SAR		10 g Average	1 g Average	Power Drift	Graph Results
		2.0 W/kg	1.6 W/kg	± 0.21 dB	
Different Test Position	Channel	Measurement Result(W/kg)		Power Drift (dB)	
		10 g Average	1 g Average		
Test Position of Head					
Left hand, Touch cheek	High/777	0.675	0.982	0.014	Figure 13
	Middle/384	0.730	1.030	-0.008	Figure 14
	Low/1013	0.688	0.996	0.064	Figure 15
Left hand, Tilt 15 Degree	Middle/384	0.402	0.528	-0.180	Figure 16
Right hand, Touch cheek	High/777	0.727	0.959	-0.099	Figure 17
	Middle/384	0.755	0.990	0.088	Figure 18
	Low/1013	0.739	0.979	-0.134	Figure 19
Right hand, Tilt 15 Degree	Middle/384	0.426	0.562	-0.058	Figure 20
Test Position of Body (Distance 15mm)					
Towards Ground	High/777	0.593	0.805	0.044	Figure 21
	Middle/384	0.638	0.868	-0.078	Figure 22
	Low/1013	0.627	0.844	-0.194	Figure 23
Towards Phantom	High/777	0.513	0.699	-0.126	Figure 24
	Middle/384	0.591	0.803	-0.119	Figure 25
	Low/1013	0.557	0.756	0.025	Figure 26
Worst Case Position of Body with EVDO Rev.0(Distance 15mm)					
Towards Ground	Middle/384	0.626	0.842	-0.107	Figure 27
Worst Case Position of Body with EVDO Rev.A(Distance 15mm)					
Towards Ground	Middle/384	0.636	0.872	-0.049	Figure 28
Worst Case Position of Body with Earphone (Distance 15mm)					
Towards Ground	Middle/384	0.462	0.641	-0.057	Figure 29

Note: 1.The value with blue color is the maximum SAR Value of each test band.

2. Upper and lower frequencies were measured at the worst position.

3. The SAR test shall be performed at the high, middle and low frequency channels of each operating mode. If the SAR measured at mid-band channel for each test configuration is at least 3.0 dB lower than the SAR_{1g} limit (< 0.8W/kg), testing at the high and low channels is optional.

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7.3.2. CDMA PCS

Table 11: SAR Values (CDMA PCS)

Limit of SAR		10 g Average	1 g Average	Power Drift	Graph Results
		2.0 W/kg	1.6 W/kg	± 0.21 dB	
Different Test Position	Channel	Measurement Result(W/kg)		Power Drift (dB)	
		10 g Average	1 g Average		
Test Position of Head					
Left hand, Touch cheek	High/1175	0.449(max.cube)	0.746(max.cube)	-0.130	Figure 30
	Middle/600	0.520	0.868	0.071	Figure 31
	Low/25	0.569	0.942	0.163	Figure 32
Left hand, Tilt 15 Degree	Middle/600	0.213	0.340	0.002	Figure 33
Right hand, Touch cheek	Middle/600	0.510(max.cube)	0.786(max.cube)	-0.097	Figure 34
Right hand, Tilt 15 Degree	Middle/600	0.181	0.298	0.048	Figure 35
Test Position of Body (Distance 15mm)					
Towards Ground	High/1175	0.212	0.351	-0.124	Figure 36
	Middle/600	0.238	0.398	-0.032	Figure 37
	Low/25	0.233	0.387	-0.168	Figure 38
Towards Phantom	Middle/600	0.217	0.362	-0.033	Figure 39
Worst Case Position of Body with EVDO Rev.0(Distance 15mm)					
Towards Ground	Middle/600	0.238	0.398	0.014	Figure 40
Worst Case Position of Body with EVDO Rev.A(Distance 15mm)					
Towards Ground	Middle/600	0.234	0.390	-0.109	Figure 41
Worst Case Position of Body with Earphone (Distance 15mm)					
Towards Ground	Middle/600	0.242	0.406	-0.131	Figure 42

Note: 1. The value with blue color is the maximum SAR Value of each test band.

2. Upper and lower frequencies were measured at the worst position.

3. The SAR test shall be performed at the high, middle and low frequency channels of each operating mode. If the SAR measured at mid-band channel for each test configuration is at least 3.0 dB lower than the SAR_{1g} limit (< 0.8W/kg), testing at the high and low channels is optional.

4. The (max.cube) labeling indicates that during the grid scanning an additional peak was found which was within 2.0dB of the highest peak. The value of the highest cube is given in the table above.

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7.3.3. CDMA US PCS

Table 12: SAR Values (CDMA US PCS)

Limit of SAR		10 g Average	1 g Average	Power Drift	Graph Results
		2.0 W/kg	1.6 W/kg	± 0.21dB	
Different Test Position	Channel	Measurement Result(W/kg)		Power Drift (dB)	
		10 g Average	1 g Average		
Test Position of Head					
Left hand, Touch cheek	Middle/1250	0.321	0.530	-0.072	Figure 43
Left hand, Tilt 15 Degree	Middle/1250	0.153	0.249	-0.198	Figure 44
Right hand, Touch cheek	High/1275	0.335	0.526	-0.090	Figure 45
	Middle/1250	0.385	0.603	-0.062	Figure 46
	Low/1225	0.410	0.644	0.082	Figure 47
Right hand, Tilt 15 Degree	Middle/1250	0.139	0.233	-0.015	Figure 48
Test Position of Body (Distance 15mm)					
Towards Ground	High/1275	0.14	0.234	-0.007	Figure 49
	Middle/1250	0.164	0.274	-0.099	Figure 50
	Low/1225	0.184	0.308	-0.013	Figure 51
Towards Phantom	Middle/1250	0.162	0.271	-0.075	Figure 52
Worst Case Position of Body with EVDO Rev.0(Distance 15mm)					
Towards Ground	Low/1225	0.178	0.299	-0.010	Figure 53
Worst Case Position of Body with EVDO Rev.A(Distance 15mm)					
Towards Ground	Low/1225	0.179	0.299	-0.075	Figure 54
Worst Case Position of Body with Earphone (Distance 15mm)					
Towards Ground	Low/1225	0.175	0.292	0.041	Figure 55

Note: 1. The value with blue color is the maximum SAR Value of test case in each test band.

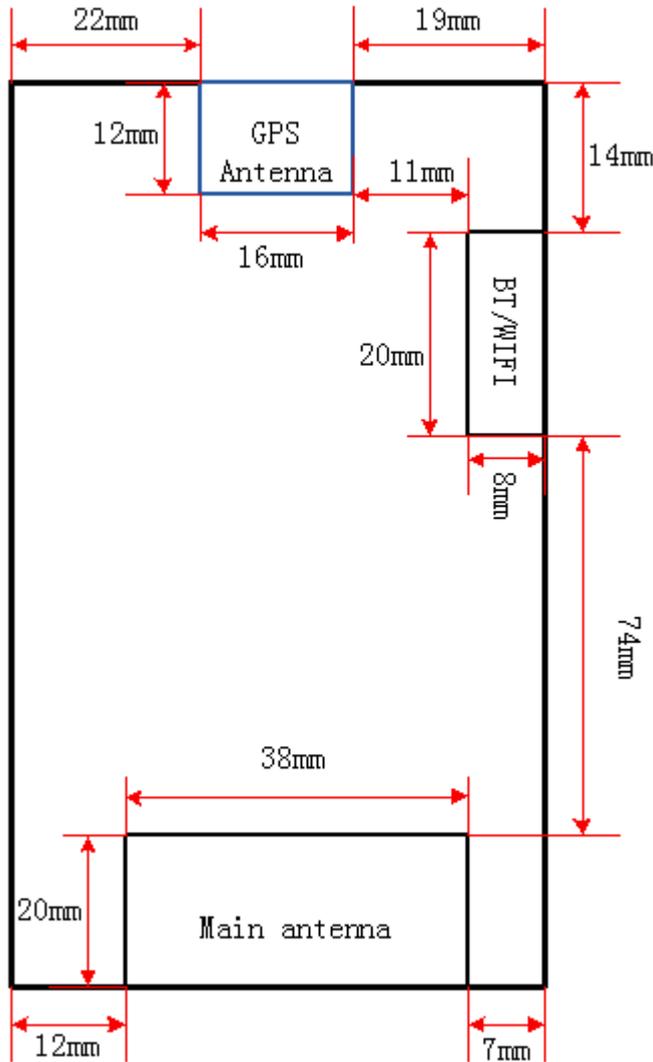
2. Upper and lower frequencies were measured at the worst position.

3. The SAR test shall be performed at the high, middle and low frequency channels of each operating mode. If the SAR measured at mid-band channel for each test configuration is at least 3.0 dB lower than the SAR_{1g} limit (< 0.8W/kg), testing at the high and low channels is optional.

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7.3.4. BT/WIFI function

The distance between BT/WIFI antenna and CDMA antenna is >5 cm.



Output Power Thresholds for Unlicensed Transmitters

	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.				

The output power of BT antenna is as following:

Channel	Ch 0 2402 MHz	Ch 39 2441 Mhz	Ch 78 2480 MHz
GFSK (dBm)	0.23	0.76	1.98
π/4 DQPSK (dBm)	3.44	3.95	4.99
8DPSK (dBm)	1.27	1.74	3.16

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The output power of WIFI antenna is as following:

Channel	Date Rate	Conducted Power (dBm)		
		Channel 1 2412 MHz	Channel 6 2437 MHz	Channel 11 2462 MHz
802.11b (dBm)	1M	13.43	12.86	13.86
	2M	13.45	12.92	13.98
	5.5M	12.92	13.12	13.9
	11M	12.6	12.78	13.74
802.11g (dBm)	6M	11.12	10.72	11.9
	9M	11.24	10.62	11.82
	12M	11.14	10.7	11.71
	18M	10.61	10.27	11.17
	24M	10.54	10.01	11.03
	36M	10.18	9.77	10.66
	48M	9.86	9.91	10.54
	54M	10.15	9.34	10.61

Stand-alone SAR

According to the output power measurement result and the distance between BT/WIFI antenna and CDMA antenna we can draw the conclusion that:

stand-alone SAR are required for WIFI, because its antenna is $>5\text{cm}$ from CDMA antenna, the output power of WIFI transmitter is $\geq 2P_{\text{Ref}}=13.8\text{dBm}$

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Table 13: SAR Values (WIFI)

Limit of SAR (W/kg)		10 g Average	1g Average	Power Drift (dB)	Graph Results
		2.0	1.6	± 0.21	
Different Test Position	Channel	Measurement Result(W/kg)		Power Drift (dB)	
		10 g Average	1g Average		
Test position of Head(802.11b)					
Left hand, Touch cheek	Middle/6	0.042	0.077	-0.061	Figure 56
Left hand, Tilt 15 Degree	Middle/6	0.038	0.073	-0.076	Figure 57
Right hand, Touch cheek	High/11	0.077	0.165	0.015	Figure 58
	Middle/6	0.086	0.181	-0.037	Figure 59
	Low/1	0.067	0.141	-0.130	Figure 60
Right hand, Tilt 15 Degree	Middle/6	0.043	0.085	0.135	Figure 61
Test position of Body (802.11b,Distance 15mm)					
Towards Ground	High/11	0.025	0.049	-0.182	Figure 62
	Middle/6	0.019	0.037	-0.119	Figure 63
	Low/1	0.022	0.043	0.065	Figure 64
Towards Phantom	Middle/6	0.014	0.025	-0.002	Figure 65
Worst case position of Body with Earphone(802.11b,Distance 15mm)					
Towards Ground	High/11	0.023	0.044	0.134	Figure 66

Note: 1. The value with blue color is the maximum SAR Value of each test band.

2. Upper and lower frequencies were measured at the worst position.
3. The SAR test shall be performed at the high, middle and low frequency channels of each operating mode. If the SAR measured at the middle channel for each test configuration is at least 3.0 dB lower than the SAR limit ($< 0.8W/kg$), testing at the high and low channel is optional.
4. KDB 248227-SAR is not required for 802.11g/n channels when the maximum average output power is less than $\frac{1}{4}$ dB higher than measured on the corresponding 802.11b channels.

stand-alone SAR are not required for BT, because its antenna is $>5cm$ from CDMA antenna and the output power of BT transmitter is $\leq 2P_{Ref}=13.8dBm$;

stand-alone SAR are not required for BT, because its antenna is $<2.5cm$ from WIFI antenna. $SAR_{MAX,WIFI} \leq 1.2W/Kg$.

Simultaneous SAR

About BT and CDMA antennas, because stand-alone SAR is not required for BT, so Simultaneous SAR are not required for BT and CDMA antennas.

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About WIFI and BT Antenna, because WIFI antenna is <2.5cm from BT Antenna, $SAR_{MAX,WIFI} \leq 1.2W/Kg.$, so Simultaneous SAR are not required for WIFI and BT Antenna.

About WIFI and CDMA Antenna,

SAR_{1g}(W/kg) Test Position	CDMA Cellular	CDMA PCS	CDMA US PCS	WIFI	MAX. Σ SAR_{1g}
Left hand, Touch cheek	1.030	0.942	0.530	0.077	1.107
Left hand, Tilt 15 Degree	0.528	0.340	0.249	0.073	0.601
Right hand, Touch cheek	0.990	0.786	0.644	0.181	1.171
Right hand, Tilt 15 Degree	0.562	0.298	0.233	0.085	0.647
Towards Ground	0.872	0.406	0.308	0.049	0.921
Towards Phantom	0.803	0.362	0.271	0.025	0.828

Note: 1.The value with blue color is the maximum ΣSAR_{1g} Value.

2. MAX. ΣSAR_{1g} =Unlicensed SAR_{MAX}+licensed SAR_{MAX}

WIFI antenna is >5cm from CDMA Antenna. (CDMA Antenna SAR)0.990 W/kg + (WIFI antenna SAR)0.181 W/kg =1.171 W/kg <1.6 W/kg,So the Simultaneous SAR are not required for WIFI and CDMA antenna.

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8. Measurement Uncertainty

No.	source	Type	Uncertainty Value (%)	Probability Distribution	k	c_i	Standard uncertainty (%)	Degree of freedom V_{eff} or v_i
1	System repetivity	A	0.5	N	1	1	0.5	9
Measurement system								
2	-probe calibration	B	5.9	N	1	1	5.9	∞
3	-axial isotropy of the probe	B	4.7	R			1.9	∞
4	- Hemispherical isotropy of the probe	B	9.4	R			3.9	∞
6	-boundary effect	B	1.9	R		1	1.1	∞
7	-probe linearity	B	4.7	R		1	2.7	∞
8	- System detection limits	B	1.0	R		1	0.6	∞
9	-readout Electronics	B	1.0	N	1	1	1.0	∞
10	-response time	B	0	R		1	0	∞
11	-integration time	B	4.32	R		1	2.5	∞
12	-noise	B	0	R		1	0	∞
13	-RF Ambient Conditions	B	3	R		1	1.73	∞
14	-Probe Positioner Mechanical Tolerance	B	0.4	R		1	0.2	∞
15	-Probe Positioning with respect to Phantom Shell	B	2.9	R		1	1.7	∞
16	-Extrapolation, interpolation and Integration Algorithms for Max. SAR Evaluation	B	3.9	R		1	2.3	∞
Test sample Related								
17	-Test Sample Positioning	A	2.9	N	1	1	4.92	71
18	-Device Holder	A	4.1	N	1	1	4.1	5

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	Uncertainty							
19	-Output Power Variation - SAR drift measurement	B	5.0	R		1	2.9	∞
Physical parameter								
20	-phantom	B	4.0	R		1	2.3	∞
21	-liquid conductivity (deviation from target)	B	5.0	R		0.64	1.8	∞
22	-liquid conductivity (measurement uncertainty)	B	2.5	N	1	0.64	1.6	9
23	-liquid permittivity (deviation from target)	B	5.0	R		0.6	1.7	∞
24	-liquid permittivity (measurement uncertainty)	B	2.5	N	1	0.6	1.5	9
Combined standard uncertainty							12.12	
Expanded uncertainty (confidence interval of 95 %)				N		k=2	24.24	

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9. Main Test Instruments

Table 14: List of Main Instruments

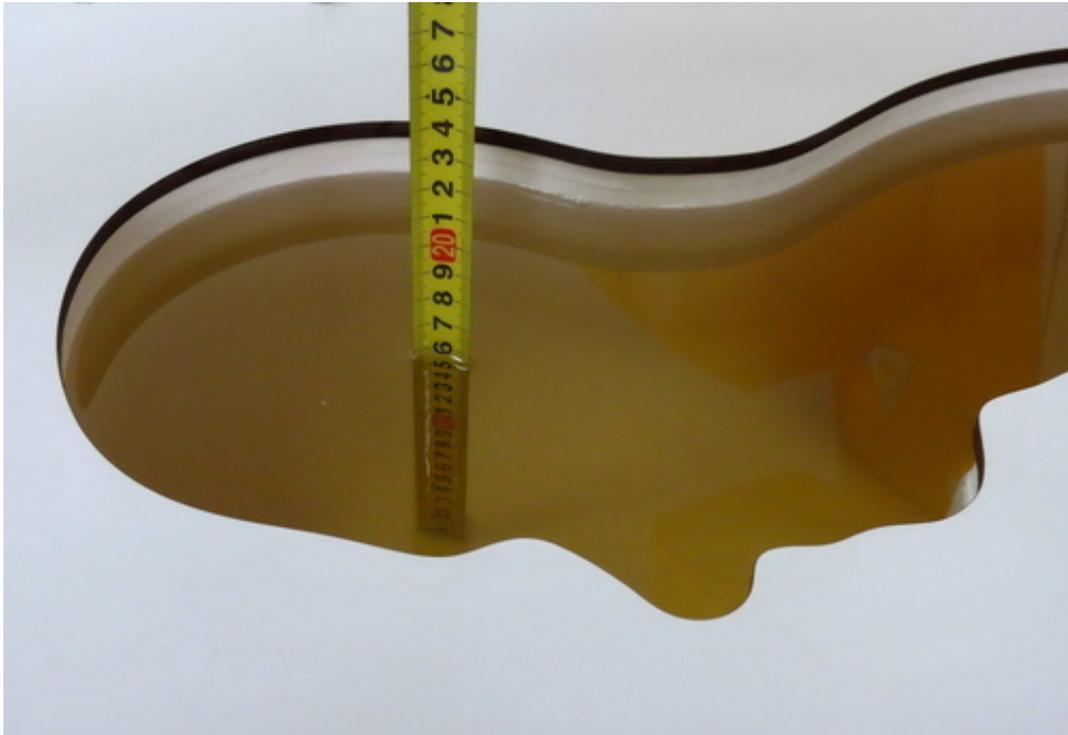
No.	Name	Type	Serial Number	Calibration Date	Valid Period
01	Network analyzer	Agilent 8753E	US37390326	September 12, 2011	One year
02	Dielectric Probe Kit	Agilent 85070E	US44020115	No Calibration Requested	
03	Power meter	Agilent E4417A	GB41291714	March 12, 2011	One year
04	Power sensor	Agilent N8481H	MY50350004	September 25, 2011	One year
05	Signal Generator	HP 8341B	2730A00804	September 12, 2011	One year
06	Amplifier	IXA-020	0401	No Calibration Requested	
07	BTS	E5515C	MY48360988	December 3, 2010	One year
08	E-field Probe	EX3DV4	3677	November 24, 2010	One year
09	DAE	DAE4	871	November 18, 2010	One year
10	Validation Kit 835MHz	D835V2	4d020	August 26, 2011	One year
11	Validation Kit 1900MHz	D1900V2	5d060	August 31, 2011	One year
12	Validation Kit 2450MHz	D2450V2	786	August 29, 2011	One year

*****END OF REPORT BODY*****

ANNEX A: Test Layout



Picture 1: Specific Absorption Rate Test Layout



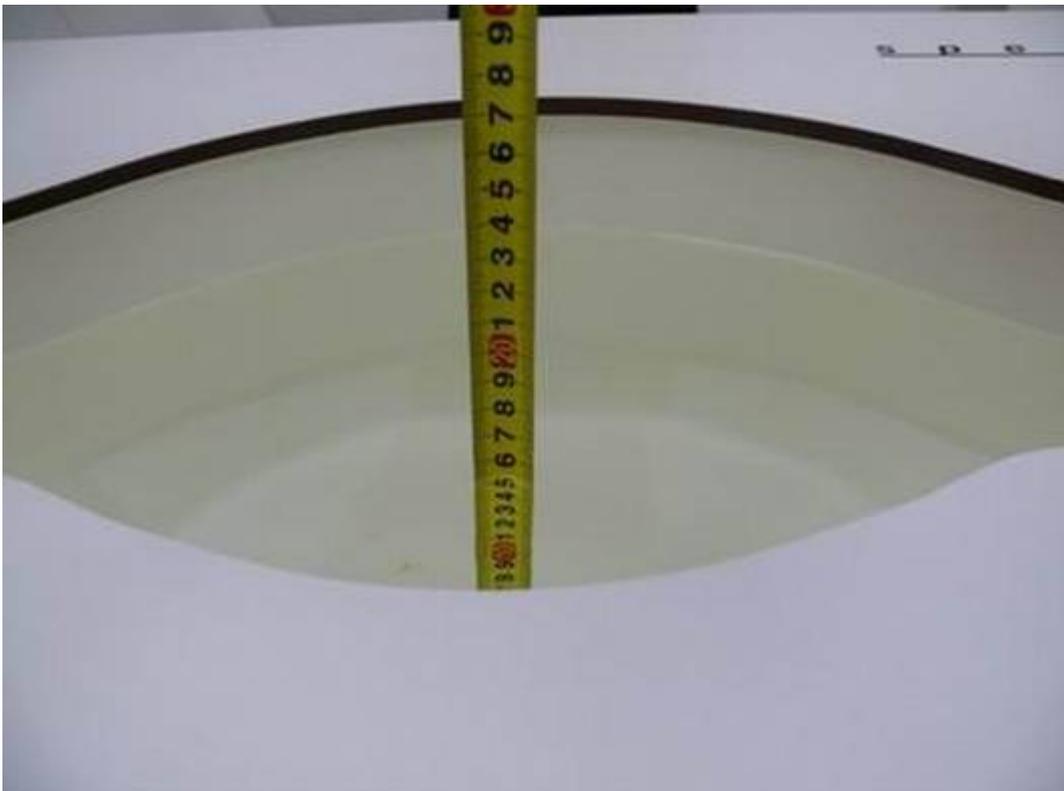
Picture 2: Liquid depth in the head Phantom (835MHz, 15.3cm depth)



Picture 3: Liquid depth in the Flat Phantom (835 MHz, 15.4cm depth)



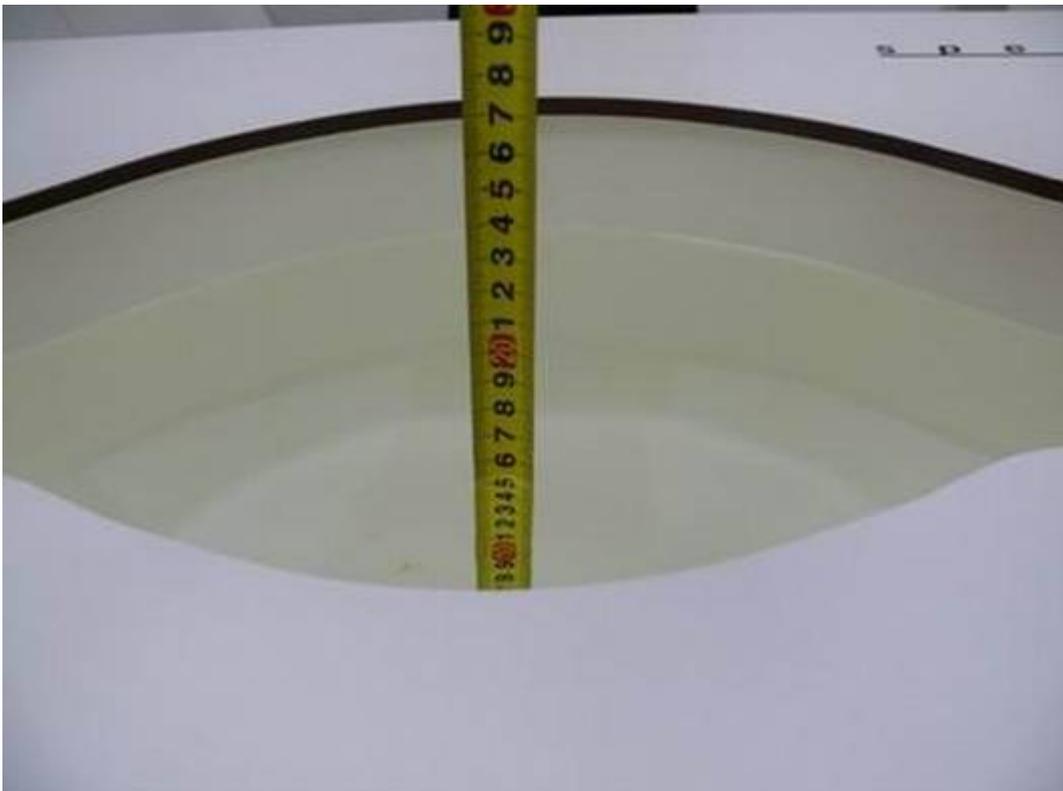
Picture 4: liquid depth in the head Phantom (1900 MHz, 15.2cm depth)



Picture 5: Liquid depth in the Flat Phantom (1900 MHz, 15.3cm depth)



Picture 6: liquid depth in the head Phantom (2450 MHz, 15.3cm depth)



Picture 7: Liquid depth in the Flat Phantom (2450 MHz, 15.4cm depth)

ANNEX B: System Check Results

System Performance Check at 835 MHz Head TSL

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d020

Date/Time: 10/27/2011 5:05 PM

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

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.91 \text{ mho/m}$; $\epsilon_r = 41.27$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 22.3°C

Liquid Temperature: 21.7°C

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(9.50, 9.50, 9.50); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246

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

d=15mm, Pin=250mW/Area Scan (101x121x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 2.81 mW/g

d=15mm, Pin=250mW/Zoom Scan (7x7x7) /Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 55.8 V/m; Power Drift = -0.060 dB

Peak SAR (extrapolated) = 3.50 W/kg

SAR(1 g) = 2.32 mW/g; SAR(10 g) = 1.51 mW/g

Maximum value of SAR (measured) = 2.83 mW/g

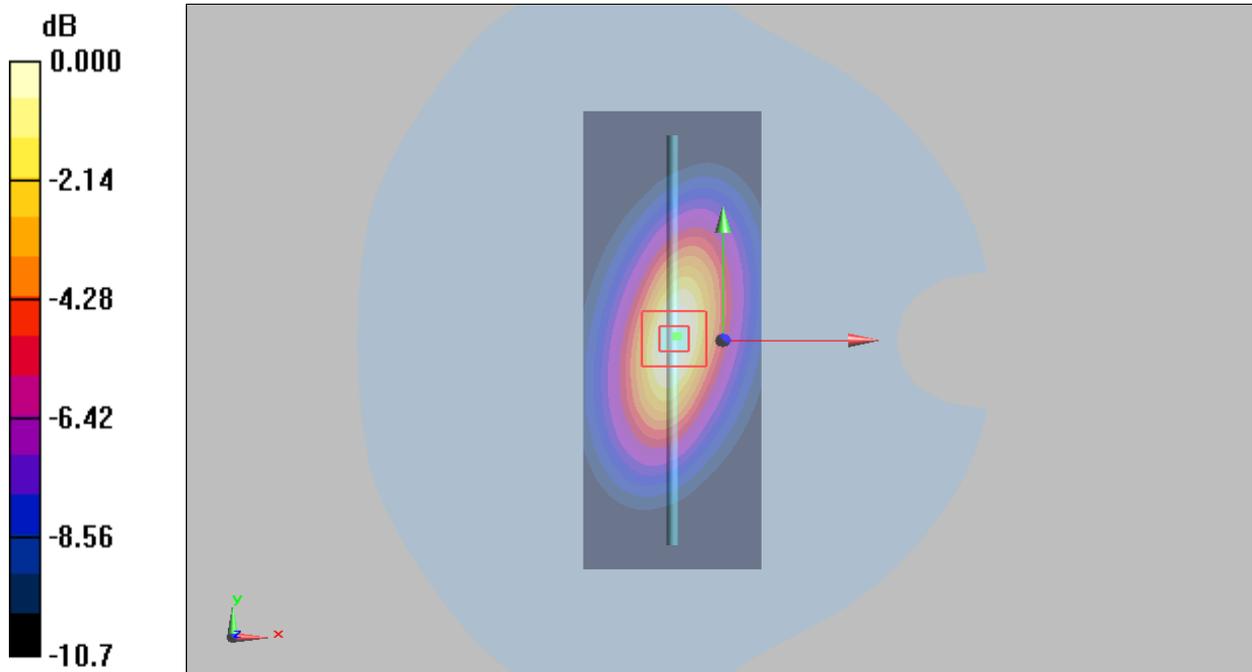


Figure 7 System Performance Check 835MHz 250mW

System Performance Check at 835 MHz Body TSL

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d020

Date/Time: 10/28/2011 12:40:49 AM

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

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 1.01 \text{ mho/m}$; $\epsilon_r = 55.89$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 22.3°C Liquid Temperature: 21.7°C

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(10.33, 10.33, 10.33); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246

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

d=15mm, Pin=250mW/Area Scan (101x121x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 2.93 mW/g

d=15mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$,
 $dz=5\text{mm}$

Reference Value = 55.7 V/m ; Power Drift = -0.017 dB

Peak SAR (extrapolated) = 3.59 W/kg

SAR(1 g) = 2.41 mW/g ; SAR(10 g) = 1.59 mW/g

Maximum value of SAR (measured) = 2.92 mW/g

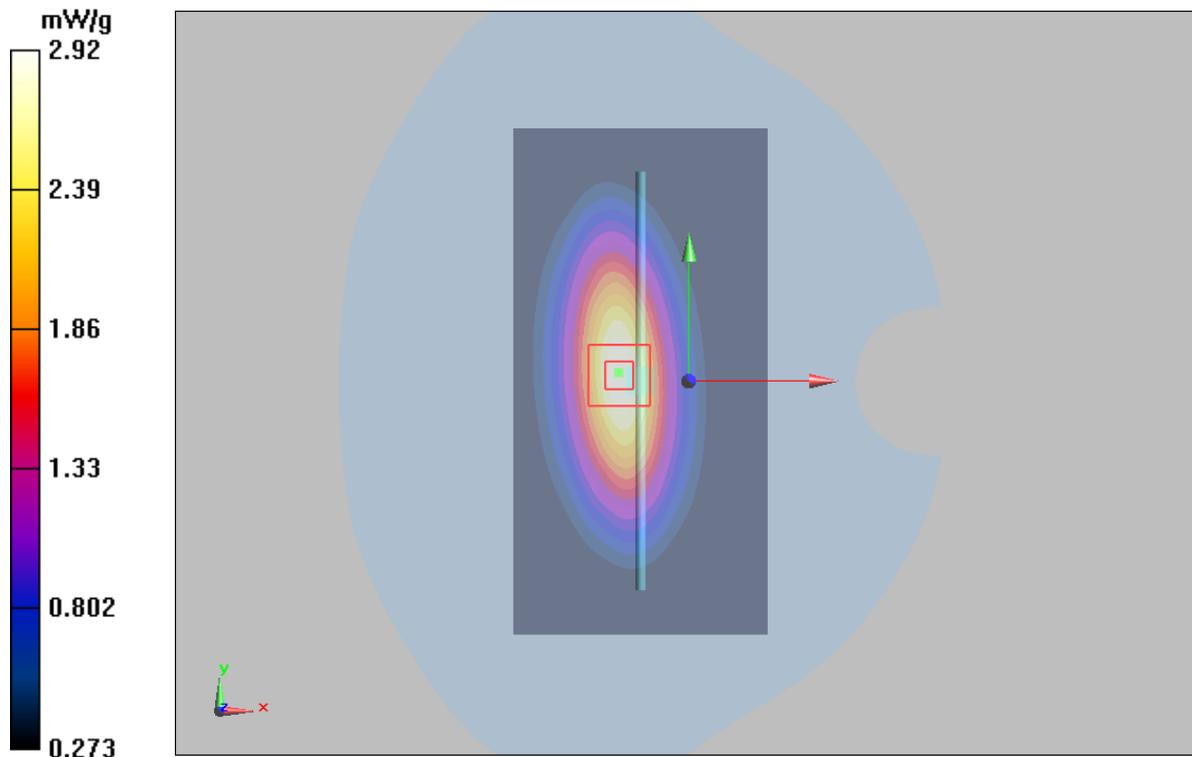


Figure 8 System Performance Check 835MHz 250mW

System Performance Check at 1900 MHz Head TSL

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d060

Date/Time: 10/26/2011 5:22:04 PM

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

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.43$ mho/m; $\epsilon_r = 39.92$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.8 °C

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.94, 7.94, 7.94); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

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

d=10mm, Pin=250mW/Area Scan (41x71x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 12.9 mW/g

d=10mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm,

dz=5mm

Reference Value = 87.8 V/m; Power Drift = 0.040 dB

Peak SAR (extrapolated) = 20.1 W/kg

SAR(1 g) = 10.58 mW/g; SAR(10 g) = 5.45 mW/g

Maximum value of SAR (measured) = 11.9 mW/g

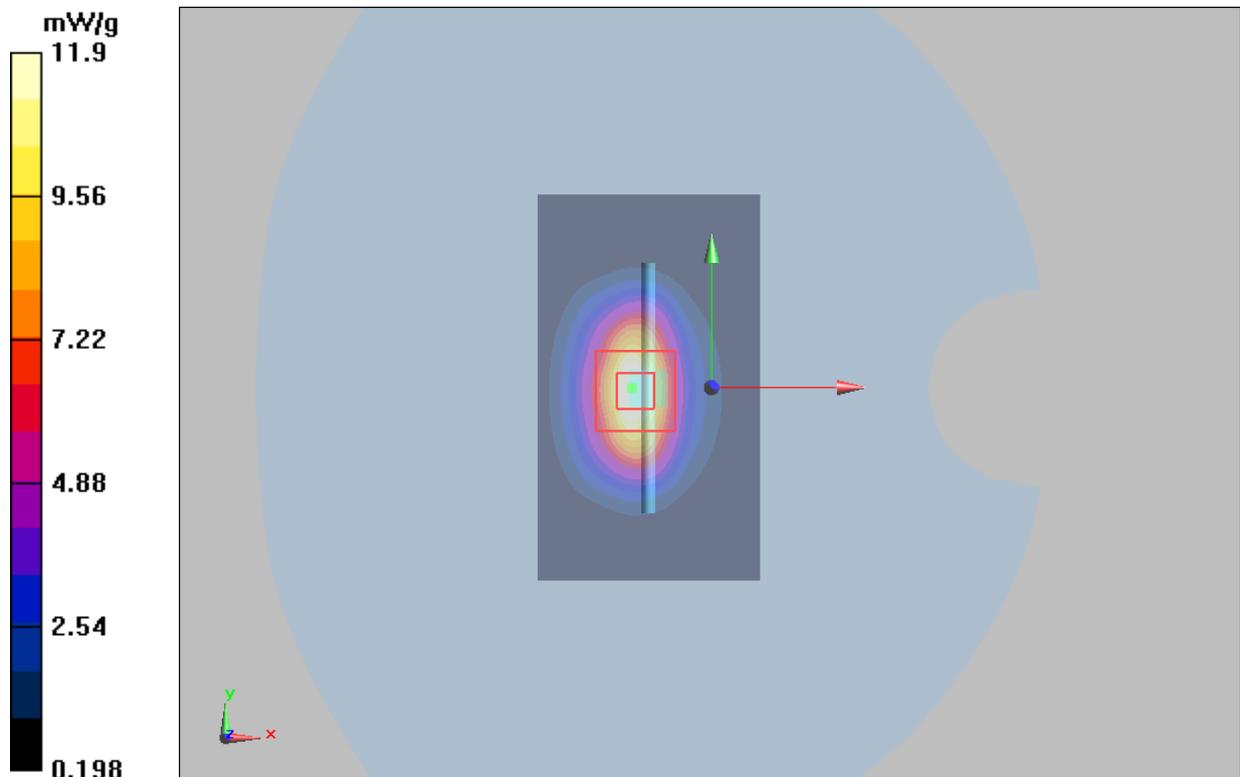


Figure 9 System Performance Check 1900MHz 250mW

System Performance Check at 1900 MHz Body TSL

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d060

Date/Time: 10/26/2011 8:29:19 PM

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

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.56$ mho/m; $\epsilon_r = 51.98$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.8 °C

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.77, 7.77, 7.77); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

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

d=10mm, Pin=250mW/Area Scan (41x71x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 12.5 mW/g

d=10mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 75.9 V/m; Power Drift = 0.051 dB

Peak SAR (extrapolated) = 16.8 W/kg

SAR(1 g) = 10.12 mW/g; SAR(10 g) = 5.35 mW/g

Maximum value of SAR (measured) = 11 mW/g

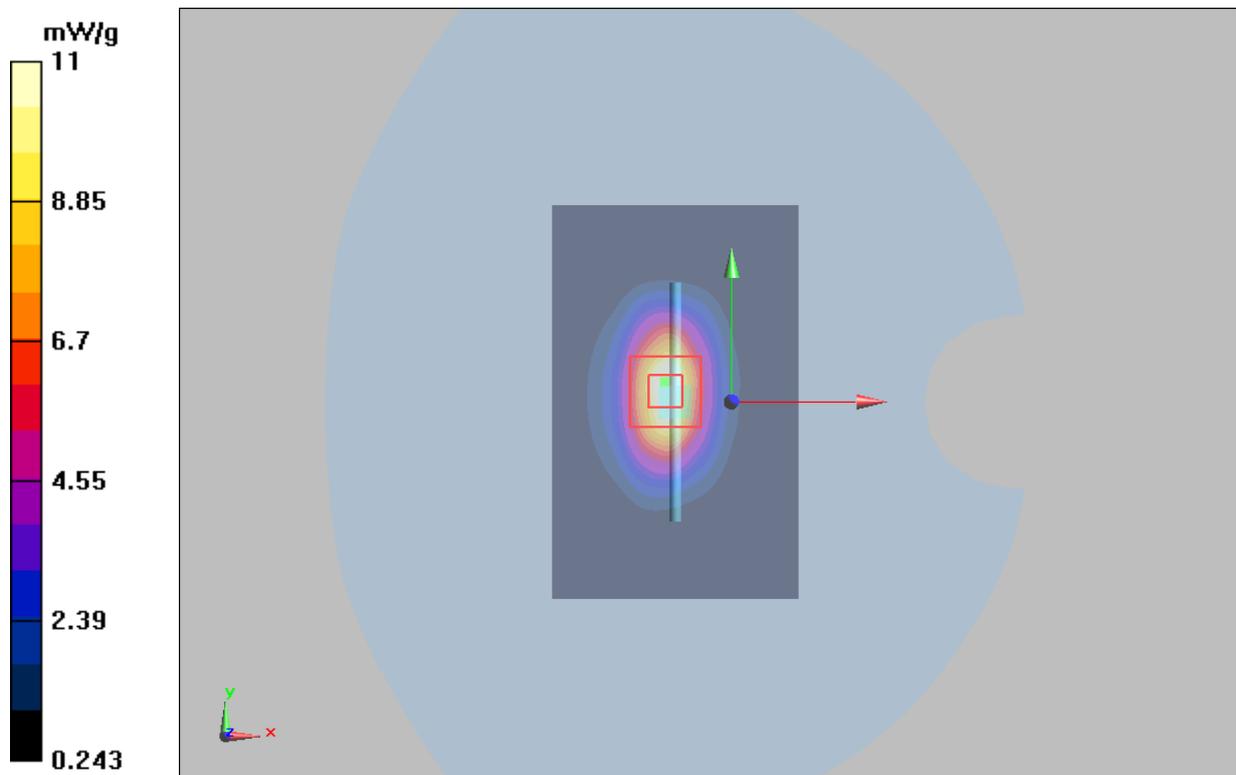


Figure 10 System Performance Check 1900MHz 250Mw

System Performance Check at 2450 MHz Head TSL

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 786

Date/Time: 10/27/2011 8:01:36 AM

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

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.81$ mho/m; $\epsilon_r = 39.27$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.8 °C

Phantom section: Flat Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.32, 7.32, 7.32); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

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

d=10mm, Pin=250mW/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 21.4 mW/g

d=10mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 67.0 V/m; Power Drift = 0.010 dB

Peak SAR (extrapolated) = 28.0 W/kg

SAR(1 g) = 14.06 mW/g; SAR(10 g) = 6.52 mW/g

Maximum value of SAR (measured) = 15.68 mW/g

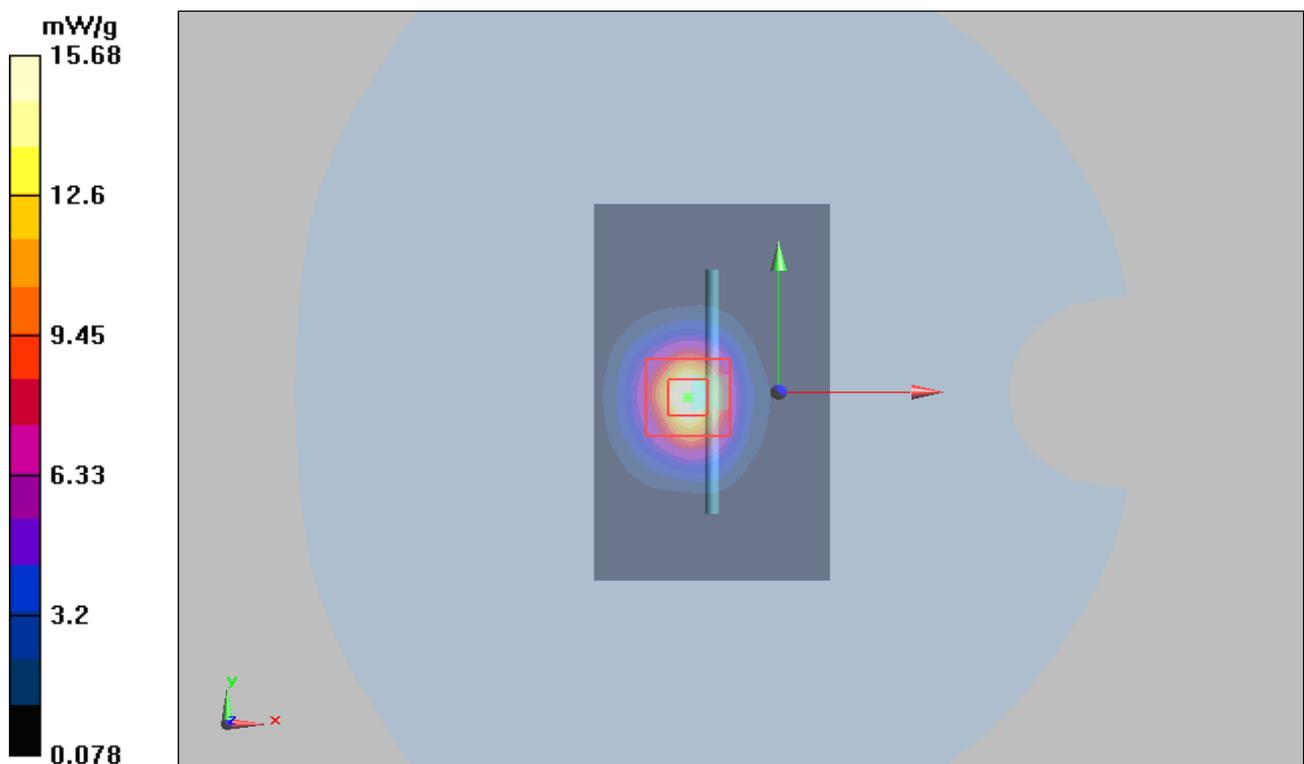


Figure 11 System Performance Check 2450MHz 250mW

System Performance Check at 2450 MHz Body TSL

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 786

Date/Time: 10/27/2011 11:00:36 AM

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

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.96$ mho/m; $\epsilon_r = 51.63$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.9 °C

Phantom section: Flat Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.46, 7.46, 7.46); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

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

d=10mm, Pin=250mW/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 21.5 mW/g

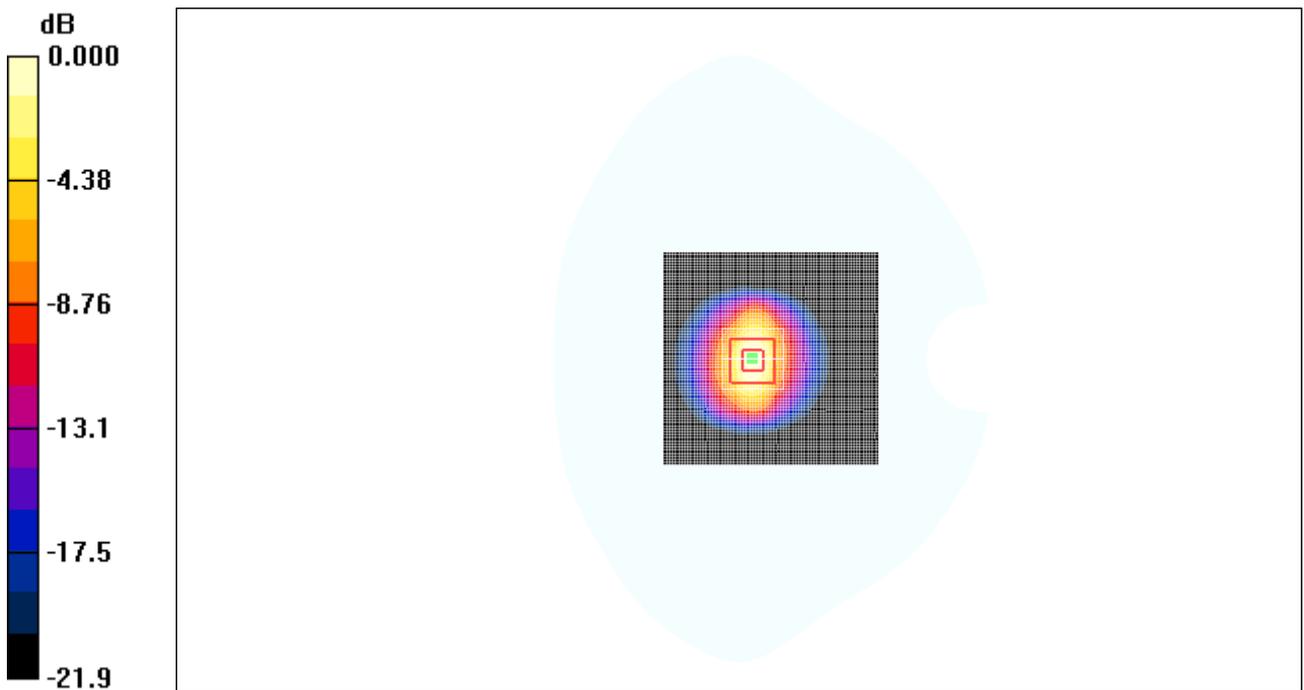
d=10mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 71.0 V/m; Power Drift = 0.011 dB

Peak SAR (extrapolated) = 28.2 W/kg

SAR(1 g) = 14.01 mW/g; SAR(10 g) = 6.48 mW/g

Maximum value of SAR (measured) = 19.82 mW/g



0 dB = 19.82mW/g

Figure 12 System Performance Check 2450MHz 250mW

ANNEX C: Graph Results

CDMA Cellular Left Cheek High

Date/Time: 10/28/2011 7:09:58 AM

Communication System: CDMA Cellular; Frequency: 848.31 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 848.31$ MHz; $\sigma = 0.92$ mho/m; $\epsilon_r = 41.1$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Left Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(9.50, 9.50, 9.50); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246

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

Cheek High/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.06 mW/g

Cheek High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 12.2 V/m; Power Drift = 0.014 dB

Peak SAR (extrapolated) = 1.41 W/kg

SAR(1 g) = 0.982 mW/g; SAR(10 g) = 0.675 mW/g

Maximum value of SAR (measured) = 1.05 mW/g

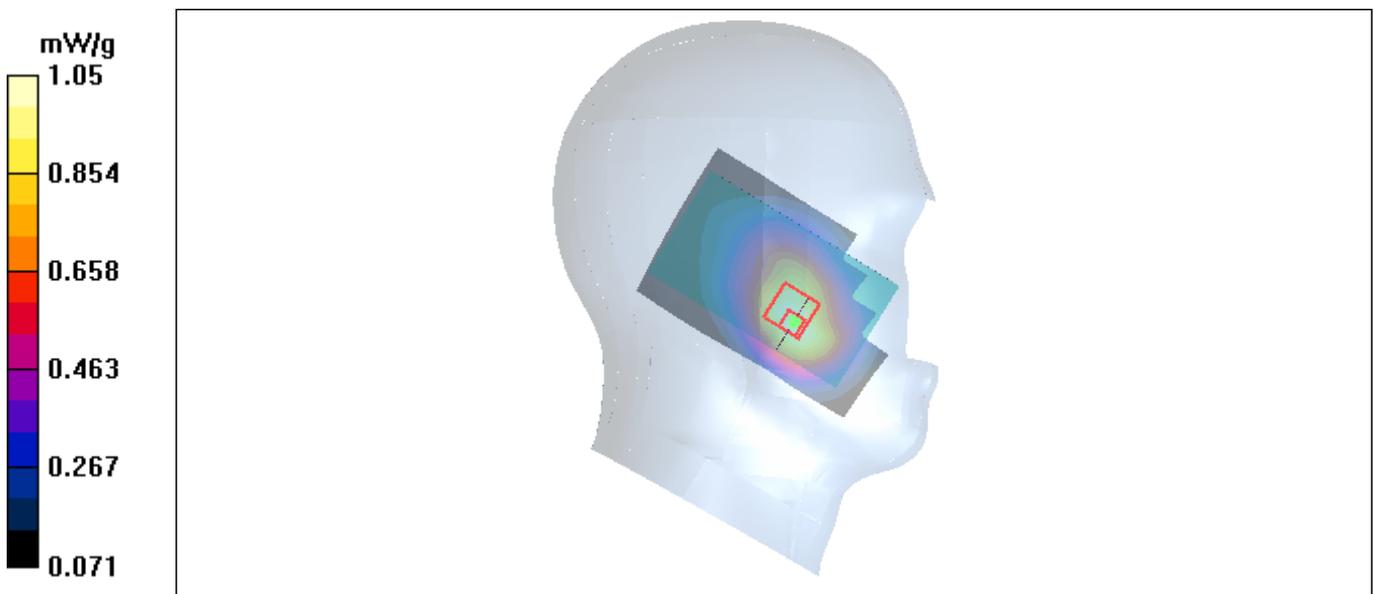


Figure 13 CDMA Cellular Left Hand Touch Cheek Channel 777

CDMA Cellular Left Cheek Middle

Date/Time: 10/27/2011 6:41:59 PM

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

Medium parameters used: $f = 837$ MHz; $\sigma = 0.908$ mho/m; $\epsilon_r = 41.2$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Left Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(9.50, 9.50, 9.50); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246

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

Cheek Middle/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.12 mW/g

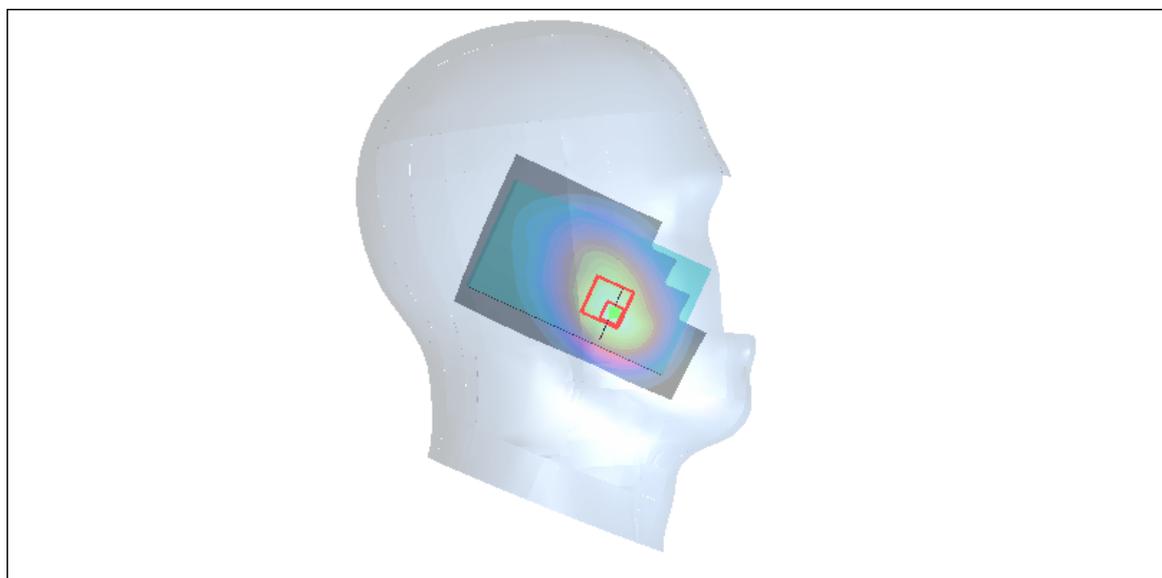
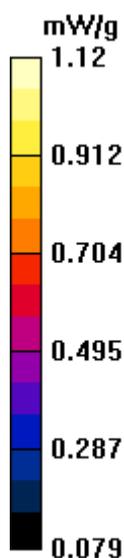
Cheek Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 12.9 V/m; Power Drift = -0.008 dB

Peak SAR (extrapolated) = 1.42 W/kg

SAR(1 g) = 1.03 mW/g; SAR(10 g) = 0.730 mW/g

Maximum value of SAR (measured) = 1.12 mW/g



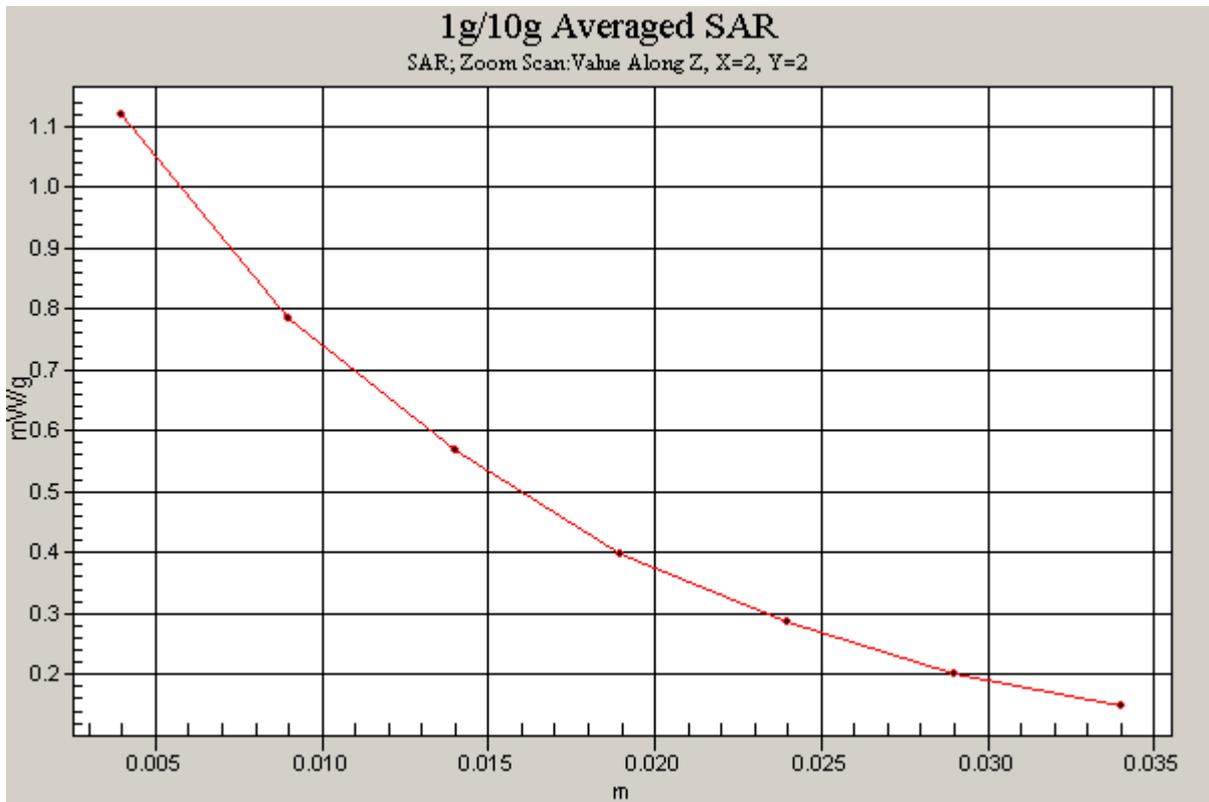


Figure 14 CDMA Cellular Left Hand Touch Cheek Channel 384

CDMA Cellular Left Cheek Low

Date/Time: 10/28/2011 7:24:11 AM

Communication System: CDMA Cellular; Frequency: 824.7 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 825$ MHz; $\sigma = 0.898$ mho/m; $\epsilon_r = 41.4$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Left Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(9.50, 9.50, 9.50); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246

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

Cheek Low/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.06 mW/g

Cheek Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 12.1 V/m; Power Drift = 0.064 dB

Peak SAR (extrapolated) = 1.46 W/kg

SAR(1 g) = 0.996 mW/g; SAR(10 g) = 0.688 mW/g

Maximum value of SAR (measured) = 1.08 mW/g

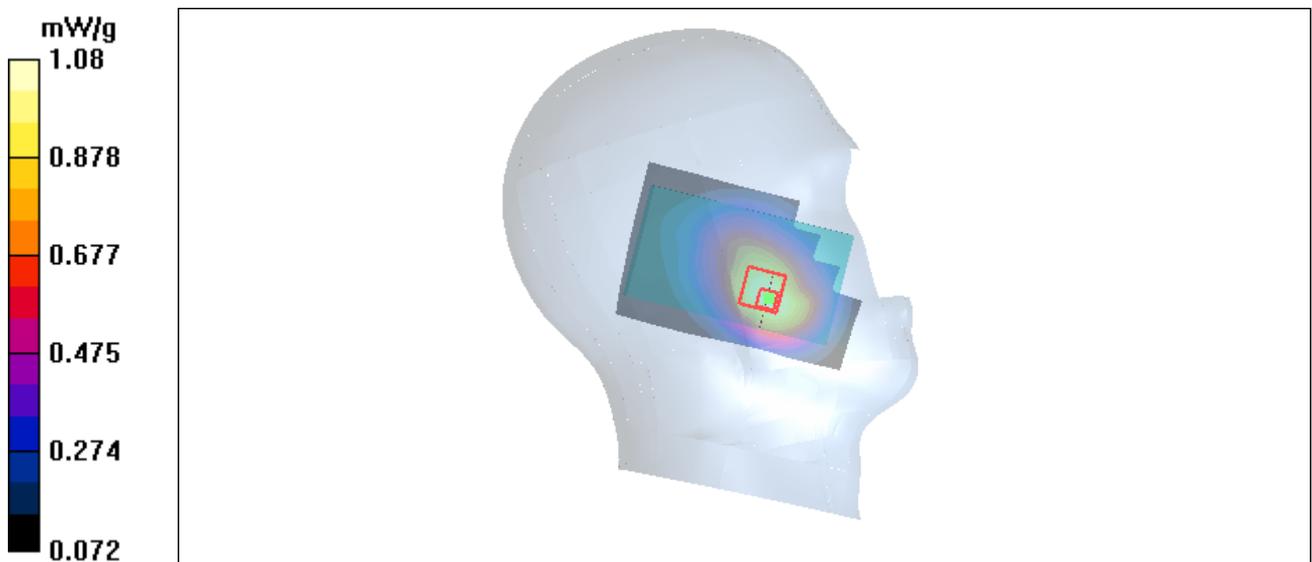


Figure 15 CDMA Cellular Left Hand Touch Cheek Channel 1013

CDMA Cellular Left Tilt Middle

Date/Time: 10/28/2011 7:38:55 AM

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

Medium parameters used: $f = 837$ MHz; $\sigma = 0.908$ mho/m; $\epsilon_r = 41.2$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Left Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(9.50, 9.50, 9.50); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246

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

Tilt Middle/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.560 mW/g

Tilt Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 18.8 V/m; Power Drift = -0.180 dB

Peak SAR (extrapolated) = 0.634 W/kg

SAR(1 g) = 0.528 mW/g; SAR(10 g) = 0.402 mW/g

Maximum value of SAR (measured) = 0.563 mW/g

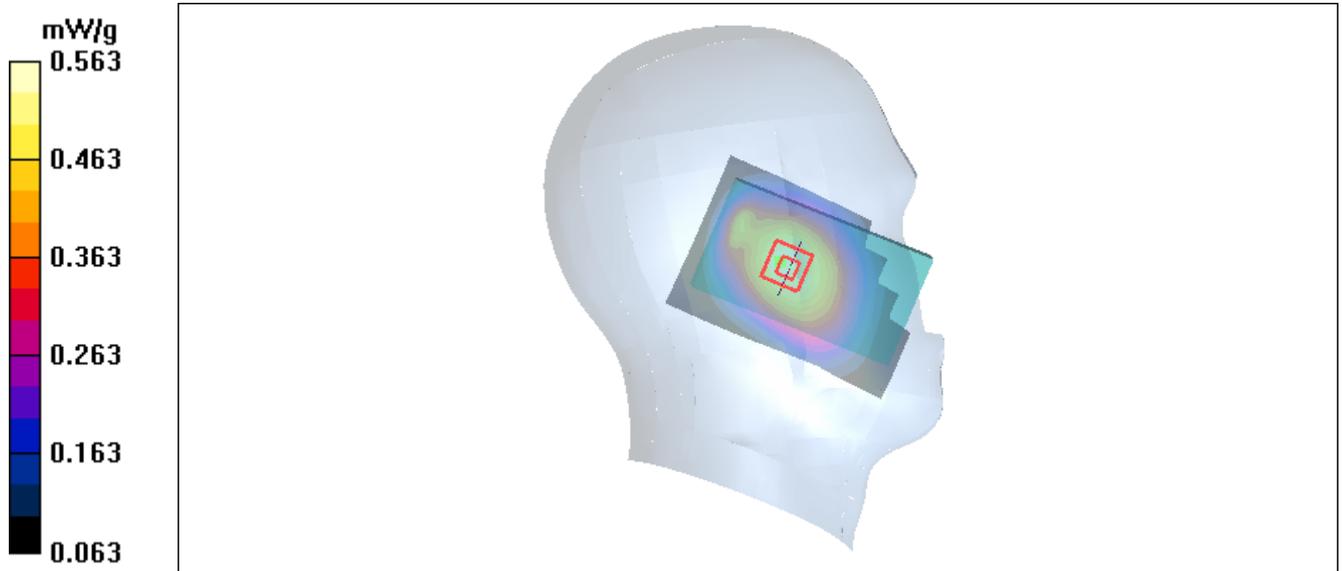


Figure 16 CDMA Cellular Left Hand Tilt 15° Channel 384

CDMA Cellular Right Cheek High

Date/Time: 10/28/2011 11:31:49 AM

Communication System: CDMA Cellular; Frequency: 848.31 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 848.31$ MHz; $\sigma = 0.92$ mho/m; $\epsilon_r = 41.1$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Right Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(9.50, 9.50, 9.50); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246

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

Cheek High/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.05 mW/g

Cheek High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 12.7 V/m; Power Drift = -0.099 dB

Peak SAR (extrapolated) = 1.14 W/kg

SAR(1 g) = 0.959 mW/g; SAR(10 g) = 0.727 mW/g

Maximum value of SAR (measured) = 1.02 mW/g

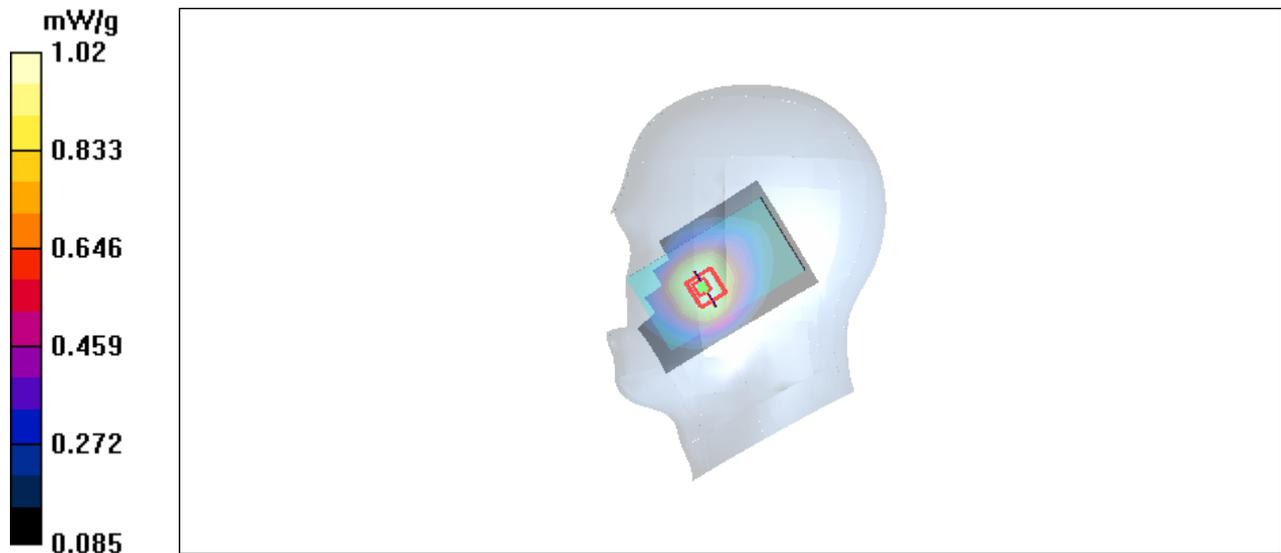


Figure 17 CDMA Cellular Right Hand Touch Cheek Channel 777

CDMA Cellular Right Cheek Middle

Date/Time: 10/28/2011 6:36:41 AM

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

Medium parameters used: $f = 837$ MHz; $\sigma = 0.908$ mho/m; $\epsilon_r = 41.2$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Right Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(9.50, 9.50, 9.50); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246

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

Cheek Middle/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.01 mW/g

Cheek Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 12.4 V/m; Power Drift = 0.088 dB

Peak SAR (extrapolated) = 1.14 W/kg

SAR(1 g) = 0.990 mW/g; SAR(10 g) = 0.755 mW/g

Maximum value of SAR (measured) = 1.05 mW/g

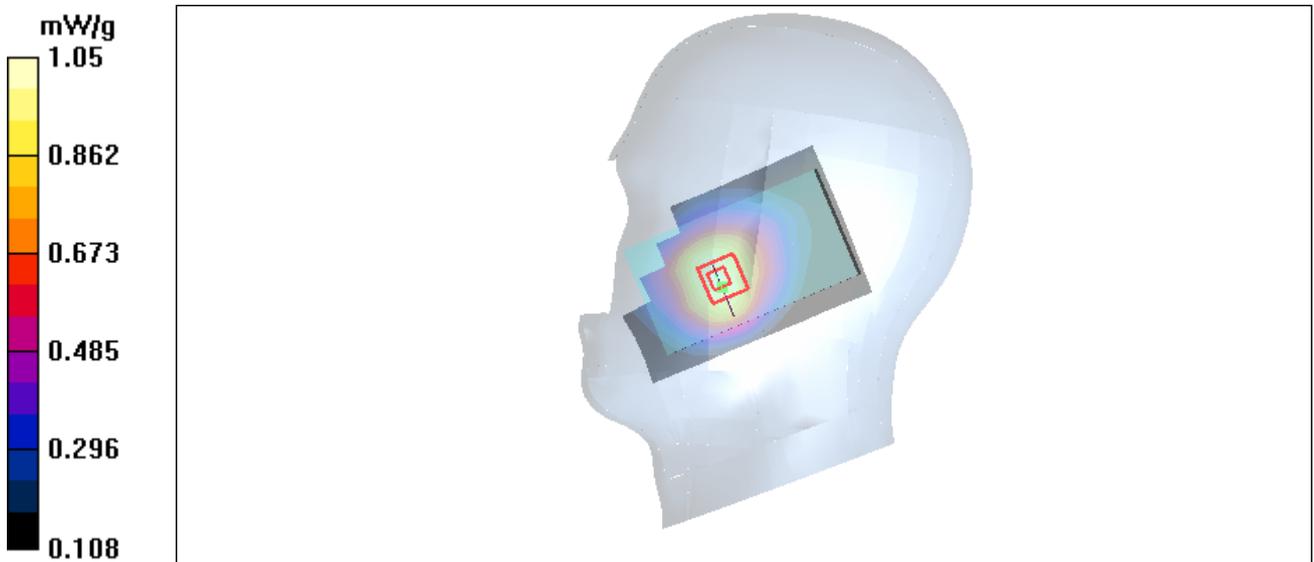


Figure 18 CDMA Cellular Right Hand Touch Cheek Channel 384

CDMA Cellular Right Cheek Low

Date/Time: 10/28/2011 11:46:11 AM

Communication System: CDMA Cellular; Frequency: 824.7 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 825$ MHz; $\sigma = 0.898$ mho/m; $\epsilon_r = 41.4$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Right Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(9.50, 9.50, 9.50); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246

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

Cheek Low/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.08 mW/g

Cheek Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 13.1 V/m; Power Drift = -0.134 dB

Peak SAR (extrapolated) = 1.24 W/kg

SAR(1 g) = 0.979 mW/g; SAR(10 g) = 0.739 mW/g

Maximum value of SAR (measured) = 1.04 mW/g

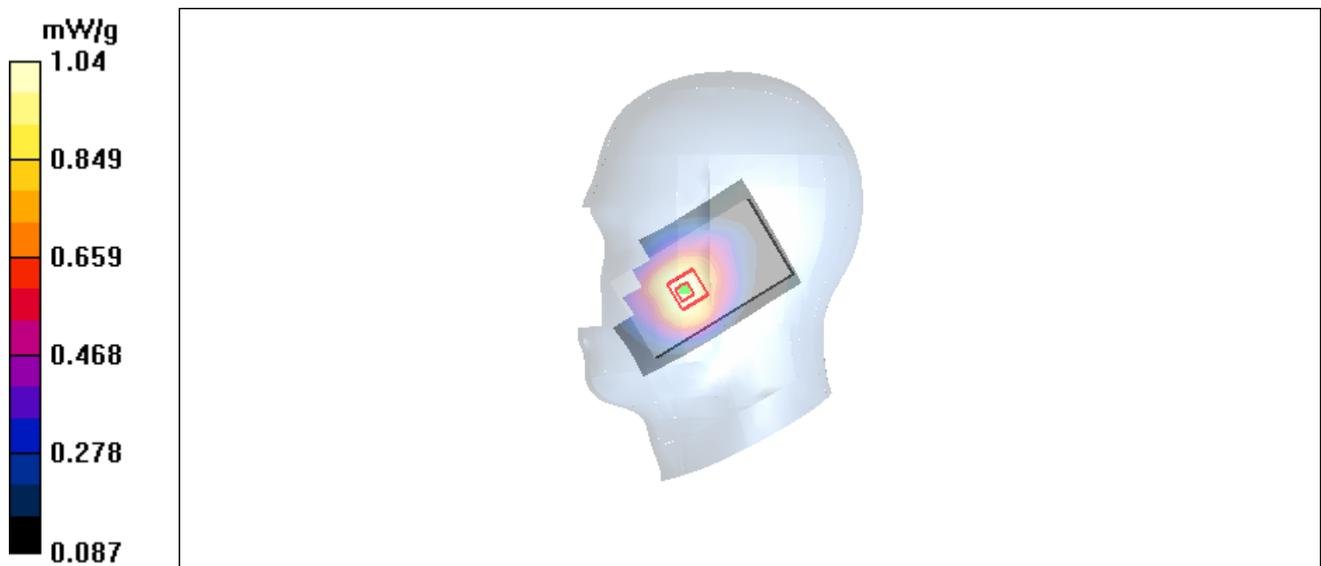


Figure 19 CDMA Cellular Right Hand Touch Cheek Channel 1013

CDMA Cellular Right Tilt Middle

Date/Time: 10/28/2011 6:50:56 AM

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

Medium parameters used: $f = 837$ MHz; $\sigma = 0.908$ mho/m; $\epsilon_r = 41.2$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Right Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(9.50, 9.50, 9.50); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246

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

Tilt Middle/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.579 mW/g

Tilt Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 18.6 V/m; Power Drift = -0.058 dB

Peak SAR (extrapolated) = 0.677 W/kg

SAR(1 g) = 0.562 mW/g; SAR(10 g) = 0.426 mW/g

Maximum value of SAR (measured) = 0.593 mW/g

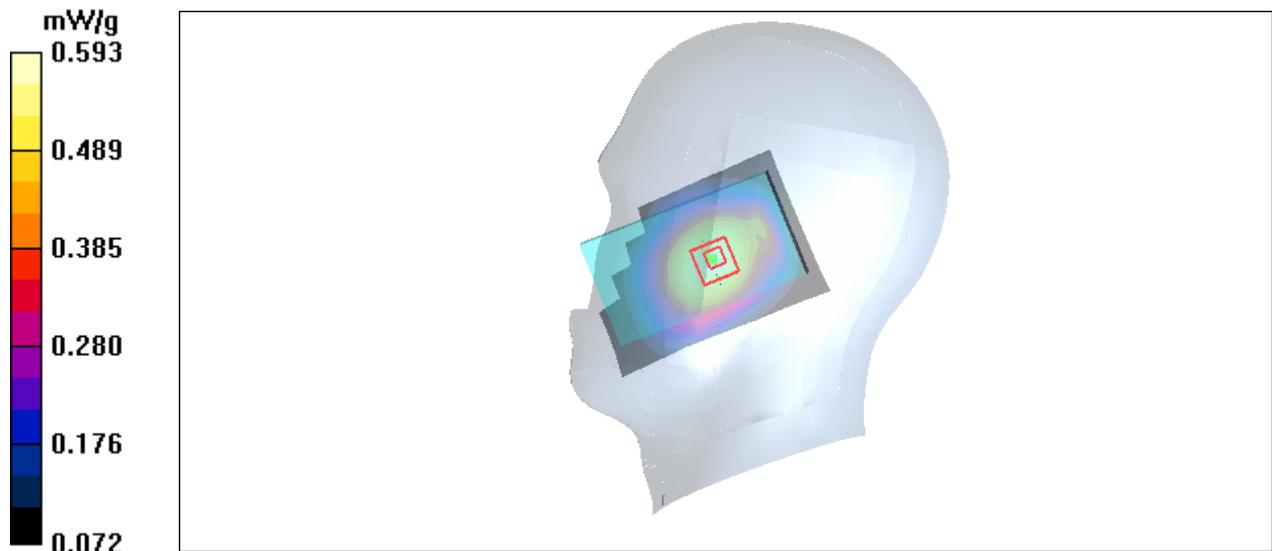


Figure 20 CDMA Cellular Right Hand Tilt 15° Channel 384

CDMA Cellular Towards Ground High

Date/Time: 10/28/2011 2:14:06 AM

Communication System: CDMA Cellular; Frequency: 848.31 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 848.31$ MHz; $\sigma = 1.02$ mho/m; $\epsilon_r = 55.8$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Flat Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(10.33, 10.33, 10.33); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246

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

Towards Ground High/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.864 mW/g

Towards Ground High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm,

dz=5mm

Reference Value = 13.8 V/m; Power Drift = 0.044 dB

Peak SAR (extrapolated) = 1.01 W/kg

SAR(1 g) = 0.805 mW/g; SAR(10 g) = 0.593 mW/g

Maximum value of SAR (measured) = 0.850 mW/g

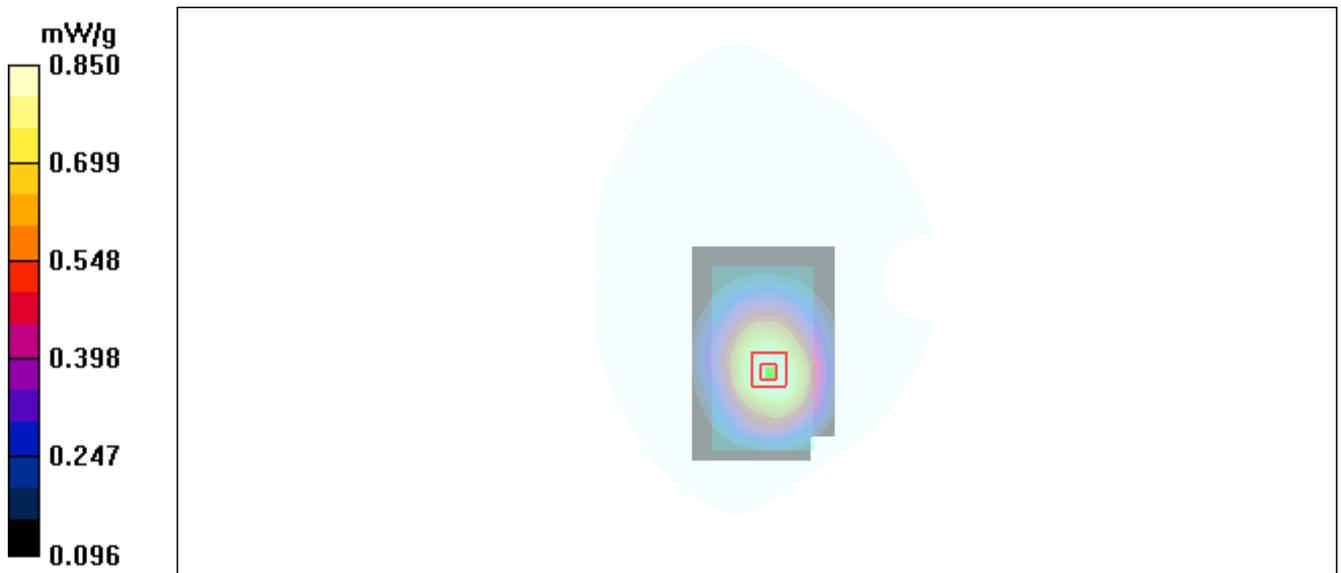


Figure 21 Body, CDMA Cellular Towards Ground Channel 777

CDMA Cellular Towards Ground Middle

Date/Time: 10/28/2011 9:07:18 AM

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

Medium parameters used: $f = 837$ MHz; $\sigma = 1.01$ mho/m; $\epsilon_r = 55.9$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Flat Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(10.33, 10.33, 10.33); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246

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

Towards Ground Middle/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.897 mW/g

Towards Ground Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 14.9 V/m; Power Drift = -0.078 dB

Peak SAR (extrapolated) = 1.07 W/kg

SAR(1 g) = 0.868 mW/g; SAR(10 g) = 0.638 mW/g

Maximum value of SAR (measured) = 0.925 mW/g

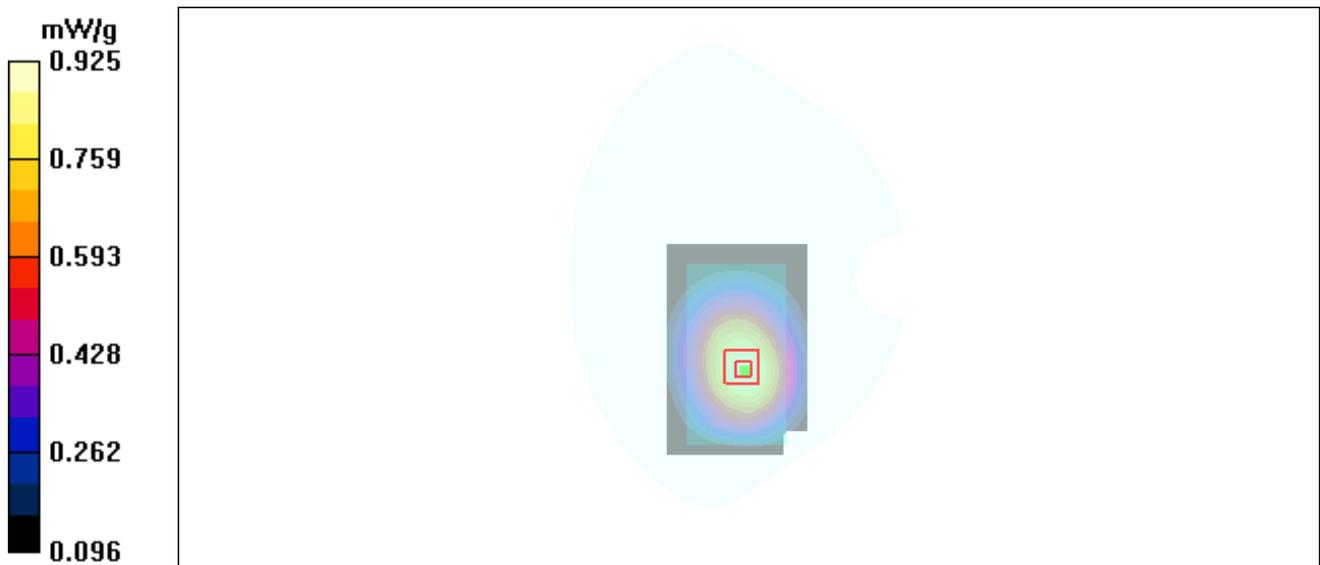


Figure 22 Body, CDMA Cellular Towards Ground Channel 384

CDMA Cellular Towards Ground Low

Date/Time: 10/28/2011 2:27:08 AM

Communication System: CDMA Cellular; Frequency: 824.7 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 825$ MHz; $\sigma = 0.999$ mho/m; $\epsilon_r = 56$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Flat Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(10.33, 10.33, 10.33); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246

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

Towards Ground Low/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.877 mW/g

Towards Ground Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 14.5 V/m; Power Drift = -0.194 dB

Peak SAR (extrapolated) = 1.06 W/kg

SAR(1 g) = 0.844 mW/g; SAR(10 g) = 0.627 mW/g

Maximum value of SAR (measured) = 0.891 mW/g

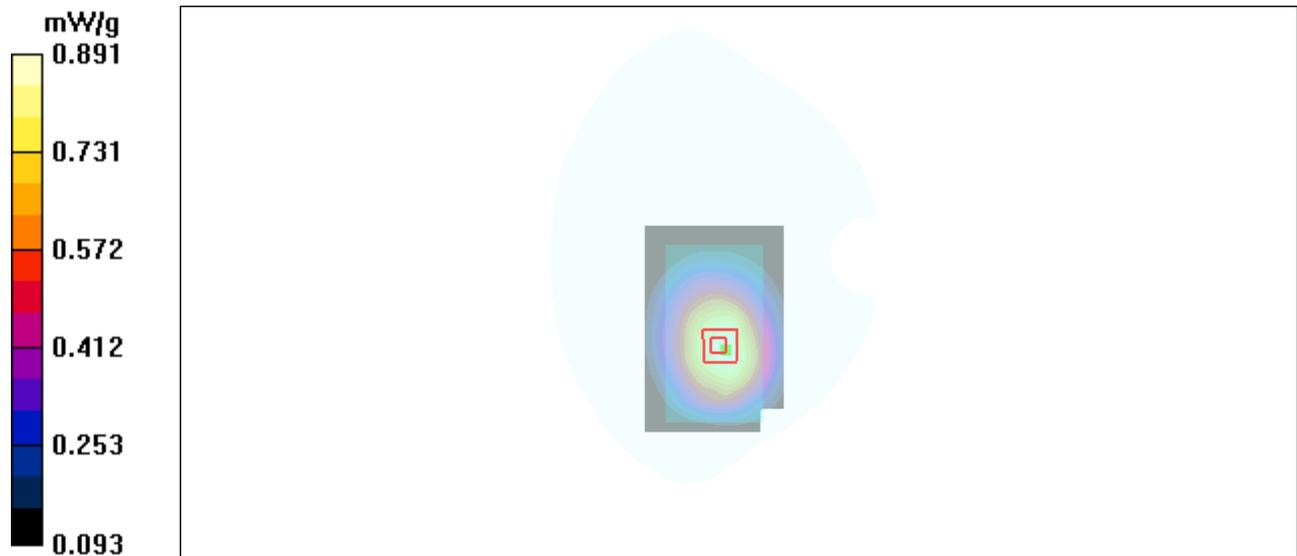


Figure 23 Body, CDMA Cellular Towards Ground Channel 1013

CDMA Cellular Towards Phantom High

Date/Time: 10/28/2011 1:00:09 PM

Communication System: CDMA Cellular; Frequency: 848.31 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 848.31$ MHz; $\sigma = 1.02$ mho/m; $\epsilon_r = 55.8$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Flat Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(10.33, 10.33, 10.33); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246

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

Towards Phantom High/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.749 mW/g

Towards Phantom High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm,

dz=5mm

Reference Value = 13.5 V/m; Power Drift = -0.126 dB

Peak SAR (extrapolated) = 0.914 W/kg

SAR(1 g) = 0.699 mW/g; SAR(10 g) = 0.513 mW/g

Maximum value of SAR (measured) = 0.734 mW/g

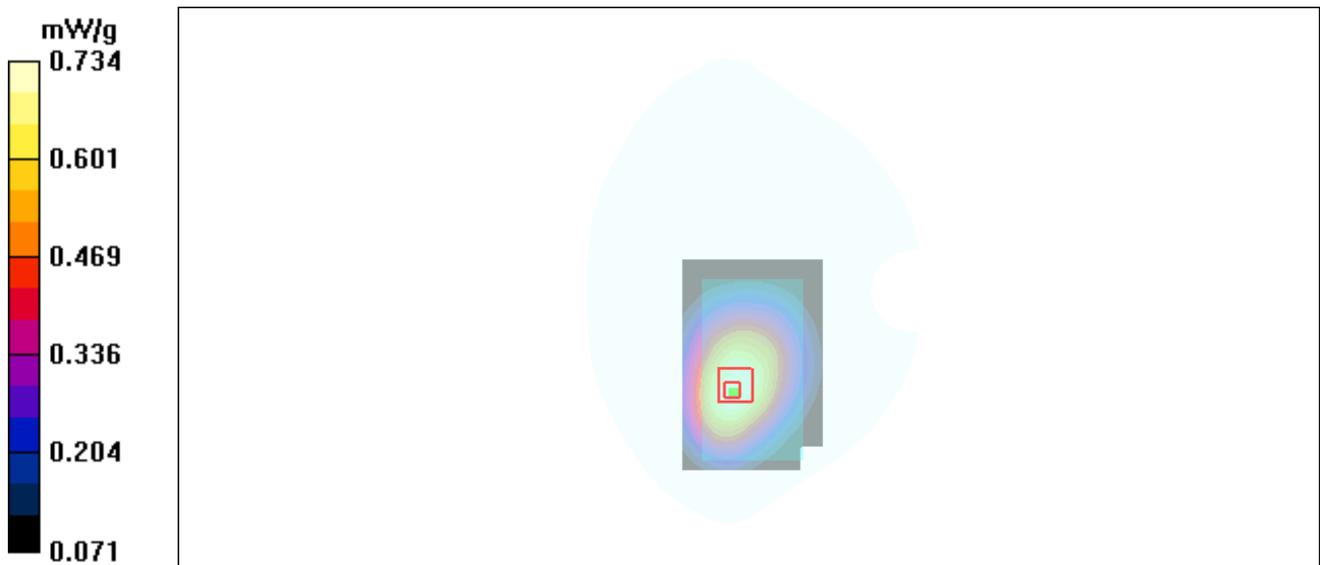


Figure 24 Body, CDMA Cellular Towards Phantom Channel 777

CDMA Cellular Towards Phantom Middle

Date/Time: 10/28/2011 9:23:47 AM

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

Medium parameters used: $f = 837$ MHz; $\sigma = 1.01$ mho/m; $\epsilon_r = 55.9$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Flat Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(10.33, 10.33, 10.33); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246

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

Towards Phantom Middle/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.844 mW/g

Towards Phantom Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm,

dz=5mm

Reference Value = 13.3 V/m; Power Drift = -0.119 dB

Peak SAR (extrapolated) = 1.02 W/kg

SAR(1 g) = 0.803 mW/g; SAR(10 g) = 0.591 mW/g

Maximum value of SAR (measured) = 0.848 mW/g

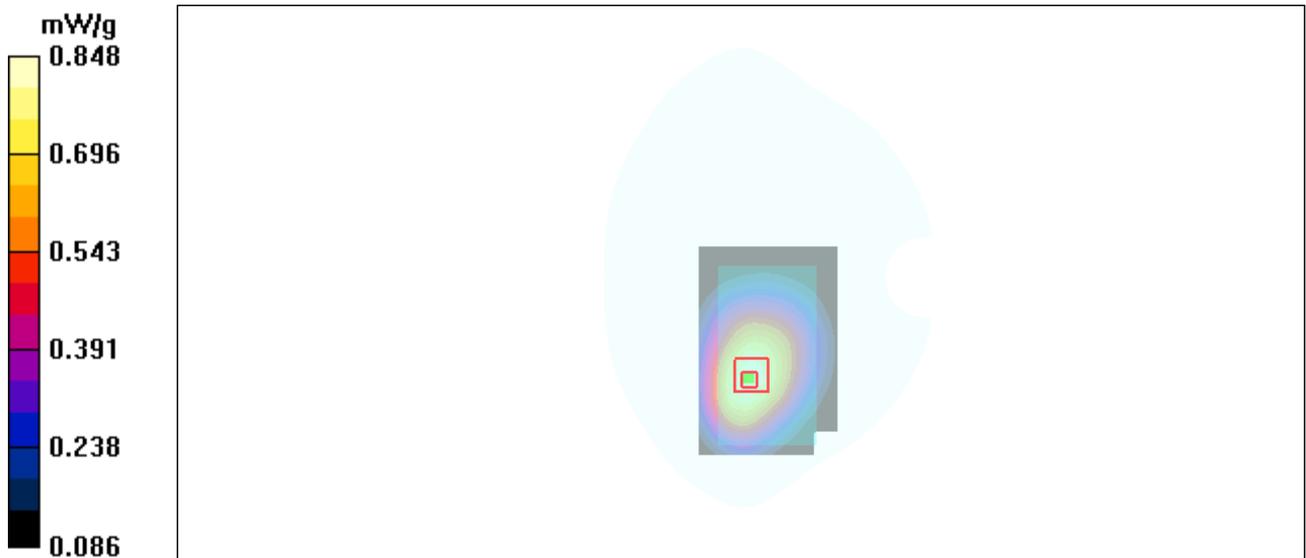


Figure 25 Body, CDMA Cellular Towards Phantom Channel 384

CDMA Cellular Towards Phantom Low

Date/Time: 10/28/2011 1:13:52 PM

Communication System: CDMA Cellular; Frequency: 824.7 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 825$ MHz; $\sigma = 0.999$ mho/m; $\epsilon_r = 56$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Flat Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(10.33, 10.33, 10.33); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246

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

Towards Phantom Low/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.798 mW/g

Towards Phantom Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 13.8 V/m; Power Drift = 0.025 dB

Peak SAR (extrapolated) = 0.939 W/kg

SAR(1 g) = 0.756 mW/g; SAR(10 g) = 0.557 mW/g

Maximum value of SAR (measured) = 0.796 mW/g

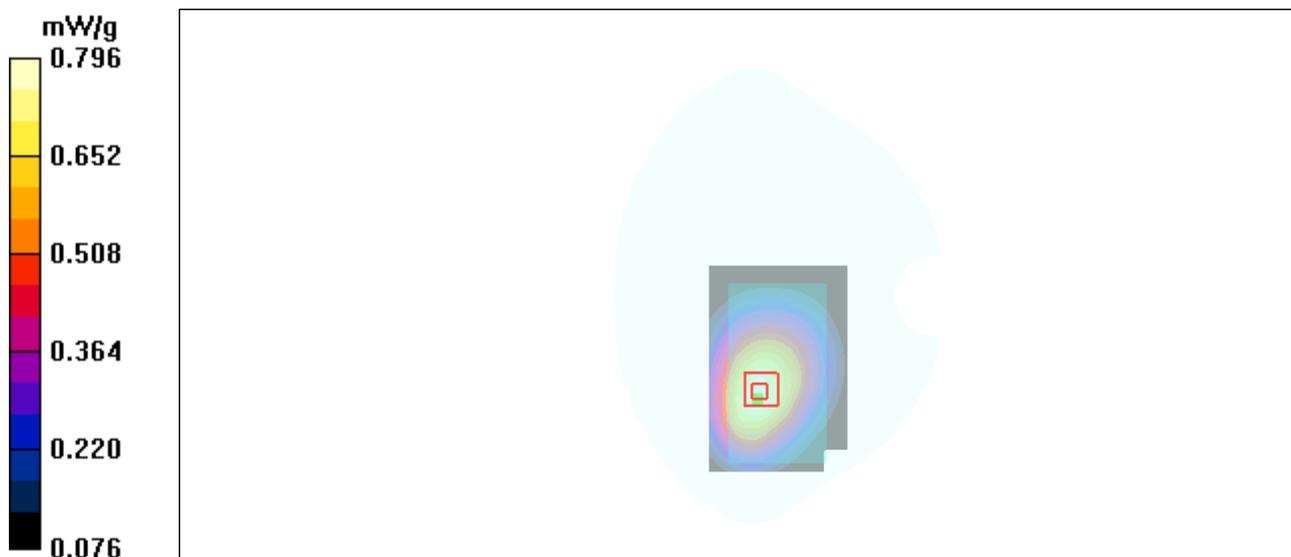


Figure 26 Body, CDMA Cellular Towards Phantom Channel 1013

CDMA Cellular with EVDO Rev.0 Towards Ground Middle

Date/Time: 10/28/2011 2:42:00 AM

Communication System: CDMA Cellular Rev.0; Frequency: 836.52 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 837$ MHz; $\sigma = 1.01$ mho/m; $\epsilon_r = 55.9$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Flat Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(10.33, 10.33, 10.33); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246

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

Towards Ground Middle/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.904 mW/g

Towards Ground Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm,

dz=5mm

Reference Value = 14.6 V/m; Power Drift = -0.107 dB

Peak SAR (extrapolated) = 1.03 W/kg

SAR(1 g) = 0.842 mW/g; SAR(10 g) = 0.626 mW/g

Maximum value of SAR (measured) = 0.888 mW/g

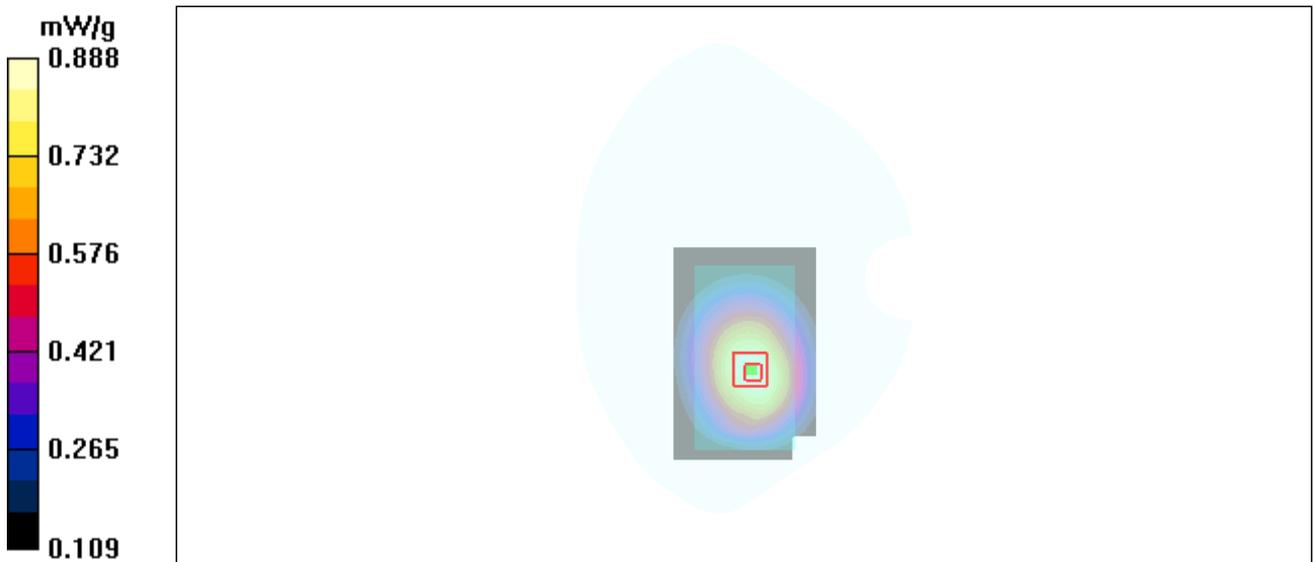


Figure 27 Body, CDMA Cellular with EVDO Rev.0 Towards Ground Channel 384

CDMA Cellular with EVDO Rev.A Towards Ground Middle

Date/Time: 10/28/2011 2:58:58 AM

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

Medium parameters used: $f = 837$ MHz; $\sigma = 1.01$ mho/m; $\epsilon_r = 55.9$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Flat Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(10.33, 10.33, 10.33); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246

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

Towards Ground Middle/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.899 mW/g

Towards Ground Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm,

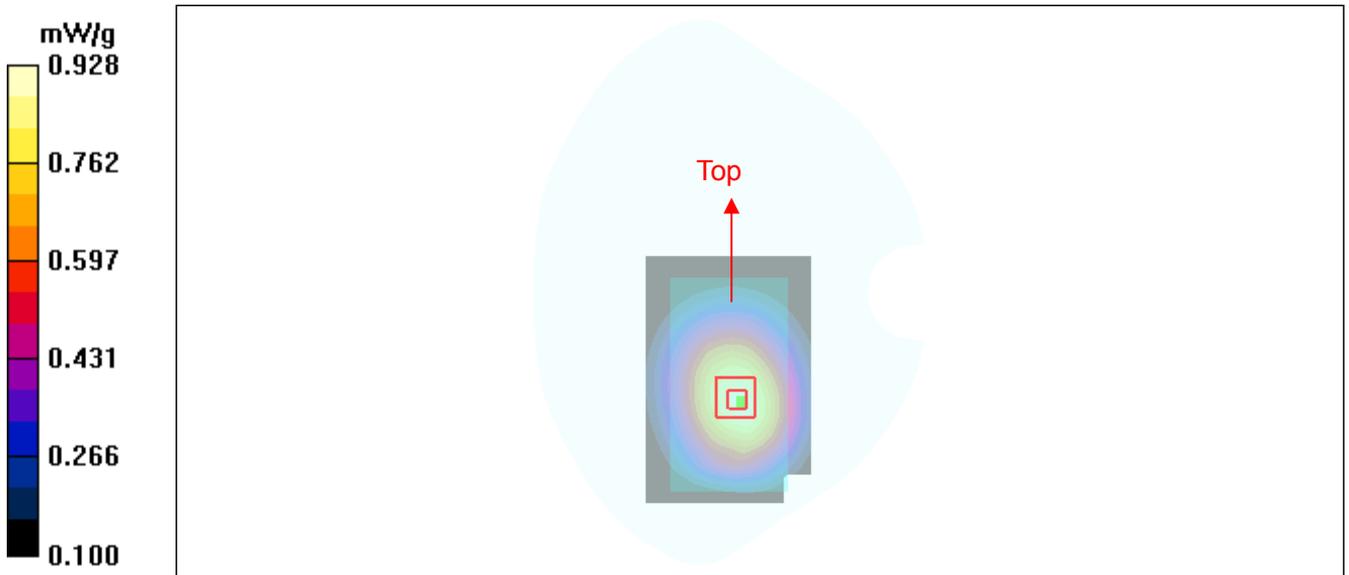
dz=5mm

Reference Value = 14.5 V/m; Power Drift = -0.049 dB

Peak SAR (extrapolated) = 1.08 W/kg

SAR(1 g) = 0.872 mW/g; SAR(10 g) = 0.636 mW/g

Maximum value of SAR (measured) = 0.928 mW/g



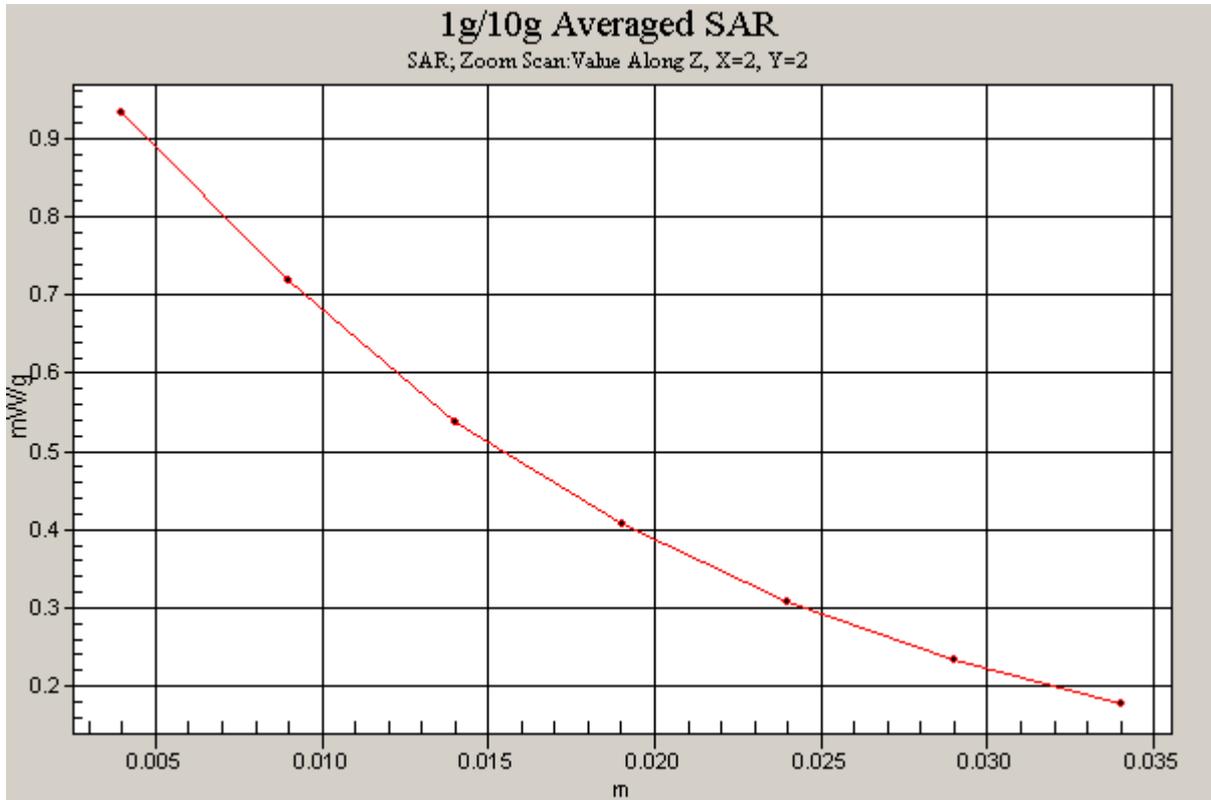


Figure 28 Body, CDMA Cellular with EVDO Rev.A Towards Ground Channel 384

CDMA Cellular with Earphone Towards Ground Middle

Date/Time: 10/28/2011 3:12:38 AM

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

Medium parameters used: $f = 837$ MHz; $\sigma = 1.01$ mho/m; $\epsilon_r = 55.9$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Flat Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(10.33, 10.33, 10.33); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM 12; Type: SAM V4.0; Serial: TP-1246

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

Towards Ground Middle/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.676 mW/g

Towards Ground Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 11.4 V/m; Power Drift = -0.057 dB

Peak SAR (extrapolated) = 0.848 W/kg

SAR(1 g) = 0.641 mW/g; SAR(10 g) = 0.462 mW/g

Maximum value of SAR (measured) = 0.682 mW/g

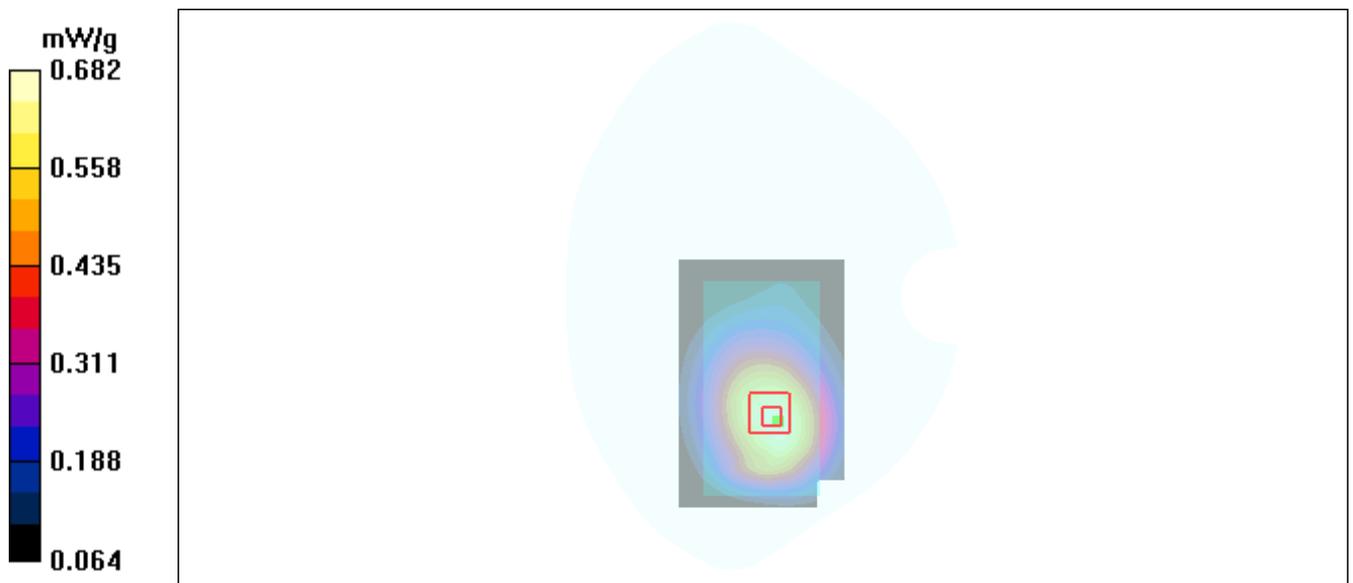


Figure 29 Body, CDMA Cellular with Earphone Towards Ground Channel 384

CDMA PCS Left Cheek High

Date/Time: 10/27/2011 5:14:47 AM

Communication System: CDMA PCS; Frequency: 1908.75 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 1908.75$ MHz; $\sigma = 1.44$ mho/m; $\epsilon_r = 39.9$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Left Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.94, 7.94, 7.94); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

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

Cheek High/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.814 mW/g

Cheek High/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.12 V/m; Power Drift = -0.130 dB

Peak SAR (extrapolated) = 0.800 W/kg

SAR(1 g) = 0.532 mW/g; SAR(10 g) = 0.359 mW/g

Maximum value of SAR (measured) = 0.614 mW/g

Cheek High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.12 V/m; Power Drift = -0.130 dB

Peak SAR (extrapolated) = 1.14 W/kg

SAR(1 g) = 0.746 mW/g; SAR(10 g) = 0.449 mW/g

Maximum value of SAR (measured) = 0.806 mW/g

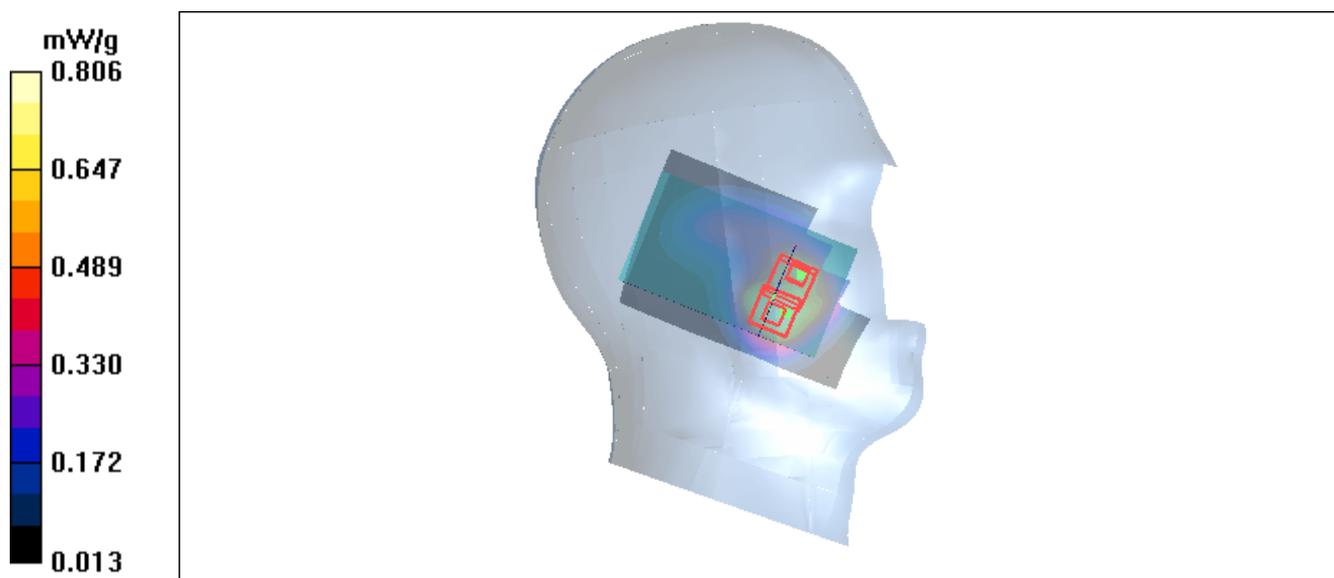


Figure 30 CDMA PCS Left Hand Touch Cheek Channel 1175

CDMA PCS Left Cheek Middle

Date/Time: 10/26/2011 7:06:25 PM

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

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.41$ mho/m; $\epsilon_r = 40$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Left Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.94, 7.94, 7.94); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

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

Cheek Middle/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.936 mW/g

Cheek Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.29 V/m; Power Drift = 0.071 dB

Peak SAR (extrapolated) = 1.27 W/kg

SAR(1 g) = 0.868 mW/g; SAR(10 g) = 0.520 mW/g

Maximum value of SAR (measured) = 0.955 mW/g

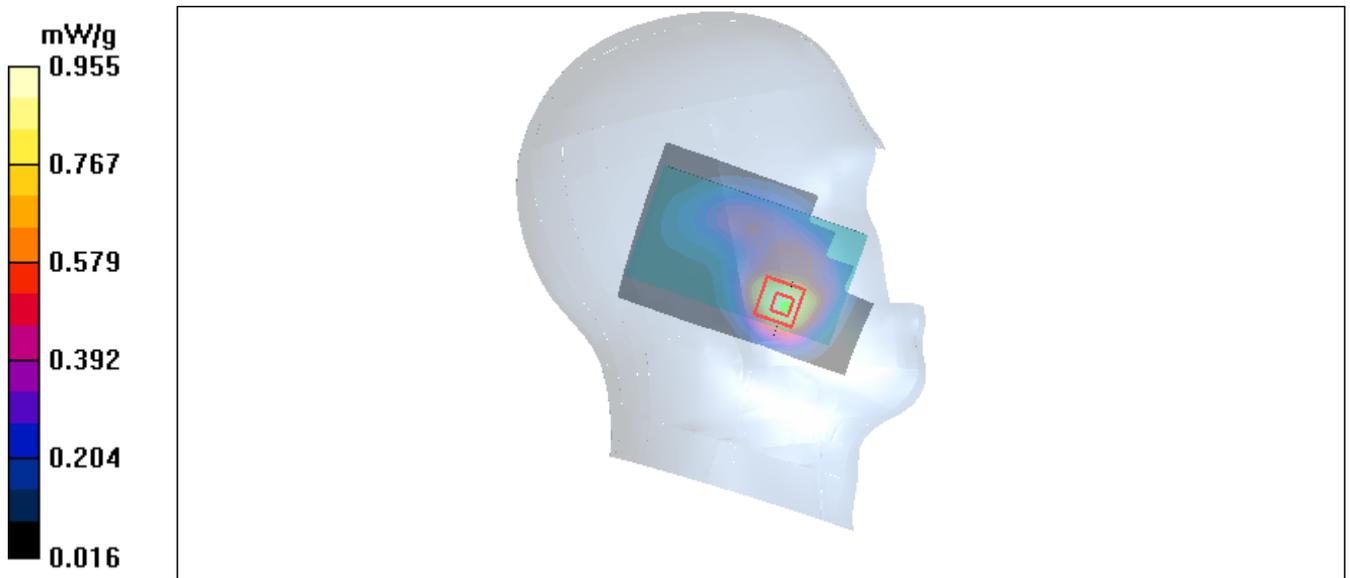


Figure 31 CDMA PCS Left Hand Touch Cheek Channel 600

CDMA PCS Left Cheek Low

Date/Time: 10/27/2011 5:35:47 AM

Communication System: CDMA PCS; Frequency: 1851.25 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1852$ MHz; $\sigma = 1.39$ mho/m; $\epsilon_r = 40$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Left Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.94, 7.94, 7.94); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

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

Cheek Low/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.04 mW/g

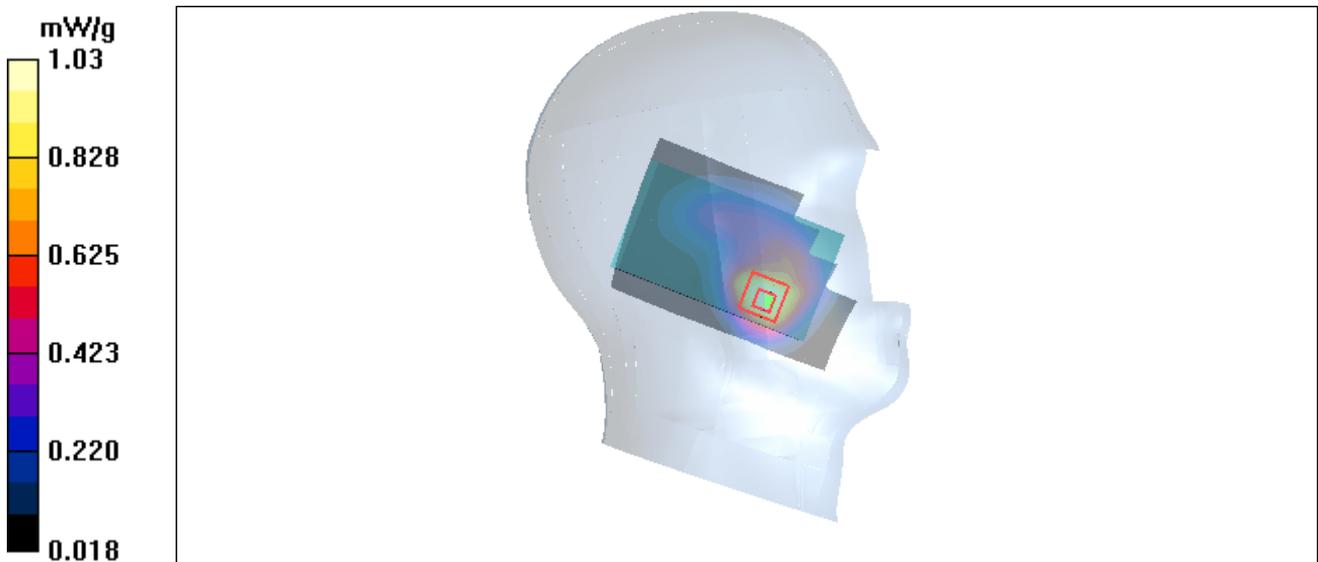
Cheek Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.68 V/m; Power Drift = 0.163 dB

Peak SAR (extrapolated) = 1.38 W/kg

SAR(1 g) = 0.942 mW/g; SAR(10 g) = 0.569 mW/g

Maximum value of SAR (measured) = 1.03 mW/g



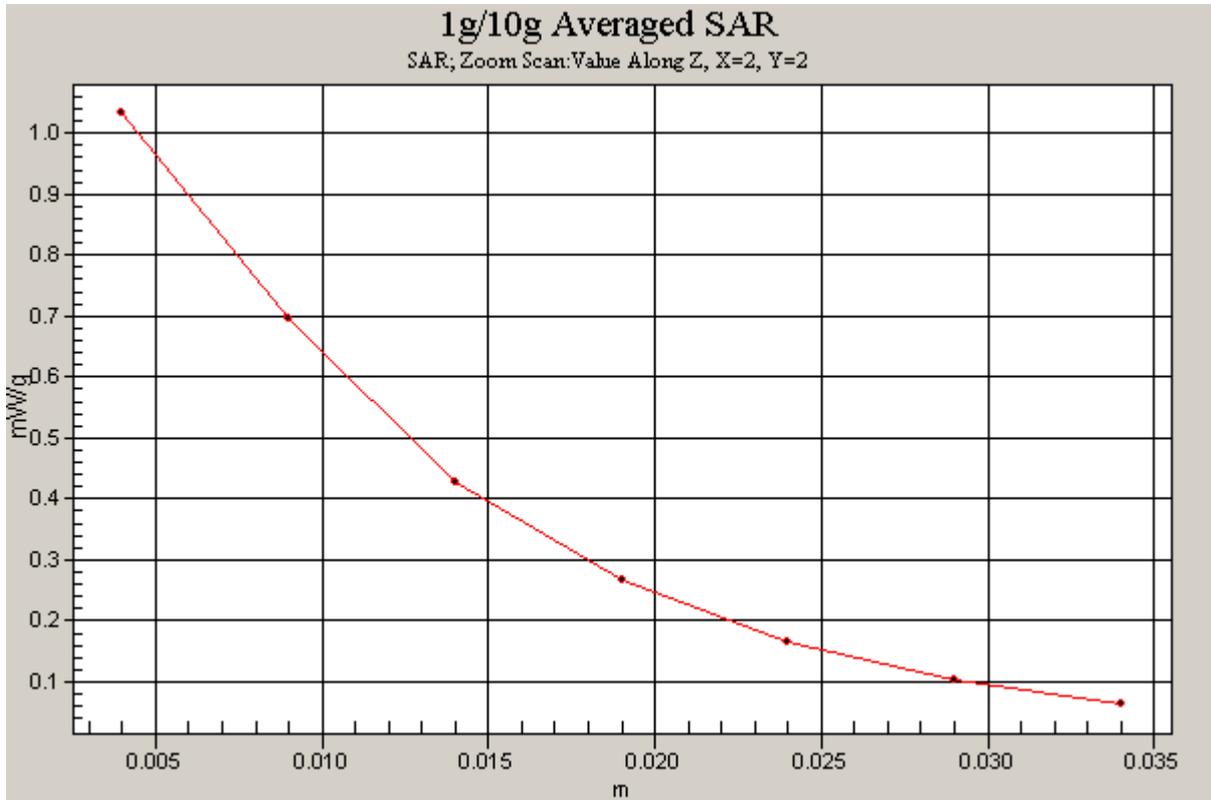


Figure 32 CDMA PCS Left Hand Touch Cheek Channel 25

CDMA PCS Left Tilt Middle

Date/Time: 10/27/2011 5:53:12 AM

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

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.41$ mho/m; $\epsilon_r = 40$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Left Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.94, 7.94, 7.94); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

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

Tilt Middle/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.404 mW/g

Tilt Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 15.3 V/m; Power Drift = 0.002 dB

Peak SAR (extrapolated) = 0.467 W/kg

SAR(1 g) = 0.340 mW/g; SAR(10 g) = 0.213 mW/g

Maximum value of SAR (measured) = 0.358 mW/g

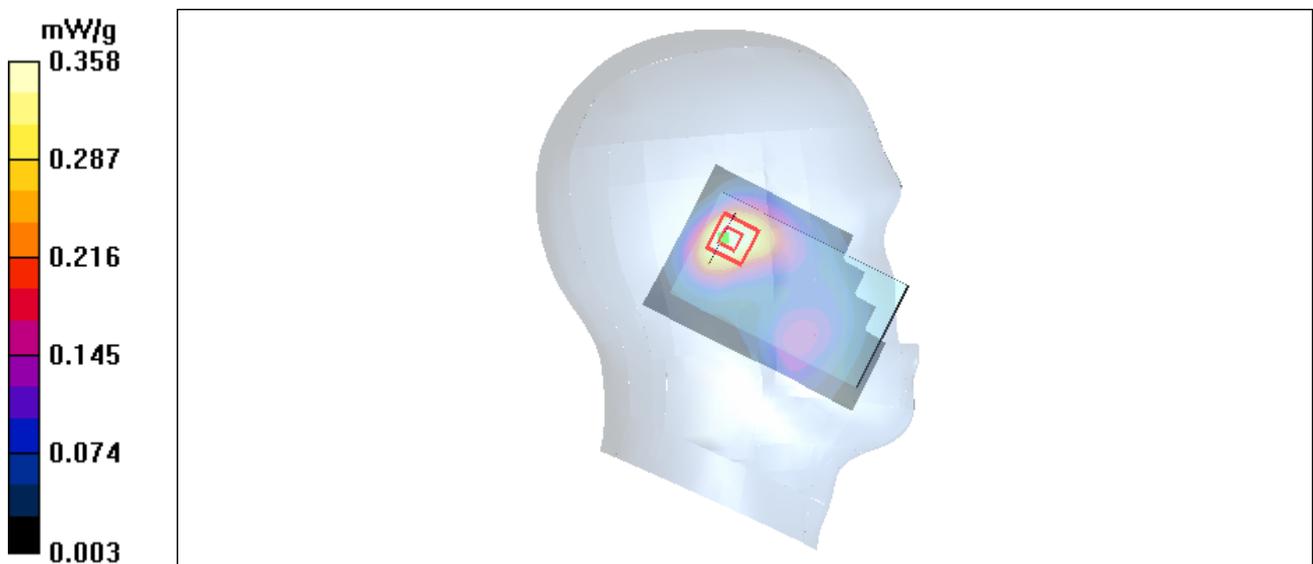


Figure 33 CDMA PCS Left Hand Tilt 15° Channel 600

CDMA PCS Right Cheek Middle

Date/Time: 10/27/2011 3:35:32 AM

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

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.41$ mho/m; $\epsilon_r = 40$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Right Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.94, 7.94, 7.94); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

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

Cheek Middle/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.914 mW/g

Cheek Middle/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 11.7 V/m; Power Drift = -0.097 dB

Peak SAR (extrapolated) = 0.973 W/kg

SAR(1 g) = 0.664 mW/g; SAR(10 g) = 0.410 mW/g

Maximum value of SAR (measured) = 0.800 mW/g

Cheek Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 11.7 V/m; Power Drift = -0.097 dB

Peak SAR (extrapolated) = 1.00 W/kg

SAR(1 g) = 0.786 mW/g; SAR(10 g) = 0.510 mW/g

Maximum value of SAR (measured) = 0.853 mW/g

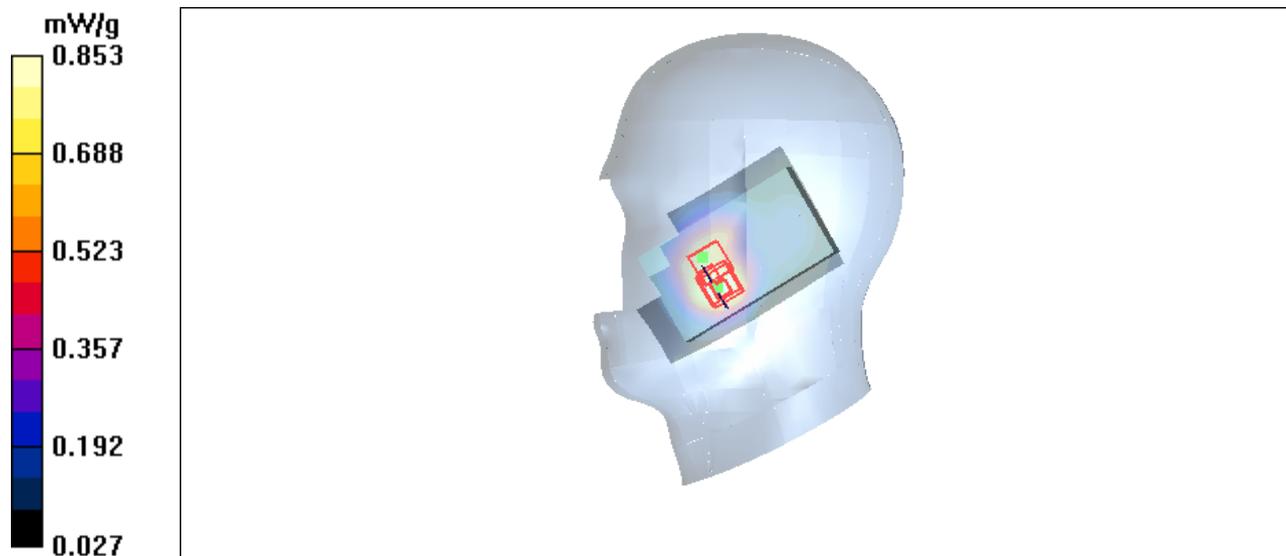


Figure 34 CDMA PCS Right Hand Touch Cheek Channel 600

CDMA PCS Right Tilt Middle

Date/Time: 10/27/2011 4:55:07 AM

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

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.41$ mho/m; $\epsilon_r = 40$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Right Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.94, 7.94, 7.94); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

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

Tilt Middle/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.339 mW/g

Tilt Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 16.1 V/m; Power Drift = 0.048 dB

Peak SAR (extrapolated) = 0.422 W/kg

SAR(1 g) = 0.298 mW/g; SAR(10 g) = 0.181 mW/g

Maximum value of SAR (measured) = 0.320 mW/g

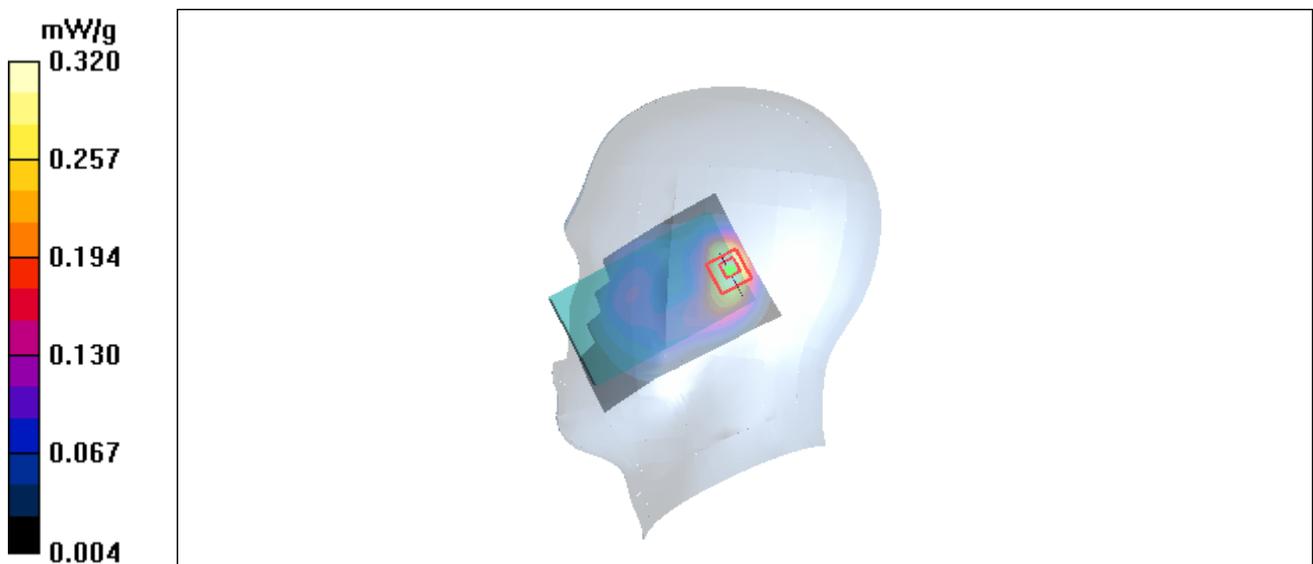


Figure 35 Right Hand Tilt 15° CDMA PCS Channel 600

CDMA PCS Towards Ground High

Date/Time: 10/26/2011 10:18:18 PM

Communication System: CDMA PCS; Frequency: 1908.75 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 1908.75$ MHz; $\sigma = 1.57$ mho/m; $\epsilon_r = 52$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Flat Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.77, 7.77, 7.77); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

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

Towards Ground High/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.379 mW/g

Towards Ground High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm,

dz=5mm

Reference Value = 8.44 V/m; Power Drift = -0.124 dB

Peak SAR (extrapolated) = 0.609 W/kg

SAR(1 g) = 0.351 mW/g; SAR(10 g) = 0.212 mW/g

Maximum value of SAR (measured) = 0.373 mW/g

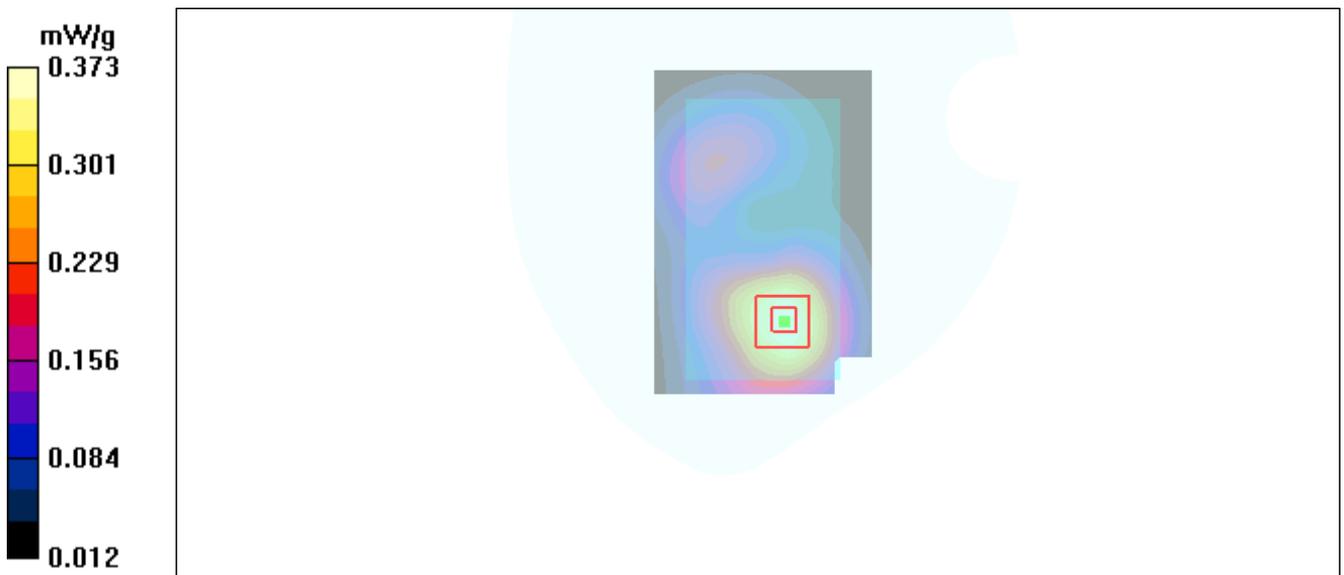


Figure 36 Body, CDMA PCS Towards Ground Channel 1175

CDMA PCS Towards Ground Middle

Date/Time: 10/26/2011 11:20:52 PM

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

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.54$ mho/m; $\epsilon_r = 52$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Flat Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.77, 7.77, 7.77); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

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

Towards Ground Middle /Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.436 mW/g

Towards Ground Middle /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm,
dz=5mm

Reference Value = 8.55 V/m; Power Drift = -0.032 dB

Peak SAR (extrapolated) = 0.687 W/kg

SAR(1 g) = 0.398 mW/g; SAR(10 g) = 0.238 mW/g

Maximum value of SAR (measured) = 0.429 mW/g

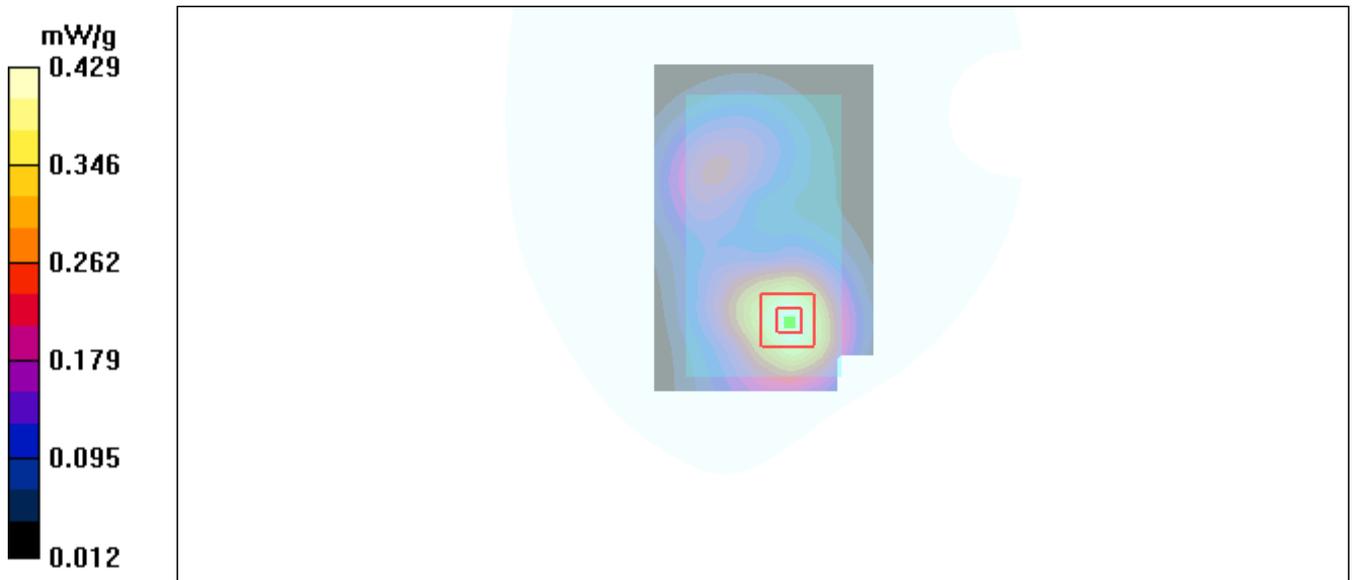


Figure 37 Body, CDMA PCS Towards Ground Channel 600

CDMA PCS Towards Ground Low

Date/Time: 10/26/2011 9:49:56 PM

Communication System: CDMA PCS; Frequency: 1851.25 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1852$ MHz; $\sigma = 1.51$ mho/m; $\epsilon_r = 52.1$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Flat Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.77, 7.77, 7.77); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

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

Towards Ground Low/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.425 mW/g

Towards Ground Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm,

dz=5mm

Reference Value = 10.1 V/m; Power Drift = -0.168 dB

Peak SAR (extrapolated) = 0.657 W/kg

SAR(1 g) = 0.387 mW/g; SAR(10 g) = 0.233 mW/g

Maximum value of SAR (measured) = 0.416 mW/g

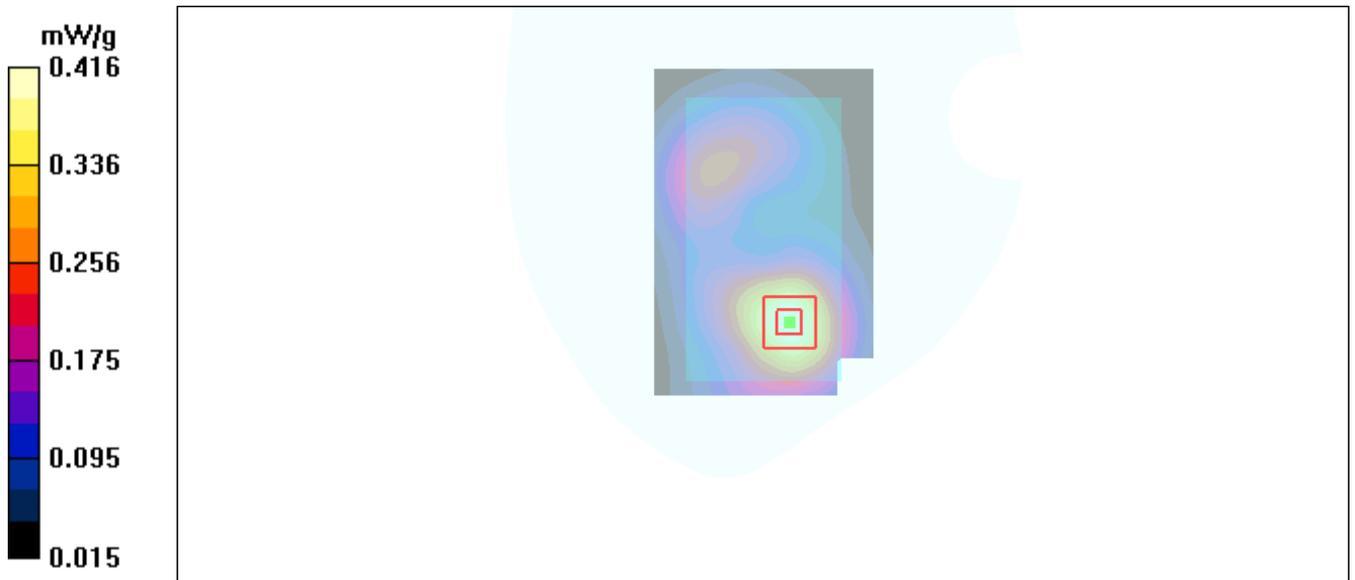


Figure 38 Body, CDMA PCS Towards Ground Channel 25

CDMA PCS Towards Phantom Middle

Date/Time: 10/26/2011 10:33:48 PM

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

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.54$ mho/m; $\epsilon_r = 52$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Flat Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.77, 7.77, 7.77); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

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

Towards Phantom Middle/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.396 mW/g

Towards Phantom Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm,

dz=5mm

Reference Value = 10.4 V/m; Power Drift = -0.033 dB

Peak SAR (extrapolated) = 0.653 W/kg

SAR(1 g) = 0.362 mW/g; SAR(10 g) = 0.217 mW/g

Maximum value of SAR (measured) = 0.383 mW/g

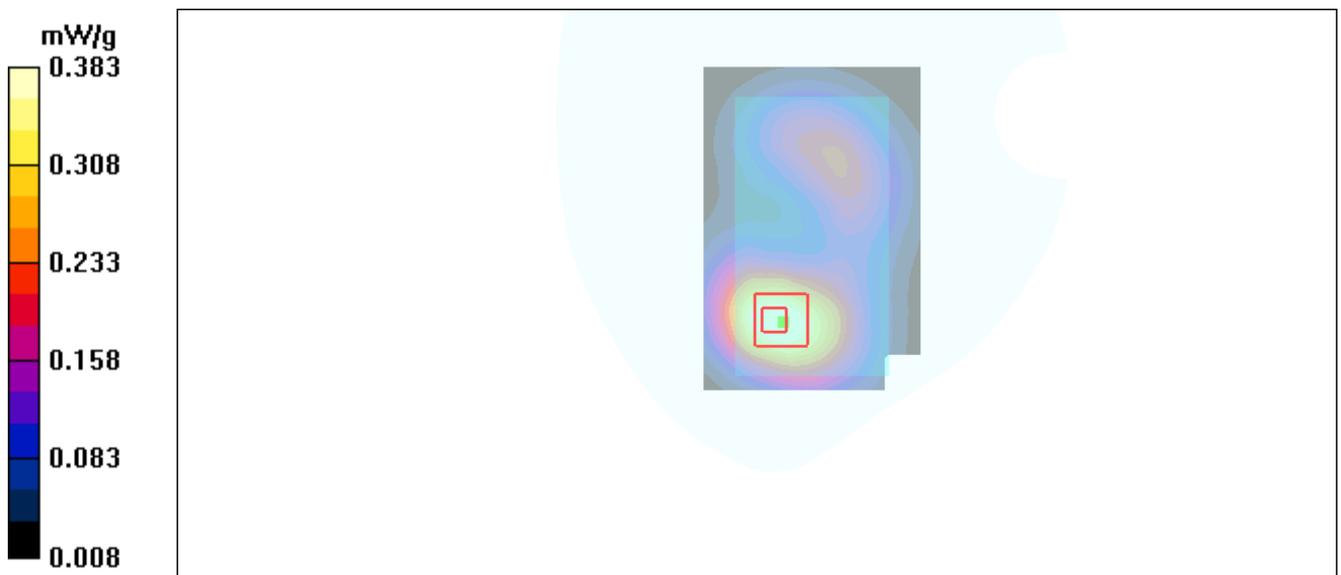


Figure 39 Body, CDMA PCS Towards Phantom Channel 600

CDMA PCS with EVDO Rev.0 Towards Ground Middle

Date/Time: 10/26/2011 11:36:13 PM

Communication System: CDMA PCS Rev.0; Frequency: 1880 MHz;Duty Cycle: 1:1

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.54$ mho/m; $\epsilon_r = 52$; $\rho = 1000$ kg/m³

Ambient Temperature:22.3 °C Liquid Temperature: 21.5°C

Phantom section: Flat Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.77, 7.77, 7.77); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

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

Towards Ground Middle/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.443 mW/g

Towards Ground Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm,

dz=5mm

Reference Value = 8.45 V/m; Power Drift = 0.014 dB

Peak SAR (extrapolated) = 0.685 W/kg

SAR(1 g) = 0.398 mW/g; SAR(10 g) = 0.238 mW/g

Maximum value of SAR (measured) = 0.428 mW/g

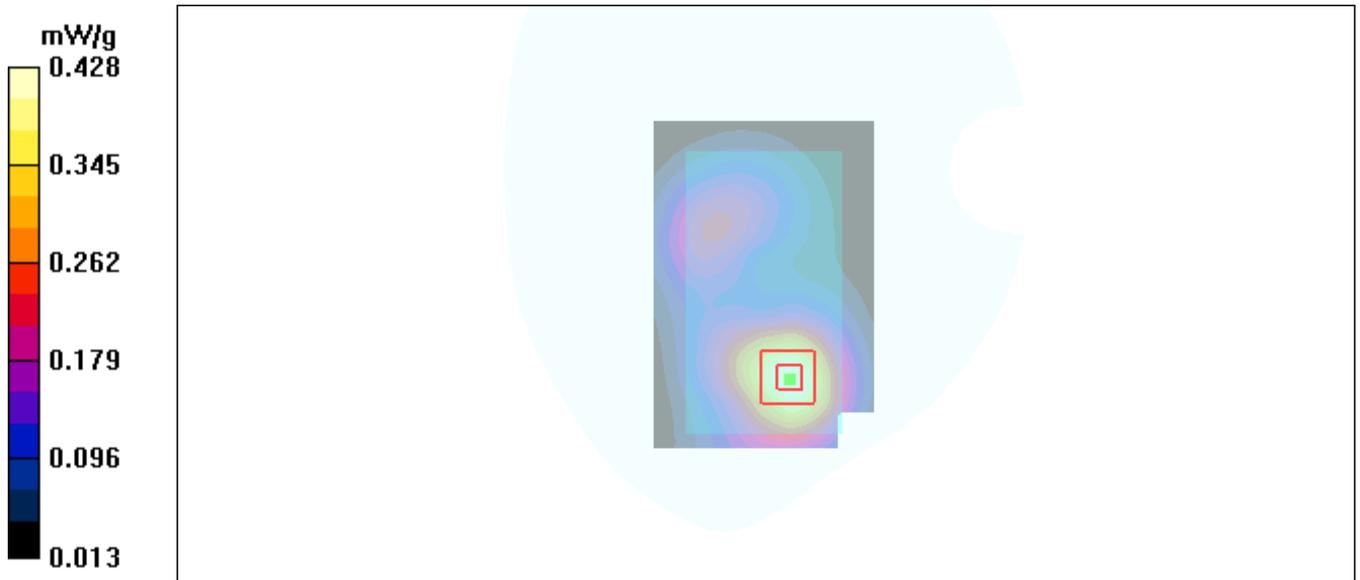


Figure 40 Body, CDMA PCS with EVDO Rev.0 Towards Ground Channel 600

CDMA PCS with EVDO Rev.A Towards Ground Middle

Date/Time: 10/27/2011 1:39:07 AM

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

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.54$ mho/m; $\epsilon_r = 52$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Flat Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.77, 7.77, 7.77); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

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

Towards Ground Middle/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.436 mW/g

Towards Ground Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.70 V/m; Power Drift = -0.109 dB

Peak SAR (extrapolated) = 0.683 W/kg

SAR(1 g) = 0.390 mW/g; SAR(10 g) = 0.234 mW/g

Maximum value of SAR (measured) = 0.419 mW/g

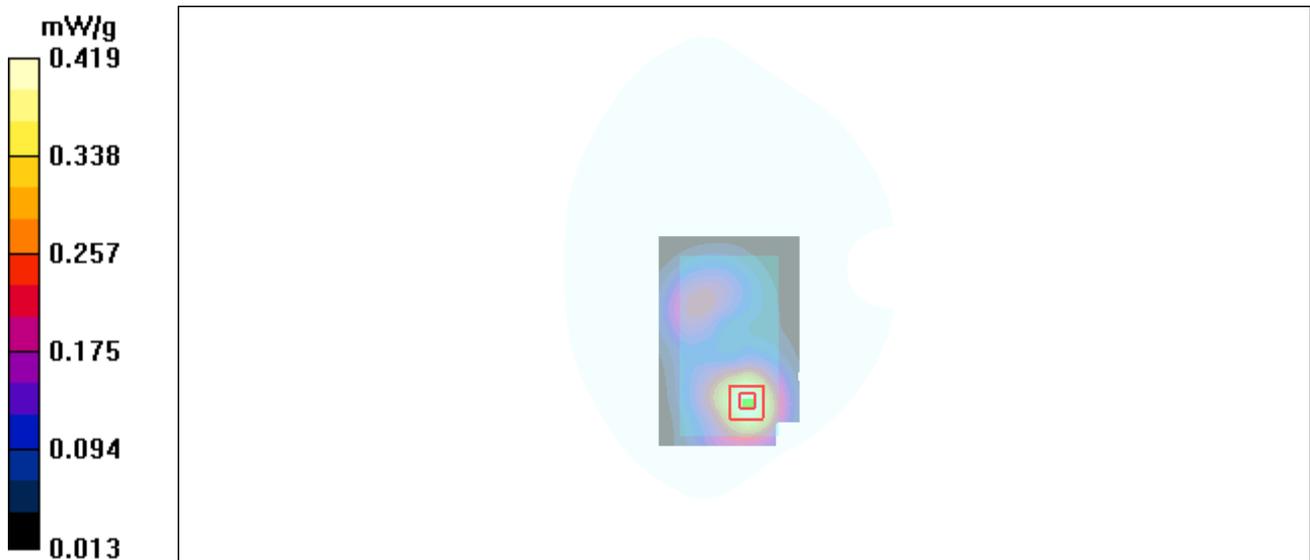


Figure 41 Body, CDMA PCS with EVDO Rev.A Towards Ground Channel 600

CDMA PCS with Earphone Towards Ground Middle

Date/Time: 10/26/2011 11:58:38 PM

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

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.54$ mho/m; $\epsilon_r = 52$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Flat Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.77, 7.77, 7.77); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

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

Towards Ground Middle/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.451 mW/g

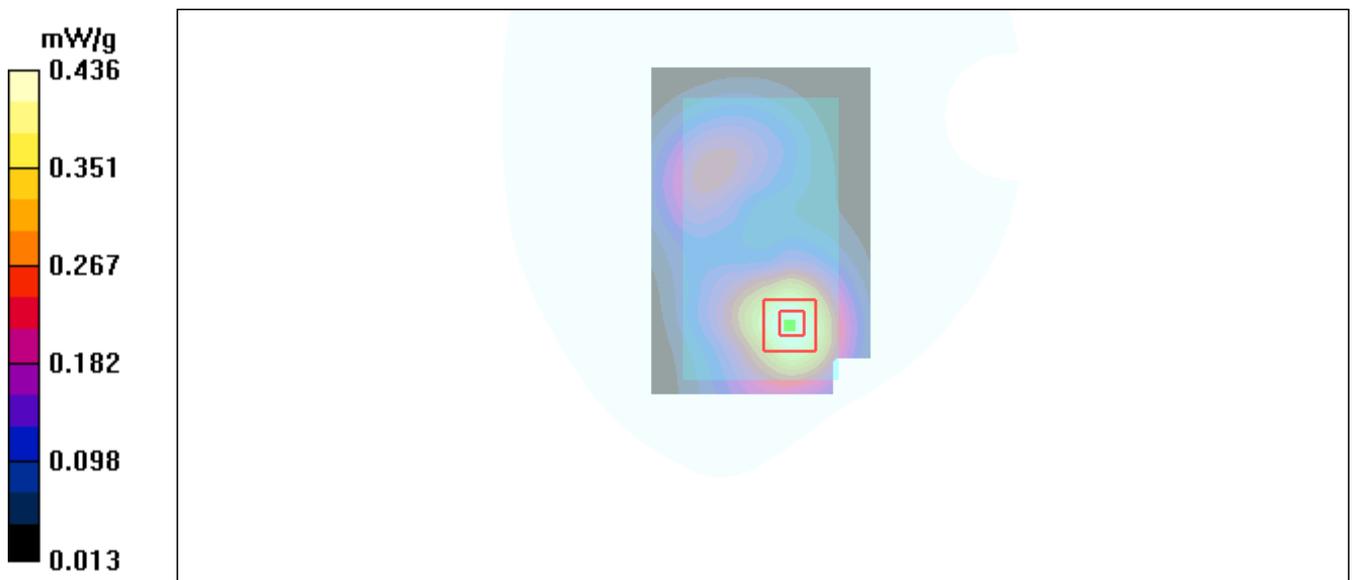
Towards Ground Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.99 V/m; Power Drift = -0.131 dB

Peak SAR (extrapolated) = 0.712 W/kg

SAR(1 g) = 0.406 mW/g; SAR(10 g) = 0.242 mW/g

Maximum value of SAR (measured) = 0.436 mW/g



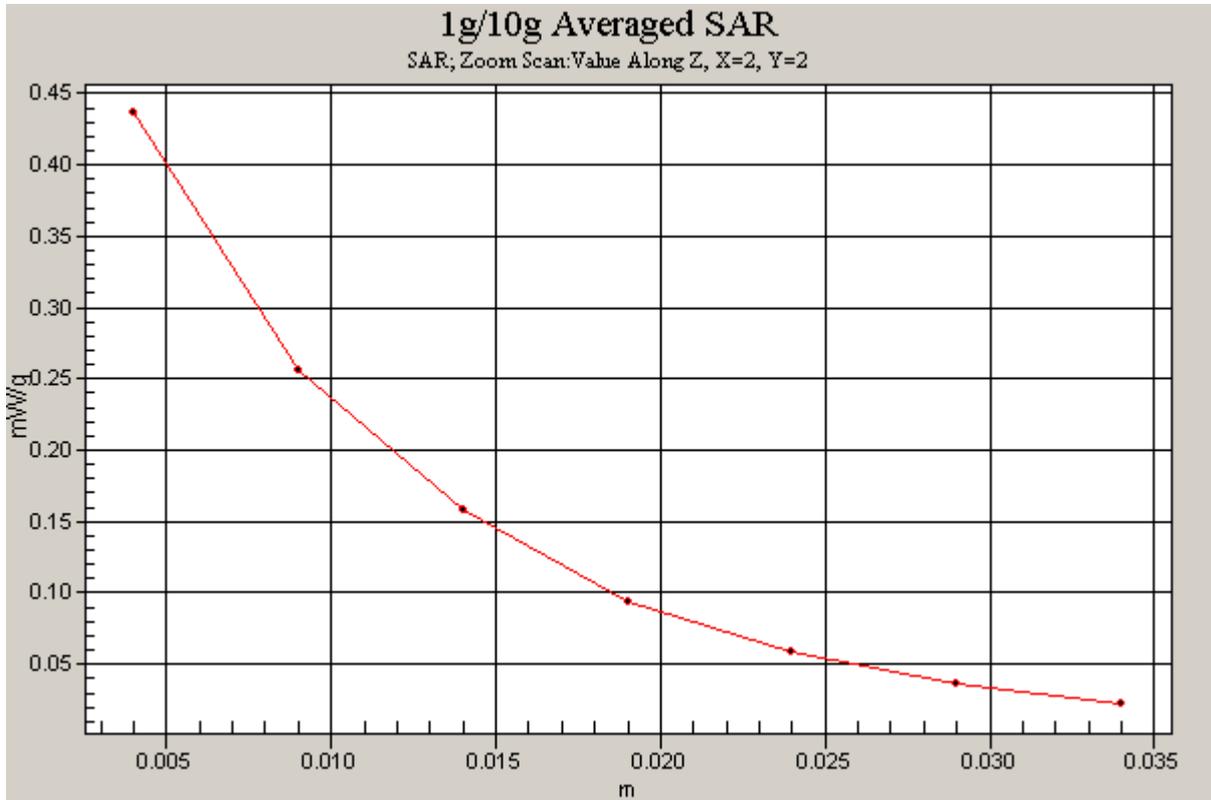


Figure 42 Body, CDMA PCS with Earphone Towards Ground Channel 600

CDMA US PCS Left Cheek Middle

Date/Time: 10/26/2011 7:46:48 PM

Communication System: CDMA BC14; Frequency: 1912.5 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 1912.5$ MHz; $\sigma = 1.44$ mho/m; $\epsilon_r = 39.9$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Left Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.94, 7.94, 7.94); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

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

Cheek Middle/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.582 mW/g

Cheek Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.87 V/m; Power Drift = -0.072 dB

Peak SAR (extrapolated) = 0.800 W/kg

SAR(1 g) = 0.530 mW/g; SAR(10 g) = 0.321 mW/g

Maximum value of SAR (measured) = 0.578 mW/g

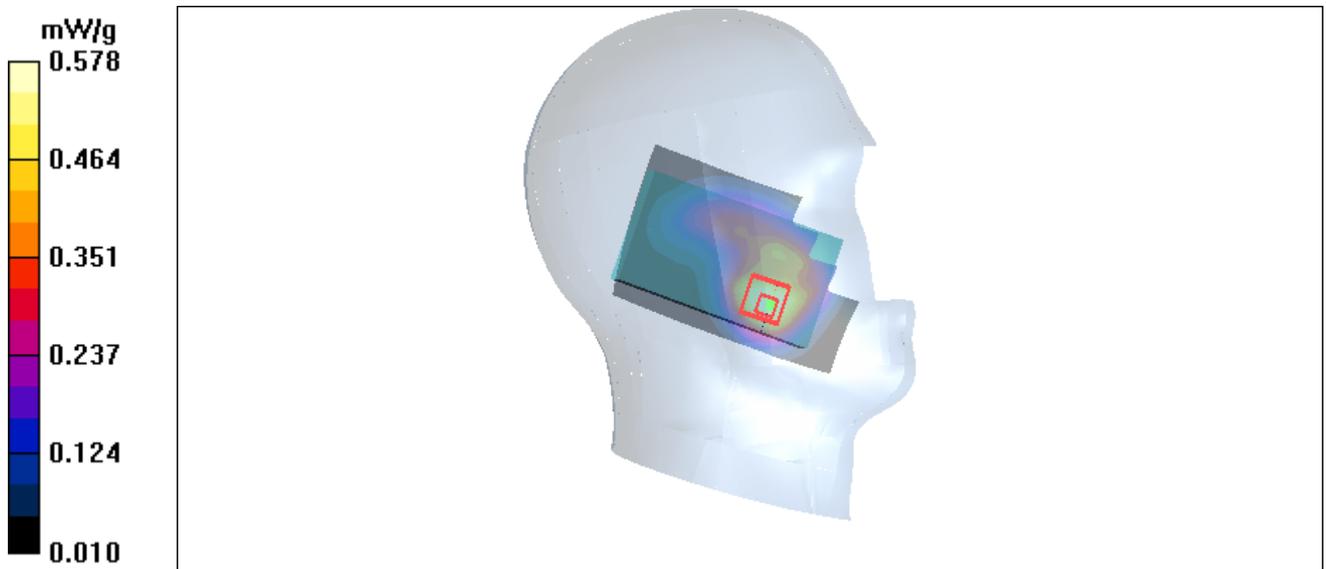


Figure 43 CDMA US PCS Left Hand Touch Cheek Channel 1250

CDMA US PCS Left Tilt Middle

Date/Time: 10/27/2011 6:08:03 AM

Communication System: CDMA BC14; Frequency: 1912.5 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 1912.5$ MHz; $\sigma = 1.44$ mho/m; $\epsilon_r = 39.9$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Left Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.94, 7.94, 7.94); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

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

Tilt Middle/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.309 mW/g

Tilt Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 13.6 V/m; Power Drift = -0.198 dB

Peak SAR (extrapolated) = 0.354 W/kg

SAR(1 g) = 0.249 mW/g; SAR(10 g) = 0.153 mW/g

Maximum value of SAR (measured) = 0.270 mW/g

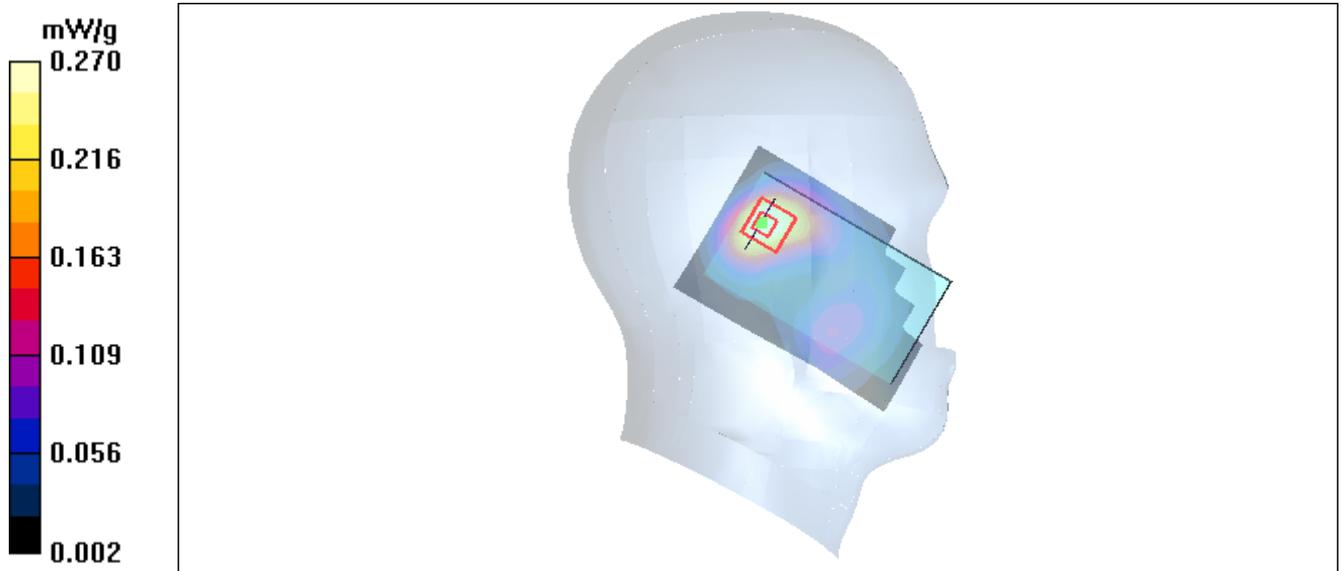


Figure 44 CDMA US PCS Left Hand Tilt 15° Channel 1250

CDMA US PCS Right Cheek High

Date/Time: 10/27/2011 4:12:25 AM

Communication System: CDMA BC14; Frequency: 1913.75 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1914$ MHz; $\sigma = 1.44$ mho/m; $\epsilon_r = 39.9$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Right Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.94, 7.94, 7.94); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

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

Cheek High/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.593 mW/g

Cheek High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.53 V/m; Power Drift = -0.090 dB

Peak SAR (extrapolated) = 0.681 W/kg

SAR(1 g) = 0.526 mW/g; SAR(10 g) = 0.335 mW/g

Maximum value of SAR (measured) = 0.579 mW/g

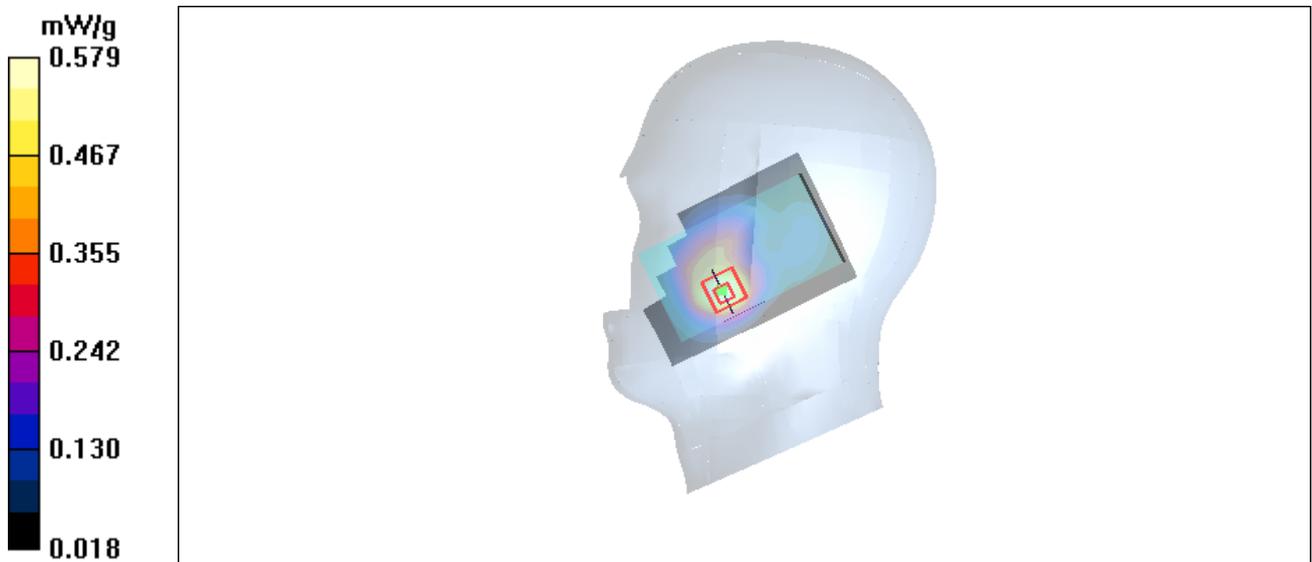


Figure 45 CDMA US PCS Right Hand Touch Cheek Channel 1275

CDMA US PCS Right Cheek Middle

Date/Time: 10/27/2011 3:57:42 AM

Communication System: CDMA BC14; Frequency: 1912.5 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 1912.5$ MHz; $\sigma = 1.44$ mho/m; $\epsilon_r = 39.9$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Right Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.94, 7.94, 7.94); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

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

Cheek Middle/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.685 mW/g

Cheek Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.2 V/m; Power Drift = -0.062 dB

Peak SAR (extrapolated) = 0.776 W/kg

SAR(1 g) = 0.603 mW/g; SAR(10 g) = 0.385 mW/g

Maximum value of SAR (measured) = 0.657 mW/g

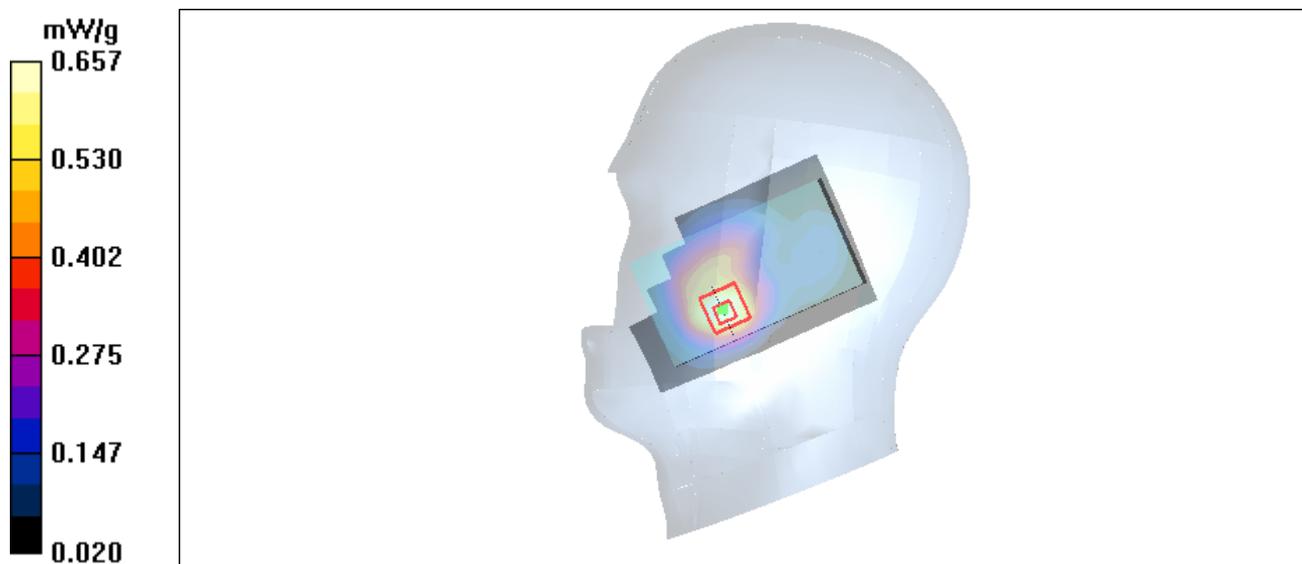


Figure 46 CDMA US PCS Right Hand Touch Cheek Channel 1250

CDMA US PCS Right Cheek Low

Date/Time: 10/27/2011 4:26:44 AM

Communication System: CDMA BC14; Frequency: 1911.25 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1912$ MHz; $\sigma = 1.44$ mho/m; $\epsilon_r = 39.9$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Right Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.94, 7.94, 7.94); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

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

Cheek Low/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.719 mW/g

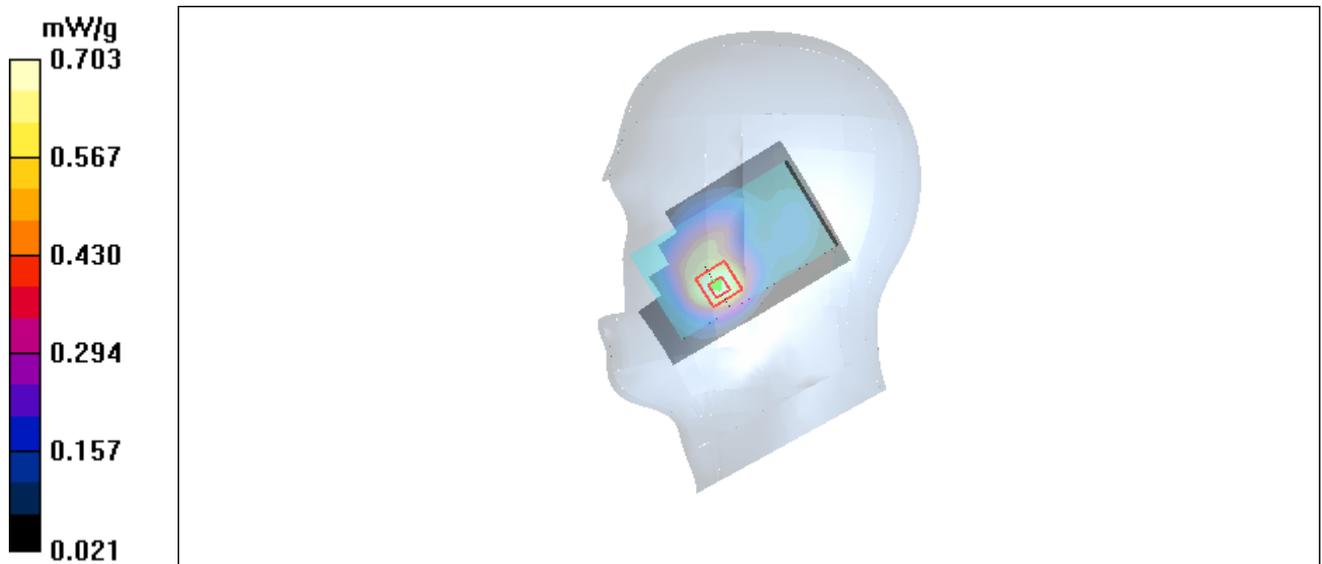
Cheek Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.4 V/m; Power Drift = 0.082 dB

Peak SAR (extrapolated) = 0.842 W/kg

SAR(1 g) = 0.644 mW/g; SAR(10 g) = 0.410 mW/g

Maximum value of SAR (measured) = 0.703 mW/g



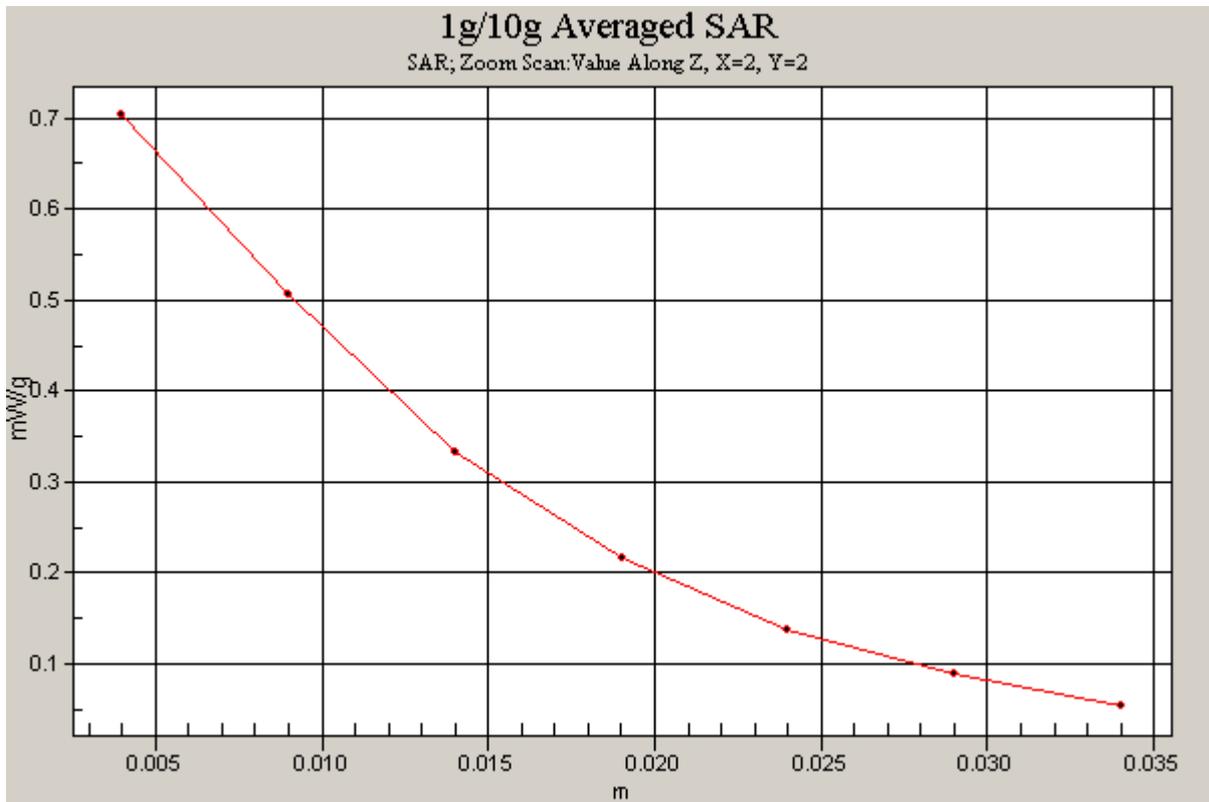


Figure 47 CDMA US PCS Right Hand Touch Cheek Channel 1225

CDMA US PCS Right Tilt Middle

Date/Time: 10/27/2011 4:41:27 AM

Communication System: CDMA BC14; Frequency: 1912.5 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 1912.5$ MHz; $\sigma = 1.44$ mho/m; $\epsilon_r = 39.9$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Right Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.94, 7.94, 7.94); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

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

Tilt Middle/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.271 mW/g

Tilt Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 14.2 V/m; Power Drift = -0.015 dB

Peak SAR (extrapolated) = 0.330 W/kg

SAR(1 g) = 0.233 mW/g; SAR(10 g) = 0.139 mW/g

Maximum value of SAR (measured) = 0.247 mW/g

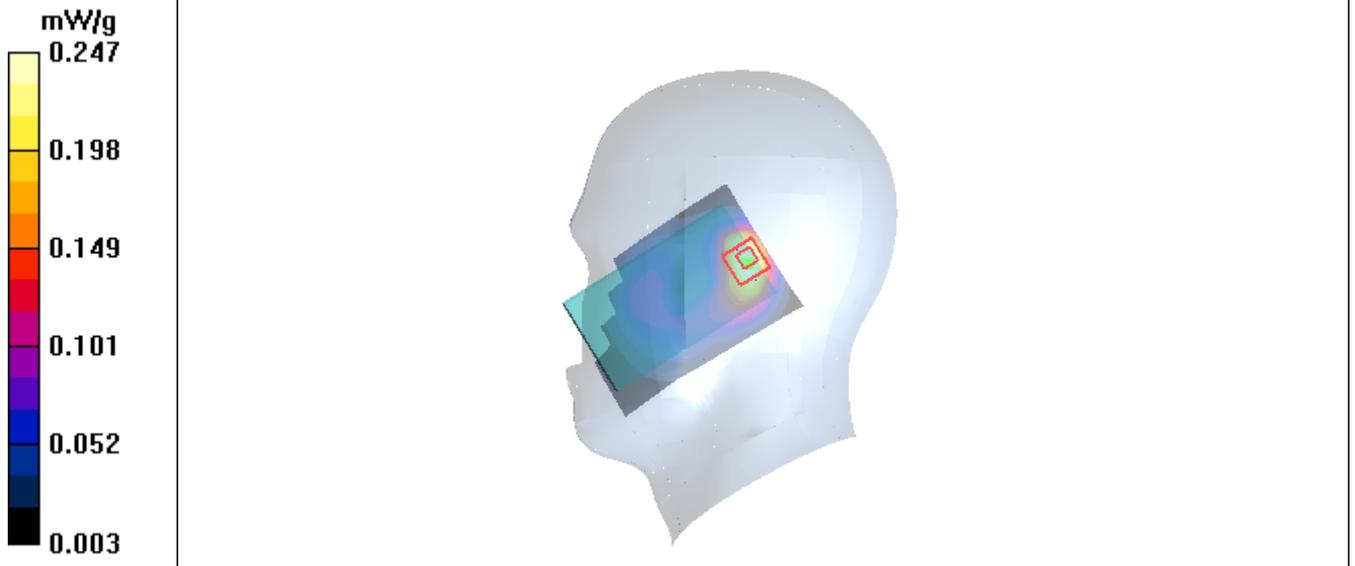


Figure 48 Right Hand Tilt 15° CDMA US PCS Channel 1250

CDMA US PCS Towards Ground High

Date/Time: 10/27/2011 12:27:50 AM

Communication System: CDMA BC14; Frequency: 1913.75 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1914$ MHz; $\sigma = 1.57$ mho/m; $\epsilon_r = 52$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Flat Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.77, 7.77, 7.77); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

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

Towards Ground High/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.262 mW/g

Towards Ground High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm,

dz=5mm

Reference Value = 6.57 V/m; Power Drift = -0.007 dB

Peak SAR (extrapolated) = 0.412 W/kg

SAR(1 g) = 0.234 mW/g; SAR(10 g) = 0.140 mW/g

Maximum value of SAR (measured) = 0.252 mW/g

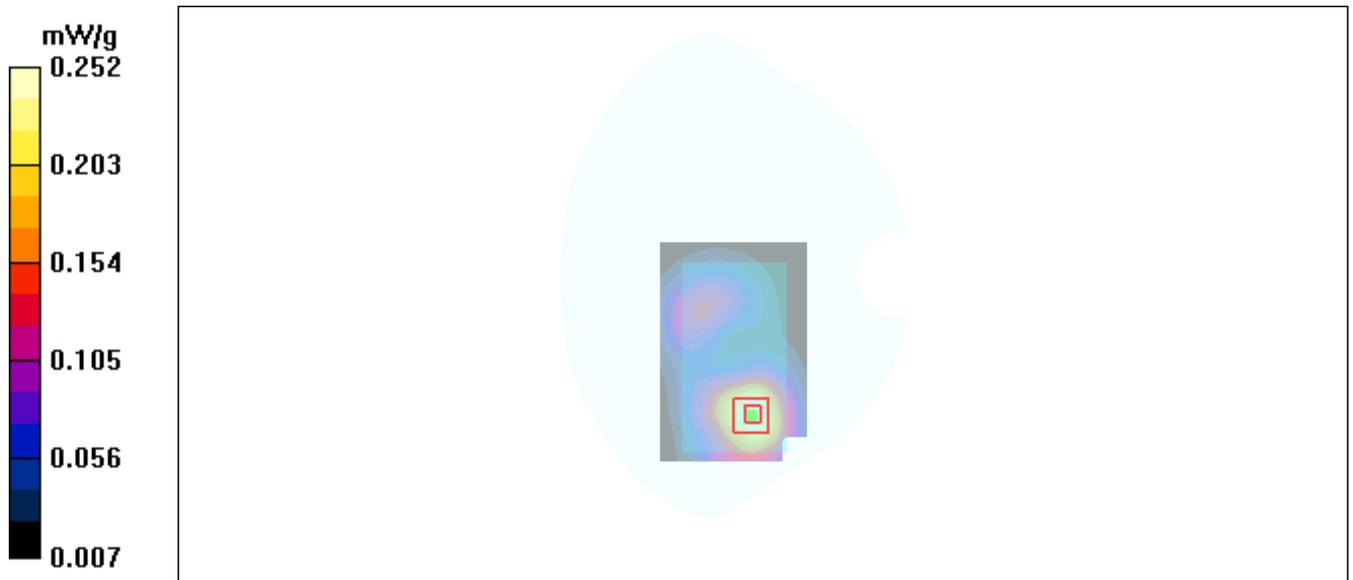


Figure 49 Body, CDMA US PCS Towards Ground Channel 1275

CDMA US PCS Towards Ground Middle

Date/Time: 10/26/2011 11:05:54 PM

Communication System: CDMA BC14; Frequency: 1912.5 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 1912.5$ MHz; $\sigma = 1.57$ mho/m; $\epsilon_r = 52$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Flat Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.77, 7.77, 7.77); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

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

Towards Ground Middle/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.326 mW/g

Towards Ground Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm,

dz=5mm

Reference Value = 7.32 V/m; Power Drift = -0.099 dB

Peak SAR (extrapolated) = 0.473 W/kg

SAR(1 g) = 0.274 mW/g; SAR(10 g) = 0.164 mW/g

Maximum value of SAR (measured) = 0.294 mW/g

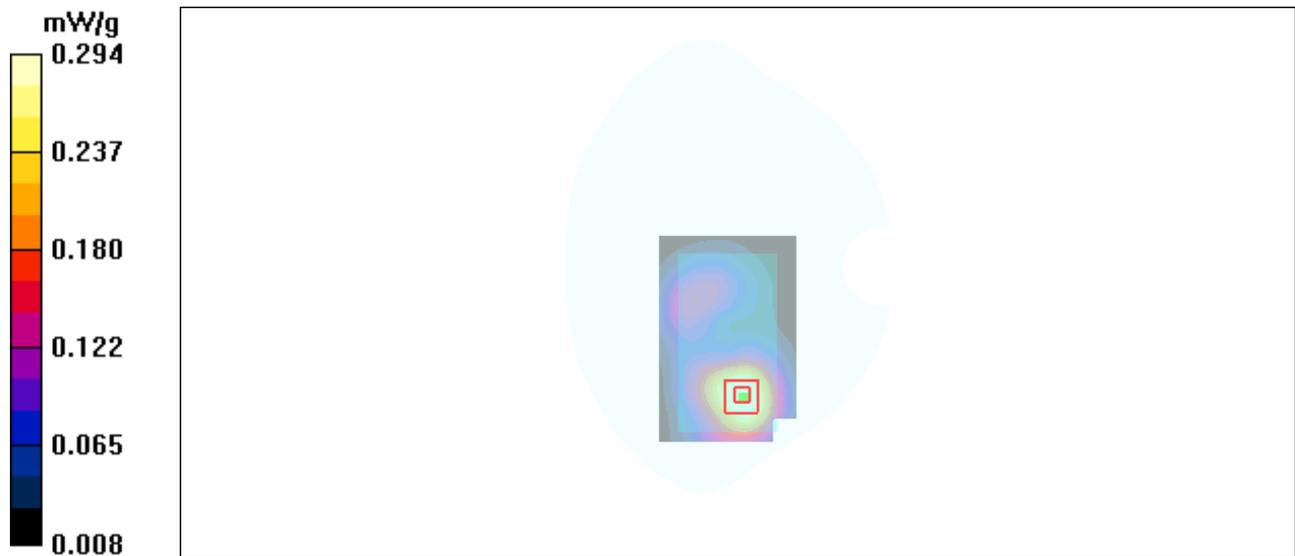


Figure 50 Body, CDMA US PCS Towards Ground Channel 1250

CDMA US PCS Towards Ground Low

Date/Time: 10/27/2011 12:13:35 AM

Communication System: CDMA BC14; Frequency: 1911.25 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1912$ MHz; $\sigma = 1.57$ mho/m; $\epsilon_r = 52$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Flat Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.77, 7.77, 7.77); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

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

Towards Ground Low/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.350 mW/g

Towards Ground Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm,

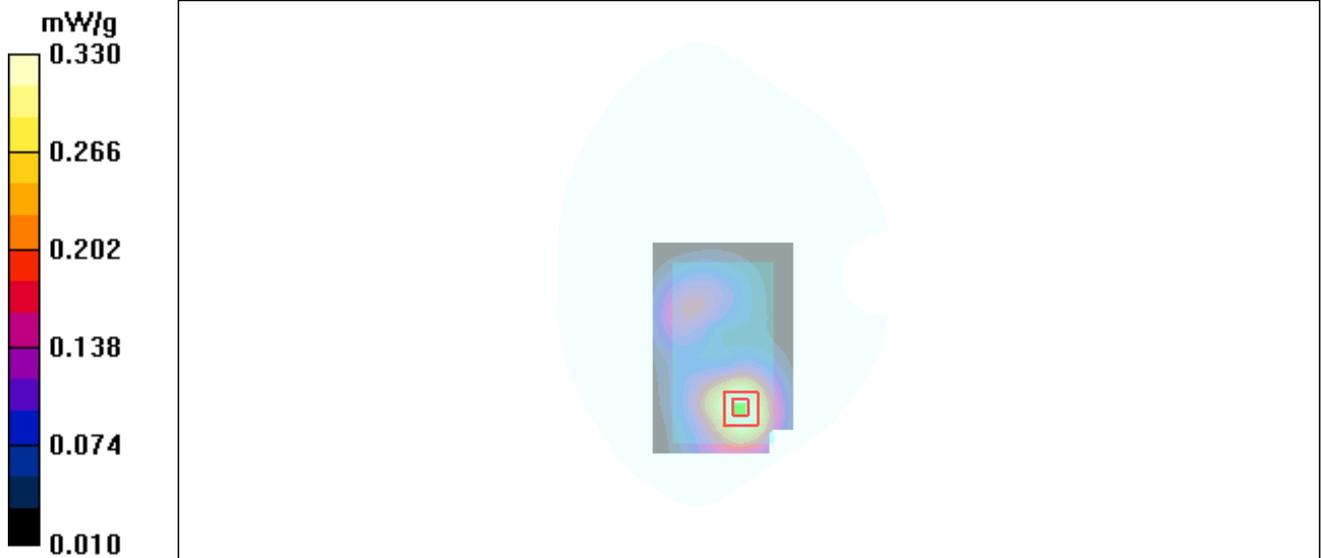
dz=5mm

Reference Value = 7.60 V/m; Power Drift = -0.013 dB

Peak SAR (extrapolated) = 0.536 W/kg

SAR(1 g) = 0.308 mW/g; SAR(10 g) = 0.184 mW/g

Maximum value of SAR (measured) = 0.330 mW/g



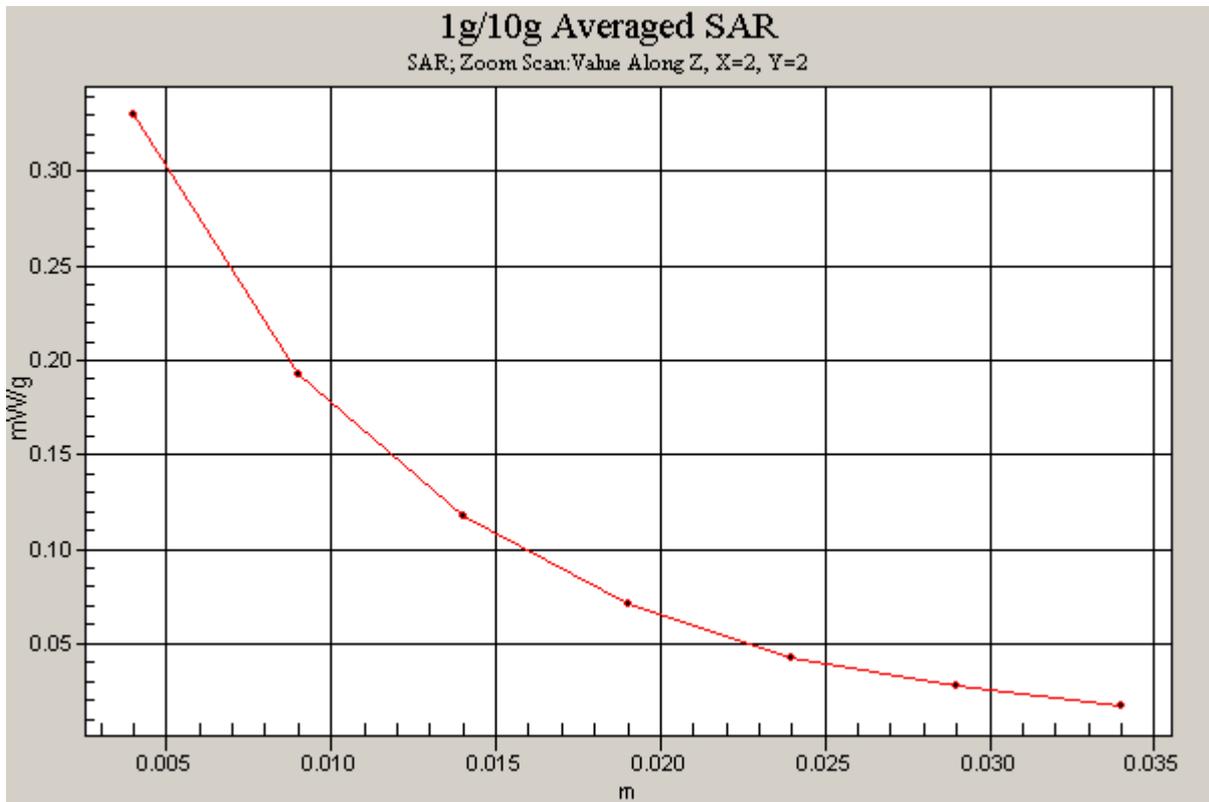


Figure 51 Body, CDMA US PCS Towards Ground Channel 1225

CDMA US PCS Towards Phantom Middle

Date/Time: 10/27/2011 1:53:45 AM

Communication System: CDMA BC14; Frequency: 1912.5 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 1912.5$ MHz; $\sigma = 1.57$ mho/m; $\epsilon_r = 52$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Flat Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.77, 7.77, 7.77); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

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

Towards Phantom Middle/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.308 mW/g

Towards Phantom Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.51 V/m; Power Drift = -0.075 dB

Peak SAR (extrapolated) = 0.494 W/kg

SAR(1 g) = 0.271 mW/g; SAR(10 g) = 0.162 mW/g

Maximum value of SAR (measured) = 0.287 mW/g

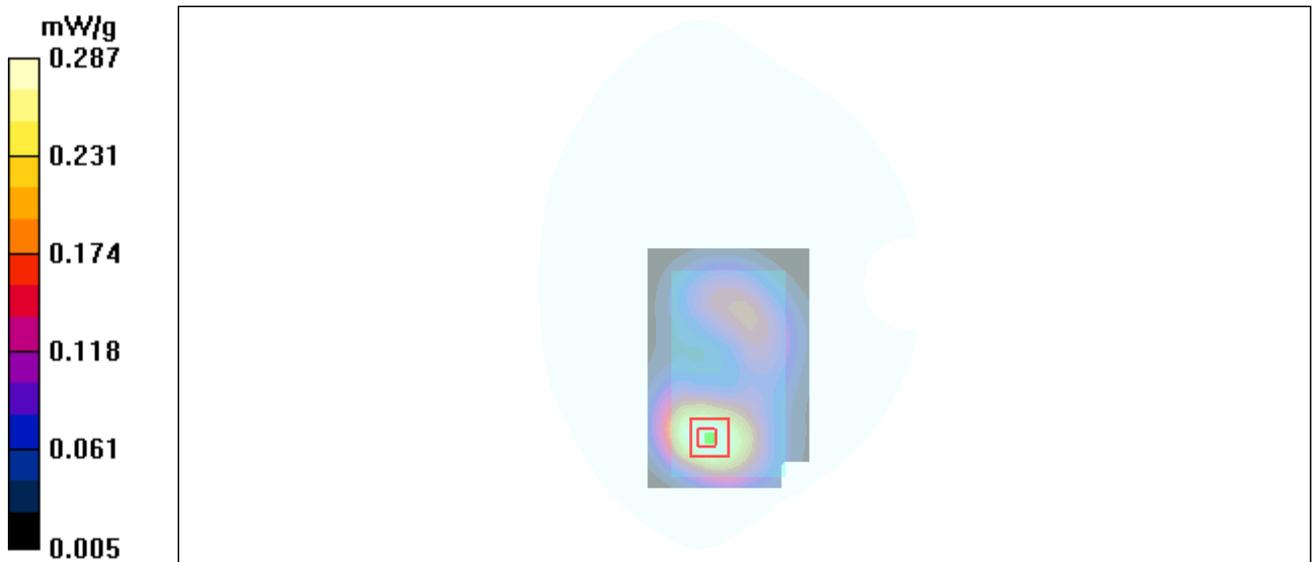


Figure 52 Body, CDMA US PCS Towards Phantom Channel 1250

CDMA US PCS with EVDO Rev.0 Towards Ground Low

Date/Time: 10/27/2011 12:42:35 AM

Communication System: CDMA BC14 Rev.0; Frequency: 1911.25 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1912$ MHz; $\sigma = 1.57$ mho/m; $\epsilon_r = 52$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Flat Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.77, 7.77, 7.77); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

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

Towards Ground Low/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.325 mW/g

Towards Ground Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.23 V/m; Power Drift = -0.010 dB

Peak SAR (extrapolated) = 0.525 W/kg

SAR(1 g) = 0.299 mW/g; SAR(10 g) = 0.178 mW/g

Maximum value of SAR (measured) = 0.320 mW/g

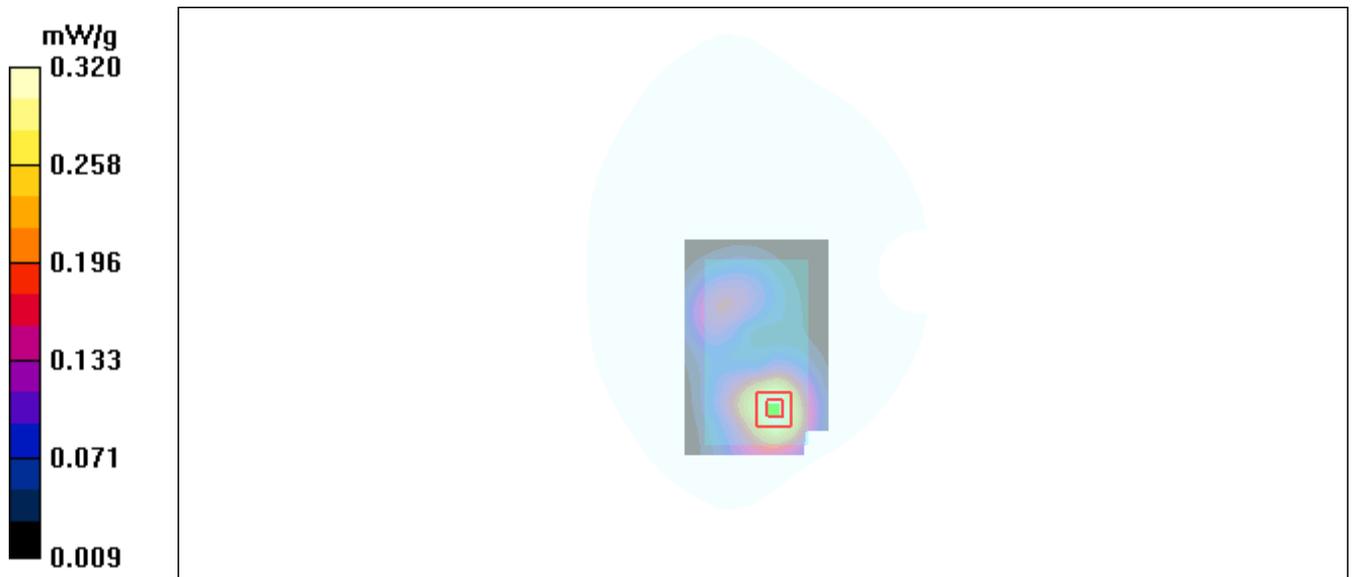


Figure 53 Body, CDMA US PCS with EVDO Rev.0 Towards Ground Channel 1225

CDMA US PCS with EVDO Rev.A Towards Ground Low

Date/Time: 10/27/2011 12:56:30 AM

Communication System: CDMA BC14 Rev.A; Frequency: 1911.25 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1912$ MHz; $\sigma = 1.57$ mho/m; $\epsilon_r = 52$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Flat Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.77, 7.77, 7.77); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

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

Towards Ground Low/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.325 mW/g

Towards Ground Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.29 V/m; Power Drift = -0.075 dB

Peak SAR (extrapolated) = 0.521 W/kg

SAR(1 g) = 0.299 mW/g; SAR(10 g) = 0.179 mW/g

Maximum value of SAR (measured) = 0.318 mW/g

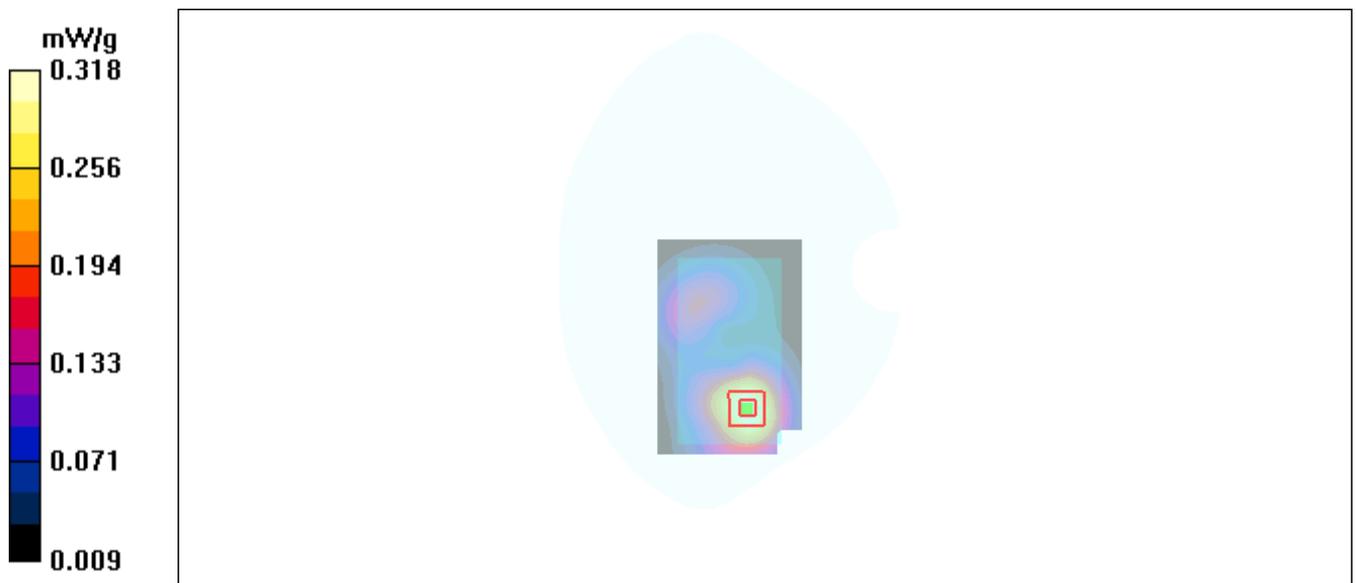


Figure 54 Body, CDMA US PCS with EVDO Rev.A Towards Ground Channel 1225

CDMA US PCS with Earphone Towards Ground Low

Date/Time: 10/27/2011 1:10:54 AM

Communication System: CDMA BC14; Frequency: 1911.25 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1912 \text{ MHz}$; $\sigma = 1.57 \text{ mho/m}$; $\epsilon_r = 52$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Flat Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.77, 7.77, 7.77); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

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

Towards Ground Low/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.322 mW/g

Towards Ground Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm,

dz=5mm

Reference Value = 7.65 V/m; Power Drift = 0.041 dB

Peak SAR (extrapolated) = 0.511 W/kg

SAR(1 g) = 0.292 mW/g; SAR(10 g) = 0.175 mW/g

Maximum value of SAR (measured) = 0.311 mW/g

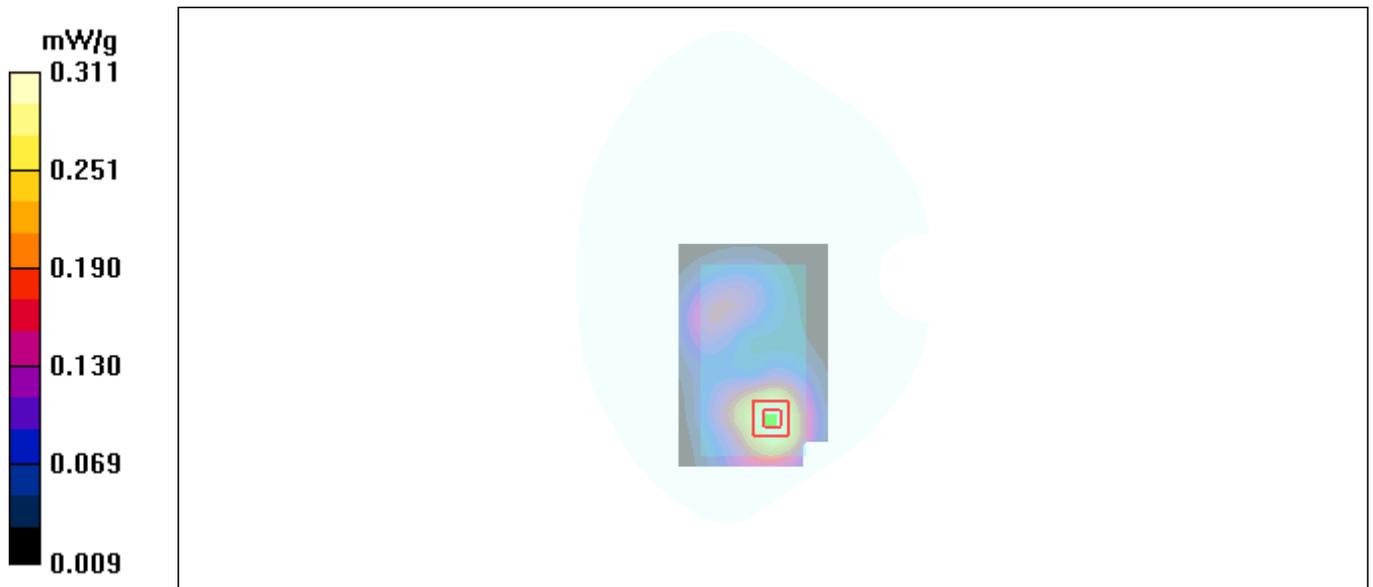


Figure 55 Body, CDMA US PCS with Earphone Towards Ground Channel 1225

802.11b Left Cheek Middle

Date/Time: 10/27/2011 10:13:51 AM

Communication System: 802.11b; Frequency: 2437 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 2437$ MHz; $\sigma = 1.79$ mho/m; $\epsilon_r = 39.3$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Left Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.32, 7.32, 7.32); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

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

Cheek Middle/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.082 mW/g

Cheek Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.53 V/m; Power Drift = -0.061 dB

Peak SAR (extrapolated) = 0.151 W/kg

SAR(1 g) = 0.077 mW/g; SAR(10 g) = 0.042 mW/g

Maximum value of SAR (measured) = 0.083 mW/g

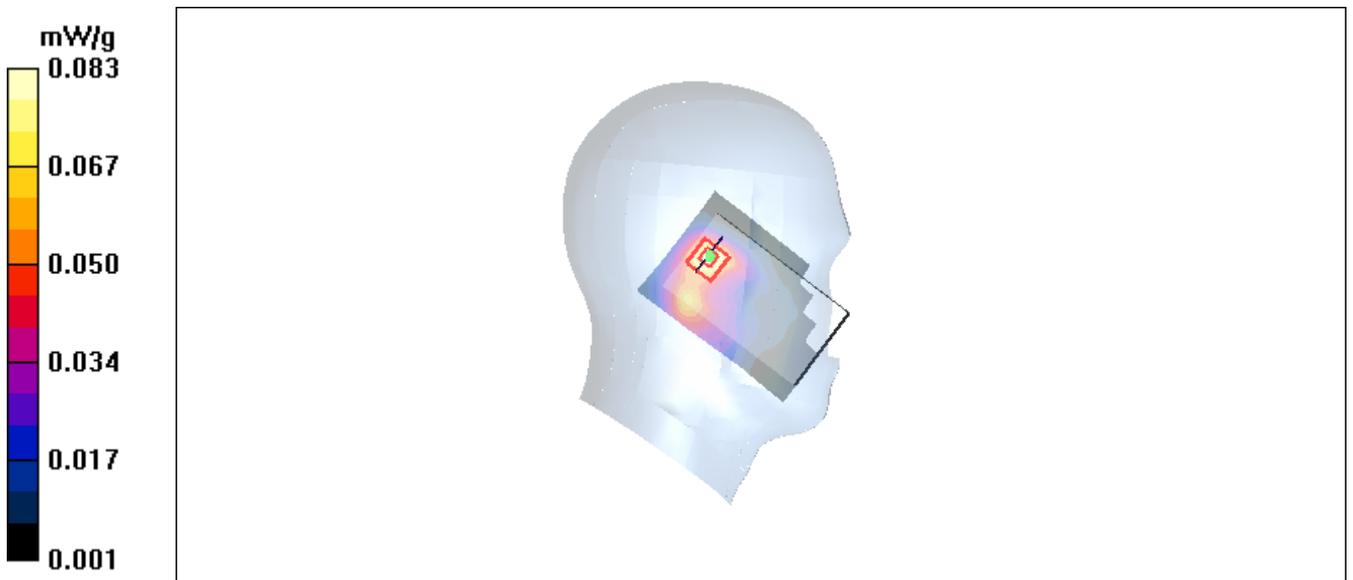


Figure 56 Left Hand Touch Cheek 802.11b Channel 6

802.11b Left Tilt Middle

Date/Time: 10/27/2011 10:28:44 AM

Communication System: 802.11b; Frequency: 2437 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 2437$ MHz; $\sigma = 1.79$ mho/m; $\epsilon_r = 39.3$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Left Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.32, 7.32, 7.32); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

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

Tilt Middle/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.082 mW/g

Tilt Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.38 V/m; Power Drift = -0.076 dB

Peak SAR (extrapolated) = 0.150 W/kg

SAR(1 g) = 0.073 mW/g; SAR(10 g) = 0.038 mW/g

Maximum value of SAR (measured) = 0.079 mW/g

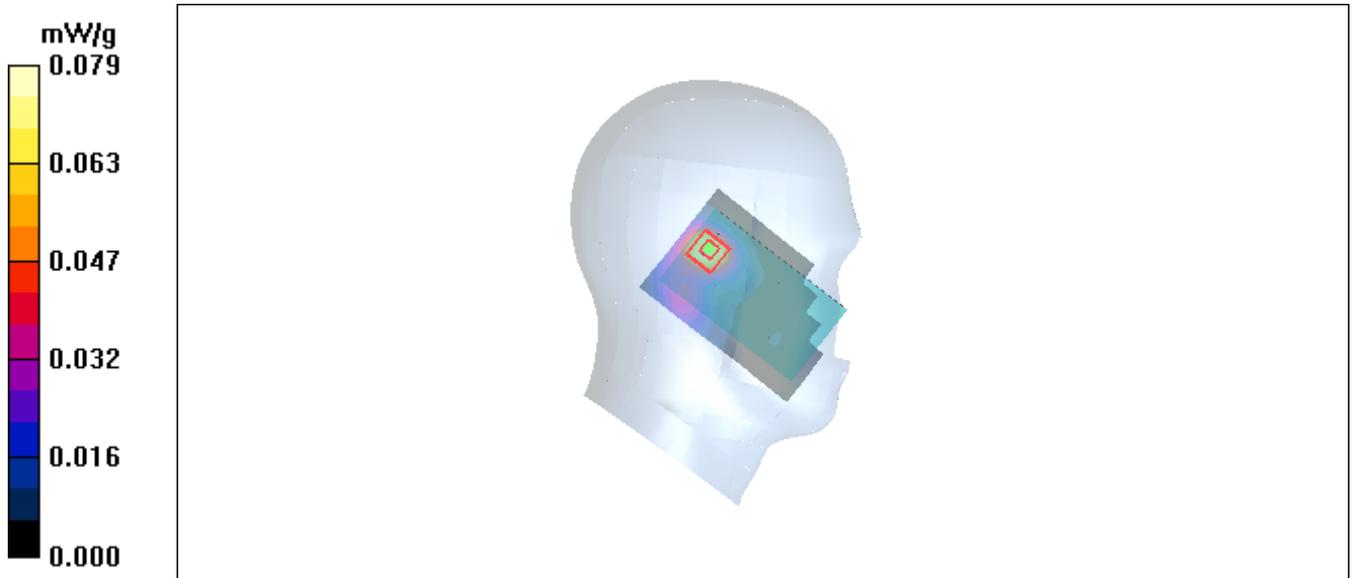


Figure 57 Left Hand Tilt 15° 802.11b Channel 6

802.11b Right Cheek High

Date/Time: 10/27/2011 11:10:24 AM

Communication System: 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2462$ MHz; $\sigma = 1.82$ mho/m; $\epsilon_r = 39.2$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Right Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.32, 7.32, 7.32); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

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

Cheek High/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.171 mW/g

Cheek High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.81 V/m; Power Drift = 0.015 dB

Peak SAR (extrapolated) = 0.417 W/kg

SAR(1 g) = 0.165 mW/g; SAR(10 g) = 0.077 mW/g

Maximum value of SAR (measured) = 0.172 mW/g

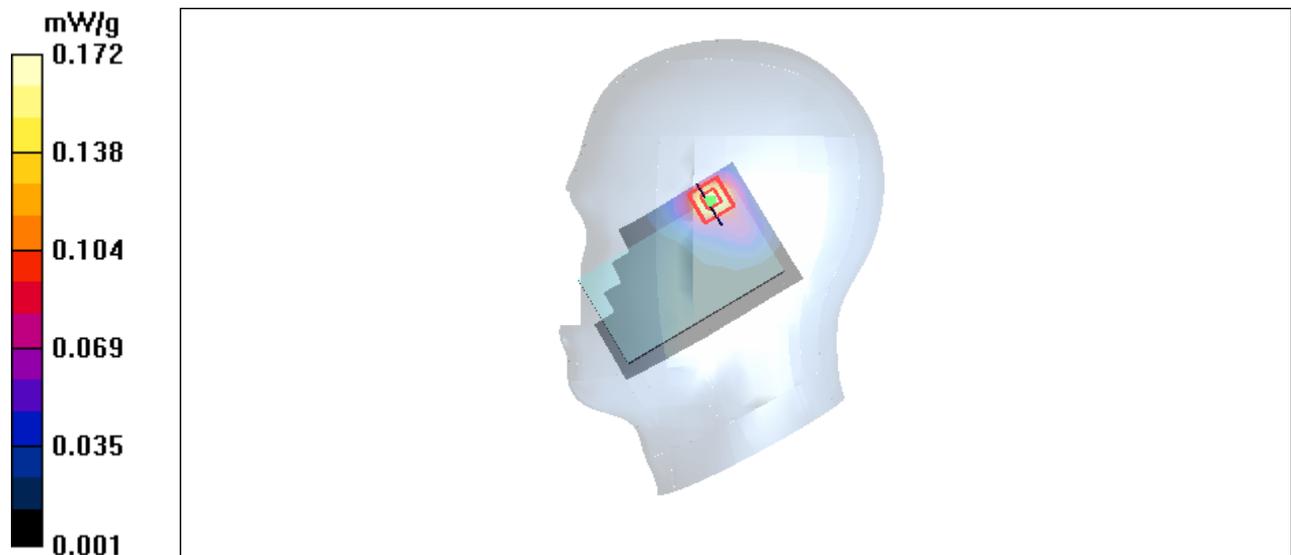


Figure 58 Right Hand Touch Cheek 802.11b Channel 11

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802.11b Right Cheek Middle

Date/Time: 10/27/2011 9:38:05 AM

Communication System: 802.11b; Frequency: 2437 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 2437$ MHz; $\sigma = 1.79$ mho/m; $\epsilon_r = 39.3$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Right Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.32, 7.32, 7.32); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

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

Cheek Middle/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.202 mW/g

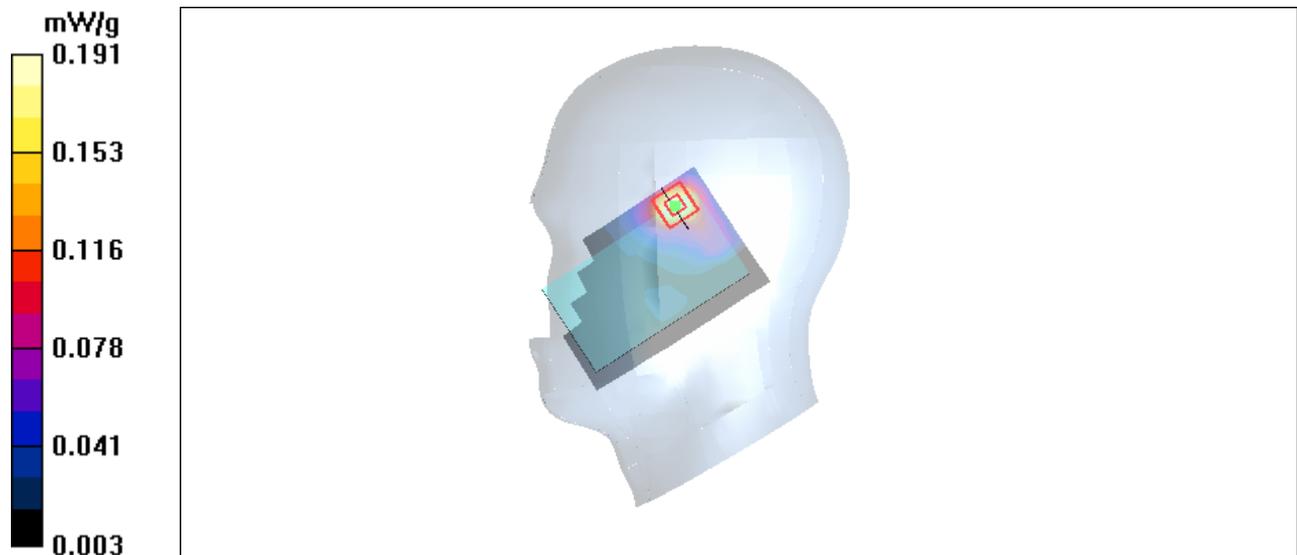
Cheek Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.86 V/m; Power Drift = -0.037 dB

Peak SAR (extrapolated) = 0.447 W/kg

SAR(1 g) = 0.181 mW/g; SAR(10 g) = 0.086 mW/g

Maximum value of SAR (measured) = 0.191 mW/g



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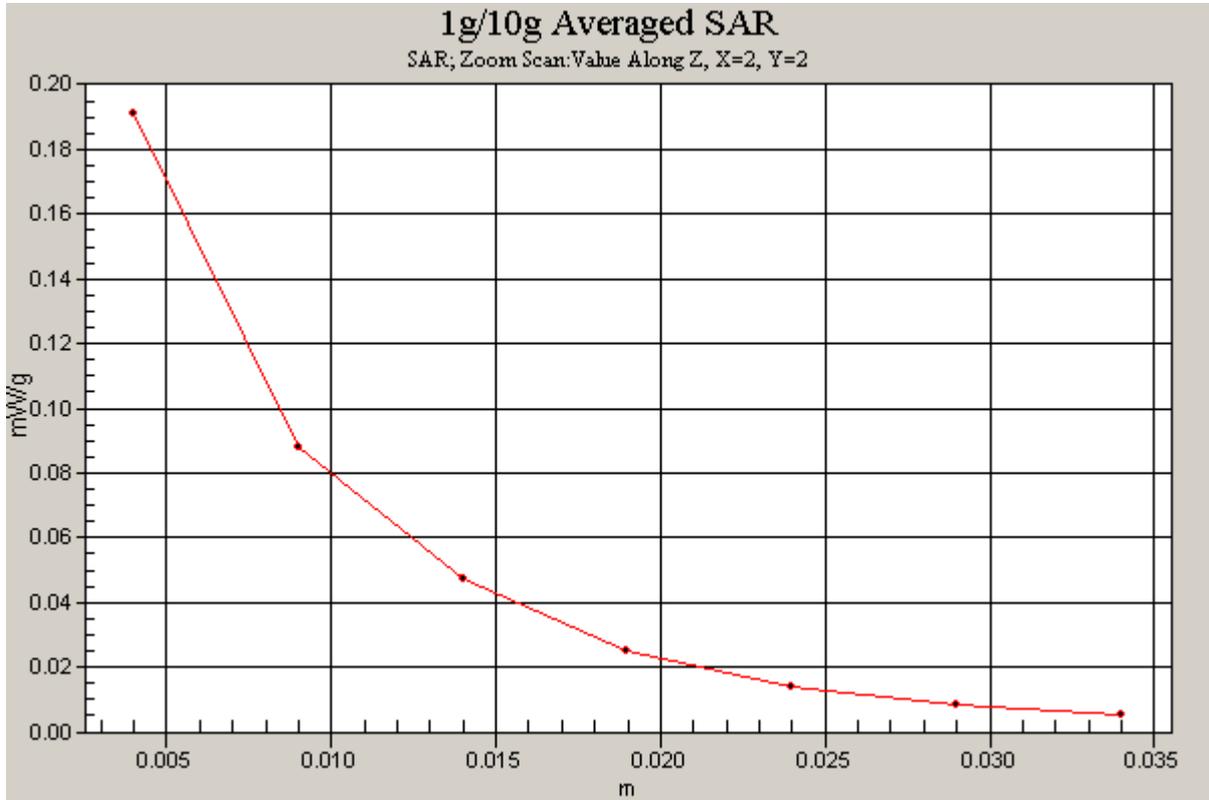


Figure 59 Right Hand Touch Cheek 802.11b Channel 6

802.11b Right Cheek Low

Date/Time: 10/27/2011 10:51:49 AM

Communication System: 802.11b; Frequency: 2412 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2412$ MHz; $\sigma = 1.76$ mho/m; $\epsilon_r = 39.4$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Right Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.32, 7.32, 7.32); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

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

Cheek Low/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.154 mW/g

Cheek Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.80 V/m; Power Drift = -0.130 dB

Peak SAR (extrapolated) = 0.349 W/kg

SAR(1 g) = 0.141 mW/g; SAR(10 g) = 0.067 mW/g

Maximum value of SAR (measured) = 0.149 mW/g

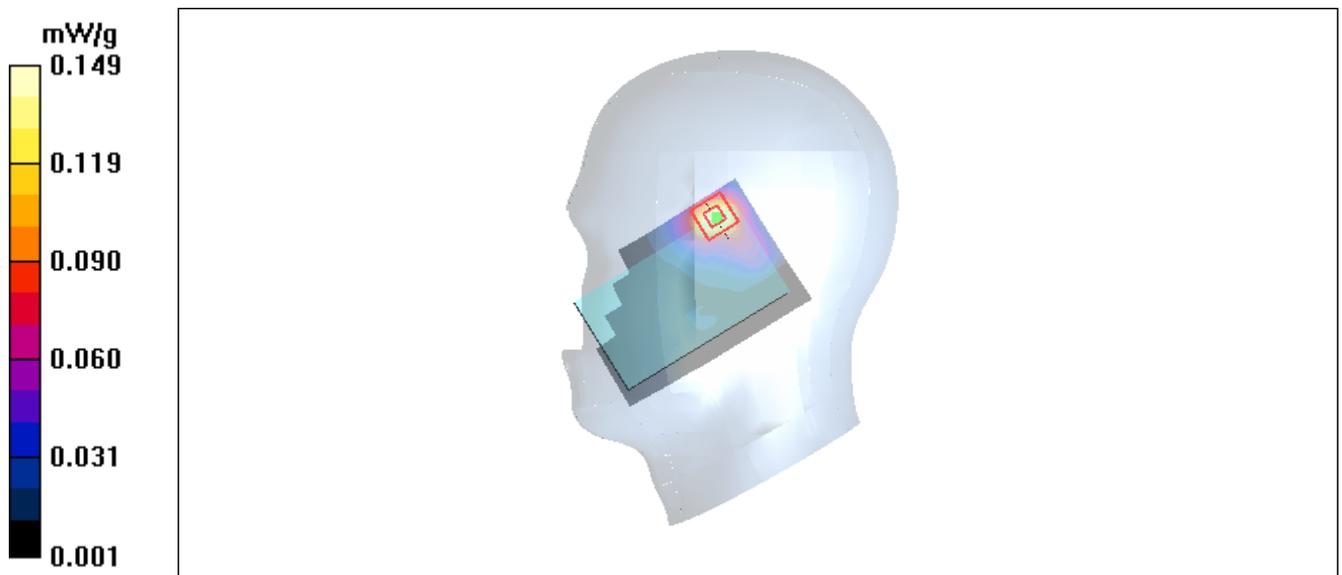


Figure 60 Right Hand Touch Cheek 802.11b Channel 1

802.11b Right Tilt Middle

Date/Time: 10/27/2011 9:54:05 AM

Communication System: 802.11b; Frequency: 2437 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 2437$ MHz; $\sigma = 1.79$ mho/m; $\epsilon_r = 39.3$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Right Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.32, 7.32, 7.32); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

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

Tilt Middle/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.087 mW/g

Tilt Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.46 V/m; Power Drift = 0.135 dB

Peak SAR (extrapolated) = 0.195 W/kg

SAR(1 g) = 0.085 mW/g; SAR(10 g) = 0.043 mW/g

Maximum value of SAR (measured) = 0.086 mW/g

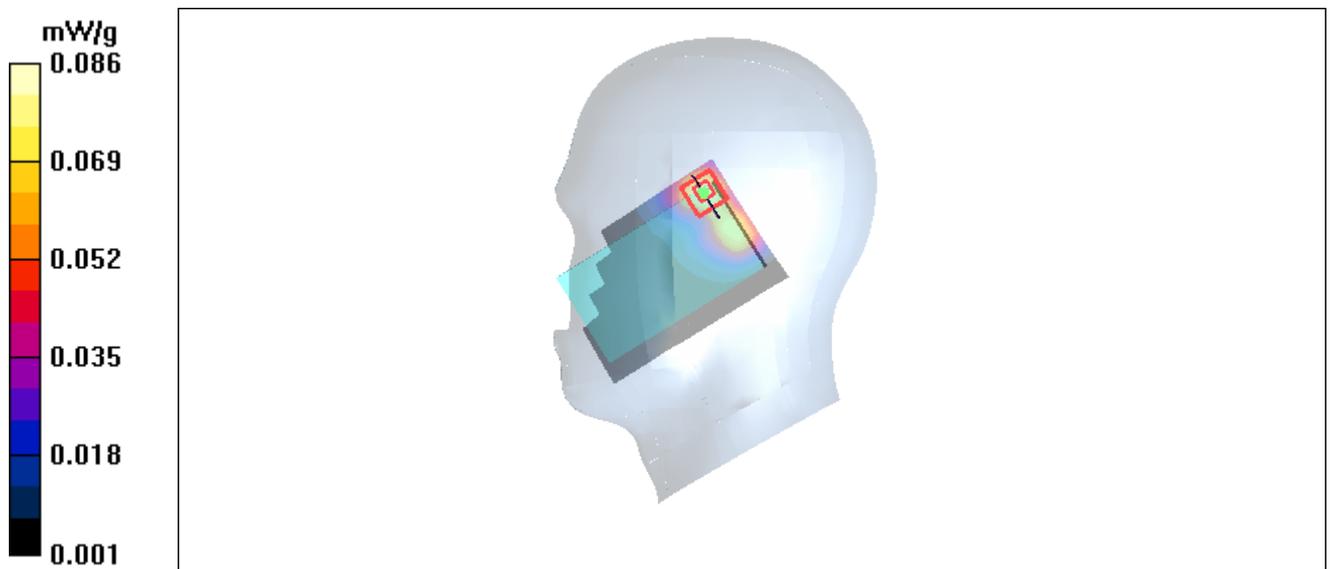


Figure 61 Right Hand Tilt 15° 802.11b Channel 6

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802.11b Towards Ground High

Date/Time: 10/27/2011 2:07:58 PM

Communication System: 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2462$ MHz; $\sigma = 1.97$ mho/m; $\epsilon_r = 51.6$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.46, 7.46, 7.46); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

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

Towards Ground High/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.054 mW/g

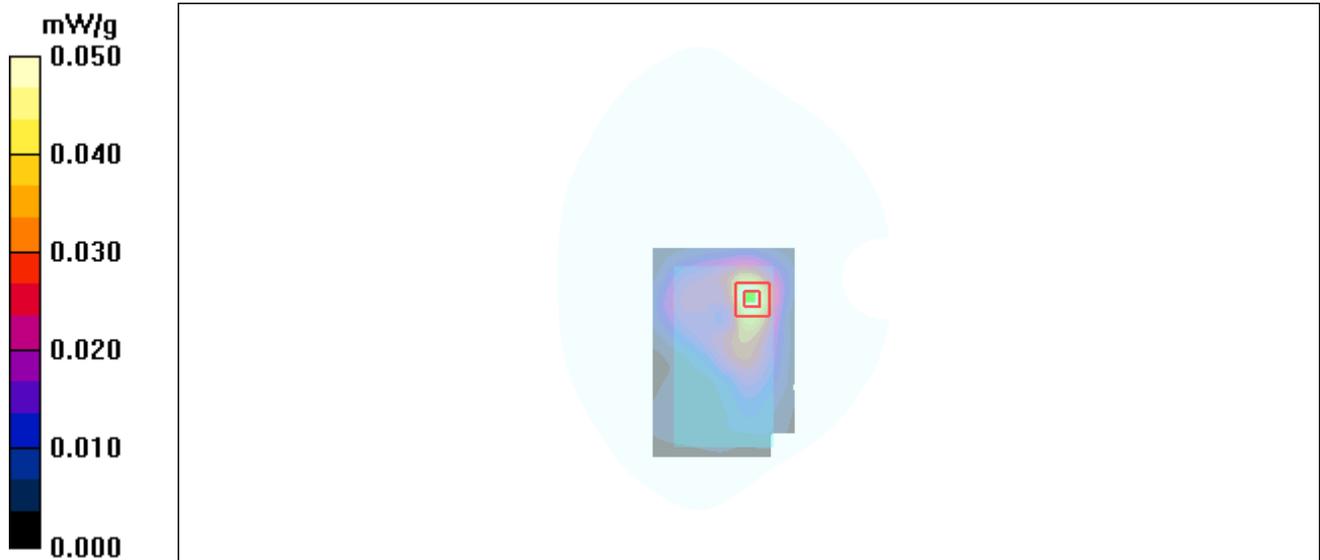
Towards Ground High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 3.60 V/m; Power Drift = -0.182 dB

Peak SAR (extrapolated) = 0.106 W/kg

SAR(1 g) = 0.049 mW/g; SAR(10 g) = 0.025 mW/g

Maximum value of SAR (measured) = 0.050 mW/g



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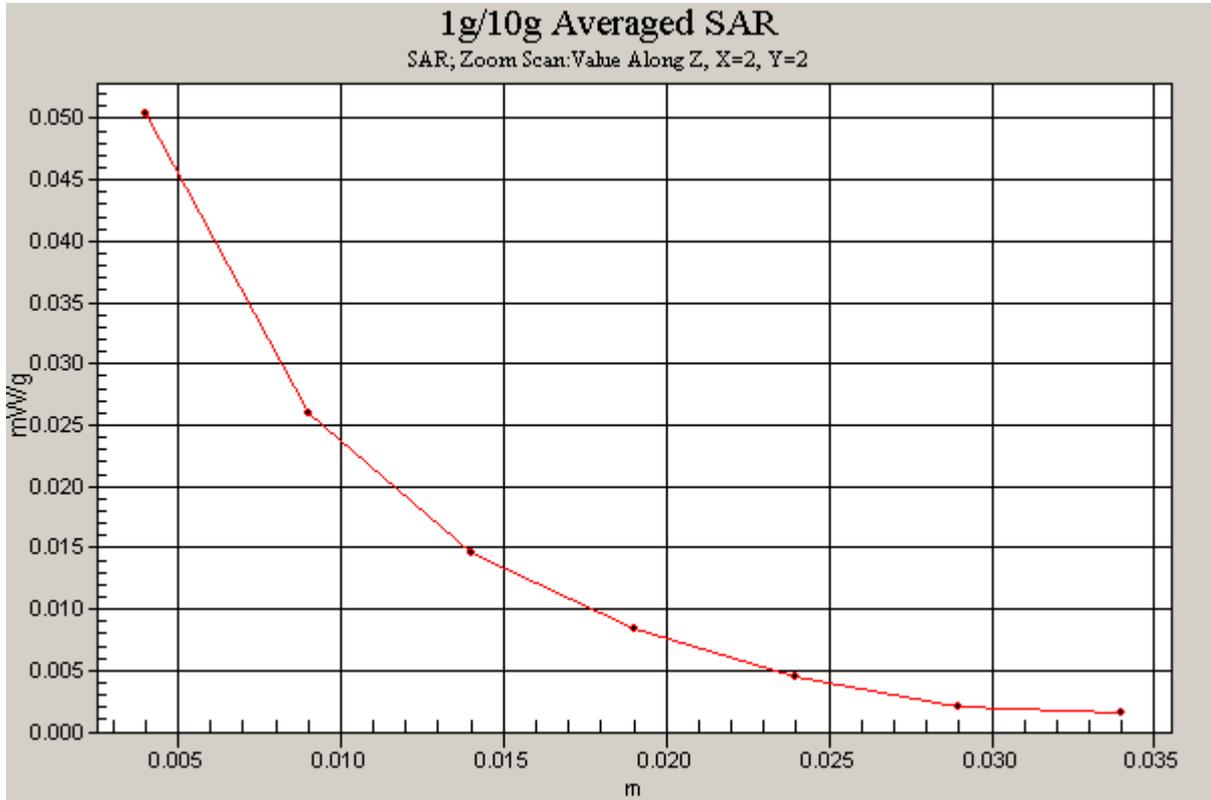


Figure 62 Body, Towards Ground, 802.11b Channel 11

802.11b Towards Ground Middle

Date/Time: 10/27/2011 2:25:02 PM

Communication System: 802.11b; Frequency: 2437 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 2437$ MHz; $\sigma = 1.94$ mho/m; $\epsilon_r = 51.7$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.46, 7.46, 7.46); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

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

Towards Ground Middle /Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.038 mW/g

Towards Ground Middle /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm,
dz=5mm

Reference Value = 3.21 V/m; Power Drift = -0.119 dB

Peak SAR (extrapolated) = 0.082 W/kg

SAR(1 g) = 0.037 mW/g; SAR(10 g) = 0.019 mW/g

Maximum value of SAR (measured) = 0.038 mW/g



Figure 63 Body, Towards Ground, 802.11b Channel 6

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802.11b Towards Ground Low

Date/Time: 10/27/2011 1:51:28 PM

Communication System: 802.11b; Frequency: 2412 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2412$ MHz; $\sigma = 1.92$ mho/m; $\epsilon_r = 51.8$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

Phantom section: Flat Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.46, 7.46, 7.46); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

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

Towards Ground Low/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.044 mW/g

Towards Ground Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm,

dz=5mm

Reference Value = 3.40 V/m; Power Drift = 0.065 dB

Peak SAR (extrapolated) = 0.095 W/kg

SAR(1 g) = 0.043 mW/g; SAR(10 g) = 0.022 mW/g

Maximum value of SAR (measured) = 0.045 mW/g



Figure 64 Body, Towards Ground, 802.11b Channel 1

802.11b Towards Phantom Middle

Date/Time: 10/27/2011 12:33:52 PM

Communication System: 802.11b; Frequency: 2437 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 2437$ MHz; $\sigma = 1.94$ mho/m; $\epsilon_r = 51.7$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Flat Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.46, 7.46, 7.46); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

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

Towards Phantom Middle/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.026 mW/g

Towards Phantom Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm,

dz=5mm

Reference Value = 3.41 V/m; Power Drift = -0.002 dB

Peak SAR (extrapolated) = 0.052 W/kg

SAR(1 g) = 0.025 mW/g; SAR(10 g) = 0.014 mW/g

Maximum value of SAR (measured) = 0.026 mW/g

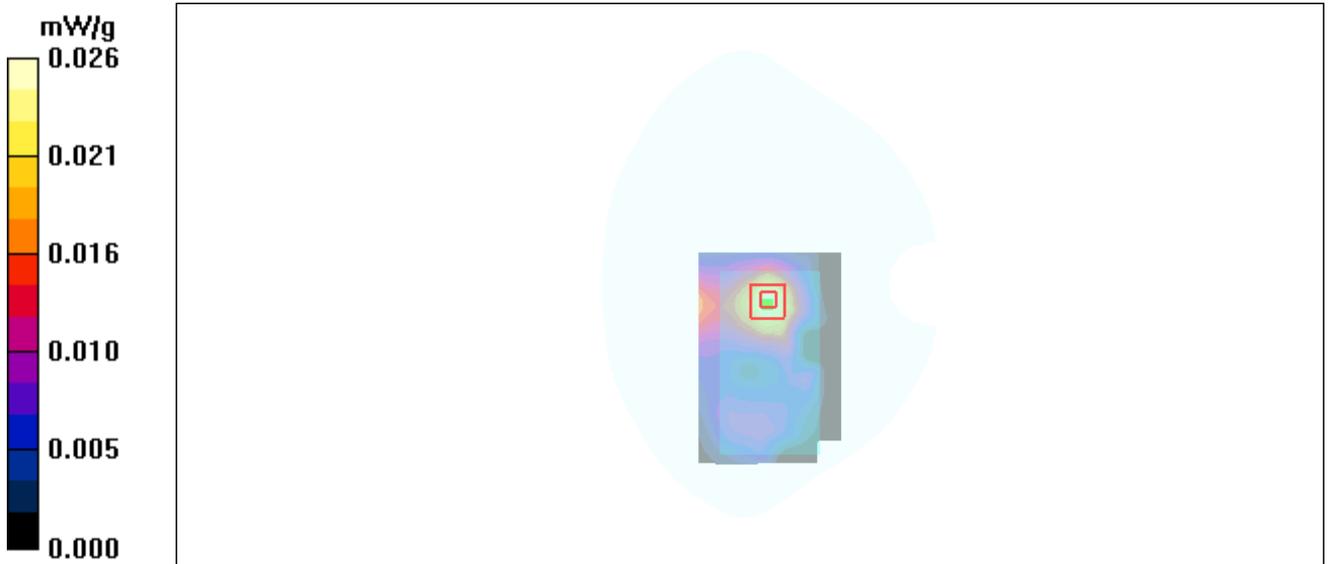


Figure 65 Body, Towards Phantom, 802.11b Channel 6

802.11b with Earphone Towards Ground High

Date/Time: 10/27/2011 2:43:51 PM

Communication System: 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2462$ MHz; $\sigma = 1.97$ mho/m; $\epsilon_r = 51.6$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5°C

Phantom section: Flat Section

DASY4 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.46, 7.46, 7.46); Calibrated: 11/24/2010

Electronics: DAE4 Sn871; Calibrated: 11/18/2010

Phantom: SAM000 T01; Type: SAM V4.0; Serial: TP-1246

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

Towards Ground High/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.043 mW/g

Towards Ground High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm,

dz=5mm

Reference Value = 3.34 V/m; Power Drift = 0.134 dB

Peak SAR (extrapolated) = 0.104 W/kg

SAR(1 g) = 0.044 mW/g; SAR(10 g) = 0.023 mW/g

Maximum value of SAR (measured) = 0.045 mW/g

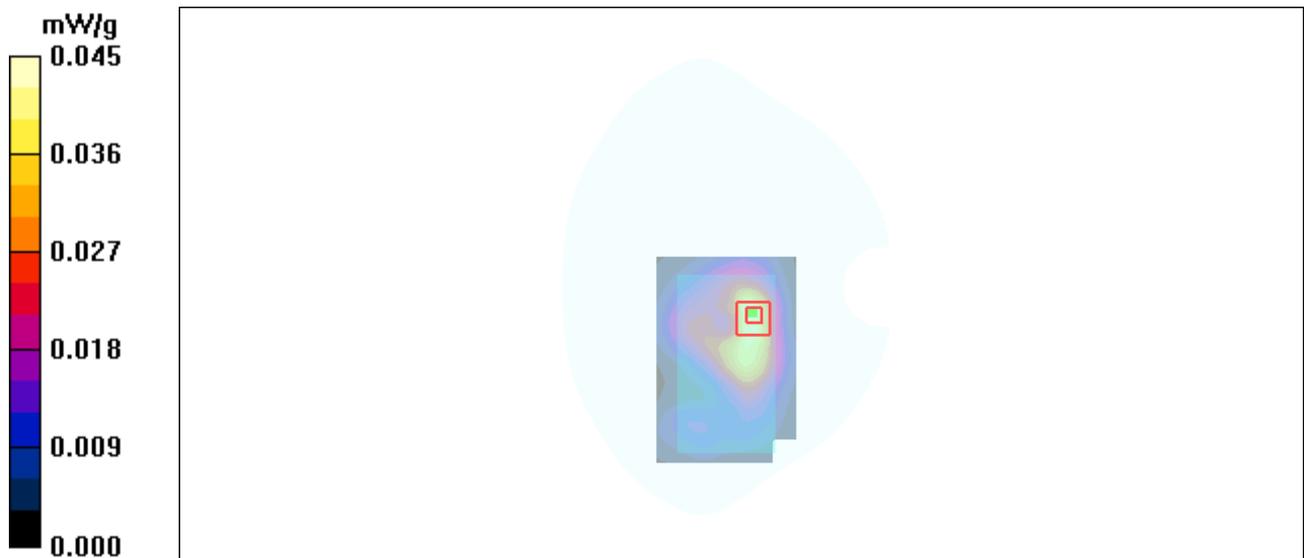


Figure 66 Body with earphone, Towards Ground, 802.11b Channel 11

TA Technology (Shanghai) Co., Ltd. Test Report

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ANNEX D: Probe Calibration Certificate

**Calibration Laboratory of
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Zeughausstrasse 43, 8004 Zurich, Switzerland



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Accreditation No.: **SCS 108**

Client **TA-SH (Auden)**

Certificate No: **EX3-3677_Nov10**

CALIBRATION CERTIFICATE

Object **EX3DV4 - SN:3677**

Calibration procedure(s) **QA CAL-01.v6, QA CAL-14.v3, QA CAL-23.v3 and QA CAL-25.v2
Calibration procedure for dosimetric E-field probes**

Calibration date: **November 24, 2010**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	1-Apr-10 (No. 217-01136)	Apr-11
Power sensor E4412A	MY41495277	1-Apr-10 (No. 217-01136)	Apr-11
Power sensor E4412A	MY41498097	1-Apr-10 (No. 217-01136)	Apr-11
Reference 3 dB Attenuator	SN: S5054 (3c)	30-Mar-10 (No. 217-01159)	Mar-11
Reference 20 dB Attenuator	SN: S5086 (20b)	30-Mar-10 (No. 217-01161)	Mar-11
Reference 30 dB Attenuator	SN: S5129 (30b)	30-Mar-10 (No. 217-01160)	Mar-11
Reference Probe ES3DV2	SN: 3013	30-Dec-09 (No. ES3-3013_Dec09)	Dec-10
DAE4	SN: 660	20-Apr-10 (No. DAE4-660_Apr10)	Apr-11
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-10)	In house check: Oct-11

Calibrated by: **Katja Pokovic** Function: **Technical Manager** Signature:

Approved by: **Niels Kuster** Quality Manager Signature:

Issued: November 25, 2010.

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

Certificate No: EX3-3677_Nov10

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Accreditation No.: SCS 108

Glossary:

TSL	tissue simulating liquid
NORM _{x,y,z}	sensitivity in free space
ConvF	sensitivity in TSL / NORM _{x,y,z}
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C	modulation dependent linearization parameters
Polarization ϕ	ϕ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., $\vartheta = 0$ is normal to probe axis

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
- IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005

Methods Applied and Interpretation of Parameters:

- NORM_{x,y,z}:** Assessed for E-field polarization $\vartheta = 0$ ($f \leq 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide). NORM_{x,y,z} are only intermediate values, i.e., the uncertainties of NORM_{x,y,z} does not effect the E²-field uncertainty inside TSL (see below ConvF).
- NORM(f)_{x,y,z} = NORM_{x,y,z} * frequency_response** (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of ConvF.
- DCP_{x,y,z}:** DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- A_{x,y,z}; B_{x,y,z}; C_{x,y,z}; VR_{x,y,z}:** A, B, C are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- ConvF and Boundary Effect Parameters:** Assessed in flat phantom using E-field (or Temperature Transfer Standard for $f \leq 800$ MHz) and inside waveguide using analytical field distributions based on power measurements for $f > 800$ MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORM_{x,y,z} * ConvF whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- Spherical isotropy (3D deviation from isotropy):** in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- Sensor Offset:** The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.

EX3DV4 SN:3677

November 24, 2010

Probe EX3DV4

SN:3677

Manufactured:	September 9, 2008
Last calibrated:	September 23, 2009
Recalibrated:	November 24, 2010

Calibrated for DASY/EASY Systems

(Note: non-compatible with DASY2 system!)

TA Technology (Shanghai) Co., Ltd.

Test Report

EX3DV4 SN:3677

November 24, 2010

DASY/EASY - Parameters of Probe: EX3DV4 SN:3677

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu\text{V}/(\text{V}/\text{m})^2$) ^A	0.41	0.47	0.39	± 10.1%
DCP (mV) ^B	96.8	98.9	98.8	

Modulation Calibration Parameters

UID	Communication System Name	PAR		A dB	B dBuV	C	VR mV	Unc ^C (k=2)
10000	CW	0.00	X	0.00	0.00	1.00	143.2	± 2.4 %
			Y	0.00	0.00	1.00	140.9	
			Z	0.00	0.00	1.00	135.8	

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

^A The uncertainties of NormX, Y, Z do not affect the E²-field uncertainty inside TSL (see Pages 5 and 8).

^B Numerical linearization parameter: uncertainty not required.

^C Uncertainty is determined using the maximum deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

EX3DV4 SN:3677

November 24, 2010

DASY/EASY - Parameters of Probe: EX3DV4 SN:3677

Calibration Parameter Determined in Head Tissue Simulating Media

f [MHz]	Validity [MHz] ^c	Permittivity	Conductivity	ConvF X	ConvF Y	ConvF Z	Alpha	Depth Unc (k=2)
450	± 50 / ± 100	43.5 ± 5%	0.87 ± 5%	10.04	10.04	10.04	0.09	1.00 ± 13.3%
835	± 50 / ± 100	41.5 ± 5%	0.90 ± 5%	9.50	9.50	9.50	0.72	0.64 ± 11.0%
1750	± 50 / ± 100	40.1 ± 5%	1.37 ± 5%	8.22	8.22	8.22	0.72	0.59 ± 11.0%
1900	± 50 / ± 100	40.0 ± 5%	1.40 ± 5%	7.94	7.94	7.94	0.81	0.57 ± 11.0%
2450	± 50 / ± 100	39.2 ± 5%	1.80 ± 5%	7.32	7.32	7.32	0.47	0.75 ± 11.0%

^c The validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2). The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

EX3DV4 SN:3677

November 24, 2010

DASY/EASY - Parameters of Probe: EX3DV4 SN:3677

Calibration Parameter Determined in Body Tissue Simulating Media

f [MHz]	Validity [MHz] ^c	Permittivity	Conductivity	ConvF X	ConvF Y	ConvF Z	Alpha	Depth Unc (k=2)
450	± 50 / ± 100	56.7 ± 5%	0.94 ± 5%	10.62	10.62	10.62	0.02	1.00 ± 13.3%
750	± 50 / ± 100	55.5 ± 5%	0.96 ± 5%	10.14	10.14	10.14	0.59	0.72 ± 11.0%
835	± 50 / ± 100	55.2 ± 5%	0.97 ± 5%	10.33	10.33	10.33	0.20	2.06 ± 11.0%
1450	± 50 / ± 100	54.0 ± 5%	1.30 ± 5%	8.47	8.47	8.47	0.99	0.53 ± 11.0%
1750	± 50 / ± 100	53.4 ± 5%	1.49 ± 5%	8.02	8.02	8.02	0.63	0.67 ± 11.0%
1900	± 50 / ± 100	53.3 ± 5%	1.52 ± 5%	7.77	7.77	7.77	0.69	0.67 ± 11.0%
2100	± 50 / ± 100	53.2 ± 5%	1.62 ± 5%	8.04	8.04	8.04	0.16	1.44 ± 11.0%
2450	± 50 / ± 100	52.7 ± 5%	1.95 ± 5%	7.46	7.46	7.46	0.99	0.49 ± 11.0%
3500	± 50 / ± 100	51.3 ± 5%	3.31 ± 5%	6.61	6.61	6.61	0.28	1.40 ± 13.1%

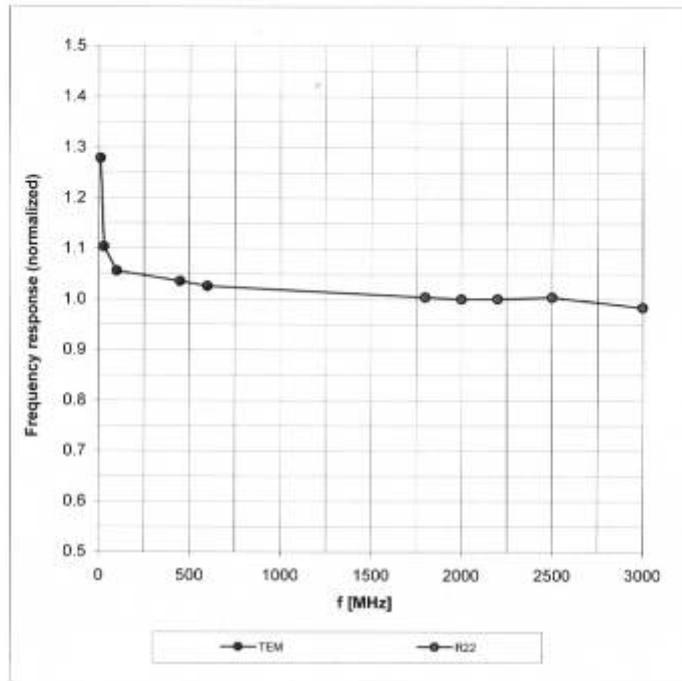
^c The validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2). The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

EX3DV4 SN:3677

November 24, 2010

Frequency Response of E-Field

(TEM-Cell: ifi110 EXX, Waveguide: R22)

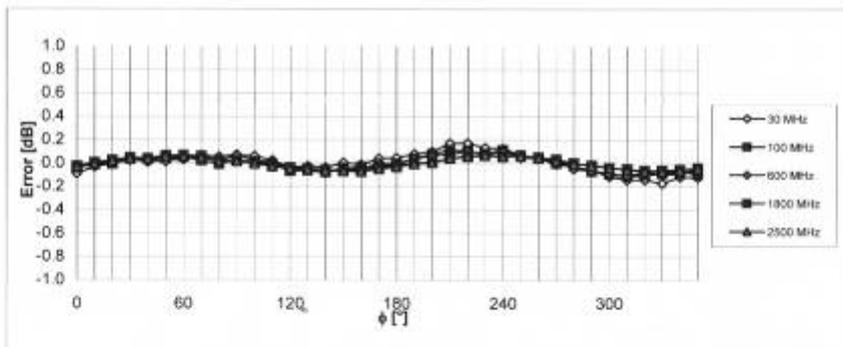
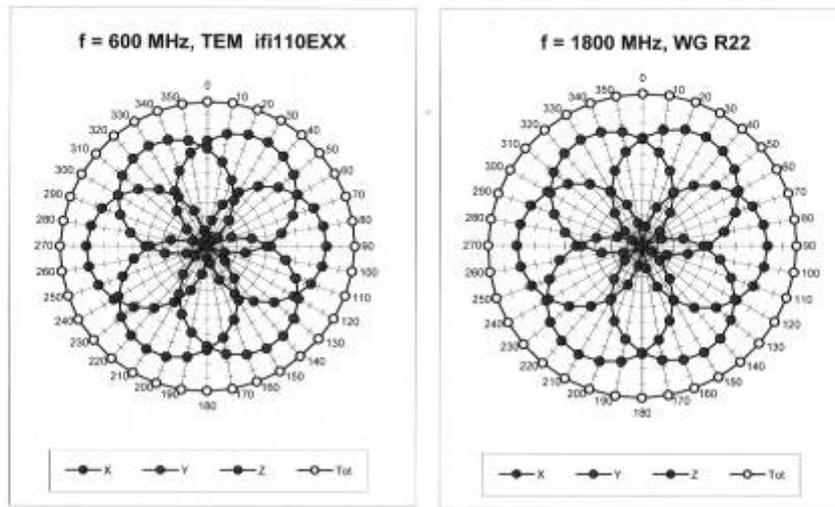


Uncertainty of Frequency Response of E-field: $\pm 6.3\%$ (k=2)

EX3DV4 SN:3677

November 24, 2010

Receiving Pattern (ϕ), $\vartheta = 0^\circ$



Uncertainty of Axial Isotropy Assessment: $\pm 0.5\%$ ($k=2$)

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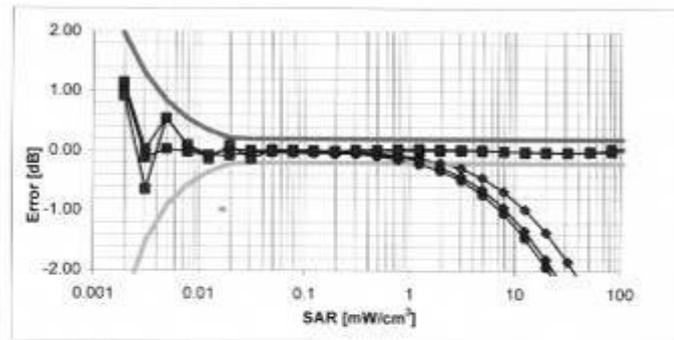
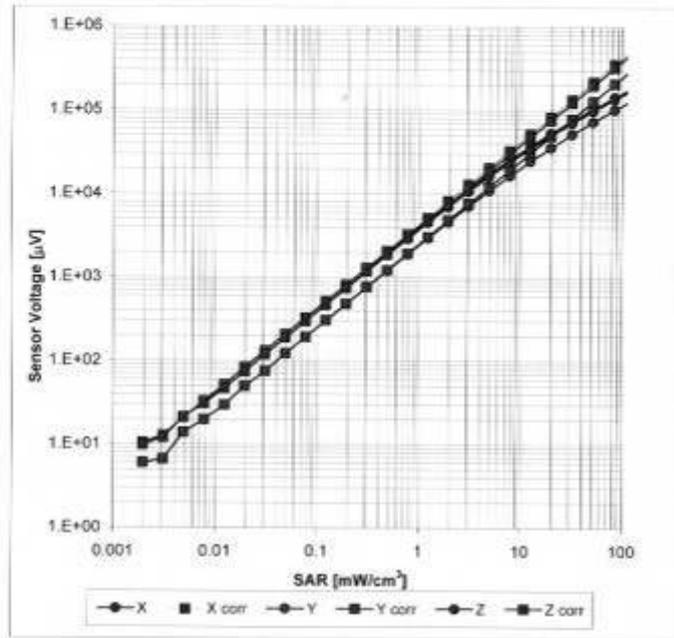
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November 24, 2010

Dynamic Range f(SAR_{head}) (TEM cell, f = 900 MHz)

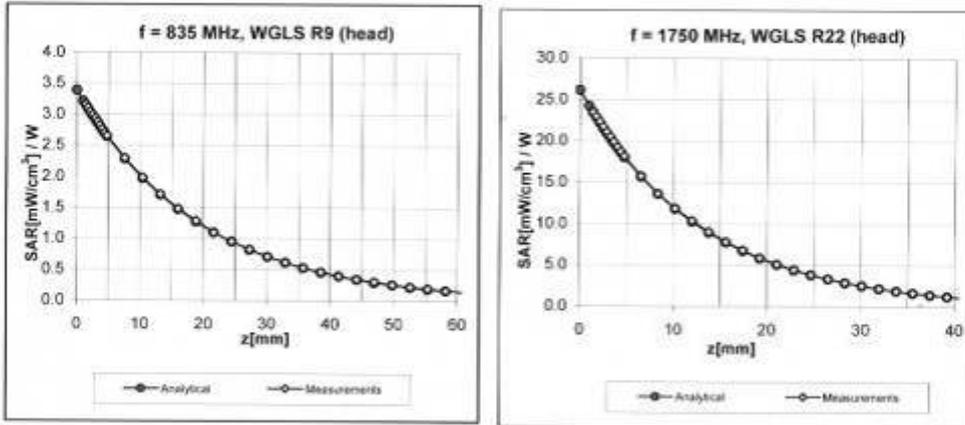


Uncertainty of Linearity Assessment: ± 0.6% (k=2)

EX3DV4 SN:3677

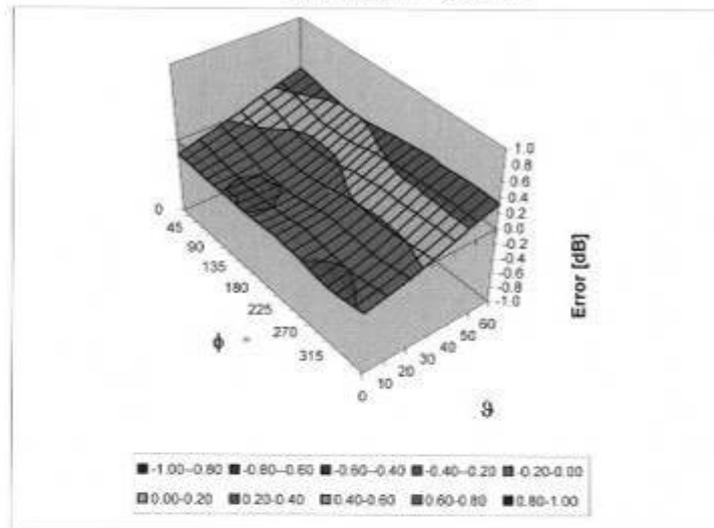
November 24, 2010

Conversion Factor Assessment



Deviation from Isotropy in HSL

Error (ϕ , θ), f = 900 MHz



Uncertainty of Spherical Isotropy Assessment: $\pm 2.6\%$ (k=2)

TA Technology (Shanghai) Co., Ltd.
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Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	Not applicable
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	9 mm
Tip Diameter	2.5 mm
Probe Tip to Sensor X Calibration Point	1 mm
Probe Tip to Sensor Y Calibration Point	1 mm
Probe Tip to Sensor Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	2 mm

TA Technology (Shanghai) Co., Ltd.

Test Report

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ANNEX E: D835V2 Dipole Calibration Certificate

**Calibration Laboratory of
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Zeughausstrasse 43, 8004 Zurich, Switzerland



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Accreditation No.: **SCS 108**

Client **TA-Shanghai (Auden)**

Certificate No: **D835V2-4d020_Aug11**

CALIBRATION CERTIFICATE

Object: **D835V2 - SN: 4d020**

Calibration procedure(s): **QA CAL-05.v8
Calibration procedure for dipole validation kits above 700 MHz**

Calibration date: **August 26, 2011**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	06-Oct-10 (No. 217-01266)	Oct-11
Power sensor HP B481A	US37292783	06-Oct-10 (No. 217-01266)	Oct-11
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-11 (No. 217-01367)	Apr-12
Type-N mismatch combination	SN: 5047.2 / 06327	29-Mar-11 (No. 217-01371)	Apr-12
Reference Probe ES3DV3	SN: 3205	29-Apr-11 (No. ES3-3205_Apr11)	Apr-12
DAE4	SN: 601	04-Jul-11 (No. DAE4-601_Jul11)	Jul-12
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP B481A	MY41092317	18-Oct-02 (in house check Oct-09)	In house check: Oct-11
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-10)	In house check: Oct-11

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: August 26, 2011

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Accreditation No.: **SCS 108**

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
- IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
- Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

Additional Documentation:

- DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- Measurement Conditions:** Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL:** The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss:** These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay:** One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- SAR measured:** SAR measured at the stated antenna input power.
- SAR normalized:** SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters:** The measured TSL parameters are used to calculate the nominal SAR result.

TA Technology (Shanghai) Co., Ltd.

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Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.6.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	835 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	41.5	0.90 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	41.1 ± 6 %	0.89 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.32 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	9.34 mW / g ± 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.52 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	6.11 mW / g ± 16.5 % (k=2)

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	55.2	0.97 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	53.4 ± 6 %	0.99 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.42 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	9.46 mW / g ± 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.59 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	6.26 mW / g ± 16.5 % (k=2)

TA Technology (Shanghai) Co., Ltd.
Test Report

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Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	52.9 Ω - 3.1 $j\Omega$
Return Loss	- 27.7 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	48.7 Ω - 5.4 $j\Omega$
Return Loss	- 25.1 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.391 ns
----------------------------------	----------

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	April 22, 2004

DASY5 Validation Report for Head TSL

Date: 25.08.2011

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d020

Communication System: CW; Frequency: 835 MHz

Medium parameters used: $f = 835$ MHz; $\sigma = 0.89$ mho/m; $\epsilon_r = 41.1$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(6.07, 6.07, 6.07); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

Dipole Calibration for Head Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:

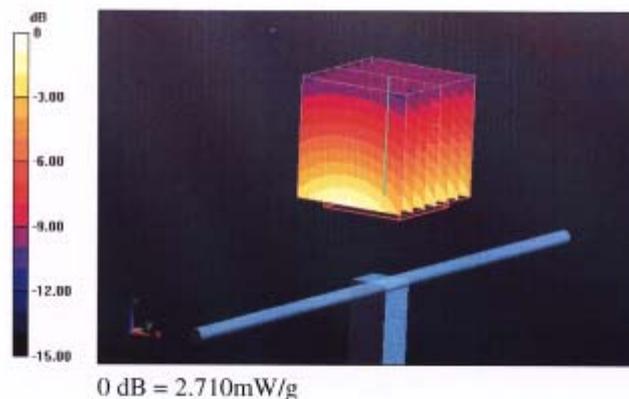
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 56.930 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 3.421 W/kg

SAR(1 g) = 2.32 mW/g; SAR(10 g) = 1.52 mW/g

Maximum value of SAR (measured) = 2.708 mW/g

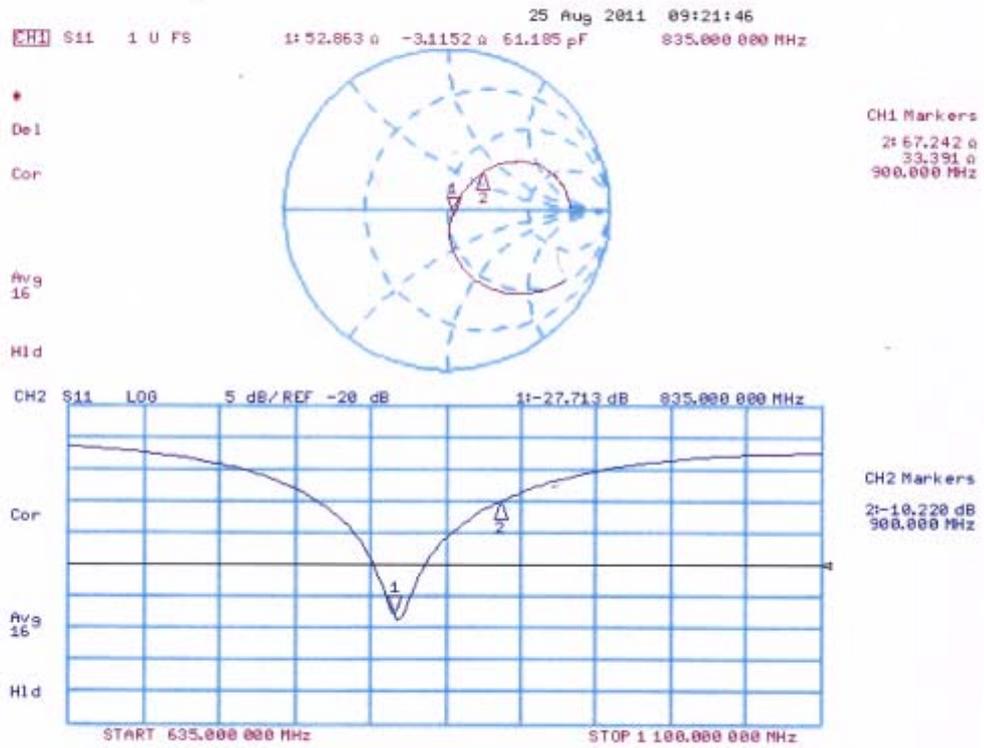


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Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 26.08.2011

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d020

Communication System: CW; Frequency: 835 MHz

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.99 \text{ mho/m}$; $\epsilon_r = 53.4$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(6.02, 6.02, 6.02); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

Dipole Calibration for Body Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:

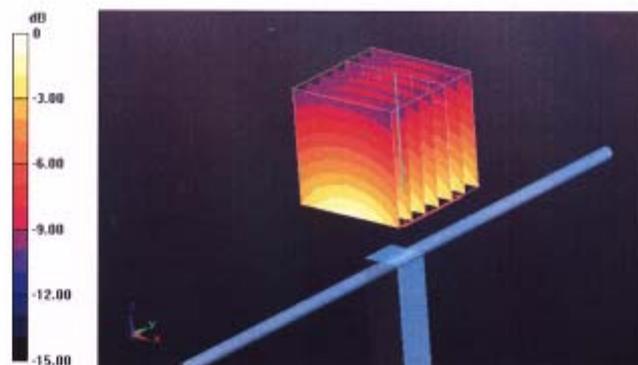
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 55.406 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 3.509 W/kg

SAR(1 g) = 2.42 mW/g; SAR(10 g) = 1.59 mW/g

Maximum value of SAR (measured) = 2.827 mW/g

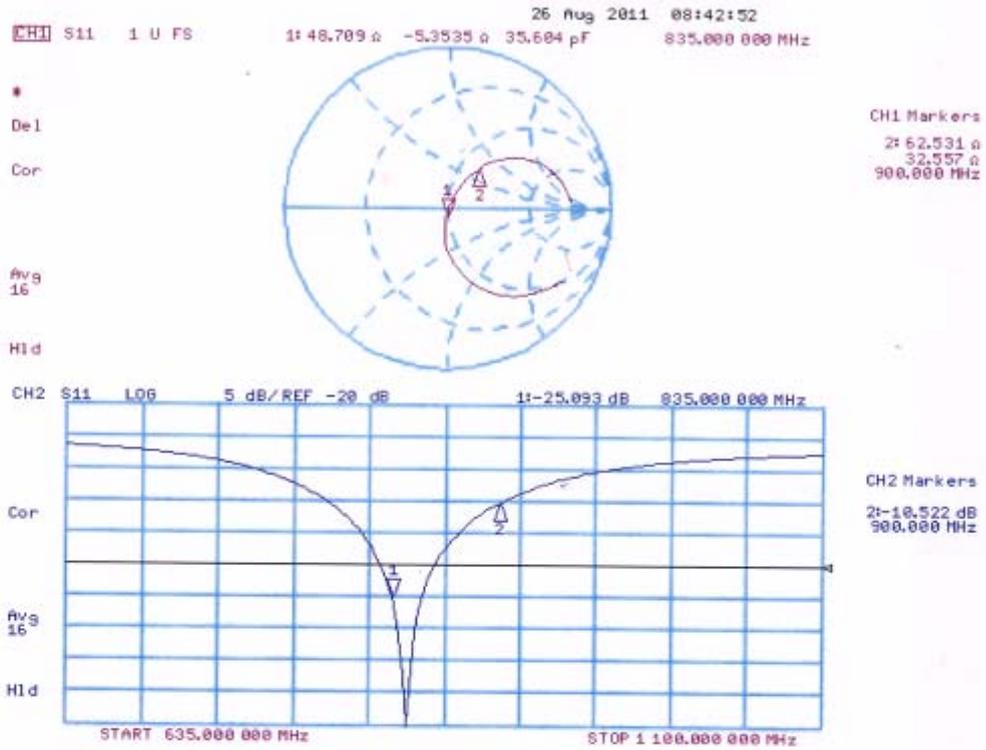


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Impedance Measurement Plot for Body TSL



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ANNEX F: D1900V2 Dipole Calibration Certificate

**Calibration Laboratory of
Schmid & Partner
Engineering AG**
Zeughausstrasse 43, 8004 Zurich, Switzerland



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C Service suisse d'étalonnage
S Servizio svizzero di taratura
S Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Client **TA-Shanghai (Auden)**

Certificate No: **D1900V2-5d060_Aug11**

CALIBRATION CERTIFICATE

Object: **D1900V2 - SN: 5d060**

Calibration procedure(s): **QA CAL-05.v8
Calibration procedure for dipole validation kits above 700 MHz**

Calibration date: **August 31, 2011**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	06-Oct-10 (No. 217-01266)	Oct-11
Power sensor HP 8481A	US37292783	06-Oct-10 (No. 217-01266)	Oct-11
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-11 (No. 217-01367)	Apr-12
Type-N mismatch combination	SN: 5047.2 / 06327	29-Mar-11 (No. 217-01371)	Apr-12
Reference Probe ES3DV3	SN: 3205	29-Apr-11 (No. ES3-3205_Apr11)	Apr-12
DAE4	SN: 601	04-Jul-11 (No. DAE4-601_Jul11)	Jul-12
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-09)	In house check: Oct-11
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-10)	In house check: Oct-11

	Name	Function	Signature
Calibrated by:	Dimce Iliev	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: August 31, 2011

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TA Technology (Shanghai) Co., Ltd.

Test Report

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**Calibration Laboratory of
Schmid & Partner
Engineering AG**
Zeughausstrasse 43, 8004 Zurich, Switzerland



S Schweizerischer Kalibrierdienst
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Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
- IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
- Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

Additional Documentation:

- DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- Measurement Conditions:** Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL:** The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss:** These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay:** One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- SAR measured:** SAR measured at the stated antenna input power.
- SAR normalized:** SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters:** The measured TSL parameters are used to calculate the nominal SAR result.

TA Technology (Shanghai) Co., Ltd.

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Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.6.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1900 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	40.0	1.40 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	39.5 ± 6 %	1.42 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	10.2 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	40.3 mW / g ± 17.0 % (k=2)

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	5.30 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	21.1 mW / g ± 16.5 % (k=2)

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	53.3	1.52 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	53.9 ± 6 %	1.57 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	10.6 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	41.7 mW / g ± 17.0 % (k=2)

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.55 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	22.0 mW / g ± 16.5 % (k=2)

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Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	52.6 Ω + 7.5 j Ω
Return Loss	- 22.3 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	47.3 Ω + 7.9 j Ω
Return Loss	- 21.3 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.194 ns
----------------------------------	----------

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	December 10, 2004

DASY5 Validation Report for Head TSL

Date: 30.08.2011

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d060

Communication System: CW; Frequency: 1900 MHz

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.42$ mho/m; $\epsilon_r = 39.5$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(5.01, 5.01, 5.01); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 97.636 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 18.535 W/kg

SAR(1 g) = 10.2 mW/g; SAR(10 g) = 5.3 mW/g

Maximum value of SAR (measured) = 12.600 mW/g



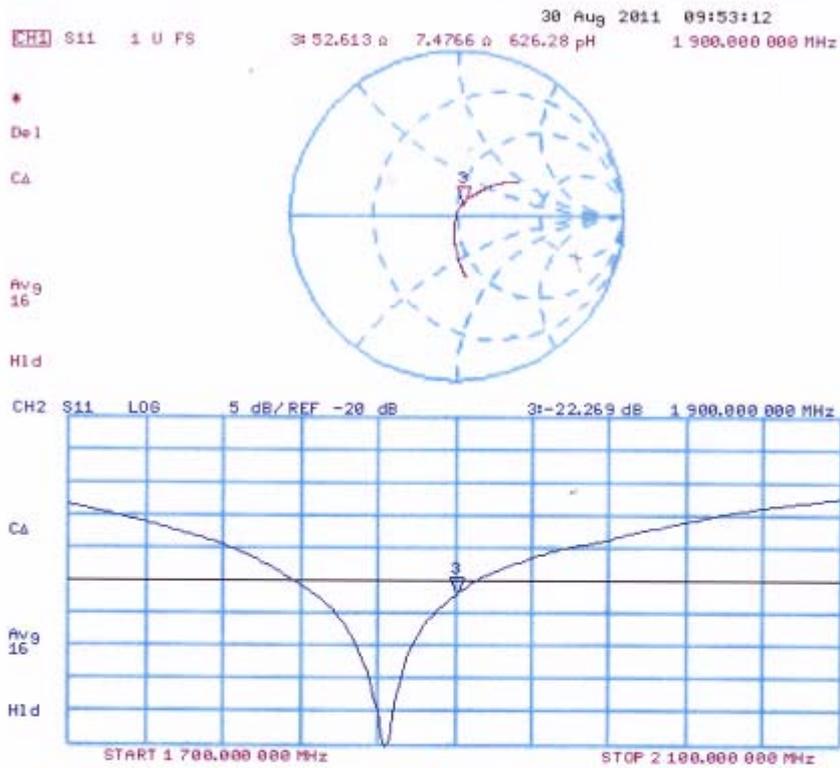
0 dB = 12.600mW/g

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Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 31.08.2011

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d060

Communication System: CW; Frequency: 1900 MHz

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.57$ mho/m; $\epsilon_r = 53.9$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.62, 4.62, 4.62); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

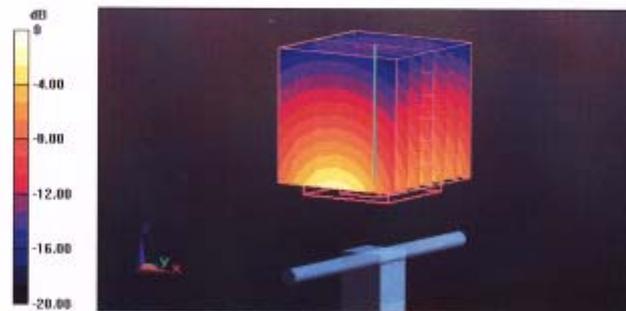
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 96.435 V/m; Power Drift = -0.0099 dB

Peak SAR (extrapolated) = 18.663 W/kg

SAR(1 g) = 10.6 mW/g; SAR(10 g) = 5.55 mW/g

Maximum value of SAR (measured) = 13.397 mW/g



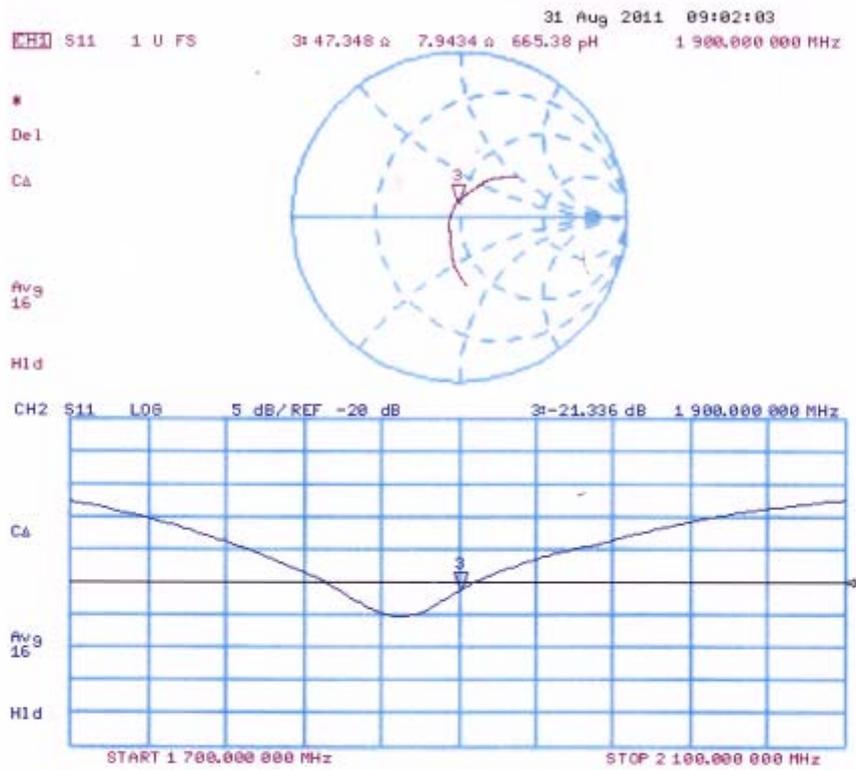
0 dB = 13.400mW/g

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Impedance Measurement Plot for Body TSL



TA Technology (Shanghai) Co., Ltd. Test Report

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ANNEX G: D2450V2 Dipole Calibration Certificate

**Calibration Laboratory of
Schmid & Partner
Engineering AG**
Zeughausstrasse 43, 8004 Zurich, Switzerland



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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Client **TA-Shanghai (Auden)**

Certificate No: **D2450V2-786_Aug11**

CALIBRATION CERTIFICATE

Object: **D2450V2 - SN: 786**

Calibration procedure(s): **QA CAL-05.v8
Calibration procedure for dipole validation kits above 700 MHz**

Calibration date: **August 29, 2011**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	06-Oct-10 (No. 217-01266)	Oct-11
Power sensor HP 8481A	US37292783	06-Oct-10 (No. 217-01266)	Oct-11
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-11 (No. 217-01367)	Apr-12
Type-N mismatch combination	SN: 5047.2 / 06327	29-Mar-11 (No. 217-01371)	Apr-12
Reference Probe ES3DV3	SN: 3205	29-Apr-11 (No. ES3-3205_Apr11)	Apr-12
DAE4	SN: 601	04-Jul-11 (No. DAE4-601_Jul11)	Jul-12
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-09)	In house check: Oct-11
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-10)	In house check: Oct-11

Calibrated by:	Name Dimce Iliev	Function Laboratory Technician	Signature
Approved by:	Katja Pokovic	Technical Manager	

Issued: August 29, 2011

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TA Technology (Shanghai) Co., Ltd.

Test Report

Report No. RZA1110-1769SAR01R1
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**Calibration Laboratory of
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Accreditation No.: **SCS 108**

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
- IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
- Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

Additional Documentation:

- DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- Measurement Conditions:** Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL:** The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss:** These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay:** One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- SAR measured:** SAR measured at the stated antenna input power.
- SAR normalized:** SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters:** The measured TSL parameters are used to calculate the nominal SAR result.

TA Technology (Shanghai) Co., Ltd.

Test Report

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Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.6.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2450 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	39.2	1.80 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	38.4 ± 6 %	1.85 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	13.7 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	53.8 mW / g ± 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.41 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	25.4 mW / g ± 16.5 % (k=2)

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	52.7	1.95 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	51.8 ± 6 %	2.02 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	13.2 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	51.7 mW / g ± 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	6.10 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	24.2 mW / g ± 16.5 % (k=2)

TA Technology (Shanghai) Co., Ltd.

Test Report

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Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	55.0 Ω + 2.4 j Ω
Return Loss	- 25.5 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	50.4 Ω + 3.5 j Ω
Return Loss	- 29.0 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.154 ns
----------------------------------	----------

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	May 06, 2005

DASY5 Validation Report for Head TSL

Date: 29.08.2011

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 786

Communication System: CW; Frequency: 2450 MHz

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.85$ mho/m; $\epsilon_r = 38.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.45, 4.45, 4.45); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

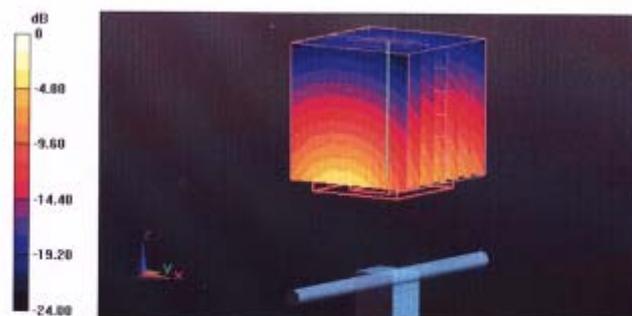
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 101.5 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 28.303 W/kg

SAR(1 g) = 13.7 mW/g; SAR(10 g) = 6.41 mW/g

Maximum value of SAR (measured) = 17.561 mW/g



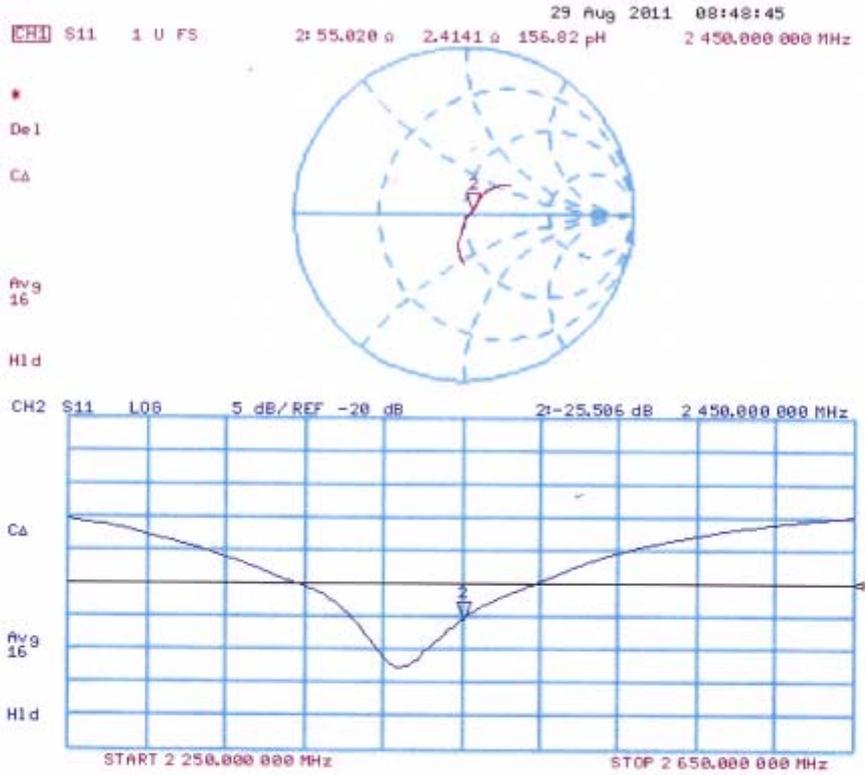
0 dB = 17.560mW/g

TA Technology (Shanghai) Co., Ltd. Test Report

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Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 29.08.2011

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 786

Communication System: CW; Frequency: 2450 MHz

Medium parameters used: $f = 2450$ MHz; $\sigma = 2.02$ mho/m; $\epsilon_r = 51.8$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.26, 4.26, 4.26); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

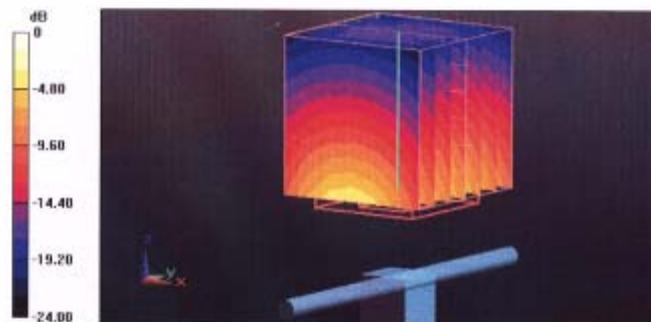
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 96.118 V/m; Power Drift = 0.0072 dB

Peak SAR (extrapolated) = 27.129 W/kg

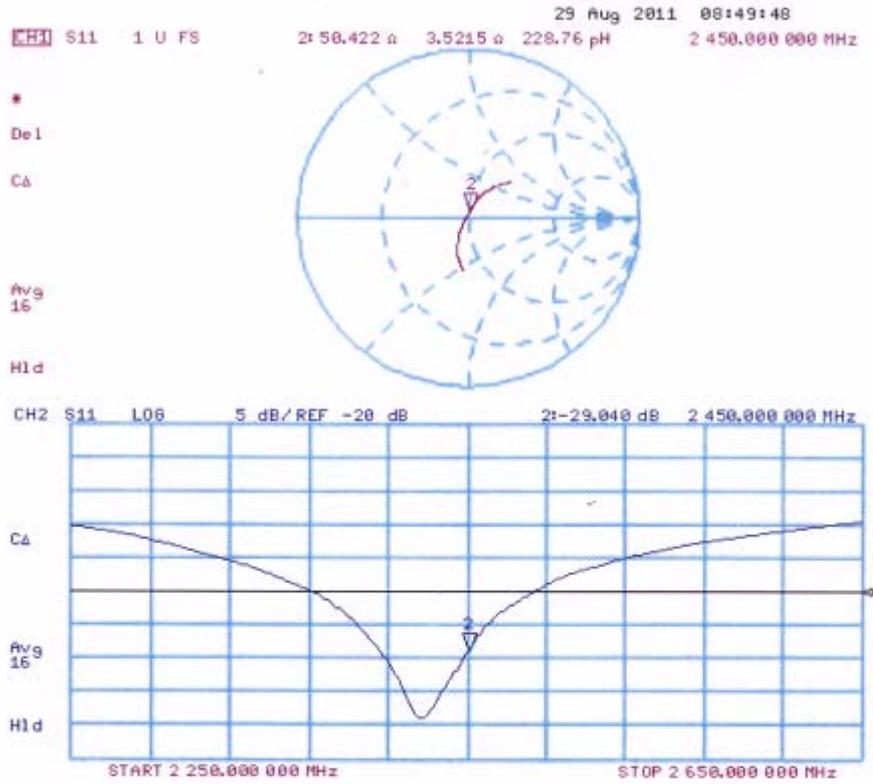
SAR(1 g) = 13.2 mW/g; SAR(10 g) = 6.1 mW/g

Maximum value of SAR (measured) = 17.387 mW/g



0 dB = 17.390mW/g

Impedance Measurement Plot for Body TSL



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ANNEX H: DAE4 Calibration Certificate

**Calibration Laboratory of
Schmid & Partner
Engineering AG**
Zeughausstrasse 43, 8004 Zurich, Switzerland



S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
S Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Client **TA - SH (Auden)**

Certificate No: **DAE4-871_Nov10**

CALIBRATION CERTIFICATE																			
Object	DAE4 - SD 000 D04 BJ - SN: 871																		
Calibration procedure(s)	QA CAL-06.v22 Calibration procedure for the data acquisition electronics (DAE)																		
Calibration date:	November 18, 2010																		
<p>This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.</p> <p>All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.</p> <p>Calibration Equipment used (M&TE critical for calibration)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;">Primary Standards</th> <th style="width: 15%;">ID #</th> <th style="width: 30%;">Cal Date (Certificate No.)</th> <th style="width: 25%;">Scheduled Calibration</th> </tr> </thead> <tbody> <tr> <td>Keithley Multimeter Type 2001</td> <td>SN: 0810278</td> <td>28-Sep-10 (No:10378)</td> <td>Sep-11</td> </tr> <tr> <th>Secondary Standards</th> <th>ID #</th> <th>Check Date (in house)</th> <th>Scheduled Check</th> </tr> <tr> <td>Calibrator Box V1.1</td> <td>SE UMS 006 AB 1004</td> <td>07-Jun-10 (in house check)</td> <td>In house check: Jun-11</td> </tr> </tbody> </table>				Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration	Keithley Multimeter Type 2001	SN: 0810278	28-Sep-10 (No:10378)	Sep-11	Secondary Standards	ID #	Check Date (in house)	Scheduled Check	Calibrator Box V1.1	SE UMS 006 AB 1004	07-Jun-10 (in house check)	In house check: Jun-11
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Calibrator Box V1.1	SE UMS 006 AB 1004	07-Jun-10 (in house check)	In house check: Jun-11																
Calibrated by:	Name Andrea Guntli	Function Technician	Signature 																
Approved by:	Name Fin Bornholt	Function R&D Director	Signature 																
			Issued: November 18, 2010																
This calibration certificate shall not be reproduced except in full without written approval of the laboratory.																			

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**Calibration Laboratory of
Schmid & Partner
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Zeughausstrasse 43, 8004 Zurich, Switzerland



S Schweizerischer Kalibrierdienst
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Accreditation No.: **SCS 108**

Glossary

DAE data acquisition electronics
Connector angle information used in DASY system to align probe sensor X to the robot coordinate system.

Methods Applied and Interpretation of Parameters

- **DC Voltage Measurement:** Calibration Factor assessed for use in DASY system by comparison with a calibrated instrument traceable to national standards. The figure given corresponds to the full scale range of the voltmeter in the respective range.
- **Connector angle:** The angle of the connector is assessed measuring the angle mechanically by a tool inserted. Uncertainty is not required.
- The following parameters as documented in the Appendix contain technical information as a result from the performance test and require no uncertainty.
 - **DC Voltage Measurement Linearity:** Verification of the Linearity at +10% and -10% of the nominal calibration voltage. Influence of offset voltage is included in this measurement.
 - **Common mode sensitivity:** Influence of a positive or negative common mode voltage on the differential measurement.
 - **Channel separation:** Influence of a voltage on the neighbor channels not subject to an input voltage.
 - **AD Converter Values with inputs shorted:** Values on the internal AD converter corresponding to zero input voltage
 - **Input Offset Measurement:** Output voltage and statistical results over a large number of zero voltage measurements.
 - **Input Offset Current:** Typical value for information; Maximum channel input offset current, not considering the input resistance.
 - **Input resistance:** Typical value for information: DAE input resistance at the connector, during internal auto-zeroing and during measurement.
 - **Low Battery Alarm Voltage:** Typical value for information. Below this voltage, a battery alarm signal is generated.
 - **Power consumption:** Typical value for information. Supply currents in various operating modes.

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DC Voltage Measurement

A/D - Converter Resolution nominal

High Range: 1LSB = 6.1 μ V, full range = -100...+300 mV

Low Range: 1LSB = 61nV, full range = -1.....+3mV

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Calibration Factors	X	Y	Z
High Range	404.757 \pm 0.1% (k=2)	404.740 \pm 0.1% (k=2)	405.181 \pm 0.1% (k=2)
Low Range	3.98219 \pm 0.7% (k=2)	3.93489 \pm 0.7% (k=2)	3.96831 \pm 0.7% (k=2)

Connector Angle

Connector Angle to be used in DASY system	90.0 \pm 1 $^{\circ}$
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Appendix

1. DC Voltage Linearity

High Range	Reading (μV)	Difference (μV)	Error (%)
Channel X + Input	200001.2	-1.56	-0.00
Channel X + Input	20000.71	0.71	0.00
Channel X - Input	-19997.87	1.63	-0.01
Channel Y + Input	199994.3	1.99	0.00
Channel Y + Input	19998.92	-1.08	-0.01
Channel Y - Input	-20000.26	-0.76	0.00
Channel Z + Input	200009.2	-1.04	-0.00
Channel Z + Input	19998.70	-1.10	-0.01
Channel Z - Input	-20000.16	-0.76	0.00

Low Range	Reading (μV)	Difference (μV)	Error (%)
Channel X + Input	2000.1	0.16	0.01
Channel X + Input	199.58	-0.52	-0.26
Channel X - Input	-200.79	-0.89	0.45
Channel Y + Input	1999.9	-0.03	-0.00
Channel Y + Input	199.45	-0.55	-0.27
Channel Y - Input	-200.31	-0.41	0.21
Channel Z + Input	2000.1	0.33	0.02
Channel Z + Input	199.13	-0.77	-0.38
Channel Z - Input	-201.47	-1.37	0.69

2. Common mode sensitivity

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Common mode Input Voltage (mV)	High Range Average Reading (μV)	Low Range Average Reading (μV)
Channel X	200	14.25	12.86
	-200	-12.68	-14.21
Channel Y	200	-10.04	-10.39
	-200	9.20	9.17
Channel Z	200	-0.85	-1.40
	-200	-0.34	-0.31

3. Channel separation

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Input Voltage (mV)	Channel X (μV)	Channel Y (μV)	Channel Z (μV)
Channel X	200	-	2.85	0.69
Channel Y	200	2.41	-	2.73
Channel Z	200	2.54	0.73	-

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4. AD-Converter Values with inputs shorted

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	High Range (LSB)	Low Range (LSB)
Channel X	15920	15517
Channel Y	16171	16732
Channel Z	15803	16474

5. Input Offset Measurement

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Input 10M Ω

	Average (μ V)	min. Offset (μ V)	max. Offset (μ V)	Std. Deviation (μ V)
Channel X	0.03	-2.35	0.86	0.43
Channel Y	-0.50	-1.49	-0.49	0.38
Channel Z	-0.92	-2.21	0.14	0.44

6. Input Offset Current

Nominal Input circuitry offset current on all channels: <25fA

7. Input Resistance (Typical values for information)

	Zeroing (kOhm)	Measuring (MOhm)
Channel X	200	200
Channel Y	200	200
Channel Z	200	200

8. Low Battery Alarm Voltage (Typical values for information)

Typical values	Alarm Level (VDC)
Supply (+ Vcc)	+7.9
Supply (- Vcc)	-7.6

9. Power Consumption (Typical values for information)

Typical values	Switched off (mA)	Stand by (mA)	Transmitting (mA)
Supply (+ Vcc)	+0.01	+6	+14
Supply (- Vcc)	-0.01	-8	-9