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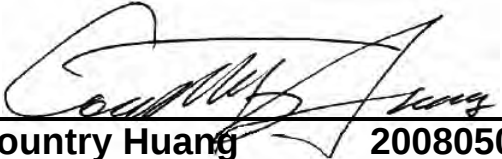
SAR EVALUATION REPORT



Test Report No.	:	0803FS11
Applicant	:	Hewlett-Packard Company
FCC ID	:	B94HHI18C
Trade Name	:	Hewlett-Packard
Model Number	:	HSTNH-I18C
Product Type	:	PDA Phone
Dates of Test	:	Feb. 23 ~ Mar. 05 2008
Test Environment	:	Ambient Temperature : $22 \pm 3^{\circ}\text{C}$ Relative Humidity : 40 - 70 %
Test Specification	:	Standard C95.1-1999 IEEE Std. 1528-2003
Max. SAR	:	1.090 W/kg Head SAR 1.180 W/kg Body SAR
Test Lab	:	Chang-an Lab



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1. Description of Equipment Under Test (EUT)

Applicant :

Hewlett-Packard Company

3000 Hanover Street, Palo Alto, California 94304, U.S.A.

Manufacturer	:	Inventec Appliances Co., LTD.
Manufacturer Address	:	No.37 Wugong 5th Rd. Wugu Shiong, Taipei, Taiwan
Product Type	:	PDA Phone
Trade Name	:	Hewlett-Packard
Model Number	:	HSTNH-I18C
FCC ID	:	B94HHI18C
Test Device	:	Production Unit
Tx Frequency	:	824.2 - 848.8 MHz (GSM 850) 1850.2 - 1909.8 MHz (PCS 1900) 826.6 - 846.4 MHz (WCDMA Band V) 1852.6 - 1907.4 MHz (WCDMA Band II) 2412 - 2462 MHz (Wi-Fi 802.11b / 802.11g)
Max. RF Conducted Power	:	1.445 W (31.60 dBm) GSM 850 0.891 W (29.50 dBm) PCS 1900 0.197 W (22.94 dBm) WCDMA Band V 0.179 W (22.52 dBm) WCDMA Band II 0.059 W (17.70 dBm) Wi-Fi 802.11b 0.043 W (16.30 dBm) Wi-Fi 802.11g
Max. SAR Measurement	:	1.090 W/kg Head SAR 1.180 W/kg Body SAR
HW Version	:	EVT3.2
SW Version	:	E2-0.33.00
Antenna Type	:	Internal Type
Antenna Gain	:	-2.50 dBi (GSM 850 / WCDMA Band V) 1.00 dBi (PCS 1900 / WCDMA Band II) 0.64 dBi (Wi-Fi 802.11b/802.11g)
Device Category	:	Portable
RF Exposure Environment	:	General Population / Uncontrolled
Battery Option	:	Standard
Application Type	:	Certification

This wireless portable device has been shown to be capable of compliance for localized specific absorption rate (SAR) for uncontrolled environment / general population exposure limits specified in Standard C95.1-1999 and had been tested in accordance with the measurement procedures specified in IEEE Std. 1528-2003.



2. Other Accessories

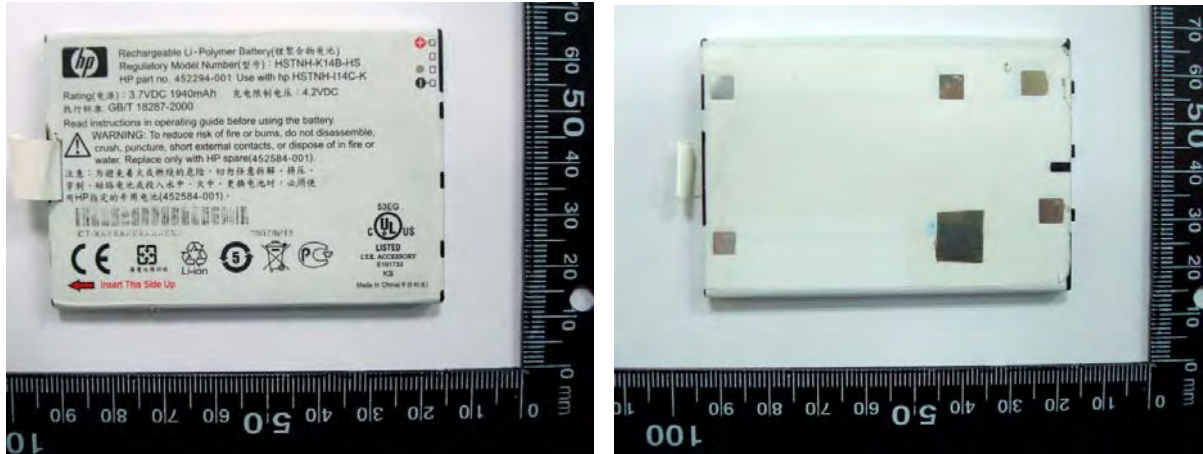


Figure 2. Li-ion Battery (3.7V 1940mAh)



Figure 3. AC Adapter



3. **Introduction**

The A Test Lab Techno Corp. has performed measurements of the maximum potential exposure to the user of **Hewlett-Packard Company Trade Name : Hewlett-Packard Model(s) : HSTNH-I18C**. The test procedures, as described in American National Standards, Institute C95.1 - 1999 [1], FCC/OET Bulletin 65 Supplement C [July 2001] were employed and they specify the maximum exposure limit of 1.6mW/g as averaged over any 1 gram of tissue for portable devices being used within 25cm between user and EUT in the uncontrolled environment. A description of the product and operating configuration, detailed summary of the test results, methodology and procedures used in the equipment used are included within this test report.



4. SAR Definition

Specific Absorption Rate (SAR) is defined as the time derivative (rate) of the incremental energy (dw) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dv) of a given density (ρ). It is also defined as the rate of RF energy absorption per unit mass at a point in an absorbing body (see Figure 2).

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

Figure 2. SAR Mathematical Equation

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

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

Where :

σ = conductivity of the tissue (S/m)

ρ = mass density of the tissue (kg/m^3)

E = RMS electric field strength (V/m)

*** Note :**

The primary factors that control rate of energy absorption were found to be the wavelength of the incident field in relations to the dimensions and geometry of the irradiated organism, the orientation of the organism in relation to the polarity of field vectors, the presence of reflecting surfaces, and whether conductive contact is made by the organism with a ground plane [2]

5. SAR Measurement Setup

These measurements were performed with the automated near-field scanning system DASY5 from Schmid & Partner Engineering AG (SPEAG). The system is based on a high precision robot (working range greater than 0.9m) which positions the probes with a positional repeatability of better than $\pm 0.02\text{mm}$. Special E- and H-field probes have been developed for measurements close to material discontinuity, the sensors of which are directly loaded with a Schottky diode and connected via highly resistive lines (length = 300mm) to the data acquisition unit.

A cell controller system contains the power supply, robot controller, teach pendant (Joystick), and remote control, is used to drive the robot motors. The Measurement Server is based on a PC/104 CPU board with a 400MHz intel ULV Celeron, 128MB chipdisk and 128MB RAM. The necessary circuits for communication with either the DAE4 (or DAE3) electronic box as well as the 16-bit AD-converter system for optical detection and digital I/O interface are contained on the DASY5 I/O-board, which is directly connected to the PC/104 bus of the CPU board. The PC consists of the Intel Core(TM)2 CPU @1.86GHz computer with Windows XP system and SAR Measurement Software DASY5, Post Processor SEMCAD, monitor, mouse, and keyboard. The Staubli Robot is connected to the cell controller to allow software manipulation of the robot. A data acquisition electronic (DAE) circuit performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection...etc. is connected to the Electro-optical converter (EOC). The EOC performs the conversion from the optical into digital electric signal of the DAE and transfers data to the Measurement Server.

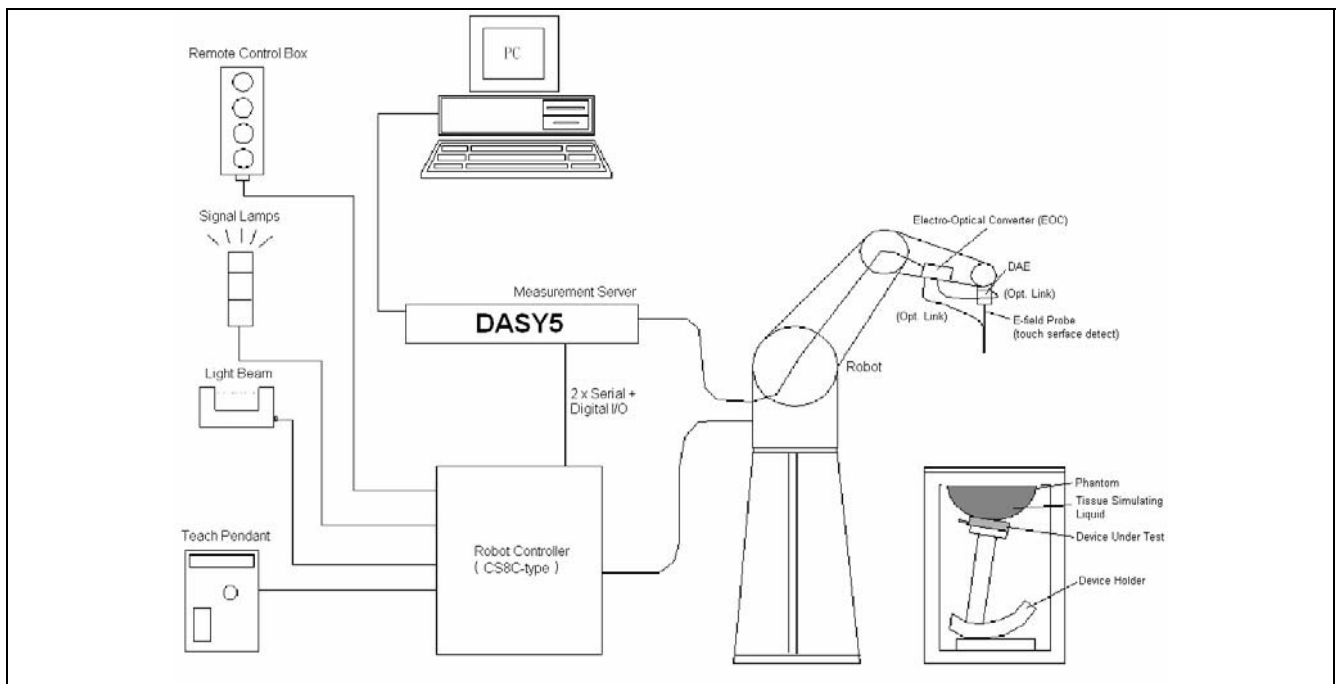


Figure 3. SAR Lab Test Measurement Setup



The DAE4 (or DAE3) consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder and control logic unit. Transmission to the PC-card is accomplished through an optical downlink for data and status information and an optical uplink for commands and clock lines. The mechanical probe mounting device includes two different sensor systems for frontal and sidewise probe contacts. They are also used for mechanical surface detection and probe collision detection. The robot uses its own controller with a built in VME-bus computer. The system is described in detail in [3] .



6. System Components

6.1 DASY5 E-Field Probe System

The SAR measurements were conducted with the dosimetric probe ES3DV3 or ET3DV6 (manufactured by SPEAG), designed in the classical triangular configuration [3] and optimized for dosimetric evaluation. The probe is constructed using the thick film technique; with printed resistive lines on ceramic substrates. The probe is equipped with an optical multi-fiber line ending at the front of the probe tip. It is connected to the EOC box on the robot arm and provides an automatic detection of the phantom surface. Half of the fibers are connected to a pulsed infrared transmitter, the other half to a synchronized receiver. As the probe approaches the surface, the reflection from the surface produces a coupling from the transmitting to the receiving fibers. This reflection increases first during the approach, reaches maximum and then decreases. If the probe is flatly touching the surface, the coupling is zero. The distance of the coupling maximum to the surface is independent of the surface reflectivity and largely independent of the surface to probe angle. The DASY5 software reads the reflection during a software approach and looks for the maximum using a 2nd order fitting. The approach is stopped when reaching the maximum.

6.1.1 E-Field Probe Specification

Construction	Symmetrical design with triangular core
	Built-in optical fiber for surface detection System
	Built-in shielding against static charges
	PEEK enclosure material
	(resistant to organic solvents, e.q., glycol)
Calibration	In air from 10 MHz to 6 GHz
	In brain and muscle simulating tissue at frequencies of 900MHz, 1800MHz, 1950MHz, 5200MHz and 5500MHz and 5800MHz (accuracy $\pm 8\%$)
	Calibration for other liquids and frequencies upon request
Frequency	10 MHz to > 6 GHz; Linearity: ± 0.2 dB
	(30 MHz to 3 GHz)
Directivity	± 0.3 dB in brain tissue (rotation around probe axis)
	± 0.5 dB in brain tissue (rotation normal probe axis)
Dynamic Range	10 μ W/g to > 100mW/g; Linearity: ± 0.2 dB
Surface Detection	± 0.2 mm repeatability in air and clear liquids over diffuse reflecting surface(EX3DV3 only)
Dimensions	Overall length: 330mm
	Tip length: 20mm
	Body diameter: 12mm
	Tip diameter: 2.5mm
	Distance from probe tip to dipole centers: 1.0mm
Application	General dosimetry up to 6GHz
	Compliance tests of mobile phones
	Fast automatic scanning in arbitrary phantoms



**Figure 4.
E-field Probe**



**Figure 5.
Probe setup on robot**



6.1.2 E-Field Probe Calibration

Each probe is calibrated according to a dosimetric assessment procedure described in [4] with accuracy better than $\pm 10\%$. The spherical isotropy was evaluated with the procedure described in [5] and found to be better than $\pm 0.25\text{dB}$. The sensitivity parameters (NormX, NormY, and 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 1GHz, and in a wave guide above 1GHz 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 (head or body),

ΔT = Temperature increase due to RF exposure.

Or

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

Where :

σ = Simulated tissue conductivity,

ρ = Tissue density (kg/m^3).

6.2 Data Acquisition Electronic (DAE) System

Cell Controller

Processor : Intel Core(TM)2 CPU
Clock Speed : @ 1.86GHz
Operating System : Windows XP Professional

Data Converter

Features : Signal Amplifier, multiplexer, A/D converter, and control logic
Software : DASY5 v5.0 (Build 91) & SEMCAD X Version 12.4 Build 52
Connecting Lines : Optical downlink for data and status info
Optical uplink for commands and clock



6.3 Robot

Positioner : Stäubli Unimation Corp. Robot Model: TX90XL
Repeatability : ± 0.02 mm
No. of Axis : 6

6.4 Measurement Server

Processor : PC/104 with a 400MHz intel ULV Celeron
I/O-board : Link to DAE4(or DAE3)
16-bit A/D converter for surface detection system
Digital I/O interface
Serial link to robot
Direct emergency stop output for robot

6.5 Device Holder for Transmitters

In combination with the SAM Twin Phantom V4.0, the Mounting Device (POM) enables the rotation of the mounted transmitter in spherical coordinates whereby the rotation points is the ear opening. The devices can be easily, accurately, and repeat ably positioned according to the IEEE SCC34-SC2 and CENELEC specifications. The device holder can be locked at different phantom locations (left head, right head, and flat phantom).

***Note :** A simulating human hand is not used due to the complex anatomical and geometrical structure of the hand that may produced infinite number of configurations [6] . To produce the worst-case condition (the hand absorbs antenna output power), the hand is omitted during the tests.

Larger DUT cannot be tested using this device holder. Instead a support of bigger polystyrene cubes and thin polystyrene plates is used to position the DUT in all relevant positions to find and measure spots with maximum SAR values. Therefore those devices are normally only tested at the flat part of the SAM.

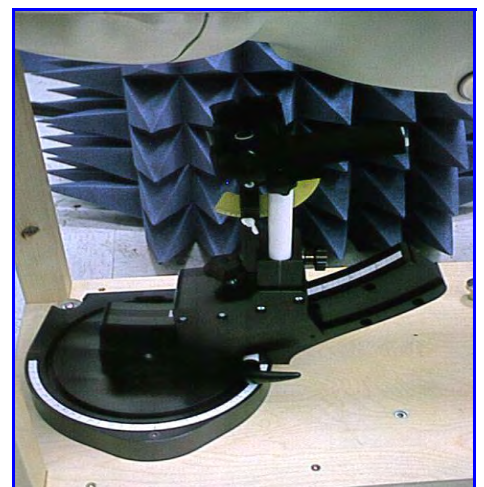


Figure 6. Device Holder

6.6 Phantom - SAM v4.0

The shell corresponds to the specifications of the Specific Anthropomorphic Mannequin (SAM) phantom defined in IEEE 1528-2003, CENELEC 50361 and IEC 62209. 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 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 with the robot.



Figure 7. SAM Twin Phantom

Shell Thickness	2 $\pm$ 0.2 mm
Filling Volume	Approx. 25 liters
Dimensions	810x1000x500 mm (HxLxW)

Table 1. Specification of SAM v4.0

6.7 Data Storage and Evaluation

6.7.1 Data Storage

The DASY5 software stores the assessed data from the data acquisition electronics as raw data (in microvolt readings from the probe sensors), together with all the 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 post processing 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 erroneous parameter settings. For example, if a measurement has been performed with an incorrect crest factor parameter in the device setup, the parameter can be corrected afterwards and the data can be reevaluated.



6.7.2 Data Evaluation

The DASY5 post processing software (SEMCAD) 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, ai0, ai1, ai2
	- Conversion factor	ConvFi
	- Diode compression point	dcp _i
Device parameters :	- Frequency	f
	- Crest factor	cf
Media parameters :	- Conductivity	σ
	- Density	ρ

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 DASY 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. 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 :

$$V_i = U_i + U_i^2 \cdot \frac{cf}{dcp_i}$$

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 :

$$E_i = \sqrt{\frac{V_i}{Norm_i \cdot ConvF}}$$



H-field probes :

$$H_i = \sqrt{V_i} \cdot \frac{a_{i0} + a_{i1}f + a_{i2}f^2}{f}$$

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

$Norm_i$ = sensor sensitivity of channel i ($i = x, y, z$)
 $\mu V/(V/m)^2$ 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

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

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

$$E_{tot} = \sqrt{E_x^2 + E_y^2 + E_z^2}$$

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

$$SAR = E_{tot}^2 \cdot \frac{\sigma}{\rho \cdot 1000}$$

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 set to 1, to account for actual head tissue density rather than the density of the tissue simulating liquid.

The power flow density is calculated assuming the excitation field to be a free space field.

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

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



7. Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	Dosimetric E-Filed Probe	ES3DV3	3150	Jan. 09, 2008	Jan. 09, 2009
SPEAG	900MHz System Validation Kit	D900V2	1d053	Dec. 12, 2007	Dec. 12, 2008
SPEAG	1800MHz System Validation Kit	D1950V2	1117	Dec. 20, 2007	Dec. 20, 2008
SPEAG	2450MHz System Validation Kit	D2450V2	712	Jan. 30,2008	Jan. 30,2009
SPEAG	Data Acquisition Electronics	DAE4	779	Nov. 30, 2007	Nov. 30, 2008
SPEAG	Device Holder	N/A	N/A	NCR	NCR
SPEAG	Phantom	SAM V4.0	TP-1150	NCR	NCR
SPEAG	Robot	Staubli TX90XL	F07/564ZA1/C/01	NCR	NCR
SPEAG	Software	DASY5 V5.0 Build 91	N/A	NCR	NCR
SPEAG	Software	SEMCAD X V12.4 Build 52	N/A	NCR	NCR
SPEAG	Measurement Server	SE UMS 011 AA	1025	NCR	NCR
Agilent	Wireless Communication Test Set	CMU200	112387	Apr. 02, 2007	Apr. 02, 2008
Agilent	ENA Series Network Analyzer	E5071B	MY42402996	Oct. 23, 2007	Oct. 23, 2008
Agilent	Dielectric Probe Kit	85070C	US99360094	NCR	NCR
Agilent	Power Meter	E4418B	GB40206143	Apr. 24, 2007	Apr. 24, 2008
Agilent	Power Sensor	8481H	3318A20779	Apr. 25, 2007	Apr. 25, 2008
Agilent	Signal Generator	8648C	3847A05201	Jul. 03, 2007	Jul. 03, 2008
Agilent	Dual Directional Coupler	778D	50334	NCR	NCR
Mini-Circuits	Power Amplifier	ZHL-42W-SMA	D111103#5	NCR	NCR
Mini-Circuits	Power Amplifier	ZVE-8G-SMA	D042005 671800514	NCR	NCR

Table 2. Test Equipment List



8. Tissue Simulating Liquids

The mixture is calibrated to obtain proper dielectric constant (permittivity) and conductivity of the tissue.

The dielectric parameters of the liquids were verified prior to the SAR evaluation using an 85070C Dielectric Probe Kit and an 8720ES Network Analyzer.

IEEE SCC-34/SC-2 in 1528 recommended Tissue Dielectric Parameters

The head tissue dielectric parameters recommended by the IEEE SCC-34/SC-2 in 1528 have been incorporated in the following table. These head parameters are derived from planar layer models simulating the highest expected SAR for the dielectric properties and tissue thickness variations in human head. Other head and body tissue parameters that have not been specified in 1528 are derived from the tissue dielectric parameters computed from the 4-Cole-Cole equation and extrapolated according to the head parameter specified in 1528.

Target Frequency	Head		Body	
(MHz)	ϵ_r	σ (S/m)	ϵ_r	σ (S/m)
150	52.3	0.76	61.9	0.80
300	45.3	0.87	58.2	0.92
450	43.5	0.87	56.7	0.94
835	41.5	0.90	55.2	0.97
900	41.5	0.97	55.0	1.05
915	41.5	0.98	55.0	1.06
1450	40.5	1.20	54.0	1.30
1610	40.3	1.29	53.8	1.40
1800 - 2000	40.0	1.40	53.3	1.52
2450	39.2	1.80	52.7	1.95
3000	38.5	2.40	52.0	2.73
5800	35.3	5.27	48.2	6.00
(ϵ_r = relative permittivity, σ = conductivity and ρ = 1000 kg/m ³)				

Table 3. Tissue dielectric parameters for head and body phantoms



8.1 Liquid Confirmation

8.1.1 Parameters

Liquid Verify								
Ambient Temperature : 22 ± 3 °C ; Relative Humidity : 40 -70%								
Liquid Type	Frequency	Temp (°C)	Parameters	Target Value	Measured Value	Deviation (%)	Limit (%)	Measured Date
900MHz Head	900MHz	22.0	ϵ_r	41.5	41.4	-0.24	± 5	Feb. 23, 2008
			σ	0.97	0.97	0.00	± 5	
900MHz Body	900MHz	22.0	ϵ_r	55.5	54.0	-2.70	± 5	Feb. 24, 2008
			σ	1.05	1.05	0.00	± 5	
900MHz Body	900MHz	22.0	ϵ_r	55.5	54.3	-2.16	± 5	Mar. 05, 2008
			σ	1.05	1.03	-1.90	± 5	
1950MHz Head	1950MHz	22.0	ϵ_r	40.0	40.4	1.00	± 5	Feb. 25, 2008
			σ	1.40	1.43	2.14	± 5	
1950MHz Head	1950MHz	22.0	ϵ_r	40.0	40.5	1.25	± 5	Feb. 25, 2008
			σ	1.40	1.38	-1.43	± 5	
1950MHz Body	1950MHz	22.0	ϵ_r	53.3	52.6	-1.31	± 5	Feb. 25, 2008
			σ	1.52	1.55	1.97	± 5	
1950MHz Body	1950MHz	22.0	ϵ_r	53.3	52.6	-1.31	± 5	Mar. 05, 2008
			σ	1.52	1.55	1.97	± 5	
2450MHz Body	2450MHz	22.0	ϵ_r	52.7	52.40	-0.57	± 5	Feb. 25, 2008
			σ	1.95	1.96	0.51	± 5	

Table 4. Measured Tissue dielectric parameters for head and body phantoms

8.1.2 Liquid Depth

The liquid level was during measurement 15cm $\pm$ 0.5cm.

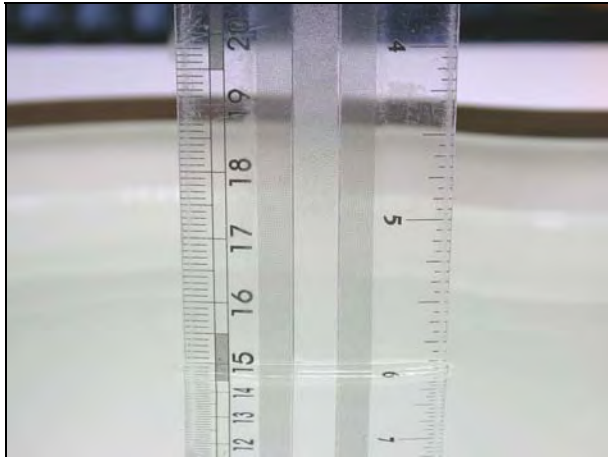


Figure 8. Head-Tissue-Simulating-Liquid



Figure 9. Body-Tissue-Simulating-Liquid



9. Measurement Process

9.1 Device and Test Conditions

The Test Device was provided by **Hewlett-Packard Company** for this evaluation. The spatial peak SAR values were assessed for the lowest, middle and highest channels defined by **GSM 850** (#128=824.2MHz, #190=836.6MHz, #251=848.8MHz), **PCS 1900** (#512=1850.2MHz, #661=1880.0MHz, #810=1909.8MHz) , **WCDMA Band V** (#4133=826.6MHz, #4180=836MHz, #4232=846.6MHz), **WCDMA Band II** (#9263=1852.6MHz, #9400=1880.0MHz, #9537=1907.4MHz) and Wi-Fi 802.11b & 802.11g (Ch1 = 2412MHz , Ch6 = 2437MHz , Ch11 = 2462MHz) systems systems. The antenna(s), battery and accessories shall be those specified by the manufacturer. The battery shall be fully charged before each measurement and there shall be no external connections.

Note:

1. The EUT has built-in test mode that used to evaluate SAR (802.11b/g).
2. The EUT take Li-ion batteries as its power source. Each test was preceded under the condition of fully-charged EUT.



Usage		Operates with a built-in test mode by client (802.11b/g)				
Distance between antenna axis at the joint and the liquid surface:		For head, EUT left head, right head, to phantom, 0mm separation. GSM850 & PCS1900 band / WCDMA Band V & Band II for Body, EUT front to phantom, 18 mm separation. Wi-Fi 802.11b & 802.11g band for Body, EUT front to phantom, 0 mm separation.				
Simulating human Head/Body		Head & Body				
EUT Battery		Fully-charged with Li-ion batteries.				
Conducted power	Channel		Frequency (MHz)	Before SAR Test (dBm)	After SAR Test (dBm)	Note
	GSM850	Lowest - 128	824.2	31.60	31.40	-
		Middle - 190	836.6	31.60	31.50	-
		Highest - 251	848.8	31.50	31.50	-
	GSM850 GPRS	Lowest - 128	824.2	31.70	31.60	3Down2Up
		Middle - 190	836.6	31.60	31.50	3Down2Up
		Highest - 251	848.8	31.40	31.30	3Down2Up
	GSM850 EGPRS	Lowest - 128	824.2	26.70	26.60	3Down2Up
		Middle - 128	824.2	26.70	26.50	3Down2Up
		Lowest - 128	824.2	26.50	26.40	3Down2Up
	PCS1900	Lowest - 512	1850.2	29.20	29.00	-
		Middle - 661	1880.0	29.10	29.00	-
		Highest - 810	1909.8	29.30	29.20	-
	PCS1900 GPRS	Lowest - 512	1850.2	29.10	28.90	3Down2Up
		Middle - 661	1880.0	29.10	29.00	3Down2Up
		Highest - 810	1909.8	29.20	29.10	3Down2Up
	PCS1900 EGPRS	Lowest - 512	1850.2	29.10	28.90	3Down2Up
		Middle - 661	1880.0	29.20	29.00	3Down2Up
		Highest - 810	1909.8	29.30	29.20	3Down2Up
	WCDMA Band V	Lowest - 4133	826.6	22.66	22.65	-
		Middle - 4180	836.0	22.92	22.90	-
		Highest - 4232	846.6	22.46	22.43	-
	HSDPA Band V	Lowest - 4133	826.6	22.64	22.61	-
		Middle - 4180	836.0	22.23	22.20	-
		Highest - 4232	846.6	22.16	22.13	-
	WCDMA Band II	Lowest - 9263	1852.6	22.43	25.60	-
		Middle - 9400	1880.0	22.25	25.40	-
		Highest - 9537	1907.4	22.23	24.90	-
	HSDPA Band II	Lowest - 9263	1852.6	22.52	25.80	-
		Middle - 9400	1880.0	22.41	25.70	-
		Highest - 9537	1907.4	22.32	25.40	-
	802.11b	1M	Lowest - 1	2412	16.40	-
			Middle - 6	2437	17.60	-
			Highest - 11	2462	17.70	-
		11M	Lowest - 1	2412	15.10	-
			Middle - 6	2437	16.30	-
			Highest - 11	2462	17.00	-
	802.11g	6M	Lowest - 1	2412	15.60	-
			Middle - 6	2437	15.80	-
			Highest - 11	2462	16.30	-
		54M	Lowest - 1	2412	10.00	-
			Middle - 6	2437	10.80	-
			Highest - 11	2462	11.70	-

9.2 System Performance Check

9.2.1 Symmetric Dipoles for System Validation

Construction	Symmetrical dipole with 1/4 balun enables measurement of feed point impedance with NWA matched for use near flat phantoms filled with head simulating solutions Includes distance holder and tripod adaptor Calibration Calibrated SAR value for specified position and input power at the flat phantom in head simulating solutions.
Frequency	450, 900, 1800, 1950, 2000, 2450, 5000MHz
Return Loss	> 20 dB at specified validation position
Power Capability	> 100 W ($f < 1\text{GHz}$); > 40 W ($f > 1\text{GHz}$)
Options	Dipoles for other frequencies or solutions and other calibration conditions are available upon request
Dimensions	D450V2 : dipole length 270 mm; overall height 330 mm D900V2 : dipole length 149 mm; overall height 330 mm D1800V2 : dipole length 72 mm; overall height 300 mm D1950V2 : dipole length 62 mm; overall height 300 mm D2000V2 : dipole length 65 mm; overall height 300 mm D2450V2 : dipole length 51.5 mm; overall height 300 mm D5GHzV2 : dipole length 20.6 mm; overall height 450 mm



Figure 10. Validation Kit



9.2.2 Validation

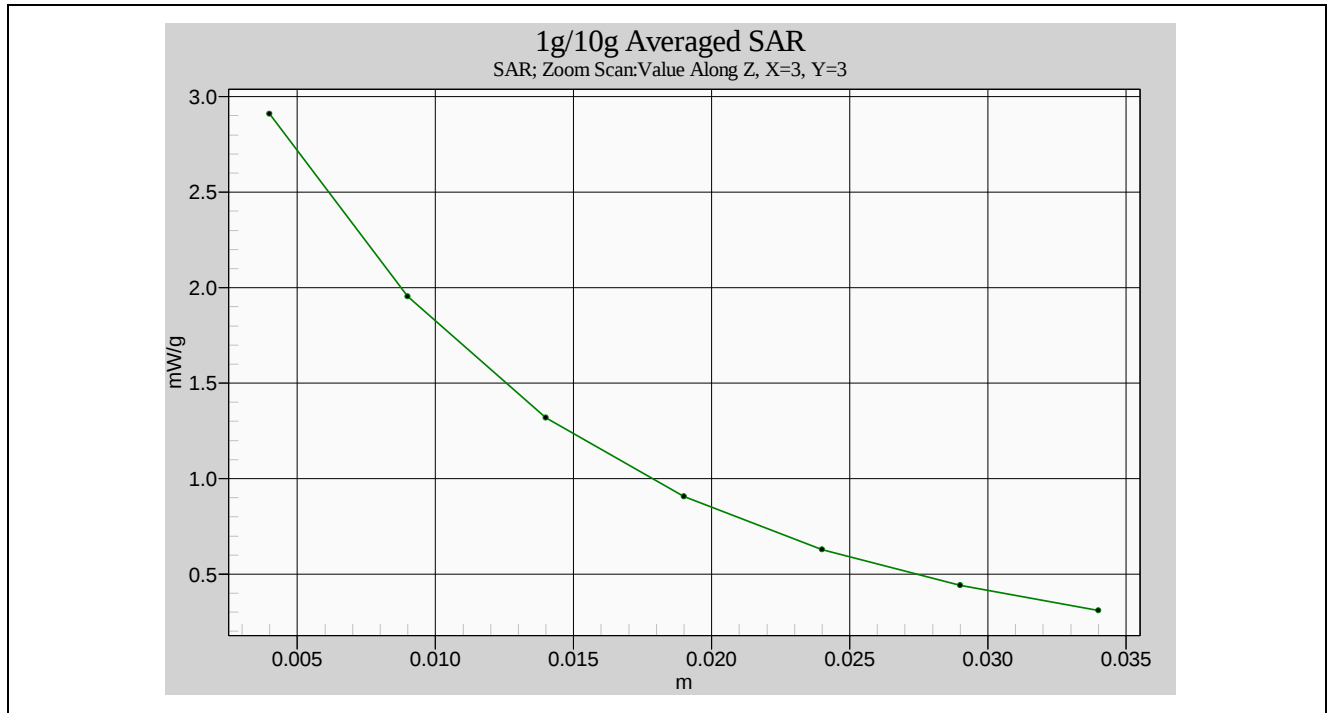
Prior to the assessment, the system validation kit was used to test whether the system was operating within its specifications of $\pm 7\%$. The validation was performed at 900MHz, 1950MHz and 2450MHz.

Validation kit		Mixture Type	SAR _{1g} [mW/g]		SAR _{10g} [mW/g]		Date of Calibration
D900V2-SN1d053		Head	10.64		6.84		Dec. 12, 2007
		Body	11.56		7.48		
D1950V2-SN1117		Head	40		20.96		Dec. 20, 2007
		Body	41.2		21.76		
D2450V2-SN712		Body	53.6		24.8		Jan. 30, 2008
Frequency (MHz)	Power (dBm)	SAR _{1g} (mW/g)	SAR _{10g} (mW/g)	Drift (dB)	Difference percentage		Date
					1g	10g	
900 (Head)	250mW	2.69	1.75	0.010	1.1 %	2.3 %	Feb. 23, 2008
	Normalize to 1 Watt	10.76	7				
900 (Body)	250mW	2.96	1.93	0.056	2.4 %	3.2 %	Feb. 24, 2008
	Normalize to 1 Watt	11.84	7.72				
900 (Body)	250mW	2.89	1.87	-0.029	0.0 %	0.0 %	Mar. 05, 2008
	Normalize to 1 Watt	11.56	7.48				
1950 (Head)	250mW	10.1	5.13	-0.027	1.0 %	-2.1 %	Feb. 25, 2008
	Normalize to 1 Watt	40.4	20.52				
1950 (Head)	250mW	9.85	5.06	0.011	-1.5 %	-3.4 %	Feb. 25, 2008
	Normalize to 1 Watt	39.4	20.24				
1950 (Body)	250mW	10.7	5.4	0.029	3.9 %	-0.7 %	Feb. 25, 2008
	Normalize to 1 Watt	42.8	21.6				
1950 (Body)	250mW	10.2	5.24	-0.012	-1.0 %	-3.7 %	Feb. 26, 2008
	Normalize to 1 Watt	40.8	20.96				
1950 (Body)	250mW	10.6	5.39	0.050	2.9 %	-0.9 %	Mar. 05, 2008
	Normalize to 1 Watt	42.4	21.56				
2450 (Body)	250mW	13.7	6.41	0.041	2.2 %	3.4 %	Feb. 25, 2008
	Normalize to 1 Watt	54.8	25.64				

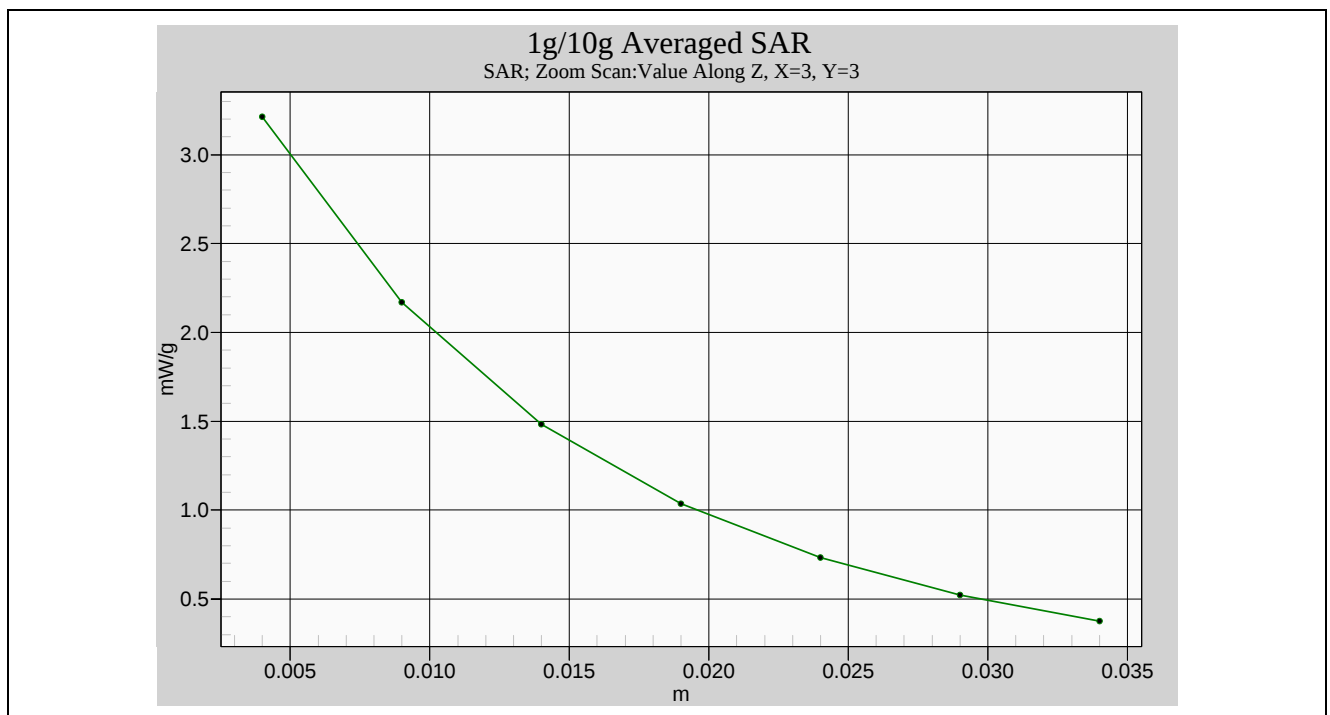
Detail results see Appendix A.



Z-axis Plot of System Performance Check



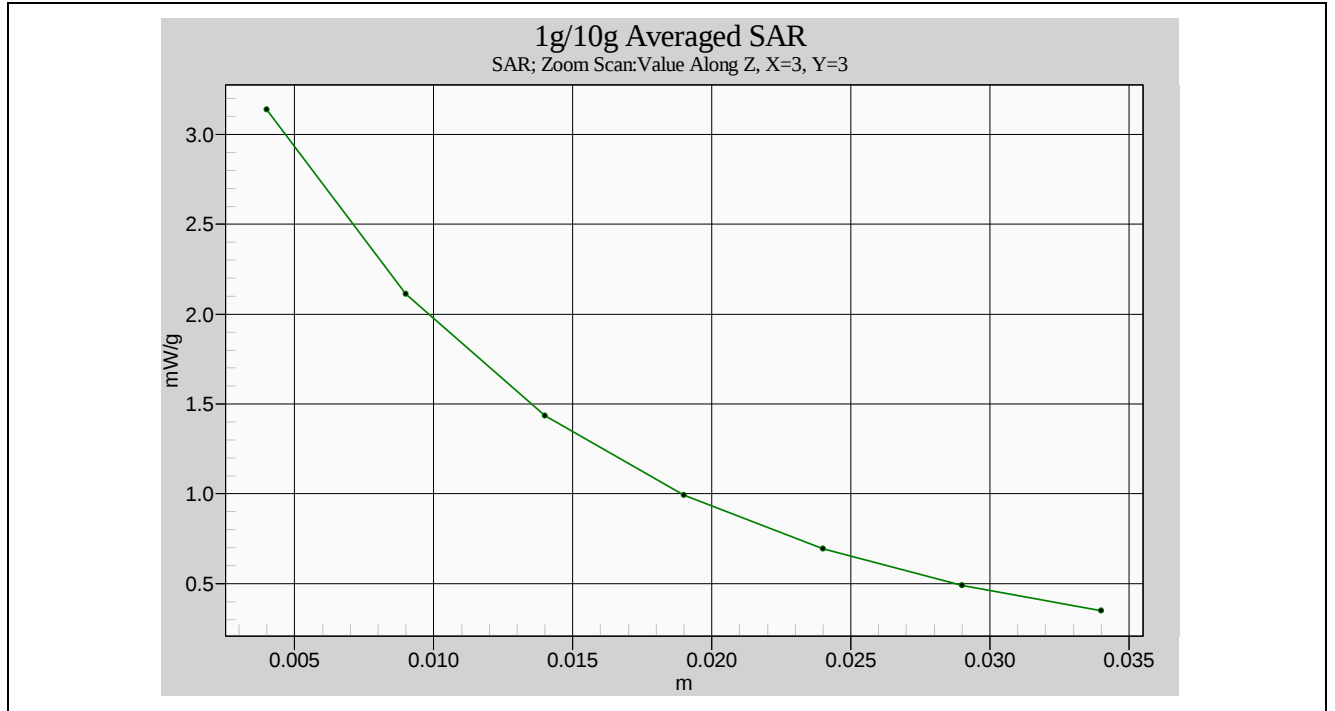
Head-Tissue-Simulating-Liquid 900MHz



Body-Tissue-Simulating-Liquid 900MHz (2008/02/24)



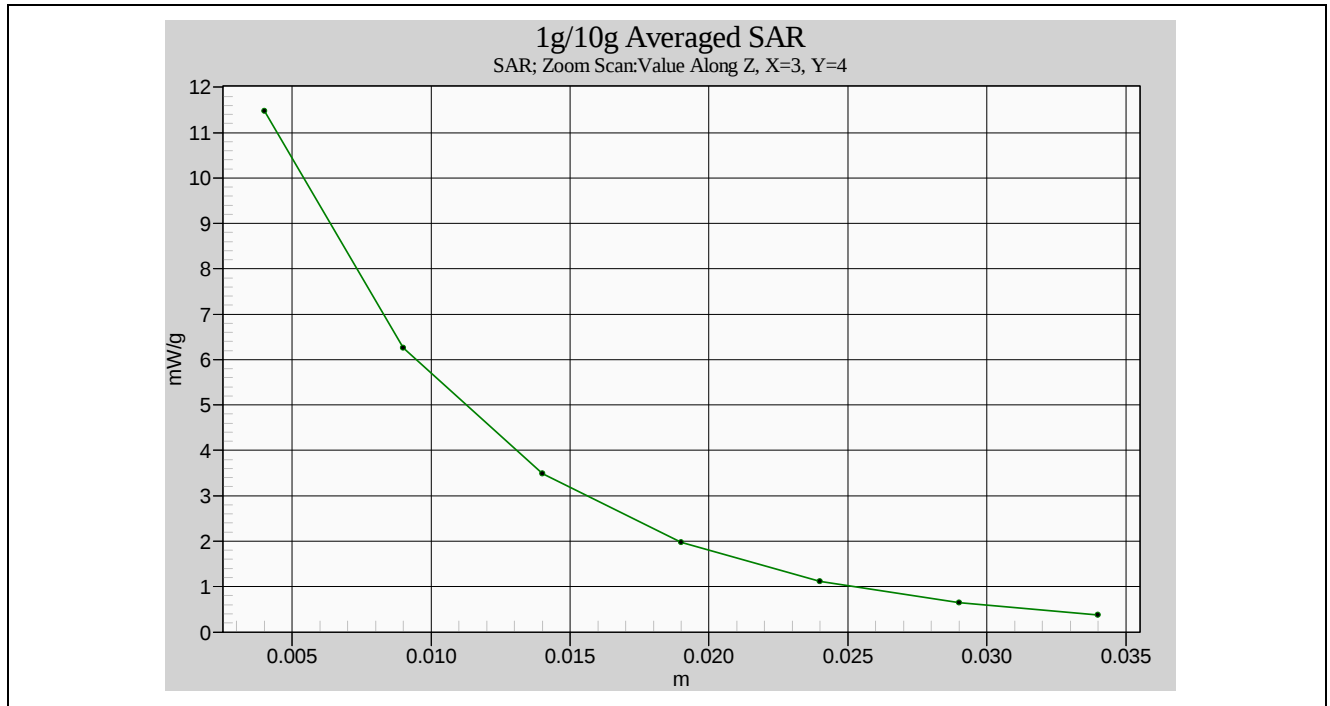
Z-axis Plot of System Performance Check



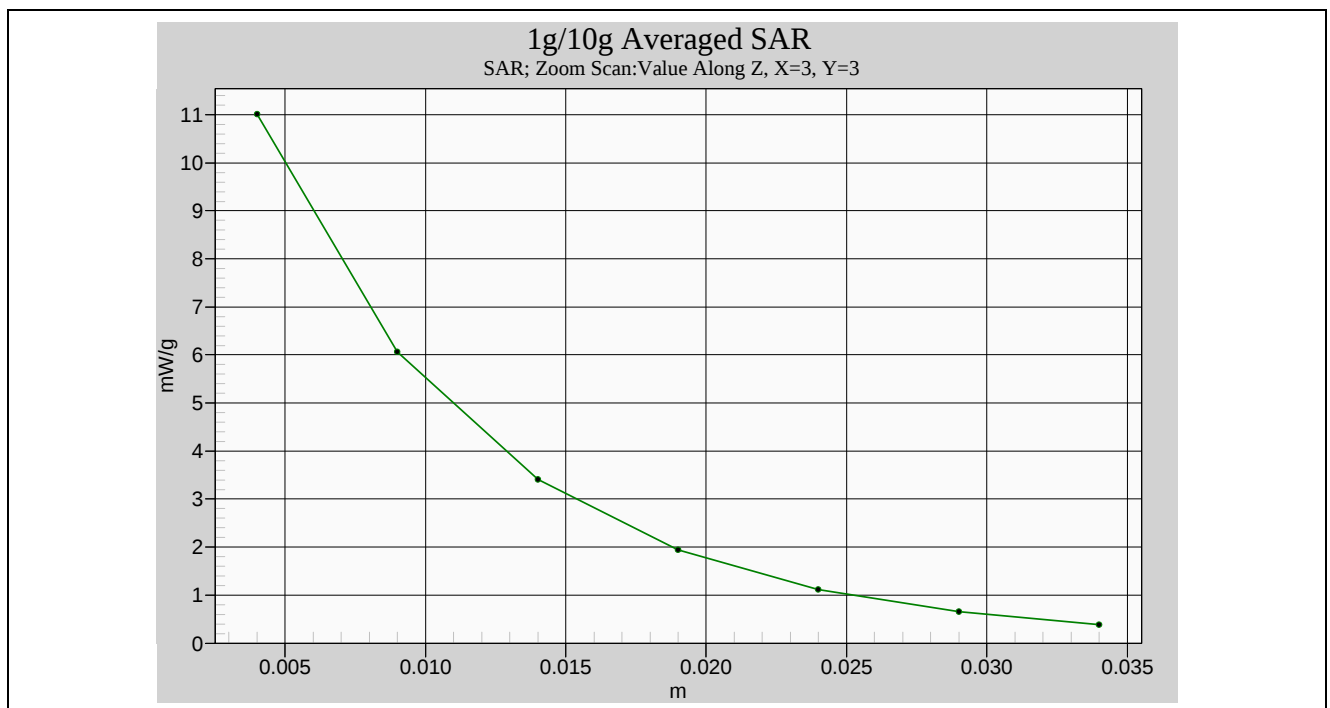
Body-Tissue-Simulating-Liquid 900MHz (2008/03/05)



Z-axis Plot of System Performance Check



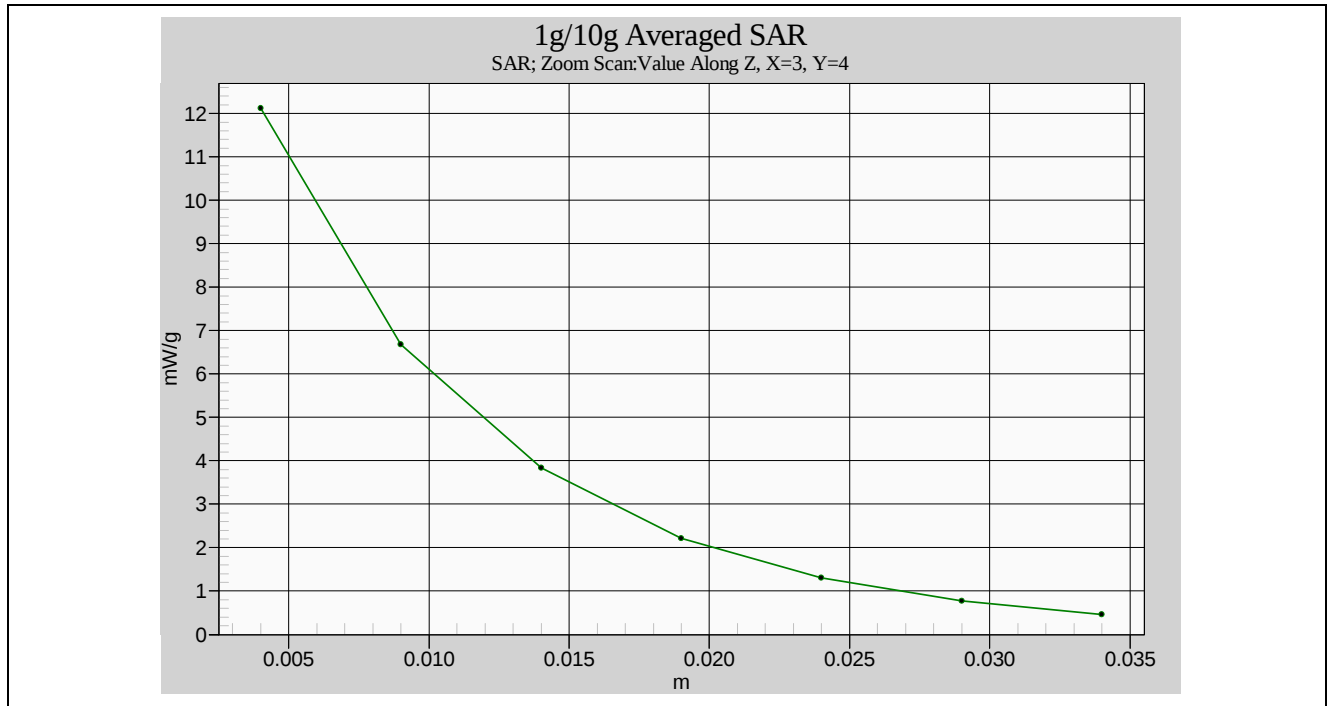
Head-Tissue-Simulating-Liquid 1950MHz (2008/02/25)



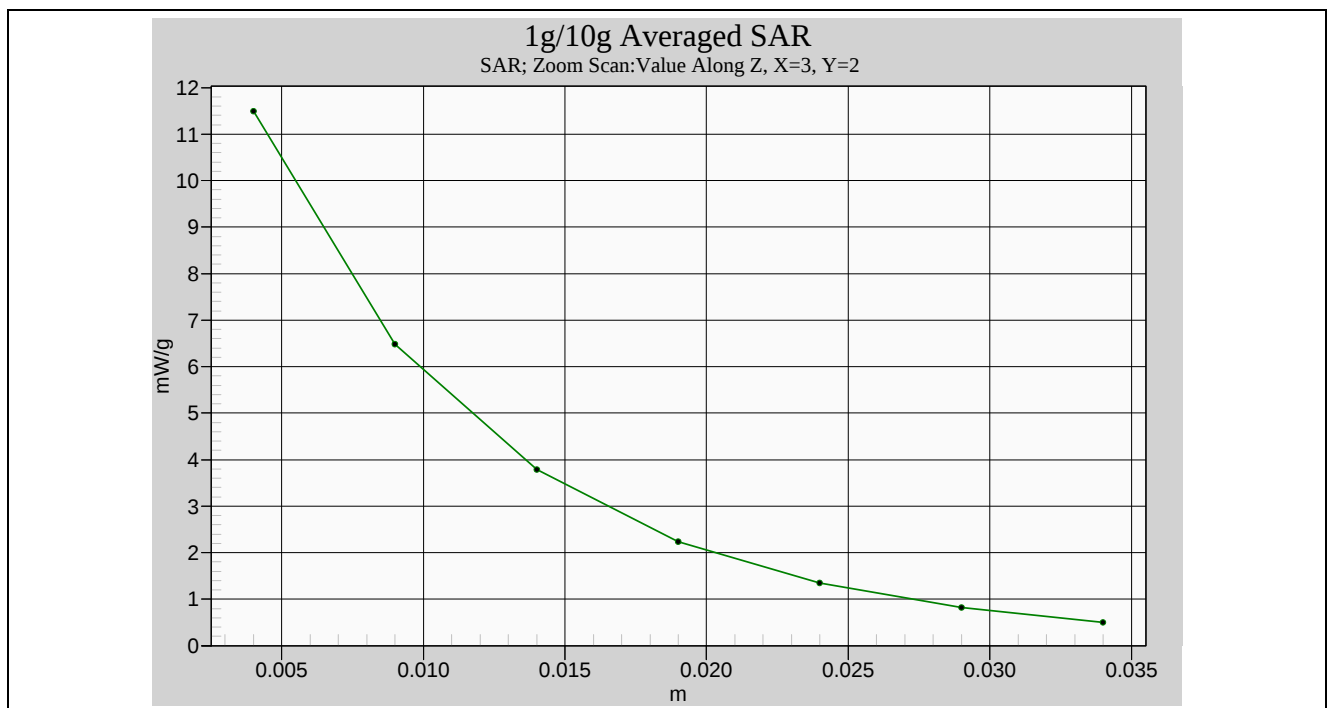
Head-Tissue-Simulating-Liquid 1950MHz (2008/02/25)



Z-axis Plot of System Performance Check



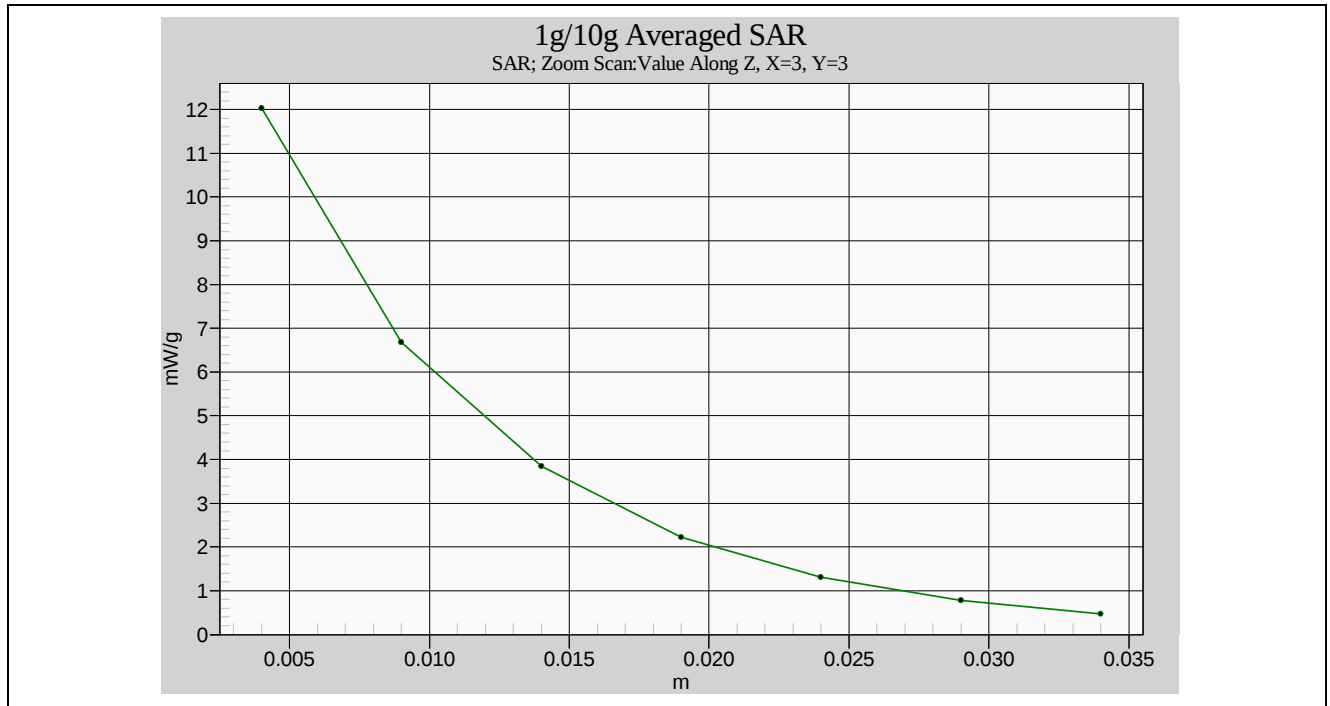
Body-Tissue-Simulating-Liquid 1950MHz (2008/02/25)



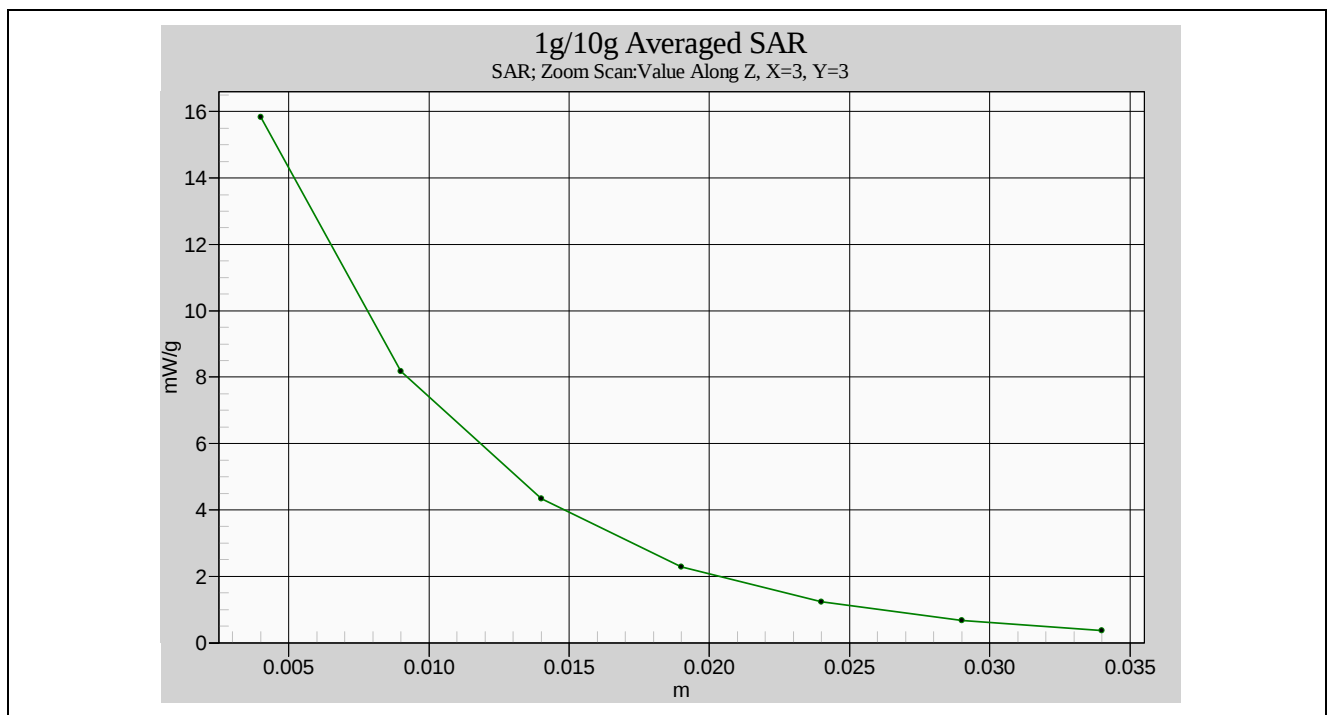
Body-Tissue-Simulating-Liquid 1950MHz (2008/02/26)



Z-axis Plot of System Performance Check



Body-Tissue-Simulating-Liquid 1950MHz (2008/03/05)



Body-Tissue-Simulating-Liquid 2450MHz



9.3 Dosimetric Assessment Setup

9.3.1 Headset Test Position - Body Worn

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 handset output should be tested with a handset connected to the device.

Body-worn accessories may not always be supplied or available as options for some devices that are intended to be authorized for body-worn use. A separation distance of 1.5 cm between the back of the device and a flat phantom is recommended for testing body-worn SAR compliance under such circumstances.

For this test :

- ☐ The EUT is placed into the holster/belt clip and the holster is positioned against the surface of the phantom in a normal operating position.
- ☒ Since this EUT doesn't supply any body-worn accessory to the end user, for **GSM850 band**, **PCS1900 band**, **WCDMA Band V** and **WCDMA Band II** the distance of **20 mm** was tested to confirm the necessary "minimum SAR separation distance".
(* Note : This distance includes the 2 mm phantom shell thickness.)
- ☒ Since this EUT doesn't supply any body-worn accessory to the end user, for **802.11b** and **802.11g** band the distance of **2 mm** was tested to confirm the necessary "minimum SAR separation distance".
(* Note : This distance includes the 2 mm phantom shell thickness.)



9.3.2 Measurement Procedures

The evaluation was performed with the following procedures :

- Surface Check :** A surface checks job gathers data used with optical surface detection. It determines the distance from the phantom surface where the reflection from the optical detector has its peak. Any following measurement jobs using optical surface detection will then rely on this value. The surface check performs its search a specified number of times, so that the repeatability can be verified. The probe tip distance is 1.3mm to phantom inner surface during scans.
- Reference :** The reference job measures the field at a specified reference position, at 4 mm from the selected section's grid reference point.
- Area Scan :** The area scan is used as a fast scan in two dimensions to find the area of high field values, before doing a finer measurement around the hot spot. The sophisticated interpolation routines can find the maximum locations even in relatively coarse grids. When an area scan has measured all reachable points, it computes the field maxima found in the scanned area, within a range of the global maximum. Any following zoom scan within the same procedure will then perform fine scans around these maxima. The area covered the entire dimension of the EUT and the horizontal grid spacing was 15 mm x 15 mm.
- Zoom Scan :** Zoom scans are used to assess the highest averaged SAR for cubic averaging volumes with 1 g and 10 g of simulated tissue. The zoom scan measures 5 x 5 x 7 points in a 32 x 32 x 30 mm cube whose base faces are centered around the maxima returned from a preceding area scan within the same procedure.
- Drift :** The drift job measures the field at the same location as the most recent reference job within the same procedure, with the same settings. The drift measurement gives the field difference in dB from the last reference measurement. Several drift measurements are possible for each reference measurement. This allows monitoring of the power drift of the device in the batch process. If the value changed by more than 5%, the evaluation was repeated.



9.4 Spatial Peak SAR Evaluation

The DASY5 software includes all numerical procedures necessary to evaluate the spatial peak SAR values. Based on the Draft: SCC-34, SC-2, WG-2 - Computational Dosimetry, IEEE P1529/D0.0 (Draft Recommended Practice for Determining the Spatial-Peak Specific Absorption Rate (SAR) Associated with the Use of Wireless Handsets - Computational Techniques), a new algorithm has been implemented. The spatial-peak SAR can be computed over any required mass.

The base for the evaluation is a "cube" measurement in a volume of $(32 \times 32 \times 30) \text{mm}^3$ ($5 \times 5 \times 7$ points). The measured volume must include the 1g and 10g cubes with the highest averaged SAR values. For that purpose, the center of the measured volume is aligned to the interpolated peak SAR value of a previously performed area scan. If the 10g cube or both cubes are not entirely inside the measured volumes, the system issues a warning regarding the evaluated spatial peak values within the Postprocessing engine (SEMCAD). This means that if the measured volume is shifted, higher values might be possible. To get the correct values you can use a finer measurement grid for the area scan. In complicated field distributions, a large grid spacing for the area scan might miss some details and give an incorrectly interpolated peak location.

The entire evaluation of the spatial peak values is performed within the Postprocessing engine (SEMCAD). The system always gives the maximum values for the 1g and 10g cubes. The algorithm to find the cube with highest averaged SAR is divided into three stages:

Interpolation and Extrapolation

The probe is calibrated at the center of the dipole sensors which is located 1 to 2.7mm away from the probe tip. During measurements, the probe stops shortly above the phantom surface, depending on the probe and the surface detecting system. Both distances are included as parameters in the probe configuration file. The software always knows exactly how far away the measured point is from the surface. As the probe cannot directly measure at the surface, the values between the deepest measured point and the surface must be extrapolated.

In DASY5, the choice of the coordinate system defining the location of the measurement points has no influence on the uncertainty of the interpolation, Maxima Search and SAR extrapolation routines. The interpolation, Maxima Search and extrapolation routines are all based on the modified Quadratic Shepard's method [7].



10. Measurement Uncertainty

Measurement uncertainties in SAR measurements are difficult to quantify due to several variables including biological, physiological, and environmental. However, we estimate the measurement uncertainties in SAR to be less than $\pm 21.9\%$ [8] .

According to Std. C95.3 [9] , the overall uncertainties are difficult to assess and will vary with the type of meter and usage situation. However, accuracy's of ± 1 to 3 dB can be expected in practice, with greater uncertainties in near-field situations and at higher frequencies (shorter wavelengths), or areas where large reflecting objects are present. Under optimum measurement conditions, SAR measurement uncertainties of at least ± 2 dB can be expected.

According to CENELEC [10] , typical worst-case uncertainty of field measurements is ± 5 dB. For well-defined modulation characteristics the uncertainty can be reduced to ± 3 dB.



Error Description	Uncertainty value	Prob. Dist.	Div.	(ci) 1g	(ci) 10g	Std. Unc. (1g)	Std. Unc. (10g)	(vi) v _{eff}
Measurement System								
Probe Calibration	± 5.9 %	N	1	1	1	± 5.9 %	± 5.9 %	
Axial Isotropy	± 4.7 %	R		0.7	0.7	± 1.9 %	± 1.9 %	∞
Hemispherical Isotropy	± 9.6 %	R	$\sqrt{3}$	0.7	0.7	± 3.9 %	± 3.9 %	∞
Boundary Effects	± 1.0 %	R	$\sqrt{3}$	1	1	± 0.6 %	± 0.6 %	∞
Linearity	± 4.7 %	R	$\sqrt{3}$	1	1	± 2.7 %	± 2.7 %	∞
System Detection Limits	± 1.0 %	R	$\sqrt{3}$	1	1	± 0.6 %	± 0.6 %	∞
Readout Electronics	± 0.3 %	N	1	1	1	± 0.3 %	± 0.3 %	∞
Response Time	± 0.8 %	R	$\sqrt{3}$	1	1	± 0.5 %	± 0.5 %	∞
Integration Time	± 2.6 %	R	$\sqrt{3}$	1	1	± 1.5 %	± 1.5 %	∞
RF Ambient Noise	± 3.0 %	R	$\sqrt{3}$	1	1	± 1.7 %	± 1.7 %	∞
RF Ambient Reflections	± 3.0 %	R	$\sqrt{3}$	1	1	± 1.7 %	± 1.7 %	∞
Probe Positioner	± 0.4 %	R	$\sqrt{3}$	1	1	± 0.2 %	± 0.2 %	∞
Probe Positioning	± 2.9 %	R	$\sqrt{3}$	1	1	± 1.7 %	± 1.7 %	∞
Max. SAR Eval.	± 1.0 %	R	$\sqrt{3}$	1	1	± 0.6 %	± 0.6 %	∞
Test Sample Related								
Device Positioning	± 2.9 %	N	1	1	1	± 2.9 %	± 2.9 %	145
Device Holder	± 3.6 %	N	1	1	1	± 3.6 %	± 3.6 %	5
Power Drift	± 5.0 %	R	$\sqrt{3}$	1	1	± 2.9 %	± 2.9 %	∞
Phantom and Setup								
Phantom Uncertainty	± 4.0 %	R	$\sqrt{3}$	1	1	± 2.3 %	2.3 %	∞
Liquid Conductivity (target)	± 5.0 %	R	$\sqrt{3}$	0.64	0.43	± 1.8 %	1.2 %	∞
Liquid Conductivity (meas.)	± 2.5 %	N	1	0.64	0.43	± 1.6 %	1.1 %	∞
Liquid Permittivity (target)	± 5.0 %	R	$\sqrt{3}$	0.6	0.49	± 1.7 %	1.4 %	∞
Liquid Permittivity (meas.)	± 2.5 %	N	1	0.6	0.49	± 1.5 %	1.2 %	∞
Combined Std. Uncertainty					± 10.9 %	± 10.7 %	387	
Expanded STD Uncertainty					± 21.9 %	± 21.4 %		

Table 5. Uncertainty Budget of DASY



11. SAR Test Results Summary

11.1 Head SAR

11.1.1 GSM 850 - Head SAR

Ambient :

Temperature (°C) :

22 ± 3

Relative HUMIDITY (%) :

40-70

Liquid :

Mixture Type :

HSL900

Liquid Temperature (°C) :

22.0

Depth of liquid (cm) :

15

Measurement :

Crest Factor :

8.3

Probe S/N :

3150

Frequency		Band	Power (dBm)	Phantom Position	Antenna Position	Accessory	SAR _{1g} [mW/g]	Power Drift (dB)	Remark
MHz	CH								
824.2	128	GSM 850	31.50	Right-cheek	Internal	N/A	0.480	-0.038	-
836.6	190	GSM 850	31.40	Right-cheek	Internal	N/A	0.590	-0.039	-
848.8	251	GSM 850	31.20	Right-cheek	Internal	N/A	0.523	0.141	-
824.2	128	GSM 850	31.50	Right-Tilted	Internal	N/A	0.320	-0.046	-
836.6	190	GSM 850	31.60	Right-Tilted	Internal	N/A	0.375	0.032	-
848.8	251	GSM 850	31.40	Right-Tilted	Internal	N/A	0.331	0.193	-
824.2	128	GSM 850	31.60	Left-cheek	Internal	N/A	0.464	0.070	-
836.6	190	GSM 850	31.30	Left-cheek	Internal	N/A	0.563	-0.047	-
848.8	251	GSM 850	31.40	Left-cheek	Internal	N/A	0.499	-0.091	-
824.2	128	GSM 850	31.50	Left-Tilted	Internal	N/A	0.287	-0.029	-
836.6	190	GSM 850	31.40	Left-Tilted	Internal	N/A	0.343	0.116	-
848.8	251	GSM 850	31.50	Left-Tilted	Internal	N/A	0.309	0.197	-
Std. C95.1-1999 - Safety Limit Spatial Peak Uncontrolled Exposure/General Population					1.6 W/kg (mW/g) Averaged over 1 gram				

Z-axis Plot of SAR Measurement

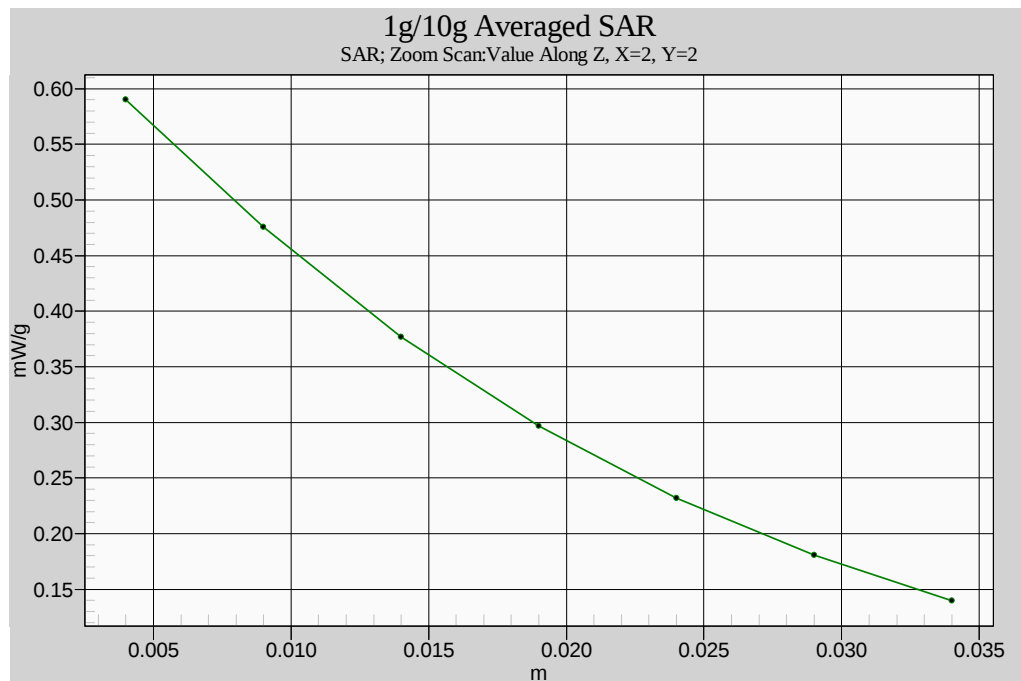


Figure 11. Z-axis Plot of Right-Cheek GSM850 CH190



11.1.2 PCS 1900 - Head SAR

Ambient :

Temperature (°C) : 22 ± 3

Relative HUMIDITY (%) : 40-70

Liquid :

Mixture Type : HSL1950

Liquid Temperature (°C) : 22.0

Depth of liquid (cm) : 15

Measurement :

Crest Factor : 8.3

Probe S/N : 3150

Frequency		Band	Power (dBm)	Phantom Position	Antenna Position	Accessory	SAR _{1g} [mW/g]	Power Drift (dB)	Remark
MHz	CH								
1850.2	512	PCS	29.10	Right-cheek	Internal	N/A	0.427	0.045	-
1880.0	661	PCS	29.00	Right-cheek	Internal	N/A	0.494	0.120	-
1909.8	810	PCS	29.20	Right-cheek	Internal	N/A	0.525	-0.087	-
1850.2	512	PCS	29.20	Right-Tilted	Internal	N/A	0.129	-0.031	-
1880.0	661	PCS	29.10	Right-Tilted	Internal	N/A	0.161	-0.042	-
1909.8	810	PCS	29.30	Right-Tilted	Internal	N/A	0.171	-0.025	-
1850.2	512	PCS	29.00	Left-cheek	Internal	N/A	0.274	0.039	-
1880.0	661	PCS	28.90	Left-cheek	Internal	N/A	0.409	0.008	-
1909.8	810	PCS	29.10	Left-cheek	Internal	N/A	0.455	-0.026	-
1850.2	512	PCS	28.90	Left-Tilted	Internal	N/A	0.122	-0.040	-
1880.0	661	PCS	28.80	Left-Tilted	Internal	N/A	0.153	-0.019	-
1909.8	810	PCS	29.00	Left-Tilted	Internal	N/A	0.139	-0.016	-
Std. C95.1-1999 - Safety Limit Spatial Peak Uncontrolled Exposure/General Population					1.6 W/kg (mW/g) Averaged over 1 gram				

Z-axis Plot of SAR Measurement

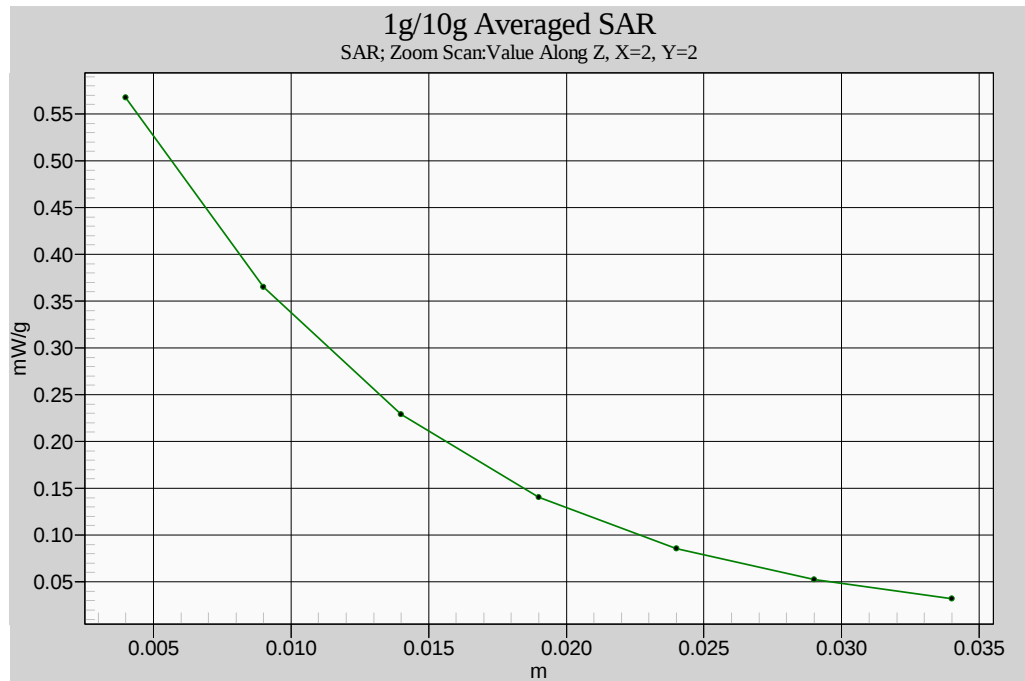


Figure 12. Z-axis Plot of Right-Cheek PCS1900 CH810



11.1.3 WCDMA Band V - Head SAR

Ambient :

Temperature (°C) : 22 ± 3

Relative HUMIDITY (%) : 40-70

Liquid :

Mixture Type : HSL900

Liquid Temperature (°C) : 22.0

Depth of liquid (cm) : 15

Measurement :

Crest Factor : 1

Probe S/N : 3150

Frequency		Band	Power (dBm)	Phantom Position	Antenna Position	Accessory	SAR _{1g} [mW/g]	Power Drift (dB)	Remark
MHz	CH								
826.6	4133	WCDMA V	22.66	Right-cheek	Internal	N/A	0.226	0.068	-
836.0	4180	WCDMA V	22.92	Right-cheek	Internal	N/A	0.507	-0.141	-
846.6	4232	WCDMA V	22.46	Right-cheek	Internal	N/A	0.304	-0.147	-
826.6	4133	WCDMA V	22.67	Right-Tilted	Internal	N/A	0.152	-0.058	-
836.0	4180	WCDMA V	22.90	Right-Tilted	Internal	N/A	0.319	0.168	-
846.6	4232	WCDMA V	22.43	Right-Tilted	Internal	N/A	0.198	0.038	-
826.6	4133	WCDMA V	22.68	Left-cheek	Internal	N/A	0.219	0.090	-
836.0	4180	WCDMA V	22.89	Left-cheek	Internal	N/A	0.473	-0.177	-
846.6	4232	WCDMA V	22.47	Left-cheek	Internal	N/A	0.290	-0.103	-
826.6	4133	WCDMA V	22.61	Left-Tilted	Internal	N/A	0.140	0.168	-
836.0	4180	WCDMA V	22.94	Left-Tilted	Internal	N/A	0.272	0.002	-
846.6	4232	WCDMA V	22.46	Left-Tilted	Internal	N/A	0.181	0.132	-
Std. C95.1-1999 - Safety Limit Spatial Peak Uncontrolled Exposure/General Population					1.6 W/kg (mW/g) Averaged over 1 gram				

Z-axis Plot of SAR Measurement

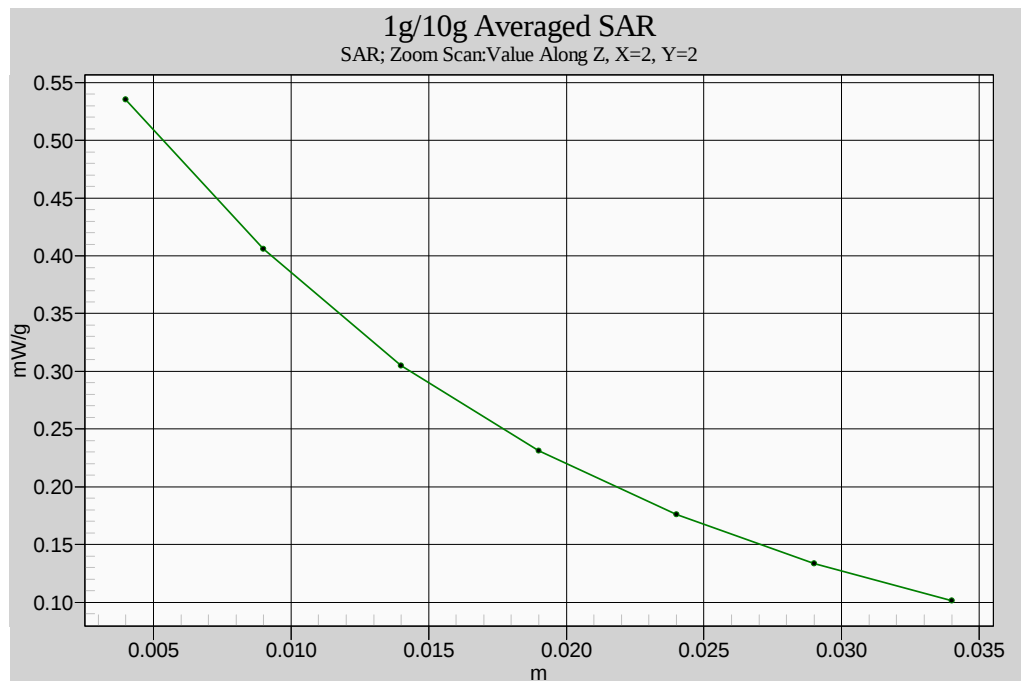


Figure 13. Z-axis Plot of Right-Cheek WCDMA Band V CH4180



11.1.4 WCDMA Band II - Head SAR

Ambient :

Temperature (°C) : 22 ± 3

Relative HUMIDITY (%) : 40-70

Liquid :

Mixture Type : HSL1950

Liquid Temperature (°C) : 22.0

Depth of liquid (cm) : 15

Measurement :

Crest Factor : 1

Probe S/N : 3150

Frequency		Band	Power (dBm)	Phantom Position	Antenna Position	Accessory	SAR _{1g} [mW/g]	Power Drift (dB)	Remark
MHz	CH								
1852.6	9263	WCDMA II	22.42	Right-cheek	Internal	N/A	1.080	0.145	-
1880.0	9400	WCDMA II	22.24	Right-cheek	Internal	N/A	1.090	0.034	-
1907.4	9537	WCDMA II	22.22	Right-cheek	Internal	N/A	1.000	0.046	-
1852.6	9263	WCDMA II	22.41	Right-Tilted	Internal	N/A	0.265	0.064	-
1880.0	9400	WCDMA II	22.23	Right-Tilted	Internal	N/A	0.240	0.032	-
1907.4	9537	WCDMA II	22.20	Right-Tilted	Internal	N/A	0.222	0.035	-
1852.6	9263	WCDMA II	22.40	Left-cheek	Internal	N/A	0.582	0.029	-
1880.0	9400	WCDMA II	22.22	Left-cheek	Internal	N/A	0.570	0.105	-
1907.4	9537	WCDMA II	22.21	Left-cheek	Internal	N/A	0.528	0.070	-
1852.6	9263	WCDMA II	22.43	Left-Tilted	Internal	N/A	0.273	-0.040	-
1880.0	9400	WCDMA II	22.25	Left-Tilted	Internal	N/A	0.234	0.075	-
1907.4	9537	WCDMA II	22.23	Left-Tilted	Internal	N/A	0.208	0.029	-
Std. C95.1-1999 - Safety Limit Spatial Peak Uncontrolled Exposure/General Population					1.6 W/kg (mW/g) Averaged over 1 gram				



Z-axis Plot of SAR Measurement

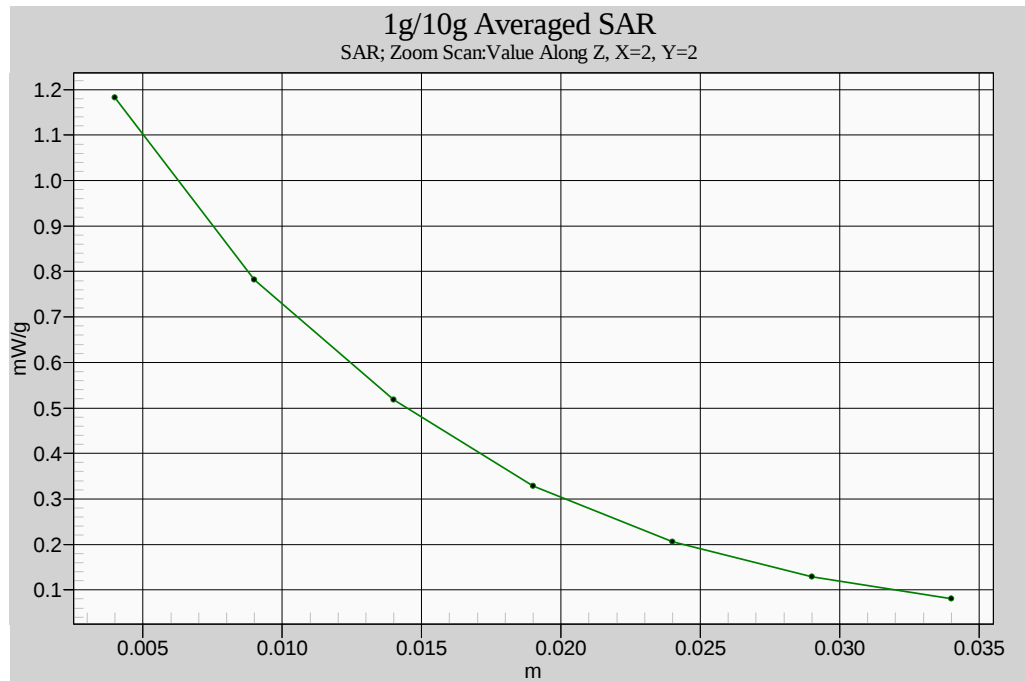


Figure 14. Z-axis Plot of Right-Cheek WCDMA Band II CH9400



11.2 Body SAR

11.2.1 GSM 850 - Body SAR (18 mm separation)

Ambient :

Temperature (°C) :

22 ± 3

Relative HUMIDITY (%) :

40-70

Liquid :

Mixture Type :

MSL900

Liquid Temperature (°C) :

22.0

Depth of liquid (cm) :

15

Measurement :

Crest Factor :

8.3

Probe S/N :

3150

Frequency		Band	Power (dBm)	Phantom Position	Antenna Position	Accessory	SAR _{1g} [mW/g]	Power Drift (dB)	Remark
MHz	CH								
824.2	128	GSM 850	31.50	Flat	Internal	N/A	0.637	0.009	-
836.6	190	GSM 850	31.40	Flat	Internal	N/A	0.646	0.012	-
848.8	251	GSM 850	31.20	Flat	Internal	N/A	0.656	-0.020	-
848.8	251	GSM 850	31.20	Flat	Internal	N/A	0.501	0.040	w/802.11b
848.8	251	GSM 850	31.18	Flat	Internal	N/A	0.530	0.022	w/802.11g
Std. C95.1-1999 - Safety Limit Spatial Peak Uncontrolled Exposure/General Population					1.6 W/kg (mW/g) Averaged over 1 gram				

Detail results see Appendix B.

Z-axis Plot of SAR Measurement

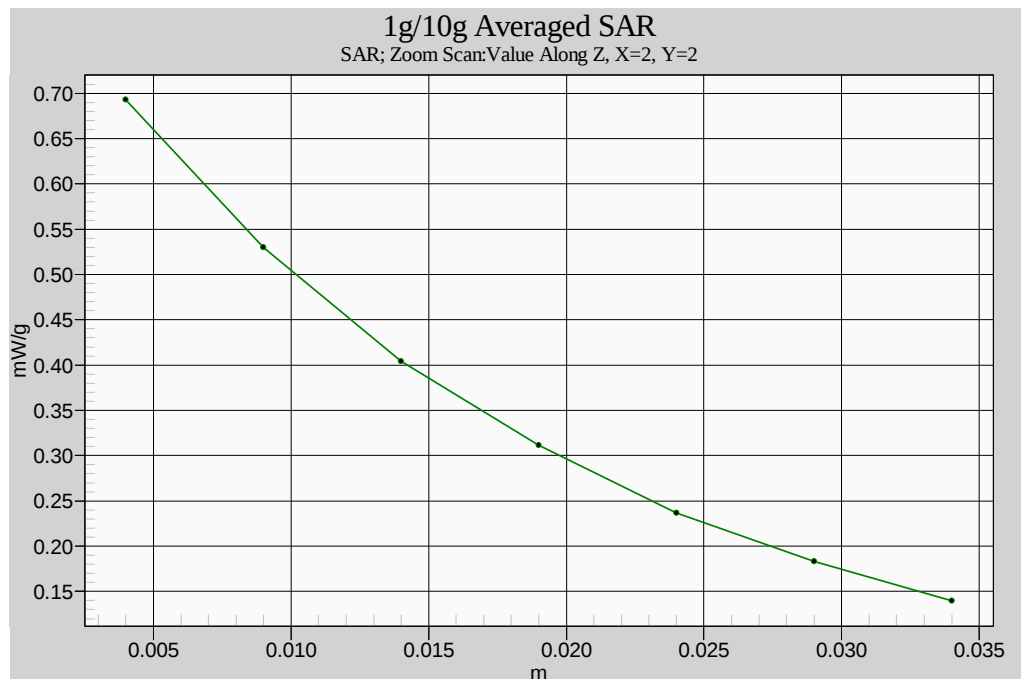


Figure 15. Z-axis Plot of flat GSM850 CH251



11.2.2 GSM 850 GPRS - Body SAR (18 mm separation)

Ambient :

Temperature (°C) : 22 ± 3

Relative HUMIDITY (%) : 40-70

Liquid :

Mixture Type : MSL900

Liquid Temperature (°C) : 22.0

Depth of liquid (cm) : 15

Measurement :

Crest Factor : 4.2

Probe S/N : 3150

Frequency		Band	Power (dBm)	Phantom Position	Antenna Position	Accessory	SAR _{1g} [mW/g]	Power Drift (dB)	Remark
MHz	CH								
824.2	128	GSM 850	31.70	Flat	Internal	N/A	1.150	-0.014	3Down2Up
836.6	190	GSM 850	31.60	Flat	Internal	N/A	1.180	0.162	3Down2Up
848.8	251	GSM 850	31.40	Flat	Internal	N/A	0.999	0.101	3Down2Up
Std. C95.1-1999 - Safety Limit Spatial Peak Uncontrolled Exposure/General Population					1.6 W/kg (mW/g) Averaged over 1 gram				

Detail results see Appendix B.

Z-axis Plot of SAR Measurement

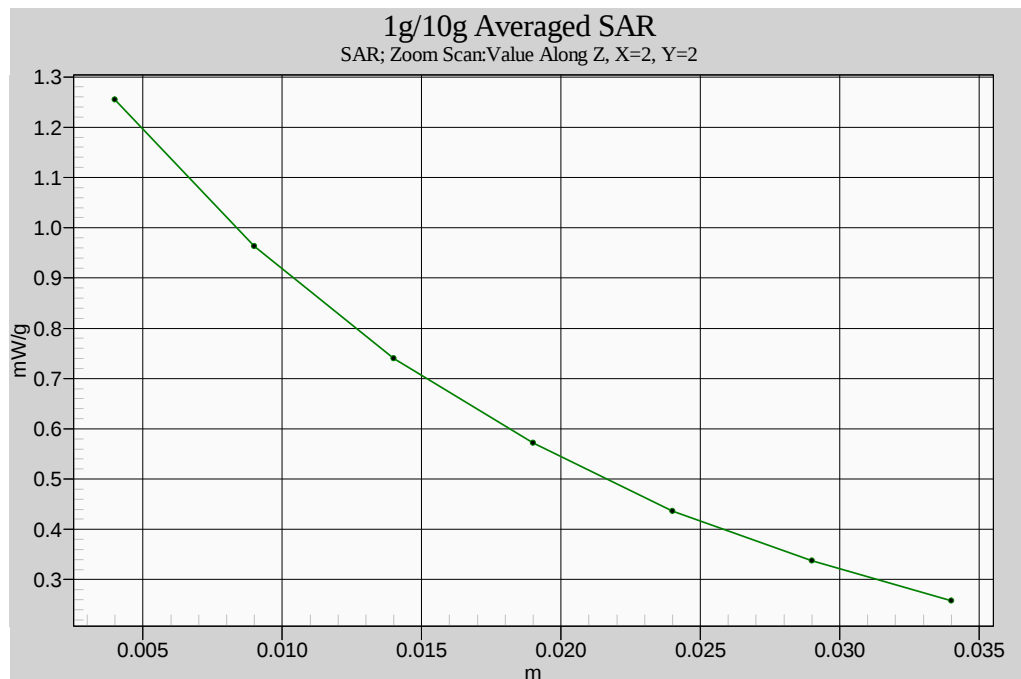


Figure 16. Z-axis Plot of flat GSM850 GPRS CH190



11.2.3 GSM 850 EGPRS - Body SAR (18 mm separation)

Ambient :

Temperature (°C) : 22 ± 3

Relative HUMIDITY (%) : 40-70

Liquid :

Mixture Type : MSL900

Liquid Temperature (°C) : 22.0

Depth of liquid (cm) : 15

Measurement :

Crest Factor : 4.2

Probe S/N : 3150

Frequency		Band	Power (dBm)	Phantom Position	Antenna Position	Accessory	SAR _{1g} [mW/g]	Power Drift (dB)	Remark
MHz	CH								
824.2	128	GSM 850	26.70	Flat	Internal	N/A	0.358	-0.121	3Down2Up
836.6	190	GSM 850	26.70	Flat	Internal	N/A	0.359	-0.154	3Down2Up
848.8	251	GSM 850	26.50	Flat	Internal	N/A	0.310	-0.006	3Down2Up
Std. C95.1-1999 - Safety Limit Spatial Peak Uncontrolled Exposure/General Population					1.6 W/kg (mW/g) Averaged over 1 gram				

Detail results see Appendix B.

Z-axis Plot of SAR Measurement

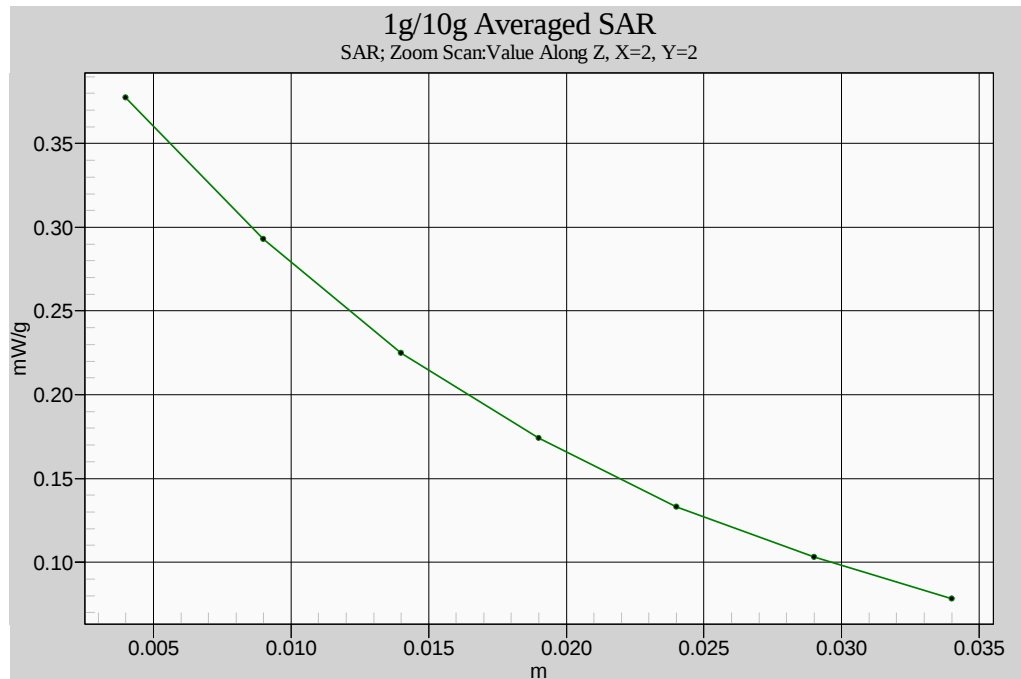


Figure 17. Z-axis Plot of flat GSM850 EGPRS CH190



11.2.4 PCS 1900 - Body SAR (18 mm separation)

Ambient :

Temperature (°C) : 22 ± 3

Relative HUMIDITY (%) : 40-70

Liquid :

Mixture Type : MSL1950

Liquid Temperature (°C) : 22.0

Depth of liquid (cm) : 15

Measurement :

Crest Factor : 8.3

Probe S/N : 3150

Frequency		Band	Power (dBm)	Phantom Position	Antenna Position	Accessory	SAR _{1g} [mW/g]	Power Drift (dB)	Remark
MHz	CH								
1850.2	512	PCS	29.30	Flat	Internal	N/A	0.149	0.022	-
1880.0	661	PCS	29.30	Flat	Internal	N/A	0.200	-0.021	-
1909.8	810	PCS	29.50	Flat	Internal	N/A	0.217	0.005	-
1909.8	810	PCS	29.48	Flat	Internal	N/A	0.216	0.019	w/802.11b
1909.8	810	PCS	29.48	Flat	Internal	N/A	0.191	0.010	w/802.11g
Std. C95.1-1999 - Safety Limit Spatial Peak Uncontrolled Exposure/General Population					1.6 W/kg (mW/g) Averaged over 1 gram				

Detail results see Appendix B.

Z-axis Plot of SAR Measurement

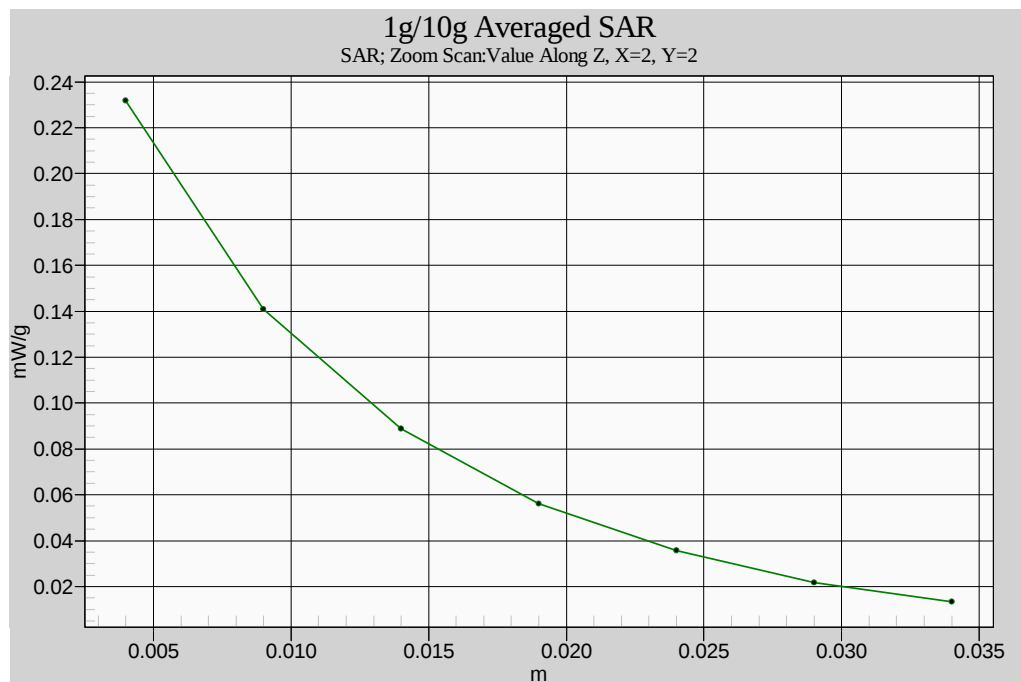


Figure 18. Z-axis Plot of flat PCS CH810



11.2.5 PCS 1900 GPRS - Body SAR (18 mm separation)

Ambient :

Temperature (°C) : 22 ± 3

Relative HUMIDITY (%) : 40-70

Liquid :

Mixture Type : MSL1950

Liquid Temperature (°C) : 22.0

Depth of liquid (cm) : 15

Measurement :

Crest Factor : 4.2

Probe S/N : 3150

Frequency		Band	Power (dBm)	Phantom Position	Antenna Position	Accessory	SAR _{1g} [mW/g]	Power Drift (dB)	Remark
MHz	CH								
1850.2	512	PCS	29.10	Flat	Internal	N/A	0.295	-0.032	3Down2Up
1880.0	661	PCS	29.10	Flat	Internal	N/A	0.396	-0.037	3Down2Up
1909.8	810	PCS	29.20	Flat	Internal	N/A	0.450	-0.001	3Down2Up
Std. C95.1-1999 - Safety Limit Spatial Peak Uncontrolled Exposure/General Population					1.6 W/kg (mW/g) Averaged over 1 gram				

Detail results see Appendix B.

Z-axis Plot of SAR Measurement

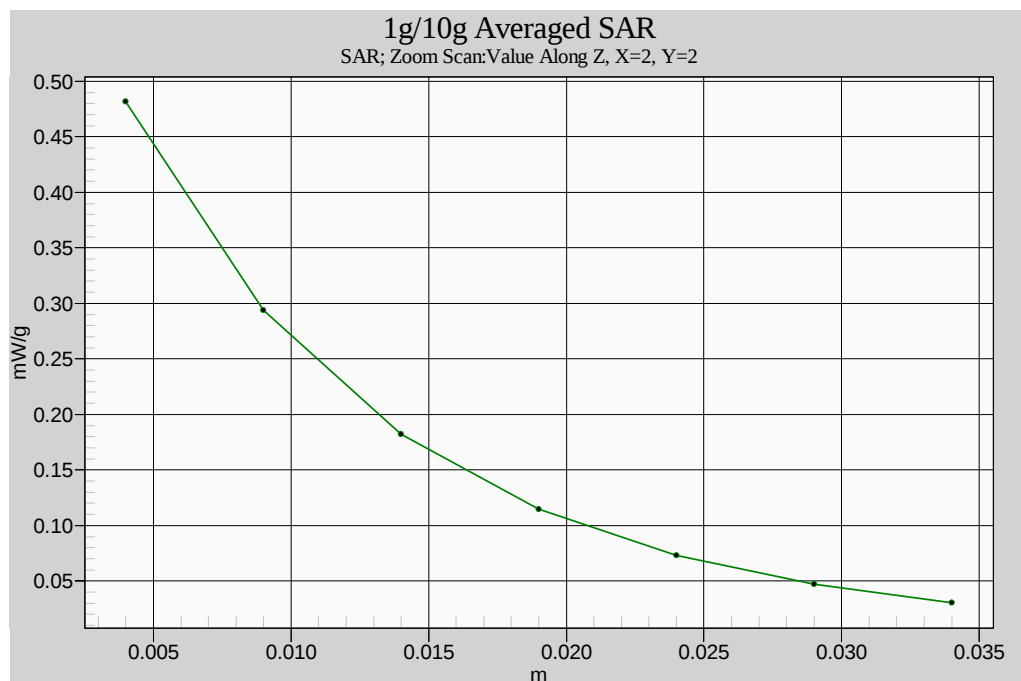


Figure 19. Z-axis Plot of flat PCS GPRS CH810



11.2.6 PCS 1900 EGPRS - Body SAR (18 mm separation)

Ambient :

Temperature (°C) : 22 ± 3

Relative HUMIDITY (%) : 40-70

Liquid :

Mixture Type : MSL1950

Liquid Temperature (°C) : 22.0

Depth of liquid (cm) : 15

Measurement :

Crest Factor : 4.2

Probe S/N : 3150

Frequency		Band	Power (dBm)	Phantom Position	Antenna Position	Accessory	SAR _{1g} [mW/g]	Power Drift (dB)	Remark
MHz	CH								
1850.2	512	PCS	29.10	Flat	Internal	N/A	0.136	0.091	3Down2Up
1880.0	661	PCS	29.20	Flat	Internal	N/A	0.180	-0.117	3Down2Up
1909.8	810	PCS	29.30	Flat	Internal	N/A	0.199	-0.040	3Down2Up
Std. C95.1-1999 - Safety Limit Spatial Peak Uncontrolled Exposure/General Population					1.6 W/kg (mW/g) Averaged over 1 gram				

Detail results see Appendix B.

Z-axis Plot of SAR Measurement

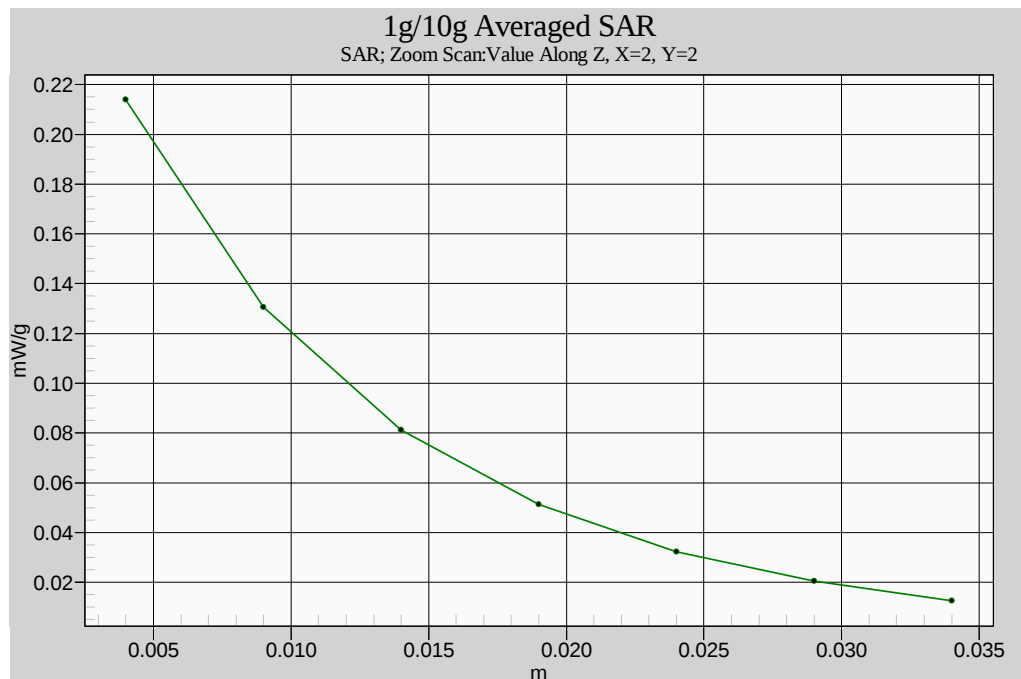


Figure 20. Z-axis Plot of flat PCS EGPRS CH810



11.2.7 WCDMA Band V - Body SAR (18 mm separation)

Ambient :

Temperature (°C) : 22 ± 3 Relative HUMIDITY (%) : 40-70

Liquid :

Mixture Type : MSL900 Liquid Temperature (°C) : 22.0
 Depth of liquid (cm) : 15

Measurement :

Crest Factor : 1 Probe S/N : 3150

Frequency		Band	Power (dBm)	Phantom Position	Antenna Position	Accessory	SAR _{1g} [mW/g]	Power Drift (dB)	Remark
MHz	CH								
826.6	4133	WCDMA V	22.66	Flat	Internal	N/A	0.342	0.064	-
836.0	4180	WCDMA V	22.92	Flat	Internal	N/A	0.635	0.132	-
836.0	4180	WCDMA V	22.90	Flat	Internal	N/A	0.666	0.042	w/802.11b
836.0	4180	WCDMA V	22.88	Flat	Internal	N/A	0.655	0.068	w/802.11g
846.6	4232	WCDMA V	22.46	Flat	Internal	N/A	0.425	-0.036	-
Std. C95.1-1999 - Safety Limit Spatial Peak Uncontrolled Exposure/General Population					1.6 W/kg (mW/g) Averaged over 1 gram				

Detail results see Appendix B.

Z-axis Plot of SAR Measurement

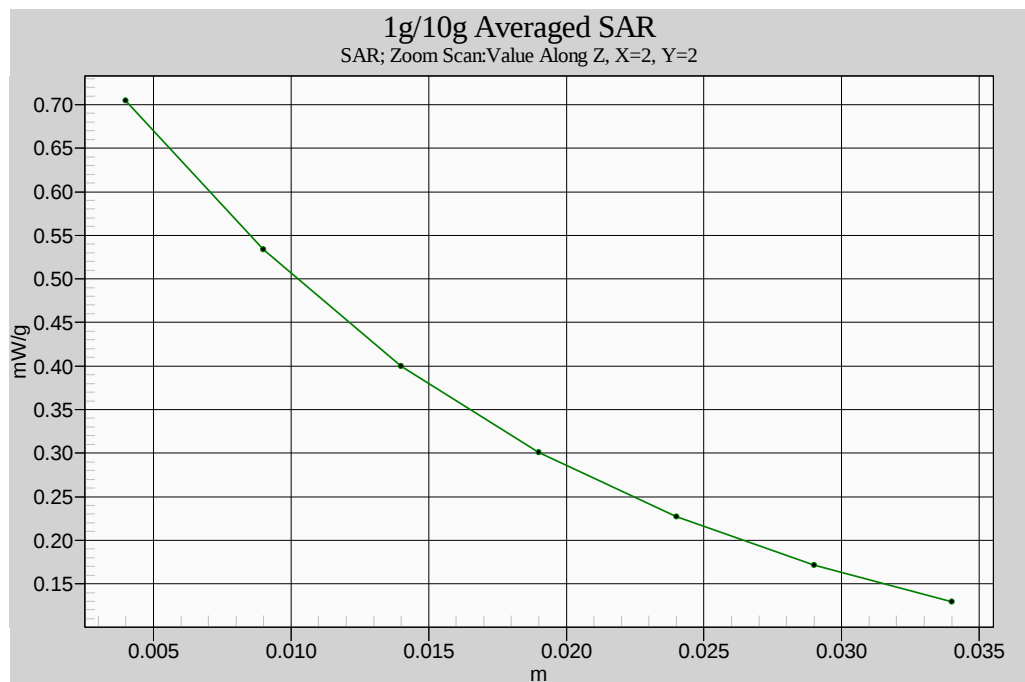


Figure 21. Z-axis Plot of flat WCDMA Band V with 802.11b CH4180



11.2.8 HSDPA Band V - Body SAR (18 mm separation)

Ambient :

Temperature (°C) : 22 ± 3 Relative HUMIDITY (%) : 40-70

Liquid :

Mixture Type : MSL900 Liquid Temperature (°C) : 22.0
 Depth of liquid (cm) : 15

Measurement :

Crest Factor : 1 Probe S/N : 3150

Frequency		Band	Power (dBm)	Phantom Position	Antenna Position	Accessory	SAR _{1g} [mW/g]	Power Drift (dB)	Remark
MHz	CH								
826.6	4133	HSDPA V	22.64	Flat	Internal	N/A	0.340	0.001	-
836.0	4180	HSDPA V	22.23	Flat	Internal	N/A	0.604	0.103	-
846.6	4232	HSDPA V	22.16	Flat	Internal	N/A	0.418	0.079	-
Std. C95.1-1999 - Safety Limit Spatial Peak Uncontrolled Exposure/General Population					1.6 W/kg (mW/g) Averaged over 1 gram				

Detail results see Appendix B.

Z-axis Plot of SAR Measurement

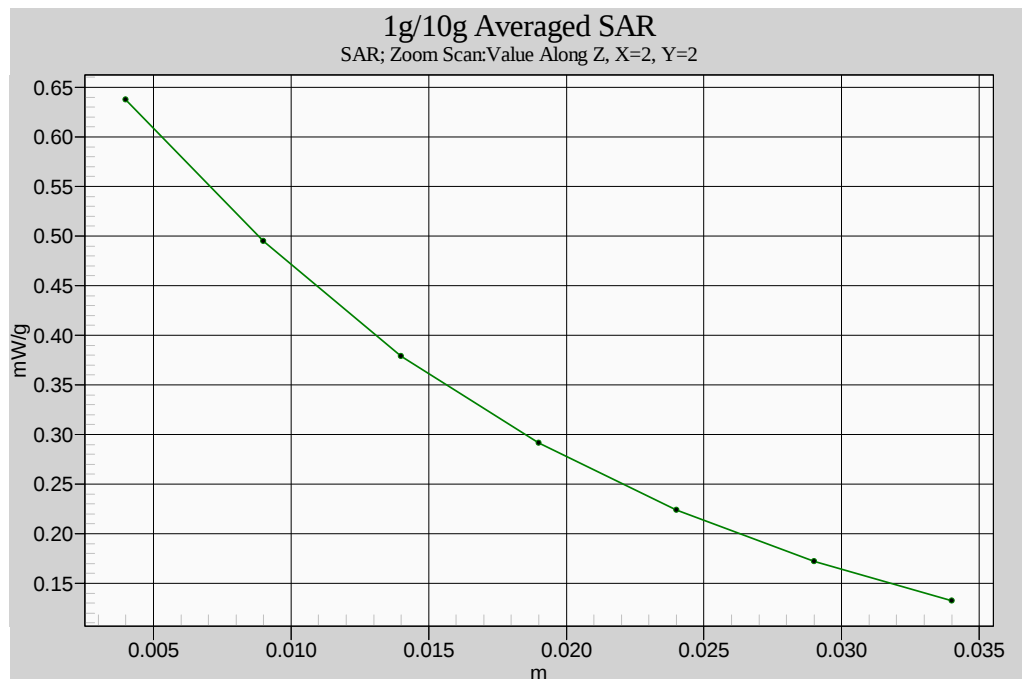


Figure 22. Z-axis Plot of flat HSDPA Band V CH4180



11.2.9 WCDMA Band II - Body SAR (18 mm separation)

Ambient :

Temperature (°C) : 22 ± 3 Relative HUMIDITY (%) : 40-70

Liquid :

Mixture Type : MSL1950 Liquid Temperature (°C) : 22.0
Depth of liquid (cm) : 15

Measurement :

Crest Factor : 1 Probe S/N : 3150

Frequency		Band	Power (dBm)	Phantom Position	Antenna Position	Accessory	SAR _{1g} [mW/g]	Power Drift (dB)	Remark
MHz	CH								
1852.6	9263	WCDMA II	22.43	Flat	Internal	N/A	0.391	0.082	-
1852.6	9263	WCDMA II	22.41	Flat	Internal	N/A	0.395	-0.008	w/802.11b
1852.6	9263	WCDMA II	22.40	Flat	Internal	N/A	0.395	-0.104	w/802.11g
1880.0	9400	WCDMA II	22.25	Flat	Internal	N/A	0.344	0.005	-
1907.4	9537	WCDMA II	22.23	Flat	Internal	N/A	0.314	0.011	-
Std. C95.1-1999 - Safety Limit Spatial Peak Uncontrolled Exposure/General Population					1.6 W/kg (mW/g) Averaged over 1 gram				

Detail results see Appendix B.

Z-axis Plot of SAR Measurement

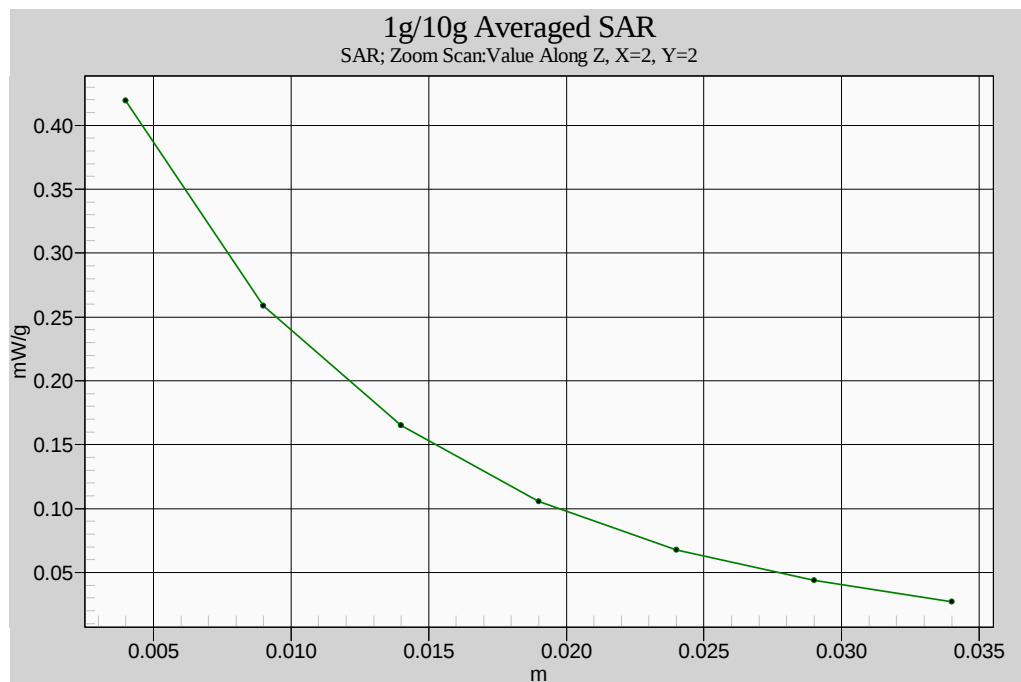


Figure 23. Z-axis Plot of flat WCDMA Band II CH9263



11.2.10 HSDPA Band II - Body SAR (18 mm separation)

Ambient :

Temperature (°C) : 22 ± 3

Relative HUMIDITY (%) : 40-70

Liquid :

Mixture Type : MSL1950

Liquid Temperature (°C) : 22.0

Depth of liquid (cm) : 15

Measurement :

Crest Factor : 1

Probe S/N : 3150

Frequency		Band	Power (dBm)	Phantom Position	Antenna Position	Accessory	SAR _{1g} [mW/g]	Power Drift (dB)	Remark
MHz	CH								
1852.6	9263	HSDPA II	22.43	Flat	Internal	N/A	0.484	-0.026	-
1880.0	9400	HSDPA II	22.25	Flat	Internal	N/A	0.432	-0.036	-
1907.4	9537	HSDPA II	22.23	Flat	Internal	N/A	0.390	-0.018	-
Std. C95.1-1999 - Safety Limit Spatial Peak Uncontrolled Exposure/General Population					1.6 W/kg (mW/g) Averaged over 1 gram				

Detail results see Appendix B.

Z-axis Plot of SAR Measurement

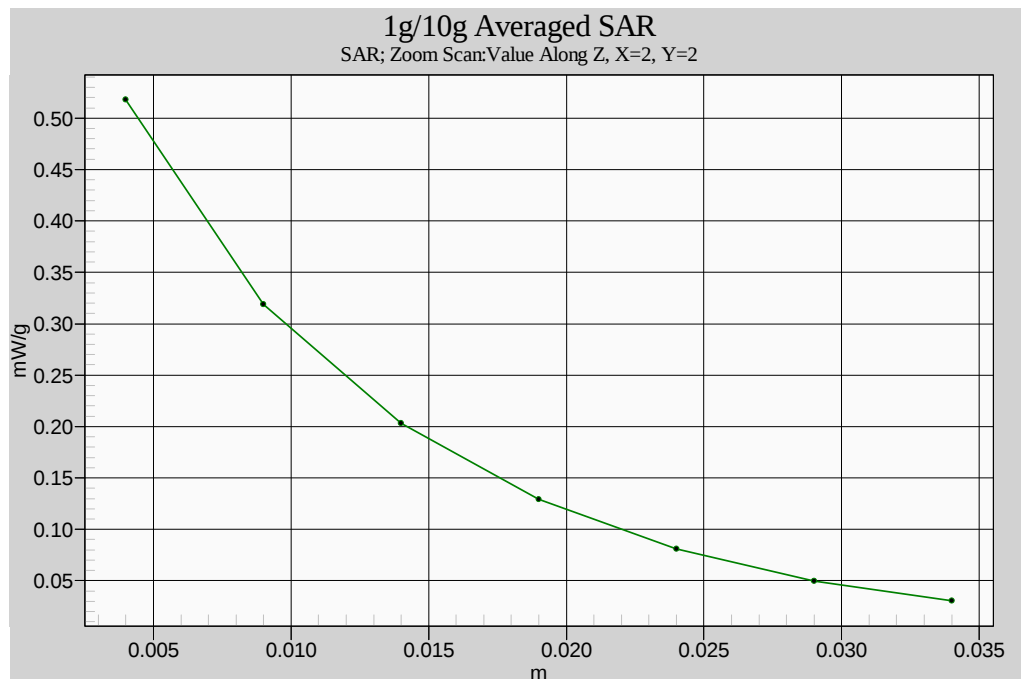


Figure 24. Z-axis Plot of flat HSDPA Band II CH9263



11.2.11 Wi-Fi 802.11b - Body SAR (0 mm separation)

Ambient :

Temperature (°C) : 22 ± 3 Relative HUMIDITY (%) : 40-70

Liquid :

Mixture Type : MSL2450 Liquid Temperature (°C) : 22.0
Depth of liquid (cm) : 15

Measurement :

Crest Factor : 1 Probe S/N : 3510

Frequency		Band	Power (dBm)	Phantom Position	Antenna Position	Accessory	SAR _{1g} [mW/g]	Power Drift (dB)	Remark
MHz	CH								
2412	1	802.11 b	16.40	Flat	Internal	N/A	0.360	0.016	1M
2412	1	802.11 b	15.10	Flat	Internal	N/A	0.300	-0.194	11M
2437	6	802.11 b	17.60	Flat	Internal	N/A	0.337	-0.068	1M
2462	11	802.11 b	17.70	Flat	Internal	N/A	0.338	0.098	1M
Std. C95.1-1999 - Safety Limit Spatial Peak Uncontrolled Exposure/General Population					1.6 W/kg (mW/g) Averaged over 1 gram				

Detail results see Appendix B.

Note: 1M → Data rate 1MHz ; 11M → Data rate 11MHz

Z-axis Plot of SAR Measurement

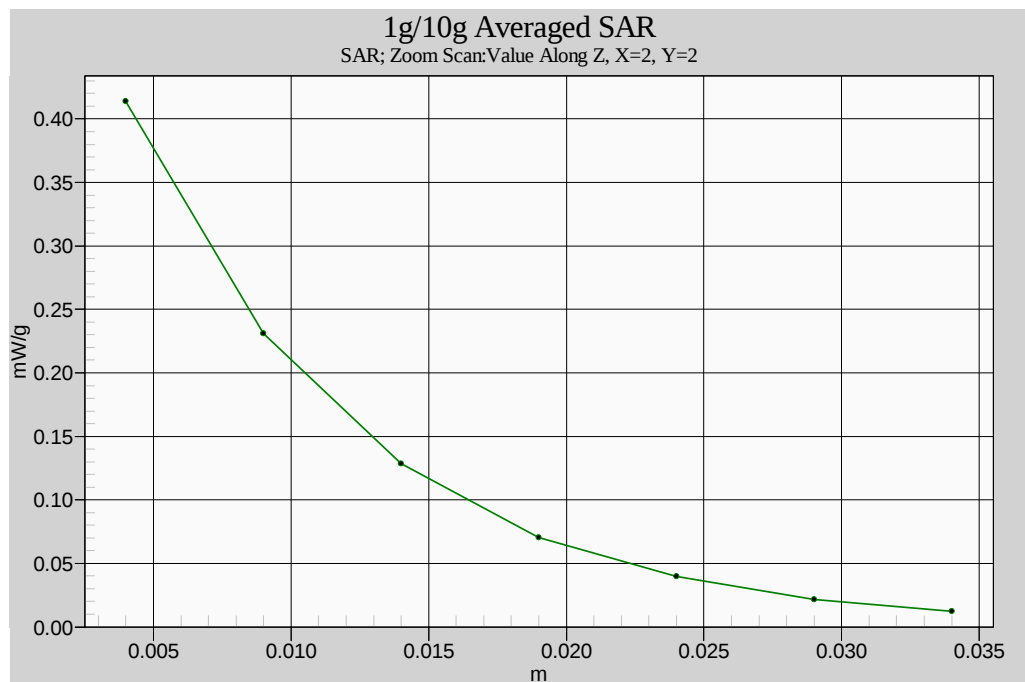


Figure 25. Z-axis Plot of flat 802.11b CH1_ Data Rate 1M



11.2.12 Wi-Fi 802.11g - Body SAR (0 mm separation)

Ambient :

Temperature (°C) : 22 ± 3 Relative HUMIDITY (%) : 40-70

Liquid :

Mixture Type : MSL2450 Liquid Temperature (°C) : 22.0
Depth of liquid (cm) : 15

Measurement :

Crest Factor : 1 Probe S/N : 3510

Frequency		Band	Power (dBm)	Phantom Position	Antenna Position	Accessory	SAR _{1g} [mW/g]	Power Drift (dB)	Remark
MHz	CH								
2412	1	802.11 g	15.60	Flat	Internal	N/A	0.286	-0.038	6M
2437	6	802.11 g	15.80	Flat	Internal	N/A	0.326	-0.031	6M
2437	6	802.11 g	10.80	Flat	Internal	N/A	0.352	-0.122	54M
2462	11	802.11 g	16.30	Flat	Internal	N/A	0.323	-0.059	6M
Std. C95.1-1999 - Safety Limit Spatial Peak Uncontrolled Exposure/General Population					1.6 W/kg (mW/g) Averaged over 1 gram				

Detail results see Appendix B.

Note: 6M → Data rate 6MHz ; 54M → Data rate 54MHz

Z-axis Plot of SAR Measurement

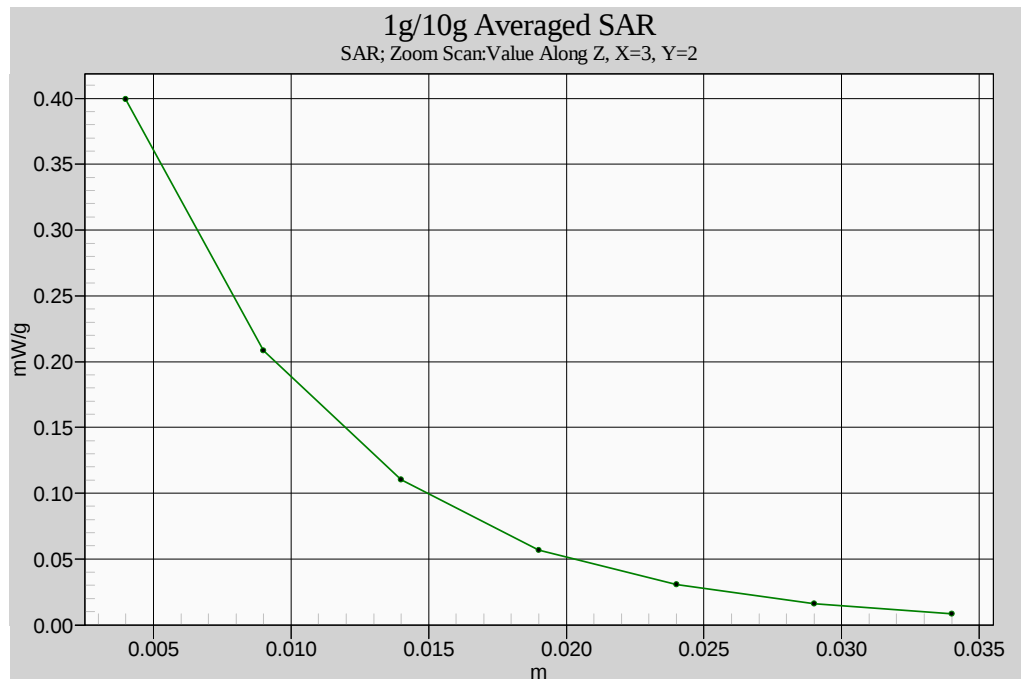


Figure 26. Z-axis Plot of flat 802.11b CH6_54M

11.3 Setup Photo

Head Setup

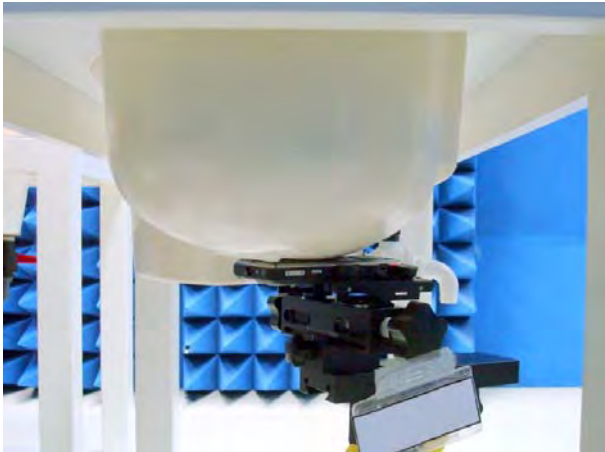


Figure 27. Right Head SAR Test Setup (Cheek)

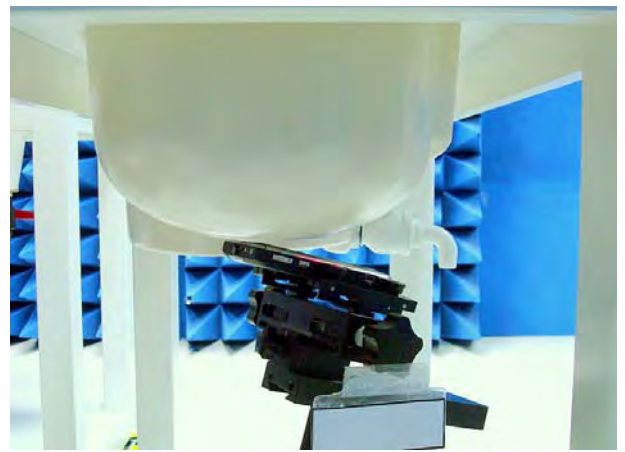


Figure 28. Right Head SAR Test Setup (Tilted)



Figure 29. Left Head SAR Test Setup (Cheek)



Figure 30. Left Head SAR Test Setup (Tilted)

Body Setup

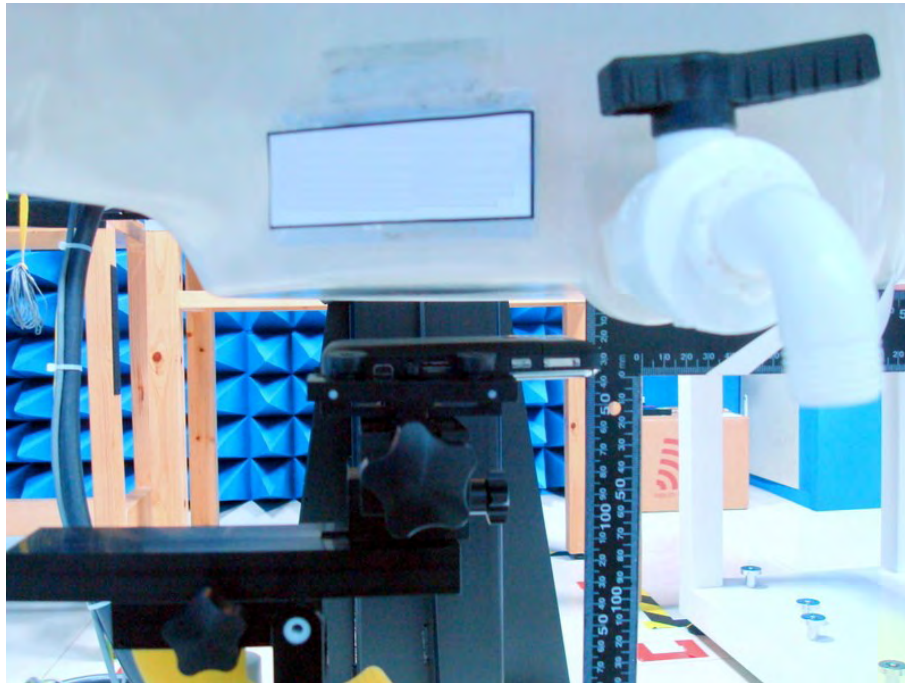


Figure 31. Body SAR Test Setup (Flat Section) _ 18 mm separation



Figure 32. Body SAR Test Setup (Flat Section) _ 0 mm separation



11.4 Std. C95.1-1999 RF Exposure Limit

Human Exposure	Population Uncontrolled Exposure (W/kg) or (mW/g)	Occupational Controlled Exposure (W/kg) or (mW/g)
Spatial Peak SAR* (head)	1.60	8.00
Spatial Peak SAR** (Whole Body)	0.08	0.40
Spatial Peak SAR*** (Partial-Body)	1.60	8.00
Spatial Peak SAR**** (Hands / Feet / Ankle / Wrist)	4.00	20.00

Table 6. Safety Limits for Partial Body Exposure

Notes :

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

Population / Uncontrolled Environments : are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure.

Occupational / Controlled Environments : are defined as locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, (i.e. as a result of employment or occupation).



12. Conclusion

The SAR test values found for the portable mobile phone **Hewlett-Packard Company Trade Name : Hewlett-Packard Model(s) : HSTNH-I18C** are below the maximum recommended level of 1.6 W/kg (mW/g).



13. References

- [1] Std. C95.1-1999, "American National Standard safety levels with respect to human exposure to radio frequency electromagnetic fields, 300KHz to 100GHz", New York.
- [2] NCRP, National Council on Radiation Protection and Measurements, "Biological Effects and Exposure Criteria for Radio frequency Electromagnetic Fields", NCRP report NO. 86, 1986.
- [3] T. Schmid, O. Egger, and N. Kuster, "Automatic E-field scanning system for dosimetric assessments", IEEE Transactions on Microwave Theory and Techniques, vol. 44, pp, 105-113, Jan. 1996.
- [4] K. Poković, T. Schmid, and N. Kuster, "Robust setup for precise calibration of E-field probes in tissue simulating liquids at mobile communications frequency", in ICECOM'97, Dubrovnik, October 15-17, 1997, pp.120-124.
- [5] K. Poković, T. Schmid, and N. Kuster, "E-field probe with improved isotropy in brain simulating liquids", in Proceedings of the ELMAR, Zadar, Croatia, 23-25 June, 1996, pp.172-175.
- [6] N. Kuster, and Q. Balzano, "Energy absorption mechanism by biological bodies in the near field of dipole antennas above 300MHz", IEEE Transaction on Vehicular Technology, vol. 41, no. 1, Feb. 1992, pp. 17-23.
- [7] Robert J. Renka, "Multivariate Interpolation Of Large Sets Of Scattered Data", University of North Texas ACM Transactions on Mathematical Software, vol. 14, no. 2, June 1988 , pp. 139-148.
- [8] N. Kuster, R. Kastle, T. Schmid, "Dosimetric evaluation of mobile communications equipment with known precision", IEEE Transaction on Communications, vol. E80-B, no. 5, May 1997, pp. 645-652.
- [9] Std. C95.3-1991, "IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields – RF and Microwave, New York: IEEE, Aug. 1992.
- [10] CENELEC CLC/SC111B, European Prestandard (prENV 50166-2), Human Exposure to Electromagnetic Fields High-frequency: 10KHz-300GHz, Jan. 1995.



Appendix A - System Performance Check

See following Attached Pages for System Performance Check.



Test Laboratory: A Test Lab Techno Corp.

Date/Time: 2/23/2008 9:23:38 PM Date/Time: 2/23/2008 9:36:23 PM

System Performance Check at 900 Head_20080223_Head

DUT: Dipole 900 MHz; Type: D900V2; Serial: D900V2 - SN:1d053

Communication System: CW; Frequency: 900 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 900 \text{ MHz}$; $\sigma = 0.97 \text{ mho/m}$; $\epsilon_r = 41.4$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Probe: ES3DV3 - SN3150; ConvF(6.23, 6.23, 6.23); Calibrated: 1/9/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 11/30/2007
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1150 and higher
- Measurement SW: DASY5, V5.0 Build 91; SEMCAD X Version 12.4 Build 52

System Performance Check at 900MHz/Area Scan (81x121x1):

Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 2.9 mW/g

System Performance Check at 900MHz/Zoom Scan (7x7x7)/Cube 0:

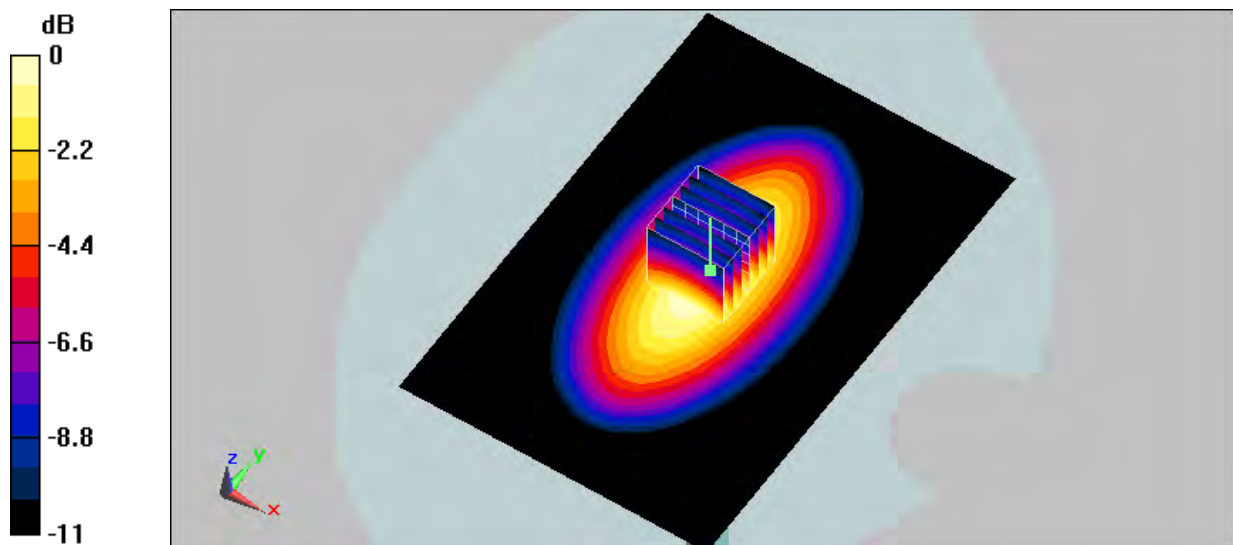
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 55.7 V/m ; Power Drift = 0.010 dB

Peak SAR (extrapolated) = 3.97 W/kg

SAR(1 g) = 2.69 mW/g ; SAR(10 g) = 1.75 mW/g

Maximum value of SAR (measured) = 2.91 mW/g



0 dB = 2.91 mW/g



Test Laboratory: A Test Lab Techno Corp.

Date/Time: 2/24/2008 1:19:26 PM Date/Time: 2/24/2008 1:27:43 PM

System Performance Check at 900MHz_20080224_Body

DUT: Dipole 900 MHz; Type: D900V2; Serial: D900V2 - SN:1dD053

Communication System: CW; Frequency: 900 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 900 \text{ MHz}$; $\sigma = 1.05 \text{ mho/m}$; $\epsilon_r = 54$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Probe: ES3DV3 - SN3150; ConvF(6, 6, 6); Calibrated: 1/9/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 11/30/2007
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1150 and higher
- Measurement SW: DASY5, V5.0 Build 91; SEMCAD X Version 12.4 Build 52

System Performance Check at 900MHz/Area Scan (61x121x1):

Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 3.19 mW/g

System Performance Check at 900MHz/Zoom Scan (7x7x7)/Cube 0:

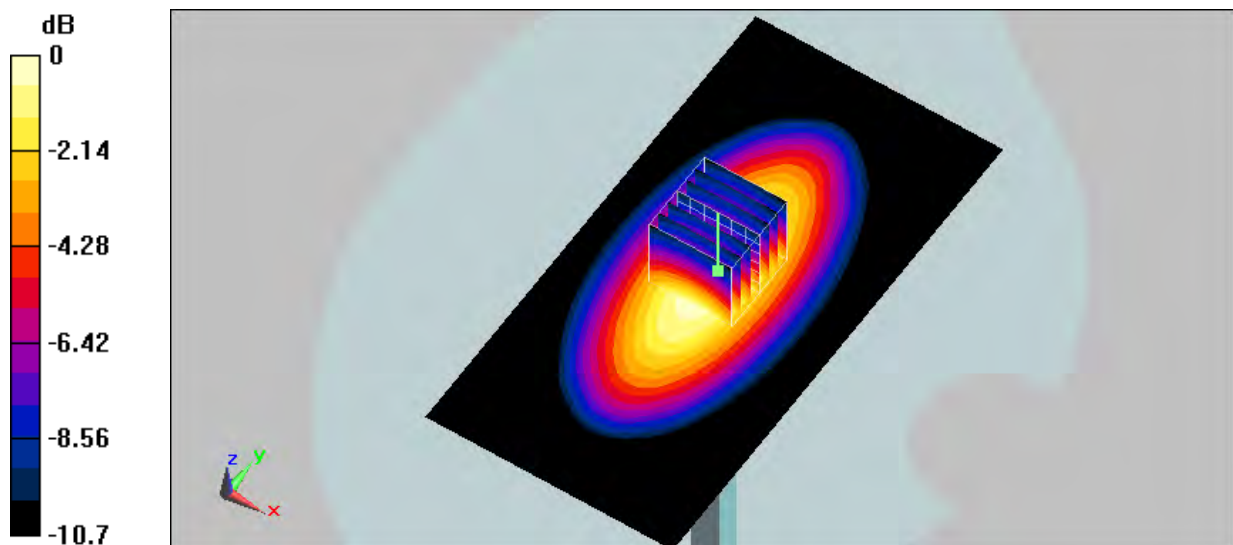
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 55.7 V/m ; Power Drift = 0.056 dB

Peak SAR (extrapolated) = 4.38 W/kg

SAR(1 g) = 2.96 mW/g ; SAR(10 g) = 1.93 mW/g

Maximum value of SAR (measured) = 3.21 mW/g



0 dB = 3.21 mW/g



Test Laboratory: A Test Lab Techno Corp.

Date/Time: 3/5/2008 7:23:40 PM Date/Time: 3/5/2008 7:30:48 PM

System Performance Check at 900MHz_20080305_Body

DUT: Dipole 900 MHz; Type: D900V2; Serial: D900V2 - SN:1d053

Communication System: CW; Frequency: 900 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 900 \text{ MHz}$; $\sigma = 1.03 \text{ mho/m}$; $\epsilon_r = 54.3$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Probe: ES3DV3 - SN3150; ConvF(6, 6, 6); Calibrated: 1/9/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 11/30/2007
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1150 and higher
- Measurement SW: DASY5, V5.0 Build 91; SEMCAD X Version 12.4 Build 52

System Performance Check at 900MHz/Area Scan (51x121x1):

Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 3.16 mW/g

System Performance Check at 900MHz/Zoom Scan (7x7x7)/Cube 0:

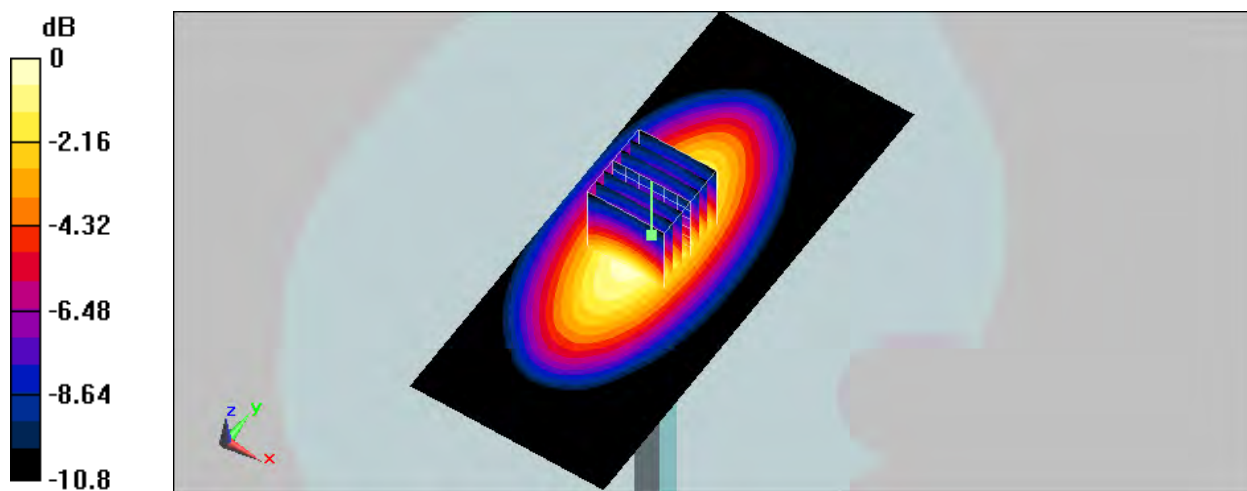
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 55.5 V/m ; Power Drift = -0.029 dB

Peak SAR (extrapolated) = 4.28 W/kg

SAR(1 g) = 2.89 mW/g ; SAR(10 g) = 1.87 mW/g

Maximum value of SAR (measured) = 3.14 mW/g



0 dB = 3.14 mW/g



Test Laboratory: A Test Lab Techno Corp.

Date/Time: 2/25/2008 7:35:15 AM Date/Time: 2/25/2008 7:40:58 AM

System Performance Check at 1950MHz_20080225_Head

DUT: Dipole 1950 MHz; Type: D1950V3; Serial: D1950V3 - SN:1117

Communication System: CW; Frequency: 1950 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1950 \text{ MHz}$; $\sigma = 1.43 \text{ mho/m}$; $\epsilon_r = 40.4$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Probe: ES3DV3 - SN3150; ConvF(4.84, 4.84, 4.84); Calibrated: 1/9/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 11/30/2007
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1150 and higher
- Measurement SW: DASY5, V5.0 Build 91; SEMCAD X Version 12.4 Build 52

system Performance Check at 1950MHz/Area Scan (61x81x1):

Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 11.6 mW/g

system Performance Check at 1950MHz/Zoom Scan (7x7x7)/Cube 0:

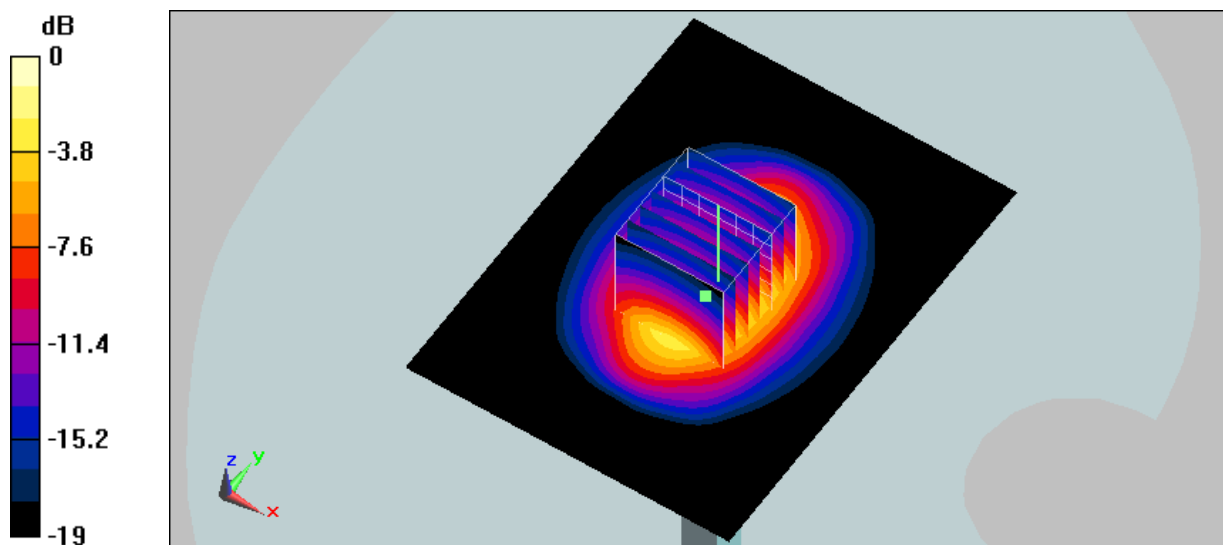
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 90.9 V/m ; Power Drift = -0.027 dB

Peak SAR (extrapolated) = 18.9 W/kg

SAR(1 g) = 10.1 mW/g ; SAR(10 g) = 5.13 mW/g

Maximum value of SAR (measured) = 11.5 mW/g



0 dB = 11.5 mW/g



Test Laboratory: A Test Lab Techno Corp.

Date/Time: 2/25/2008 2:25:43 PM Date/Time: 2/25/2008 2:30:49 PM

System Performance Check at 1950MHz_20080225_Head

DUT: Dipole 1950 MHz; Type: D1950V3; Serial: D1950V3 - SN:1117

Communication System: CW; Frequency: 1950 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1950 \text{ MHz}$; $\sigma = 1.38 \text{ mho/m}$; $\epsilon_r = 40.5$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Probe: ES3DV3 - SN3150; ConvF(4.84, 4.84, 4.84); Calibrated: 1/9/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 11/30/2007
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1150 and higher
- Measurement SW: DASY5, V5.0 Build 91; SEMCAD X Version 12.4 Build 52

System Performance Check at 1950MHz/Area Scan (61x71x1):

Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 12.1 mW/g

System Performance Check at 1950MHz/Zoom Scan (7x7x7)/Cube 0:

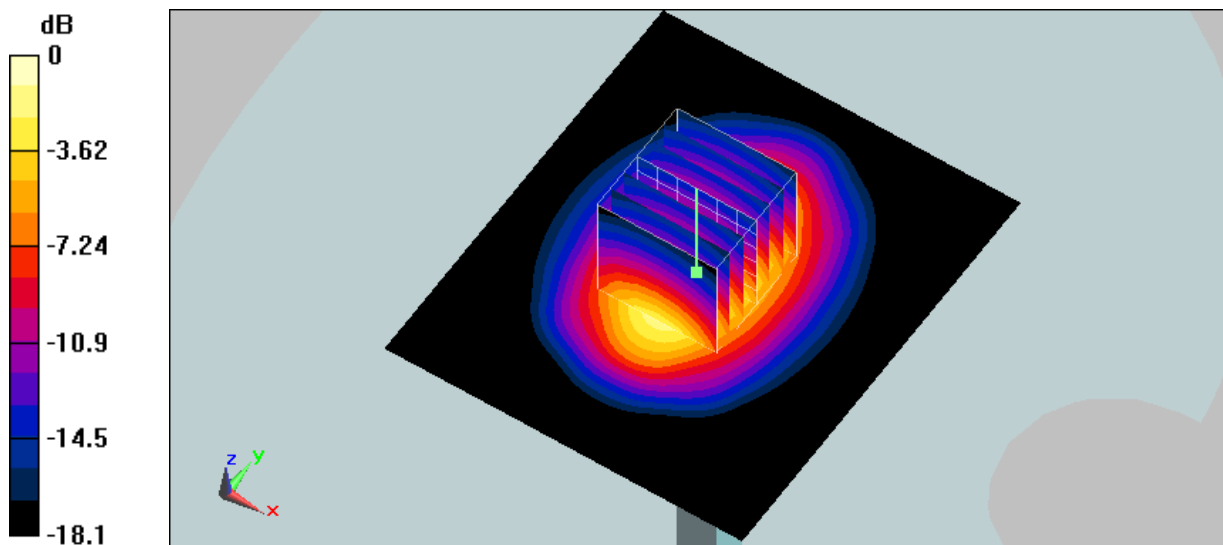
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 91.5 V/m ; Power Drift = 0.011 dB

Peak SAR (extrapolated) = 18.2 W/kg

SAR(1 g) = 9.85 mW/g ; SAR(10 g) = 5.06 mW/g

Maximum value of SAR (measured) = 11.1 mW/g



0 dB = 11.1 mW/g



Test Laboratory: A Test Lab Techno Corp.

Date/Time: 2/25/2008 12:15:54 AM Date/Time: 2/25/2008 12:21:37 AM

System Performance Check at 1950MHz_20080224_Body

DUT: Dipole 1950 MHz; Type: D1950V3; Serial: D1950V3 - SN:1117

Communication System: CW; Frequency: 1950 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1950 \text{ MHz}$; $\sigma = 1.55 \text{ mho/m}$; $\epsilon_r = 52.6$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Probe: ES3DV3 - SN3150; ConvF(4.55, 4.55, 4.55); Calibrated: 1/9/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 11/30/2007
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1150 and higher
- Measurement SW: DASY5, V5.0 Build 91; SEMCAD X Version 12.4 Build 52

system Performance Check at 1950MHz/Area Scan (61x81x1):

Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 12.4 mW/g

system Performance Check at 1950MHz/Zoom Scan (7x7x7)/Cube 0:

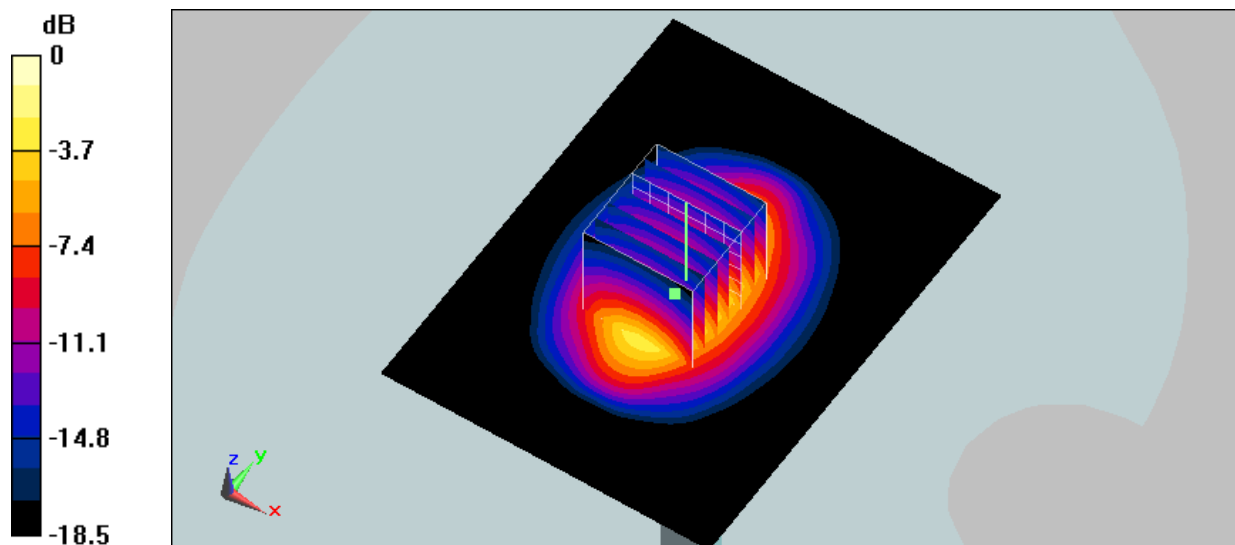
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 89.6 V/m ; Power Drift = 0.029 dB

Peak SAR (extrapolated) = 20.2 W/kg

SAR(1 g) = 10.7 mW/g ; SAR(10 g) = 5.4 mW/g

Maximum value of SAR (measured) = 12.1 mW/g



0 dB = 12.1 mW/g



Test Laboratory: A Test Lab Techno Corp.

Date/Time: 2/26/2008 6:02:44 PM Date/Time: 2/26/2008 6:07:37 PM

System Performance Check at 1950MHz_20080226_Body

DUT: Dipole 1950 MHz; Type: D1950V3; Serial: D1950V3 - SN:1117

Communication System: CW; Frequency: 1950 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1950 \text{ MHz}$; $\sigma = 1.55 \text{ mho/m}$; $\epsilon_r = 52.6$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Probe: ES3DV3 - SN3150; ConvF(4.55, 4.55, 4.55); Calibrated: 1/9/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 11/30/2007
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1150 and higher
- Measurement SW: DASY5, V5.0 Build 91; SEMCAD X Version 12.4 Build 52

System Performance Check at 1900MHz/Area Scan (51x81x1):

Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 12.4 mW/g

System Performance Check at 1900MHz/Zoom Scan (7x7x7)/Cube 0:

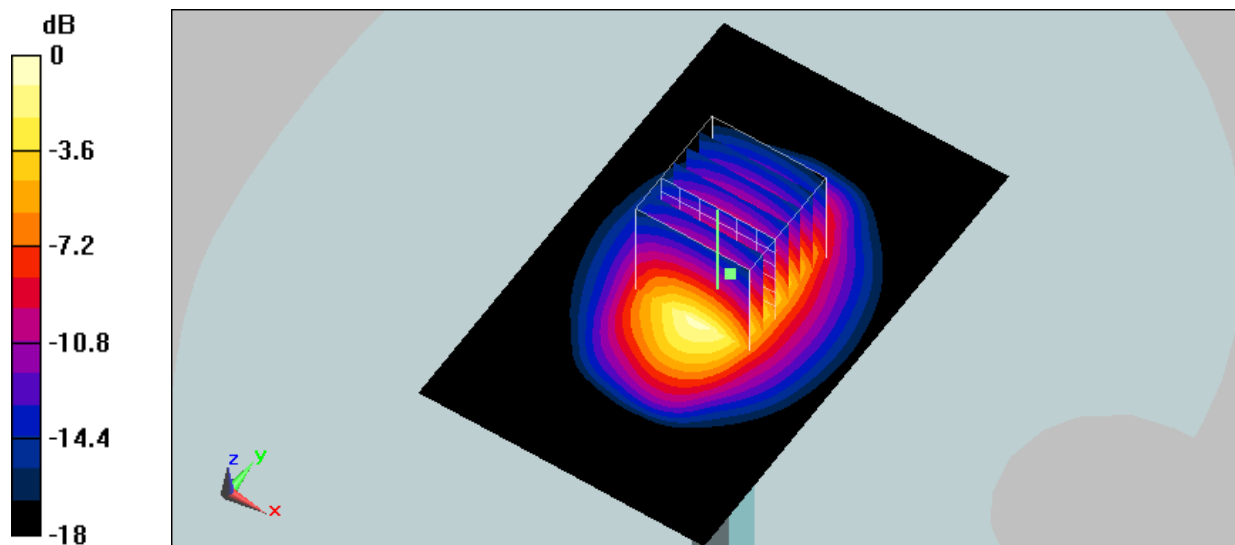
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 87.9 V/m ; Power Drift = -0.012 dB

Peak SAR (extrapolated) = 18.9 W/kg

SAR(1 g) = 10.2 mW/g ; SAR(10 g) = 5.24 mW/g

Maximum value of SAR (measured) = 11.5 mW/g



0 dB = 11.5 mW/g



Test Laboratory: A Test Lab Techno Corp.

Date/Time: 3/5/2008 10:13:35 PM Date/Time: 3/5/2008 10:18:27 PM

System Performance Check at 1950MHz_20080305_Body

DUT: Dipole 1950 MHz; Type: D1950V3; Serial: D1950V3 - SN:1117

Communication System: CW; Frequency: 1950 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1950 \text{ MHz}$; $\sigma = 1.55 \text{ mho/m}$; $\epsilon_r = 52.6$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Probe: ES3DV3 - SN3150; ConvF(4.55, 4.55, 4.55); Calibrated: 1/9/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 11/30/2007
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1150 and higher
- Measurement SW: DASY5, V5.0 Build 91; SEMCAD X Version 12.4 Build 52

System Performance Check at 1950MHz/Area Scan (51x81x1):

Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 12 mW/g

System Performance Check at 1950MHz/Zoom Scan (7x7x7)/Cube 0:

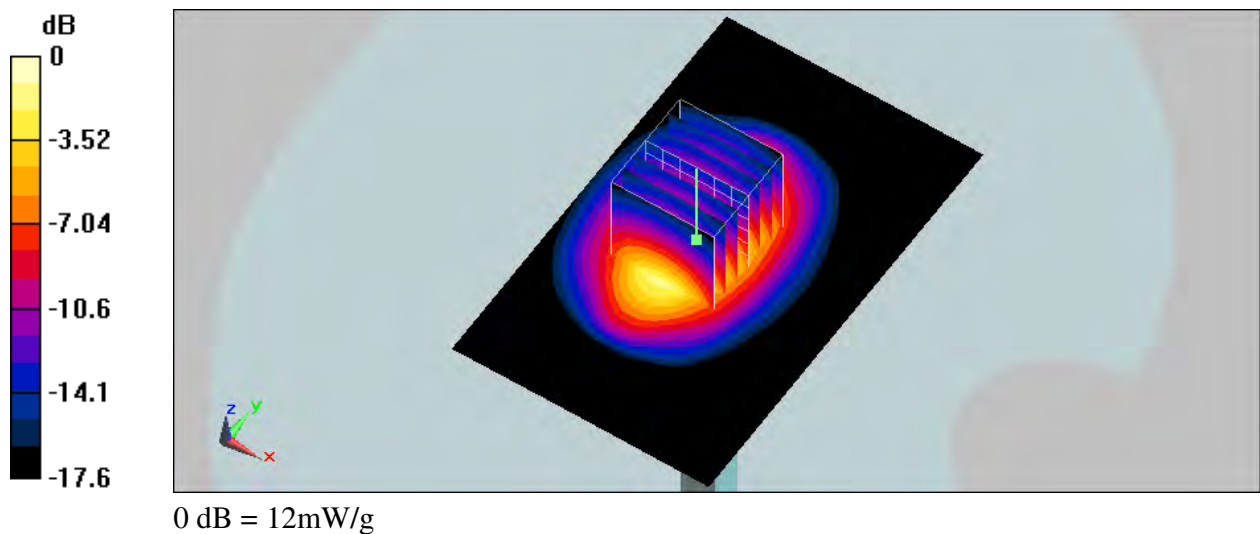
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 85 V/m; Power Drift = 0.050 dB

Peak SAR (extrapolated) = 19.8 W/kg

SAR(1 g) = 10.6 mW/g; SAR(10 g) = 5.39 mW/g

Maximum value of SAR (measured) = 12 mW/g





Test Laboratory: A Test Lab Techno Corp.

Date/Time: 2/25/2008 9:29:47 PM Date/Time: 2/25/2008 9:34:13 PM

System Performance Check at 2450MHz_200800225_Body

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:712

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

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.96$ mho/m; $\epsilon_r = 52.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Probe: ES3DV3 - SN3150; ConvF(4.19, 4.19, 4.19); Calibrated: 1/9/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 11/30/2007
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1150 and higher
- Measurement SW: DASY5, V5.0 Build 91; SEMCAD X Version 12.4 Build 52

System Performance Check at 2450MHz/Area Scan (61x61x1):

Measurement grid: $dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 15.8 mW/g

System Performance Check at 2450MHz/Zoom Scan (7x7x7)/Cube 0:

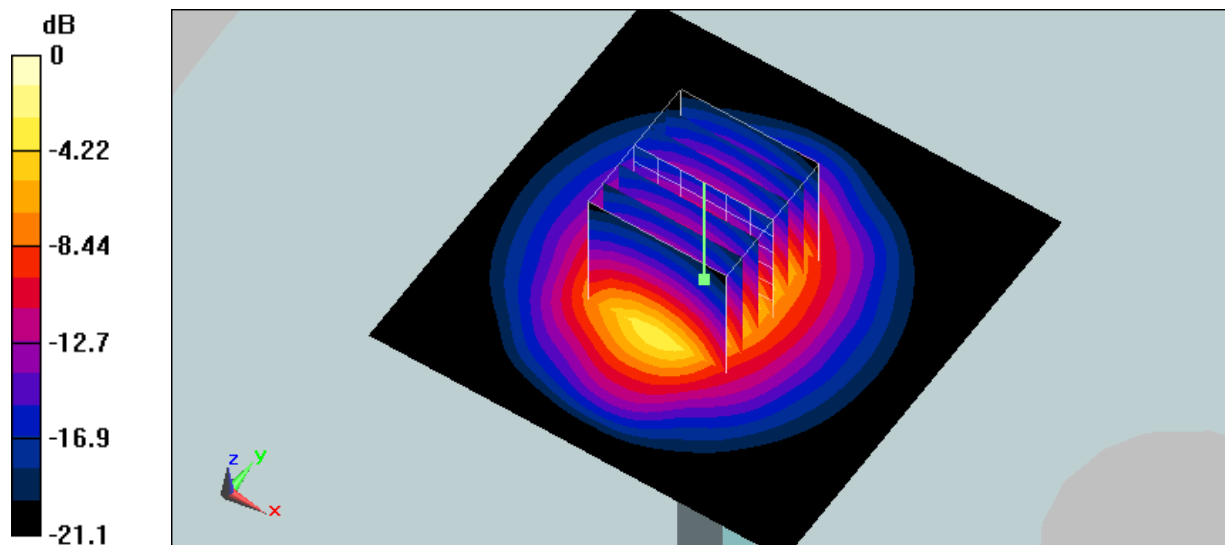
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 90.2 V/m; Power Drift = 0.041 dB

Peak SAR (extrapolated) = 27.5 W/kg

SAR(1 g) = 13.7 mW/g; SAR(10 g) = 6.41 mW/g

Maximum value of SAR (measured) = 15.8 mW/g



0 dB = 15.8mW/g



Appendix B - SAR Measurement Data

See following Attached Pages for SAR Measurement Data.



Test Laboratory: A Test Lab Techno Corp.

Date/Time: 2/23/2008 10:09:06 PM Date/Time: 2/23/2008 10:18:17 PM

RC_GSM850 CH128

DUT: HSTNH-I18C; Type: PDA Phone; Serial: 3567190120044508

Communication System: GSM850; Frequency: 824.2 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated): $f = 824.2$ MHz; $\sigma = 0.896$ mho/m; $\epsilon_r = 42.1$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASYS (IEEE/IEC)

DASY5 Configuration:

- Probe: ES3DV3 - SN3150; ConvF(6.23, 6.23, 6.23); Calibrated: 1/9/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 11/30/2007
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1150 and higher
- Measurement SW: DASY5, V5.0 Build 91; SEMCAD X Version 12.4 Build 52

Right Cheek/Area Scan (81x101x1):

Measurement grid: $dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.512 mW/g

Right Cheek/Zoom Scan (5x5x7)/Cube 0:

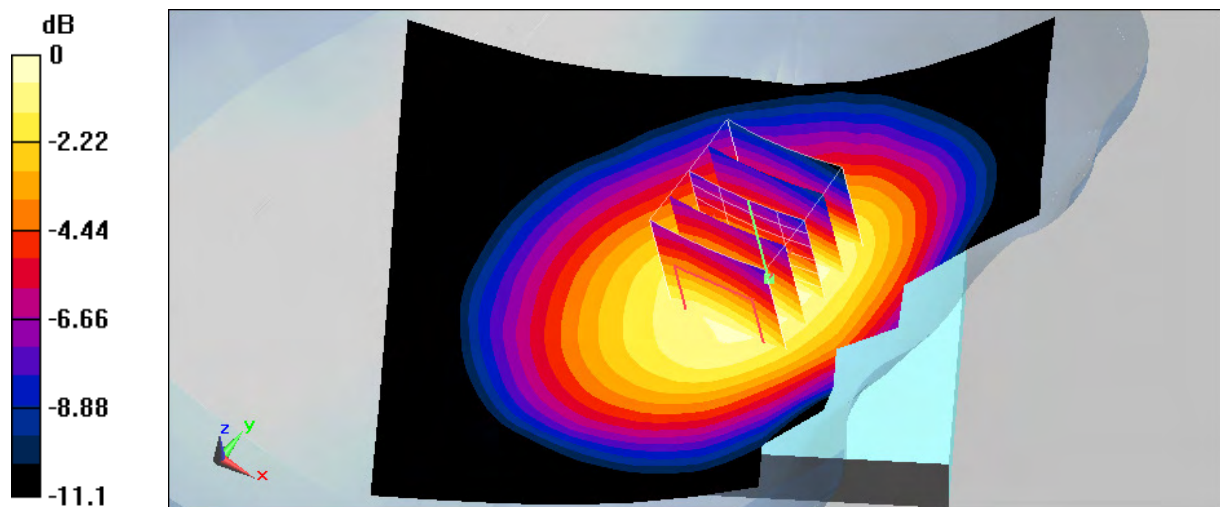
Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 8.94 V/m; Power Drift = -0.038 dB

Peak SAR (extrapolated) = 0.641 W/kg

SAR(1 g) = 0.480 mW/g; SAR(10 g) = 0.351 mW/g

Maximum value of SAR (measured) = 0.510 mW/g



0 dB = 0.510mW/g



Test Laboratory: A Test Lab Techno Corp.

Date/Time: 2/23/2008 10:26:04 PM Date/Time: 2/23/2008 10:33:10 PM

RC_GSM850 CH190

DUT: HSTNH-I18C; Type: PDA Phone; Serial: 3567190120044508

Communication System: GSM850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium parameters used: $f = 836.6$ MHz; $\sigma = 0.909$ mho/m; $\epsilon_r = 42$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Probe: ES3DV3 - SN3150; ConvF(6.23, 6.23, 6.23); Calibrated: 1/9/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 11/30/2007
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1150 and higher
- Measurement SW: DASY5, V5.0 Build 91; SEMCAD X Version 12.4 Build 52

Right Cheek/Area Scan (71x91x1):

Measurement grid: $dx=15$ mm, $dy=15$ mm

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

Right Cheek/Zoom Scan (5x5x7)/Cube 0:

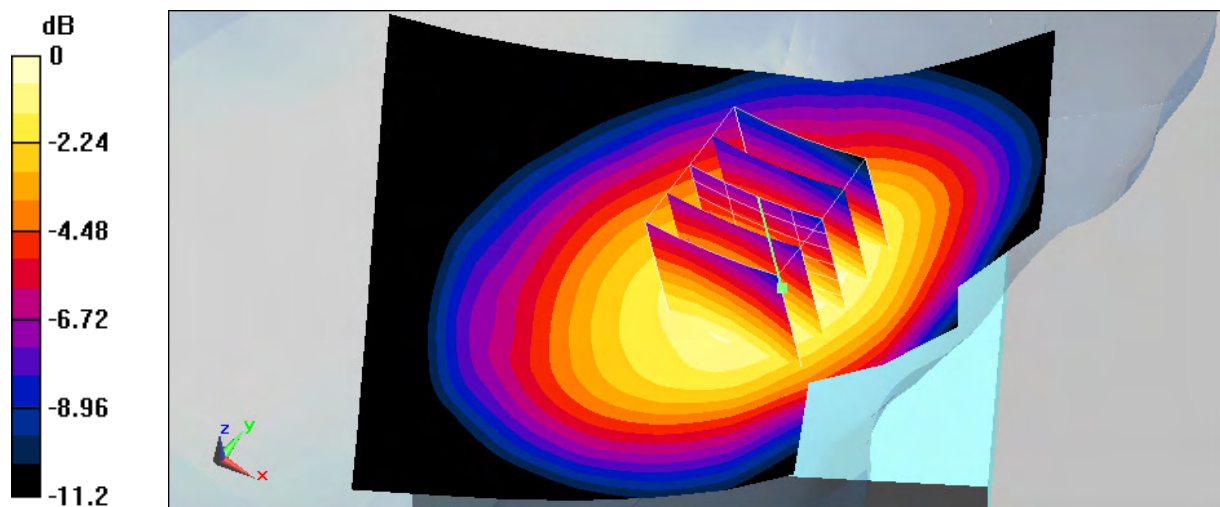
Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 9.53 V/m; Power Drift = -0.039 dB

Peak SAR (extrapolated) = 0.791 W/kg

SAR(1 g) = 0.590 mW/g; SAR(10 g) = 0.428 mW/g

Maximum value of SAR (measured) = 0.628 mW/g



0 dB = 0.628mW/g



Test Laboratory: A Test Lab Techno Corp.

Date/Time: 2/23/2008 10:40:07 PM Date/Time: 2/23/2008 10:47:14 PM

RC_GSM850 CH251

DUT: HSTNH-I18C; Type: PDA Phone; Serial: 3567190120044508

Communication System: GSM850; Frequency: 848.8 MHz; Duty Cycle: 1:8.3

Medium parameters used: $f = 848.8$ MHz; $\sigma = 0.92$ mho/m; $\epsilon_r = 41.9$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASYS (IEEE/IEC)

DASY5 Configuration:

- Probe: ES3DV3 - SN3150; ConvF(6.23, 6.23, 6.23); Calibrated: 1/9/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 11/30/2007
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1150 and higher
- Measurement SW: DASYS, V5.0 Build 91; SEMCAD X Version 12.4 Build 52

Right Cheek/Area Scan (71x91x1):

Measurement grid: $dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.546 mW/g

Right Cheek/Zoom Scan (5x5x7)/Cube 0:

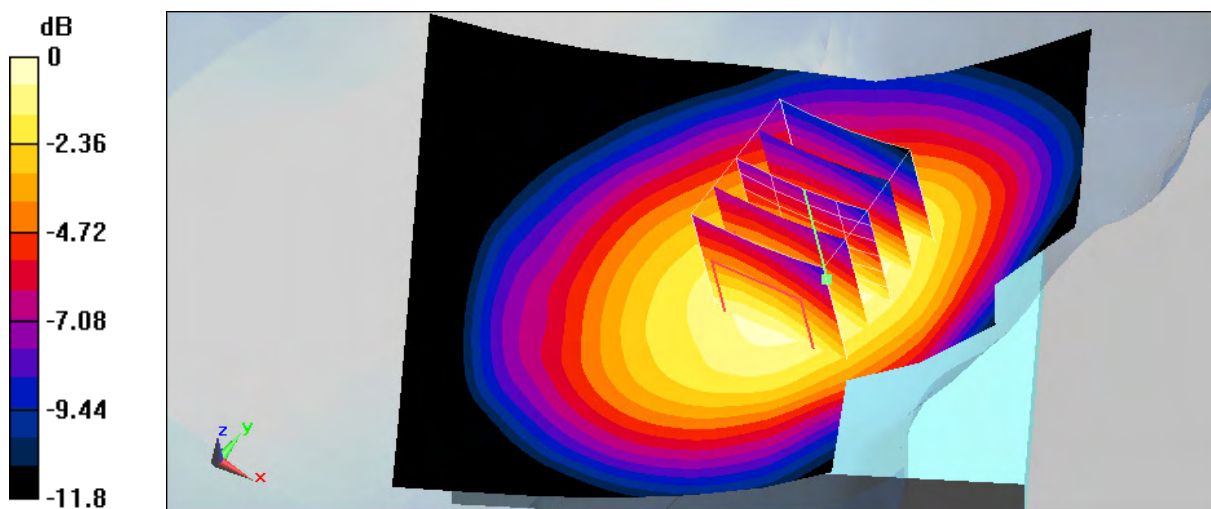
Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 8.68 V/m; Power Drift = 0.141 dB

Peak SAR (extrapolated) = 0.694 W/kg

SAR(1 g) = 0.523 mW/g; SAR(10 g) = 0.380 mW/g

Maximum value of SAR (measured) = 0.553 mW/g



0 dB = 0.553mW/g



Test Laboratory: A Test Lab Techno Corp.

Date/Time: 2/23/2008 11:18:09 PM Date/Time: 2/23/2008 11:25:14 PM

RT_GSM850 CH128

DUT: HSTNH-I18C; Type: PDA Phone; Serial: 3567190120044508

Communication System: GSM850; Frequency: 824.2 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated): $f = 824.2$ MHz; $\sigma = 0.896$ mho/m; $\epsilon_r = 42.1$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASYS (IEEE/IEC)

DASY5 Configuration:

- Probe: ES3DV3 - SN3150; ConvF(6.23, 6.23, 6.23); Calibrated: 1/9/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 11/30/2007
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1150 and higher
- Measurement SW: DASYS, V5.0 Build 91; SEMCAD X Version 12.4 Build 52

Right Tilted/Area Scan (71x91x1):

Measurement grid: $dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.338 mW/g

Right Tilted/Zoom Scan (5x5x7)/Cube 0:

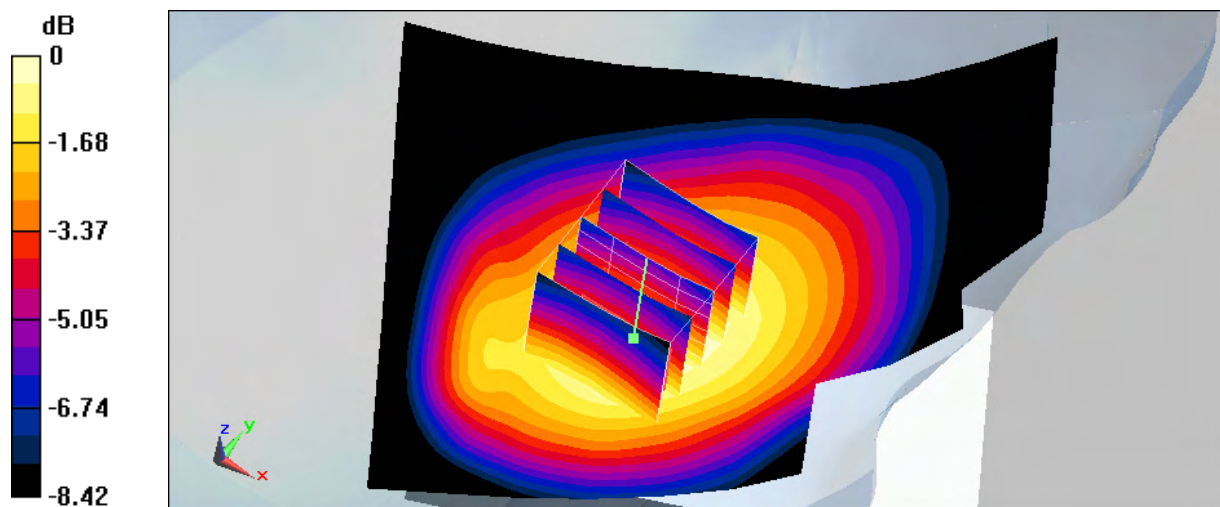
Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 13.2 V/m; Power Drift = -0.046 dB

Peak SAR (extrapolated) = 0.386 W/kg

SAR(1 g) = 0.320 mW/g; SAR(10 g) = 0.244 mW/g

Maximum value of SAR (measured) = 0.337 mW/g



0 dB = 0.337mW/g



Test Laboratory: A Test Lab Techno Corp.

Date/Time: 2/23/2008 11:32:14 PM Date/Time: 2/23/2008 11:39:19 PM

RT_GSM850 CH190

DUT: HSTNH-I18C; Type: PDA Phone; Serial: 3567190120044508

Communication System: GSM850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium parameters used: $f = 836.6$ MHz; $\sigma = 0.909$ mho/m; $\epsilon_r = 42$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASYS (IEEE/IEC)

DASY5 Configuration:

- Probe: ES3DV3 - SN3150; ConvF(6.23, 6.23, 6.23); Calibrated: 1/9/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 11/30/2007
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1150 and higher
- Measurement SW: DASYS, V5.0 Build 91; SEMCAD X Version 12.4 Build 52

Right Tilted/Area Scan (71x91x1):

Measurement grid: $dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.395 mW/g

Right Tilted/Zoom Scan (5x5x7)/Cube 0:

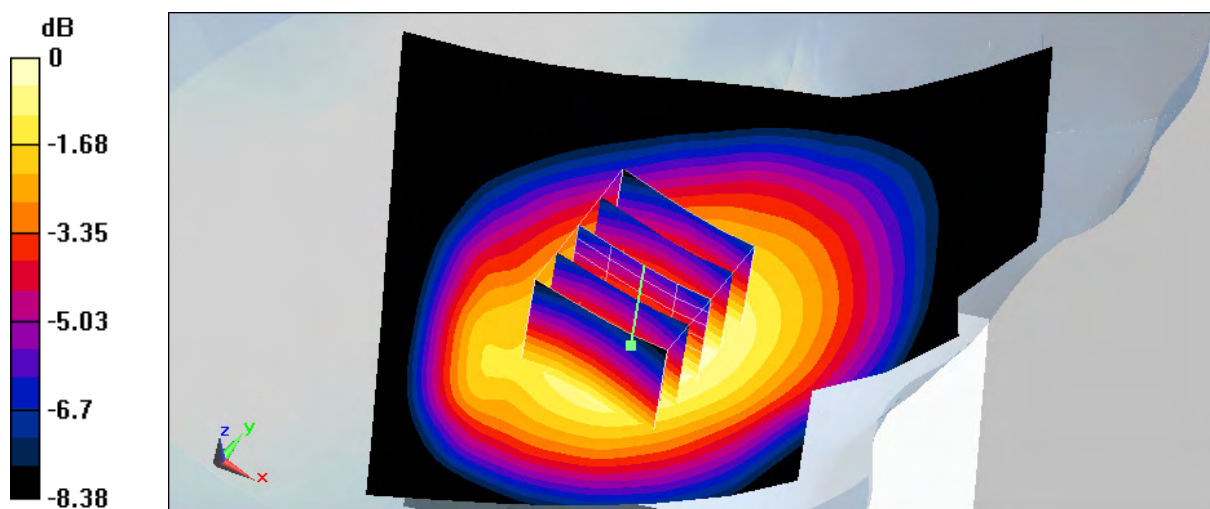
Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 14 V/m; Power Drift = 0.032 dB

Peak SAR (extrapolated) = 0.445 W/kg

SAR(1 g) = 0.375 mW/g; SAR(10 g) = 0.286 mW/g

Maximum value of SAR (measured) = 0.394 mW/g



0 dB = 0.394mW/g



Test Laboratory: A Test Lab Techno Corp.

Date/Time: 2/23/2008 11:45:57 PM Date/Time: 2/23/2008 11:54:43 PM

RT_GSM850 CH251

DUT: HSTNH-I18C; Type: PDA Phone; Serial: 3567190120044508

Communication System: GSM850; Frequency: 848.8 MHz; Duty Cycle: 1:8.3

Medium parameters used: $f = 848.8$ MHz; $\sigma = 0.92$ mho/m; $\epsilon_r = 41.9$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Probe: ES3DV3 - SN3150; ConvF(6.23, 6.23, 6.23); Calibrated: 1/9/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 11/30/2007
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1150 and higher
- Measurement SW: DASY5, V5.0 Build 91; SEMCAD X Version 12.4 Build 52

Right Tilted/Area Scan (71x91x1):

Measurement grid: $dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.347 mW/g

Right Tilted/Zoom Scan (5x5x7)/Cube 0:

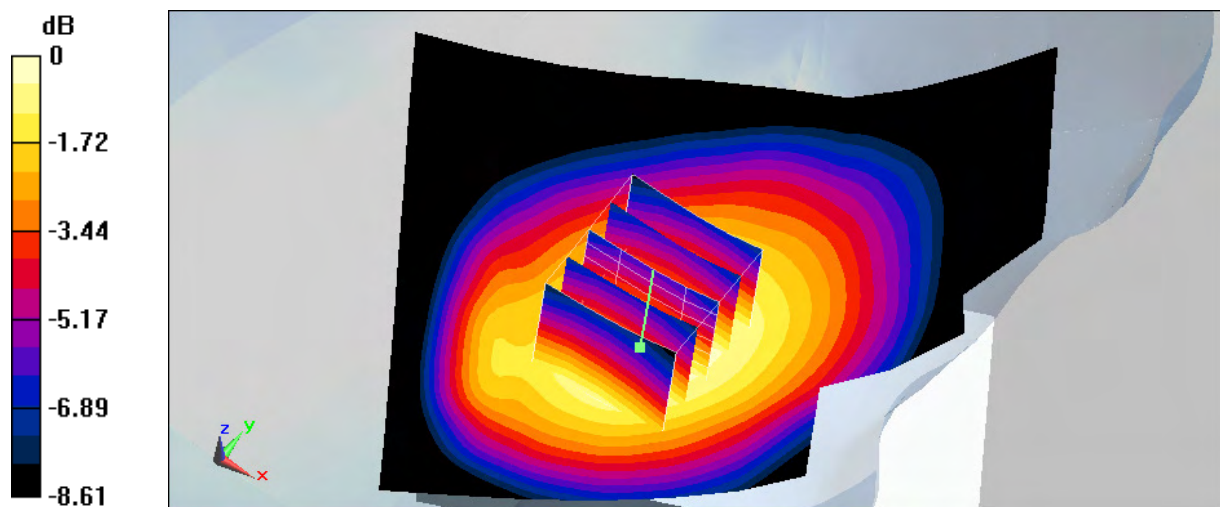
Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 13 V/m; Power Drift = 0.193 dB

Peak SAR (extrapolated) = 0.399 W/kg

SAR(1 g) = 0.331 mW/g; SAR(10 g) = 0.252 mW/g

Maximum value of SAR (measured) = 0.348 mW/g



0 dB = 0.348mW/g



Test Laboratory: A Test Lab Techno Corp.

Date/Time: 2/24/2008 12:07:43 AM Date/Time: 2/24/2008 12:14:43 AM

LC_GSM850 CH128

DUT: HSTNH-I18C; Type: PDA Phone; Serial: 3567190120044508

Communication System: GSM850; Frequency: 824.2 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated): $f = 824.2$ MHz; $\sigma = 0.896$ mho/m; $\epsilon_r = 42.1$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASYS (IEEE/IEC)

DASY5 Configuration:

- Probe: ES3DV3 - SN3150; ConvF(6.23, 6.23, 6.23); Calibrated: 1/9/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 11/30/2007
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1150 and higher
- Measurement SW: DASYS, V5.0 Build 91; SEMCAD X Version 12.4 Build 52

Left Cheek/Area Scan (71x91x1):

Measurement grid: $dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.490 mW/g

Left Cheek/Zoom Scan (5x5x7)/Cube 0:

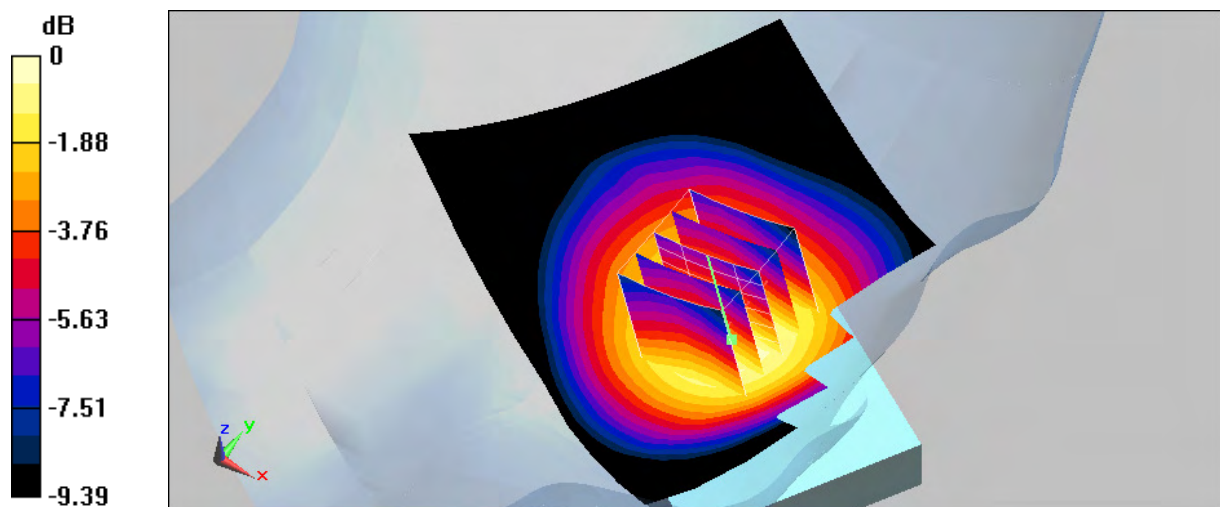
Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 8.31 V/m; Power Drift = 0.070 dB

Peak SAR (extrapolated) = 0.565 W/kg

SAR(1 g) = 0.464 mW/g; SAR(10 g) = 0.351 mW/g

Maximum value of SAR (measured) = 0.495 mW/g



0 dB = 0.495mW/g



Test Laboratory: A Test Lab Techno Corp.

Date/Time: 2/24/2008 12:22:03 AM Date/Time: 2/24/2008 12:32:02 AM

LC_GSM850 CH190

DUT: HSTNH-I18C; Type: PDA Phone; Serial: 3567190120044508

Communication System: GSM850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium parameters used: $f = 836.6$ MHz; $\sigma = 0.909$ mho/m; $\epsilon_r = 42$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASYS (IEEE/IEC)

DASY5 Configuration:

- Probe: ES3DV3 - SN3150; ConvF(6.23, 6.23, 6.23); Calibrated: 1/9/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 11/30/2007
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1150 and higher
- Measurement SW: DASYS, V5.0 Build 91; SEMCAD X Version 12.4 Build 52

Left Cheek/Area Scan (71x91x1):

Measurement grid: $dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.590 mW/g

Left Cheek/Zoom Scan (5x5x7)/Cube 0:

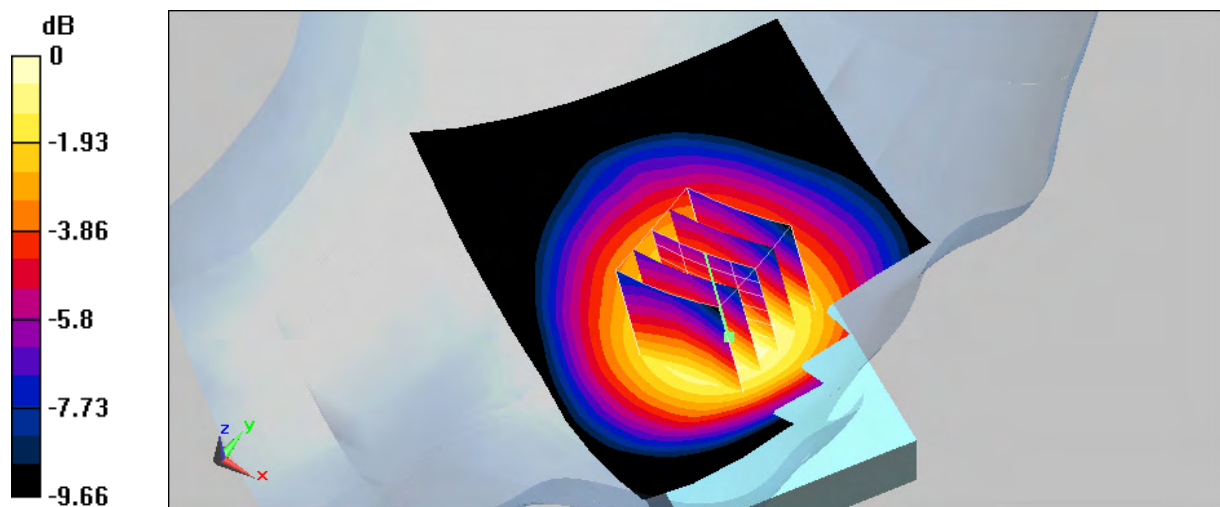
Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 8.87 V/m; Power Drift = -0.047 dB

Peak SAR (extrapolated) = 0.680 W/kg

SAR(1 g) = 0.563 mW/g; SAR(10 g) = 0.428 mW/g

Maximum value of SAR (measured) = 0.590 mW/g



0 dB = 0.590mW/g



Test Laboratory: A Test Lab Techno Corp.

Date/Time: 2/24/2008 12:39:45 AM Date/Time: 2/24/2008 12:46:45 AM

LC_GSM850 CH251

DUT: HSTNH-I18C; Type: PDA Phone; Serial: 3567190120044508

Communication System: GSM850; Frequency: 848.8 MHz; Duty Cycle: 1:8.3

Medium parameters used: $f = 848.8$ MHz; $\sigma = 0.92$ mho/m; $\epsilon_r = 41.9$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASYS (IEEE/IEC)

DASY5 Configuration:

- Probe: ES3DV3 - SN3150; ConvF(6.23, 6.23, 6.23); Calibrated: 1/9/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 11/30/2007
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1150 and higher
- Measurement SW: DASYS, V5.0 Build 91; SEMCAD X Version 12.4 Build 52

Left Cheek/Area Scan (71x91x1):

Measurement grid: $dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.519 mW/g

Left Cheek/Zoom Scan (5x5x7)/Cube 0:

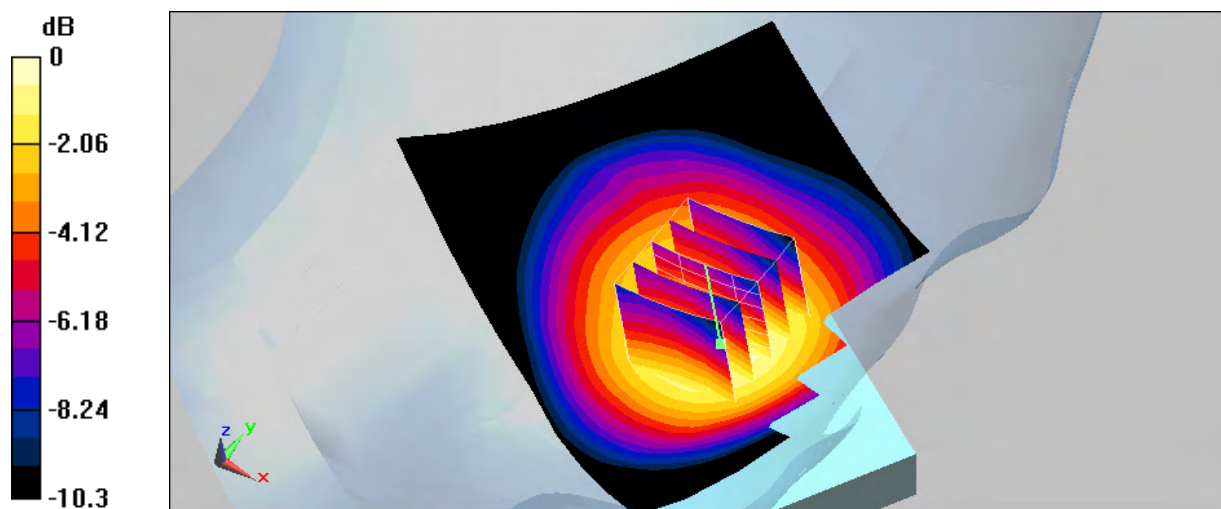
Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 8.87 V/m; Power Drift = -0.091 dB

Peak SAR (extrapolated) = 0.611 W/kg

SAR(1 g) = 0.499 mW/g; SAR(10 g) = 0.374 mW/g

Maximum value of SAR (measured) = 0.533 mW/g



0 dB = 0.533mW/g



Test Laboratory: A Test Lab Techno Corp.

Date/Time: 2/24/2008 1:01:52 AM Date/Time: 2/24/2008 1:12:39 AM

LT_GSM850 CH128

DUT: HSTNH-I18C; Type: PDA Phone; Serial: 3567190120044508

Communication System: GSM850; Frequency: 824.2 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated): $f = 824.2$ MHz; $\sigma = 0.896$ mho/m; $\epsilon_r = 42.1$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASYS (IEEE/IEC)

DASY5 Configuration:

- Probe: ES3DV3 - SN3150; ConvF(6.23, 6.23, 6.23); Calibrated: 1/9/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 11/30/2007
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1150 and higher
- Measurement SW: DASYS, V5.0 Build 91; SEMCAD X Version 12.4 Build 52

Left Tilted/Area Scan (71x91x1):

Measurement grid: $dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.303 mW/g

Left Tilted/Zoom Scan (5x5x7)/Cube 0:

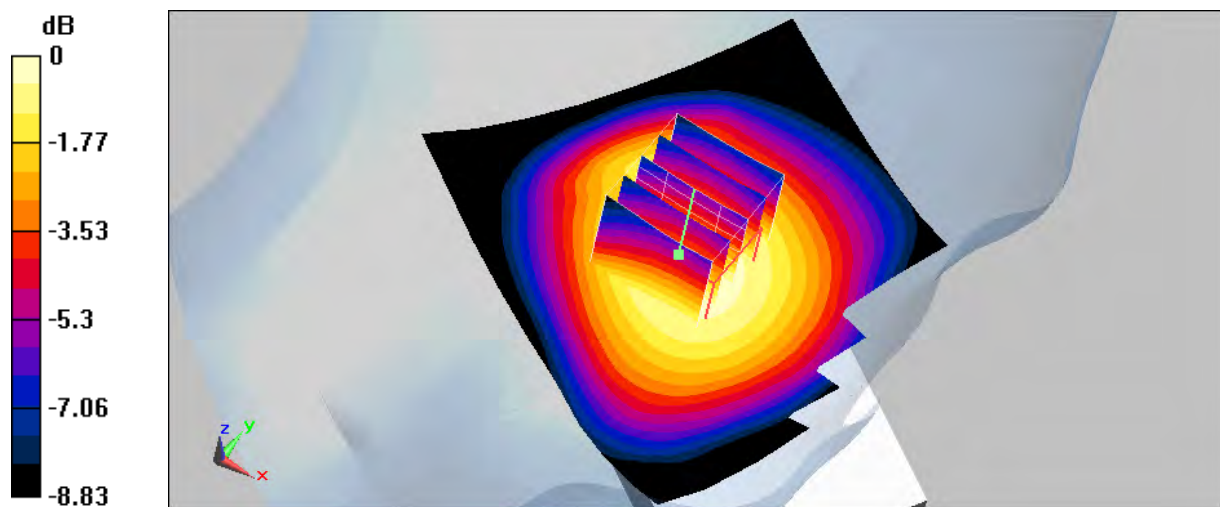
Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 13.2 V/m; Power Drift = -0.029 dB

Peak SAR (extrapolated) = 0.348 W/kg

SAR(1 g) = 0.287 mW/g; SAR(10 g) = 0.221 mW/g

Maximum value of SAR (measured) = 0.300 mW/g



0 dB = 0.300mW/g



Test Laboratory: A Test Lab Techno Corp.

Date/Time: 2/24/2008 1:20:53 AM Date/Time: 2/24/2008 1:27:53 AM

LT_GSM850 CH190

DUT: HSTNH-I18C; Type: PDA Phone; Serial: 3567190120044508

Communication System: GSM850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium parameters used: $f = 836.6$ MHz; $\sigma = 0.909$ mho/m; $\epsilon_r = 42$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASYS (IEEE/IEC)

DASY5 Configuration:

- Probe: ES3DV3 - SN3150; ConvF(6.23, 6.23, 6.23); Calibrated: 1/9/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 11/30/2007
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1150 and higher
- Measurement SW: DASYS, V5.0 Build 91; SEMCAD X Version 12.4 Build 52

Left Tilted/Area Scan (71x91x1):

Measurement grid: $dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.359 mW/g

Left Tilted/Zoom Scan (5x5x7)/Cube 0:

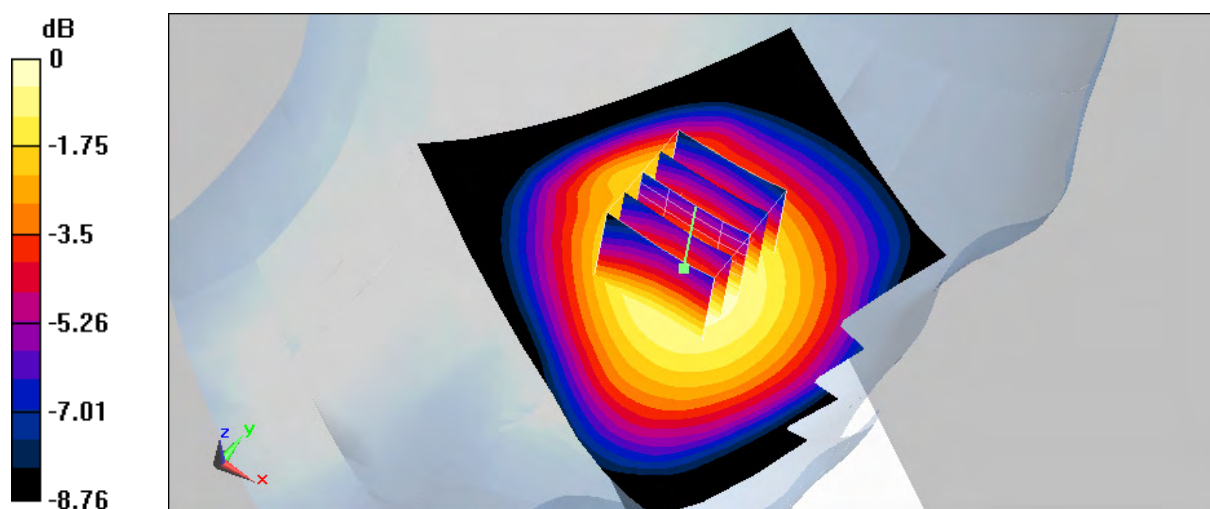
Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 13.7 V/m; Power Drift = 0.116 dB

Peak SAR (extrapolated) = 0.421 W/kg

SAR(1 g) = 0.343 mW/g; SAR(10 g) = 0.261 mW/g

Maximum value of SAR (measured) = 0.363 mW/g



0 dB = 0.363mW/g



Test Laboratory: A Test Lab Techno Corp.

Date/Time: 2/24/2008 1:34:34 AM Date/Time: 2/24/2008 1:41:35 AM

LT_GSM850 CH251

DUT: HSTNH-I18C; Type: PDA Phone; Serial: 3567190120044508

Communication System: GSM850; Frequency: 848.8 MHz; Duty Cycle: 1:8.3

Medium parameters used: $f = 848.8$ MHz; $\sigma = 0.92$ mho/m; $\epsilon_r = 41.9$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASYS (IEEE/IEC)

DASY5 Configuration:

- Probe: ES3DV3 - SN3150; ConvF(6.23, 6.23, 6.23); Calibrated: 1/9/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 11/30/2007
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1150 and higher
- Measurement SW: DASYS, V5.0 Build 91; SEMCAD X Version 12.4 Build 52

Left Tilted/Area Scan (71x91x1):

Measurement grid: $dx=15$ mm, $dy=15$ mm

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

Left Tilted/Zoom Scan (5x5x7)/Cube 0:

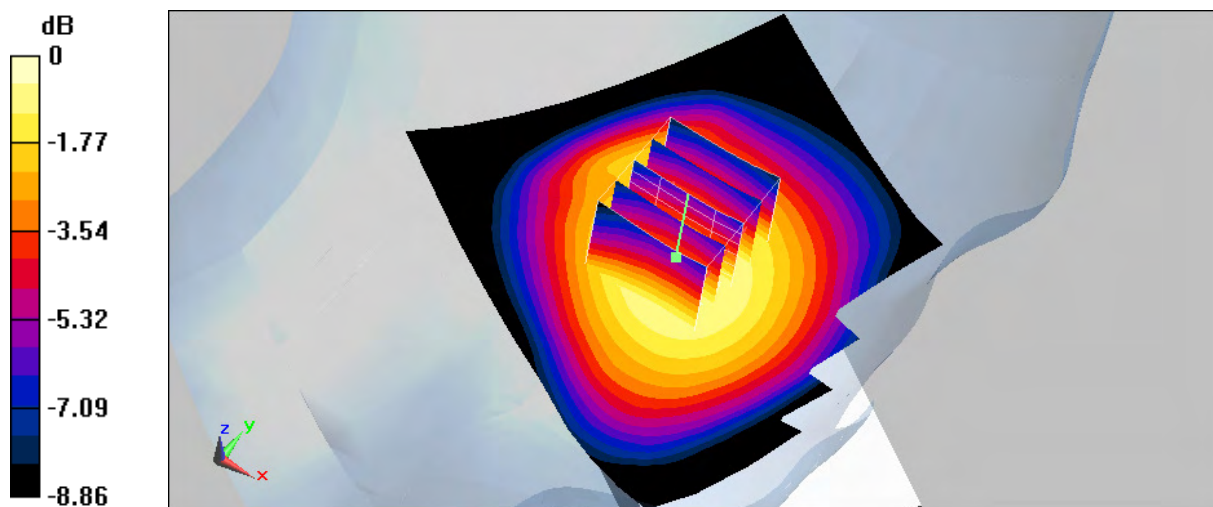
Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 12.7 V/m; Power Drift = 0.197 dB

Peak SAR (extrapolated) = 0.378 W/kg

SAR(1 g) = 0.309 mW/g; SAR(10 g) = 0.235 mW/g

Maximum value of SAR (measured) = 0.327 mW/g



0 dB = 0.327mW/g



Test Laboratory: A Test Lab Techno Corp.

Date/Time: 2/26/2008 6:59:37 AM Date/Time: 2/26/2008 7:07:27 AM

RC_PCS CH512

DUT: HSTNH-I18C; Type: PDA Phone; Serial: 3567190120044508

Communication System: PCS; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.35$ mho/m; $\epsilon_r = 39.9$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Probe: ES3DV3 - SN3150; ConvF(5.11, 5.11, 5.11); Calibrated: 1/9/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 11/30/2007
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1150 and higher
- Measurement SW: DASY5, V5.0 Build 91; SEMCAD X Version 12.4 Build 52

Right Cheek/Area Scan (71x101x1):

Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.477 mW/g

Right Cheek/Zoom Scan (5x5x7)/Cube 0:

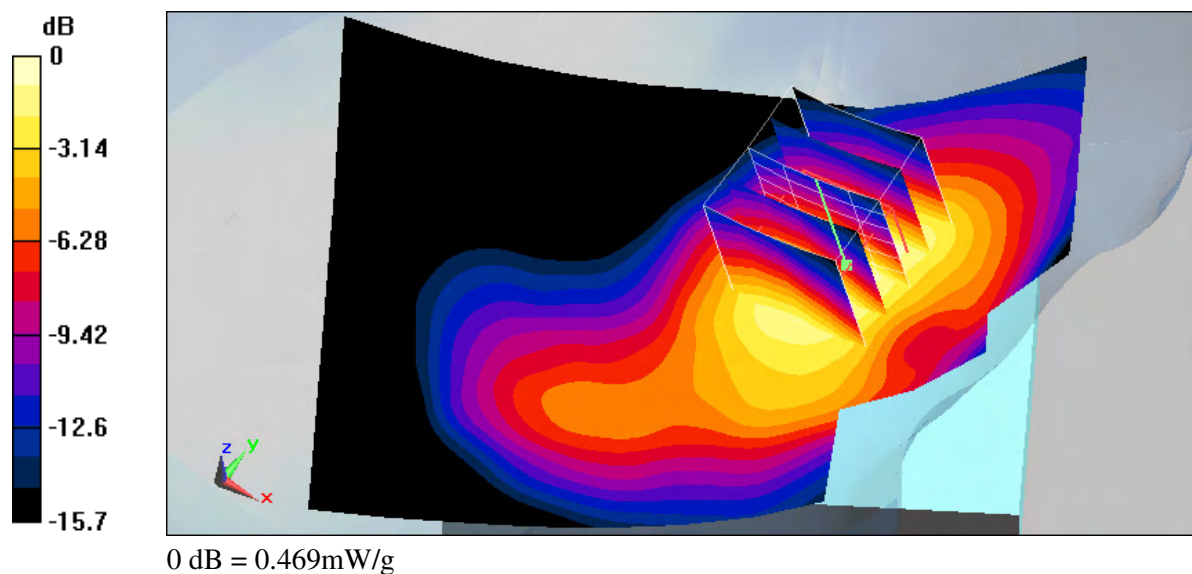
Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 5.58 V/m; Power Drift = 0.045 dB

Peak SAR (extrapolated) = 0.678 W/kg

SAR(1 g) = 0.427 mW/g; SAR(10 g) = 0.252 mW/g

Maximum value of SAR (measured) = 0.469 mW/g





Test Laboratory: A Test Lab Techno Corp.

Date/Time: 2/26/2008 7:21:15 AM Date/Time: 2/26/2008 7:29:06 AM

RC_PCS CH661

DUT: HSTNH-I18C; Type: PDA Phone; Serial: 3567190120044508

Communication System: PCS; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.4$ mho/m; $\epsilon_r = 40$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Probe: ES3DV3 - SN3150; ConvF(5.11, 5.11, 5.11); Calibrated: 1/9/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 11/30/2007
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1150 and higher
- Measurement SW: DASY5, V5.0 Build 91; SEMCAD X Version 12.4 Build 52

Right Cheek/Area Scan (71x101x1):

Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.553 mW/g

Right Cheek/Zoom Scan (5x5x7)/Cube 0:

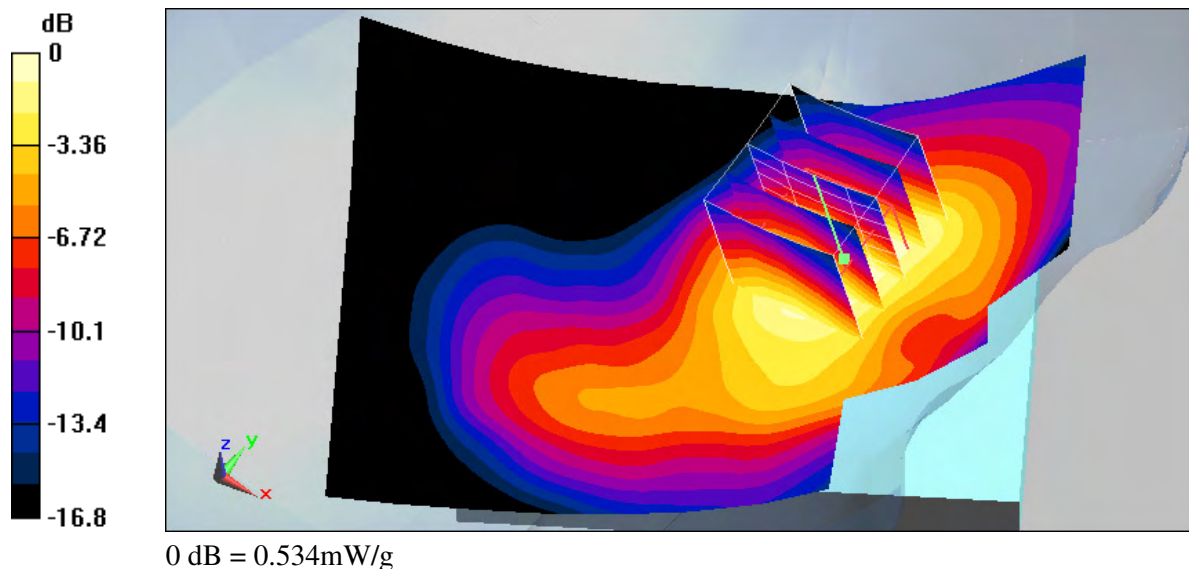
Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 6.21 V/m; Power Drift = 0.120 dB

Peak SAR (extrapolated) = 0.784 W/kg

SAR(1 g) = 0.494 mW/g; SAR(10 g) = 0.292 mW/g

Maximum value of SAR (measured) = 0.534 mW/g





Test Laboratory: A Test Lab Techno Corp.

Date/Time: 2/26/2008 7:37:08 AM Date/Time: 2/26/2008 7:45:00 AM

RC_PCS CH810

DUT: HSTNH-I18C; Type: PDA Phone; Serial: 3567190120044508

Communication System: PCS; Frequency: 1909.8 MHz; Duty Cycle: 1:8.3

Medium parameters used: $f = 1919.8$ MHz; $\sigma = 1.41$ mho/m; $\epsilon_r = 40$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Probe: ES3DV3 - SN3150; ConvF(5.11, 5.11, 5.11); Calibrated: 1/9/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 11/30/2007
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1150 and higher
- Measurement SW: DASY5, V5.0 Build 91; SEMCAD X Version 12.4 Build 52

Right Cheek/Area Scan (71x101x1):

Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.592 mW/g

Right Cheek/Zoom Scan (5x5x7)/Cube 0:

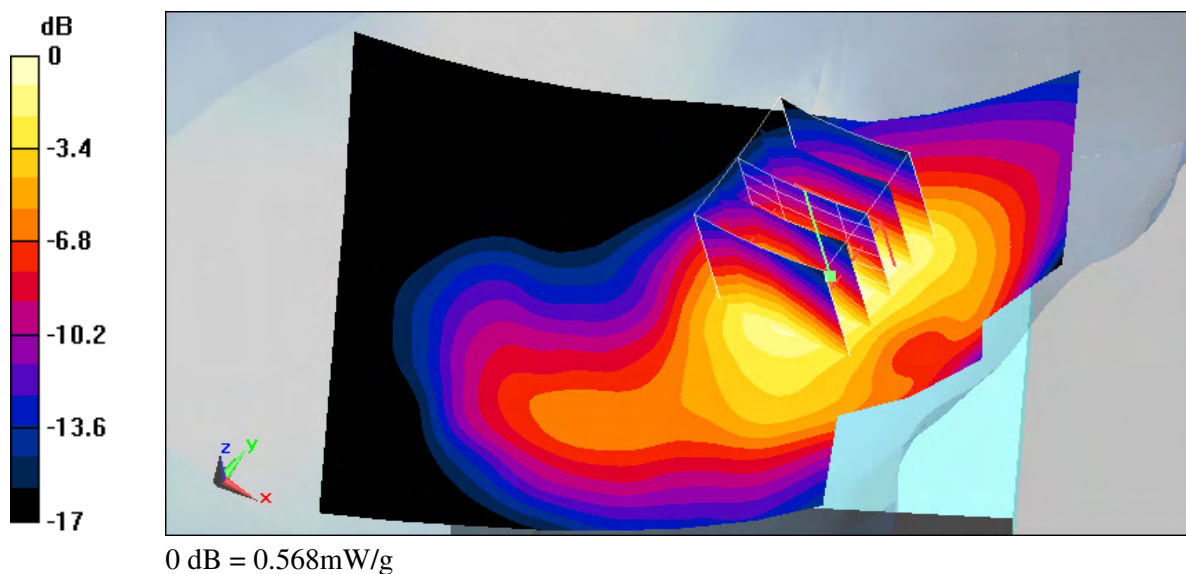
Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 6.49 V/m; Power Drift = -0.087 dB

Peak SAR (extrapolated) = 0.839 W/kg

SAR(1 g) = 0.525 mW/g; SAR(10 g) = 0.309 mW/g

Maximum value of SAR (measured) = 0.568 mW/g





Test Laboratory: A Test Lab Techno Corp.

Date/Time: 2/26/2008 8:00:06 AM Date/Time: 2/26/2008 8:07:56 AM

RT_PCS CH512

DUT: HSTNH-I18C; Type: PDA Phone; Serial: 3567190120044508

Communication System: PCS; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.35$ mho/m; $\epsilon_r = 39.9$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Probe: ES3DV3 - SN3150; ConvF(5.11, 5.11, 5.11); Calibrated: 1/9/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 11/30/2007
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1150 and higher
- Measurement SW: DASY5, V5.0 Build 91; SEMCAD X Version 12.4 Build 52

Right Tilted/Area Scan (71x101x1):

Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.150 mW/g

Right Tilted/Zoom Scan (5x5x7)/Cube 0:

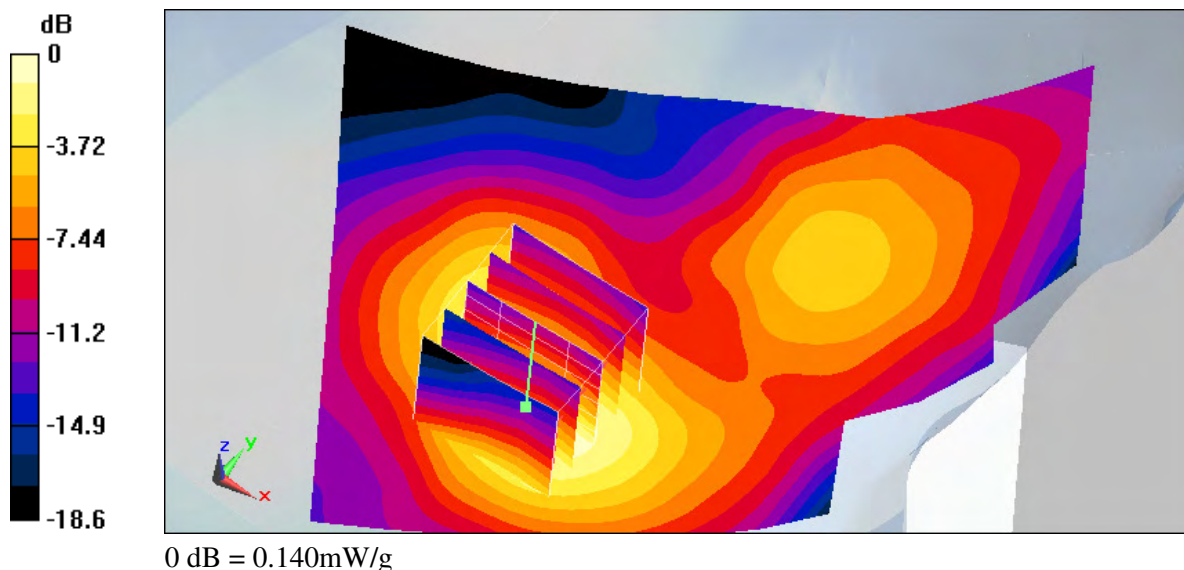
Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 8.72 V/m; Power Drift = -0.031 dB

Peak SAR (extrapolated) = 0.201 W/kg

SAR(1 g) = 0.129 mW/g; SAR(10 g) = 0.078 mW/g

Maximum value of SAR (measured) = 0.140 mW/g





Test Laboratory: A Test Lab Techno Corp.

Date/Time: 2/26/2008 8:14:40 AM Date/Time: 2/26/2008 8:22:33 AM

RT_PCS CH661

DUT: HSTNH-I18C; Type: PDA Phone; Serial: 3567190120044508

Communication System: PCS; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.4$ mho/m; $\epsilon_r = 40$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Probe: ES3DV3 - SN3150; ConvF(5.11, 5.11, 5.11); Calibrated: 1/9/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 11/30/2007
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1150 and higher
- Measurement SW: DASY5, V5.0 Build 91; SEMCAD X Version 12.4 Build 52

Right Tilted/Area Scan (71x101x1):

Measurement grid: $dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.167 mW/g

Right Tilted/Zoom Scan (5x5x7)/Cube 0:

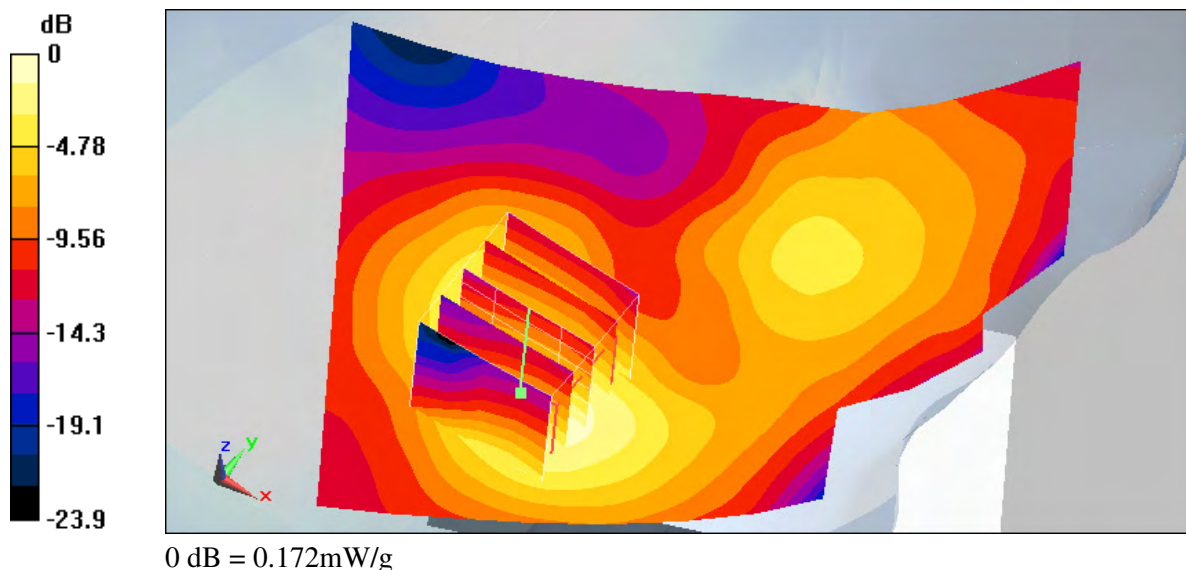
Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 8.92 V/m; Power Drift = -0.042 dB

Peak SAR (extrapolated) = 0.253 W/kg

SAR(1 g) = 0.161 mW/g; SAR(10 g) = 0.097 mW/g

Maximum value of SAR (measured) = 0.172 mW/g





Test Laboratory: A Test Lab Techno Corp.

Date/Time: 2/26/2008 8:34:28 AM Date/Time: 2/26/2008 8:42:19 AM

RT_PCS CH810

DUT: HSTNH-I18C; Type: PDA Phone; Serial: 3567190120044508

Communication System: PCS; Frequency: 1909.8 MHz; Duty Cycle: 1:8.3

Medium parameters used: $f = 1909.8 \text{ MHz}$; $\sigma = 1.41 \text{ mho/m}$; $\epsilon_r = 40$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Measurement Standard: DASYS (IEEE/IEC)

DASY5 Configuration:

- Probe: ES3DV3 - SN3150; ConvF(5.11, 5.11, 5.11); Calibrated: 1/9/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 11/30/2007
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1150 and higher
- Measurement SW: DASYS, V5.0 Build 91; SEMCAD X Version 12.4 Build 52

Right Tilted/Area Scan (71x101x1):

Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.204 mW/g

Right Tilted/Zoom Scan (5x5x7)/Cube 0:

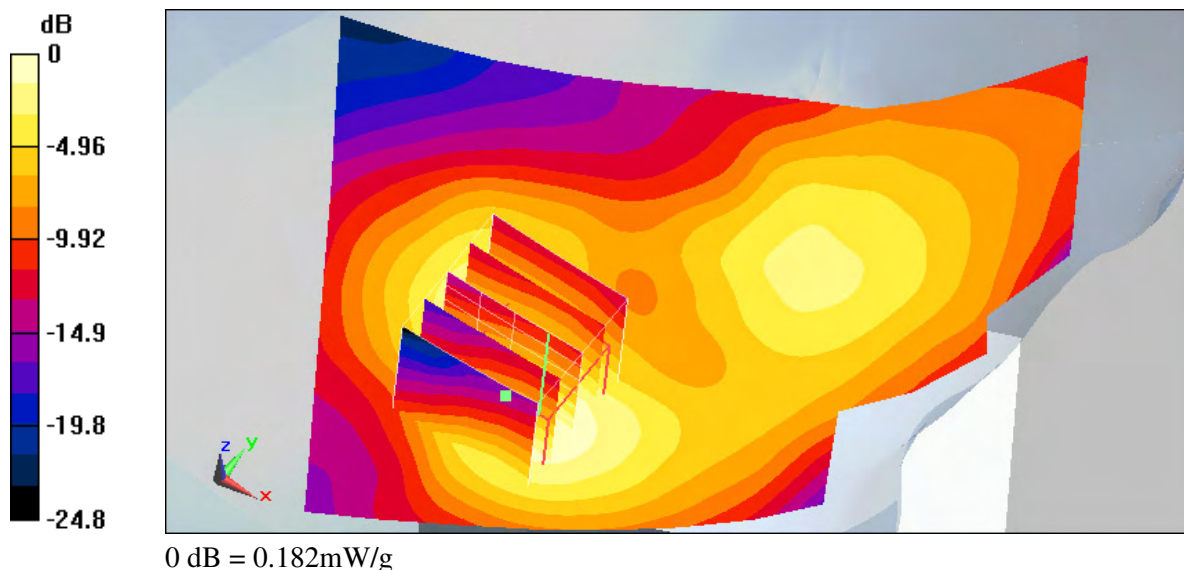
Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 9.82 V/m ; Power Drift = -0.025 dB

Peak SAR (extrapolated) = 0.280 W/kg

SAR(1 g) = 0.171 mW/g ; SAR(10 g) = 0.100 mW/g

Maximum value of SAR (measured) = 0.182 mW/g





Test Laboratory: A Test Lab Techno Corp.

Date/Time: 2/26/2008 4:55:40 AM Date/Time: 2/26/2008 5:02:42 AM

LC_PCS CH512

DUT: HSTNH-I18C; Type: PDA Phone; Serial: 3567190120044508

Communication System: PCS; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.35$ mho/m; $\epsilon_r = 39.9$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Probe: ES3DV3 - SN3150; ConvF(5.11, 5.11, 5.11); Calibrated: 1/9/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 11/30/2007
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1150 and higher
- Measurement SW: DASY5, V5.0 Build 91; SEMCAD X Version 12.4 Build 52

Left Cheek/Area Scan (71x91x1):

Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.306 mW/g

Left Cheek/Zoom Scan (5x5x7)/Cube 0:

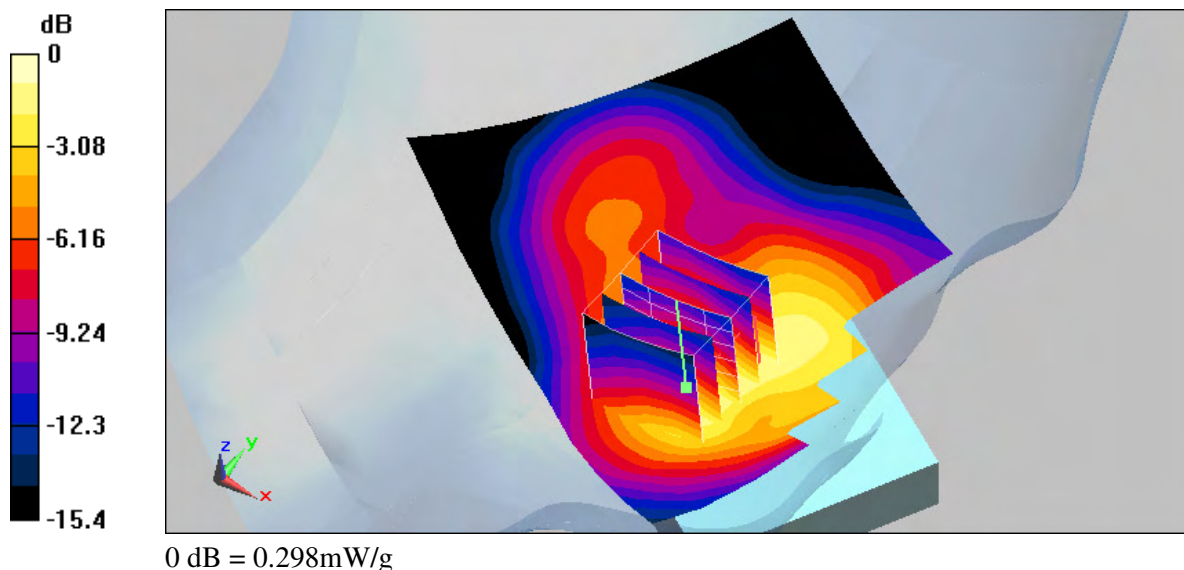
Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 6.27 V/m; Power Drift = 0.039 dB

Peak SAR (extrapolated) = 0.412 W/kg

SAR(1 g) = 0.274 mW/g; SAR(10 g) = 0.168 mW/g

Maximum value of SAR (measured) = 0.298 mW/g





Test Laboratory: A Test Lab Techno Corp.

Date/Time: 2/26/2008 5:32:09 AM Date/Time: 2/26/2008 5:39:09 AM

LC_PCS CH661

DUT: HSTNH-I18C; Type: PDA Phone; Serial: 3567190120044508

Communication System: PCS; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.4$ mho/m; $\epsilon_r = 40$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Probe: ES3DV3 - SN3150; ConvF(5.11, 5.11, 5.11); Calibrated: 1/9/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 11/30/2007
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1150 and higher
- Measurement SW: DASY5, V5.0 Build 91; SEMCAD X Version 12.4 Build 52

Left Cheek/Area Scan (71x91x1):

Measurement grid: $dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.452 mW/g

Left Cheek/Zoom Scan (5x5x7)/Cube 0:

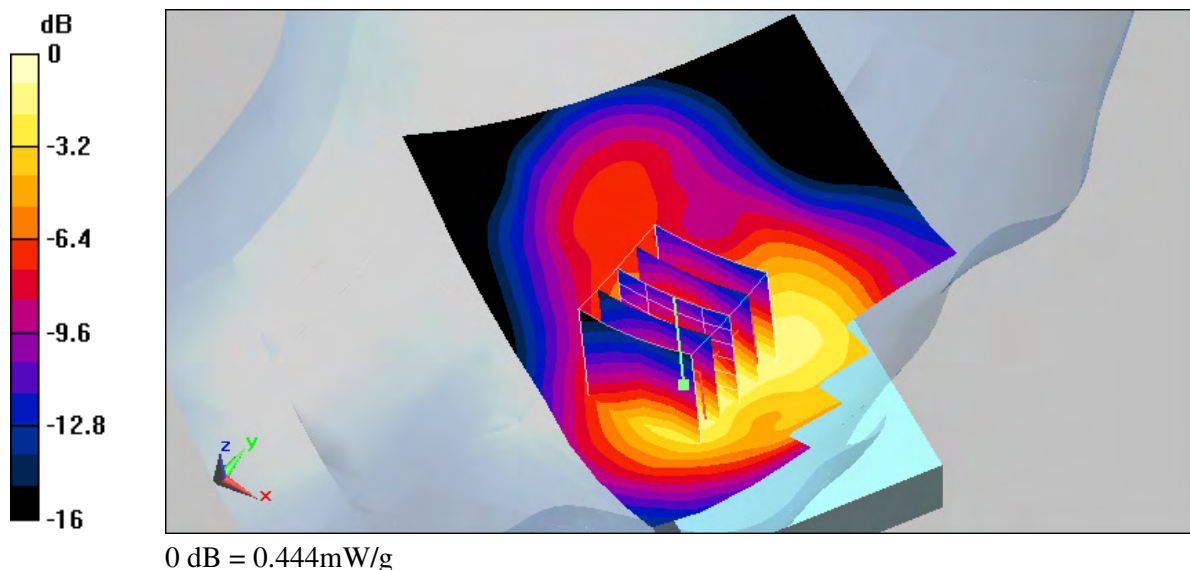
Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 7.02 V/m; Power Drift = 0.0079 dB

Peak SAR (extrapolated) = 0.617 W/kg

SAR(1 g) = 0.409 mW/g; SAR(10 g) = 0.249 mW/g

Maximum value of SAR (measured) = 0.444 mW/g





Test Laboratory: A Test Lab Techno Corp.

Date/Time: 2/26/2008 5:46:01 AM Date/Time: 2/26/2008 5:53:00 AM

LC_PCS CH810

DUT: HSTNH-I18C; Type: PDA Phone; Serial: 3567190120044508

Communication System: PCS; Frequency: 1909.8 MHz; Duty Cycle: 1:8.3

Medium parameters used: $f = 1909.8 \text{ MHz}$; $\sigma = 1.41 \text{ mho/m}$; $\epsilon_r = 40$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Probe: ES3DV3 - SN3150; ConvF(5.11, 5.11, 5.11); Calibrated: 1/9/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 11/30/2007
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1150 and higher
- Measurement SW: DASY5, V5.0 Build 91; SEMCAD X Version 12.4 Build 52

Left Cheek/Area Scan (71x91x1):

Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.511 mW/g

Left Cheek/Zoom Scan (5x5x7)/Cube 0:

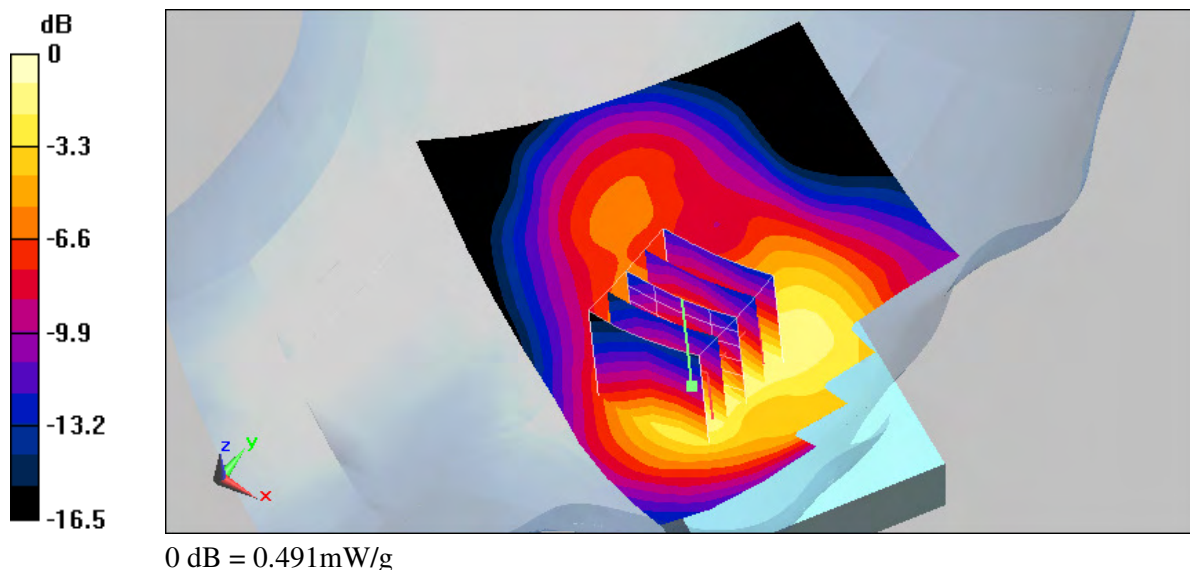
Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 7.97 V/m ; Power Drift = -0.026 dB

Peak SAR (extrapolated) = 0.699 W/kg

SAR(1 g) = 0.455 mW/g ; SAR(10 g) = 0.276 mW/g

Maximum value of SAR (measured) = 0.491 mW/g





Test Laboratory: A Test Lab Techno Corp.

Date/Time: 2/26/2008 6:04:05 AM Date/Time: 2/26/2008 6:11:04 AM

LT_PCS CH512

DUT: HSTNH-I18C; Type: PDA Phone; Serial: 3567190120044508

Communication System: PCS; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.35$ mho/m; $\epsilon_r = 39.9$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Probe: ES3DV3 - SN3150; ConvF(5.11, 5.11, 5.11); Calibrated: 1/9/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 11/30/2007
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1150 and higher
- Measurement SW: DASY5, V5.0 Build 91; SEMCAD X Version 12.4 Build 52

Left Tilted/Area Scan (71x91x1):

Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.144 mW/g

Left Tilted/Zoom Scan (5x5x7)/Cube 0:

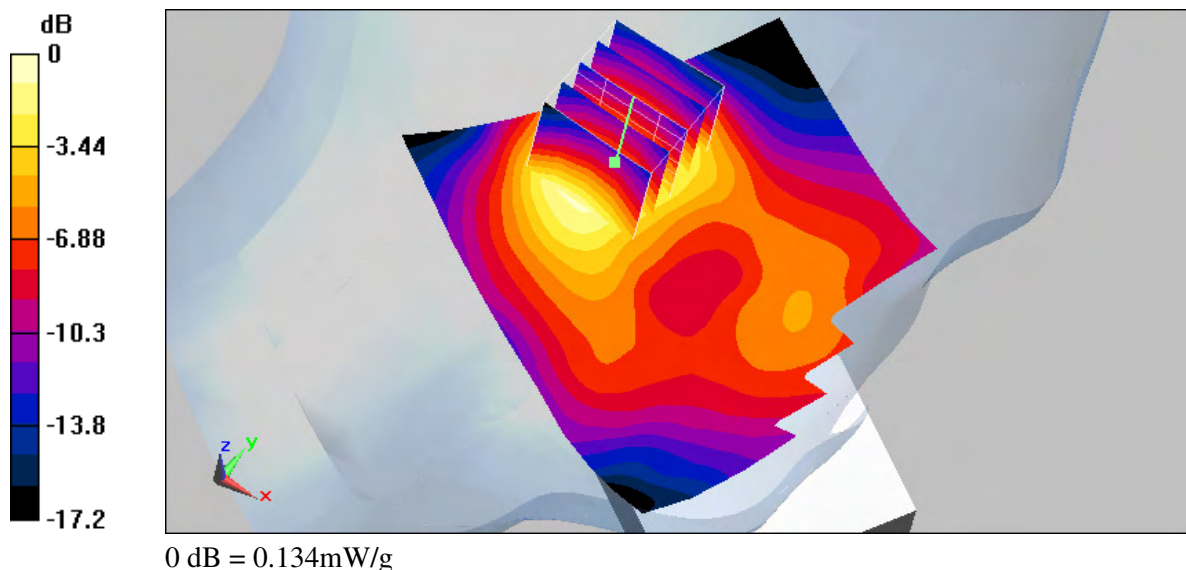
Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.93 V/m; Power Drift = -0.040 dB

Peak SAR (extrapolated) = 0.191 W/kg

SAR(1 g) = 0.122 mW/g; SAR(10 g) = 0.073 mW/g

Maximum value of SAR (measured) = 0.134 mW/g





Test Laboratory: A Test Lab Techno Corp.

Date/Time: 2/26/2008 6:21:10 AM Date/Time: 2/26/2008 6:28:54 AM

LT_PCS CH661

DUT: HSTNH-I18C; Type: PDA Phone; Serial: 3567190120044508

Communication System: PCS; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.4 \text{ mho/m}$; $\epsilon_r = 40$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Probe: ES3DV3 - SN3150; ConvF(5.11, 5.11, 5.11); Calibrated: 1/9/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 11/30/2007
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1150 and higher
- Measurement SW: DASY5, V5.0 Build 91; SEMCAD X Version 12.4 Build 52

Left Tilted/Area Scan (71x101x1):

Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.178 mW/g

Left Tilted/Zoom Scan (5x5x7)/Cube 0:

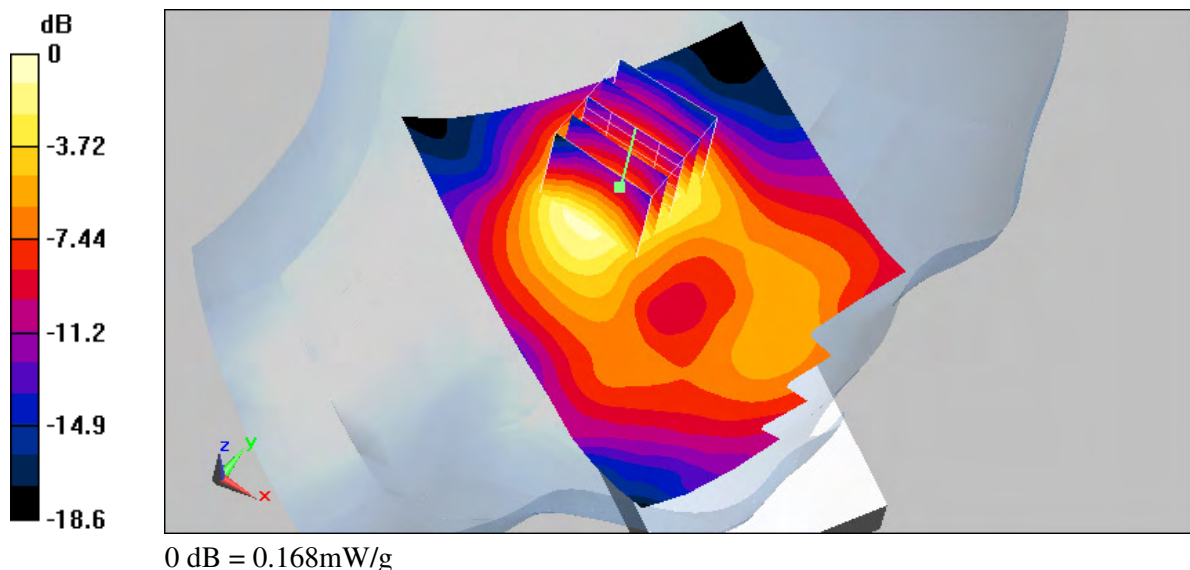
Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 10.9 V/m ; Power Drift = -0.019 dB

Peak SAR (extrapolated) = 0.243 W/kg

SAR(1 g) = 0.153 mW/g ; SAR(10 g) = 0.091 mW/g

Maximum value of SAR (measured) = 0.168 mW/g





Test Laboratory: A Test Lab Techno Corp.

Date/Time: 2/26/2008 6:36:01 AM Date/Time: 2/26/2008 6:43:45 AM

LT_PCS CH810

DUT: HSTNH-I18C; Type: PDA Phone; Serial: 3567190120044508

Communication System: PCS; Frequency: 1909.8 MHz; Duty Cycle: 1:8.3

Medium parameters used: $f = 1909.8 \text{ MHz}$; $\sigma = 1.41 \text{ mho/m}$; $\epsilon_f = 40$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Measurement Standard: DASYS (IEEE/IEC)

DASY5 Configuration:

- Probe: ES3DV3 - SN3150; ConvF(5.11, 5.11, 5.11); Calibrated: 1/9/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 11/30/2007
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1150 and higher
- Measurement SW: DASYS, V5.0 Build 91; SEMCAD X Version 12.4 Build 52

Left Tilted/Area Scan (71x101x1):

Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.161 mW/g

Left Tilted/Zoom Scan (5x5x7)/Cube 0:

Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 10.4 V/m ; Power Drift = -0.016 dB

Peak SAR (extrapolated) = 0.219 W/kg

SAR(1 g) = 0.139 mW/g ; SAR(10 g) = 0.083 mW/g

Maximum value of SAR (measured) = 0.152 mW/g

