TCC
Dallas

ACCREDITED
Accredited Laboratory
Certificate Number: 1819-01

SAR Compliance Test Report

Test report no.:	WR897.001_V2	**Date of report:**	2006-03-28
Template version:	5	**Number of pages:**	57
Testing laboratory:	TCC, Dallas Nokia, Inc. 6021 Connection Drive Irving, TX 75039, USA Tel. +1 972 894 5000 Fax +1 972 894 4988	**Client:**	TCC, Dallas Nokia, Inc. 6021 Connection Drive Irving, TX 75039, USA Tel. +1 972 894 5000 Fax +1 972 894 4988
Responsible test engineer:	Anu Balijepalli	**Product contact person:**	Jarmo Alm
Measurements made by:	Anu Balijepalli; Bob Alexander		
Tested device:	RM-88		
FCC ID:	GMLRM-88A	**IC:**	661N-RM88A
Supplement reports:	-		

Testing has been carried out in accordance with:

47CFR §2.1093
Radiofrequency Radiation Exposure Evaluation: Portable Devices

FCC OET Bulletin 65 (Edition 97-01), Supplement C (Edition 01-01)
Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields

RSS-102
Evaluation Procedure for Mobile and Portable Radio Transmitters with Respect to Health Canada's Safety Code 6 for Exposure of Humans to Radio Frequency Fields

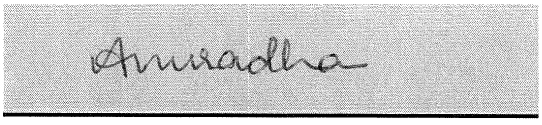
IEEE 1528 - 2003
IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques

Documentation: The documentation of the testing performed on the tested devices is archived for 15 years at TCC Dallas.

Test results: **The tested device complies with the requirements in respect of all parameters subject to the test.** The test results and statements relate only to the items tested. The test report shall not be reproduced except in full, without written approval of the laboratory.

Date and signatures: **2006-03-28**

For the contents:



Anu Balijepalli
Test Engineer

Nerina Walton
Lab Manager

CONTENTS

1. SUMMARY OF SAR TEST REPORT

1.1 Test Details

Period of test	2005-12-09 to 2005-12-29
SN, HW and SW numbers of tested device	001004/00/192397/9, B4.0, V5.4002
Batteries used in testing	BP-5L
Headsets used in testing	HS-40
Other accessories used in testing	Mini SD Card 512 MB
State of sample	Prototype unit
Notes	-

1.2 Maximum Results

The maximum measured SAR values for Head configuration and Body Worn configuration are given in section 1.2.1 and 1.2.2 respectively. The device conforms to the requirements of the standard(s) when the maximum measured SAR value is less than or equal to the limit.

1.2.1 Head Configuration

Mode	Ch / *f* (MHz)	Radiated power	Position	Measured SAR value (1g avg)	Scaled* SAR value (1g avg)	SAR limit (1g avg)	Result
2-slot GPRS 850	251/848.8	29.8 dBm ERP	Left Tilt	0.67 W/kg	**0.74 W/kg**	1.6 W/kg	**PASSED**
2-slot GPRS 1900	810/1909.8	31.3 dBm EIRP	Left Cheek	0.85 W/kg	**0.95 W/kg**	1.6 W/kg	**PASSED**

1.2.2 Body Worn Configuration

Mode	Ch / *f* (MHz)	Radiated power	Separation distance	Measured SAR value (1g avg)	Scaled* SAR value (1g avg)	SAR limit (1g avg)	Result
2-slot GPRS 850	128/824.2	30.7 dBm ERP	2.2 cm	0.72 W/kg	**0.81 W/kg**	1.6 W/kg	**PASSED**
2-slot GPRS 1900	810/1909.8	31.3 dBm ERP	2.2 cm	0.46 W/kg	**0.52 W/kg**	1.6 W/kg	**PASSED**

*SAR values are scaled up by 12% to cover measurement drift.

1.2.3 Maximum Drift

Maximum drift covered by 12% scaling up of the SAR values	Maximum drift during measurements
0.5dB	-0.38 dB

1.2.4 Measurement Uncertainty

Expanded Uncertainty (k=2) 95%	± 25.8%

2. DESCRIPTION OF THE DEVICE UNDER TEST

Device category	Portable
Exposure environment	General population / uncontrolled

Modes and Bands of Operation	GSM 850 / 1900	GPRS 850 / 1900	EGPRS 850 / 1900	BT
Modulation Mode	GMSK	GMSK	GMSK / 8PSK	GFSK
Duty Cycle	1/8	1/8 or 2/8	1/8 or 2/8	
Transmitter Frequency Range (MHz)	824 – 849 1850 – 1910	824 – 849 1850 - 1910	824 – 849 1850 - 1910	2402-2480

Outside of USA and Canada, the transmitter of the device is capable of operating also in 900/1800 bands, which are not a part of this filing. SAR measurements in 2-slot GPRS mode against the head profile of the phantom give conservative SAR results.

2.1 Description of the Antenna

The device has an internal antenna.

3. TEST CONDITIONS

3.1 Temperature and Humidity

Ambient temperature (°C):	20 to 22
Ambient humidity (RH %):	28 to 46

3.2 Test Signal, Frequencies and Output Power

The device was put into operation by using a call tester. Communication between the device and the call tester was established by air link.

The device output power was set to maximum power level for all tests; a fully charged battery was used for every test sequence.

In all operating bands the measurements were performed on lowest, middle and highest channels.

The radiated output power of the device was measured by a separate test laboratory on the same unit as used for SAR testing.

4. DESCRIPTION OF THE TEST EQUIPMENT

4.1 Measurement System and Components

The measurements were performed using an automated near-field scanning system, DASY4, manufactured by Schmid & Partner Engineering AG (SPEAG) in Switzerland. The SAR extrapolation algorithm used in all measurements was the'advanced extrapolation' algorithm.

The following table lists calibration dates of SPEAG components:

Test Equipment	Serial Number	Calibration interval	Calibration expiry
DASY4 DAE V1	389	12 months	2006-01
E-field Probe ET3DV6	1802	12 months	2006-01
Dipole Validation Kit, D835V2	486	24 months	2007-01
Dipole Validation Kit, D1900V2	504	24 months	2007-07
DASY4 software	Version 4.6	-	-

Additional test equipment used in testing:

Test Equipment	Model	Serial Number	Calibration interval	Calibration expiry
Signal Generator	SME03	DE15555	12 months	2006-04
Amplifier	AR 5S1G2	25583	-	-
Power Meter	Boonton 4232A	64701	12 months	2006-09
Power Sensor	Boonton 51015	32137	12 months	2006-09
Power Sensor	Boonton 51015	32188	12 months	2006-09
Call Tester	R&S CMU200	101055	12 months	2006-09
Call Tester	R&S CMU200	108042	12 months	2006-07
Vector Network Analyzer	Agilent 8753ES	US39174327	12 months	2006-01
Dielectric Probe Kit	Agilent 85070D	US11400325380	-	-

4.1.1 Isotropic E-field Probe SN1802

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.g., butyl diglycol)
Calibration	Calibration certificate in Appendix C
Frequency	10 MHz to 3 GHz (dosimetry); Linearity: ± 0.2 dB (30 MHz to 3 GHz)
Optical Surface Detection	± 0.2 mm repeatability in air and clear liquids over diffuse reflecting surfaces
Directivity	± 0.2 dB in HSL (rotation around probe axis) ± 0.4 dB in HSL (rotation normal to probe axis)
Dynamic Range	5 µW/g to > 100 mW/g; Linearity: ± 0.2 dB
Dimensions	Overall length: 330 mm Tip length: 16 mm Body diameter: 12 mm Tip diameter: 6.8 mm Distance from probe tip to dipole centers: 2.7 mm
Application	General dosimetry up to 3 GHz Compliance tests of mobile phones Fast automatic scanning in arbitrary phantoms

4.2 Phantoms

The phantom used for all tests i.e. for both system checking and device testing, was the twin-headed "SAM Phantom", manufactured by SPEAG. The phantom conforms to the requirements of IEEE 1528 - 2003.

System checking was performed using the flat section, whilst Head SAR tests used the left and right head profile sections. Body SAR testing also used the flat section between the head profiles.

The SPEAG device holder (see Section 5.1) was used to position the device in all tests whilst a tripod was used to position the validation dipoles against the flat section of phantom.

4.3 Tissue Simulants

Recommended values for the dielectric parameters of the tissue simulants are given in IEEE 1528 - 2003 and FCC Supplement C to OET Bulletin 65. All tests were carried out using simulants whose dielectric parameters were within ± 5% of the recommended values. All tests were carried out within 24 hours of measuring the dielectric parameters.

The depth of the tissue simulant was 15.0 ± 0.5 cm measured from the ear reference point during system checking and device measurements.

4.3.1 Tissue Simulant Recipes

The following recipes were used for Head and Body tissue simulants:

800MHz band

Ingredient	Head (% by weight)	Body (% by weight)
Deionised Water	51.07	65.45
HEC	0.23	-
Sugar	47.31	34.31
Preservative	0.24	0.10
Salt	1.15	0.62

1900MHz Band

Ingredient	Head (% by weight)	Body (% by weight)
Deionised Water	54.88	69.02
Butyl Diglycol	44.91	30.76
Salt	0.21	0.22

4.3.2 System Checking

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

System checking, head tissue simulant

f [MHz]	Description	SAR [W/kg], 1g	Dielectric Parameters		Temp [°C]
			ε_r	σ [S/m]	
835	Reference result	2.25	42.0	0.91	
	± 10% window	2.02 - 2.48			
	2005-12-09	2.47	41.2	0.89	20.3
	2005-12-12	2.41	42.5	0.91	20.8
	2005-12-13	2.40	42.2	0.90	20.0
	2005-12-28	2.45	41.9	0.90	21.1
	2005-12-29	2.45	42.0	0.90	20.7
1900	Reference result	10.1	38.7	1.47	
	± 10% window	9.1 – 11.1			
	2005-12-14	10.6	39.8	1.45	19.5
	2005-12-15	10.5	39.6	1.46	19.3

System checking, body tissue simulant

f [MHz]	Description	SAR [W/kg], 1g	Dielectric Parameters		Temp [°C]
			ε_r	σ [S/m]	
835	Reference result	2.43	54.9	1.01	
	± 10% window	2.19 – 2.67			
	2005-12-13	2.54	55.5	0.98	20.5
	2005-12-19	2.57	55.5	0.98	21.0
1900	Reference result	9.71	53.3	1.60	
	± 10% window	8.74 – 10.68			
	2005-12-16	10.4	50.8	1.58	20.7
	2005-12-21	10.0	50.9	1.58	20.5

Plots of the system checking scans are given in Appendix A.

4.3.3 Tissue Simulants used in the Measurements

Head tissue simulant measurements

f [MHz]	Description	Dielectric Parameters		Temp [°C]
		ε_r	σ [S/m]	
836	Recommended value	41.5	0.90	
	± 5% window	39.4 – 43.6	0.86 – 0.95	
	2005-12-09	41.2	0.89	20.3
	2005-12-12	42.5	0.91	20.8
	2005-12-13	42.2	0.90	20.0
	2005-12-28	41.9	0.90	21.1
	2005-12-29	42.0	0.90	20.7
1880	Recommended value	40.0	1.40	
	± 5% window	38.0 – 42.0	1.33 – 1.47	
	2005-12-14	39.8	1.43	19.5
	2005-12-15	39.7	1.44	19.3

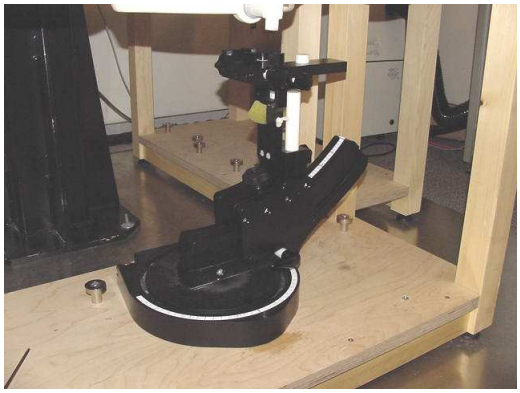
Body tissue simulant measurements

f [MHz]	Description	Dielectric Parameters		Temp [°C]
		ε_r	σ [S/m]	
836	Recommended value	55.2	0.97	
	± 5% window	52.4 – 58.0	0.92 – 1.02	
	2005-12-13	55.5	0.98	20.5
	2005-12-19	55.5	0.99	21.0
1880	Recommended value	53.3	1.52	
	± 5% window	50.6 – 56.0	1.44 – 1.60	
	2005-12-16	50.9	1.55	20.7
	2005-12-21	51.0	1.56	20.5

5. DESCRIPTION OF THE TEST PROCEDURE

5.1 Device Holder

The device was placed in the device holder (illustrated below) that is supplied by SPEAG as an integral part of the Dasy system.



Device holder supplied by SPEAG

A Nokia designed spacer (illustrated below) was used to position the device within the SPEAG holder. The spacer positions the device so that the holder has minimal effect on the test results but still holds the device securely. The spacer was removed before the tests.

Nokia spacer

5.2 Test Positions

5.2.1 Against Phantom Head

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

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

5.2.2 Body Worn Configuration

The device was placed in the SPEAG holder using the Nokia spacer and placed below the flat section of the phantom. The distance between the device and the phantom was kept at the separation distance indicated in the photo below using a separate flat spacer that was removed before the start of the measurements. The device was oriented with its antenna facing the phantom since this orientation gives higher results.

5.3 Scan Procedures

First, area scans were used for determination of the field distribution. Next, a zoom scan, a minimum of 5x5x7 points covering a volume of at least 30x30x30mm, was performed around the highest E-field value to determine the averaged SAR value. Drift was determined by measuring the same point at the start of the area scan and again at the end of the zoom scan.

5.4 SAR Averaging Methods

The maximum SAR value was averaged over a cube of tissue using interpolation and extrapolation.

The interpolation, extrapolation and maximum search routines within Dasy4 are all based on the modified Quadratic Shepard's method (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).

The interpolation scheme combines a least-square fitted function method with a weighted average method. A trivariate 3-D / bivariate 2-D quadratic function is computed for each measurement point and fitted to neighbouring points by a least-square method. For the zoom scan, inverse distance weighting is incorporated to fit distant points more accurately. The interpolating function is finally calculated as a weighted average of the quadratics.

In the zoom scan, the interpolation function is used to extrapolate the Peak SAR from the deepest measurement points to the inner surface of the phantom.

6. MEASUREMENT UNCERTAINTY

Table 6.1 – Measurement uncertainty evaluation

Uncertainty Component	Section in IEEE 1528	Tol. (%)	Prob Dist	Div	c_i	$c_i . u_i$ (%)	v_i
Measurement System							
Probe Calibration	E2.1	±5.9	N	1	1	±5.9	∞
Axial Isotropy	E2.2	±4.7	R	√3	$(1-c_p)^{1/2}$	±1.9	∞
Hemispherical Isotropy	E2.2	±9.6	R	√3	$(c_p)^{1/2}$	±3.9	∞
Boundary Effect	E2.3	±1.0	R	√3	1	±0.6	∞
Linearity	E2.4	±4.7	R	√3	1	±2.7	∞
System Detection Limits	E2.5	±1.0	R	√3	1	±0.6	∞
Readout Electronics	E2.6	±1.0	N	1	1	±1.0	∞
Response Time	E2.7	±0.8	R	√3	1	±0.5	∞
Integration Time	E2.8	±2.6	R	√3	1	±1.5	∞
RF Ambient Conditions - Noise	E6.1	±3.0	R	√3	1	±1.7	∞
RF Ambient Conditions - Reflections	E6.1	±3.0	R	√3	1	±1.7	∞
Probe Positioner Mechanical Tolerance	E6.2	±0.4	R	√3	1	±0.2	∞
Probe Positioning with respect to Phantom Shell	E6.3	±2.9	R	√3	1	±1.7	∞
Extrapolation, interpolation and Integration Algorithms for Max. SAR Evaluation	E5	±3.9	R	√3	1	±2.3	∞
Test sample Related							
Test Sample Positioning	E4.2	±6.0	N	1	1	±6.0	11
Device Holder Uncertainty	E4.1	±5.0	N	1	1	±5.0	7
Output Power Variation - SAR drift measurement	6.6.3	±0.0	R	√3	1	±0.0	∞
Phantom and Tissue Parameters							
Phantom Uncertainty (shape and thickness tolerances)	E3.1	±4.0	R	√3	1	±2.3	∞
Conductivity Target - tolerance	E3.2	±5.0	R	√3	0.64	±1.8	∞
Conductivity - measurement uncertainty	E3.3	±5.5	N	1	0.64	±3.5	5
Permittivity Target - tolerance	E3.2	±5.0	R	√3	0.6	±1.7	∞
Permittivity - measurement uncertainty	E3.3	±2.9	N	1	0.6	±1.7	5
Combined Standard Uncertainty			RSS			**±12.9**	116
Coverage Factor for 95%			**k=2**				
Expanded Uncertainty						**±25.8**	

7. RESULTS

The measured Head SAR values for the test device are tabulated below:

850 Head SAR results

Option used	Test configuration		SAR, averaged over 1g (W/kg)		
			Ch 128 824.2 MHz	Ch 190 836.6 MHz	Ch 251 848.8 MHz
GSM	**Power**		**30.7 dBm**	**29.4 dBm**	**29.7 dBm**
	Left	Cheek	-	0.42	-
		Tilt	0.32	0.48	0.56
	Right	Cheek	-	0.29	-
		Tilt	-	0.32	-
2-Slot GPRS	**Power**		**30.7 dBm**	**29.6 dBm**	**29.8 dBm**
	Left	Cheek	-	0.50	-
		Tilt	0.40	0.58	**0.63**
	Right	Cheek	-	0.40	-
		Tilt	-	0.39	-
2-Slot 8PSK EGPRS	**Power**		**26.4 dBm**	**26.4 dBm**	**23.5 dBm**
	Left	Cheek	-	0.27	-
		Tilt	0.18	0.28	0.35
	Right	Cheek	-	0.21	-
		Tilt	-	0.21	-
2-Slot GPRS with Mini SD Card	Left Tilt Position		-	-	**0.66**
2- Slot GPRS with mini SD Card with BT Active	Left Tilt Position		-	-	**0.67**

1900 Head SAR results

Option used	Test configuration		SAR, averaged over 1g (W/kg)		
			Ch 512 1850.2 MHz	Ch 661 1880.0 MHz	Ch 810 1909.8 MHz
GSM	**Power**		**27.0 dBm**	**29.3 dBm**	**30.7 dBm**
	Left	Cheek	0.26	0.37	0.64
		Tilt	-	0.36	-
	Right	Cheek	-	0.21	-
		Tilt	-	0.27	-
2-Slot GPRS	**Power**		**28.4 dBm**	**32.2 dBm**	**31.3 dBm**
	Left	Cheek	0.42	0.54	**0.85**
		Tilt	-	0.47	-
	Right	Cheek	-	0.31	-
		Tilt	-	0.30	-
2-Slot 8PSK EGPRS	**Power**		**27.2 dBm**	**25.8 dBm**	**25.7 dBm**
	Left	Cheek	0.17	0.21	0.24
		Tilt	-	0.20	-
	Right	Cheek	-	0.11	-
		Tilt	-	0.15	-
2-Slot GPRS with Mini SD Card	Left Cheek Position		-	-	0.81
2-Slot GPRS with BT Active	Left Cheek Position		-	-	0.74

The measured Body SAR values for the test device are tabulated below:

850 Body SAR results

Option used	Test configuration	SAR, averaged over 1g (W/kg)		
		Ch 128 824.2 MHz	Ch 190 836.6 MHz	Ch 251 848.8 MHz
GSM	**Power**	**30.7 dBm**	**29.4 dBm**	**29.7 dBm**
	Without headset	0.60	0.58	0.58
	Headset HS-40	-	0.42	-
2-Slot GPRS	**Power**	**30.7 dBm**	**29.6 dBm**	**29.8 dBm**
	Without headset	**0.72**	0.62	0.57
	Headset HS-40	-	0.52	-
2-Slot 8PSK EGPRS	**Power**	**26.4 dBm**	**26.4 dBm**	**23.5 dBm**
	Without headset	0.25	0.29	0.28
	Headset HS-40	-	0.27	-
2- Slot GPRS	Without headset with MMC	0.57		
2-Slot GPRS with BT Active	Without headset	0.55		

1900 Body SAR results

Option used	Test configuration	SAR, averaged over 1g (W/kg)		
		Ch 512 1850.2 MHz	Ch 661 1880.0 MHz	Ch 810 1909.8 MHz
GSM	**Power**	**27.0 dBm**	**29.3 dBm**	**30.7 dBm**
	Without headset	0.16	0.21	0.31
	Headset HS-40	-	0.20	-
2-Slot GPRS	**Power**	**28.4 dBm**	**32.2 dBm**	**31.3 dBm**
	Without headset	0.21	0.31	**0.41**
	Headset HS-40	-	0.28	-
2-Slot 8PSK EGPRS	**Power**	**27.2 dBm**	**25.8 dBm**	**25.7 dBm**
	Without headset	0.08	0.11	0.14
	Headset HS-40	-	0.11	-
2- Slot GPRS with Mini SD card	Without headset	-	**-**	**0.43**
2- Slot GPRS with mini SD card with BT Active	Without headset	-	**-**	**0.46**

Plots of the Measurement scans are given in Appendix B.

APPENDIX A: SYSTEM CHECKING SCANS

Date/Time: 12/9/2005 8:28:09 AM
Test Laboratory: TCC Dallas

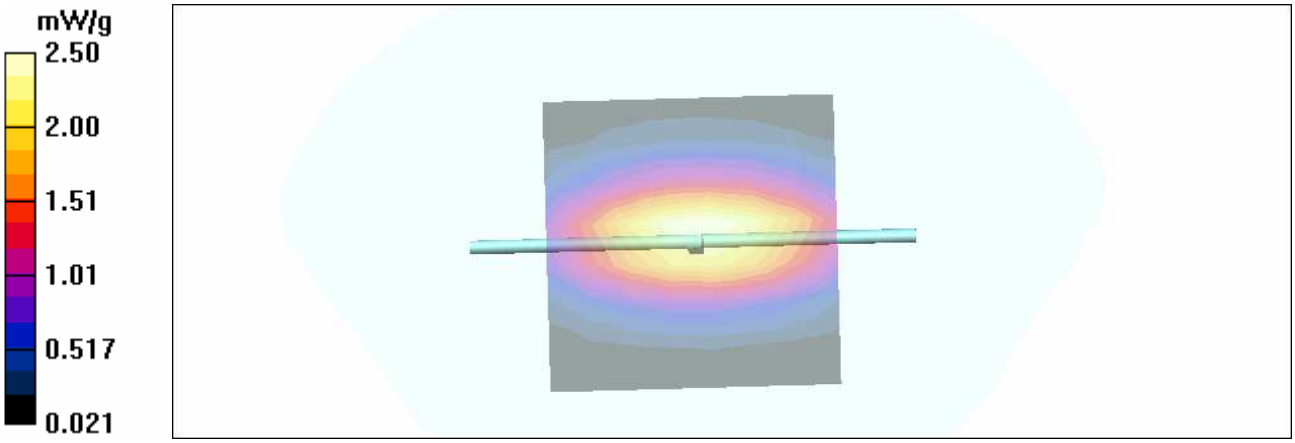
835MHz Head System Check

Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used: f = 835 MHz; σ = 0.89 mho/m; ε_r = 41.2; ρ = 1000 kg/m^3
Liquid Temperature: 20.3

DASY4 Configuration:
- Probe: ET3DV6 - SN1802; ConvF(6.28, 6.28, 6.28); Calibrated: 1/21/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn389; Calibrated: 1/12/2005
- Phantom: SAM1 Cellular Head; Phantom section: Flat Section
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 146

System Check/Area Scan (8x8x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.50 mW/g

System Check/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 57.5 V/m; Power Drift = -0.093 dB
Peak SAR (extrapolated) = 3.66 W/kg
SAR(1 g) = 2.47 mW/g; SAR(10 g) = 1.61 mW/g
Maximum value of SAR (measured) = 2.67 mW/g



Date/Time: 12/12/2005 8:51:49 AM
Test Laboratory: TCC Dallas

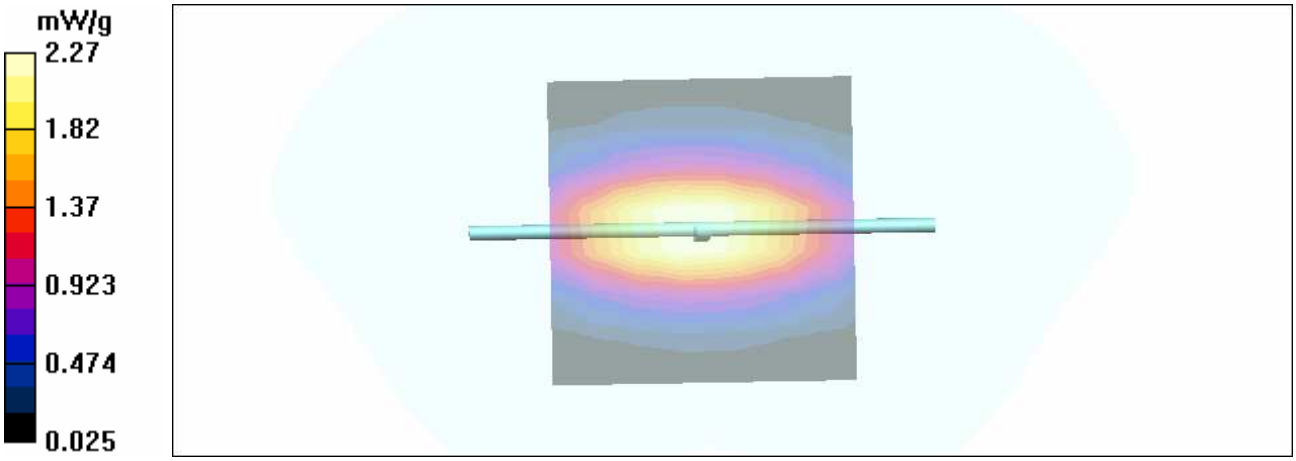
835MHz Head System Check

Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used: f = 835 MHz; σ = 0.906 mho/m; ε_r = 42.5; ρ = 1000 kg/m^3
Liquid Temperature: 20.8

DASY4 Configuration:
- Probe: ET3DV6 - SN1802; ConvF(6.28, 6.28, 6.28); Calibrated: 1/21/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn389; Calibrated: 1/12/2005
- Phantom: SAM1 Cellular Head; Phantom section: Flat Section
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 146

System Check/Area Scan (8x8x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.27 mW/g

System Check/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 55.6 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 3.55 W/kg
SAR(1 g) = 2.41 mW/g; SAR(10 g) = 1.58 mW/g
Maximum value of SAR (measured) = 2.61 mW/g



Date/Time: 12/13/2005 8:20:09 AM
Test Laboratory: TCC Dallas

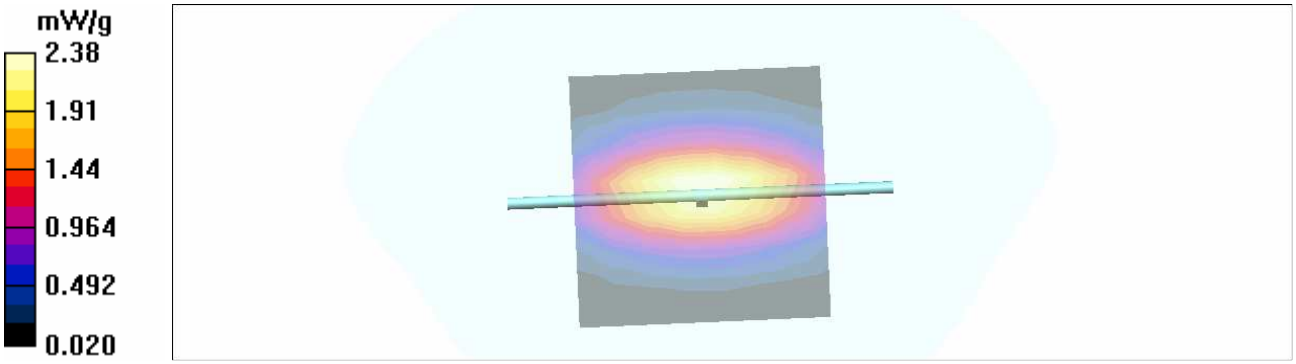
835MHz Head System Check

Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used: f = 835 MHz; σ = 0.903 mho/m; ε_r = 42.2; ρ = 1000 kg/m^3
Liquid Temperature: 20.0

DASY4 Configuration:
- Probe: ET3DV6 - SN1802; ConvF(6.28, 6.28, 6.28); Calibrated: 1/21/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn389; Calibrated: 1/12/2005
- Phantom: SAM1 Cellular Head; Phantom section: Flat Section
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 146

System Check/Area Scan (8x8x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.38 mW/g

System Check/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 55.3 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 3.49 W/kg
SAR(1 g) = 2.4 mW/g; SAR(10 g) = 1.58 mW/g
Maximum value of SAR (measured) = 2.59 mW/g



Date/Time: 12/28/2005 10:56:24 AM
Test Laboratory: TCC Dallas

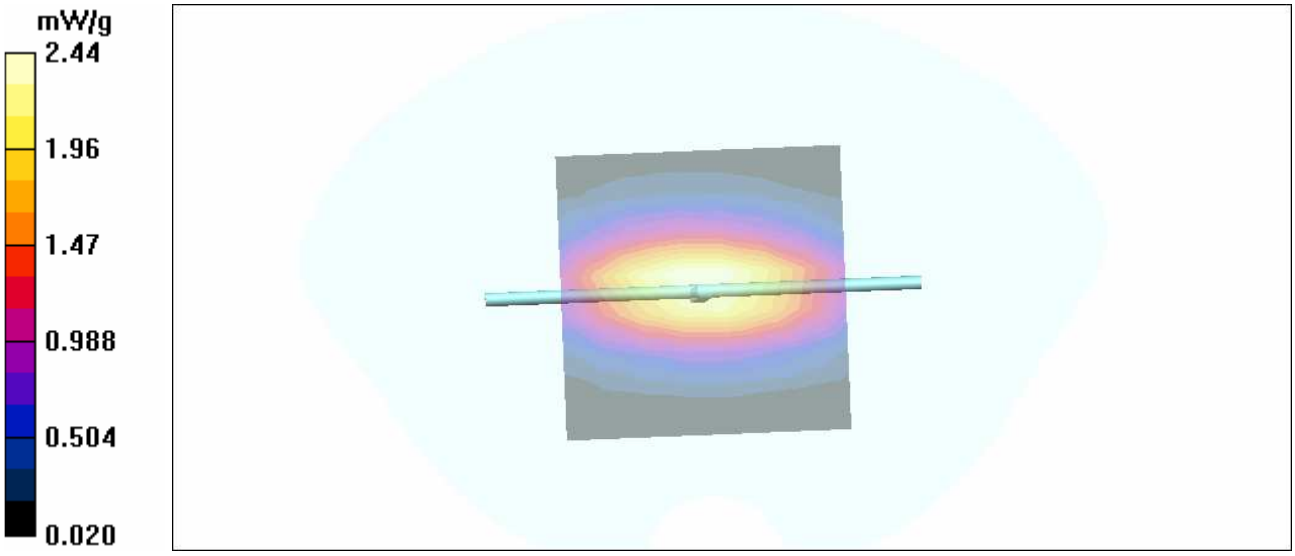
835MHz Head System Check

Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used: f = 835 MHz; σ = 0.902 mho/m; ε_r = 41.9; ρ = 1000 kg/m^3
Liquid Temperature: 21.1

DASY4 Configuration:
- Probe: ET3DV6 - SN1802; ConvF(6.28, 6.28, 6.28); Calibrated: 1/21/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn389; Calibrated: 1/12/2005
- Phantom: SAM1 Cellular Head; Phantom section: Flat Section
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 146

System Check/Area Scan (8x8x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.44 mW/g

System Check/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 56.1 V/m; Power Drift = 0.048 dB
Peak SAR (extrapolated) = 3.59 W/kg
SAR(1 g) = 2.45 mW/g; SAR(10 g) = 1.61 mW/g
Maximum value of SAR (measured) = 2.66 mW/g



Date/Time: 12/29/2005 10:14:51 AM
Test Laboratory: TCC Dallas

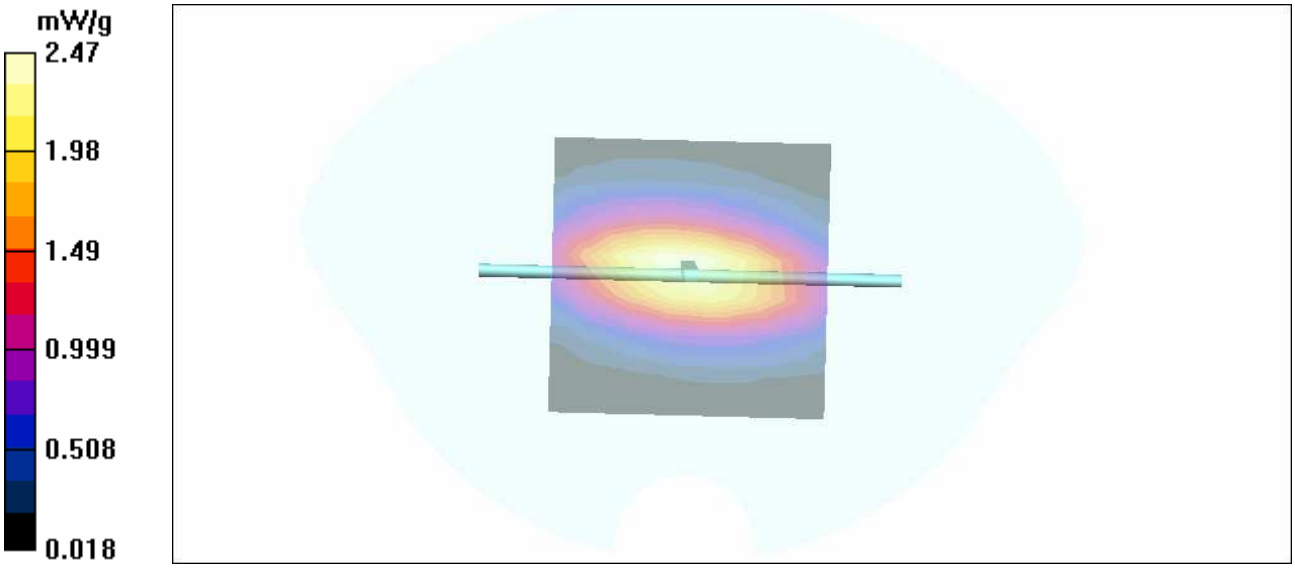
835MHz Head System Check

Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used: f = 835 MHz; σ = 0.902 mho/m; ε_r = 42; ρ = 1000 kg/m^3
Liquid Temperature: 20.7

DASY4 Configuration:
- Probe: ET3DV6 - SN1802; ConvF(6.28, 6.28, 6.28); Calibrated: 1/21/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn389; Calibrated: 1/12/2005
- Phantom: SAM1 Cellular Head; Phantom section: Flat Section
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 146

System Check/Area Scan (8x8x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.47 mW/g

System Check/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 56.7 V/m; Power Drift = -0.019 dB
Peak SAR (extrapolated) = 3.62 W/kg
SAR(1 g) = 2.45 mW/g; SAR(10 g) = 1.61 mW/g
Maximum value of SAR (measured) = 2.64 mW/g



Date/Time: 12/14/2005 1:05:03 PM
Test Laboratory: TCC Dallas

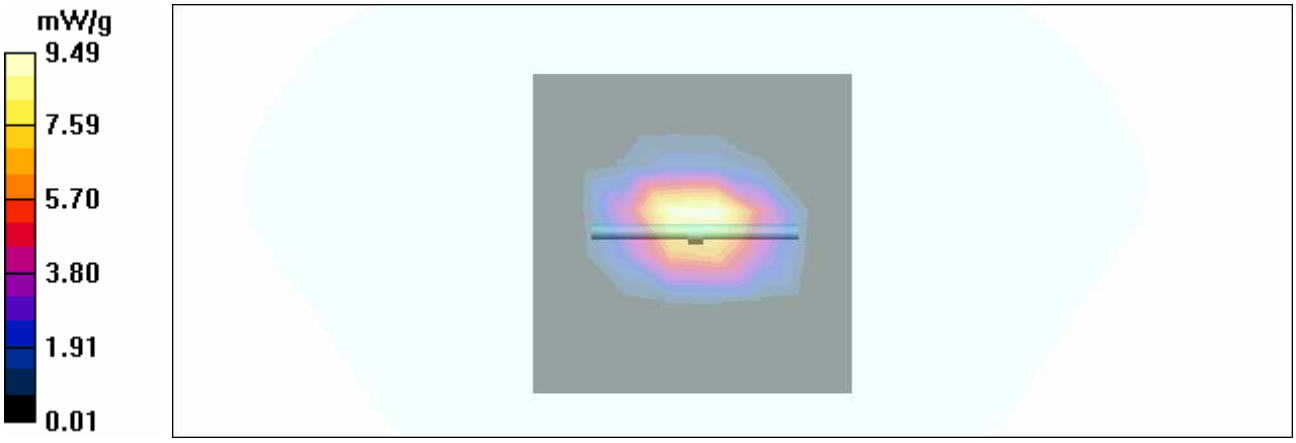
1900MHz Head System Check

Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.45 mho/m; ε_r = 39.8; ρ = 1000 kg/m^3
Liquid Temperature: 19.5

DASY4 Configuration:
- Probe: ET3DV6 - SN1802; ConvF(4.84, 4.84, 4.84); Calibrated: 1/21/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn389; Calibrated: 1/12/2005
- Phantom: SAM3 PCS Head and Body; Phantom section: Flat Section
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 146

System Check/Area Scan (8x8x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 9.49 mW/g

System Check/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 95.9 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 18.6 W/kg
SAR(1 g) = 10.6 mW/g; SAR(10 g) = 5.54 mW/g
Maximum value of SAR (measured) = 12.0 mW/g



Date/Time: 12/15/2005 8:30:20 AM
Test Laboratory: TCC Dallas

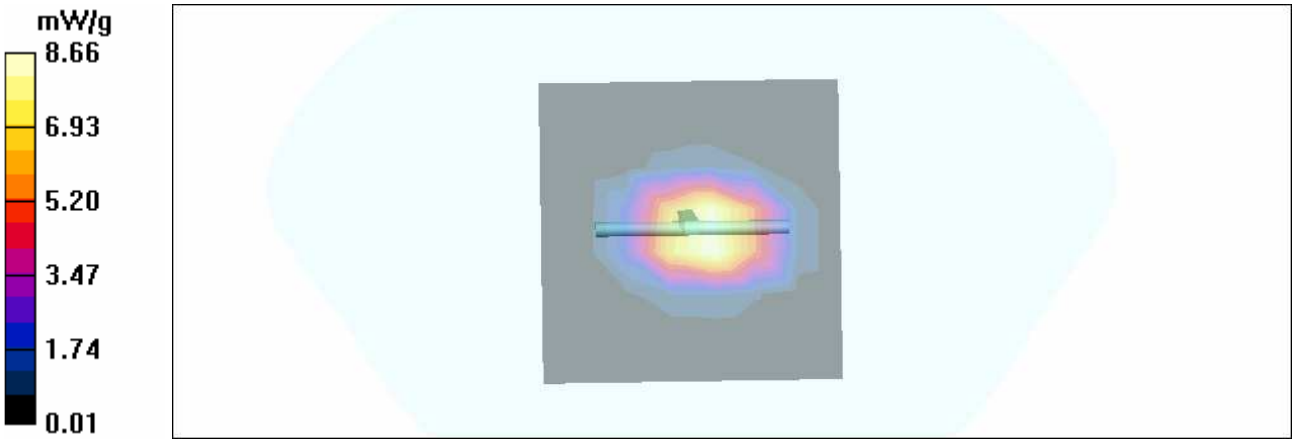
1900MHz Head System Check

Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.46 mho/m; ε_r = 39.6; ρ = 1000 kg/m^3
Liquid Temperature: 19.3

DASY4 Configuration:
- Probe: ET3DV6 - SN1802; ConvF(4.84, 4.84, 4.84); Calibrated: 1/21/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn389; Calibrated: 1/12/2005
- Phantom: SAM3 PCS Head and Body; Phantom section: Flat Section
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 146

System Check/Area Scan (8x8x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 8.66 mW/g

System Check/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 95.2 V/m; Power Drift = -0.063 dB
Peak SAR (extrapolated) = 18.2 W/kg
SAR(1 g) = 10.5 mW/g; SAR(10 g) = 5.52 mW/g
Maximum value of SAR (measured) = 12.0 mW/g



Date/Time: 12/13/2005 2:06:23 PM
Test Laboratory: TCC Dallas

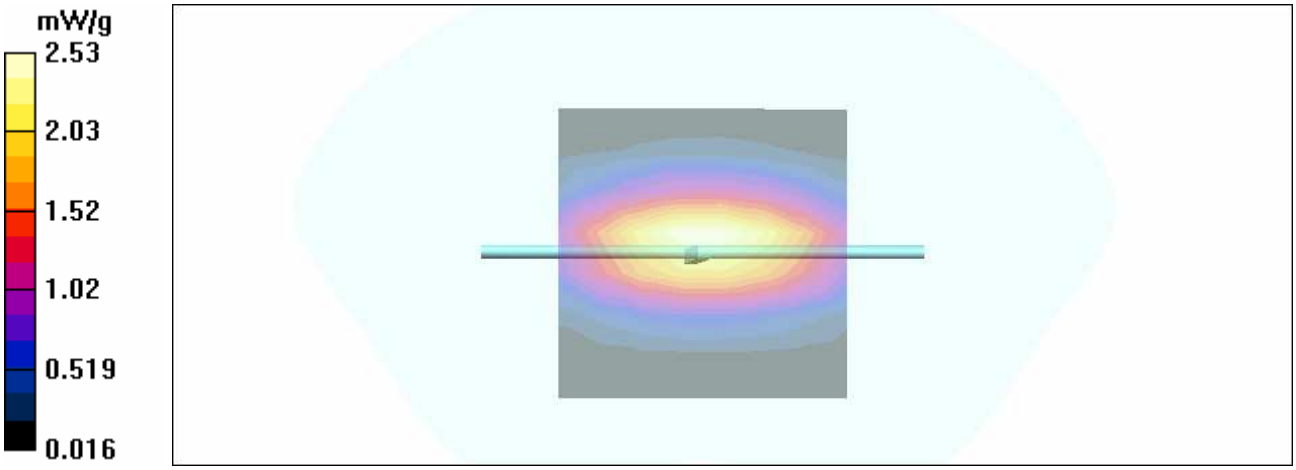
835MHz Body System Check

Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used: f = 835 MHz; σ = 0.983 mho/m; ε_r = 55.5; ρ = 1000 kg/m^3
Liquid Temperature: 20.5

DASY4 Configuration:
- Probe: ET3DV6 - SN1802; ConvF(6.05, 6.05, 6.05); Calibrated: 1/21/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn389; Calibrated: 1/12/2005
- Phantom: SAM2 Cellular Body; Phantom section: Flat Section
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 146

System Check/Area Scan (8x8x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.53 mW/g

System Check/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 54.3 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 3.66 W/kg
SAR(1 g) = 2.54 mW/g; SAR(10 g) = 1.68 mW/g
Maximum value of SAR (measured) = 2.75 mW/g



Date/Time: 12/19/2005 10:36:09 AM
Test Laboratory: TCC Dallas

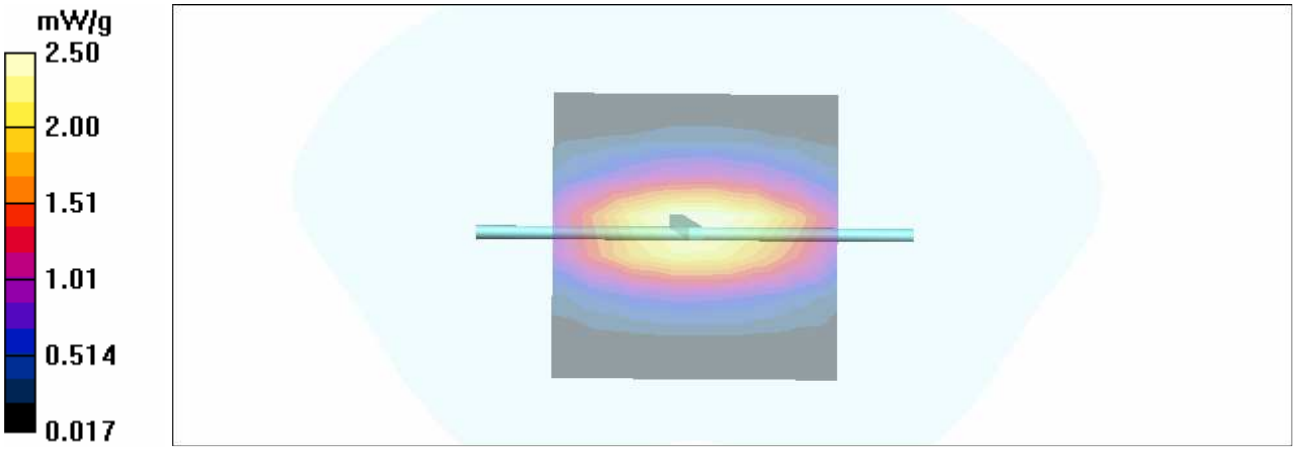
835MHz Body System Check

Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used: f = 835 MHz; σ = 0.984 mho/m; ε_r = 55.5; ρ = 1000 kg/m^3
Liquid Temperature: 21.0

DASY4 Configuration:
- Probe: ET3DV6 - SN1802; ConvF(6.05, 6.05, 6.05); Calibrated: 1/21/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn389; Calibrated: 1/12/2005
- Phantom: SAM2 Cellular Body; Phantom section: Flat Section
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 146

System Check/Area Scan (8x8x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.50 mW/g

System Check/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 55.1 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 3.73 W/kg
SAR(1 g) = 2.57 mW/g; SAR(10 g) = 1.69 mW/g
Maximum value of SAR (measured) = 2.78 mW/g



Date/Time: 12/16/2005 8:47:41 AM
Test Laboratory: TCC Dallas

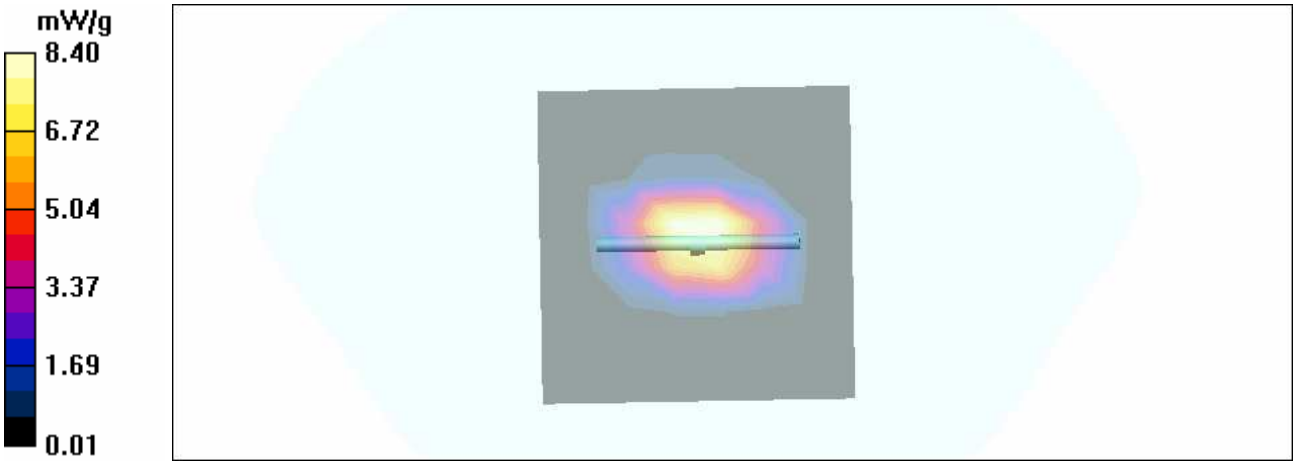
1900MHz Body System Check

Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.58 mho/m; ε_r = 50.8; ρ = 1000 kg/m^3
Liquid Temperature: 20.7

DASY4 Configuration:
- Probe: ET3DV6 - SN1802; ConvF(4.29, 4.29, 4.29); Calibrated: 1/21/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn389; Calibrated: 1/12/2005
- Phantom: SAM3 PCS Head and Body; Phantom section: Flat Section
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 146

System Check/Area Scan (8x8x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 8.40 mW/g

System Check/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 92.9 V/m; Power Drift = -0.020 dB
Peak SAR (extrapolated) = 18.1 W/kg
SAR(1 g) = 10.4 mW/g; SAR(10 g) = 5.44 mW/g
Maximum value of SAR (measured) = 11.8 mW/g



Date/Time: 12/21/2005 12:04:08 PM
Test Laboratory: TCC Dallas

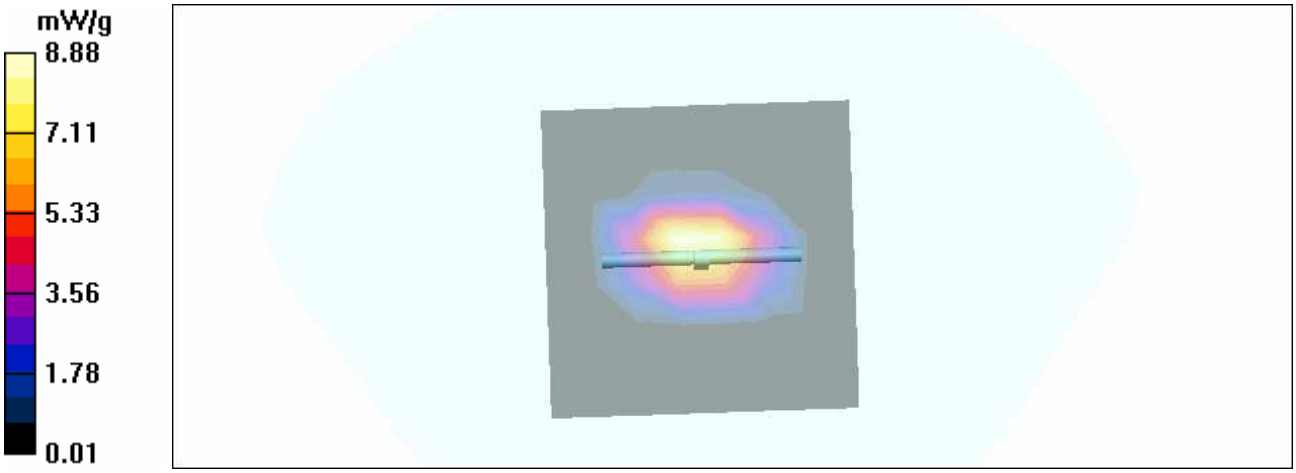
1900MHz Body System Check

Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.58 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3
Liquid Temperature: 20.5

DASY4 Configuration:
- Probe: ET3DV6 - SN1802; ConvF(4.29, 4.29, 4.29); Calibrated: 1/21/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn389; Calibrated: 1/12/2005
- Phantom: SAM3 PCS Head and Body; Phantom section: Flat Section
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 146

System Check/Area Scan (8x8x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 8.88 mW/g

System Check/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 90.5 V/m; Power Drift = -0.028 dB
Peak SAR (extrapolated) = 17.1 W/kg
SAR(1 g) = 10 mW/g; SAR(10 g) = 5.28 mW/g
Maximum value of SAR (measured) = 11.3 mW/g



APPENDIX B: MEASUREMENT SCANS

Date/Time: 12/9/2005 1:07:58 PM
Test Laboratory: TCC Dallas

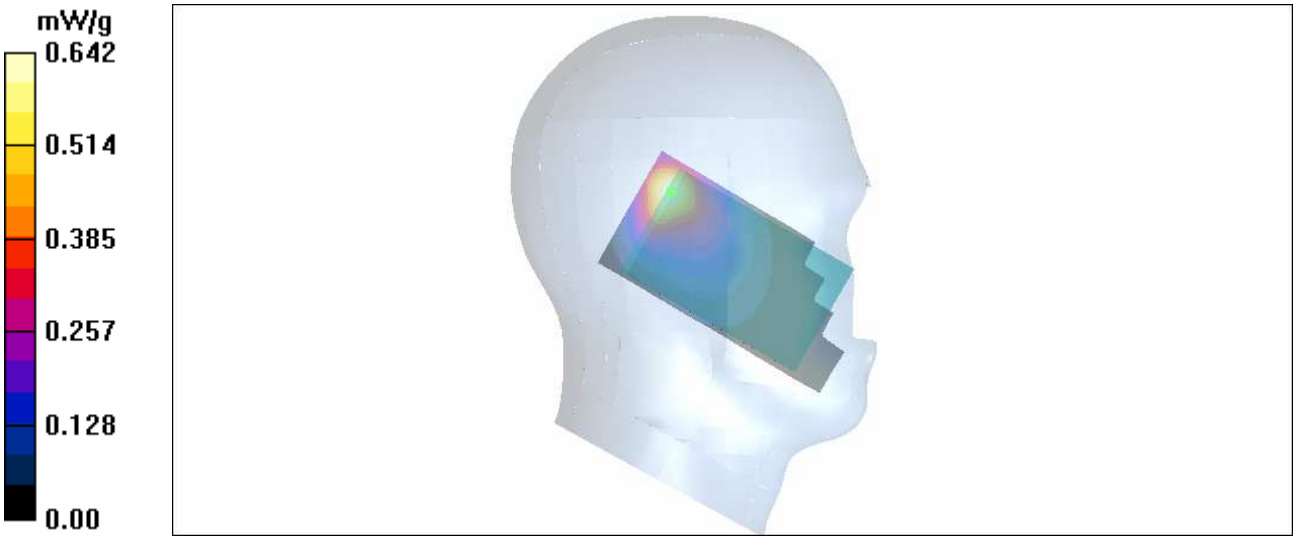
RM-88, GSM 850, Channel 251, Left Tilt Position with BP-5L Battery

Communication System: GSM850; Frequency: 848.8 MHz;Duty Cycle: 1:8.3
Medium parameters used (interpolated): f = 848.8 MHz; σ = 0.904 mho/m; ε_r = 41.1; ρ = 1000 kg/m^3
Liquid Temperature: 20.3

DASY4 Configuration:
- Probe: ET3DV6 - SN1802; ConvF(6.28, 6.28, 6.28); Calibrated: 1/21/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn389; Calibrated: 1/12/2005
- Phantom: SAM1 Cellular Head; Phantom section: Left Section
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 146

Left Tilt/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.642 mW/g

Left Tilt/Zoom Scan 1 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.1 V/m; Power Drift = -0.031 dB
Peak SAR (extrapolated) = 0.996 W/kg
SAR(1 g) = 0.564 mW/g; SAR(10 g) = 0.324 mW/g
Maximum value of SAR (measured) = 0.628 mW/g



Date/Time: 12/12/2005 10:32:36 AM
Test Laboratory: TCC Dallas

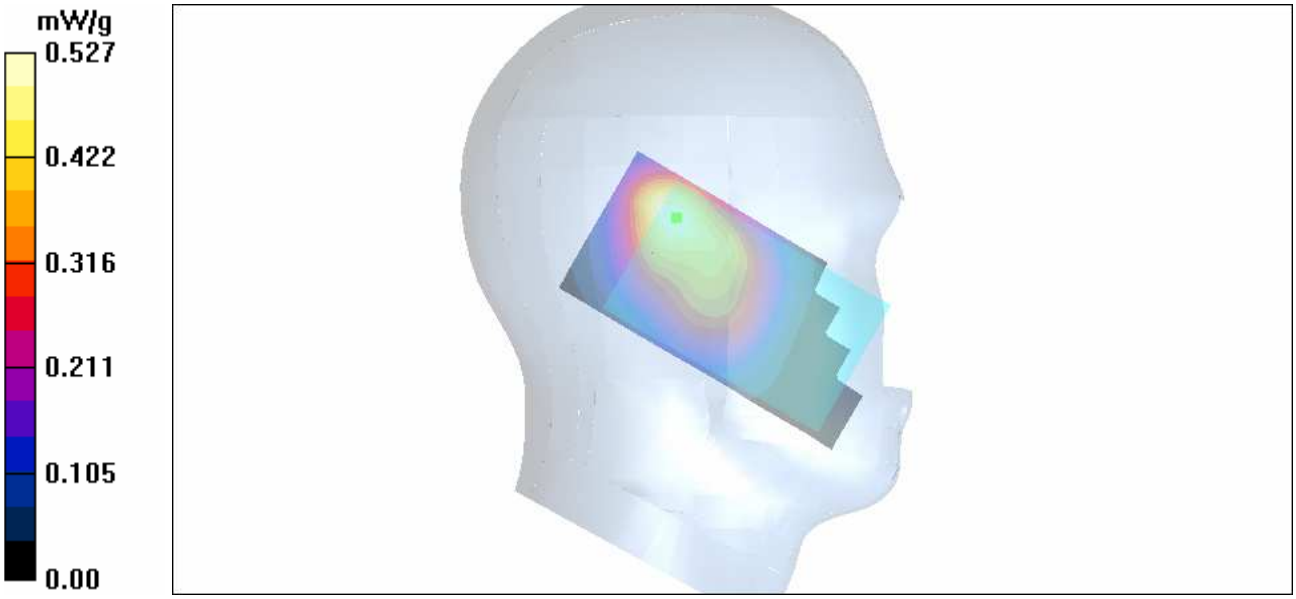
RM-88, 2-slot GPRS 850, Channel 190, Left Cheek Position with BP-5L Battery

Communication System: GPRS850 (2-Slot); Frequency: 836.6 MHz;Duty Cycle: 1:4.2
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.907 mho/m; ε_r = 42.4; ρ = 1000 kg/m^3
Liquid Temperature: 20.8

DASY4 Configuration:
- Probe: ET3DV6 - SN1802; ConvF(6.28, 6.28, 6.28); Calibrated: 1/21/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn389; Calibrated: 1/12/2005
- Phantom: SAM1 Cellular Head; Phantom section: Left Section
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 146

Left Cheek/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.527 mW/g

Left Cheek/Zoom Scan 1 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.0 V/m; Power Drift = -0.021 dB
Peak SAR (extrapolated) = 0.850 W/kg
SAR(1 g) = 0.499 mW/g; SAR(10 g) = 0.308 mW/g
Maximum value of SAR (measured) = 0.542 mW/g



Date/Time: 12/29/2005 4:01:58 PM
Test Laboratory: TCC Dallas

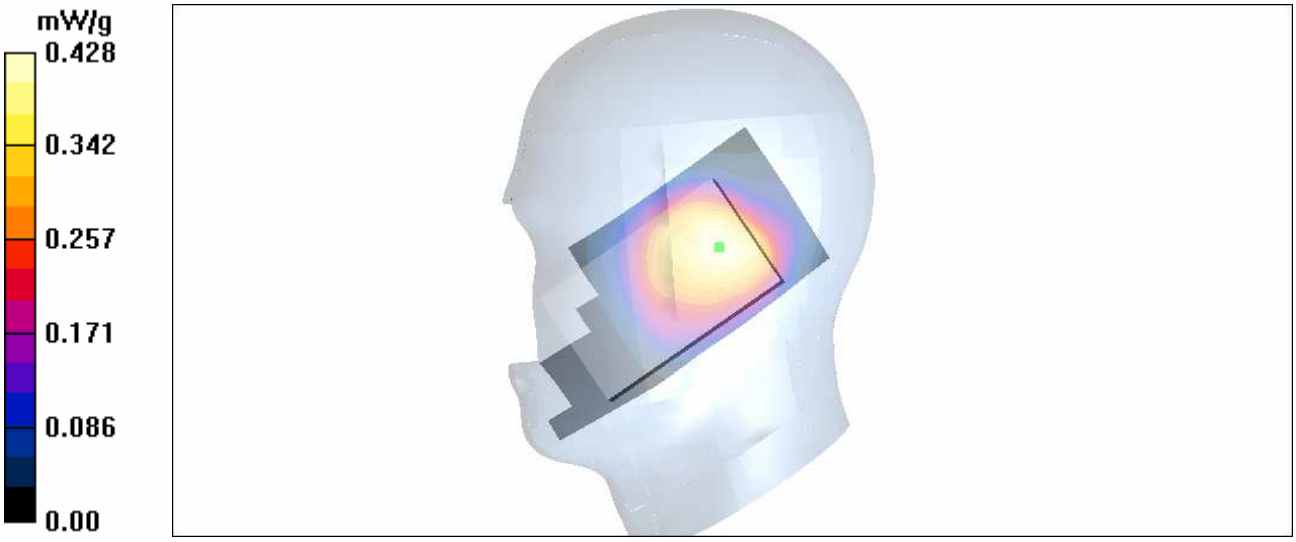
RM-88, 2-slot GPRS 850, Channel 190, Right Cheek Position with BP-5L Battery

Communication System: GPRS850 (2-Slot); Frequency: 836.6 MHz;Duty Cycle: 1:4.2
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.903 mho/m; ε_r = 42; ρ = 1000 kg/m^3
Liquid Temperature: 20.7

DASY4 Configuration:
- Probe: ET3DV6 - SN1802; ConvF(6.28, 6.28, 6.28); Calibrated: 1/21/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn389; Calibrated: 1/12/2005
- Phantom: SAM1 Cellular Head; Phantom section: Right Section
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 146

Right Cheek/Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.428 mW/g

Right Cheek/Zoom Scan 1 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.5 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.580 W/kg
SAR(1 g) = 0.402 mW/g; SAR(10 g) = 0.303 mW/g
Maximum value of SAR (measured) = 0.425 mW/g



Date/Time: 12/12/2005 12:56:59 PM
Test Laboratory: TCC Dallas

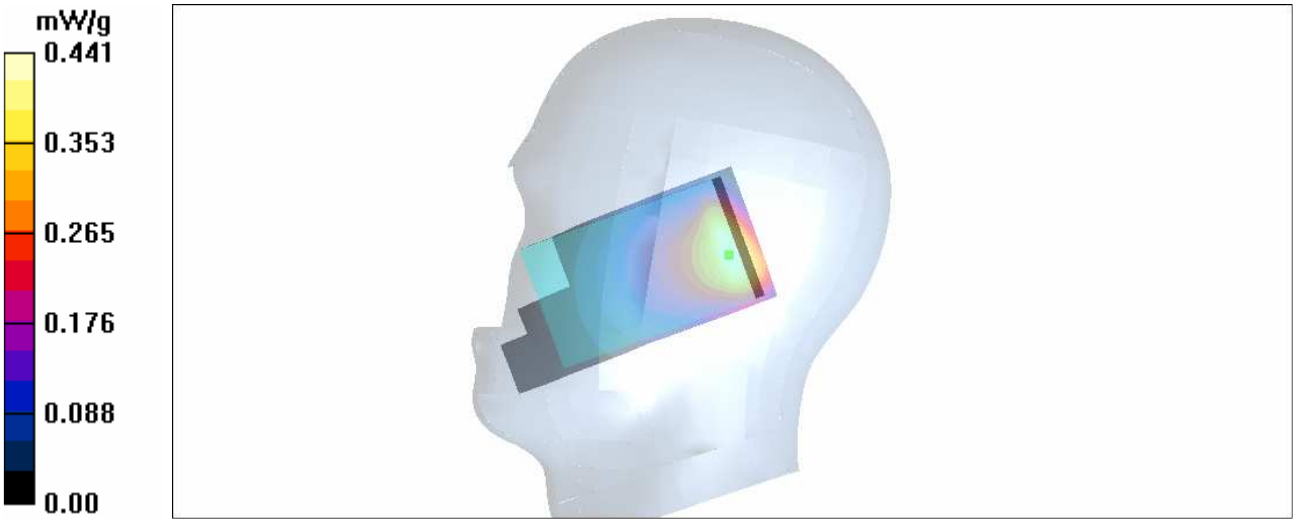
RM-88, 2-slot GPRS 850, Channel 190, Right Tilt Position with BP-5L Battery

Communication System: GPRS850 (2-Slot); Frequency: 836.6 MHz;Duty Cycle: 1:4.2
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.907 mho/m; ε_r = 42.4; ρ = 1000 kg/m^3
Liquid Temperature: 20.8

DASY4 Configuration:
- Probe: ET3DV6 - SN1802; ConvF(6.28, 6.28, 6.28); Calibrated: 1/21/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn389; Calibrated: 1/12/2005
- Phantom: SAM1 Cellular Head; Phantom section: Right Section
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 146

Right Tilt/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.441 mW/g

Right Tilt/Zoom Scan 1 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.4 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.611 W/kg
SAR(1 g) = 0.390 mW/g; SAR(10 g) = 0.254 mW/g
Maximum value of SAR (measured) = 0.417 mW/g



Date/Time: 12/28/2005 3:03:38 PM
Test Laboratory: TCC Dallas

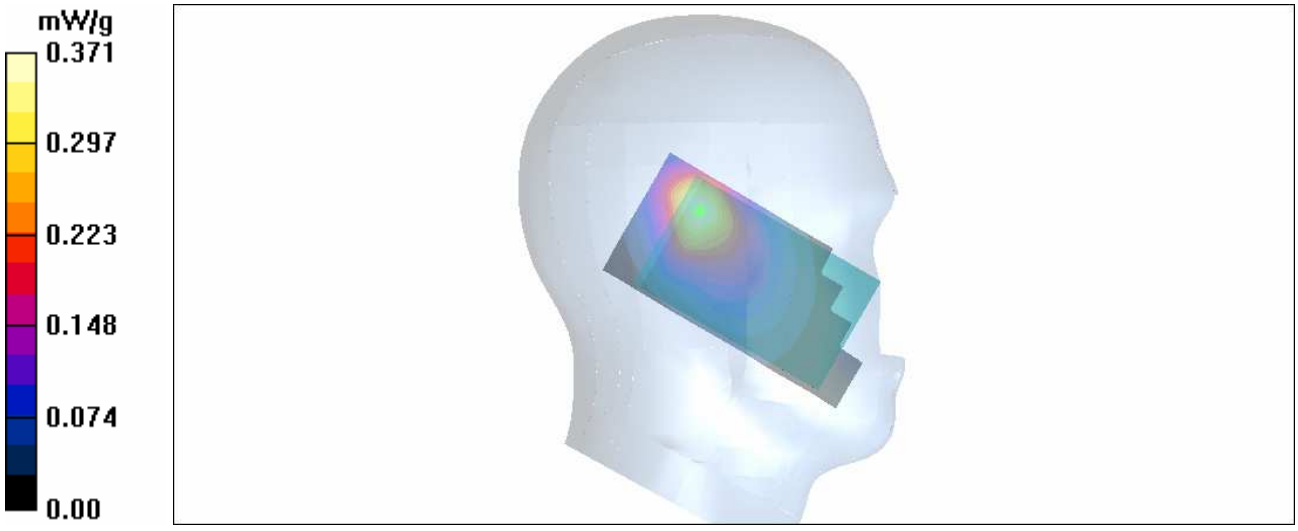
RM-88, 2-slot EGPRS 850, Channel 251, Left Tilt Position with BP-5L Battery

Communication System: GPRS850 (2-Slot); Frequency: 848.8 MHz;Duty Cycle: 1:4.2
Medium parameters used (interpolated): f = 848.8 MHz; σ = 0.915 mho/m; ε_r = 41.8; ρ = 1000 kg/m^3
Liquid Temperature: 21.1

DASY4 Configuration:
- Probe: ET3DV6 - SN1802; ConvF(6.28, 6.28, 6.28); Calibrated: 1/21/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn389; Calibrated: 1/12/2005
- Phantom: SAM1 Cellular Head; Phantom section: Left Section
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 146

Left Tilt/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.371 mW/g

Left Tilt/Zoom Scan 1 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.9 V/m; Power Drift = 0.060 dB
Peak SAR (extrapolated) = 0.593 W/kg
SAR(1 g) = 0.349 mW/g; SAR(10 g) = 0.209 mW/g
Maximum value of SAR (measured) = 0.373 mW/g



Date/Time: 12/29/2005 12:10:13 PM
Test Laboratory: TCC Dallas

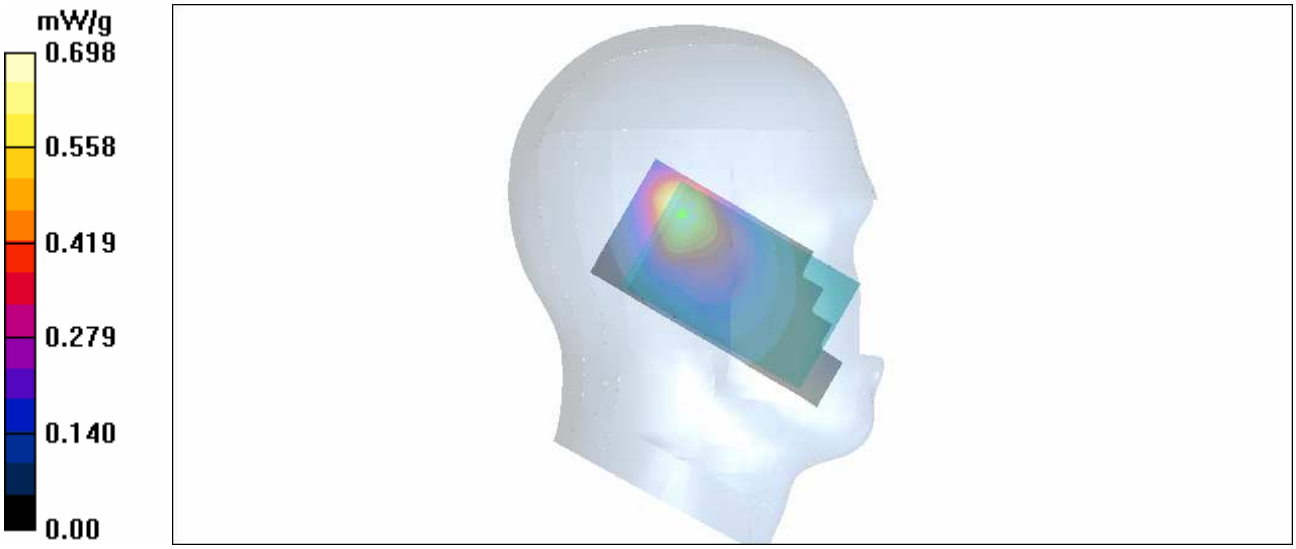
RM-88, 2-slot GPRS 850, Channel 251, Left Tilt Position with BP-5L Battery with BTActive

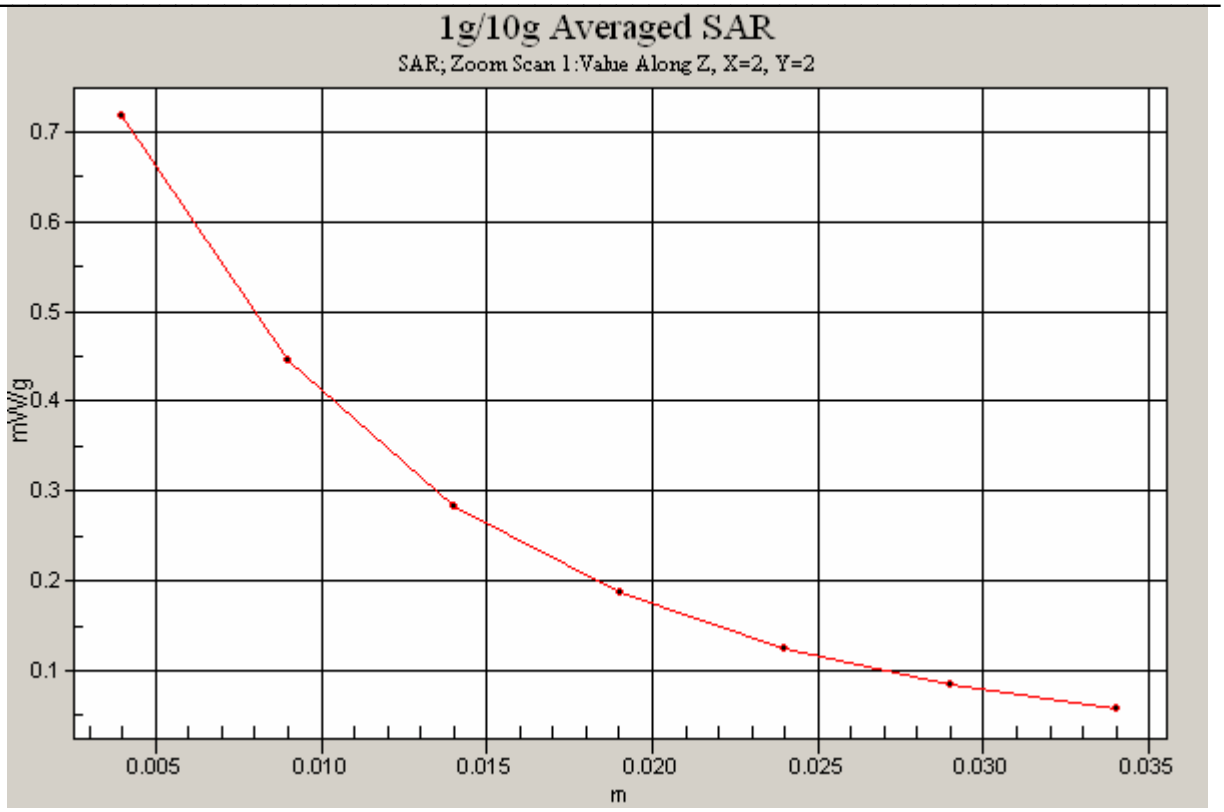
Communication System: GPRS850 (2-Slot); Frequency: 848.8 MHz;Duty Cycle: 1:4.2
Medium parameters used (interpolated): f = 848.8 MHz; σ = 0.915 mho/m; ε_r = 41.9; ρ = 1000 kg/m^3
Liquid Temperature:20.7

DASY4 Configuration:
- Probe: ET3DV6 - SN1802; ConvF(6.28, 6.28, 6.28); Calibrated: 1/21/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn389; Calibrated: 1/12/2005
- Phantom: SAM1 Cellular Head; Phantom section: Left Section
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 146

Left Tilt/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.698 mW/g

Left Tilt/Zoom Scan 1 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 23.6 V/m; Power Drift = -0.060 dB
Peak SAR (extrapolated) = 1.15 W/kg
SAR(1 g) = 0.667 mW/g; SAR(10 g) = 0.396 mW/g
Maximum value of SAR (measured) = 0.717 mW/g





Date/Time: 12/14/2005 4:32:41 PM
Test Laboratory: TCC Dallas

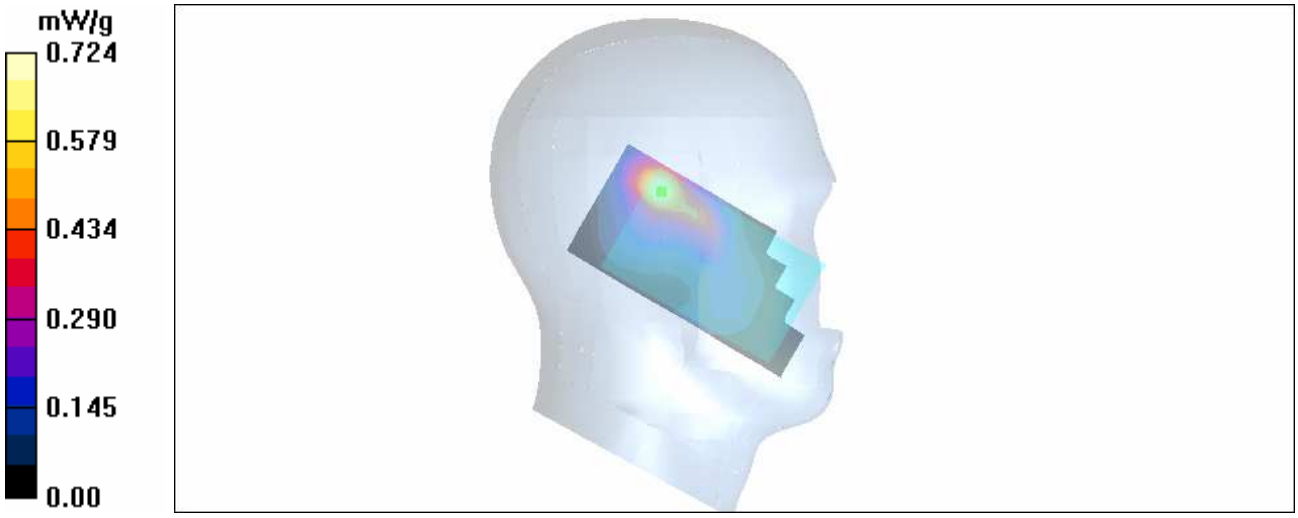
RM-88, GSM 1900, Channel 810, Left Cheek Position with BP-5L Battery

Communication System: GSM1900; Frequency: 1909.8 MHz;Duty Cycle: 1:8.3
Medium parameters used (interpolated): f = 1909.8 MHz; σ = 1.46 mho/m; ε_r = 39.7; ρ = 1000 kg/m^3
Liquid Temperature: 19.5

DASY4 Configuration:
- Probe: ET3DV6 - SN1802; ConvF(4.84, 4.84, 4.84); Calibrated: 1/21/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn389; Calibrated: 1/12/2005
- Phantom: SAM3 PCS Head and Body; Phantom section: Left Section
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 146

Left Cheek/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.724 mW/g

Left Cheek/Zoom Scan 1 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.4 V/m; Power Drift = -0.178 dB
Peak SAR (extrapolated) = 1.14 W/kg
SAR(1 g) = 0.639 mW/g; SAR(10 g) = 0.336 mW/g
Maximum value of SAR (measured) = 0.694 mW/g



Date/Time: 12/15/2005 12:02:32 PM
Test Laboratory: TCC Dallas

RM-88, 2-slot GPRS 1900, Channel 810, Left Cheek Position with BP-5L Battery

Communication System: GPRS1900 (2-Slot); Frequency: 1909.8 MHz;Duty Cycle: 1:4.2
Medium parameters used (interpolated): f = 1909.8 MHz; σ = 1.47 mho/m; ε_r = 39.6; ρ = 1000 kg/m^3
Liquid Temperature: 19.3

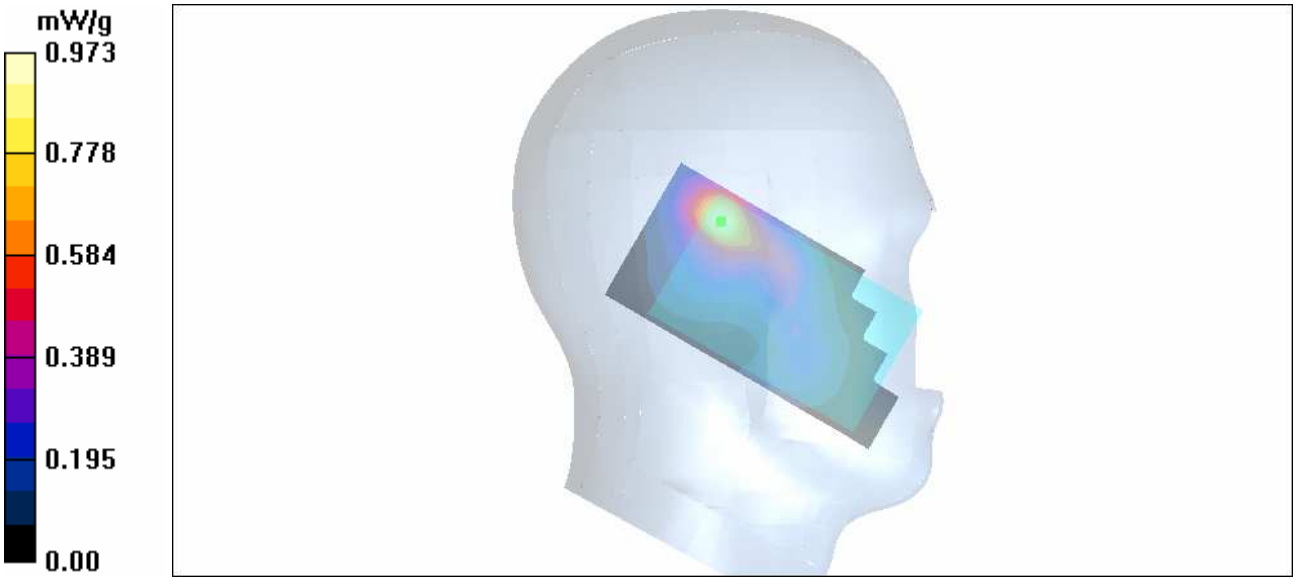
DASY4 Configuration:
- Probe: ET3DV6 - SN1802; ConvF(4.84, 4.84, 4.84); Calibrated: 1/21/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn389; Calibrated: 1/12/2005
- Phantom: SAM3 PCS Head and Body; Phantom section: Left Section
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 146

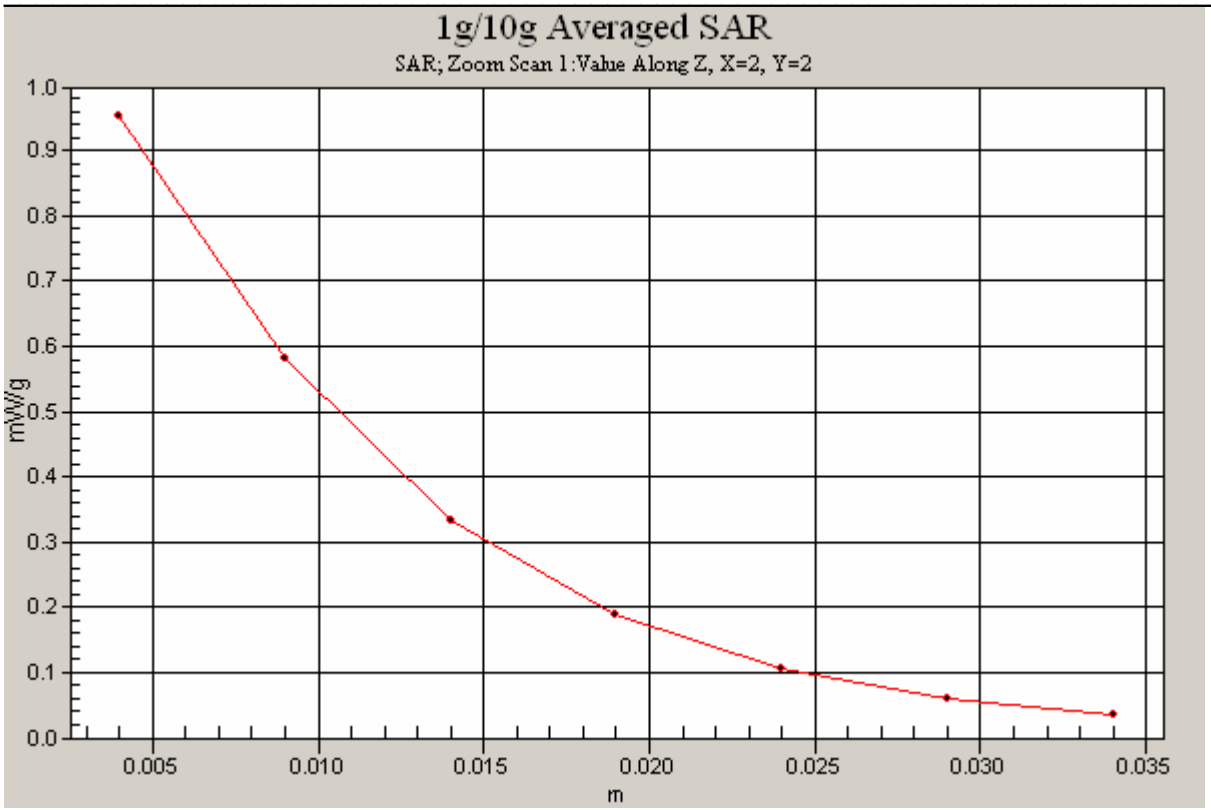
Left Cheek/Zoom Scan 1 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 14.3 V/m; Power Drift = -0.086 dB
Peak SAR (extrapolated) = 1.48 W/kg
SAR(1 g) = 0.852 mW/g; SAR(10 g) = 0.455 mW/g
Maximum value of SAR (measured) = 0.952 mW/g

Left Cheek/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.973 mW/g





Date/Time: 12/15/2005 10:23:58 AM
Test Laboratory: TCC Dallas

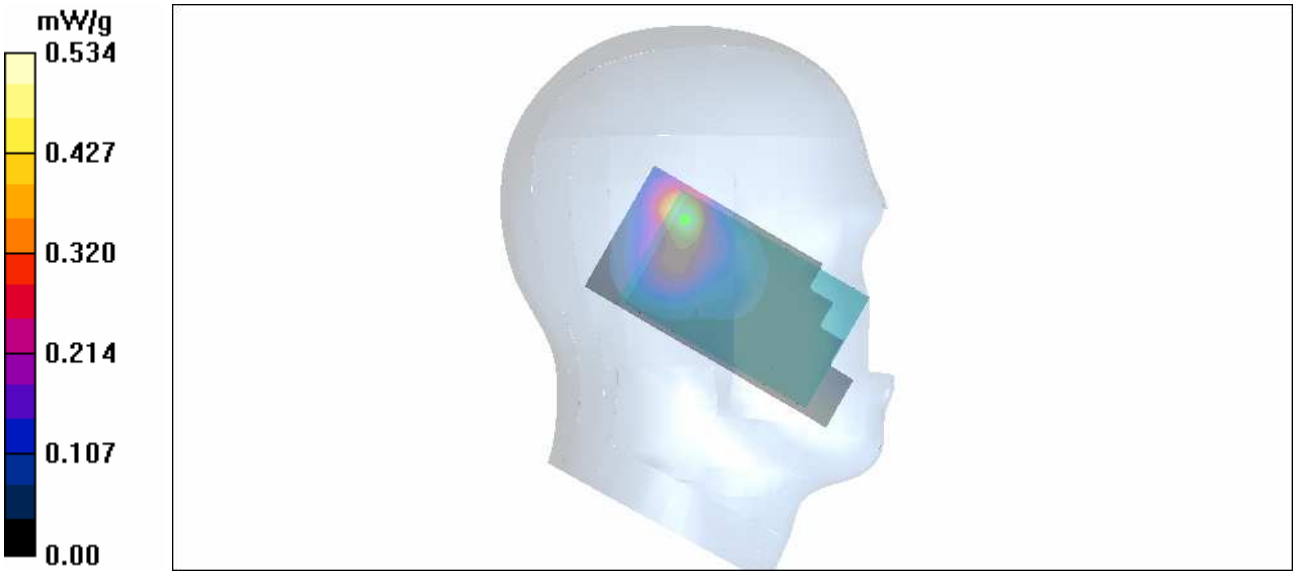
RM-88, 2-slot GPRS 1900, Channel 661, Left Tilt Position with BP-5L Battery

Communication System: GPRS1900 (2-Slot); Frequency: 1880 MHz;Duty Cycle: 1:4.2
Medium parameters used: f = 1880 MHz; σ = 1.44 mho/m; ε_r = 39.7; ρ = 1000 kg/m^3
Liquid Temperature: 19.3

DASY4 Configuration:
- Probe: ET3DV6 - SN1802; ConvF(4.84, 4.84, 4.84); Calibrated: 1/21/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn389; Calibrated: 1/12/2005
- Phantom: SAM3 PCS Head and Body; Phantom section: Left Section
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 146

Left Tilt/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.534 mW/g

Left Tilt/Zoom Scan 1 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.0 V/m; Power Drift = -0.156 dB
Peak SAR (extrapolated) = 0.868 W/kg
SAR(1 g) = 0.474 mW/g; SAR(10 g) = 0.248 mW/g
Maximum value of SAR (measured) = 0.525 mW/g



Date/Time: 12/15/2005 12:40:38 PM
Test Laboratory: TCC Dallas

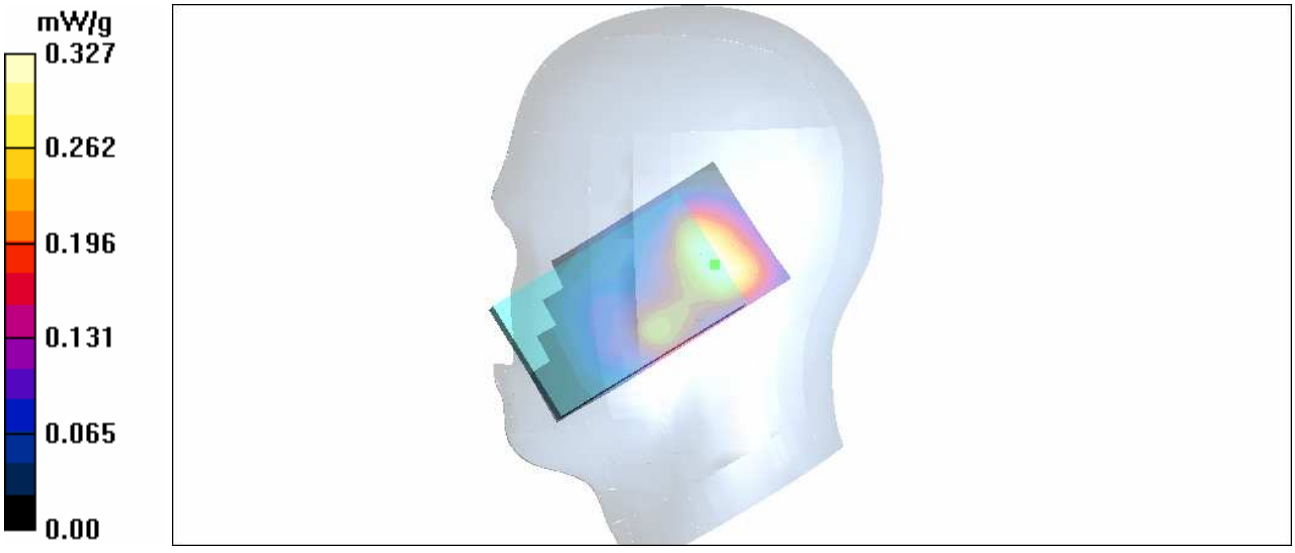
RM-88, 2-slot GPRS 1900, Channel 661, Right Cheek Position with BP-5L Battery

Communication System: GPRS1900 (2-Slot); Frequency: 1880 MHz;Duty Cycle: 1:4.2
Medium parameters used: f = 1880 MHz; σ = 1.44 mho/m; ε_r = 39.7; ρ = 1000 kg/m^3
Liquid Temperature: 19.3

DASY4 Configuration:
- Probe: ET3DV6 - SN1802; ConvF(4.84, 4.84, 4.84); Calibrated: 1/21/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn389; Calibrated: 1/12/2005
- Phantom: SAM3 PCS Head and Body; Phantom section: Right Section
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 146

Right Cheek/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.327 mW/g

Right Cheek/Zoom Scan 1 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.0 V/m; Power Drift = -0.120 dB
Peak SAR (extrapolated) = 0.496 W/kg
SAR(1 g) = 0.311 mW/g; SAR(10 g) = 0.192 mW/g
Maximum value of SAR (measured) = 0.330 mW/g



Date/Time: 12/15/2005 1:21:00 PM
Test Laboratory: TCC Dallas

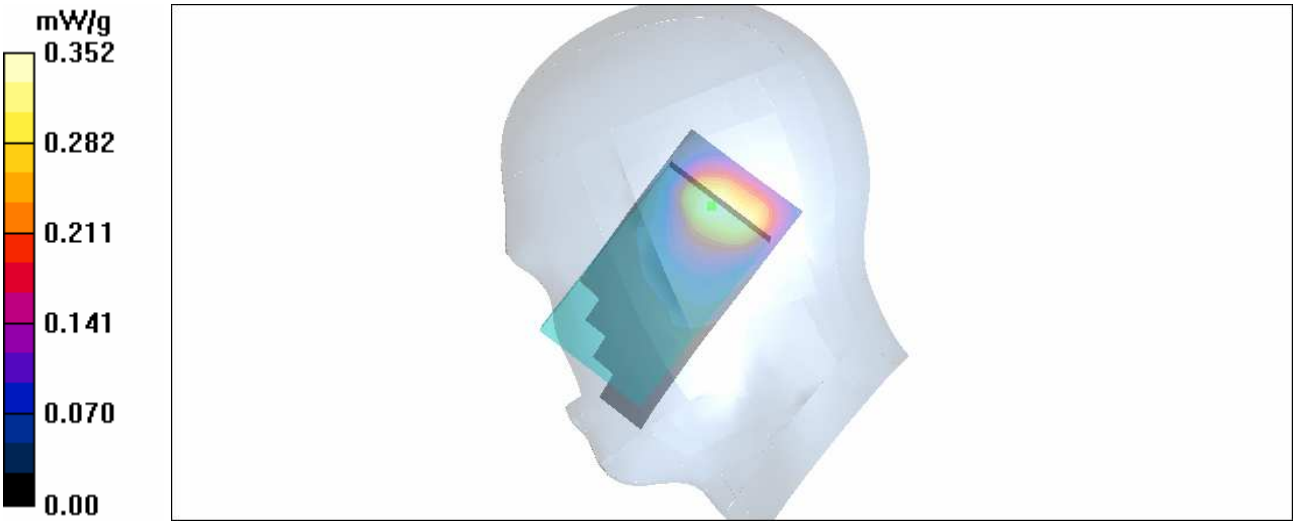
RM-88, 2-slot GPRS 1900, Channel 661, Right Tilt Position with BP-5L Battery

Communication System: GPRS1900 (2-Slot); Frequency: 1880 MHz;Duty Cycle: 1:4.2
Medium parameters used: f = 1880 MHz; σ = 1.44 mho/m; ε_r = 39.7; ρ = 1000 kg/m^3
Liquid Temperature: 19.3

DASY4 Configuration:
- Probe: ET3DV6 - SN1802; ConvF(4.84, 4.84, 4.84); Calibrated: 1/21/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn389; Calibrated: 1/12/2005
- Phantom: SAM3 PCS Head and Body; Phantom section: Right Section
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 146

Right Tilt/7x7x7 Zoom Scan 1 (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.0 V/m; Power Drift = -0.244 dB
Peak SAR (extrapolated) = 0.503 W/kg
SAR(1 g) = 0.302 mW/g; SAR(10 g) = 0.190 mW/g
Maximum value of SAR (measured) = 0.329 mW/g

Right Tilt/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.352 mW/g



Date/Time: 12/15/2005 4:52:51 PM
Test Laboratory: TCC Dallas

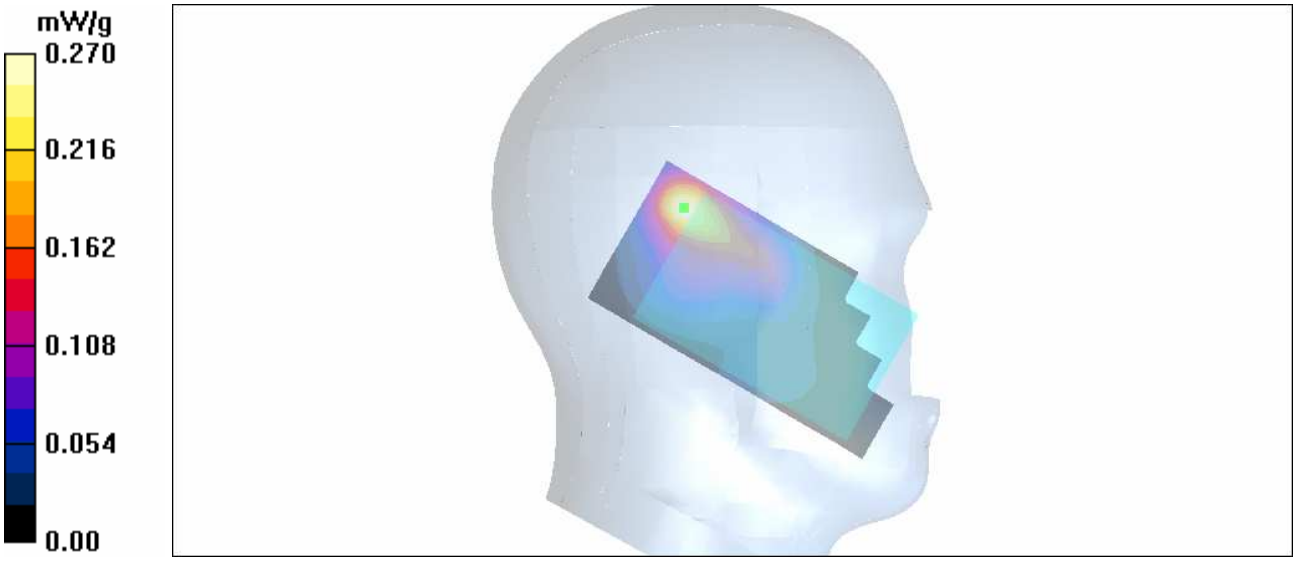
RM-88, 2-slot EGPRS 1900, Channel 810, Left Cheek Position with BP-5L Battery

Communication System: GPRS1900 (2-Slot); Frequency: 1909.8 MHz;Duty Cycle: 1:4.2
Medium parameters used (interpolated): f = 1909.8 MHz; σ = 1.47 mho/m; ε_r = 39.6; ρ = 1000 kg/m^3
Liquid Temperature: 19.3

DASY4 Configuration:
- Probe: ET3DV6 - SN1802; ConvF(4.84, 4.84, 4.84); Calibrated: 1/21/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn389; Calibrated: 1/12/2005
- Phantom: SAM3 PCS Head and Body; Phantom section: Left Section
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 146

Left Cheek/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.270 mW/g

Left Cheek/Zoom Scan 1 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.33 V/m; Power Drift = -0.114 dB
Peak SAR (extrapolated) = 0.427 W/kg
SAR(1 g) = 0.244 mW/g; SAR(10 g) = 0.131 mW/g
Maximum value of SAR (measured) = 0.255 mW/g



Date/Time: 12/13/2005 3:38:16 PM
Test Laboratory: TCC Dallas

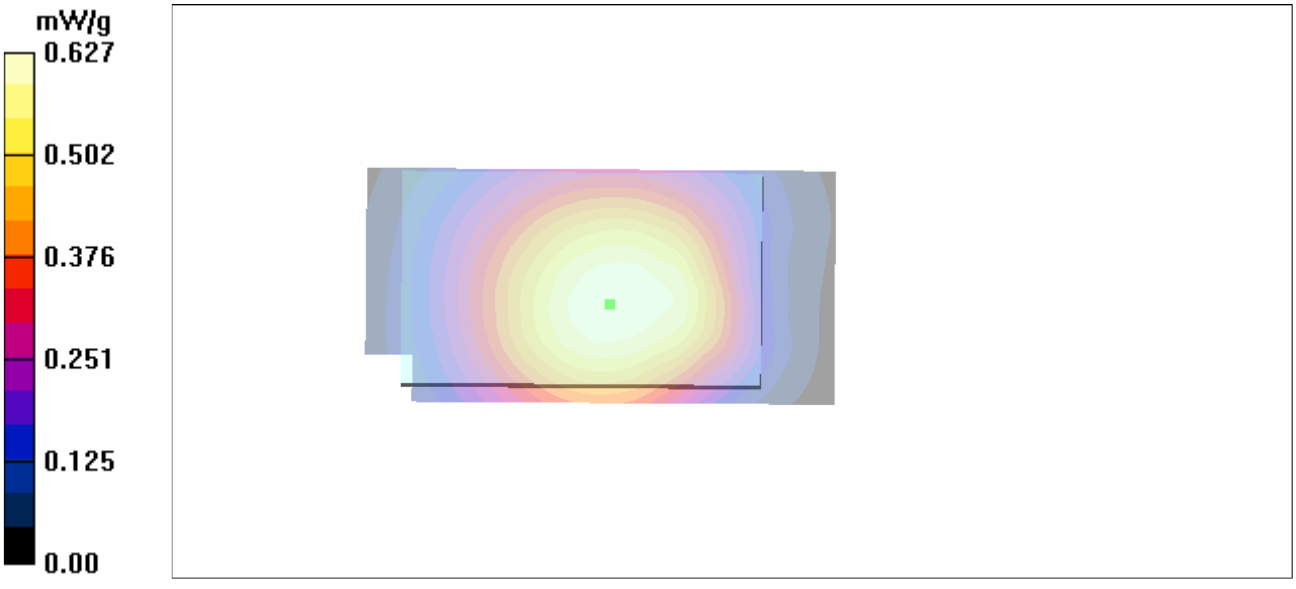
RM-88, GSM 850, Channel 128, Body Position with 2.2cm Spacer with BP-5L Battery

Communication System: GSM850; Frequency: 824.2 MHz;Duty Cycle: 1:8.3
Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.973 mho/m; ε_r = 55.6; ρ = 1000 kg/m^3
Liquid Temperature: 20.5

DASY4 Configuration:
- Probe: ET3DV6 - SN1802; ConvF(6.05, 6.05, 6.05); Calibrated: 1/21/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn389; Calibrated: 1/12/2005
- Phantom: SAM2 Cellular Body; Phantom section: Flat Section
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 146

Body/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.627 mW/g

Body/Zoom Scan 1 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.0 V/m; Power Drift = -0.022 dB
Peak SAR (extrapolated) = 0.748 W/kg
SAR(1 g) = 0.596 mW/g; SAR(10 g) = 0.449 mW/g
Maximum value of SAR (measured) = 0.629 mW/g



Date/Time: 12/19/2005 11:10:35 AM
Test Laboratory: TCC Dallas

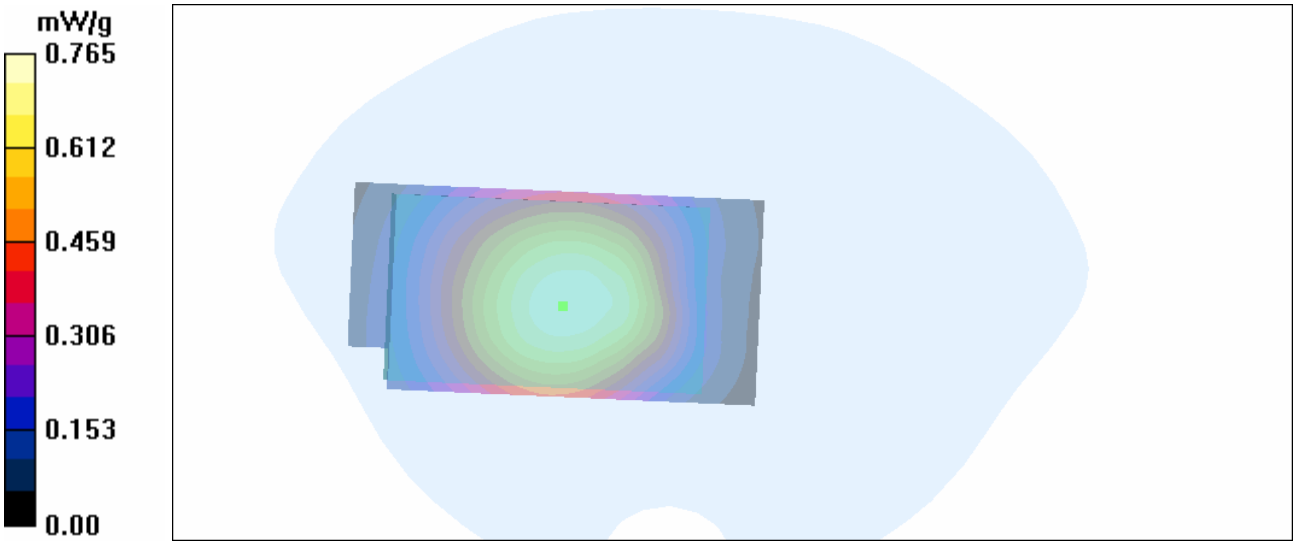
RM-88, 2-slot GPRS 850, Channel 128, Body Position with 2.2cm Spacer with BP-5L Battery

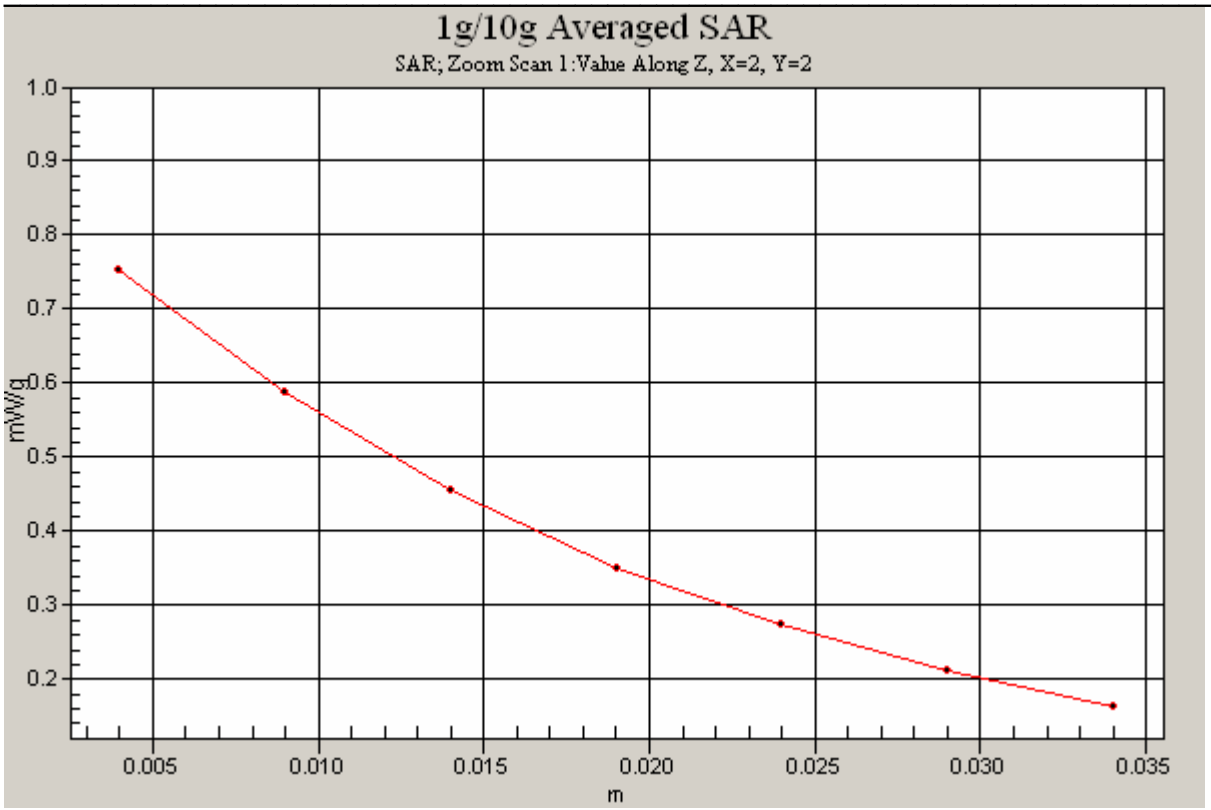
Communication System: GPRS850 (2-Slot); Frequency: 824.2 MHz;Duty Cycle: 1:4.2
Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.973 mho/m; ε_r = 55.6; ρ = 1000 kg/m^3
Liquid Temperature: 21.0

DASY4 Configuration:
- Probe: ET3DV6 - SN1802; ConvF(6.05, 6.05, 6.05); Calibrated: 1/21/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn389; Calibrated: 1/12/2005
- Phantom: SAM2 Cellular Body; Phantom section: Flat Section
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 146

Body/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.765 mW/g

Body/Zoom Scan 1 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 19.3 V/m; Power Drift = -0.094 dB
Peak SAR (extrapolated) = 0.901 W/kg
SAR(1 g) = 0.718 mW/g; SAR(10 g) = 0.544 mW/g
Maximum value of SAR (measured) = 0.753 mW/g





Date/Time: 12/13/2005 4:42:45 PM
Test Laboratory: TCC Dallas

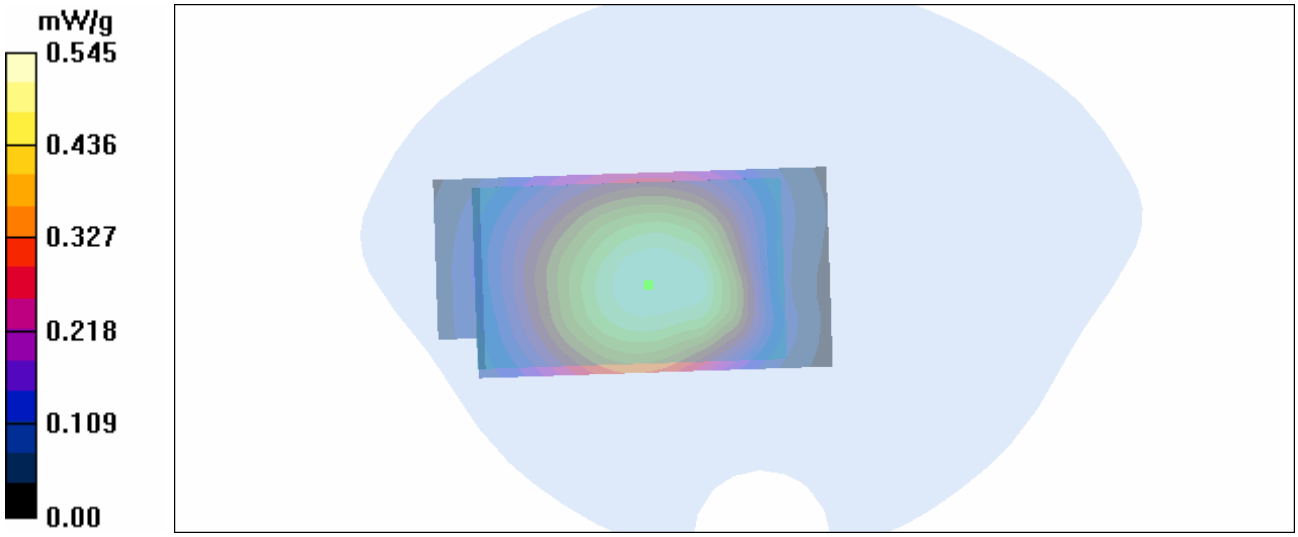
RM-88, 2-slot GPRS 850, Channel 190, Body Position with 2.2cm Spacer with BP-5L Battery, HS-40 Headset

Communication System: GPRS850 (2-Slot); Frequency: 836.6 MHz;Duty Cycle: 1:4.2
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.986 mho/m; ε_r = 55.5; ρ = 1000 kg/m^3
Liquid Temperature: 20.5

DASY4 Configuration:
- Probe: ET3DV6 - SN1802; ConvF(6.05, 6.05, 6.05); Calibrated: 1/21/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn389; Calibrated: 1/12/2005
- Phantom: SAM2 Cellular Body; Phantom section: Flat Section
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 146

Body/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.545 mW/g

Body/Zoom Scan 1 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.5 V/m; Power Drift = -0.023 dB
Peak SAR (extrapolated) = 0.639 W/kg
SAR(1 g) = 0.516 mW/g; SAR(10 g) = 0.391 mW/g
Maximum value of SAR (measured) = 0.542 mW/g



Date/Time: 12/19/2005 11:54:06 AM
Test Laboratory: TCC Dallas

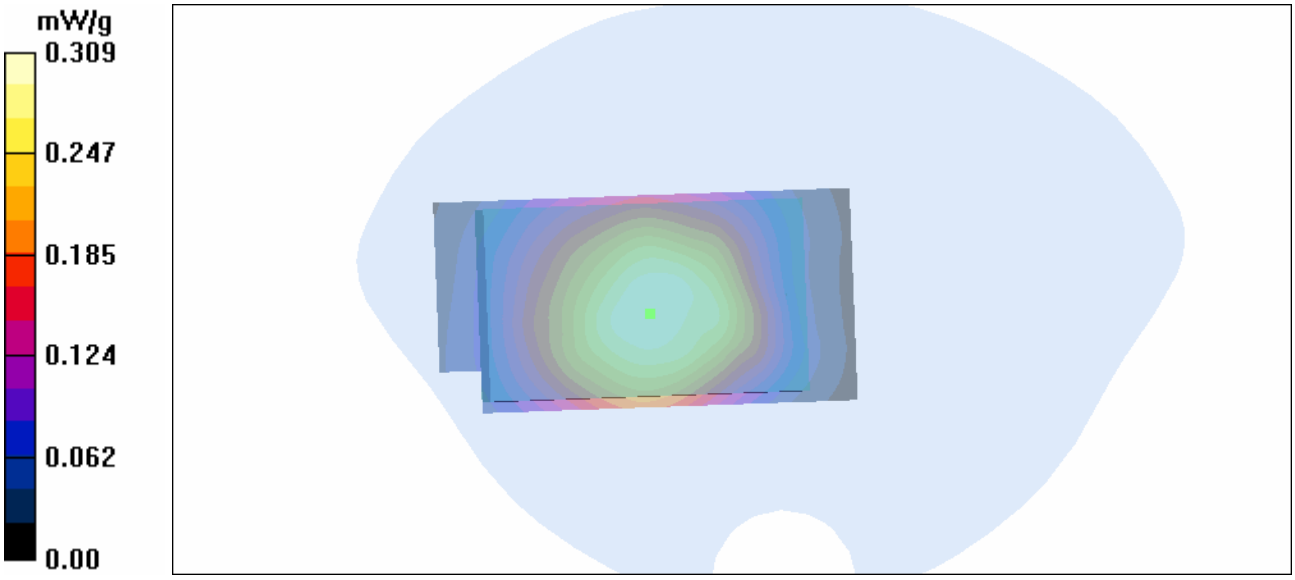
RM-88, 2-slot EGPRS 850, Channel 190, Body Position with 2.2cm Spacer with BP-5L Battery

Communication System: GPRS850 (2-Slot); Frequency: 836.6 MHz;Duty Cycle: 1:4.2
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.985 mho/m; ε_r = 55.5; ρ = 1000 kg/m^3
Liquid Temperature: 21.0

DASY4 Configuration:
- Probe: ET3DV6 - SN1802; ConvF(6.05, 6.05, 6.05); Calibrated: 1/21/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn389; Calibrated: 1/12/2005
- Phantom: SAM2 Cellular Body; Phantom section: Flat Section
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 146

Body/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.309 mW/g

Body/Zoom Scan 1 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.5 V/m; Power Drift = 0.014 dB
Peak SAR (extrapolated) = 0.364 W/kg
SAR(1 g) = 0.293 mW/g; SAR(10 g) = 0.219 mW/g
Maximum value of SAR (measured) = 0.311 mW/g



Date/Time: 12/21/2005 1:28:26 PM
Test Laboratory: TCC Dallas

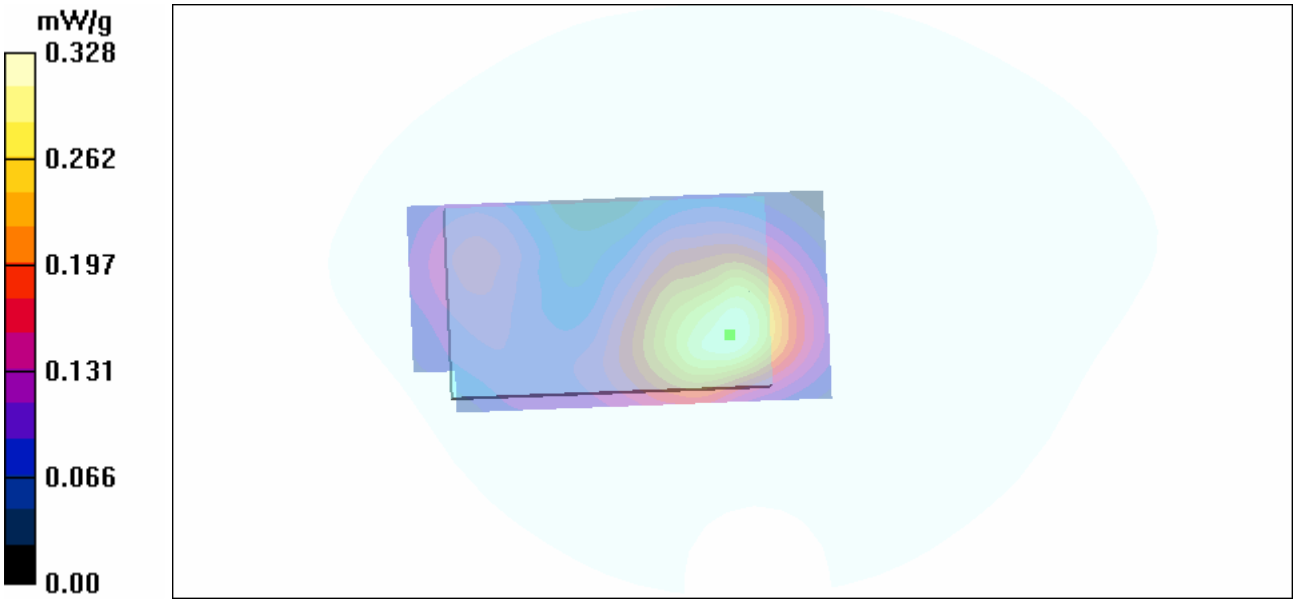
RM-88, GSM 1900, Channel 810, Body Position with 2.2cm Spacer with BP-5L Battery

Communication System: GSM1900; Frequency: 1909.8 MHz;Duty Cycle: 1:8.3
Medium parameters used (interpolated): f = 1909.8 MHz; σ = 1.59 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3
Liquid Temperature: 20.5

DASY4 Configuration:
- Probe: ET3DV6 - SN1802; ConvF(4.29, 4.29, 4.29); Calibrated: 1/21/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn389; Calibrated: 1/12/2005
- Phantom: SAM3 PCS Head and Body; Phantom section: Flat Section
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 146

Body/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.328 mW/g

Body/Zoom Scan 1 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.3 V/m; Power Drift = -0.078 dB
Peak SAR (extrapolated) = 0.486 W/kg
SAR(1 g) = 0.306 mW/g; SAR(10 g) = 0.190 mW/g
Maximum value of SAR (measured) = 0.330 mW/g



Date/Time: 12/16/2005 10:38:32 AM
Test Laboratory: TCC Dallas

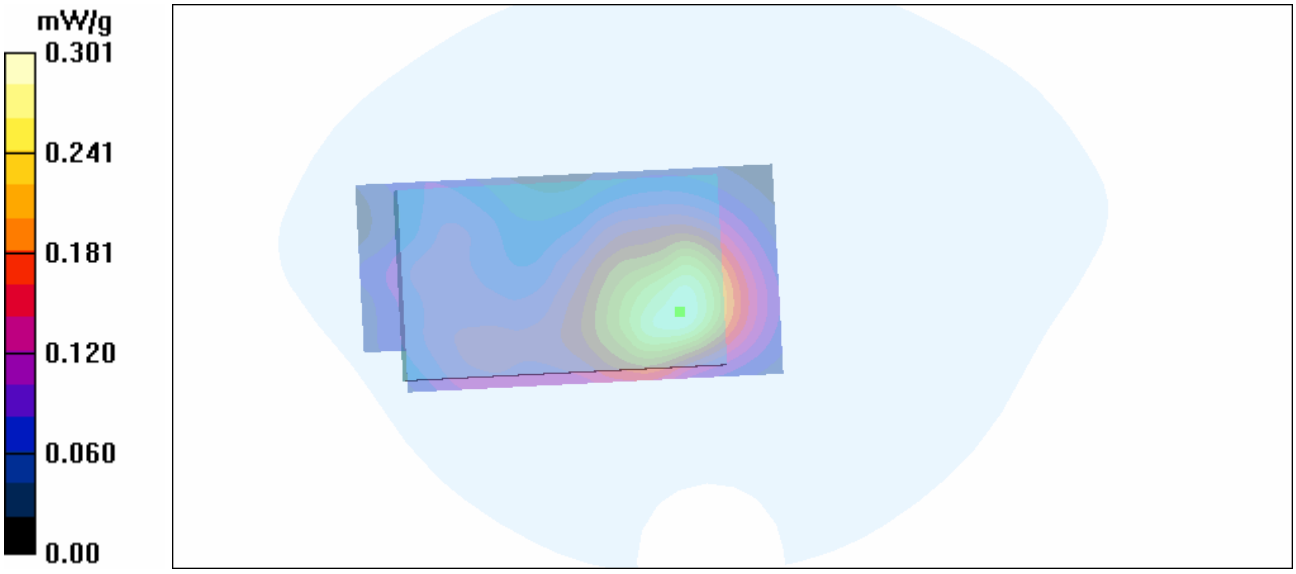
RM-88, 2-slot GPRS 1900, Channel 661, Body Position with 2.2cm Spacer with BP-5L Battery, HS-40 Headset

Communication System: GPRS1900 (2-Slot); Frequency: 1880 MHz;Duty Cycle: 1:4.2
Medium parameters used: f = 1880 MHz; σ = 1.55 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3
Liquid Temperature: 20.7

DASY4 Configuration:
- Probe: ET3DV6 - SN1802; ConvF(4.29, 4.29, 4.29); Calibrated: 1/21/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn389; Calibrated: 1/12/2005
- Phantom: SAM3 PCS Head and Body; Phantom section: Flat Section
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 146

Body/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.301 mW/g

Body/Zoom Scan 1 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.6 V/m; Power Drift = -0.114 dB
Peak SAR (extrapolated) = 0.450 W/kg
SAR(1 g) = 0.280 mW/g; SAR(10 g) = 0.172 mW/g
Maximum value of SAR (measured) = 0.305 mW/g



Date/Time: 12/16/2005 12:29:32 PM
Test Laboratory: TCC Dallas

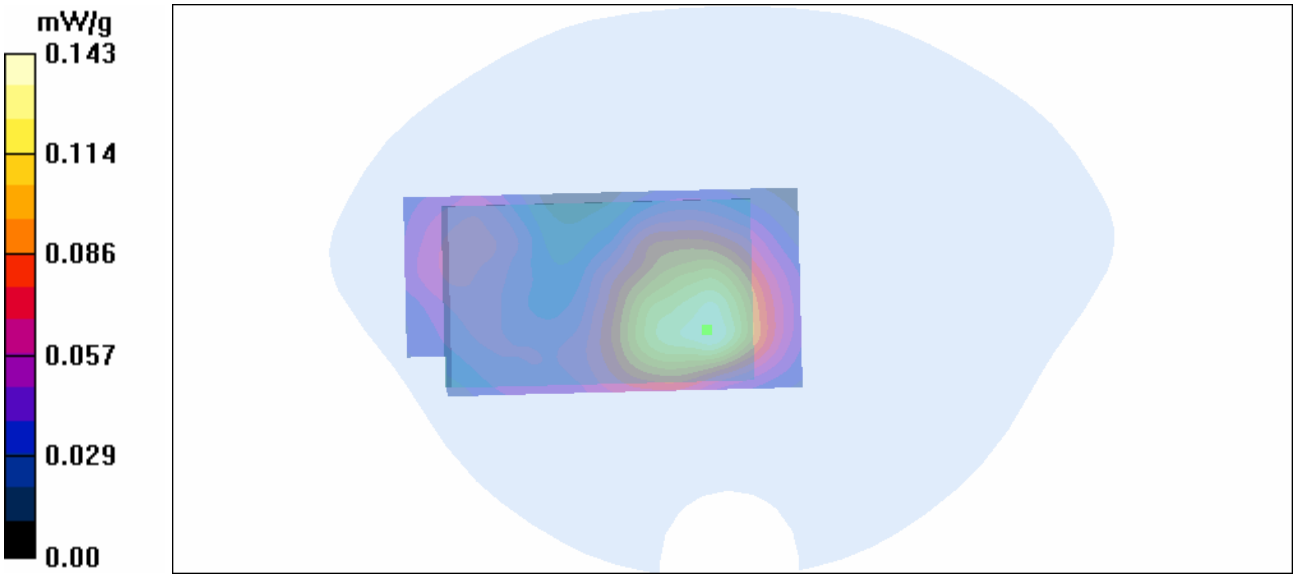
RM-88, 2-slot EGPRS 1900, Channel 810, Body Position with 2.2cm Spacer with BP-5L Battery

Communication System: GPRS1900 (2-Slot); Frequency: 1909.8 MHz;Duty Cycle: 1:4.2
Medium parameters used (interpolated): f = 1909.8 MHz; σ = 1.59 mho/m; ε_r = 50.8; ρ = 1000 kg/m^3
Liquid Temperature: 20.7

DASY4 Configuration:
- Probe: ET3DV6 - SN1802; ConvF(4.29, 4.29, 4.29); Calibrated: 1/21/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn389; Calibrated: 1/12/2005
- Phantom: SAM3 PCS Head and Body; Phantom section: Flat Section
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 146

Body/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.143 mW/g

Body/Zoom Scan 1 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.36 V/m; Power Drift = 0.294 dB
Peak SAR (extrapolated) = 0.224 W/kg
SAR(1 g) = 0.136 mW/g; SAR(10 g) = 0.084 mW/g
Maximum value of SAR (measured) = 0.147 mW/g



Date/Time: 12/21/2005 4:12:25 PM
Test Laboratory: TCC Dallas

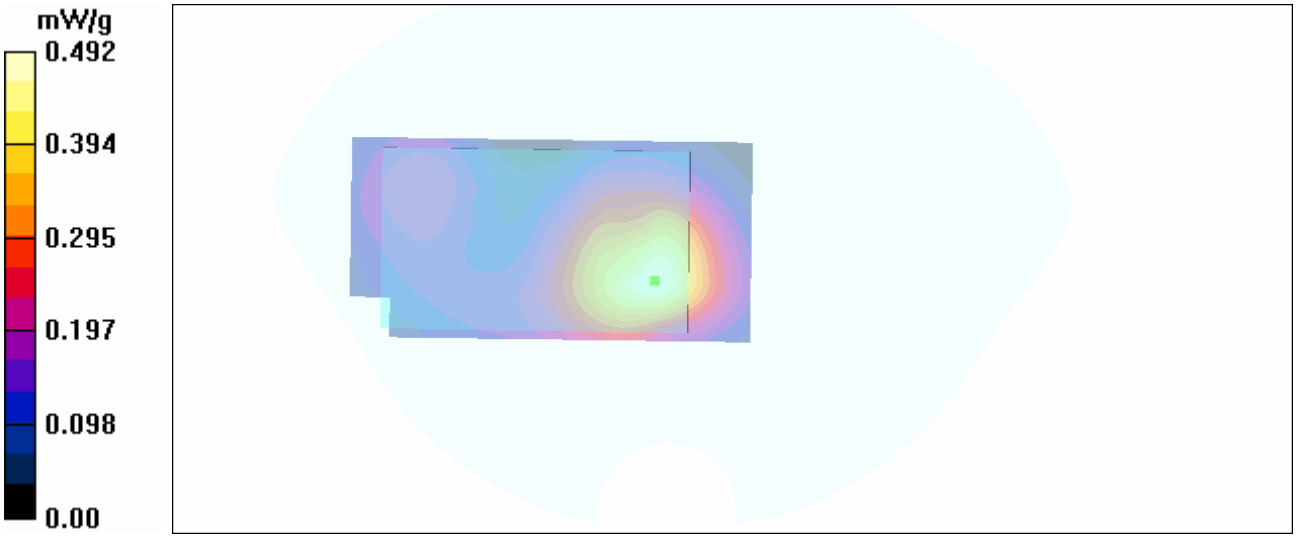
RM-88, 2-slot GPRS 1900, Channel 810, Body Position with 2.2cm Spacer with BP-5L Battery, BT Active

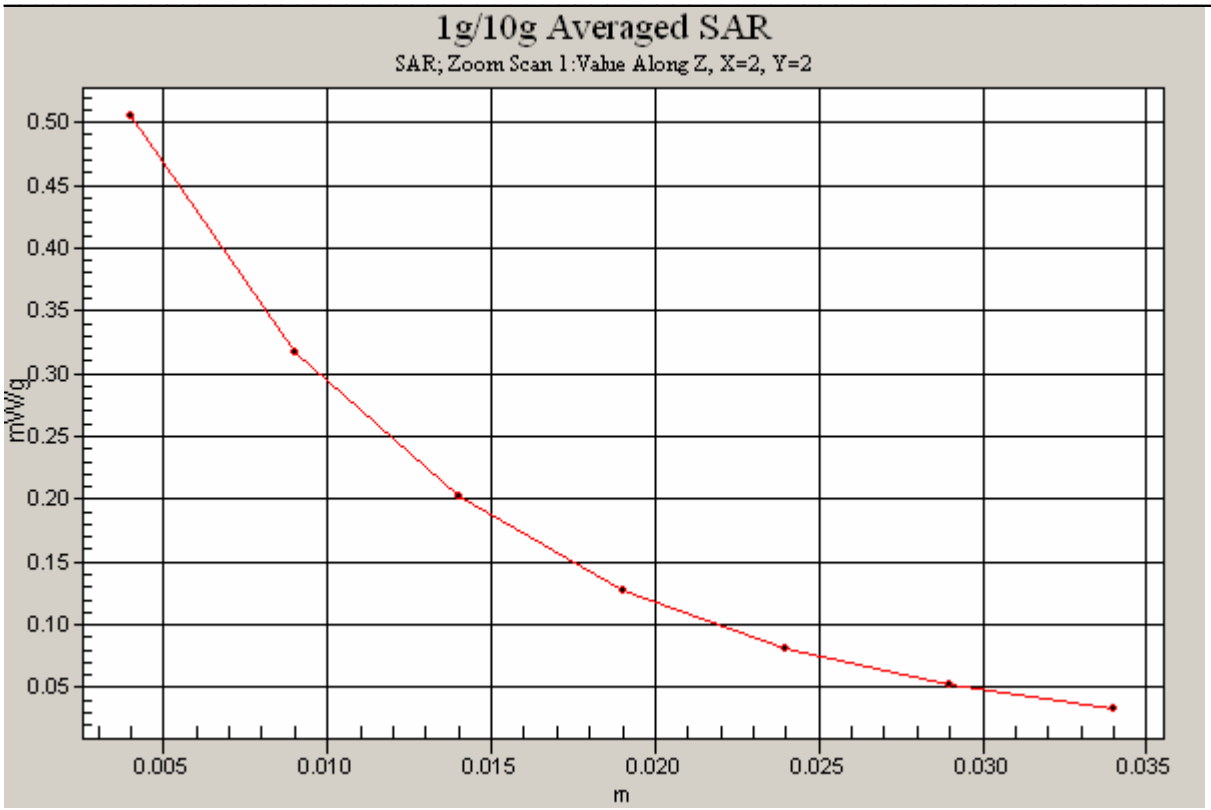
Communication System: GPRS1900 (2-Slot); Frequency: 1909.8 MHz;Duty Cycle: 1:4.2
Medium parameters used (interpolated): f = 1909.8 MHz; σ = 1.59 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3
Liquid Temperature: 20.5

DASY4 Configuration:
- Probe: ET3DV6 - SN1802; ConvF(4.29, 4.29, 4.29); Calibrated: 1/21/2005
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn389; Calibrated: 1/12/2005
- Phantom: SAM3 PCS Head and Body; Phantom section: Flat Section
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 146

Body/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.492 mW/g

Body/Zoom Scan 1 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.2 V/m; Power Drift = -0.027 dB
Peak SAR (extrapolated) = 0.744 W/kg
SAR(1 g) = 0.464 mW/g; SAR(10 g) = 0.286 mW/g
Maximum value of SAR (measured) = 0.502 mW/g





APPENDIX C: RELEVANT PAGES FROM PROBE CALIBRATION REPORT(S)

APPENDIX D: RELEVANT PAGES FROM DIPOLE VALIDATION KIT REPORT(S)