TCC
Dallas

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SAR Compliance Test Report

Test report no.:	WR500.001	**Date of report:**	2005-03-22
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Measurements made by:	Cindy Trinh		
Tested device:	RM-41		
FCC ID:	QMNRM-41	**IC:**	661X-RM41
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 Nokia 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: **2005-03-23**

For the contents:

Nerina Walton
Lab Manager

Jesse Torres
Test Engineer

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1. SUMMARY OF SAR TEST REPORT

1.1 Test Details

Period of test	2005-03-14 to 2005-03-21
SN, HW and SW numbers of tested device	SN: 044/09426365 HW: 3101 SW: Q125_04w47_08_USB.nbr
Batteries used in testing	BL-6C
Headsets used in testing	HS-1C, HS-9
Other accessories used in testing	-
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)	Conducted power	Position	SAR limit (1g avg)	Measured SAR value (1g avg)	Result
AMPS	991/824.04	24.9 dBm	Left Cheek	1.6 W/kg	1.22 W/kg	PASSED
CDMA800	1013/824.70	24.9 dBm	Right Cheek	1.6 W/kg	1.21 W/kg	PASSED
CDMA1900	1175/1908.75	23.0 dBm	Left Cheek	1.6 W/kg	1.21 W/kg	PASSED

1.2.2 Body Worn Configuration

Mode	Ch / *f* (MHz)	Conducted power	Separation distance	SAR limit (1g avg)	Measured SAR value (1g avg)	Result
AMPS	384/836.52	24.9 dBm	2.2 cm	1.6 W/kg	0.73 W/kg	PASSED
CDMA800	384/836.52	25.0 dBm	2.2 cm	1.6 W/kg	0.78 W/kg	PASSED
CDMA1900	1175/1908.75	23.0 dBm	2.2 cm	1.6 W/kg	0.68 W/kg	PASSED

1.2.3 Maximum Drift

Maximum drift during measurements	0.24 dB

1.2.4 Measurement Uncertainty

Extended Uncertainty (k=2) 95%	± 29.8 %

2. DESCRIPTION OF THE DEVICE UNDER TEST

Device category	Portable
Exposure environment	General population / uncontrolled

Modes and Bands of Operation	AMPS 800	CDMA 800 / 1900
Modulation Mode	FM	QPSK
Duty Cycle	1	1
Transmitter Frequency Range (MHz)	824 - 849	824 – 849 1850 - 1909

2.1 Picture of the Device

2.2 Description of the Antenna

The device has an external retractable + stubby antenna.

3. TEST CONDITIONS

3.1 Temperature and Humidity

Ambient temperature (°C):	22.0 to 23.0
Ambient humidity (RH %):	30 to 51

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.

4. DESCRIPTION OF THE TEST EQUIPMENT

4.1 Measurement System and Components

The measurements were performed using an automated near-field scanning system, DASY4 software version 4.5, manufactured by Schmid & Partner Engineering AG (SPEAG) in Switzerland. The SAR extrapolation algorithm used in all measurements on the device was the 'worst-case extrapolation' algorithm.

The following table lists calibration dates of SPEAG components:

Test Equipment	Serial Number	Calibration interval	Calibration expiry
DAE V1	377	12 months	2005-09
E-field Probe ET3DV6	1504	12 months	2005-09
Dipole Validation Kit, D835V2	455	24 months	2005-10
Dipole Validation Kit, D1900V2	504	24 months	2005-07

Additional test equipment used in testing:

Test Equipment	Model	Serial Number	Calibration interval	Calibration expiry
Amplifier	AR 5S1G2	25583	-	-
Dielectric Probe Kit	Agilent 85070D	US01440005	-	-
Signal Generator	R&S SMT06	100243	12 months	2005-06
Vector Network Analyzer	Agilent 8753ES	US39174327	12 months	2006-01
Power Meter	Boonton 4232A	26001	12 months	2005-06
Power Sensor	Boonton 51015	31143	12 months	2005-06
Power Sensor	Boonton 51015	31144	12 months	2005-06
Call Tester	R&S CMU200	838392/027	12 months	2005-08

4.1.1 Isotropic E-field Probe SN1504

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	2.37	43.0	0.90	
	± 10% window	2.13-2.61			
	2005-03-14	2.42	41.1	0.90	21.0
	2005-03-16	2.24	41.3	0.89	21.2
1900	Reference result	10.2	40.2	1.46	
	± 10% window	9.18 – 11.22			
	2005-03-15	9.62	38.6	1.46	20.4
	2005-03-17	9.51	38.3	1.45	21.4

System checking, body tissue simulant

f [MHz]	Description	SAR [W/kg], 1g	Dielectric Parameters		Temp [°C]
			ε_r	σ [S/m]	
835	Reference result	2.48	55.0	0.98	
	± 10% window	2.23 – 2.73			
	2005-03-17	2.48	53.9	0.94	21.3
	2005-03-18	2.49	53.7	0.94	21.4
1900	Reference result	10.5	50.9	1.60	
	± 10% window	9.45 – 11.55			
	2005-03-21	9.87	50.7	1.59	19.9

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	
	2005-03-14	41.1	0.90	21.0
	2005-03-16	41.2	0.89	21.2
1880	Recommended value	40.0	1.40	
	± 5% window	38.0 – 42.0	1.33 – 1.47	
	2005-03-15	38.8	1.44	20.4
	2005-03-17	38.4	1.43	21.4

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	
	2005-03-17	53.9	0.94	21.3
	2005-03-18	53.7	0.94	21.4
1880	Recommended value	53.3	1.52	
	± 5% window	50.6 – 56.0	1.44 – 1.60	
	2005-03-21	50.8	1.56	19.9

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”.

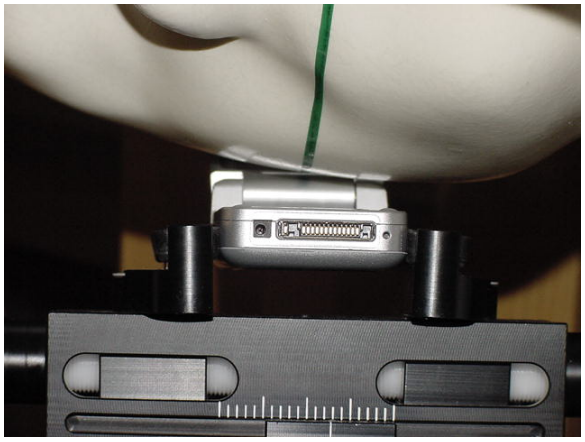


Photo of the device in “cheek” position

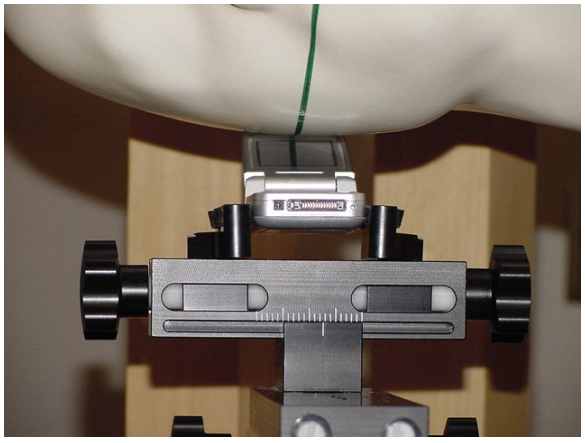


Photo of the device in “tilt” position

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.

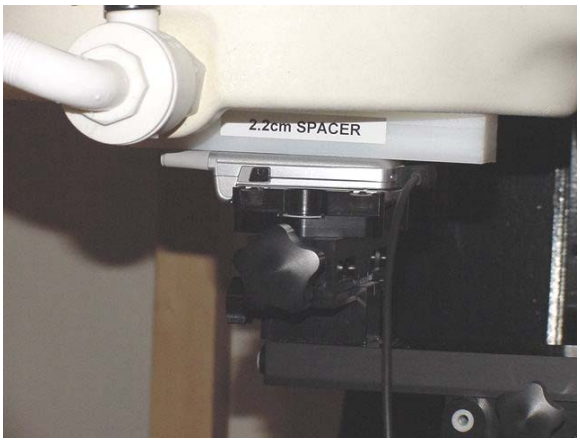


Photo of the device positioned for Body SAR measurement.
The spacer was removed for the tests.

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	±5.8	N	1	1	±5.8	∞
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	±8.3	R	√3	1	±4.8	∞
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	E5.2	±3.9	R	√3	1	±2.3	∞
Test sample Related							
Test Sample Positioning	E4.2.1	±6.0	N	1	1	±6.0	11
Device Holder Uncertainty	E4.1.1	±5.0	N	1	1	±5.0	7
Output Power Variation - SAR drift measurement	6.6.3	±10.0	R	√3	1	±5.8	∞
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			**±14.9**	206
Coverage Factor for 95%			**k=2**				
Expanded Standard Uncertainty						**±29.8**	

7. RESULTS

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

AMPS Head SAR results

Antenna position	Test configuration		SAR, averaged over 1g (W/kg)		
			Ch 991 824.04 MHz	Ch 384 836.52 MHz	Ch 799 848.97 MHz
Retracted	Power level		24.9 dBm	24.9 dBm	25.0 dBm
	Left	Cheek	**1.22**	1.21	1.17
		Tilt	-	0.39	-
	Right	Cheek	1.20	1.13	1.13
		Tilt	-	0.36	-
Extended	Left	Cheek	-	0.56	-
		Tilt	-	0.26	-
	Right	Cheek	-	0.57	-
		Tilt	-	0.26	-

CDMA800 Head SAR results

Antenna position	Test configuration		SAR, averaged over 1g (W/kg)		
			Ch 1013 824.70 MHz	Ch 384 836.52 MHz	Ch 777 848.31 MHz
Retracted	Power level		24.9 dBm	25.0 dBm	24.9 dBm
	Left	Cheek	1.16	1.17	1.09
		Tilt	-	0.43	-
	Right	Cheek	**1.21**	1.14	1.11
		Tilt	-	0.39	-
Extended	Left	Cheek	-	0.48	-
		Tilt	-	0.25	-
	Right	Cheek	-	0.56	-
		Tilt	-	0.24	-

CDMA1900 Head SAR results

Antenna position	Test configuration		SAR, averaged over 1g (W/kg)		
			Ch 25 1851.25 MHz	Ch 600 1880.00 MHz	Ch 1175 1908.75 MHz
Retracted	Power level		23.0 dBm	23.0 dBm	23.0 dBm
	Left	Cheek	1.09	1.04	**1.21**
		Tilt	-	0.71	-
	Right	Cheek	1.13	1.20	1.21
		Tilt	-	0.67	-
Extended	Left	Cheek	-	0.67	-
		Tilt	-	0.34	-
	Right	Cheek	0.90	0.87	0.84
		Tilt	-	0.32	-

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

AMPS Body SAR results

Antenna position	Test configuration	SAR, averaged over 1g (W/kg)		
		Ch 991 824.04 MHz	Ch 384 836.52 MHz	Ch 799 848.97 MHz
Retracted	Power level	24.9 dBm	24.9 dBm	25.0 dBm
	Without headset	0.71	**0.73**	0.70
	HS-1C Headset	0.44	0.56	0.46
	HS-9 Headset	0.59	0.68	0.54
Extended	Without headset	-	0.59	-
	HS-1C Headset	-	0.48	-
	HS-9 Headset	-	0.57	-

CDMA800 Body SAR results

Antenna position	Test configuration	SAR, averaged over 1g (W/kg)		
		Ch 1013 824.70 MHz	Ch 384 836.52 MHz	Ch 777 848.31 MHz
Retracted	Power level	24.9 dBm	25.0 dBm	24.9 dBm
	Without headset	0.77	**0.78**	0.72
	HS-1C Headset	0.47	0.58	0.55
	HS-9 Headset	0.59	0.60	0.56
Extended	Without headset	0.56	0.62	0.65
	HS-1C Headset	-	0.54	-
	HS-9 Headset	-	0.56	-

CDMA1900 Body SAR results

Antenna position	Test configuration	SAR, averaged over 1g (W/kg)		
		Ch 25 1851.25 MHz	Ch 600 1880.00 MHz	Ch 1175 1908.75 MHz
Retracted	Power level	23.0 dBm	23.0 dBm	23.0 dBm
	Without headset	-	0.44	-
	HS-1C Headset	-	0.40	-
	HS-9 Headset	-	0.43	-
Extended	Without headset	0.53	0.60	**0.68**
	HS-1C Headset	0.51	0.50	0.57
	HS-9 Headset	0.52	0.58	0.61

Plots of the Measurement scans are given in Appendix B.

APPENDIX A: SYSTEM CHECKING SCANS

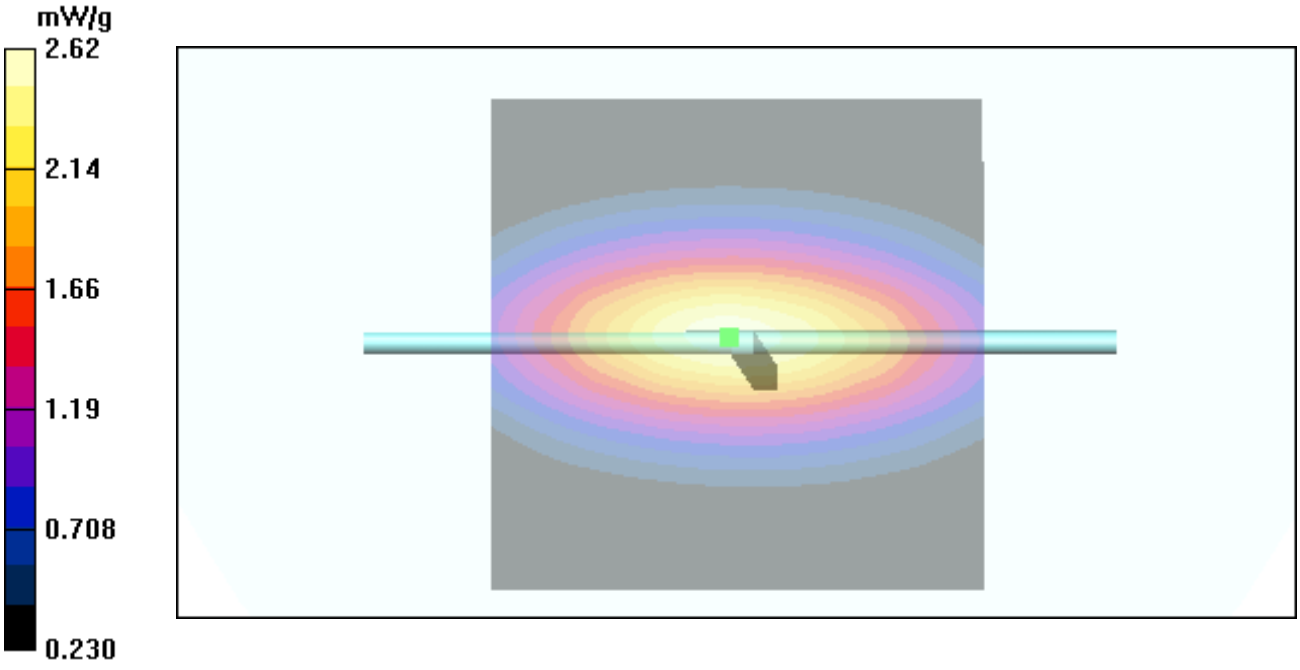
Date/Time: 3/14/2005 11:58:23 AM
Test Laboratory: TCC Dallas

835MHz Head System Check

Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used: f = 835 MHz; σ = 0.895 mho/m; ε_r = 41.1; ρ = 1000 kg/m^3
Liquid Temperature: 21.0

DASY4 Configuration:
- Probe: ET3DV6 - SN1504; ConvF(6.73, 6.73, 6.73); Calibrated: 9/22/2004
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn377;
- Phantom: SAM1 Cellular Head; Phantom section: Flat Section
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

835MHz 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) = 3.63 W/kg
SAR(1 g) = 2.42 mW/g; SAR(10 g) = 1.57 mW/g
Maximum value of SAR (measured) = 2.62 mW/g



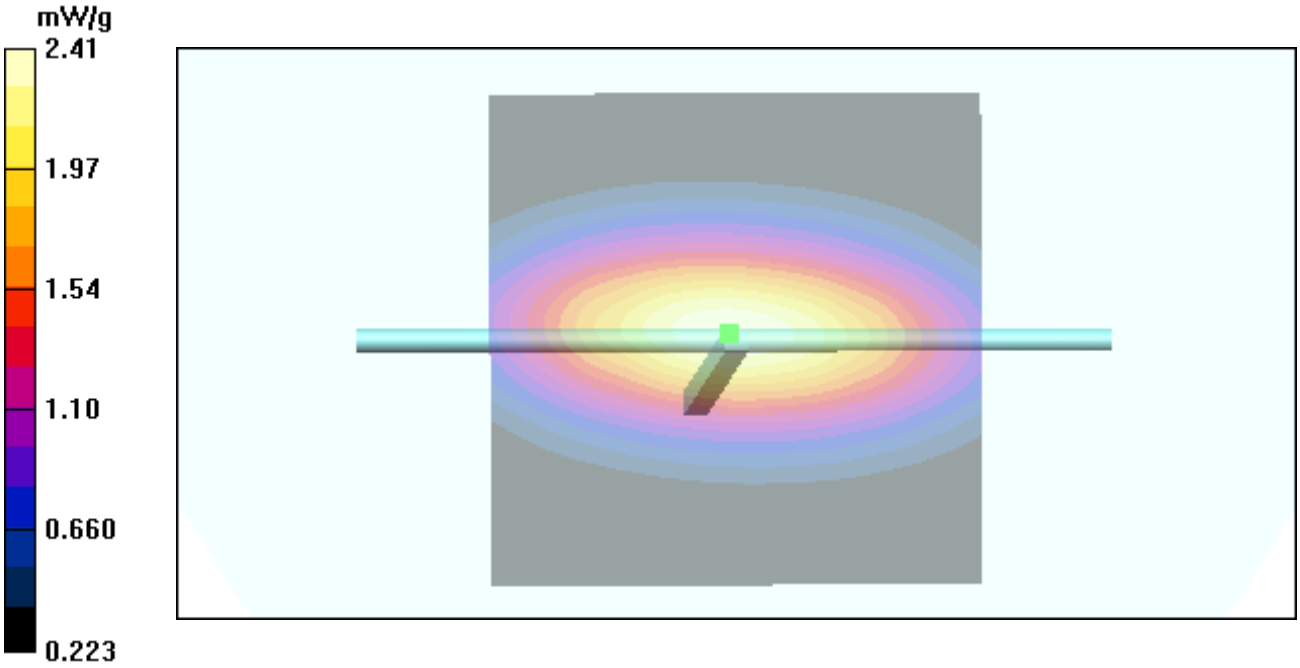
Date/Time: 3/16/2005 8:19:02 AM
Test Laboratory: TCC Dallas

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 = 41.3; ρ = 1000 kg/m^3
Liquid Temperature: 21.2

DASY4 Configuration:
- Probe: ET3DV6 - SN1504; ConvF(6.73, 6.73, 6.73); Calibrated: 9/22/2004
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn377;
- Phantom: SAM1 Cellular Head; Phantom section: Flat Section
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

835MHz System Check/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 56.6 V/m; Power Drift = -0.014 dB
Peak SAR (extrapolated) = 3.20 W/kg
SAR(1 g) = 2.24 mW/g; SAR(10 g) = 1.48 mW/g
Maximum value of SAR (measured) = 2.41 mW/g



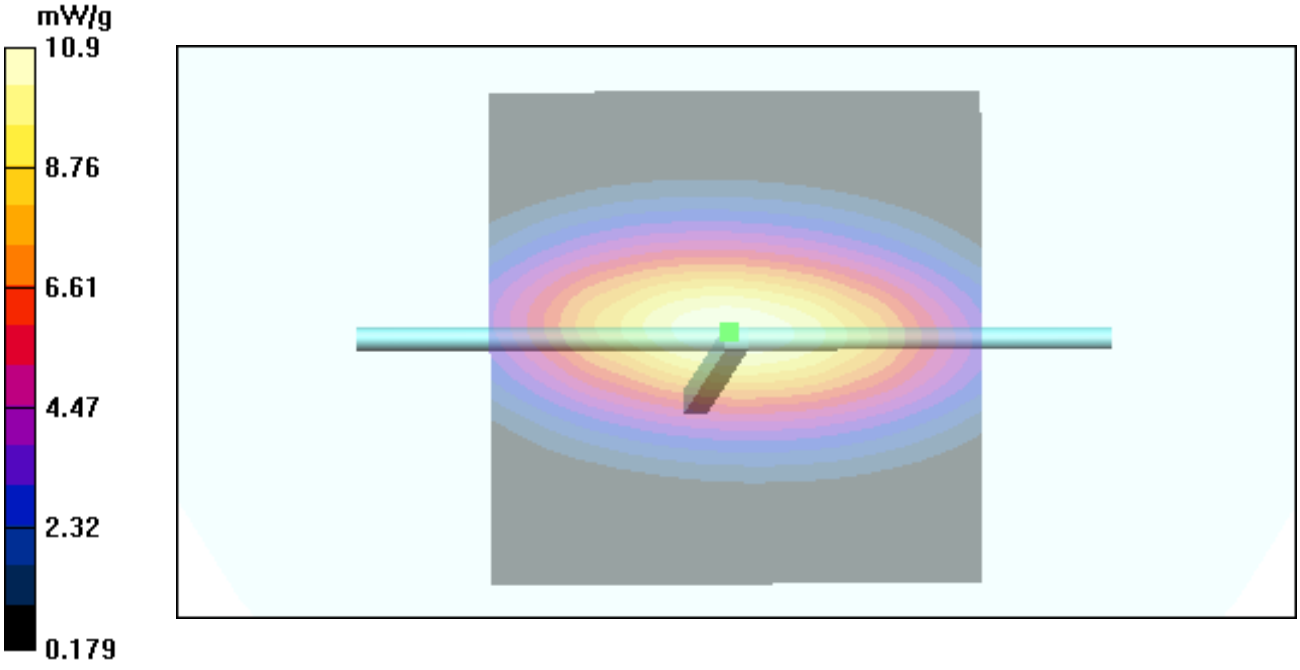
Date/Time: 3/15/2005 11:02:31 AM
Test Laboratory: TCC Dallas

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 = 38.6; ρ = 1000 kg/m^3
Liquid Temperature: 20.4

DASY4 Configuration:
- Probe: ET3DV6 - SN1504; ConvF(5.13, 5.13, 5.13); Calibrated: 9/22/2004
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn377;
- Phantom: SAM3 PCS Head and Body; Phantom section: Flat Section
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

1900MHz System Check/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 91.6 V/m; Power Drift = -0.00 dB
Peak SAR (extrapolated) = 17.4 W/kg
SAR(1 g) = 9.62 mW/g; SAR(10 g) = 4.97 mW/g
Maximum value of SAR (measured) = 10.9 mW/g



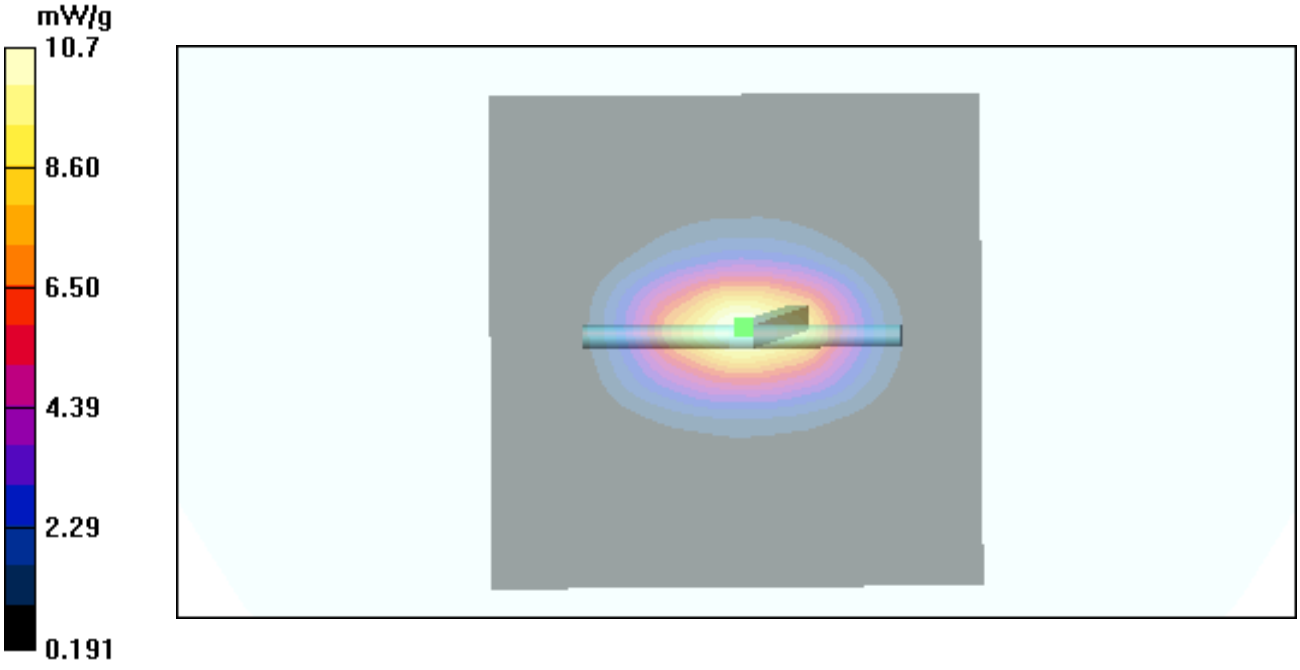
Date/Time: 3/17/2005 8:07:56 AM
Test Laboratory: TCC Dallas

1900MHz Head System Check

Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.45 mho/m; ε_r = 38.3; ρ = 1000 kg/m^3
Liquid Temperature: 21.4

DASY4 Configuration:
- Probe: ET3DV6 - SN1504; ConvF(5.13, 5.13, 5.13); Calibrated: 9/22/2004
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn377;
- Phantom: SAM3 PCS Head and Body; Phantom section: Flat Section
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

1900MHz System Check/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 91.2 V/m; Power Drift = 0.013 dB
Peak SAR (extrapolated) = 16.9 W/kg
SAR(1 g) = 9.51 mW/g; SAR(10 g) = 4.95 mW/g
Maximum value of SAR (measured) = 10.7 mW/g



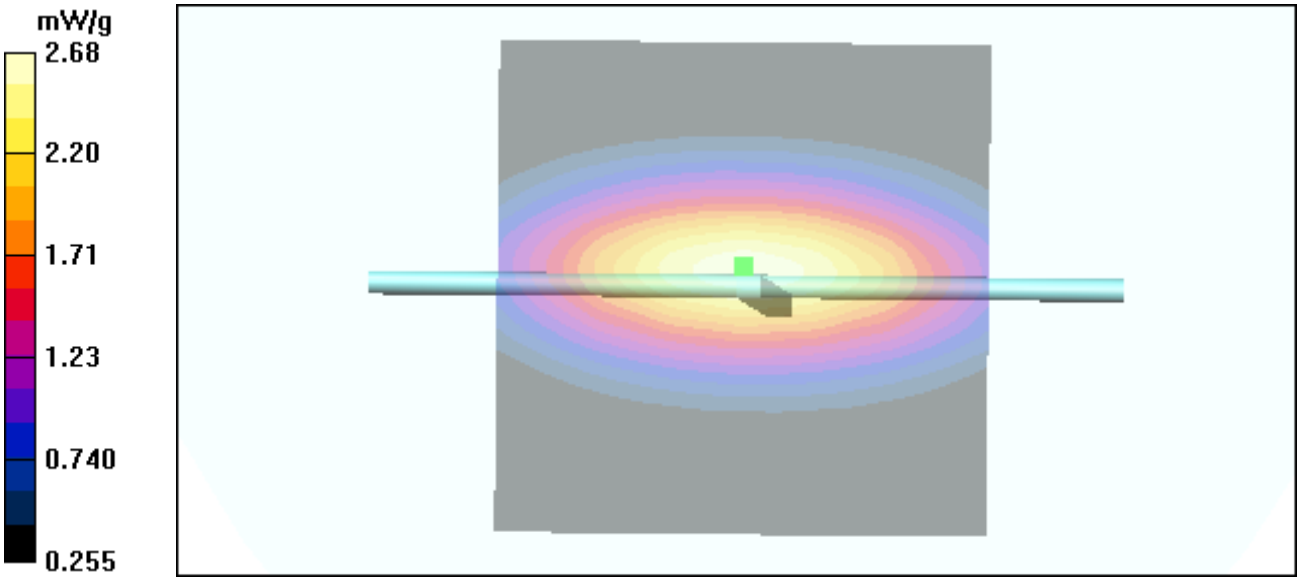
Date/Time: 3/17/2005 10:10:48 AM
Test Laboratory: TCC Dallas

835MHz Body System Check

Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used: f = 835 MHz; σ = 0.944 mho/m; ε_r = 53.9; ρ = 1000 kg/m^3
Liquid Temperature: 21.3

DASY4 Configuration:
- Probe: ET3DV6 - SN1504; ConvF(6.3, 6.3, 6.3); Calibrated: 9/22/2004
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn377;
- Phantom: SAM2 Cellular Body; Phantom section: Flat Section
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

835MHz System Check/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 54.7 V/m; Power Drift = 0.047 dB
Peak SAR (extrapolated) = 3.58 W/kg
SAR(1 g) = 2.48 mW/g; SAR(10 g) = 1.64 mW/g
Maximum value of SAR (measured) = 2.68 mW/g



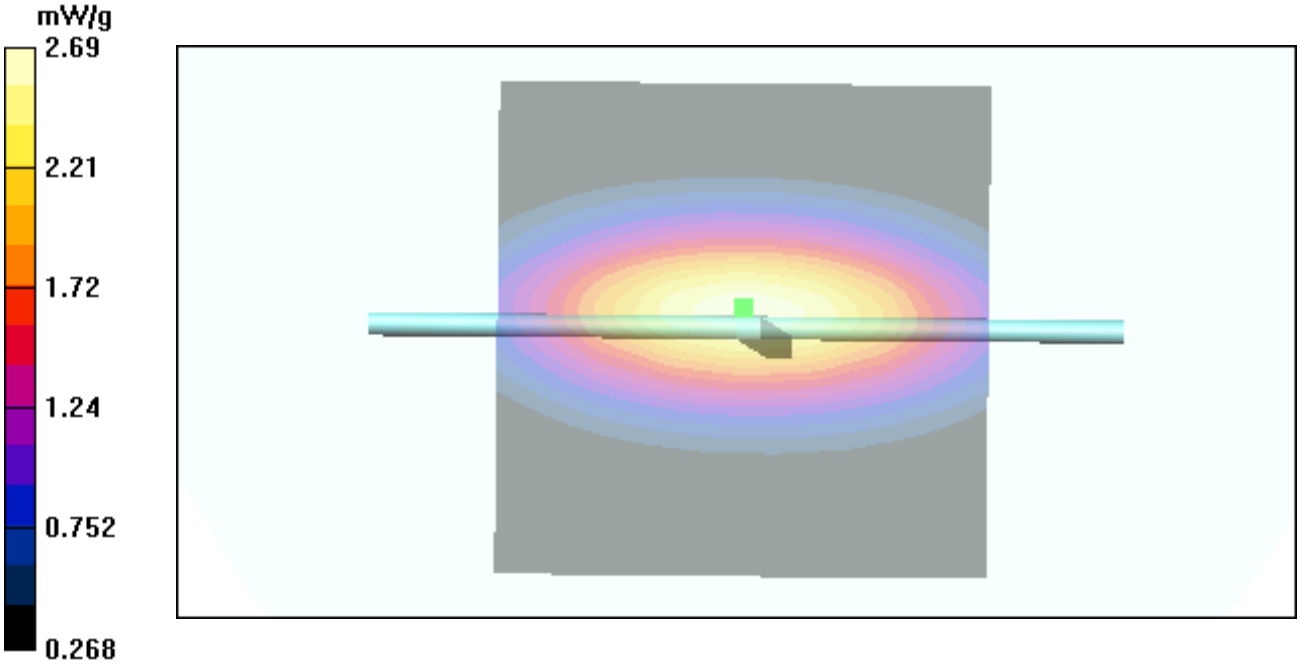
Date/Time: 3/18/2005 8:07:03 AM
Test Laboratory: TCC Dallas

835MHz Body System Check

Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used: f = 835 MHz; σ = 0.941 mho/m; ε_r = 53.7; ρ = 1000 kg/m^3
Liquid Temperature: 21.4

DASY4 Configuration:
- Probe: ET3DV6 - SN1504; ConvF(6.3, 6.3, 6.3); Calibrated: 9/22/2004
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn377;
- Phantom: SAM2 Cellular Body; Phantom section: Flat Section
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

835MHz System Check/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 55.1 V/m; Power Drift = 0.019 dB
Peak SAR (extrapolated) = 3.61 W/kg
SAR(1 g) = 2.49 mW/g; SAR(10 g) = 1.65 mW/g
Maximum value of SAR (measured) = 2.69 mW/g



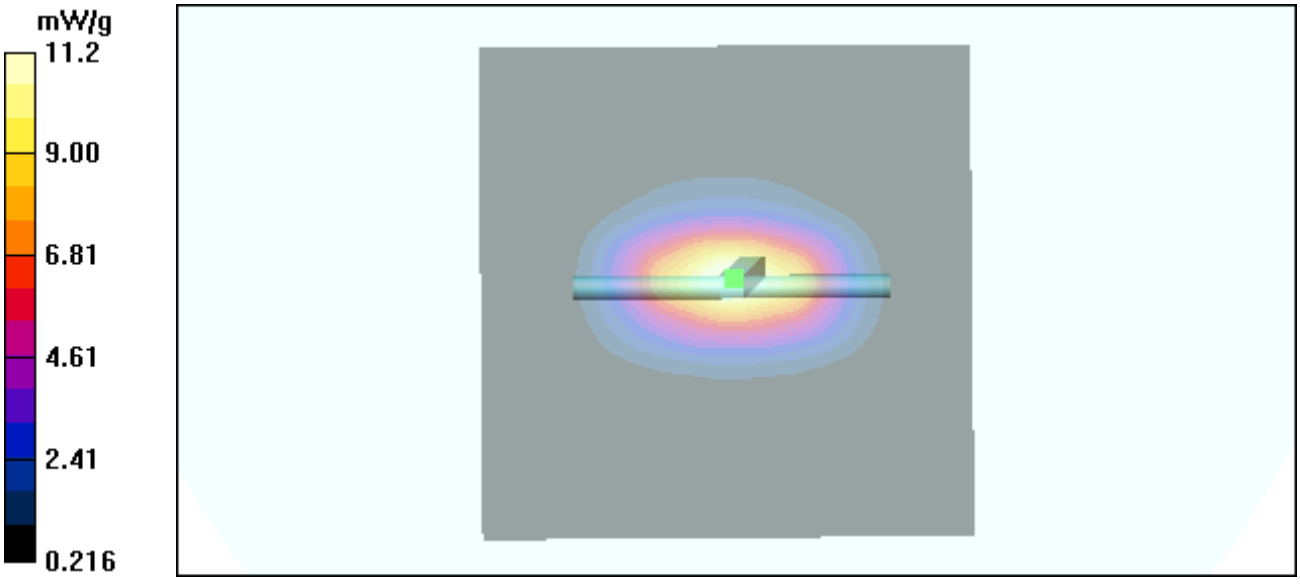
Date/Time: 3/21/2005 10:26:28 AM
Test Laboratory: TCC Dallas

1900MHz Body System Check

Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.59 mho/m; ε_r = 50.7; ρ = 1000 kg/m^3
Liquid Temperature: 19.9

DASY4 Configuration:
- Probe: ET3DV6 - SN1504; ConvF(4.56, 4.56, 4.56); Calibrated: 9/22/2004
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn377;
- Phantom: SAM3 PCS Head and Body; Phantom section: Flat Section
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

1900MHz System Check/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 90.2 V/m; Power Drift = 0.035 dB
Peak SAR (extrapolated) = 17.3 W/kg
SAR(1 g) = 9.87 mW/g; SAR(10 g) = 5.16 mW/g
Maximum value of SAR (measured) = 11.2 mW/g



APPENDIX B: MEASUREMENT SCANS

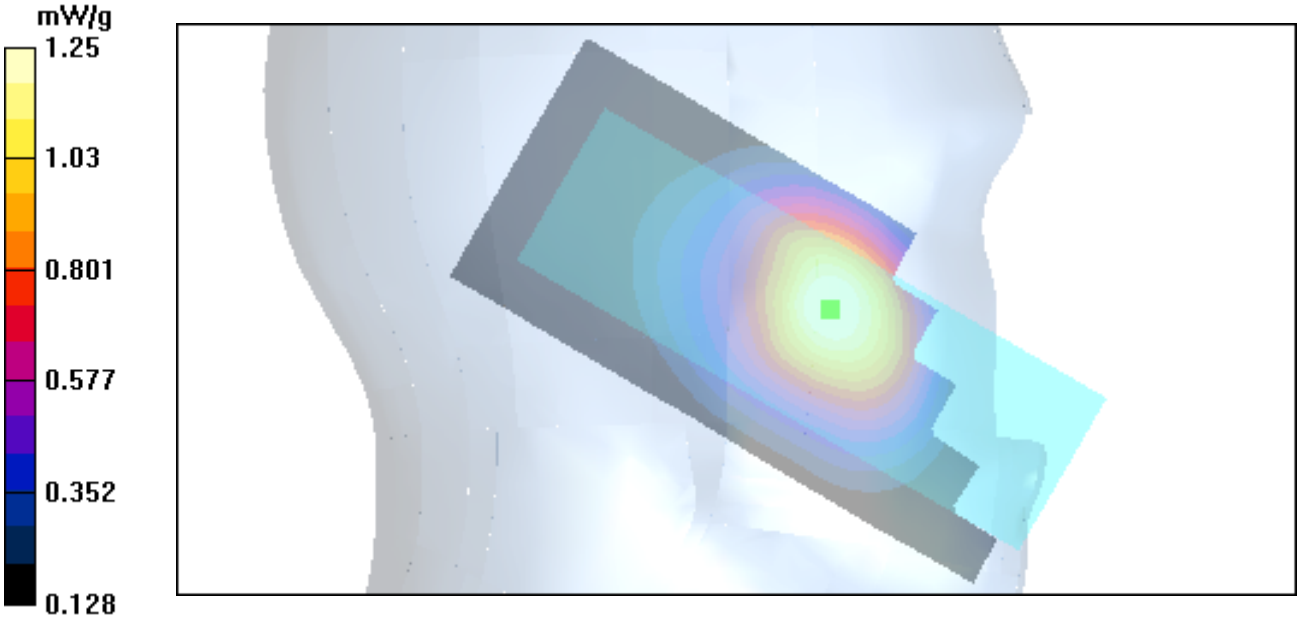
Date/Time: 3/16/2005 11:11:21 AM
Test Laboratory: TCC Dallas

RM-41, AMPS, Channel 991, Left Cheek position, Antenna Retracted and BL-6C battery

Communication System: AMPS; Frequency: 824.04 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 824.04 MHz; σ = 0.881 mho/m; ε_r = 41.4; ρ = 1000 kg/m^3
Liquid Temperature: 21.2

DASY4 Configuration:
- Probe: ET3DV6 - SN1504; ConvF(6.73, 6.73, 6.73); Calibrated: 9/22/2004
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn377;
- Phantom: SAM1 Cellular Head; Phantom section: Left Section
- Measurement SW: DASY4, V4.5 Build 19; 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 = 11.1 V/m; Power Drift = -0.067 dB
Peak SAR (extrapolated) = 1.89 W/kg
SAR(1 g) = 1.22 mW/g; SAR(10 g) = 0.840 mW/g
Maximum value of SAR (measured) = 1.25 mW/g



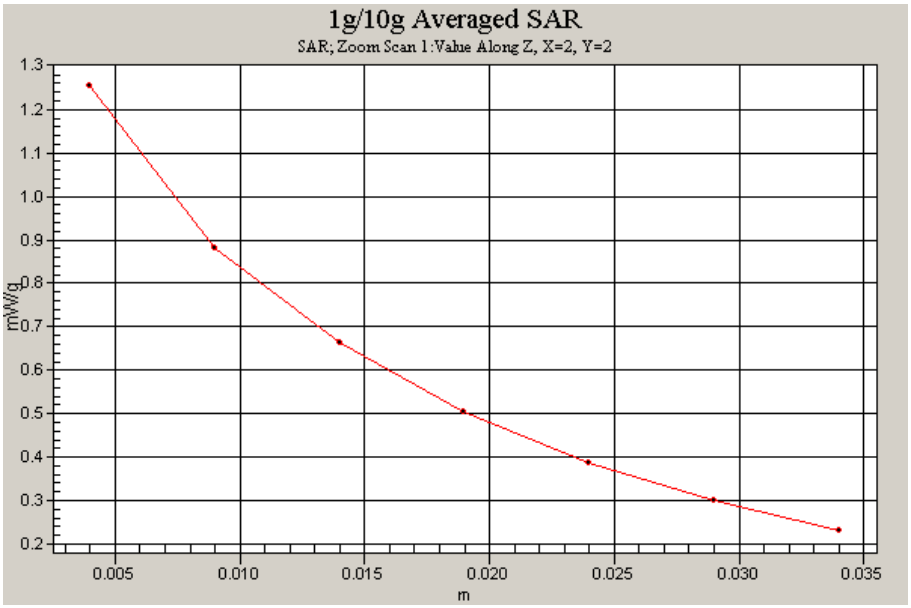
Date/Time: 3/16/2005 11:11:21 AM
Test Laboratory: TCC Dallas

RM-41, AMPS, Channel 991, Left Cheek position, Antenna Retracted and BL-6C battery

Communication System: AMPS; Frequency: 824.04 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 824.04 MHz; σ = 0.881 mho/m; ε_r = 41.4; ρ = 1000 kg/m^3
Liquid Temperature: 21.2

DASY4 Configuration:
- Probe: ET3DV6 - SN1504; ConvF(6.73, 6.73, 6.73); Calibrated: 9/22/2004
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn377;
- Phantom: SAM1 Cellular Head; Phantom section: Left Section
- Measurement SW: DASY4, V4.5 Build 19; 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 = 11.1 V/m; Power Drift = -0.067 dB
Peak SAR (extrapolated) = 1.89 W/kg
SAR(1 g) = 1.22 mW/g; SAR(10 g) = 0.840 mW/g
Maximum value of SAR (measured) = 1.25 mW/g



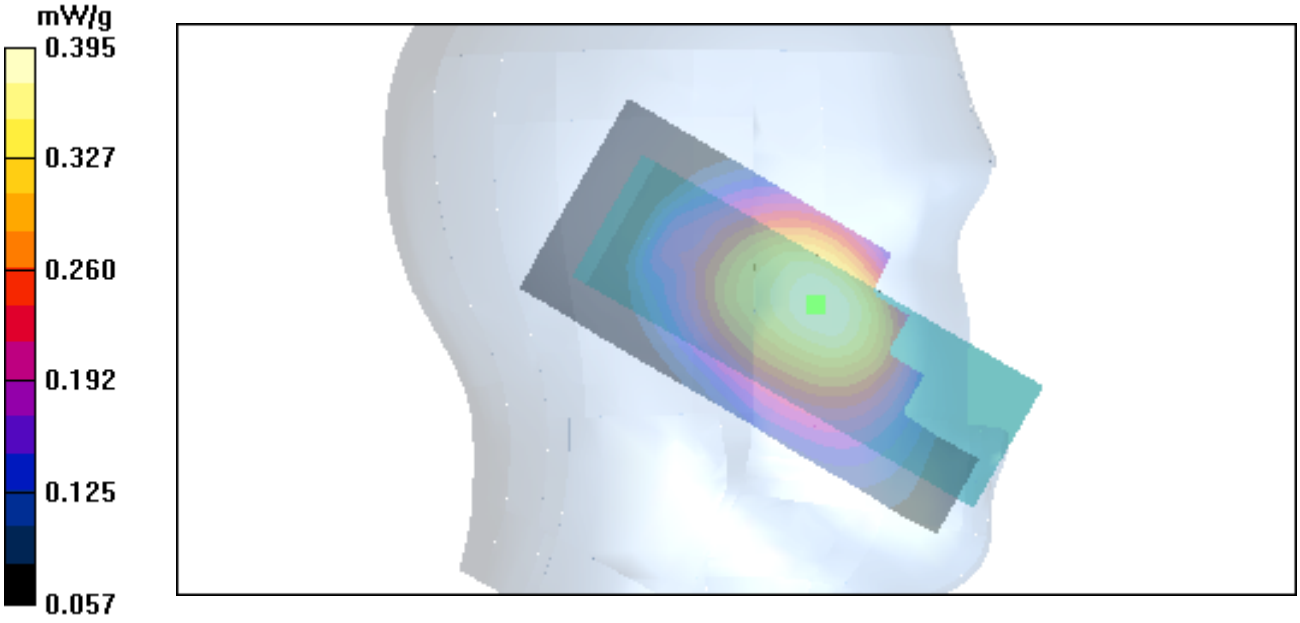
Date/Time: 3/16/2005 4:47:48 PM
Test Laboratory: TCC Dallas

RM-41, AMPS, Channel 384, Left Tilt position, Antenna Retracted and BL-6C battery

Communication System: AMPS; Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.52 MHz; σ = 0.891 mho/m; ε_r = 41.2; ρ = 1000 kg/m^3
Liquid Temperature: 21.2

DASY4 Configuration:
- Probe: ET3DV6 - SN1504; ConvF(6.73, 6.73, 6.73); Calibrated: 9/22/2004
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn377;
- Phantom: SAM1 Cellular Head; Phantom section: Left Section
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Left Tilt/Zoom Scan 1 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.0 V/m; Power Drift = -0.019 dB
Peak SAR (extrapolated) = 0.564 W/kg
SAR(1 g) = 0.387 mW/g; SAR(10 g) = 0.280 mW/g
Maximum value of SAR (measured) = 0.395 mW/g



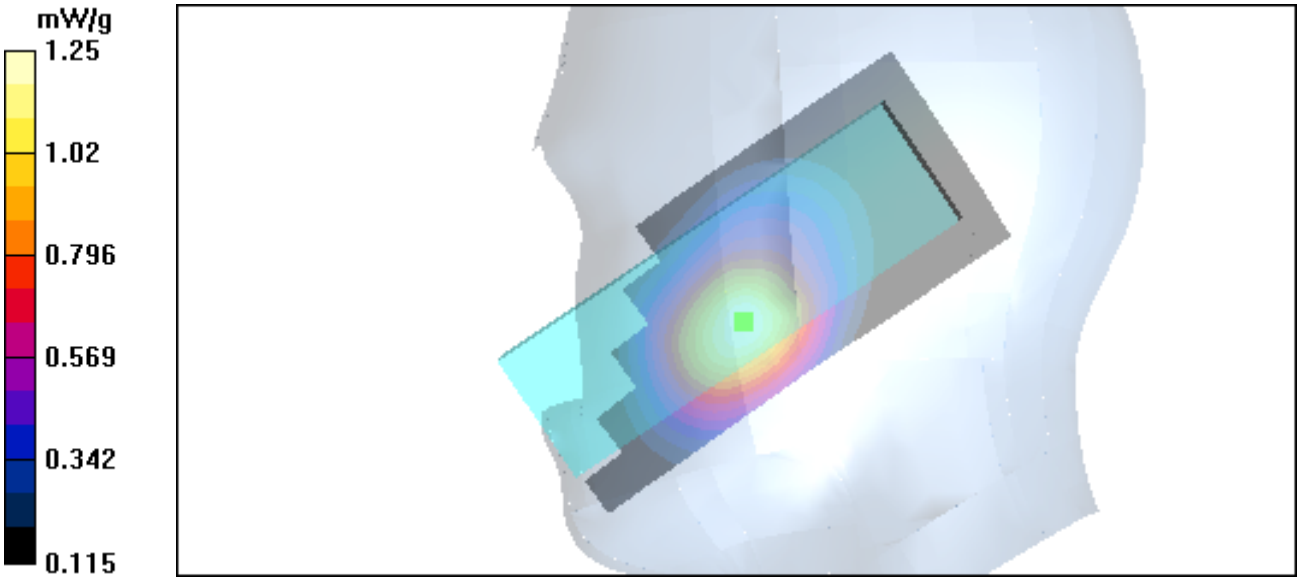
Date/Time: 3/16/2005 12:20:58 PM
Test Laboratory: TCC Dallas

RM-41, AMPS, Channel 991, Right Cheek position, Antenna Retracted and BL-6C battery

Communication System: AMPS; Frequency: 824.04 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 824.04 MHz; σ = 0.881 mho/m; ε_r = 41.4; ρ = 1000 kg/m^3
Liquid Temperature: 21.2

DASY4 Configuration:
- Probe: ET3DV6 - SN1504; ConvF(6.73, 6.73, 6.73); Calibrated: 9/22/2004
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn377;
- Phantom: SAM1 Cellular Head; Phantom section: Right Section
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Right Cheek/Zoom Scan 1 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.8 V/m; Power Drift = -0.062 dB
Peak SAR (extrapolated) = 1.97 W/kg
SAR(1 g) = 1.2 mW/g; SAR(10 g) = 0.812 mW/g
Maximum value of SAR (measured) = 1.25 mW/g



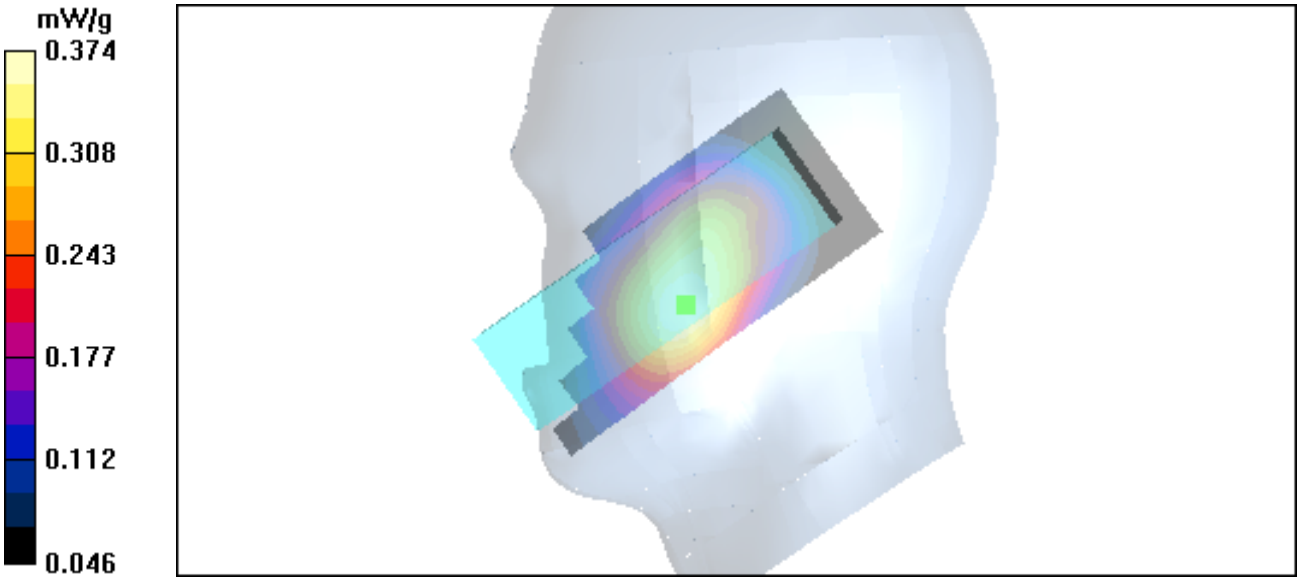
Date/Time: 3/16/2005 2:57:29 PM
Test Laboratory: TCC Dallas

RM-41, AMPS, Channel 384, Right Tilt position, Antenna Retracted and BL-6C battery

Communication System: AMPS; Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.52 MHz; σ = 0.891 mho/m; ε_r = 41.2; ρ = 1000 kg/m^3
Liquid Temperature: 21.2

DASY4 Configuration:
- Probe: ET3DV6 - SN1504; ConvF(6.73, 6.73, 6.73); Calibrated: 9/22/2004
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn377;
- Phantom: SAM1 Cellular Head; Phantom section: Right Section
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Right Tilt/Zoom Scan 1 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.9 V/m; Power Drift = -0.020 dB
Peak SAR (extrapolated) = 0.519 W/kg
SAR(1 g) = 0.359 mW/g; SAR(10 g) = 0.267 mW/g
Maximum value of SAR (measured) = 0.374 mW/g



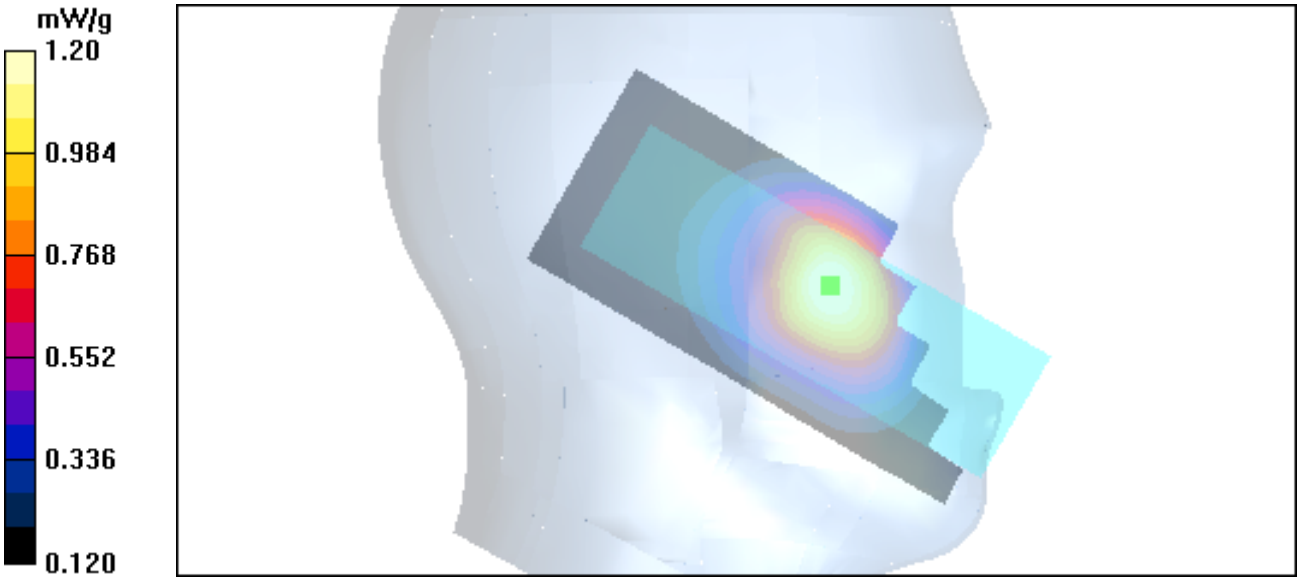
Date/Time: 3/14/2005 2:20:24 PM
Test Laboratory: TCC Dallas

RM-41, CDMA800, Channel 384, Left Cheek position, Antenna Retracted and BL-6C battery

Communication System: CDMA800; Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.52 MHz; σ = 0.897 mho/m; ε_r = 41.1; ρ = 1000 kg/m^3
Liquid Temperature: 21.0

DASY4 Configuration:
- Probe: ET3DV6 - SN1504; ConvF(6.73, 6.73, 6.73); Calibrated: 9/22/2004
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn377;
- Phantom: SAM1 Cellular Head; Phantom section: Left Section
- Measurement SW: DASY4, V4.5 Build 19; 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 = 9.84 V/m; Power Drift = 0.120 dB
Peak SAR (extrapolated) = 1.82 W/kg
SAR(1 g) = 1.17 mW/g; SAR(10 g) = 0.805 mW/g
Maximum value of SAR (measured) = 1.20 mW/g



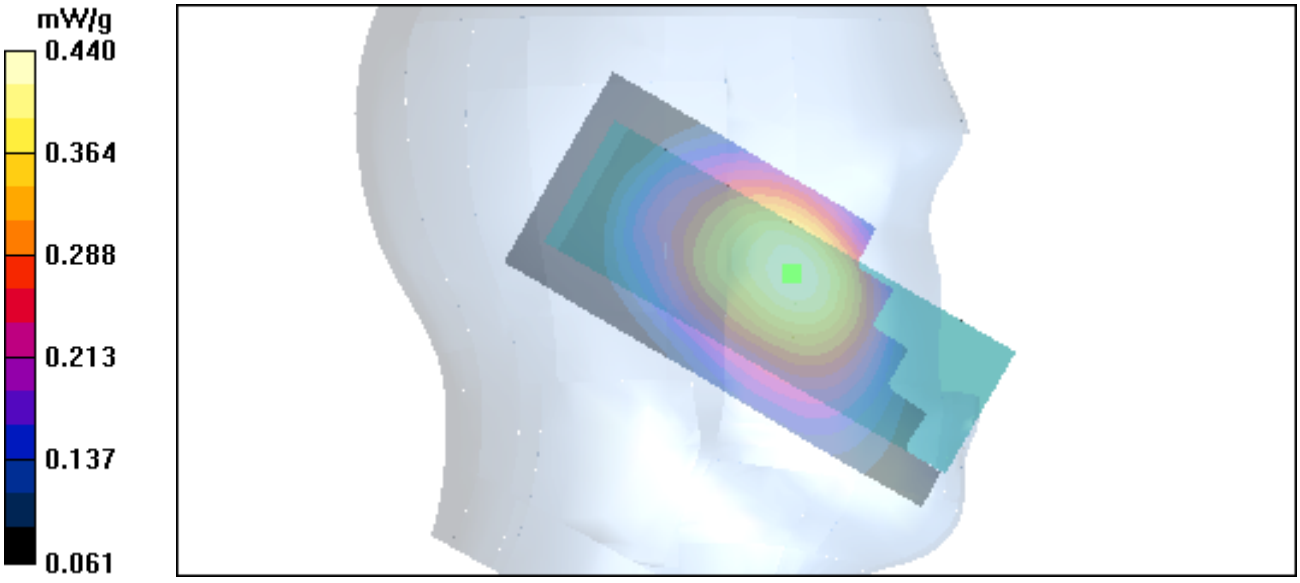
Date/Time: 3/14/2005 3:22:10 PM
Test Laboratory: TCC Dallas

RM-41, CDMA800, Channel 384, Left Tilt position, Antenna Retracted and BL-6C battery

Communication System: CDMA800; Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.52 MHz; σ = 0.897 mho/m; ε_r = 41.1; ρ = 1000 kg/m^3
Liquid Temperature: 21.0

DASY4 Configuration:
- Probe: ET3DV6 - SN1504; ConvF(6.73, 6.73, 6.73); Calibrated: 9/22/2004
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn377;
- Phantom: SAM1 Cellular Head; Phantom section: Left Section
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Left Tilt/Zoom Scan 1 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.4 V/m; Power Drift = 0.065 dB
Peak SAR (extrapolated) = 0.623 W/kg
SAR(1 g) = 0.433 mW/g; SAR(10 g) = 0.313 mW/g
Maximum value of SAR (measured) = 0.440 mW/g



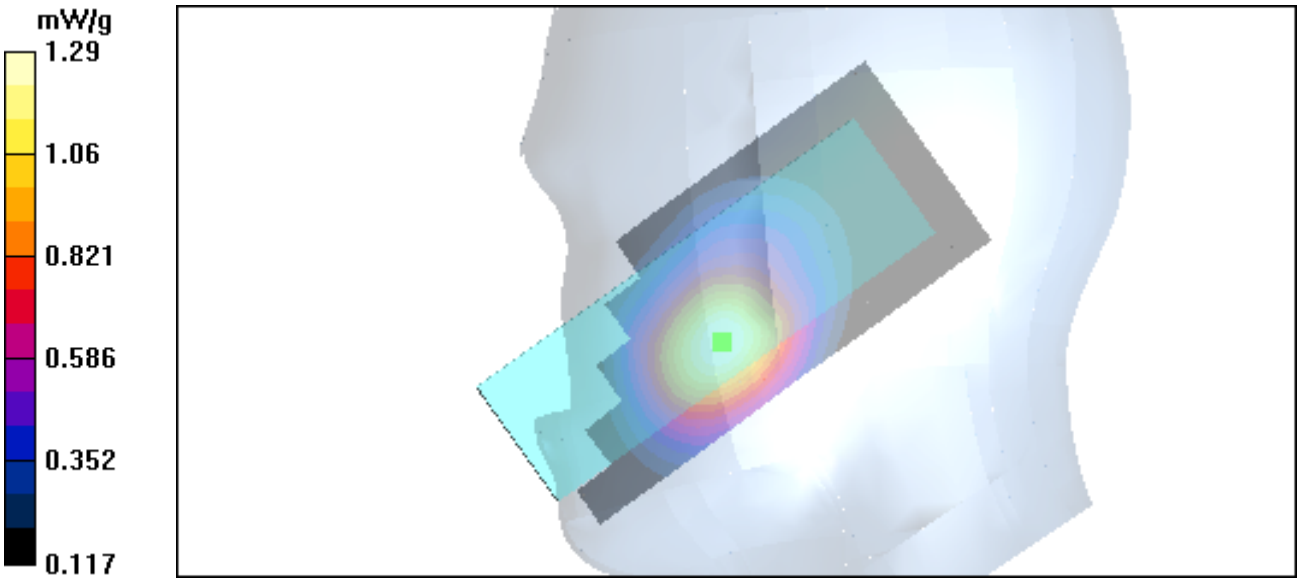
Date/Time: 3/14/2005 12:56:36 PM
Test Laboratory: TCC Dallas

RM-41, CDMA800, Channel 1013, Right Cheek position, Antenna Retracted and BL-6C battery

Communication System: CDMA800; Frequency: 824.7 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 824.7 MHz; σ = 0.886 mho/m; ε_r = 41.2; ρ = 1000 kg/m^3
Liquid Temperature: 21.0

DASY4 Configuration:
- Probe: ET3DV6 - SN1504; ConvF(6.73, 6.73, 6.73); Calibrated: 9/22/2004
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn377;
- Phantom: SAM1 Cellular Head; Phantom section: Right Section
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Right Cheek/Zoom Scan 1 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.2 V/m; Power Drift = -0.00 dB
Peak SAR (extrapolated) = 1.98 W/kg
SAR(1 g) = 1.21 mW/g; SAR(10 g) = 0.831 mW/g
Maximum value of SAR (measured) = 1.29 mW/g



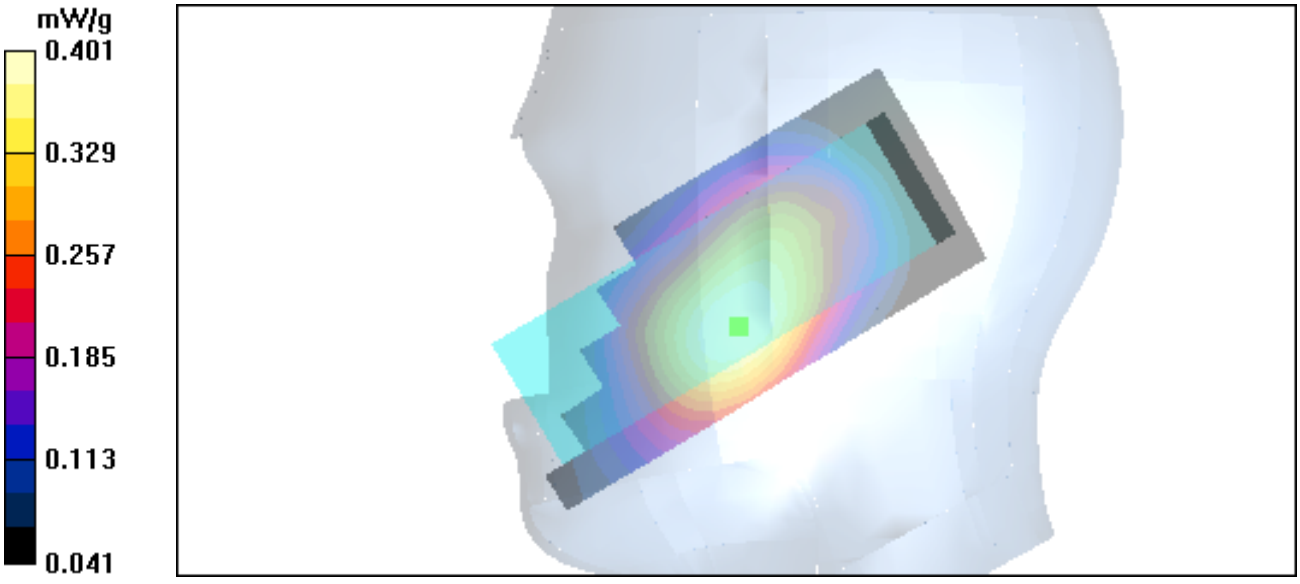
Date/Time: 3/14/2005 1:59:09 PM
Test Laboratory: TCC Dallas

RM-41, CDMA800, Channel 384, Right Tilt position, Antenna Retracted and BL-6C battery

Communication System: CDMA800; Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.52 MHz; σ = 0.897 mho/m; ε_r = 41.1; ρ = 1000 kg/m^3
Liquid Temperature: 21.0

DASY4 Configuration:
- Probe: ET3DV6 - SN1504; ConvF(6.73, 6.73, 6.73); Calibrated: 9/22/2004
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn377;
- Phantom: SAM1 Cellular Head; Phantom section: Right Section
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Right Tilt/Zoom Scan 1 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.8 V/m; Power Drift = -0.031 dB
Peak SAR (extrapolated) = 0.555 W/kg
SAR(1 g) = 0.388 mW/g; SAR(10 g) = 0.287 mW/g
Maximum value of SAR (measured) = 0.401 mW/g



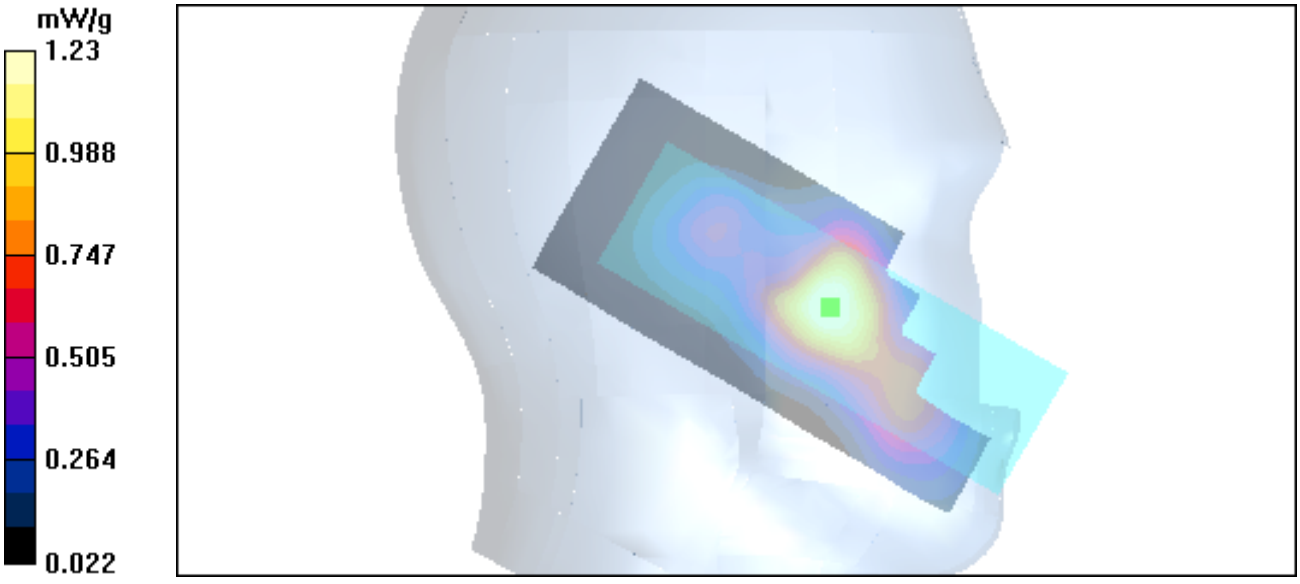
Date/Time: 3/15/2005 1:55:45 PM
Test Laboratory: TCC Dallas

RM-41, CDMA1900, Channel 1175, Left Cheek position, Antenna Retracted and BL-6C battery

Communication System: CDMA1900; Frequency: 1908.75 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1908.75 MHz; σ = 1.46 mho/m; ε_r = 38.6; ρ = 1000 kg/m^3
Liquid Temperature: 20.4

DASY4 Configuration:
- Probe: ET3DV6 - SN1504; ConvF(5.13, 5.13, 5.13); Calibrated: 9/22/2004
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn377;
- Phantom: SAM3 PCS Head and Body; Phantom section: Left Section
- Measurement SW: DASY4, V4.5 Build 19; 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 = 12.1 V/m; Power Drift = -0.068 dB
Peak SAR (extrapolated) = 2.45 W/kg
SAR(1 g) = 1.21 mW/g; SAR(10 g) = 0.693 mW/g
Maximum value of SAR (measured) = 1.23 mW/g



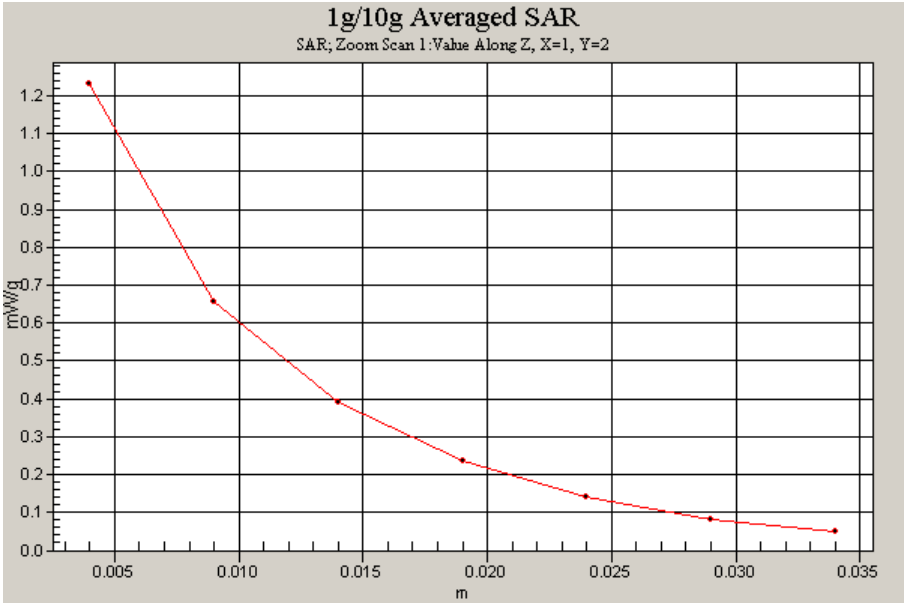
Date/Time: 3/15/2005 1:55:45 PM
Test Laboratory: TCC Dallas

RM-41, CDMA1900, Channel 1175, Left Cheek position, Antenna Retracted and BL-6C battery

Communication System: CDMA1900; Frequency: 1908.75 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1908.75 MHz; σ = 1.46 mho/m; ε_r = 38.6; ρ = 1000 kg/m^3
Liquid Temperature: 20.4

DASY4 Configuration:
- Probe: ET3DV6 - SN1504; ConvF(5.13, 5.13, 5.13); Calibrated: 9/22/2004
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn377;
- Phantom: SAM3 PCS Head and Body; Phantom section: Left Section
- Measurement SW: DASY4, V4.5 Build 19; 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 = 12.1 V/m; Power Drift = -0.068 dB
Peak SAR (extrapolated) = 2.45 W/kg
SAR(1 g) = 1.21 mW/g; SAR(10 g) = 0.693 mW/g
Maximum value of SAR (measured) = 1.23 mW/g



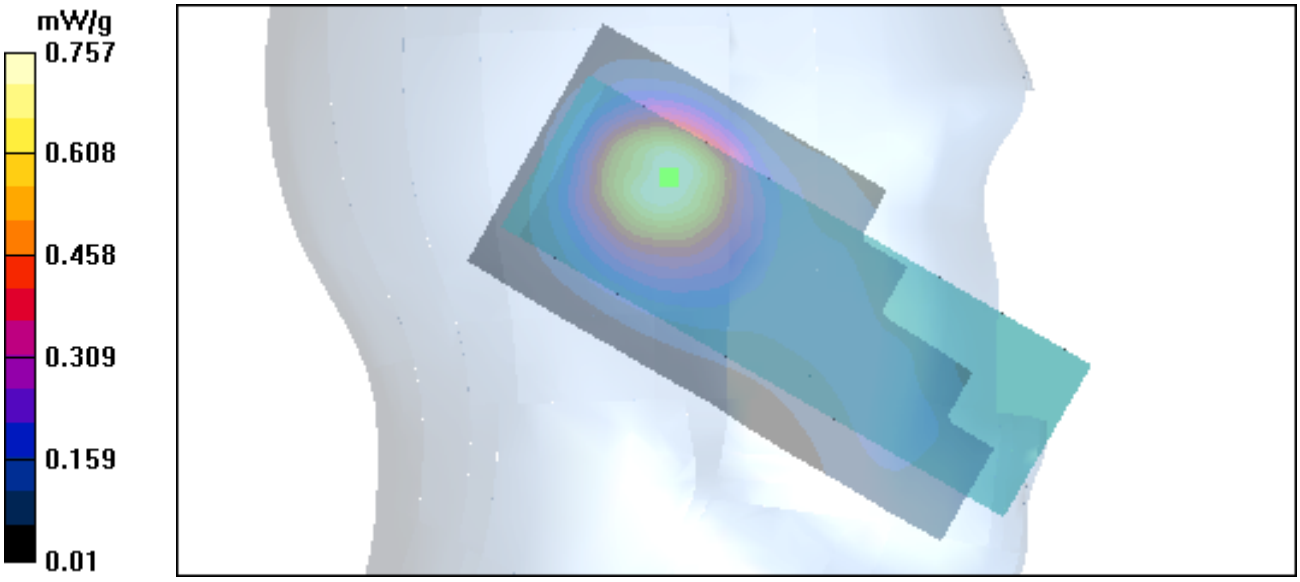
Date/Time: 3/15/2005 2:55:27 PM
Test Laboratory: TCC Dallas

RM-41, CDMA1900, Channel 600, Left Tilt position, Antenna Retracted and BL-6C battery

Communication System: CDMA1900; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.44 mho/m; ε_r = 38.8; ρ = 1000 kg/m^3
Liquid Temperature: 20.4

DASY4 Configuration:
- Probe: ET3DV6 - SN1504; ConvF(5.13, 5.13, 5.13); Calibrated: 9/22/2004
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn377;
- Phantom: SAM3 PCS Head and Body; Phantom section: Left Section
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Left Tilt/Zoom Scan 1 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.2 V/m; Power Drift = 0.101 dB
Peak SAR (extrapolated) = 1.26 W/kg
SAR(1 g) = 0.714 mW/g; SAR(10 g) = 0.420 mW/g
Maximum value of SAR (measured) = 0.757 mW/g



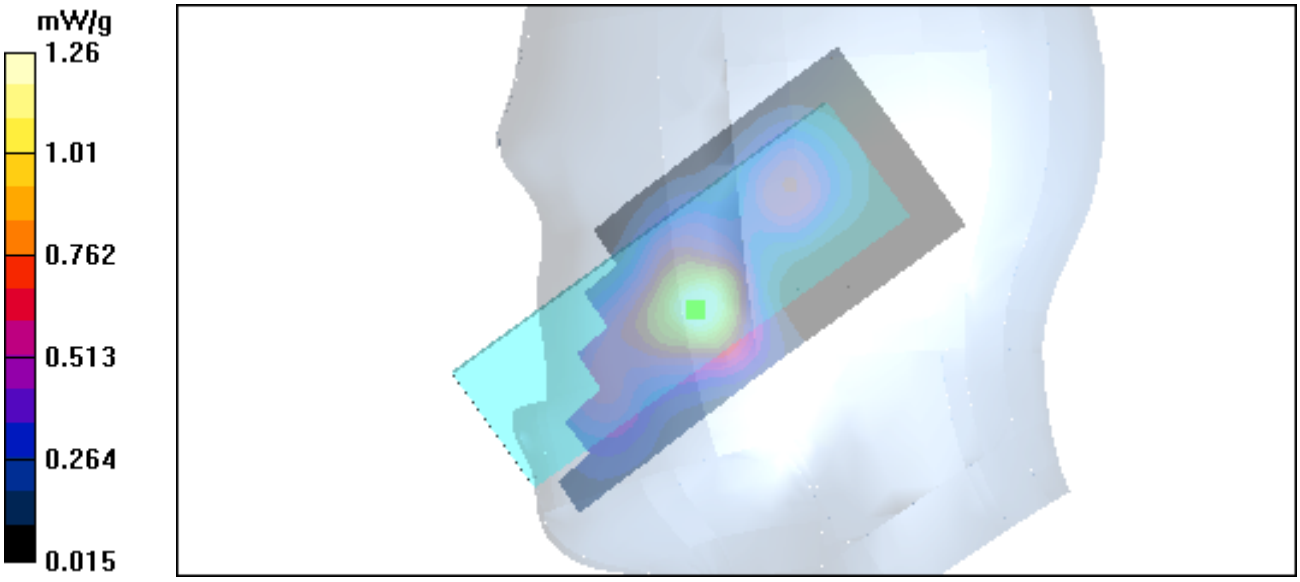
Date/Time: 3/15/2005 1:12:05 PM
Test Laboratory: TCC Dallas

RM-41, CDMA1900, Channel 1175, Right Cheek position, Antenna Retracted and BL-6C battery

Communication System: CDMA1900; Frequency: 1908.75 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1908.75 MHz; σ = 1.46 mho/m; ε_r = 38.6; ρ = 1000 kg/m^3
Liquid Temperature: 20.4

DASY4 Configuration:
- Probe: ET3DV6 - SN1504; ConvF(5.13, 5.13, 5.13); Calibrated: 9/22/2004
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn377;
- Phantom: SAM3 PCS Head and Body; Phantom section: Right Section
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Right Cheek/Zoom Scan 1 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.0 V/m; Power Drift = -0.034 dB
Peak SAR (extrapolated) = 2.45 W/kg
SAR(1 g) = 1.21 mW/g; SAR(10 g) = 0.673 mW/g
Maximum value of SAR (measured) = 1.26 mW/g



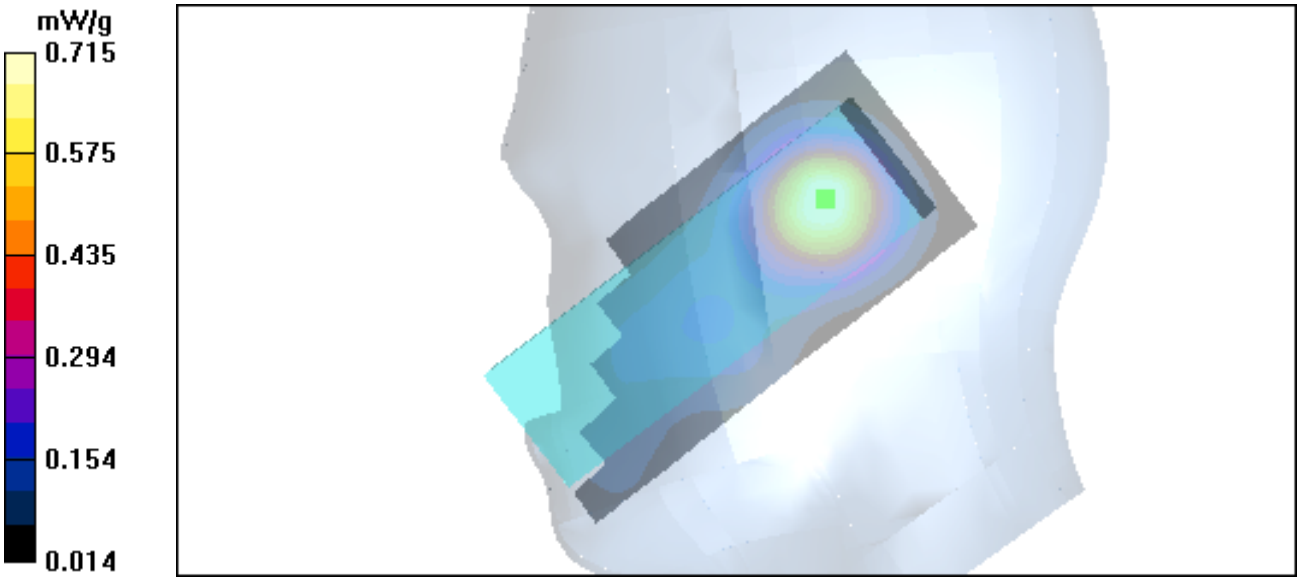
Date/Time: 3/15/2005 3:27:15 PM
Test Laboratory: TCC Dallas

RM-41, CDMA1900, Channel 600, Right Tilt position, Antenna Retracted and BL-6C battery

Communication System: CDMA1900; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.44 mho/m; ε_r = 38.8; ρ = 1000 kg/m^3
Liquid Temperature: 20.4

DASY4 Configuration:
- Probe: ET3DV6 - SN1504; ConvF(5.13, 5.13, 5.13); Calibrated: 9/22/2004
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn377;
- Phantom: SAM3 PCS Head and Body; Phantom section: Right Section
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Right Tilt/Zoom Scan 1 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 19.4 V/m; Power Drift = 0.020 dB
Peak SAR (extrapolated) = 1.19 W/kg
SAR(1 g) = 0.667 mW/g; SAR(10 g) = 0.396 mW/g
Maximum value of SAR (measured) = 0.715 mW/g



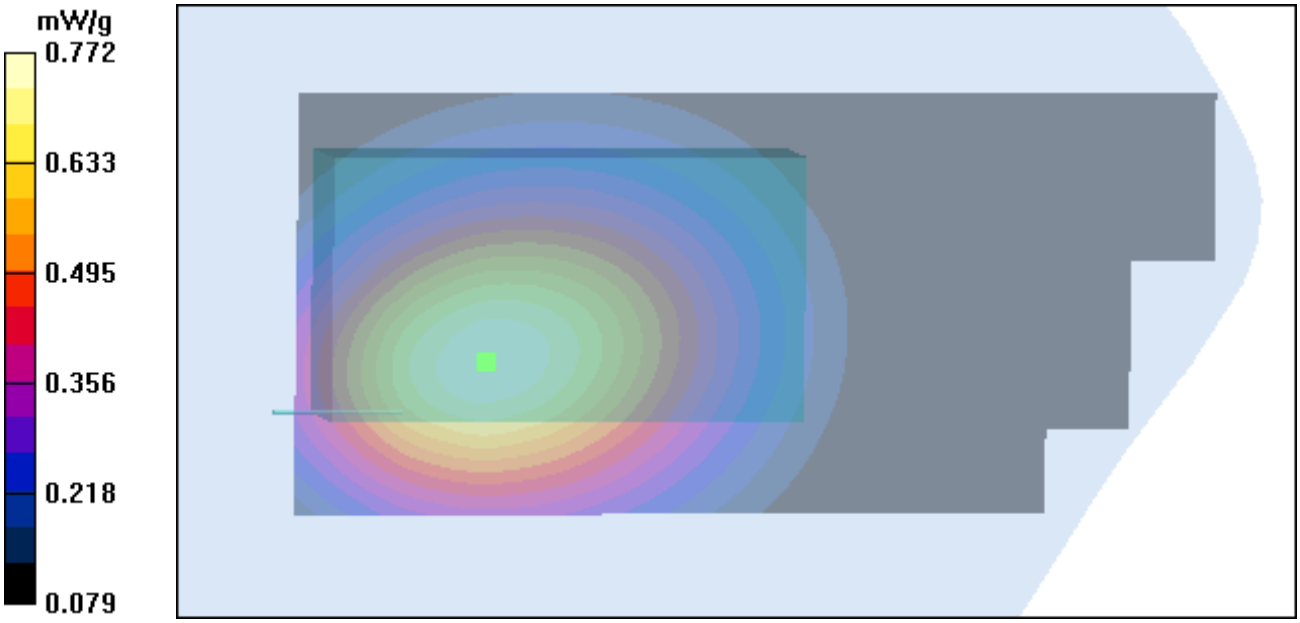
Date/Time: 3/18/2005 9:22:46 AM
Test Laboratory: TCC Dallas

RM-41, AMPS, Channel 384, Flat position with 2.2cm spacer, Antenna Retracted and BL-6C battery

Communication System: AMPS; Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.52 MHz; σ = 0.942 mho/m; ε_r = 53.7; ρ = 1000 kg/m^3
Liquid Temperature: 21.4

DASY4 Configuration:
- Probe: ET3DV6 - SN1504; ConvF(6.3, 6.3, 6.3); Calibrated: 9/22/2004
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn377;
- Phantom: SAM2 Cellular Body; Phantom section: Flat Section
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Body/Zoom Scan 1 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 25.7 V/m; Power Drift = 0.022 dB
Peak SAR (extrapolated) = 1.13 W/kg
SAR(1 g) = 0.733 mW/g; SAR(10 g) = 0.505 mW/g
Maximum value of SAR (measured) = 0.772 mW/g



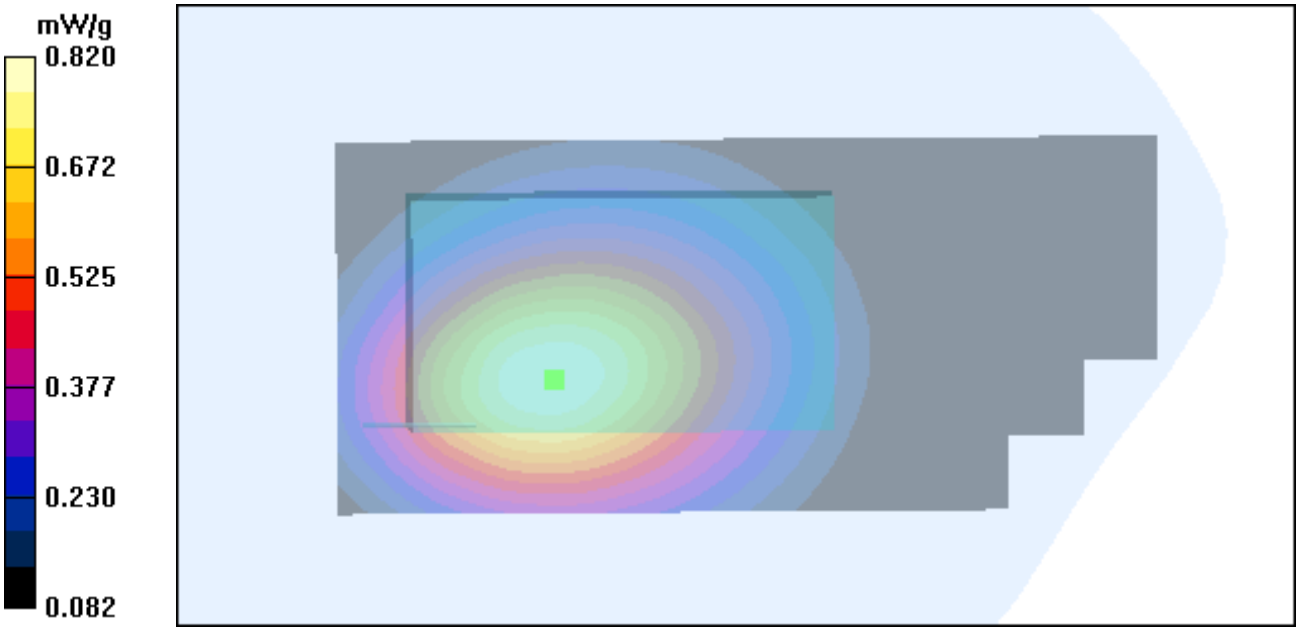
Date/Time: 3/17/2005 11:12:35 AM
Test Laboratory: TCC Dallas

RM-41, CDMA800, Channel 384, Flat position with 2.2cm spacer, Antenna Retracted and BL-6C battery

Communication System: CDMA800; Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.52 MHz; σ = 0.946 mho/m; ε_r = 53.9; ρ = 1000 kg/m^3
Liquid Temperature: 21.3

DASY4 Configuration:
- Probe: ET3DV6 - SN1504; ConvF(6.3, 6.3, 6.3); Calibrated: 9/22/2004
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn377;
- Phantom: SAM2 Cellular Body; Phantom section: Flat Section
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Body/Zoom Scan 1 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 26.0 V/m; Power Drift = -0.112 dB
Peak SAR (extrapolated) = 1.22 W/kg
SAR(1 g) = 0.778 mW/g; SAR(10 g) = 0.532 mW/g
Maximum value of SAR (measured) = 0.820 mW/g



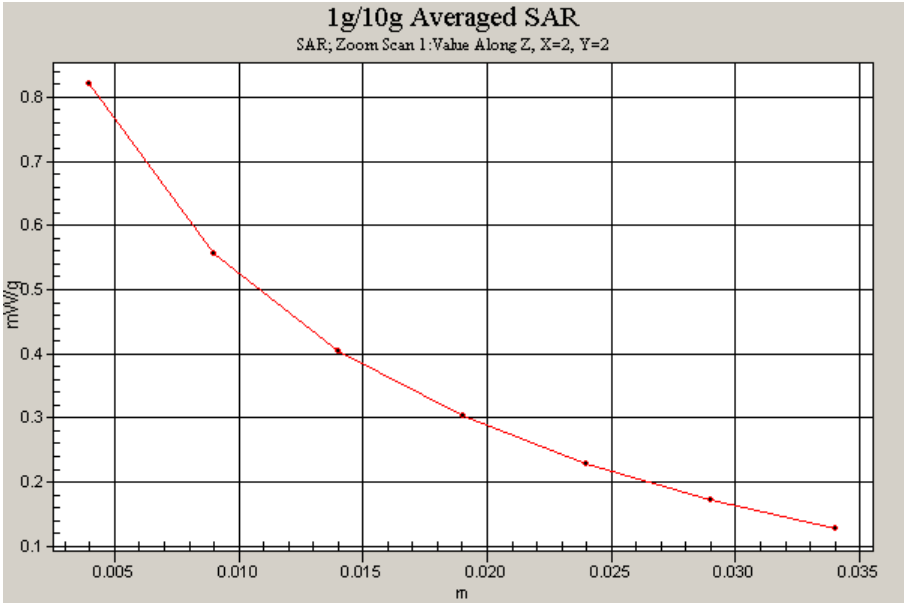
Date/Time: 3/17/2005 11:12:35 AM
Test Laboratory: TCC Dallas

RM-41, CDMA800, Channel 384, Flat position with 2.2cm spacer, Antenna Retracted and BL-6C battery

Communication System: CDMA800; Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.52 MHz; σ = 0.946 mho/m; ε_r = 53.9; ρ = 1000 kg/m^3
Liquid Temperature: 21.3

DASY4 Configuration:
- Probe: ET3DV6 - SN1504; ConvF(6.3, 6.3, 6.3); Calibrated: 9/22/2004
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn377;
- Phantom: SAM2 Cellular Body; Phantom section: Flat Section
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Body/Zoom Scan 1 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 26.0 V/m; Power Drift = -0.112 dB
Peak SAR (extrapolated) = 1.22 W/kg
SAR(1 g) = 0.778 mW/g; SAR(10 g) = 0.532 mW/g
Maximum value of SAR (measured) = 0.820 mW/g



Date/Time: 3/21/2005 1:58:18 PM
Test Laboratory: TCC Dallas

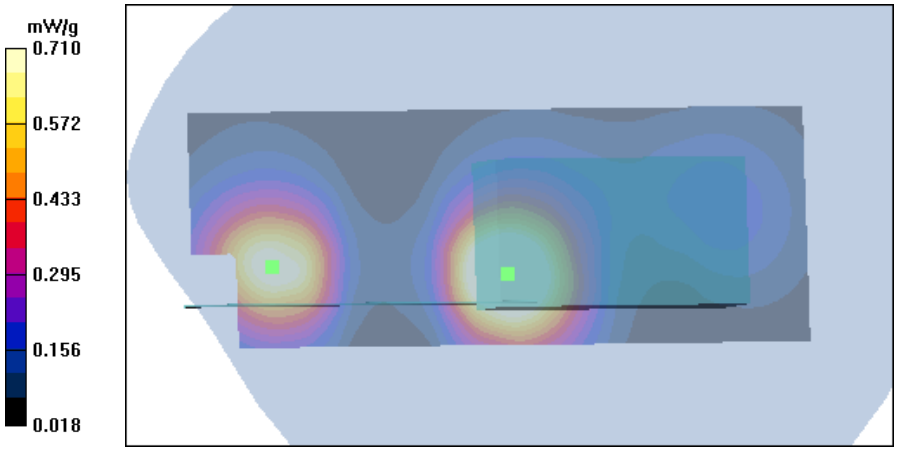
RM-41, CDMA1900, Channel 1175, Flat position with 2.2cm spacer, Antenna Extended and BL-6C battery

Communication System: CDMA1900; Frequency: 1908.75 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1908.75 MHz; σ = 1.6 mho/m; ε_r = 50.7; ρ = 1000 kg/m^3
Liquid Temperature: 19.9

DASY4 Configuration:
- Probe: ET3DV6 - SN1504; ConvF(4.56, 4.56, 4.56); Calibrated: 9/22/2004
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn377;
- Phantom: SAM3 PCS Head and Body; Phantom section: Flat Section
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Body/Zoom Scan 1 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.8 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 1.40 W/kg
SAR(1 g) = 0.681 mW/g; SAR(10 g) = 0.393 mW/g
Maximum value of SAR (measured) = 0.710 mW/g

Body/Zoom Scan 2 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.8 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 1.13 W/kg
SAR(1 g) = 0.534 mW/g; SAR(10 g) = 0.303 mW/g
Maximum value of SAR (measured) = 0.559 mW/g



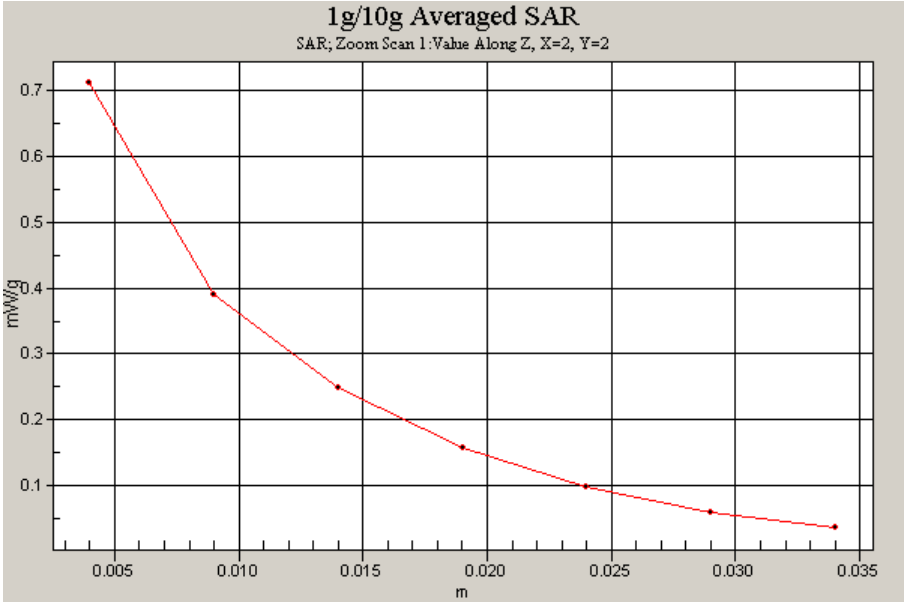
Date/Time: 3/21/2005 1:58:18 PM
Test Laboratory: TCC Dallas

RM-41, CDMA1900, Channel 1175, Flat position with 2.2cm spacer, Antenna Extended and BL-6C battery

Communication System: CDMA1900; Frequency: 1908.75 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1908.75 MHz; σ = 1.6 mho/m; ε_r = 50.7; ρ = 1000 kg/m^3
Liquid Temperature: 19.9

DASY4 Configuration:
- Probe: ET3DV6 - SN1504; ConvF(4.56, 4.56, 4.56); Calibrated: 9/22/2004
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn377;
- Phantom: SAM3 PCS Head and Body; Phantom section: Flat Section
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Body/Zoom Scan 1 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.8 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 1.40 W/kg
SAR(1 g) = 0.681 mW/g; SAR(10 g) = 0.393 mW/g
Maximum value of SAR (measured) = 0.710 mW/g



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

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
S Swiss Calibration Service

Accredited by the Swiss Federal Office of Metrology and Accreditation
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 108

Client Nokia TX

Certificate No: ET3-1504_Sep04

CALIBRATION CERTIFICATE

Object	ET3DV6 - SN:1504
Calibration procedure(s)	QA CAL-01.v5 Calibration procedure for dosimetric E-field probes
Calibration date:	September 22, 2004
Condition of the calibrated item	In Tolerance

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	5-May-04 (METAS, No. 251-00388)	May-05
Power sensor E4412A	MY41495277	5-May-04 (METAS, No. 251-00388)	May-05
Reference 3 dB Attenuator	SN: S5054 (3c)	3-Apr-03 (METAS, No. 251-00403)	Aug-05
Reference 20 dB Attenuator	SN: S5086 (20b)	3-May-04 (METAS, No. 251-00389)	May-05
Reference 30 dB Attenuator	SN: S5129 (30b)	3-Apr-03 (METAS, No. 251-00404)	Aug-05
Reference Probe ES3DV2	SN:3013	8-Jan-04 (SPEAG, No. ES3-3013_Jan04)	Jan-05
DAE4	SN: 617	26-May-04 (SPEAG, No. DAE4-617_May04)	May-05

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092180	18-Sep-02 (SPEAG, in house check Oct-03)	In house check: Oct 05
RF generator HP 8648C	US3642U01700	4-Aug-99 (SPEAG, in house check Dec-03)	In house check: Dec-05
Network Analyzer HP 8753E	US37390585	18-Oct-01 (SPEAG, in house check Nov-03)	In house check: Nov 04

	Name	Function	Signature
Calibrated by:	Nico Vetterli	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: September 24, 2004

DASY - Parameters of Probe: ET3DV6 SN:1504

Sensitivity in Free Space[A]

NormX	**2.18** ± 9.9%	$\mu V/(V/m)^2$	DCP X	**91** mV
NormY	**1.82** ± 9.9%	$\mu V/(V/m)^2$	DCP Y	**91** mV
NormZ	**1.72** ± 9.9%	$\mu V/(V/m)^2$	DCP Z	**91** mV

Diode Compression[B]

Sensitivity in Tissue Simulating Liquid (Conversion Factors)

Please see Page 8.

Boundary Effect

TSL **900 MHz** **Typical SAR gradient: 5 % per mm**

Sensor Center to Phantom Surface Distance		**3.7 mm**	**4.7 mm**
SAR_{be} [%]	Without Correction Algorithm	9.3	4.8
SAR_{be} [%]	With Correction Algorithm	0.1	0.1

TSL **1900 MHz** **Typical SAR gradient: 10 % per mm**

Sensor Center to Phantom Surface Distance		**3.7 mm**	**4.7 mm**
SAR_{be} [%]	Without Correction Algorithm	13.9	9.3
SAR_{be} [%]	With Correction Algorithm	0.7	0.2

Sensor Offset

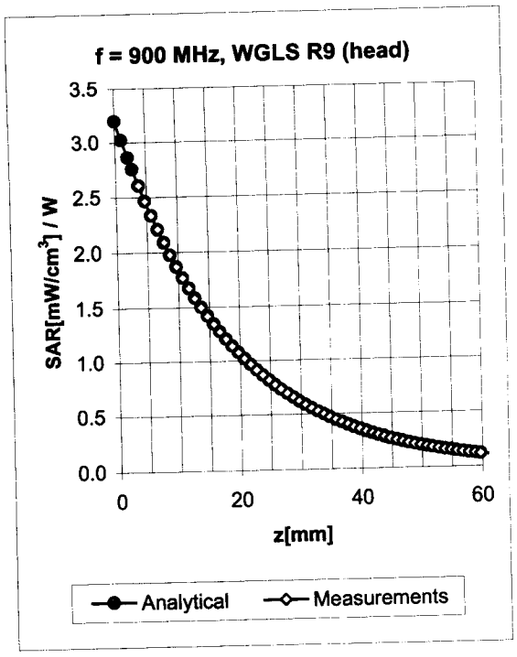
Probe Tip to Sensor Center	**2.7** mm

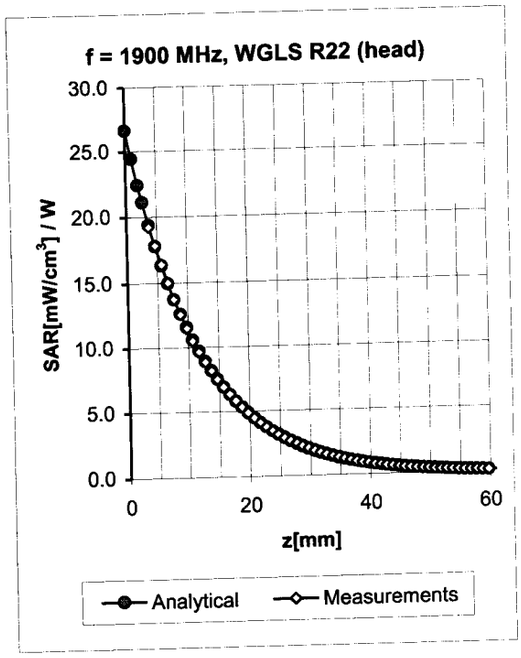
The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

[A] The uncertainties of NormX,Y,Z do not affect the E^2-field uncertainty inside TSL (see Page 8).

[B] Numerical linearization parameter: uncertainty not required.

Conversion Factor Assessment





f [MHz]	Validity [MHz][C]	TSL	Permittivity	Conductivity	Alpha	Depth	ConvF Uncertainty
835	± 50 / ± 100	Head	41.5 ± 5%	0.90 ± 5%	0.77	1.65	6.73 ± 11.0% (k=2)
900	± 50 / ± 100	Head	41.5 ± 5%	0.97 ± 5%	0.73	1.73	6.42 ± 11.0% (k=2)
1750	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.72	2.06	5.30 ± 11.0% (k=2)
1900	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.64	2.30	5.13 ± 11.0% (k=2)
2450	± 50 / ± 100	Head	39.2 ± 5%	1.80 ± 5%	0.74	2.24	4.54 ± 11.8% (k=2)
835	± 50 / ± 100	Body	55.2 ± 5%	0.97 ± 5%	0.60	1.94	6.30 ± 11.0% (k=2)
900	± 50 / ± 100	Body	55.0 ± 5%	1.05 ± 5%	0.59	2.00	6.03 ± 11.0% (k=2)
1750	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.63	2.55	4.67 ± 11.0% (k=2)
1900	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.62	2.65	4.56 ± 11.0% (k=2)
2450	± 50 / ± 100	Body	52.7 ± 5%	1.95 ± 5%	0.80	1.95	4.32 ± 11.8% (k=2)

[C] The validity of ± 100 MHz only applies for DASY 4.3 B17 and higher (see Page 2). The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

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

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

Client Nokia Inc., Texas

CALIBRATION CERTIFICATE

Object(s) D835V2 - SN:455

Calibration procedure(s) QA CAL-05 v2
Calibration procedure for dipole validation kits

Calibration date: October 3, 2003

Condition of the calibrated item In Tolerance (according to the specific calibration document)

This calibration statement documents traceability of M&TE used in the calibration procedures and conformity of the procedures with the ISO/IEC 17025 international standard.

All calibrations have been conducted in the closed laboratory facility: environment temperature 22 +/- 2 degrees Celsius and humidity < 75%.

Calibration Equipment used (M&TE critical for calibration)

Model Type	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power sensor HP 8481A	MY41092317	18-Oct-02 (Agilent, No. 20021018)	Oct-04
Power sensor HP 8481A	US37292783	30-Oct-02 (METAS, No. 252-0236)	Oct-03
Power meter EPM E442	GB37480704	30-Oct-02 (METAS, No. 252-0236)	Oct-03
RF generator R&S SML-03	100698	27-Mar-2002 (R&S, No. 20-92389)	In house check: Mar-05
Network Analyzer HP 8753E	US37390585	18-Oct-01 (Agilent, No. 24BR1033101)	In house check: Oct 03

	Name	Function	Signature
Calibrated by:	Judith Mueller	Technician	
Approved by:	Katja Pokovic	Laboratory Director	

Date issued: October 10, 2003

This calibration certificate is issued as an intermediate solution until the accreditation process (based on ISO/IEC 17025 International Standard) for Calibration Laboratory of Schmid & Partner Engineering AG is completed.

3453

ConvF(6.7, 6.7, 6.7)Date/Time: 10/03/03 13:02:25

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN455

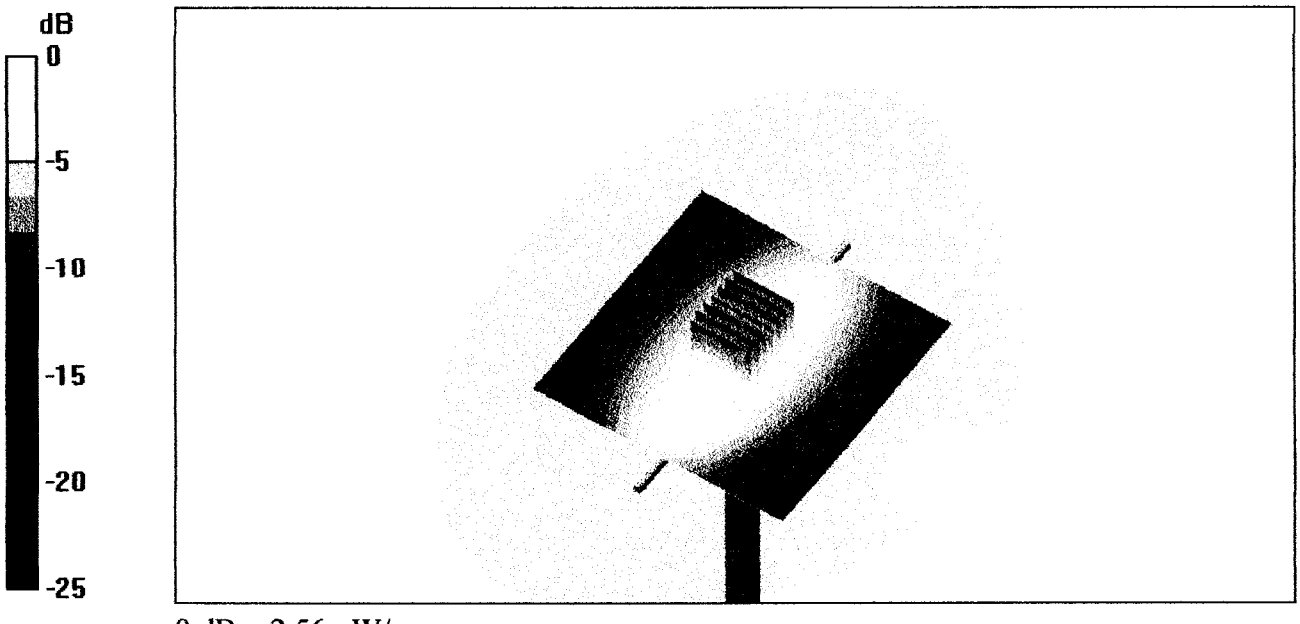
Communication System: CW-835; Frequency: 835 MHz;Duty Cycle: 1:1
Medium: HSL 835 MHz (σ = 0.9 mho/m, ε_r = 43, ρ = 1000 kg/m^3)
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1507; ConvF(6.7, 6.7, 6.7); Calibrated: 1/18/2003
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 - SN411; Calibrated: 1/16/2003
- Phantom: SAM with CRP - TP1006; Type: SAM 4.0; Serial: TP:1006
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.8 Build 60

Pin = 250 mW; d = 15 mm/Area Scan (81x81x1): Measurement grid: dx=15mm, dy=15mm
Reference Value = 55.4 V/m
Power Drift = -0.007 dB
Maximum value of SAR = 2.56 mW/g

Pin = 250 mW; d = 15 mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 3.52 W/kg
SAR(1 g) = 2.37 mW/g; SAR(10 g) = 1.56 mW/g
Reference Value = 55.4 V/m
Power Drift = -0.007 dB
Maximum value of SAR = 2.56 mW/g



0 dB = 2.56mW/g

ConvF(6.3, 6.3, 6.3)Date/Time: 10/02/03 13:39:51

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN455

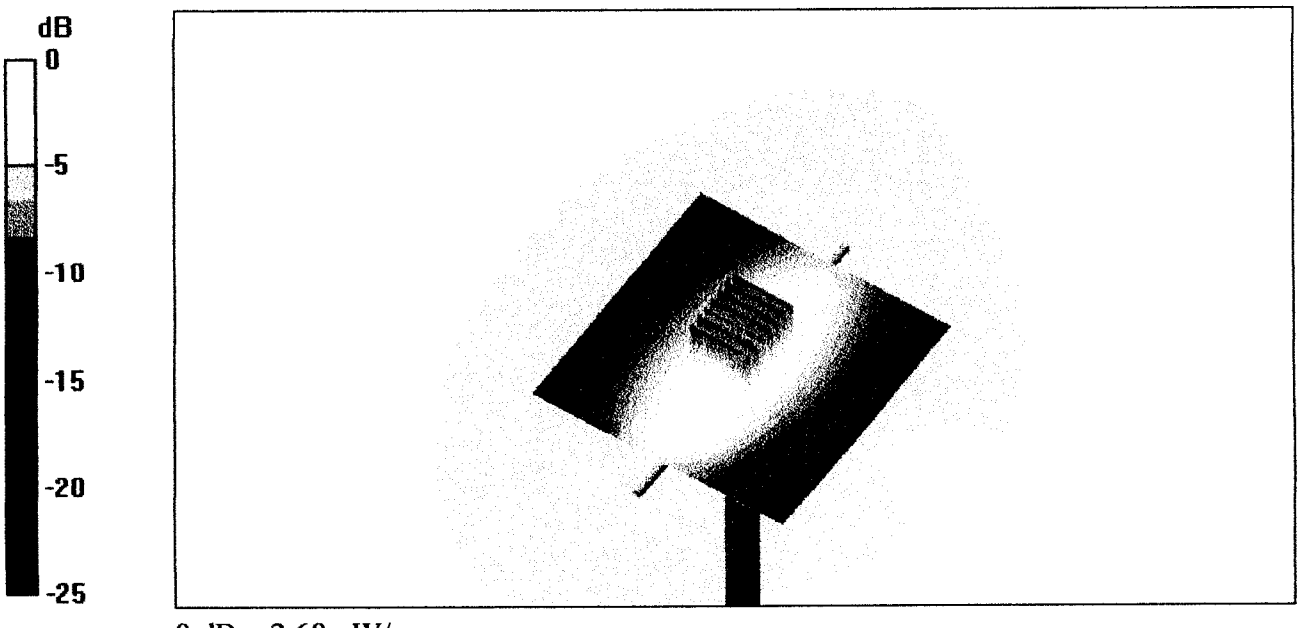
Communication System: CW-835; Frequency: 835 MHz;Duty Cycle: 1:1
Medium: Muscle 835 MHz (σ = 0.98 mho/m, ε_r = 54.98, ρ = 1000 kg/m^3)
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1507; ConvF(6.3, 6.3, 6.3); Calibrated: 1/18/2003
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 - SN411; Calibrated: 1/16/2003
- Phantom: SAM with CRP - TP1006; Type: SAM 4.0; Serial: TP:1006
- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.8 Build 60

Pin = 250 mW; d = 15 mm/Area Scan (81x81x1): Measurement grid: dx=15mm, dy=15mm
Reference Value = 54.8 V/m
Power Drift = -0.006 dB
Maximum value of SAR = 2.66 mW/g

Pin = 250 mW; d = 15 mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 3.6 W/kg
SAR(1 g) = 2.48 mW/g; SAR(10 g) = 1.64 mW/g
Reference Value = 54.8 V/m
Power Drift = -0.006 dB
Maximum value of SAR = 2.68 mW/g



0 dB = 2.68mW/g

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

Client **Nokia Inc. Texas**

CALIBRATION CERTIFICATE

Object(s)	D1900V2 - SN:504
Calibration procedure(s)	QA CAL-05.v2 Calibration procedure for dipole validation kits
Calibration date:	July 16, 2003
Condition of the calibrated item	In Tolerance (according to the specific calibration document)

This calibration statement documents traceability of M&TE used in the calibration procedures and conformity of the procedures with the ISO/IEC 17025 international standard.

All calibrations have been conducted in the closed laboratory facility: environment temperature 22 +/- 2 degrees Celsius and humidity < 75%.

Calibration Equipment used (M&TE critical for calibration)

Model Type	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
RF generator R&S SML-03	100698	27-Mar-2002 (R&S, No. 20-92389)	In house check: Mar-05
Power sensor HP 8481A	MY41092317	18-Oct-02 (Agilent, No. 20021018)	Oct-04
Power sensor HP 8481A	US37292783	30-Oct-02 (METAS, No. 252-0236)	Oct-03
Power meter EPM E442	GB37480704	30-Oct-02 (METAS, No. 252-0236)	Oct-03
Network Analyzer HP 8753E	US37390585	18-Oct-01 (Agilent, No. 24BR1033101)	In house check: Oct 03

	Name	Function	Signature
Calibrated by:	Judith Mueller	Technician	
Approved by:	Katja Pokovic	Laboratory Director	

Date issued: July 17, 2003

This calibration certificate is issued as an intermediate solution until the accreditation process (based on ISO/IEC 17025 International Standard) for Calibration Laboratory of Schmid & Partner Engineering AG is completed.

Date/Time: 07/16/03 17:31:56

Test Laboratory: SPEAG, Zurich, Switzerland
File Name: SN504_SN1507_HSL1900_160703.da4

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN504
Program: Dipole Calibration

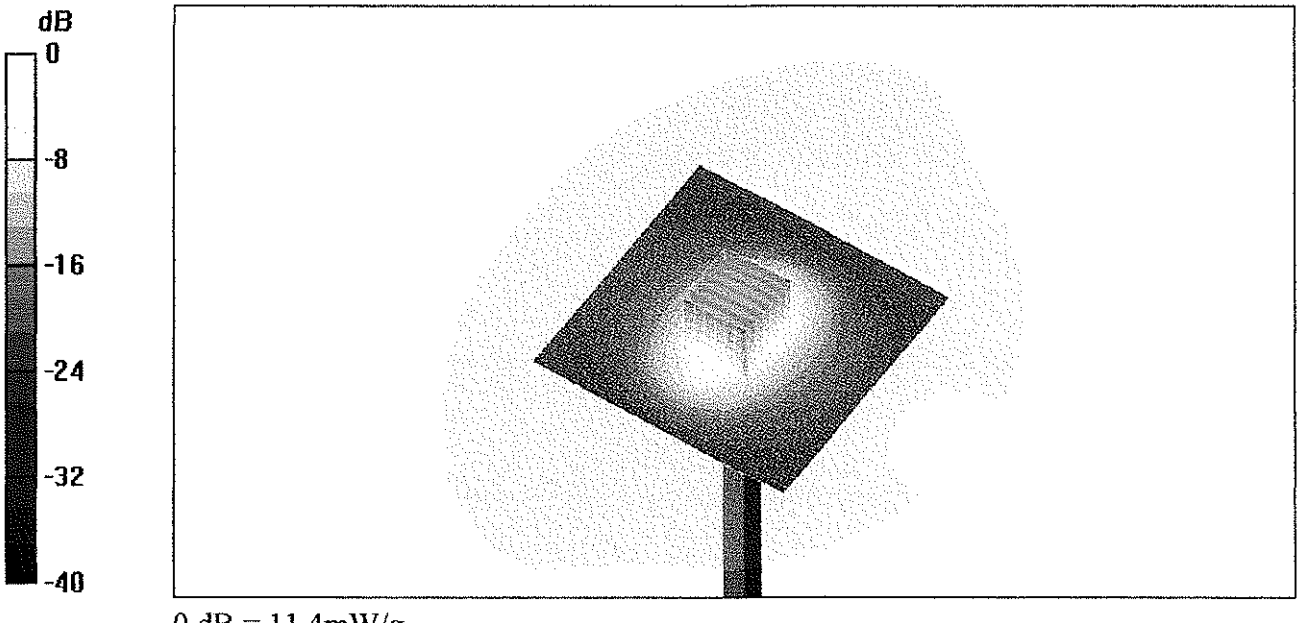
Communication System: CW-1900; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: HSL 1900 MHz (σ = 1.46 mho/m, ε_r = 40.17, ρ = 1000 kg/m^3)
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1507; ConvF(5.2, 5.2, 5.2); Calibrated: 1/18/2003
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 - SN411; Calibrated: 1/16/2003
- Phantom: SAM with CRP - TP1006; Type: SAM 4.0; Serial: TP:1006
- *Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115*

Pin = 250 mW; d = 10 mm/Area Scan (81x81x1): Measurement grid: dx=15mm, dy=15mm
Reference Value = 93.5 V/m
Power Drift = -0.02 dB
Maximum value of SAR = 11.4 mW/g

Pin = 250 mW; d = 10 mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 17.6 W/kg
SAR(1 g) = 10.2 mW/g; SAR(10 g) = 5.29 mW/g
Reference Value = 93.5 V/m
Power Drift = -0.02 dB
Maximum value of SAR = 11.4 mW/g



0 dB = 11.4mW/g

Date/Time: 07/16/03 11:37:18

Test Laboratory: SPEAG, Zurich, Switzerland
File Name: SN504_SN1507_M1900_160703.da4

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN504
Program: Dipole Calibration

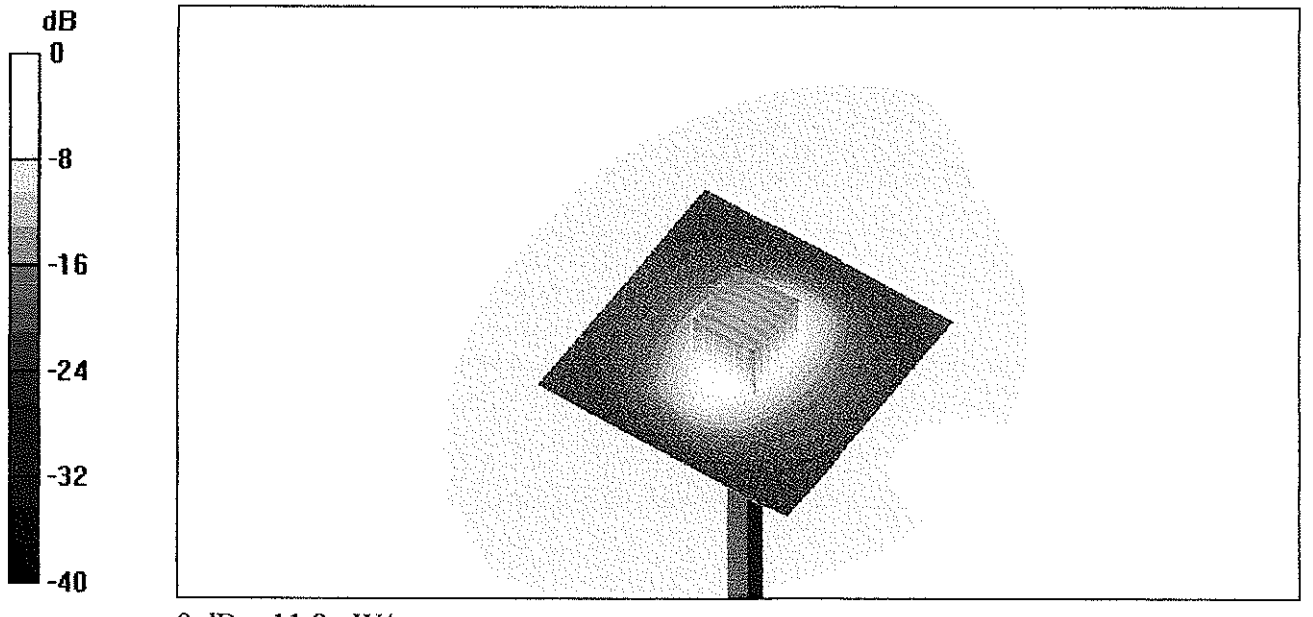
Communication System: CW-1900; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: Muscle 1900 MHz (σ = 1.6 mho/m, ε_r = 50.87, ρ = 1000 kg/m^3)
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1507; ConvF(4.8, 4.8, 4.8); Calibrated: 1/18/2003
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 - SN411; Calibrated: 1/16/2003
- Phantom: SAM with CRP - TP1006; Type: SAM 4.0; Serial: TP:1006
- *Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115*

Pin = 250 mW; d = 10 mm/Area Scan (81x81x1): Measurement grid: dx=15mm, dy=15mm
Reference Value = 92 V/m
Power Drift = 0.02 dB
Maximum value of SAR = 11.7 mW/g

Pin = 250 mW; d = 10 mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 18.2 W/kg
SAR(1 g) = 10.5 mW/g; SAR(10 g) = 5.45 mW/g
Reference Value = 92 V/m
Power Drift = 0.02 dB
Maximum value of SAR = 11.8 mW/g



0 dB = 11.8mW/g

Additional safety information

Operating environment

Your device and its enhancements may contain small parts. Keep them out of the reach of small children.

Remember to follow any special regulations in force in any area and always switch off your device when its use is prohibited or when it may cause interference or danger. Use the device only in its normal operating positions. This device meets RF exposure guidelines when used either in the normal use position against the ear of when positioned at least 7/8 inch (2.2 cm) away from the body. When a carry case, belt clip, or holder is used for body-worn operation, it should not contain metal and should position the device at least 7/8 inch (2.2 cm) away from your body.

In order to transmit data files or messages, this device requires a quality connection to the network. In some cases, transmission of data files or messages may be delayed until such a connection is available. Ensure the above separation distance instructions are followed until the transmission is completed.

Medical devices

Operation of any radio transmitting equipment, including wireless phones, may interfere with the functionality of inadequately protected medical devices. Consult a physician or the manufacturer of the medical device to determine if they are adequately shielded from external RF energy or if you have any questions. Switch off your device in health care facilities when any regulations posted in these areas instruct you to do so. Hospitals or health care facilities may be using equipment that could be sensitive to external RF energy.

PACEMAKERS

Pacemaker manufacturers recommend that a minimum separation of 6 inches (15.3 cm) be maintained between a wireless device or phone and a pacemaker to avoid potential interference with the pacemaker. These recommendations are consistent with the independent research by and recommendations of Wireless Technology Research. To minimize the potential for interference, persons with pacemakers should

- Always keep the device more than 6 inches (15.3 cm) from their pacemaker when the device is switched on
- Not carry the device in a breast pocket

- Hold the device to the ear opposite the pacemaker to minimize the potential for interference.

If you have any reason to suspect that interference is taking place, switch off your device immediately.

HEARING AIDS

Some digital wireless devices may interfere with some hearing aids. If interference occurs, consult your service provider.

Vehicles

RF signals may affect improperly installed or inadequately shielded electronic systems in motor vehicles such as electronic fuel injection systems, electronic antiskid (antilock) braking systems, electronic speed control systems, air bag systems. For more information, check with the manufacturer or its representative of your vehicle or any equipment that has been added.

Only qualified personnel should service the device, or install the device in a vehicle. Faulty installation or service may be dangerous and may invalidate any warranty that may apply to the device. Check regularly that all wireless device equipment in your vehicle is mounted and operating properly. Do not store or carry flammable liquids, gases, or explosive materials in the same compartment as the device, its parts, or enhancements. For vehicles equipped with an air bag, remember that an air bags inflate with great force. Do not place objects, including installed or portable wireless equipment in the area over the air bag or in the air bag deployment area. If in-vehicle wireless equipment is improperly installed and the air bag inflates, serious injury could result.

FCC regulations prohibit using your wireless device while in the air. The use of wireless telephones in an aircraft may be dangerous to the operation of the aircraft, disrupt the wireless telephone network, and may be illegal.

Potentially explosive environments

Switch off your device when in any area with a potentially explosive atmosphere and obey all signs and instructions. Potentially explosive atmospheres include areas where you would normally be advised to turn off your vehicle engine. Sparks in such areas could cause an explosion or fire resulting in bodily injury or even death. Switch off the device at refuelling points such as near gas pumps at service stations. Observe restrictions on the use of radio equipment in fuel depots, storage, and distribution areas, chemical plants or where blasting operations are in progress. Areas with a potentially explosive atmosphere are often but not always clearly marked. They include below deck on boats, chemical

transfer or storage facilities, vehicles using liquefied petroleum gas (such as propane or butane), and areas where the air contains chemicals or particles such as grain, dust or metal powders.

Failure to observe these instructions may lead to suspension or denial of telephone services to the offender, legal action, or both.

Emergency calls

Important: Wireless phones, including this device, operate using radio signals, wireless networks, landline networks, and user-programmed functions. Because of this, connections in all conditions cannot be guaranteed. You should never rely solely on any wireless device for essential communications like medical emergencies.

To make an emergency call, make sure your device is properly charged before attempting any emergency calls. If your battery becomes empty, you cannot receive or make calls, including emergency calls and must wait a few minutes after the charging begins to place your call.

1. If the device is not on, switch it on. Check for adequate signal strength. Some networks may require that a valid UIM (CDMA SIM) card is properly inserted in the device.
2. Press the end key as many times as needed to clear the display and ready the device for calls.
3. Enter the official emergency number for your present location, and press the call key. Emergency numbers vary by location

If certain features are in use, you may first need to turn those features off before you can make an emergency call. If the device is in an offline or flight mode you must change the profile to activate the device function before you can make an emergency call. Consult this guide or your service provider. When making an emergency call, give all the necessary information as accurately as possible. Your wireless device may be the only means of communication at the scene of an accident. Do not end the call until given permission to do so.

Certification information (SAR)

THIS MODEL PHONE MEETS THE GOVERNMENT'S REQUIREMENTS FOR EXPOSURE TO RADIO WAVES.

Your mobile device is a radio transmitter and receiver. It is designed and manufactured not to exceed the limits for exposure to radio frequency (RF) energy set by the Federal Communications Commission (FCC) of the U.S. Government. These limits are part of comprehensive guidelines and establish

FCC draft

permitted levels of RF energy for the general population. The guidelines are based on standards that were developed by independent scientific organizations through periodic and thorough evaluation of scientific studies. The standards include a substantial safety margin designed to assure the safety of all persons, regardless of age and health.

The exposure standards for wireless mobile devices employ a unit of measurement known as the Specific Absorption Rate, or SAR. The SAR limit set by the FCC is 1.6 watts/kilogram (W/kg).* Tests for SAR are conducted using standard operating positions accepted by the FCC with the phone transmitting at its highest certified power level in all tested frequency bands. Although the SAR is determined at the highest certified power level, the actual SAR level of an operating device can be well below the maximum value. This is because the device is designed to operate at multiple power levels so as to use only the power required to reach the network. In general, the closer you are to a wireless base station antenna, the lower the power output.

Before a device model is available for sale to the public, it must be tested and certified to the FCC that it does not exceed the limit established by the government-adopted requirement for safe exposure. The tests are performed in positions and locations (e.g., at the ear and worn on the body) as required by the FCC for each model.

The highest SAR value reported to the FCC when tested for use at the ear is 1.22 W/kg, and when worn on the body, as described in this user guide, is 0.78 W/kg. (Body-worn measurements differ among phone models, depending on available enhancements and FCC requirements.)

While there may be differences between the SAR levels of various phones and at various positions, they all meet the government requirement. The FCC has granted an Equipment Authorization for this model phone with all reported SAR levels evaluated as in compliance with the FCC RF exposure guidelines. SAR information on this model device is on file with the FCC and can be found under the Display Grant section of http://www.fcc.gov/oet/fccid after searching on FCC ID QMNRM-41 for Nokia 3155/3155i.

For body-worn operations, this phone has been tested and meets the FCC RF exposure guidelines for use with a carry case, belt clip or holder that contains no metal and that positions the handset a minimum of 7/8 inch (2.2 cm) away from the body. Use of other carry cases, belt clips or holders may not ensure compliance with the FCC RF exposure guidelines. If you do not use a body-worn enhancement and are not holding the phone at the ear, positions the handset a minimum of 7/8 inch (2.2 cm) away from your body when the phone is switched on.

*In the United States and Canada, the SAR limit for mobile phone used by the public is 1.6 watts/kilogram (W/kg) averaged over one gram of tissue. The standard incorporates a substantial margin of safety to give additional protection for the public and to account for any variations in measurements. SAR values may vary depending on national reporting requirements and the network band. For SAR information in other regions, please look under product information at www.nokiausa.com.

Technical information

Type designation—RM-41 (for Nokia 3155/3155i) and RM-61 (for Nokia 3152)

Dimensions—Width, 45.5 mm; length, 84.8 mm; depth, 24.5 mm

Weight—84.4 g without BL-6C Li-Ion Battery

Volume—86 cm^3

Wireless networks—CDMA 800 and 1900 MHz, AMPS, and GPS

Frequency range (Tx)—AMPS: 824.04–848.97 MHz, PCS: 1851.25–1908.75 MHz, Cellular: 824.70–848.37 MHz

Frequency range (Rx)—AMPS: 869.04–893.97 MHz, PCS: 1931.25–1988.75 MHz, Cellular: 869.70–893.37 MHz

GPS frequency—1575.42 MHz

Battery information

This section provides information about battery charging times with the Travel Charger (AC-4) and the Standard Travel Charger (AC-3), talk and standby times. Be aware that the information in this section is subject to change. For more information, contact your service provider.

Charging times

The following charging times are approximate with the BL-6C 1070 mAh Li-Ion battery:
Travel Charger (AC-4): Up to 1 hour 35 minutes

Standard Travel Charger (AC-3): Up to 3 hours 45 minutes

Talk and standby times

Operation times are estimates only and depend on signal strength, phone use, network conditions, features used, battery age and condition (including charging habits), temperatures to which the battery is exposed, and other factors.