

SAR Compliance Test Report

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Tested device:	RM-271		
FCC ID:	QMNRM-271	IC:	661X-RM271
Supplement reports:	SD_SAR_0727_04		
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 Technique		
Documentation:	The documentation of the testing performed on the tested devices is archived for 15 years at TCC San Diego.		
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:			
For the contents:			

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1. SUMMARY OF SAR TEST REPORT

1.1 Test Details

Period of test	2007-06-20 to 2007-07-10
SN, HW and SW numbers of tested device	SN: 004401/01/243955/6, HW: 4523, SW: Vp md3.09, DUT: 3013 SN: 004401/01/244027/3, HW: 4523, SW: Vp md3.09, DUT: 3012
Batteries used in testing	BL-5C, DUT: 3014, 3015
Headsets used in testing	HS-47
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)	Radiated power	Position	Measured SAR value (1g avg)	Scaled* SAR value (1g avg)	SAR limit (1g avg)	Result
GSM850	251 / 848.8	29.0 dBm ERP	Left, Cheek	0.586W/kg	0.66W/kg	1.6 W/kg	PASSED
WCDMA850	4175 / 835.0	22.0 dBm ERP	Right, Cheek	0.796W/kg	0.89W/kg	1.6 W/kg	PASSED
GSM1900	512 / 1850.2	32.0 dBm EIRP	Left, Cheek	0.827W/kg	0.93W/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
GSM850	251 / 848.8	30.8 dBm ERP	2.2 cm	0.643W/kg	0.72W/kg	1.6 W/kg	PASSED
WCDMA850	4175 / 835.0	19.5 dBm ERP	2.2 cm	0.766W/kg	0.86W/kg	1.6 W/kg	PASSED
GSM1900	512 / 1850.2	29.5 dBm EIRP	2.2 cm	0.143W/kg	0.16W/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	0.46dB

1.2.4 Measurement Uncertainty

Expanded Uncertainty (k=2) 95%	± 25.8%
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2. DESCRIPTION OF THE DEVICE UNDER TEST

Device category	Portable
Exposure environment	General population / uncontrolled

Modes and Bands of Operation	GSM	GPRS	EGPRS	WCDMA	BT
	850 / 1900	850 / 1900	850 / 1900	850	
Modulation Mode	GMSK	GMSK	GMSK / 8PSK	QPSK	GFSK
Duty Cycle	1/8	1/8 to 3/8	1/8 to 3/8	1	
Transmitter Frequency Range (MHz)	824 - 849 1850 - 1910	824 - 849 1850 - 1910	824 - 849 1850 - 1910	824 - 849	2402-2480

Outside of USA and Canada, the transmitter of the device is capable of operation also in 900 / 1800 / 2100 MHz bands, which are not part of this filing.

This device has Push to Talk capability for use at the ear. Therefore, SAR for multi slot GPRS mode was evaluated against the head profile of the phantom.

2.1 Description of the antenna

The device has an internal antenna.

3. TEST CONDITIONS

3.1 Temperature and Humidity

Ambient temperature (°C):	20.5 to 21.6
Ambient humidity (RH %):	39 to 56

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(s) 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
DAE 4	604	12 months	2007-11
DAE 3	389	12 months	2008-02
E-field Probe ET3DV6	1505	12 months	2007-09
E-field Probe ET3DV6	1516	12 months	2007-11
Dipole Validation Kit, D835V2	487	24 months	2008-11
Dipole Validation Kit, D1900V2	534	24 months	2008-09
DASY4 software	Version 4.7	-	-

Additional test equipment used in testing:

Test Equipment	Model	Serial Number	Calibration interval	Calibration expiry
Signal Generator	Agilent E4432B	US 40052231	24 months	2008-05
Amplifier	Milmega AS0825-20L	1009777	-	-
Power Meter	Agilent E4417A	GB41290918	12 months	2007-11
Power Sensor	Agilent E9327A	US 40411295	12 months	2008-04
Call Tester	CMU 200	837727/071	-	-
Call Tester	CMU 200	837727/008	-	-
Vector Network Analyzer	Agilent 8753ES	US39174327	12 months	2008-05
Dielectric Probe Kit	Agilent 85070D	US 01440165	-	-

4.1.1 Isotropic E-field Probe Type ET3DV6

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 μ W/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 checks 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 $\pm 5\%$ 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 recipe(s) were used for Head and Body tissue simulant(s):

800MHz band

Ingredient	Head (% by weight)	Body (% by weight)
Deionised Water	39.74	55.97
HEC	0.25	1.21
Sugar	58.31	41.76
Preservative	0.15	0.27
Salt	1.55	0.79

1900MHz band

Ingredient	Head (% by weight)
Deionised Water	54.88
Butyl Diglycol	44.91
Salt	0.21

1900MHz band

Ingredient	Body (% by weight)
Deionised Water	70.25
Tween 20	29.41
Salt	0.34

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

<i>f</i> [MHz]	Description	SAR [W/kg], 1g	Dielectric Parameters		Temp [°C]
			ϵ_r	σ [S/m]	
835	Reference result	2.29	42.3	0.90	
	± 10% window	2.06 - 2.52			
	2007-06-20	2.45	41.7	0.90	21.0
	2007-06-21	2.48	41.6	0.91	21.0
	2007-07-10	2.46	42.4	0.93	21.0
1900	Reference result	9.38	38.6	1.41	
	± 10% window	8.44 - 10.32			
	2007-07-01	10.1	39.1	1.41	21.0
	2007-07-09	10.2	38.3	1.43	21.0

System checking, body tissue simulant

<i>f</i> [MHz]	Description	SAR [W/kg], 1g	Dielectric Parameters		Temp [°C]
			ϵ_r	σ [S/m]	
835	Reference result	2.44	53.7	0.99	
	± 10% window	2.20 - 2.68			
	2007-06-25	2.50	53.0	0.97	21.0
	2007-06-28	2.54	53.3	0.96	21.0
1900	Reference result	10.1	52.6	1.56	
	± 10% window	9.1 - 11.1			
	2007-07-02	10.1	53.2	1.58	21.0

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	
	$\pm 5\%$ window	39.4 – 43.6	0.86 – 0.95	
	2007-06-20	41.7	0.90	21.0
	2007-06-21	41.6	0.91	21.0
	2007-07-10	42.4	0.93	21.0
1880	Recommended value	40.0	1.40	
	$\pm 5\%$ window	38.0 – 42.0	1.33 – 1.47	
	2007-07-01	39.3	1.40	21.0
	2007-07-09	38.4	1.41	21.0

Body tissue simulant measurements

f [MHz]	Description	Dielectric Parameters		Temp [°C]
		ϵ_r	σ [S/m]	
836	Recommended value	55.2	0.97	
	$\pm 5\%$ window	52.4 – 58.0	0.92 – 1.02	
	2007-06-25	53.0	0.97	21.0
	2007-06-28	53.3	0.96	21.0
1880	Recommended value	53.3	1.52	
	$\pm 5\%$ window	50.6 – 56.0	1.44 – 1.60	
	2007-07-02	53.3	1.56	21.0

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 Section 1.2.2 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	G_i	$G_i \cdot u_i$ (%)	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:

850MHz 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		31.5 dBm	29.8 dBm	29.0 dBm
Flip open	Left	Cheek	0.383	0.445	0.586
		Tilt	-	0.222	-
	Right	Cheek	-	0.403	-
		Tilt	-	0.224	-
2-slot GPRS	Power		27.0 dBm	25.4 dBm	24.5 dBm
Flip open	Left	Cheek	-	0.321	-
		Tilt	-	-	-
	Right	Cheek	-	-	-
		Tilt	-	-	-
3-slot GPRS	Power		23.9 dBm	22.1 dBm	21.3 dBm
Flip open	Left	Cheek	-	0.346	-
		Tilt	-	-	-
	Right	Cheek	-	-	-
		Tilt	-	-	-
1-slot 8PSK EGPRS Flip open	Left Cheek		-	-	0.112
GSM Flip open	Left Cheek, BT active		-	-	0.427
Option used	Test configuration		SAR, averaged over 1g (W/kg)		
			Ch 4132 826.4 MHz	Ch 4175 835.0 MHz	Ch 4233 846.6 MHz
WCDMA	Power		20.8 dBm	22.0 dBm	21.0 dBm
Flip open	Left	Cheek	-	0.795	-
		Tilt	-	0.396	-
	Right	Cheek	0.520	0.796	0.727
		Tilt	-	0.390	-
WCDMA Flip open	Right Cheek, BT active		-	0.767	-

1900MHz Head SAR results

Option used	Test configuration		SAR, averaged over 1g (W/kg)		
			Ch 512 1850.2 MHz	Ch 661 1880 MHz	Ch 810 1909.8 MHz
GSM	Power		32.0 dBm	32.1 dBm	30.0 dBm
Flip open	Left	Cheek	0.827	0.790	0.709
		Tilt	-	0.208	-
	Right	Cheek	-	0.564	-
		Tilt	-	0.202	-
2-slot GPRS	Power		28.9 dBm	28.7 dBm	27.2 dBm
Flip open	Left	Cheek	-	0.742	-
		Tilt	-	-	-
	Right	Cheek	-	-	-
		Tilt	-	-	-
3-slot GPRS	Power		27.4 dBm	27.8 dBm	25.5 dBm
Flip open	Left	Cheek	-	0.724	-
		Tilt	-	-	-
	Right	Cheek	-	-	-
		Tilt	-	-	-
1-slot 8PSK EGPRS Flip open	Left Cheek		0.239	-	-
GSM Flip open	Left Cheek, BT active		0.823	-	-

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

850MHz 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	28.6 dBm	27.0 dBm	30.8 dBm
Flip closed	Without headset	0.353	0.536	0.643
	Headset HS-47	0.237	0.357	0.465
GSM Flip closed	Without headset, BT active	-	-	0.627
Option used	Test configuration	SAR, averaged over 1g (W/kg)		
		Ch 4132 826.4 MHz	Ch 4175 835.0 MHz	Ch 4233 846.6 MHz
WCDMA	Power	18.4 dBm	19.5 dBm	21.6 dBm
Flip closed	Without headset	0.597	0.766	0.719
	Headset HS-47	0.422	0.556	0.521
WCDMA Flip closed	Without headset, BT active	-	0.603	-

1900MHz 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	29.5 dBm	31.2 dBm	29.9 dBm
Flip closed	Without headset	0.143	0.129	0.113
	Headset HS-47	0.122	0.126	0.106
GSM Flip closed	Without headset, BT active	0.138	-	-

Plots of the Measurement scans are given in Appendix B.

APPENDIX A: SYSTEM CHECKING SCANS

Date/Time: 2007-06-20 13:24:35

Test Laboratory: TCC Nokia

Type: D835V2; Serial: 487

Communication System: CW835

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: Cellular Head; Medium Notes: 21.6C

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.901 \text{ mho/m}$; $\epsilon_r = 41.7$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1505; Probe Notes:
- ConvF(6.7, 6.7, 6.7); Calibrated: 2006-09-19
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn604; Calibrated: 2006-11-13
- Phantom: SAM2; Type: Twin Phantom; Serial: TP-1279
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

835MHz system check/Area Scan (61x61x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 2.64 mW/g

835MHz system check/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 55.1 V/m

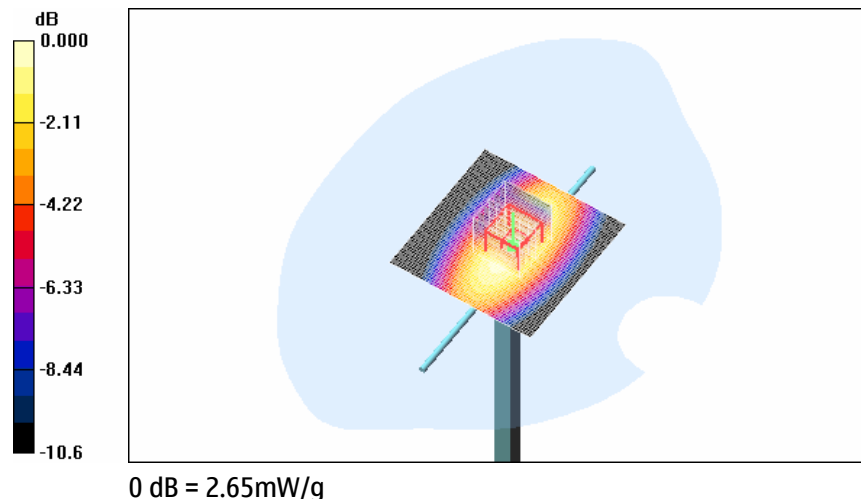
Peak SAR (extrapolated) = 3.72 W/kg

SAR(1 g) = 2.45 mW/g

SAR(10 g) = 1.59 mW/g

Power Drift = -0.002 dB

Maximum value of SAR (measured) = 2.65 mW/g



Date/Time: 2007-06-21 13:51:35

Test Laboratory: TCC Nokia

Type: D835V2; Serial: 487

Communication System: CW835

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: Cellular Head; Medium Notes: 20.9C

Medium parameters used: $f = 835$ MHz; $\sigma = 0.912$ mho/m; $\epsilon_r = 41.6$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1505; Probe Notes:
- ConvF(6.7, 6.7, 6.7); Calibrated: 2006-09-19
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn604; Calibrated: 2006-11-13
- Phantom: SAM2; Type: Twin Phantom; Serial: TP-1279
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

835MHz system check/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 2.67 mW/g

835MHz system check/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 55.1 V/m

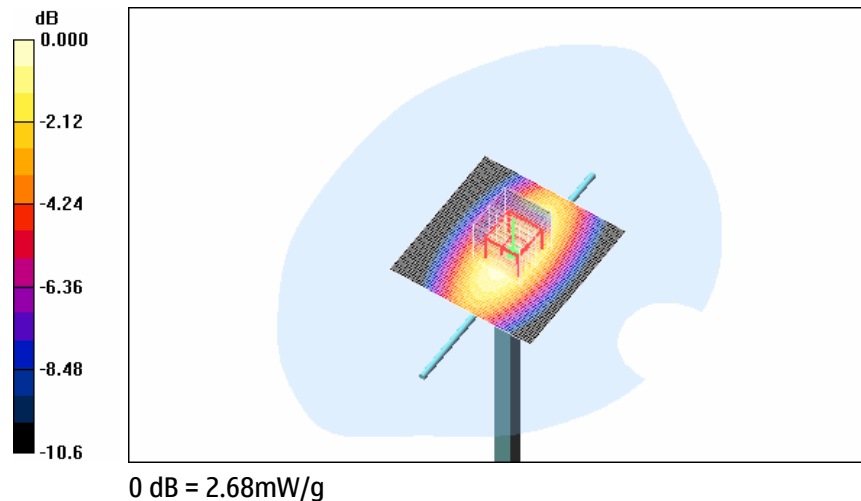
Peak SAR (extrapolated) = 3.76 W/kg

SAR(1 g) = 2.48 mW/g

SAR(10 g) = 1.61 mW/g

Power Drift = -0.002 dB

Maximum value of SAR (measured) = 2.68 mW/g



Date/Time: 2007-07-10 12:26:52

Test Laboratory: TCC Nokia

Type: D835V2; Serial: 487

Communication System: CW835

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: Cellular Head; Medium Notes: 21.0C

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.925 \text{ mho/m}$; $\epsilon_r = 42.4$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1505; Probe Notes:
- ConvF(6.7, 6.7, 6.7); Calibrated: 2006-09-19
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn604; Calibrated: 2006-11-13
- Phantom: SAM2; Type: SAM; Serial: TP-1279
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

835MHz system check/Area Scan (61x61x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 2.66 mW/g

835MHz system check/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 55.1 V/m

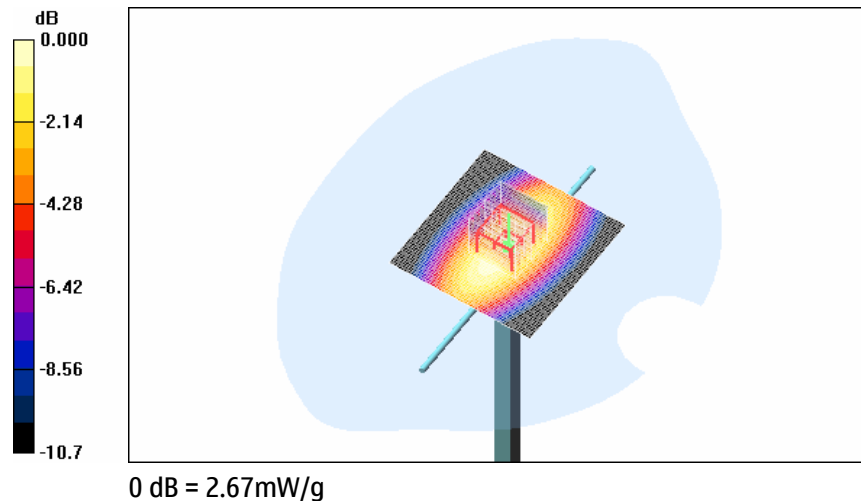
Peak SAR (extrapolated) = 3.72 W/kg

SAR(1 g) = 2.46 mW/g

SAR(10 g) = 1.59 mW/g

Power Drift = 0.004 dB

Maximum value of SAR (measured) = 2.67 mW/g



Date/Time: 2007-07-01 10:49:44

Test Laboratory: TCC Nokia

Type: D1900V2; Serial: 534

Communication System: CW1900

Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: Cellular Head; Medium Notes: T = 20.8C

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.41$ mho/m; $\epsilon_r = 39.1$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(4.91, 4.91, 4.91); Calibrated: 2006-11-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn389; Calibrated: 2007-02-16
- Phantom: SAM 2 ; Type: Twin Phantom; Serial: NMP3309
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

1900MHz system check/Area Scan (61x61x1): Measurement grid: dx=10mm, dy=10mm

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

1900MHz system check/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 95.6 V/m

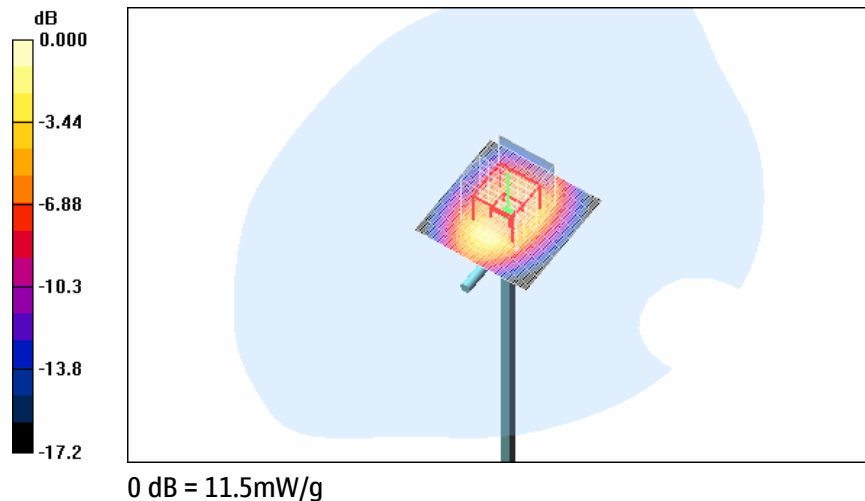
Peak SAR (extrapolated) = 17.5 W/kg

SAR(1 g) = 10.1 mW/g

SAR(10 g) = 5.35 mW/g

Power Drift = -0.018 dB

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



Date/Time: 2007-07-09 12:59:30

Test Laboratory: TCC Nokia

Type: D1900V2; Serial: 534

Communication System: CW1900

Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: Cellular Head; Medium Notes: 20.5C

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.43$ mho/m; $\epsilon_r = 38.3$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(4.91, 4.91, 4.91); Calibrated: 2006-11-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn389; Calibrated: 2007-02-16
- Phantom: SAM 2 ; Type: Twin Phantom; Serial: NMP3309
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

1900MHz system check/Area Scan (61x61x1): Measurement grid: dx=10mm, dy=10mm

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

1900MHz system check/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 93.9 V/m

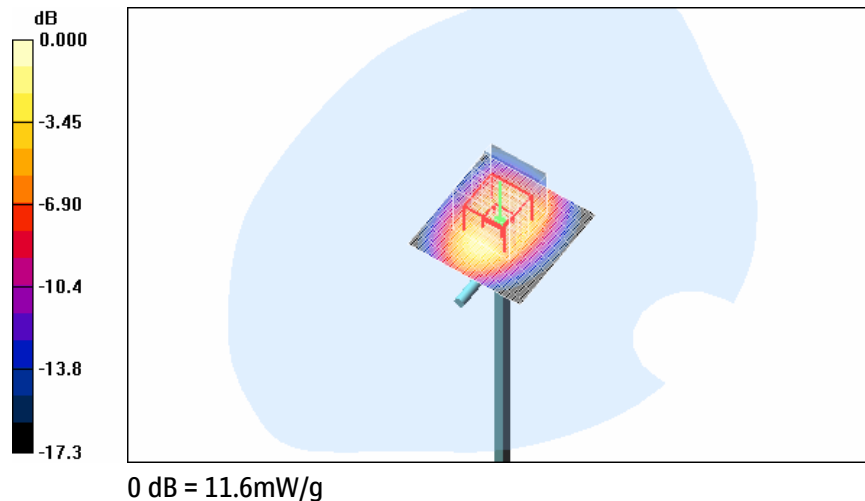
Peak SAR (extrapolated) = 17.8 W/kg

SAR(1 g) = 10.2 mW/g

SAR(10 g) = 5.42 mW/g

Power Drift = 0.044 dB

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



Date/Time: 2007-06-25 8:09:41

Test Laboratory: TCC Nokia

Type: D835V2; Serial: 487

Communication System: CW835

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: Cellular Body; Medium Notes: 21.4C

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.965 \text{ mho/m}$; $\epsilon_r = 53$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1505; Probe Notes:
- ConvF(6.54, 6.54, 6.54); Calibrated: 2006-09-19
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn604; Calibrated: 2006-11-13
- Phantom: SAM1; Type: Twin Phantom; Serial: TP-1035
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 171

835MHz system check/Area Scan (61x61x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 2.69 mW/g

835MHz system check/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 53.5 V/m

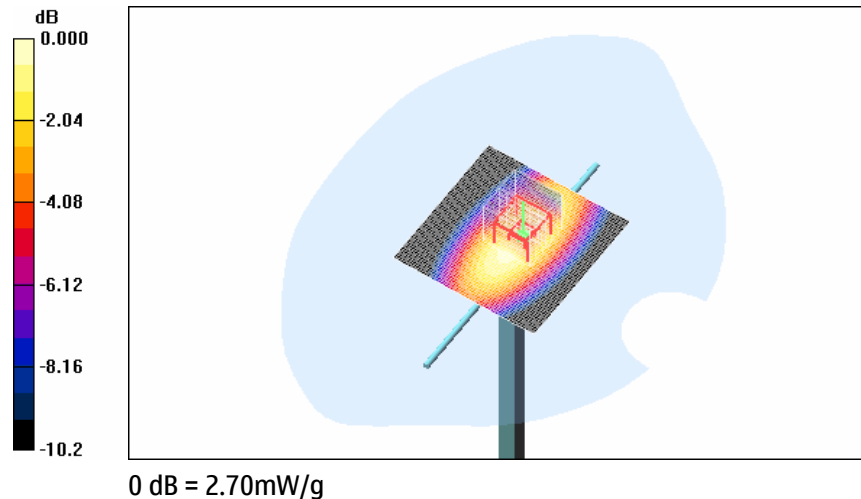
Peak SAR (extrapolated) = 3.66 W/kg

SAR(1 g) = 2.5 mW/g

SAR(10 g) = 1.64 mW/g

Power Drift = -0.001 dB

Maximum value of SAR (measured) = 2.70 mW/g



Date/Time: 2007-06-28 11:41:38

Test Laboratory: TCC Nokia

Type: D835V2; Serial: 487

Communication System: CW835

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: Cellular Body; Medium Notes: 20.9C

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.961 \text{ mho/m}$; $\epsilon_r = 53.3$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1505; Probe Notes:
- ConvF(6.54, 6.54, 6.54); Calibrated: 2006-09-19
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn604; Calibrated: 2006-11-13
- Phantom: SAM1; Type: Twin Phantom; Serial: TP-1035
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 171

835MHz system check/Area Scan (61x61x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 2.75 mW/g

835MHz system check/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 54.9 V/m

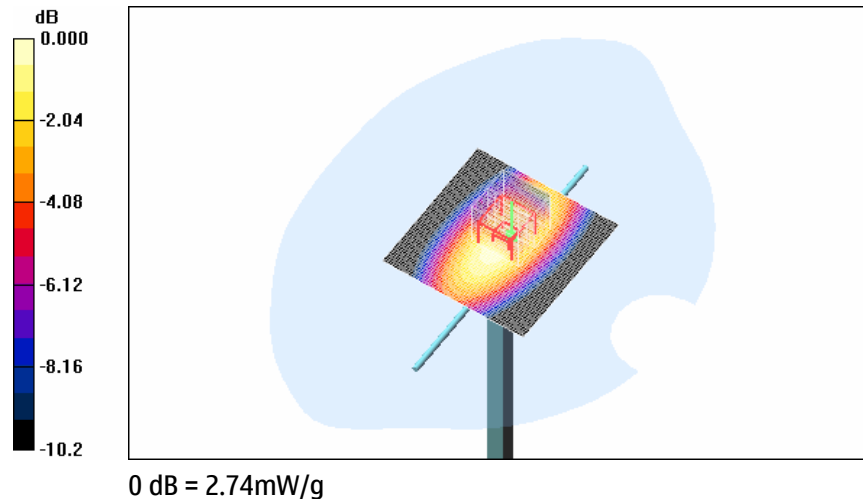
Peak SAR (extrapolated) = 3.67 W/kg

SAR(1 g) = 2.54 mW/g

SAR(10 g) = 1.67 mW/g

Power Drift = 0.017 dB

Maximum value of SAR (measured) = 2.74 mW/g



Date/Time: 2007-07-02 10:34:25

Test Laboratory: TCC Nokia

Type: D1900V2; Serial: 534

Communication System: CW1900

Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: Cellular Body; Medium Notes: 21.6C

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.58$ mho/m; $\epsilon_r = 53.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1505; Probe Notes:
- ConvF(4.57, 4.57, 4.57); Calibrated: 2006-09-19
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn604; Calibrated: 2006-11-13
- Phantom: SAM1; Type: Twin Phantom; Serial: TP-1035
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

1900MHz system check/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm

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

1900MHz system check/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 91.0 V/m

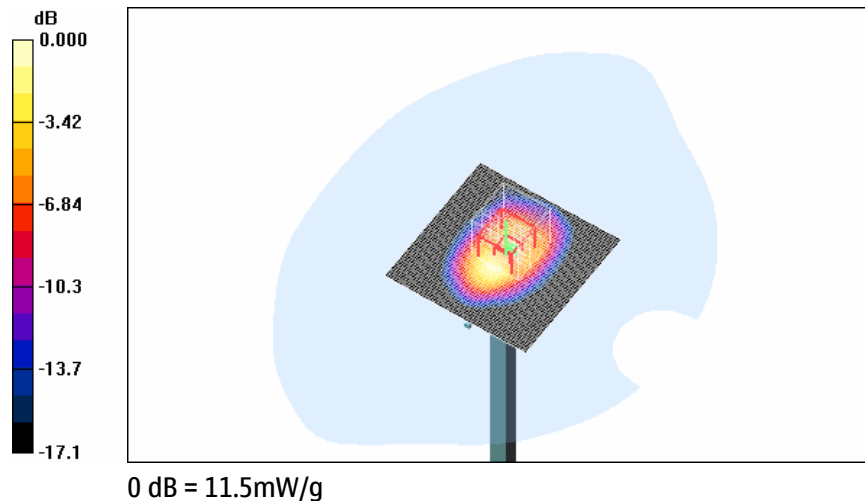
Peak SAR (extrapolated) = 16.4 W/kg

SAR(1 g) = 10.1 mW/g

SAR(10 g) = 5.42 mW/g

Power Drift = 0.034 dB

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



APPENDIX B: MEASUREMENT SCANS

Date/Time: 2007-06-20 17:15:42

Test Laboratory: TCC Nokia

Type: RM-271; Serial: 004401/01/244027/3

Communication System: GSM850

Frequency: 848.8 MHz; Duty Cycle: 1:8.3

Medium: Cellular Head; Medium Notes: 21.6C

Medium parameters used: $f = 849$ MHz; $\sigma = 0.916$ mho/m; $\epsilon_r = 41.6$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1505; Probe Notes:
- ConvF(6.7, 6.7, 6.7); Calibrated: 2006-09-19
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn604; Calibrated: 2006-11-13
- Phantom: SAM2; Type: Twin Phantom; Serial: TP-1279
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Cheek position, High, Open/Area Scan (51x131x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.616 mW/g

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

Reference Value = 12.4 V/m

Peak SAR (extrapolated) = 1.14 W/kg

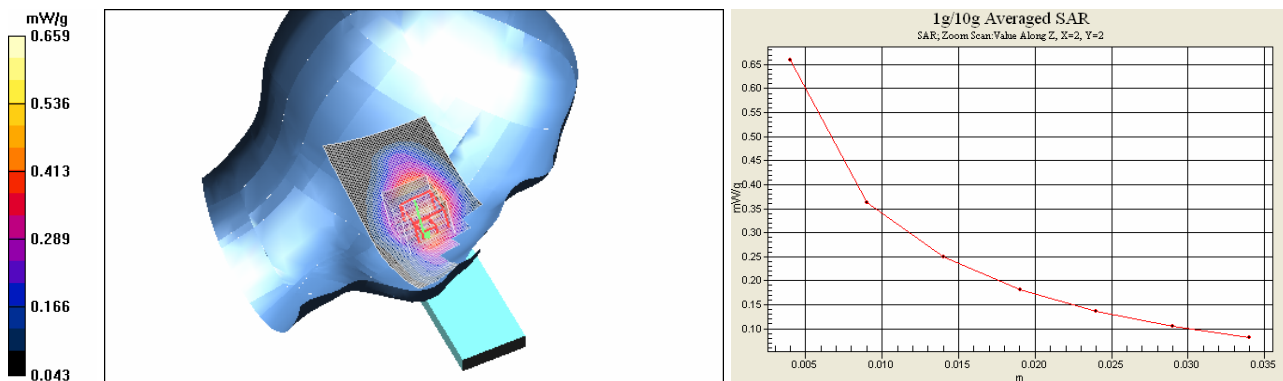
SAR(1 g) = 0.586 mW/g

SAR(10 g) = 0.381 mW/g

Power Drift = -0.117 dB

Warning: Maximum averaged SAR over 10 g is located on the boundary of the measurement cube. This cube might not incorporate the absolute averaged SAR. Please consider a refinement of the Area Scan measurement.

Maximum value of SAR (measured) = 0.659 mW/g



Date/Time: 2007-06-20 15:18:40

Test Laboratory: TCC Nokia

Type: RM-271; Serial: 004401/01/244027/3

Communication System: GSM850

Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium: Cellular Head; Medium Notes: 21.6C

Medium parameters used: $f = 837$ MHz; $\sigma = 0.904$ mho/m; $\epsilon_r = 41.7$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1505; Probe Notes:
- ConvF(6.7, 6.7, 6.7); Calibrated: 2006-09-19
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn604; Calibrated: 2006-11-13
- Phantom: SAM2; Type: Twin Phantom; Serial: TP-1279
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Tilt position, Middle, Open/Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.235 mW/g

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

Reference Value = 13.5 V/m

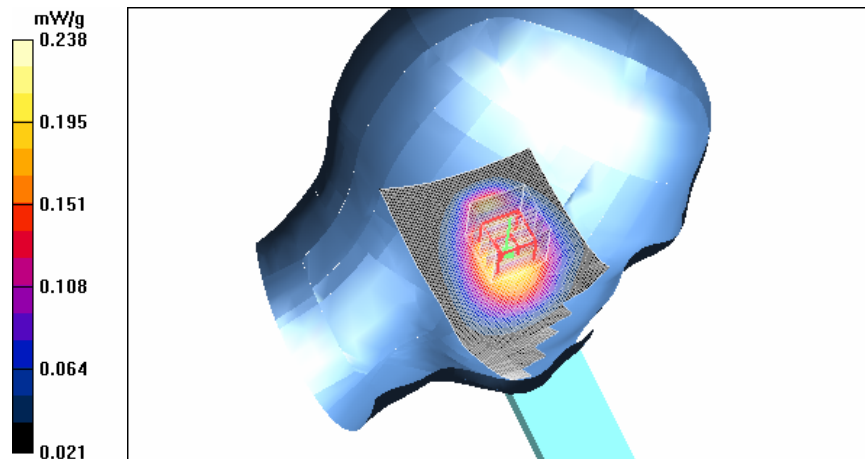
Peak SAR (extrapolated) = 0.291 W/kg

SAR(1 g) = 0.222 mW/g

SAR(10 g) = 0.159 mW/g

Power Drift = 0.014 dB

Maximum value of SAR (measured) = 0.238 mW/g



Date/Time: 2007-06-20 16:04:14

Test Laboratory: TCC Nokia

Type: RM-271; Serial: 004401/01/244027/3

Communication System: GSM850

Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium: Cellular Head; Medium Notes: 21.6C

Medium parameters used: $f = 837$ MHz; $\sigma = 0.904$ mho/m; $\epsilon_r = 41.7$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1505; Probe Notes:
- ConvF(6.7, 6.7, 6.7); Calibrated: 2006-09-19
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn604; Calibrated: 2006-11-13
- Phantom: SAM2; Type: Twin Phantom; Serial: TP-1279
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Cheek position, Middle, Open/Area Scan (51x131x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.440 mW/g

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

Reference Value = 13.8 V/m

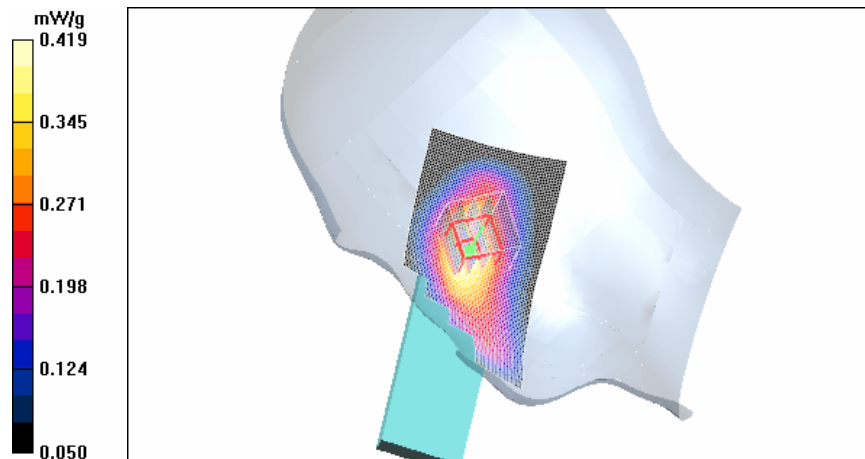
Peak SAR (extrapolated) = 0.572 W/kg

SAR(1 g) = 0.403 mW/g

SAR(10 g) = 0.290 mW/g

Power Drift = -0.069 dB

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



Date/Time: 2007-06-20 15:45:11

Test Laboratory: TCC Nokia

Type: RM-271; Serial: 004401/01/244027/03

Communication System: GSM850

Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium: Cellular Head; Medium Notes: 21.6C

Medium parameters used: $f = 837$ MHz; $\sigma = 0.904$ mho/m; $\epsilon_r = 41.7$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1505; Probe Notes:
- ConvF(6.7, 6.7, 6.7); Calibrated: 2006-09-19
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn604; Calibrated: 2006-11-13
- Phantom: SAM2; Type: Twin Phantom; Serial: TP-1279
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Tilt position, Middle, Open/Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.234 mW/g

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

Reference Value = 14.6 V/m

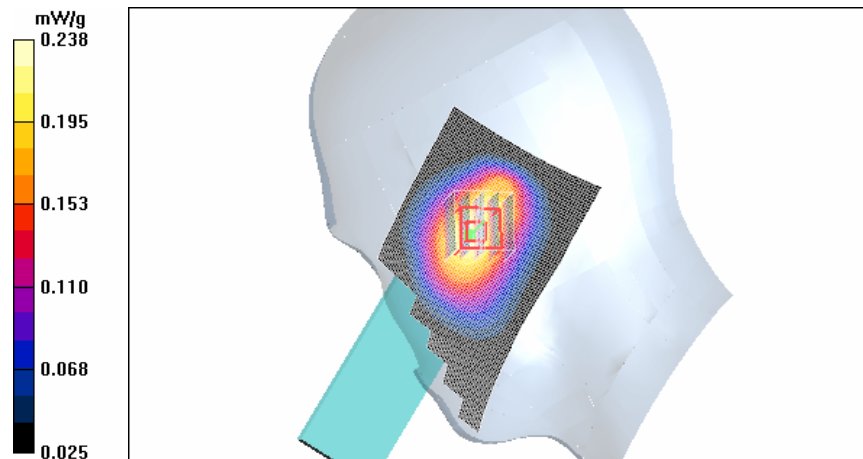
Peak SAR (extrapolated) = 0.298 W/kg

SAR(1 g) = 0.224 mW/g

SAR(10 g) = 0.160 mW/g

Power Drift = -0.029 dB

Maximum value of SAR (measured) = 0.238 mW/g



Date/Time: 2007-06-20 18:35:48

Test Laboratory: TCC Nokia
Type: RM-271; Serial: 004401/01/244027/3

Communication System: 2-slot GPRS850

Frequency: 836.6 MHz; Duty Cycle: 1:4.2

Medium: Cellular Head; Medium Notes: 21.6C

Medium parameters used: $f = 837$ MHz; $\sigma = 0.904$ mho/m; $\epsilon_r = 41.7$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1505; Probe Notes:
- ConvF(6.7, 6.7, 6.7); Calibrated: 2006-09-19
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn604; Calibrated: 2006-11-13
- Phantom: SAM2; Type: Twin Phantom; Serial: TP-1279
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Cheek position, Middle, Open/Area Scan (51x131x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.343 mW/g

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

Reference Value = 10.5 V/m

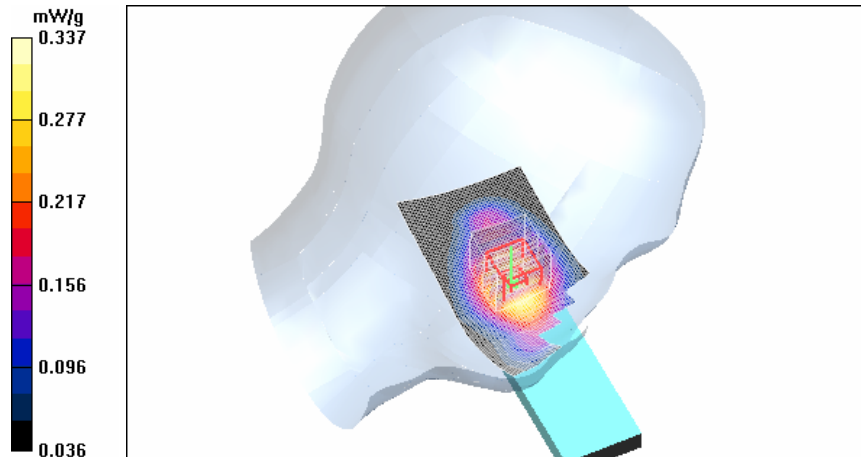
Peak SAR (extrapolated) = 0.428 W/kg

SAR(1 g) = 0.321 mW/g

SAR(10 g) = 0.230 mW/g

Power Drift = -0.063 dB

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



Date/Time: 2007-06-21 17:00:25

Test Laboratory: TCC Nokia
Type: RM-271; Serial: 004401/01/244027/3

Communication System: 3-slot GPRS850

Frequency: 836.6 MHz; Duty Cycle: 1:2.8

Medium: Cellular Head; Medium Notes: 20.9C

Medium parameters used: $f = 837$ MHz; $\sigma = 0.914$ mho/m; $\epsilon_r = 41.6$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1505; Probe Notes:
- ConvF(6.7, 6.7, 6.7); Calibrated: 2006-09-19
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn604; Calibrated: 2006-11-13
- Phantom: SAM2; Type: Twin Phantom; Serial: TP-1279
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Cheek position, Middle, Open/Area Scan (51x131x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.364 mW/g

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

Reference Value = 10.8 V/m

Peak SAR (extrapolated) = 0.706 W/kg

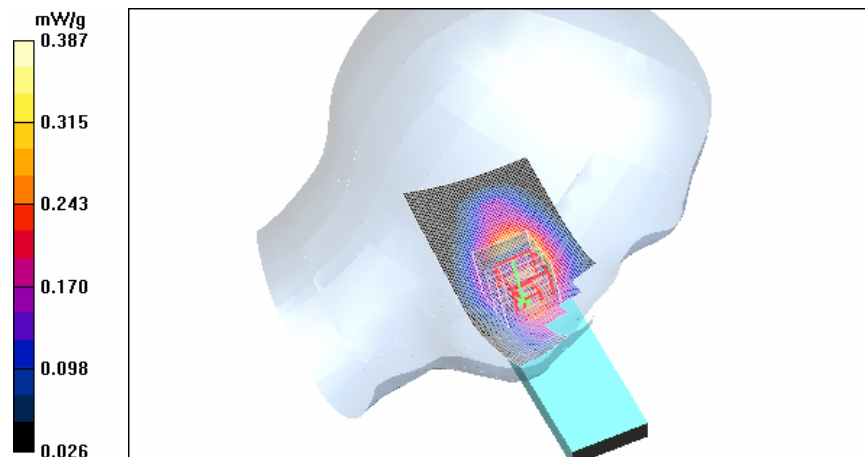
SAR(1 g) = 0.346 mW/g

SAR(10 g) = 0.219 mW/g

Power Drift = -0.460 dB

Warning: Maximum averaged SAR over 10 g is located on the boundary of the measurement cube. This cube might not incorporate the absolute averaged SAR. Please consider a refinement of the Area Scan measurement.

Maximum value of SAR (measured) = 0.387 mW/g



Date/Time: 2007-07-10 13:30:07

Test Laboratory: TCC Nokia

Type: RM-271; Serial: 004401/01/244027/3

Communication System: 1-slot 8PSK EGPRS850

Frequency: 848.8 MHz; Duty Cycle: 1:8.3

Medium: Cellular Head; Medium Notes: 21.0C

Medium parameters used: $f = 849$ MHz; $\sigma = 0.937$ mho/m; $\epsilon_r = 42.2$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1505; Probe Notes:
- ConvF(6.7, 6.7, 6.7); Calibrated: 2006-09-19
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn604; Calibrated: 2006-11-13
- Phantom: SAM2; Type: Twin Phantom; Serial: TP-1279
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Cheek position, High, Open/Area Scan (51x131x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.122 mW/g

Cheek position, High, Open/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 6.56 V/m

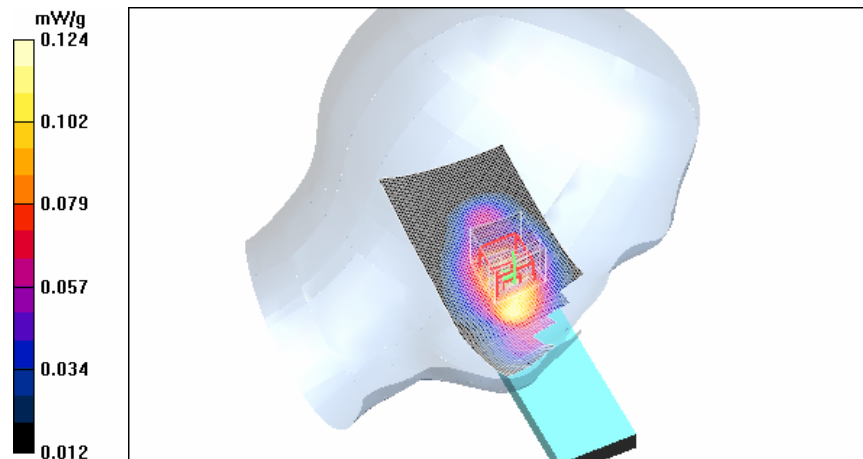
Peak SAR (extrapolated) = 0.145 W/kg

SAR(1 g) = 0.112 mW/g

SAR(10 g) = 0.078 mW/g

Power Drift = 0.006 dB

Maximum value of SAR (measured) = 0.124 mW/g



Date/Time: 2007-06-20 17:40:53

Test Laboratory: TCC Nokia

Type: RM-271; Serial: 004401/01/244027/3

Communication System: GSM850

Frequency: 848.8 MHz; Duty Cycle: 1:8.3

Medium: Cellular Head; Medium Notes: 21.6C

Medium parameters used: $f = 849 \text{ MHz}$; $\sigma = 0.916 \text{ mho/m}$; $\epsilon_r = 41.6$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1505; Probe Notes:
- ConvF(6.7, 6.7, 6.7); Calibrated: 2006-09-19
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn604; Calibrated: 2006-11-13
- Phantom: SAM2; Type: Twin Phantom; Serial: TP-1279
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Cheek position, High, Open, BT/Area Scan (51x131x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.447 mW/g

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

Reference Value = 11.9 V/m

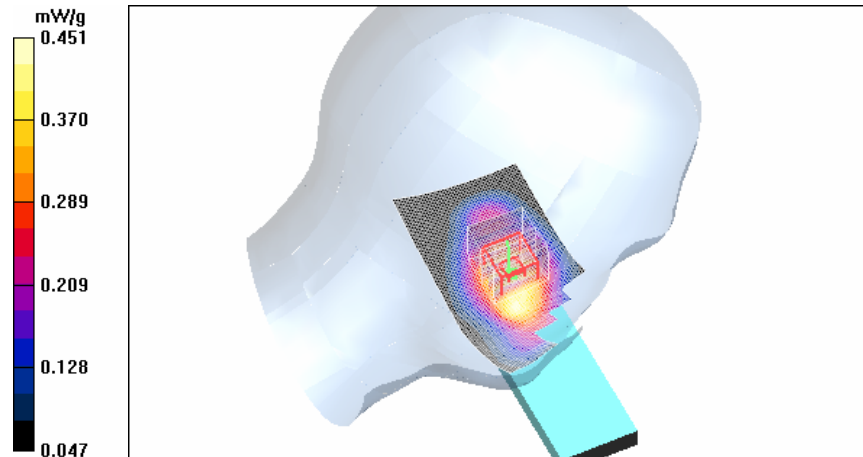
Peak SAR (extrapolated) = 0.547 W/kg

SAR(1 g) = 0.427 mW/g

SAR(10 g) = 0.306 mW/g

Power Drift = -0.081 dB

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



Date/Time: 2007-06-21 17:23:10

Test Laboratory: TCC Nokia

Type: RM-271; Serial: 004401/01/244027/3

Communication System: WCDMA850

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: Cellular Head; Medium Notes: 20.9C

Medium parameters used: $f = 835$ MHz; $\sigma = 0.912$ mho/m; $\epsilon_r = 41.6$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1505; Probe Notes:
- ConvF(6.7, 6.7, 6.7); Calibrated: 2006-09-19
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn604; Calibrated: 2006-11-13
- Phantom: SAM2; Type: Twin Phatom; Serial: TP-1279
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Cheek position, Middle, Open/Area Scan (51x131x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.821 mW/g

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

Reference Value = 15.8 V/m

Peak SAR (extrapolated) = 1.58 W/kg

SAR(1 g) = 0.795 mW/g

SAR(10 g) = 0.510 mW/g

Power Drift = -0.041 dB

Warning: Maximum averaged SAR over 10 g is located on the boundary of the measurement cube. This cube might not incorporate the absolute averaged SAR. Please consider a refinement of the Area Scan measurement.

Maximum value of SAR (measured) = 0.892 mW/g

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

Reference Value = 15.8 V/m

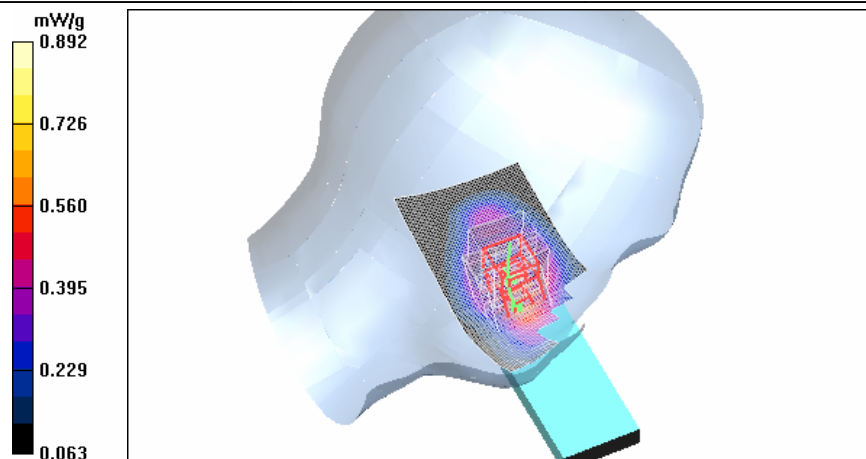
Peak SAR (extrapolated) = 1.02 W/kg

SAR(1 g) = 0.755 mW/g

SAR(10 g) = 0.544 mW/g

Power Drift = -0.041 dB

Maximum value of SAR (measured) = 0.787 mW/g



Date/Time: 2007-06-21 17:45:56

Test Laboratory: TCC Nokia

Type: RM-271; Serial: 004401/01/244027/3

Communication System: WCDMA850

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: Cellular Head; Medium Notes: 20.9C

Medium parameters used: $f = 835$ MHz; $\sigma = 0.912$ mho/m; $\epsilon_r = 41.6$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1505; Probe Notes:
- ConvF(6.7, 6.7, 6.7); Calibrated: 2006-09-19
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn604; Calibrated: 2006-11-13
- Phantom: SAM2; Type: Twin Phantom; Serial: TP-1279
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Tilt position, Middle, Open/Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.424 mW/g

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

Reference Value = 17.6 V/m

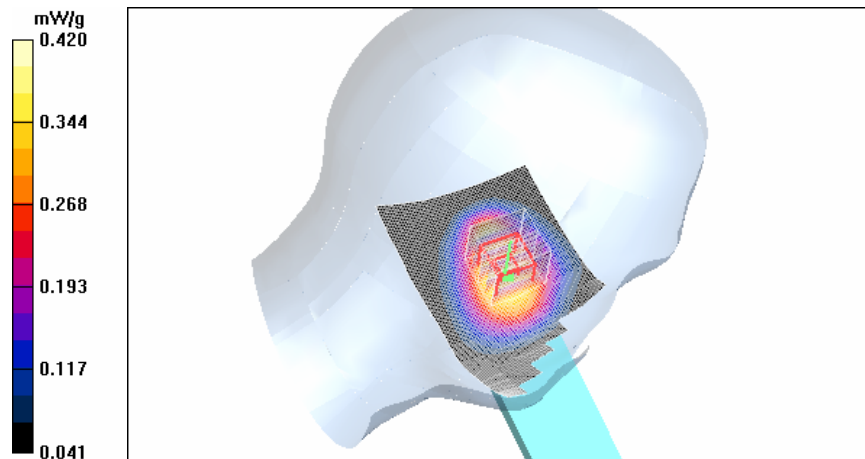
Peak SAR (extrapolated) = 0.522 W/kg

SAR(1 g) = 0.396 mW/g

SAR(10 g) = 0.284 mW/g

Power Drift = -0.013 dB

Maximum value of SAR (measured) = 0.420 mW/g



Date/Time: 2007-06-21 18:41:20

Test Laboratory: TCC Nokia

Type: RM-271; Serial: 004401/01/244027/3

Communication System: WCDMA850

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: Cellular Head; Medium Notes: 20.9C

Medium parameters used: $f = 835$ MHz; $\sigma = 0.912$ mho/m; $\epsilon_r = 41.6$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1505; Probe Notes:
- ConvF(6.7, 6.7, 6.7); Calibrated: 2006-09-19
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn604; Calibrated: 2006-11-13
- Phantom: SAM2; Type: Twin Phantom; Serial: TP-1279
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Cheek position, Middle, Open/Area Scan (51x131x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.839 mW/g

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

Reference Value = 16.9 V/m

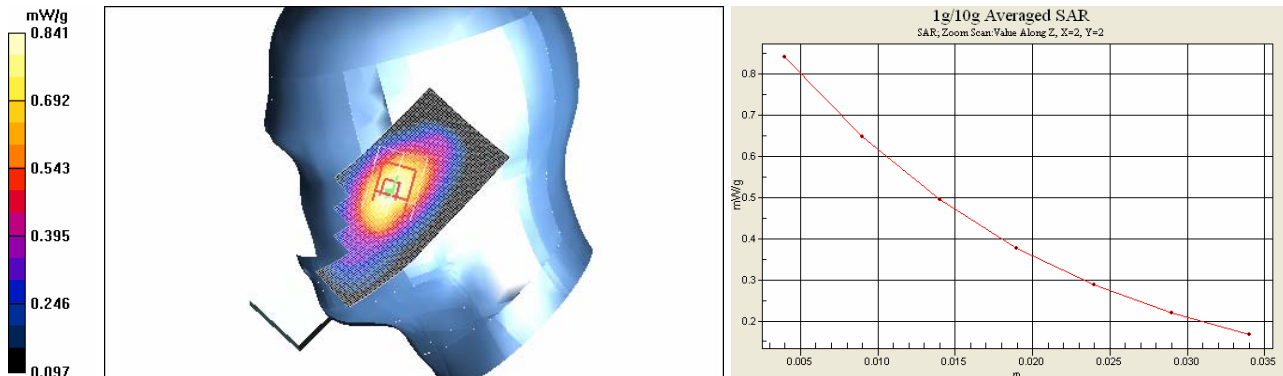
Peak SAR (extrapolated) = 1.05 W/kg

SAR(1 g) = 0.796 mW/g

SAR(10 g) = 0.572 mW/g

Power Drift = -0.028 dB

Maximum value of SAR (measured) = 0.841 mW/g



SAR Report

SD_SAR_0727_03

Applicant: Nokia Corporation

Type: RM-271

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Date/Time: 2007-06-21 18:58:49

Test Laboratory: TCC Nokia

Type: RM-271; Serial: 004401/01/244027/3

Communication System: WCDMA850

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: Cellular Head; Medium Notes: 20.9C

Medium parameters used: $f = 835$ MHz; $\sigma = 0.912$ mho/m; $\epsilon_r = 41.6$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1505; Probe Notes:
- ConvF(6.7, 6.7, 6.7); Calibrated: 2006-09-19
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn604; Calibrated: 2006-11-13
- Phantom: SAM2; Type: Twin Phantom; Serial: TP-1279
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Tilt position, Middle, Open/Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.412 mW/g

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

Reference Value = 18.4 V/m

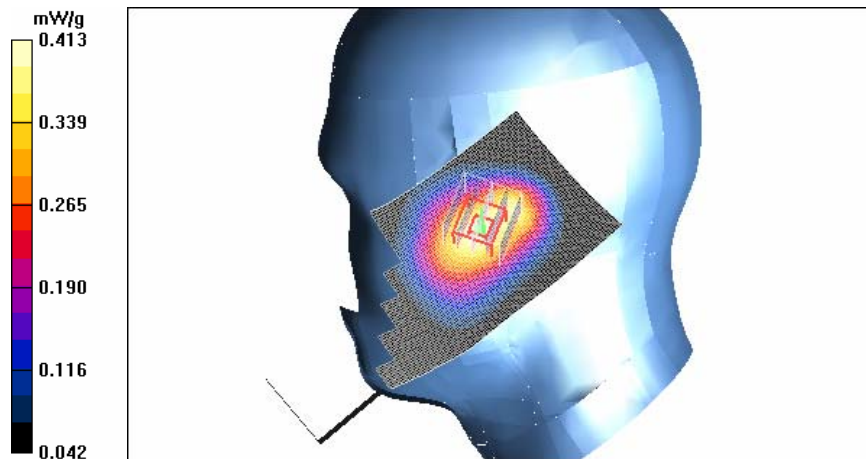
Peak SAR (extrapolated) = 0.515 W/kg

SAR(1 g) = 0.390 mW/g

SAR(10 g) = 0.281 mW/g

Power Drift = -0.089 dB

Maximum value of SAR (measured) = 0.413 mW/g



Date/Time: 2007-06-21 19:58:54

Test Laboratory: TCC Nokia

Type: RM-271; Serial: 004401/01/244027/3

Communication System: WCDMA850

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: Cellular Head; Medium Notes: 20.9C

Medium parameters used: $f = 835$ MHz; $\sigma = 0.912$ mho/m; $\epsilon_r = 41.6$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1505; Probe Notes:
- ConvF(6.7, 6.7, 6.7); Calibrated: 2006-09-19
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn604; Calibrated: 2006-11-13
- Phantom: SAM2; Type: Twin Phantom; Serial: TP-1279
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Cheek position, Middle, Open, BT/Area Scan (51x131x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.820 mW/g

Cheek position, Middle, Open, BT/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 17.1 V/m

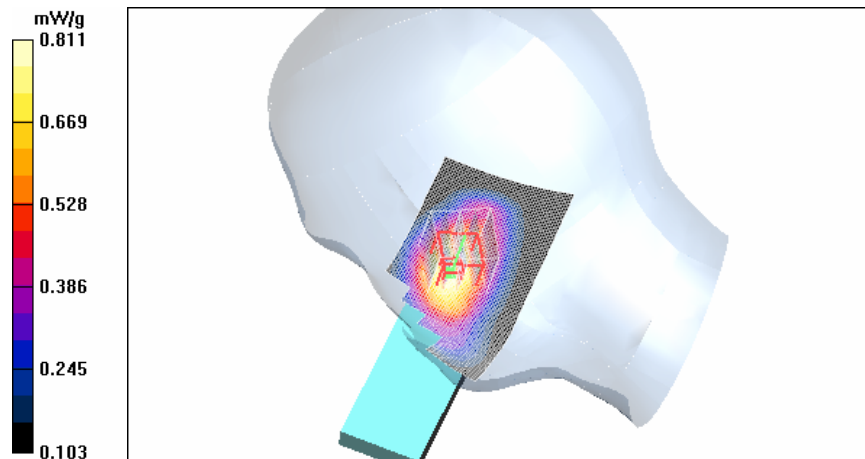
Peak SAR (extrapolated) = 1.02 W/kg

SAR(1 g) = 0.767 mW/g

SAR(10 g) = 0.555 mW/g

Power Drift = 0.391 dB

Maximum value of SAR (measured) = 0.811 mW/g



Date/Time: 2007-07-01 18:35:16

Test Laboratory: TCC Nokia
Type: RM-271; Serial: 004401/01/243955/6

Communication System: GSM1900

Frequency: 1850.2 MHz; Duty Cycle: 1:8.3

Medium: Cellular Head; Medium Notes: 20.8C

Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.37$ mho/m; $\epsilon_r = 39.5$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(4.91, 4.91, 4.91); Calibrated: 2006-11-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn389; Calibrated: 2007-02-16
- Phantom: SAM 2 ; Type: Twin Phantom; Serial: NMP3309
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Cheek position, Low, Open/Area Scan (51x131x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.906 mW/g

Cheek position, Low, Open/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 6.47 V/m

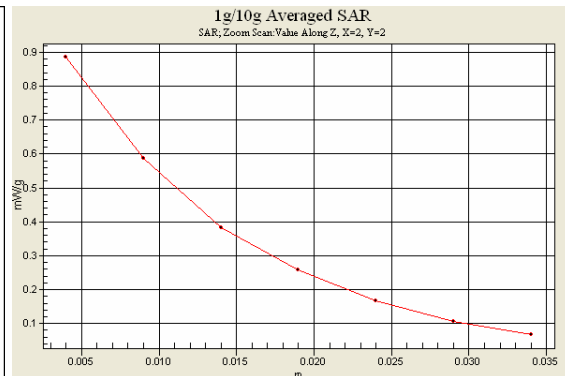
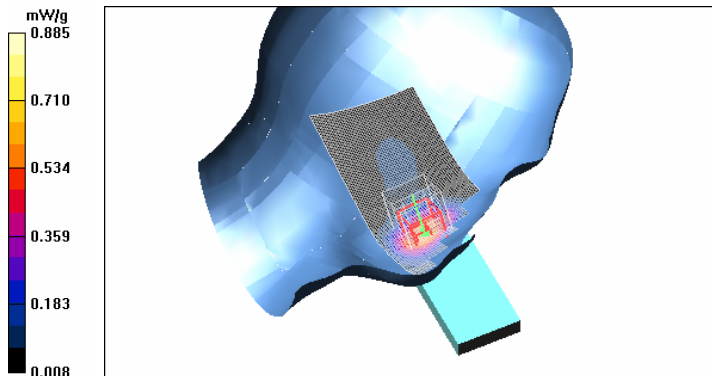
Peak SAR (extrapolated) = 1.36 W/kg

SAR(1 g) = 0.827 mW/g

SAR(10 g) = 0.477 mW/g

Power Drift = -0.115 dB

Maximum value of SAR (measured) = 0.885 mW/g



Date/Time: 2007-07-01 17:54:56

Test Laboratory: TCC Nokia

Type: RM-271; Serial: 004401/01/243955/6

Communication System: GSM1900

Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium: Cellular Head; Medium Notes: 20.8C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.4$ mho/m; $\epsilon_r = 39.3$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(4.91, 4.91, 4.91); Calibrated: 2006-11-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn389; Calibrated: 2007-02-16
- Phantom: SAM 2 ; Type: Twin Phantom; Serial: NMP3309
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Tilt position, Middle, Open/Area Scan (51x131x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.256 mW/g

Tilt position, Middle, Open/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 13.0 V/m

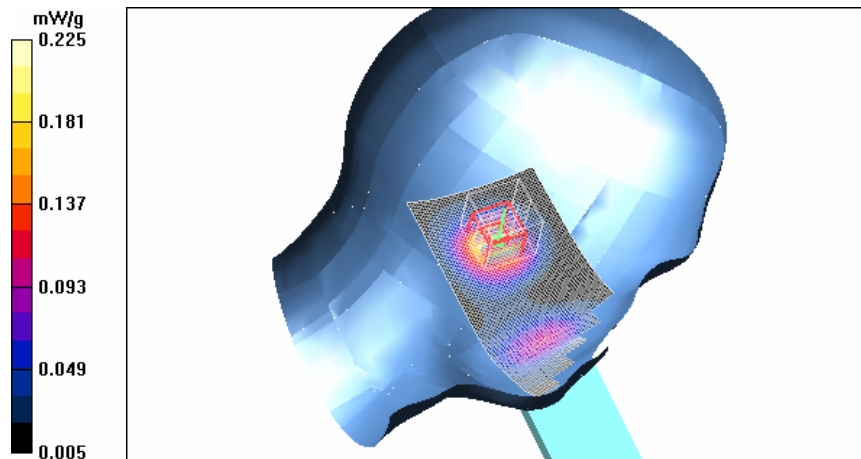
Peak SAR (extrapolated) = 0.317 W/kg

SAR(1 g) = 0.208 mW/g

SAR(10 g) = 0.120 mW/g

Power Drift = -0.056 dB

Maximum value of SAR (measured) = 0.225 mW/g



Date/Time: 2007-07-01 19:37:09

Test Laboratory: TCC Nokia

Type: RM-271; Serial: 004401/01/243955/6

Communication System: GSM1900

Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium: Cellular Head; Medium Notes: 20.8C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.4$ mho/m; $\epsilon_r = 39.3$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(4.91, 4.91, 4.91); Calibrated: 2006-11-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn389; Calibrated: 2007-02-16
- Phantom: SAM 2 ; Type: Twin Phantom; Serial: NMP3309
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Cheek position, Middle, Open/Area Scan (51x131x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.650 mW/g

Cheek position, Middle, Open/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 7.63 V/m

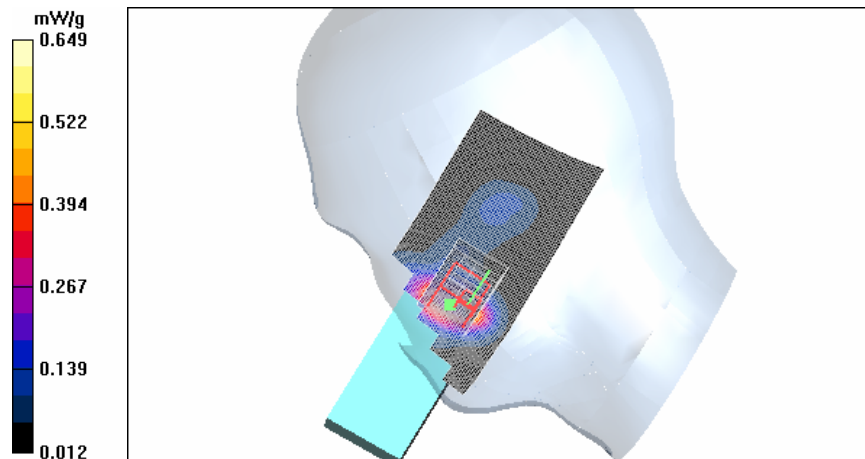
Peak SAR (extrapolated) = 1.08 W/kg

SAR(1 g) = 0.564 mW/g

SAR(10 g) = 0.329 mW/g

Power Drift = -0.208 dB

Maximum value of SAR (measured) = 0.649 mW/g



Date/Time: 2007-07-01 20:05:54

Test Laboratory: TCC Nokia

Type: RM-271; Serial: 004401/01/243955/6

Communication System: GSM1900

Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium: Cellular Head; Medium Notes: 21.6C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.4$ mho/m; $\epsilon_r = 39.3$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(4.91, 4.91, 4.91); Calibrated: 2006-11-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn389; Calibrated: 2007-02-16
- Phantom: SAM 2 ; Type: Twin Phantom; Serial: NMP3309
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Tilt position, Middle, Open/Area Scan (51x131x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.261 mW/g

Tilt position, Middle, Open/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 12.2 V/m

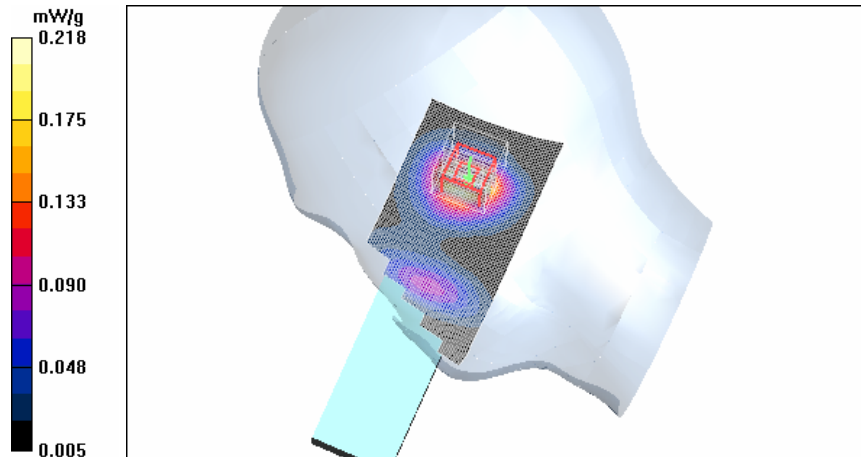
Peak SAR (extrapolated) = 0.317 W/kg

SAR(1 g) = 0.202 mW/g

SAR(10 g) = 0.118 mW/g

Power Drift = 0.092 dB

Maximum value of SAR (measured) = 0.218 mW/g



Date/Time: 2007-07-02 10:23:41

Test Laboratory: TCC Nokia
Type: RM-271; Serial: 004401/01/243955/6

Communication System: 2-slot GPRS1900

Frequency: 1880 MHz; Duty Cycle: 1:4.2

Medium: Cellular Head; Medium Notes: 21.6C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.4$ mho/m; $\epsilon_r = 39.3$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(4.91, 4.91, 4.91); Calibrated: 2006-11-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn389; Calibrated: 2007-02-16
- Phantom: SAM 2 ; Type: Twin Phantom; Serial: NMP3309
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Cheek position, Middle, Open/Area Scan (51x131x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.790 mW/g

Cheek position, Middle, Open/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 7.26 V/m

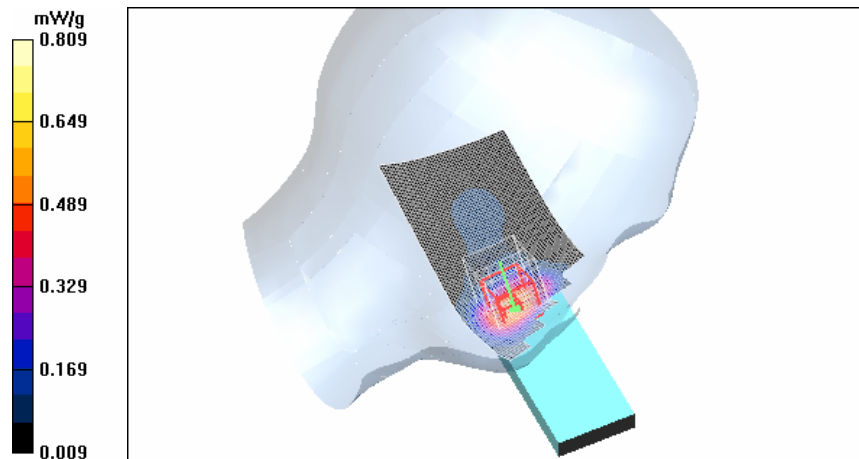
Peak SAR (extrapolated) = 1.14 W/kg

SAR(1 g) = 0.742 mW/g

SAR(10 g) = 0.437 mW/g

Power Drift = -0.152 dB

Maximum value of SAR (measured) = 0.809 mW/g



Date/Time: 2007-07-01 17:37:04

Test Laboratory: TCC Nokia
Type: RM-271; Serial: 004401/01/243955/6

Communication System: 3-slot GPRS1900

Frequency: 1880 MHz; Duty Cycle: 1:2.8

Medium: Cellular Head; Medium Notes: 20.8C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.4$ mho/m; $\epsilon_r = 39.3$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(4.91, 4.91, 4.91); Calibrated: 2006-11-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn389; Calibrated: 2007-02-16
- Phantom: SAM 2 ; Type: Twin Phantom; Serial: NMP3309
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Cheek position, Middle, Open/Area Scan (51x131x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.783 mW/g

Cheek position, Middle, Open/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 7.19 V/m

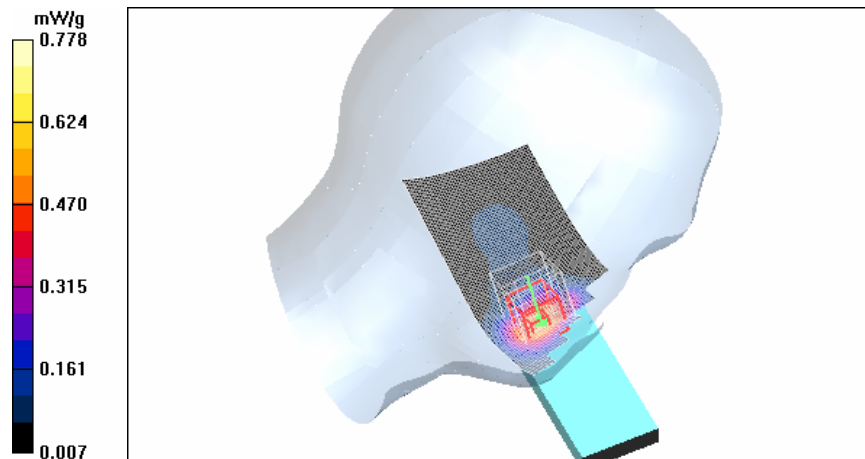
Peak SAR (extrapolated) = 1.12 W/kg

SAR(1 g) = 0.724 mW/g

SAR(10 g) = 0.428 mW/g

Power Drift = -0.161 dB

Maximum value of SAR (measured) = 0.778 mW/g



Date/Time: 2007-07-09 15:02:35

Test Laboratory: TCC Nokia

Type: RM-271; Serial: 004401/01/243955/6

Communication System: 1-slot 8PSK EGPRS1900

Frequency: 1850.2 MHz; Duty Cycle: 1:8.3

Medium: Cellular Head; Medium Notes: 21.5C

Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.38$ mho/m; $\epsilon_r = 38.6$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(4.91, 4.91, 4.91); Calibrated: 2006-11-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn389; Calibrated: 2007-02-16
- Phantom: SAM 2 ; Type: Twin Phantom; Serial: NMP3309
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Cheek position, Low, Open/Area Scan (51x131x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.245 mW/g

Cheek position, Low, Open/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 3.71 V/m

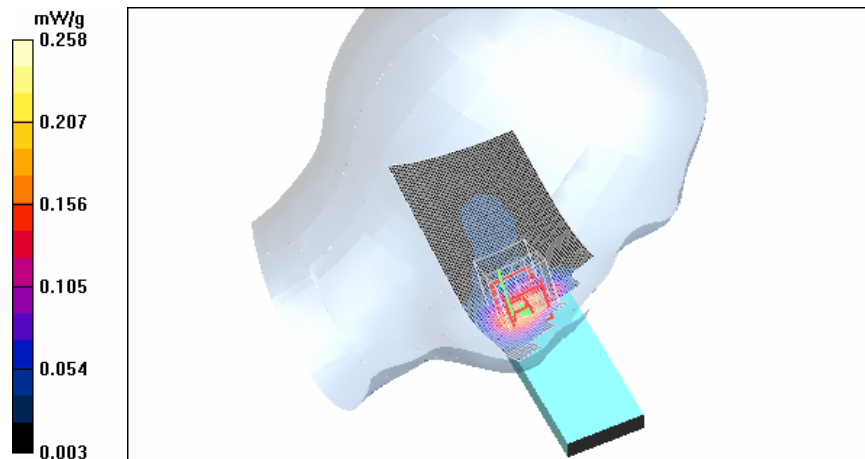
Peak SAR (extrapolated) = 0.389 W/kg

SAR(1 g) = 0.239 mW/g

SAR(10 g) = 0.144 mW/g

Power Drift = 0.224 dB

Maximum value of SAR (measured) = 0.258 mW/g



Date/Time: 2007-07-01 19:01:58

Test Laboratory: TCC Nokia
Type: RM-271; Serial: 004401/01/243955/6

Communication System: GSM1900

Frequency: 1850.2 MHz; Duty Cycle: 1:8.3

Medium: Cellular Head; Medium Notes: 20.8C

Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.37$ mho/m; $\epsilon_r = 39.5$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(4.91, 4.91, 4.91); Calibrated: 2006-11-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn389; Calibrated: 2007-02-16
- Phantom: SAM 2 ; Type: Twin Phantom; Serial: NMP3309
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Cheek position, Low, Open, BT/Area Scan (51x131x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.906 mW/g

Cheek position, Low, Open, BT/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 6.63 V/m

Peak SAR (extrapolated) = 1.30 W/kg

SAR(1 g) = 0.823 mW/g

SAR(10 g) = 0.487 mW/g

Power Drift = -0.039 dB

Maximum value of SAR (measured) = 0.887 mW/g

