

SAR Compliance Test Report

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Tested device:	RM-395		
FCC ID:	QTLRM-395	IC:	661AB-RM395
Supplement reports:	Salo_SAR_0814_12		
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 Nokia.		
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:

CONTENTS

1. SUMMARY OF SAR TEST REPORT.....	3
1.1 TEST DETAILS.....	3
1.2 MAXIMUM RESULTS.....	3
1.2.1 Head Configuration.....	3
1.2.2 Body Worn Configuration	3
1.2.3 Maximum Drift	4
1.2.4 Measurement Uncertainty	4
2. DESCRIPTION OF THE DEVICE UNDER TEST	4
2.1 DESCRIPTION OF THE ANTENNA	4
3. TEST CONDITIONS	4
3.1 TEMPERATURE AND HUMIDITY	4
3.2 TEST SIGNAL, FREQUENCIES AND OUTPUT POWER	4
4. DESCRIPTION OF THE TEST EQUIPMENT	6
4.1 MEASUREMENT SYSTEM AND COMPONENTS	6
4.1.1 Isotropic E-field Probe Type ET3DV6	7
4.2 PHANTOMS	7
4.3 TISSUE SIMULANTS	7
4.3.1 Tissue Simulant Recipes	8
4.3.2 System Checking	8
4.3.3 Tissue Simulants used in the Measurements.....	9
5. DESCRIPTION OF THE TEST PROCEDURE	11
5.1 DEVICE HOLDER.....	11
5.2 TEST POSITIONS.....	11
5.2.1 Against Phantom Head.....	11
5.2.2 Body Worn Configuration	11
5.3 SCAN PROCEDURES.....	12
5.4 SAR AVERAGING METHODS.....	12
6. MEASUREMENT UNCERTAINTY	13
7. RESULTS	14
APPENDIX A: SYSTEM CHECKING SCANS.....	16
APPENDIX B: MEASUREMENT SCANS.....	19
APPENDIX C: RELEVANT PAGES FROM PROBE CALIBRATION REPORT(S)	37
APPENDIX D: RELEVANT PAGES FROM DIPOLE VALIDATION KIT REPORT(S)	38

1. SUMMARY OF SAR TEST REPORT

1.1 Test Details

Period of test	2008-03-31 to 2008-04-02
SN, HW and SW numbers of tested device	SN: 001004/00/306574/6, HW: 0202, SW: tg06w47_08w09_fam, DUT: 12634
Batteries used in testing	BL-5CA, DUT: 12635, 12636
Headsets used in testing	HS-47, DUT: 12444
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	128 / 824.2	33.1 dBm ERP	Right, Cheek	0.950 W/kg	1.06 W/kg	1.6 W/kg	PASSED
GSM1900	810 / 1909.8	29.6 dBm EIRP	Right, Cheek	0.881 W/kg	0.99 W/kg	1.6 W/kg	PASSED

1.2.2 Body Worn Configuration

Mode	Ch / f (MHz)	Radiated power	Separation distance	Measured SAR value (1g avg)	Scaled* SAR value (1g avg)	SAR limit (1g avg)	Result
2-slot GPRS850	128 / 824.2	32.1 dBm ERP	2.2 cm	0.543 W/kg	0.61 W/kg	1.6 W/kg	PASSED
2-slot GPRS1900	512 / 1850.2	30.2 dBm EIRP	2.2 cm	0.312 W/kg	0.35 W/kg	1.6 W/kg	PASSED

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

1.2.3 Maximum Drift

Maximum drift covered by 12% scaling up of the SAR values	Maximum drift during measurements
0.5dB	0.32 dB

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 of Operation	Bands	Modulation Mode	Duty Cycle	Transmitter Frequency Range (MHz)
GSM	850 1900	GMSK	1/8	824 – 849 1850 – 1910
GPRS	850 1900	GMSK	1/8 to 2/8	824 – 849 1850 – 1910

2.1 Description of the Antenna

The device has an internal antenna.

3. TEST CONDITIONS

3.1 Temperature and Humidity

Ambient temperature (°C):	20.0 to 22.0
Ambient humidity (RH %):	40 to 60

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	538	12 months	2008-07
DAE 3	454	12 months	2009-01
E-field Probe ET3DV6	1395	12 months	2008-07
E-field Probe ET3DV6	1766	12 months	2008-10
Dipole Validation Kit, D835V2	480	24 months	2009-05
Dipole Validation Kit, D1900V2	5d013	24 months	2008-07
DASY4 software	Version 4.7	-	-

Additional test equipment used in testing:

Test Equipment	Model	Serial Number	Calibration interval	Calibration expiry
Signal Generator	SML03	101265	12 months	2008-07
Amplifier	ZHL-42 (SMA)	N072095-5	12 months	2008-07
Power Meter	NRVS	849305/028	12 months	2008-07
Power Sensor	NRV-Z32	839176/020	12 months	2008-07
Call Tester	CMU 200	101111	-	-
Call Tester	CMU 200	103293	-	-
Call Tester	CMU 200	100084	-	-
Vector Network Analyzer	8753E	US38432928	12 months	2008-07
Dielectric Probe Kit	85070B	US33020420	-	-

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):

850MHz band

Ingredient	Head (% by weight)	Body (% by weight)
Deionised Water	51.50	69.25
Tween 20	47.35	30.00
Salt	1.15	0.75

1900MHz band

Ingredient	Head (% by weight)	Body (% by weight)
Deionised Water	54.50	70.25
Tween 20	45.23	29.41
Salt	0.27	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

f [MHz]	Description	SAR [W/kg], 1g	Dielectric Parameters		Temp [°C]
			ϵ_r	σ [S/m]	
835	Reference result	2.29	41.6	0.90	
	$\pm 10\%$ window	2.06 – 2.52			
	2008-03-31	2.37	40.4	0.91	21.0
1900	Reference result	9.69	39.3	1.44	
	$\pm 10\%$ window	8.72 – 10.66			
	2008-04-02	10.6	38.3	1.47	21.0

System checking, body tissue simulant

f [MHz]	Description	SAR [W/kg], 1g	Dielectric Parameters		Temp [°C]
			ϵ_r	σ [S/m]	
1900	Reference result	10.1	52.3	1.57	
	$\pm 10\%$ window	9.1 – 11.1			
	2008-04-02	10.5	51.6	1.59	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	
	2008-03-31	40.4	0.91	21.0
1880	Recommended value	40.0	1.40	
	$\pm 5\%$ window	38.0 – 42.0	1.33 – 1.47	
	2008-04-02	38.4	1.45	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	21.0
	$\pm 5\%$ window	52.4 – 58.0	0.92 – 1.02	
	2008-03-31	54.5	1.00	
1880	Recommended value	53.3	1.52	21.0
	$\pm 5\%$ window	50.6 – 56.0	1.44 – 1.60	
	2008-04-02	51.7	1.57	

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 both sides facing the phantom to find the highest results.

5.3 Scan Procedures

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

5.4 SAR Averaging Methods

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

The interpolation, extrapolation and maximum search routines within Dasy4 are all based on the modified Quadratic Shepard's method (Robert J. Renka, "Multivariate Interpolation Of Large Sets Of Scattered Data", University of North Texas ACM Transactions on Mathematical Software, vol. 14, no. 2, June 1988, pp. 139-148).

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

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

6. MEASUREMENT UNCERTAINTY

Table 6.1 – Measurement uncertainty evaluation

Uncertainty Component	Section in IEEE 1528	Tol. (%)	Prob Dist	Div	C_i	$C_i \cdot U_i$ (%)	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		33.1 dBm	30.6 dBm	30.0 dBm
	Left	Cheek	0.909	0.880	0.814
		Tilt	-	0.378	-
	Right	Cheek	0.950	0.926	0.852
		Tilt	-	0.399	-

1900MHz Head SAR results

Option used	Test configuration		SAR, averaged over 1g (W/kg)		
			Ch 512 1850.2 MHz	Ch 661 1880.0 MHz	Ch 810 1909.8 MHz
GSM	Power		30.3 dBm	30.7 dBm	29.6 dBm
	Left	Cheek	-	0.757	-
		Tilt	-	0.334	-
	Right	Cheek	0.774	0.781	0.881
		Tilt	-	0.287	-

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	33.1 dBm	30.6 dBm	30.0 dBm
Back facing phantom	Without headset	-	0.263	-
	Headset HS-47	-	-	-
2-slot GPRS	Power	32.1 dBm	30.6 dBm	30.1 dBm
Back facing phantom	Without headset	-	0.488	-
	Headset HS-47	0.453	0.401	0.373
2-slot GPRS Display facing phantom	Without headset	0.543	0.492	0.460
	Headset HS-47	-	0.391	-

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	30.3 dBm	30.7 dBm	29.6 dBm
Back facing phantom	Without headset	-	0.139	-
	Headset HS-47	-	-	-
2-slot GPRS	Power	30.2 dBm	30.7 dBm	29.6 dBm
Back facing phantom	Without headset	0.312	0.271	0.255
	Headset HS-47	0.270	0.253	0.230
2-slot GPRS Display facing phantom	Without headset	-	0.222	-
	Headset HS-47	-	0.217	-

Plots of the Measurement scans are given in Appendix B.

APPENDIX A: SYSTEM CHECKING SCANS

Date/Time: 2008-03-31 09:39:46

Test Laboratory: TCC Nokia

Type: D835V2; Serial: D835V2 - SN:480

Communication System: CW835

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: HSL850; Medium Notes: 20.4C

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.909 \text{ mho/m}$; $\epsilon_r = 40.4$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1395
- ConvF(6.1, 6.1, 6.1); Calibrated: 2007-07-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2007-07-06
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1449
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

d=15mm, Pin=250mW/Area Scan (61x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 2.54 mW/g

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

Reference Value = 55.1 V/m

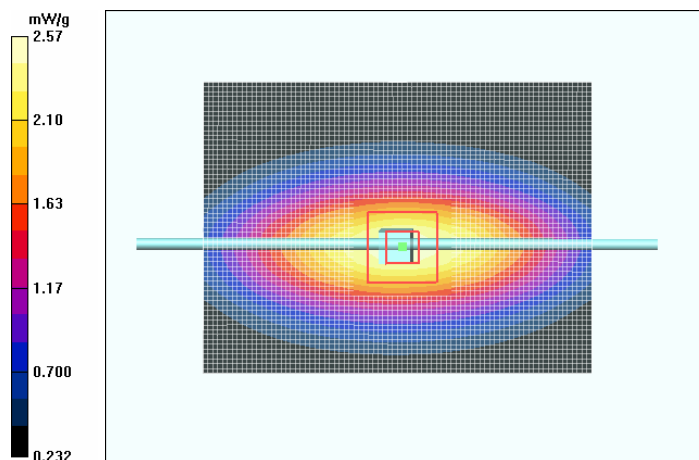
Peak SAR (extrapolated) = 3.55 W/kg

SAR(1 g) = 2.37 mW/g

SAR(10 g) = 1.55 mW/g

Power Drift = 0.009 dB

Maximum value of SAR (measured) = 2.57 mW/g



Date/Time: 2008-04-02 09:33:15

Test Laboratory: TCC Nokia
Type: D1900V2; Serial: D1900V2 - SN:5d013

Communication System: CW1900

Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: HSL1900; Medium Notes: 21.2C

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.47$ mho/m; $\epsilon_r = 38.3$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1395
- ConvF(4.85, 4.85, 4.85); Calibrated: 2007-07-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2007-07-06
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1179
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

d=15mm, Pin=250mW/Area Scan (61x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 12.6 mW/g

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

Reference Value = 93.7 V/m

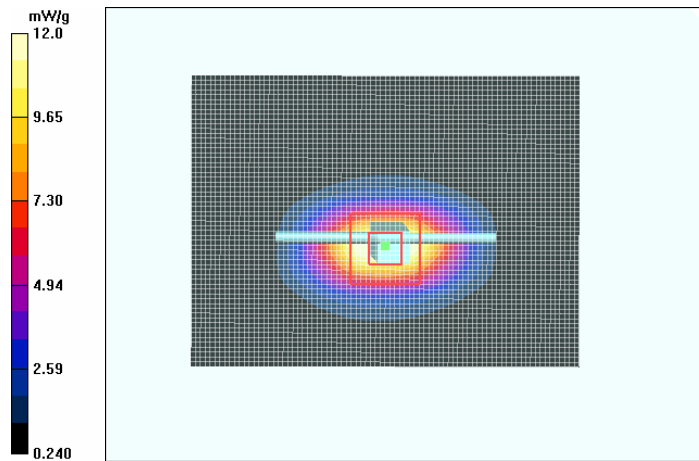
Peak SAR (extrapolated) = 18.2 W/kg

SAR(1 g) = 10.6 mW/g

SAR(10 g) = 5.58 mW/g

Power Drift = -0.034 dB

Maximum value of SAR (measured) = 12.0 mW/g



Date/Time: 2008-04-02 11:11:19

Test Laboratory: TCC Nokia
Type: D1900V2; Serial: D1900V2 - SN:5d013

Communication System: CW1900

Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: BSL1900 (080402); Medium Notes: 20.7C

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.59$ mho/m; $\epsilon_r = 51.6$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1766
- ConvF(4.63, 4.63, 4.63); Calibrated: 2007-10-24
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn454; Calibrated: 2008-01-29
- Phantom: SAM 3; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

d=15mm, Pin=250mW/Area Scan (61x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 12.7 mW/g

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

Reference Value = 90.0 V/m

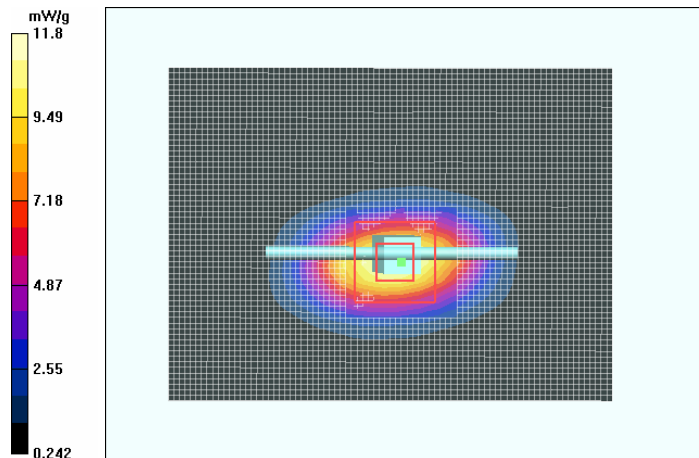
Peak SAR (extrapolated) = 18.1 W/kg

SAR(1 g) = 10.5 mW/g

SAR(10 g) = 5.55 mW/g

Power Drift = -0.016 dB

Maximum value of SAR (measured) = 11.8 mW/g



APPENDIX B: MEASUREMENT SCANS

Date/Time: 2008-03-31 12:32:16

Test Laboratory: TCC Nokia

Type: RM-395; Serial: 001004/00/306574/6

Communication System: GSM850

Frequency: 824.2 MHz; Duty Cycle: 1:8.3

Medium: HSL850; Medium Notes: 20.7C

Medium parameters used (interpolated): $f = 824.2$ MHz; $\sigma = 0.9$ mho/m; $\epsilon_r = 40.5$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1395
- ConvF(6.1, 6.1, 6.1); Calibrated: 2007-07-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2007-07-06
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1449
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Cheek position, Low/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.985 mW/g

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

Reference Value = 9.35 V/m

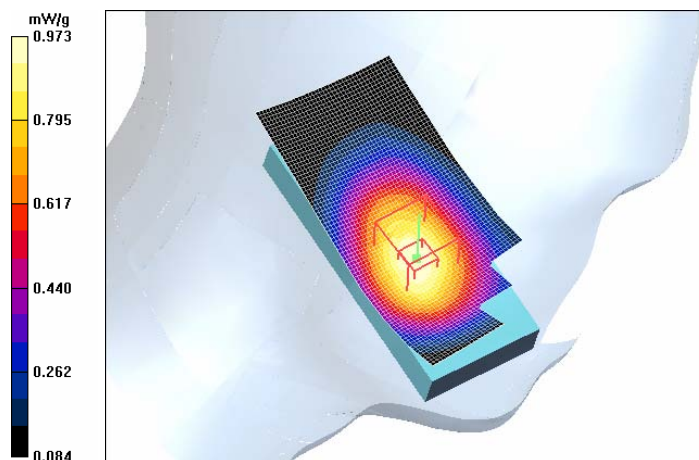
Peak SAR (extrapolated) = 1.26 W/kg

SAR(1 g) = 0.909 mW/g

SAR(10 g) = 0.629 mW/g

Power Drift = -0.104 dB

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



Date/Time: 2008-03-31 10:59:20

Test Laboratory: TCC Nokia

Type: RM-395; Serial: 001004/00/306574/6

Communication System: GSM850

Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium: HSL850; Medium Notes: 20.7C

Medium parameters used: $f = 837$ MHz; $\sigma = 0.909$ mho/m; $\epsilon_r = 40.4$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1395
- ConvF(6.1, 6.1, 6.1); Calibrated: 2007-07-18
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2007-07-06
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1449
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Tilt position, Middle/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.392 mW/g

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

Reference Value = 12.5 V/m

Peak SAR (extrapolated) = 0.487 W/kg

SAR(1 g) = 0.378 mW/g

SAR(10 g) = 0.274 mW/g

Power Drift = -0.063 dB

Maximum value of SAR (measured) = 0.400 mW/g



Date/Time: 2008-03-31 11:52:05

Test Laboratory: TCC Nokia

Type: RM-395; Serial: 001004/00/306574/6

Communication System: GSM850

Frequency: 824.2 MHz; Duty Cycle: 1:8.3

Medium: HSL850; Medium Notes: 20.6C

Medium parameters used (interpolated): $f = 824.2$ MHz; $\sigma = 0.9$ mho/m; $\epsilon_r = 40.5$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1395
- ConvF(6.1, 6.1, 6.1); Calibrated: 2007-07-18
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2007-07-06
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1449
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Cheek position, Low/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

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

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

Reference Value = 9.84 V/m

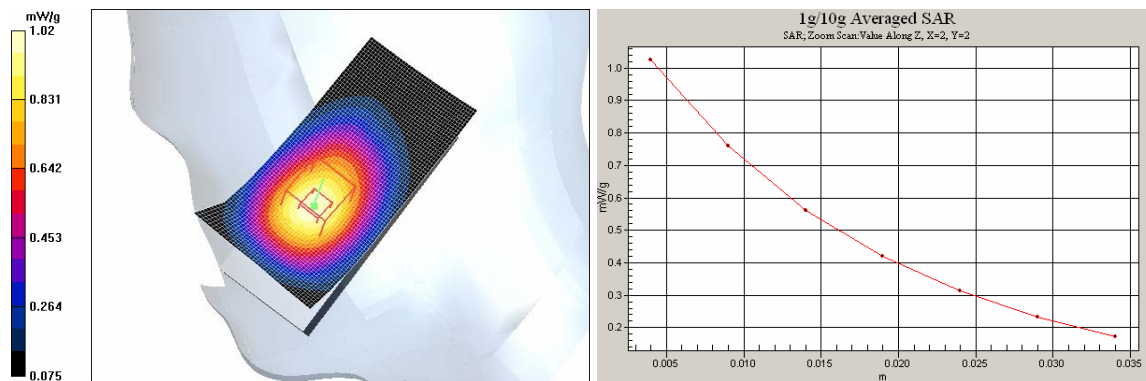
Peak SAR (extrapolated) = 1.28 W/kg

SAR(1 g) = 0.950 mW/g

SAR(10 g) = 0.661 mW/g

Power Drift = -0.109 dB

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



Date/Time: 2008-03-31 11:38:05

Test Laboratory: TCC Nokia

Type: RM-395; Serial: 001004/00/306574/6

Communication System: GSM850

Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium: HSL850; Medium Notes: 20.6C

Medium parameters used: $f = 837$ MHz; $\sigma = 0.909$ mho/m; $\epsilon_r = 40.4$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1395
- ConvF(6.1, 6.1, 6.1); Calibrated: 2007-07-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2007-07-06
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1449
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Tilt position, Middle/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

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

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

Reference Value = 12.1 V/m

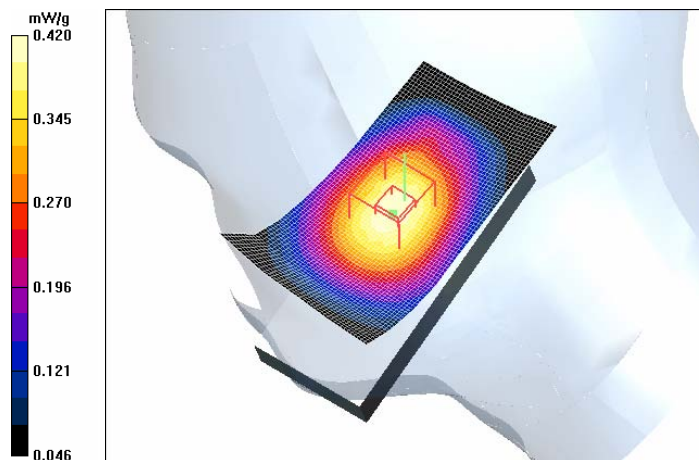
Peak SAR (extrapolated) = 0.513 W/kg

SAR(1 g) = 0.399 mW/g

SAR(10 g) = 0.292 mW/g

Power Drift = -0.110 dB

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



Date/Time: 2008-04-02 10:34:10

Test Laboratory: TCC Nokia

Type: RM-395; Serial: 001004/00/306574/6

Communication System: GSM1900

Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium: HSL1900; Medium Notes: 21.2C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.45$ mho/m; $\epsilon_r = 38.4$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1395
- ConvF(4.85, 4.85, 4.85); Calibrated: 2007-07-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2007-07-06
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1179
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Cheek position, Middle/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.870 mW/g

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

Reference Value = 9.12 V/m

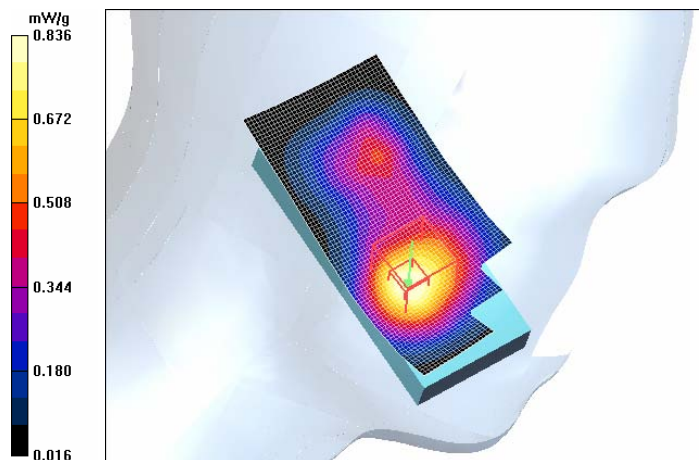
Peak SAR (extrapolated) = 1.07 W/kg

SAR(1 g) = 0.757 mW/g

SAR(10 g) = 0.467 mW/g

Power Drift = -0.053 dB

Maximum value of SAR (measured) = 0.836 mW/g



Date/Time: 2008-04-02 10:49:47

Test Laboratory: TCC Nokia

Type: RM-395; Serial: 001004/00/306574/6

Communication System: GSM1900

Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium: HSL1900; Medium Notes: 21.2C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.45$ mho/m; $\epsilon_r = 38.4$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1395
- ConvF(4.85, 4.85, 4.85); Calibrated: 2007-07-18
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2007-07-06
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1179
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Tilt position, Middle/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

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

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

Reference Value = 10.5 V/m

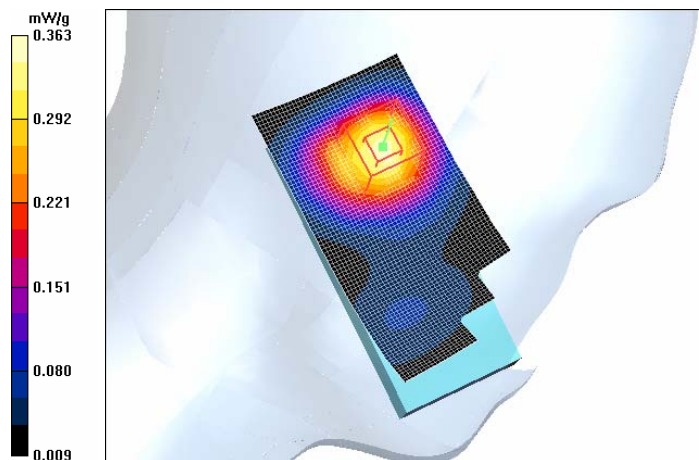
Peak SAR (extrapolated) = 0.477 W/kg

SAR(1 g) = 0.334 mW/g

SAR(10 g) = 0.208 mW/g

Power Drift = -0.011 dB

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



Date/Time: 2008-04-02 12:10:18

Test Laboratory: TCC Nokia

Type: RM-395; Serial: 001004/00/306574/6

Communication System: GSM1900

Frequency: 1909.8 MHz; Duty Cycle: 1:8.3

Medium: HSL1900; Medium Notes: 21.2C

Medium parameters used: $f = 1910$ MHz; $\sigma = 1.48$ mho/m; $\epsilon_r = 38.3$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1395
- ConvF(4.85, 4.85, 4.85); Calibrated: 2007-07-18
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2007-07-06
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1179
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Cheek position, High/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

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

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

Reference Value = 10.6 V/m

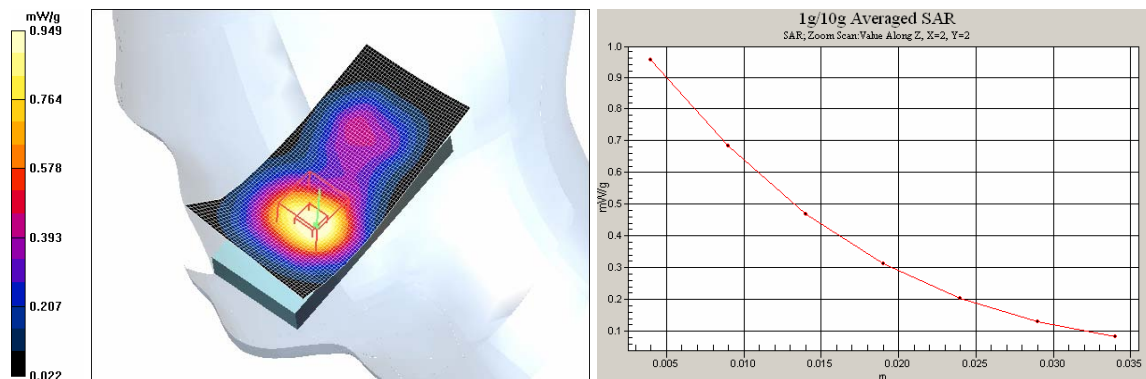
Peak SAR (extrapolated) = 1.18 W/kg

SAR(1 g) = 0.881 mW/g

SAR(10 g) = 0.554 mW/g

Power Drift = 0.001 dB

Maximum value of SAR (measured) = 0.949 mW/g



Date/Time: 2008-04-02 11:26:31

Test Laboratory: TCC Nokia

Type: RM-395; Serial: 001004/00/306574/6

Communication System: GSM1900

Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium: HSL1900; Medium Notes: 21.2C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.45$ mho/m; $\epsilon_r = 38.4$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1395
- ConvF(4.85, 4.85, 4.85); Calibrated: 2007-07-18
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2007-07-06
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1179
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Tilt position, Middle/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.328 mW/g

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

Reference Value = 10.7 V/m

Peak SAR (extrapolated) = 0.386 W/kg

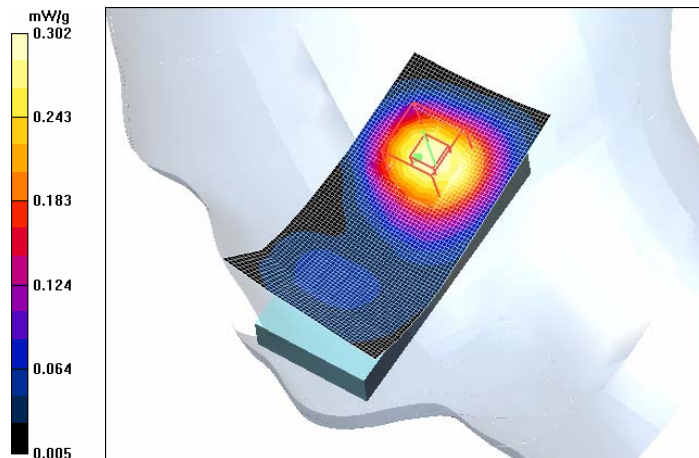
SAR(1 g) = 0.287 mW/g

SAR(10 g) = 0.184 mW/g

Power Drift = -0.093 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) = 0.302 mW/g



Date/Time: 2008-03-31 13:49:47

Test Laboratory: TCC Nokia

Type: RM-395; Serial: 001004/00/306574/6

Communication System: GSM850

Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium: BSL850; Medium Notes: 22.0C

Medium parameters used: $f = 837$ MHz; $\sigma = 1$ mho/m; $\epsilon_r = 54.5$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1395
- ConvF(5.69, 5.69, 5.69); Calibrated: 2007-07-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2007-07-06
- Phantom: SAM 3; Type: Twin SAM 040 CA; Serial: TP-1018
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body Measurement, Middle, No accessory, Back facing phantom/Area Scan (41x81x1): Measurement grid:

dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.277 mW/g

Body Measurement, Middle, No accessory, Back facing phantom/Zoom Scan (5x5x7)/Cube 0: Measurement

grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 7.25 V/m

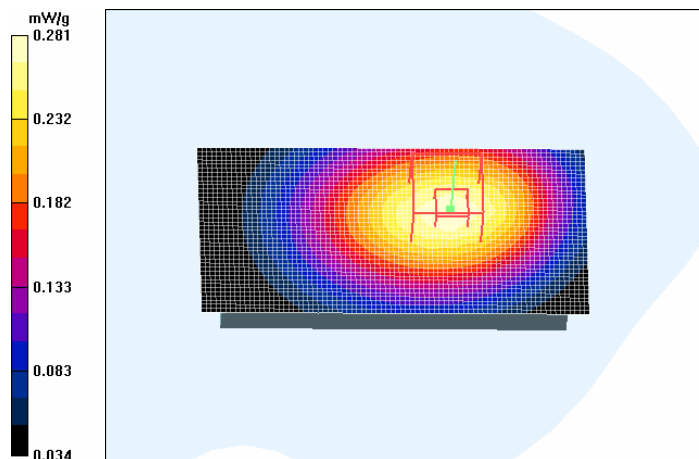
Peak SAR (extrapolated) = 0.331 W/kg

SAR(1 g) = 0.263 mW/g

SAR(10 g) = 0.190 mW/g

Power Drift = -0.064 dB

Maximum value of SAR (measured) = 0.281 mW/g



Date/Time: 2008-03-31 14:07:57

Test Laboratory: TCC Nokia

Type: RM-395; Serial: 001004/00/306574/6

Communication System: 2-slot GPRS850

Frequency: 836.6 MHz; Duty Cycle: 1:4.2

Medium: BSL850; Medium Notes: 22.0C

Medium parameters used: $f = 837$ MHz; $\sigma = 1$ mho/m; $\epsilon_r = 54.5$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1395
- ConvF(5.69, 5.69, 5.69); Calibrated: 2007-07-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2007-07-06
- Phantom: SAM 3; Type: Twin SAM 040 CA; Serial: TP-1018
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body Measurement, Middle, No accessory, Back facing phantom/Area Scan (41x81x1): Measurement grid:

$dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.526 mW/g

Body Measurement, Middle, No accessory, Back facing phantom/Zoom Scan (5x5x7)/Cube 0: Measurement

grid: $dx=7.5$ mm, $dy=7.5$ mm, $dz=5$ mm

Reference Value = 9.92 V/m

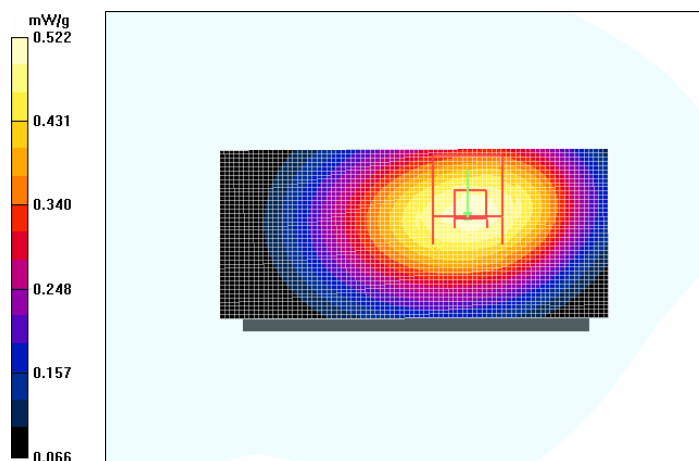
Peak SAR (extrapolated) = 0.603 W/kg

SAR(1 g) = 0.488 mW/g

SAR(10 g) = 0.354 mW/g

Power Drift = -0.135 dB

Maximum value of SAR (measured) = 0.522 mW/g



Date/Time: 2008-03-31 15:50:18

Test Laboratory: TCC Nokia

Type: RM-395; Serial: 001004/00/306574/6

Communication System: 2-slot GPRS850

Frequency: 824.2 MHz; Duty Cycle: 1:4.2

Medium: BSL850; Medium Notes: 22.0C

Medium parameters used (interpolated): $f = 824.2$ MHz; $\sigma = 0.996$ mho/m; $\epsilon_r = 54.6$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1395
- ConvF(5.69, 5.69, 5.69); Calibrated: 2007-07-18
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2007-07-06
- Phantom: SAM 3; Type: Twin SAM 040 CA; Serial: TP-1018
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body Measurement, Low, HS-47, Back facing phantom/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

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

Body Measurement, Low, HS-47, Back facing phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 8.96 V/m

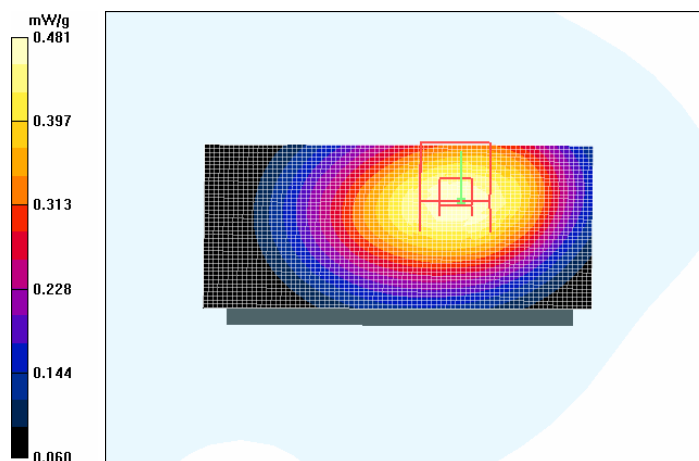
Peak SAR (extrapolated) = 0.563 W/kg

SAR(1 g) = 0.453 mW/g

SAR(10 g) = 0.329 mW/g

Power Drift = -0.212 dB

Maximum value of SAR (measured) = 0.481 mW/g



Date/Time: 2008-03-31 15:06:11

Test Laboratory: TCC Nokia

Type: RM-395; Serial: 001004/00/306574/6

Communication System: 2-slot GPRS850

Frequency: 824.2 MHz; Duty Cycle: 1:4.2

Medium: BSL850; Medium Notes: 22.0C

Medium parameters used (interpolated): $f = 824.2$ MHz; $\sigma = 0.996$ mho/m; $\epsilon_r = 54.6$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1395
- ConvF(5.69, 5.69, 5.69); Calibrated: 2007-07-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2007-07-06
- Phantom: SAM 3; Type: Twin SAM 040 CA; Serial: TP-1018
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body Measurement, Low, No accessory, Display facing phantom/Area Scan (41x81x1): Measurement grid:

$dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.576 mW/g

Body Measurement, Low, No accessory, Display facing phantom/Zoom Scan (5x5x7)/Cube 0: Measurement

grid: $dx=7.5$ mm, $dy=7.5$ mm, $dz=5$ mm

Reference Value = 11.0 V/m

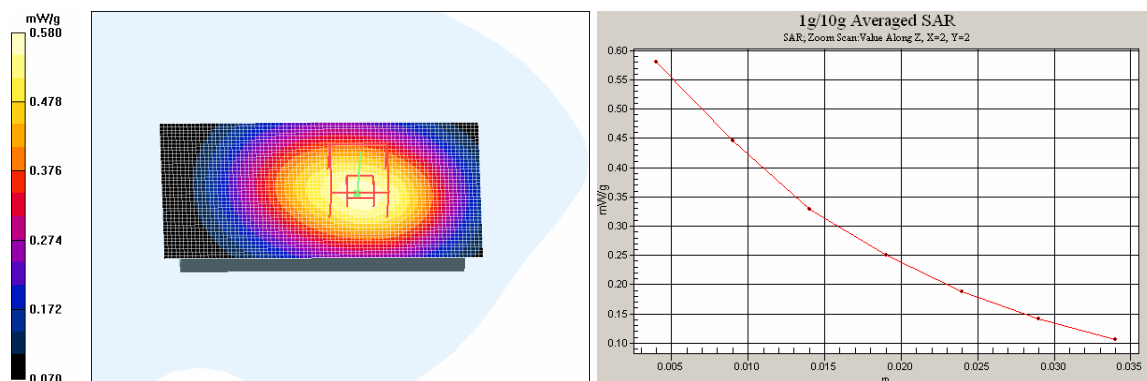
Peak SAR (extrapolated) = 0.677 W/kg

SAR(1 g) = 0.543 mW/g

SAR(10 g) = 0.395 mW/g

Power Drift = -0.054 dB

Maximum value of SAR (measured) = 0.580 mW/g



Date/Time: 2008-03-31 14:36:25

Test Laboratory: TCC Nokia

Type: RM-395; Serial: 001004/00/306574/6

Communication System: 2-slot GPRS850

Frequency: 836.6 MHz; Duty Cycle: 1:4.2

Medium: BSL850; Medium Notes: 22.0C

Medium parameters used: $f = 837$ MHz; $\sigma = 1$ mho/m; $\epsilon_r = 54.5$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1395
- ConvF(5.69, 5.69, 5.69); Calibrated: 2007-07-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2007-07-06
- Phantom: SAM 3; Type: Twin SAM 040 CA; Serial: TP-1018
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body Measurement, Middle, HS-47, Display facing phantom/Area Scan (41x81x1): Measurement grid:

dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.418 mW/g

Body Measurement, Middle, HS-47, Display facing phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 7.62 V/m

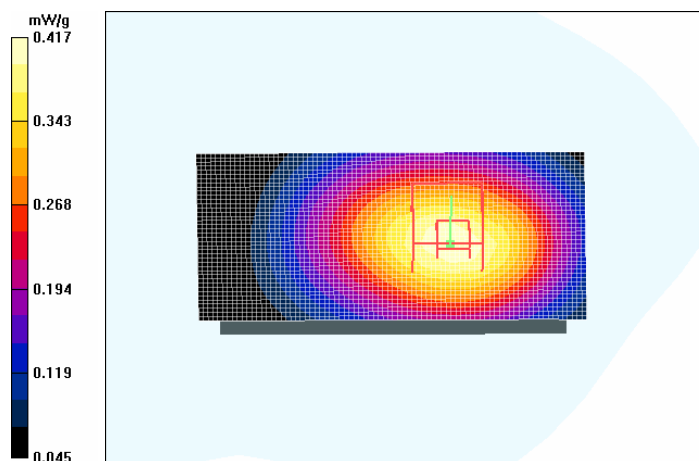
Peak SAR (extrapolated) = 0.494 W/kg

SAR(1 g) = 0.391 mW/g

SAR(10 g) = 0.282 mW/g

Power Drift = -0.050 dB

Maximum value of SAR (measured) = 0.417 mW/g



Date/Time: 2008-04-02 13:31:31

Test Laboratory: TCC Nokia

Type: RM-395; Serial: 001004/00/306574/6

Communication System: GSM1900

Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium: BSL1900 (080402); Medium Notes: 20.7C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.57$ mho/m; $\epsilon_r = 51.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1766
- ConvF(4.63, 4.63, 4.63); Calibrated: 2007-10-24
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn454; Calibrated: 2008-01-29
- Phantom: SAM 3; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body Measurement, Middle, No accessory, Back facing phantom/Area Scan (41x81x1): Measurement grid:

$dx=15$ mm, $dy=15$ mm

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

Body Measurement, Middle, No accessory, Back facing phantom/Zoom Scan (5x5x7)/Cube 0: Measurement

grid: $dx=7.5$ mm, $dy=7.5$ mm, $dz=5$ mm

Reference Value = 6.11 V/m

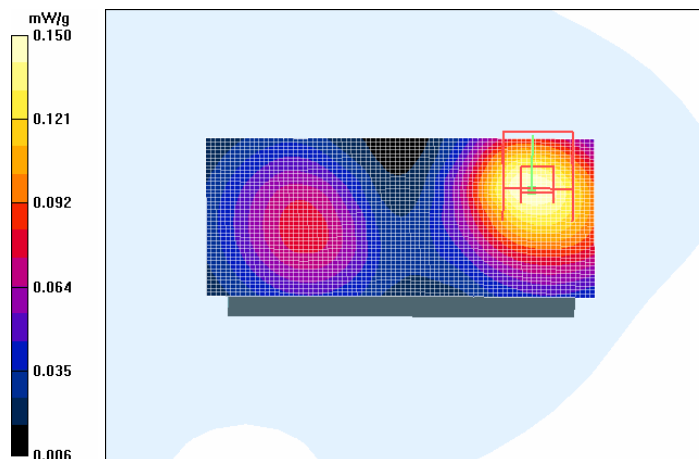
Peak SAR (extrapolated) = 0.217 W/kg

SAR(1 g) = 0.139 mW/g

SAR(10 g) = 0.086 mW/g

Power Drift = 0.140 dB

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



Date/Time: 2008-04-02 15:27:04

Test Laboratory: TCC Nokia

Type: RM-395; Serial: 001004/00/306574/6

Communication System: 2-slot GPRS1900

Frequency: 1850.2 MHz; Duty Cycle: 1:4.2

Medium: BSL1900 (080402); Medium Notes: 20.7C

Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.55$ mho/m; $\epsilon_r = 51.8$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1766
- ConvF(4.63, 4.63, 4.63); Calibrated: 2007-10-24
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn454; Calibrated: 2008-01-29
- Phantom: SAM 3; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body Measurement, Low, No accessory, Back facing phantom/Area Scan (41x81x1): Measurement grid:

$dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.345 mW/g

Body Measurement, Low, No accessory, Back facing phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

$dx=7.5$ mm, $dy=7.5$ mm, $dz=5$ mm

Reference Value = 8.67 V/m

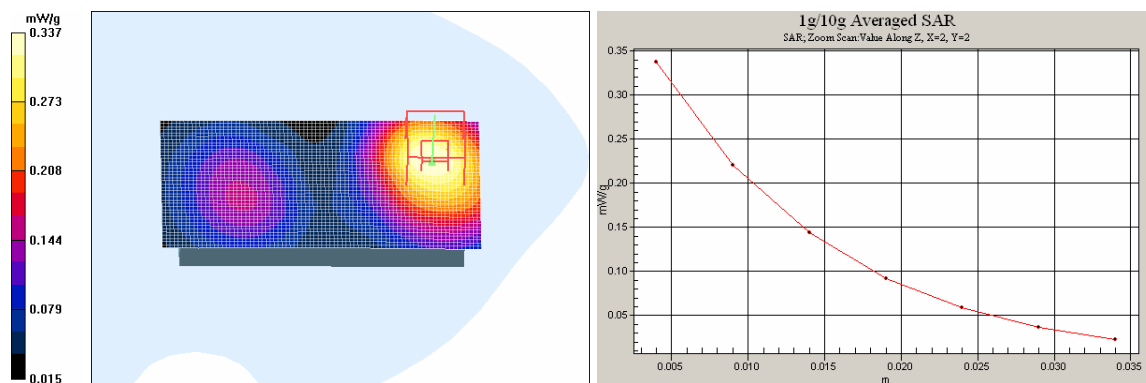
Peak SAR (extrapolated) = 0.472 W/kg

SAR(1 g) = 0.312 mW/g

SAR(10 g) = 0.197 mW/g

Power Drift = -0.244 dB

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



Date/Time: 2008-04-02 15:36:18

Test Laboratory: TCC Nokia

Type: RM-395; Serial: 001004/00/306574/6

Communication System: 2-slot GPRS1900

Frequency: 1850.2 MHz; Duty Cycle: 1:4.2

Medium: BSL1900 (080402); Medium Notes: 20.7C

Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.55$ mho/m; $\epsilon_r = 51.8$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1766
- ConvF(4.63, 4.63, 4.63); Calibrated: 2007-10-24
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn454; Calibrated: 2008-01-29
- Phantom: SAM 3; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body Measurement, Low, HS-47, Back facing phantom/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.296 mW/g

Body Measurement, Low, HS-47, Back facing phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 7.02 V/m

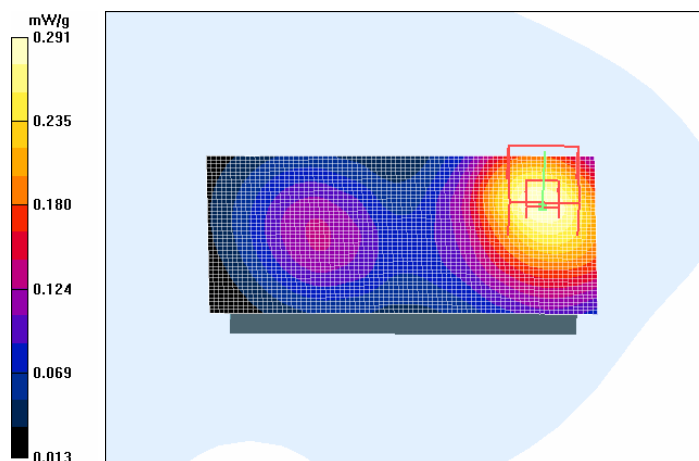
Peak SAR (extrapolated) = 0.409 W/kg

SAR(1 g) = 0.270 mW/g

SAR(10 g) = 0.170 mW/g

Power Drift = -0.088 dB

Maximum value of SAR (measured) = 0.291 mW/g



Date/Time: 2008-04-02 14:14:24

Test Laboratory: TCC Nokia

Type: RM-395; Serial: 001004/00/306574/6

Communication System: 2-slot GPRS1900

Frequency: 1880 MHz; Duty Cycle: 1:4.2

Medium: BSL1900 (080402); Medium Notes: 20.7C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.57$ mho/m; $\epsilon_r = 51.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1766
- ConvF(4.63, 4.63, 4.63); Calibrated: 2007-10-24
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn454; Calibrated: 2008-01-29
- Phantom: SAM 3; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body Measurement, Middle, No accessory, Display facing phantom/Area Scan (41x81x1): Measurement grid:

dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.254 mW/g

Body Measurement, Middle, No accessory, Display facing phantom/Zoom Scan (5x5x7)/Cube 0: Measurement

grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 9.53 V/m

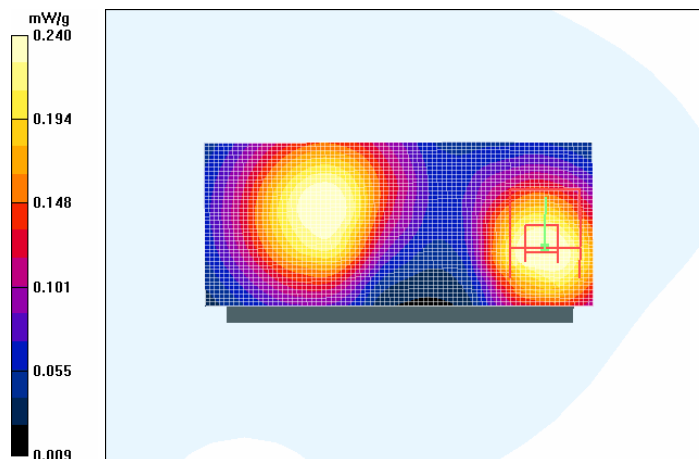
Peak SAR (extrapolated) = 0.347 W/kg

SAR(1 g) = 0.222 mW/g

SAR(10 g) = 0.138 mW/g

Power Drift = -0.144 dB

Maximum value of SAR (measured) = 0.240 mW/g



Date/Time: 2008-04-02 14:29:38

Test Laboratory: TCC Nokia

Type: RM-395; Serial: 001004/00/306574/6

Communication System: 2-slot GPRS1900

Frequency: 1880 MHz; Duty Cycle: 1:4.2

Medium: BSL1900 (080402); Medium Notes: 20.7C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.57$ mho/m; $\epsilon_r = 51.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1766
- ConvF(4.63, 4.63, 4.63); Calibrated: 2007-10-24
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn454; Calibrated: 2008-01-29
- Phantom: SAM 3; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body Measurement, Middle, HS-47, Display facing phantom/Area Scan (41x81x1): Measurement grid:

dx=15mm, dy=15mm

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

Body Measurement, Middle, HS-47, Display facing phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 8.37 V/m

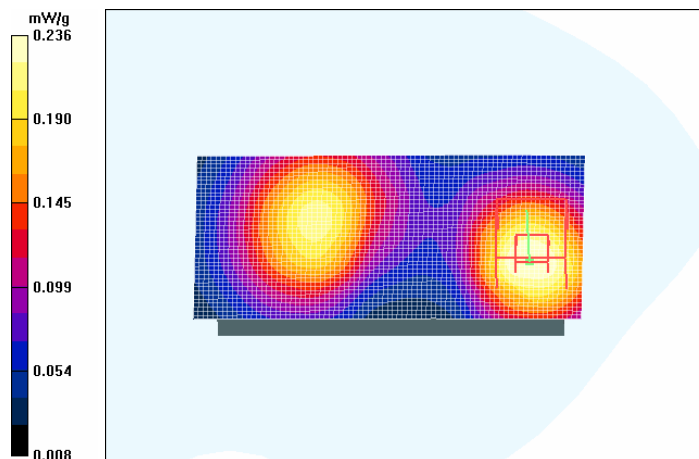
Peak SAR (extrapolated) = 0.341 W/kg

SAR(1 g) = 0.217 mW/g

SAR(10 g) = 0.135 mW/g

Power Drift = 0.007 dB

Maximum value of SAR (measured) = 0.236 mW/g



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

See the following pages



Accredited by the Swiss Accreditation Service (SAS)

Accreditation No.: **SCS 108**

The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Client **Nokia Salo TCC**

Certificate No: **ET3-1766_Oct07**

CALIBRATION CERTIFICATE

Object **ET3DV6 - SN:1766**

Calibration procedure(s) **QA CAL-01.v6
Calibration procedure for dosimetric E-field probes**

Calibration date: **October 24, 2007**

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	29-Mar-07 (METAS, No. 217-00670)	Mar-08
Power sensor E4412A	MY41495277	29-Mar-07 (METAS, No. 217-00670)	Mar-08
Power sensor E4412A	MY41498087	29-Mar-07 (METAS, No. 217-00670)	Mar-08
Reference 3 dB Attenuator	SN: S5054 (3c)	8-Aug-07 (METAS, No. 217-00719)	Aug-08
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-07 (METAS No. 217-00671)	Mar-08
Reference 30 dB Attenuator	SN: S5129 (30b)	8-Aug-07 (METAS, No. 217-00720)	Aug-08
Reference Probe ES3DV2	SN: 3013	4-Jan-07 (SPEAG, No. ES3-3013_Jan07)	Jan-08
DAE4	SN: 654	20-Apr-07 (SPEAG, No. DAE4-654_Apr07)	Apr-08

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (SPEAG, in house check Nov-05)	In house check: Nov-07
Network Analyzer HP 8753E	US37390585	18-Oct-01 (SPEAG, in house check Oct-06)	In house check: Oct-07

	Name	Function	Signature
Calibrated by:	Katja Pokovic	Technical Manager	
Approved by:	Niels Kuster	Quality Manager	

Issued: October 29, 2007

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

DASY - Parameters of Probe: ET3DV6 SN:1766

Sensitivity in Free Space ^A			Diode Compression ^B	
NormX	1.99 ± 10.1%	μV/(V/m) ²	DCP X	91 mV
NormY	1.70 ± 10.1%	μV/(V/m) ²	DCP Y	91 mV
NormZ	1.89 ± 10.1%	μV/(V/m) ²	DCP Z	92 mV

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	6.3	3.3	
SAR _{be} [%]	With Correction Algorithm	0.3	0.1	
TSL	1810 MHz	Typical SAR gradient: 10 % per mm		
Sensor Center to Phantom Surface Distance		3.7 mm	4.7 mm	
SAR _{be} [%]	Without Correction Algorithm	12.5	8.3	
SAR _{be} [%]	With Correction Algorithm	0.3	0.7	

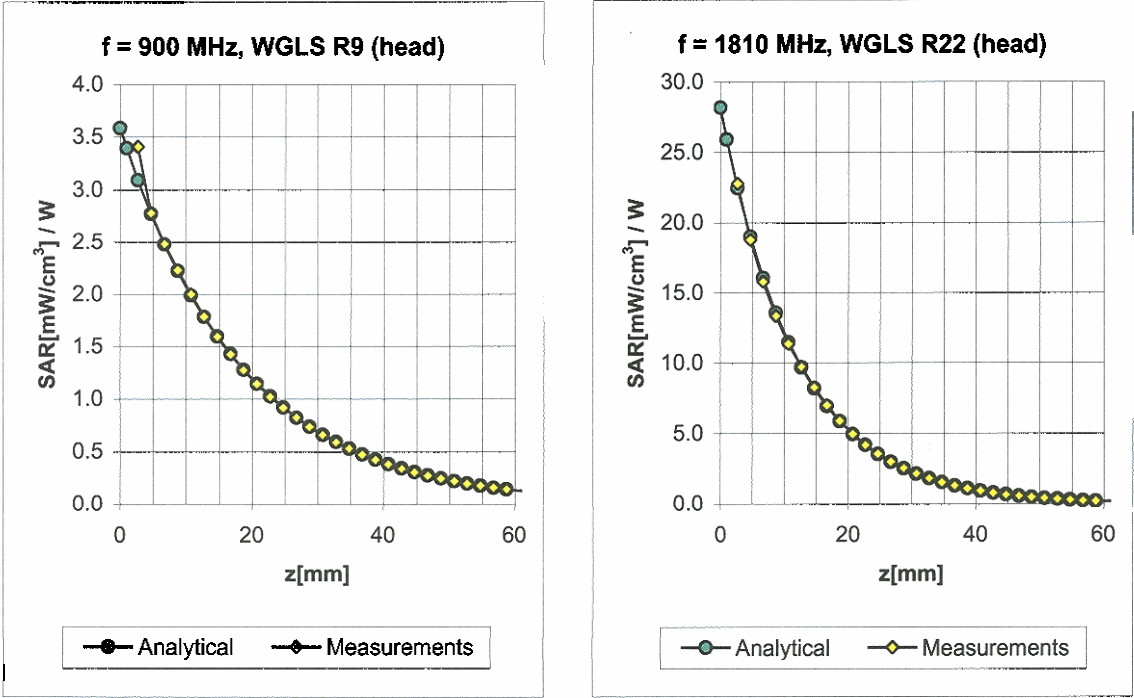
Sensor Offset

Probe Tip to Sensor Center	2.7 mm
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The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

^A The uncertainties of NormX,Y,Z do not affect the E²-field uncertainty inside TSL (see Page 8).
^B Numerical linearization parameter: uncertainty not required.

Conversion Factor Assessment



f [MHz]	Validity [MHz] ^c	TSL	Permittivity	Conductivity	Alpha	Depth	ConvF Uncertainty
900	± 50 / ± 100	Head	41.5 ± 5%	0.97 ± 5%	0.25	3.20	6.21 ± 11.0% (k=2)
1810	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.66	2.12	5.12 ± 11.0% (k=2)
1950	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.70	2.06	4.85 ± 11.0% (k=2)
900	± 50 / ± 100	Body	55.0 ± 5%	1.05 ± 5%	0.37	2.52	5.78 ± 11.0% (k=2)
1810	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.74	2.27	4.63 ± 11.0% (k=2)
1950	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.93	1.95	4.36 ± 11.0% (k=2)

^c The validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2). The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.



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 Salo TCC**

Certificate No: **ET3-1395_Jul07**

CALIBRATION CERTIFICATE

Object **ET3DV6 - SN:1395**

Calibration procedure(s) **QA CAL-01.v6 and QA CAL-12.v5
Calibration procedure for dosimetric E-field probes**

Calibration date: **July 18, 2007**

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 $(22 \pm 3)^{\circ}\text{C}$ 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	29-Mar-07 (METAS, No. 217-00670)	Mar-08
Power sensor E4412A	MY41495277	29-Mar-07 (METAS, No. 217-00670)	Mar-08
Power sensor E4412A	MY41498087	29-Mar-07 (METAS, No. 217-00670)	Mar-08
Reference 3 dB Attenuator	SN: S5054 (3c)	10-Aug-06 (METAS, No. 217-00592)	Aug-07
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-07 (METAS, No. 217-00671)	Mar-08
Reference 30 dB Attenuator	SN: S5129 (30b)	10-Aug-06 (METAS, No. 217-00593)	Aug-07
Reference Probe ES3DV2	SN: 3013	4-Jan-07 (SPEAG, No. ES3-3013_Jan07)	Jan-08
DAE4	SN: 654	20-Apr-07 (SPEAG, No. DAE4-654_Apr07)	Apr-08

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (SPEAG, in house check Nov-05)	In house check: Nov-07
Network Analyzer HP 8753E	US37390585	18-Oct-01 (SPEAG, in house check Oct-06)	In house check: Oct-07

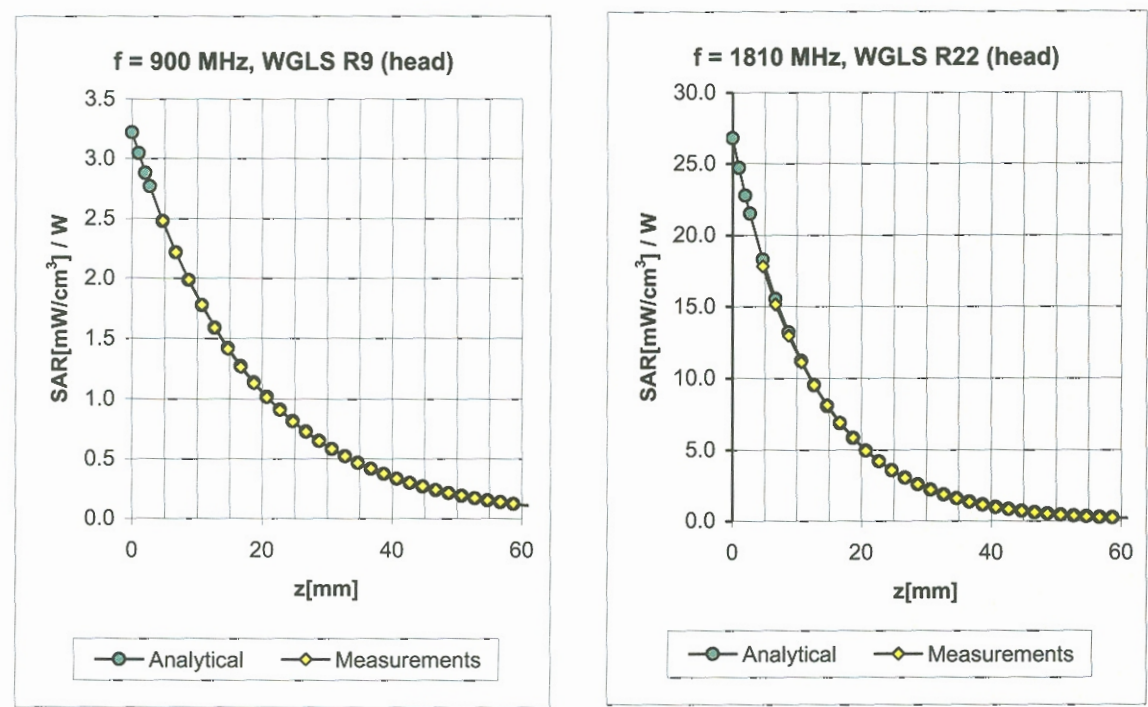
	Name	Function	Signature
Calibrated by:	Katja Pokovic	Technical Manager	

Approved by:	Niels Kuster	Quality Manager
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Issued: July 18, 2007

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

Conversion Factor Assessment



f [MHz]	Validity [MHz] ^c	TSL	Permittivity	Conductivity	Alpha	Depth	ConvF Uncertainty
450	± 50 / ± 100	Head	43.5 ± 5%	0.87 ± 5%	0.40	1.96	6.74 ± 13.3% (k=2)
900	± 50 / ± 100	Head	41.5 ± 5%	0.97 ± 5%	0.37	2.43	6.10 ± 11.0% (k=2)
1810	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.57	2.62	4.85 ± 11.0% (k=2)
1950	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.62	2.49	4.65 ± 11.0% (k=2)
2450	± 50 / ± 100	Head	39.2 ± 5%	1.80 ± 5%	0.88	1.75	4.35 ± 11.8% (k=2)
450	± 50 / ± 100	Body	56.7 ± 5%	0.94 ± 5%	0.34	2.02	7.20 ± 13.3% (k=2)
900	± 50 / ± 100	Body	55.0 ± 5%	1.05 ± 5%	0.40	2.89	5.69 ± 11.0% (k=2)
1810	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.75	2.26	4.51 ± 11.0% (k=2)
1950	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.96	2.08	4.28 ± 11.0% (k=2)
2450	± 50 / ± 100	Body	52.7 ± 5%	1.95 ± 5%	0.87	2.00	3.96 ± 11.8% (k=2)

^c The validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2). The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.