

SAR Compliance Test Report

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Tested device:	RM-115		
FCC ID:	PPIRM-115	IC:	661U-RM115
Supplement reports:	-		
Testing has been carried out in accordance with:	47CFR §2.1093 Radiofrequency Radiation Exposure Evaluation: Portable Devices FCC OET Bulletin 65 (Edition 97-01), Supplement C (Edition 01-01) Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields RSS-102 Evaluation Procedure for Mobile and Portable Radio Transmitters with Respect to Health Canada's Safety Code 6 for Exposure of Humans to Radio Frequency Fields IEEE 1528 - 2003 IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques		
Documentation:	The documentation of the testing performed on the tested devices is archived for 15 years at TCC Nokia.		
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:

 Digitally signed by Virpi Tuominen
DN: CN = Virpi Tuominen, C = FI, O = Nokia, OU = CertT
Date: 2006.03.03 14:27:19 +02'00'

Virpi Tuominen
Test System Manager

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1. SUMMARY OF SAR TEST REPORT

1.1 Test Details

Period of test	2006-02-08 to 2006-02-27
SN, HW and SW numbers of tested device	SN: 004400/85/171963/1, HW: 0500, SW: 3.08.1, DUT: 11063 SN: 004400/85/172367/4, HW: 0501, SW: 3.08.1, DUT: 11078 SN: 004400/85/172448/2, HW: 0502, SW: 3.08.1, DUT: 11077 SN: 004400/85/172481/3, HW: 0503, SW: 3.08.1, DUT: 11076
Batteries used in testing	BL-4C, DUT: 11060, 11061, 11071
Headsets used in testing	HS-6, DUT: 11062
Other accessories used in testing	MU-card, DUT: 11072
State of sample	Prototype unit
Notes	-

1.2 Maximum Results

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

1.2.1 Head Configuration

Mode	Ch / f (MHz)	Radiated power	Position	Measured SAR value (1g avg)	Scaled* SAR value (1g avg)	SAR limit (1g avg)	Result
2-slot GPRS850	251 / 848.8	29.5dBm ERP	Left, Cheek	1.04W/kg	1.16W/kg	1.6 W/kg	PASSED
2-slot GPRS1900	661 / 1880.0	28.7dBm EIRP	Left, Cheek	0.86W/kg	0.96W/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	190 / 836.6	28.8dBm ERP	2.2cm	0.63W/kg	0.70W/kg	1.6 W/kg	PASSED
2-slot GPRS1900	810 / 1909.8	30.5dBm EIRP	2.2cm	0.29W/kg	0.33W/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	0.42dB

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	BT
	850 / 1900	850 / 1900	850 / 1900	
Modulation Mode	GMSK	GMSK	GMSK / 8PSK	GFSK
Duty Cycle	1/8	1/8 to 2/8	1/8 to 2/8	
Transmitter Frequency Range (MHz)	824 – 849 1850 - 1910	824 – 849 1850 - 1910	824 – 849 1850 - 1910	2402-2480

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

This device has Push to Talk capability for use at the ear. Therefore, SAR for 2-slot GPRS mode was evaluated against the head profile of the phantom.

2.1 Picture of the Device



Device closed. HWID from left to right: 0500, 0501, 0502, 0503.



Device open. HWID from left to right: 0500, 0501, 0502, 0503

2.2 Description of the Antenna

The device has an internal patch antenna.

3. TEST CONDITIONS

3.1 Temperature and Humidity

Ambient temperature (°C):	21.5 to 22.5
Ambient humidity (RH %):	30 to 40

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 devices was measured by a separate test laboratory on the same units 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 V1	372	12 months	2006-08
E-field Probe ET3DV6	1396	12 months	2007-01
Dipole Validation Kit, D835V2	462	24 months	2006-07
Dipole Validation Kit, D900V2	181	24 months	2007-04
Dipole Validation Kit, D1900V2	5d013	24 months	2006-07
DASY4 software	Version 4.6	-	-

Additional test equipment used in testing:

Test Equipment	Model	Serial Number	Calibration interval	Calibration expiry
Signal Generator	SML03	101265	12 months	2006-07
Amplifier	ZHL-42 (SMA)	N072095-5	-	-
Power Meter	NRVS	849305/028	12 months	2006-07
Power Sensor	NRV-Z32	839176/020	12 months	2006-07
Call Tester	CMU 200	101111	-	-
Call Tester	CMU 200	104983	-	-
Vector Network Analyzer	8753E	US38432928	12 months	2006-10
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
Application	Distance from probe tip to dipole centers: 2.7 mm General dosimetry up to 3 GHz Compliance tests of mobile phones Fast automatic scanning in arbitrary phantoms

4.2 Phantoms

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

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

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

4.3 Tissue Simulants

Recommended values for the dielectric parameters of the tissue simulants are given in IEEE 1528 - 2003 and FCC Supplement C to OET Bulletin 65. All tests were carried out using simulants whose dielectric parameters were within $\pm 5\%$ 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 recipes were used for Head and Body tissue simulants:

800-900MHz band

Ingredient	Head (% by weight)	Body (% by weight)
Deionised Water	51.50	50.65
Tween 20	47.35	-
Sugar	-	48.21
Preservative	-	0.20
Salt	1.15	0.94

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

<i>f</i> [MHz]	Description	SAR [W/kg], 1g	Dielectric Parameters		Temp [°C]
			ϵ_r	σ [S/m]	
835	Reference result	2.45	41.8	0.92	
	± 10% window	2.21 – 2.69			
	2006-02-08	2.51	41.9	0.95	21.9
	2006-02-10	2.47	42.0	0.94	22.0
	2006-02-24	2.44	42.0	0.94	21.5
900	Reference result	2.74	41.6	0.97	
	± 10% window	2.47 – 3.01			
	2006-02-23	2.72	41.5	0.98	21.0
1900	Reference result	10.0	39.4	1.44	
	± 10% window	9.0 – 11.0			
	2006-02-25	10.0	38.2	1.41	21.9
	2006-02-27	10.2	38.3	1.41	22.2

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	2.45	54.6	0.99	
	± 10% window	2.21 – 2.69			
	2006-02-25	2.43	55.3	0.96	21.7

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	
	2006-02-08	41.9	0.95	21.0
	2006-02-10	42.0	0.94	21.0
	2006-02-23	41.9	0.94	21.0
	2006-02-24	42.0	0.94	21.0
1880	Recommended value	40.0	1.40	
	$\pm 5\%$ window	38.0 – 42.0	1.33 – 1.47	
	2006-02-25	38.2	1.39	21.0
	2006-02-27	38.4	1.39	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	
	2006-02-24	55.4	0.96	21.0
	2006-02-25	55.3	0.96	21.0
1880	Recommended value	53.3	1.52	
	$\pm 5\%$ window	50.6 – 56.0	1.44 – 1.60	
	2006-02-27	53.2	1.52	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".



Photo of the device in “cheek” position



Photo of the device in “tilt” position

5.2.2 Body Worn Configuration

The device was placed in the SPEAG holder using the Nokia spacer and placed below the flat section of the phantom. The distance between the device and the phantom was kept at the separation distance indicated in the photo below using a separate flat spacer that was

removed before the start of the measurements. The device was oriented with its antenna facing the phantom since this orientation gives higher results.



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

5.3 Scan Procedures

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

5.4 SAR Averaging Methods

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

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

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

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

6. MEASUREMENT UNCERTAINTY

Table 6.1 – Measurement uncertainty evaluation

Uncertainty Component	Section in IEEE 1528	Tol. (%)	Prob Dist	Div	C_i	$C_i \cdot U_i$ (%)	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

Hardware ID	Flip option	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		32.2dBm	32.2dBm	31.5dBm
0501	Open	Left	Cheek	-	-	0.767
2-slot GPRS		Power		30.6dBm	30.8dBm	29.9dBm
0501	Open	Left	Cheek	0.926	1.02	1.03
			Tilt	-	0.625	-
		Right	Cheek	0.807	0.880	0.934
			Tilt	-	0.629	-
2-slot GPRS		Power		30.8dBm	29.4dBm	29.5dBm
0500	Open	Left	Cheek	0.897	1.02	1.04
			Tilt	-	-	-
		Right	Cheek	-	0.773	-
			Tilt	-	-	-
2-slot GPRS		Power		30.0dBm	28.9dBm	28.9dBm
0502	Open	Left	Cheek	0.784	0.857	0.875
2-slot GPRS		Power		29.6dBm	29.5dBm	28.6dBm
0503	Open	Left	Cheek	0.656	0.685	0.787
2-slot EGPRS		Power		28.7dBm	26.9dBm	27.5dBm
0500	Open	Left	Cheek	-	-	0.452
0500	2-slot GPRS Flip open	Left Cheek with MU-card		-	-	1.01
0500	2-slot GPRS Flip open	Left Cheek without MU-card and with BT active		-	-	1.02

1900MHz, Head SAR results

Hardware ID	Flip option	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		30.7dBm	31.4dBm	31.6dBm
0501	Open	Left	Cheek	-	0.553	-
2-slot GPRS		Power		29.7dBm	29.7dBm	30.5dBm
0501	Open	Left	Cheek	0.745	0.808	0.758
			Tilt	-	0.293	-
		Right	Cheek	-	0.748	-
			Tilt	-	0.192	-
2-slot GPRS		Power		28.4dBm	28.7dBm	30.1dBm
0500	Open	Left	Cheek	0.632	0.623	0.582
2-slot GPRS		Power		29.2dBm	29.4dBm	30.6dBm
0502	Open	Left	Cheek	0.665	0.695	0.664
2-slot GPRS		Power		29.0dBm	28.7dBm	29.8dBm
0503	Open	Left	Cheek	0.844	0.857	0.780
2-slot EGPRS		Power		25.3dBm	25.6dBm	27.6dBm
0503	Open	Left	Cheek	-	0.374	-
0503	2-slot GPRS Flip open	Left Cheek with MU-card		-	0.835	-
0503	2-slot GPRS Flip open	Left Cheek without MU-card and with BT active		-	0.783	-

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

850MHz, Body SAR results

Hardware ID	Flip option	Test configuration	SAR, averaged over 1g (W/kg)		
			Ch 128 824.2 MHz	Ch 190 836.6 MHz	Ch 251 848.8 MHz
2-slot GPRS	Power		27.9dBm	28.8dBm	28.2dBm
0500	Closed	Without headset	0.608	0.629	0.578
		Headset HS-6	0.410	0.421	0.462
2-slot GPRS	Power		27.1dBm	27.6dBm	27.0dBm
0501	Closed	Without headset	0.540	0.477	0.410
2-slot GPRS	Power		27.2dBm	26.9dBm	25.2dBm
0502	Closed	Without headset	0.461	0.475	0.505
2-slot GPRS	Power		29.0dBm	27.5dBm	26.3dBm
0503	Closed	Without headset	0.390	0.395	0.391
0500	2-slot GPRS Flip closed	Without headset and with MU-card	-	0.572	-
0500	2-slot GPRS Flip closed	Without headset, without MU-card, BT active	-	0.566	-

1900MHz, Body SAR results

Hardware ID	Flip option	Test configuration	SAR, averaged over 1g (W/kg)		
			Ch 512 1850.2 MHz	Ch 661 1880.0 MHz	Ch 810 1909.8 MHz
2-slot GPRS		Power	29.8dBm	28.5dBm	30.5dBm
0503	Closed	Without headset	0.253	0.282	0.291
		Headset HS-6	0.240	0.277	0.287
2-slot GPRS		Power	27.9dBm	28.8dBm	28.2dBm
0500	Closed	Without headset	0.208	0.278	0.262
2-slot GPRS		Power	29.9dBm	31.1dBm	29.9dBm
0501	Closed	Without headset	0.250	0.259	0.278
2-slot GPRS		Power	28.9dBm	29.3dBm	29.6dBm
0502	Closed	Without headset	0.232	0.264	0.288
0503	2-slot GPRS Flip closed	Without headset and with MU-card	-	-	0.293
0503	2-slot GPRS Flip closed	Without headset, with MU- card and BT active	-	-	0.252

Plots of the Measurement scans are given in Appendix B.

APPENDIX A: SYSTEM CHECKING SCANS

Date/Time: 2006-02-08 11:17:22

Test Laboratory: TCC Nokia

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 462, Program Name: System Check

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 835$ MHz; $\sigma = 0.954$ mho/m; $\epsilon_r = 41.9$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1396; ConvF(6.79, 6.79, 6.79); Calibrated: 24.01.2006
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn372; Calibrated: 18.08.2005
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 159

d=15mm, Pin=250mW, t=21.9 C/Area Scan (61x81x1): Measurement grid: dx=15mm, dy=15mm

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

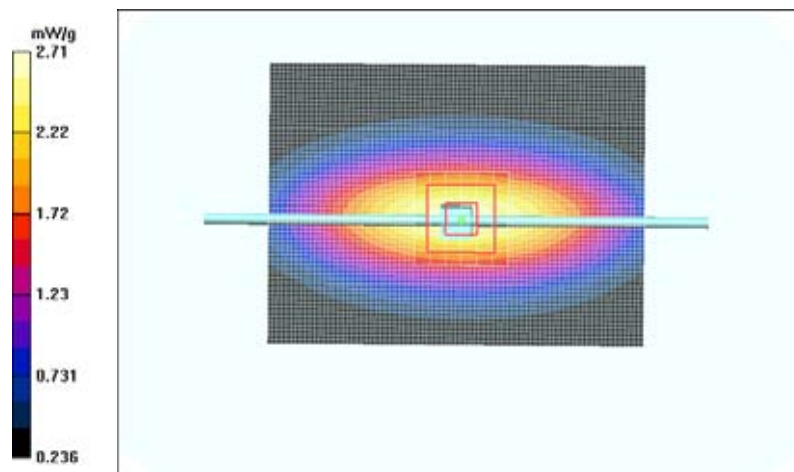
d=15mm, Pin=250mW, t=21.9 C/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 54.8 V/m; Power Drift = -0.006 dB

Peak SAR (extrapolated) = 3.75 W/kg

SAR(1 g) = 2.51 mW/g; SAR(10 g) = 1.63 mW/g

Maximum value of SAR (measured) = 2.71 mW/g



Date/Time: 2006-02-10 11:27:09

Test Laboratory: TCC Nokia

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 462, Program Name: System Check

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 835$ MHz; $\sigma = 0.94$ mho/m; $\epsilon_r = 42$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1396; ConvF(6.79, 6.79, 6.79); Calibrated: 24.01.2006
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn372; Calibrated: 18.08.2005
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 159

d=15mm, Pin=250mW, t=22.0 C/Area Scan (61x81x1): Measurement grid: dx=15mm, dy=15mm

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

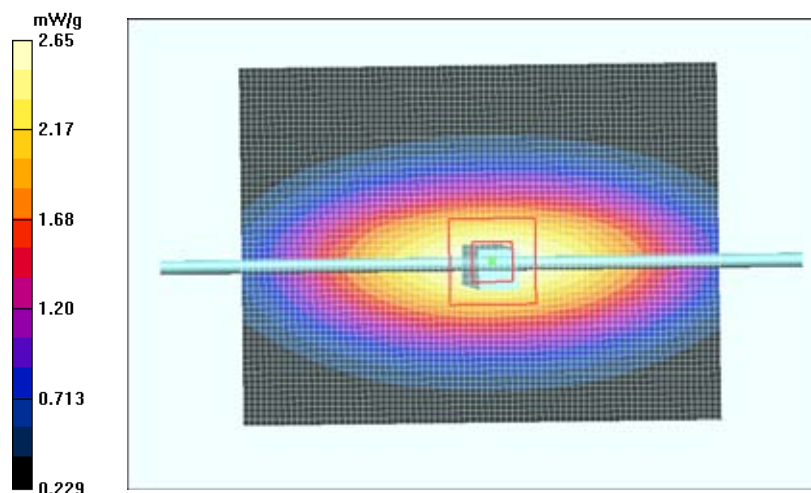
d=15mm, Pin=250mW, t=22.0 C/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 54.8 V/m; Power Drift = 0.014 dB

Peak SAR (extrapolated) = 3.73 W/kg

SAR(1 g) = 2.47 mW/g; SAR(10 g) = 1.6 mW/g

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



Date/Time: 2006-02-24 07:38:02

Test Laboratory: TCC Nokia

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 462, Program Name: System Check

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 835$ MHz; $\sigma = 0.938$ mho/m; $\epsilon_r = 42$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1396; ConvF(6.79, 6.79, 6.79); Calibrated: 24.01.2006
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn372; Calibrated: 18.08.2005
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, V4.6 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 159

d=15mm, Pin=250mW, t=21.5 C/Area Scan (61x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 2.63 mW/g

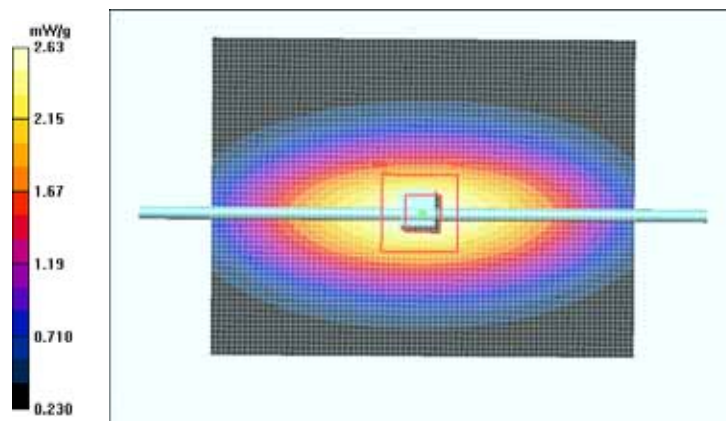
d=15mm, Pin=250mW, t=21.5 C/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 54.5 V/m; Power Drift = 0.004 dB

Peak SAR (extrapolated) = 3.66 W/kg

SAR(1 g) = 2.44 mW/g; SAR(10 g) = 1.59 mW/g

Maximum value of SAR (measured) = 2.63 mW/g



Date/Time: 2006-02-23 08:21:04

Test Laboratory: TCC Nokia

DUT: Dipole 900 MHz; Type: D900V2; Serial: D900V2 - SN:181, Program Name: System Check

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

Medium parameters used: $f = 900$ MHz; $\sigma = 0.98$ mho/m; $\epsilon_r = 41.5$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1396; ConvF(6.55, 6.55, 6.55); Calibrated: 24.01.2006
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn372; Calibrated: 18.08.2005
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 159

d=15mm, Pin=250mW, t=21.0 C/Area Scan (61x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 2.93 mW/g

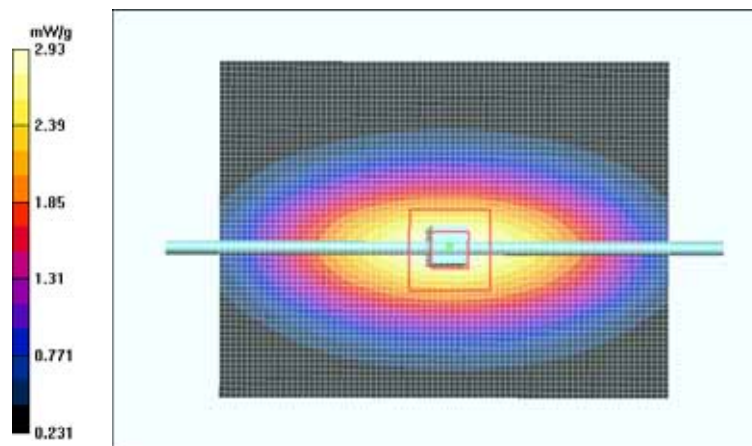
d=15mm, Pin=250mW, t=21.0 C/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 56.3 V/m; Power Drift = 0.008 dB

Peak SAR (extrapolated) = 4.10 W/kg

SAR(1 g) = 2.72 mW/g; SAR(10 g) = 1.75 mW/g

Maximum value of SAR (measured) = 2.93 mW/g



Date/Time: 2006-02-25 12:21:08

Test Laboratory: TCC Nokia

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d013, Program Name: System Check

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.41$ mho/m; $\epsilon_r = 38.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1396; ConvF(5.37, 5.37, 5.37); Calibrated: 24.01.2006
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn372; Calibrated: 18.08.2005
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 159

d=15mm, Pin=250mW, t=21.9 C/Area Scan (61x81x1): Measurement grid: dx=15mm, dy=15mm

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

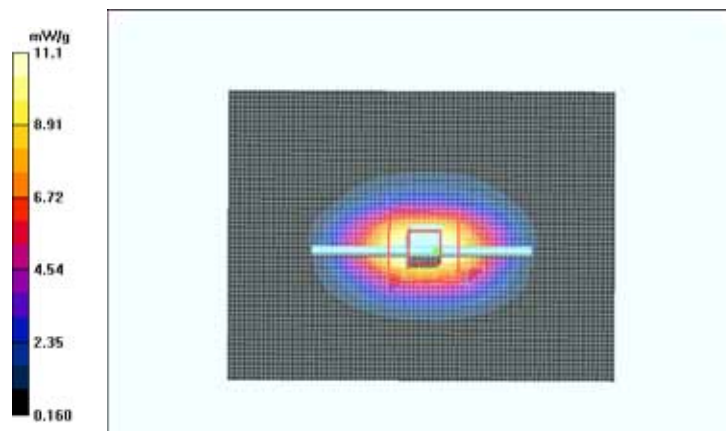
d=15mm, Pin=250mW, t=21.9 C/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 91.4 V/m; Power Drift = -0.046 dB

Peak SAR (extrapolated) = 19.4 W/kg

SAR(1 g) = 10 mW/g; SAR(10 g) = 5.17 mW/g

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



Date/Time: 2006-02-27 07:19:22

Test Laboratory: TCC Nokia

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d013, Program Name: System Check

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.41$ mho/m; $\epsilon_r = 38.3$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1396; ConvF(5.37, 5.37, 5.37); Calibrated: 24.01.2006
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn372; Calibrated: 18.08.2005
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 159

d=15mm, Pin=250mW, t=22.2 C/Area Scan (61x81x1): Measurement grid: dx=15mm, dy=15mm

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

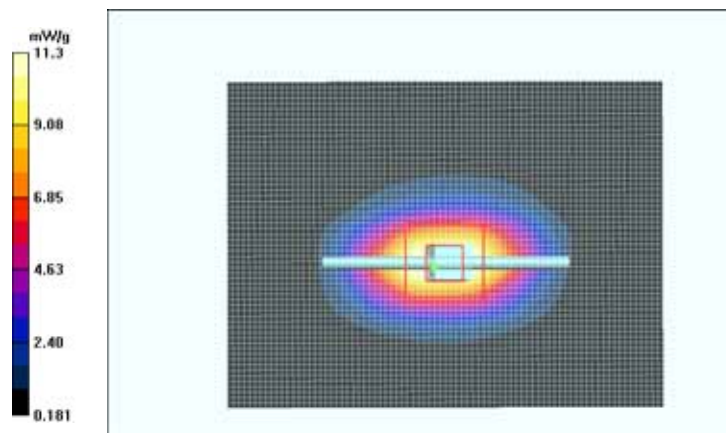
d=15mm, Pin=250mW, t=22.2 C/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 92.5 V/m; Power Drift = -0.013 dB

Peak SAR (extrapolated) = 19.7 W/kg

SAR(1 g) = 10.2 mW/g; SAR(10 g) = 5.3 mW/g

Maximum value of SAR (measured) = 11.3 mW/g



Date/Time: 2006-02-25 08:01:57

Test Laboratory: TCC Nokia

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:462, Program Name: System Check

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.961 \text{ mho/m}$; $\epsilon_r = 55.3$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1396; ConvF(6.41, 6.41, 6.41); Calibrated: 24.01.2006
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn372; Calibrated: 18.08.2005
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 160

d=15mm, Pin=249mW, t=21.7 C/Area Scan (61x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 2.60 mW/g

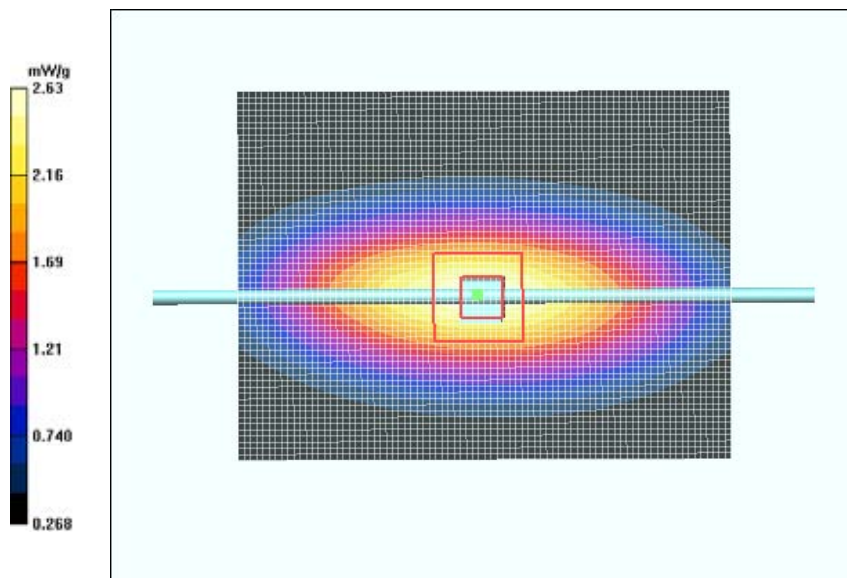
d=15mm, Pin=249mW, t=21.7 C/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 53.7 V/m; Power Drift = -0.004 dB

Peak SAR (extrapolated) = 3.52 W/kg

SAR(1 g) = 2.43 mW/g; SAR(10 g) = 1.61 mW/g

Maximum value of SAR (measured) = 2.63 mW/g



APPENDIX B: MEASUREMENT SCANS

Date/Time: 2006-02-10 17:14:37

Test Laboratory: TCC Nokia

Type: RM115, HWID: 0501

Program Name: Head Measurement - Left, Advanced Extrapolation, t=20.6 C, Flip open, no MU, no BT

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

Medium parameters used: $f = 849$ MHz; $\sigma = 0.95$ mho/m; $\epsilon_r = 41.9$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1396; ConvF(6.79, 6.79, 6.79); Calibrated: 24.01.2006
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn372; Calibrated: 18.08.2005
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 159

Cheek position/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.07 mW/g

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

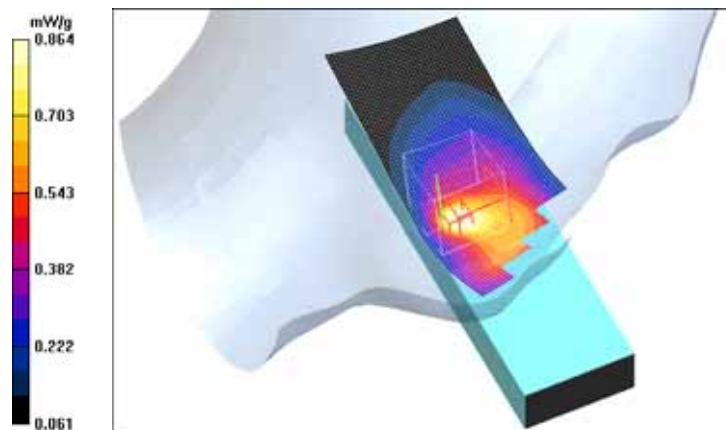
Reference Value = 9.95 V/m; Power Drift = -0.151 dB

Peak SAR (extrapolated) = 1.75 W/kg

SAR(1 g) = 0.767 mW/g; SAR(10 g) = 0.465 mW/g

Warning: Maximum averaged SAR over 10 g is located on the boundary of the measurement cube.

Maximum value of SAR (measured) = 0.864 mW/g



Date/Time: 2006-02-10 14:35:22

Test Laboratory: TCC Nokia

Type: RM-115; HWID: 0501

Program Name: Head Measurement - Left, Advanced Extrapolation, t=21.0 C, Flip open, no MU, no BT

Communication System: 2-slot GPRS850; Frequency: 848.8 MHz; Duty Cycle: 1:4.2

Medium parameters used: $f = 849$ MHz; $\sigma = 0.95$ mho/m; $\epsilon_r = 41.9$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1396; ConvF(6.79, 6.79, 6.79); Calibrated: 24.01.2006
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn372; Calibrated: 18.08.2005
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 159

Cheek position/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.58 mW/g

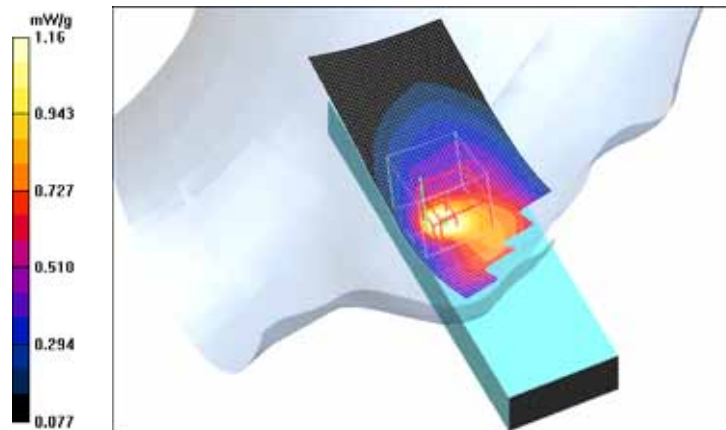
Cheek position/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 11.9 V/m; Power Drift = -0.244 dB

Peak SAR (extrapolated) = 2.48 W/kg

SAR(1 g) = 1.03 mW/g; SAR(10 g) = 0.604 mW/g

Maximum value of SAR (measured) = 1.16 mW/g



Date/Time: 2006-02-23 20:03:37

Test Laboratory: TCC Nokia

Type: RM-115; HWID: 0501

Program Name: Head Measurement - Left, Advanced Extrapolation, t=20.6 C, Flip open, no MU, no BT

Communication System: 2-slot GPRS850; Frequency: 836.6 MHz; Duty Cycle: 1:4.2

Medium parameters used: $f = 837$ MHz; $\sigma = 0.937$ mho/m; $\epsilon_r = 41.9$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1396; ConvF(6.79, 6.79, 6.79); Calibrated: 24.01.2006
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn372; Calibrated: 18.08.2005
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 159

Tilt position/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.671 mW/g

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

Reference Value = 21.5 V/m; Power Drift = -0.127 dB

Peak SAR (extrapolated) = 0.792 W/kg

SAR(1 g) = 0.625 mW/g; SAR(10 g) = 0.467 mW/g

Maximum value of SAR (measured) = 0.660 mW/g

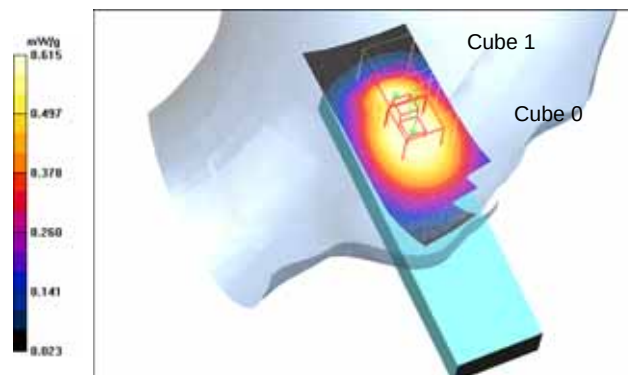
Tilt position/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 21.5 V/m; Power Drift = -0.127 dB

Peak SAR (extrapolated) = 0.871 W/kg

SAR(1 g) = 0.547 mW/g; SAR(10 g) = 0.361 mW/g

Warning: Maximum averaged SAR over 1 g is located on the boundary of the measurement cube. Maximum value of SAR (measured) = 0.615 mW/g



Date/Time: 2006-02-10 16:24:20

Test Laboratory: TCC Nokia

Type: RM-115, HWID: 0501

Program Name: Head Measurement - Right, Advanced Extrapolation, t=20.5 C, Flip open, no MU, no BT

Communication System: 2-slot GPRS850; Frequency: 848.8 MHz; Duty Cycle: 1:4.2

Medium parameters used: $f = 849$ MHz; $\sigma = 0.95$ mho/m; $\epsilon_r = 41.9$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1396; ConvF(6.79, 6.79, 6.79); Calibrated: 24.01.2006
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn372; Calibrated: 18.08.2005
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 159

Cheek position/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.05 mW/g

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

Reference Value = 13.0 V/m; Power Drift = -0.234 dB

Peak SAR (extrapolated) = 2.33 W/kg

SAR(1 g) = 0.934 mW/g; SAR(10 g) = 0.534 mW/g

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

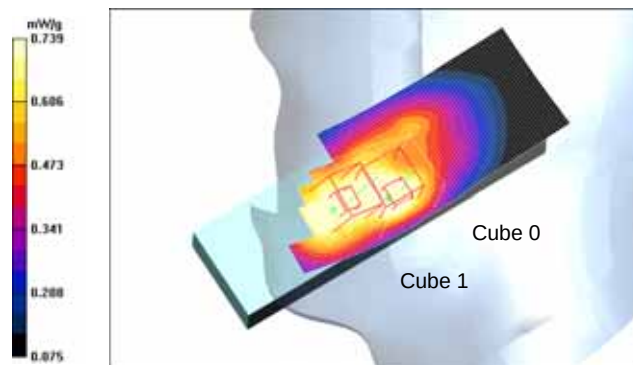
Cheek position/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 13.0 V/m; Power Drift = -0.234 dB

Peak SAR (extrapolated) = 0.915 W/kg

SAR(1 g) = 0.703 mW/g; SAR(10 g) = 0.520 mW/g

Maximum value of SAR (measured) = 0.739 mW/g



Date/Time: 2006-02-23 20:44:21

Test Laboratory: TCC Nokia

Type: RM-115, HWID: 0501;

Program Name: Head Measurement - Right, Advanced Extrapolation, t=21.0 C, Flip open, no MU, no BT

Communication System: 2-slot GPRS850; Frequency: 836.6 MHz; Duty Cycle: 1:4.2

Medium parameters used: $f = 837$ MHz; $\sigma = 0.937$ mho/m; $\epsilon_r = 41.9$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1396; ConvF(6.79, 6.79, 6.79); Calibrated: 24.01.2006
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn372; Calibrated: 18.08.2005
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 159

Tilt position/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.662 mW/g

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

Reference Value = 21.8 V/m; Power Drift = -0.103 dB

Peak SAR (extrapolated) = 0.792 W/kg

SAR(1 g) = 0.629 mW/g; SAR(10 g) = 0.467 mW/g

Maximum value of SAR (measured) = 0.664 mW/g

Tilt position/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 21.8 V/m; Power Drift = -0.103 dB

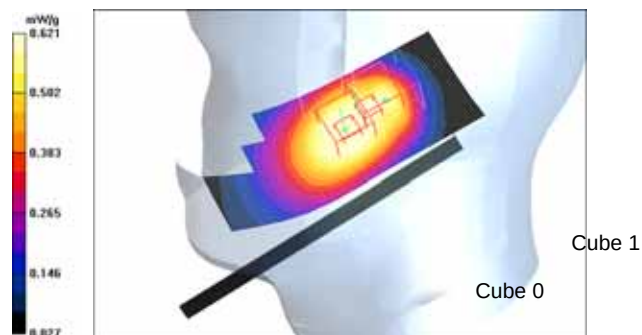
Peak SAR (extrapolated) = 0.783 W/kg

SAR(1 g) = 0.558 mW/g; SAR(10 g) = 0.378 mW/g

Warning: Maximum averaged SAR over 1 g is located on the boundary of the measurement cube.

Maximum averaged SAR over 10 g is located on the boundary of the measurement cube.

Maximum value of SAR (measured) = 0.621 mW/g



Date/Time: 2006-02-24 08:55:43

Test Laboratory: TCC Nokia

Type: RM-115, HWID: 0500

Program Name: Head Measurement - Left, Advanced Extrapolation, t=21.2 C, Flip open, no MU, no BT

Communication System: 2-slot GPRS850; Frequency: 848.8 MHz; Duty Cycle: 1:4.2

Medium parameters used: $f = 849$ MHz; $\sigma = 0.946$ mho/m; $\epsilon_r = 41.9$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1396; ConvF(6.79, 6.79, 6.79); Calibrated: 24.01.2006
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn372; Calibrated: 18.08.2005
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 159

Cheek position /Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.38 mW/g

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

Reference Value = 8.27 V/m; Power Drift = 0.075 dB

Peak SAR (extrapolated) = 2.18 W/kg

SAR(1 g) = 1.04 mW/g; SAR(10 g) = 0.589 mW/g

Warning: Maximum averaged SAR over 10 g is located on the boundary of the measurement cube.

Maximum value of SAR (measured) = 1.23 mW/g

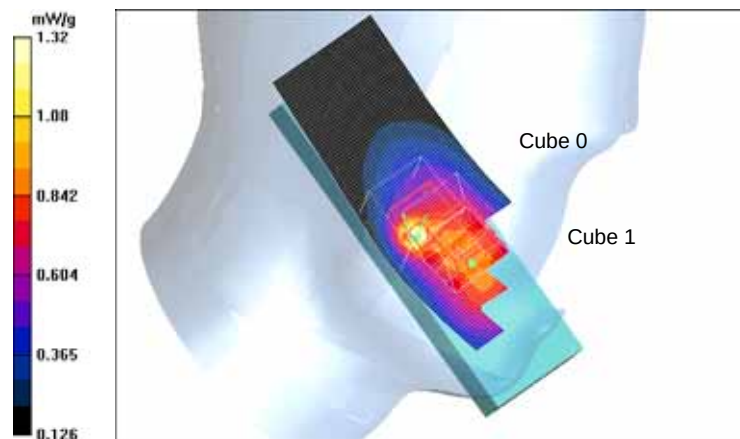
Cheek position /Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

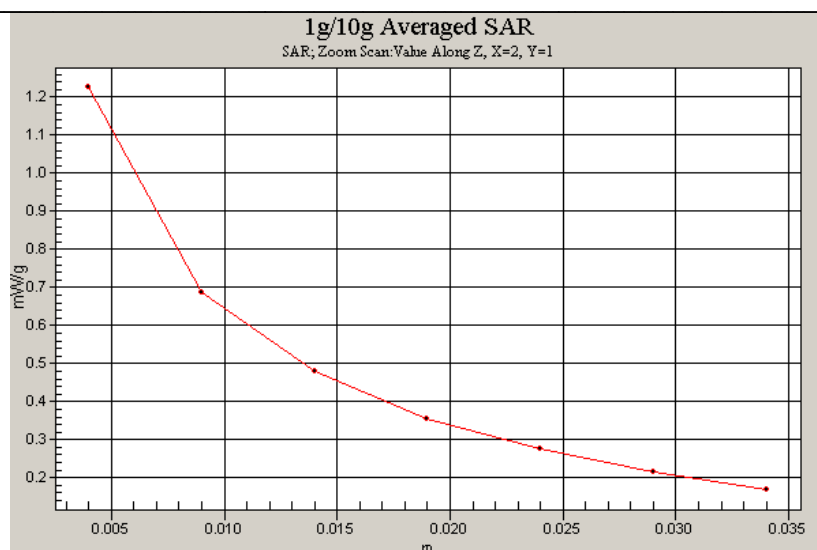
Reference Value = 8.27 V/m; Power Drift = 0.075 dB

Peak SAR (extrapolated) = 2.62 W/kg

SAR(1 g) = 0.887 mW/g; SAR(10 g) = 0.647 mW/g

Maximum value of SAR (measured) = 1.32 mW/g





Date/Time: 2006-02-24 09:54:03

Test Laboratory: TCC Nokia

Type: RM-115, HWID: 0500

Program Name: Head Measurement - Right, Advanced Extrapolation, t=20.6 C, Flip open, no MU, no BT

Communication System: 2-slot GPRS850; Frequency: 836.6 MHz; Duty Cycle: 1:4.2

Medium parameters used: $f = 837$ MHz; $\sigma = 0.941$ mho/m; $\epsilon_r = 42$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1396; ConvF(6.79, 6.79, 6.79); Calibrated: 24.01.2006
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn372; Calibrated: 18.08.2005
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 159

Cheek position /Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.840 mW/g

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

Reference Value = 9.52 V/m; Power Drift = -0.105 dB

Peak SAR (extrapolated) = 1.29 W/kg

SAR(1 g) = 0.763 mW/g; SAR(10 g) = 0.527 mW/g

Maximum value of SAR (measured) = 0.827 mW/g

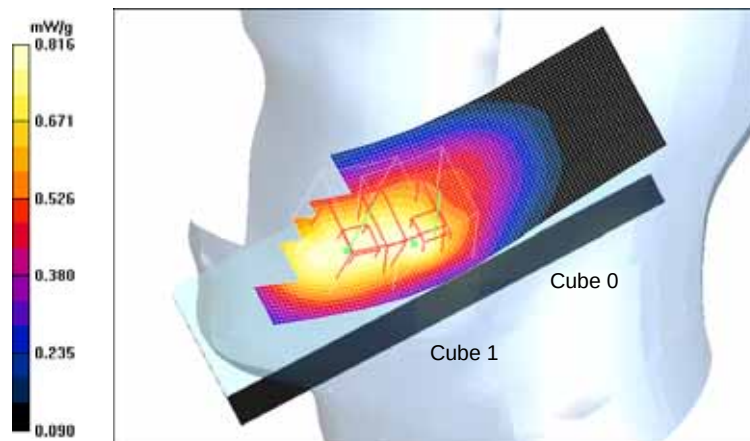
Cheek position /Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 9.52 V/m; Power Drift = -0.105 dB

Peak SAR (extrapolated) = 1.01 W/kg

SAR(1 g) = 0.773 mW/g; SAR(10 g) = 0.564 mW/g

Maximum value of SAR (measured) = 0.816 mW/g



Date/Time: 2006-02-23 22:55:06

Test Laboratory: TCC Nokia

Type: RM-115, HWID: 0502

Program Name: Head Measurement - Left, Advanced Extrapolation, t=20.7 C, Flip open, no MU, no BT

Communication System: 2-slot GPRS850; Frequency: 848.8 MHz; Duty Cycle: 1:4.2

Medium parameters used: $f = 849$ MHz; $\sigma = 0.945$ mho/m; $\epsilon_r = 41.8$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1396; ConvF(6.79, 6.79, 6.79); Calibrated: 24.01.2006
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn372; Calibrated: 18.08.2005
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 159

Cheek position 2/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm

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

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

Reference Value = 6.92 V/m; Power Drift = -0.095 dB

Peak SAR (extrapolated) = 1.91 W/kg

SAR(1 g) = 0.875 mW/g; SAR(10 g) = 0.544 mW/g

Maximum value of SAR (measured) = 1.04 mW/g

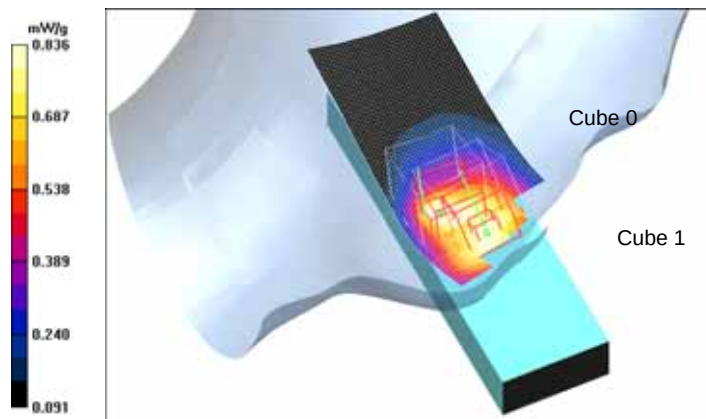
Cheek position /Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 6.92 V/m; Power Drift = -0.095 dB

Peak SAR (extrapolated) = 1.03 W/kg

SAR(1 g) = 0.783 mW/g; SAR(10 g) = 0.569 mW/g

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



Date/Time: 2006-02-24 12:26:46

Test Laboratory: TCC Nokia

Type: RM-115, HWID: 0503

Program Name: Head Measurement - Left, Advanced Extrapolation, t=20.3 C, Flip open, no MU, no BT

Communication System: 2-slot GPRS850; Frequency: 848.8 MHz; Duty Cycle: 1:4.2

Medium parameters used: $f = 849$ MHz; $\sigma = 0.946$ mho/m; $\epsilon_r = 41.9$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1396; ConvF(6.79, 6.79, 6.79); Calibrated: 24.01.2006
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn372; Calibrated: 18.08.2005
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 159

Cheek position 2/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.993 mW/g

Cheek position 2/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

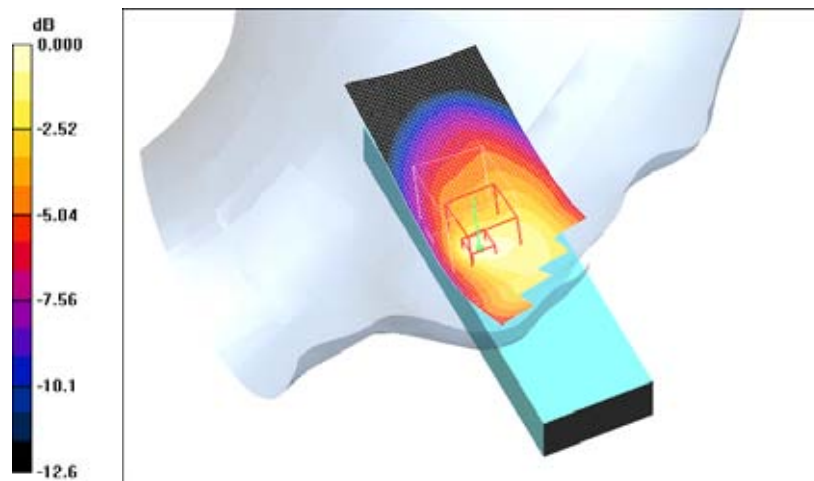
Reference Value = 10.5 V/m; Power Drift = -0.207 dB

Peak SAR (extrapolated) = 1.75 W/kg

SAR(1 g) = 0.787 mW/g; SAR(10 g) = 0.449 mW/g

Warning: Maximum averaged SAR over 10 g is located on the boundary of the measurement cube.

Maximum value of SAR (measured) = 0.863 mW/g



Date/Time: 2006-02-24 14:11:34

Test Laboratory: TCC Nokia

Type: RM-115, HWID: 0500

Program Name: Head Measurement - Left, Advanced Extrapolation, t=20.2 C, Flip open, no MU, no BT

Communication System: 2-slot E-GPRS850; Frequency: 848.8 MHz; Duty Cycle: 1:4.2

Medium parameters used: $f = 849$ MHz; $\sigma = 0.946$ mho/m; $\epsilon_r = 41.9$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1396; ConvF(6.79, 6.79, 6.79); Calibrated: 24.01.2006
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn372; Calibrated: 18.08.2005
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 159

Cheek position /Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.549 mW/g

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

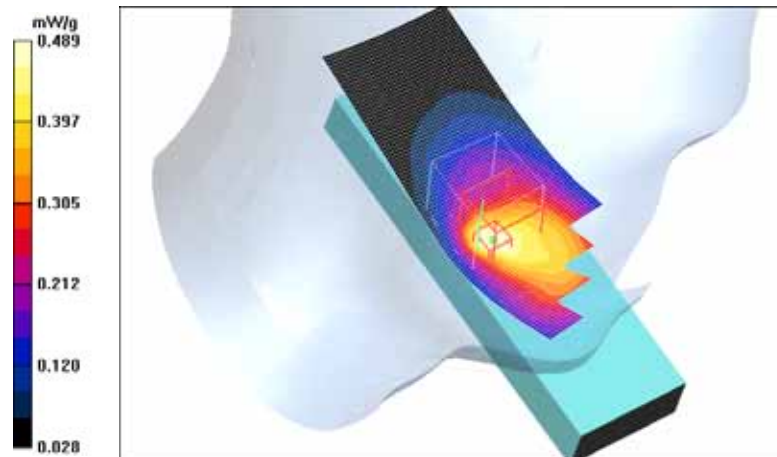
Reference Value = 5.61 V/m; Power Drift = 0.077 dB

Peak SAR (extrapolated) = 0.901 W/kg

SAR(1 g) = 0.452 mW/g; SAR(10 g) = 0.268 mW/g

Warning: Maximum averaged SAR over 10 g is located on the boundary of the measurement cube.

Maximum value of SAR (measured) = 0.489 mW/g



Date/Time: 2006-02-25 12:56:32

Test Laboratory: TCC Nokia

Type: RM-115, HWID: 0501

Program Name: Head Measurement - Left, Advanced Extrapolation, t=21.8 C, Flip open, no MU, no BT

Communication System: GSM1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.39$ mho/m; $\epsilon_r = 38.2$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1396; ConvF(5.37, 5.37, 5.37); Calibrated: 24.01.2006
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn372; Calibrated: 18.08.2005
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 159

Cheek position/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.596 mW/g

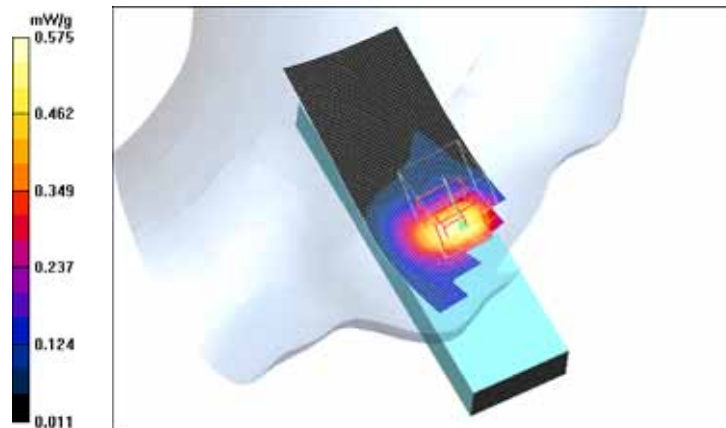
Cheek position/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 2.22 V/m; Power Drift = 0.056 dB

Peak SAR (extrapolated) = 0.900 W/kg

SAR(1 g) = 0.553 mW/g; SAR(10 g) = 0.332 mW/g

Maximum value of SAR (measured) = 0.575 mW/g



Date/Time: 2006-02-25 13:17:19

Test Laboratory: TCC Nokia

Type: RM-115, HWID: 0501

Program Name: Head Measurement - Left, Advanced Extrapolation, t=21.7 C, Flip open, no MU, no BT

Communication System: 2-slot GPRS1900; Frequency: 1880 MHz; Duty Cycle: 1:4.2

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.39$ mho/m; $\epsilon_r = 38.2$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1396; ConvF(5.37, 5.37, 5.37); Calibrated: 24.01.2006
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn372; Calibrated: 18.08.2005
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 159

Cheek position/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.898 mW/g

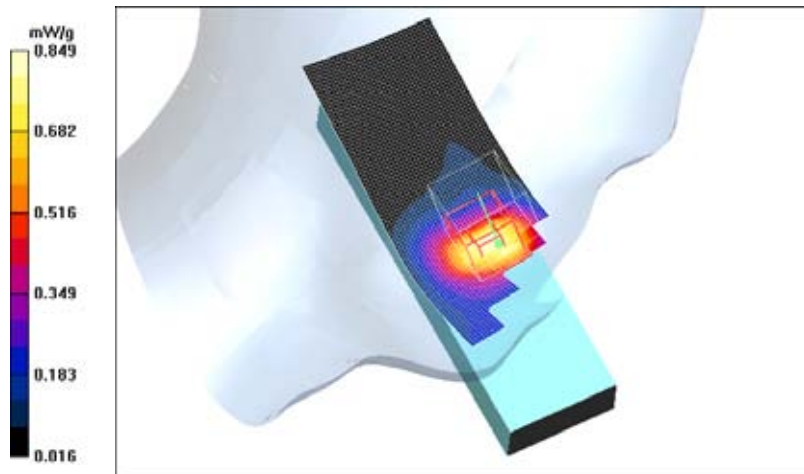
Cheek position/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 2.78 V/m; Power Drift = -0.424 dB

Peak SAR (extrapolated) = 1.32 W/kg

SAR(1 g) = 0.808 mW/g; SAR(10 g) = 0.488 mW/g

Maximum value of SAR (measured) = 0.849 mW/g



Date/Time: 2006-02-25 14:30:05

Test Laboratory: TCC Nokia

Type: RM-115, HWID: 0501

Program Name: Head Measurement - Left, Advanced Extrapolation, t=20.4 C, Flip open, no MU, no BT

Communication System: 2-slot GPRS1900; Frequency: 1880 MHz; Duty Cycle: 1:4.2

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.39$ mho/m; $\epsilon_r = 38.2$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1396; ConvF(5.37, 5.37, 5.37); Calibrated: 24.01.2006
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn372; Calibrated: 18.08.2005
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 159

Tilt position/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.383 mW/g

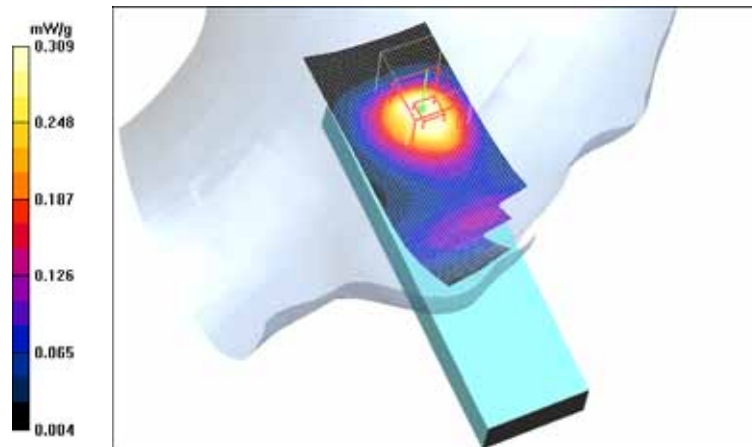
Tilt position /Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 9.92 V/m; Power Drift = -0.048 dB

Peak SAR (extrapolated) = 0.474 W/kg

SAR(1 g) = 0.293 mW/g; SAR(10 g) = 0.175 mW/g

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



Date/Time: 2006-02-25 14:55:32

Test Laboratory: TCC Nokia

Type: RM-115, HWID: 0501

Program Name: Head Measurement - Right, Advanced Extrapolation, t=20.3 C, Flip open, no MU, no BT

Communication System: 2-slot GPRS1900; Frequency: 1880 MHz; Duty Cycle: 1:4.2

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.39$ mho/m; $\epsilon_r = 38.2$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1396; ConvF(5.37, 5.37, 5.37); Calibrated: 24.01.2006
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn372; Calibrated: 18.08.2005
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 159

Cheek position/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.860 mW/g

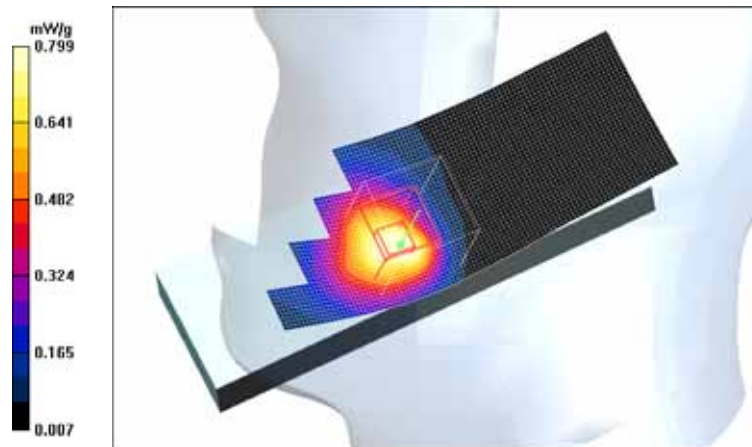
Cheek position/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 2.42 V/m; Power Drift = -0.065 dB

Peak SAR (extrapolated) = 1.35 W/kg

SAR(1 g) = 0.748 mW/g; SAR(10 g) = 0.438 mW/g

Maximum value of SAR (measured) = 0.799 mW/g



Date/Time: 2006-02-25 15:29:34

Test Laboratory: TCC Nokia

Type: RM-115, HWID: 0501

Program Name: Head Measurement - Right, Advanced Extrapolation, t=20.3 C, Flip open, no MU, no BT

Communication System: 2-slot GPRS1900; Frequency: 1880 MHz; Duty Cycle: 1:4.2

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.39$ mho/m; $\epsilon_r = 38.2$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1396; ConvF(5.37, 5.37, 5.37); Calibrated: 24.01.2006
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn372; Calibrated: 18.08.2005
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, V4.6 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 159

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

Maximum value of SAR (interpolated) = 0.243 mW/g

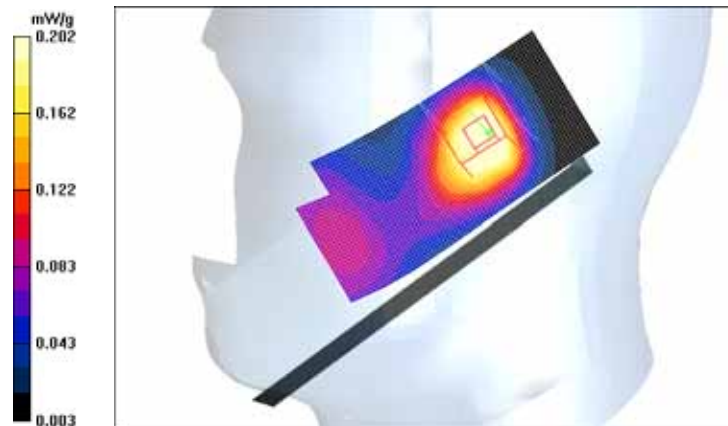
Tilt position/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 9.98 V/m; Power Drift = 0.055 dB

Peak SAR (extrapolated) = 0.291 W/kg

SAR(1 g) = 0.192 mW/g; SAR(10 g) = 0.122 mW/g

Maximum value of SAR (measured) = 0.202 mW/g



Date/Time: 2006-02-25 15:29:34

Margarita open; RM-115, HWID: 0500

Program Name: Head Measurement - Left, Advanced Extrapolation, t=20.2 C, Flip open, no MU, no BT

Communication System: 2-slot GPRS1900; Frequency: 1880 MHz; Duty Cycle: 1:4.2

Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.37$ mho/m; $\epsilon_r = 38.4$; $\rho = 1000$ kg/m³

Phantom section: Right Section Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1396; ConvF(5.37, 5.37, 5.37); Calibrated: 24.01.2006
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn372; Calibrated: 18.08.2005
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 159

Cheek position/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.667 mW/g

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

Reference Value = 3.56 V/m; Power Drift = -0.028 dB

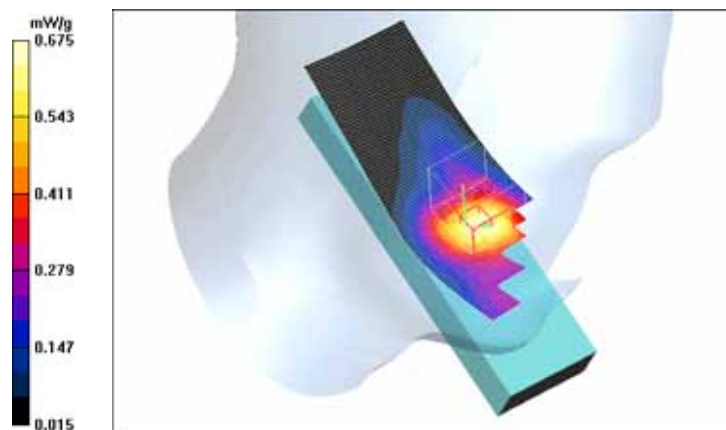
Peak SAR (extrapolated) = 0.962 W/kg

SAR(1 g) = 0.632 mW/g; SAR(10 g) = 0.393 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Warning: Maximum averaged SAR over 10 g is located on the boundary of the measurement cube.

Maximum value of SAR (measured) = 0.675 mW/g



Date/Time: 2006-02-27 08:43:36

Test Laboratory: TCC Nokia

Type: RM-115, HWID: 0502

Program Name: Head Measurement - Left, Advanced Extrapolation, t=21.7 C, Flip open, no MU, no BT

Communication System: 2-slot GPRS1900; Frequency: 1880 MHz; Duty Cycle: 1:4.2

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.39$ mho/m; $\epsilon_r = 38.4$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1396; ConvF(5.37, 5.37, 5.37); Calibrated: 24.01.2006
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn372; Calibrated: 18.08.2005
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 159

Cheek position 2/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.736 mW/g

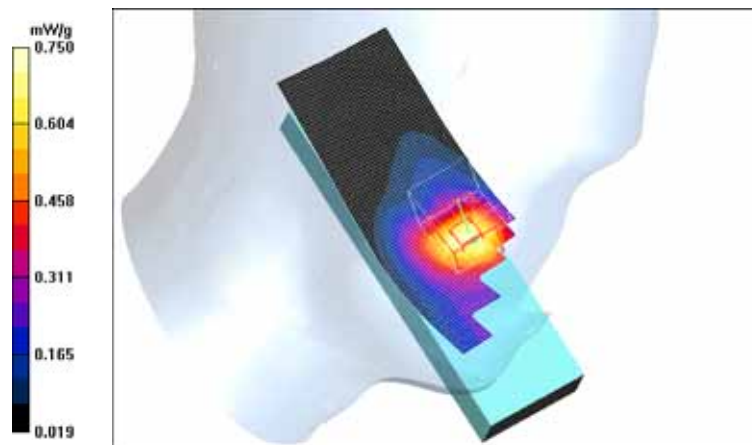
Cheek position 2/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 3.17 V/m; Power Drift = 0.098 dB

Peak SAR (extrapolated) = 1.07 W/kg

SAR(1 g) = 0.695 mW/g; SAR(10 g) = 0.430 mW/g

Maximum value of SAR (measured) = 0.750 mW/g



Date/Time: 2006-02-27 09:40:37

Test Laboratory: TCC Nokia

Type: RM-115, HWID: 0503

Program Name: Head Measurement - Left, Advanced Extrapolation, t=21.4 C, Flip open, no MU, no BT

Communication System: 2-slot GPRS1900; Frequency: 1880 MHz; Duty Cycle: 1:4.2

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.39$ mho/m; $\epsilon_r = 38.4$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1396; ConvF(5.37, 5.37, 5.37); Calibrated: 24.01.2006
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn372; Calibrated: 18.08.2005
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 159

Cheek position /Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.942 mW/g

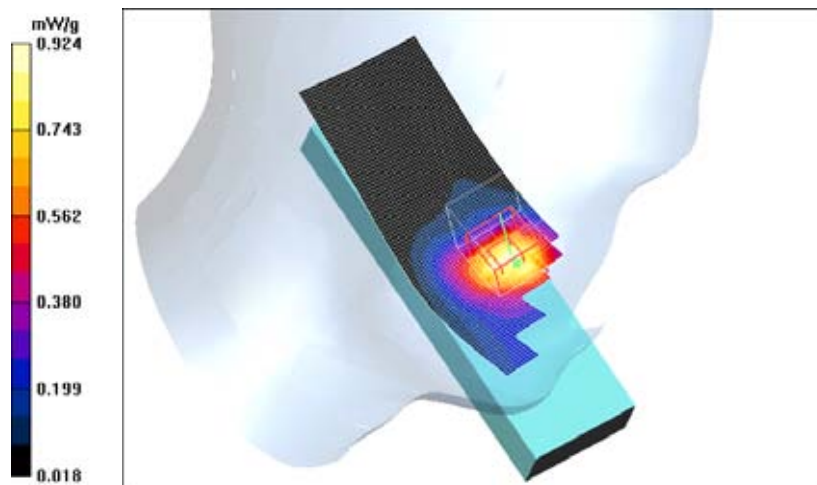
Cheek position /Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

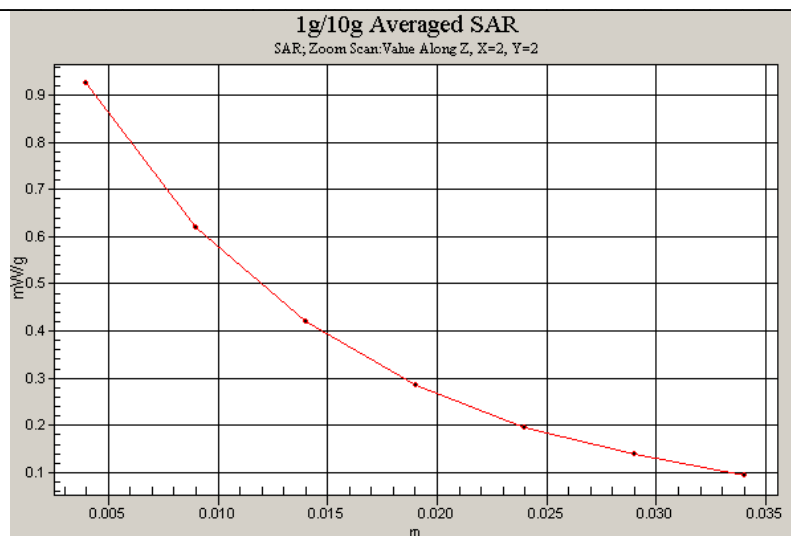
Reference Value = 3.12 V/m; Power Drift = -0.100 dB

Peak SAR (extrapolated) = 1.37 W/kg

SAR(1 g) = 0.857 mW/g; SAR(10 g) = 0.520 mW/g

Maximum value of SAR (measured) = 0.924 mW/g





Date/Time: 2006-02-27 11:23:31

Test Laboratory: TCC Nokia

Type: RM-115, HWID: 0503

Program Name: Head Measurement - Left, Advanced Extrapolation, t=20.9 C, Flip open, no MU, no BT

Communication System: 2-slot EGPRS1900; Frequency: 1880 MHz; Duty Cycle: 1:4.2

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.39$ mho/m; $\epsilon_r = 38.4$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1396; ConvF(5.37, 5.37, 5.37); Calibrated: 24.01.2006
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn372; Calibrated: 18.08.2005
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 160

Cheek position/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm

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

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

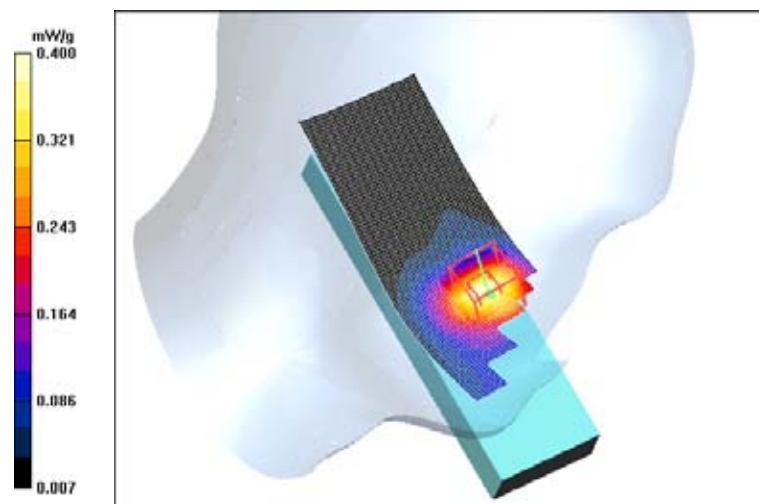
Reference Value = 1.93 V/m; Power Drift = 0.262 dB

Peak SAR (extrapolated) = 0.581 W/kg

SAR(1 g) = 0.374 mW/g; SAR(10 g) = 0.228 mW/g

Warning: Maximum averaged SAR over 10 g is located on the boundary of the measurement cube.

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



Date/Time: 2006-02-24 15:29:40

Test Laboratory: TCC Nokia

Type: RM-115, HWID: 0500

Program Name: Body measurement, Advanced Extrapolation, t=22.0 C, Flip closed, no HS, no MU, no BT

Communication System: 2-slot GPRS850; Frequency: 836.6 MHz; Duty Cycle: 1:4.2

Medium parameters used: $f = 837$ MHz; $\sigma = 0.962$ mho/m; $\epsilon_r = 55.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1396; ConvF(6.41, 6.41, 6.41); Calibrated: 24.01.2006
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn372; Calibrated: 18.08.2005
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 159

Body Measurement /Area Scan (41x71x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.664 mW/g

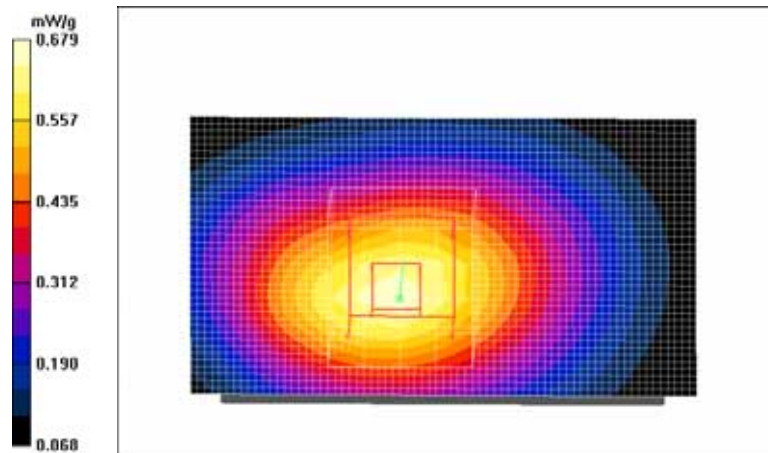
Body Measurement /Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

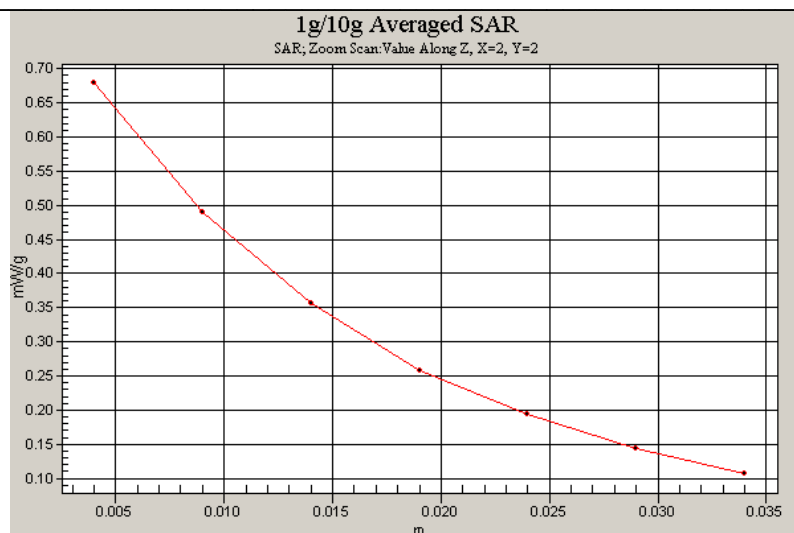
Reference Value = 23.4 V/m; Power Drift = -0.160 dB

Peak SAR (extrapolated) = 0.864 W/kg

SAR(1 g) = 0.629 mW/g; SAR(10 g) = 0.434 mW/g

Maximum value of SAR (measured) = 0.679 mW/g





Date/Time: 2006-02-25 09:21:34

Test Laboratory: TCC Nokia

Type: RM-115, HWID: 0501

Program Name: Body measurement, Advanced Extrapolation, t=21.5 C, Flip closed, no HS, no MU, no BT

Communication System: 2-slot GPRS850; Frequency: 824.2 MHz; Duty Cycle: 1:4.2

Medium parameters used (interpolated): $f = 824.2$ MHz; $\sigma = 0.949$ mho/m; $\epsilon_r = 55.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1396; ConvF(6.41, 6.41, 6.41); Calibrated: 24.01.2006
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn372; Calibrated: 18.08.2005
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 159

Body Measurement/Area Scan (41x71x1): Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.586 mW/g

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

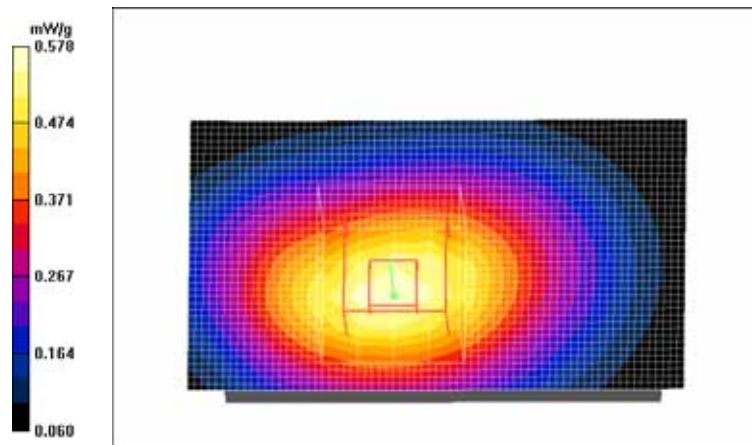
Reference Value = 21.8 V/m; Power Drift = -0.182 dB

Peak SAR (extrapolated) = 0.728 W/kg

SAR(1 g) = 0.540 mW/g; SAR(10 g) = 0.375 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.578 mW/g



Date/Time: 2006-02-25 09:01:17

Test Laboratory: TCC Nokia

Type: RM-115, HWID: 0502

Program Name: Body measurement, Advanced Extrapolation, t=21.6 C, Flip closed, no HS, no MU, no BT

Communication System: 2-slot GPRS850; Frequency: 848.8 MHz; Duty Cycle: 1:4.2

Medium parameters used: $f = 849$ MHz; $\sigma = 0.973$ mho/m; $\epsilon_r = 55.1$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1396; ConvF(6.41, 6.41, 6.41); Calibrated: 24.01.2006
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn372; Calibrated: 18.08.2005
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 159

Body Measurement /Area Scan (41x71x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.549 mW/g

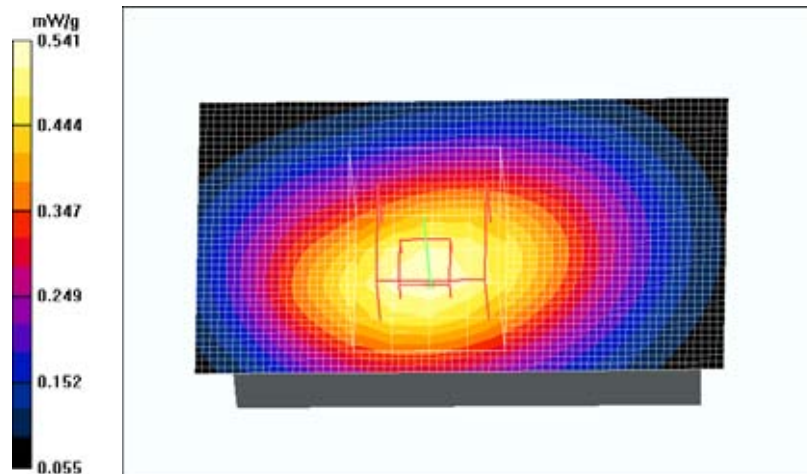
Body Measurement /Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 19.3 V/m; Power Drift = -0.097 dB

Peak SAR (extrapolated) = 0.682 W/kg

SAR(1 g) = 0.505 mW/g; SAR(10 g) = 0.353 mW/g

Maximum value of SAR (measured) = 0.541 mW/g



Date/Time: 2006-02-25 10:16:59

Test Laboratory: TCC Nokia

Type: RM-115, HWID: 0503

Program Name: Body measurement, Advanced Extrapolation, t=21.4 C, Flip closed, no HS, no MU, no BT

Communication System: 2-slot GPRS850; Frequency: 836.6 MHz; Duty Cycle: 1:4.2

Medium parameters used: $f = 837$ MHz; $\sigma = 0.962$ mho/m; $\epsilon_r = 55.3$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1396; ConvF(6.41, 6.41, 6.41); Calibrated: 24.01.2006
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn372; Calibrated: 18.08.2005
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 159

Body Measurement 2/Area Scan (41x71x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.422 mW/g

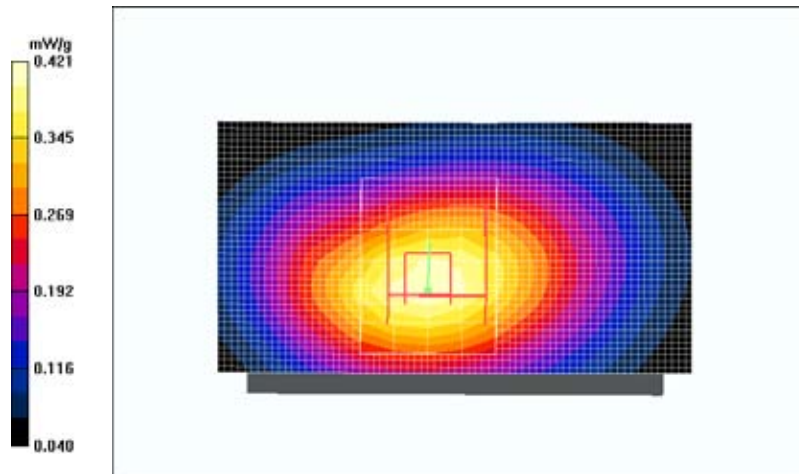
Body Measurement 2/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 17.1 V/m; Power Drift = -0.135 dB

Peak SAR (extrapolated) = 0.550 W/kg

SAR(1 g) = 0.395 mW/g; SAR(10 g) = 0.272 mW/g

Maximum value of SAR (measured) = 0.421 mW/g



Date/Time: 2006-02-27 12:29:17

Test Laboratory: TCC Nokia

Type: RM-115, HWID: 0503

Program Name: Body measurement, Advanced Extrapolation, t=21.5 C, Flip closed, no HS, no MU, no BT

Communication System: 2-slot GPRS1900; Frequency: 1909.8 MHz; Duty Cycle: 1:4.2

Medium parameters used: $f = 1910$ MHz; $\sigma = 1.54$ mho/m; $\epsilon_r = 53$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1396; ConvF(4.58, 4.58, 4.58); Calibrated: 24.01.2006
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn372; Calibrated: 18.08.2005
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 159

Body Measurement /Area Scan (41x71x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.321 mW/g

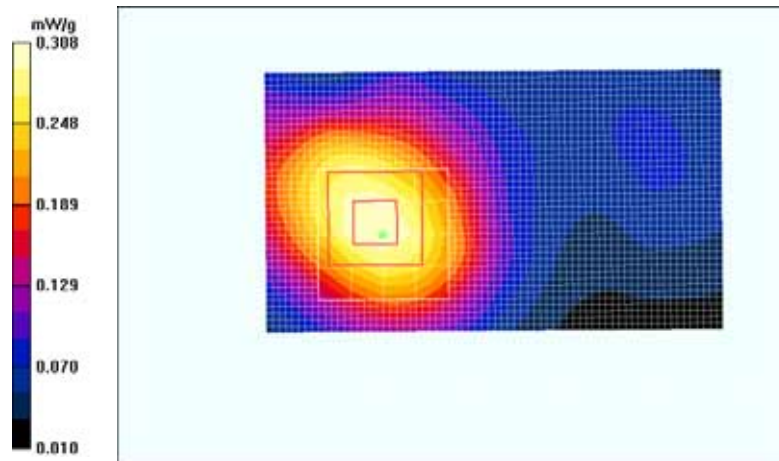
Body Measurement /Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 14.8 V/m; Power Drift = -0.078 dB

Peak SAR (extrapolated) = 0.479 W/kg

SAR(1 g) = 0.291 mW/g; SAR(10 g) = 0.181 mW/g

Maximum value of SAR (measured) = 0.308 mW/g



Date/Time: 2006-02-27 19:52:19

Test Laboratory: TCC Nokia

Type: RM-115, HWID: 0500

Program Name: Body measurement, Advanced Extrapolation, t=20.5 C, Flip closed, no hs, no MU, no BT

Communication System: 2-slot GPRS1900; Frequency: 1880 MHz; Duty Cycle: 1:4.2

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.52$ mho/m; $\epsilon_r = 53.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1396; ConvF(4.58, 4.58, 4.58); Calibrated: 24.01.2006
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn372; Calibrated: 18.08.2005
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 159

Body Measurement /Area Scan (41x71x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.307 mW/g

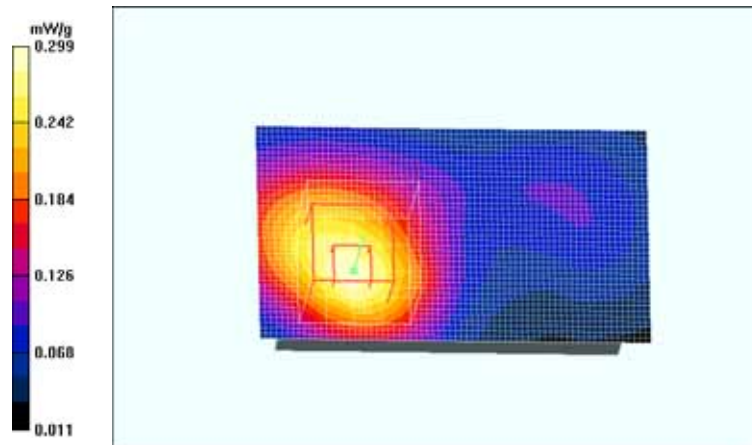
Body Measurement /Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 13.9 V/m; Power Drift = -0.127 dB

Peak SAR (extrapolated) = 0.465 W/kg

SAR(1 g) = 0.278 mW/g; SAR(10 g) = 0.172 mW/g

Maximum value of SAR (measured) = 0.299 mW/g



Date/Time: 2006-02-27 17:17:08

Test Laboratory: TCC Nokia

Type: RM-115, HWID: 0501

Program Name: Body measurement, Advanced Extrapolation, t=21.0 C, Flip closed, no hs, no MU, no BT

Communication System: 2-slot GPRS1900; Frequency: 1909.8 MHz; Duty Cycle: 1:4.2

Medium parameters used: $f = 1910$ MHz; $\sigma = 1.54$ mho/m; $\epsilon_r = 53$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1396; ConvF(4.58, 4.58, 4.58); Calibrated: 24.01.2006
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn372; Calibrated: 18.08.2005
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 159

Body Measurement /Area Scan (41x71x1): Measurement grid: dx=15mm, dy=15mm

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

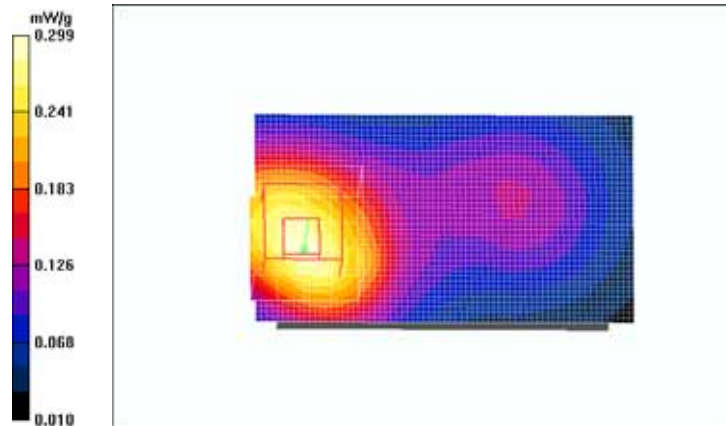
Body Measurement /Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 12.7 V/m; Power Drift = -0.083 dB

Peak SAR (extrapolated) = 0.475 W/kg

SAR(1 g) = 0.278 mW/g; SAR(10 g) = 0.172 mW/g

Maximum value of SAR (measured) = 0.299 mW/g



Date/Time: 2006-02-27 18:53:38

Test Laboratory: TCC Nokia

Type: RM-115, HWID: 0502

Program Name: Body measurement, Advanced Extrapolation, t=21.0 C, Flip closed, no hs, no MU, no BT

Communication System: 2-slot GPRS1900; Frequency: 1909.8 MHz; Duty Cycle: 1:4.2

Medium parameters used: $f = 1910$ MHz; $\sigma = 1.54$ mho/m; $\epsilon_r = 53$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1396; ConvF(4.58, 4.58, 4.58); Calibrated: 24.01.2006
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn372; Calibrated: 18.08.2005
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 159

Body Measurement /Area Scan (41x71x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.325 mW/g

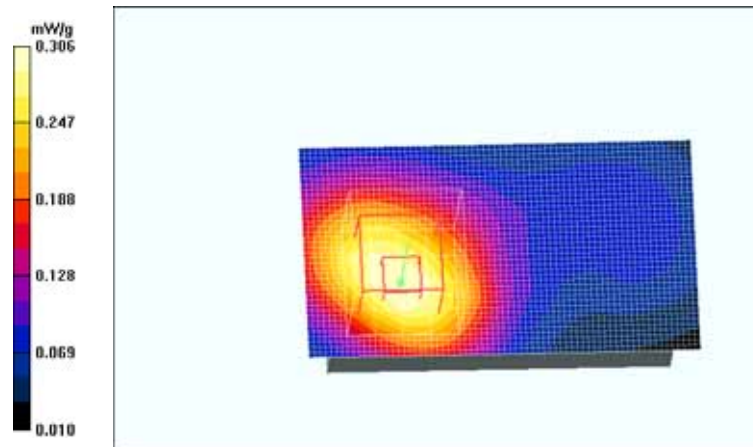
Body Measurement /Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 14.4 V/m; Power Drift = -0.087 dB

Peak SAR (extrapolated) = 0.481 W/kg

SAR(1 g) = 0.288 mW/g; SAR(10 g) = 0.181 mW/g

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



Date/Time: 2006-02-27 20:44:43

Test Laboratory: TCC Nokia

Type: RM-115, HWID: 0503

Program Name: Body measurement, Advanved Extrapolation, t=20.5 C, Flip closed, no hs, MU, no BT

Communication System: 2-slot GPRS1900; Frequency: 1909.8 MHz; Duty Cycle: 1:4.2

Medium parameters used: $f = 1910$ MHz; $\sigma = 1.54$ mho/m; $\epsilon_r = 53$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1396; ConvF(4.58, 4.58, 4.58); Calibrated: 24.01.2006
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn372; Calibrated: 18.08.2005
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 159

Body Measurement/Area Scan (41x71x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.323 mW/g

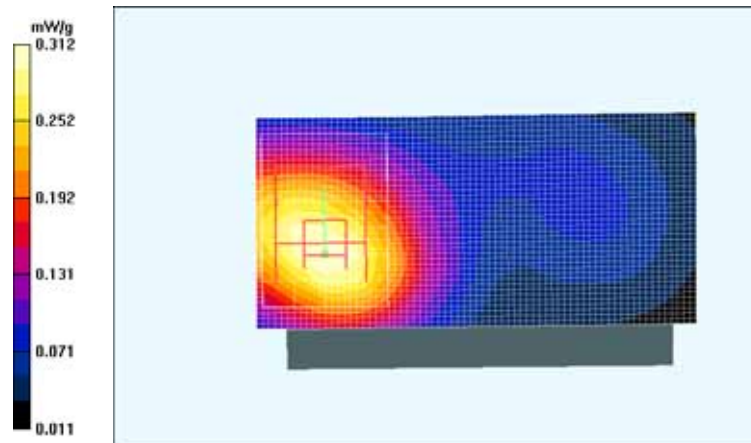
Body Measurement/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

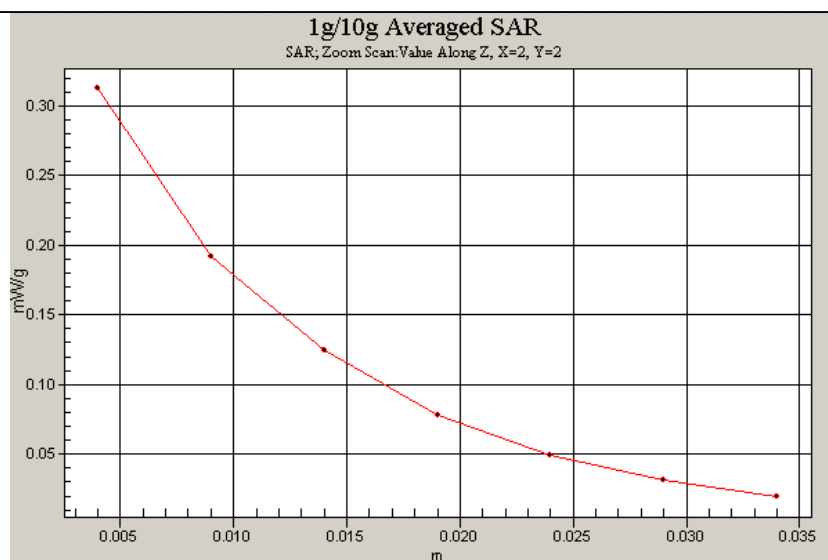
Reference Value = 13.5 V/m; Power Drift = -0.153 dB

Peak SAR (extrapolated) = 0.491 W/kg

SAR(1 g) = 0.293 mW/g; SAR(10 g) = 0.182 mW/g

Maximum value of SAR (measured) = 0.312 mW/g





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

E-field probe ET3DV6, SN: 1396
See the next three pages



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: **ET3-1396_Jan06**

CALIBRATION CERTIFICATE

Object	ET3DV6 - SN:1396
Calibration procedure(s)	QA CAL-01.v5 and QA CAL-12.v4 Calibration procedure for dosimetric E-field probes
Calibration date:	January 24, 2006
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	3-May-05 (METAS, No. 251-00466)	May-06
Power sensor E4412A	MY41495277	3-May-05 (METAS, No. 251-00466)	May-06
Power sensor E4412A	MY41498087	3-May-05 (METAS, No. 251-00466)	May-06
Reference 3 dB Attenuator	SN: S5054 (3c)	11-Aug-05 (METAS, No. 251-00499)	Aug-06
Reference 20 dB Attenuator	SN: S5086 (20b)	3-May-05 (METAS, No. 251-00467)	May-06
Reference 30 dB Attenuator	SN: S5129 (30b)	11-Aug-05 (METAS, No. 251-00500)	Aug-06
Reference Probe ES3DV2	SN: 3013	2-Jan-06 (SPEAG, No. ES3-3013_Jan06)	Jan-07
DAE4	SN: 654	27-Oct-05 (SPEAG, No. DAE4-654_Oct05)	Oct-06
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 Nov-05)	In house check: Nov 06

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

Issued: January 24, 2006

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

DASY - Parameters of Probe: ET3DV6 SN:1396

Sensitivity in Free Space ^A			Diode Compression ^B	
NormX	1.83 ± 10.1%	μV/(V/m) ²	DCP X	91 mV
NormY	1.82 ± 10.1%	μV/(V/m) ²	DCP Y	91 mV
NormZ	1.95 ± 10.1%	μV/(V/m) ²	DCP Z	91 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	7.3	3.8	
SAR _{be} [%]	With Correction Algorithm	0.1	0.1	
TSL	1750 MHz	Typical SAR gradient: 10 % per mm		
Sensor Center to Phantom Surface Distance		3.7 mm	4.7 mm	
SAR _{be} [%]	Without Correction Algorithm	7.1	4.1	
SAR _{be} [%]	With Correction Algorithm	0.2	0.2	

Sensor Offset

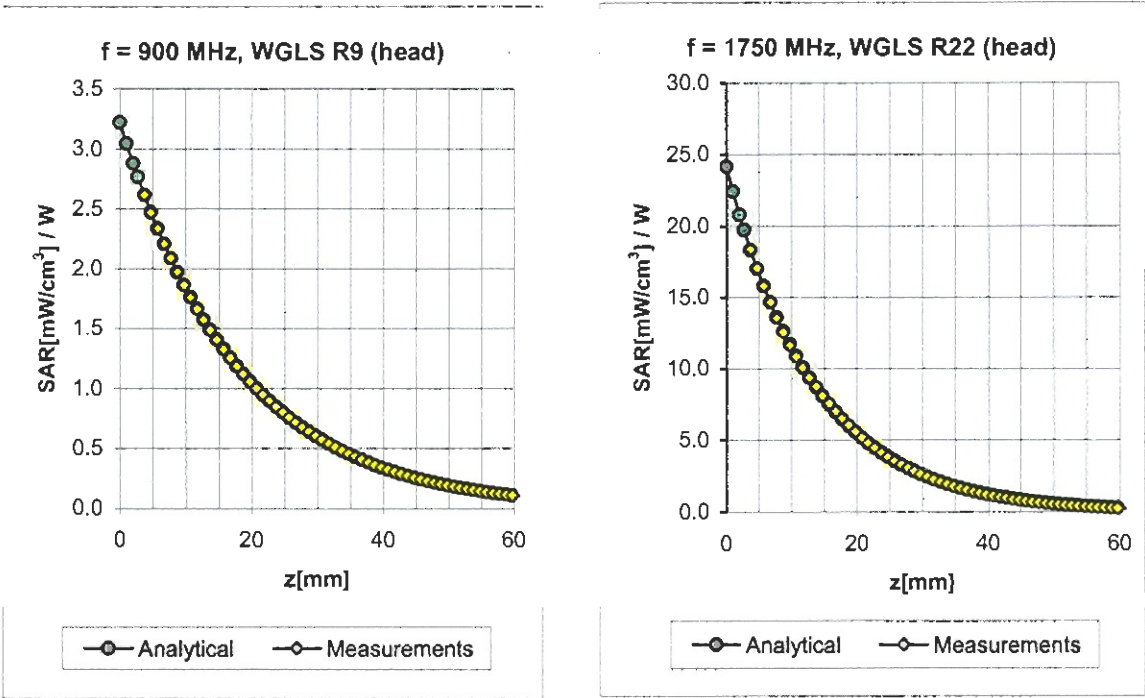
Probe Tip to Sensor Center	2.7 mm
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The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 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
450	± 50 / ± 100	Head	43.5 ± 5%	0.87 ± 5%	0.27	3.22	6.97 ± 13.3% (k=2)
835	± 50 / ± 100	Head	41.5 ± 5%	0.90 ± 5%	0.47	1.91	6.79 ± 11.0% (k=2)
900	± 50 / ± 100	Head	41.5 ± 5%	0.97 ± 5%	0.57	1.75	6.55 ± 11.0% (k=2)
1750	± 50 / ± 100	Head	40.1 ± 5%	1.37 ± 5%	0.51	1.79	5.52 ± 11.0% (k=2)
1900	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.56	1.71	5.37 ± 11.0% (k=2)
1950	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.61	1.69	5.02 ± 11.0% (k=2)
2450	± 50 / ± 100	Head	39.2 ± 5%	1.80 ± 5%	0.72	1.28	4.58 ± 11.8% (k=2)
450	± 50 / ± 100	Body	56.7 ± 5%	0.94 ± 5%	0.24	4.42	7.36 ± 13.3% (k=2)
835	± 50 / ± 100	Body	55.2 ± 5%	0.97 ± 5%	0.48	1.99	6.41 ± 11.0% (k=2)
900	± 50 / ± 100	Body	55.0 ± 5%	1.05 ± 5%	0.48	2.08	6.29 ± 11.0% (k=2)
1750	± 50 / ± 100	Body	53.4 ± 5%	1.49 ± 5%	0.66	1.97	4.79 ± 11.0% (k=2)
1900	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.64	2.12	4.58 ± 11.0% (k=2)
1950	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.55	2.61	4.33 ± 11.0% (k=2)
2450	± 50 / ± 100	Body	52.7 ± 5%	1.95 ± 5%	0.57	1.58	4.22 ± 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.

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

Dipole D835, SN: 462
Dipole D900, SN: 181
Dipole D1900, SN: 5d013
See the next nine pages

Client **Nokia Salo TCC**

CALIBRATION CERTIFICATE

Object(s) **D835V2 - SN:462**

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

Calibration date: **July 14, 2004**

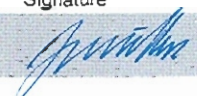
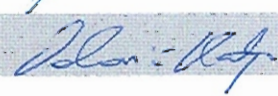
Condition of the calibrated item **In Tolerance (according to the specific calibration document)**

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

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

Calibration Equipment used (M&TE critical for calibration)

Model Type	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power meter EPM E442	GB37480704	6-Nov-03 (METAS, No. 252-0254)	Nov-04
Power sensor HP 8481A	US37292783	6-Nov-03 (METAS, No. 252-0254)	Nov-04
Power sensor HP 8481A	MY41092317	18-Oct-02 (Agilent, No. 20021018)	Oct-04
RF generator R&S SML-03	100698	27-Mar-2002 (R&S, No. 20-92389)	In house check: Mar-05
Network Analyzer HP 8753E	US37390585	18-Oct-01 (SPEAG, in house check Nov-03)	In house check: Oct 05

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

Date issued: July 15, 2004

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

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN462

Communication System: CW-835; Frequency: 835 MHz; Duty Cycle: 1:1

Medium: HSL 835 MHz;

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.92 \text{ mho/m}$; $\epsilon_r = 41.8$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1507; ConvF(6.3, 6.3, 6.3); Calibrated: 1/23/2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn903; Calibrated: 2/19/2004
- Phantom: Flat Phantom half size; Type: QD000P49AA; Serial: SN:1001;
- Measurement SW: DASY4, V4.3 Build 8; Postprocessing SW: SEMCAD, V1.8 Build 117

Pin = 250 mW; d = 15 mm/Area Scan (81x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 2.62 mW/g

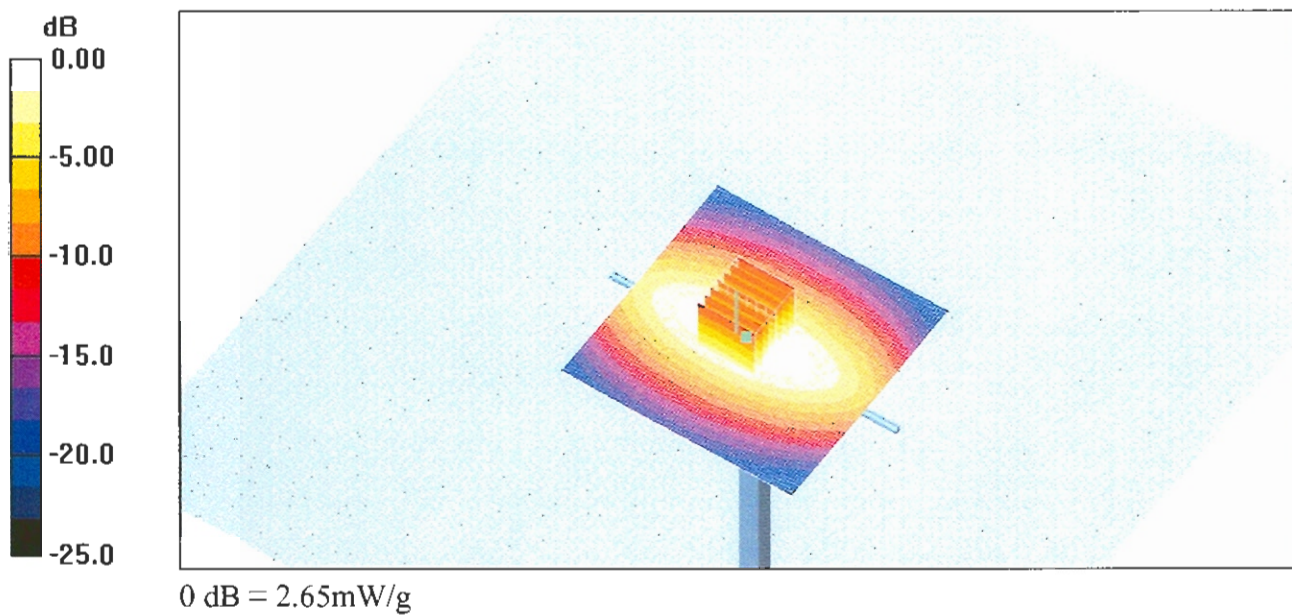
Pin = 250 mW; d = 15 mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 55.1 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 3.72 W/kg

SAR(1 g) = 2.45 mW/g; SAR(10 g) = 1.59 mW/g

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



Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN462

Communication System: CW-835; Frequency: 835 MHz; Duty Cycle: 1:1

Medium: Muscle 835 MHz;

Medium parameters used: $f = 835$ MHz; $\sigma = 0.99$ mho/m; $\epsilon_r = 54.6$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1507; ConvF(6.13, 6.13, 6.13); Calibrated: 1/23/2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn903; Calibrated: 2/19/2004
- Phantom: Flat Phantom half size; Type: QD000P49AA; Serial: SN:1001;
- Measurement SW: DASY4, V4.3 Build 8; Postprocessing SW: SEMCAD, V1.8 Build 117

Pin = 250 mW; d = 15 mm/Area Scan (81x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.64 mW/g

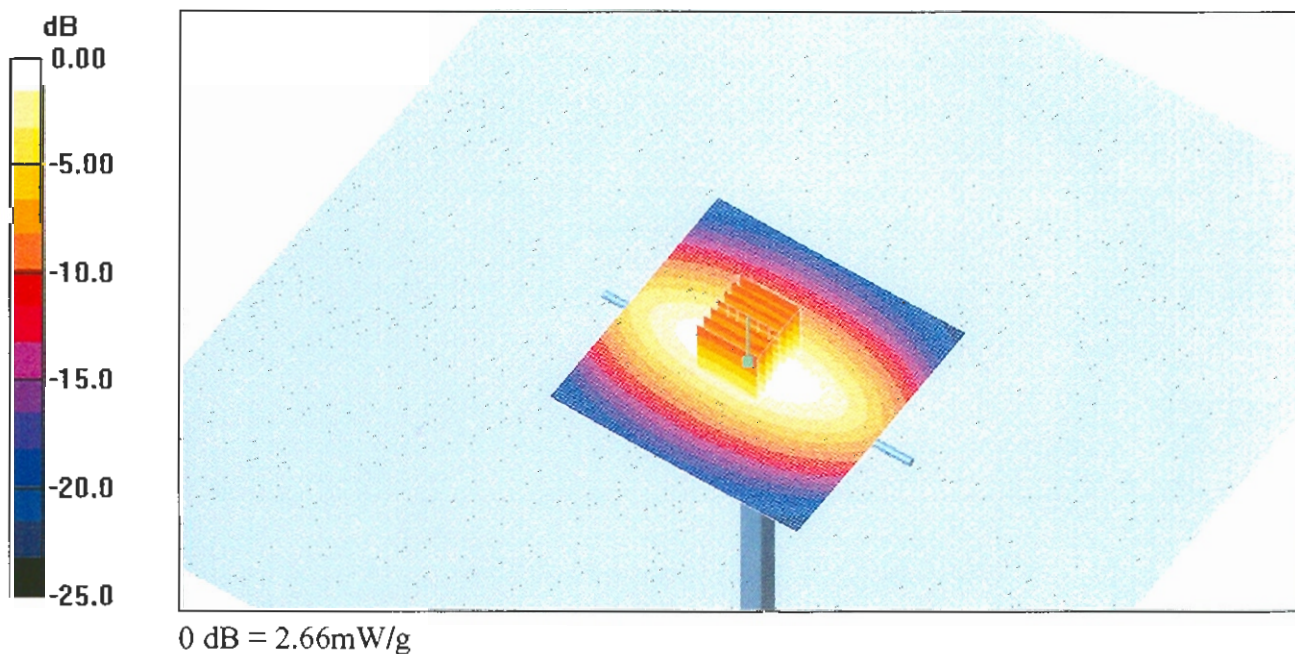
Pin = 250 mW; d = 15 mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 53.6 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 3.59 W/kg

SAR(1 g) = 2.45 mW/g; SAR(10 g) = 1.61 mW/g

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





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 Oulu 2**

Certificate No: **D900V2-181_Apr05**

CALIBRATION CERTIFICATE

Object **D900V2 - SN: 181**

Calibration procedure(s) **QA CAL-05.v6**
Calibration procedure for dipole validation kits

Calibration date: **April 12, 2005**

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 EPM E442	GB37480704	12-Oct-04 (METAS, No. 251-00412)	Oct-05
Power sensor HP 8481A	US37292783	12-Oct-04 (METAS, No. 251-00412)	Oct-05
Reference 20 dB Attenuator	SN: 5086 (20g)	10-Aug-04 (METAS, No 251-00402)	Aug-05
Reference 10 dB Attenuator	SN: 5047.2 (10r)	10-Aug-04 (METAS, No 251-00402)	Aug-05
Reference Probe ET3DV6	SN 1507	26-Oct-04 (SPEAG, No. ET3-1507_Oct04)	Oct-05
DAE4	SN 601	07-Jan-05 (SPEAG, No. DAE4-601_Jan05)	Jan-06
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (SPEAG, in house check Oct-03)	In house check: Oct-05
RF generator R&S SML-03	100698	27-Mar-02 (SPEAG, in house check Dec-03)	In house check: Dec-05
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (SPEAG, in house check Nov-04)	In house check: Nov-05

	Name	Function	Signature
Calibrated by:	Mike Meili	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: April 25, 2005

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

DASY4 Validation Report for Head TSL

Date/Time: 12.04.2005 11:45:57

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 900 MHz; Type: D900V2; Serial: D900V2 - SN:181

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

Medium: HSL 900 MHz;

Medium parameters used: $f = 900$ MHz; $\sigma = 0.97$ mho/m; $\epsilon_r = 41.6$; $\rho = 1000$ kg/m³

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1507; ConvF(5.95, 5.95, 5.95); Calibrated: 26.10.2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 07.01.2005
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: SN: 1001
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Pin = 250 mW; d = 15 mm/Area Scan (81x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 2.99 mW/g

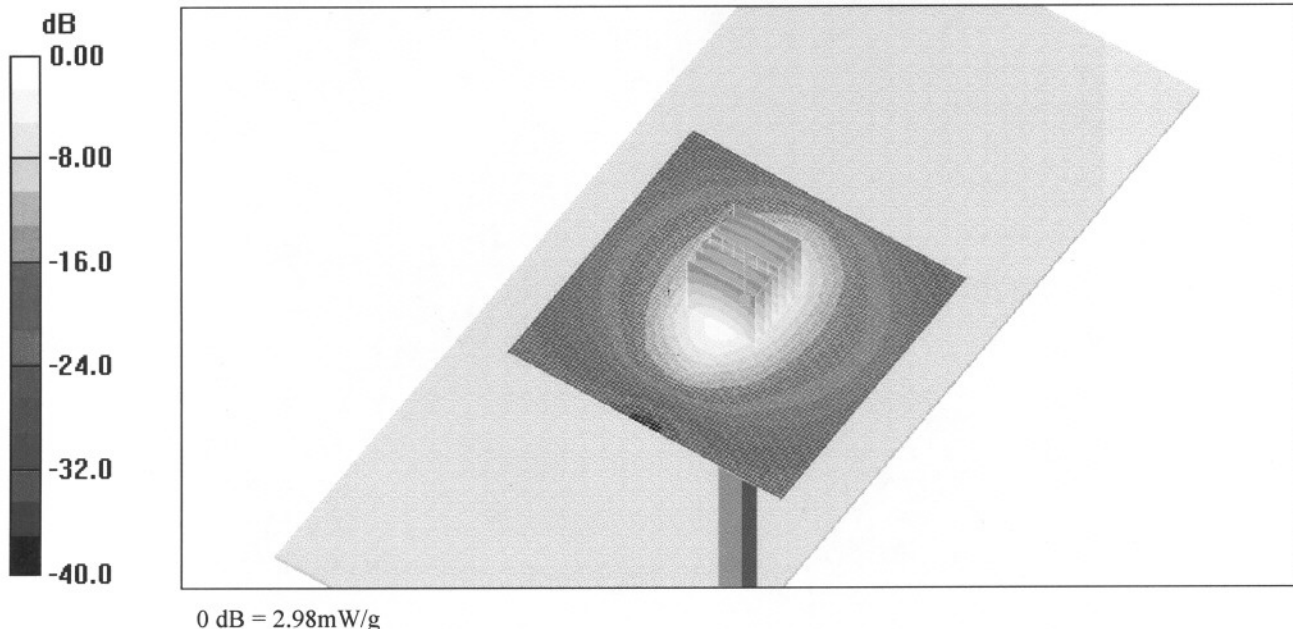
Pin = 250 mW; d = 15 mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 57.6 V/m; Power Drift = -0.00 dB

Peak SAR (extrapolated) = 4.05 W/kg

SAR(1 g) = 2.74 mW/g; SAR(10 g) = 1.77 mW/g

Maximum value of SAR (measured) = 2.98 mW/g



DASY4 Validation Report for Body TSL

Date/Time: 11.04.2005 16:46:51

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 900 MHz; Type: D900V2; Serial: D900V2 - SN:181

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

Medium: MSL 900 MHz;

Medium parameters used: $f = 900$ MHz; $\sigma = 1.07$ mho/m; $\epsilon_r = 54.3$; $\rho = 1000$ kg/m³

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1507; ConvF(5.77, 5.77, 5.77); Calibrated: 26.10.2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 07.01.2005
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: SN: 1001
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Pin = 250 mW; d = 15 mm 2/Area Scan (81x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 3.05 mW/g

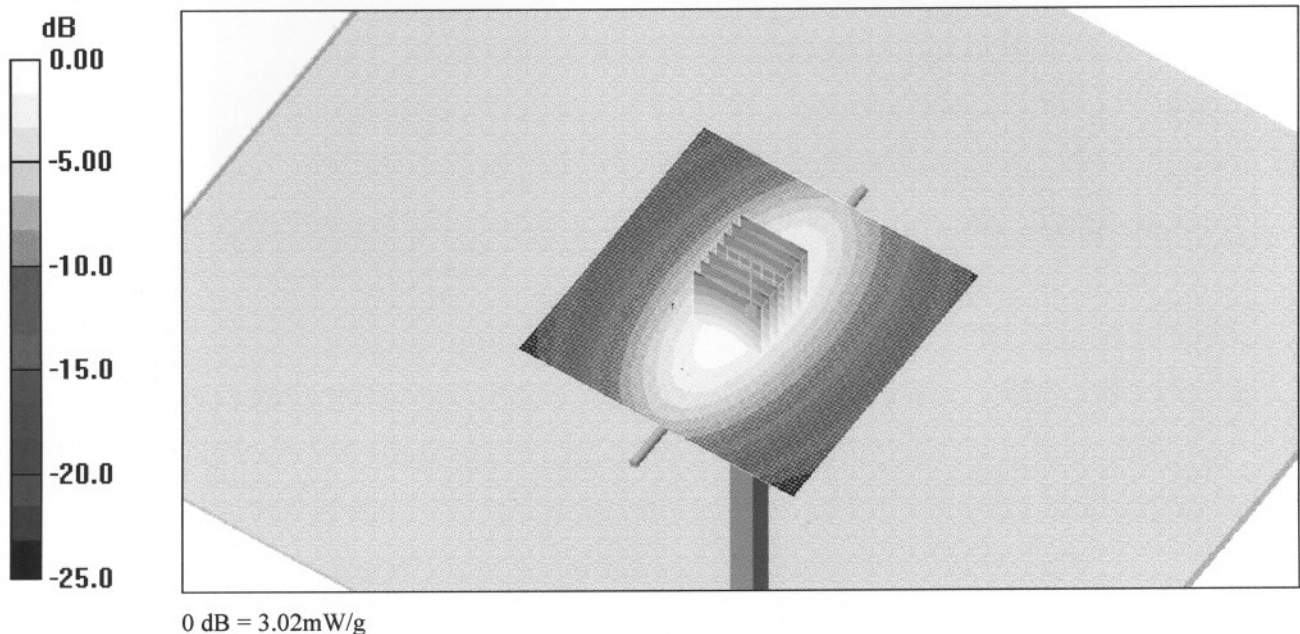
Pin = 250 mW; d = 15 mm 2/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 56.0 V/m; Power Drift = 0.022 dB

Peak SAR (extrapolated) = 3.94 W/kg

SAR(1 g) = 2.77 mW/g; SAR(10 g) = 1.8 mW/g

Maximum value of SAR (measured) = 3.02 mW/g



Client

Nokia Salo TCC

CALIBRATION CERTIFICATE

Object(s) **D1900V2 - SN:5d013**

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

Calibration date: **July 13, 2004**

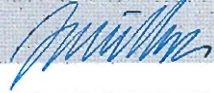
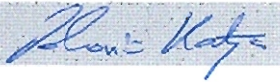
Condition of the calibrated item **In Tolerance (according to the specific calibration document)**

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

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

Calibration Equipment used (M&TE critical for calibration)

Model Type	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power meter EPM E442	GB37480704	6-Nov-03 (METAS, No. 252-0254)	Nov-04
Power sensor HP 8481A	US37292783	6-Nov-03 (METAS, No. 252-0254)	Nov-04
Power sensor HP 8481A	MY41092317	18-Oct-02 (Agilent, No. 20021018)	Oct-04
RF generator R&S SML-03	100698	27-Mar-2002 (R&S, No. 20-92389)	In house check: Mar-05
Network Analyzer HP 8753E	US37390585	18-Oct-01 (SPEAG, in house check Nov-03)	In house check: Oct 05

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

Date issued: July 15, 2004

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

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN5d013

Communication System: CW-1900; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: HSL 1900 MHz;

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.44$ mho/m; $\epsilon_r = 39.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1507; ConvF(4.96, 4.96, 4.96); Calibrated: 1/23/2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn903; Calibrated: 2/19/2004
- Phantom: Flat Phantom quarter size; Type: QD000P50AA; Serial: SN:1002;
- Measurement SW: DASY4, V4.3 Build 8; Postprocessing SW: SEMCAD, V1.8 Build 117

Pin = 250 mW; d = 10 mm/Area Scan (81x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 11.4 mW/g

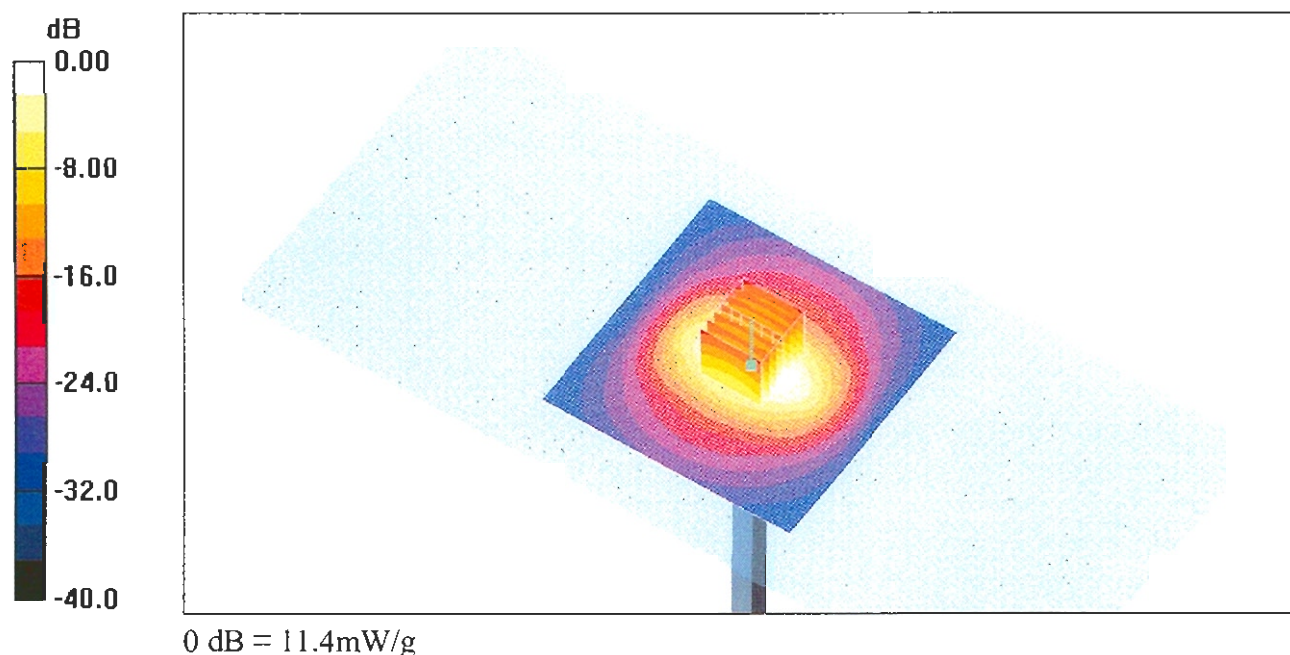
Pin = 250 mW; d = 10 mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 93.6 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 17.9 W/kg

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

Maximum value of SAR (measured) = 11.4 mW/g



Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN5d013

Communication System: CW-1900; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: Muscle 1900 MHz;

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.58$ mho/m; $\epsilon_r = 52.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1507; ConvF(4.57, 4.57, 4.57); Calibrated: 1/23/2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn903; Calibrated: 2/19/2004
- Phantom: SAM with CRP - TP1006; Type: SAM 4.0; Serial: TP:1006;
- Measurement SW: DASY4, V4.3 Build 8; Postprocessing SW: SEMCAD, V1.8 Build 117

Pin = 250 mW; d = 10 mm/Area Scan (81x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 12.0 mW/g

Pin = 250 mW; d = 10 mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 82.5 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 18.9 W/kg

SAR(1 g) = 10.4 mW/g; SAR(10 g) = 5.41 mW/g

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

