

SAR Compliance Test Report

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FCC ID:	OW3RM-179	IC:	661AA-RM179
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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.		
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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	4
1.2.3 Maximum Drift	4
1.2.4 Measurement Uncertainty	4
2. DESCRIPTION OF THE DEVICE UNDER TEST.....	5
2.1 DESCRIPTION OF THE ANTENNA	5
3. TEST CONDITIONS	6
3.1 TEMPERATURE AND HUMIDITY	6
3.2 TEST SIGNAL, FREQUENCIES AND OUTPUT POWER	6
4. DESCRIPTION OF THE TEST EQUIPMENT	7
4.1 MEASUREMENT SYSTEM AND COMPONENTS	7
4.1.1 Isotropic E-field Probe Type ES3DV3	8
4.2 PHANTOMS	8
4.3 TISSUE SIMULANTS	9
4.3.1 Tissue Simulant Recipes	9
4.3.2 System Checking	10
4.3.3 Tissue Simulants used in the Measurements.....	11
5. DESCRIPTION OF THE TEST PROCEDURE	13
5.1 DEVICE HOLDER.....	13
5.2 TEST POSITIONS.....	13
5.2.1 Against Phantom Head.....	13
5.2.2 Body Worn Configuration	14
5.3 SCAN PROCEDURES	14
5.4 SAR AVERAGING METHODS.....	14
6. MEASUREMENT UNCERTAINTY	15
7. RESULTS	16
APPENDIX A: SYSTEM CHECKING SCANS.....	21
APPENDIX B: MEASUREMENT SCANS.....	31
APPENDIX C: RELEVANT PAGES FROM PROBE CALIBRATION REPORT(S)	72
APPENDIX D: RELEVANT PAGES FROM DIPOLE VALIDATION KIT REPORT(S)	73

1. SUMMARY OF SAR TEST REPORT

1.1 Test Details

Period of test	2007-04-23 to 2007-07-11
SN, HW and SW numbers of tested device	SN: 004401/01/101586/0, HW: 0304, SW: V 01.07.12.1.0.11, DUT: 27310 SN: 004401/01/366016/8, HW: 0401, SW: V 01.07.12.1.0.11, DUT: 27537
Batteries used in testing	BL-5C, DUT: 27300, 27301, 27302, 27303, 27304, 27305, 27306
Headsets used in testing	HS-45, DUT: 27967
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
2-slot GPRS850	251 / 848.8	26.2 dBm ERP	Left, Cheek	0.537 W/kg	0.60 W/kg	1.6 W/kg	PASSED
3-slot GPRS1900	810 / 1909.8	30.7 dBm EIRP	Right, Cheek	1.09 W/kg	1.22 W/kg	1.6 W/kg	PASSED
WLAN2450	11 / 2462.0	19.3 dBm EIRP	Right, Cheek	0.083 W/kg	0.09 W/kg	1.6 W/kg	PASSED
2-slot GPRS850 + WLAN2450	-	-	Left, Cheek	0.585 W/kg	0.66 W/kg	1.6 W/kg	PASSED
3-slot GPRS1900 + WLAN2450	-	-	Right, Cheek	1.103 W/kg	1.24 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	251 / 848.8	26.2 dBm ERP	2.2 cm	0.912 W/kg	1.02 W/kg	1.6 W/kg	PASSED
3-slot GPRS1900	810 / 1909.8	30.7 dBm EIRP	2.2 cm	0.466 W/kg	0.52 W/kg	1.6 W/kg	PASSED
WLAN2450	11 / 2462.0	19.3 dBm EIRP	2.2 cm	0.036 W/kg	0.04 W/kg	1.6 W/kg	PASSED
2-slot GPRS850 + WLAN2450	-	-	2.2 cm	0.948 W/kg	1.06 W/kg	1.6 W/kg	PASSED
3-slot GPRS1900 + WLAN2450	-	-	2.2 cm	0.502 W/kg	0.56 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	0.48 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 and Bands of Operation	GSM 850 / 1900	GPRS 850 / 1900	EGPRS 850 / 1900	WLAN 2450
Modulation Mode	GMSK	GMSK	GMSK / 8PSK	
Duty Cycle	1/8	1/8 to 3/8	1/8 to 3/8	1
Transmitter Frequency Range (MHz)	824 - 849 1850 - 1910	824 - 849 1850 - 1910	824 - 849 1850 - 1910	2412-2462

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

This device has Voice-over-IP/Dual Transfer Mode capability for use at the ear. Therefore, SAR for multi slot GPRS mode was evaluated against the head profile of the phantom.

2.1 Description of the Antenna

The device has an internal antenna.

3. TEST CONDITIONS

3.1 Temperature and Humidity

Ambient temperature (°C):	20.5 to 22.5
Ambient humidity (RH %):	35 to 55

3.2 Test Signal, Frequencies and Output Power

The device was put into operation by using a call tester except for testing WLAN2450 where control software was used. 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
DAE3	573	12 months	2007-09
DAE4	682	12 months	2007-08
E-field Probe ES3DV3	3116	12 months	2007-08
E-field Probe ES3DV3	3118	12 months	2007-08
Dipole Validation Kit, D835V2	4d042	24 months	2007-09
Dipole Validation Kit, D1900V2	5d026	24 months	2008-02
Dipole Validation Kit, D1900V2	5d063	24 months	2007-10
Dipole Validation Kit, D2450V2	750	24 months	2008-02
DASY4 software	Version 4.7	-	-

Additional test equipment used in testing:

Test Equipment	Model	Serial Number	Calibration interval	Calibration expiry
Signal Generator	SME06	848650/011	36 months	2008-07
Amplifier	ZHL-42W	E012903	-	-
Power Meter	NRP	100808	24 months	2008-03
Power Sensor	NRP-Z51	100412	12 months	2008-03
Call Tester	4400M	0211008	-	-
BT Tester	CBT	100263	-	-
Vector Network Analyzer	AT8753ES	MY40001091	12 months	2007-08
Dielectric Probe Kit	HP85070B	US33020403	-	-

4.1.1 Isotropic E-field Probe Type ES3DV3

Construction	Symmetrical design with triangular core Interleaved sensors 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 4 GHz (dosimetry); Linearity: ± 0.2 dB (30 MHz to 4 GHz)
Directivity	± 0.2 dB in HSL (rotation around probe axis) ± 0.3 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: 20 mm Body diameter: 12 mm Tip diameter: 3.9 mm
Application	Distance from probe tip to dipole centers: 2.0 mm General dosimetry up to 4 GHz Compliance tests of mobile phones Fast automatic scanning in arbitrary phantoms

4.2 Phantoms

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

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

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

4.3 Tissue Simulants

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

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

4.3.1 Tissue Simulant Recipes

The following recipe(s) were used for Head and Body tissue simulant(s):

800MHz band

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

1900MHz band

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

2450MHz band

Ingredient	Head (% by weight)	Body (% by weight)
Deionised Water	56.0	70.2
Tween 20	44.0	29.62
Salt	-	0.18

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	2.33	42.2	0.90	
	± 10% window	2.10 - 2.56			
	2007-04-23	2.47	41.1	0.90	21.3
	2007-04-24	2.52	41.0	0.90	21.3
	2007-05-03	2.56	41.0	0.90	21.9
1900	Reference result	9.83	39.4	1.42	
	± 10% window	8.85 - 10.81			
	2007-04-26	10.7	38.8	1.46	21.6
1900	Reference result	10.3	38.6	1.48	
	± 10% window	9.3 - 11.3			
	2007-07-11	11.0	38.5	1.48	20.9
2450	Reference result	13.7	38.5	1.79	
	± 10% window	12.3 - 15.1			
	2007-06-27	14.4	38.3	1.87	22.3

System checking, body tissue simulant

f [MHz]	Description	SAR [W/kg], 1g	Dielectric Parameters		Temp [°C]
			ϵ_r	σ [S/m]	
835	Reference result	2.45	53.8	0.98	
	$\pm 10\%$ window	2.20 - 2.70			
	2007-04-25	2.61	54.0	0.97	22.0
1900	Reference result	10.0	54.8	1.54	
	$\pm 10\%$ window	9.0 - 11.0			
	2007-05-03	10.6	52.9	1.50	22.2
2450	Reference result	13.5	53.8	1.97	
	$\pm 10\%$ window	12.1 - 14.9			
	2007-06-26	13.5	51.7	1.96	22.2

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

4.3.3 Tissue Simulants used in the Measurements

Head tissue simulant measurements

f [MHz]	Description	Dielectric Parameters		Temp [°C]
		ϵ_r	σ [S/m]	
836	Recommended value	41.5	0.90	
	$\pm 5\%$ window	39.4 – 43.6	0.86 – 0.95	
	2007-04-23	41.1	0.90	21.3
	2007-04-24	41.0	0.90	21.3
	2007-05-03	41.0	0.91	21.9
1880	Recommended value	40.0	1.40	
	$\pm 5\%$ window	38.0 – 42.0	1.33 – 1.47	
	2007-04-26	38.9	1.44	21.6
	2007-07-11	38.5	1.46	20.9
2442	Recommended value	39.2	1.79	
	$\pm 5\%$ window	37.3 – 41.2	1.70 – 1.88	
	2007-06-27	38.4	1.86	22.3

Body tissue simulant measurements

<i>f</i> [MHz]	Description	Dielectric Parameters		Temp [°C]
		ϵ_r	σ [S/m]	
836	Recommended value	55.2	0.97	22.0
	± 5% window	52.4 – 58.0	0.92 – 1.02	
	2007-04-25	54.0	0.97	
1880	Recommended value	53.3	1.52	22.2
	± 5% window	50.6 – 56.0	1.44 – 1.60	
	2007-05-03	53.0	1.48	
2442	Recommended value	52.7	1.94	22.2
	± 5% window	50.1 – 55.3	1.85 – 2.04	
	2007-06-26	51.7	1.95	

5. DESCRIPTION OF THE TEST PROCEDURE

5.1 Device Holder

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



Device holder supplied by SPEAG

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



Nokia spacer

5.2 Test Positions

5.2.1 Against Phantom Head

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

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

5.2.2 Body Worn Configuration

The device was placed in the SPEAG holder using the Nokia spacer and placed below the flat section of the phantom. The distance between the device and the phantom was kept at the separation distance indicated in Section 1.2.2 using a separate flat spacer that was removed before the start of the measurements. The device was oriented with its antenna facing the phantom since this orientation gives higher results.

5.3 Scan Procedures

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

5.4 SAR Averaging Methods

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

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

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

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

6. MEASUREMENT UNCERTAINTY

Table 6.1 – Measurement uncertainty evaluation

Uncertainty Component	Section in IEEE 1528	Tol. (%)	Prob Dist	Div	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:

850 MHz 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		23.6 dBm	23.4 dBm	26.4 dBm
Slide closed	Left	Cheek	-	0.194	-
		Tilt	-	-	-
	Right	Cheek	-	-	-
		Tilt	-	-	-
2-slot GPRS	Power		23.2 dBm	23.0 dBm	26.2 dBm
Slide closed	Left	Cheek	0.215	0.347	0.537
		Tilt	-	0.236	-
	Right	Cheek	-	0.333	-
		Tilt	-	0.230	-
2-slot GPRS	Power		23.7 dBm	24.2 dBm	27.3 dBm
Slide open	Left	Cheek	-	0.287	-
		Tilt	-	0.189	-
	Right	Cheek	-	0.351	-
		Tilt	-	0.193	-
3-slot GPRS	Power		20.2 dBm	19.7 dBm	22.7 dBm
Slide closed	Left	Cheek	-	0.228	-
		Tilt	-	-	-
	Right	Cheek	-	-	-
		Tilt	-	-	-
2-slot 8PSK EGPRS	Power		14.1 dBm	13.2 dBm	16.2 dBm
Slide closed	Left	Cheek	-	-	0.127
		Tilt	-	-	-
	Right	Cheek	-	-	-
		Tilt	-	-	-
2-slot GPRS Slide closed	Left Cheek, BT active		-	-	0.533

1900 MHz 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		30.9 dBm	29.0 dBm	31.0 dBm
Slide closed	Left	Cheek	-	0.212	-
		Tilt	-	-	-
	Right	Cheek	-	-	-
		Tilt	-	-	-
2-slot GPRS	Power		30.8 dBm	28.9 dBm	30.9 dBm
Slide closed	Left	Cheek		0.378	
		Tilt	-		-
	Right	Cheek	-		-
		Tilt	-		-
3-slot GPRS	Power		30.7 dBm	28.8 dBm	30.7 dBm
Slide closed	Left	Cheek	-	0.442	-
		Tilt	-	0.329	-
	Right	Cheek	0.590	0.819	0.974
		Tilt	-	0.338	-
3-slot GPRS	Power		29.6 dBm	27.7 dBm	28.1 dBm
Slide open	Left	Cheek	-	0.236	-
		Tilt	-	0.247	-
	Right	Cheek	-	0.427	-
		Tilt	-	0.341	-
3-slot 8PSK EGPRS	Power		26.7 dBm	24.3 dBm	26.1 dBm
Slide closed	Left	Cheek	-	-	-
		Tilt	-	-	-
	Right	Cheek	-	-	0.277
		Tilt	-	-	-
3-slot GPRS Slide closed	Right Cheek, BT active		-	-	1.02

2450 MHz Head SAR results

Option used	Test configuration		SAR, averaged over 1g (W/kg)		
			Ch 1 2412.0 MHz	Ch 7 2442.0 MHz	Ch 11 2462.0 MHz
WLAN	Power		17.5 dBm	20.3 dBm	19.3 dBm
Slide closed	Left	Cheek	-	0.048	-
		Tilt	-	0.044	-
	Right	Cheek	0.046	0.076	0.083
		Tilt	-	0.063	-
WLAN	Power		15.0 dBm	18.7 dBm	14.5 dBm
Slide open	Left	Cheek	-	0.023	-
		Tilt	-	0.025	-
	Right	Cheek	-	0.025	-
		Tilt	-	0.031	-

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

850 MHz 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
2-slot GPRS	Power	23.2 dBm	23.0 dBm	26.2 dBm
Slide closed	Without headset	0.372	0.613	0.867
	Headset HS-45	0.261	0.358	0.377
Slide closed	Without headset, BT active	-	-	0.912

1900 MHz 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
3-slot GPRS	Power	30.7 dBm	28.8 dBm	30.7 dBm
Slide closed	Without headset	0.371	0.427	0.464
	Headset HS-45	0.330	0.391	0.442
Slide closed	Without headset, BT active	-	-	0.466

2450 MHz Body SAR results

Option used	Test configuration	SAR, averaged over 1g (W/kg)		
		Ch 1 2412.0 MHz	Ch 7 2442.0 MHz	Ch 11 2462.0 MHz
WLAN	Power	17.5 dBm	20.3 dBm	19.3 dBm
Slide closed	Without headset	0.017	0.032	0.036
	Headset HS-45	0.014	0.029	0.031

Simultaneous transmissions: Combined SAR results

Test configuration	Max. 1g SAR results			Combined 1g SAR values	
	WLAN	850 MHz	1900 MHz	WLAN + 850 MHz	WLAN + 1900 MHz
Head: Left, Cheek	0.048	0.537	0.442	0.585	0.490
Head: Left, Tilt	0.044	0.236	0.329	0.280	0.373
Head: Right, Cheek	0.083	0.351	1.02	0.434	1.103
Head: Right, Tilt	0.063	0.230	0.341	0.293	0.404
Body: Without Headset	0.036	0.912	0.466	0.948	0.502
Body: Headset HS-45	0.031	0.377	0.442	0.408	0.473

Combining the maximum SAR values of WLAN2450 and the cellular bands tends to overestimate the SAR value since their maxima do not necessarily occur in the same location.

Plots of the Measurement scans are given in Appendix B.

APPENDIX A: SYSTEM CHECKING SCANS

See the following pages

Date/Time: 2007-04-23 17:26:10

Test Laboratory: TCC Nokia
Type: D835V2; Serial: 4d042

Communication System: CW835

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: Head 850; Medium Notes: Medium Temperature: $t=21.3$ C

Medium parameters used: $f = 835$ MHz; $\sigma = 0.9$ mho/m; $\epsilon_r = 41.1$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(5.78, 5.78, 5.78); Calibrated: 2006-08-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2006-08-09
- Phantom: SAM 1; Type: Twin Phantom; Serial: TP-1215
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

d=15mm, Pin=250mW/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm

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

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

Reference Value = 55.5 V/m

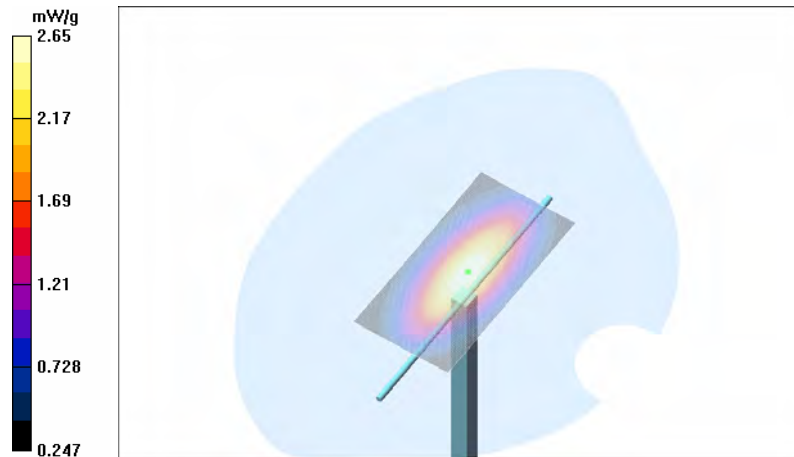
Peak SAR (extrapolated) = 3.61 W/kg

SAR(1 g) = 2.47 mW/g

SAR(10 g) = 1.62 mW/g

Power Drift = -0.025 dB

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



Date/Time: 2007-04-24 09:12:15

Test Laboratory: TCC Nokia
Type: D835V2; Serial: 4d042

Communication System: CW835

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: Head 850; Medium Notes: Medium Temperature: $t=21.3$ C

Medium parameters used: $f = 835$ MHz; $\sigma = 0.904$ mho/m; $\epsilon_r = 41$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(5.78, 5.78, 5.78); Calibrated: 2006-08-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2006-08-09
- Phantom: SAM 1; Type: Twin Phantom; Serial: TP-1215
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

d=15mm, Pin=250mW/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 2.73 mW/g

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

Reference Value = 56.4 V/m

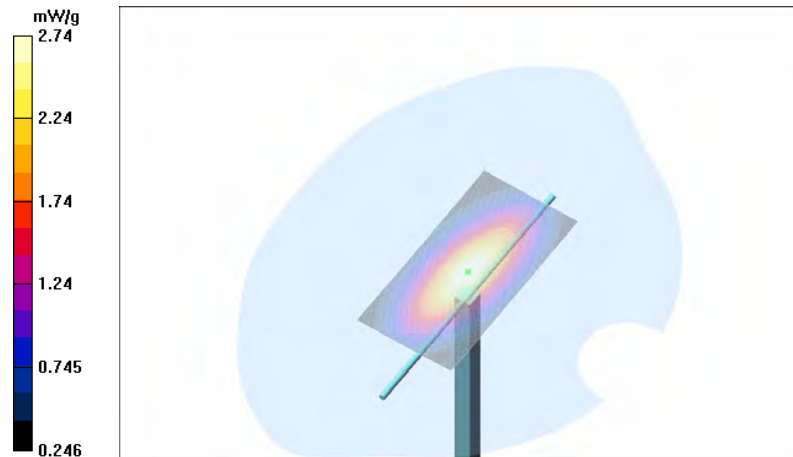
Peak SAR (extrapolated) = 3.73 W/kg

SAR(1 g) = 2.52 mW/g

SAR(10 g) = 1.65 mW/g

Power Drift = -0.136 dB

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



Date/Time: 2007-05-03 09:16:58

Test Laboratory: TCC Nokia
Type: D835V2; Serial: 4d042

Communication System: CW835

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: Head 850; Medium Notes: Medium Temperature: $t=21.9$ C

Medium parameters used: $f = 835$ MHz; $\sigma = 0.904$ mho/m; $\epsilon_r = 41$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(5.78, 5.78, 5.78); Calibrated: 2006-08-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2006-08-09
- Phantom: SAM 1; Type: Twin Phantom; Serial: TP-1215
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

d=15mm, Pin=250mW/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 2.77 mW/g

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

Reference Value = 56.5 V/m

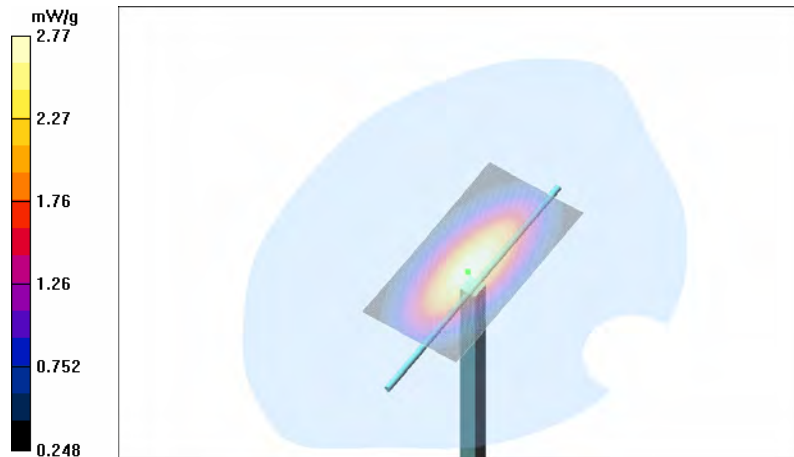
Peak SAR (extrapolated) = 3.78 W/kg

SAR(1 g) = 2.56 mW/g

SAR(10 g) = 1.68 mW/g

Power Drift = -0.073 dB

Maximum value of SAR (measured) = 2.77 mW/g



Date/Time: 2007-04-26 09:42:31

Test Laboratory: TCC Nokia
Type: D1900V2; Serial: 5d026

Communication System: CW1900

Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: Head 1900; Medium Notes: Medium Temperature: $t=21.6$ C

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.46$ mho/m; $\epsilon_r = 38.8$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(5.09, 5.09, 5.09); Calibrated: 2006-08-18
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2006-08-09
- Phantom: SAM 3; Type: Twin Phantom; Serial: TP-1302
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

d=10mm, Pin=250mW/Area Scan (71x71x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 12.4 mW/g

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

Reference Value = 91.9 V/m

Peak SAR (extrapolated) = 20.5 W/kg

SAR(1 g) = 10.7 mW/g

SAR(10 g) = 5.5 mW/g

Power Drift = -0.061 dB

Maximum value of SAR (measured) = 12.2 mW/g



Date/Time: 2007-07-11 16:35:01

Test Laboratory: TCC Nokia
Type: D1900V2; Serial: 5d063

Communication System: CW1900

Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: Head 1900; Medium Notes: Medium Temperature: $t=20.9\text{ }^{\circ}\text{C}$

Medium parameters used: $f = 1900\text{ MHz}$; $\sigma = 1.48\text{ mho/m}$; $\epsilon_r = 38.5$; $\rho = 1000\text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(5.09, 5.09, 5.09); Calibrated: 2006-08-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2006-08-09
- Phantom: SAM 3; Type: Twin Phantom; Serial: TP-1302
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

d=10mm, Pin=250mW/Area Scan (71x71x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (interpolated) = 12.3 mW/g

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

Reference Value = 86.6 V/m

Peak SAR (extrapolated) = 21.0 W/kg

SAR(1 g) = 11 mW/g

SAR(10 g) = 5.59 mW/g

Power Drift = -0.030 dB

Maximum value of SAR (measured) = 12.3 mW/g



Date/Time: 2007-06-27 10:14:35

Test Laboratory: TCC Nokia

Type: D2450V2; Serial: 750

Communication System: CW2450

Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: Head 2450; Medium Notes: Medium Temperature: $t=22.3\text{ }^{\circ}\text{C}$

Medium parameters used: $f = 2450\text{ MHz}$; $\sigma = 1.87\text{ mho/m}$; $\epsilon_r = 38.3$; $\rho = 1000\text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(4.43, 4.43, 4.43); Calibrated: 2006-08-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2006-08-09
- Phantom: SAM 4; Type: Twin Phantom; Serial: TP-1410
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

d=10mm, Pin=250mW/Area Scan (71x71x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (interpolated) = 16.5 mW/g

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

Reference Value = 87.0 V/m

Peak SAR (extrapolated) = 30.5 W/kg

SAR(1 g) = 14.4 mW/g

SAR(10 g) = 6.64 mW/g

Power Drift = -0.130 dB

Maximum value of SAR (measured) = 16.4 mW/g



Date/Time: 2007-04-25 09:51:15

Test Laboratory: TCC Nokia
Type: D835V2; Serial: 4d042

Communication System: CW835

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: Body 850; Medium Notes: Medium Temperature: $t = 22.0\text{ C}$

Medium parameters used: $f = 835\text{ MHz}$; $\sigma = 0.968\text{ mho/m}$; $\epsilon_r = 54$; $\rho = 1000\text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3118; Probe Notes:
- ConvF(5.65, 5.65, 5.65); Calibrated: 2006-08-31
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn573; Calibrated: 2006-09-08
- Phantom: SAM 5; Type: Twin Phantom; Serial: TP-1412
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

d=15mm, Pin=250mW/Area Scan (61x121x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (interpolated) = 2.81 mW/g

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

Reference Value = 54.5 V/m

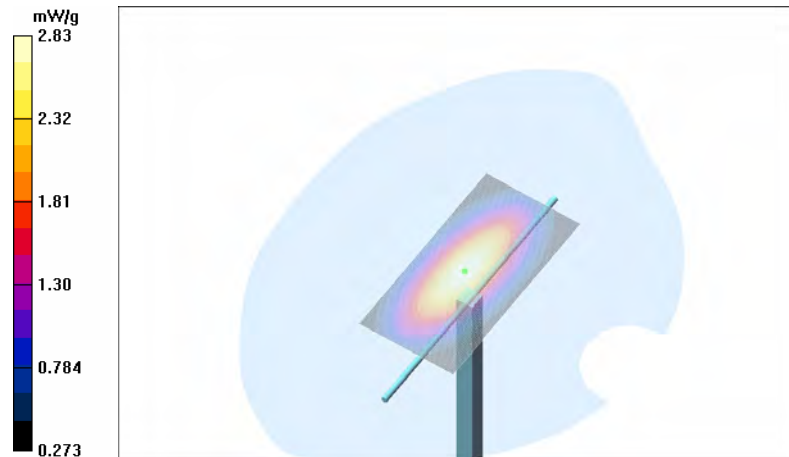
Peak SAR (extrapolated) = 3.89 W/kg

SAR(1 g) = 2.61 mW/g

SAR(10 g) = 1.71 mW/g

Power Drift = -0.121 dB

Maximum value of SAR (measured) = 2.83 mW/g



Date/Time: 2007-05-03 07:15:45

Test Laboratory: TCC Nokia
Type: D1900V2; Serial: 5d026

Communication System: CW1900

Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: Body 1900; Medium Notes: Medium Temperature: $t=22.2$ C

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.5$ mho/m; $\epsilon_r = 52.9$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3118; Probe Notes:
- ConvF(4.62, 4.62, 4.62); Calibrated: 2006-08-31
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn573; Calibrated: 2006-09-08
- Phantom: SAM 8; Type: SAM Twin Phantom; Serial: TP-1408
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

d=10mm, Pin=250mW/Area Scan (71x71x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 12.2 mW/g

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

Reference Value = 91.8 V/m

Peak SAR (extrapolated) = 18.4 W/kg

SAR(1 g) = 10.6 mW/g

SAR(10 g) = 5.64 mW/g

Power Drift = 0.003 dB

Maximum value of SAR (measured) = 12.1 mW/g



Date/Time: 2007-06-26 10:38:28

Test Laboratory: TCC Nokia

Type: D2450V2; Serial: 750

Communication System: CW2450

Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: Body 2450; Medium Notes: Medium Temperature: $t=22.2\text{ C}$

Medium parameters used: $f = 2450\text{ MHz}$; $\sigma = 1.96\text{ mho/m}$; $\epsilon_r = 51.7$; $\rho = 1000\text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(4.2, 4.2, 4.2); Calibrated: 2006-08-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2006-08-09
- Phantom: SAM 4; Type: Twin Phantom; Serial: TP-1410
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

d=10mm, Pin=250mW/Area Scan (71x71x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (interpolated) = 15.8 mW/g

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

Reference Value = 84.7 V/m

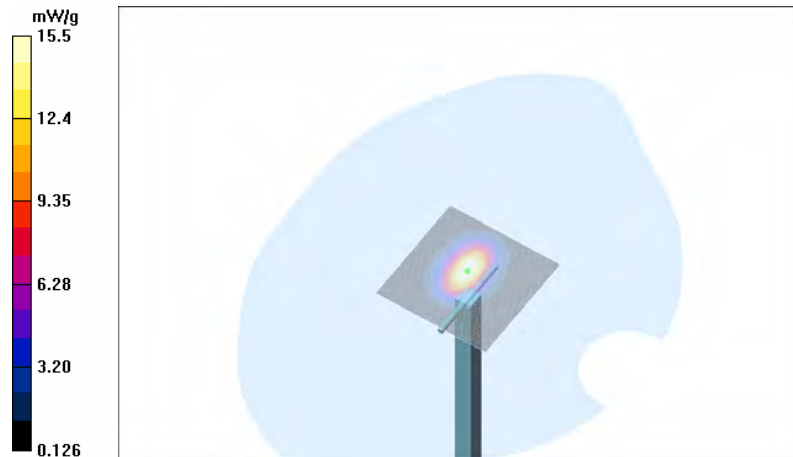
Peak SAR (extrapolated) = 27.6 W/kg

SAR(1 g) = 13.5 mW/g

SAR(10 g) = 6.31 mW/g

Power Drift = 0.043 dB

Maximum value of SAR (measured) = 15.5 mW/g



APPENDIX B: MEASUREMENT SCANS

See the following pages

Date/Time: 2007-04-24 09:54:19

Test Laboratory: TCC Nokia

Type: RM-179; Serial: 004401/01/101586/0

Communication System: GSM850

Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium: Head 850; Medium Notes: Medium Temperature: $t=21.3$ C

Medium parameters used: $f = 837$ MHz; $\sigma = 0.905$ mho/m; $\epsilon_r = 41$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(5.78, 5.78, 5.78); Calibrated: 2006-08-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2006-08-09
- Phantom: SAM 1; Type: Twin Phantom; Serial: TP-1215
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Cheek position - Middle – Slide closed/Area Scan (51x91x1): Measurement grid: $dx=15$ mm, $dy=15$ mm

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

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

Reference Value = 6.05 V/m

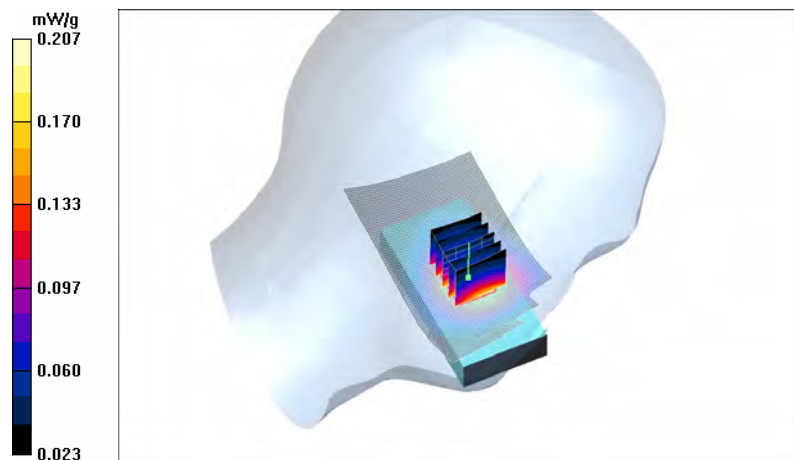
Peak SAR (extrapolated) = 0.253 W/kg

SAR(1 g) = 0.194 mW/g

SAR(10 g) = 0.139 mW/g

Power Drift = -0.090 dB

Maximum value of SAR (measured) = 0.207 mW/g



Date/Time: 2007-04-24 11:44:54

Test Laboratory: TCC Nokia

Type: RM-179; Serial: 004401/01/101586/0

Communication System: 2-slot GPRS850

Frequency: 848.8 MHz; Duty Cycle: 1:4.2

Medium: Head 850; Medium Notes: Medium Temperature: $t=21.3$ C

Medium parameters used: $f = 849$ MHz; $\sigma = 0.916$ mho/m; $\epsilon_r = 40.9$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(5.78, 5.78, 5.78); Calibrated: 2006-08-18
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2006-08-09
- Phantom: SAM 1; Type: Twin Phantom; Serial: TP-1215
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Cheek position - High – Slide closed/Area Scan (51x91x1): Measurement grid: $dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.590 mW/g

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

Reference Value = 9.50 V/m

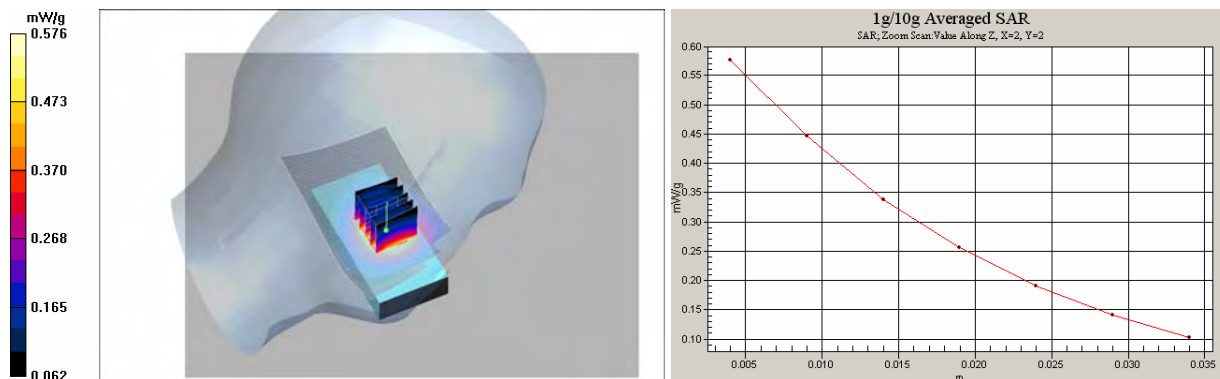
Peak SAR (extrapolated) = 0.693 W/kg

SAR(1 g) = 0.537 mW/g

SAR(10 g) = 0.384 mW/g

Power Drift = 0.061 dB

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



Date/Time: 2007-04-24 10:47:32

Test Laboratory: TCC Nokia

Type: RM-179; Serial: 004401/01/101586/0

Communication System: 2-slot GPRS850

Frequency: 836.6 MHz; Duty Cycle: 1:4.2

Medium: Head 850; Medium Notes: Medium Temperature: $t=21.3$ C

Medium parameters used: $f = 837$ MHz; $\sigma = 0.905$ mho/m; $\epsilon_r = 41$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(5.78, 5.78, 5.78); Calibrated: 2006-08-18
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)) Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2006-08-09
- Phantom: SAM 1; Type: Twin Phantom; Serial: TP-1215
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt position - Middle – Slide closed/Area Scan (51x91x1): Measurement grid: $dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.255 mW/g

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

Reference Value = 11.5 V/m

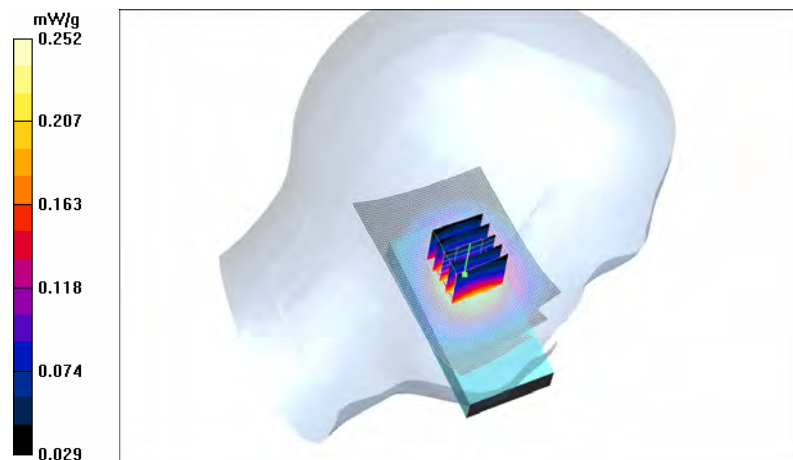
Peak SAR (extrapolated) = 0.308 W/kg

SAR(1 g) = 0.236 mW/g

SAR(10 g) = 0.169 mW/g

Power Drift = -0.137 dB

Maximum value of SAR (measured) = 0.252 mW/g



Date/Time: 2007-04-24 11:02:01

Test Laboratory: TCC Nokia

Type: RM-179; Serial: 004401/01/101586/0

Communication System: 2-slot GPRS850

Frequency: 836.6 MHz; Duty Cycle: 1:4.2

Medium: Head 850; Medium Notes: Medium Temperature: t=21.3 C

Medium parameters used: f = 837 MHz; σ = 0.905 mho/m; ϵ_r = 41; ρ = 1000 kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(5.78, 5.78, 5.78); Calibrated: 2006-08-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2006-08-09
- Phantom: SAM 1; Type: Twin Phantom; Serial: TP-1215
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Cheek position - Middle – Slide closed/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.365 mW/g

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

Reference Value = 8.21 V/m

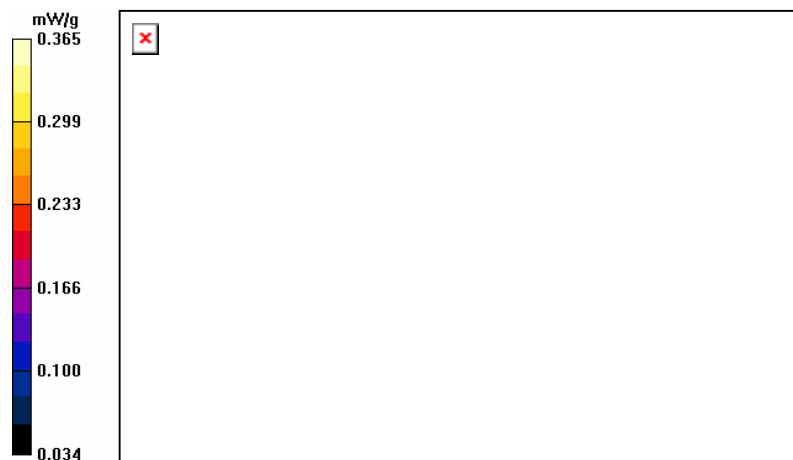
Peak SAR (extrapolated) = 0.438 W/kg

SAR(1 g) = 0.333 mW/g

SAR(10 g) = 0.231 mW/g

Power Drift = -0.092 dB

Maximum value of SAR (measured) = 0.365 mW/g



Date/Time: 2007-04-24 11:14:58

Test Laboratory: TCC Nokia

Type: RM-179; Serial: 004401/01/101586/0

Communication System: 2-slot GPRS850

Frequency: 836.6 MHz; Duty Cycle: 1:4.2

Medium: Head 850; Medium Notes: Medium Temperature: $t=21.3$ C

Medium parameters used: $f = 837$ MHz; $\sigma = 0.905$ mho/m; $\epsilon_r = 41$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(5.78, 5.78, 5.78); Calibrated: 2006-08-18
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2006-08-09
- Phantom: SAM 1; Type: Twin Phantom; Serial: TP-1215
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt position - Middle – Slide closed/Area Scan (51x91x1): Measurement grid: $dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.247 mW/g

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

Reference Value = 11.5 V/m

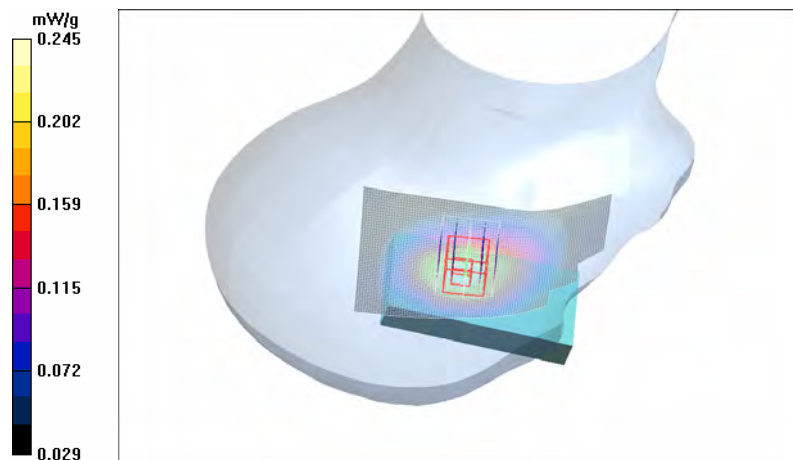
Peak SAR (extrapolated) = 0.298 W/kg

SAR(1 g) = 0.230 mW/g

SAR(10 g) = 0.165 mW/g

Power Drift = 0.071 dB

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



Date/Time: 2007-04-24 11:58:28

Test Laboratory: TCC Nokia

Type: RM-179; Serial: 004401/01/101586/0

Communication System: 2-slot GPRS850

Frequency: 836.6 MHz; Duty Cycle: 1:4.2

Medium: Head 850; Medium Notes: Medium Temperature: $t=21.3$ C

Medium parameters used: $f = 837$ MHz; $\sigma = 0.905$ mho/m; $\epsilon_r = 41$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(5.78, 5.78, 5.78); Calibrated: 2006-08-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2006-08-09
- Phantom: SAM 1; Type: Twin Phantom; Serial: TP-1215
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Cheek position - Middle – Slide open/Area Scan (51x111x1): Measurement grid: $dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.313 mW/g

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

Reference Value = 6.47 V/m

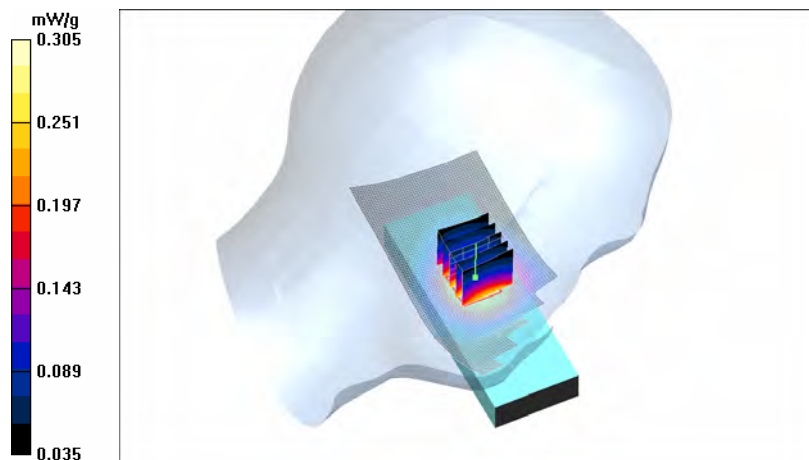
Peak SAR (extrapolated) = 0.367 W/kg

SAR(1 g) = 0.287 mW/g

SAR(10 g) = 0.207 mW/g

Power Drift = 0.262 dB

Maximum value of SAR (measured) = 0.305 mW/g



Date/Time: 2007-04-24 12:16:08

Test Laboratory: TCC Nokia

Type: RM-179; Serial: 004401/01/101586/0

Communication System: 2-slot GPRS850

Frequency: 836.6 MHz; Duty Cycle: 1:4.2

Medium: Head 850; Medium Notes: Medium Temperature: t=21.3 C

Medium parameters used: f = 837 MHz; $\sigma = 0.905$ mho/m; $\epsilon_r = 41$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(5.78, 5.78, 5.78); Calibrated: 2006-08-18
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2006-08-09
- Phantom: SAM 1; Type: Twin Phantom; Serial: TP-1215
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt position - Middle – Slide open/Area Scan (51x111x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.203 mW/g

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

Reference Value = 9.68 V/m

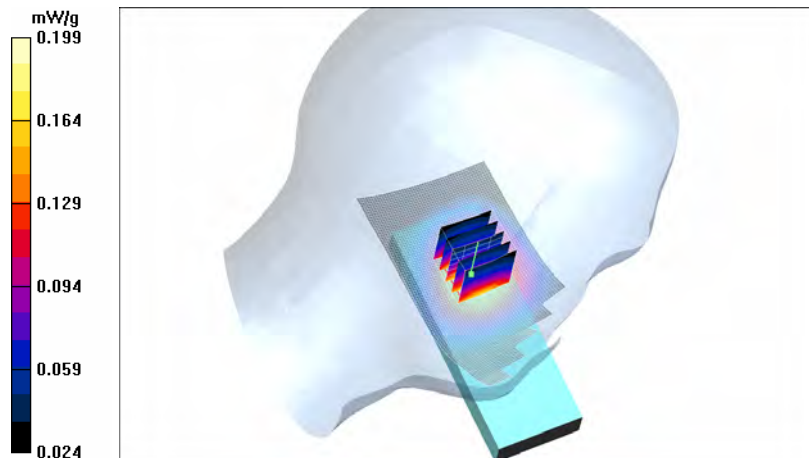
Peak SAR (extrapolated) = 0.248 W/kg

SAR(1 g) = 0.189 mW/g

SAR(10 g) = 0.137 mW/g

Power Drift = -0.143 dB

Maximum value of SAR (measured) = 0.199 mW/g



Date/Time: 2007-04-24 12:29:51

Test Laboratory: TCC Nokia
Type: RM-179; Serial: 004401/01/101586/0

Communication System: 2-slot GPRS850

Frequency: 836.6 MHz; Duty Cycle: 1:4.2

Medium: Head 850; Medium Notes: Medium Temperature: $t=21.3$ C

Medium parameters used: $f = 837$ MHz; $\sigma = 0.905$ mho/m; $\epsilon_r = 41$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(5.78, 5.78, 5.78); Calibrated: 2006-08-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2006-08-09
- Phantom: SAM 1; Type: Twin Phantom; Serial: TP-1215
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Cheek position - Middle – Slide open/Area Scan (51x111x1): Measurement grid: $dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.376 mW/g

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

Reference Value = 6.49 V/m

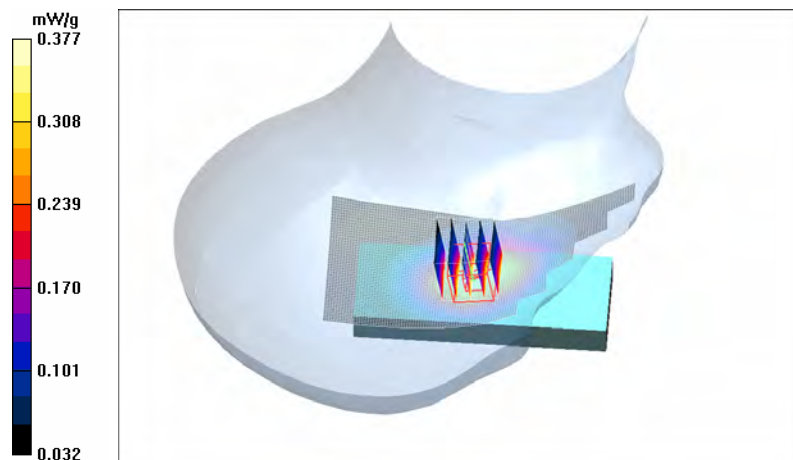
Peak SAR (extrapolated) = 0.461 W/kg

SAR(1 g) = 0.351 mW/g

SAR(10 g) = 0.248 mW/g

Power Drift = -0.133 dB

Maximum value of SAR (measured) = 0.377 mW/g



Date/Time: 2007-04-24 12:44:51

Test Laboratory: TCC Nokia

Type: RM-179; Serial: 004401/01/101586/0

Communication System: 2-slot GPRS850

Frequency: 836.6 MHz; Duty Cycle: 1:4.2

Medium: Head 850; Medium Notes: Medium Temperature: $t=21.3$ C

Medium parameters used: $f = 837$ MHz; $\sigma = 0.905$ mho/m; $\epsilon_r = 41$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(5.78, 5.78, 5.78); Calibrated: 2006-08-18
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2006-08-09
- Phantom: SAM 1; Type: Twin Phantom; Serial: TP-1215
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt position - Middle – Slide open/Area Scan (51x111x1): Measurement grid: $dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.204 mW/g

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

Reference Value = 9.35 V/m

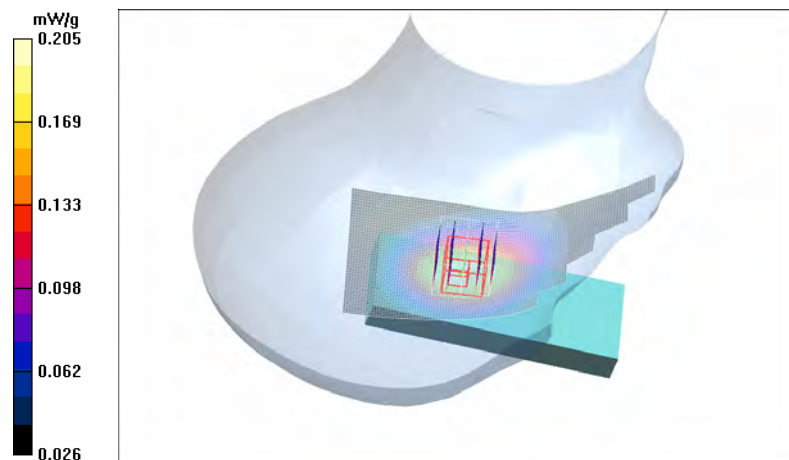
Peak SAR (extrapolated) = 0.249 W/kg

SAR(1 g) = 0.193 mW/g

SAR(10 g) = 0.140 mW/g

Power Drift = 0.069 dB

Maximum value of SAR (measured) = 0.205 mW/g



Date/Time: 2007-04-24 10:26:51

Test Laboratory: TCC Nokia
Type: RM-179; Serial: 004401/01/101586/0

Communication System: 3-slot GPRS850

Frequency: 836.6 MHz; Duty Cycle: 1:2.8

Medium: Head 850; Medium Notes: Medium Temperature: $t=21.3$ C

Medium parameters used: $f = 837$ MHz; $\sigma = 0.905$ mho/m; $\epsilon_r = 41$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(5.78, 5.78, 5.78); Calibrated: 2006-08-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2006-08-09
- Phantom: SAM 1; Type: Twin Phantom; Serial: TP-1215
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Cheek position - Middle – Slide closed/Area Scan (51x91x1): Measurement grid: $dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.255 mW/g

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

Reference Value = 6.55 V/m

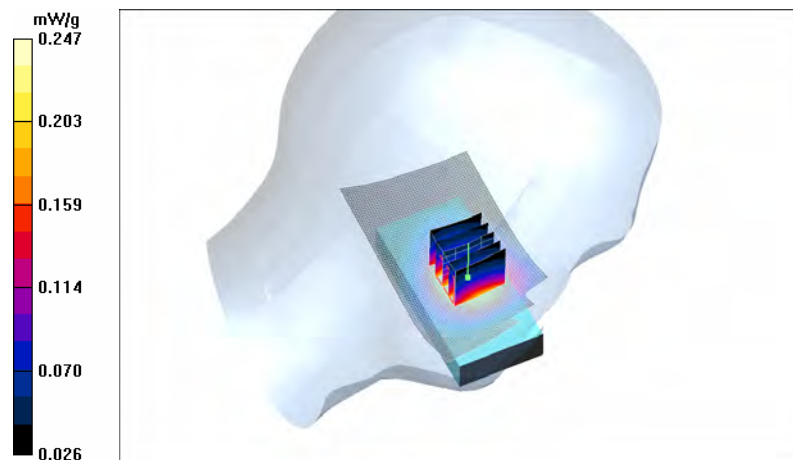
Peak SAR (extrapolated) = 0.296 W/kg

SAR(1 g) = 0.228 mW/g

SAR(10 g) = 0.162 mW/g

Power Drift = -0.025 dB

Maximum value of SAR (measured) = 0.247 mW/g



Date/Time: 2007-05-03 14:12:21

Test Laboratory: TCC Nokia

Type: RM-179; Serial: 004401/01/101586/0

Communication System: 2-slot 8PSK EGPRS850

Frequency: 848.8 MHz; Duty Cycle: 1:4.2

Medium: Head 850; Medium Notes: Medium Temperature: t=21.9 C

Medium parameters used: f = 849 MHz; $\sigma = 0.916$ mho/m; $\epsilon_r = 40.9$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(5.78, 5.78, 5.78); Calibrated: 2006-08-18
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2006-08-09
- Phantom: SAM 1; Type: Twin Phantom; Serial: TP-1215
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Cheek position - High – Slide closed/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.139 mW/g

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

Reference Value = 4.66 V/m

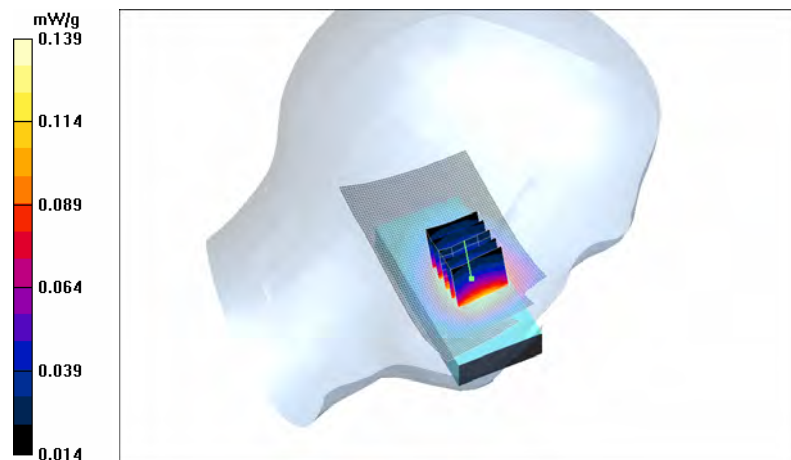
Peak SAR (extrapolated) = 0.164 W/kg

SAR(1 g) = 0.127 mW/g

SAR(10 g) = 0.091 mW/g

Power Drift = -0.218 dB

Maximum value of SAR (measured) = 0.139 mW/g



Date/Time: 2007-04-24 13:33:21

Test Laboratory: TCC Nokia

Type: RM-179; Serial: 004401/01/101586/0

Communication System: 2-slot GPRS850

Frequency: 848.8 MHz; Duty Cycle: 1:4.2

Medium: Head 850; Medium Notes: Medium Temperature: t=21.3 C

Medium parameters used: f = 849 MHz; $\sigma = 0.916$ mho/m; $\epsilon_r = 40.9$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(5.78, 5.78, 5.78); Calibrated: 2006-08-18
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2006-08-09
- Phantom: SAM 1; Type: Twin Phantom; Serial: TP-1215
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Cheek position - High – Slide closed - BT active/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.606 mW/g

Cheek position - High – Slide closed - BT active/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 10.2 V/m

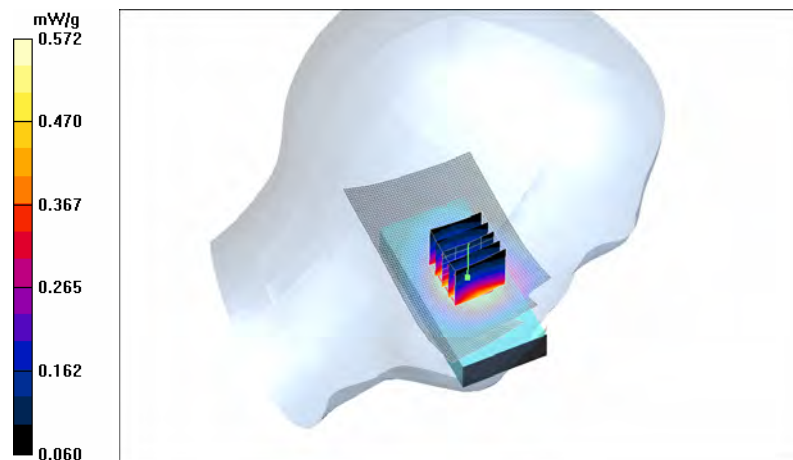
Peak SAR (extrapolated) = 0.690 W/kg

SAR(1 g) = 0.533 mW/g

SAR(10 g) = 0.381 mW/g

Power Drift = -0.062 dB

Maximum value of SAR (measured) = 0.572 mW/g



Date/Time: 2007-04-26 10:37:28

Test Laboratory: TCC Nokia
Type: RM-179; Serial: 004401/01/101586/0

Communication System: GSM 1900

Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium: Head 1900; Medium Notes: Medium Temperature: $t=21.6\text{ }^{\circ}\text{C}$

Medium parameters used: $f = 1880\text{ MHz}$; $\sigma = 1.44\text{ mho/m}$; $\epsilon_r = 38.9$; $\rho = 1000\text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(5.09, 5.09, 5.09); Calibrated: 2006-08-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2006-08-09
- Phantom: SAM 3; Type: Twin Phantom; Serial: TP-1302
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Cheek position - Middle – Slide closed/Area Scan (51x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.230 mW/g

Cheek position - Middle – Slide closed/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=7.5\text{mm}$, $dy=7.5\text{mm}$, $dz=5\text{mm}$

Reference Value = 5.17 V/m

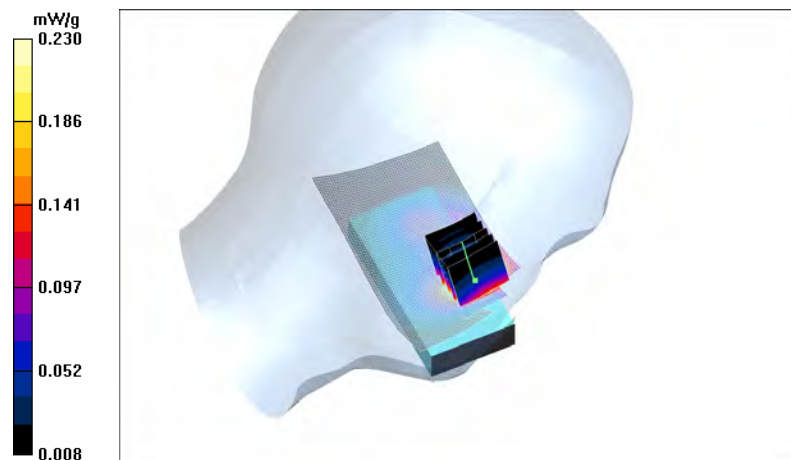
Peak SAR (extrapolated) = 0.323 W/kg

SAR(1 g) = 0.212 mW/g

SAR(10 g) = 0.131 mW/g

Power Drift = -0.086 dB

Maximum value of SAR (measured) = 0.230 mW/g



Date/Time: 2007-04-26 10:51:26

Test Laboratory: TCC Nokia

Type: RM-179; Serial: 004401/01/101586/0

Communication System: 2-slot GPRS1900

Frequency: 1880 MHz; Duty Cycle: 1:4.2

Medium: Head 1900; Medium Notes: Medium Temperature: t=21.6 C

Medium parameters used: f = 1880 MHz; σ = 1.44 mho/m; ϵ_r = 38.9; ρ = 1000 kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(5.09, 5.09, 5.09); Calibrated: 2006-08-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2006-08-09
- Phantom: SAM 3; Type: Twin Phantom; Serial: TP-1302
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Cheek position - Middle – Slide closed/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.416 mW/g

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

Reference Value = 6.97 V/m

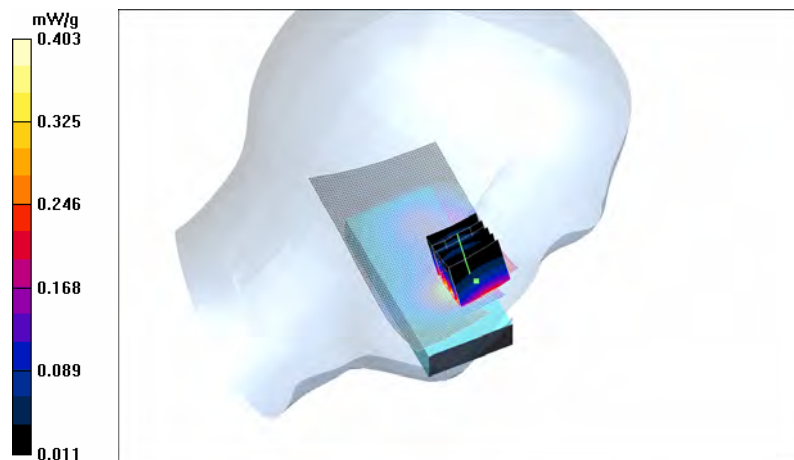
Peak SAR (extrapolated) = 0.581 W/kg

SAR(1 g) = 0.378 mW/g

SAR(10 g) = 0.233 mW/g

Power Drift = -0.242 dB

Maximum value of SAR (measured) = 0.403 mW/g



Date/Time: 2007-04-26 11:11:22

Test Laboratory: TCC Nokia

Type: RM-179; Serial: 004401/01/101586/0

Communication System: 3-slot GPRS1900

Frequency: 1880 MHz; Duty Cycle: 1:2.8

Medium: Head 1900; Medium Notes: Medium Temperature: t=21.6 C

Medium parameters used: f = 1880 MHz; σ = 1.44 mho/m; ϵ_r = 38.9; ρ = 1000 kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(5.09, 5.09, 5.09); Calibrated: 2006-08-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2006-08-09
- Phantom: SAM 3; Type: Twin Phantom; Serial: TP-1302
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Cheek position - Middle – Slide closed/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

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

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

Reference Value = 7.71 V/m

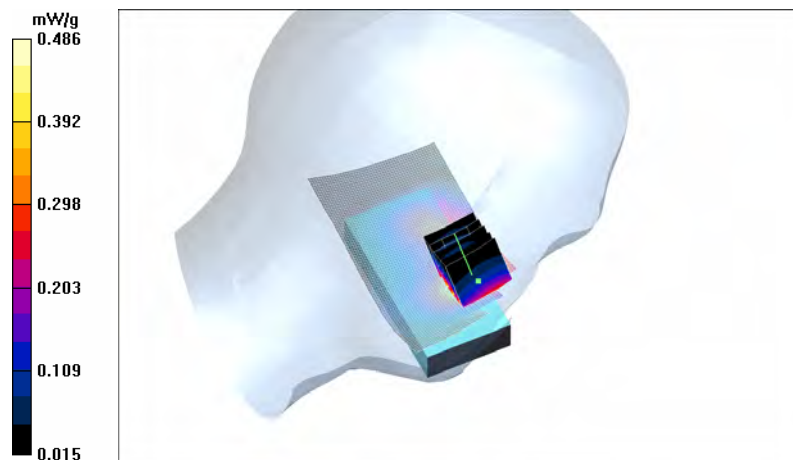
Peak SAR (extrapolated) = 0.681 W/kg

SAR(1 g) = 0.442 mW/g

SAR(10 g) = 0.278 mW/g

Power Drift = -0.277 dB

Maximum value of SAR (measured) = 0.486 mW/g



Date/Time: 2007-04-26 11:28:21

Test Laboratory: TCC Nokia

Type: RM-179; Serial: 004401/01/101586/0

Communication System: 3-slot GPRS1900

Frequency: 1880 MHz; Duty Cycle: 1:2.8

Medium: Head 1900; Medium Notes: Medium Temperature: t=21.6 C

Medium parameters used: f = 1880 MHz; $\sigma = 1.44$ mho/m; $\epsilon_r = 38.9$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(5.09, 5.09, 5.09); Calibrated: 2006-08-18
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2006-08-09
- Phantom: SAM 3; Type: Twin Phantom; Serial: TP-1302
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt position - Middle – Slide closed/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.388 mW/g

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

Reference Value = 13.0 V/m

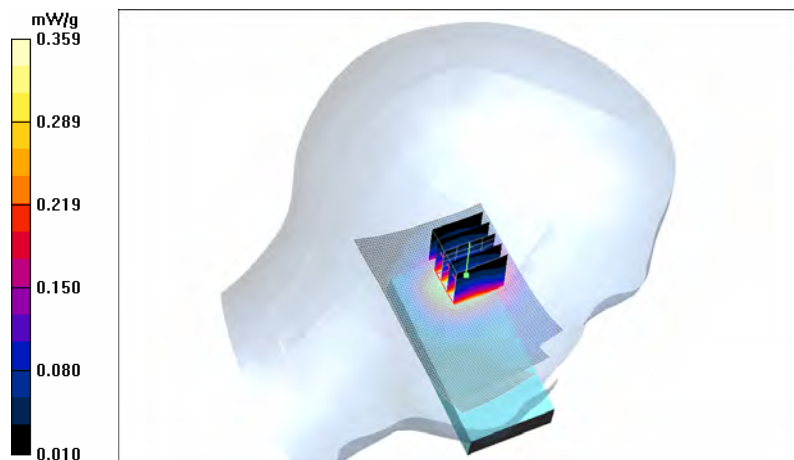
Peak SAR (extrapolated) = 0.505 W/kg

SAR(1 g) = 0.329 mW/g

SAR(10 g) = 0.205 mW/g

Power Drift = -0.256 dB

Maximum value of SAR (measured) = 0.359 mW/g



Date/Time: 2007-04-26 12:31:25

Test Laboratory: TCC Nokia

Type: RM-179; Serial: 004401/01/101586/0

Communication System: 3-slot GPRS1900

Frequency: 1909.8 MHz; Duty Cycle: 1:2.8

Medium: Head 1900; Medium Notes: Medium Temperature: $t=21.6\text{ }^{\circ}\text{C}$

Medium parameters used: $f = 1910\text{ MHz}$; $\sigma = 1.47\text{ mho/m}$; $\epsilon_r = 38.7$; $\rho = 1000\text{ kg/m}^3$

Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(5.09, 5.09, 5.09); Calibrated: 2006-08-18
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2006-08-09
- Phantom: SAM 3; Type: Twin Phantom; Serial: TP-1302
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Cheek position - High – Slide closed/Area Scan (51x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 1.08 mW/g

Cheek position - High – Slide closed/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=7.5\text{mm}$, $dy=7.5\text{mm}$, $dz=5\text{mm}$

Reference Value = 6.72 V/m

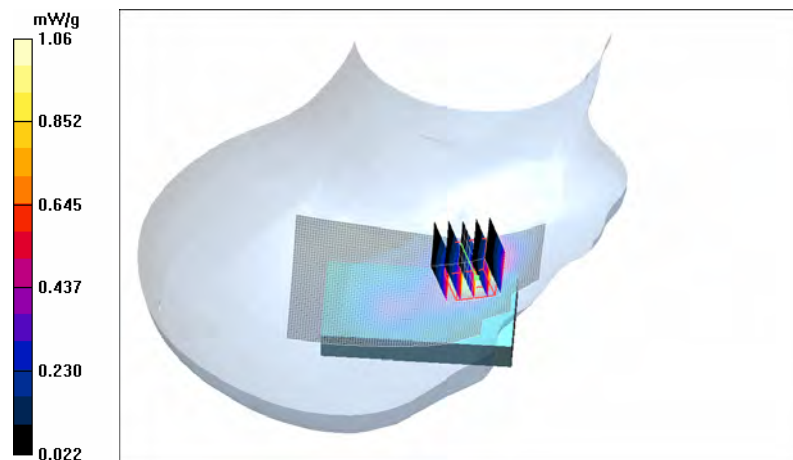
Peak SAR (extrapolated) = 1.75 W/kg

SAR(1 g) = 0.974 mW/g

SAR(10 g) = 0.529 mW/g

Power Drift = -0.076 dB

Maximum value of SAR (measured) = 1.06 mW/g



Date/Time: 2007-04-26 11:58:55

Test Laboratory: TCC Nokia

Type: RM-179; Serial: 004401/01/101586/0

Communication System: 3-slot GPRS1900

Frequency: 1880 MHz; Duty Cycle: 1:2.8

Medium: Head 1900; Medium Notes: Medium Temperature: t=21.6 C

Medium parameters used: f = 1880 MHz; $\sigma = 1.44$ mho/m; $\epsilon_r = 38.9$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(5.09, 5.09, 5.09); Calibrated: 2006-08-18
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2006-08-09
- Phantom: SAM 3; Type: Twin Phantom; Serial: TP-1302
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt position - Middle – Slide closed/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.404 mW/g

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

Reference Value = 12.3 V/m

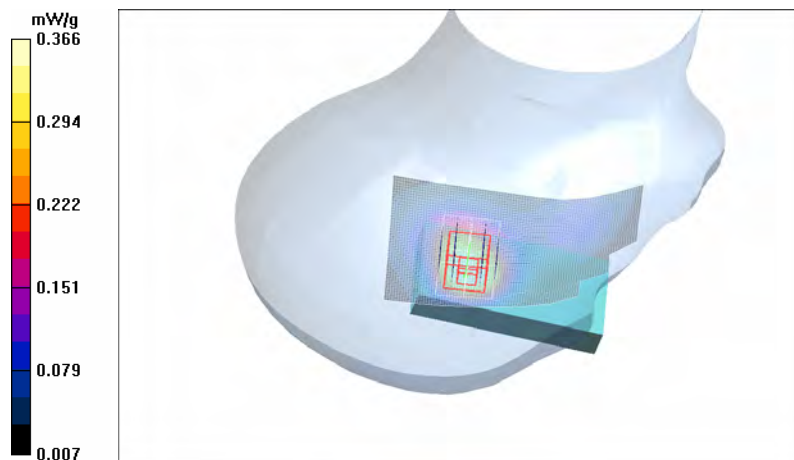
Peak SAR (extrapolated) = 0.534 W/kg

SAR(1 g) = 0.338 mW/g

SAR(10 g) = 0.210 mW/g

Power Drift = 0.013 dB

Maximum value of SAR (measured) = 0.366 mW/g



Date/Time: 2007-04-26 13:21:33

Test Laboratory: TCC Nokia

Type: RM-179; Serial: 004401/01/101586/0

Communication System: 3-slot GPRS1900

Frequency: 1880 MHz; Duty Cycle: 1:2.8

Medium: Head 1900; Medium Notes: Medium Temperature: $t=21.6$ C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.44$ mho/m; $\epsilon_r = 38.9$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(5.09, 5.09, 5.09); Calibrated: 2006-08-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2006-08-09
- Phantom: SAM 3; Type: Twin Phantom; Serial: TP-1302
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Cheek position - Middle – Slide open/Area Scan (51x111x1): Measurement grid: $dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.280 mW/g

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

Reference Value = 4.81 V/m

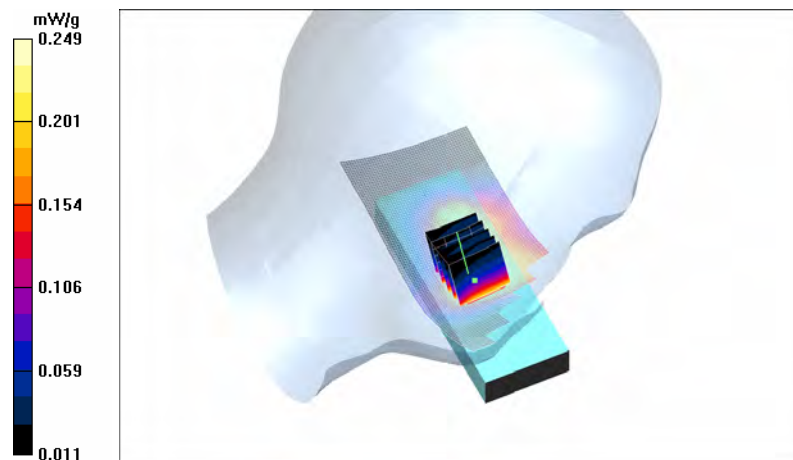
Peak SAR (extrapolated) = 0.349 W/kg

SAR(1 g) = 0.236 mW/g

SAR(10 g) = 0.157 mW/g

Power Drift = -0.213 dB

Maximum value of SAR (measured) = 0.249 mW/g



Date/Time: 2007-04-26 13:36:05

Test Laboratory: TCC Nokia

Type: RM-179; Serial: 004401/01/101586/0

Communication System: 3-slot GPRS1900

Frequency: 1880 MHz; Duty Cycle: 1:2.8

Medium: Head 1900; Medium Notes: Medium Temperature: $t=21.6$ C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.44$ mho/m; $\epsilon_r = 38.9$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(5.09, 5.09, 5.09); Calibrated: 2006-08-18
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2006-08-09
- Phantom: SAM 3; Type: Twin Phantom; Serial: TP-1302
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt position - Middle – Slide open/Area Scan (51x111x1): Measurement grid: $dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.285 mW/g

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

Reference Value = 9.16 V/m

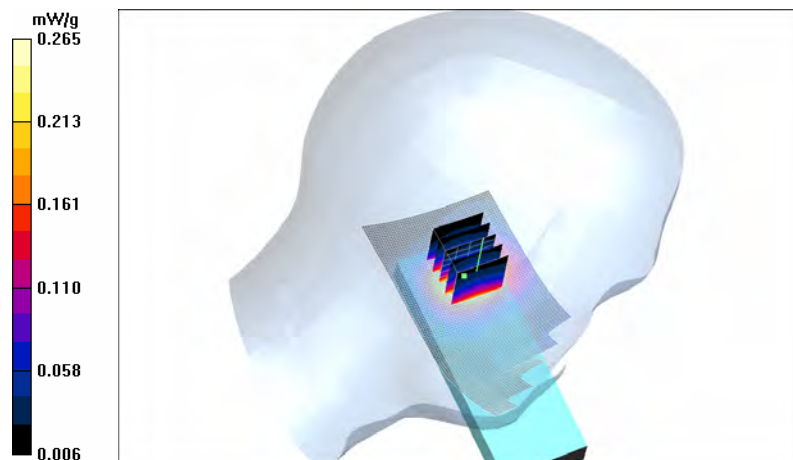
Peak SAR (extrapolated) = 0.382 W/kg

SAR(1 g) = 0.247 mW/g

SAR(10 g) = 0.153 mW/g

Power Drift = -0.054 dB

Maximum value of SAR (measured) = 0.265 mW/g



Date/Time: 2007-04-26 13:51:49

Test Laboratory: TCC Nokia

Type: RM-179; Serial: 004401/01/101586/0

Communication System: 3-slot GPRS1900

Frequency: 1880 MHz; Duty Cycle: 1:2.8

Medium: Head 1900; Medium Notes: Medium Temperature: $t=21.6$ C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.44$ mho/m; $\epsilon_r = 38.9$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(5.09, 5.09, 5.09); Calibrated: 2006-08-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2006-08-09
- Phantom: SAM 3; Type: Twin Phantom; Serial: TP-1302
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Cheek position - Middle – Slide open/Area Scan (51x111x1): Measurement grid: $dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.457 mW/g

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

Reference Value = 4.71 V/m

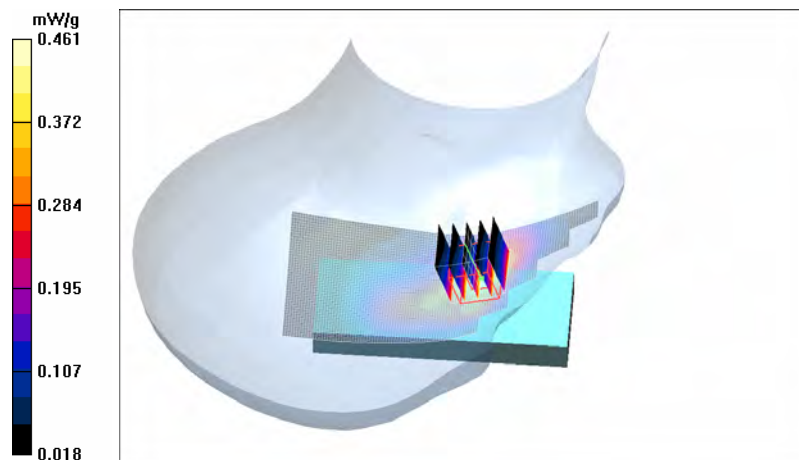
Peak SAR (extrapolated) = 0.714 W/kg

SAR(1 g) = 0.427 mW/g

SAR(10 g) = 0.256 mW/g

Power Drift = -0.477 dB

Maximum value of SAR (measured) = 0.461 mW/g



Date/Time: 2007-04-26 15:27:40

Test Laboratory: TCC Nokia

Type: RM-179; Serial: 004401/01/101586/0

Communication System: 3-slot GPRS1900

Frequency: 1880 MHz; Duty Cycle: 1:2.8

Medium: Head 1900; Medium Notes: Medium Temperature: t=21.6 C

Medium parameters used: f = 1880 MHz; σ = 1.44 mho/m; ϵ_r = 38.9; ρ = 1000 kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(5.09, 5.09, 5.09); Calibrated: 2006-08-18
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2006-08-09
- Phantom: SAM 3; Type: Twin Phantom; Serial: TP-1302
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt position - Middle – Slide open/Area Scan (51x111x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.431 mW/g

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

Reference Value = 8.87 V/m

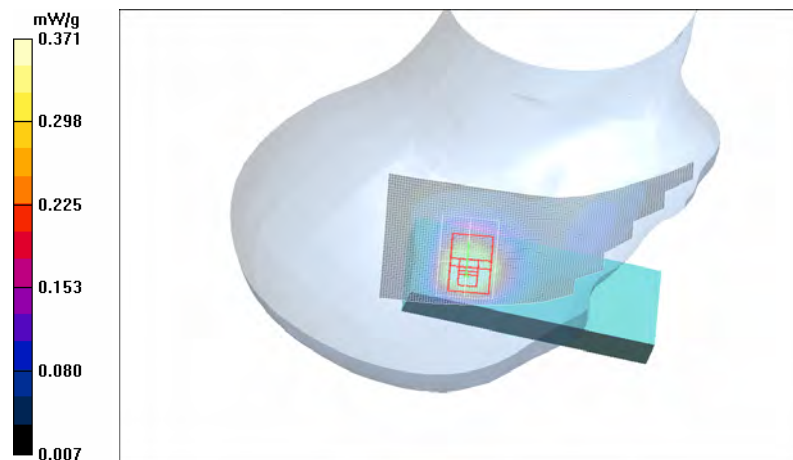
Peak SAR (extrapolated) = 0.541 W/kg

SAR(1 g) = 0.341 mW/g

SAR(10 g) = 0.207 mW/g

Power Drift = -0.123 dB

Maximum value of SAR (measured) = 0.371 mW/g



Date/Time: 2007-04-26 17:55:11

Test Laboratory: TCC Nokia

Type: RM-179; Serial: 004401/01/101586/0

Communication System: 3-slot 8PSK EGPRS1900

Frequency: 1909.8 MHz; Duty Cycle: 1:2.8

Medium: Head 1900; Medium Notes: Medium Temperature: t=21.6 C

Medium parameters used: f = 1910 MHz; σ = 1.47 mho/m; ϵ_r = 38.7; ρ = 1000 kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(5.09, 5.09, 5.09); Calibrated: 2006-08-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2006-08-09
- Phantom: SAM 3; Type: Twin Phantom; Serial: TP-1302
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Cheek position - High – Slide closed/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.346 mW/g

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

Reference Value = 3.81 V/m

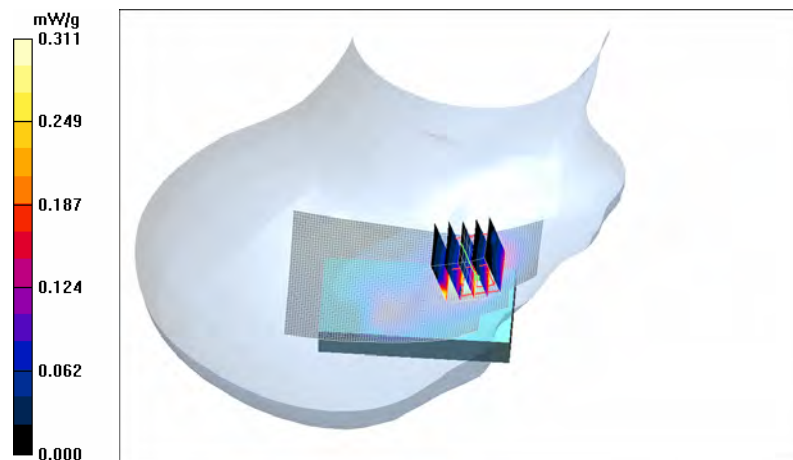
Peak SAR (extrapolated) = 0.522 W/kg

SAR(1 g) = 0.277 mW/g

SAR(10 g) = 0.140 mW/g

Power Drift = -0.253 dB

Maximum value of SAR (measured) = 0.311 mW/g



Date/Time: 2007-07-11 18:51:11

Test Laboratory: TCC Nokia

Type: RM-179; Serial: 004401/01/101586/0

Communication System: 3-slot GPRS1900

Frequency: 1909.8 MHz; Duty Cycle: 1:2.8

Medium: Head 1900; Medium Notes: Medium Temperature: $t=20.9\text{ }^{\circ}\text{C}$

Medium parameters used: $f = 1910\text{ MHz}$; $\sigma = 1.49\text{ mho/m}$; $\epsilon_r = 38.4$; $\rho = 1000\text{ kg/m}^3$

Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(5.09, 5.09, 5.09); Calibrated: 2006-08-18
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)) Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2006-08-09
- Phantom: SAM 3; Type: Twin Phantom; Serial: TP-1302
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Cheek position - High – Slide closed - BT active/Area Scan (51x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 1.18 mW/g

Cheek position - High – Slide closed - BT active/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=7.5\text{mm}$, $dy=7.5\text{mm}$, $dz=5\text{mm}$

Reference Value = 6.39 V/m

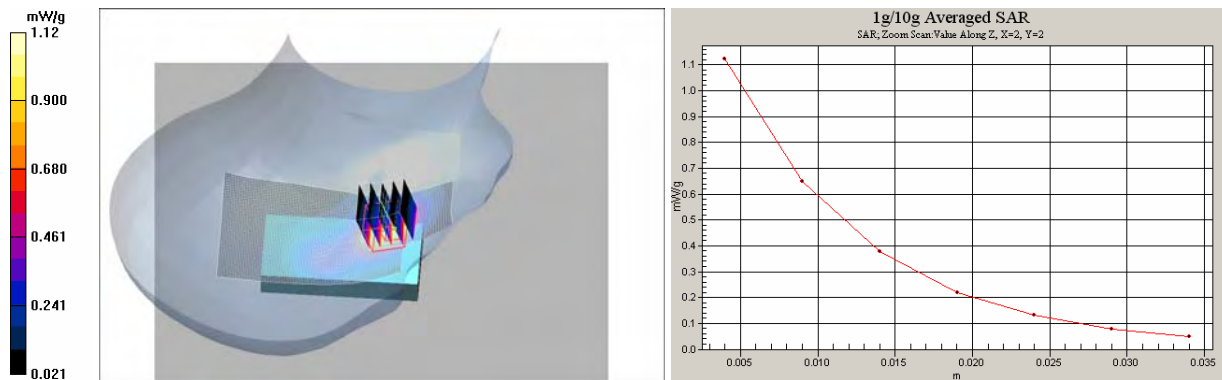
Peak SAR (extrapolated) = 1.79 W/kg

SAR(1 g) = 1.02 mW/g

SAR(10 g) = 0.572 mW/g

Power Drift = -0.088 dB

Maximum value of SAR (measured) = 1.12 mW/g



SAR Report

Cph_SAR_0718_06

Applicant: Nokia Corporation

Type: RM-179

Copyright © 2007 TCC Nokia

Date/Time: 2007-06-27 15:17:50

Test Laboratory: TCC Nokia

Type: RM-179; Serial: 004401/01/366016/8

Communication System: WLAN2450

Frequency: 2442 MHz; Duty Cycle: 1:1

Medium: Head 2450; Medium Notes: Medium Temperature: $t=22.3\text{ }^{\circ}\text{C}$

Medium parameters used: $f = 2442\text{ MHz}$; $\sigma = 1.86\text{ mho/m}$; $\epsilon_r = 38.4$; $\rho = 1000\text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(4.43, 4.43, 4.43); Calibrated: 2006-08-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2006-08-09
- Phantom: SAM 4; Type: Twin Phantom; Serial: TP-1410
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Cheek position - Middle - Slide closed/Area Scan (51x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.055 mW/g

Cheek position - Middle - Slide closed/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=7.5\text{mm}$, $dy=7.5\text{mm}$, $dz=5\text{mm}$

Reference Value = 5.22 V/m

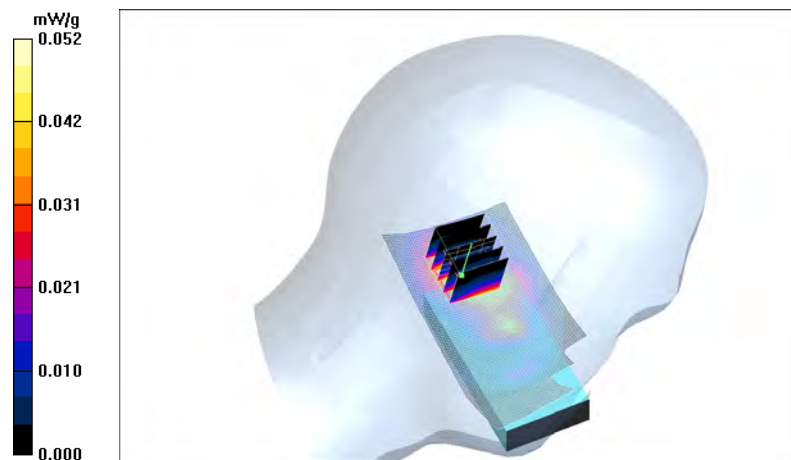
Peak SAR (extrapolated) = 0.093 W/kg

SAR(1 g) = 0.048 mW/g

SAR(10 g) = 0.026 mW/g

Power Drift = -0.022 dB

Maximum value of SAR (measured) = 0.052 mW/g



Date/Time: 2007-06-27 15:35:36

Test Laboratory: TCC Nokia

Type: RM-179; Serial: 004401/01/366016/8

Communication System: WLAN2450

Frequency: 2442 MHz; Duty Cycle: 1:1

Medium: Head 2450; Medium Notes: Medium Temperature: $t=22.3\text{ C}$

Medium parameters used: $f = 2442\text{ MHz}$; $\sigma = 1.86\text{ mho/m}$; $\epsilon_r = 38.4$; $\rho = 1000\text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(4.43, 4.43, 4.43); Calibrated: 2006-08-18
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2006-08-09
- Phantom: SAM 4; Type: Twin Phantom; Serial: TP-1410
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt position - Middle - Slide closed/Area Scan (51x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.051 mW/g

Tilt position - Middle - Slide closed/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=7.5\text{mm}$, $dy=7.5\text{mm}$, $dz=5\text{mm}$

Reference Value = 4.93 V/m

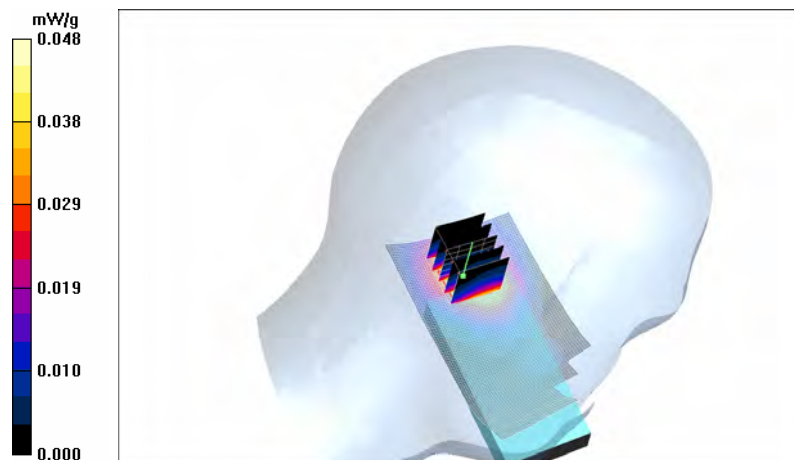
Peak SAR (extrapolated) = 0.089 W/kg

SAR(1 g) = 0.044 mW/g

SAR(10 g) = 0.024 mW/g

Power Drift = 0.141 dB

Maximum value of SAR (measured) = 0.048 mW/g



Date/Time: 2007-06-27 18:23:29

Test Laboratory: TCC Nokia
Type: RM-179; Serial: 004401/01/366016/8

Communication System: WLAN2450

Frequency: 2462 MHz; Duty Cycle: 1:1

Medium: Head 2450; Medium Notes: Medium Temperature: $t=22.3\text{ }^{\circ}\text{C}$

Medium parameters used: $f = 2462\text{ MHz}$; $\sigma = 1.88\text{ mho/m}$; $\epsilon_r = 38.3$; $\rho = 1000\text{ kg/m}^3$

Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(4.43, 4.43, 4.43); Calibrated: 2006-08-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2006-08-09
- Phantom: SAM 4; Type: Twin Phantom; Serial: TP-1410
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Cheek position - High - Slide closed/Area Scan (51x101x1): Measurement grid: $dx=15\text{ mm}$, $dy=15\text{ mm}$

Maximum value of SAR (interpolated) = 0.089 mW/g

Cheek position - High - Slide closed/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=7.5\text{ mm}$, $dy=7.5\text{ mm}$, $dz=5\text{ mm}$

Reference Value = 5.91 V/m

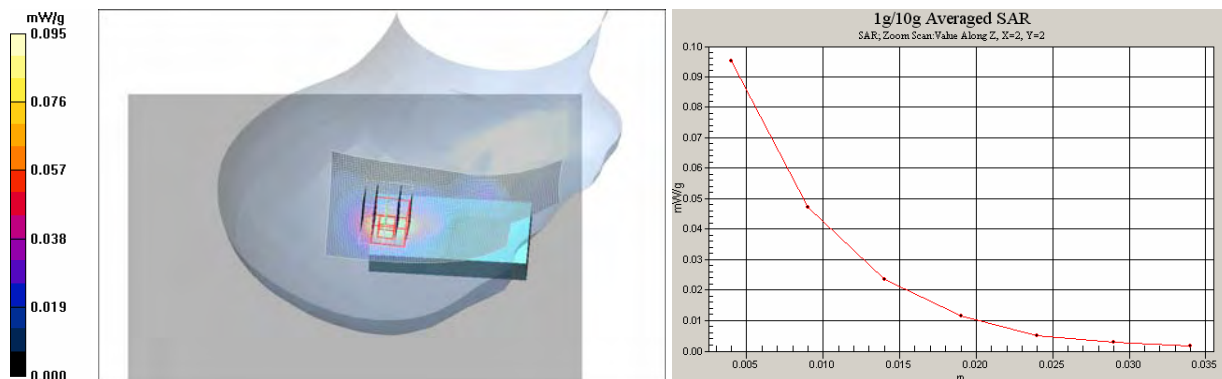
Peak SAR (extrapolated) = 0.171 W/kg

SAR(1 g) = 0.083 mW/g

SAR(10 g) = 0.041 mW/g

Power Drift = -0.100 dB

Maximum value of SAR (measured) = 0.095 mW/g



Date/Time: 2007-06-27 16:29:27

Test Laboratory: TCC Nokia

Type: RM-179; Serial: 004401/01/366016/8

Communication System: WLAN2450

Frequency: 2442 MHz; Duty Cycle: 1:1

Medium: Head 2450; Medium Notes: Medium Temperature: t=22.3 C

Medium parameters used: f = 2442 MHz; σ = 1.86 mho/m; ϵ_r = 38.4; ρ = 1000 kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(4.43, 4.43, 4.43); Calibrated: 2006-08-18
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2006-08-09
- Phantom: SAM 4; Type: Twin Phantom; Serial: TP-1410
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt position - Middle - Slide closed/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.076 mW/g

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

Reference Value = 5.66 V/m

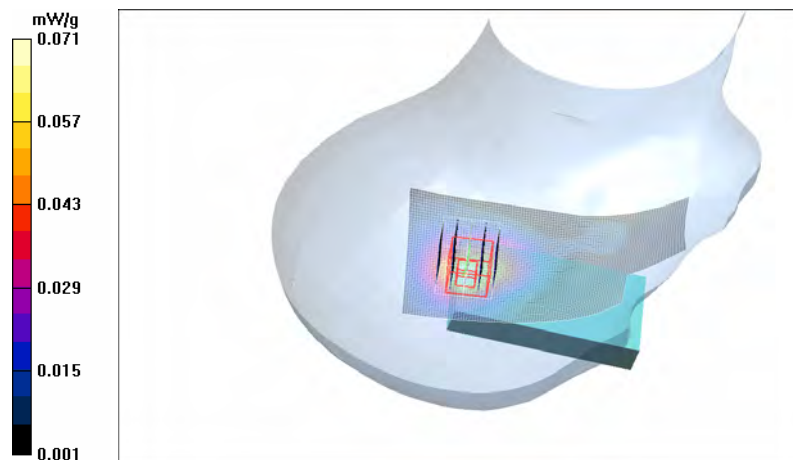
Peak SAR (extrapolated) = 0.134 W/kg

SAR(1 g) = 0.063 mW/g

SAR(10 g) = 0.031 mW/g

Power Drift = 0.224 dB

Maximum value of SAR (measured) = 0.071 mW/g



Date/Time: 2007-06-27 15:47:34

Test Laboratory: TCC Nokia
Type: RM-179; Serial: 004401/01/366016/8

Communication System: WLAN2450

Frequency: 2442 MHz; Duty Cycle: 1:1

Medium: Head 2450; Medium Notes: Medium Temperature: t=22.3 C

Medium parameters used: f = 2442 MHz; σ = 1.86 mho/m; ϵ_r = 38.4; ρ = 1000 kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(4.43, 4.43, 4.43); Calibrated: 2006-08-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2006-08-09
- Phantom: SAM 4; Type: Twin Phantom; Serial: TP-1410
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Cheek position - Middle - Slide open/Area Scan (51x121x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.026 mW/g

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

Reference Value = 3.63 V/m

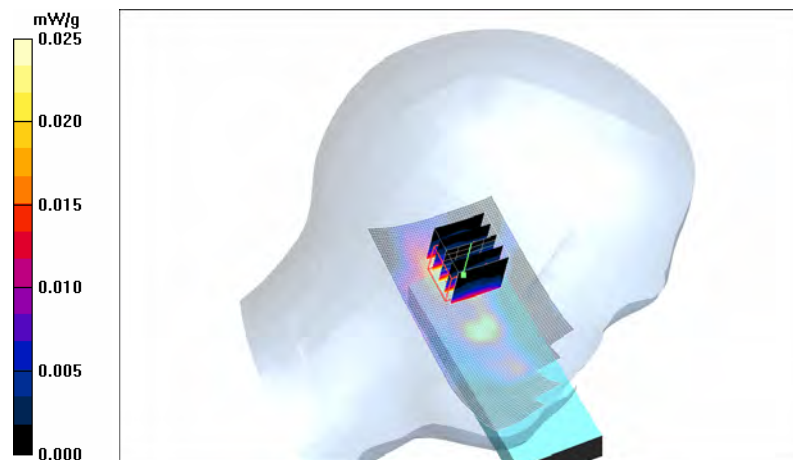
Peak SAR (extrapolated) = 0.043 W/kg

SAR(1 g) = 0.023 mW/g

SAR(10 g) = 0.012 mW/g

Power Drift = 0.383 dB

Maximum value of SAR (measured) = 0.025 mW/g



Date/Time: 2007-06-27 16:01:17

Test Laboratory: TCC Nokia

Type: RM-179; Serial: 004401/01/366016/8

Communication System: WLAN2450

Frequency: 2442 MHz; Duty Cycle: 1:1

Medium: Head 2450; Medium Notes: Medium Temperature: $t=22.3\text{ }^{\circ}\text{C}$

Medium parameters used: $f = 2442\text{ MHz}$; $\sigma = 1.86\text{ mho/m}$; $\epsilon_r = 38.4$; $\rho = 1000\text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(4.43, 4.43, 4.43); Calibrated: 2006-08-18
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2006-08-09
- Phantom: SAM 4; Type: Twin Phantom; Serial: TP-1410
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt position - Middle - Slide open/Area Scan (51x121x1): Measurement grid: $dx=15\text{ mm}$, $dy=15\text{ mm}$

Maximum value of SAR (interpolated) = 0.031 mW/g

Tilt position - Middle - Slide open/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=7.5\text{ mm}$, $dy=7.5\text{ mm}$, $dz=5\text{ mm}$

Reference Value = 3.78 V/m

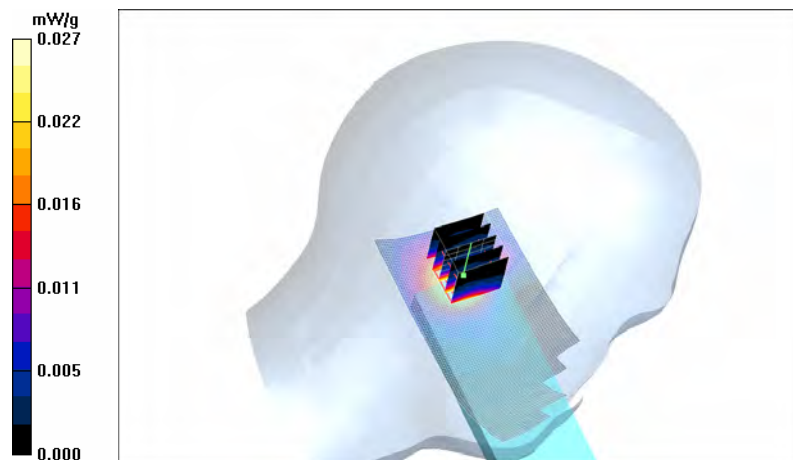
Peak SAR (extrapolated) = 0.047 W/kg

SAR(1 g) = 0.025 mW/g

SAR(10 g) = 0.014 mW/g

Power Drift = 0.273 dB

Maximum value of SAR (measured) = 0.027 mW/g



Date/Time: 2007-06-27 17:19:02

Test Laboratory: TCC Nokia

Type: RM-179; Serial: 004401/01/366016/8

Communication System: WLAN2450

Frequency: 2442 MHz; Duty Cycle: 1:1

Medium: Head 2450; Medium Notes: Medium Temperature: t=22.3 C

Medium parameters used: f = 2442 MHz; σ = 1.86 mho/m; ϵ_r = 38.4; ρ = 1000 kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(4.43, 4.43, 4.43); Calibrated: 2006-08-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2006-08-09
- Phantom: SAM 4; Type: Twin Phantom; Serial: TP-1410
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Cheek position - Middle - Slide open/Area Scan (51x121x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.028 mW/g

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

Reference Value = 2.50 V/m

Peak SAR (extrapolated) = 0.048 W/kg

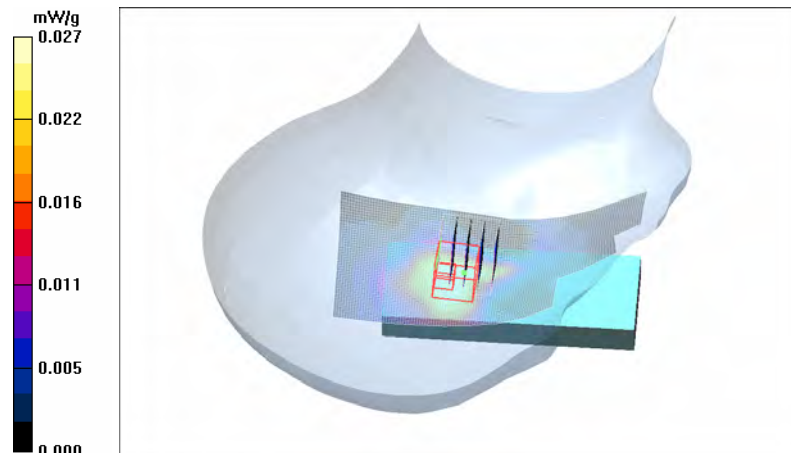
SAR(1 g) = 0.025 mW/g

SAR(10 g) = 0.013 mW/g

Power Drift = 0.434 dB

Warning: Maximum averaged SAR over 1 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 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) = 0.027 mW/g



Date/Time: 2007-06-27 17:33:21

Test Laboratory: TCC Nokia

Type: RM-179; Serial: 004401/01/366016/8

Communication System: WLAN2450

Frequency: 2442 MHz; Duty Cycle: 1:1

Medium: Head 2450; Medium Notes: Medium Temperature: $t=22.3\text{ }^{\circ}\text{C}$

Medium parameters used: $f = 2442\text{ MHz}$; $\sigma = 1.86\text{ mho/m}$; $\epsilon_r = 38.4$; $\rho = 1000\text{ kg/m}^3$

Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(4.43, 4.43, 4.43); Calibrated: 2006-08-18
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2006-08-09
- Phantom: SAM 4; Type: Twin Phantom; Serial: TP-1410
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt position - Middle - Slide open/Area Scan (51x121x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.035 mW/g

Tilt position - Middle - Slide open/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=7.5\text{mm}$, $dy=7.5\text{mm}$, $dz=5\text{mm}$

Reference Value = 3.47 V/m

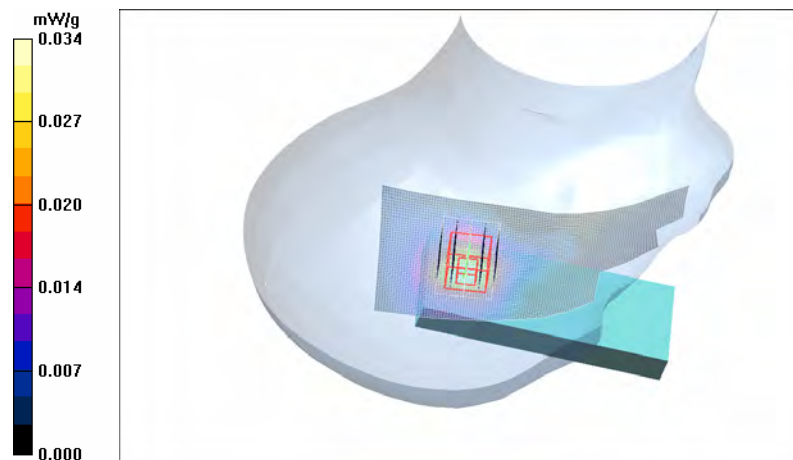
Peak SAR (extrapolated) = 0.062 W/kg

SAR(1 g) = 0.031 mW/g

SAR(10 g) = 0.016 mW/g

Power Drift = 0.107 dB

Maximum value of SAR (measured) = 0.034 mW/g



Date/Time: 2007-04-25 17:24:11

Test Laboratory: TCC Nokia

Type: RM-179; Serial: 004401/01/101586/0

Communication System: 2-slot GPRS850

Frequency: 848.8 MHz; Duty Cycle: 1:4.2

Medium: Body 850; Medium Notes: Medium Temperature: $t = 22.0\text{ }^{\circ}\text{C}$

Medium parameters used: $f = 849\text{ MHz}$; $\sigma = 0.982\text{ mho/m}$; $\epsilon_r = 53.9$; $\rho = 1000\text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3118; Probe Notes:
- ConvF(5.65, 5.65, 5.65); Calibrated: 2006-08-31
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn573; Calibrated: 2006-09-08
- Phantom: SAM 5; Type: Twin Phantom; Serial: TP-1412
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Body - High - No Accessory - Slide closed/Area Scan (51x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.914 mW/g

Body - High - No Accessory - Slide closed/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=7.5\text{mm}$, $dy=7.5\text{mm}$, $dz=5\text{mm}$

Reference Value = 15.8 V/m

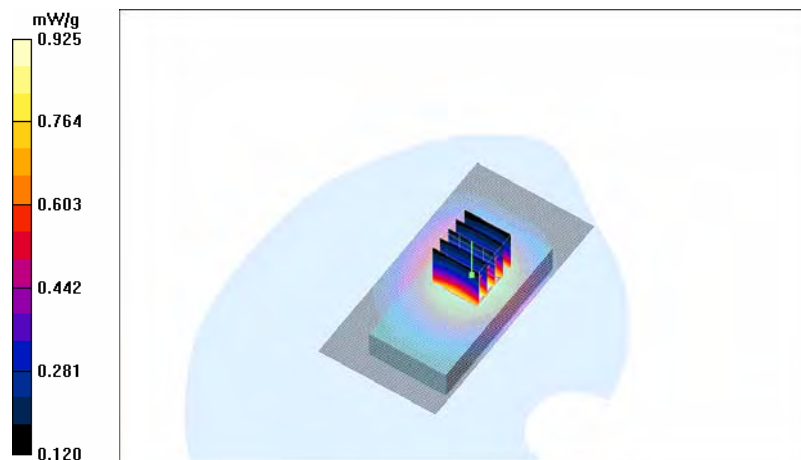
Peak SAR (extrapolated) = 1.14 W/kg

SAR(1 g) = 0.867 mW/g

SAR(10 g) = 0.628 mW/g

Power Drift = -0.008 dB

Maximum value of SAR (measured) = 0.925 mW/g



Date/Time: 2007-04-25 18:01:00

Test Laboratory: TCC Nokia

Type: RM-179; Serial: 004401/01/101586/0

Communication System: 2-slot GPRS850

Frequency: 848.8 MHz; Duty Cycle: 1:4.2

Medium: Body 850; Medium Notes: Medium Temperature: $t = 22.0\text{ }^{\circ}\text{C}$

Medium parameters used: $f = 849\text{ MHz}$; $\sigma = 0.982\text{ mho/m}$; $\epsilon_r = 53.9$; $\rho = 1000\text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3118; Probe Notes:
- ConvF(5.65, 5.65, 5.65); Calibrated: 2006-08-31
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn573; Calibrated: 2006-09-08
- Phantom: SAM 5; Type: Twin Phantom; Serial: TP-1412
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Body - High - HS-45 - Slide closed/Area Scan (51x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.393 mW/g

Body - High - HS-45 - Slide closed/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=7.5\text{mm}$, $dy=7.5\text{mm}$, $dz=5\text{mm}$

Reference Value = 16.4 V/m

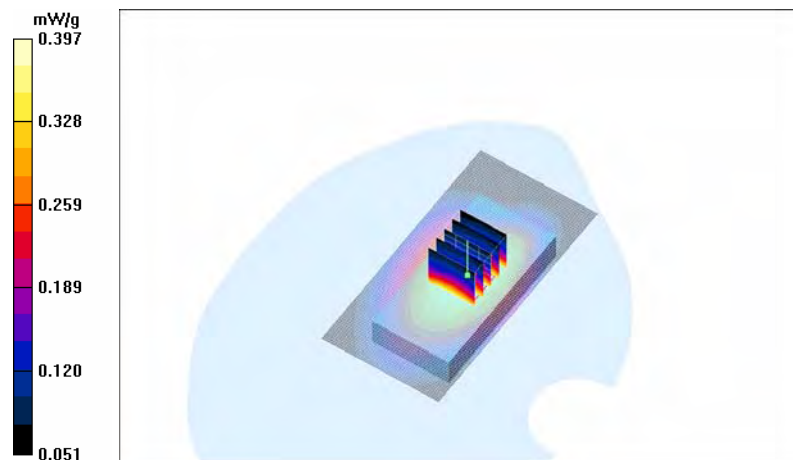
Peak SAR (extrapolated) = 0.499 W/kg

SAR(1 g) = 0.377 mW/g

SAR(10 g) = 0.276 mW/g

Power Drift = 0.017 dB

Maximum value of SAR (measured) = 0.397 mW/g



Date/Time: 2007-04-25 18:19:33

Test Laboratory: TCC Nokia

Type: RM-179; Serial: 004401/01/101586/0

Communication System: 2-slot GPRS850

Frequency: 848.8 MHz; Duty Cycle: 1:4.2

Medium: Body 850; Medium Notes: Medium Temperature: $t = 22.0\text{ C}$

Medium parameters used: $f = 849\text{ MHz}$; $\sigma = 0.982\text{ mho/m}$; $\epsilon_r = 53.9$; $\rho = 1000\text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3118; Probe Notes:
- ConvF(5.65, 5.65, 5.65); Calibrated: 2006-08-31
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn573; Calibrated: 2006-09-08
- Phantom: SAM 5; Type: Twin Phantom; Serial: TP-1412
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Body - High - No Accessory - Slide closed - BT active/Area Scan (51x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.984 mW/g

Body - High - No Accessory - Slide closed - BT active/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=7.5\text{mm}$, $dy=7.5\text{mm}$, $dz=5\text{mm}$

Reference Value = 17.8 V/m

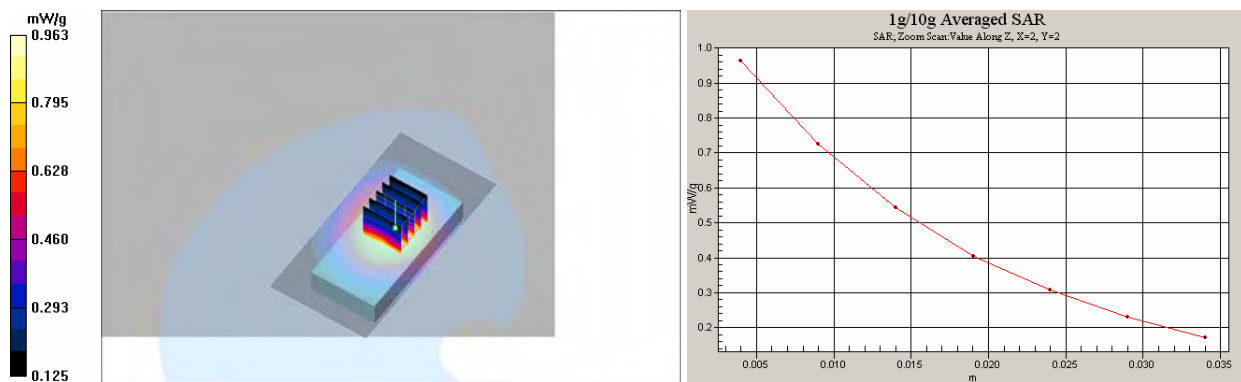
Peak SAR (extrapolated) = 1.21 W/kg

SAR(1 g) = 0.912 mW/g

SAR(10 g) = 0.660 mW/g

Power Drift = -0.189 dB

Maximum value of SAR (measured) = 0.963 mW/g



SAR Report

Cph_SAR_0718_06

Applicant: Nokia Corporation

Type: RM-179

Copyright © 2007 TCC Nokia

Date/Time: 2007-05-03 08:36:32

Test Laboratory: TCC Nokia

Type: RM-179; Serial: 004401/01/101586/0

Communication System: 3-slot GPRS1900

Frequency: 1909.8 MHz; Duty Cycle: 1:2.8

Medium: Body 1900; Medium Notes: Medium Temperature: t=22.2 C

Medium parameters used: f = 1910 MHz; σ = 1.52 mho/m; ϵ_r = 52.8; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3118; Probe Notes:
- ConvF(4.62, 4.62, 4.62); Calibrated: 2006-08-31
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn573; Calibrated: 2006-09-08
- Phantom: SAM 8; Type: SAM Twin Phantom; Serial: TP-1408
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Body - High - No Accessory – Slide closed /Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.512 mW/g

Body - High - No Accessory – Slide closed /Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 12.6 V/m

Peak SAR (extrapolated) = 0.688 W/kg

SAR(1 g) = 0.464 mW/g

SAR(10 g) = 0.299 mW/g

Power Drift = -0.097 dB

Maximum value of SAR (measured) = 0.495 mW/g



Date/Time: 2007-05-03 09:25:40

Test Laboratory: TCC Nokia

Type: RM-179; Serial: 004401/01/101586/0

Communication System: 3-slot GPRS1900

Frequency: 1909.8 MHz; Duty Cycle: 1:2.8

Medium: Body 1900; Medium Notes: Medium Temperature: t=22.2 C

Medium parameters used: f = 1910 MHz; σ = 1.52 mho/m; ϵ_r = 52.8; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3118; Probe Notes:
- ConvF(4.62, 4.62, 4.62); Calibrated: 2006-08-31
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn573; Calibrated: 2006-09-08
- Phantom: SAM 8; Type: SAM Twin Phantom; Serial: TP-1408
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Body - High - HS-45 – Slide closed/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.480 mW/g

Body - High - HS-45 – Slide closed/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 11.1 V/m

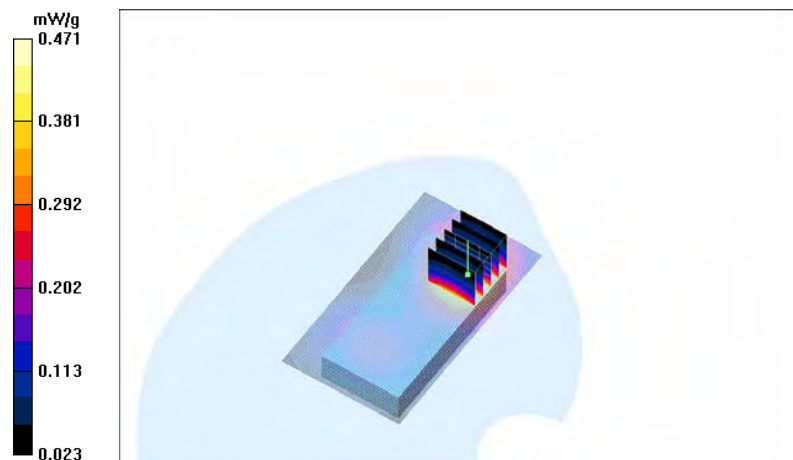
Peak SAR (extrapolated) = 0.654 W/kg

SAR(1 g) = 0.442 mW/g

SAR(10 g) = 0.284 mW/g

Power Drift = -0.088 dB

Maximum value of SAR (measured) = 0.471 mW/g



Date/Time: 2007-05-03 09:39:43

Test Laboratory: TCC Nokia

Type: RM-179; Serial: 004401/01/101586/0

Communication System: 3-slot GPRS1900

Frequency: 1909.8 MHz; Duty Cycle: 1:2.8

Medium: Body 1900; Medium Notes: Medium Temperature: $t=22.2\text{ C}$

Medium parameters used: $f = 1910\text{ MHz}$; $\sigma = 1.52\text{ mho/m}$; $\epsilon_r = 52.8$; $\rho = 1000\text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3118; Probe Notes:
- ConvF(4.62, 4.62, 4.62); Calibrated: 2006-08-31
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn573; Calibrated: 2006-09-08
- Phantom: SAM 8; Type: SAM Twin Phantom; Serial: TP-1408
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Body - High - No Accessory – Slide closed - BT active/Area Scan (51x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.510 mW/g

Body - High - No Accessory – Slide closed - BT active/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=7.5\text{mm}$, $dy=7.5\text{mm}$, $dz=5\text{mm}$

Reference Value = 12.4 V/m

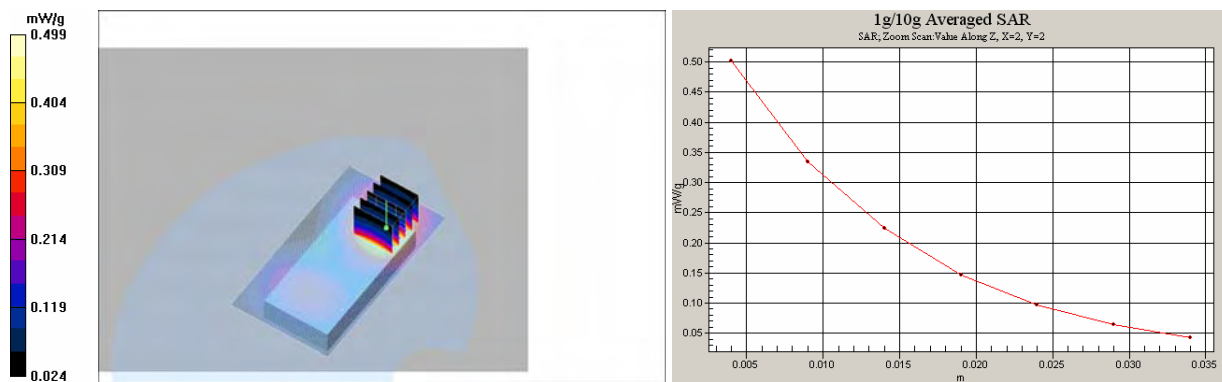
Peak SAR (extrapolated) = 0.692 W/kg

SAR(1 g) = 0.466 mW/g

SAR(10 g) = 0.300 mW/g

Power Drift = -0.143 dB

Maximum value of SAR (measured) = 0.499 mW/g



SAR Report

Cph_SAR_0718_06

Applicant: Nokia Corporation

Type: RM-179

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Date/Time: 2007-06-26 16:52:58

Test Laboratory: TCC Nokia

Type: RM-179; Serial: 004401/01/366016/8

Communication System: WLAN2450

Frequency: 2462 MHz; Duty Cycle: 1:1

Medium: Body 2450; Medium Notes: Medium Temperature: $t=22.2\text{ C}$

Medium parameters used: $f = 2462\text{ MHz}$; $\sigma = 1.98\text{ mho/m}$; $\epsilon_r = 51.6$; $\rho = 1000\text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(4.2, 4.2, 4.2); Calibrated: 2006-08-18
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)) Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2006-08-09
- Phantom: SAM 4; Type: Twin Phantom; Serial: TP-1410
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Body - High - No Accessory – Slide closed/Area Scan (51x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.040 mW/g

Body - High - No Accessory – Slide closed/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=7.5\text{mm}$, $dy=7.5\text{mm}$, $dz=5\text{mm}$

Reference Value = 4.15 V/m

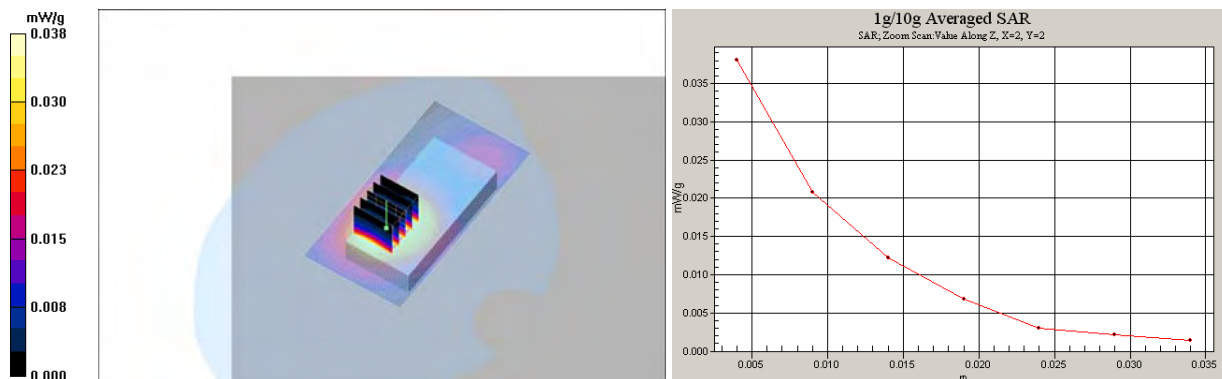
Peak SAR (extrapolated) = 0.064 W/kg

SAR(1 g) = 0.036 mW/g

SAR(10 g) = 0.021 mW/g

Power Drift = 0.039 dB

Maximum value of SAR (measured) = 0.038 mW/g



SAR Report

Cph_SAR_0718_06

Applicant: Nokia Corporation

Type: RM-179

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Date/Time: 2007-06-26 17:12:04

Test Laboratory: TCC Nokia

Type: RM-179; Serial: 004401/01/366016/8

Communication System: WLAN2450

Frequency: 2462 MHz; Duty Cycle: 1:1

Medium: Body 2450; Medium Notes: Medium Temperature: t=22.2 C

Medium parameters used: f = 2462 MHz; σ = 1.98 mho/m; ϵ_r = 51.6; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(4.2, 4.2, 4.2); Calibrated: 2006-08-18
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2006-08-09
- Phantom: SAM 4; Type: Twin Phantom; Serial: TP-1410
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Body - High - HS-45 – Slide closed/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.034 mW/g

Body - High - HS-45 – Slide closed/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 3.72 V/m

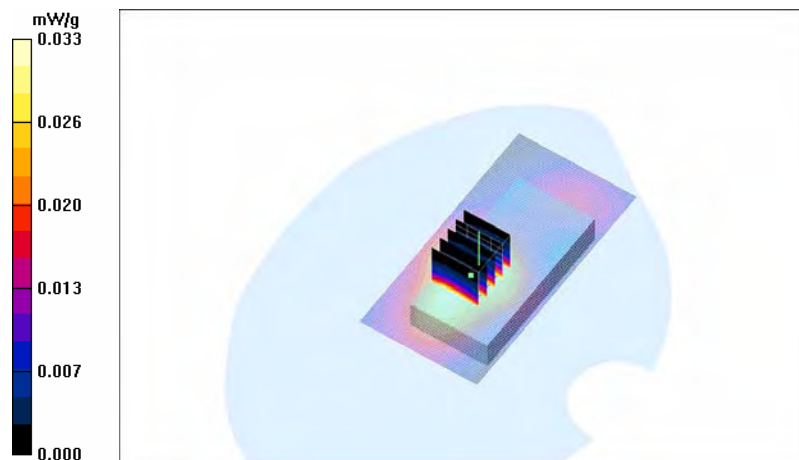
Peak SAR (extrapolated) = 0.055 W/kg

SAR(1 g) = 0.031 mW/g

SAR(10 g) = 0.018 mW/g

Power Drift = 0.294 dB

Maximum value of SAR (measured) = 0.033 mW/g



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

See the following pages



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 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 DK TCC**

Certificate No: **ES3-3116_Aug06**

CALIBRATION CERTIFICATE

Object **ES3DV3 - SN:3116**

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

Calibration date: **August 18, 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 $(22 \pm 3)^\circ\text{C}$ and humidity $< 70\%$.

Calibration Equipment used (M&TE critical for calibration)

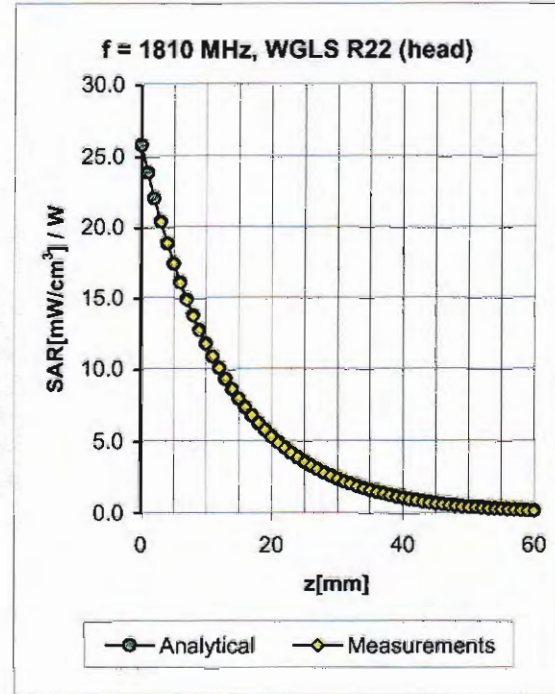
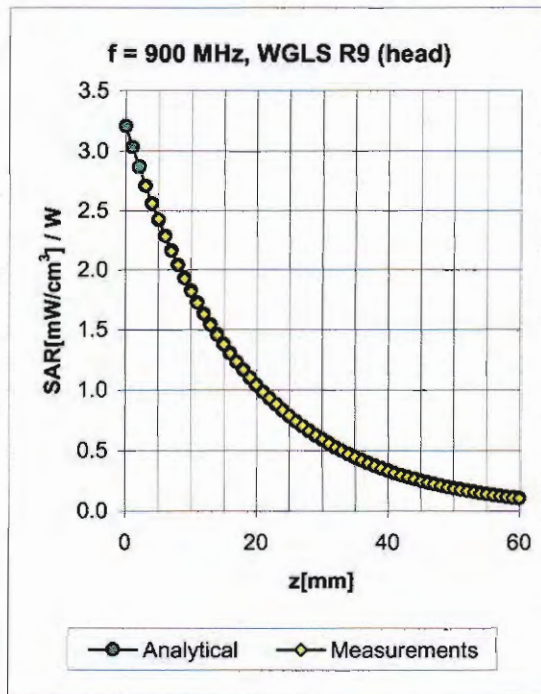
Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	5-Apr-06 (METAS, No. 251-00557)	Apr-07
Power sensor E4412A	MY41495277	5-Apr-06 (METAS, No. 251-00557)	Apr-07
Power sensor E4412A	MY41498087	5-Apr-06 (METAS, No. 251-00557)	Apr-07
Reference 3 dB Attenuator	SN: S5054 (3c)	10-Aug-06 (METAS, No. 217-00592)	Aug-07
Reference 20 dB Attenuator	SN: S5086 (20b)	4-Apr-06 (METAS, No. 251-00558)	Apr-07
Reference 30 dB Attenuator	SN: S5129 (30b)	10-Aug-06 (METAS, No. 217-00593)	Aug-07
Reference Probe ES3DV2	SN: 3013	2-Jan-06 (SPEAG, No. ES3-3013_Jan06)	Jan-07
DAE4	SN: 654	21-Jun-06 (SPEAG, No. DAE4-654_Jun06)	Jun-07
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: August 30, 2006

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
900	± 50 / ± 100	Head	41.5 ± 5%	0.97 ± 5%	0.48	1.48	5.78 ± 11.0% (k=2)
1810	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.99	1.10	5.09 ± 11.0% (k=2)
1950	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.60	1.35	4.78 ± 11.0% (k=2)
2450	± 50 / ± 100	Head	39.2 ± 5%	1.80 ± 5%	0.95	1.15	4.43 ± 11.8% (k=2)
900	± 50 / ± 100	Body	55.0 ± 5%	1.05 ± 5%	0.80	1.32	5.70 ± 11.0% (k=2)
1810	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.50	1.53	4.66 ± 11.0% (k=2)
1950	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.93	1.21	4.51 ± 11.0% (k=2)
2450	± 50 / ± 100	Body	52.7 ± 5%	1.95 ± 5%	0.89	1.13	4.20 ± 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.



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 Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Client **Nokia DK R&D**

Certificate No: **ES3-3118_Aug06**

CALIBRATION CERTIFICATE

Object **ES3DV3 - SN:3118**

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

Calibration date: **August 31, 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	5-Apr-06 (METAS, No. 251-00557)	Apr-07
Power sensor E4412A	MY41495277	5-Apr-06 (METAS, No. 251-00557)	Apr-07
Power sensor E4412A	MY41498087	5-Apr-06 (METAS, No. 251-00557)	Apr-07
Reference 3 dB Attenuator	SN: S5054 (3c)	10-Aug-06 (METAS, No. 217-00592)	Aug-07
Reference 20 dB Attenuator	SN: S5086 (20b)	4-Apr-06 (METAS, No. 251-00558)	Apr-07
Reference 30 dB Attenuator	SN: S5129 (30b)	10-Aug-06 (METAS, No. 217-00593)	Aug-07
Reference Probe ES3DV2	SN: 3013	2-Jan-06 (SPEAG, No. ES3-3013_Jan06)	Jan-07
DAE4	SN: 654	21-Jun-06 (SPEAG, No. DAE4-654_Jun06)	Jun-07

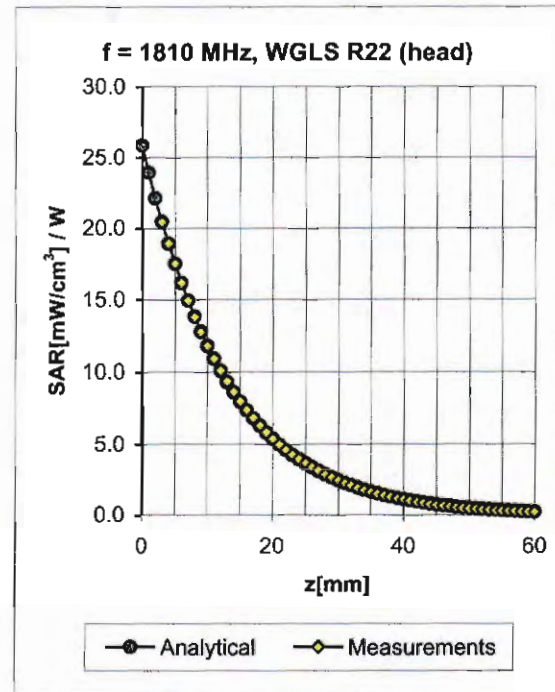
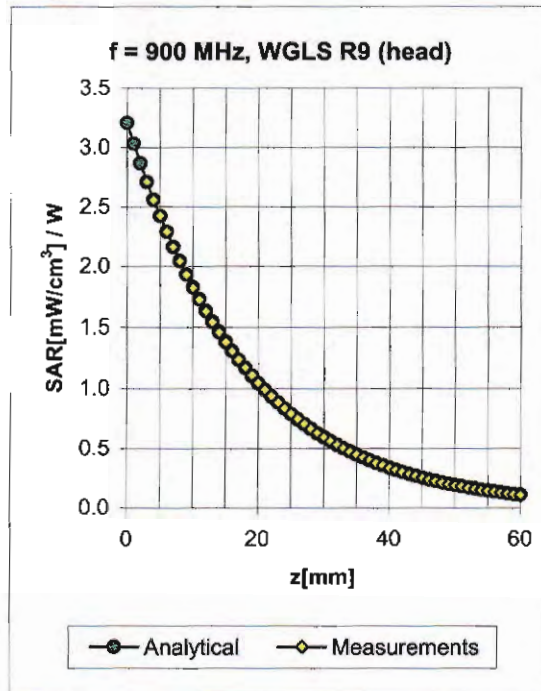
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (SPEAG, in house check Nov-05)	In house check: Nov-07
Network Analyzer HP 8753E	US37390585	18-Oct-01 (SPEAG, in house check Nov-05)	In house check: Nov 06

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

Issued: September 8, 2006

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
900	± 50 / ± 100	Head	41.5 ± 5%	0.97 ± 5%	0.64	1.26	5.77 ± 11.0% (k=2)
1810	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.99	1.15	4.92 ± 11.0% (k=2)
1950	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.97	1.14	4.68 ± 11.0% (k=2)
2450	± 50 / ± 100	Head	39.2 ± 5%	1.80 ± 5%	0.82	1.25	4.31 ± 11.8% (k=2)
900	± 50 / ± 100	Body	55.0 ± 5%	1.05 ± 5%	0.54	1.34	5.65 ± 11.0% (k=2)
1810	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.72	1.56	4.62 ± 11.0% (k=2)
1950	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.73	1.51	4.40 ± 11.0% (k=2)
2450	± 50 / ± 100	Body	52.7 ± 5%	1.95 ± 5%	0.99	1.00	4.15 ± 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)

See the following 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 DK R&D**

Certificate No: **D835V2-4d042_Sep06**

CALIBRATION CERTIFICATE

Object **D835V2 - SN: 4d042**

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

Calibration date: **September 19, 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 EPM-442A	GB37480704	04-Oct-05 (METAS, No. 251-00516)	Oct-06
Power sensor HP 8481A	US37292783	04-Oct-05 (METAS, No. 251-00516)	Oct-06
Reference 20 dB Attenuator	SN: 5086 (20g)	10-Aug-06 (METAS, No 217-00591)	Aug-07
Reference 10 dB Attenuator	SN: 5047.2 (10r)	10-Aug-06 (METAS, No 217-00591)	Aug-07
Reference Probe ET3DV6	SN 1507	28-Oct-05 (SPEAG, No. ET3-1507_Oct05)	Oct-06
DAE4	SN 601	15-Dec-05 (SPEAG, No. DAE4-601_Dec05)	Dec-06
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (SPEAG, in house check Oct-05)	In house check: Oct-07
RF generator Agilent E4421B	MY41000675	11-May-05 (SPEAG, in house check Nov-05)	In house check: Nov-07
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (SPEAG, in house check Nov-05)	In house check: Nov-06

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

Issued: September 19, 2006

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

DASY4 Validation Report for Head TSL

Date/Time: 14.08.2006 14:29:57

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d042

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

Medium: HSL900;

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.9 \text{ mho/m}$; $\epsilon_r = 42.2$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1507 (HF); ConvF(6.09, 6.09, 6.09); Calibrated: 28.10.2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 15.12.2005
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Pin = 250 mW; d = 15 mm/Zoom Scan (7x7x7)/Cube 0:

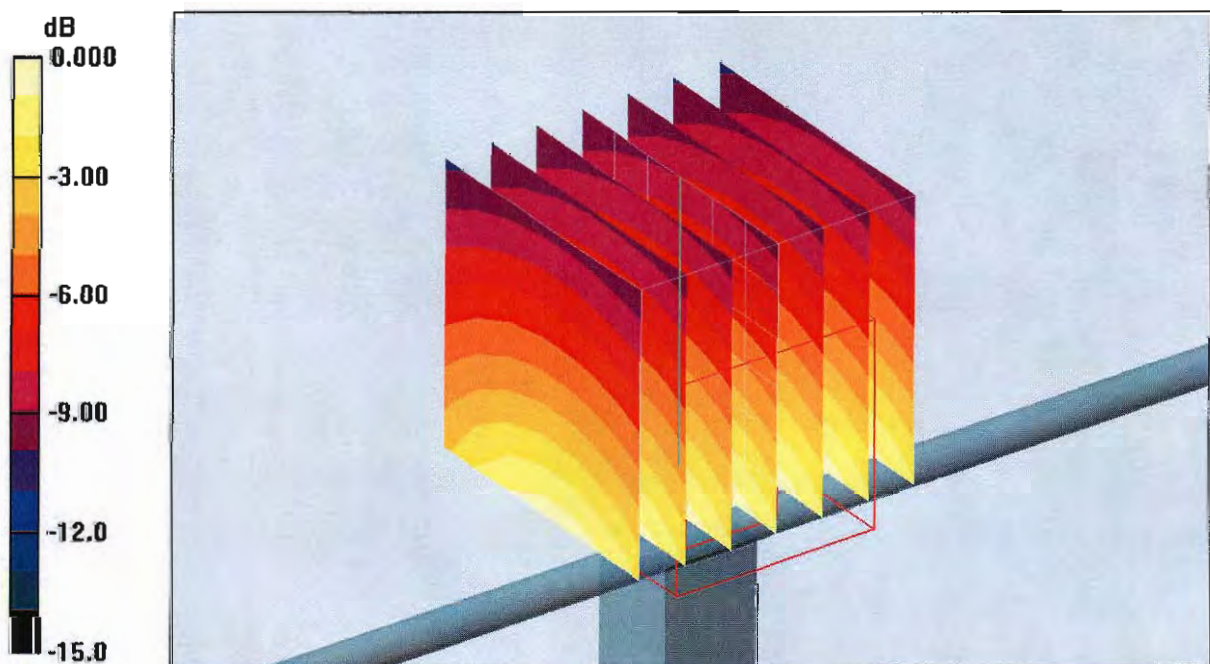
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 55.3 V/m; Power Drift = -0.102 dB

Peak SAR (extrapolated) = 3.46 W/kg

SAR(1 g) = 2.33 mW/g; SAR(10 g) = 1.53 mW/g

Maximum value of SAR (measured) = 2.52 mW/g



0 dB = 2.52mW/g

DASY4 Validation Report for Body TSL

Date/Time: 19.09.2006 15:10:39

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:4d042

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

Medium: MSL 900;

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.98 \text{ mho/m}$; $\epsilon_r = 53.8$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1507 (HF); ConvF(5.84, 5.84, 5.84); Calibrated: 28.10.2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 15.12.2005
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

Pin = 250 mW; d = 15 mm/Zoom Scan (7x7x7)/Cube 0:

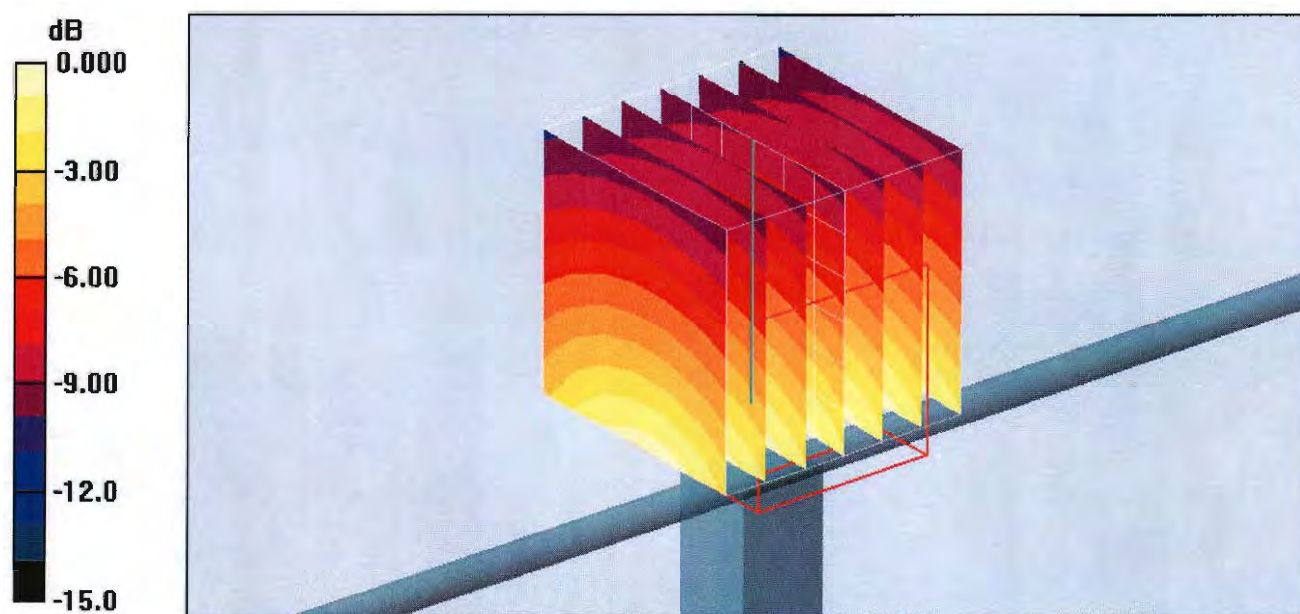
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 53.8 V/m; Power Drift = -0.004 dB

Peak SAR (extrapolated) = 3.54 W/kg

SAR(1 g) = 2.45 mW/g; SAR(10 g) = 1.62 mW/g

Maximum value of SAR (measured) = 2.61 mW/g



0 dB = 2.61mW/g



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 Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Client **Nokia Denmark A/S**

Certificate No: **D1900V2-5d026_Feb06/2**

CALIBRATION CERTIFICATE (Replacement of No: D1900V2-5d026_Feb06)

Object **D1900V2 - SN: 5d026**

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

Calibration date: **February 21, 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 $(22 \pm 3)^{\circ}\text{C}$ and humidity $< 70\%$.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	04-Oct-05 (METAS, No. 251-00516)	Oct-06
Power sensor HP 8481A	US37292783	04-Oct-05 (METAS, No. 251-00516)	Oct-06
Reference 20 dB Attenuator	SN: 5086 (20g)	11-Aug-05 (METAS, No 251-00498)	Aug-06
Reference 10 dB Attenuator	SN: 5047.2 (10r)	11-Aug-05 (METAS, No 251-00498)	Aug-06
Reference Probe ET3DV6	SN 1507	28-Oct-05 (SPEAG, No. ET3-1507_Oct05)	Oct-06
DAE4	SN 601	15-Dec-05 (SPEAG, No. DAE4-601_Dec05)	Dec-06
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (SPEAG, in house check Oct-05)	In house check: Oct-07
RF generator Agilent E4421B	MY41000675	11-May-05 (SPEAG, in house check Nov-05)	In house check: Nov-07
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (SPEAG, in house check Nov-05)	In house check: Nov-06

	Name	Function	Signature
Calibrated by:	Mike Meili	Laboratory Technician	<i>M. Meili</i>

	Name	Function	Signature
Approved by:	Katja Pokovic	Technical Manager	<i>Katja Pokovic</i>

Issued: March 9, 2006

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DASY4 Validation Report for Head TSL

Date/Time: 21.02.2006 13:52:34

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d026

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

Medium: HSL U10 BB;

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.42$ 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 (HF); ConvF(4.74, 4.74, 4.74); Calibrated: 28.10.2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 15.12.2005
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA
- Measurement SW: DASY4, V4.6 Build 57; Postprocessing SW: SEMCAD, V1.8 Build 160

Pin = 250 mW; d = 10 mm/Area Scan (71x71x1):

Measurement grid: dx=15mm, dy=15mm

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

Pin = 250 mW; d = 10 mm/Zoom Scan (7x7x7)/Cube 0:

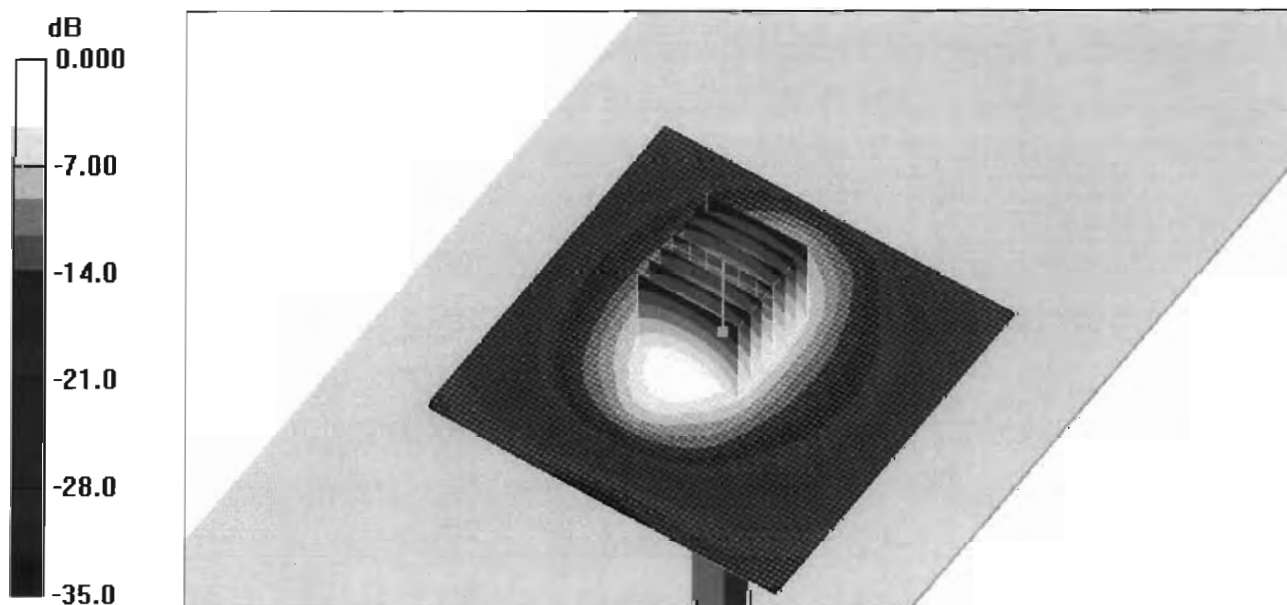
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 84.2 V/m; Power Drift = -0.015 dB

Peak SAR (extrapolated) = 16.6 W/kg

SAR(1 g) = 9.83 mW/g; SAR(10 g) = 5.2 mW/g

Maximum value of SAR (measured) = 11.0 mW/g



0 dB = 11.0mW/g

DASY4 Validation Report for Body TSL

Date/Time: 21.02.2006 15:46:28

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d026

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

Medium: MSL U10;

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.54$ mho/m; $\epsilon_r = 54.8$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1507 (HF); ConvF(4.3, 4.3, 4.3); Calibrated: 28.10.2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 15.12.2005
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA
- Measurement SW: DASY4, V4.6 Build 57; Postprocessing SW: SEMCAD, V1.8 Build 160

Pin = 250 mW; d = 10 mm/Area Scan (71x71x1):

Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 12.1 mW/g

Pin = 250 mW; d = 10 mm/Zoom Scan 2 (7x7x7)/Cube 0:

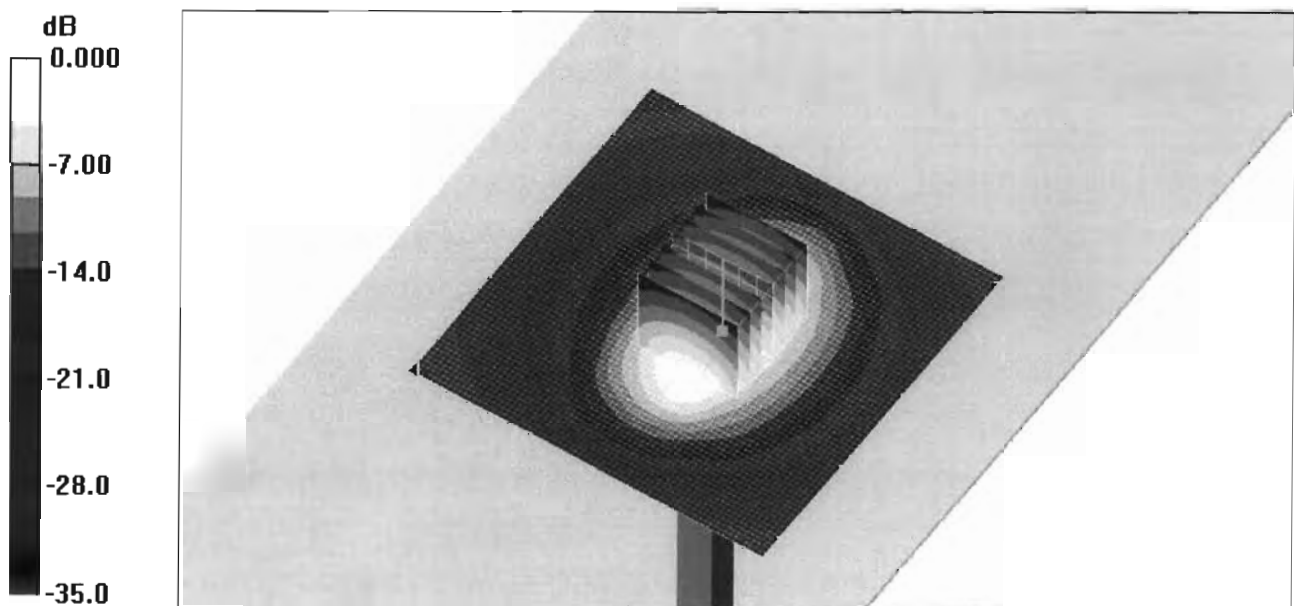
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 83.1 V/m; Power Drift = -0.066 dB

Peak SAR (extrapolated) = 17.3 W/kg

SAR(1 g) = 10 mW/g; SAR(10 g) = 5.38 mW/g

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





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Accreditation No.: **SCS 108**

Client **Nokia DK**

Certificate No: **D1900V2-5d063_Oct05**

CALIBRATION CERTIFICATE

Object **D1900V2 - SN: 5d063**

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

Calibration date: **October 25, 2005**

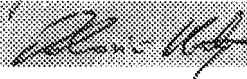
Condition of the calibrated item **In Tolerance**

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	04-Oct-05 (METAS, No. 251-00516)	Oct-06
Power sensor HP 8481A	US37292783	04-Oct-05 (METAS, No. 251-00516)	Oct-06
Reference 20 dB Attenuator	SN: 5086 (20g)	11-Aug-05 (METAS, No 251-00498)	Aug-06
Reference 10 dB Attenuator	SN: 5047.2 (10r)	11-Aug-05 (METAS, No 251-00498)	Aug-06
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-05)	In house check: Oct-07
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:	Judith Müller	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: October 26, 2005

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DASY4 Validation Report for Head TSL

Date/Time: 25.10.2005 16:04:03

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d063

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

Medium: HSL 1900 MHz;

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.48$ mho/m; $\epsilon_r = 38.6$; $\rho = 1000$ 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: 26.10.2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 07.01.2005
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; ;
- Measurement SW: DASY4, V4.6 Build 22; Postprocessing SW: SEMCAD, V1.8 Build 159

Pin = 250 mW; d = 10 mm/Area Scan (61x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 12.1 mW/g

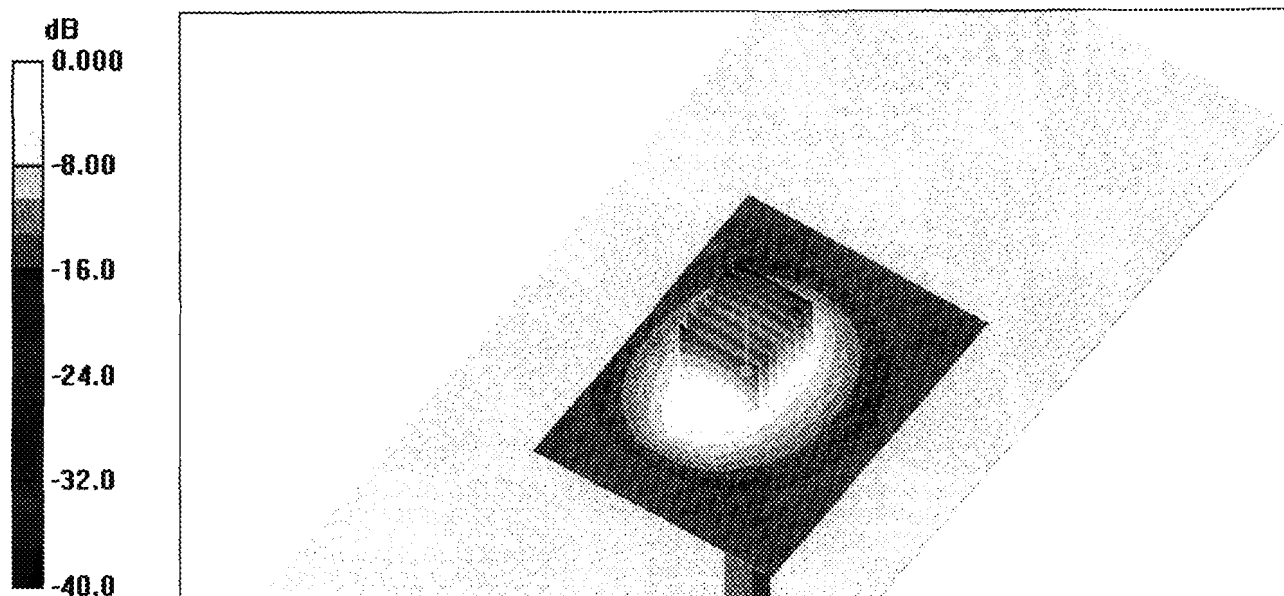
Pin = 250 mW; d = 10 mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 93.3 V/m; Power Drift = 0.014 dB

Peak SAR (extrapolated) = 18.0 W/kg

SAR(1 g) = 10.3 mW/g; SAR(10 g) = 5.36 mW/g

Maximum value of SAR (measured) = 11.7 mW/g



0 dB = 11.7mW/g



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Accreditation No.: **SCS 108**

Client **Nokia Denmark A/S**

Certificate No. **D2450V2-750_Feb06**

CALIBRATION CERTIFICATE

Object **D2450V2 - SN: 750**

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

Calibration date: **February 16, 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 EPM-442A	GB37480704	04-Oct-05 (METAS, No. 251-00516)	Oct-06
Power sensor HP 8481A	US37292783	04-Oct-05 (METAS, No. 251-00516)	Oct-06
Reference 20 dB Attenuator	SN: 5086 (20g)	11-Aug-05 (METAS, No 251-00498)	Aug-06
Reference 10 dB Attenuator	SN: 5047.2 (10r)	11-Aug-05 (METAS, No 251-00498)	Aug-06
Reference Probe ES3DV2	SN 3025	28-Oct-05 (SPEAG, No. ES3-3025_Oct05)	Oct-06
DAE4	SN 601	15-Dec-05 (SPEAG, No. DAE4-601_Dec05)	Dec-06
Secondary Standards	ID #	Check Date (In house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (SPEAG, in house check Oct-05)	In house check: Oct-07
RF generator Agilent E4421B	MY41000675	11-May-05 (SPEAG, in house check Nov-05)	In house check: Nov-07
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (SPEAG, in house check Nov-05)	In house check: Nov-06

	Name	Function	Signature
Calibrated by:	Judith Müller	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: February 16, 2006

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DASY4 Validation Report for Head TSL

Date/Time: 16.02.2006 15:43:44

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN750

Communication System: CW-2450; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: HSL U10 BB;

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.79$ mho/m; $\epsilon_r = 38.5$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ES3DV2 - SN3025 (HF); ConvF(4.4, 4.4, 4.4); Calibrated: 28.10.2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 15.12.2005
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; ;
- Measurement SW: DASY4, V4.6 Build 57; Postprocessing SW: SEMCAD, V1.8 Build 160

Pin = 250 mW; d = 10 mm/Area Scan (71x71x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 17.2 mW/g

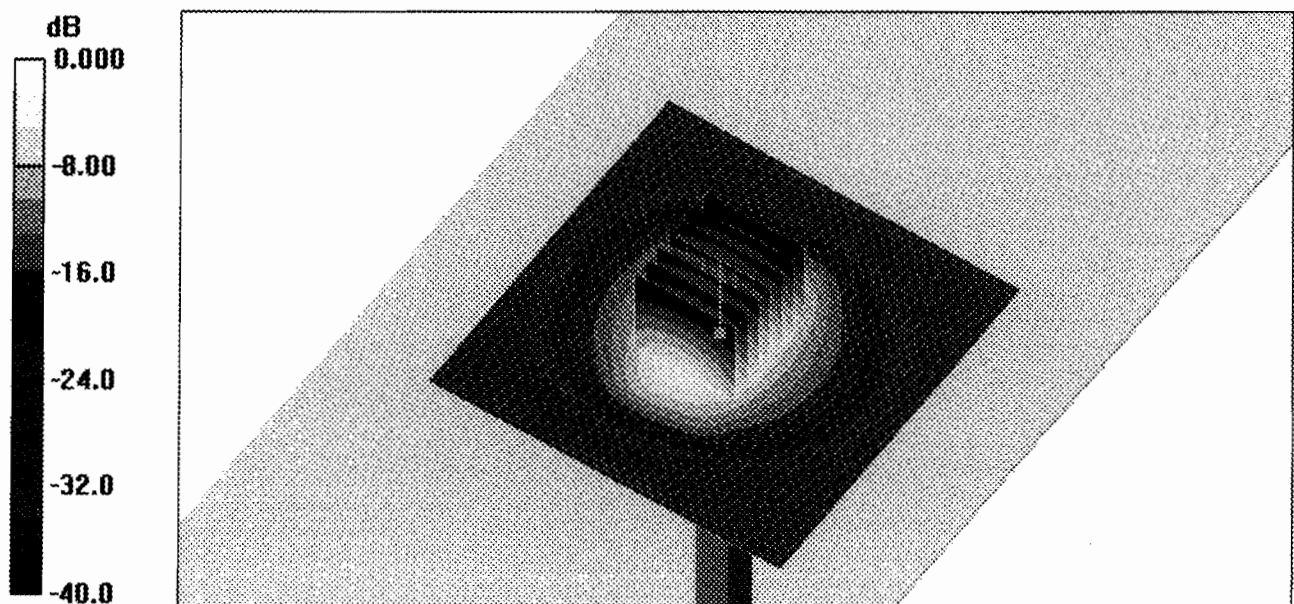
Pin = 250 mW; d = 10 mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 94.5 V/m; Power Drift = -0.038 dB

Peak SAR (extrapolated) = 28.4 W/kg

SAR(1 g) = 13.7 mW/g; SAR(10 g) = 6.34 mW/g

Maximum value of SAR (measured) = 15.5 mW/g



0 dB = 15.5mW/g

DASY4 Validation Report for Body TSL

Date/Time: 13.02.2006 12:45:42

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN750

Communication System: CW-2450; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: MSL U10;

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.97$ mho/m; $\epsilon_r = 53.8$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ES3DV2 - SN3025 (HF); ConvF(4.06, 4.06, 4.06); Calibrated: 28.10.2005
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 15.12.2005
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; ;
- Measurement SW: DASY4, V4.6 Build 56; Postprocessing SW: SEMCAD, V1.8 Build 160

Pin = 250 mW; d = 10 mm/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 16.7 mW/g

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

Reference Value = 88.7 V/m; Power Drift = -0.117 dB

Peak SAR (extrapolated) = 28.6 W/kg

SAR(1 g) = 13.5 mW/g; SAR(10 g) = 6.27 mW/g

Maximum value of SAR (measured) = 15.2 mW/g

