

SAR Compliance Test Report

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Tested device:	RM-399, HW:0361		
FCC ID:	PPIRM-399	IC:	661U-RM399
Supplement reports:	Cph_SAR_0833_13 for RM-398 / FCC ID: PPIRM-398 / IC ID: 661U-RM398 Salo_SAR_0836_16		
Testing has been carried out in accordance with:	47CFR §2.1093 Radiofrequency Radiation Exposure Evaluation: Portable Devices FCC OET Bulletin 65 (Edition 97-01), Supplement C (Edition 01-01) Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields RSS-102 Evaluation Procedure for Mobile and Portable Radio Transmitters with Respect to Health Canada's Safety Code 6 for Exposure of Humans to Radio Frequency Fields IEEE 1528 - 2003 IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Technique		
Documentation:	The documentation of the testing performed on the tested devices is archived for 15 years at TCC Nokia.		
Test results:	The tested device complies with the requirements in respect of all parameters subject to the test. The test results and statements relate only to the items tested. The test report shall not be reproduced except in full, without written approval of the laboratory.		
Date and signatures:			
For the contents:			

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1. SUMMARY OF SAR TEST REPORT

1.1 Test Details

Period of test	2008-08-05 to 2008-08-15
SN, HW and SW numbers of tested device	SN: 004401/10/118900/5, HW: 0311, SW: Vp js2.50, DUT: 25455 SN: 004401/10/042927/9, HW: 0360, SW: jsu 2.51, DUT: 13058
Batteries used in testing	BL-5BT, DUT: 25450, 25451, 25452, 13056, 13057
Headsets used in testing	HS-47, DUT: 25453, 13055
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 GPRS 850**	251 / 848.8	27.8 dBm ERP	Right, Cheek	0.746 W/kg	0.84 W/kg	1.6 W/kg	PASSED
3-slot GPRS 1900**	661 / 1880.0	26.3 dBm EIRP	Right, Cheek	0.475 W/kg	0.53 W/kg	1.6 W/kg	PASSED
WLAN2450 †	11 / 2462.0	21.4 dBm EIRP	Right, Cheek	0.193 W/kg	0.22 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 GPRS 850**	128 / 824.2	25.5 dBm ERP	2.2 cm	0.194 W/kg	0.22 W/kg	1.6 W/kg	PASSED
3-slot GPRS 1900**	661 / 1880.0	27.1 dBm EIRP	2.2 cm	0.226 W/kg	0.25 W/kg	1.6 W/kg	PASSED
WLAN2450 †	7 / 2442.0	22.4 dBm EIRP	2.2 cm	0.098 W/kg	0.11 W/kg	1.6 W/kg	PASSED

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

**SAR values taken from Cph_SAR_0833_13 for RM-398 / FCC ID: PPIRM-398 / IC ID:661U-RM398.

† SAR values taken from Salo_SAR_0833_04 for RM-399.

1.2.3 Maximum Drift

Maximum drift covered by 12% scaling up of the SAR values	Maximum drift during measurements
0.5dB	0.40 dB

1.2.4 Measurement Uncertainty

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

Device category	Portable
Exposure environment	General population / uncontrolled

Modes of Operation	Bands	Modulation Mode	Duty Cycle	Transmitter Frequency Range (MHz)
GSM	850 1900	GMSK	1/8	824 – 849 1850 – 1910
GPRS	850 1900	GMSK	1/8 to 3/8	824 – 849 1850 – 1910
EGPRS	850 1900	GMSK / 8PSK	1/8 to 3/8	824 – 849 1850 – 1910
BT	2450	GFSK	1	2402 – 2480
WLAN	2450	11Mbps QPSK	1	2412 – 2472

Outside of USA and Canada, the transmitter of the device is capable of operating also in GSM/GPRS/EGPRS900 and GSM/GPRS/EGPRS1800 bands which are not part of this filing.

2.1 Description of the Antenna

The device has an internal antenna.

3. TEST CONDITIONS

3.1 Temperature and Humidity

Ambient temperature (°C):	20.0 to 22.0
Ambient humidity (RH %):	35 to 55

3.2 Test Signal, Frequencies and Output Power

The device was put into operation by using a call tester. Communication between the device and the call tester was established by air link.

The device output power was set to maximum power level for all tests; a fully charged battery was used for every test sequence.

In all operating bands the measurements were performed on lowest, middle and highest channels.

The radiated output power of the device was measured by a separate test laboratory on the same unit(s) as used for SAR testing.

The SAR results, SAR plots and test details given in this report are duplicated from the earlier test reports Cph_SAR_0833_13 RM-398/ FCC ID: PPIRM-398 / IC ID: 661U-RM398 and Salo_SAR_0833_04 for RM-399. The number of test cases reported in this document has been minimised based on the same earlier test reports.

4. DESCRIPTION OF THE TEST EQUIPMENT

4.1 Measurement System and Components

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

The following table lists calibration dates of SPEAG components:

Test Equipment	Serial Number	Calibration interval	Calibration expiry
DAE 3	501	12 months	2009-03
DAE 4	793	12 months	2009-04
E-field Probe ES3DV3	3118	12 months	2008-10
E-field Probe ES3DV3	3165	12 months	2009-04
Dipole Validation Kit, D835V2	4d042	24 months	2008-09
Dipole Validation Kit, D1900V2	5d026	24 months	2010-03
Dipole Validation Kit, D2450V2	729	24 months	2010-01
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	2009-07
Signal Generator	SML03	101265	12 months	2009-07
Amplifier	2100-BBS3Q8CCJ	1003	-	-
Amplifier	ZHL-42 (SMA)	N072095-5	12 months	2009-07
Power Meter	NRP	100293	24 months	2009-07
Power Meter	NRVS	849305/028	12 months	2009-07
Power Sensor	NRP-Z51	100830	24 months	2009-07
Power Sensor	NRV-Z32	839176/020	12 months	2009-07
Call Tester	CMU200	105900	-	-
Call Tester	CMU200	110735	-	-
BT Tester	CBT	100263	-	-
Vector Network Analyzer	AT8753ES	MY40001091	12 months	2008-08
Vector Network Analyzer	8753E	US38432928	12 months	2009-07
Dielectric Probe Kit	HP85070B	US33020403	-	-
Dielectric Probe Kit	85070B	US33020420	-	-

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 Distance from probe tip to dipole centers: 2.0 mm
Application	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	70.20
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

<i>f</i> [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			
	2008-08-08	2.24	39.6	0.87	20.0
1900	Reference result	10.3	40.2	1.47	
	± 10% window	9.3 - 11.3			
	2008-08-07	9.91	39.5	1.47	20.6
2450	Reference result	14.3	37.8	1.82	
	± 10% window	12.9 - 15.7			
	2008-08-05	13.8	38.8	1.81	21.0
	2008-08-06	14.4	38.5	1.84	21.0

System checking, body tissue simulant

<i>f</i> [MHz]	Description	SAR [W/kg], 1g	Dielectric Parameters		Temp [°C]
			ϵ_r	σ [S/m]	
835	Reference result	2.45	53.8	0.98	
	± 10% window	2.20 - 2.70			
	2008-08-15	2.47	53.6	0.96	21.3
1900	Reference result	10.5	51.7	1.57	
	± 10% window	9.5 - 11.5			
	2008-08-06	10.0	53.1	1.59	22.0

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

4.3.3 Tissue Simulants used in the Measurements

Head tissue simulant measurements

f [MHz]	Description	Dielectric Parameters		Temp [°C]
		ϵ_r	σ [S/m]	
836	Recommended value	41.5	0.90	
	$\pm 5\%$ window	39.4 – 43.6	0.86 – 0.95	
	2008-08-08	39.6	0.87	20.0
1880	Recommended value	40.0	1.40	
	$\pm 5\%$ window	38.0 – 42.0	1.33 – 1.47	
	2008-08-07	39.5	1.45	20.6
2442	Recommended value	39.2	1.79	
	$\pm 5\%$ window	37.3 – 41.2	1.70 – 1.88	
	2008-08-05	38.8	1.80	21.0
	2008-08-06	38.5	1.84	21.0

Body tissue simulant measurements

f [MHz]	Description	Dielectric Parameters		Temp [°C]
		ϵ_r	σ [S/m]	
836	Recommended value	55.2	0.97	
	$\pm 5\%$ window	52.4 – 58.0	0.92 – 1.02	
	2008-08-15	53.5	0.96	21.3
1880	Recommended value	53.3	1.52	
	$\pm 5\%$ window	50.6 – 56.0	1.44 – 1.60	
	2008-08-06	53.2	1.57	22.0
2442	Recommended value	52.7	1.94	
	$\pm 5\%$ window	50.1 – 55.3	1.85 – 2.04	
	2008-08-06	50.9	2.00	21.0

5. DESCRIPTION OF THE TEST PROCEDURE

5.1 Device Holder

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



Device holder supplied by SPEAG

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



Nokia spacer

5.2 Test Positions

5.2.1 Against Phantom Head

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

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

5.2.2 Body Worn Configuration

The device was placed in the SPEAG holder using the Nokia spacer and placed below the flat section of the phantom. The distance between the device and the phantom was kept at the separation distance indicated in Section 1.2.2 using a separate flat spacer that was removed before the start of the measurements.

5.3 Scan Procedures

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

5.4 SAR Averaging Methods

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

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

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

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

6. MEASUREMENT UNCERTAINTY

Table 6.1 – Measurement uncertainty evaluation

Uncertainty Component	Section in IEEE 1528	Tol. (%)	Prob Dist	Div	C_i	$C_i \cdot U_i$ (%)	V_i
Measurement System							
Probe Calibration	E2.1	±5.9	N	1	1	±5.9	∞
Axial Isotropy	E2.2	±4.7	R	√3	$(1-c_p)^{1/2}$	±1.9	∞
Hemispherical Isotropy	E2.2	±9.6	R	√3	$(c_p)^{1/2}$	±3.9	∞
Boundary Effect	E2.3	±1.0	R	√3	1	±0.6	∞
Linearity	E2.4	±4.7	R	√3	1	±2.7	∞
System Detection Limits	E2.5	±1.0	R	√3	1	±0.6	∞
Readout Electronics	E2.6	±1.0	N	1	1	±1.0	∞
Response Time	E2.7	±0.8	R	√3	1	±0.5	∞
Integration Time	E2.8	±2.6	R	√3	1	±1.5	∞
RF Ambient Conditions - Noise	E6.1	±3.0	R	√3	1	±1.7	∞
RF Ambient Conditions - Reflections	E6.1	±3.0	R	√3	1	±1.7	∞
Probe Positioner Mechanical Tolerance	E6.2	±0.4	R	√3	1	±0.2	∞
Probe Positioning with respect to Phantom Shell	E6.3	±2.9	R	√3	1	±1.7	∞
Extrapolation, interpolation and Integration Algorithms for Max. SAR Evaluation	E5	±3.9	R	√3	1	±2.3	∞
Test sample Related							
Test Sample Positioning	E4.2	±6.0	N	1	1	±6.0	11
Device Holder Uncertainty	E4.1	±5.0	N	1	1	±5.0	7
Output Power Variation - SAR drift measurement	6.6.3	±0.0	R	√3	1	±0.0	∞
Phantom and Tissue Parameters							
Phantom Uncertainty (shape and thickness tolerances)	E3.1	±4.0	R	√3	1	±2.3	∞
Conductivity Target - tolerance	E3.2	±5.0	R	√3	0.64	±1.8	∞
Conductivity - measurement uncertainty	E3.3	±5.5	N	1	0.64	±3.5	5
Permittivity Target - tolerance	E3.2	±5.0	R	√3	0.6	±1.7	∞
Permittivity - measurement uncertainty	E3.3	±2.9	N	1	0.6	±1.7	5
Combined Standard Uncertainty			RSS			±12.9	116
Coverage Factor for 95%			k=2				
Expanded Uncertainty						±25.8	

7. RESULTS

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

850MHz Head SAR results

Option used	Test configuration		SAR, averaged over 1g (W/kg)		
			Ch 128 824.2 MHz	Ch190 836.6 MHz	Ch 251 848.8 MHz
2-slot GPRS	Power		26.2 dBm	27.3 dBm	27.8 dBm
Flip open	Left	Cheek	-	-	-
		Tilt	-	-	-
	Right	Cheek	0.503	0.631	0.746
		Tilt	-	-	-
2-slot GPRS Flip open	Right Cheek BT active		-	-	0.738

1900MHz Head SAR results

Option used	Test configuration		SAR, averaged over 1g (W/kg)		
			Ch 512 1850.2 MHz	Ch 661 1880.0 MHz	Ch 810 1909.8 MHz
3-slot GPRS	Power		25.5 dBm	26.3 dBm	25.1 dBm
Flip open	Left	Cheek	-	-	-
		Tilt	-	-	-
	Right	Cheek	0.450	0.475	0.434
		Tilt	-	-	-
3-slot GPRS Flip open	Right Cheek BT active		-	0.474	-

2450MHz 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		21.9 dBm	21.2 dBm	21.4 dBm
Flip open	Left	Cheek	-	0.132	-
		Tilt	-	0.059	-
	Right	Cheek	0.177	0.187	0.193
		Tilt	-	0.076	-

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

850MHz Body SAR results

Option used	Device orientation	Test configuration	SAR, averaged over 1g (W/kg)		
			Ch 128 824.2 MHz	Ch190 836.6 MHz	Ch 251 848.8 MHz
2-slot GPRS		Power	25.5 dBm	26.8 dBm	27.0 dBm
Flip closed	Display facing phantom	Without headset	-	-	-
		Headset HS-47	-	-	-
	Back facing phantom	Without headset	0.194	0.192	0.194
		Headset HS-47	-	-	-
2-slot GPRS Flip closed	Back facing phantom	Without headset BT active	0.189	-	-

1900MHz Body SAR results

Option used	Device orientation	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	27.6 dBm	27.1 dBm	25.7 dBm
Flip closed	Display facing phantom	Without headset	-	-	-
		Headset HS-47	-	-	-
	Back facing phantom	Without headset	-	-	-
		Headset HS-47	0.161	0.166	0.151
3-slot GPRS Flip closed	Back facing phantom	Headset HS-47 BT active	-	0.226	-

2450MHz Body SAR results

Option used	Device orientation	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	20.9 dBm	22.4 dBm	21.8 dBm
Flip closed	Back facing	Without headset	-	0.090	-
	phantom	Headset HS-47	0.081	0.098	0.093

Plots of the Measurement scans are given in Appendix B.

APPENDIX A: SYSTEM CHECKING SCANS

See the following pages

Date/Time: 2008-08-08 10:44:07

Test Laboratory: TCC Nokia

Type: D835V2; Serial: 476

Communication System: CW835

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: Head 850; Medium Notes: Medium Temperature: 20.0 C

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.873 \text{ mho/m}$; $\epsilon_r = 39.6$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3118; Probe Notes:
- ConvF(5.99, 5.99, 5.99); Calibrated: 2007-10-26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn501; Calibrated: 2008-03-17
- Phantom: SAM 4; Type: Twin Phantom; Serial: TP-1410
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

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

Maximum value of SAR (interpolated) = 2.40 mW/g

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

Reference Value = 51.4 V/m

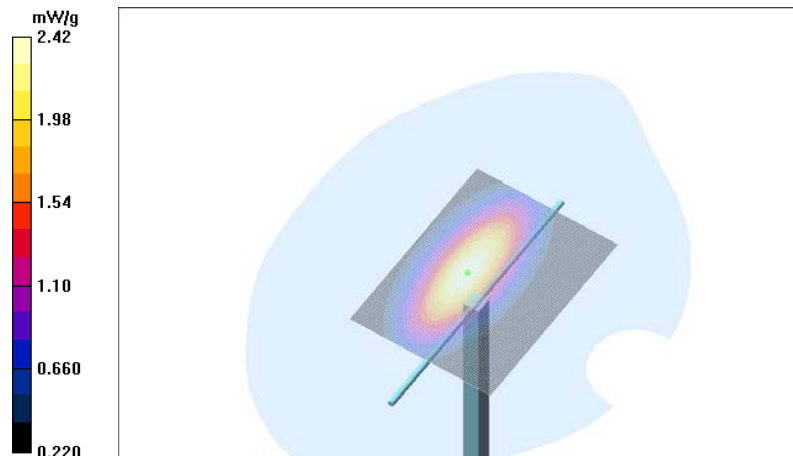
Peak SAR (extrapolated) = 3.28 W/kg

SAR(1 g) = 2.24 mW/g

SAR(10 g) = 1.47 mW/g

Power Drift = 0.075 dB

Maximum value of SAR (measured) = 2.42 mW/g



Date/Time: 2008-08-07 10:41:10

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: 20.6 C

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.47$ mho/m; $\epsilon_r = 39.5$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3118; Probe Notes:
- ConvF(5.26, 5.26, 5.26); Calibrated: 2007-10-26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn501; Calibrated: 2008-03-17
- Phantom: SAM 2; Type: Twin Phantom; Serial: TP-1037
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

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

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

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

Reference Value = 87.3 V/m

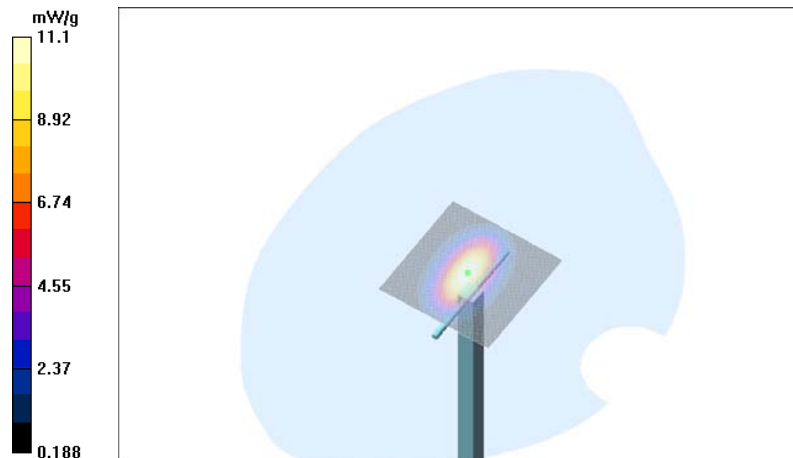
Peak SAR (extrapolated) = 18.9 W/kg

SAR(1 g) = 9.91 mW/g

SAR(10 g) = 5.07 mW/g

Power Drift = 0.125 dB

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



Date/Time: 2008-08-05 11:34:54

Test Laboratory: TCC Nokia

Type: D2450V2; Serial: D2450V2 - SN:729

Communication System: CW2450

Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: HSL2450; Medium Notes: 21.6C

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.81$ mho/m; $\epsilon_r = 38.8$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3165
- ConvF(4.57, 4.57, 4.57); Calibrated: 2008-04-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn793; Calibrated: 2008-04-30
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1449
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

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

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

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

Reference Value = 94.3 V/m

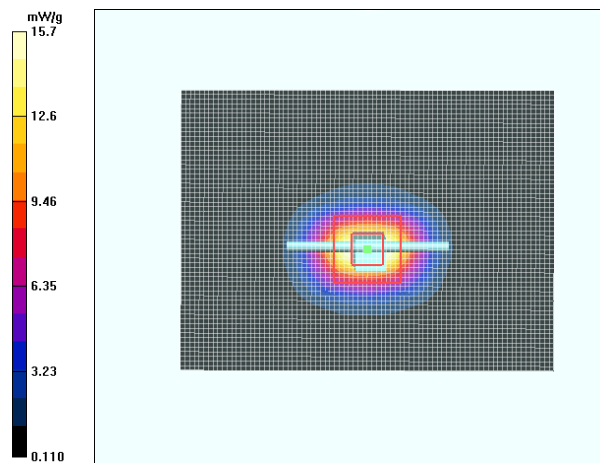
Peak SAR (extrapolated) = 29.0 W/kg

SAR(1 g) = 13.8 mW/g

SAR(10 g) = 6.36 mW/g

Power Drift = -0.034 dB

Maximum value of SAR (measured) = 15.7 mW/g



Date/Time: 2008-08-06 09:09:57

Test Laboratory: TCC Nokia

Type: D2450V2; Serial: D2450V2 - SN:729

Communication System: CW2450

Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: HSL2450; Medium Notes: 21.0C

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.84$ mho/m; $\epsilon_r = 38.5$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3165
- ConvF(4.57, 4.57, 4.57); Calibrated: 2008-04-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn793; Calibrated: 2008-04-30
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1449
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

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

Maximum value of SAR (interpolated) = 17.3 mW/g

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

Reference Value = 95.5 V/m

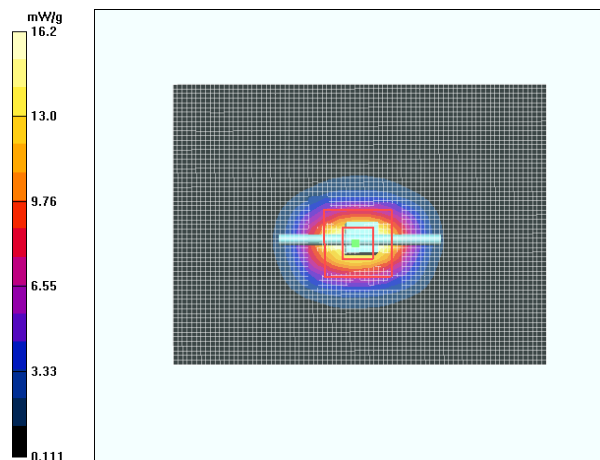
Peak SAR (extrapolated) = 30.1 W/kg

SAR(1 g) = 14.4 mW/g

SAR(10 g) = 6.65 mW/g

Power Drift = -0.002 dB

Maximum value of SAR (measured) = 16.2 mW/g



Date/Time: 2008-08-15 16:26:05

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: 21.3 C

Medium parameters used: $f = 835$ MHz; $\sigma = 0.957$ mho/m; $\epsilon_r = 53.6$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3118; Probe Notes:
- ConvF(5.59, 5.59, 5.59); Calibrated: 2007-10-26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn501; Calibrated: 2008-03-17
- Phantom: SAM 5; Type: Twin Phantom; Serial: TP-1412
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

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

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

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

Reference Value = 54.0 V/m

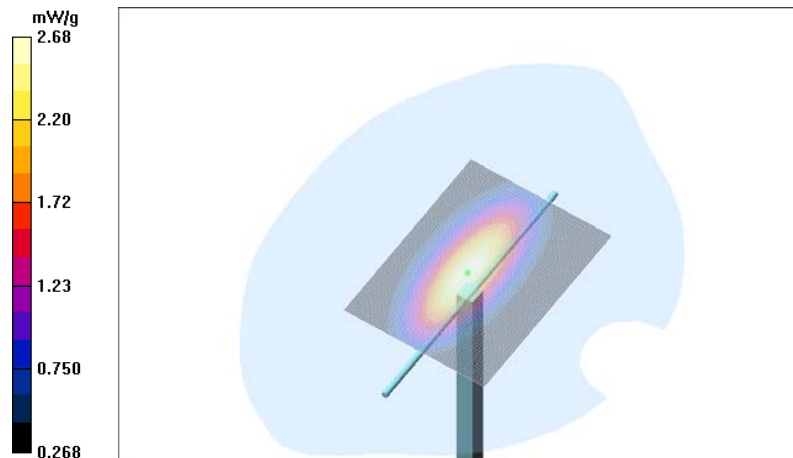
Peak SAR (extrapolated) = 3.55 W/kg

SAR(1 g) = 2.47 mW/g

SAR(10 g) = 1.64 mW/g

Power Drift = -0.041 dB

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



Date/Time: 2008-08-06 11:24:29

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: 22.0 C

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.59$ mho/m; $\epsilon_r = 53.1$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3118; Probe Notes:
- ConvF(4.92, 4.92, 4.92); Calibrated: 2007-10-26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn501; Calibrated: 2008-03-17
- Phantom: SAM 3; Type: Twin Phantom; Serial: TP-1302
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

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

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

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

Reference Value = 84.0 V/m

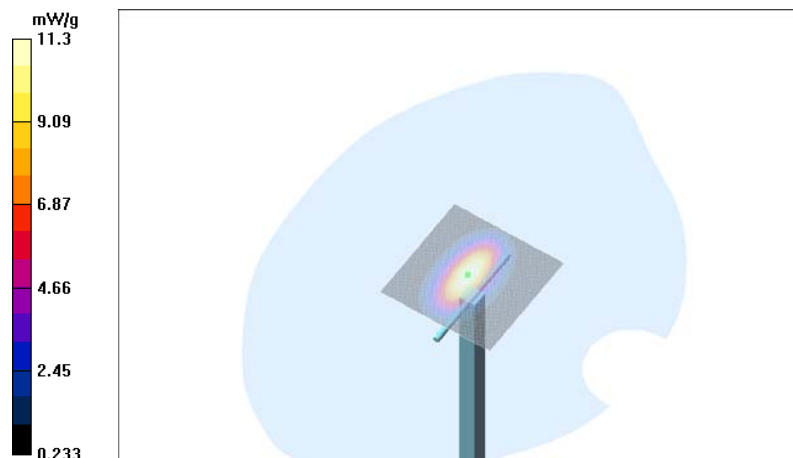
Peak SAR (extrapolated) = 18.4 W/kg

SAR(1 g) = 10 mW/g

SAR(10 g) = 5.16 mW/g

Power Drift = 0.079 dB

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



APPENDIX B: MEASUREMENT SCANS

See the following pages

Date/Time: 2008-08-08 15:30:25

Test Laboratory: TCC Nokia

Type: RM-398; Serial: 004401/10/118900/5

Communication System: 2-slot GPRS850

Frequency: 848.8 MHz; Duty Cycle: 1:4.2

Medium: Head 850; Medium Notes: Medium Temperature: 20.0 C

Medium parameters used: $f = 849$ MHz; $\sigma = 0.887$ mho/m; $\epsilon_r = 39.5$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3118; Probe Notes:
- ConvF(5.99, 5.99, 5.99); Calibrated: 2007-10-26
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn501; Calibrated: 2008-03-17
- Phantom: SAM 4; Type: Twin Phantom; Serial: TP-1410
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Cheek position - High - Flip open/Area Scan (51x141x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.842 mW/g

Cheek position - High - Flip open/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 10.1 V/m

Peak SAR (extrapolated) = 1.30 W/kg

SAR(1 g) = 0.746 mW/g

SAR(10 g) = 0.467 mW/g

Power Drift = -0.026 dB

Maximum value of SAR (measured) = 0.900 mW/g

Cheek position - High - Flip open/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 10.1 V/m

Peak SAR (extrapolated) = 0.806 W/kg

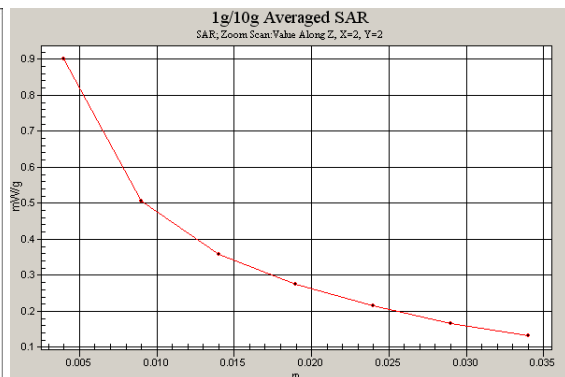
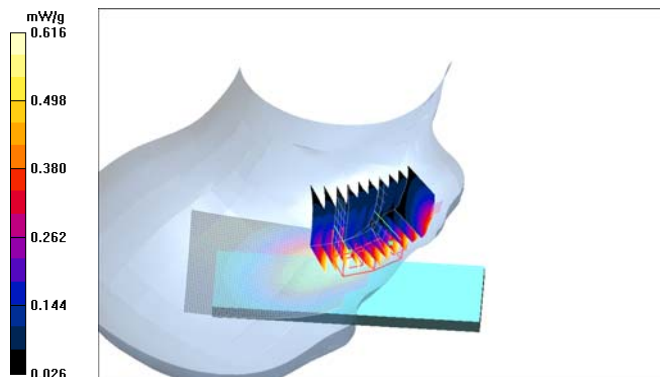
SAR(1 g) = 0.576 mW/g

SAR(10 g) = 0.406 mW/g

Power Drift = -0.026 dB

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

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



SAR Report

Cph_SAR_0836_08

Applicant: Nokia Corporation

Type: RM-399

Copyright © 2008 TCC Nokia

Date/Time: 2008-08-08 16:14:52

Test Laboratory: TCC Nokia

Type: RM-398; Serial: 004401/10/118900/5

Communication System: 2-slot GPRS850

Frequency: 848.8 MHz; Duty Cycle: 1:4.2

Medium: Head 850; Medium Notes: Medium Temperature: 20.0 C

Medium parameters used: $f = 849$ MHz; $\sigma = 0.887$ mho/m; $\epsilon_r = 39.5$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3118; Probe Notes:
- ConvF(5.99, 5.99, 5.99); Calibrated: 2007-10-26
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn501; Calibrated: 2008-03-17
- Phantom: SAM 4; Type: Twin Phantom; Serial: TP-1410
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Cheek position - High – Flip open - BT Active/Area Scan (51x141x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.805 mW/g

Cheek position - High – Flip open - BT Active/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 10.2 V/m

Peak SAR (extrapolated) = 1.26 W/kg

SAR(1 g) = 0.738 mW/g

SAR(10 g) = 0.467 mW/g

Power Drift = -0.097 dB

Maximum value of SAR (measured) = 0.893 mW/g

Cheek position - High – Flip open - BT Active/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 10.2 V/m

Peak SAR (extrapolated) = 0.811 W/kg

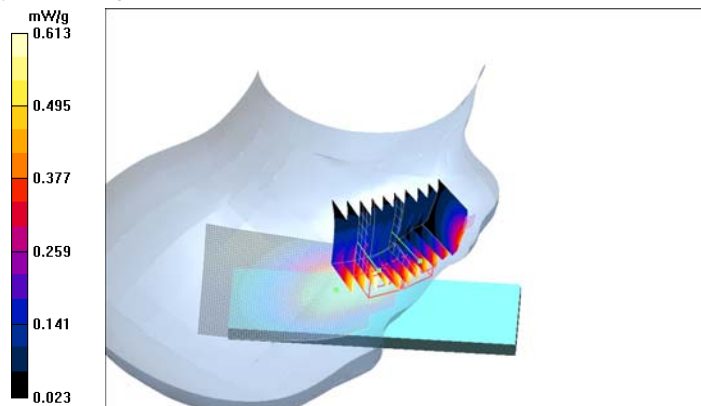
SAR(1 g) = 0.576 mW/g

SAR(10 g) = 0.403 mW/g

Power Drift = -0.097 dB

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

Maximum value of SAR (measured) = 0.613 mW/g



Date/Time: 2008-08-07 12:00:55

Test Laboratory: TCC Nokia

Type: RM-398; Serial: 004401/10/118900/5

Communication System: 3-slot GPRS1900

Frequency: 1880 MHz; Duty Cycle: 1:2.8

Medium: Head 1900; Medium Notes: Medium Temperature: 20.6 C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.45$ mho/m; $\epsilon_r = 39.5$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3118; Probe Notes:
- ConvF(5.26, 5.26, 5.26); Calibrated: 2007-10-26
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn501; Calibrated: 2008-03-17
- Phantom: SAM 2; Type: Twin Phantom; Serial: TP-1037
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Cheek position - Middle – Flip open/Area Scan (51x141x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.514 mW/g

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

Reference Value = 4.73 V/m

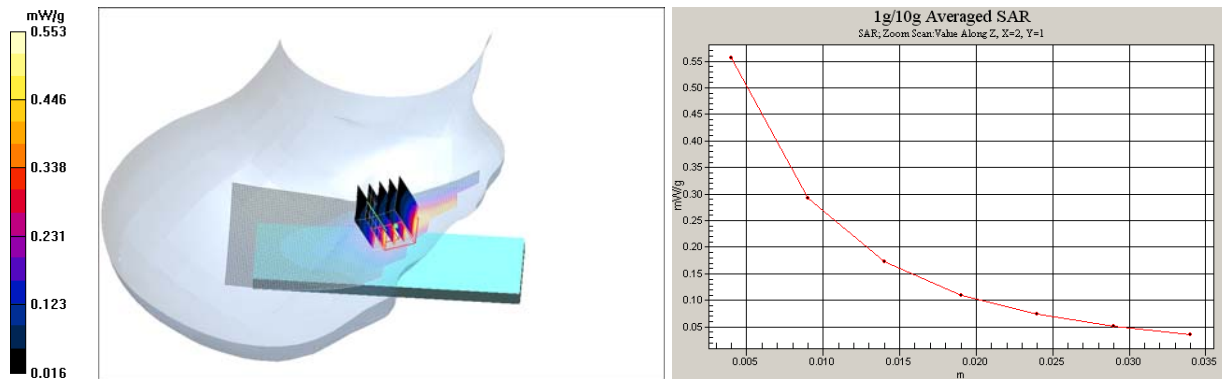
Peak SAR (extrapolated) = 0.894 W/kg

SAR(1 g) = 0.475 mW/g

SAR(10 g) = 0.278 mW/g

Power Drift = -0.065 dB

Maximum value of SAR (measured) = 0.553 mW/g



Date/Time: 2008-08-07 12:34:14

Test Laboratory: TCC Nokia

Type: RM-398; Serial: 004401/10/118900/5

Communication System: 3-slot GPRS1900

Frequency: 1880 MHz; Duty Cycle: 1:2.8

Medium: Head 1900; Medium Notes: Medium Temperature: 20.6 C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.45$ mho/m; $\epsilon_r = 39.5$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3118; Probe Notes:
- ConvF(5.26, 5.26, 5.26); Calibrated: 2007-10-26
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn501; Calibrated: 2008-03-17
- Phantom: SAM 2; Type: Twin Phantom; Serial: TP-1037
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Cheek position - Middle – Flip open - BT Active/Area Scan (51x141x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.507 mW/g

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

Reference Value = 4.79 V/m

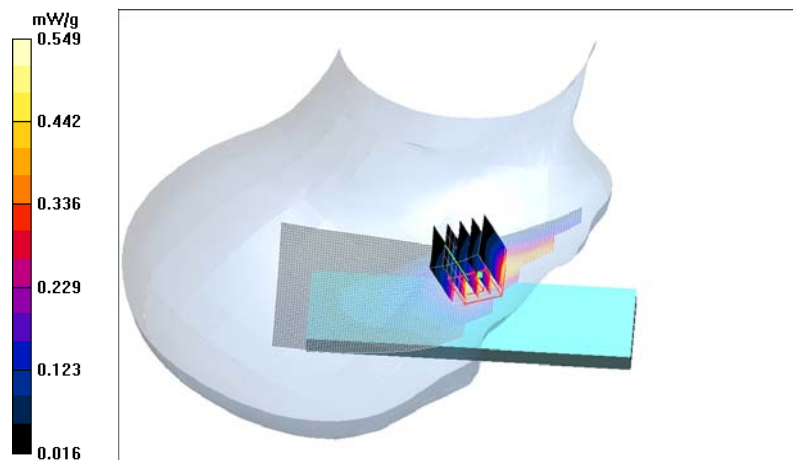
Peak SAR (extrapolated) = 0.895 W/kg

SAR(1 g) = 0.474 mW/g

SAR(10 g) = 0.278 mW/g

Power Drift = -0.084 dB

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



Date/Time: 2008-08-05 12:51:27

Test Laboratory: TCC Nokia

Type: RM-399; Serial: 004401/10/042927/9

Communication System: WLAN2450

Frequency: 2442 MHz; Duty Cycle: 1:1

Medium: HSL2450; Medium Notes: 21.6C

Medium parameters used: $f = 2442$ MHz; $\sigma = 1.8$ mho/m; $\epsilon_r = 38.8$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3165
- ConvF(4.57, 4.57, 4.57); Calibrated: 2008-04-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn793; Calibrated: 2008-04-30
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1449
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Cheek position - Middle – Flip open/Area Scan (51x131x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.151 mW/g

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

Reference Value = 2.28 V/m

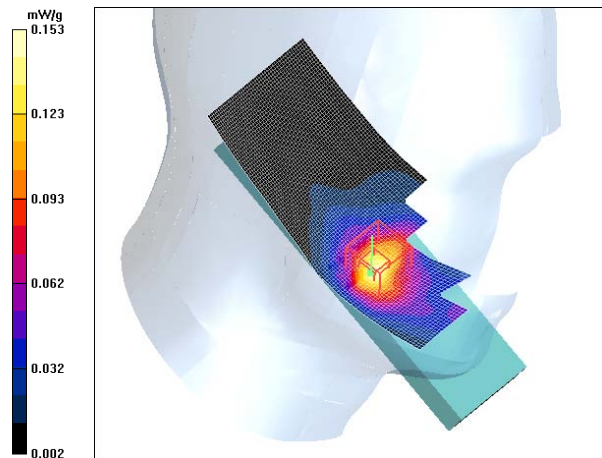
Peak SAR (extrapolated) = 0.274 W/kg

SAR(1 g) = 0.132 mW/g

SAR(10 g) = 0.066 mW/g

Power Drift = 0.019 dB

Maximum value of SAR (measured) = 0.153 mW/g



Date/Time: 2008-08-05 13:06:49

Test Laboratory: TCC Nokia

Type: RM-399; Serial: 004401/10/042927/9

Communication System: WLAN2450

Frequency: 2442 MHz; Duty Cycle: 1:1

Medium: HSL2450; Medium Notes: 21.6C

Medium parameters used: $f = 2442$ MHz; $\sigma = 1.8$ mho/m; $\epsilon_r = 38.8$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3165
- ConvF(4.57, 4.57, 4.57); Calibrated: 2008-04-23
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn793; Calibrated: 2008-04-30
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1449
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Tilt position - Middle – Flip open /Area Scan (51x131x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.072 mW/g

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

Reference Value = 5.58 V/m

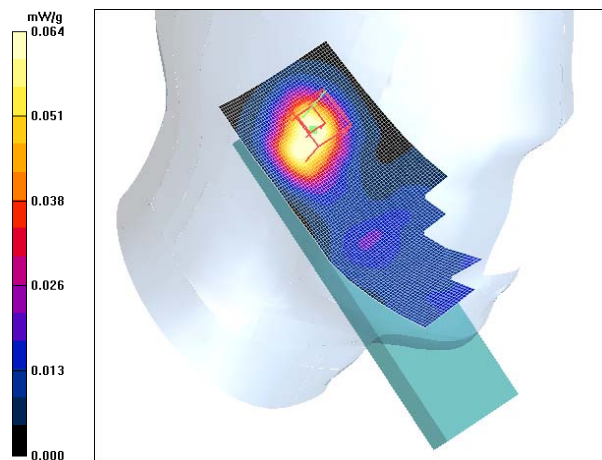
Peak SAR (extrapolated) = 0.107 W/kg

SAR(1 g) = 0.059 mW/g

SAR(10 g) = 0.033 mW/g

Power Drift = -0.056 dB

Maximum value of SAR (measured) = 0.064 mW/g



Date/Time: 2008-08-06 10:39:45

Test Laboratory: TCC Nokia

Type: RM-399; Serial: 004401/10/042927/9

Communication System: WLAN2450

Frequency: 2462 MHz; Duty Cycle: 1:1

Medium: HSL2450; Medium Notes: 21.0C

Medium parameters used: $f = 2462$ MHz; $\sigma = 1.86$ mho/m; $\epsilon_r = 38.5$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3165
- ConvF(4.57, 4.57, 4.57); Calibrated: 2008-04-23
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn793; Calibrated: 2008-04-30
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1449
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Cheek position - High – Flip open /Area Scan (51x131x1): Measurement grid: dx=15mm, dy=15mm

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

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

Reference Value = 1.74 V/m

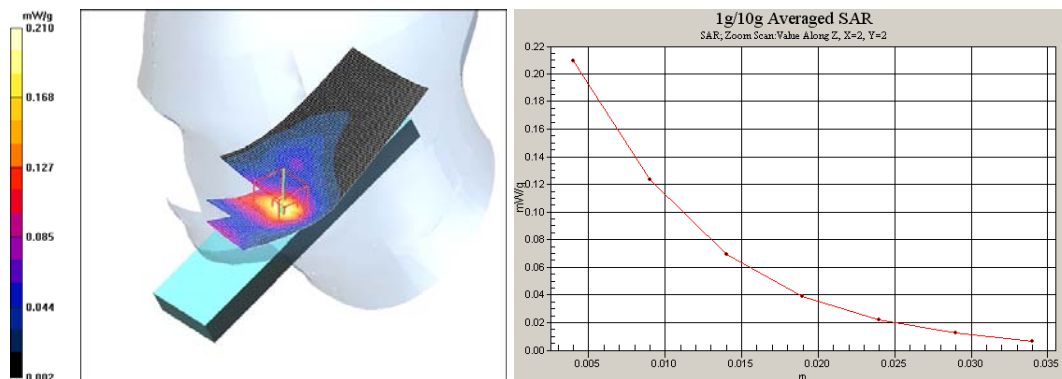
Peak SAR (extrapolated) = 0.397 W/kg

SAR(1 g) = 0.193 mW/g

SAR(10 g) = 0.094 mW/g

Power Drift = 0.329 dB

Maximum value of SAR (measured) = 0.210 mW/g



Date/Time: 2008-08-05 14:15:10

Test Laboratory: TCC Nokia

Type: RM-399; Serial: 004401/10/042927/9

Communication System: WLAN2450

Frequency: 2442 MHz; Duty Cycle: 1:1

Medium: HSL2450; Medium Notes: 21.6C

Medium parameters used: $f = 2442$ MHz; $\sigma = 1.8$ mho/m; $\epsilon_r = 38.8$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3165
- ConvF(4.57, 4.57, 4.57); Calibrated: 2008-04-23
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn793; Calibrated: 2008-04-30
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1449
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Tilt position - Middle – Flip open/Area Scan (51x131x1): Measurement grid: dx=15mm, dy=15mm

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

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

Reference Value = 4.78 V/m

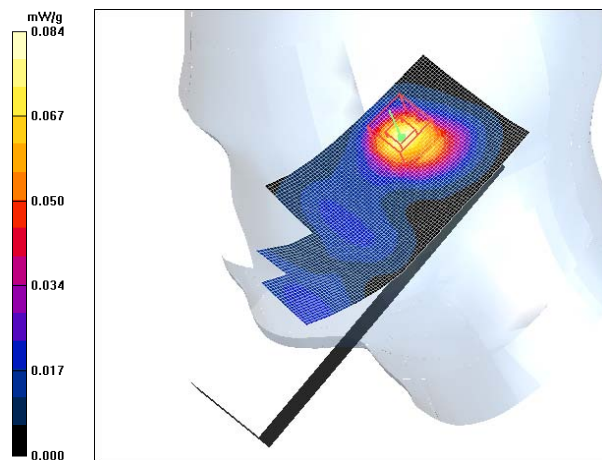
Peak SAR (extrapolated) = 0.140 W/kg

SAR(1 g) = 0.076 mW/g

SAR(10 g) = 0.040 mW/g

Power Drift = -0.004 dB

Maximum value of SAR (measured) = 0.084 mW/g



Date/Time: 2008-08-15 17:27:26

Test Laboratory: TCC Nokia

Type: RM-398; Serial: 004401/10/118900/5

Communication System: 2-slot GPRS850

Frequency: 824.2 MHz; Duty Cycle: 1:4.2

Medium: Body 850; Medium Notes: Medium Temperature: 21.3 C

Medium parameters used (interpolated): $f = 824.2$ MHz; $\sigma = 0.947$ mho/m; $\epsilon_r = 53.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3118; Probe Notes:
- ConvF(5.59, 5.59, 5.59); Calibrated: 2007-10-26
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn501; Calibrated: 2008-03-17
- Phantom: SAM 5; Type: Twin Phantom; Serial: TP-1412
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body - Low - No Accessory - Flip closed - Back facing phantom/Area Scan (51x101x1): Measurement grid:

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

Maximum value of SAR (interpolated) = 0.209 mW/g

Body - Low - No Accessory - Flip closed - Back facing phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

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

Reference Value = 13.2 V/m

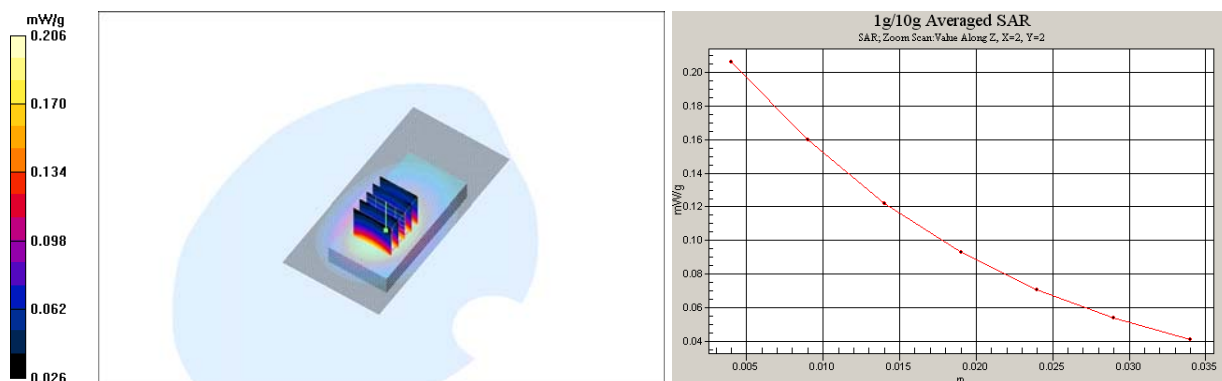
Peak SAR (extrapolated) = 0.243 W/kg

SAR(1 g) = 0.194 mW/g

SAR(10 g) = 0.142 mW/g

Power Drift = -0.153 dB

Maximum value of SAR (measured) = 0.206 mW/g



Date/Time: 2008-08-15 18:13:35

Test Laboratory: TCC Nokia

Type: RM-398; Serial: 004401/10/118900/5

Communication System: 2-slot GPRS850

Frequency: 824.2 MHz; Duty Cycle: 1:4.2

Medium: Body 850; Medium Notes: Medium Temperature: 21.3 C

Medium parameters used (interpolated): $f = 824.2$ MHz; $\sigma = 0.947$ mho/m; $\epsilon_r = 53.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3118; Probe Notes:
- ConvF(5.59, 5.59, 5.59); Calibrated: 2007-10-26
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn501; Calibrated: 2008-03-17
- Phantom: SAM 5; Type: Twin Phantom; Serial: TP-1412
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body - Low - No Accessory - Flip closed - Back facing phantom - BT Active/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm

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

Body - Low - No Accessory - Flip closed - Back facing phantom - BT Active/Zoom Scan (5x5x7)/Cube 0:

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

Reference Value = 13.0 V/m

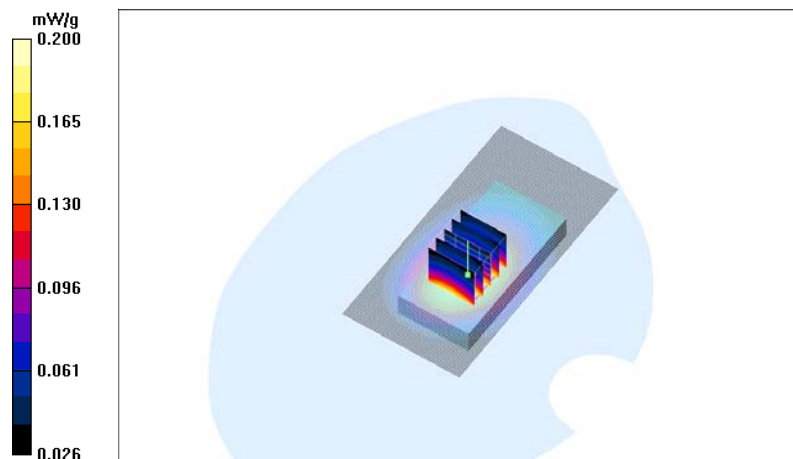
Peak SAR (extrapolated) = 0.238 W/kg

SAR(1 g) = 0.189 mW/g

SAR(10 g) = 0.139 mW/g

Power Drift = -0.113 dB

Maximum value of SAR (measured) = 0.200 mW/g



Date/Time: 2008-08-06 15:44:30

Test Laboratory: TCC Nokia

Type: RM-398; Serial: 004401/10/118900/5

Communication System: 3-slot GPRS1900

Frequency: 1880 MHz; Duty Cycle: 1:2.8

Medium: Body 1900; Medium Notes: Medium Temperature: 22.0 C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.57$ mho/m; $\epsilon_r = 53.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3118; Probe Notes:
- ConvF(4.92, 4.92, 4.92); Calibrated: 2007-10-26
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn501; Calibrated: 2008-03-17
- Phantom: SAM 3; Type: Twin Phantom; Serial: TP-1302
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body - Middle - HS-47 - Flip closed - Back Facing Phantom/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.183 mW/g

Body - Middle - HS-47 - Flip closed - Back Facing Phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

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

Reference Value = 10.5 V/m

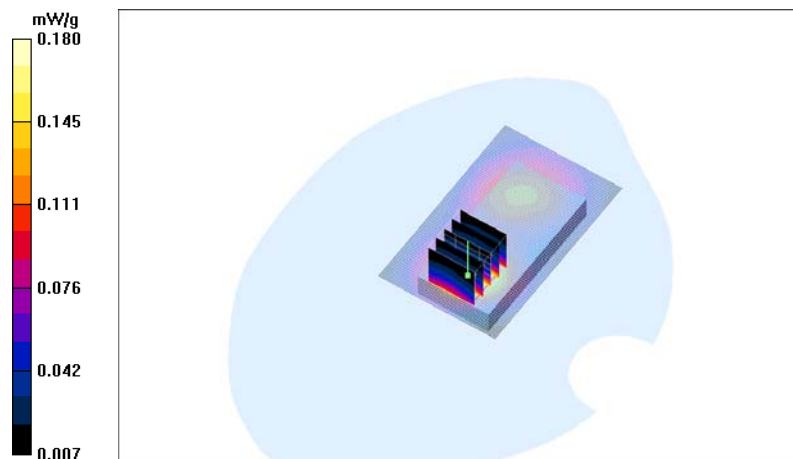
Peak SAR (extrapolated) = 0.266 W/kg

SAR(1 g) = 0.166 mW/g

SAR(10 g) = 0.102 mW/g

Power Drift = -0.097 dB

Maximum value of SAR (measured) = 0.180 mW/g



Date/Time: 2008-08-06 16:15:33

Test Laboratory: TCC Nokia

Type: RM-398; Serial: 004401/10/118900/5

Communication System: 3-slot GPRS1900

Frequency: 1880 MHz; Duty Cycle: 1:2.8

Medium: Body 1900; Medium Notes: Medium Temperature: 22.0 C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.57$ mho/m; $\epsilon_r = 53.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3118; Probe Notes:
- ConvF(4.92, 4.92, 4.92); Calibrated: 2007-10-26
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn501; Calibrated: 2008-03-17
- Phantom: SAM 3; Type: Twin Phantom; Serial: TP-1302
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body - Middle - HS-47 - Flip closed - Back facing phantom - BT Active/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.248 mW/g

Body - Middle - HS-47 - Flip closed - Back facing phantom - BT Active/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 12.7 V/m

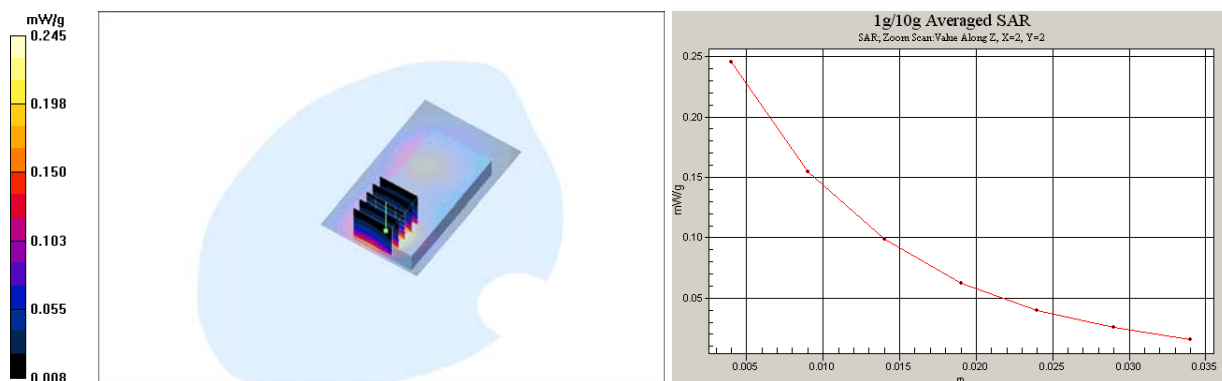
Peak SAR (extrapolated) = 0.363 W/kg

SAR(1 g) = 0.226 mW/g

SAR(10 g) = 0.137 mW/g

Power Drift = -0.101 dB

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



Date/Time: 2008-08-06 11:41:28

Test Laboratory: TCC Nokia

Type: RM-399; Serial: 004401/10/042927/9

Communication System: WLAN2450

Frequency: 2442 MHz; Duty Cycle: 1:1

Medium: BSL2450; Medium Notes: 21.2C

Medium parameters used: $f = 2442$ MHz; $\sigma = 2$ mho/m; $\epsilon_r = 50.9$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3165
- ConvF(4.24, 4.24, 4.24); Calibrated: 2008-04-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn793; Calibrated: 2008-04-30
- Phantom: SAM 3; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body - Middle - No Accessory - Flip closed - Back facing phantom/Area Scan (41x81x1): Measurement grid:

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

Maximum value of SAR (interpolated) = 0.099 mW/g

Body - Middle - No Accessory - Flip closed - Back facing phantom/Zoom Scan (5x5x7)/Cube 0: Measurement

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

Reference Value = 6.31 V/m

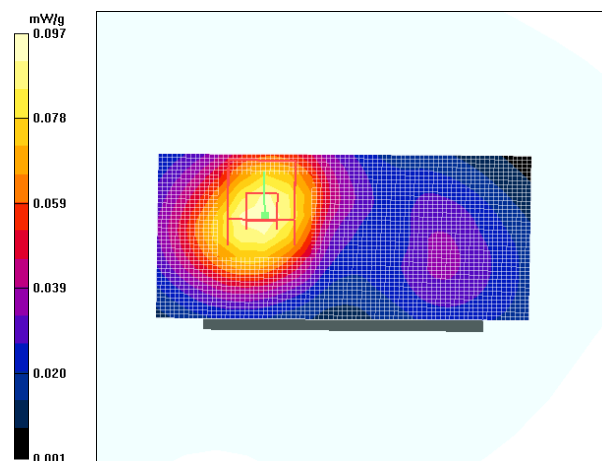
Peak SAR (extrapolated) = 0.158 W/kg

SAR(1 g) = 0.090 mW/g

SAR(10 g) = 0.052 mW/g

Power Drift = -0.041 dB

Maximum value of SAR (measured) = 0.097 mW/g



Date/Time: 2008-08-06 11:54:39

Test Laboratory: TCC Nokia

Type: RM-399; Serial: 004401/10/042927/9

Communication System: WLAN2450

Frequency: 2442 MHz; Duty Cycle: 1:1

Medium: BSL2450; Medium Notes: 21.2C

Medium parameters used: $f = 2442$ MHz; $\sigma = 2$ mho/m; $\epsilon_r = 50.9$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3165

- ConvF(4.24, 4.24, 4.24); Calibrated: 2008-04-23

- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)

- Electronics: DAE4 Sn793; Calibrated: 2008-04-30

- Phantom: SAM 3; Type: Twin SAM 040 CA; Serial: TP-1179

- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

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

Maximum value of SAR (interpolated) = 0.109 mW/g

Body - Middle - HS-47 – Flip closed - Back facing phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

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

Reference Value = 6.34 V/m

Peak SAR (extrapolated) = 0.170 W/kg

SAR(1 g) = 0.098 mW/g

SAR(10 g) = 0.056 mW/g

Power Drift = -0.005 dB

Maximum value of SAR (measured) = 0.106 mW/g

