

SAR Compliance Test Report

Test report no.:	SD_SAR_0903_01	Date of report:	2009-01-19
Template version:	11.0	Number of pages:	70
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Tested device:	RM-492		
FCC ID:	QMNRM-492	IC:	661X-RM492
Supplement reports:	SD_SAR_0903_02		
Testing has been carried out in accordance with:	47CFR §2.1093 Radiofrequency Radiation Exposure Evaluation: Portable Devices FCC OET Bulletin 65 (Edition 97-01), Supplement C (Edition 01-01) Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields RSS-102 Evaluation Procedure for Mobile and Portable Radio Transmitters with Respect to Health Canada's Safety Code 6 for Exposure of Humans to Radio Frequency Fields IEEE 1528 - 2003 IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Technique		
Documentation:	The documentation of the testing performed on the tested devices is archived for 15 years at TCC San Diego.		
Test results:	The tested device complies with the requirements in respect of all parameters subject to the test. The test results and statements relate only to the items tested. The test report shall not be reproduced except in full, without written approval of the laboratory.		

Date and signatures:



For the contents:

Jose Gomez
Certification Test Engineer

2009-02-27

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1. SUMMARY OF SAR TEST REPORT

1.1 Test Details

Period of test	2009-01-07 to 2009-01-14
SN, HW and SW numbers of tested device	SN: 004401/10/361390/3, HW: 3003, SW: 03.011, DUT: 3117
Batteries used in testing	BP-4L, DUT: 03118, 03119
Headsets used in testing	HS-49, DUT: 03120
Other accessories used in testing	-
State of sample	Prototype unit
Notes	-

1.2 Maximum Results

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

1.2.1 Head Configuration

Mode	Ch / f (MHz)	Radiated power	Position	Measured SAR value (1g avg)	Scaled* SAR value (1g avg)	SAR limit (1g avg)	Result
GSM850	251/848.8	30.1dBm ERP	Right, Cheek	0.616W/kg	0.69W/kg	1.6 W/kg	PASSED
WCDMA850	4233/846.6	19.0dBm ERP	Right, Cheek	0.709W/kg	0.79W/kg	1.6 W/kg	PASSED
GSM1900	661/1880.0	30.4dBm EIRP	Left, Cheek	0.663W/kg	0.74W/kg	1.6 W/kg	PASSED
WCDMA1900	9400/1880.0	19.6dBm EIRP	Left, Cheek	1.17W/kg	1.31W/kg	1.6 W/kg	PASSED

1.2.2 Body Worn Configuration

Mode	Ch / f (MHz)	Radiated power	Separation distance	Measured SAR value (1g avg)	Scaled* SAR value (1g avg)	SAR limit (1g avg)	Result
GSM850	251/848.8	30.1dBm ERP	2.2cm	0.444W/kg	0.50W/kg	1.6 W/kg	PASSED
WCDMA850	4233/846.6	19.0dBm ERP	2.2cm	0.510W/kg	0.57W/kg	1.6 W/kg	PASSED
GSM1900	661/1880.0	30.4dBm EIRP	2.2cm	0.176W/kg	0.20W/kg	1.6 W/kg	PASSED
WCDMA1900	9400/1880.0	19.6dBm EIRP	2.2cm	0.302W/kg	0.34W/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	0.49dB

1.2.4 Measurement Uncertainty

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

Device category	Portable
Exposure environment	General population / uncontrolled

Modes of Operation	Bands	Modulation Mode	Duty Cycle	Transmitter Frequency Range (MHz)
GSM	850 1900	GMSK	1/8	824 – 849 1850 – 1910
GPRS	850 1900	GMSK	1/8 to 2/8	824 – 849 1850 – 1910
EGPRS	850 1900	GMSK / 8PSK	1/8 to 2/8	824 – 849 1850 – 1910
WCDMA	850 (Band V) 1900 (Band II)		1	826 – 847 1852 – 1908
BT	2450	GFSK	1	2402 – 2480

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 internal antennas.

3. TEST CONDITIONS

3.1 Temperature and Humidity

Ambient temperature (°C):	20.7 to 21.7
Ambient humidity (RH %):	24 to 48

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.

The transmission mode of the device in all WCDMA tests was configured to 12.2kbps RMC with all TPC bits set as “1”.

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

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

4. DESCRIPTION OF THE TEST EQUIPMENT

4.1 Measurement System and Components

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

The following table lists calibration dates of SPEAG components:

Test Equipment	Serial Number	Calibration interval	Calibration expiry
DAE 4	860	12 months	2009-06
E-field Probe ET3DV6	1516	12 months	2009-10
Dipole Validation Kit, D835V2	486	24 months	2010-10
Dipole Validation Kit, D1900V2	509	24 months	2010-06
DASY Software	Version 4.7	-	-

Additional test equipment used in testing:

Test Equipment	Model	Serial Number	Calibration interval	Calibration expiry
Signal Generator	HP E4432B	US 40053677	24 months	2009-10
Signal Generator	HP E4432B	US 40052231	24 months	2010-06
Amplifier	Milmega AS0822-8L	1004832	-	-
Amplifier	Milmega AS0822-20L	1009777	-	-
Power Meter	Agilent E4419B	GB40202155	12 months	2009-03
Power Meter	Agilent E4417A	GB41290918	12 months	2009-01
Power Sensor	Agilent E9301A	US39211902	12 months	2009-07
Power Sensor	Agilent E9327A	US40440896	12 months	2009-04
Call Tester	CMU200	US11-40052403-1	-	-
Vector Network Analyzer	Agilent 8753ES	US39174327	12 months	2009-05
Dielectric Probe Kit	Agilent 85070D	US01440165	-	-

4.1.1 Isotropic E-field Probe Type ET3DV6

Construction	Symmetrical design with triangular core Built-in optical fiber for surface detection system Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., butyl diglycol)
Calibration	Calibration certificate in Appendix C
Frequency	10 MHz to 3 GHz (dosimetry); Linearity: ± 0.2 dB (30 MHz to 3 GHz)
Optical Surface Detection	± 0.2 mm repeatability in air and clear liquids over diffuse reflecting surfaces
Directivity	± 0.2 dB in HSL (rotation around probe axis) ± 0.4 dB in HSL (rotation normal to probe axis)

Dynamic Range	5 μ W/g to > 100 mW/g; Linearity: $\pm$ 0.2 dB
Dimensions	Overall length: 330 mm Tip length: 16 mm Body diameter: 12 mm Tip diameter: 6.8 mm
Application	Distance from probe tip to dipole centers: 2.7 mm General dosimetry up to 3 GHz Compliance tests of mobile phones Fast automatic scanning in arbitrary phantoms

4.2 Phantoms

The phantom used for all tests i.e. for both system 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	51.50	69.25
Tween 20	47.35	30.00
Salt	1.15	0.75

1900MHz band

Ingredient	Head (% by weight)	Body (% by weight)
Deionised Water	54.50	70.25
Tween 20	45.23	29.41
Salt	0.27	0.34

4.3.2 System Checking

The manufacturer calibrates the probes annually. Dielectric parameters of the tissue simulants were measured every day using the dielectric probe kit and the network analyser. A system check measurement was made following the determination of the dielectric parameters of the simulant, using the dipole validation kit. A power level of 250 mW was supplied to the dipole antenna, which was placed under the flat section of the twin SAM phantom. The system checking results (dielectric parameters and SAR values) are given in the table below.

System checking, head tissue simulant

f [MHz]	Description	SAR [W/kg], 1g	Dielectric Parameters		Temp [°C]
			ϵ_r	σ [S/m]	
835	Reference result	2.39	40.5	0.90	
	± 10% window	2.15 – 2.63			
	2009-01-12	2.23	40.1	0.88	21.7
	2009-01-13	2.23	39.8	0.87	21.4
1900	Reference result	9.96	39.1	1.48	
	± 10% window	8.96 - 10.96			
	2009-01-07	10.4	38.1	1.41	21.1
	2009-01-08	10.6	37.9	1.42	21.2

System checking, body tissue simulant

f [MHz]	Description	SAR [W/kg], 1g	Dielectric Parameters		Temp [°C]
			ϵ_r	σ [S/m]	
835	Reference result	2.42	53.4	1.00	
	± 10% window	2.18 – 2.66			
	2009-01-14	2.44	52.6	0.98	20.9
1900	Reference result	9.77	52.4	1.58	
	± 10% window	8.79 – 10.75			
	2009-01-09	9.83	52.7	1.50	21.2

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	
	± 5% window	39.4 – 43.6	0.86 – 0.95	
	2009-01-12	40.1	0.88	21.7
	2009-01-13	39.8	0.87	21.4
1880	Recommended value	40.0	1.40	
	± 5% window	38.0 – 42.0	1.33 – 1.47	
	2009-01-07	38.2	1.39	21.1
	2009-01-08	38.0	1.40	21.2

Body tissue simulant measurements

f [MHz]	Description	Dielectric Parameters		Temp [°C]
		ϵ_r	σ [S/m]	
836	Recommended value	55.2	0.97	
	± 5% window	52.4 – 58.0	0.92 – 1.02	
	2009-01-13	53.7	0.99	20.7
	2009-01-14	52.6	0.98	20.9
1880	Recommended value	53.3	1.52	
	± 5% window	50.6 – 56.0	1.44 – 1.60	
	2009-01-09	52.8	1.48	21.2

5. DESCRIPTION OF THE TEST PROCEDURE

5.1 Device Holder

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



Device holder supplied by SPEAG

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



Nokia spacer

5.2 Test Positions

5.2.1 Against Phantom Head

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

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

5.2.2 Body Worn Configuration

The device was placed in the SPEAG holder using the Nokia spacer and placed below the flat section of the phantom. The distance between the device and the phantom was kept at the separation distance indicated in Section 1.2.2 using a separate flat spacer that was removed before the start of the measurements. The device was oriented with both sides facing the phantom to find the highest results.

5.3 Scan Procedures

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

5.4 SAR Averaging Methods

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

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

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

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

6. MEASUREMENT UNCERTAINTY

Table 6.1 – Measurement uncertainty evaluation

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

7. RESULTS

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

850MHz Head SAR results

Option used	Test configuration		SAR, averaged over 1g (W/kg)		
			Ch 128 824.2 MHz	Ch 190 836.6 MHz	Ch 251 848.8 MHz
GSM	Power		28.5dBm	30.1dBm	30.1dBm
	Left	Cheek	-	0.446	-
		Tilt	-	0.336	-
	Right	Cheek	0.406	0.552	0.616
		Tilt	-	0.362	-
2-slot GPRS	Power		24.4dBm	26.5dBm	26.7dBm
	Left	Cheek	-	0.345	-
		Tilt	-	-	-
	Right	Cheek	-	-	-
		Tilt	-	-	-
1-slot 8PSK EGPRS	Power		18.4dBm	20.4dBm	20.7dBm
	Left	Cheek	-	-	-
		Tilt	-	-	-
	Right	Cheek	-	-	0.109
		Tilt	-	-	-
Option used	Test configuration		SAR, averaged over 1g (W/kg)		
			Ch 4132 826.4 MHz	Ch 4175 835.0 MHz	Ch 4233 846.6 MHz
WCDMA	Power		18.1dBm	19.2dBm	19.0dBm
	Left	Cheek	-	0.659	-
		Tilt	-	0.351	-
	Right	Cheek	0.286	0.697	0.709
		Tilt	-	0.456	-

1900MHz Head SAR results

Option used	Test configuration		SAR, averaged over 1g (W/kg)		
			Ch 512 1850.2 MHz	Ch 661 1880.0 MHz	Ch 810 1909.8 MHz
GSM	Power		29.2dBm	30.4dBm	29.6dBm
	Left	Cheek	0.640	0.663	0.580
		Tilt	-	0.361	-
	Right	Cheek	-	0.555	-
		Tilt	-	0.386	-
2-slot GPRS	Power		26.2dBm	27.6dBm	26.8dBm
	Left	Cheek	-	0.652	-
		Tilt	-	-	-
	Right	Cheek	-	-	-
		Tilt	-	-	-
1-slot 8PSK EGPRS	Power		24.0dBm	26.0dBm	25.3dBm
	Left	Cheek	-	0.214	-
		Tilt	-	-	-
	Right	Cheek	-	-	-
		Tilt	-	-	-
Option used	Test configuration		SAR, averaged over 1g (W/kg)		
			Ch 9262 1852.4 MHz	Ch 9400 1880.0 MHz	Ch 9538 1907.6 MHz
WCDMA	Power		18.4dBm	19.6dBm	18.1dBm
	Left	Cheek	0.939	1.17	0.981
		Tilt	-	0.715	-
	Right	Cheek	0.839	1.08	0.959
		Tilt	-	0.546	-

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	Ch 190 836.6 MHz	Ch 251 848.8 MHz
GSM		Power	28.5dBm	30.1dBm	30.1dBm
	Display facing phantom	Without headset	-	0.307	-
		Headset HS-49	-	0.202	-
	Back facing phantom	Without headset	0.289	0.354	0.444
		Headset HS-49	-	0.245	-
Option used	Device orientation	Test configuration	SAR, averaged over 1g (W/kg)		
			Ch 4132 826.4 MHz	Ch 4175 835.0 MHz	Ch 4233 846.6 MHz
WCDMA		Power	18.1dBm	19.2dBm	19.0dBm
	Display facing phantom	Without headset	-	0.292	-
		Headset HS-49	-	0.200	-
	Back facing phantom	Without headset	0.411	0.476	0.510
		Headset HS-49	-	0.363	-

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
GSM		Power	29.2dBm	30.4dBm	29.6dBm
	Display facing phantom	Without headset	-	0.087	-
		Headset HS-49	-	0.083	-
	Back facing phantom	Without headset	0.167	0.176	0.175
		Headset HS-49	-	0.167	-
Option used	Device orientation	Test configuration	SAR, averaged over 1g (W/kg)		
			Ch 9262 1852.4 MHz	Ch 9400 1880.0 MHz	Ch 9538 1907.6 MHz
WCDMA		Power	18.4dBm	19.6dBm	18.1dBm
	Display facing phantom	Without headset	-	0.159	-
		Headset HS-49	-	0.152	-
	Back facing phantom	Without headset	0.217	0.302	0.280
		Headset HS-49	-	0.183	-

Plots of the Measurement scans are given in Appendix B.

APPENDIX A: SYSTEM CHECKING SCANS

Date/Time: 2009-01-12 10:34:52

Test Laboratory: TCC Nokia

Type: D835V2; Serial: 486

Communication System: CW835

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: HSL 835; Medium Notes: Liquid temperature= 21.7C

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.879 \text{ mho/m}$; $\epsilon_r = 40.1$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(6.26, 6.26, 6.26); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-06-12
- Phantom: SAM1; Type: Twin Phantom; Serial: TP-1035
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 172

System Check/Area Scan (61x61x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 2.45 mW/g

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

Reference Value = 56.1 V/m

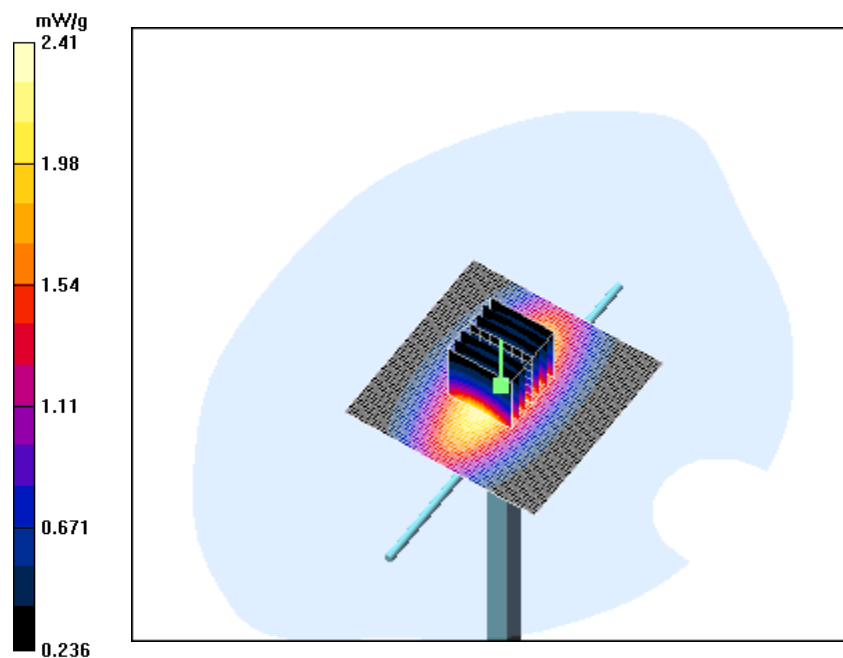
Peak SAR (extrapolated) = 2.98 W/kg

SAR(1 g) = 2.23 mW/g

SAR(10 g) = 1.49 mW/g

Power Drift = -0.021 dB

Maximum value of SAR (measured) = 2.41 mW/g



Date/Time: 2009-01-13 9:53:49

Test Laboratory: TCC Nokia

Type: D835V2; Serial: 486

Communication System: CW835

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: HSL 835; Medium Notes: Liquid temperature= 21.4C

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.871 \text{ mho/m}$; $\epsilon_r = 39.8$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(6.26, 6.26, 6.26); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-06-12
- Phantom: SAM1; Type: Twin Phantom; Serial: TP-1035
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 172

System Check/Area Scan (61x61x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

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

Reference Value = 56.4 V/m

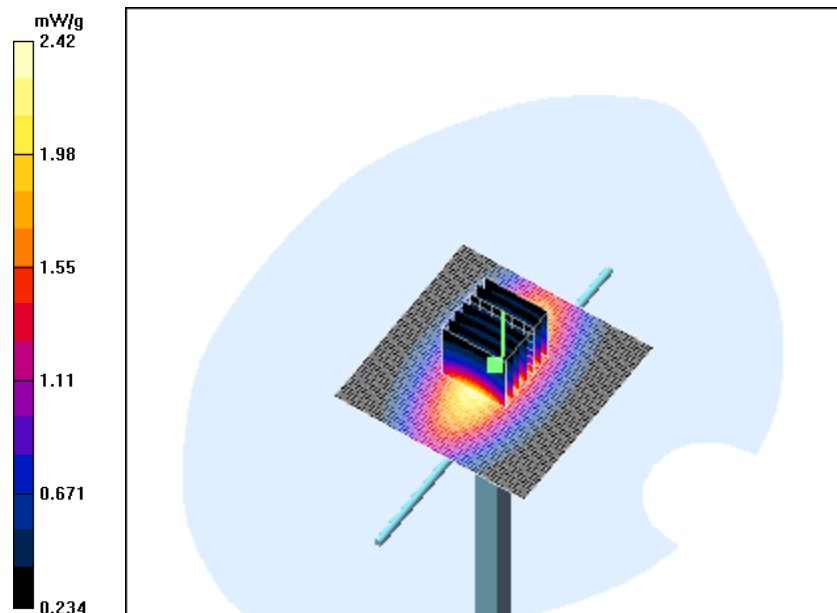
Peak SAR (extrapolated) = 3.00 W/kg

SAR(1 g) = 2.23 mW/g

SAR(10 g) = 1.49 mW/g

Power Drift = -0.047 dB

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



Date/Time: 2009-01-07 12:27:45

Test Laboratory: TCC Nokia

Type: D1900V2; Serial: 509

Communication System: CW1900

Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: HSL 1900; Medium Notes: Liquid temperature= 21.1C

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.41$ mho/m; $\epsilon_r = 38.1$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(5.1, 5.1, 5.1); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-06-12
- Phantom: SAM2; Type: Twin Phantom; Serial: TP-1279
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 172

System Check/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm

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

System Check/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 95.3 V/m

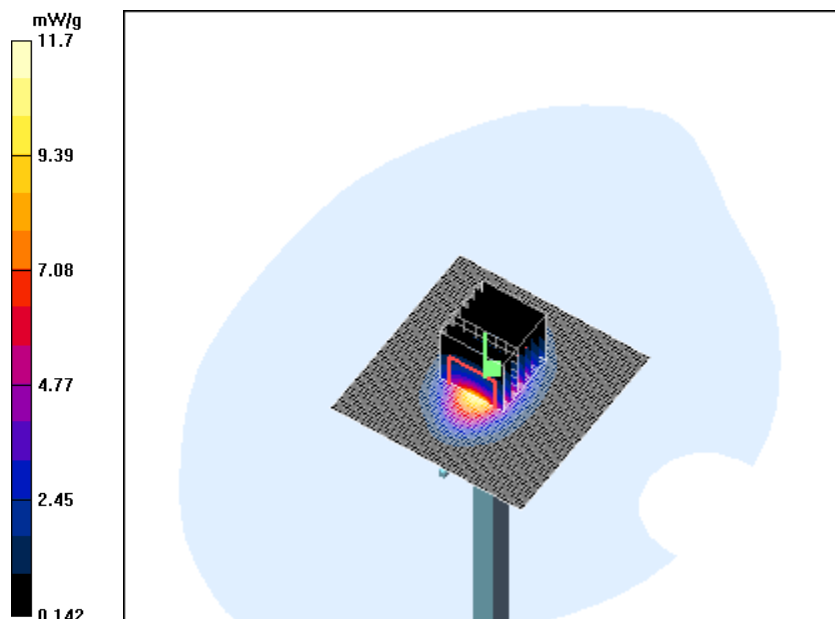
Peak SAR (extrapolated) = 18.9 W/kg

SAR(1 g) = 10.4 mW/g

SAR(10 g) = 5.37 mW/g

Power Drift = 0.007 dB

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



SAR Report

SD_SAR_0903_01

Applicant: Nokia Corporation

Type: RM-492

Copyright © 2009 TCC Nokia

Date/Time: 2009-01-08 10:58:49

Test Laboratory: TCC Nokia

Type: D1900V2; Serial: 509

Communication System: CW1900

Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: HSL 1900; Medium Notes: Liquid temperature= 21.2C

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.42$ mho/m; $\epsilon_r = 37.9$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(5.1, 5.1, 5.1); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-06-12
- Phantom: SAM2; Type: Twin Phantom; Serial: TP-1279
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 172

System Check/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm

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

System Check/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 96.8 V/m

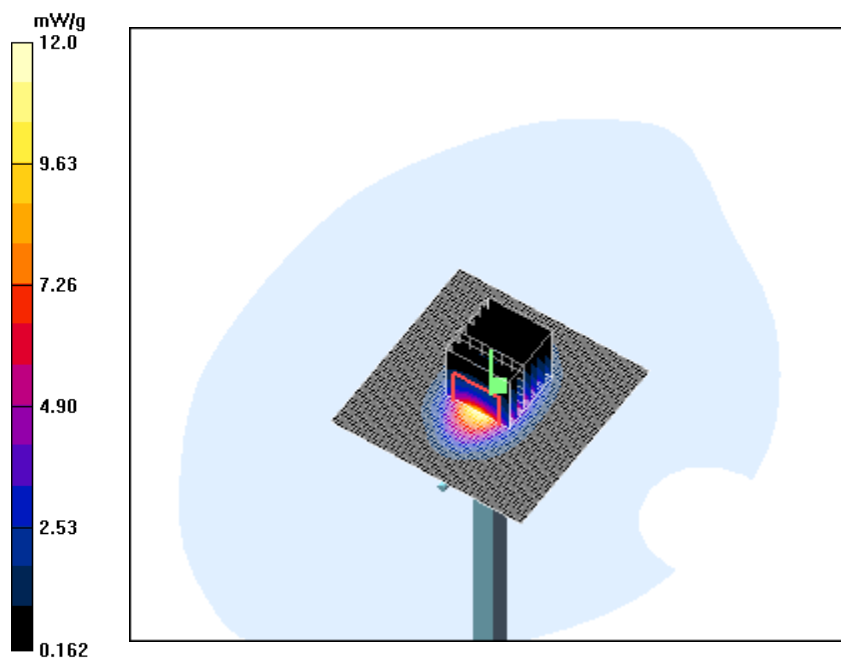
Peak SAR (extrapolated) = 19.2 W/kg

SAR(1 g) = 10.6 mW/g

SAR(10 g) = 5.5 mW/g

Power Drift = 0.016 dB

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



SAR Report

SD_SAR_0903_01

Applicant: Nokia Corporation

Type: RM-492

Copyright © 2009 TCC Nokia

Date/Time: 2009-01-14 9:51:06

Test Laboratory: TCC Nokia

Type: D835V2; Serial: 486

Communication System: CW835

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: MSL 850; Medium Notes: Liquid temperature= 20.9C

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.981 \text{ mho/m}$; $\epsilon_r = 52.6$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(6.01, 6.01, 6.01); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-06-12
- Phantom: SAM2; Type: Twin Phantom; Serial: TP-1279
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 172

System Check/Area Scan (61x61x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

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

Reference Value = 54.8 V/m

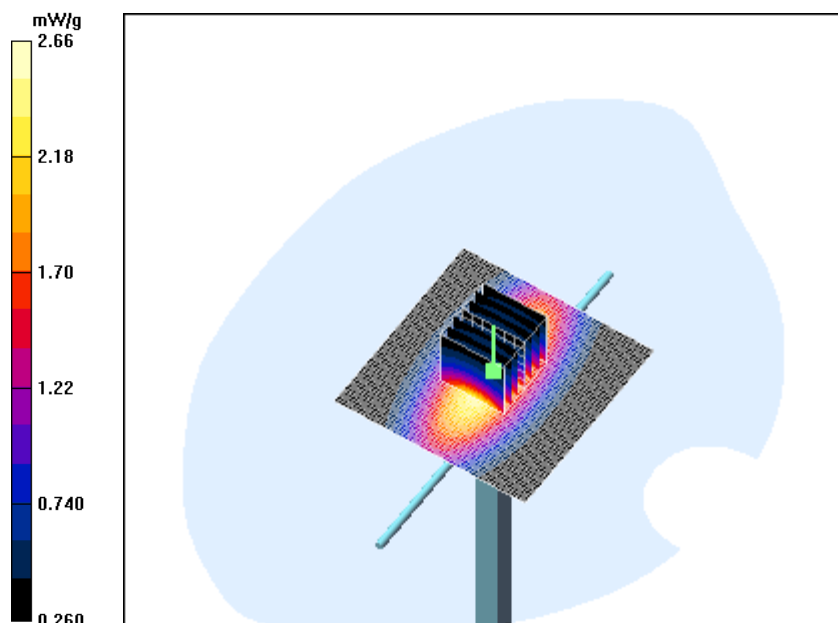
Peak SAR (extrapolated) = 3.35 W/kg

SAR(1 g) = 2.44 mW/g

SAR(10 g) = 1.62 mW/g

Power Drift = 0.007 dB

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



SAR Report

SD_SAR_0903_01

Applicant: Nokia Corporation

Type: RM-492

Copyright © 2009 TCC Nokia

Date/Time: 2009-01-09 10:00:10

Test Laboratory: TCC Nokia

Type: D1900V2; Serial: 509

Communication System: CW1900

Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: MSL 1900; Medium Notes: Liquid temperature= 21.2C

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.5$ mho/m; $\epsilon_r = 52.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(4.76, 4.76, 4.76); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-06-12
- Phantom: SAM1; Type: Twin Phantom; Serial: TP-1035
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 172

System Check/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 11.9 mW/g

System Check/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

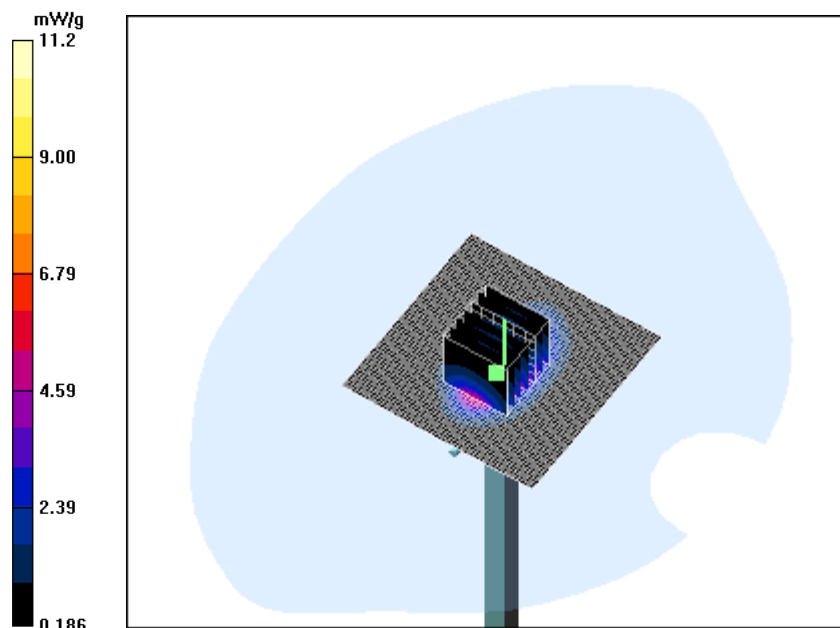
Reference Value = 91.0 V/m

Peak SAR (extrapolated) = 17.5 W/kg

SAR(1 g) = 9.83 mW/g

SAR(10 g) = 5.2 mW/g

Maximum value of SAR (measured) = 11.2 mW/g



APPENDIX B: MEASUREMENT SCANS

Date/Time: 2009-01-12 11:01:49

Test Laboratory: TCC Nokia

Type: RM-492; Serial: 004401/10/361390/3

Communication System: GSM850

Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium: HSL 835; Medium Notes: Liquid temperature= 21.7C

Medium parameters used: $f = 837$ MHz; $\sigma = 0.88$ mho/m; $\epsilon_r = 40$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(6.26, 6.26, 6.26); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-06-12
- Phantom: SAM1; Type: Twin Phantom; Serial: TP-1035
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 172

Cheek, Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.505 mW/g

Cheek, Middle/Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 13.3 V/m

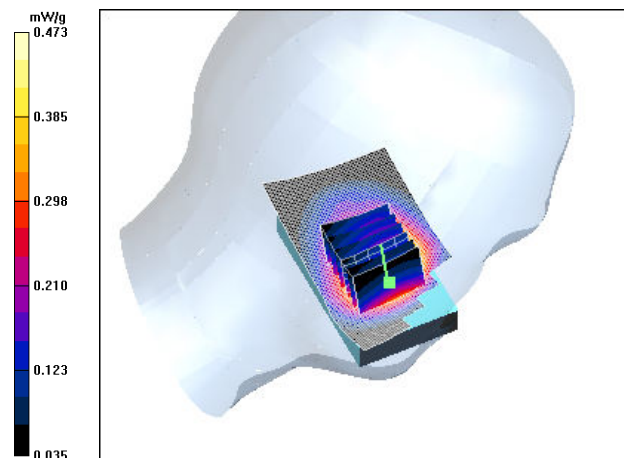
Peak SAR (extrapolated) = 0.518 W/kg

SAR(1 g) = 0.446 mW/g

SAR(10 g) = 0.345 mW/g

Power Drift = -0.282 dB

Maximum value of SAR (measured) = 0.473 mW/g



Date/Time: 2009-01-12 12:13:14

Test Laboratory: TCC Nokia

Type: RM-492; Serial: 004401/10/361390/3

Communication System: GSM850

Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium: HSL 835; Medium Notes: Liquid temperature= 21.7C

Medium parameters used: $f = 837$ MHz; $\sigma = 0.88$ mho/m; $\epsilon_r = 40$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(6.26, 6.26, 6.26); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-06-12
- Phantom: SAM1; Type: Twin Phantom; Serial: TP-1035
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt, Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.344 mW/g

Tilt, Middle/Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 17.2 V/m

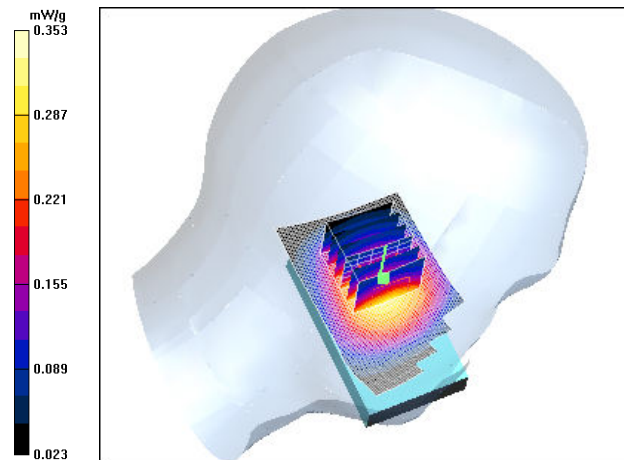
Peak SAR (extrapolated) = 0.386 W/kg

SAR(1 g) = 0.336 mW/g

SAR(10 g) = 0.255 mW/g

Power Drift = -0.037 dB

Maximum value of SAR (measured) = 0.353 mW/g



Date/Time: 2009-01-12 14:37:27

Test Laboratory: TCC Nokia

Type: RM-492; Serial: 004401/10/361390/3

Communication System: GSM850

Frequency: 848.8 MHz; Duty Cycle: 1:8.3

Medium: HSL 835; Medium Notes: Liquid temperature= 21.7C

Medium parameters used: $f = 849$ MHz; $\sigma = 0.887$ mho/m; $\epsilon_r = 40$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(6.26, 6.26, 6.26); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-06-12
- Phantom: SAM1; Type: Twin Phantom; Serial: TP-1035
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 172

Cheek, High/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.672 mW/g

Cheek, High/Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 13.9 V/m

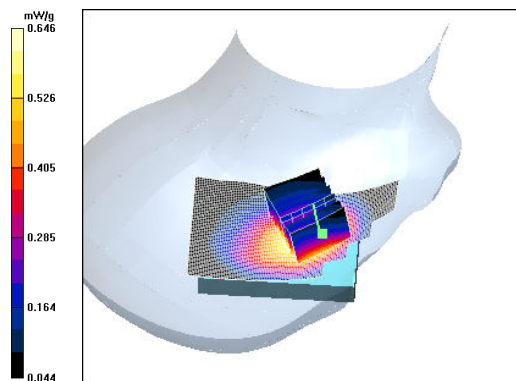
Peak SAR (extrapolated) = 0.718 W/kg

SAR(1 g) = 0.616 mW/g

SAR(10 g) = 0.478 mW/g

Power Drift = -0.004 dB

Maximum value of SAR (measured) = 0.646 mW/g



Date/Time: 2009-01-12 14:06:36

Test Laboratory: TCC Nokia

Type: RM-492; Serial: 004401/10/361390/3

Communication System: GSM850

Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium: HSL 835; Medium Notes: Liquid temperature= 21.7C

Medium parameters used: $f = 837$ MHz; $\sigma = 0.88$ mho/m; $\epsilon_r = 40$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(6.26, 6.26, 6.26); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-06-12
- Phantom: SAM1; Type: Twin Phantom; Serial: TP-1035
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt, Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

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

Tilt, Middle/Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 17.0 V/m

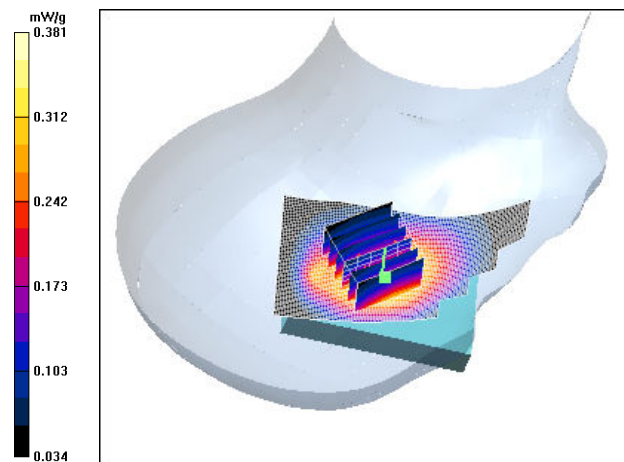
Peak SAR (extrapolated) = 0.418 W/kg

SAR(1 g) = 0.362 mW/g

SAR(10 g) = 0.277 mW/g

Power Drift = 0.033 dB

Maximum value of SAR (measured) = 0.381 mW/g



Date/Time: 2009-01-12 11:52:28

Test Laboratory: TCC Nokia

Type: RM-492; Serial: 004401/10/361390/3

Communication System: 2-slot GPRS850

Frequency: 836.6 MHz; Duty Cycle: 1:4.2

Medium: HSL 835; Medium Notes: Liquid temperature= 21.7C

Medium parameters used: $f = 837$ MHz; $\sigma = 0.88$ mho/m; $\epsilon_r = 40$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(6.26, 6.26, 6.26); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-06-12
- Phantom: SAM1; Type: Twin Phantom; Serial: TP-1035
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 172

Cheek, Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.375 mW/g

Cheek, Middle/Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 11.4 V/m

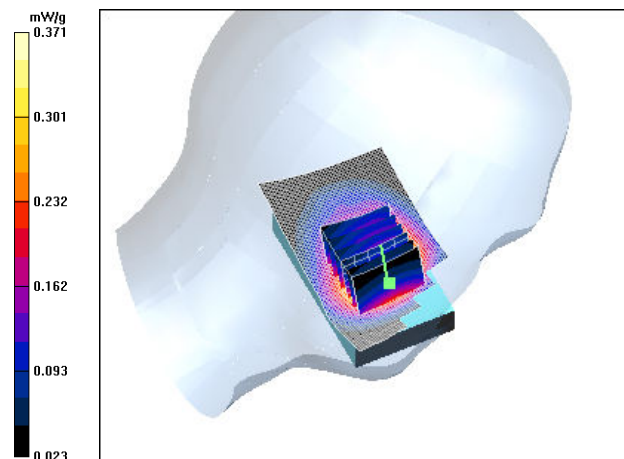
Peak SAR (extrapolated) = 0.409 W/kg

SAR(1 g) = 0.345 mW/g

SAR(10 g) = 0.267 mW/g

Power Drift = -0.012 dB

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



Date/Time: 2009-01-12 15:00:20

Test Laboratory: TCC Nokia

Type: RM-492; Serial: 004401/10/361390/3

Communication System: 1-slot 8PSK EGPRS850

Frequency: 848.8 MHz; Duty Cycle: 1:8.3

Medium: HSL 835; Medium Notes: Liquid temperature= 21.7C

Medium parameters used: $f = 849$ MHz; $\sigma = 0.887$ mho/m; $\epsilon_r = 40$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(6.26, 6.26, 6.26); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-06-12
- Phantom: SAM1; Type: Twin Phantom; Serial: TP-1035
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 172

Cheek, High/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

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

Cheek, High/Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 5.87 V/m

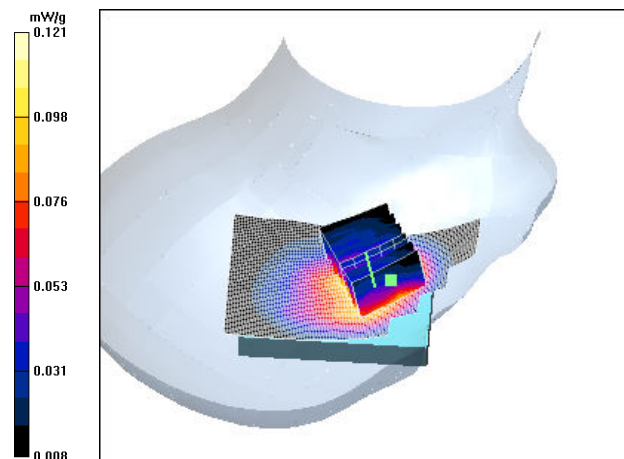
Peak SAR (extrapolated) = 0.132 W/kg

SAR(1 g) = 0.109 mW/g

SAR(10 g) = 0.082 mW/g

Power Drift = 0.256 dB

Maximum value of SAR (measured) = 0.121 mW/g



Date/Time: 2009-01-13 10:24:04

Test Laboratory: TCC Nokia

Type: RM-492; Serial: 004401/10/361390/3

Communication System: WCDMA850

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: HSL 835; Medium Notes: Liquid temperature= 21.4C

Medium parameters used: $f = 835$ MHz; $\sigma = 0.871$ mho/m; $\epsilon_r = 39.8$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(6.26, 6.26, 6.26); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-06-12
- Phantom: SAM1; Type: Twin Phantom; Serial: TP-1035
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 172

Cheek, Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.738 mW/g

Cheek, Middle/Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 14.9 V/m

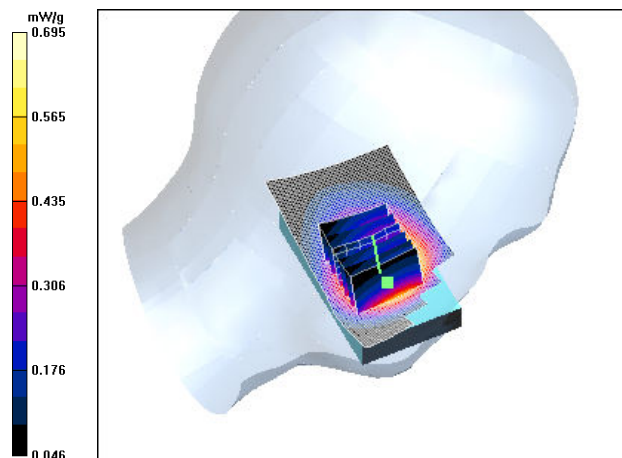
Peak SAR (extrapolated) = 0.772 W/kg

SAR(1 g) = 0.659 mW/g

SAR(10 g) = 0.507 mW/g

Power Drift = -0.281 dB

Maximum value of SAR (measured) = 0.695 mW/g



Date/Time: 2009-01-13 10:43:05

Test Laboratory: TCC Nokia

Type: RM-492; Serial: 004401/10/361390/3

Communication System: WCDMA850

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: HSL 835; Medium Notes: Liquid temperature= 21.4C

Medium parameters used: $f = 835$ MHz; $\sigma = 0.871$ mho/m; $\epsilon_r = 39.8$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(6.26, 6.26, 6.26); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-06-12
- Phantom: SAM1; Type: Twin Phantom; Serial: TP-1035
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt, Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.350 mW/g

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

Reference Value = 13.7 V/m

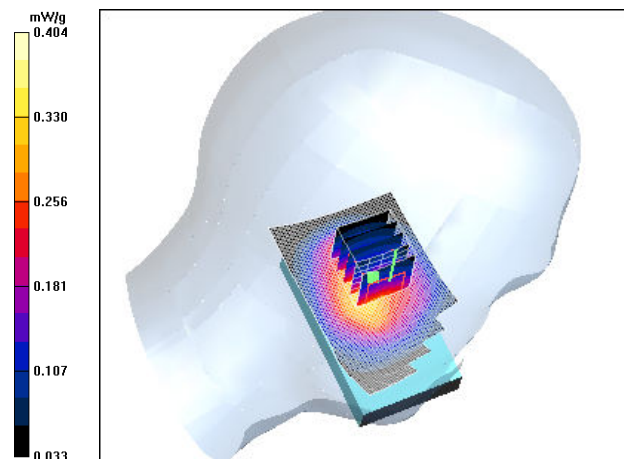
Peak SAR (extrapolated) = 0.432 W/kg

SAR(1 g) = 0.351 mW/g

SAR(10 g) = 0.235 mW/g

Power Drift = 0.216 dB

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



Date/Time: 2009-01-13 11:32:48

Test Laboratory: TCC Nokia

Type: RM-492; Serial: 004401/10/361390/3

Communication System: WCDMA850

Frequency: 846.6 MHz; Duty Cycle: 1:1

Medium: HSL 835; Medium Notes: Liquid temperature= 21.4C

Medium parameters used: $f = 847$ MHz; $\sigma = 0.879$ mho/m; $\epsilon_r = 39.7$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(6.26, 6.26, 6.26); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-06-12
- Phantom: SAM1; Type: Twin Phantom; Serial: TP-1035
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 172

Cheek, High/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.759 mW/g

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

Reference Value = 11.8 V/m

Peak SAR (extrapolated) = 0.840 W/kg

SAR(1 g) = 0.709 mW/g

SAR(10 g) = 0.534 mW/g

Power Drift = 0.490 dB

Maximum value of SAR (measured) = 0.756 mW/g

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

Reference Value = 11.8 V/m

Peak SAR (extrapolated) = 0.790 W/kg

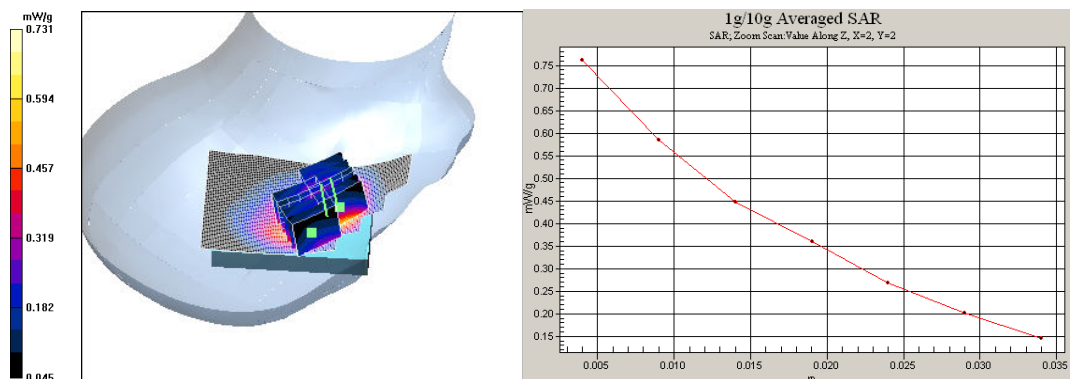
SAR(1 g) = 0.702 mW/g

SAR(10 g) = 0.484 mW/g

Power Drift = 0.490 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) = 0.731 mW/g



SAR Report

SD_SAR_0903_01

Applicant: Nokia Corporation

Type: RM-492

Copyright © 2009 TCC Nokia

Date/Time: 2009-01-13 11:53:16

Test Laboratory: TCC Nokia

Type: RM-492; Serial: 004401/10/361390/3

Communication System: WCDMA850

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: HSL 835; Medium Notes: Liquid temperature= 21.4C

Medium parameters used: $f = 835$ MHz; $\sigma = 0.871$ mho/m; $\epsilon_r = 39.8$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(6.26, 6.26, 6.26); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-06-12
- Phantom: SAM1; Type: Twin Phantom; Serial: TP-1035
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt, Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

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

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

Reference Value = 17.7 V/m

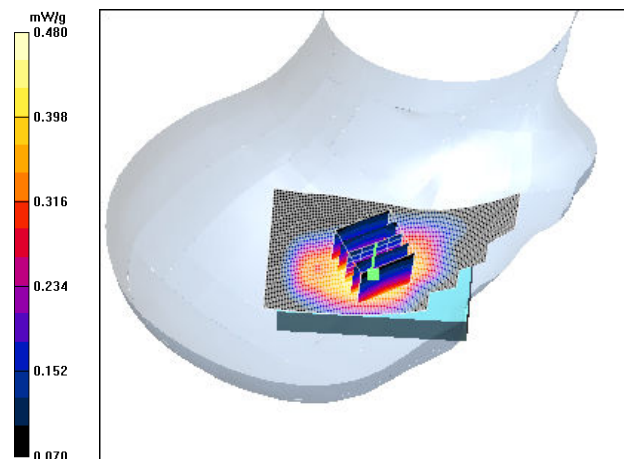
Peak SAR (extrapolated) = 0.521 W/kg

SAR(1 g) = 0.456 mW/g

SAR(10 g) = 0.347 mW/g

Power Drift = 0.072 dB

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



Date/Time: 2009-01-08 11:31:14

Test Laboratory: TCC Nokia

Type: RM-492; Serial: 004401/10/361390/3

Communication System: GSM1900

Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium: HSL 1900; Medium Notes: Liquid temperature= 21.2C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.4$ mho/m; $\epsilon_r = 38$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(5.1, 5.1, 5.1); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-06-12
- Phantom: SAM2; Type: Twin Phantom; Serial: TP-1279
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 172

Cheek, Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.791 mW/g

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

Reference Value = 10.7 V/m

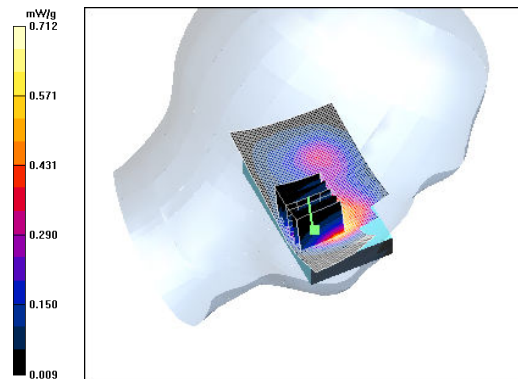
Peak SAR (extrapolated) = 1.17 W/kg

SAR(1 g) = 0.663 mW/g

SAR(10 g) = 0.381 mW/g

Power Drift = 0.028 dB

Maximum value of SAR (measured) = 0.712 mW/g



Date/Time: 2009-01-08 13:58:40

Test Laboratory: TCC Nokia

Type: RM-492; Serial: 004401/10/361390/3

Communication System: GSM1900

Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium: HSL 1900; Medium Notes: Liquid temperature= 21.2C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.4$ mho/m; $\epsilon_r = 38$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(5.1, 5.1, 5.1); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-06-12
- Phantom: SAM2; Type: Twin Phantom; Serial: TP-1279
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt, Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.411 mW/g

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

Reference Value = 14.9 V/m

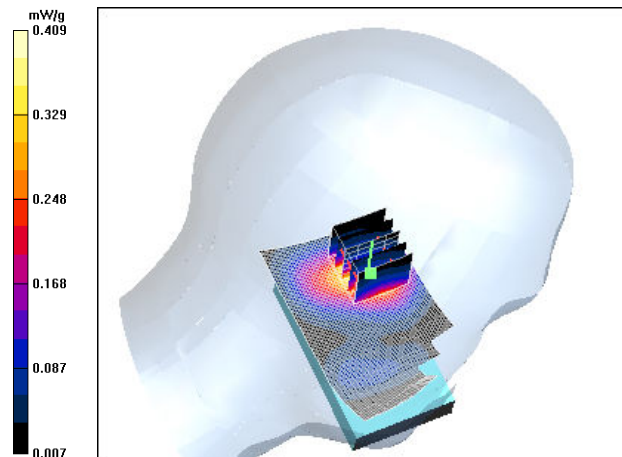
Peak SAR (extrapolated) = 0.590 W/kg

SAR(1 g) = 0.380 mW/g

SAR(10 g) = 0.231 mW/g

Power Drift = 0.035 dB

Maximum value of SAR (measured) = 0.409 mW/g



Date/Time: 2009-01-08 13:22:32

Test Laboratory: TCC Nokia

Type: RM-492; Serial: 004401/10/361390/3

Communication System: GSM1900

Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium: HSL 1900; Medium Notes: Liquid temperature= 21.2C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.4$ mho/m; $\epsilon_r = 38$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(5.1, 5.1, 5.1); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-06-12
- Phantom: SAM2; Type: Twin Phantom; Serial: TP-1279
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 172

Cheek, Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.696 mW/g

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

Reference Value = 12.6 V/m

Peak SAR (extrapolated) = 0.872 W/kg

SAR(1 g) = 0.555 mW/g

SAR(10 g) = 0.356 mW/g

Power Drift = -0.037 dB

Maximum value of SAR (measured) = 0.619 mW/g

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

Reference Value = 12.6 V/m

Peak SAR (extrapolated) = 0.879 W/kg

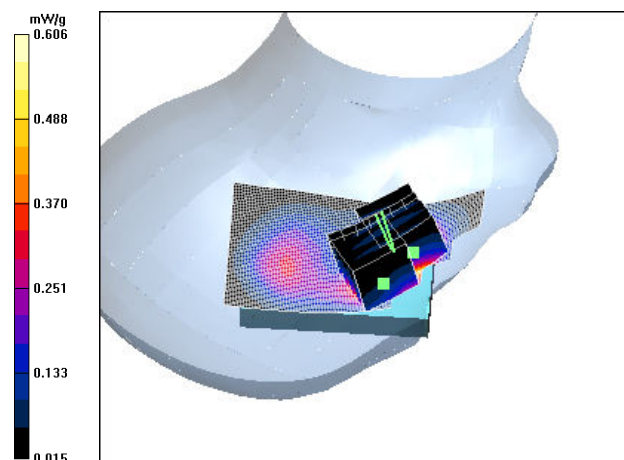
SAR(1 g) = 0.508 mW/g

SAR(10 g) = 0.332 mW/g

Power Drift = -0.037 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) = 0.606 mW/g



SAR Report

SD_SAR_0903_01

Applicant: Nokia Corporation

Type: RM-492

Copyright © 2009 TCC Nokia

Date/Time: 2009-01-08 13:43:40

Test Laboratory: TCC Nokia

Type: RM-492; Serial: 004401/10/361390/3

Communication System: GSM1900

Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium: HSL 1900; Medium Notes: Liquid temperature= 21.2C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.4$ mho/m; $\epsilon_r = 38$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(5.1, 5.1, 5.1); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-06-12
- Phantom: SAM2; Type: Twin Phantom; Serial: TP-1279
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt, Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.436 mW/g

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

Reference Value = 16.6 V/m

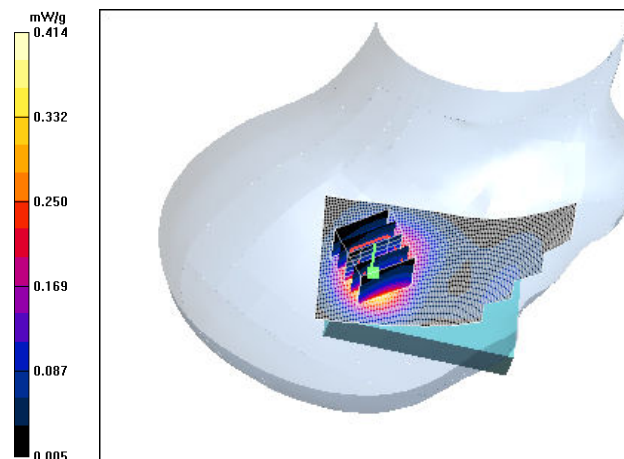
Peak SAR (extrapolated) = 0.566 W/kg

SAR(1 g) = 0.386 mW/g

SAR(10 g) = 0.239 mW/g

Power Drift = -0.003 dB

Maximum value of SAR (measured) = 0.414 mW/g



Date/Time: 2009-01-08 13:02:21

Test Laboratory: TCC Nokia

Type: RM-492; Serial: 004401/10/361390/3

Communication System: 2-slot GPRS1900

Frequency: 1880 MHz; Duty Cycle: 1:4.2

Medium: HSL 1900; Medium Notes: Liquid temperature= 21.2C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.4$ mho/m; $\epsilon_r = 38$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(5.1, 5.1, 5.1); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-06-12
- Phantom: SAM2; Type: Twin Phantom; Serial: TP-1279
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 172

Cheek, Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.770 mW/g

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

Reference Value = 10.9 V/m

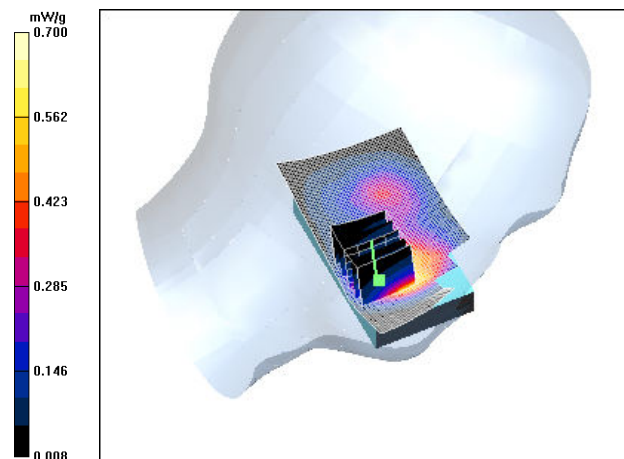
Peak SAR (extrapolated) = 1.14 W/kg

SAR(1 g) = 0.652 mW/g

SAR(10 g) = 0.376 mW/g

Power Drift = 0.119 dB

Maximum value of SAR (measured) = 0.700 mW/g



Date/Time: 2009-01-08 14:56:13

Test Laboratory: TCC Nokia

Type: RM-492; Serial: 004401/10/361390/3

Communication System: 1-slot 8PSK EGPRS 1900

Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium: HSL 1900; Medium Notes: Liquid temperature= 21.2C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.4$ mho/m; $\epsilon_r = 38$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(5.1, 5.1, 5.1); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-06-12
- Phantom: SAM2; Type: Twin Phantom; Serial: TP-1279
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 172

Cheek, Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

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

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

Reference Value = 6.14 V/m

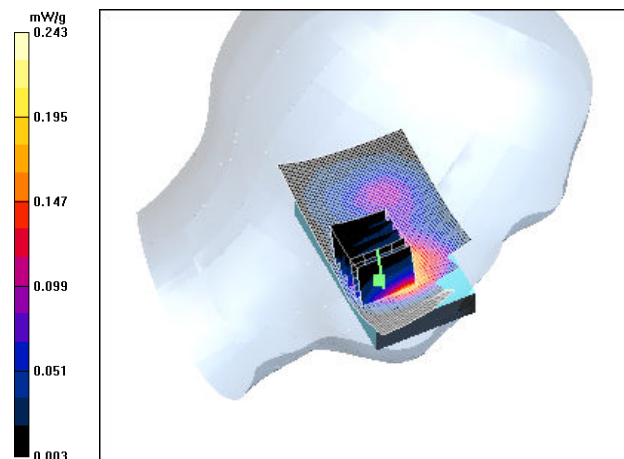
Peak SAR (extrapolated) = 0.347 W/kg

SAR(1 g) = 0.214 mW/g

SAR(10 g) = 0.122 mW/g

Power Drift = -0.076 dB

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



Date/Time: 2009-01-07 13:09:00

Test Laboratory: TCC Nokia

Type: RM-492; Serial: 004401/10/361390/3

Communication System: WCDMA1900

Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: HSL 1900; Medium Notes: Liquid temperature= 21.1C

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

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(5.1, 5.1, 5.1); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-06-12
- Phantom: SAM2; Type: Twin Phantom; Serial: TP-1279
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 172

Cheek, Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.40 mW/g

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

Reference Value = 15.3 V/m

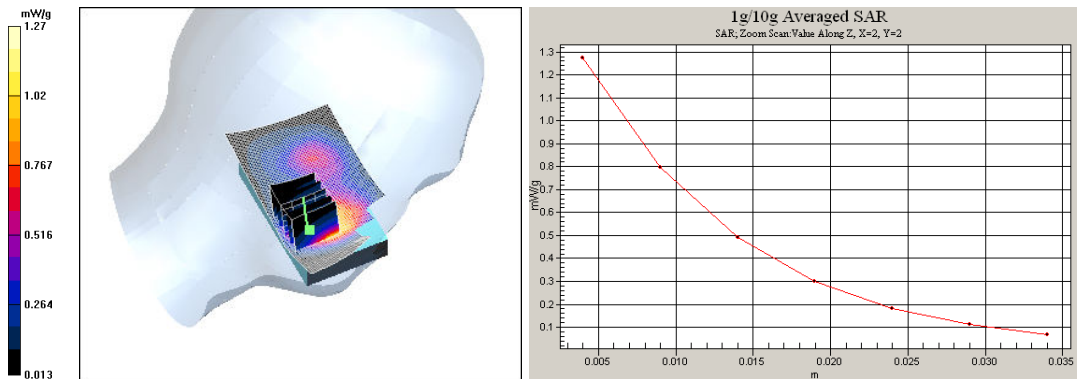
Peak SAR (extrapolated) = 2.00 W/kg

SAR(1 g) = 1.17 mW/g

SAR(10 g) = 0.673 mW/g

Power Drift = -0.040 dB

Maximum value of SAR (measured) = 1.27 mW/g



SAR Report

SD_SAR_0903_01

Applicant: Nokia Corporation

Type: RM-492

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Date/Time: 2009-01-07 14:00:46

Test Laboratory: TCC Nokia

Type: RM-492; Serial: 004401/10/361390/3

Communication System: WCDMA1900

Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: HSL 1900; Medium Notes: Liquid temperature= 21.1C

Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.39 \text{ mho/m}$; $\epsilon_r = 38.2$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(5.1, 5.1, 5.1); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-06-12
- Phantom: SAM2; Type: Twin Phantom; Serial: TP-1279
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt, Middle/Area Scan (51x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.777 mW/g

Tilt, Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 21.2 V/m

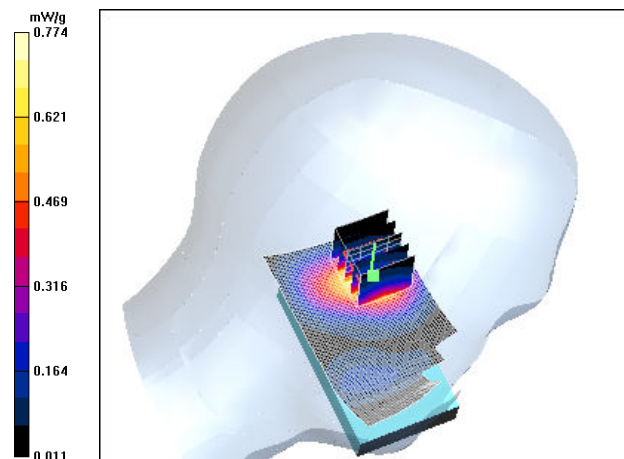
Peak SAR (extrapolated) = 1.08 W/kg

SAR(1 g) = 0.715 mW/g

SAR(10 g) = 0.440 mW/g

Power Drift = 0.010 dB

Maximum value of SAR (measured) = 0.774 mW/g



SAR Report

SD_SAR_0903_01

Applicant: Nokia Corporation

Type: RM-492

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Date/Time: 2009-01-07 14:28:18

Test Laboratory: TCC Nokia

Type: RM-492; Serial: 004401/10/361390/3

Communication System: WCDMA1900

Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: HSL 1900; Medium Notes: Liquid temperature= 21.1C

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

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(5.1, 5.1, 5.1); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-06-12
- Phantom: SAM2; Type: Twin Phantom; Serial: TP-1279
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 172

Cheek, Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.33 mW/g

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

Reference Value = 17.0 V/m

Peak SAR (extrapolated) = 1.68 W/kg

SAR(1 g) = 1.08 mW/g

SAR(10 g) = 0.691 mW/g

Power Drift = 0.106 dB

Maximum value of SAR (measured) = 1.19 mW/g

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

Reference Value = 17.0 V/m

Peak SAR (extrapolated) = 1.68 W/kg

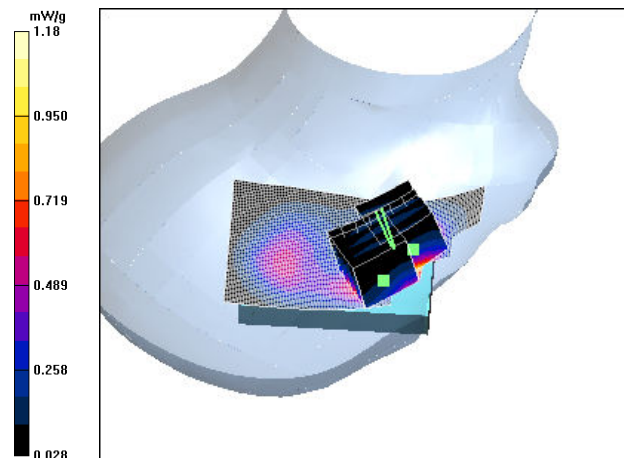
SAR(1 g) = 0.968 mW/g

SAR(10 g) = 0.634 mW/g

Power Drift = 0.106 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) = 1.18 mW/g



SAR Report

SD_SAR_0903_01

Applicant: Nokia Corporation

Type: RM-492

Copyright © 2009 TCC Nokia

Date/Time: 2009-01-07 15:54:17

Test Laboratory: TCC Nokia

Type: RM-492; Serial: 004401/10/361390/3

Communication System: WCDMA1900

Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: HSL 1900; Medium Notes: Liquid temperature= 21.1C

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

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(5.1, 5.1, 5.1); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-06-12
- Phantom: SAM2; Type: Twin Phantom; Serial: TP-1279
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 172

Tilt, Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.516 mW/g

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

Reference Value = 18.3 V/m

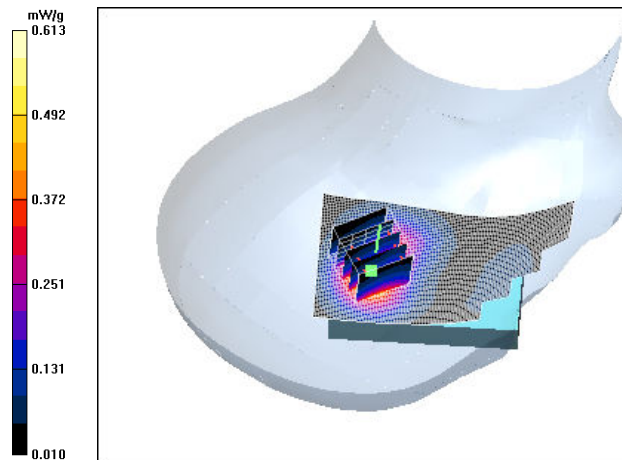
Peak SAR (extrapolated) = 0.791 W/kg

SAR(1 g) = 0.546 mW/g

SAR(10 g) = 0.346 mW/g

Power Drift = 1.02 dB

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



Date/Time: 2009-01-14 11:33:46

Test Laboratory: TCC Nokia

Type: RM-492; Serial: 004401/10/361390/3

Communication System: GSM850

Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium: MSL 835; Medium Notes: Liquid temperature= 20.9C

Medium parameters used: $f = 837$ MHz; $\sigma = 0.982$ mho/m; $\epsilon_r = 52.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(6.01, 6.01, 6.01); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-06-12
- Phantom: SAM2; Type: Twin Phantom; Serial: TP-1279
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 172

Body, Middle, Display facing phantom, No accessory/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm

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

Body, Middle, Display facing phantom, No accessory/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 17.3 V/m

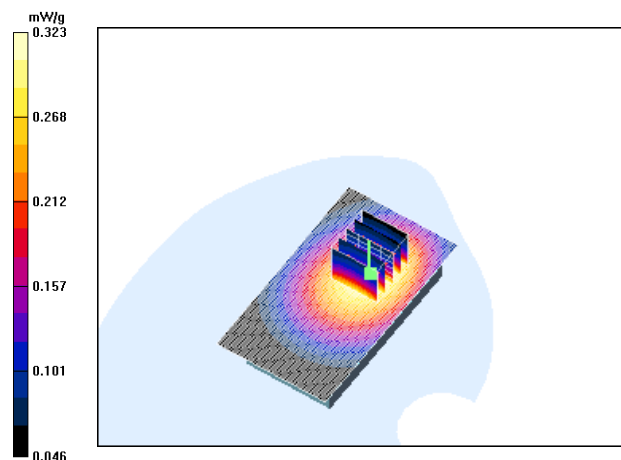
Peak SAR (extrapolated) = 0.362 W/kg

SAR(1 g) = 0.307 mW/g

SAR(10 g) = 0.231 mW/g

Power Drift = -0.029 dB

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



Date/Time: 2009-01-14 11:22:40

Test Laboratory: TCC Nokia

Type: RM-492; Serial: 004401/10/361390/3

Communication System: GSM850

Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium: MSL 835; Medium Notes: Liquid temperature= 20.9C

Medium parameters used: $f = 837$ MHz; $\sigma = 0.982$ mho/m; $\epsilon_r = 52.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(6.01, 6.01, 6.01); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-06-12
- Phantom: SAM2; Type: Twin Phantom; Serial: TP-1279
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 172

Body, Middle, Display facing phantom, HS-49/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm

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

Body, Middle, Display facing phantom, HS-49/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 14.6 V/m

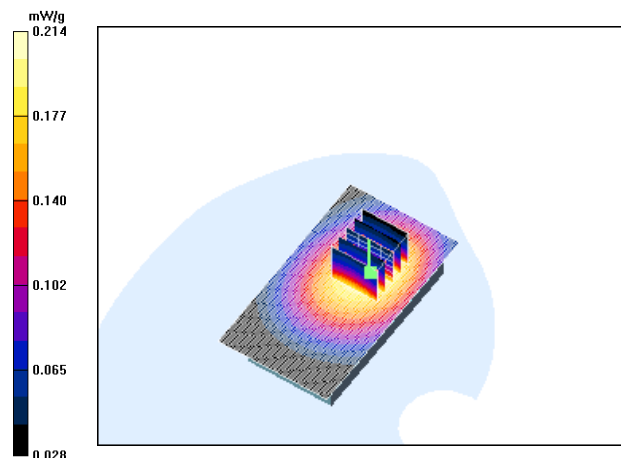
Peak SAR (extrapolated) = 0.240 W/kg

SAR(1 g) = 0.202 mW/g

SAR(10 g) = 0.152 mW/g

Power Drift = -0.021 dB

Maximum value of SAR (measured) = 0.214 mW/g



Date/Time: 2009-01-14 11:56:51

Test Laboratory: TCC Nokia

Type: RM-492; Serial: 004401/10/361390/3

Communication System: GSM850

Frequency: 848.8 MHz; Duty Cycle: 1:8.3

Medium: MSL 835; Medium Notes: Liquid temperature= 20.9C

Medium parameters used: $f = 849$ MHz; $\sigma = 0.989$ mho/m; $\epsilon_r = 52.6$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(6.01, 6.01, 6.01); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-06-12
- Phantom: SAM2; Type: Twin Phantom; Serial: TP-1279
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 172

Body, High, Back facing phantom, No accessory/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.474 mW/g

Body, High, Back facing phantom, No accessory/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 21.1 V/m

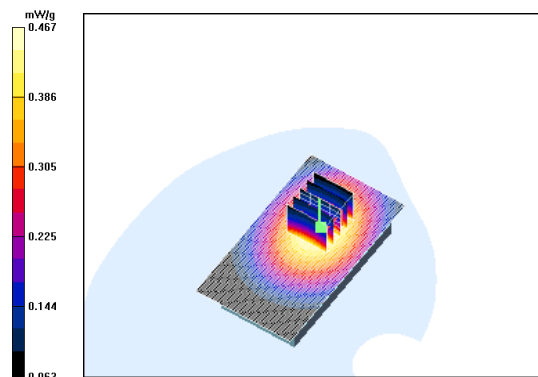
Peak SAR (extrapolated) = 0.537 W/kg

SAR(1 g) = 0.444 mW/g

SAR(10 g) = 0.328 mW/g

Power Drift = -0.057 dB

Maximum value of SAR (measured) = 0.467 mW/g



Date/Time: 2009-01-14 11:10:22

Test Laboratory: TCC Nokia

Type: RM-492; Serial: 004401/10/361390/3

Communication System: GSM850

Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium: MSL 835; Medium Notes: Liquid temperature= 20.9C

Medium parameters used: $f = 837$ MHz; $\sigma = 0.982$ mho/m; $\epsilon_r = 52.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(6.01, 6.01, 6.01); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-06-12
- Phantom: SAM2; Type: Twin Phantom; Serial: TP-1279
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 172

Body, Middle, Back facing phantom, HS-49/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.260 mW/g

Body, Middle, Back facing phantom, HS-49/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 16.9 V/m

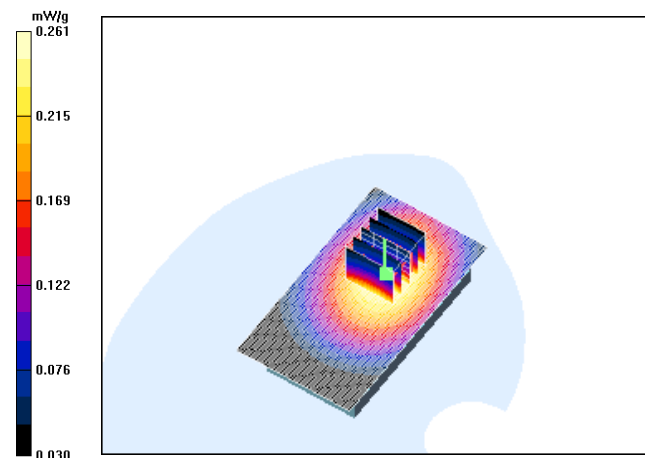
Peak SAR (extrapolated) = 0.294 W/kg

SAR(1 g) = 0.245 mW/g

SAR(10 g) = 0.181 mW/g

Power Drift = -0.001 dB

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



SAR Report

SD_SAR_0903_01

Applicant: Nokia Corporation

Type: RM-492

Copyright © 2009 TCC Nokia

Date/Time: 2009-01-13 14:45:46

Test Laboratory: TCC Nokia

Type: RM-492; Serial: 004401/10/361390/3

Communication System: WCDMA850

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: MSL 835; Medium Notes: Liquid temperature= 20.7C

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.992 \text{ mho/m}$; $\epsilon_r = 53.7$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(6.01, 6.01, 6.01); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-06-12
- Phantom: SAM2; Type: Twin Phantom; Serial: TP-1279
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 172

Body, Middle, Display facing phantom, No accessory/Area Scan (61x61x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.310 mW/g

Body, Middle, Display facing phantom, No accessory/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 18.6 V/m

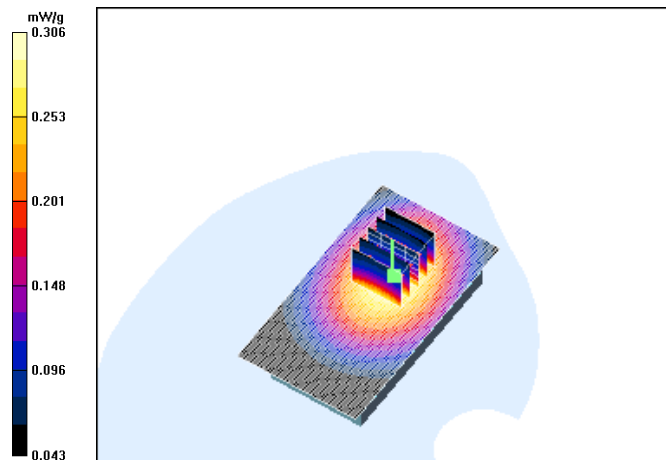
Peak SAR (extrapolated) = 0.342 W/kg

SAR(1 g) = 0.292 mW/g

SAR(10 g) = 0.221 mW/g

Power Drift = -0.056 dB

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



Date/Time: 2009-01-13 14:57:01

Test Laboratory: TCC Nokia

Type: RM-492; Serial: 004401/10/361390/3

Communication System: WCDMA850

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: MSL 835; Medium Notes: Liquid temperature= 20.7C

Medium parameters used: $f = 835$ MHz; $\sigma = 0.992$ mho/m; $\epsilon_r = 53.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(6.01, 6.01, 6.01); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-06-12
- Phantom: SAM2; Type: Twin Phantom; Serial: TP-1279
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 172

Body, Middle, Display facing phantom, HS-49/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.212 mW/g

Body, Middle, Display facing phantom, HS-49/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 15.5 V/m

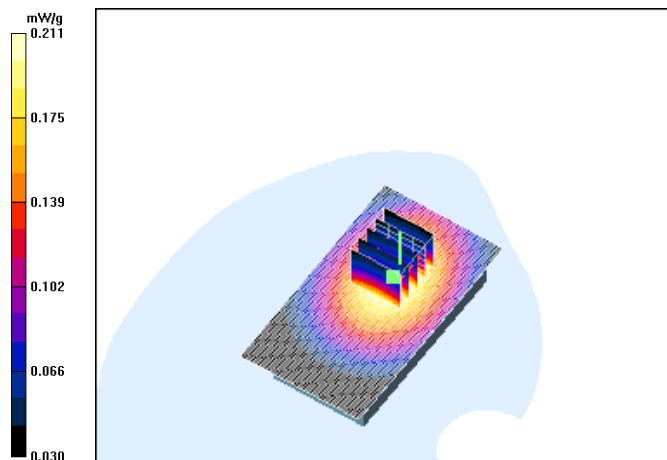
Peak SAR (extrapolated) = 0.234 W/kg

SAR(1 g) = 0.200 mW/g

SAR(10 g) = 0.151 mW/g

Power Drift = -0.064 dB

Maximum value of SAR (measured) = 0.211 mW/g



Date/Time: 2009-01-14 10:35:13

Test Laboratory: TCC Nokia

Type: RM-492; Serial: 004401/10/361390/3

Communication System: WCDMA850

Frequency: 846.6 MHz; Duty Cycle: 1:1

Medium: MSL 835; Medium Notes: Liquid temperature= 20.9C

Medium parameters used: $f = 847$ MHz; $\sigma = 0.987$ mho/m; $\epsilon_r = 52.6$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(6.01, 6.01, 6.01); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-06-12
- Phantom: SAM2; Type: Twin Phantom; Serial: TP-1279
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 172

Body, High, Back facing phantom, No accessory/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.547 mW/g

Body, High, Back facing phantom, No accessory/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 24.0 V/m

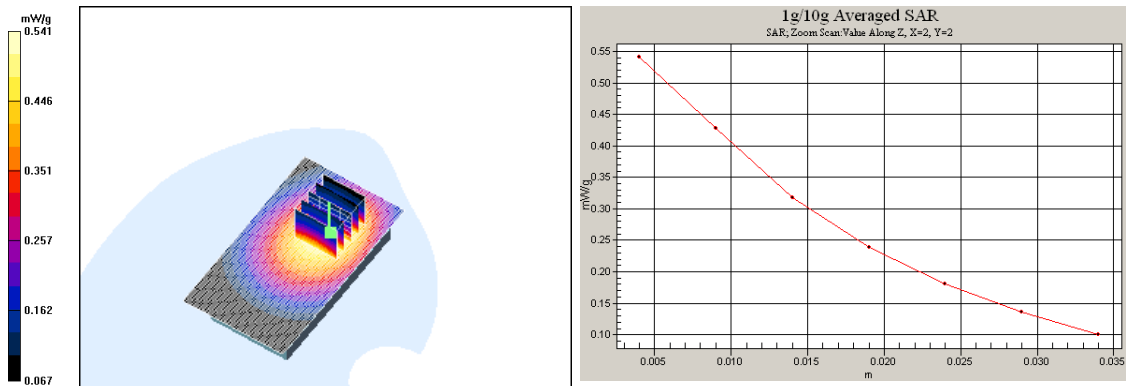
Peak SAR (extrapolated) = 0.610 W/kg

SAR(1 g) = 0.510 mW/g

SAR(10 g) = 0.378 mW/g

Power Drift = -0.077 dB

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



SAR Report

SD_SAR_0903_01

Applicant: Nokia Corporation

Type: RM-492

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Date/Time: 2009-01-13 14:12:05

Test Laboratory: TCC Nokia

Type: RM-492; Serial: 004401/10/361390/3

Communication System: WCDMA850

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: MSL 835; Medium Notes: Liquid temperature= 20.7C

Medium parameters used: $f = 835$ MHz; $\sigma = 0.992$ mho/m; $\epsilon_r = 53.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(6.01, 6.01, 6.01); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-06-12
- Phantom: SAM2; Type: Twin Phantom; Serial: TP-1279
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 172

Body, Middle, Back facing Phantom, HS-49/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.241 mW/g

Body, Middle, Back facing Phantom, HS-49/Zoom Scan 2 (8x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 16.6 V/m

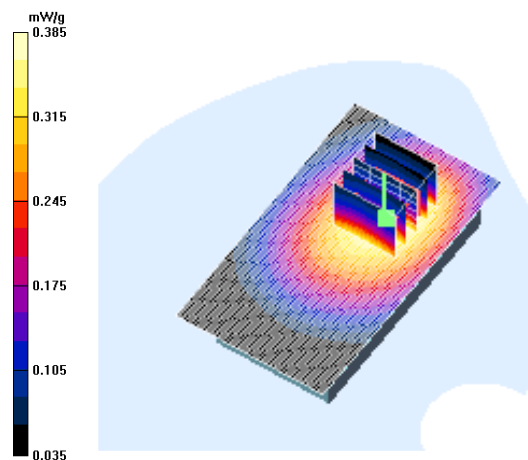
Peak SAR (extrapolated) = 0.444 W/kg

SAR(1 g) = 0.363 mW/g

SAR(10 g) = 0.268 mW/g

Power Drift = -0.024 dB

Maximum value of SAR (measured) = 0.385 mW/g



Date/Time: 2009-01-09 11:23:32

Test Laboratory: TCC Nokia

Type: RM-492; Serial: 004401/10/361390/3

Communication System: GSM1900

Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium: MSL 1900; Medium Notes: Liquid temperature= 21.2C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.48$ mho/m; $\epsilon_r = 52.8$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(4.76, 4.76, 4.76); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-06-12
- Phantom: SAM1; Type: Twin Phantom; Serial: TP-1035
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 172

Body, Middle, Display facing phantom, No accessory/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.091 mW/g

Body, Middle, Display facing phantom, No accessory/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 4.29 V/m

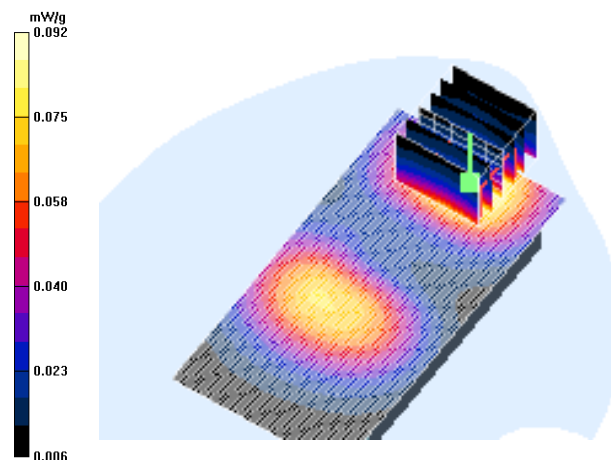
Peak SAR (extrapolated) = 0.127 W/kg

SAR(1 g) = 0.087 mW/g

SAR(10 g) = 0.059 mW/g

Power Drift = 0.066 dB

Maximum value of SAR (measured) = 0.092 mW/g



Date/Time: 2009-01-09 11:12:09

Test Laboratory: TCC Nokia

Type: RM-492; Serial: 004401/10/361390/3

Communication System: GSM1900

Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium: MSL 1900; Medium Notes: Liquid temperature= 21.2C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.48$ mho/m; $\epsilon_r = 52.8$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(4.76, 4.76, 4.76); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-06-12
- Phantom: SAM1; Type: Twin Phantom; Serial: TP-1035
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 172

Body, Middle, Display facing phantom, HS-49/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm

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

Body, Middle, Display facing phantom, HS-49/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 4.78 V/m

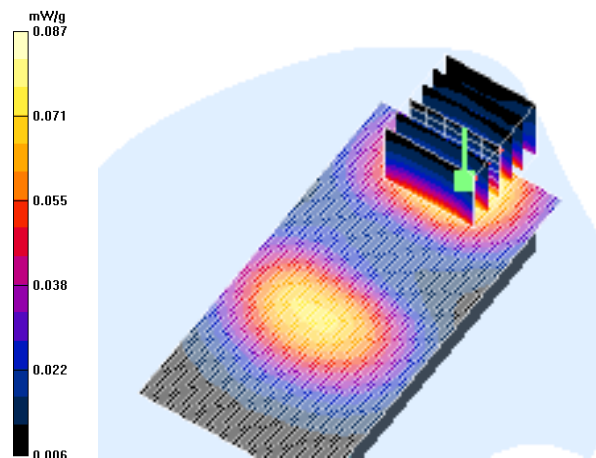
Peak SAR (extrapolated) = 0.125 W/kg

SAR(1 g) = 0.083 mW/g

SAR(10 g) = 0.055 mW/g

Power Drift = -0.071 dB

Maximum value of SAR (measured) = 0.087 mW/g



Date/Time: 2009-01-09 10:36:49

Test Laboratory: TCC Nokia

Type: RM-492; Serial: 004401/10/361390/3

Communication System: GSM1900

Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium: MSL 1900; Medium Notes: Liquid temperature= 21.2C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.48$ mho/m; $\epsilon_r = 52.8$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(4.76, 4.76, 4.76); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-06-12
- Phantom: SAM1; Type: Twin Phantom; Serial: TP-1035
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 172

Body, Middle, Back facing phantom, No accessory/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.185 mW/g

Body, Middle, Back facing phantom, No accessory/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 11.2 V/m

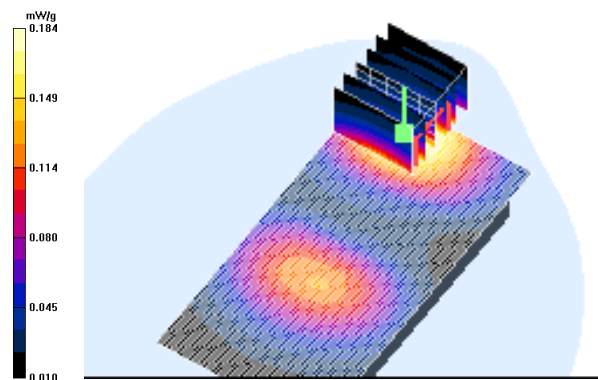
Peak SAR (extrapolated) = 0.271 W/kg

SAR(1 g) = 0.176 mW/g

SAR(10 g) = 0.113 mW/g

Power Drift = -0.089 dB

Maximum value of SAR (measured) = 0.184 mW/g



Date/Time: 2009-01-09 10:48:29

Test Laboratory: TCC Nokia

Type: RM-492; Serial: 004401/10/361390/3

Communication System: GSM1900

Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium: MSL 1900; Medium Notes: Liquid temperature= 21.2C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.48$ mho/m; $\epsilon_r = 52.8$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(4.76, 4.76, 4.76); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-06-12
- Phantom: SAM1; Type: Twin Phantom; Serial: TP-1035
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 172

Body, Middle, Back facing phantom, HS-49/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.176 mW/g

Body, Middle, Back facing phantom, HS-49/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 10.9 V/m

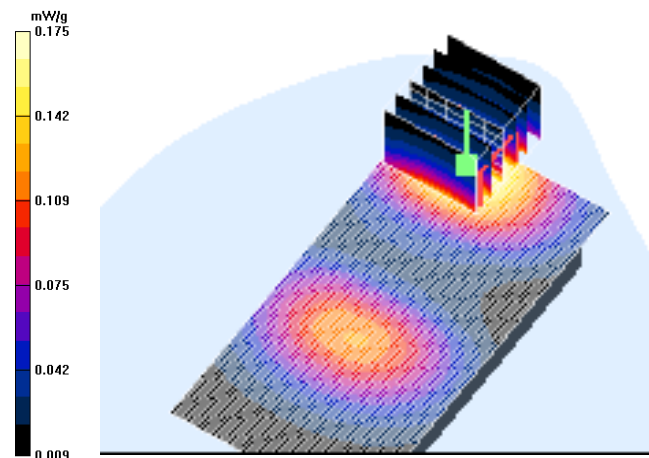
Peak SAR (extrapolated) = 0.256 W/kg

SAR(1 g) = 0.167 mW/g

SAR(10 g) = 0.108 mW/g

Power Drift = 0.048 dB

Maximum value of SAR (measured) = 0.175 mW/g



SAR Report

SD_SAR_0903_01

Applicant: Nokia Corporation

Type: RM-492

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Date/Time: 2009-01-09 12:58:18

Test Laboratory: TCC Nokia

Type: RM-492; Serial: 004401/10/361390/3

Communication System: WCDMA1900

Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: MSL 1900; Medium Notes: Liquid temperature= 21.2C

Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.48 \text{ mho/m}$; $\epsilon_r = 52.8$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(4.76, 4.76, 4.76); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-06-12
- Phantom: SAM1; Type: Twin Phantom; Serial: TP-1035
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 172

Body, Middle, Display facing phantom, No accessory/Area Scan (61x61x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.165 mW/g

Body, Middle, Display facing phantom, No accessory/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 9.85 V/m

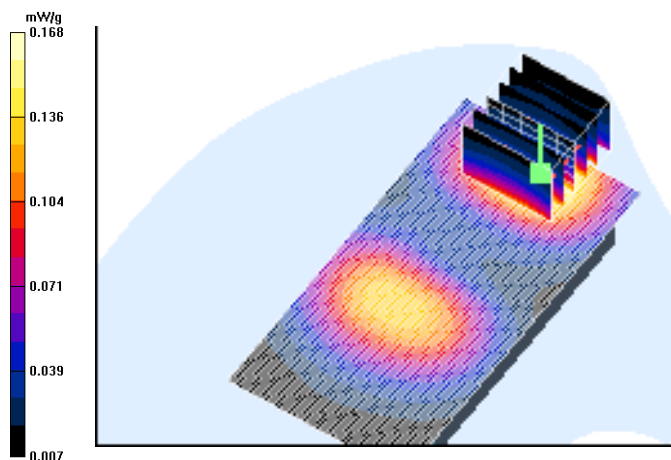
Peak SAR (extrapolated) = 0.256 W/kg

SAR(1 g) = 0.159 mW/g

SAR(10 g) = 0.102 mW/g

Power Drift = -0.029 dB

Maximum value of SAR (measured) = 0.168 mW/g



Date/Time: 2009-01-09 12:46:54

Test Laboratory: TCC Nokia

Type: RM-492; Serial: 004401/10/361390/3

Communication System: WCDMA1900

Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: MSL 1900; Medium Notes: Liquid temperature= 21.2C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.48$ mho/m; $\epsilon_r = 52.8$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(4.76, 4.76, 4.76); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-06-12
- Phantom: SAM1; Type: Twin Phantom; Serial: TP-1035
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 172

Body, Middle, Display facing phantom, HS-49/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm

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

Body, Middle, Display facing phantom, HS-49/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.17 V/m

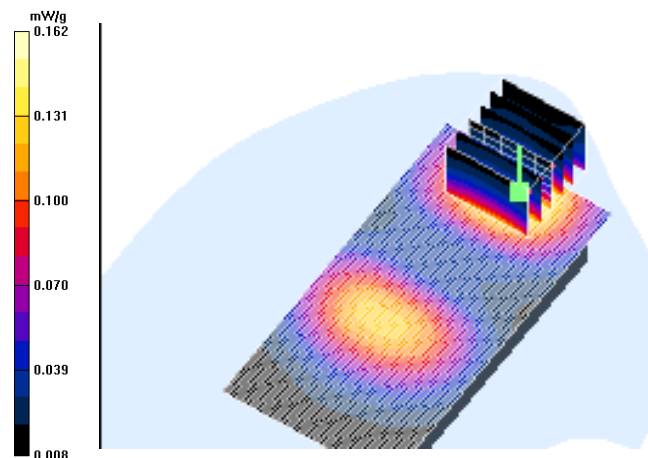
Peak SAR (extrapolated) = 0.230 W/kg

SAR(1 g) = 0.152 mW/g

SAR(10 g) = 0.101 mW/g

Power Drift = -0.095 dB

Maximum value of SAR (measured) = 0.162 mW/g



Date/Time: 2009-01-09 12:15:57

Test Laboratory: TCC Nokia

Type: RM-492; Serial: 004401/10/361390/3

Communication System: WCDMA1900

Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: MSL 1900; Medium Notes: Liquid temperature= 21.2C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.48$ mho/m; $\epsilon_r = 52.8$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(4.76, 4.76, 4.76); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-06-12
- Phantom: SAM1; Type: Twin Phantom; Serial: TP-1035
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 172

Body, Middle, Back facing phantom, No accessory/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm

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

Body, Middle, Back facing phantom, No accessory/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 14.8 V/m

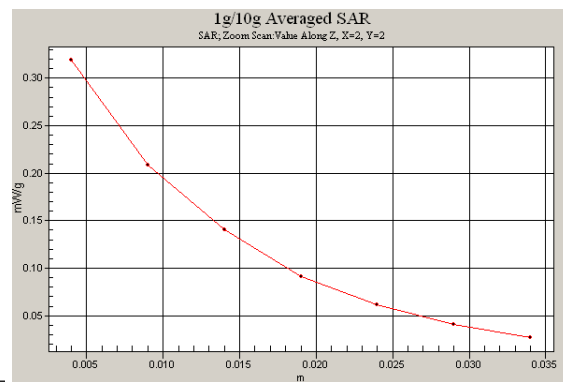
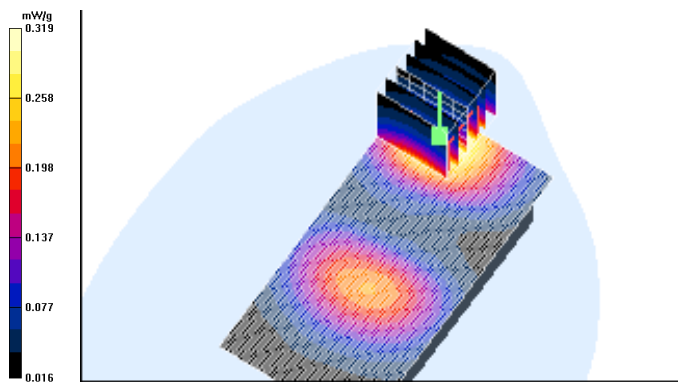
Peak SAR (extrapolated) = 0.468 W/kg

SAR(1 g) = 0.302 mW/g

SAR(10 g) = 0.194 mW/g

Power Drift = -0.133 dB

Maximum value of SAR (measured) = 0.319 mW/g



SAR Report

SD_SAR_0903_01

Applicant: Nokia Corporation

Type: RM-492

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Date/Time: 2009-01-09 12:31:40

Test Laboratory: TCC Nokia

Type: RM-492; Serial: 004401/10/361390/3

Communication System: WCDMA1900

Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: MSL 1900; Medium Notes: Liquid temperature= 21.2C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.48$ mho/m; $\epsilon_r = 52.8$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(4.76, 4.76, 4.76); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-06-12
- Phantom: SAM1; Type: Twin Phantom; Serial: TP-1035
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 172

Body, Middle, Back facing phantom, HS-49/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.191 mW/g

Body, Middle, Back facing phantom, HS-49/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 12.5 V/m

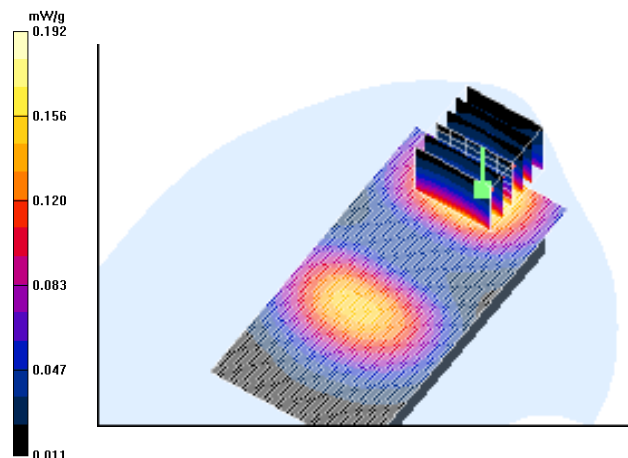
Peak SAR (extrapolated) = 0.280 W/kg

SAR(1 g) = 0.183 mW/g

SAR(10 g) = 0.118 mW/g

Power Drift = 0.402 dB

Maximum value of SAR (measured) = 0.192 mW/g



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

**Calibration Laboratory of
Schmid & Partner
Engineering AG**
Zeughausstrasse 43, 8004 Zurich, Switzerland



S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
S Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)

Accreditation No.: **SCS 108**

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

Client **Nokia SD TCC**

Certificate No: **ET3-1516_Oct08**

CALIBRATION CERTIFICATE

Object **ET3DV6 - SN:1516**

Calibration procedure(s) **QA CAL-01.v6 and QA CAL-23.v3
Calibration procedure for dosimetric E-field probes**

Calibration date: **October 21, 2008**

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 (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	1-Apr-08 (No. 217-00788)	Apr-09
Power sensor E4412A	MY41495277	1-Apr-08 (No. 217-00788)	Apr-09
Power sensor E4412A	MY41498087	1-Apr-08 (No. 217-00788)	Apr-09
Reference 3 dB Attenuator	SN: S5054 (3c)	1-Jul-08 (No. 217-00865)	Jul-09
Reference 20 dB Attenuator	SN: S5086 (20b)	31-Mar-08 (No. 217-00787)	Apr-09
Reference 30 dB Attenuator	SN: S5129 (30b)	1-Jul-08 (No. 217-00866)	Jul-09
Reference Probe ES3DV2	SN: 3013	2-Jan-08 (No. ES3-3013_Jan08)	Jan-09
DAE4	SN: 660	9-Sep-08 (No. DAE4-660_Sep08)	Sep-09
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Oct-07)	In house check: Oct-09
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-07)	In house check: Oct-08

Calibrated by:	Name Marcel Fehr	Function Laboratory Technician	Signature 
Approved by:	Name Katja Pokovic	Technical Manager	Signature 

Issued: October 21, 2008

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

Certificate No: ET3-1516_Oct08

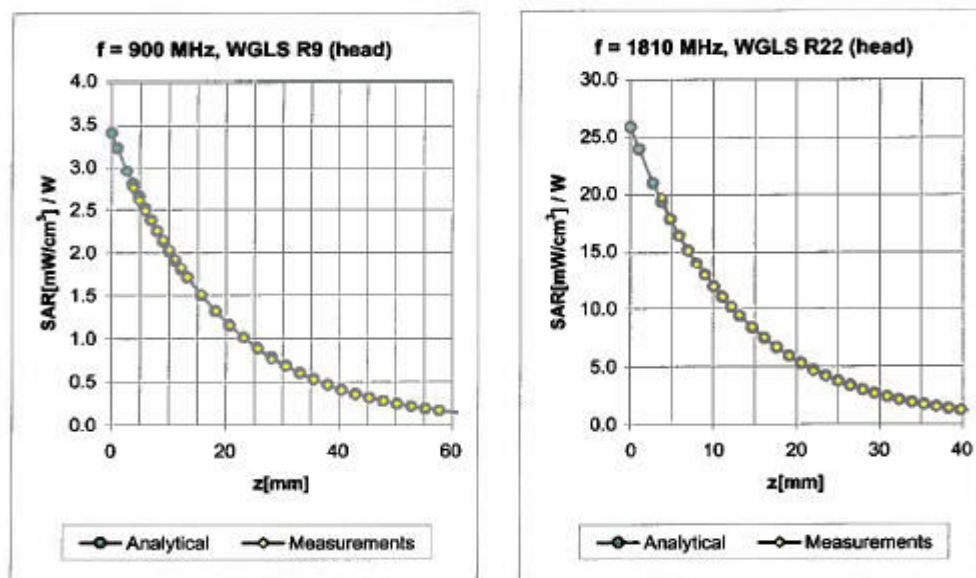
Page 1 of 9

SAR Report
SD_SAR_0903_01
Applicant: Nokia Corporation

Type: RM-492

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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%	0.39	3.35	6.26	± 11.0% (k=2)
1810	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.55	2.34	5.10	± 11.0% (k=2)
1950	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.58	2.29	4.81	± 11.0% (k=2)
2450	± 50 / ± 100	Head	39.2 ± 5%	1.80 ± 5%	0.90	1.80	4.29	± 11.0% (k=2)
900	± 50 / ± 100	Body	55.0 ± 5%	1.05 ± 5%	0.63	2.67	6.01	± 11.0% (k=2)
1810	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.65	2.23	4.76	± 11.0% (k=2)
1950	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.65	2.24	4.66	± 11.0% (k=2)
2450	± 50 / ± 100	Body	52.7 ± 5%	1.95 ± 5%	0.99	1.80	3.83	± 11.0% (k=2)

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

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

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland



S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
S Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
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 SD TCC**

Certificate No: **D835V2-486_Oct08**

CALIBRATION CERTIFICATE

Object **D835V2 - SN: 486**

Calibration procedure(s) **QA CAL-05.v7**
Calibration procedure for dipole validation kits

Calibration date: **October 22, 2008**

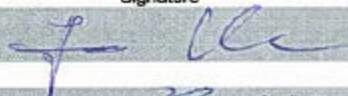
Condition of the calibrated item **In Tolerance**

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 (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	08-Oct-08 (No. 217-00898)	Oct-09
Power sensor HP 8481A	US37292783	08-Oct-08 (No. 217-00898)	Oct-09
Reference 20 dB Attenuator	SN: 5086 (20g)	01-Jul-08 (No. 217-00864)	Jul-09
Type-N mismatch combination	SN: 5047.2 / 06327	01-Jul-08 (No. 217-00867)	Jul-09
Reference Probe ES3DV2	SN: 3025	28-Apr-08 (No. ES3-3025_Apr08)	Apr-09
DAE4	SN: 601	14-Mar-08 (No. DAE4-601_Mar08)	Mar-09
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-07)	In house check: Oct-09
RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-07)	In house check: Oct-09
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-07)	In house check: Oct-08

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: October 22, 2008

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

DASY5 Validation Report for Head TSL

Date/Time: 22.10.2008 11:34:32

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:486

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

Medium: HSL 900 MHz

Medium parameters used: $f = 835$ MHz; $\sigma = 0.9$ mho/m; $\epsilon_r = 40.5$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Probe: ES3DV2 - SN3025; ConvF(5.97, 5.97, 5.97); Calibrated: 28.04.2008
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 14.03.2008
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

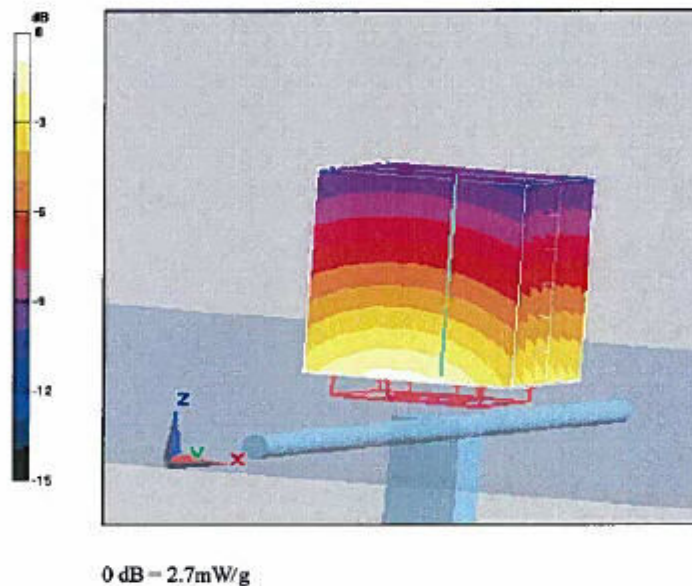
Pin=250mW; dip=15mm; dist=3.4mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 55.9 V/m; Power Drift = 0.020 dB

Peak SAR (extrapolated) = 3.52 W/kg

SAR(1 g) = 2.39 mW/g; SAR(10 g) = 1.57 mW/g

Maximum value of SAR (measured) = 2.7 mW/g



DASY5 Validation Report for Body TSL

Date/Time: 20.10.2008 10:14:40

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:486

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

Medium: MSL900

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 1 \text{ mho/m}$; $\epsilon_r = 53.4$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Probe: ES3DV2 - SN3025; ConvF(5.9, 5.9, 5.9); Calibrated: 28.04.2008
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 14.03.2008
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

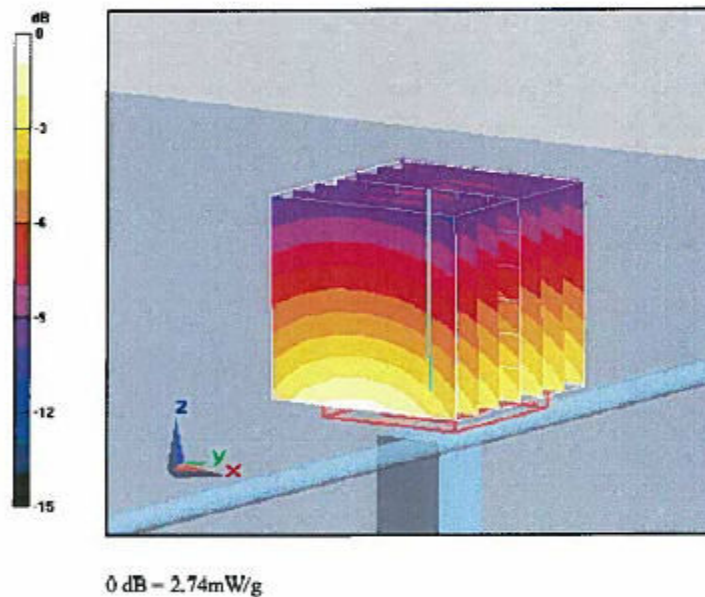
Pin = 250mW, d = 15mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 53.5 V/m; Power Drift = 0.015 dB

Peak SAR (extrapolated) = 3.51 W/kg

SAR(1 g) = 2.42 mW/g; SAR(10 g) = 1.6 mW/g

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



**Calibration Laboratory of
Schmid & Partner
Engineering AG**
Zeughausstrasse 43, 8004 Zurich, Switzerland



S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
S Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
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 SD TCC**

Certificate No: **D1900V2-509 Jun08**

CALIBRATION CERTIFICATE

Object **D1900V2 - SN: 509**

Calibration procedure(s) **QA CAL-05.v7
Calibration procedure for dipole validation kits**

Calibration date: **June 19, 2008**

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-07 (No. 217-00736)	Oct-08
Power sensor HP 8461A	US37292783	04-Oct-07 (No. 217-00736)	Oct-08
Reference 20 dB Attenuator	SN: 5086 (20g)	07-Aug-07 (No. 217-00718)	Aug-08
Type-N mismatch combination	SN: 5047.2 / 06327	08-Aug-07 (No. 217-00721)	Aug-08
Reference Probe ES3DV2	SN: 3025	28-Apr-08 (No. ES3-3025_Apr08)	Apr-09
DAE4	SN: 601	14-Mar-08 (No. DAE4-601_Mar08)	Mar-09

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8461A	MY41092317	18-Oct-02 (in house check Oct-07)	In house check: Oct-08
RF generator R&S SMT-06	100005	4-Aug-98 (in house check Oct-07)	In house check: Oct-09
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-07)	In house check: Oct-08

	Name	Function	Signature
Calibrated by:	Claudio Leubler	Laboratory Technician	

	Name	Function
Approved by:	Kajsa Pokovic	Technical Manager

Issued: June 23, 2008

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

DASY4 Validation Report for Head TSL

Date/Time: 18.06.2008 14:57:06

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:509

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

Medium: HSL U10 BB;

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.48$ mho/m; $\epsilon_r = 39.1$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ES3DV2 - SN3025; ConvF(4.9, 4.9, 4.9); Calibrated: 28.04.2008
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 14.03.2008
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; ;
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

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

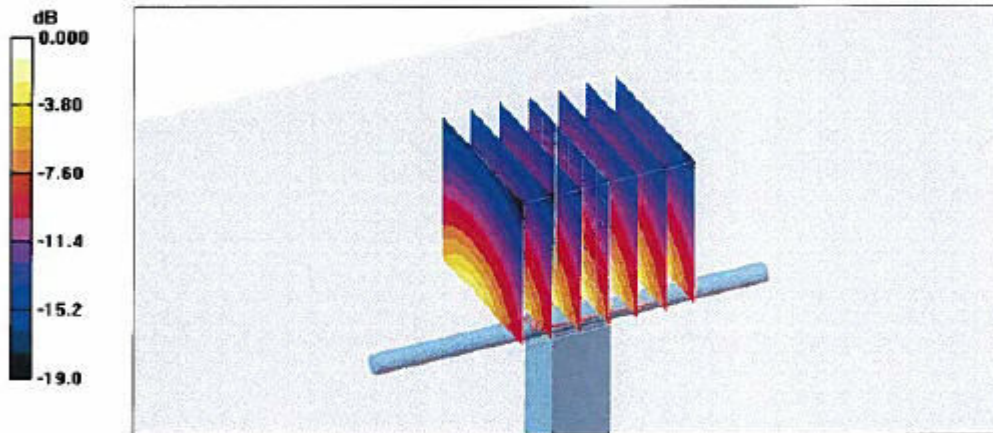
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 87.2 V/m; Power Drift = 0.060 dB

Peak SAR (extrapolated) = 18.5 W/kg

SAR(1 g) = 9.96 mW/g; SAR(10 g) = 5.12 mW/g

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



0 dB = 12.0mW/g

DASY4 Validation Report for Body TSL

Date/Time: 19.06.2008 15:04:52

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:509

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

Medium: MSL U10 BB;

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.58$ mho/m; $\epsilon_r = 52.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ES3DV2 - SN3025; ConvF(4.5, 4.5, 4.5); Calibrated: 28.04.2008
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 14.03.2008
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; ;
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

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

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

Reference Value = 88.6 V/m; Power Drift = 0.001 dB

Peak SAR (extrapolated) = 17.3 W/kg

SAR(1 g) = 9.77 mW/g; SAR(10 g) = 5.11 mW/g

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

