

SAR Compliance Test Report

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Measurements made by:	Liang Dong		
Tested device:	RM-561		
FCC ID:	QTLRM-561	IC:	-
Supplement reports:	Bej_SAR_0916_06		
Testing has been carried out in accordance with:	47CFR §2.1093 Radiofrequency Radiation Exposure Evaluation: Portable Devices FCC OET Bulletin 65 (Edition 97-01), Supplement C (Edition 01-01) Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields RSS-102 Evaluation Procedure for Mobile and Portable Radio Transmitters with Respect to Health Canada's Safety Code 6 for Exposure of Humans to Radio Frequency Fields IEEE 1528 - 2003 IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Technique		
Documentation:	The documentation of the testing performed on the tested devices is archived for 15 years at TCC Nokia.		
Test results:	The tested device complies with the requirements in respect of all parameters subject to the test. The test results and statements relate only to the items tested. The test report shall not be reproduced except in full, without written approval of the laboratory.		
Date and signatures:			
For the contents:			

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1. SUMMARY OF SAR TEST REPORT

1.1 Test Details

Period of test	2009-03-25 to 2009-04-10
SN, HW and SW numbers of tested device	SN: 004401/10/572493/0, HW: 0101, SW: cmy07w41_09w04, DUT: 51251
Batteries used in testing	BL-5CA, DUT: 50939, 50943
Headsets used in testing	HS-125, DUT: 51250
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)	Conducted power	Position	Measured SAR value (1g avg)	Scaled* SAR value (1g avg)	SAR limit (1g avg)	Result
GSM850	251 / 848.8	32.5 dBm	Right, Cheek	0.606 W/kg	0.68 W/kg	1.6 W/kg	PASSED
GSM1900	512 / 1850.2	30.5 dBm	Left, Cheek	0.993 W/kg	1.11 W/kg	1.6 W/kg	PASSED

1.2.2 Body Worn Configuration

Mode	Ch / f (MHz)	Conducted power	Separation distance	Measured SAR value (1g avg)	Scaled* SAR value (1g avg)	SAR limit (1g avg)	Result
3-slot GPRS850	251 / 848.8	27.7 dBm	2.2 cm	0.621 W/kg	0.70 W/kg	1.6 W/kg	PASSED
2-slot GPRS1900	512 / 1850.2	28.0 dBm	2.2 cm	0.197 W/kg	0.22 W/kg	1.6 W/kg	PASSED

*SAR values are scaled up by 12% to cover measurement drift. As a consequence of this upwards correction of the SAR values, the contribution of measurement drift to the overall measurement uncertainty (Section 6) is reduced to zero.

1.2.3 Maximum Drift

Maximum drift covered by 12% scaling up of the SAR values	Maximum drift during measurements
0.5dB	0.37dB

1.2.4 Measurement Uncertainty

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

Device category	Portable
Exposure environment	General population / uncontrolled

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

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

2.1 Description of the Antenna

The device has an internal antenna. It is located at the top of the device underneath the back surface.

3. TEST CONDITIONS

3.1 Temperature and Humidity

Ambient temperature (°C):	20.9 to 22.0
Ambient humidity (RH %):	40 to 55

3.2 Test Signal, Frequencies and Output Power

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

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

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

When testing GSM/GPRS/EGPRS modes, comparative 1-slot, 2-slot and 3-slot SAR measurements are initially made for the same test configuration and the same frequency to determine which mode has the highest SAR value i.e. the highest average power. These comparative tests are extremely accurate in finding the highest average power mode as the device does not change its position or frequency during these tests. Once the highest average power/highest SAR mode has been determined, full SAR testing then takes place in the identified mode. When inspecting the conducted power levels given in the Results tables (Section 7) to identify the maximum SAR case, allowance must be made for the number of transmit slots. In the Results tables (Section 7), it should be noted that the reported GPRS mode results are the same as GMSK EGPRS as these modes have the same power settings.

In all operating bands, basic testing of all the operating modes was performed for all specified test positions.

The radiated output power of the device was measured by a separate test laboratory on the same unit(s) as used for SAR testing. The results are given in the EMC report supporting this application.

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	480	12 months	2009-09
E-field Probe ET3DV6	1652	12 months	2009-09
Dipole Validation Kit, D835V2	4d005	24 months	2010-03
Dipole Validation Kit, D1900V2	547	24 months	2009-09
DASY4 software	Version 4.6	-	-

Additional test equipment used in testing:

Test Equipment	Model	Serial Number	Calibration interval	Calibration expiry
Signal Generator	8648C	3847M00258	12 months	2009-05
Call Tester	CMU200	835352/008	-	-
Amplifier	AR 5SIG4M3	302339	12 months	2009-05
RF Network Analyzer	8753ES	My40002096	12 months	2009-05
Dielectric Probe Kit	85070C	01033717	-	-
Power Meter	Agilent E4419B	My41291520	12 months	2009-05
Power Sensor	Agilent 8482A	US37295411	12 months	2009-05

4.1.1 Isotropic E-field Probe Type ET3DV6

Construction	Symmetrical design with triangular core Built-in optical fiber for surface detection system Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., butyl diglycol)
Calibration	Calibration certificate in Appendix C
Frequency	10 MHz to 3 GHz (dosimetry); Linearity: ± 0.2 dB (30 MHz to 3 GHz)
Optical Surface Detection	± 0.2 mm repeatability in air and clear liquids over diffuse reflecting surfaces
Directivity	± 0.2 dB in HSL (rotation around probe axis) ± 0.4 dB in HSL (rotation normal to probe axis)
Dynamic Range	5 μ W/g to > 100 mW/g; Linearity: ± 0.2 dB
Dimensions	Overall length: 330 mm Tip length: 16 mm Body diameter: 12 mm Tip diameter: 6.8 mm Distance from probe tip to dipole centers: 2.7 mm
Application	General dosimetry up to 3 GHz Compliance tests of mobile phones Fast automatic scanning in arbitrary phantoms

4.2 Phantoms

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

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

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

4.3 Tissue Simulants

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

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

4.3.1 Tissue Simulant Recipes

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

800MHz band

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

1900MHz band

Ingredient	Head (% by weight)	Body (% by weight)
Deionised Water	54.50	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	2.26	41.5	0.90	21.6
	$\pm 10\%$ window	2.03 – 2.49			
	2009-03-25	2.46	42.3	0.90	
1900	Reference result	9.47	39.3	1.46	21.6
	$\pm 10\%$ window	8.52 – 10.42			
	2009-04-10	10.3	39.0	1.47	

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	21.6
	$\pm 5\%$ window	39.4 – 43.6	0.86 – 0.95	
	2009-03-25	42.3	0.90	
1880	Recommended value	40.0	1.40	21.6
	$\pm 5\%$ window	38.0 – 42.0	1.33 – 1.47	
	2009-04-10	39.0	1.45	

Body tissue simulant measurements

f [MHz]	Description	Dielectric Parameters		Temp [°C]
		ϵ_r	σ [S/m]	
836	Recommended value	55.2	0.97	21.2
	$\pm 5\%$ window	52.4 – 58.0	0.92 – 1.02	
	2009-03-25	53.2	0.98	
1880	Recommended value	53.3	1.52	21.4
	$\pm 5\%$ window	50.6 – 56.0	1.44 – 1.60	
	2009-04-10	53.5	1.57	

5. DESCRIPTION OF THE TEST PROCEDURE

5.1 Device Holder

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



Device holder supplied by SPEAG

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



Nokia spacer

5.2 Test Positions

5.2.1 Against Phantom Head

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

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

5.2.2 Body Worn Configuration

The device was placed in the SPEAG holder using the Nokia spacer and placed below the flat section of the phantom. The distance between the device and the phantom was kept at the

separation distance indicated in Section 1.2.2 using a separate flat spacer that was removed before the start of the measurements. The device was oriented with both sides facing the phantom to find the highest results.

5.3 Scan Procedures

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

5.4 SAR Averaging Methods

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

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

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

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

6. MEASUREMENT UNCERTAINTY

Table 6.1 – Measurement uncertainty evaluation

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

7. RESULTS

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

850MHz Head SAR results

Mode	Test configuration		SAR, averaged over 1g (W/kg)		
			Ch 128 824.2 MHz	Ch 190 836.6 MHz	Ch 251 848.8 MHz
GSM	Conducted power		32.5 dBm	32.5 dBm	32.5 dBm
	Left	Cheek	-	0.601	-
		Tilt	-	0.456	-
	Right	Cheek	0.569	0.603	0.606
		Tilt	-	0.452	-

1900MHz Head SAR results

Mode	Test configuration		SAR, averaged over 1g (W/kg)		
			Ch 512 1850.2 MHz	Ch 661 1880.0 MHz	Ch 810 1909.8 MHz
GSM	Conducted power		30.5 dBm	30.5 dBm	30.5 dBm
	Left	Cheek	0.993	0.778	0.708
		Tilt	-	0.304	-
	Right	Cheek	-	0.689	-
		Tilt	-	0.262	-

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

850MHz Body SAR results

Mode	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		Conducted power	-	32.5 dBm	-
	Display facing phantom	Without headset	-	0.319	-
		Headset HS-125	-	-	-
	Back facing phantom	Without headset	-	-	-
		Headset HS-125	-	-	-
2-slot GPRS		Conducted power	-	29.5 dBm	-
	Display facing phantom	Without headset	-	0.315	-
		Headset HS-125	-	-	-
	Back facing phantom	Without headset	-	-	-
		Headset HS-125	-	-	-
3-slot GPRS		Conducted power	27.7 dBm	27.7 dBm	27.7 dBm
	Display facing phantom	Without headset	-	0.390	-
		Headset HS-125	-	0.226	-
	Back facing phantom	Without headset	0.482	0.510	0.621
		Headset HS-125	-	0.289	-
3-slot 8PSK EGPRS		Conducted power	-	-	27.0 dBm
	Display facing phantom	Without headset	-	-	-
		Headset HS-125	-	-	-
	Back facing phantom	Without headset	-	-	0.413
		Headset HS-125	-	-	-

1900MHz Body SAR results

Mode	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		Conducted power	-	30.5 dBm	-
	Display facing phantom	Without headset	-	0.122	-
		Headset HS-125	-	-	-
	Back facing phantom	Without headset	-	-	-
		Headset HS-125	-	-	-
2-slot GPRS		Conducted power	28.0 dBm	28.0 dBm	28.0 dBm
	Display facing phantom	Without headset	-	0.133	-
		Headset HS-125	-	0.113	-
	Back facing phantom	Without headset	0.197	0.182	0.167
		Headset HS-125	-	0.164	-
3-slot GPRS		Conducted power	-	26.0 dBm	-
	Display facing phantom	Without headset	-	0.121	-
		Headset HS-125	-	-	-
	Back facing phantom	Without headset	-	-	-
		Headset HS-125	-	-	-
2-slot 8PSK EGPRS		Conducted power	26.0 dBm	-	-
	Display facing phantom	Without headset	-	-	-
		Headset HS-125	-	-	-
	Back facing phantom	Without headset	0.102	-	-
		Headset HS-125	-	-	-

Plots of the Measurement scans are given in Appendix B.

APPENDIX A: SYSTEM CHECKING SCANS

Date/Time: 2009-03-25 10:07:19 AM

Test Laboratory: TCC Nokia
Type: D835V2; Serial: 4d005

Communication System: CW835

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: Head 850; Medium Notes: Medium Temperature: $t=21.6\text{ C}$

Medium parameters used: $f = 835\text{ MHz}$; $\sigma = 0.899\text{ mho/m}$; $\epsilon_r = 42.3$; $\rho = 1000\text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1652; Probe Notes:
- ConvF(6.27, 6.27, 6.27); Calibrated: 2008-09-16
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2008-09-16
- Phantom: SAM1; Type: SAM; Serial: TP-1097
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 160

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

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

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

Reference Value = 55.4 V/m

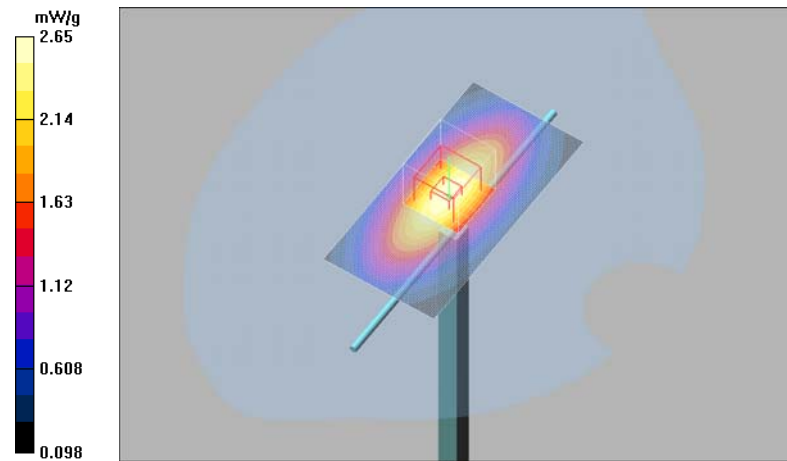
Peak SAR (extrapolated) = 3.67 W/kg

SAR(1 g) = 2.46 mW/g

SAR(10 g) = 1.61 mW/g

Power Drift = -0.031 dB

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



Date/Time: 2009-04-10 10:11:11 AM

Test Laboratory: TCC Nokia
Type: D1900V2; Serial: 547

Communication System: CW1900

Frequency: 1900 MHz; Duty Cycle: 1:1

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

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.47$ mho/m; $\epsilon_r = 39$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1652; Probe Notes:
- ConvF(4.98, 4.98, 4.98); Calibrated: 2008-09-16
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2008-09-16
- Phantom: SAM1; Type: SAM; Serial: TP-1097
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 160

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

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

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

Reference Value = 90.6 V/m

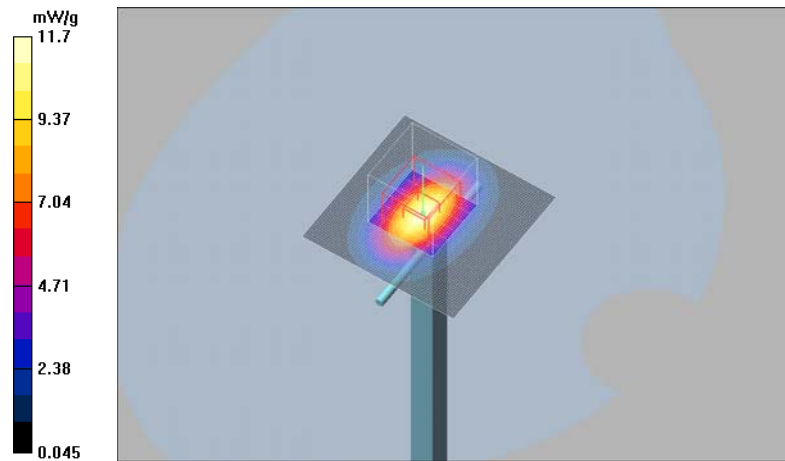
Peak SAR (extrapolated) = 18.9 W/kg

SAR(1 g) = 10.3 mW/g

SAR(10 g) = 5.31 mW/g

Power Drift = -0.030 dB

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



APPENDIX B: MEASUREMENT SCANS

Date/Time: 2009-03-25 10:52:36 AM

Test Laboratory: TCC Nokia

Type: RM-561; Serial: 004401/10/572493/0

Communication System: GSM850

Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium: Head 850; Medium Notes: Medium Temperature: $t=21.6$ C

Medium parameters used: $f = 837$ MHz; $\sigma = 0.901$ mho/m; $\epsilon_r = 42.3$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1652; Probe Notes:
- ConvF(6.27, 6.27, 6.27); Calibrated: 2008-09-16
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2008-09-16
- Phantom: SAM1; Type: SAM; Serial: TP-1097
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 160

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

Maximum value of SAR (interpolated) = 0.624 mW/g

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

Reference Value = 9.51 V/m

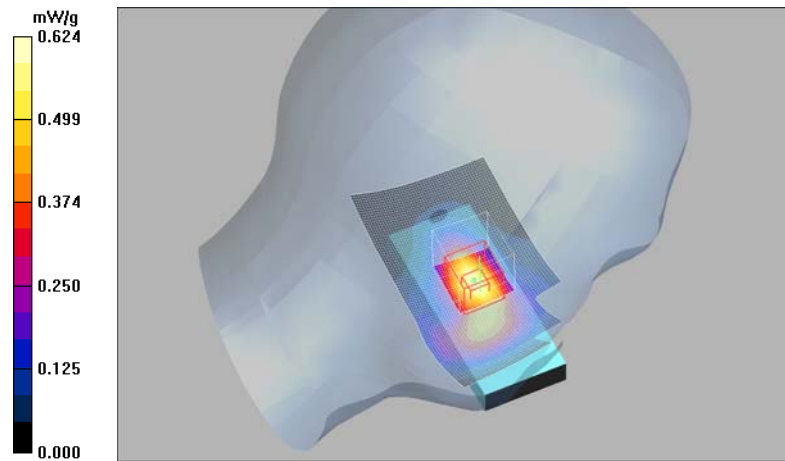
Peak SAR (extrapolated) = 0.990 W/kg

SAR(1 g) = 0.601 mW/g

SAR(10 g) = 0.359 mW/g

Power Drift = -0.088 dB

Maximum value of SAR (measured) = 0.632 mW/g



Date/Time: 2009-03-25 11:06:16 AM

Test Laboratory: TCC Nokia

Type: RM-561; Serial: 004401/10/572493/0

Communication System: GSM850

Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium: Head 850; Medium Notes: Medium Temperature: t=21.6 C

Medium parameters used: f = 837 MHz; σ = 0.901 mho/m; ϵ_r = 42.3; ρ = 1000 kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1652; Probe Notes:
- ConvF(6.27, 6.27, 6.27); Calibrated: 2008-09-16
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2008-09-16
- Phantom: SAM1; Type: SAM; Serial: TP-1097
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 160

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

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

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

Reference Value = 17.8 V/m

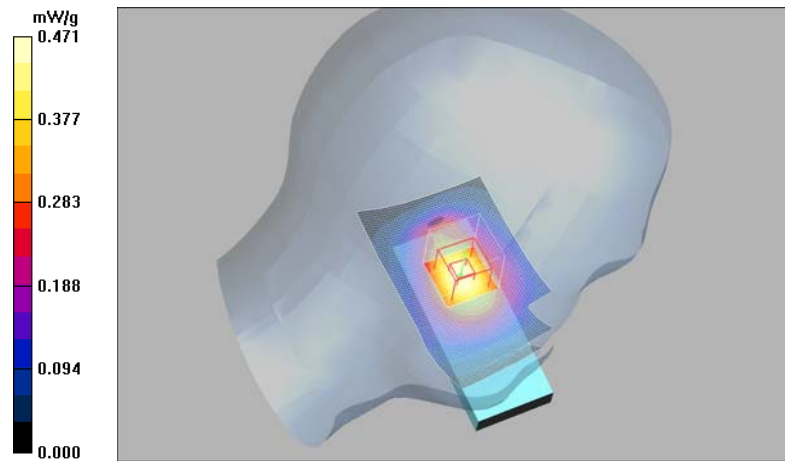
Peak SAR (extrapolated) = 0.652 W/kg

SAR(1 g) = 0.456 mW/g

SAR(10 g) = 0.307 mW/g

Power Drift = -0.043 dB

Maximum value of SAR (measured) = 0.493 mW/g



Date/Time: 2009-03-25 11:41:55 AM

Test Laboratory: TCC Nokia

Type: RM-561; Serial: 004401/10/572493/0

Communication System: GSM850

Frequency: 848.8 MHz; Duty Cycle: 1:8.3

Medium: Head 850; Medium Notes: Medium Temperature: $t=21.6$ C

Medium parameters used: $f = 849$ MHz; $\sigma = 0.915$ mho/m; $\epsilon_r = 42.1$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1652; Probe Notes:
- ConvF(6.27, 6.27, 6.27); Calibrated: 2008-09-16
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2008-09-16
- Phantom: SAM1; Type: SAM; Serial: TP-1097
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 160

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

Maximum value of SAR (interpolated) = 0.631 mW/g

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

Reference Value = 9.99 V/m

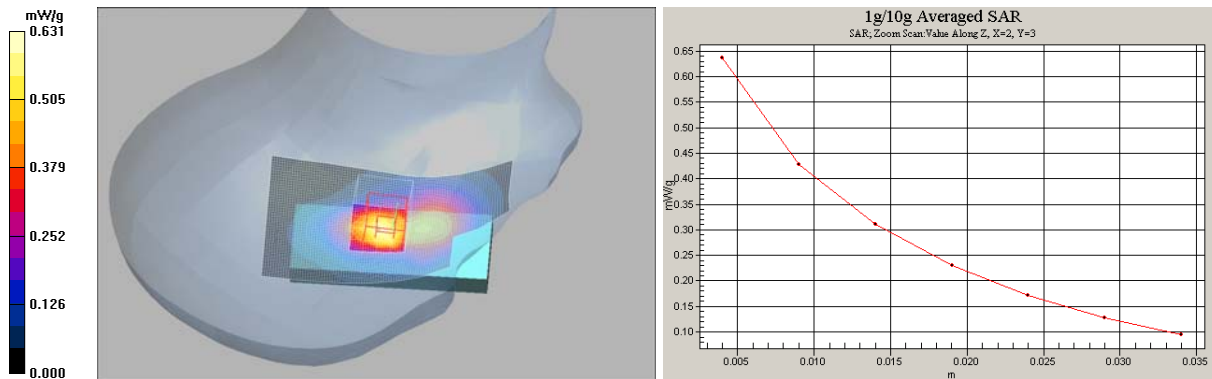
Peak SAR (extrapolated) = 0.963 W/kg

SAR(1 g) = 0.606 mW/g

SAR(10 g) = 0.373 mW/g

Power Drift = -0.062 dB

Maximum value of SAR (measured) = 0.636 mW/g



Date/Time: 2009-03-25 11:52:48 AM

Test Laboratory: TCC Nokia

Type: RM-561; Serial: 004401/10/572493/0

Communication System: GSM850

Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium: Head 850; Medium Notes: Medium Temperature: $t=21.6$ C

Medium parameters used: $f = 837$ MHz; $\sigma = 0.901$ mho/m; $\epsilon_r = 42.3$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1652; Probe Notes:
- ConvF(6.27, 6.27, 6.27); Calibrated: 2008-09-16
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2008-09-16
- Phantom: SAM1; Type: SAM; Serial: TP-1097
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 160

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

Maximum value of SAR (interpolated) = 0.472 mW/g

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

Reference Value = 17.8 V/m

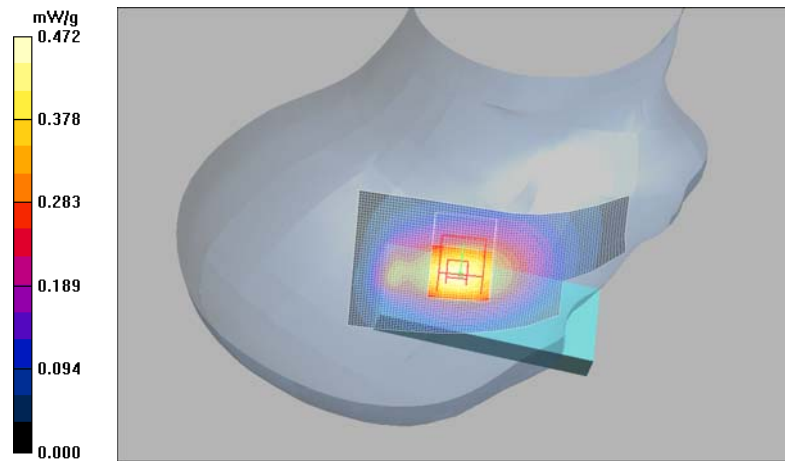
Peak SAR (extrapolated) = 0.649 W/kg

SAR(1 g) = 0.452 mW/g

SAR(10 g) = 0.305 mW/g

Power Drift = -0.128 dB

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



Date/Time: 2009-04-10 11:29:32 AM

Test Laboratory: TCC Nokia

Type: RM-561; Serial: 004401/10/572493/0

Communication System: GSM1900

Frequency: 1850.2 MHz; Duty Cycle: 1:8.3

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

Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.42$ mho/m; $\epsilon_r = 39.1$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1652; Probe Notes:
- ConvF(4.98, 4.98, 4.98); Calibrated: 2008-09-16
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2008-09-16
- Phantom: SAM1; Type: SAM; Serial: TP-1097
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 160

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

Maximum value of SAR (interpolated) = 1.11 mW/g

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

Reference Value = 7.16 V/m

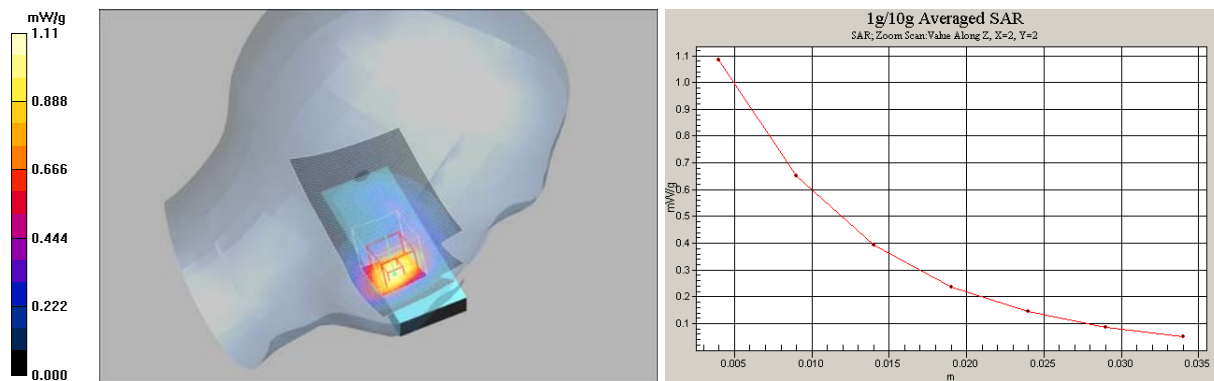
Peak SAR (extrapolated) = 1.64 W/kg

SAR(1 g) = 0.993 mW/g

SAR(10 g) = 0.585 mW/g

Power Drift = -0.109 dB

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



Date/Time: 2009-04-10 10:49:14 AM

Test Laboratory: TCC Nokia

Type: RM-561; Serial: 004401/10/572493/0

Communication System: GSM1900

Frequency: 1880 MHz; Duty Cycle: 1:8.3

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

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.45$ mho/m; $\epsilon_r = 39$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1652; Probe Notes:
- ConvF(4.98, 4.98, 4.98); Calibrated: 2008-09-16
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2008-09-16
- Phantom: SAM1; Type: SAM; Serial: TP-1097
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 160

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

Maximum value of SAR (interpolated) = 0.367 mW/g

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

Reference Value = 11.6 V/m

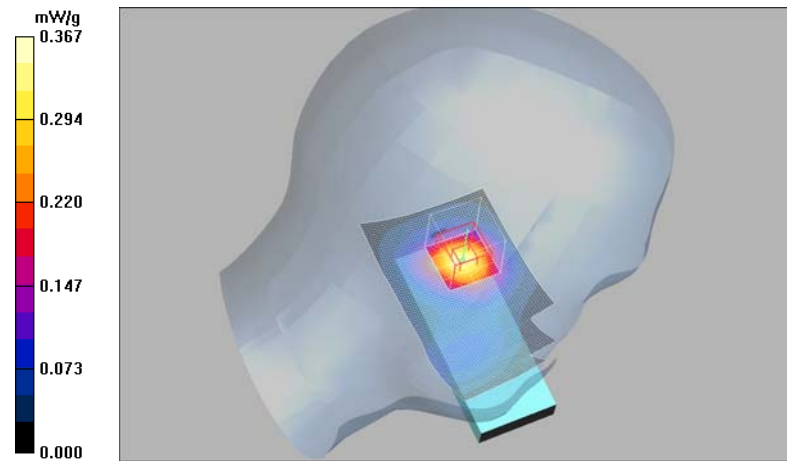
Peak SAR (extrapolated) = 0.464 W/kg

SAR(1 g) = 0.304 mW/g

SAR(10 g) = 0.185 mW/g

Power Drift = -0.335 dB

Maximum value of SAR (measured) = 0.331 mW/g



Date/Time: 2009-04-10 11:00:43 AM

Test Laboratory: TCC Nokia

Type: RM-561; Serial: 004401/10/572493/0

Communication System: GSM1900

Frequency: 1880 MHz; Duty Cycle: 1:8.3

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

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.45$ mho/m; $\epsilon_r = 39$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1652; Probe Notes:
- ConvF(4.98, 4.98, 4.98); Calibrated: 2008-09-16
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2008-09-16
- Phantom: SAM1; Type: SAM; Serial: TP-1097
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 160

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

Maximum value of SAR (interpolated) = 0.811 mW/g

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

Reference Value = 8.62 V/m

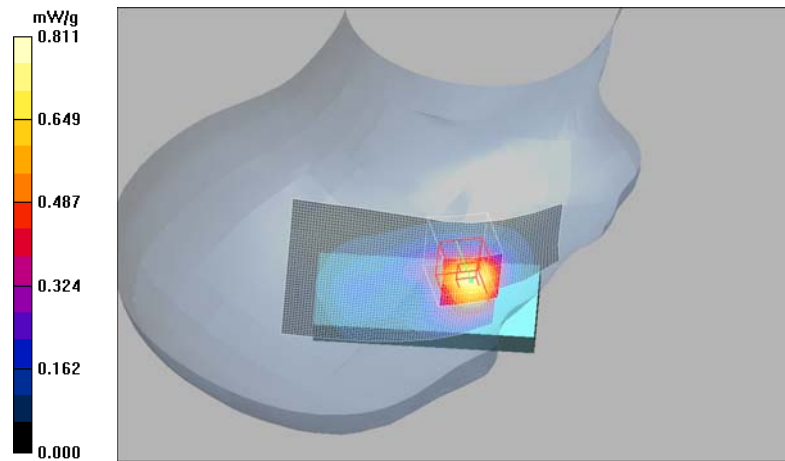
Peak SAR (extrapolated) = 1.02 W/kg

SAR(1 g) = 0.689 mW/g

SAR(10 g) = 0.409 mW/g

Power Drift = -0.008 dB

Maximum value of SAR (measured) = 0.758 mW/g



Date/Time: 2009-04-10 11:17:43 AM

Test Laboratory: TCC Nokia

Type: RM-561; Serial: 004401/10/572493/0

Communication System: GSM1900

Frequency: 1880 MHz; Duty Cycle: 1:8.3

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

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.45$ mho/m; $\epsilon_r = 39$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1652; Probe Notes:
- ConvF(4.98, 4.98, 4.98); Calibrated: 2008-09-16
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2008-09-16
- Phantom: SAM1; Type: SAM; Serial: TP-1097
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 160

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

Maximum value of SAR (interpolated) = 0.298 mW/g

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

Reference Value = 13.5 V/m

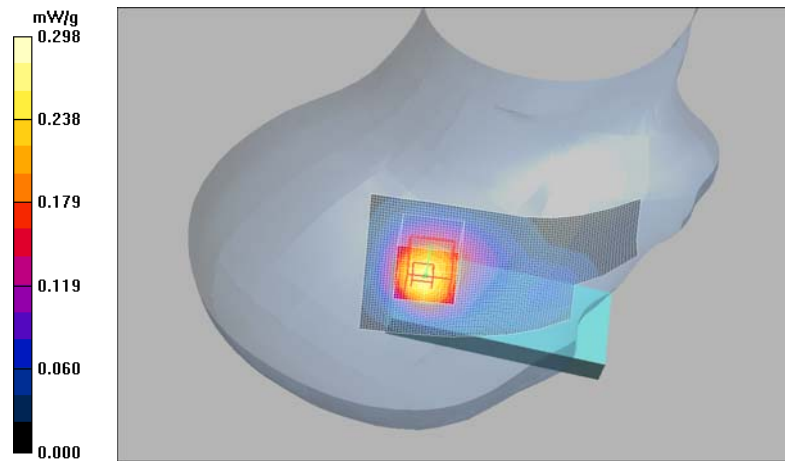
Peak SAR (extrapolated) = 0.376 W/kg

SAR(1 g) = 0.262 mW/g

SAR(10 g) = 0.162 mW/g

Power Drift = -0.165 dB

Maximum value of SAR (measured) = 0.282 mW/g



Date/Time: 2009-03-25 12:14:45 PM

Test Laboratory: TCC Nokia

Type: RM-561; Serial: 004401/10/572493/0

Communication System: GSM850

Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium: Body 850; Medium Notes: Medium Temperature: $t = 21.2\text{ C}$

Medium parameters used: $f = 837\text{ MHz}$; $\sigma = 0.983\text{ mho/m}$; $\epsilon_r = 53.2$; $\rho = 1000\text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1652; Probe Notes:
- ConvF(6.06, 6.06, 6.06); Calibrated: 2008-09-16
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2008-09-16
- Phantom: SAM2; Type: SAM; Serial: TP - 1508
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 160

Body - Middle - No Accessory - Display facing phantom/Area Scan (51x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.341 mW/g

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

Reference Value = 8.99 V/m

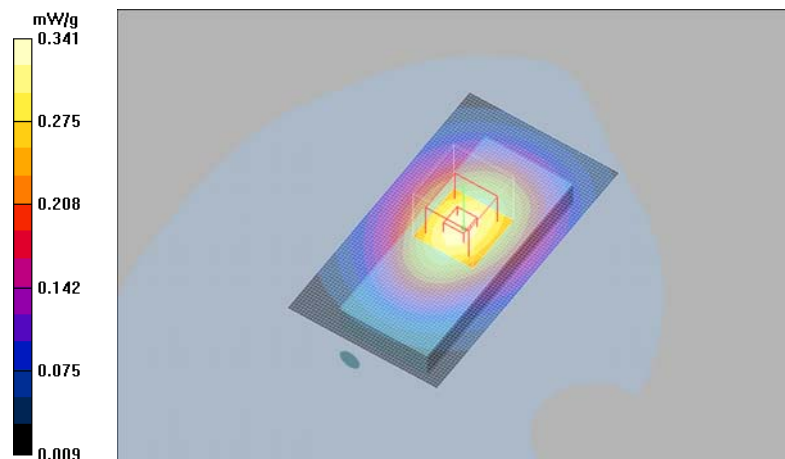
Peak SAR (extrapolated) = 0.409 W/kg

SAR(1 g) = 0.319 mW/g

SAR(10 g) = 0.230 mW/g

Power Drift = -0.281 dB

Maximum value of SAR (measured) = 0.339 mW/g



Date/Time: 2009-03-25 12:28:36 PM

Test Laboratory: TCC Nokia

Type: RM-561; Serial: 004401/10/572493/0

Communication System: 2-slot GPRS850

Frequency: 836.6 MHz; Duty Cycle: 1:4.2

Medium: Body 850; Medium Notes: Medium Temperature: $t = 21.2\text{ C}$

Medium parameters used: $f = 837\text{ MHz}$; $\sigma = 0.983\text{ mho/m}$; $\epsilon_r = 53.2$; $\rho = 1000\text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1652; Probe Notes:
- ConvF(6.06, 6.06, 6.06); Calibrated: 2008-09-16
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2008-09-16
- Phantom: SAM2; Type: SAM; Serial: TP - 1508
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 160

Body - Middle - No Accessory - Display facing phantom/Area Scan (51x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.338 mW/g

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

Reference Value = 8.62 V/m

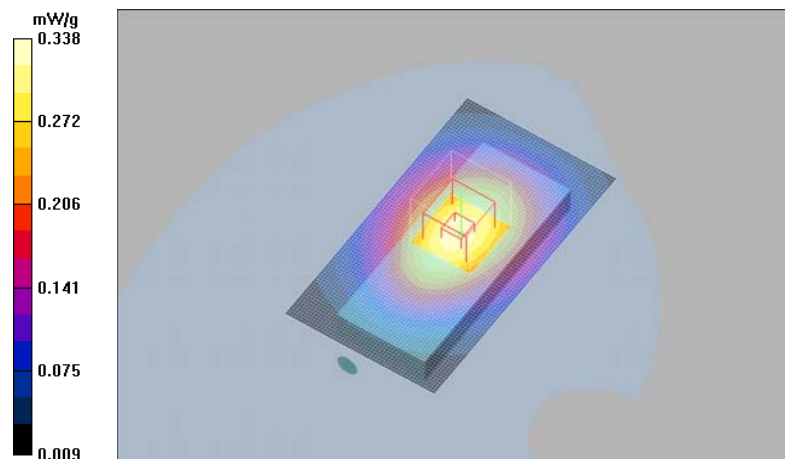
Peak SAR (extrapolated) = 0.399 W/kg

SAR(1 g) = 0.315 mW/g

SAR(10 g) = 0.229 mW/g

Power Drift = 0.001 dB

Maximum value of SAR (measured) = 0.333 mW/g



Date/Time: 2009-03-25 2:03:31 PM

Test Laboratory: TCC Nokia

Type: RM-561; Serial: 004401/10/572493/0

Communication System: 3-slot GPRS850

Frequency: 836.6 MHz; Duty Cycle: 1:2.8

Medium: Body 850; Medium Notes: Medium Temperature: $t = 21.2\text{ C}$

Medium parameters used: $f = 837\text{ MHz}$; $\sigma = 0.983\text{ mho/m}$; $\epsilon_r = 53.2$; $\rho = 1000\text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1652; Probe Notes:
- ConvF(6.06, 6.06, 6.06); Calibrated: 2008-09-16
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2008-09-16
- Phantom: SAM2; Type: SAM; Serial: TP - 1508
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 160

Body - Middle - No Accessory - Display facing phantom/Area Scan (51x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.419 mW/g

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

Reference Value = 9.75 V/m

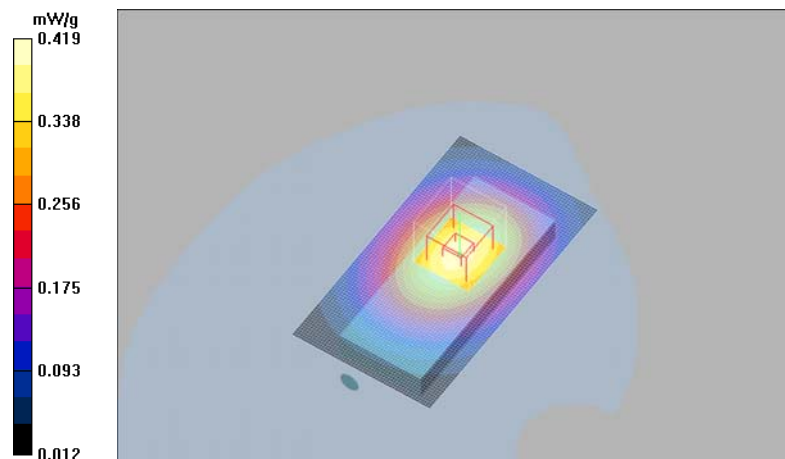
Peak SAR (extrapolated) = 0.502 W/kg

SAR(1 g) = 0.390 mW/g

SAR(10 g) = 0.284 mW/g

Power Drift = -0.208 dB

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



Date/Time: 2009-03-25 2:16:08 PM

Test Laboratory: TCC Nokia

Type: RM-561; Serial: 004401/10/572493/0

Communication System: 3-slot GPRS850

Frequency: 836.6 MHz; Duty Cycle: 1:2.8

Medium: Body 850; Medium Notes: Medium Temperature: $t = 21.2\text{ C}$

Medium parameters used: $f = 837\text{ MHz}$; $\sigma = 0.983\text{ mho/m}$; $\epsilon_r = 53.2$; $\rho = 1000\text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1652; Probe Notes:
- ConvF(6.06, 6.06, 6.06); Calibrated: 2008-09-16
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2008-09-16
- Phantom: SAM2; Type: SAM; Serial: TP - 1508
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 160

Body - Middle - HS-125 - Display facing phantom/Area Scan (51x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Body - Middle - HS-125 - Display facing phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=7.5\text{mm}$, $dy=7.5\text{mm}$, $dz=5\text{mm}$

Reference Value = 5.61 V/m

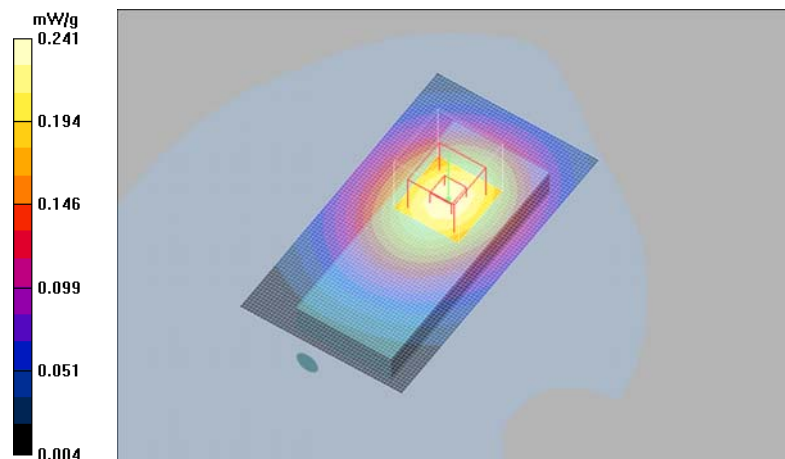
Peak SAR (extrapolated) = 0.291 W/kg

SAR(1 g) = 0.226 mW/g

SAR(10 g) = 0.164 mW/g

Power Drift = 0.057 dB

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



Date/Time: 2009-03-25 3:33:34 PM

Test Laboratory: TCC Nokia

Type: RM-561; Serial: 004401/10/572493/0

Communication System: 3-slot GPRS850

Frequency: 848.8 MHz; Duty Cycle: 1:2.8

Medium: Body 850; Medium Notes: Medium Temperature: $t = 21.2$ C

Medium parameters used: $f = 849$ MHz; $\sigma = 0.995$ mho/m; $\epsilon_r = 53.1$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1652; Probe Notes:
- ConvF(6.06, 6.06, 6.06); Calibrated: 2008-09-16
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2008-09-16
- Phantom: SAM2; Type: SAM; Serial: TP - 1508
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 160

Body - High - No Accessory - Back facing phantom/Area Scan (51x91x1): Measurement grid: $dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.677 mW/g

Body - High - No Accessory - Back facing phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=7.5$ mm, $dy=7.5$ mm, $dz=5$ mm

Reference Value = 13.1 V/m

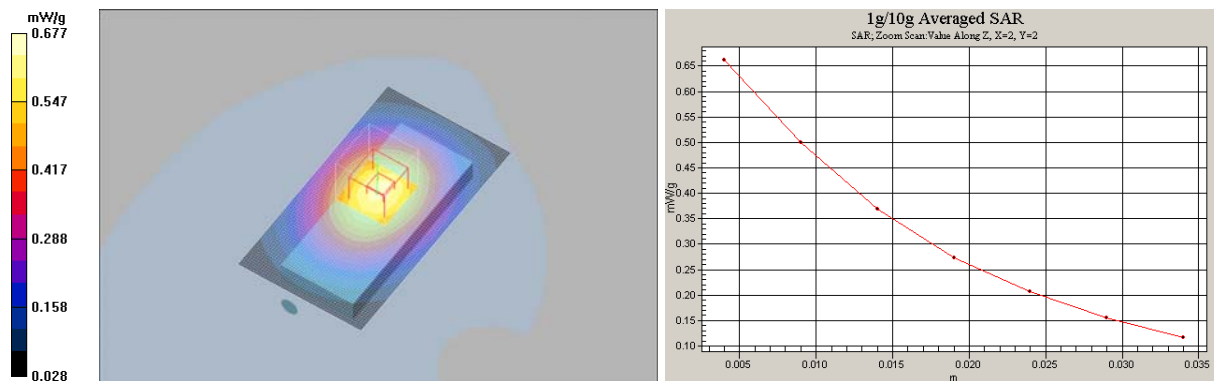
Peak SAR (extrapolated) = 0.801 W/kg

SAR(1 g) = 0.621 mW/g

SAR(10 g) = 0.448 mW/g

Power Drift = -0.129 dB

Maximum value of SAR (measured) = 0.659 mW/g



Date/Time: 2009-03-25 2:42:05 PM

Test Laboratory: TCC Nokia

Type: RM-561; Serial: 004401/10/572493/0

Communication System: 3-slot GPRS850

Frequency: 836.6 MHz; Duty Cycle: 1:2.8

Medium: Body 850; Medium Notes: Medium Temperature: $t = 21.2\text{ C}$

Medium parameters used: $f = 837\text{ MHz}$; $\sigma = 0.983\text{ mho/m}$; $\epsilon_r = 53.2$; $\rho = 1000\text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1652; Probe Notes:
- ConvF(6.06, 6.06, 6.06); Calibrated: 2008-09-16
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2008-09-16
- Phantom: SAM2; Type: SAM; Serial: TP - 1508
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 160

Body - Middle - HS-125 - Back facing phantom/Area Scan (51x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Body - Middle - HS-125 - Back facing phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=7.5\text{mm}$, $dy=7.5\text{mm}$, $dz=5\text{mm}$

Reference Value = 6.62 V/m

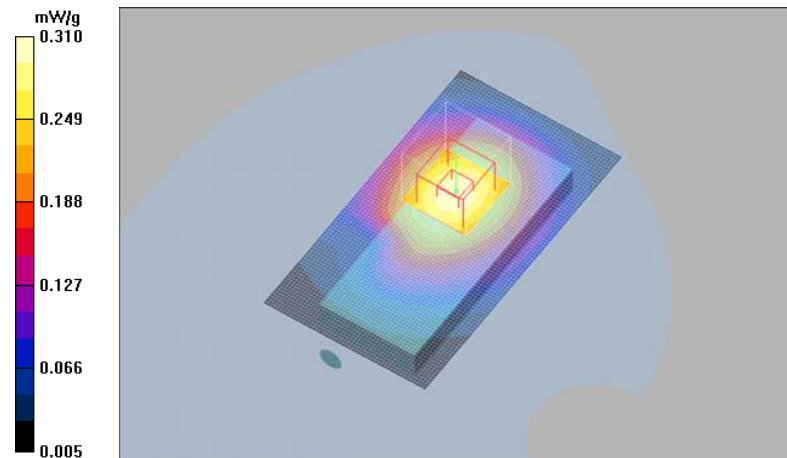
Peak SAR (extrapolated) = 0.373 W/kg

SAR(1 g) = 0.289 mW/g

SAR(10 g) = 0.207 mW/g

Power Drift = -0.039 dB

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



Date/Time: 2009-03-25 4:00:52 PM

Test Laboratory: TCC Nokia

Type: RM-561; Serial: 004401/10/572493/0

Communication System: 3-slot 8PSK EGPRS850

Frequency: 836.6 MHz; Duty Cycle: 1:2.8

Medium: Body 850; Medium Notes: Medium Temperature: $t = 21.2\text{ C}$

Medium parameters used: $f = 837\text{ MHz}$; $\sigma = 0.983\text{ mho/m}$; $\epsilon_r = 53.2$; $\rho = 1000\text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1652; Probe Notes:
- ConvF(6.06, 6.06, 6.06); Calibrated: 2008-09-16
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2008-09-16
- Phantom: SAM2; Type: SAM; Serial: TP - 1508
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 160

Body - Middle - No Accessory - Back facing phantom/Area Scan (51x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.449 mW/g

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

$dx=7.5\text{mm}$, $dy=7.5\text{mm}$, $dz=5\text{mm}$

Reference Value = 10.5 V/m

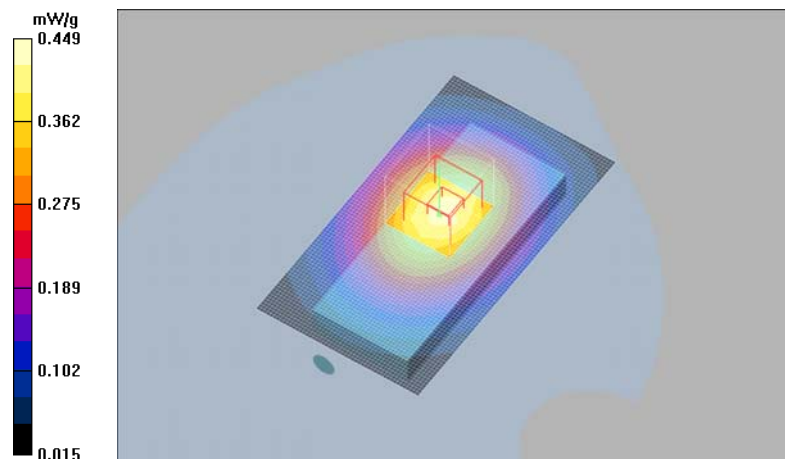
Peak SAR (extrapolated) = 0.534 W/kg

SAR(1 g) = 0.413 mW/g

SAR(10 g) = 0.299 mW/g

Power Drift = -0.216 dB

Maximum value of SAR (measured) = 0.437 mW/g



Date/Time: 2009-04-10 1:23:58 PM

Test Laboratory: TCC Nokia

Type: RM-561; Serial: 004401/10/572493/0

Communication System: GSM1900

Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium: Body 1900; Medium Notes: Medium Temperature: t=21.4 C

Medium parameters used: f = 1880 MHz; $\sigma = 1.57$ mho/m; $\epsilon_r = 53.5$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1652; Probe Notes:
- ConvF(4.37, 4.37, 4.37); Calibrated: 2008-09-16
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2008-09-16
- Phantom: SAM2; Type: SAM; Serial: TP - 1099
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 160

Body - Middle - No Accessory - Display facing phantom/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.133 mW/g

Body - Middle - No Accessory - Display facing phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 7.97 V/m

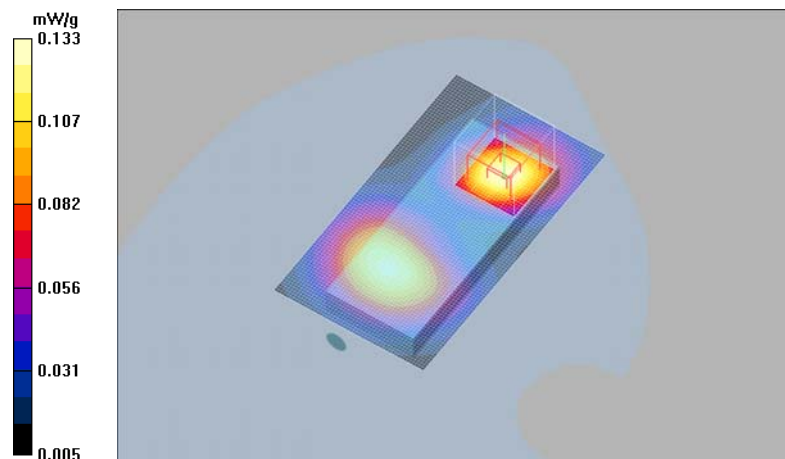
Peak SAR (extrapolated) = 0.211 W/kg

SAR(1 g) = 0.122 mW/g

SAR(10 g) = 0.072 mW/g

Power Drift = -0.267 dB

Maximum value of SAR (measured) = 0.132 mW/g



Date/Time: 2009-04-10 2:01:31 PM

Test Laboratory: TCC Nokia

Type: RM-561; Serial: 004401/10/572493/0

Communication System: 2-slot GPRS1900

Frequency: 1880 MHz; Duty Cycle: 1:4.2

Medium: Body 1900; Medium Notes: Medium Temperature: t=21.4 C

Medium parameters used: f = 1880 MHz; σ = 1.57 mho/m; ϵ_r = 53.5; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1652; Probe Notes:
- ConvF(4.37, 4.37, 4.37); Calibrated: 2008-09-16
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2008-09-16
- Phantom: SAM2; Type: SAM; Serial: TP - 1099
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 160

Body - Middle - No Accessory - Display facing phantom/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.142 mW/g

Body - Middle - No Accessory - Display facing phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 8.04 V/m

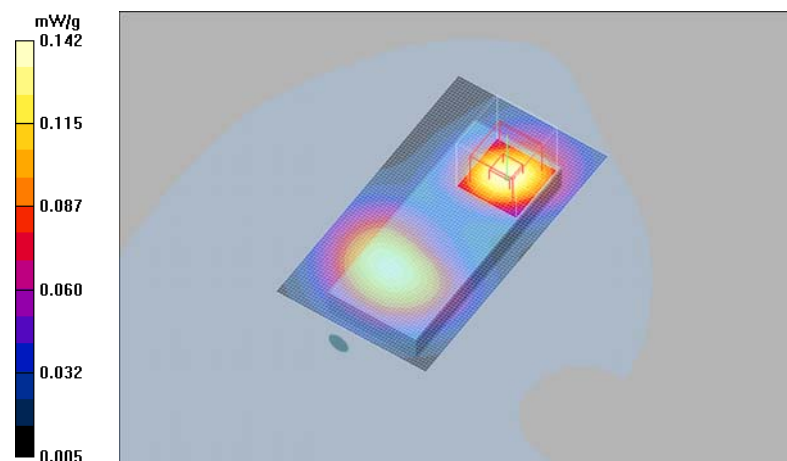
Peak SAR (extrapolated) = 0.230 W/kg

SAR(1 g) = 0.133 mW/g

SAR(10 g) = 0.079 mW/g

Power Drift = 0.017 dB

Maximum value of SAR (measured) = 0.143 mW/g



Date/Time: 2009-04-10 2:31:37 PM

Test Laboratory: TCC Nokia

Type: RM-561; Serial: 004401/10/572493/0

Communication System: 2-slot GPRS1900

Frequency: 1880 MHz; Duty Cycle: 1:4.2

Medium: Body 1900; Medium Notes: Medium Temperature: t=21.4 C

Medium parameters used: f = 1880 MHz; $\sigma = 1.57$ mho/m; $\epsilon_r = 53.5$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1652; Probe Notes:
- ConvF(4.37, 4.37, 4.37); Calibrated: 2008-09-16
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2008-09-16
- Phantom: SAM2; Type: SAM; Serial: TP - 1099
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 160

Body - Middle - HS-125 - Display facing phantom/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

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

Body - Middle - HS-125 - Display facing phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 6.24 V/m

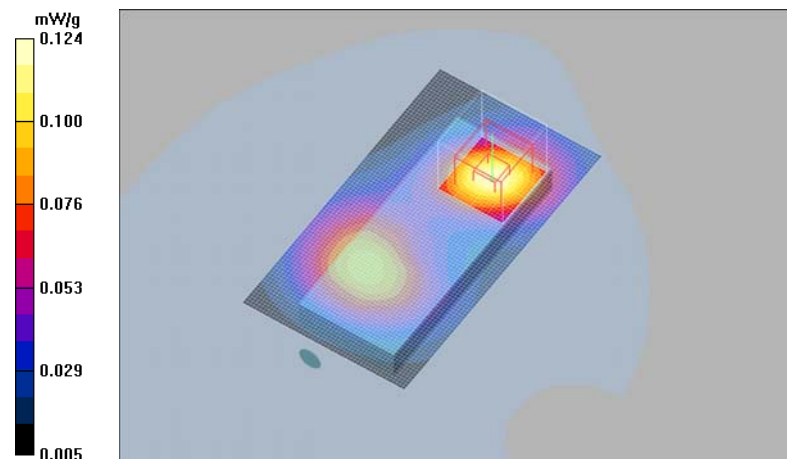
Peak SAR (extrapolated) = 0.192 W/kg

SAR(1 g) = 0.113 mW/g

SAR(10 g) = 0.067 mW/g

Power Drift = -0.182 dB

Maximum value of SAR (measured) = 0.122 mW/g



Date/Time: 2009-04-10 3:05:33 PM

Test Laboratory: TCC Nokia

Type: RM-561; Serial: 004401/10/572493/0

Communication System: 2-slot GPRS1900

Frequency: 1850.2 MHz; Duty Cycle: 1:4.2

Medium: Body 1900; Medium Notes: Medium Temperature: t=21.4 C

Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.54 mho/m; ϵ_r = 53.7; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1652; Probe Notes:
- ConvF(4.37, 4.37, 4.37); Calibrated: 2008-09-16
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2008-09-16
- Phantom: SAM2; Type: SAM; Serial: TP - 1099
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 160

Body - Low - No Accessory - Back facing phantom/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

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

Body - Low - No Accessory - Back facing phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 10.5 V/m

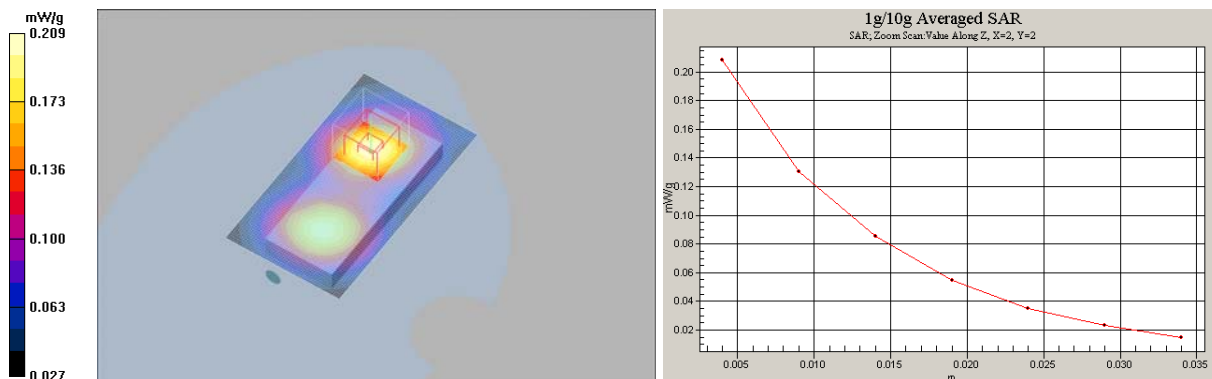
Peak SAR (extrapolated) = 0.326 W/kg

SAR(1 g) = 0.197 mW/g

SAR(10 g) = 0.123 mW/g

Power Drift = -0.101 dB

Maximum value of SAR (measured) = 0.208 mW/g



Date/Time: 2009-04-10 2:52:59 PM

Test Laboratory: TCC Nokia

Type: RM-561; Serial: 004401/10/572493/0

Communication System: 2-slot GPRS1900

Frequency: 1880 MHz; Duty Cycle: 1:4.2

Medium: Body 1900; Medium Notes: Medium Temperature: t=21.4 C

Medium parameters used: f = 1880 MHz; σ = 1.57 mho/m; ϵ_r = 53.5; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1652; Probe Notes:
- ConvF(4.37, 4.37, 4.37); Calibrated: 2008-09-16
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2008-09-16
- Phantom: SAM2; Type: SAM; Serial: TP - 1099
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 160

Body - Middle - HS-125 - Back facing phantom/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

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

Body - Middle - HS-125 - Back facing phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 8.18 V/m

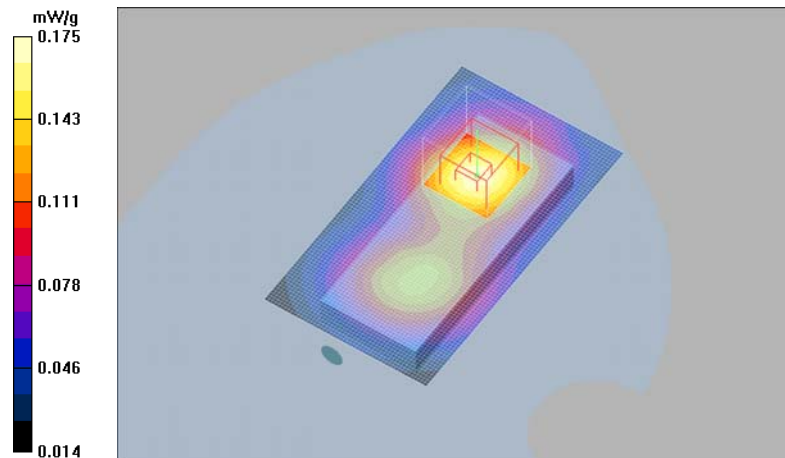
Peak SAR (extrapolated) = 0.278 W/kg

SAR(1 g) = 0.164 mW/g

SAR(10 g) = 0.102 mW/g

Power Drift = 0.040 dB

Maximum value of SAR (measured) = 0.174 mW/g



Date/Time: 2009-04-10 1:44:49 PM

Test Laboratory: TCC Nokia

Type: RM-561; Serial: 004401/10/572493/0

Communication System: 3-slot GPRS1900

Frequency: 1880 MHz; Duty Cycle: 1:2.8

Medium: Body 1900; Medium Notes: Medium Temperature: t=21.4 C

Medium parameters used: f = 1880 MHz; σ = 1.57 mho/m; ϵ_r = 53.5; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1652; Probe Notes:
- ConvF(4.37, 4.37, 4.37); Calibrated: 2008-09-16
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2008-09-16
- Phantom: SAM2; Type: SAM; Serial: TP - 1099
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 160

Body - Middle - No Accessory - Display facing phantom/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.132 mW/g

Body - Middle - No Accessory - Display facing phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 7.78 V/m

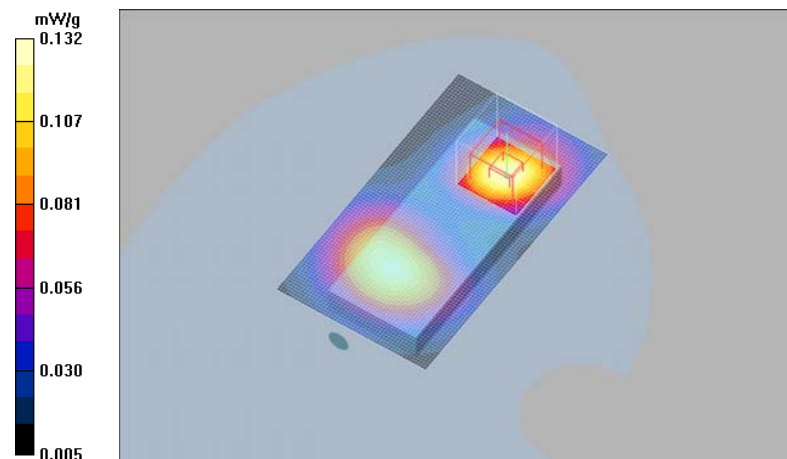
Peak SAR (extrapolated) = 0.207 W/kg

SAR(1 g) = 0.121 mW/g

SAR(10 g) = 0.072 mW/g

Power Drift = -0.049 dB

Maximum value of SAR (measured) = 0.130 mW/g



Date/Time: 2009-04-10 3:31:12 PM

Test Laboratory: TCC Nokia

Type: RM-561; Serial: 004401/10/572493/0

Communication System: 2-slot 8PSK EGPRS1900

Frequency: 1850.2 MHz; Duty Cycle: 1:4.2

Medium: Body 1900; Medium Notes: Medium Temperature: t=21.4 C

Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.54 mho/m; ϵ_r = 53.7; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1652; Probe Notes:
- ConvF(4.37, 4.37, 4.37); Calibrated: 2008-09-16
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn480; Calibrated: 2008-09-16
- Phantom: SAM2; Type: SAM; Serial: TP - 1099
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 160

Body - Low - No Accessory - Back facing phantom/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.111 mW/g

Body - Low - No Accessory - Back facing phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 7.58 V/m

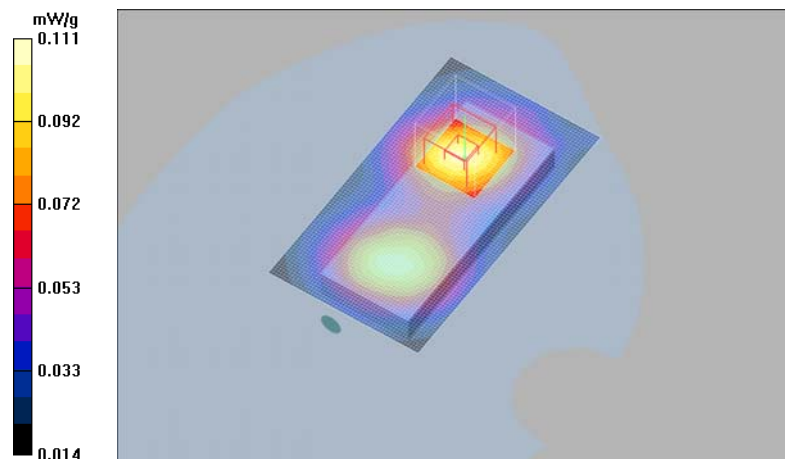
Peak SAR (extrapolated) = 0.170 W/kg

SAR(1 g) = 0.102 mW/g

SAR(10 g) = 0.063 mW/g

Power Drift = -0.042 dB

Maximum value of SAR (measured) = 0.110 mW/g



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

Please see the following pages.



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 Beijing TCC**

Certificate No: **ET3-1652_Sep08**

CALIBRATION CERTIFICATE

Object **ET3DV6 - SN:1652**

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

Calibration date: **September 16, 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 Katja Pokovic	Function Technical Manager	Signature
Approved by:	Name Niels Kuster	Function Quality Manager	Signature

Issued: September 17, 2008

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

DASY - Parameters of Probe: ET3DV6 SN:1652

Sensitivity in Free Space^A

Diode Compression^B

NormX	1.98 ± 10.1%	$\mu\text{V}/(\text{V}/\text{m})^2$	DCP X	91 mV
NormY	2.04 ± 10.1%	$\mu\text{V}/(\text{V}/\text{m})^2$	DCP Y	93 mV
NormZ	1.96 ± 10.1%	$\mu\text{V}/(\text{V}/\text{m})^2$	DCP Z	91 mV

Sensitivity in Tissue Simulating Liquid (Conversion Factors)

Please see Page 8.

Boundary Effect

TSL **900 MHz** **Typical SAR gradient: 5 % per mm**

Sensor Center to Phantom Surface Distance		3.7 mm	4.7 mm
SAR _{be} [%]	Without Correction Algorithm	10.0	5.7
SAR _{be} [%]	With Correction Algorithm	0.8	0.3

TSL **1750 MHz** **Typical SAR gradient: 10 % per mm**

Sensor Center to Phantom Surface Distance		3.7 mm	4.7 mm
SAR _{be} [%]	Without Correction Algorithm	12.5	7.5
SAR _{be} [%]	With Correction Algorithm	0.9	0.4

Sensor Offset

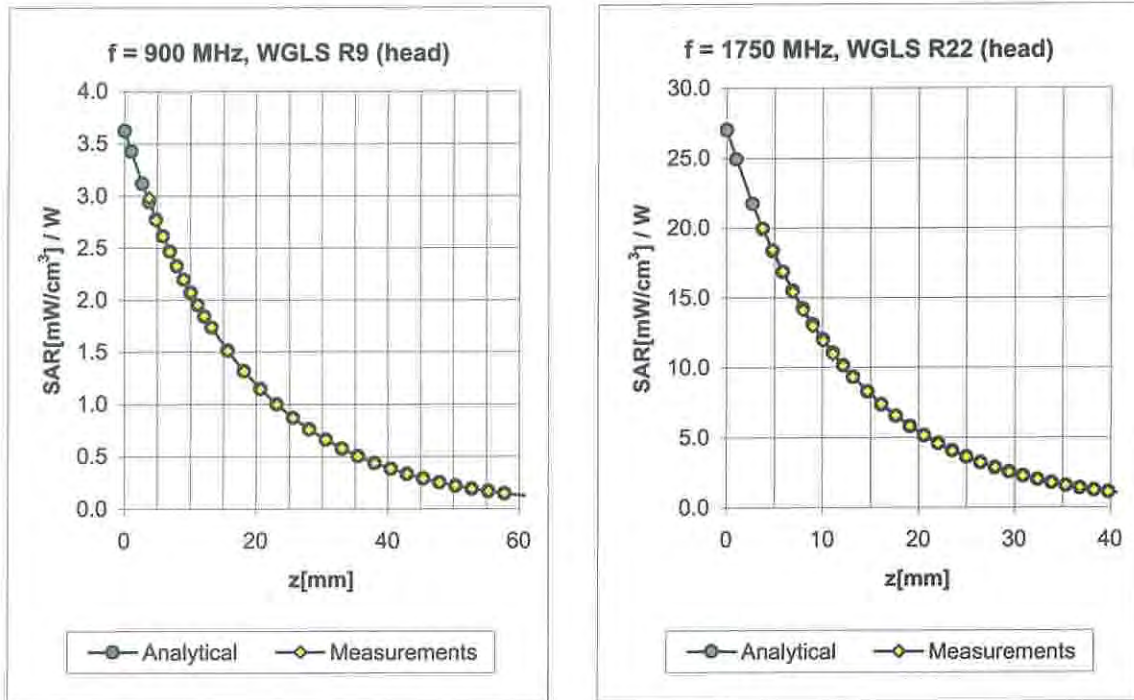
Probe Tip to Sensor Center **2.7 mm**

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

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

^B Numerical linearization parameter: uncertainty not required.

Conversion Factor Assessment



f [MHz]	Validity [MHz] ^c	TSL	Permittivity	Conductivity	Alpha	Depth	ConvF Uncertainty
835	± 50 / ± 100	Head	41.5 ± 5%	0.90 ± 5%	0.33	2.57	6.27 ± 11.0% (k=2)
900	± 50 / ± 100	Head	41.5 ± 5%	0.97 ± 5%	0.28	3.02	6.06 ± 11.0% (k=2)
1750	± 50 / ± 100	Head	40.1 ± 5%	1.37 ± 5%	0.71	2.06	5.22 ± 11.0% (k=2)
1900	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.80	1.82	4.98 ± 11.0% (k=2)
1950	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.83	1.72	4.85 ± 11.0% (k=2)
2450	± 50 / ± 100	Head	39.2 ± 5%	1.80 ± 5%	0.85	1.60	4.45 ± 11.0% (k=2)
835	± 50 / ± 100	Body	55.2 ± 5%	0.97 ± 5%	0.47	2.28	6.06 ± 11.0% (k=2)
900	± 50 / ± 100	Body	55.0 ± 5%	1.05 ± 5%	0.48	2.38	5.92 ± 11.0% (k=2)
1750	± 50 / ± 100	Body	53.4 ± 5%	1.49 ± 5%	0.74	2.09	4.62 ± 11.0% (k=2)
1900	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.84	1.85	4.37 ± 11.0% (k=2)
1950	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.83	1.86	4.46 ± 11.0% (k=2)
2450	± 50 / ± 100	Body	52.7 ± 5%	1.95 ± 5%	0.85	1.70	3.81 ± 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)

Please see the following pages.



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 Beijing TCC**

Certificate No: **D835V2-4d005_Mar08**

CALIBRATION CERTIFICATE

Object **D835V2 - SN: 4d005**

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

Calibration date: **March 10, 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 (METAS, No. 217-00736)	Oct-08
Power sensor HP 8481A	US37292783	04-Oct-07 (METAS, No. 217-00736)	Oct-08
Reference 20 dB Attenuator	SN: 5086 (20g)	07-Aug-07 (METAS, No 217-00718)	Aug-08
Reference Probe ES3DV2	SN: 3025	01-Mar-08 (SPEAG, No. ES3-3025_Mar08)	Mar-09
DAE4	SN 601	03-Jan-08 (SPEAG, No. DAE4-601_Jan08)	Jan-09
DAE4	SN 909	03-Sep-07 (SPEAG, No. DAE4-909_Sep07)	Sep-08
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (SPEAG, in house check Oct-07)	In house check: Oct-09
RF generator R&S SMT-06	100005	04-Aug-99 (SPEAG, in house check Oct-07)	In house check: Oct-09
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (SPEAG, in house check Oct-07)	In house check: Oct-08

	Name	Function	Signature
Calibrated by:	Claudio Leubler	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: March 11, 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: 07.03.2008 12:45:35

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:4d005

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; $\epsilon_r = 41.5$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ES3DV2 - SN3025; ConvF(6.09, 6.09, 6.09); Calibrated: 01.03.2008
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 03.01.2008
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; ;
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 172

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

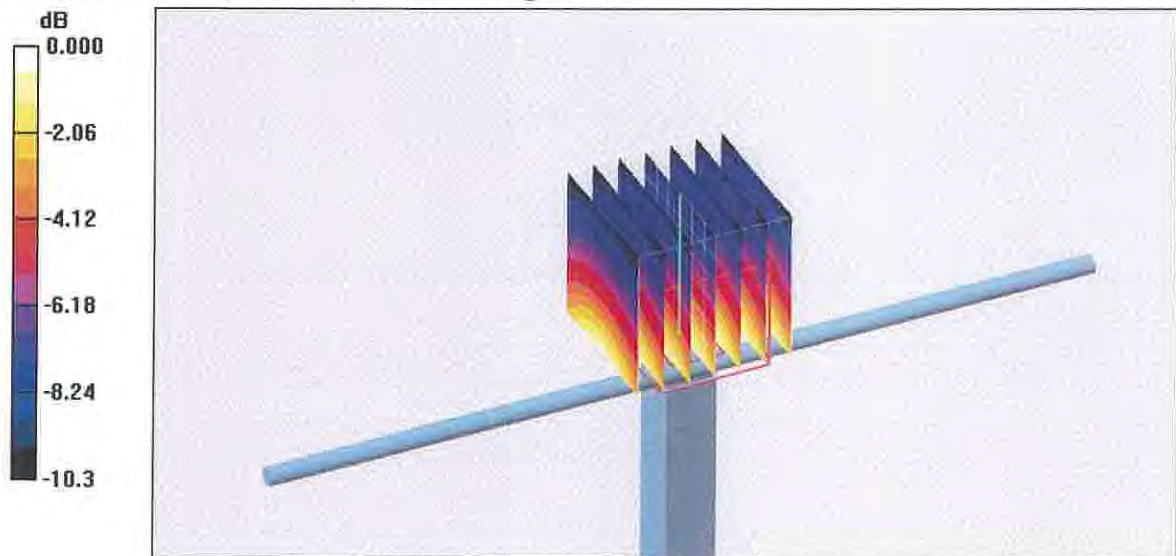
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 53.5 V/m; Power Drift = -0.012 dB

Peak SAR (extrapolated) = 3.28 W/kg

SAR(1 g) = 2.26 mW/g; SAR(10 g) = 1.49 mW/g

Maximum value of SAR (measured) = 2.56 mW/g



0 dB = 2.56mW/g



Accredited by the Swiss Federal Office of Metrology and Accreditation
The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Client **Nokia Beijing TCC**

Certificate No: **D1900V2-547_Sep07**

CALIBRATION CERTIFICATE

Object **D1900V2 - SN: 547**

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

Calibration date: **September 18, 2007**

Condition of the calibrated item **In Tolerance**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature $(22 \pm 3)^{\circ}\text{C}$ and humidity $< 70\%$.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	03-Oct-06 (METAS, No. 217-00608)	Oct-07
Power sensor HP 8481A	US37292783	03-Oct-06 (METAS, No. 217-00608)	Oct-07
Reference 20 dB Attenuator	SN: 5086 (20g)	07-Aug-07 (METAS, No 217-00718)	Aug-08
Reference 10 dB Attenuator	SN: 5047.2 (10r)	07-Aug-07 (METAS, No 217-00718)	Aug-08
Reference Probe ET3DV6	SN: 1507	19-Oct-06 (SPEAG, No. ET3-1507_Oct06)	Oct-07
Reference Probe ES3DV3	SN: 3025	19-Oct-06 (SPEAG, No. ES3-3025_Oct06)	Oct-07
DAE4	SN 601	30-Jan-07 (SPEAG, No. DAE4-601_Jan07)	Jan-08
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (SPEAG, in house check Oct-05)	In house check: Oct-07
RF generator R&S SMT-06	100005	4-Aug-99 (SPEAG, in house check Nov-05)	In house check: Nov-07
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (SPEAG, in house check Oct-06)	In house check: Oct-07

Calibrated by:	Name Mike Meili	Function Laboratory Technician	Signature
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Approved by:	Katja Pokovic	Technical Manager	
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Issued: September 21, 2007

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

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:547

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

Medium: HSL U10 BB;

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.46$ mho/m; $\epsilon_r = 39.3$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1507 (HF); ConvF(4.97, 4.97, 4.97); Calibrated: 19.10.2006
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.01.2007
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 172

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

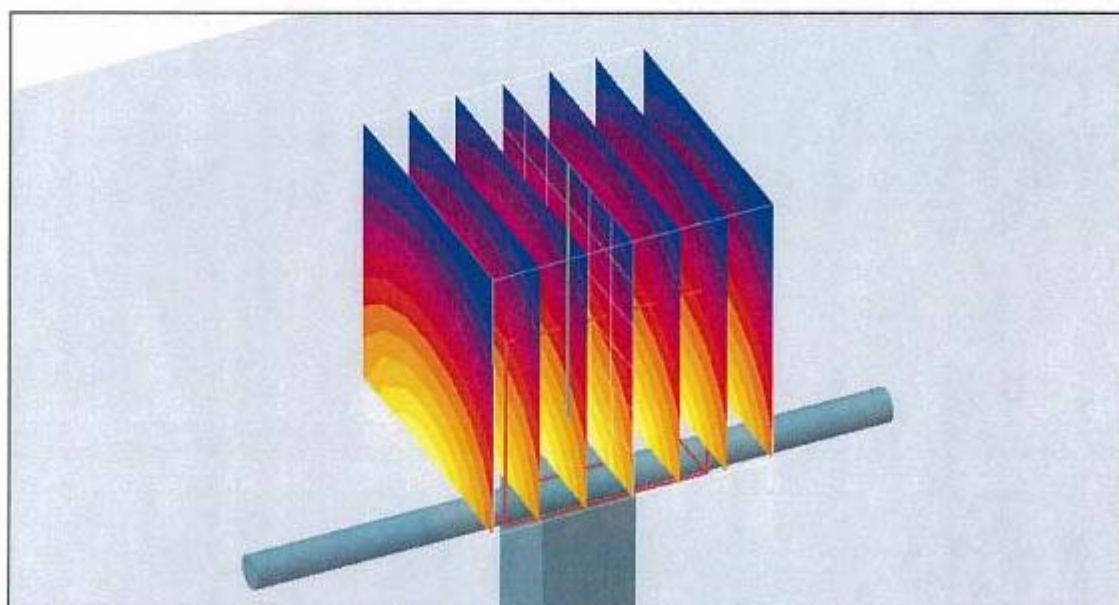
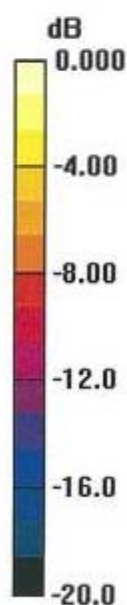
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 90.7 V/m; Power Drift = 0.033 dB

Peak SAR (extrapolated) = 16.2 W/kg

SAR(1 g) = 9.47 mW/g; SAR(10 g) = 4.98 mW/g

Maximum value of SAR (measured) = 10.6 mW/g



0 dB = 10.6mW/g