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SAR Compliance Test Report

Test report no.:	Bej_SAR_0826_05	**Date of report:**	2008-06-23
Template version:	9.0	**Number of pages:**	37
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Tested device:	RM-365		
FCC ID:	QTKRM-365	**IC:**	661AD-RM365
Supplement reports:	Cph_SAR_0819_04; Bej_SAR_0825_07 for RM-364 / FCC ID: QTKRM-364 / IC ID: 661AD-RM364		

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:

Liang Dong

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Date: 2008.06.24 10:47:34 +08'00'

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1. SUMMARY OF SAR TEST REPORT

1.1 Test Details

Period of test	2008-06-19 to 2008-06-20
SN, HW and SW numbers of tested device	SN: 004401/01/701399/2, HW: 0300, SW: V 07.16, DUT: 50894 SN: 004401/01/933597/1, HW: 0402, SW: V 07.16, DUT: 50893
Batteries used in testing	BL-4U, DUT: 50895, 50888
Headsets used in testing	HS-47, DUT: 50487
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
3-slot GPRS1900	810 / 1909.8	26.9 dBm EIRP	Left, Tilt	0.787 W/kg	**0.88 W/kg**	1.6 W/kg	PASSED

1.2.2 Body Worn Configuration

Mode	Ch / *f* (MHz)	Radiated power	Separation distance	Measured SAR value (1g avg)	Scaled* SAR value (1g avg)	SAR limit (1g avg)	Result
3-slot GPRS1900	512 / 1850.2	26.9 dBm EIRP	1.5cm	0.511 W/kg	**0.57 W/kg**	1.6 W/kg	PASSED

*SAR values are scaled up by 12% to cover measurement drift.
**SAR values taken from Bej_SAR_0825_07 for RM-364 / FCC ID: QTKRM-364 / IC ID: 661AD-RM364.

1.2.3 Maximum Drift

Maximum drift covered by 12% scaling up of the SAR values	Maximum drift during measurements
0.5dB	0.31dB

1.2.4 Measurement Uncertainty

Expanded Uncertainty (k=2) 95%	± 25.8%

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, GSM/GPRS/EGPRS1800, WCDMA900 and WCDMA2100 bands which are not part of this filing.

2.1 Picture of the Device

2.2 Description of the Antenna

The device has an internal antenna.

3. TEST CONDITIONS

3.1 Temperature and Humidity

Ambient temperature (°C):	19.9 to 20.9
Ambient humidity (RH %):	50 to 65

3.2 Test Signal, Frequencies and Output Power

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

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

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

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

The SAR results, SAR plots and test details given in this report are duplicated from the earlier test report Bej_SAR_0825_07 for RM-364 / FCC ID: QTKRM-364 / IC ID: 661AD-RM364. The difference between RM-364 and RM-365 is that RM-365 has had WCDMA850 components replaced by WCDMA900 components.

4. DESCRIPTION OF THE TEST EQUIPMENT

4.1 Measurement System and Components

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

The following table lists calibration dates of SPEAG components:

Test Equipment	Serial Number	Calibration interval	Calibration expiry
DAE 3	480	12 months	2008-09
E-field Probe ET3DV6	1652	12 months	2008-09
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
BT Tester	CBT	100469	-	-
Dielectric Probe Kit	85070C	01033717	-	-
Power Meter	Aligent 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 µW/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 ± 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):

1900MHz band

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

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]	
	Reference result	9.47	39.3	1.46	
	± 10% window	8.52 – 10.42			
1900	2008-06-19	10.1	38.1	1.40	20.0

System checking, body tissue simulant

f [MHz]	Description	SAR [W/kg], 1g	Dielectric Parameters		Temp [°C]
			ε_r	σ [S/m]	
	Reference result	9.50	54.2	1.52	
	± 10% window	8.55 – 10.45			
1900	2008-06-20	9.97	52.1	1.54	20.6

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]	
	Recommended value	40.0	1.40	
	± 5% window	38.0 – 42.0	1.33 – 1.47	
1880	2008-06-19	38.1	1.39	20.0

Body tissue simulant measurements

f [MHz]	Description	Dielectric Parameters		Temp [°C]
		ε_r	σ [S/m]	
	Recommended value	53.3	1.52	
	± 5% window	50.6 – 56.0	1.44 – 1.60	
1880	2008-06-20	52.2	1.52	20.6

5. DESCRIPTION OF THE TEST PROCEDURE

5.1 Device Holder

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

Device holder supplied by SPEAG

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

Nokia spacer

5.2 Test Positions

5.2.1 Against Phantom Head

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

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

Photo of the device in “tilt” position

5.2.2 Body Worn Configuration

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

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

5.3 Scan Procedures

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

5.4 SAR Averaging Methods

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

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

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

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

6. MEASUREMENT UNCERTAINTY

Table 6.1 – Measurement uncertainty evaluation

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

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**		**32.0 dBm**	**29.2 dBm**	**30.8 dBm**
HW0300	Left	Cheek	-	-	-
		Tilt	-	0.676	-
	Right	Cheek	-	-	-
		Tilt	-	-	-
2-slot GPRS	**Power**		**28.7 dBm**	**26.2 dBm**	**28.2 dBm**
HW0300	Left	Cheek	-	-	-
		Tilt	-	0.728	-
	Right	Cheek	-	-	-
		Tilt	-	-	-
3-slot GPRS	**Power**		**27.2 dBm**	**24.8 dBm**	**26.9 dBm**
HW0300	Left	Cheek	-	-	-
		Tilt	0.629	0.773	**0.787**
	Right	Cheek	-	-	-
		Tilt	-	-	-
3-slot GPRS	Left Tilt, BT active		-	-	0.782

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**		**31.0 dBm**	**31.8 dBm**	**30.1 dBm**
HW0402	Left	Cheek	-	-	-
		Tilt	-	0.646	-
	Right	Cheek	-	-	-
		Tilt	-	-	-
2-slot GPRS	**Power**		**27.9 dBm**	**28.8 dBm**	**26.6 dBm**
HW0402	Left	Cheek	-	-	-
		Tilt	-	0.612	-
	Right	Cheek	-	-	-
		Tilt	-	-	-
3-slot GPRS	**Power**		**26.9 dBm**	**27.7 dBm**	**25.6 dBm**
HW0402	Left	Cheek	-	-	-
		Tilt	0.693	**0.725**	0.625
	Right	Cheek	-	-	-
		Tilt	-	-	-
3-slot GPRS	Left Tilt, BT active		-	0.716	-

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

1900MHz Body SAR results

Option used	Test configuration	SAR, averaged over 1g (W/kg)		
		Ch 512 1850.2 MHz	Ch 661 1880.0 MHz	Ch 810 1909.8 MHz
3-slot GPRS	**Power**	**27.2 dBm**	**24.8 dBm**	**26.9 dBm**
HW0300	Without headset	0.462	**0.481**	0.436
	Headset HS-47	0.353	0.361	0.354
3-slot GPRS	Without headset, BT active	-	**0.484**	-

Option used	Test configuration	SAR, averaged over 1g (W/kg)		
		Ch 512 1850.2 MHz	Ch 661 1880.0 MHz	Ch 810 1909.8 MHz
3-slot GPRS	**Power**	**26.9 dBm**	**27.7 dBm**	**25.6 dBm**
HW0402	Without headset	**0.511**	0.464	0.401
	Headset HS-47	0.388	0.365	0.331
3-slot GPRS	Without headset, BT active	0.507	-	-

Plots of the Measurement scans are given in Appendix B.

APPENDIX A: SYSTEM CHECKING SCANS

Date/Time: 2008-06-19 9:59:21 AM

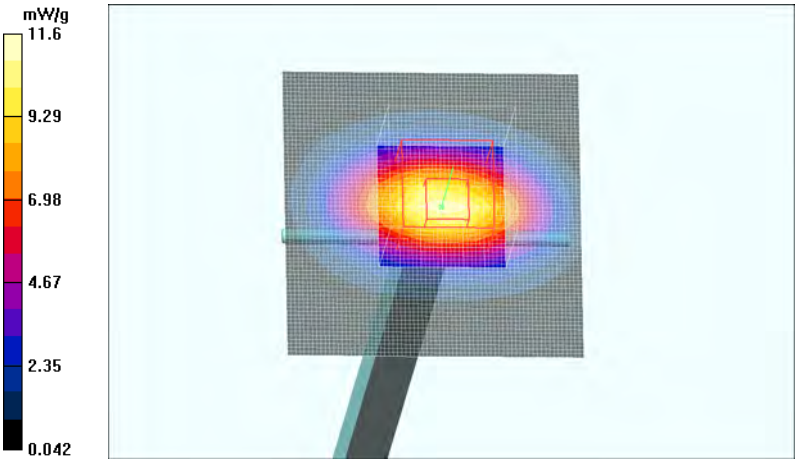
Test Laboratory: TCC Nokia
Type: D1900V2; Serial: SN:547

Communication System: CW1900
Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: Head 1900; Medium Notes: Medium Temperature: t=20.0 C
Medium parameters used: f = 1900 MHz; σ = 1.4 mho/m; ε_r = 38.1; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1652; Probe Notes:
- ConvF(4.94, 4.94, 4.94); Calibrated: 2007-09-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn480; Calibrated: 2007-09-13
- Phantom: SAM2; Type: SAM; Serial: TP-1099
- 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) = 11.6 mW/g

d=10mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 93.7 V/m
Peak SAR (extrapolated) = 17.9 W/kg
SAR(1 g) = 10.1 mW/g
SAR(10 g) = 5.24 mW/g
Power Drift = 0.004 dB
Maximum value of SAR (measured) = 11.4 mW/g



Date/Time: 2008-06-20 9:22:37 AM

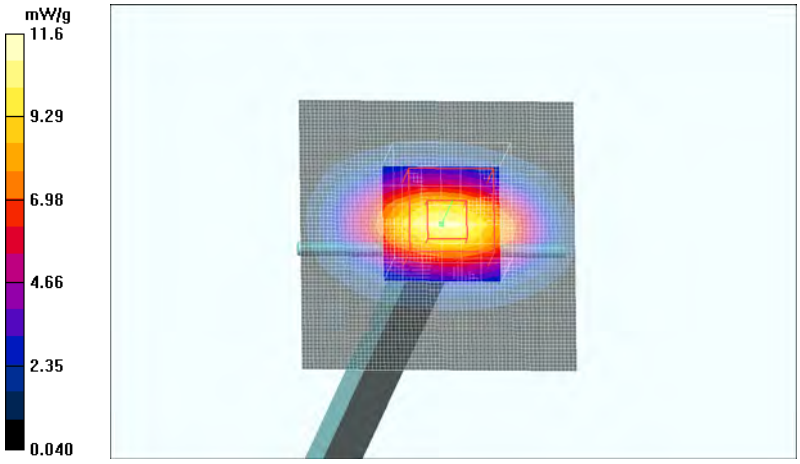
Test Laboratory: TCC Nokia
Type: D1900V2; Serial: SN:547

Communication System: CW1900
Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: Body 1900; Medium Notes: Medium Temperature: t=20.6 C
Medium parameters used: f = 1900 MHz; σ = 1.54 mho/m; ε_r = 52.1; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1652; Probe Notes:
- ConvF(4.46, 4.46, 4.46); Calibrated: 2007-09-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn480; Calibrated: 2007-09-13
- Phantom: SAM3; Type: SAM; Serial: TP-1427
- 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) = 11.6 mW/g

d=10mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 89.0 V/m
Peak SAR (extrapolated) = 17.2 W/kg
SAR(1 g) = 9.97 mW/g
SAR(10 g) = 5.26 mW/g
Power Drift = -0.041 dB
Maximum value of SAR (measured) = 11.3 mW/g



APPENDIX B: MEASUREMENT SCANS

Date/Time: 2008-06-19 2:03:47 PM

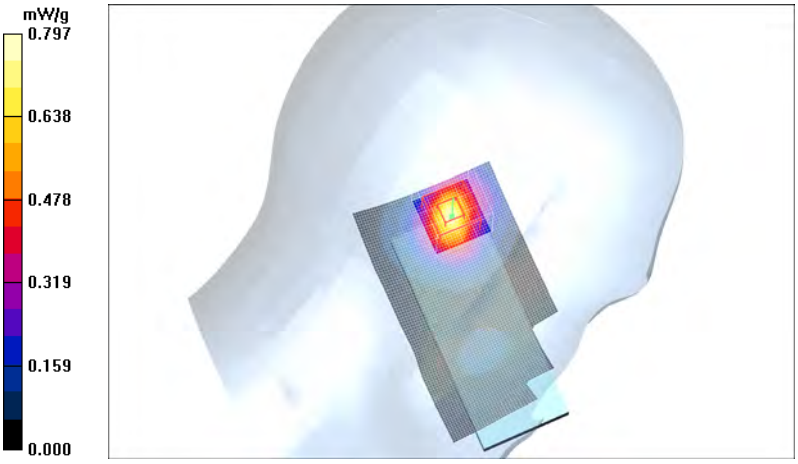
Test Laboratory: TCC Nokia
Type: RM-364; Serial: 004401/01/701399/2

Communication System: GSM 1900
Frequency: 1880 MHz; Duty Cycle: 1:8.3
Medium: Head 1900; Medium Notes: Medium Temperature: t=20.0 C
Medium parameters used: f = 1880 MHz; σ = 1.39 mho/m; ε_r = 38.1; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1652; Probe Notes:
- ConvF(4.94, 4.94, 4.94); Calibrated: 2007-09-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn480; Calibrated: 2007-09-13
- Phantom: SAM2; Type: SAM; Serial: TP-1099
- 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) = 0.797 mW/g

Tilt position - Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 22.1 V/m
Peak SAR (extrapolated) = 1.32 W/kg
SAR(1 g) = 0.676 mW/g
SAR(10 g) = 0.354 mW/g
Power Drift = -0.130 dB
Maximum value of SAR (measured) = 0.753 mW/g



Date/Time: 2008-06-19 12:09:45 PM

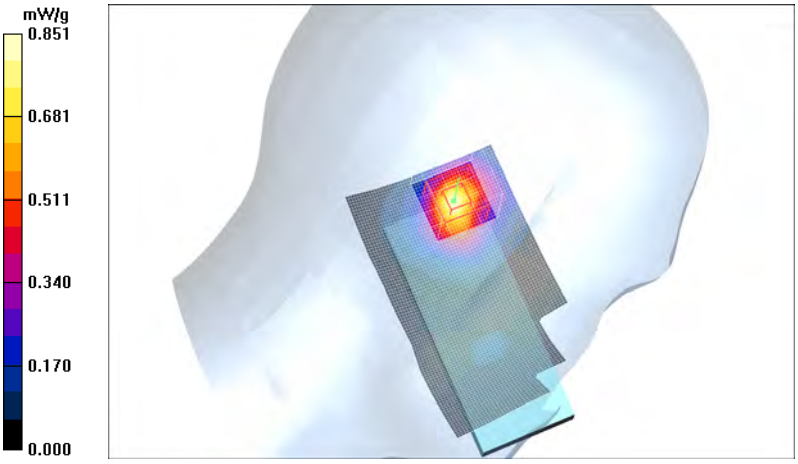
Test Laboratory: TCC Nokia
Type: RM-364; Serial: 004401/01/701399/2

Communication System: 2-slot GPRS1900
Frequency: 1880 MHz; Duty Cycle: 1:4.2
Medium: Head 1900; Medium Notes: Medium Temperature: t=20.0 C
Medium parameters used: f = 1880 MHz; σ = 1.39 mho/m; ε_r = 38.1; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1652; Probe Notes:
- ConvF(4.94, 4.94, 4.94); Calibrated: 2007-09-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn480; Calibrated: 2007-09-13
- Phantom: SAM2; Type: SAM; Serial: TP-1099
- 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) = 0.851 mW/g

Tilt position - Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 21.0 V/m
Peak SAR (extrapolated) = 1.52 W/kg
SAR(1 g) = 0.728 mW/g
SAR(10 g) = 0.365 mW/g
Power Drift = -0.122 dB
Maximum value of SAR (measured) = 0.850 mW/g



Date/Time: 2008-06-19 2:14:26 PM

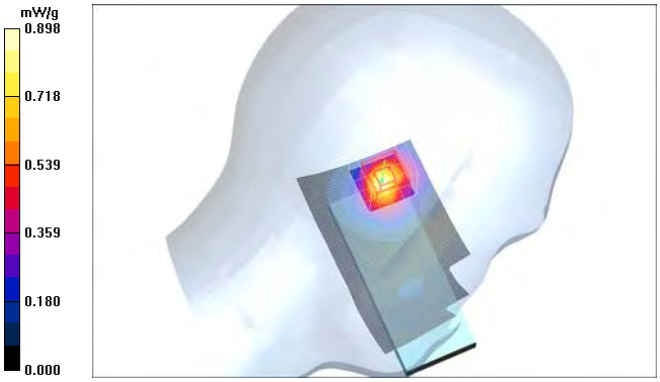
Test Laboratory: TCC Nokia
Type: RM-364; Serial: 004401/01/701399/2

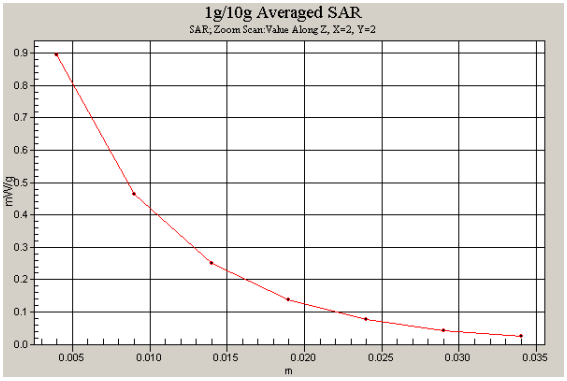
Communication System: 3-slot GPRS1900
Frequency: 1909.8 MHz; Duty Cycle: 1:2.8
Medium: Head 1900; Medium Notes: Medium Temperature: t=20.0 C
Medium parameters used: f = 1910 MHz; σ = 1.41 mho/m; ε_r = 38; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1652; Probe Notes:
- ConvF(4.94, 4.94, 4.94); Calibrated: 2007-09-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn480; Calibrated: 2007-09-13
- Phantom: SAM2; Type: SAM; Serial: TP-1099
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 160

Tilt position - High/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.898 mW/g

Tilt position - High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 20.8 V/m
Peak SAR (extrapolated) = 1.66 W/kg
SAR(1 g) = 0.787 mW/g
SAR(10 g) = 0.395 mW/g
Power Drift = 0.036 dB
Maximum value of SAR (measured) = 0.896 mW/g





Date/Time: 2008-06-19 2:37:20 PM

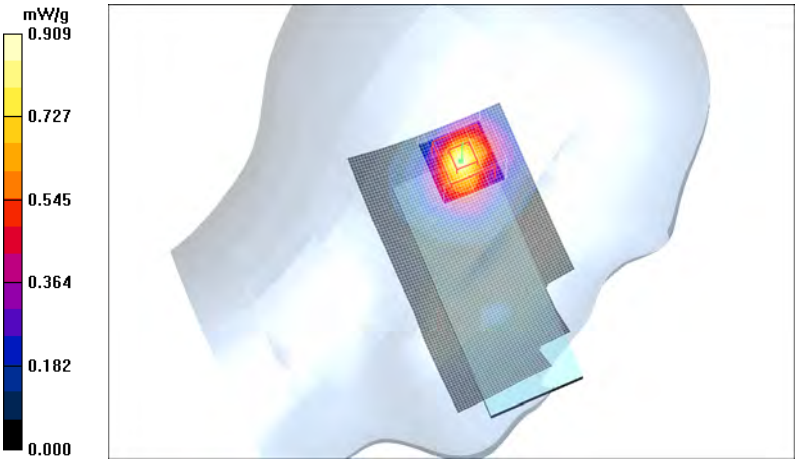
Test Laboratory: TCC Nokia
Type: RM-364; Serial: 004401/01/701399/2

Communication System: 3-slot GPRS1900
Frequency: 1909.8 MHz; Duty Cycle: 1:2.8
Medium: Head 1900; Medium Notes: Medium Temperature: t=20.0 C
Medium parameters used: f = 1910 MHz; σ = 1.41 mho/m; ε_r = 38; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1652; Probe Notes:
- ConvF(4.94, 4.94, 4.94); Calibrated: 2007-09-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn480; Calibrated: 2007-09-13
- Phantom: SAM2; Type: SAM; Serial: TP-1099
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 160

Tilt position - High - BT active/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.909 mW/g

Tilt position - High - BT active/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 21.2 V/m
Peak SAR (extrapolated) = 1.65 W/kg
SAR(1 g) = 0.782 mW/g
SAR(10 g) = 0.394 mW/g
Power Drift = -0.040 dB
Maximum value of SAR (measured) = 0.898 mW/g



Date/Time: 2008-06-19 10:16:54 AM

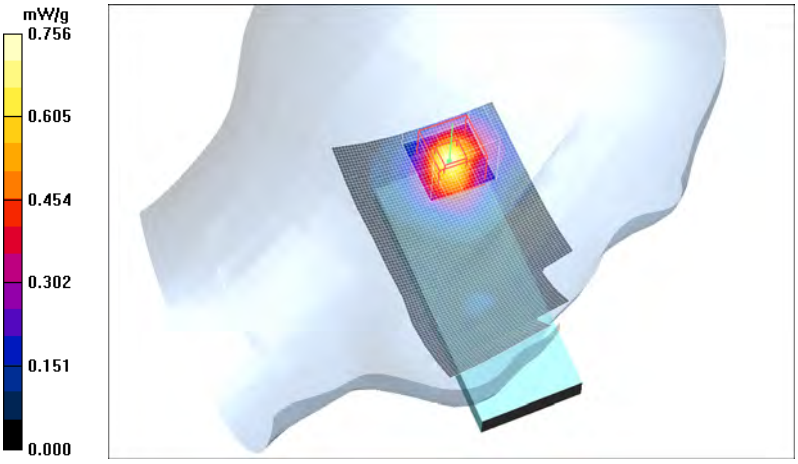
Test Laboratory: TCC Nokia
Type: RM-364; Serial: 004401/01/933597/1

Communication System: GSM 1900
Frequency: 1880 MHz; Duty Cycle: 1:8.3
Medium: Head 1900; Medium Notes: Medium Temperature: t=20.0 C
Medium parameters used: f = 1880 MHz; σ = 1.39 mho/m; ε_r = 38.1; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1652; Probe Notes:
- ConvF(4.94, 4.94, 4.94); Calibrated: 2007-09-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn480; Calibrated: 2007-09-13
- Phantom: SAM2; Type: SAM; Serial: TP-1099
- 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) = 0.756 mW/g

Tilt position - Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 20.0 V/m
Peak SAR (extrapolated) = 1.35 W/kg
SAR(1 g) = 0.646 mW/g
SAR(10 g) = 0.323 mW/g
Power Drift = -0.045 dB
Maximum value of SAR (measured) = 0.742 mW/g



Date/Time: 2008-06-19 10:29:44 AM

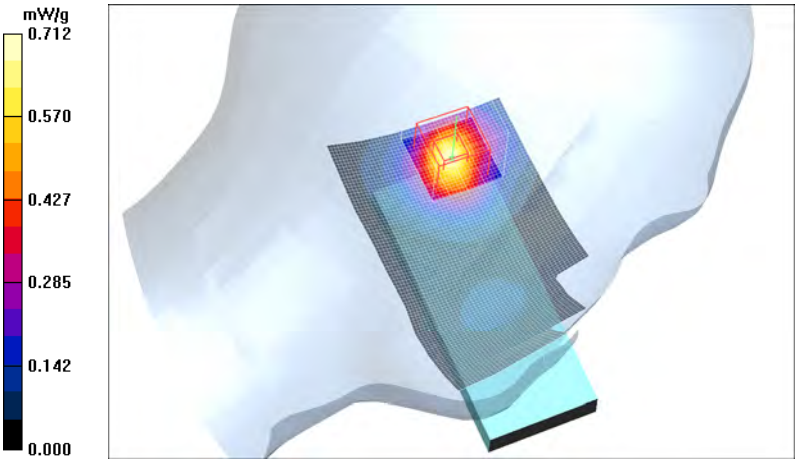
Test Laboratory: TCC Nokia
Type: RM-364; Serial: 004401/01/933597/1

Communication System: 2-slot GPRS1900
Frequency: 1880 MHz; Duty Cycle: 1:4.2
Medium: Head 1900; Medium Notes: Medium Temperature: t=20.0 C
Medium parameters used: f = 1880 MHz; σ = 1.39 mho/m; ε_r = 38.1; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1652; Probe Notes:
- ConvF(4.94, 4.94, 4.94); Calibrated: 2007-09-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn480; Calibrated: 2007-09-13
- Phantom: SAM2; Type: SAM; Serial: TP-1099
- 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) = 0.712 mW/g

Tilt position - Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 20.9 V/m
Peak SAR (extrapolated) = 1.19 W/kg
SAR(1 g) = 0.612 mW/g
SAR(10 g) = 0.321 mW/g
Power Drift = -0.159 dB
Maximum value of SAR (measured) = 0.683 mW/g



Date/Time: 2008-06-19 10:59:07 AM

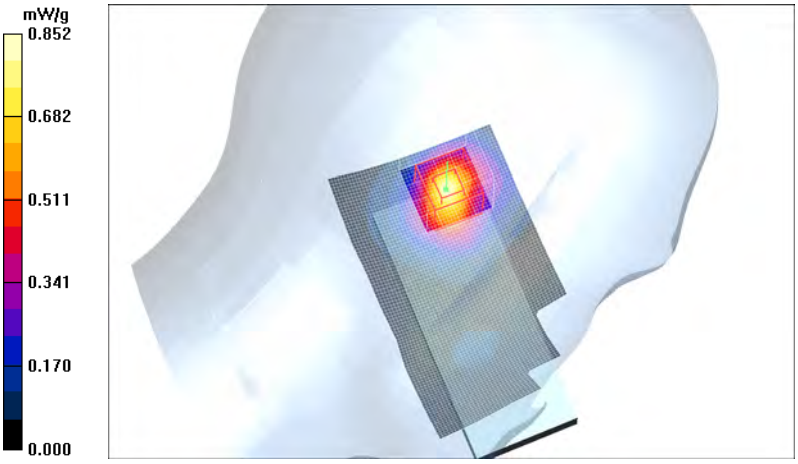
Test Laboratory: TCC Nokia
Type: RM-364; Serial: 004401/01/933597/1

Communication System: 3-slot GPRS1900
Frequency: 1880 MHz; Duty Cycle: 1:2.8
Medium: Head 1900; Medium Notes: Medium Temperature: t=20.0 C
Medium parameters used: f = 1880 MHz; σ = 1.39 mho/m; ε_r = 38.1; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1652; Probe Notes:
- ConvF(4.94, 4.94, 4.94); Calibrated: 2007-09-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn480; Calibrated: 2007-09-13
- Phantom: SAM2; Type: SAM; Serial: TP-1099
- 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) = 0.852 mW/g

Tilt position - Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 21.8 V/m
Peak SAR (extrapolated) = 1.49 W/kg
SAR(1 g) = 0.725 mW/g
SAR(10 g) = 0.366 mW/g
Power Drift = -0.180 dB
Maximum value of SAR (measured) = 0.846 mW/g



Date/Time: 2008-06-19 11:38:52 AM

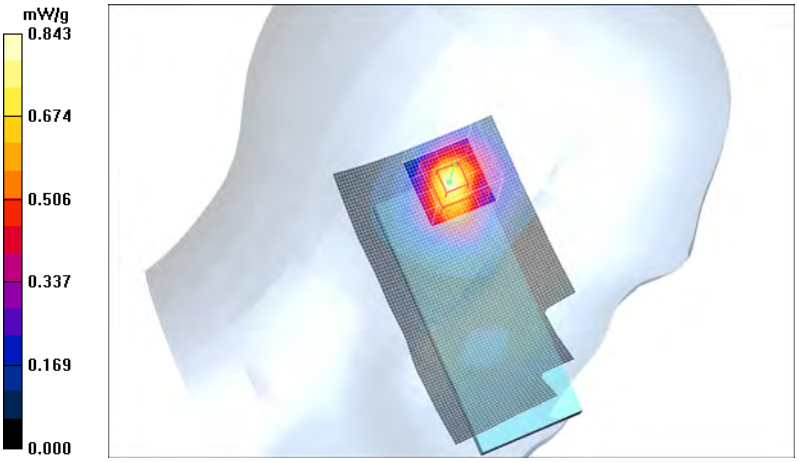
Test Laboratory: TCC Nokia
Type: RM-364; Serial: 004401/01/933597/1

Communication System: 3-slot GPRS1900
Frequency: 1880 MHz; Duty Cycle: 1:2.8
Medium: Head 1900; Medium Notes: Medium Temperature: t=20.0 C
Medium parameters used: f = 1880 MHz; σ = 1.39 mho/m; ε_r = 38.1; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1652; Probe Notes:
- ConvF(4.94, 4.94, 4.94); Calibrated: 2007-09-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn480; Calibrated: 2007-09-13
- Phantom: SAM2; Type: SAM; Serial: TP-1099
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 160

Tilt position - Middle - BT active/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.843 mW/g

Tilt position - Middle - BT active/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 21.8 V/m
Peak SAR (extrapolated) = 1.48 W/kg
SAR(1 g) = 0.716 mW/g
SAR(10 g) = 0.361 mW/g
Power Drift = -0.119 dB
Maximum value of SAR (measured) = 0.841 mW/g



Date/Time: 2008-06-20 10:23:55 AM

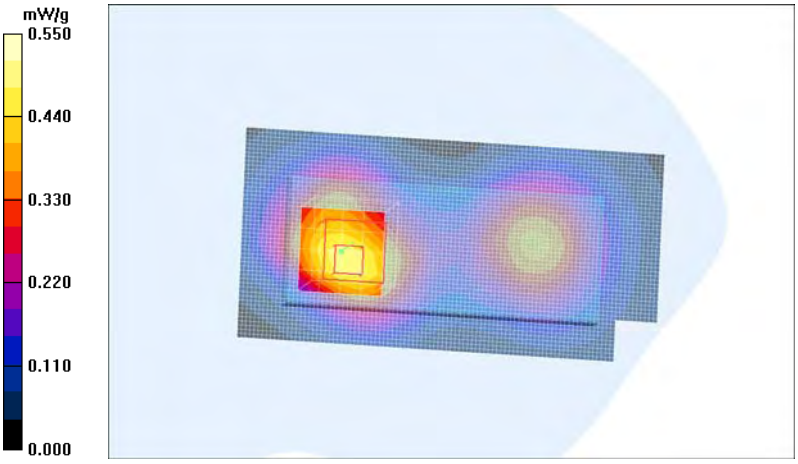
Test Laboratory: TCC Nokia
Type: RM-364; Serial: 004401/01/701399/2

Communication System: 3-slot GPRS1900
Frequency: 1880 MHz; Duty Cycle: 1:2.8
Medium: Body 1900; Medium Notes: Medium Temperature: t=20.6 C
Medium parameters used: f = 1880 MHz; σ = 1.52 mho/m; ε_r = 52.2; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1652; Probe Notes:
- ConvF(4.46, 4.46, 4.46); Calibrated: 2007-09-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn480; Calibrated: 2007-09-13
- Phantom: SAM3; Type: SAM; Serial: TP-1427
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 160

Body - Middle - No Accessory/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.550 mW/g

Body - Middle - No Accessory/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 17.5 V/m
Peak SAR (extrapolated) = 0.789 W/kg
SAR(1 g) = 0.481 mW/g
SAR(10 g) = 0.292 mW/g
Power Drift = -0.019 dB
Maximum value of SAR (measured) = 0.504 mW/g



Date/Time: 2008-06-20 10:39:24 AM

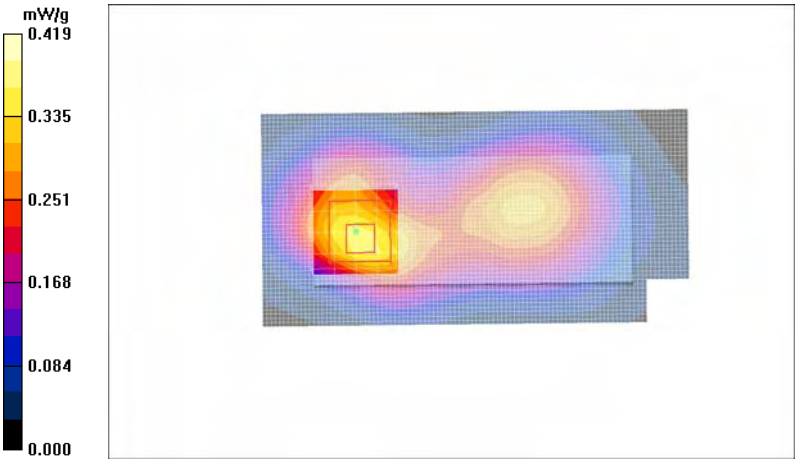
Test Laboratory: TCC Nokia
Type: RM-364; Serial: 004401/01/701399/2

Communication System: 3-slot GPRS1900
Frequency: 1880 MHz; Duty Cycle: 1:2.8
Medium: Body 1900; Medium Notes: Medium Temperature: t=20.6 C
Medium parameters used: f = 1880 MHz; σ = 1.52 mho/m; ε_r = 52.2; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1652; Probe Notes:
- ConvF(4.46, 4.46, 4.46); Calibrated: 2007-09-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn480; Calibrated: 2007-09-13
- Phantom: SAM3; Type: SAM; Serial: TP-1427
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 160

Body - Middle - HS-47/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.419 mW/g

Body - Middle - HS-47/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 15.9 V/m
Peak SAR (extrapolated) = 0.608 W/kg
SAR(1 g) = 0.361 mW/g
SAR(10 g) = 0.216 mW/g
Power Drift = -0.062 dB
Maximum value of SAR (measured) = 0.382 mW/g



Date/Time: 2008-06-20 11:35:34 AM

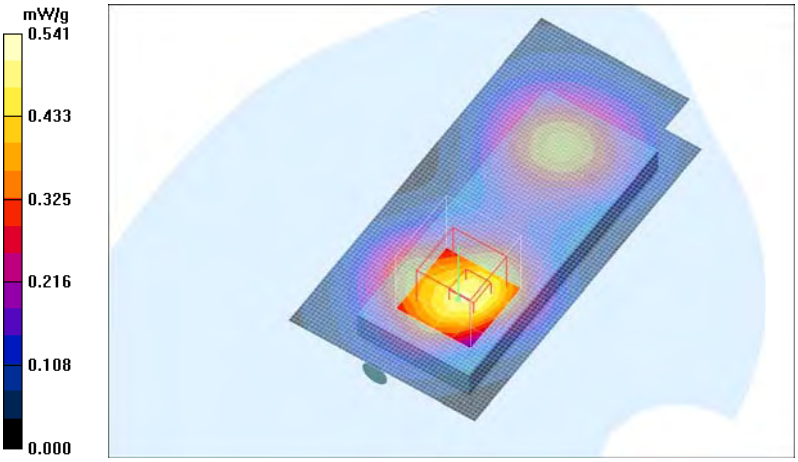
Test Laboratory: TCC Nokia
Type: RM-364; Serial: 004401/01/701399/2

Communication System: 3-slot GPRS1900
Frequency: 1880 MHz; Duty Cycle: 1:2.8
Medium: Body 1900; Medium Notes: Medium Temperature: t=20.6 C
Medium parameters used: f = 1880 MHz; σ = 1.52 mho/m; ε_r = 52.2; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1652; Probe Notes:
- ConvF(4.46, 4.46, 4.46); Calibrated: 2007-09-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn480; Calibrated: 2007-09-13
- Phantom: SAM3; Type: SAM; Serial: TP-1427
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 160

Body - Middle - No Accessory - BT active/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.541 mW/g

Body - Middle - No Accessory - BT active/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 16.6 V/m
Peak SAR (extrapolated) = 0.794 W/kg
SAR(1 g) = 0.484 mW/g
SAR(10 g) = 0.293 mW/g
Power Drift = -0.061 dB
Maximum value of SAR (measured) = 0.517 mW/g



Date/Time: 2008-06-20 1:03:37 PM

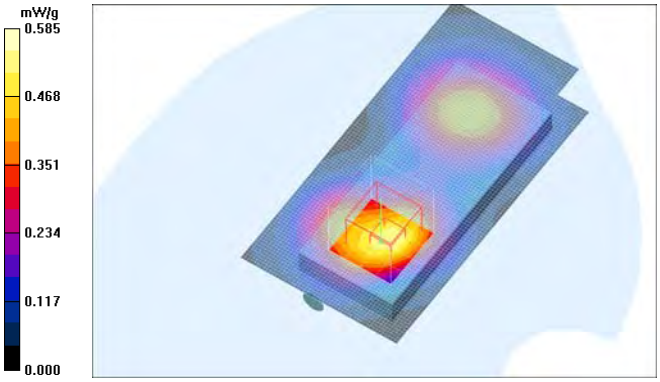
Test Laboratory: TCC Nokia
Type: RM-364; Serial: 004401/01/933597/1

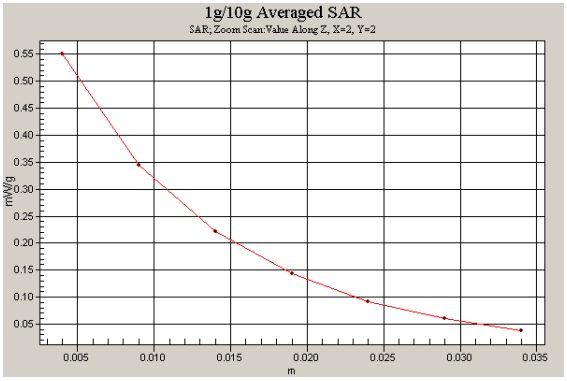
Communication System: 3-slot GPRS1900
Frequency: 1850.2 MHz; Duty Cycle: 1:2.8
Medium: Body 1900; Medium Notes: Medium Temperature: t=20.6 C
Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.49 mho/m; ε_r = 52.3; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1652; Probe Notes:
- ConvF(4.46, 4.46, 4.46); Calibrated: 2007-09-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn480; Calibrated: 2007-09-13
- Phantom: SAM3; Type: SAM; Serial: TP-1427
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 160

Body - Low - No Accessory/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.585 mW/g

Body - Low - No Accessory/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 17.6 V/m
Peak SAR (extrapolated) = 0.831 W/kg
SAR(1 g) = 0.511 mW/g
SAR(10 g) = 0.309 mW/g
Power Drift = -0.009 dB
Maximum value of SAR (measured) = 0.550 mW/g





Date/Time: 2008-06-20 1:14:11 PM

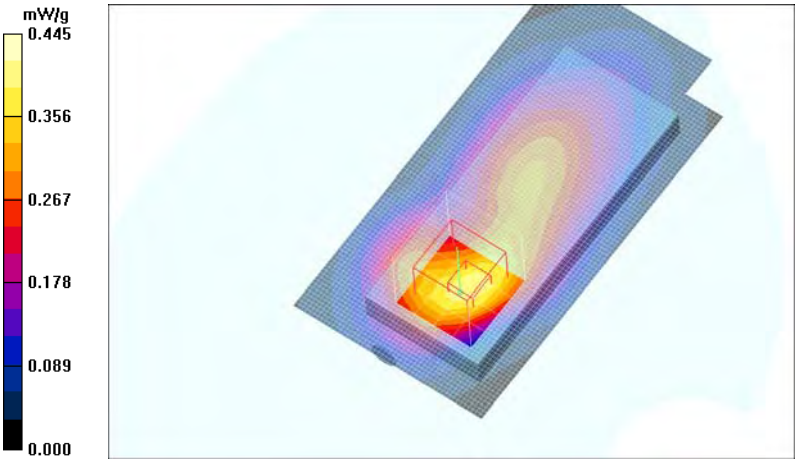
Test Laboratory: TCC Nokia
Type: RM-364; Serial: 004401/01/933597/1

Communication System: 3-slot GPRS1900
Frequency: 1850.2 MHz; Duty Cycle: 1:2.8
Medium: Body 1900; Medium Notes: Medium Temperature: t=20.6 C
Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.49 mho/m; ε_r = 52.3; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1652; Probe Notes:
- ConvF(4.46, 4.46, 4.46); Calibrated: 2007-09-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn480; Calibrated: 2007-09-13
- Phantom: SAM3; Type: SAM; Serial: TP-1427
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 160

Body - Low - HS-47/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.445 mW/g

Body - Low - HS-47/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 16.2 V/m
Peak SAR (extrapolated) = 0.657 W/kg
SAR(1 g) = 0.388 mW/g
SAR(10 g) = 0.231 mW/g
Power Drift = -0.033 dB
Maximum value of SAR (measured) = 0.417 mW/g



Date/Time: 2008-06-20 1:46:31 PM

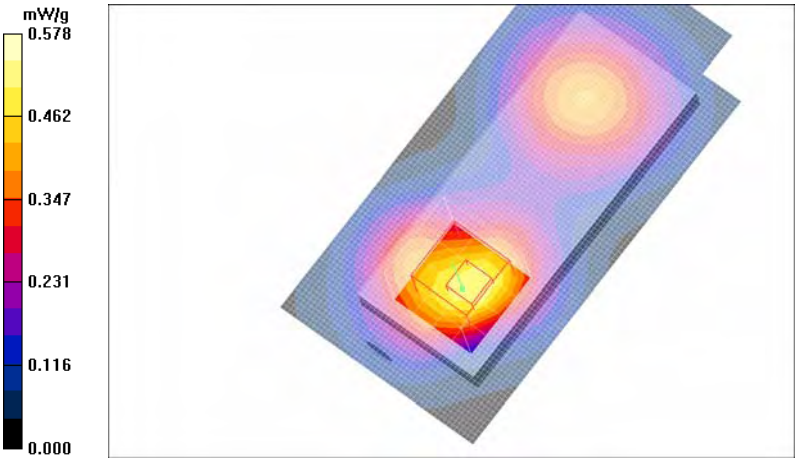
Test Laboratory: TCC Nokia
Type: RM-364; Serial: 004401/01/933597/1

Communication System: 3-slot GPRS1900
Frequency: 1850.2 MHz; Duty Cycle: 1:2.8
Medium: Body 1900; Medium Notes: Medium Temperature: t=20.6 C
Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.49 mho/m; ε_r = 52.3; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1652; Probe Notes:
- ConvF(4.46, 4.46, 4.46); Calibrated: 2007-09-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn480; Calibrated: 2007-09-13
- Phantom: SAM3; Type: SAM; Serial: TP-1427
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 160

Body - Low - No Accessory - BT active/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.578 mW/g

Body - Low - No Accessory - BT active/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 17.5 V/m
Peak SAR (extrapolated) = 0.829 W/kg
SAR(1 g) = 0.507 mW/g
SAR(10 g) = 0.306 mW/g
Power Drift = -0.044 dB
Maximum value of SAR (measured) = 0.546 mW/g



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

See the following pages.

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
Swiss Calibration Service

Accredited by the Swiss Federal Office of Metrology and Accreditation
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Accreditation No.: SCS 108

Client **Nokia Beijing TCC**

Certificate No: ET3-1652_Sep07

CALIBRATION CERTIFICATE

Object	ET3DV6 - SN:1652
Calibration procedure(s)	QA CAL-01.v6 and QA CAL-12.v5 Calibration procedure for dosimetric E-field probes
Calibration date:	September 19, 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 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	29-Mar-07 (METAS, No. 217-00670)	Mar-08
Power sensor E4412A	MY41495277	29-Mar-07 (METAS, No. 217-00670)	Mar-08
Power sensor E4412A	MY41498087	29-Mar-07 (METAS, No. 217-00670)	Mar-08
Reference 3 dB Attenuator	SN: S5054 (3c)	8-Aug-07 (METAS, No. 217-00719)	Aug-08
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-07 (METAS, No. 217-00671)	Mar-08
Reference 30 dB Attenuator	SN: S5129 (30b)	8-Aug-07 (METAS, No. 217-00720)	Aug-08
Reference Probe ES3DV2	SN: 3013	4-Jan-07 (SPEAG, No. ES3-3013_Jan07)	Jan-08
DAE4	SN: 654	20-Apr-07 (SPEAG, No. DAE4-654_Apr07)	Apr-08

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

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

Issued: September 19, 2007

DASY - Parameters of Probe: ET3DV6 SN:1652

Sensitivity in Free Space[A]

Diode Compression[B]

NormX	**1.96** ± 10.1%	$\mu V/(V/m)^2$	DCP X	**89** mV
NormY	**2.02** ± 10.1%	$\mu V/(V/m)^2$	DCP Y	**91** mV
NormZ	**1.99** ± 10.1%	$\mu V/(V/m)^2$	DCP Z	**90** 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	5.9	2.6
SAR_{be} [%]	With Correction Algorithm	0.1	0.1

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

Sensor Center to Phantom Surface Distance		**3.7 mm**	**4.7 mm**
SAR_{be} [%]	Without Correction Algorithm	11.9	7.7
SAR_{be} [%]	With Correction Algorithm	0.4	0.3

Sensor Offset

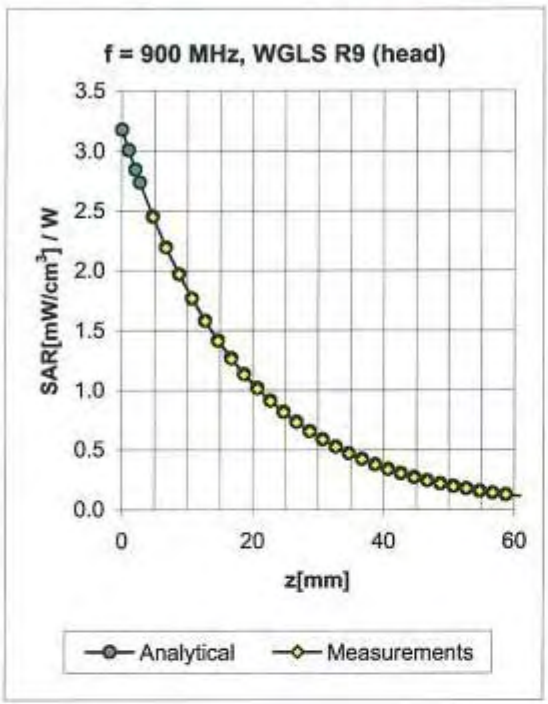
Probe Tip to Sensor Center	**2.7** mm

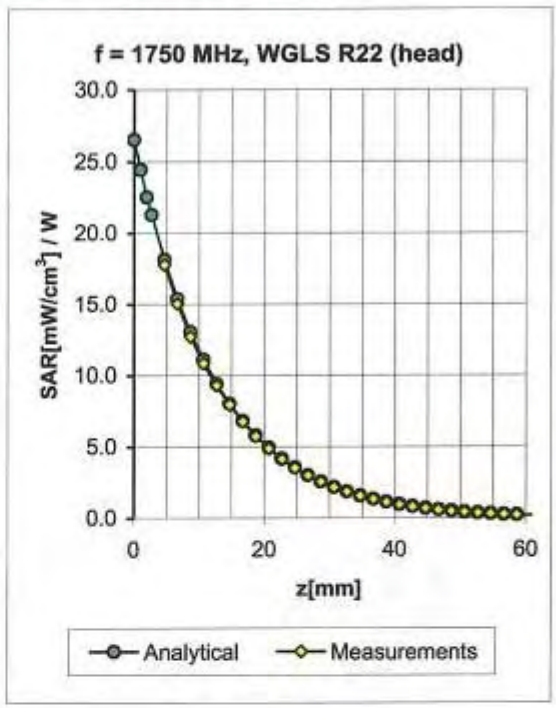
The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

[A] The uncertainties of NormX,Y,Z do not affect the E^2-field uncertainty inside TSL (see Page 8).

[B] Numerical linearization parameter: uncertainty not required.

Conversion Factor Assessment





f [MHz]	Validity [MHz][C]	TSL	Permittivity	Conductivity	Alpha	Depth	ConvF Uncertainty
450	± 50 / ± 100	Head	43.5 ± 5%	0.87 ± 5%	0.39	1.97	6.97 ± 13.3% (k=2)
835	± 50 / ± 100	Head	41.5 ± 5%	0.90 ± 5%	0.45	2.10	6.51 ± 11.0% (k=2)
900	± 50 / ± 100	Head	41.5 ± 5%	0.97 ± 5%	0.32	2.72	6.34 ± 11.0% (k=2)
1750	± 50 / ± 100	Head	40.1 ± 5%	1.37 ± 5%	0.63	2.10	5.07 ± 11.0% (k=2)
1900	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.79	2.00	4.94 ± 11.0% (k=2)
1950	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.72	2.06	4.80 ± 11.0% (k=2)
2450	± 50 / ± 100	Head	39.2 ± 5%	1.80 ± 5%	0.71	2.09	4.47 ± 11.8% (k=2)
450	± 50 / ± 100	Body	56.7 ± 5%	0.94 ± 5%	0.33	2.02	7.50 ± 13.3% (k=2)
835	± 50 / ± 100	Body	55.2 ± 5%	0.97 ± 5%	0.49	2.08	6.17 ± 11.0% (k=2)
900	± 50 / ± 100	Body	55.0 ± 5%	1.05 ± 5%	0.42	2.37	5.92 ± 11.0% (k=2)
1750	± 50 / ± 100	Body	53.4 ± 5%	1.49 ± 5%	0.69	2.33	4.69 ± 11.0% (k=2)
1900	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.85	2.08	4.46 ± 11.0% (k=2)
1950	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.81	2.22	4.30 ± 11.0% (k=2)
2450	± 50 / ± 100	Body	52.7 ± 5%	1.95 ± 5%	0.73	2.05	3.97 ± 11.8% (k=2)

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

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

See the following pages.

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

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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 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	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

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

Issued: September 21, 2007

Date/Time: 13.09.2007 16:37:47

Test Laboratory: SPEAG, Zurich, Switzerland

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

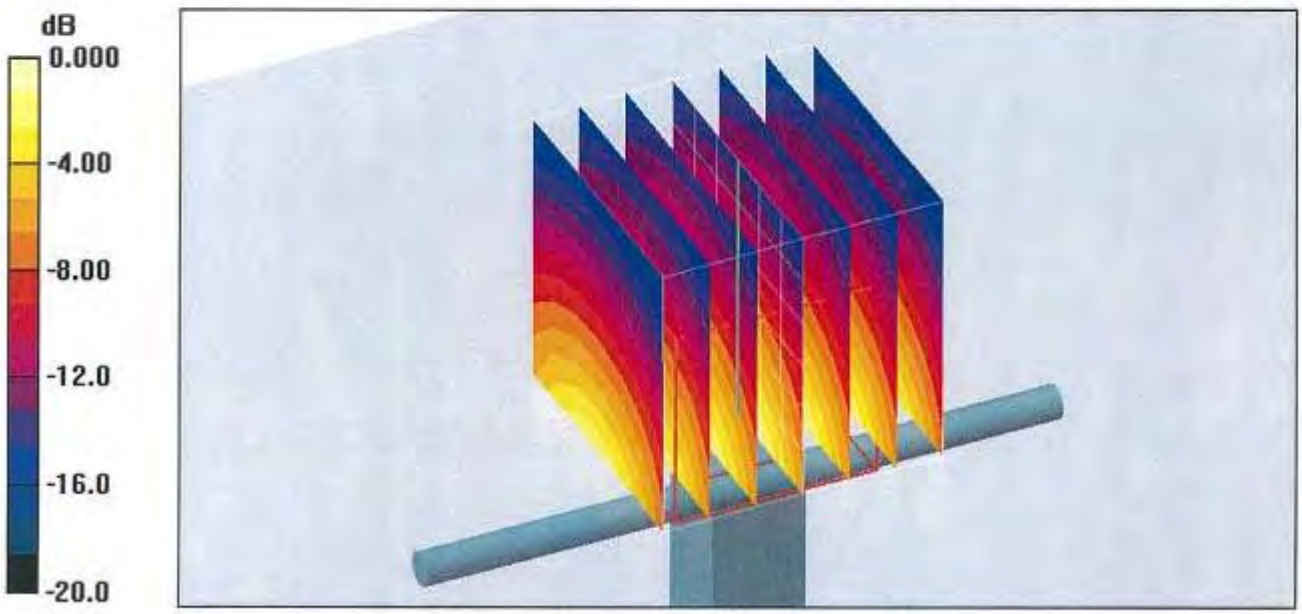
Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: HSL U10 BB;
Medium parameters used: f = 1900 MHz; σ = 1.46 mho/m; ε_r = 39.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

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

Date/Time: 18.09.2007 14:44:1

Test Laboratory: SPEAG, Zurich, Switzerland

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

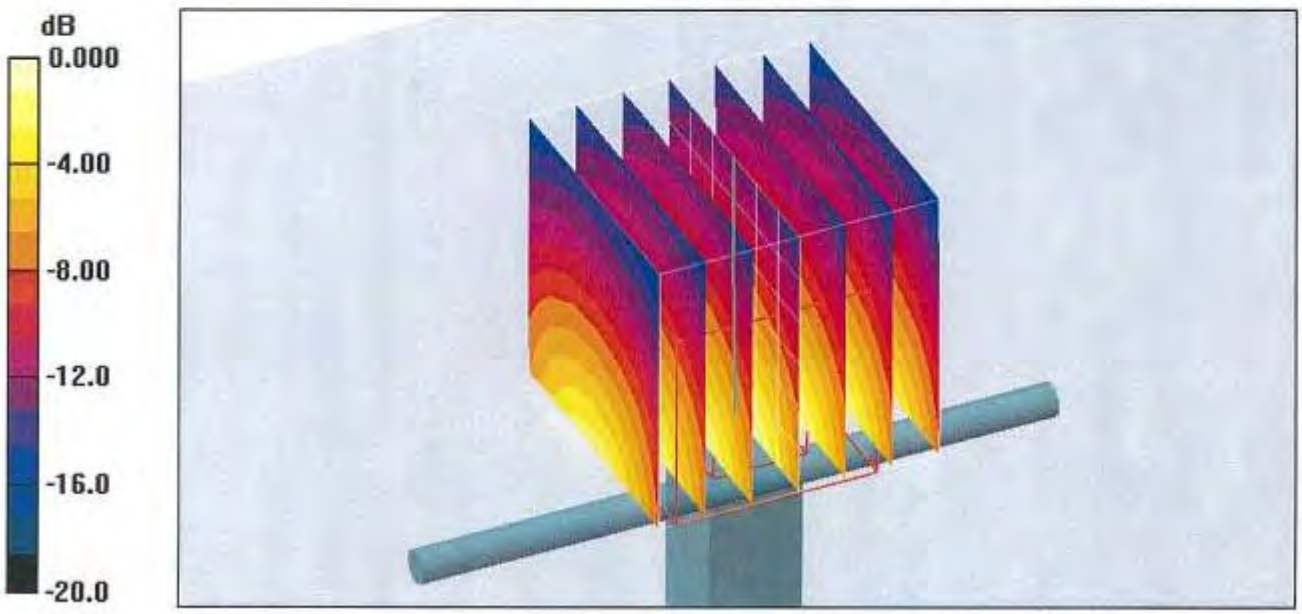
Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: MSL U10 BB;
Medium parameters used: f = 1900 MHz; σ = 1.52 mho/m; ε_r = 54.2; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1507 (HF); ConvF(4.43, 4.43, 4.43); 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 = 91.2 V/m; Power Drift = 0.003 dB
Peak SAR (extrapolated) = 15.7 W/kg
SAR(1 g) = 9.5 mW/g; SAR(10 g) = 5.1 mW/g
Maximum value of SAR (measured) = 10.8 mW/g



0 dB = 10.8mW/g