TCC
Nokia

FINAS
Finnish Accreditation Service
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SAR Compliance Test Report

Test report no.:	SD_SAR_0910_01	**Date of report:**	2009-03-06
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Measurements made by:	Julian Kim		
Tested device:	RM-515		
FCC ID:	QTLRM-515	**IC:**	661AB-RM515
Supplement reports:	SD_SAR_0910_02		

Testing has been carried out in accordance with:

47CFR §2.1093
Radiofrequency Radiation Exposure Evaluation: Portable Devices

FCC OET Bulletin 65 (Edition 97-01), Supplement C (Edition 01-01)
Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields

RSS-102
Evaluation Procedure for Mobile and Portable Radio Transmitters with Respect to Health Canada's Safety Code 6 for Exposure of Humans to Radio Frequency Fields

IEEE 1528 - 2003
IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Technique

Documentation: The documentation of the testing performed on the tested devices is archived for 15 years at TCC San Diego.

Test results: **The tested device complies with the requirements in respect of all parameters subject to the test.** The test results and statements relate only to the items tested. The test report shall not be reproduced except in full, without written approval of the laboratory.

Date and signatures:

For the contents:

Digitally signed by Julian Kim
DN: CN = Julian Kim, C = US, O = Nokia, OU = CertT
Date: 2009.03.09 11:42:11 -07'00'

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1. SUMMARY OF SAR TEST REPORT

1.1 Test Details

Period of test	2009-02-19 to 2009-03-03
SN, HW and SW numbers of tested device	SN: 001004/00/359272/3, HW: 0302, SW: lup07w41_09w03, DUT: 79999
Batteries used in testing	BL-5C, DUT: 79998, 79997
Headsets used in testing	HS-105, DUT: 79996
Other accessories used in testing	-
State of sample	Prototype unit
Notes	-

1.2 Maximum Results

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

1.2.1 Head Configuration

Mode	Ch / *f* (MHz)	Radiated power	Position	Measured SAR value (1g avg)	Scaled* SAR value (1g avg)	SAR limit (1g avg)	Result
GSM850	251 / 848.8	30.8 dBm ERP	Right, Cheek	1.20W/kg	**1.34W/kg**	1.6 W/kg	PASSED
GSM1900	810 / 1909.8	32.4 dBm EIRP	Right, Cheek	1.31W/kg	**1.47W/kg**	1.6 W/kg	PASSED

1.2.2 Body Worn Configuration

Mode	Ch / *f* (MHz)	Radiated power	Separation distance	Measured SAR value (1g avg)	Scaled* SAR value (1g avg)	SAR limit (1g avg)	Result
2-slot GPRS850	251 / 848.8	30.0 dBm ERP	2.2cm	0.828W/kg	**0.93W/kg**	1.6 W/kg	PASSED
2-slot GPRS1900	810 / 1909.8	29.6 dBm EIRP	2.2cm	0.347W/kg	**0.39W/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	0.13dB

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 2/8	824 – 849 1850 – 1910
EGPRS	850 1900	GMSK / 8PSK	1/8 to 2/8	824 – 849 1850 – 1910

8PSK EGPRS mode was not measured, because maximum averaged output power is lower in 8PSK EGPRS mode than in GPRS mode.

2.1 Description of the Antenna

The device has internal antennas. The main cellular antenna is located at the bottom of the device underneath the back surface.

3. TEST CONDITIONS

3.1 Temperature and Humidity

Ambient temperature (°C):	20.4 to 21.7
Ambient humidity (RH %):	35 to 59

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.

4. DESCRIPTION OF THE TEST EQUIPMENT

4.1 Measurement System and Components

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

The following table lists calibration dates of SPEAG components:

Test Equipment	Serial Number	Calibration interval	Calibration expiry
DAE 4	860	12 months	2009-06
DAE 4	858	12 months	2009-06
E-field Probe ET3DV6	1801	12 months	2009-04
E-field Probe ET3DV6	1516	12 months	2009-10
Dipole Validation Kit, D835V2	486	24 months	2010-10
Dipole Validation Kit, D1900V2	509	24 months	2010-06
DASY Software	Version 4.7	-	-

Additional test equipment used in testing:

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

4.1.1 Isotropic E-field Probe Type ET3DV6

Construction	Symmetrical design with triangular core Built-in optical fiber for surface detection system Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., butyl diglycol)
Calibration	Calibration certificate in Appendix C
Frequency	10 MHz to 3 GHz (dosimetry); Linearity: ± 0.2 dB (30 MHz to 3 GHz)
Optical Surface Detection	± 0.2 mm repeatability in air and clear liquids over diffuse reflecting surfaces
Directivity	± 0.2 dB in HSL (rotation around probe axis) ± 0.4 dB in HSL (rotation normal to probe axis)
Dynamic Range	5 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):

800MHz band

Ingredient	Head (% by weight)	Body (% by weight)
Deionised Water	51.50	69.25
Tween 20	47.35	30.00
Salt	1.15	0.75

1900MHz band

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

4.3.2 System Checking

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

System checking, head tissue simulant

f [MHz]	Description	SAR [W/kg], 1g	Dielectric Parameters		Temp [°C]
			ε_r	σ [S/m]	
	Reference result	2.39	40.5	0.90	
	± 10% window	2.15 - 2.63			
835	2009-02-23	2.25	41.4	0.91	21.7
	Reference result	9.96	39.1	1.48	
	± 10% window	8.96 – 10.96			
1900	2009-03-03	10.6	38.2	1.43	20.7

System checking, body tissue simulant

f [MHz]	Description	SAR [W/kg], 1g	Dielectric Parameters		Temp [°C]
			ε_r	σ [S/m]	
	Reference result	2.42	53.4	1.00	
	± 10% window	2.18 - 2.66			
835	2009-02-19	2.40	52.5	0.99	21.5
	Reference result	9.77	52.4	1.58	
	± 10% window	8.79 - 10.75			
1900	2009-02-26	9.64	52.3	1.55	20.4

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	41.5	0.90	
	± 5% window	39.4 – 43.6	0.86 – 0.95	
836	2009-02-23	41.4	0.91	21.7
	Recommended value	40.0	1.40	
	± 5% window	38.0 – 42.0	1.33 – 1.47	
1880	2009-03-03	38.4	1.41	20.7

Body tissue simulant measurements

f [MHz]	Description	Dielectric Parameters		Temp [°C]
		ε_r	σ [S/m]	
	Recommended value	55.2	0.97	
	± 5% window	52.4 – 58.0	0.92 – 1.02	
836	2009-02-19	52.5	0.99	21.5
	Recommended value	53.3	1.52	
	± 5% window	50.6 – 56.0	1.44 – 1.60	
1880	2009-02-26	52.5	1.54	20.4

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 the photo below 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	$c_i . u_i$ (%)	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	Power		29.7 dBm	30.3 dBm	30.8 dBm
	Left	Cheek	0.868	1.07	1.15
		Tilt	-	0.606	-
	Right	Cheek	0.916	1.15	**1.20**
		Tilt	-	0.583	-

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	Power		29.0 dBm	31.5 dBm	32.4 dBm
	Left	Cheek	0.853	1.07	1.12
		Tilt	-	0.452	-
	Right	Cheek	0.997	1.26	**1.31**
		Tilt	-	0.374	-

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

850MHz Body SAR results

Option used	Device orientation	Test configuration	SAR, averaged over 1g (W/kg)		
			Ch 128 824.2 MHz	Ch 190 836.6 MHz	Ch 251 848.8 MHz
GSM		**Power**	**29.7 dBm**	**30.3 dBm**	**30.8 dBm**
	Back facing phantom	Without headset	-	0.542	-
		Headset HS-105	-	0.430	-
	Display facing phantom	Without headset	-	0.443	-
		Headset HS-105	-	0.358	-
2-slot GPRS		**Power**	**29.0 dBm**	**29.9 dBm**	**30.0 dBm**
	Back facing phantom	Without headset	0.496	0.819	**0.828**
		Headset HS-105	-	0.670	-
	Display facing phantom	Without headset	-	0.729	-
		Headset HS-105	-	0.579	-

1900MHz Body SAR results

Option used	Device orientation	Test configuration	SAR, averaged over 1g (W/kg)		
			Ch 512 1850.2 MHz	Ch 661 1880.0 MHz	Ch 810 1909.8 MHz
GSM		**Power**	**29.0 dBm**	**31.5 dBm**	**32.4 dBm**
	Back facing phantom	Without headset	-	0.211	-
		Headset HS-105	-	0.205	-
	Display facing phantom	Without headset	-	0.189	-
		Headset HS-105	-	0.189	-
2-slot GPRS		**Power**	**27.6 dBm**	**30.2 dBm**	**29.6 dBm**
	Back facing phantom	Without headset	0.226	0.307	**0.347**
		Headset HS-105	-	0.305	-
	Display facing phantom	Without headset	-	0.276	-
		Headset HS-105	-	0.273	-

Plots of the Measurement scans are given in Appendix B.

APPENDIX A: SYSTEM CHECKING SCANS

Date/Time: 2009-02-23 10:19:15

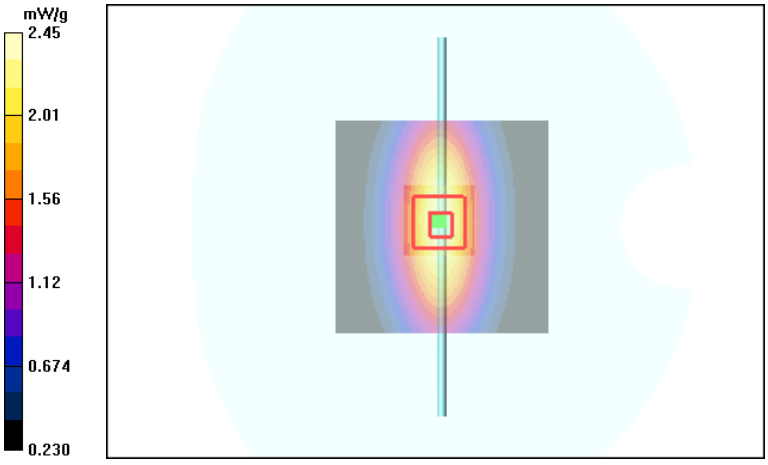
Test Laboratory: TCC Nokia
Type: D835V2; Serial: D835V2 - SN:486

Communication System: CW835
Frequency: 835 MHz; Duty Cycle: 1:1
Medium: HSL850; Medium Notes: Liquid temperature= 21.7 C
Medium parameters used: f = 835 MHz; σ = 0.91 mho/m; ε_r = 41.4; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(6.26, 6.26, 6.26); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-06-12
- Phantom: SAM1; Type: SAM; Serial: TP-1035
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

System Check/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.42 mW/g

System Check/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 55.9 V/m
Peak SAR (extrapolated) = 3.03 W/kg
SAR(1 g) = 2.25 mW/g
SAR(10 g) = 1.49 mW/g
Power Drift = 0.000 dB
Maximum value of SAR (measured) = 2.45 mW/g



Date/Time: 2009-03-03 10:46:57

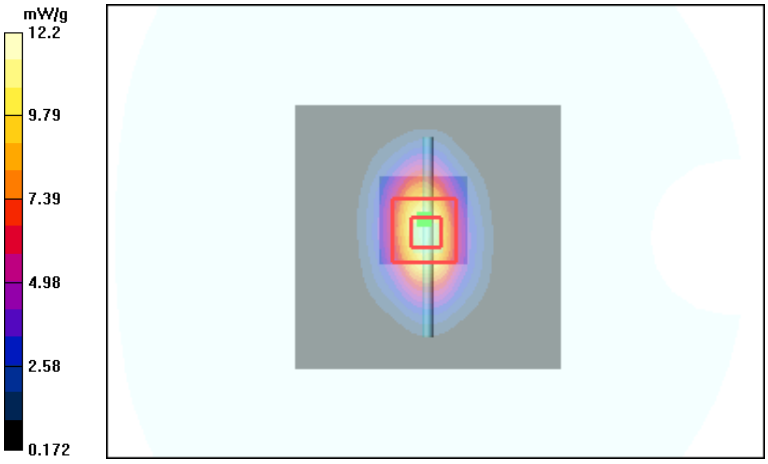
Test Laboratory: TCC Nokia
Type: D1900V2; Serial: D1900V2 - SN:509

Communication System: CW1900
Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: HSL1900; Medium Notes: Liquid temperature= 20.7 C
Medium parameters used: f = 1900 MHz; σ = 1.43 mho/m; ε_r = 38.2; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(5.1, 5.1, 5.1); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-06-12
- Phantom: SAM2; Type: Twin Phantom; Serial: TP-1279
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

System Check/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 12.9 mW/g

System Check/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 96.4 V/m
Peak SAR (extrapolated) = 19.3 W/kg
SAR(1 g) = 10.6 mW/g
SAR(10 g) = 5.55 mW/g
Power Drift = -0.005 dB
Maximum value of SAR (measured) = 12.2 mW/g



Date/Time: 2009-02-19 11:06:05

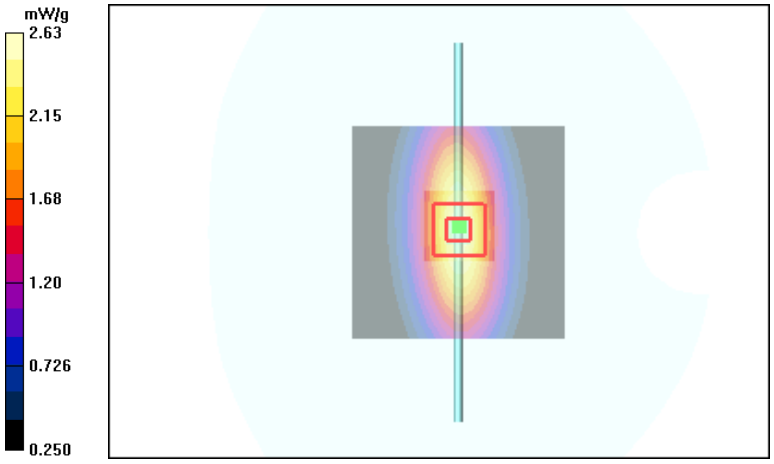
Test Laboratory: TCC Nokia
Type: D835V2; Serial: D835V2 - SN:486

Communication System: CW835
Frequency: 835 MHz; Duty Cycle: 1:1
Medium: MSL850; Medium Notes: Liquid temperature= 21.5 C
Medium parameters used: f = 835 MHz; σ = 0.991 mho/m; ε_r = 52.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(6.01, 6.01, 6.01); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-06-12
- Phantom: SAM2; Type: Twin Phantom; Serial: TP-1279
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

System Check/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.62 mW/g

System Check/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 54.6 V/m
Peak SAR (extrapolated) = 3.28 W/kg
SAR(1 g) = 2.4 mW/g
SAR(10 g) = 1.6 mW/g
Power Drift = -0.002 dB
Maximum value of SAR (measured) = 2.63 mW/g



Date/Time: 2009-02-26 9:33:49

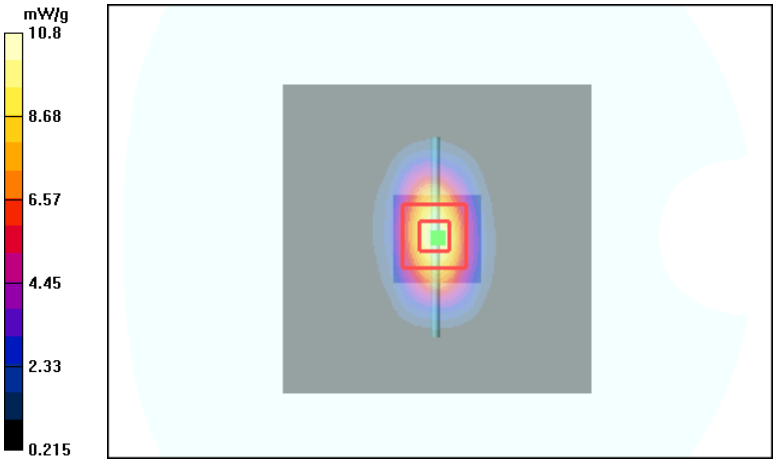
Test Laboratory: TCC Nokia
Type: D1900V2; Serial: D1900V2 - SN:509

Communication System: CW1900
Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: Body 1900MHz; Medium Notes: Temperature: 20.4 C
Medium parameters used: f = 1900 MHz; σ = 1.55 mho/m; ε_r = 52.3; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1801; Probe Notes:
- ConvF(4.99, 4.99, 4.99); Calibrated: 2008-04-16
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn858; Calibrated: 2008-06-12
- Phantom: SAM 3; Type: Twin Phantom; Serial: NMP03311
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 176

System Check/Area Scan (71x71x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 11.8 mW/g

System Check/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 90.1 V/m
Peak SAR (extrapolated) = 16.4 W/kg
SAR(1 g) = 9.64 mW/g
SAR(10 g) = 5.12 mW/g
Power Drift = -0.006 dB
Maximum value of SAR (measured) = 10.8 mW/g



APPENDIX B: MEASUREMENT SCANS

Date/Time: 2009-02-23 11:21:29

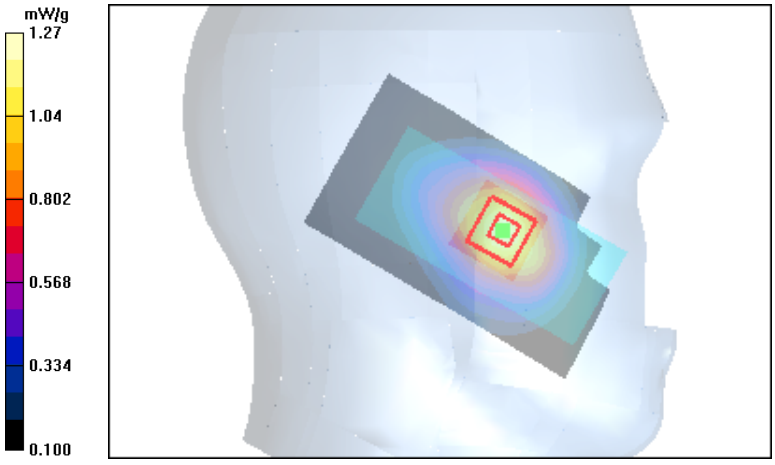
Test Laboratory: TCC Nokia
Type: RM-515; Serial: 001004/00/359272/3

Communication System: GSM850
Frequency: 848.8 MHz; Duty Cycle: 1:8.3
Medium: HSL850; Medium Notes: Liquid temperature= 21.7 C
Medium parameters used: f = 849 MHz; σ = 0.914 mho/m; ε_r = 41.3; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(6.26, 6.26, 6.26); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-06-12
- Phantom: SAM1; Type: SAM; Serial: TP-1035
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Cheek, High/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.24 mW/g

Cheek, High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.1 V/m
Peak SAR (extrapolated) = 1.44 W/kg
SAR(1 g) = 1.15 mW/g
SAR(10 g) = 0.793 mW/g
Power Drift = -0.067 dB
Maximum value of SAR (measured) = 1.27 mW/g



Date/Time: 2009-02-23 11:36:43

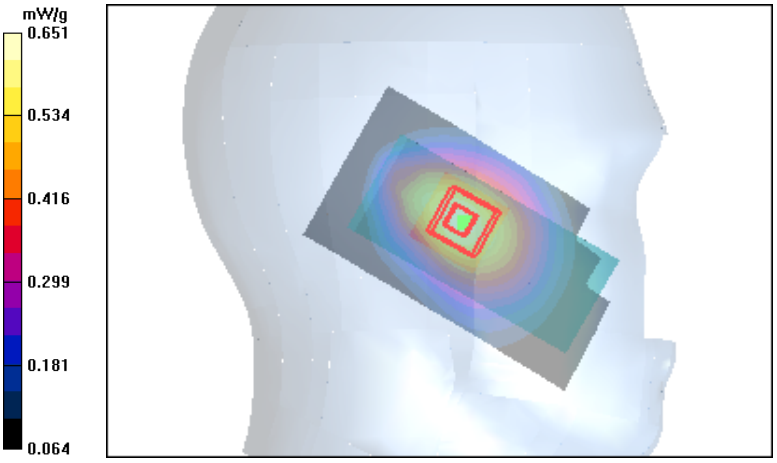
Test Laboratory: TCC Nokia
Type: RM-515; Serial: 001004/00/359272/3

Communication System: GSM850
Frequency: 836.6 MHz; Duty Cycle: 1:8.3
Medium: HSL850; Medium Notes: Liquid temperature= 21.7 C
Medium parameters used: f = 837 MHz; σ = 0.911 mho/m; ε_r = 41.4; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(6.26, 6.26, 6.26); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-06-12
- Phantom: SAM1; Type: SAM; Serial: TP-1035
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Tilt, Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.626 mW/g

Tilt, Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.9 V/m
Peak SAR (extrapolated) = 0.726 W/kg
SAR(1 g) = 0.606 mW/g
SAR(10 g) = 0.440 mW/g
Power Drift = -0.016 dB
Maximum value of SAR (measured) = 0.651 mW/g



Date/Time: 2009-02-23 15:36:58

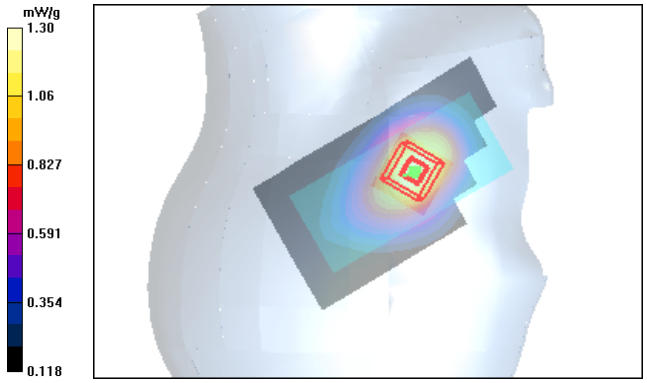
Test Laboratory: TCC Nokia
Type: RM-515; Serial: 001004/00/359272/3

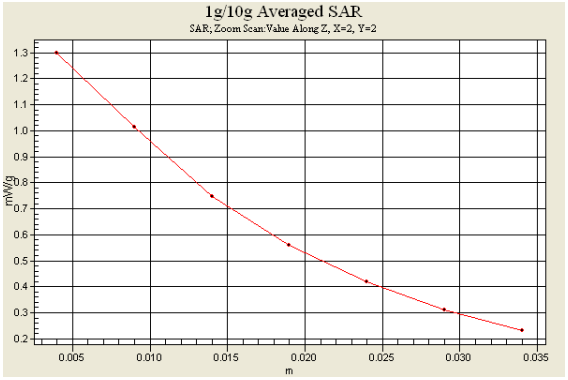
Communication System: GSM850
Frequency: 848.8 MHz; Duty Cycle: 1:8.3
Medium: HSL850; Medium Notes: Liquid temperature= 21.7 C
Medium parameters used: f = 849 MHz; σ = 0.914 mho/m; ε_r = 41.3; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(6.26, 6.26, 6.26); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-06-12
- Phantom: SAM1; Type: SAM; Serial: TP-1035
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Cheek position, High/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.32 mW/g

Cheek position, High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.2 V/m
Peak SAR (extrapolated) = 1.46 W/kg
SAR(1 g) = 1.2 mW/g
SAR(10 g) = 0.853 mW/g
Power Drift = 0.045 dB
Maximum value of SAR (measured) = 1.30 mW/g





Date/Time: 2009-02-23 15:52:28

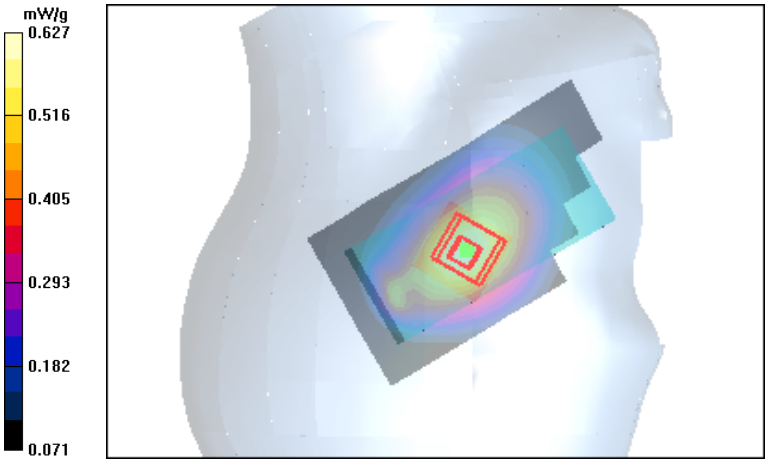
Test Laboratory: TCC Nokia
Type: RM-515; Serial: 001004/00/359272/3

Communication System: GSM850
Frequency: 836.6 MHz; Duty Cycle: 1:8.3
Medium: HSL850; Medium Notes: Liquid temperature= 21.7 C
Medium parameters used: f = 837 MHz; σ = 0.911 mho/m; ε_r = 41.4; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(6.26, 6.26, 6.26); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-0612
- Phantom: SAM1; Type: SAM; Serial: TP-1035
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Tilt position, Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.625 mW/g

Tilt position, Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.6 V/m
Peak SAR (extrapolated) = 0.698 W/kg
SAR(1 g) = 0.583 mW/g
SAR(10 g) = 0.425 mW/g
Power Drift = 0.029 dB
Maximum value of SAR (measured) = 0.627 mW/g



Date/Time: 2009-03-03 17:08:53

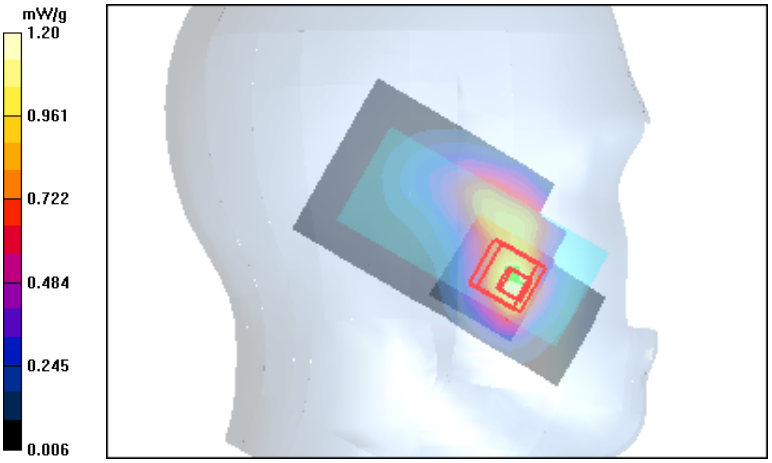
Test Laboratory: TCC Nokia
Type: RM-515; Serial: 001004/00/359272/3

Communication System: GSM1900
Frequency: 1909.8 MHz; Duty Cycle: 1:8.3
Medium: HSL1900; Medium Notes: Liquid temperature= 20.7 C
Medium parameters used: f = 1910 MHz; σ = 1.43 mho/m; ε_r = 38.1; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(5.1, 5.1, 5.1); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-06-12
- Phantom: SAM2; Type: Twin Phantom; Serial: TP-1279
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Cheek, High/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.14 mW/g

Cheek, High/Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.15 V/m
Peak SAR (extrapolated) = 2.10 W/kg
SAR(1 g) = 1.12 mW/g
SAR(10 g) = 0.583 mW/g
Power Drift = 0.019 dB
Maximum value of SAR (measured) = 1.20 mW/g



Date/Time: 2009-03-03 13:46:44

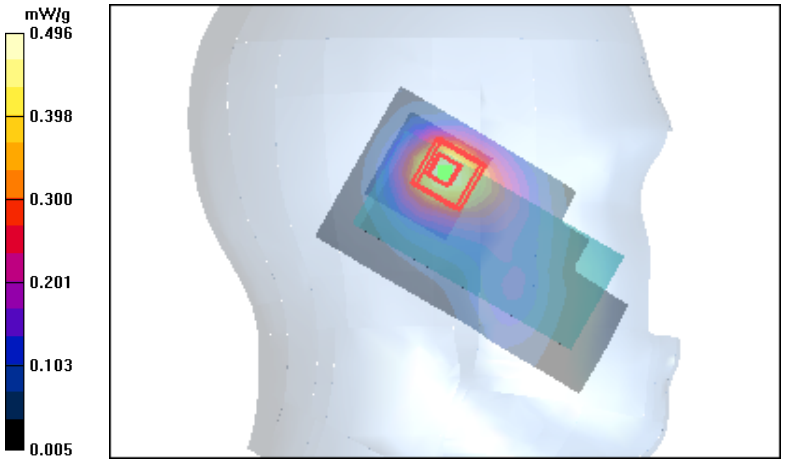
Test Laboratory: TCC Nokia
Type: RM-515; Serial: 001004/00/359272/3

Communication System: GSM1900
Frequency: 1880 MHz; Duty Cycle: 1:8.3
Medium: HSL1900; Medium Notes: Liquid temperature= 20.7 C
Medium parameters used: f = 1880 MHz; σ = 1.41 mho/m; ε_r = 38.4; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(5.1, 5.1, 5.1); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-06-12
- Phantom: SAM2; Type: Twin Phantom; Serial: TP-1279
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Tilt, Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.523 mW/g

Tilt, Middle/Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.6 V/m
Peak SAR (extrapolated) = 0.665 W/kg
SAR(1 g) = 0.452 mW/g
SAR(10 g) = 0.273 mW/g
Power Drift = -0.082 dB
Maximum value of SAR (measured) = 0.496 mW/g



Date/Time: 2009-03-03 16:51:48

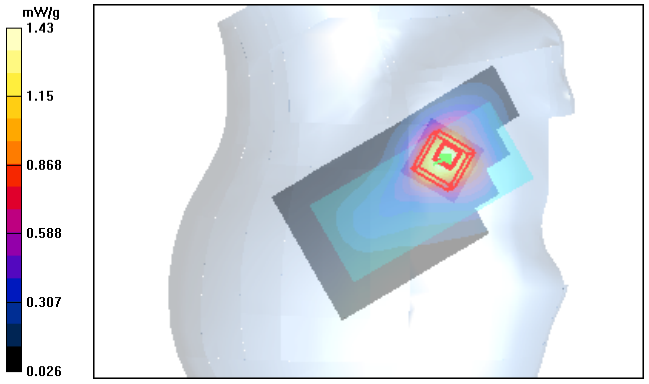
Test Laboratory: TCC Nokia
Type: RM-515; Serial: 001004/00/359272/3

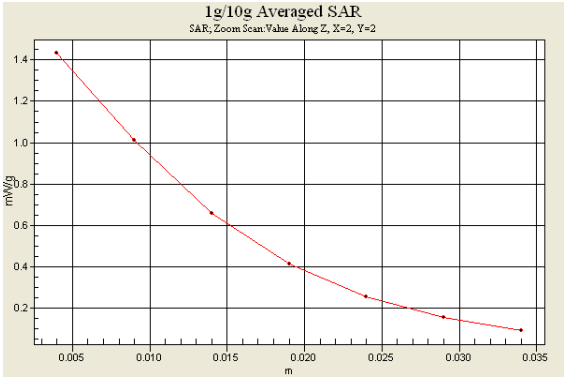
Communication System: GSM1900
Frequency: 1909.8 MHz; Duty Cycle: 1:8.3
Medium: HSL1900; Medium Notes: Liquid temperature= 20.7 C
Medium parameters used: f = 1910 MHz; σ = 1.43 mho/m; ε_r = 38.1; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(5.1, 5.1, 5.1); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-06-12
- Phantom: SAM2; Type: Twin Phantom; Serial: TP-1279
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Cheek position, High/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.48 mW/g

Cheek position, High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.5 V/m
Peak SAR (extrapolated) = 1.97 W/kg
SAR(1 g) = 1.31 mW/g
SAR(10 g) = 0.753 mW/g
Power Drift = -0.080 dB
Maximum value of SAR (measured) = 1.43 mW/g





Date/Time: 2009-03-03 13:12:06

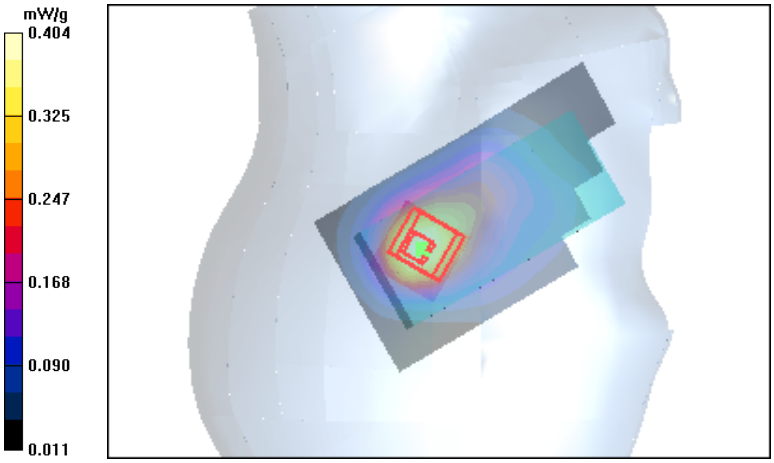
Test Laboratory: TCC Nokia
Type: RM-515; Serial: 001004/00/359272/3

Communication System: GSM1900
Frequency: 1880 MHz; Duty Cycle: 1:8.3
Medium: HSL1900; Medium Notes: Liquid temperature= 20.7 C
Medium parameters used: f = 1880 MHz; σ = 1.41 mho/m; ε_r = 38.4; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(5.1, 5.1, 5.1); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-06-12
- Phantom: SAM2; Type: Twin Phantom; Serial: TP-1279
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Tilt position, Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.441 mW/g

Tilt position, Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.2 V/m
Peak SAR (extrapolated) = 0.527 W/kg
SAR(1 g) = 0.374 mW/g
SAR(10 g) = 0.236 mW/g
Power Drift = -0.063 dB
Maximum value of SAR (measured) = 0.404 mW/g



Date/Time: 2009-02-19 15:53:51

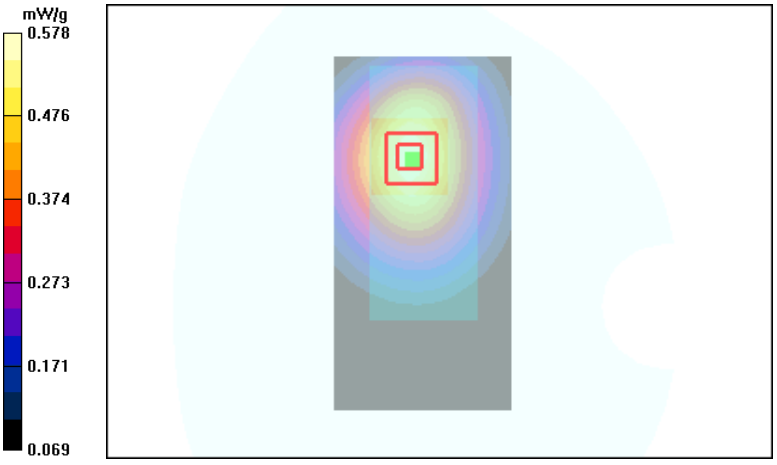
Test Laboratory: TCC Nokia
Type: RM-515; Serial: 001004/00/359272/3

Communication System: GSM850
Frequency: 836.6 MHz; Duty Cycle: 1:8.3
Medium: MSL850; Medium Notes: Liquid temperature= 21.5 C
Medium parameters used: f = 837 MHz; σ = 0.99 mho/m; ε_r = 52.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(6.01, 6.01, 6.01); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-06-12
- Phantom: SAM2; Type: Twin Phantom; Serial: TP-1279
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body,Middle, No accessory, Back facing phantom/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.575 mW/g

Body,Middle, No accessory, Back facing phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.6 V/m
Peak SAR (extrapolated) = 0.662 W/kg
SAR(1 g) = 0.542 mW/g
SAR(10 g) = 0.395 mW/g
Power Drift = -0.005 dB
Maximum value of SAR (measured) = 0.578 mW/g



Date/Time: 2009-02-19 15:14:14

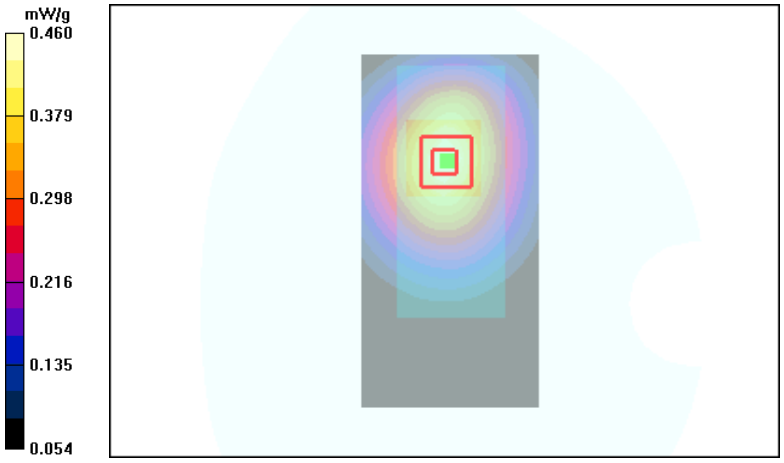
Test Laboratory: TCC Nokia
Type: RM-515; Serial: 001004/00/359272/3

Communication System: GSM850
Frequency: 836.6 MHz; Duty Cycle: 1:8.3
Medium: MSL850; Medium Notes: Liquid temperature= 21.5 C
Medium parameters used: f = 837 MHz; σ = 0.99 mho/m; ε_r = 52.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(6.01, 6.01, 6.01); Calibrated: 10/21/2008
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 6/12/2008
- Phantom: SAM2; Type: Twin Phantom; Serial: TP-1279
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body,Middle, HS-105, Back facing phantom/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.459 mW/g

Body,Middle, HS-105, Back facing phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.30 V/m
Peak SAR (extrapolated) = 0.522 W/kg
SAR(1 g) = 0.430 mW/g
SAR(10 g) = 0.313 mW/g
Power Drift = -0.063 dB
Maximum value of SAR (measured) = 0.460 mW/g



Date/Time: 2009-02-19 17:57:16

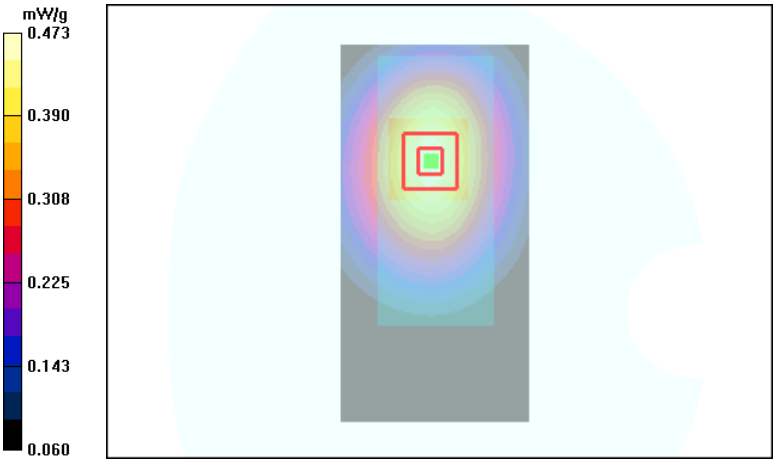
Test Laboratory: TCC Nokia
Type: RM-515; Serial: 001004/00/359272/3

Communication System: GSM850
Frequency: 836.6 MHz; Duty Cycle: 1:8.3
Medium: MSL850; Medium Notes: Liquid temperature= 21.5 C
Medium parameters used: f = 837 MHz; σ = 0.99 mho/m; ε_r = 52.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(6.01, 6.01, 6.01); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-06-12
- Phantom: SAM2; Type: Twin Phantom; Serial: TP-1279
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body,Middle, No accessory, Display facing phantom/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.469 mW/g

Body,Middle, No accessory, Display facing phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.5 V/m
Peak SAR (extrapolated) = 0.534 W/kg
SAR(1 g) = 0.443 mW/g
SAR(10 g) = 0.325 mW/g
Power Drift = -0.068 dB
Maximum value of SAR (measured) = 0.473 mW/g



Date/Time: 2009-02-19 17:40:01

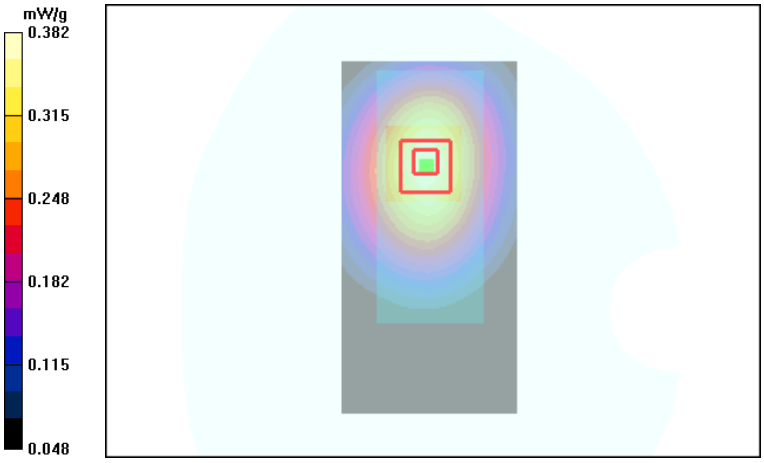
Test Laboratory: TCC Nokia
Type: RM-515; Serial: 001004/00/359272/3

Communication System: GSM850
Frequency: 836.6 MHz; Duty Cycle: 1:8.3
Medium: MSL850; Medium Notes: Liquid temperature= 21.5 C
Medium parameters used: f = 837 MHz; σ = 0.99 mho/m; ε_r = 52.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(6.01, 6.01, 6.01); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-06-12
- Phantom: SAM2; Type: Twin Phantom; Serial: TP-1279
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body,Middle, HS-105, Display facing phantom/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.385 mW/g

Body,Middle, HS-105, Display facing phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.98 V/m
Peak SAR (extrapolated) = 0.433 W/kg
SAR(1 g) = 0.358 mW/g
SAR(10 g) = 0.263 mW/g
Power Drift = -0.084 dB
Maximum value of SAR (measured) = 0.382 mW/g



Date/Time: 2009-02-19 17:06:18

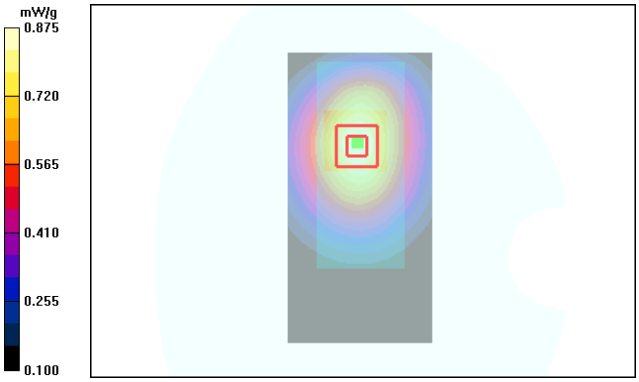
Test Laboratory: TCC Nokia
Type: RM-515; Serial: 001004/00/359272/3

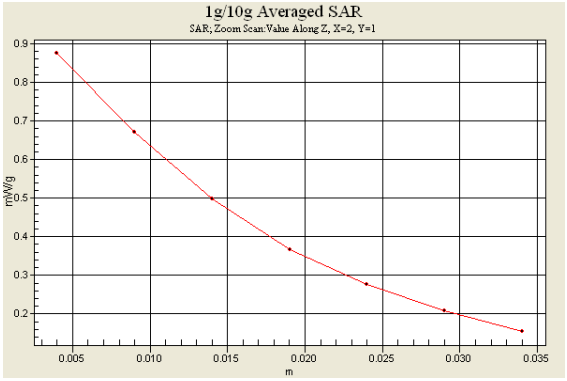
Communication System: 2-slot GPRS850
Frequency: 848.8 MHz; Duty Cycle: 1:4.2
Medium: MSL850; Medium Notes: Liquid temperature= 21.5 C
Medium parameters used: f = 849 MHz; σ = 0.993 mho/m; ε_r = 52.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(6.01, 6.01, 6.01); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-06-12
- Phantom: SAM2; Type: Twin Phantom; Serial: TP-1279
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body, High,No accessory, Back facing phantom/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.878 mW/g

Body, High,No accessory, Back facing phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.5 V/m
Peak SAR (extrapolated) = 1.01 W/kg
SAR(1 g) = 0.828 mW/g
SAR(10 g) = 0.604 mW/g
Power Drift = -0.013 dB
Maximum value of SAR (measured) = 0.875 mW/g





Date/Time: 2009-02-19 15:57:13

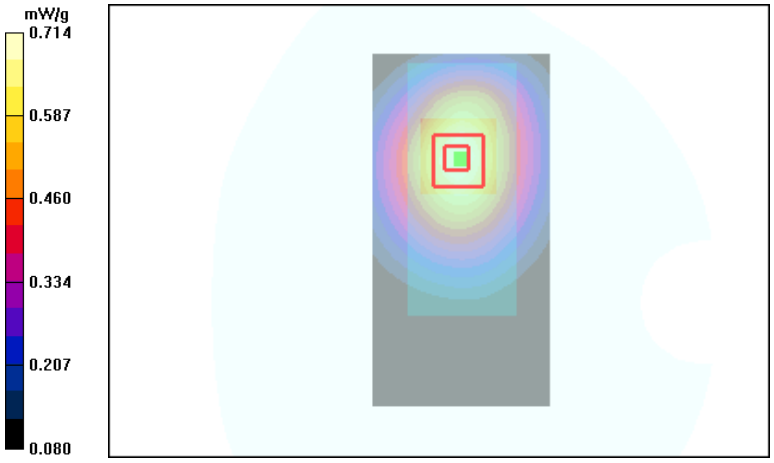
Test Laboratory: TCC Nokia
Type: RM-515; Serial: 001004/00/359272/3

Communication System: 2-slot GPRS850
Frequency: 836.6 MHz; Duty Cycle: 1:4.2
Medium: MSL850; Medium Notes: Liquid temperature= 21.5 C
Medium parameters used: f = 837 MHz; σ = 0.99 mho/m; ε_r = 52.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(6.01, 6.01, 6.01); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-06-12
- Phantom: SAM2; Type: Twin Phantom; Serial: TP-1279
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body,Middle, HS-105, Back facing phantom/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.721 mW/g

Body,Middle, HS-105, Back facing phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.4 V/m
Peak SAR (extrapolated) = 0.815 W/kg
SAR(1 g) = 0.670 mW/g
SAR(10 g) = 0.488 mW/g
Power Drift = 0.097 dB
Maximum value of SAR (measured) = 0.714 mW/g



Date/Time: 2009-02-19 16:19:28

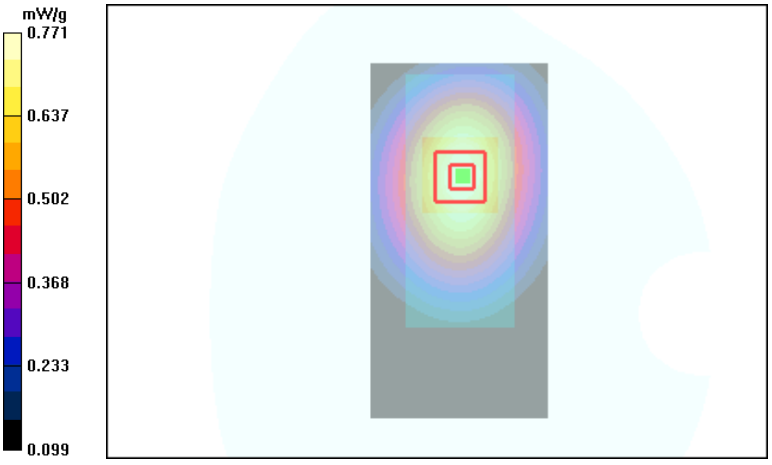
Test Laboratory: TCC Nokia
Type: RM-515; Serial: 001004/00/359272/3

Communication System: 2-slot GPRS850
Frequency: 836.6 MHz; Duty Cycle: 1:4.2
Medium: MSL850; Medium Notes: Liquid temperature= 21.5 C
Medium parameters used: f = 837 MHz; σ = 0.99 mho/m; ε_r = 52.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(6.01, 6.01, 6.01); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-06-12
- Phantom: SAM2; Type: Twin Phantom; Serial: TP-1279
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body,Middle, No accessory, Display facing phantom/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.790 mW/g

Body,Middle, No accessory, Display facing phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.2 V/m
Peak SAR (extrapolated) = 0.874 W/kg
SAR(1 g) = 0.729 mW/g
SAR(10 g) = 0.536 mW/g
Power Drift = -0.104 dB
Maximum value of SAR (measured) = 0.771 mW/g



Date/Time: 2009-02-19 16:36:29

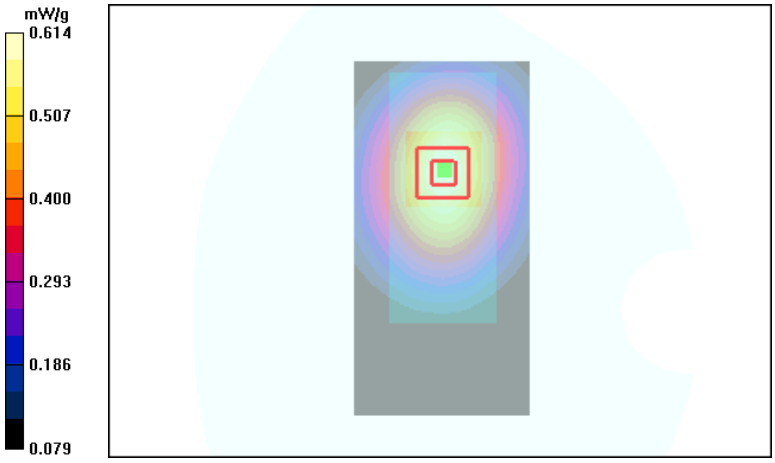
Test Laboratory: TCC Nokia
Type: RM-515; Serial: 001004/00/359272/3

Communication System: 2-slot GPRS850
Frequency: 836.6 MHz; Duty Cycle: 1:4.2
Medium: MSL850; Medium Notes: Liquid temperature= 21.5 C
Medium parameters used: f = 837 MHz; σ = 0.99 mho/m; ε_r = 52.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1516; Probe Notes:
- ConvF(6.01, 6.01, 6.01); Calibrated: 2008-10-21
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn860; Calibrated: 2008-06-12
- Phantom: SAM2; Type: Twin Phantom; Serial: TP-1279
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body,Middle, HS-105, Display facing phantom/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.628 mW/g

Body,Middle, HS-105, Display facing phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.8 V/m
Peak SAR (extrapolated) = 0.702 W/kg
SAR(1 g) = 0.579 mW/g
SAR(10 g) = 0.427 mW/g
Power Drift = 0.011 dB
Maximum value of SAR (measured) = 0.614 mW/g



Date/Time: 2009-02-26 10:31:14

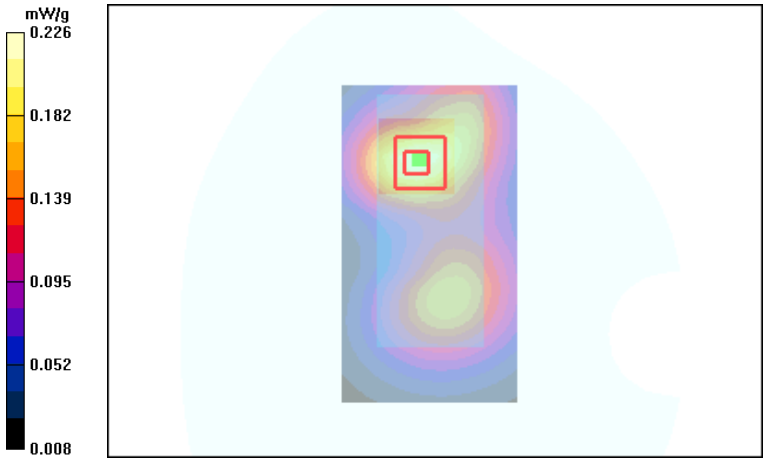
Test Laboratory: TCC Nokia
Type: RM-515; Serial: 001004/00/359272/3

Communication System: GSM1900
Frequency: 1880 MHz; Duty Cycle: 1:8.3
Medium: Body 1900MHz; Medium Notes: Temperature: 20.4 C
Medium parameters used: f = 1880 MHz; σ = 1.54 mho/m; ε_r = 52.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1801; Probe Notes:
- ConvF(4.99, 4.99, 4.99); Calibrated: 2008-04-16
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn858; Calibrated: 2008-06-12
- Phantom: SAM 3; Type: Twin Phantom; Serial: NMP03311
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 176

Body,Middle, No accessory, Back facing phantom/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.230 mW/g

Body,Middle, No accessory, Back facing phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.71 V/m
Peak SAR (extrapolated) = 0.342 W/kg
SAR(1 g) = 0.211 mW/g
SAR(10 g) = 0.129 mW/g
Power Drift = -0.061 dB
Maximum value of SAR (measured) = 0.226 mW/g



Date/Time: 2009-02-26 10:51:16

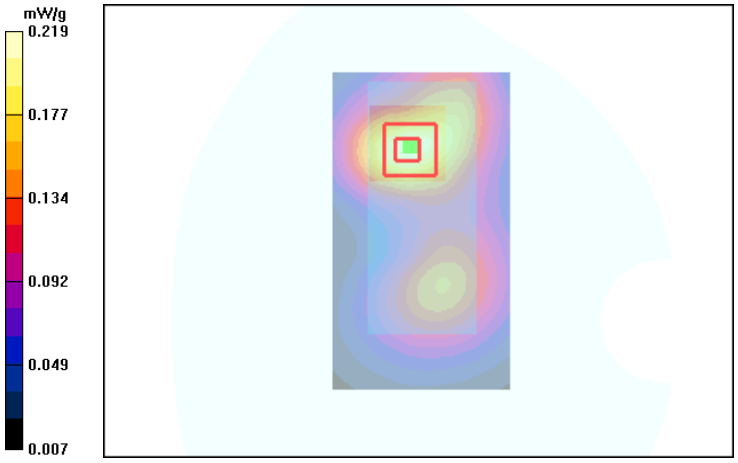
Test Laboratory: TCC Nokia
Type: RM-515; Serial: 001004/00/359272/3

Communication System: GSM1900
Frequency: 1880 MHz; Duty Cycle: 1:8.3
Medium: Body 1900MHz; Medium Notes: Temperature: 20.4 C
Medium parameters used: f = 1880 MHz; σ = 1.54 mho/m; ε_r = 52.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1801; Probe Notes:
- ConvF(4.99, 4.99, 4.99); Calibrated: 2008-04-16
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn858; Calibrated: 2008-06-12
- Phantom: SAM 3; Type: Twin Phantom; Serial: NMP03311
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 176

Body,Middle, HS-105, Back facing phantom/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.224 mW/g

Body,Middle, HS-105, Back facing phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.30 V/m
Peak SAR (extrapolated) = 0.334 W/kg
SAR(1 g) = 0.205 mW/g
SAR(10 g) = 0.126 mW/g
Power Drift = -0.002 dB
Maximum value of SAR (measured) = 0.219 mW/g



Date/Time: 2009-02-26 11:07:47

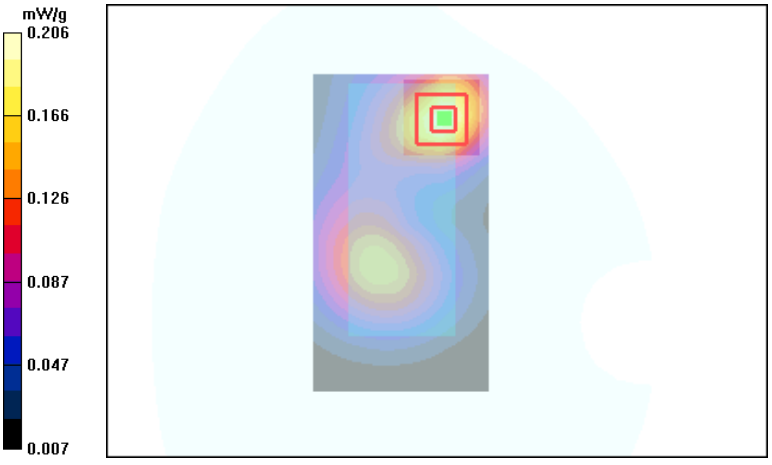
Test Laboratory: TCC Nokia
Type: RM-515; Serial: 001004/00/359272/3

Communication System: GSM1900
Frequency: 1880 MHz; Duty Cycle: 1:8.3
Medium: Body 1900MHz; Medium Notes: Temperature: 20.4 C
Medium parameters used: f = 1880 MHz; σ = 1.54 mho/m; ε_r = 52.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1801; Probe Notes:
- ConvF(4.99, 4.99, 4.99); Calibrated: 2008-04-16
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn858; Calibrated: 2008-06-12
- Phantom: SAM 3; Type: Twin Phantom; Serial: NMP03311
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 176

Body,Middle, No accessory, Display facing phantom/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.206 mW/g

Body,Middle, No accessory, Display facing phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.35 V/m
Peak SAR (extrapolated) = 0.311 W/kg
SAR(1 g) = 0.189 mW/g
SAR(10 g) = 0.113 mW/g
Power Drift = 0.010 dB
Maximum value of SAR (measured) = 0.206 mW/g



Date/Time: 2009-02-26 11:23:14

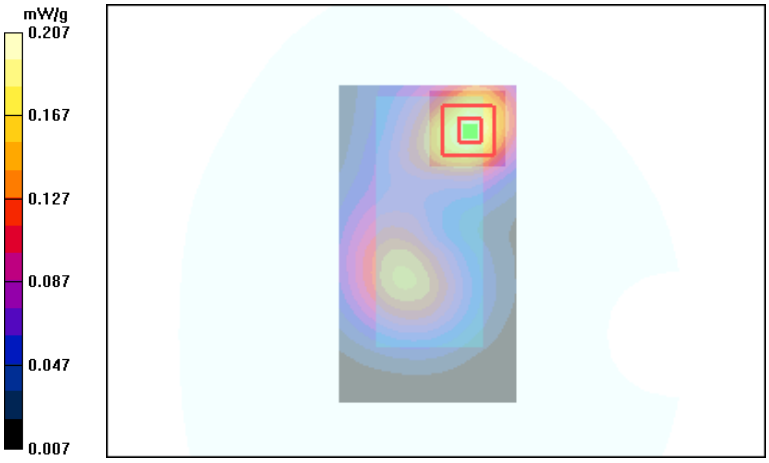
Test Laboratory: TCC Nokia
Type: RM-515; Serial: 001004/00/359272/3

Communication System: GSM1900
Frequency: 1880 MHz; Duty Cycle: 1:8.3
Medium: Body 1900MHz; Medium Notes: Temperature: 20.4 C
Medium parameters used: f = 1880 MHz; σ = 1.54 mho/m; ε_r = 52.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1801; Probe Notes:
- ConvF(4.99, 4.99, 4.99); Calibrated: 2008-04-16
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn858; Calibrated: 2008-06-12
- Phantom: SAM 3; Type: Twin Phantom; Serial: NMP03311
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 176

Body,Middle, HS-105, Display facing phantom/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.206 mW/g

Body,Middle, HS-105, Display facing phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.15 V/m
Peak SAR (extrapolated) = 0.314 W/kg
SAR(1 g) = 0.189 mW/g
SAR(10 g) = 0.114 mW/g
Power Drift = -0.003 dB
Maximum value of SAR (measured) = 0.207 mW/g



Date/Time: 2009-02-26 14:52:56

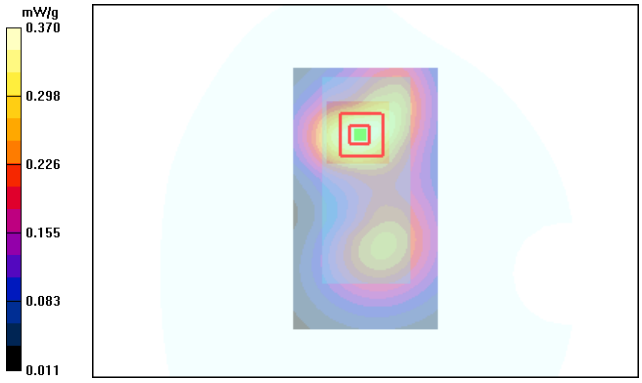
Test Laboratory: TCC Nokia
Type: RM-515; Serial: 001004/00/359272/3

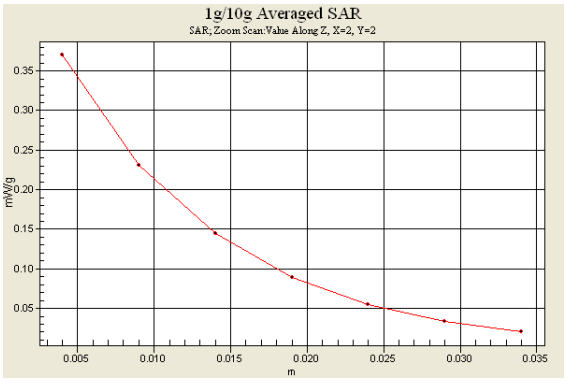
Communication System: 2-slot GPRS1900
Frequency: 1909.8 MHz; Duty Cycle: 1:4.2
Medium: Body 1900MHz; Medium Notes: Temperature: 20.4 C
Medium parameters used: f = 1910 MHz; σ = 1.56 mho/m; ε_r = 52.2; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1801; Probe Notes:
- ConvF(4.99, 4.99, 4.99); Calibrated: 2008-04-16
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn858; Calibrated: 2008-06-12
- Phantom: SAM 3; Type: Twin Phantom; Serial: NMP03311
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 176

Body, High, No accessory, Back facing phantom/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.378 mW/g

Body, High, No accessory, Back facing phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.3 V/m
Peak SAR (extrapolated) = 0.568 W/kg
SAR(1 g) = 0.347 mW/g
SAR(10 g) = 0.213 mW/g
Power Drift = -0.068 dB
Maximum value of SAR (measured) = 0.370 mW/g





Date/Time: 2009-02-26 14:05:44

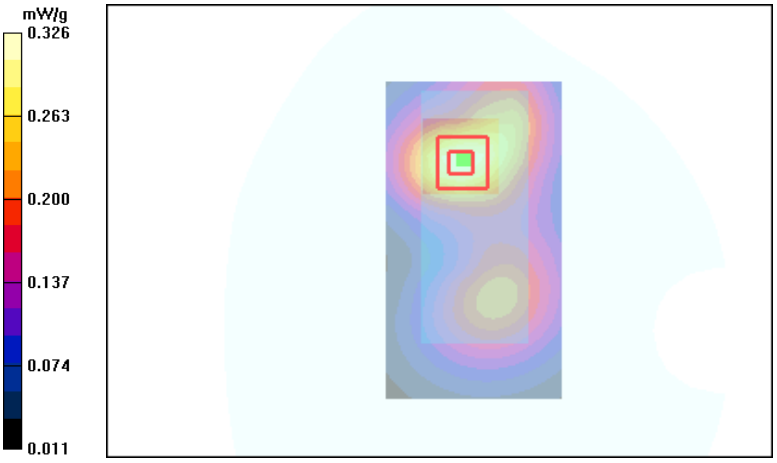
Test Laboratory: TCC Nokia
Type: RM-515; Serial: 001004/00/359272/3

Communication System: 2-slot GPRS1900
Frequency: 1880 MHz; Duty Cycle: 1:4.2
Medium: Body 1900MHz; Medium Notes: Temperature: 20.4 C
Medium parameters used: f = 1880 MHz; σ = 1.54 mho/m; ε_r = 52.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1801; Probe Notes:
- ConvF(4.99, 4.99, 4.99); Calibrated: 2008-04-16
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn858; Calibrated: 2008-06-12
- Phantom: SAM 3; Type: Twin Phantom; Serial: NMP03311
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 176

Body,Middle, HS-105, Back facing phantom/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.330 mW/g

Body,Middle, HS-105, Back facing phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.4 V/m
Peak SAR (extrapolated) = 0.491 W/kg
SAR(1 g) = 0.305 mW/g
SAR(10 g) = 0.188 mW/g
Power Drift = -0.086 dB
Maximum value of SAR (measured) = 0.326 mW/g



Date/Time: 2009-02-26 15:23:41

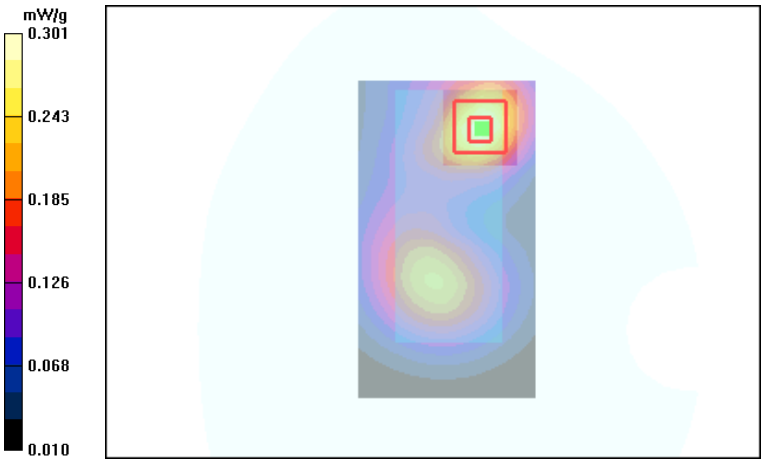
Test Laboratory: TCC Nokia
Type: RM-515; Serial: 001004/00/359272/3

Communication System: 2-slot GPRS1900
Frequency: 1880 MHz; Duty Cycle: 1:4.2
Medium: Body 1900MHz; Medium Notes: Temperature: 20.4 C
Medium parameters used: f = 1880 MHz; σ = 1.54 mho/m; ε_r = 52.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1801; Probe Notes:
- ConvF(4.99, 4.99, 4.99); Calibrated: 2008-04-16
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn858; Calibrated: 2008-06-12
- Phantom: SAM 3; Type: Twin Phantom; Serial: NMP03311
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 176

Body,Middle, No accessory, Display facing phantom/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.301 mW/g

Body,Middle, No accessory, Display facing phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.1 V/m
Peak SAR (extrapolated) = 0.453 W/kg
SAR(1 g) = 0.276 mW/g
SAR(10 g) = 0.166 mW/g
Power Drift = -0.010 dB
Maximum value of SAR (measured) = 0.301 mW/g



Date/Time: 2009-02-26 15:08:25

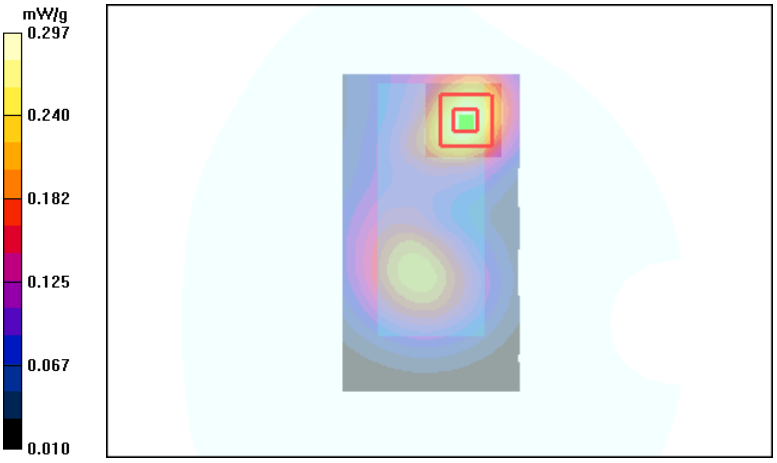
Test Laboratory: TCC Nokia
Type: RM-515; Serial: 001004/00/359272/3

Communication System: 2-slot GPRS1900
Frequency: 1880 MHz; Duty Cycle: 1:4.2
Medium: Body 1900MHz; Medium Notes: Temperature: 20.4 C
Medium parameters used: f = 1880 MHz; σ = 1.54 mho/m; ε_r = 52.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1801; Probe Notes:
- ConvF(4.99, 4.99, 4.99); Calibrated: 2008-04-16
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE4 Sn858; Calibrated: 2008-06-12
- Phantom: SAM 3; Type: Twin Phantom; Serial: NMP03311
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 176

Body,Middle, HS-105, Display facing phantom/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.296 mW/g

Body,Middle, HS-105, Display facing phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.87 V/m
Peak SAR (extrapolated) = 0.455 W/kg
SAR(1 g) = 0.273 mW/g
SAR(10 g) = 0.164 mW/g
Power Drift = -0.051 dB
Maximum value of SAR (measured) = 0.297 mW/g



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

FINAS
Finnish Accreditation Service
T117 (EN ISO/IEC 17025)

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

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

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 108

Client: Nokia SD TCC

Certificate No: ET3-1516_Oct08

CALIBRATION CERTIFICATE

Object: ET3DV6 - SN:1516

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

Calibration date: October 21, 2008

Condition of the calibrated item: In Tolerance

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

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

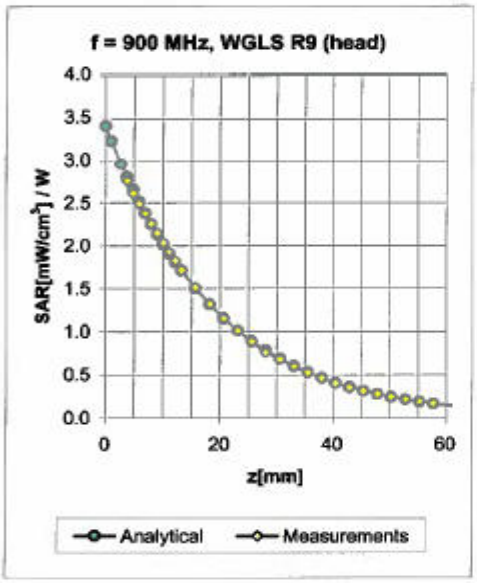
Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	1-Apr-08 (No. 217-00788)	Apr-09
Power sensor E4412A	MY41495277	1-Apr-08 (No. 217-00788)	Apr-09
Power sensor E4412A	MY41498087	1-Apr-08 (No. 217-00788)	Apr-09
Reference 3 dB Attenuator	SN: S5054 (3c)	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

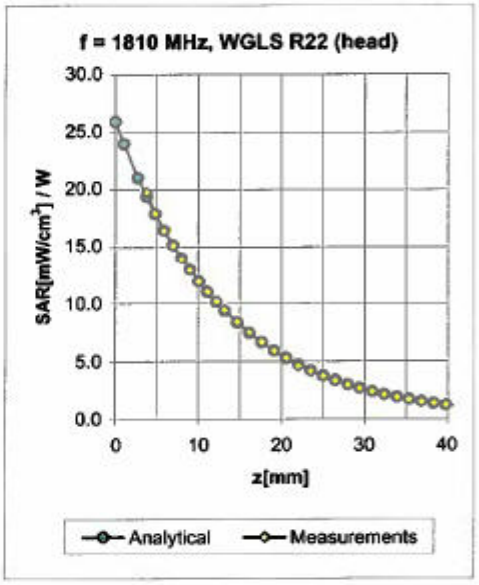
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Oct-07)	In house check: Oct-09
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-07)	In house check: Oct-08

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

Issued: October 21, 2008

Conversion Factor Assessment





f [MHz]	Validity [MHz][c]	TSL	Permittivity	Conductivity	Alpha	Depth	ConvF Uncertainty
900	± 50 / ± 100	Head	41.5 ± 5%	0.97 ± 5%	0.39	3.35	6.26 ± 11.0% (k=2)
1810	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.55	2.34	5.10 ± 11.0% (k=2)
1950	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.58	2.29	4.81 ± 11.0% (k=2)
2450	± 50 / ± 100	Head	39.2 ± 5%	1.80 ± 5%	0.90	1.80	4.29 ± 11.0% (k=2)
900	± 50 / ± 100	Body	55.0 ± 5%	1.05 ± 5%	0.63	2.67	6.01 ± 11.0% (k=2)
1810	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.65	2.23	4.76 ± 11.0% (k=2)
1950	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.65	2.24	4.66 ± 11.0% (k=2)
2450	± 50 / ± 100	Body	52.7 ± 5%	1.95 ± 5%	0.99	1.80	3.83 ± 11.0% (k=2)

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

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Accreditation No.: SCS 108

Client: Nokia SD TCC

Certificate No: ET3-1801_Apr08

CALIBRATION CERTIFICATE

Object	ET3DV6 - SN:1801
Calibration procedure(s)	QA CAL-01.v6 and QA CAL-23.v3 Calibration procedure for dosimetric E-field probes
Calibration date:	April 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 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

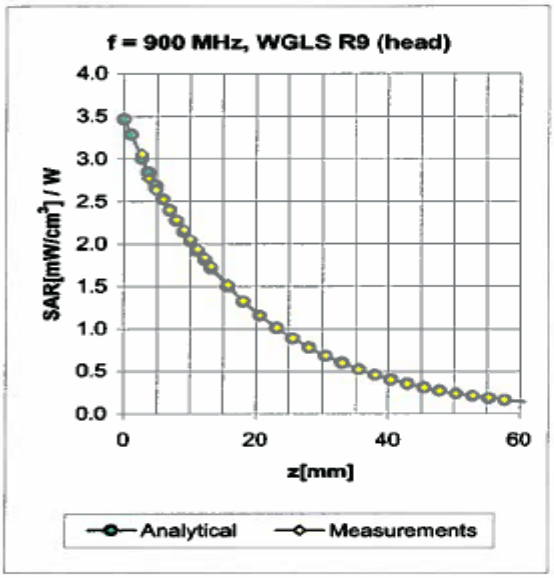
Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	1-Apr-08 (No. 217-00788)	Apr-09
Power sensor E4412A	MY41495277	1-Apr-08 (No. 217-00788)	Apr-09
Power sensor E4412A	MY41498087	1-Apr-08 (No. 217-00788)	Apr-09
Reference 3 dB Attenuator	SN: S5054 (3c)	8-Aug-07 (No. 217-00719)	Aug-08
Reference 20 dB Attenuator	SN: S5086 (20b)	31-Mar-08 (No. 217-00787)	Apr-09
Reference 30 dB Attenuator	SN: S5129 (30b)	8-Aug-07 (No. 217-00720)	Aug-08
Reference Probe ES3DV2	SN: 3013	2-Jan-08 (No. ES3-3013_Jan08)	Jan-09
DAE4	SN: 654	20-Apr-07 (No. DAE4-654_Apr07)	Apr-08

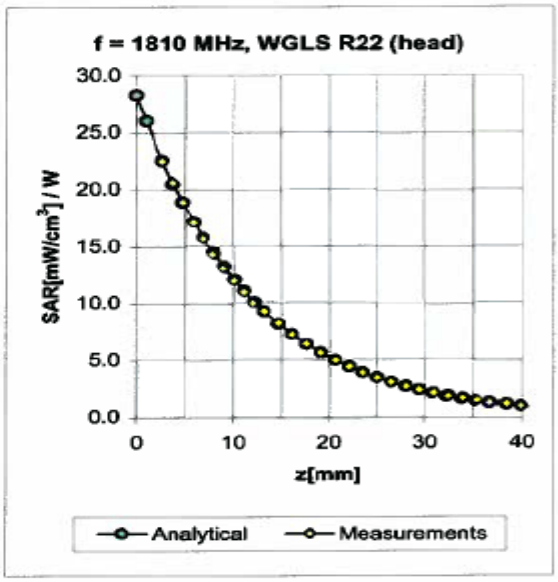
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Oct-07)	In house check: Oct-09
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-07)	In house check: Oct-08

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

Issued: April 16, 2008

Conversion Factor Assessment





f [MHz]	Validity [MHz][C]	TSL	Permittivity	Conductivity	Alpha	Depth	ConvF Uncertainty
900	± 50 / ± 100	Head	41.5 ± 5%	0.97 ± 5%	0.78	1.78	6.31 ± 11.0% (k=2)
1810	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.54	2.57	5.24 ± 11.0% (k=2)
1950	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.57	2.45	4.94 ± 11.0% (k=2)
2450	± 50 / ± 100	Head	39.2 ± 5%	1.80 ± 5%	0.82	1.73	4.64 ± 11.0% (k=2)
900	± 50 / ± 100	Body	55.0 ± 5%	1.05 ± 5%	0.70	1.99	5.76 ± 11.0% (k=2)
1810	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.55	2.66	4.99 ± 11.0% (k=2)
1950	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.58	2.45	4.76 ± 11.0% (k=2)
2450	± 50 / ± 100	Body	52.7 ± 5%	1.95 ± 5%	0.86	1.69	4.03 ± 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)

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Accreditation No.: SCS 108

Client: Nokia SD TCC

Certificate No: D835V2-486_Oct08

CALIBRATION CERTIFICATE

Object	D835V2 - SN: 486
Calibration procedure(s)	QA CAL-05.v7 Calibration procedure for dipole validation kits
Calibration date:	October 22, 2008
Condition of the calibrated item	In Tolerance

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

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	08-Oct-08 (No. 217-00898)	Oct-09
Power sensor HP 8481A	US37292783	08-Oct-08 (No. 217-00898)	Oct-09
Reference 20 dB Attenuator	SN: 5086 (20g)	01-Jul-08 (No. 217-00864)	Jul-09
Type-N mismatch combination	SN: 5047.2 / 06327	01-Jul-08 (No. 217-00867)	Jul-09
Reference Probe ES3DV2	SN: 3025	28-Apr-08 (No. ES3-3025_Apr08)	Apr-09
DAE4	SN: 601	14-Mar-08 (No. DAE4-601_Mar08)	Mar-09

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-07)	In house check: Oct-09
RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-07)	In house check: Oct-09
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-07)	In house check: Oct-08

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

Issued: October 22, 2008

DASY5 Validation Report for Head TSL

Date/Time: 22.10.2008 11:34:32

Test Laboratory: SPEAG, Zurich, Switzerland

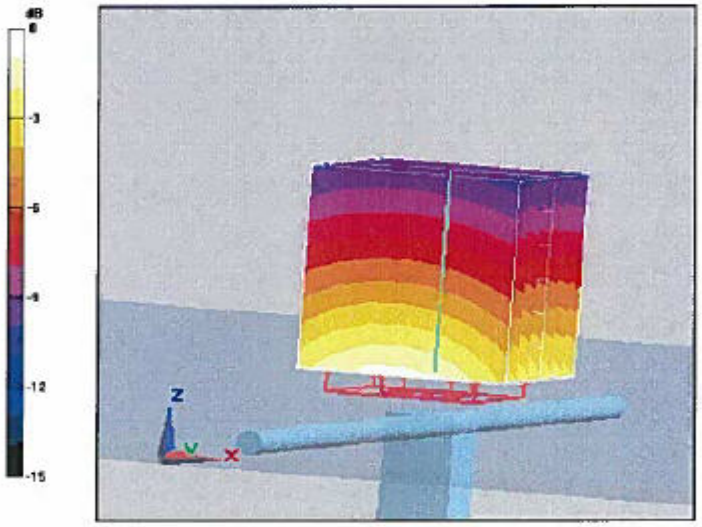
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:486

Communication System: CW-835; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: HSL 900 MHz
Medium parameters used: f = 835 MHz; σ = 0.9 mho/m; ε_r = 40.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

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

Pin=250mW; dip=15mm; dist=3.4mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 55.9 V/m; Power Drift = 0.020 dB
Peak SAR (extrapolated) = 3.52 W/kg
SAR(1 g) = 2.39 mW/g; SAR(10 g) = 1.57 mW/g
Maximum value of SAR (measured) = 2.7 mW/g



0 dB = 2.7mW/g

DASY5 Validation Report for Body TSL

Date/Time: 20.10.2008 10:14:40

Test Laboratory: SPEAG, Zurich, Switzerland

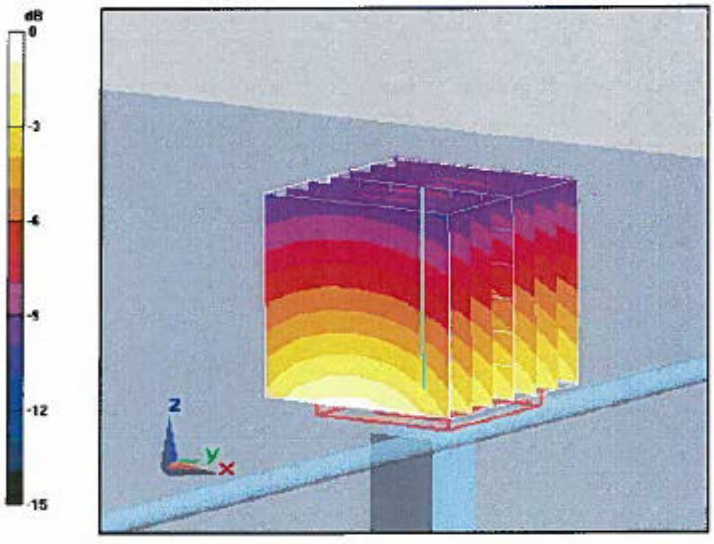
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:486

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: MSL900
Medium parameters used: f = 835 MHz; σ = 1 mho/m; ε_r = 53.4; ρ = 1000 kg/m³
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

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

Pin = 250mW, d = 15mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 53.5 V/m; Power Drift = 0.015 dB
Peak SAR (extrapolated) = 3.51 W/kg
SAR(1 g) = 2.42 mW/g; SAR(10 g) = 1.6 mW/g
Maximum value of SAR (measured) = 2.74 mW/g



0 dB = 2.74mW/g

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Accreditation No.: SCS 108

Client: Nokia SD TCC

Certificate No: D1900V2-509_Jun08

CALIBRATION CERTIFICATE

Object	D1900V2 - SN: 509
Calibration procedure(s)	QA CAL-05.v7 Calibration procedure for dipole validation kits
Calibration date:	June 19, 2008
Condition of the calibrated item	In Tolerance

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

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	04-Oct-07 (No. 217-00736)	Oct-08
Power sensor HP 8481A	US37292783	04-Oct-07 (No. 217-00736)	Oct-08
Reference 20 dB Attenuator	SN: 5086 (20g)	07-Aug-07 (No. 217-00718)	Aug-08
Type-N mismatch combination	SN: 5047.2 / 06327	08-Aug-07 (No. 217-00721)	Aug-08
Reference Probe ES3DV2	SN: 3025	28-Apr-08 (No. ES3-3025_Apr08)	Apr-09
DAE4	SN: 601	14-Mar-08 (No. DAE4-601_Mar08)	Mar-09

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-07)	In house check: Oct-08
RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-07)	In house check: Oct-09
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-07)	In house check: Oct-08

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

Issued: June 23, 2008

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

DASY4 Validation Report for Head TSL

Date/Time: 18.06.2008 14:57:06

Test Laboratory: SPEAG, Zurich, Switzerland

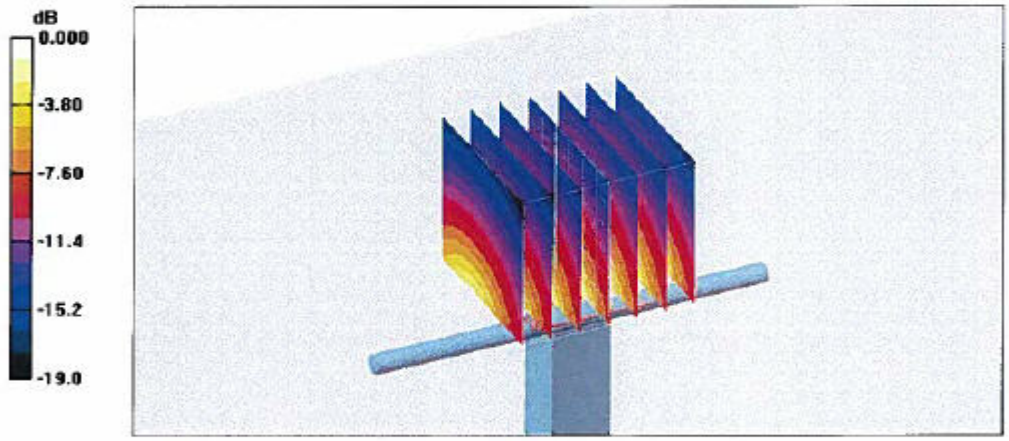
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:509

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: HSL U10 BB;
Medium parameters used: f = 1900 MHz; σ = 1.48 mho/m; ε_r = 39.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

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

Pin = 250 mW; d = 10 mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 87.2 V/m; Power Drift = 0.060 dB
Peak SAR (extrapolated) = 18.5 W/kg
SAR(1 g) = 9.96 mW/g; SAR(10 g) = 5.12 mW/g
Maximum value of SAR (measured) = 12.0 mW/g



0 dB = 12.0mW/g

DASY4 Validation Report for Body TSL

Date/Time: 19.06.2008 15:04:52

Test Laboratory: SPEAG, Zurich, Switzerland

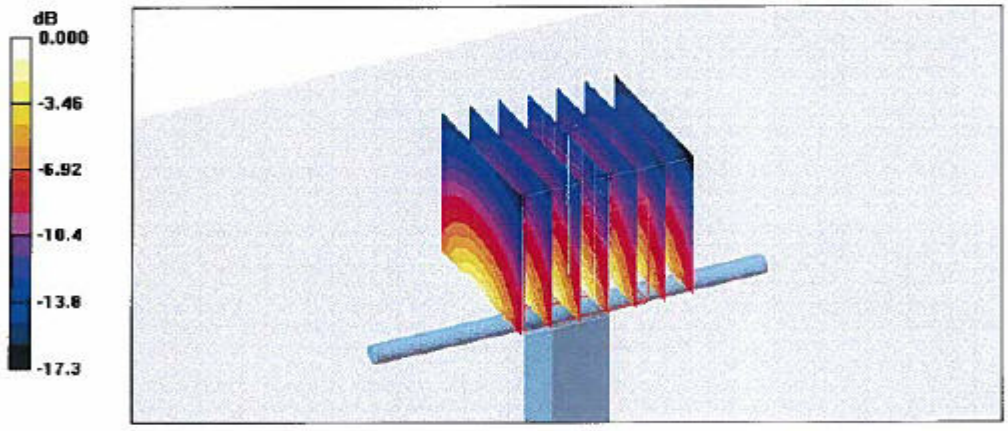
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:509

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: MSL U10 BB;
Medium parameters used: f = 1900 MHz; σ = 1.58 mho/m; ε_r = 52.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

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

Pin = 250 mW; d = 10 mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 88.6 V/m; Power Drift = 0.001 dB
Peak SAR (extrapolated) = 17.3 W/kg
SAR(1 g) = 9.77 mW/g; SAR(10 g) = 5.11 mW/g
Maximum value of SAR (measured) = 11.6 mW/g



0 dB = 11.6mW/g