

SAR Compliance Test Report

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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.		
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1. SUMMARY OF SAR TEST REPORT

1.1 Test Details

Period of test	2011-06-23 to 2011-07-01
SN, HW and SW numbers of tested device	SN: 004402/13/268630/8, HW: 6010, SW: 013.016, DUT: 15272
Batteries used in testing	-
Headsets used in testing	WH-205, DUT: 15273
Other accessories used in testing	-
State of sample	Prototype unit
Notes	-

1.2 Maximum Results

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

1.2.1 Head Configuration

Mode	Ch / f (MHz)	Conducted power	Position	Measured SAR value (1g avg)	Scaled* SAR value (1g avg)	SAR limit (1g avg)	Result
4-slot GPRS850	251 / 848.8	30.5 dBm	Right, Cheek	0.575 W/kg	0.64 W/kg	1.6 W/kg	PASSED
WCDMA850	4233 / 846.6	23.5 dBm	Right, Cheek	0.227 W/kg	0.25 W/kg	1.6 W/kg	PASSED
WCDMA1700/2100	1513 / 1752.6	23.5 dBm	Right, Cheek	0.441 W/kg	0.49 W/kg	1.6 W/kg	PASSED
4-slot GPRS1900	512 / 1850.2	28.5 dBm	Left, Cheek	0.757 W/kg	0.85 W/kg	1.6 W/kg	PASSED
WCDMA1900	9262 / 1852.4	23.5 dBm	Left, Cheek	0.564 W/kg	0.63 W/kg	1.6 W/kg	PASSED
WLAN2450**	7 / 2442.0	18.0 dBm	Right, Tilt	0.303 W/kg	0.34 W/kg	1.6 W/kg	PASSED
4-slot GPRS850 + WLAN2450	-	-	Right, Cheek	0.578 W/kg	0.65 W/kg	1.6 W/kg	PASSED
WCDMA850 + WLAN2450	-	-	Right, Cheek	0.270 W/kg	0.30 W/kg	1.6 W/kg	PASSED
WCDMA1700/2100 + WLAN2450	-	-	Right, Cheek	0.477 W/kg	0.53 W/kg	1.6 W/kg	PASSED
4-slot GPRS1900 + WLAN2450	-	-	Left, Cheek	0.847 W/kg	0.95 W/kg	1.6 W/kg	PASSED
WCDMA1900 + WLAN2450	-	-	Left, Cheek	0.615 W/kg	0.69 W/kg	1.6 W/kg	PASSED

1.2.2 Body Worn Configuration

Mode	Ch / f (MHz)	Conducted power	Separation distance	Measured SAR value (1g avg)	Scaled* SAR value (1g avg)	SAR limit (1g avg)	Result
4-slot GPRS850	251 / 848.8	30.5 dBm	1.5 cm	1.03 W/kg	1.15 W/kg	1.6 W/kg	PASSED
WCDMA850	4233 / 846.6	23.5 dBm	1.5 cm	0.456 W/kg	0.51 W/kg	1.6 W/kg	PASSED
WCDMA1700/2100	1513 / 1752.6	23.5 dBm	1.5 cm	0.797 W/kg	0.89 W/kg	1.6 W/kg	PASSED
4-slot GPRS1900	512 / 1850.2	28.5 dBm	1.5 cm	1.12 W/kg	1.25 W/kg	1.6 W/kg	PASSED
WCDMA1900	9262 / 1852.4	23.5 dBm	1.5 cm	0.645 W/kg	0.72 W/kg	1.6 W/kg	PASSED
WLAN2450**	7 / 2442.0	18.0 dBm	1.5 cm	0.109 W/kg	0.12 W/kg	1.6 W/kg	PASSED
4-slot GPRS850 + WLAN2450	-	-	1.5 cm	1.06 W/kg	1.19 W/kg	1.6 W/kg	PASSED
WCDMA850 + WLAN2450	-	-	1.5 cm	0.479 W/kg	0.54 W/kg	1.6 W/kg	PASSED
WCDMA1700/2100 + WLAN2450	-	-	1.5 cm	0.816 W/kg	0.91 W/kg	1.6 W/kg	PASSED
4-slot GPRS1900 + WLAN2450	-	-	1.5 cm	1.14 W/kg	1.28 W/kg	1.6 W/kg	PASSED
WCDMA1900 + WLAN2450	-	-	1.5 cm	0.680 W/kg	0.76 W/kg	1.6 W/kg	PASSED

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

**SAR data taken from FCC_RM-626_11.

1.2.3 Maximum Drift

Maximum drift covered by 12% scaling up of the SAR values	Maximum drift during measurements
0.5dB	0.36 dB

1.2.4 Measurement Uncertainty

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

Device category	Portable
Exposure environment	General population / uncontrolled

Modes of Operation	Bands	Modulation Mode	Duty Cycle	Transmitter Frequency Range (MHz)
GSM	850 1900	GMSK	1/8	824 – 849 1850 – 1910
GPRS	850 1900	GMSK	1/8 to 4/8	824 – 849 1850 – 1910
EGPRS	850 1900	GMSK / 8PSK	1/8 to 4/8	824 – 849 1850 – 1910
WCDMA	850 (Band V) 1700/2100 (Band IV) 1900 (Band II)		1	826 – 847 1712 – 1753 1852 – 1908
HSUPA	850 (Band V) 1700/2100 (Band IV) 1900 (Band II)		1	826 – 847 1712 – 1753 1852 – 1908
BT	2450	GFSK	1	2402 – 2480
WLAN b-mode	2450	Up to 11Mbps QPSK	1	2412 – 2462
WLAN g-mode	2450	Up to 54Mbps 64QAM	1	2412 – 2462
WLAN n-mode 20MHz	2450	Up to 72.2Mbps 64QAM	1	2412 – 2462

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 Description of the Antenna

The device has internal antennas for both cellular and WLAN use. The cellular antenna is located at the bottom in the back section of the keypad slide. The WLAN antenna is located at the top in the back section of the keypad slide.

3. TEST CONDITIONS

3.1 Temperature and Humidity

Ambient temperature (°C):	20.5 – 22.5
Ambient humidity (RH %):	40 - 60

3.2 Test Signal, Frequencies and Output Power

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

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

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

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

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

Some of the SAR results given in this report are duplicated from the earlier report FCC_RM-626_11. The number of Head and Body-worn test cases reported in this document has been minimised based on the same earlier testing in FCC_RM-626_01; the number of Wireless Router “Hotspot” mode test cases has been minimised based on FCC_RM-626_11.

3.3 Test Cases and Test Minimisation

The tested device examined in this report may not incorporate all of the features described in the text that follows, but its SAR evaluation will have been subjected to the same considerations and test logic described below.

Whilst it's possible to identify the maximum SAR test cases from inspection of the conducted power levels given in the Results tables (Section 7), different modes in the same band and multi-slot transmit GSM/GPRS modes can create some difficulties. Therefore the sequence of the SAR tests made in evaluating this device has used test logic that is based on measured SAR values. Comparison of measured SAR values in this way, can also allow some test minimization (i.e. test elimination) to be made.

For example, when SAR testing multi-slot GSM/GPRS/EGPRS modes, it is an inefficient use of test resources to fully SAR test every test configuration in each of the different modes as these modes have a fixed power relationship between them that is the same, irrespective of the test configuration. In the case of multi-slot GSM/GPRS modes, a single comparative SAR test - using the same test channel and test configuration - is made in each of the n-slot modes; the mode with the highest measured SAR value is then subjected to full SAR testing in all test configurations. These comparative SAR tests (same frequency, same test configuration) are regarded as extremely accurate as they are relative tests in which the tested device changes neither its frequency nor its position between tests. For different modes that operate in the same band and use the same antenna e.g. GSM/GPRS850 and WCDMA850, full SAR testing is carried out in the GSM/GPRS850 mode but WCDMA850 testing is limited to 3 channel testing in the maximum SAR test configuration for GSM/GPRS850.

Multi-slot SAR testing against the Head is always performed whenever such a device offers Push to Talk over cellular with the internal earpiece active, Dual Transfer Mode (i.e. the ability to transmit voice and data simultaneously using the same transmitter) or has WLAN (which enables a Voice over IP call to take place whilst the device can simultaneously transmit data on a cellular band). Whenever a device has an intended multi-slot use against the head, it is also Head SAR tested in EGPRS mode. It should be noted that EGPRS transmit modes can have either GMSK or 8PSK modulation but, when tested, only 8PSK EGPRS will appear explicitly in the results tables, as GMSK EGPRS mode has identical time-averaged power to the reported GPRS mode.

Devices that have flips or slides are fully SAR tested in all device configurations consistent with their intended usage. For example, flip phones that can receive a call in closed mode are SAR tested against the head in both open and closed configurations. Similarly, slide phones are fully SAR tested in all slide configurations in which calls are intended to be made or received.

In the results tables in Section 7, the maximum SAR value for the 'basic' tests (i.e. left cheek, left tilt, right cheek and right tilt in Head SAR testing; with and without headset with the back &/or display side facing the flat phantom in Body SAR testing) is bolded for each band. In some cases, after full testing of the basic SAR test configurations has been completed, additional checking SAR tests are made. These checking tests are always based on the bolded result from the 'basic' testing. When the SAR value of a checking test exceeds the maximum value from the basic tests, it is also bolded and used as the basis for any further checking tests that might be needed.

Checking tests are largely voluntary and can cover optional batteries, different camera slide positions, optional covers, etc. In the case of optional batteries, if the construction of the optional battery is significantly different to the battery used in the full testing e.g. if the outer can is floating electrically rather than grounded, then the maximum SAR test configuration in each band is tested with the optional battery in 3 channels. For camera slides, if the slide

material is metal, then checking tests in 3 channels are again run for the maximum SAR test configuration in each band. For plastic camera slides, SAR checking is only carried out in the channel that provided the maximum SAR value for the original. Optional front and back covers are tested if their shape differs significantly from the original or if their metallic content varies by more than 15% from the original; in the former case, the testing depends on the extent of the physical differences, whereas in the latter case, 3 channel SAR testing is performed in every band in the max SAR test configuration.

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	538	12 months	2011-09
DAE 4	555	12 months	2012-02
E-field Probe ES3DV3	3194	12 months	2011-09
E-field Probe ES3DV3	3165	12 months	2012-02
Dipole Validation Kit, D835V2	480	24 months	2011-10
Dipole Validation Kit, D1800V2	256	24 months	2011-10
Dipole Validation Kit, D1900V2	5d013	24 months	2012-03
DASY4 software	Version 4.7	-	-
DASY5 software	Version 52.6.1.408	-	-

Additional test equipment used in testing:

Test Equipment	Model	Serial Number	Calibration interval	Calibration expiry
Signal Generator	SML03	101265	12 months	2011-08
Amplifier	ZHL-42 (SMA)	N072095-5	12 months	2011-08
Power Meter	NRVS	838624/032	12 months	2011-08
Power Sensor	NRV-Z32	839176/020	12 months	2011-08
Call Tester	CMU 200	101111	-	-
Call Tester	CMU 200	103293	-	-
Vector Network Analyzer	8753E	US38432928	12 months	2011-08
Dielectric Probe Kit	85070B	US33020420	-	-

4.1.1 Isotropic E-field Probe Type ES3DV3

Construction	Symmetrical design with triangular core Interleaved sensors Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., butyl diglycol)
Calibration	Calibration certificate in Appendix C
Frequency	10 MHz to 4 GHz (dosimetry); Linearity: ± 0.2 dB (30 MHz to 4 GHz)
Directivity	± 0.2 dB in HSL (rotation around probe axis) ± 0.3 dB in HSL (rotation normal to probe axis)
Dynamic Range	5 μ W/g to > 100 mW/g; Linearity: ± 0.2 dB
Dimensions	Overall length: 330 mm Tip length: 20 mm Body diameter: 12 mm Tip diameter: 3.9 mm
Application	Distance from probe tip to dipole centers: 2.0 mm General dosimetry up to 4 GHz Compliance tests of mobile phones Fast automatic scanning in arbitrary phantoms

4.2 Phantoms

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

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

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

4.3 Tissue Simulants

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

The depth of the tissue simulant was at least 15.0 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

1800MHz band

Ingredient	Head (% by weight)	Body (% by weight)
Deionised Water	54.0	70.20
Tween 20	45.6	29.37
Salt	0.4	0.43

1900MHz band

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

4.3.2 System Checking

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

System checking, head tissue simulant

f [MHz]	Description	SAR [W/kg], 1g	Dielectric Parameters		Temp [°C]
			ϵ_r	σ [S/m]	
835	Reference result	2.36	40.5	0.88	
	± 10% window	2.12 – 2.60			
	2011-06-28	2.37	40.1	0.91	21.0
1800	Reference result	9.90	40.0	1.40	
	± 10% window	8.91 – 10.89			
	2011-06-30	10.7	38.4	1.41	21.0
1900	Reference result	10.2	41.2	1.45	
	± 10% window	9.2 – 11.2			
	2011-06-23	10.8	39.8	1.38	21.0

System checking, body tissue simulant

<i>f</i> [MHz]	Description	SAR [W/kg], 1g	Dielectric Parameters		Temp [°C]
			ϵ_r	σ [S/m]	
835	Reference result	2.52	53.2	1.01	
	± 10% window	2.27 – 2.77			
	2011-06-30	2.56	53.0	1.01	21.0
	2011-07-01	2.50	52.9	1.01	21.0
1800	Reference result	9.61	53.5	1.50	
	± 10% window	8.65 – 10.57			
	2011-07-01	10.5	51.4	1.53	21.0
1900	Reference result	10.4	55.0	1.58	
	± 10% window	9.4 – 11.4			
	2011-06-27	11.1	52.7	1.55	21.0

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

4.3.3 Tissue Simulants used in the Measurements

Head tissue simulant measurements

<i>f</i> [MHz]	Description	Dielectric Parameters		Temp [°C]
		ϵ_r	σ [S/m]	
835	Recommended value	41.5	0.90	
	± 5% window	39.4 – 43.6	0.86 – 0.95	
	2011-06-28	40.1	0.91	21.0
836	Recommended value	41.5	0.90	
	± 5% window	39.4 – 43.6	0.86 – 0.95	
	2011-06-28	40.1	0.91	21.0
1732	Recommended value	40.1	1.36	
	± 5% window	38.1 – 42.1	1.29 – 1.43	
	2011-06-30	38.7	1.35	21.0
1880	Recommended value	40.0	1.40	
	± 5% window	38.0 – 42.0	1.33 – 1.47	
	2011-06-23	39.8	1.36	21.0

Body tissue simulant measurements

f [MHz]	Description	Dielectric Parameters		Temp [°C]
		ϵ_r	σ [S/m]	
835	Recommended value	55.2	0.97	
	$\pm 5\%$ window	52.4 – 58.0	0.92 – 1.02	
	2011-06-28	53.0	1.01	21.0
	2011-07-01	52.9	1.01	21.0
836	Recommended value	55.2	0.97	
	$\pm 5\%$ window	52.4 – 58.0	0.92 – 1.02	
	2011-06-28	53.0	1.01	21.0
	2011-06-30	53.0	1.01	21.0
1732	Recommended value	53.5	1.48	
	$\pm 5\%$ window	50.8 – 56.2	1.40 – 1.55	
	2011-06-30	51.5	1.46	21.0
	2011-07-01	51.6	1.46	21.0
1880	Recommended value	53.3	1.52	
	$\pm 5\%$ window	50.6 – 56.0	1.44 – 1.60	
	2011-06-27	52.8	1.53	21.0

5. DESCRIPTION OF THE TEST PROCEDURE

5.1 Device Holder

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



Device holder supplied by SPEAG

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



Nokia spacer

5.2 Test Positions

5.2.1 Against Phantom Head

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

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

5.2.2 Body Worn Configuration

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

Nokia body-worn accessories are commonly available for the separation distance used in this testing.

5.2.3 Wireless Router Configuration

The device was placed in the SPEAG holder using the Nokia spacer and positioned 12.5mm away from the flat phantom. The spacer was removed before the start of the measurements.

5.3 Scan Procedures

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

5.4 SAR Averaging Methods

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

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

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

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

6. MEASUREMENT UNCERTAINTY

Table 6.1 – Measurement uncertainty evaluation

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

7. RESULTS

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

850MHz Head SAR results

Mode	Option used	Test configuration		SAR, averaged over 1g (W/kg)		
				Ch 128 824.2 MHz	Ch 190 836.6 MHz	Ch 251 848.8 MHz
4-slot GPRS		Conducted Power		30.5 dBm	30.5 dBm	30.5 dBm
	Slide closed	Left	Cheek	-	-	-
			Tilt	-	-	-
		Right	Cheek	0.293	0.470	0.575
			Tilt	-	-	-
Mode	Option used	Test configuration		SAR, averaged over 1g (W/kg)		
				Ch 4132 826.4 MHz	Ch 4175 835.0 MHz	Ch 4233 846.6 MHz
WCDMA		Conducted Power		23.5 dBm	23.5 dBm	23.5 dBm
	Slide closed	Left	Cheek	-	-	-
			Tilt	-	-	-
		Right	Cheek	0.108	0.197	0.227
			Tilt	-	-	-

1700/2100MHz Head SAR results

Mode	Option used	Test configuration		SAR, averaged over 1g (W/kg)		
				Ch 1312 1712.4 MHz	Ch 1412 1732.4 MHz	Ch 1513 1752.6 MHz
WCDMA		Conducted Power		23.5 dBm	23.5 dBm	23.5 dBm
	Slide closed	Left	Cheek	-	-	-
			Tilt	-	-	-
		Right	Cheek	0.305	0.352	0.441
			Tilt	-	-	-

1900MHz Head SAR results

Mode	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
4-slot GPRS		Conducted Power		28.5 dBm	28.5 dBm	28.5 dBm
	Slide closed	Left	Cheek	0.757	0.706	0.683
			Tilt	-	-	-
		Right	Cheek	-	-	-
			Tilt	-	-	-
Mode	Option used	Test configuration		SAR, averaged over 1g (W/kg)		
				Ch 9262 1852.4 MHz	Ch 9400 1880.0 MHz	Ch 9538 1907.6 MHz
WCDMA		Conducted Power		23.5 dBm	23.5 dBm	23.5 dBm
	Slide closed	Left	Cheek	0.564	0.478	0.447
			Tilt	-	-	-
		Right	Cheek	-	-	-
			Tilt	-	-	-

2450MHz Head SAR results**

Mode	Option used	Test configuration		SAR, averaged over 1g (W/kg)		
				Ch 1 2412.0 MHz	Ch 7 2442.0 MHz	Ch 11 2462.0 MHz
WLAN b-mode		Conducted Power		15.2 dBm	18.0 dBm	15.2 dBm
	Slide closed	Left	Cheek	-	0.143	-
			Tilt	-	0.171	-
		Right	Cheek	-	0.252	-
			Tilt	0.129	0.303	0.129
WLAN n-mode 20MHz		Conducted Power		14.5 dBm	17.1 dBm	14.5 dBm
	Slide closed	Left	Cheek	-	-	-
			Tilt	-	-	-
		Right	Cheek	-	-	-
			Tilt	0.111	0.233	0.112

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

850MHz Body SAR results

Mode	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
4-slot GPRS			Conducted Power	30.5 dBm	30.5 dBm	30.5 dBm
	Slide closed	Display facing phantom	Without headset	-	-	-
			Headset WH-205	-	-	-
		Back facing phantom	Without headset	0.624	0.932	1.03
			Headset WH-205	-	-	-
Mode	Option used	Device orientation	Test configuration	SAR, averaged over 1g (W/kg)		
				Ch 4132 826.4 MHz	Ch 4175 835.0 MHz	Ch 4233 846.6 MHz
WCDMA			Conducted Power	23.5 dBm	23.5 dBm	23.5 dBm
	Slide closed	Display facing phantom	Without headset	-	-	-
			Headset WH-205	-	-	-
		Back facing phantom	Without headset	0.286	0.398	0.456
			Headset WH-205	-	-	-

1700/2100MHz Body SAR results

Mode	Option used	Device orientation	Test configuration	SAR, averaged over 1g (W/kg)		
				Ch 1312 1712.4 MHz	Ch 1412 1732.4 MHz	Ch 1513 1752.6 MHz
WCDMA			Conducted Power	23.5 dBm	23.5 dBm	23.5 dBm
	Slide closed	Display facing phantom	Without headset	-	-	-
			Headset WH-205	-	-	-
		Back facing phantom	Without headset	0.596	0.717	0.797
			Headset WH-205	-	-	-

1900MHz Body SAR results

Mode	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
4-slot GPRS			Conducted Power	28.5 dBm	28.5 dBm	28.5 dBm
	Slide closed	Display facing phantom	Without headset	-	-	-
			Headset WH-205	-	-	-
		Back facing phantom	Without headset	1.12	0.965	0.828
			Headset WH-205	0.928	0.850	0.771
Mode	Option used	Device orientation	Test configuration	SAR, averaged over 1g (W/kg)		
				Ch 9262 1852.4 MHz	Ch 9400 1880.0 MHz	Ch 9538 1907.6 MHz
WCDMA			Conducted Power	23.5 dBm	23.5 dBm	23.5 dBm
	Slide closed	Display facing phantom	Without headset	-	-	-
			Headset WH-205	-	-	-
		Back facing phantom	Without headset	-	-	-
			Headset WH-205	0.645	0.573	0.482

2450MHz Body SAR results**

Mode	Option used	Device orientation	Test configuration	SAR, averaged over 1g (W/kg)		
				Ch 1 2412.0 MHz	Ch 7 2442.0 MHz	Ch 11 2462.0 MHz
WLAN b-mode			Conducted Power	15.2 dBm	18.0 dBm	15.2 dBm
	Slide closed	Display facing phantom	Without headset	-	0.041	-
			Headset WH-205	-	0.035	-
		Back facing phantom	Without headset	0.047	0.109	0.044
			Headset WH-205	-	0.100	-
WLAN n-mode 20MHz			Conducted Power	14.5 dBm	17.1 dBm	14.5 dBm
	Slide closed	Display facing phantom	Without headset	-	-	-
			Headset WH-205	-	-	-
		Back facing phantom	Without headset	0.041	0.076	0.038
			Headset WH-205	-	-	-

Simultaneous transmissions: Combined SAR results – Individual band Max results

Test configuration	Max. 1g SAR results					
	WLAN **	4-slot GPRS850	WCDMA 850	WCDMA 1700/2100	4-slot GPRS1900	WCDMA 1900
Head: Left, Cheek	0.143	-	-	-	0.757	0.564
Head: Left, Tilt	0.171	-	-	-	-	-
Head: Right, Cheek	0.252	0.575	0.227	0.441	-	-
Head: Right, Tilt	0.303	-	-	-	-	-
Body: Display facing phantom, Without Headset	0.041	-	-	-	-	-
Body: Display facing phantom, Headset WH-205	0.035	-	-	-	-	-
Body: Back facing phantom, Without Headset	0.109	1.03	0.456	0.797	1.12	-
Body: Back facing phantom, Headset WH-205	0.100	-	-	-	0.928	0.645

Simultaneous transmissions: Combined SAR results – Max + Max combined results

Test configuration	Combined 1g SAR values				
	4-slot GPRS850 + WLAN	WCDMA 850 + WLAN	WCDMA 1700/2100 + WLAN	4-slot GPRS1900 + WLAN	WCDMA 1900 + WLAN
Head: Left, Cheek	-	-	-	0.900	0.707
Head: Left, Tilt	-	-	-	-	-
Head: Right, Cheek	0.827	0.479	0.693	-	-
Head: Right, Tilt	-	-	-	-	-
Body: Display facing phantom, Without Headset	-	-	-	-	-
Body: Display facing phantom, Headset WH-205	-	-	-	-	-
Body: Back facing phantom, Without Headset	1.139	0.565	0.906	1.229	-
Body: Back facing phantom, Headset WH-205	-	-	-	1.028	0.745

The following table gives a more accurate assessment of the SAR values for simultaneous transmission. These values have been calculated using the SPEAG Combined Multiband algorithm, which is based on area scans. It a) converts the 2D area scans into 3D volume scans by assuming frequency-dependent decay characteristics for the E-field, b) sums the SAR values for WLAN2450 and the cellular bands point-by-point and c) calculates the combined average SAR values. It is these values that are given in Section 1.2.

**Simultaneous transmissions: Combined SAR results –
SPEAG Combined Multiband algorithm results**

Test configuration	Combined 1g SAR values				
	4-slot GPRS850 + WLAN	WCDMA 850 + WLAN	WCDMA 1700/2100 + WLAN	4-slot GPRS1900 + WLAN	WCDMA 1900 + WLAN
Head: Left, Cheek	-	-	-	0.847	0.615
Head: Left, Tilt	-	-	-	-	-
Head: Right, Cheek	0.578	0.270	0.477	-	-
Head: Right, Tilt	-	-	-	-	-
Body: Display facing phantom, Without Headset	-	-	-	-	-
Body: Display facing phantom, Headset WH-205	-	-	-	-	-
Body: Back facing phantom, Without Headset	1.06	0.479	0.816	1.14	-
Body: Back facing phantom, Headset WH-205	-	-	-	-	0.680

**SAR results taken from FCC_RM-626_11.

Note: Simultaneous Transmission Procedures as described in KDB648474 are not required for this product. The Combined SAR data given in the tables above has been voluntarily calculated.

Plots of the Measurement scans are given in Appendix B.

APPENDIX A: SYSTEM CHECKING SCANS

Date: 2011-06-28, Time: 08:15:51, Time: 08:21:36

Test Laboratory: TCC Nokia

Type: D835V2; Serial: D835V2 - SN:480

Communication System: CW850

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: HSL850; Medium Notes: $t = 21.3$ C

Medium parameters used: $f = 835$ MHz; $\sigma = 0.908$ mho/m; $\epsilon_r = 40.1$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: ES3DV3 - SN3194
- ConvF(6.09, 6.09, 6.09); Calibrated: 2010-09-09
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2010-09-09
- Phantom: SAM 3; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY52, V52.6 Build 2; SEMCAD X Version 14.0 Build 61

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

Maximum value of SAR (interpolated) = 2.52 mW/g

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

Reference Value = 53.5 V/m

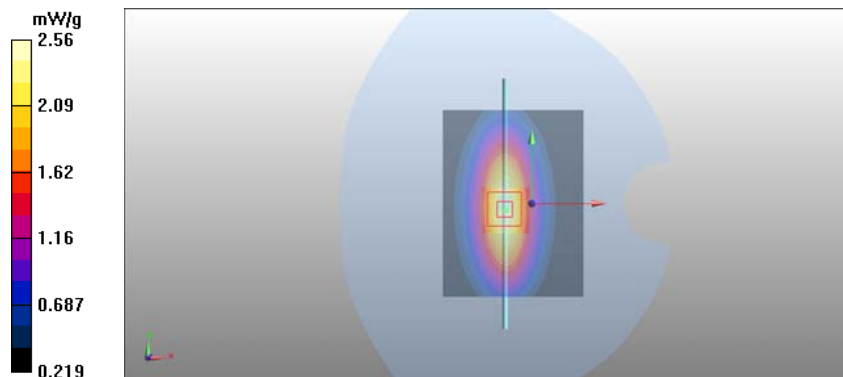
Peak SAR (extrapolated) = 3.61 W/kg

SAR(1 g) = 2.37 mW/g

SAR(10 g) = 1.53 mW/g

Power Drift = 0.023 dB

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



Date: 2011-06-30, Time: 08:35:48, Time: 08:41:51

Test Laboratory: TCC Nokia

Type: D1800V2; Serial: D1800V2 - SN:256

Communication System: CW1800

Frequency: 1800 MHz; Duty Cycle: 1:1

Medium: HSL1800; Medium Notes: t= 21.9 C

Medium parameters used: f = 1800 MHz; σ = 1.41 mho/m; ϵ_r = 38.4; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: ES3DV3 - SN3165
- ConvF(5.19, 5.19, 5.19); Calibrated: 2011-02-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn555; Calibrated: 2011-02-22
- Phantom: SAM 4; Type: Twin SAM 040 CA; Serial: TP-1018
- Measurement SW: DASY4, V4.7 Build 55; SEMCAD X Version 14.0 Build 61

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

Maximum value of SAR (interpolated) = 12.3 mW/g

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

Reference Value = 91.8 V/m

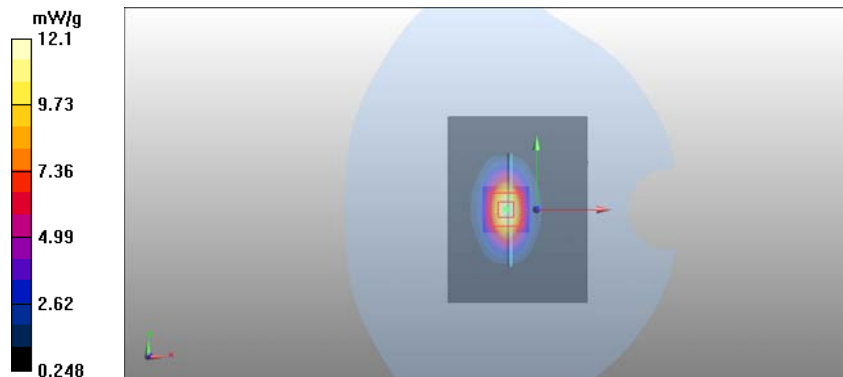
Peak SAR (extrapolated) = 20 W/kg

SAR(1 g) = 10.7 mW/g

SAR(10 g) = 5.55 mW/g

Power Drift = 0.093 dB

Maximum value of SAR (measured) = 12.1 mW/g



Date: 2011-06-23, Time: 08:52:31, Time: 09:15:35

Test Laboratory: TCC Nokia

Type: D1900V2; Serial: D1900V2 - SN:5d013

Communication System: CW1900

Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: HSL1900; Medium Notes: t= 22.2 C

Medium parameters used: f = 1900 MHz; σ = 1.38 mho/m; ϵ_r = 39.8; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: ES3DV3 - SN3165
- ConvF(5.03, 5.03, 5.03); Calibrated: 2011-02-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn555; Calibrated: 2011-02-22
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1449
- Measurement SW: DASY4, V4.7 Build 55; SEMCAD X Version 14.0 Build 61

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

Maximum value of SAR (interpolated) = 12.3 mW/g

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

Reference Value = 86 V/m

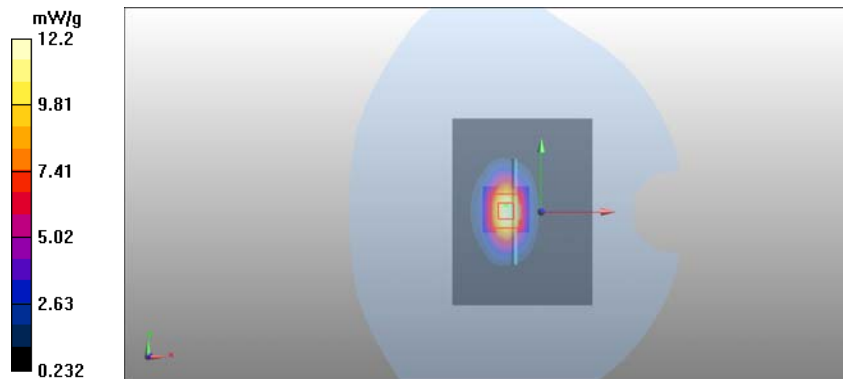
Peak SAR (extrapolated) = 20.4 W/kg

SAR(1 g) = 10.8 mW/g

SAR(10 g) = 5.63 mW/g

Power Drift = 0.025 dB

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



Date: 2011-06-30, Time: 10:59:33, Time: 11:05:19

Test Laboratory: TCC Nokia

Type: D835V2; Serial: D835V2 - SN:480

Communication System: CW850

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: BSL850; Medium Notes: t= 21.8 C

Medium parameters used: f = 835 MHz; σ = 1.01 mho/m; ϵ_r = 53; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: ES3DV3 - SN3194
- ConvF(5.95, 5.95, 5.95); Calibrated: 2010-09-09
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2010-09-09
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY52, V52.6 Build 2; SEMCAD X Version 14.0 Build 61

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

Maximum value of SAR (interpolated) = 2.71 mW/g

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

Reference Value = 52.5 V/m

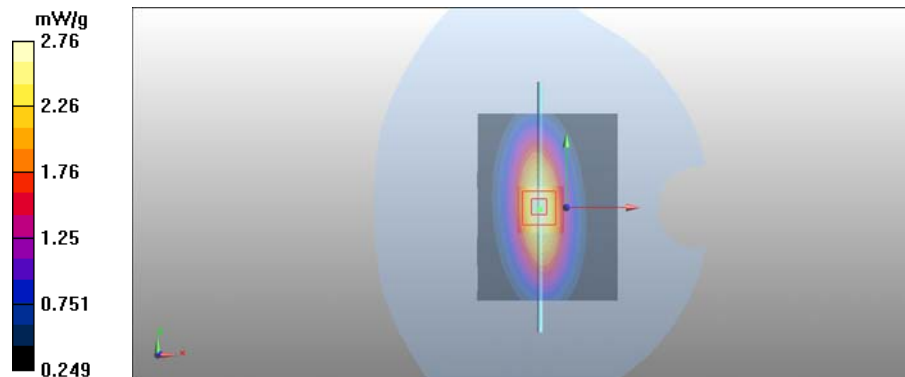
Peak SAR (extrapolated) = 3.84 W/kg

SAR(1 g) = 2.56 mW/g

SAR(10 g) = 1.67 mW/g

Power Drift = 0.070 dB

Maximum value of SAR (measured) = 2.76 mW/g



Date: 2011-07-01, Time: 07:58:37, Time: 08:04:21

Test Laboratory: TCC Nokia

Type: D835V2; Serial: D835V2 - SN:480

Communication System: CW850

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: BSL850; Medium Notes: t= 21.5 C

Medium parameters used: f = 835 MHz; σ = 1.01 mho/m; ϵ_r = 52.9; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: ES3DV3 - SN3194
- ConvF(5.95, 5.95, 5.95); Calibrated: 2010-09-09
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2010-09-09
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY52, V52.6 Build 2; SEMCAD X Version 14.0 Build 61

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

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

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

Reference Value = 51.9 V/m

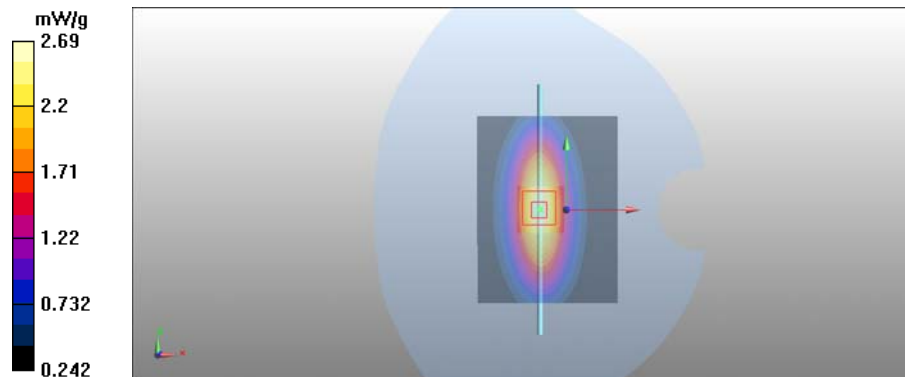
Peak SAR (extrapolated) = 3.75 W/kg

SAR(1 g) = 2.5 mW/g

SAR(10 g) = 1.62 mW/g

Power Drift = 0.078 dB

Maximum value of SAR (measured) = 2.69 mW/g



Date: 2011-07-01, Time: 08:12:29, Time: 08:18:27

Test Laboratory: TCC Nokia

Type: D1800V2; Serial: D1800V2 - SN:256

Communication System: CW1800

Frequency: 1800 MHz; Duty Cycle: 1:1

Medium: BSL1800; Medium Notes: $t = 21.9$ C

Medium parameters used: $f = 1800$ MHz; $\sigma = 1.53$ mho/m; $\epsilon_r = 51.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: ES3DV3 - SN3165
- ConvF(4.91, 4.91, 4.91); Calibrated: 2011-02-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn555; Calibrated: 2011-02-22
- Phantom: SAM 3; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY4, V4.7 Build 55; SEMCAD X Version 14.0 Build 61

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

Maximum value of SAR (interpolated) = 12.4 mW/g

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

Reference Value = 87.4 V/m

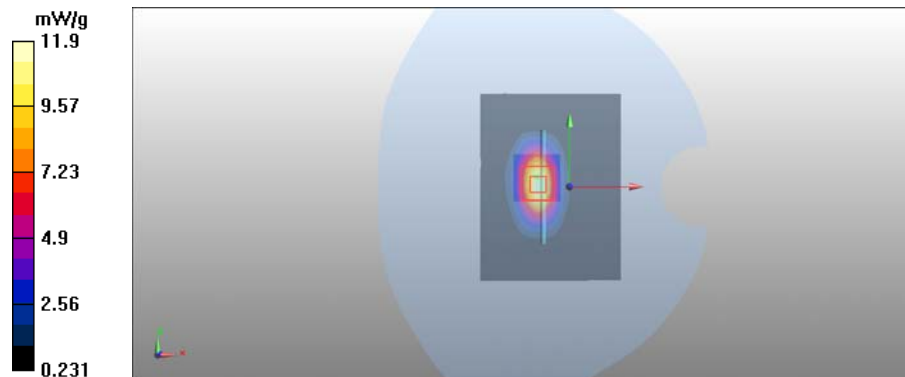
Peak SAR (extrapolated) = 18.2 W/kg

SAR(1 g) = 10.5 mW/g

SAR(10 g) = 5.51 mW/g

Power Drift = 0.115 dB

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



Date: 2011-06-27, Time: 09:28:47, Time: 09:49:26

Test Laboratory: TCC Nokia

Type: D1900V2; Serial: D1900V2 - SN:5d013

Communication System: CW1900

Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: BSL1900; Medium Notes: $t = 21.9$ C

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.55$ mho/m; $\epsilon_r = 52.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: ES3DV3 - SN3165
- ConvF(4.61, 4.61, 4.61); Calibrated: 2011-02-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn555; Calibrated: 2011-02-22
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, V4.7 Build 55; SEMCAD X Version 14.0 Build 61

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

Maximum value of SAR (interpolated) = 12.6 mW/g

Configuration/d=15mm, Pin=250mW/Zoom Scan 2 (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 92.8 V/m

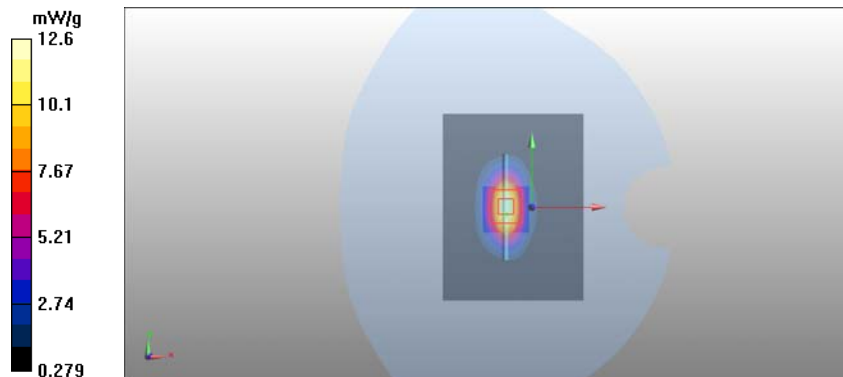
Peak SAR (extrapolated) = 19.5 W/kg

SAR(1 g) = 11.1 mW/g

SAR(10 g) = 5.82 mW/g

Power Drift = -0.011 dB

Maximum value of SAR (measured) = 12.6 mW/g



APPENDIX B: MEASUREMENT SCANS

Date: 2011-06-28, Time: 09:25:43, Time: 09:30:04

Test Laboratory: TCC Nokia

Type: RM-626; Serial: 004402/13/268630/8

Communication System: 4-slot GPRS850

Frequency: 848.8 MHz; Duty Cycle: 1:2.09991

Medium: HSL850; Medium Notes: t= 21.3 C

Medium parameters used: f = 849 MHz; $\sigma = 0.919$ mho/m; $\epsilon_r = 39.9$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY Configuration:

- Probe: ES3DV3 - SN3194
- ConvF(6.09, 6.09, 6.09); Calibrated: 2010-09-09
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2010-09-09
- Phantom: SAM 3; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY52, V52.6 Build 2; SEMCAD X Version 14.0 Build 61

4-slot GPRS - Right/Cheek -High - Slide closed /Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.604 mW/g

4-slot GPRS - Right/Cheek -High - Slide closed /Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 13 V/m

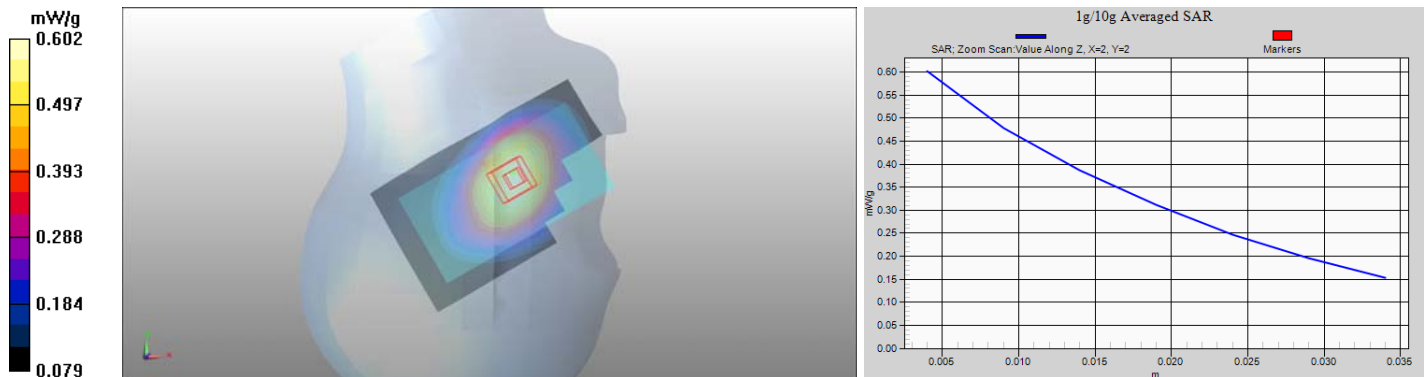
Peak SAR (extrapolated) = 0.722 W/kg

SAR(1 g) = 0.575 mW/g

SAR(10 g) = 0.443 mW/g

Power Drift = -0.0061 dB

Maximum value of SAR (measured) = 0.602 mW/g



Date: 2011-06-28, Time: 12:20:19, Time: 12:24:40

Test Laboratory: TCC Nokia

Type: RM-626; Serial: 004402/13/268630/8

Communication System: WCDMA850

Frequency: 846.6 MHz; Duty Cycle: 1:1

Medium: HSL850; Medium Notes: t= 21.3 C

Medium parameters used: f = 847 MHz; σ = 0.918 mho/m; ϵ_r = 40; ρ = 1000 kg/m³

Phantom section: Right Section

DASY Configuration:

- Probe: ES3DV3 - SN3194
- ConvF(6.09, 6.09, 6.09); Calibrated: 2010-09-09
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2010-09-09
- Phantom: SAM 3; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY52, V52.6 Build 2; SEMCAD X Version 14.0 Build 61

WCDMA - Right/Cheek – High – Slide closed /Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.236 mW/g

WCDMA - Right/Cheek – High – Slide closed /Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 8.46 V/m

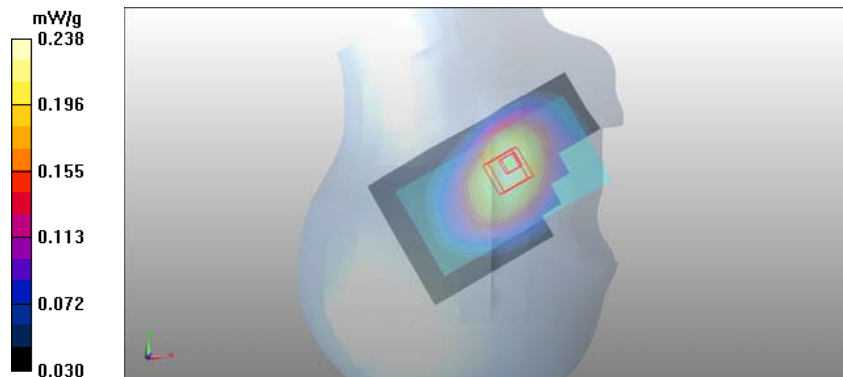
Peak SAR (extrapolated) = 0.299 W/kg

SAR(1 g) = 0.227 mW/g

SAR(10 g) = 0.174 mW/g

Power Drift = 0.211 dB

Maximum value of SAR (measured) = 0.238 mW/g



Date: 2011-06-30, Time: 09:36:47, Time: 09:43:32

Test Laboratory: TCC Nokia

Type: RM-626; Serial: 004402/13/268630/8

Communication System: WCDMA1700/2100

Frequency: 1752.6 MHz; Duty Cycle: 1:1

Medium: HSL1800; Medium Notes: t= 21.9 C

Medium parameters used: f = 1753 MHz; σ = 1.37 mho/m; ϵ_r = 38.6; ρ = 1000 kg/m³

Phantom section: Right Section

DASY Configuration:

- Probe: ES3DV3 - SN3165

- ConvF(5.19, 5.19, 5.19); Calibrated: 2011-02-17

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

- Electronics: DAE4 Sn555; Calibrated: 2011-02-22

- Phantom: SAM 4; Type: Twin SAM 040 CA; Serial: TP-1018

- Measurement SW: DASY4, V4.7 Build 55; SEMCAD X Version 14.0 Build 61

WCDMA - Right/Cheek – High – Slide closed/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.521 mW/g

WCDMA - Right/Cheek – High – Slide closed/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm,

dy=7.5mm, dz=5mm

Reference Value = 10.4 V/m

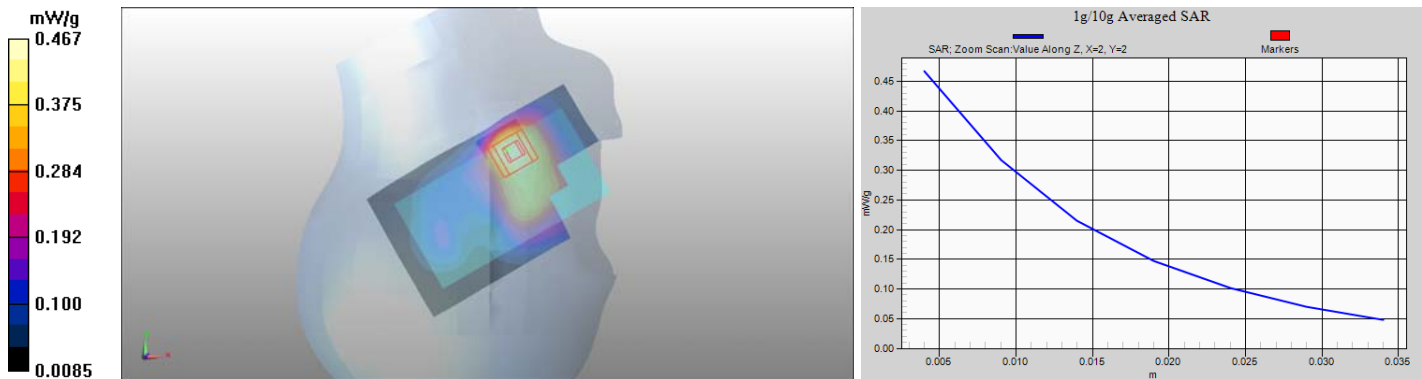
Peak SAR (extrapolated) = 0.653 W/kg

SAR(1 g) = 0.441 mW/g

SAR(10 g) = 0.294 mW/g

Power Drift = -0.017 dB

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



SAR Report

FCC_RM-626_18

Applicant: Nokia Corporation

Type: RM-626

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Date: 2011-06-23, Time: 09:57:43, Time: 10:03:48

Test Laboratory: TCC Nokia

Type: RM-626; Serial: 004402/13/268630/8

Communication System: 4-slot GPRS1900

Frequency: 1850.2 MHz; Duty Cycle: 1:2.1

Medium: HSL1900; Medium Notes: t= 22.2 C

Medium parameters used (interpolated): f = 1850.2 MHz; $\sigma = 1.34$ mho/m; $\epsilon_r = 39.9$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY Configuration:

- Probe: ES3DV3 - SN3165
- ConvF(5.03, 5.03, 5.03); Calibrated: 2011-02-17
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn555; Calibrated: 2011-02-22
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1449
- Measurement SW: DASY4, V4.7 Build 55; SEMCAD X Version 14.0 Build 61

4-slot GPRS - Left/Cheek - Low - Slide closed/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.927 mW/g

4-slot GPRS - Left/Cheek - Low - Slide closed /Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 12.2 V/m

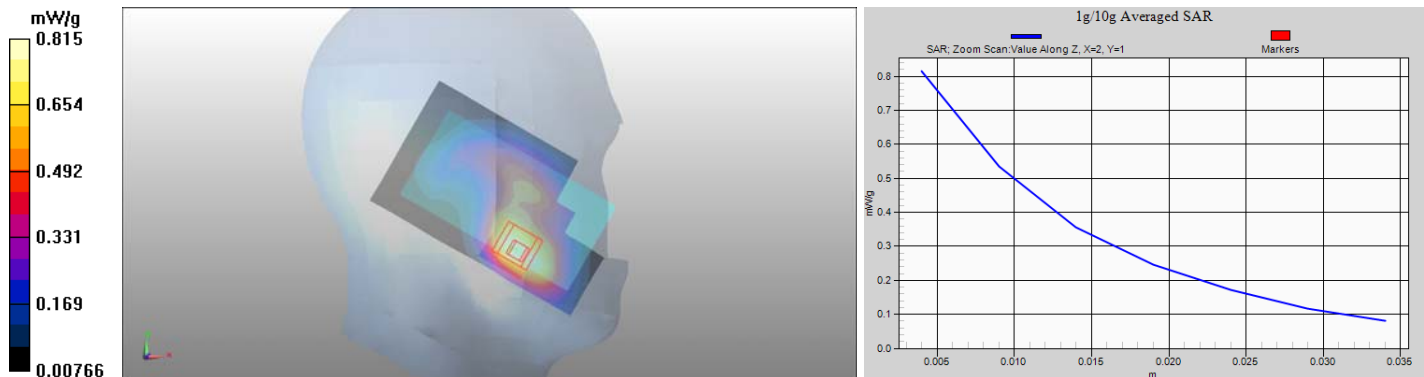
Peak SAR (extrapolated) = 1.19 W/kg

SAR(1 g) = 0.757 mW/g

SAR(10 g) = 0.488 mW/g

Power Drift = -0.069 dB

Maximum value of SAR (measured) = 0.815 mW/g



Date: 2011-06-23, Time: 13:10:48, Time: 13:35:06

Test Laboratory: TCC Nokia

Type: RM-626; Serial: 004402/13/268630/8

Communication System: WCDMA1900

Frequency: 1852.4 MHz; Duty Cycle: 1:1

Medium: HSL1900; Medium Notes: t= 22.2 C

Medium parameters used (interpolated): f = 1852.4 MHz; $\sigma = 1.34$ mho/m; $\epsilon_r = 39.9$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY Configuration:

- Probe: ES3DV3 - SN3165
- ConvF(5.03, 5.03, 5.03); Calibrated: 2011-02-17
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn555; Calibrated: 2011-02-22
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1449
- Measurement SW: DASY4, V4.7 Build 55; SEMCAD X Version 14.0 Build 61

WCDMA - Left/Cheek – Low – Slide closed/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.662 mW/g

WCDMA - Left/Cheek - Low - Slide closed/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 9.61 V/m

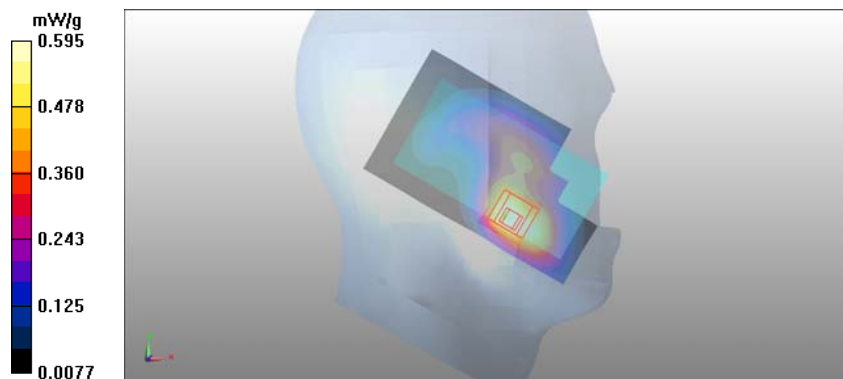
Peak SAR (extrapolated) = 0.930 W/kg

SAR(1 g) = 0.564 mW/g

SAR(10 g) = 0.360 mW/g

Power Drift = 0.161 dB

Maximum value of SAR (measured) = 0.595 mW/g



Date: 2011-06-29, Time: 07:23:08, Time: 07:26:45

Test Laboratory: TCC Nokia

Type: RM-626; Serial: 004402/13/268630/8

Communication System: 4-slot GPRS850

Frequency: 848.8 MHz; Duty Cycle: 1:2.09991

Medium: BSL850; Medium Notes: t= 22.2 C

Medium parameters used: f = 849 MHz; σ = 1.02 mho/m; ϵ_r = 52.9; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: ES3DV3 - SN3194
- ConvF(5.95, 5.95, 5.95); Calibrated: 2010-09-09
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2010-09-09
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY52, V52.6 Build 2; SEMCAD X Version 14.0 Build 61

4-slot GPRS/Body -High - Slide Closed - No Accessory - Back Facing Phantom/Area Scan (61x101x1):

Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.09 mW/g

4-slot GPRS/Body -High - Slide Closed - No Accessory - Back Facing Phantom/Zoom Scan (7x7x7)/Cube 0:

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

Reference Value = 14.4 V/m

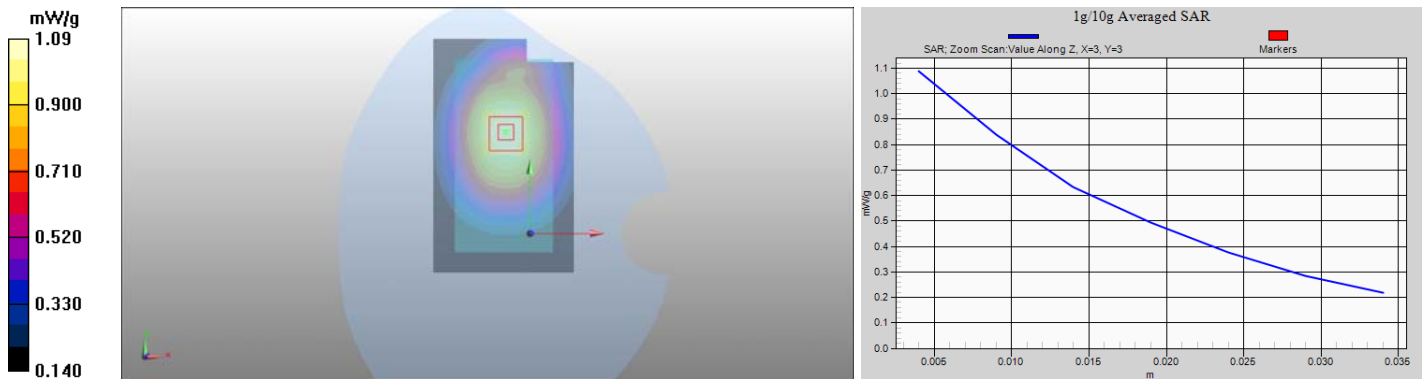
Peak SAR (extrapolated) = 1.33 W/kg

SAR(1 g) = 1.03 mW/g

SAR(10 g) = 0.772 mW/g

Power Drift = 0.242 dB

Maximum value of SAR (measured) = 1.09 mW/g



Date: 2011-06-28, Time: 13:41:05, Time: 13:44:43

Test Laboratory: TCC Nokia

Type: RM-626; Serial: 004402/13/268630/8

Communication System: WCDMA850

Frequency: 846.6 MHz; Duty Cycle: 1:1

Medium: BSL850; Medium Notes: t= 22.2 C

Medium parameters used: f = 847 MHz; σ = 1.02 mho/m; ϵ_r = 52.9; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: ES3DV3 - SN3194
- ConvF(5.95, 5.95, 5.95); Calibrated: 2010-09-09
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2010-09-09
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY52, V52.6 Build 2; SEMCAD X Version 14.0 Build 61

WCDMA/Body -High - Slide Closed - No Accessory - Back Facing Phantom/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.476 mW/g

WCDMA/Body -High - Slide Closed - No Accessory - Back Facing Phantom/Zoom Scan (7x7x7)/Cube 0:

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

Reference Value = 10.1 V/m

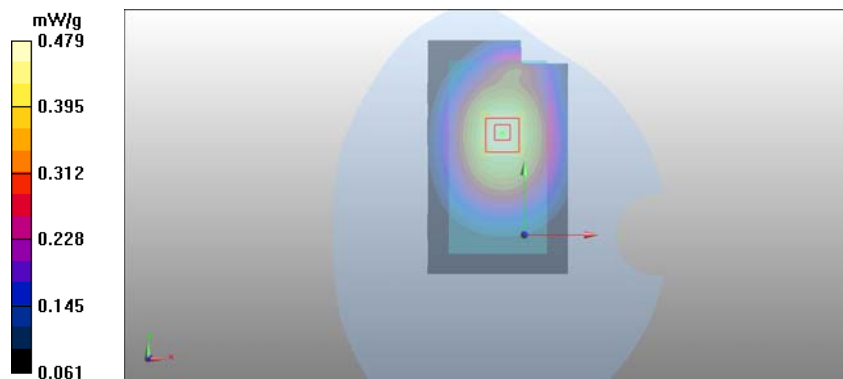
Peak SAR (extrapolated) = 0.587 W/kg

SAR(1 g) = 0.456 mW/g

SAR(10 g) = 0.340 mW/g

Power Drift = -0.113 dB

Maximum value of SAR (measured) = 0.479 mW/g



Date: 2011-06-30, Time: 11:47:39, Time: 11:52:36

Test Laboratory: TCC Nokia

Type: RM-626; Serial: 004402/13/268630/8

Communication System: WCDMA1700/2100

Frequency: 1752.6 MHz; Duty Cycle: 1:1

Medium: BSL1800; Medium Notes: t= 21.8 C

Medium parameters used: f = 1753 MHz; σ = 1.49 mho/m; ϵ_r = 51.5; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: ES3DV3 - SN3165

- ConvF(4.91, 4.91, 4.91); Calibrated: 2011-02-17

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

- Electronics: DAE4 Sn555; Calibrated: 2011-02-22

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

- Measurement SW: DASY4, V4.7 Build 55; SEMCAD X Version 14.0 Build 61

WCDMA/Body - High - Slide Closed - No Accessory - Back Facing Phantom/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.859 mW/g

WCDMA/Body - High - Slide Closed - No Accessory - Back Facing Phantom/Zoom Scan (5x5x7)/Cube 0:

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

Reference Value = 11.3 V/m

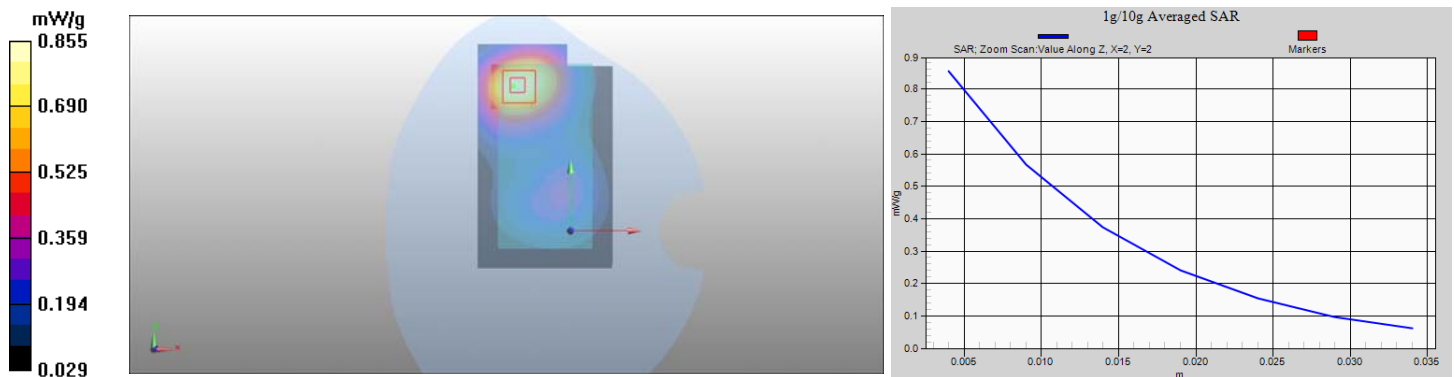
Peak SAR (extrapolated) = 1.18 W/kg

SAR(1 g) = 0.797 mW/g

SAR(10 g) = 0.510 mW/g

Power Drift = -0.034 dB

Maximum value of SAR (measured) = 0.855 mW/g



SAR Report

FCC_RM-626_18

Applicant: Nokia Corporation

Type: RM-626

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Date: 2011-06-27, Time: 10:26:17, Time: 10:31:05

Test Laboratory: TCC Nokia

Type: RM-626; Serial: 004402/13/268630/8

Communication System: 4-slot GPRS1900

Frequency: 1850.2 MHz; Duty Cycle: 1:2.1

Medium: BSL1900; Medium Notes: t= 21.9 C

Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.51$ mho/m; $\epsilon_r = 52.8$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: ES3DV3 - SN3165
- ConvF(4.61, 4.61, 4.61); Calibrated: 2011-02-17
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn555; Calibrated: 2011-02-22
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, V4.7 Build 55; SEMCAD X Version 14.0 Build 61

4-slot GPRS/ Body - Low - Slide Closed - No Accessory - Back Facing Phantom/Area Scan (61x101x1):

Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.2 mW/g

4-slot GPRS/Body - Low - Slide Closed - No Accessory - Back Facing Phantom/Zoom Scan (5x5x7)/Cube 0:

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

Reference Value = 16 V/m

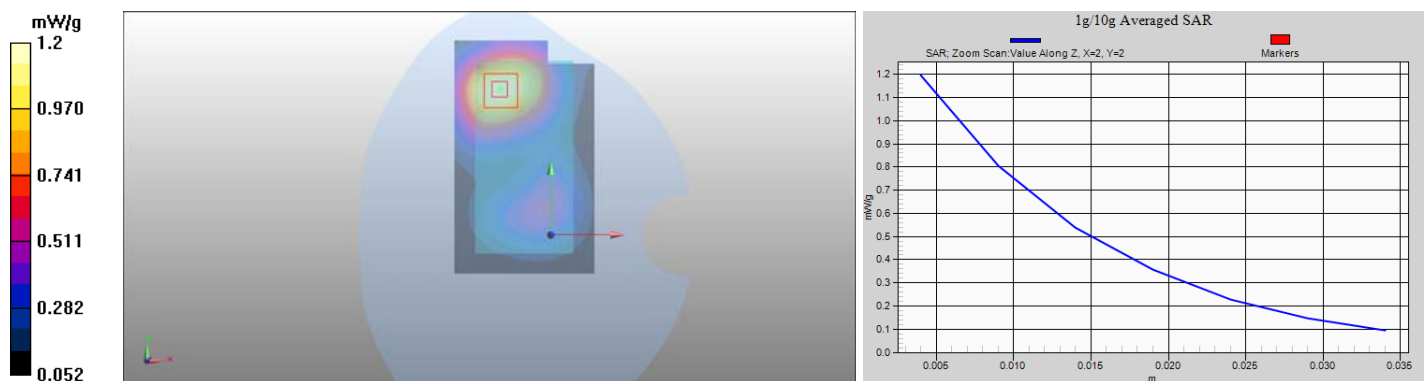
Peak SAR (extrapolated) = 1.65 W/kg

SAR(1 g) = 1.12 mW/g

SAR(10 g) = 0.731 mW/g

Power Drift = -0.178 dB

Maximum value of SAR (measured) = 1.2 mW/g



Date: 2011-06-27, Time: 12:18:10, Time: 12:31:07

Test Laboratory: TCC Nokia

Type: RM-626; Serial: 004402/13/268630/8

Communication System: 4-slot GPRS1900

Frequency: 1850.2 MHz; Duty Cycle: 1:2.1

Medium: BSL1900; Medium Notes: $t = 21.9$ C

Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.51$ mho/m; $\epsilon_r = 52.8$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: ES3DV3 - SN3165
- ConvF(4.61, 4.61, 4.61); Calibrated: 2011-02-17
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn555; Calibrated: 2011-02-22
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, V4.7 Build 55; SEMCAD X Version 14.0 Build 61

4-slot GPRS/Body - Low - Slide Closed - WH-205 - Back Facing Phantom/Area Scan (61x101x1): Measurement grid: $dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.998 mW/g

4-slot GPRS/Body - Low - Slide Closed - WH-205 - Back Facing Phantom/Zoom Scan (5x5x7)/Cube 0:

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

Reference Value = 9.77 V/m

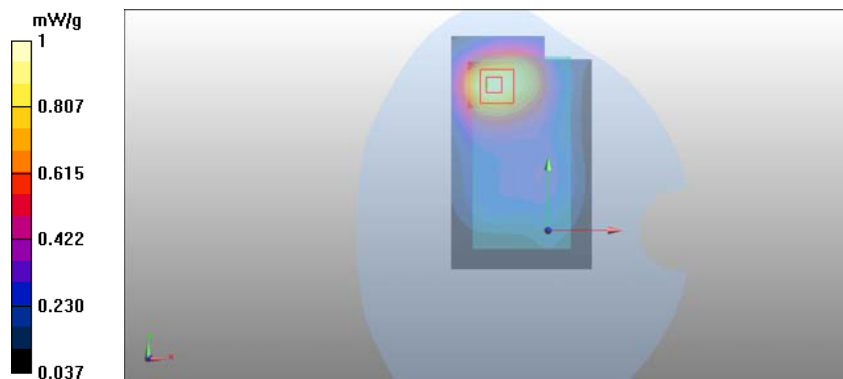
Peak SAR (extrapolated) = 1.41 W/kg

SAR(1 g) = 0.928 mW/g

SAR(10 g) = 0.593 mW/g

Power Drift = -0.096 dB

Maximum value of SAR (measured) = 1 mW/g



Date: 2011-06-27, Time: 15:18:06, Time: 15:33:41

Test Laboratory: TCC Nokia

Type: RM-626; Serial: 004402/13/268630/8

Communication System: WCDMA1900

Frequency: 1852.4 MHz; Duty Cycle: 1:1

Medium: BSL1900; Medium Notes: $t = 21.9$ C

Medium parameters used (interpolated): $f = 1852.4$ MHz; $\sigma = 1.51$ mho/m; $\epsilon_r = 52.8$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: ES3DV3 - SN3165
- ConvF(4.61, 4.61, 4.61); Calibrated: 2011-02-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn555; Calibrated: 2011-02-22
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, V4.7 Build 55; SEMCAD X Version 14.0 Build 61

WCDMA/Body - Low - Slide Closed - WH-205 - Back Facing Phantom/Area Scan (61x101x1): Measurement grid:
 $dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.711 mW/g

WCDMA/Body - Low - Slide Closed - WH-205 - Back Facing Phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=7.5$ mm, $dy=7.5$ mm, $dz=5$ mm

Reference Value = 7.21 V/m

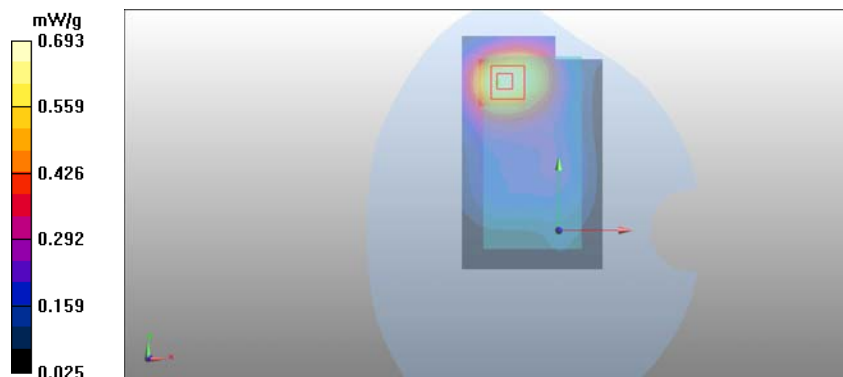
Peak SAR (extrapolated) = 0.981 W/kg

SAR(1 g) = 0.645 mW/g

SAR(10 g) = 0.411 mW/g

Power Drift = -0.041 dB

Maximum value of SAR (measured) = 0.693 mW/g



Date: 2010-10-21, Date: 2011-06-28, Time: 11:08:10, Time: 09:25:43

Test Laboratory: TCC Nokia

Type: RM-626; Serial: 354864/04/000448/4, Serial: 004402/13/268630/8

Communication System: WLAN2450 b-mode, Communication System: 4-slot GPRS850

Frequency: 2442 MHz, Frequency: 848.8 MHz; Duty Cycle: 1:1, Duty Cycle: 1:2.09991

Medium: HSL2450, Medium: HSL850; Medium Notes: t= 21.1 C, Medium Notes: t= 21.3 C

Medium parameters used: $f = 2442$ MHz; $\sigma = 1.86$ mho/m; $\epsilon_r = 37.5$; $\rho = 1000$ kg/m³, Medium parameters used:
 $f = 849$ MHz; $\sigma = 0.919$ mho/m; $\epsilon_r = 39.9$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY Configuration:

- Probe: EX3DV4 - SN3573, Probe: ES3DV3 - SN3194
- ConvF(6.56, 6.56, 6.56), ConvF(6.09, 6.09, 6.09); Calibrated: 2009-11-20, Calibrated: 2010-09-09
- Sensor-Surface: 4mm (Mechanical Surface Detection), Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
- Electronics: DAE4 Sn793, Electronics: DAE4 Sn538; Calibrated: 2010-09-08, Calibrated: 2010-09-09
- Phantom: SAM1, Phantom: SAM 3; Type: SAM, Type: Twin SAM 040 CA; Serial: TP-1126, Serial: TP-1179
- Measurement SW: DASY4, V4.7 Build 55, Measurement SW: DASY52, V52.6 Build 2; SEMCAD X Version 14.0 Build 61

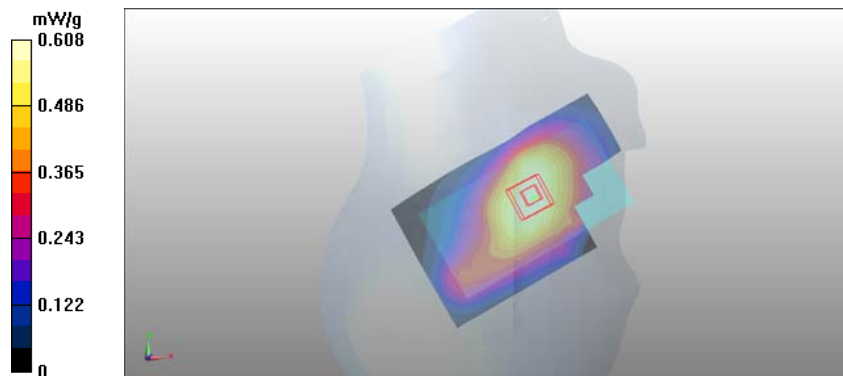
WLAN - Right/Cheek – Middle – Slide closed/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm

4-slot GPRS - Right/Cheek –High – Slide closed/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm

Motorola Fast SAR of Combined Scans: SAR(1 g) = 0.578 mW/g

SAR(10 g) = 0.408 mW/g

Maximum value of SAR (measured) = 0.608 mW/g



Date: 2010-10-21, Date: 2011-06-28, Time: 11:08:10, Time: 12:20:19

Test Laboratory: TCC Nokia

Type: RM-626; Serial: 354864/04/000448/4, Serial: 004402/13/268630/8

Communication System: WLAN2450 b-mode, Communication System: WCDMA850

Frequency: 2442 MHz, Frequency: 846.6 MHz; Duty Cycle: 1:1

Medium: HSL2450, Medium: HSL850; Medium Notes: t= 21.1 C, Medium Notes: t= 21.3 C

Medium parameters used: f = 2442 MHz; $\sigma = 1.86$ mho/m; $\epsilon_r = 37.5$; $\rho = 1000$ kg/m³, Medium parameters used: f = 847 MHz; $\sigma = 0.918$ mho/m; $\epsilon_r = 40$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY Configuration:

- Probe: EX3DV4 - SN3573, Probe: ES3DV3 - SN3194
- ConvF(6.56, 6.56, 6.56), ConvF(6.09, 6.09, 6.09); Calibrated: 2009-11-20, Calibrated: 2010-09-09
- Sensor-Surface: 4mm (Mechanical Surface Detection), Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
- Electronics: DAE4 Sn793, Electronics: DAE4 Sn538; Calibrated: 2010-09-08, Calibrated: 2010-09-09
- Phantom: SAM1, Phantom: SAM 3; Type: SAM, Type: Twin SAM 040 CA; Serial: TP-1126, Serial: TP-1179
- Measurement SW: DASY4, V4.7 Build 55, Measurement SW: DASY52, V52.6 Build 2; SEMCAD X Version 14.0 Build 61

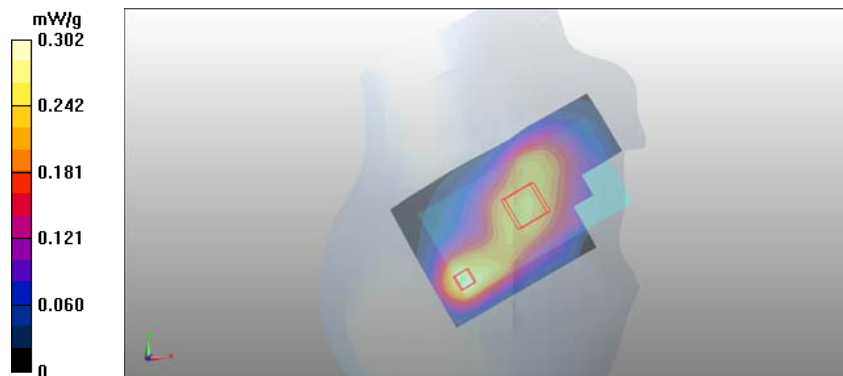
WLAN – Right/Cheek – Middle – Slide closed /Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm

WCDMA - Right/Cheek – High – Slide closed /Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm

Motorola Fast SAR of Combined Scans: SAR(1 g) = 0.270 mW/g

SAR(10 g) = 0.165 mW/g

Maximum value of SAR (measured) = 0.302 mW/g



Date: 2010-10-21, Date: 2011-06-30, Time: 11:08:10, Time: 09:36:47

Test Laboratory: TCC Nokia

Type: RM-626; Serial: 354864/04/000448/4, Serial: 004402/13/268630/8

Communication System: WLAN2450 b-mode, Communication System: WCDMA1700/2100

Frequency: 2442 MHz, Frequency: 1752.6 MHz; Duty Cycle: 1:1

Medium: HSL2450, Medium: HSL1800; Medium Notes: $t = 21.1$ C, Medium Notes: $t = 21.9$ C

Medium parameters used: $f = 2442$ MHz; $\sigma = 1.86$ mho/m; $\epsilon_r = 37.5$; $\rho = 1000$ kg/m³, Medium parameters used:
 $f = 1753$ MHz; $\sigma = 1.37$ mho/m; $\epsilon_r = 38.6$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY Configuration:

- Probe: EX3DV4 - SN3573, Probe: ES3DV3 - SN3165
- ConvF(6.56, 6.56, 6.56), ConvF(5.19, 5.19, 5.19); Calibrated: 2009-11-20, Calibrated: 2011-02-17
- Sensor-Surface: 4mm (Mechanical Surface Detection), Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
- Electronics: DAE4 Sn793, Electronics: DAE4 Sn555; Calibrated: 2010-09-08, Calibrated: 2011-02-22
- Phantom: SAM1, Phantom: SAM 4; Type: SAM, Type: Twin SAM 040 CA; Serial: TP-1126, Serial: TP-1018
- Measurement SW: DASY4, V4.7 Build 55; SEMCAD X Version 14.0 Build 61

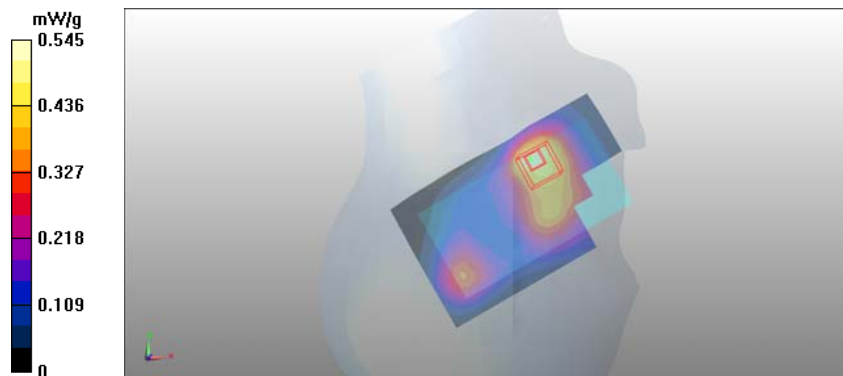
WLAN - Right/Cheek – Middle – Slide closed /Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm

WCDMA - Right/Cheek – High – Slide closed /Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm

Motorola Fast SAR of Combined Scans: SAR(1 g) = 0.477 mW/g

SAR(10 g) = 0.287 mW/g

Maximum value of SAR (measured) = 0.545 mW/g



Date: 2010-10-21, Date: 2011-06-23, Time: 10:38:30, Time: 09:57:43

Test Laboratory: TCC Nokia

Type: RM-626; Serial: 354864/04/000448/4, Serial: 004402/13/268630/8

Communication System: WLAN2450 b-mode, Communication System: 4-slot GPRS1900

Frequency: 2442 MHz, Frequency: 1850.2 MHz; Duty Cycle: 1:1, Duty Cycle: 1:2.1

Medium: HSL2450, Medium: HSL1900; Medium Notes: $t = 21.1$ C, Medium Notes: $t = 22.2$ C

Medium parameters used: $f = 2442$ MHz; $\sigma = 1.86$ mho/m; $\epsilon_r = 37.5$; $\rho = 1000$ kg/m³, Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.34$ mho/m; $\epsilon_r = 39.9$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY Configuration:

- Probe: EX3DV4 - SN3573, Probe: ES3DV3 - SN3165
- ConvF(6.56, 6.56, 6.56), ConvF(5.03, 5.03, 5.03); Calibrated: 2009-11-20, Calibrated: 2011-02-17
- Sensor-Surface: 4mm (Mechanical Surface Detection), Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
- Electronics: DAE4 Sn793, Electronics: DAE4 Sn555; Calibrated: 2010-09-08, Calibrated: 2011-02-22
- Phantom: SAM1, Phantom: SAM 1; Type: SAM, Type: Twin SAM 040 CA; Serial: TP-1126, Serial: TP-1449
- Measurement SW: DASY4, V4.7 Build 55; SEMCAD X Version 14.0 Build 61

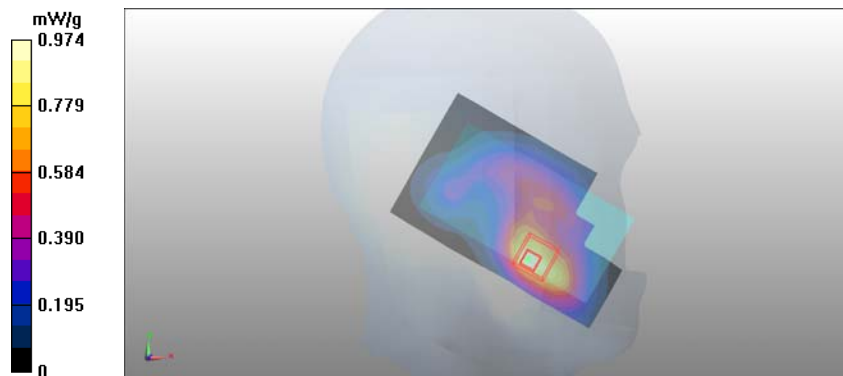
WLAN - Left/Cheek – Middle – Slide closed /Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm

4-slot GPRS - Left/Cheek – Low – Slide closed /Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm

Motorola Fast SAR of Combined Scans: SAR(1 g) = 0.847 mW/g

SAR(10 g) = 0.483 mW/g

Maximum value of SAR (measured) = 0.974 mW/g



Date: 2010-10-21, Date: 2011-06-23, Time: 10:38:30, Time: 13:10:48

Test Laboratory: TCC Nokia

Type: RM-626; Serial: 354864/04/000448/4, Serial: 004402/13/268630/8

Communication System: WLAN2450 b-mode, Communication System: WCDMA1900

Frequency: 2442 MHz, Frequency: 1852.4 MHz; Duty Cycle: 1:1

Medium: HSL2450, Medium: HSL1900; Medium Notes: $t = 21.1$ C, Medium Notes: $t = 22.2$ C

Medium parameters used: $f = 2442$ MHz; $\sigma = 1.86$ mho/m; $\epsilon_r = 37.5$; $\rho = 1000$ kg/m³, Medium parameters used (interpolated): $f = 1852.4$ MHz; $\sigma = 1.34$ mho/m; $\epsilon_r = 39.9$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY Configuration:

- Probe: EX3DV4 - SN3573, Probe: ES3DV3 - SN3165
- ConvF(6.56, 6.56, 6.56), ConvF(5.03, 5.03, 5.03); Calibrated: 2009-11-20, Calibrated: 2011-02-17
- Sensor-Surface: 4mm (Mechanical Surface Detection), Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
- Electronics: DAE4 Sn793, Electronics: DAE4 Sn555; Calibrated: 2010-09-08, Calibrated: 2011-02-22
- Phantom: SAM1, Phantom: SAM 1; Type: SAM, Type: Twin SAM 040 CA; Serial: TP-1126, Serial: TP-1449
- Measurement SW: DASY4, V4.7 Build 55; SEMCAD X Version 14.0 Build 61

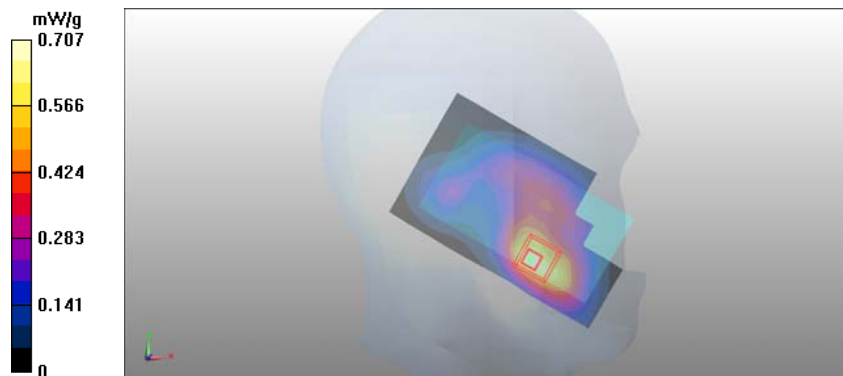
WLAN - Left/Cheek – Middle – Slide closed /Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm

WCDMA - Left/Cheek – Low – Slide closed /Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm

Motorola Fast SAR of Combined Scans: SAR(1 g) = 0.615 mW/g

SAR(10 g) = 0.355 mW/g

Maximum value of SAR (measured) = 0.707 mW/g



Date: 2011-06-29, Date: 2010-10-22, Time: 07:23:08, Time: 09:56:09

Test Laboratory: TCC Nokia

Type: RM-626; Serial: 004402/13/268630/8, Serial: 354864/04/000448/4

Communication System: 4-slot GPRS850, Communication System: WLAN2450 b-mode

Frequency: 848.8 MHz, Frequency: 2442 MHz; Duty Cycle: 1:2.09991, Duty Cycle: 1:1

Medium: BSL850, Medium: BSL2450; Medium Notes: $t = 22.2$ C, Medium Notes: $t = 20.4$ C

Medium parameters used: $f = 849$ MHz; $\sigma = 1.02$ mho/m; $\epsilon_r = 52.9$; $\rho = 1000$ kg/m³, Medium parameters used:
 $f = 2442$ MHz; $\sigma = 2.02$ mho/m; $\epsilon_r = 50.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: ES3DV3 - SN3194, Probe: EX3DV4 - SN3573
- ConvF(5.95, 5.95, 5.95), ConvF(6.63, 6.63, 6.63); Calibrated: 2010-09-09, Calibrated: 2009-11-20
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
- Electronics: DAE4 Sn538, Electronics: DAE4 Sn793; Calibrated: 2010-09-09, Calibrated: 2010-09-08
- Phantom: SAM 1, Phantom: SAM2; Type: Twin SAM 040 CA, Type: SAM; Serial: TP-1179, Serial: TP-1570
- Measurement SW: DASY52, V52.6 Build 2, Measurement SW: DASY4, V4.7 Build 55; SEMCAD X Version 14.0 Build 61

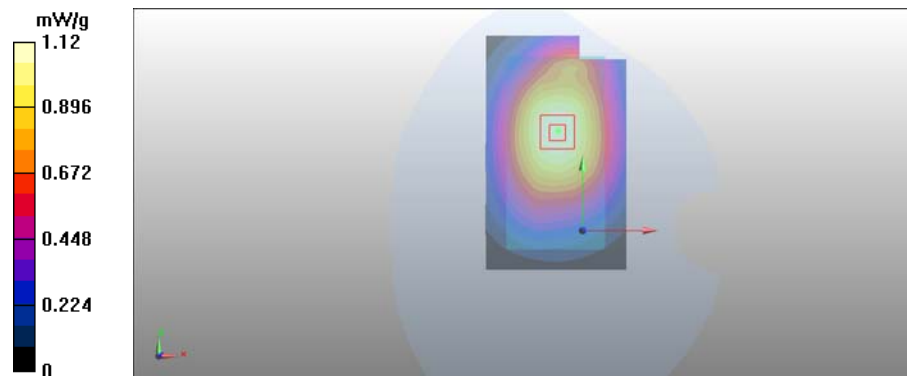
4-slot GPRS/Body -High - Slide Closed - No Accessory - Back Facing Phantom/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm

WLAN/Body - Middle - Slide Closed - No accessory - Back Facing Phantom/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm

Motorola Fast SAR of Combined Scans: SAR(1 g) = 1.06 mW/g

SAR(10 g) = 0.758 mW/g

Maximum value of SAR (measured) = 1.12 mW/g



Date: 2011-06-28, Date: 2010-10-22, Time: 13:41:05, Time: 09:56:09

Test Laboratory: TCC Nokia

Type: RM-626; Serial: 004402/13/268630/8, Serial: 354864/04/000448/4

Communication System: WCDMA850, Communication System: WLAN2450 b-mode

Frequency: 846.6 MHz, Frequency: 2442 MHz; Duty Cycle: 1:1

Medium: BSL850, Medium: BSL2450; Medium Notes: t= 22.2 C, Medium Notes: t= 20.4 C

Medium parameters used: f = 847 MHz; $\sigma = 1.02$ mho/m; $\epsilon_r = 52.9$; $\rho = 1000$ kg/m³, Medium parameters used:
f = 2442 MHz; $\sigma = 2.02$ mho/m; $\epsilon_r = 50.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: ES3DV3 - SN3194, Probe: EX3DV4 - SN3573
- ConvF(5.95, 5.95, 5.95), ConvF(6.63, 6.63, 6.63); Calibrated: 2010-09-09, Calibrated: 2009-11-20
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
- Electronics: DAE4 Sn538, Electronics: DAE4 Sn793; Calibrated: 2010-09-09, Calibrated: 2010-09-08
- Phantom: SAM 1, Phantom: SAM2; Type: Twin SAM 040 CA, Type: SAM; Serial: TP-1179, Serial: TP-1570
- Measurement SW: DASY52, V52.6 Build 2, Measurement SW: DASY4, V4.7 Build 55; SEMCAD X Version 14.0 Build 61

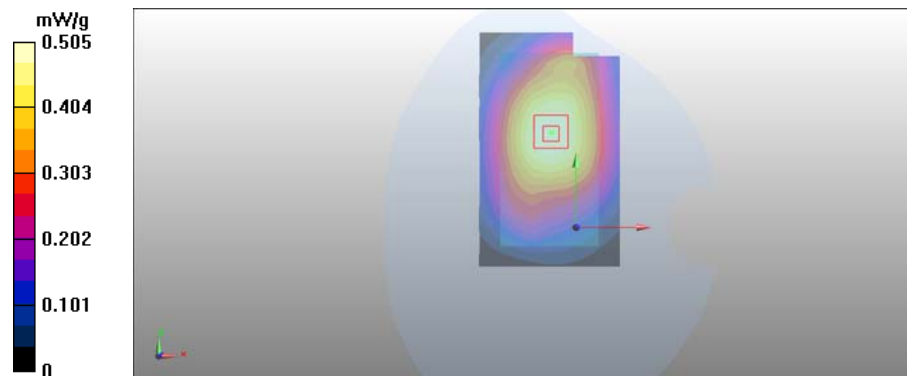
WCDMA/Body -High - Slide Closed - No Accessory - Back Facing Phantom/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm

WLAN/Body - Middle - Slide Closed - No accessory - Back Facing Phantom/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm

Motorola Fast SAR of Combined Scans: SAR(1 g) = 0.479 mW/g

SAR(10 g) = 0.339 mW/g

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



Date: 2011-06-30, Date: 2010-10-22, Time: 11:47:39, Time: 09:56:09

Test Laboratory: TCC Nokia

Type: RM-626; Serial: 004402/13/268630/8, Serial: 354864/04/000448/4

Communication System: WCDMA1700/2100, Communication System: WLAN2450 b-mode

Frequency: 1752.6 MHz, Frequency: 2442 MHz; Duty Cycle: 1:1

Medium: BSL1800, Medium: BSL2450; Medium Notes: t= 21.8 C, Medium Notes: t= 20.4 C

Medium parameters used: f = 1753 MHz; $\sigma = 1.49$ mho/m; $\epsilon_r = 51.5$; $\rho = 1000$ kg/m³, Medium parameters used:
f = 2442 MHz; $\sigma = 2.02$ mho/m; $\epsilon_r = 50.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: ES3DV3 - SN3165, Probe: EX3DV4 - SN3573
- ConvF(4.91, 4.91, 4.91), ConvF(6.63, 6.63, 6.63); Calibrated: 2011-02-17, Calibrated: 2009-11-20
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
- Electronics: DAE4 Sn555, Electronics: DAE4 Sn793; Calibrated: 2011-02-22, Calibrated: 2010-09-08
- Phantom: SAM 3, Phantom: SAM2; Type: Twin SAM 040 CA, Type: SAM; Serial: TP-1179, Serial: TP-1570
- Measurement SW: DASY4, V4.7 Build 55; SEMCAD X Version 14.0 Build 61

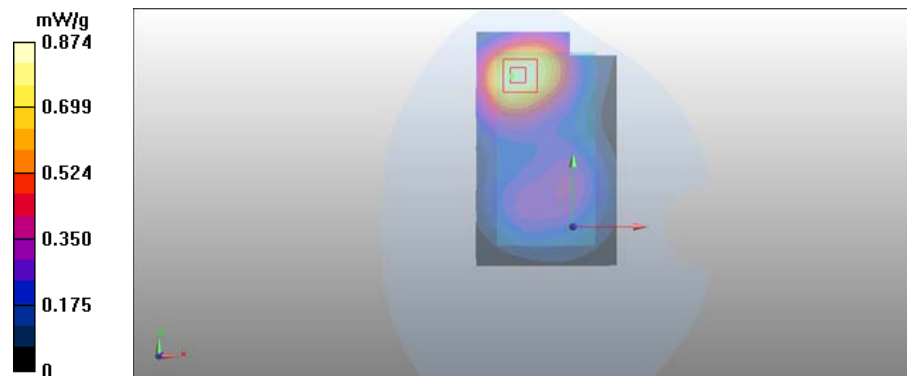
WCDMA /Body - High - Slide Closed - No Accessory - Back Facing Phantom/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm

WLAN/Body - Middle - Slide Closed - No accessory - Back Facing Phantom/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm

Motorola Fast SAR of Combined Scans: SAR(1 g) = 0.816 mW/g

SAR(10 g) = 0.509 mW/g

Maximum value of SAR (measured) = 0.874 mW/g



Date: 2011-06-27, Date: 2010-10-22, Time: 10:26:17, Time: 09:56:09

Test Laboratory: TCC Nokia

Type: RM-626; Serial: 004402/13/268630/8, Serial: 354864/04/000448/4

Communication System: 4-slot GPRS1900, Communication System: WLAN2450 b-mode

Frequency: 1850.2 MHz, Frequency: 2442 MHz; Duty Cycle: 1:2.1, Duty Cycle: 1:1

Medium: BSL1900, Medium: BSL2450; Medium Notes: t= 21.9 C, Medium Notes: t= 20.4 C

Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.51 mho/m; ϵ_r = 52.8; ρ = 1000 kg/m³, Medium parameters used: f = 2442 MHz; σ = 2.02 mho/m; ϵ_r = 50.4; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: ES3DV3 - SN3165, Probe: EX3DV4 - SN3573
- ConvF(4.61, 4.61, 4.61), ConvF(6.63, 6.63, 6.63); Calibrated: 2011-02-17, Calibrated: 2009-11-20
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
- Electronics: DAE4 Sn555, Electronics: DAE4 Sn793; Calibrated: 2011-02-22, Calibrated: 2010-09-08
- Phantom: SAM 2, Phantom: SAM2; Type: Twin SAM 040 CA, Type: SAM; Serial: TP - 1177, Serial: TP-1570
- Measurement SW: DASY4, V4.7 Build 55; SEMCAD X Version 14.0 Build 61

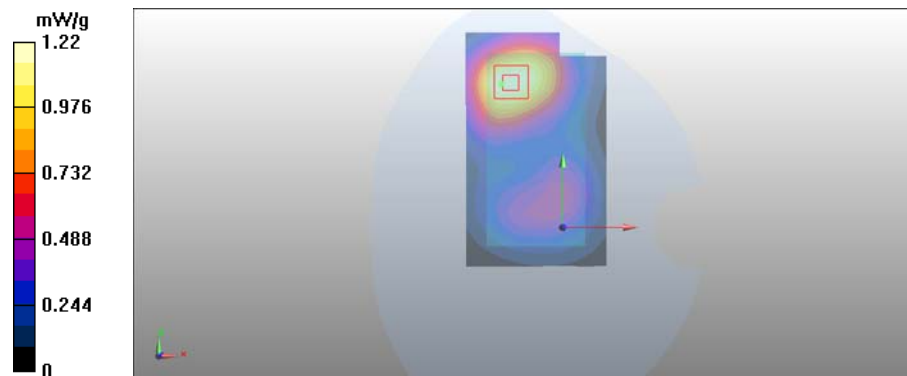
4-slot GPRS/Body - Low - Slide Close - No Accessory - Back Facing Phantom/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm

WLAN/Body - Middle - Slide Closed - No accessory - Back Facing Phantom/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm

Motorola Fast SAR of Combined Scans: SAR(1 g) = 1.14 mW/g

SAR(10 g) = 0.708 mW/g

Maximum value of SAR (measured) = 1.22 mW/g



Date: 2011-06-27, Date: 2010-10-22, Time: 15:18:06, Time: 10:07:44

Test Laboratory: TCC Nokia

Type: RM-626; Serial: 004402/13/268630/8, Serial: 354864/04/000448/4

Communication System: WCDMA1900, Communication System: WLAN2450 b-mode

Frequency: 1852.4 MHz, Frequency: 2442 MHz; Duty Cycle: 1:1

Medium: BSL1900, Medium: BSL2450; Medium Notes: t= 21.9 C, Medium Notes: t= 20.4 C

Medium parameters used (interpolated): f = 1852.4 MHz; $\sigma = 1.51$ mho/m; $\epsilon_r = 52.8$; $\rho = 1000$ kg/m³, Medium parameters used: f = 2442 MHz; $\sigma = 2.02$ mho/m; $\epsilon_r = 50.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY Configuration:

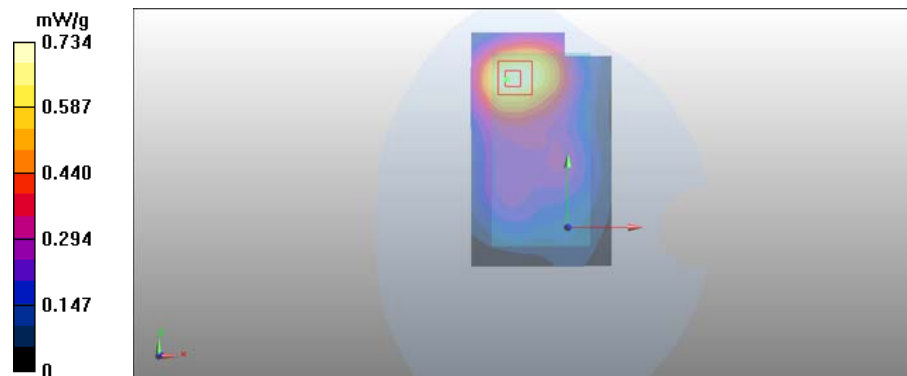
- Probe: ES3DV3 - SN3165, Probe: EX3DV4 - SN3573
- ConvF(4.61, 4.61, 4.61), ConvF(6.63, 6.63, 6.63); Calibrated: 2011-02-17, Calibrated: 2009-11-20
- Sensor-Surface: 4mm (Mechanical Surface Detection), Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
- Electronics: DAE4 Sn555, Electronics: DAE4 Sn793; Calibrated: 2011-02-22, Calibrated: 2010-09-08
- Phantom: SAM 2, Phantom: SAM2; Type: Twin SAM 040 CA, Type: SAM; Serial: TP - 1177, Serial: TP-1570
- Measurement SW: DASY4, V4.7 Build 55; SEMCAD X Version 14.0 Build 61

WCDMA/Body - Low - Slide Close - WH-205 - Back Facing Phantom/Area Scan (7x11x1): Measurement grid:
dx=15mm, dy=15mm

WLAN/Body - Middle - Slide Closed - WH-205 - Back Facing Phantom/Area Scan (7x11x1): Measurement grid:
dx=15mm, dy=15mm

Motorola Fast SAR of Combined Scans: SAR(1 g) = 0.680 mW/g
SAR(10 g) = 0.419 mW/g

Maximum value of SAR (measured) = 0.734 mW/g



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



Accredited by the Swiss Accreditation Service (SAS)

Accreditation No.: **SCS 108**

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

Client **Nokia Salo TCC**

Certificate No: **ES3-3194_Sep10**

CALIBRATION CERTIFICATE

Object **ES3DV3 - SN:3194**

Calibration procedure(s) **QA CAL-01.v6, QA CAL-23.v3 and QA CAL-25.v2
Calibration procedure for dosimetric E-field probes**

Calibration date: **September 9, 2010**

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-10 (No. 217-01136)	Apr-11
Power sensor E4412A	MY41495277	1-Apr-10 (No. 217-01136)	Apr-11
Power sensor E4412A	MY41498087	1-Apr-10 (No. 217-01136)	Apr-11
Reference 3 dB Attenuator	SN: S5054 (3c)	30-Mar-10 (No. 217-01159)	Mar-11
Reference 20 dB Attenuator	SN: S5086 (20b)	30-Mar-10 (No. 217-01161)	Mar-11
Reference 30 dB Attenuator	SN: S5129 (30b)	30-Mar-10 (No. 217-01160)	Mar-11
Reference Probe ES3DV2	SN: 3013	30-Dec-09 (No. ES3-3013_Dec09)	Dec-10
DAE4	SN: 660	20-Apr-10 (No. DAE4-660_Apr10)	Apr-11

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-09)	In house check: Oct10

Calibrated by: **Jeton Kastrati** **Laboratory Technician**

Approved by: **Katja Pokovic** **Technical Manager**

Issued: September 9, 2010

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

DASY/EASY - Parameters of Probe: ES3DV3 SN:3194

Calibration Parameter Determined in Head Tissue Simulating Media

f [MHz]	Validity [MHz] ^c	Permittivity	Conductivity	ConvF X	ConvF Y	ConvF Z	Alpha	Depth Unc (k=2)
835	± 50 / ± 100	41.5 ± 5%	0.90 ± 5%	6.09	6.09	6.09	0.99	1.05 ± 11.0%
1750	± 50 / ± 100	40.1 ± 5%	1.37 ± 5%	5.14	5.14	5.14	0.45	1.74 ± 11.0%
1900	± 50 / ± 100	40.0 ± 5%	1.40 ± 5%	4.93	4.93	4.93	0.44	1.85 ± 11.0%
2450	± 50 / ± 100	39.2 ± 5%	1.80 ± 5%	4.30	4.30	4.30	0.41	1.99 ± 11.0%

^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.

DASY/EASY - Parameters of Probe: ES3DV3 SN:3194

Calibration Parameter Determined in Body Tissue Simulating Media

f [MHz]	Validity [MHz] ^C	Permittivity	Conductivity	ConvF X	ConvF Y	ConvF Z	Alpha	Depth Unc (k=2)
835	± 50 / ± 100	55.2 ± 5%	0.97 ± 5%	5.95	5.95	5.95	0.84	1.15 ± 11.0%
1750	± 50 / ± 100	53.4 ± 5%	1.49 ± 5%	4.81	4.81	4.81	0.35	2.12 ± 11.0%
1900	± 50 / ± 100	53.3 ± 5%	1.52 ± 5%	4.58	4.58	4.58	0.35	2.32 ± 11.0%
2450	± 50 / ± 100	52.7 ± 5%	1.95 ± 5%	4.24	4.24	4.24	0.77	1.20 ± 11.0%

^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.



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 Salo TCC Certificate No: ES3-3165_Feb11

CALIBRATION CERTIFICATE

Object ES3DV3 - SN:3165

Calibration procedure(s) QA CAL-01.v7, QA CAL-23.v4, QA CAL-25.v3
Calibration procedure for dosimetric E-field probes

Calibration date: February 17, 2011

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	01-Apr-10 (No. 217-01136)	Apr-11
Power sensor E4412A	MY41495277	01-Apr-10 (No. 217-01136)	Apr-11
Power sensor E4412A	MY41498087	01-Apr-10 (No. 217-01136)	Apr-11
Reference 3 dB Attenuator	SN: S5054 (3c)	30-Mar-10 (No. 217-01159)	Mar-11
Reference 20 dB Attenuator	SN: S5086 (20b)	30-Mar-10 (No. 217-01161)	Mar-11
Reference 30 dB Attenuator	SN: S5129 (30b)	30-Mar-10 (No. 217-01160)	Mar-11
Reference Probe ES3DV2	SN: 3013	29-Dec-10 (No. ES3-3013_Dec10)	Dec-11
DAE4	SN: 654	23-Apr-10 (No. DAE4-654_Apr10)	Apr-11
Secondary Standards	ID	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-10)	In house check: Oct-11

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

Issued: February 22, 2011

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

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3165

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) ^C	Relative Permittivity ^F	Conductivity (S/m) ^F	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unci. (k=2)
835	41.5	0.90	6.09	6.09	6.09	0.43	1.44	± 12.0 %
1750	40.1	1.37	5.19	5.19	5.19	0.35	1.84	± 12.0 %
1900	40.0	1.40	5.03	5.03	5.03	0.64	1.34	± 12.0 %
2450	39.2	1.80	4.44	4.44	4.44	0.79	1.13	± 12.0 %

^C Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

^F At frequencies below 3 GHz, the validity of tissue parameters (ϵ and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ϵ and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

DASY/EASY - Parameters of Probe: ES3DV3- SN:3165

Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) ^C	Relative Permittivity ^F	Conductivity (S/m) ^F	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
835	55.2	0.97	6.04	6.04	6.04	0.50	1.43	± 12.0 %
1750	53.4	1.49	4.91	4.91	4.91	0.36	2.50	± 12.0 %
1900	53.3	1.52	4.61	4.61	4.61	0.34	2.38	± 12.0 %
2450	52.7	1.95	4.18	4.18	4.18	0.79	0.83	± 12.0 %

^C Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

^F At frequencies below 3 GHz, the validity of tissue parameters (ϵ and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ϵ and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

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



Accredited by the Swiss Accreditation Service (SAS)

Accreditation No.: **SCS 108**

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

Client **Nokia Salo TCC**

Certificate No: **D835V2-480_Oct09**

CALIBRATION CERTIFICATE

Object **D835V2 - SN: 480**

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

Calibration date: **October 19, 2009**

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	06-Oct-09 (No. 217-01086)	Oct-10
Power sensor HP 8481A	US37292783	06-Oct-09 (No. 217-01086)	Oct-10
Reference 20 dB Attenuator	SN: 5086 (20g)	31-Mar-09 (No. 217-01025)	Mar-10
Type-N mismatch combination	SN: 5047.2 / 06327	31-Mar-09 (No. 217-01029)	Mar-10
Reference Probe ES3DV3	SN: 3205	26-Jun-09 (No. ES3-3205_Jun09)	Jun-10
DAE4	SN: 601	07-Mar-09 (No. DAE4-601_Mar09)	Mar-10

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-09)	In house check: Oct-11
RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-09)	In house check: Oct-10

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	

Approved by:	Katja Pokovic	Technical Manager
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Issued: October 19, 2009

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DASY5 Validation Report for Head TSL

Date/Time: 19.10.2009 10:11:32

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:480

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

Medium: HSL900

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.88 \text{ mho/m}$; $\epsilon_r = 40.5$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(6.04, 6.04, 6.04); Calibrated: 26.06.2009
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 07.03.2009
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

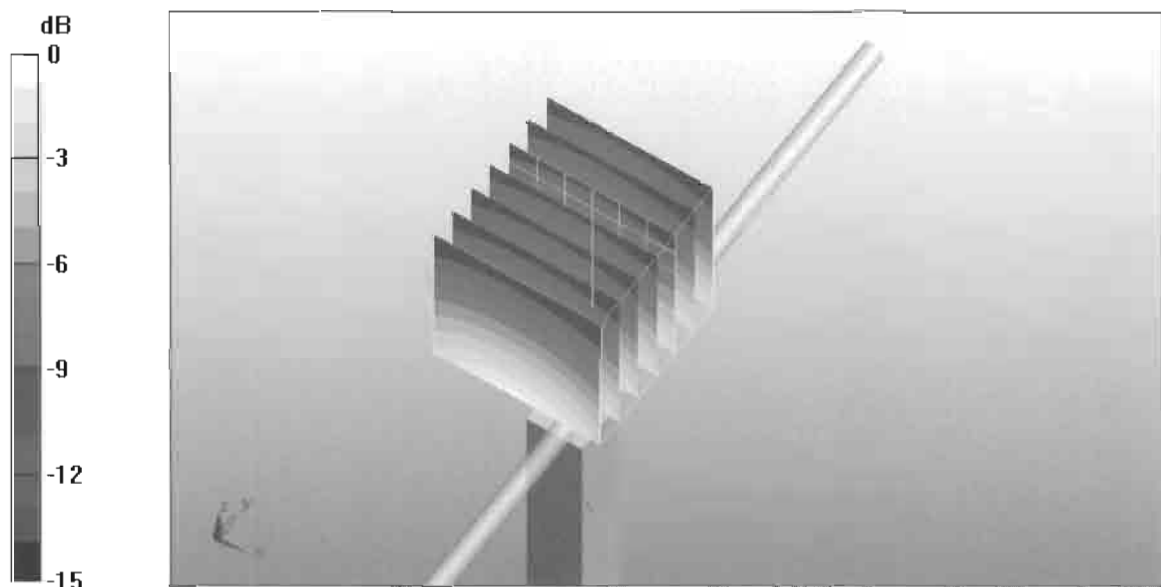
Pin=250 mW /d=15mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 57.6 V/m; Power Drift = 0.00856 dB

Peak SAR (extrapolated) = 3.53 W/kg

SAR(1 g) = 2.36 mW/g; SAR(10 g) = 1.55 mW/g

Maximum value of SAR (measured) = 2.76 mW/g



0 dB = 2.76mW/g

DASY5 Validation Report for Body

Date/Time: 19.10.2009 13:40:30

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:480

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

Medium: MSL900

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 1.01 \text{ mho/m}$; $\epsilon_r = 53.2$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(5.97, 5.97, 5.97); Calibrated: 26.06.2009
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 07.03.2009
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Pin250 mW /d=15mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7)/Cube 0: Measurement

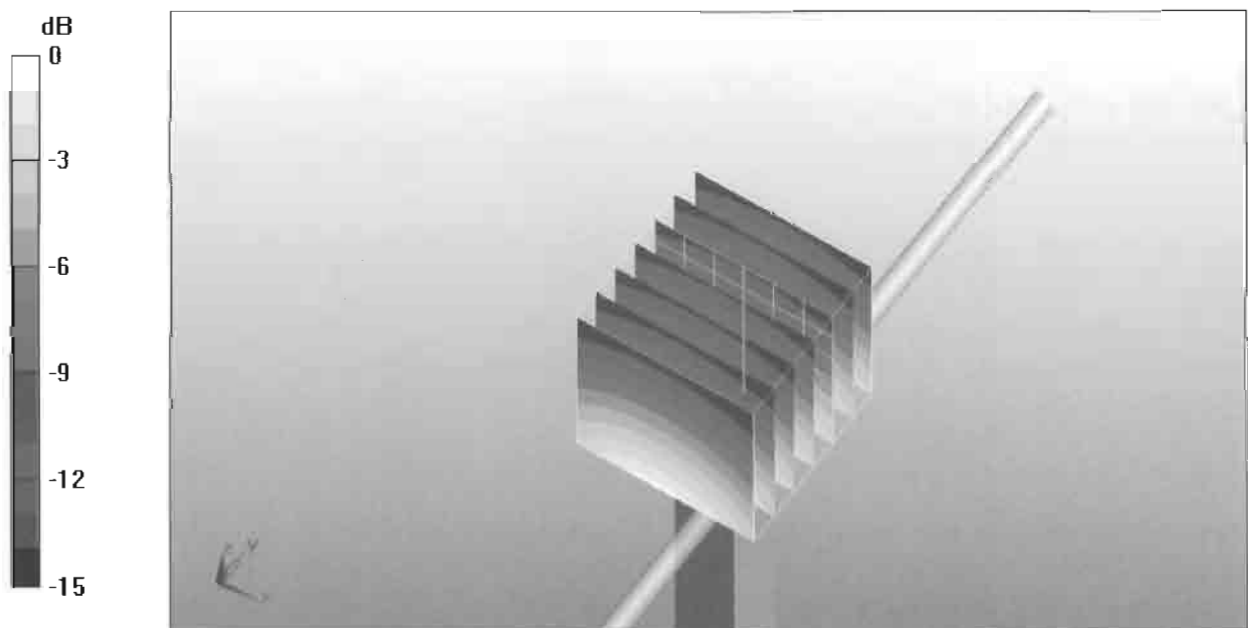
grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 55.5 V/m; Power Drift = 0.014 dB

Peak SAR (extrapolated) = 3.74 W/kg

SAR(1 g) = 2.52 mW/g; SAR(10 g) = 1.65 mW/g

Maximum value of SAR (measured) = 2.94 mW/g



0 dB = 2.94mW/g



Accredited by the Swiss Accreditation Service (SAS)

Accreditation No.: **SCS 108**

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

Client **Nokia Salo TCC**

Certificate No: **D1800V2-256_Oct09**

CALIBRATION CERTIFICATE

Object **D1800V2 - SN: 256**

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

Calibration date: **October 20, 2009**

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	06-Oct-09 (No. 217-01086)	Oct-10
Power sensor HP 8481A	US37292783	06-Oct-09 (No. 217-01086)	Oct-10
Reference 20 dB Attenuator	SN: 5086 (20g)	31-Mar-09 (No. 217-01025)	Mar-10
Type-N mismatch combination	SN: 5047.2 / 06327	31-Mar-09 (No. 217-01029)	Mar-10
Reference Probe ES3DV3	SN: 3205	26-Jun-09 (No. ES3-3205_Jun09)	Jun-10
DAE4	SN: 601	07-Mar-09 (No. DAE4-601_Mar09)	Mar-10

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-09)	In house check: Oct-11
RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-09)	In house check: Oct-10

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	

Approved by:	Katja Pokovic	Technical Manager
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Issued: October 21, 2009

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DASY5 Validation Report for Head TSL

Date/Time: 20.10.2009 10:26:59

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1800 MHz; Type: D1800V2; Serial: D1800V2 - SN:256

Communication System: CW; Frequency: 1800 MHz; Duty Cycle: 1:1

Medium: HSL U11 BB

Medium parameters used: $f = 1800$ MHz; $\sigma = 1.4$ mho/m; $\epsilon_r = 40$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(5.25, 5.25, 5.25); Calibrated: 26.06.2009
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 07.03.2009
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

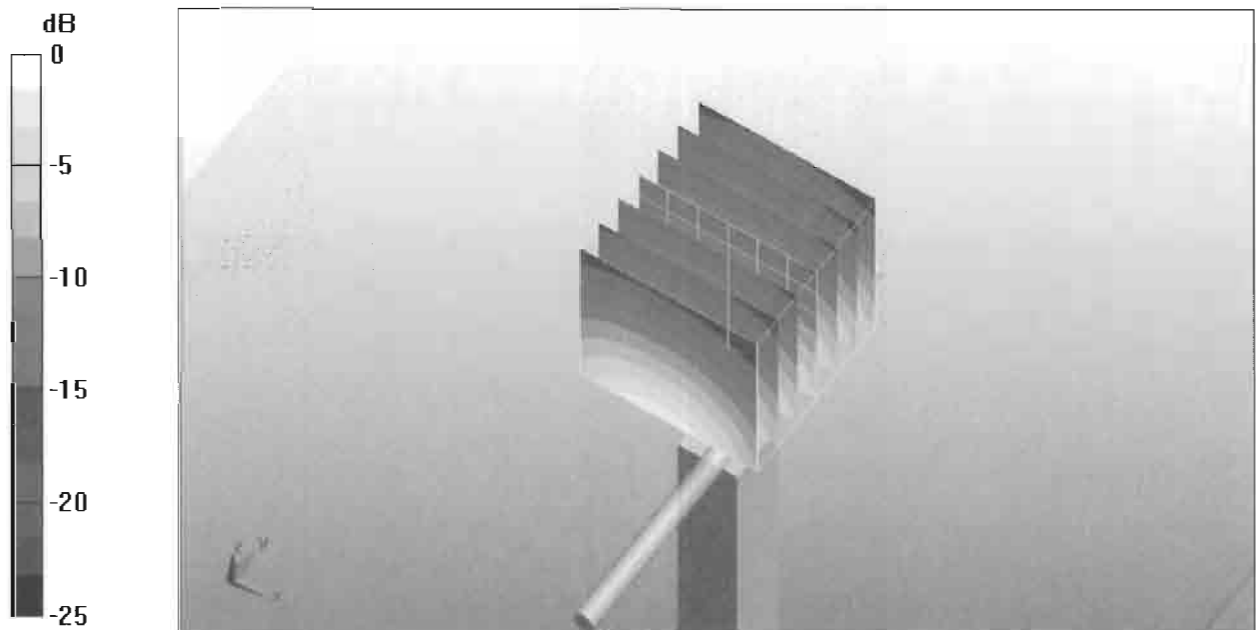
Pin=250 mW /d=10mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 97.2 V/m; Power Drift = 0.025 dB

Peak SAR (extrapolated) = 17.9 W/kg

SAR(1 g) = 9.9 mW/g; SAR(10 g) = 5.21 mW/g

Maximum value of SAR (measured) = 12.4 mW/g



0 dB = 12.4mW/g

DASY5 Validation Report for Body

Date/Time: 20.10.2009 14:52:33

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1800 MHz; Type: D1800V2; Serial: D1800V2 - SN:256

Communication System: CW; Frequency: 1800 MHz; Duty Cycle: 1:1

Medium: MSL U10 BB

Medium parameters used: $f = 1800$ MHz; $\sigma = 1.5$ mho/m; $\epsilon_r = 53.5$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.8, 4.8, 4.8); Calibrated: 26.06.2009
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 07.03.2009
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Pin250 mW /d=10mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7)/Cube 0: Measurement

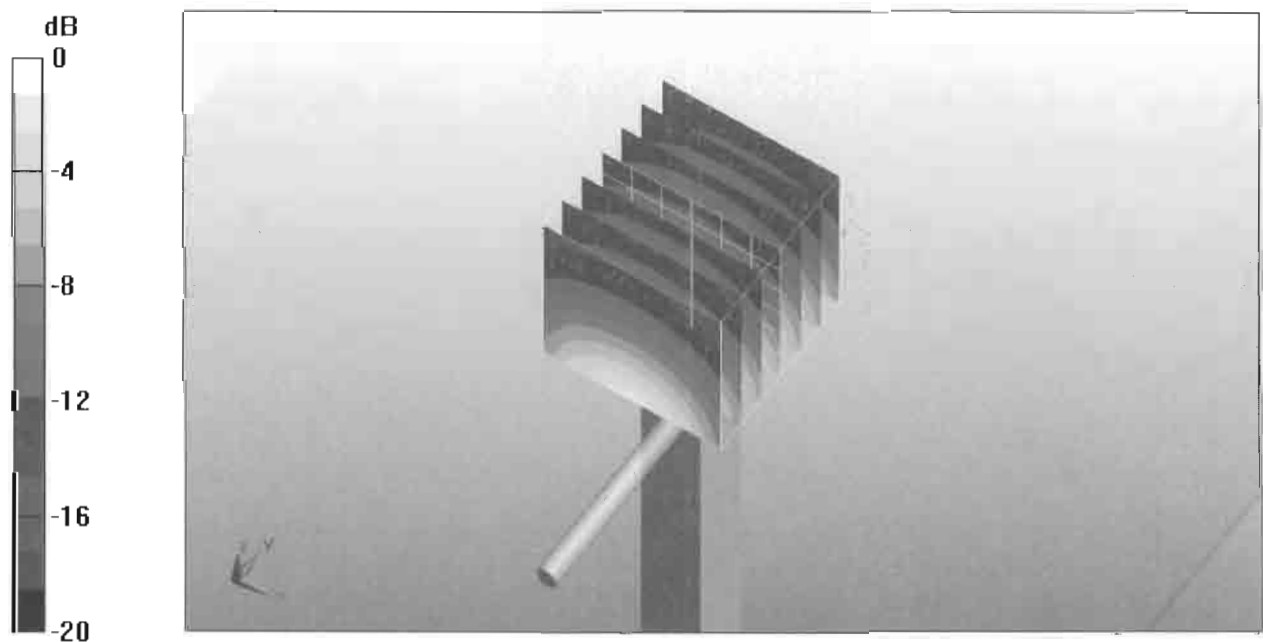
grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 94.2 V/m; Power Drift = 0.020 dB

Peak SAR (extrapolated) = 16.8 W/kg

SAR(1 g) = 9.61 mW/g; SAR(10 g) = 5.07 mW/g

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



0 dB = 12.2mW/g



Accredited by the Swiss Accreditation Service (SAS)

Accreditation No.: **SCS 108**

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

Client **Nokia Salo TCC**

Certificate No: **D1900V2-5d013_Mar10**

CALIBRATION CERTIFICATE

Object **D1900V2 - SN: 5d013**

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

Calibration date: **March 23, 2010**

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	06-Oct-09 (No. 217-01086)	Oct-10
Power sensor HP 8481A	US37292783	06-Oct-09 (No. 217-01086)	Oct-10
Reference 20 dB Attenuator	SN: 5086 (20g)	31-Mar-09 (No. 217-01025)	Mar-10
Type-N mismatch combination	SN: 5047.2 / 06327	31-Mar-09 (No. 217-01029)	Mar-10
Reference Probe ES3DV3	SN: 3205	26-Jun-09 (No. ES3-3205_Jun09)	Jun-10
DAE4	SN: 601	02-Mar-10 (No. DAE4-601_Mar10)	Mar-11
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-09)	In house check: Oct-11
RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-09)	In house check: Oct-10

Calibrated by: **Dinco Iliev** Name: **Dinco Iliev** Function: **Laboratory Technician** Signature: *[Signature]*

Approved by: **Katja Pokovic** Name: **Katja Pokovic** Function: **Technical Manager** Signature: *[Signature]*

Issued: March 23, 2010

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

DASY5 Validation Report for Head TSL

Date/Time: 23.03.2010 10:16:39

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d013

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

Medium: HSL U11 BB

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.45$ mho/m; $\epsilon_r = 41.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(5.09, 5.09, 5.09); Calibrated: 26.06.2009
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 02.03.2010
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

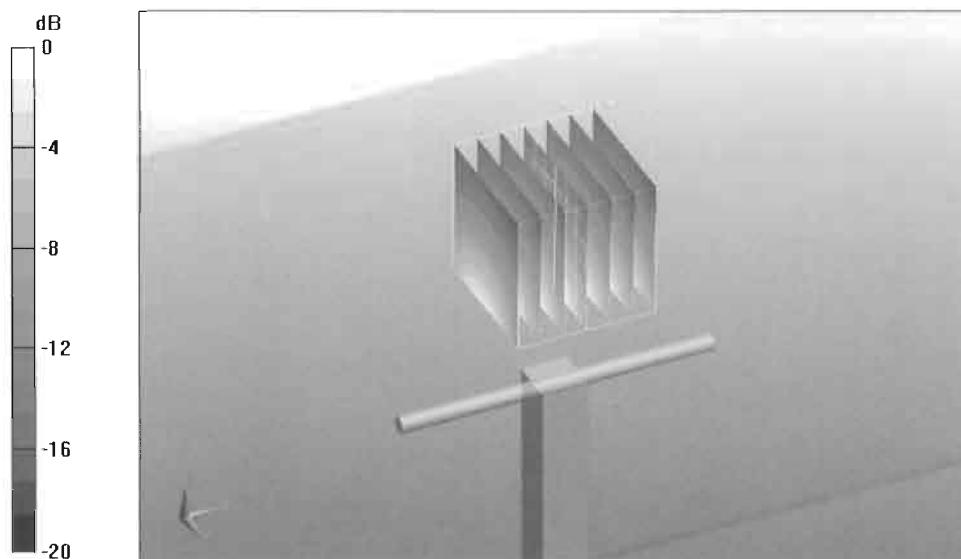
Pin=250 mW /d=10mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) /Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 96.4 V/m; Power Drift = 0.028 dB

Peak SAR (extrapolated) = 18.5 W/kg

SAR(1 g) = 10.2 mW/g; SAR(10 g) = 5.32 mW/g

Maximum value of SAR (measured) = 12.6 mW/g



0 dB = 12.6mW/g

DASY5 Validation Report for Body

Date/Time: 23.03.2010 13:12:18

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d013

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

Medium: MSL U11 BB

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.58$ mho/m; $\epsilon_r = 55$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.59, 4.59, 4.59); Calibrated: 26.06.2009
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 02.03.2010
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

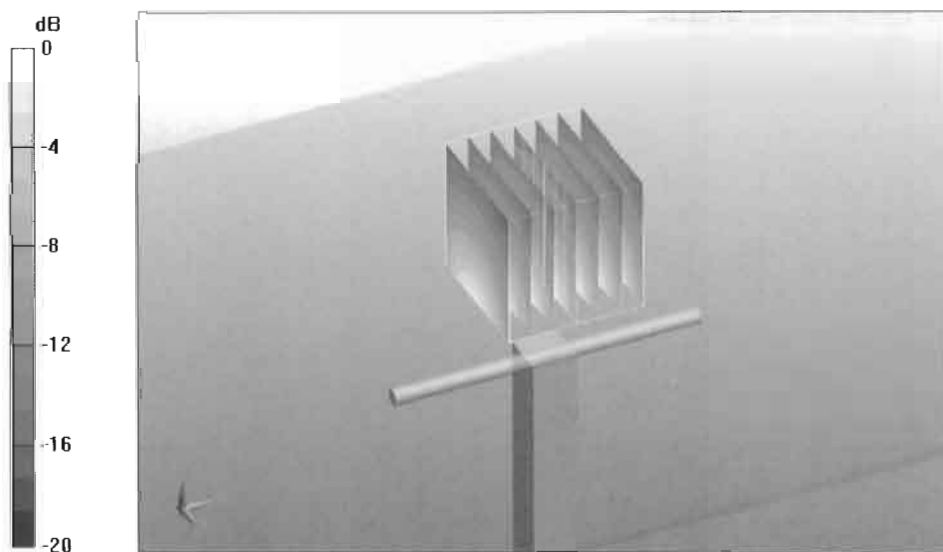
Pin250 mW /d=10mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) /Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 94.9 V/m; Power Drift = 0.00956 dB

Peak SAR (extrapolated) = 17.5 W/kg

SAR(1 g) = 10.4 mW/g; SAR(10 g) = 5.58 mW/g

Maximum value of SAR (measured) = 12.7 mW/g



0 dB = 12.7mW/g

APPENDIX E: WIRELESS ROUTER MODE EVALUATION

E.1 Body SAR assessment of Wireless Router mode at 12.5mm separation distance

850MHz Body SAR results

Option used	Device orientation	SAR, averaged over 1g (W/kg)		
		Ch 128 824.2 MHz	Ch 190 836.6 MHz	Ch 251 848.8 MHz
4-slot GPRS	Conducted Power	30.5 dBm	30.5 dBm	30.5 dBm
Slide closed	Display facing phantom	-	-	-
	Back facing phantom	0.796	1.04	1.20
	Top edge facing phantom	-	-	-
	Bottom edge facing phantom	-	-	-
	Left edge facing phantom	-	-	-
	Right edge facing phantom	0.510	0.772	0.999
Option used	Device orientation	SAR, averaged over 1g (W/kg)		
		Ch 4132 826.4 MHz	Ch 4175 835.0 MHz	Ch 4233 846.6 MHz
WCDMA	Conducted Power	23.5 dBm	23.5 dBm	23.5 dBm
Slide closed	Display facing phantom	-	-	-
	Back facing phantom	0.310	0.468	0.537
	Top edge facing phantom	-	-	-
	Bottom edge facing phantom	-	-	-
	Left edge facing phantom	-	-	-
	Right edge facing phantom	-	-	-

1700/2100MHz Body SAR results

Option used	Device orientation	SAR, averaged over 1g (W/kg)		
		Ch 1312 1712.4 MHz	Ch 1412 1732.4 MHz	Ch 1513 1752.6 MHz
WCDMA	Conducted Power	23.5 dBm	23.5 dBm	23.5 dBm
Slide closed	Display facing phantom	-	-	-
	Back facing phantom	0.818	0.953	1.04
	Top edge facing phantom	-	-	-
	Bottom edge facing phantom	-	-	-
	Left edge facing phantom	-	-	-
	Right edge facing phantom	-	-	-

1900MHz Body SAR results

Option used	Device orientation	SAR, averaged over 1g (W/kg)		
		Ch 512 1850.2 MHz	Ch 661 1880.0 MHz	Ch 810 1909.8 MHz
4-slot GPRS	Conducted Power	28.5 dBm	28.5 dBm	28.5 dBm
Slide closed	Display facing phantom	-	-	-
	Back facing phantom	1.45	1.26	1.11
	Top edge facing phantom	-	-	-
	Bottom edge facing phantom	-	-	-
	Left edge facing phantom	-	-	-
	Right edge facing phantom	-	-	-
Option used	Device orientation	SAR, averaged over 1g (W/kg)		
		Ch 9262 1852.4 MHz	Ch 9400 1880.0 MHz	Ch 9538 1907.6 MHz
WCDMA	Conducted Power	23.5 dBm	23.5 dBm	23.5 dBm
Slide closed	Display facing phantom	-	-	-
	Back facing phantom	1.06	0.871	0.697
	Top edge facing phantom	-	-	-
	Bottom edge facing phantom	-	-	-
	Left edge facing phantom	-	-	-
	Right edge facing phantom	-	-	-

2450MHz Body SAR results**

Option used	Device orientation	SAR, averaged over 1g (W/kg)		
		Ch 1 2412.0 MHz	Ch 7 2442.0 MHz	Ch 11 2462.0 MHz
WLAN b-mode	Conducted Power	15.2 dBm	18.0 dBm	15.2 dBm
Slide closed	Display facing phantom	-	-	-
	Back facing phantom	0.068	0.119	0.047
	Top edge facing phantom	-	0.071	-
	Bottom edge facing phantom	-	0.008	-
	Left edge facing phantom	-	0.108	-
	Right edge facing phantom	-	0.017	-
WLAN n-mode 20MHz	Conducted Power	14.5 dBm	17.1 dBm	14.5 dBm
Slide closed	Display facing phantom	-	-	-
	Back facing phantom	0.059	0.094	0.040
	Top edge facing phantom	-	-	-
	Bottom edge facing phantom	-	-	-
	Left edge facing phantom	-	-	-
	Right edge facing phantom	-	-	-

Simultaneous transmissions: Combined SAR results – Individual band Max results

Test configuration	Max. 1g SAR results					
	WLAN**	4-slot GPRS850	WCDMA 850	WCDMA 1700/2100	4-slot GPRS1900	WCDMA 1900
Display facing phantom	-	-	-	-	-	-
Back facing phantom	0.119	1.20	0.537	1.04	1.45	1.06
Top edge facing phantom	0.071	-	-	-	-	-
Bottom edge facing phantom	0.008	-	-	-	-	-
Left edge facing phantom	0.108	-	-	-	-	-
Right edge facing phantom	0.017	0.999	-	-	-	-

Simultaneous transmissions: Combined SAR results – Max + Max combined results

Test configuration	Max. 1g SAR results				
	4-slot GPRS850 + WLAN	WCDMA850 + WLAN	WCDMA 1700/2100 + WLAN	4-slot GPRS1900 + WLAN	WCDMA1900 + WLAN
Display facing phantom	-	-	-	-	-
Back facing phantom	1.319	0.656	1.159	1.569	1.179
Top edge facing phantom	-	-	-	-	-
Bottom edge facing phantom	-	-	-	-	-
Left edge facing phantom	-	-	-	-	-
Right edge facing phantom	1.016	-	-	-	-

The following table gives a more accurate assessment of the SAR values for simultaneous transmission. These values have been calculated using the SPEAG Combined Multiband algorithm, which is based on area scans. It a) converts the 2D area scans into 3D volume scans by assuming frequency-dependent decay characteristics for the E-field, b) sums the SAR values for WLAN2450 and the cellular bands point-by-point and c) calculates the combined average SAR values. It is these values that are given in Appendix E.2.

**Simultaneous transmissions: Combined SAR results –
SPEAG Combined Multiband algorithm results**

Test configuration	Max. 1g SAR results				
	4-slot GPRS850 + WLAN	WCDMA850 + WLAN	WCDMA 1700/2100 + WLAN	4-slot GPRS1900 + WLAN	WCDMA1900 + WLAN
Display facing phantom	-	-	-	-	-
Back facing phantom	1.22	0.551	1.06	1.50	1.08
Top edge facing phantom	-	-	-	-	-
Bottom edge facing phantom	-	-	-	-	-
Left edge facing phantom	-	-	-	-	-
Right edge facing phantom	-	-	-	-	-

**SAR data taken from FCC_RM-626_11.

Note: Simultaneous Transmission Procedures as described in KDB648474 are not required for this product. The Combined SAR data given in the tables above has been voluntarily calculated.

E.2 Summary of Maximum Results for Wireless Router mode at 12.5mm

Mode	Ch / f (MHz)	Conducted power	Separation distance	Measured SAR value (1g avg)	SAR limit (1g avg)	Result
4-slot GPRS850	251 / 848.8	30.5 dBm	1.25 cm	1.20 W/kg	1.6 W/kg	PASSED
WCDMA850	4233 / 846.6	23.5 dBm	1.25 cm	0.537 W/kg	1.6 W/kg	PASSED
WCDMA1700/2100	1513 / 1752.6	23.5 dBm	1.25 cm	1.04 W/kg	1.6 W/kg	PASSED
4-slot GPRS1900	512 / 1850.2	28.5 dBm	1.25 cm	1.45 W/kg	1.6 W/kg	PASSED
WCDMA1900	9262 / 1852.4	23.5 dBm	1.25 cm	1.06 W/kg	1.6 W/kg	PASSED
WLAN2450**	7 / 2442.0	18.0 dBm	1.25 cm	0.119 W/kg	1.6 W/kg	PASSED
4-slot GPRS850 + WLAN2450	-	-	1.25 cm	1.22 W/kg	1.6 W/kg	PASSED
WCDMA850 + WLAN2450	-	-	1.25 cm	0.551 W/kg	1.6 W/kg	PASSED
WCDMA1700/2100 + WLAN2450	-	-	1.25 cm	1.06 W/kg	1.6 W/kg	PASSED
4-slot GPRS1900 + WLAN2450	-	-	1.25 cm	1.50 W/kg	1.6 W/kg	PASSED
WCDMA1900 + WLAN2450	-	-	1.25 cm	1.08W/kg	1.6 W/kg	PASSED

E.3 SAR plots corresponding to the Wireless Router mode results given above

Date: 2011-06-30, Time: 13:04:15, Time: 13:07:53

Test Laboratory: TCC Nokia

Type: RM-626; Serial: 004402/13/268630/8

Communication System: 4-slot GPRS850

Frequency: 848.8 MHz; Duty Cycle: 1:2.09991

Medium: BSL850; Medium Notes: t= 21.8 C

Medium parameters used: f = 849 MHz; σ = 1.02 mho/m; ϵ_r = 52.9; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: ES3DV3 - SN3194
- ConvF(5.95, 5.95, 5.95); Calibrated: 2010-09-09
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2010-09-09
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY52, V52.6 Build 2; SEMCAD X Version 14.0 Build 61

4- slot GPRS/Body - High - Slide Closed - No Accessory - Back Facing Phantom - Spacer 12.5mm/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.25 mW/g

4- slot GPRS/Body - High - Slide Close d- No Accessory - Back Facing Phantom - Spacer 12.5mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 16 V/m

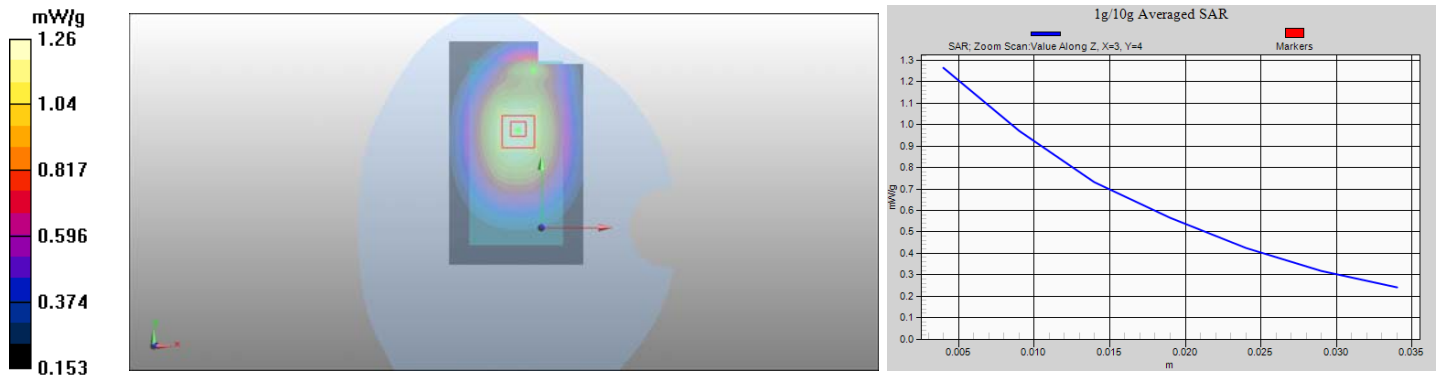
Peak SAR (extrapolated) = 1.54 W/kg

SAR(1 g) = 1.2 mW/g

SAR(10 g) = 0.901 mW/g

Power Drift = -0.054 dB

Maximum value of SAR (measured) = 1.26 mW/g



Date: 2011-07-01, Time: 11:36:59, Time: 11:39:10

Test Laboratory: TCC Nokia

Type: RM-626; Serial: 004402/13/268630/8

Communication System: 4-slot GPRS850

Frequency: 848.8 MHz; Duty Cycle: 1:2.09991

Medium: BSL850; Medium Notes: t= 21.5 C

Medium parameters used: f = 849 MHz; σ = 1.02 mho/m; ϵ_r = 52.9; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: ES3DV3 - SN3194
- ConvF(5.95, 5.95, 5.95); Calibrated: 2010-09-09
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2010-09-09
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY52, V52.6 Build 2; SEMCAD X Version 14.0 Build 61

4- slot GPRS/Body - High - Slide Closed - No Accessory - Right Edge Facing Phantom - Spacer 12.5mm/Area Scan (31x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.06 mW/g

4- slot GPRS/Body - High - Slide Close d- No Accessory - Right Edge Facing Phantom - Spacer 12.5mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 16 V/m

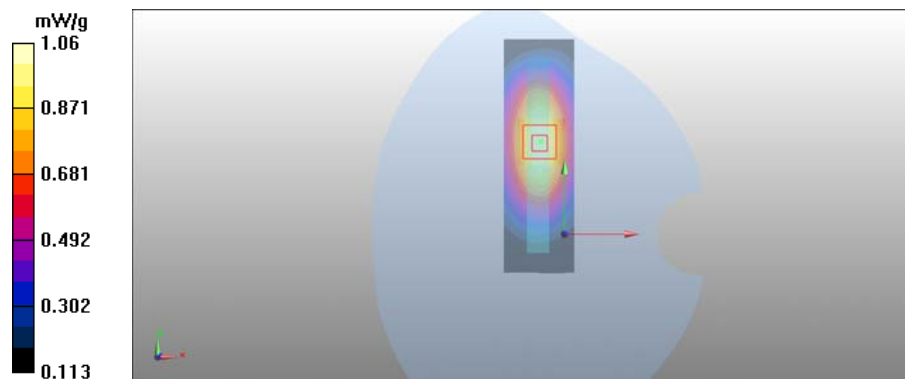
Peak SAR (extrapolated) = 1.42 W/kg

SAR(1 g) = 0.999 mW/g

SAR(10 g) = 0.687 mW/g

Power Drift = 0.00582 dB

Maximum value of SAR (measured) = 1.06 mW/g



Date: 2011-07-01, Time: 13:12:09, Time: 13:15:47

Test Laboratory: TCC Nokia

Type: RM-626; Serial: 004402/13/268630/8

Communication System: WCDMA850

Frequency: 846.6 MHz; Duty Cycle: 1:1

Medium: BSL850; Medium Notes: t= 21.5 C

Medium parameters used: f = 847 MHz; σ = 1.02 mho/m; ϵ_r = 52.9; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: ES3DV3 - SN3194
- ConvF(5.95, 5.95, 5.95); Calibrated: 2010-09-09
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2010-09-09
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY52, V52.6 Build 2; SEMCAD X Version 14.0 Build 61

WCDMA/Body - High - Slide Closed - No Accessory - Back Facing Phantom - Spacer 12.5mm/Area Scan

(61x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.559 mW/g

WCDMA/Body - High - Slide Closed - No Accessory - Back Facing Phantom - Spacer 12.5mm/Zoom Scan

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

Reference Value = 10.3 V/m

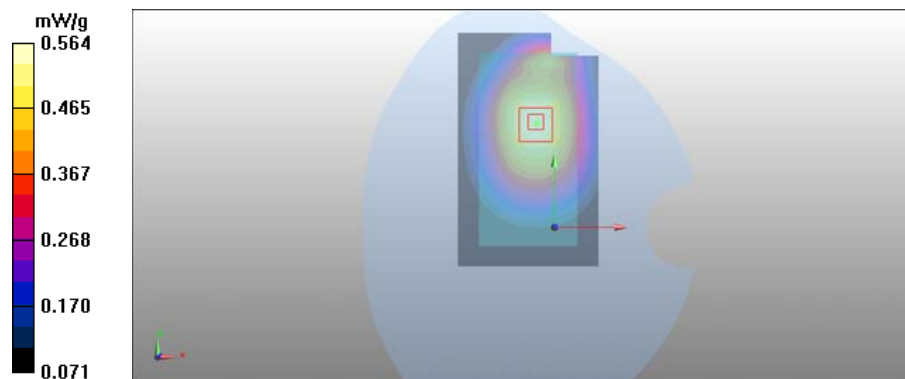
Peak SAR (extrapolated) = 0.688 W/kg

SAR(1 g) = 0.537 mW/g

SAR(10 g) = 0.400 mW/g

Power Drift = 0.015 dB

Maximum value of SAR (measured) = 0.564 mW/g



Date: 2011-07-01, Time: 09:03:15, Time: 09:07:18

Test Laboratory: TCC Nokia

Type: RM-626; Serial: 004402/13/268630/8

Communication System: WCDMA1700/2100

Frequency: 1752.6 MHz; Duty Cycle: 1:1

Medium: BSL1800; Medium Notes: t= 21.9 C

Medium parameters used: f = 1753 MHz; σ = 1.49 mho/m; ϵ_r = 51.5; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: ES3DV3 - SN3165

- ConvF(4.91, 4.91, 4.91); Calibrated: 2011-02-17

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

- Electronics: DAE4 Sn555; Calibrated: 2011-02-22

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

- Measurement SW: DASY4, V4.7 Build 55; SEMCAD X Version 14.0 Build 61

Configuration/WCDMA - High - Slide Closed - No Accessory - Back Facing Phantom - Spacer 12.5mm/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.13 mW/g

Configuration/WCDMA - High - Slide Closed - No Accessory - Back Facing Phantom - Spacer 12.5mm/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 12.7 V/m

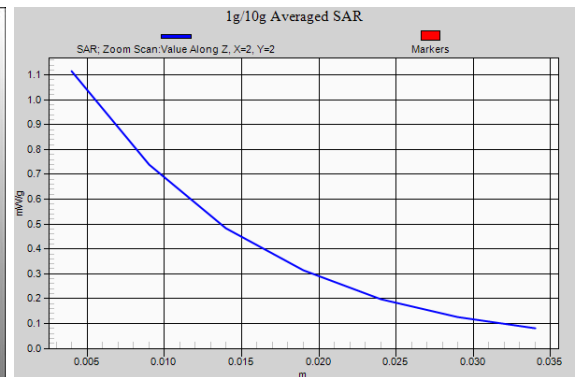
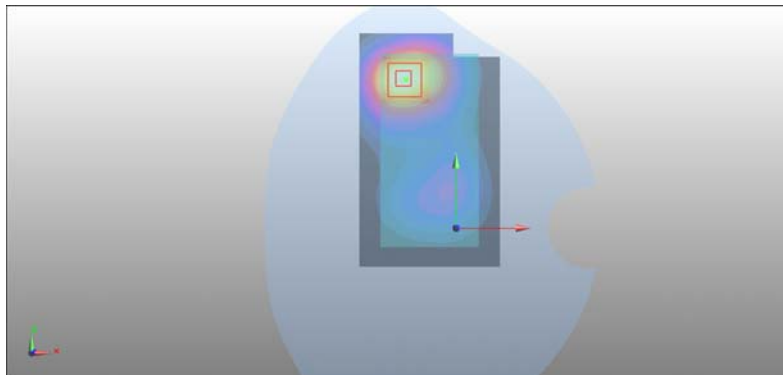
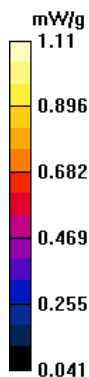
Peak SAR (extrapolated) = 1.55 W/kg

SAR(1 g) = 1.04 mW/g

SAR(10 g) = 0.652 mW/g

Power Drift = -0.095 dB

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



Date: 2011-06-27, Time: 13:43:10, Time: 13:50:50

Test Laboratory: TCC Nokia

Type: RM-626; Serial: 004402/13/268630/8

Communication System: 4-slot GPRS1900

Frequency: 1850.2 MHz; Duty Cycle: 1:2.1

Medium: BSL1900; Medium Notes: $t = 21.9$ C

Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.51$ mho/m; $\epsilon_r = 52.8$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: ES3DV3 - SN3165
- ConvF(4.61, 4.61, 4.61); Calibrated: 2011-02-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn555; Calibrated: 2011-02-22
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, V4.7 Build 55; SEMCAD X Version 14.0 Build 61

4-slot GPRS/Body - Low - Slide Closed - No Accessory - Back Facing Phantom - Spacer 12.5mm/Area Scan

(61x101x1): Measurement grid: $dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 1.59 mW/g

4-slot GPRS/Body - Low - Slide Closed - No Accessory - Back Facing Phantom - Spacer 12.5mm/Zoom Scan

(5x5x7)/Cube 0: Measurement grid: $dx=7.5$ mm, $dy=7.5$ mm, $dz=5$ mm

Reference Value = 17.4 V/m

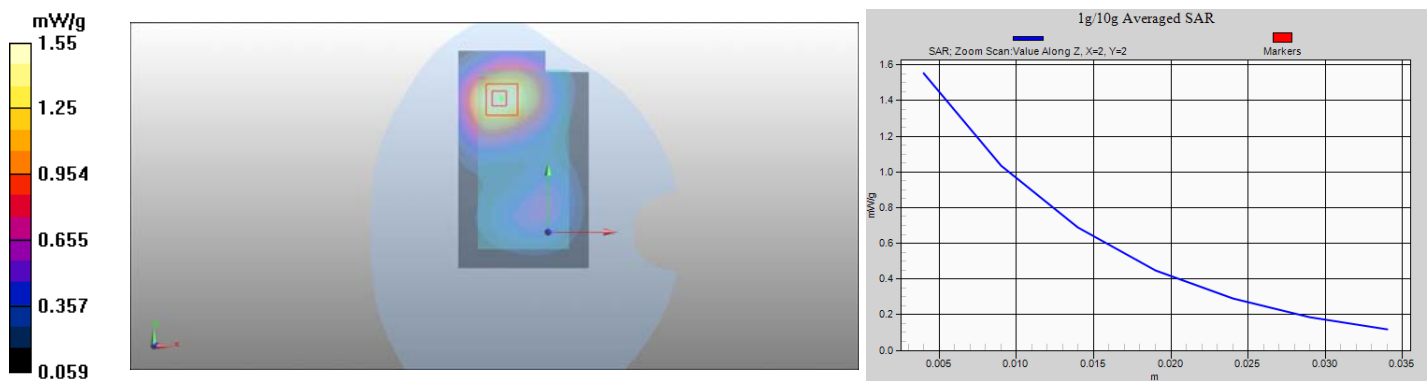
Peak SAR (extrapolated) = 2.17 W/kg

SAR(1 g) = 1.45 mW/g

SAR(10 g) = 0.933 mW/g

Power Drift = -0.236 dB

Maximum value of SAR (measured) = 1.55 mW/g



Date: 2011-06-27, Time: 18:31:47, Time: 18:39:24

Test Laboratory: TCC Nokia

Type: RM-626; Serial: 004402/13/268630/8

Communication System: WCDMA1900

Frequency: 1852.4 MHz; Duty Cycle: 1:1

Medium: BSL1900; Medium Notes: $t = 21.9$ C

Medium parameters used (interpolated): $f = 1852.4$ MHz; $\sigma = 1.51$ mho/m; $\epsilon_r = 52.8$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: ES3DV3 - SN3165
- ConvF(4.61, 4.61, 4.61); Calibrated: 2011-02-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn555; Calibrated: 2011-02-22
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, V4.7 Build 55; SEMCAD X Version 14.0 Build 61

WCDMA/Body - Low - Slide Closed - No Accessory - Back Facing Phantom - Spacer 12.5mm/Area Scan

(61x101x1): Measurement grid: $dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 1.14 mW/g

WCDMA/Body - Low - Slide Closed - No Accessory - Back Facing Phantom - Spacer 12.5mm /Zoom Scan

(5x5x7)/Cube 0: Measurement grid: $dx=7.5$ mm, $dy=7.5$ mm, $dz=5$ mm

Reference Value = 14.2 V/m

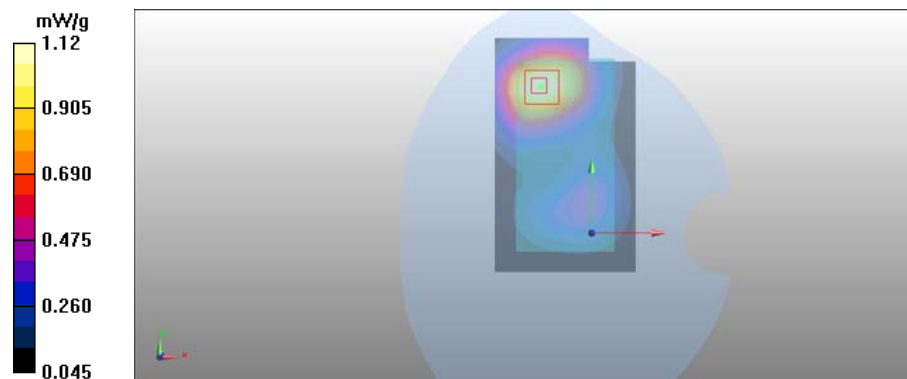
Peak SAR (extrapolated) = 1.58 W/kg

SAR(1 g) = 1.06 mW/g

SAR(10 g) = 0.679 mW/g

Power Drift = -0.235 dB

Maximum value of SAR (measured) = 1.12 mW/g



Date: 2011-06-30, Date: 2011-02-15, Time: 13:04:15, Time: 12:05:34

Test Laboratory: TCC Nokia

Type: RM-626; Serial: 004402/13/268630/8, Serial: 354864/04/000448/4

Communication System: 4-slot GPRS850, Communication System: WLAN2450 b-mode

Frequency: 848.8 MHz, Frequency: 2442 MHz; Duty Cycle: 1:2.09991, Duty Cycle: 1:1

Medium: BSL850, Medium: BSL2450; Medium Notes: $t = 21.8$ C, Medium Notes: $t = 20.4$ C

Medium parameters used: $f = 849$ MHz; $\sigma = 1.02$ mho/m; $\epsilon_r = 52.9$; $\rho = 1000$ kg/m³, Medium parameters used:
 $f = 2442$ MHz; $\sigma = 2.01$ mho/m; $\epsilon_r = 50.1$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: ES3DV3 - SN3194, Probe: ES3DV3 - SN3131
- ConvF(5.95, 5.95, 5.95), ConvF(4.05, 4.05, 4.05); Calibrated: 2010-09-09
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
- Electronics: DAE4 Sn538, Electronics: DAE4 Sn793; Calibrated: 2010-09-09, Calibrated: 2010-09-08
- Phantom: SAM 1, Phantom: SAM2; Type: Twin SAM 040 CA, Type: SAM; Serial: TP-1179, Serial: TP-1570
- Measurement SW: DASY52, V52.6 Build 2, Measurement SW: DASY4, V4.7 Build 55; SEMCAD X Version 14.0 Build 61

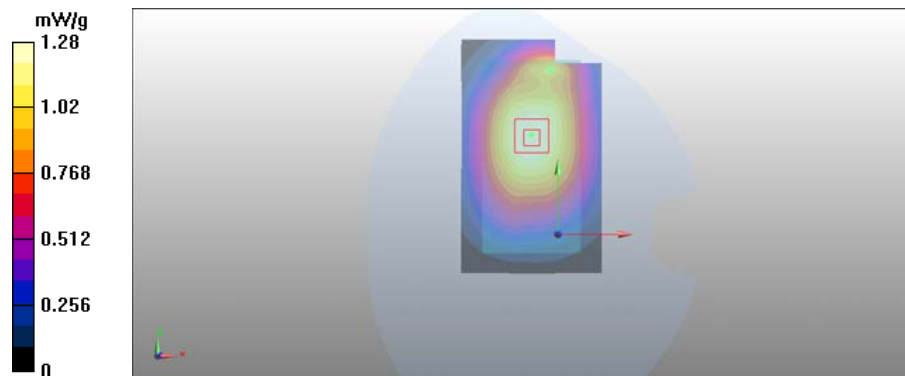
4- slot GPRS/Body - High - Slide Close - No Accessory - Back Facing Phantom - Spacer 12.5mm/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm

WLAN/Body - Middle - Slide Closed - No accessory - Back Facing Phantom – Spacer 12.5mm/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm

Motorola Fast SAR of Combined Scans: SAR(1 g) = 1.22 mW/g

SAR(10 g) = 0.870 mW/g

Maximum value of SAR (measured) = 1.28 mW/g



Date: 2011-07-01, Date: 2011-02-15, Time: 13:12:09, Time: 12:05:34

Test Laboratory: TCC Nokia

Type: RM-626; Serial: 004402/13/268630/8, Serial: 354864/04/000448/4

Communication System: WCDMA850, Communication System: WLAN2450 b-mode

Frequency: 846.6 MHz, Frequency: 2442 MHz; Duty Cycle: 1:1

Medium: BSL850, Medium: BSL2450; Medium Notes: $t = 21.5$ C, Medium Notes: $t = 20.4$ C

Medium parameters used: $f = 847$ MHz; $\sigma = 1.02$ mho/m; $\epsilon_r = 52.9$; $\rho = 1000$ kg/m³, Medium parameters used:
 $f = 2442$ MHz; $\sigma = 2.01$ mho/m; $\epsilon_r = 50.1$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: ES3DV3 - SN3194, Probe: ES3DV3 - SN3131
- ConvF(5.95, 5.95, 5.95), ConvF(4.05, 4.05, 4.05); Calibrated: 2010-09-09
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
- Electronics: DAE4 Sn538, Electronics: DAE4 Sn793; Calibrated: 2010-09-09, Calibrated: 2010-09-08
- Phantom: SAM 1, Phantom: SAM2; Type: Twin SAM 040 CA, Type: SAM; Serial: TP-1179, Serial: TP-1570
- Measurement SW: DASY52, V52.6 Build 2, Measurement SW: DASY4, V4.7 Build 55; SEMCAD X Version 14.0 Build 61

WCDMA/Body - High - Slide Closed - No Accessory - Back Facing Phantom - Spacer 12.5mm/Area Scan (7x11x1):

Measurement grid: $dx=15$ mm, $dy=15$ mm

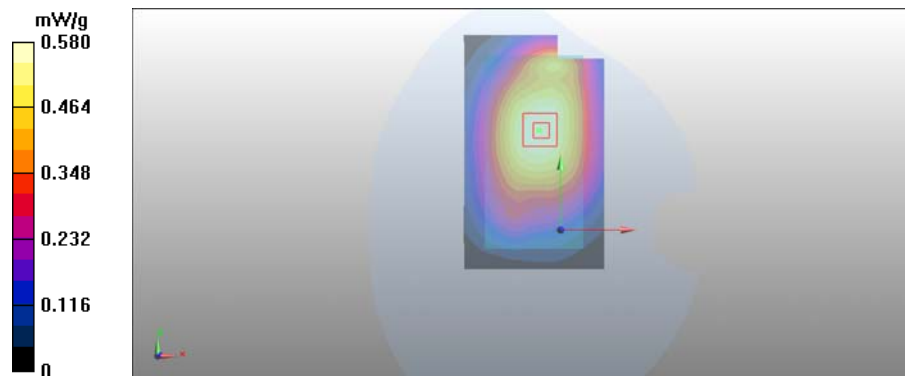
WLAN/Body - Middle - Slide Closed - No accessory - Back Facing Phantom – Spacer 12.5mm /Area Scan

(7x11x1): Measurement grid: $dx=15$ mm, $dy=15$ mm

Motorola Fast SAR of Combined Scans: SAR(1 g) = 0.551 mW/g

SAR(10 g) = 0.392 mW/g

Maximum value of SAR (measured) = 0.580 mW/g



Date: 2011-07-01, Date: 2011-02-15, Time: 09:03:15, Time: 12:05:34

Test Laboratory: TCC Nokia

Type: RM-626; Serial: 004402/13/268630/8, Serial: 354864/04/000448/4

Communication System: WCDMA1700/2100, Communication System: WLAN2450 b-mode

Frequency: 1752.6 MHz, Frequency: 2442 MHz; Duty Cycle: 1:1

Medium: BSL1800, Medium: BSL2450; Medium Notes: t= 21.9 C, Medium Notes: t= 20.4 C

Medium parameters used: f = 1753 MHz; σ = 1.49 mho/m; ϵ_r = 51.5; ρ = 1000 kg/m³, Medium parameters used:
f = 2442 MHz; σ = 2.01 mho/m; ϵ_r = 50.1; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: ES3DV3 - SN3165, Probe: ES3DV3 - SN3131
- ConvF(4.91, 4.91, 4.91), ConvF(4.05, 4.05, 4.05); Calibrated: 2011-02-17, Calibrated: 2010-09-09
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
- Electronics: DAE4 Sn555, Electronics: DAE4 Sn793; Calibrated: 2011-02-22, Calibrated: 2010-09-08
- Phantom: SAM 3, Phantom: SAM2; Type: Twin SAM 040 CA, Type: SAM; Serial: TP-1179, Serial: TP-1570
- Measurement SW: DASY4, V4.7 Build 55; SEMCAD X Version 14.0 Build 61

WCDMA/Body - High - Slide Close d- No Accessory - Back Facing Phantom - Spacer 12.5mm/Area Scan (7x11x1):

Measurement grid: dx=15mm, dy=15mm

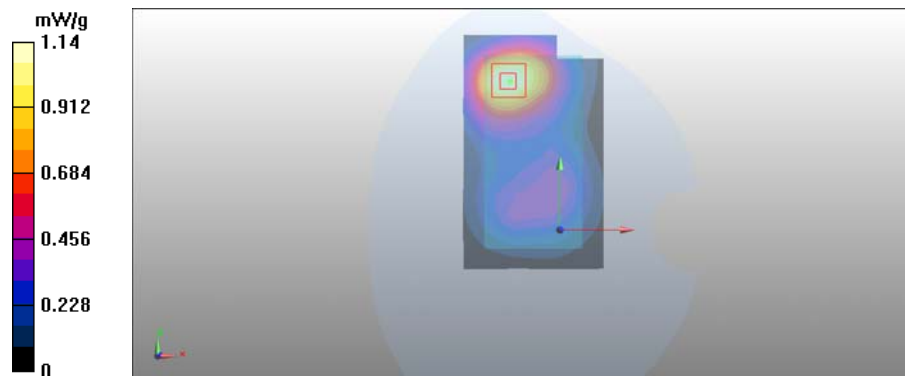
WLAN/Body - Middle - Slide Closed - No accessory - Back Facing Phantom – Spacer 12.5mm /Area Scan

(7x11x1): Measurement grid: dx=15mm, dy=15mm

Motorola Fast SAR of Combined Scans: SAR(1 g) = 1.06 mW/g

SAR(10 g) = 0.656 mW/g

Maximum value of SAR (measured) = 1.14 mW/g



Date: 2011-06-27, Date: 2011-02-15, Time: 13:43:10, Time: 12:05:34

Test Laboratory: TCC Nokia

Type: RM-626; Serial: 004402/13/268630/8, Serial: 354864/04/000448/4

Communication System: 4-slot GPRS1900, Communication System: WLAN2450 b-mode

Frequency: 1850.2 MHz, Frequency: 2442 MHz; Duty Cycle: 1:2.1, Duty Cycle: 1:1

Medium: BSL1900, Medium: BSL2450; Medium Notes: t= 21.9 C, Medium Notes: t= 20.4 C

Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.51 mho/m; ϵ_r = 52.8; ρ = 1000 kg/m³, Medium parameters used: f = 2442 MHz; σ = 2.01 mho/m; ϵ_r = 50.1; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: ES3DV3 - SN3165, Probe: ES3DV3 - SN3131
- ConvF(4.61, 4.61, 4.61), ConvF(4.05, 4.05, 4.05); Calibrated: 2011-02-17, Calibrated: 2010-09-09
- Sensor-Surface: 4mm (Mechanical Surface Detection), Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
- Electronics: DAE4 Sn555, Electronics: DAE4 Sn793; Calibrated: 2011-02-22, Calibrated: 2010-09-08
- Phantom: SAM 2, Phantom: SAM2; Type: Twin SAM 040 CA, Type: SAM; Serial: TP - 1177, Serial: TP-1570
- Measurement SW: DASY4, V4.7 Build 55; SEMCAD X Version 14.0 Build 61

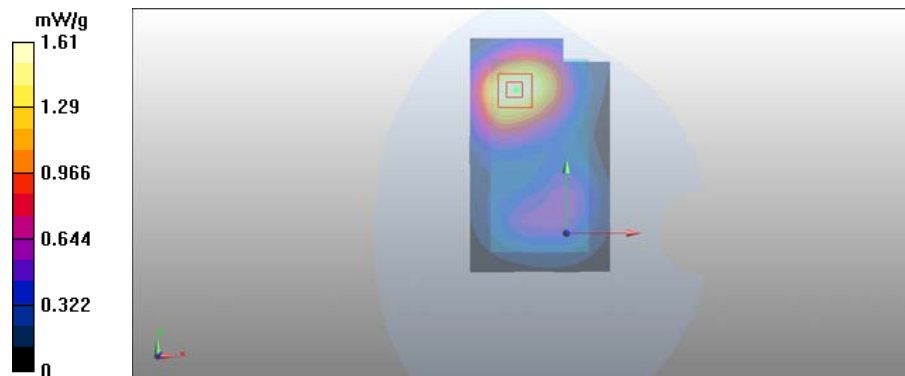
4-slot GPRS/ Body - Low - Slide Closed - No Accessory - Back Facing Phantom - Spacer 12.5mm/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm

WLAN/Body - Middle - Slide Closed - No accessory - Back Facing Phantom – Spacer 12.5mm /Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm

Motorola Fast SAR of Combined Scans: SAR(1 g) = 1.5 mW/g

SAR(10 g) = 0.920 mW/g

Maximum value of SAR (measured) = 1.61 mW/g



Date: 2011-06-27, Date: 2011-02-15, Time: 18:31:47, Time: 12:05:34

Test Laboratory: TCC Nokia

Type: RM-626; Serial: 004402/13/268630/8, Serial: 354864/04/000448/4

Communication System: WCDMA1900, Communication System: WLAN2450 b-mode

Frequency: 1852.4 MHz, Frequency: 2442 MHz; Duty Cycle: 1:1

Medium: BSL1900, Medium: BSL2450; Medium Notes: t= 21.9 C, Medium Notes: t= 20.4 C

Medium parameters used (interpolated): $f = 1852.4$ MHz; $\sigma = 1.51$ mho/m; $\epsilon_r = 52.8$; $\rho = 1000$ kg/m³, Medium parameters used: $f = 2442$ MHz; $\sigma = 2.01$ mho/m; $\epsilon_r = 50.1$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: ES3DV3 - SN3165, Probe: ES3DV3 - SN3131
- ConvF(4.61, 4.61, 4.61), ConvF(4.05, 4.05, 4.05); Calibrated: 2011-02-17, Calibrated: 2010-09-09
- Sensor-Surface: 4mm (Mechanical Surface Detection), Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
- Electronics: DAE4 Sn555, Electronics: DAE4 Sn793; Calibrated: 2011-02-22, Calibrated: 2010-09-08
- Phantom: SAM 2, Phantom: SAM2; Type: Twin SAM 040 CA, Type: SAM; Serial: TP - 1177, Serial: TP-1570
- Measurement SW: DASY4, V4.7 Build 55; SEMCAD X Version 14.0 Build 61

WCDMA /Body - Low - Slide Close d- No Accessory - Back Facing Phantom - Spacer 12.5mm/Area Scan (7x11x1):

Measurement grid: dx=15mm, dy=15mm

WLAN/Body - Middle - Slide Closed - No accessory - Back Facing Phantom – Spacer 12.5mm /Area Scan

(7x11x1): Measurement grid: dx=15mm, dy=15mm

Motorola Fast SAR of Combined Scans: SAR(1 g) = 1.08 mW/g

SAR(10 g) = 0.665 mW/g

Maximum value of SAR (measured) = 1.16 mW/g

