

SAR Compliance Test Report

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

1.1 Test Details

Period of test	2011-05-24 to 2011-06-16
SN, HW and SW numbers of tested device	SN: 004402/13/200835/4, HW: 3000, SW: 021.611, DUT: 15671 SN: 004402/13/200832/1, HW: 3000, SW: 021.611, DUT: 15669
Batteries used in testing	-
Headsets used in testing	WH-1V, DUT: 15673
Other accessories used in testing	-
State of sample	Prototype unit
Notes	-

1.2 Maximum Results

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

1.2.1 Head Configuration

Mode	Ch / f (MHz)	Conducted power	Position	Measured SAR value (1g avg)	Scaled* SAR value (1g avg)	SAR limit (1g avg)	Result
GSM850	190 / 836.6	32.5 dBm	Left, Cheek	0.786 W/kg	0.88 W/kg	1.6 W/kg	PASSED
WCDMA850	4132 / 826.4	22.5 dBm	Left, Cheek	0.653 W/kg	0.73 W/kg	1.6 W/kg	PASSED
WCDMA1700/2100	1312 / 1712.4	21.0 dBm	Left, Cheek	0.880 W/kg	0.99 W/kg	1.6 W/kg	PASSED
GSM1900	512 / 1850.2	29.5 dBm	Right, Cheek	0.599 W/kg	0.67 W/kg	1.6 W/kg	PASSED
WCDMA1900	9262 / 1852.4	21.0 dBm	Right, Cheek	0.798 W/kg	0.89 W/kg	1.6 W/kg	PASSED
WLAN2450	7 / 2442.0	19.0 dBm	Right, Cheek	0.655 W/kg	0.73 W/kg	1.6 W/kg	PASSED
GSM850+ WLAN2450	-	-	Right, Cheek	0.791 W/kg	0.89 W/kg	1.6 W/kg	PASSED
WCDMA850 + WLAN2450	-	-	Right, Cheek	0.754 W/kg	0.84 W/kg	1.6 W/kg	PASSED
WCDMA1700/2100 + WLAN2450	-	-	Right, Cheek	0.880 W/kg	0.99 W/kg	1.6 W/kg	PASSED
GSM1900 + WLAN2450	-	-	Right, Cheek	0.797 W/kg	0.89 W/kg	1.6 W/kg	PASSED
WCDMA1900 + WLAN2450	-	-	Right, Cheek	0.880 W/kg	0.99 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
GSM850	190 / 836.6	32.5 dBm	1.5 cm	0.601 W/kg	0.67 W/kg	1.6 W/kg	PASSED
WCDMA850	4132 / 826.4	22.5 dBm	1.5 cm	0.545 W/kg	0.61 W/kg	1.6 W/kg	PASSED
WCDMA1700/2100	1312 / 1712.4	21.0 dBm	1.5 cm	0.515 W/kg	0.58 W/kg	1.6 W/kg	PASSED
GSM1900	512 / 1850.2	29.5 dBm	1.5 cm	0.325 W/kg	0.36 W/kg	1.6 W/kg	PASSED
WCDMA1900	9262 / 1852.4	21.0 dBm	1.5 cm	0.377 W/kg	0.42 W/kg	1.6 W/kg	PASSED
WLAN2450	7 / 2442.0	19.0 dBm	1.5 cm	0.086 W/kg	0.10 W/kg	1.6 W/kg	PASSED
GSM850+ WLAN2450	-	-	1.5 cm	0.636 W/kg	0.71 W/kg	1.6 W/kg	PASSED
WCDMA850 + WLAN2450	-	-	1.5 cm	0.576 W/kg	0.65 W/kg	1.6 W/kg	PASSED
WCDMA1700/2100 + WLAN2450	-	-	1.5 cm	0.525 W/kg	0.59 W/kg	1.6 W/kg	PASSED
GSM1900 + WLAN2450	-	-	1.5 cm	0.358 W/kg	0.40 W/kg	1.6 W/kg	PASSED
WCDMA1900 + WLAN2450	-	-	1.5 cm	0.414 W/kg	0.46 W/kg	1.6 W/kg	PASSED

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

1.2.3 Maximum Drift

Maximum drift covered by 12% scaling up of the SAR values	Maximum drift during measurements
0.5dB	0.46dB

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.

This device has Voice-over-IP/Dual Transfer Mode capability for use at the ear. Therefore, SAR for multi slot GPRS mode was evaluated against the head profile of the phantom. Dual Transfer Mode is a feature that utilises the multi-slot GPRS capability in this device; it allows simultaneous transmission of voice and data during the same call, using the same transmitter and antenna.

This is a WCDMA HSUPA device, but SAR tests for HSUPA mode have not been performed as no HSUPA Sub-test mode has an average power > 0.25dB above the basic WCDMA 12.2kbps RMC mode. Appendix C of this report gives a summary of the measured WCDMA and HSUPA average powers; a detailed report of these WCDMA and HSUPA conducted power tests is submitted separately.

This is a BT Class 1 device; as its power tuning target is 7dBm (5mW), SAR testing was deemed unnecessary.

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 underneath the back cover. The WLAN antenna is located at the top underneath the back cover.

3. TEST CONDITIONS

3.1 Temperature and Humidity

Ambient temperature (°C):	20.5 – 23.5
Ambient humidity (RH %):	40 - 50

3.2 Test Signal, Frequencies and Output Power

The device was put into operation by using a call tester except for testing WLAN2450 where control software was used. 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.

The transmission mode of the device in all WLAN b-mode tests was DSSS QPSK 11Mbps. This mode has the highest (or equal highest) time-averaged output power of all the WLAN b and g modulation modes in Nokia devices. In WLAN n-mode, BPSK 6.5Mbps with 20MHz bandwidth was used.

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
DAE 4	793	12 months	2011-09
E-field Probe ES3DV3	3194	12 months	2011-09
E-field Probe ES3DV3	3165	12 months	2012-02
E-field Probe EX3DV4	3573	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
Dipole Validation Kit, D2450V2	749	24 months	2011-10
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	-	-
Signal Generator	E4436B	US39260114	12 months	2011-08
Amplifier	5S1G4	25583	12 months	2011-08
Power Meter	NRVS	849305/028	12 months	2011-08
Power Sensor	NRV-Z32	100067	12 months	2011-12

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 D
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

4.1.2 Isotropic E-field Probe Type EX3DV4

Construction	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Calibration	Calibration certificate in Appendix D
Frequency	10 MHz to >6 GHz (dosimetry); Linearity: ± 0.2 dB (30 MHz to 6 GHz)
Directivity	± 0.3 dB in HSL (rotation around probe axis) ± 0.5 dB in tissue material (rotation normal to probe axis)
Dynamic Range	10 μ W/g to > 100 mW/g, Linearity: ± 0.2 dB
Dimensions	Overall length: 330 mm Tip length: 10 mm Body diameter: 12 mm Tip diameter: 2.5 mm Distance from probe tip to dipole centers: 1.0 mm
Application	General dosimetry up to 6 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

2450MHz band

Ingredient	Head (% by weight)	Body (% by weight)
Deionised Water	56.0	70.20
Tween 20	44.0	29.62
Salt	-	0.18

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			
	2011-06-03	2.50	40.0	0.92	21.0
	2011-06-06	2.48	39.6	0.90	21.0
1800	Reference result	9.90	40.0	1.40	
	± 10% window	8.91 – 10.89			
	2011-05-30	10.1	38.8	1.39	21.0
1900	Reference result	10.2	41.2	1.45	
	± 10% window	9.2 – 11.2			
	2011-05-24	10.9	39.7	1.40	21.0
	2011-05-25	10.6	39.5	1.41	21.0
	2011-05-26	10.7	39.4	1.38	21.0
	2011-05-27	10.9	39.2	1.40	21.0
2450	Reference result	13.2	39.1	1.78	
	± 10% window	11.9 – 14.5			
	2011-06-07	13.8	37.9	1.83	21.0

System checking, body tissue simulant

f [MHz]	Description	SAR [W/kg], 1g	Dielectric Parameters		Temp [°C]
			ϵ_r	σ [S/m]	
835	Reference result	2.52	53.2	1.01	
	$\pm 10\%$ window	2.27 – 2.77			
	2011-06-14	2.52	52.6	1.00	21.0
1800	Reference result	9.61	53.5	1.50	
	$\pm 10\%$ window	8.65 – 10.57			
	2011-06-03	10.5	51.5	1.51	21.0
1900	Reference result	10.4	55.0	1.58	
	$\pm 10\%$ window	9.4 – 11.4			
	2011-05-30	11.4	53.0	1.53	21.0
	2011-06-16	10.4	53.0	1.50	21.0
2450	Reference result	12.5	52.7	1.98	
	$\pm 10\%$ window	11.2 – 13.8			
	2011-06-09	13.3	50.4	1.97	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

f [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	
	2011-06-03	40.0	0.92	21.0
	2011-06-06	39.6	0.90	21.0
836	Recommended value	41.5	0.90	
	± 5% window	39.4 – 43.6	0.86 – 0.95	
	2011-06-03	40.0	0.92	21.0
	2011-06-06	39.6	0.90	21.0
1732	Recommended value	40.1	1.36	
	± 5% window	38.1 – 42.1	1.29 – 1.43	
	2011-05-30	39.1	1.32	21.0
1880	Recommended value	40.0	1.40	
	± 5% window	38.0 – 42.0	1.33 – 1.47	
	2011-05-24	39.8	1.38	21.0
	2011-05-25	39.6	1.39	21.0
	2011-05-26	39.5	1.36	21.0
2442	Recommended value	39.2	1.79	
	± 5% window	37.3 – 41.2	1.70 – 1.88	
	2011-06-07	38.0	1.82	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	
	± 5% window	52.4 – 58.0	0.92 – 1.02	
	2011-06-14	52.6	1.00	21.0
836	Recommended value	55.2	0.97	
	± 5% window	52.4 – 58.0	0.92 – 1.02	
	2011-06-14	52.6	1.00	21.0
1732	Recommended value	53.5	1.48	
	± 5% window	50.8 – 56.2	1.40 – 1.55	
	2011-06-03	51.8	1.45	21.0
1880	Recommended value	53.3	1.52	
	± 5% window	50.6 – 56.0	1.44 – 1.60	
	2011-05-27	52.3	1.51	21.0
	2011-05-30	53.1	1.51	21.0
2442	2011-06-16	53.0	1.49	21.0
	Recommended value	52.7	1.94	
	± 5% window	50.1 – 55.3	1.85 – 2.04	
	2011-06-09	50.4	1.96	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” and “tilt” positions on both the left hand and right hand sides of the phantom.

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

5.2.2 Body Worn Configuration

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

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

5.3 Scan Procedures

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

5.4 SAR Averaging Methods

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

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

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

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

6. MEASUREMENT UNCERTAINTY

Table 6.1 – Measurement uncertainty evaluation

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

7. RESULTS

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

850MHz Head SAR results

Mode	Test configuration		SAR, averaged over 1g (W/kg)		
			Ch 128 824.2 MHz	Ch 190 836.6 MHz	Ch 251 848.8 MHz
GSM	Conducted Power		32.5 dBm	32.5 dBm	32.5 dBm
	Left	Cheek	0.717	0.786	0.747
		Tilt	-	0.520	-
	Right	Cheek	-	0.576	-
		Tilt	-	0.420	-
2-slot GPRS	Conducted Power		-	29.5 dBm	-
	Left	Cheek	-	0.754	-
		Tilt	-	-	-
	Right	Cheek	-	-	-
		Tilt	-	-	-
3-slot GPRS	Conducted Power		-	27.7 dBm	-
	Left	Cheek	-	0.733	-
		Tilt	-	-	-
	Right	Cheek	-	-	-
		Tilt	-	-	-
4-slot GPRS	Conducted Power		-	26.5 dBm	-
	Left	Cheek	-	0.727	-
		Tilt	-	-	-
	Right	Cheek	-	-	-
		Tilt	-	-	-
1-slot 8PSK EGPRS	Conducted Power		-	26.5 dBm	-
	Left	Cheek	-	0.201	-
		Tilt	-	-	-
	Right	Cheek	-	-	-
		Tilt	-	-	-

(850MHz Table continues)

(850MHz Table continues)

Mode	Test configuration		SAR, averaged over 1g (W/kg)		
			Ch 128 824.2 MHz	Ch 190 836.6 MHz	Ch 251 848.8 MHz
2-slot 8PSK EGPRS	Conducted Power		-	26.5 dBm	-
	Left	Cheek	-	0.389	-
		Tilt	-	-	-
	Right	Cheek	-	-	-
		Tilt	-	-	-
3-slot 8PSK EGPRS	Conducted Power		-	26.5 dBm	-
	Left	Cheek	-	0.581	-
		Tilt	-	-	-
	Right	Cheek	-	-	-
		Tilt	-	-	-
4-slot 8PSK EGPRS	Conducted Power		-	26.5 dBm	-
	Left	Cheek	-	0.732	-
		Tilt	-	-	-
	Right	Cheek	-	-	-
		Tilt	-	-	-
Mode	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		22.5 dBm	22.5 dBm	22.5 dBm
	Left	Cheek	0.653	0.559	0.553
		Tilt	-	0.356	-
	Right	Cheek	-	0.423	-
		Tilt	-	0.326	-

1700/2100MHz SAR results

Mode	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		21.0 dBm	21.0 dBm	21.0 dBm
	Left	Cheek	0.880	0.838	0.832
		Tilt	-	0.207	-
	Right	Cheek	-	0.799	-
		Tilt	-	0.270	-

1900MHz Head SAR results

Mode	Test configuration		SAR, averaged over 1g (W/kg)		
			Ch 512 1850.2 MHz	Ch 661 1880.0 MHz	Ch 810 1909.8 MHz
GSM	Conducted Power		29.5 dBm	29.5 dBm	29.5 dBm
	Left	Cheek	-	0.495	-
		Tilt	-	0.088	-
	Right	Cheek	0.599	0.599	0.543
		Tilt	-	0.164	-
2-slot GPRS	Conducted Power		-	26.5 dBm	-
	Left	Cheek	-	0.480	-
		Tilt	-	-	-
	Right	Cheek	-	-	-
		Tilt	-	-	-
3-slot GPRS	Conducted Power		-	24.7 dBm	-
	Left	Cheek	-	0.473	-
		Tilt	-	-	-
	Right	Cheek	-	-	-
		Tilt	-	-	-
4-slot GPRS	Conducted Power		-	23.5 dBm	-
	Left	Cheek	-	0.468	-
		Tilt	-	-	-
	Right	Cheek	-	-	-
		Tilt	-	-	-
1-slot 8PSK EGPRS	Conducted Power		-	25.5 dBm	-
	Left	Cheek	-	0.184	-
		Tilt	-	-	-
	Right	Cheek	-	-	-
		Tilt	-	-	-

(1900MHz Table continues)

(1900MHz Table continues)

Mode	Test configuration		SAR, averaged over 1g (W/kg)		
			Ch 512 1850.2 MHz	Ch 661 1880.0 MHz	Ch 810 1909.8 MHz
2-slot 8PSK EGPRS	Conducted Power		-	25.5 dBm	-
	Left	Cheek	-	0.342	-
		Tilt	-	-	-
	Right	Cheek	-	-	-
		Tilt	-	-	-
3-slot 8PSK EGPRS	Conducted Power		-	24.7 dBm	-
	Left	Cheek	-	0.441	-
		Tilt	-	-	-
	Right	Cheek	-	-	-
		Tilt	-	-	-
4-slot 8PSK EGPRS	Conducted Power		-	23.5 dBm	-
	Left	Cheek	-	0.453	-
		Tilt	-	-	-
	Right	Cheek	-	-	-
		Tilt	-	-	-
Mode	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		21.0 dBm	21.0 dBm	21.0 dBm
	Left	Cheek	-	0.590	-
		Tilt	-	0.099	-
	Right	Cheek	0.798	0.786	0.747
		Tilt	-	0.205	-

2450MHz Head SAR results

Mode	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		15.5 dBm	19.0 dBm	15.5 dBm
	Left	Cheek	-	0.286	-
		Tilt	-	0.177	-
	Right	Cheek	0.382	0.655	0.377
		Tilt	-	0.322	-
WLAN n-mode 20MHz	Conducted Power		14.5 dBm	18.5 dBm	14.5 dBm
	Left	Cheek	-	-	-
		Tilt	-	-	-
	Right	Cheek	0.299	0.565	0.287
		Tilt	-	-	-

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

850MHz Body SAR results

Mode	Device orientation	Test configuration	SAR, averaged over 1g (W/kg)		
			Ch 128 824.2 MHz	Ch 190 836.6 MHz	Ch 251 848.8 MHz
GSM		Conducted Power	32.5 dBm	32.5 dBm	32.5 dBm
	Display facing phantom	Without headset	-	0.515	-
		Headset WH-1V	-	0.361	-
	Back facing phantom	Without headset	0.593	0.601	0.535
		Headset WH-1V	-	0.403	-
Mode	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	22.5 dBm	22.5 dBm	22.5 dBm
	Display facing phantom	Without headset	-	0.370	-
		Headset WH-1V	-	0.260	-
	Back facing phantom	Without headset	0.545	0.484	0.447
		Headset WH-1V	-	0.335	-

1700/2100MHz Body SAR results

Mode	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	21.0 dBm	21.0 dBm	21.0 dBm
	Display facing phantom	Without headset	0.515	0.461	0.457
		Headset WH-1V	-	0.418	-
	Back facing phantom	Without headset	-	0.443	-
		Headset WH-1V	-	0.332	-

1900MHz Body SAR results

Mode	Device orientation	Test configuration	SAR, averaged over 1g (W/kg)		
			Ch 512 1850.2 MHz	Ch 661 1880.0 MHz	Ch 810 1909.8 MHz
GSM		Conducted Power	29.5 dBm	29.5 dBm	29.5 dBm
	Display facing phantom	Without headset	0.325	0.306	0.276
		Headset WH-1V	-	0.256	-
	Back facing phantom	Without headset	-	0.271	-
		Headset WH-1V	-	0.241	-
Mode	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	21.0 dBm	21.0 dBm	21.0 dBm
	Display facing phantom	Without headset	0.377	0.361	0.326
		Headset WH-1V	-	0.333	-
	Back facing phantom	Without headset	-	0.336	-
		Headset WH-1V	-	0.305	-

2450MHz Body SAR results

Mode	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	15.5 dBm	19.0 dBm	15.5 dBm
	Display facing phantom	Without headset	-	0.054	-
		Headset WH-1V	-	0.037	-
	Back facing Phantom	Without headset	0.043	0.086	0.024
		Headset WH-1V	-	0.064	-
WLAN n-mode 20MHz		Conducted Power	14.5 dBm	18.5 dBm	14.5 dBm
	Display facing phantom	Without headset	-	-	-
		Headset WH-1V	-	-	-
	Back facing phantom	Without headset	0.029	0.054	0.027
		Headset WH-1V	-	-	-

Simultaneous transmissions: Combined SAR results – Individual band Max results

Test configuration	Max. 1g SAR results					
	WLAN	GSM 850	WCDMA 850	WCDMA 1700/2100	GSM1900	WCDMA 1900
Head: Left, Cheek	0.286	0.786	0.653	0.880	0.495	0.590
Head: Left, Tilt	0.177	0.520	0.356	0.207	0.088	0.099
Head: Right, Cheek	0.655	0.576	0.423	0.799	0.599	0.798
Head: Right, Tilt	0.322	0.420	0.326	0.270	0.164	0.205
Body: Display facing phantom, Without Headset	0.054	0.515	0.370	0.515	0.325	0.377
Body: Display facing phantom, Headset WH-1V	0.037	0.361	0.260	0.418	0.256	0.333
Body: Back facing phantom, Without Headset	0.086	0.601	0.545	0.443	0.271	0.336
Body: Back facing phantom, Headset WH-1V	0.064	0.403	0.335	0.332	0.241	0.305

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

Test configuration	Max. 1g SAR results				
	GSM850 + WLAN	WCDMA850 + WLAN	WCDMA 1700/2100 + WLAN	GSM1900 + WLAN	WCDMA1900 + WLAN
Head: Left, Cheek	1.072	0.939	1.166	0.781	0.876
Head: Left, Tilt	0.697	0.533	0.384	0.265	0.276
Head: Right, Cheek	1.231	1.078	1.454	1.254	1.453
Head: Right, Tilt	0.742	0.648	0.592	0.486	0.527
Body: Display facing phantom, Without Headset	0.569	0.424	0.569	0.379	0.431
Body: Display facing phantom, Headset WH-1V	0.398	0.297	0.455	0.293	0.370
Body: Back facing phantom, Without Headset	0.687	0.631	0.529	0.357	0.422
Body: Back facing phantom, Headset WH-1V	0.467	0.399	0.396	0.305	0.369

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.

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

Test configuration	Max. 1g SAR results				
	GSM850 + WLAN	WCDMA850 + WLAN	WCDMA 1700/2100 + WLAN	GSM1900 + WLAN	WCDMA1900 + WLAN
Head: Left, Cheek	-	-	-	-	-
Head: Left, Tilt	-	-	-	-	-
Head: Right, Cheek	0.791	0.754	0.836	0.797	0.880
Head: Right, Tilt	-	-	-	-	-
Body: Display facing phantom, Without Headset	-	-	0.525	0.358	0.414
Body: Display facing phantom, Headset WH-1V	-	-	-	-	-
Body: Back facing phantom, Without Headset	0.636	0.576	-	-	-
Body: Back facing phantom, Headset WH-1V	-	-	-	-	-

Some of the Combined SAR values in the above table are less than the maximum SAR values for the contributing cellular band. This is due to a) minimal overlap of the SAR distributions of the cellular band with WLAN2450 and b) uncertainties associated with the different methods of calculation. In these cases, the maximum SAR values given for the combined Modes in the Summary table in Section 1.2 are those for the individual cellular band.

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/Time: 2011-06-03 09:11:40

Test Laboratory: TCC Nokia

Type: D835V2; Serial: D835V2 - SN:480

Communication System: CW835

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: HSL850; Medium Notes: $t = 22.2\text{ C}$

Medium parameters used: $f = 835\text{ MHz}$; $\sigma = 0.917\text{ mho/m}$; $\epsilon_r = 40$; $\rho = 1000\text{ kg/m}^3$

Phantom section: Flat Section

DASY5 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: DASY52.6.1.408; Postprocessing SW: SEMCAD X Version 14.0 Build 61

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

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

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

Reference Value = 55 V/m

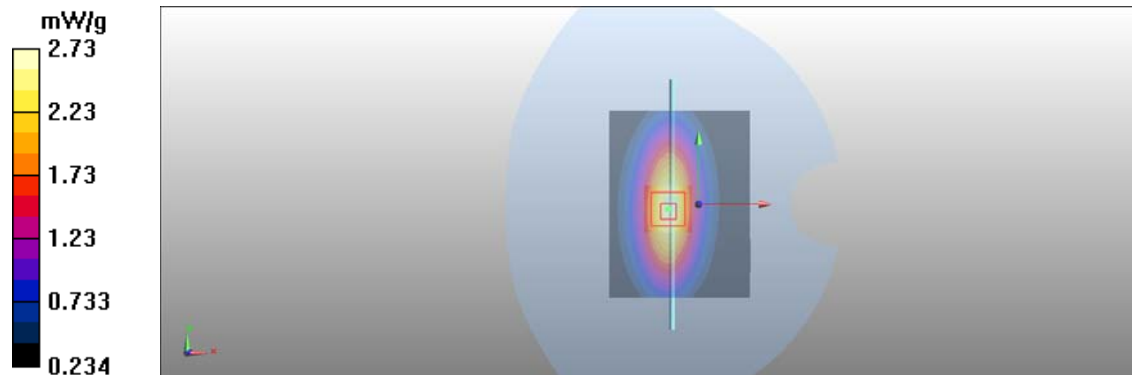
Peak SAR (extrapolated) = 3.84 W/kg

SAR(1 g) = 2.5 mW/g

SAR(10 g) = 1.62 mW/g

Power Drift = 0.0054 dB

Maximum value of SAR (measured) = 2.73 mW/g



Date/Time: 2011-06-06 07:58:22

Test Laboratory: TCC Nokia
Type: D835V2; Serial: D835V2 - SN:480

Communication System: CW835

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: HSL850; Medium Notes: $t = 22.2\text{ C}$

Medium parameters used: $f = 835\text{ MHz}$; $\sigma = 0.898\text{ mho/m}$; $\epsilon_r = 39.6$; $\rho = 1000\text{ kg/m}^3$

Phantom section: Flat Section

DASY5 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: DASY52.6.1.408; Postprocessing SW: SEMCAD X Version 14.0 Build 61

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

Maximum value of SAR (interpolated) = 2.63 mW/g

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

Reference Value = 54.9 V/m

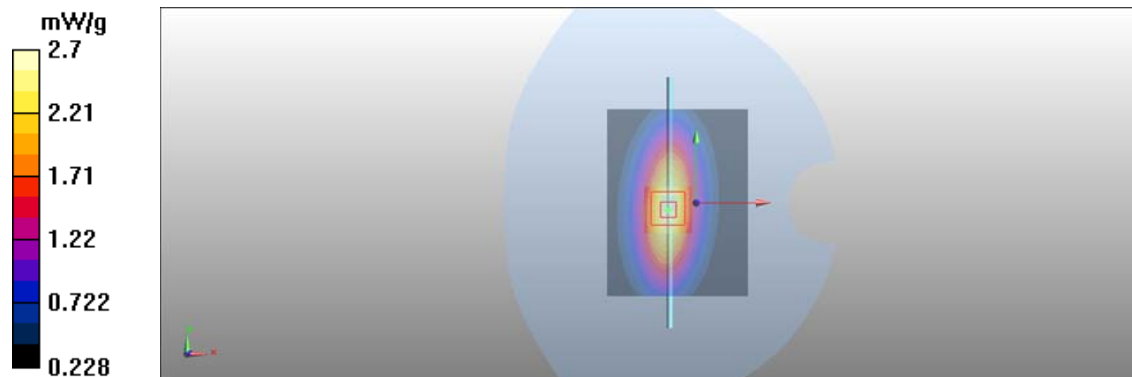
Peak SAR (extrapolated) = 3.81 W/kg

SAR(1 g) = 2.48 mW/g

SAR(10 g) = 1.6 mW/g

Power Drift = 0.031 dB

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



Date/Time: 2011-05-30 10:42:02

Test Laboratory: TCC Nokia

Type: D1800V2; Serial: D1800V2 - SN:256

Communication System: CW1800

Frequency: 1800 MHz; Duty Cycle: 1:1

Medium: HSL1800; Medium Notes: $t = 21.3$ C

Medium parameters used: $f = 1800$ MHz; $\sigma = 1.39$ mho/m; $\epsilon_r = 38.8$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 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; Postprocessing SW: SEMCAD, V1.8 Build 176

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

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

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

Reference Value = 90.8 V/m

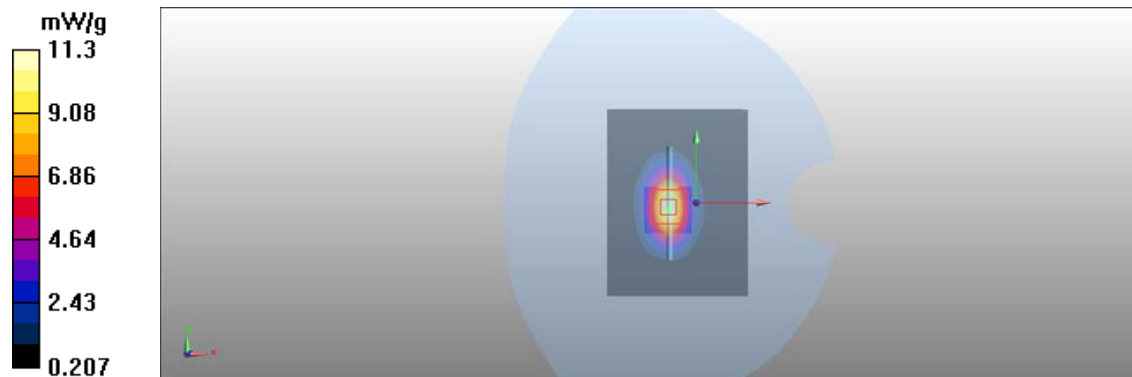
Peak SAR (extrapolated) = 18.8 W/kg

SAR(1 g) = 10.1 mW/g

SAR(10 g) = 5.24 mW/g

Power Drift = 0.144 dB

Maximum value of SAR (measured) = 11.3 mW/g



Date/Time: 2011-05-24 09:14:32

Test Laboratory: TCC Nokia

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

Communication System: CW1900

Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: HSL1900; Medium Notes: $t = 22.1$ C

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.4$ mho/m; $\epsilon_r = 39.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 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; Postprocessing SW: SEMCAD, V1.8 Build 176

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

Maximum value of SAR (interpolated) = 12.8 mW/g

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

Reference Value = 93.7 V/m

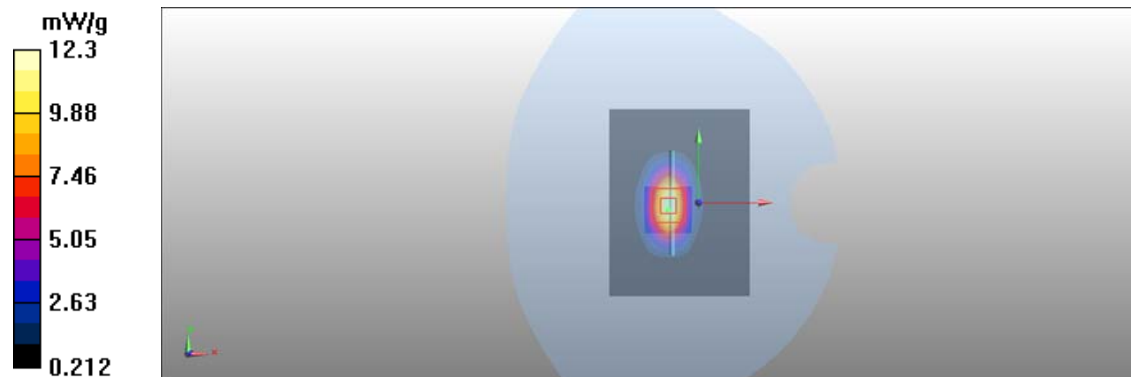
Peak SAR (extrapolated) = 20.7 W/kg

SAR(1 g) = 10.9 mW/g

SAR(10 g) = 5.63 mW/g

Power Drift = 0.068 dB

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



Date/Time: 2011-05-25 09:01:56

Test Laboratory: TCC Nokia

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

Communication System: CW1900

Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: HSL1900; Medium Notes: $t = 21.7$ C

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.41$ mho/m; $\epsilon_r = 39.5$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 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; Postprocessing SW: SEMCAD, V1.8 Build 176

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

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

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

Reference Value = 87.2 V/m

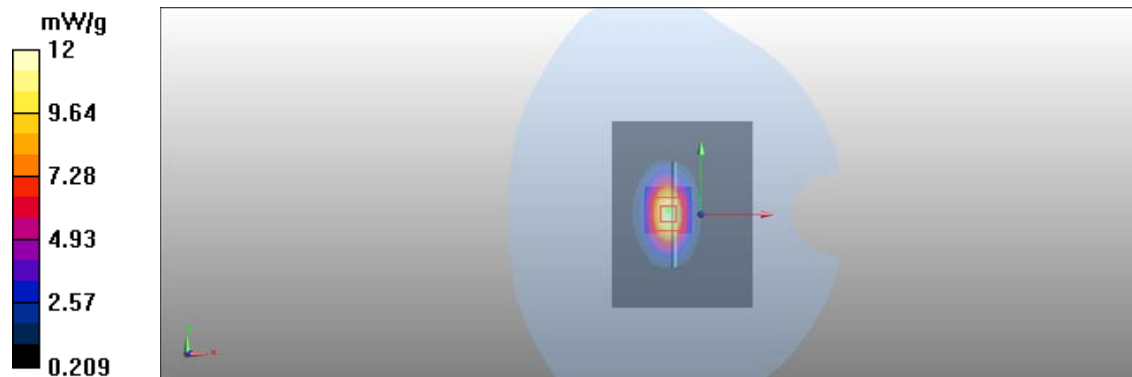
Peak SAR (extrapolated) = 20.1 W/kg

SAR(1 g) = 10.6 mW/g

SAR(10 g) = 5.49 mW/g

Power Drift = 0.140 dB

Maximum value of SAR (measured) = 12 mW/g



Date/Time: 2011-05-26 09:11:51

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= 21.8 C

Medium parameters used: f = 1900 MHz; σ = 1.38 mho/m; ϵ_r = 39.4; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY4 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; Postprocessing SW: SEMCAD, V1.8 Build 176

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 = 92.8 V/m

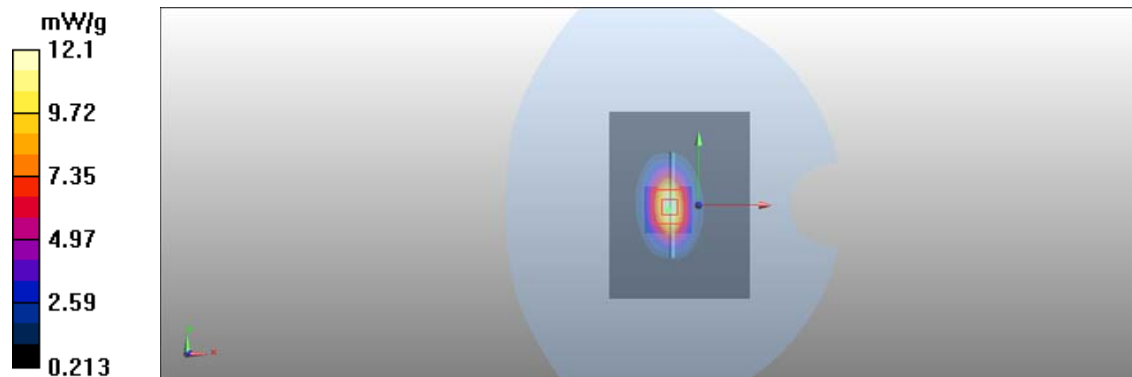
Peak SAR (extrapolated) = 20.4 W/kg

SAR(1 g) = 10.7 mW/g

SAR(10 g) = 5.52 mW/g

Power Drift = 0.125 dB

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



Date/Time: 2011-05-27 08:39:06

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= 21.8 C

Medium parameters used: f = 1900 MHz; $\sigma = 1.4$ mho/m; $\epsilon_r = 39.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 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; Postprocessing SW: SEMCAD, V1.8 Build 176

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 = 94.2 V/m

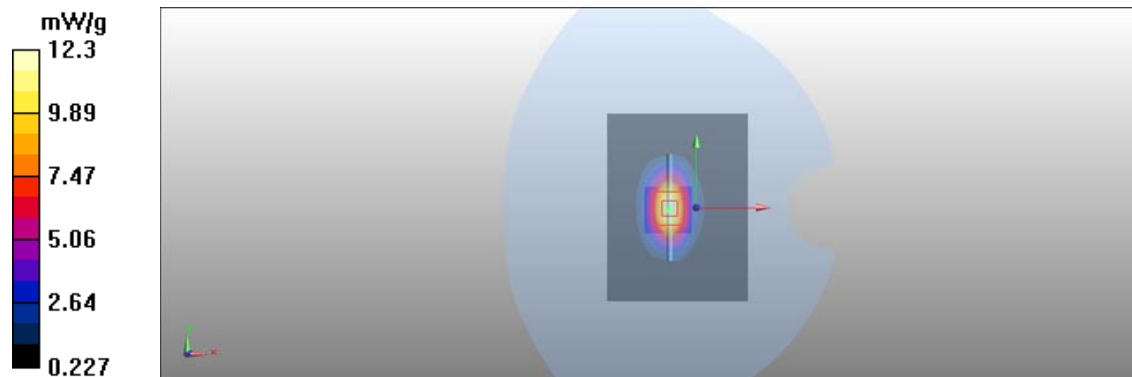
Peak SAR (extrapolated) = 20.6 W/kg

SAR(1 g) = 10.9 mW/g

SAR(10 g) = 5.62 mW/g

Power Drift = 0.102 dB

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



Date/Time: 2011-06-07 08:12:47

Test Laboratory: TCC Nokia

Type: D2450V2; Serial: D2450V2 - SN:749

Communication System: CW2450

Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: HSL2450; Medium Notes: $t = 22.1$ C

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.83$ mho/m; $\epsilon_r = 37.9$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3573
- ConvF(6.69, 6.69, 6.69); Calibrated:2011-02-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn793; Calibrated:2010-09-08
- Phantom: SAM1; Type: SAM; Serial: TP-1126
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

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

Maximum value of SAR (interpolated) = 16.3 mW/g

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

Reference Value = 79.5 V/m

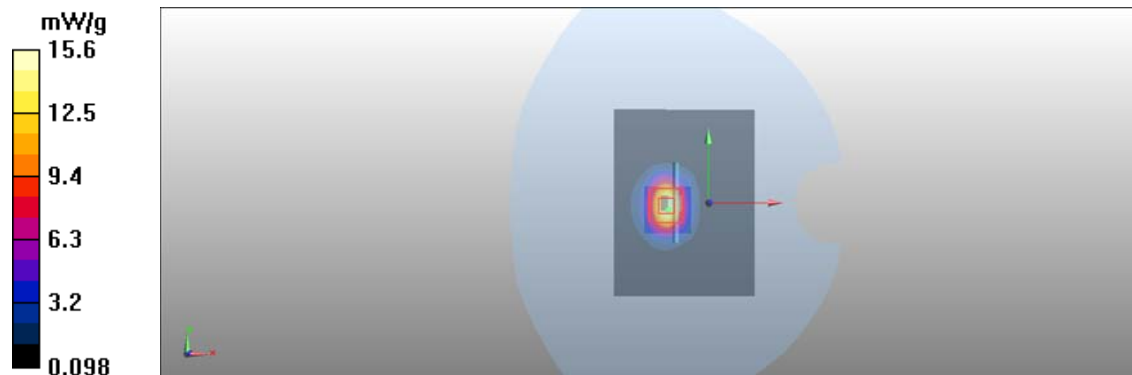
Peak SAR (extrapolated) = 29.1 W/kg

SAR(1 g) = 13.8 mW/g

SAR(10 g) = 6.44 mW/g

Power Drift = 0.089 dB

Maximum value of SAR (measured) = 15.6 mW/g



Date/Time: 2011-06-14 08:55:52

Test Laboratory: TCC Nokia

Type: D835V2; Serial: D835V2 - SN:480

Communication System: CW835

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: BSL850; Medium Notes: t= 22.0 C

Medium parameters used: f = 835 MHz; σ = 1 mho/m; ϵ_r = 52.6; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY5 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: DASY52.6.1.408; Postprocessing SW: 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) = 2.68 mW/g

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

Reference Value = 52.4 V/m

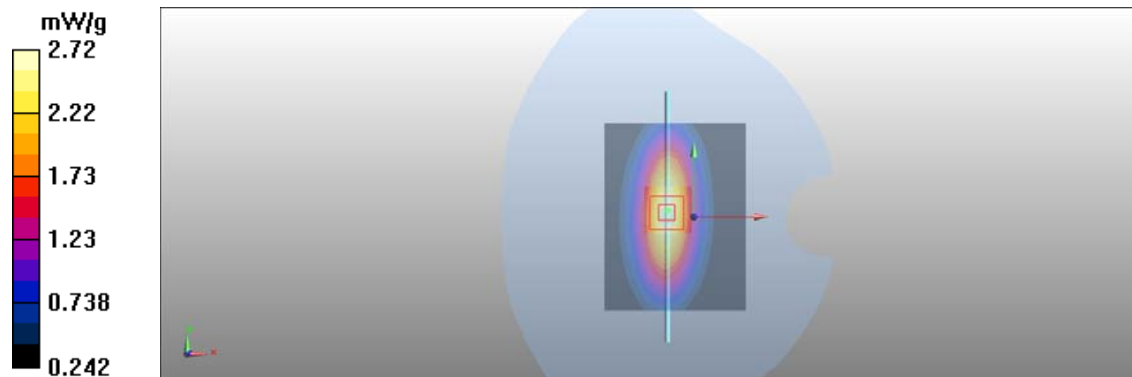
Peak SAR (extrapolated) = 3.79 W/kg

SAR(1 g) = 2.52 mW/g

SAR(10 g) = 1.64 mW/g

Power Drift = 0.054 dB

Maximum value of SAR (measured) = 2.72 mW/g



Date/Time: 2011-06-03 09:30:31

Test Laboratory: TCC Nokia

Type: D1800V2; Serial: D1800V2 - SN:256

Communication System: CW1800

Frequency: 1800 MHz; Duty Cycle: 1:1

Medium: BSL1800; Medium Notes: $t = 21.8$ C

Medium parameters used: $f = 1800$ MHz; $\sigma = 1.51$ mho/m; $\epsilon_r = 51.5$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 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; Postprocessing SW: SEMCAD, V1.8 Build 176

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

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

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

Reference Value = 82.4 V/m

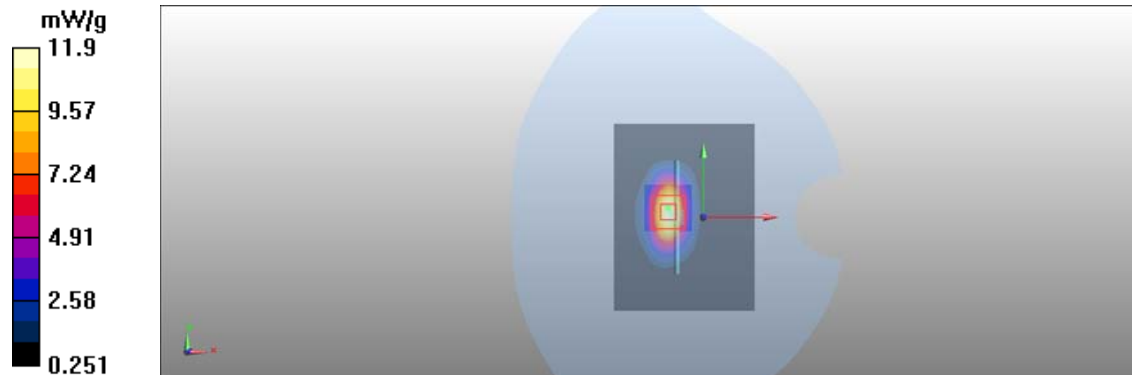
Peak SAR (extrapolated) = 18.1 W/kg

SAR(1 g) = 10.5 mW/g

SAR(10 g) = 5.53 mW/g

Power Drift = 0.042 dB

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



Date/Time: 2011-05-30 09:15:35

Test Laboratory: TCC Nokia

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

Communication System: CW1900

Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: BSL1900; Medium Notes: $t = 21.7$ C

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.53$ mho/m; $\epsilon_r = 53$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 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; Postprocessing SW: SEMCAD, V1.8 Build 176

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

Maximum value of SAR (interpolated) = 12.9 mW/g

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

Reference Value = 90.6 V/m

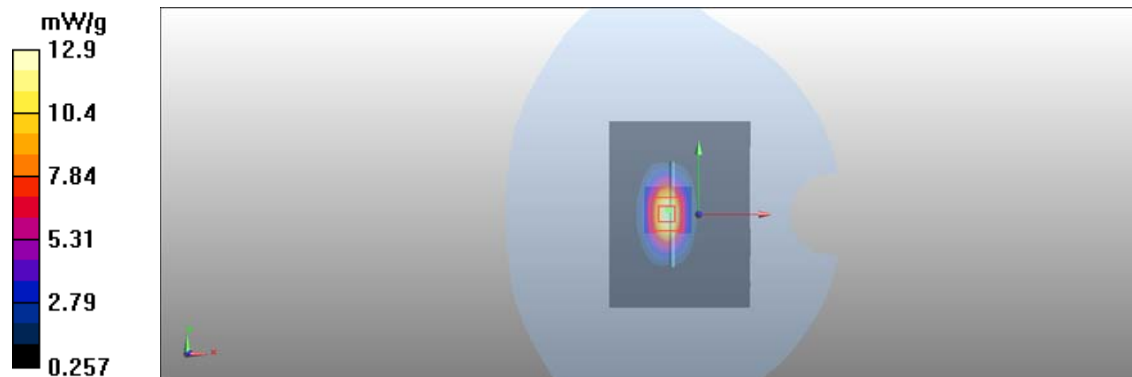
Peak SAR (extrapolated) = 20 W/kg

SAR(1 g) = 11.4 mW/g

SAR(10 g) = 5.99 mW/g

Power Drift = 0.066 dB

Maximum value of SAR (measured) = 12.9 mW/g



Date/Time: 2011-06-16 12:18:33

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= 21.8 C

Medium parameters used: f = 1900 MHz; $\sigma = 1.5$ mho/m; $\epsilon_r = 53$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 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; Postprocessing SW: SEMCAD, V1.8 Build 176

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

Maximum value of SAR (interpolated) = 12.2 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

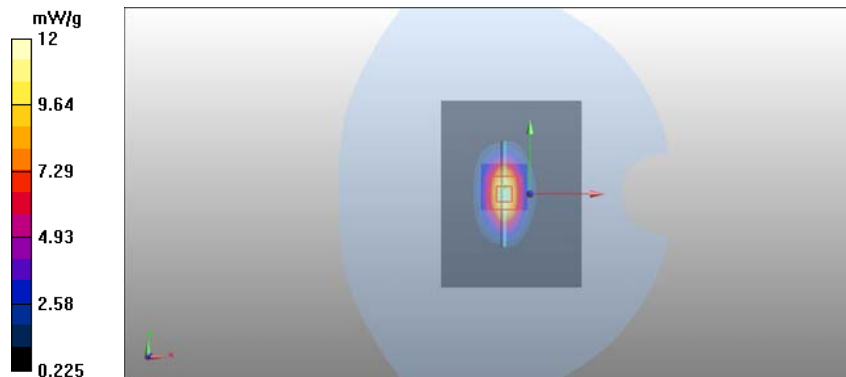
Peak SAR (extrapolated) = 18.4 W/kg

SAR(1 g) = 10.4 mW/g

SAR(10 g) = 5.49 mW/g

Power Drift = 0.057 dB

Maximum value of SAR (measured) = 12 mW/g



Date/Time: 2011-06-09 08:26:17

Test Laboratory: TCC Nokia

Type: D2450V2; Serial: D2450V2 - SN:749

Communication System: CW2450

Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: BSL2450; Medium Notes: $t = 21.8$ C

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.97$ mho/m; $\epsilon_r = 50.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3573
- ConvF(6.8, 6.8, 6.8); Calibrated:2011-02-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn793; Calibrated: 2010-09-08
- Phantom: SAM2; Type: SAM; Serial: TP-1570
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

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

Maximum value of SAR (interpolated) = 15.6 mW/g

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

Reference Value = 80.5 V/m

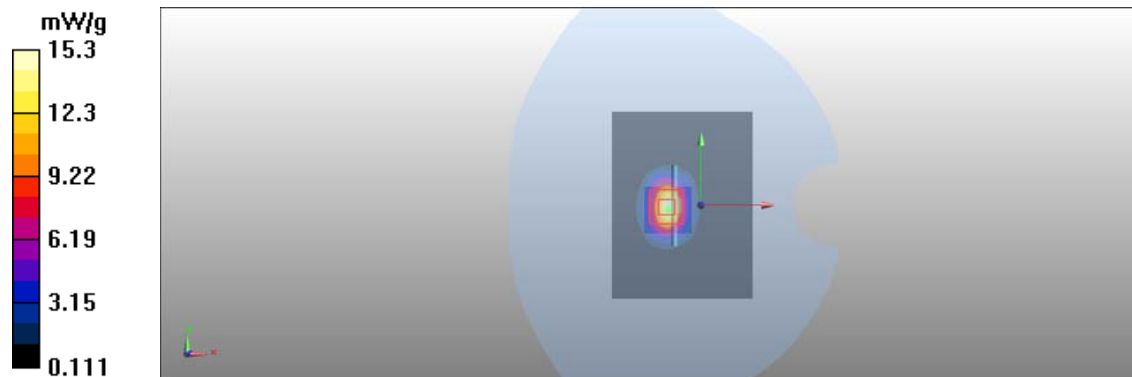
Peak SAR (extrapolated) = 26.9 W/kg

SAR(1 g) = 13.3 mW/g

SAR(10 g) = 6.2 mW/g

Power Drift = 0.031 dB

Maximum value of SAR (measured) = 15.3 mW/g



APPENDIX B: MEASUREMENT SCANS

Date/Time: 2011-06-03 10:06:01

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200832/1

Communication System: GSM850

Frequency: 836.6 MHz; Duty Cycle: 1:8.30042

Medium: HSL850; Medium Notes: t= 22.2 C

Medium parameters used: f = 837 MHz; σ = 0.918 mho/m; ϵ_r = 40; ρ = 1000 kg/m³

Phantom section: Left Section

DASY5 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: DASY52.6.1.408; Postprocessing SW: SEMCAD X Version 14.0 Build 61

Configuration/Cheek - Middle/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm

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

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

Reference Value = 10.8 V/m

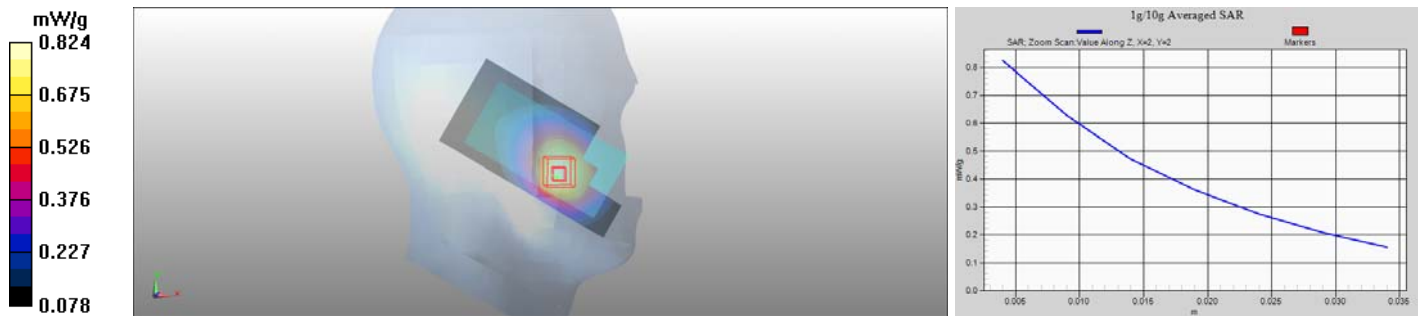
Peak SAR (extrapolated) = 1.09 W/kg

SAR(1 g) = 0.786 mW/g

SAR(10 g) = 0.571 mW/g

Power Drift = -0.00853 dB

Maximum value of SAR (measured) = 0.824 mW/g



Date/Time: 2011-06-03 12:53:05

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200832/1

Communication System: GSM850

Frequency: 836.6 MHz; Duty Cycle: 1:8.30042

Medium: HSL850; Medium Notes: t= 22.2 C

Medium parameters used: f = 837 MHz; σ = 0.918 mho/m; ϵ_r = 40; ρ = 1000 kg/m³

Phantom section: Left Section

DASY5 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: DASY52.6.1.408; Postprocessing SW: SEMCAD X Version 14.0 Build 61

Configuration/Tilt - Middle/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.552 mW/g

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

Reference Value = 22.6 V/m

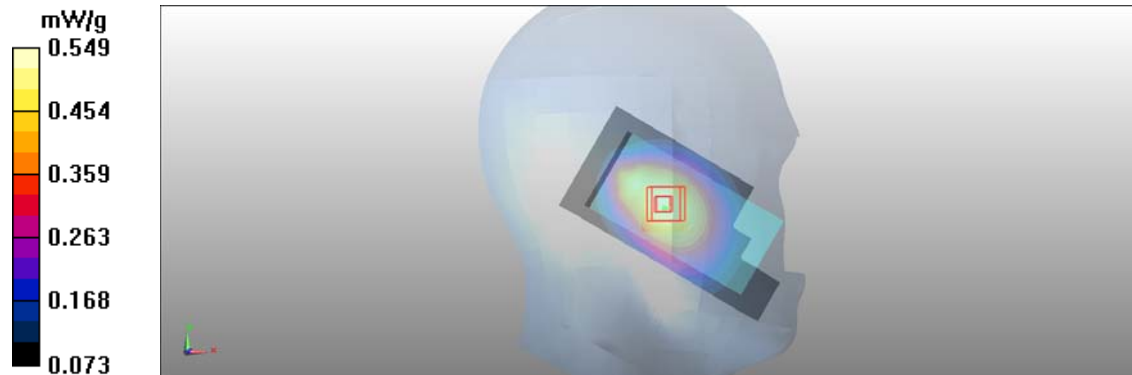
Peak SAR (extrapolated) = 0.665 W/kg

SAR(1 g) = 0.520 mW/g

SAR(10 g) = 0.386 mW/g

Power Drift = -0.102 dB

Maximum value of SAR (measured) = 0.549 mW/g



Date/Time: 2011-06-06 13:03:34

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200832/1

Communication System: GSM850

Frequency: 836.6 MHz; Duty Cycle: 1:8.30042

Medium: HSL850; Medium Notes: t= 22.2 C

Medium parameters used: f = 837 MHz; σ = 0.901 mho/m; ϵ_r = 39.6; ρ = 1000 kg/m³

Phantom section: Right Section

DASY5 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: DASY52.6.1.408; Postprocessing SW: SEMCAD X Version 14.0 Build 61

Configuration/Cheek - Middle/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.615 mW/g

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

Reference Value = 11.1 V/m

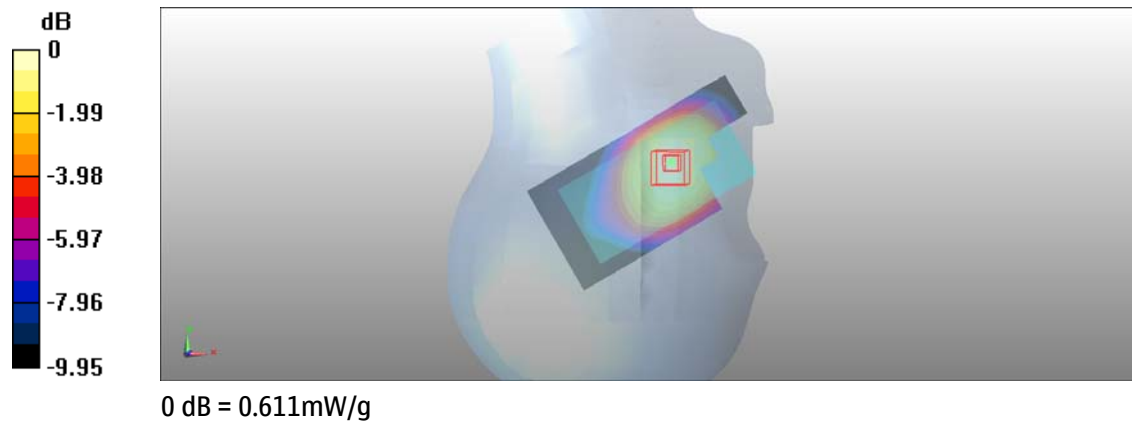
Peak SAR (extrapolated) = 0.755 W/kg

SAR(1 g) = 0.576 mW/g

SAR(10 g) = 0.421 mW/g

Power Drift = 0.042 dB

Maximum value of SAR (measured) = 0.611 mW/g



Date/Time: 2011-06-06 13:14:58

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200832/1

Communication System: GSM850

Frequency: 836.6 MHz; Duty Cycle: 1:8.30042

Medium: HSL850; Medium Notes: t= 22.2 C

Medium parameters used: f = 837 MHz; σ = 0.901 mho/m; ϵ_r = 39.6; ρ = 1000 kg/m³

Phantom section: Right Section

DASY5 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: DASY52.6.1.408; Postprocessing SW: SEMCAD X Version 14.0 Build 61

Configuration/Tilt - Middle /Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.433 mW/g

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

Reference Value = 19.7 V/m

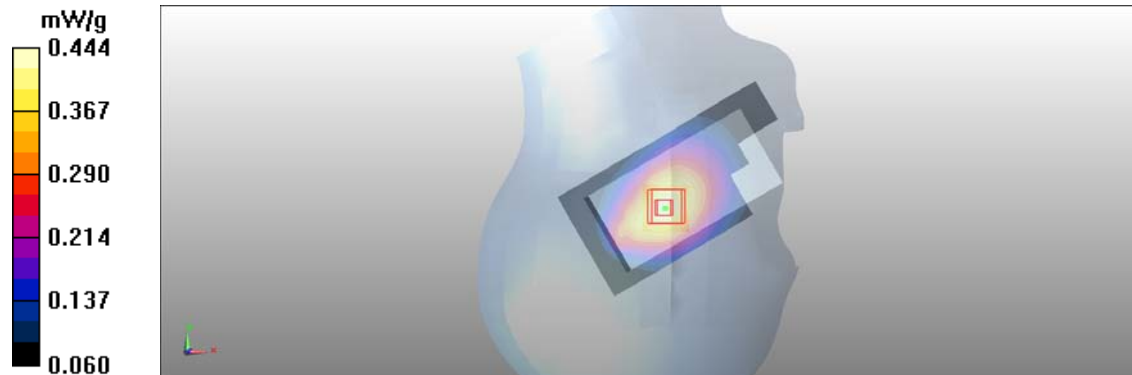
Peak SAR (extrapolated) = 0.535 W/kg

SAR(1 g) = 0.420 mW/g

SAR(10 g) = 0.312 mW/g

Power Drift = -0.00639 dB

Maximum value of SAR (measured) = 0.444 mW/g



Date/Time: 2011-06-03 10:30:59

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200832/1

Communication System: 2-slot GPRS850

Frequency: 836.6 MHz; Duty Cycle: 1:4.19952

Medium: HSL850; Medium Notes: t= 22.2 C

Medium parameters used: f = 837 MHz; σ = 0.918 mho/m; ϵ_r = 40; ρ = 1000 kg/m³

Phantom section: Left Section

DASY5 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: DASY52.6.1.408; Postprocessing SW: SEMCAD X Version 14.0 Build 61

Configuration/Cheek - Middle /Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.817 mW/g

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

Reference Value = 11 V/m

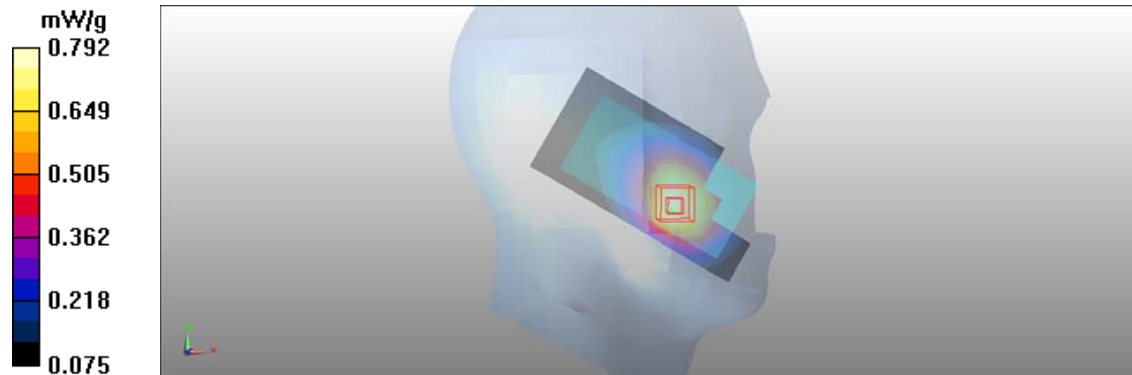
Peak SAR (extrapolated) = 1.03 W/kg

SAR(1 g) = 0.754 mW/g

SAR(10 g) = 0.548 mW/g

Power Drift = -0.00773 dB

Maximum value of SAR (measured) = 0.792 mW/g



Date/Time: 2011-06-03 10:41:29

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200832/1

Communication System: 3-slot GPRS850

Frequency: 836.6 MHz; Duty Cycle: 1:2.80027

Medium: HSL850; Medium Notes: t= 22.2 C

Medium parameters used: f = 837 MHz; σ = 0.918 mho/m; ϵ_r = 40; ρ = 1000 kg/m³

Phantom section: Left Section

DASY5 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: DASY52.6.1.408; Postprocessing SW: SEMCAD X Version 14.0 Build 61

Configuration/Cheek - Middle /Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.794 mW/g

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

Reference Value = 10.8 V/m

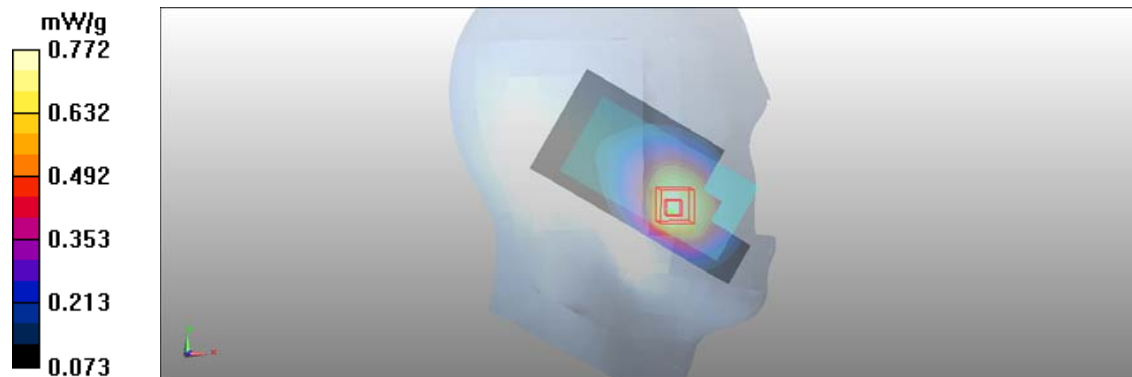
Peak SAR (extrapolated) = 1.01 W/kg

SAR(1 g) = 0.733 mW/g

SAR(10 g) = 0.535 mW/g

Power Drift = -0.036 dB

Maximum value of SAR (measured) = 0.772 mW/g



Date/Time: 2011-06-03 12:34:21

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200832/1

Communication System: 4-slot GPRS850

Frequency: 836.6 MHz; Duty Cycle: 1:2.09991

Medium: HSL850; Medium Notes: t= 22.2 C

Medium parameters used: f = 837 MHz; σ = 0.918 mho/m; ϵ_r = 40; ρ = 1000 kg/m³

Phantom section: Left Section

DASY5 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: DASY52.6.1.408; Postprocessing SW: SEMCAD X Version 14.0 Build 61

Configuration/Cheek - Middle /Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.788 mW/g

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

Reference Value = 11.9 V/m

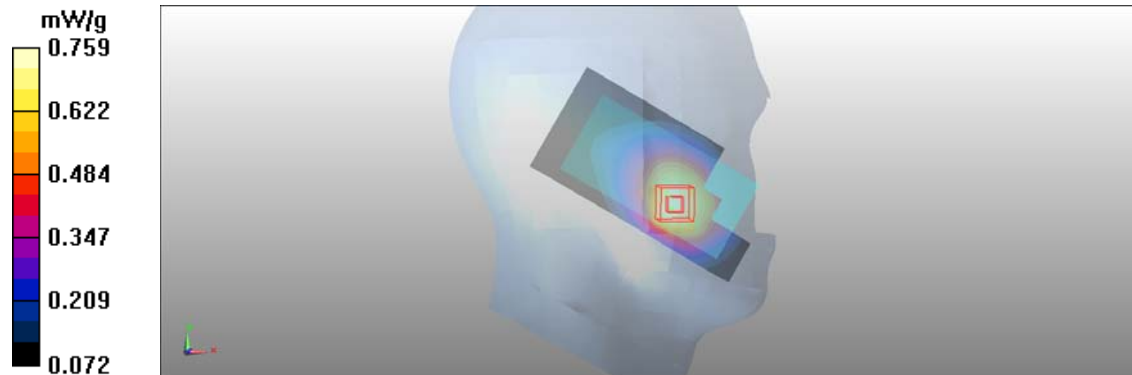
Peak SAR (extrapolated) = 0.990 W/kg

SAR(1 g) = 0.727 mW/g

SAR(10 g) = 0.532 mW/g

Power Drift = -7.52e-005 dB

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



Date/Time: 2011-06-03 13:14:39

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200832/1

Communication System: 1-slot 8PSK EGPRS850

Frequency: 836.6 MHz; Duty Cycle: 1:8.30042

Medium: HSL850; Medium Notes: t= 22.2 C

Medium parameters used: $f = 837$ MHz; $\sigma = 0.918$ mho/m; $\epsilon_r = 40$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY5 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: DASY52.6.1.408; Postprocessing SW: SEMCAD X Version 14.0 Build 61

Configuration/Cheek - Middle /Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.232 mW/g

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

Reference Value = 6.41 V/m

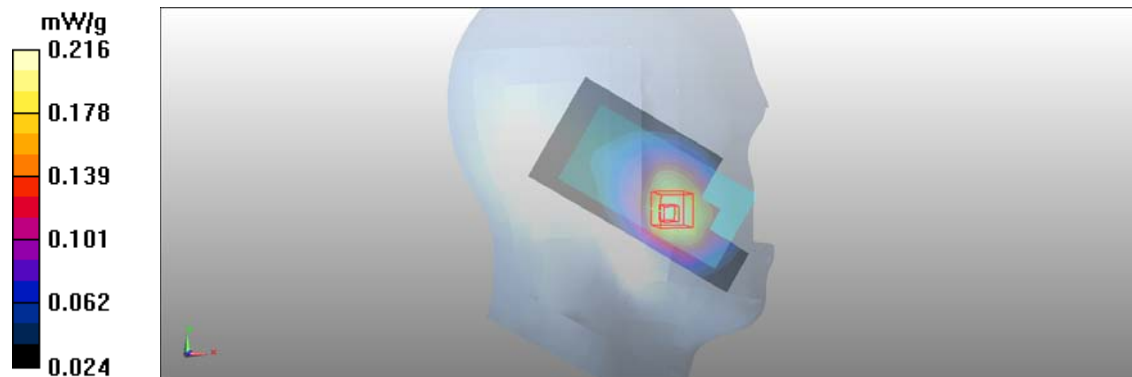
Peak SAR (extrapolated) = 0.289 W/kg

SAR(1 g) = 0.201 mW/g

SAR(10 g) = 0.148 mW/g

Power Drift = -0.370 dB

Maximum value of SAR (measured) = 0.216 mW/g



Date/Time: 2011-06-03 13:25:30

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200832/1

Communication System: 2-slot 8PSK EGPRS850

Frequency: 836.6 MHz; Duty Cycle: 1:4.19952

Medium: HSL850; Medium Notes: t= 22.2 C

Medium parameters used: f = 837 MHz; σ = 0.918 mho/m; ϵ_r = 40; ρ = 1000 kg/m³

Phantom section: Left Section

DASY5 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: DASY52.6.1.408; Postprocessing SW: SEMCAD X Version 14.0 Build 61

Configuration/Cheek - Middle /Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.427 mW/g

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

Reference Value = 8.65 V/m

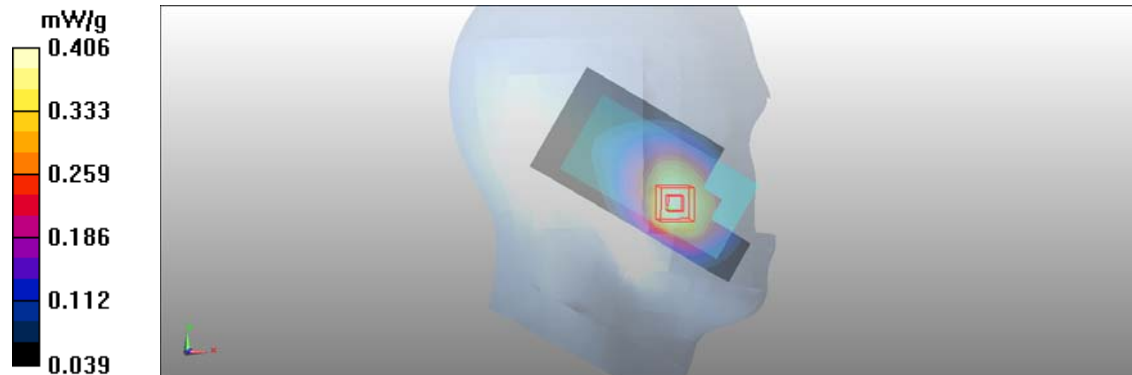
Peak SAR (extrapolated) = 0.539 W/kg

SAR(1 g) = 0.389 mW/g

SAR(10 g) = 0.285 mW/g

Power Drift = 0.067 dB

Maximum value of SAR (measured) = 0.406 mW/g



Date/Time: 2011-06-03 14:35:00

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200832/1

Communication System: 3-slot 8PSK EGPRS850

Frequency: 836.6 MHz; Duty Cycle: 1:2.80027

Medium: HSL850; Medium Notes: t= 22.2 C

Medium parameters used: $f = 837$ MHz; $\sigma = 0.918$ mho/m; $\epsilon_r = 40$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY5 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: DASY52.6.1.408; Postprocessing SW: SEMCAD X Version 14.0 Build 61

Configuration/Cheek - Middle /Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.639 mW/g

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

Reference Value = 9.41 V/m

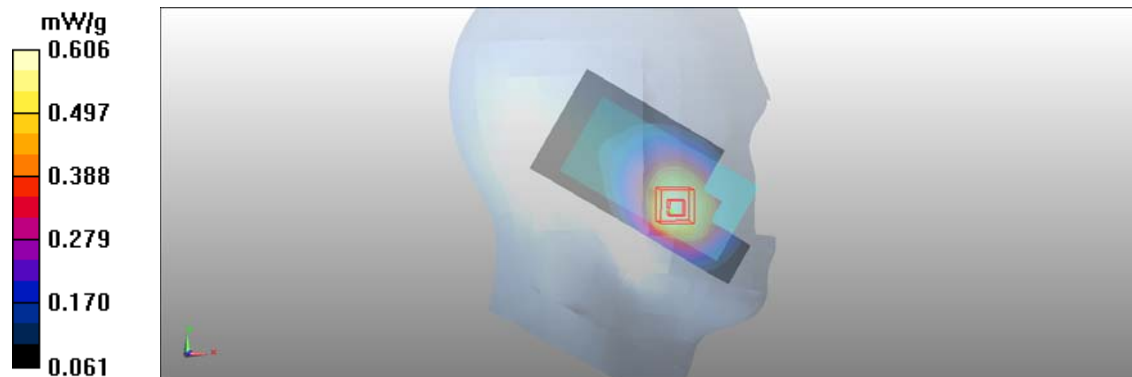
Peak SAR (extrapolated) = 0.806 W/kg

SAR(1 g) = 0.581 mW/g

SAR(10 g) = 0.425 mW/g

Power Drift = 0.205 dB

Maximum value of SAR (measured) = 0.606 mW/g



Date/Time: 2011-06-03 14:45:32

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200832/1

Communication System: 4-slot 8PSK EGPRS850

Frequency: 836.6 MHz; Duty Cycle: 1:2.09991

Medium: HSL850; Medium Notes: t= 22.2 C

Medium parameters used: f = 837 MHz; σ = 0.918 mho/m; ϵ_r = 40; ρ = 1000 kg/m³

Phantom section: Left Section

DASY5 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: DASY52.6.1.408; Postprocessing SW: SEMCAD X Version 14.0 Build 61

Configuration/Cheek - Middle /Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.800 mW/g

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

Reference Value = 10.9 V/m

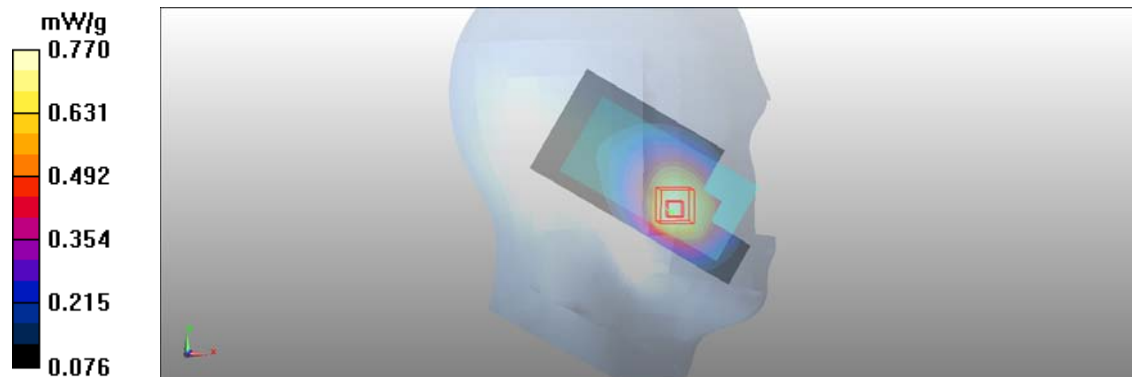
Peak SAR (extrapolated) = 1.01 W/kg

SAR(1 g) = 0.732 mW/g

SAR(10 g) = 0.535 mW/g

Power Drift = -0.144 dB

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



Date/Time: 2011-06-06 09:21:13

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200832/1

Communication System: WCDMA850

Frequency: 826.4 MHz; Duty Cycle: 1:1

Medium: HSL850; Medium Notes: t= 22.2 C

Medium parameters used (interpolated): f = 826.4 MHz; $\sigma = 0.894$ mho/m; $\epsilon_r = 39.7$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY5 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: DASY52.6.1.408; Postprocessing SW: SEMCAD X Version 14.0 Build 61

Configuration/Cheek - Low/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm

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

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

Reference Value = 10.7 V/m

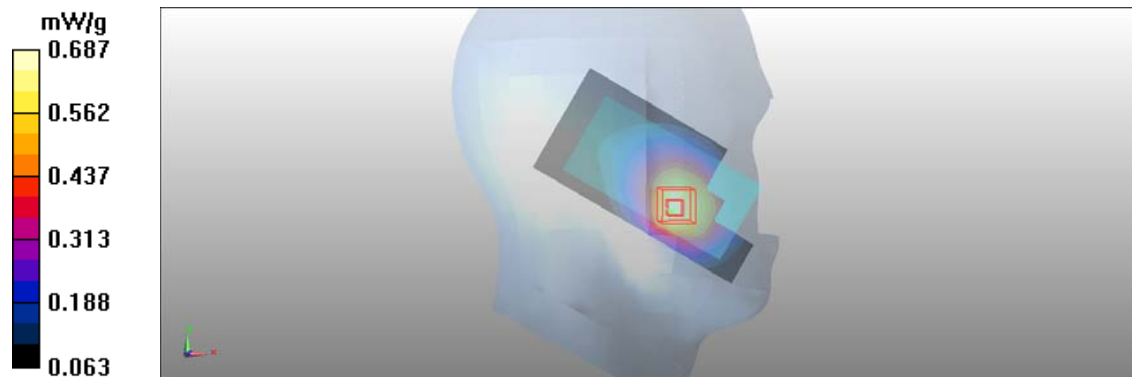
Peak SAR (extrapolated) = 0.927 W/kg

SAR(1 g) = 0.653 mW/g

SAR(10 g) = 0.468 mW/g

Power Drift = -0.021 dB

Maximum value of SAR (measured) = 0.687 mW/g



Date/Time: 2011-06-03 15:22:40

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200832/1

Communication System: WCDMA850

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: HSL850; Medium Notes: t= 22.2 C

Medium parameters used: f = 835 MHz; $\sigma = 0.917$ mho/m; $\epsilon_r = 40$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY5 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: DASY52.6.1.408; Postprocessing SW: SEMCAD X Version 14.0 Build 61

Configuration/Tilt - Middle/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.380 mW/g

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

Reference Value = 17.5 V/m

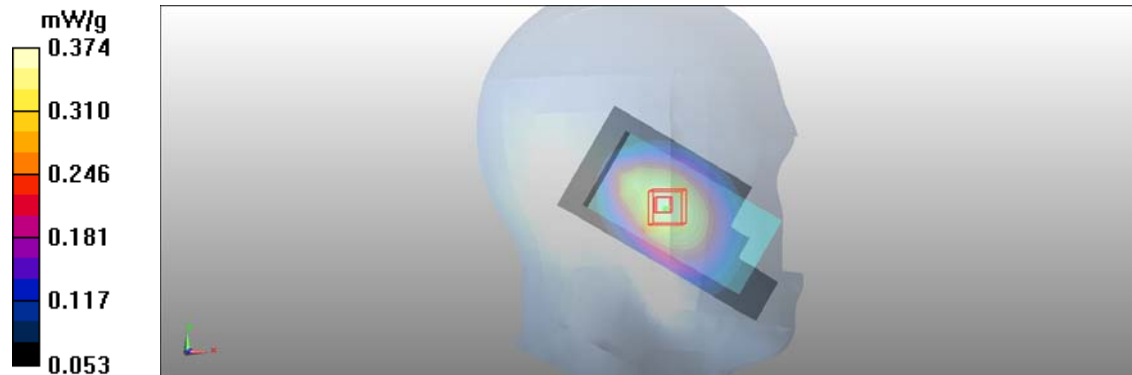
Peak SAR (extrapolated) = 0.452 W/kg

SAR(1 g) = 0.356 mW/g

SAR(10 g) = 0.266 mW/g

Power Drift = -0.044 dB

Maximum value of SAR (measured) = 0.374 mW/g



Date/Time: 2011-06-06 08:31:20

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200832/1

Communication System: WCDMA850

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: HSL850; Medium Notes: t= 22.2 C

Medium parameters used: f = 835 MHz; σ = 0.898 mho/m; ϵ_r = 39.6; ρ = 1000 kg/m³

Phantom section: Right Section

DASY5 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: DASY52.6.1.408; Postprocessing SW: SEMCAD X Version 14.0 Build 61

Configuration/Cheek - Middle/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.461 mW/g

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

Reference Value = 9.92 V/m

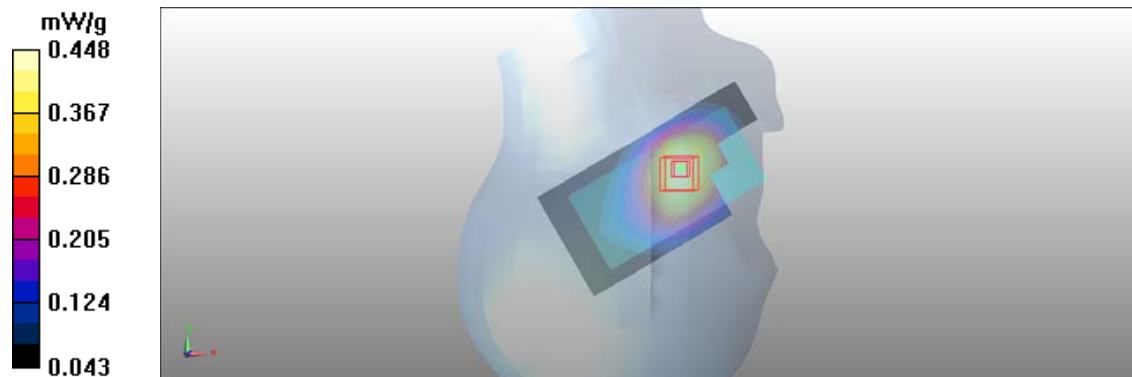
Peak SAR (extrapolated) = 0.566 W/kg

SAR(1 g) = 0.423 mW/g

SAR(10 g) = 0.308 mW/g

Power Drift = -0.254 dB

Maximum value of SAR (measured) = 0.448 mW/g



Date/Time: 2011-06-06 08:49:23

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200832/1

Communication System: WCDMA850

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: HSL850; Medium Notes: t= 22.2 C

Medium parameters used: f = 835 MHz; σ = 0.898 mho/m; ϵ_r = 39.6; ρ = 1000 kg/m³

Phantom section: Right Section

DASY5 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: DASY52.6.1.408; Postprocessing SW: SEMCAD X Version 14.0 Build 61

Configuration/Tilt - Middle/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.340 mW/g

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

Reference Value = 17.3 V/m

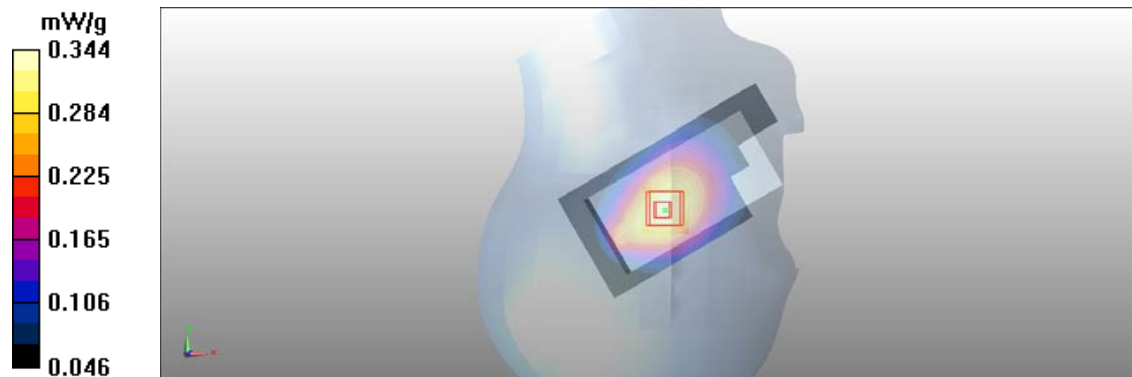
Peak SAR (extrapolated) = 0.414 W/kg

SAR(1 g) = 0.326 mW/g

SAR(10 g) = 0.243 mW/g

Power Drift = 0.148 dB

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



Date/Time: 2011-05-30 11:57:50

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200835/4

Communication System: WCDMA1700/2100

Frequency: 1712.4 MHz; Duty Cycle: 1:1

Medium: HSL1800; Medium Notes: t= 21.3 C

Medium parameters used (interpolated): f = 1712.4 MHz; $\sigma = 1.3$ mho/m; $\epsilon_r = 39.2$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 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; Postprocessing SW: SEMCAD, V1.8 Build 176

Configuration/Cheek - Low/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm

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

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

Reference Value = 7.11 V/m

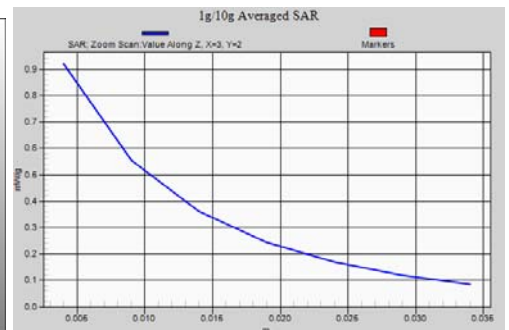
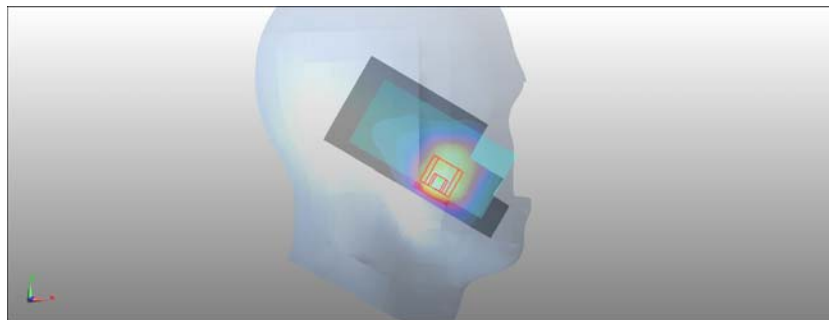
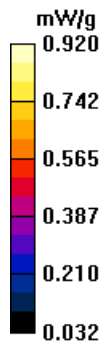
Peak SAR (extrapolated) = 1.46 W/kg

SAR(1 g) = 0.880 mW/g

SAR(10 g) = 0.585 mW/g

Power Drift = -0.103 dB

Maximum value of SAR (measured) = 0.920 mW/g



SAR Report

FCC_RM-681V_01

Applicant: Nokia Corporation

Type: RM-681V

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Date/Time: 2011-05-30 14:40:34

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200835/4

Communication System: WCDMA1700/2100

Frequency: 1732.4 MHz; Duty Cycle: 1:1

Medium: HSL1800; Medium Notes: t= 21.3 C

Medium parameters used (interpolated): f = 1732.4 MHz; $\sigma = 1.32$ mho/m; $\epsilon_r = 39.1$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 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; Postprocessing SW: SEMCAD, V1.8 Build 176

Configuration/Tilt - Middle/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm

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

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

Reference Value = 11.6 V/m

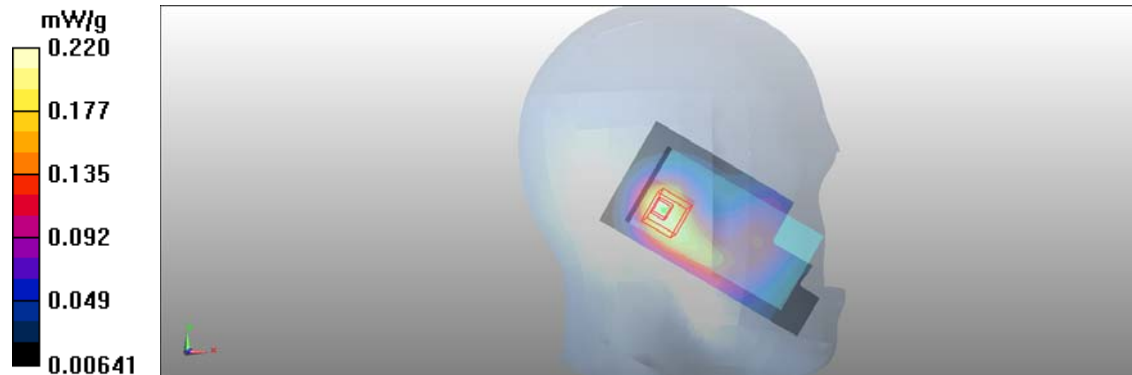
Peak SAR (extrapolated) = 0.305 W/kg

SAR(1 g) = 0.207 mW/g

SAR(10 g) = 0.131 mW/g

Power Drift = -0.146 dB

Maximum value of SAR (measured) = 0.220 mW/g



Date/Time: 2011-05-30 15:02:35

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200835/4

Communication System: WCDMA1700/2100

Frequency: 1732.4 MHz; Duty Cycle: 1:1

Medium: HSL1800; Medium Notes: t= 21.3 C

Medium parameters used (interpolated): f = 1732.4 MHz; $\sigma = 1.32$ mho/m; $\epsilon_r = 39.1$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 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; Postprocessing SW: SEMCAD, V1.8 Build 176

Configuration/Cheek - Middle/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.895 mW/g

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

Reference Value = 7.44 V/m

Peak SAR (extrapolated) = 1.26 W/kg

SAR(1 g) = 0.799 mW/g

SAR(10 g) = 0.498 mW/g

Power Drift = -0.058 dB

Maximum value of SAR (measured) = 0.851 mW/g

Configuration/Cheek - Middle/Zoom Scan 2 (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 7.44 V/m

Peak SAR (extrapolated) = 0.984 W/kg

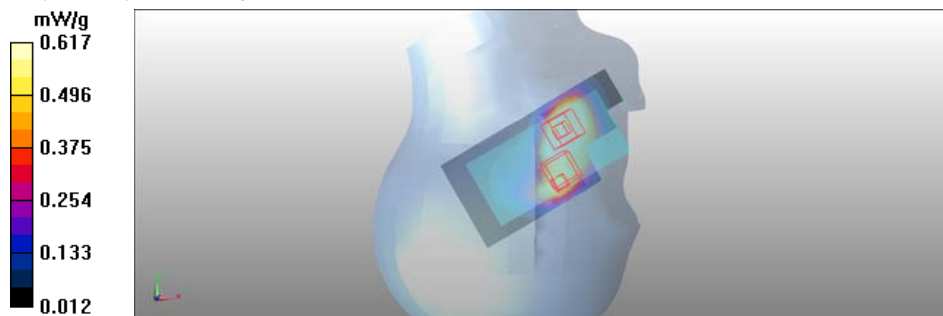
SAR(1 g) = 0.575 mW/g

SAR(10 g) = 0.375 mW/g

Power Drift = -0.058 dB

Warning: Maximum averaged SAR over 10 g is located on the boundary of the measurement cube. This cube might not incorporate the absolute averaged SAR. Please consider a refinement of the Area Scan measurement.

Maximum value of SAR (measured) = 0.617 mW/g



Date/Time: 2011-05-30 15:23:37

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200835/4

Communication System: WCDMA1700/2100

Frequency: 1732.4 MHz; Duty Cycle: 1:1

Medium: HSL1800; Medium Notes: t= 21.3 C

Medium parameters used (interpolated): f = 1732.4 MHz; $\sigma = 1.32$ mho/m; $\epsilon_r = 39.1$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 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; Postprocessing SW: SEMCAD, V1.8 Build 176

Configuration/Tilt - Middle/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.311 mW/g

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

Reference Value = 11.8 V/m

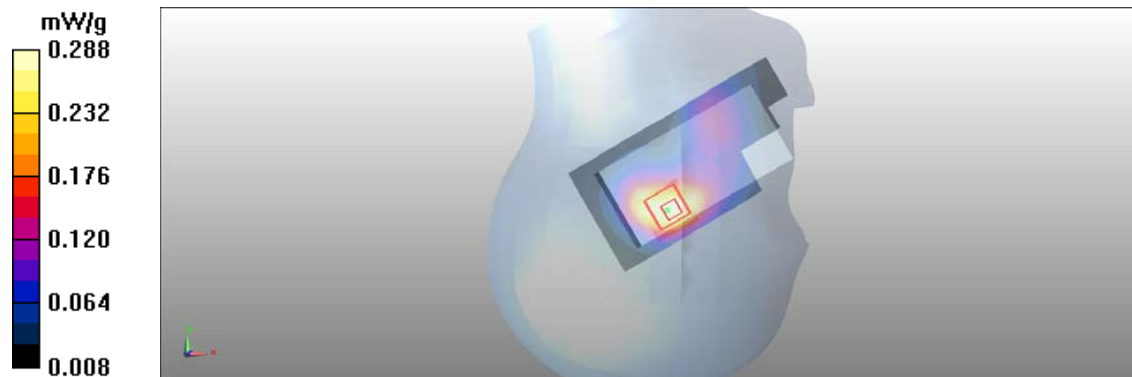
Peak SAR (extrapolated) = 0.408 W/kg

SAR(1 g) = 0.270 mW/g

SAR(10 g) = 0.172 mW/g

Power Drift = 0.011 dB

Maximum value of SAR (measured) = 0.288 mW/g



Date/Time: 2011-05-25 12:45:04

Test Laboratory: TCC Nokia

Type: **RM-681V**; Serial: **004402/13/200835/4**

Communication System: GSM1900

Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium: HSL1900; Medium Notes: $t = 21.7$ C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.39$ mho/m; $\epsilon_r = 39.6$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 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 4; Type: Twin SAM 040 CA; Serial: TP-1018
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Configuration/Cheek - Middle/Area Scan (51x101x1): Measurement grid: $dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.563 mW/g

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

Reference Value = 4.33 V/m

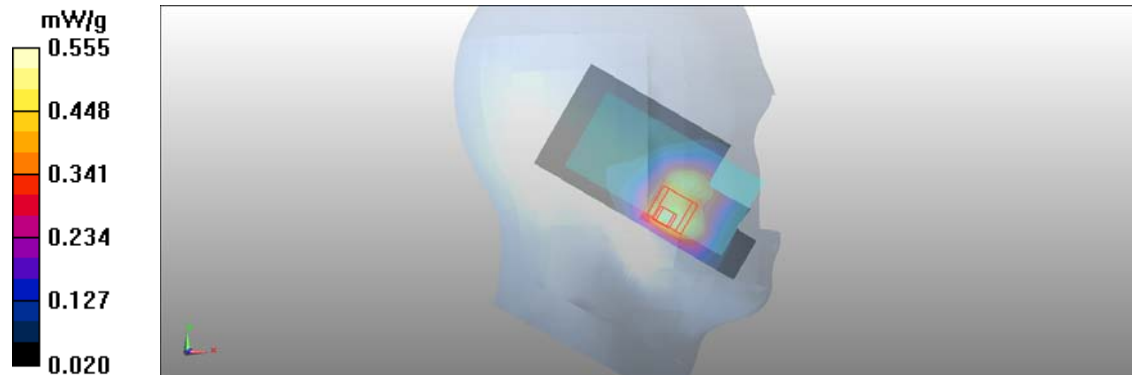
Peak SAR (extrapolated) = 0.853 W/kg

SAR(1 g) = 0.495 mW/g

SAR(10 g) = 0.313 mW/g

Power Drift = 0.026 dB

Maximum value of SAR (measured) = 0.555 mW/g



Date/Time: 2011-05-26 12:37:18

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200835/4

Communication System: GSM1900

Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium: HSL1900; Medium Notes: t= 21.8 C

Medium parameters used: f = 1880 MHz; σ = 1.36 mho/m; ϵ_r = 39.5; ρ = 1000 kg/m³

Phantom section: Left Section

DASY4 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 4; Type: Twin SAM 040 CA; Serial: TP-1018
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Configuration/Tilt - Middle/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.099 mW/g

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

Reference Value = 6.1 V/m

Peak SAR (extrapolated) = 0.140 W/kg

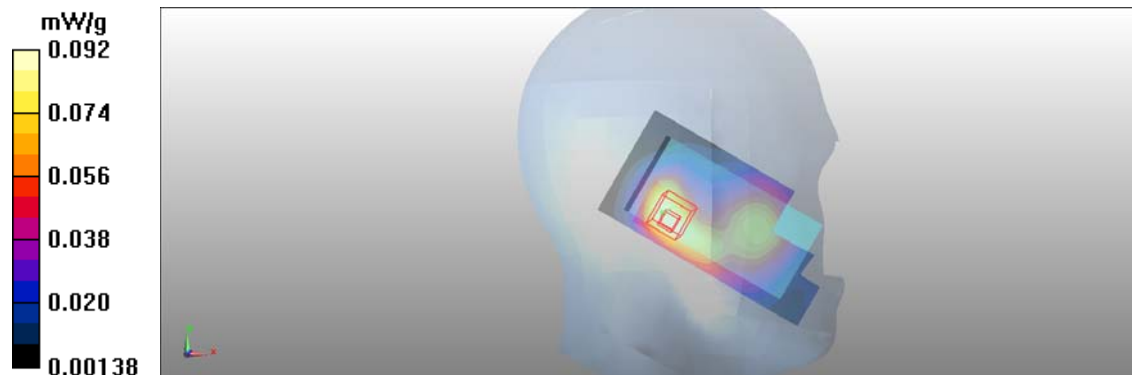
SAR(1 g) = 0.088 mW/g

SAR(10 g) = 0.056 mW/g

Power Drift = 0.020 dB

Warning: Maximum averaged SAR over 10 g is located on the boundary of the measurement cube. This cube might not incorporate the absolute averaged SAR. Please consider a refinement of the Area Scan measurement.

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



Date/Time: 2011-05-26 14:36:13

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200835/4

Communication System: GSM1900

Frequency: 1850.2 MHz; Duty Cycle: 1:8.3

Medium: HSL1900; Medium Notes: t= 21.8 C

Medium parameters used (interpolated): f = 1850.2 MHz; $\sigma = 1.34$ mho/m; $\epsilon_r = 39.6$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 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 4; Type: Twin SAM 040 CA; Serial: TP-1018
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Configuration/Cheek - Low/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.717 mW/g

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

Reference Value = 5.78 V/m

Peak SAR (extrapolated) = 0.981 W/kg

SAR(1 g) = 0.599 mW/g

SAR(10 g) = 0.369 mW/g

Power Drift = 0.129 dB

Maximum value of SAR (measured) = 0.641 mW/g

Configuration/Cheek - Low/Zoom Scan 2 (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 5.78 V/m

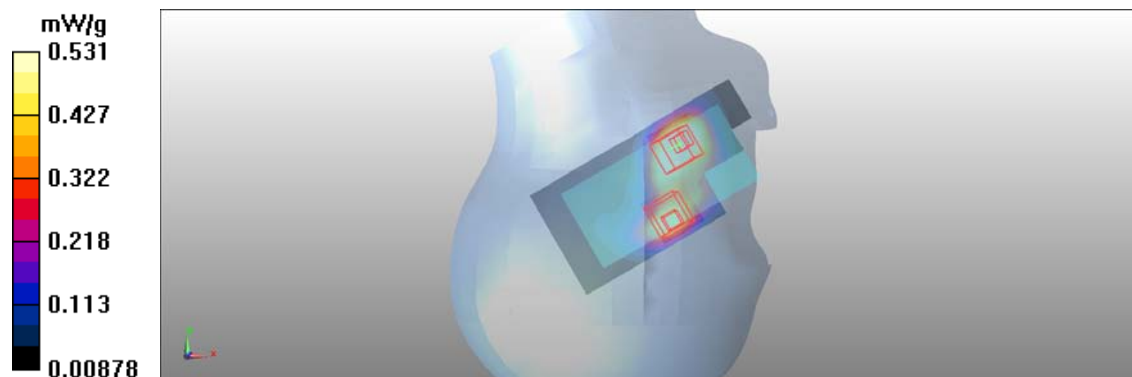
Peak SAR (extrapolated) = 0.889 W/kg

SAR(1 g) = 0.490 mW/g

SAR(10 g) = 0.277 mW/g

Power Drift = 0.129 dB

Maximum value of SAR (measured) = 0.531 mW/g



Date/Time: 2011-05-26 14:24:20

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200835/4

Communication System: GSM1900

Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium: HSL1900; Medium Notes: t= 21.8 C

Medium parameters used: f = 1880 MHz; σ = 1.36 mho/m; ϵ_r = 39.5; ρ = 1000 kg/m³

Phantom section: Right Section

DASY4 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 4; Type: Twin SAM 040 CA; Serial: TP-1018
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Configuration/Tilt - Middle/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm

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

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

Reference Value = 8.18 V/m

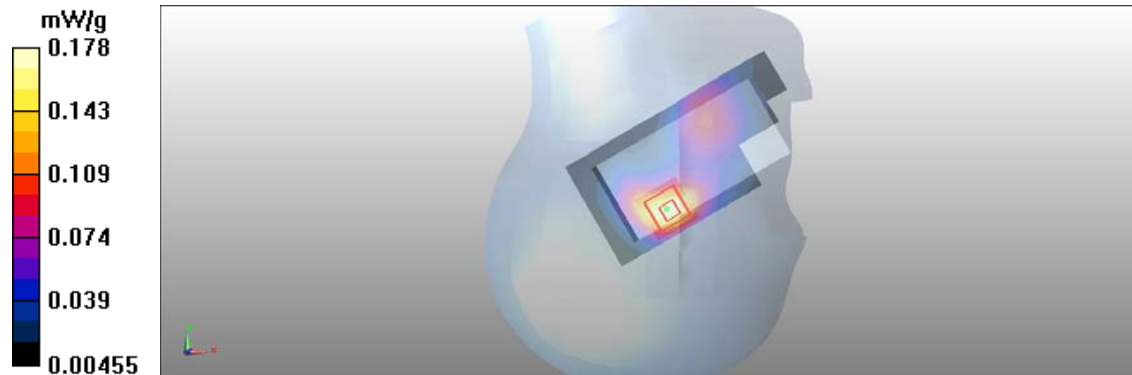
Peak SAR (extrapolated) = 0.266 W/kg

SAR(1 g) = 0.164 mW/g

SAR(10 g) = 0.100 mW/g

Power Drift = 0.163 dB

Maximum value of SAR (measured) = 0.178 mW/g



Date/Time: 2011-05-25 13:09:33

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200835/4

Communication System: 2-slot GPRS1900

Frequency: 1880 MHz; Duty Cycle: 1:4.2

Medium: HSL1900; Medium Notes: $t = 21.7$ C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.39$ mho/m; $\epsilon_r = 39.6$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 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 4; Type: Twin SAM 040 CA; Serial: TP-1018
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Configuration/Cheek - Middle/Area Scan (51x101x1): Measurement grid: $dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.523 mW/g

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

Reference Value = 4.34 V/m

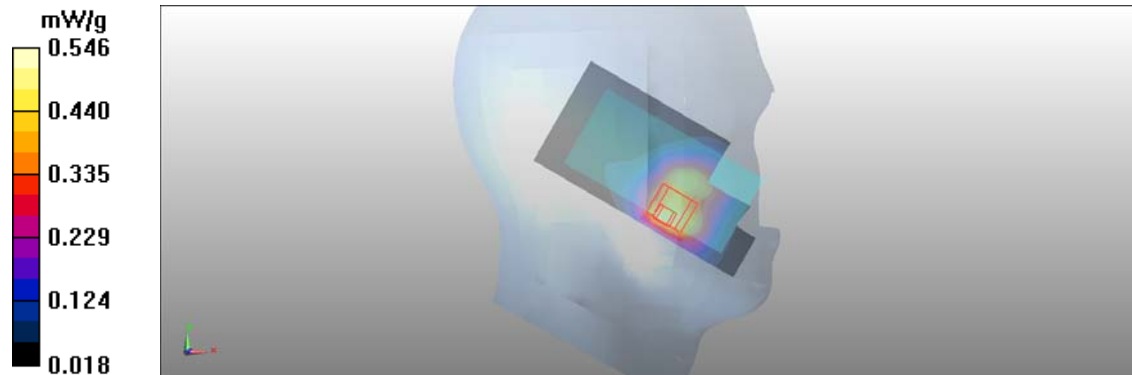
Peak SAR (extrapolated) = 0.856 W/kg

SAR(1 g) = 0.480 mW/g

SAR(10 g) = 0.300 mW/g

Power Drift = -0.291 dB

Maximum value of SAR (measured) = 0.546 mW/g



Date/Time: 2011-05-25 13:33:35

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200835/4

Communication System: 3-slot GPRS1900

Frequency: 1880 MHz; Duty Cycle: 1:2.8

Medium: HSL1900; Medium Notes: $t = 21.7$ C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.39$ mho/m; $\epsilon_r = 39.6$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 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 4; Type: Twin SAM 040 CA; Serial: TP-1018
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Configuration/Cheek - Middle/Area Scan (51x101x1): Measurement grid: $dx=15$ mm, $dy=15$ mm

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

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

Reference Value = 3.83 V/m

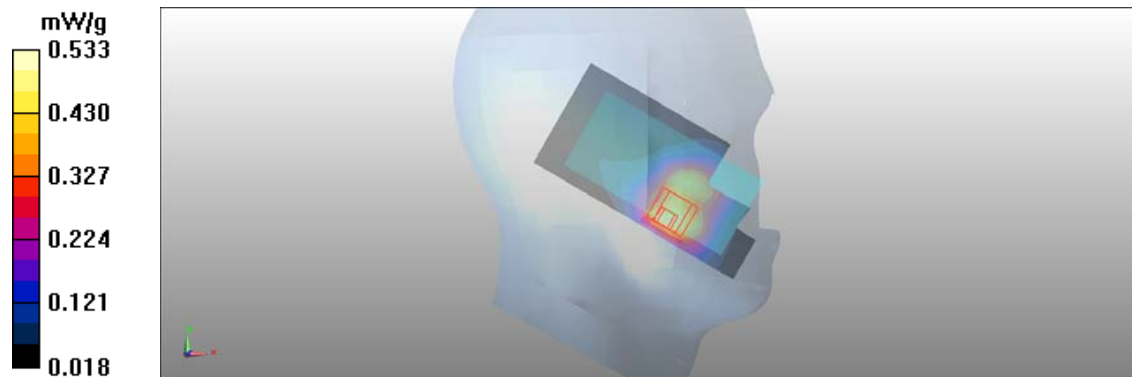
Peak SAR (extrapolated) = 0.844 W/kg

SAR(1 g) = 0.473 mW/g

SAR(10 g) = 0.295 mW/g

Power Drift = 0.253 dB

Maximum value of SAR (measured) = 0.533 mW/g



Date/Time: 2011-05-25 13:48:38

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200835/4

Communication System: 4-slot GPRS1900

Frequency: 1880 MHz; Duty Cycle: 1:2.1

Medium: HSL1900; Medium Notes: $t = 21.7$ C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.39$ mho/m; $\epsilon_r = 39.6$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 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 4; Type: Twin SAM 040 CA; Serial: TP-1018
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Configuration/Cheek - Middle/Area Scan (51x101x1): Measurement grid: $dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.510 mW/g

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

Reference Value = 3.79 V/m

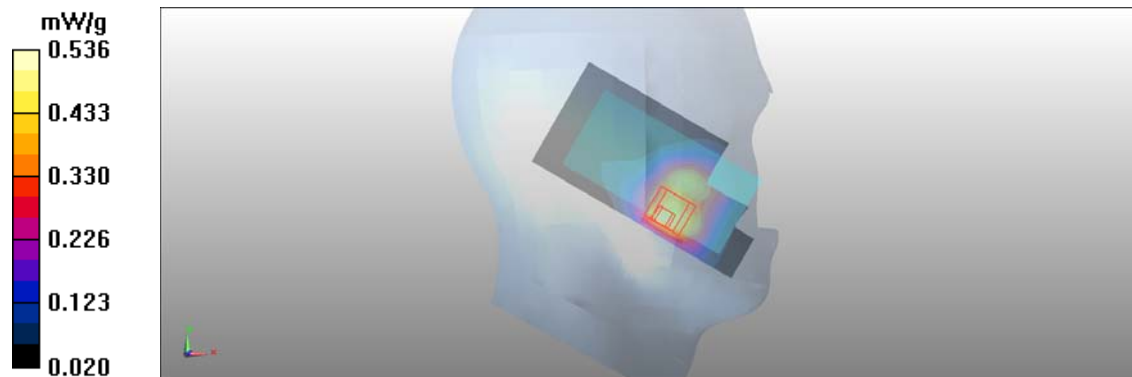
Peak SAR (extrapolated) = 0.823 W/kg

SAR(1 g) = 0.468 mW/g

SAR(10 g) = 0.293 mW/g

Power Drift = 0.210 dB

Maximum value of SAR (measured) = 0.536 mW/g



Date/Time: 2011-05-26 09:39:57

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200835/4

Communication System: 1-slot 8PSK EGPRS1900

Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium: HSL1900; Medium Notes: $t = 21.8$ C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.36$ mho/m; $\epsilon_r = 39.5$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 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 4; Type: Twin SAM 040 CA; Serial: TP-1018
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Configuration/Cheek - Middle/Area Scan (51x101x1): Measurement grid: $dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.215 mW/g

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

Reference Value = 2.02 V/m

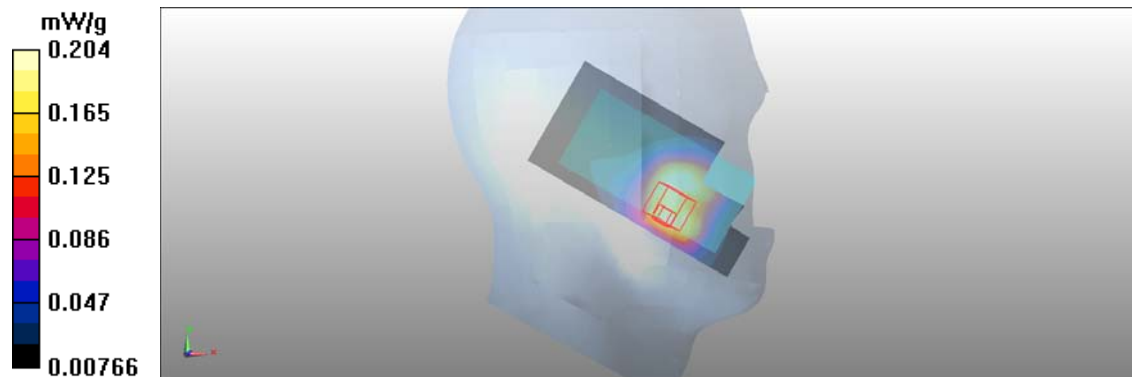
Peak SAR (extrapolated) = 0.310 W/kg

SAR(1 g) = 0.184 mW/g

SAR(10 g) = 0.123 mW/g

Power Drift = -0.184 dB

Maximum value of SAR (measured) = 0.204 mW/g



Date/Time: 2011-05-26 09:54:59

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200835/4

Communication System: 2-slot 8PSK EGPRS1900

Frequency: 1880 MHz; Duty Cycle: 1:4.2

Medium: HSL1900; Medium Notes: t= 21.8 C

Medium parameters used: f = 1880 MHz; $\sigma = 1.36$ mho/m; $\epsilon_r = 39.5$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 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 4; Type: Twin SAM 040 CA; Serial: TP-1018
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Configuration/Cheek - Middle/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.373 mW/g

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

Reference Value = 2.66 V/m

Peak SAR (extrapolated) = 0.496 W/kg

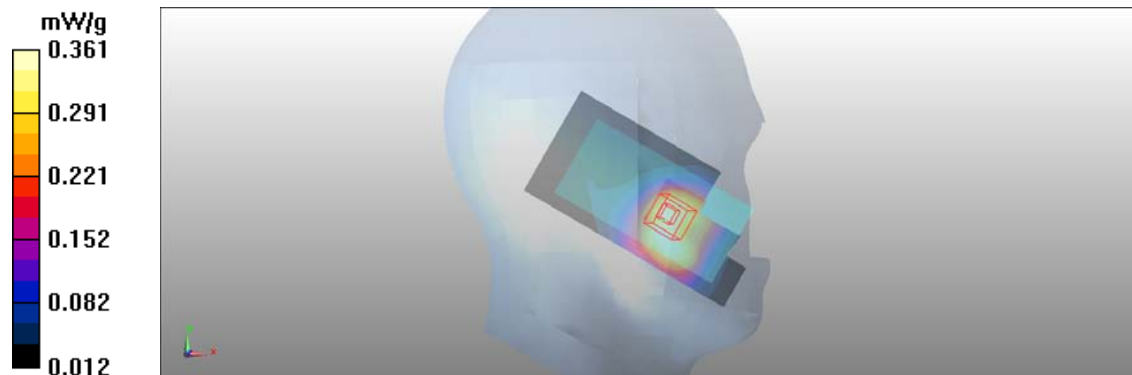
SAR(1 g) = 0.342 mW/g

SAR(10 g) = 0.225 mW/g

Power Drift = 0.386 dB

Warning: Maximum averaged SAR over 10 g is located on the boundary of the measurement cube. This cube might not incorporate the absolute averaged SAR. Please consider a refinement of the Area Scan measurement.

Maximum value of SAR (measured) = 0.361 mW/g



Date/Time: 2011-05-26 12:05:20

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200835/4

Communication System: 3-slot 8PSK EGPRS1900

Frequency: 1880 MHz; Duty Cycle: 1:2.8

Medium: HSL1900; Medium Notes: $t = 21.8$ C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.36$ mho/m; $\epsilon_r = 39.5$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 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 4; Type: Twin SAM 040 CA; Serial: TP-1018
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Configuration/Cheek - Middle/Area Scan (51x101x1): Measurement grid: $dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.502 mW/g

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

Reference Value = 3.3 V/m

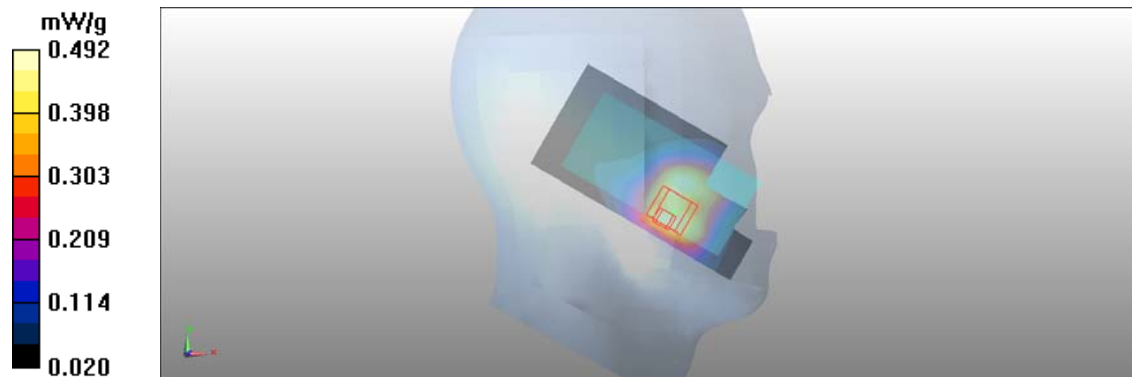
Peak SAR (extrapolated) = 0.721 W/kg

SAR(1 g) = 0.441 mW/g

SAR(10 g) = 0.291 mW/g

Power Drift = 0.011 dB

Maximum value of SAR (measured) = 0.492 mW/g



Date/Time: 2011-05-26 12:20:03

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200835/4

Communication System: 4-slot GPRS1900

Frequency: 1880 MHz; Duty Cycle: 1:2.1

Medium: HSL1900; Medium Notes: $t = 21.8$ C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.36$ mho/m; $\epsilon_r = 39.5$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 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 4; Type: Twin SAM 040 CA; Serial: TP-1018
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Configuration/Cheek - Middle/Area Scan (51x101x1): Measurement grid: $dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.512 mW/g

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

Reference Value = 3.12 V/m

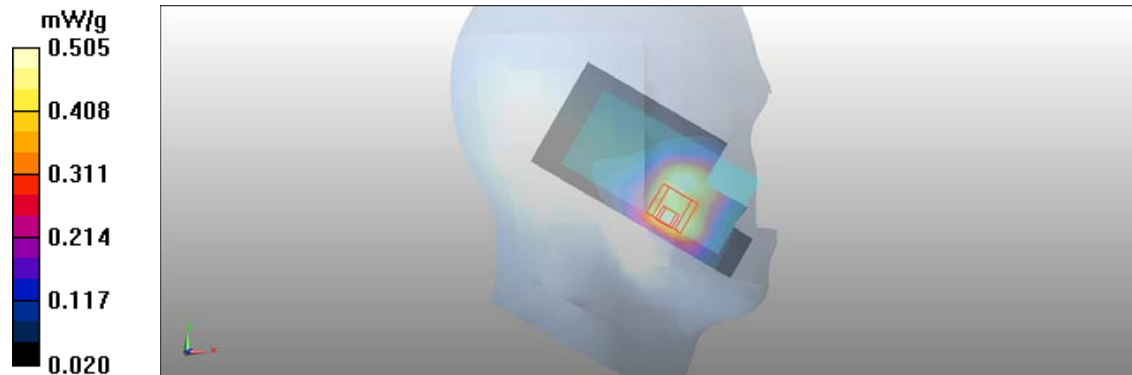
Peak SAR (extrapolated) = 0.736 W/kg

SAR(1 g) = 0.453 mW/g

SAR(10 g) = 0.302 mW/g

Power Drift = 0.350 dB

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



Date/Time: 2011-05-24 15:05:06

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200835/4

Communication System: WCDMA1900

Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: HSL1900; Medium Notes: t= 22.1 C

Medium parameters used: f = 1880 MHz; $\sigma = 1.38$ mho/m; $\epsilon_r = 39.8$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 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 4; Type: Twin SAM 040 CA; Serial: TP-1018
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Configuration/Cheek - Middle/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.698 mW/g

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

Reference Value = 5.03 V/m

Peak SAR (extrapolated) = 0.844 W/kg

SAR(1 g) = 0.574 mW/g

SAR(10 g) = 0.378 mW/g

Power Drift = 0.256 dB

Warning: Maximum averaged SAR over 10 g is located on the boundary of the measurement cube. This cube might not incorporate the absolute averaged SAR. Please consider a refinement of the Area Scan measurement.

Maximum value of SAR (measured) = 0.600 mW/g

Configuration/Cheek - Middle/Zoom Scan 2 (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 5.03 V/m

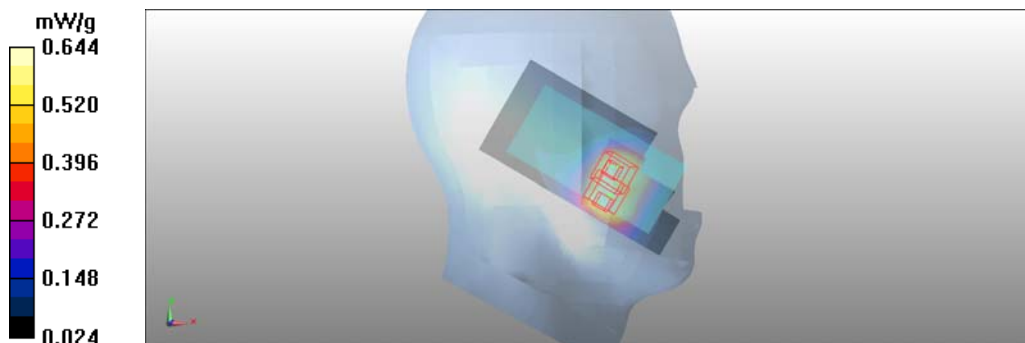
Peak SAR (extrapolated) = 0.936 W/kg

SAR(1 g) = 0.590 mW/g

SAR(10 g) = 0.392 mW/g

Power Drift = 0.256 dB

Maximum value of SAR (measured) = 0.644 mW/g



Date/Time: 2011-05-24 15:31:20

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200835/4

Communication System: WCDMA1900

Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: HSL1900; Medium Notes: $t = 22.1$ C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.38$ mho/m; $\epsilon_r = 39.8$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 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 4; Type: Twin SAM 040 CA; Serial: TP-1018

- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Configuration/Tilt - Middle/Area Scan (51x101x1): Measurement grid: $dx=15$ mm, $dy=15$ mm

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

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

Reference Value = 7.63 V/m

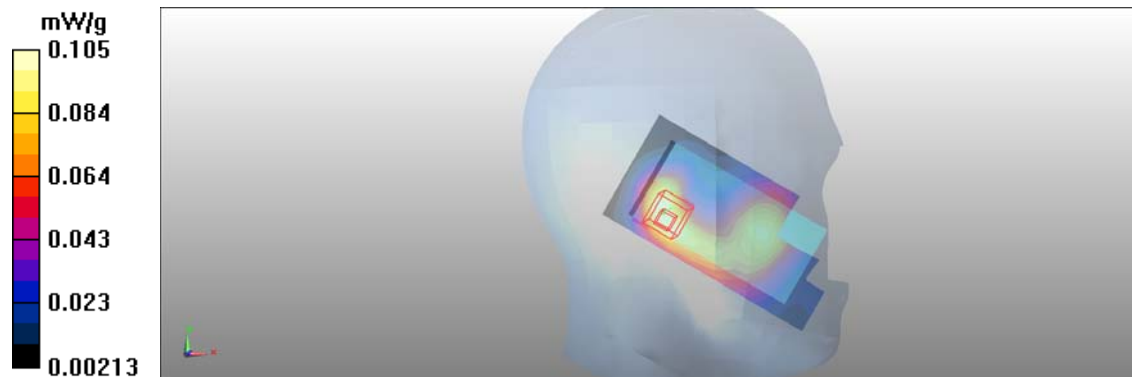
Peak SAR (extrapolated) = 0.155 W/kg

SAR(1 g) = 0.099 mW/g

SAR(10 g) = 0.063 mW/g

Power Drift = -0.000739 dB

Maximum value of SAR (measured) = 0.105 mW/g



Date/Time: 2011-05-25 09:46:35

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200835/4

Communication System: WCDMA1900

Frequency: 1852.4 MHz; Duty Cycle: 1:1

Medium: HSL1900; Medium Notes: t= 21.7 C

Medium parameters used (interpolated): f = 1852.4 MHz; $\sigma = 1.36$ mho/m; $\epsilon_r = 39.7$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 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 4; Type: Twin SAM 040 CA; Serial: TP-1018
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Configuration/Cheek - Low/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.967 mW/g

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

Reference Value = 6.62 V/m

Peak SAR (extrapolated) = 1.26 W/kg

SAR(1 g) = 0.798 mW/g

SAR(10 g) = 0.495 mW/g

Power Drift = 0.087 dB

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

Configuration/Cheek - Low/Zoom Scan 2 (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 6.62 V/m

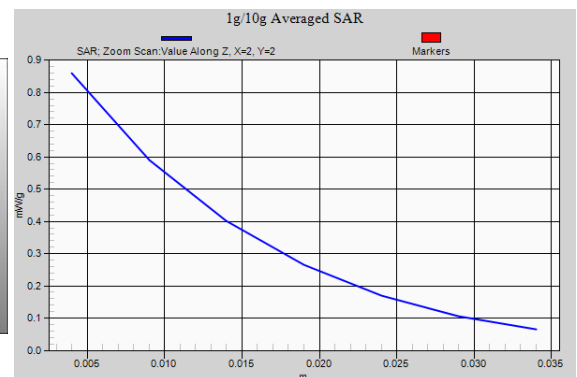
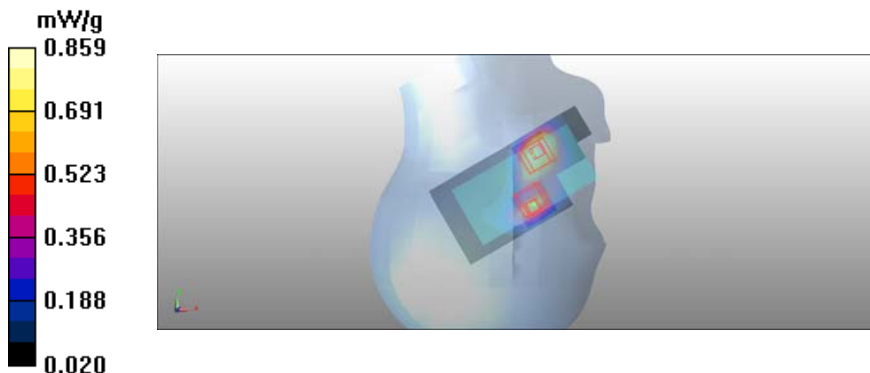
Peak SAR (extrapolated) = 1.01 W/kg

SAR(1 g) = 0.568 mW/g

SAR(10 g) = 0.334 mW/g

Power Drift = 0.087 dB

Maximum value of SAR (measured) = 0.642 mW/g



SAR Report

FCC_RM-681V_01

Applicant: Nokia Corporation

Type: RM-681V

Copyright © 2011 TCC Nokia

Date/Time: 2011-05-25 09:31:13

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200835/4

Communication System: WCDMA1900

Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: HSL1900; Medium Notes: $t = 21.7$ C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.39$ mho/m; $\epsilon_r = 39.6$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 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 4; Type: Twin SAM 040 CA; Serial: TP-1018
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Configuration/Tilt - Middle/Area Scan (51x101x1): Measurement grid: $dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.234 mW/g

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

Reference Value = 9.44 V/m

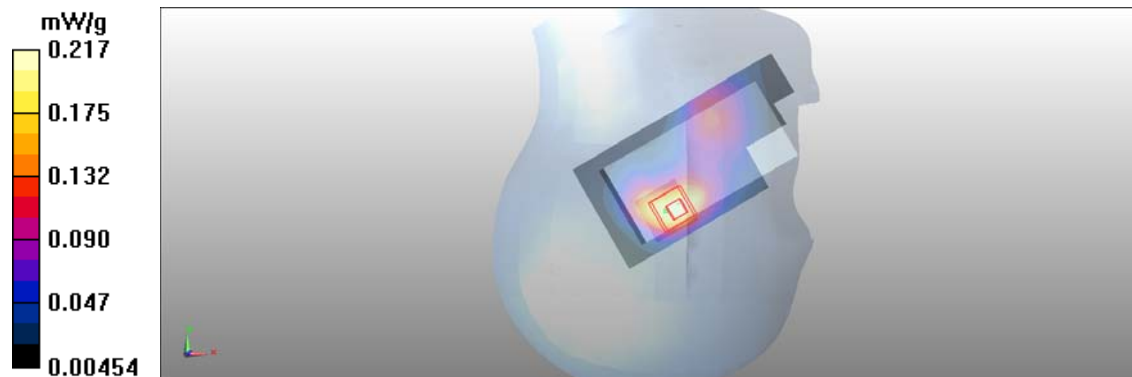
Peak SAR (extrapolated) = 0.326 W/kg

SAR(1 g) = 0.205 mW/g

SAR(10 g) = 0.124 mW/g

Power Drift = -0.452 dB

Maximum value of SAR (measured) = 0.217 mW/g



Date/Time: 2011-06-07 10:22:36

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200835/4

Communication System: WLAN2450 b-mode

Frequency: 2442 MHz; Duty Cycle: 1:1

Medium: HSL2450; Medium Notes: t= 22.1 C

Medium parameters used: f = 2442 MHz; σ = 1.82 mho/m; ϵ_r = 38; ρ = 1000 kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3573
- ConvF(6.69, 6.69, 6.69); Calibrated: 2011-02-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn793; Calibrated: 2010-09-08
- Phantom: SAM1; Type: SAM; Serial: TP-1126
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Configuration/Cheek - Middle/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.317 mW/g

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

Reference Value = 7.58 V/m

Peak SAR (extrapolated) = 0.513 W/kg

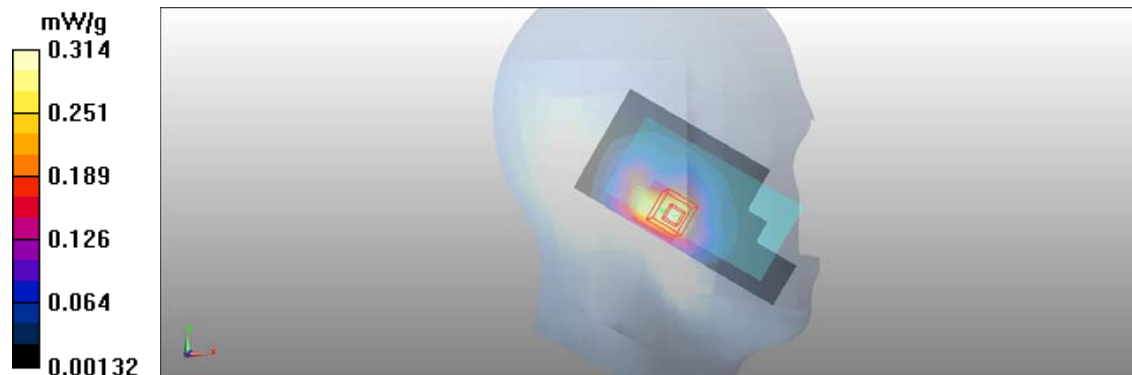
SAR(1 g) = 0.286 mW/g

SAR(10 g) = 0.158 mW/g

Power Drift = -0.129 dB

Warning: Maximum averaged SAR over 10 g is located on the boundary of the measurement cube. This cube might not incorporate the absolute averaged SAR. Please consider a refinement of the Area Scan measurement.

Maximum value of SAR (measured) = 0.314 mW/g



Date/Time: 2011-06-07 11:34:27

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200835/4

Communication System: WLAN2450 b-mode

Frequency: 2442 MHz; Duty Cycle: 1:1

Medium: HSL2450; Medium Notes: $t = 22.1$ C

Medium parameters used: $f = 2442$ MHz; $\sigma = 1.82$ mho/m; $\epsilon_r = 38$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3573
- ConvF(6.69, 6.69, 6.69); Calibrated: 2011-02-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn793; Calibrated: 2010-09-08
- Phantom: SAM1; Type: SAM; Serial: TP-1126
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Configuration/Tilt - Middle/Area Scan (51x101x1): Measurement grid: $dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.194 mW/g

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

Reference Value = 8.24 V/m

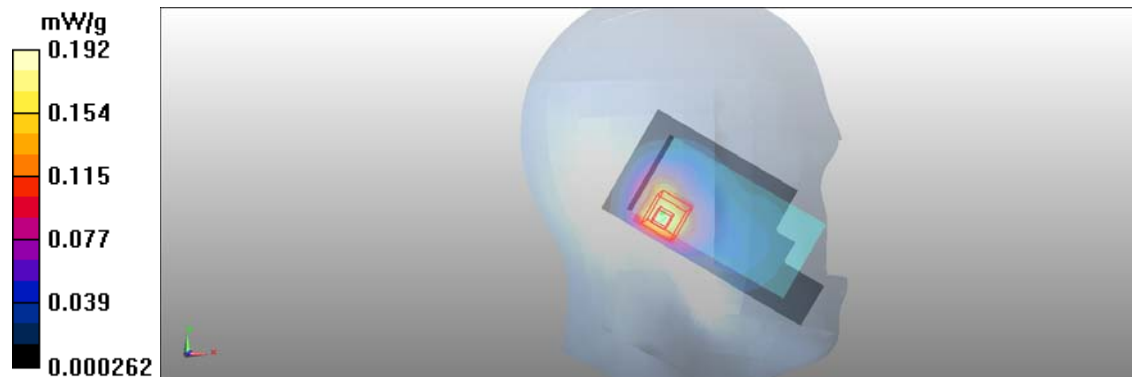
Peak SAR (extrapolated) = 0.327 W/kg

SAR(1 g) = 0.177 mW/g

SAR(10 g) = 0.094 mW/g

Power Drift = -0.041 dB

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



Date/Time: 2011-06-07 11:49:35

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200835/4

Communication System: WLAN2450 b-mode

Frequency: 2442 MHz; Duty Cycle: 1:1

Medium: HSL2450; Medium Notes: t= 22.1 C

Medium parameters used: f = 2442 MHz; $\sigma = 1.82$ mho/m; $\epsilon_r = 38$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3573
- ConvF(6.69, 6.69, 6.69); Calibrated: 2011-02-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn793; Calibrated: 2010-09-08
- Phantom: SAM1; Type: SAM; Serial: TP-1126
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Configuration/Cheek - Middle/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.804 mW/g

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

Reference Value = 11.4 V/m

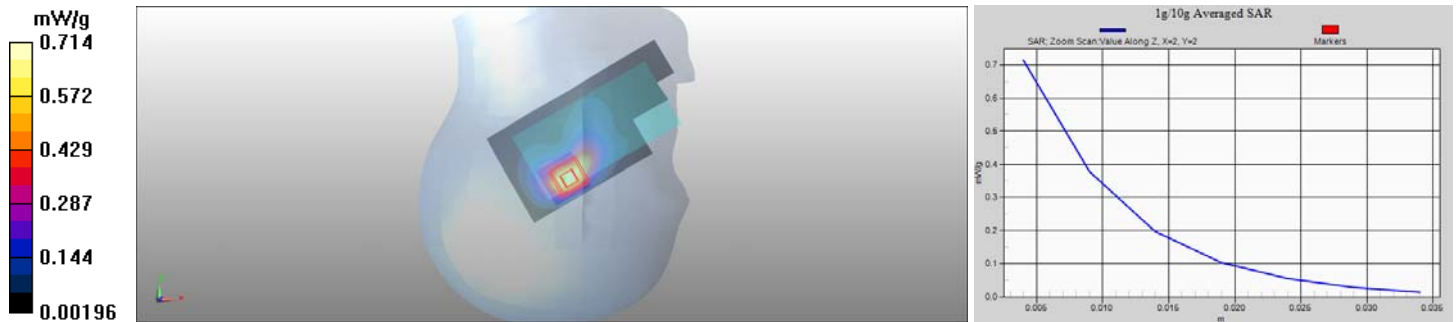
Peak SAR (extrapolated) = 1.3 W/kg

SAR(1 g) = 0.655 mW/g

SAR(10 g) = 0.314 mW/g

Power Drift = -0.451 dB

Maximum value of SAR (measured) = 0.714 mW/g



Date/Time: 2011-06-07 12:02:59

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200835/4

Communication System: WLAN2450 b-mode

Frequency: 2442 MHz; Duty Cycle: 1:1

Medium: HSL2450; Medium Notes: t= 22.1 C

Medium parameters used: f = 2442 MHz; σ = 1.82 mho/m; ϵ_r = 38; ρ = 1000 kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3573
- ConvF(6.69, 6.69, 6.69); Calibrated: 2011-02-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn793; Calibrated: 2010-09-08
- Phantom: SAM1; Type: SAM; Serial: TP-1126
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Configuration/Tilt - Middle/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.399 mW/g

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

Reference Value = 9.69 V/m

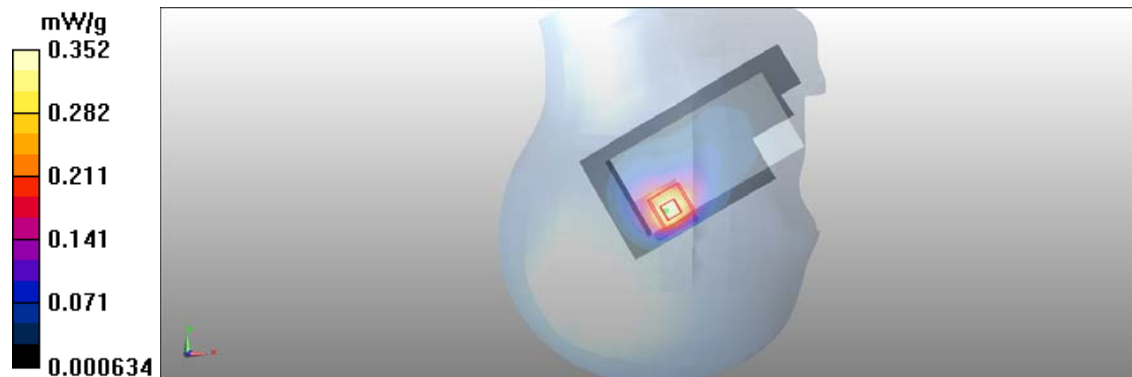
Peak SAR (extrapolated) = 0.628 W/kg

SAR(1 g) = 0.322 mW/g

SAR(10 g) = 0.162 mW/g

Power Drift = 0.028 dB

Maximum value of SAR (measured) = 0.352 mW/g



Date/Time: 2011-06-07 14:03:13

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200835/4

Communication System: WLAN2450 n-mode

Frequency: 2442 MHz; Duty Cycle: 1:1

Medium: HSL2450; Medium Notes: t= 22.1 C

Medium parameters used: f = 2442 MHz; σ = 1.82 mho/m; ϵ_r = 38; ρ = 1000 kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3573
- ConvF(6.69, 6.69, 6.69); Calibrated: 2011-02-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn793; Calibrated: 2010-09-08
- Phantom: SAM1; Type: SAM; Serial: TP-1126
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Configuration/Cheek - Middle/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.642 mW/g

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

Reference Value = 9.68 V/m

Peak SAR (extrapolated) = 1.11 W/kg

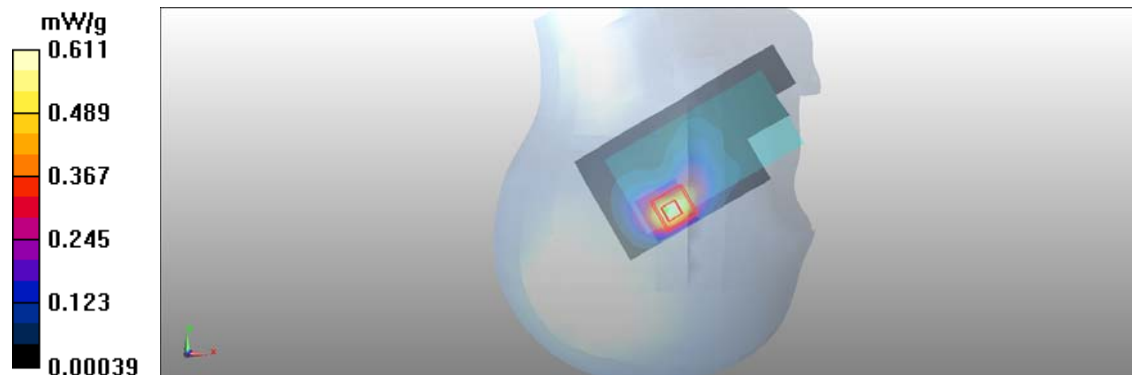
SAR(1 g) = 0.565 mW/g

SAR(10 g) = 0.275 mW/g

Power Drift = 0.00424 dB

Warning: Maximum averaged SAR over 10 g is located on the boundary of the measurement cube. This cube might not incorporate the absolute averaged SAR. Please consider a refinement of the Area Scan measurement.

Maximum value of SAR (measured) = 0.611 mW/g



Date/Time: 2011-06-14 09:18:23

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200832/1

Communication System: GSM850

Frequency: 836.6 MHz; Duty Cycle: 1:8.30042

Medium: BSL850; Medium Notes: t= 22.0 C

Medium parameters used: f = 837 MHz; σ = 1 mho/m; ϵ_r = 52.6; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY5 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: DASY52.6.1.408; Postprocessing SW: SEMCAD X Version 14.0 Build 61

Configuration/Body - Middle - No Accessory - Display Facing Phantom/Area Scan (51x101x1): Measurement
grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.544 mW/g

Configuration/Body - Middle - No Accessory - Display Facing Phantom/Zoom Scan (5x5x7)/Cube 0:

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

Reference Value = 9.86 V/m

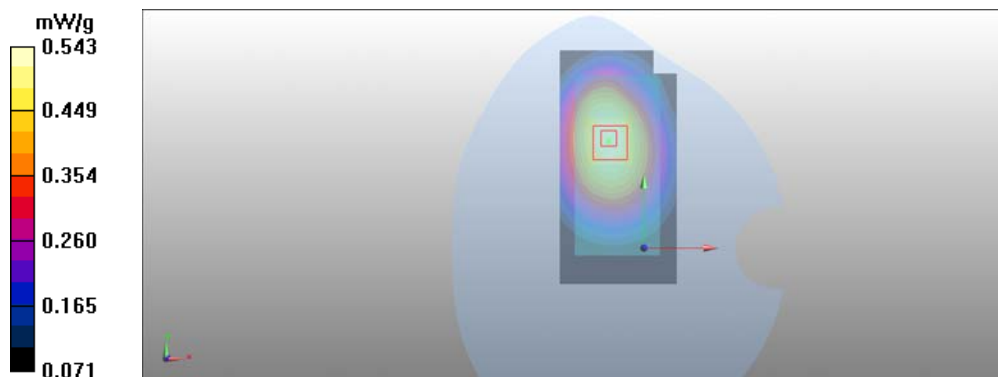
Peak SAR (extrapolated) = 0.671 W/kg

SAR(1 g) = 0.515 mW/g

SAR(10 g) = 0.382 mW/g

Power Drift = -0.076 dB

Maximum value of SAR (measured) = 0.543 mW/g



Date/Time: 2011-06-14 09:33:51

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200832/1

Communication System: GSM850

Frequency: 836.6 MHz; Duty Cycle: 1:8.30042

Medium: BSL850; Medium Notes: t= 22.0 C

Medium parameters used: f = 837 MHz; σ = 1 mho/m; ϵ_r = 52.6; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY5 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: DASY52.6.1.408; Postprocessing SW: SEMCAD X Version 14.0 Build 61

Configuration/Body - Middle - WH-1V - Display Facing Phantom/Area Scan (51x101x1): Measurement grid:

dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.384 mW/g

Configuration/Body - Middle - WH-1V - Display Facing Phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 10.2 V/m

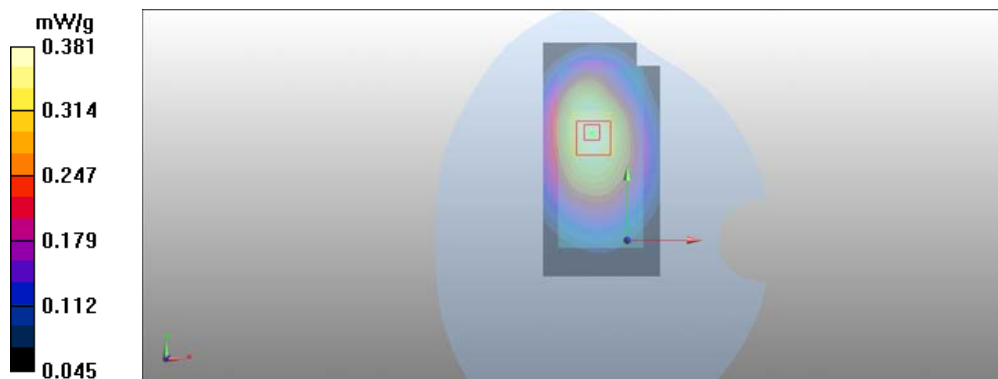
Peak SAR (extrapolated) = 0.476 W/kg

SAR(1 g) = 0.361 mW/g

SAR(10 g) = 0.265 mW/g

Power Drift = 0.023 dB

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



Date/Time: 2011-06-14 13:41:06

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200832/1

Communication System: GSM850

Frequency: 836.6 MHz; Duty Cycle: 1:8.30042

Medium: BSL850; Medium Notes: t= 22.0 C

Medium parameters used: f = 837 MHz; σ = 1 mho/m; ϵ_r = 52.6; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY5 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: DASY52.6.1.408; Postprocessing SW: SEMCAD X Version 14.0 Build 61

Configuration/Body - Middle - No accessory - Back Facing Phantom /Area Scan (51x101x1): Measurement grid:

dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.638 mW/g

Configuration/Body - Middle - No accessory - Back Facing Phantom /Zoom Scan (5x5x7)/Cube 0: Measurement

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

Reference Value = 10.1 V/m

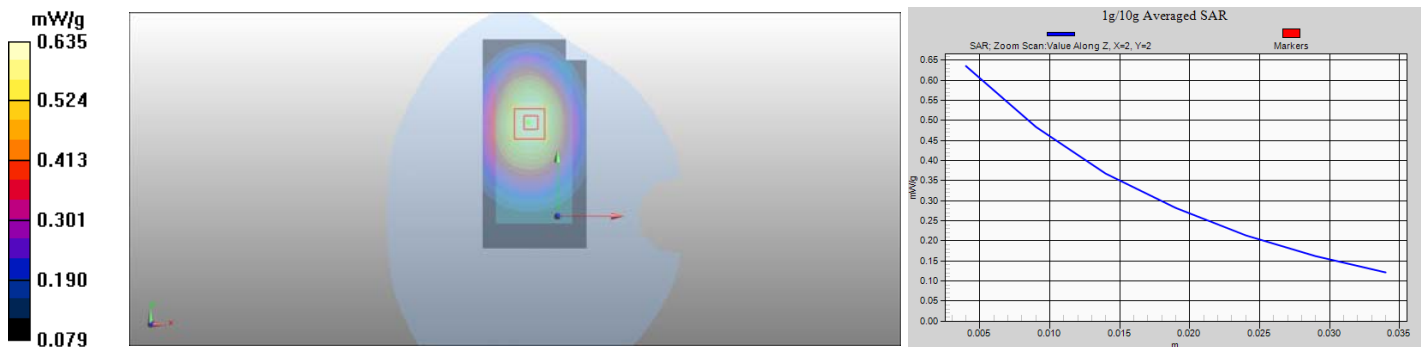
Peak SAR (extrapolated) = 0.774 W/kg

SAR(1 g) = 0.601 mW/g

SAR(10 g) = 0.443 mW/g

Power Drift = -0.091 dB

Maximum value of SAR (measured) = 0.635 mW/g



SAR Report

FCC_RM-681V_01

Applicant: Nokia Corporation

Type: RM-681V

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Date/Time: 2011-06-14 13:54:27

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200832/1

Communication System: GSM850

Frequency: 836.6 MHz; Duty Cycle: 1:8.30042

Medium: BSL850; Medium Notes: t= 22.0 C

Medium parameters used: f = 837 MHz; σ = 1 mho/m; ϵ_r = 52.6; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY5 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: DASY52.6.1.408; Postprocessing SW: SEMCAD X Version 14.0 Build 61

Configuration/Body - Middle - WH-1V - Back Facing Phantom /Area Scan (51x101x1): Measurement grid:

dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.424 mW/g

Configuration/Body - Middle - WH-1V - Back Facing Phantom /Zoom Scan (5x5x7)/Cube 0: Measurement grid:

dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 10.1 V/m

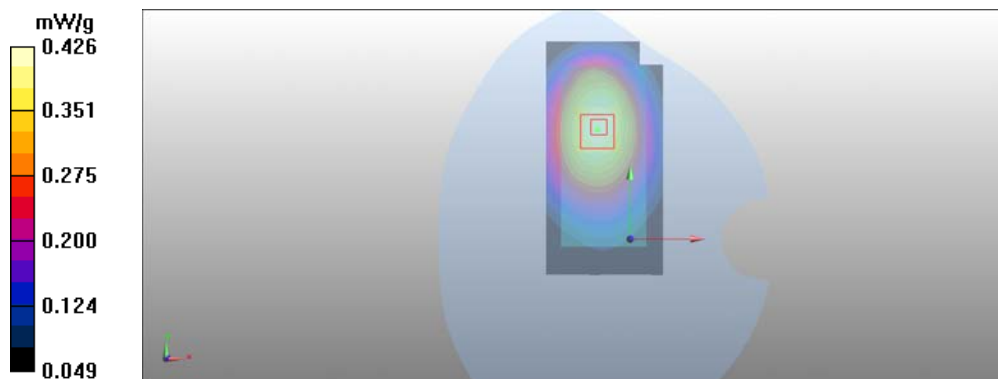
Peak SAR (extrapolated) = 0.534 W/kg

SAR(1 g) = 0.403 mW/g

SAR(10 g) = 0.295 mW/g

Power Drift = -0.066 dB

Maximum value of SAR (measured) = 0.426 mW/g



Date/Time: 2011-06-14 09:57:29

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200832/1

Communication System: WCDMA850

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: BSL850; Medium Notes: t= 22.0 C

Medium parameters used: f = 835 MHz; σ = 1 mho/m; ϵ_r = 52.6; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY5 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: DASY52.6.1.408; Postprocessing SW: SEMCAD X Version 14.0 Build 61

Configuration/Body - Middle - No Accessory - Display Facing Phantom /Area Scan (51x101x1): Measurement
grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.396 mW/g

Configuration/Body - Middle - No Accessory - Display Facing Phantom /Zoom Scan (5x5x7)/Cube 0:

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

Reference Value = 10 V/m

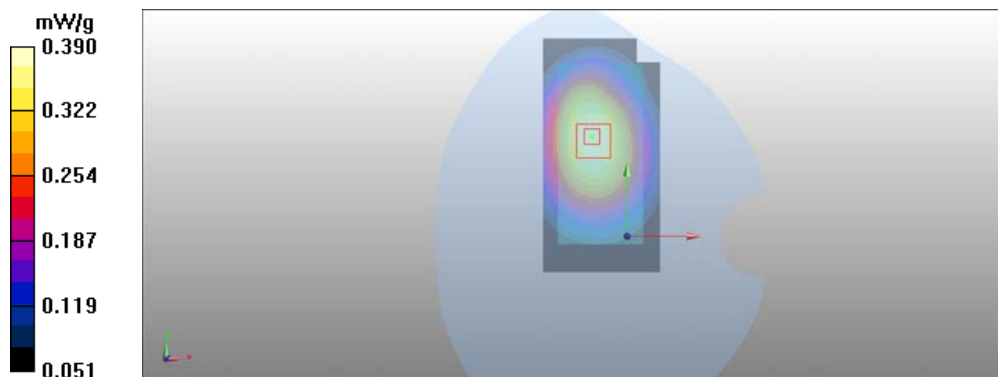
Peak SAR (extrapolated) = 0.477 W/kg

SAR(1 g) = 0.370 mW/g

SAR(10 g) = 0.275 mW/g

Power Drift = 0.046 dB

Maximum value of SAR (measured) = 0.390 mW/g



Date/Time: 2011-06-14 09:47:05

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200832/1

Communication System: WCDMA850

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: BSL850; Medium Notes: t= 22.0 C

Medium parameters used: f = 835 MHz; σ = 1 mho/m; ϵ_r = 52.6; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY5 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: DASY52.6.1.408; Postprocessing SW: SEMCAD X Version 14.0 Build 61

Configuration/Body - Middle - WH-1V - Display Facing Phantom /Area Scan (51x101x1): Measurement grid:

dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.266 mW/g

Configuration/Body - Middle - WH-1V - Display Facing Phantom /Zoom Scan (5x5x7)/Cube 0: Measurement

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

Reference Value = 8.68 V/m

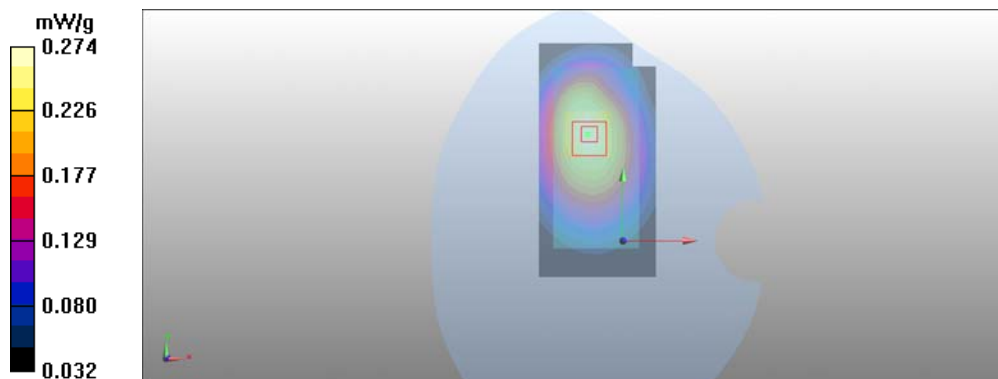
Peak SAR (extrapolated) = 0.339 W/kg

SAR(1 g) = 0.260 mW/g

SAR(10 g) = 0.191 mW/g

Power Drift = 0.020 dB

Maximum value of SAR (measured) = 0.274 mW/g



Date/Time: 2011-06-14 12:03:03

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200832/1

Communication System: WCDMA850

Frequency: 826.4 MHz; Duty Cycle: 1:1

Medium: BSL850; Medium Notes: t= 22.0 C

Medium parameters used (interpolated): f = 826.4 MHz; $\sigma = 0.997$ mho/m; $\epsilon_r = 52.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 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: DASY52.6.1.408; Postprocessing SW: SEMCAD X Version 14.0 Build 61

Configuration/Body - Low - No accessory - Back Facing Phantom/Area Scan (51x101x1): Measurement grid:

dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.574 mW/g

Configuration/Body - Low - No accessory - Back Facing Phantom/Zoom Scan (5x5x7)/Cube 0: Measurement

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

Reference Value = 9.82 V/m

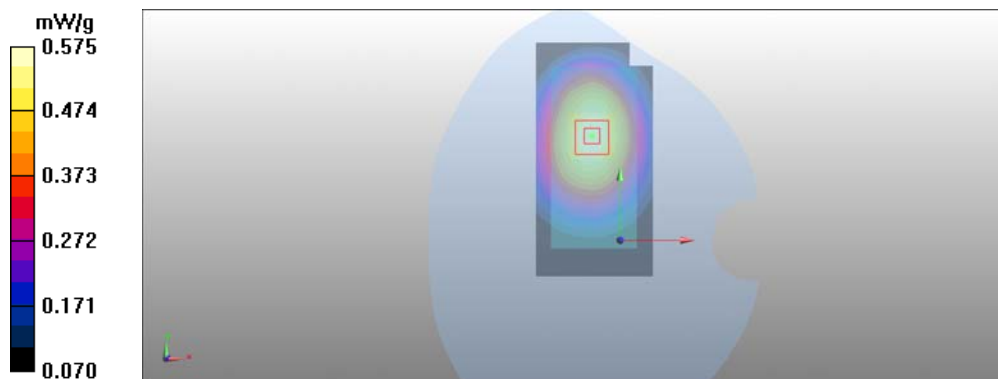
Peak SAR (extrapolated) = 0.708 W/kg

SAR(1 g) = 0.545 mW/g

SAR(10 g) = 0.404 mW/g

Power Drift = 0.00581 dB

Maximum value of SAR (measured) = 0.575 mW/g



Date/Time: 2011-06-14 11:16:47

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200832/1

Communication System: WCDMA850

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: BSL850; Medium Notes: t= 22.0 C

Medium parameters used: f = 835 MHz; $\sigma = 1$ mho/m; $\epsilon_r = 52.6$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5 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: DASY52.6.1.408; Postprocessing SW: SEMCAD X Version 14.0 Build 61

Configuration/Body - Middle - WH-1V - Back Facing Phantom /Area Scan (51x101x1): Measurement grid:

dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.346 mW/g

Configuration/Body - Middle - WH-1V - Back Facing Phantom /Zoom Scan (5x5x7)/Cube 0: Measurement grid:

dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 8.94 V/m

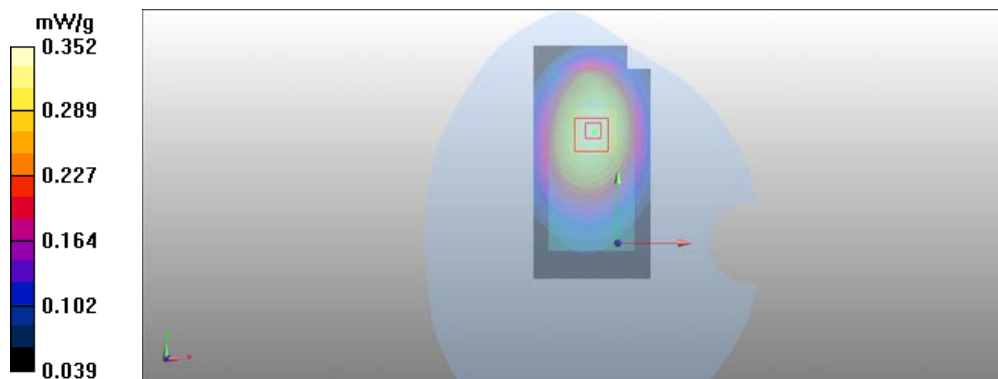
Peak SAR (extrapolated) = 0.441 W/kg

SAR(1 g) = 0.335 mW/g

SAR(10 g) = 0.245 mW/g

Power Drift = -0.00934 dB

Maximum value of SAR (measured) = 0.352 mW/g



Date/Time: 2011-06-03 12:09:42

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200835/4

Communication System: WCDMA1700/2100

Frequency: 1712.4 MHz; Duty Cycle: 1:1

Medium: BSL1800; Medium Notes: t= 21.8 C

Medium parameters used (interpolated): f = 1712.4 MHz; $\sigma = 1.42$ mho/m; $\epsilon_r = 51.8$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 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; Postprocessing SW: SEMCAD, V1.8 Build 176

Configuration/Body - Low - No Accessory - Display Facing Phantom/Area Scan (51x101x1): Measurement grid:
dx=15mm, dy=15mm

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

Configuration/Body - Low - No Accessory - Display Facing Phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 8.1 V/m

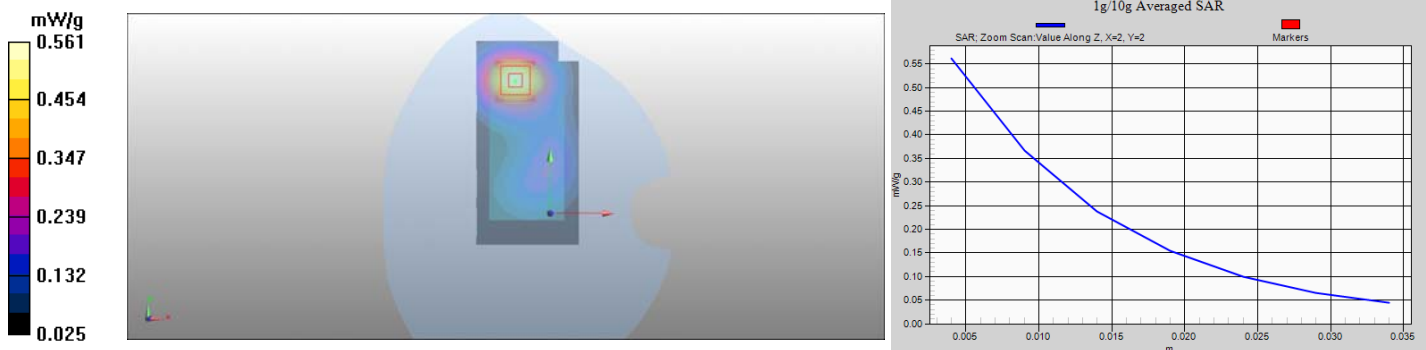
Peak SAR (extrapolated) = 0.778 W/kg

SAR(1 g) = 0.515 mW/g

SAR(10 g) = 0.320 mW/g

Power Drift = -0.035 dB

Maximum value of SAR (measured) = 0.561 mW/g



Date/Time: 2011-06-03 10:11:31

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200835/4

Communication System: WCDMA1700/2100

Frequency: 1732.4 MHz; Duty Cycle: 1:1

Medium: BSL1800; Medium Notes: $t = 21.8$ C

Medium parameters used (interpolated): $f = 1732.4$ MHz; $\sigma = 1.45$ mho/m; $\epsilon_r = 51.8$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 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; Postprocessing SW: SEMCAD, V1.8 Build 176

Configuration/Body - Middle - WH-1V - Display Facing Phantom/Area Scan (51x101x1): Measurement grid:

$dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.456 mW/g

Configuration/Body - Middle - WH-1V - Display Facing Phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

$dx=7.5$ mm, $dy=7.5$ mm, $dz=5$ mm

Reference Value = 6.98 V/m

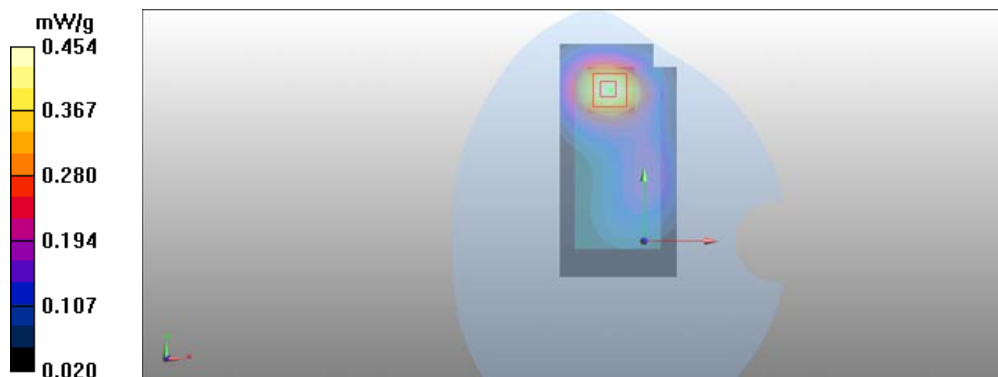
Peak SAR (extrapolated) = 0.632 W/kg

SAR(1 g) = 0.418 mW/g

SAR(10 g) = 0.260 mW/g

Power Drift = -0.088 dB

Maximum value of SAR (measured) = 0.454 mW/g



Date/Time: 2011-06-03 11:57:26

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200835/4

Communication System: WCDMA1700/2100

Frequency: 1732.4 MHz; Duty Cycle: 1:1

Medium: BSL1800; Medium Notes: $t = 21.8$ C

Medium parameters used (interpolated): $f = 1732.4$ MHz; $\sigma = 1.45$ mho/m; $\epsilon_r = 51.8$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 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; Postprocessing SW: SEMCAD, V1.8 Build 176

Configuration/Body - Middle - No Accessory - Back Facing Phantom/Area Scan (51x101x1): Measurement grid:
dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.507 mW/g

Configuration/Body - Middle - No Accessory - Back Facing Phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 7.36 V/m

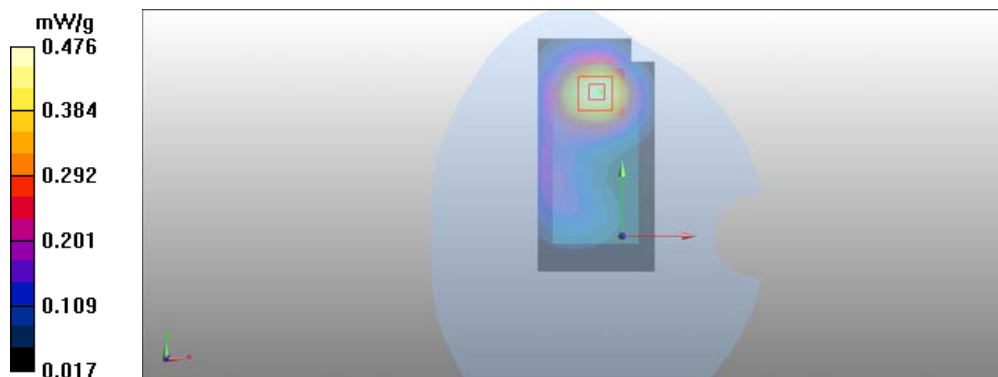
Peak SAR (extrapolated) = 0.663 W/kg

SAR(1 g) = 0.443 mW/g

SAR(10 g) = 0.283 mW/g

Power Drift = -0.025 dB

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



Date/Time: 2011-06-03 10:24:31

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200835/4

Communication System: WCDMA1700/2100

Frequency: 1732.4 MHz; Duty Cycle: 1:1

Medium: BSL1800; Medium Notes: $t = 21.8$ C

Medium parameters used (interpolated): $f = 1732.4$ MHz; $\sigma = 1.45$ mho/m; $\epsilon_r = 51.8$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 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; Postprocessing SW: SEMCAD, V1.8 Build 176

Configuration/Body - Middle - WH-1V - Back Facing Phantom/Area Scan (51x101x1): Measurement grid:

$dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.363 mW/g

Configuration/Body - Middle - WH-1V - Back Facing Phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

$dx=7.5$ mm, $dy=7.5$ mm, $dz=5$ mm

Reference Value = 5.86 V/m

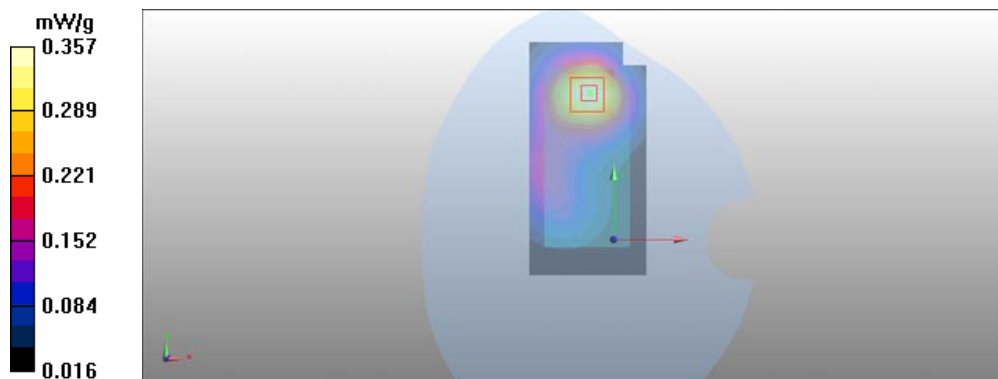
Peak SAR (extrapolated) = 0.496 W/kg

SAR(1 g) = 0.332 mW/g

SAR(10 g) = 0.213 mW/g

Power Drift = 0.118 dB

Maximum value of SAR (measured) = 0.357 mW/g



Date/Time: 2011-06-16 13:17:20

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200835/4

Communication System: GSM1900

Frequency: 1850.2 MHz; Duty Cycle: 1:8.3

Medium: BSL1900; Medium Notes: $t = 21.8$ C

Medium parameters used: $f = 1850.2$ MHz; $\sigma = 1.46$ mho/m; $\epsilon_r = 53.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3165; Probe Notes:
- 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; Postprocessing SW: SEMCAD, V1.8 Build 176

Configuration/Body - Low - No Accessory - Display Facing Phantom/Area Scan (51x101x1): Measurement grid:
 $dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.366 mW/g

Configuration/Body - Low - No Accessory - Display Facing Phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=7.5$ mm, $dy=7.5$ mm, $dz=5$ mm

Reference Value = 7.22 V/m

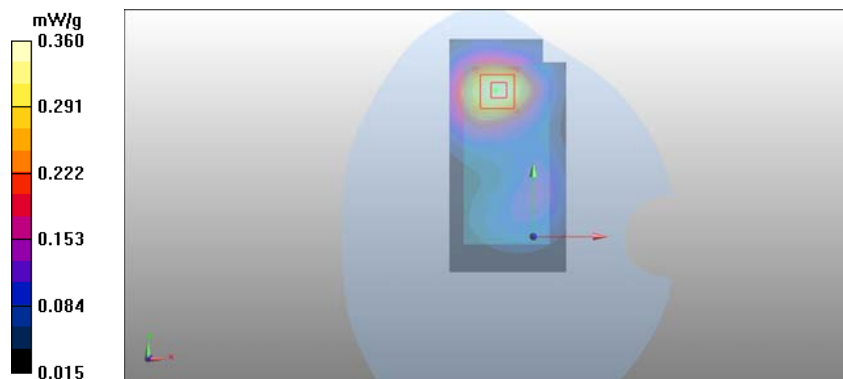
Peak SAR (extrapolated) = 0.509 W/kg

SAR(1 g) = 0.325 mW/g

SAR(10 g) = 0.205 mW/g

Power Drift = -0.133 dB

Maximum value of SAR (measured) = 0.360 mW/g



Date/Time: 2011-05-30 10:09:59

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200835/4

Communication System: GSM1900

Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium: BSL1900; Medium Notes: $t = 21.7$ C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.51$ mho/m; $\epsilon_r = 53.1$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 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; Postprocessing SW: SEMCAD, V1.8 Build 176

Configuration/Body - Middle - WH-1V - Display Facing Phantom/Area Scan (51x101x1): Measurement grid:

$dx=15$ mm, $dy=15$ mm

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

Configuration/Body - Middle - WH-1V - Display Facing Phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

$dx=7.5$ mm, $dy=7.5$ mm, $dz=5$ mm

Reference Value = 7.17 V/m

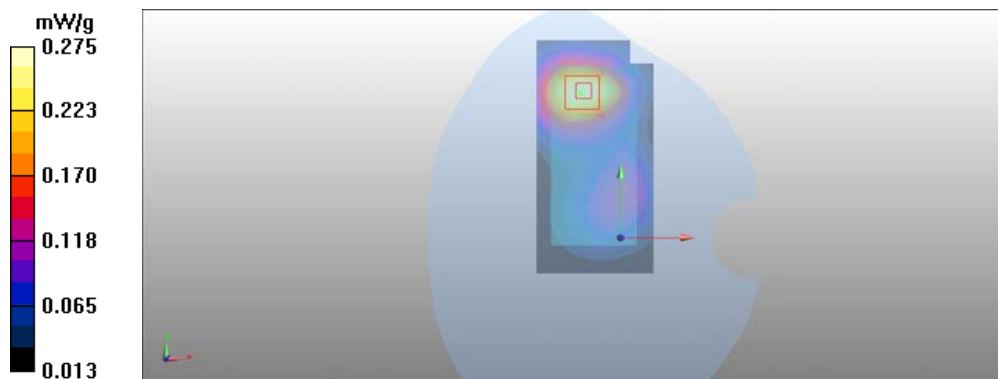
Peak SAR (extrapolated) = 0.393 W/kg

SAR(1 g) = 0.256 mW/g

SAR(10 g) = 0.161 mW/g

Power Drift = -0.369 dB

Maximum value of SAR (measured) = 0.275 mW/g



Date/Time: 2011-06-16 12:53:43

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200835/4

Communication System: GSM1900

Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium: BSL1900; Medium Notes: $t = 21.8$ C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.49$ mho/m; $\epsilon_r = 53$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 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; Postprocessing SW: SEMCAD, V1.8 Build 176

Configuration/Body - Middle - No Accessory - Back Facing Phantom/Area Scan (51x101x1): Measurement grid:
 $dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.309 mW/g

Configuration/Body - Middle - No Accessory - Back Facing Phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=7.5$ mm, $dy=7.5$ mm, $dz=5$ mm

Reference Value = 5.78 V/m

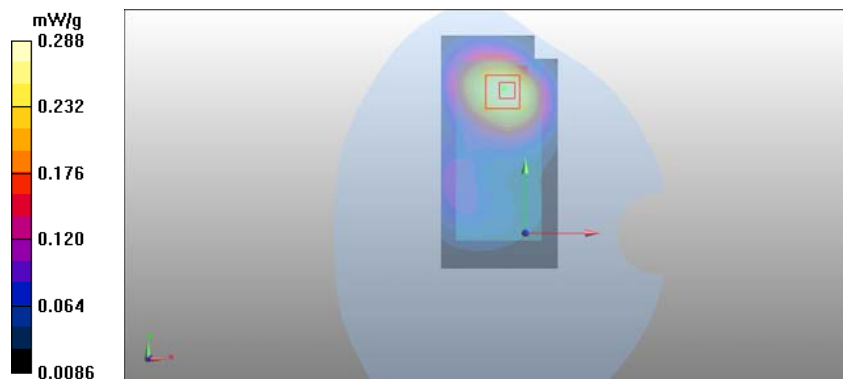
Peak SAR (extrapolated) = 0.439 W/kg

SAR(1 g) = 0.271 mW/g

SAR(10 g) = 0.172 mW/g

Power Drift = -0.135 dB

Maximum value of SAR (measured) = 0.288 mW/g



Date/Time: 2011-05-30 10:24:25

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200835/4

Communication System: GSM1900

Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium: BSL1900; Medium Notes: $t = 21.7$ C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.51$ mho/m; $\epsilon_r = 53.1$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 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; Postprocessing SW: SEMCAD, V1.8 Build 176

Configuration/Body - Middle - WH-1V - Back Facing Phantom/Area Scan (51x101x1): Measurement grid:

$dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.269 mW/g

Configuration/Body - Middle - WH-1V - Back Facing Phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

$dx=7.5$ mm, $dy=7.5$ mm, $dz=5$ mm

Reference Value = 5.53 V/m

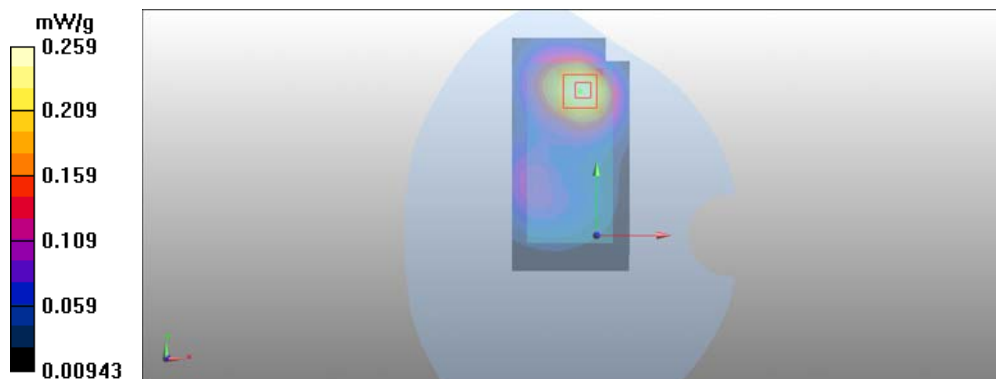
Peak SAR (extrapolated) = 0.379 W/kg

SAR(1 g) = 0.241 mW/g

SAR(10 g) = 0.150 mW/g

Power Drift = 0.026 dB

Maximum value of SAR (measured) = 0.259 mW/g



Date/Time: 2011-05-27 11:38:39

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200835/4

Communication System: WCDMA1900

Frequency: 1852.4 MHz; Duty Cycle: 1:1

Medium: BSL1900; Medium Notes: t= 21.5 C

Medium parameters used (interpolated): f = 1852.4 MHz; $\sigma = 1.49$ mho/m; $\epsilon_r = 52.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 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; Postprocessing SW: SEMCAD, V1.8 Build 176

Configuration/Body - Low - No Accessory - Display Facing Phantom/Area Scan (51x101x1): Measurement grid:

dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.426 mW/g

Configuration/Body - Low - No Accessory - Display Facing Phantom/Zoom Scan (5x5x7)/Cube 0: Measurement

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

Reference Value = 7.79 V/m

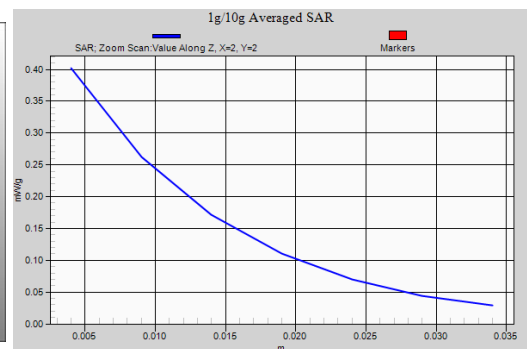
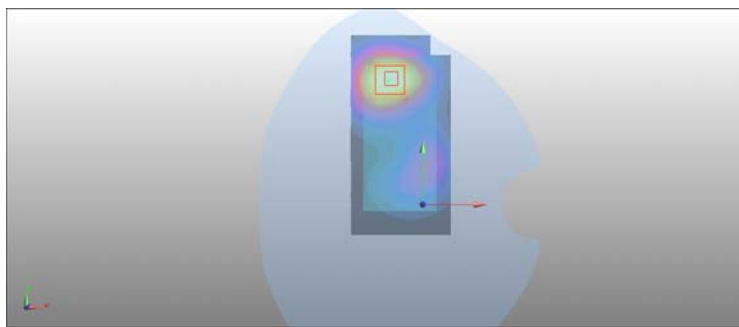
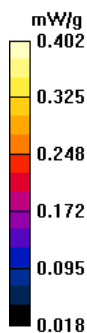
Peak SAR (extrapolated) = 0.571 W/kg

SAR(1 g) = 0.377 mW/g

SAR(10 g) = 0.239 mW/g

Power Drift = -0.039 dB

Maximum value of SAR (measured) = 0.402 mW/g



Date/Time: 2011-05-27 09:21:39

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200835/4

Communication System: WCDMA1900

Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: BSL1900; Medium Notes: $t = 21.5$ C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.51$ mho/m; $\epsilon_r = 52.3$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 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; Postprocessing SW: SEMCAD, V1.8 Build 176

Configuration/Body - Middle - WH-1V - Display Facing Phantom/Area Scan (51x101x1): Measurement grid:

$dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.374 mW/g

Configuration/Body - Middle - WH-1V - Display Facing Phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

$dx=7.5$ mm, $dy=7.5$ mm, $dz=5$ mm

Reference Value = 6.53 V/m

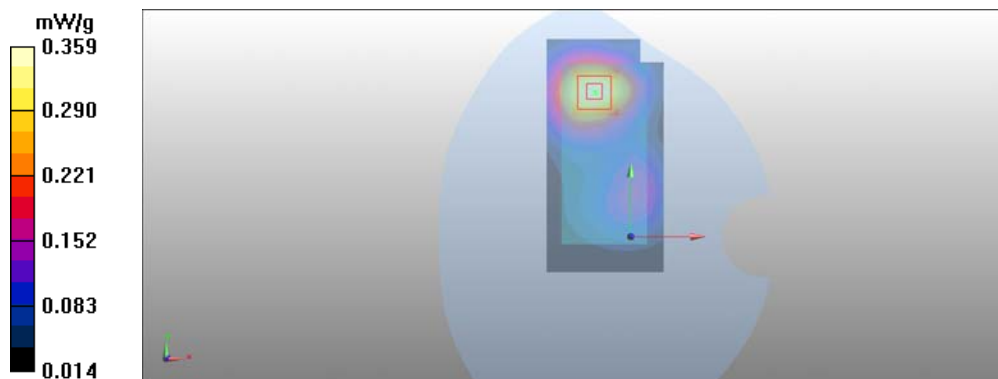
Peak SAR (extrapolated) = 0.509 W/kg

SAR(1 g) = 0.333 mW/g

SAR(10 g) = 0.210 mW/g

Power Drift = -0.155 dB

Maximum value of SAR (measured) = 0.359 mW/g



Date/Time: 2011-05-27 11:23:01

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200835/4

Communication System: WCDMA1900

Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: BSL1900; Medium Notes: $t = 21.5$ C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.51$ mho/m; $\epsilon_r = 52.3$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 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; Postprocessing SW: SEMCAD, V1.8 Build 176

Configuration/Body - Middle - No Accessory - Back Facing Phantom/Area Scan (51x101x1): Measurement grid: $dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.377 mW/g

Configuration/Body - Middle - No Accessory - Back Facing Phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=7.5$ mm, $dy=7.5$ mm, $dz=5$ mm

Reference Value = 7.12 V/m

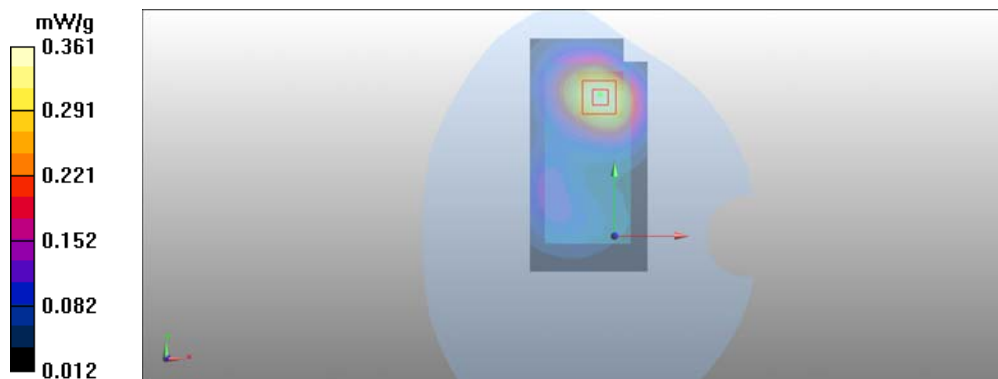
Peak SAR (extrapolated) = 0.528 W/kg

SAR(1 g) = 0.336 mW/g

SAR(10 g) = 0.211 mW/g

Power Drift = -0.210 dB

Maximum value of SAR (measured) = 0.361 mW/g



Date/Time: 2011-05-27 09:33:47

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200835/4

Communication System: WCDMA1900

Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: BSL1900; Medium Notes: $t = 21.5$ C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.51$ mho/m; $\epsilon_r = 52.3$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 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; Postprocessing SW: SEMCAD, V1.8 Build 176

Configuration/Body - Middle - WH-1V - Back Facing Phantom/Area Scan (51x101x1): Measurement grid:

$dx=15$ mm, $dy=15$ mm

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

Configuration/Body - Middle - WH-1V - Back Facing Phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

$dx=7.5$ mm, $dy=7.5$ mm, $dz=5$ mm

Reference Value = 6.09 V/m

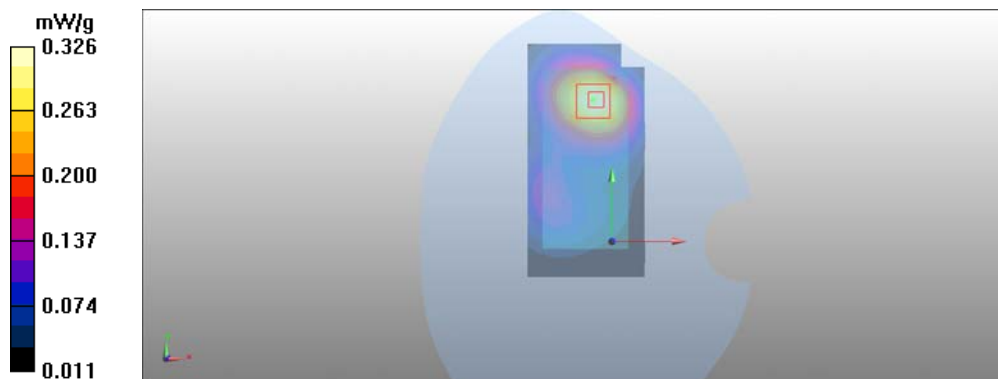
Peak SAR (extrapolated) = 0.485 W/kg

SAR(1 g) = 0.305 mW/g

SAR(10 g) = 0.193 mW/g

Power Drift = -0.064 dB

Maximum value of SAR (measured) = 0.326 mW/g



Date/Time: 2011-06-09 08:56:11

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200835/4

Communication System: WLAN2450 b-mode

Frequency: 2442 MHz; Duty Cycle: 1:1

Medium: BSL2450; Medium Notes: $t = 21.8$ C

Medium parameters used: $f = 2442$ MHz; $\sigma = 1.96$ mho/m; $\epsilon_r = 50.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3573
- ConvF(6.8, 6.8, 6.8); Calibrated: 2011-02-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn793; Calibrated: 2010-09-08
- Phantom: SAM2; Type: SAM; Serial: TP-1570
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Configuration/Body - Middle - No Accessory - Display Facing Phantom/Area Scan (51x101x1): Measurement grid: $dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.061 mW/g

Configuration/Body - Middle - No Accessory - Display Facing Phantom/Zoom Scan (5x5x7)/Cube 0:

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

Reference Value = 3.9 V/m

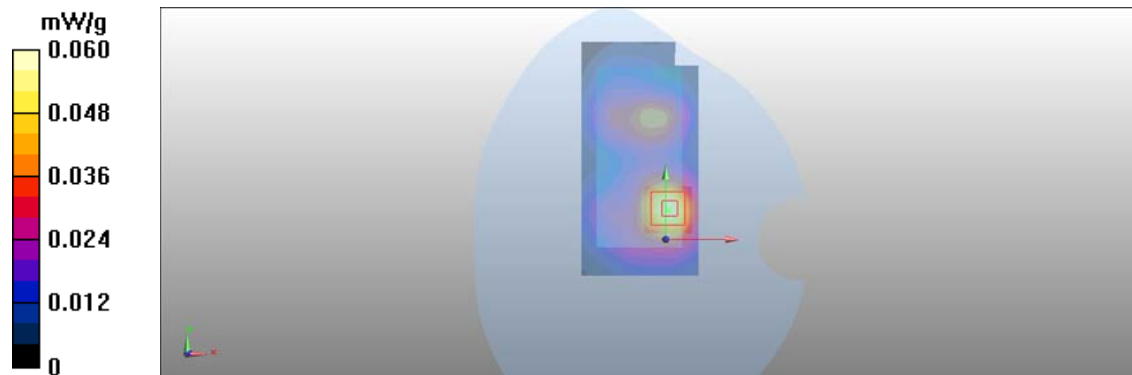
Peak SAR (extrapolated) = 0.092 W/kg

SAR(1 g) = 0.054 mW/g

SAR(10 g) = 0.030 mW/g

Power Drift = -0.375 dB

Maximum value of SAR (measured) = 0.060 mW/g



Date/Time: 2011-06-09 09:16:50

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200835/4

Communication System: WLAN2450 b-mode

Frequency: 2442 MHz; Duty Cycle: 1:1

Medium: BSL2450; Medium Notes: $t = 21.8$ C

Medium parameters used: $f = 2442$ MHz; $\sigma = 1.96$ mho/m; $\epsilon_r = 50.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3573
- ConvF(6.8, 6.8, 6.8); Calibrated: 2011-02-17
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn793; Calibrated: 2010-09-08
- Phantom: SAM2; Type: SAM; Serial: TP-1570
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Configuration/Body - Middle - WH-1V - Display Facing Phantom/Area Scan (51x101x1): Measurement grid:

$dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.040 mW/g

Configuration/Body - Middle - WH-1V - Display Facing Phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

$dx=7.5$ mm, $dy=7.5$ mm, $dz=5$ mm

Reference Value = 3.08 V/m

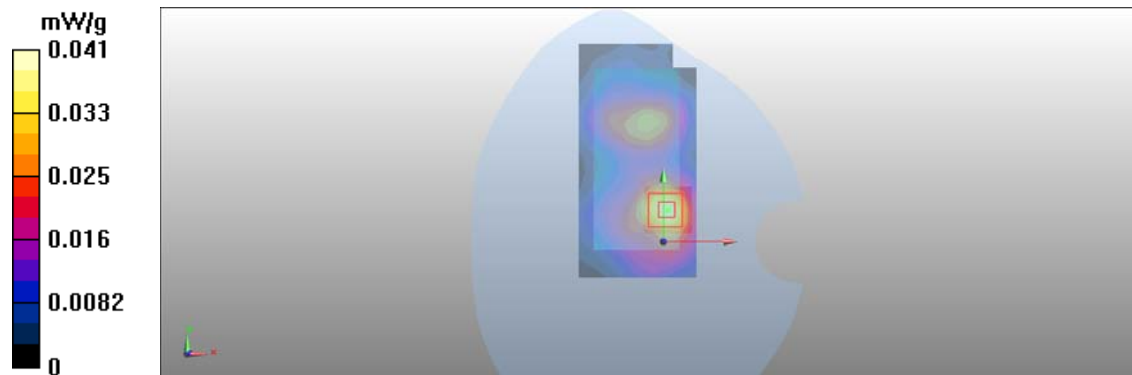
Peak SAR (extrapolated) = 0.065 W/kg

SAR(1 g) = 0.037 mW/g

SAR(10 g) = 0.021 mW/g

Power Drift = 0.247 dB

Maximum value of SAR (measured) = 0.041 mW/g



Date/Time: 2011-06-09 09:40:21

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200835/4

Communication System: WLAN2450 b-mode

Frequency: 2442 MHz; Duty Cycle: 1:1

Medium: BSL2450; Medium Notes: $t = 21.8$ C

Medium parameters used: $f = 2442$ MHz; $\sigma = 1.96$ mho/m; $\epsilon_r = 50.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3573
- ConvF(6.8, 6.8, 6.8); Calibrated: 2011-02-17
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn793; Calibrated: 2010-09-08
- Phantom: SAM2; Type: SAM; Serial: TP-1570
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Configuration/Body - Middle - No Accessory - Back Facing Phantom/Area Scan (51x101x1): Measurement grid:
 $dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.095 mW/g

Configuration/Body - Middle - No Accessory - Back Facing Phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=7.5$ mm, $dy=7.5$ mm, $dz=5$ mm

Reference Value = 5.13 V/m

Peak SAR (extrapolated) = 0.153 W/kg

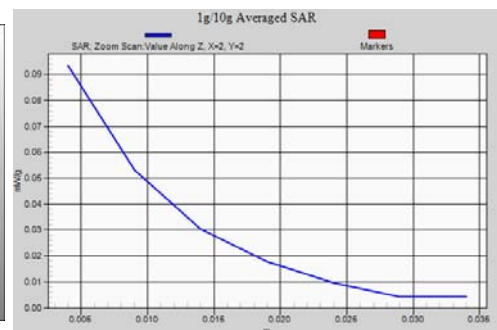
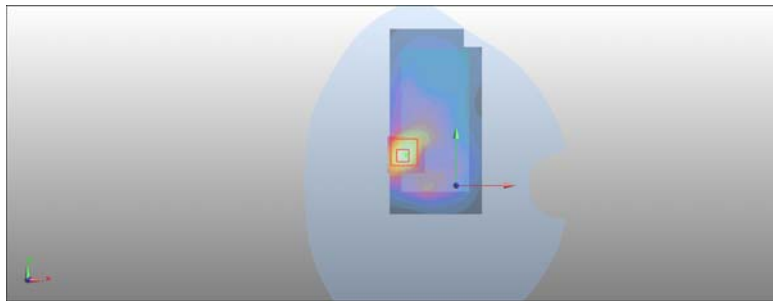
SAR(1 g) = 0.086 mW/g

SAR(10 g) = 0.047 mW/g

Power Drift = 0.130 dB

Maximum value of SAR (measured) = 0.094 mW/g

mW/g
0.094
0.075
0.056
0.038
0.019
0.0013



Date/Time: 2011-06-09 09:29:06

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200835/4

Communication System: WLAN2450 b-mode

Frequency: 2442 MHz; Duty Cycle: 1:1

Medium: BSL2450; Medium Notes: $t = 21.8$ C

Medium parameters used: $f = 2442$ MHz; $\sigma = 1.96$ mho/m; $\epsilon_r = 50.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3573
- ConvF(6.8, 6.8, 6.8); Calibrated: 2011-02-17
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn793; Calibrated: 2010-09-08
- Phantom: SAM2; Type: SAM; Serial: TP-1570
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Configuration/Body - Middle - WH-1V - Back Facing Phantom/Area Scan (51x101x1): Measurement grid:

$dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.072 mW/g

Configuration/Body - Middle - WH-1V - Back Facing Phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid:

$dx=7.5$ mm, $dy=7.5$ mm, $dz=5$ mm

Reference Value = 5.09 V/m

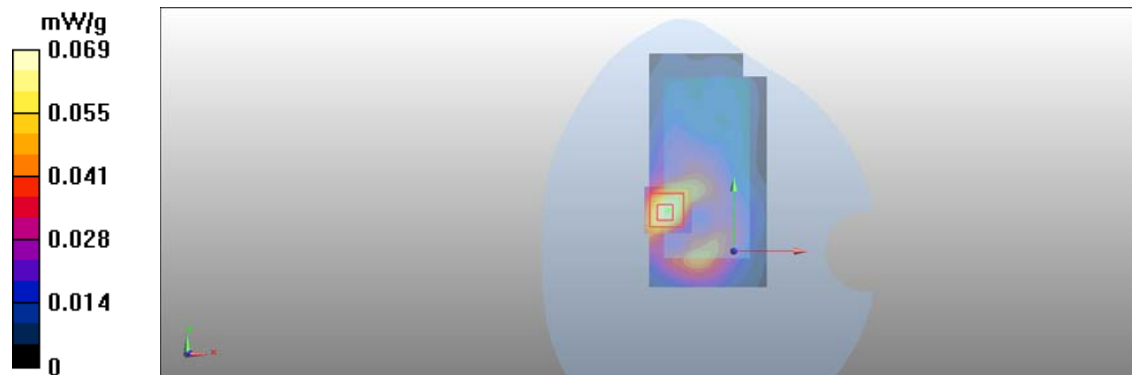
Peak SAR (extrapolated) = 0.116 W/kg

SAR(1 g) = 0.064 mW/g

SAR(10 g) = 0.035 mW/g

Power Drift = 0.00954 dB

Maximum value of SAR (measured) = 0.069 mW/g



Date/Time: 2011-06-09 13:14:13

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200835/4

Communication System: WLAN2450 n-mode

Frequency: 2442 MHz; Duty Cycle: 1:1

Medium: BSL2450; Medium Notes: $t = 21.8$ C

Medium parameters used: $f = 2442$ MHz; $\sigma = 1.96$ mho/m; $\epsilon_r = 50.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3573
- ConvF(6.8, 6.8, 6.8); Calibrated: 2011-02-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn793; Calibrated: 2010-09-08
- Phantom: SAM2; Type: SAM; Serial: TP-1570
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Configuration/Body - Middle - No Accessory - Back Facing Phantom/Area Scan (51x101x1): Measurement grid: $dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.062 mW/g

Configuration/Body - Middle - No Accessory - Back Facing Phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=7.5$ mm, $dy=7.5$ mm, $dz=5$ mm

Reference Value = 4.44 V/m

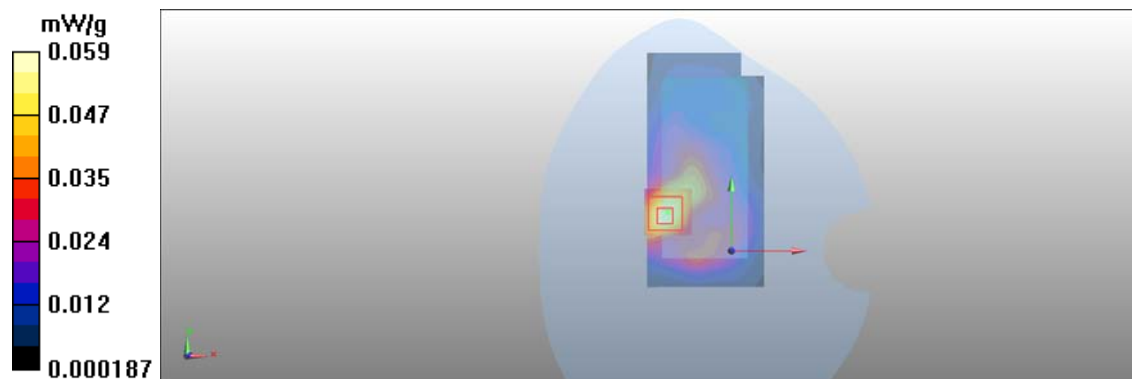
Peak SAR (extrapolated) = 0.097 W/kg

SAR(1 g) = 0.054 mW/g

SAR(10 g) = 0.030 mW/g

Power Drift = 0.276 dB

Maximum value of SAR (measured) = 0.059 mW/g



Date/Time: 2011-06-06 13:03:34, Date/Time: 2011-06-07 11:49:35

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200832/1, Serial: 004402/13/200835/4

Communication System: GSM850, Communication System: WLAN2450 b-mode

Frequency: 836.6 MHz, Frequency: 2442 MHz; Duty Cycle: 1:8.30042, Duty Cycle: 1:1

Medium: HSL850, Medium: HSL2450; Medium Notes: t= 22.2 C, Medium Notes: t= 22.1 C

Medium parameters used: f = 837 MHz; σ = 0.901 mho/m; ϵ_r = 39.6; ρ = 1000 kg/m³, Medium parameters used: f = 2442 MHz; σ = 1.82 mho/m; ϵ_r = 38; ρ = 1000 kg/m³

Phantom section: Right Section

DASY5/DASY4 Configuration:

- Probe: ES3DV3 - SN3194, Probe: EX3DV4 - SN3573
- ConvF(6.09, 6.09, 6.09), ConvF(6.69, 6.69, 6.69); Calibrated: 2010-09-09, Calibrated:2011-02-17
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538, Electronics: DAE4 Sn793; Calibrated: 2010-09-09, Calibrated: 2010-09-08
- Phantom: SAM 3, Phantom: SAM1; Type: Twin SAM 040 CA, Type: SAM; Serial: TP-1179, Serial: TP-1126
- Measurement SW: DASY52.6.1.408; Postprocessing SW: SEMCAD X Version 14.0 Build 61; Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

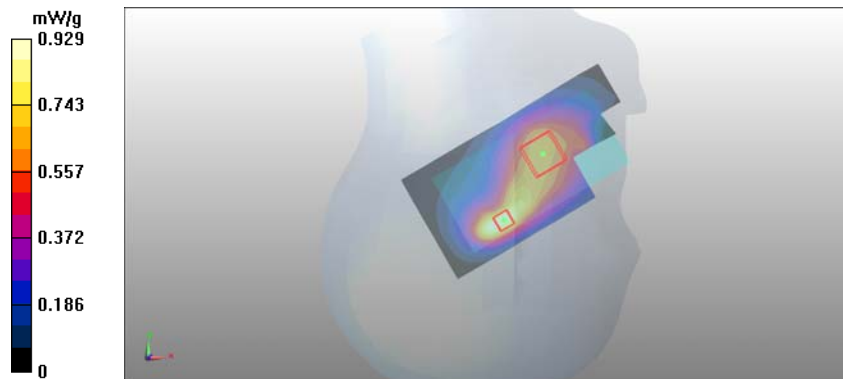
Configuration/Cheek - Middle /Area Scan (6x11x1): Measurement grid: dx=15mm, dy=15mm

Configuration/Cheek - Middle/Area Scan (6x11x1): Measurement grid: dx=15mm, dy=15mm

Motorola Fast SAR of Combined Scans: SAR(1 g) = 0.791 mW/g

SAR(10 g) = 0.436 mW/g

Maximum value of SAR (measured) = 0.929 mW/g



Date/Time: 2011-06-06 08:31:20, Date/Time: 2011-06-07 11:49:35

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200832/1, Serial: 004402/13/200835/4

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

Frequency: 835 MHz, Frequency: 2442 MHz; Duty Cycle: 1:1

Medium: HSL850, Medium: HSL2450; Medium Notes: t= 22.2 C, Medium Notes: t= 22.1 C

Medium parameters used: f = 835 MHz; σ = 0.898 mho/m; ϵ_r = 39.6; ρ = 1000 kg/m³, Medium parameters used: f = 2442 MHz; σ = 1.82 mho/m; ϵ_r = 38; ρ = 1000 kg/m³

Phantom section: Right Section

DASY5/DASY4 Configuration:

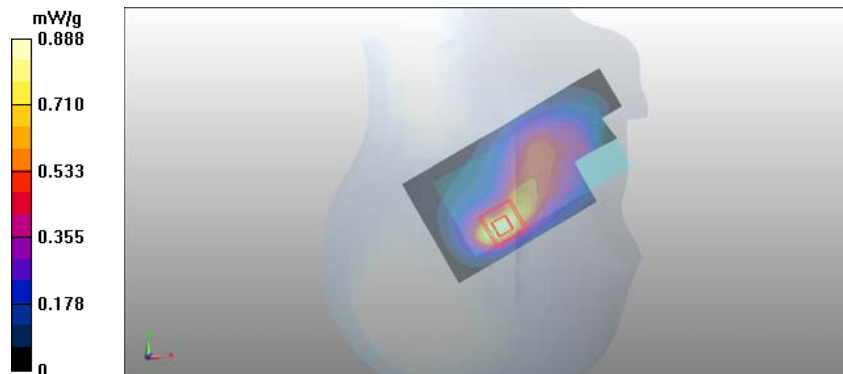
- Probe: ES3DV3 - SN3194, Probe: EX3DV4 - SN3573
- ConvF(6.09, 6.09, 6.09), ConvF(6.69, 6.69, 6.69); Calibrated: 2010-09-09, Calibrated:2011-02-17
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538, Electronics: DAE4 Sn793; Calibrated: 2010-09-09, Calibrated: 2010-09-08
- Phantom: SAM 3, Phantom: SAM1; Type: Twin SAM 040 CA, Type: SAM; Serial: TP-1179, Serial: TP-1126
- Measurement SW: DASY52.6.1.408; Postprocessing SW: SEMCAD X Version 14.0 Build 61; Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Configuration/Cheek - Middle/Area Scan (6x11x1): Measurement grid: dx=15mm, dy=15mm

Motorola Fast SAR of Combined Scans: SAR(1 g) = 0.754 mW/g

SAR(10 g) = 0.381 mW/g

Maximum value of SAR (measured) = 0.888 mW/g



Date/Time:2011-05-30 15:02:35, Date/Time: 2011-06-07 11:49:35

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200835/4

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

Frequency: 1732.4 MHz, Frequency: 2442 MHz; Duty Cycle: 1:1

Medium: HSL1800, Medium: HSL2450; Medium Notes: t= 21.3 C, Medium Notes: t= 22.1 C

Medium parameters used (interpolated): f = 1732.4 MHz; σ = 1.32 mho/m; ϵ_r = 39.1; ρ = 1000 kg/m³, Medium parameters used: f = 2442 MHz; σ = 1.82 mho/m; ϵ_r = 38; ρ = 1000 kg/m³

Phantom section: Right Section

DASY4 Configuration:

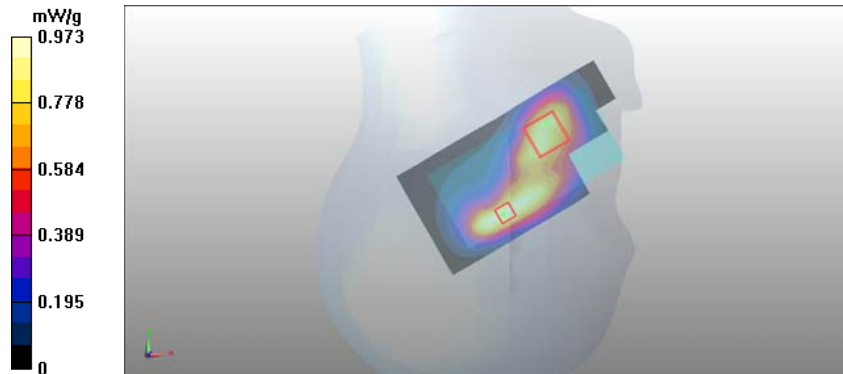
- Probe: ES3DV3 - SN3165, Probe: EX3DV4 - SN3573
- ConvF(5.19, 5.19, 5.19), ConvF(6.69, 6.69, 6.69); Calibrated:2011-02-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn555, Electronics: DAE4 Sn793; Calibrated: 2011-02-22, Calibrated: 2010-09-08
- Phantom: SAM 4, Phantom: SAM1; Type: Twin SAM 040 CA, Type: SAM; Serial: TP-1018, Serial: TP-1126
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Configuration/Cheek - Middle/Area Scan (6x11x1): Measurement grid: dx=15mm, dy=15mm

Motorola Fast SAR of Combined Scans: SAR(1 g) = 0.836 mW/g

SAR(10 g) = 0.500 mW/g

Maximum value of SAR (measured) = 0.973 mW/g



Date/Time: 2011-05-26 14:36:13, Date/Time: 2011-06-07 11:49:35

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200835/4

Communication System: GSM1900, Communication System: WLAN2450 b-mode

Frequency: 1850.2 MHz, Frequency: 2442 MHz; Duty Cycle: 1:8.3, Duty Cycle: 1:1

Medium: HSL1900, Medium: HSL2450; Medium Notes: $t = 21.8$ C, Medium Notes: $t = 22.1$ C

Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.34$ mho/m; $\epsilon_r = 39.6$; $\rho = 1000$ kg/m³, Medium parameters used: $f = 2442$ MHz; $\sigma = 1.82$ mho/m; $\epsilon_r = 38$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3165, Probe: EX3DV4 - SN3573
- ConvF(5.03, 5.03, 5.03), ConvF(6.69, 6.69, 6.69); Calibrated: 2011-02-17
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn555, Electronics: DAE4 Sn793; Calibrated: 2011-02-22, Calibrated: 2010-09-08
- Phantom: SAM 1, Phantom: SAM1; Type: Twin SAM 040 CA, Type: SAM; Serial: TP-1449, Serial: TP-1126
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

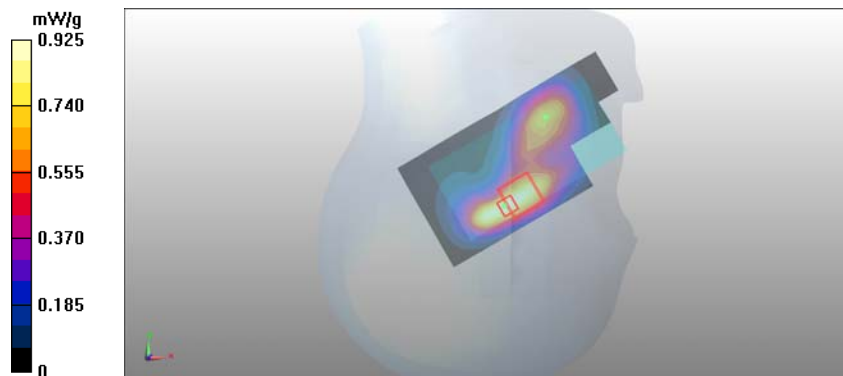
Configuration/Cheek - Low/Area Scan (6x11x1): Measurement grid: dx=15mm, dy=15mm

Configuration/Cheek - Middle/Area Scan (6x11x1): Measurement grid: dx=15mm, dy=15mm

Motorola Fast SAR of Combined Scans: SAR(1 g) = 0.797 mW/g

SAR(10 g) = 0.415 mW/g

Maximum value of SAR (measured) = 0.925 mW/g



Date/Time: 2011.05-25 09:46:35, Date/Time: 2011-06-07 11:49:35

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200835/4

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

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

Medium: HSL1900, Medium: HSL2450; Medium Notes: $t = 21.7$ C, Medium Notes: $t = 22.1$ C

Medium parameters used (interpolated): $f = 1852.4$ MHz; $\sigma = 1.36$ mho/m; $\epsilon_r = 39.7$; $\rho = 1000$ kg/m³, Medium parameters used: $f = 2442$ MHz; $\sigma = 1.82$ mho/m; $\epsilon_r = 38$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:-

- Probe: ES3DV3 - SN3165, Probe: EX3DV4 - SN3573
- ConvF(5.03, 5.03, 5.03), ConvF(6.69, 6.69, 6.69); Calibrated: 2011-02-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn555, Electronics: DAE4 Sn793; Calibrated: 2011-02-22, Calibrated: 2010-09-08
- Phantom: SAM 1, Phantom: SAM1; Type: Twin SAM 040 CA, Type: SAM; Serial: TP-1449, Serial: TP-1126
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

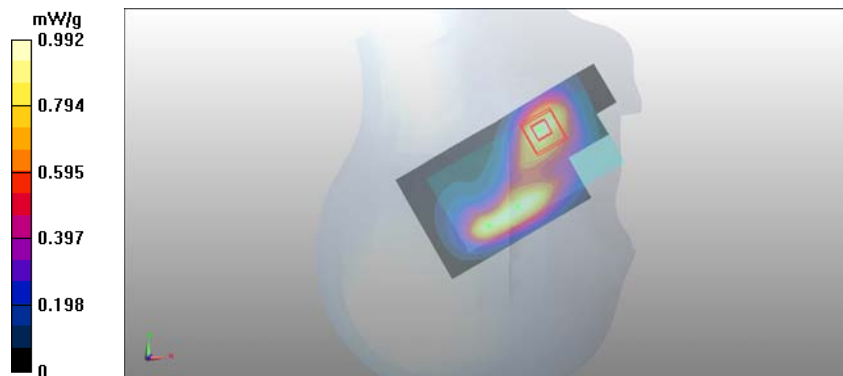
Configuration/Cheek - Low/Area Scan (6x11x1): Measurement grid: dx=15mm, dy=15mm

Configuration/Cheek - Middle/Area Scan (6x11x1): Measurement grid: dx=15mm, dy=15mm

Motorola Fast SAR of Combined Scans: SAR(1 g) = 0.880 mW/g

SAR(10 g) = 0.501 mW/g

Maximum value of SAR (measured) = 0.992 mW/g



Date/Time: 2011-06-14 13:41:06, Date/Time: 2011-06-09 09:40:21

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200832/1, Serial: 004402/13/200835/4

Communication System: GSM850, Communication System: WLAN2450 b-mode

Frequency: 836.6 MHz, Frequency: 2442 MHz; Duty Cycle: 1:8.30042, Duty Cycle: 1:1

Medium: BSL850, Medium: BSL2450; Medium Notes: $t = 22.0$ C, Medium Notes: $t = 21.8$ C

Medium parameters used: $f = 837$ MHz; $\sigma = 1$ mho/m; $\epsilon_r = 52.6$; $\rho = 1000$ kg/m³, Medium parameters used: $f = 2442$ MHz; $\sigma = 1.96$ mho/m; $\epsilon_r = 50.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5/DASY4 Configuration:

- Probe: ES3DV3 - SN3194, Probe: EX3DV4 - SN3573
- ConvF(5.95, 5.95, 5.95), ConvF(6.8, 6.8, 6.8); Calibrated: 2010-09-09, Calibrated: 2011-02-17
- 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: DASY52.6.1.408; Postprocessing SW: SEMCAD X Version 14.0 Build 61; Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

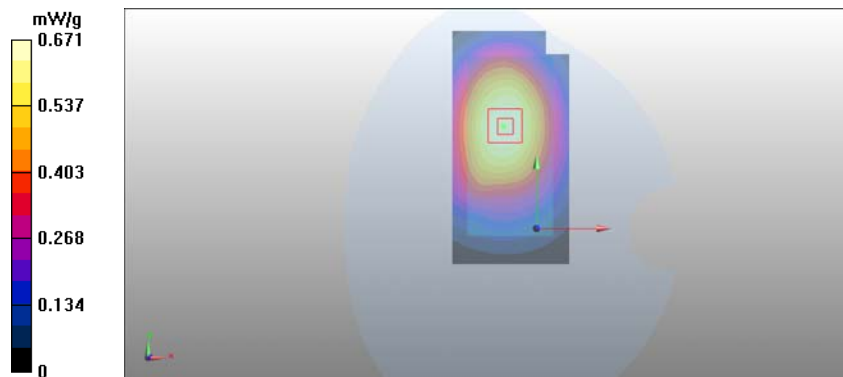
Configuration/Body - Medium - No accessory - Back Facing Phantom/Area Scan (6x11x1): Measurement grid:
dx=15mm, dy=15mm

Configuration/Body - Middle - No Accessory - Back Facing Phantom/Area Scan (6x11x1): Measurement grid:
dx=15mm, dy=15mm

Motorola Fast SAR of Combined Scans: SAR(1 g) = 0.636 mW/g

SAR(10 g) = 0.449 mW/g

Maximum value of SAR (measured) = 0.671 mW/g



Date/Time: 2011-06-14 12:03:03, Date/Time: 2011-06-09 09:40:21

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200832/1, Serial: 004402/13/200835/4

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

Frequency: 826.4 MHz, Frequency: 2442 MHz; Duty Cycle: 1:1

Medium: BSL850, Medium: BSL2450; Medium Notes: $t = 22.0$ C, Medium Notes: $t = 21.8$ C

Medium parameters used (interpolated): $f = 826.4$ MHz; $\sigma = 0.997$ mho/m; $\epsilon_r = 52.7$; $\rho = 1000$ kg/m³, Medium parameters used: $f = 2442$ MHz; $\sigma = 1.96$ mho/m; $\epsilon_r = 50.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY5/DASY4 Configuration:

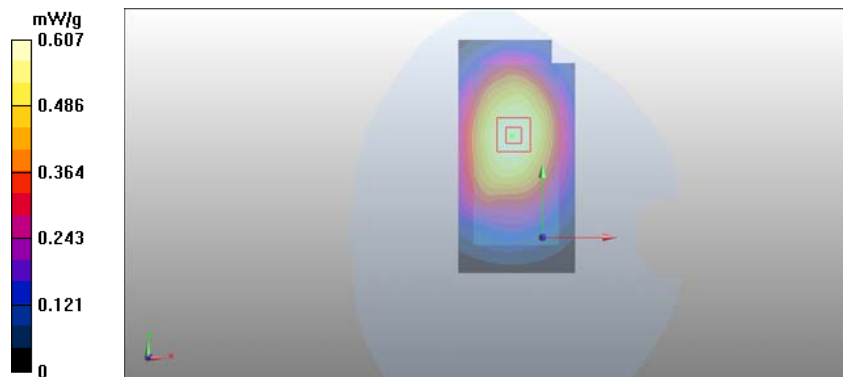
- Probe: ES3DV3 - SN3194, Probe: EX3DV4 - SN3573
- ConvF(5.95, 5.95, 5.95), ConvF(6.8, 6.8, 6.8); Calibrated: 2010-09-09, Calibrated: 2011-02-17
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
- Electronics: DAE4 Sn538, Electronics: DAE4 Sn793; Calibrated: 2010-09-09, Calibrated: 2010-09-08
- Phantom: SAM 1, Phantom: SAM2; Type: Twin SAM 040 CA, Type: SAM; Serial: TP-1179, Serial: TP-1570
- Measurement SW: DASY52.6.1.408; Postprocessing SW: SEMCAD X Version 14.0 Build 61; Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Configuration/Body - Low - No accessory - Back Facing Phantom/Area Scan (6x11x1): Measurement grid:
 $dx=15$ mm, $dy=15$ mm

Configuration/Body - Middle - No Accessory - Back Facing Phantom/Area Scan (6x11x1): Measurement grid:
 $dx=15$ mm, $dy=15$ mm

Motorola Fast SAR of Combined Scans: SAR(1 g) = 0.576 mW/g
SAR(10 g) = 0.406 mW/g

Maximum value of SAR (measured) = 0.607 mW/g



Date/Time: 2011-06-03 12:09:42, Date/Time: 2011-06-09 08:56:11

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200835/4

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

Frequency: 1712.4 MHz, Frequency: 2442 MHz; Duty Cycle: 1:1

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

Medium parameters used (interpolated): f = 1712.4 MHz; σ = 1.42 mho/m; ϵ_r = 51.8; ρ = 1000 kg/m³, Medium parameters used: f = 2442 MHz; σ = 1.96 mho/m; ϵ_r = 50.4; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3165, Probe: EX3DV4 - SN3573
- ConvF(4.91, 4.91, 4.91), ConvF(6.8, 6.8, 6.8); Calibrated: 2011-02-17
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- 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; Postprocessing SW: SEMCAD, V1.8 Build 176

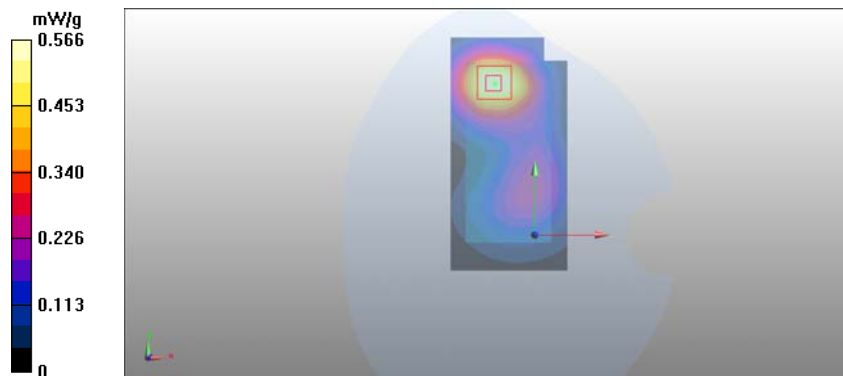
Configuration/Body - Low - No Accessory - Display Facing Phantom/Area Scan (6x11x1): Measurement grid: dx=15mm, dy=15mm

Configuration/Body - Middle - No Accessory - Display Facing Phantom/Area Scan (6x11x1): Measurement grid: dx=15mm, dy=15mm

Motorola Fast SAR of Combined Scans: SAR(1 g) = 0.525 mW/g

SAR(10 g) = 0.319 mW/g

Maximum value of SAR (measured) = 0.566 mW/g



Date/Time:2011-06-16 13:17:20, Date/Time: 2011-06-09 08:56:11

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200835/4

Communication System: GSM1900, Communication System: WLAN2450 b-mode

Frequency: 1880 MHz; Frequency: 2442 MHz; Duty Cycle: 1:8.3, Duty Cycle: 1:1

Medium: BSL1900, Medium: BSL2450; Medium Notes: t= 21.8 C

Medium parameters used: f = 1880 MHz; $\sigma = 1.49$ mho/m; $\epsilon_r = 53$; $\rho = 1000$ kg/m³, Medium parameters used: f = 2442 MHz; $\sigma = 1.96$ mho/m; $\epsilon_r = 50.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3165, Probe: EX3DV4 - SN3573
- ConvF(4.61, 4.61, 4.61), ConvF(6.8, 6.8, 6.8); Calibrated: 2011-02-17
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- 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; Postprocessing SW: SEMCAD, V1.8 Build 176

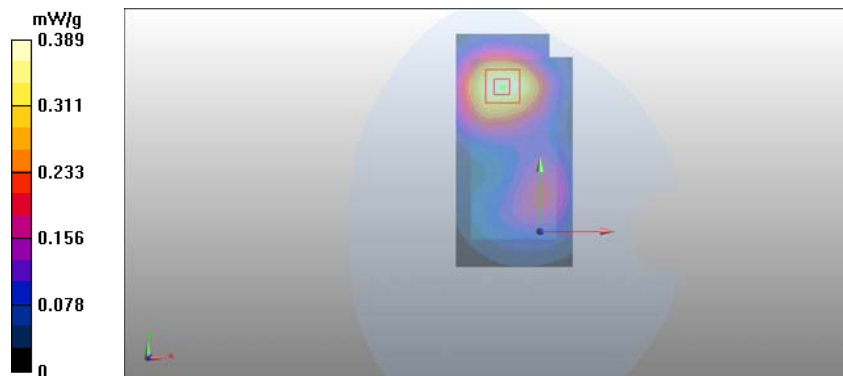
Configuration/Body - Low - No Accessory - Display Facing Phantom/Area Scan (6x11x1): Measurement grid:
dx=15mm, dy=15mm

Configuration/Body - Middle - No Accessory - Display Facing Phantom/Area Scan (6x11x1): Measurement grid:
dx=15mm, dy=15mm

Motorola Fast SAR of Combined Scans: SAR(1 g) = 0.358 mW/g

SAR(10 g) = 0.214 mW/g

Maximum value of SAR (measured) = 0.389 mW/g



Date/Time: 2011-05-27 11:38:39, Date/Time: 2011-06-09 08:56:11

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200835/4

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= 21.5 C, Medium Notes: t= 21.8 C

Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.49 mho/m; ϵ_r = 52.4; ρ = 1000 kg/m³, Medium parameters used: f = 2442 MHz; σ = 1.96 mho/m; ϵ_r = 50.4; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3165, Probe: EX3DV4 - SN3573
- ConvF(4.61, 4.61, 4.61), ConvF(6.8, 6.8, 6.8); Calibrated: 2011-02-17
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- 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; Postprocessing SW: SEMCAD, V1.8 Build 176

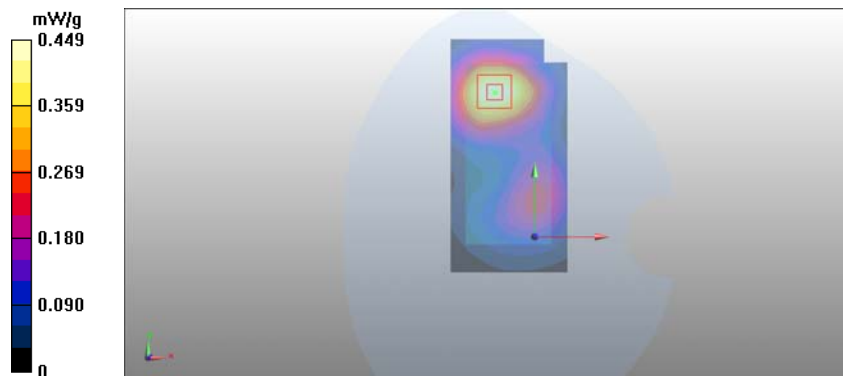
Configuration/Body - Low - No Accessory - Display Facing Phantom/Area Scan (6x11x1): Measurement grid:
dx=15mm, dy=15mm

Configuration/Body - Middle - No Accessory - Display Facing Phantom/Area Scan (6x11x1): Measurement grid:
dx=15mm, dy=15mm

Motorola Fast SAR of Combined Scans: SAR(1 g) = 0.414 mW/g

SAR(10 g) = 0.249 mW/g

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



APPENDIX C: CONDUCTED AVERAGE POWER MEASUREMENTS FOR WCDMA AND HSUPA

Test Laboratory: TCC Nokia

Type: RM-681V; Serial: 004402/13/200811/5, HW:3000, SW:022.601

C.1. WCDMA850 Test results

Average power

Ch	P [dBm]
4133	22.17
4175	22.53
4232	22.41

C.2. HSUPA850 Test results

Average power

Ch	P [dBm]				
	Subtest mode 1	Subtest mode 2	Subtest mode 3	Subtest mode 4	Subtest mode 5
4133	19.23	19.39	20.28	19.21	21.12
4175	19.80	19.99	20.74	20.00	21.88
4232	19.73	19.94	20.72	19.74	21.67

Note: In HSUPA operation, the output power is reduced relative to the tuning target power for WCDMA. This device runs two separate HSUPA power control routines: MPR and E-TFC MPR. In each Subtest mode, the routine with the higher power reduction dominates. In addition, to ensure linearity of the PA output, a further 0.5dB power reduction for all Subtest modes is implemented. As a result, the MPR for each of the Subtest modes is as follows:

Maximum Power Reduction (MPR)				
Subtest mode 1	Subtest mode 2	Subtest mode 3	Subtest mode 4	Subtest mode 5
2.0dB	2.5dB	1.5dB	2.5dB	0.5dB

Test Laboratory: TCC Nokia
Type: RM-681V; Serial: 004402/13/200811/5, HW:3000, SW:022.601

C.3. WCDMA1700/2100 Test results

Average power

Ch	P [dBm]
1313	20.90
1450	20.39
1512	20.44

C.4. HSUPA1700/2100 Test results

Average power

Ch	P [dBm]				
	Subtest mode 1	Subtest mode 2	Subtest mode 3	Subtest mode 4	Subtest mode 5
1313	17.83	18.01	19.05	18.03	19.97
1450	17.55	17.97	19.01	17.80	19.91
1512	17.55	17.77	18.82	17.57	19.75

Note: In HSUPA operation, the output power is reduced relative to the tuning target power for WCDMA. This device runs two separate HSUPA power control routines: MPR and E-TFC MPR. In each Subtest mode, the routine with the higher power reduction dominates. As a result, the MPR for each of the Subtest modes is as follows:

Maximum Power Reduction (MPR)				
Subtest mode 1	Subtest mode 2	Subtest mode 3	Subtest mode 4	Subtest mode 5
1.5dB	2.0dB	1.0dB	2.0dB	0.0dB

Test Laboratory: TCC Nokia
Type: RM-681V; Serial: 004402/13/200811/5, HW:3000, SW:022.601

C.5. WCDMA1900 Test results

Average power

Ch	P [dBm]
9263	20.33
9400	20.00
9537	20.24

C.6. HSUPA1900 Test results

Average power

Ch	P [dBm]				
	Subtest mode 1	Subtest mode 2	Subtest mode 3	Subtest mode 4	Subtest mode 5
9263	17.32	17.31	19.10	18.09	19.94
9400	17.13	17.88	18.93	17.94	19.87
9537	17.99	17.95	19.02	18.01	19.94

Note: In HSUPA operation, the output power is reduced relative to the tuning target power for WCDMA. This device runs two separate HSUPA power control routines: MPR and E-TFC MPR. In each Subtest mode, the routine with the higher power reduction dominates. As a result, the MPR for each of the Subtest modes is as follows:

Maximum Power Reduction (MPR)				
Subtest mode 1	Subtest mode 2	Subtest mode 3	Subtest mode 4	Subtest mode 5
1.5dB	2.0dB	1.0dB	2.0dB	0.0dB

APPENDIX D: 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.



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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.



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Accreditation No.: SCS 108

Client Nokia Salo TCC

Certificate No: EX3-3573_Feb11

CALIBRATION CERTIFICATE

Object EX3DV4 - SN:3573

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

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

Issued: February 22, 2011

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DASY/EASY - Parameters of Probe: EX3DV4 - SN:3573

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)	Unct. (k=2)
835	41.5	0.90	8.39	8.39	8.39	0.71	0.69	± 12.0 %
1750	40.1	1.37	7.66	7.66	7.66	0.79	0.65	± 12.0 %
1900	40.0	1.40	7.37	7.37	7.37	0.79	0.66	± 12.0 %
2450	39.2	1.80	6.69	6.69	6.69	0.74	0.63	± 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: EX3DV4- SN:3573

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	8.42	8.42	8.42	0.70	0.77	± 12.0 %
1750	53.4	1.49	7.56	7.56	7.56	0.79	0.69	± 12.0 %
1900	53.3	1.52	7.16	7.16	7.16	0.79	0.68	± 12.0 %
2450	52.7	1.95	6.80	6.80	6.80	0.79	0.62	± 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 E: RELEVANT PAGES FROM DIPOLE VALIDATION KIT REPORT(S)

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Accreditation No.: **SCS 108**

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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

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

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

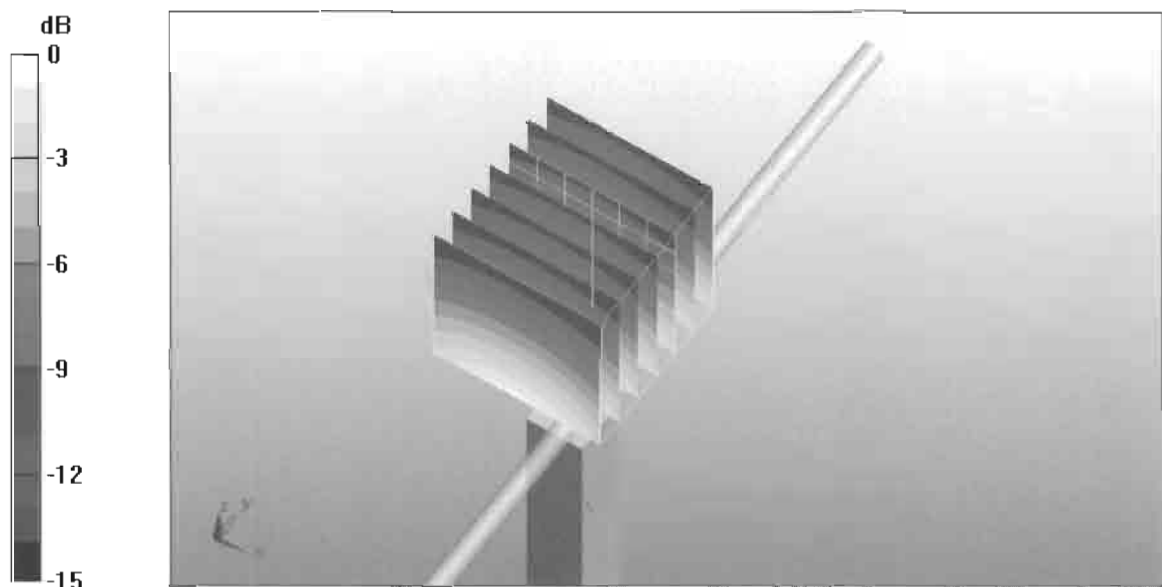
Pin=250 mW /d=15mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

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

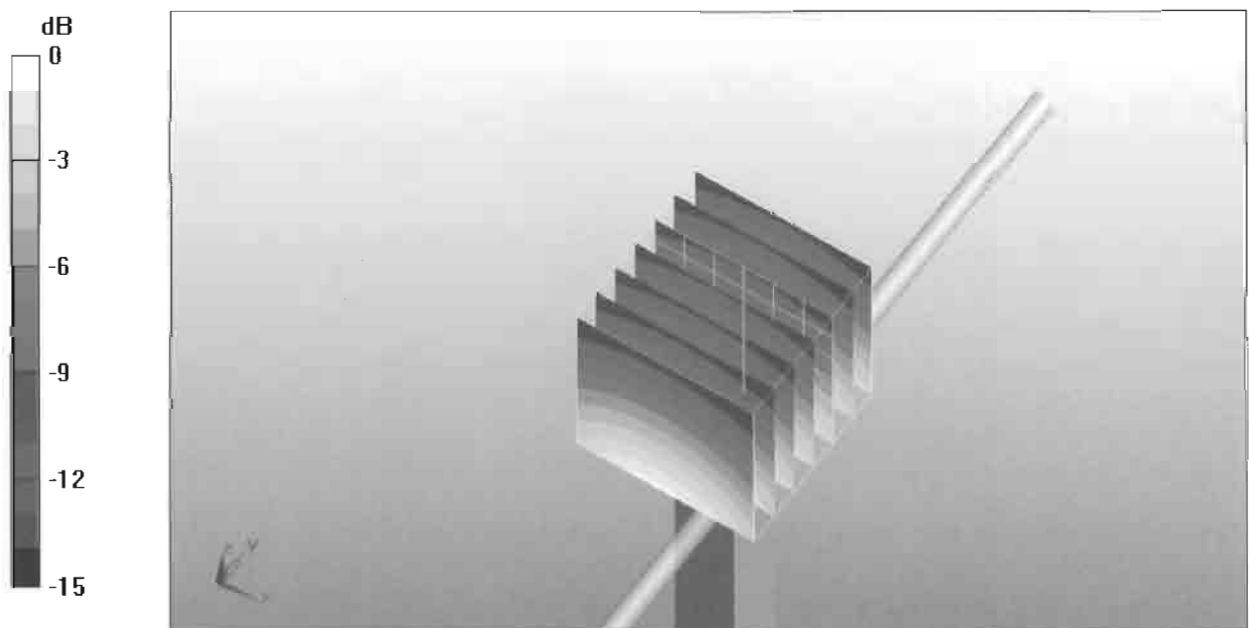
grid: dx=5mm, dy=5mm, dz=5mm

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

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

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

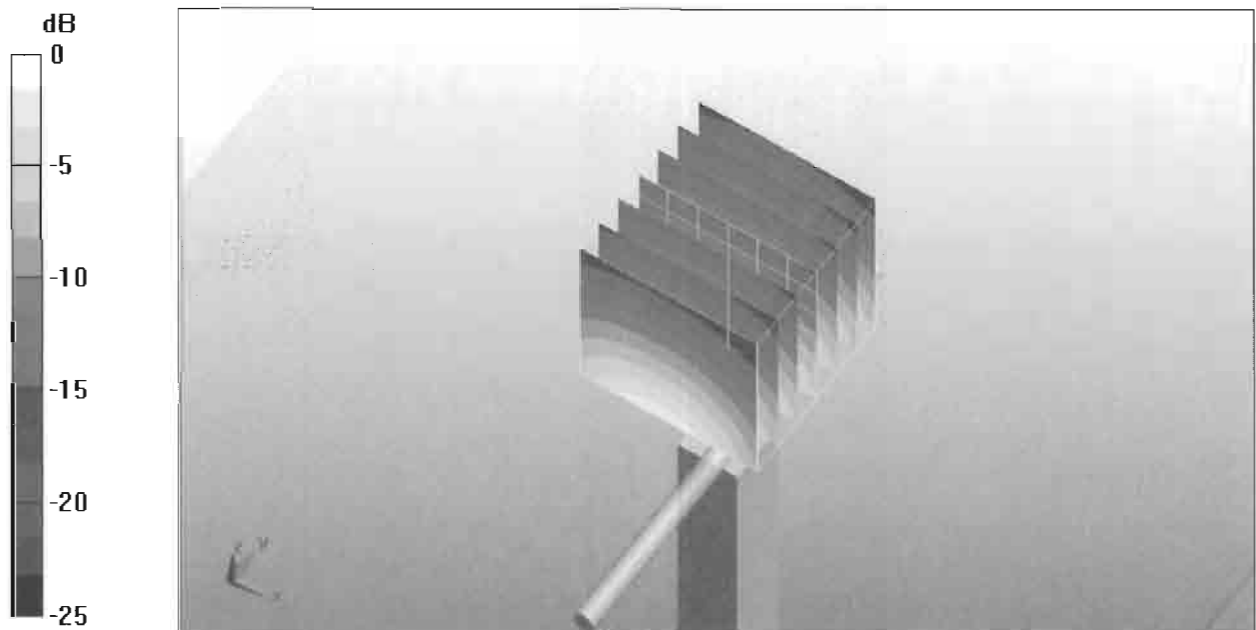
Pin=250 mW /d=10mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

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

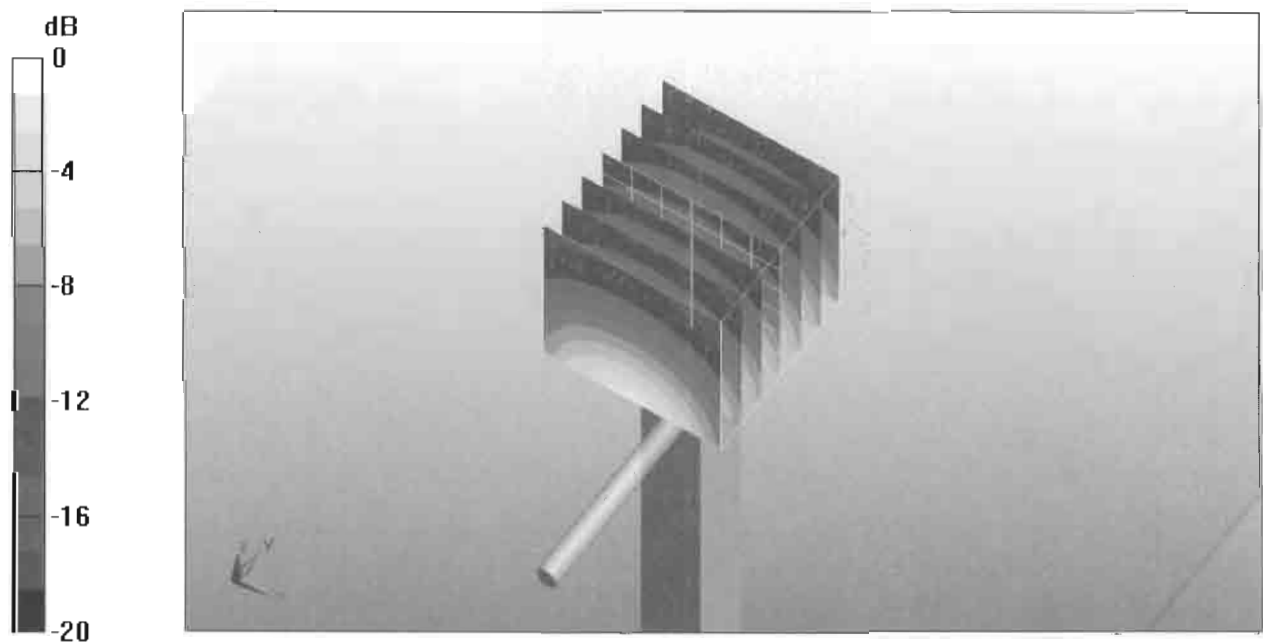
grid: dx=5mm, dy=5mm, dz=5mm

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

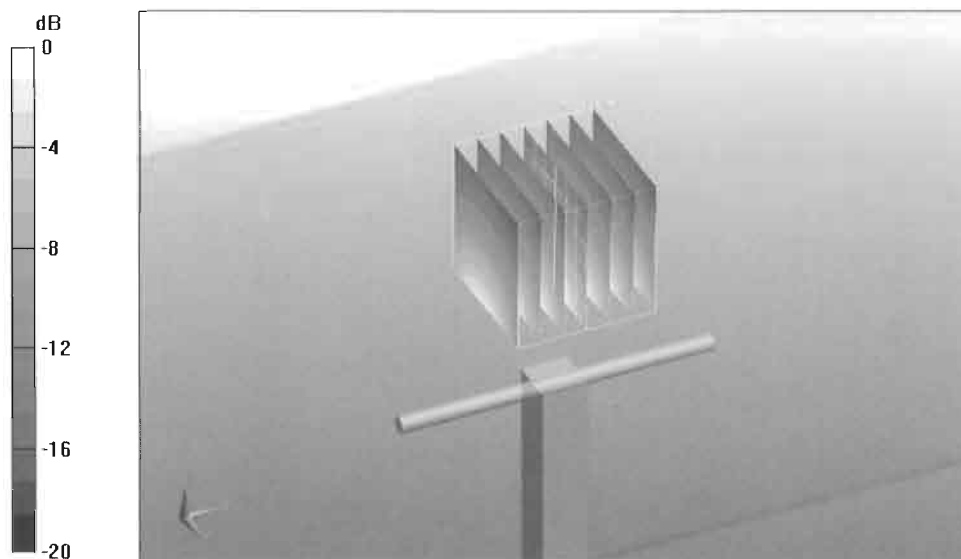
Pin=250 mW /d=10mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) /Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

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

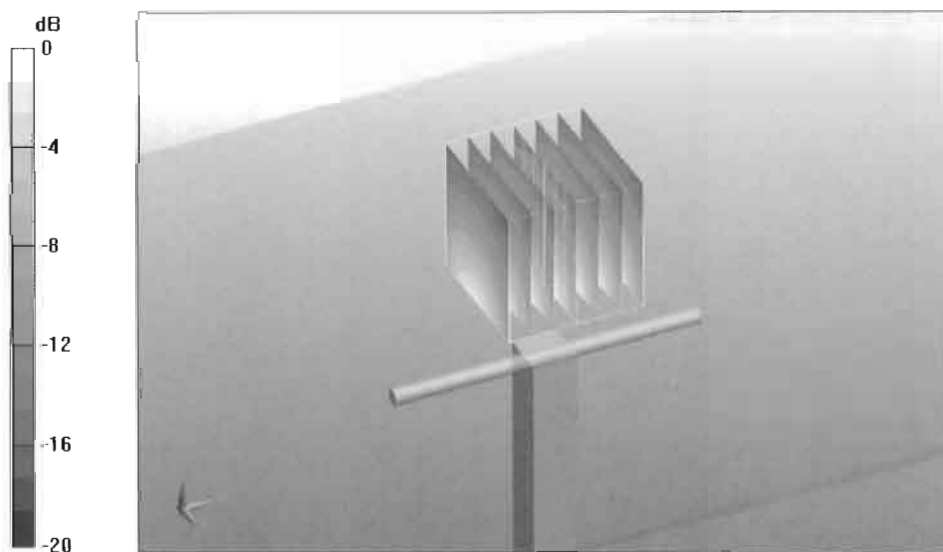
Pin250 mW /d=10mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) /Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

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



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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 108

Client **Nokia Salo TCC** Certificate No: **D2450V2-749_Oct09**

CALIBRATION CERTIFICATE

Object **D2450V2 - SN: 749**

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

Calibration date: **October 21, 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	

Issued: October 22, 2009

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

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:749

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: HSL U11 BB

Medium parameters used: $f = 2450 \text{ MHz}$; $\sigma = 1.78 \text{ mho/m}$; $\epsilon_r = 39.1$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.53, 4.53, 4.53); 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

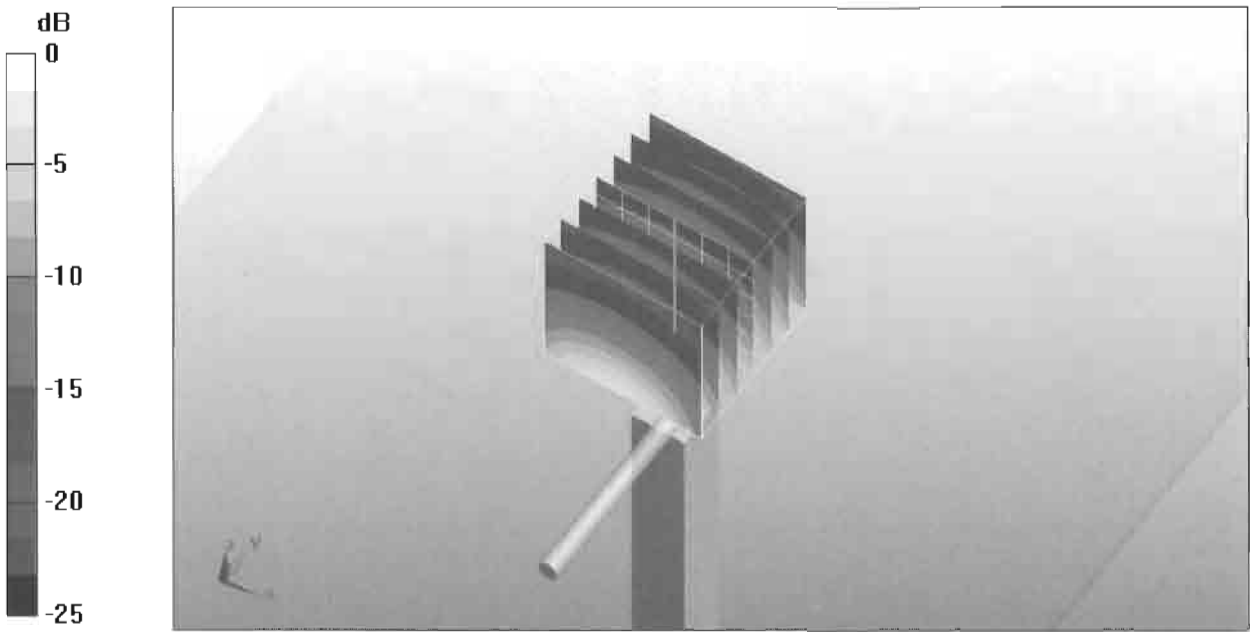
Pin=250 mW /d=10mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 100.7 V/m; Power Drift = 0.078 dB

Peak SAR (extrapolated) = 26.8 W/kg

SAR(1 g) = 13.2 mW/g; SAR(10 g) = 6.18 mW/g

Maximum value of SAR (measured) = 16.9 mW/g



0 dB = 16.9mW/g

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:749

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: MSL U10 BB

Medium parameters used: $f = 2450 \text{ MHz}$; $\sigma = 1.98 \text{ mho/m}$; $\epsilon_r = 52.7$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.31, 4.31, 4.31); 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

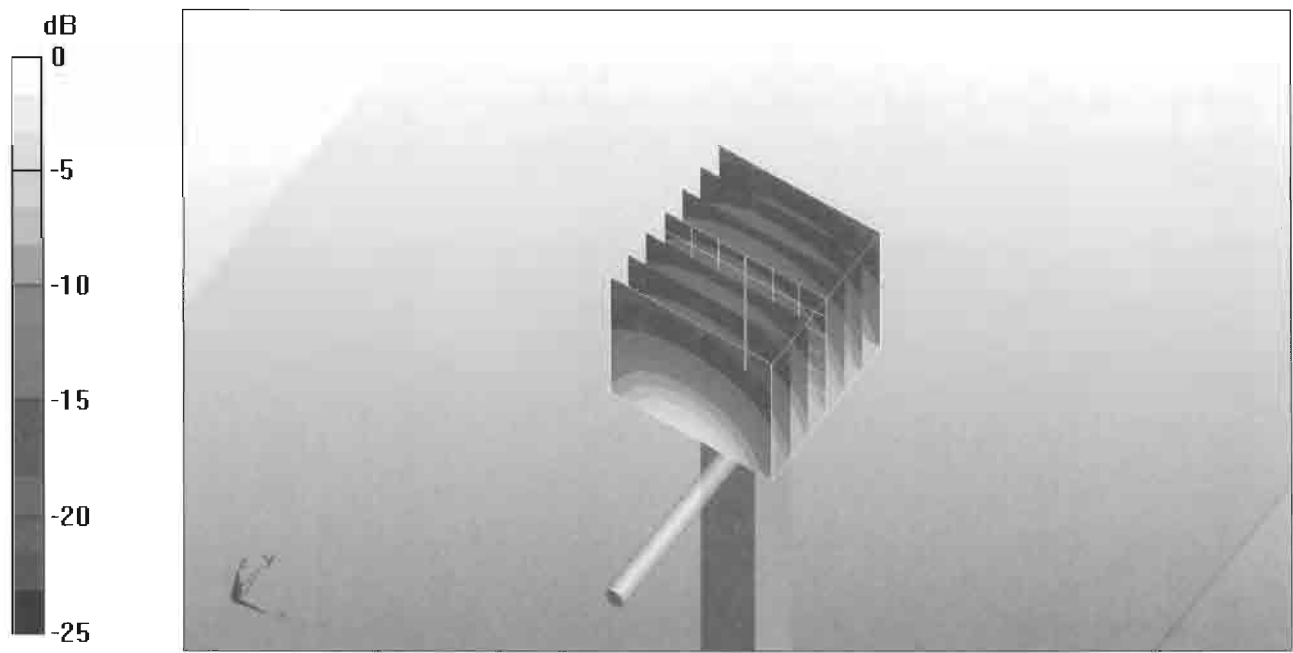
Pin250 mW /d=10mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 93.9 V/m; Power Drift = 0.046 dB

Peak SAR (extrapolated) = 25.8 W/kg

SAR(1 g) = 12.5 mW/g; SAR(10 g) = 5.81 mW/g

Maximum value of SAR (measured) = 16.4 mW/g



0 dB = 16.4mW/g