TCC
Nokia

SAR Compliance Test Report

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Tested device:	RM-779		
FCC ID:	LJPRM-779	**IC:**	-
Supplement reports:	FCC_RM-779_03, SAR_Photo_RM-779_07		
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	2011-10-27 to 2011-11-01
SN, HW and SW numbers of tested device	SN: 358647/04/000484/4, HW: 0702, SW: 111.020.0310, DUT: 23384
Batteries used in testing	BP-3L Sony, DUT: 23386 BP-3L LG, DUT: 23470, 23471
Headsets used in testing	WH-207, DUT: 23387
Other accessories used in testing	-
State of sample	Prototype unit
Notes	-

1.2 Maximum Results

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

1.2.1 Head Configuration

Mode	Ch / *f* (MHz)	Conducted power	Position	Measured SAR value (1g avg)	Scaled* SAR value (1g avg)	SAR limit (1g avg)	Result
4-slot GPRS850	251 / 848.8	28.0 dBm	Left, Cheek	1.07 W/kg	**1.20 W/kg**	1.6 W/kg	PASSED
WCDMA850	4175 / 835.0	23.5 dBm	Left, Cheek	0.906 W/kg	**1.01 W/kg**	1.6 W/kg	PASSED
WCDMA1700/2100	1513 / 1752.6	23.5 dBm	Right, Cheek	0.536 W/kg	**0.60 W/kg**	1.6 W/kg	PASSED
2-slot GPRS1900	661 / 1880.0	29.5 dBm	Left, Cheek	0.844 W/kg	**0.95 W/kg**	1.6 W/kg	PASSED
WCDMA1900	9262 / 1852.4	23.0 dBm	Left, Cheek	0.721 W/kg	**0.81 W/kg**	1.6 W/kg	PASSED
WLAN2450**	7 / 2442.0	17.5 dBm	Left, Cheek	0.291 W/kg	**0.33 W/kg**	1.6 W/kg	PASSED
4-slot GPRS850 + WLAN2450	-	-	Left, Cheek	1.09 W/kg	**1.22 W/kg**	1.6 W/kg	PASSED
WCDMA850 + WLAN2450	-	-	Left, Cheek	0.924 W/kg	**1.03 W/kg**	1.6 W/kg	PASSED
WCDMA1700/2100 + WLAN2450	-	-	Right, Cheek	0.566 W/kg	**0.63 W/kg**	1.6 W/kg	PASSED
2-slot GPRS1900 + WLAN2450	-	-	Left, Cheek	0.844 W/kg	**0.95 W/kg**	1.6 W/kg	PASSED
WCDMA1900 + WLAN2450	-	-	Left, Cheek	0.721 W/kg	**0.81 W/kg**	1.6 W/kg	PASSED

1.2.2 Body Worn Configuration

Mode	Ch / *f* (MHz)	Conducted power	Separation distance	Measured SAR value (1g avg)	Scaled* SAR value (1g avg)	SAR limit (1g avg)	Result
4-slot GPRS850	251 / 848.8	28.0 dBm	2.2cm	0.894 W/kg	**1.00 W/kg**	1.6 W/kg	PASSED
WCDMA850	4175 / 835.0	23.5 dBm	2.2cm	0.580 W/kg	**0.65 W/kg**	1.6 W/kg	PASSED
WCDMA1700/2100	1312 / 1712.4	23.5 dBm	2.2cm	0.856 W/kg	**0.96 W/kg**	1.6 W/kg	PASSED
2-slot GPRS1900	512 / 1850.2	29.5 dBm	2.2cm	0.896 W/kg	**1.00 W/kg**	1.6 W/kg	PASSED
WCDMA1900	9262 / 1852.4	23.0 dBm	2.2cm	0.707 W/kg	**0.79 W/kg**	1.6 W/kg	PASSED
WLAN2450**	7 / 2442.0	17.5 dBm	2.2cm	0.074 W/kg	**0.08 W/kg**	1.6 W/kg	PASSED
4-slot GPRS850 + WLAN2450	-	-	2.2cm	0.913 W/kg	**1.02 W/kg**	1.6 W/kg	PASSED
WCDMA850 + WLAN2450	-	-	2.2cm	0.584 W/kg	**0.65 W/kg**	1.6 W/kg	PASSED
WCDMA1700/2100 + WLAN2450	-	-	2.2cm	0.863 W/kg	**0.97 W/kg**	1.6 W/kg	PASSED
2-slot GPRS1900 + WLAN2450	-	-	2.2cm	0.902 W/kg	**1.01 W/kg**	1.6 W/kg	PASSED
WCDMA1900 + WLAN2450	-	-	2.2cm	0.721 W/kg	**0.81 W/kg**	1.6 W/kg	PASSED

* SAR values are scaled up by 12% to cover measurement drift. As a consequence of this upwards correction of the SAR values, the contribution of measurement drift to the overall measurement uncertainty (Section 6) is reduced to zero.
**SAR data taken from report FCC_RM-779_03.

1.2.3 Maximum Drift

Maximum drift covered by 12% scaling up of the SAR values	Maximum drift during measurements
0.5dB	0.38 dB

1.2.4 Measurement Uncertainty

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

2. DESCRIPTION OF THE DEVICE UNDER TEST

Device category	Portable
Exposure environment	General population / uncontrolled

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

Outside of USA and Canada, the transmitter of the device is capable of operating also in GSM/GPRS/EGPRS900, GSM/GPRS/EGPRS1800, WCDMA900 and WCDMA2100 bands which are not part of this filing.

2.1 Description of the Antenna

The device has internal antennas for both cellular and WLAN use. The cellular antenna is located at the bottom 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 - 22.5
Ambient humidity (RH %):	35 - 55

3.2 Test Signal, Frequencies and Output Power

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

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

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 number of test cases reported in this document has been minimised based on the earlier testing in FCC_RM-779_03. Some of the SAR results given in this report are taken from the same earlier report.

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
DAE4	339	12 months	2012-02
DAE4	501	12 months	2012-02
DAE4	682	12 months	2012-07
E-field Probe ES3DV3	3116	12 months	2012-02
E-field Probe ES3DV3	3117	12 months	2012-07
E-field Probe EX3DV4	3581	12 months	2012-07
Dipole Validation Kit, D835V2	4d042	24 months	2012-07
Dipole Validation Kit, D1800V2	2d075	24 months	2012-02
Dipole Validation Kit, D1900V2	5d063	24 months	2012-02
DASY4 software	Version 4.7	-	-

Additional test equipment used in testing:

Test Equipment	Model	Serial Number	Calibration interval	Calibration expiry
Signal Generator	SME06	848650/011	36 months	2012-02
Signal Generator	SME06	829445/008	36 months	2012-02
Signal Generator	SMIQ03	826046/034	36 months	2012-08
Amplifier	ZHL-42W	E012903	-	-
Amplifier	AR-5S1G4	306024	-	-
Amplifier	ZHL-4240W	E060204/1	-	-
Power Meter	NRP	100808	24 months	2012-04
Power Meter	NRP	101293	24 months	2012-08
Power Meter	NRVD	833696/030	24 months	2013-03
Power Sensor	NRP-Z51	100410	24 months	2012-04
Power Sensor	NRP-Z51	100830	24 months	2012-08
Power Sensor	NRV-Z51	100184	24 months	2013-03
Call Tester	CMU200	105900	-	-
Call Tester	CMU200	110735	-	-
Call Tester	CMU200	831593	-	-
Vector Network Analyzer	AT8753ES	MY40001091	12 months	2012-08
Dielectric Probe Kit	HP85070B	US33020403	-	-

4.1.1 Isotropic E-field Probe Type ES3DV3

Construction	Symmetrical design with triangular core Interleaved sensors Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., butyl diglycol)
Calibration	Calibration certificate in Appendix C
Frequency	10 MHz to 4 GHz (dosimetry); Linearity: ± 0.2 dB (30 MHz to 4 GHz)
Directivity	± 0.2 dB in HSL (rotation around probe axis) ± 0.3 dB in HSL (rotation normal to probe axis)
Dynamic Range	5 µW/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 Distance from probe tip to dipole centers: 2.0 mm
Application	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 C
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 µW/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 ± 5% of the recommended values. All tests were carried out within 24 hours of measuring the dielectric parameters.

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

4.3.1 Tissue Simulant Recipes

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

800MHz band

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

1800MHz band

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

1900MHz band

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

4.3.2 System Checking

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

System checking, head tissue simulant

f [MHz]	Description	SAR [W/kg], 1g	Dielectric Parameters		Temp [°C]
			ε_r	σ [S/m]	
	Reference result	2.38	42.1	0.90	
	± 10% window	2.14 – 2.62			
835	2011-10-27	2.53	40.1	0.89	22.0
	Reference result	9.50	39.4	1.37	
	± 10% window	8.55 - 10.45			
1800	2011-10-31	9.42	38.7	1.40	22.0
	Reference result	9.98	39.2	1.42	
	± 10% window	8.98 - 10.98			
1900	2011-11-01	10.8	39.0	1.43	21.5

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

4.3.3 Tissue Simulants used in the Measurements

Head tissue simulant measurements

F [MHz]	Description	Dielectric Parameters		Temp [°C]
		ε_r	σ [S/m]	
	Recommended value	41.5	0.90	
	± 5% window	39.4 – 43.6	0.86 – 0.95	
835	2011-10-27	40.1	0.89	22.0
	Recommended value	41.5	0.90	
	± 5% window	39.4 – 43.6	0.86 – 0.95	
836	2011-10-27	40.2	0.89	22.0
	Recommended value	40.1	1.36	
	± 5% window	38.1 – 42.1	1.29 – 1.43	
1732	2011-10-31	38.9	1.33	22.0
	Recommended value	40.0	1.40	
	± 5% window	38.0 – 42.0	1.33 – 1.47	
1880	2011-11-01	39.0	1.41	21.5

Body tissue simulant measurements

F [MHz]	Description	Dielectric Parameters		Temp [°C]
		ε_r	σ [S/m]	
	Recommended value	55.2	0.97	
	± 5% window	52.4 – 58.0	0.92 – 1.02	
835	2011-10-27	53.3	0.97	22.0
	Recommended value	55.2	0.97	
	± 5% window	52.4 – 58.0	0.92 – 1.02	
836	2011-10-27	53.4	0.97	22.0
	Recommended value	53.5	1.48	
	± 5% window	50.8 – 56.2	1.40 – 1.55	
1732	2011-10-31	52.4	1.44	22.0
	Recommended value	53.3	1.52	
	± 5% window	50.6 – 56.0	1.44 – 1.60	
1880	2011-11-01	50.8	1.52	22.0

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” 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.

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	$c_i . u_i$ (%)	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
4-slot GPRS	Conducted Power		28.0 dBm	28.0 dBm	28.0 dBm
BP-3L LG	Left	Cheek	0.871	0.975	**1.07**
		Tilt	-	-	-
	Right	Cheek	-	-	-
		Tilt	-	-	-
Mode	**Test configuration**		**Ch 4132 826.4 MHz**	**Ch 4175 835.0 MHz**	**Ch 4233 846.6 MHz**
WCDMA	Conducted Power		23.5 dBm	23.5 dBm	23.5 dBm
BP-3L LG	Left	Cheek	0.720	**0.906**	0.828
		Tilt	-	-	-
	Right	Cheek	-	-	-
		Tilt	-	-	-

1700/2100MHz Head 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		23.5 dBm	23.5 dBm	23.5 dBm
BP-3L LG	Left	Cheek	-	-	-
		Tilt	-	-	-
	Right	Cheek	0.470	0.444	**0.536**
		Tilt	-	-	-

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
2-slot GPRS	Conducted Power		29.5 dBm	29.5 dBm	29.5 dBm
BP-3L Sony	Left	Cheek	0.820	**0.844**	0.828
		Tilt	-	-	-
	Right	Cheek	-	-	-
		Tilt	-	-	-
Mode	**Test configuration**		**Ch 9262 1852.4 MHz**	**Ch 9400 1880.0 MHz**	**Ch 9538 1907.6 MHz**
WCDMA	Conducted Power		23.0 dBm	23.0 dBm	23.0 dBm
BP-3L Sony	Left	Cheek	**0.721**	0.686	0.676
		Tilt	-	-	-
	Right	Cheek	-	-	-
		Tilt	-	-	-

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		15.0 dBm	17.5 dBm	15.0 dBm
BP-3L Sony	Left	Cheek	0.157	**0.279**	0.161
		Tilt	-	0.209	-
	Right	Cheek	-	0.242	-
		Tilt	-	0.187	-
WLAN n-mode 20MHz	Conducted Power		13.5 dBm	16.5 dBm	13.5 dBm
BP-3L Sony	Left	Cheek	0.124	0.218	0.128
		Tilt	-	-	-
	Right	Cheek	-	-	-
		Tilt	-	-	-
WLAN b-mode BP-3L LG	Left Cheek		0.155	**0.291**	0.167

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
4-slot GPRS		**Conducted Power**	**28.0 dBm**	**28.0 dBm**	**28.0 dBm**
BP-3L LG	Display facing phantom	Without headset	-	-	-
		Headset WH-207	-	-	-
	Back facing phantom	Without headset	0.839	0.882	**0.894**
		Headset WH-207	-	-	-

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**	**23.5 dBm**	**23.5 dBm**	**23.5 dBm**
BP-3L LG	Display facing phantom	Without headset	0.487	**0.580**	0.576
		Headset WH-207	-	-	-
	Back facing phantom	Without headset	-	-	-
		Headset WH-207	-	-	-

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**	**23.5 dBm**	**23.5 dBm**	**23.5 dBm**
BP-3L Sony	Display facing phantom	Without headset	-	-	-
		Headset WH-207	-	-	-
	Back facing phantom	Without headset	**0.856**	0.689	0.852
		Headset WH-207	-	-	-

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
2-slot GPRS		**Conducted Power**	**29.5 dBm**	**29.5 dBm**	**29.5 dBm**
BP-3L Sony	Display facing phantom	Without headset	-	-	-
		Headset WH-207	-	-	-
	Back facing phantom	Without headset	-	-	-
		Headset WH-207	**0.896**	0.771	0.618
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**	**23.0 dBm**	**23.0 dBm**	**23.0 dBm**
BP-3L Sony	Display facing phantom	Without headset	-	-	-
		Headset WH-207	-	-	-
	Back facing phantom	Without headset	-	-	-
		Headset WH-207	**0.707**	0.587	0.513

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**	**15.0 dBm**	**17.5 dBm**	**15.0 dBm**
BP-3L Sony	Display facing phantom	Without headset	-	0.034	-
		Headset WH-207	-	0.029	-
	Back facing Phantom	Without headset	-	0.062	-
		Headset WH-207	0.037	0.071	0.041
WLAN b-mode BP-3L LG	Back facing phantom	Headset WH-207	0.039	**0.074**	0.046
WLAN n-mode 20MHz		**Conducted Power**	**13.5 dBm**	**16.5 dBm**	**13.5 dBm**
BP-3L LG	Display facing phantom	Without headset	-	-	-
		Headset WH-207	-	-	-
	Back facing phantom	Without headset	-	-	-
		Headset WH-207	0.029	0.055	0.034

Simultaneous transmissions: Combined SAR results – Individual band Max results

Test configuration	Max. 1g SAR results					
	WLAN**	4-slot GPRS850	WCDMA 850	WCDMA 1700/2100	2-slot GPRS1900	WCDMA 1900
Head: Left, Cheek	0.291	1.07	0.906	-	0.844	0.721
Head: Left, Tilt	0.209	-	-	-	-	-
Head: Right, Cheek	0.242	-	-	0.536	-	-
Head: Right, Tilt	0.187	-	-	-	-	-
Body: Display facing phantom, Without Headset	0.034	-	0.580	-	-	-
Body: Display facing phantom, Headset WH-207	0.029	-	-	-	-	-
Body: Back facing phantom, Without Headset	0.062	0.894	-	0.856	-	-
Body: Back facing phantom, Headset WH-207	0.074	-	-	-	0.896	0.707

**SAR data taken from report FCC_RM-779_03.

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

Test configuration	Max. 1g SAR results				
	4-slot GPRS850 + WLAN	WCDMA 850 + WLAN	WCDMA 1700/2100 + WLAN	2-slot GPRS1900 + WLAN	WCDMA 1900 + WLAN
Head: Left, Cheek	**1.361**	**1.197**	-	**1.135**	**1.012**
Head: Left, Tilt	-	-	-	-	-
Head: Right, Cheek	-	-	**0.778**	-	-
Head: Right, Tilt	-	-	-	-	-
Body: Display facing phantom, Without Headset	-	**0.614**	-	-	-
Body: Display facing phantom, Headset WH-207	-	-	-	-	-
Body: Back facing phantom, Without Headset	**0.956**	-	**0.918**	-	-
Body: Back facing phantom, Headset WH-207	-	-	-	**0.970**	**0.781**

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				
	4-slot GPRS850 + WLAN	WCDMA 850 + WLAN	WCDMA 1700/2100 + WLAN	2-slot GPRS1900 + WLAN	WCDMA 1900 + WLAN
Head: Left, Cheek	**1.09**	**0.924**	-	**0.803**	**0.646**
Head: Left, Tilt	-	-	-	-	-
Head: Right, Cheek	-	-	**0.566**	-	-
Head: Right, Tilt	-	-	-	-	-
Body: Display facing phantom, Without Headset	-	**0.584**	-	-	-
Body: Display facing phantom, Headset WH-207	-	-	-	-	-
Body: Back facing phantom, Without Headset	**0.913**	-	**0.863**	-	-
Body: Back facing phantom, Headset WH-207	-	-	-	**0.902**	**0.721**

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

See the following pages

Date/Time: 2011-10-27 08:47:54

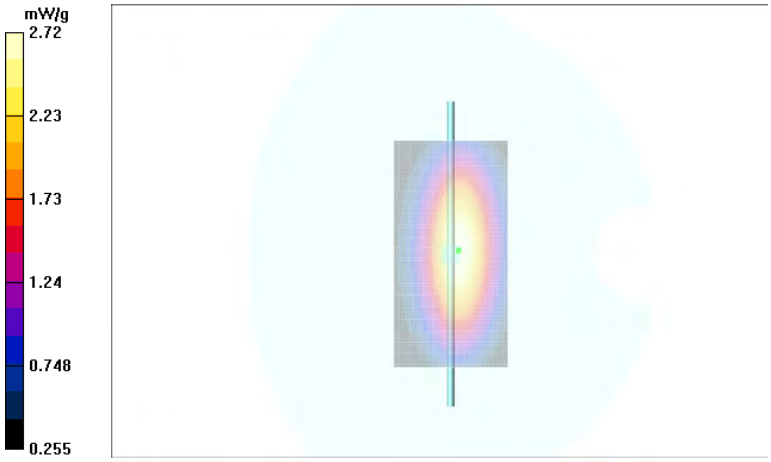
Test Laboratory: TCC Nokia
Type: D835V2; Serial: 4d042

Communication System: CW835
Frequency: 835 MHz; Duty Cycle: 1:1
Medium: Head 850; Medium Notes: Medium Temperature: 22.0 C
Medium parameters used: f = 835 MHz; σ = 0.889 mho/m; ε_r = 40.1; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3581; Probe Notes:
- ConvF(8.51, 8.51, 8.51); Calibrated: 2011-07-27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 3; Type: Twin Phantom; Serial: TP-1302
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

d=15mm, Pin=250mW/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 2.76 mW/g

d=15mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 55.1 V/m
Peak SAR (extrapolated) = 3.81 W/kg
SAR(1 g) = 2.53 mW/g
SAR(10 g) = 1.66 mW/g
Power Drift = -0.209 dB
Maximum value of SAR (measured) = 2.72 mW/g



Date/Time: 2011-10-31 09:22:17

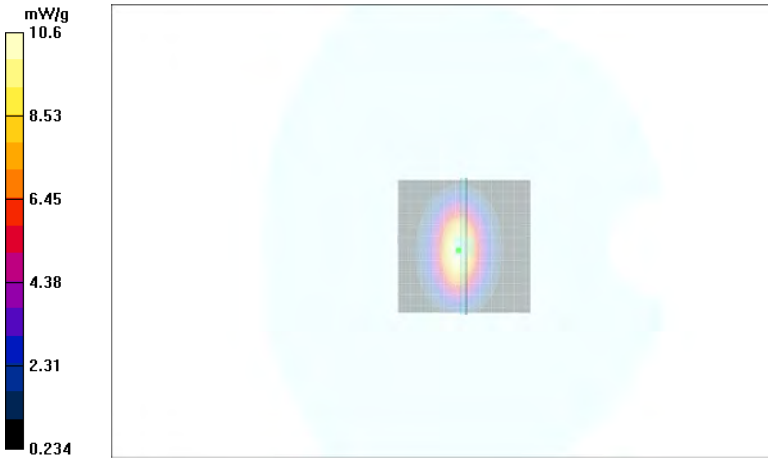
Test Laboratory: TCC Nokia
Type: D1800V2; Serial: 2d075

Communication System: CW1800
Frequency: 1800 MHz; Duty Cycle: 1:1
Medium: Head 1800; Medium Notes: Medium Temperature: 22.0 C
Medium parameters used: f = 1800 MHz; σ = 1.4 mho/m; ε_r = 38.7; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(5.29, 5.29, 5.29); Calibrated: 2011-02-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn339; Calibrated: 2011-02-18
- Phantom: SAM 4.5; Type: Twin Phantom; Serial: TP-1215
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

d=10mm, Pin=250mW/Area Scan (71x71x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 10.6 mW/g

d=10mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 86.1 V/m
Peak SAR (extrapolated) = 17.1 W/kg
SAR(1 g) = 9.42 mW/g
SAR(10 g) = 4.97 mW/g
Power Drift = 0.037 dB
Maximum value of SAR (measured) = 10.6 mW/g



Date/Time: 2011-11-01 09:13:05

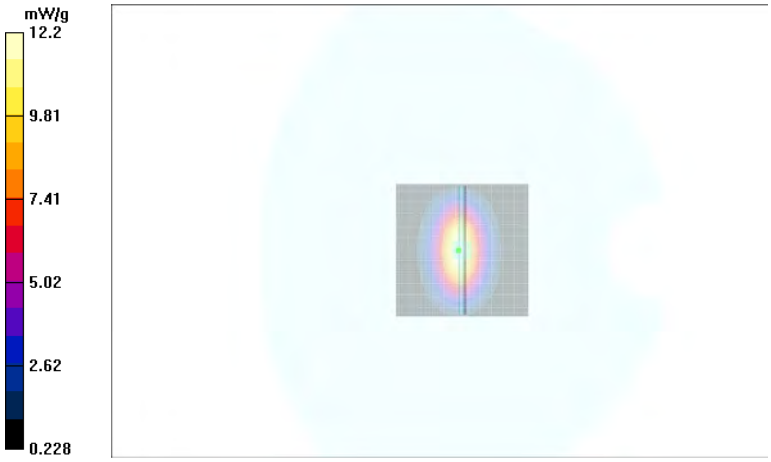
Test Laboratory: TCC Nokia
Type: D1900V2; Serial: 5d063

Communication System: CW1900
Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: Head 1900; Medium Notes: Medium Temperature: 21.5 C
Medium parameters used: f = 1900 MHz; σ = 1.43 mho/m; ε_r = 39; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.99, 4.99, 4.99); Calibrated: 2011-07-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2011-07-22
- Phantom: SAM 6; Type: SAM Twin Phantom; Serial: TP-1301
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

d=10mm, Pin=250mW/Area Scan (71x71x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 12.2 mW/g

d=10mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 92.5 V/m
Peak SAR (extrapolated) = 20.3 W/kg
SAR(1 g) = 10.8 mW/g
SAR(10 g) = 5.59 mW/g
Power Drift = 0.032 dB
Maximum value of SAR (measured) = 12.2 mW/g



APPENDIX B: MEASUREMENT SCANS

See the following pages

Date/Time: 2011-10-27 09:40:07

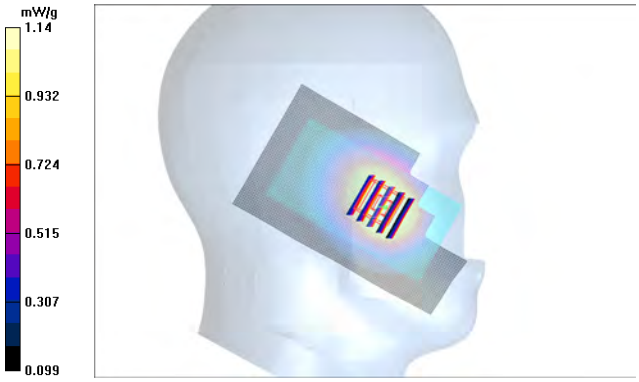
Test Laboratory: TCC Nokia
Type: RM-779; Serial: 358647/04/000484/4

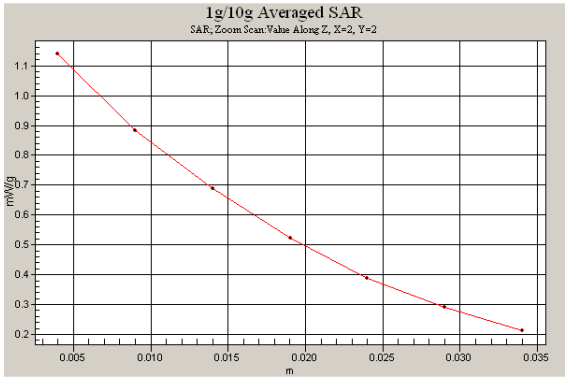
Communication System: 4-slot GPRS850
Frequency: 848.8 MHz; Duty Cycle: 1:2.08
Medium: Head 850; Medium Notes: Medium Temperature: 22.0 C
Medium parameters used: f = 849 MHz; σ = 0.902 mho/m; ε_r = 40; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3581; Probe Notes:
- ConvF(8.51, 8.51, 8.51); Calibrated: 2011-07-27
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 3; Type: Twin Phantom; Serial: TP-1302
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Cheek - High - BP-3L LG/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.14 mW/g

Cheek - High - BP-3L LG/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 12.3 V/m
Peak SAR (extrapolated) = 1.37 W/kg
SAR(1 g) = 1.07 mW/g
SAR(10 g) = 0.791 mW/g
Power Drift = -0.020 dB
Maximum value of SAR (measured) = 1.14 mW/g





Date/Time: 2011-10-27 10:45:08

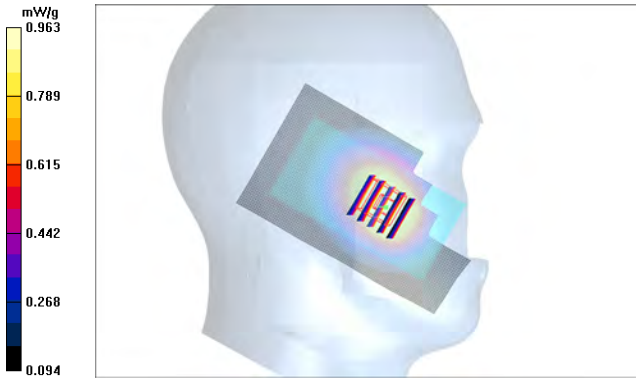
Test Laboratory: TCC Nokia
Type: RM-779; Serial: 358647/04/000484/4

Communication System: WCDMA850
Frequency: 835 MHz; Duty Cycle: 1:1
Medium: Head 850; Medium Notes: Medium Temperature: 22.0 C
Medium parameters used: f = 835 MHz; σ = 0.889 mho/m; ε_r = 40.1; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3581; Probe Notes:
- ConvF(8.51, 8.51, 8.51); Calibrated: 2011-07-27
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 3; Type: Twin Phantom; Serial: TP-1302
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Cheek - Middle - BP-3L Sony/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.968 mW/g

Cheek - Middle - BP-3L Sony/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 11.7 V/m
Peak SAR (extrapolated) = 1.14 W/kg
SAR(1 g) = 0.906 mW/g
SAR(10 g) = 0.671 mW/g
Power Drift = 0.014 dB
Maximum value of SAR (measured) = 0.963 mW/g



Date/Time: 2011-10-31 10:26:13

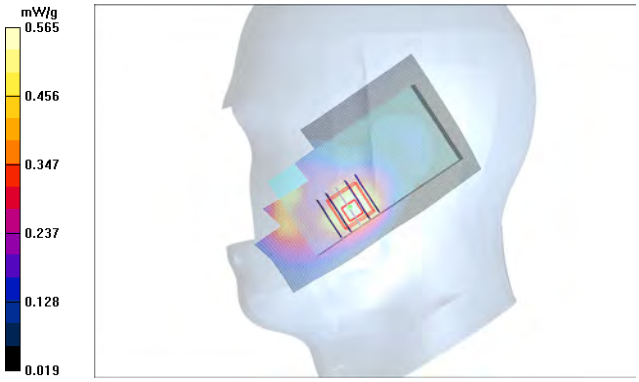
Test Laboratory: TCC Nokia
Type: RM-779; Serial: 358647/04/000484/4

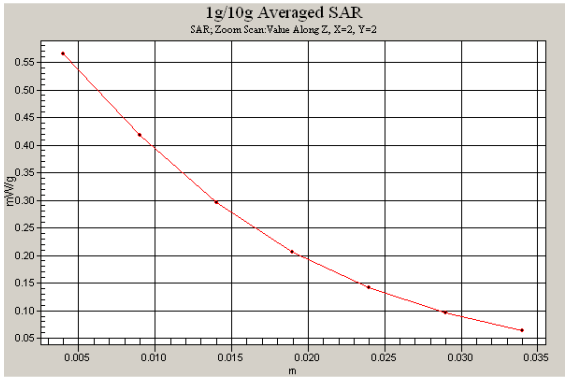
Communication System: WCDMA1700/2100
Frequency: 1752.6 MHz; Duty Cycle: 1:1
Medium: Head 1800; Medium Notes: Medium Temperature: 22.0 C
Medium parameters used: f = 1753 MHz; σ = 1.35 mho/m; ε_r = 38.9; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(5.29, 5.29, 5.29); Calibrated: 2011-02-17
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn339; Calibrated: 2011-02-18
- Phantom: SAM 4.5; Type: Twin Phantom; Serial: TP-1215
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Cheek - High - BP-3L LG/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.572 mW/g

Cheek - High - BP-3L LG/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 9.06 V/m
Peak SAR (extrapolated) = 0.825 W/kg
SAR(1 g) = 0.536 mW/g
SAR(10 g) = 0.339 mW/g
Power Drift = -0.039 dB
Maximum value of SAR (measured) = 0.565 mW/g





Date/Time: 2011-11-01 10:53:39

Test Laboratory: TCC Nokia
Type: RM-779; Serial: 358647/04/000484/4

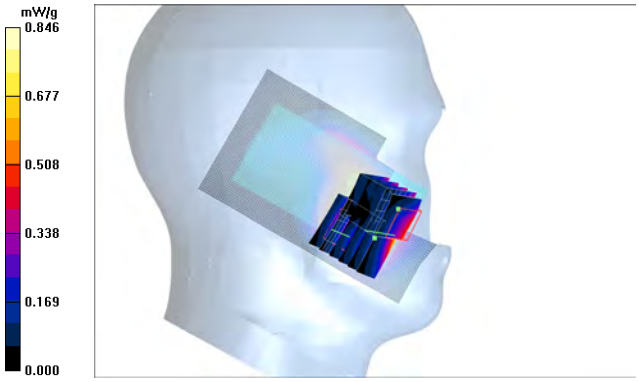
Communication System: 2-slot GPRS1900
Frequency: 1880 MHz; Duty Cycle: 1:4.2
Medium: Head 1900; Medium Notes: Medium Temperature: 21.5 C
Medium parameters used: f = 1880 MHz; σ = 1.41 mho/m; ε_r = 39; ρ = 1000 kg/m^3
Phantom section: Left Section

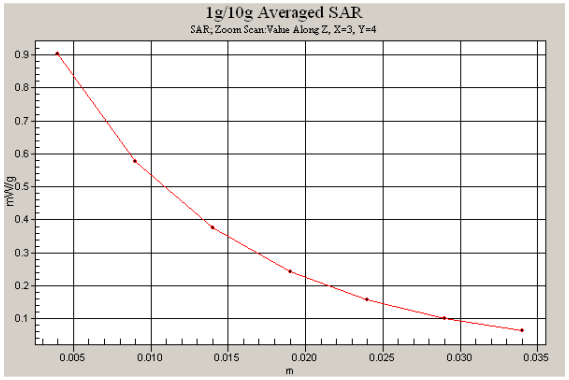
DASY4 Configuration:
- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.99, 4.99, 4.99); Calibrated: 2011-07-14
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2011-07-22
- Phantom: SAM 6; Type: SAM Twin Phantom; Serial: TP-1301
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Cheek - Middle - BP-3L Sony/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.925 mW/g

Cheek - Middle - BP-3L Sony/Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 10.6 V/m
Peak SAR (extrapolated) = 1.38 W/kg
SAR(1 g) = 0.844 mW/g
SAR(10 g) = 0.486 mW/g
Power Drift = -0.178 dB
Maximum value of SAR (measured) = 0.902 mW/g

Cheek - Middle - BP-3L Sony/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 10.6 V/m
Peak SAR (extrapolated) = 1.24 W/kg
SAR(1 g) = 0.763 mW/g
SAR(10 g) = 0.422 mW/g
Power Drift = -0.178 dB
Maximum value of SAR (measured) = 0.846 mW/g





Date/Time: 2011-11-01 11:44:31

Test Laboratory: TCC Nokia
Type: RM-779; Serial: 358647/04/000484/4

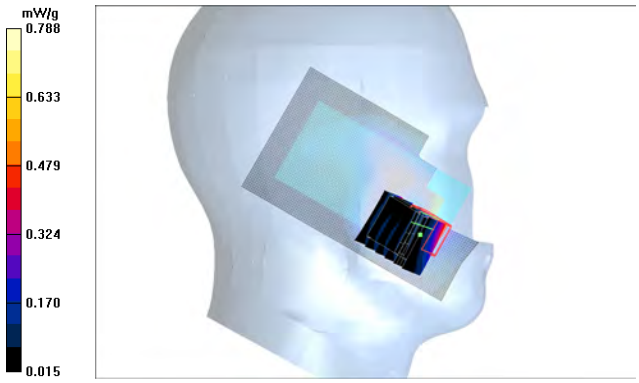
Communication System: WCDMA1900
Frequency: 1852.4 MHz; Duty Cycle: 1:1
Medium: Head 1900; Medium Notes: Medium Temperature: 21.5 C
Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.39 mho/m; ε_r = 39.2; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.99, 4.99, 4.99); Calibrated: 2011-07-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2011-07-22
- Phantom: SAM 6; Type: SAM Twin Phantom; Serial: TP-1301
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Cheek - Low - BP-3L Sony/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.761 mW/g

Cheek - Low - BP-3L Sony/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 8.60 V/m
Peak SAR (extrapolated) = 1.20 W/kg
SAR(1 g) = 0.688 mW/g
SAR(10 g) = 0.374 mW/g
Power Drift = -0.324 dB
Maximum value of SAR (measured) = 0.748 mW/g

Cheek - Low - BP-3L Sony/Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 8.60 V/m
Peak SAR (extrapolated) = 1.23 W/kg
SAR(1 g) = 0.721 mW/g
SAR(10 g) = 0.395 mW/g
Power Drift = -0.324 dB
Maximum value of SAR (measured) = 0.788 mW/g



Date/Time: 2011-10-27 13:55:32

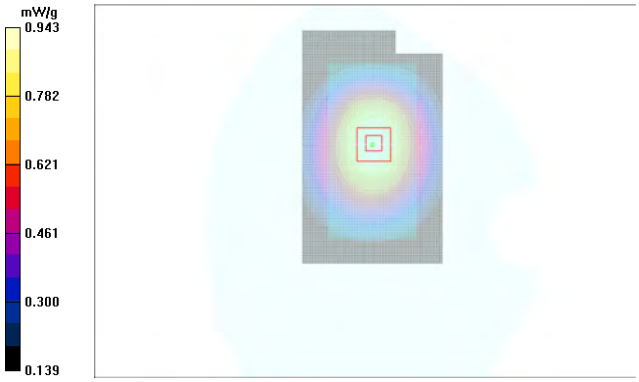
Test Laboratory: TCC Nokia
Type: RM-779; Serial: 358647/04/000484/4

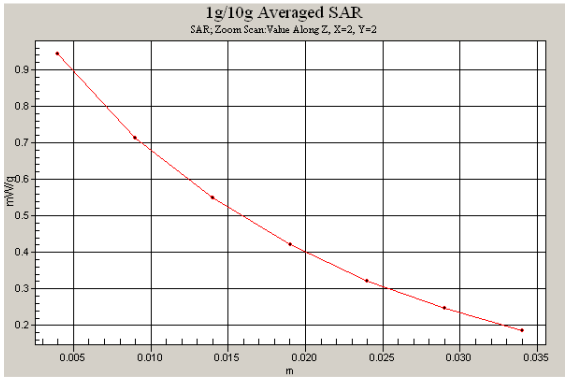
Communication System: 4-slot GPRS850
Frequency: 848.8 MHz; Duty Cycle: 1:2.08
Medium: Body 850; Medium Notes: Medium Temperature: 22.0 C
Medium parameters used: f = 849 MHz; σ = 0.986 mho/m; ε_r = 53.2; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3581; Probe Notes:
- ConvF(8.72, 8.72, 8.72); Calibrated: 2011-07-27
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 2; Type: Twin Phantom; Serial: TP-1037
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Body - High - No Accessory – BP-3L LG - Back Facing Phantom/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.943 mW/g

Body - High - No Accessory - BP-3L LG - Back Facing Phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 17.2 V/m
Peak SAR (extrapolated) = 1.17 W/kg
SAR(1 g) = 0.894 mW/g
SAR(10 g) = 0.661 mW/g
Power Drift = 0.056 dB
Maximum value of SAR (measured) = 0.943 mW/g





Date/Time: 2011-10-27 14:23:58

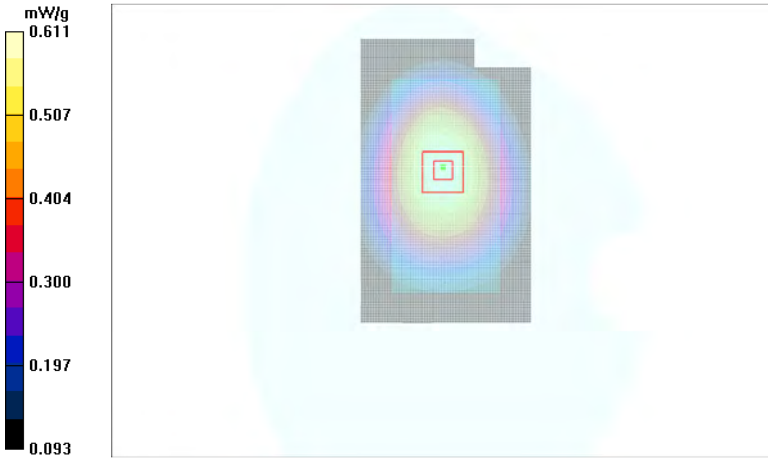
Test Laboratory: TCC Nokia
Type: RM-779; Serial: 358647/04/000484/4

Communication System: WCDMA850
Frequency: 835 MHz; Duty Cycle: 1:1
Medium: Body 850; Medium Notes: Medium Temperature: 22.0 C
Medium parameters used: f = 835 MHz; σ = 0.972 mho/m; ε_r = 53.3; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3581; Probe Notes:
- ConvF(8.72, 8.72, 8.72); Calibrated: 2011-07-27
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501; Calibrated: 2011-02-18
- Phantom: SAM 2; Type: Twin Phantom; Serial: TP-1037
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Body - Middle - No Accessory - BP-3L LG - Display Facing Phantom/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.609 mW/g

Body - Middle - No Accessory - BP-3L LG - Display Facing Phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 13.6 V/m
Peak SAR (extrapolated) = 0.749 W/kg
SAR(1 g) = 0.580 mW/g
SAR(10 g) = 0.434 mW/g
Power Drift = 0.002 dB
Maximum value of SAR (measured) = 0.611 mW/g



Date/Time: 2011-10-31 11:50:17

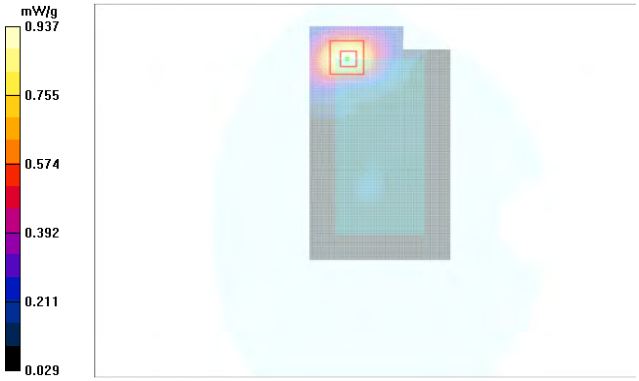
Test Laboratory: TCC Nokia
Type: RM-779; Serial: 358647/04/000484/4

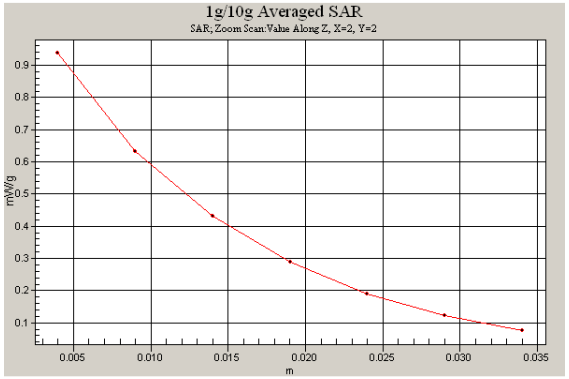
Communication System: WCDMA1700/2100
Frequency: 1712.4 MHz; Duty Cycle: 1:1
Medium: Body 1800; Medium Notes: Medium Temperature: 22.0 C
Medium parameters used (interpolated): f = 1712.4 MHz; σ = 1.43 mho/m; ε_r = 52.4; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(4.93, 4.93, 4.93); Calibrated: 2011-02-17
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn339; Calibrated: 2011-02-18
- Phantom: SAM 5; Type: Twin Phantom; Serial: TP-1302
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Body - Low - No Accessory – BP-3L Sony - Back Facing Phantom/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.963 mW/g

Body - Low - No Accessory – BP-3L Sony - Back Facing Phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 6.62 V/m
Peak SAR (extrapolated) = 1.30 W/kg
SAR(1 g) = 0.856 mW/g
SAR(10 g) = 0.517 mW/g
Power Drift = -0.052 dB
Maximum value of SAR (measured) = 0.937 mW/g





Date/Time: 2011-11-01 20:59:08

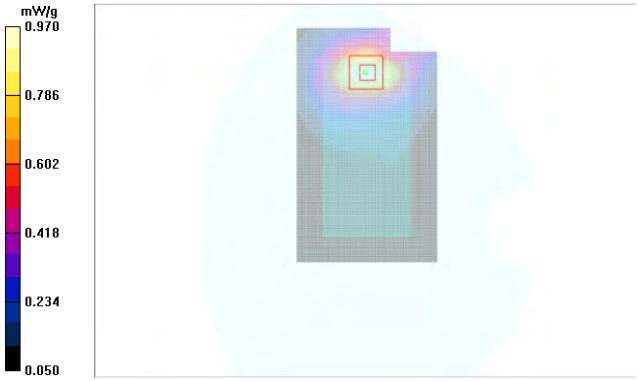
Test Laboratory: TCC Nokia
Type: RM-779; Serial: 358647/04/000484/4

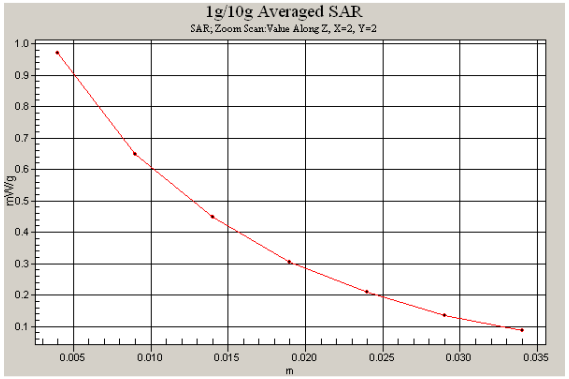
Communication System: 2-slot GPRS1900
Frequency: 1850.2 MHz; Duty Cycle: 1:4.2
Medium: Body 1900; Medium Notes: Medium Temperature: 22.0 C
Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.49 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.6, 4.6, 4.6); Calibrated: 2011-07-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2011-07-22
- Phantom: SAM 1; Type: Twin Phantom; Serial: TP-1215
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Body - Low - WH-207 – BP-3L Sony - Back Facing Phantom/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.981 mW/g

Body - Low - WH-207 – BP-3L Sony - Back Facing Phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 7.00 V/m
Peak SAR (extrapolated) = 1.35 W/kg
SAR(1 g) = 0.896 mW/g
SAR(10 g) = 0.559 mW/g
Power Drift = -0.140 dB
Maximum value of SAR (measured) = 0.970 mW/g





Date/Time: 2011-11-01 21:44:39

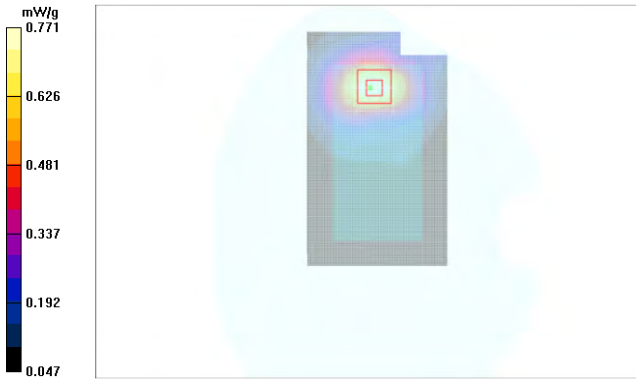
Test Laboratory: TCC Nokia
Type: RM-779; Serial: 358647/04/000484/4

Communication System: WCDMA1900
Frequency: 1852.4 MHz; Duty Cycle: 1:1
Medium: Body 1900; Medium Notes: Medium Temperature: 22.0 C
Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.49 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3117; Probe Notes:
- ConvF(4.6, 4.6, 4.6); Calibrated: 2011-07-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682; Calibrated: 2011-07-22
- Phantom: SAM 1; Type: Twin Phantom; Serial: TP-1215
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Body - Low - WH-207 – BP-3L Sony - Back Facing Phantom/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.788 mW/g

Body - Low - WH-207 – BP-3L Sony - Back Facing Phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 6.50 V/m
Peak SAR (extrapolated) = 1.07 W/kg
SAR(1 g) = 0.707 mW/g
SAR(10 g) = 0.443 mW/g
Power Drift = 0.070 dB
Maximum value of SAR (measured) = 0.771 mW/g



Date/Time: 2011-10-27 09:40:07, Date/Time: 2011-08-22 14:38:49

Test Laboratory: TCC Nokia

Type: RM-779; Serial: 358647/04/000484/4, Serial: 004402/13/568481/3

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

Frequency: 848.8 MHz, Frequency: 2442 MHz; Duty Cycle: 1:2.08, Duty Cycle: 1:1
Medium: Head 850, Medium: HSL2450; Medium Notes: Medium Temperature: 22.0 C, Medium Notes: t= 21.0 C
Medium parameters used: f = 849 MHz; σ = 0.902 mho/m; ε_r = 40; ρ = 1000 kg/m^3 , Medium parameters used: f = 2442 MHz; σ = 1.83 mho/m; ε_r = 38.3; ρ = 1000 kg/m^3
Phantom section: Left Section

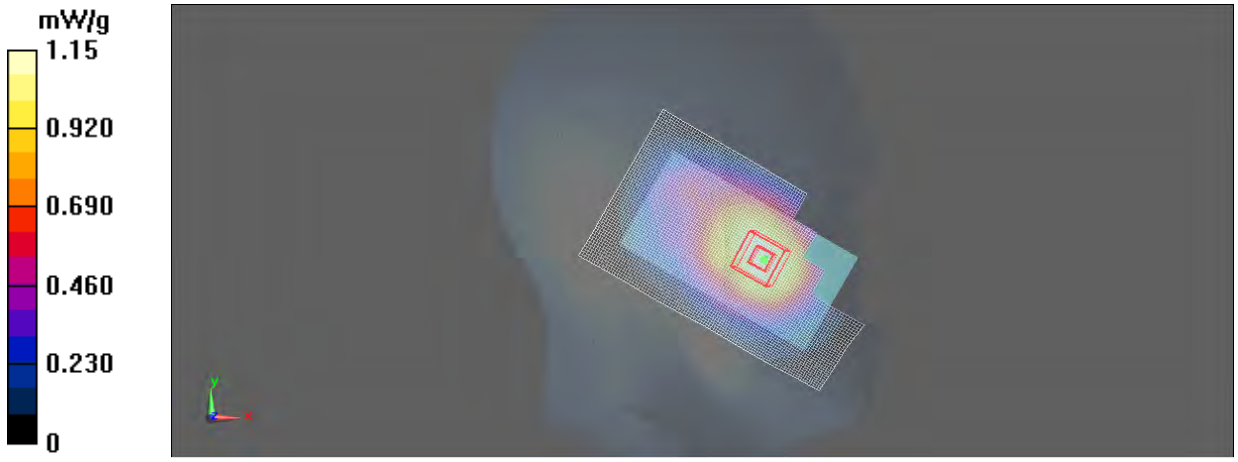
DASY4 Configuration:
- Probe: EX3DV4 - SN3581, Probe: EX3DV4 - SN3573; Probe Notes:
- ConvF(8.51, 8.51, 8.51), ConvF(6.69, 6.69, 6.69); Calibrated: 2011-07-27, Calibrated: 2011-02-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501, Electronics: DAE4 Sn793; Calibrated: 2011-02-18, Calibrated: 2010-09-08
- Phantom: SAM 3, Phantom: SAM1; Type: Twin Phantom, Type: SAM; Serial: TP-1302, Serial: TP-1126
- ; SEMCAD X Version 14.0 Build 61

Configuration/Cheek - High - BP-3L LG/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm

Configuration/Cheek - Middle - BP-3L LG/Area Scan (6x10x1): Measurement grid: dx=15mm, dy=15mm

Motorola Fast SAR of Combined Scans: SAR(1 g) = 1.09 mW/g
SAR(10 g) = 0.757 mW/g

Maximum value of SAR (measured) = 1.15 mW/g



Date/Time: 2011-10-27 10:45:08, Date/Time: 2011-08-22 14:38:49

Test Laboratory: TCC Nokia

Type: RM-779; Serial: 358647/04/000484/4, Serial: 004402/13/568481/3

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

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

Medium: Head 850, Medium: HSL2450; Medium Notes: Medium Temperature: 22.0 C, Medium Notes: t= 21.0 C

Medium parameters used: f = 835 MHz; σ = 0.889 mho/m; ε_r = 40.1; ρ = 1000 kg/m^3 , Medium parameters used: f = 2442 MHz; σ = 1.83 mho/m; ε_r = 38.3; ρ = 1000 kg/m^3

Phantom section: Left Section

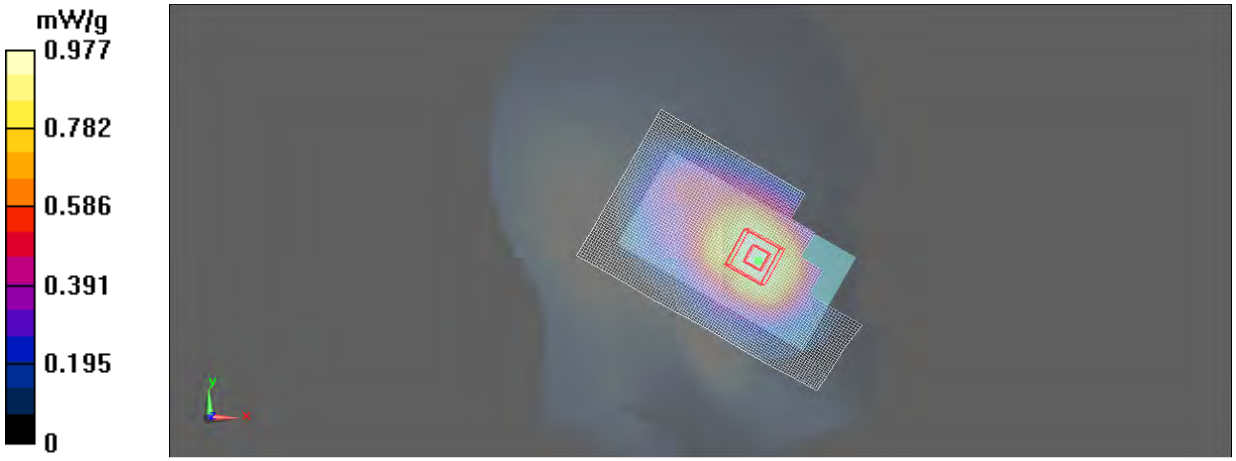
DASY4 Configuration:
- Probe: EX3DV4 - SN3581, Probe: EX3DV4 - SN3573; Probe Notes:
- ConvF(8.51, 8.51, 8.51), ConvF(6.69, 6.69, 6.69); Calibrated: 2011-07-27, Calibrated: 2011-02-17
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501, Electronics: DAE4 Sn793; Calibrated: 2011-02-18, Calibrated: 2010-09-08
- Phantom: SAM 3, Phantom: SAM1; Type: Twin Phantom, Type: SAM; Serial: TP-1302, Serial: TP-1126
- ; SEMCAD X Version 14.0 Build 61

Configuration/Cheek – Middle – BP-3L LG/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm

Configuration/Cheek - Middle - BP-3L LG/Area Scan (6x10x1): Measurement grid: dx=15mm, dy=15mm

Motorola Fast SAR of Combined Scans: SAR(1 g) = 0.924 mW/g
SAR(10 g) = 0.643 mW/g

Maximum value of SAR (measured) = 0.977 mW/g



Date/Time: 2011-10-31 10:26:13, Date/Time: 2011-08-22 11:35:17

Test Laboratory: TCC Nokia

Type: RM-779; Serial: 358647/04/000484/4, Serial: 004402/13/568481/3

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

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

Medium: Head 1800, Medium: HSL2450; Medium Notes: Medium Temperature: 22.0 C, Medium Notes: t= 21.0 C

Medium parameters used: f = 1753 MHz; σ = 1.35 mho/m; ε_r = 38.9; ρ = 1000 kg/m^3 , Medium parameters used: f = 2442 MHz; σ = 1.83 mho/m; ε_r = 38.3; ρ = 1000 kg/m^3

Phantom section: Right Section

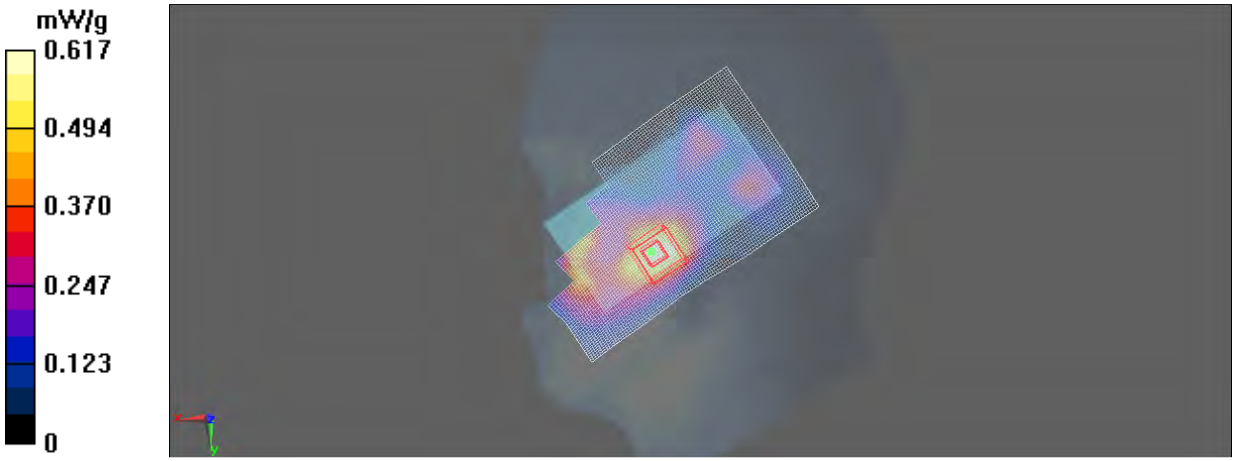
DASY4 Configuration:
- Probe: ES3DV3 - SN3116, Probe: EX3DV4 - SN3573; Probe Notes:
- ConvF(5.29, 5.29, 5.29), ConvF(6.69, 6.69, 6.69); Calibrated: 2011-02-17
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn339, Electronics: DAE4 Sn793; Calibrated: 2011-02-18, Calibrated: 2010-09-08
- Phantom: SAM 4.5, Phantom: SAM1; Type: Twin Phantom, Type: SAM; Serial: TP-1215, Serial: TP-1126
- ; SEMCAD X Version 14.0 Build 61

Configuration/Cheek – High – BP-3L LG/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm

Configuration/Cheek - Middle - BP-3L Sony/Area Scan (6x10x1): Measurement grid: dx=15mm, dy=15mm

Motorola Fast SAR of Combined Scans: SAR(1 g) = 0.566 mW/g
SAR(10 g) = 0.328 mW/g

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



Date/Time: 2011-11-01 10:53:39, Date/Time: 2011-08-22 14:38:49

Test Laboratory: TCC Nokia

Type: RM-779; Serial: 358647/04/000484/4, Serial: 004402/13/568481/3

Communication System: 2-slot GPRS1900, Communication System: WLAN2450 b-mode

Frequency: 1880 MHz, Frequency: 2442 MHz; Duty Cycle: 1:4.2, Duty Cycle: 1:1

Medium: Head 1900, Medium: HSL2450; Medium Notes: Medium Temperature: 21.5 C, Medium Notes: t= 21.0 C

Medium parameters used: f = 1880 MHz; σ = 1.41 mho/m; ε_r = 39; ρ = 1000 kg/m^3 , Medium parameters used: f = 2442 MHz; σ = 1.83 mho/m; ε_r = 38.3; ρ = 1000 kg/m^3

Phantom section: Left Section

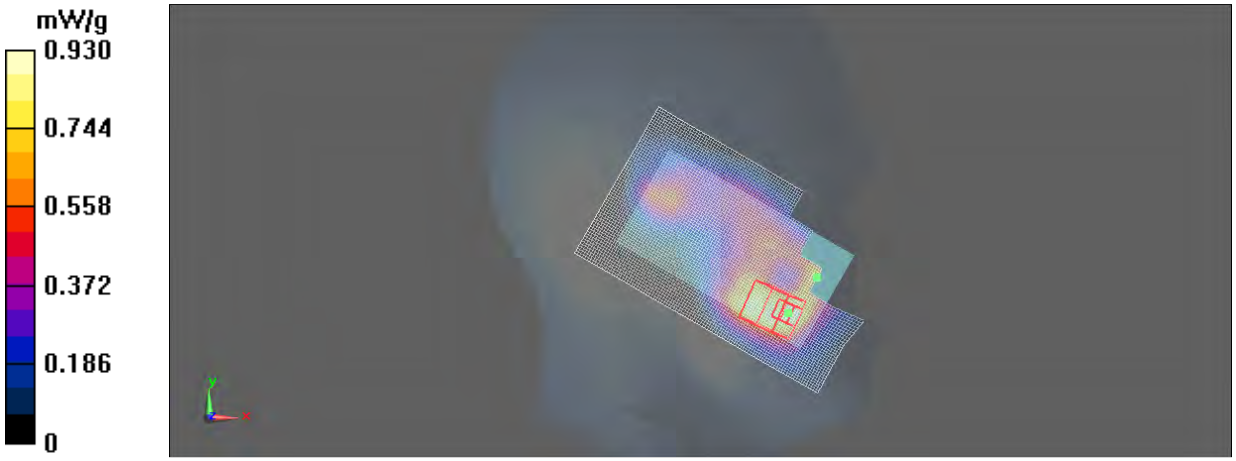
DASY4 Configuration:
- Probe: ES3DV3 - SN3117, Probe: EX3DV4 - SN3573; Probe Notes:
- ConvF(4.99, 4.99, 4.99), ConvF(6.69, 6.69, 6.69); Calibrated: 2011-07-14, Calibrated: 2011-02-17
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682, Electronics: DAE4 Sn793; Calibrated: 2011-07-22, Calibrated: 2010-09-08
- Phantom: SAM 6, Phantom: SAM1; Type: SAM Twin Phantom; Serial: TP-1301, Serial: TP-1126
- ; SEMCAD X Version 14.0 Build 61

Configuration/Cheek - Middle - BP-3L Sony/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm

Configuration/Cheek - Middle - BP-3L LG/Area Scan (6x10x1): Measurement grid: dx=15mm, dy=15mm

Motorola Fast SAR of Combined Scans: SAR(1 g) = 0.803 mW/g
SAR(10 g) = 0.466 mW/g

Maximum value of SAR (measured) = 0.930 mW/g



Date/Time: 2011-11-01 11:44:31, Date/Time: 2011-08-22 14:38:49

Test Laboratory: TCC Nokia

Type: RM-779; Serial: 358647/04/000484/4, Serial: 004402/13/568481/3

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

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

Medium: Head 1900, Medium: HSL2450; Medium Notes: Medium Temperature: 21.5 C, Medium Notes: t= 21.0 C

Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.39 mho/m; ε_r = 39.2; ρ = 1000 kg/m^3 , Medium parameters used: f = 2442 MHz; σ = 1.83 mho/m; ε_r = 38.3; ρ = 1000 kg/m^3

Phantom section: Left Section

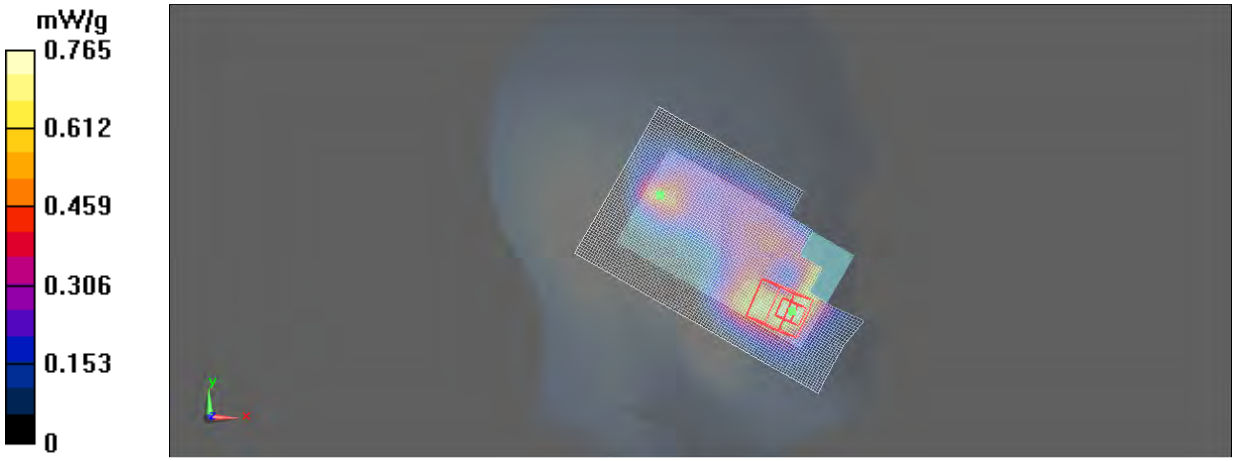
DASY4 Configuration:
- Probe: ES3DV3 - SN3117, Probe: EX3DV4 - SN3573; Probe Notes:
- ConvF(4.99, 4.99, 4.99), ConvF(6.69, 6.69, 6.69); Calibrated: 2011-07-14, Calibrated: 2011-02-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682, Electronics: DAE4 Sn793; Calibrated: 2011-07-22, Calibrated: 2010-09-08
- Phantom: SAM 6, Phantom: SAM1; Type: SAM Twin Phantom; Serial: TP-1301, Serial: TP-1126
- ; SEMCAD X Version 14.0 Build 61

Configuration/Cheek - Low - BP-3L Sony/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm

Configuration/Cheek - Middle - BP-3L LG/Area Scan (6x10x1): Measurement grid: dx=15mm, dy=15mm

Motorola Fast SAR of Combined Scans: SAR(1 g) = 0.646 mW/g
SAR(10 g) = 0.357 mW/g

Maximum value of SAR (measured) = 0.765 mW/g



Date/Time: 2011-10-27 13:55:32, Date/Time: 2011-08-29 14:10:59

Test Laboratory: TCC Nokia

Type: RM-779; Serial: 358647/04/000484/4, Serial: 004402/13/568481/3

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

Frequency: 848.8 MHz, Frequency: 2442 MHz; Duty Cycle: 1:2.08, Duty Cycle: 1:1
Medium: Body 850, Medium: BSL2450; Medium Notes: Medium Temperature: 22.0 C, Medium Notes: t= 20.9 C
Medium parameters used: f = 849 MHz; σ = 0.986 mho/m; ε_r = 53.2; ρ = 1000 kg/m^3 , Medium parameters used: f = 2442 MHz; σ = 2.03 mho/m; ε_r = 50.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

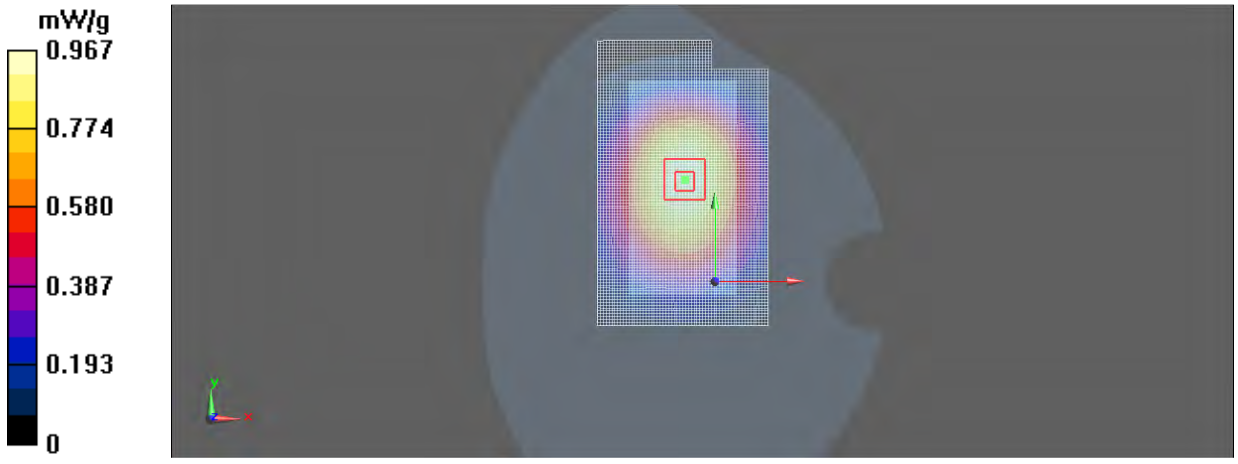
DASY4 Configuration:
- Probe: EX3DV4 - SN3581, Probe: EX3DV4 - SN3573; Probe Notes:
- ConvF(8.72, 8.72, 8.72), ConvF(6.8, 6.8, 6.8); Calibrated: 2011-07-27, Calibrated: 2011-02-17
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
- Electronics: DAE4 Sn501, Electronics: DAE4 Sn793; Calibrated: 2011-02-18, Calibrated: 2010-09-08
- Phantom: SAM 2, Phantom: SAM2; Type: Twin Phantom, Type: SAM; Serial: TP-1037, Serial: TP-1570
- ; SEMCAD X Version 14.0 Build 61

Configuration/Body - High - No Accessory – BP-3L LG - Back Facing Phantom/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm

Configuration/Body - Middle - No accessory – BP-3L Sony - Back Facing Phantom/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm

Motorola Fast SAR of Combined Scans: SAR(1 g) = 0.913 mW/g
SAR(10 g) = 0.646 mW/g

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



Date/Time: 2011-10-27 14:23:58, Date/Time: 2011-08-29 13:27:08

Test Laboratory: TCC Nokia

Type: RM-779; Serial: 358647/04/000484/4, Serial: 004402/13/568481/3

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

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

Medium: Body 850, Medium: BSL2450; Medium Notes: Medium Temperature: 22.0 C, Medium Notes: t= 20.9 C

Medium parameters used: f = 835 MHz; σ = 0.972 mho/m; ε_r = 53.3; ρ = 1000 kg/m^3 , Medium parameters used: f = 2442 MHz; σ = 2.03 mho/m; ε_r = 50.5; ρ = 1000 kg/m^3

Phantom section: Flat Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3581, Probe: EX3DV4 - SN3573; Probe Notes:
- ConvF(8.72, 8.72, 8.72), ConvF(6.8, 6.8, 6.8); Calibrated: 2011-07-27, Calibrated: 2011-02-17
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn501, Electronics: DAE4 Sn793; Calibrated: 2011-02-18, Calibrated: 2010-09-08
- Phantom: SAM 2, Phantom: SAM2; Type: Twin Phantom, Type: SAM; Serial: TP-1037, Serial: TP-1570
- ; SEMCAD X Version 14.0 Build 61

Configuration/Body - Middle - No Accessory – BP-3L LG - Display Facing Phantom/Area Scan (7x11x1):

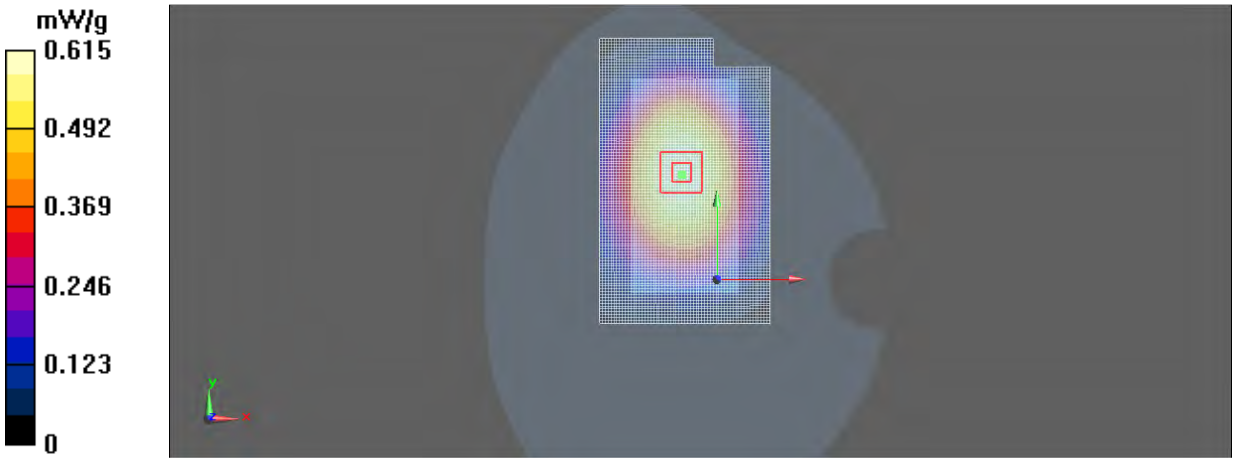
Measurement grid: dx=15mm, dy=15mm

Configuration/Body - Middle - No accessory – BP-3L Sony - Display Facing Phantom/Area Scan (7x11x1):

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

Motorola Fast SAR of Combined Scans: SAR(1 g) = 0.584 mW/g
SAR(10 g) = 0.417 mW/g

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



Date/Time: 2011-10-31 11:50:17, Date/Time: 2011-08-29 14:10:59

Test Laboratory: TCC Nokia

Type: RM-779; Serial: 358647/04/000484/4, Serial: 004402/13/568481/3

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

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

Medium: Body 1800, Medium: BSL2450; Medium Notes: Medium Temperature: 22.0 C, Medium Notes: t= 20.9 C

Medium parameters used (interpolated): f = 1712.4 MHz; σ = 1.43 mho/m; ε_r = 52.4; ρ = 1000 kg/m^3 , Medium parameters used: f = 2442 MHz; σ = 2.03 mho/m; ε_r = 50.5; ρ = 1000 kg/m^3

Phantom section: Flat Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3116, Probe: EX3DV4 - SN3573; Probe Notes:
- ConvF(4.93, 4.93, 4.93), ConvF(6.8, 6.8, 6.8); Calibrated: 2011-02-17
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
- Electronics: DAE4 Sn339, Electronics: DAE4 Sn793; Calibrated: 2011-02-18, Calibrated: 2010-09-08
- Phantom: SAM 5, Phantom: SAM2; Type: Twin Phantom, Type: SAM; Serial: TP-1302, Serial: TP-1570
- ; SEMCAD X Version 14.0 Build 61

Configuration/Body - Low - No Accessory - BP-3L Sony - Back Facing Phantom/Area Scan (7x11x1):

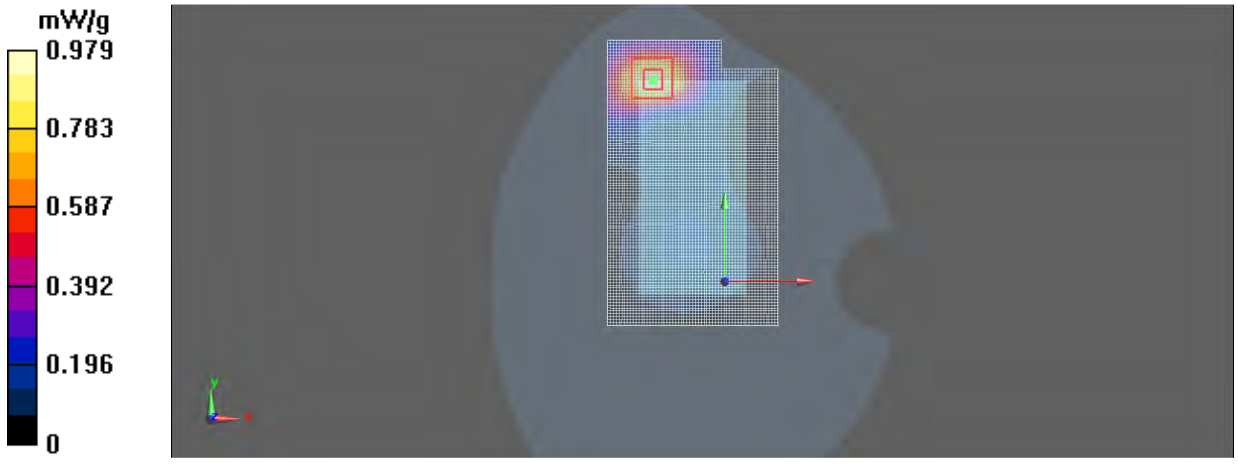
Measurement grid: dx=15mm, dy=15mm

Configuration/Body - Middle - No accessory – BP-3L Sony - Back Facing Phantom/Area Scan (7x11x1):

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

Motorola Fast SAR of Combined Scans: SAR(1 g) = 0.863 mW/g
SAR(10 g) = 0.497 mW/g

Maximum value of SAR (measured) = 0.979 mW/g



Date/Time: 2011-11-01 20:59:08, Date/Time: 2011-08-30 09:19:20

Test Laboratory: TCC Nokia

Type: RM-779; Serial: 358647/04/000484/4, Serial: 004402/13/568481/3

Communication System: 2-slot GPRS1900, Communication System: WLAN2450 b-mode

Frequency: 1850.2 MHz, Frequency: 2442 MHz; Duty Cycle: 1:4.2, Duty Cycle: 1:1

Medium: Body 1900, Medium: BSL2450; Medium Notes: Medium Temperature: 22.0 C, Medium Notes: t= 20.9 C

Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.49 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3 , Medium parameters used: f = 2442 MHz; σ = 2.03 mho/m; ε_r = 50.5; ρ = 1000 kg/m^3

Phantom section: Flat Section

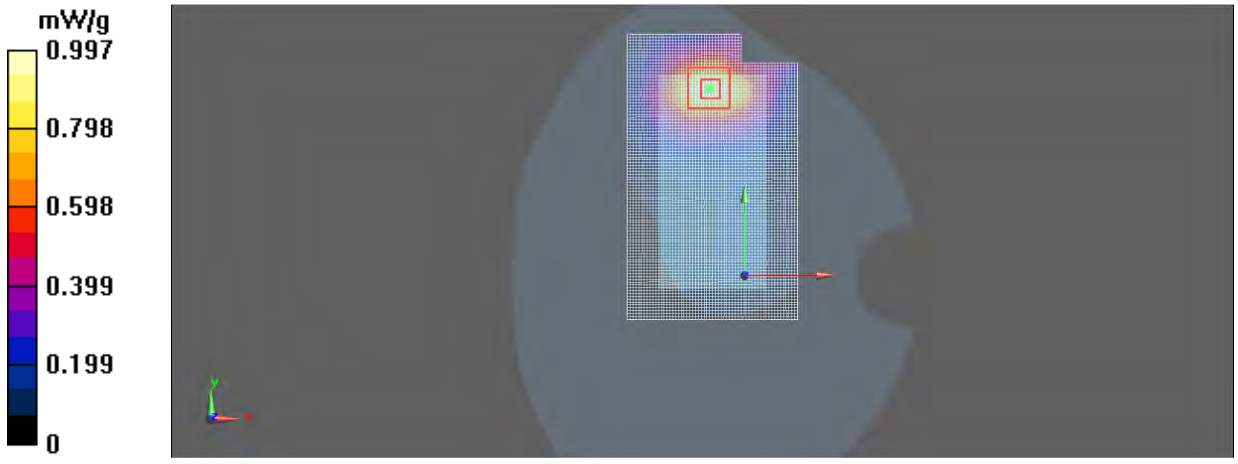
DASY4 Configuration:
- Probe: ES3DV3 - SN3117, Probe: EX3DV4 - SN3573; Probe Notes:
- ConvF(4.6, 4.6, 4.6), ConvF(6.8, 6.8, 6.8); Calibrated: 2011-07-14, Calibrated: 2011-02-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682, Electronics: DAE4 Sn793; Calibrated: 2011-07-22, Calibrated: 2010-09-08
- Phantom: SAM 1, Phantom: SAM2; Type: Twin Phantom, Type: SAM; Serial: TP-1215, Serial: TP-1570
- ; SEMCAD X Version 14.0 Build 61

Configuration/Body - Low - WH-207 – BP-3L Sony - Back Facing Phantom/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm

Configuration/Body - Middle - WH-207 – BP-3L LG - Back Facing Phantom/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm

Motorola Fast SAR of Combined Scans: SAR(1 g) = 0.902 mW/g
SAR(10 g) = 0.523 mW/g

Maximum value of SAR (measured) = 0.997 mW/g



Date/Time: 2011-11-01 21:44:39, Date/Time: 2011-08-30 09:19:20

Test Laboratory: TCC Nokia

Type: RM-779; Serial: 358647/04/000484/4, Serial: 004402/13/568481/3

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

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

Medium: Body 1900, Medium: BSL2450; Medium Notes: Medium Temperature: 22.0 C, Medium Notes: t= 20.9 C

Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.49 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3 , Medium parameters used: f = 2442 MHz; σ = 2.03 mho/m; ε_r = 50.5; ρ = 1000 kg/m^3

Phantom section: Flat Section

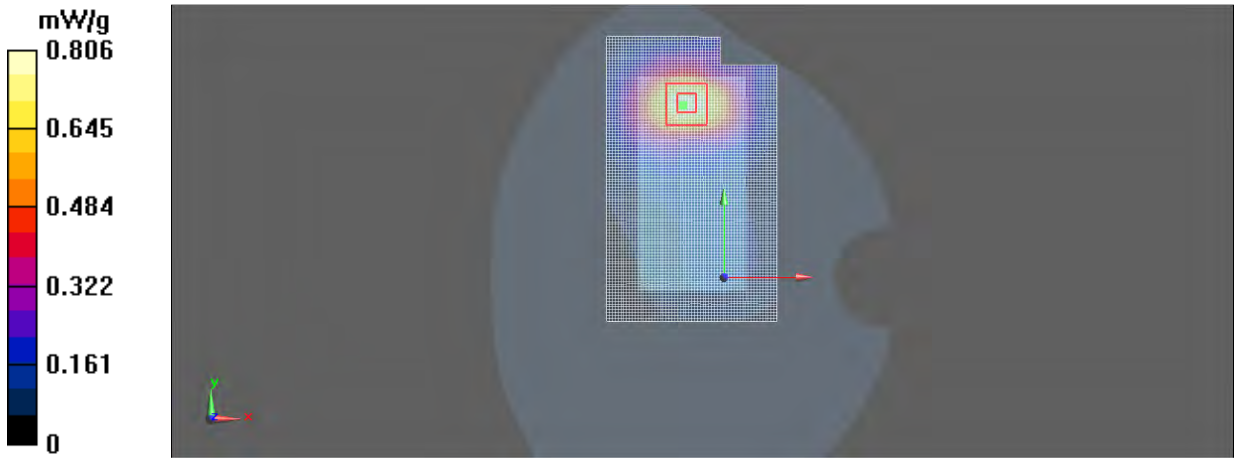
DASY4 Configuration:
- Probe: ES3DV3 - SN3117, Probe: EX3DV4 - SN3573; Probe Notes:
- ConvF(4.6, 4.6, 4.6), ConvF(6.8, 6.8, 6.8); Calibrated: 2011-07-14, Calibrated: 2011-02-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn682, Electronics: DAE4 Sn793; Calibrated: 2011-07-22, Calibrated: 2010-09-08
- Phantom: SAM 1, Phantom: SAM2; Type: Twin Phantom, Type: SAM; Serial: TP-1215, Serial: TP-1570
- ; SEMCAD X Version 14.0 Build 61

Configuration/Body - Low - WH-207 – BP-3L Sony - Back Facing Phantom/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm

Configuration/Body - Middle - WH-207 – BP-3L LG - Back Facing Phantom/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm

Motorola Fast SAR of Combined Scans: SAR(1 g) = 0.721 mW/g
SAR(10 g) = 0.424 mW/g

Maximum value of SAR (measured) = 0.806 mW/g



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

See the following pages

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

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

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

Accreditation No.: SCS 108

Client Nokia Denmark A/S

Certificate No: ES3-3116_Feb11

CALIBRATION CERTIFICATE

Object: ES3DV3 - SN:3116

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

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3116

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	6.01	6.01	6.01	0.99	1.14	± 12.0 %
1750	40.1	1.37	5.29	5.29	5.29	0.96	1.17	± 12.0 %
1900	40.0	1.40	5.08	5.08	5.08	0.88	1.21	± 12.0 %
2450	39.2	1.80	4.50	4.50	4.50	0.78	1.31	± 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:3116

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	5.96	5.96	5.96	0.99	1.13	± 12.0 %
1750	53.4	1.49	4.93	4.93	4.93	0.99	1.23	± 12.0 %
1900	53.3	1.52	4.68	4.68	4.68	0.89	1.29	± 12.0 %
2450	52.7	1.95	4.29	4.29	4.29	0.99	1.03	± 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.

2017

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

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Swiss Calibration Service

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Accreditation No.: SCS 108

Client Nokia Denmark A/S

Certificate No: ES3-3117_Jul11

CALIBRATION CERTIFICATE

Object: ES3DV3 - SN:3117

Calibration procedure(s): QA CAL-01.v8, QA CAL-23.v4, QA CAL-25.v4
Calibration procedure for dosimetric E-field probes

Calibration date: July 14, 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	31-Mar-11 (No. 217-01372)	Apr-12
Power sensor E4412A	MY41498087	31-Mar-11 (No. 217-01372)	Apr-12
Reference 3 dB Attenuator	SN: S5054 (3c)	29-Mar-11 (No. 217-01369)	Apr-12
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-11 (No. 217-01367)	Apr-12
Reference 30 dB Attenuator	SN: S5129 (30b)	29-Mar-11 (No. 217-01370)	Apr-12
Reference Probe ES3DV2	SN: 3013	29-Dec-10 (No. ES3-3013_Dec10)	Dec-11
DAE4	SN: 654	3-May-11 (No. DAE4-654_May11)	May-12
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: July 15, 2011

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3117

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	5.93	5.93	5.93	1.00	1.00	± 12.0 %
1750	40.1	1.37	5.18	5.18	5.18	1.00	1.11	± 12.0 %
1900	40.0	1.40	4.99	4.99	4.99	1.00	1.09	± 12.0 %
2450	39.2	1.80	4.39	4.39	4.39	0.90	1.15	± 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:3117

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	5.95	5.95	5.95	1.00	1.00	± 12.0 %
1750	53.4	1.49	4.87	4.87	4.87	0.86	1.31	± 12.0 %
1900	53.3	1.52	4.60	4.60	4.60	0.82	1.32	± 12.0 %
2450	52.7	1.95	4.15	4.15	4.15	1.00	1.00	± 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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Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

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S Swiss Calibration Service

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Accreditation No.: SCS 108

Client Nokia Denmark A/S

Certificate No: EX3-3581_Jul11

CALIBRATION CERTIFICATE

Object: EX3DV4 - SN:3581

Calibration procedure(s): QA CAL-01.v8, QA CAL-14.v3, QA CAL-23.v4, QA CAL-25.v4
Calibration procedure for dosimetric E-field probes

Calibration date: July 27, 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	31-Mar-11 (No. 217-01372)	Apr-12
Power sensor E4412A	MY41498087	31-Mar-11 (No. 217-01372)	Apr-12
Reference 3 dB Attenuator	SN: S5054 (3c)	29-Mar-11 (No. 217-01369)	Apr-12
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-11 (No. 217-01367)	Apr-12
Reference 30 dB Attenuator	SN: S5129 (30b)	29-Mar-11 (No. 217-01370)	Apr-12
Reference Probe ES3DV2	SN: 3013	29-Dec-10 (No. ES3-3013_Dec10)	Dec-11
DAE4	SN: 654	3-May-11 (No. DAE4-654_May11)	May-12
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:	Katja Pokovic	Technical Manager	
Approved by:	Niels Kuster	Quality Manager	

Issued: July 27, 2011

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3581

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	8.51	8.51	8.51	0.80	0.67	± 12.0 %
1750	40.1	1.37	7.77	7.77	7.77	0.80	0.64	± 12.0 %
1900	40.0	1.40	7.47	7.47	7.47	0.80	0.62	± 12.0 %
2450	39.2	1.80	6.65	6.65	6.65	0.77	0.63	± 12.0 %
2600	39.0	1.96	6.48	6.48	6.48	0.78	0.63	± 12.0 %
5200	36.0	4.66	4.37	4.37	4.37	0.40	1.80	± 13.1 %
5300	35.9	4.76	4.09	4.09	4.09	0.43	1.80	± 13.1 %
5500	35.6	4.96	3.98	3.98	3.98	0.43	1.80	± 13.1 %
5600	35.5	5.07	3.86	3.86	3.86	0.45	1.80	± 13.1 %
5800	35.3	5.27	3.70	3.70	3.70	0.50	1.80	± 13.1 %

[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:3581

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	8.72	8.72	8.72	0.80	0.72	± 12.0 %
1750	53.4	1.49	7.40	7.40	7.40	0.80	0.68	± 12.0 %
1900	53.3	1.52	6.83	6.83	6.83	0.80	0.66	± 12.0 %
2450	52.7	1.95	6.55	6.55	6.55	0.80	0.50	± 12.0 %
2600	52.5	2.16	6.36	6.36	6.36	0.80	0.50	± 12.0 %
5200	49.0	5.30	3.76	3.76	3.76	0.52	1.90	± 13.1 %
5300	48.9	5.42	3.60	3.60	3.60	0.52	1.90	± 13.1 %
5500	48.6	5.65	3.45	3.45	3.45	0.55	1.90	± 13.1 %
5600	48.5	5.77	3.29	3.29	3.29	0.55	1.90	± 13.1 %
5800	48.2	6.00	3.44	3.44	3.44	0.60	1.90	± 13.1 %

[C] Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.
[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

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

See the following pages

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

S Schweizerischer Kalibrierdienst
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Swiss Calibration Service

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Accreditation No.: SCS 108

Client **Nokia Denmark A/S**

Certificate No: D835V2-4d042_Jul10

CALIBRATION CERTIFICATE

Object	D835V2 - SN: 4d042
Calibration procedure(s)	QA CAL-05.v7 Calibration procedure for dipole validation kits
Calibration date:	July 20, 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)	30-Mar-10 (No. 217-01158)	Mar-11
Type-N mismatch combination	SN: 5047.2 / 06327	30-Mar-10 (No. 217-01162)	Mar-11
Reference Probe ES3DV3	SN: 3205	30-Apr-10 (No. ES3-3205_Apr10)	Apr-11
DAE4	SN: 601	10-Jun-10 (No. DAE4-601_Jun10)	Jun-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

	Name	Function	Signature
Calibrated by:	Dimce Iliev	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: July 20, 2010

DASY5 Validation Report for Head TSL

Date/Time: 12.07.2010 10:35:49

Test Laboratory: SPEAG, Zurich, Switzerland

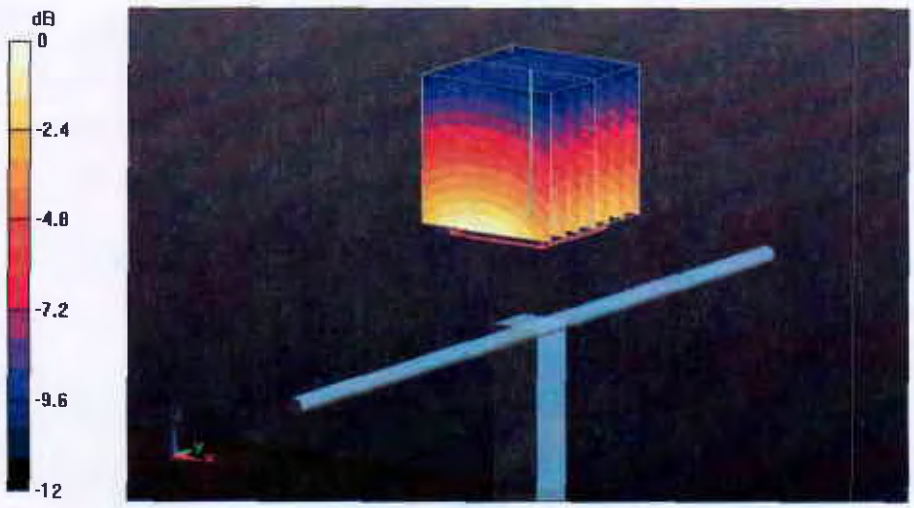
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:4d042

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: HSL900
Medium parameters used: f = 835 MHz; σ = 0.9 mho/m; ε_r = 42.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(6.03, 6.03, 6.03); Calibrated: 30.04.2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- Measurement SW: DASY52, V52.2 Build 0, Version 52.2.0 (163)
- Postprocessing SW: SEMCAD X, V14.2 Build 2, Version 14.2.2 (1685)

Pin=250 mW /d=15mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) /Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 57 V/m; Power Drift = 0.025 dB
Peak SAR (extrapolated) = 3.56 W/kg
SAR(1 g) = 2.38 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: 20.07.2010 11:38:55

Test Laboratory: SPEAG, Zurich, Switzerland

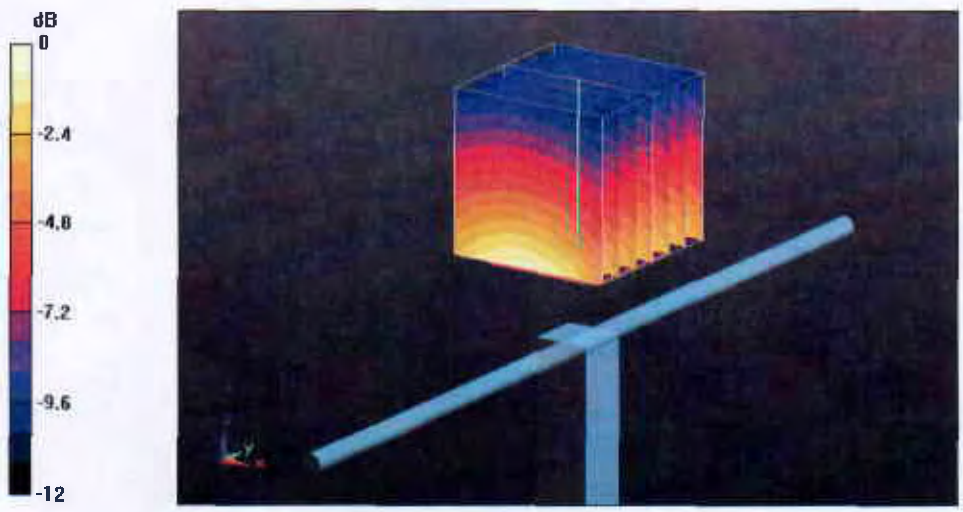
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:4d042

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: MSL900
Medium parameters used: f = 835 MHz; σ = 1.01 mho/m; ε_r = 55; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(5.86, 5.86, 5.86); Calibrated: 30.04.2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- Measurement SW: DASY52, V52.2 Build 0, Version 52.2.0 (163)
- Postprocessing SW: SEMCAD X, V14.2 Build 2, Version 14.2.2 (1685)

Pin=250 mW /d=15mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 56.1 V/m; Power Drift = 0.014 dB
Peak SAR (extrapolated) = 3.78 W/kg
SAR(1 g) = 2.56 mW/g; SAR(10 g) = 1.68 mW/g
Maximum value of SAR (measured) = 2.97 mW/g



0 dB = 2.97mW/g

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

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

Accreditation No.: SCS 108

Client **Nokia Denmark A/S**

Certificate No: D1800V2_2d075_Feb10

CALIBRATION CERTIFICATE

Object	D1800V2 - SN: 2d075
Calibration procedure(s)	QA CAL-05.v7 Calibration procedure for dipole validation kits
Calibration date:	February 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	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: February 23, 2010

DASY5 Validation Report for Head TSL

Date/Time: 23.02.2010 11:16:34

Test Laboratory: SPEAG, Zurich, Switzerland

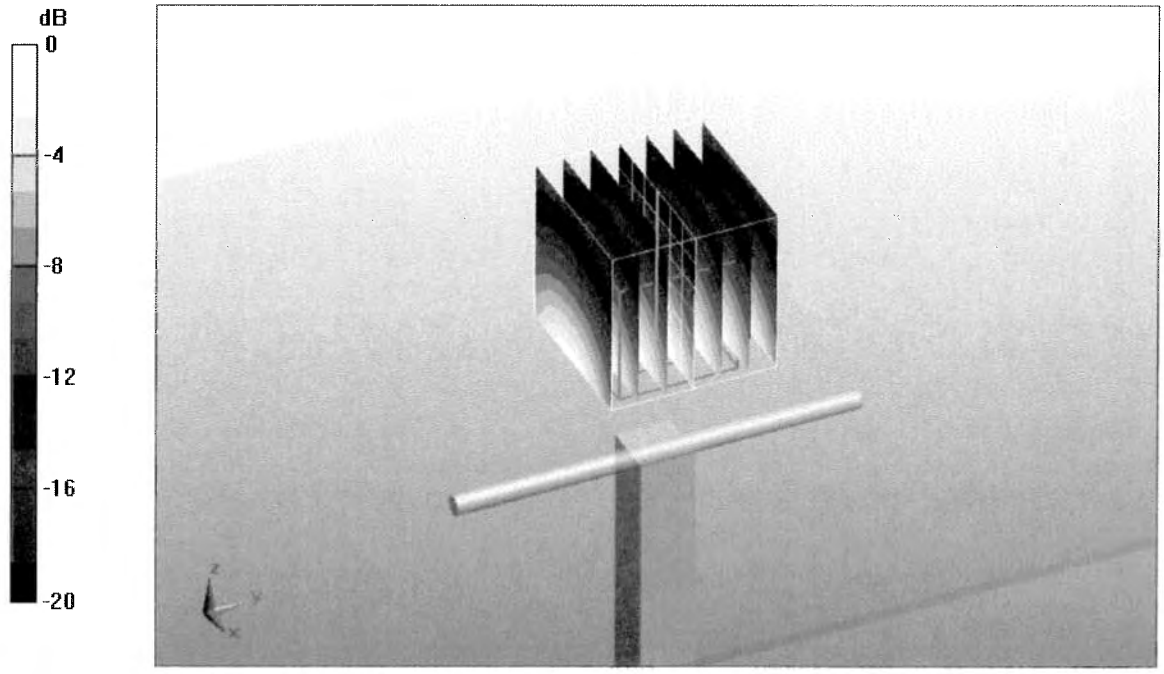
DUT: Dipole 1800 MHz; Type: D1800V2; Serial: D1800V2 - SN:2d075

Communication System: CW; Frequency: 1800 MHz; Duty Cycle: 1:1
Medium: HSL U11 BB
Medium parameters used: f = 1800 MHz; σ = 1.37 mho/m; ε_r = 39.4; ρ = 1000 kg/m^3
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 = 96.3 V/m; Power Drift = 0.050 dB
Peak SAR (extrapolated) = 17.2 W/kg
SAR(1 g) = 9.5 mW/g; SAR(10 g) = 5.01 mW/g
Maximum value of SAR (measured) = 11.9 mW/g



0 dB = 11.9mW/g

DASY5 Validation Report for Body

Date/Time: 16.02.2010 10:42:30

Test Laboratory: SPEAG, Zurich, Switzerland

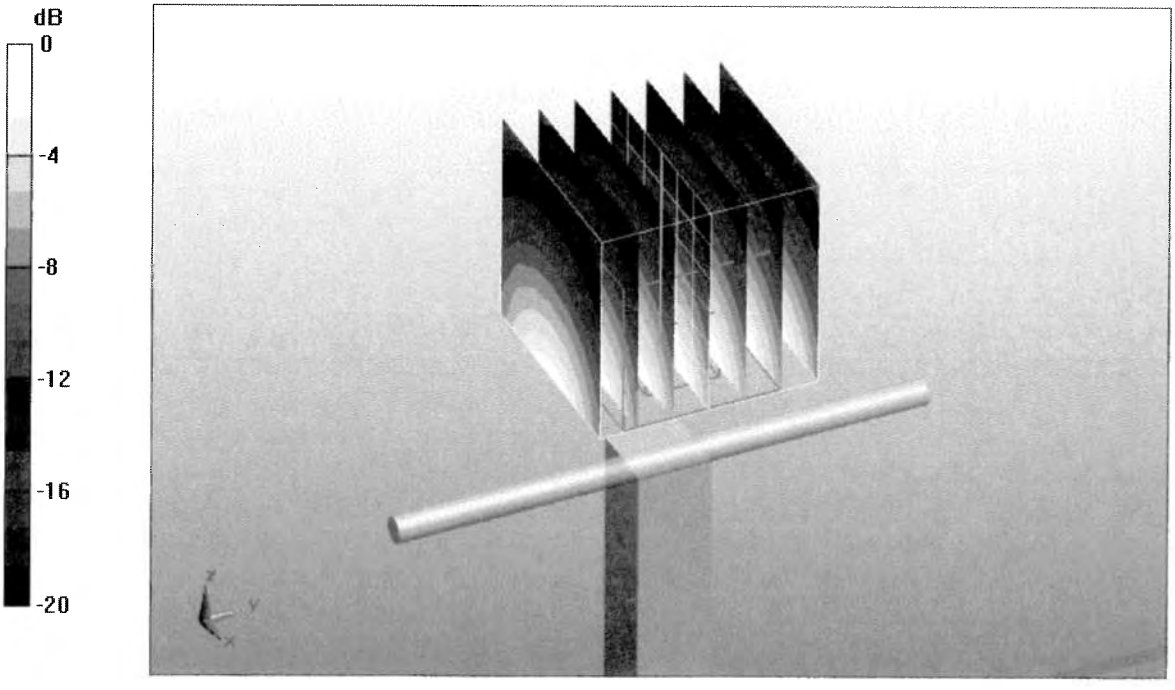
DUT: Dipole 1800 MHz; Type: D1800V2; Serial: D1800V2 - SN:2d075

Communication System: CW; Frequency: 1800 MHz; Duty Cycle: 1:1
Medium: MSL U10 BB
Medium parameters used: f = 1800 MHz; σ = 1.49 mho/m; ε_r = 52.7; ρ = 1000 kg/m^3
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 = 94.5 V/m; Power Drift = -0.015 dB
Peak SAR (extrapolated) = 16.7 W/kg
SAR(1 g) = 9.55 mW/g; SAR(10 g) = 5.07 mW/g
Maximum value of SAR (measured) = 12.1 mW/g



0 dB = 12.1mW/g

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

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S Swiss Calibration Service

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

Accreditation No.: SCS 108

Client **Nokia Denmark A/S**

Certificate No: D1900V2-5d063_Feb10

CALIBRATION CERTIFICATE

Object	D1900V2 - SN: 5d063
Calibration procedure(s)	QA CAL-05.v7 Calibration procedure for dipole validation kits
Calibration date:	February 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	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: February 25, 2010

DASY5 Validation Report for Head TSL

Date/Time: 23.02.2010 13:21:31

Test Laboratory: SPEAG, Zurich, Switzerland

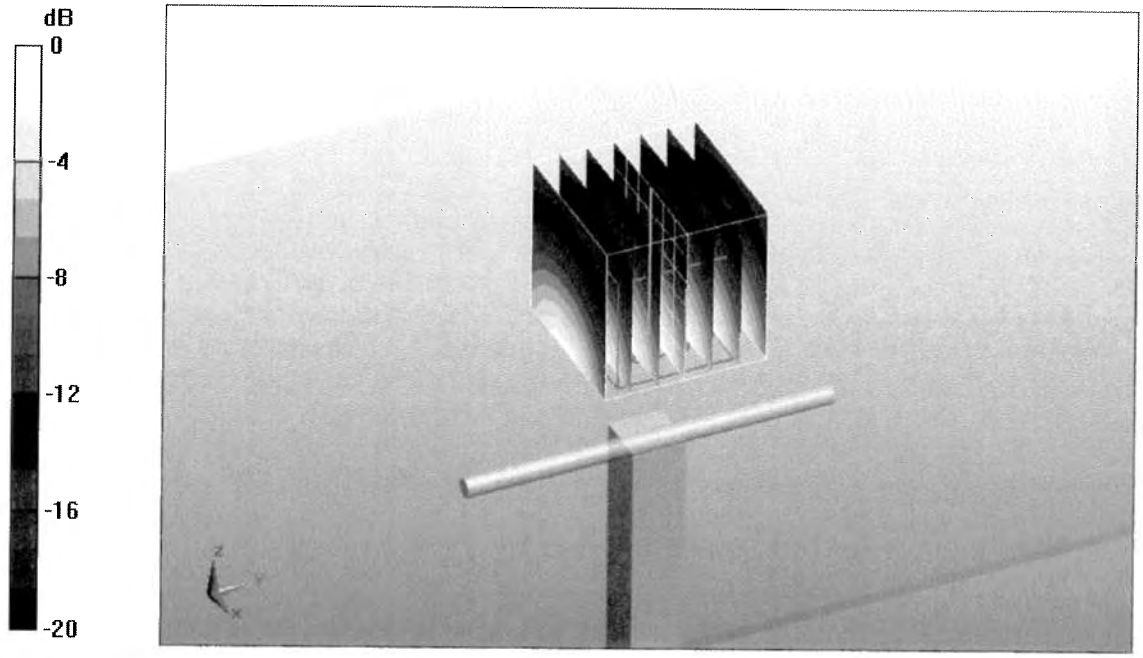
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d063

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: HSL U11 BB
Medium parameters used: f = 1900 MHz; σ = 1.42 mho/m; ε_r = 39.2; ρ = 1000 kg/m^3
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: 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 = 97.1 V/m; Power Drift = 0.041 dB
Peak SAR (extrapolated) = 18.3 W/kg
SAR(1 g) = 9.98 mW/g; SAR(10 g) = 5.2 mW/g
Maximum value of SAR (measured) = 12.4 mW/g



0 dB = 12.4mW/g

DASY5 Validation Report for Body

Date/Time: 16.02.2010 13:00:42

Test Laboratory: SPEAG, Zurich, Switzerland

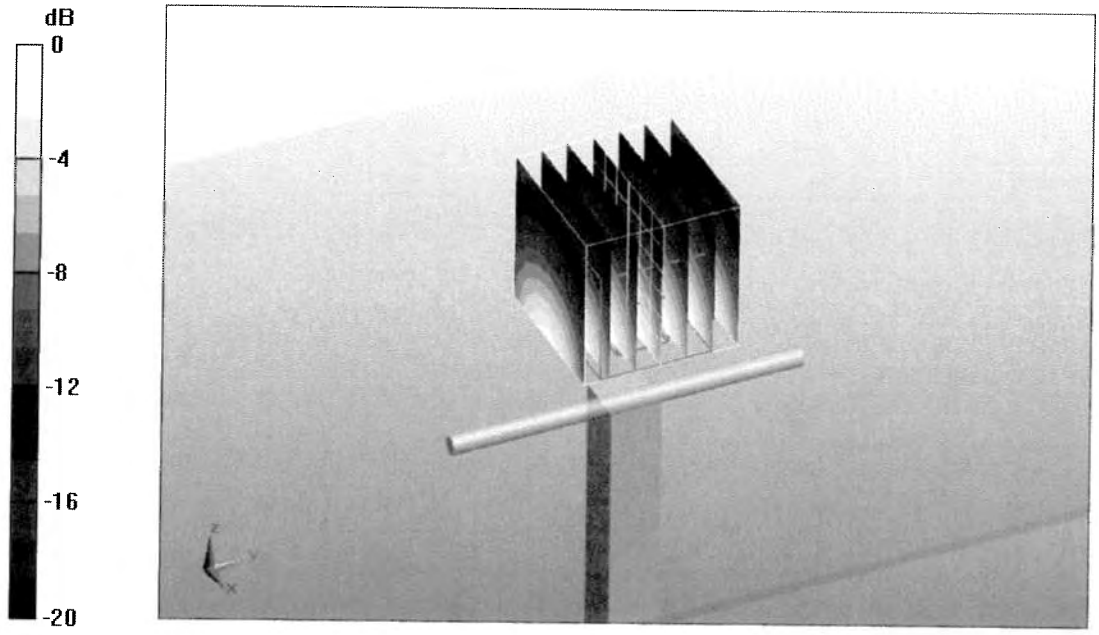
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d063

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: MSL U10 BB
Medium parameters used: f = 1900 MHz; σ = 1.56 mho/m; ε_r = 52.7; ρ = 1000 kg/m^3
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: 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 = 96.1 V/m; Power Drift = 0.078 dB
Peak SAR (extrapolated) = 16.7 W/kg
SAR(1 g) = 10.1 mW/g; SAR(10 g) = 5.31 mW/g
Maximum value of SAR (measured) = 12.8 mW/g



0 dB = 12.8mW/g