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Nokia

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SAR Compliance Test Report

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Testing laboratory:	TCC Nokia Salo Laboratory P.O.Box 86 Joensuunkatu 7H / Kiila 1B FIN-24101 SALO, FINLAND Tel. +358 (0) 7180 08000 Fax. +358 (0) 7180 45220	**Client:**	Nokia Corporation P.O. Box 86 Joensuunkatu 7 FIN-24101 SALO, FINLAND Tel. +358 (0) 7180 08000 Fax. +358 (0) 7180 44277
Responsible test engineer:	Virpi Tuominen	**Product contact person:**	Kari Koskela
Measurements made by:	Heikki Haloila, Janne Hirsimäki, Alina Tähkäpää		
Tested device:	RM-601		
FCC ID:	PYARM-601	**IC:**	661V-RM601
Supplement reports:	FCC_RM-601_09, SAR_Photo_RM-601_14		
Testing has been carried out in accordance with:	**47CFR §2.1093** Radiofrequency Radiation Exposure Evaluation: Portable Devices **FCC OET Bulletin 65 (Edition 97-01), Supplement C (Edition 01-01)** Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields **RSS-102** Evaluation Procedure for Mobile and Portable Radio Transmitters with Respect to Health Canada's Safety Code 6 for Exposure of Humans to Radio Frequency Fields **IEEE 1528 - 2003** IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Technique		
Documentation:	The documentation of the testing performed on the tested devices is archived for 15 years at TCC Nokia.		
Test results:	**The tested device complies with the requirements in respect of all parameters subject to the test.** The test results and statements relate only to the items tested. The test report shall not be reproduced except in full, without written approval of the laboratory.		

Date and signatures:

For the contents:

Digitally signed by Virpi Tuominen
DN: cn=Virpi Tuominen, c=FI, email=virpi.t.tuominen@nokia.com
Date: 2011.02.28 15:10:31 +02'00'

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1. SUMMARY OF SAR TEST REPORT

1.1 Test Details

Period of test	2011-02-21 to 2011-02-23
SN, HW and SW numbers of tested device	SN: 353758/04/000904/1, HW: 0500 ES6.2, SW: 012.006, DUT: 15490 SN: 353759/04/002344/6, HW: 0500 ES6.2, SW: 012.006, DUT: 15338
Batteries used in testing	BL-5CT, DUT: 14884, 14885, 15335, 15336
Headsets used in testing	-
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
3-slot GPRS850	251/848.8	30.2 dBm	Left, Tilt	0.576 W/kg	**0.65 W/kg**	1.6 W/kg	PASSED
WCDMA850	4233/846.6	23.5 dBm	Left, Tilt	0.393 W/kg	**0.44 W/kg**	1.6 W/kg	PASSED
WCDMA1700/2100	1513/1752.6	22.0 dBm	Left, Tilt	0.779 W/kg	**0.87 W/kg**	1.6 W/kg	PASSED
4-slot GPRS1900	810/1909.8	24.5 dBm	Left, Tilt	0.976 W/kg	**1.09 W/kg**	1.6 W/kg	PASSED
WCDMA1900	9262/1852.4	21.5 dBm	Left, Tilt	0.985 W/kg	**1.10 W/kg**	1.6 W/kg	PASSED
WLAN2450	7/2442.0	17.0 dBm	Right, Cheek	0.248 W/kg	**0.28 W/kg**	1.6 W/kg	PASSED
3-slot GPRS850 + WLAN2450	-	-	Left, Tilt	0.690 W/kg	**0.77 W/kg**	1.6 W/kg	PASSED
WCDMA850 + WLAN2450	-	-	Left, Tilt	0.530 W/kg	**0.59 W/kg**	1.6 W/kg	PASSED
WCDMA1700/2100 + WLAN2450	-	-	Left, Tilt	0.808 W/kg	**0.90 W/kg**	1.6 W/kg	PASSED
4-slot GPRS1900 + WLAN2450	-	-	Left, Tilt	0.986 W/kg	**1.10 W/kg**	1.6 W/kg	PASSED
WCDMA1900 + WLAN2450	-	-	Left, Tilt	0.994 W/kg	**1.11 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
3-slot GPRS850	251/848.8	30.2 dBm	1.5 cm	1.08 W/kg	**1.21 W/kg**	1.6 W/kg	PASSED
WCDMA850	4233/846.6	23.5 dBm	1.5 cm	0.744 W/kg	**0.83 W/kg**	1.6 W/kg	PASSED
WCDMA1700/2100	1513/1752.6	22.0 dBm	1.5 cm	0.303 W/kg	**0.34 W/kg**	1.6 W/kg	PASSED
4-slot GPRS1900	810/1909.8	24.5 dBm	1.5 cm	0.342 W/kg	**0.38 W/kg**	1.6 W/kg	PASSED
WCDMA1900	9262/1852.4	21.5 dBm	1.5 cm	0.358 W/kg	**0.40 W/kg**	1.6 W/kg	PASSED
WLAN2450	7/2442.0	17.0 dBm	1.5 cm	0.109 W/kg	**0.12 W/kg**	1.6 W/kg	PASSED
3-slot GPRS850 + WLAN2450	-	-	1.5 cm	1.13 W/kg	**1.27 W/kg**	1.6 W/kg	PASSED
WCDMA850 + WLAN2450	-	-	1.5 cm	0.811 W/kg	**0.91 W/kg**	1.6 W/kg	PASSED
WCDMA1700/2100 + WLAN2450	-	-	1.5 cm	0.360 W/kg	**0.40 W/kg**	1.6 W/kg	PASSED
4-slot GPRS1900 + WLAN2450	-	-	1.5 cm	0.398 W/kg	**0.45 W/kg**	1.6 W/kg	PASSED
WCDMA1900 + WLAN2450	-	-	1.5 cm	0.422 W/kg	**0.47 W/kg**	1.6 W/kg	PASSED

* SAR values are scaled up by 12% to cover measurement drift. As a consequence of this upwards correction of the SAR values, the contribution of measurement drift to the overall measurement uncertainty (Section 6) is reduced to zero.
**SAR data taken from FCC_RM-601_09.

1.2.3 Maximum Drift

Maximum drift covered by 12% scaling up of the SAR values	Maximum drift during measurements
0.5dB	0.49 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.

This device has Wireless Router “Hotspot” mode capability.

2.1 Description of the Antenna

The device has internal antennas for both cellular and WLAN use. The cellular antenna is located at the top 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):	20.7 – 22.6
Ambient humidity (RH %):	27 - 35

3.2 Test Signal, Frequencies and Output Power

The device was put into operation by using a call tester except for testing WLAN2450 where control software was used. Communication between the device and the call tester was established by air link.

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

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

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

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

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

This report presents test details and results for Body SAR testing at 12.5mm separation distance (i.e. Wireless Router "Hotspot" mode) only; these details and results are given in Appendix D.

3.3 Test Cases and Test Minimisation

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

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

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

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

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

In the results tables in Section 7, the maximum SAR value for the 'basic' tests (i.e. left cheek, left tilt, right cheek and right tilt in Head SAR testing; with and without headset with the back &/or

display side facing the flat phantom in Body SAR testing) is bolded for each band. In some cases, after full testing of the basic SAR test configurations has been completed, additional checking SAR tests are made. These checking tests are always based on the bolded result from the 'basic' testing. When the SAR value of a checking test exceeds the maximum value from the basic tests, it is also bolded and used as the basis for any further checking tests that might be needed.

Checking tests are largely voluntary and can cover optional batteries, different camera slide positions, optional covers, etc. In the case of optional batteries, if the construction of the optional battery is significantly different to the battery used in the full testing e.g. if the outer can is floating electrically rather than grounded, then the maximum SAR test configuration in each band is tested with the optional battery in 3 channels. For camera slides, if the slide material is metal, then checking tests in 3 channels are again run for the maximum SAR test configuration in each band. For plastic camera slides, SAR checking is only carried out in the channel that provided the maximum SAR value for the original. Optional front and back covers are tested if their shape differs significantly from the original or if their metallic content varies by more than 15% from the original; in the former case, the testing depends on the extent of the physical differences, whereas in the latter case, 3 channel SAR testing is performed in every band in the max SAR test configuration.

4. DESCRIPTION OF THE TEST EQUIPMENT

4.1 Measurement System and Components

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

The following table lists calibration dates of SPEAG components:

Test Equipment	Serial Number	Calibration interval	Calibration expiry
DAE 4	538	12 months	2011-09
DAE 4	728	12 months	2011-03
DAE 4	793	12 months	2011-09
E-field Probe ET3DV6	1766	12 months	2011-03
E-field Probe ES3DV3	3131	12 months	2011-09
E-field Probe ES3DV3	3194	12 months	2011-09
Dipole Validation Kit, D835V2	480	24 months	2011-10
Dipole Validation Kit, D1800V2	256	24 months	2011-10
Dipole Validation Kit, D1900V2	5d013	24 months	2012-03
Dipole Validation Kit, D2450V2	749	24 months	2011-10
DASY4 software	Version 4.7	-	-

Additional test equipment used in testing:

Test Equipment	Model	Serial Number	Calibration interval	Calibration expiry
Signal Generator	SML03	101265	12 months	2011-08
Amplifier	ZHL-42 (SMA)	N072095-5	12 months	2011-08
Power Meter	NRVS	838624/032	12 months	2011-08
Power Sensor	NRV-Z32	839176/020	12 months	2011-08
Call Tester	CMU 200	101111	-	-
Call Tester	CMU 200	103293	-	-
Vector Network Analyzer	8753E	US38432928	12 months	2011-08
Dielectric Probe Kit	85070B	US33020420	-	-
Signal Generator	E4436B	US39260114	12 months	2011-08
Amplifier	5S1G4	25583	12 months	2011-08
Power Meter	NRVS	849305/028	12 months	2011-08
Power Sensor	NRV-Z32	100067	12 months	2011-12

4.1.1 Isotropic E-field Probe Type ET3DV6

Construction	Symmetrical design with triangular core Built-in optical fiber for surface detection system Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., butyl diglycol)
Calibration	Calibration certificate in Appendix B
Frequency	10 MHz to 3 GHz (dosimetry); Linearity: ± 0.2 dB (30 MHz to 3 GHz)
Optical Surface Detection	± 0.2 mm repeatability in air and clear liquids over diffuse reflecting surfaces
Directivity	± 0.2 dB in HSL (rotation around probe axis) ± 0.4 dB in HSL (rotation normal to probe axis)
Dynamic Range	5 µW/g to > 100 mW/g; Linearity: ± 0.2 dB
Dimensions	Overall length: 330 mm Tip length: 16 mm Body diameter: 12 mm Tip diameter: 6.8 mm Distance from probe tip to dipole centers: 2.7 mm
Application	General dosimetry up to 3 GHz Compliance tests of mobile phones Fast automatic scanning in arbitrary phantoms

4.1.2 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 B
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

4.2 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. 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	Body (% by weight)
Deionised Water	69.25
Tween 20	30.00
Salt	0.75

1800MHz band

Ingredient	Body (% by weight)
Deionised Water	70.20
Tween 20	29.37
Salt	0.43

1900MHz band

Ingredient	Body (% by weight)
Deionised Water	70.25
Tween 20	29.41
Salt	0.34

2450MHz band

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

4.3.2 System Checking

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

System checking, head tissue simulant

f [MHz]	Description	SAR [W/kg], 1g	Dielectric Parameters		Temp [°C]
			ε_r	σ [S/m]	
	Reference result	13.2	39.1	1.78	
	± 10% window	11.9 – 14.5			
2450	2011-02-23	14.1	37.8	1.82	21.0

System checking, body tissue simulant

f [MHz]	Description	SAR [W/kg], 1g	Dielectric Parameters		Temp [°C]
			ε_r	σ [S/m]	
	Reference result	2.52	53.2	1.01	
	± 10% window	2.27 – 2.77			
835	2011-02-21	2.55	53.1	1.00	21.0
	Reference result	9.61	53.5	1.50	
	± 10% window	8.65 – 10.57			
1800	2011-02-22	9.07	51.3	1.49	21.0
	Reference result	10.4	55.0	1.58	
	± 10% window	9.4 – 11.4			
1900	2011-02-21	9.50	52.7	1.52	21.0
	2011-02-22	10.1	52.5	1.53	21.0

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

4.3.3 Tissue Simulants used in the Measurements

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	2011-02-21	53.1	1.00	21.0
	Recommended value	55.2	0.97	
	± 5% window	52.4 – 58.0	0.92 – 1.02	
836	2011-02-21	53.1	1.00	21.0
	Recommended value	53.5	1.48	
	± 5% window	50.8 – 56.2	1.40 – 1.55	
1732	2011-02-22	51.6	1.42	21.0
	Recommended value	53.3	1.52	
	± 5% window	50.6 – 56.0	1.44 – 1.60	
1880	2011-02-21	52.8	1.50	21.0
	2011-02-22	52.6	1.51	21.0
	Recommended value	52.7	1.94	
	± 5% window	50.1 – 55.3	1.85 – 2.04	
2442	2011-02-23	50.9	1.99	21.0

5. DESCRIPTION OF THE TEST PROCEDURE

5.1 Device Holder

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

Device holder supplied by SPEAG

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

Nokia spacer

5.2 Test Positions

5.2.1 Body Worn Configuration

The device was placed in the SPEAG holder using the Nokia spacer and, in sequence, the display, the back and each of the 4 edges was positioned 12.5mm away from the flat phantom. The spacer was removed before the start of the measurements.

5.3 Scan Procedures

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

5.4 SAR Averaging Methods

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

The interpolation, extrapolation and maximum search routines within Dasy4 are all based on the modified Quadratic Shepard's method (Robert J. Renka, "Multivariate Interpolation Of Large

Sets Of Scattered Data", University of North Texas ACM Transactions on Mathematical Software, vol. 14, no. 2, June 1988, pp. 139-148).

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

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

6. MEASUREMENT UNCERTAINTY

Table 6.1 – Measurement uncertainty evaluation

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

7. RESULTS**

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

850MHz Head SAR results

Mode	Test configuration		SAR, averaged over 1g (W/kg)		
			Ch 128 824.2 MHz	Ch 190 836.6 MHz	Ch 251 848.8 MHz
GSM	**Conducted Power**		**-**	**32.5 dBm**	**-**
	Left	Cheek	-	0.237	-
		Tilt	-	-	-
	Right	Cheek	-	-	-
		Tilt	-	-	-
2-slot GPRS	**Conducted Power**		**-**	**32.0 dBm**	**-**
	Left	Cheek	-	0.409	-
		Tilt	-	-	-
	Right	Cheek	-	-	-
		Tilt	-	-	-
3-slot GPRS	**Conducted Power**		**30.2 dBm**	**30.2 dBm**	**30.2 dBm**
	Left	Cheek	-	0.410	-
		Tilt	0.428	0.472	**0.576**
	Right	Cheek	-	0.432	-
		Tilt	-	0.434	-
4-slot GPRS	**Conducted Power**		**-**	**29.0dBm**	**-**
	Left	Cheek	-	0.408	-
		Tilt	-	-	-
	Right	Cheek	-	-	-
		Tilt	-	-	-
3-slot 8PSK EGPRS	**Conducted Power**		**-**	**-**	**26.2 dBm**
	Left	Cheek	-	-	-
		Tilt	-	-	0.171
	Right	Cheek	-	-	-
		Tilt	-	-	-

850MHz Table continues

850MHz Table continues

Mode	Test configuration		SAR, averaged over 1g (W/kg)		
			Ch 4132 826.4 MHz	Ch 4175 835.0 MHz	Ch 4233 846.6 MHz
WCDMA	Conducted Power		23.5 dBm	23.5 dBm	23.5 dBm
	Left	Cheek	-	0.310	-
		Tilt	0.296	0.362	**0.393**
	Right	Cheek	-	0.341	-
		Tilt	-	0.343	-

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		22.0 dBm	22.0 dBm	22.0 dBm
	Left	Cheek	-	0.545	-
		Tilt	0.536	0.727	**0.779**
	Right	Cheek	-	0.349	-
		Tilt	-	0.544	-

1900MHz Head SAR results

Mode	Test configuration		SAR, averaged over 1g (W/kg)		
			Ch 512 1850.2 MHz	Ch 661 1880.0 MHz	Ch 810 1909.8 MHz
GSM	Conducted Power		-	30.5 dBm	-
	Left	Cheek	-	0.621	-
		Tilt	-	-	-
	Right	Cheek	-	-	-
		Tilt	-	-	-
2-slot GPRS	Conducted Power		-	27.5 dBm	-
	Left	Cheek	-	0.641	-
		Tilt	-	-	-
	Right	Cheek	-	-	-
		Tilt	-	-	-
3-slot GPRS	Conducted Power		-	25.5 dBm	-
	Left	Cheek	-	0.605	-
		Tilt	-	-	-
	Right	Cheek	-	-	-
		Tilt	-	-	-
4-slot GPRS	Conducted Power		24.5 dBm	24.5 dBm	24.5 dBm
	Left	Cheek	-	0.659	-
		Tilt	0.889	0.899	0.976
	Right	Cheek	-	0.464	-
		Tilt	-	0.679	-
4-slot 8PSK EGPRS	Conducted Power		-	-	24.0 dBm
	Left	Cheek	-	-	-
		Tilt	-	-	0.714
	Right	Cheek	-	-	-
		Tilt	-	-	-

Mode	Test configuration		SAR, averaged over 1g (W/kg)		
			Ch 9262 1852.4 MHz	Ch 9400 1880.0 MHz	Ch 9538 1907.6 MHz
WCDMA	Conducted Power		21.5 dBm	21.5 dBm	21.5 dBm
	Left	Cheek	-	0.548	-
		Tilt	0.985	0.771	0.780
	Right	Cheek	-	0.365	-
		Tilt	-	0.585	-

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		17.0 dBm	17.0 dBm	17.0 dBm
	Left	Cheek	-	0.131	-
		Tilt	-	0.155	-
	Right	Cheek	0.088	**0.200**	0.147
		Tilt	-	0.125	-
WLAN n-mode 20MHz	Conducted Power		16.0 dBm	16.0 dBm	16.0 dBm
	Left	Cheek	-	-	-
		Tilt	-	-	-
	Right	Cheek	0.068	0.167	0.120
		Tilt	-	-	-

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

850MHz Body SAR results

Mode	Device orientation	Test configuration	SAR, averaged over 1g (W/kg)		
			Ch 128 824.2 MHz	Ch 190 836.6 MHz	Ch 251 848.8 MHz
3-slot GPRS		Conducted Power	30.2 dBm	30.2 dBm	30.2 dBm
	Display facing phantom	Without headset	-	0.306	-
		Headset WH-102	-	0.217	-
	Back facing phantom	Without headset	0.858	0.991	**1.08**
		Headset WH-102	-	0.778	-
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
	Display facing phantom	Without headset	-	0.227	-
		Headset WH-102	-	0.171	-
	Back facing phantom	Without headset	0.560	0.677	**0.744**
		Headset WH-102	-	0.501	-

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**	**22.0 dBm**	**22.0 dBm**	**22.0 dBm**
	Display facing phantom	Without headset	-	0.123	-
		Headset WH-102	-	0.105	-
	Back facing phantom	Without headset	0.202	0.248	**0.303**
		Headset WH-102	-	0.224	-

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
4-slot GPRS		**Conducted Power**	**24.5 dBm**	**24.5 dBm**	**24.5 dBm**
	Display facing phantom	Without headset	-	0.187	-
		Headset WH-102	-	0.165	-
	Back facing phantom	Without headset	0.307	0.340	**0.342**
		Headset WH-102	-	0.337	-

Mode	Device orientation	Test configuration	SAR, averaged over 1g (W/kg)		
			Ch 9262 1852.4 MHz	Ch 9400 1880.0 MHz	Ch 9538 1907.6 MHz
WCDMA		**Conducted Power**	**21.5 dBm**	**21.5 dBm**	**21.5 dBm**
	Display facing phantom	Without headset	-	0.163	-
		Headset WH-102	-	0.148	-
	Back facing phantom	Without headset	-	0.304	-
		Headset WH-102	**0.358**	0.309	0.304

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	17.0 dBm	17.0 dBm	17.0 dBm
	Display facing phantom	Without headset	-	-	-
		Headset WH-102	-	-	-
	Back facing phantom	Without headset	0.037	**0.080**	0.057
		Headset WH-102	-	0.079	-
WLAN n-mode 20MHz		Conducted Power	16.0 dBm	16.0 dBm	16.0 dBm
	Display facing phantom	Without headset	-	-	-
		Headset WH-102	-	-	-
	Back facing phantom	Without headset	0.03	0.065	0.039
		Headset WH-102	-	-	-

Simultaneous transmissions: Combined SAR results – Individual band Max results

Test configuration	Max. 1g SAR results					
	WLAN	3-slot GPRS850	WCDMA 850	WCDMA 1700/2100	4-slot GPRS 1900	WCDMA 1900
Head: Left, Cheek	0.131	0.410	0.310	0.545	0.659	0.548
Head: Left, Tilt	0.155	0.576	0.393	0.779	0.976	0.985
Head: Right, Cheek	0.200	0.432	0.341	0.349	0.464	0.365
Head: Right, Tilt	0.125	0.434	0.343	0.544	0.679	0.585
Body: Without Headset	0.080	1.08	0.744	0.303	0.342	0.304
Body: Headset WH-102	0.079	0.778	0.501	0.224	0.337	0.358

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

Test configuration	Combined 1g SAR values				
	WLAN + 3-slot GPRS850	WLAN + WCDMA 850	WLAN + WCDMA 1700/2100	WLAN + 4-slot GPRS 1900	WLAN + WCDMA 1900
Head: Left, Cheek	0.541	0.441	0.676	0.790	0.679
Head: Left, Tilt	**0.731**	**0.548**	**0.934**	**1.131**	**1.140**
Head: Right, Cheek	0.632	0.541	0.549	0.664	0.565
Head: Right, Tilt	0.559	0.468	0.669	0.804	0.710
Body: Without Headset	**1.16**	**0.824**	**0.383**	**0.422**	0.384
Body: Headset WH-102	0.857	0.580	0.303	0.416	**0.437**

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	Combined 1g SAR values				
	WLAN + 3-slot GPRS850	WLAN + WCDMA 850	WLAN + WCDMA 1700/2100	WLAN + 4-slot GPRS 1900	WLAN + WCDMA 1900
Head: Left, Cheek	-	-	-	-	-
Head: Left, Tilt	**0.651**	**0.483**	**0.793**	**0.972**	**0.976**
Head: Right, Cheek	-	**-**	-	-	-
Head: Right, Tilt	-	-	-	-	-
Body: Without Headset	**1.12**	**0.804**	**0.357**	**0.406**	**-**
Body: Headset WH-102	-	-	-	**-**	**0.417**

**SAR data taken from FCC_RM-601_09.

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.

APPENDIX A: SYSTEM CHECKING SCANS

Date/Time: 2011-02-23 09:47:05

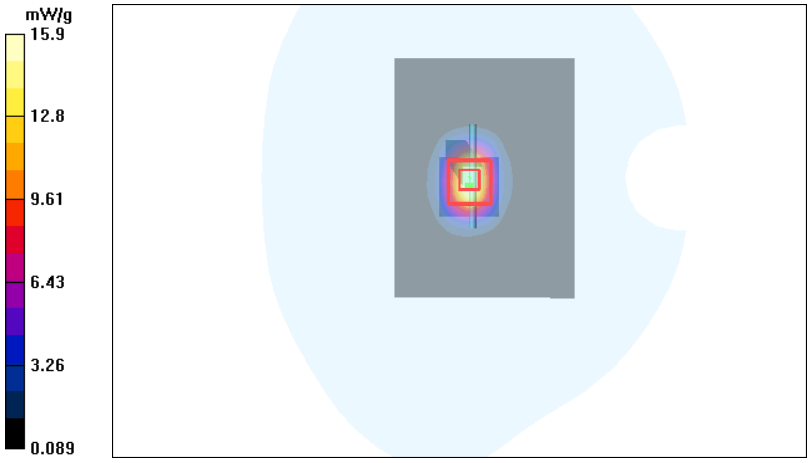
Test Laboratory: TCC Nokia
Type: D2450V2; Serial: D2450V2 - SN:749

Communication System: CW2450
Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: HSL2450; Medium Notes: t= 21.0 C
Medium parameters used: f = 2450 MHz; σ = 1.82 mho/m; ε_r = 37.8; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3131
- ConvF(4.26, 4.26, 4.26); Calibrated: 2010-09-09
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn793; Calibrated: 2010-09-08
- Phantom: SAM1; Type: SAM; Serial: TP-1126
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

d=15mm, Pin=250mW/Area Scan (61x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 17.3 mW/g

d=15mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 93.6 V/m
Peak SAR (extrapolated) = 29.0 W/kg
SAR(1 g) = 14.1 mW/g
SAR(10 g) = 6.54 mW/g
Power Drift = 0.075 dB
Maximum value of SAR (measured) = 15.9 mW/g



Date/Time: 2011-02-21 09:42:28

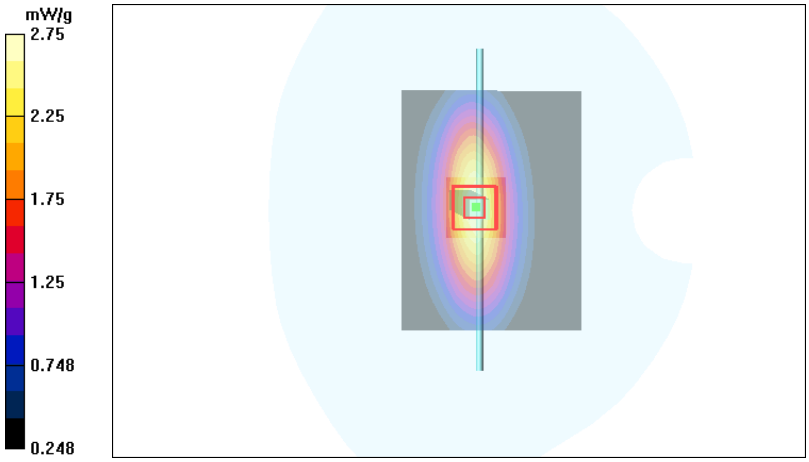
Test Laboratory: TCC Nokia
Type: D835V2; Serial: D835V2 - SN:480

Communication System: CW835
Frequency: 835 MHz; Duty Cycle: 1:1
Medium: BSL850; Medium Notes: t= 21.2 C
Medium parameters used: f = 835 MHz; σ = 1 mho/m; ε_r = 53.1; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3194
- ConvF(5.95, 5.95, 5.95); Calibrated: 2010-09-09
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2010-09-09
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

d=15mm, Pin=250mW/Area Scan (61x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.70 mW/g

d=15mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 52.1 V/m
Peak SAR (extrapolated) = 3.82 W/kg
SAR(1 g) = 2.55 mW/g
SAR(10 g) = 1.67 mW/g
Power Drift = 0.077 dB
Maximum value of SAR (measured) = 2.75 mW/g



Date/Time: 2011-02-22 14:51:41

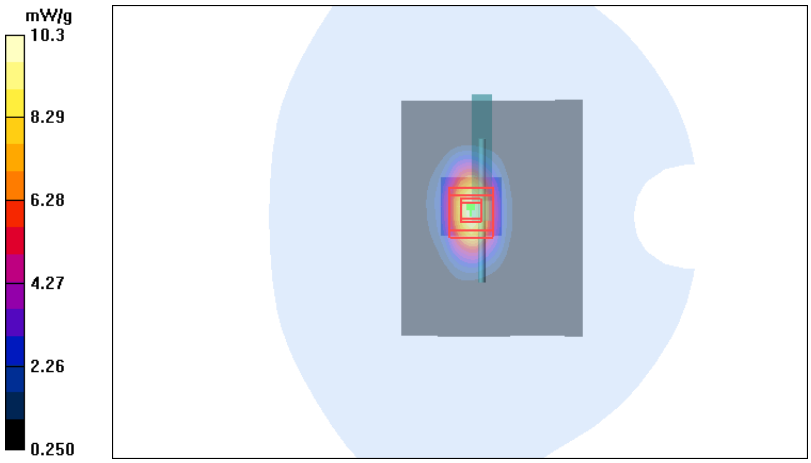
Test Laboratory: TCC Nokia
Type: D1800V2; Serial: D1800V2 - SN:256

Communication System: CW1800
Frequency: 1800 MHz; Duty Cycle: 1:1
Medium: BSL1800; Medium Notes: t= 21.5 C
Medium parameters used: f = 1800 MHz; σ = 1.49 mho/m; ε_r = 51.3; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1766
- ConvF(4.58, 4.58, 4.58); Calibrated: 2010-03-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn728; Calibrated: 2010-03-19
- Phantom: SAM 3; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

d=15mm, Pin=250mW/Area Scan (61x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 10.9 mW/g

d=15mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 82.7 V/m
Peak SAR (extrapolated) = 13.6 W/kg
SAR(1 g) = 9.07 mW/g
SAR(10 g) = 4.99 mW/g
Power Drift = 0.101 dB
Maximum value of SAR (measured) = 10.3 mW/g



Date/Time: 2011-02-21 10:39:16

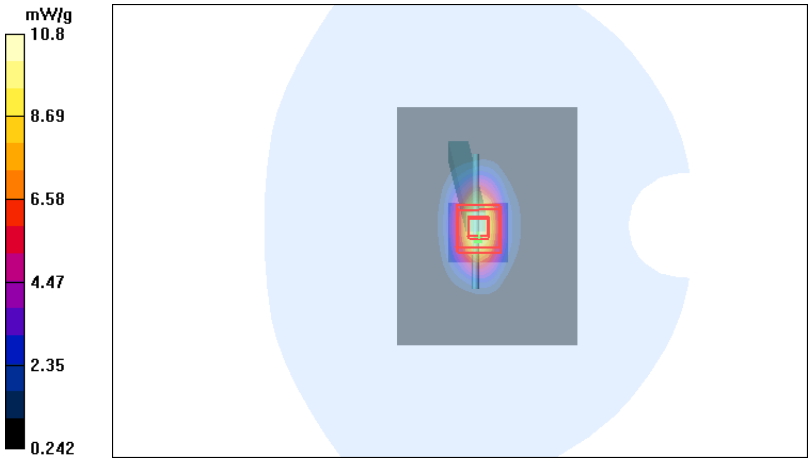
Test Laboratory: TCC Nokia
Type: D1900V2; Serial: D1900V2 - SN:5d013

Communication System: CW1900
Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: BSL1900; Medium Notes: t= 21.4 C
Medium parameters used: f = 1900 MHz; σ = 1.52 mho/m; ε_r = 52.7; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1766
- ConvF(4.37, 4.37, 4.37); Calibrated: 2010-03-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn728; Calibrated: 2010-03-19
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

d=15mm, Pin=250mW/Area Scan (61x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 11.2 mW/g

d=15mm, Pin=250mW/Zoom Scan 2 (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 92.7 V/m
Peak SAR (extrapolated) = 14.5 W/kg
SAR(1 g) = 9.5 mW/g
SAR(10 g) = 5.22 mW/g
Power Drift = -0.092 dB
Maximum value of SAR (measured) = 10.8 mW/g



Date/Time: 2011-02-22 09:52:40

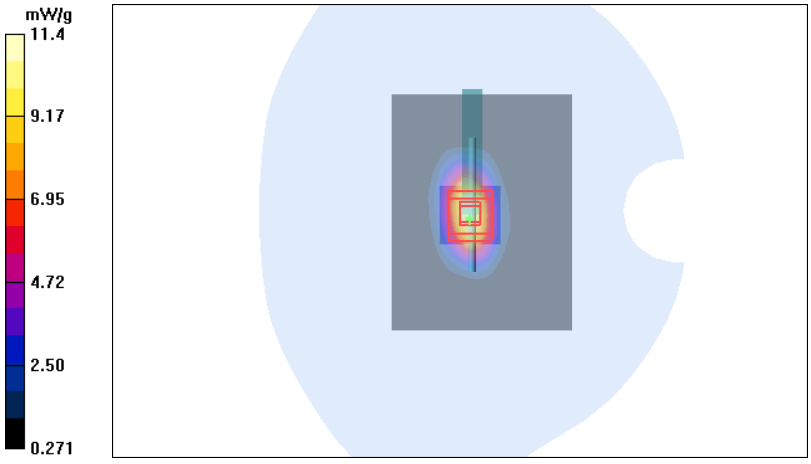
Test Laboratory: TCC Nokia
Type: D1900V2; Serial: D1900V2 - SN:5d013

Communication System: CW1900
Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: BSL1900; Medium Notes: t= 21.2 C
Medium parameters used: f = 1900 MHz; σ = 1.53 mho/m; ε_r = 52.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1766
- ConvF(4.37, 4.37, 4.37); Calibrated: 2010-03-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn728; Calibrated: 2010-03-19
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

d=15mm, Pin=250mW/Area Scan (61x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 12.1 mW/g

d=15mm, Pin=250mW/Zoom Scan 2 (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 95.4 V/m
Peak SAR (extrapolated) = 15.3 W/kg
SAR(1 g) = 10.1 mW/g
SAR(10 g) = 5.53 mW/g
Power Drift = -0.029 dB
Maximum value of SAR (measured) = 11.4 mW/g



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

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 Salo TCC

Certificate No: ET3-1766_Mar10

CALIBRATION CERTIFICATE

Object	ET3DV6 - SN:1766
Calibration procedure(s)	QA CAL-01.v6, QA CAL-23.v3 and QA CAL-25.v2 Calibration procedure for dosimetric E-field probes
Calibration date:	March 19, 2010

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	1-Apr-09 (No. 217-01030)	Apr-10
Power sensor E4412A	MY41495277	1-Apr-09 (No. 217-01030)	Apr-10
Power sensor E4412A	MY41498087	1-Apr-09 (No. 217-01030)	Apr-10
Reference 3 dB Attenuator	SN: S5054 (3c)	31-Mar-09 (No. 217-01026)	Mar-10
Reference 20 dB Attenuator	SN: S5086 (20b)	31-Mar-09 (No. 217-01028)	Mar-10
Reference 30 dB Attenuator	SN: S5129 (30b)	31-Mar-09 (No. 217-01027)	Mar-10
Reference Probe ES3DV2	SN: 3013	30-Dec-09 (No. ES3-3013_Dec09)	Dec-10
DAE4	SN: 660	29-Sep-09 (No. DAE4-660_Sep09)	Sep-10

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

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

Issued: March 19, 2010

DASY - Parameters of Probe: ET3DV6 SN:1766

Calibration Parameter Determined in Head Tissue Simulating Media

f [MHz]	Validity [MHz][C]	Permittivity	Conductivity	ConvF X	ConvF Y	ConvF Z	Alpha	Depth Unc (k=2)
835	± 50 / ± 100	41.9 ± 5%	0.89 ± 5%	6.06	6.06	6.06	0.54	2.03 ± 11.0%
1750	± 50 / ± 100	40.1 ± 5%	1.37 ± 5%	5.03	5.03	5.03	0.62	2.35 ± 11.0%
1900	± 50 / ± 100	40.0 ± 5%	1.40 ± 5%	4.81	4.81	4.81	0.72	2.14 ± 11.0%
2450	± 50 / ± 100	39.2 ± 5%	1.80 ± 5%	4.22	4.22	4.22	0.99	1.63 ± 11.0%

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

DASY - Parameters of Probe: ET3DV6 SN:1766

Calibration Parameter Determined in Body Tissue Simulating Media

f [MHz]	Validity [MHz][C]	Permittivity	Conductivity	ConvF X	ConvF Y	ConvF Z	Alpha	Depth Unc (k=2)
835	± 50 / ± 100	55.2 ± 5%	0.97 ± 5%	5.94	5.94	5.94	0.48	2.18 ± 11.0%
1750	± 50 / ± 100	53.4 ± 5%	1.49 ± 5%	4.58	4.58	4.58	0.66	3.00 ± 11.0%
1900	± 50 / ± 100	53.3 ± 5%	1.52 ± 5%	4.37	4.37	4.37	0.90	2.43 ± 11.0%
2450	± 50 / ± 100	52.7 ± 5%	1.95 ± 5%	3.95	3.95	3.95	0.99	1.24 ± 11.0%

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

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

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

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

Accreditation No.: SCS 108

Client **Nokia Salo TCC**

Certificate No: ES3-3131_Sep10

CALIBRATION CERTIFICATE

Object: ES3DV3 - SN:3131

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

Calibration date: September 9, 2010

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	1-Apr-10 (No. 217-01136)	Apr-11
Power sensor E4412A	MY41495277	1-Apr-10 (No. 217-01136)	Apr-11
Power sensor E4412A	MY41498087	1-Apr-10 (No. 217-01136)	Apr-11
Reference 3 dB Attenuator	SN: S5054 (3c)	30-Mar-10 (No. 217-01159)	Mar-11
Reference 20 dB Attenuator	SN: S5086 (20b)	30-Mar-10 (No. 217-01161)	Mar-11
Reference 30 dB Attenuator	SN: S5129 (30b)	30-Mar-10 (No. 217-01160)	Mar-11
Reference Probe ES3DV2	SN: 3013	30-Dec-09 (No. ES3-3013_Dec09)	Dec-10
DAE4	SN: 660	20-Apr-10 (No. DAE4-660_Apr10)	Apr-11

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

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

Issued: September 9, 2010

DASY/EASY - Parameters of Probe: ES3DV3 SN:3131

Calibration Parameter Determined in Head Tissue Simulating Media

f [MHz]	Validity [MHz][C]	Permittivity	Conductivity	ConvF X	ConvF Y	ConvF Z	Alpha	Depth Unc (k=2)
835	± 50 / ± 100	41.5 ± 5%	0.90 ± 5%	5.82	5.82	5.82	0.83	1.11 ± 11.0%
1750	± 50 / ± 100	40.1 ± 5%	1.37 ± 5%	5.00	5.00	5.00	0.60	1.29 ± 11.0%
1900	± 50 / ± 100	40.0 ± 5%	1.40 ± 5%	4.81	4.81	4.81	0.36	1.71 ± 11.0%
2450	± 50 / ± 100	39.2 ± 5%	1.80 ± 5%	4.26	4.26	4.26	0.44	1.70 ± 11.0%

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

DASY/EASY - Parameters of Probe: ES3DV3 SN:3131

Calibration Parameter Determined in Body Tissue Simulating Media

f [MHz]	Validity [MHz][C]	Permittivity	Conductivity	ConvF X	ConvF Y	ConvF Z	Alpha	Depth Unc (k=2)
835	± 50 / ± 100	55.2 ± 5%	0.97 ± 5%	5.73	5.73	5.73	0.91	1.09 ± 11.0%
1750	± 50 / ± 100	53.4 ± 5%	1.49 ± 5%	4.61	4.61	4.61	0.35	2.06 ± 11.0%
1900	± 50 / ± 100	53.3 ± 5%	1.52 ± 5%	4.38	4.38	4.38	0.33	2.33 ± 11.0%
2450	± 50 / ± 100	52.7 ± 5%	1.95 ± 5%	4.05	4.05	4.05	0.98	1.04 ± 11.0%

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

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Accreditation No.: SCS 108

Client **Nokia Salo TCC**

Certificate No: ES3-3194_Sep10

CALIBRATION CERTIFICATE

Object	ES3DV3 - SN:3194
Calibration procedure(s)	QA CAL-01.v6, QA CAL-23.v3 and QA CAL-25.v2 Calibration procedure for dosimetric E-field probes
Calibration date:	September 9, 2010

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	1-Apr-10 (No. 217-01136)	Apr-11
Power sensor E4412A	MY41495277	1-Apr-10 (No. 217-01136)	Apr-11
Power sensor E4412A	MY41498087	1-Apr-10 (No. 217-01136)	Apr-11
Reference 3 dB Attenuator	SN: S5054 (3c)	30-Mar-10 (No. 217-01159)	Mar-11
Reference 20 dB Attenuator	SN: S5086 (20b)	30-Mar-10 (No. 217-01161)	Mar-11
Reference 30 dB Attenuator	SN: S5129 (30b)	30-Mar-10 (No. 217-01160)	Mar-11
Reference Probe ES3DV2	SN: 3013	30-Dec-09 (No. ES3-3013_Dec09)	Dec-10
DAE4	SN: 660	20-Apr-10 (No. DAE4-660_Apr10)	Apr-11

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

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

Issued: September 9, 2010

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

Calibration Parameter Determined in Head Tissue Simulating Media

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

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

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

Calibration Parameter Determined in Body Tissue Simulating Media

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

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

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

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Accreditation No.: SCS 108

Client Nokia Salo TCC

Certificate No: D835V2-480_Oct09

CALIBRATION CERTIFICATE

Object: D835V2 - SN: 480

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

Calibration date: October 19, 2009

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	06-Oct-09 (No. 217-01086)	Oct-10
Power sensor HP 8481A	US37292783	06-Oct-09 (No. 217-01086)	Oct-10
Reference 20 dB Attenuator	SN: 5086 (20g)	31-Mar-09 (No. 217-01025)	Mar-10
Type-N mismatch combination	SN: 5047.2 / 06327	31-Mar-09 (No. 217-01029)	Mar-10
Reference Probe ES3DV3	SN: 3205	26-Jun-09 (No. ES3-3205_Jun09)	Jun-10
DAE4	SN: 601	07-Mar-09 (No. DAE4-601_Mar09)	Mar-10

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

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

Issued: October 19, 2009

DASY5 Validation Report for Head TSL

Date/Time: 19.10.2009 10:11:32

Test Laboratory: SPEAG, Zurich, Switzerland

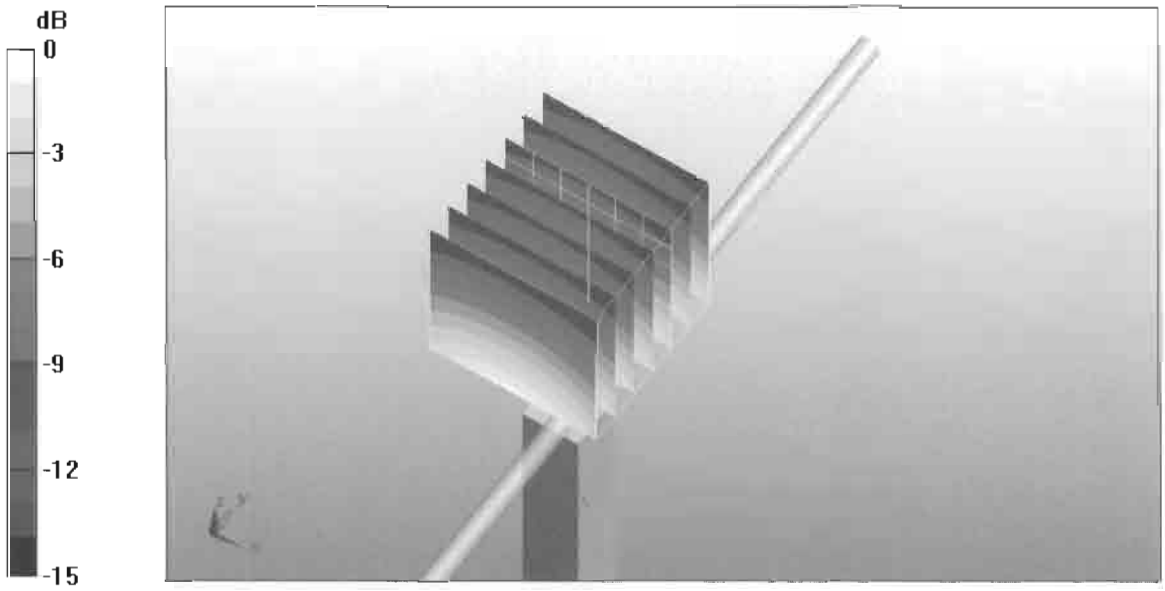
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:480

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: HSL900
Medium parameters used: f = 835 MHz; σ = 0.88 mho/m; ε_r = 40.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

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

Pin=250 mW /d=15mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 57.6 V/m; Power Drift = 0.00856 dB
Peak SAR (extrapolated) = 3.53 W/kg
SAR(1 g) = 2.36 mW/g; SAR(10 g) = 1.55 mW/g
Maximum value of SAR (measured) = 2.76 mW/g



0 dB = 2.76mW/g

DASY5 Validation Report for Body

Date/Time: 19.10.2009 13:40:30

Test Laboratory: SPEAG, Zurich, Switzerland

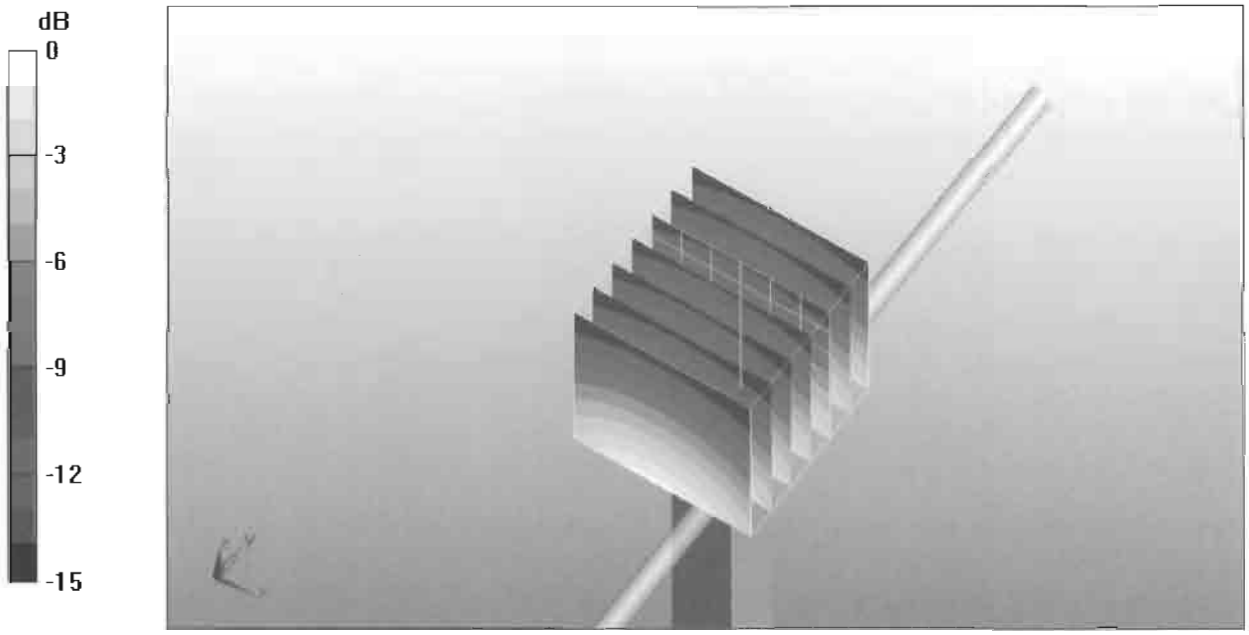
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:480

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: MSL900
Medium parameters used: f = 835 MHz; σ = 1.01 mho/m; ε_r = 53.2; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

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

Pin250 mW /d=15mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 55.5 V/m; Power Drift = 0.014 dB
Peak SAR (extrapolated) = 3.74 W/kg
SAR(1 g) = 2.52 mW/g; SAR(10 g) = 1.65 mW/g
Maximum value of SAR (measured) = 2.94 mW/g



0 dB = 2.94mW/g

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Accreditation No.: SCS 108

Client Nokia Salo TCC

Certificate No: D1800V2-256_Oct09

CALIBRATION CERTIFICATE

Object	D1800V2 - SN: 256
Calibration procedure(s)	QA CAL-05.v7 Calibration procedure for dipole validation kits
Calibration date:	October 20, 2009

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	06-Oct-09 (No. 217-01086)	Oct-10
Power sensor HP 8481A	US37292783	06-Oct-09 (No. 217-01086)	Oct-10
Reference 20 dB Attenuator	SN: 5086 (20g)	31-Mar-09 (No. 217-01025)	Mar-10
Type-N mismatch combination	SN: 5047.2 / 06327	31-Mar-09 (No. 217-01029)	Mar-10
Reference Probe ES3DV3	SN: 3205	26-Jun-09 (No. ES3-3205_Jun09)	Jun-10
DAE4	SN: 601	07-Mar-09 (No. DAE4-601_Mar09)	Mar-10

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

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

Issued: October 21, 2009

DASY5 Validation Report for Head TSL

Date/Time: 20.10.2009 10:26:59

Test Laboratory: SPEAG, Zurich, Switzerland

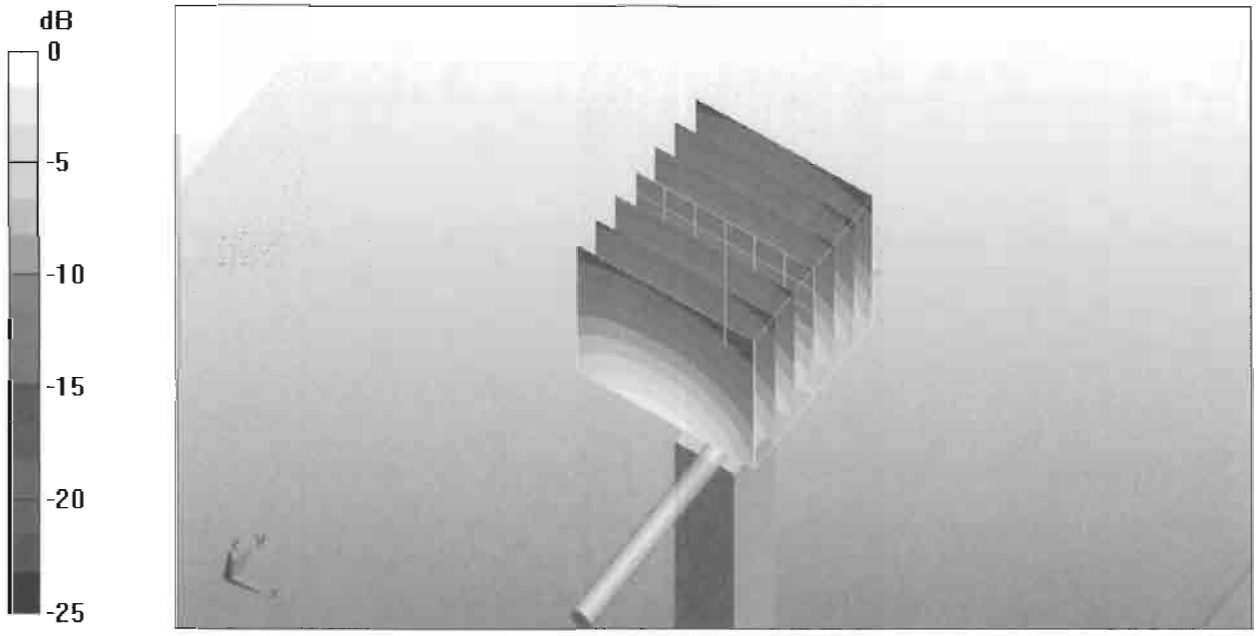
DUT: Dipole 1800 MHz; Type: D1800V2; Serial: D1800V2 - SN:256

Communication System: CW; Frequency: 1800 MHz; Duty Cycle: 1:1
Medium: HSL U11 BB
Medium parameters used: f = 1800 MHz; σ = 1.4 mho/m; ε_r = 40; 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 = 97.2 V/m; Power Drift = 0.025 dB
Peak SAR (extrapolated) = 17.9 W/kg
SAR(1 g) = 9.9 mW/g; SAR(10 g) = 5.21 mW/g
Maximum value of SAR (measured) = 12.4 mW/g



0 dB = 12.4mW/g

DASY5 Validation Report for Body

Date/Time: 20.10.2009 14:52:33

Test Laboratory: SPEAG, Zurich, Switzerland

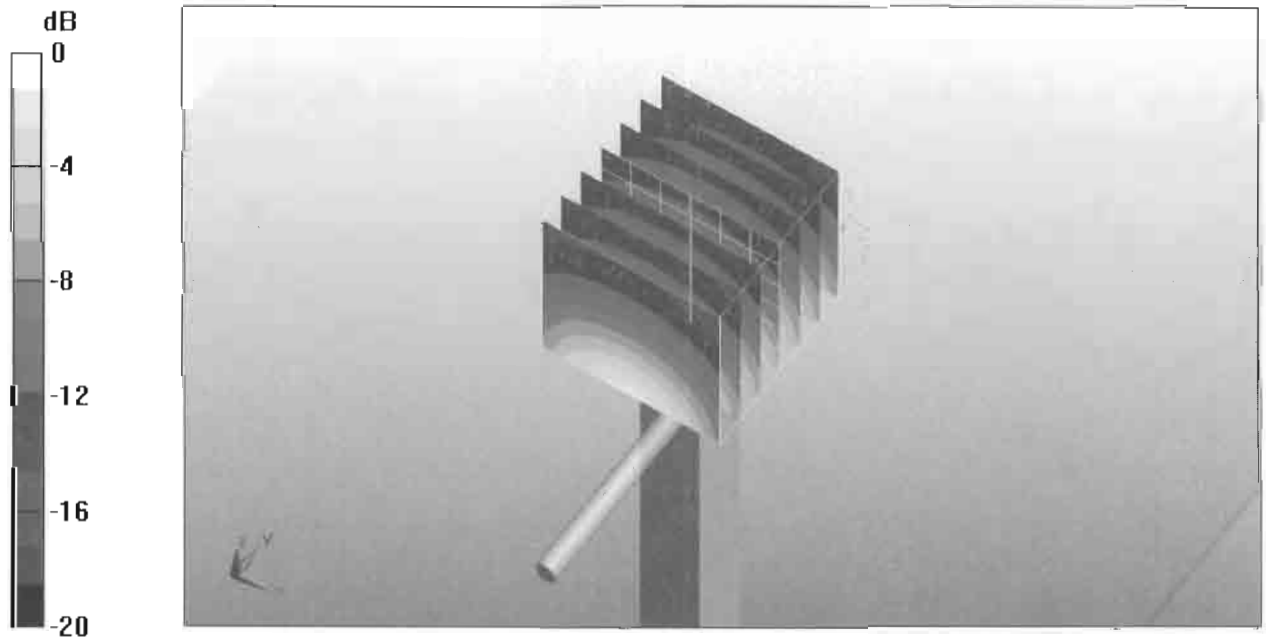
DUT: Dipole 1800 MHz; Type: D1800V2; Serial: D1800V2 - SN:256

Communication System: CW; Frequency: 1800 MHz; Duty Cycle: 1:1
Medium: MSL U10 BB
Medium parameters used: f = 1800 MHz; σ = 1.5 mho/m; ε_r = 53.5; 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 = 94.2 V/m; Power Drift = 0.020 dB
Peak SAR (extrapolated) = 16.8 W/kg
SAR(1 g) = 9.61 mW/g; SAR(10 g) = 5.07 mW/g
Maximum value of SAR (measured) = 12.2 mW/g



0 dB = 12.2mW/g

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Accreditation No.: SCS 108

Client Nokia Salo TCC

Certificate No: D1900V2-5d013_Mar10

CALIBRATION CERTIFICATE

Object	D1900V2 - SN: 5d013
Calibration procedure(s)	QA CAL-05.v7 Calibration procedure for dipole validation kits
Calibration date:	March 23, 2010

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	06-Oct-09 (No. 217-01086)	Oct-10
Power sensor HP 8481A	US37292783	06-Oct-09 (No. 217-01086)	Oct-10
Reference 20 dB Attenuator	SN: 5086 (20g)	31-Mar-09 (No. 217-01025)	Mar-10
Type-N mismatch combination	SN: 5047.2 / 06327	31-Mar-09 (No. 217-01029)	Mar-10
Reference Probe ES3DV3	SN: 3205	26-Jun-09 (No. ES3-3205_Jun09)	Jun-10
DAE4	SN: 601	02-Mar-10 (No. DAE4-601_Mar10)	Mar-11

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

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

Issued: March 23, 2010

DASY5 Validation Report for Head TSL

Date/Time: 23.03.2010 10:16:39

Test Laboratory: SPEAG, Zurich, Switzerland

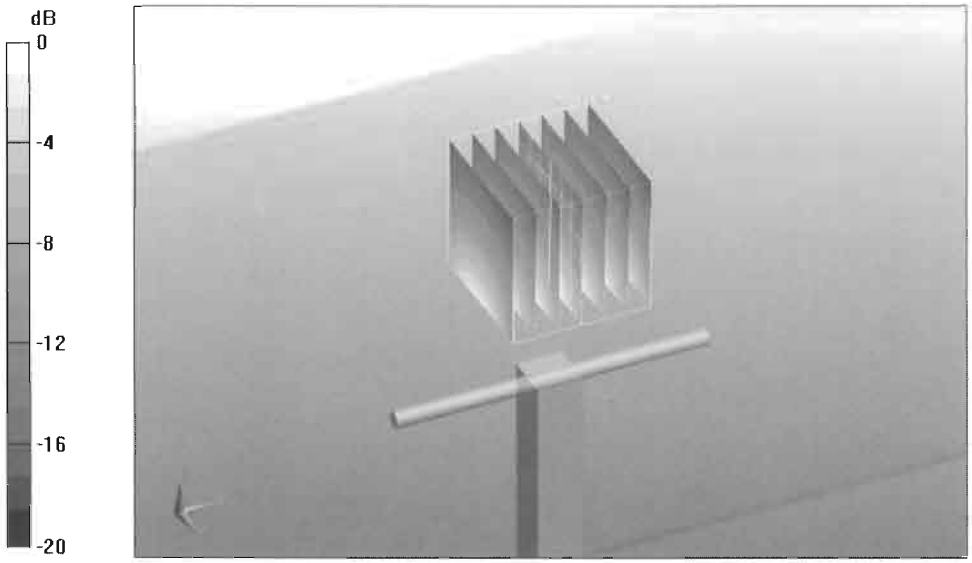
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d013

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: HSL U11 BB
Medium parameters used: f = 1900 MHz; σ = 1.45 mho/m; ε_r = 41.2; 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: 02.03.2010
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Pin=250 mW /d=10mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) /Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 96.4 V/m; Power Drift = 0.028 dB
Peak SAR (extrapolated) = 18.5 W/kg
SAR(1 g) = 10.2 mW/g; SAR(10 g) = 5.32 mW/g
Maximum value of SAR (measured) = 12.6 mW/g



0 dB = 12.6mW/g

DASY5 Validation Report for Body

Date/Time: 23.03.2010 13:12:18

Test Laboratory: SPEAG, Zurich, Switzerland

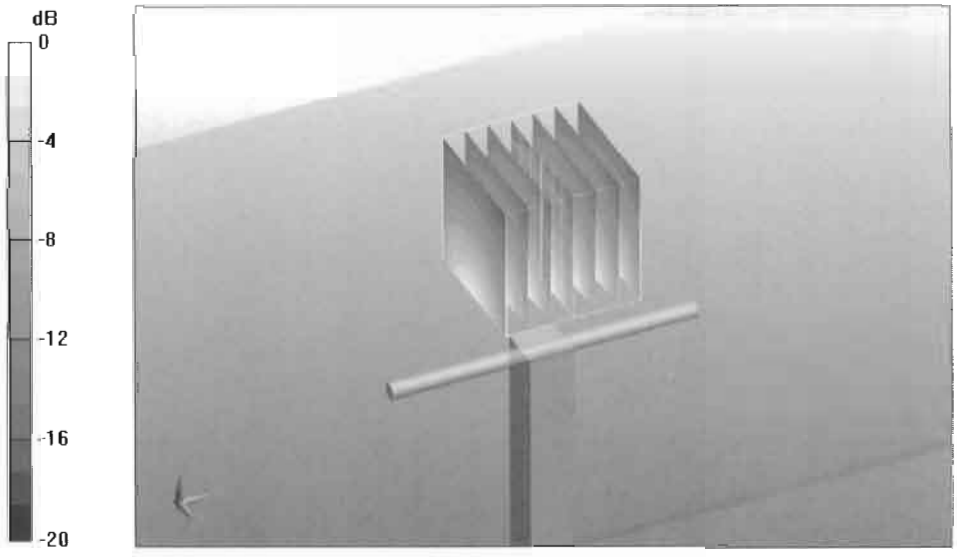
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d013

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: MSL U11 BB
Medium parameters used: f = 1900 MHz; σ = 1.58 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(4.59, 4.59, 4.59); Calibrated: 26.06.2009
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 02.03.2010
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Pin250 mW /d=10mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) /Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 94.9 V/m; Power Drift = 0.00956 dB
Peak SAR (extrapolated) = 17.5 W/kg
SAR(1 g) = 10.4 mW/g; SAR(10 g) = 5.58 mW/g
Maximum value of SAR (measured) = 12.7 mW/g



0 dB = 12.7mW/g

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Accreditation No.: SCS 108

Client **Nokia Salo TCC**

Certificate No: D2450V2-749_Oct09

CALIBRATION CERTIFICATE

Object: D2450V2 - SN: 749

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

Calibration date: October 21, 2009

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	06-Oct-09 (No. 217-01086)	Oct-10
Power sensor HP 8481A	US37292783	06-Oct-09 (No. 217-01086)	Oct-10
Reference 20 dB Attenuator	SN: 5086 (20g)	31-Mar-09 (No. 217-01025)	Mar-10
Type-N mismatch combination	SN: 5047.2 / 06327	31-Mar-09 (No. 217-01029)	Mar-10
Reference Probe ES3DV3	SN: 3205	26-Jun-09 (No. ES3-3205_Jun09)	Jun-10
DAE4	SN: 601	07-Mar-09 (No. DAE4-601_Mar09)	Mar-10

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

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

Issued: October 22, 2009

DASY5 Validation Report for Head TSL

Date/Time: 21.10.2009 11:01:04

Test Laboratory: SPEAG, Zurich, Switzerland

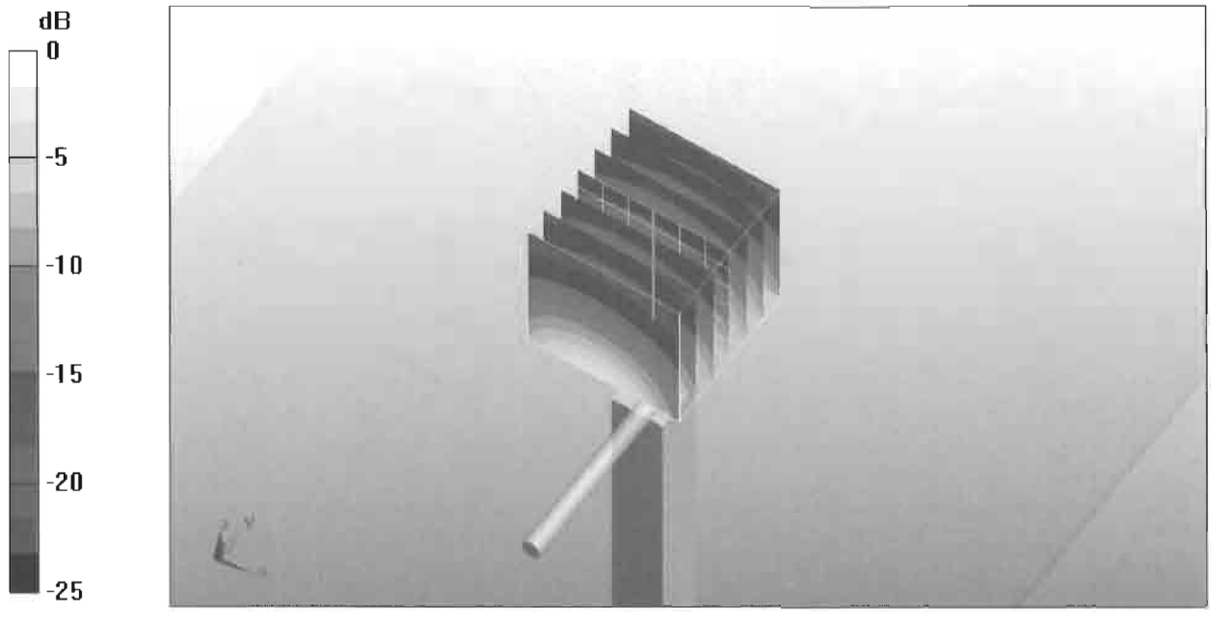
DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:749

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: HSL U11 BB
Medium parameters used: f = 2450 MHz; σ = 1.78 mho/m; ε_r = 39.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.53, 4.53, 4.53); Calibrated: 26.06.2009
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 07.03.2009
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Pin=250 mW /d=10mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 100.7 V/m; Power Drift = 0.078 dB
Peak SAR (extrapolated) = 26.8 W/kg
SAR(1 g) = 13.2 mW/g; SAR(10 g) = 6.18 mW/g
Maximum value of SAR (measured) = 16.9 mW/g



0 dB = 16.9mW/g

DASY5 Validation Report for Body

Date/Time: 21.10.2009 12:07:58

Test Laboratory: SPEAG, Zurich, Switzerland

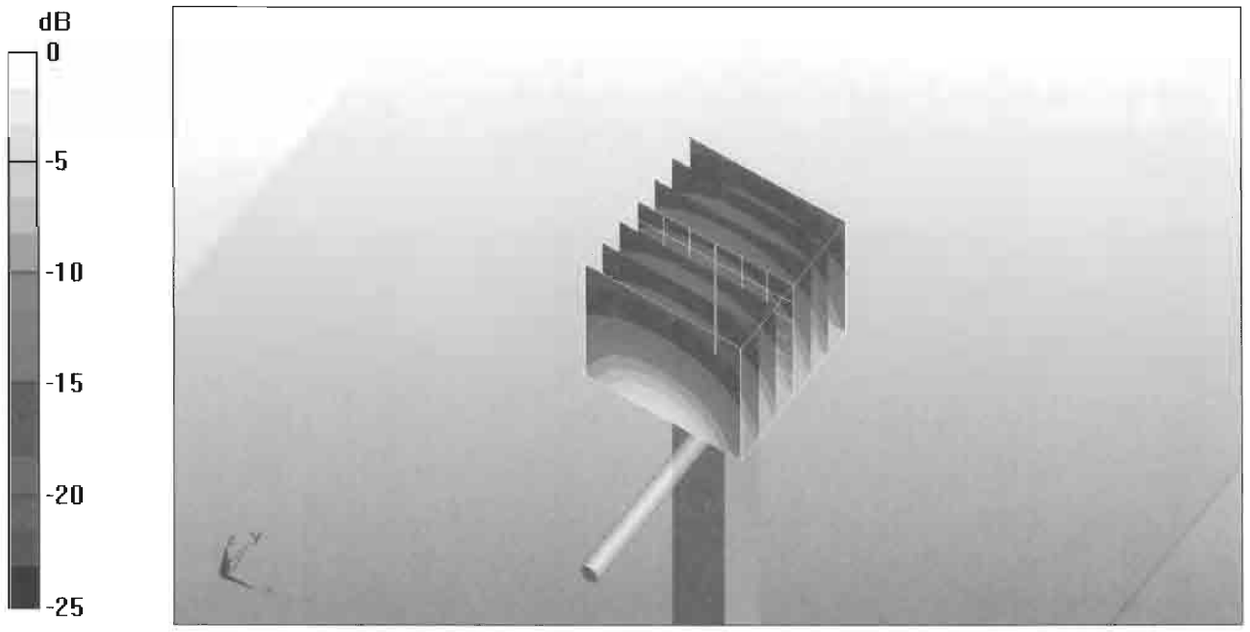
DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:749

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: MSL U10 BB
Medium parameters used: f = 2450 MHz; σ = 1.98 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(4.31, 4.31, 4.31); Calibrated: 26.06.2009
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 07.03.2009
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Pin250 mW /d=10mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 93.9 V/m; Power Drift = 0.046 dB
Peak SAR (extrapolated) = 25.8 W/kg
SAR(1 g) = 12.5 mW/g; SAR(10 g) = 5.81 mW/g
Maximum value of SAR (measured) = 16.4 mW/g



0 dB = 16.4mW/g

APPENDIX D: WIRELESS ROUTER MODE EVALUATION

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

850MHz Body SAR results

Option used	Device orientation	SAR, averaged over 1g (W/kg)		
		Ch 128 824.2 MHz	Ch 190 836.6 MHz	Ch 251 848.8 MHz
3-slot GPRS	Conducted Power	30.2 dBm	30.2 dBm	30.2 dBm
	Display facing phantom	-	0.325	-
	Back facing phantom	1.15	**1.29**	1.25
	Top edge facing phantom	-	0.209	-
	Bottom edge facing phantom	-	0.033	-
	Left edge facing phantom	-	0.482	-
	Right edge facing phantom	-	0.361	-
Option used	**Device orientation**	**SAR, averaged over 1g (W/kg)**		
		Ch 4132 826.4 MHz	**Ch 4175 835.0 MHz**	**Ch 4233 846.6 MHz**
WCDMA	Conducted Power	23.5 dBm	23.5 dBm	23.5 dBm
	Display facing phantom	-	0.261	-
	Back facing phantom	0.683	0.874	**0.886**
	Top edge facing phantom	-	0.153	-
	Bottom edge facing phantom	-	0.022	-
	Left edge facing phantom	-	0.376	-
	Right edge facing phantom	-	0.274	-

1700/2100MHz Body SAR results

Option used	Device orientation	SAR, averaged over 1g (W/kg)		
		Ch 1312 1712.4 MHz	Ch 1412 1732.4 MHz	Ch 1513 1752.6 MHz
WCDMA	Conducted Power	22.0 dBm	22.0 dBm	22.0 dBm
	Display facing phantom	-	0.162	-
	Back facing phantom	0.274	0.335	**0.361**
	Top edge facing phantom	-	0.302	-
	Bottom edge facing phantom	-	0.034	-
	Left edge facing phantom	-	0.081	-
	Right edge facing phantom	-	0.118	-

1900MHz Body SAR results

Option used	Device orientation	SAR, averaged over 1g (W/kg)		
		Ch 512 1850.2 MHz	Ch 661 1880.0 MHz	Ch 810 1909.8 MHz
4-slot GPRS	Conducted Power	24.5 dBm	24.5 dBm	24.5 dBm
	Display facing phantom	-	0.191	-
	Back facing phantom	0.355	0.316	**0.416**
	Top edge facing phantom	-	0.279	-
	Bottom edge facing phantom	-	0.019	-
	Left edge facing phantom	-	0.075	-
	Right edge facing phantom	-	0.143	-
Option used	**Device orientation**	**SAR, averaged over 1g (W/kg)**		
		Ch 9262 1852.4 MHz	**Ch 9400 1880.0 MHz**	**Ch 9538 1907.6 MHz**
WCDMA	Conducted Power	21.5 dBm	21.5 dBm	21.5 dBm
	Display facing phantom	-	0.184	-
	Back facing phantom	**0.435**	0.311	0.408
	Top edge facing phantom	-	0.273	-
	Bottom edge facing phantom	-	0.019	-
	Left edge facing phantom	-	0.073	-
	Right edge facing phantom	-	0.141	-

2450MHz Body SAR results

Option used	Device orientation	SAR, averaged over 1g (W/kg)		
		Ch 1 2412.0 MHz	Ch 7 2442.0 MHz	Ch 11 2462.0 MHz
WLAN b-mode	**Conducted Power**	**17.0 dBm**	**17.0 dBm**	**17.0 dBm**
	Display facing phantom	-	0.086	-
	Back facing phantom	-	0.133	-
	Top edge facing phantom	-	0.081	-
	Bottom edge facing phantom	-	0.018	-
	Left edge facing phantom	0.066	**0.162**	0.082
	Right edge facing phantom	-	0.015	-
WLAN n-mode 20MHz	**Conducted Power**	**16.0 dBm**	**16.0 dBm**	**16.0 dBm**
	Display facing phantom	-	-	-
	Back facing phantom	-	-	-
	Top edge facing phantom	-	-	-
	Bottom edge facing phantom	-	-	-
	Left edge facing phantom	0.066	0.130	0.072
	Right edge facing phantom	-	-	-

Simultaneous transmissions: Combined SAR results – Individual band Max results

Test configuration	Max. 1g SAR results					
	WLAN	3-slot GPRS850	WCDMA 850	WCDMA 1700/2100	4-slot GPRS1900	WCDMA 1900
Display facing phantom	0.086	0.325	0.261	0.162	0.191	0.184
Back facing phantom	0.133	1.29	0.886	0.361	0.416	0.435
Top edge facing phantom	0.081	0.209	0.153	0.302	0.279	0.273
Bottom edge facing phantom	0.018	0.033	0.022	0.034	0.019	0.019
Left edge facing phantom	0.162	0.482	0.376	0.081	0.075	0.073
Right edge facing phantom	0.015	0.361	0.274	0.118	0.143	0.141

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

Test configuration	Max. 1g SAR results				
	3-slot GPRS850 + WLAN	WCDMA850 + WLAN	WCDMA 1700/2100 + WLAN	4-slot GPRS1900 + WLAN	WCDMA1900 + WLAN
Display facing phantom	0.411	0.347	0.248	0.277	0.270
Back facing phantom	**1.423**	**1.019**	**0.494**	**0.549**	**0.568**
Top edge facing phantom	0.290	0.234	0.383	0.360	0.354
Bottom edge facing phantom	0.051	0.040	0.052	0.037	0.037
Left edge facing phantom	0.644	0.538	0.243	0.237	0.235
Right edge facing phantom	0.376	0.289	0.133	0.158	0.156

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				
	3-slot GPRS850 + WLAN	WCDMA850 + WLAN	WCDMA 1700/2100 + WLAN	4-slot GPRS1900 + WLAN	WCDMA1900 + WLAN
Display facing phantom	-	-	-	-	-
Back facing phantom	**1.44**	**1.00**	**0.464**	**0.506**	**0.510**
Top edge facing phantom	-	-	-	-	-
Bottom edge facing phantom	-	-	-	-	-
Left edge facing phantom	-	-	-	-	-
Right edge facing phantom	-	-	-	-	-

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.

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

Mode	Ch / *f* (MHz)	Conducted power	Separation distance	Measured SAR value (1g avg)	SAR limit (1g avg)	Result
3-slot GPRS850	190 / 836.6	30.2 dBm	12.5 mm	1.29 W/kg	1.6 W/kg	PASSED
WCDMA850	4233 / 846.6	23.5 dBm	12.5 mm	0.886 W/kg	1.6 W/kg	PASSED
WCDMA1700/2100	1513 / 1752.6	22.0 dBm	12.5 mm	0.361 W/kg	1.6 W/kg	PASSED
4-slot GPRS1900	810 / 1909.8	24.5 dBm	12.5 mm	0.416 W/kg	1.6 W/kg	PASSED
WCDMA1900	9262 / 1852.4	21.5 dBm	12.5 mm	0.435 W/kg	1.6 W/kg	PASSED
WLAN2450	7 / 2442.0	17.0 dBm	12.5 mm	0.162 W/kg	1.6 W/kg	PASSED
3-slot GPRS850 + WLAN2450	-	-	12.5 mm	1.44 W/kg	1.6 W/kg	PASSED
WCDMA850 + WLAN2450	-	-	12.5 mm	1.00 W/kg	1.6 W/kg	PASSED
WCDMA1700/2100 + WLAN2450	-	-	12.5 mm	0.464 W/kg	1.6 W/kg	PASSED
4-slot GPRS1900 + WLAN2450	-	-	12.5 mm	0.506 W/kg	1.6 W/kg	PASSED
WCDMA1900 + WLAN2450	-	-	12.5 mm	0.510 W/kg	1.6 W/kg	PASSED

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

Date/Time: 2011-02-21 14:14:19

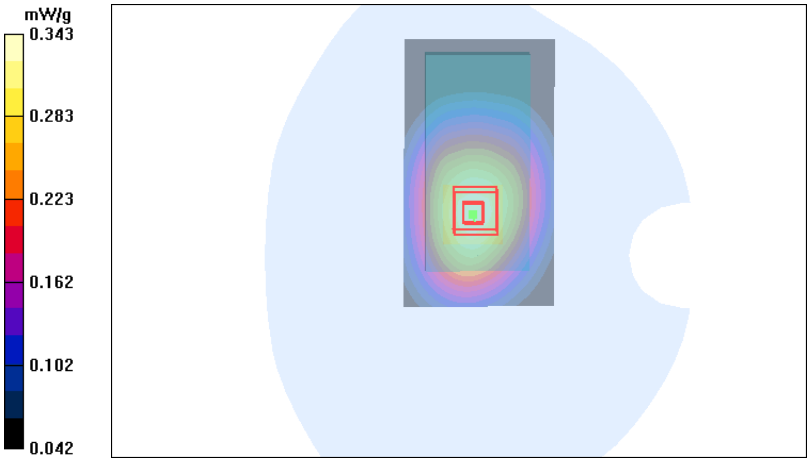
Test Laboratory: TCC Nokia
Type: RM-601; Serial: 353758/04/000904/1

Communication System: 3-slot GPRS850
Frequency: 836.6 MHz; Duty Cycle: 1:2.8
Medium: BSL850; Medium Notes: t= 21.2 C
Medium parameters used: f = 837 MHz; σ = 1 mho/m; ε_r = 53.1; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3194
- ConvF(5.95, 5.95, 5.95); Calibrated: 2010-09-09
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2010-09-09
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body - Middle - Spacer 12.5mm - No Accessory - Display Facing Phantom/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.342 mW/g

Body - Middle - Spacer 12.5mm - No Accessory - Display Facing Phantom/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 16.9 V/m
Peak SAR (extrapolated) = 0.412 W/kg
SAR(1 g) = 0.325 mW/g
SAR(10 g) = 0.242 mW/g
Power Drift = -0.028 dB
Maximum value of SAR (measured) = 0.343 mW/g



Date/Time: 2011-02-21 14:53:32

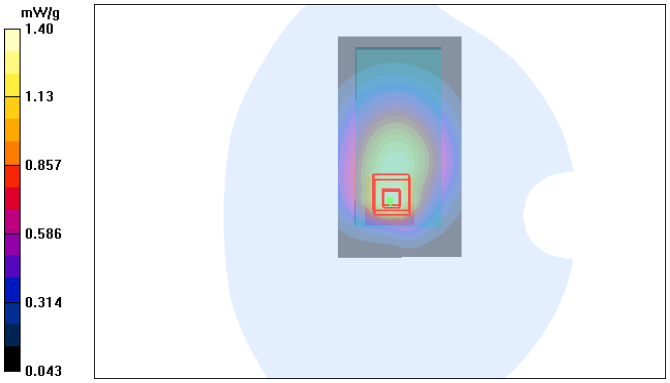
Test Laboratory: TCC Nokia
Type: RM-601; Serial: 353758/04/000904/1

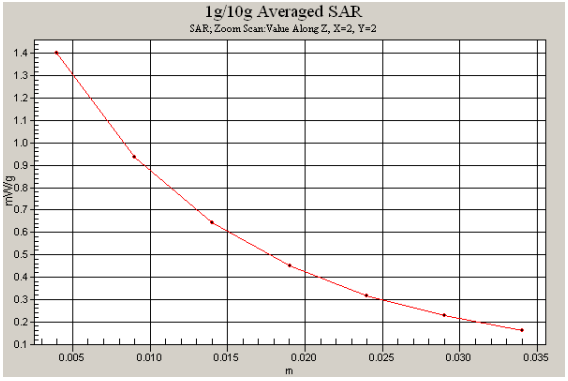
Communication System: 3-slot GPRS850
Frequency: 836.6 MHz; Duty Cycle: 1:2.8
Medium: BSL850; Medium Notes: t= 21.2 C
Medium parameters used: f = 837 MHz; σ = 1 mho/m; ε_r = 53.1; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3194
- ConvF(5.95, 5.95, 5.95); Calibrated: 2010-09-09
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2010-09-09
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body - Middle - Spacer 12.5mm - No Accessory - Back Facing Phantom/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.53 mW/g

Body - Middle - Spacer 12.5mm - No Accessory - Back Facing Phantom/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 32.9 V/m
Peak SAR (extrapolated) = 2.01 W/kg
SAR(1 g) = 1.29 mW/g
SAR(10 g) = 0.874 mW/g
Power Drift = -0.241 dB
Warning: Maximum averaged SAR over 10 g is located on the boundary of the measurement cube. This cube might not incorporate the absolute averaged SAR. Please consider a refinement of the Area Scan measurement.
Maximum value of SAR (measured) = 1.40 mW/g





Date/Time: 2011-02-21 12:23:29

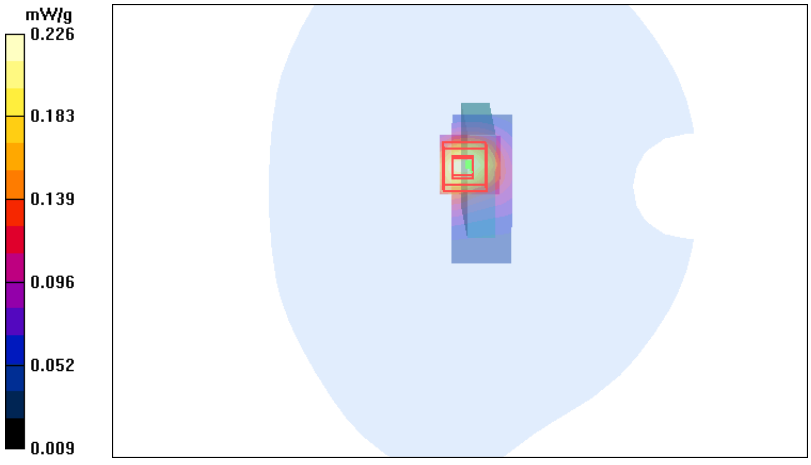
Test Laboratory: TCC Nokia
Type: RM-601; Serial: 353758/04/000904/1

Communication System: 3-slot GPRS850
Frequency: 836.6 MHz; Duty Cycle: 1:2.8
Medium: BSL850; Medium Notes: t= 21.2 C
Medium parameters used: f = 837 MHz; σ = 1 mho/m; ε_r = 53.1; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3194
- ConvF(5.95, 5.95, 5.95); Calibrated: 2010-09-09
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2010-09-09
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body - Middle - Spacer 12.5mm - No Accessory - Top Edge Facing Phantom/Area Scan (21x51x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.223 mW/g

Body - Middle - Spacer 12.5mm - No Accessory - Top Edge Facing Phantom/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 11.8 V/m
Peak SAR (extrapolated) = 0.363 W/kg
SAR(1 g) = 0.209 mW/g
SAR(10 g) = 0.121 mW/g
Power Drift = 0.000 dB
Maximum value of SAR (measured) = 0.226 mW/g



Date/Time: 2011-02-21 12:57:24

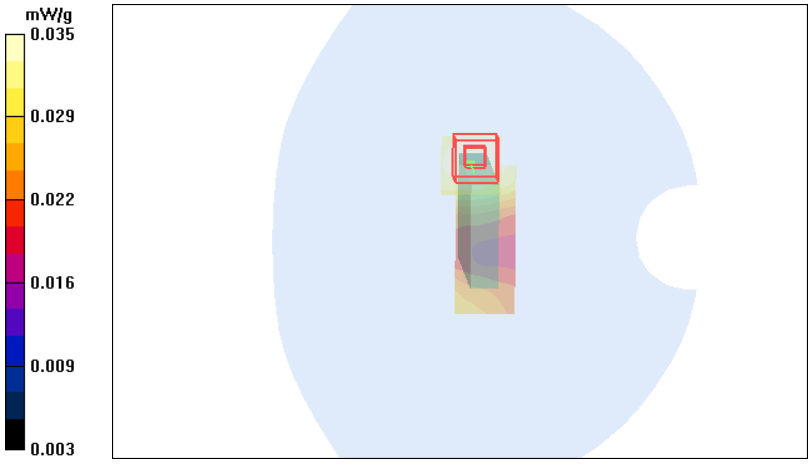
Test Laboratory: TCC Nokia
Type: RM-601; Serial: 353758/04/000904/1

Communication System: 3-slot GPRS850
Frequency: 836.6 MHz; Duty Cycle: 1:2.8
Medium: BSL850; Medium Notes: t= 21.2 C
Medium parameters used: f = 837 MHz; σ = 1 mho/m; ε_r = 53.1; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3194
- ConvF(5.95, 5.95, 5.95); Calibrated: 2010-09-09
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2010-09-09
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body - Middle - Spacer 12.5mm - No Accessory - Bottom Edge Facing Phantom/Area Scan (21x51x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.035 mW/g

Body - Middle - Spacer 12.5mm - No Accessory - Bottom Edge Facing Phantom/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 4.45 V/m
Peak SAR (extrapolated) = 0.045 W/kg
SAR(1 g) = 0.033 mW/g
SAR(10 g) = 0.024 mW/g
Power Drift = 0.086 dB
Warning: Maximum averaged SAR over 10 g is located on the boundary of the measurement cube. This cube might not incorporate the absolute averaged SAR. Please consider a refinement of the Area Scan measurement.
Maximum value of SAR (measured) = 0.035 mW/g



Date/Time: 2011-02-21 13:10:08

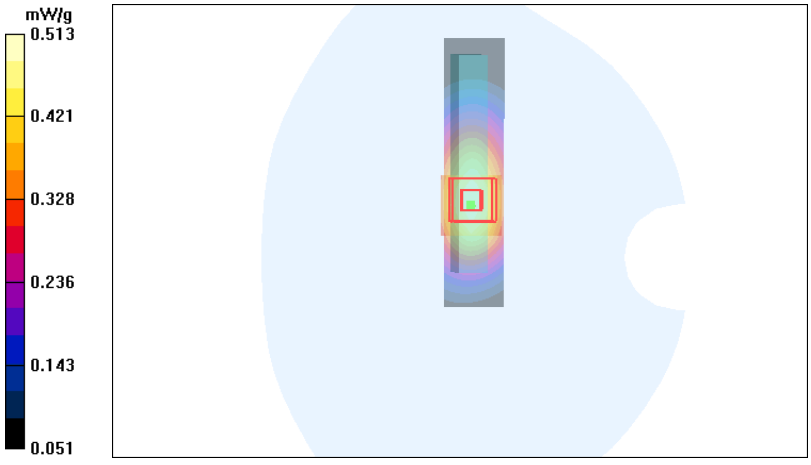
Test Laboratory: TCC Nokia
Type: RM-601; Serial: 353758/04/000904/1

Communication System: 3-slot GPRS850
Frequency: 836.6 MHz; Duty Cycle: 1:2.8
Medium: BSL850; Medium Notes: t= 21.2 C
Medium parameters used: f = 837 MHz; σ = 1 mho/m; ε_r = 53.1; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3194
- ConvF(5.95, 5.95, 5.95); Calibrated: 2010-09-09
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2010-09-09
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body - Middle - Spacer 12.5mm - No Accessory - Left Edge Facing Phantom/Area Scan (21x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.509 mW/g

Body - Middle - Spacer 12.5mm - No Accessory - Left Edge Facing Phantom/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 18.4 V/m
Peak SAR (extrapolated) = 0.679 W/kg
SAR(1 g) = 0.482 mW/g
SAR(10 g) = 0.331 mW/g
Power Drift = -0.032 dB
Maximum value of SAR (measured) = 0.513 mW/g



Date/Time: 2011-02-21 13:55:27

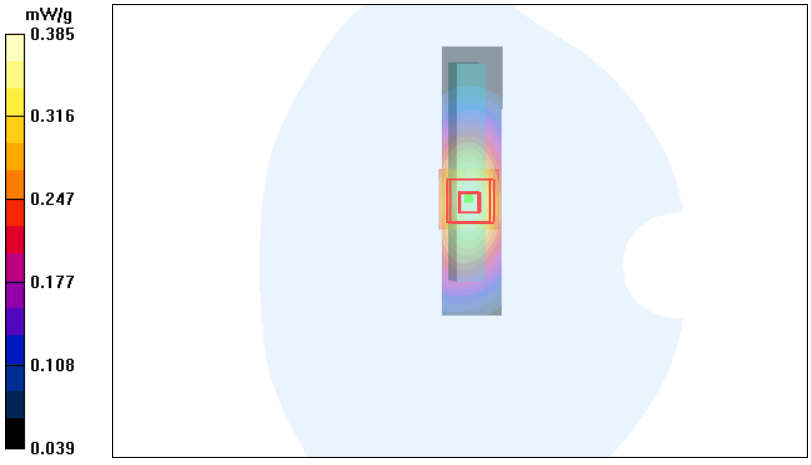
Test Laboratory: TCC Nokia
Type: RM-601; Serial: 353758/04/000904/1

Communication System: 3-slot GPRS850
Frequency: 836.6 MHz; Duty Cycle: 1:2.8
Medium: BSL850; Medium Notes: t= 21.2 C
Medium parameters used: f = 837 MHz; σ = 1 mho/m; ε_r = 53.1; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3194
- ConvF(5.95, 5.95, 5.95); Calibrated: 2010-09-09
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2010-09-09
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body - Middle - Spacer 12.5mm - No Accessory - Right Edge Facing Phantom/Area Scan (21x91x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.387 mW/g

Body - Middle - Spacer 12.5mm - No Accessory - Right Edge Facing Phantom/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 15.3 V/m
Peak SAR (extrapolated) = 0.513 W/kg
SAR(1 g) = 0.361 mW/g
SAR(10 g) = 0.246 mW/g
Power Drift = 0.053 dB
Maximum value of SAR (measured) = 0.385 mW/g



Date/Time: 2011-02-21 14:28:20

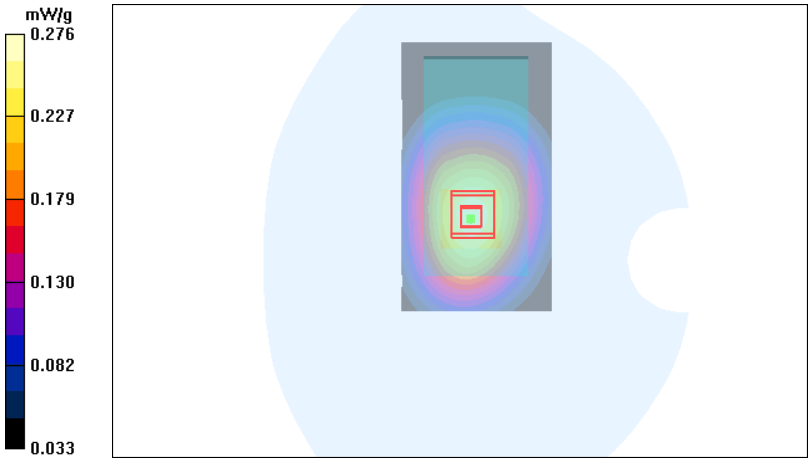
Test Laboratory: TCC Nokia
Type: RM-601; Serial: 353758/04/000904/1

Communication System: WCDMA850
Frequency: 835 MHz; Duty Cycle: 1:1
Medium: BSL850; Medium Notes: t= 21.2 C
Medium parameters used: f = 835 MHz; σ = 1 mho/m; ε_r = 53.1; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3194
- ConvF(5.95, 5.95, 5.95); Calibrated: 2010-09-09
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2010-09-09
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body - Middle - Spacer 12.5mm - No Accessory - Display Facing Phantom/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.269 mW/g

Body - Middle - Spacer 12.5mm - No Accessory - Display Facing Phantom/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 15.0 V/m
Peak SAR (extrapolated) = 0.331 W/kg
SAR(1 g) = 0.261 mW/g
SAR(10 g) = 0.194 mW/g
Power Drift = 0.073 dB
Maximum value of SAR (measured) = 0.276 mW/g



Date/Time: 2011-02-22 08:50:02

Test Laboratory: TCC Nokia
Type: RM-601; Serial: 353758/04/000904/1

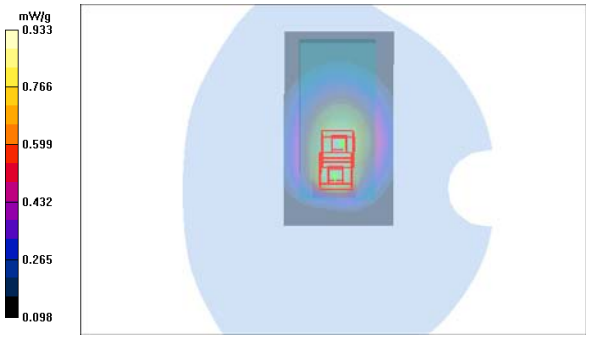
Communication System: WCDMA850
Frequency: 846.6 MHz; Duty Cycle: 1:1
Medium: BSL850; Medium Notes: t= 21.2 C
Medium parameters used: f = 847 MHz; σ = 1.01 mho/m; ε_r = 53; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3194
- ConvF(5.95, 5.95, 5.95); Calibrated: 2010-09-09
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2010-09-09
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body - High - Spacer 12.5mm - No Accessory - Back Facing Phantom/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.01 mW/g

Body - High - Spacer 12.5mm - No Accessory - Back Facing Phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 26.8 V/m
Peak SAR (extrapolated) = 1.30 W/kg
SAR(1 g) = 0.849 mW/g
SAR(10 g) = 0.588 mW/g
Power Drift = 0.128 dB
Warning: Maximum averaged SAR over 10 g is located on the boundary of the measurement cube. This cube might not incorporate the absolute averaged SAR. Please consider a refinement of the Area Scan measurement.
Maximum value of SAR (measured) = 0.908 mW/g

Body - High - Spacer 12.5mm - No Accessory - Back Facing Phantom/Zoom Scan 2 (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 26.8 V/m
Peak SAR (extrapolated) = 1.18 W/kg
SAR(1 g) = 0.886 mW/g
SAR(10 g) = 0.640 mW/g
Power Drift = 0.128 dB
Maximum value of SAR (measured) = 0.933 mW/g



Date/Time: 2011-02-21 12:35:59

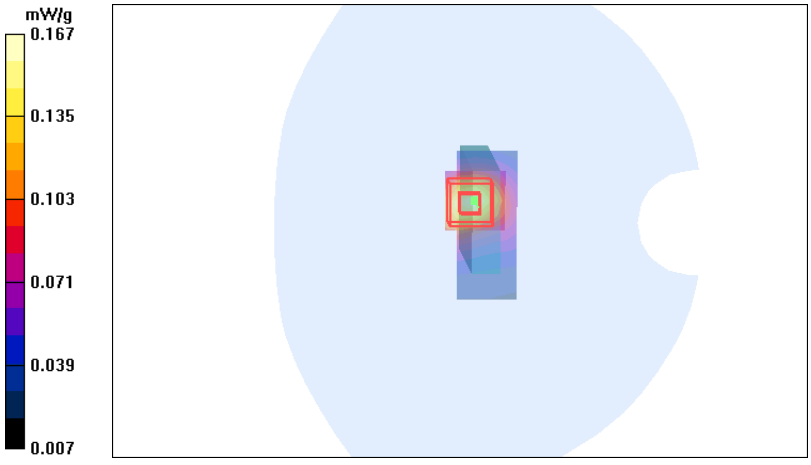
Test Laboratory: TCC Nokia
Type: RM-601; Serial: 353758/04/000904/1

Communication System: WCDMA850
Frequency: 835 MHz; Duty Cycle: 1:1
Medium: BSL850; Medium Notes: t= 21.2 C
Medium parameters used: f = 835 MHz; σ = 1 mho/m; ε_r = 53.1; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3194
- ConvF(5.95, 5.95, 5.95); Calibrated: 2010-09-09
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2010-09-09
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body - Middle - Spacer 12.5mm - No Accessory - Top Edge Facing Phantom/Area Scan (21x51x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.160 mW/g

Body - Middle - Spacer 12.5mm - No Accessory - Top Edge Facing Phantom/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 9.97 V/m
Peak SAR (extrapolated) = 0.269 W/kg
SAR(1 g) = 0.153 mW/g
SAR(10 g) = 0.088 mW/g
Power Drift = 0.125 dB
Maximum value of SAR (measured) = 0.167 mW/g



Date/Time: 2011-02-21 12:45:06

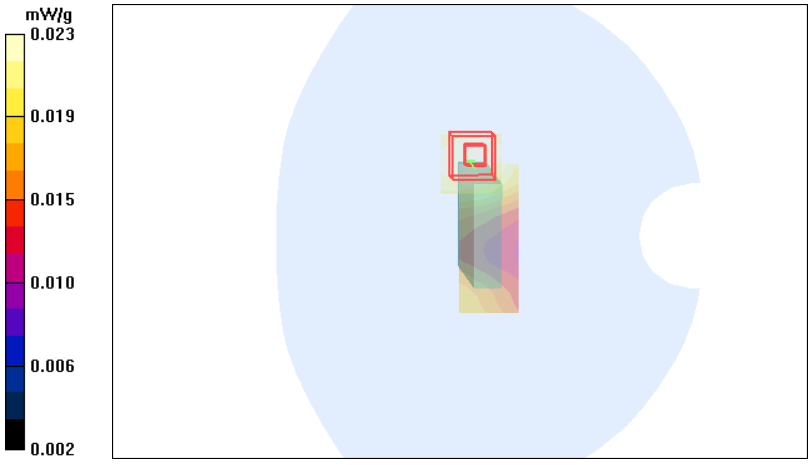
Test Laboratory: TCC Nokia
Type: RM-601; Serial: 353758/04/000904/1

Communication System: WCDMA850
Frequency: 835 MHz; Duty Cycle: 1:1
Medium: BSL850; Medium Notes: t= 21.2 C
Medium parameters used: f = 835 MHz; σ = 1 mho/m; ε_r = 53.1; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3194
- ConvF(5.95, 5.95, 5.95); Calibrated: 2010-09-09
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2010-09-09
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body - Middle - Spacer 12.5mm - No Accessory - Bottom Edge Facing Phantom/Area Scan (21x51x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.024 mW/g

Body - Middle - Spacer 12.5mm - No Accessory - Bottom Edge Facing Phantom/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 3.64 V/m
Peak SAR (extrapolated) = 0.029 W/kg
SAR(1 g) = 0.022 mW/g
SAR(10 g) = 0.016 mW/g
Power Drift = 0.055 dB
Warning: Maximum averaged SAR over 10 g is located on the boundary of the measurement cube. This cube might not incorporate the absolute averaged SAR. Please consider a refinement of the Area Scan measurement.
Maximum value of SAR (measured) = 0.023 mW/g



Date/Time: 2011-02-21 13:21:11

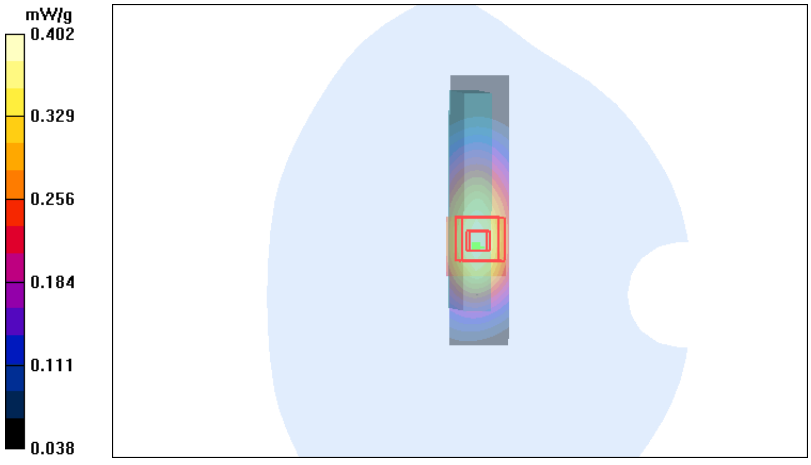
Test Laboratory: TCC Nokia
Type: RM-601; Serial: 353758/04/000904/1

Communication System: WCDMA850
Frequency: 835 MHz; Duty Cycle: 1:1
Medium: BSL850; Medium Notes: t= 21.2 C
Medium parameters used: f = 835 MHz; σ = 1 mho/m; ε_r = 53.1; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3194
- ConvF(5.95, 5.95, 5.95); Calibrated: 2010-09-09
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2010-09-09
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body - Middle - Spacer 12.5mm - No Accessory – Left Edge Facing Phantom/Area Scan (21x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.391 mW/g

Body - Middle - Spacer 12.5mm - No Accessory - Left Edge Facing Phantom/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 16.0 V/m
Peak SAR (extrapolated) = 0.528 W/kg
SAR(1 g) = 0.376 mW/g
SAR(10 g) = 0.258 mW/g
Power Drift = 0.073 dB
Maximum value of SAR (measured) = 0.402 mW/g



Date/Time: 2011-02-21 13:45:28

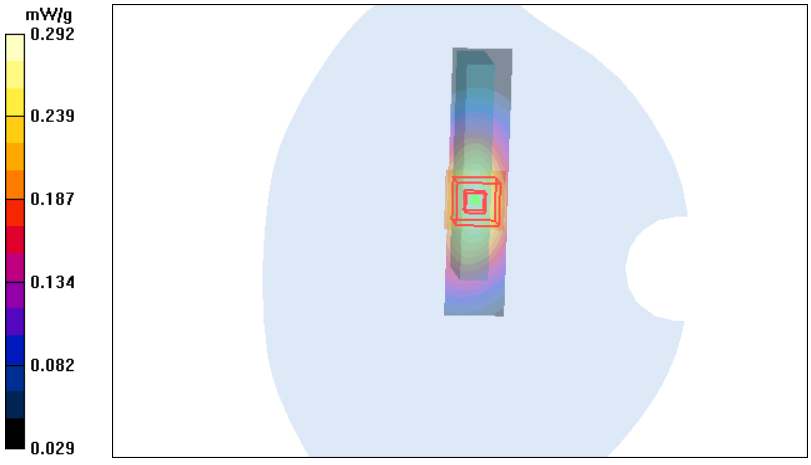
Test Laboratory: TCC Nokia
Type: RM-601; Serial: 353758/04/000904/1

Communication System: WCDMA850
Frequency: 835 MHz; Duty Cycle: 1:1
Medium: BSL850; Medium Notes: t= 21.2 C
Medium parameters used: f = 835 MHz; σ = 1 mho/m; ε_r = 53.1; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3194
- ConvF(5.95, 5.95, 5.95); Calibrated: 2010-09-09
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2010-09-09
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body - Middle - Spacer 12.5mm - No Accessory - Right Edge Facing Phantom/Area Scan (21x91x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.292 mW/g

Body - Middle - Spacer 12.5mm - No Accessory - Right Edge 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) = 0.391 W/kg
SAR(1 g) = 0.274 mW/g
SAR(10 g) = 0.186 mW/g
Power Drift = -0.064 dB
Maximum value of SAR (measured) = 0.292 mW/g



Date/Time: 2011-02-22 15:19:10

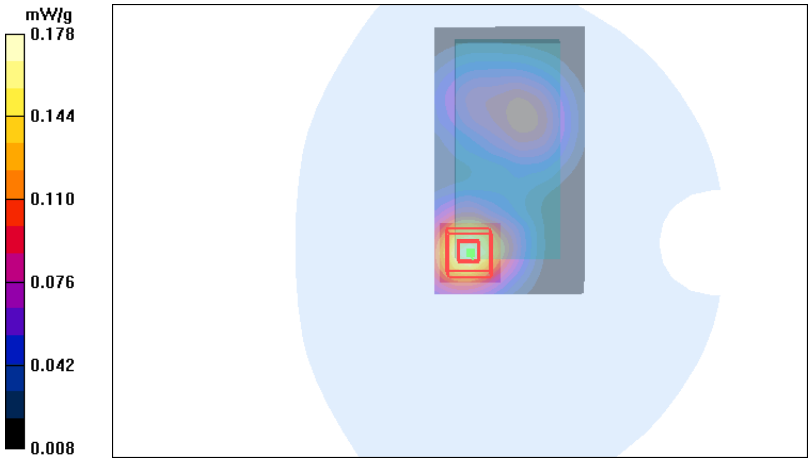
Test Laboratory: TCC Nokia
Type: RM-601; Serial: 353758/04/000904/1

Communication System: WCDMA1700/2100
Frequency: 1732.4 MHz; Duty Cycle: 1:1
Medium: BSL1800; Medium Notes: t= 21.5 C
Medium parameters used (interpolated): f = 1732.4 MHz; σ = 1.42 mho/m; ε_r = 51.6; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1766
- ConvF(4.58, 4.58, 4.58); Calibrated: 2010-03-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn728; Calibrated: 2010-03-19
- Phantom: SAM 3; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body - Middle - Spacer 12.5mm - No Accessory - Display Facing Phantom/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.181 mW/g

Body - Middle - Spacer 12.5mm - No Accessory - Display Facing Phantom/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 9.28 V/m
Peak SAR (extrapolated) = 0.216 W/kg
SAR(1 g) = 0.162 mW/g
SAR(10 g) = 0.102 mW/g
Power Drift = -0.139 dB
Maximum value of SAR (measured) = 0.178 mW/g



Date/Time: 2011-02-23 09:24:43

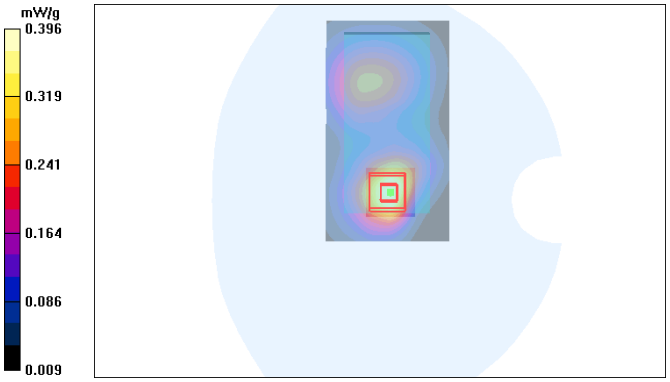
Test Laboratory: TCC Nokia
Type: RM-601; Serial: 353758/04/000904/1

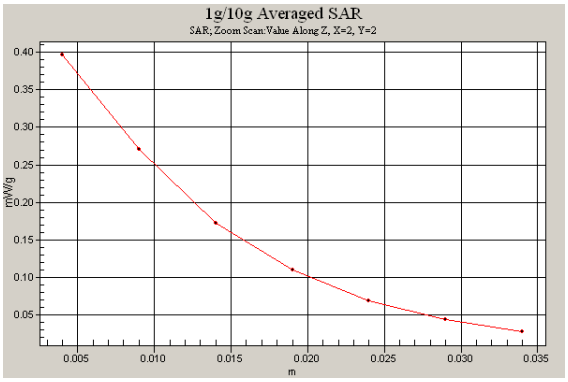
Communication System: WCDMA1700/2100
Frequency: 1752.6 MHz; Duty Cycle: 1:1
Medium: BSL1800; Medium Notes: t= 21.5 C
Medium parameters used: f = 1753 MHz; σ = 1.44 mho/m; ε_r = 51.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1766
- ConvF(4.58, 4.58, 4.58); Calibrated: 2010-03-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn728; Calibrated: 2010-03-19
- Phantom: SAM 3; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body - High - Spacer 12.5mm - No Accessory - Back Facing Phantom/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.444 mW/g

Body - High - Spacer 12.5mm - No Accessory - Back Facing Phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 18.1 V/m
Peak SAR (extrapolated) = 0.512 W/kg
SAR(1 g) = 0.361 mW/g
SAR(10 g) = 0.222 mW/g
Power Drift = -0.112 dB
Maximum value of SAR (measured) = 0.396 mW/g





Date/Time: 2011-02-22 16:08:39

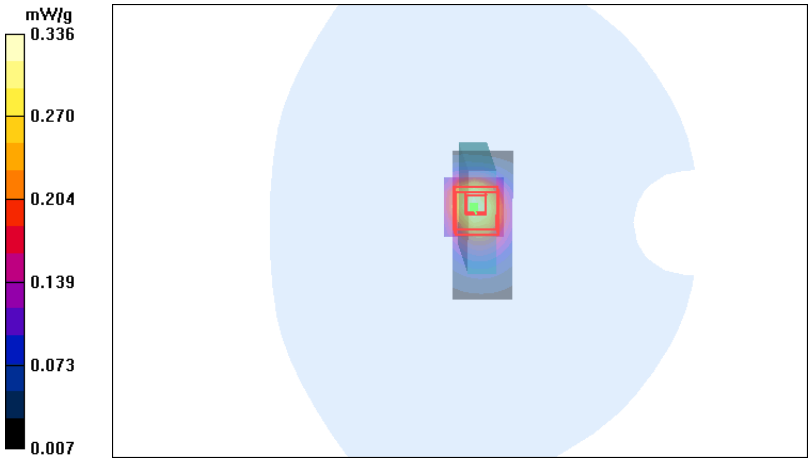
Test Laboratory: TCC Nokia
Type: RM-601; Serial: 353758/04/000904/1

Communication System: WCDMA1700/2100
Frequency: 1732.4 MHz; Duty Cycle: 1:1
Medium: BSL1800; Medium Notes: t= 21.5 C
Medium parameters used (interpolated): f = 1732.4 MHz; σ = 1.42 mho/m; ε_r = 51.6; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1766
- ConvF(4.58, 4.58, 4.58); Calibrated: 2010-03-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn728; Calibrated: 2010-03-19
- Phantom: SAM 3; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body - Middle - Spacer 12.5mm - No Accessory - Top Edge Facing Phantom/Area Scan (21x51x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.335 mW/g

Body - Middle - Spacer 12.5mm - No Accessory - Top Edge Facing Phantom/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 15.2 V/m
Peak SAR (extrapolated) = 0.450 W/kg
SAR(1 g) = 0.302 mW/g
SAR(10 g) = 0.174 mW/g
Power Drift = -0.013 dB
Maximum value of SAR (measured) = 0.336 mW/g



Date/Time: 2011-02-22 16:17:57

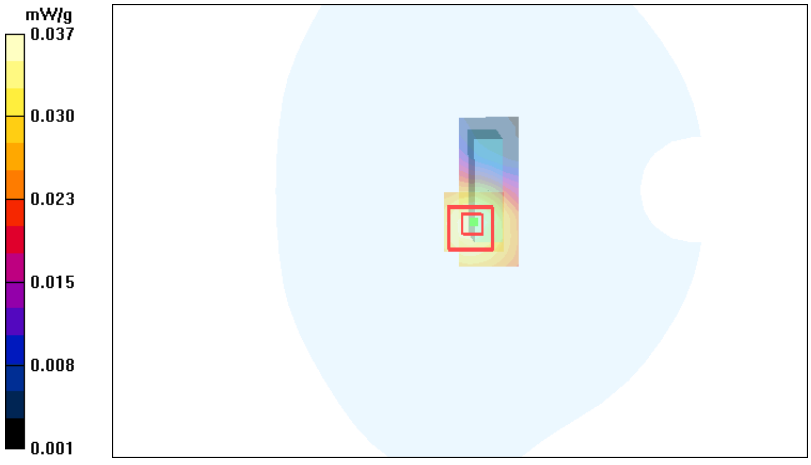
Test Laboratory: TCC Nokia
Type: RM-601; Serial: 353758/04/000904/1

Communication System: WCDMA1700/2100
Frequency: 1732.4 MHz; Duty Cycle: 1:1
Medium: BSL1800; Medium Notes: t= 21.5 C
Medium parameters used (interpolated): f = 1732.4 MHz; σ = 1.42 mho/m; ε_r = 51.6; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1766
- ConvF(4.58, 4.58, 4.58); Calibrated: 2010-03-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn728; Calibrated: 2010-03-19
- Phantom: SAM 3; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body - Middle - Spacer 12.5mm - No Accessory - Bottom Edge Facing Phantom/Area Scan (21x51x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.037 mW/g

Body - Middle - Spacer 12.5mm - No Accessory - Bottom Edge Facing Phantom/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 4.62 V/m
Peak SAR (extrapolated) = 0.044 W/kg
SAR(1 g) = 0.034 mW/g
SAR(10 g) = 0.023 mW/g
Power Drift = -0.032 dB
Maximum value of SAR (measured) = 0.037 mW/g



Date/Time: 2011-02-22 15:45:03

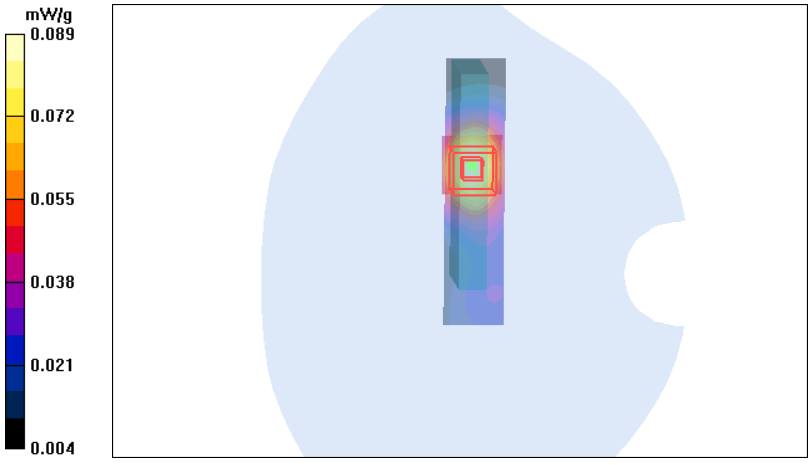
Test Laboratory: TCC Nokia
Type: RM-601; Serial: 353758/04/000904/1

Communication System: WCDMA1700/2100
Frequency: 1732.4 MHz; Duty Cycle: 1:1
Medium: BSL1800; Medium Notes: t= 21.5 C
Medium parameters used (interpolated): f = 1732.4 MHz; σ = 1.42 mho/m; ε_r = 51.6; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1766
- ConvF(4.58, 4.58, 4.58); Calibrated: 2010-03-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn728; Calibrated: 2010-03-19
- Phantom: SAM 3; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body - Middle - Spacer 12.5mm - No Accessory - Left Edge Facing Phantom/Area Scan (21x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.091 mW/g

Body - Middle - Spacer 12.5mm - No Accessory - Left Edge Facing Phantom/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 4.46 V/m
Peak SAR (extrapolated) = 0.108 W/kg
SAR(1 g) = 0.081 mW/g
SAR(10 g) = 0.052 mW/g
Power Drift = -0.119 dB
Maximum value of SAR (measured) = 0.089 mW/g



Date/Time: 2011-02-22 15:57:04

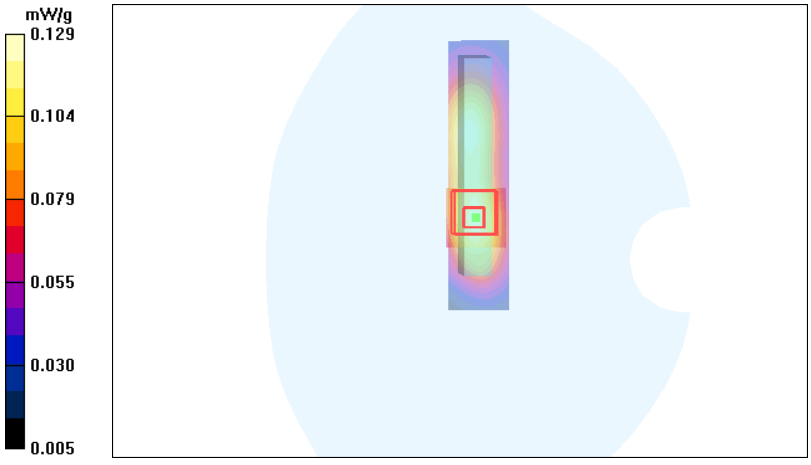
Test Laboratory: TCC Nokia
Type: RM-601; Serial: 353758/04/000904/1

Communication System: WCDMA1700/2100
Frequency: 1732.4 MHz; Duty Cycle: 1:1
Medium: BSL1800; Medium Notes: t= 21.5 C
Medium parameters used (interpolated): f = 1732.4 MHz; σ = 1.42 mho/m; ε_r = 51.6; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1766
- ConvF(4.58, 4.58, 4.58); Calibrated: 2010-03-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn728; Calibrated: 2010-03-19
- Phantom: SAM 3; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body - Middle - Spacer 12.5mm - No Accessory - Right Edge Facing Phantom/Area Scan (21x91x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.130 mW/g

Body - Middle - Spacer 12.5mm - No Accessory - Right Edge Facing Phantom/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 9.11 V/m
Peak SAR (extrapolated) = 0.162 W/kg
SAR(1 g) = 0.118 mW/g
SAR(10 g) = 0.075 mW/g
Power Drift = 0.014 dB
Maximum value of SAR (measured) = 0.129 mW/g



Date/Time: 2011-02-21 15:08:49

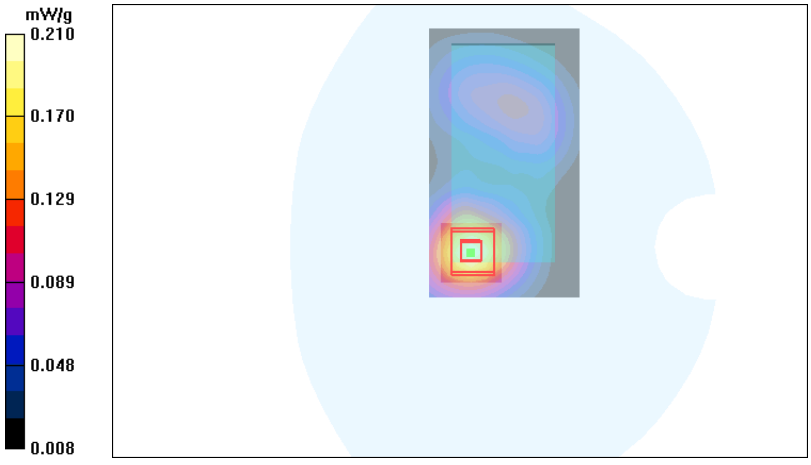
Test Laboratory: TCC Nokia
Type: RM-601; Serial: 353758/04/000904/1

Communication System: 4-slot GPRS1900
Frequency: 1880 MHz; Duty Cycle: 1:2.1
Medium: BSL1900; Medium Notes: t= 21.4 C
Medium parameters used: f = 1880 MHz; σ = 1.5 mho/m; ε_r = 52.8; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1766
- ConvF(4.37, 4.37, 4.37); Calibrated: 2010-03-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn728; Calibrated: 2010-03-19
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body - Middle - Spacer 12.5mm - No Accessory - Display Facing Phantom/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.216 mW/g

Body - Middle - Spacer 12.5mm - No Accessory - Display Facing Phantom/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 10.8 V/m
Peak SAR (extrapolated) = 0.273 W/kg
SAR(1 g) = 0.191 mW/g
SAR(10 g) = 0.120 mW/g
Power Drift = -0.037 dB
Maximum value of SAR (measured) = 0.210 mW/g



Date/Time: 2011-02-22 13:25:33

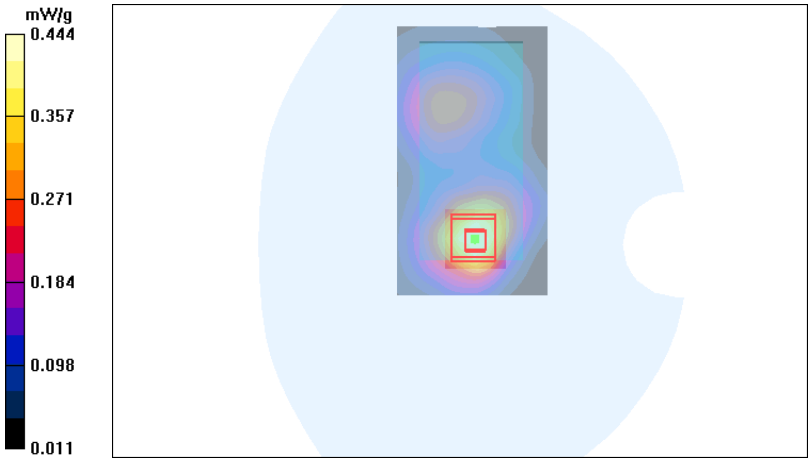
Test Laboratory: TCC Nokia
Type: RM-601; Serial: 353758/04/000904/1

Communication System: 4-slot GPRS1900
Frequency: 1909.8 MHz; Duty Cycle: 1:2.1
Medium: BSL1900; Medium Notes: t= 21.2 C
Medium parameters used: f = 1910 MHz; σ = 1.54 mho/m; ε_r = 52.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1766
- ConvF(4.37, 4.37, 4.37); Calibrated: 2010-03-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn728; Calibrated: 2010-03-19
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body - High - Spacer 12.5mm - No Accessory - Back Facing Phantom/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.480 mW/g

Body - High - Spacer 12.5mm - No Accessory - Back Facing Phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 18.5 V/m
Peak SAR (extrapolated) = 0.604 W/kg
SAR(1 g) = 0.416 mW/g
SAR(10 g) = 0.259 mW/g
Power Drift = 0.043 dB
Maximum value of SAR (measured) = 0.444 mW/g



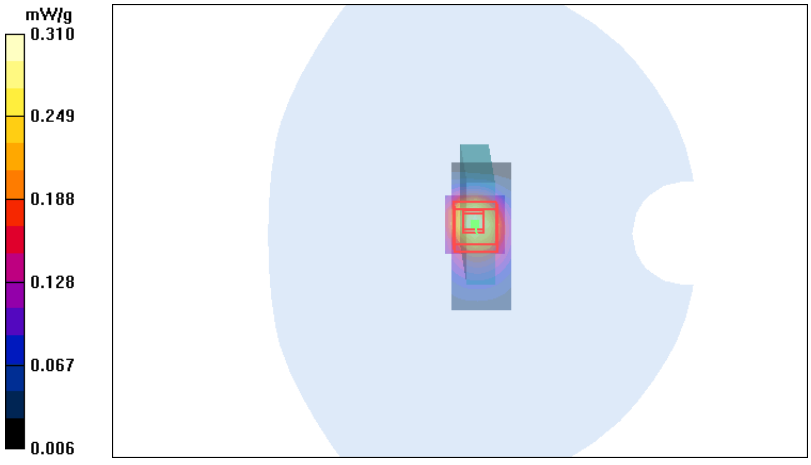
Test Laboratory: TCC Nokia
Type: RM-601; Serial: 353758/04/000904/1

Communication System: 4-slot GPRS1900
Frequency: 1880 MHz; Duty Cycle: 1:2.1
Medium: BSL1900; Medium Notes: t= 21.2 C
Medium parameters used: f = 1880 MHz; σ = 1.51 mho/m; ε_r = 52.6; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1766
- ConvF(4.37, 4.37, 4.37); Calibrated: 2010-03-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn728; Calibrated: 2010-03-19
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body - Middle - Spacer 12.5mm - No Accessory - Top Edge Facing Phantom/Area Scan (21x51x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.317 mW/g

Body - Middle - Spacer 12.5mm - No Accessory - Top Edge Facing Phantom/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 14.6 V/m
Peak SAR (extrapolated) = 0.444 W/kg
SAR(1 g) = 0.279 mW/g
SAR(10 g) = 0.157 mW/g
Power Drift = 0.024 dB
Maximum value of SAR (measured) = 0.310 mW/g



Date/Time: 2011-02-22 12:46:55

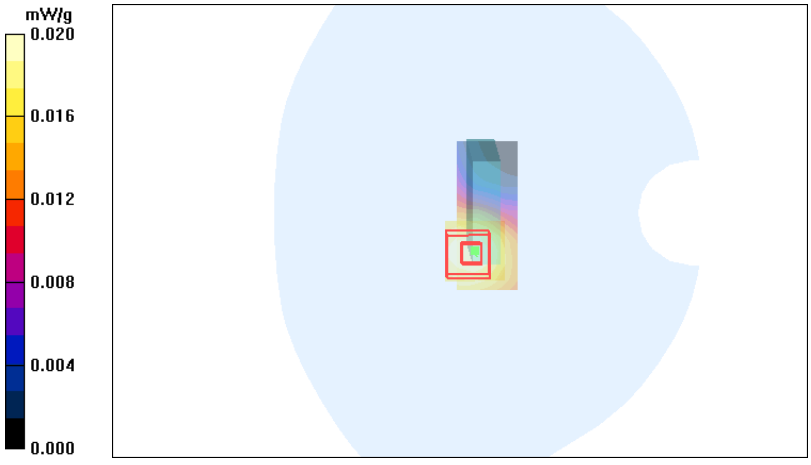
Test Laboratory: TCC Nokia
Type: RM-601; Serial: 353758/04/000904/1

Communication System: 4-slot GPRS1900
Frequency: 1880 MHz; Duty Cycle: 1:2.1
Medium: BSL1900; Medium Notes: t= 21.2 C
Medium parameters used: f = 1880 MHz; σ = 1.51 mho/m; ε_r = 52.6; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1766
- ConvF(4.37, 4.37, 4.37); Calibrated: 2010-03-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn728; Calibrated: 2010-03-19
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body - Middle - Spacer 12.5mm - No Accessory - Bottom Edge Facing Phantom/Area Scan (21x51x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.020 mW/g

Body - Middle - Spacer 12.5mm - No Accessory - Bottom Edge Facing Phantom/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 3.14 V/m
Peak SAR (extrapolated) = 0.026 W/kg
SAR(1 g) = 0.019 mW/g
SAR(10 g) = 0.013 mW/g
Power Drift = 0.159 dB
Maximum value of SAR (measured) = 0.020 mW/g



Date/Time: 2011-02-22 11:30:02

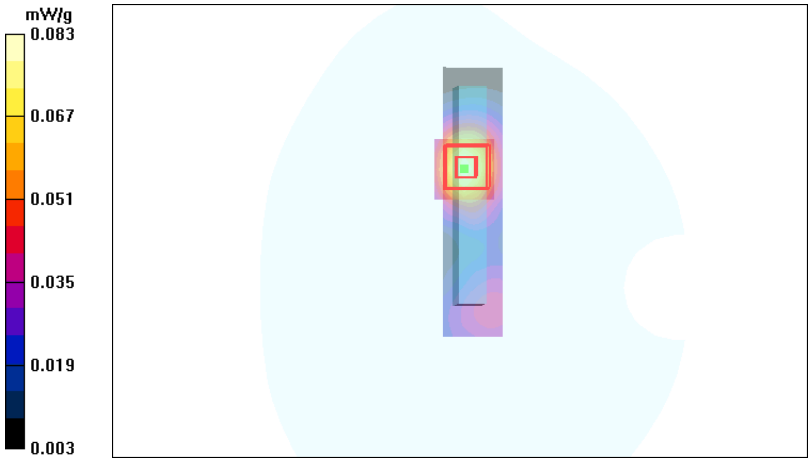
Test Laboratory: TCC Nokia
Type: RM-601; Serial: 353758/04/000904/1

Communication System: 4-slot GPRS1900
Frequency: 1880 MHz; Duty Cycle: 1:2.1
Medium: BSL1900; Medium Notes: t= 21.2 C
Medium parameters used: f = 1880 MHz; σ = 1.51 mho/m; ε_r = 52.6; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1766
- ConvF(4.37, 4.37, 4.37); Calibrated: 2010-03-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn728; Calibrated: 2010-03-19
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body - Middle - Spacer 12.5mm - No Accessory - Left Edge Facing Phantom/Area Scan (21x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.084 mW/g

Body - Middle - Spacer 12.5mm - No Accessory - Left Edge Facing Phantom/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 4.91 V/m
Peak SAR (extrapolated) = 0.109 W/kg
SAR(1 g) = 0.075 mW/g
SAR(10 g) = 0.047 mW/g
Power Drift = 0.017 dB
Maximum value of SAR (measured) = 0.083 mW/g



Date/Time: 2011-02-22 12:03:12

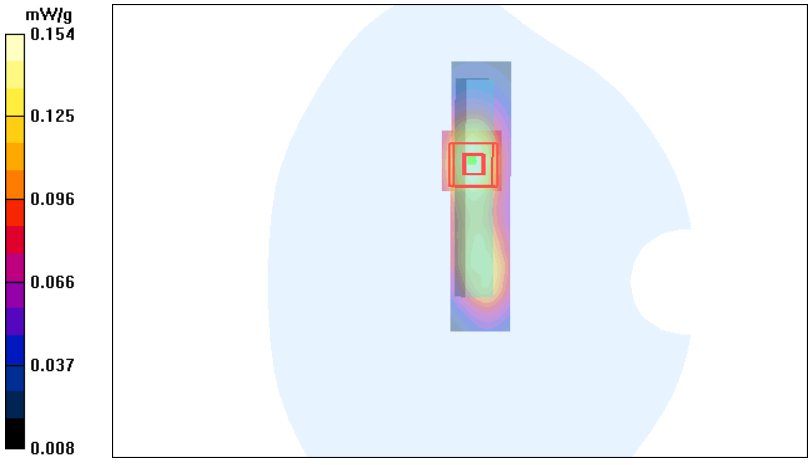
Test Laboratory: TCC Nokia
Type: RM-601; Serial: 353758/04/000904/1

Communication System: 4-slot GPRS1900
Frequency: 1880 MHz; Duty Cycle: 1:2.1
Medium: BSL1900; Medium Notes: t= 21.2 C
Medium parameters used: f = 1880 MHz; σ = 1.51 mho/m; ε_r = 52.6; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1766
- ConvF(4.37, 4.37, 4.37); Calibrated: 2010-03-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn728; Calibrated: 2010-03-19
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body - Middle - Spacer 12.5mm - No Accessory - Right Edge Facing Phantom/Area Scan (21x91x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.159 mW/g

Body - Middle - Spacer 12.5mm - No Accessory - Right Edge Facing Phantom/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 9.83 V/m
Peak SAR (extrapolated) = 0.199 W/kg
SAR(1 g) = 0.143 mW/g
SAR(10 g) = 0.091 mW/g
Power Drift = 0.016 dB
Maximum value of SAR (measured) = 0.154 mW/g



Date/Time: 2011-02-21 15:23:54

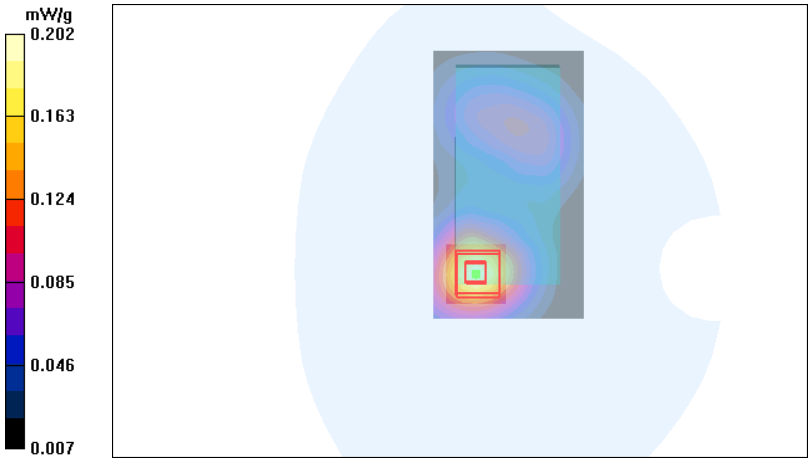
Test Laboratory: TCC Nokia
Type: RM-601; Serial: 353758/04/000904/1

Communication System: WCDMA1900
Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: BSL1900; Medium Notes: t= 21.4 C
Medium parameters used: f = 1880 MHz; σ = 1.5 mho/m; ε_r = 52.8; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1766
- ConvF(4.37, 4.37, 4.37); Calibrated: 2010-03-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn728; Calibrated: 2010-03-19
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body - Middle - Spacer 12.5mm - No Accessory - Display Facing Phantom/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.202 mW/g

Body - Middle - Spacer 12.5mm - No Accessory - Display Facing Phantom/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 10.8 V/m
Peak SAR (extrapolated) = 0.260 W/kg
SAR(1 g) = 0.184 mW/g
SAR(10 g) = 0.115 mW/g
Power Drift = -0.132 dB
Maximum value of SAR (measured) = 0.202 mW/g



Date/Time: 2011-02-22 13:37:27

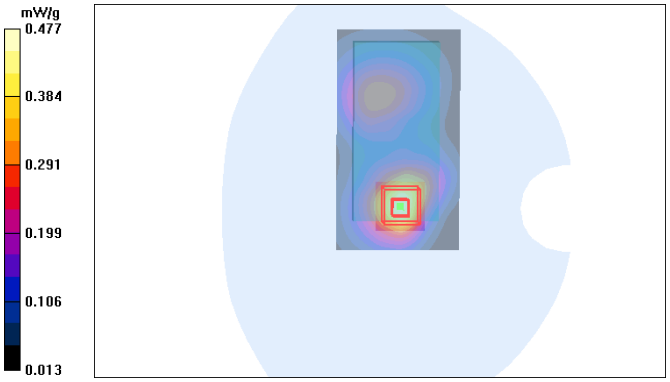
Test Laboratory: TCC Nokia
Type: RM-601; Serial: 353758/04/000904/1

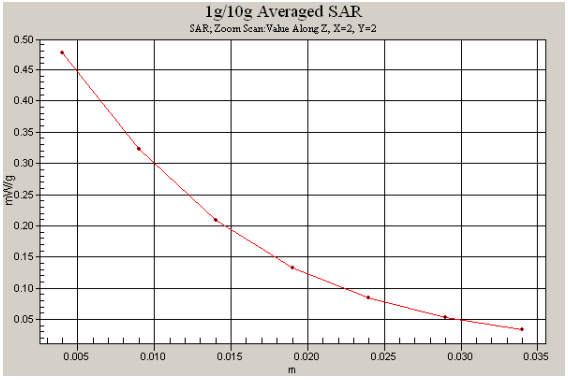
Communication System: WCDMA1900
Frequency: 1852.4 MHz; Duty Cycle: 1:1
Medium: BSL1900; Medium Notes: t= 21.2 C
Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.49 mho/m; ε_r = 52.7; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1766
- ConvF(4.37, 4.37, 4.37); Calibrated: 2010-03-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn728; Calibrated: 2010-03-19
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body - Low - Spacer 12.5mm - No Accessory - Back Facing Phantom/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.487 mW/g

Body - Low - Spacer 12.5mm - No Accessory - Back Facing Phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 19.5 V/m
Peak SAR (extrapolated) = 0.634 W/kg
SAR(1 g) = 0.435 mW/g
SAR(10 g) = 0.270 mW/g
Power Drift = -0.032 dB
Maximum value of SAR (measured) = 0.477 mW/g





Date/Time: 2011-02-22 12:27:23

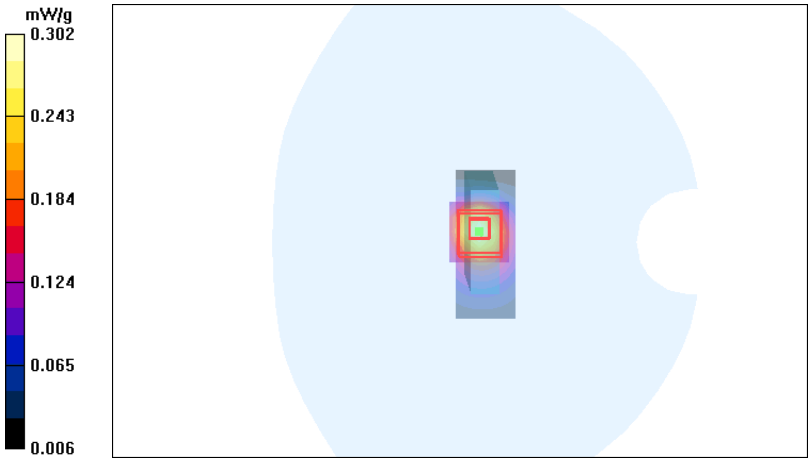
Test Laboratory: TCC Nokia
Type: RM-601; Serial: 353758/04/000904/1

Communication System: WCDMA1900
Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: BSL1900; Medium Notes: t= 21.2 C
Medium parameters used: f = 1880 MHz; σ = 1.51 mho/m; ε_r = 52.6; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1766
- ConvF(4.37, 4.37, 4.37); Calibrated: 2010-03-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn728; Calibrated: 2010-03-19
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body - Middle - Spacer 12.5mm - No Accessory - Top Edge Facing Phantom/Area Scan (21x51x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.307 mW/g

Body - Middle - Spacer 12.5mm - No Accessory - Top Edge Facing Phantom/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 14.5 V/m
Peak SAR (extrapolated) = 0.432 W/kg
SAR(1 g) = 0.273 mW/g
SAR(10 g) = 0.154 mW/g
Power Drift = -0.092 dB
Maximum value of SAR (measured) = 0.302 mW/g



Date/Time: 2011-02-22 12:36:51

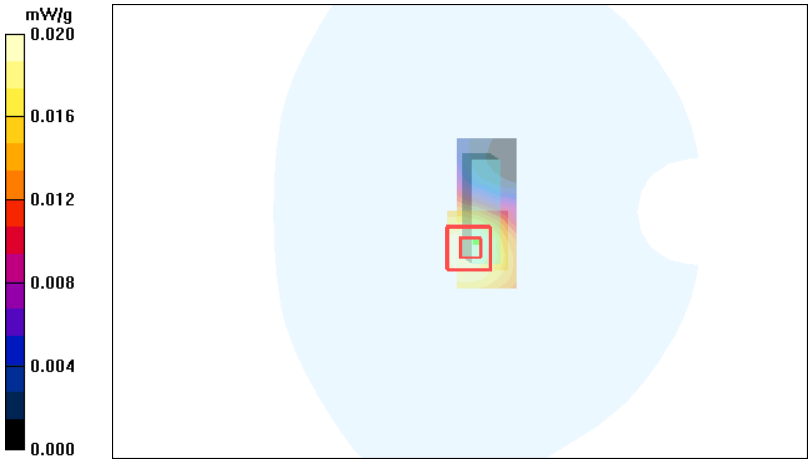
Test Laboratory: TCC Nokia
Type: RM-601; Serial: 353758/04/000904/1

Communication System: WCDMA1900
Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: BSL1900; Medium Notes: t= 21.2 C
Medium parameters used: f = 1880 MHz; σ = 1.51 mho/m; ε_r = 52.6; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1766
- ConvF(4.37, 4.37, 4.37); Calibrated: 2010-03-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn728; Calibrated: 2010-03-19
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body - Middle - Spacer 12.5mm - No Accessory - Bottom Edge Facing Phantom/Area Scan (21x51x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.021 mW/g

Body - Middle - Spacer 12.5mm - No Accessory - Bottom Edge Facing Phantom/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 3.18 V/m
Peak SAR (extrapolated) = 0.026 W/kg
SAR(1 g) = 0.019 mW/g
SAR(10 g) = 0.013 mW/g
Power Drift = -0.084 dB
Warning: Maximum averaged SAR over 10 g is located on the boundary of the measurement cube. This cube might not incorporate the absolute averaged SAR. Please consider a refinement of the Area Scan measurement.
Maximum value of SAR (measured) = 0.020 mW/g



Date/Time: 2011-02-22 11:41:19

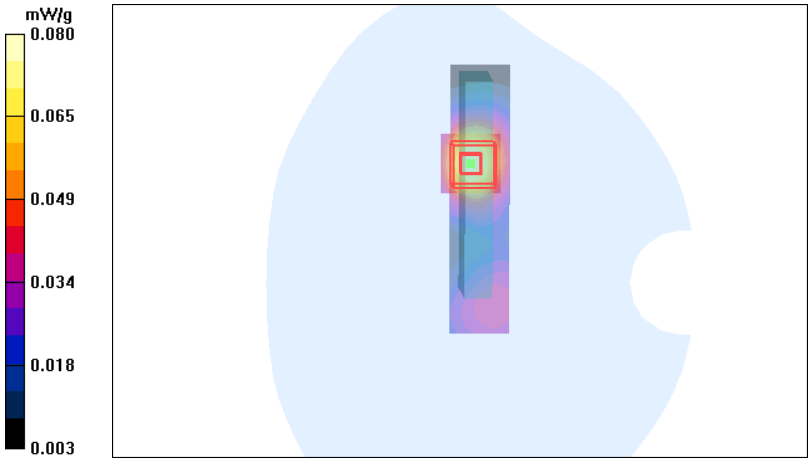
Test Laboratory: TCC Nokia
Type: RM-601; Serial: 353758/04/000904/1

Communication System: WCDMA1900
Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: BSL1900; Medium Notes: t= 21.2 C
Medium parameters used: f = 1880 MHz; σ = 1.51 mho/m; ε_r = 52.6; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1766
- ConvF(4.37, 4.37, 4.37); Calibrated: 2010-03-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn728; Calibrated: 2010-03-19
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body - Middle - Spacer 12.5mm - No Accessory - Left Edge Facing Phantom/Area Scan (21x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.081 mW/g

Body - Middle - Spacer 12.5mm - No Accessory - Left Edge Facing Phantom/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 4.91 V/m
Peak SAR (extrapolated) = 0.103 W/kg
SAR(1 g) = 0.073 mW/g
SAR(10 g) = 0.045 mW/g
Power Drift = 0.089 dB
Maximum value of SAR (measured) = 0.080 mW/g



Date/Time: 2011-02-22 11:52:41

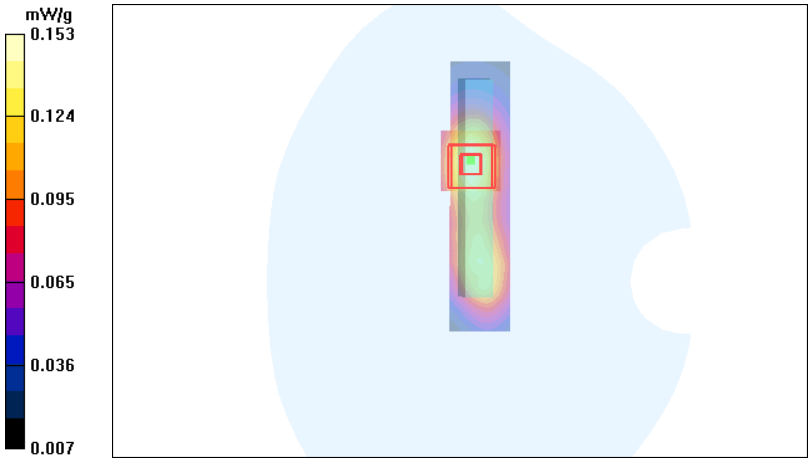
Test Laboratory: TCC Nokia
Type: RM-601; Serial: 353758/04/000904/1

Communication System: WCDMA1900
Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: BSL1900; Medium Notes: t= 21.2 C
Medium parameters used: f = 1880 MHz; σ = 1.51 mho/m; ε_r = 52.6; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1766
- ConvF(4.37, 4.37, 4.37); Calibrated: 2010-03-19
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn728; Calibrated: 2010-03-19
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body - Middle - Spacer 12.5mm - No Accessory - Right Edge Facing Phantom/Area Scan (21x91x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.157 mW/g

Body - Middle - Spacer 12.5mm - No Accessory - Right Edge Facing Phantom/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 9.68 V/m
Peak SAR (extrapolated) = 0.194 W/kg
SAR(1 g) = 0.141 mW/g
SAR(10 g) = 0.090 mW/g
Power Drift = 0.007 dB
Maximum value of SAR (measured) = 0.153 mW/g



Date/Time: 2011-02-23 11:52:56

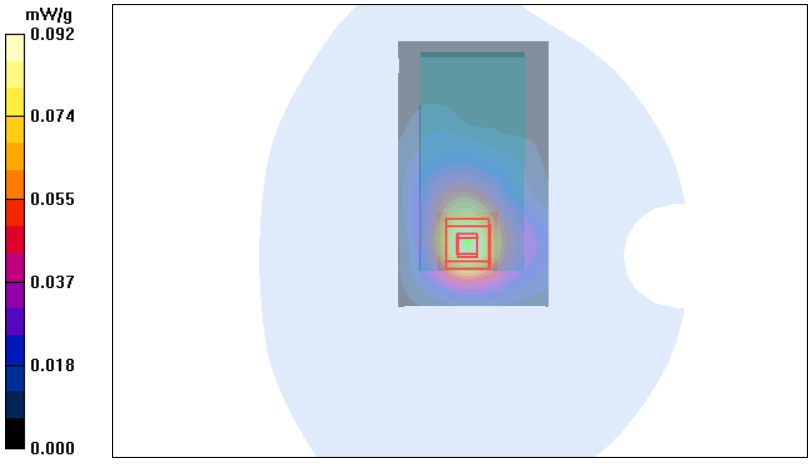
Test Laboratory: TCC Nokia
Type: RM-601; Serial: 353759/04/002344/6

Communication System: WLAN2450 b-mode
Frequency: 2442 MHz; Duty Cycle: 1:1
Medium: BSL2450; Medium Notes: t= 21.0 C
Medium parameters used: f = 2442 MHz; σ = 1.99 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3131
- ConvF(4.05, 4.05, 4.05); Calibrated: 2010-09-09
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn793; Calibrated: 2010-09-08
- Phantom: SAM2; Type: SAM; Serial: TP-1570
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body - Middle - Spacer 12.5mm - No Accessory - Display Facing Phantom/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.098 mW/g

Body - Middle - Spacer 12.5mm - No Accessory - Display Facing Phantom/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 6.79 V/m
Peak SAR (extrapolated) = 0.156 W/kg
SAR(1 g) = 0.086 mW/g
SAR(10 g) = 0.049 mW/g
Power Drift = -0.043 dB
Maximum value of SAR (measured) = 0.092 mW/g



Date/Time: 2011-02-23 12:17:23

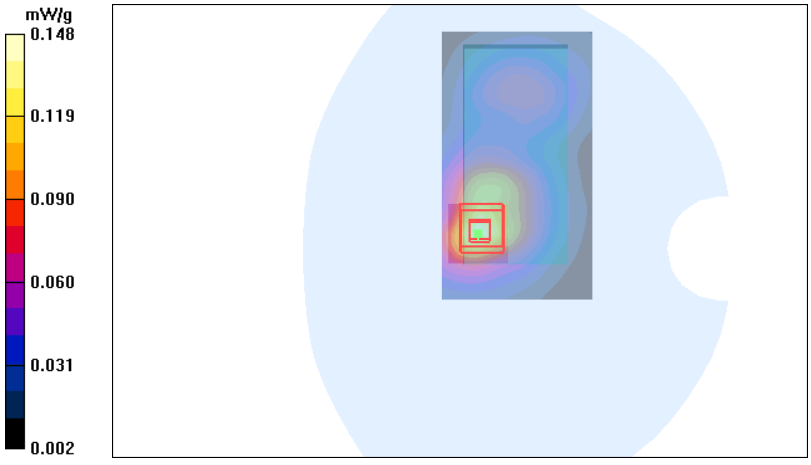
Test Laboratory: TCC Nokia
Type: RM-601; Serial: 353759/04/002344/6

Communication System: WLAN2450 b-mode
Frequency: 2442 MHz; Duty Cycle: 1:1
Medium: BSL2450; Medium Notes: t= 21.0 C
Medium parameters used: f = 2442 MHz; σ = 1.99 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3131
- ConvF(4.05, 4.05, 4.05); Calibrated: 2010-09-09
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn793; Calibrated: 2010-09-08
- Phantom: SAM2; Type: SAM; Serial: TP-1570
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body - Middle - Spacer 12.5mm - No Accessory - Back Facing Phantom/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.149 mW/g

Body - Middle - Spacer 12.5mm - No Accessory - Back Facing Phantom/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 6.14 V/m
Peak SAR (extrapolated) = 0.255 W/kg
SAR(1 g) = 0.133 mW/g
SAR(10 g) = 0.072 mW/g
Power Drift = 0.051 dB
Maximum value of SAR (measured) = 0.148 mW/g



Date/Time: 2011-02-23 12:46:59

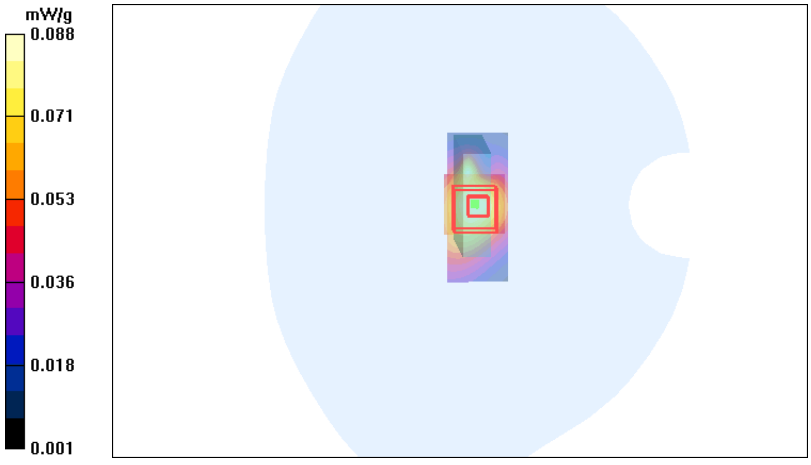
Test Laboratory: TCC Nokia
Type: RM-601; Serial: 353759/04/002344/6

Communication System: WLAN2450 b-mode
Frequency: 2442 MHz; Duty Cycle: 1:1
Medium: BSL2450; Medium Notes: t= 21.0 C
Medium parameters used: f = 2442 MHz; σ = 1.99 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3131
- ConvF(4.05, 4.05, 4.05); Calibrated: 2010-09-09
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn793; Calibrated: 2010-09-08
- Phantom: SAM2; Type: SAM; Serial: TP-1570
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body - Middle - Spacer 12.5mm - No Accessory - Top Edge Facing Phantom/Area Scan (21x51x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.092 mW/g

Body - Middle - Spacer 12.5mm - No Accessory - Top Edge Facing Phantom/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 6.77 V/m
Peak SAR (extrapolated) = 0.154 W/kg
SAR(1 g) = 0.081 mW/g
SAR(10 g) = 0.045 mW/g
Power Drift = -0.016 dB
Maximum value of SAR (measured) = 0.088 mW/g



Date/Time: 2011-02-23 13:05:04

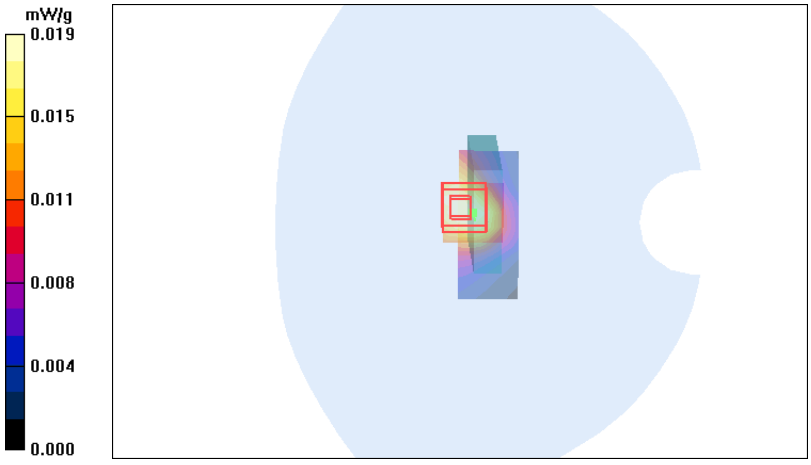
Test Laboratory: TCC Nokia
Type: RM-601; Serial: 353759/04/002344/6

Communication System: WLAN2450 b-mode
Frequency: 2442 MHz; Duty Cycle: 1:1
Medium: BSL2450; Medium Notes: t= 21.0 C
Medium parameters used: f = 2442 MHz; σ = 1.99 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3131
- ConvF(4.05, 4.05, 4.05); Calibrated: 2010-09-09
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn793; Calibrated: 2010-09-08
- Phantom: SAM2; Type: SAM; Serial: TP-1570
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body - Middle - Spacer 12.5mm - No Accessory - Bottom Edge Facing Phantom/Area Scan (21x51x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.021 mW/g

Body - Middle - Spacer 12.5mm - No Accessory - Bottom Edge Facing Phantom/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 2.91 V/m
Peak SAR (extrapolated) = 0.035 W/kg
SAR(1 g) = 0.018 mW/g
SAR(10 g) = 0.00995 mW/g
Power Drift = 0.206 dB
Warning: Maximum averaged SAR over 10 g is located on the boundary of the measurement cube. This cube might not incorporate the absolute averaged SAR. Please consider a refinement of the Area Scan measurement.
Maximum value of SAR (measured) = 0.019 mW/g



Date/Time: 2011-02-23 14:24:19

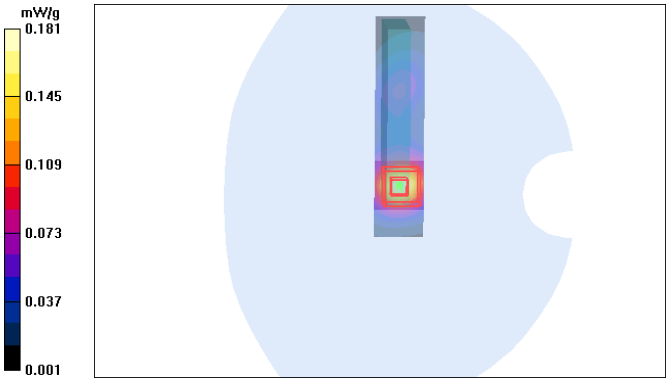
Test Laboratory: TCC Nokia
Type: RM-601; Serial: 353759/04/002344/6

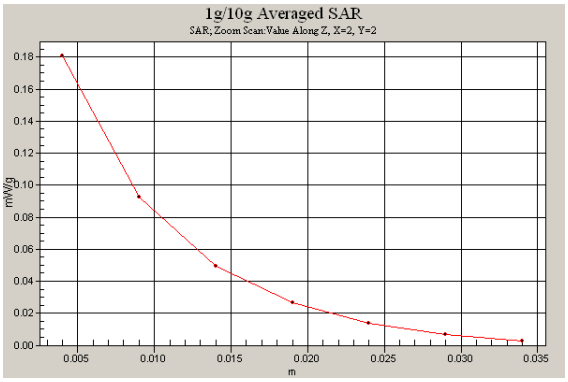
Communication System: WLAN2450 b-mode
Frequency: 2442 MHz; Duty Cycle: 1:1
Medium: BSL2450; Medium Notes: t= 21.0 C
Medium parameters used: f = 2442 MHz; σ = 1.99 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3131
- ConvF(4.05, 4.05, 4.05); Calibrated: 2010-09-09
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn793; Calibrated: 2010-09-08
- Phantom: SAM2; Type: SAM; Serial: TP-1570
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body - Middle - Spacer 12.5mm - No Accessory - Left Edge Facing Phantom/Area Scan (21x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.182 mW/g

Body - Middle - Spacer 12.5mm - No Accessory - Left Edge Facing Phantom/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 9.09 V/m
Peak SAR (extrapolated) = 0.325 W/kg
SAR(1 g) = 0.162 mW/g
SAR(10 g) = 0.081 mW/g
Power Drift = 0.059 dB
Maximum value of SAR (measured) = 0.181 mW/g





Date/Time: 2011-02-23 14:37:11

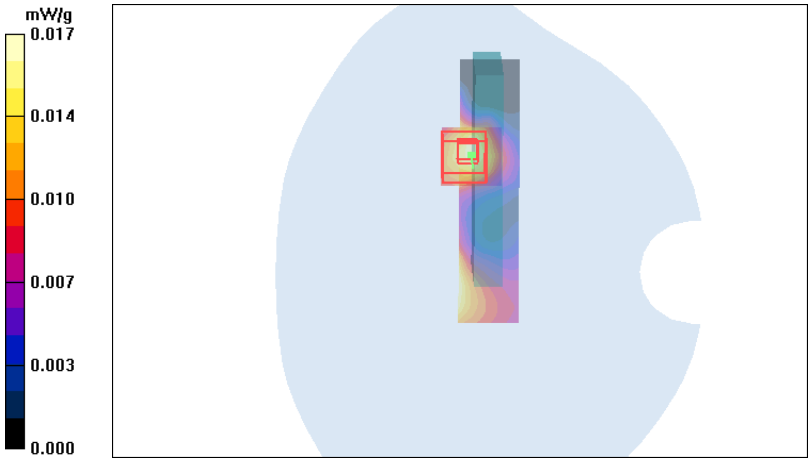
Test Laboratory: TCC Nokia
Type: RM-601; Serial: 353759/04/002344/6

Communication System: WLAN2450 b-mode
Frequency: 2442 MHz; Duty Cycle: 1:1
Medium: BSL2450; Medium Notes: t= 21.0 C
Medium parameters used: f = 2442 MHz; σ = 1.99 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3131
- ConvF(4.05, 4.05, 4.05); Calibrated: 2010-09-09
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn793; Calibrated: 2010-09-08
- Phantom: SAM2; Type: SAM; Serial: TP-1570
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body - Middle - Spacer 12.5mm - No Accessory - Right Edge Facing Phantom/Area Scan (21x91x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.019 mW/g

Body - Middle - Spacer 12.5mm - No Accessory - Right Edge Facing Phantom/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 1.93 V/m
Peak SAR (extrapolated) = 0.024 W/kg
SAR(1 g) = 0.015 mW/g
SAR(10 g) = 0.00775 mW/g
Power Drift = 0.491 dB
Maximum value of SAR (measured) = 0.017 mW/g



Date/Time: 2011-02-23 16:09:18

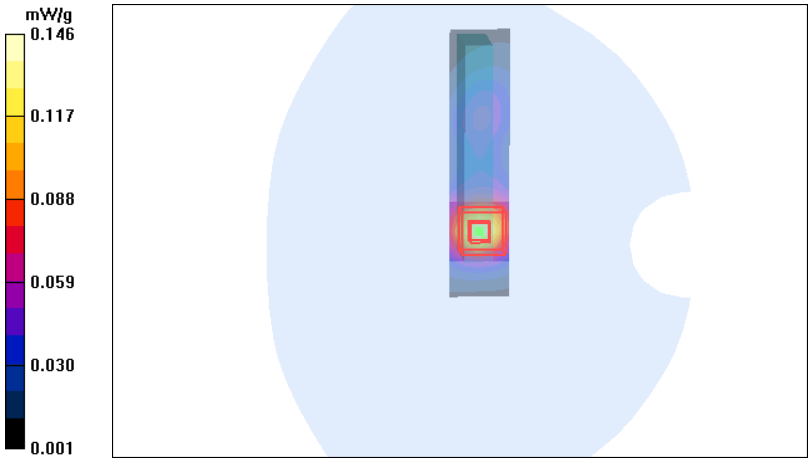
Test Laboratory: TCC Nokia
Type: RM-601; Serial: 353759/04/002344/6

Communication System: WLAN2450 n-mode
Frequency: 2442 MHz; Duty Cycle: 1:1
Medium: BSL2450; Medium Notes: t= 21.0 C
Medium parameters used: f = 2442 MHz; σ = 1.99 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3131
- ConvF(4.05, 4.05, 4.05); Calibrated: 2010-09-09
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn793; Calibrated: 2010-09-08
- Phantom: SAM2; Type: SAM; Serial: TP-1570
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Body - Middle - Spacer 12.5mm - No Accessory - Left Edge Facing Phantom/Area Scan (21x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.148 mW/g

Body - Middle - Spacer 12.5mm - No Accessory - Left Edge Facing Phantom/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 7.45 V/m
Peak SAR (extrapolated) = 0.262 W/kg
SAR(1 g) = 0.130 mW/g
SAR(10 g) = 0.066 mW/g
Power Drift = -0.001 dB
Maximum value of SAR (measured) = 0.146 mW/g



Date/Time: 2011-02-21 14:53:32, Date/Time: 2011-02-23 12:17:23

Test Laboratory: TCC Nokia

Type: RM-601; Serial: 353758/04/000904/1, Serial: 353759/04/002344/6

Communication System: 3-slot GPRS850, Communication System: WLAN2450 b-mode

Frequency: 836.6 MHz, Frequency: 2442 MHz; Duty Cycle: 1:2.8, Duty Cycle: 1:1
Medium: BSL850, Medium: BSL2450; Medium Notes: t= 21.2 C, Medium Notes: t= 21.0 C
Medium parameters used: f = 837 MHz; σ = 1 mho/m; ε_r = 53.1; ρ = 1000 kg/m^3 , Medium parameters used: f = 2442 MHz; σ = 1.99 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3
Phantom section: Flat Section

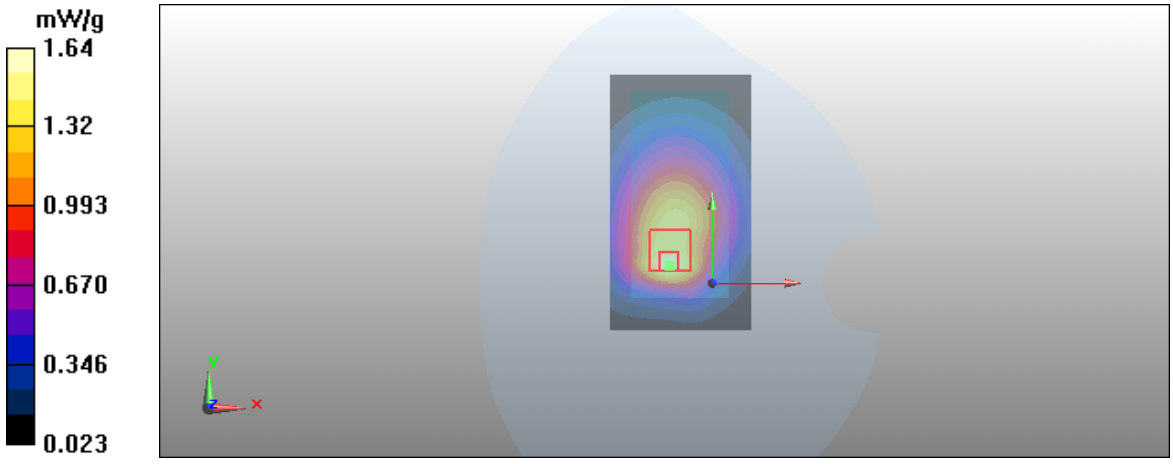
DASY4 Configuration:
- Probe: ES3DV3 - SN3194, Probe: ES3DV3 - SN3131
- ConvF(5.95, 5.95, 5.95), ConvF(4.05, 4.05, 4.05); Calibrated: 2010-09-09
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
- Electronics: DAE4 Sn538, Electronics: DAE4 Sn793; Calibrated: 2010-09-09,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

Configuration/Body - Middle - Spacer 12.5mm - No Accessory - Back Facing Phantom/Area Scan (6x10x1):
Measurement grid: dx=15mm, dy=15mm

Configuration/Body - Middle - Spacer 12.5mm - No Accessory - Back Facing Phantom/Area Scan (6x10x1):
Measurement grid: dx=15mm, dy=15mm

Motorola Fast SAR of Combined Scans: SAR(1 g) = 1.44 mW/g
SAR(10 g) = 0.968 mW/g

Maximum value of SAR (measured) = 1.64 mW/g



Date/Time: 2011-02-22 08:50:02, Date/Time: 2011-02-23 12:17:23

Test Laboratory: TCC Nokia

Type: RM-601; Serial: 353758/04/000904/1, Serial: 353759/04/002344/6

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

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

Medium: BSL850, Medium: BSL2450; Medium Notes: t= 21.2 C, Medium Notes: t= 21.0 C

Medium parameters used: f = 847 MHz; σ = 1.01 mho/m; ε_r = 53; ρ = 1000 kg/m^3 , Medium parameters used: f = 2442 MHz; σ = 1.99 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3

Phantom section: Flat Section

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

Configuration/Body - High - Spacer 12.5mm - No Accessory - Back Facing Phantom/Area Scan (6x10x1):

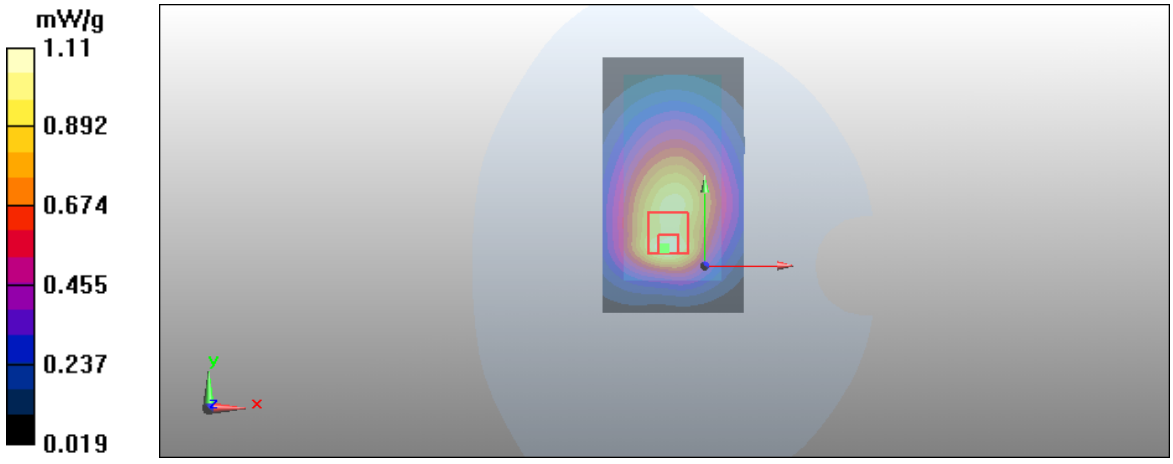
Measurement grid: dx=15mm, dy=15mm

Configuration/Body - Middle - Spacer 12.5mm - No Accessory - Back Facing Phantom/Area Scan (6x10x1):

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

Motorola Fast SAR of Combined Scans: SAR(1 g) = 1 mW/g
SAR(10 g) = 0.676 mW/g

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



Date/Time: 2011-02-23 09:24:43, Date/Time: 2011-02-23 12:17:23

Test Laboratory: TCC Nokia

Type: RM-601; Serial: 353758/04/000904/1, Serial: 353759/04/002344/6

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

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

Medium: BSL1800, Medium: BSL2450; Medium Notes: t= 21.5 C, Medium Notes: t= 21.0 C

Medium parameters used: f = 1753 MHz; σ = 1.44 mho/m; ε_r = 51.5; ρ = 1000 kg/m^3 , Medium parameters used: f = 2442 MHz; σ = 1.99 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3

Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1766, Probe: ES3DV3 - SN3131
- ConvF(4.58, 4.58, 4.58), ConvF(4.05, 4.05, 4.05); Calibrated: 2010-03-19, Calibrated: 2010-09-09
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
- Electronics: DAE4 Sn728, Electronics: DAE4 Sn793; Calibrated: 2010-03-19, Calibrated: 2010-09-08
- Phantom: SAM 3, Phantom: SAM2; Type: Twin SAM 040 CA, Type: SAM; Serial: TP-1179, Serial: TP-1570
- ; SEMCAD X Version 14.0 Build 61

Configuration/Body - High - Spacer 12.5mm - No Accessory - Back Facing Phantom/Area Scan (6x10x1):

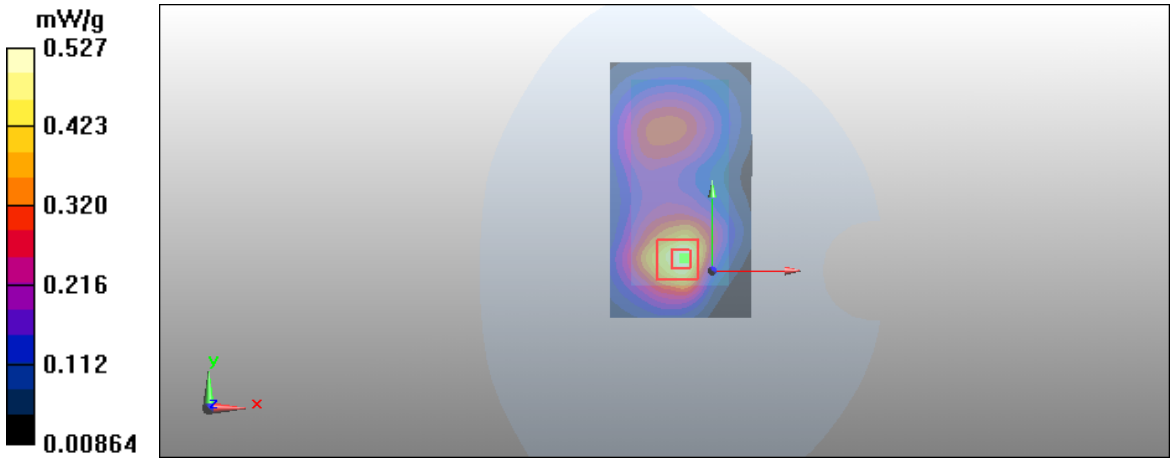
Measurement grid: dx=15mm, dy=15mm

Configuration/Body - Middle - Spacer 12.5mm - No Accessory - Back Facing Phantom/Area Scan (6x10x1):

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

Motorola Fast SAR of Combined Scans: SAR(1 g) = 0.464 mW/g
SAR(10 g) = 0.268 mW/g

Maximum value of SAR (measured) = 0.527 mW/g



Date/Time: 2011-02-22 13:25:33, Date/Time: 2011-02-23 12:17:23

Test Laboratory: TCC Nokia

Type: RM-601; Serial: 353758/04/000904/1, Serial: 353759/04/002344/6

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

Frequency: 1909.8 MHz, Frequency: 2442 MHz; Duty Cycle: 1:2.1, Duty Cycle: 1:1
Medium: BSL1900, Medium: BSL2450; Medium Notes: t= 21.2 C, Medium Notes: t= 21.0 C
Medium parameters used: f = 1910 MHz; σ = 1.54 mho/m; ε_r = 52.5; ρ = 1000 kg/m^3 , Medium parameters used: f = 2442 MHz; σ = 1.99 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1766, Probe: ES3DV3 - SN3131
- ConvF(4.37, 4.37, 4.37), ConvF(4.05, 4.05, 4.05); Calibrated: 2010-03-19, Calibrated: 2010-09-09
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
- Electronics: DAE4 Sn728, Electronics: DAE4 Sn793; Calibrated: 2010-03-19, Calibrated: 2010-09-08
- Phantom: SAM 2, Phantom: SAM2; Type: Twin SAM 040 CA, Type: SAM; Serial: TP - 1177, Serial: TP-1570
- ; SEMCAD X Version 14.0 Build 61

Configuration/Body - High - Spacer 12.5mm - No Accessory - Back Facing Phantom/Area Scan (6x10x1):

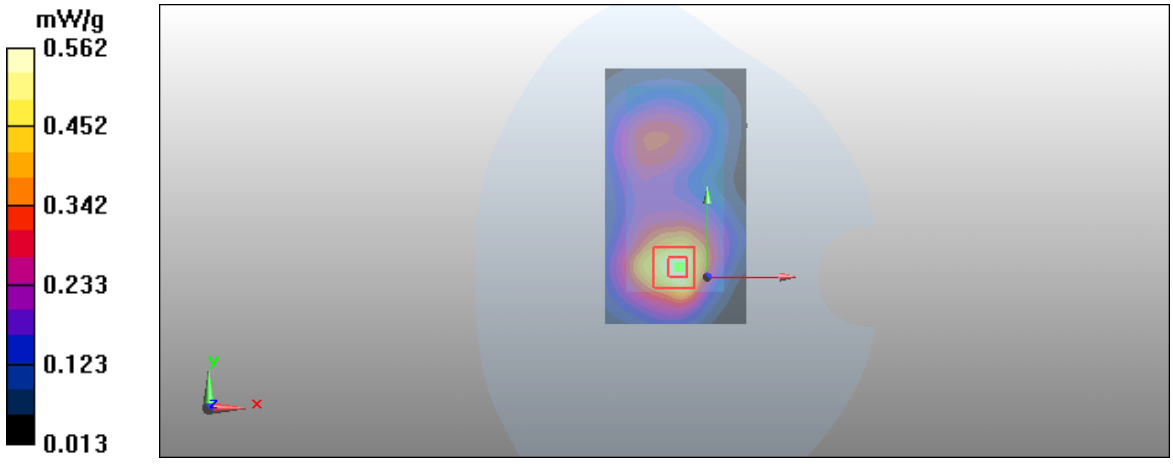
Measurement grid: dx=15mm, dy=15mm

Configuration/Body - Middle - Spacer 12.5mm - No Accessory - Back Facing Phantom/Area Scan (6x10x1):

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

Motorola Fast SAR of Combined Scans: SAR(1 g) = 0.506 mW/g
SAR(10 g) = 0.292 mW/g

Maximum value of SAR (measured) = 0.562 mW/g



Date/Time: 2011-02-22 13:37:27, Date/Time: 2011-02-23 12:17:23

Test Laboratory: TCC Nokia

Type: RM-601; Serial: 353758/04/000904/1, Serial: 353759/04/002344/6

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

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

Medium: BSL1900, Medium: BSL2450; Medium Notes: t= 21.2 C, Medium Notes: t= 21.0 C

Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.49 mho/m; ε_r = 52.7; ρ = 1000 kg/m^3 , Medium parameters used: f = 2442 MHz; σ = 1.99 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3

Phantom section: Flat Section

DASY4 Configuration:
- Probe: ET3DV6 - SN1766, Probe: ES3DV3 - SN3131
- ConvF(4.37, 4.37, 4.37), ConvF(4.05, 4.05, 4.05); Calibrated: 2010-03-19, Calibrated: 2010-09-09
- Sensor-Surface: 4mm (Mechanical Surface Detection), Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
- Electronics: DAE4 Sn728, Electronics: DAE4 Sn793; Calibrated: 2010-03-19, Calibrated: 2010-09-08
- Phantom: SAM 2, Phantom: SAM2; Type: Twin SAM 040 CA, Type: SAM; Serial: TP - 1177, Serial: TP-1570
- ; SEMCAD X Version 14.0 Build 61

Configuration/Body - Low - Spacer 12.5mm - No Accessory - Back Facing Phantom/Area Scan (6x10x1):

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

Configuration/Body - Middle - Spacer 12.5mm - No Accessory - Back Facing Phantom/Area Scan (6x10x1):

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

Motorola Fast SAR of Combined Scans: SAR(1 g) = 0.510 mW/g
SAR(10 g) = 0.296 mW/g

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