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Finnish Accreditation Service
T117 (EN ISO/IEC 17025)

SAR Compliance Test Report

Test report no.:	FCC_RM-555_03	**Date of report:**	2009-07-23
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Tested device:	RM-555		
FCC ID:	QVVRM-555	**IC:**	661AE-RM555
Supplement reports:	SAR_Photo_RM-555_04		

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:

Jesper Nielsen
Test Engineer

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1. SUMMARY OF SAR TEST REPORT

1.1 Test Details

Period of test	2009-07-06 to 2009-07-20
SN, HW and SW numbers of tested device	SN: 004401/10/682560/3, HW: 3010, SW: V52.50.2009.22.1PRD, DUT: 24980
Batteries used in testing	BL-4D, DUT: 25219, 25222, 25223
Headsets used in testing	HS-45+AD-54, DUT: 25218+25217
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	30.7 dBm	Right, Cheek	0.413 W/kg	**0.46 W/kg**	1.6 W/kg	PASSED
3-slot GPRS1900	512 / 1850.2	27.7 dBm	Left, Cheek	0.507 W/kg	**0.57 W/kg**	1.6 W/kg	PASSED
WCDMA1900	9262 / 1852.4	23.3 dBm	Left, Cheek	0.397 W/kg	**0.44 W/kg**	1.6 W/kg	PASSED
WLAN2450	1 / 2412.0	18.0 dBm	Left, Tilt	0.343 W/kg	**0.38 W/kg**	1.6 W/kg	PASSED
3-slot GPRS850 + WLAN2450	-	-	Left, Tilt	0.646 W/kg	**0.72 W/kg**	1.6 W/kg	PASSED
3-slot GPRS1900 + WLAN2450	-	-	Left, Tilt	0.801 W/kg	**0.90 W/kg**	1.6 W/kg	PASSED
WCDMA1900 + WLAN2450	-	-	Left, Cheek	0.606 W/kg	**0.68 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	30.7 dBm	1.5 cm	0.985 W/kg	**1.10 W/kg**	1.6 W/kg	PASSED
3-slot GPRS1900	661 / 1880.0	27.7 dBm	1.5 cm	0.979 W/kg	**1.10 W/kg**	1.6 W/kg	PASSED
WCDMA1900	9538 / 1907.6	23.3 dBm	1.5 cm	0.932 W/kg	**1.04 W/kg**	1.6 W/kg	PASSED
WLAN2450	11 / 2462.0	18.0 dBm	1.5 cm	0.168 W/kg	**0.19 W/kg**	1.6 W/kg	PASSED
3-slot GPRS850 + WLAN2450	-	-	1.5 cm	1.115 W/kg	**1.25 W/kg**	1.6 W/kg	PASSED
3-slot GPRS1900 + WLAN2450	-	-	1.5 cm	1.109 W/kg	**1.24 W/kg**	1.6 W/kg	PASSED
WCDMA1900 + WLAN2450	-	-	1.5 cm	1.062 W/kg	**1.19 W/kg**	1.6 W/kg	PASSED

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

1.2.3 Maximum Drift

Maximum drift covered by 12% scaling up of the SAR values	Maximum drift during measurements
0.5dB	0.47 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 3/8	824 – 849 1850 – 1910
EGPRS	850 1900	GMSK / 8PSK	1/8 to 3/8	824 – 849 1850 – 1910
WCDMA	1900 (Band II)		1	1852 – 1908
BT	2450	GFSK	1	2402 – 2480
WLAN	2450	11Mbps QPSK	1	2412 – 2462

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

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

2.1 Description of the Antenna

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

3. TEST CONDITIONS

3.1 Temperature and Humidity

Ambient temperature (°C):	20.5 to 2.5
Ambient humidity (RH %):	35 to 55

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 tests was DSSS QPSK 11Mbps. This mode has the highest (or equal highest) time-averaged output power of all the WLAN modulation modes in Nokia devices.

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
DAE3	501	12 months	2010-03
DAE4	710	12 months	2009-09
E-field Probe ES3DV3	3116	12 months	2010-03
E-field Probe ES3DV3	3119	12 months	2009-09
Dipole Validation Kit, D835V2	4d042	24 months	2010-09
Dipole Validation Kit, D1900V2	5d026	24 months	2010-03
Dipole Validation Kit, D2450V2	750	24 months	2010-03
DASY4 software	Version 4.7	-	-

Additional test equipment used in testing:

Test Equipment	Model	Serial Number	Calibration interval	Calibration expiry
Signal Generator	SME06	829445/008	36 months	2012-02
Amplifier	2100-BBS3Q8CCJ	1003	-	-
Power Meter	NRP	100293	24 months	2009-07
Power Sensor	NRP-Z51	100830	24 months	2009-07
Call Tester	CMU200	105900	-	-
Call Tester	CMU200	110735	-	-
Vector Network Analyzer	AT8753ES	MY40001091	12 months	2009-08
Dielectric Probe Kit	HP85070B	US33020403	-	-

4.1.1 Isotropic E-field Probe Type ES3DV3

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

4.2 Phantoms

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

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

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

4.3 Tissue Simulants

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

The depth of the tissue simulant was 15.0 ± 0.5 cm measured from the ear reference point during system checking and device measurements.

4.3.1 Tissue Simulant Recipes

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

800MHz band

Ingredient	Head (% by weight)	Body (% by weight)
Deionised Water	39.74	55.97
HEC	0.25	1.21
Sugar	58.31	41.76
Preservative	0.15	0.27
Salt	1.55	0.79

1900MHz band

Ingredient	Head (% by weight)	Body (% by weight)
Deionised Water	54.88	69.02
Butyl Diglycol	44.91	30.76
Salt	0.21	0.22

2450MHz band

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

4.3.2 System Checking

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

System checking, head tissue simulant

f [MHz]	Description	SAR [W/kg], 1g	Dielectric Parameters		Temp [°C]
			ε_r	σ [S/m]	
835	Reference result	2.38	41.4	0.90	
	± 10% window	2.14 - 2.62			
	2009-07-15	2.52	40.8	0.90	21.4
	2009-07-20	2.48	40.7	0.89	20.8
1900	Reference result	10.3	40.2	1.47	
	± 10% window	9.3 - 11.3			
	2009-07-06	11.0	38.7	1.47	20.5
	2009-07-10	10.9	38.7	1.47	21.1
2450	Reference result	13.5	39.3	1.81	
	± 10% window	12.1 - 14.9			
	2009-07-14	14.4	37.5	1.89	21.5

System checking, body tissue simulant

f [MHz]	Description	SAR [W/kg], 1g	Dielectric Parameters		Temp [°C]
			ε_r	σ [S/m]	
2450	Reference result	13.2	50.8	1.98	
	± 10% window	11.9 – 14.5			
	2009-07-16	14.4	51.0	1.94	21.7

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

4.3.3 Tissue Simulants used in the Measurements

Head tissue simulant measurements

f [MHz]	Description	Dielectric Parameters		Temp [°C]
		ε_r	σ [S/m]	
	Recommended value	41.5	0.90	
	± 5% window	39.4 – 43.6	0.86 – 0.95	
836	2009-07-15	40.9	0.90	21.4
	Recommended value	40.0	1.40	
	± 5% window	38.0 – 42.0	1.33 – 1.47	
1880	2009-07-06	38.8	1.45	20.5
	Recommended value	39.2	1.79	
	± 5% window	37.3 – 41.2	1.70 – 1.88	
2442	2009-07-14	37.6	1.88	21.5

Body tissue simulant measurements

f [MHz]	Description	Dielectric Parameters		Temp [°C]
		ε_r	σ [S/m]	
	Recommended value	55.2	0.97	
	± 5% window	52.4 – 58.0	0.92 – 1.02	
836	2009-07-20	53.6	0.97	20.8
	Recommended value	53.3	1.52	
	± 5% window	50.6 – 56.0	1.44 – 1.60	
1880	2009-07-10	52.9	1.49	21.0
	Recommended value	52.7	1.94	
	± 5% window	50.1 – 55.3	1.85 – 2.04	
2442	2009-07-16	51.0	1.93	21.7

5. DESCRIPTION OF THE TEST PROCEDURE

5.1 Device Holder

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

Device holder supplied by SPEAG

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

Nokia spacer

5.2 Test Positions

5.2.1 Against Phantom Head

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

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

5.2.2 Body Worn Configuration

The device was placed in the SPEAG holder using the Nokia spacer and placed below the flat section of the phantom. The distance between the device and the phantom was kept at the separation distance indicated in Section 1.2.2 using a separate flat spacer that was removed before the start of the measurements. The device was oriented with its back facing the phantom since this orientation gives higher results.

5.3 Scan Procedures

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

5.4 SAR Averaging Methods

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

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

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

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

6. MEASUREMENT UNCERTAINTY

Table 6.1 – Measurement uncertainty evaluation

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

7. RESULTS

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

850MHz Head SAR results

Option used	Test configuration		SAR, averaged over 1g (W/kg)		
			Ch 128 824.2 MHz	Ch190 836.6 MHz	Ch 251 848.8 MHz
GSM	**Conducted Power**		**-**	**32.5 dBm**	**-**
Slide closed	Left	Cheek	-	0.141	-
		Tilt	-	-	-
	Right	Cheek	-	-	-
		Tilt	-	-	-
2-slot GPRS	**Conducted Power**		**-**	**32.5 dBm**	**-**
Slide closed	Left	Cheek	-	0.279	-
		Tilt	-	-	-
	Right	Cheek	-	-	-
		Tilt	-	-	-
3-slot GPRS	**Conducted Power**		**30.7 dBm**	**30.7 dBm**	**30.7 dBm**
Slide closed	Left	Cheek	-	0.337	-
		Tilt	-	0.303	-
	Right	Cheek	0.259	0.345	**0.413**
		Tilt	-	0.260	-
3-slot 8PSK EGPRS	**Conducted Power**		**-**	**-**	**24.7 dBm**
Slide closed	Left	Cheek	-	-	-
		Tilt	-	-	-
	Right	Cheek	-	-	0.075
		Tilt	-	-	-

1900MHz Head SAR results

Option used	Test configuration		SAR, averaged over 1g (W/kg)		
			Ch 512 1850.2 MHz	Ch 661 1880.0 MHz	Ch 810 1909.8 MHz
GSM	**Conducted Power**		**-**	**29.5 dBm**	**-**
Slide closed	Left	Cheek	-	0.229	-
		Tilt	-	-	-
	Right	Cheek	-	-	-
		Tilt	-	-	-
2-slot GPRS	**Conducted Power**		**-**	**29.5 dBm**	**-**
Slide closed	Left	Cheek	-	0.427	-
		Tilt	-	-	-
	Right	Cheek	-	-	-
		Tilt	-	-	-
3-slot GPRS	**Conducted Power**		**27.7 dBm**	**27.7 dBm**	**27.7 dBm**
Slide closed	Left	Cheek	**0.507**	0.462	0.369
		Tilt	-	0.458	-
	Right	Cheek	-	0.451	-
		Tilt	-	0.398	-
3-slot 8PSK EGPRS	**Conducted Power**		**23.7 dBm**	**-**	**-**
Slide closed	Left	Cheek	0.235	-	-
		Tilt	-	-	-
	Right	Cheek	-	-	-
		Tilt	-	-	-
Option used	**Test configuration**		**Ch 9262 1852.4 MHz**	**Ch 9400 1880.0 MHz**	**Ch 9538 1907.6 MHz**
WCDMA	**Conducted Power**		**23.3 dBm**	**23.3 dBm**	**23.3 dBm**
Slide closed	Left	Cheek	**0.397**	0.323	0.287
		Tilt	-	-	-
	Right	Cheek	-	-	-
		Tilt	-	-	-

2450MHz Head SAR results

Option used	Test configuration		SAR, averaged over 1g (W/kg)		
			Ch 1 2412.0 MHz	Ch 7 2442.0 MHz	Ch 11 2462.0 MHz
WLAN	Conducted Power		18.0 dBm	18.0 dBm	18.0 dBm
Slide closed	Left	Cheek	-	0.209	-
		Tilt	**0.343**	0.301	0.204
	Right	Cheek	-	0.187	-
		Tilt	-	0.205	-

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

850MHz Body SAR results

Option used	Device orientation	Test configuration	SAR, averaged over 1g (W/kg)		
			Ch 128 824.2 MHz	Ch190 836.6 MHz	Ch 251 848.8 MHz
3-slot GPRS		Conducted Power	30.7 dBm	30.7 dBm	30.7 dBm
Slide closed	Display facing phantom	Without headset	-	-	-
		Headset HS-45+AD-54	-	-	-
	Back facing phantom	Without headset	0.729	0.888	**0.985**
		Headset HS-45+AD-54	-	0.521	-

1900MHz Body SAR results

Option used	Device orientation	Test configuration	SAR, averaged over 1g (W/kg)		
			Ch 512 1850.2 MHz	Ch 661 1880.0 MHz	Ch 810 1909.8 MHz
3-slot GPRS		Conducted Power	27.7 dBm	27.7 dBm	27.7 dBm
Slide closed	Display facing phantom	Without headset	-	-	-
		Headset HS-45+AD-54	-	-	-
	Back facing phantom	Without headset	0.965	**0.979**	0.957
		Headset HS-45+AD-54	-	0.909	-
Option used	**Device orientation**	**Test configuration**	**Ch 9262 1852.4 MHz**	**Ch 9400 1880.0 MHz**	**Ch 9538 1907.6 MHz**
WCDMA		Conducted Power	23.3 dBm	23.3 dBm	23.3 dBm
Slide closed	Display facing phantom	Without headset	-	-	-
		Headset HS-45+AD-54	-	-	-
	Back facing phantom	Without headset	0.815	0.837	**0.932**
		Headset HS-45+AD-54	-	-	-

2450MHz Body SAR results

Option used	Device orientation	Test configuration	SAR, averaged over 1g (W/kg)		
			Ch 1 2412.0 MHz	Ch 7 2442.0 MHz	Ch 11 2462.0 MHz
WLAN		Conducted Power	18.0 dBm	18.0 dBm	18.0 dBm
Slide closed	Display facing phantom	Without headset	-	-	-
		Headset HS-45+AD-54	-	-	-
	Back facing phantom	Without headset	-	0.130	-
		Headset HS-45+AD-54	0.131	0.141	**0.168**

Simultaneous transmissions: Combined SAR results

Test configuration	Max. 1g SAR results			
	WLAN2450	3-slot GPRS850	3-slot GPRS1900	WCDMA1900
Head: Left, Cheek	0.209	0.337	0.507	0.397
Head: Left, Tilt	0.343	0.303	0.458	-
Head: Right, Cheek	0.187	0.413	0.451	-
Head: Right, Tilt	0.205	0.260	0.398	-
Body: Without Headset	0.130	0.985	0.979	0.932
Body: Headset HS-45+AD-54	0.168	0.521	0.909	-

Simultaneous transmissions: Combined SAR results

Test configuration	Combined 1g SAR values		
	WLAN2450 + 3-slot GPRS850	WLAN2450 + 3-slot GPRS1900	WLAN2450 + WCDMA1900
Head: Left, Cheek	0.546	0.716	**0.606**
Head: Left, Tilt	**0.646**	**0.801**	-
Head: Right, Cheek	0.600	0.638	-
Head: Right, Tilt	0.465	0.603	-
Body: Without Headset	**1.115**	**1.109**	**1.062**
Body: Headset HS-45+AD-54	0.689	1.077	-

Note: Combining the maximum SAR values of WLAN2450 and the cellular bands tends to overestimate the SAR value since their maxima do not necessarily occur in the same location.

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

Plots of the Measurement scans are given in Appendix B.

APPENDIX A: SYSTEM CHECKING SCANS

See the following pages

Date/Time: 2009-07-15 12:19:56

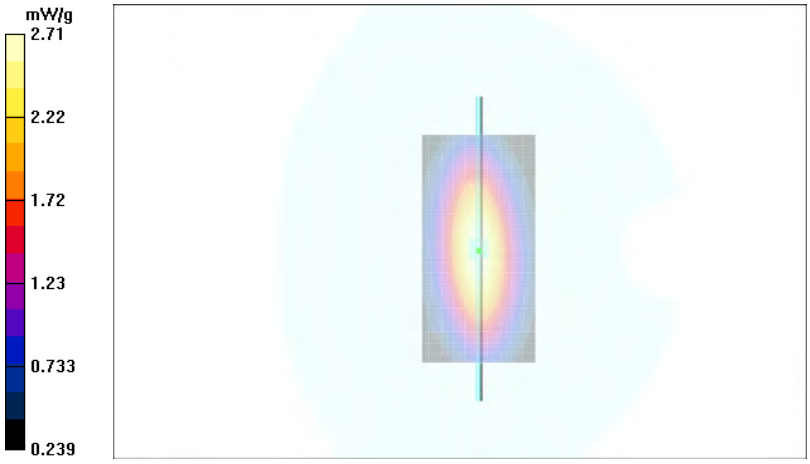
Test Laboratory: TCC Nokia
Type: D835V2; Serial: 4d042

Communication System: CW835
Frequency: 835 MHz; Duty Cycle: 1:1
Medium: Head 850; Medium Notes: Medium Temperature: 21.4 C
Medium parameters used: f = 835 MHz; σ = 0.9 mho/m; ε_r = 40.8; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(5.9, 5.9, 5.9); Calibrated: 2009-03-16
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn501; Calibrated: 2009-03-12
- Phantom: SAM 4; Type: Twin Phantom; Serial: TP-1410
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

d=15mm, Pin=250mW/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 2.71 mW/g

d=15mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 55.9 V/m
Peak SAR (extrapolated) = 3.81 W/kg
SAR(1 g) = 2.52 mW/g
SAR(10 g) = 1.64 mW/g
Power Drift = -0.038 dB
Maximum value of SAR (measured) = 2.71 mW/g



Date/Time: 2009-07-20 19:27:17

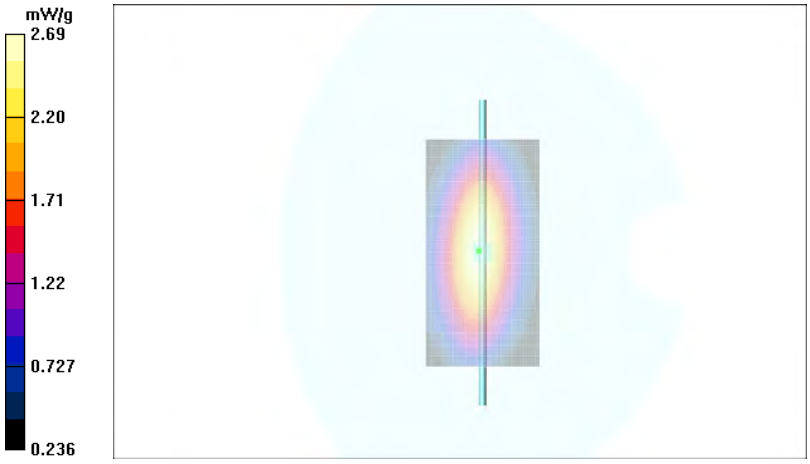
Test Laboratory: TCC Nokia
Type: D835V2; Serial: 4d042

Communication System: CW835
Frequency: 835 MHz; Duty Cycle: 1:1
Medium: Head 850; Medium Notes: Medium Temperature: 20.8 C
Medium parameters used: f = 835 MHz; σ = 0.895 mho/m; ε_r = 40.7; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(5.9, 5.9, 5.9); Calibrated: 2009-03-16
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn501; Calibrated: 2009-03-12
- Phantom: SAM 4; Type: Twin Phantom; Serial: TP-1410
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

d=15mm, Pin=250mW/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 2.69 mW/g

d=15mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 55.3 V/m
Peak SAR (extrapolated) = 3.78 W/kg
SAR(1 g) = 2.48 mW/g
SAR(10 g) = 1.61 mW/g
Power Drift = -0.054 dB
Maximum value of SAR (measured) = 2.69 mW/g



Date/Time: 2009-07-06 11:03:02

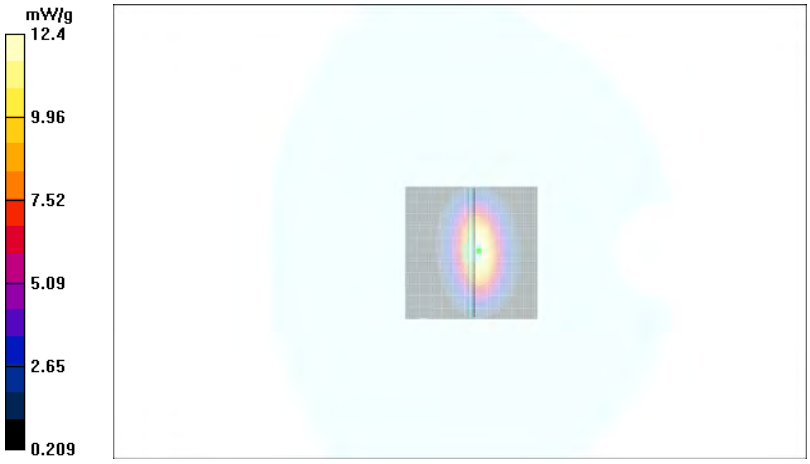
Test Laboratory: TCC Nokia
Type: D1900V2; Serial: 5d026

Communication System: CW1900
Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: Head 1900; Medium Notes: Medium Temperature: 20.5 C
Medium parameters used: f = 1900 MHz; σ = 1.47 mho/m; ε_r = 38.7; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(4.88, 4.88, 4.88); Calibrated: 2009-03-16
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn501; Calibrated: 2009-03-12
- Phantom: SAM 2; Type: Twin Phantom; Serial: TP-1037
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

d=10mm, Pin=250mW/Area Scan (71x71x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 12.5 mW/g

d=10mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 89.6 V/m
Peak SAR (extrapolated) = 20.8 W/kg
SAR(1 g) = 11 mW/g
SAR(10 g) = 5.62 mW/g
Power Drift = -0.045 dB
Maximum value of SAR (measured) = 12.4 mW/g



Date/Time: 2009-07-10 09:58:15

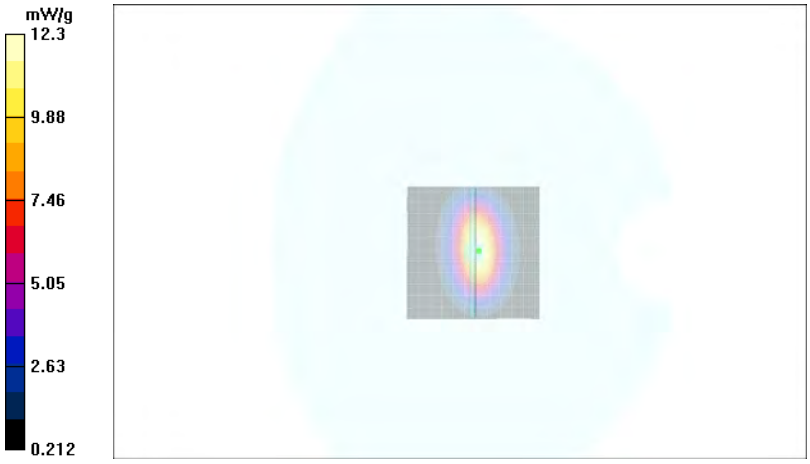
Test Laboratory: TCC Nokia
Type: D1900V2; Serial: 5d026

Communication System: CW1900
Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: Head 1900; Medium Notes: Medium Temperature: 21.1 C
Medium parameters used: f = 1900 MHz; σ = 1.47 mho/m; ε_r = 38.7; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(4.88, 4.88, 4.88); Calibrated: 2009-03-16
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn501; Calibrated: 2009-03-12
- Phantom: SAM 2; Type: Twin Phantom; Serial: TP-1037
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

d=10mm, Pin=250mW/Area Scan (71x71x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 12.4 mW/g

d=10mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 90.8 V/m
Peak SAR (extrapolated) = 20.8 W/kg
SAR(1 g) = 10.9 mW/g
SAR(10 g) = 5.59 mW/g
Power Drift = 0.032 dB
Maximum value of SAR (measured) = 12.3 mW/g



Date/Time: 2009-07-14 11:02:51

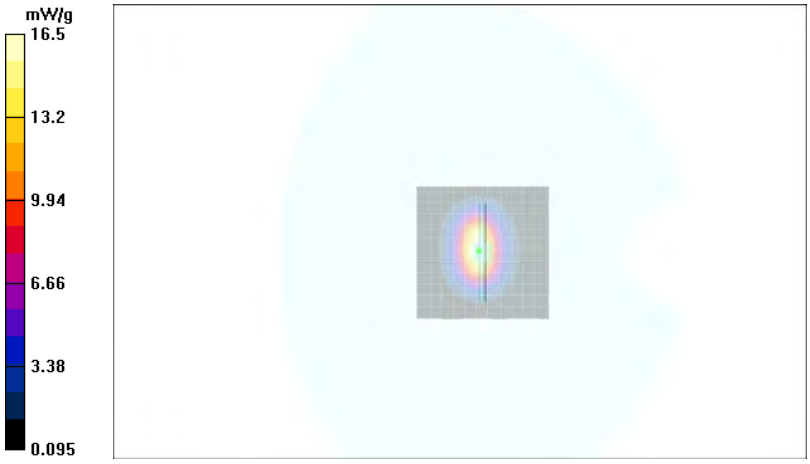
Test Laboratory: TCC Nokia
Type: D2450V2; Serial: 750

Communication System: CW2450
Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: Head 2450; Medium Notes: Medium Temperature: 21.5 C
Medium parameters used: f = 2450 MHz; σ = 1.89 mho/m; ε_r = 37.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3119; Probe Notes:
- ConvF(4.44, 4.44, 4.44); Calibrated: 2008-09-23
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn710; Calibrated: 2008-09-23
- Phantom: SAM 8; Type: SAM Twin Phantom; Serial: TP-1408
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

d=10mm, Pin=250mW/Area Scan (71x71x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 17.0 mW/g

d=10mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 93.3 V/m
Peak SAR (extrapolated) = 31.0 W/kg
SAR(1 g) = 14.4 mW/g
SAR(10 g) = 6.62 mW/g
Power Drift = -0.011 dB
Maximum value of SAR (measured) = 16.5 mW/g



Date/Time: 2009-07-16 13:08:31

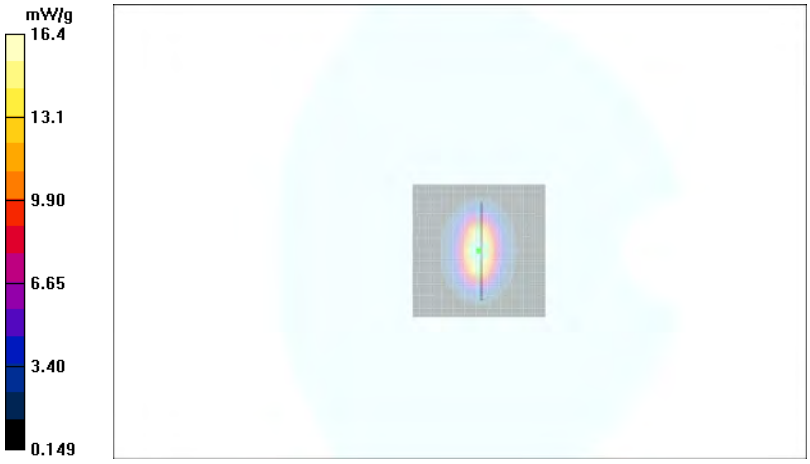
Test Laboratory: TCC Nokia
Type: D2450V2; Serial: 750

Communication System: CW2450
Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: Body 2450; Medium Notes: Medium Temperature: 21.7 C
Medium parameters used: f = 2450 MHz; σ = 1.94 mho/m; ε_r = 51; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(4.04, 4.04, 4.04); Calibrated: 2009-03-16
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn501; Calibrated: 2009-03-12
- Phantom: SAM 4.5; Type: Twin Phantom; Serial: TP-1215
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

d=10mm, Pin=250mW/Area Scan (71x71x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 17.2 mW/g

d=10mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 93.9 V/m
Peak SAR (extrapolated) = 30.0 W/kg
SAR(1 g) = 14.4 mW/g
SAR(10 g) = 6.74 mW/g
Power Drift = -0.050 dB
Maximum value of SAR (measured) = 16.4 mW/g



APPENDIX B: MEASUREMENT SCANS

See the following pages

Date/Time: 2009-07-15 13:31:08

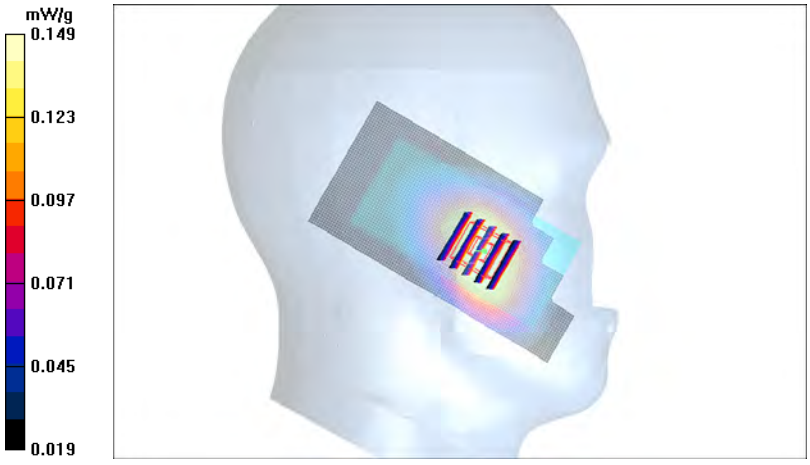
Test Laboratory: TCC Nokia
Type: RM-555; Serial: 004401/10/682560/3

Communication System: GSM850
Frequency: 836.6 MHz; Duty Cycle: 1:8.3
Medium: Head 850; Medium Notes: Medium Temperature: 21.4 C
Medium parameters used: f = 837 MHz; σ = 0.901 mho/m; ε_r = 40.8; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(5.9, 5.9, 5.9); Calibrated: 2009-03-16
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn501; Calibrated: 2009-03-12
- Phantom: SAM 4; Type: Twin Phantom; Serial: TP-1410
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Cheek position – Middle – Slide closed/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.147 mW/g

Cheek position - Middle – Slide closed/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 5.48 V/m
Peak SAR (extrapolated) = 0.175 W/kg
SAR(1 g) = 0.141 mW/g
SAR(10 g) = 0.104 mW/g
Power Drift = 0.041 dB
Maximum value of SAR (measured) = 0.149 mW/g



Date/Time: 2009-07-15 14:00:55

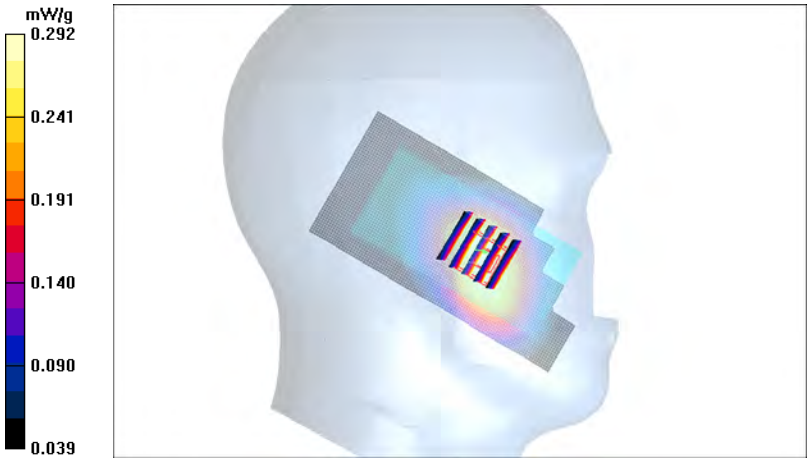
Test Laboratory: TCC Nokia
Type: RM-555; Serial: 004401/10/682560/3

Communication System: 2-slot GPRS850
Frequency: 836.6 MHz; Duty Cycle: 1:4.2
Medium: Head 850; Medium Notes: Medium Temperature: 21.4 C
Medium parameters used: f = 837 MHz; σ = 0.901 mho/m; ε_r = 40.8; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(5.9, 5.9, 5.9); Calibrated: 2009-03-16
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn501; Calibrated: 2009-03-12
- Phantom: SAM 4; Type: Twin Phantom; Serial: TP-1410
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Cheek position - Middle – Slide closed/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.294 mW/g

Cheek position - Middle – Slide closed/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 7.30 V/m
Peak SAR (extrapolated) = 0.350 W/kg
SAR(1 g) = 0.279 mW/g
SAR(10 g) = 0.209 mW/g
Power Drift = 0.013 dB
Maximum value of SAR (measured) = 0.292 mW/g



Date/Time: 2009-07-15 14:15:47

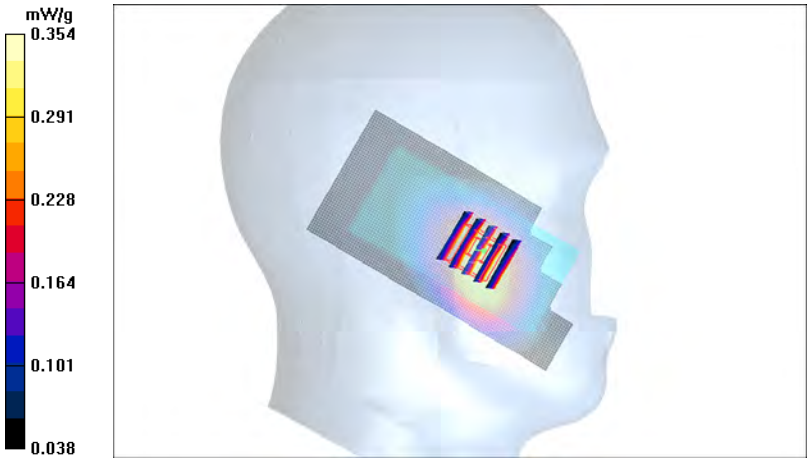
Test Laboratory: TCC Nokia
Type: RM-555; Serial: 004401/10/682560/3

Communication System: 3-slot GPRS850
Frequency: 836.6 MHz; Duty Cycle: 1:2.8
Medium: Head 850; Medium Notes: Medium Temperature: 21.4 C
Medium parameters used: f = 837 MHz; σ = 0.901 mho/m; ε_r = 40.8; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(5.9, 5.9, 5.9); Calibrated: 2009-03-16
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn501; Calibrated: 2009-03-12
- Phantom: SAM 4; Type: Twin Phantom; Serial: TP-1410
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Cheek position - Middle – Slide closed/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.297 mW/g

Cheek position - Middle – Slide closed/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 7.30 V/m
Peak SAR (extrapolated) = 0.425 W/kg
SAR(1 g) = 0.337 mW/g
SAR(10 g) = 0.248 mW/g
Power Drift = -0.069 dB
Maximum value of SAR (measured) = 0.354 mW/g



Date/Time: 2009-07-15 14:31:56

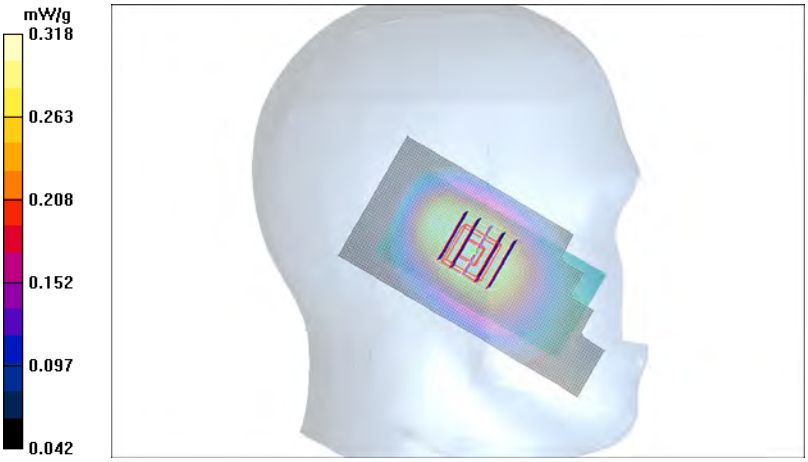
Test Laboratory: TCC Nokia
Type: RM-555; Serial: 004401/10/682560/3

Communication System: 3-slot GPRS850
Frequency: 836.6 MHz; Duty Cycle: 1:2.8
Medium: Head 850; Medium Notes: Medium Temperature: 21.4 C
Medium parameters used: f = 837 MHz; σ = 0.901 mho/m; ε_r = 40.8; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(5.9, 5.9, 5.9); Calibrated: 2009-03-16
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn501; Calibrated: 2009-03-12
- Phantom: SAM 4; Type: Twin Phantom; Serial: TP-1410
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Tilt position - Middle – Slide closed/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.344 mW/g

Tilt position - Middle – Slide closed/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 15.8 V/m
Peak SAR (extrapolated) = 0.404 W/kg
SAR(1 g) = 0.303 mW/g
SAR(10 g) = 0.225 mW/g
Power Drift = -0.227 dB
Maximum value of SAR (measured) = 0.318 mW/g



Date/Time: 2009-07-15 15:39:30

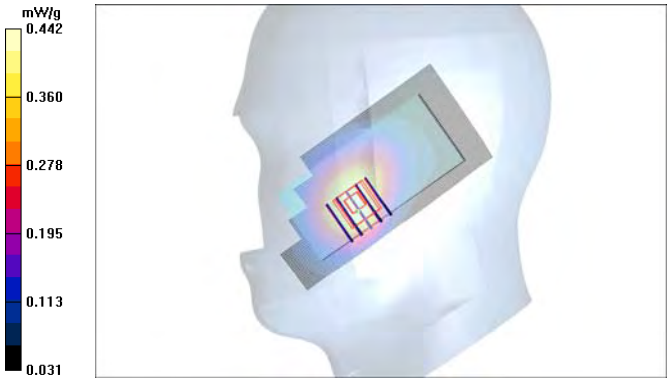
Test Laboratory: TCC Nokia
Type: RM-555; Serial: 004401/10/682560/3

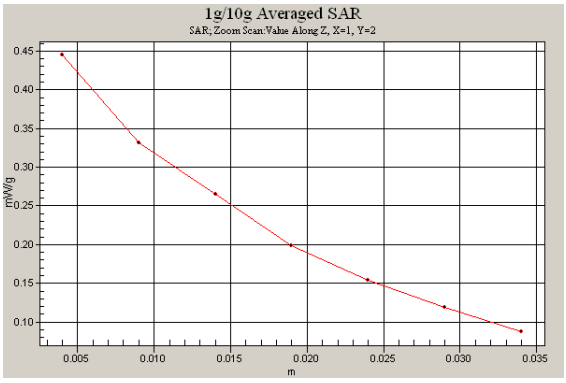
Communication System: 3-slot GPRS850
Frequency: 848.8 MHz; Duty Cycle: 1:2.8
Medium: Head 850; Medium Notes: Medium Temperature: 21.4 C
Medium parameters used: f = 849 MHz; σ = 0.914 mho/m; ε_r = 40.7; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(5.9, 5.9, 5.9); Calibrated: 2009-03-16
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn501; Calibrated: 2009-03-12
- Phantom: SAM 4; Type: Twin Phantom; Serial: TP-1410
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Cheek position - High – Slide closed/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.442 mW/g

Cheek position - High – Slide closed/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 8.32 V/m
Peak SAR (extrapolated) = 0.555 W/kg
SAR(1 g) = 0.413 mW/g
SAR(10 g) = 0.289 mW/g
Power Drift = 0.013 dB
Maximum value of SAR (measured) = 0.442 mW/g





Date/Time: 2009-07-15 15:07:36

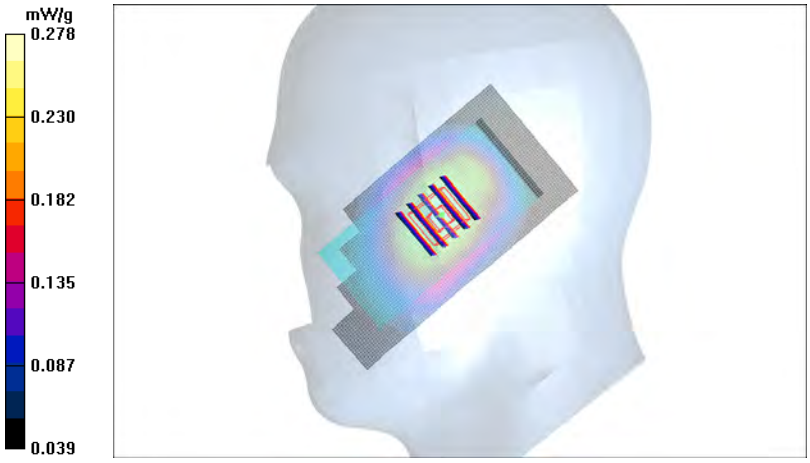
Test Laboratory: TCC Nokia
Type: RM-555; Serial: 004401/10/682560/3

Communication System: 3-slot GPRS850
Frequency: 836.6 MHz; Duty Cycle: 1:2.8
Medium: Head 850; Medium Notes: Medium Temperature: 21.4 C
Medium parameters used: f = 837 MHz; σ = 0.901 mho/m; ε_r = 40.8; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(5.9, 5.9, 5.9); Calibrated: 2009-03-16
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn501; Calibrated: 2009-03-12
- Phantom: SAM 4; Type: Twin Phantom; Serial: TP-1410
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Tilt position - Middle – Slide closed/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.276 mW/g

Tilt position - Middle – Slide closed/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 13.6 V/m
Peak SAR (extrapolated) = 0.332 W/kg
SAR(1 g) = 0.260 mW/g
SAR(10 g) = 0.196 mW/g
Power Drift = 0.107 dB
Maximum value of SAR (measured) = 0.278 mW/g



Date/Time: 2009-07-15 16:52:12

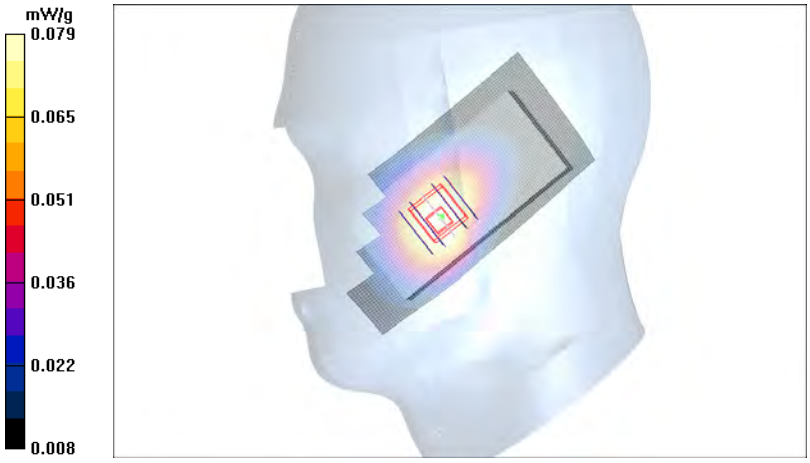
Test Laboratory: TCC Nokia
Type: RM-555; Serial: 004401/10/682560/3

Communication System: 3-slot 8PSK EGPRS850
Frequency: 848.8 MHz; Duty Cycle: 1:2.8
Medium: Head 850; Medium Notes: Medium Temperature: 21.4 C
Medium parameters used: f = 849 MHz; σ = 0.914 mho/m; ε_r = 40.7; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(5.9, 5.9, 5.9); Calibrated: 2009-03-16
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn501; Calibrated: 2009-03-12
- Phantom: SAM 4; Type: Twin Phantom; Serial: TP-1410
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Cheek position - High – Slide closed/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.085 mW/g

Cheek position - High – Slide closed/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 3.61 V/m
Peak SAR (extrapolated) = 0.099 W/kg
SAR(1 g) = 0.075 mW/g
SAR(10 g) = 0.056 mW/g
Power Drift = 0.115 dB
Maximum value of SAR (measured) = 0.079 mW/g



Date/Time: 2009-07-06 12:27:40

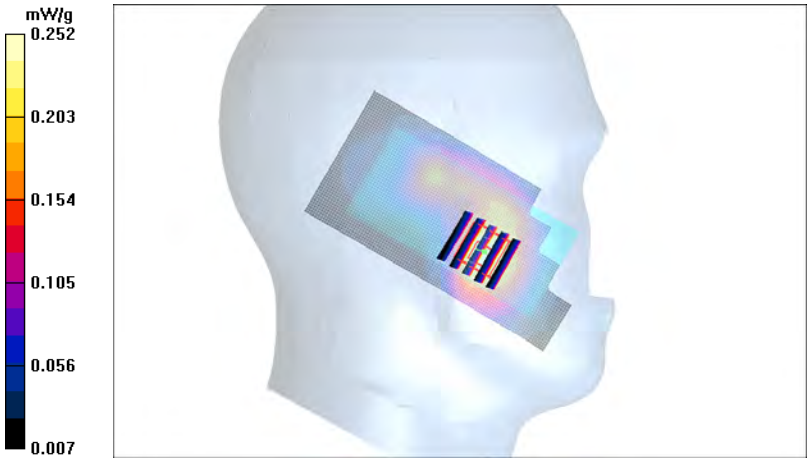
Test Laboratory: TCC Nokia
Type: RM-555; Serial: 004401/10/682560/3

Communication System: GSM 1900
Frequency: 1880 MHz; Duty Cycle: 1:8.3
Medium: Head 1900; Medium Notes: Medium Temperature: 20.5 C
Medium parameters used: f = 1880 MHz; σ = 1.45 mho/m; ε_r = 38.8; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(4.88, 4.88, 4.88); Calibrated: 2009-03-16
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn501; Calibrated: 2009-03-12
- Phantom: SAM 2; Type: Twin Phantom; Serial: TP-1037
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Cheek position - Middle – Slide closed/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.254 mW/g

Cheek position - Middle – Slide closed/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 6.28 V/m
Peak SAR (extrapolated) = 0.348 W/kg
SAR(1 g) = 0.229 mW/g
SAR(10 g) = 0.141 mW/g
Power Drift = -0.118 dB
Maximum value of SAR (measured) = 0.252 mW/g



Date/Time: 2009-07-06 12:43:26

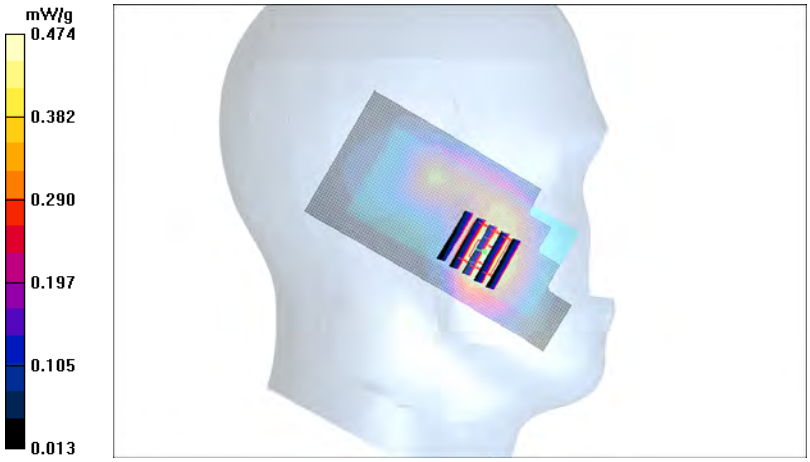
Test Laboratory: TCC Nokia
Type: RM-555; Serial: 004401/10/682560/3

Communication System: 2-slot GPRS1900
Frequency: 1880 MHz; Duty Cycle: 1:4.2
Medium: Head 1900; Medium Notes: Medium Temperature: 20.5 C
Medium parameters used: f = 1880 MHz; σ = 1.45 mho/m; ε_r = 38.8; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(4.88, 4.88, 4.88); Calibrated: 2009-03-16
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn501; Calibrated: 2009-03-12
- Phantom: SAM 2; Type: Twin Phantom; Serial: TP-1037
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Cheek position - Middle – Slide closed/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.486 mW/g

Cheek position - Middle – Slide closed/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 8.55 V/m
Peak SAR (extrapolated) = 0.638 W/kg
SAR(1 g) = 0.427 mW/g
SAR(10 g) = 0.262 mW/g
Power Drift = -0.232 dB
Maximum value of SAR (measured) = 0.474 mW/g



Date/Time: 2009-07-06 20:16:33

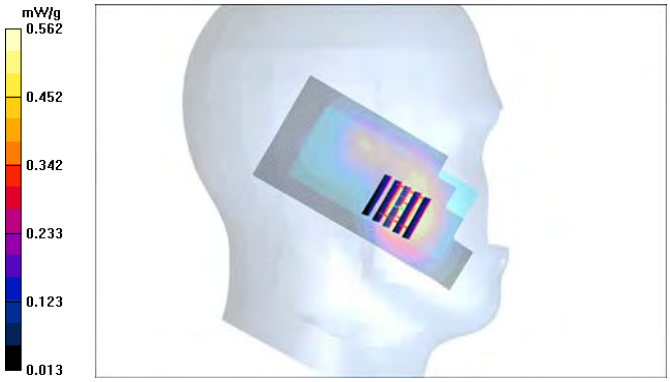
Test Laboratory: TCC Nokia
Type: RM-555; Serial: 004401/10/682560/3

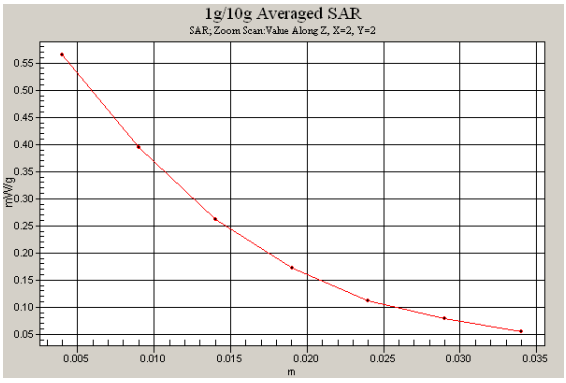
Communication System: 3-slot GPRS1900
Frequency: 1850.2 MHz; Duty Cycle: 1:2.8
Medium: Head 1900; Medium Notes: Medium Temperature: 20.5 C
Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.42 mho/m; ε_r = 38.9; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(4.88, 4.88, 4.88); Calibrated: 2009-03-16
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn501; Calibrated: 2009-03-12
- Phantom: SAM 2; Type: Twin Phantom; Serial: TP-1037
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Cheek position - Low – Slide closed/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.545 mW/g

Cheek position - Low – Slide closed/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 8.03 V/m
Peak SAR (extrapolated) = 0.745 W/kg
SAR(1 g) = 0.507 mW/g
SAR(10 g) = 0.319 mW/g
Power Drift = -0.023 dB
Maximum value of SAR (measured) = 0.562 mW/g





Date/Time: 2009-07-06 13:27:22

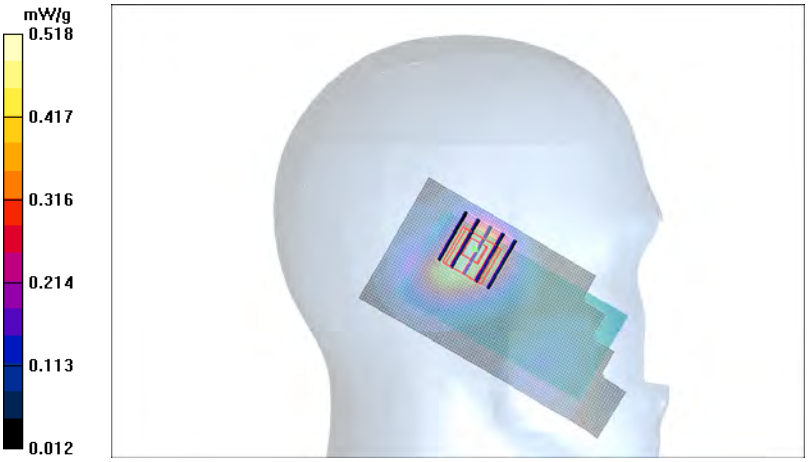
Test Laboratory: TCC Nokia
Type: RM-555; Serial: 004401/10/682560/3

Communication System: 3-slot GPRS1900
Frequency: 1880 MHz; Duty Cycle: 1:2.8
Medium: Head 1900; Medium Notes: Medium Temperature: 20.5 C
Medium parameters used: f = 1880 MHz; σ = 1.45 mho/m; ε_r = 38.8; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(4.88, 4.88, 4.88); Calibrated: 2009-03-16
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn501; Calibrated: 2009-03-12
- Phantom: SAM 2; Type: Twin Phantom; Serial: TP-1037
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Tilt position - Middle – Slide closed/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.535 mW/g

Tilt position - Middle – Slide closed/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 16.2 V/m
Peak SAR (extrapolated) = 0.706 W/kg
SAR(1 g) = 0.458 mW/g
SAR(10 g) = 0.280 mW/g
Power Drift = -0.135 dB
Maximum value of SAR (measured) = 0.518 mW/g



Date/Time: 2009-07-06 13:42:31

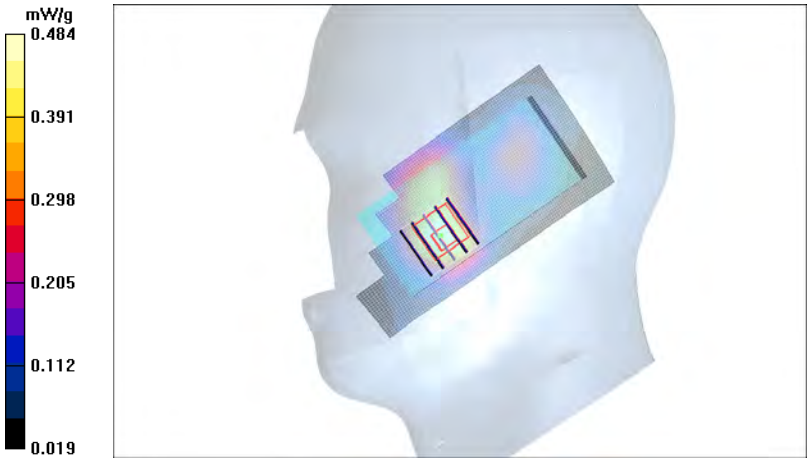
Test Laboratory: TCC Nokia
Type: RM-555; Serial: 004401/10/682560/3

Communication System: 3-slot GPRS1900
Frequency: 1880 MHz; Duty Cycle: 1:2.8
Medium: Head 1900; Medium Notes: Medium Temperature: 20.5 C
Medium parameters used: f = 1880 MHz; σ = 1.45 mho/m; ε_r = 38.8; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(4.88, 4.88, 4.88); Calibrated: 2009-03-16
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn501; Calibrated: 2009-03-12
- Phantom: SAM 2; Type: Twin Phantom; Serial: TP-1037
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Cheek position - Middle – Slide closed/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.500 mW/g

Cheek position - Middle – Slide closed/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 11.7 V/m
Peak SAR (extrapolated) = 0.685 W/kg
SAR(1 g) = 0.451 mW/g
SAR(10 g) = 0.282 mW/g
Power Drift = -0.020 dB
Maximum value of SAR (measured) = 0.484 mW/g



Date/Time: 2009-07-06 13:56:33

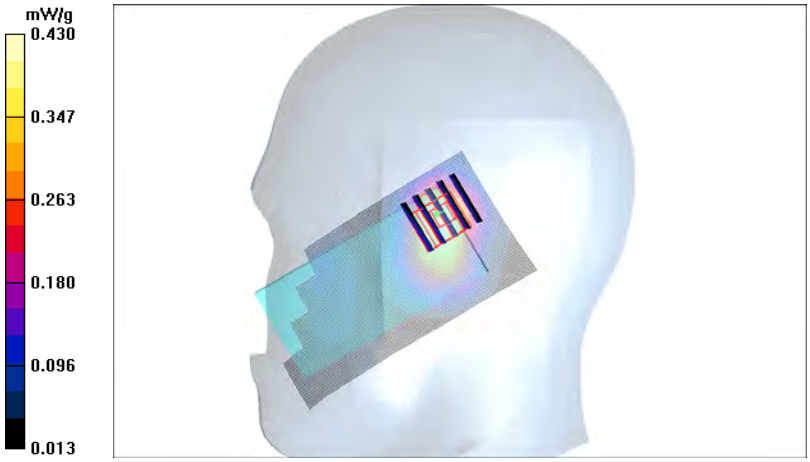
Test Laboratory: TCC Nokia
Type: RM-555; Serial: 004401/10/682560/3

Communication System: 3-slot GPRS1900
Frequency: 1880 MHz; Duty Cycle: 1:2.8
Medium: Head 1900; Medium Notes: Medium Temperature: 20.5 C
Medium parameters used: f = 1880 MHz; σ = 1.45 mho/m; ε_r = 38.8; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(4.88, 4.88, 4.88); Calibrated: 2009-03-16
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn501; Calibrated: 2009-03-12
- Phantom: SAM 2; Type: Twin Phantom; Serial: TP-1037
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Tilt position - Middle – Slide closed/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.459 mW/g

Tilt position - Middle – Slide closed/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 15.6 V/m
Peak SAR (extrapolated) = 0.622 W/kg
SAR(1 g) = 0.398 mW/g
SAR(10 g) = 0.243 mW/g
Power Drift = 0.157 dB
Maximum value of SAR (measured) = 0.430 mW/g



Date/Time: 2009-07-06 20:41:10

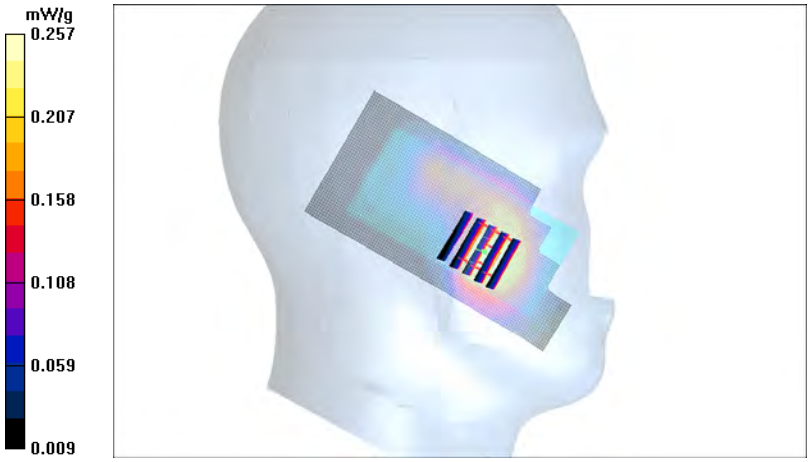
Test Laboratory: TCC Nokia
Type: RM-555; Serial: 004401/10/682560/3

Communication System: 3-slot 8PSK EGPRS1900
Frequency: 1850.2 MHz; Duty Cycle: 1:2.8
Medium: Head 1900; Medium Notes: Medium Temperature: 20.5 C
Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.42 mho/m; ε_r = 38.9; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(4.88, 4.88, 4.88); Calibrated: 2009-03-16
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn501; Calibrated: 2009-03-12
- Phantom: SAM 2; Type: Twin Phantom; Serial: TP-1037
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Cheek position - Low – Slide closed/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.261 mW/g

Cheek position - Low – Slide closed/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 5.44 V/m
Peak SAR (extrapolated) = 0.362 W/kg
SAR(1 g) = 0.235 mW/g
SAR(10 g) = 0.148 mW/g
Power Drift = 0.091 dB
Maximum value of SAR (measured) = 0.257 mW/g



Date/Time: 2009-07-06 21:42:22

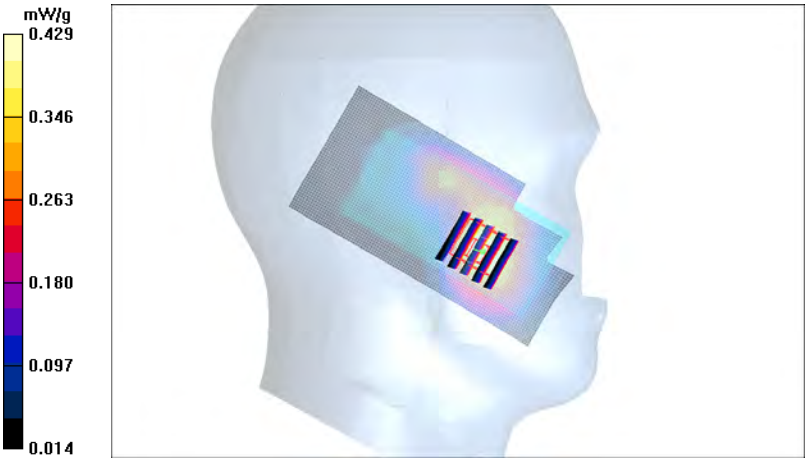
Test Laboratory: TCC Nokia
Type: RM-555; Serial: 004401/10/682560/3

Communication System: WCDMA1900
Frequency: 1852.4 MHz; Duty Cycle: 1:1
Medium: Head 1900; Medium Notes: Medium Temperature: 20.5 C
Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.42 mho/m; ε_r = 38.9; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(4.88, 4.88, 4.88); Calibrated: 2009-03-16
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn501; Calibrated: 2009-03-12
- Phantom: SAM 2; Type: Twin Phantom; Serial: TP-1037
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Cheek position - Low – Slide closed/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.446 mW/g

Cheek position - Low – Slide closed/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 6.84 V/m
Peak SAR (extrapolated) = 0.607 W/kg
SAR(1 g) = 0.397 mW/g
SAR(10 g) = 0.248 mW/g
Power Drift = -0.472 dB
Maximum value of SAR (measured) = 0.429 mW/g



Date/Time: 2009-07-14 12:07:45

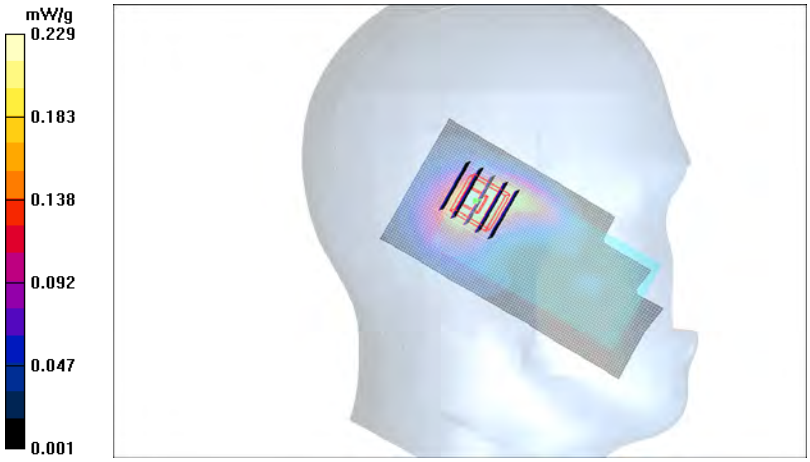
Test Laboratory: TCC Nokia
Type: RM-555; Serial: 004401/10/682560/3

Communication System: WLAN2450
Frequency: 2442 MHz; Duty Cycle: 1:1
Medium: Head 2450; Medium Notes: Medium Temperature: 21.5 C
Medium parameters used: f = 2442 MHz; σ = 1.88 mho/m; ε_r = 37.6; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3119; Probe Notes:
- ConvF(4.44, 4.44, 4.44); Calibrated: 2008-09-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn710; Calibrated: 2008-09-23
- Phantom: SAM 8; Type: SAM Twin Phantom; Serial: TP-1408
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Cheek position - Middle – Slide closed/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.238 mW/g

Cheek position - Middle – Slide closed/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 10.9 V/m
Peak SAR (extrapolated) = 0.360 W/kg
SAR(1 g) = 0.209 mW/g
SAR(10 g) = 0.116 mW/g
Power Drift = -0.051 dB
Maximum value of SAR (measured) = 0.229 mW/g



Date/Time: 2009-07-14 19:45:19

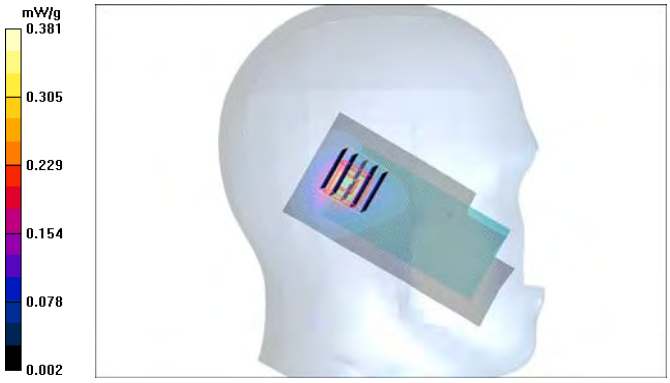
Test Laboratory: TCC Nokia
Type: RM-555; Serial: 004401/10/682560/3

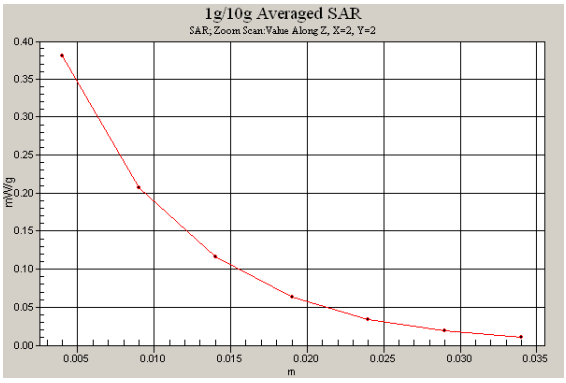
Communication System: WLAN2450
Frequency: 2412 MHz; Duty Cycle: 1:1
Medium: Head 2450; Medium Notes: Medium Temperature: 21.5 C
Medium parameters used: f = 2412 MHz; σ = 1.85 mho/m; ε_r = 37.7; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3119; Probe Notes:
- ConvF(4.44, 4.44, 4.44); Calibrated: 2008-09-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn710; Calibrated: 2008-09-23
- Phantom: SAM 8; Type: SAM Twin Phantom; Serial: TP-1408
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Tilt position - Low – Slide closed/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.399 mW/g

Tilt position - Low – Slide closed/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 12.6 V/m
Peak SAR (extrapolated) = 0.655 W/kg
SAR(1 g) = 0.343 mW/g
SAR(10 g) = 0.172 mW/g
Power Drift = 0.242 dB
Maximum value of SAR (measured) = 0.381 mW/g





Date/Time: 2009-07-14 12:26:38

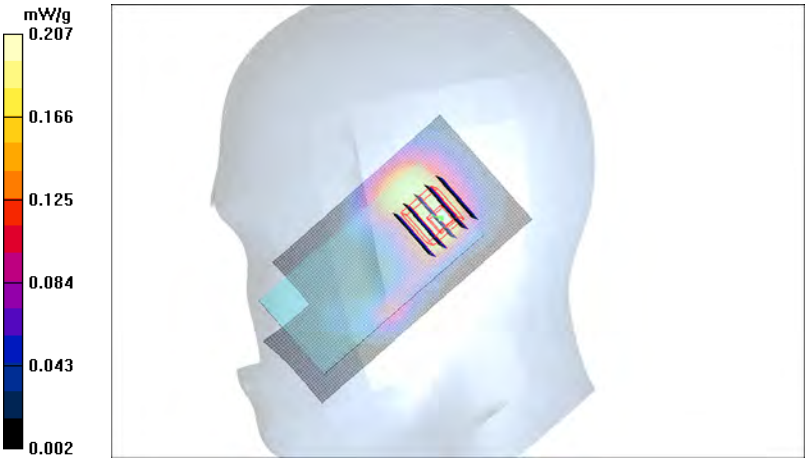
Test Laboratory: TCC Nokia
Type: RM-555; Serial: 004401/10/682560/3

Communication System: WLAN2450
Frequency: 2442 MHz; Duty Cycle: 1:1
Medium: Head 2450; Medium Notes: Medium Temperature: 21.5 C
Medium parameters used: f = 2442 MHz; σ = 1.88 mho/m; ε_r = 37.6; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3119; Probe Notes:
- ConvF(4.44, 4.44, 4.44); Calibrated: 2008-09-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn710; Calibrated: 2008-09-23
- Phantom: SAM 8; Type: SAM Twin Phantom; Serial: TP-1408
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Cheek position - Middle – Slide closed/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.208 mW/g

Cheek position - Middle – Slide closed/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 10.3 V/m
Peak SAR (extrapolated) = 0.330 W/kg
SAR(1 g) = 0.187 mW/g
SAR(10 g) = 0.106 mW/g
Power Drift = -0.004 dB
Maximum value of SAR (measured) = 0.207 mW/g



Date/Time: 2009-07-14 12:42:41

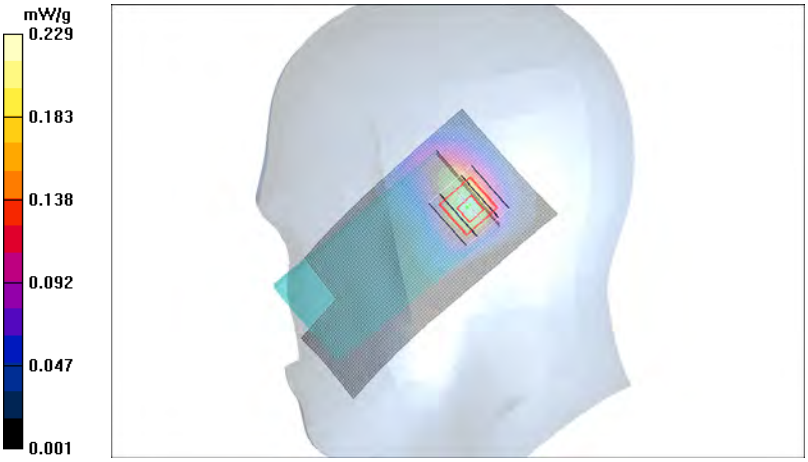
Test Laboratory: TCC Nokia
Type: RM-555; Serial: 004401/10/682560/3

Communication System: WLAN2450
Frequency: 2442 MHz; Duty Cycle: 1:1
Medium: Head 2450; Medium Notes: Medium Temperature: 21.5 C
Medium parameters used: f = 2442 MHz; σ = 1.88 mho/m; ε_r = 37.6; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3119; Probe Notes:
- ConvF(4.44, 4.44, 4.44); Calibrated: 2008-09-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn710; Calibrated: 2008-09-23
- Phantom: SAM 8; Type: SAM Twin Phantom; Serial: TP-1408
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Tilt position - Middle – Slide closed/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.240 mW/g

Tilt position - Middle – Slide closed/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 10.4 V/m
Peak SAR (extrapolated) = 0.372 W/kg
SAR(1 g) = 0.205 mW/g
SAR(10 g) = 0.107 mW/g
Power Drift = -0.169 dB
Maximum value of SAR (measured) = 0.229 mW/g



Date/Time: 2009-07-20 21:42:04

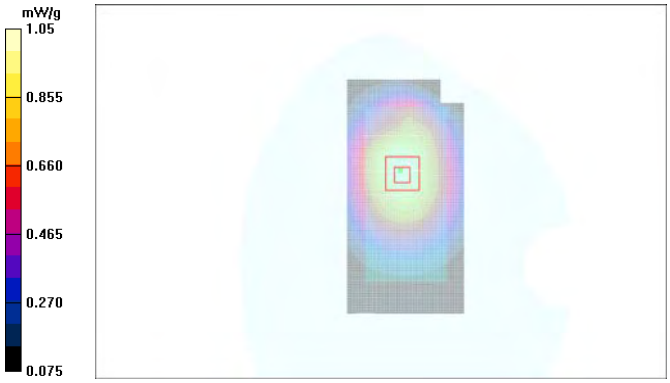
Test Laboratory: TCC Nokia
Type: RM-555; Serial: 004401/10/682560/3

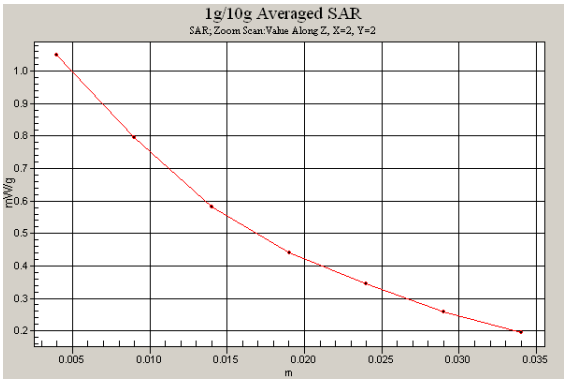
Communication System: 3-slot GPRS850
Frequency: 848.8 MHz; Duty Cycle: 1:2.8
Medium: Body 850; Medium Notes: Medium Temperature: 20.8 C
Medium parameters used: f = 849 MHz; σ = 0.983 mho/m; ε_r = 53.4; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(5.79, 5.79, 5.79); Calibrated: 2009-03-16
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn501; Calibrated: 2009-03-12
- Phantom: SAM 5; Type: Twin Phantom; Serial: TP-1302
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Body - High - No Accessory – Slide closed - Back facing phantom/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.03 mW/g

Body - High - No Accessory – Slide closed - Back facing phantom/Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 14.7 V/m
Peak SAR (extrapolated) = 1.28 W/kg
SAR(1 g) = 0.985 mW/g
SAR(10 g) = 0.715 mW/g
Power Drift = -0.034 dB
Maximum value of SAR (measured) = 1.05 mW/g





Date/Time: 2009-07-20 22:00:03

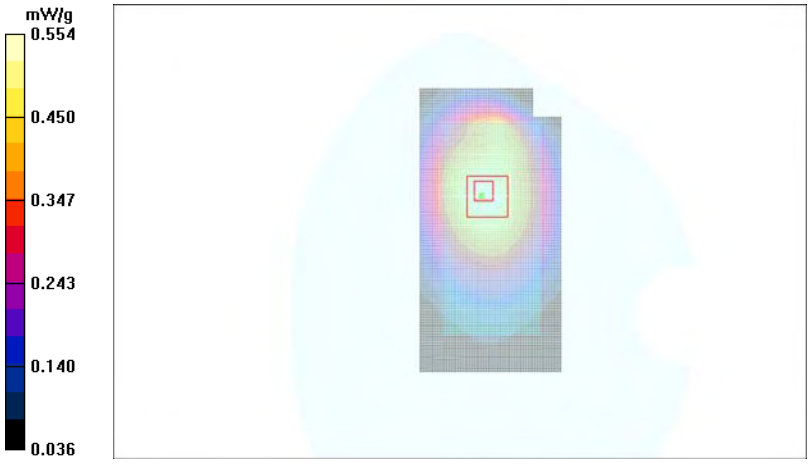
Test Laboratory: TCC Nokia
Type: RM-555; Serial: 004401/10/682560/3

Communication System: 3-slot GPRS850
Frequency: 836.6 MHz; Duty Cycle: 1:2.8
Medium: Body 850; Medium Notes: Medium Temperature: 20.8 C
Medium parameters used: f = 837 MHz; σ = 0.969 mho/m; ε_r = 53.6; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(5.79, 5.79, 5.79); Calibrated: 2009-03-16
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn501; Calibrated: 2009-03-12
- Phantom: SAM 5; Type: Twin Phantom; Serial: TP-1302
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Body - Middle - HS-45+AD-54 – Slide closed - Back facing phantom/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.552 mW/g

Body - Middle - HS-45+AD-54 – Slide closed - Back facing phantom/Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 11.7 V/m
Peak SAR (extrapolated) = 0.712 W/kg
SAR(1 g) = 0.521 mW/g
SAR(10 g) = 0.377 mW/g
Power Drift = 0.127 dB
Maximum value of SAR (measured) = 0.554 mW/g



Date/Time: 2009-07-10 16:48:29

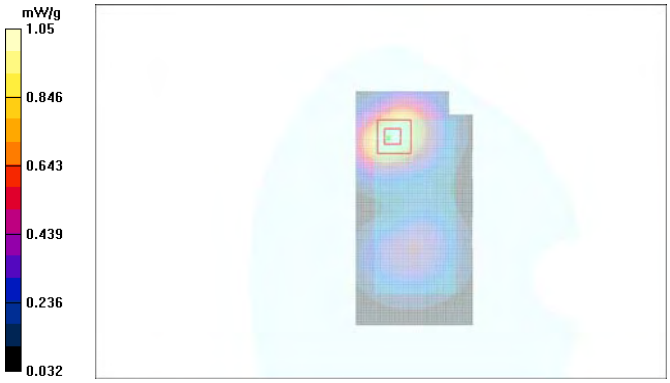
Test Laboratory: TCC Nokia
Type: RM-555; Serial: 004401/10/682560/3

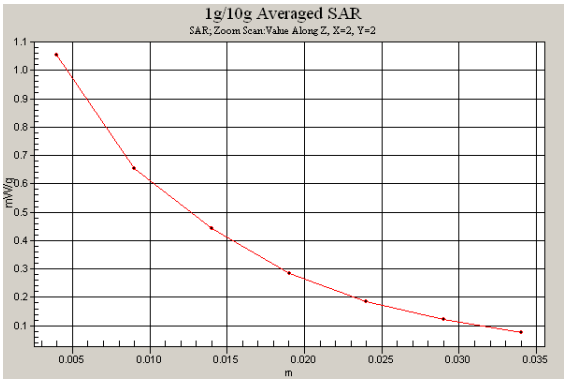
Communication System: 3-slot GPRS1900
Frequency: 1880 MHz; Duty Cycle: 1:2.8
Medium: Body1900; Medium Notes: Medium Temperature: 21.0 C
Medium parameters used: f = 1880 MHz; σ = 1.49 mho/m; ε_r = 52.9; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(4.55, 4.55, 4.55); Calibrated: 2009-03-16
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn501; Calibrated: 2009-03-12
- Phantom: SAM 3; Type: Twin Phantom; Serial: TP-1302
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Body - Middle - No Accessory – Slide closed - Back facing phantom/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.09 mW/g

Body - Middle - No Accessory – Slide closed - Back 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) = 1.60 W/kg
SAR(1 g) = 0.979 mW/g
SAR(10 g) = 0.607 mW/g
Power Drift = -0.074 dB
Maximum value of SAR (measured) = 1.05 mW/g





Date/Time: 2009-07-10 16:59:02

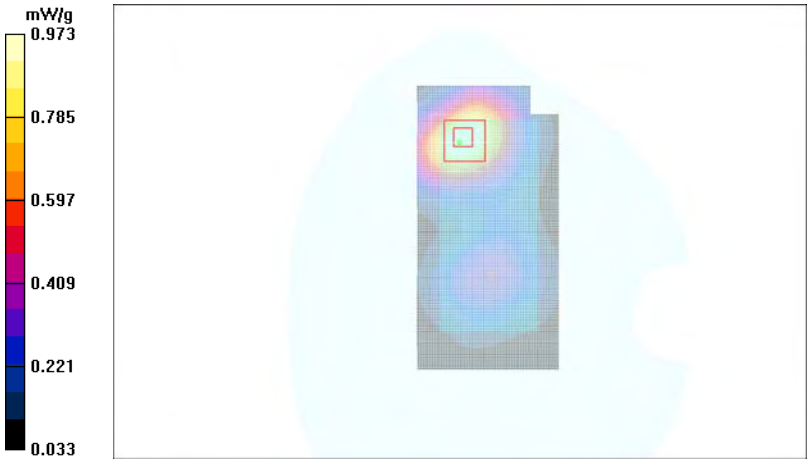
Test Laboratory: TCC Nokia
Type: RM-555; Serial: 004401/10/682560/3

Communication System: 3-slot GPRS1900
Frequency: 1880 MHz; Duty Cycle: 1:2.8
Medium: Body1900; Medium Notes: Medium Temperature: 21.0 C
Medium parameters used: f = 1880 MHz; σ = 1.49 mho/m; ε_r = 52.9; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(4.55, 4.55, 4.55); Calibrated: 2009-03-16
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn501; Calibrated: 2009-03-12
- Phantom: SAM 3; Type: Twin Phantom; Serial: TP-1302
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Body - Middle - HS-45+AD-54 – Slide closed - Back facing phantom/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.999 mW/g

Body - Middle - HS-45+AD-54 – Slide closed - Back facing phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 13.4 V/m
Peak SAR (extrapolated) = 1.46 W/kg
SAR(1 g) = 0.909 mW/g
SAR(10 g) = 0.563 mW/g
Power Drift = -0.150 dB
Maximum value of SAR (measured) = 0.973 mW/g



Date/Time: 2009-07-10 17:58:29

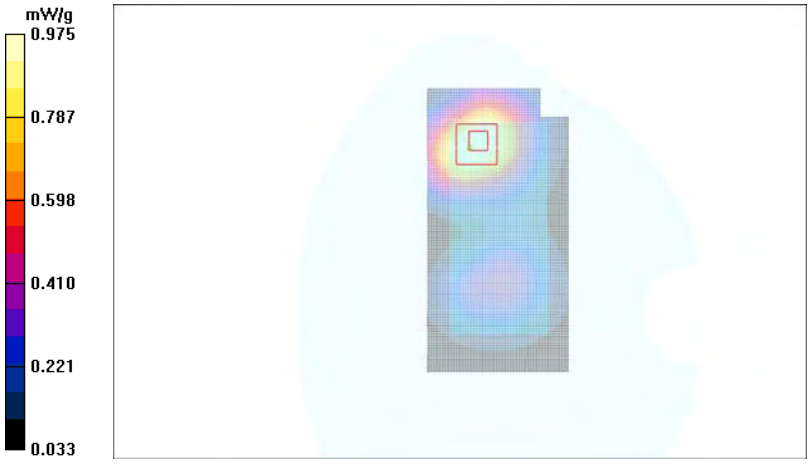
Test Laboratory: TCC Nokia
Type: RM-555; Serial: 004401/10/682560/3

Communication System: WCDMA1900
Frequency: 1907.6 MHz; Duty Cycle: 1:1
Medium: Body1900; Medium Notes: Medium Temperature: 21.0 C
Medium parameters used: f = 1908 MHz; σ = 1.53 mho/m; ε_r = 52.8; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(4.55, 4.55, 4.55); Calibrated: 2009-03-16
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn501; Calibrated: 2009-03-12
- Phantom: SAM 3; Type: Twin Phantom; Serial: TP-1302
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Body - High - No Accessory – Slide closed - Back facing phantom/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.05 mW/g

Body - High - No Accessory – Slide closed - Back facing phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 14.0 V/m
Peak SAR (extrapolated) = 1.48 W/kg
SAR(1 g) = 0.932 mW/g
SAR(10 g) = 0.582 mW/g
Power Drift = -0.262 dB
Maximum value of SAR (measured) = 0.975 mW/g



Date/Time: 2009-07-16 13:41:36

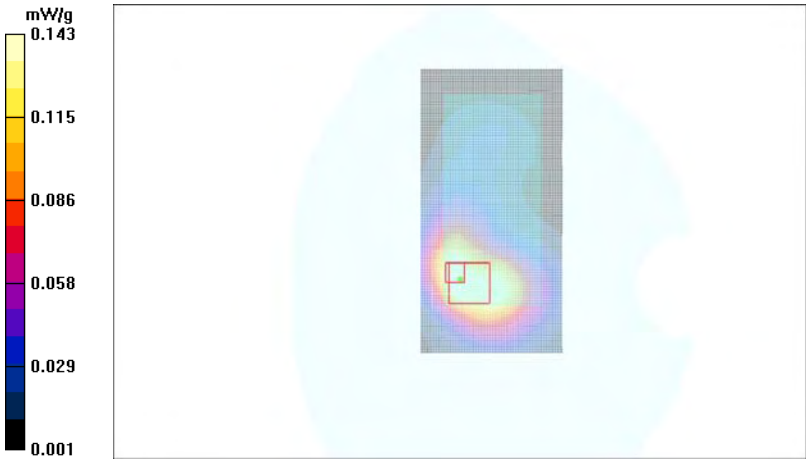
Test Laboratory: TCC Nokia
Type: RM-555; Serial: 004401/10/682560/3

Communication System: WLAN2450
Frequency: 2442 MHz; Duty Cycle: 1:1
Medium: Body 2450; Medium Notes: Medium Temperature: 21.7 C
Medium parameters used: f = 2442 MHz; σ = 1.93 mho/m; ε_r = 51; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(4.04, 4.04, 4.04); Calibrated: 2009-03-16
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn501; Calibrated: 2009-03-12
- Phantom: SAM 4.5; Type: Twin Phantom; Serial: TP-1215
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Body - Middle - No Accessory – Slide closed - Back facing phantom/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.163 mW/g

Body - Middle - No Accessory – Slide closed - Back facing phantom/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 8.76 V/m
Peak SAR (extrapolated) = 0.252 W/kg
SAR(1 g) = 0.130 mW/g
SAR(10 g) = 0.075 mW/g
Power Drift = -0.211 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) = 0.143 mW/g



Date/Time: 2009-07-16 16:17:57

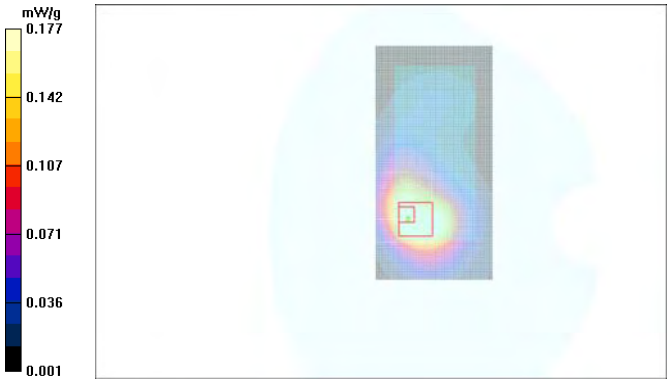
Test Laboratory: TCC Nokia
Type: RM-555; Serial: 004401/10/682560/3

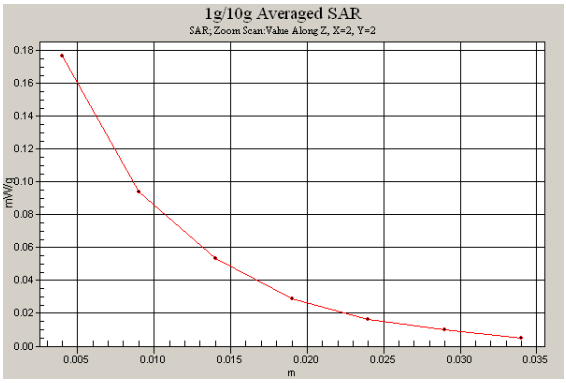
Communication System: WLAN2450
Frequency: 2462 MHz; Duty Cycle: 1:1
Medium: Body 2450; Medium Notes: Medium Temperature: 21.7 C
Medium parameters used: f = 2462 MHz; σ = 1.96 mho/m; ε_r = 51; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY4 Configuration:
- Probe: ES3DV3 - SN3116; Probe Notes:
- ConvF(4.04, 4.04, 4.04); Calibrated: 2009-03-16
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn501; Calibrated: 2009-03-12
- Phantom: SAM 4.5; Type: Twin Phantom; Serial: TP-1215
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Body – High - HS-45+AD-54 – Slide closed - Back facing phantom/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.202 mW/g

Body - High - HS-45+AD-54 – Slide closed - Back facing phantom/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm
Reference Value = 9.65 V/m
Peak SAR (extrapolated) = 0.320 W/kg
SAR(1 g) = 0.168 mW/g
SAR(10 g) = 0.099 mW/g
Power Drift = -0.178 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) = 0.177 mW/g





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

See the following pages

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

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

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

Accreditation No.: SCS 108

Client Nokia Denmark A/S

Certificate No: ES3-3116_Mar09

CALIBRATION CERTIFICATE

Object: ES3DV3 - SN:3116

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

Calibration date: March 16, 2009

Condition of the calibrated item: In Tolerance

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

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

Calibration Equipment used (M&TE critical for calibration)

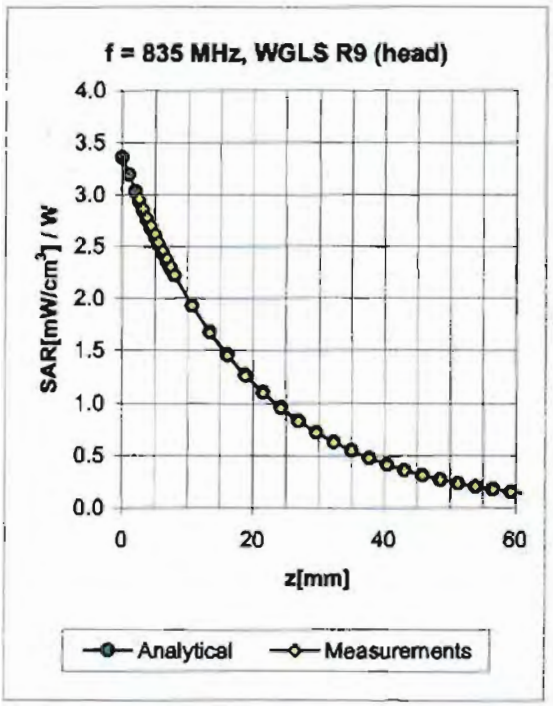
Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	1-Apr-08 (No. 217-00788)	Apr-09
Power sensor E4412A	MY41495277	1-Apr-08 (No. 217-00788)	Apr-09
Power sensor E4412A	MY41498087	1-Apr-08 (No. 217-00788)	Apr-09
Reference 3 dB Attenuator	SN: S5054 (3c)	1-Jul-08 (No. 217-00865)	Jul-09
Reference 20 dB Attenuator	SN: S5086 (20b)	31-Mar-08 (No. 217-00787)	Apr-09
Reference 30 dB Attenuator	SN: S5129 (30b)	1-Jul-08 (No. 217-00866)	Jul-09
Reference Probe ES3DV2	SN: 3013	2-Jan-09 (No. ES3-3013_Jan09)	Jan-10
DAE4	SN: 660	9-Sep-08 (No. DAE4-660_Sep08)	Sep-09

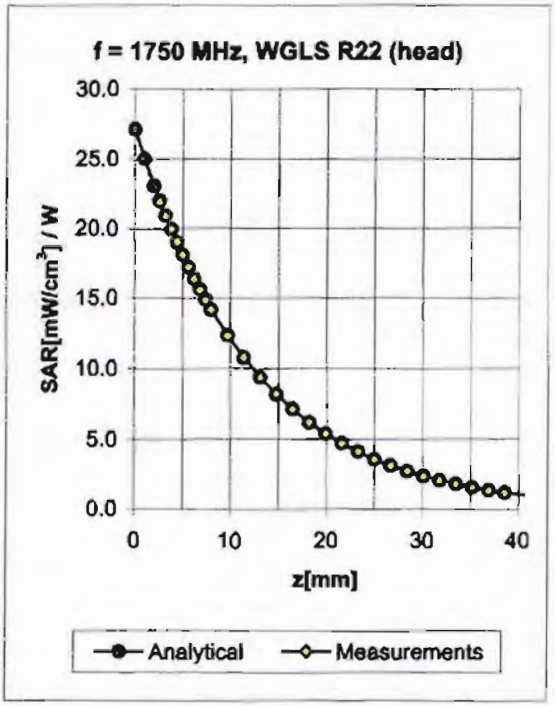
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Oct-07)	In house check: Oct-09
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-08)	In house check: Oct-09

	Name	Function	Signature
Calibrated by:	Katja Pokovic	Technical Manager	
Approved by:	Fin Bomholt	R&D Director	

Issued: March 16, 2009

Conversion Factor Assessment





f [MHz]	Validity [MHz][C]	TSL	Permittivity	Conductivity	Alpha	Depth	ConvF Uncertainty
835	± 50 / ± 100	Head	41.5 ± 5%	0.90 ± 5%	0.80	1.11	5.90 ± 11.0% (k=2)
1750	± 50 / ± 100	Head	40.1 ± 5%	1.37 ± 5%	0.47	1.50	5.06 ± 11.0% (k=2)
1900	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.43	1.58	4.88 ± 11.0% (k=2)
2450	± 50 / ± 100	Head	39.2 ± 5%	1.80 ± 5%	0.48	1.56	4.43 ± 11.0% (k=2)
835	± 50 / ± 100	Body	55.2 ± 5%	0.97 ± 5%	0.63	1.29	5.79 ± 11.0% (k=2)
1750	± 50 / ± 100	Body	53.4 ± 5%	1.49 ± 5%	0.59	1.29	4.78 ± 11.0% (k=2)
1900	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.83	1.11	4.55 ± 11.0% (k=2)
2450	± 50 / ± 100	Body	52.7 ± 5%	1.95 ± 5%	0.99	0.91	4.04 ± 11.0% (k=2)

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

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 Denmark A/S

Certificate No: ES3-3119_Sep08

CALIBRATION CERTIFICATE

Object	ES3DV3 - SN:3119
Calibration procedure(s)	QA CAL-01.v6 and QA CAL-23.v3 Calibration procedure for dosimetric E-field probes
Calibration date:	September 23, 2008
Condition of the calibrated item	In Tolerance

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

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

Calibration Equipment used (M&TE critical for calibration)

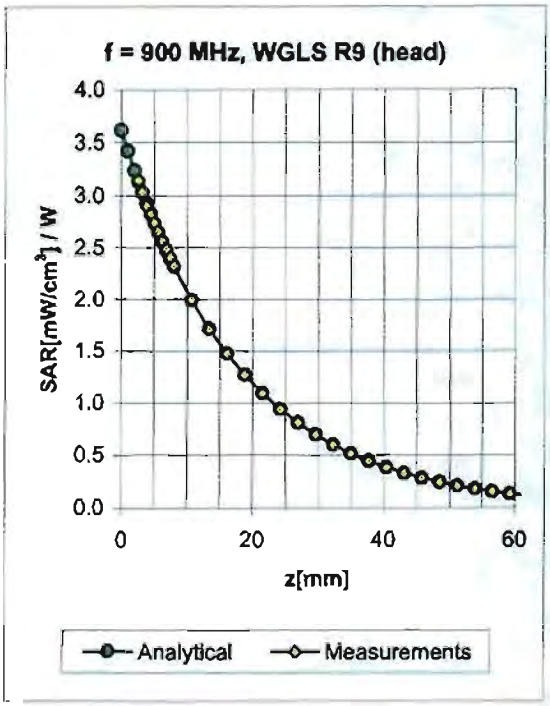
Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	1-Apr-08 (No. 217-00788)	Apr-09
Power sensor E4412A	MY41495277	1-Apr-08 (No. 217-00788)	Apr-09
Power sensor E4412A	MY41498087	1-Apr-08 (No. 217-00788)	Apr-09
Reference 3 dB Attenuator	SN: S5054 (3c)	1-Jul-08 (No. 217-00865)	Jul-09
Reference 20 dB Attenuator	SN: S5086 (20b)	31-Mar-08 (No. 217-00787)	Apr-09
Reference 30 dB Attenuator	SN: S5129 (30b)	1-Jul-08 (No. 217-00866)	Jul-09
Reference Probe ES3DV2	SN: 3013	2-Jan-08 (No. ES3-3013_Jan08)	Jan-09
DAE4	SN: 660	9-Sep-08 (No. DAE4-660_Sep08)	Sep-09

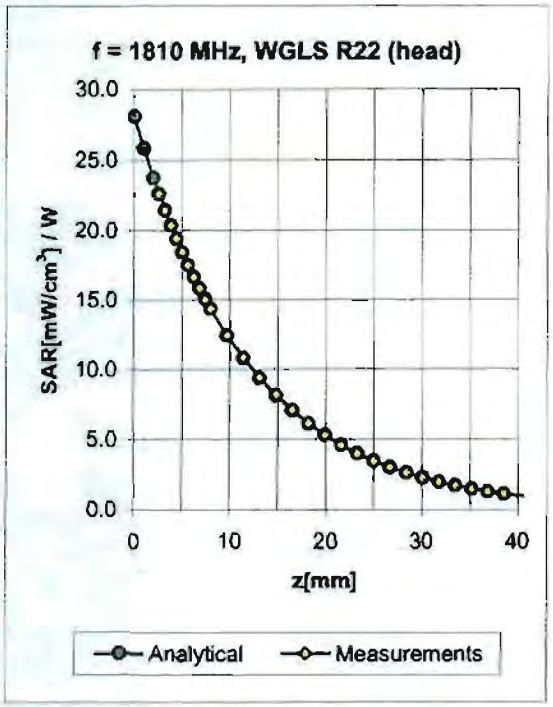
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Oct-07)	In house check: Oct-09
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-07)	In house check: Oct-08

	Name	Function	Signature
Calibrated by:	Katja Pokovic	Technical Manager	
Approved by:	Fin Bomholt	R&D Director	

Issued: September 24, 2008

Conversion Factor Assessment





f [MHz]	Validity [MHz][c]	TSL	Permittivity	Conductivity	Alpha	Depth	ConvF Uncertainty
900	± 50 / ± 100	Head	41.5 ± 5%	0.97 ± 5%	0.70	1.37	5.88 ± 11.0% (k=2)
1810	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.48	1.64	4.96 ± 11.0% (k=2)
1950	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.56	1.46	4.83 ± 11.0% (k=2)
2450	± 50 / ± 100	Head	39.2 ± 5%	1.80 ± 5%	0.75	1.24	4.44 ± 11.0% (k=2)
900	± 50 / ± 100	Body	55.0 ± 5%	1.05 ± 5%	0.70	1.28	5.67 ± 11.0% (k=2)
1810	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.43	1.79	4.61 ± 11.0% (k=2)
1950	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.48	1.74	4.51 ± 11.0% (k=2)
2450	± 50 / ± 100	Body	52.7 ± 5%	1.95 ± 5%	0.99	1.14	3.94 ± 11.0% (k=2)

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

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

See the following pages

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

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

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

Accreditation No.: **SCS 108**

Client **Nokia Denmark A/S**

Certificate No: **D835V2-4d042_Sep08**

CALIBRATION CERTIFICATE

Object	D835V2 - SN: 4d042
Calibration procedure(s)	QA CAL-05.v7 Calibration procedure for dipole validation kits
Calibration date:	September 22, 2008
Condition of the calibrated item	In Tolerance

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	04-Oct-07 (No. 217-00736)	Oct-08
Power sensor HP 8481A	US37292783	04-Oct-07 (No. 217-00736)	Oct-08
Reference 20 dB Attenuator	SN: 5086 (20g)	01-Jul-08 (No. 217-00864)	Jul-09
Type-N mismatch combination	SN: 5047.2 / 06327	01-Jul-08 (No. 217-00867)	Jul-09
Reference Probe ES3DV2	SN: 3025	28-Apr-08 (No. ES3-3025_Apr08)	Apr-09
DAE4	SN: 601	14-Mar-08 (No. DAE4-601_Mar08)	Mar-09

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

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

Issued: September 22, 2008

DASY5 Validation Report for Head TSL

Date/Time: 22.09.2008 10:40:16

Test Laboratory: SPEAG, Zurich, Switzerland

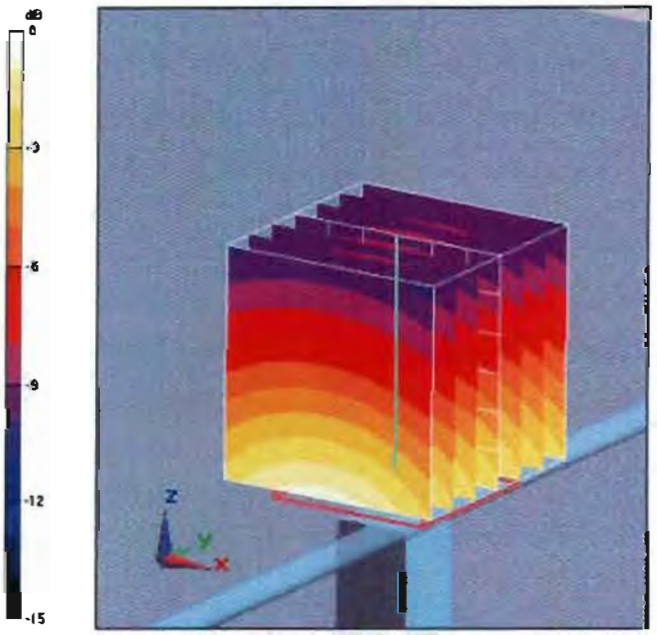
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:4d042

Communication System: CW-835; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: HSL 900 MHz
Medium parameters used: f = 835 MHz; σ = 0.901 mho/m; ε_r = 41.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Probe: ES3DV2 - SN3025; ConvF(5.97, 5.97, 5.97); Calibrated: 28.04.2008
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 14.03.2008
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- Measurement SW: DASY5, V5.0 Build 119; SEMCAD X Version 13.2 Build 87

Pin=250mW; dip=15mm; dist=3.4mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 55.9 V/m; Power Drift = 0.013 dB
Peak SAR (extrapolated) = 3.48 W/kg
SAR(1 g) = 2.38 mW/g; SAR(10 g) = 1.57 mW/g
Maximum value of SAR (measured) = 2.69 mW/g



0 dB = 2.69mW/g

DASY5 Validation Report for Body TSL

Date/Time: 16.09.2008 10:46:36

Test Laboratory: SPEAG, Zurich, Switzerland

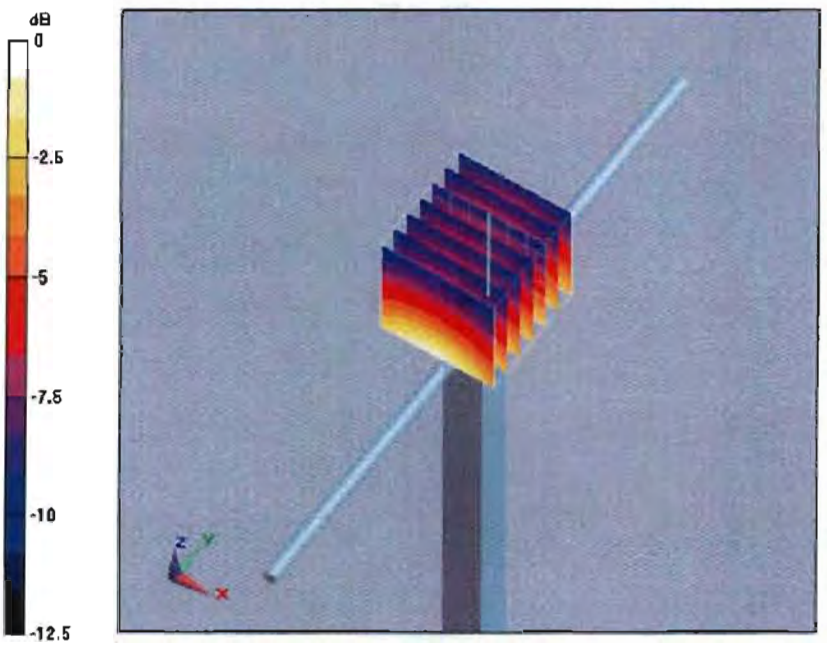
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:4d042

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: MSL900
Medium parameters used: f = 835 MHz; σ = 1.01 mho/m; ε_r = 53.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Probe: ES3DV2 - SN3025; ConvF(5.9, 5.9, 5.9); Calibrated: 28.04.2008
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 14.03.2008
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- Measurement SW: DASY5, V5.0 Build 119; SEMCAD X Version 13.2 Build 87

Pin = 250mW, d = 15mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 54 V/m; Power Drift = 0.024 dB
Peak SAR (extrapolated) = 3.63 W/kg
SAR(1 g) = 2.51 mW/g; SAR(10 g) = 1.65 mW/g
Maximum value of SAR (measured) = 2.81 mW/g



0 dB = 2.81mW/g

18307

Calibration Laboratory of
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Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

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Accreditation No.: SCS 108

Client Nokia Denmark A/S

Certificate No: D1900V2-5d026_Mar08

CALIBRATION CERTIFICATE

Object	D1900V2 - SN: 5d026
Calibration procedure(s)	QA CAL-05.v7 Calibration procedure for dipole validation kits
Calibration date:	March 18, 2008
Condition of the calibrated item	In Tolerance

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	04-Oct-07 (METAS, No. 217-00736)	Oct-08
Power sensor HP 8481A	US37292783	04-Oct-07 (METAS, No. 217-00736)	Oct-08
Reference 20 dB Attenuator	SN: 5086 (20g)	07-Aug-07 (METAS, No 217-00718)	Aug-08
Reference 10 dB Attenuator	SN: 5047.2 (10r)	07-Aug-07 (METAS, No 217-00718)	Aug-08
Reference Probe ES3DV2	SN: 3025	01-Mar-08 (SPEAG, No. ES3-3025_Mar08)	Mar-09
DAE4	SN 909	3-Sep-08 (SPEAG, No. DAE4-909_Sep07)	Sep-07

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (SPEAG, in house check Oct-07)	In house check: Oct-08
RF generator R&S SMT-06	100005	4-Aug-99 (SPEAG, in house check Oct-07)	In house check: Oct-09
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (SPEAG, in house check Oct-07)	In house check: Oct-08
Power meter EPM-442A	GB37480704	04-Oct-07 (METAS, No. 217-00736)	Oct-08

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

Issued: March 18, 2008

DASY4 Validation Report for Head TSL

Date/Time: 18.03.2008 11:48:54

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d026

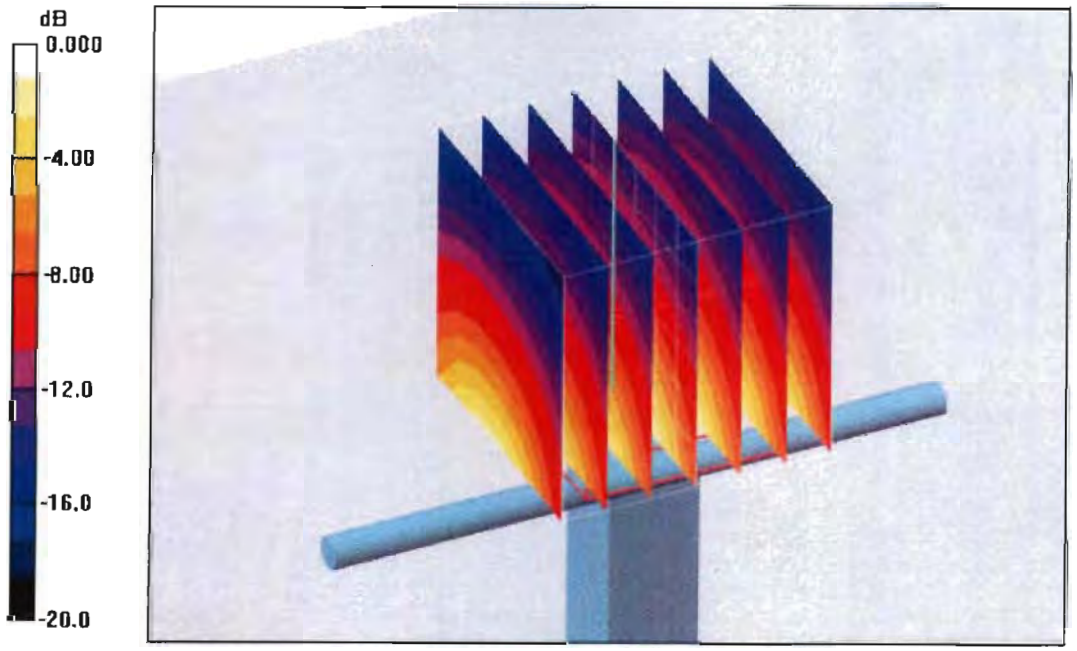
Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: HSL U10 BB;
Medium parameters used: f = 1900 MHz; σ = 1.47 mho/m; ε_r = 40.2; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ES3DV2 - SN3025; ConvF(4.9, 4.9, 4.9); Calibrated: 01.03.2008
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn909; Calibrated: 03.09.2007
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; ;
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 172

Pin = 250 mW; d = 10 mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 90.7 V/m; Power Drift = 0.071 dB
Peak SAR (extrapolated) = 19.3 W/kg
SAR(1 g) = 10.3 mW/g; SAR(10 g) = 5.27 mW/g
Maximum value of SAR (measured) = 12.0 mW/g



0 dB = 12.0mW/g

DASY4 Validation Report for Body TSL

Date/Time: 14.03.2008 12:53:13

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d026

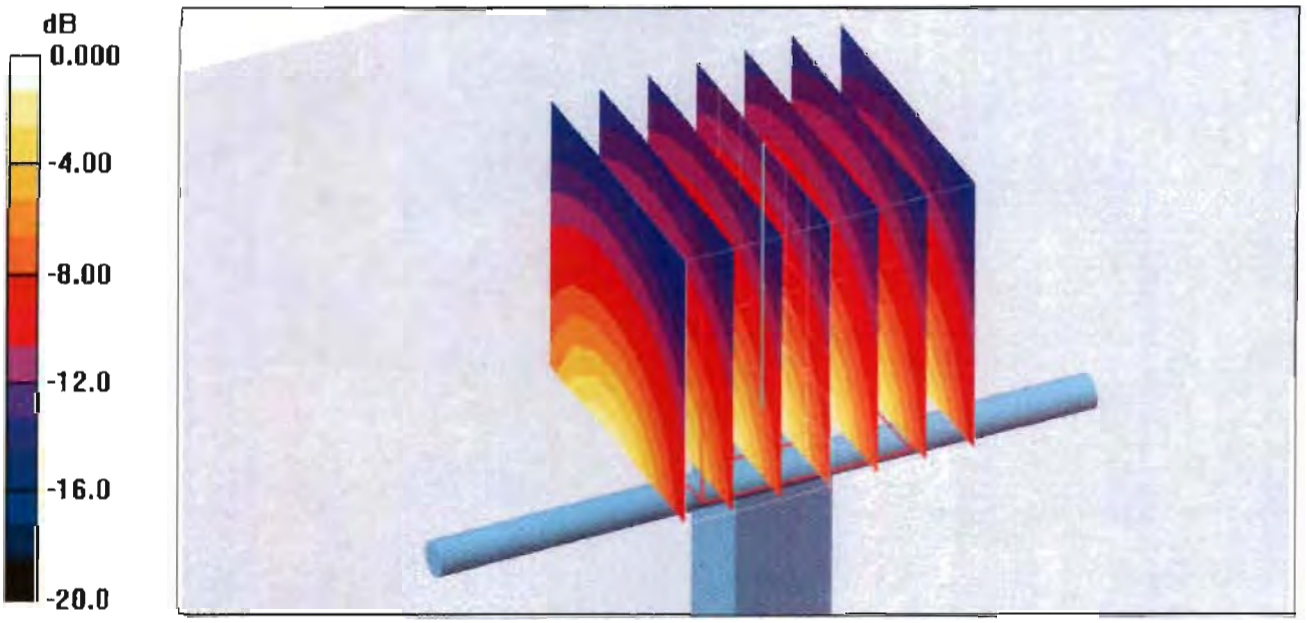
Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: MSL U10 BB;
Medium parameters used: f = 1900 MHz; σ = 1.57 mho/m; ε_r = 51.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ES3DV2 - SN3025; ConvF(4.5, 4.5, 4.5); Calibrated: 01.03.2008
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn909; Calibrated: 03.09.2007
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; ;
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 172

Pin = 250 mW; d = 10 mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 89.8 V/m; Power Drift = 0.050 dB
Peak SAR (extrapolated) = 18.7 W/kg
SAR(1 g) = 10.5 mW/g; SAR(10 g) = 5.5 mW/g
Maximum value of SAR (measured) = 12.1 mW/g



0 dB = 12.1mW/g

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Accreditation No.: SCS 108

Client Nokia Denmark A/S

Certificate No: D2450V2-750_Mar08

CALIBRATION CERTIFICATE

Object	D2450V2 - SN: 750
Calibration procedure(s)	QA CAL-05.v7 Calibration procedure for dipole validation kits
Calibration date:	March 10, 2008
Condition of the calibrated item	In Tolerance

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	04-Oct-07 (METAS, No. 217-00736)	Oct-08
Power sensor HP 8481A	US37292783	04-Oct-07 (METAS, No. 217-00736)	Oct-08
Reference 20 dB Attenuator	SN: 5086 (20g)	07-Aug-07 (METAS, No 217-00718)	Aug-08
Reference 10 dB Attenuator	SN: 5047.2 (10r)	07-Aug-07 (METAS, No 217-00718)	Aug-08
Reference Probe ES3DV2	SN: 3025	01-Mar-08 (SPEAG, No. ES3-3025_Mar08)	Mar-09
DAE4	SN 909	03-Sep-07 (SPEAG, No. DAE4-909_Sep07)	Sep-08

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

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

Issued: March 11, 2008

DASY4 Validation Report for Head TSL

Date/Time: 10.03.2008 16:24:04

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN750

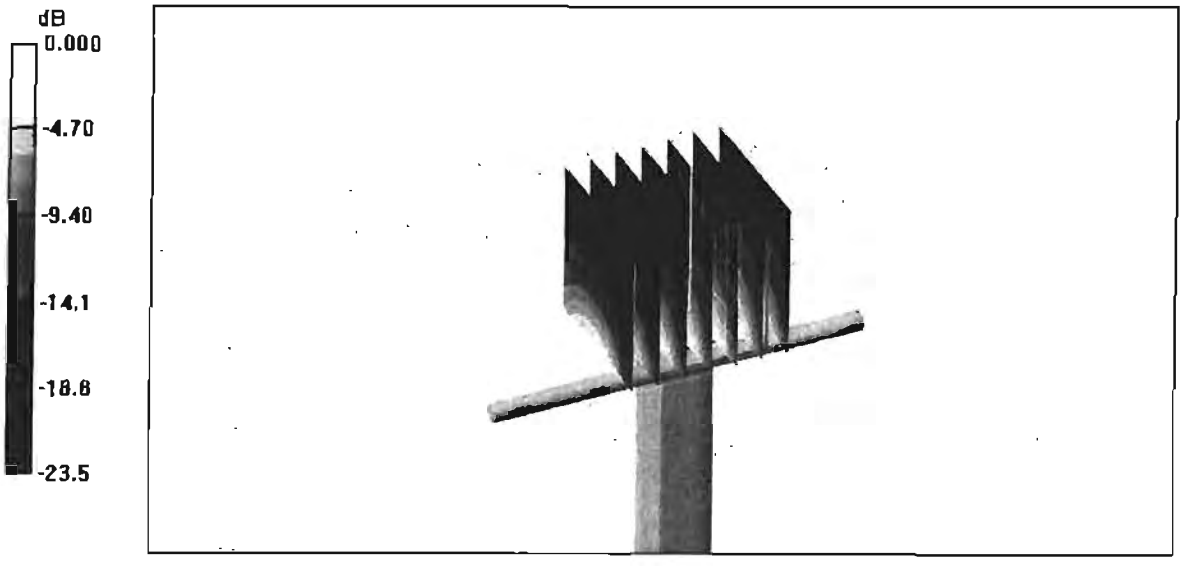
Communication System: CW-2450; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: HSL U10 BB;
Medium parameters used: f = 2450 MHz; σ = 1.81 mho/m; ε_r = 39.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ES3DV2 - SN3025; ConvF(4.4, 4.4, 4.4); Calibrated: 01.03.2008
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn909; Calibrated: 03.09.2007
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; ;
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 172

Pin = 250 mW; d = 10 mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 92.8 V/m; Power Drift = 0.046 dB
Peak SAR (extrapolated) = 27.8 W/kg
SAR(1 g) = 13.5 mW/g; SAR(10 g) = 6.25 mW/g
Maximum value of SAR (measured) = 16.4 mW/g



0 dB = 16.4mW/g

DASY4 Validation Report for Body TSL

Date/Time: 10.03.2008 17:55:27

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN750

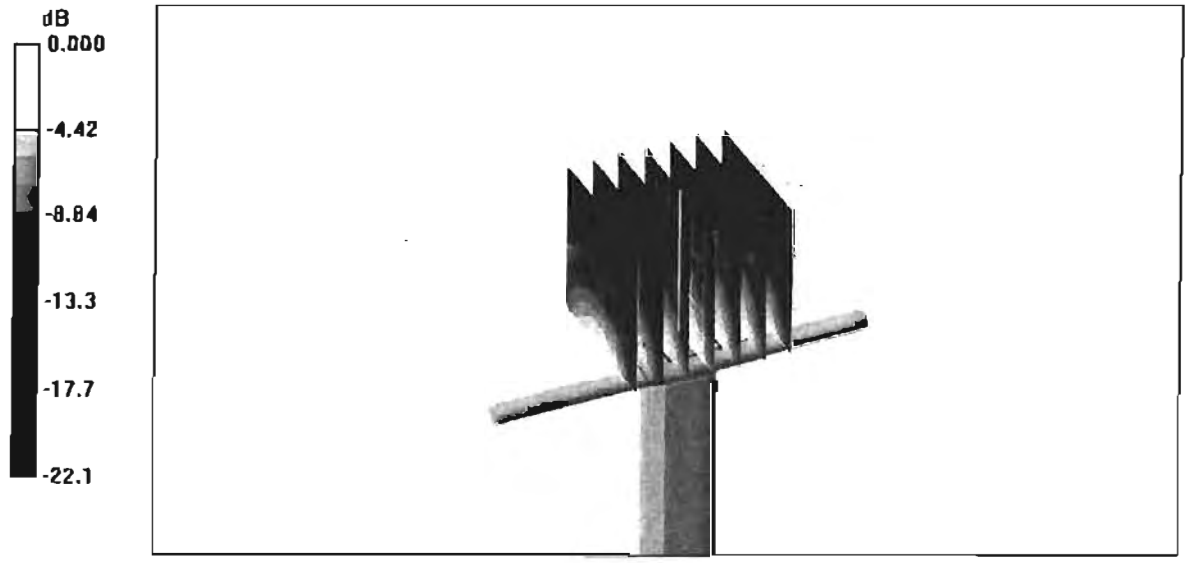
Communication System: CW-2450; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: MSL U10;
Medium parameters used: f = 2450 MHz; σ = 1.98 mho/m; ε_r = 50.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ES3DV2 - SN3025; ConvF(4.07, 4.07, 4.07); Calibrated: 01.03.2008
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn909; Calibrated: 03.09.2007
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; ;
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 172

Pin = 250 mW; d = 10 mm 2/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 92.9 V/m; Power Drift = 0.000 dB
Peak SAR (extrapolated) = 27.0 W/kg
SAR(1 g) = 13.2 mW/g; SAR(10 g) = 6.14 mW/g
Maximum value of SAR (measured) = 16.0 mW/g



0 dB = 16.0mW/g