

SAR Compliance Test Report

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Tested device:	RX-75		
FCC ID:	Device includes PDNOM00402-2 and PDN-AR5B93	IC:	Device includes 661R-M00402 and 661R-AR5B93
Supplement reports:	FCC_RX-76_02 for RX-76		
Testing has been carried out in accordance with:	47CFR §2.1093 Radiofrequency Radiation Exposure Evaluation: Portable Devices FCC OET Bulletin 65 (Edition 97-01), Supplement C (Edition 01-01) Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields RSS-102 Evaluation Procedure for Mobile and Portable Radio Transmitters with Respect to Health Canada's Safety Code 6 for Exposure of Humans to Radio Frequency Fields IEEE 1528 - 2003 IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Technique		
Documentation:	The documentation of the testing performed on the tested devices is archived for 15 years at TCC Nokia.		
Test results:	The tested device complies with the requirements in respect of all parameters subject to the test. The test results and statements relate only to the items tested. The test report shall not be reproduced except in full, without written approval of the laboratory.		
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1. SUMMARY OF SAR TEST REPORT

1.1 Test Details

Period of test	2009-08-05 to 2009-09-05
SN, HW and SW numbers of tested device	Main unit : SN: 2190702000020, DUT: 25541 Main unit : SN: 2190687400064, DUT: 27464 Screen unit 1 : DUT: 25548 Screen unit 2 : DUT: 25550
Batteries used in testing	NYU00 (Sanyo), DUT: 27463, 27465, 27466, 27467
Headsets used in testing	-
Other accessories used in testing	-
State of sample	Prototype unit
Notes	-

1.2 Maximum Results

The maximum measured SAR values for Body Worn configuration are given below. The device conforms to the requirements of the standard(s) when the maximum measured SAR value is less than or equal to the limit.

Mode	Ch / f (MHz)	Conducted power	Separation distance	Measured SAR value (1g avg)	Scaled* SAR value (1g avg)	SAR limit (1g avg)	Result
2-slot GPRS850	190 / 836.6	32.0 dBm	0.0 cm	0.0410 W/kg	0.05 W/kg	1.6 W/kg	PASSED
WCDMA850	4175 / 835.0	22.0 dBm	0.0 cm	0.0210 W/kg	0.02 W/kg	1.6 W/kg	PASSED
4-slot GPRS1900	810 / 1909.8	29.0 dBm	0.0 cm	0.0450 W/kg	0.05 W/kg	1.6 W/kg	PASSED
WCDMA1900	9262 / 1852.4	22.0 dBm	0.0 cm	0.02170 W/kg	0.02 W/kg	1.6 W/kg	PASSED
WLAN2450**	11 / 2462.0	12.0 dBm	0.0 cm	0.00903 W/kg	0.01 W/kg	1.6 W/kg	PASSED
2-slot GPRS850 + WLAN2450	-	-	0.0 cm	0.0500 W/kg	0.06 W/kg	1.6 W/kg	PASSED
WCDMA850 + WLAN2450	-	-	0.0 cm	0.0300 W/kg	0.03 W/kg	1.6 W/kg	PASSED
4-slot GPRS1900 + WLAN2450	-	-	0.0 cm	0.0540 W/kg	0.06 W/kg	1.6 W/kg	PASSED
WCDMA1900 + WLAN2450	-	-	0.0 cm	0.0307 W/kg	0.03 W/kg	1.6 W/kg	PASSED

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

**SAR values taken from FCC_RX-76_02 for RX-76.

1.2.1 Maximum Drift

Maximum drift covered by 12% scaling up of the SAR values	Maximum drift during measurements
0.5dB	0.45 dB

1.2.2 Measurement Uncertainty

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

Device category	Portable
Exposure environment	General population / uncontrolled

Modes of Operation	Bands	Modulation Mode	Duty Cycle	Transmitter Frequency Range (MHz)
GPRS	850 1900	GMSK	1/8 to 4/8	824 – 849 1850 – 1910
EGPRS	850 1900	GMSK / 8PSK	1/8 to 4/8	824 – 849 1850 – 1910
WCDMA	850 (Band V) 1900 (Band II)	-	1	826 – 847 1852 – 1908
HSUPA	850 (Band V) 1900 (Band II)	-	1	826 – 847 1852 – 1908
BT	2450	GFSK	1	2402 – 2480
WLAN	2450	11Mbps QPSK	1	2412 – 2462
WLAN	2450	13.5 MCS 64-QAM / 40M	1	2422 – 2452

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

8PSK EGPRS mode was not measured, because maximum averaged output power is lower in 8PSK EGPRS mode than in GPRS mode.

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

2.1 Picture of the Device



2.2 Description of the Antenna

The device has internal antennas for both cellular and WLAN use. The cellular and WLAN antennas are located in the frame around the display.

The device contains two radio modules: FCC ID: PDNOM00402-2 and FCC ID: PDN-AR5B93. The maximum time-averaged transmitter power levels in supported modes for these two modules are as given below:

PDNOM00402-2:

GPRS850: 26dBm (2-slot mode)
WCDMA850: 24dBm
GPRS1900: 26dBm (4-slot mode)
WCDMA1900: 24dBm

PDN-AR5B93

WLAN b/g: 12dBm

The outside dimensions of the device are 26.4cm wide x 18.5cm deep x 19.9mm thick and in the normal operating position (screen open at 90 degrees) all the antennas are a minimum of 7.5cm away from the user.

The screen size is 10.1 inches (25.6cm) and, as such, the device falls outside the scope of KDB616217 D01 but within that of draft KDB616217 D03. Regarding testing of individual transmitters, both KDBs allow exclusion when the power level is $< 60/f$. In this case, the WLAN2450 maximum time-averaged power level was only 12dBm (15.7mW) and was below this threshold, so testing could have been excluded. However, full testing of WLAN2450 has been voluntarily performed.

As all the antennas are mounted in the screen area and are more than 5cm away from the user, the simultaneous transmission testing procedures as described in KDB616217 D01 can be applied to this device. According to KDB616217 D01, simultaneous SAR testing was not needed for this device as the maximum time-averaged power of WLAN2450 was only 12dBm (15.7mW) and is therefore less than the threshold for simultaneous SAR assessment. Nonetheless, simultaneous SAR evaluation has been voluntarily performed.

3. TEST CONDITIONS

3.1 Temperature and Humidity

Ambient temperature (°C):	20.5 to 22.5
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. Communication between the device and the call tester was established by air link.

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

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

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

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

Some of the SAR results given in this report have been taken from FCC_RX-76_02 for RX-76. The difference between RX-75 and RX-76 is that RX-75 has the addition of transmitter modules for the GPRS and WCDMA bands.

The Screen units differ in that the antennas they contain are from different manufacturers. The performance of both Screen units and hence both sets of antennas are reported below.

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
E-field Probe ES3DV3	3116	12 months	2010-03
Dipole Validation Kit, D835V2	4d042	24 months	2010-09
Dipole Validation Kit, D1900V2	5d026	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	2010-08
Power Sensor	NRP-Z51	100830	24 months	2010-08
Call Tester	CMU200	105900	-	-
Call Tester	CMU200	110735	-	-
Vector Network Analyzer	AT8753ES	MY40001091	12 months	2010-08
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 D
Frequency	10 MHz to 4 GHz (dosimetry); Linearity: ± 0.2 dB (30 MHz to 4 GHz)
Directivity	± 0.2 dB in HSL (rotation around probe axis) ± 0.3 dB in HSL (rotation normal to probe axis)
Dynamic Range	5 μ W/g to > 100 mW/g; Linearity: ± 0.2 dB
Dimensions	Overall length: 330 mm Tip length: 20 mm Body diameter: 12 mm Tip diameter: 3.9 mm 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 $\pm 5\%$ of the recommended values. All tests were carried out within 24 hours of measuring the dielectric parameters.

The depth of the tissue simulant was 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	Body (% by weight)
Deionised Water	55.97
HEC	1.21
Sugar	41.76
Preservative	0.27
Salt	0.79

1900MHz band

Ingredient	Body (% by weight)
Deionised Water	69.02
Butyl Diglycol	30.76
Salt	0.22

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, body tissue simulant

f [MHz]	Description	SAR [W/kg], 1g	Dielectric Parameters		Temp [°C]
			ϵ_r	σ [S/m]	
835	Reference result	2.51	53.3	1.01	
	$\pm 10\%$ window	2.26 - 2.76			
	2009-08-25	2.58	54.3	0.98	21.6
	2009-08-26	2.62	53.9	0.97	22.1
1900	Reference result	10.5	51.7	1.57	
	$\pm 10\%$ window	9.4 - 11.6			
	2009-08-05	10.8	52.6	1.51	21.0
	2009-08-22	10.0	52.8	1.62	21.2
	2009-09-04	10.7	52.0	1.50	21.6

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

4.3.3 Tissue Simulants used in the Measurements

Body tissue simulant measurements

f [MHz]	Description	Dielectric Parameters		Temp [°C]
		ϵ_r	σ [S/m]	
835	Recommended value	55.2	0.97	
	$\pm 5\%$ window	52.4 – 58.0	0.92 – 1.02	
	2009-08-25	54.3	0.98	21.6
	2009-08-26	53.9	0.97	22.1
836	Recommended value	55.2	0.97	
	$\pm 5\%$ window	52.4 – 58.0	0.92 – 1.02	
	2009-08-25	54.3	0.98	21.6
	2009-08-26	53.9	0.98	22.1
1880	Recommended value	53.3	1.52	
	$\pm 5\%$ window	50.6 – 56.0	1.44 – 1.60	
	2009-08-05	52.7	1.48	21.0
	2009-08-22	52.8	1.59	21.2
	2009-09-04	52.1	1.48	21.6

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

5.2 Test Positions

The device was placed in the SPEAG holder and placed below the flat section of the phantom. The device was kept against the phantom as indicated in the photos below oriented with a) its base facing the phantom and b) its front edge facing the phantom. For the base facing the phantom orientations, SAR testing was performed in two halves due to the size limitation imposed by the flat phantom.



Photo of the device in Base Left half position.



Photo of the device in Base Right half position.



Photo of the device Front Edge position.

5.3 Scan Procedures

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

5.4 SAR Averaging Methods

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

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

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

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

6. MEASUREMENT UNCERTAINTY

Table 6.1 – Measurement uncertainty evaluation

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

7. RESULTS

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

850 MHz Body SAR results

Option used	Device orientation	Test configuration	SAR, averaged over 1g (W/kg)		
			Ch 128 824.2 MHz	Ch 190 836.6 MHz	Ch 251 848.8 MHz
1-slot GPRS		Conducted Power	-	33.0 dBm	-
Screen unit 1 / Antenna manufacturer 1	Left half of base facing phantom	Without headset	-	0.0110	-
		Headset	-	-	-
	Right half of base facing phantom	Without headset	-	-	-
		Headset	-	-	-
	Front edge facing phantom	Without headset	-	-	-
		Headset	-	-	-
2-slot GPRS		Conducted Power	32.0 dBm	32.0 dBm	32.0 dBm
Screen unit 1 / Antenna manufacturer 1	Left half of base facing phantom	Without headset	-	0.0210	-
		Headset	-	-	-
	Right half of base facing phantom	Without headset	0.0348	0.0360	0.0336
		Headset	-	-	-
	Front edge facing phantom	Without headset	-	0.0120	-
		Headset	-	-	-
3-slot GPRS		Conducted Power	-	30.0 dBm	-
Screen unit 1 / Antenna manufacturer 1	Left half of base facing phantom	Without headset	-	0.0190	-
		Headset	-	-	-
	Right half of base facing phantom	Without headset	-	-	-
		Headset	-	-	-
	Front edge facing phantom	Without headset	-	-	-
		Headset	-	-	-

850 MHz Body SAR results - continued

Option used	Device orientation	Test configuration	SAR, averaged over 1g (W/kg)		
			Ch 128 824.2 MHz	Ch 190 836.6 MHz	Ch 251 848.8 MHz
4-slot GPRS		Conducted Power	-	28.0 dBm	-
Screen unit 1 / Antenna manufacturer 1	Left half of base facing phantom	Without headset	-	0.0150	-
		Headset	-	-	-
	Right half of base facing phantom	Without headset	-	-	-
		Headset	-	-	-
	Front edge facing phantom	Without headset	-	-	-
		Headset	-	-	-
2-slot GPRS		Conducted Power	32.0 dBm	32.0 dBm	32.0 dBm
Screen unit 2 / Antenna manufacturer 2	Left half of base facing phantom	Without headset	-	-	-
		Headset	-	-	-
	Right half of base facing phantom	Without headset	0.0365	0.0410	0.0352
		Headset	-	-	-
	Front edge facing phantom	Without headset	-	-	-
		Headset	-	-	-

850 MHz Body SAR results - continued

Option used	Device orientation	Test configuration	SAR, averaged over 1g (W/kg)		
			Ch 4132 826.4 MHz	Ch 4175 835.0 MHz	Ch 4233 846.6 MHz
WCDMA		Conducted Power	22.0 dBm	22.0 dBm	22.0 dBm
Screen unit 1 / Antenna manufacturer 1	Left half of base facing phantom	Without headset	-		-
		Headset	-	-	-
	Right half of base facing phantom	Without headset	0.0153	0.0210	0.0163
		Headset	-	-	-
	Front edge facing phantom	Without headset	-	-	-
		Headset	-	-	-
WCDMA		Conducted Power	22.0 dBm	22.0 dBm	22.0 dBm
Screen unit 2 / Antenna manufacturer 2	Left half of base facing phantom	Without headset	-	-	-
		Headset	-	-	-
	Right half of base facing phantom	Without headset	0.0151	0.0180	0.0129
		Headset	-	-	-
	Front edge facing phantom	Without headset	-	-	-
		Headset	-	-	-

1900 MHz 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
1-slot GPRS		Conducted Power	-	30.0 dBm	-
Screen unit 1 / Antenna manufacturer 1	Left half of base facing phantom	Without headset	-	0.0200	-
		Headset	-	-	-
	Right half of base facing phantom	Without headset	-	-	-
		Headset	-	-	-
	Front edge facing phantom	Without headset	-	-	-
		Headset	-	-	-
2-slot GPRS		Conducted Power	-	29.0 dBm	-
Screen unit 1 / Antenna manufacturer 1	Left half of base facing phantom	Without headset	-	0.0230	-
		Headset	-	-	-
	Right half of base facing phantom	Without headset	-	-	-
		Headset	-	-	-
	Front edge facing phantom	Without headset	-	-	-
		Headset	-	-	-
3-slot GPRS		Conducted Power	-	29.0 dBm	-
Screen unit 1 / Antenna manufacturer 1	Left half of base facing phantom	Without headset	-	0.0220	-
		Headset	-	-	-
	Right half of base facing phantom	Without headset	-	-	-
		Headset	-	-	-
	Front edge facing phantom	Without headset	-	-	-
		Headset	-	-	-

1900 MHz Body SAR results - continued

Option used	Device orientation	Test configuration	SAR, averaged over 1g (W/kg)		
			Ch 512 1850.2 MHz	Ch 661 1880.0 MHz	Ch 810 1909.8 MHz
4-slot GPRS		Conducted Power	29.0 dBm	29.0 dBm	29.0 dBm
Screen unit 1 / Antenna manufacturer 1	Left half of base facing phantom	Without headset		0.0240	
		Headset			
	Right half of base facing phantom	Without headset	0.0280	0.0260	0.0250
		Headset			
	Front edge facing phantom	Without headset		0.0072	
		Headset	-	-	-
4-slot GPRS		Conducted Power	29.0 dBm	29.0 dBm	29.0 dBm
Screen unit 2 / Antenna manufacturer 2	Left half of base facing phantom	Without headset	-	-	-
		Headset	-	-	-
	Right half of base facing phantom	Without headset	0.0243	0.0298	0.0450
		Headset	-	-	-
	Front edge facing phantom	Without headset	-	-	-
		Headset	-	-	-

1900 MHz Body SAR results - continued

Option used	Device orientation	Test configuration	SAR, averaged over 1g (W/kg)		
			Ch 9262 1852.4 MHz	Ch 9400 1880.0 MHz	Ch 9538 1907.6 MHz
WCDMA		Conducted Power	22.0 dBm	22.0 dBm	22.0 dBm
Screen unit 1 / Antenna manufacturer 1	Left half of base facing phantom	Without headset			
		Headset			
	Right half of base facing phantom	Without headset	0.0217	0.0197	0.0212
		Headset			
	Front edge facing phantom	Without headset			
		Headset	-	-	-
WCDMA		Conducted Power	22.0 dBm	22.0 dBm	22.0 dBm
Screen unit 2 / Antenna manufacturer 2	Left half of base facing phantom	Without headset	-	-	-
		Headset	-	-	-
	Right half of base facing phantom	Without headset	0.0165	0.0158	0.0180
		Headset	-	-	-
	Front edge facing phantom	Without headset	-	-	-
		Headset	-	-	-

2450 MHz 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 802.11b/g		Conducted Power	12.0 dBm	12.0 dBm	12.0 dBm
Screen unit 1 / Antenna manufacturer 1	Left half of base facing phantom	Without headset	-	0.0000	-
		Headset	-	-	-
	Right half of base facing phantom	Without headset	0.00462	0.00676	0.00903
		Headset	-	-	-
	Front edge facing phantom	Without headset	-	0.0000	-
		Headset	-	-	-
WLAN 802.11b/g		Conducted Power	12.0 dBm	12.0 dBm	12.0 dBm
Screen unit 2 / Antenna manufacturer 2	Left half of base facing phantom	Without headset	-	-	-
		Headset	-	-	-
	Right half of base facing phantom	Without headset	0.00403	0.00292	0.00435
		Headset	-	-	-
	Front edge facing phantom	Without headset	-	-	-
		Headset	-	-	-

2450 MHz Body SAR results - continued**

Option used	Device orientation	Test configuration	SAR, averaged over 1g (W/kg)		
			Ch 3 2422.0 MHz	Ch 7 2442.0 MHz	Ch 9 2452.0 MHz
WLAN 802.11n / 40 MHz		Conducted Power	12.0 dBm	12.0 dBm	12.0 dBm
Screen unit 1 / Antenna manufacturer 1	Left half of base facing phantom	Without headset	-	0.00565	-
		Headset	-	-	-
	Right half of base facing phantom	Without headset	0.00316	0.00745	0.00864
		Headset	-	-	-
	Front edge facing phantom	Without headset	-	0.0002	-
		Headset	-	-	-
WLAN 802.11n / 40 MHz		Conducted Power	12.0 dBm	12.0 dBm	12.0 dBm
Screen unit 2 / Antenna manufacturer 2	Left half of base facing phantom	Without headset	-	-	-
		Headset	-	-	-
	Right half of base facing phantom	Without headset	0.00284	0.00238	0.00315
		Headset	-	-	-
	Front edge facing phantom	Without headset	-	-	-
		Headset	-	-	-

Simultaneous transmissions: Combined SAR results

Test configuration	Max. 10g SAR results				
	WLAN**	2-slot GPRS850	WCDMA850	4-slot GPRS1900	WCDMA1900
Without Headset	0.00903	0.0410	0.0210	0.0450	0.0217
Headset	-	-	-	-	-

Test configuration	Combined 10g SAR values			
	WLAN + 2-slot GPRS850	WLAN + WCDMA850	WLAN + 4-slot GPRS1900	WLAN + WCDMA1900
Without Headset	0.0500	0.0300	0.0540	0.0307
Headset	-	-	-	-

**SAR values taken from FCC_RX-76_02 for RX-76.

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.

Note: Individual SAR testing of WLAN2450 as described in draft KDB616217 D03 and Simultaneous Transmission Procedures as described in KDB616217 D01 are not needed for this product because the maximum time-averaged power level for WLAN2450 < 60/f. The individual WLAN2450 data and Combined SAR data given in the tables above has been voluntarily given.

Plots of the Measurement scans are given in Appendix B.

APPENDIX A: SYSTEM CHECKING SCANS

See the following pages

Date/Time: 2009-08-25 16:00:47

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

Communication System: CW835

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: Body 850; Medium Notes: Medium Temperature: 21.6 C

Medium parameters used: $f = 835$ MHz; $\sigma = 0.98$ mho/m; $\epsilon_r = 54.3$; $\rho = 1000$ kg/m³

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)
- 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

d=15mm, Pin=250mW/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 2.81 mW/g

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

Reference Value = 54.3 V/m

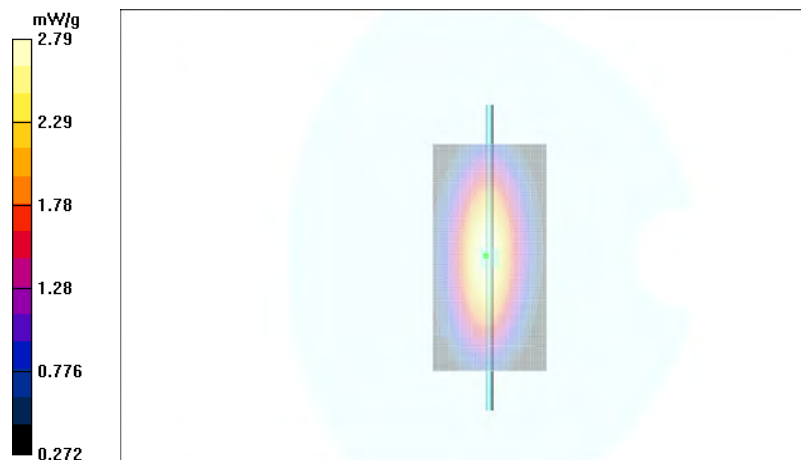
Peak SAR (extrapolated) = 3.82 W/kg

SAR(1 g) = 2.58 mW/g

SAR(10 g) = 1.7 mW/g

Power Drift = -0.052 dB

Maximum value of SAR (measured) = 2.79 mW/g



Date/Time: 2009-08-26 16:09:28

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

Communication System: CW835

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: Body 850; Medium Notes: Medium Temperature: 22.1 C

Medium parameters used: $f = 835$ MHz; $\sigma = 0.975$ mho/m; $\epsilon_r = 53.9$; $\rho = 1000$ kg/m³

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)
- 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

d=15mm, Pin=250mW/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 2.83 mW/g

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

Reference Value = 54.8 V/m

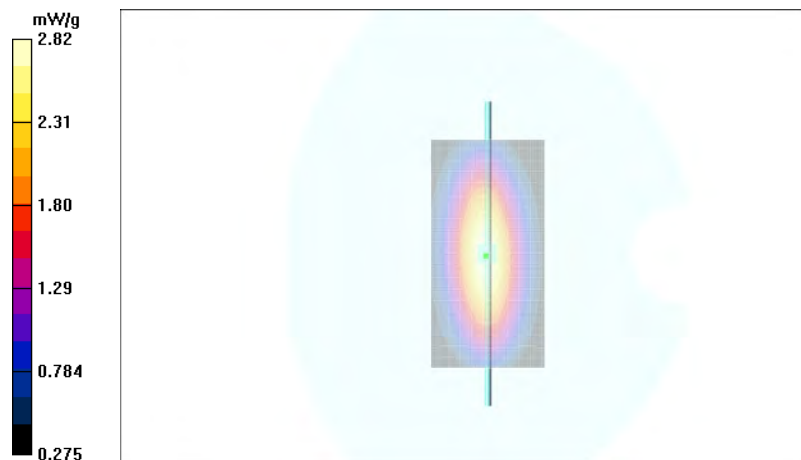
Peak SAR (extrapolated) = 3.85 W/kg

SAR(1 g) = 2.62 mW/g

SAR(10 g) = 1.72 mW/g

Power Drift = -0.009 dB

Maximum value of SAR (measured) = 2.82 mW/g



Date/Time: 2009-08-05 10:21:46

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

Communication System: CW1900

Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: Body1900; Medium Notes: Medium Temperature: 21.0 C

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.51$ mho/m; $\epsilon_r = 52.6$; $\rho = 1000$ kg/m³

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)
- 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 = 90.0 V/m

Peak SAR (extrapolated) = 20.1 W/kg

SAR(1 g) = 10.8 mW/g

SAR(10 g) = 5.63 mW/g

Power Drift = -0.008 dB

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



Date/Time: 2009-08-22 17:43:04

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

Communication System: CW1900

Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: Body 1900; Medium Notes: Medium Temperature: 21.2 C

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.62$ mho/m; $\epsilon_r = 52.8$; $\rho = 1000$ kg/m³

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)
- 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) = 11.6 mW/g

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

Reference Value = 65.2 V/m

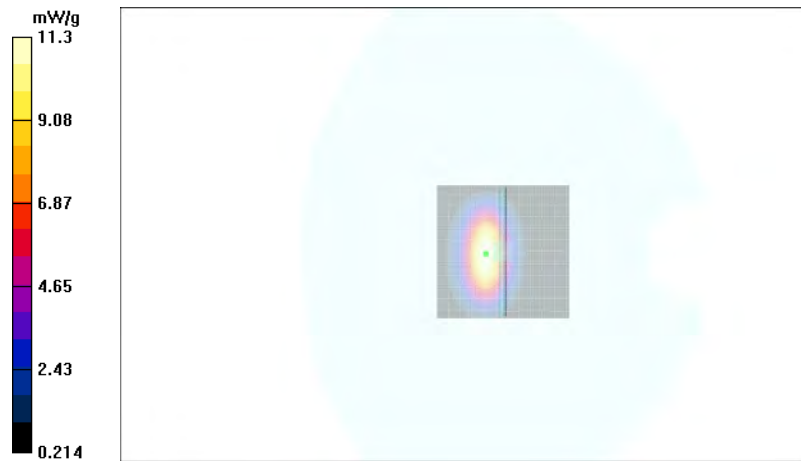
Peak SAR (extrapolated) = 18.9 W/kg

SAR(1 g) = 10 mW/g

SAR(10 g) = 5.18 mW/g

Power Drift = 0.021 dB

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



Date/Time: 2009-09-04 16:19:21

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

Communication System: CW1900

Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: Body 1900; Medium Notes: Medium Temperature: 21.6 C

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.5$ mho/m; $\epsilon_r = 52$; $\rho = 1000$ kg/m³

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)
- Electronics: DAE3 Sn501; Calibrated: 2009-03-12
- Phantom: SAM 1; 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) = 12.5 mW/g

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

Reference Value = 90.9 V/m

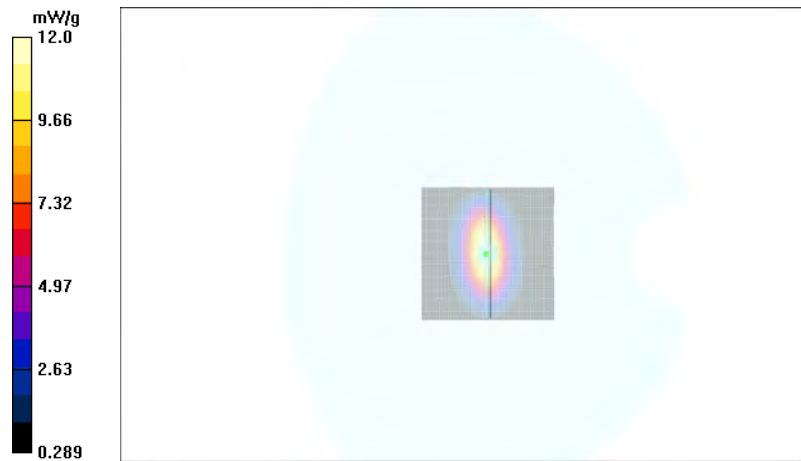
Peak SAR (extrapolated) = 19.7 W/kg

SAR(1 g) = 10.7 mW/g

SAR(10 g) = 5.61 mW/g

Power Drift = 0.036 dB

Maximum value of SAR (measured) = 12.0 mW/g



APPENDIX B: MEASUREMENT SCANS

See the following pages

Date/Time: 2009-08-25 20:39:17

Test Laboratory: TCC Nokia

Type: RX-75; Serial: 2190702000020

Communication System: GSM850

Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium: Body 850; Medium Notes: Medium Temperature: 21.6 C

Medium parameters used: $f = 837$ MHz; $\sigma = 0.983$ mho/m; $\epsilon_r = 54.3$; $\rho = 1000$ kg/m³

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)
- 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 - No Accessory - Left half of base facing phantom - Screen unit 1 / Antenna manufacturer 1/Area Scan (121x181x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.010 mW/g

Body - Middle - No Accessory - Left half of base facing phantom - Screen unit 1 / Antenna manufacturer 1/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 1.07 V/m

Peak SAR (extrapolated) = 0.015 W/kg

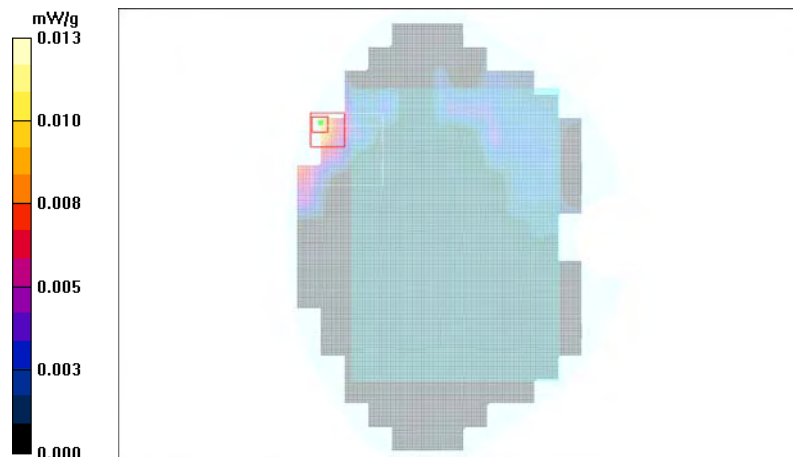
SAR(1 g) = 0.011 mW/g

SAR(10 g) = 0.00789 mW/g

Power Drift = 0.374 dB

Warning: Maximum averaged SAR over 1 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 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) = 0.013 mW/g



Date/Time: 2009-08-25 21:23:51

Test Laboratory: TCC Nokia

Type: RX-75; Serial: 2190702000020

Communication System: 2-slot GPRS850

Frequency: 836.6 MHz; Duty Cycle: 1:4.2

Medium: Body 850; Medium Notes: Medium Temperature: 21.6 C

Medium parameters used: $f = 837$ MHz; $\sigma = 0.983$ mho/m; $\epsilon_r = 54.3$; $\rho = 1000$ kg/m³

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)
- 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 - No Accessory - Left half of base facing phantom - Screen unit 1 / Antenna manufacturer 1/Area Scan (121x181x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.021 mW/g

Body - Middle - No Accessory - Left half of base facing phantom - Screen unit 1 / Antenna manufacturer 1/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 1.61 V/m

Peak SAR (extrapolated) = 0.033 W/kg

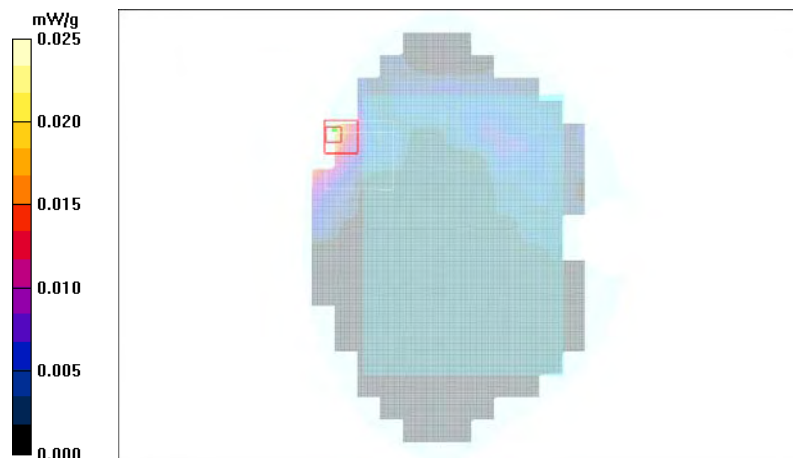
SAR(1 g) = 0.021 mW/g

SAR(10 g) = 0.015 mW/g

Power Drift = 0.223 dB

Warning: Maximum averaged SAR over 1 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 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) = 0.025 mW/g



Date/Time: 2009-08-26 16:53:43

Test Laboratory: TCC Nokia

Type: RX-75; Serial: 2190702000020

Communication System: 2-slot GPRS850

Frequency: 836.6 MHz; Duty Cycle: 1:4.2

Medium: Body 850; Medium Notes: Medium Temperature: 22.1 C

Medium parameters used: $f = 837$ MHz; $\sigma = 0.977$ mho/m; $\epsilon_r = 53.9$; $\rho = 1000$ kg/m³

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)
- 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 - No Accessory - Right half of base facing phantom - Screen unit 1 / Antenna manufacturer

1/Area Scan (121x181x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.039 mW/g

Body - Middle - No Accessory - Right half of base facing phantom - Screen unit 1 / Antenna manufacturer

1/Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 6.47 V/m

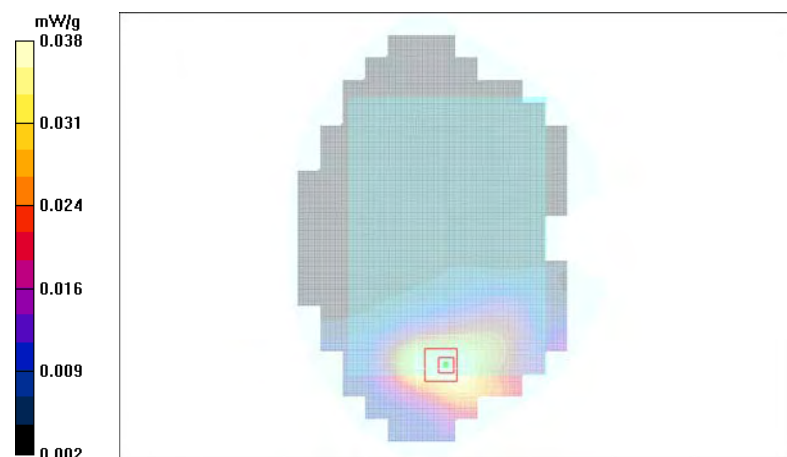
Peak SAR (extrapolated) = 0.053 W/kg

SAR(1 g) = 0.036 mW/g

SAR(10 g) = 0.025 mW/g

Power Drift = -0.202 dB

Maximum value of SAR (measured) = 0.038 mW/g



Date/Time: 2009-08-26 18:43:10

Test Laboratory: TCC Nokia

Type: RX-75; Serial: 2190702000020

Communication System: 2-slot GPRS850

Frequency: 836.6 MHz; Duty Cycle: 1:4.2

Medium: Body 850; Medium Notes: Medium Temperature: 22.1 C

Medium parameters used: $f = 837$ MHz; $\sigma = 0.977$ mho/m; $\epsilon_r = 53.9$; $\rho = 1000$ kg/m³

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)
- 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 - No Accessory – Front edge facing phantom - Screen unit 1 / Antenna manufacturer 1/Area Scan (51x201x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.013 mW/g

Body - Middle - No Accessory – Front edge facing phantom - Screen unit 1 / Antenna manufacturer 1/Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 3.60 V/m

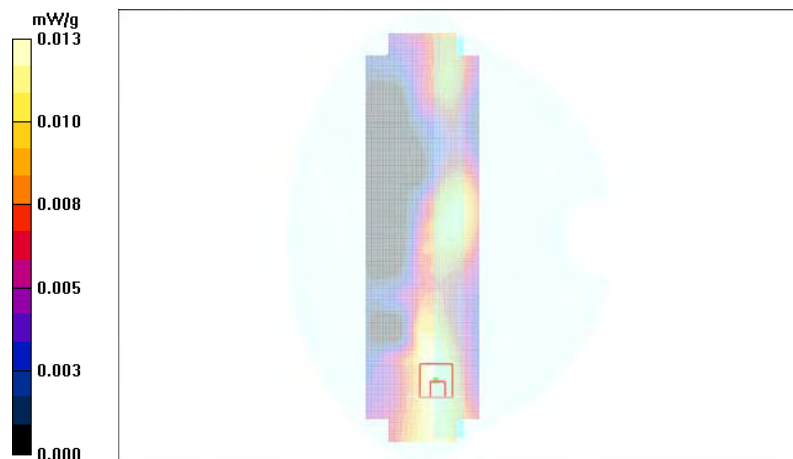
Peak SAR (extrapolated) = 0.019 W/kg

SAR(1 g) = 0.012 mW/g

SAR(10 g) = 0.00793 mW/g

Power Drift = 0.196 dB

Maximum value of SAR (measured) = 0.013 mW/g



Date/Time: 2009-08-25 22:00:38

Test Laboratory: TCC Nokia

Type: RX-75; Serial: 2190702000020

Communication System: 3-slot GPRS850

Frequency: 836.6 MHz; Duty Cycle: 1:2.8

Medium: Body 850; Medium Notes: Medium Temperature: 21.6 C

Medium parameters used: $f = 837$ MHz; $\sigma = 0.983$ mho/m; $\epsilon_r = 54.3$; $\rho = 1000$ kg/m³

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)
- 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 - No Accessory - Left half of base facing phantom - Screen unit 1 / Antenna manufacturer 1/Area

Scan (121x181x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.019 mW/g

Body - Middle - No Accessory - Left half of base facing phantom - Screen unit 1 / Antenna manufacturer

1/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 1.52 V/m

Peak SAR (extrapolated) = 0.025 W/kg

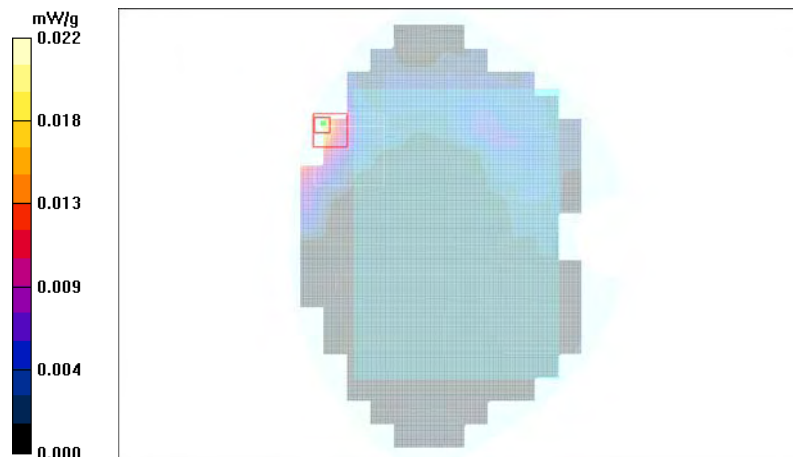
SAR(1 g) = 0.019 mW/g

SAR(10 g) = 0.013 mW/g

Power Drift = -0.121 dB

Warning: Maximum averaged SAR over 1 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 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) = 0.022 mW/g



Date/Time: 2009-08-25 22:30:55

Test Laboratory: TCC Nokia

Type: RX-75; Serial: 2190702000020

Communication System: 4-slot GPRS850

Frequency: 836.6 MHz; Duty Cycle: 1:2.08

Medium: Body 850; Medium Notes: Medium Temperature: 21.6 C

Medium parameters used: $f = 837$ MHz; $\sigma = 0.983$ mho/m; $\epsilon_r = 54.3$; $\rho = 1000$ kg/m³

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)
- 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 - No Accessory - Left half of base facing phantom - Screen unit 1 / Antenna manufacturer 1/Area

Scan (121x181x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.015 mW/g

Body - Middle - No Accessory - Left half of base facing phantom - Screen unit 1 / Antenna manufacturer

1/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 1.29 V/m

Peak SAR (extrapolated) = 0.020 W/kg

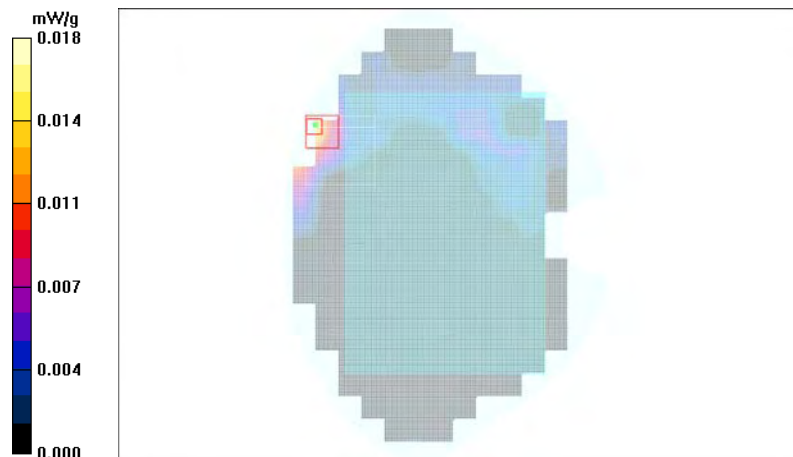
SAR(1 g) = 0.015 mW/g

SAR(10 g) = 0.011 mW/g

Power Drift = 0.053 dB

Warning: Maximum averaged SAR over 1 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 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) = 0.018 mW/g



Date/Time: 2009-08-26 19:43:23

Test Laboratory: TCC Nokia

Type: RX-75; Serial: 2190687400064

Communication System: 2-slot GPRS850

Frequency: 836.6 MHz; Duty Cycle: 1:4.2

Medium: Body 850; Medium Notes: Medium Temperature: 22.1 C

Medium parameters used: $f = 837$ MHz; $\sigma = 0.977$ mho/m; $\epsilon_r = 53.9$; $\rho = 1000$ kg/m³

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 - No Accessory - Right half of base facing phantom - Screen unit 2 / Antenna manufacturer

2/Area Scan (121x181x1): Measurement grid: dx=15mm, dy=15mm

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

Body - Middle - No Accessory - Right half of base facing phantom - Screen unit 2 / Antenna manufacturer

2/Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 5.84 V/m

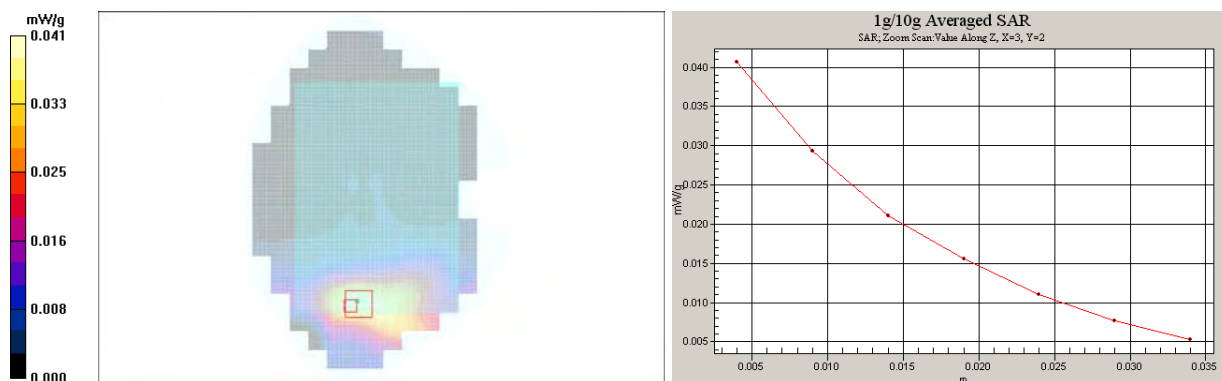
Peak SAR (extrapolated) = 0.078 W/kg

SAR(1 g) = 0.041 mW/g

SAR(10 g) = 0.027 mW/g

Power Drift = -0.046 dB

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



SAR Report

FCC_RX-75_01

Applicant: Nokia Corporation

Type: RX-75

Copyright © 2009 TCC Nokia

Date/Time: 2009-08-26 21:20:15

Test Laboratory: TCC Nokia

Type: RX-75; Serial: 2190702000020

Communication System: WCDMA850

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: Body 850; Medium Notes: Medium Temperature: 22.1 C

Medium parameters used: $f = 835$ MHz; $\sigma = 0.975$ mho/m; $\epsilon_r = 53.9$; $\rho = 1000$ kg/m³

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 - No Accessory - Right half of base facing phantom - Screen unit 1 / Antenna manufacturer

1/Area Scan (121x181x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.023 mW/g

Body - Middle - No Accessory - Right half of base facing phantom - Screen unit 1 / Antenna manufacturer

1/Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 4.68 V/m

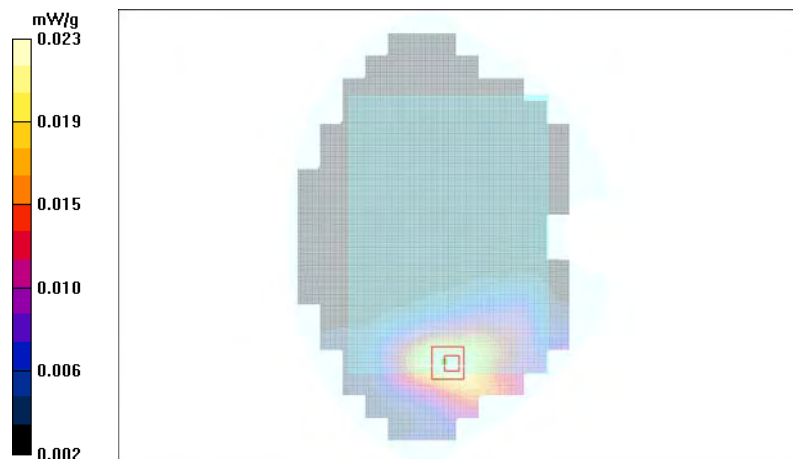
Peak SAR (extrapolated) = 0.033 W/kg

SAR(1 g) = 0.021 mW/g

SAR(10 g) = 0.015 mW/g

Power Drift = 0.001 dB

Maximum value of SAR (measured) = 0.023 mW/g



Date/Time: 2009-08-26 23:49:33

Test Laboratory: TCC Nokia

Type: RX-75; Serial: 2190687400064

Communication System: WCDMA850

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: Body 850; Medium Notes: Medium Temperature: 22.1 C

Medium parameters used: $f = 835$ MHz; $\sigma = 0.975$ mho/m; $\epsilon_r = 53.9$; $\rho = 1000$ kg/m³

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 - No Accessory - Right half of base facing phantom - Screen unit 2 / Antenna manufacturer

2/Area Scan (121x181x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.019 mW/g

Body - Middle - No Accessory - Right half of base facing phantom - Screen unit 2 / Antenna manufacturer

2/Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 3.99 V/m

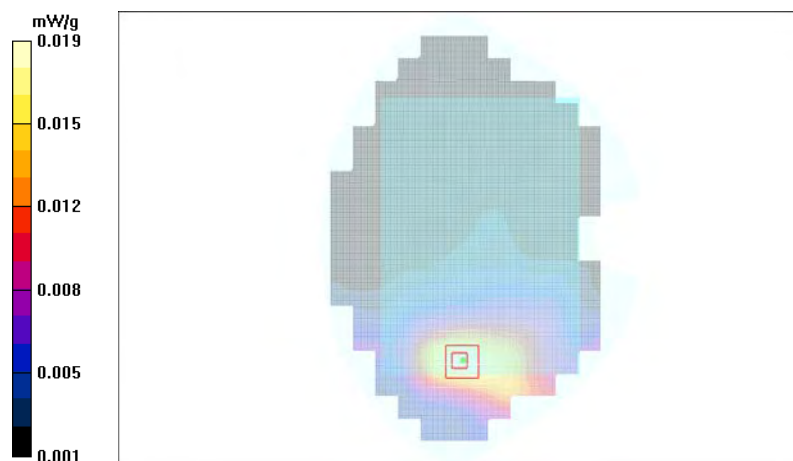
Peak SAR (extrapolated) = 0.025 W/kg

SAR(1 g) = 0.018 mW/g

SAR(10 g) = 0.012 mW/g

Power Drift = 0.190 dB

Maximum value of SAR (measured) = 0.019 mW/g



Date/Time: 2009-09-04 17:59:53

Test Laboratory: TCC Nokia

Type: RX-75; Serial: 2190702000020

Communication System: 1-slot GPRS 1900

Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium: Body 1900; Medium Notes: Medium Temperature: 21.6 C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.48$ mho/m; $\epsilon_r = 52.1$; $\rho = 1000$ kg/m³

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)
- Electronics: DAE3 Sn501; Calibrated: 2009-03-12
- Phantom: SAM 1; Type: Twin Phantom; Serial: TP-1215
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Body - Middle - No Accessory - Left half of base facing phantom - Screen unit 1 / Antenna manufacturer 1/Area Scan (121x191x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.019 mW/g

Body - Middle - No Accessory - Left half of base facing phantom - Screen unit 1 / Antenna manufacturer 1/Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 3.00 V/m

Peak SAR (extrapolated) = 0.026 W/kg

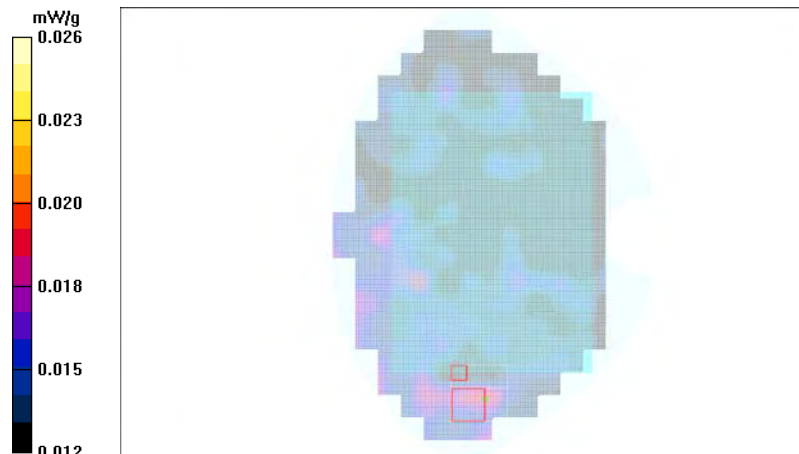
SAR(1 g) = 0.020 mW/g

SAR(10 g) = 0.018 mW/g

Power Drift = -0.098 dB

Warning: Maximum averaged SAR over 1 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) = 0.026 mW/g



Date/Time: 2009-09-04 18:52:05

Test Laboratory: TCC Nokia

Type: RX-75; Serial: 2190702000020

Communication System: 2-slot GPRS1900

Frequency: 1880 MHz; Duty Cycle: 1:4.2

Medium: Body 1900; Medium Notes: Medium Temperature: 21.6 C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.48$ mho/m; $\epsilon_r = 52.1$; $\rho = 1000$ kg/m³

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)
- Electronics: DAE3 Sn501; Calibrated: 2009-03-12
- Phantom: SAM 1; Type: Twin Phantom; Serial: TP-1215
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Body - Middle - No Accessory - Left half of base facing phantom - Screen unit 1 / Antenna manufacturer 1/Area

Scan (121x191x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.019 mW/g

Body - Middle - No Accessory - Left half of base facing phantom - Screen unit 1 / Antenna manufacturer

1/Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 2.92 V/m

Peak SAR (extrapolated) = 0.030 W/kg

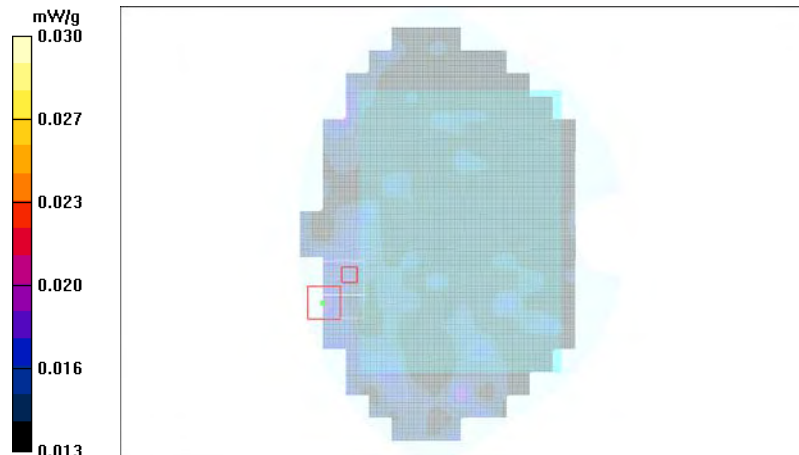
SAR(1 g) = 0.023 mW/g

SAR(10 g) = 0.020 mW/g

Power Drift = 0.080 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) = 0.030 mW/g



Date/Time: 2009-09-04 19:22:59

Test Laboratory: TCC Nokia

Type: RX-75; Serial: 2190702000020

Communication System: 3-slot GPRS1900

Frequency: 1880 MHz; Duty Cycle: 1:2.8

Medium: Body 1900; Medium Notes: Medium Temperature: 21.6 C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.48$ mho/m; $\epsilon_r = 52.1$; $\rho = 1000$ kg/m³

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)
- Electronics: DAE3 Sn501; Calibrated: 2009-03-12
- Phantom: SAM 1; Type: Twin Phantom; Serial: TP-1215
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Body - Middle - No Accessory - Left half of base facing phantom - Screen unit 1 / Antenna manufacturer 1/Area

Scan (121x191x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.020 mW/g

Body - Middle - No Accessory - Left half of base facing phantom - Screen unit 1 / Antenna manufacturer

1/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 3.08 V/m

Peak SAR (extrapolated) = 0.029 W/kg

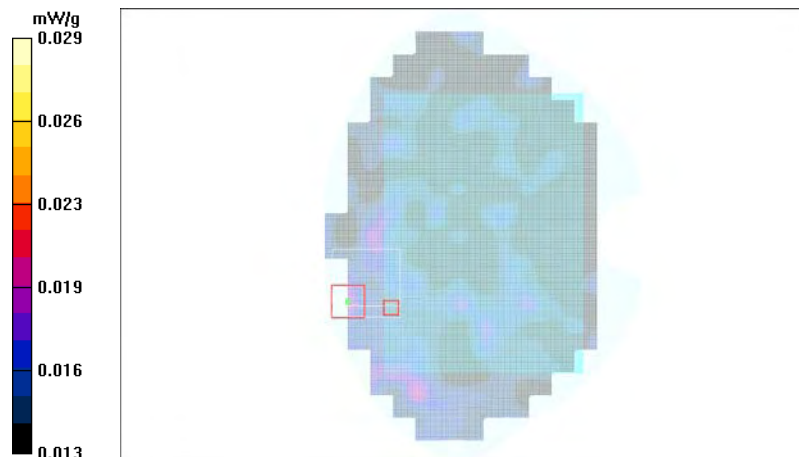
SAR(1 g) = 0.022 mW/g

SAR(10 g) = 0.020 mW/g

Power Drift = 0.165 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) = 0.029 mW/g



Date/Time: 2009-09-04 20:53:55

Test Laboratory: TCC Nokia

Type: RX-75; Serial: 2190702000020

Communication System: 4-slot GPRS1900

Frequency: 1880 MHz; Duty Cycle: 1:2.08

Medium: Body 1900; Medium Notes: Medium Temperature: 21.6 C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.48$ mho/m; $\epsilon_r = 52.1$; $\rho = 1000$ kg/m³

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 1; Type: Twin Phantom; Serial: TP-1215
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Body - Middle - No Accessory - Left half of base facing phantom - Screen unit 1 / Antenna manufacturer 1/Area Scan (121x191x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.024 mW/g

Body - Middle - No Accessory - Left half of base facing phantom - Screen unit 1 / Antenna manufacturer 1/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 2.96 V/m

Peak SAR (extrapolated) = 0.029 W/kg

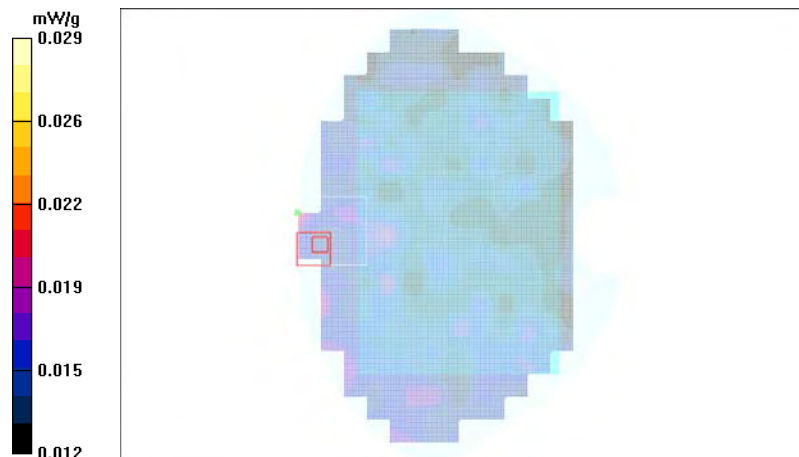
SAR(1 g) = 0.024 mW/g

SAR(10 g) = 0.021 mW/g

Power Drift = 0.450 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) = 0.029 mW/g



Date/Time: 2009-09-04 23:10:25

Test Laboratory: TCC Nokia

Type: RX-75; Serial: 2190702000020

Communication System: 4-slot GPRS1900

Frequency: 1850.2 MHz; Duty Cycle: 1:2.08

Medium: Body 1900; Medium Notes: Medium Temperature: 21.6 C

Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.45$ mho/m; $\epsilon_r = 52.2$; $\rho = 1000$ kg/m³

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 1; Type: Twin Phantom; Serial: TP-1215
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Body - Low - No Accessory - Right half of base facing phantom - Screen unit 1 / Antenna manufacturer 1/Area Scan (121x191x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.033 mW/g

Body - Low - No Accessory - Right half of base facing phantom - Screen unit 1 / Antenna manufacturer 1/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 4.17 V/m

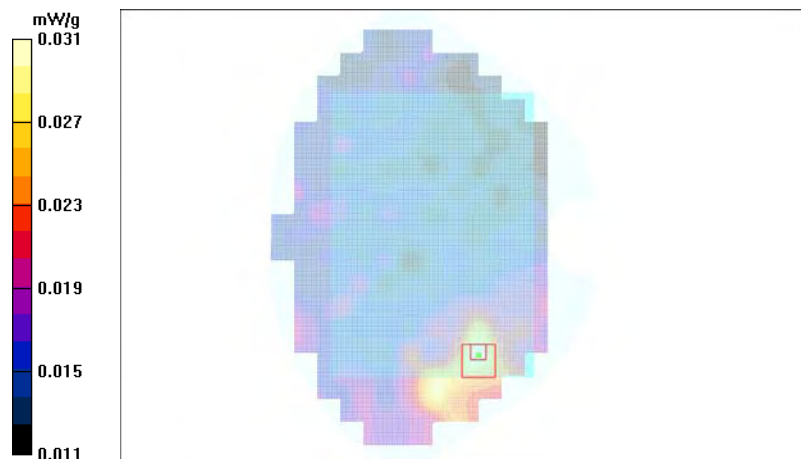
Peak SAR (extrapolated) = 0.046 W/kg

SAR(1 g) = 0.028 mW/g

SAR(10 g) = 0.023 mW/g

Power Drift = 0.377 dB

Maximum value of SAR (measured) = 0.031 mW/g



Date/Time: 2009-08-05 19:11:03

Test Laboratory: TCC Nokia

Type: RX-75; Serial: 2190702000020

Communication System: 4-slot GPRS1900

Frequency: 1880 MHz; Duty Cycle: 1:2.08

Medium: Head 1900; Medium Notes: Medium Temperature: 21.0 C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.48$ mho/m; $\epsilon_r = 52.7$; $\rho = 1000$ kg/m³

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)
- 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

Body - Middle - No Accessory – Front edge facing phantom - Screen unit 1 / Antenna manufacturer 1/Area Scan (41x191x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.006 mW/g

Body - Middle - No Accessory – Front edge facing phantom - Screen unit 1 / Antenna manufacturer 1/Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 1.53 V/m

Peak SAR (extrapolated) = 0.010 W/kg

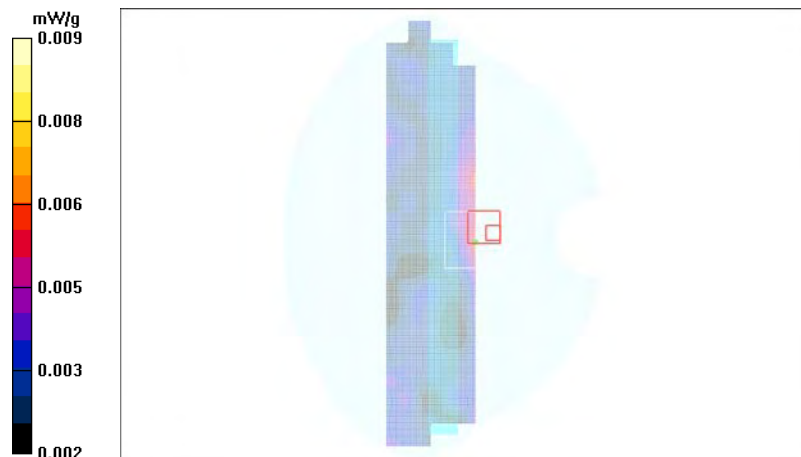
SAR(1 g) = 0.00723 mW/g

SAR(10 g) = 0.00533 mW/g

Power Drift = 0.293 dB

Warning: Maximum averaged SAR over 1 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 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) = 0.009 mW/g



Date/Time: 2009-08-22 20:27:13

Test Laboratory: TCC Nokia
Type: RX-75; Serial: 2190687400064

Communication System: 4-slot GPRS1900

Frequency: 1909.8 MHz; Duty Cycle: 1:2.08

Medium: Body 1900; Medium Notes: Medium Temperature: 21.2 C

Medium parameters used: $f = 1910$ MHz; $\sigma = 1.63$ mho/m; $\epsilon_r = 52.7$; $\rho = 1000$ kg/m³

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 2; Type: Twin Phantom; Serial: TP-1037
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Body - High - No Accessory - Right half of base facing phantom - Screen unit 2 / Antenna manufacturer 2/Area Scan (121x181x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.047 mW/g

Body - High - No Accessory - Right half of base facing phantom - Screen unit 2 / Antenna manufacturer 2/Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 5.24 V/m

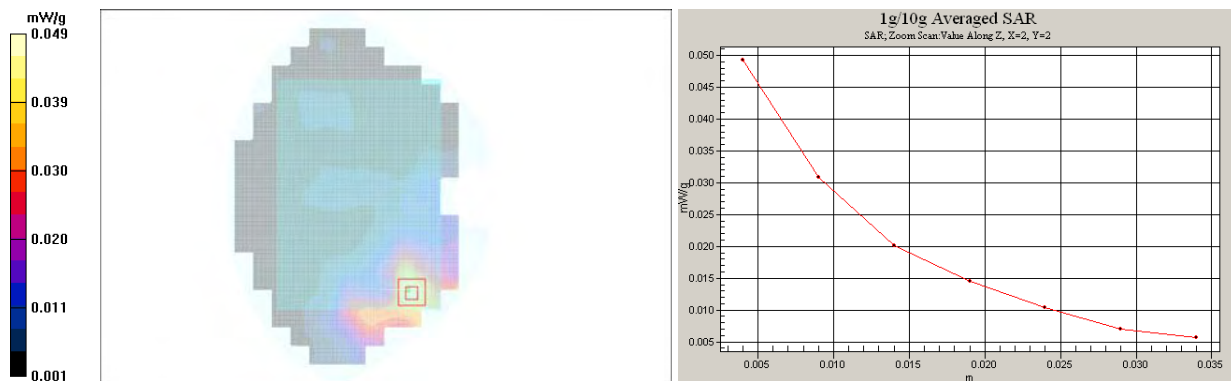
Peak SAR (extrapolated) = 0.071 W/kg

SAR(1 g) = 0.045 mW/g

SAR(10 g) = 0.028 mW/g

Power Drift = -0.015 dB

Maximum value of SAR (measured) = 0.049 mW/g



Date/Time: 2009-09-05 02:32:34

Test Laboratory: TCC Nokia

Type: RX-75; Serial: 2190702000020

Communication System: WCDMA1900

Frequency: 1852.4 MHz; Duty Cycle: 1:1

Medium: Body 1900; Medium Notes: Medium Temperature: 21.6 C

Medium parameters used (interpolated): $f = 1852.4$ MHz; $\sigma = 1.45$ mho/m; $\epsilon_r = 52.2$; $\rho = 1000$ kg/m³

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)
- Electronics: DAE3 Sn501; Calibrated: 2009-03-12
- Phantom: SAM 1; Type: Twin Phantom; Serial: TP-1215
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Body - low - No Accessory - Right half of base facing phantom - Screen unit 1 / Antenna manufacturer 1/Area

Scan (121x181x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.021 mW/g

Body - low - No Accessory - Right half of base facing phantom - Screen unit 1 / Antenna manufacturer 1/Zoom

Scan (7x7x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 2.92 V/m

Peak SAR (extrapolated) = 0.030 W/kg

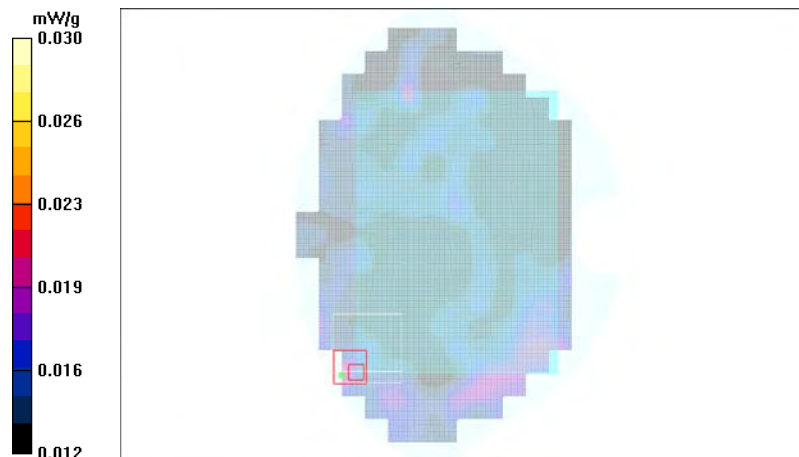
SAR(1 g) = 0.023 mW/g

SAR(10 g) = 0.020 mW/g

Power Drift = 0.434 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) = 0.030 mW/g



Date/Time: 2009-08-22 19:11:14

Test Laboratory: TCC Nokia

Type: RX-75; Serial: 2190687400064

Communication System: WCDMA1900

Frequency: 1907.6 MHz; Duty Cycle: 1:1

Medium: Body 1900; Medium Notes: Medium Temperature: 21.2 C

Medium parameters used: $f = 1908$ MHz; $\sigma = 1.62$ mho/m; $\epsilon_r = 52.8$; $\rho = 1000$ kg/m³

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 2; Type: Twin Phantom; Serial: TP-1037
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Body - High - No Accessory - Right half of base facing phantom - Screen unit 2 / Antenna manufacturer 2/Area Scan (121x181x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.020 mW/g

Body - High - No Accessory - Right half of base facing phantom - Screen unit 2 / Antenna manufacturer 2/Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 3.25 V/m

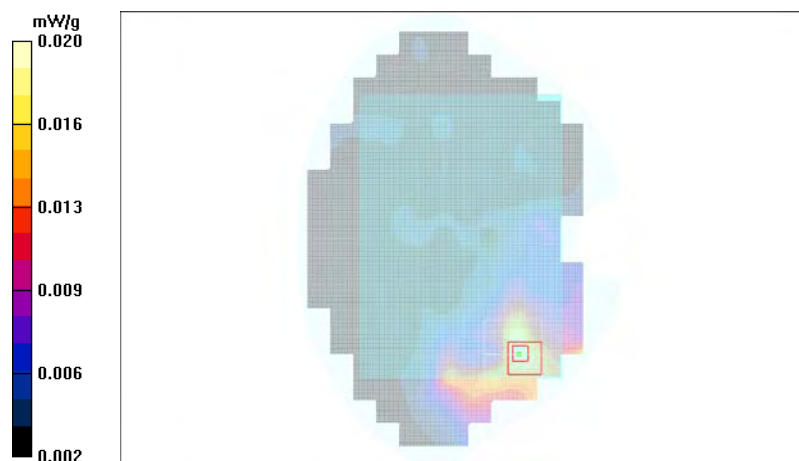
Peak SAR (extrapolated) = 0.032 W/kg

SAR(1 g) = 0.018 mW/g

SAR(10 g) = 0.012 mW/g

Power Drift = 0.008 dB

Maximum value of SAR (measured) = 0.020 mW/g



APPENDIX C: CONDUCTED AVERAGE POWER MEASUREMENTS FOR WCDMA AND HSUPA

Test Laboratory : TCC Nokia
Tested device : Compal: FCC ID PDNOM00402-2

C.1. WCDMA850 Test results

Average power

Ch/ f [MHz]	P [dBm]
4132 / 826.4	21.86
4182 / 836.4	21.58
4233 / 846.6	22.09

C.2. HSUPA850 Test results

Average power

Ch / f [MHz]	P [dBm]				
	Subtest mode 1	Subtest mode 2	Subtest mode 3	Subtest mode 4	Subtest mode 5
4132 / 826.4	21.87	20.23	21.02	20.50	21.74
4182 / 836.4	21.15	19.81	20.48	20.27	21.05
4233 / 846.6	21.77	20.39	21.11	20.77	21.44

Note: In HSUPA operation, the output power is reduced relative to the tuning target power for WCDMA. This device runs a single HSUPA power control routine: MPR. As a result, the overall MPR for each of the Subtest modes is as follows:

Maximum Power Reduction (MPR)				
Subtest mode 1	Subtest mode 2	Subtest mode 3	Subtest mode 4	Subtest mode 5
0.0dB	2.0dB	1.0dB	1.0dB	0.0dB

C.3. WCDMA1900 Test results

Average power

Ch/ f [MHz]	P [dBm]
9262 / 1852.4	22.30
9400 / 1880.0	22.16
9538 / 1907.6	22.04

C.4. HSUPA1900 Test results

Average power

Ch / f [MHz]	P [dBm]				
	Subtest mode 1	Subtest mode 2	Subtest mode 3	Subtest mode 4	Subtest mode 5
9262 / 1852.4	22.29	20.57	21.28	21.09	22.33
9400 / 1880.0	22.04	20.48	21.26	20.93	22.15
9538 / 1907.6	21.94	20.44	21.25	20.92	22.02

Note: In HSUPA operation, the output power is reduced relative to the tuning target power for WCDMA. This device runs a single HSUPA power control routine: MPR. As a result, the overall MPR for each of the Subtest modes is as follows:

Maximum Power Reduction (MPR)				
Subtest mode 1	Subtest mode 2	Subtest mode 3	Subtest mode 4	Subtest mode 5
0.0dB	2.0dB	1.0dB	1.0dB	0.0dB

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

See the following pages



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. 217-00786)	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

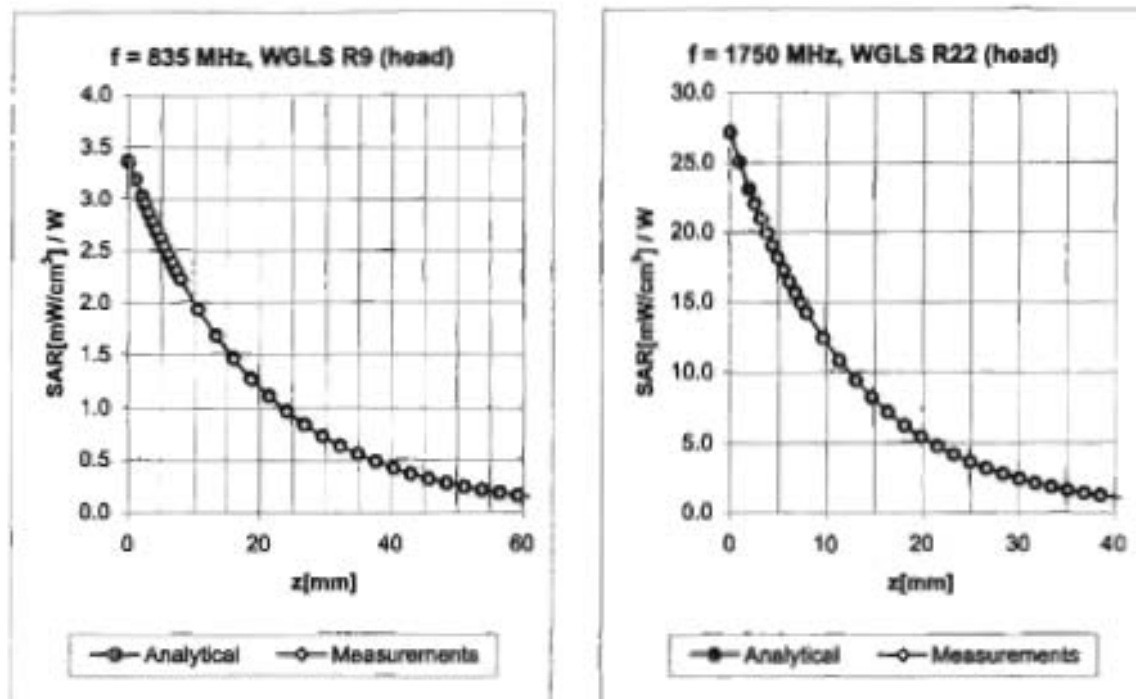
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator HP 8548C	US3642U01700	4-Aug-09 (in house check Oct-07)	In house check: Oct-09
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-08)	In house check: Oct-09

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

Issued: March 16, 2009

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

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.

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

See the following pages



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 $(22 \pm 3)^{\circ}\text{C}$ and humidity $< 70\%$.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	Q837480704	04-Oct-07 (No. 217-00736)	Oct-08
Power sensor HP 8481A	US37282783	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 ES30V2	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-08
RF generator R&S SMT-05	100005	4-Aug-99 (in house check Oct-07)	In house check: Oct-08
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 Keistrit	Laboratory Technician	
Approved by:	Katja Polovic	Technical Manager	

Issued: September 22, 2008

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

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; $\sigma = 0.901$ mho/m; $\epsilon_r = 41.4$; $\rho = 1000$ kg/m³

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

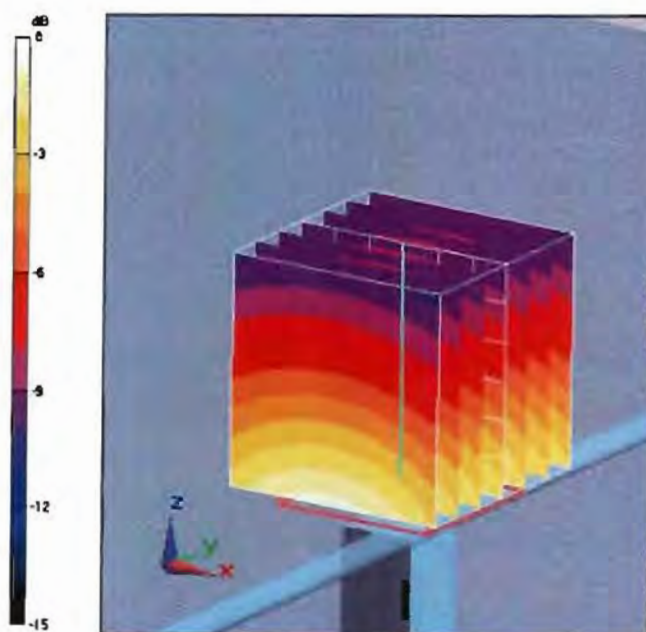
Pin=250mW; dip=15mm; dist=3.4mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

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: $f = 835 \text{ MHz}$; $\sigma = 1.01 \text{ mho/m}$; $\epsilon_r = 53.3$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEBE/TEC)

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

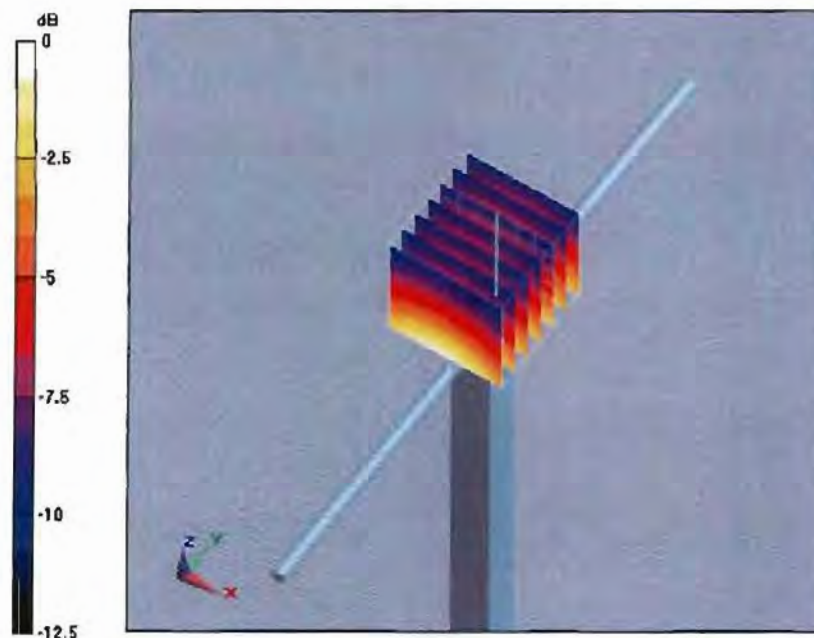
Pin = 250mW, d = 15mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

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 = 2.81 mW/g

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**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 Federal Office of Metrology and Accreditation
The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Client **Nokia Denmark A/S**

Certificate No: **D1900V2-5d026_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 $(22 \pm 3)^{\circ}\text{C}$ 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 ES30V2	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

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

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; $\sigma = 1.47$ mho/m; $\epsilon_r = 40.2$; $\rho = 1000$ kg/m³

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:

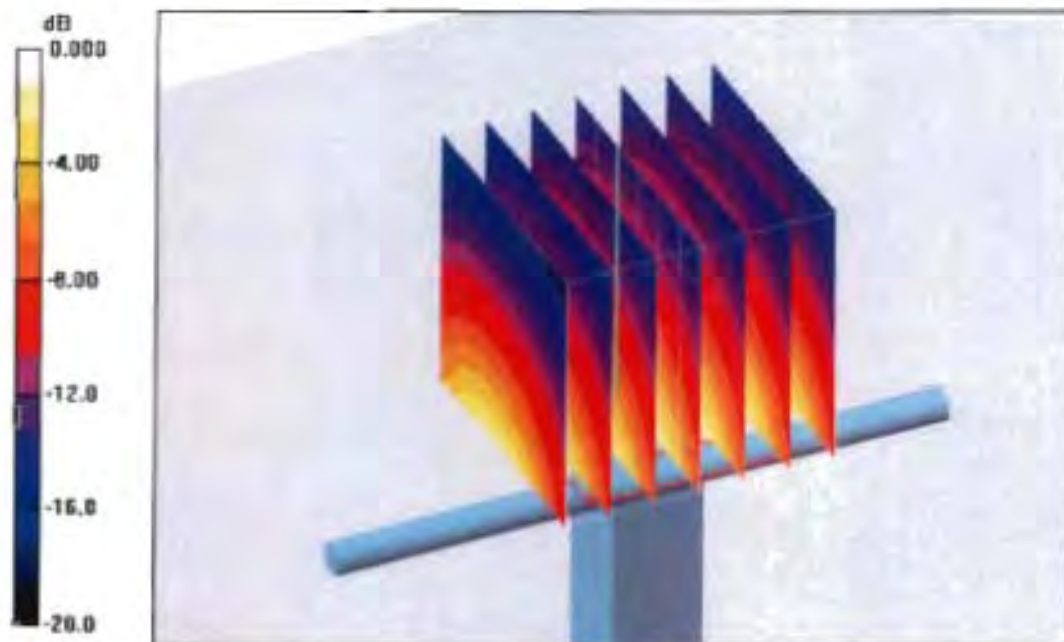
Measurement grid: dx=5mm, dy=5mm, dz=5mm

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; $\sigma = 1.57$ mho/m; $\epsilon_r = 51.7$; $\rho = 1000$ kg/m³

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:

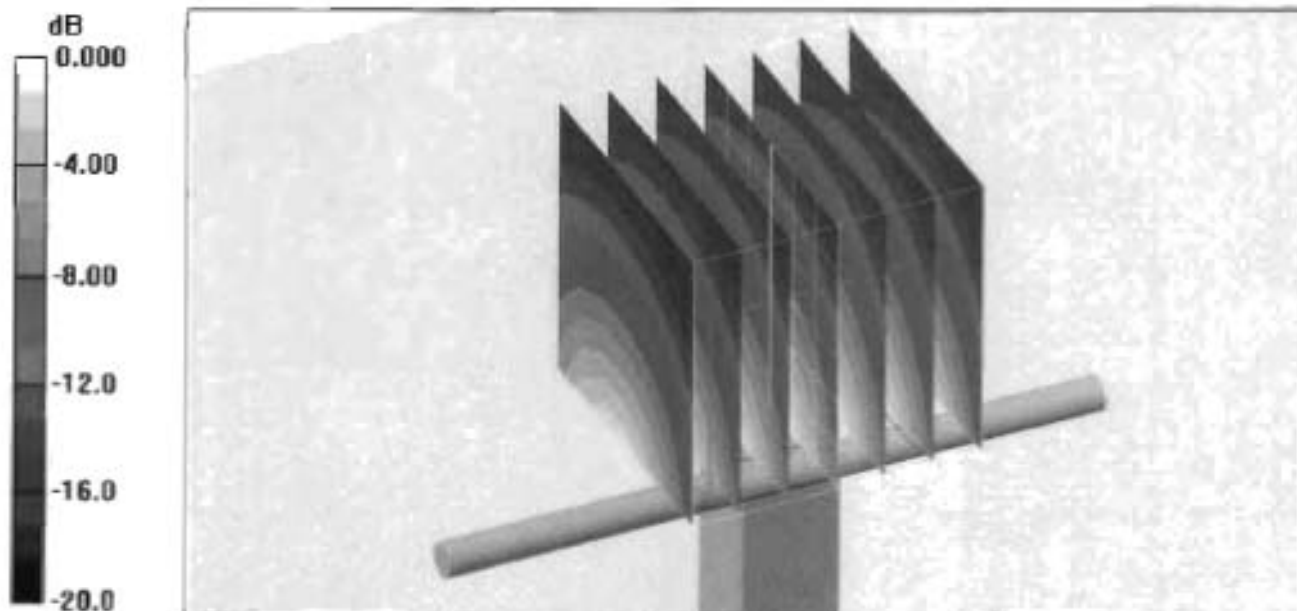
Measurement grid: dx=5mm, dy=5mm, dz=5mm

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 = 12.1 mW/g