

SAR Compliance Test Report

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Tested device:	RM-821		
FCC ID:	PYARM-821	IC:	-
Supplement reports:	FCC_RM-820_05 for RM-820 / FCC ID: PYAA IC:661V-A, SAR_Photo_RM-821_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:

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1. SUMMARY OF SAR TEST REPORT

1.1 Test Details

Period of test	2012-08-07 to 2012-09-07
SN, HW and SW numbers of tested device	SN: 004402/13/979590/4, HW: 3600, SW: 1230.0015.8441.9735.255, DUT: 16593 SN: 004402/13/979595/3, HW: 3600, SW: 1230.0015.8441.9735.255, DUT: 16594 SN: 004402/13/979581/3, HW: 3600, SW: 1230.0015.8441.9735.255, DUT: 16595 SN: 004402/13/979510/2, HW: 3600, SW: 1230.0015.8441.9735.255, DUT: 16596
Batteries used in testing	The device possesses a non-user-changeable integral battery, type BP-4GW.
Headsets used in testing	WH-208, DUT:16353, 16354, 16355
Other accessories used in testing	-
State of sample	Prototype unit
Notes	-

1.1.1 Supplement reports referenced on the front cover of this report

FCC_RM-820_05 for RM-820 / FCC ID: PYAA / IC: 661V-A:

Head, Body-worn and Wireless Router SAR data for WLAN2450 and Head and Body-worn SAR data for 5GHz WLAN have been taken from this report; 1 sample was used in the RM-820 SAR testing to test each WLAN band. Application for the FCC Grant for RM-820 / FCC ID: PYAA / IC: 661V-A is in process.

1.2 Maximum Results

The maximum measured SAR values for Head configuration and Body Worn configuration and Wireless Router ("Hotspot") configuration are given in section 1.2.1, 1.2.2 and 1.2.3 respectively. The device conforms to the requirements of the standards 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
2-slot GPRS850	190 / 836.6	31.70 dBm	Left, Cheek	0.571 W/kg	0.64 W/kg	1.6 W/kg	PASSED
WCDMA850	4132 / 826.4	24.26 dBm	Right, Cheek	0.510 W/kg	0.57 W/kg	1.6 W/kg	PASSED
2-slot GPRS1900	810 / 1909.8	28.09 dBm	Left, Cheek	0.780 W/kg	0.87 W/kg	1.6 W/kg	PASSED
WCDMA1900	9400 / 1880.0	22.32 dBm	Left, Cheek	0.923 W/kg	1.03 W/kg	1.6 W/kg	PASSED
WLAN2450**	6 / 2437.0	16.55 dBm	Right, Cheek	0.134 W/kg	0.15 W/kg	1.6 W/kg	PASSED
WLAN5000**	36 / 5180.0	15.22 dBm	Right, Cheek	0.332 W/kg	0.37 W/kg	1.6 W/kg	PASSED

(Table continues)

(Table continues)

2-slot GPRS850 + WLAN2450	-	-	Left, Cheek	0.571 W/kg	0.64 W/kg	1.6 W/kg	PASSED
WCDMA850 + WLAN2450	-	-	Right, Cheek	0.510 W/kg	0.57 W/kg	1.6 W/kg	PASSED
2-slot GPRS1900 + WLAN2450	-	-	Left, Cheek	0.829 W/kg	0.93 W/kg	1.6 W/kg	PASSED
WCDMA1900 + WLAN2450	-	-	Left, Cheek	0.996 W/kg	1.12 W/kg	1.6 W/kg	PASSED
2-slot GPRS850 + WLAN5000	-	-	Left, Cheek	0.571 W/kg	0.64 W/kg	1.6 W/kg	PASSED
WCDMA850 + WLAN5000	-	-	Right, Cheek	0.510 W/kg	0.57 W/kg	1.6 W/kg	PASSED
2-slot GPRS1900 + WLAN5000	-	-	Left, Cheek	0.848 W/kg	0.95 W/kg	1.6 W/kg	PASSED
WCDMA1900 + WLAN5000	-	-	Left, Cheek	0.923 W/kg	1.03 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
2-slot GPRS850	251 / 848.8	31.67 dBm	15mm	0.538 W/kg	0.60 W/kg	1.6 W/kg	PASSED
WCDMA850	4233 / 846.6	21.89 dBm	15mm	0.392 W/kg	0.44 W/kg	1.6 W/kg	PASSED
2-slot GPRS1900	810 / 1909.8	28.09 dBm	15mm	0.606 W/kg	0.68 W/kg	1.6 W/kg	PASSED
WCDMA1900	9400 / 1880.0	22.32 dBm	15mm	0.602 W/kg	0.67 W/kg	1.6 W/kg	PASSED
WLAN2450**	6 / 2437.0	16.55 dBm	15mm	0.019 W/kg	0.02 W/kg	1.6 W/kg	PASSED
WLAN5000**	132 / 5660.0	14.32 dBm	15mm	0.048 W/kg	0.05 W/kg	1.6 W/kg	PASSED
2-slot GPRS850 + WLAN2450	-	-	15mm	0.538 W/kg	0.60 W/kg	1.6 W/kg	PASSED
WCDMA850 + WLAN2450	-	-	15mm	0.398 W/kg	0.45 W/kg	1.6 W/kg	PASSED
2-slot GPRS1900 + WLAN2450	-	-	15mm	0.606 W/kg	0.68 W/kg	1.6 W/kg	PASSED
WCDMA1900 + WLAN2450	-	-	15mm	0.604 W/kg	0.68 W/kg	1.6 W/kg	PASSED
2-slot GPRS850 + WLAN5000	-	-	15mm	0.544 W/kg	0.61 W/kg	1.6 W/kg	PASSED
WCDMA850 + WLAN5000	-	-	15mm	0.410 W/kg	0.46 W/kg	1.6 W/kg	PASSED
2-slot GPRS1900 + WLAN5000	-	-	15mm	0.606 W/kg	0.68 W/kg	1.6 W/kg	PASSED
WCDMA1900 + WLAN5000	-	-	15mm	0.602 W/kg	0.67 W/kg	1.6 W/kg	PASSED

1.2.3 Wireless Router Configuration

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	31.70 dBm	10.0 mm	0.677 W/kg	0.76 W/kg	1.6 W/kg	PASSED
WCDMA850	4132 / 826.4	24.26 dBm	10.0 mm	0.530 W/kg	0.59 W/kg	1.6 W/kg	PASSED
2-slot GPRS1900	661 / 1880.0	28.84 dBm	10.0 mm	0.941 W/kg	1.05 W/kg	1.6 W/kg	PASSED
WCDMA1900	9262 / 1852.4	23.89 dBm	10.0 mm	1.17 W/kg	1.31 W/kg	1.6 W/kg	PASSED
WLAN2450**	6 / 2437.0	16.55 dBm	10.0 mm	0.080 W/kg	0.09 W/kg	1.6 W/kg	PASSED
2-slot GPRS850 + WLAN2450	-	-	10.0 mm	0.690 W/kg	0.77 W/kg	1.6 W/kg	PASSED
WCDMA850 + WLAN2450	-	-	10.0 mm	0.530 W/kg	0.59 W/kg	1.6 W/kg	PASSED
2-slot GPRS1900 + WLAN2450	-	-	10.0 mm	0.948 W/kg	1.06 W/kg	1.6 W/kg	PASSED
WCDMA1900 + WLAN2450	-	-	10.0 mm	1.21 W/kg	1.36 W/kg	1.6 W/kg	PASSED

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

**SAR data taken from FCC_RM-820_05 for RM-820 / FCC ID: PYAA / IC: 661V-A.

1.2.4 Summary SAR data

		FCC-defined SAR values for the Grants of Equipment Authorization
Maximum Cellular/PCS Head SAR value		1.03W/kg
Maximum WLAN Head SAR value		0.37W/kg
{Max + Max} Simultaneous Head SAR value	1.15W/kg	
Maximum Cellular/PCS Body SAR value		0.68W/kg
Maximum WLAN Body SAR value		0.05W/kg
{Max + Max} Simultaneous Body SAR value	0.73W/kg	
Maximum Product Specific (Wireless Router) SAR value		1.31W/kg
Maximum Simultaneous SAR value		1.36W/kg †

† From Section 7:

The highest {Max + Max} Simultaneous Head SAR value is 1.027W/kg for WCDMA1900+WLAN5000, which, when scaled up by 12%, becomes 1.15W/kg.

The highest {Max + Max} Simultaneous Body-worn SAR value is 0.654W/kg for 2-slot GPRS1900+WLAN5000, which, when scaled up by 12%, becomes 0.73W/kg.

The highest {Max + Max} Simultaneous Wireless Router SAR value is 1.210/kg for WCDMA1900+WLAN2450 which, when scaled up by 12%, becomes 1.36W/kg.

Consequently, the value quoted here is 1.36W/kg.

1.2.5 Maximum Drift

Maximum drift covered by 12% scaling up of the SAR values	Maximum drift during measurements
0.5dB	0.39dB

1.2.6 Measurement Uncertainty

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

Device category	Portable
Exposure environment	General population / uncontrolled

Modes of Operation	Bands	Modulation Mode	Duty Cycle	Transmitter Frequency Range (MHz)
GSM	850 1900	GMSK	1/8	824 – 849 1850 – 1910
GPRS	850 1900	GMSK	1/8 to 4/8	824 – 849 1850 – 1910
EGPRS	850 1900	GMSK / 8PSK	1/8 to 4/8	824 – 849 1850 – 1910
WCDMA	850 (Band V) 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 b-mode	2450	Up to 11Mbps QPSK	1	2412 – 2462
WLAN g-mode	2450	Up to 54Mbps 64QAM	1	2412 – 2462
WLAN n-mode 20MHz	2450	Up to 72.2Mbps 64QAM	1	2412 – 2462
WLAN n-mode 40MHz	2450	Up to 150Mbps 64QAM	1	2412 – 2462
WLAN a-mode 20MHz	5000	Up to 54Mbps 64QAM	1	5150 – 5825
WLAN n-mode 20MHz	5000	Up to 72.2Mbps 64QAM	1	5150 – 5825
WLAN n-mode 40MHz	5000	Up to 150Mbps 64QAM	1	5150 – 5825

Outside of USA and Canada, the transmitter of the device is capable of operating also in GSM/GPRS/EGPRS900, GSM/GPRS/EGPRS1800, WCDMA900, WCDMA2100, LTE845 (Band 20), LTE900 (Band 8), LTE1800 (Band 3), LTE2100 (Band 1) and LTE2500 (Band 7) bands which are not part of this filing.

This device has Voice-over-IP/Dual Transfer Mode capability for use at the ear. Therefore, SAR for multi slot GPRS mode was evaluated against the head profile of the phantom. Dual Transfer Mode is a feature that utilises the multi-slot GPRS capability in this device; it allows

simultaneous transmission of voice and data during the same call, using the same transmitter and antenna.

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

This is a BT Class 1 device; as its power tuning target is 7dBm (5.0mW), SAR testing was deemed unnecessary.

This device uses a single antenna for transmission of all the cellular and PCS bands; a separate single antenna is used for transmission of WLAN and BT. Simultaneous transmission of any singular cellular and PCS band is possible with either WLAN or BT in Head and Body-worn use.

Simultaneous transmission capabilities in Head and Body-worn use		
	WLAN2450	WLAN5000
GSM/GPRS/EGPRS850	✓	✓
WCDMA850	✓	✓
GSM/GPRS/EGPRS1900	✓	✓
WCDMA1900	✓	✓

This device has Wireless Router “Hotspot” mode capability. Simultaneous transmission of any singular cellular and PCS band is possible with WLAN2450 or BT in Wireless Router mode. Wireless Router mode capability is not available with WLAN5000.

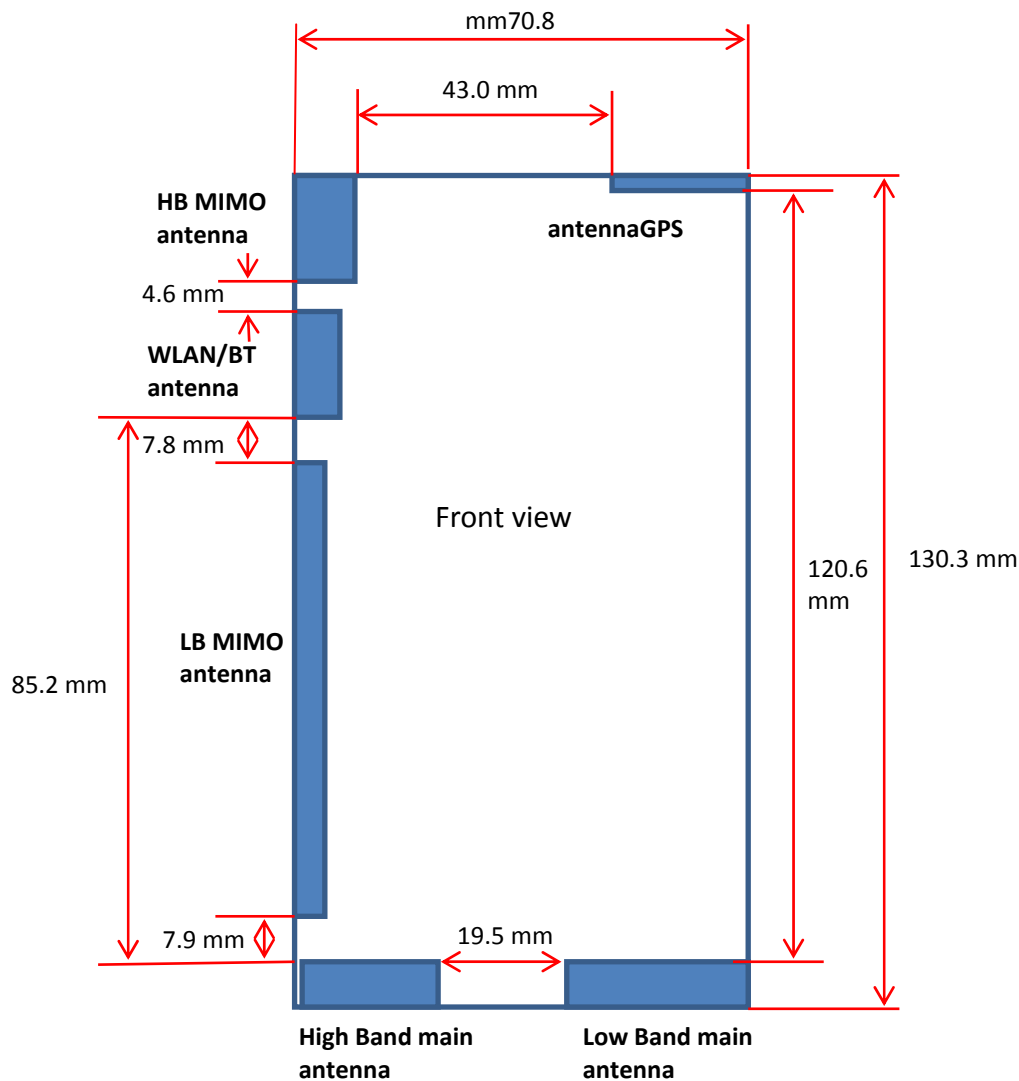
Simultaneous transmission capabilities in Wireless Router use		
	WLAN2450	WLAN5000
GSM/GPRS/EGPRS850	✓	x
WCDMA850	✓	x
GSM/GPRS/EGPRS1900	✓	x
WCDMA1900	✓	x

This device has no power reductions in any of the usage modes and does not feature any diversity antenna functionality when transmitting.

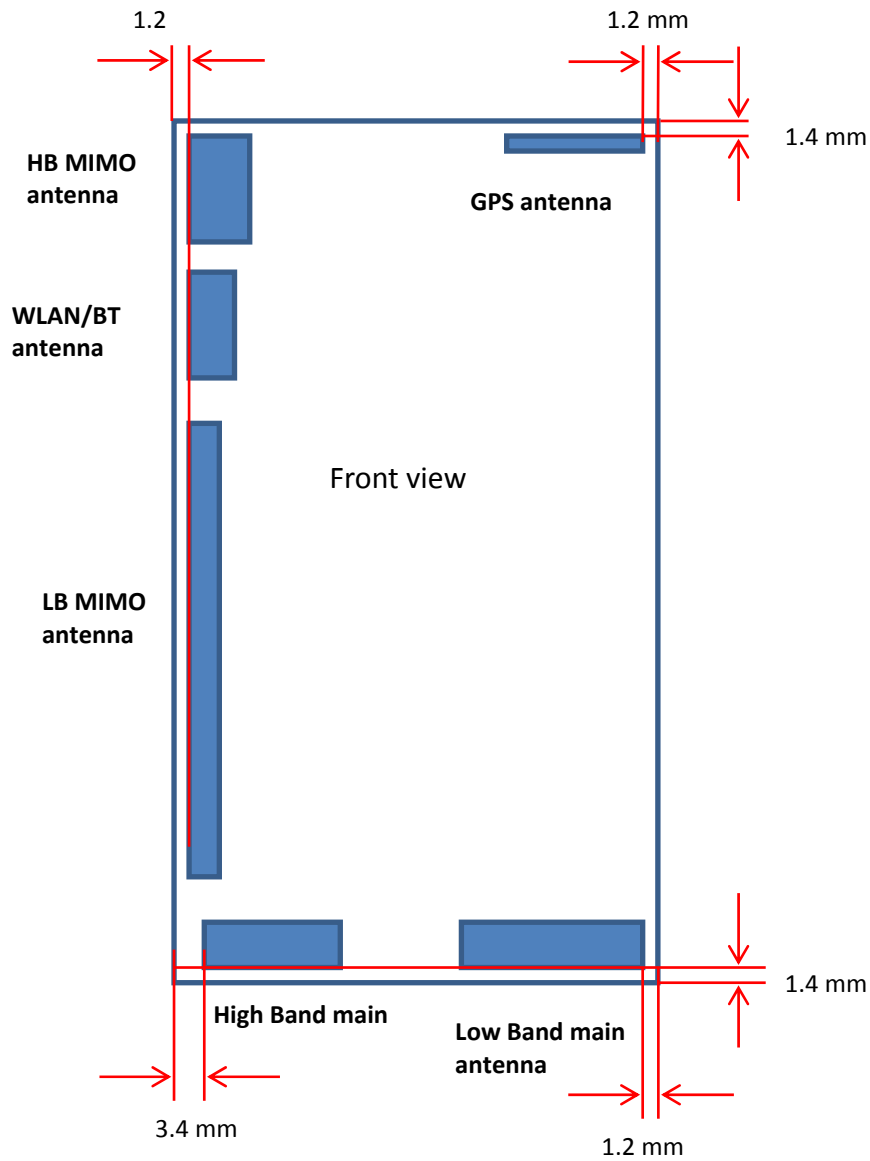
2.1 Description of the Antenna

The device has internal antennas for both cellular/PCS and WLAN/BT use. The cellular/PCS antenna is located at the bottom underneath the back cover. The WLAN/BT antenna is located at the top underneath the back cover. The device dimensions, antenna locations and antenna interdistances are illustrated below.

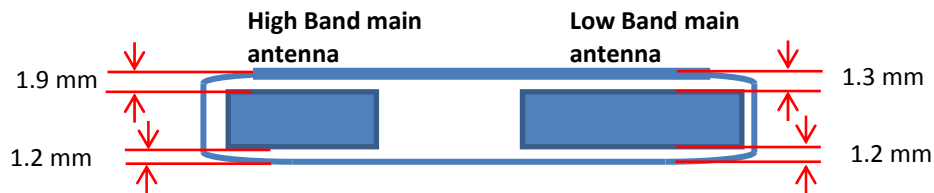
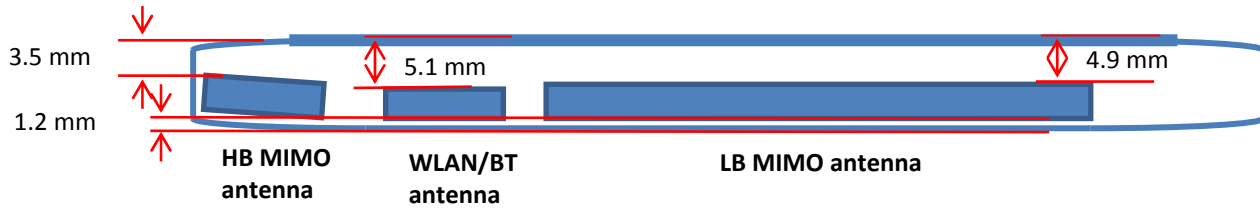
Phone Outside Dimension and Distance Between Main Antenna, BT/WLAN, High Band & LOW Band MIMO and GPS Antenna



Distance between Device Edges; Main antenna, BT/WLAN, LB & HB MIMO and GPS



Distance between Device Faces; Main Antenna, BT/WLAN, LB & HB MIMO and GPS



3. TEST CONDITIONS

3.1 Temperature and Humidity

Ambient temperature (°C):	20.5 – 22.5
Ambient humidity (RH %):	35 - 55

3.2 Test Signal, Frequencies and Output Power

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

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

This device was tested in all the available multi-slot GMSK GPRS modes; Dual Transfer Mode was not specifically tested as the average power in multi-slot GMSK GPRS mode is always greater than, or equal to, the average power in Dual Transfer Mode in Nokia devices.

The transmission mode of the device in all WCDMA tests was configured to 12.2kbps RMC with all TPC bits set as “1”. All WCDMA testing has been carried out in accordance with FCC KDB 941225: SAR Measurement Procedures for 3G Devices.

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 units as used for SAR testing. The results are given in the EMC report supporting this application.

All the WLAN SAR results given in this report are taken from the test report FCC_RM-820_05 for RM-820 / FCC ID: PYAA / IC: 661V-A. Whilst RM-820 possesses different cellular bands to RM-821, the 2.4GHz and 5GHz WLAN engines, power amplifiers, feed networks, antennas and radiated performances are identical in the two products.

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 DASY near-field scanning system 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 date	Calibration expiry
DAE4	793	2011-09	2012-09
DAE4	538	2012-08	2013-08
DAE4	1316	2012-02	2013-02
E-field Probe ES3DV3	3131	2011-09	2012-09
E-field Probe EX3DV4	3790	2012-04	2013-04
E-field Probe EX3DV4	3573	2012-02	2013-02
Dipole Validation Kit, D835V2	462	2011-09	2013-09
Dipole Validation Kit, D1900V2	5d030	2012-02	2014-02
DASY4 software	Version 4.7	-	-
DASY5 software	Version 52.6	-	-

Additional test equipment used in testing:

Test Equipment	Model	Serial Number	Calibration date	Calibration expiry
Signal Generator	E4438C	MY42080610	2011-11	2013-11
Signal Generator	E4438C	MY42080610	2012-08	2013-08
Signal Generator	SML03	101264	2011-08	2012-08
Signal Generator	SML03	101264	2012-08	2013-08
Amplifier	5S1G4M3	302338	-	-
Amplifier	ZHL-42-SMA	N072095-5	-	-

(Table continues)

(Table continues)

Power Meter	NRVS	838624/032	2011-08	2012-08
Power Meter	NRVS	838624/032	2012-08	2013-08
Power Meter	NRVD	840023/028	2011-08	2012-08
Power Meter	NRVD	840023/028	2012-08	2013-08
Power Sensor	NRV-Z32	100067	2011-08	2012-08
Power Sensor	NRV-Z32	100067	2012-08	2013-08
Power Sensor	NRV-Z32	849745/018	2010-08	2012-08
Power Sensor	NRV-Z32	849745/018	2012-08	2013-08
Call Tester	CMU 200	103293	-	-
Call Tester	CMU 200	101111	-	-
Dielectric Probe Kit	DAK-3.5	1042	-	-

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 E
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

4.1.2 Isotropic E-field Probe Type EX3DV4

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

4.2 Phantoms

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

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

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

4.3 Tissue Simulants

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

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

4.3.1 Tissue Simulant Recipes

The following recipes were used for Head and Body tissue simulants:

800MHz band

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

1900MHz band

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

4.3.2 System Checking

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

System checking, head tissue simulant

f [MHz]	Description	SAR [W/kg], 1g	Dielectric Parameters		Temp [°C]
			ϵ_r	σ [S/m]	
835	Reference result	2.33	41.1	0.89	
	± 10% window	2.10 – 2.56			
	IEEE1528 / IEC62209 Standard targets		41.5	0.90	
	2012-08-07	2.31	40.2	0.91	21.0
	2012-08-12	2.32	41.1	0.92	21.0
	2012-08-13	2.31	41.0	0.91	21.0

(Table continues)

(Table continues)

1900	Reference result	9.79	40.4	1.40	
	± 10% window	8.81 - 10.77			
	IEEE1528 / IEC62209 Standard targets		40.0	1.40	
	2012-08-08	10.0	38.9	1.42	21.0
	2012-08-11	9.96	39.6	1.42	21.0
	2012-08-12	9.91	39.5	1.42	21.0

System checking, body tissue simulant

f [MHz]	Description	SAR [W/kg], 1g	Dielectric Parameters		Temp [°C]
			ϵ_r	σ [S/m]	
835	Reference result	2.45	53.5	1.00	
	± 10% window	2.20 - 2.70			
	IEEE1528 / IEC62209 Standard targets		55.2	0.97	
	2012-08-27	2.39	53.5	1.00	21.0
	2012-08-28	2.37	53.3	0.99	21.0
	2012-08-29	2.37	53.2	0.99	21.0
1900	Reference result	9.87	53.0	1.56	
	± 10% window	8.88 - 10.86			
	IEEE1528 / IEC62209 Standard targets		53.3	1.52	
	2012-08-22	10.5	51.7	1.52	21.0
	2012-08-30	10.8	51.7	1.53	21.0
	2012-08-31	10.4	52.2	1.50	21.0
	2012-09-03	10.8	52.5	1.54	21.0
	2012-09-06	10.4	52.3	1.53	21.0

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

4.3.3 Tissue Simulants used in the Measurements

Head tissue simulant measurements

f [MHz]	Description	Dielectric Parameters		Temp [°C]
		ϵ_r	σ [S/m]	
835	Recommended value	41.5	0.90	
	± 5% window	39.4 – 43.6	0.86 – 0.95	
	2012-08-12	41.1	0.92	21.0
	2012-08-13	41.0	0.91	21.0
836	Recommended value	41.5	0.90	
	± 5% window	39.4 – 43.6	0.86 – 0.95	
	2012-08-07	40.2	0.91	21.0
	2012-08-13	41.0	0.91	21.0
1880	Recommended value	40.0	1.40	
	± 5% window	38.0 – 42.0	1.33 – 1.47	
	2012-08-08	38.9	1.40	21.0
	2012-08-11	39.7	1.40	21.0
	2012-08-12	39.6	1.40	21.0

Body tissue simulant measurements

f [MHz]	Description	Dielectric Parameters		Temp [°C]
		ϵ_r	σ [S/m]	
835	Recommended value	55.2	0.97	
	± 5% window	52.4 – 58.0	0.92 – 1.02	
	2012-08-27	53.5	1.00	21.0
	2012-08-28	53.3	0.99	21.0
836	Recommended value	55.2	0.97	
	± 5% window	52.4 – 58.0	0.92 – 1.02	
	2012-08-27	53.4	1.00	21.0
	2012-08-28	53.3	0.99	21.0
	2012-08-29	53.2	0.99	21.0

(Table continues)

(Table continues)

1880	Recommended value	53.3	1.52	
	$\pm 5\%$ window	50.6 – 56.0	1.44 – 1.60	
	2012-08-22	51.7	1.50	21.0
	2012-08-30	51.8	1.53	21.0
	2012-08-31	52.3	1.48	21.0
	2012-09-03	52.6	1.52	21.0
	2012-09-06	52.4	1.51	21.0

Dielectric parameter data for the band edges is given in Appendix C.

5. DESCRIPTION OF THE TEST PROCEDURE

5.1 Device Holder

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



Device holder supplied by SPEAG

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



Nokia spacer

5.2 Test Positions

5.2.1 Against Phantom Head

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

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

5.2.2 Body Worn Configuration

The device was placed in the SPEAG holder using the Nokia spacer and placed below the flat section of the phantom. The distance between the device and the phantom was kept at the separation distance indicated in Section 1.2.2 using a separate flat spacer that was removed

before the start of the measurements. The device was oriented with both sides facing the phantom to find the highest results.

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

5.2.3 Wireless Router Configuration

The device was placed in the SPEAG holder using the Nokia spacer and positioned 10.0mm away from the flat phantom. The spacer was removed before the start of the measurements. The device was oriented with all six sides of the device facing the phantom.

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

7.1 The measured Head SAR values for the test device

850MHz Head SAR results

Mode	Test configuration		SAR, averaged over 1g (W/kg)		
			Ch 128 824.2 MHz	Ch 190 836.6 MHz	Ch 251 848.8 MHz
GSM	Conducted Average Power		-	31.94 dBm	-
	Left	Cheek	-	0.348	-
		Tilt	-	-	-
	Right	Cheek	-	-	-
		Tilt	-	-	-
2-slot GPRS	Conducted Average Power		31.65 dBm	31.70 dBm	31.67 dBm
	Left	Cheek	0.352	0.571	0.432
		Tilt	-	0.240	-
	Right	Cheek	-	0.496	-
		Tilt	-	0.252	-
3-slot GPRS	Conducted Average Power		-	30.10 dBm	-
	Left	Cheek	-	0.535	-
		Tilt	-	-	-
	Right	Cheek	-	-	-
		Tilt	-	-	-
4-slot GPRS	Conducted Average Power		-	28.65 dBm	-
	Left	Cheek	-	0.537	-
		Tilt	-	-	-
	Right	Cheek	-	-	-
		Tilt	-	-	-
2-slot 8PSK EGPRS	Conducted Average Power		-	26.40 dBm	-
	Left	Cheek	-	0.173	-
		Tilt	-	-	-
	Right	Cheek	-	-	-
		Tilt	-	-	-

(Table continues)

(Table continues)

Mode	Test configuration		SAR, averaged over 1g (W/kg)		
			Ch 4132 826.4 MHz	Ch 4175 835.0 MHz	Ch 4233 846.6 MHz
WCDMA	Maximum Output Power		24.26 dBm	23.08 dBm	21.89 dBm
	Left	Cheek	-	0.366	-
		Tilt	-	0.228	-
	Right	Cheek	0.510	0.418	0.413
		Tilt	-	0.246	-

1900MHz Head SAR results

Mode	Test configuration		SAR, averaged over 1g (W/kg)		
			Ch 512 1850.2 MHz	Ch 661 1880.0 MHz	Ch 810 1909.8 MHz
GSM	Conducted Average Power		-	28.89 dBm	-
	Left	Cheek	-	0.395	-
		Tilt	-	-	-
	Right	Cheek	-	-	-
		Tilt	-	-	-
2-slot GPRS	Conducted Average Power		28.91 dBm	28.84 dBm	28.09 dBm
	Left	Cheek	0.735	0.694	0.780
		Tilt	-	0.317	-
	Right	Cheek	-	0.531	-
		Tilt	-	0.192	-
3-slot GPRS	Conducted Average Power		-	27.63 dBm	-
	Left	Cheek	-	0.673	-
		Tilt	-	-	-
	Right	Cheek	-	-	-
		Tilt	-	-	-
4-slot GPRS	Conducted Average Power		-	25.89 dBm	-
	Left	Cheek	-	0.611	-
		Tilt	-	-	-
	Right	Cheek	-	-	-
		Tilt	-	-	-

(Table continues)

(Table continues)

2-slot 8PSK EGPRS	Conducted Average Power		-	-	25.47 dBm
	Left	Cheek	-	-	0.348
		Tilt	-	-	-
	Right	Cheek	-	-	-
		Tilt	-	-	-
Mode	Test configuration		SAR, averaged over 1g (W/kg)		
			Ch 9262 1852.4 MHz	Ch 9400 1880.0 MHz	Ch 9538 1907.6 MHz
WCDMA	Maximum Output Power		23.89 dBm	22.32 dBm	23.91 dBm
	Left	Cheek	0.871	0.923	0.785
		Tilt	-	0.397	-
	Right	Cheek	-	0.695	-
		Tilt	-	0.243	-

2450MHz Head SAR results**

Mode	Test configuration		SAR, averaged over 1g (W/kg)		
			Ch 1 2412.0 MHz	Ch 6 2437.0 MHz	Ch 11 2462.0 MHz
WLAN b-mode	Maximum Output Power		15.92 dBm	16.55 dBm	15.94 dBm
5.5Mbps	Left	Cheek	-	0.052	-
		Tilt	-	0.039	-
	Right	Cheek	0.126	0.134	0.096
		Tilt	-	0.046	-

**5000MHz Head SAR results
5150–5250 MHz and 5250–5350 MHz****

Mode	Test configuration		SAR, averaged over 1g (W/kg)			
			Ch 36 5180.0 MHz	Ch 48 5240.0 MHz	Ch 52 5260.0 MHz	Ch 64 5320.0 MHz
WLAN n-mode	Maximum Output Power		15.22 dBm	14.92 dBm	15.05 dBm	14.84 dBm
MCS 2: OFDM 19.5 / 21.7 Mbps	Left	Cheek	0.092	0.079	0.045	0.057
		Tilt	0.054	-	-	0.036
	Right	Cheek	0.332	-	-	0.266
		Tilt	0.125	-	-	0.063

5000MHz Head SAR results
5470–5725 MHz**

Mode	Test configuration		SAR, averaged over 1g (W/kg)			
			Ch 100 5500.0 MHz	Ch 112 5560.0 MHz	Ch 120 5600.0 MHz	Ch 132 5660.0 MHz
WLAN n-mode	Maximum Output Power		15.00 dBm	14.93 dBm	14.68 dBm	14.32 dBm
MCS 2: OFDM 19.5 / 21.7 Mbps	Left	Cheek	0.040	0.046	0.045	0.074
		Tilt	-	-	-	0.035
	Right	Cheek	-	-	-	0.205
		Tilt	-	-	-	0.046

5000MHz Head SAR results
5725–5850 MHz**

Mode	Test configuration		SAR, averaged over 1g (W/kg)		
			Ch 149 5745.0 MHz	Ch 157 5785.0 MHz	Ch 161 5805.0 MHz
WLAN n-mode	Maximum Output Power		14.46 dBm	14.50 dBm	14.35 dBm
MCS 2: OFDM 19.5 / 21.7 Mbps	Left	Cheek	0.035	0.028	0.027
		Tilt	0.019	-	-
	Right	Cheek	0.172	-	-
		Tilt	0.038	-	-

Simultaneous transmissions: Combined head SAR results –
Individual band Max results

Test configuration				Max. 1g SAR results		
	WLAN 2450**	WLAN 5000**	2-slot GPRS 850	WCDMA 850	2-slot GPRS 1900	WCDMA 1900
Head: Left, Cheek	0.052	0.092	0.571	0.366	0.780	0.923
Head: Left, Tilt	0.039	0.054	0.240	0.228	0.317	0.397
Head: Right, Cheek	0.134	0.332	0.496	0.510	0.531	0.695
Head: Right, Tilt	0.046	0.125	0.252	0.246	0.192	0.243

**SAR data taken from FCC_RM-820_05 for RM-820 / FCC ID: PYAA IC:661V-A.

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

Test configuration	Max. 1g SAR results			
	2-slot GPRS 850 + WLAN 2450	WCDMA 850 + WLAN 2450	2-slot GPRS 1900 + WLAN 2450	WCDMA 1900 + WLAN0 2450
Head: Left, Cheek	0.623	0.418	0.832	0.975
Head: Left, Tilt	0.279	0.267	0.356	0.436
Head: Right, Cheek	0.630	0.644	0.665	0.829
Head: Right, Tilt	0.298	0.292	0.238	0.289
Test configuration	Max. 1g SAR results			
	2-slot GPRS 850 + WLAN 5000	WCDMA 850 + WLAN 5000	2-slot GPRS 1900 + WLAN 5000	WCDMA 1900 + WLAN0 5000
Head: Left, Cheek	0.663	0.458	0.872	1.015
Head: Left, Tilt	0.294	0.282	0.371	0.451
Head: Right, Cheek	0.828	0.842	0.863	1.027
Head: Right, Tilt	0.377	0.371	0.317	0.368

The following table gives a more accurate assessment of the SAR values for simultaneous transmission. These values have been calculated using the SPEAG Combined Multiband algorithm, which is based on area scans. It a) converts the 2D area scans into 3D volume scans by assuming frequency-dependent decay characteristics for the E-field, b) sums the SAR values for WLAN2450 or WLAN5000 and the cellular bands point-by-point and c) calculates the combined average SAR values.

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

Test configuration	Max. 1g SAR results			
	2-slot GPRS 850 + WLAN 2450	WCDMA 850 + WLAN 2450	2-slot GPRS 1900 + WLAN 2450	WCDMA 1900 + WLAN0 2450
Head: Left, Cheek	-	-	0.829	0.996
Head: Left, Tilt	-	-	-	-
Head: Right, Cheek	0.503	0.505	-	-
Head: Right, Tilt	-	-	-	-
Test configuration	Max. 1g SAR results			
	2-slot GPRS 850 + WLAN 5000	WCDMA 850 + WLAN 5000	2-slot GPRS 1900 + WLAN 5000	WCDMA 1900 + WLAN0 5000
Head: Left, Cheek	-	-	0.848	-
Head: Left, Tilt	-	-	-	-
Head: Right, Cheek	0.500	0.502	-	0.673
Head: Right, Tilt	-	-	-	-

Some of the Combined SAR values in the above table are less than the maximum SAR values for the contributing cellular band. This is due to a) minimal overlap of the SAR distributions of the cellular band with WLAN2450 or WLAN5000 and b) uncertainties associated with the different methods of calculation. In these cases, the maximum SAR values given for the combined Modes in the Summary table in Section 1.2 are those for the individual cellular band.

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

Plots of the Measurement scans are given in Appendix B.1.

7.2 The measured Body SAR values for the test device

850MHz Body SAR results

Mode	Device orientation	Test configuration	SAR, averaged over 1g (W/kg)		
			Ch 128 824.2 MHz	Ch 190 836.6 MHz	Ch 251 848.8 MHz
2-slot GPRS	Conducted Average Power		31.65 dBm	31.70 dBm	31.67 dBm
	Back facing phantom	Without headset	-	0.337	-
		Headset WH-208	-	0.289	-
	Display facing phantom	Without headset	0.473	0.430	0.538
		Headset WH-208	-	0.286	-
Mode	Device orientation	Test configuration	SAR, averaged over 1g (W/kg)		
			Ch 4132 826.4 MHz	Ch 4175 835.0 MHz	Ch 4233 846.6 MHz
WCDMA	Maximum Output Power		24.26 dBm	23.08 dBm	21.89 dBm
	Back facing phantom	Without headset	-	0.221	-
		Headset WH-208	-	0.194	-
	Display facing phantom	Without headset	0.338	0.278	0.392
		Headset WH-208	-	0.201	-

1900MHz Body SAR results

Mode	Device orientation	Test configuration	SAR, averaged over 1g (W/kg)		
			Ch 512 1850.2 MHz	Ch 661 1880.0 MHz	Ch 810 1909.8 MHz
2-slot GPRS	Conducted Average Power		28.91 dBm	28.84 dBm	28.09 dBm
	Back facing phantom	Without headset	0.549	0.523	0.606
		Headset WH-208	-	0.504	-
	Display facing phantom	Without headset	-	0.450	-
		Headset WH-208	-	0.429	-
Mode	Device orientation	Test configuration	SAR, averaged over 1g (W/kg)		
			Ch 9262 1852.4 MHz	Ch 9400 1880.0 MHz	Ch 9538 1907.6 MHz
WCDMA	Maximum Output Power		23.89 dBm	22.32 dBm	23.91 dBm
	Back facing phantom	Without headset	-	0.599	-
		Headset WH-208	0.594	0.602	0.516
	Display facing phantom	Without headset	-	0.539	-
		Headset WH-208	-	0.534	-

2450MHz Body SAR results**

Mode	Device orientation	Test configuration	SAR, averaged over 1g (W/kg)		
			Ch 1 2412.0 MHz	Ch 6 2437.0 MHz	Ch 11 2462.0 MHz
WLAN b-mode	Maximum Output Power		15.92 dBm	16.55 dBm	15.94 dBm
5.5 Mbps	Back facing phantom	Without headset	0.016	0.019	0.013
		Headset WH-208	-	0.019	-
	Display facing phantom	Without headset	-	0.011	-
		Headset WH-208	-	0.008	-

5000MHz Body SAR results
5150–5250 MHz and 5250–5350 MHz**

Mode	Device orientation	Test configuration	SAR, averaged over 1g (W/kg)			Ch 64 5320.0 MHz
			Ch 36 5180.0 MHz	Ch 48 5240.0 MHz	Ch 52 5260.0 MHz	
WLAN n-mode	Maximum Output Power		15.00 dBm	15.22 dBm	14.92 dBm	15.05 dBm
MCS 2: OFDM 19.5 / 21.7 Mbps	Back facing phantom	Without headset	0.034	0.035	0.039	0.043
		Headset WH-208	-	0.038	-	0.042
	Display facing phantom	Without headset	-	0.032	-	0.029
		Headset WH-208	-	0.035	-	0.030

5000MHz Body SAR results
5470–5725 MHz**

Mode	Device orientation	Test configuration	SAR, averaged over 1g (W/kg)			
			Ch 100 5500.0 MHz	Ch 112 5560.0 MHz	Ch 120 5600.0 MHz	Ch 132 5660.0 MHz
WLAN n-mode	Maximum Output Power		15.00 dBm	14.93 dBm	14.68 dBm	14.32 dBm
MCS 2: OFDM 19.5 / 21.7 Mbps	Back facing phantom	Without headset	0.034	0.038	0.042	0.048
		Headset WH-208	-	-	-	0.041
	Display facing phantom	Without headset	-	-	-	0.022
		Headset WH-208	-	-	-	0.021

5000MHz Body SAR results
5725–5850 MHz**

Mode	Device orientation	Test configuration	SAR, averaged over 1g (W/kg)		
			Ch 149 5745.0 MHz	Ch 157 5785.0 MHz	Ch 161 5805.0 MHz
WLAN n-mode	Maximum Output Power		14.46 dBm	14.50 dBm	14.35 dBm
MCS 2: OFDM 19.5 / 21.7 Mbps	Back facing phantom	Without headset	0.030	0.023	0.003
		Headset WH-208	0.030	-	-
	Display facing phantom	Without headset	0.021	-	-
		Headset WH-208	0.010	-	-

Simultaneous transmissions: Combined body SAR results –
Individual band Max results

Test configuration	Max. 1g SAR results					
	WLAN 2450**	WLAN 5000**	2-slot GPRS 850	WCDMA 850	2-slot GPRS 1900	WCDMA 1900
Body: Back facing phantom, Without Headset	0.019	0.048	0.337	0.221	0.606	0.599
Body: Back facing phantom, Headset WH-208	0.019	0.042	0.289	0.194	0.504	0.602
Body: Display facing phantom, Without Headset	0.011	0.032	0.538	0.392	0.450	0.539
Body: Display facing phantom, Headset WH-208	0.008	0.035	0.286	0.201	0.429	0.534

**SAR data taken from FCC_RM-820_05 for RM-820 / FCC ID: PYAA IC:661V-A.

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

Test configuration	Max. 1g SAR results			
	2-slot GPRS 850 + WLAN 2450	WCDMA 850 + WLAN 2450	2-slot GPRS 1900 + WLAN 2450	WCDMA 1900 + WLAN0 2450
Body: Back facing phantom, Without Headset	0.356	0.240	0.625	0.618
Body: Back facing phantom, Headset WH-208	0.308	0.213	0.523	0.621
Body: Display facing phantom, Without Headset	0.549	0.403	0.461	0.550
Body: Display facing phantom, Headset WH-208	0.294	0.209	0.437	0.542
Test configuration	Max. 1g SAR results			
	2-slot GPRS 850 + WLAN 5000	WCDMA 850 + WLAN 5000	2-slot GPRS 1900 + WLAN 5000	WCDMA 1900 + WLAN0 5000
Body: Back facing phantom, Without Headset	0.385	0.269	0.654	0.647
Body: Back facing phantom, Headset WH-208	0.331	0.236	0.546	0.644
Body: Display facing phantom, Without Headset	0.570	0.424	0.482	0.571
Body: Display facing phantom, Headset WH-208	0.321	0.236	0.464	0.569

The following table gives a more accurate assessment of the SAR values for simultaneous transmission. These values have been calculated using the SPEAG Combined Multiband algorithm, which is based on area scans. It a) converts the 2D area scans into 3D volume scans by assuming frequency-dependent decay characteristics for the E-field, b) sums the SAR values for WLAN2450 or WLAN5000 and the cellular bands point-by-point and c) calculates the combined average SAR values.

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

Test configuration	Max. 1g SAR results			
	2-slot GPRS 850 + WLAN 2450	WCDMA 850 + WLAN 2450	2-slot GPRS 1900 + WLAN 2450	WCDMA 1900 + WLAN0 2450
Body: Back facing phantom, Without Headset	-	-	0.564	-
Body: Back facing phantom, Headset WH-208	-	-	-	0.604
Body: Display facing phantom, Without Headset	0.535	0.398	-	-
Body: Display facing phantom, Headset WH-208	-	-	-	-
Test configuration	Max. 1g SAR results			
	2-slot GPRS 850 + WLAN 5000	WCDMA 850 + WLAN 5000	2-slot GPRS 1900 + WLAN 5000	WCDMA 1900 + WLAN0 5000
Body: Back facing phantom, Without Headset	-	-	0.564	0.597
Body: Back facing phantom, Headset WH-208	-	-	-	-
Body: Display facing phantom, Without Headset	0.544	0.410	-	-
Body: Display facing phantom, Headset WH-208	-	-	-	-

Some of the Combined SAR values in the above table are less than the maximum SAR values for the contributing cellular band. This is due to a) minimal overlap of the SAR distributions of the cellular band with WLAN2450 or WLAN5000 and b) uncertainties associated with the different methods of calculation. In these cases, the maximum SAR values given for the combined Modes in the Summary table in Section 1.2 are those for the individual cellular band.

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

Plots of the Measurement scans are given in Appendix B.2.

7.3 Body SAR assessment of Wireless Router mode at 10.0mm separation distance

850MHz Body SAR results

Option used	Device orientation	SAR, averaged over 1g (W/kg)		
		Ch 128 824.2 MHz	Ch 190 836.6 MHz	Ch 251 848.8 MHz
2-slot GPRS	Conducted Average Power	31.65 dBm	31.70 dBm	31.67 dBm
	Back facing phantom	-	0.526	-
	Display facing phantom	0.505	0.677	0.589
	Top edge facing phantom	-	0.046	-
	Bottom edge facing phantom	-	0.366	-
	Left edge facing phantom	-	0.160	-
	Right edge facing phantom	-	0.487	-
Option used	Device orientation	SAR, averaged over 1g (W/kg)		
		Ch 4132 826.4 MHz	Ch 4175 835.0 MHz	Ch 4233 846.6 MHz
WCDMA	Maximum Output Power	24.26 dBm	23.08 dBm	21.89 dBm
	Back facing phantom	-	0.370	-
	Display facing phantom	0.530	0.455	0.426
	Top edge facing phantom	-	0.028	-
	Bottom edge facing phantom	-	0.267	-
	Left edge facing phantom	-	0.236	-
	Right edge facing phantom	-	0.421	-

1900MHz Body SAR results

Option used	Device orientation	SAR, averaged over 1g (W/kg)		
		Ch 512 1850.2 MHz	Ch 661 1880.0 MHz	Ch 810 1909.8 MHz
2-slot GPRS	Conducted Average Power	28.91 dBm	28.84 dBm	28.09 dBm
	Back facing phantom	0.851	0.941	0.882
	Display facing phantom	-	0.637	-
	Top edge facing phantom	-	0.058	-
	Bottom edge facing phantom	-	0.325	-
	Left edge facing phantom	-	0.757	-
	Right edge facing phantom	-	0.218	-
Option used	Device orientation	SAR, averaged over 1g (W/kg)		
		Ch 9262 1852.4 MHz	Ch 9400 1880.0 MHz	Ch 9538 1907.6 MHz
WCDMA	Maximum Output Power	23.89 dBm	22.32 dBm	23.91 dBm
	Back facing phantom	1.17	0.855	0.765
	Display facing phantom	-	0.595	-
	Top edge facing phantom	-	0.104	-
	Bottom edge facing phantom	-	0.353	-
	Left edge facing phantom	0.798	0.861	0.758
	Right edge facing phantom	-	0.241	-

2450MHz Wireless Router SAR results**

Mode	Device orientation	SAR, averaged over 1g (W/kg)		
		Ch 1 2412.0 MHz	Ch 6 2437.0 MHz	Ch 11 2462.0 MHz
WLAN	Maximum Output Power	15.92 dBm	16.55 dBm	15.94 dBm
5.5 Mbps	Back facing phantom	-	0.040	-
	Display facing phantom	-	0.022	-
	Top edge facing phantom	-	0.015	-
	Bottom edge facing phantom	-	0.003	-
	Left edge facing phantom	0.040	0.080	0.032
	Right edge facing phantom	-	0.005	-

Simultaneous transmissions: Combined SAR results – Individual band Max results

Test configuration	Max. 1g SAR results				
	WLAN 2450**	2-slot GPRS850	WCDMA 850	2-slot GPRS1900	WCDMA 1900
Back facing phantom	0.040	0.526	0.370	0.941	1.17
Display facing phantom	0.022	0.677	0.530	0.637	0.595
Top edge facing phantom	0.015	0.046	0.028	0.058	0.104
Bottom edge facing phantom	0.003	0.366	0.267	0.325	0.353
Left edge facing phantom	0.080	0.160	0.236	0.757	0.861
Right edge facing phantom	0.005	0.487	0.421	0.218	0.241

**SAR data taken from FCC_RM-820_05 for RM-820 / FCC ID: PYAA IC:661V-A.

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

Test configuration	Max. 1g SAR results			
	2-slot GPRS 850 + WLAN 2450	WCDMA 850 + WLAN 2450	2-slot GPRS 1900 + WLAN 2450	WCDMA 1900 + WLAN 2450
Back facing phantom	0.566	0.410	0.981	1.210
Display facing phantom	0.699	0.552	0.659	0.617
Top edge facing phantom	0.061	0.043	0.073	0.119
Bottom edge facing phantom	0.369	0.270	0.328	0.356
Left edge facing phantom	0.240	0.316	0.837	0.941
Right edge facing phantom	0.492	0.426	0.223	0.246

The following table gives a more accurate assessment of the SAR values for simultaneous transmission. These values have been calculated using the SPEAG Combined Multiband algorithm, which is based on area scans. It a) converts the 2D area scans into 3D volume scans by assuming frequency-dependent decay characteristics for the E-field, b) sums the SAR values for WLAN2450 and the cellular bands point-by-point and c) calculates the combined average SAR values. It is these values that are entered in the Summary table in Section 1.2.3.

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

Test configuration	Max. 1g SAR results			
	2-slot GPRS 850 + WLAN 2450	WCDMA 850 + WLAN 2450	2-slot GPRS 1900 + WLAN 2450	WCDMA 1900 + WLAN0 2450
Back facing phantom	-	-	0.948	1.21
Display facing phantom	0.690	0.530	-	-
Top edge facing phantom	-	-	-	-
Bottom edge facing phantom	-	-	-	-
Left edge facing phantom	-	-	-	-
Right edge facing phantom	-	-	-	-

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

Plots of the Measurement scans are given in Appendix B.3.

APPENDIX A: SYSTEM CHECKING SCANS

Date/Time: 2012-08-07 16:08:11

Test Laboratory: TCC Nokia

Type: D835V2; Serial: D835V2 - SN:462

Communication System: CW835

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: HSL850; Medium Notes: $t = 20,8\text{ }^{\circ}\text{C}$

Medium parameters used: $f = 835\text{ MHz}$; $\sigma = 0.912\text{ mho/m}$; $\epsilon_r = 40.222$; $\rho = 1000\text{ kg/m}^3$

Phantom section: Flat Section

DASY Configuration:

- Probe: ES3DV3 - SN3131
- ConvF(5.88, 5.88, 5.88); Calibrated: 2011-09-14;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1316; Calibrated: 2012-02-15
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.6 (6824)

d=15mm, Pin=250mW/Area Scan (61x81x1): Interpolated grid: $dx=1.500\text{ mm}$, $dy=1.500\text{ mm}$

Maximum value of SAR (interpolated) = 2.49 W/kg

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

Reference Value = 53.655 V/m

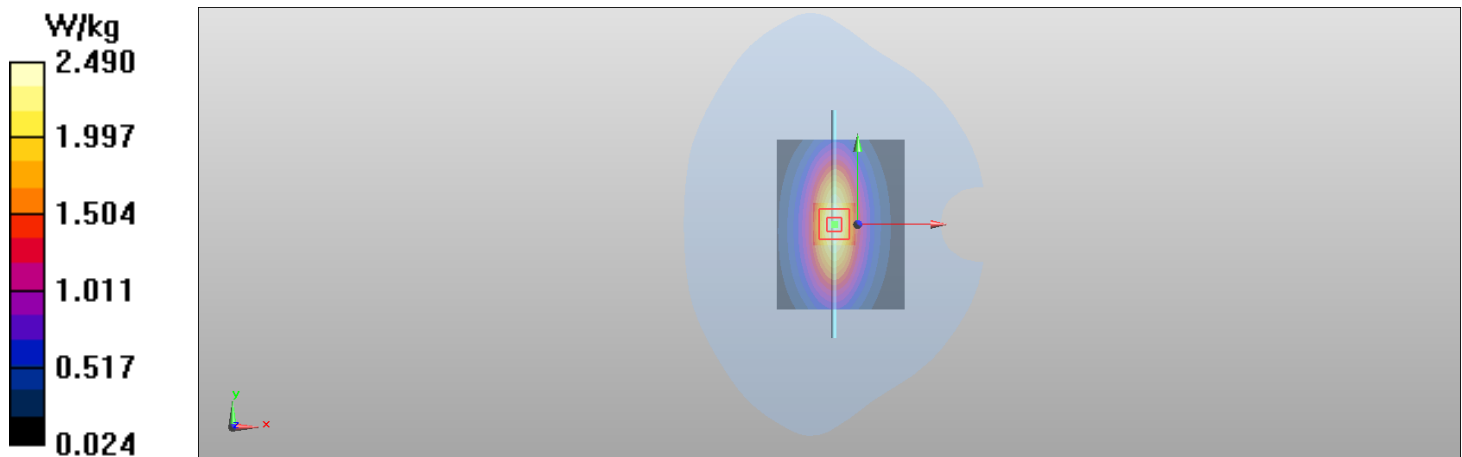
Peak SAR (extrapolated) = 3.358 mW/g

SAR(1 g) = 2.31 mW/g

SAR(10 g) = 1.52 mW/g

Power Drift = -0.03 dB

Maximum value of SAR (measured) = 2.49 W/kg



Date/Time: 2012-08-12 11:30:35

Test Laboratory: TCC Nokia

Type: D835V2; Serial: D835V2 - SN:462

Communication System: CW835

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: HSL850; Medium Notes: $t = 21.4$ C

Medium parameters used: $f = 835$ MHz; $\sigma = 0.92$ mho/m; $\epsilon_r = 41.083$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3790
- ConvF(8.44, 8.44, 8.44); Calibrated: 2012-04-27;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1316; Calibrated: 2012-02-15
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.6 (6824)

d=15mm, Pin=250mW/Area Scan (61x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 2.49 W/kg

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

Reference Value = 52.480 V/m

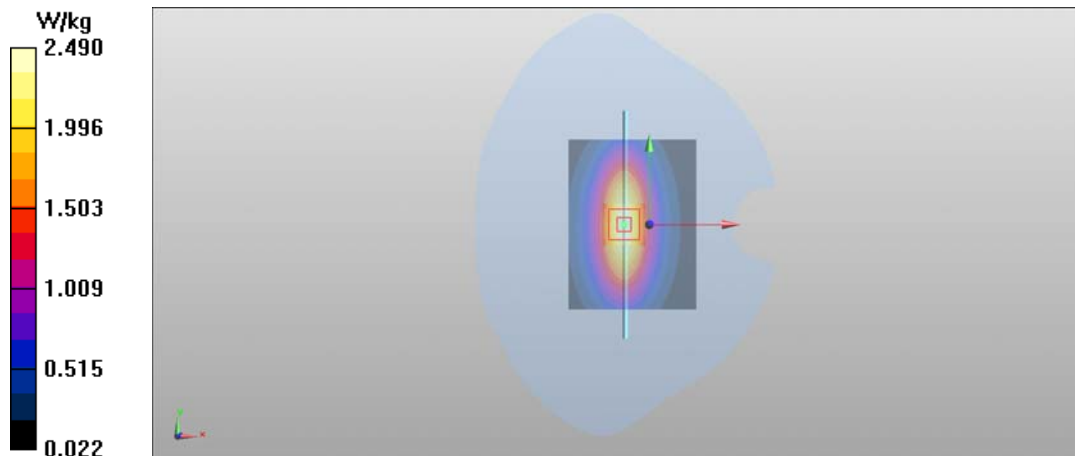
Peak SAR (extrapolated) = 3.439 mW/g

SAR(1 g) = 2.32 mW/g

SAR(10 g) = 1.52 mW/g

Power Drift = -0.02 dB

Maximum value of SAR (measured) = 2.51 W/kg



Date/Time: 2012-08-13 07:59:10

Test Laboratory: TCC Nokia

Type: D835V2; Serial: D835V2 - SN:462

Communication System: CW835

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: HSL850; Medium Notes: t= 21.1 C

Medium parameters used: f = 835 MHz; σ = 0.907 mho/m; ϵ_r = 40.961; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3790
- ConvF(8.44, 8.44, 8.44); Calibrated: 2012-04-27;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1316; Calibrated: 2012-02-15
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.6 (6824)

d=15mm, Pin=250mW/Area Scan (61x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 2.49 W/kg

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

Reference Value = 52.287 V/m

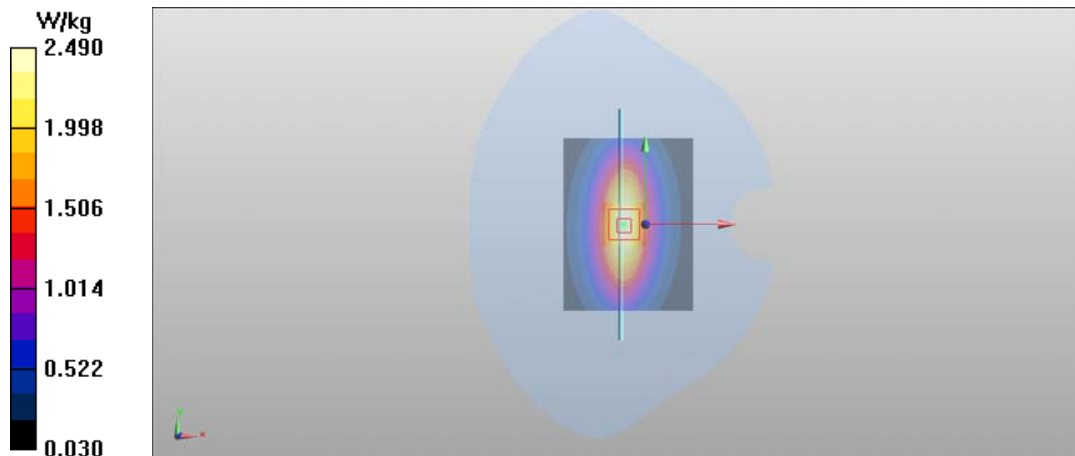
Peak SAR (extrapolated) = 3.426 mW/g

SAR(1 g) = 2.31 mW/g

SAR(10 g) = 1.51 mW/g

Power Drift = 0.01 dB

Maximum value of SAR (measured) = 2.50 W/kg



Date/Time: 2012-08-08 10:19:42

Test Laboratory: TCC Nokia

Type: D1900V2; Serial: D1900V2 - SN:5d030

Communication System: CW1900

Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: HSL 1900; Medium Notes: $t = 21.4$ C

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.418$ mho/m; $\epsilon_r = 38.884$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3573
- ConvF(7.43, 7.43, 7.43); Calibrated: 2012-02-23;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn793; Calibrated: 2011-09-16
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1449
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.6 (6824)

d=15mm, Pin=250mW/Area Scan (61x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 11.7 W/kg

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

Reference Value = 80.858 V/m

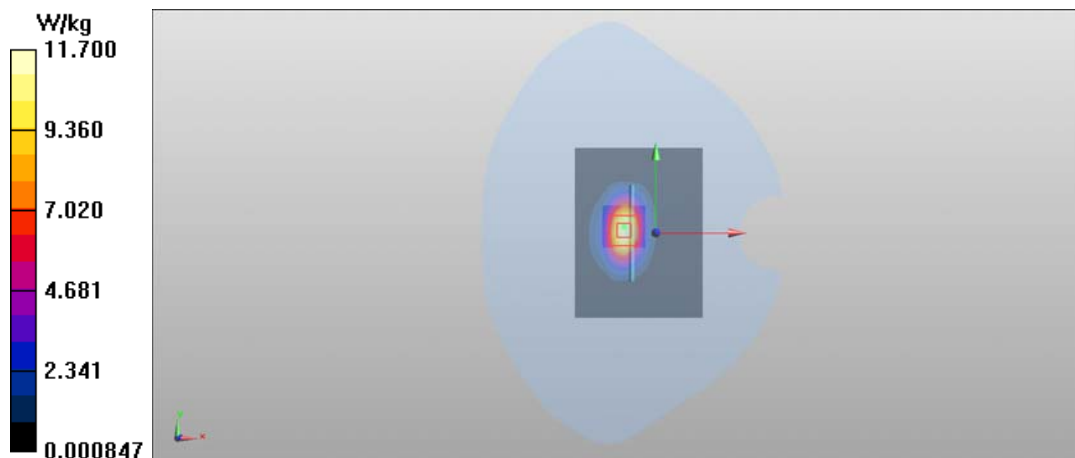
Peak SAR (extrapolated) = 18.654 mW/g

SAR(1 g) = 10 mW/g

SAR(10 g) = 5.25 mW/g

Power Drift = 0.03 dB

Maximum value of SAR (measured) = 11.2 W/kg



Date/Time: 2012-08-11 12:13:08

Test Laboratory: TCC Nokia

Type: D1900V2; Serial: D1900V2 - SN:5d030

Communication System: CW1900

Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: HSL 1900; Medium Notes: $t = 21.4$ C

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.423$ mho/m; $\epsilon_r = 39.612$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3573
- ConvF(7.43, 7.43, 7.43); Calibrated: 2012-02-23;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn793; Calibrated: 2011-09-16
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1449
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.6 (6824)

d=15mm, Pin=250mW/Area Scan (61x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 11.8 W/kg

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

Reference Value = 82.498 V/m

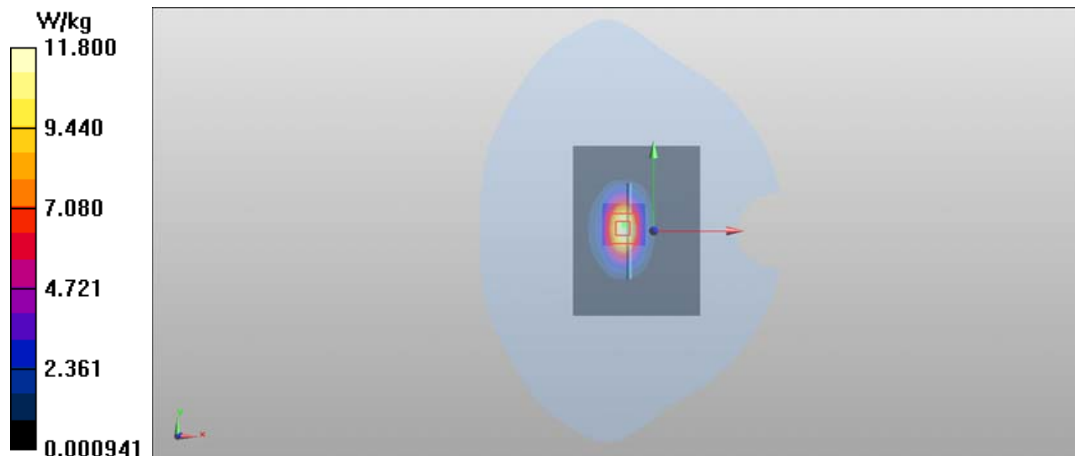
Peak SAR (extrapolated) = 18.614 mW/g

SAR(1 g) = 9.96 mW/g

SAR(10 g) = 5.2 mW/g

Power Drift = 0.05 dB

Maximum value of SAR (measured) = 11.1 W/kg



Date/Time: 2012-08-12 07:38:51

Test Laboratory: TCC Nokia

Type: D1900V2; Serial: D1900V2 - SN:5d030

Communication System: CW1900

Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: HSL 1900; Medium Notes: $t = 21.4$ C

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.422$ mho/m; $\epsilon_r = 39.528$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3573
- ConvF(7.43, 7.43, 7.43); Calibrated: 2012-02-23;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2012-08-03
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1449
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.6 (6824)

d=15mm, Pin=250mW/Area Scan (61x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 11.5 W/kg

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

Reference Value = 78.166 V/m

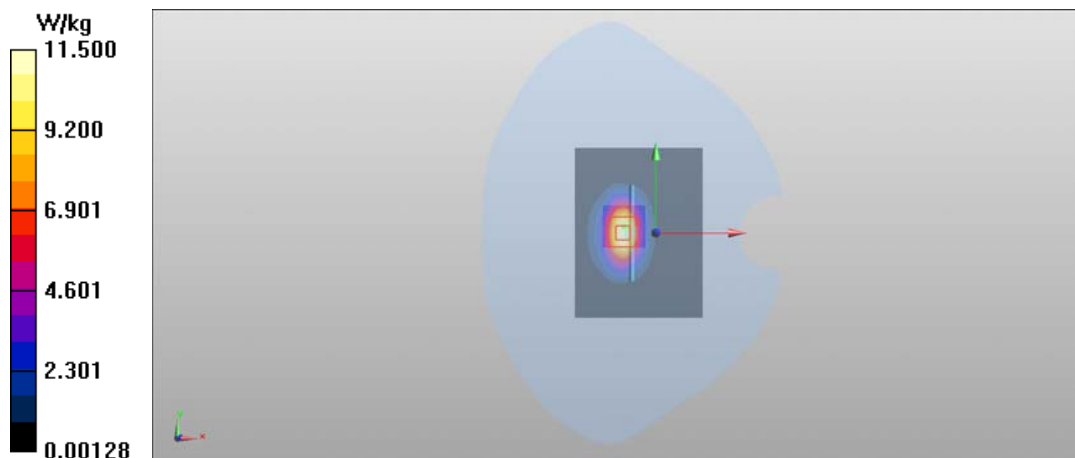
Peak SAR (extrapolated) = 18.469 mW/g

SAR(1 g) = 9.91 mW/g

SAR(10 g) = 5.16 mW/g

Power Drift = 0.03 dB

Maximum value of SAR (measured) = 11.1 W/kg



Date/Time: 2012-08-27 08:48:58

Test Laboratory: TCC Nokia

Type: D835V2; Serial: D835V2 - SN:462

Communication System: CW835

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: BSL850; Medium Notes: t= 20,9 C

Medium parameters used: f = 835 MHz; σ = 1.001 mho/m; ϵ_r = 53.459; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3790
- ConvF(8.54, 8.54, 8.54); Calibrated: 2012-04-27;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1316; Calibrated: 2012-02-15
- Phantom: SAM 3; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.6 (6824)

d=15mm, Pin=250mW/Area Scan (61x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 2.56 W/kg

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

Reference Value = 51.049 V/m

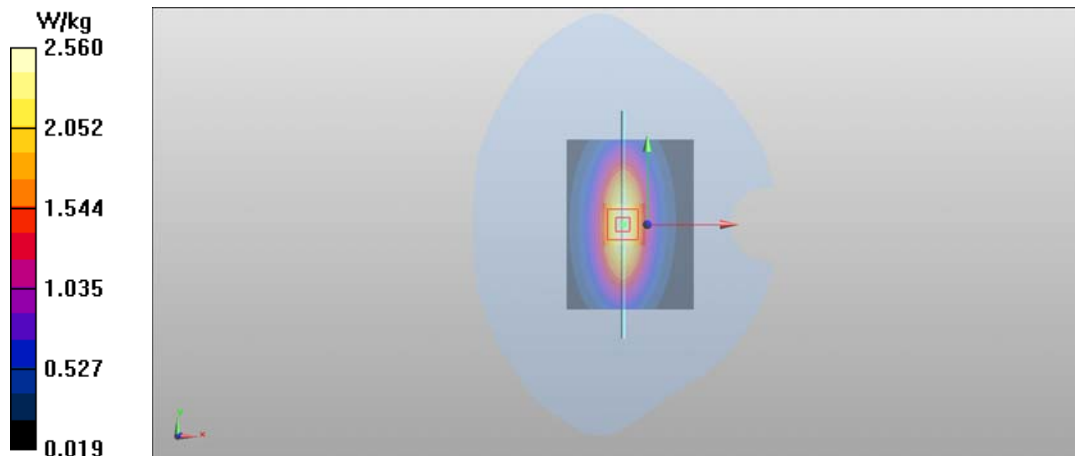
Peak SAR (extrapolated) = 3.467 mW/g

SAR(1 g) = 2.39 mW/g

SAR(10 g) = 1.58 mW/g

Power Drift = -0.00 dB

Maximum value of SAR (measured) = 2.57 W/kg



Date/Time: 2012-08-28 08:57:34

Test Laboratory: TCC Nokia

Type: D835V2; Serial: D835V2 - SN:462

Communication System: CW835

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: BSL850; Medium Notes: t= 21,4 C

Medium parameters used: f = 835 MHz; σ = 0.993 mho/m; ϵ_r = 53.347; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3790
- ConvF(8.54, 8.54, 8.54); Calibrated: 2012-04-27;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1316; Calibrated: 2012-02-15
- Phantom: SAM 3; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.6 (6824)

d=15mm, Pin=250mW/Area Scan (61x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 2.55 W/kg

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

Reference Value = 50.151 V/m

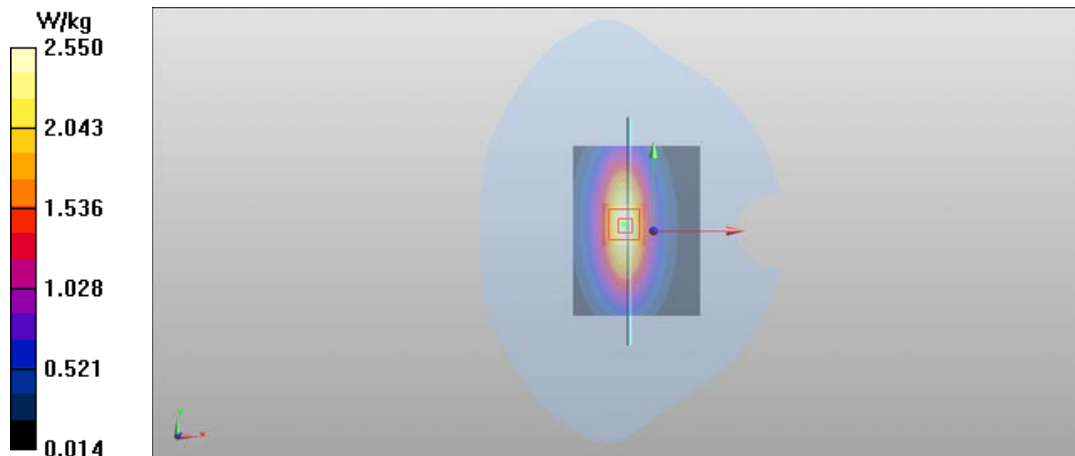
Peak SAR (extrapolated) = 3.445 mW/g

SAR(1 g) = 2.37 mW/g

SAR(10 g) = 1.57 mW/g

Power Drift = -0.01 dB

Maximum value of SAR (measured) = 2.55 W/kg



Date/Time: 2012-08-29 08:51:01

Test Laboratory: TCC Nokia

Type: D835V2; Serial: D835V2 - SN:462

Communication System: CW835

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: BSL850; Medium Notes: t= 21,4 C

Medium parameters used: f = 835 MHz; σ = 0.987 mho/m; ϵ_r = 53.209; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3790
- ConvF(8.54, 8.54, 8.54); Calibrated: 2012-04-27;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1316; Calibrated: 2012-02-15
- Phantom: SAM 3; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.6 (6824)

d=15mm, Pin=250mW/Area Scan (61x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 2.55 W/kg

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

Reference Value = 51.308 V/m

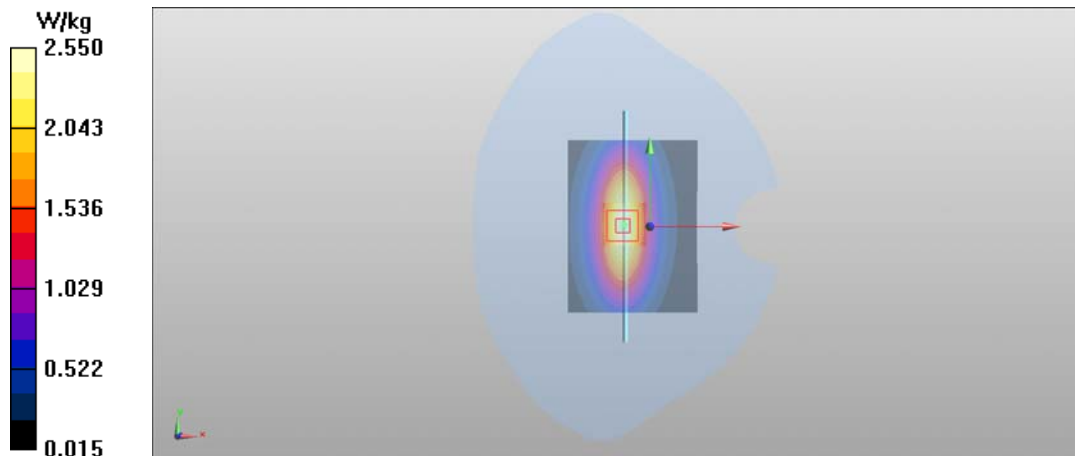
Peak SAR (extrapolated) = 3.439 mW/g

SAR(1 g) = 2.37 mW/g

SAR(10 g) = 1.57 mW/g

Power Drift = -0.01 dB

Maximum value of SAR (measured) = 2.56 W/kg



Date/Time: 2012-08-22 13:01:23

Test Laboratory: TCC Nokia

Type: D1900V2; Serial: D1900V2 - SN:5d030

Communication System: CW1900

Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: BSL1900; Medium Notes: $t = 21.1$ C

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.517$ mho/m; $\epsilon_r = 51.685$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3573
- ConvF(6.69, 6.69, 6.69); Calibrated: 2012-02-23;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2012-08-03
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.6 (6824)

d=15mm, Pin=250mW/Area Scan (61x81x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 12.4 W/kg

d=15mm, Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=7.5$ mm, $dy=7.5$ mm, $dz=5$ mm

Reference Value = 100.3 V/m

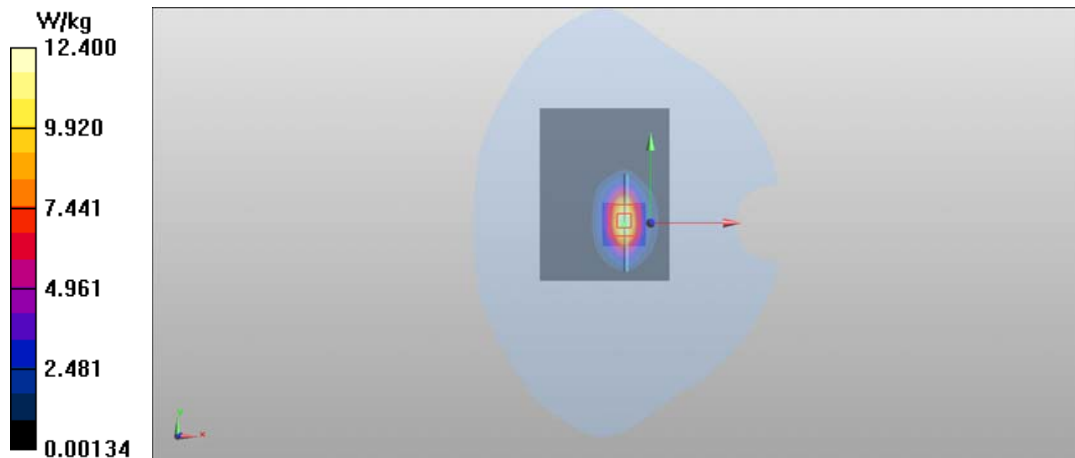
Peak SAR (extrapolated) = 19.128 mW/g

SAR(1 g) = 10.5 mW/g

SAR(10 g) = 5.5 mW/g

Power Drift = -0.10 dB

Maximum value of SAR (measured) = 11.7 W/kg



Date/Time: 2012-08-30 08:38:01

Test Laboratory: TCC Nokia

Type: D1900V2; Serial: D1900V2 - SN:5d030

Communication System: CW1900

Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: BSL1900; Medium Notes: $t = 21.1$ C

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.532$ mho/m; $\epsilon_r = 51.699$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3573
- ConvF(6.69, 6.69, 6.69); Calibrated: 2012-02-23;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2012-08-03
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

d=15mm, Pin=250mW/Area Scan (61x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 13.0 W/kg

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

Reference Value = 99.901 V/m

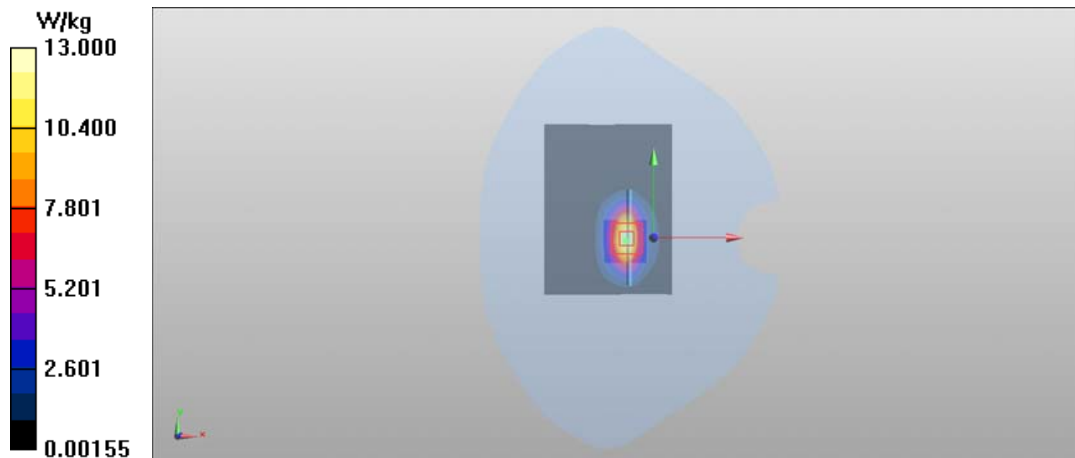
Peak SAR (extrapolated) = 19.685 mW/g

SAR(1 g) = 10.8 mW/g

SAR(10 g) = 5.66 mW/g

Power Drift = 0.02 dB

Maximum value of SAR (measured) = 12.2 W/kg



Date/Time: 2012-08-31 08:48:23

Test Laboratory: TCC Nokia

Type: D1900V2; Serial: D1900V2 - SN:5d030

Communication System: CW1900

Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: BSL1900; Medium Notes: t= 20.6 C

Medium parameters used: f = 1900 MHz; σ = 1.501 mho/m; ϵ_r = 52.249; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3573
- ConvF(6.69, 6.69, 6.69); Calibrated: 2012-02-23;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2012-08-03
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.6 (6824)

d=15mm, Pin=250mW/Area Scan (61x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 12.7 W/kg

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

Reference Value = 99.449 V/m

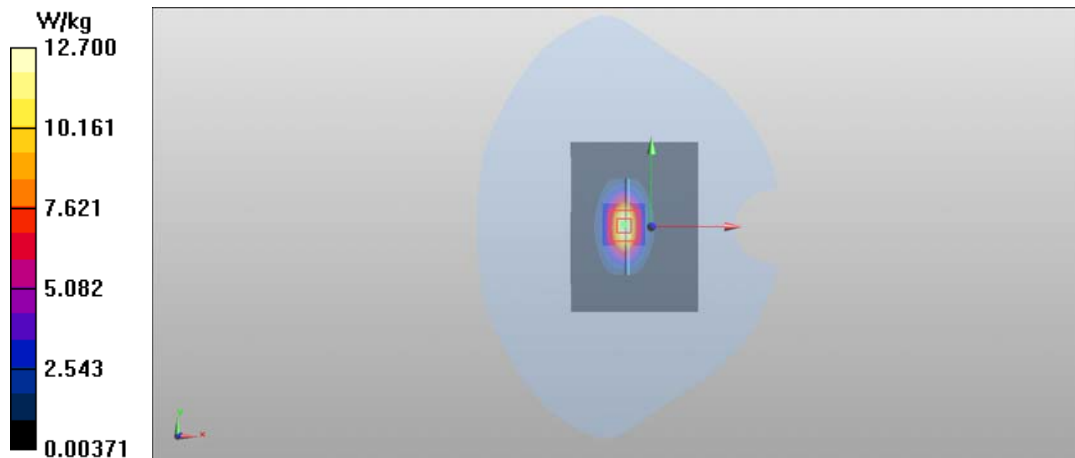
Peak SAR (extrapolated) = 18.784 mW/g

SAR(1 g) = 10.4 mW/g

SAR(10 g) = 5.43 mW/g

Power Drift = -0.06 dB

Maximum value of SAR (measured) = 11.7 W/kg



Date/Time: 2012-09-03 08:59:24

Test Laboratory: TCC Nokia

Type: D1900V2; Serial: D1900V2 - SN:5d030

Communication System: CW1900

Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: BSL1900; Medium Notes: $t = 21.6$ C

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.539$ mho/m; $\epsilon_r = 52.485$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3573
- ConvF(6.69, 6.69, 6.69); Calibrated: 2012-02-23;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2012-08-03
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.6 (6824)

d=15mm, Pin=250mW /Area Scan (61x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 12.9 W/kg

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

Reference Value = 100.8 V/m

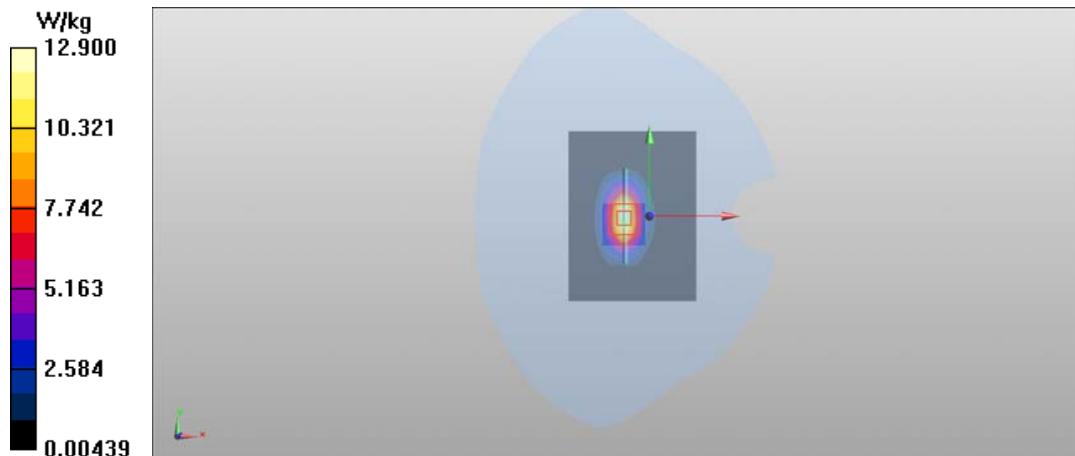
Peak SAR (extrapolated) = 19.607 mW/g

SAR(1 g) = 10.8 mW/g

SAR(10 g) = 5.62 mW/g

Power Drift = 0.01 dB

Maximum value of SAR (measured) = 12.2 W/kg



Date/Time: 2012-09-06 12:35:54

Test Laboratory: TCC Nokia
Type: D1900V2; Serial: D1900V2 - SN:5d030

Communication System: CW1900

Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: BSL1900; Medium Notes: $t = 20.8$ C

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.528$ mho/m; $\epsilon_r = 52.271$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3573
- ConvF(6.69, 6.69, 6.69); Calibrated: 2012-02-23;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2012-08-03
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.6 (6824)

d=15mm, Pin=250mW/Area Scan (61x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 12.7 W/kg

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

Reference Value = 99.756 V/m

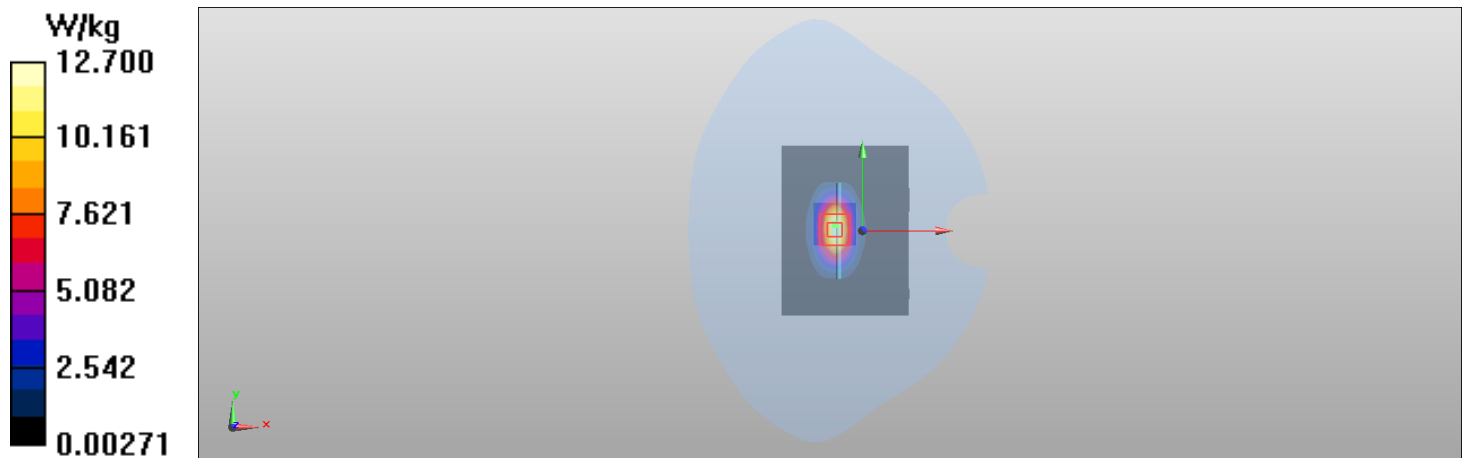
Peak SAR (extrapolated) = 18.962 mW/g

SAR(1 g) = 10.4 mW/g

SAR(10 g) = 5.44 mW/g

Power Drift = -0.18 dB

Maximum value of SAR (measured) = 11.8 W/kg



APPENDIX B.1: HEAD MEASUREMENT SCANS

Date/Time: 2012-08-07 20:54:07

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979590/4

Communication System: GSM850

Frequency: 836.6 MHz; Duty Cycle: 1:8.30042

Medium: HSL850; Medium Notes: $t = 20,8\text{ }^{\circ}\text{C}$

Medium parameters used: $f = 837\text{ MHz}$; $\sigma = 0.913\text{ mho/m}$; $\epsilon_r = 40.205$; $\rho = 1000\text{ kg/m}^3$

Phantom section: Left Section

DASY Configuration:

- Probe: ES3DV3 - SN3131
- ConvF(5.88, 5.88, 5.88); Calibrated: 2011-09-14;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1316; Calibrated: 2012-02-15
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.6 (6824)

GSM - Left/Cheek - Middle/Area Scan (81x121x1): Interpolated grid: $dx=1.500\text{ mm}$, $dy=1.500\text{ mm}$

Maximum value of SAR (interpolated) = 0.351 W/kg

GSM - Left/Cheek - Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=7.5\text{mm}$, $dy=7.5\text{mm}$, $dz=5\text{mm}$

Reference Value = 7.921 V/m

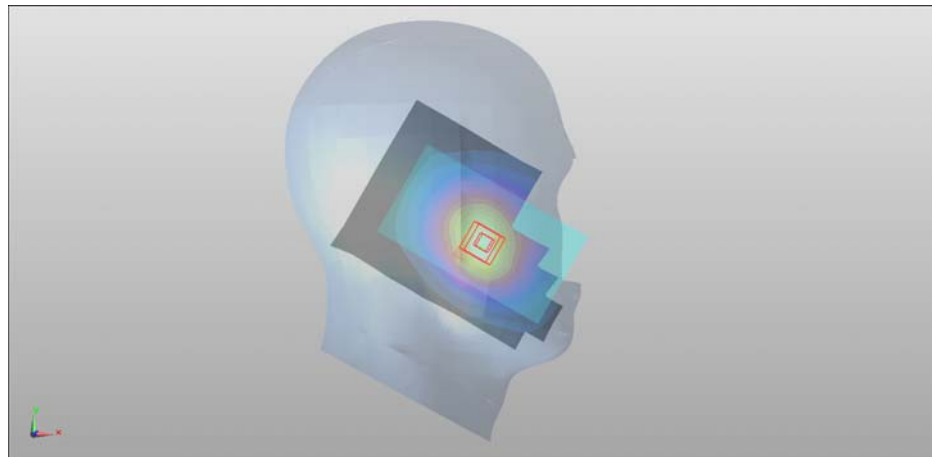
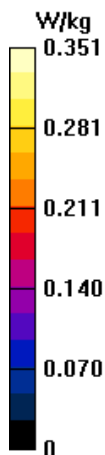
Peak SAR (extrapolated) = 0.427 mW/g

SAR(1 g) = 0.348 mW/g

SAR(10 g) = 0.262 mW/g

Power Drift = -0.18 dB

Maximum value of SAR (measured) = 0.366 W/kg



Date/Time: 2012-08-07 21:25:26

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979590/4

Communication System: 2-slot GPRS850

Frequency: 836.6 MHz; Duty Cycle: 1:4.19952

Medium: HSL850; Medium Notes: t= 20,8 C

Medium parameters used: f = 837 MHz; σ = 0.913 mho/m; ϵ_r = 40.205; ρ = 1000 kg/m³

Phantom section: Left Section

DASY Configuration:

- Probe: ES3DV3 - SN3131
- ConvF(5.88, 5.88, 5.88); Calibrated: 2011-09-14;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1316; Calibrated: 2012-02-15
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.6 (6824)

2-slot GPRS - Left/Cheek - Middle/Area Scan (81x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.622 W/kg

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

Reference Value = 7.921 V/m

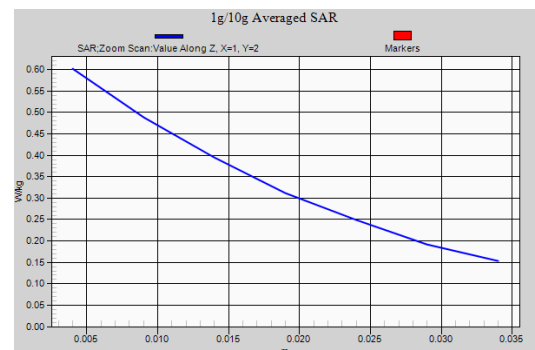
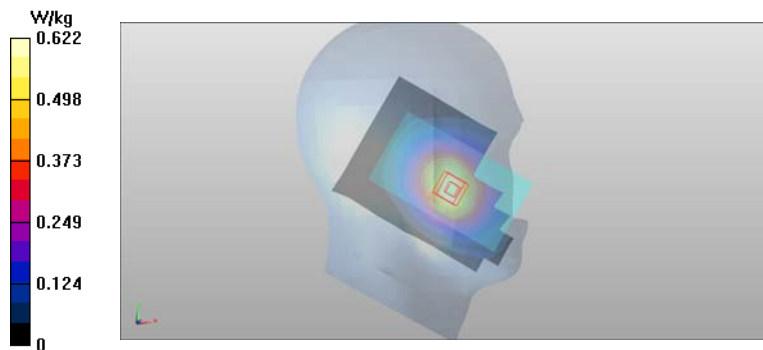
Peak SAR (extrapolated) = 0.701 mW/g

SAR(1 g) = 0.571 mW/g

SAR(10 g) = 0.431 mW/g

Power Drift = -0.18 dB

Maximum value of SAR (measured) = 0.602 W/kg



Date/Time: 2012-08-13 10:21:37

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979590/4

Communication System: 2-slot GPRS850

Frequency: 836.6 MHz; Duty Cycle: 1:4.19952

Medium: HSL850; Medium Notes: t= 21.1 C

Medium parameters used: f = 837 MHz; σ = 0.908 mho/m; ϵ_r = 40.953; ρ = 1000 kg/m³

Phantom section: Left Section

DASY Configuration:

- Probe: EX3DV4 - SN3790
- ConvF(8.44, 8.44, 8.44); Calibrated: 2012-04-27;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1316; Calibrated: 2012-02-15
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.6 (6824)

2-slot GPRS - Left/Tilt - Middle/Area Scan (81x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.256 W/kg

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

Reference Value = 10.846 V/m

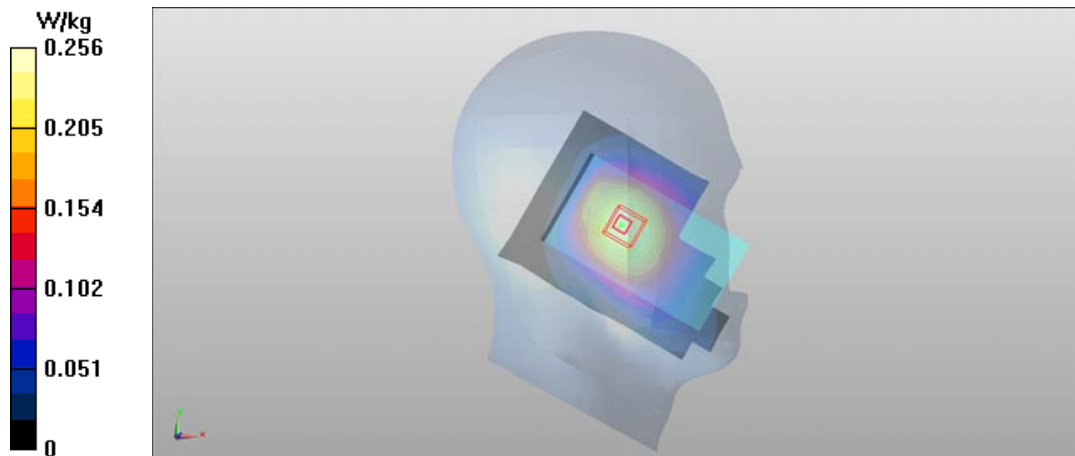
Peak SAR (extrapolated) = 0.294 mW/g

SAR(1 g) = 0.240 mW/g

SAR(10 g) = 0.185 mW/g

Power Drift = 0.11 dB

Maximum value of SAR (measured) = 0.253 W/kg



Date/Time: 2012-08-13 11:31:22

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979590/4

Communication System: 2-slot GPRS850

Frequency: 836.6 MHz; Duty Cycle: 1:4.19952

Medium: HSL850; Medium Notes: t= 21.1 C

Medium parameters used: f = 837 MHz; σ = 0.908 mho/m; ϵ_r = 40.953; ρ = 1000 kg/m³

Phantom section: Right Section

DASY Configuration:

- Probe: EX3DV4 - SN3790
- ConvF(8.44, 8.44, 8.44); Calibrated: 2012-04-27;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1316; Calibrated: 2012-02-15
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.6 (6824)

2-slot GPRS - Right/Cheek - Middle/Area Scan (81x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.538 W/kg

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

Reference Value = 9.419 V/m

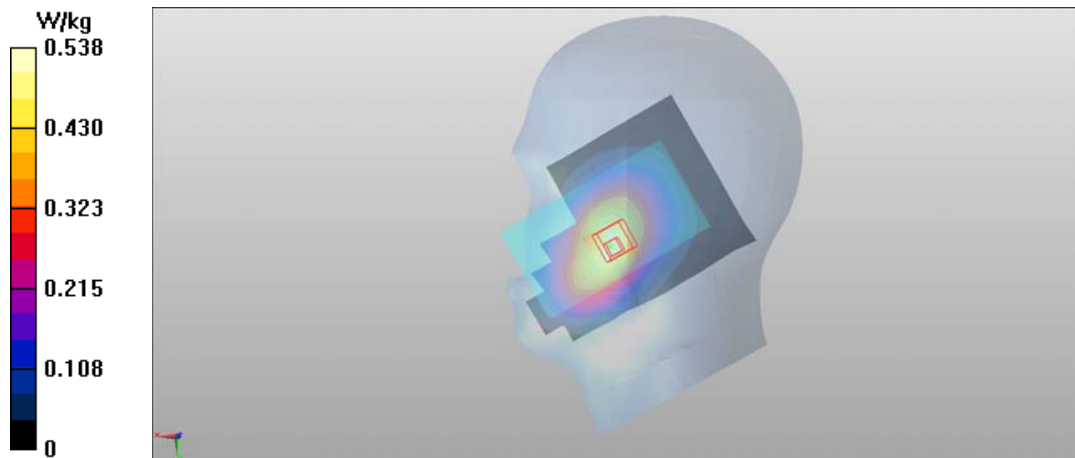
Peak SAR (extrapolated) = 0.640 mW/g

SAR(1 g) = 0.496 mW/g

SAR(10 g) = 0.376 mW/g

Power Drift = 0.23 dB

Maximum value of SAR (measured) = 0.516 W/kg



Date/Time: 2012-08-13 11:50:02

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979590/4

Communication System: 2-slot GPRS850

Frequency: 836.6 MHz; Duty Cycle: 1:4.19952

Medium: HSL850; Medium Notes: t= 21.1 C

Medium parameters used: f = 837 MHz; σ = 0.908 mho/m; ϵ_r = 40.953; ρ = 1000 kg/m³

Phantom section: Right Section

DASY Configuration:

- Probe: EX3DV4 - SN3790
- ConvF(8.44, 8.44, 8.44); Calibrated: 2012-04-27;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1316; Calibrated: 2012-02-15
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.6 (6824)

2-slot GPRS - Right/Tilt - Middle/Area Scan (81x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.268 W/kg

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

Reference Value = 11.858 V/m

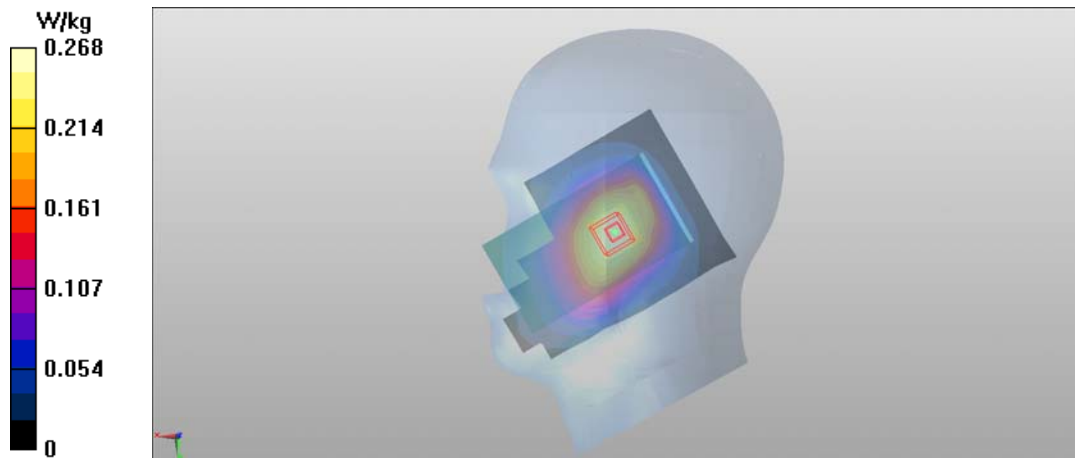
Peak SAR (extrapolated) = 0.310 mW/g

SAR(1 g) = 0.252 mW/g

SAR(10 g) = 0.195 mW/g

Power Drift = 0.02 dB

Maximum value of SAR (measured) = 0.265 W/kg



Date/Time: 2012-08-07 21:45:21

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979590/4

Communication System: 3-slot GPRS850

Frequency: 836.6 MHz; Duty Cycle: 1:2.80027

Medium: HSL850; Medium Notes: t= 20,8 C

Medium parameters used: f = 837 MHz; σ = 0.913 mho/m; ϵ_r = 40.205; ρ = 1000 kg/m³

Phantom section: Left Section

DASY Configuration:

- Probe: ES3DV3 - SN3131
- ConvF(5.88, 5.88, 5.88); Calibrated: 2011-09-14;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1316; Calibrated: 2012-02-15
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.6 (6824)

3-slot GPRS - Left/Cheek - Middle/Area Scan (81x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.578 W/kg

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

Reference Value = 7.921 V/m

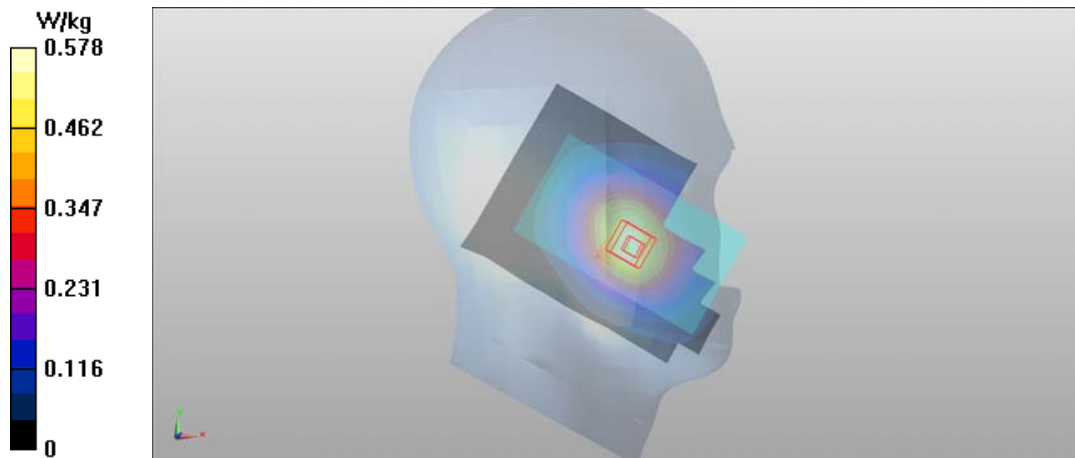
Peak SAR (extrapolated) = 0.663 mW/g

SAR(1 g) = 0.535 mW/g

SAR(10 g) = 0.405 mW/g

Power Drift = -0.18 dB

Maximum value of SAR (measured) = 0.561 W/kg



Date/Time: 2012-08-07 22:06:31

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979590/4

Communication System: 4-slot GPRS850

Frequency: 836.6 MHz; Duty Cycle: 1:2.09991

Medium: HSL850; Medium Notes: t= 20,8 C

Medium parameters used: f = 837 MHz; σ = 0.913 mho/m; ϵ_r = 40.205; ρ = 1000 kg/m³

Phantom section: Left Section

DASY Configuration:

- Probe: ES3DV3 - SN3131
- ConvF(5.88, 5.88, 5.88); Calibrated: 2011-09-14;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1316; Calibrated: 2012-02-15
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.6 (6824)

4-slot GPRS - Left/Cheek - Middle/Area Scan (81x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.572 W/kg

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

Reference Value = 7.921 V/m

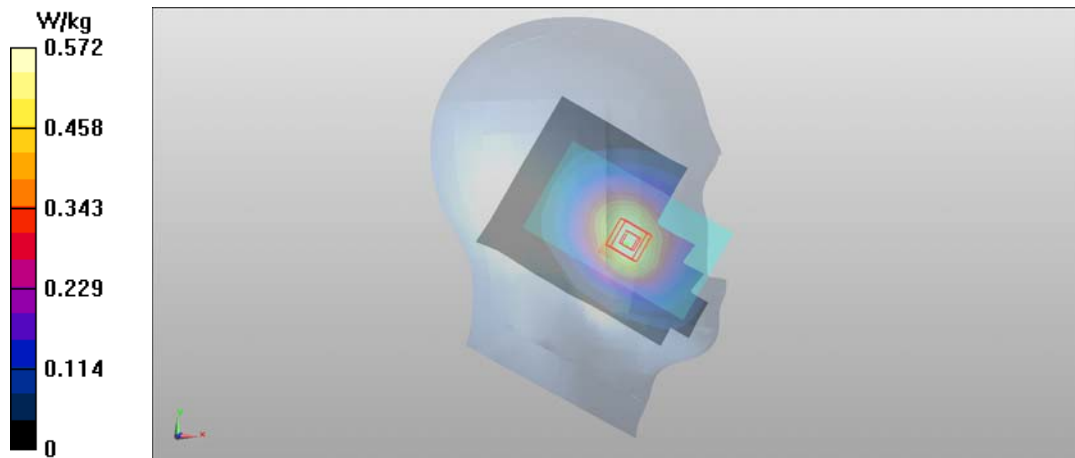
Peak SAR (extrapolated) = 0.662 mW/g

SAR(1 g) = 0.537 mW/g

SAR(10 g) = 0.406 mW/g

Power Drift = -0.18 dB

Maximum value of SAR (measured) = 0.565 W/kg



Date/Time: 2012-08-13 14:02:31

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979590/4

Communication System: 2-slot 8PSK EGPRS850

Frequency: 836.6 MHz; Duty Cycle: 1:4.19952

Medium: HSL850; Medium Notes: t= 21.1 C

Medium parameters used: f = 837 MHz; σ = 0.908 mho/m; ϵ_r = 40.953; ρ = 1000 kg/m³

Phantom section: Left Section

DASY Configuration:

- Probe: EX3DV4 - SN3790
- ConvF(8.44, 8.44, 8.44); Calibrated: 2012-04-27;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1316; Calibrated: 2012-02-15
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.6 (6824)

2-slot 8PSK EGPRS - Left/Cheek - Middle/Area Scan (81x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.174 W/kg

2-slot 8PSK EGPRS - Left/Cheek - Middle/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 4.978 V/m

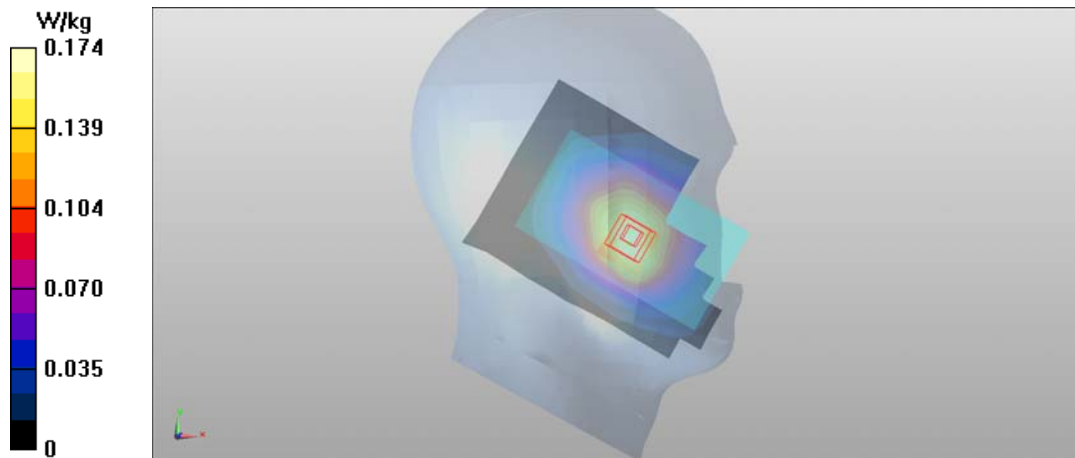
Peak SAR (extrapolated) = 0.226 mW/g

SAR(1 g) = 0.173 mW/g

SAR(10 g) = 0.130 mW/g

Power Drift = 0.04 dB

Maximum value of SAR (measured) = 0.190 W/kg



Date/Time: 2012-08-12 17:58:14

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979595/3

Communication System: WCDMA850

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: HSL850; Medium Notes: t= 21.4 C

Medium parameters used: f = 835 MHz; σ = 0.92 mho/m; ϵ_r = 41.083; ρ = 1000 kg/m³

Phantom section: Left Section

DASY Configuration:

- Probe: EX3DV4 - SN3790
- ConvF(8.44, 8.44, 8.44); Calibrated: 2012-04-27;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1316; Calibrated: 2012-02-15
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.6 (6824)

WCDMA - Left/Cheek - Middle/Area Scan (81x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.390 W/kg

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

Reference Value = 7.640 V/m

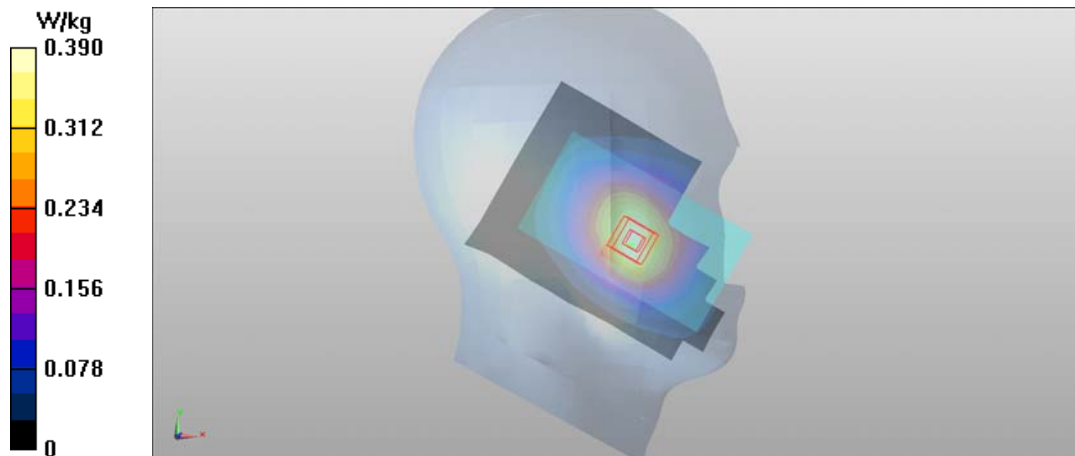
Peak SAR (extrapolated) = 0.453 mW/g

SAR(1 g) = 0.366 mW/g

SAR(10 g) = 0.275 mW/g

Power Drift = -0.07 dB

Maximum value of SAR (measured) = 0.384 W/kg



Date/Time: 2012-08-12 18:17:17

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979595/3

Communication System: WCDMA850

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: HSL850; Medium Notes: t= 21.4 C

Medium parameters used: f = 835 MHz; σ = 0.92 mho/m; ϵ_r = 41.083; ρ = 1000 kg/m³

Phantom section: Left Section

DASY Configuration:

- Probe: EX3DV4 - SN3790
- ConvF(8.44, 8.44, 8.44); Calibrated: 2012-04-27;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1316; Calibrated: 2012-02-15
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.6 (6824)

WCDMA - Left/Tilt - Middle/Area Scan (81x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.242 W/kg

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

Reference Value = 10.673 V/m

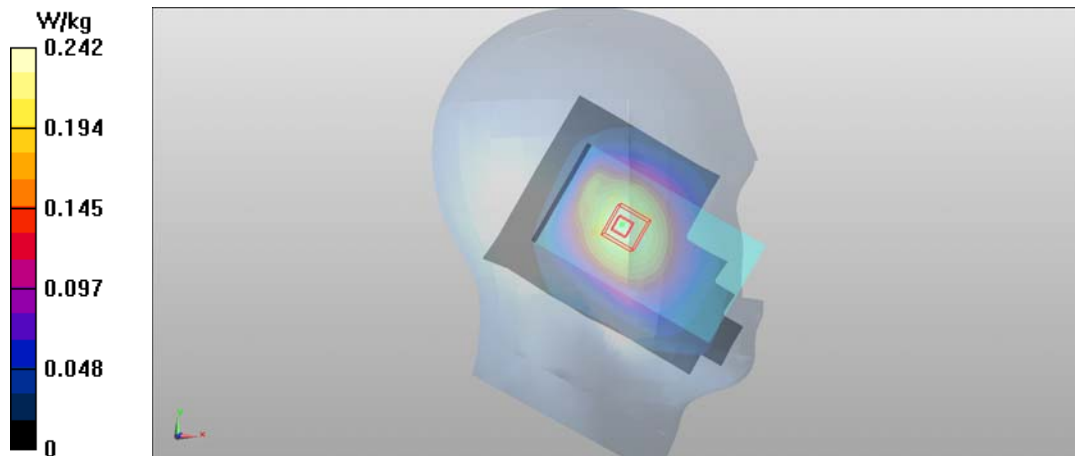
Peak SAR (extrapolated) = 0.279 mW/g

SAR(1 g) = 0.228 mW/g

SAR(10 g) = 0.176 mW/g

Power Drift = 0.07 dB

Maximum value of SAR (measured) = 0.239 W/kg



Date/Time: 2012-08-13 08:57:38

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979595/3

Communication System: WCDMA850

Frequency: 826.4 MHz; Duty Cycle: 1:1

Medium: HSL850; Medium Notes: t= 21.1 C

Medium parameters used (interpolated): f = 826.4 MHz; $\sigma = 0.901$ mho/m; $\epsilon_r = 40.995$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY Configuration:

- Probe: EX3DV4 - SN3790
- ConvF(8.44, 8.44, 8.44); Calibrated: 2012-04-27;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1316; Calibrated: 2012-02-15
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.6 (6824)

WCDMA - Right/Cheek - Low/Area Scan (81x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.536 W/kg

WCDMA - Right/Cheek - Low/Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 9.642 V/m

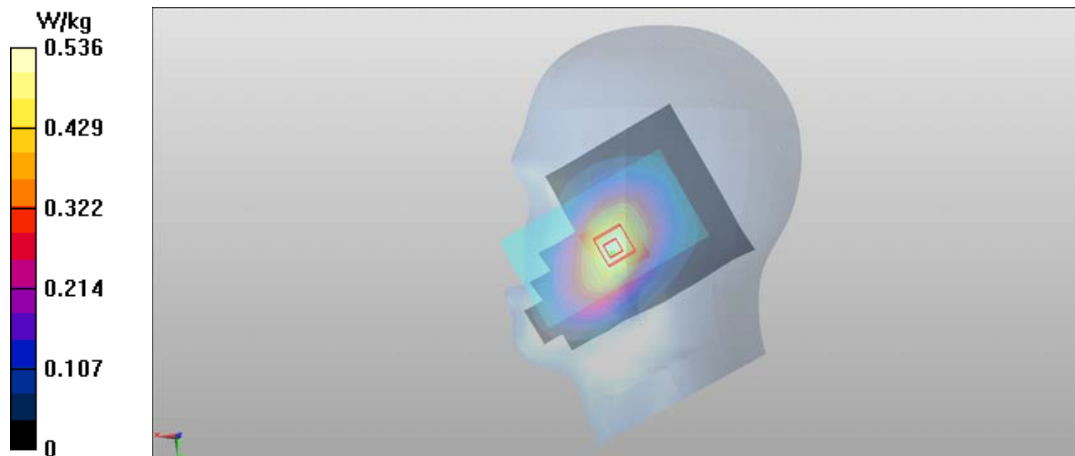
Peak SAR (extrapolated) = 0.635 mW/g

SAR(1 g) = 0.510 mW/g

SAR(10 g) = 0.386 mW/g

Power Drift = 0.14 dB

Maximum value of SAR (measured) = 0.537 W/kg



Date/Time: 2012-08-13 08:35:42

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979595/3

Communication System: WCDMA850

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: HSL850; Medium Notes: $t = 21.1$ C

Medium parameters used: $f = 835$ MHz; $\sigma = 0.907$ mho/m; $\epsilon_r = 40.961$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY Configuration:

- Probe: EX3DV4 - SN3790
- ConvF(8.44, 8.44, 8.44); Calibrated: 2012-04-27;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1316; Calibrated: 2012-02-15
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.6 (6824)

WCDMA - Right/Tilt - Middle/Area Scan (81x121x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.259 W/kg

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

Reference Value = 10.796 V/m

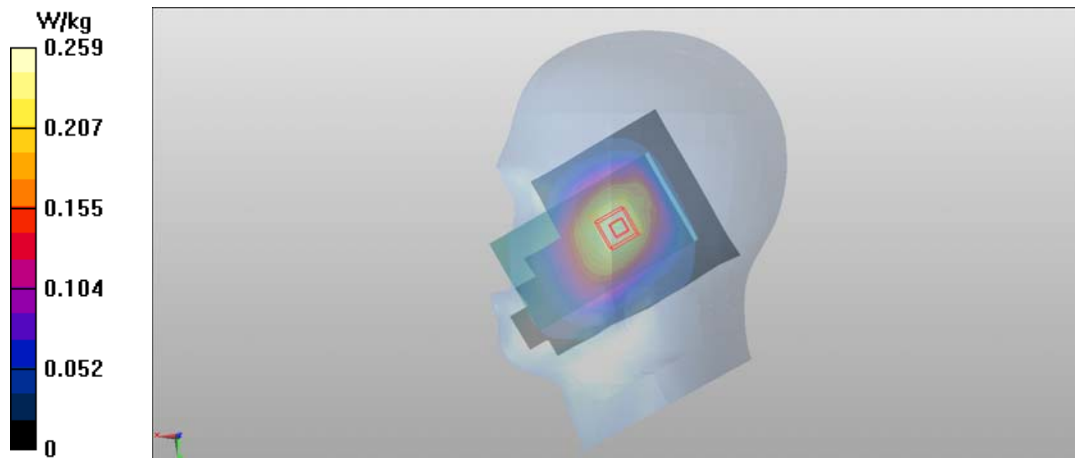
Peak SAR (extrapolated) = 0.302 mW/g

SAR(1 g) = 0.246 mW/g

SAR(10 g) = 0.189 mW/g

Power Drift = 0.48 dB

Maximum value of SAR (measured) = 0.256 W/kg



Date/Time: 2012-08-11 16:13:33

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979581/3

Communication System: GSM1900

Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium: HSL 1900; Medium Notes: $t = 21.4$ C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.402$ mho/m; $\epsilon_r = 39.718$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY Configuration:

- Probe: EX3DV4 - SN3573
- ConvF(7.43, 7.43, 7.43); Calibrated: 2012-02-23;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn793; Calibrated: 2011-09-16
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1449
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.6 (6824)

GSM - Left/Cheek - Middle/Area Scan (81x121x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.454 W/kg

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

Reference Value = 6.674 V/m

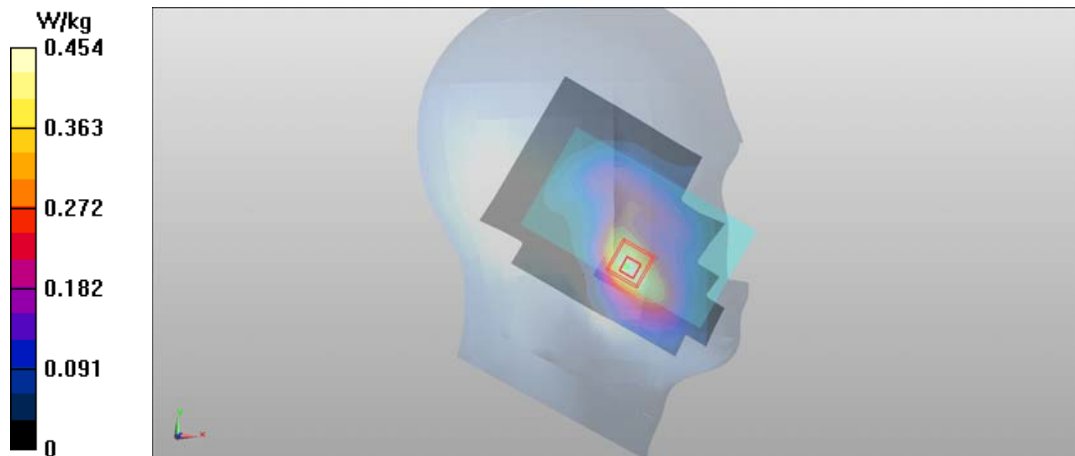
Peak SAR (extrapolated) = 0.593 mW/g

SAR(1 g) = 0.395 mW/g

SAR(10 g) = 0.254 mW/g

Power Drift = 0.15 dB

Maximum value of SAR (measured) = 0.426 W/kg



Date/Time: 2012-08-12 09:23:03

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979581/3

Communication System: 2-slot GPRS1900

Frequency: 1909.8 MHz; Duty Cycle: 1:4.2

Medium: HSL 1900; Medium Notes: $t = 21.4$ C

Medium parameters used: $f = 1910$ MHz; $\sigma = 1.431$ mho/m; $\epsilon_r = 39.468$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY Configuration:

- Probe: EX3DV4 - SN3573
- ConvF(7.43, 7.43, 7.43); Calibrated: 2012-02-23;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2012-08-03
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1449
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.6 (6824)

2-slot GPRS - Left/Cheek - High/Area Scan (81x121x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.903 W/kg

2-slot GPRS - Left/Cheek - High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=7.5$ mm, $dy=7.5$ mm, $dz=5$ mm

Reference Value = 11.231 V/m

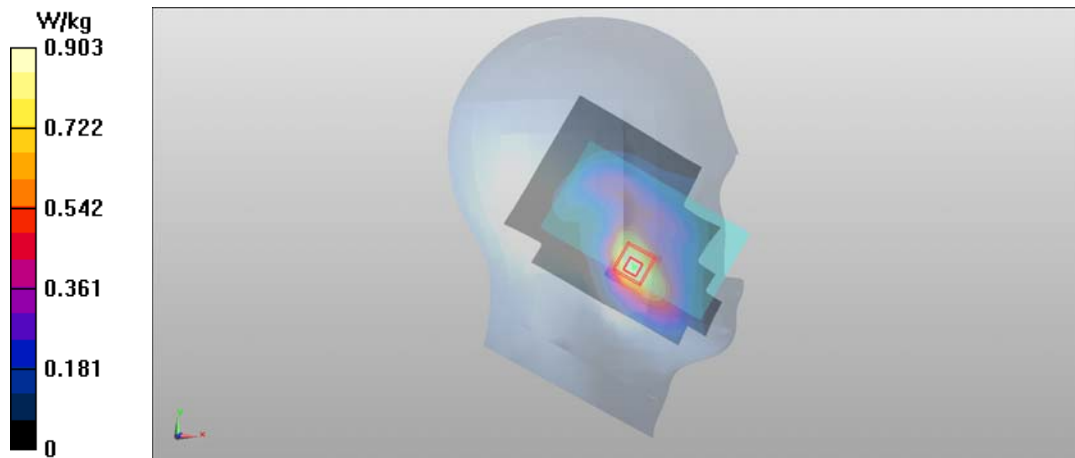
Peak SAR (extrapolated) = 1.203 mW/g

SAR(1 g) = 0.780 mW/g

SAR(10 g) = 0.496 mW/g

Power Drift = -0.00 dB

Maximum value of SAR (measured) = 0.838 W/kg



Date/Time: 2012-08-11 17:30:46

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979581/3

Communication System: 2-slot GPRS1900

Frequency: 1880 MHz; Duty Cycle: 1:4.2

Medium: HSL 1900; Medium Notes: $t = 21.4$ C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.402$ mho/m; $\epsilon_r = 39.718$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY Configuration:

- Probe: EX3DV4 - SN3573
- ConvF(7.43, 7.43, 7.43); Calibrated: 2012-02-23;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn793; Calibrated: 2011-09-16
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1449
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.6 (6824)

2-slot GPRS - Left/Tilt - Middle/Area Scan (81x121x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.348 W/kg

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

Reference Value = 10.847 V/m

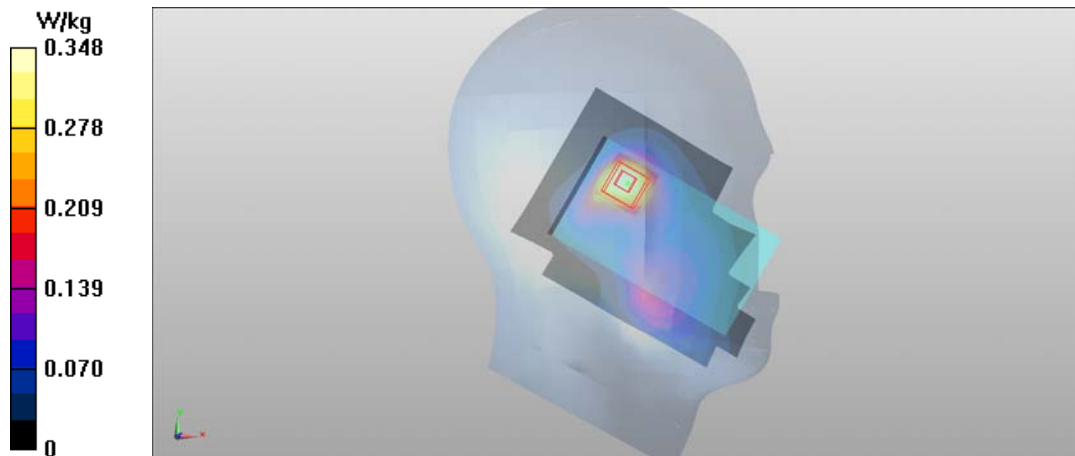
Peak SAR (extrapolated) = 0.470 mW/g

SAR(1 g) = 0.317 mW/g

SAR(10 g) = 0.195 mW/g

Power Drift = -0.04 dB

Maximum value of SAR (measured) = 0.340 W/kg



Date/Time: 2012-08-12 08:22:57

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979581/3

Communication System: 2-slot GPRS1900

Frequency: 1880 MHz; Duty Cycle: 1:4.2

Medium: HSL 1900; Medium Notes: $t = 21.4$ C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.402$ mho/m; $\epsilon_r = 39.639$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY Configuration:

- Probe: EX3DV4 - SN3573
- ConvF(7.43, 7.43, 7.43); Calibrated: 2012-02-23;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2012-08-03
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1449
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.6 (6824)

2-slot GPRS - Right/Cheek - Middle/Area Scan (81x121x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.609 W/kg

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

Reference Value = 10.420 V/m

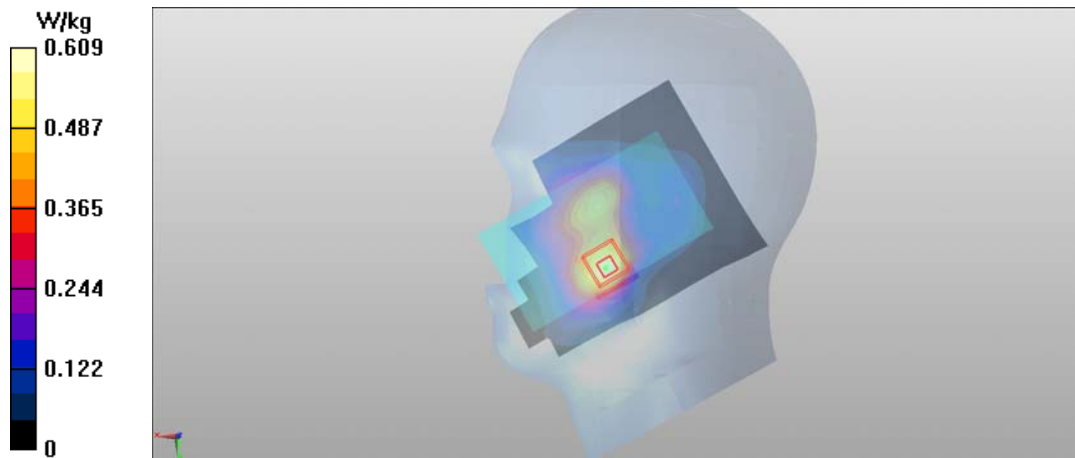
Peak SAR (extrapolated) = 0.773 mW/g

SAR(1 g) = 0.531 mW/g

SAR(10 g) = 0.347 mW/g

Power Drift = -0.05 dB

Maximum value of SAR (measured) = 0.579 W/kg



Date/Time: 2012-08-12 08:42:35

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979581/3

Communication System: 2-slot GPRS1900

Frequency: 1880 MHz; Duty Cycle: 1:4.2

Medium: HSL 1900; Medium Notes: $t = 21.4$ C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.402$ mho/m; $\epsilon_r = 39.639$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY Configuration:

- Probe: EX3DV4 - SN3573
- ConvF(7.43, 7.43, 7.43); Calibrated: 2012-02-23;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2012-08-03
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1449
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.6 (6824)

2-slot GPRS - Right/Tilt - Middle/Area Scan (81x121x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.218 W/kg

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

Reference Value = 11.953 V/m

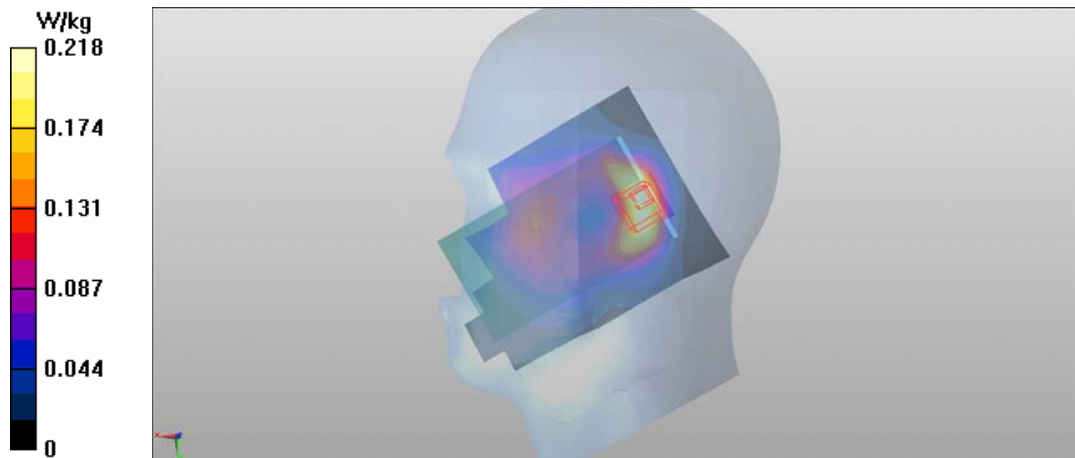
Peak SAR (extrapolated) = 0.310 mW/g

SAR(1 g) = 0.192 mW/g

SAR(10 g) = 0.117 mW/g

Power Drift = -0.06 dB

Maximum value of SAR (measured) = 0.205 W/kg



Date/Time: 2012-08-11 16:54:08

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979581/3

Communication System: 3-slot GPRS1900

Frequency: 1880 MHz; Duty Cycle: 1:2.8

Medium: HSL 1900; Medium Notes: $t = 21.4$ C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.402$ mho/m; $\epsilon_r = 39.718$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY Configuration:

- Probe: EX3DV4 - SN3573
- ConvF(7.43, 7.43, 7.43); Calibrated: 2012-02-23;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn793; Calibrated: 2011-09-16
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1449
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.6 (6824)

3-slot GPRS - Left/Cheek - Middle/Area Scan (81x121x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.796 W/kg

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

Reference Value = 8.261 V/m

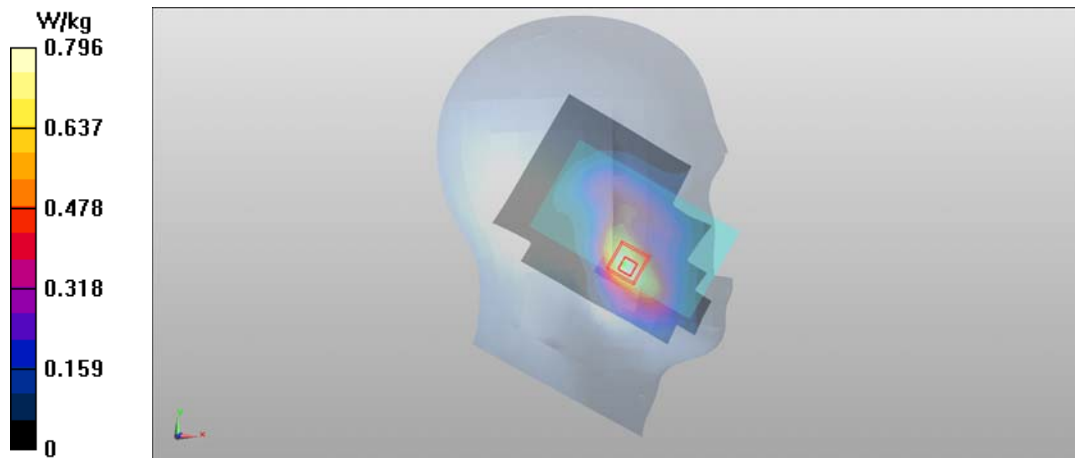
Peak SAR (extrapolated) = 1.011 mW/g

SAR(1 g) = 0.673 mW/g

SAR(10 g) = 0.438 mW/g

Power Drift = -0.02 dB

Maximum value of SAR (measured) = 0.724 W/kg



Date/Time: 2012-08-11 17:11:57

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979581/3

Communication System: 4-slot GPRS1900

Frequency: 1880 MHz; Duty Cycle: 1:2.1

Medium: HSL 1900; Medium Notes: $t = 21.4$ C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.402$ mho/m; $\epsilon_r = 39.718$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY Configuration:

- Probe: EX3DV4 - SN3573
- ConvF(7.43, 7.43, 7.43); Calibrated: 2012-02-23;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn793; Calibrated: 2011-09-16
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1449
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.6 (6824)

4-slot GPRS - Left/Cheek - Middle/Area Scan (81x121x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.724 W/kg

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

Reference Value = 7.863 V/m

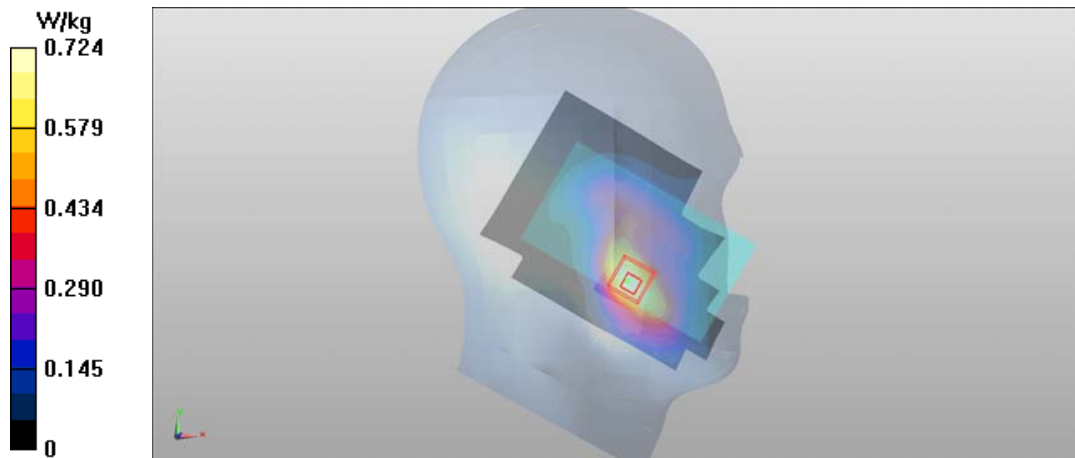
Peak SAR (extrapolated) = 0.925 mW/g

SAR(1 g) = 0.611 mW/g

SAR(10 g) = 0.397 mW/g

Power Drift = -0.01 dB

Maximum value of SAR (measured) = 0.657 W/kg



Date/Time: 2012-08-12 15:11:17

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979581/3

Communication System: 2-slot 8PSK EGPRS1900

Frequency: 1909.8 MHz; Duty Cycle: 1:4.2

Medium: HSL 1900; Medium Notes: $t = 21.4$ C

Medium parameters used: $f = 1910$ MHz; $\sigma = 1.431$ mho/m; $\epsilon_r = 39.468$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY Configuration:

- Probe: EX3DV4 - SN3573
- ConvF(7.43, 7.43, 7.43); Calibrated: 2012-02-23;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2012-08-03
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1449
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.6 (6824)

2-slot 8PSK EGPRS - Left/Cheek - High/Area Scan (81x121x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.387 W/kg

2-slot 8PSK EGPRS - Left/Cheek - High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=7.5$ mm, $dy=7.5$ mm, $dz=5$ mm

Reference Value = 7.338 V/m

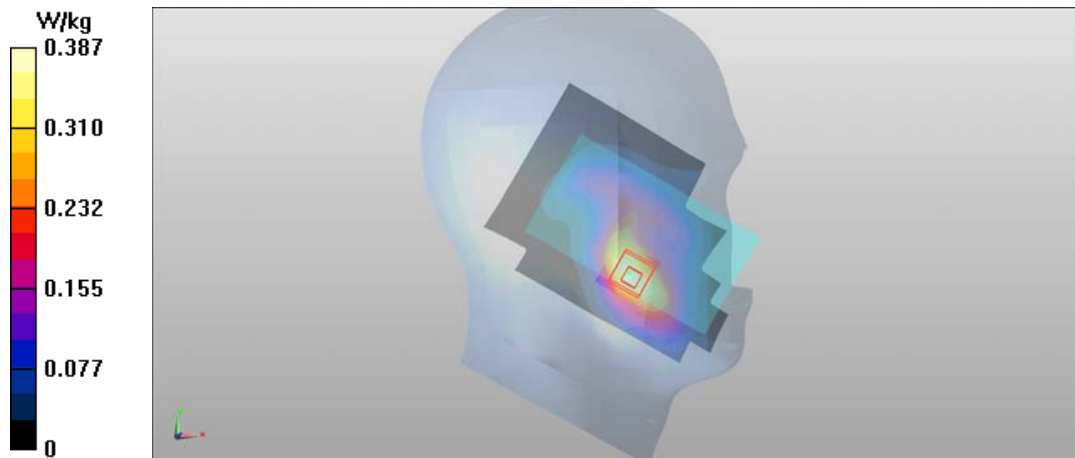
Peak SAR (extrapolated) = 0.529 mW/g

SAR(1 g) = 0.348 mW/g

SAR(10 g) = 0.220 mW/g

Power Drift = 0.04 dB

Maximum value of SAR (measured) = 0.373 W/kg



Date/Time: 2012-08-08 22:31:15

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979510/2

Communication System: WCDMA1900

Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: HSL 1900; Medium Notes: $t = 21.4$ C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.399$ mho/m; $\epsilon_r = 38.946$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY Configuration:

- Probe: EX3DV4 - SN3573
- ConvF(7.43, 7.43, 7.43); Calibrated: 2012-02-23;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn793; Calibrated: 2011-09-16
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1449
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.6 (6824)

WCDMA - Left/Cheek - Middle/Area Scan (81x121x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 1.09 W/kg

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

Reference Value = 10.584 V/m

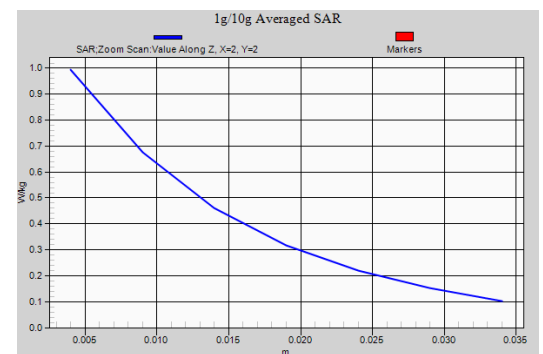
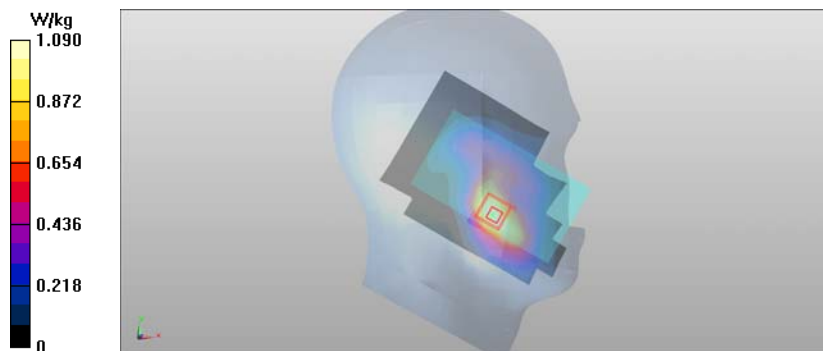
Peak SAR (extrapolated) = 1.384 mW/g

SAR(1 g) = 0.923 mW/g

SAR(10 g) = 0.601 mW/g

Power Drift = 0.08 dB

Maximum value of SAR (measured) = 0.994 W/kg



Date/Time: 2012-08-09 03:00:12

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979510/2

Communication System: WCDMA1900

Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: HSL 1900; Medium Notes: $t = 21.4$ C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.399$ mho/m; $\epsilon_r = 38.946$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY Configuration:

- Probe: EX3DV4 - SN3573
- ConvF(7.43, 7.43, 7.43); Calibrated: 2012-02-23;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn793; Calibrated: 2011-09-16
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1449
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.6 (6824)

WCDMA - Left/Tilt - Middle/Area Scan (81x121x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.458 W/kg

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

Reference Value = 14.017 V/m

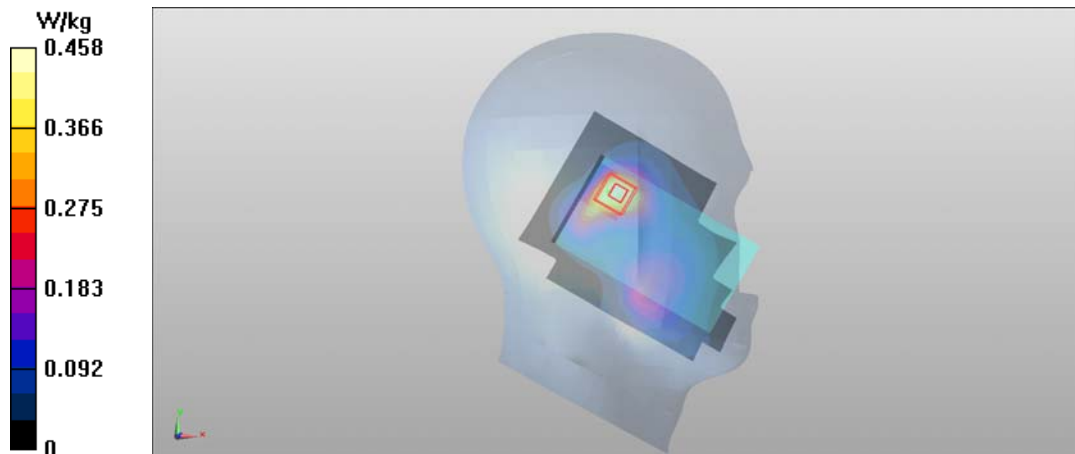
Peak SAR (extrapolated) = 0.598 mW/g

SAR(1 g) = 0.397 mW/g

SAR(10 g) = 0.242 mW/g

Power Drift = -0.02 dB

Maximum value of SAR (measured) = 0.420 W/kg



Date/Time: 2012-08-09 03:24:15

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979510/2

Communication System: WCDMA1900

Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: HSL 1900; Medium Notes: $t = 21.4$ C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.399$ mho/m; $\epsilon_r = 38.946$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY Configuration:

- Probe: EX3DV4 - SN3573
- ConvF(7.43, 7.43, 7.43); Calibrated: 2012-02-23;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn793; Calibrated: 2011-09-16
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1449
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.6 (6824)

WCDMA - Right/Cheek - Middle/Area Scan (81x121x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.759 W/kg

WCDMA - Right/Cheek - Middle/Zoom Scan 3 (5x5x7)/Cube 0: Measurement grid: $dx=7.5$ mm, $dy=7.5$ mm, $dz=5$ mm

Reference Value = 11.298 V/m

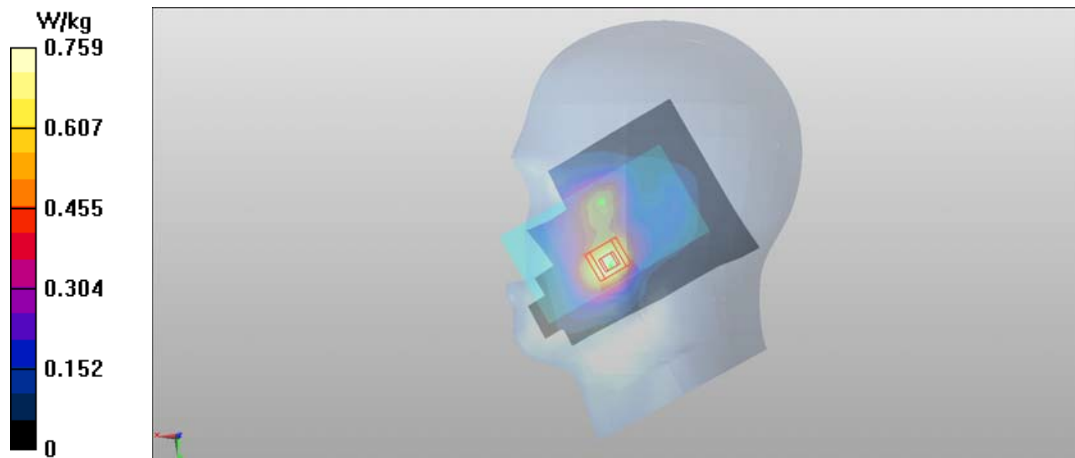
Peak SAR (extrapolated) = 1.026 mW/g

SAR(1 g) = 0.695 mW/g

SAR(10 g) = 0.447 mW/g

Power Drift = 0.06 dB

Maximum value of SAR (measured) = 0.754 W/kg



Date/Time: 2012-08-09 03:57:10

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979510/2

Communication System: WCDMA1900

Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: HSL 1900; Medium Notes: $t = 21.4$ C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.399$ mho/m; $\epsilon_r = 38.946$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY Configuration:

- Probe: EX3DV4 - SN3573
- ConvF(7.43, 7.43, 7.43); Calibrated: 2012-02-23;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn793; Calibrated: 2011-09-16
- Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1449
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.6 (6824)

WCDMA - Tilt/Cheek - Middle/Area Scan (81x121x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.292 W/kg

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

Reference Value = 13.699 V/m

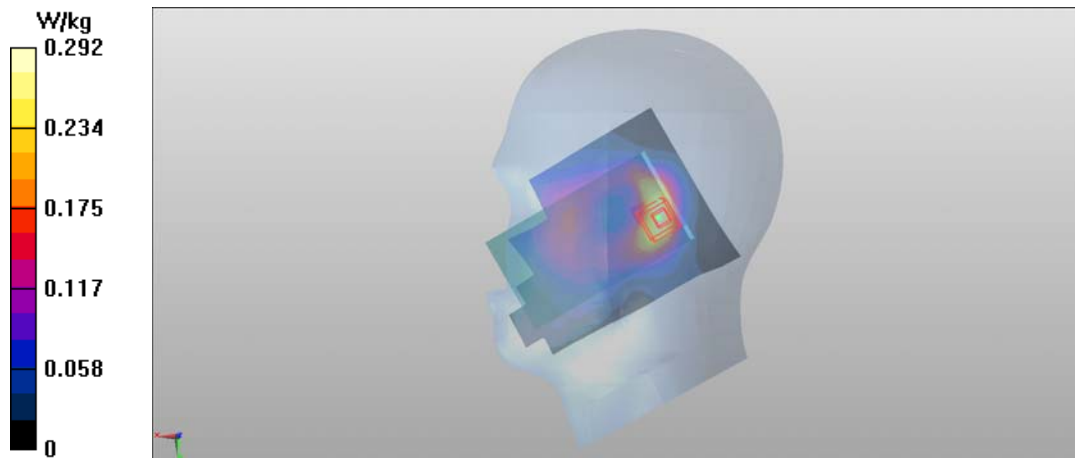
Peak SAR (extrapolated) = 0.380 mW/g

SAR(1 g) = 0.243 mW/g

SAR(10 g) = 0.152 mW/g

Power Drift = -0.30 dB

Maximum value of SAR (measured) = 0.263 W/kg



Date/Time: 2012-06-22 17:20:42

DASY Configuration for WLAN - Right/Cheek - Middle/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-820; Serial: 004402/13/870750/4

Communication System: WLAN2450 b-mode; Frequency: 2437 MHz; Duty Cycle: 1:1; PMF: 1

Medium: HSL2450 Medium parameters used: $f = 2437$ MHz; $\sigma = 1.831$ mho/m; $\epsilon_r = 38.755$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Probe: EX3DV4 - SN3573; ConvF(6.52, 6.52, 6.52); Calibrated: 2012-02-23;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn793; Calibrated: 2011-09-16

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

Measurement SW: DASY4, Version 4.7 (80)

Date/Time: 2012-08-13 11:31:22

DASY Configuration for 2-slot GPRS - Right/Cheek - Middle/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979590/4

Communication System: 2-slot GPRS850; Frequency: 836.6 MHz; Duty Cycle: 1:4.19952; PMF: 2.04927

Medium: HSL850 Medium parameters used: $f = 837$ MHz; $\sigma = 0.908$ mho/m; $\epsilon_r = 40.953$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Probe: EX3DV4 - SN3790; ConvF(8.44, 8.44, 8.44); Calibrated: 2012-04-27;

Sensor-Surface: 4mm (Mechanical Surface Detection)

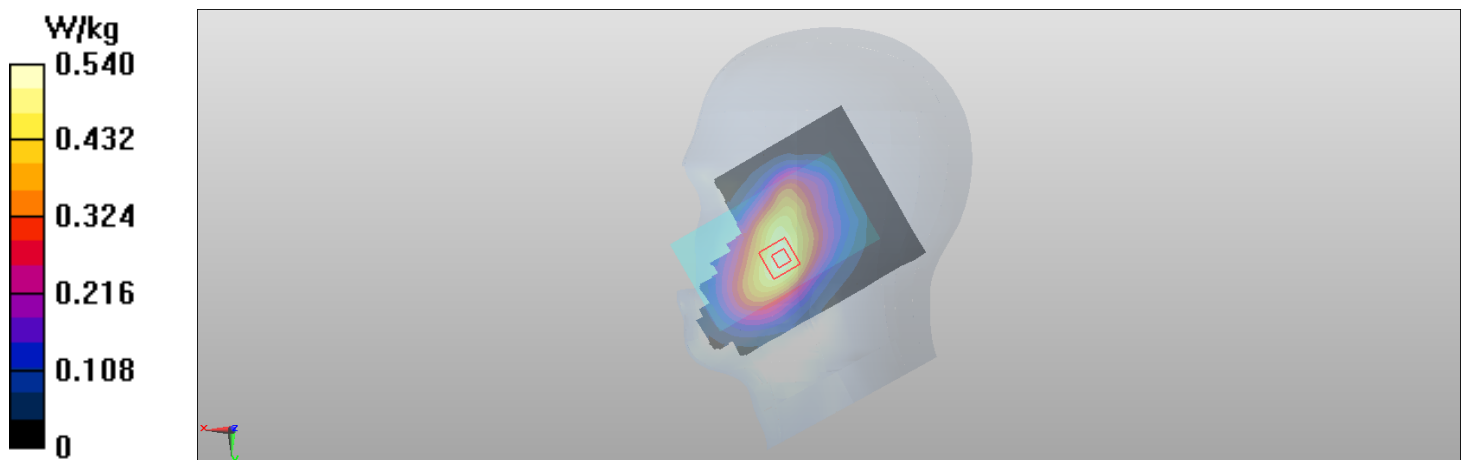
Electronics: DAE4 Sn1316; Calibrated: 2012-02-15

Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1179

Measurement SW: DASY52, Version 52.8 (0)

Fast SAR of Combined Scans: SAR(1 g) = 0.503 mW/g; SAR(10 g) = 0.349 mW/g

Maximum value of SAR (interpolated) = 0.540 W/kg



Date/Time: 2012-06-22 17:20:42

DASY Configuration for WLAN - Right/Cheek - Middle/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-820; Serial: 004402/13/870750/4

Communication System: WLAN2450 b-mode; Frequency: 2437 MHz; Duty Cycle: 1:1; PMF: 1

Medium: HSL2450 Medium parameters used: $f = 2437$ MHz; $\sigma = 1.831$ mho/m; $\epsilon_r = 38.755$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Probe: EX3DV4 - SN3573; ConvF(6.52, 6.52, 6.52); Calibrated: 2012-02-23;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn793; Calibrated: 2011-09-16

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

Measurement SW: DASY4, Version 4.7 (80)

Date/Time: 2012-08-13 08:57:38

DASY Configuration for WCDMA - Right/Cheek - Low/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979595/3

Communication System: WCDMA850; Frequency: 826.4 MHz; Duty Cycle: 1:1; PMF: 1

Medium: HSL850 Medium parameters used (interpolated): $f = 826.4$ MHz; $\sigma = 0.901$ mho/m; $\epsilon_r = 40.995$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Probe: EX3DV4 - SN3790; ConvF(8.44, 8.44, 8.44); Calibrated: 2012-04-27;

Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))

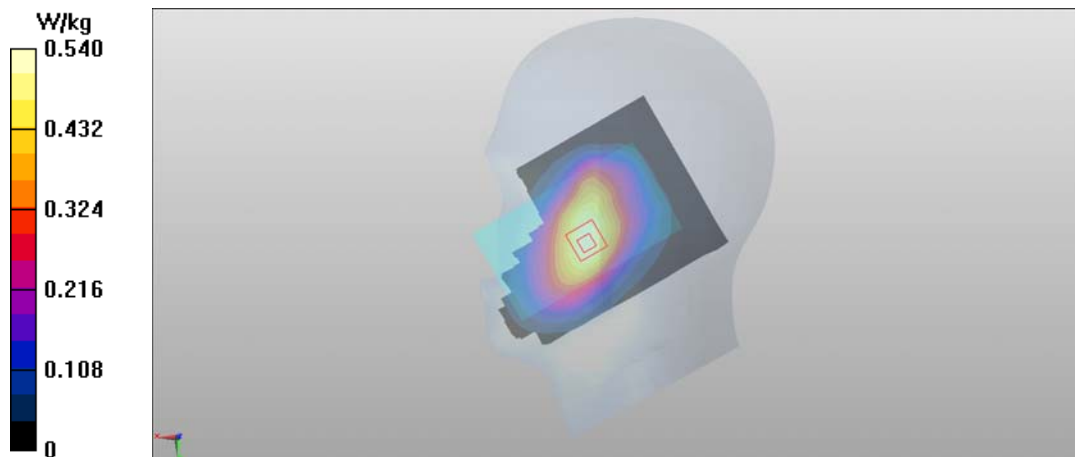
Electronics: DAE4 Sn1316; Calibrated: 2012-02-15

Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1179

Measurement SW: DASY52, Version 52.8 (0)

Fast SAR of Combined Scans: SAR(1 g) = 0.505 mW/g; SAR(10 g) = 0.352 mW/g

Maximum value of SAR (interpolated) = 0.540 W/kg



Date/Time: 2012-06-21 16:30:32

DASY Configuration for WLAN - Left/Cheek - Middle/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-820; Serial: 004402/13/870750/4

Communication System: WLAN2450 b-mode; Frequency: 2437 MHz; Duty Cycle: 1:1; PMF: 1

Medium: HSL2450 Medium parameters used: $f = 2437$ MHz; $\sigma = 1.755$ mho/m; $\epsilon_r = 38.199$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Probe: EX3DV4 - SN3573; ConvF(6.52, 6.52, 6.52); Calibrated: 2012-02-23;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn793; Calibrated: 2011-09-16

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

Measurement SW: DASY4, Version 4.7 (80)

Date/Time: 2012-08-12 09:23:03

DASY Configuration for 2-slot GPRS - Left/Cheek - High/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979581/3

Communication System: 2-slot GPRS1900; Frequency: 1909.8 MHz; Duty Cycle: 1:4.2; PMF: 2.04939

Medium: HSL 1900 Medium parameters used: $f = 1910$ MHz; $\sigma = 1.431$ mho/m; $\epsilon_r = 39.468$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Probe: EX3DV4 - SN3573; ConvF(7.43, 7.43, 7.43); Calibrated: 2012-02-23;

Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))

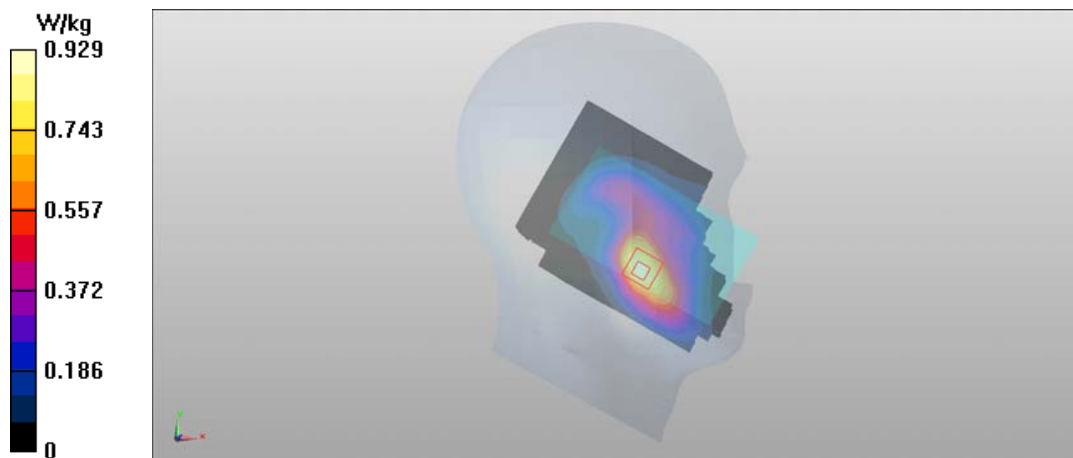
Electronics: DAE4 Sn538; Calibrated: 2012-08-03

Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1449

Measurement SW: DASY4, Version 4.7 (80)

Fast SAR of Combined Scans: SAR(1 g) = 0.829 mW/g; SAR(10 g) = 0.474 mW/g

Maximum value of SAR (interpolated) = 0.929 W/kg



Date/Time: 2012-06-21 16:30:32

DASY Configuration for WLAN - Left/Cheek - Middle/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-820; Serial: 004402/13/870750/4

Communication System: WLAN2450 b-mode; Frequency: 2437 MHz; Duty Cycle: 1:1; PMF: 1

Medium: HSL2450 Medium parameters used: $f = 2437$ MHz; $\sigma = 1.755$ mho/m; $\epsilon_r = 38.199$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Probe: EX3DV4 - SN3573; ConvF(6.52, 6.52, 6.52); Calibrated: 2012-02-23;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn793; Calibrated: 2011-09-16

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

Measurement SW: DASY4, Version 4.7 (80)

Date/Time: 2012-08-08 22:31:15

DASY Configuration for WCDMA - Left/Cheek - Middle/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979510/2

Communication System: WCDMA1900; Frequency: 1880 MHz; Duty Cycle: 1:1; PMF: 1

Medium: HSL 1900 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.399$ mho/m; $\epsilon_r = 38.946$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Probe: EX3DV4 - SN3573; ConvF(7.43, 7.43, 7.43); Calibrated: 2012-02-23;

Sensor-Surface: 4mm (Mechanical Surface Detection)

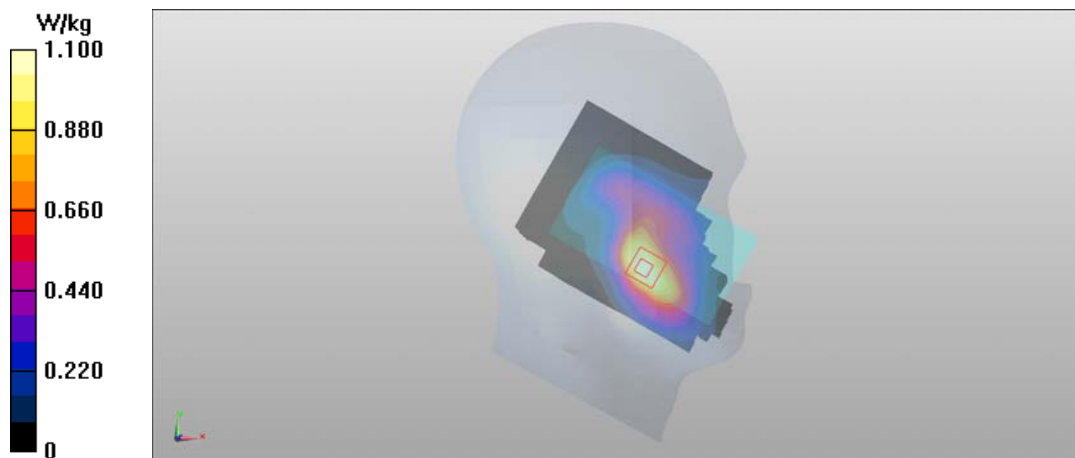
Electronics: DAE4 Sn793; Calibrated: 2011-09-16

Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1449

Measurement SW: DASY4, Version 4.7 (80)

Fast SAR of Combined Scans: SAR(1 g) = 0.996 mW/g; SAR(10 g) = 0.586 mW/g

Maximum value of SAR (interpolated) = 1.10 W/kg



Date/Time: 2012-06-22 01:12:35

DASY Configuration for WLAN - Right/Cheek - Middle/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-820; Serial: 004402/13/870740/5

Communication System: WLAN5000 n-mode; Frequency: 5180 MHz; Duty Cycle: 1:1; PMF: 1

Medium: HSL5200 Medium parameters used: $f = 5180$ MHz; $\sigma = 4.442$ mho/m; $\epsilon_r = 34.598$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Probe: EX3DV4 - SN3834; ConvF(4.81, 4.81, 4.81); Calibrated: 2012-02-07;

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1213; Calibrated: 2012-02-14

Phantom: SAM1; Type: SAM; Serial: TP-1126

Measurement SW: DASY52, Version 52.8 (1)

Date/Time: 2012-08-13 11:31:22

DASY Configuration for 2-slot GPRS - Right/Cheek - Middle/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979590/4

Communication System: 2-slot GPRS850; Frequency: 836.6 MHz; Duty Cycle: 1:4.19952; PMF: 2.04927

Medium: HSL850 Medium parameters used: $f = 837$ MHz; $\sigma = 0.908$ mho/m; $\epsilon_r = 40.953$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Probe: EX3DV4 - SN3790; ConvF(8.44, 8.44, 8.44); Calibrated: 2012-04-27;

Sensor-Surface: 4mm (Mechanical Surface Detection)

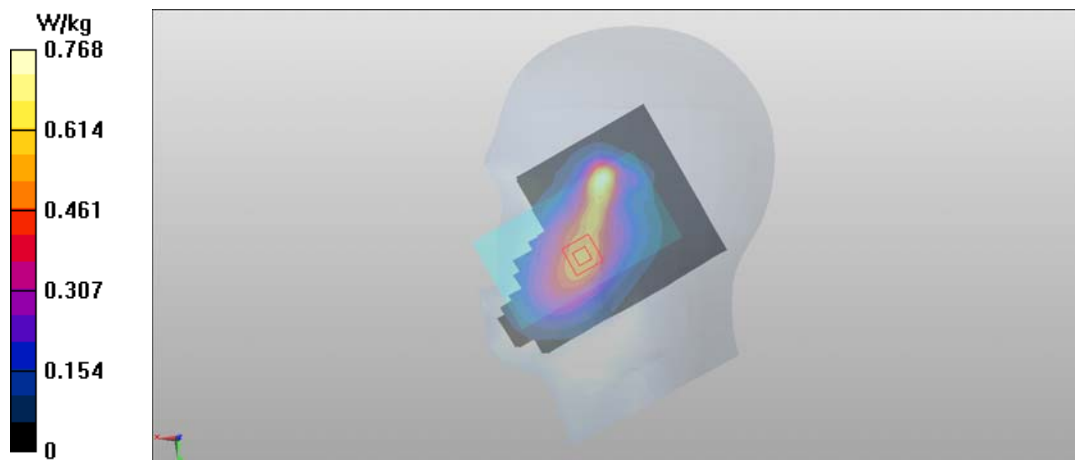
Electronics: DAE4 Sn1316; Calibrated: 2012-02-15

Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1179

Measurement SW: DASY52, Version 52.8 (0)

Fast SAR of Combined Scans: SAR(1 g) = 0.500 mW/g; SAR(10 g) = 0.347 mW/g

Maximum value of SAR (interpolated) = 0.768 W/kg



Date/Time: 2012-06-22 01:12:35

DASY Configuration for WLAN - Right/Cheek - Middle/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-820; Serial: 004402/13/870740/5

Communication System: WLAN5000 n-mode; Frequency: 5180 MHz; Duty Cycle: 1:1; PMF: 1

Medium: HSL5200 Medium parameters used: $f = 5180 \text{ MHz}$; $\sigma = 4.442 \text{ mho/m}$; $\epsilon_r = 34.598$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Probe: EX3DV4 - SN3834; ConvF(4.81, 4.81, 4.81); Calibrated: 2012-02-07;

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1213; Calibrated: 2012-02-14

Phantom: SAM1; Type: SAM; Serial: TP-1126

Measurement SW: DASY52, Version 52.8 (1)

Date/Time: 2012-08-13 08:57:38

DASY Configuration for WCDMA - Right/Cheek - Low/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979595/3

Communication System: WCDMA850; Frequency: 826.4 MHz; Duty Cycle: 1:1; PMF: 1

Medium: HSL850 Medium parameters used (interpolated): $f = 826.4 \text{ MHz}$; $\sigma = 0.901 \text{ mho/m}$; $\epsilon_r = 40.995$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Probe: EX3DV4 - SN3790; ConvF(8.44, 8.44, 8.44); Calibrated: 2012-04-27;

Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))

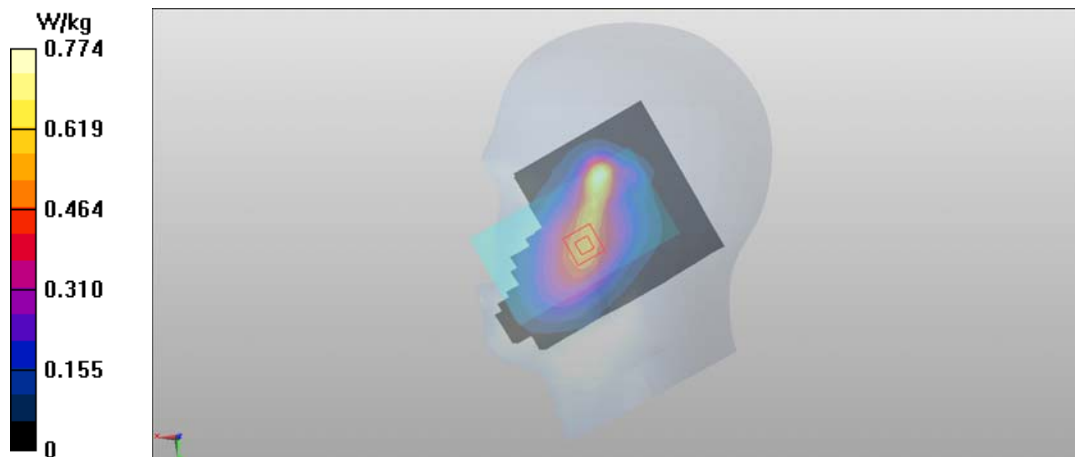
Electronics: DAE4 Sn1316; Calibrated: 2012-02-15

Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1179

Measurement SW: DASY52, Version 52.8 (0)

Fast SAR of Combined Scans: SAR(1 g) = 0.502 mW/g; SAR(10 g) = 0.352 mW/g

Maximum value of SAR (interpolated) = 0.774 W/kg



Date/Time: 2012-06-21 14:24:57

DASY Configuration for WLAN - Left/Cheek - Channel 36/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-820; Serial: 004402/13/870740/5

Communication System: WLAN5000 n-mode; Frequency: 5180 MHz; Duty Cycle: 1:1; PMF: 1

Medium: HSL5200 Medium parameters used: $f = 5180$ MHz; $\sigma = 4.442$ mho/m; $\epsilon_r = 34.598$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Probe: EX3DV4 - SN3834; ConvF(4.81, 4.81, 4.81); Calibrated: 2012-02-07;

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1213; Calibrated: 2012-02-14

Phantom: SAM1; Type: SAM; Serial: TP-1126

Measurement SW: DASY52, Version 52.8 (1)

Date/Time: 2012-08-12 09:23:03

DASY Configuration for 2-slot GPRS - Left/Cheek - High/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979581/3

Communication System: 2-slot GPRS1900; Frequency: 1909.8 MHz; Duty Cycle: 1:4.2; PMF: 2.04939

Medium: HSL 1900 Medium parameters used: $f = 1910$ MHz; $\sigma = 1.431$ mho/m; $\epsilon_r = 39.468$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Probe: EX3DV4 - SN3573; ConvF(7.43, 7.43, 7.43); Calibrated: 2012-02-23;

Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))

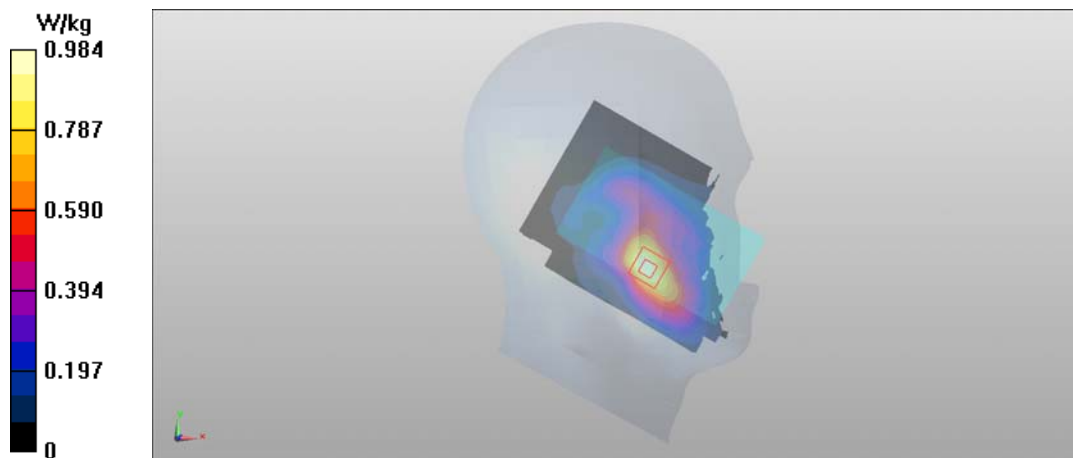
Electronics: DAE4 Sn538; Calibrated: 2012-08-03

Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1449

Measurement SW: DASY4, Version 4.7 (80)

Fast SAR of Combined Scans: SAR(1 g) = 0.848 mW/g; SAR(10 g) = 0.479 mW/g

Maximum value of SAR (interpolated) = 0.984 W/kg



Date/Time: 2012-06-22 01:12:35

DASY Configuration for WLAN - Right/Cheek - Middle/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-820; Serial: 004402/13/870740/5

Communication System: WLAN5000 n-mode; Frequency: 5180 MHz; Duty Cycle: 1:1; PMF: 1

Medium: HSL5200 Medium parameters used: $f = 5180$ MHz; $\sigma = 4.442$ mho/m; $\epsilon_r = 34.598$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Probe: EX3DV4 - SN3834; ConvF(4.81, 4.81, 4.81); Calibrated: 2012-02-07;

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1213; Calibrated: 2012-02-14

Phantom: SAM1; Type: SAM; Serial: TP-1126

Measurement SW: DASY52, Version 52.8 (1)

Date/Time: 2012-08-09 03:24:15

DASY Configuration for WCDMA - Right/Cheek - Middle/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979510/2

Communication System: WCDMA1900; Frequency: 1880 MHz; Duty Cycle: 1:1; PMF: 1

Medium: HSL 1900 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.399$ mho/m; $\epsilon_r = 38.946$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Probe: EX3DV4 - SN3573; ConvF(7.43, 7.43, 7.43); Calibrated: 2012-02-23;

Sensor-Surface: 4mm (Mechanical Surface Detection)

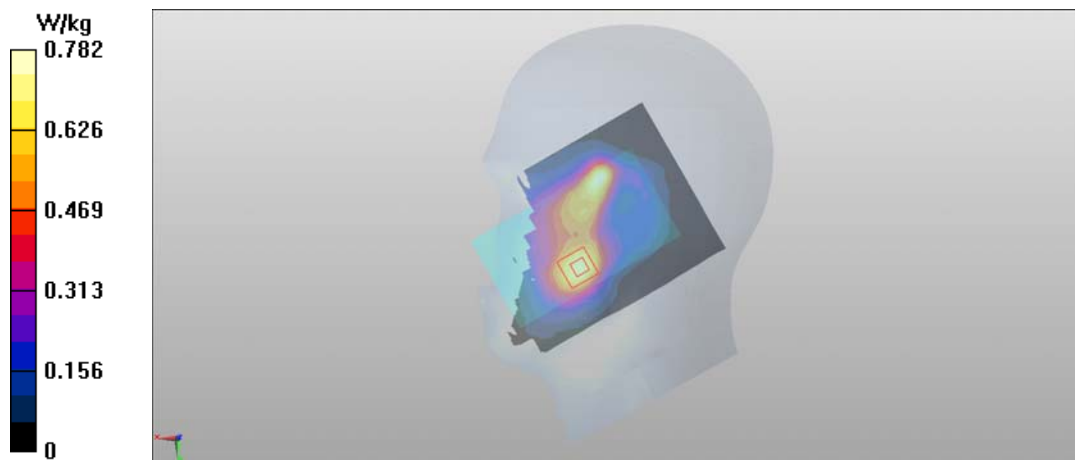
Electronics: DAE4 Sn793; Calibrated: 2011-09-16

Phantom: SAM 1; Type: Twin SAM 040 CA; Serial: TP-1449

Measurement SW: DASY4, Version 4.7 (80)

Fast SAR of Combined Scans: SAR(1 g) = 0.673 mW/g; SAR(10 g) = 0.400 mW/g

Maximum value of SAR (interpolated) = 0.782 W/kg



APPENDIX B.2: BODY-WORN MEASUREMENT SCANS

Date/Time: 2012-08-27 11:06:30

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979590/4

Communication System: 2-slot GPRS850

Frequency: 836.6 MHz; Duty Cycle: 1:4.19952

Medium: BSL850; Medium Notes: t= 20.9 C

Medium parameters used: f = 837 MHz; σ = 1.003 mho/m; ϵ_r = 53.448; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3790
- ConvF(8.54, 8.54, 8.54); Calibrated: 2012-04-27;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1316; Calibrated: 2012-02-15
- Phantom: SAM 3; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.6 (6824)

2-slot GPRS/Body - Middle - Spacer 15mm - No Accessory - Back Facing Phantom/Area Scan (81x121x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.354 W/kg

2-slot GPRS/Body - Middle - Spacer 15mm - No Accessory - Back Facing Phantom/Zoom Scan (5x5x7)/Cube 0:

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

Reference Value = 18.460 V/m

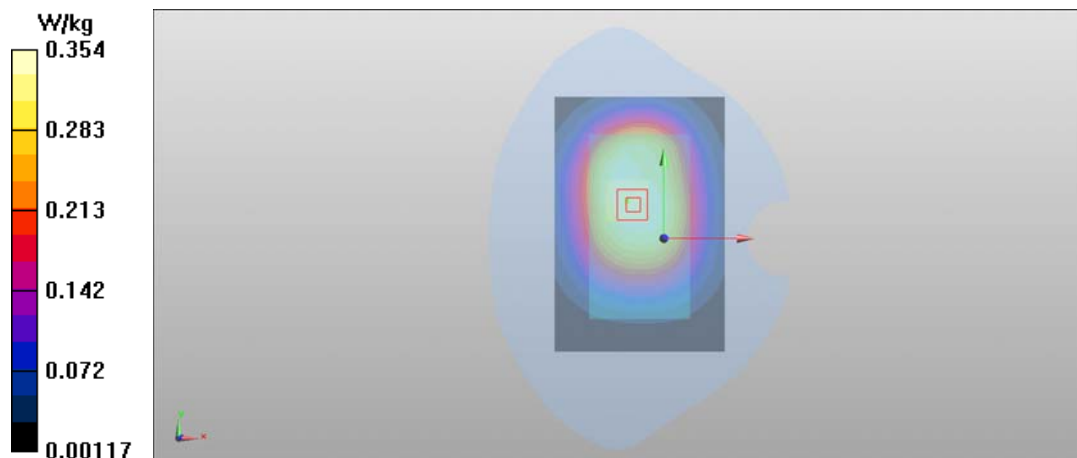
Peak SAR (extrapolated) = 0.411 mW/g

SAR(1 g) = 0.337 mW/g

SAR(10 g) = 0.266 mW/g

Power Drift = -0.28 dB

Maximum value of SAR (measured) = 0.351 W/kg



Date/Time: 2012-08-27 11:27:04

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979590/4

Communication System: 2-slot GPRS850

Frequency: 836.6 MHz; Duty Cycle: 1:4.19952

Medium: BSL850; Medium Notes: t= 20.9 C

Medium parameters used: f = 837 MHz; σ = 1.003 mho/m; ϵ_r = 53.448; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3790
- ConvF(8.54, 8.54, 8.54); Calibrated: 2012-04-27;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1316; Calibrated: 2012-02-15
- Phantom: SAM 3; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.6 (6824)

2-slot GPRS/Body - Middle - Spacer 15mm - WH-208 - Back Facing Phantom/Area Scan (81x121x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.307 W/kg

2-slot GPRS/Body - Middle - Spacer 15mm - WH-208 - Back Facing Phantom/Zoom Scan (5x6x7)/Cube 0:

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

Reference Value = 14.153 V/m

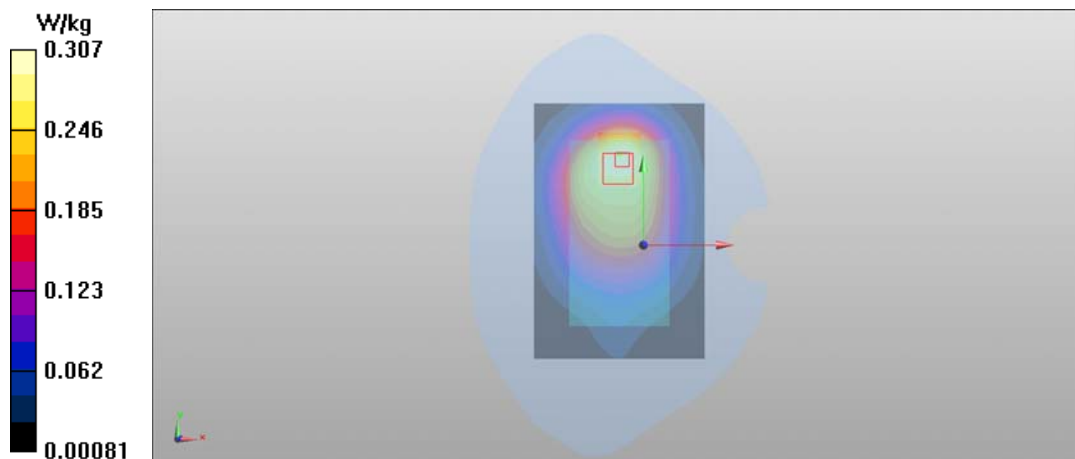
Peak SAR (extrapolated) = 0.403 mW/g

SAR(1 g) = 0.289 mW/g

SAR(10 g) = 0.208 mW/g

Power Drift = -0.25 dB

Maximum value of SAR (measured) = 0.304 W/kg



Date/Time: 2012-08-27 14:42:49

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979590/4

Communication System: 2-slot GPRS850

Frequency: 848.8 MHz; Duty Cycle: 1:4.19952

Medium: BSL850; Medium Notes: t= 20.9 C

Medium parameters used: f = 849 MHz; σ = 1.01 mho/m; ϵ_r = 53.379; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3790
- ConvF(8.54, 8.54, 8.54); Calibrated: 2012-04-27;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1316; Calibrated: 2012-02-15
- Phantom: SAM 3; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.6 (6824)

2-slot GPRS/Body - High - Spacer 15mm - No Accessory - Display Facing Phantom/Area Scan (81x121x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.564 W/kg

2-slot GPRS/Body - High - Spacer 15mm - No Accessory - Display Facing Phantom/Zoom Scan (5x5x7)/Cube 0:

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

Reference Value = 22.699 V/m

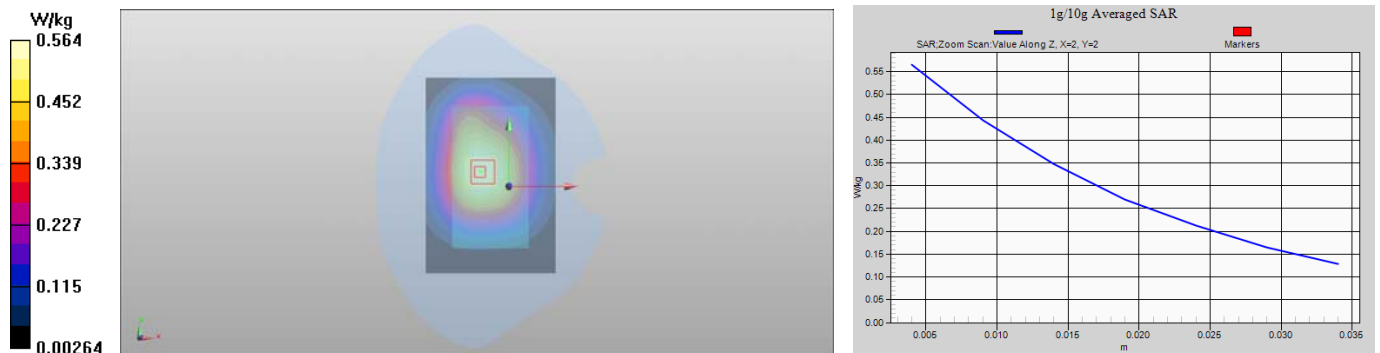
Peak SAR (extrapolated) = 0.677 mW/g

SAR(1 g) = 0.538 mW/g

SAR(10 g) = 0.412 mW/g

Power Drift = 0.04 dB

Maximum value of SAR (measured) = 0.565 W/kg



Date/Time: 2012-08-27 10:10:07

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979590/4

Communication System: 2-slot GPRS850

Frequency: 836.6 MHz; Duty Cycle: 1:4.19952

Medium: BSL850; Medium Notes: t= 20.9 C

Medium parameters used: f = 837 MHz; σ = 1.003 mho/m; ϵ_r = 53.448; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3790
- ConvF(8.54, 8.54, 8.54); Calibrated: 2012-04-27;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1316; Calibrated: 2012-02-15
- Phantom: SAM 3; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.6 (6824)

2-slot GPRS/Body - Middle - Spacer 15mm - WH-208 - Display Facing Phantom/Area Scan (81x121x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.301 W/kg

2-slot GPRS/Body - Middle - Spacer 15mm - WH-208 - Display Facing Phantom/Zoom Scan (6x7x7)/Cube 0:

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

Reference Value = 15.886 V/m

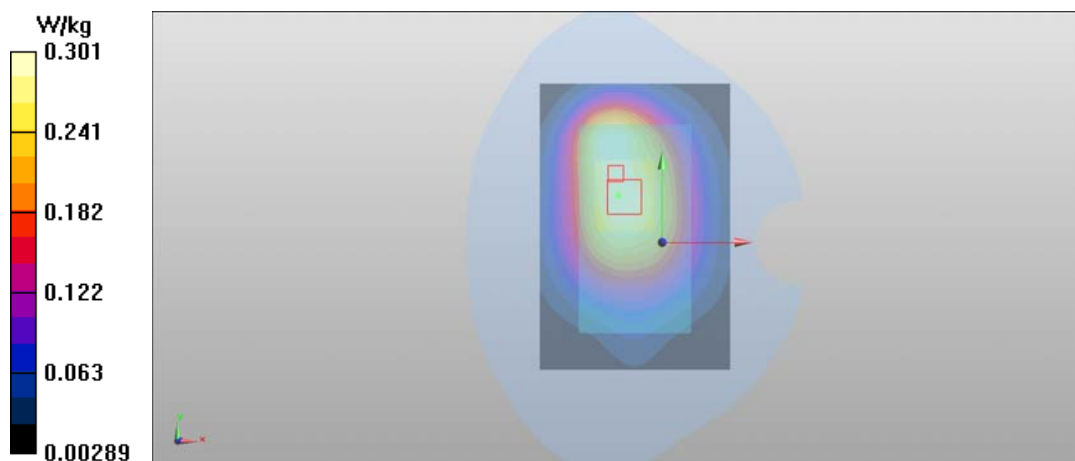
Peak SAR (extrapolated) = 0.377 mW/g

SAR(1 g) = 0.286 mW/g

SAR(10 g) = 0.219 mW/g

Power Drift = 0.02 dB

Maximum value of SAR (measured) = 0.300 W/kg



Date/Time: 2012-08-27 12:53:33

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979595/3

Communication System: WCDMA850

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: BSL850; Medium Notes: t= 20.9 C

Medium parameters used: f = 835 MHz; σ = 1.001 mho/m; ϵ_r = 53.459; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3790
- ConvF(8.54, 8.54, 8.54); Calibrated: 2012-04-27;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1316; Calibrated: 2012-02-15
- Phantom: SAM 3; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.6 (6824)

WCDMA/Body - Middle - Spacer 15mm - No Accessory - Back Facing Phantom/Area Scan (81x121x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.234 W/kg

WCDMA/Body - Middle - Spacer 15mm - No Accessory - Back Facing Phantom/Zoom Scan (6x7x7)/Cube 0:

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

Reference Value = 14.810 V/m

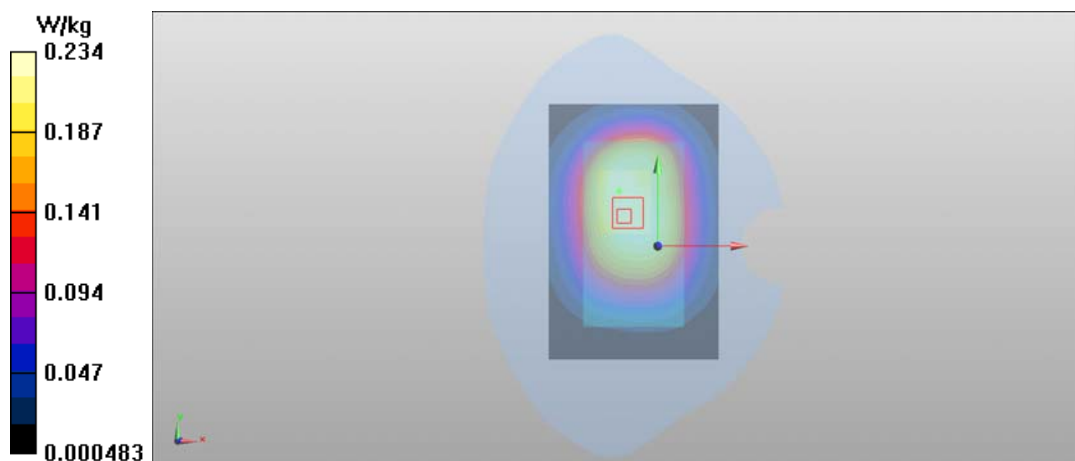
Peak SAR (extrapolated) = 0.274 mW/g

SAR(1 g) = 0.221 mW/g

SAR(10 g) = 0.175 mW/g

Power Drift = -0.16 dB

Maximum value of SAR (measured) = 0.233 W/kg



Date/Time: 2012-08-27 13:12:09

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979595/3

Communication System: WCDMA850

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: BSL850; Medium Notes: t= 20.9 C

Medium parameters used: f = 835 MHz; σ = 1.001 mho/m; ϵ_r = 53.459; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3790
- ConvF(8.54, 8.54, 8.54); Calibrated: 2012-04-27;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1316; Calibrated: 2012-02-15
- Phantom: SAM 3; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.6 (6824)

WCDMA/Body - Middle - Spacer 15mm - WH-208 - Back Facing Phantom/Area Scan (81x121x1): Interpolated
grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.205 W/kg

WCDMA/Body - Middle - Spacer 15mm - WH-208 - Back Facing Phantom/Zoom Scan (6x6x7)/Cube 0:

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

Reference Value = 12.014 V/m

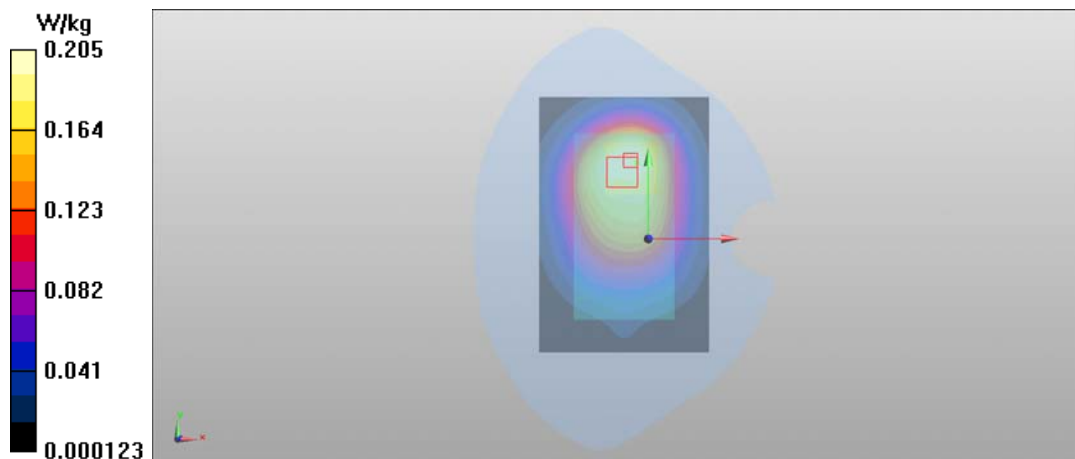
Peak SAR (extrapolated) = 0.267 mW/g

SAR(1 g) = 0.194 mW/g

SAR(10 g) = 0.143 mW/g

Power Drift = 0.00 dB

Maximum value of SAR (measured) = 0.204 W/kg



Date/Time: 2012-08-27 15:33:08

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979595/3

Communication System: WCDMA850

Frequency: 846.6 MHz; Duty Cycle: 1:1

Medium: BSL850; Medium Notes: t= 20.9 C

Medium parameters used: f = 847 MHz; σ = 1.009 mho/m; ϵ_r = 53.388; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3790
- ConvF(8.54, 8.54, 8.54); Calibrated: 2012-04-27;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1316; Calibrated: 2012-02-15
- Phantom: SAM 3; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.6 (6824)

WCDMA/Body - High - Spacer 15mm - No Accessory - Display Facing Phantom/Area Scan (81x121x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.420 W/kg

WCDMA/Body - High - Spacer 15mm - No Accessory - Display Facing Phantom/Zoom Scan (5x5x7)/Cube 0:

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

Reference Value = 20.157 V/m

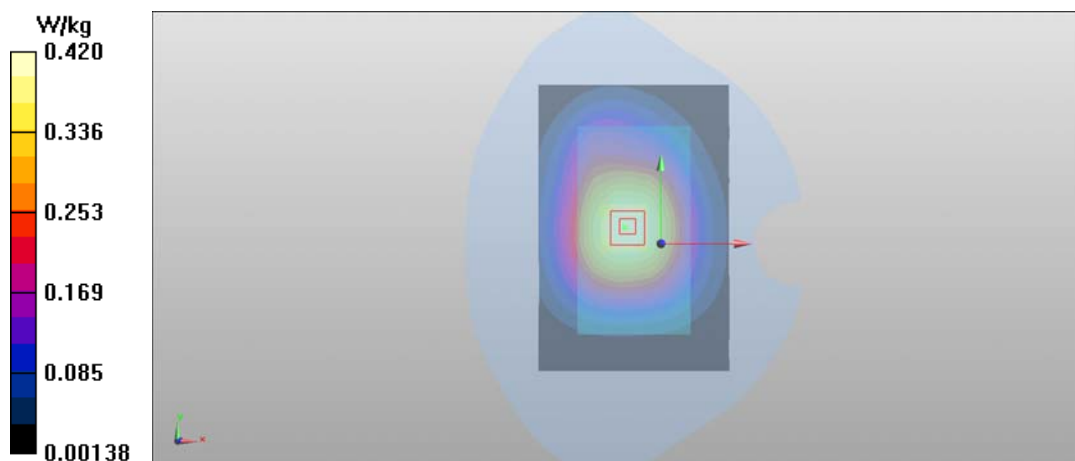
Peak SAR (extrapolated) = 0.481 mW/g

SAR(1 g) = 0.392 mW/g

SAR(10 g) = 0.302 mW/g

Power Drift = -0.17 dB

Maximum value of SAR (measured) = 0.411 W/kg



Date/Time: 2012-08-27 12:36:14

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979595/3

Communication System: WCDMA850

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: BSL850; Medium Notes: t= 20.9 C

Medium parameters used: f = 835 MHz; σ = 1.001 mho/m; ϵ_r = 53.459; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3790
- ConvF(8.54, 8.54, 8.54); Calibrated: 2012-04-27;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1316; Calibrated: 2012-02-15
- Phantom: SAM 3; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.6 (6824)

WCDMA/Body - Middle - Spacer 15mm - WH-208 - Display Facing Phantom/Area Scan (81x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.212 W/kg

WCDMA/Body - Middle - Spacer 15mm - WH-208 - Display Facing Phantom/Zoom Scan (5x5x7)/Cube 0:

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

Reference Value = 13.509 V/m

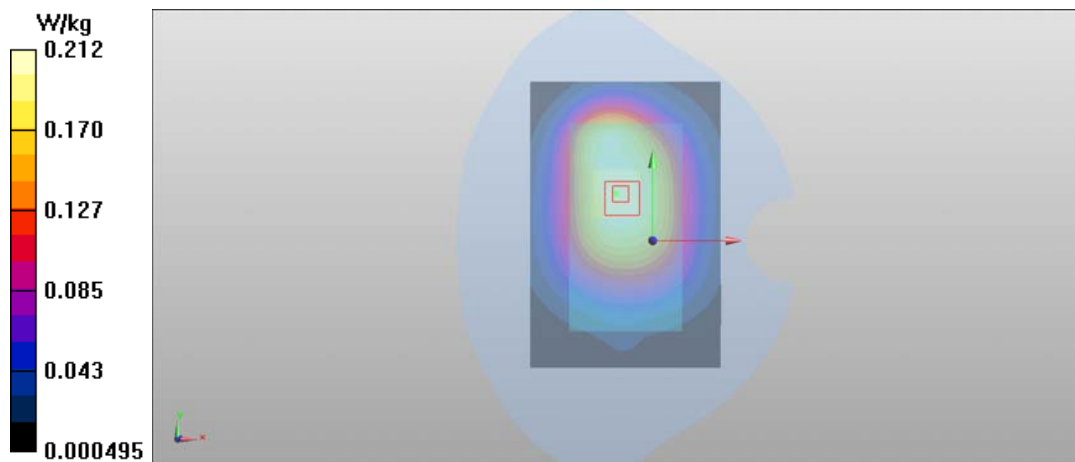
Peak SAR (extrapolated) = 0.253 mW/g

SAR(1 g) = 0.201 mW/g

SAR(10 g) = 0.155 mW/g

Power Drift = -0.06 dB

Maximum value of SAR (measured) = 0.210 W/kg



Date/Time: 2012-08-31 12:18:48

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979581/3

Communication System: 2-slot GPRS1900

Frequency: 1909.8 MHz; Duty Cycle: 1:4.2

Medium: BSL1900; Medium Notes: t= 20.6 C

Medium parameters used: f = 1910 MHz; σ = 1.512 mho/m; ϵ_r = 52.221; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3573
- ConvF(6.69, 6.69, 6.69); Calibrated: 2012-02-23;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2012-08-03
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.6 (6824)

2-slot GPRS/Body - High - Spacer 15mm - No Accessory - Back Facing Phantom/Area Scan (81x121x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.613 W/kg

2-slot GPRS/Body - High - Spacer 15mm - No Accessory - Back Facing Phantom/Zoom Scan (5x5x7)/Cube 0:

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

Reference Value = 8.293 V/m

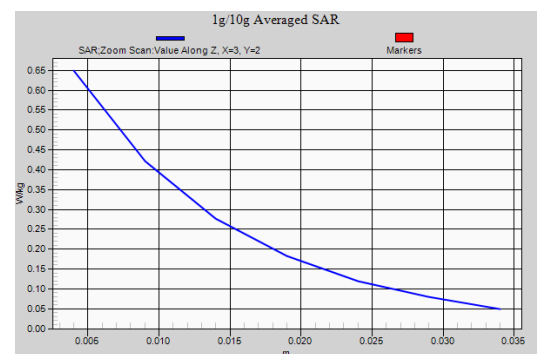
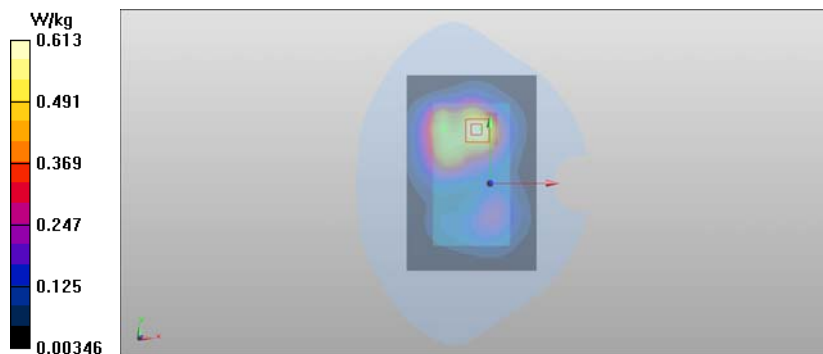
Peak SAR (extrapolated) = 0.935 mW/g

SAR(1 g) = 0.606 mW/g

SAR(10 g) = 0.381 mW/g

Power Drift = 0.27 dB

Maximum value of SAR (measured) = 0.649 W/kg



Date/Time: 2012-08-31 10:03:06

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979581/3

Communication System: 2-slot GPRS1900

Frequency: 1880 MHz; Duty Cycle: 1:4.2

Medium: BSL1900; Medium Notes: $t = 20.6$ C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.482$ mho/m; $\epsilon_r = 52.304$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3573
- ConvF(6.69, 6.69, 6.69); Calibrated: 2012-02-23;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2012-08-03
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.6 (6824)

2-slot GPRS/Body - Middle - Spacer 15mm - WH-208 - Back Facing Phantom/Area Scan (81x121x1):

Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.549 W/kg

2-slot GPRS/Body - Middle - Spacer 15mm - WH-208 - Back Facing Phantom/Zoom Scan (5x5x7)/Cube 0:

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

Reference Value = 8.283 V/m

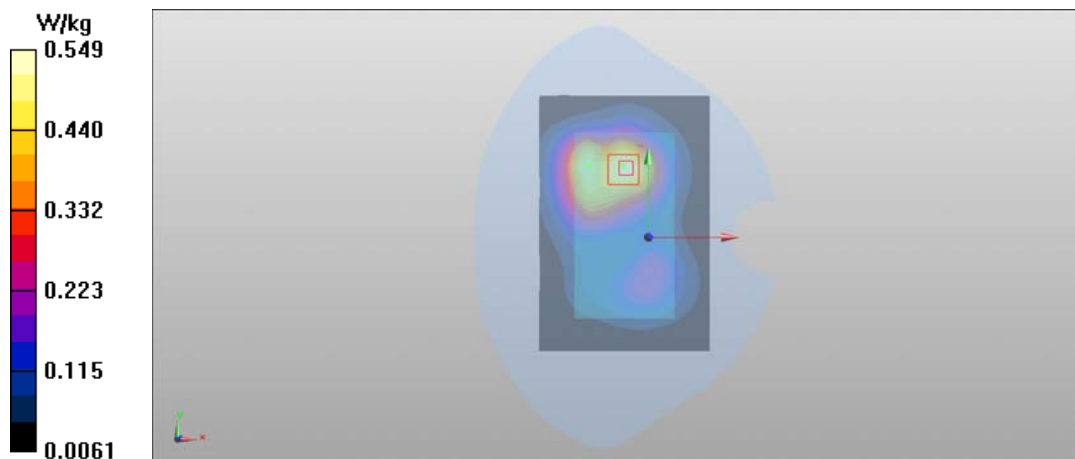
Peak SAR (extrapolated) = 0.757 mW/g

SAR(1 g) = 0.504 mW/g

SAR(10 g) = 0.324 mW/g

Power Drift = 0.06 dB

Maximum value of SAR (measured) = 0.537 W/kg



Date/Time: 2012-08-31 09:17:49

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979581/3

Communication System: 2-slot GPRS1900

Frequency: 1880 MHz; Duty Cycle: 1:4.2

Medium: BSL1900; Medium Notes: t= 20.6 C

Medium parameters used: f = 1880 MHz; σ = 1.482 mho/m; ϵ_r = 52.304; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3573
- ConvF(6.69, 6.69, 6.69); Calibrated: 2012-02-23;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2012-08-03
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.6 (6824)

2-slot GPRS/Body - Middle - Spacer 15mm - No Accessory - Display Facing Phantom/Area Scan (81x121x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.491 W/kg

2-slot GPRS/Body - Middle - Spacer 15mm - No Accessory - Display Facing Phantom/Zoom Scan (5x5x7)/Cube 0:

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

Reference Value = 7.932 V/m

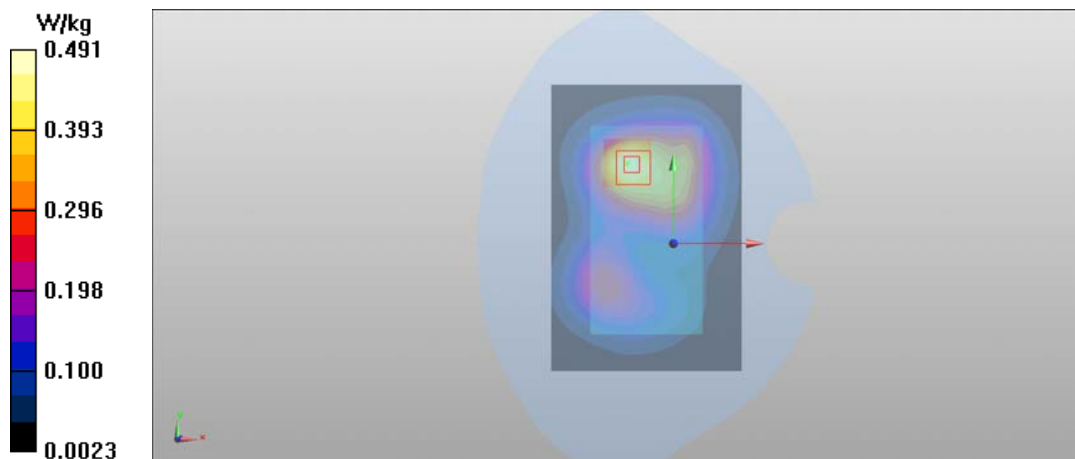
Peak SAR (extrapolated) = 0.685 mW/g

SAR(1 g) = 0.450 mW/g

SAR(10 g) = 0.290 mW/g

Power Drift = 0.24 dB

Maximum value of SAR (measured) = 0.482 W/kg



Date/Time: 2012-08-31 09:36:02

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979581/3

Communication System: 2-slot GPRS1900

Frequency: 1880 MHz; Duty Cycle: 1:4.2

Medium: BSL1900; Medium Notes: $t = 20.6$ C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.482$ mho/m; $\epsilon_r = 52.304$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3573
- ConvF(6.69, 6.69, 6.69); Calibrated: 2012-02-23;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2012-08-03
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.6 (6824)

2-slot GPRS/Body - Middle - Spacer 15mm - WH-208 - Display Facing Phantom/Area Scan (81x121x1):

Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.476 W/kg

2-slot GPRS/Body - Middle - Spacer 15mm - WH-208 - Display Facing Phantom/Zoom Scan (5x5x7)/Cube 0:

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

Reference Value = 8.463 V/m

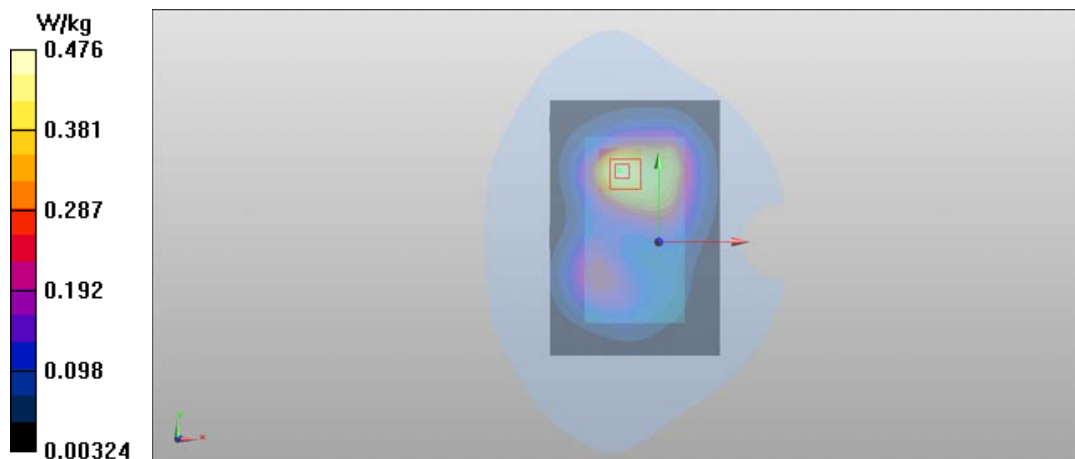
Peak SAR (extrapolated) = 0.643 mW/g

SAR(1 g) = 0.429 mW/g

SAR(10 g) = 0.277 mW/g

Power Drift = 0.05 dB

Maximum value of SAR (measured) = 0.463 W/kg



Date/Time: 2012-08-23 12:39:53

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979510/2

Communication System: WCDMA1900

Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: BSL1900; Medium Notes: $t = 21.1$ C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.503$ mho/m; $\epsilon_r = 51.72$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3573
- ConvF(6.69, 6.69, 6.69); Calibrated: 2012-02-23;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2012-08-03
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.6 (6824)

WCDMA/Body - Middle - Spacer 15mm - No Accessory - Back Facing Phantom/Area Scan (81x121x1):

Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.647 W/kg

WCDMA/Body - Middle - Spacer 15mm - No Accessory - Back Facing Phantom/Zoom Scan (5x5x7)/Cube 0:

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

Reference Value = 8.657 V/m

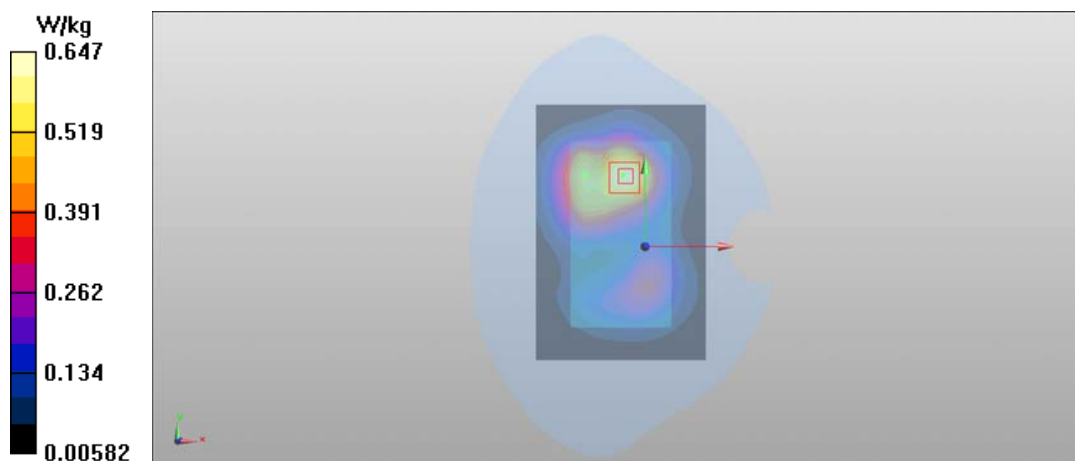
Peak SAR (extrapolated) = 0.906 mW/g

SAR(1 g) = 0.599 mW/g

SAR(10 g) = 0.383 mW/g

Power Drift = 0.04 dB

Maximum value of SAR (measured) = 0.644 W/kg



Date/Time: 2012-08-23 13:00:57

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979510/2

Communication System: WCDMA1900

Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: BSL1900; Medium Notes: $t = 21.1\text{ C}$

Medium parameters used: $f = 1880\text{ MHz}$; $\sigma = 1.503\text{ mho/m}$; $\epsilon_r = 51.72$; $\rho = 1000\text{ kg/m}^3$

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3573
- ConvF(6.69, 6.69, 6.69); Calibrated: 2012-02-23;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2012-08-03
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.6 (6824)

WCDMA/Body - Middle - Spacer 15mm - WH-208 - Back Facing Phantom/Area Scan (81x121x1): Interpolated
grid: $dx=1.500\text{ mm}$, $dy=1.500\text{ mm}$

Maximum value of SAR (interpolated) = 0.654 W/kg

WCDMA/Body - Middle - Spacer 15mm - WH-208 - Back Facing Phantom/Zoom Scan (5x5x7)/Cube 0:

Measurement grid: $dx=7.5\text{mm}$, $dy=7.5\text{mm}$, $dz=5\text{mm}$

Reference Value = 9.052 V/m

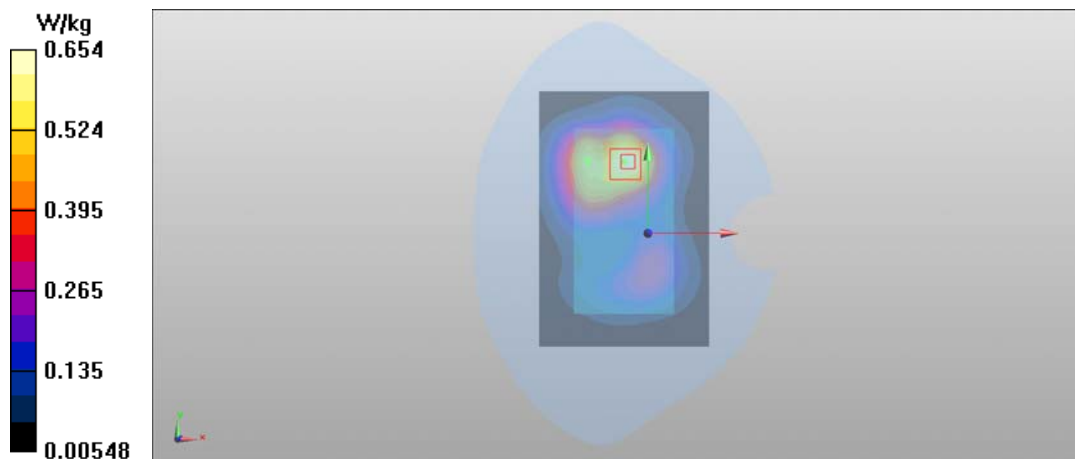
Peak SAR (extrapolated) = 0.909 mW/g

SAR(1 g) = 0.602 mW/g

SAR(10 g) = 0.385 mW/g

Power Drift = -0.03 dB

Maximum value of SAR (measured) = 0.644 W/kg



Date/Time: 2012-08-23 12:04:23

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979510/2

Communication System: WCDMA1900

Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: BSL1900; Medium Notes: $t = 21.1$ C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.503$ mho/m; $\epsilon_r = 51.72$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3573
- ConvF(6.69, 6.69, 6.69); Calibrated: 2012-02-23;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2012-08-03
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.6 (6824)

WCDMA/Body - Middle - Spacer 15mm - No Accessory - Display Facing Phantom/Area Scan (81x121x1):

Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.608 W/kg

WCDMA/Body - Middle - Spacer 15mm - No Accessory - Display Facing Phantom/Zoom Scan (5x5x7)/Cube 0:

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

Reference Value = 9.220 V/m

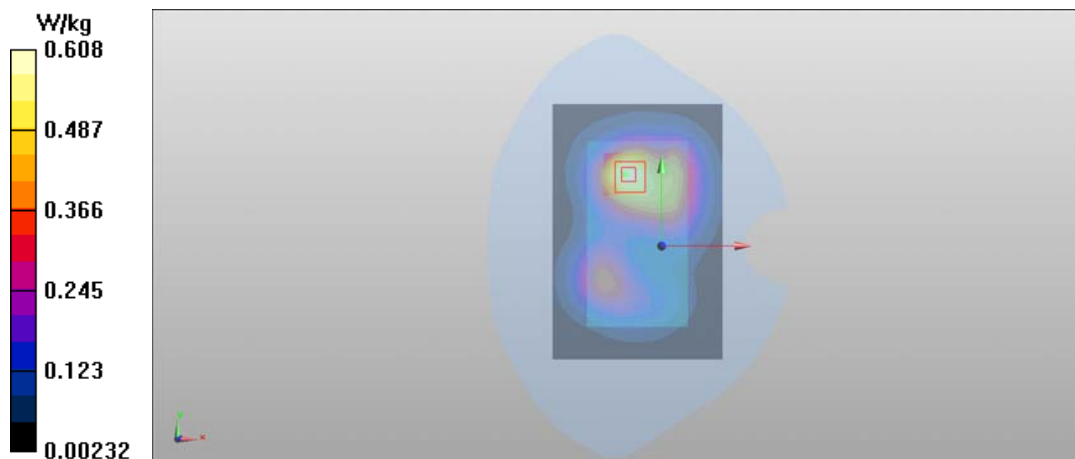
Peak SAR (extrapolated) = 0.809 mW/g

SAR(1 g) = 0.539 mW/g

SAR(10 g) = 0.348 mW/g

Power Drift = -0.05 dB

Maximum value of SAR (measured) = 0.575 W/kg



Date/Time: 2012-08-23 12:23:09

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979510/2

Communication System: WCDMA1900

Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: BSL1900; Medium Notes: $t = 21.1\text{ C}$

Medium parameters used: $f = 1880\text{ MHz}$; $\sigma = 1.503\text{ mho/m}$; $\epsilon_r = 51.72$; $\rho = 1000\text{ kg/m}^3$

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3573
- ConvF(6.69, 6.69, 6.69); Calibrated: 2012-02-23;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2012-08-03
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.6 (6824)

WCDMA/Body - Middle - Spacer 15mm - WH-208 - Display Facing Phantom/Area Scan (81x121x1): Interpolated grid: $dx=1.500\text{ mm}$, $dy=1.500\text{ mm}$

Maximum value of SAR (interpolated) = 0.587 W/kg

WCDMA/Body - Middle - Spacer 15mm - WH-208 - Display Facing Phantom/Zoom Scan (5x5x7)/Cube 0:

Measurement grid: $dx=7.5\text{mm}$, $dy=7.5\text{mm}$, $dz=5\text{mm}$

Reference Value = 9.340 V/m

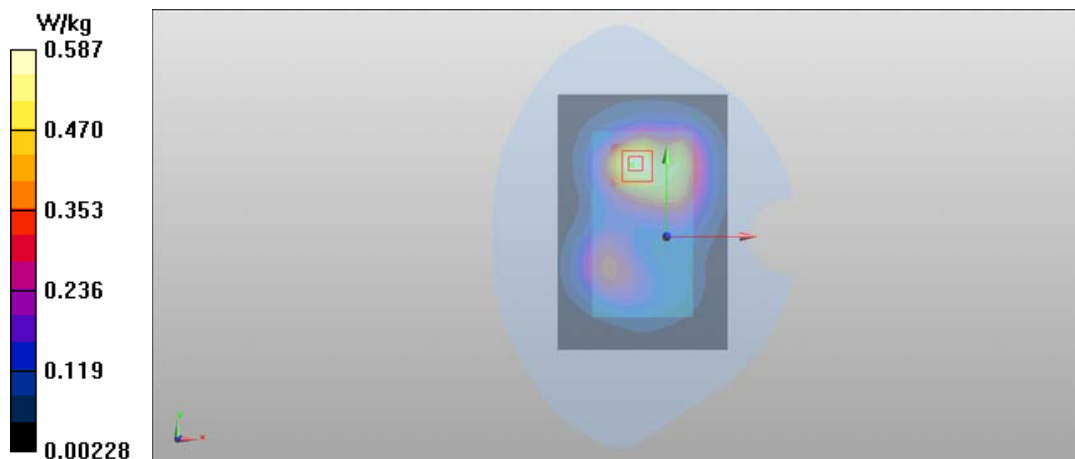
Peak SAR (extrapolated) = 0.806 mW/g

SAR(1 g) = 0.534 mW/g

SAR(10 g) = 0.344 mW/g

Power Drift = 0.06 dB

Maximum value of SAR (measured) = 0.571 W/kg



Date/Time: 2012-06-23 12:11:01

DASY Configuration for WLAN/Body - Middle - Spacer 15mm - No Accessory - Display Facing Phantom/Area

Scan:

Test Laboratory: TCC Nokia

Type: RM-820; Serial: 004402/13/870750/4

Communication System: WLAN2450 b-mode; Frequency: 2437 MHz; Duty Cycle: 1:1; PMF: 1

Medium: BSL2450 Medium parameters used: $f = 2437$ MHz; $\sigma = 1.953$ mho/m; $\epsilon_r = 50.372$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Probe: EX3DV4 - SN3573; ConvF(6.45, 6.45, 6.45); Calibrated: 2012-02-23;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn793; Calibrated: 2011-09-16

Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177

Measurement SW: DASY4, Version 4.7 (80)

Date/Time: 2012-08-27 14:42:49

DASY Configuration for 2-slot GPRS/Body - High - Spacer 15mm - No Accessory - Display Facing Phantom/Area

Scan:

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979590/4

Communication System: 2-slot GPRS850; Frequency: 848.8 MHz; Duty Cycle: 1:4.19952; PMF: 2.04927

Medium: BSL850 Medium parameters used: $f = 849$ MHz; $\sigma = 1.01$ mho/m; $\epsilon_r = 53.379$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Probe: EX3DV4 - SN3790; ConvF(8.54, 8.54, 8.54); Calibrated: 2012-04-27;

Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))

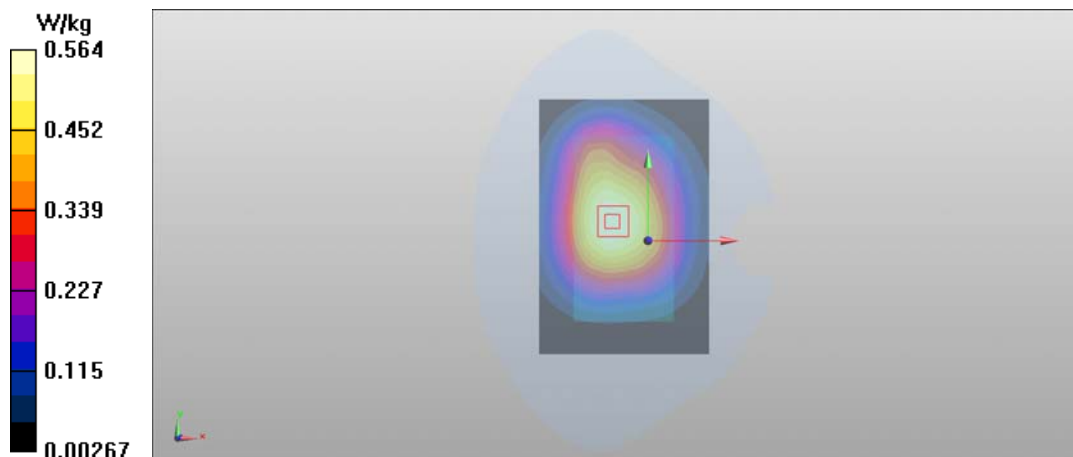
Electronics: DAE4 Sn1316; Calibrated: 2012-02-15

Phantom: SAM 3; Type: Twin SAM 040 CA; Serial: TP-1179

Measurement SW: DASY52, Version 52.8 (0)

Fast SAR of Combined Scans: SAR(1 g) = 0.535 mW/g; SAR(10 g) = 0.384 mW/g

Maximum value of SAR (interpolated) = 0.564 W/kg



Date/Time: 2012-06-23 12:11:01

DASY Configuration for WLAN/Body - Middle - Spacer 15mm - No Accessory - Display Facing Phantom/Area

Scan:

Test Laboratory: TCC Nokia

Type: RM-820; Serial: 004402/13/870750/4

Communication System: WLAN2450 b-mode; Frequency: 2437 MHz; Duty Cycle: 1:1; PMF: 1

Medium: BSL2450 Medium parameters used: $f = 2437$ MHz; $\sigma = 1.953$ mho/m; $\epsilon_r = 50.372$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Probe: EX3DV4 - SN3573; ConvF(6.45, 6.45, 6.45); Calibrated: 2012-02-23;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn793; Calibrated: 2011-09-16

Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177

Measurement SW: DASY4, Version 4.7 (80)

Date/Time: 2012-08-27 15:33:08

DASY Configuration for WCDMA/Body - High - Spacer 15mm - No Accessory - Display Facing Phantom/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979595/3

Communication System: WCDMA850; Frequency: 846.6 MHz; Duty Cycle: 1:1; PMF: 1

Medium: BSL850 Medium parameters used: $f = 847$ MHz; $\sigma = 1.009$ mho/m; $\epsilon_r = 53.388$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Probe: EX3DV4 - SN3790; ConvF(8.54, 8.54, 8.54); Calibrated: 2012-04-27;

Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))

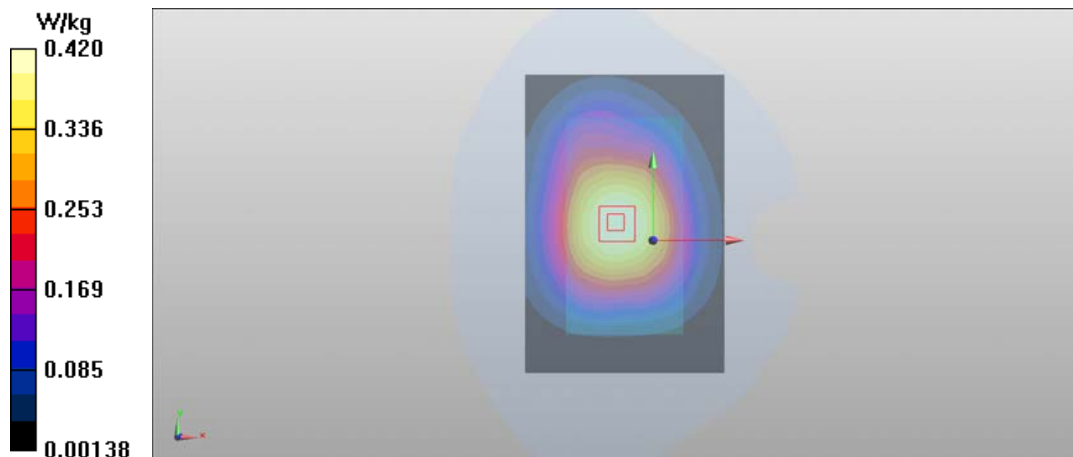
Electronics: DAE4 Sn1316; Calibrated: 2012-02-15

Phantom: SAM 3; Type: Twin SAM 040 CA; Serial: TP-1179

Measurement SW: DASY52, Version 52.8 (0)

Fast SAR of Combined Scans: SAR(1 g) = 0.398 mW/g; SAR(10 g) = 0.286 mW/g

Maximum value of SAR (interpolated) = 0.420 W/kg



Date/Time: 2012-06-23 18:10:16

DASY Configuration for WLAN/Body - Middle - Spacer 15mm - No Accessory - Back Facing Phantom/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-820; Serial: 004402/13/870750/4

Communication System: WLAN2450 b-mode; Frequency: 2437 MHz; Duty Cycle: 1:1; PMF: 1

Medium: BSL2450 Medium parameters used: $f = 2437$ MHz; $\sigma = 1.953$ mho/m; $\epsilon_r = 50.372$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Probe: EX3DV4 - SN3573; ConvF(6.45, 6.45, 6.45); Calibrated: 2012-02-23;
Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
Electronics: DAE4 Sn793; Calibrated: 2011-09-16
Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
Measurement SW: DASY4, Version 4.7 (80)

Date/Time: 2012-08-31 12:18:48

DASY Configuration for 2-slot GPRS/Body - High - Spacer 15mm - No Accessory - Back Facing Phantom/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979581/3

Communication System: 2-slot GPRS1900; Frequency: 1909.8 MHz; Duty Cycle: 1:4.2; PMF: 2.04939

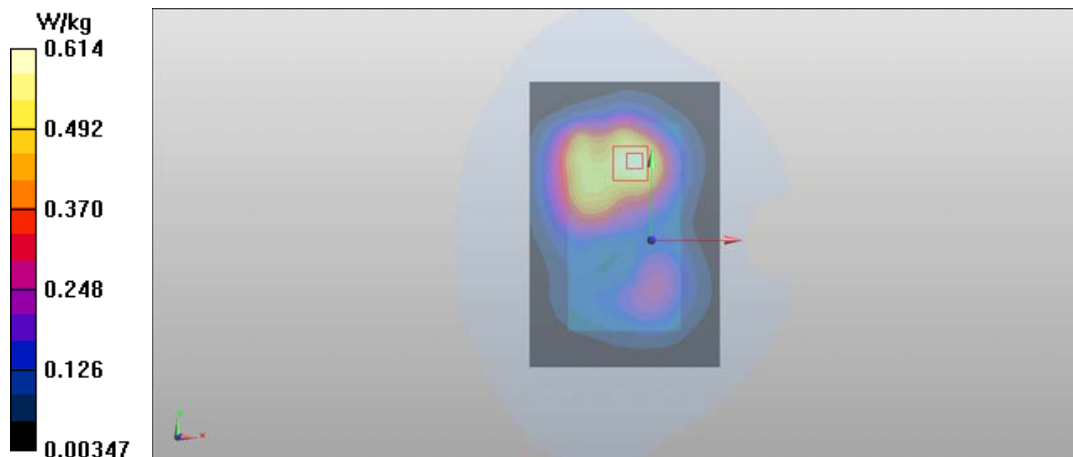
Medium: BSL1900 Medium parameters used: $f = 1910$ MHz; $\sigma = 1.512$ mho/m; $\epsilon_r = 52.221$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Probe: EX3DV4 - SN3573; ConvF(6.69, 6.69, 6.69); Calibrated: 2012-02-23;
Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
Electronics: DAE4 Sn538; Calibrated: 2012-08-03
Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
Measurement SW: DASY4, Version 4.7 (80)

Fast SAR of Combined Scans: SAR(1 g) = 0.564 mW/g; SAR(10 g) = 0.343 mW/g

Maximum value of SAR (interpolated) = 0.614 W/kg



Date/Time: 2012-06-23 18:37:10

DASY Configuration for WLAN/Body - Middle - Spacer 15mm - WH-208 - Back Facing Phantom/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-820; Serial: 004402/13/870750/4

Communication System: WLAN2450 b-mode; Frequency: 2437 MHz; Duty Cycle: 1:1; PMF: 1

Medium: BSL2450 Medium parameters used: $f = 2437$ MHz; $\sigma = 1.953$ mho/m; $\epsilon_r = 50.372$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Probe: EX3DV4 - SN3573; ConvF(6.45, 6.45, 6.45); Calibrated: 2012-02-23;
Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
Electronics: DAE4 Sn793; Calibrated: 2011-09-16
Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
Measurement SW: DASY4, Version 4.7 (80)

Date/Time: 2012-08-23 13:00:57

DASY Configuration for WCDMA/Body - Middle - Spacer 15mm - WH-208 - Back Facing Phantom/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979510/2

Communication System: WCDMA1900; Frequency: 1880 MHz; Duty Cycle: 1:1; PMF: 1

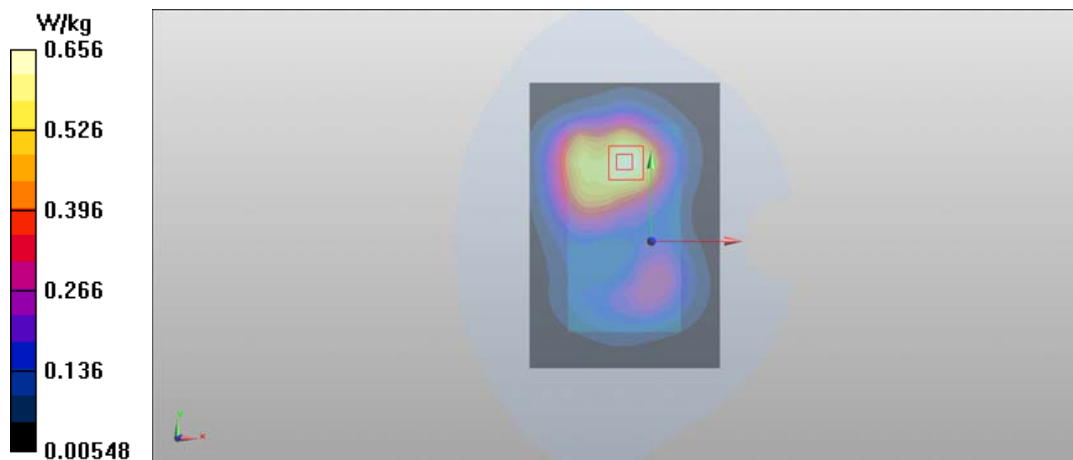
Medium: BSL1900 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.503$ mho/m; $\epsilon_r = 51.72$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Probe: EX3DV4 - SN3573; ConvF(6.69, 6.69, 6.69); Calibrated: 2012-02-23;
Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
Electronics: DAE4 Sn538; Calibrated: 2012-08-03
Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
Measurement SW: DASY4, Version 4.7 (80)

Fast SAR of Combined Scans: SAR(1 g) = 0.604 mW/g; SAR(10 g) = 0.368 mW/g

Maximum value of SAR (interpolated) = 0.656 W/kg



Date/Time: 2012-06-26 06:11:15

DASY Configuration for WLAN/Body - Channel 48 - Spacer 15mm - No Accessory - Display Facing Phantom/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-820; Serial: 004402/13/870740/5

Communication System: WLAN5000 n-mode; Frequency: 5240 MHz; Duty Cycle: 1:1; PMF: 1

Medium: BSL5000 Medium parameters used: $f = 5240$ MHz; $\sigma = 5.504$ mho/m; $\epsilon_r = 48.913$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Probe: EX3DV4 - SN3834; ConvF(3.99, 3.99, 3.99); Calibrated: 2012-02-07;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1213; Calibrated: 2012-02-14

Phantom: SAM2; Type: SAM; Serial: TP-1570

Measurement SW: DASY52, Version 52.8 (1)

Date/Time: 2012-08-27 14:42:49

DASY Configuration for 2-slot GPRS/Body - High - Spacer 15mm - No Accessory - Display Facing Phantom/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979590/4

Communication System: 2-slot GPRS850; Frequency: 848.8 MHz; Duty Cycle: 1:4.19952; PMF: 2.04927

Medium: BSL850 Medium parameters used: $f = 849$ MHz; $\sigma = 1.01$ mho/m; $\epsilon_r = 53.379$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Probe: EX3DV4 - SN3790; ConvF(8.54, 8.54, 8.54); Calibrated: 2012-04-27;

Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))

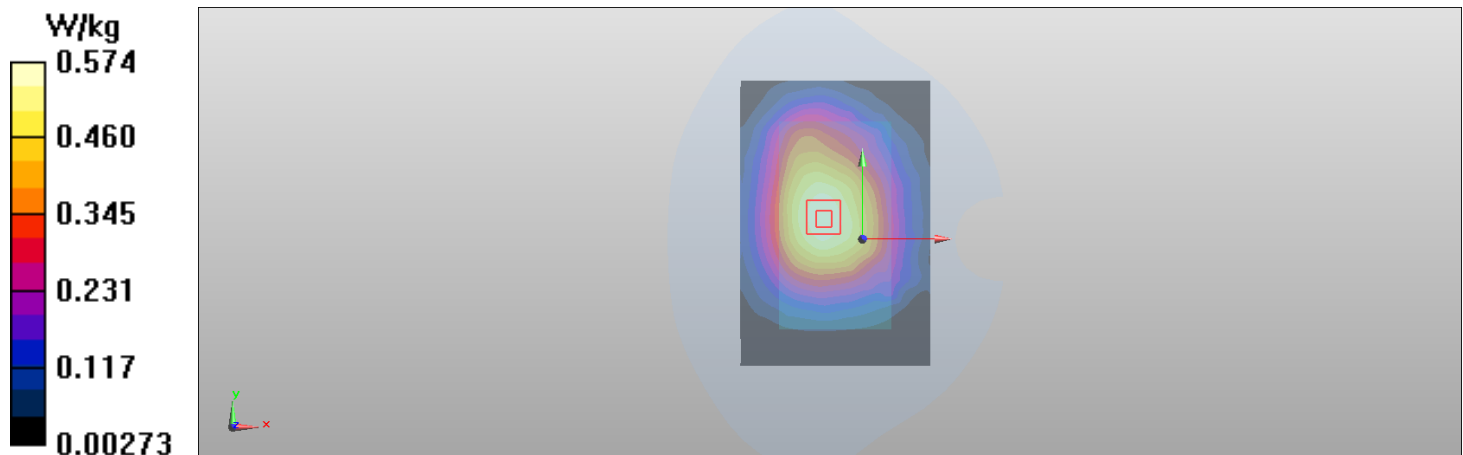
Electronics: DAE4 Sn1316; Calibrated: 2012-02-15

Phantom: SAM 3; Type: Twin SAM 040 CA; Serial: TP-1179

Measurement SW: DASY52, Version 52.8 (0)

Fast SAR of Combined Scans: SAR(1 g) = 0.544 mW/g; SAR(10 g) = 0.387 mW/g

Maximum value of SAR (interpolated) = 0.574 W/kg



Date/Time: 2012-06-26 06:11:15

DASY Configuration for WLAN/Body - Channel 48 - Spacer 15mm - No Accessory - Display Facing Phantom/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-820; Serial: 004402/13/870740/5

Communication System: WLAN5000 n-mode; Frequency: 5240 MHz; Duty Cycle: 1:1; PMF: 1

Medium: BSL5000 Medium parameters used: $f = 5240$ MHz; $\sigma = 5.504$ mho/m; $\epsilon_r = 48.913$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Probe: EX3DV4 - SN3834; ConvF(3.99, 3.99, 3.99); Calibrated: 2012-02-07;

Sensor-Surface: 4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1213; Calibrated: 2012-02-14

Phantom: SAM2; Type: SAM; Serial: TP-1570

Measurement SW: DASY52, Version 52.8 (1)

Date/Time: 2012-08-27 15:33:08

DASY Configuration for WCDMA/Body - High - Spacer 15mm - No Accessory - Display Facing Phantom/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979595/3

Communication System: WCDMA850; Frequency: 846.6 MHz; Duty Cycle: 1:1; PMF: 1

Medium: BSL850 Medium parameters used: $f = 847$ MHz; $\sigma = 1.009$ mho/m; $\epsilon_r = 53.388$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Probe: EX3DV4 - SN3790; ConvF(8.54, 8.54, 8.54); Calibrated: 2012-04-27;

Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))

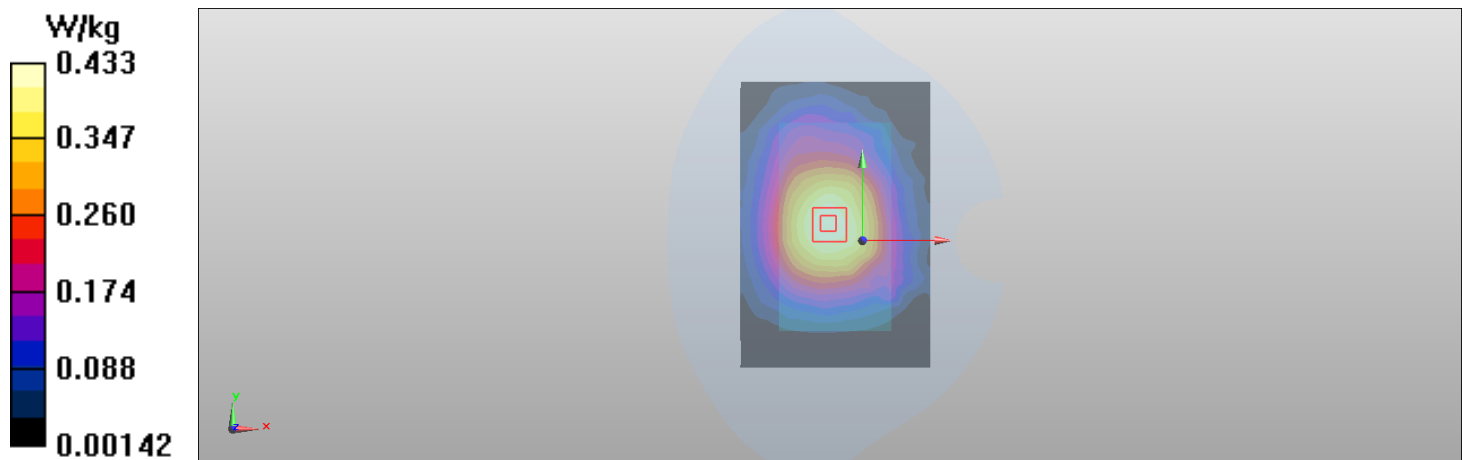
Electronics: DAE4 Sn1316; Calibrated: 2012-02-15

Phantom: SAM 3; Type: Twin SAM 040 CA; Serial: TP-1179

Measurement SW: DASY52, Version 52.8 (0)

Fast SAR of Combined Scans: SAR(1 g) = 0.410 mW/g; SAR(10 g) = 0.290 mW/g

Maximum value of SAR (interpolated) = 0.433 W/kg



Date/Time: 2012-06-29 05:27:17

DASY Configuration for WLAN/Body - Channel 132 - Spacer 15mm - No Accessory - Back Facing Phantom/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-820; Serial: 004402/13/870740/5

Communication System: WLAN5000 n-mode; Frequency: 5660 MHz; Duty Cycle: 1:1; PMF: 1

Medium: BSL5000 Medium parameters used: $f = 5660$ MHz; $\sigma = 6.035$ mho/m; $\epsilon_r = 47.922$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Probe: EX3DV4 - SN3834; ConvF(3.28, 3.28, 3.28); Calibrated: 2012-02-07;
Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used))
Electronics: DAE4 Sn1213; Calibrated: 2012-02-14
Phantom: SAM2; Type: SAM; Serial: TP-1570
Measurement SW: DASY52, Version 52.8 (1)

Date/Time: 2012-08-31 12:18:48

DASY Configuration for 2-slot GPRS/Body - High - Spacer 15mm - No Accessory - Back Facing Phantom/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979581/3

Communication System: 2-slot GPRS1900; Frequency: 1909.8 MHz; Duty Cycle: 1:4.2; PMF: 2.04939

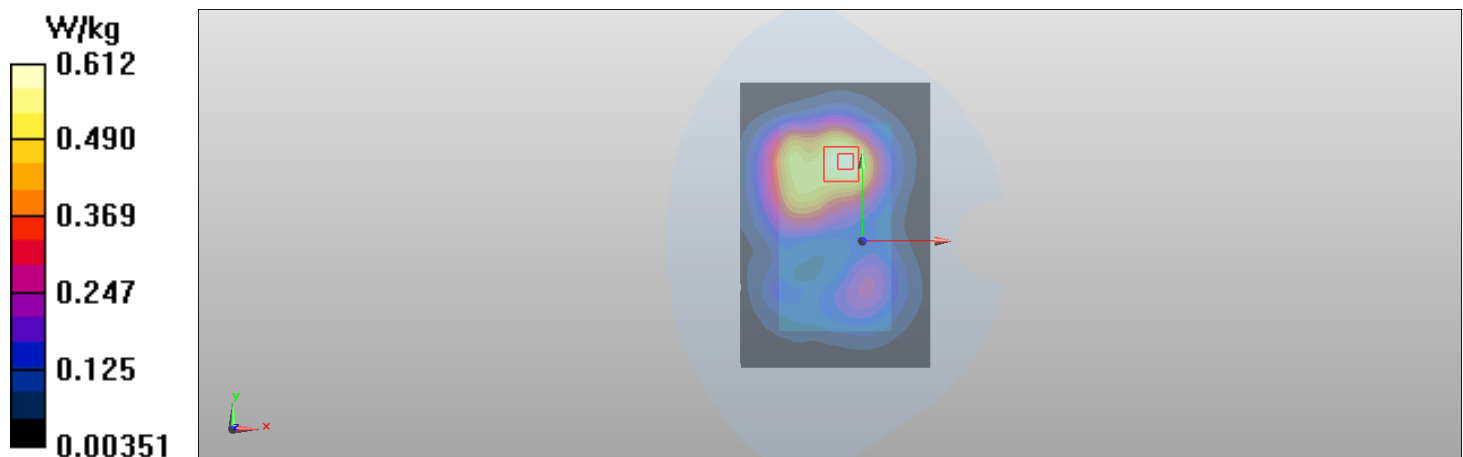
Medium: BSL1900 Medium parameters used: $f = 1910$ MHz; $\sigma = 1.512$ mho/m; $\epsilon_r = 52.221$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Probe: EX3DV4 - SN3573; ConvF(6.69, 6.69, 6.69); Calibrated: 2012-02-23;
Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
Electronics: DAE4 Sn538; Calibrated: 2012-08-03
Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
Measurement SW: DASY4, Version 4.7 (80)

Fast SAR of Combined Scans: SAR(1 g) = 0.564 mW/g; SAR(10 g) = 0.343 mW/g

Maximum value of SAR (interpolated) = 0.612 W/kg



Date/Time: 2012-06-29 05:27:17

DASY Configuration for WLAN/Body - Channel 132 - Spacer 15mm - No Accessory - Back Facing Phantom/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-820; Serial: 004402/13/870740/5

Communication System: WLAN5000 n-mode; Frequency: 5660 MHz; Duty Cycle: 1:1; PMF: 1

Medium: BSL5000 Medium parameters used: $f = 5660$ MHz; $\sigma = 6.035$ mho/m; $\epsilon_r = 47.922$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Probe: EX3DV4 - SN3834; ConvF(3.28, 3.28, 3.28); Calibrated: 2012-02-07;
Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used))
Electronics: DAE4 Sn1213; Calibrated: 2012-02-14
Phantom: SAM2; Type: SAM; Serial: TP-1570
Measurement SW: DASY52, Version 52.8 (1)

Date/Time: 2012-08-23 12:39:53

DASY Configuration for WCDMA/Body - Middle - Spacer 15mm - No Accessory - Back Facing Phantom/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979510/2

Communication System: WCDMA1900; Frequency: 1880 MHz; Duty Cycle: 1:1; PMF: 1

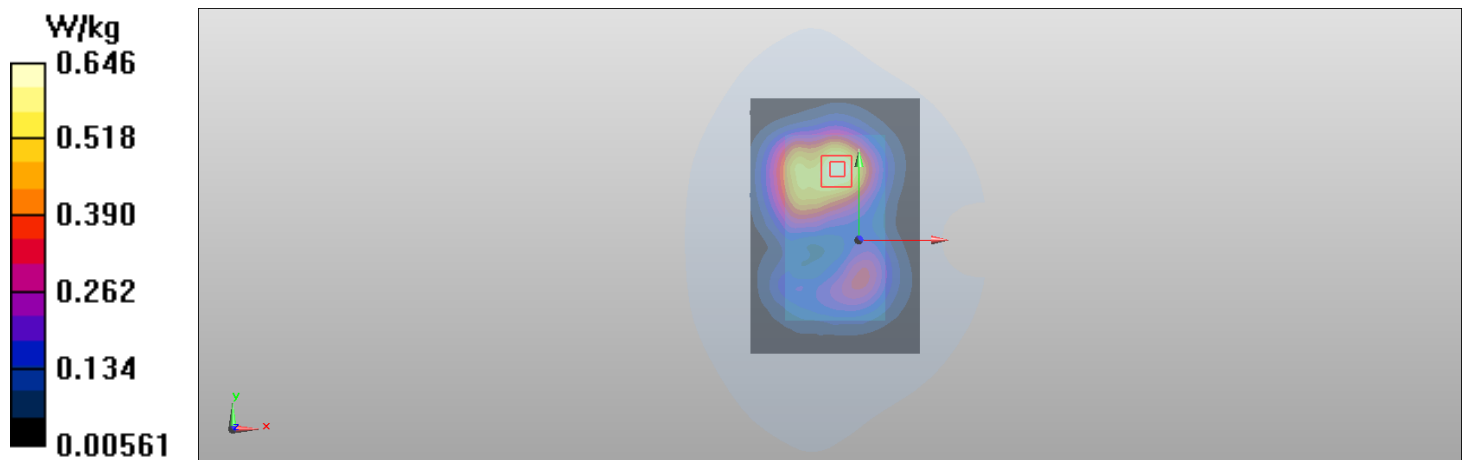
Medium: BSL1900 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.503$ mho/m; $\epsilon_r = 51.72$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Probe: EX3DV4 - SN3573; ConvF(6.69, 6.69, 6.69); Calibrated: 2012-02-23;
Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
Electronics: DAE4 Sn538; Calibrated: 2012-08-03
Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
Measurement SW: DASY4, Version 4.7 (80)

Fast SAR of Combined Scans: SAR(1 g) = 0.597 mW/g; SAR(10 g) = 0.364 mW/g

Maximum value of SAR (interpolated) = 0.646 W/kg



APPENDIX B.3: WIRELESS ROUTER MEASUREMENT SCANS

Date/Time: 2012-08-28 10:57:19

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979590/4

Communication System: 2-slot GPRS850

Frequency: 836.6 MHz; Duty Cycle: 1:4.19952

Medium: BSL850; Medium Notes: t= 21,4 C

Medium parameters used: f = 837 MHz; σ = 0.994 mho/m; ϵ_r = 53.326; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3790
- ConvF(8.54, 8.54, 8.54); Calibrated: 2012-04-27;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1316; Calibrated: 2012-02-15
- Phantom: SAM 3; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.6 (6824)

2-slot GPRS/Body - Middle - Spacer 10mm - No Accessory - Back Facing Phantom/Area Scan (81x121x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.557 W/kg

2-slot GPRS/Body - Middle - Spacer 10mm - No Accessory - Back Facing Phantom/Zoom Scan (5x5x7)/Cube 0:

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

Reference Value = 23.429 V/m

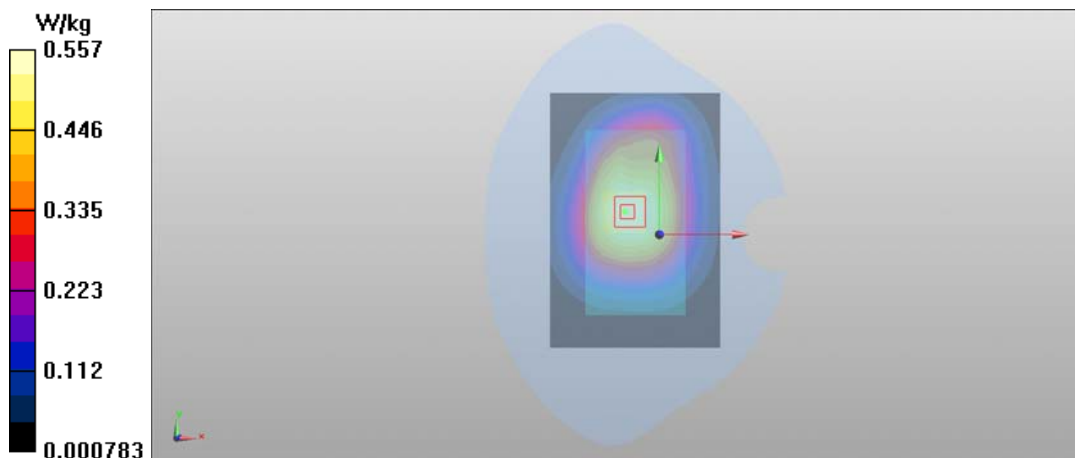
Peak SAR (extrapolated) = 0.646 mW/g

SAR(1 g) = 0.526 mW/g

SAR(10 g) = 0.406 mW/g

Power Drift = -0.37 dB

Maximum value of SAR (measured) = 0.552 W/kg



Date/Time: 2012-08-28 10:35:30

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979590/4

Communication System: 2-slot GPRS850

Frequency: 836.6 MHz; Duty Cycle: 1:4.19952

Medium: BSL850; Medium Notes: t= 21,4 C

Medium parameters used: f = 837 MHz; σ = 0.994 mho/m; ϵ_r = 53.326; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3790
- ConvF(8.54, 8.54, 8.54); Calibrated: 2012-04-27;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1316; Calibrated: 2012-02-15
- Phantom: SAM 3; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.6 (6824)

2-slot GPRS/Body - Middle - Spacer 10mm - No Accessory - Display Facing Phantom/Area Scan (81x121x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.725 W/kg

2-slot GPRS/Body - Middle - Spacer 10mm - No Accessory - Display Facing Phantom/Zoom Scan (5x5x7)/Cube 0:

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

Reference Value = 26.071 V/m

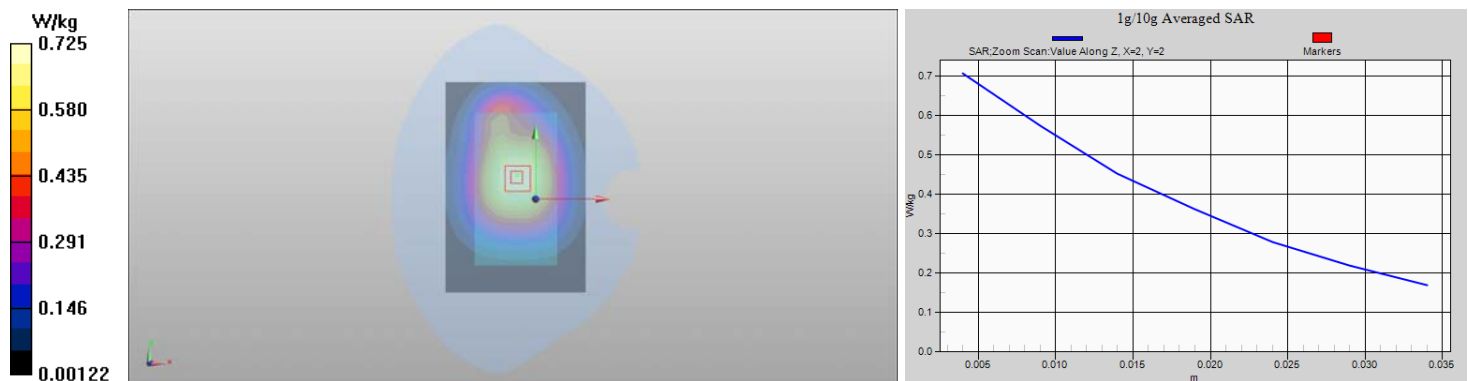
Peak SAR (extrapolated) = 0.827 mW/g

SAR(1 g) = 0.677 mW/g

SAR(10 g) = 0.525 mW/g

Power Drift = -0.28 dB

Maximum value of SAR (measured) = 0.706 W/kg



Date/Time: 2012-08-28 13:33:20

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979590/4

Communication System: 2-slot GPRS850

Frequency: 836.6 MHz; Duty Cycle: 1:4.19952

Medium: BSL850; Medium Notes: t= 21,4 C

Medium parameters used: f = 837 MHz; σ = 0.994 mho/m; ϵ_r = 53.326; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3790
- ConvF(8.54, 8.54, 8.54); Calibrated: 2012-04-27;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1316; Calibrated: 2012-02-15
- Phantom: SAM 3; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.6 (6824)

2-slot GPRS/Body - Middle - Spacer 10mm - No Accessory - Top Edge Facing Phantom/Area Scan (31x61x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.0505 W/kg

2-slot GPRS/Body - Middle - Spacer 10mm - No Accessory - Top Edge Facing Phantom/Zoom Scan (5x5x7)/Cube

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

Reference Value = 5.606 V/m

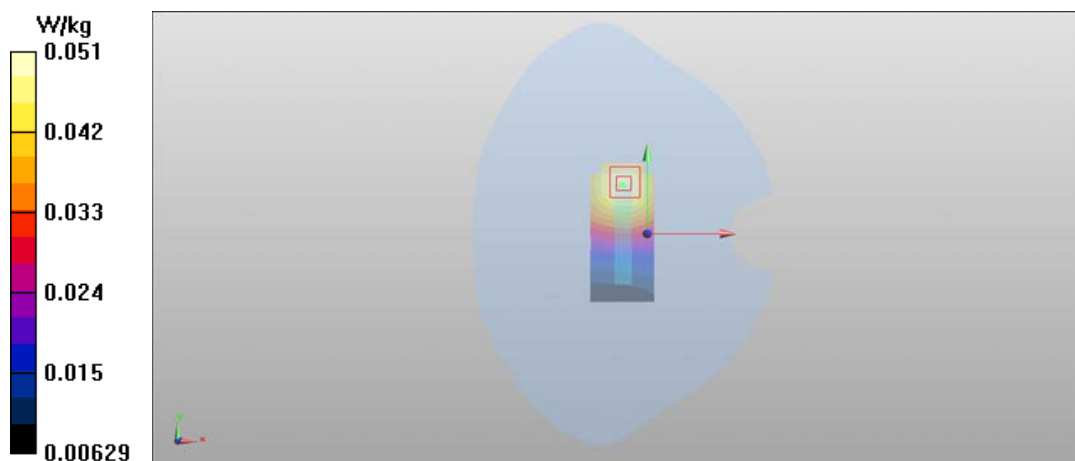
Peak SAR (extrapolated) = 0.060 mW/g

SAR(1 g) = 0.046 mW/g

SAR(10 g) = 0.034 mW/g

Power Drift = -0.18 dB

Maximum value of SAR (measured) = 0.0490 W/kg



Date/Time: 2012-08-28 13:45:38

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979590/4

Communication System: 2-slot GPRS850

Frequency: 836.6 MHz; Duty Cycle: 1:4.19952

Medium: BSL850; Medium Notes: t= 21,4 C

Medium parameters used: f = 837 MHz; σ = 0.994 mho/m; ϵ_r = 53.326; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3790
- ConvF(8.54, 8.54, 8.54); Calibrated: 2012-04-27;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1316; Calibrated: 2012-02-15
- Phantom: SAM 3; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.6 (6824)

2-slot GPRS/Body - Middle - Spacer 10mm - No Accessory - Bottom Edge Facing Phantom/Area Scan (31x61x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.397 W/kg

2-slot GPRS/Body - Middle - Spacer 10mm - No Accessory - Bottom Edge Facing Phantom/Zoom Scan

(5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 19.461 V/m

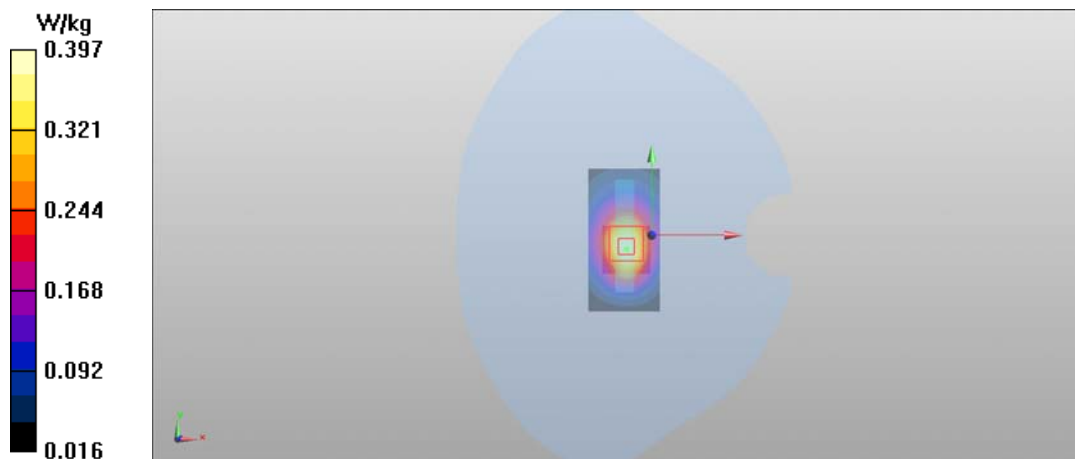
Peak SAR (extrapolated) = 0.593 mW/g

SAR(1 g) = 0.366 mW/g

SAR(10 g) = 0.225 mW/g

Power Drift = -0.05 dB

Maximum value of SAR (measured) = 0.401 W/kg



Date/Time: 2012-08-28 14:50:40

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979590/4

Communication System: 2-slot GPRS850

Frequency: 836.6 MHz; Duty Cycle: 1:4.19952

Medium: BSL850; Medium Notes: t= 21,4 C

Medium parameters used: f = 837 MHz; σ = 0.994 mho/m; ϵ_r = 53.326; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3790
- ConvF(8.54, 8.54, 8.54); Calibrated: 2012-04-27;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1316; Calibrated: 2012-02-15
- Phantom: SAM 3; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.6 (6824)

2-slot GPRS/Body - Middle - Spacer 10mm - No Accessory - Left Edge Facing Phantom/Area Scan (31x101x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.173 W/kg

2-slot GPRS/Body - Middle - Spacer 10mm - No Accessory - Left Edge Facing Phantom/Zoom Scan (6x7x7)/Cube

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

Reference Value = 13.538 V/m

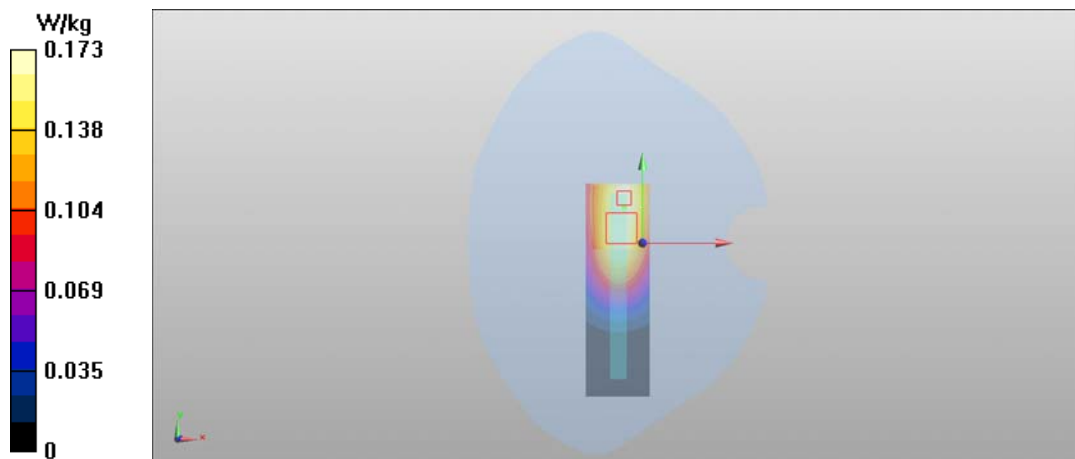
Peak SAR (extrapolated) = 0.236 mW/g

SAR(1 g) = 0.160 mW/g

SAR(10 g) = 0.113 mW/g

Power Drift = -0.24 dB

Maximum value of SAR (measured) = 0.172 W/kg



Date/Time: 2012-08-28 14:37:39

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979590/4

Communication System: 2-slot GPRS850

Frequency: 836.6 MHz; Duty Cycle: 1:4.19952

Medium: BSL850; Medium Notes: t= 21,4 C

Medium parameters used: f = 837 MHz; σ = 0.994 mho/m; ϵ_r = 53.326; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3790
- ConvF(8.54, 8.54, 8.54); Calibrated: 2012-04-27;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1316; Calibrated: 2012-02-15
- Phantom: SAM 3; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.6 (6824)

2-slot GPRS/Body - Middle - Spacer 10mm - No Accessory - Right Edge Facing Phantom/Area Scan (31x101x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.515 W/kg

2-slot GPRS/Body - Middle - Spacer 10mm - No Accessory - Right Edge Facing Phantom/Zoom Scan

(5x5x7)/Cube 0: Measurement grid: dx=7.5mm, dy=7.5mm, dz=5mm

Reference Value = 22.794 V/m

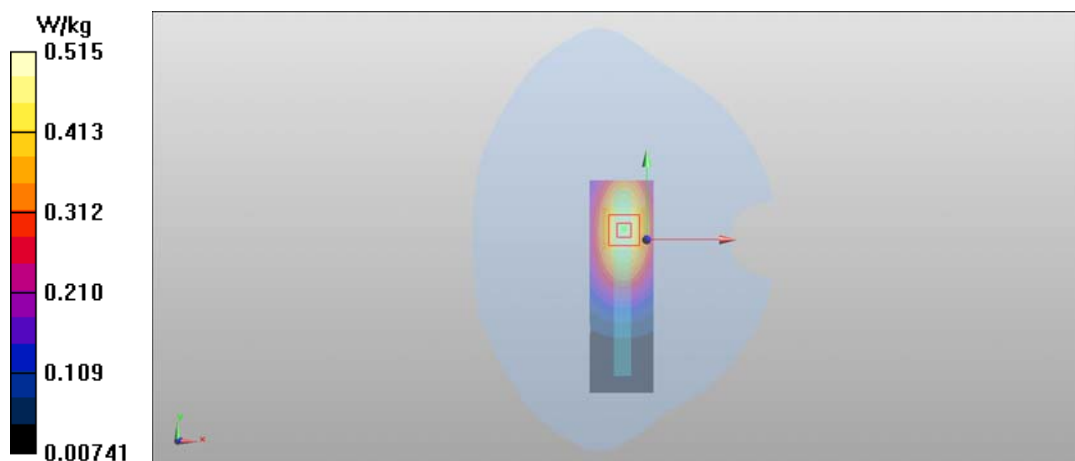
Peak SAR (extrapolated) = 0.668 mW/g

SAR(1 g) = 0.487 mW/g

SAR(10 g) = 0.341 mW/g

Power Drift = 0.00 dB

Maximum value of SAR (measured) = 0.520 W/kg



Date/Time: 2012-08-28 10:05:27

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979595/3

Communication System: WCDMA850

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: BSL850; Medium Notes: t= 21,4 C

Medium parameters used: f = 835 MHz; σ = 0.993 mho/m; ϵ_r = 53.347; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3790
- ConvF(8.54, 8.54, 8.54); Calibrated: 2012-04-27;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1316; Calibrated: 2012-02-15
- Phantom: SAM 3; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.6 (6824)

WCDMA/Body - Middle - Spacer 10mm - No Accessory - Back Facing Phantom/Area Scan (81x121x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.388 W/kg

WCDMA/Body - Middle - Spacer 10mm - No Accessory - Back Facing Phantom/Zoom Scan (5x5x7)/Cube 0:

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

Reference Value = 18.900 V/m

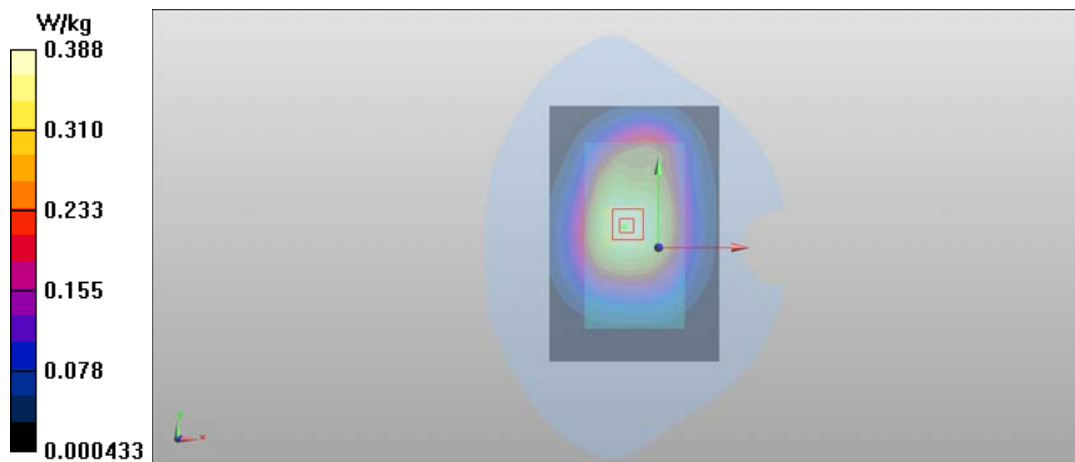
Peak SAR (extrapolated) = 0.450 mW/g

SAR(1 g) = 0.370 mW/g

SAR(10 g) = 0.287 mW/g

Power Drift = 0.00 dB

Maximum value of SAR (measured) = 0.388 W/kg



Date/Time: 2012-08-28 15:59:01

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979595/3

Communication System: WCDMA850

Frequency: 826.4 MHz; Duty Cycle: 1:1

Medium: BSL850; Medium Notes: t= 21,4 C

Medium parameters used (interpolated): f = 826.4 MHz; σ = 0.99 mho/m; ϵ_r = 53.431; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3790
- ConvF(8.54, 8.54, 8.54); Calibrated: 2012-04-27;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1316; Calibrated: 2012-02-15
- Phantom: SAM 3; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.6 (6824)

WCDMA/Body - Low - Spacer 10mm - No Accessory - Display Facing Phantom/Area Scan (81x121x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.557 W/kg

WCDMA/Body - Low - Spacer 10mm - No Accessory - Display Facing Phantom/Zoom Scan (5x5x7)/Cube 0:

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

Reference Value = 23.311 V/m

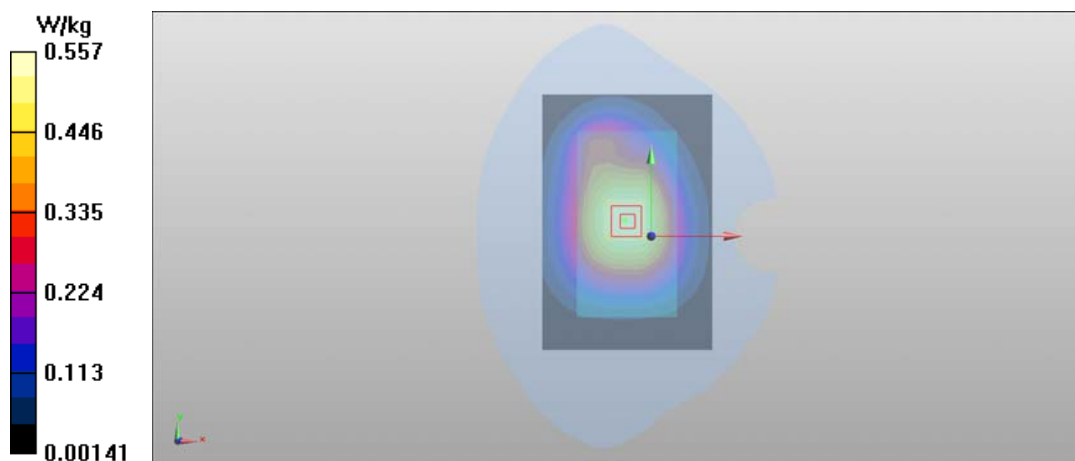
Peak SAR (extrapolated) = 0.641 mW/g

SAR(1 g) = 0.530 mW/g

SAR(10 g) = 0.411 mW/g

Power Drift = -0.04 dB

Maximum value of SAR (measured) = 0.558 W/kg



Date/Time: 2012-08-28 12:56:11

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979595/3

Communication System: WCDMA850

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: BSL850; Medium Notes: t= 21,4 C

Medium parameters used: f = 835 MHz; σ = 0.993 mho/m; ϵ_r = 53.347; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3790
- ConvF(8.57, 8.57, 8.57); Calibrated: 2011-05-24;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1316; Calibrated: 2012-02-15
- Phantom: SAM 3; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.6 (6824)

WCDMA/Body - Middle - Spacer 10mm - No Accessory - Top Edge Facing Phantom/Area Scan (31x61x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.0289 W/kg

WCDMA/Body - Middle - Spacer 10mm - No Accessory - Top Edge Facing Phantom/Zoom Scan (5x5x7)/Cube 0:

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

Reference Value = 4.660 V/m

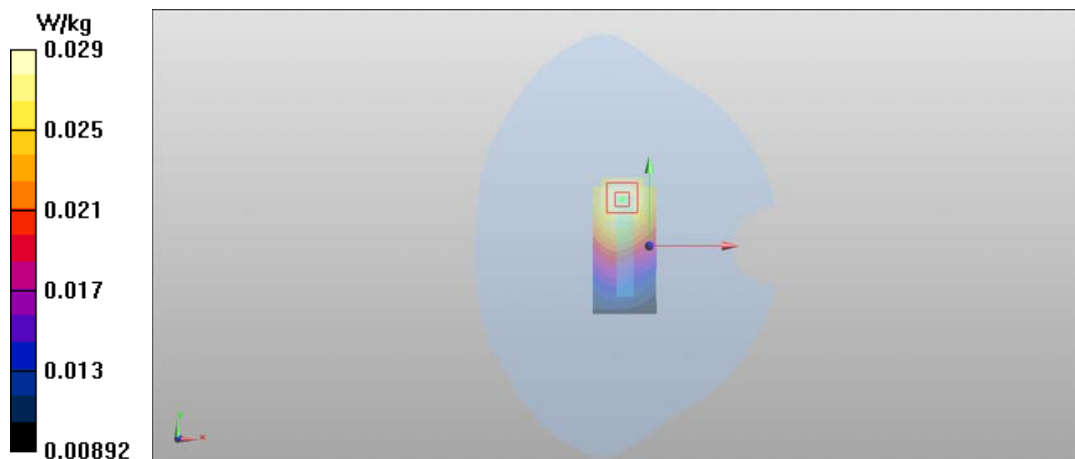
Peak SAR (extrapolated) = 0.037 mW/g

SAR(1 g) = 0.028 mW/g

SAR(10 g) = 0.021 mW/g

Power Drift = -0.03 dB

Maximum value of SAR (measured) = 0.0297 W/kg



Date/Time: 2012-08-28 13:07:38

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979595/3

Communication System: WCDMA850

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: BSL850; Medium Notes: t= 21,4 C

Medium parameters used: f = 835 MHz; σ = 0.993 mho/m; ϵ_r = 53.347; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3790
- ConvF(8.57, 8.57, 8.57); Calibrated: 2011-05-24;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1316; Calibrated: 2012-02-15
- Phantom: SAM 3; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.6 (6824)

WCDMA/Body - Middle - Spacer 10mm - No Accessory - Bottom Edge Facing Phantom/Area Scan (31x61x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.293 W/kg

WCDMA/Body - Middle - Spacer 10mm - No Accessory - Bottom Edge Facing Phantom/Zoom Scan (5x5x7)/Cube

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

Reference Value = 16.364 V/m

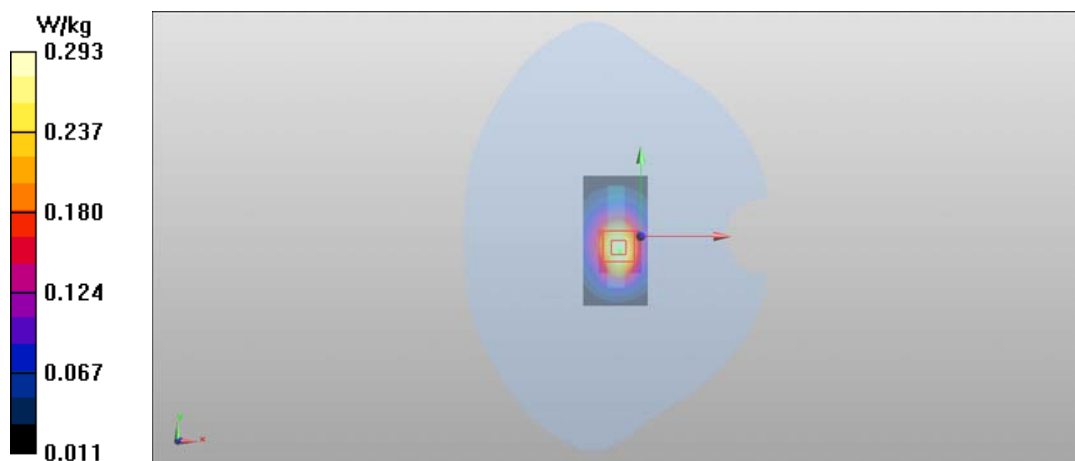
Peak SAR (extrapolated) = 0.437 mW/g

SAR(1 g) = 0.267 mW/g

SAR(10 g) = 0.162 mW/g

Power Drift = -0.04 dB

Maximum value of SAR (measured) = 0.290 W/kg



Date/Time: 2012-08-28 15:36:48

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979595/3

Communication System: WCDMA850

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: BSL850; Medium Notes: t= 21,4 C

Medium parameters used: f = 835 MHz; σ = 0.993 mho/m; ϵ_r = 53.347; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3790
- ConvF(8.57, 8.57, 8.57); Calibrated: 2011-05-24;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1316; Calibrated: 2012-02-15
- Phantom: SAM 3; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.6 (6824)

WCDMA/Body - Middle - Spacer 10mm - No accessory - Left Edge Facing Phantom/Area Scan (31x101x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.252 W/kg

WCDMA/Body - Middle - Spacer 10mm - No accessory - Left Edge Facing Phantom/Zoom Scan (5x5x7)/Cube 0:

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

Reference Value = 15.506 V/m

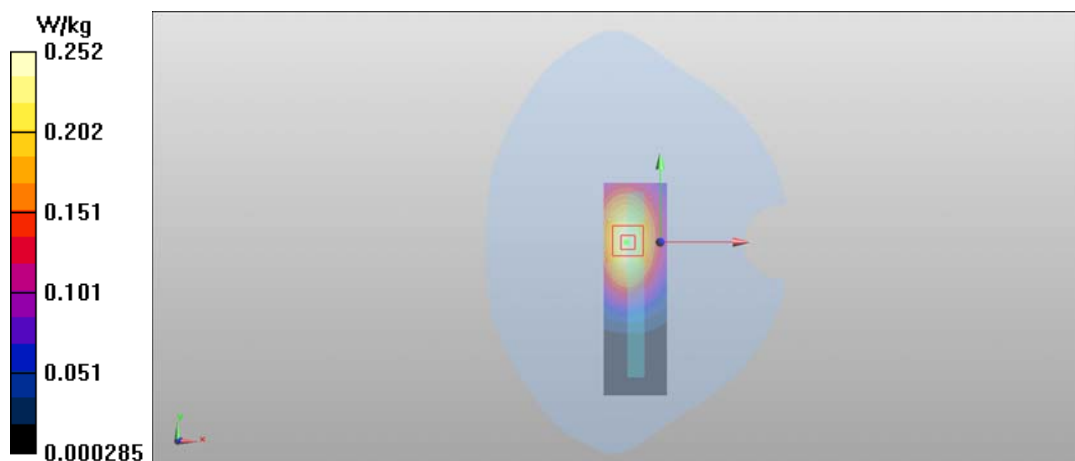
Peak SAR (extrapolated) = 0.324 mW/g

SAR(1 g) = 0.236 mW/g

SAR(10 g) = 0.165 mW/g

Power Drift = -0.08 dB

Maximum value of SAR (measured) = 0.252 W/kg



Date/Time: 2012-08-28 15:21:59

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979595/3

Communication System: WCDMA850

Frequency: 835 MHz; Duty Cycle: 1:1

Medium: BSL850; Medium Notes: t= 21,4 C

Medium parameters used: f = 835 MHz; σ = 0.993 mho/m; ϵ_r = 53.347; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3790
- ConvF(8.57, 8.57, 8.57); Calibrated: 2011-05-24;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1316; Calibrated: 2012-02-15
- Phantom: SAM 3; Type: Twin SAM 040 CA; Serial: TP-1179
- Measurement SW: DASY52, Version 52.8 (0); SEMCAD X Version 14.6.6 (6824)

WCDMA/Body - Middle - Spacer 10mm - No Accessory - Right Edge Facing Phantom/Area Scan (31x101x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.449 W/kg

WCDMA/Body - Middle - Spacer 10mm - No accessory - Right Edge Facing Phantom/Zoom Scan (5x5x7)/Cube 0:

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

Reference Value = 21.239 V/m

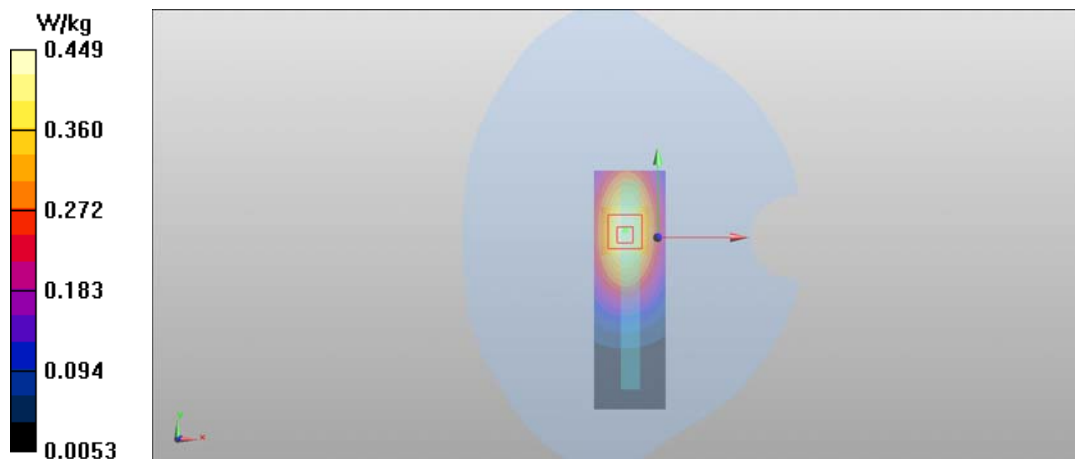
Peak SAR (extrapolated) = 0.584 mW/g

SAR(1 g) = 0.421 mW/g

SAR(10 g) = 0.294 mW/g

Power Drift = -0.03 dB

Maximum value of SAR (measured) = 0.446 W/kg



Date/Time: 2012-08-31 12:39:24

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979581/3

Communication System: 2-slot GPRS1900

Frequency: 1880 MHz; Duty Cycle: 1:4.2

Medium: BSL1900; Medium Notes: $t = 20.6$ C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.482$ mho/m; $\epsilon_r = 52.304$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3573
- ConvF(6.69, 6.69, 6.69); Calibrated: 2012-02-23;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2012-08-03
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.6 (6824)

2-slot GPRS/Body - Middle - Spacer 10mm - No Accessory - Back Facing Phantom/Area Scan (81x121x1):

Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 1.04 W/kg

2-slot GPRS/Body - Middle - Spacer 10mm - No Accessory - Back Facing Phantom/Zoom Scan (5x5x7)/Cube 0:

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

Reference Value = 10.514 V/m

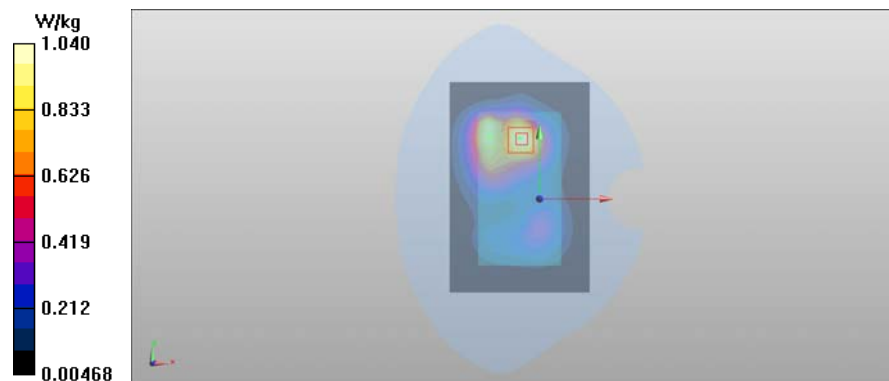
Peak SAR (extrapolated) = 1.445 mW/g

SAR(1 g) = 0.941 mW/g

SAR(10 g) = 0.581 mW/g

Power Drift = -0.01 dB

Maximum value of SAR (measured) = 1.02 W/kg



Date/Time: 2012-08-31 13:04:12

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979581/3

Communication System: 2-slot GPRS1900

Frequency: 1880 MHz; Duty Cycle: 1:4.2

Medium: BSL1900; Medium Notes: t= 20.6 C

Medium parameters used: f = 1880 MHz; σ = 1.482 mho/m; ϵ_r = 52.304; ρ = 1000 kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3573
- ConvF(6.69, 6.69, 6.69); Calibrated: 2012-02-23;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2012-08-03
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.6 (6824)

2-slot GPRS/Body - Middle - Spacer 10mm - No Accessory - Display Facing Phantom/Area Scan (81x121x1):

Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.720 W/kg

2-slot GPRS/Body - Middle - Spacer 10mm - No Accessory - Display Facing Phantom/Zoom Scan (5x5x7)/Cube 0:

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

Reference Value = 9.825 V/m

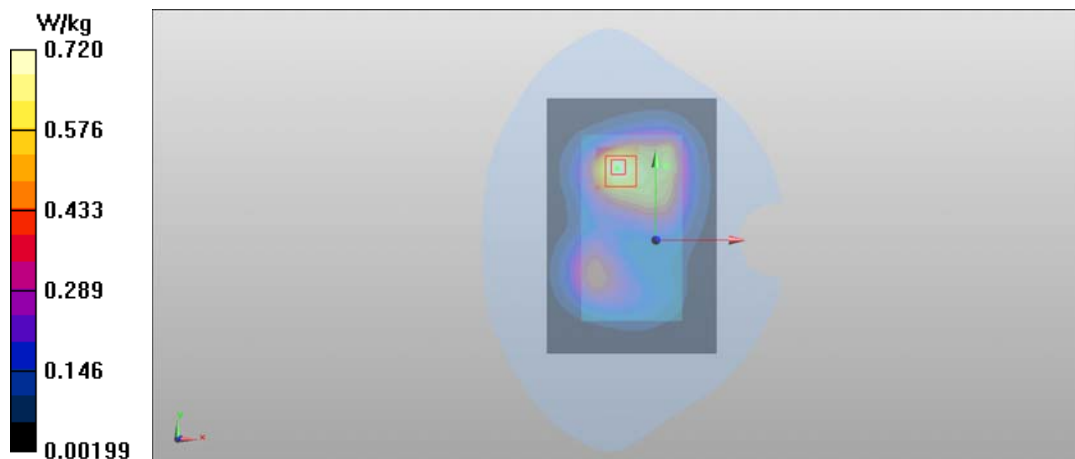
Peak SAR (extrapolated) = 0.956 mW/g

SAR(1 g) = 0.637 mW/g

SAR(10 g) = 0.406 mW/g

Power Drift = 0.01 dB

Maximum value of SAR (measured) = 0.692 W/kg



Date/Time: 2012-09-03 13:11:38

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979581/3

Communication System: 2-slot GPRS1900

Frequency: 1880 MHz; Duty Cycle: 1:4.2

Medium: BSL1900; Medium Notes: $t = 21.6$ C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.517$ mho/m; $\epsilon_r = 52.595$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3573
- ConvF(6.69, 6.69, 6.69); Calibrated: 2012-02-23;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2012-08-03
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.6 (6824)

2-slot GPRS/Body - Middle - Spacer 10mm - No Accessory - Top Edge Facing Phantom/Area Scan (41x81x1):

Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.0648 W/kg

2-slot GPRS/Body - Middle - Spacer 10mm - No Accessory - Top Edge Facing Phantom/Zoom Scan (5x5x7)/Cube

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

Reference Value = 5.943 V/m

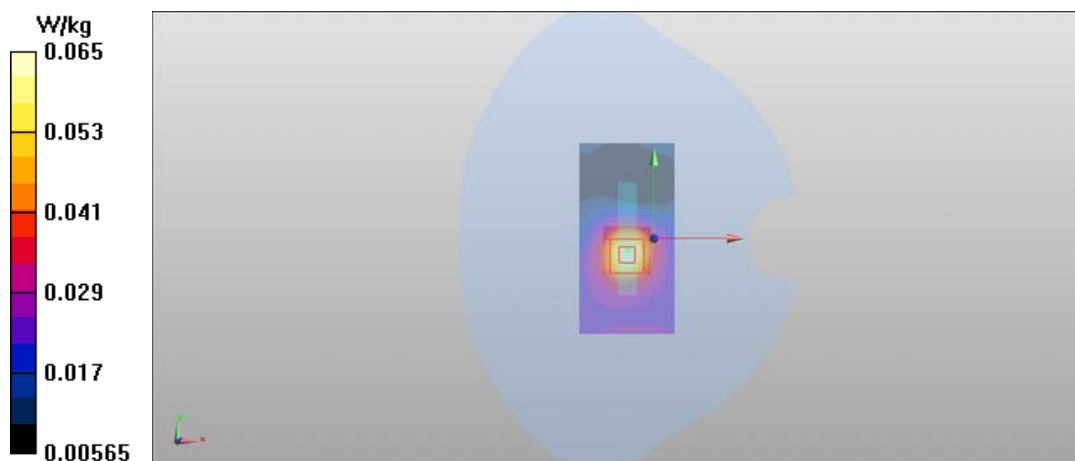
Peak SAR (extrapolated) = 0.089 mW/g

SAR(1 g) = 0.058 mW/g

SAR(10 g) = 0.036 mW/g

Power Drift = -0.04 dB

Maximum value of SAR (measured) = 0.0616 W/kg



Date/Time: 2012-09-03 13:24:58

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979581/3

Communication System: 2-slot GPRS1900

Frequency: 1880 MHz; Duty Cycle: 1:4.2

Medium: BSL1900; Medium Notes: $t = 21.6$ C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.517$ mho/m; $\epsilon_r = 52.595$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3573
- ConvF(6.69, 6.69, 6.69); Calibrated: 2012-02-23;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2012-08-03
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.6 (6824)

2-slot GPRS/Body - Middle - Spacer 10mm - No Accessory - Bottom Edge Facing Phantom/Area Scan (41x81x1):

Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.362 W/kg

2-slot GPRS/Body - Middle - Spacer 10mm - No Accessory - Bottom Edge Facing Phantom/Zoom Scan

(5x5x7)/Cube 0: Measurement grid: $dx=7.5$ mm, $dy=7.5$ mm, $dz=5$ mm

Reference Value = 14.460 V/m

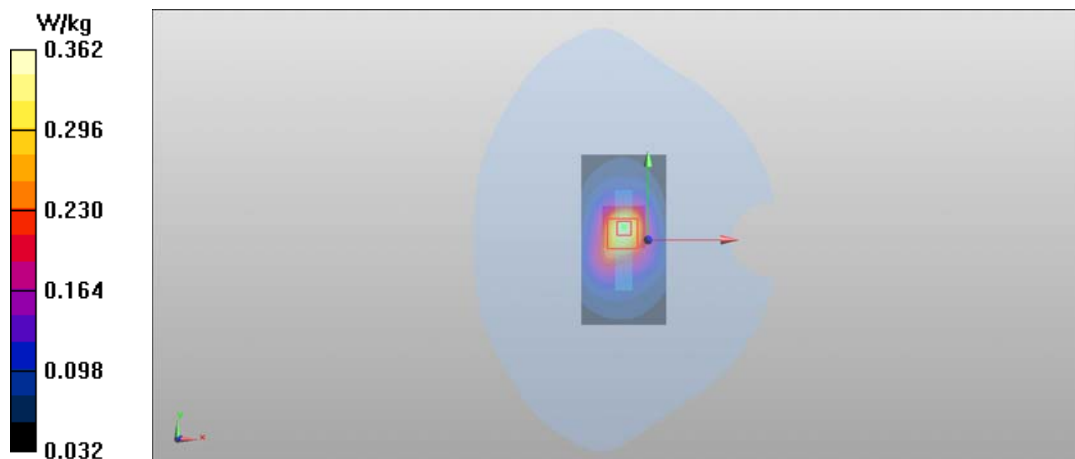
Peak SAR (extrapolated) = 0.561 mW/g

SAR(1 g) = 0.325 mW/g

SAR(10 g) = 0.189 mW/g

Power Drift = 0.05 dB

Maximum value of SAR (measured) = 0.357 W/kg



Date/Time: 2012-09-03 12:45:33

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979581/3

Communication System: 2-slot GPRS1900

Frequency: 1880 MHz; Duty Cycle: 1:4.2

Medium: BSL1900; Medium Notes: $t = 21.6$ C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.517$ mho/m; $\epsilon_r = 52.595$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3573
- ConvF(6.69, 6.69, 6.69); Calibrated: 2012-02-23;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2012-08-03
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.6 (6824)

2-slot GPRS/Body - Middle - Spacer 10mm - No Accessory - Left Edge Facing Phantom/Area Scan (41x121x1):

Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.867 W/kg

2-slot GPRS/Body - Middle - Spacer 10mm - No Accessory - Left Edge Facing Phantom/Zoom Scan (5x5x7)/Cube

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

Reference Value = 11.423 V/m

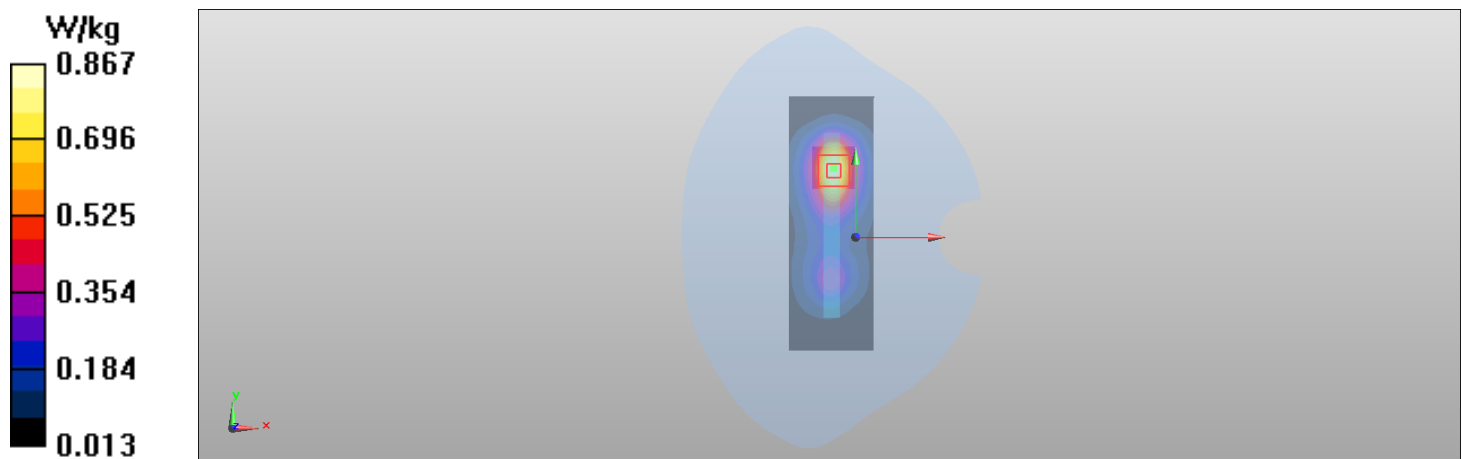
Peak SAR (extrapolated) = 1.208 mW/g

SAR(1 g) = 0.757 mW/g

SAR(10 g) = 0.451 mW/g

Power Drift = -0.12 dB

Maximum value of SAR (measured) = 0.825 W/kg



Date/Time: 2012-09-03 12:59:24

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979581/3

Communication System: 2-slot GPRS1900

Frequency: 1880 MHz; Duty Cycle: 1:4.2

Medium: BSL1900; Medium Notes: $t = 21.6$ C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.517$ mho/m; $\epsilon_r = 52.595$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3573
- ConvF(6.69, 6.69, 6.69); Calibrated: 2012-02-23;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2012-08-03
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.6 (6824)

2-slot GPRS/Body - Middle - Spacer 10mm - No Accessory - Right Edge Facing Phantom/Area Scan (41x121x1):

Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.239 W/kg

2-slot GPRS/Body - Middle - Spacer 10mm - No Accessory - Right Edge Facing Phantom/Zoom Scan

(5x5x7)/Cube 0: Measurement grid: $dx=7.5$ mm, $dy=7.5$ mm, $dz=5$ mm

Reference Value = 9.835 V/m

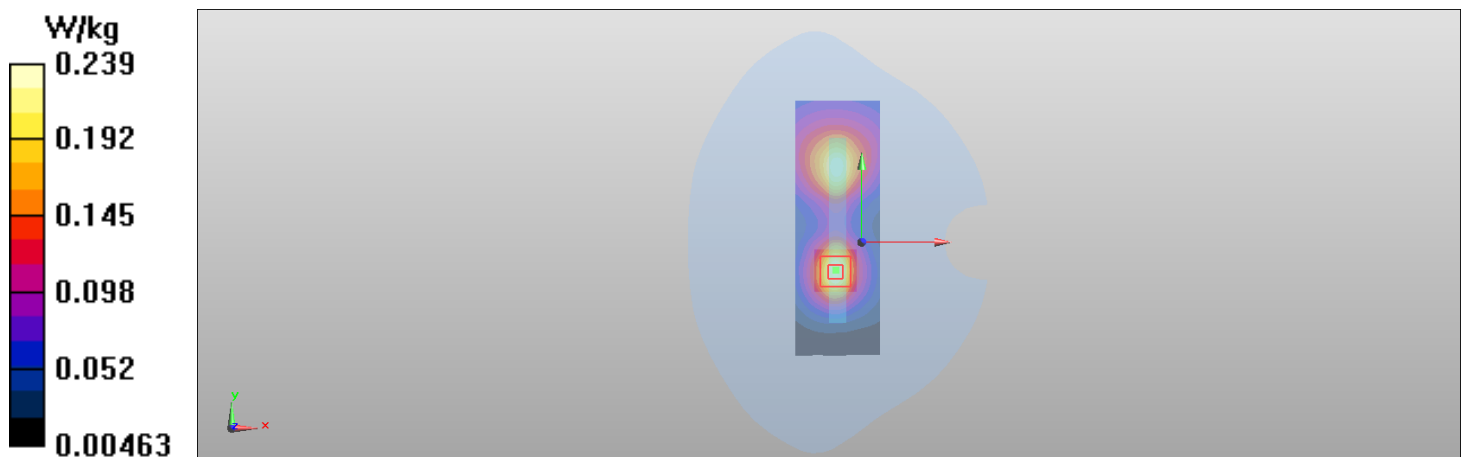
Peak SAR (extrapolated) = 0.342 mW/g

SAR(1 g) = 0.218 mW/g

SAR(10 g) = 0.132 mW/g

Power Drift = -0.01 dB

Maximum value of SAR (measured) = 0.239 W/kg



Date/Time: 2012-09-07 08:21:18

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979510/2

Communication System: WCDMA1900

Frequency: 1852.4 MHz; Duty Cycle: 1:1

Medium: BSL1900; Medium Notes: t= 20.8 C

Medium parameters used (interpolated): f = 1852.4 MHz; $\sigma = 1.478$ mho/m; $\epsilon_r = 52.475$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3573
- ConvF(6.69, 6.69, 6.69); Calibrated: 2012-02-23;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2012-08-03
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.6 (6824)

WCDMA/Body - Low - Spacer 10mm - No Accessory - Back Facing Phantom/Area Scan (81x121x1): Interpolated
grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.42 W/kg

WCDMA/Body - Low - Spacer 10mm - No Accessory - Back Facing Phantom/Zoom Scan (5x5x7)/Cube 0:

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

Reference Value = 11.135 V/m

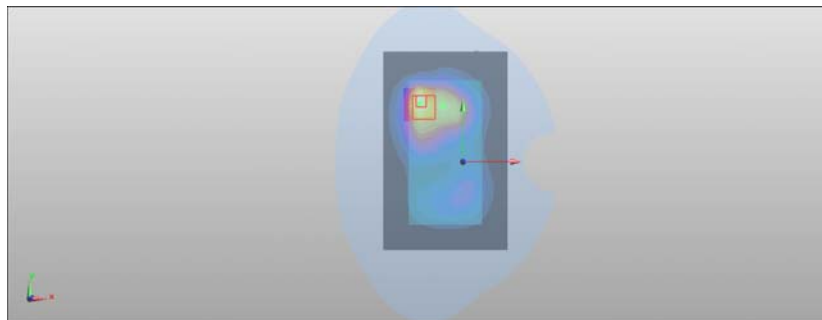
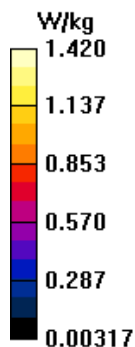
Peak SAR (extrapolated) = 1.955 mW/g

SAR(1 g) = 1.17 mW/g

SAR(10 g) = 0.710 mW/g

Power Drift = 0.35 dB

Maximum value of SAR (measured) = 1.28 W/kg



Date/Time: 2012-08-30 11:55:55

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979510/2

Communication System: WCDMA1900

Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: BSL1900; Medium Notes: $t = 21.1$ C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.526$ mho/m; $\epsilon_r = 51.784$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3573
- ConvF(6.69, 6.69, 6.69); Calibrated: 2012-02-23;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2012-08-03
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.6 (6824)

WCDMA/Body - Middle - Spacer 10mm - No Accessory - Display Facing Phantom/Area Scan (81x121x1):

Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.642 W/kg

WCDMA/Body - Middle - Spacer 10mm - No Accessory - Display Facing Phantom/Zoom Scan (5x5x7)/Cube 0:

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

Reference Value = 8.525 V/m

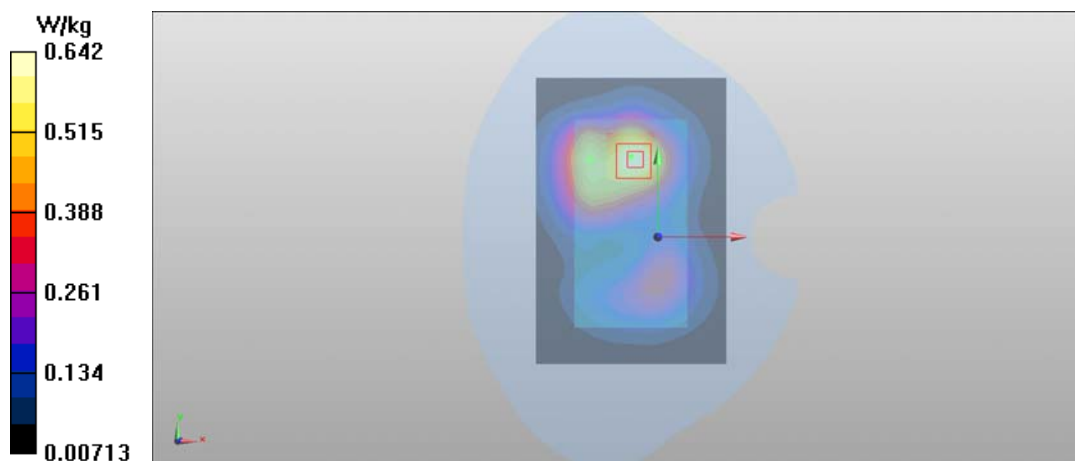
Peak SAR (extrapolated) = 0.894 mW/g

SAR(1 g) = 0.595 mW/g

SAR(10 g) = 0.382 mW/g

Power Drift = 0.07 dB

Maximum value of SAR (measured) = 0.629 W/kg



Date/Time: 2012-08-30 14:15:16

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979510/2

Communication System: WCDMA1900

Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: BSL1900; Medium Notes: $t = 21.1$ C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.526$ mho/m; $\epsilon_r = 51.784$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3573
- ConvF(6.69, 6.69, 6.69); Calibrated: 2012-02-23;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2012-08-03
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.6 (6824)

WCDMA/Body - Middle - Spacer 10mm - No Accessory - Top Edge Facing Phantom/Area Scan (41x81x1):

Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.120 W/kg

WCDMA/Body - Middle - Spacer 10mm - No Accessory - Top Edge Facing Phantom/Zoom Scan (6x6x7)/Cube 0:

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

Reference Value = 7.626 V/m

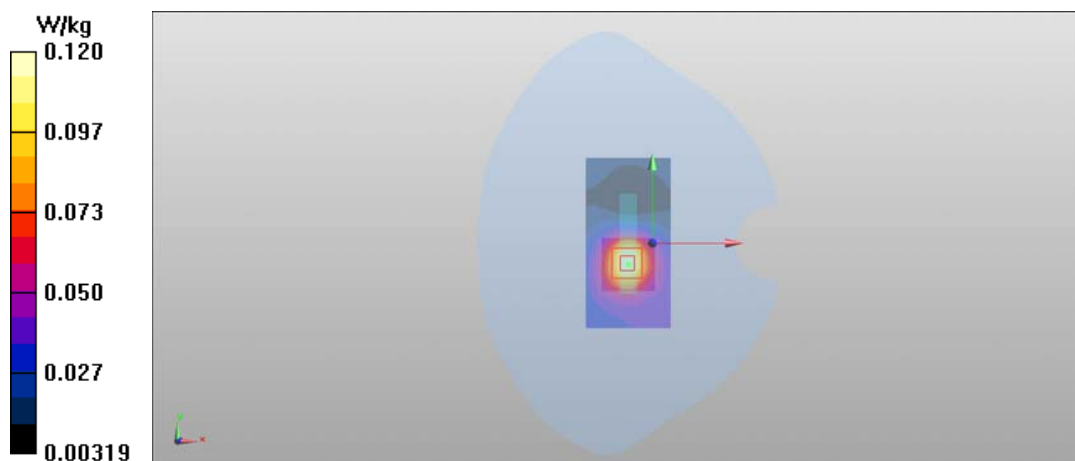
Peak SAR (extrapolated) = 0.160 mW/g

SAR(1 g) = 0.104 mW/g

SAR(10 g) = 0.063 mW/g

Power Drift = -0.39 dB

Maximum value of SAR (measured) = 0.108 W/kg



Date/Time: 2012-08-30 14:29:45

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979510/2

Communication System: WCDMA1900

Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: BSL1900; Medium Notes: $t = 21.1$ C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.526$ mho/m; $\epsilon_r = 51.784$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3573
- ConvF(6.69, 6.69, 6.69); Calibrated: 2012-02-23;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2012-08-03
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.6 (6824)

WCDMA/Body - Middle - Spacer 10mm - No Accessory - Bottom Edge Facing Phantom/Area Scan (41x81x1):

Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.382 W/kg

WCDMA/Body - Middle - Spacer 10mm - No Accessory - Bottom Edge Facing Phantom/Zoom Scan (5x5x7)/Cube

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

Reference Value = 15.304 V/m

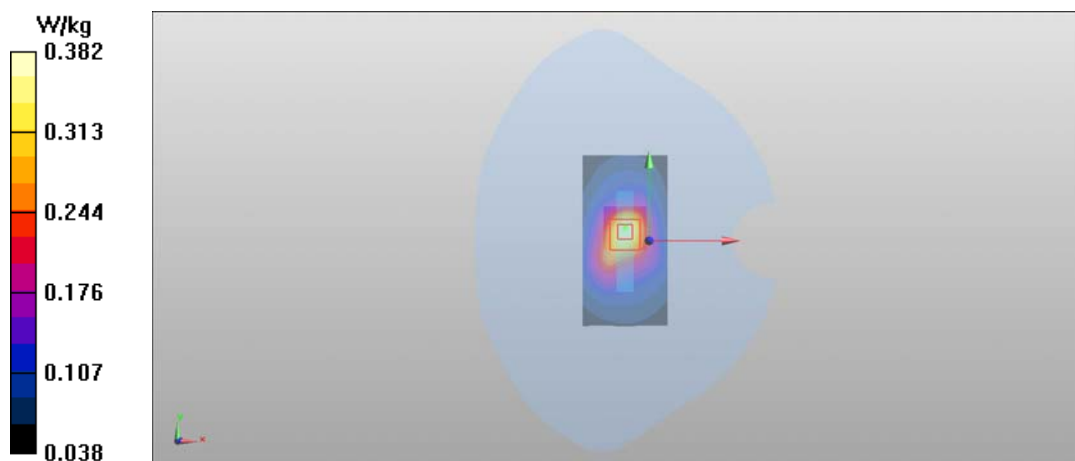
Peak SAR (extrapolated) = 0.626 mW/g

SAR(1 g) = 0.353 mW/g

SAR(10 g) = 0.203 mW/g

Power Drift = -0.01 dB

Maximum value of SAR (measured) = 0.387 W/kg



Date/Time: 2012-08-30 12:18:49

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979510/2

Communication System: WCDMA1900

Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: BSL1900; Medium Notes: $t = 21.1$ C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.526$ mho/m; $\epsilon_r = 51.784$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3573
- ConvF(6.69, 6.69, 6.69); Calibrated: 2012-02-23;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2012-08-03
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.6 (6824)

WCDMA/Body - Middle - Spacer 10mm - No Accessory - Left Edge Facing Phantom/Area Scan (41x121x1):

Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.976 W/kg

WCDMA/Body - Middle - Spacer 10mm - No Accessory - Left Edge Facing Phantom/Zoom Scan (5x5x7)/Cube 0:

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

Reference Value = 11.789 V/m

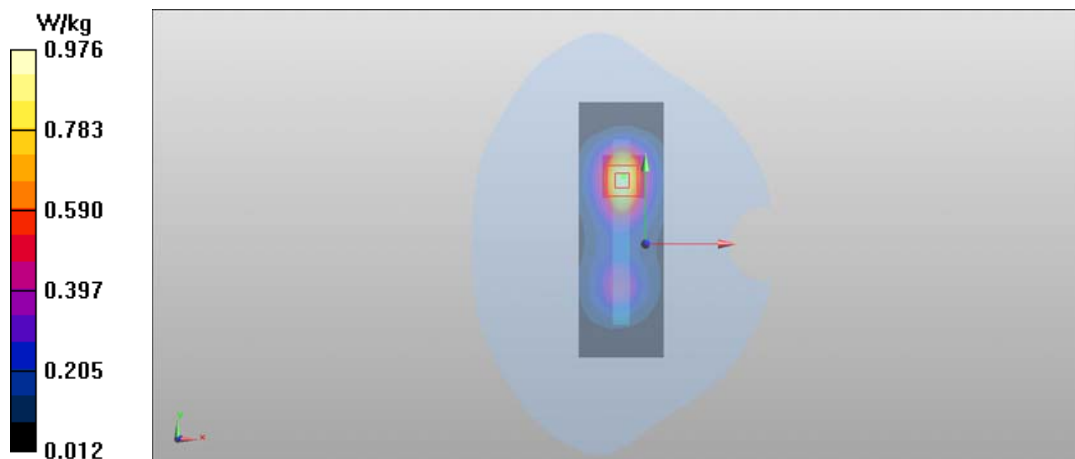
Peak SAR (extrapolated) = 1.371 mW/g

SAR(1 g) = 0.861 mW/g

SAR(10 g) = 0.512 mW/g

Power Drift = -0.02 dB

Maximum value of SAR (measured) = 0.935 W/kg



Date/Time: 2012-08-30 12:32:55

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979510/2

Communication System: WCDMA1900

Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: BSL1900; Medium Notes: $t = 21.1$ C

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.526$ mho/m; $\epsilon_r = 51.784$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3573
- ConvF(6.69, 6.69, 6.69); Calibrated: 2012-02-23;
- Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn538; Calibrated: 2012-08-03
- Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
- Measurement SW: DASY4, Version 4.7 (80); SEMCAD X Version 14.6.6 (6824)

WCDMA/Body - Middle - Spacer 10mm - No Accessory - Right Edge Facing Phantom/Area Scan (41x121x1):

Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.272 W/kg

WCDMA/Body - Middle - Spacer 10mm - No Accessory - Right Edge Facing Phantom/Zoom Scan (5x5x7)/Cube 0:

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

Reference Value = 10.357 V/m

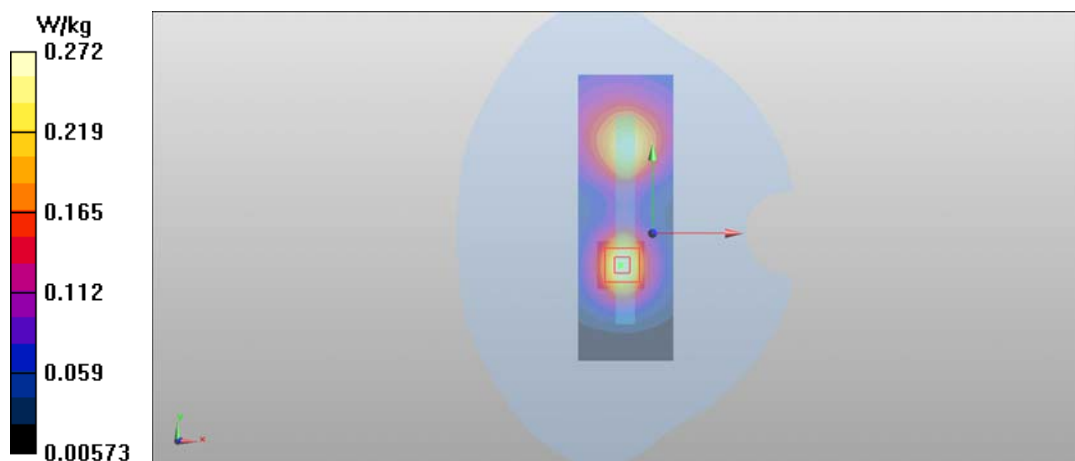
Peak SAR (extrapolated) = 0.373 mW/g

SAR(1 g) = 0.241 mW/g

SAR(10 g) = 0.147 mW/g

Power Drift = 0.03 dB

Maximum value of SAR (measured) = 0.262 W/kg



Date/Time: 2012-06-24 06:12:40

DASY Configuration for WLAN/Body - Middle - Spacer 10mm - No Accessory - Display Facing Phantom/Area

Scan:

Test Laboratory: TCC Nokia

Type: RM-820; Serial: 004402/13/870750/4

Communication System: WLAN2450 b-mode; Frequency: 2437 MHz; Duty Cycle: 1:1; PMF: 1

Medium: BSL2450 Medium parameters used: $f = 2437$ MHz; $\sigma = 1.953$ mho/m; $\epsilon_r = 50.372$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Probe: EX3DV4 - SN3573; ConvF(6.45, 6.45, 6.45); Calibrated: 2012-02-23;
Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
Electronics: DAE4 Sn793; Calibrated: 2011-09-16
Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
Measurement SW: DASY4, Version 4.7 (80)

Date/Time: 2012-08-28 10:35:30

DASY Configuration for 2-slot GPRS/Body - Middle - Spacer 10mm - No Accessory - Display Facing Phantom/Area

Scan:

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979590/4

Communication System: 2-slot GPRS850; Frequency: 836.6 MHz; Duty Cycle: 1:4.19952; PMF: 2.04927

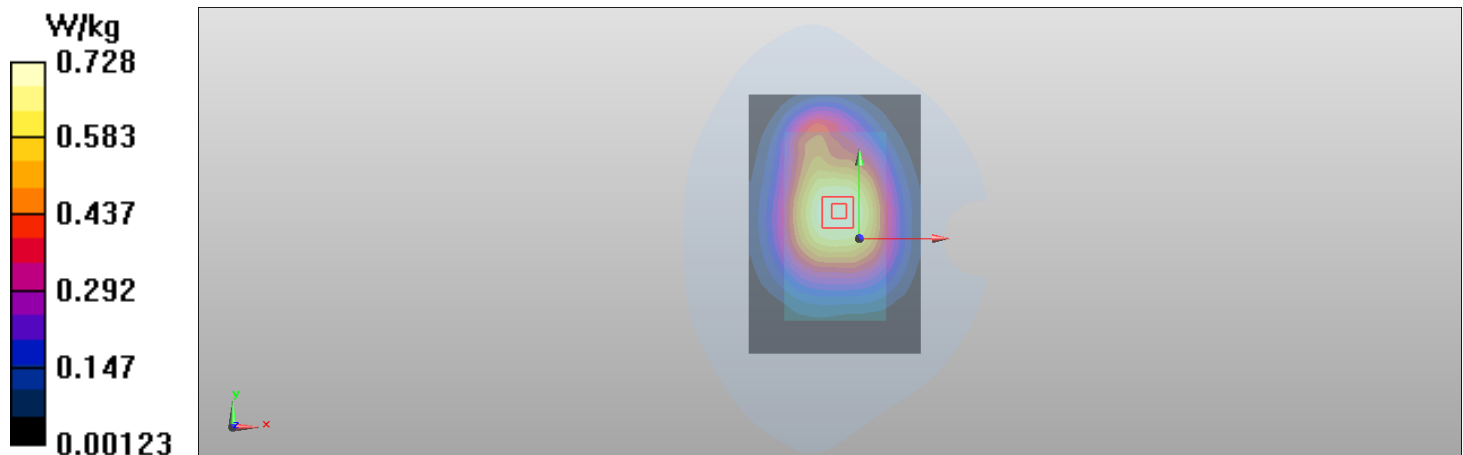
Medium: BSL850 Medium parameters used: $f = 837$ MHz; $\sigma = 0.994$ mho/m; $\epsilon_r = 53.326$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Probe: EX3DV4 - SN3790; ConvF(8.54, 8.54, 8.54); Calibrated: 2012-04-27;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1316; Calibrated: 2012-02-15
Phantom: SAM 3; Type: Twin SAM 040 CA; Serial: TP-1179
Measurement SW: DASY52, Version 52.8 (0)

Fast SAR of Combined Scans: SAR(1 g) = 0.690 mW/g; SAR(10 g) = 0.497 mW/g

Maximum value of SAR (interpolated) = 0.728 W/kg



Date/Time: 2012-06-24 06:12:40

DASY Configuration for WLAN/Body - Middle - Spacer 10mm - No Accessory - Display Facing Phantom/Area

Scan:

Test Laboratory: TCC Nokia

Type: RM-820; Serial: 004402/13/870750/4

Communication System: WLAN2450 b-mode; Frequency: 2437 MHz; Duty Cycle: 1:1; PMF: 1

Medium: BSL2450 Medium parameters used: $f = 2437$ MHz; $\sigma = 1.953$ mho/m; $\epsilon_r = 50.372$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Probe: EX3DV4 - SN3573; ConvF(6.45, 6.45, 6.45); Calibrated: 2012-02-23;
Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
Electronics: DAE4 Sn793; Calibrated: 2011-09-16
Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
Measurement SW: DASY4, Version 4.7 (80)

Date/Time: 2012-08-28 15:59:01

DASY Configuration for WCDMA/Body - Low - Spacer 10mm - No Accessory - Display Facing Phantom/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979595/3

Communication System: WCDMA850; Frequency: 826.4 MHz; Duty Cycle: 1:1; PMF: 1

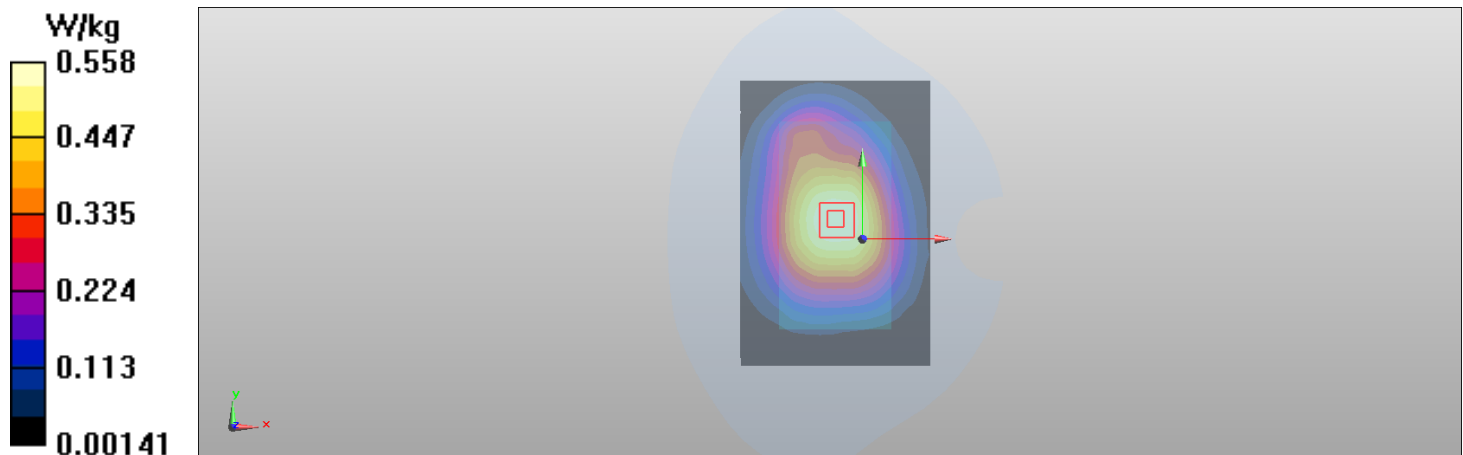
Medium: BSL850 Medium parameters used (interpolated): $f = 826.4$ MHz; $\sigma = 0.99$ mho/m; $\epsilon_r = 53.431$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Probe: EX3DV4 - SN3790; ConvF(8.54, 8.54, 8.54); Calibrated: 2012-04-27;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1316; Calibrated: 2012-02-15
Phantom: SAM 3; Type: Twin SAM 040 CA; Serial: TP-1179
Measurement SW: DASY52, Version 52.8 (0)

Fast SAR of Combined Scans: SAR(1 g) = 0.530 mW/g; SAR(10 g) = 0.383 mW/g

Maximum value of SAR (interpolated) = 0.558 W/kg



Date/Time: 2012-06-24 02:52:24

DASY Configuration for WLAN/Body - Middle - Spacer 10mm - No Accessory - Back Facing Phantom/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-820; Serial: 004402/13/870750/4

Communication System: WLAN2450 b-mode; Frequency: 2437 MHz; Duty Cycle: 1:1; PMF: 1

Medium: BSL2450 Medium parameters used: $f = 2437$ MHz; $\sigma = 1.953$ mho/m; $\epsilon_r = 50.372$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Probe: EX3DV4 - SN3573; ConvF(6.45, 6.45, 6.45); Calibrated: 2012-02-23;
Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
Electronics: DAE4 Sn793; Calibrated: 2011-09-16
Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
Measurement SW: DASY4, Version 4.7 (80)

Date/Time: 2012-08-31 12:39:24

DASY Configuration for 2-slot GPRS/Body - Middle - Spacer 10mm - No Accessory - Back Facing Phantom/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979581/3

Communication System: 2-slot GPRS1900; Frequency: 1880 MHz; Duty Cycle: 1:4.2; PMF: 2.04939

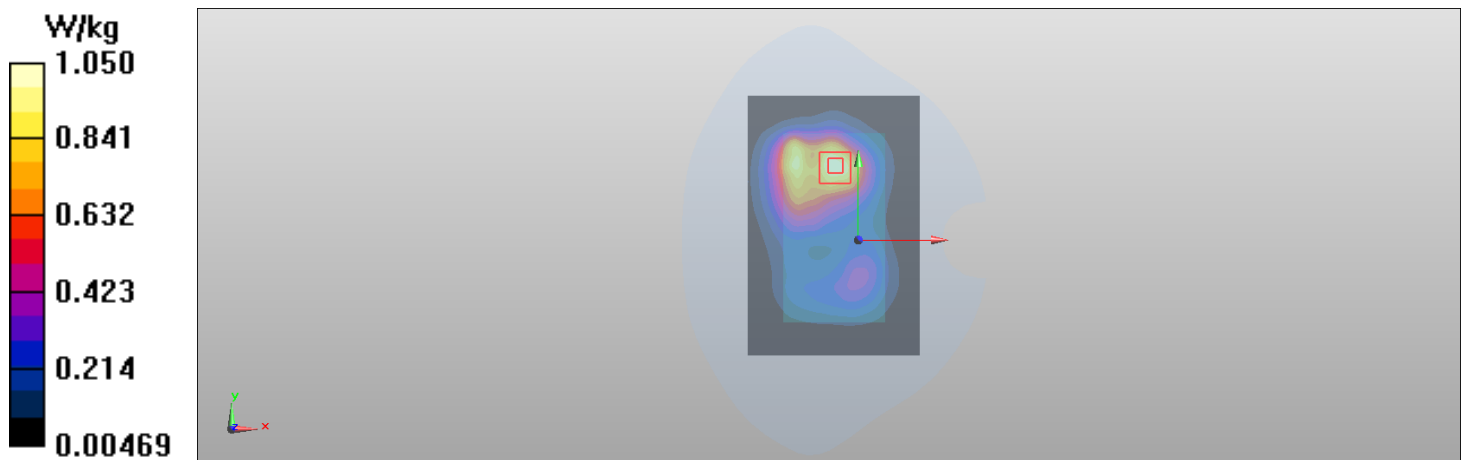
Medium: BSL1900 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.482$ mho/m; $\epsilon_r = 52.304$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Probe: EX3DV4 - SN3573; ConvF(6.69, 6.69, 6.69); Calibrated: 2012-02-23;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn538; Calibrated: 2012-08-03
Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
Measurement SW: DASY4, Version 4.7 (80)

Fast SAR of Combined Scans: SAR(1 g) = 0.948 mW/g; SAR(10 g) = 0.555 mW/g

Maximum value of SAR (interpolated) = 1.05 W/kg



Date/Time: 2012-06-24 02:52:24

DASY Configuration for WLAN/Body - Middle - Spacer 10mm - No Accessory - Back Facing Phantom/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-820; Serial: 004402/13/870750/4

Communication System: WLAN2450 b-mode; Frequency: 2437 MHz; Duty Cycle: 1:1; PMF: 1

Medium: BSL2450 Medium parameters used: $f = 2437$ MHz; $\sigma = 1.953$ mho/m; $\epsilon_r = 50.372$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Probe: EX3DV4 - SN3573; ConvF(6.45, 6.45, 6.45); Calibrated: 2012-02-23;
Sensor-Surface: 4mm (Mechanical Surface Detection (Locations From Previous Scan Used))
Electronics: DAE4 Sn793; Calibrated: 2011-09-16
Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
Measurement SW: DASY4, Version 4.7 (80)

Date/Time: 2012-09-07 08:21:18

DASY Configuration for WCDMA/Body - Low - Spacer 10mm - No Accessory - Back Facing Phantom/Area Scan:

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979510/2

Communication System: WCDMA1900; Frequency: 1852.4 MHz; Duty Cycle: 1:1; PMF: 1

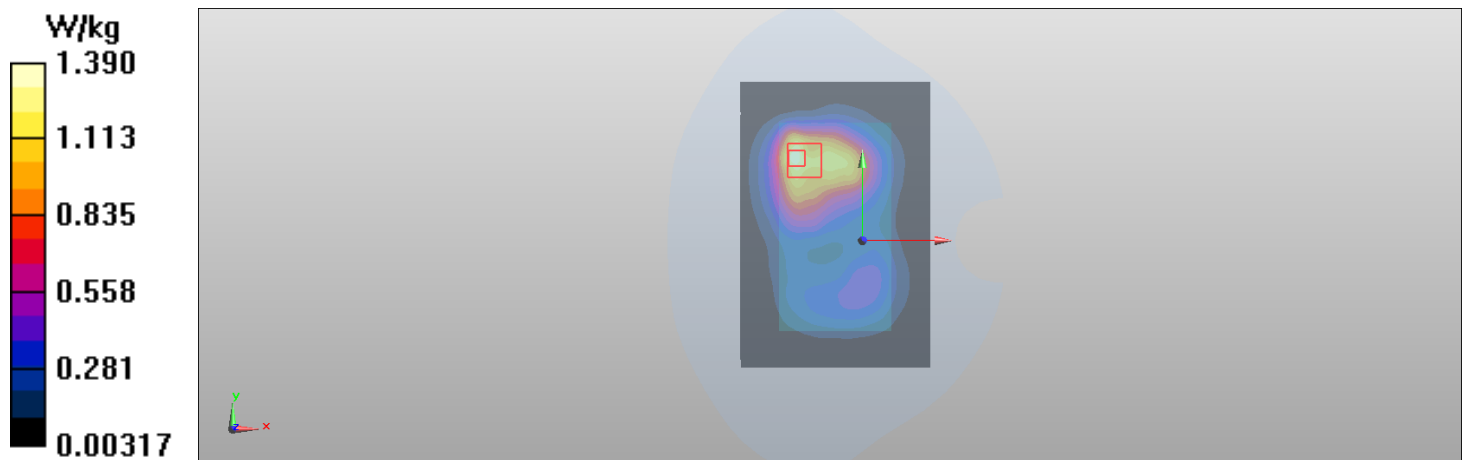
Medium: BSL1900 Medium parameters used (interpolated): $f = 1852.4$ MHz; $\sigma = 1.478$ mho/m; $\epsilon_r = 52.475$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Probe: EX3DV4 - SN3573; ConvF(6.69, 6.69, 6.69); Calibrated: 2012-02-23;
Sensor-Surface: 4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn538; Calibrated: 2012-08-03
Phantom: SAM 2; Type: Twin SAM 040 CA; Serial: TP - 1177
Measurement SW: DASY4, Version 4.7 (80)

Fast SAR of Combined Scans: SAR(1 g) = 1.21 mW/g; SAR(10 g) = 0.707 mW/g

Maximum value of SAR (interpolated) = 1.39 W/kg



APPENDIX C: DIELECTRIC PARAMETERS OF THE TISSUE SIMULANTS

Head tissue simulant dielectric parameters used in the measurements:

f (MHz)	Date	Dielectric Parameters					
		Ch 4132 826.4 MHz		Ch 4175 835.0 MHz		Ch 4233 846.6 MHz	
		ϵ_r	σ [S/m]	ϵ_r	σ [S/m]	ϵ_r	σ [S/m]
835	2012-08-12	41.1	0.91	41.1	0.92	41.0	0.93
	2012-08-13	41.0	0.90	41.0	0.91	40.9	0.91
f (MHz)	Date	Dielectric Parameters					
		Ch 128 824.2 MHz		Ch 190 836.6 MHz		Ch 251 848.8 MHz	
		ϵ_r	σ [S/m]	ϵ_r	σ [S/m]	ϵ_r	σ [S/m]
836	2012-08-07	40.3	0.90	40.2	0.91	40.1	0.92
	2012-08-13	41.0	0.90	41.0	0.91	40.9	0.91
f (MHz)	Date	Dielectric Parameters					
		Ch 512 1850.2 MHz		Ch 661 1880.0 MHz		Ch 810 1909.8 MHz	
		ϵ_r	σ [S/m]	ϵ_r	σ [S/m]	ϵ_r	σ [S/m]
1880	2012-08-11	39.9	1.37	39.7	1.40	39.6	1.43
	2012-08-12	39.8	1.37	39.6	1.40	39.5	1.43
f (MHz)	Date	Dielectric Parameters					
		Ch 9262 1852.4 MHz		Ch 9400 1880.0 MHz		Ch 9538 1907.6 MHz	
		ϵ_r	σ [S/m]	ϵ_r	σ [S/m]	ϵ_r	σ [S/m]
1880	2012-08-08	39.1	1.37	38.9	1.40	38.9	1.42
	2012-08-11	39.8	1.37	39.7	1.40	39.6	1.43

Body tissue simulant dielectric parameters used in the measurements:

f (MHz)	Date	Dielectric Parameters					
		Ch 4132 826.4 MHz		Ch 4175 835.0 MHz		Ch 4233 846.6 MHz	
		ϵ_r	σ [S/m]	ϵ_r	σ [S/m]	ϵ_r	σ [S/m]
835	2012-08-27	53.5	0.99	53.5	1.00	53.4	1.01
	2012-08-28	53.4	0.99	53.3	0.99	53.2	1.00
f (MHz)	Date	Dielectric Parameters					
		Ch 128 824.2 MHz		Ch 190 836.6 MHz		Ch 251 848.8 MHz	
		ϵ_r	σ [S/m]	ϵ_r	σ [S/m]	ϵ_r	σ [S/m]
836	2012-08-27	53.5	0.99	53.4	1.00	53.4	1.01
	2012-08-28	53.4	0.99	53.3	0.99	53.2	1.00
	2012-08-29	53.3	0.98	53.2	0.99	53.1	0.99
f (MHz)	Date	Dielectric Parameters					
		Ch 512 1850.2 MHz		Ch 661 1880.0 MHz		Ch 810 1909.8 MHz	
		ϵ_r	σ [S/m]	ϵ_r	σ [S/m]	ϵ_r	σ [S/m]
1880	2012-08-31	52.4	1.45	52.3	1.48	52.2	1.51
	2012-09-03	52.7	1.48	52.6	1.51	52.4	1.55
f (MHz)	Date	Dielectric Parameters					
		Ch 9262 1852.4 MHz		Ch 9400 1880.0 MHz		Ch 9538 1907.6 MHz	
		ϵ_r	σ [S/m]	ϵ_r	σ [S/m]	ϵ_r	σ [S/m]
1880	2012-08-22	51.8	1.48	51.7	1.50	51.7	1.52
	2012-08-30	51.8	1.50	51.8	1.52	51.6	1.54
	2012-09-06	52.5	1.48	52.4	1.51	52.2	1.53

APPENDIX D: CONDUCTED AVERAGE POWER MEASUREMENTS FOR WCDMA AND HSUPA

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979569/8, HW: 3600, SW: 1230.0015.8441.9735.241

D.1. WCDMA850 Test results

Average power

Ch / f (MHz)	P [dBm]
4133	23.17
4175	22.95
4232	22.88

D.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
4133	21.65	19.48	20.81	21.71	22.12
4175	22.08	19.10	20.24	21.53	22.00
4232	22.19	19.05	21.37	21.82	22.26

Note: In HSUPA operation, the output power is reduced relative to the tuning target power for WCDMA. This device runs two separate HSUPA power control routines: MPR and E-TFC MPR. In each Subtest mode, the routine with the higher power reduction dominates. As a result, the MPR for each of the Subtest modes is as follows:

Maximum Power Reduction (MPR)				
Subtest mode 1	Subtest mode 2	Subtest mode 3	Subtest mode 4	Subtest mode 5
1.0dB	3.0dB	2.0dB	3.0dB	0.0dB

Test Laboratory: TCC Nokia

Type: RM-821; Serial: 004402/13/979569/8, HW: 3600, SW: 1230.0015.8441.9735.241

D.3. WCDMA1900 Test results

Average power

Ch / f (MHz)	P [dBm]
9263	23.58
9400	22.93
9537	22.84

D.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
9263	22.32	19.56	21.62	22.19	22.62
9400	22.05	19.13	20.26	20.96	21.95
9537	21.68	18.74	20.82	21.35	21.87

Note: In HSUPA operation, the output power is reduced relative to the tuning target power for WCDMA. This device runs two separate HSUPA power control routines: MPR and E-TFC MPR. In each Subtest mode, the routine with the higher power reduction dominates. As a result, the MPR for each of the Subtest modes is as follows:

Maximum Power Reduction (MPR)				
Subtest mode 1	Subtest mode 2	Subtest mode 3	Subtest mode 4	Subtest mode 5
1.0dB	3.0dB	2.0dB	3.0dB	0.0dB

APPENDIX E: RELEVANT PAGES FROM PROBE CALIBRATION REPORTS



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

Accreditation No.: **SCS 108**

Client **Nokia Salo TCC**

Certificate No: **ES3-3131_Sep11**

CALIBRATION CERTIFICATE

Object **ES3DV3 - SN:3131**

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

Calibration date: **September 14, 2011**

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	31-Mar-11 (No. 217-01372)	Apr-12
Power sensor E4412A	MY41498087	31-Mar-11 (No. 217-01372)	Apr-12
Reference 3 dB Attenuator	SN: S5054 (3c)	29-Mar-11 (No. 217-01369)	Apr-12
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-11 (No. 217-01367)	Apr-12
Reference 30 dB Attenuator	SN: S5129 (30b)	29-Mar-11 (No. 217-01370)	Apr-12
Reference Probe ES3DV2	SN: 3013	29-Dec-10 (No. ES3-3013_Dec10)	Dec-11
DAE4	SN: 654	3-May-11 (No. DAE4-654_May11)	May-12
Secondary Standards	ID	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-10)	In house check: Oct-11

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

Issued: September 15, 2011

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

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

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) ^C	Relative Permittivity ^F	Conductivity (S/m) ^F	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
750	41.9	0.89	6.10	6.10	6.10	0.80	1.00	± 12.0 %
835	41.5	0.90	5.88	5.88	5.88	0.80	1.31	± 12.0 %
1750	40.1	1.37	5.14	5.14	5.14	0.80	1.25	± 12.0 %
1900	40.0	1.40	4.92	4.92	4.92	0.80	1.25	± 12.0 %
2450	39.2	1.80	4.32	4.32	4.32	0.79	1.25	± 12.0 %
2600	39.0	1.96	4.21	4.21	4.21	0.76	1.30	± 12.0 %

^C Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

^F At frequencies below 3 GHz, the validity of tissue parameters (ϵ and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ϵ and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

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

Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) ^C	Relative Permittivity ^F	Conductivity (S/m) ^F	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
750	55.5	0.96	5.97	5.97	5.97	0.80	1.00	± 12.0 %
835	55.2	0.97	5.92	5.92	5.92	0.80	1.34	± 12.0 %
1750	53.4	1.49	4.64	4.64	4.64	0.80	1.35	± 12.0 %
1900	53.3	1.52	4.44	4.44	4.44	0.80	1.28	± 12.0 %
2450	52.7	1.95	4.07	4.07	4.07	0.80	1.17	± 12.0 %
2600	52.5	2.16	3.97	3.97	3.97	0.80	1.00	± 12.0 %

^C Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

^F At frequencies below 3 GHz, the validity of tissue parameters (ϵ and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ϵ and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.



Accredited by the Swiss Accreditation Service (SAS)
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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 108

Client **Nokia Salo TCC**

Certificate No: **EX3-3790_Apr12**

CALIBRATION CERTIFICATE

Object **EX3DV4 - SN:3790**

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

Calibration date: **April 27, 2012**

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	29-Mar-12 (No. 217-01508)	Apr-13
Power sensor E4412A	MY41498087	29-Mar-12 (No. 217-01508)	Apr-13
Reference 3 dB Attenuator	SN: S5054 (3c)	27-Mar-12 (No. 217-01531)	Apr-13
Reference 20 dB Attenuator	SN: S5086 (20b)	27-Mar-12 (No. 217-01529)	Apr-13
Reference 30 dB Attenuator	SN: S5129 (30b)	27-Mar-12 (No. 217-01532)	Apr-13
Reference Probe ES3DV2	SN: 3013	29-Dec-11 (No. ES3-3013_Dec11)	Dec-12
DAE4	SN: 660	10-Jan-12 (No. DAE4-660_Jan12)	Jan-13
Secondary Standards	ID	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Apr-11)	In house check: Apr-13
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-11)	In house check: Oct-12

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

Issued: April 28, 2012

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

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3790

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) ^C	Relative Permittivity ^F	Conductivity (S/m) ^F	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
750	41.9	0.89	8.87	8.87	8.87	0.19	1.38	± 12.0 %
835	41.5	0.90	8.44	8.44	8.44	0.16	1.49	± 12.0 %
1750	40.1	1.37	7.35	7.35	7.35	0.21	1.18	± 12.0 %
1900	40.0	1.40	7.12	7.12	7.12	0.31	0.89	± 12.0 %
2450	39.2	1.80	6.45	6.45	6.45	0.21	1.30	± 12.0 %
2600	39.0	1.96	6.27	6.27	6.27	0.32	0.97	± 12.0 %
5200	36.0	4.66	4.71	4.71	4.71	0.38	1.80	± 13.1 %
5300	35.9	4.76	4.57	4.57	4.57	0.40	1.80	± 13.1 %
5500	35.6	4.96	4.15	4.15	4.15	0.40	1.80	± 13.1 %
5600	35.5	5.07	3.99	3.99	3.99	0.48	1.80	± 13.1 %
5800	35.3	5.27	4.52	4.52	4.52	0.48	1.80	± 13.1 %

^C Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

^F At frequencies below 3 GHz, the validity of tissue parameters (ϵ and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ϵ and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3790

Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) ^C	Relative Permittivity ^F	Conductivity (S/m) ^F	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
750	55.5	0.96	8.75	8.75	8.75	0.19	1.32	± 12.0 %
835	55.2	0.97	8.54	8.54	8.54	0.15	1.69	± 12.0 %
1750	53.4	1.49	7.11	7.11	7.11	0.12	2.14	± 12.0 %
1900	53.3	1.52	6.82	6.82	6.82	0.14	3.00	± 12.0 %
2450	52.7	1.95	6.56	6.56	6.56	0.80	0.52	± 12.0 %
2600	52.5	2.16	6.39	6.39	6.39	0.80	0.57	± 12.0 %
5200	49.0	5.30	3.85	3.85	3.85	0.50	1.80	± 13.1 %
5300	48.9	5.42	3.66	3.66	3.66	0.50	1.80	± 13.1 %
5500	48.6	5.65	3.49	3.49	3.49	0.55	1.80	± 13.1 %
5600	48.5	5.77	3.22	3.22	3.22	0.60	1.80	± 13.1 %
5800	48.2	6.00	3.50	3.50	3.50	0.55	1.80	± 13.1 %

^C Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

^F At frequencies below 3 GHz, the validity of tissue parameters (ϵ and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ϵ and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.



Accredited by the Swiss Accreditation Service (SAS)

Accreditation No.: **SCS 108**

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 Multilateral Agreement for the recognition of calibration certificates

Client **Nokia Salo TCC**

Certificate No: **EX3-3573_Feb12**

CALIBRATION CERTIFICATE

Object **EX3DV4 - SN:3573**

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

Calibration date: **February 23, 2012**

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 E4419B	GB41293874	31-Mar-11 (No. 217-01372)	Apr-12
Power sensor E4412A	MY41498087	31-Mar-11 (No. 217-01372)	Apr-12
Reference 3 dB Attenuator	SN: S5054 (3c)	29-Mar-11 (No. 217-01369)	Apr-12
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-11 (No. 217-01367)	Apr-12
Reference 30 dB Attenuator	SN: S5129 (30b)	29-Mar-11 (No. 217-01370)	Apr-12
Reference Probe ES3DV2	SN: 3013	29-Dec-11 (No. ES3-3013_Dec11)	Dec-12
DAE4	SN: 654	3-May-11 (No. DAE4-654_May11)	May-12
Secondary Standards	ID	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Apr-11)	In house check: Apr-13
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-11)	In house check: Oct-12

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	
Issued: February 23, 2012			
This calibration certificate shall not be reproduced except in full without written approval of the laboratory.			

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3573

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) ^C	Relative Permittivity ^F	Conductivity (S/m) ^F	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
750	41.9	0.89	8.71	8.71	8.71	0.20	1.24	± 12.0 %
835	41.5	0.90	8.33	8.33	8.33	0.14	1.71	± 12.0 %
1750	40.1	1.37	7.67	7.67	7.67	0.75	0.59	± 12.0 %
1900	40.0	1.40	7.43	7.43	7.43	0.80	0.59	± 12.0 %
2450	39.2	1.80	6.52	6.52	6.52	0.38	0.93	± 12.0 %
2600	39.0	1.96	6.30	6.30	6.30	0.37	0.89	± 12.0 %
5200	36.0	4.66	4.63	4.63	4.63	0.39	1.80	± 13.1 %
5300	35.9	4.76	4.46	4.46	4.46	0.35	1.80	± 13.1 %
5500	35.6	4.96	4.23	4.23	4.23	0.40	1.80	± 13.1 %
5600	35.5	5.07	3.96	3.96	3.96	0.45	1.80	± 13.1 %
5800	35.3	5.27	3.99	3.99	3.99	0.50	1.80	± 13.1 %

^C Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

^F At frequencies below 3 GHz, the validity of tissue parameters (ϵ and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ϵ and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3573

Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) ^C	Relative Permittivity ^F	Conductivity (S/m) ^F	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
750	55.5	0.96	8.71	8.71	8.71	0.44	0.87	± 12.0 %
835	55.2	0.97	8.54	8.54	8.54	0.35	0.94	± 12.0 %
1750	53.4	1.49	7.07	7.07	7.07	0.38	0.93	± 12.0 %
1900	53.3	1.52	6.69	6.69	6.69	0.52	0.77	± 12.0 %
2450	52.7	1.95	6.45	6.45	6.45	0.80	0.57	± 12.0 %
2600	52.5	2.16	6.24	6.24	6.24	0.80	0.50	± 12.0 %
5200	49.0	5.30	3.99	3.99	3.99	0.50	1.90	± 13.1 %
5300	48.9	5.42	3.84	3.84	3.84	0.50	1.90	± 13.1 %
5500	48.6	5.65	3.64	3.64	3.64	0.50	1.90	± 13.1 %
5600	48.5	5.77	3.05	3.05	3.05	0.75	1.90	± 13.1 %
5800	48.2	6.00	3.71	3.71	3.71	0.55	1.90	± 13.1 %

^C Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

^F At frequencies below 3 GHz, the validity of tissue parameters (ϵ and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ϵ and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

APPENDIX F: RELEVANT PAGES FROM DIPOLE VALIDATION KIT REPORTS



Accredited by the Swiss Accreditation Service (SAS)

Accreditation No.: **SCS 108**

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

Client **Nokia Salo TCC**

Certificate No: **D835V2-462_Sep11**

CALIBRATION CERTIFICATE

Object **D835V2 - SN: 462**

Calibration procedure(s) **QA CAL-05.v8
Calibration procedure for dipole validation kits above 700 MHz**

Calibration date: **September 13, 2011**

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	06-Oct-10 (No. 217-01266)	Oct-11
Power sensor HP 8481A	US37292783	06-Oct-10 (No. 217-01266)	Oct-11
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-11 (No. 217-01367)	Apr-12
Type-N mismatch combination	SN: 5047.2 / 06327	29-Mar-11 (No. 217-01371)	Apr-12
Reference Probe ES3DV3	SN: 3205	29-Apr-11 (No. ES3-3205_Apr11)	Apr-12
DAE4	SN: 601	04-Jul-11 (No. DAE4-601_Jul11)	Jul-12
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-09)	In house check: Oct-11
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-10)	In house check: Oct-11

Calibrated by: **Dimce Iliev** Name: **Dimce Iliev** Function: **Laboratory Technician** Signature: *[Signature]*

Approved by: **Katja Pokovic** Name: **Katja Pokovic** Function: **Technical Manager** Signature: *[Signature]*

Issued: September 13, 2011

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

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	51.6 Ω - 1.8 j Ω
Return Loss	- 32.4 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	47.8 Ω - 3.7 j Ω
Return Loss	- 27.2 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.391 ns
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After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	March 27, 2002

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 462

Communication System: CW; Frequency: 835 MHz

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.89 \text{ mho/m}$; $\epsilon_r = 41.1$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(6.07, 6.07, 6.07); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

Dipole Calibration for Head Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:

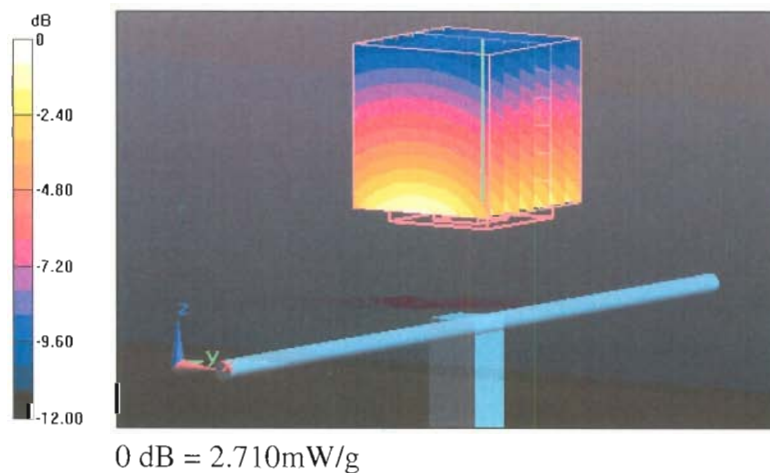
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 56.987 V/m; Power Drift = 0.02 dB

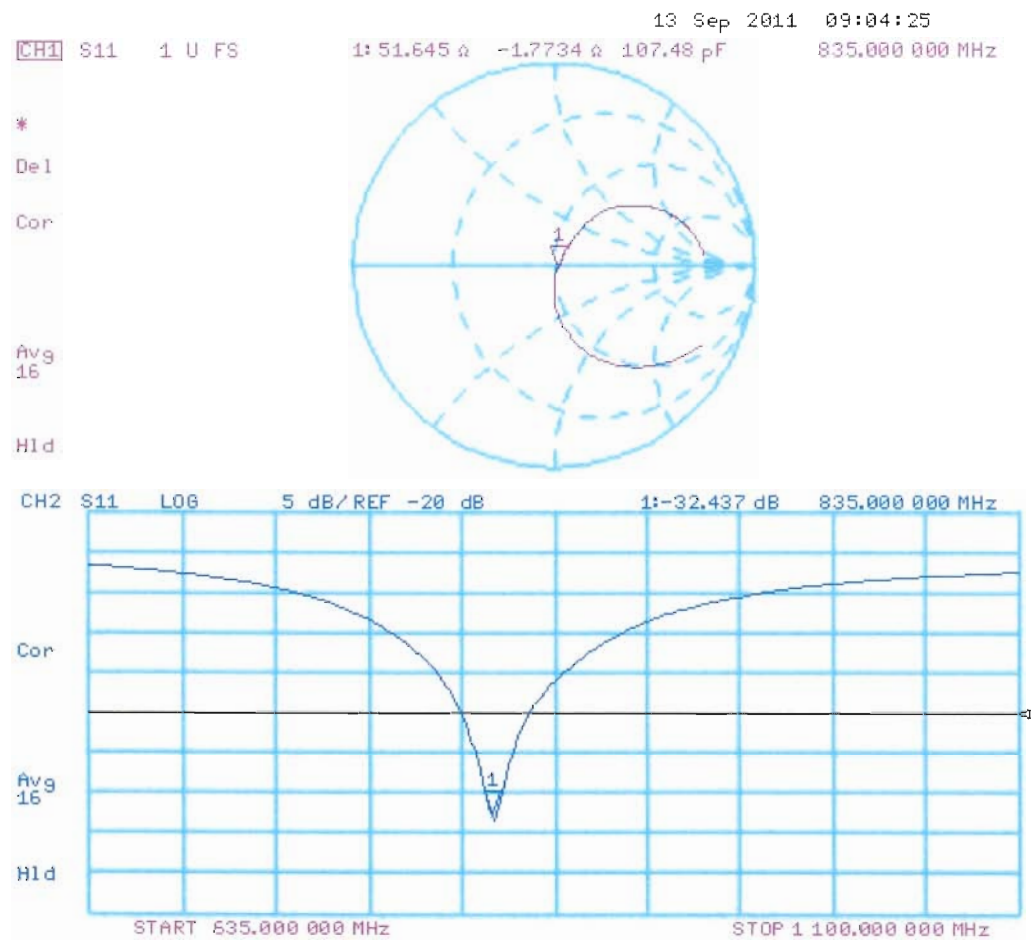
Peak SAR (extrapolated) = 3.423 W/kg

SAR(1 g) = 2.33 mW/g; SAR(10 g) = 1.52 mW/g

Maximum value of SAR (measured) = 2.708 mW/g



Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 12.09.2011

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 462

Communication System: CW; Frequency: 835 MHz

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 1 \text{ mho/m}$; $\epsilon_r = 53.5$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(6.02, 6.02, 6.02); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

Dipole Calibration for Body Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:

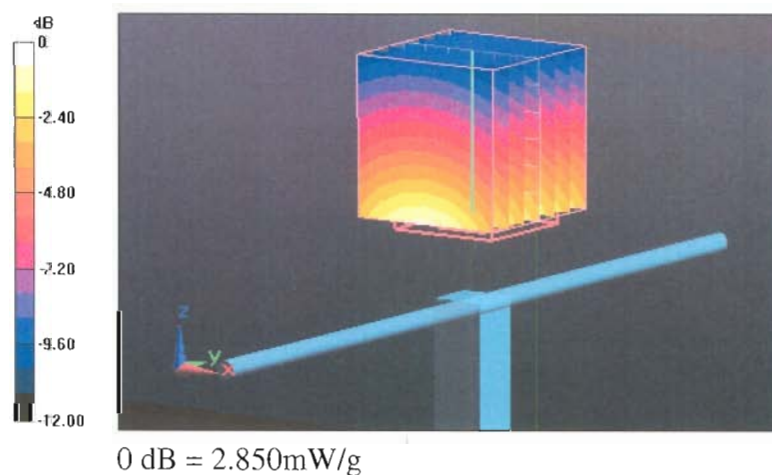
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 55.464 V/m; Power Drift = 0.0033 dB

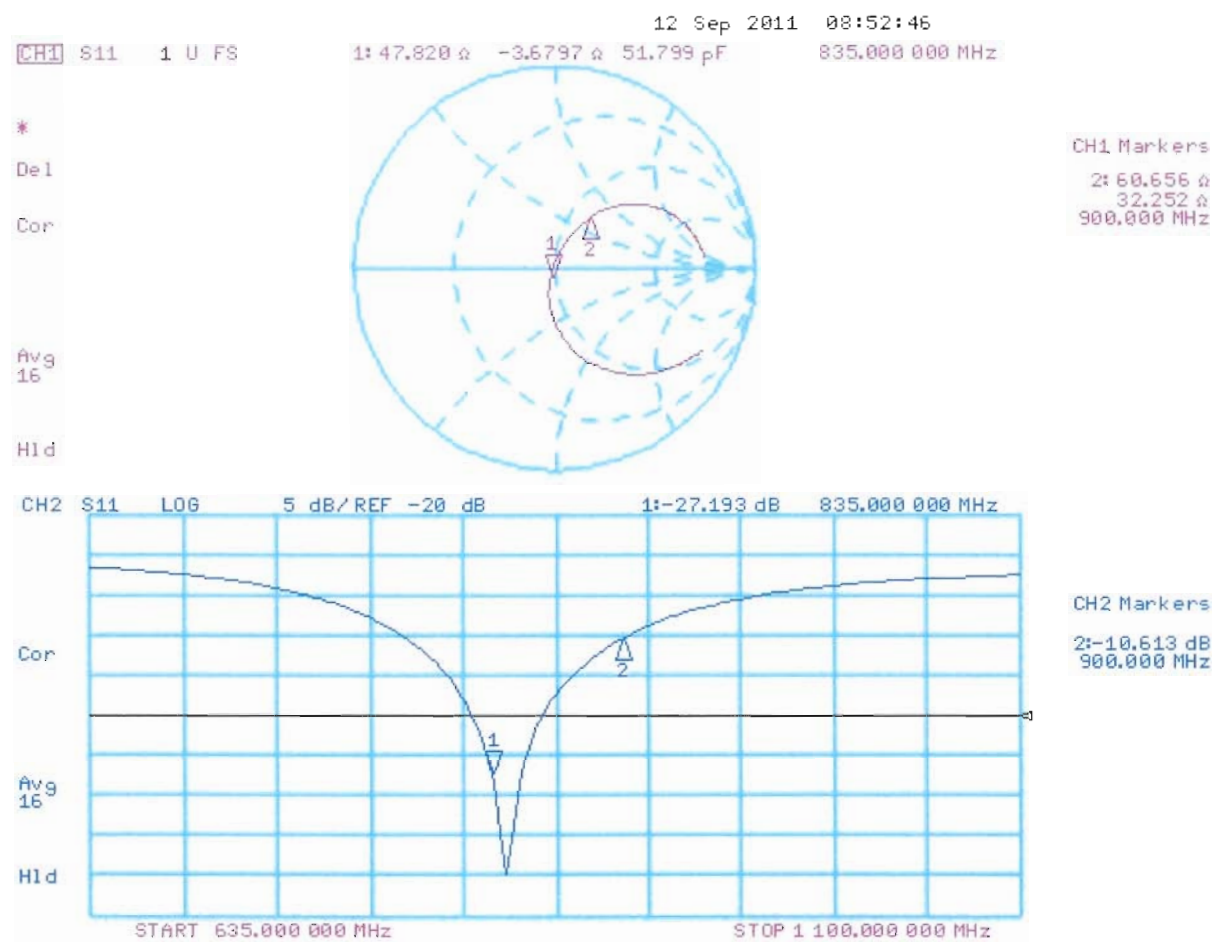
Peak SAR (extrapolated) = 3.540 W/kg

SAR(1 g) = 2.45 mW/g; SAR(10 g) = 1.61 mW/g

Maximum value of SAR (measured) = 2.851 mW/g



Impedance Measurement Plot for Body TSL





Accredited by the Swiss Accreditation Service (SAS)

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

Accreditation No.: **SCS 108**

Client **Nokia Salo TCC**

Certificate No: **D1900V2-5d030_Feb12**

CALIBRATION CERTIFICATE

Object **D1900V2 - SN: 5d030**

Calibration procedure(s) **QA CAL-05.v8
Calibration procedure for dipole validation kits above 700 MHz**

Calibration date: **February 22, 2012**

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	GB37480704	05-Oct-11 (No. 217-01451)	Oct-12
Power sensor HP 8481A	US37292783	05-Oct-11 (No. 217-01451)	Oct-12
Reference 20 dB Attenuator	SN: 5086 (20g)	29-Mar-11 (No. 217-01368)	Apr-12
Type-N mismatch combination	SN: 5047.2 / 06327	29-Mar-11 (No. 217-01371)	Apr-12
Reference Probe ES3DV3	SN: 3205	30-Dec-11 (No. ES3-3205_Dec11)	Dec-12
DAE4	SN: 601	04-Jul-11 (No. DAE4-601_Jul11)	Jul-12

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-11)	In house check: Oct-13
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-11)	In house check: Oct-13
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-11)	In house check: Oct-12

	Name	Function	Signature
Calibrated by:	Israe El-Naouq	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: February 22, 2012

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

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	$52.0 \Omega + 5.3 j\Omega$
Return Loss	- 25.2 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	$47.6 \Omega + 5.4 j\Omega$
Return Loss	- 24.4 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.192 ns
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After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	December 17, 2002

DASY5 Validation Report for Head TSL

Date: 22.02.2012

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d030

Communication System: CW; Frequency: 1900 MHz

Medium parameters used: $f = 1900 \text{ MHz}$; $\sigma = 1.4 \text{ mho/m}$; $\epsilon_r = 40.4$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(5.01, 5.01, 5.01); Calibrated: 30.12.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

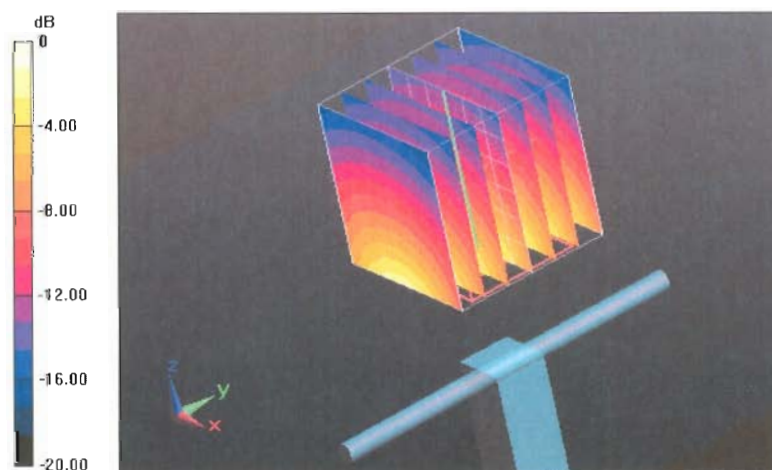
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 96.565 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 17.4270

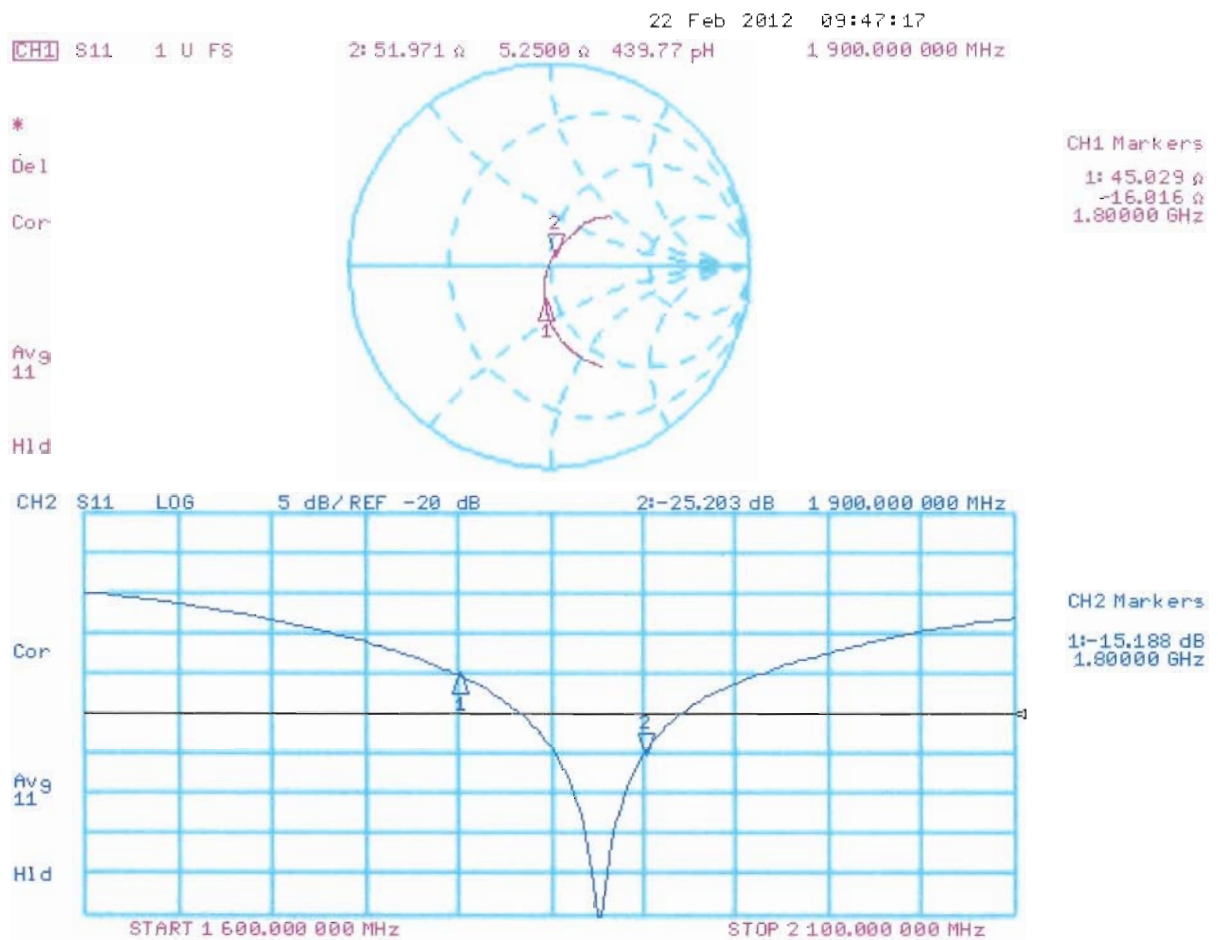
SAR(1 g) = 9.79 mW/g; SAR(10 g) = 5.18 mW/g

Maximum value of SAR (measured) = 12.117 mW/g



0 dB = 12.120mW/g = 21.67 dB mW/g

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 22.02.2012

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d030

Communication System: CW; Frequency: 1900 MHz

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.56$ mho/m; $\epsilon_r = 53$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.62, 4.62, 4.62); Calibrated: 30.12.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

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

Reference Value = 93.541 V/m; Power Drift = -0.0095 dB

Peak SAR (extrapolated) = 17.4260

SAR(1 g) = 9.87 mW/g; SAR(10 g) = 5.17 mW/g

Maximum value of SAR (measured) = 12.485 mW/g



0 dB = 12.480mW/g = 21.92 dB mW/g

Impedance Measurement Plot for Body TSL

