

TEST REPORT

Test Report No.: 1-2977-81-02/11-A



Testing Laboratory

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The test laboratory (area of testing) is accredited according to DIN EN ISO/IEC 17025

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Test Standard/s

IEEE 1528-2003	Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques
OET Bulletin 65 Supplement C	Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields
RSS-102 Issue 4	Radio Frequency Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands)

For further applied test standards please refer to section 3 of this test report.

Test Item

Kind of test item:	Mobile Phone
Device type:	portable device
Model name:	AAD-3880124-BV
S/N serial number:	BX902GHYJB / BX902GQPDP (WLAN)
FCC-ID:	PY7A3880124
IC:	4170B-A3880124
IMEI-Number:	00440214-313172-4 / 00440214-313210-2 (for WLAN)
Hardware status:	AP2
Software status:	4.0.1.A.0.99 / s_atp_coconut_1_0_36 (for WLAN)
Frequency:	see technical details
Antenna:	integrated antenna
Battery option:	Li-Polymer 3.7V / 1200mAh
Accessories:	Stereo headset
Test sample status:	production unit
Exposure category:	general population / uncontrolled environment

This test report is electronically signed and valid without handwriting signature. For verification of the electronic signatures, the public keys can be requested at the testing laboratory.

Test Report authorised:

2011-10-07 Thomas Vogler

Test performed:

2011-08-22 Oleksandr Hnatovskiy

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2 General information

2.1 Notes

The test results of this test report relate exclusively to the test item specified in this test report. CETECOM ICT Services GmbH does not assume responsibility for any conclusions and generalisations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the test item. The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written approval of CETECOM ICT Services GmbH.

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2.2 Application details

Date of receipt of order:	2011-08-08
Date of receipt of test item:	2011-08-08
Start of test:	2011-08-09
End of test:	2011-08-19
Person(s) present during the test:	

2.3 Statement of compliance

The SAR values found for the AAD-3880124-BV Mobile Phone are below the maximum recommended levels of 1.6 W/Kg as averaged over any 1 g tissue according to the FCC rule §2.1093, the ANSI/IEEE C 95.1:1999, the NCRP Report Number 86 for uncontrolled environment, according to the Health Canada's Safety Code 6 and the Industry Canada Radio Standards Specification RSS-102 for General Population/Uncontrolled exposure.

According to October 2010 TCB Workshop for body worn operation in WLAN hot spot mode this device has been tested with 10 mm distance to the phantom.

2.4 Technical details

Band tested for this test report	Technology	Frequency band	Lowest transmit frequency/MHz	Highest transmit frequency/MHz	Lowest receive Frequency/MHz	Highest receive Frequency/MHz	Kind of modulation	Power Class	Tested power control level	GPRS/EGPRS mobile station class	GPRS/EGPRS multislots class	(E)GPRS voice mode or DTM	Test channel low	Test channel middle	Test channel high	Maximum output power/dBm)*
<input type="checkbox"/>	GSM	GSM	880.2	914.8	925.2	959.8	GMSK 8-PSK	4 E2	5	B	12	no	975	37	124	--
<input type="checkbox"/>	GSM	DCS	1710.2	1784.8	1805.2	1879.8	GMSK 8-PSK	1 E2	0	B	12	no	512	698	885	--
<input checked="" type="checkbox"/>	GSM	cellular	824.2	848.8	869.2	893.8	GMSK 8-PSK	4 E2	5	B	12	no	128	190	251	34.0
<input checked="" type="checkbox"/>	GSM	PCS	1850.2	1909.8	1930.2	1989.8	GMSK 8-PSK	1 E2	0	B	12	no	512	661	810	30.7
<input type="checkbox"/>	UMTS	FDD I	1922.4	1977.6	2112.4	2167.6	QPSK	3	max	--	--	--	9612	9750	9888	--
<input checked="" type="checkbox"/>	UMTS	FDD II	1852.4	1907.6	1982.4	1987.6	QPSK	3	max	--	--	--	9262	9400	9538	22.5
<input checked="" type="checkbox"/>	UMTS	FDD V	826.4	846.6	871.4	891.6	QPSK	3	max	--	--	--	4132	4182	4233	24.2
<input type="checkbox"/>	WLAN	ISM	2412	2472	2412	2472	CCK OFDM	--	max	--	--	--	1	7	13	--
<input checked="" type="checkbox"/>	WLAN US	ISM	2412	2462	2412	2462	CCK OFDM	--	max	--	--	--	1	6	11	16.2
<input type="checkbox"/>	BT	ISM	2412	2462	2412	2462	GFSK	3	max	--	--	--	0	39	78	<10

)*: slotted peak power for GSM, averaged max. RMS power for UMTS, WLAN and BT.

3 Test standard/s:

Test Standard	Version	Test Standard Description
IEEE 1528-2003	2003-04	Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques
OET Bulletin 65 Supplement C	1997-01 2001-01	Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields
RSS-102 Issue 4	2010-03	Radio Frequency Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands)
Canada's Safety Code No. 6	99-EHD-237	Limits of Human Exposure to Radiofrequency Electromagnetic Fields in the Frequency Range from 3 kHz to 300 GHz
IEEE Std. C95-3	1991	Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields – RF and Microwave
IEEE Std. C95-1	1999	Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields

3.1 RF exposure limits

Human Exposure	Uncontrolled Environment General Population	Controlled Environment Occupational
Spatial Peak SAR* (Brain and Trunk)	1.60 mW/g	8.00 mW/g
Spatial Average SAR** (Whole Body)	0.08 mW/g	0.40 mW/g
Spatial Peak SAR*** (Hands/Feet/Ankle/Wrist)	4.00 mW/g	20.00 mW/g

Table 1: RF exposure limits

The limit applied in this test report is shown in bold letters

Notes:

* The Spatial Peak value of the SAR averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time

** The Spatial Average value of the SAR averaged over the whole body.

*** The Spatial Peak value of the SAR averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.

Uncontrolled Environments are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure.

Controlled Environments are defined as locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, (i.e. as a result of employment or occupation).

4 Summary of Measurement Results

<input checked="" type="checkbox"/>	No deviations from the technical specifications ascertained
<input type="checkbox"/>	Deviations from the technical specifications ascertained

5 Test Environment

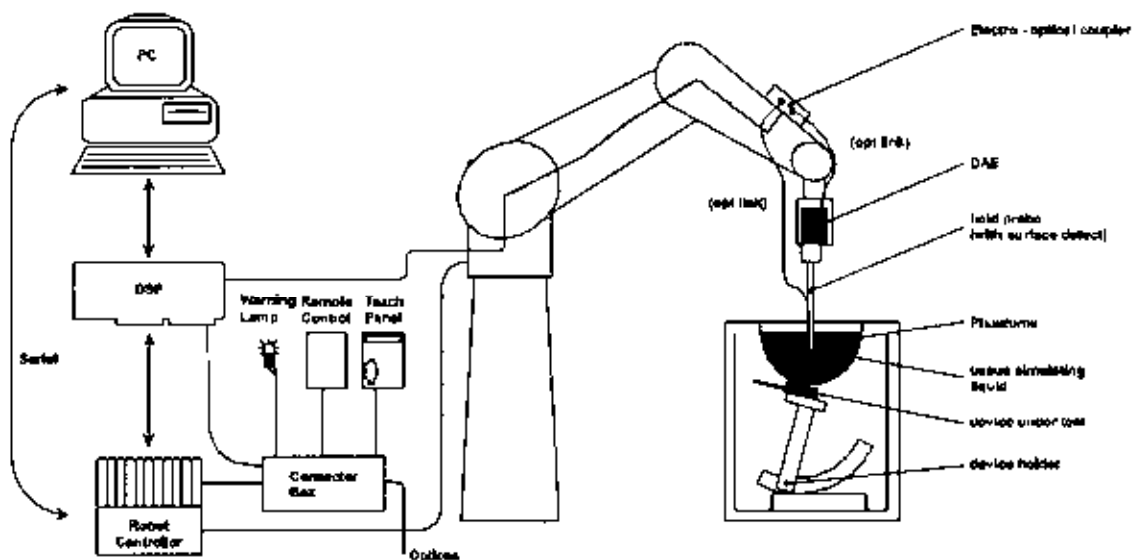
Ambient temperature:	20 – 24 °C
Tissue Simulating liquid:	20 – 24 °C
Relative humidity content:	40 – 50 %
Air pressure:	not relevant for this kind of testing
Power supply:	230 V / 50 Hz

Exact temperature values for each test are shown in the table(s) under 2.5. and/or on the measurement plots.

6 Test Set-up

6.1 Measurement system

6.1.1 System Description



- The DAS4 system for performing compliance tests consists of the following items:
- A standard high precision 6-axis robot (Stäubli RX family) with controller and software. An arm extension for accommodating the data acquisition electronics (DAE).
- A dosimetric probe, i.e. an isotropic E-field probe optimized and calibrated for usage in tissue simulating liquid. The probe is equipped with an optical surface detector system.
- A data acquisition electronic (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- A unit to operate the optical surface detector which is connected to the EOC.
- The Electro-Optical Coupler (EOC) performs the conversion from the optical into a digital electric signal of the DAE. The EOC is connected to the DAS4 measurement server.
- The DAS4 measurement server, which performs all real-time data evaluation for field measurements and surface detection, controls robot movements and handles safety operation. A computer operating Windows 2000
- DAS4 software and SEMCAD data evaluation software.
- Remote control with teach panel and additional circuitry for robot safety such as warning lamps, etc.
- The generic twin phantom enabling the testing of left-hand and right-hand usage.
- The device holder for handheld mobile phones.
- Tissue simulating liquid mixed according to the given recipes.
- System validation dipoles allowing to validate the proper functioning of the system.

6.1.2 Test environment

The DASY4 measurement system is placed at the head end of a room with dimensions: 5 x 2.5 x 3 m³, the SAM phantom is placed in a distance of 75 cm from the side walls and 1.1m from the rear wall. Above the test system a 1.5 x 1.5 m² array of pyramid absorbers is installed to reduce reflections from the ceiling.

Picture 1 of the photo documentation shows a complete view of the test environment.

The system allows the measurement of SAR values larger than 0.005 mW/g.

6.1.3 Probe description

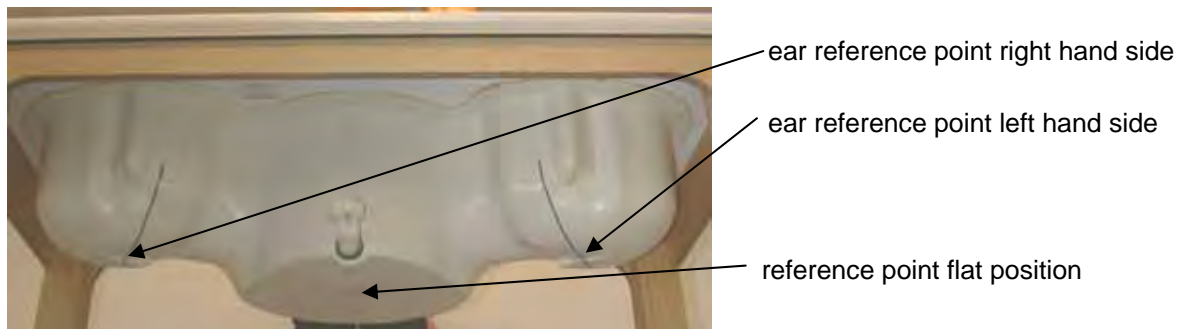
Isotropic E-Field Probe ET3DV6 for Dosimetric Measurements

Technical data according to manufacturer information	
Construction	Symmetrical design with triangular core Built-in optical fiber for surface detection system Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., glycoether)
Calibration	In air from 10 MHz to 2.5 GHz In head tissue simulating liquid (HSL) at 900 (800-1000) MHz and 1.8 GHz (1700-1910 MHz) (accuracy $\pm 9.5\%$; k=2) Calibration for other liquids and frequencies upon request
Frequency	10 MHz to 3 GHz (dosimetry); Linearity: ± 0.2 dB (30 MHz to 3 GHz)
Directivity	± 0.2 dB in HSL (rotation around probe axis) ± 0.4 dB in HSL (rotation normal to probe axis)
Dynamic range	5 μ W/g to > 100 mW/g; Linearity: ± 0.2 dB
Optical Surface Detection	± 0.2 mm repeatability in air and clear liquids over diffuse reflecting surfaces (ET3DV6 only)
Dimensions	Overall length: 330 mm Tip length: 16 mm Body diameter: 12 mm Tip diameter: 6.8 mm Distance from probe tip to dipole centers: 2.7 mm
Application	General dosimetry up to 3 GHz Compliance tests of mobile phones Fast automatic scanning in arbitrary phantoms (ET3DV6)

6.1.4 Phantom description

The used SAM Phantom meets the requirements specified in Edition 01-01 of Supplement C to OET Bulletin 65 for Specific Absorption Rate (SAR) measurements.

The phantom consists of a fibreglass shell integrated in a wooden table. It allows left-hand and right-hand head as well as body-worn measurements with a maximum liquid depth of 18 cm in head position and 22 cm in planar position (body measurements). The thickness of the Phantom shell is 2 mm +/- 0.1 mm.



6.1.5 Device holder description

The DASY4 device holder has two scales for device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear openings). The plane between the ear openings and the mouth tip has a rotation angle of 65°. The bottom plate contains three pair of bolts for locking the device holder. The device holder positions are adjusted to the standard measurement positions in the three sections. This device holder is used for standard mobile phones or PDA's only. If necessary an additional support of polystyrene material is used.



Larger DUT's (e.g. notebooks) cannot be tested using this device holder. Instead a support of bigger polystyrene cubes and thin polystyrene plates is used to position the DUT in all relevant positions to find and measure spots with maximum SAR values.

Therefore those devices are normally only tested at the flat part of the SAM.

6.1.6 Scanning procedure

- The DASY4 installation includes predefined files with recommended procedures for measurements and validation. They are read-only document files and destined as fully defined but unmeasured masks. All test positions (head or body-worn) are tested with the same configuration of test steps differing only in the grid definition for the different test positions.
- The „reference“ and „drift“ measurements are located at the beginning and end of the batch process. They measure the field drift at one single point in the liquid over the complete procedure. The indicated drift is mainly the variation of the DUT's output power and should vary max. +/- 5 %.
- The „surface check“ measurement tests the optical surface detection system of the DASY4 system by repeatedly detecting the surface with the optical and mechanical surface detector and comparing the results. The output gives the detecting heights of both systems, the difference between the two systems and the standard deviation of the detection repeatability. Air bubbles or refraction in the liquid due to separation of the sugar-water mixture gives poor repeatability (above $\pm 0.1\text{mm}$). To prevent wrong results tests are only executed when the liquid is free of air bubbles. The difference between the optical surface detection and the actual surface depends on the probe and is specified with each probe. (It does not depend on the surface reflectivity or the probe angle to the surface within $\pm 30^\circ$.)
- The „area scan“ measures the SAR above the DUT or verification dipole on a parallel plane to the surface. It is used to locate the approximate location of the peak SAR with 2D spline interpolation. The robot performs a stepped movement along one grid axis while the local electrical field strength is measured by the probe. The probe is touching the surface of the SAM during acquisition of measurement values. The standard scan uses large grid spacing for faster measurement. Standard grid spacing for head measurements is 15 mm in x- and y- dimension. If a finer resolution is needed, the grid spacing can be reduced. Grid spacing and orientation have no influence on the SAR result. For special applications where the standard scan method does not find the peak SAR within the grid, e.g. mobile phones with flip cover, the grid can be adapted in orientation. Results of this coarse scan are shown in annex 2.
- A „7x7x7 zoom scan“ measures the field in a volume around the 2D peak SAR value acquired in the previous „coarse“ scan. This is a fine 7x7 grid where the robot additionally moves the probe in 7 steps along the z-axis away from the bottom of the Phantom. Grid spacing for the cube measurement is 5 mm in x and y-direction and 5 mm in z-direction. DASY4 is also able to perform repeated zoom scans if more than 1 peak is found during area scan. In this document, the evaluated peak 1g and 10g averaged SAR values are shown in the 2D-graphics in annex 2. Test results relevant for the specified standard (see section 3) are shown in table form in section 7.
- A Z-axis scan measures the total SAR value at the x-and y-position of the maximum SAR value found during the cube 7x7x7 scan. The probe is moved away in z-direction from the bottom of the SAM phantom in 2mm steps. This measurement shows the continuity of the liquid and can - depending in the field strength – also show the liquid depth. A z-axis scan of the measurement with maximum SAR value is shown in annex 2.

6.1.7 Spatial Peak SAR Evaluation

The spatial peak SAR - value for 1 and 10 g is evaluated after the Cube measurements have been done. The basis of the evaluation are the SAR values measured at the points of the fine cube grid consisting of 7 x 7 x 7 points. The algorithm that finds the maximal averaged volume is separated into three different stages.

- The data between the dipole center of the probe and the surface of the phantom are extrapolated. This data cannot be measured since the center of the dipole is 2.7 mm away from the tip of the probe and the distance between the surface and the lowest measuring point is about 1 mm (see probe calibration sheet). The extrapolated data from a cube measurement can be visualized by selecting 'Graph Evaluated'.
- The maximum interpolated value is searched with a straight-forward algorithm. Around this maximum the SAR - values averaged over the spatial volumes (1g or 10 g) are computed using the 3d-spline interpolation algorithm. If the volume cannot be evaluated (i.e., if a part of the grid was cut off by the boundary of the measurement area) the evaluation will be started on the corners of the bottom plane of the cube.
- All neighboring volumes are evaluated until no neighboring volume with a higher average value is found.

Extrapolation

The extrapolation is based on a least square algorithm [W. Gander, Computermathematik, p.168-180]. Through the points in the first 3 cm along the z-axis, polynomials of order four are calculated. These polynomials are then used to evaluate the points between the surface and the probe tip. The points, calculated from the surface, have a distance of 1 mm from each other.

Interpolation

The interpolation of the points is done with a 3d-Spline. The 3d-Spline is composed of three one-dimensional splines with the "Not a knot"-condition [W. Gander, Computermathematik, p.141-150] (x, y and z -direction) [Numerical Recipes in C, Second Edition, p.123ff].

Volume Averaging

At First the size of the cube is calculated. Then the volume is integrated with the trapezoidal algorithm. 8000 points (20x20x20) are interpolated to calculate the average.

Advanced Extrapolation

DASY4 uses the advanced extrapolation option which is able to compensate boundary effects on E-field probes.

6.1.8 Data Storage and Evaluation

Data Storage

The DASY4 software stores the acquired data from the data acquisition electronics as raw data (in microvolt readings from the probe sensors), together with all necessary software parameters for the data evaluation (probe calibration data, liquid parameters and device frequency and modulation data) in measurement files with the extension ".DA4". The software evaluates the desired unit and format for output each time the data is visualized or exported. This allows verification of the complete software setup even after the measurement and allows correction of incorrect parameter settings. For example, if a measurement has been performed with a wrong crest factor parameter in the device setup, the parameter can be corrected afterwards and the data can be re-evaluated.

The measured data can be visualized or exported in different units or formats, depending on the selected probe type ([V/m], [A/m], [°C], [mW/g], [mW/cm²], [dBrel], etc.). Some of these units are not available in certain situations or show meaningless results, e.g., a SAR output in a lossless media will always be zero. Raw data can also be exported to perform the evaluation with other software packages.

Data Evaluation by SEMCAD

The SEMCAD software automatically executes the following procedures to calculate the field units from the microvolt readings at the probe connector. The parameters used in the evaluation are stored in the configuration modules of the software:

Probe parameters:	- Sensitivity	$\text{Norm}_i, a_{i0}, a_{i1}, a_{i2}$
	- Conversion factor	ConvF_i
	- Diode compression point	D_{cpi}
Device parameters:	- Frequency	f
	- Crest factor	cf
Media parameters:	- Conductivity	σ
	- Density	ρ

These parameters must be set correctly in the software. They can be found in the component documents or they can be imported into the software from the configuration files issued for the DASY4 components. In the direct measuring mode of the multimeter option, the parameters of the actual system setup are used. In the scan visualization and export modes, the parameters stored in the corresponding document files are used.

The first step of the evaluation is a linearization of the filtered input signal to account for the compression characteristics of the detector diode. The compensation depends on the input signal, the diode type and the DC-transmission factor from the diode to the evaluation electronics.

If the exciting field is pulsed, the crest factor of the signal must be known to correctly compensate for peak power. The formula for each channel can be given as:

$$V_i = U_i + U_i^2 \cdot cf/dcp_i$$

with V_i = compensated signal of channel i (i = x, y, z)
 U_i = input signal of channel i (i = x, y, z)
 cf = crest factor of exciting field (DASY parameter)
 dcp_i = diode compression point (DASY parameter)

From the compensated input signals the primary field data for each channel can be evaluated:

E-field probes: $E_i = (V_i / Norm_i \cdot ConvF)^{1/2}$

H-field probes: $H_i = (V_i)^{1/2} \cdot (a_{i0} + a_{i1}f + a_{i2}f^2)/f$

with V_i = compensated signal of channel i (i = x, y, z)
 $Norm_i$ = sensor sensitivity of channel i (i = x, y, z)
 [mV/(V/m)²] for E-field Probes
 ConvF = sensitivity enhancement in solution
 a_{ij} = sensor sensitivity factors for H-field probes
 f = carrier frequency [GHz]
 E_i = electric field strength of channel i in V/m
 H_i = magnetic field strength of channel i in A/m

The RSS value of the field components gives the total field strength (Hermitian magnitude):

$$E_{tot} = (E_x^2 + E_y^2 + E_z^2)^{1/2}$$

The primary field data are used to calculate the derived field units.

$$SAR = (E_{tot}^2 \cdot \sigma) / (\rho \cdot 1000)$$

with SAR = local specific absorption rate in mW/g
 E_{tot} = total field strength in V/m
 σ = conductivity in [mho/m] or [Siemens/m]
 ρ = equivalent tissue density in g/cm³

Note that the density is normally set to 1 (or 1.06), to account for actual brain density rather than the density of the simulation liquid. The power flow density is calculated assuming the excitation field to be a free space field.

$$P_{pwe} = E_{tot}^2 / 3770 \quad \text{or} \quad P_{pwe} = H_{tot}^2 \cdot 37.7$$

with P_{pwe} = equivalent power density of a plane wave in mW/cm²
 E_{tot} = total electric field strength in V/m
 H_{tot} = total magnetic field strength in A/m

6.1.9 Tissue simulating liquids: dielectric properties

The following materials are used for producing the tissue-equivalent materials.

(Liquids used for tests described in section 7. are marked with ☒) :

Ingredients (% of weight)	Frequency (MHz)					
	<input type="checkbox"/> 450	<input checked="" type="checkbox"/> 835	<input type="checkbox"/> 900	<input type="checkbox"/> 1800	<input checked="" type="checkbox"/> 1900	<input checked="" type="checkbox"/> 2450
frequency band	<input type="checkbox"/> 450	<input checked="" type="checkbox"/> 835	<input type="checkbox"/> 900	<input type="checkbox"/> 1800	<input checked="" type="checkbox"/> 1900	<input checked="" type="checkbox"/> 2450
Tissue Type	Head	Head	Head	Head	Head	Head
Water	38.56	41.45	40.92	52.64	54.9	62.7
Salt (NaCl)	3.95	1.45	1.48	0.36	0.18	0.5
Sugar	56.32	56.0	56.5	0.0	0.0	0.0
HEC	0.98	1.0	1.0	0.0	0.0	0.0
Bactericide	0.19	0.1	0.1	0.0	0.0	0.0
Triton X-100	0.0	0.0	0.0	0.0	0.0	36.8
DGBE	0.0	0.0	0.0	47.0	44.92	0.0

Table 2: Head tissue dielectric properties

Ingredients (% of weight)	Frequency (MHz)					
	<input type="checkbox"/> 450	<input checked="" type="checkbox"/> 835	<input type="checkbox"/> 900	<input type="checkbox"/> 1800	<input checked="" type="checkbox"/> 1900	<input checked="" type="checkbox"/> 2450
frequency band	<input type="checkbox"/> 450	<input checked="" type="checkbox"/> 835	<input type="checkbox"/> 900	<input type="checkbox"/> 1800	<input checked="" type="checkbox"/> 1900	<input checked="" type="checkbox"/> 2450
Tissue Type	Body	Body	Body	Body	Body	Body
Water	51.16	52.4	56.0	69.91	69.91	73.2
Salt (NaCl)	1.49	1.40	0.76	0.13	0.13	0.04
Sugar	46.78	45.0	41.76	0.0	0.0	0.0
HEC	0.52	1.0	1.21	0.0	0.0	0.0
Bactericide	0.05	0.1	0.27	0.0	0.0	0.0
Triton X-100	0.0	0.0	0.0	0.0	0.0	0.0
DGBE	0.0	0.0	0.0	29.96	29.96	26.7

Table 3: Body tissue dielectric properties

Salt: 99+% Pure Sodium Chloride

Sugar: 98+% Pure Sucrose

Water: De-ionized, 16MΩ+ resistivity

HEC: Hydroxyethyl Cellulose

DGBE: 99+% Di(ethylene glycol) butyl ether, [2-(2-butoxyethoxy)ethanol]

Triton X-100(ultra pure): Polyethylene glycol mono [4-(1,1,3,3-tetramethylbutyl)phenyl]ether

Note: Due to their availability body tissue simulating liquids as defined by FCC OET Bulletin 65 Supplement C are generally used for body worn SAR testing according to European standards.

6.1.10 Tissue simulating liquids: parameters

Liquid	Frequency (MHz)	Target head tissue		Measurement head tissue		Measurement date
		Permittivity	Conductivity[S/m]	Permittivity	Conductivity[S/m]	
HSL 850	824	41.5	0.90	43.2	0.87	2011-08-09
	837	41.5	0.90	43.0	0.89	2011-08-09
	849	41.5	0.90	42.9	0.90	2011-08-09
	900	41.5	0.97	42.3	0.95	2011-08-09
HSL 1900	1850	40.0	1.40	40.2	1.34	2011-08-11
	1880	40.0	1.40	40.1	1.37	2011-08-11
	1900	40.0	1.40	40.0	1.38	2011-08-11
	1910	40.0	1.40	40.0	1.39	2011-08-11
HSL 2450	2412	39.2	1.80	39.3	1.81	2011-08-18
	2437	39.2	1.80	39.3	1.84	2011-08-18
	2450	39.2	1.80	39.3	1.85	2011-08-18
	2462	39.2	1.80	39.2	1.86	2011-08-18

Table 4: Parameter of the head tissue simulating liquid

Liquid	Frequency (MHz)	Target body tissue		Measurement body tissue		Measurement date
		Permittivity	Conductivity[S/m]	Permittivity	Conductivity[S/m]	
M 850	824	55.2	0.97	54.8	0.97	2011-08-17
	837	55.2	0.97	54.7	0.98	2011-08-17
	849	55.2	0.97	54.6	1.00	2011-08-17
	900	55.0	1.05	54.1	1.05	2011-08-17
M 1900	1850	53.3	1.52	52.8	1.47	2011-08-13
	1880	53.3	1.52	52.7	1.50	2011-08-13
	1900	53.3	1.52	52.6	1.51	2011-08-13
	1910	53.3	1.52	52.6	1.53	2011-08-13
M 2450	2412	52.7	1.95	51.8	1.94	2011-08-19
	2437	52.7	1.95	51.8	1.97	2011-08-19
	2450	52.7	1.95	51.7	1.99	2011-08-19
	2462	52.7	1.95	51.7	2.00	2011-08-19

Table 5: Parameter of the body tissue simulating liquid

Note: The dielectric properties have been measured using the contact probe method at 22°C.

6.1.11 Measurement uncertainty evaluation for SAR test

The overall combined measurement uncertainty of the measurement system is $\pm 10.3\%$ ($K=1$).
 The expanded uncertainty ($k=2$) is assessed to be $\pm 20.6\%$
 This measurement uncertainty budget is suggested by IEEE 1528-2003 and determined by Schmid & Partner Engineering AG. The breakdown of the individual uncertainties is as follows:

Error Sources	Uncertainty Value	Probability Distribution	Divisor	c_i 1g	c_i 10g	Standard Uncertainty 1g	Standard Uncertainty 10g	v_i^2 or v_{eff}
Measurement System								
Probe calibration	$\pm 4.8\%$	Normal	1	1	1	$\pm 4.8\%$	$\pm 4.8\%$	∞
Axial isotropy	$\pm 4.7\%$	Rectangular	$\sqrt{3}$	0.7	0.7	$\pm 1.9\%$	$\pm 1.9\%$	∞
Hemispherical isotropy	$\pm 9.6\%$	Rectangular	$\sqrt{3}$	0.7	0.7	$\pm 3.9\%$	$\pm 3.9\%$	∞
Spatial resolution	$\pm 0.0\%$	Rectangular	$\sqrt{3}$	1	1	$\pm 0.0\%$	$\pm 0.0\%$	∞
Boundary effects	$\pm 1.0\%$	Rectangular	$\sqrt{3}$	1	1	$\pm 0.6\%$	$\pm 0.6\%$	∞
Probe linearity	$\pm 4.7\%$	Rectangular	$\sqrt{3}$	1	1	$\pm 2.7\%$	$\pm 2.7\%$	∞
System detection limits	$\pm 1.0\%$	Rectangular	$\sqrt{3}$	1	1	$\pm 0.6\%$	$\pm 0.6\%$	∞
Readout electronics	$\pm 1.0\%$	Normal	1	1	1	$\pm 1.0\%$	$\pm 1.0\%$	∞
Response time	$\pm 0.8\%$	Rectangular	$\sqrt{3}$	1	1	$\pm 0.5\%$	$\pm 0.5\%$	∞
Integration time	$\pm 2.6\%$	Rectangular	$\sqrt{3}$	1	1	$\pm 1.5\%$	$\pm 1.5\%$	∞
RF ambient conditions	$\pm 3.0\%$	Rectangular	$\sqrt{3}$	1	1	$\pm 1.7\%$	$\pm 1.7\%$	∞
Probe positioner	$\pm 0.4\%$	Rectangular	$\sqrt{3}$	1	1	$\pm 0.2\%$	$\pm 0.2\%$	∞
Probe positioning	$\pm 2.9\%$	Rectangular	$\sqrt{3}$	1	1	$\pm 1.7\%$	$\pm 1.7\%$	∞
Max. SAR evaluation	$\pm 1.0\%$	Rectangular	$\sqrt{3}$	1	1	$\pm 0.6\%$	$\pm 0.6\%$	∞
Test Sample Related								
Device positioning	$\pm 2.9\%$	Normal	1	1	1	$\pm 2.9\%$	$\pm 2.9\%$	145
Device holder uncertainty	$\pm 3.6\%$	Normal	1	1	1	$\pm 3.6\%$	$\pm 3.6\%$	5
Power drift	$\pm 5.0\%$	Rectangular	$\sqrt{3}$	1	1	$\pm 2.9\%$	$\pm 2.9\%$	∞
Phantom and Set-up								
Phantom uncertainty	$\pm 4.0\%$	Rectangular	$\sqrt{3}$	1	1	$\pm 2.3\%$	$\pm 2.3\%$	∞
Liquid conductivity (target)	$\pm 5.0\%$	Rectangular	$\sqrt{3}$	0.64	0.43	$\pm 1.8\%$	$\pm 1.2\%$	∞
Liquid conductivity (meas.)	$\pm 2.5\%$	Normal	1	0.64	0.43	$\pm 1.6\%$	$\pm 1.1\%$	∞
Liquid permittivity (target)	$\pm 5.0\%$	Rectangular	$\sqrt{3}$	0.6	0.49	$\pm 1.7\%$	$\pm 1.4\%$	∞
Liquid permittivity (meas.)	$\pm 2.5\%$	Normal	1	0.6	0.49	$\pm 1.5\%$	$\pm 1.2\%$	∞
Combined Uncertainty						$\pm 10.3\%$	$\pm 10.0\%$	330
Expanded Std. Uncertainty						$\pm 20.6\%$	$\pm 20.1\%$	

Table 6: Measurement uncertainties

6.1.12 Measurement uncertainty evaluation for system validation

The overall combined measurement uncertainty of the measurement system is $\pm 8.4\%$ ($K=1$).
 The expanded uncertainty ($k=2$) is assessed to be $\pm 16.8\%$
 This measurement uncertainty budget is suggested by IEEE 1528-2003 and determined by Schmid & Partner Engineering AG. The breakdown of the individual uncertainties is as follows:

Error Sources	Uncertainty Value	Probability Distribution	Divisor	c_i 1g	c_i 10g	Standard Uncertainty 1g	Standard Uncertainty 10g	v_i^2 or v_{eff}
Measurement System								
Probe calibration	$\pm 4.8\%$	Normal	1	1	1	$\pm 4.8\%$	$\pm 4.8\%$	∞
Axial isotropy	$\pm 4.7\%$	Rectangular	$\sqrt{3}$	0.7	0.7	$\pm 1.9\%$	$\pm 1.9\%$	∞
Hemispherical isotropy	$\pm 0.0\%$	Rectangular	$\sqrt{3}$	0.7	0.7	$\pm 0.0\%$	$\pm 3.9\%$	∞
Boundary effects	$\pm 1.0\%$	Rectangular	$\sqrt{3}$	1	1	$\pm 0.6\%$	$\pm 0.6\%$	∞
Probe linearity	$\pm 4.7\%$	Rectangular	$\sqrt{3}$	1	1	$\pm 2.7\%$	$\pm 2.7\%$	∞
System detection limits	$\pm 1.0\%$	Rectangular	$\sqrt{3}$	1	1	$\pm 0.6\%$	$\pm 0.6\%$	∞
Readout electronics	$\pm 1.0\%$	Normal	1	1	1	$\pm 1.0\%$	$\pm 1.0\%$	∞
Response time	$\pm 0.0\%$	Rectangular	$\sqrt{3}$	1	1	$\pm 0.0\%$	$\pm 0.0\%$	∞
Integration time	$\pm 0.0\%$	Rectangular	$\sqrt{3}$	1	1	$\pm 0.0\%$	$\pm 0.0\%$	∞
RF ambient conditions	$\pm 3.0\%$	Rectangular	$\sqrt{3}$	1	1	$\pm 1.7\%$	$\pm 1.7\%$	∞
Probe positioner	$\pm 0.4\%$	Rectangular	$\sqrt{3}$	1	1	$\pm 0.2\%$	$\pm 0.2\%$	∞
Probe positioning	$\pm 2.9\%$	Rectangular	$\sqrt{3}$	1	1	$\pm 1.7\%$	$\pm 1.7\%$	∞
Max. SAR evaluation	$\pm 1.0\%$	Rectangular	$\sqrt{3}$	1	1	$\pm 0.6\%$	$\pm 0.6\%$	∞
Test Sample Related								
Dipole axis to liquid distance	$\pm 2.0\%$	Normal	1	1	1	$\pm 1.2\%$	$\pm 1.2\%$	∞
Power drift	$\pm 4.7\%$	Rectangular	$\sqrt{3}$	1	1	$\pm 2.7\%$	$\pm 2.7\%$	∞
Phantom and Set-up								
Phantom uncertainty	$\pm 4.0\%$	Rectangular	$\sqrt{3}$	1	1	$\pm 2.3\%$	$\pm 2.3\%$	∞
Liquid conductivity (target)	$\pm 5.0\%$	Rectangular	$\sqrt{3}$	0.64	0.43	$\pm 1.8\%$	$\pm 1.2\%$	∞
Liquid conductivity (meas.)	$\pm 2.5\%$	Normal	1	0.64	0.43	$\pm 1.6\%$	$\pm 1.1\%$	∞
Liquid permittivity (target)	$\pm 5.0\%$	Rectangular	$\sqrt{3}$	0.6	0.49	$\pm 1.7\%$	$\pm 1.4\%$	∞
Liquid permittivity (meas.)	$\pm 2.5\%$	Normal	1	0.6	0.49	$\pm 1.5\%$	$\pm 1.2\%$	∞
Combined Uncertainty						$\pm 8.4\%$	$\pm 8.1\%$	
Expanded Std. Uncertainty						$\pm 16.8\%$	$\pm 16.2\%$	

Table 7: Measurement uncertainties

6.1.13 System validation

The system validation is performed for verifying the accuracy of the complete measurement system and performance of the software. The system validation is performed with tissue equivalent material according to IEEE 1528. The following table shows validation results for all frequency bands and tissue liquids used during the tests (plot(s) see annex A).

Validation Kit	Frequency	Target Peak SAR (1000 mW) (+/- 10%)	Target SAR _{1g} (1000 mW) (+/- 10%)	Measured Peak SAR (1000 mW)	Measured SAR _{1g} (1000 mW)	Measured date
D900V2 S/N: 099	900 MHz head	15.6 mW/g	10.6 mW/g	15.7 mW/g	10.4 mW/g	2011-08-09
D900V2 S/N: 099	900 MHz body	17.3 mW/g	11.1 mW/g	16.2 mW/g	10.5 mW/g	2011-08-17
D1900V2 S/N: 531	1900 MHz head	72.4 mW/g	39.7 mW/g	67.8 mW/g	37.9 mW/g	2011-08-11
D1900V2 S/N: 531	1900 MHz body	71.7 mW/g	39.8 mW/g	66.1 mW/g	38.8 mW/g	2011-08-13
D1900V2 S/N: 531	1900 MHz body	71.7 mW/g	39.8 mW/g	65.7 mW/g	38.5 mW/g	2011-08-14
D2450V2 S/N: 710	2450 MHz head	112.4 mW/g	51.6 mW/g	108.8 mW/g	54.0 mW/g	2011-08-18
D2450V2 S/N: 710	2450 MHz body	104.0 mW/g	54.4 mW/g	95.3 mW/g	49.6 mW/g	2011-08-19

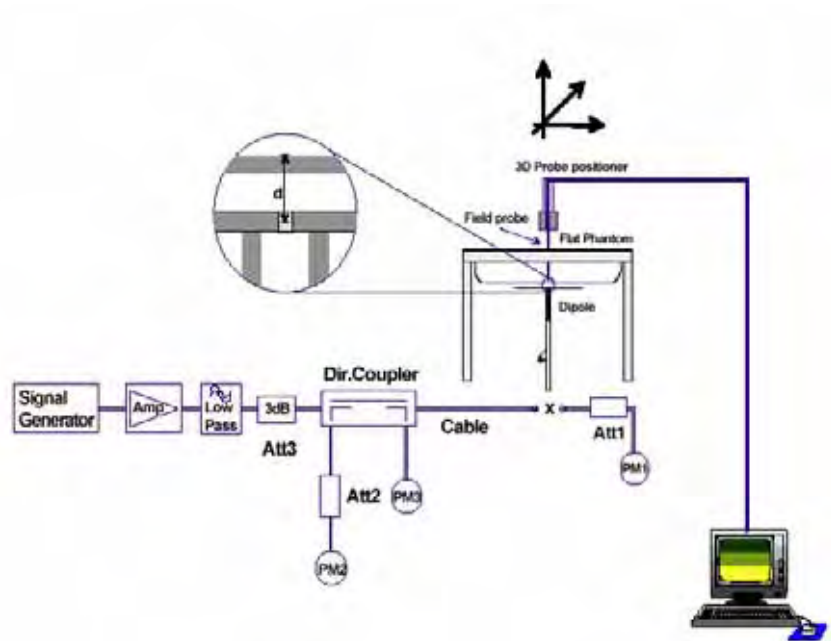
Table 8: Results system validation

Note : 900 MHz probe/dipole calibration is valid +/-100 MHz and fully covers the 850 MHz band.

6.1.14 Validation procedure

The validation is performed by using a validation dipole which is positioned parallel to the planar part of the SAM phantom at the reference point. The distance of the dipole to the SAM phantom is determined by a plexiglass spacer. The dipole is connected to the signal source consisting of signal generator and amplifier via a directional coupler, N-connector cable and adaption to SMA. It is fed with a power of 1000 mW. To adjust this power a power meter is used. The power sensor is connected to the cable before the validation to measure the power at this point and do adjustments at the signal generator. At the outputs of the directional coupler both return loss as well as forward power are controlled during the validation to make sure that emitted power at the dipole is kept constant. This can also be checked by the power drift measurement after the test (result on plot).

Validation results have to be equal or near the values determined during dipole calibration (target SAR in table above) with the relevant liquids and test system.



7 Detailed Test Results

7.1 Conducted power measurements

For the measurements a Rohde & Schwarz Radio Communication Tester CMU 200 was used. The output power was measured using an integrated RF connector and attached RF cable. The conducted output power was also checked before and after each SAR measurement. The resulting power values were within a 0.2 dB tolerance of the values shown below.

Note: CMU200 measures GSM peak and average output power for active timeslots.
For SAR the timebased average power is relevant. The difference inbetween depends on the duty cycle of the TDMA signal :

No. of timeslots	1	2	3	4
Duty Cycle	1 : 8	1: 4	1 : 2.66	1 : 2
timebased avg. power compared to slotted avg. power	- 9 dB	- 6 dB	- 4.25 dB	- 3 dB

The signalling modes differ as follows :

mode	coding scheme	modulation
GPRS	CS1 to CS4	GMSK
EGPRS (EDGE)	MCS1 to MCS4	GMSK
EGPRS (EDGE)	MCS5 to MCS9	8PSK

Apart from modulation change (GMSK/8PSK) coding schemes differ in code rate without influence on the RF signal. Therefore one coding scheme per mode was selected for conducted power measurements.

7.1.1 Conducted power measurements GSM 850 MHz

Channel / frequency	modulation	timeslots	slotted avg. power	time based avg. power (calculated)
128 / 824.2 MHz	GMSK	1	34.0 dBm	25.0 dBm
190 / 836.6 MHz	GMSK	1	34.0 dBm	25.0 dBm
251 / 848.0 MHz	GMSK	1	33.9 dBm	24.9 dBm
128 / 824.2 MHz	GMSK	2	30.4 dBm	24.4 dBm
190 / 836.6 MHz	GMSK	2	30.5 dBm	24.5 dBm
251 / 848.0 MHz	GMSK	2	30.5 dBm	24.5 dBm
128 / 824.2 MHz	GMSK	3	29.2 dBm	24.95 dBm
190 / 836.6 MHz	GMSK	3	29.1 dBm	24.85 dBm
251 / 848.0 MHz	GMSK	3	29.3 dBm	25.05 dBm
128 / 824.2 MHz	GMSK	4	28.1 dBm	25.1 dBm
190 / 836.6 MHz	GMSK	4	28.1 dBm	25.1 dBm
251 / 848.0 MHz	GMSK	4	28.2 dBm	25.2 dBm
128 / 824.2 MHz	8PSK	4	23.7 dBm	20.7 dBm
190 / 836.6 MHz	8PSK	4	23.9 dBm	20.9 dBm
251 / 848.0 MHz	8PSK	4	23.9 dBm	20.9 dBm

Table 9: Test results conducted power measurement GSM 850 MHz

7.1.2 Conducted power measurements GSM 1900 MHz

Channel / frequency	modulation	timeslots	slotted avg. power	time based avg. power (calculated)
512 / 1850.2 MHz	GMSK	1	30.5 dBm	21.5 dBm
661 / 1880.0 MHz	GMSK	1	30.6 dBm	21.6 dBm
810 / 1909.8 MHz	GMSK	1	30.7 dBm	21.7 dBm
512 / 1850.2 MHz	GMSK	2	27.9 dBm	21.9 dBm
661 / 1880.0 MHz	GMSK	2	27.9 dBm	21.9 dBm
810 / 1909.8 MHz	GMSK	2	27.9 dBm	21.9 dBm
512 / 1850.2 MHz	GMSK	3	26.9 dBm	22.65 dBm
661 / 1880.0 MHz	GMSK	3	26.9 dBm	22.65 dBm
810 / 1909.8 MHz	GMSK	3	27.0 dBm	22.75 dBm
512 / 1850.2 MHz	GMSK	4	26.1 dBm	23.1 dBm
661 / 1880.0 MHz	GMSK	4	26.2 dBm	23.2 dBm
810 / 1909.8 MHz	GMSK	4	26.3 dBm	23.3 dBm
512 / 1850.2 MHz	8PSK	4	22.8 dBm	19.8 dBm
661 / 1880.0 MHz	8PSK	4	22.9 dBm	19.9 dBm
810 / 1909.8 MHz	8PSK	4	23.0 dBm	20.0 dBm

Table 10: Test results conducted power measurement GSM 1900 MHz

7.1.3 Justification of SAR measurements in GSM mode

SAR measurements were performed in GPRS mode with 4 active timeslots because highest time based averaged output power was calculated for that configuration.

For comparison an additional delta measurement was performed with 1 timeslot in speech mode. In EDGE mode no delta measurement was performed.

7.1.4 Conducted power measurements WCDMA FDD V (850 MHz)

Max. RMS output power 850 MHz (FDD V) / dBm			
mode	Channel / frequency		
	4132 / 826.4 MHz	4182 / 836.6 MHz	4233 / 846.6 MHz
RMC 12.2 kbit/s	24.2	24.2	24.2
RMC 64 kbit/s	24.1	24.2	24.2
RMC 144 kbit/s	24.1	24.2	24.2
RMC 384 kbit/s	24.1	24.2	24.2
AMR 4,75 kbit/s	24.1	24.2	24.2
AMR 5,15 kbit/s	24.1	24.2	24.2
AMR 5,9 kbit/s	24.1	24.2	24.2
AMR 6,7 kbit/s	24.1	24.2	24.2
AMR 7,4 kbit/s	24.1	24.2	24.2
AMR 7,95 kbit/s	24.1	24.2	24.2
AMR 10,2 kbit/s	24.1	24.2	24.2
AMR 12,2 kbit/s	24.1	24.2	24.2
HSDPA Sub test 1	24.1	24.1	23.9
HSDPA Sub test 2	22.8	22.8	22.2
HSDPA Sub test 3	21.4	21.4	21.0
HSDPA Sub test 4	21.2	21.2	20.8
HSUPA Sub test 1	24.1	24.2	24.0
HSUPA Sub test 2	22.2	22.8	21.9
HSUPA Sub test 3	23.1	23.1	23.2
HSUPA Sub test 4	22.2	22.3	22.3
HSUPA Sub test 5	24.2	24.2	24.0

Table 11: Test results conducted power measurement WCDMA 850

7.1.5 Conducted power measurements WCDMA FDD II (1900 MHz)

Max. RMS output power 1900 MHz (FDD II) / dBm			
mode	Channel / frequency		
	9262 / 1852.4 MHz	9400 / 1880.0 MHz	9538 / 1907.6 MHz
RMC 12.2 kbit/s	22.5	22.3	22.3
RMC 64 kbit/s	22.4	22.2	22.3
RMC 144 kbit/s	22.4	22.2	22.3
RMC 384 kbit/s	22.4	22.2	22.3
AMR 4,75 kbit/s	22.4	22.2	22.3
AMR 5,15 kbit/s	22.4	22.2	22.3
AMR 5,9 kbit/s	22.4	22.2	22.3
AMR 6,7 kbit/s	22.4	22.2	22.3
AMR7,4 kbit/s	22.4	22.2	22.3
AMR 7,95 kbit/s	22.4	22.2	22.3
AMR 10,2 kbit/s	22.4	22.2	22.3
AMR 12,2 kbit/s	22.4	22.2	22.3
HSDPA Sub test 1	22.4	22.2	22.3
HSDPA Sub test 2	21.0	20.8	20.9
HSDPA Sub test 3	19.6	19.6	19.6
HSDPA Sub test 4	19.4	19.4	19.4
HSUPA Sub test 1	22.4	22.1	22.0
HSUPA Sub test 2	20.3	20.4	19.8
HSUPA Sub test 3	21.3	21.4	21.1
HSUPA Sub test 4	20.5	20.4	19.9
HSUPA Sub test 5	22.5	22.1	22.0

Table 12: Test results conducted power measurement WCDMA 1900

Remark : None of the HSDPA/HSUPA settings leads to conducted power values exceeding the conducted power in RMC mode by more than 0.25 dB.

Therefore no additional SAR measurements were performed in HSDPA/HSUPA mode.

7.1.6 Test-set-up information for WCDMA / HSPDA / HSUPA

a) RMC

In RMC (reference measurement channel) mode the conducted power at 4 different bit rates was measured. They correspond with the used spreading factors as follows :

Bit rate	12.2 kbit/s	64 kbit/s	144 kbit/s	384 kbit/s
Spreading factor (SF)	64	16	8	4

In RMC mode only DPCCH and DPDCH are active. As bit rate changes do not influence the relative power of any code channel the measured RMS output power remains on the same level which is set to maximum by TPC (Transmit power control) pattern type 'All 1'.

b) HSDPA

HSDPA adds the HS-DPCCH in uplink as a control channel for high speed data transfer in downlink. In HSDPA mode 4 sub-tests are defined by 3GPP 34.121 according to the following table:

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	$\beta_{hs}^{(1)}$	CM(dB) ⁽²⁾
1	2/15	15/15	64	2/15	4/15	0.0
2	12/15 ⁽³⁾	15/15 ⁽³⁾	64	12/15 ⁽³⁾	24/15	1.0
3	15/15	8/15	64	15/8	30/15	1.5
4	15/15	4/15	64	15/4	30/15	1.5

Note 1: $\Delta_{ACK}, \Delta_{NACK}, \Delta_{CQI} = 8 \iff A_{hs} = \beta_{hs}/\beta_c = 30/15 \iff \beta_{hs} = 30/15 * \beta_c$

Note 2 : CM = 1 for $\beta_c/\beta_d = 12/15, \beta_{hs}/\beta_c = 24/15$

Note 3 : For subtest 2 the β_c/β_d ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1,TF1) to $\beta_c = 11/15$ and $\beta_d = 15/15$

Table 13: Sub-tests for UMTS Release 5 HSDPA

The β_c and β_d gain factors for DPCCH and DPDCH were set according to the values in the above table, β_{hs} for HS-DPCCH is set automatically to the correct value when $\Delta_{ACK}, \Delta_{NACK}, \Delta_{CQI} = 8$. The variation of the β_c/β_d ratio causes a power reduction at sub-tests 2 - 4.

The measurements were performed with a Fixed Reference Channel(FRC) and H-Set 1 QPSK.

Parameter	Value
Nominal average inf. bit rate	534 kbit/s
Inter-TTI Distance	3 TTI's
Number of HARQ Processes	2 Processes
Information Bit Payload	3202 Bits
MAC-d PDU size	336 Bits
Number Code Blocks	1 Block
Binary Channel Bits Per TTI	4800 Bits
Total Available SMLs in UE	19200 SMLs
Number of SMLs per HARQ Process	9600 SMLs
Coding Rate	0.67
Number of Physical Channel Codes	5

Table 14: settings of required H-Set 1 QPSK acc. to 3GPP 34.121

c) HSUPA

In HSUPA mode additional code channels (E-DPCCH, E-DPDCHn) are added for data transfer in uplink at higher bit rates.

5 sub-tests are defined by 3GPP 34.121 according to the following table :

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	$\beta_{hs}^{(1)}$	β_{ec}	β_{ed}	β_{ec} (SF)	β_{ed} (code)	CM ⁽²⁾ (dB)	MPR (dB)	AG ⁽⁴⁾ Index	E-TFCI
1	11/15 ⁽³⁾	15/15 ⁽³⁾	64	11/15 ⁽³⁾	22/15	209/225	1039/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	$\beta_{ed1}:47/15$ $\beta_{ed2}:47/15$	4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15 ⁽⁴⁾	15/15 ⁽⁴⁾	64	15/15 ⁽⁴⁾	30/15	24/15	134/15	4	1	1.0	0.0	21	81

Note 1: $\Delta_{ACK}, \Delta_{NACK}, \Delta_{CQI} = 8 \iff A_{hs} = \beta_{hs}/\beta_c = 30/15 \iff \beta_{hs} = 30/15 * \beta_c$
 Note 2 : CM = 1 for $\beta_c/\beta_d = 12/15, \beta_{hs}/\beta_c = 24/15$. For all other combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference
 Note 3 : For subtest 1 the β_c/β_d ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1,TF1) to $\beta_c = 10/15$ and $\beta_d = 15/15$
 Note 4 : For subtest 5 the β_c/β_d ratio of 15/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1,TF1) to $\beta_c = 14/15$ and $\beta_d = 15/15$
 Note 5 : Testing UE using E-DPDCH Physical Layer category 1 Sub-test 3 is not required according to TS 25.306 Table 5.1g
 Note 6 : β_{ed} can not be set directly; it is set by Absolute Grant Value

Table 15: Subtests for UMTS Release 6 HSUPA

To achieve the settings above some additional procedures were defined by 3GPP 34.121. Those have been included in an application note for the CMU200 and were exactly followed :

- Test mode connection (BS signal tab) :
RMC 12.2 kbit/s + HSPA 34.108 with loop mode 1
- HS-DSCH settings (BS signal tab):
- FRC with H-set 1 QPSK
- ACK-NACK repetition factor = 3
- CQI feedback cycle = 4ms
- CQI repetition factor = 2
- HSUPA-specific signalling settings (UE signal tab) :
- E-TFCI table index = 0
- E-DCH minimum set E-TFCI = 9
- Puncturing limit non-max = 0.84
- max. number of channelisation codes = 2x SF4
- Initial Serving Grant Value = Off
- HSDPA and HSUPA Gain factors (UE signal tab)

Sub-test	β_c	β_d	$\Delta_{ACK}, \Delta_{NACK}, \Delta_{CQI}$	$\Delta E-DPCCH$)*
1	10	15	8	6
2	6	15	8	8
3	15	9	8	8
4	2	15	8	5
5	14	15	8	7

)* : β_{ec} and β_{ed} ratios (relative to β_c and β_d) are set by $\Delta E-DPCCH$

- HSUPA Reference E-TFCIs (UE signal tab > HSUPA gain factors) :

Sub-test	1, 2, 4, 5				
Number of E-TFCIs	5				
Reference E-TFCI	11	67	71	75	81
Reference E-TFCI power offset	4	18	23	26	27

Sub-test	3	
Number of E-TFCIs	2	
Reference E-TFCI	11	92
Reference E-TFCI power offset	4	18

- HSUPA-specific generator parameters (BS Signal tab > HSUPA > E-AGCH > AG Pattern)

Sub-test	Absolute Grant Value (AG Index)
1	20
2	12
3	15
4	17
5	21

- Power Level settings (BS Signal tab > Node B-settings):
- Level reference : Output Channel Power (lor)
- Output Channel Power (lor) : -86 dBm

- Downlink Physical Channel Settings (BS signal tab)
- P-CPICH : -10 dB
- S-CPICH : Off
- P-SCH : -15 dB
- S-SCH : -15 dB
- P-CCPCH : -12 dB
- S-CCPCH : -12 dB
- PICH : -15 dB
- AICH : -12 dB
- DPDCH : -10 dB
- HS-SCCH : -8 dB
- HS-PDSCH : -3 dB
- E-AGCH : -20 dB
- E-RGCH/E-HICH - 20 dB
- E-RGCH Active : Off

The settings above were stored once for each sub-test and recalled before the measurement.

HSUPA test procedure :

To reach maximum output power in HSUPA mode the following procedures were followed:

3 different TPC patterns were defined :

Set 1 : Closed loop with target power 10 dBm

Set 2 : Single Pattern+Alternating with binary pattern '11111' for 1 dB steps 'up'

Set 3 : Single Pattern+Alternating with binary pattern '00000' for 1 dB steps 'down'

After recalling a certain HSUPA sub-test the HSUPA E-AGCH graph with E-TFCI event counter is displayed. After starting with the closed loop command the power is increased in 1 dB steps by activating pattern set 2 until the UE decreases the transmitted E-TFCI.

At this point set 3 is activated once to reduce the output power to the value at which the original E-TFCI, which is required for the sub-test, appears again.

For conducted power measurements the same steps are repeated in the power menu to read out the corresponding maximum RMS output power with the target E-TFCI.

For SAR measurements it is useful to switch to Code Domain Power vs. Time display.

Here the CMU200 shows relative power values (max. and min.) of each code channel which should roughly correspond to the numerators of the gain factors e.g. :

Sub-test	β_c	β_d	β_{hs}	β_{ec}	β_{ed}
5	15	15	30	24	134

By this way a surveillance of signalling conditions is possible to make sure that HSUPA code channels are active during the complete SAR measurement.

7.1.7 Conducted power measurements WLAN 2.4 GHz

Channel / frequency	modulation	bit rate	timebased avg. power
1 / 2412 MHz	CCK	1 MBit/s	16.2dBm
6 / 2437 MHz	CCK	1 MBit/s	16.2dBm
11 / 2462 MHz	CCK	1 MBit/s	16.2dBm
1 / 2412 MHz	OFDM	6 MBit/s	15.2dBm
6 / 2437 MHz	OFDM	6 MBit/s	15.2dBm
11 / 2462 MHz	OFDM	6 MBit/s	15.2dBm
1 / 2412 MHz	OFDM	6.5 MBit/s	15.2dBm
6 / 2437 MHz	OFDM	6.5 MBit/s	15.2dBm
11 / 2462 MHz	OFDM	6.5 MBit/s	15.2dBm

Table 16: Test results conducted power measurement WLAN 2.4 GHz

7.1.8 Multiple Transmitter Information

The following tables list information which is relevant for the decision if a simultaneous transmit evaluation is necessary according to KDB 648474.

Important abbreviations:

SPLSR: Antenna pair SAR to Peak Location Separation Ratio $(SAR_x + SAR_y)/L_{xy}$

P_{ref} : 12 mW at 2.4 GHz

Minimum antenna separation distance between main antenna and WLAN – **79 mm**

a) head position

Tx No.	Communication system and frequency band	P_{avg} (mW)	single SAR (W/kg) (see ch. 7.2)	remarks
1a	GSM 850 MHz	250	1.130	routine evaluation
1b	GSM 1900 MHz	125	0.892	routine evaluation
1c	FDD V 850 MHz	250	1.080	routine evaluation
1d	FDD II 1900 MHz	250	1.380	routine evaluation
2a	WLAN 2450 MHz	50	0.305	routine evaluation
2b	Bluetooth 2450 MHz	4.5	:=0	$P_2 < P_{ref}$
Sum of all 1g-SAR values			n/a	

Table 17: Communication systems and SAR values in head position

antenna pair (x,y)	peak-locations spacing L_{xy} (cm)	Σ 1g-SAR (W/kg)	SPLSR _{xy}	sim.-Tx SAR	remarks
(1a,2a)	7.29	1.435	0.12	N	$SPLSR_{xy} < 0.3$ and $\Sigma SAR < 1.6$ W/kg
(1b,2a)	7.63	1.197	0.16	N	$SPLSR_{xy} < 0.3$ and $\Sigma SAR < 1.6$ W/kg
(1c,2a)	5.69	1.385	0.24	N	$SPLSR_{xy} < 0.3$ and $\Sigma SAR < 1.6$ W/kg
(1d,2a)	7.55	1.685	0.22	N	$\Sigma SAR > 1.6$ W/kg but $SPLSR_{xy} < 0.3$

Table 18: Antenna distances and SPLSR evaluation in head position

$SPLSR_{xy} = SAR\text{-to-(peak-locations spacing) ratio} = (SAR_x + SAR_y)/L_{xy}$

Σ 1g-SAR: sum of the highest SAR of Tx No. 1 and the SAR of Tx No. 2 at the same DUT position or orientation as the highest value of Tx No. 1 i.e. not necessarily the sum of the highest SAR values of both transmitters.

b) body position

Tx No.	Communication system and frequency band	P_{avg} (mW)	single SAR (W/kg) (see ch. 7.2)	remarks
1a	GSM 850 MHz	1000	1.100	routine evaluation
1b	GSM 1900 MHz	500	1.050	routine evaluation
1c	FDD V 850 MHz	250	1.190	routine evaluation
1d	FDD II 1900 MHz	250	0.965	routine evaluation
2a	WLAN 2450 MHz	50	0.149	routine evaluation
2b	Bluetooth 2450 MHz	4.5	:=0	$P_2 < P_{ref}$
Sum of all 1g-SAR values			n/a	

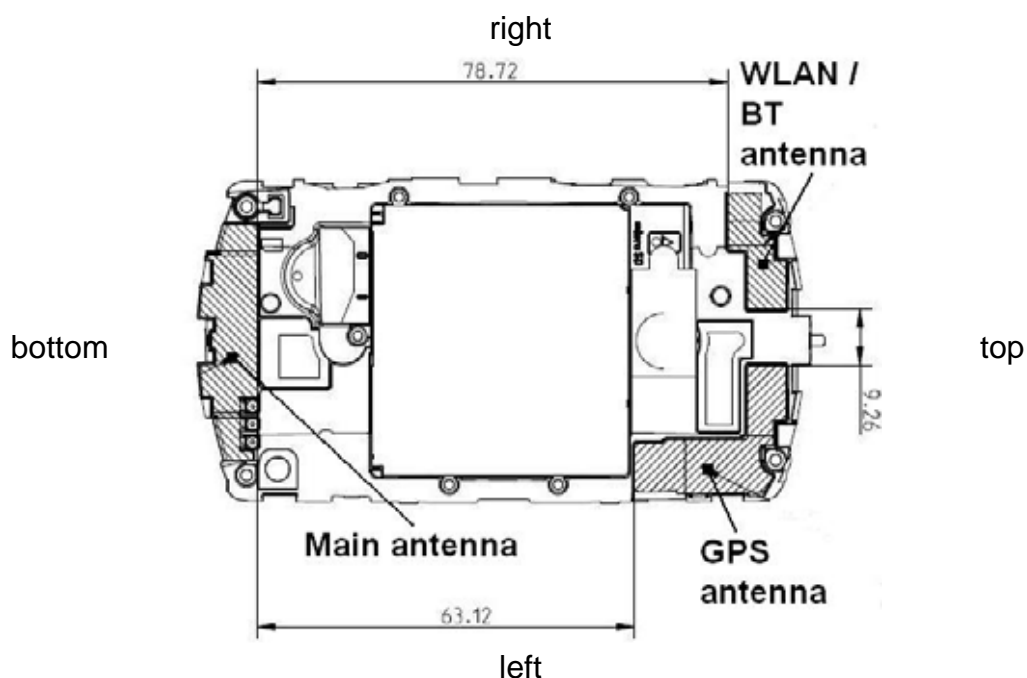
Table 19: Communication systems and SAR values in body position

antenna pair (x,y)	peak-locations spacing L_{xy} (cm)	Σ 1g-SAR (W/kg)	SPLSR _{xy}	sim.-Tx SAR	remarks
(1a,2a)	5.98	1.249	0.21	N	$SPLSR_{xy} < 0.3$ and $\Sigma SAR < 1.6$ W/kg
(1b,2a)	7.15	1.199	0.17	N	$SPLSR_{xy} < 0.3$ and $\Sigma SAR < 1.6$ W/kg
(1c,2a)	7.62	1.078	0.14	N	$SPLSR_{xy} < 0.3$ and $\Sigma SAR < 1.6$ W/kg
(1d,2a)	6.07	1.339	0.22	N	$SPLSR_{xy} < 0.3$ and $\Sigma SAR < 1.6$ W/kg

Table 20: Antenna distances and SPLSR evaluation in body position
 $SPLSR_{xy} = SAR_{to-(peak-locations\ spacing)} \text{ ratio} = (SAR_x + SAR_y) / L_{xy}$

7.1.9 Mobile hotspot SAR measurement positions

Mobile hotspot SAR measurement positions						
mode	front	rear	left edge	right edge	top edge	bottom edge
GSM 850	yes	yes	yes	yes	no	yes
GSM 1900	yes	yes	yes	yes	no	yes
WCDMA FDD V 850	yes	yes	yes	yes	no	yes
WCDMA FDD V 1900	yes	yes	yes	yes	no	yes
WLAN 2450	yes	yes	no	yes	yes	no



The edges with less than 2.5 cm distance to the TX antennas need to be tested for hotspot SAR.

7.2 SAR test results

7.2.1 Results overview

Head SAR GSM 850 MHz (averaged over 1g tissue volume)						
Channel / frequency	Position	Left hand test result	Right hand test result	Limit	Liquid temperature left	Liquid temperature right
128 / 824.2 MHz	cheek	0.884 W/kg	0.813 W/kg	1.6 W/kg	23.2 °C	23.2 °C
190 / 836.6 MHz	cheek	1.130 W/kg	1.050 W/kg	1.6 W/kg	23.2 °C	23.2 °C
251 / 848.8 MHz	cheek	1.120 W/kg	1.080 W/kg	1.6 W/kg	23.2 °C	23.2 °C
128 / 824.2 MHz	tilted 15°	0.402 W/kg	0.382 W/kg	1.6 W/kg	23.2 °C	23.2 °C
190 / 836.6 MHz	tilted 15°	0.490 W/kg	0.504 W/kg	1.6 W/kg	23.2 °C	23.2 °C
251 / 848.8 MHz	tilted 15°	0.505 W/kg	0.500 W/kg	1.6 W/kg	23.2 °C	23.2 °C

Table 21: Test results head SAR GSM 850 MHz

Body SAR GSM 850 MHz (averaged over 1g tissue volume)						
Channel / frequency	Position	Distance	test condition	Body worn test result	Limit	Liquid temperature
128 / 824.2 MHz	front	10 mm	4 time slots	0.405 W/kg	1.6 W/kg	23.5 °C
190 / 836.6 MHz	front	10 mm	4 time slots	0.509 W/kg	1.6 W/kg	23.5 °C
251 / 848.8 MHz	front	10 mm	4 time slots	0.692 W/kg	1.6 W/kg	23.5 °C
128 / 824.2 MHz	rear	10 mm	4 time slots	0.788 W/kg	1.6 W/kg	23.5 °C
190 / 836.6 MHz	rear	10 mm	4 time slots	0.987 W/kg	1.6 W/kg	23.5 °C
251 / 848.8 MHz	rear	10 mm	4 time slots	1.100 W/kg	1.6 W/kg	23.5 °C
190 / 836.6 MHz	left	10 mm	4 time slots	0.274 W/kg	1.6 W/kg	23.5 °C
190 / 836.6 MHz	right	10 mm	4 time slots	0.312 W/kg	1.6 W/kg	23.5 °C
190 / 836.6 MHz	bottom	10 mm	4 time slots	0.095 W/kg	1.6 W/kg	23.5 °C
251 / 848.8 MHz	rear	15 mm	1 time slot	0.922 W/kg	1.6 W/kg	23.5 °C

Table 22: Test results body SAR GSM 850 MHz

Top edge position is not required since the distance from the main antenna to the edge is greater than 2.5 cm.

Head SAR GSM 1900 MHz (averaged over 1g tissue volume)						
Channel / frequency	Position	Left hand test result	Right hand test result	Limit	Liquid temperature	
					left	right
512 / 1850.2 MHz	cheek	0.892 W/kg	0.737 W/kg	1.6 W/kg	23.3 °C	23.3 °C
661 / 1880.0 MHz	cheek	0.680 W/kg	0.582 W/kg	1.6 W/kg	23.3 °C	23.3 °C
810 / 1909.8 MHz	cheek	0.583 W/kg	0.511 W/kg	1.6 W/kg	23.3 °C	23.3 °C
512 / 1850.2 MHz	tilted 15°	0.349 W/kg	0.323 W/kg	1.6 W/kg	23.3 °C	23.3 °C
661 / 1880.0 MHz	tilted 15°	0.260 W/kg	0.258 W/kg	1.6 W/kg	23.3 °C	23.3 °C
810 / 1909.8 MHz	tilted 15°	0.221 W/kg	0.226 W/kg	1.6 W/kg	23.3 °C	23.3 °C

Table 23: Test results head SAR GSM 1900 MHz

Body SAR GSM 1900 MHz (averaged over 1g tissue volume)						
Channel / frequency	Position	Distance	test condition	Body worn test result	Limit	Liquid temperature
						temperature
512 / 1850.2 MHz	front	10 mm	4 time slots	0.914 W/kg	1.6 W/kg	23.5 °C
661 / 1880.0 MHz	front	10 mm	4 time slots	0.682 W/kg	1.6 W/kg	23.5 °C
810 / 1909.8 MHz	front	10 mm	4 time slots	0.537 W/kg	1.6 W/kg	23.5 °C
512 / 1850.2 MHz	rear	10 mm	4 time slots	1.050 W/kg	1.6 W/kg	23.5 °C
661 / 1880.0 MHz	rear	10 mm	4 time slots	0.923 W/kg	1.6 W/kg	23.5 °C
810 / 1909.8 MHz	rear	10 mm	4 time slots	0.763 W/kg	1.6 W/kg	23.5 °C
661 / 1880.0 MHz	left	10 mm	4 time slots	0.290 W/kg	1.6 W/kg	23.5 °C
661 / 1880.0 MHz	right	10 mm	4 time slots	0.241 W/kg	1.6 W/kg	23.5 °C
661 / 1880.0 MHz	bottom	10 mm	4 time slots	0.436 W/kg	1.6 W/kg	23.5 °C
512 / 1850.2 MHz	rear	15 mm	1 time slot	0.371 W/kg	1.6 W/kg	23.5 °C

Table 24: Test results body SAR GSM 1900 MHz

Top edge position is not required since the distance from the main antenna to the edge is greater than 2.5 cm.

Head SAR UMTS FDD V 850 MHz (averaged over 1g tissue volume)						
Channel / frequency	Position	Left hand test result	Right hand test result	Limit	Liquid temperature	
					left	right
4132 / 826.4 MHz	cheek	0.837 W/kg	0.849 W/kg	1.6 W/kg	22.8 °C	22.8 °C
4182 / 836.4 MHz	cheek	0.970 W/kg	1.030 W/kg	1.6 W/kg	22.8 °C	22.8 °C
4233 / 846.6 MHz	cheek	1.020 W/kg	1.080 W/kg	1.6 W/kg	22.8 °C	22.8 °C
4132 / 826.4 MHz	tilted 15°	0.453 W/kg	0.416 W/kg	1.6 W/kg	22.8 °C	22.8 °C
4182 / 836.4 MHz	tilted 15°	0.525 W/kg	0.495 W/kg	1.6 W/kg	22.8 °C	22.8 °C
4233 / 846.6 MHz	tilted 15°	0.537 W/kg	0.524 W/kg	1.6 W/kg	22.8 °C	22.8 °C

Table 25: Test results head SAR UMTS FDD V 850 MHz

Body SAR UMTS FDD V 850 MHz (averaged over 1g tissue volume)						
Channel / frequency	Position	Distance	test condition	Body worn test result	Limit	Liquid temperature
4132 / 826.4 MHz	front	10 mm	12.2kbit/s	0.684 W/kg	1.6 W/kg	23.0 °C
4182 / 836.4 MHz	front	10 mm	12.2kbit/s	0.795 W/kg	1.6 W/kg	23.0 °C
4233 / 846.6 MHz	front	10 mm	12.2kbit/s	0.829 W/kg	1.6 W/kg	23.0 °C
4132 / 826.4 MHz	rear	10 mm	12.2kbit/s	1.080 W/kg	1.6 W/kg	23.0 °C
4182 / 836.4 MHz	rear	10 mm	12.2kbit/s	1.190 W/kg	1.6 W/kg	23.0 °C
4233 / 846.6 MHz	rear	10 mm	12.2kbit/s	1.170 W/kg	1.6 W/kg	23.0 °C
4182 / 836.4 MHz	left	10 mm	12.2kbit/s	0.418 W/kg	1.6 W/kg	23.0 °C
4182 / 836.4 MHz	right	10 mm	12.2kbit/s	0.334 W/kg	1.6 W/kg	23.0 °C
4182 / 836.4 MHz	bottom	10 mm	12.2kbit/s	0.137 W/kg	1.6 W/kg	23.0 °C
4182 / 836.4 MHz	rear	15 mm	12.2kbit/s	0.831 W/kg	1.6 W/kg	23.0 °C

Table 26: Test results body SAR UMTS FDD V 850 MHz

Head SAR UMTS FDD II 1900 MHz (averaged over 1g tissue volume)						
Channel / frequency	Position	Left hand test result	Right hand test result	Limit	Liquid temperature left	Liquid temperature right
9262 / 1852.4 MHz	cheek	1.380 W/kg	1.120 W/kg	1.6 W/kg	22.1 °C	21.7 °C
9400 / 1880.0 MHz	cheek	1.150 W/kg	0.975 W/kg	1.6 W/kg	22.1 °C	21.7 °C
9538 / 1907.6 MHz	cheek	1.060 W/kg	0.869 W/kg	1.6 W/kg	22.1 °C	21.7 °C
9262 / 1852.4 MHz	tilted 15°	0.488 W/kg	0.515 W/kg	1.6 W/kg	22.1 °C	21.7 °C
9400 / 1880.0 MHz	tilted 15°	0.393 W/kg	0.425 W/kg	1.6 W/kg	22.1 °C	21.7 °C
9538 / 1907.6 MHz	tilted 15°	0.358 W/kg	0.370 W/kg	1.6 W/kg	22.1 °C	21.7 °C

Table 27: Test results head SAR UMTS FDD II 1900 MHz

Body SAR UMTS FDD II 1900 MHz (averaged over 1g tissue volume)						
Channel / frequency	Position	Distance	test condition	Body worn test result	Limit	Liquid temperature
9262 / 1852.4 MHz	front	10 mm	12.2kbit/s	0.762 W/kg	1.6 W/kg	23.0 °C
9400 / 1880.0 MHz	front	10 mm	12.2kbit/s	0.647 W/kg	1.6 W/kg	23.0 °C
9538 / 1907.6 MHz	front	10 mm	12.2kbit/s	0.666 W/kg	1.6 W/kg	23.0 °C
9262 / 1852.4 MHz	rear	10 mm	12.2kbit/s	0.929 W/kg	1.6 W/kg	23.0 °C
9400 / 1880.0 MHz	rear	10 mm	12.2kbit/s	0.818 W/kg	1.6 W/kg	23.0 °C
9538 / 1907.6 MHz	rear	10 mm	12.2kbit/s	0.819 W/kg	1.6 W/kg	23.0 °C
9400 / 1880.0 MHz	left	10 mm	12.2kbit/s	0.234 W/kg	1.6 W/kg	23.0 °C
9400 / 1880.0 MHz	right	10 mm	12.2kbit/s	0.274 W/kg	1.6 W/kg	23.0 °C
9400 / 1880.0 MHz	bottom	10 mm	12.2kbit/s	0.413 W/kg	1.6 W/kg	23.0 °C
9262 / 1852.4 MHz	rear	15 mm	12.2kbit/s	0.479 W/kg	1.6 W/kg	23.0 °C

Table 28: Test results body SAR UMTS FDD II 1900 MHz

Head SAR WLAN 2450 MHz (averaged over 1g tissue volume)						
Channel / frequency	Position	Left hand test result	Right hand test result	Limit	Liquid temperature	
					left	right
1 / 2412 MHz	cheek	0.305 W/kg	0.305 W/kg	1.6 W/kg	22.9 °C	22.9 °C
6 / 2437 MHz	cheek	0.248 W/kg	0.247 W/kg	1.6 W/kg	22.9 °C	22.9 °C
11 / 2462 MHz	cheek	0.272 W/kg	0.259 W/kg	1.6 W/kg	22.9 °C	22.9 °C
1 / 2412 MHz	tilted 15°	0.236 W/kg	0.280 W/kg	1.6 W/kg	22.9 °C	22.9 °C
6 / 2437 MHz	tilted 15°	0.199 W/kg	0.216 W/kg	1.6 W/kg	22.9 °C	22.9 °C
11 / 2462 MHz	tilted 15°	0.214 W/kg	0.247 W/kg	1.6 W/kg	22.9 °C	22.9 °C
1 / 2412 MHz	cheek OFDM 6 Mbps		0.203 W/kg	1.6 W/kg	--- °C	22.9 °C
1 / 2412 MHz	cheek OFDM 6.5 Mbps		0.218 W/kg	1.6 W/kg	--- °C	22.9 °C

Table 29: Test results head SAR WLAN 2450 MHz

Body SAR WLAN 2450 MHz (averaged over 1g tissue volume)						
Channel / frequency	Position	Distance	test condition	Body worn test result	Limit	Liquid temperature
1 / 2412 MHz	front	10 mm	CCK 1 Mbit/s	0.116 W/kg	1.6 W/kg	23.0 °C
6 / 2437 MHz	front	10 mm	CCK 1 Mbit/s	0.083 W/kg	1.6 W/kg	23.0 °C
11 / 2462 MHz	front	10 mm	CCK 1 Mbit/s	0.095 W/kg	1.6 W/kg	23.0 °C
1 / 2412 MHz	rear	10 mm	CCK 1 Mbit/s	0.149 W/kg	1.6 W/kg	23.0 °C
6 / 2437 MHz	rear	10 mm	CCK 1 Mbit/s	0.109 W/kg	1.6 W/kg	23.0 °C
11 / 2462 MHz	rear	10 mm	CCK 1 Mbit/s	0.135 W/kg	1.6 W/kg	23.0 °C
6 / 2437 MHz	left	10 mm	CCK 1 Mbit/s	0.047 W/kg	1.6 W/kg	23.0 °C
6 / 2437 MHz	right	10 mm	CCK 1 Mbit/s	0.088 W/kg	1.6 W/kg	23.0 °C
6 / 2437 MHz	top edge	10 mm	CCK 1 Mbit/s	0.067 W/kg	1.6 W/kg	23.0 °C
1 / 2412 MHz	rear	10 mm	OFDM 6Mbit/s	0.114 W/kg	1.6 W/kg	23.0 °C
1 / 2412 MHz	rear	10 mm	OFDM 6.5Mbit/s	0.105 W/kg	1.6 W/kg	23.0 °C

Table 30: Test results body SAR WLAN 2450 MHz

Bottom edge position is not required since the distance from the WLAN antenna to the edge is greater than 2.5cm.

Note:

The SAR test shall be performed at the high, middle and low frequency channels of each operating mode. If the SAR measured at mid-band channel for each test configuration is at least 3.0 dB lower than the SAR limit (< 0.8 W/kg), testing at the high and low channels is optional.

Per Oct 2010 TCB FCC Workshop, the edges with antennas within 2.5 cm are required to be evaluated for SAR to cover WLAN hot spot function.

Tests in body position were performed with 10 mm air gap between DUT and SAM. During the body tests at GSM 850 and WCDMA FDD V the hotspot function was turned on, this function reduced automatically the output power.

The additional GSM and UMTS body tests were performed at worst case with 1 time slot in uplink or in speech mode for UMTS and 15 mm distance from DUT to the phantom in accordance with Sony Ericsson requirements.

7.2.2 General description of test procedures

The DUT is tested using a CMU 200 communications tester as controller unit to set test channels and maximum output power to the DUT, as well as for measuring the conducted peak power.

Test positions as described in the tables above are in accordance with the specified test standard.

Tests in body position were performed in that configuration, which generates the highest time based averaged output power (see conducted power results).

Tests in head position with GSM were performed in voice mode with 1 timeslot unless GPRS/EGPRS/DTM function allows parallel voice and data traffic on 2 or more timeslots (see section 2.4 for details).

UMTS was tested in RMC mode with 12.2 kbit/s and TPC bits set to 'all 1'.

WLAN was tested in 802.11b mode with 1 MBit/s with the delta measurements in 802.11g and 802.11n modes on worst case position.

8 Test equipment and ancillaries used for tests

To simplify the identification of the test equipment and/or ancillaries which were used, the reporting of the relevant test cases only refer to the test item number as specified in the table below.

No	used	Equipment	Type	Manufacturer	Serial No.	Last Calibration	Frequency (months)
1	<input checked="" type="checkbox"/>	Dosimetric E-Field Probe	ET3DV6	Schmid & Partner Engineering AG	1554	May 11, 2011	12
2	<input checked="" type="checkbox"/>	Dosimetric E-Field Probe	ET3DV6	Schmid & Partner Engineering AG	1559	January 19, 2011	12
3	<input checked="" type="checkbox"/>	900 MHz System Validation Dipole	D900V2	Schmid & Partner Engineering AG	099	May 09, 2011	24
4	<input type="checkbox"/>	1800 MHz System Validation Dipole	D1800V2	Schmid & Partner Engineering AG	287	August 17, 2010	24
5	<input checked="" type="checkbox"/>	1900 MHz System Validation Dipole	D1900V2	Schmid & Partner Engineering AG	531	May 11, 2011	24
6	<input checked="" type="checkbox"/>	2450 MHz System Validation Dipole	D2450V2	Schmid & Partner Engineering AG	710	August 19, 2010	24
7	<input checked="" type="checkbox"/>	Data acquisition electronics	DAE3V1	Schmid & Partner Engineering AG	413	January 13, 2011	12
8	<input checked="" type="checkbox"/>	Data acquisition electronics	DAE3V1	Schmid & Partner Engineering AG	477	May 04, 2011	12
9	<input checked="" type="checkbox"/>	Software	DASY 4 V4.5	Schmid & Partner Engineering AG	---	N/A	--
10	<input checked="" type="checkbox"/>	Phantom	SAM	Schmid & Partner Engineering AG	---	N/A	--
11	<input checked="" type="checkbox"/>	Universal Radio Communication Tester	CMU 200	Rohde & Schwarz	106826	January 12, 2011	12
12	<input checked="" type="checkbox"/>	Network Analyser 300 kHz to 6 GHz	8753ES	Hewlett Packard)*	US39174436	July 6, 2010	12
13	<input checked="" type="checkbox"/>	Dielectric Probe Kit	85070C	Hewlett Packard	US99360146	N/A	12
14	<input checked="" type="checkbox"/>	Signal Generator	8665A	Hewlett Packard	2833A00112	January 6, 2011	12
15	<input checked="" type="checkbox"/>	Amplifier	25S1G4 (25 Watt)	Amplifier Research	20452	N/A	--
16	<input checked="" type="checkbox"/>	Power Meter	NRP	Rohde & Schwarz	101367	January 6, 2011	12
17	<input checked="" type="checkbox"/>	Power Meter Sensor	NRP Z22	Rohde & Schwarz	100227	January 6, 2011	12
18	<input checked="" type="checkbox"/>	Power Meter Sensor	NRP Z22	Rohde & Schwarz	100234	January 6, 2011	12

)* : Network analyzer probe calibration against air, distilled water and a shorting block performed before measuring liquid parameters.

9 Observations

No observations exceeding those reported with the single test cases have been made.

Annex A: System performance verification

Date/Time: 09.08.2011 19:07:07 Date/Time: 09.08.2011 19:10:36

System Performance Check-D900 head 2011-08-09

DUT: Dipole 900 MHz; Type: D900V2; Serial: 099

Communication System: CW; Frequency: 900 MHz; Duty Cycle: 1:1

Medium: HSL850 Medium parameters used: $f = 900 \text{ MHz}$; $\sigma = 0.95 \text{ mho/m}$; $\epsilon_r = 42.3$; $\rho = 1000 \text{ kg/m}^3$

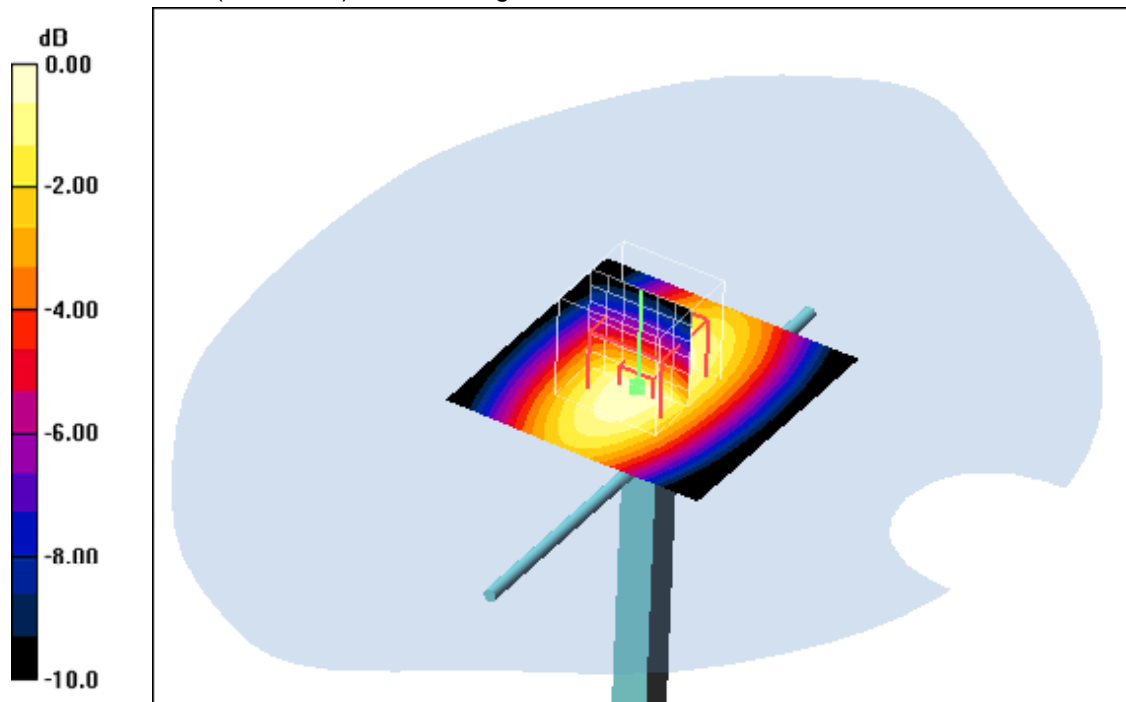
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(6.89, 6.89, 6.89); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

d=15mm, Pin=1000mW/Area Scan (51x51x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
 Maximum value of SAR (interpolated) = 11.1 mW/g

d=15mm, Pin=1000mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:
 $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
 Reference Value = 111.6 V/m; Power Drift = 0.00 dB
 Peak SAR (extrapolated) = 15.7 W/kg
SAR(1 g) = 10.4 mW/g; SAR(10 g) = 6.7 mW/g
 Maximum value of SAR (measured) = 11.2 mW/g



0 dB = 11.2mW/g

Additional information:

ambient temperature: 23.3°C; liquid temperature: 23.1°C

Date/Time: 17.08.2011 11:59:11 Date/Time: 17.08.2011 12:02:42

System Performance Check-D900 body 2011-08-17

DUT: Dipole 900 MHz; Type: D900V2; Serial: 099

Communication System: CW; Frequency: 900 MHz; Duty Cycle: 1:1

Medium: M850 Medium parameters used: $f = 900$ MHz; $\sigma = 1.05$ mho/m; $\epsilon_r = 54.1$; $\rho = 1000$ kg/m³

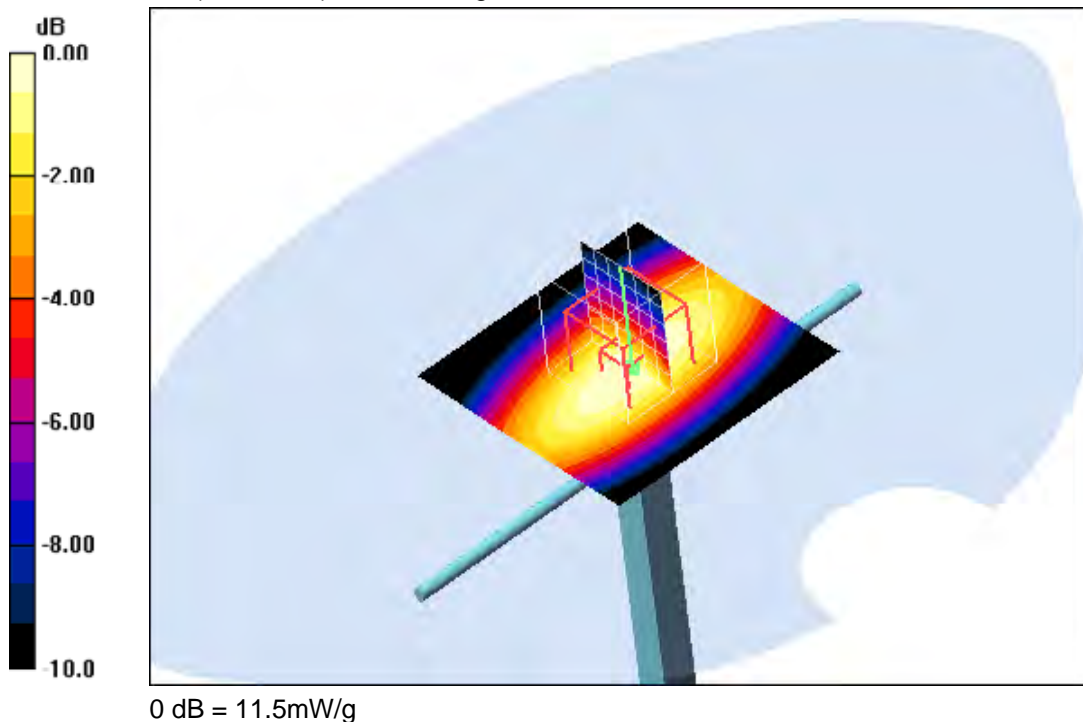
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(6.75, 6.75, 6.75); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

d=15mm, Pin=1000mW/Area Scan (51x51x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 11.4 mW/g

d=15mm, Pin=1000mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:
dx=5mm, dy=5mm, dz=5mm
Reference Value = 108.2 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 16.2 W/kg
SAR(1 g) = 10.5 mW/g; SAR(10 g) = 6.88 mW/g
Maximum value of SAR (measured) = 11.5 mW/g



Additional information:

ambient temperature: 23.1°C; liquid temperature: 23.0°C

Date/Time: 11.08.2011 11:13:30 Date/Time: 11.08.2011 11:17:02

System Performance Check-D1900 Head 2011-08-11

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:531

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: HSL1900 Medium parameters used: $f = 1900$ MHz; $\sigma = 1.38$ mho/m; $\epsilon_r = 40$; $\rho = 1000$ kg/m³

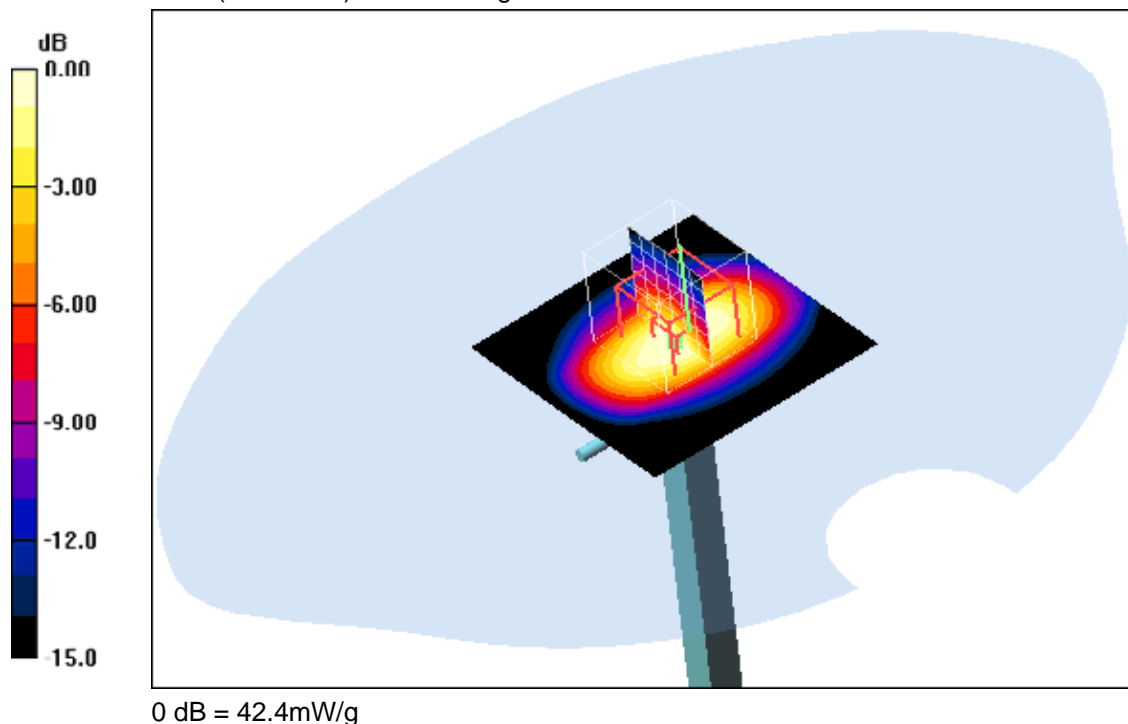
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(5.16, 5.16, 5.16); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

d=10mm, Pin=1000mW/Area Scan (51x51x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 51.1 mW/g

d=10mm, Pin=1000mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:
dx=5mm, dy=5mm, dz=5mm
Reference Value = 183.9 V/m; Power Drift = -0.016 dB
Peak SAR (extrapolated) = 67.8 W/kg
SAR(1 g) = 37.9 mW/g; SAR(10 g) = 20.3 mW/g
Maximum value of SAR (measured) = 42.4 mW/g



Additional information:

ambient temperature: 23.4°C; liquid temperature: 23.3°C

Date/Time: 13.08.2011 15:51:30 Date/Time: 13.08.2011 15:54:59

System Performance Check-D1900 body 2011-08-13

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:531

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: M1900 Medium parameters used: $f = 1900 \text{ MHz}$; $\sigma = 1.51 \text{ mho/m}$; $\epsilon_r = 52.6$; $\rho = 1000 \text{ kg/m}^3$

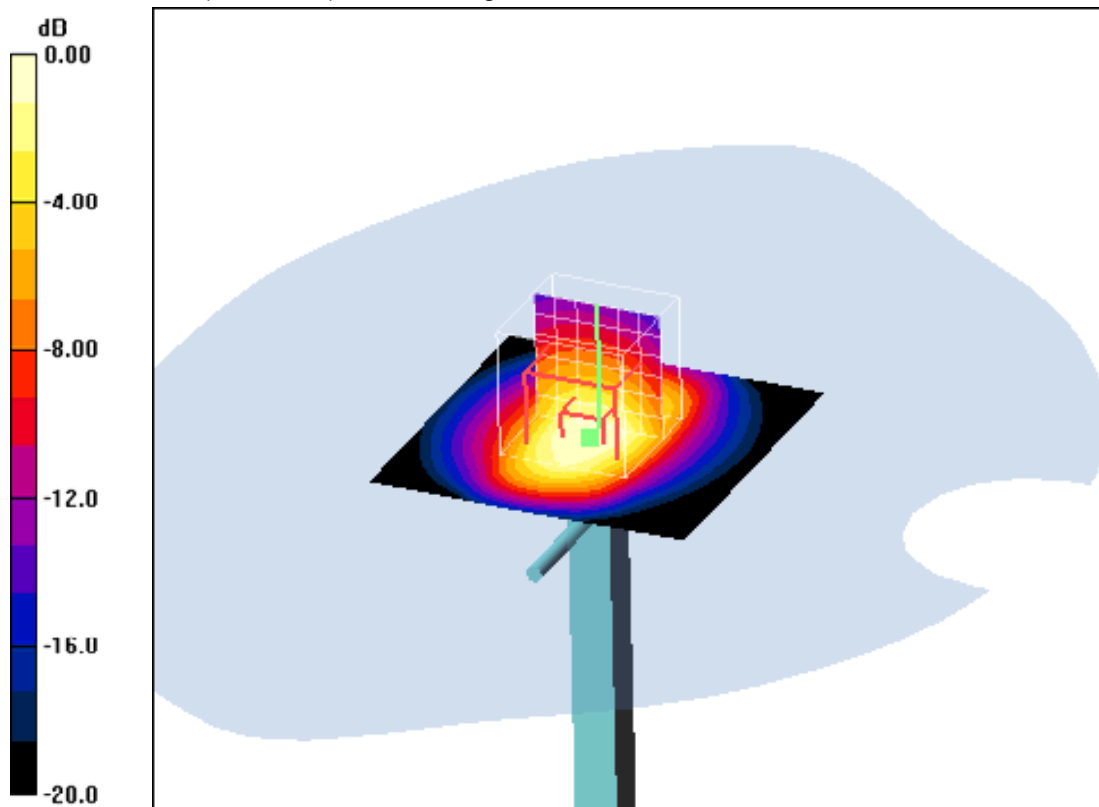
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(4.42, 4.42, 4.42); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

d=10mm, Pin=1000mW/Area Scan (51x51x1): Measurement grid: dx=15mm, dy=15mm
 Maximum value of SAR (interpolated) = 54.2 mW/g

d=10mm, Pin=1000mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:
 dx=5mm, dy=5mm, dz=5mm
 Reference Value = 179.7 V/m; Power Drift = -0.034 dB
 Peak SAR (extrapolated) = 66.1 W/kg
SAR(1 g) = 38.8 mW/g; SAR(10 g) = 21 mW/g
 Maximum value of SAR (measured) = 43.5 mW/g



0 dB = 43.5mW/g

Additional information:

ambient temperature: 23.5°C; liquid temperature: 22.8°C

Date/Time: 14.08.2011 13:08:20 Date/Time: 14.08.2011 13:11:49

System Performance Check-D1900 body 2011-08-14

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:531

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: M1900 Medium parameters used: $f = 1900 \text{ MHz}$; $\sigma = 1.51 \text{ mho/m}$; $\epsilon_r = 52.6$; $\rho = 1000 \text{ kg/m}^3$

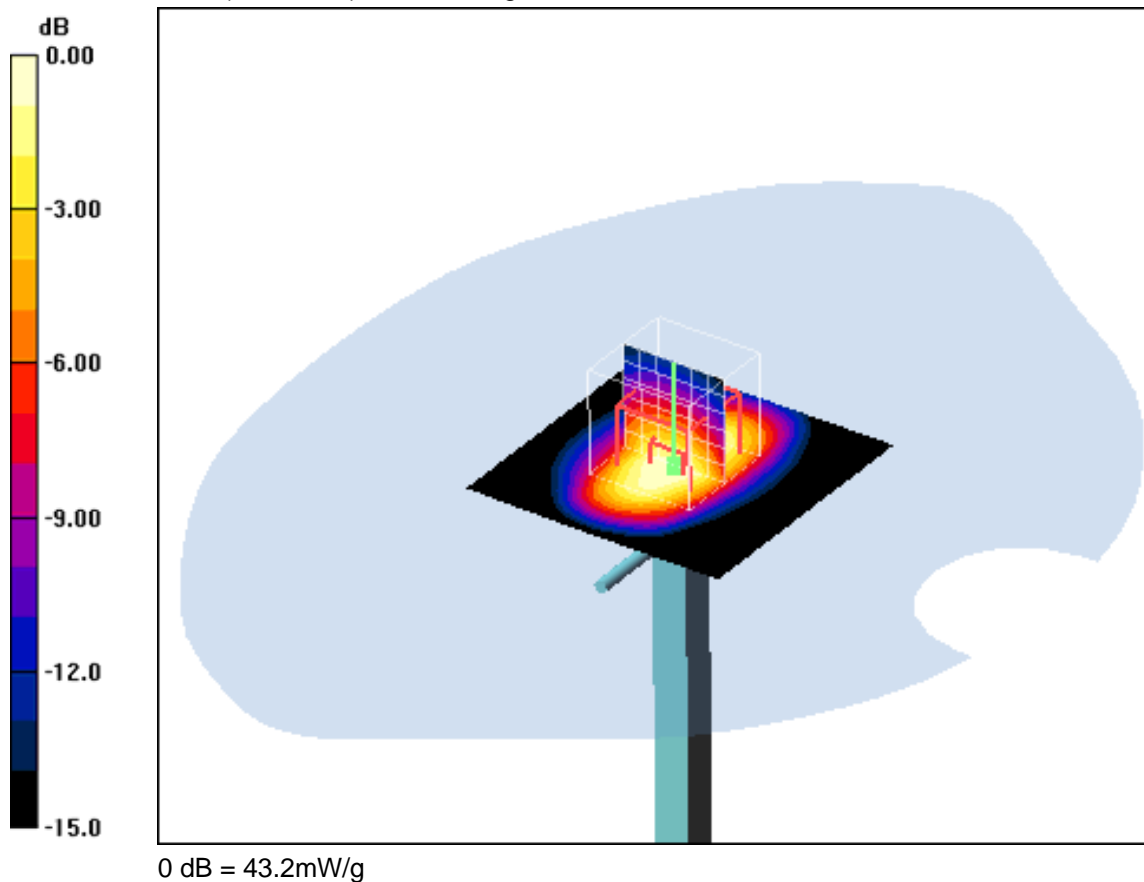
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(4.42, 4.42, 4.42); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

d=10mm, Pin=1000mW/Area Scan (51x51x1): Measurement grid: dx=15mm, dy=15mm
 Maximum value of SAR (interpolated) = 54.8 mW/g

d=10mm, Pin=1000mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:
 dx=5mm, dy=5mm, dz=5mm
 Reference Value = 179.5 V/m; Power Drift = 0.00 dB
 Peak SAR (extrapolated) = 65.7 W/kg
SAR(1 g) = 38.5 mW/g; SAR(10 g) = 20.8 mW/g
 Maximum value of SAR (measured) = 43.2 mW/g



Additional information:
 ambient temperature: 23.7°C; liquid temperature: 23.0°C

Date/Time: 18.08.2011 08:23:46 Date/Time: 18.08.2011 08:28:09

System Performance Check-D2450 head 2011-08-18

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: 710

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: HSL2450 Medium parameters used: $f = 2450 \text{ MHz}$; $\sigma = 1.85 \text{ mho/m}$; $\epsilon_r = 39.3$; $\rho = 1000 \text{ kg/m}^3$

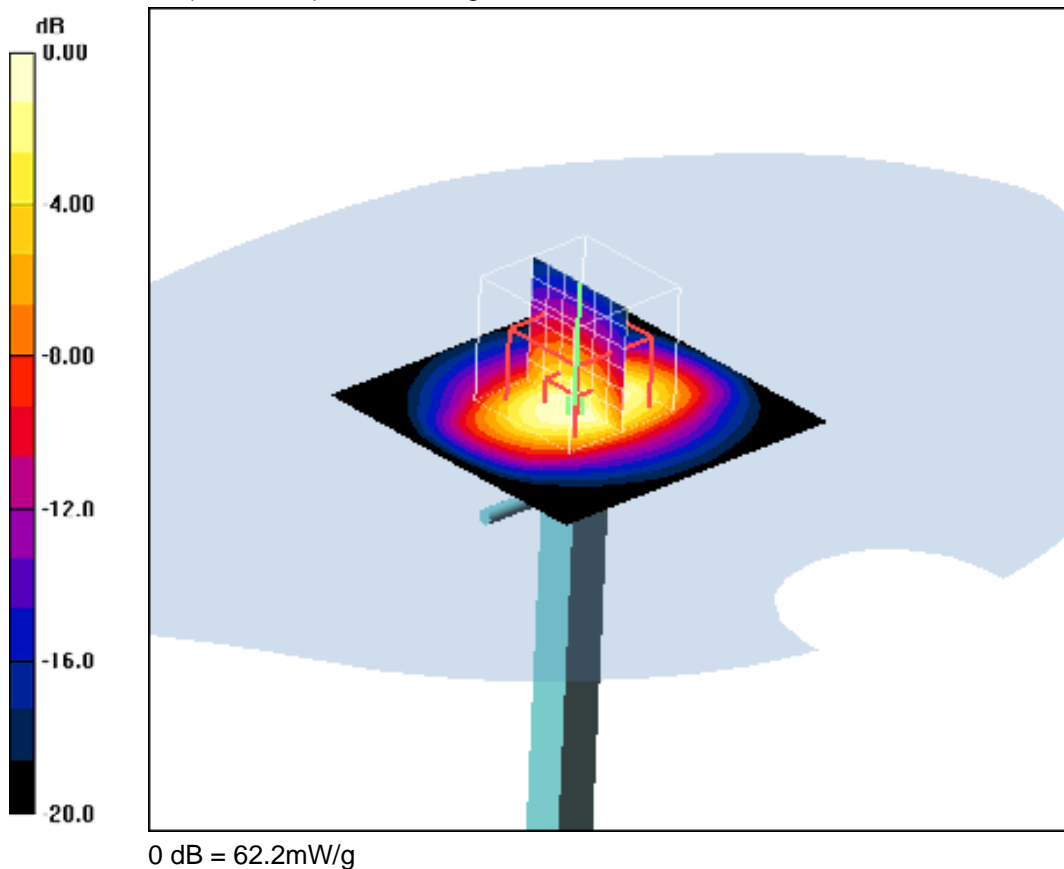
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1559; ConvF(4.38, 4.38, 4.38); Calibrated: 19.01.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn477; Calibrated: 04.05.2011
- Phantom: SAM left; Type: SAM; Serial: 1041
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 146

d=10mm, Pin=1000mW/Area Scan (51x51x1): Measurement grid: dx=15mm, dy=15mm
 Maximum value of SAR (interpolated) = 78.2 mW/g

d=10mm, Pin=1000mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:
 dx=5mm, dy=5mm, dz=5mm
 Reference Value = 190.8 V/m; Power Drift = -0.107 dB
 Peak SAR (extrapolated) = 108.8 W/kg
SAR(1 g) = 54 mW/g; SAR(10 g) = 25.6 mW/g
 Maximum value of SAR (measured) = 62.2 mW/g



Additional information:
 ambient temperature: 22.9°C; liquid temperature: 22.7°C

Date/Time: 19.08.2011 07:41:54 Date/Time: 19.08.2011 07:45:37

System Performance Check-D2450 body 2011-08-19

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: 710

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: M2450 Medium parameters used: $f = 2450$ MHz; $\sigma = 1.99$ mho/m; $\epsilon_r = 51.7$; $\rho = 1000$ kg/m³

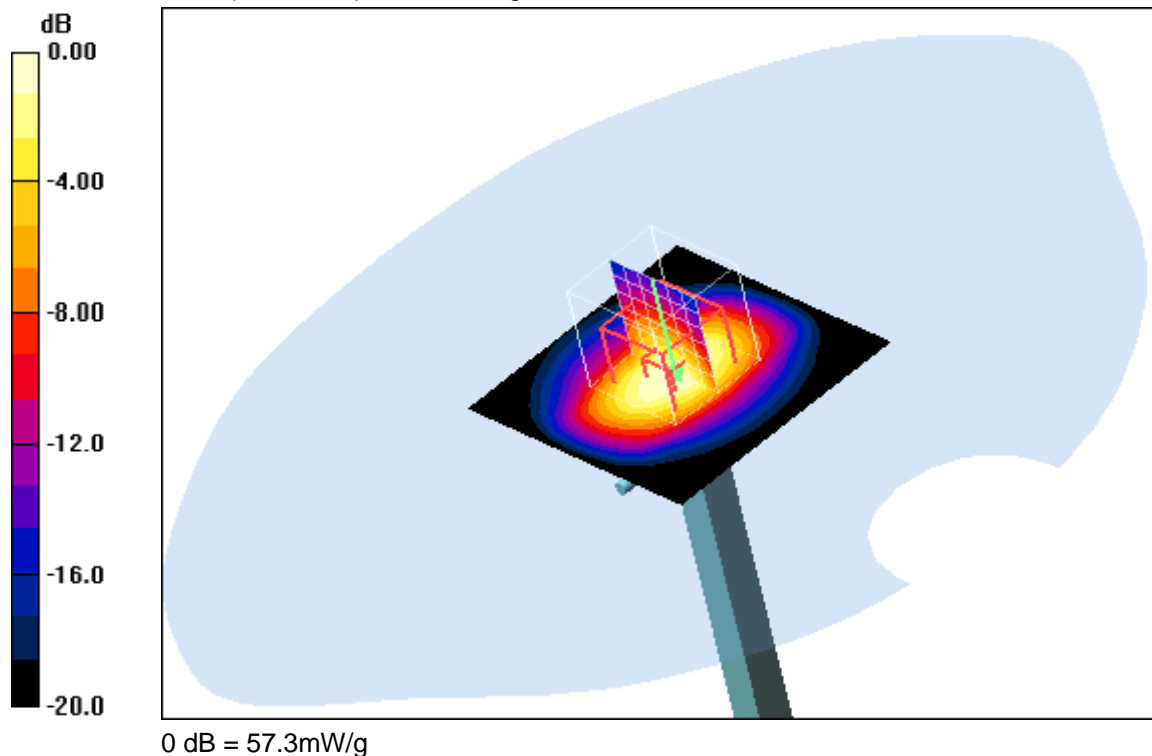
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1559; ConvF(3.91, 3.91, 3.91); Calibrated: 19.01.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn477; Calibrated: 04.05.2011
- Phantom: SAM right; Type: SAM; Serial: 1042
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 146

d=10mm, Pin=1000mW/Area Scan (51x51x1): Measurement grid: dx=15mm, dy=15mm
 Maximum value of SAR (interpolated) = 77.3 mW/g

d=10mm, Pin=1000mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:
 dx=5mm, dy=5mm, dz=5mm
 Reference Value = 185.2 V/m; Power Drift = -0.057 dB
 Peak SAR (extrapolated) = 95.3 W/kg
SAR(1 g) = 49.6 mW/g; SAR(10 g) = 24.5 mW/g
 Maximum value of SAR (measured) = 57.3 mW/g



Additional information:

ambient temperature: 23.1°C; liquid temperature: 22.4°C

Annex B: DASY4 measurement results

Annex B.1: GSM 850MHz head

Date/Time: 09.08.2011 11:39:55 Date/Time: 09.08.2011 11:53:03

IEEE1528_OET65-LeftHandSide-GSM850

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: GSM 850; Frequency: 824.2 MHz; Duty Cycle: 1:8

Medium: HSL850 Medium parameters used: $f = 824.2$ MHz; $\sigma = 0.87$ mho/m; $\epsilon_r = 43.2$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(6.89, 6.89, 6.89); Calibrated: 11.05.2011

- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)

- Electronics: DAE3 Sn413; Calibrated: 13.01.2011

- Phantom: SAM 12; Type: SAM; Serial: 1043

- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Touch position - Low/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.964 mW/g

Touch position - Low/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

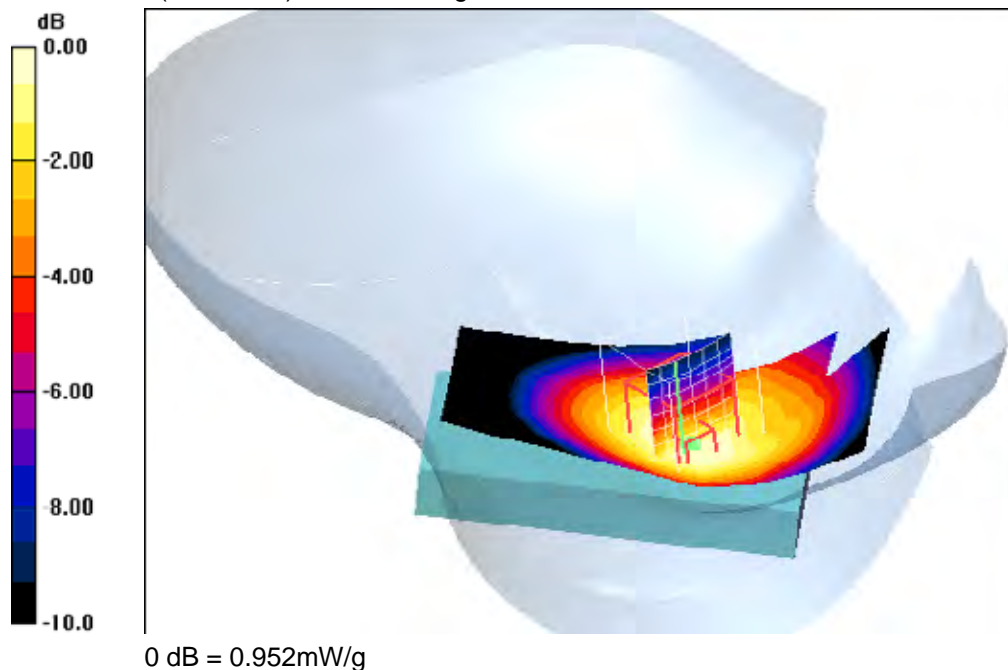
dx=5mm, dy=5mm, dz=5mm

Reference Value = 33.2 V/m; Power Drift = -0.051 dB

Peak SAR (extrapolated) = 1.36 W/kg

SAR(1 g) = 0.884 mW/g; SAR(10 g) = 0.594 mW/g

Maximum value of SAR (measured) = 0.952 mW/g



Additional information:

ambient temperature: 23.4°C; liquid temperature: 23.2°C

Date/Time: 09.08.2011 12:06:07 Date/Time: 09.08.2011 12:16:05

IEEE1528_OET65-LeftHandSide-GSM850

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8

Medium: HSL850 Medium parameters used: $f = 836.6 \text{ MHz}$; $\sigma = 0.89 \text{ mho/m}$; $\epsilon_r = 43$; $\rho = 1000 \text{ kg/m}^3$

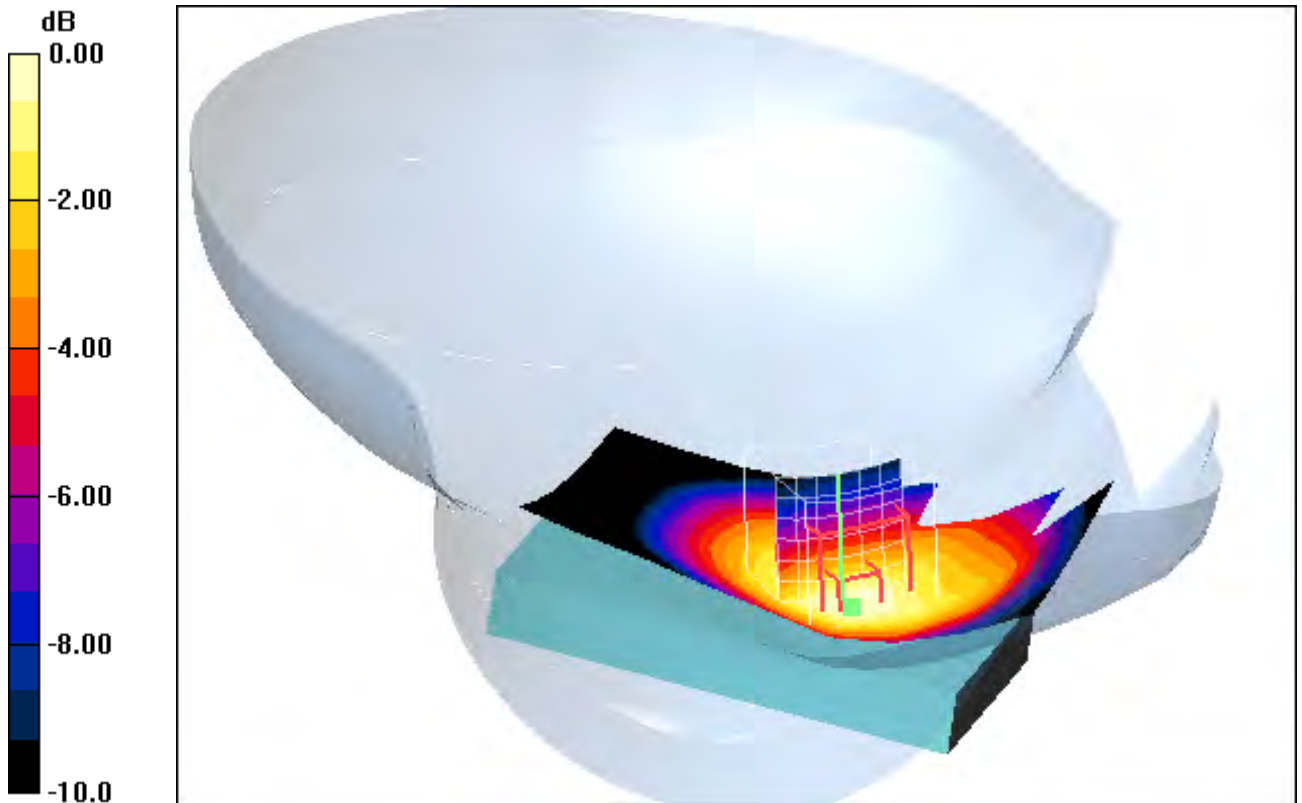
Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(6.89, 6.89, 6.89); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Touch position - Middle/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
 Maximum value of SAR (interpolated) = 1.17 mW/g

Touch position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:
 $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
 Reference Value = 36.4 V/m; Power Drift = -0.053 dB
 Peak SAR (extrapolated) = 1.72 W/kg
SAR(1 g) = 1.13 mW/g; SAR(10 g) = 0.761 mW/g
 Maximum value of SAR (measured) = 1.20 mW/g



0 dB = 1.20mW/g

Additional information:

ambient temperature: 23.4°C; liquid temperature: 23.2°C

Date/Time: 09.08.2011 12:31:59 Date/Time: 09.08.2011 12:39:55

IEEE1528_OET65-LeftHandSide-GSM850

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: GSM 850; Frequency: 848.8 MHz; Duty Cycle: 1:8

Medium: HSL850 Medium parameters used: $f = 848.8 \text{ MHz}$; $\sigma = 0.9 \text{ mho/m}$; $\epsilon_r = 42.9$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(6.89, 6.89, 6.89); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Touch position - High/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 1.16 mW/g

Touch position - High/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

$dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 35.8 V/m; Power Drift = 0.046 dB

Peak SAR (extrapolated) = 1.67 W/kg

SAR(1 g) = 1.12 mW/g; SAR(10 g) = 0.757 mW/g

Maximum value of SAR (measured) = 1.20 mW/g



0 dB = 1.20mW/g

Additional information:

ambient temperature: 23.4°C; liquid temperature: 23.2°C

Date/Time: 09.08.2011 13:32:28 Date/Time: 09.08.2011 13:38:17

IEEE1528_OET65-LeftHandSide-GSM850

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: GSM 850; Frequency: 824.2 MHz; Duty Cycle: 1:8

Medium: HSL850 Medium parameters used: $f = 824.2 \text{ MHz}$; $\sigma = 0.87 \text{ mho/m}$; $\epsilon_r = 43.2$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(6.89, 6.89, 6.89); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Tilt position - Low/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.419 mW/g

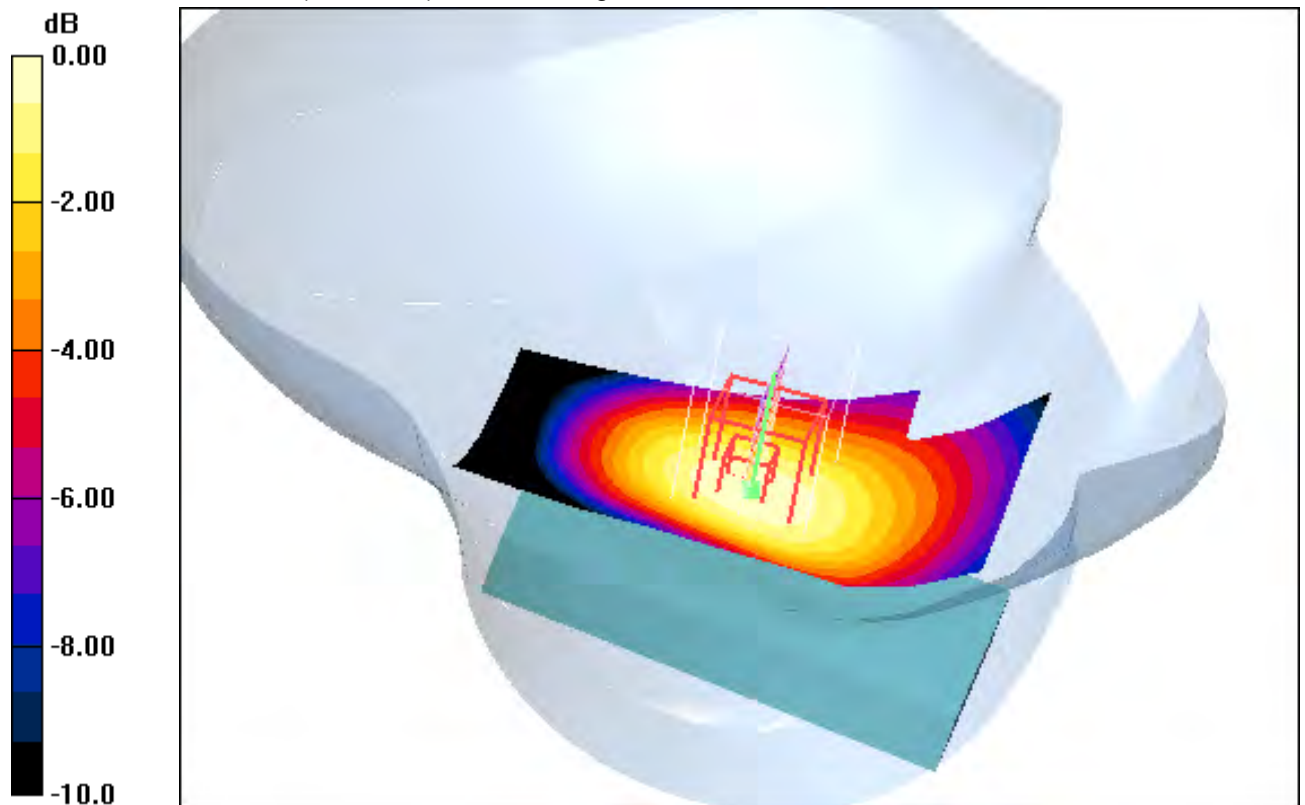
Tilt position - Low/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 22.2 V/m; Power Drift = -0.026 dB

Peak SAR (extrapolated) = 0.495 W/kg

SAR(1 g) = 0.402 mW/g; SAR(10 g) = 0.299 mW/g

Maximum value of SAR (measured) = 0.422 mW/g



0 dB = 0.422mW/g

Additional information:

ambient temperature: 23.4°C; liquid temperature: 23.2°C

Date/Time: 09.08.2011 13:14:15 Date/Time: 09.08.2011 13:20:02

IEEE1528_OET65-LeftHandSide-GSM850

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8

Medium: HSL850 Medium parameters used: $f = 836.6 \text{ MHz}$; $\sigma = 0.89 \text{ mho/m}$; $\epsilon_r = 43$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(6.89, 6.89, 6.89); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Tilt position - Middle/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.523 mW/g

Tilt position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

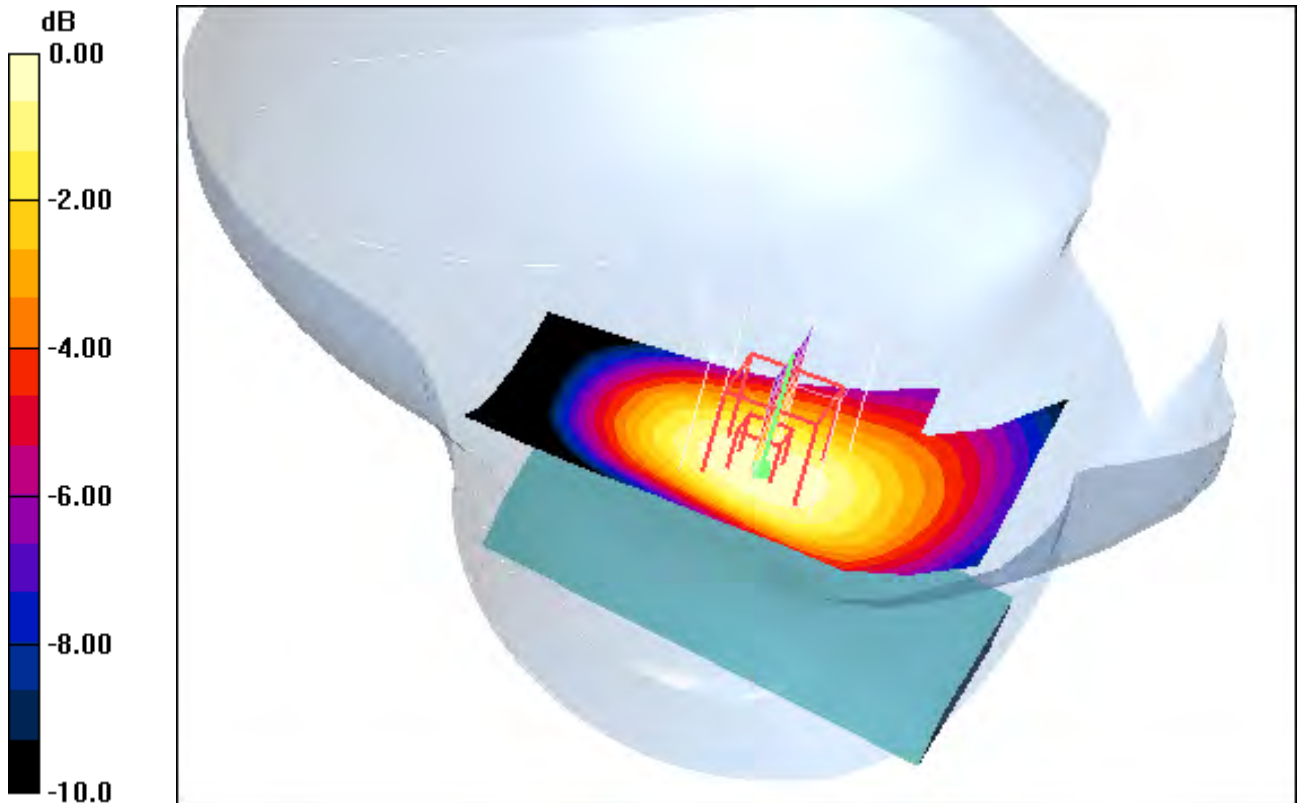
$dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 24.3 V/m; Power Drift = -0.046 dB

Peak SAR (extrapolated) = 0.605 W/kg

SAR(1 g) = 0.490 mW/g; SAR(10 g) = 0.363 mW/g

Maximum value of SAR (measured) = 0.513 mW/g



Additional information:

ambient temperature: 23.4°C; liquid temperature: 23.2°C

Date/Time: 09.08.2011 12:56:04 Date/Time: 09.08.2011 13:01:50

IEEE1528_OET65-LeftHandSide-GSM850

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: GSM 850; Frequency: 848.8 MHz; Duty Cycle: 1:8

Medium: HSL850 Medium parameters used: $f = 848.8 \text{ MHz}$; $\sigma = 0.9 \text{ mho/m}$; $\epsilon_r = 42.9$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(6.89, 6.89, 6.89); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Tilt position - High/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.539 mW/g

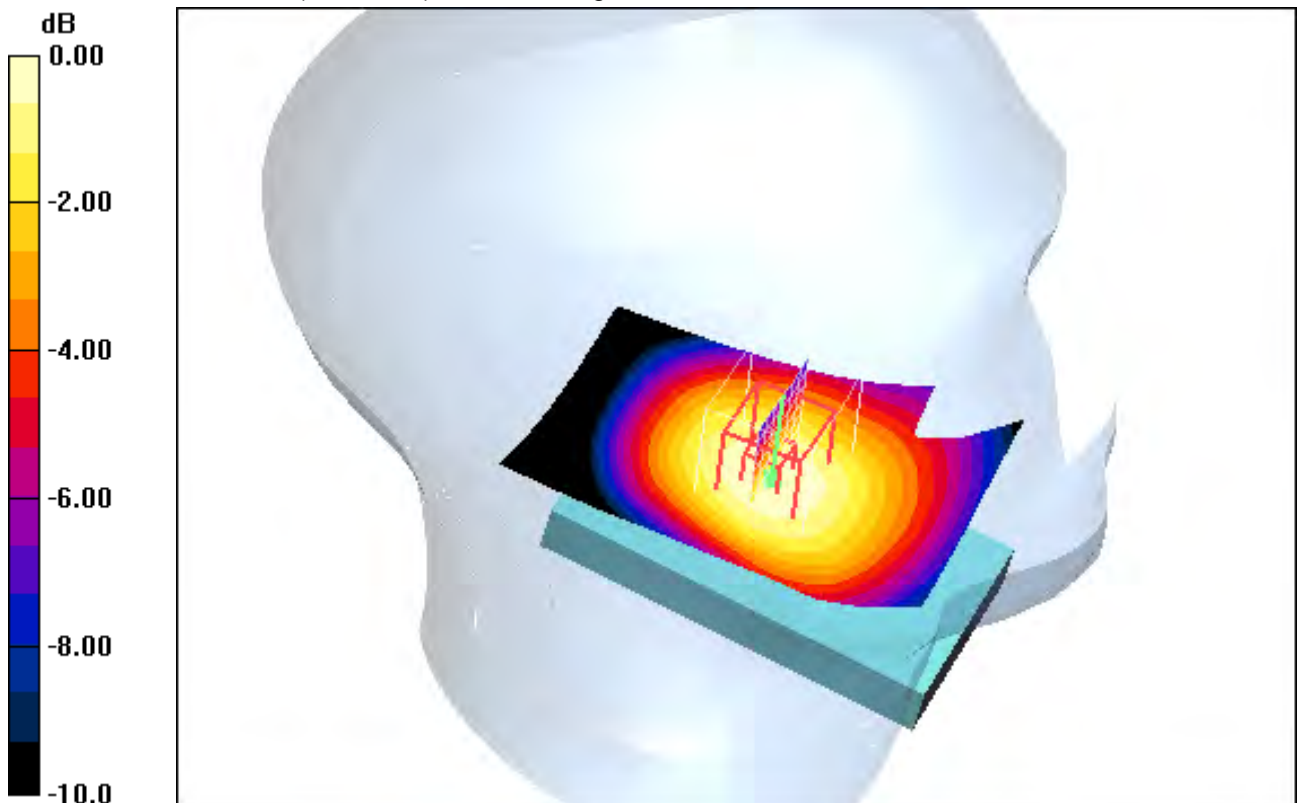
Tilt position - High/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 24.5 V/m; Power Drift = -0.038 dB

Peak SAR (extrapolated) = 0.622 W/kg

SAR(1 g) = 0.505 mW/g; SAR(10 g) = 0.374 mW/g

Maximum value of SAR (measured) = 0.532 mW/g



0 dB = 0.532mW/g

Additional information:

ambient temperature: 23.4°C; liquid temperature: 23.2°C

Date/Time: 09.08.2011 15:52:59 Date/Time: 09.08.2011 15:58:38

IEEE1528_OET65-RightHandSide-GSM850

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: GSM 850; Frequency: 824.2 MHz; Duty Cycle: 1:8

Medium: HSL850 Medium parameters used: $f = 824.2 \text{ MHz}$; $\sigma = 0.87 \text{ mho/m}$; $\epsilon_r = 43.2$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(6.89, 6.89, 6.89); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Touch position - Low/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.853 mW/g

Touch position - Low/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

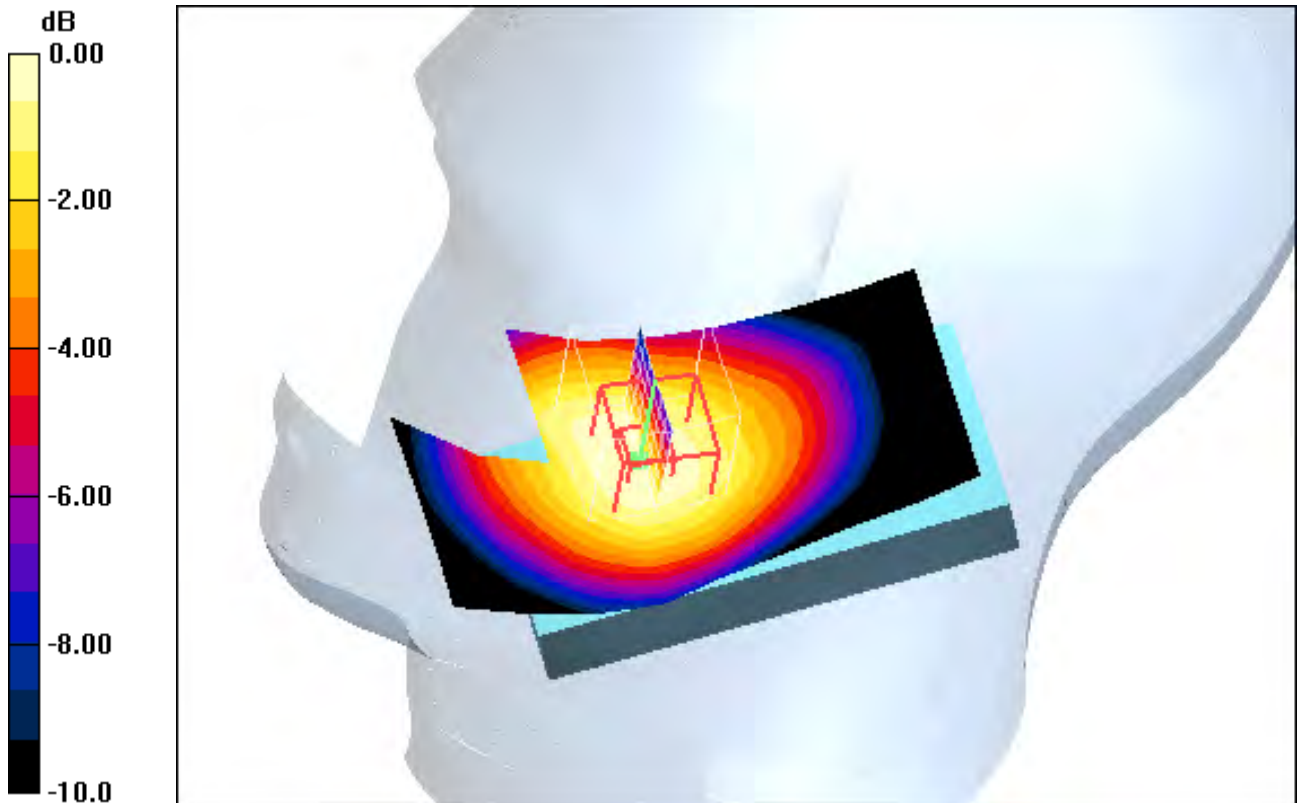
$dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 31.8 V/m; Power Drift = -0.013 dB

Peak SAR (extrapolated) = 1.07 W/kg

SAR(1 g) = 0.813 mW/g; SAR(10 g) = 0.589 mW/g

Maximum value of SAR (measured) = 0.854 mW/g



Additional information:

ambient temperature: 23.4°C; liquid temperature: 23.2°C

Date/Time: 09.08.2011 15:33:11 Date/Time: 09.08.2011 15:38:47

IEEE1528_OET65-RightHandSide-GSM850

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8

Medium: HSL850 Medium parameters used: $f = 836.6 \text{ MHz}$; $\sigma = 0.89 \text{ mho/m}$; $\epsilon_r = 43$; $\rho = 1000 \text{ kg/m}^3$

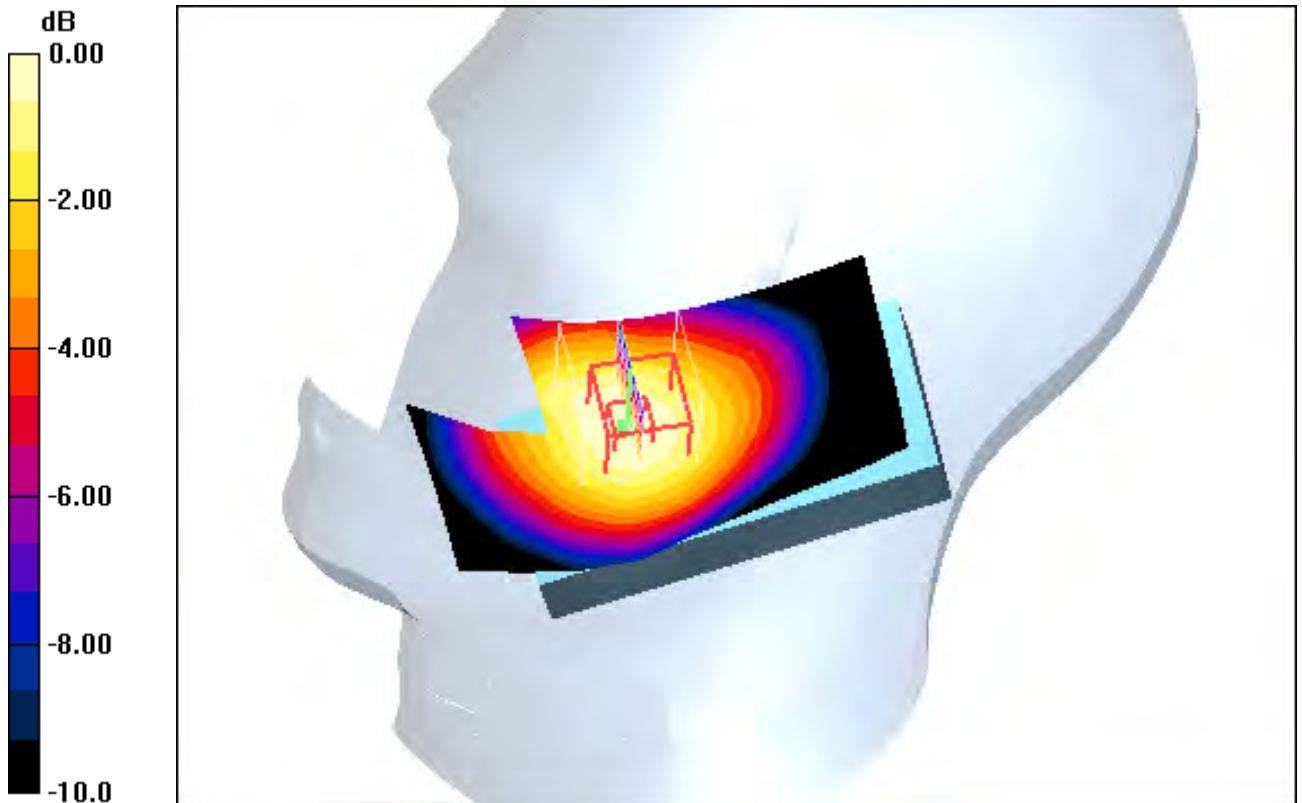
Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(6.89, 6.89, 6.89); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Touch position - Middle/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
 Maximum value of SAR (interpolated) = 1.10 mW/g

Touch position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:
 $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
 Reference Value = 36.0 V/m; Power Drift = -0.054 dB
 Peak SAR (extrapolated) = 1.38 W/kg
SAR(1 g) = 1.05 mW/g; SAR(10 g) = 0.760 mW/g
 Maximum value of SAR (measured) = 1.12 mW/g



0 dB = 1.12mW/g

Additional information:

ambient temperature: 23.4°C; liquid temperature: 23.2°C

Date/Time: 09.08.2011 15:07:47 Date/Time: 09.08.2011 15:14:12

IEEE1528_OET65-RightHandSide-GSM850

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: GSM 850; Frequency: 848.8 MHz; Duty Cycle: 1:8

Medium: HSL850 Medium parameters used: $f = 848.8 \text{ MHz}$; $\sigma = 0.9 \text{ mho/m}$; $\epsilon_r = 42.9$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(6.89, 6.89, 6.89); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Touch position - High/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 1.12 mW/g

Touch position - High/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

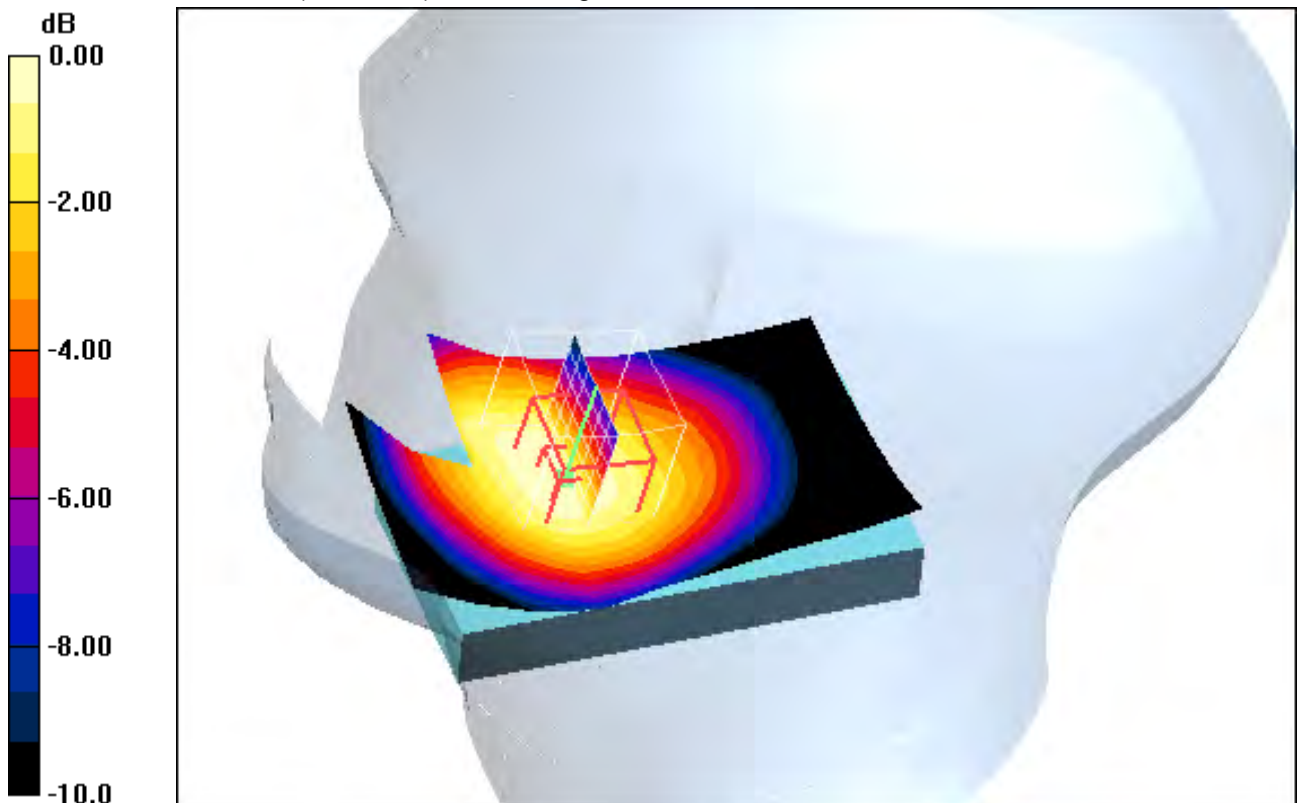
$dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 36.2 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 1.41 W/kg

SAR(1 g) = 1.08 mW/g; SAR(10 g) = 0.780 mW/g

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



0 dB = 1.15mW/g

Additional information:

ambient temperature: 23.4°C; liquid temperature: 23.2°C

Date/Time: 09.08.2011 13:56:42 Date/Time: 09.08.2011 14:03:06

IEEE1528_OET65-RightHandSide-GSM850

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: GSM 850; Frequency: 824.2 MHz; Duty Cycle: 1:8

Medium: HSL850 Medium parameters used: $f = 824.2 \text{ MHz}$; $\sigma = 0.87 \text{ mho/m}$; $\epsilon_r = 43.2$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(6.89, 6.89, 6.89); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Tilt position - Low/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.400 mW/g

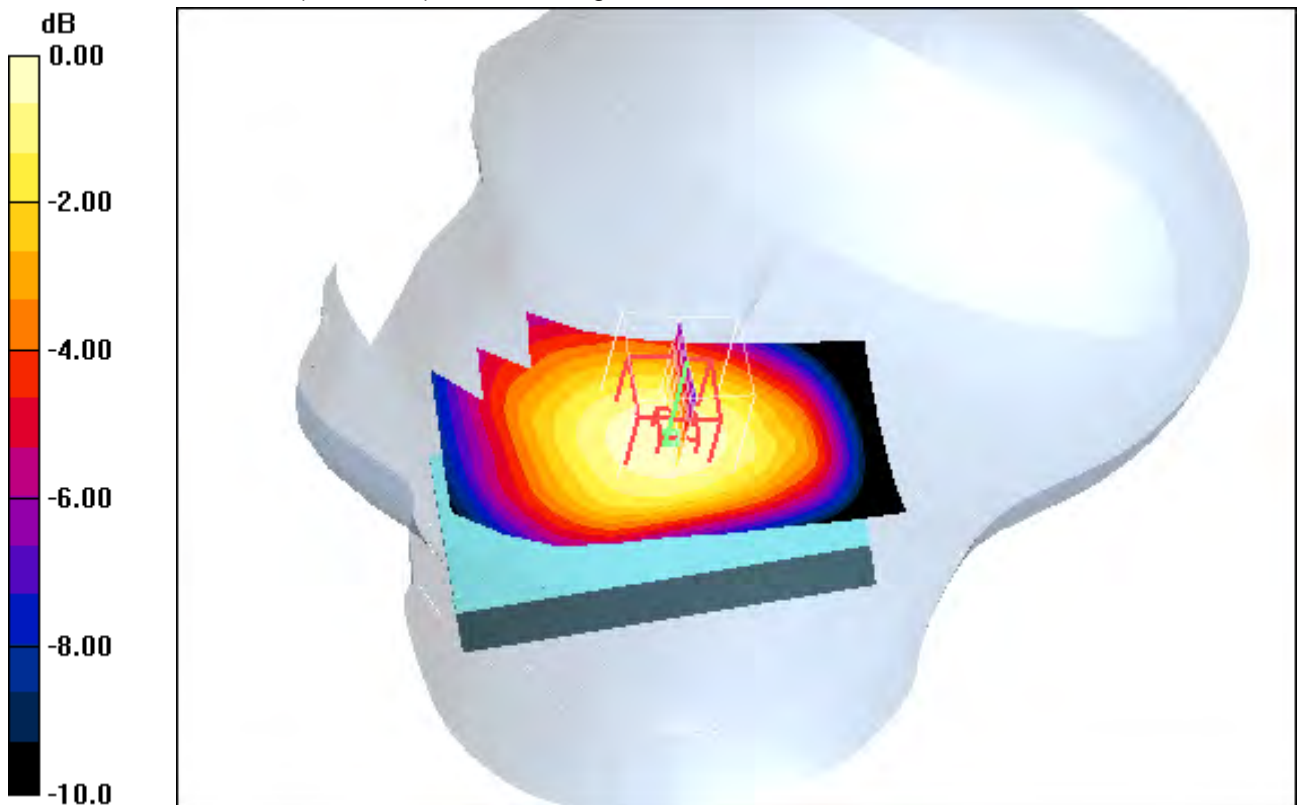
Tilt position - Low/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 22.7 V/m; Power Drift = -0.167 dB

Peak SAR (extrapolated) = 0.474 W/kg

SAR(1 g) = 0.382 mW/g; SAR(10 g) = 0.289 mW/g

Maximum value of SAR (measured) = 0.403 mW/g



0 dB = 0.403mW/g

Additional information:

ambient temperature: 23.4°C; liquid temperature: 23.2°C

Date/Time: 09.08.2011 14:16:33 Date/Time: 09.08.2011 14:22:09

IEEE1528_OET65-RightHandSide-GSM850

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8

Medium: HSL850 Medium parameters used: $f = 836.6 \text{ MHz}$; $\sigma = 0.89 \text{ mho/m}$; $\epsilon_r = 43$; $\rho = 1000 \text{ kg/m}^3$

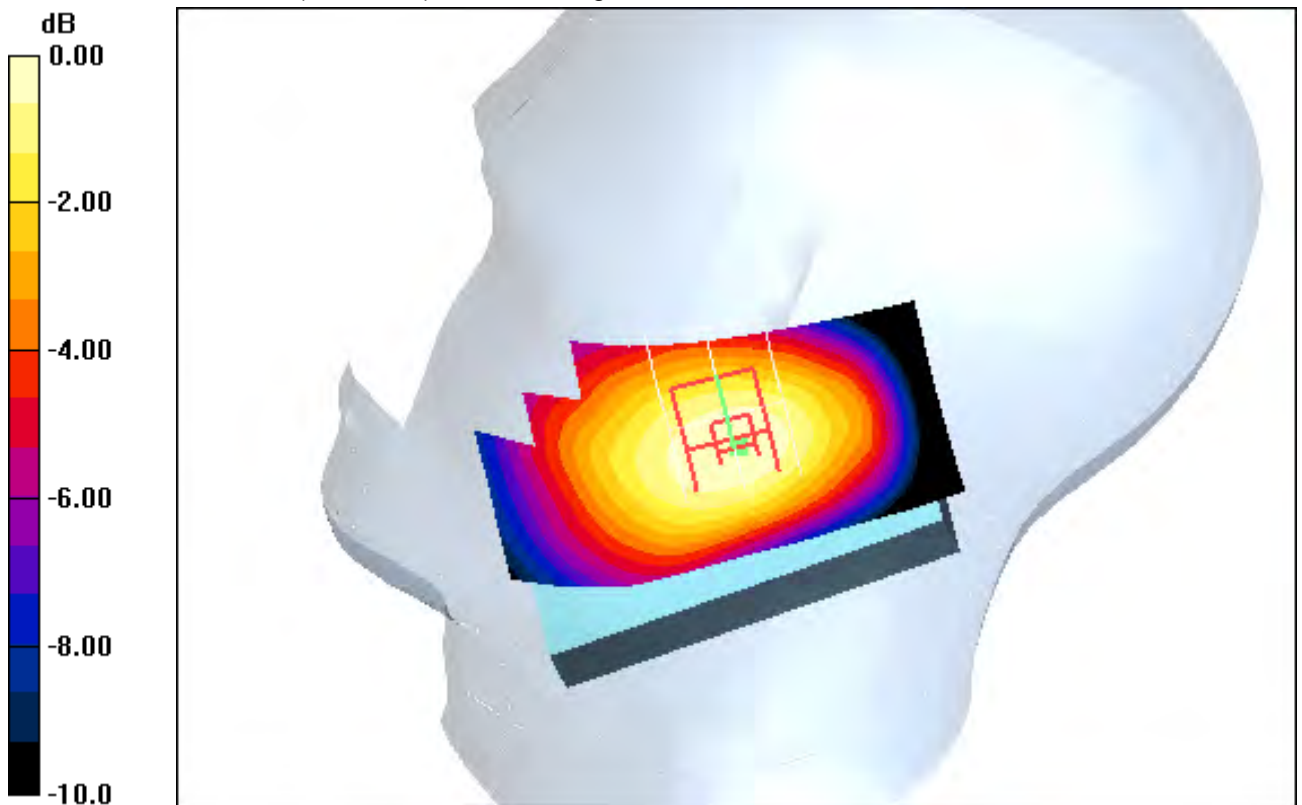
Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(6.89, 6.89, 6.89); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Tilt position - Middle/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
 Maximum value of SAR (interpolated) = 0.532 mW/g

Tilt position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:
 $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
 Reference Value = 24.7 V/m; Power Drift = -0.039 dB
 Peak SAR (extrapolated) = 0.622 W/kg
SAR(1 g) = 0.504 mW/g; SAR(10 g) = 0.379 mW/g
 Maximum value of SAR (measured) = 0.530 mW/g



0 dB = 0.530mW/g

Additional information:

ambient temperature: 23.4°C; liquid temperature: 23.2°C

Date/Time: 09.08.2011 14:47:47 Date/Time: 09.08.2011 14:53:25

IEEE1528_OET65-RightHandSide-GSM850

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: GSM 850; Frequency: 848.8 MHz; Duty Cycle: 1:8

Medium: HSL850 Medium parameters used: $f = 848.8 \text{ MHz}$; $\sigma = 0.9 \text{ mho/m}$; $\epsilon_r = 42.9$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(6.89, 6.89, 6.89); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Tilt position - High/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.525 mW/g

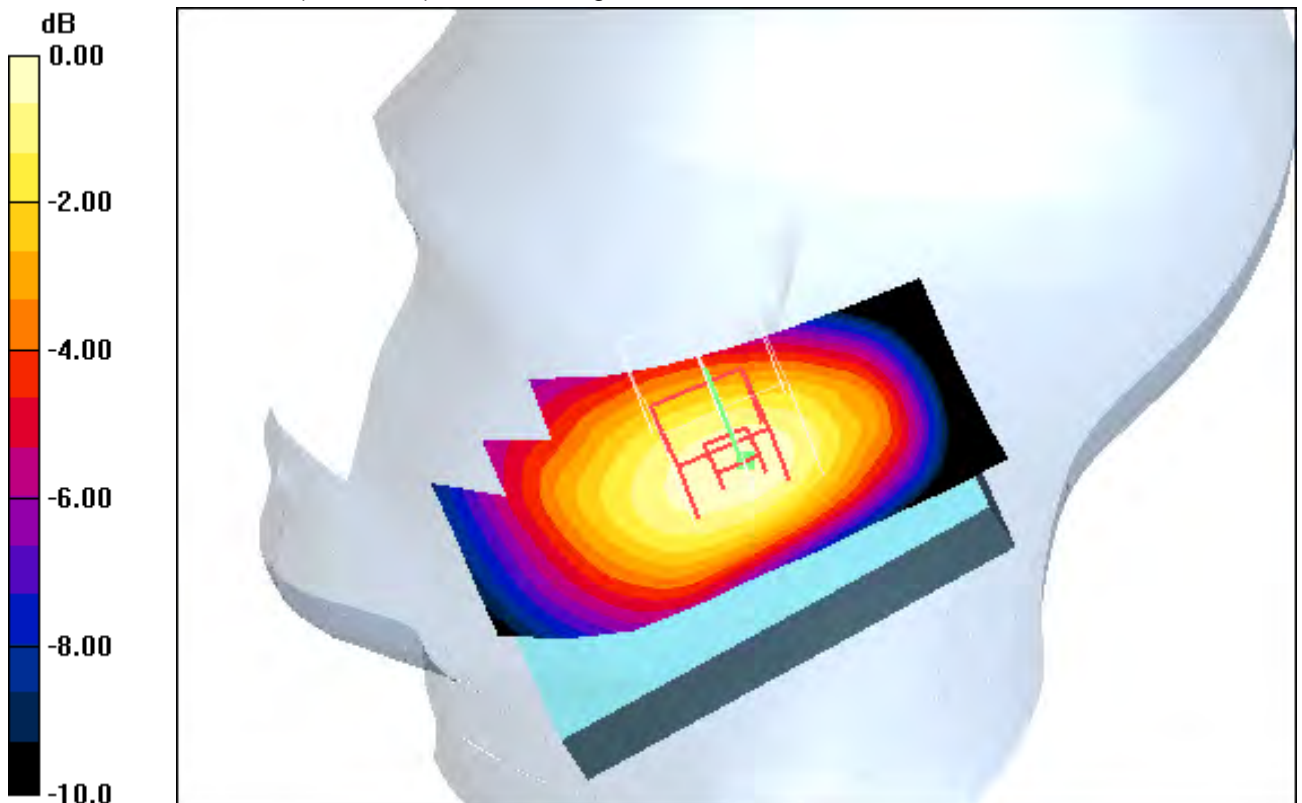
Tilt position - High/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 24.3 V/m; Power Drift = -0.017 dB

Peak SAR (extrapolated) = 0.628 W/kg

SAR(1 g) = 0.500 mW/g; SAR(10 g) = 0.372 mW/g

Maximum value of SAR (measured) = 0.530 mW/g



0 dB = 0.530mW/g

Additional information:

ambient temperature: 23.4°C; liquid temperature: 23.2°C

Annex B.2: GSM 850MHz body

Date/Time: 17.08.2011 12:43:45 Date/Time: 17.08.2011 12:50:30

IEEE1528_OET65-Body-GSM850 GPRS 4TS

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: PCS 850 GPRS 4TS; Frequency: 824.2 MHz; Duty Cycle: 1:2

Medium: M850 Medium parameters used: $f = 824.2 \text{ MHz}$; $\sigma = 0.97 \text{ mho/m}$; $\epsilon_r = 54.8$; $\rho = 1000 \text{ kg/m}^3$

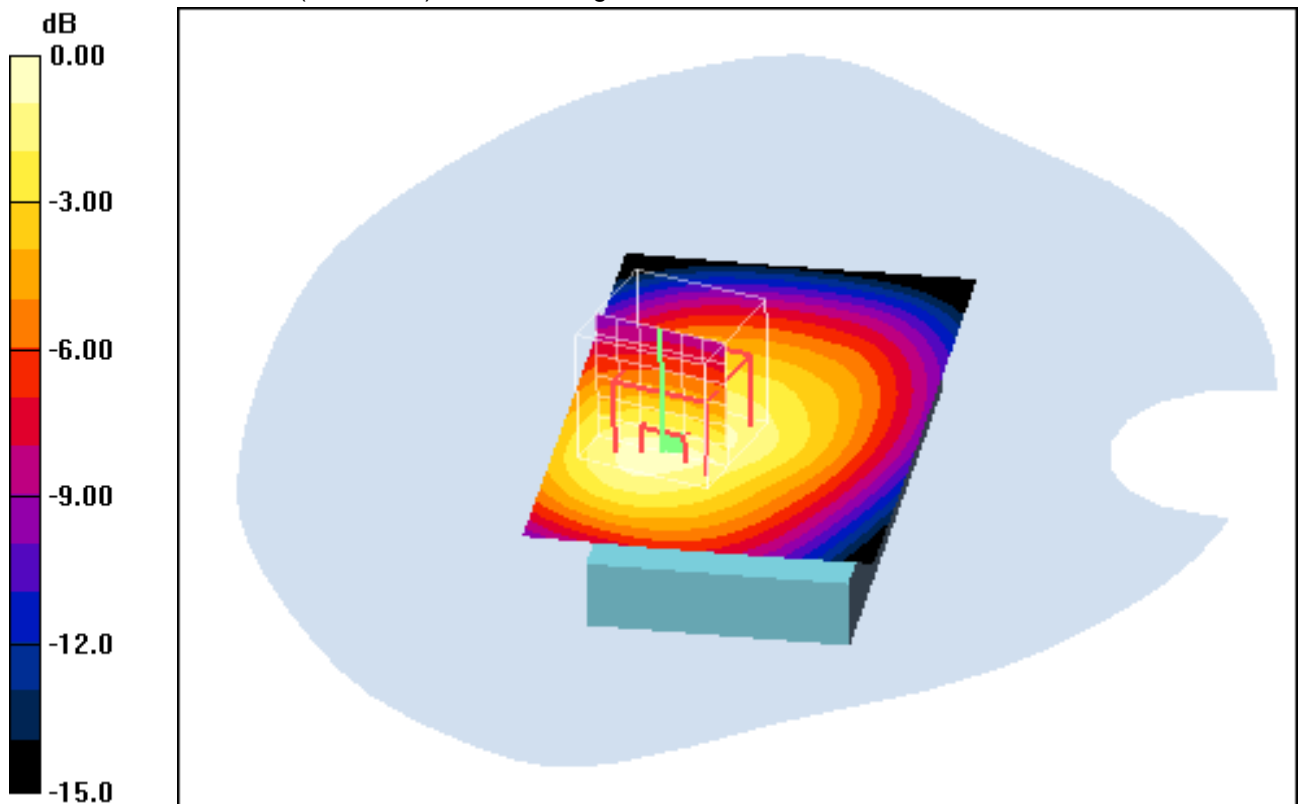
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(6.75, 6.75, 6.75); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Front position - Low/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
 Maximum value of SAR (interpolated) = 0.401 mW/g

Front position - Low/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:
 $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
 Reference Value = 21.7 V/m; Power Drift = -0.188 dB
 Peak SAR (extrapolated) = 0.564 W/kg
SAR(1 g) = 0.405 mW/g; SAR(10 g) = 0.279 mW/g
 Maximum value of SAR (measured) = 0.432 mW/g



0 dB = 0.432mW/g

Additional information:

position or distance of DUT to SAM (if not standard head positions) : 10mm

ambient temperature: 24.5°C; liquid temperature: 23.5°C

Date/Time: 17.08.2011 13:03:59 Date/Time: 17.08.2011 13:10:27

IEEE1528_OET65-Body-GSM850 GPRS 4TS

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: PCS 850 GPRS 4TS; Frequency: 836.6 MHz; Duty Cycle: 1:2

Medium: M850 Medium parameters used: $f = 836.6 \text{ MHz}$; $\sigma = 0.98 \text{ mho/m}$; $\epsilon_r = 54.7$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(6.75, 6.75, 6.75); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Front position - Middle/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.551 mW/g

Front position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

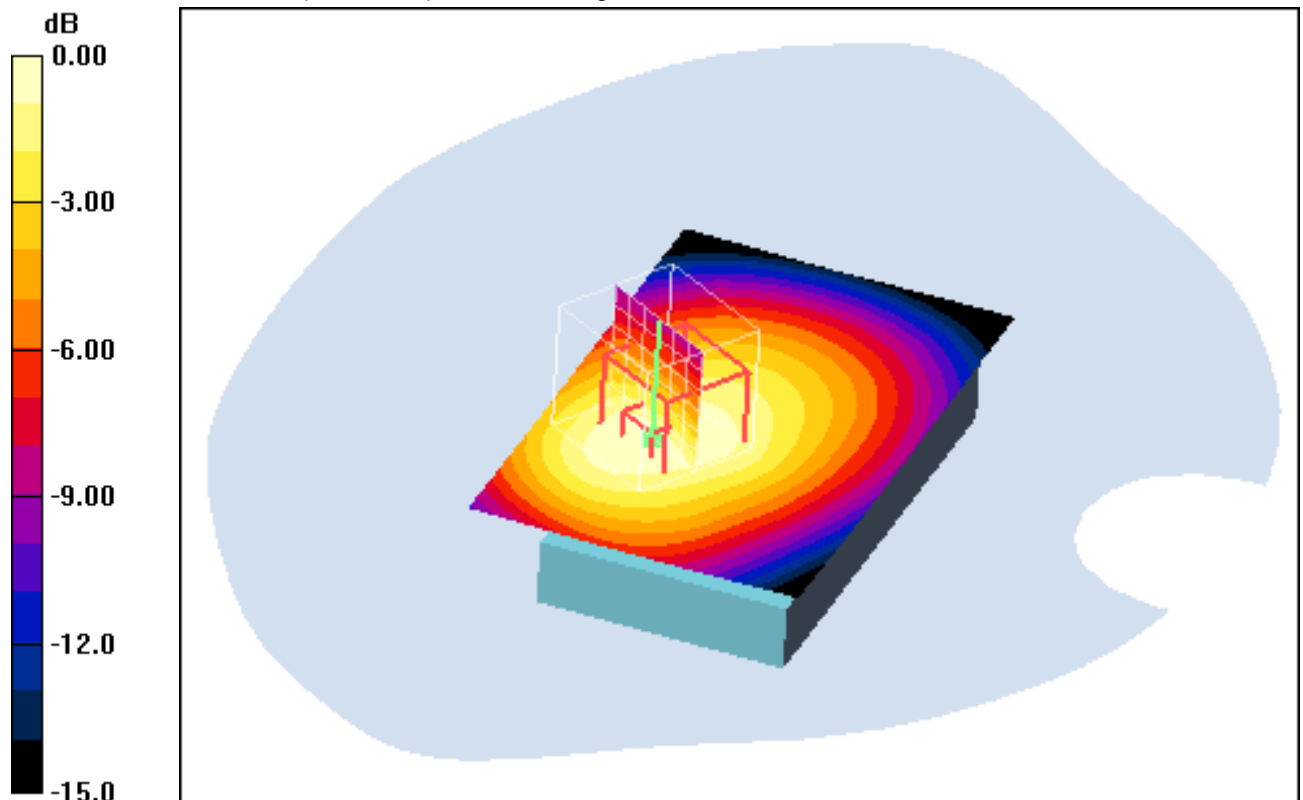
$dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 24.1 V/m; Power Drift = -0.040 dB

Peak SAR (extrapolated) = 0.701 W/kg

SAR(1 g) = 0.509 mW/g; SAR(10 g) = 0.354 mW/g

Maximum value of SAR (measured) = 0.547 mW/g



0 dB = 0.547mW/g

Additional information:

position or distance of DUT to SAM (if not standard head positions) : 10mm

ambient temperature: 24.5°C; liquid temperature: 23.5°C

Date/Time: 17.08.2011 13:23:22 Date/Time: 17.08.2011 13:28:39

IEEE1528_OET65-Body-GSM850 GPRS 4TS

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: PCS 850 GPRS 4TS; Frequency: 848.8 MHz; Duty Cycle: 1:2

Medium: M850 Medium parameters used: $f = 848.8 \text{ MHz}$; $\sigma = 1 \text{ mho/m}$; $\epsilon_r = 54.6$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(6.75, 6.75, 6.75); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Front position - High/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.737 mW/g

Front position - High/Zoom Scan (7x7x7) (7x8x7)/Cube 0: Measurement grid:

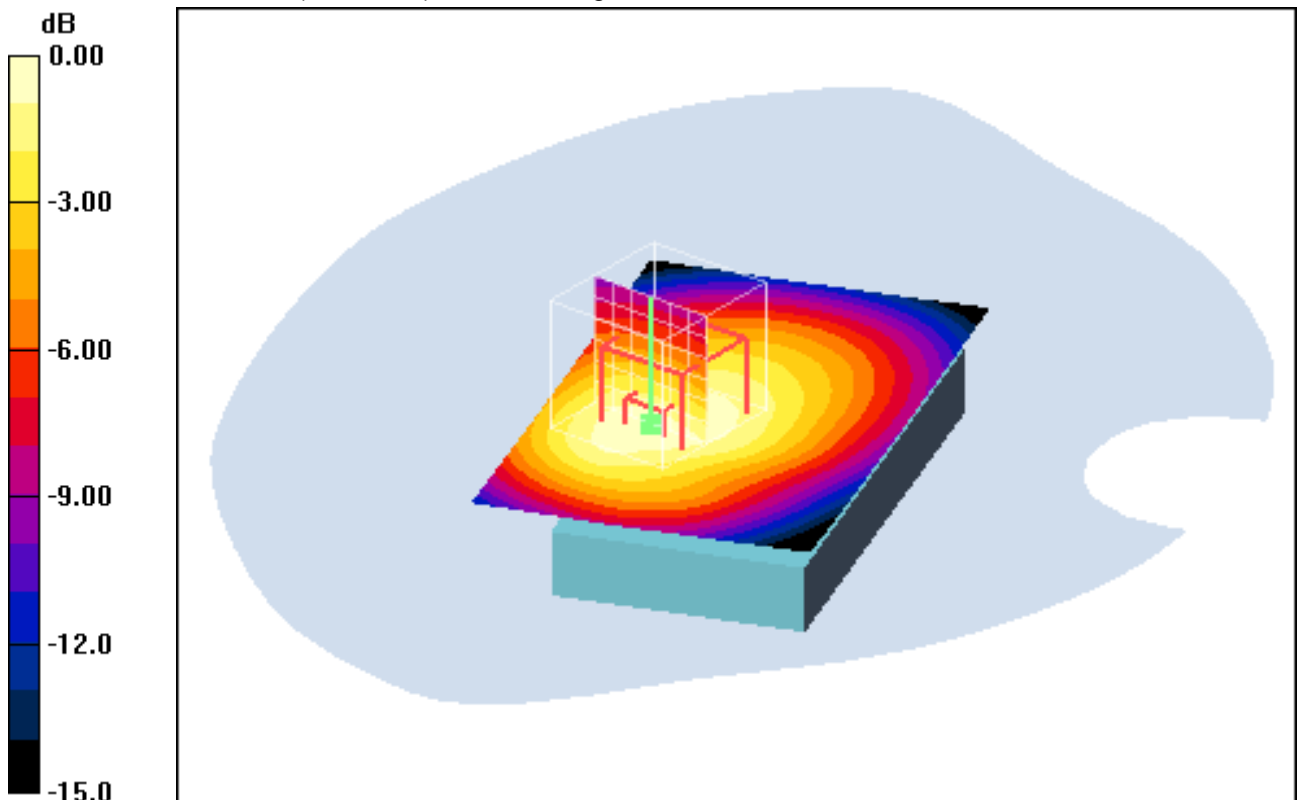
$dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 27.5 V/m; Power Drift = -0.029 dB

Peak SAR (extrapolated) = 0.929 W/kg

SAR(1 g) = 0.692 mW/g; SAR(10 g) = 0.482 mW/g

Maximum value of SAR (measured) = 0.745 mW/g



0 dB = 0.745mW/g

Additional information:

position or distance of DUT to SAM (if not standard head positions) : 10mm

ambient temperature: 24.5°C; liquid temperature: 23.5°C

Date/Time: 17.08.2011 15:58:22 Date/Time: 17.08.2011 16:04:50

IEEE1528_OET65-Body-GSM850 GPRS 4TS

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: PCS 850 GPRS 4TS; Frequency: 824.2 MHz; Duty Cycle: 1:2

Medium: M850 Medium parameters used: $f = 824.2 \text{ MHz}$; $\sigma = 0.97 \text{ mho/m}$; $\epsilon_r = 54.8$; $\rho = 1000 \text{ kg/m}^3$

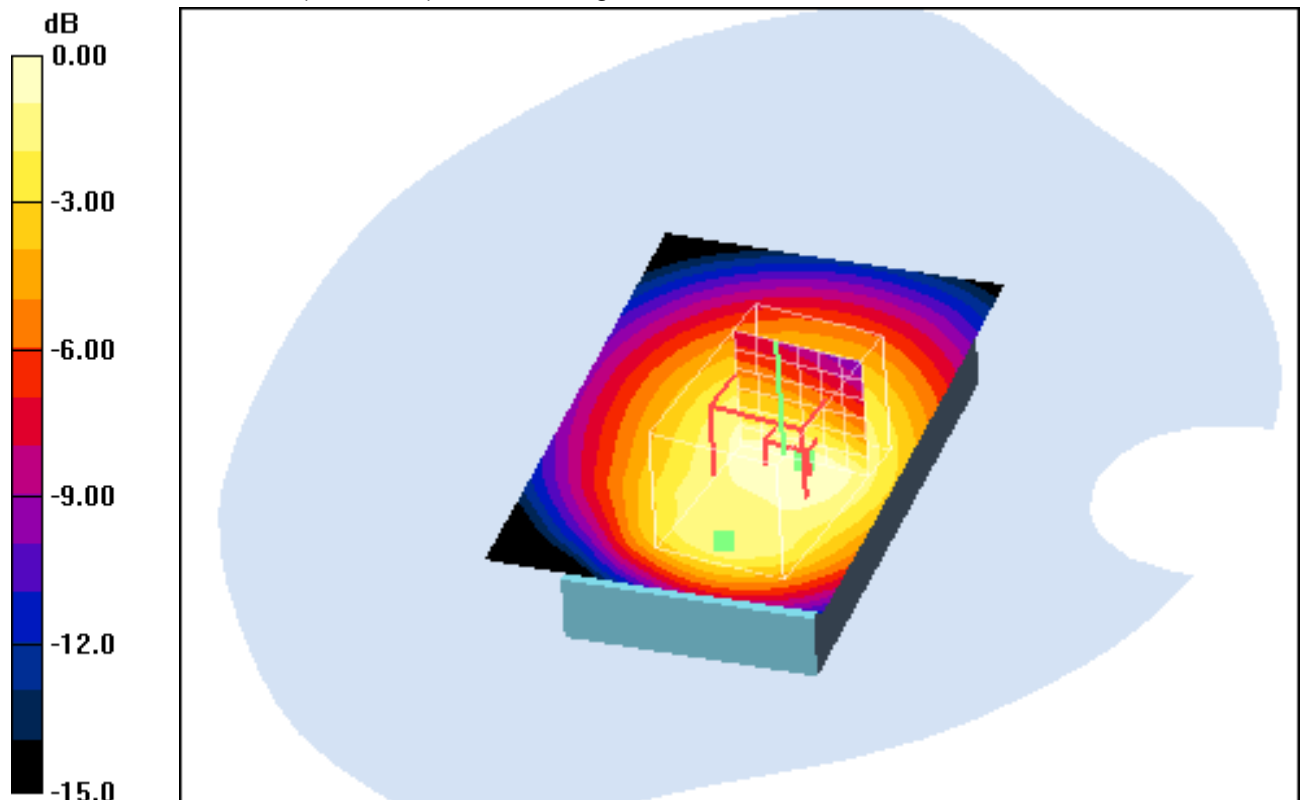
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(6.75, 6.75, 6.75); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Rear position - Low/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
 Maximum value of SAR (interpolated) = 0.846 mW/g

Rear position - Low/Zoom Scan (7x7x7) (7x11x7)/Cube 0: Measurement grid:
 $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
 Reference Value = 29.4 V/m; Power Drift = -0.047 dB
 Peak SAR (extrapolated) = 1.11 W/kg
SAR(1 g) = 0.788 mW/g; SAR(10 g) = 0.541 mW/g
 Maximum value of SAR (measured) = 0.841 mW/g



0 dB = 0.841mW/g

Additional information:

position or distance of DUT to SAM (if not standard head positions) : 10mm
 ambient temperature: 24.5°C; liquid temperature: 23.5°C

Date/Time: 17.08.2011 15:06:47 Date/Time: 17.08.2011 15:13:46

IEEE1528_OET65-Body-GSM850 GPRS 4TS

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: PCS 850 GPRS 4TS; Frequency: 836.6 MHz; Duty Cycle: 1:2

Medium: M850 Medium parameters used: $f = 836.6 \text{ MHz}$; $\sigma = 0.98 \text{ mho/m}$; $\epsilon_r = 54.7$; $\rho = 1000 \text{ kg/m}^3$

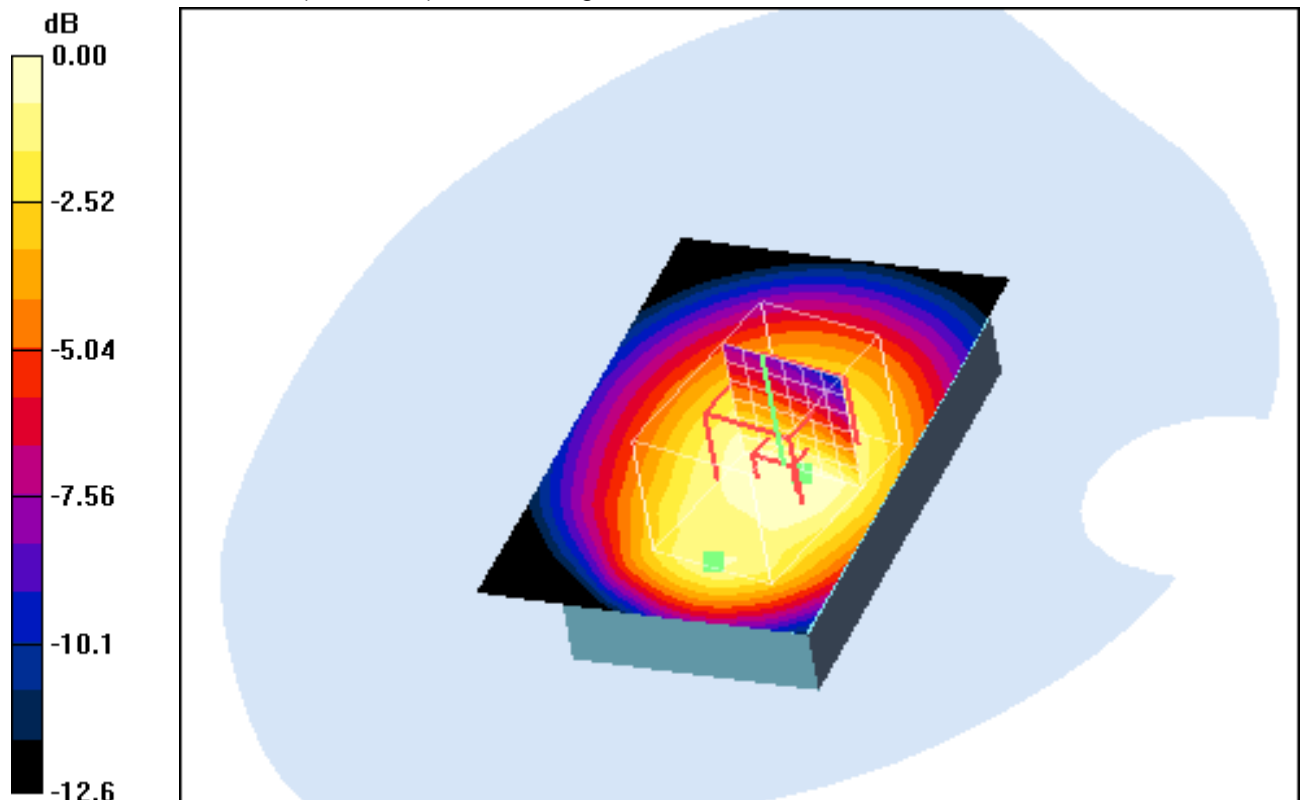
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(6.75, 6.75, 6.75); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Rear position - Middle/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
 Maximum value of SAR (interpolated) = 1.10 mW/g

Rear position - Middle/Zoom Scan (7x7x7) (7x11x7)/Cube 0: Measurement grid:
 $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
 Reference Value = 33.4 V/m; Power Drift = -0.132 dB
 Peak SAR (extrapolated) = 1.37 W/kg
SAR(1 g) = 0.987 mW/g; SAR(10 g) = 0.685 mW/g
 Maximum value of SAR (measured) = 1.05 mW/g



0 dB = 1.05mW/g

Additional information:

position or distance of DUT to SAM (if not standard head positions) : 10mm
 ambient temperature: 24.5°C; liquid temperature: 23.5°C

Date/Time: 17.08.2011 15:32:58 Date/Time: 17.08.2011 15:39:57

IEEE1528_OET65-Body-GSM850 GPRS 4TS

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: PCS 850 GPRS 4TS; Frequency: 848.8 MHz; Duty Cycle: 1:2

Medium: M850 Medium parameters used: $f = 848.8 \text{ MHz}$; $\sigma = 1 \text{ mho/m}$; $\epsilon_r = 54.6$; $\rho = 1000 \text{ kg/m}^3$

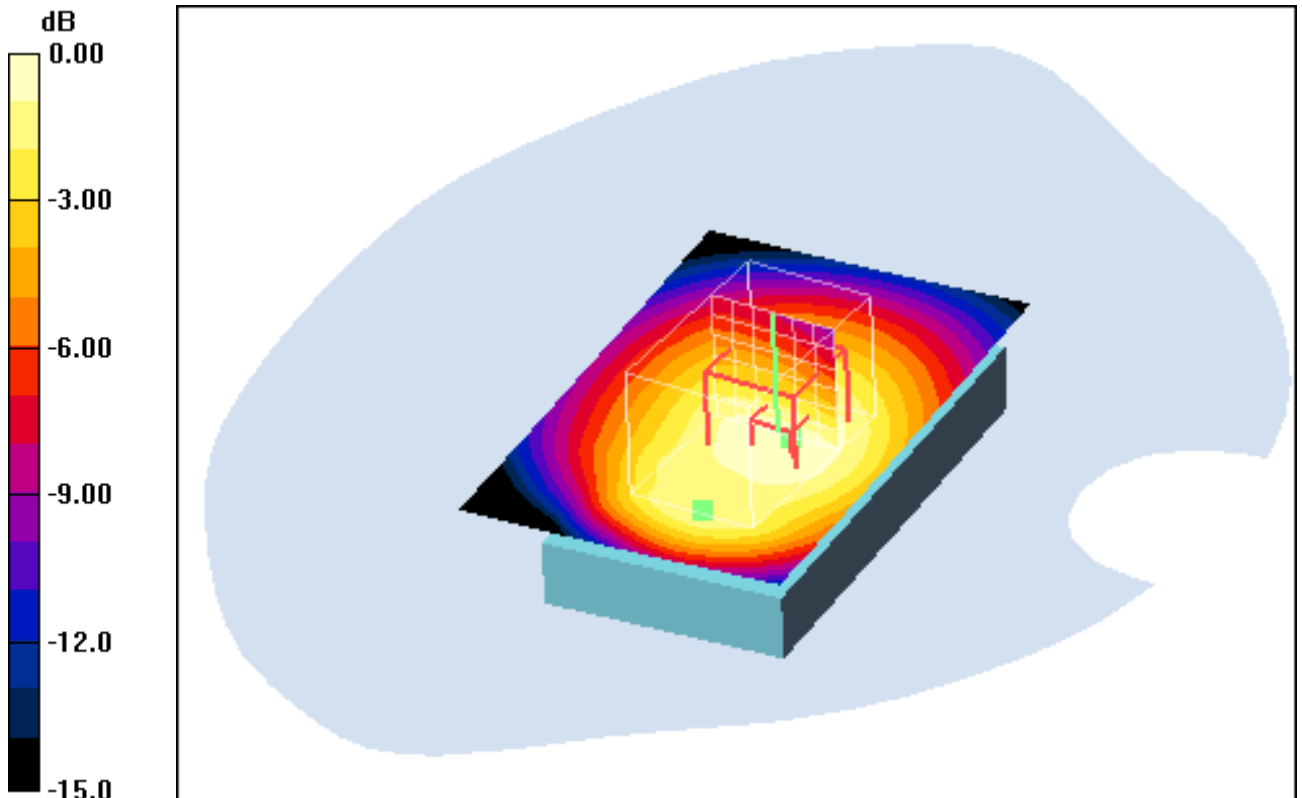
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(6.75, 6.75, 6.75); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Rear position - High/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
 Maximum value of SAR (interpolated) = 1.16 mW/g

Rear position - High/Zoom Scan (7x7x7) (7x11x7)/Cube 0: Measurement grid:
 $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
 Reference Value = 34.3 V/m; Power Drift = 0.018 dB
 Peak SAR (extrapolated) = 1.50 W/kg
SAR(1 g) = 1.1 mW/g; SAR(10 g) = 0.764 mW/g
 Maximum value of SAR (measured) = 1.17 mW/g



0 dB = 1.17mW/g

Additional information:

position or distance of DUT to SAM (if not standard head positions) : 10mm
 ambient temperature: 24.5°C; liquid temperature: 23.5°C

Date/Time: 17.08.2011 14:12:18 Date/Time: 17.08.2011 14:21:09

IEEE1528_OET65-Body-GSM850 GPRS 4TS

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: PCS 850 GPRS 4TS; Frequency: 836.6 MHz; Duty Cycle: 1:2

Medium: M850 Medium parameters used: $f = 836.6 \text{ MHz}$; $\sigma = 0.98 \text{ mho/m}$; $\epsilon_r = 54.7$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(6.75, 6.75, 6.75); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Edge left position - Middle/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.295 mW/g

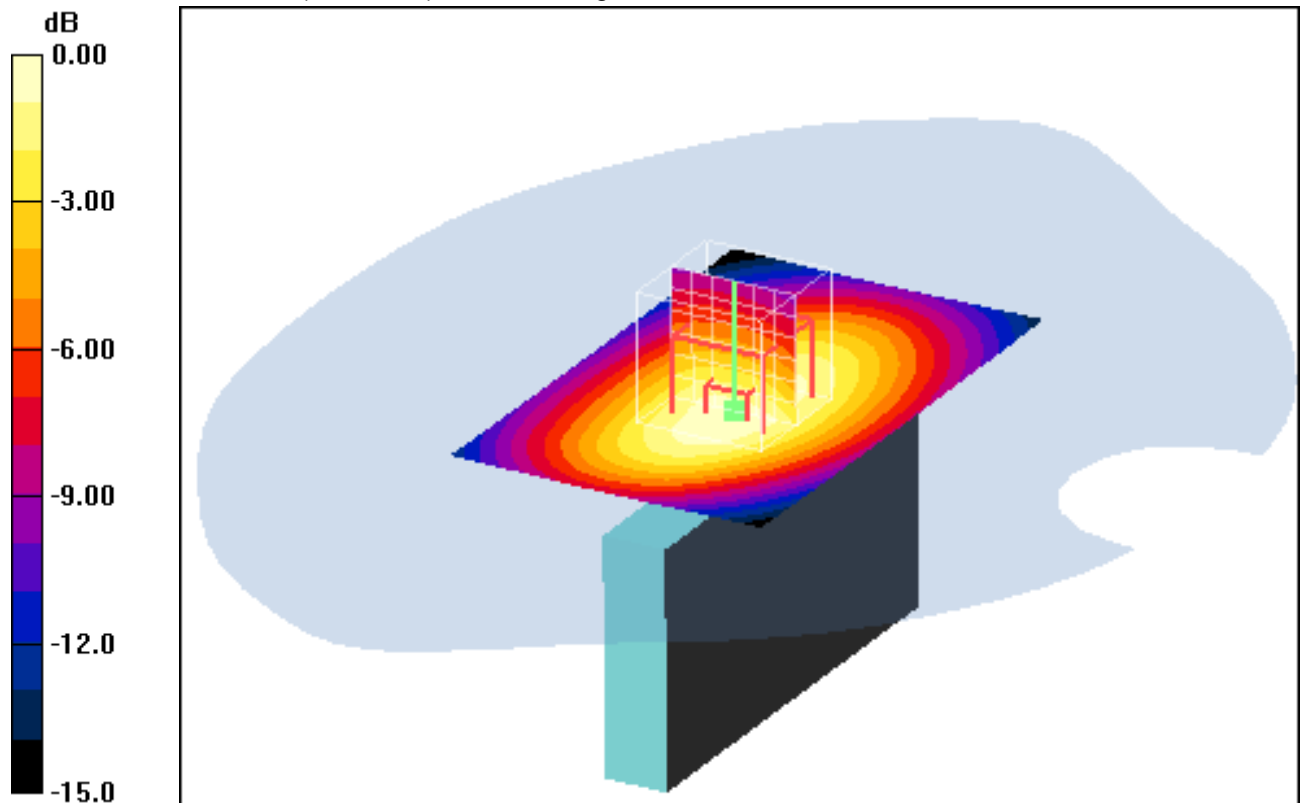
Edge left position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 17.4 V/m; Power Drift = -0.043 dB

Peak SAR (extrapolated) = 0.382 W/kg

SAR(1 g) = 0.274 mW/g; SAR(10 g) = 0.185 mW/g

Maximum value of SAR (measured) = 0.297 mW/g



0 dB = 0.297mW/g

Additional information:

position or distance of DUT to SAM (if not standard head positions) : 10mm

ambient temperature: 24.5°C; liquid temperature: 23.5°C

Date/Time: 17.08.2011 14:35:19 Date/Time: 17.08.2011 14:41:58

IEEE1528_OET65-Body-GSM850 GPRS 4TS

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: PCS 850 GPRS 4TS; Frequency: 836.6 MHz; Duty Cycle: 1:2

Medium: M850 Medium parameters used: $f = 836.6 \text{ MHz}$; $\sigma = 0.98 \text{ mho/m}$; $\epsilon_r = 54.7$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(6.75, 6.75, 6.75); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Edge right position - Middle/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.338 mW/g

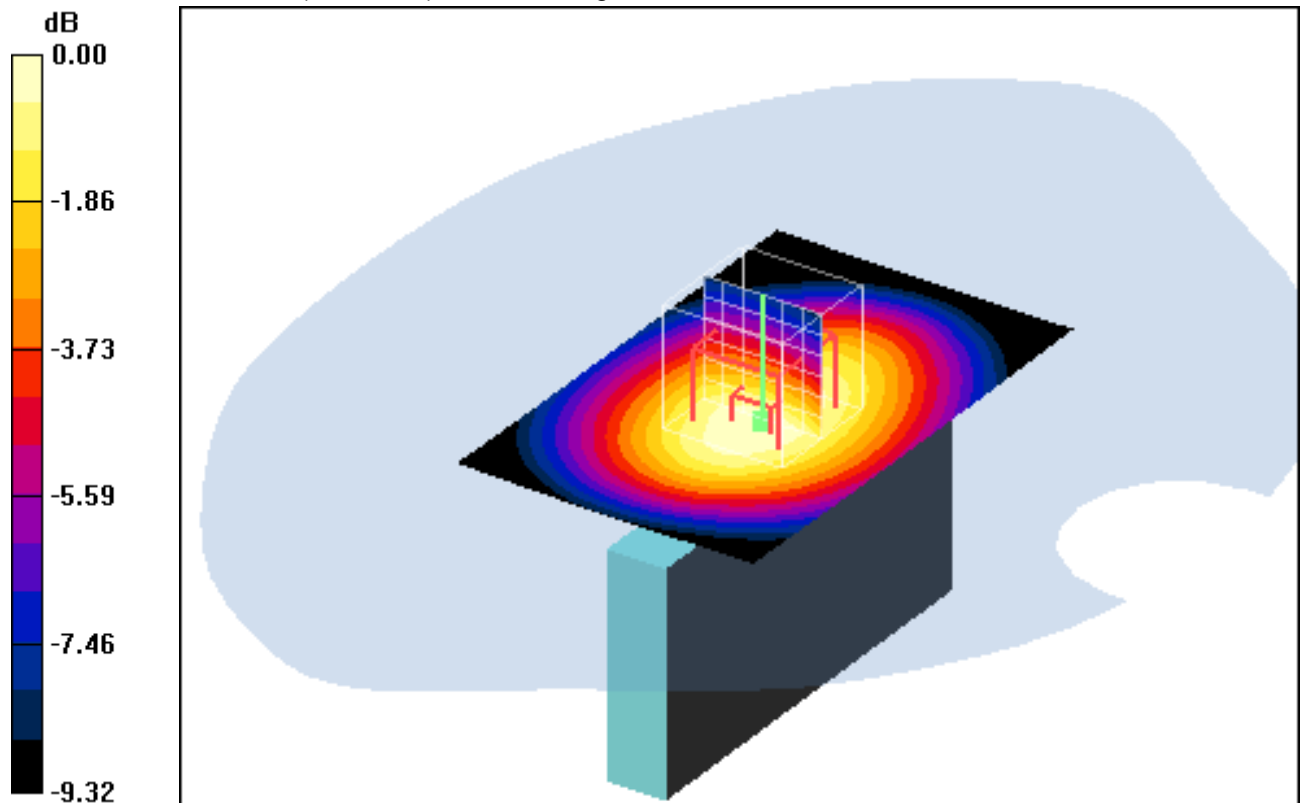
Edge right position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 18.9 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.410 W/kg

SAR(1 g) = 0.312 mW/g; SAR(10 g) = 0.221 mW/g

Maximum value of SAR (measured) = 0.332 mW/g



0 dB = 0.332mW/g

Additional information:

position or distance of DUT to SAM (if not standard head positions) : 10mm

ambient temperature: 24.5°C; liquid temperature: 23.5°C

Date/Time: 17.08.2011 13:51:08 Date/Time: 17.08.2011 13:57:30

IEEE1528_OET65-Body-GSM850 GPRS 4TS

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: PCS 850 GPRS 4TS; Frequency: 836.6 MHz; Duty Cycle: 1:2

Medium: M850 Medium parameters used: $f = 836.6 \text{ MHz}$; $\sigma = 0.98 \text{ mho/m}$; $\epsilon_r = 54.7$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(6.75, 6.75, 6.75); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Edge bottom position - Middle/Area Scan (61x61x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.108 mW/g

Edge bottom position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

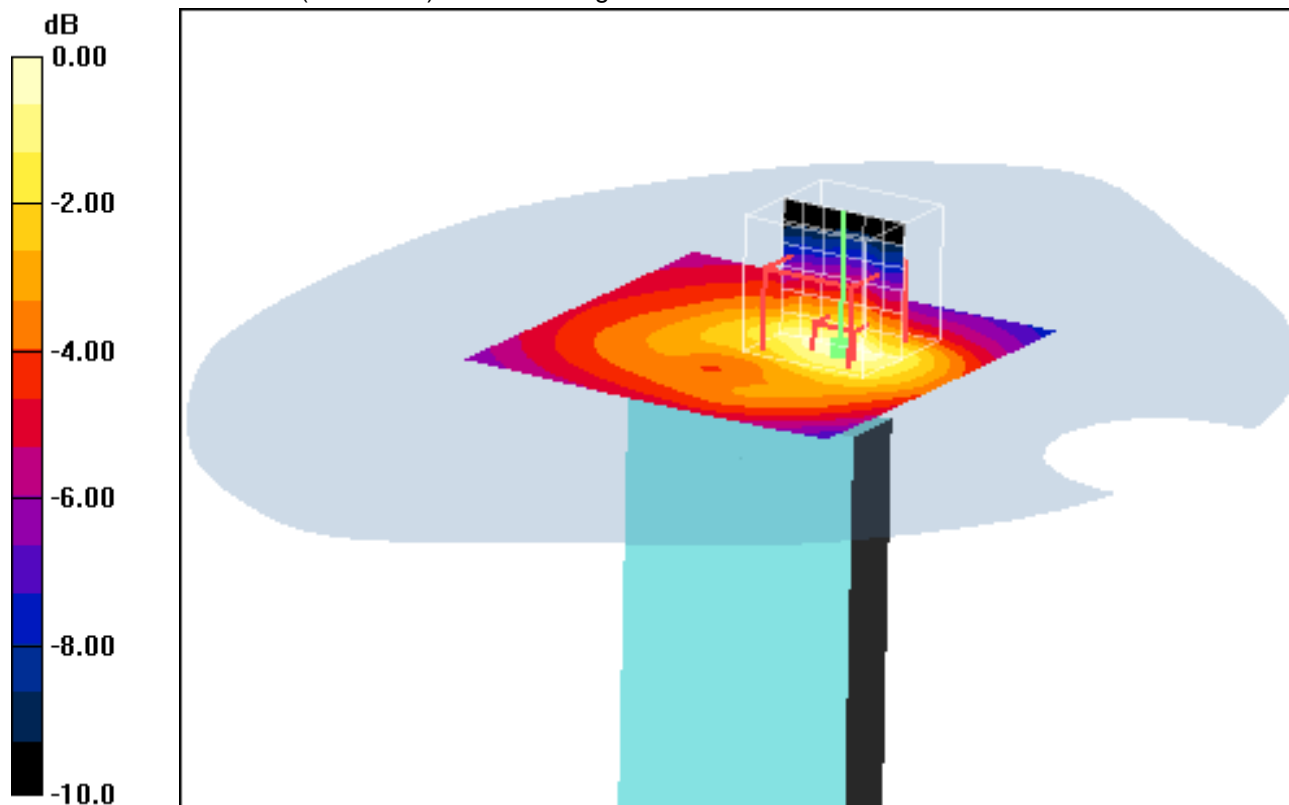
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 9.85 V/m; Power Drift = 0.16 dB

Peak SAR (extrapolated) = 0.154 W/kg

SAR(1 g) = 0.095 mW/g; SAR(10 g) = 0.057 mW/g

Maximum value of SAR (measured) = 0.104 mW/g



0 dB = 0.104mW/g

Additional information:

position or distance of DUT to SAM (if not standard head positions) : 10mm

ambient temperature: 24.5°C; liquid temperature: 23.5°C

Date/Time: 17.08.2011 16:31:11 Date/Time: 17.08.2011 16:38:18

IEEE1528_OET65-Body-GSM850 1TS

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: GSM 850; Frequency: 848.8 MHz; Duty Cycle: 1:8

Medium: M850 Medium parameters used: $f = 848.8 \text{ MHz}$; $\sigma = 1 \text{ mho/m}$; $\epsilon_r = 54.6$; $\rho = 1000 \text{ kg/m}^3$

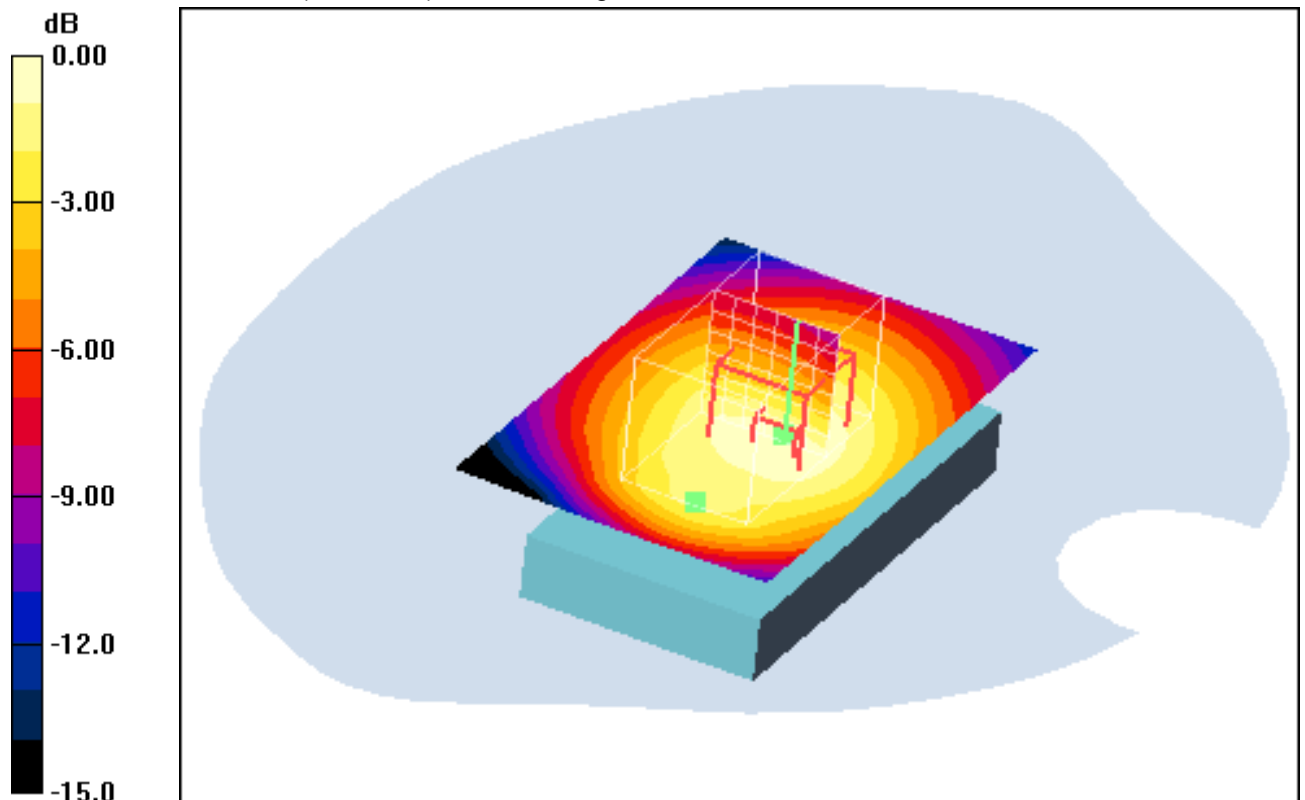
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(6.75, 6.75, 6.75); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Rear position - High/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
 Maximum value of SAR (interpolated) = 0.971 mW/g

Rear position - High/Zoom Scan (7x7x7) (7x12x7)/Cube 0: Measurement grid:
 $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
 Reference Value = 32.0 V/m; Power Drift = 0.042 dB
 Peak SAR (extrapolated) = 1.23 W/kg
SAR(1 g) = 0.922 mW/g; SAR(10 g) = 0.657 mW/g
 Maximum value of SAR (measured) = 0.990 mW/g



0 dB = 0.990mW/g

Additional information:

position or distance of DUT to SAM (if not standard head positions) : 15mm (with headset)
 ambient temperature: 24.5°C; liquid temperature: 23.5°C

Annex B.3: GSM 1900MHz head

Date/Time: 11.08.2011 13:43:00 Date/Time: 11.08.2011 13:48:41

IEEE1528_OET65-LeftHandSide-GSM1900

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: GSM 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8

Medium: HSL1900 Medium parameters used: $f = 1850.2 \text{ MHz}$; $\sigma = 1.34 \text{ mho/m}$; $\epsilon_r = 40.2$; $\rho = 1000 \text{ kg/m}^3$

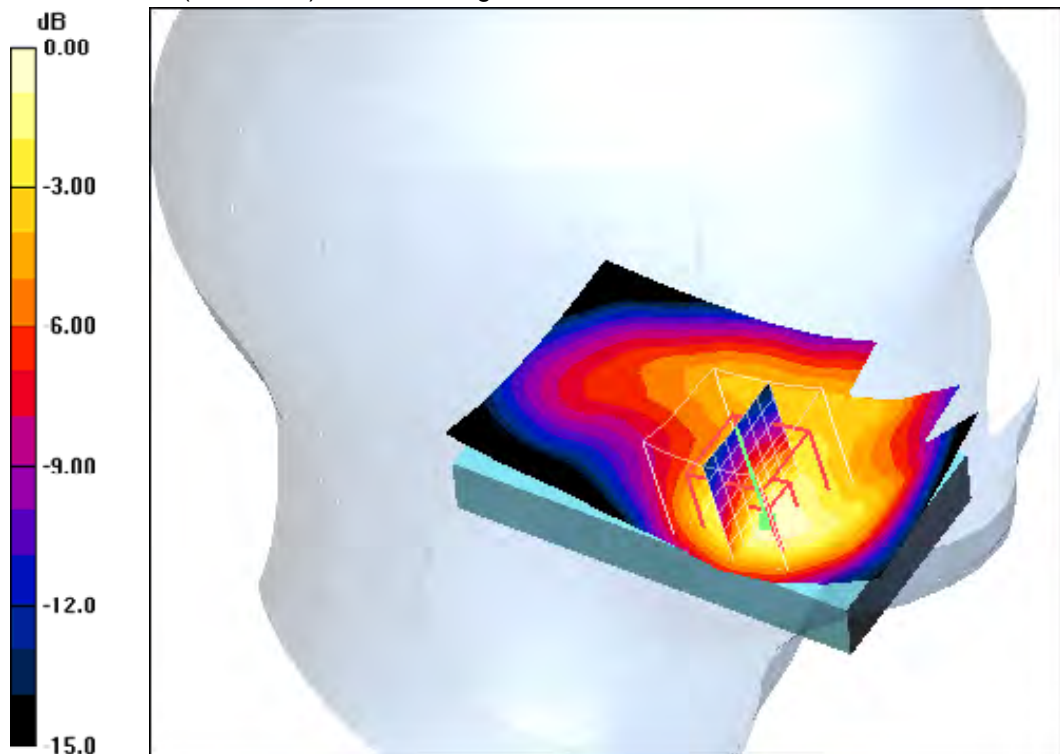
Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(5.16, 5.16, 5.16); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Touch position - Low/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
 Maximum value of SAR (interpolated) = 0.999 mW/g

Touch position - Low/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:
 $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
 Reference Value = 26.4 V/m; Power Drift = 0.049 dB
 Peak SAR (extrapolated) = 1.35 W/kg
SAR(1 g) = 0.892 mW/g; SAR(10 g) = 0.515 mW/g
 Maximum value of SAR (measured) = 0.987 mW/g



0 dB = 0.987mW/g

Additional information:

ambient temperature: 23.4°C; liquid temperature: 23.3°C

Date/Time: 11.08.2011 13:21:26 Date/Time: 11.08.2011 13:28:09

IEEE1528_OET65-LeftHandSide-GSM1900

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:8

Medium: HSL1900 Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.37 \text{ mho/m}$; $\epsilon_r = 40.1$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(5.16, 5.16, 5.16); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Touch position - Middle/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.766 mW/g

Touch position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

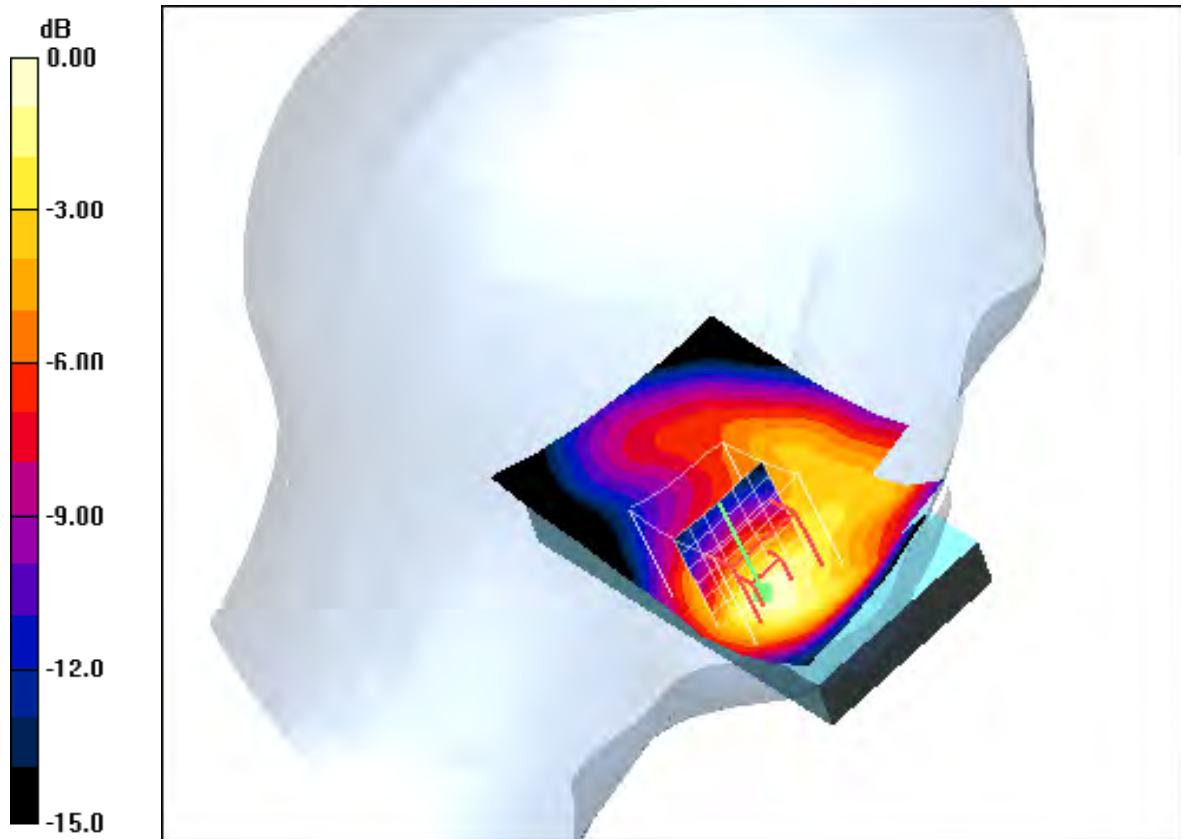
$dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 23.0 V/m; Power Drift = -0.051 dB

Peak SAR (extrapolated) = 1.04 W/kg

SAR(1 g) = 0.680 mW/g; SAR(10 g) = 0.393 mW/g

Maximum value of SAR (measured) = 0.746 mW/g



0 dB = 0.746mW/g

Additional information:

ambient temperature: 23.4°C; liquid temperature: 23.3°C

Date/Time: 11.08.2011 12:56:18 Date/Time: 11.08.2011 13:01:56

IEEE1528_OET65-LeftHandSide-GSM1900

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: GSM 1900; Frequency: 1909.8 MHz; Duty Cycle: 1:8

Medium: HSL1900 Medium parameters used: $f = 1909.8 \text{ MHz}$; $\sigma = 1.39 \text{ mho/m}$; $\epsilon_r = 40$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(5.16, 5.16, 5.16); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Touch position - High/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.659 mW/g

Touch position - High/Zoom Scan (7x7x7) (8x8x7)/Cube 0: Measurement grid:

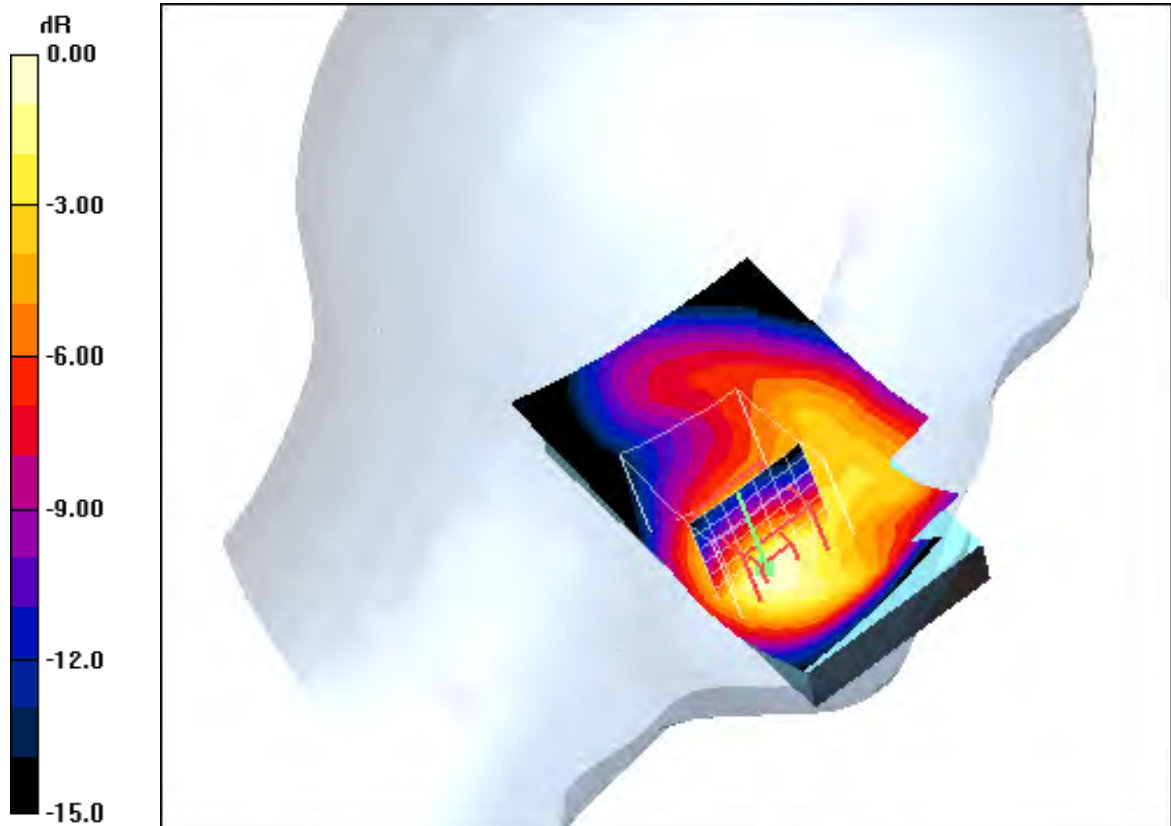
$dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 21.0 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.892 W/kg

SAR(1 g) = 0.583 mW/g; SAR(10 g) = 0.335 mW/g

Maximum value of SAR (measured) = 0.646 mW/g



0 dB = 0.646mW/g

Additional information:

ambient temperature: 23.4°C; liquid temperature: 23.3°C

Date/Time: 11.08.2011 11:35:21 Date/Time: 11.08.2011 11:49:37

IEEE1528_OET65-LeftHandSide-GSM1900

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: GSM 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8

Medium: HSL1900 Medium parameters used: $f = 1850.2 \text{ MHz}$; $\sigma = 1.34 \text{ mho/m}$; $\epsilon_r = 40.2$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(5.16, 5.16, 5.16); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Tilt position - Low/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.399 mW/g

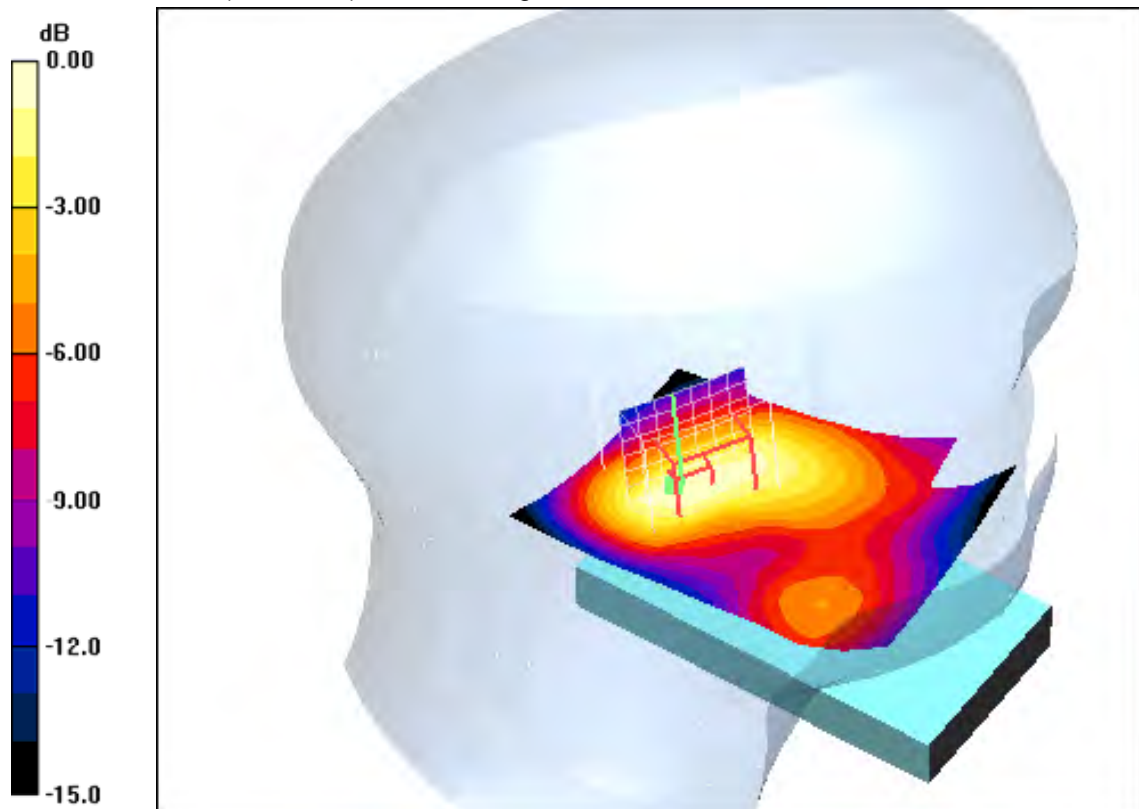
Tilt position - Low/Zoom Scan (7x7x7) (8x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 17.2 V/m; Power Drift = -0.00 dB

Peak SAR (extrapolated) = 0.493 W/kg

SAR(1 g) = 0.349 mW/g; SAR(10 g) = 0.217 mW/g

Maximum value of SAR (measured) = 0.383 mW/g



0 dB = 0.383mW/g

Additional information:

ambient temperature: 23.4°C; liquid temperature: 23.3°C

Date/Time: 11.08.2011 12:04:07 Date/Time: 11.08.2011 12:11:51

IEEE1528_OET65-LeftHandSide-GSM1900

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:8

Medium: HSL1900 Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.37 \text{ mho/m}$; $\epsilon_r = 40.1$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(5.16, 5.16, 5.16); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Tilt position - Middle/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.294 mW/g

Tilt position - Middle/Zoom Scan (7x7x7) (8x7x7)/Cube 0: Measurement grid:

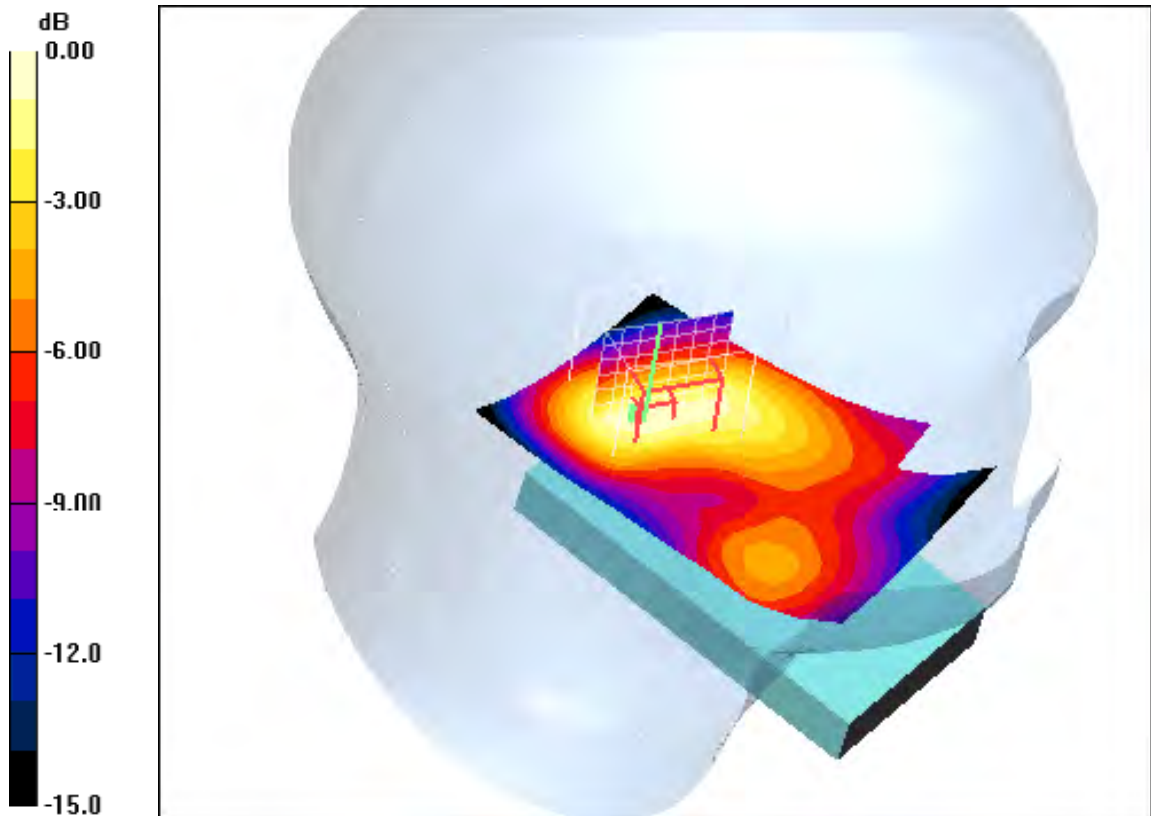
$dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 14.6 V/m; Power Drift = -0.033 dB

Peak SAR (extrapolated) = 0.378 W/kg

SAR(1 g) = 0.260 mW/g; SAR(10 g) = 0.159 mW/g

Maximum value of SAR (measured) = 0.286 mW/g



0 dB = 0.286mW/g

Additional information:

ambient temperature: 23.4°C; liquid temperature: 23.3°C

Date/Time: 11.08.2011 12:33:33 Date/Time: 11.08.2011 12:40:55

IEEE1528_OET65-LeftHandSide-GSM1900

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: GSM 1900; Frequency: 1909.8 MHz; Duty Cycle: 1:8

Medium: HSL1900 Medium parameters used: $f = 1909.8 \text{ MHz}$; $\sigma = 1.39 \text{ mho/m}$; $\epsilon_r = 40$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(5.16, 5.16, 5.16); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Tilt position - High/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.253 mW/g

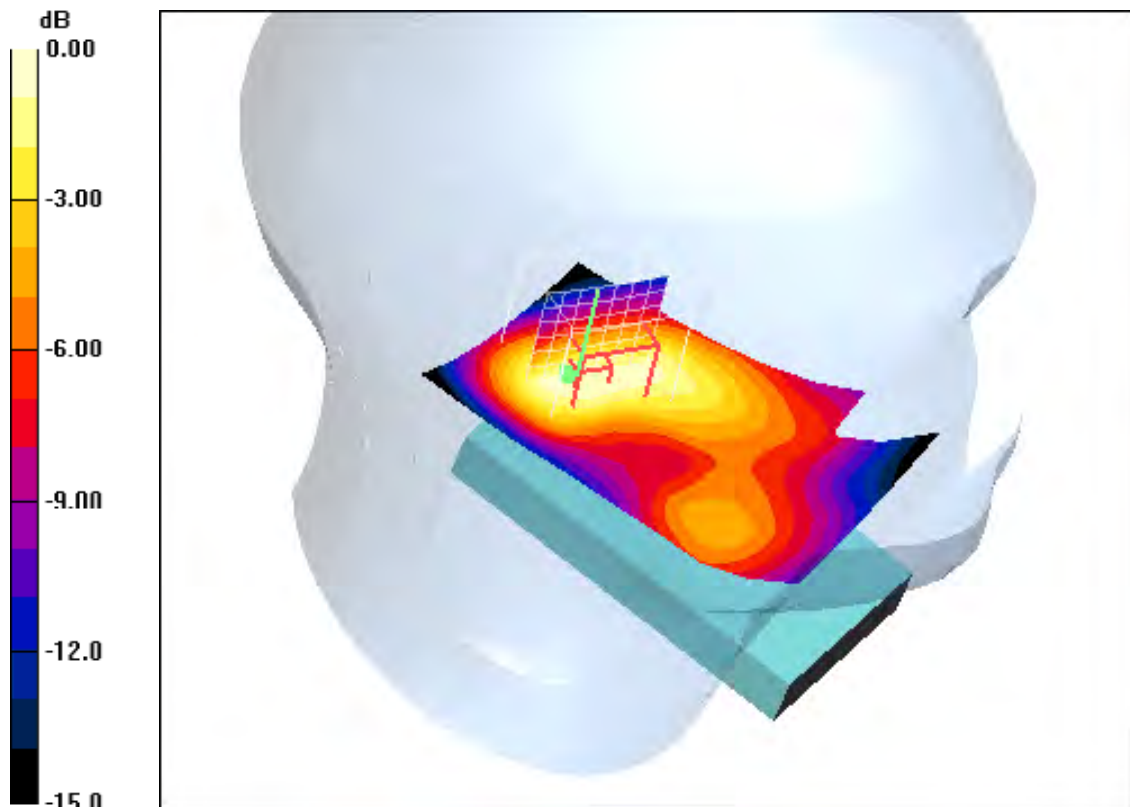
Tilt position - High/Zoom Scan (7x7x7) (8x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 13.3 V/m; Power Drift = -0.023 dB

Peak SAR (extrapolated) = 0.320 W/kg

SAR(1 g) = 0.221 mW/g; SAR(10 g) = 0.134 mW/g

Maximum value of SAR (measured) = 0.243 mW/g



0 dB = 0.243mW/g

Additional information:

ambient temperature: 23.4°C; liquid temperature: 23.3°C

Date/Time: 11.08.2011 08:40:55 Date/Time: 11.08.2011 08:47:21

IEEE1528_OET65-RightHandSide-GSM1900

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: GSM 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8

Medium: HSL1900 Medium parameters used: $f = 1850.2 \text{ MHz}$; $\sigma = 1.34 \text{ mho/m}$; $\epsilon_r = 40.2$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(5.16, 5.16, 5.16); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Touch position - Low/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.770 mW/g

Touch position - Low/Zoom Scan (7x7x7) (11x7x7)/Cube 0: Measurement grid:

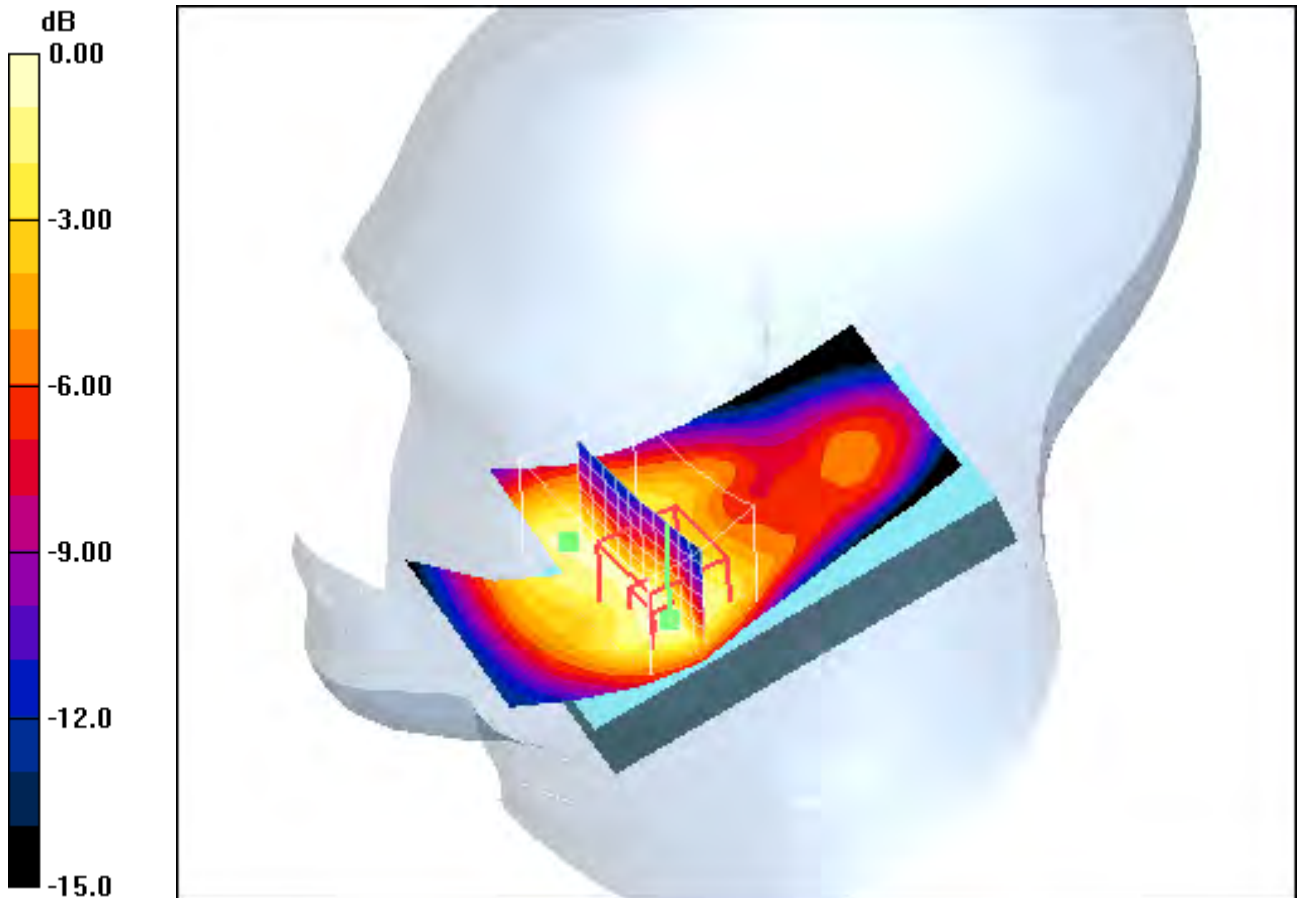
dx=5mm, dy=5mm, dz=5mm

Reference Value = 24.3 V/m; Power Drift = -0.065 dB

Peak SAR (extrapolated) = 1.02 W/kg

SAR(1 g) = 0.737 mW/g; SAR(10 g) = 0.447 mW/g

Maximum value of SAR (measured) = 0.802 mW/g



0 dB = 0.802mW/g

Additional information:

ambient temperature: 23.4°C; liquid temperature: 23.3°C

Date/Time: 11.08.2011 09:08:16 Date/Time: 11.08.2011 09:17:13

IEEE1528_OET65-RightHandSide-GSM1900

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:8

Medium: HSL1900 Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.37 \text{ mho/m}$; $\epsilon_r = 40.1$; $\rho = 1000 \text{ kg/m}^3$

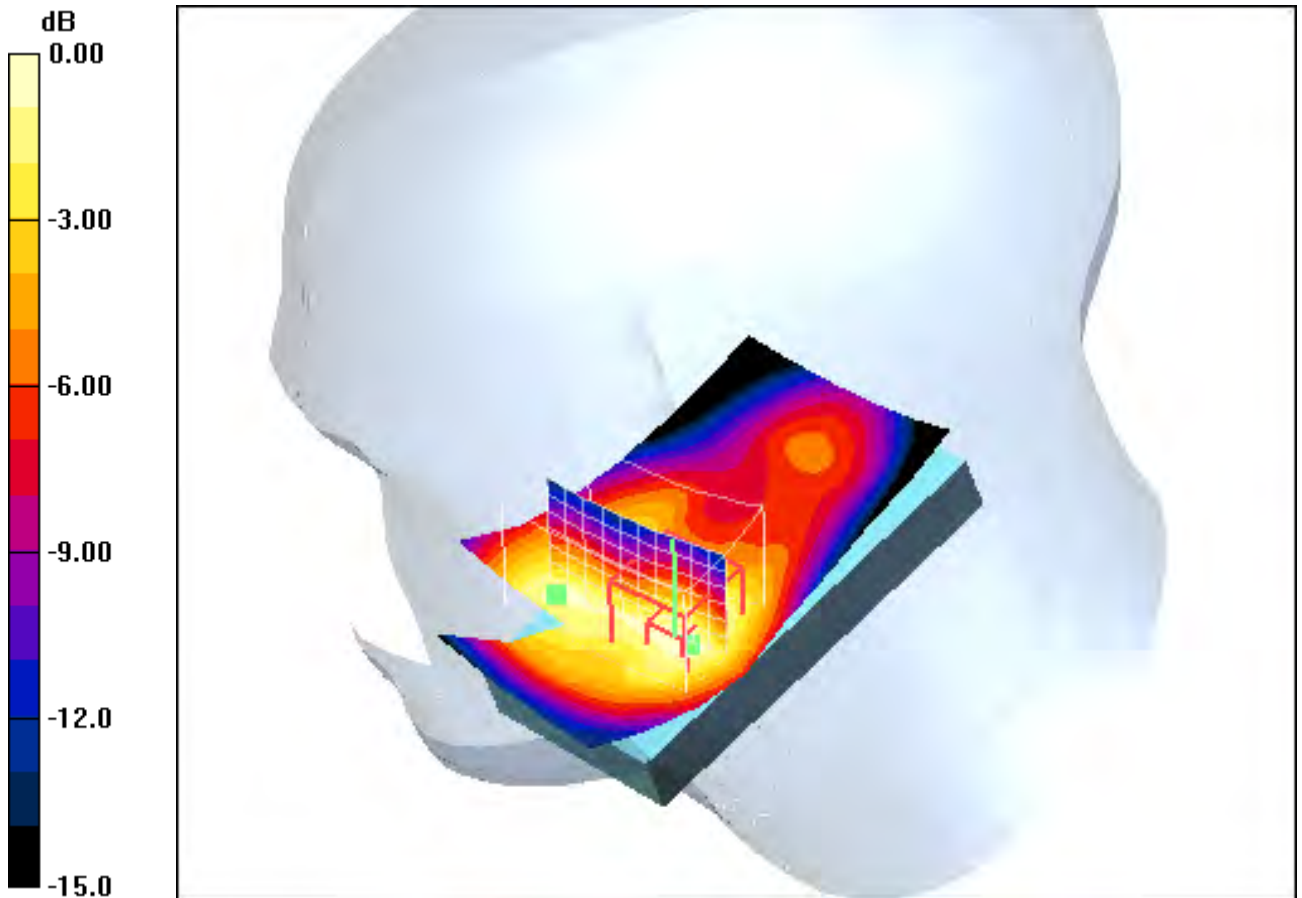
Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(5.16, 5.16, 5.16); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Touch position - Middle/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
 Maximum value of SAR (interpolated) = 0.606 mW/g

Touch position - Middle/Zoom Scan (7x7x7) (11x7x7)/Cube 0: Measurement grid:
 $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
 Reference Value = 21.3 V/m; Power Drift = -0.016 dB
 Peak SAR (extrapolated) = 0.809 W/kg
SAR(1 g) = 0.582 mW/g; SAR(10 g) = 0.351 mW/g
 Maximum value of SAR (measured) = 0.641 mW/g



0 dB = 0.641mW/g

Additional information:

ambient temperature: 23.4°C; liquid temperature: 23.3°C

Date/Time: 11.08.2011 09:38:30 Date/Time: 11.08.2011 09:45:37

IEEE1528_OET65-RightHandSide-GSM1900

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: GSM 1900; Frequency: 1909.8 MHz; Duty Cycle: 1:8

Medium: HSL1900 Medium parameters used: $f = 1909.8 \text{ MHz}$; $\sigma = 1.39 \text{ mho/m}$; $\epsilon_r = 40$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(5.16, 5.16, 5.16); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Touch position - High/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.533 mW/g

Touch position - High/Zoom Scan (7x7x7) (11x7x7)/Cube 0: Measurement grid:

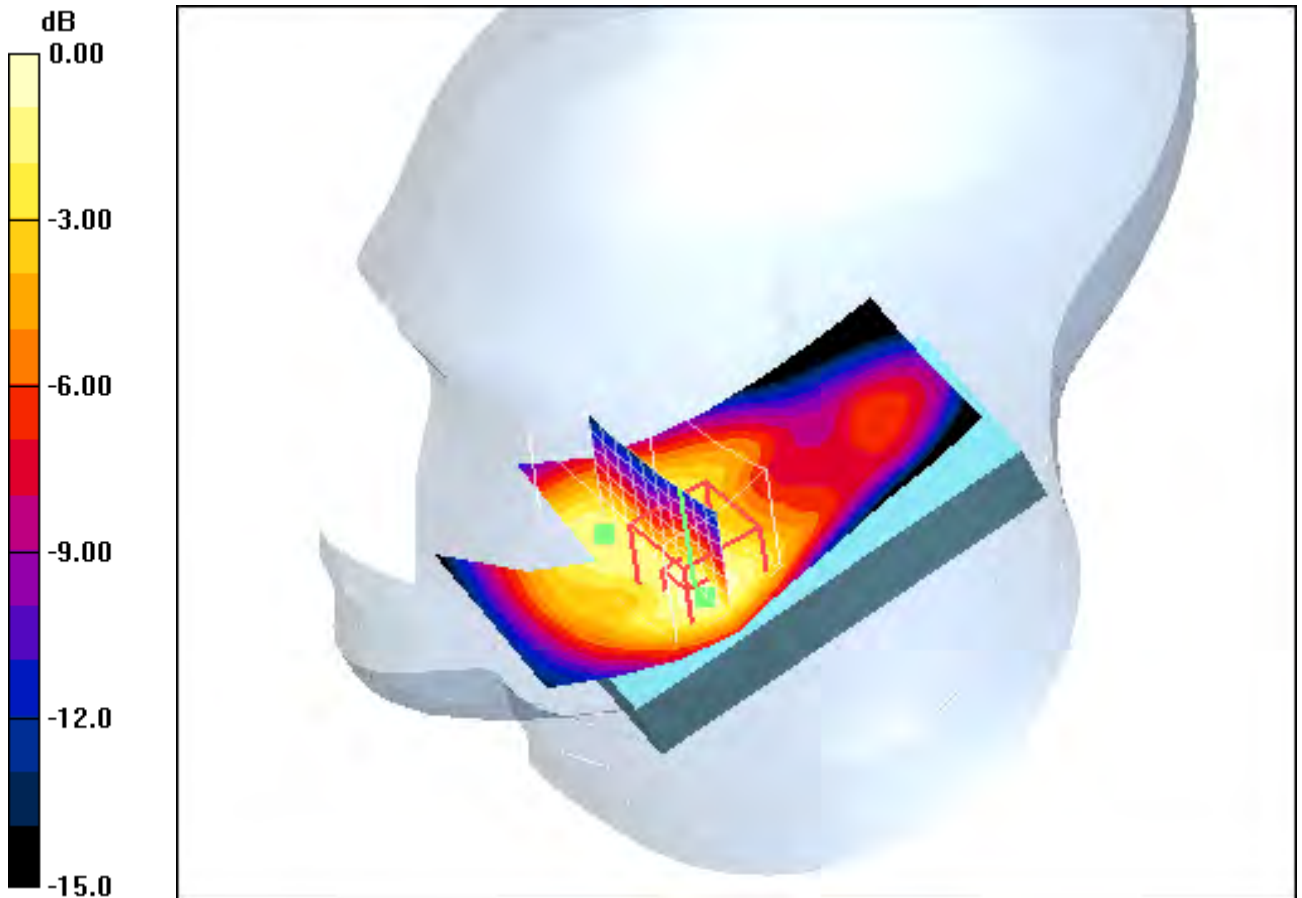
$dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 19.6 V/m; Power Drift = 0.011 dB

Peak SAR (extrapolated) = 0.724 W/kg

SAR(1 g) = 0.511 mW/g; SAR(10 g) = 0.305 mW/g

Maximum value of SAR (measured) = 0.566 mW/g



0 dB = 0.566mW/g

Additional information:

ambient temperature: 23.4°C; liquid temperature: 23.3°C

Date/Time: 11.08.2011 10:53:04 Date/Time: 11.08.2011 10:58:46

IEEE1528_OET65-RightHandSide-GSM1900

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: GSM 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8

Medium: HSL1900 Medium parameters used: $f = 1850.2 \text{ MHz}$; $\sigma = 1.34 \text{ mho/m}$; $\epsilon_r = 40.2$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(5.16, 5.16, 5.16); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Tilt position - Low/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.383 mW/g

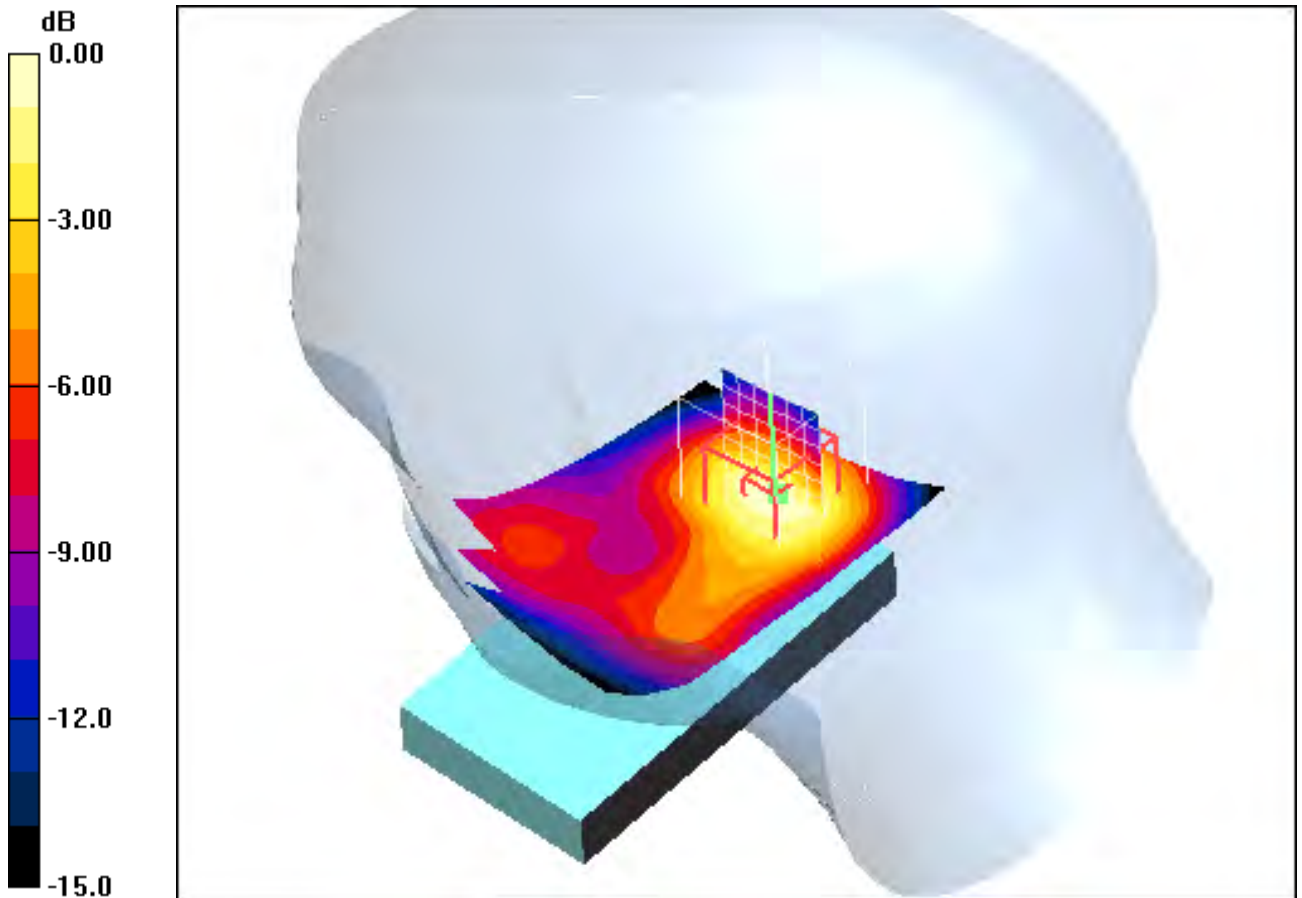
Tilt position - Low/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 16.2 V/m; Power Drift = -0.031 dB

Peak SAR (extrapolated) = 0.458 W/kg

SAR(1 g) = 0.323 mW/g; SAR(10 g) = 0.196 mW/g

Maximum value of SAR (measured) = 0.359 mW/g



0 dB = 0.359mW/g

Additional information:

ambient temperature: 23.4°C; liquid temperature: 23.3°C

Date/Time: 11.08.2011 10:32:55 Date/Time: 11.08.2011 10:39:27

IEEE1528_OET65-RightHandSide-GSM1900

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:8

Medium: HSL1900 Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.37 \text{ mho/m}$; $\epsilon_r = 40.1$; $\rho = 1000 \text{ kg/m}^3$

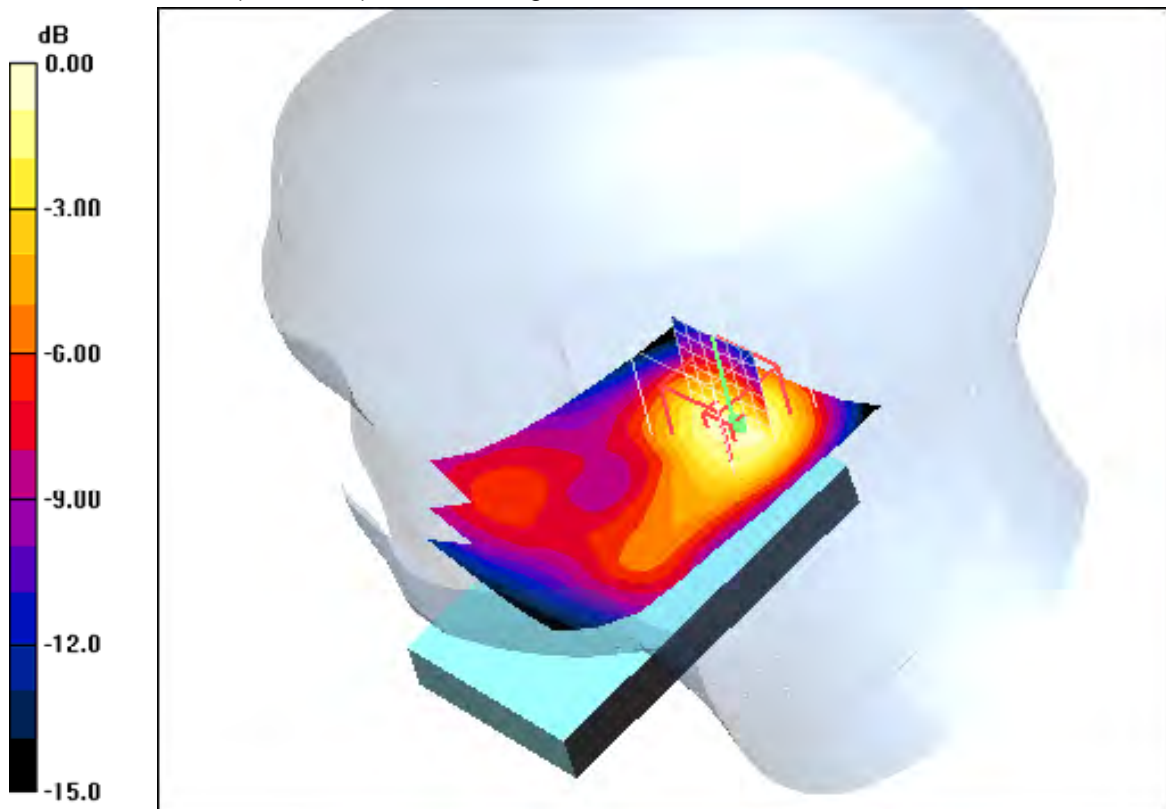
Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(5.16, 5.16, 5.16); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Tilt position - Middle/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
 Maximum value of SAR (interpolated) = 0.302 mW/g

Tilt position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:
 $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
 Reference Value = 14.3 V/m; Power Drift = -0.063 dB
 Peak SAR (extrapolated) = 0.370 W/kg
SAR(1 g) = 0.258 mW/g; SAR(10 g) = 0.155 mW/g
 Maximum value of SAR (measured) = 0.287 mW/g



0 dB = 0.287mW/g

Additional information:

ambient temperature: 23.4°C; liquid temperature: 23.3°C

Date/Time: 11.08.2011 10:09:07 Date/Time: 11.08.2011 10:15:45

IEEE1528_OET65-RightHandSide-GSM1900

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: GSM 1900; Frequency: 1909.8 MHz; Duty Cycle: 1:8

Medium: HSL1900 Medium parameters used: $f = 1909.8 \text{ MHz}$; $\sigma = 1.39 \text{ mho/m}$; $\epsilon_r = 40$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(5.16, 5.16, 5.16); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Tilt position - High/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.272 mW/g

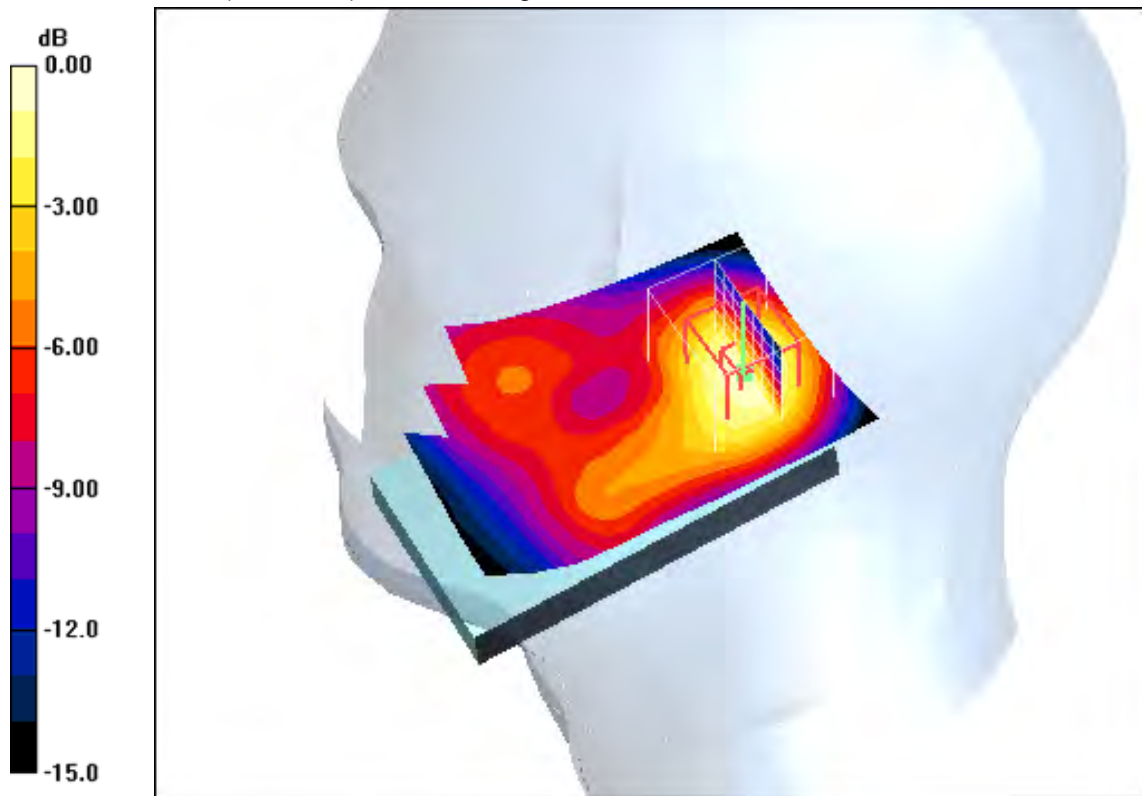
Tilt position - High/Zoom Scan (7x7x7) (8x8x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 13.4 V/m; Power Drift = -0.028 dB

Peak SAR (extrapolated) = 0.329 W/kg

SAR(1 g) = 0.226 mW/g; SAR(10 g) = 0.134 mW/g

Maximum value of SAR (measured) = 0.250 mW/g



0 dB = 0.250mW/g

Additional information:

ambient temperature: 23.4°C; liquid temperature: 23.3°C

Annex B.4: GSM 1900MHz body

Date/Time: 14.08.2011 08:48:49 Date/Time: 14.08.2011 08:57:02

IEEE1528_OET65-Body-GSM1900 GPRS 4TS

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: PCS 1900 GPRS 4TS; Frequency: 1850.2 MHz; Duty Cycle: 1:2

Medium: M1900 Medium parameters used: $f = 1850.2 \text{ MHz}$; $\sigma = 1.47 \text{ mho/m}$; $\epsilon_r = 52.8$; $\rho = 1000 \text{ kg/m}^3$

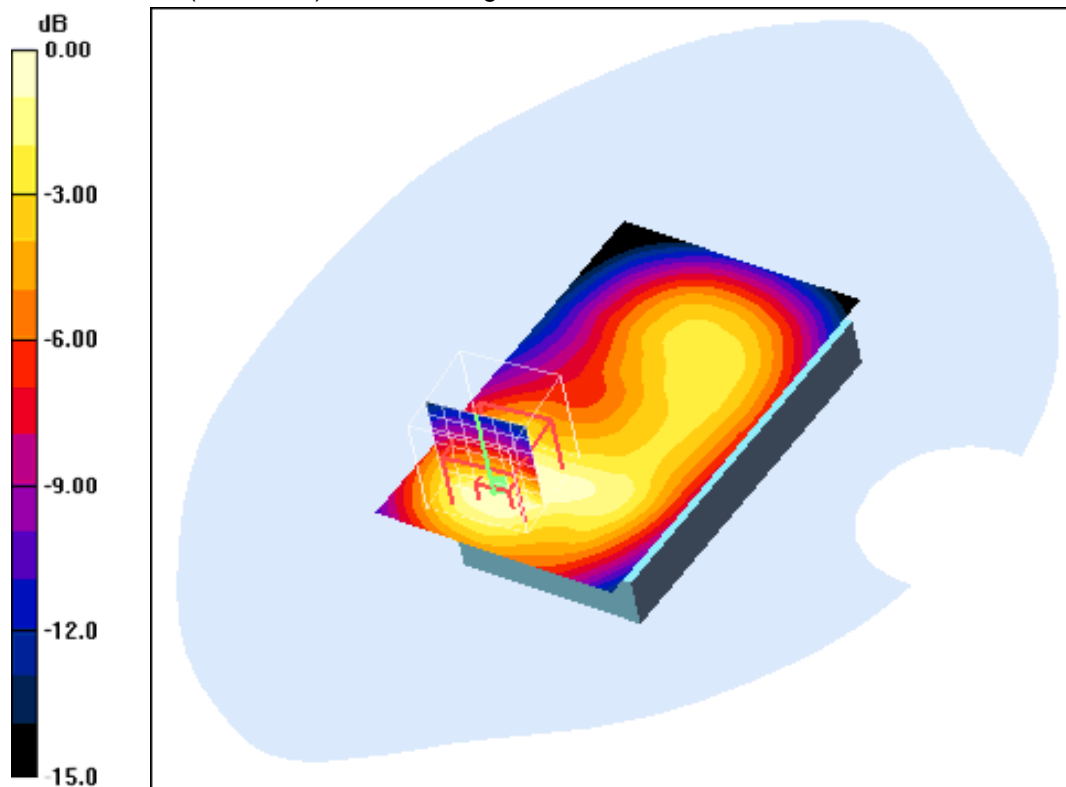
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(4.42, 4.42, 4.42); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Front position - Low/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
 Maximum value of SAR (interpolated) = 1.05 mW/g

Front position - Low/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:
 $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
 Reference Value = 26.3 V/m; Power Drift = -0.191 dB
 Peak SAR (extrapolated) = 1.46 W/kg
SAR(1 g) = 0.914 mW/g; SAR(10 g) = 0.547 mW/g
 Maximum value of SAR (measured) = 0.987 mW/g



0 dB = 0.987mW/g

Additional information:

position or distance of DUT to SAM: 10mm

ambient temperature: 23.4°C; liquid temperature: 23.5°C

Date/Time: 14.08.2011 09:10:18 Date/Time: 14.08.2011 09:17:02

IEEE1528_OET65-Body-GSM1900 GPRS 4TS

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: PCS 1900 GPRS 4TS; Frequency: 1880 MHz; Duty Cycle: 1:2

Medium: M1900 Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.5 \text{ mho/m}$; $\epsilon_r = 52.7$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(4.42, 4.42, 4.42); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Front position - Middle/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.763 mW/g

Front position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

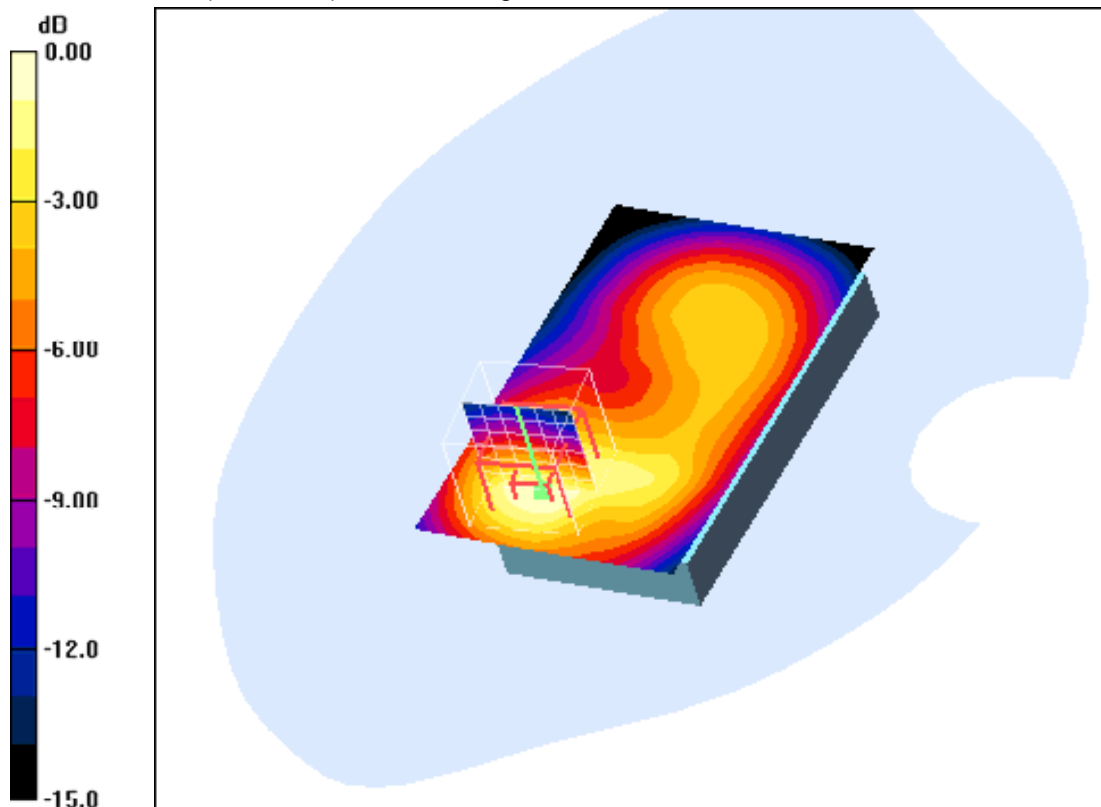
$dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 22.1 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 1.08 W/kg

SAR(1 g) = 0.682 mW/g; SAR(10 g) = 0.400 mW/g

Maximum value of SAR (measured) = 0.752 mW/g



0 dB = 0.752mW/g

Additional information:

position or distance of DUT to SAM: 10mm

ambient temperature: 23.4°C; liquid temperature: 23.5°C

Date/Time: 14.08.2011 09:29:55 Date/Time: 14.08.2011 09:37:12

IEEE1528_OET65-Body-GSM1900 GPRS 4TS**DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB**

Communication System: PCS 1900 GPRS 4TS; Frequency: 1909.8 MHz; Duty Cycle: 1:2

Medium: M1900 Medium parameters used: $f = 1909.8$ MHz; $\sigma = 1.53$ mho/m; $\epsilon_r = 52.6$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(4.42, 4.42, 4.42); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Front position - High/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.576 mW/g

Front position - High/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

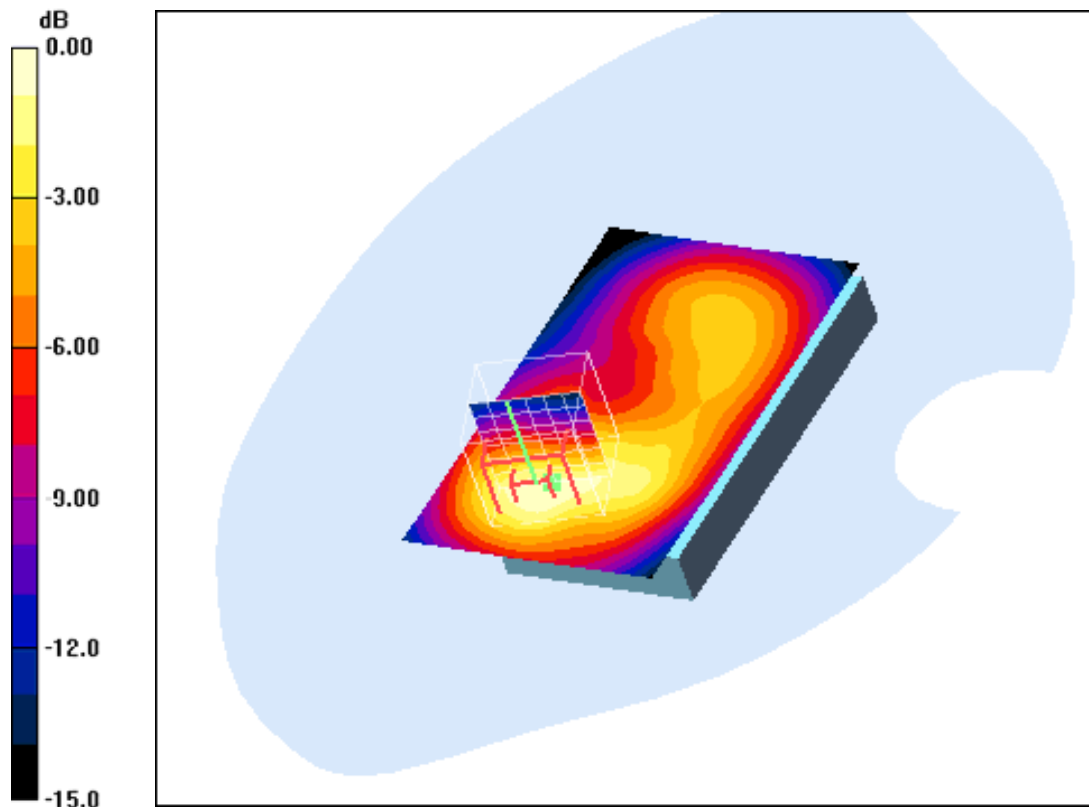
dx=5mm, dy=5mm, dz=5mm

Reference Value = 20.7 V/m; Power Drift = -0.059 dB

Peak SAR (extrapolated) = 0.875 W/kg

SAR(1 g) = 0.537 mW/g; SAR(10 g) = 0.313 mW/g

Maximum value of SAR (measured) = 0.590 mW/g



0 dB = 0.590mW/g

Additional information:

position or distance of DUT to SAM: 10mm

ambient temperature: 23.4°C; liquid temperature: 23.5°C

Date/Time: 14.08.2011 09:53:41 Date/Time: 14.08.2011 10:00:44

IEEE1528_OET65-Body-GSM1900 GPRS 4TS

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: PCS 1900 GPRS 4TS; Frequency: 1850.2 MHz; Duty Cycle: 1:2

Medium: M1900 Medium parameters used: $f = 1850.2 \text{ MHz}$; $\sigma = 1.47 \text{ mho/m}$; $\epsilon_r = 52.8$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(4.42, 4.42, 4.42); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Rear position - Low/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Rear position - Low/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

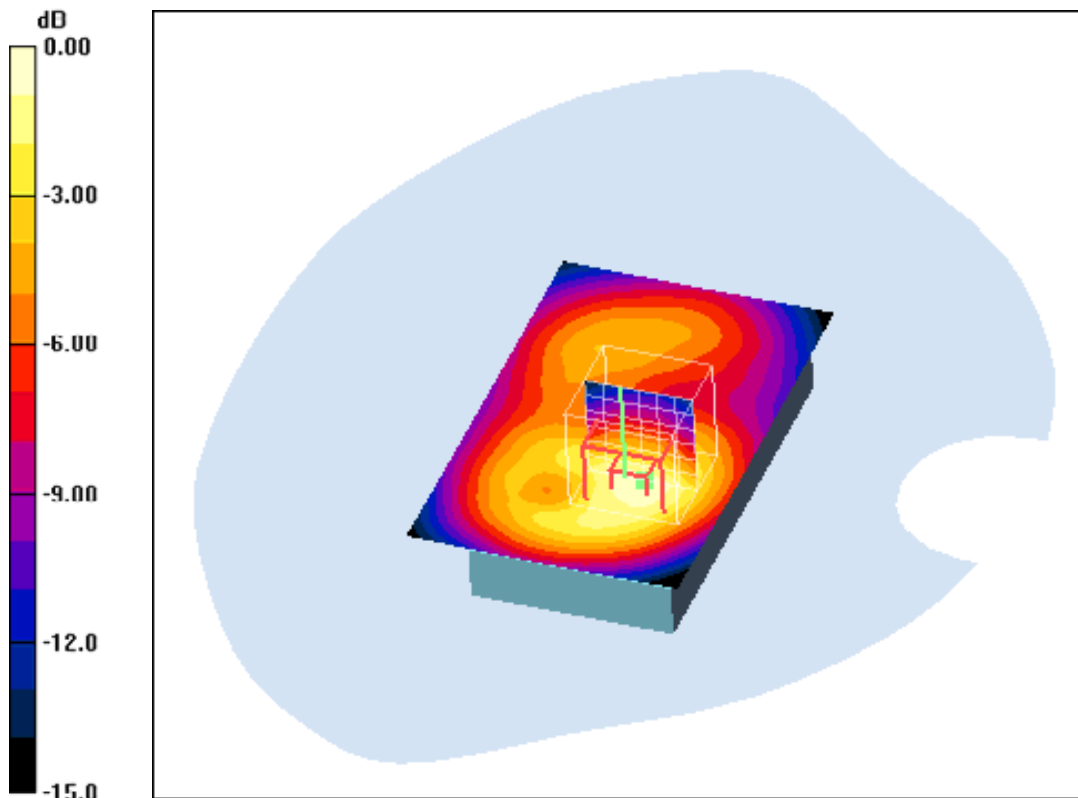
$dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 29.1 V/m; Power Drift = -0.109 dB

Peak SAR (extrapolated) = 1.54 W/kg

SAR(1 g) = 1.05 mW/g; SAR(10 g) = 0.631 mW/g

Maximum value of SAR (measured) = 1.16 mW/g



0 dB = 1.16mW/g

Additional information:

position or distance of DUT to SAM: 10mm

ambient temperature: 23.4°C; liquid temperature: 23.5°C

Date/Time: 14.08.2011 10:13:36 Date/Time: 14.08.2011 10:20:47

IEEE1528_OET65-Body-GSM1900 GPRS 4TS

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: PCS 1900 GPRS 4TS; Frequency: 1880 MHz; Duty Cycle: 1:2

Medium: M1900 Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.5 \text{ mho/m}$; $\epsilon_r = 52.7$; $\rho = 1000 \text{ kg/m}^3$

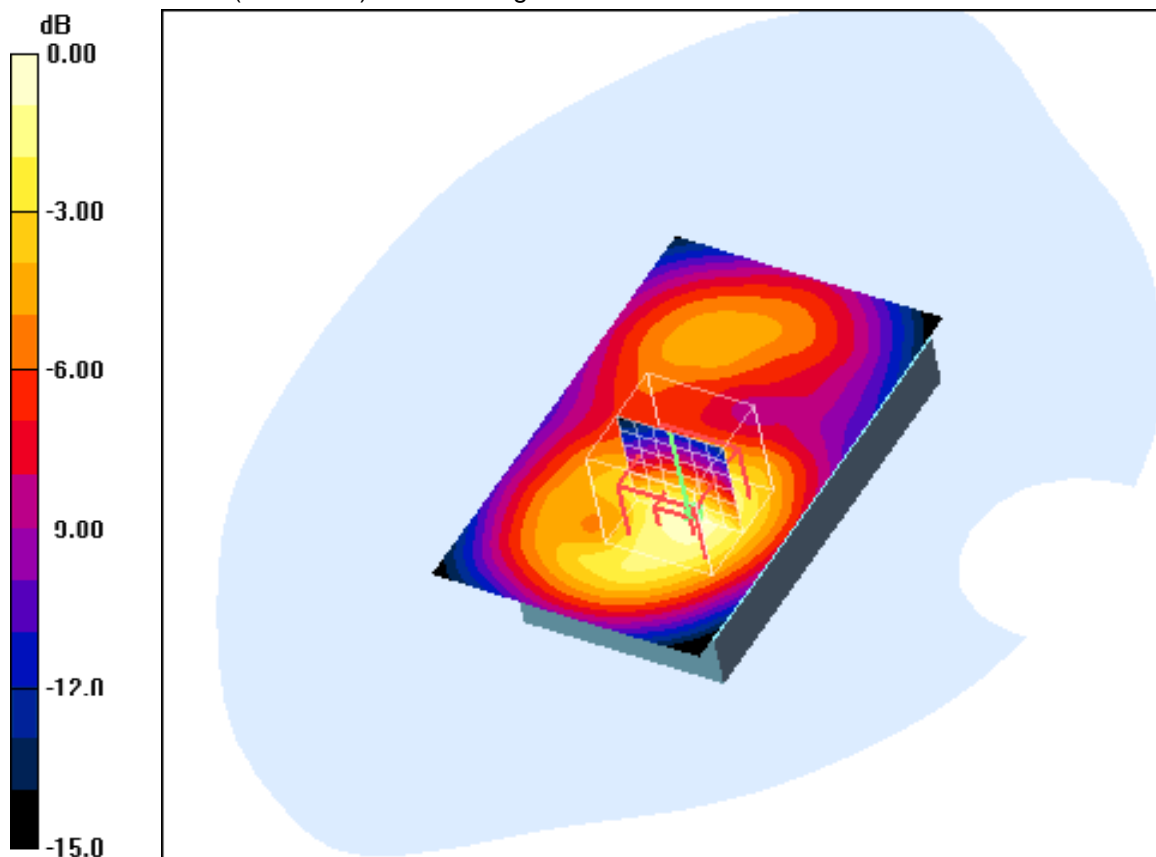
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(4.42, 4.42, 4.42); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Rear position - Middle/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
 Maximum value of SAR (interpolated) = 0.976 mW/g

Rear position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:
 $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
 Reference Value = 26.2 V/m; Power Drift = -0.026 dB
 Peak SAR (extrapolated) = 1.42 W/kg
SAR(1 g) = 0.923 mW/g; SAR(10 g) = 0.537 mW/g
 Maximum value of SAR (measured) = 1.02 mW/g



0 dB = 1.02mW/g

Additional information:

position or distance of DUT to SAM: 10mm
 ambient temperature: 23.4°C; liquid temperature: 23.5°C

Date/Time: 14.08.2011 10:32:45 Date/Time: 14.08.2011 10:39:52

IEEE1528_OET65-Body-GSM1900 GPRS 4TS

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: PCS 1900 GPRS 4TS; Frequency: 1909.8 MHz; Duty Cycle: 1:2

Medium: M1900 Medium parameters used: $f = 1909.8 \text{ MHz}$; $\sigma = 1.53 \text{ mho/m}$; $\epsilon_r = 52.6$; $\rho = 1000 \text{ kg/m}^3$

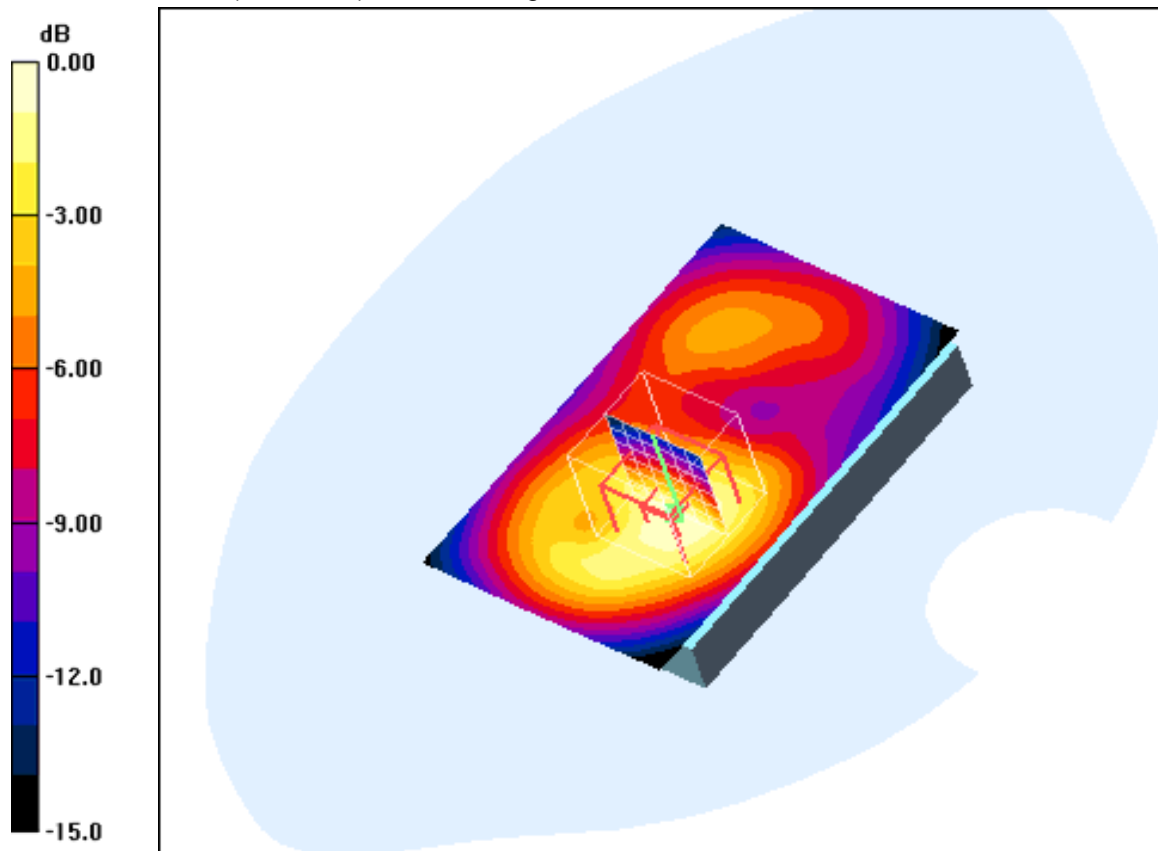
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(4.42, 4.42, 4.42); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Rear position - High/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
 Maximum value of SAR (interpolated) = 0.851 mW/g

Rear position - High/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:
 $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
 Reference Value = 24.4 V/m; Power Drift = -0.087 dB
 Peak SAR (extrapolated) = 1.17 W/kg
SAR(1 g) = 0.763 mW/g; SAR(10 g) = 0.450 mW/g
 Maximum value of SAR (measured) = 0.835 mW/g



0 dB = 0.835mW/g

Additional information:

position or distance of DUT to SAM: 10mm
 ambient temperature: 23.4°C; liquid temperature: 23.5°C

Date/Time: 13.08.2011 19:07:03 Date/Time: 13.08.2011 19:13:17

IEEE1528_OET65-Body-GSM1900 GPRS 4TS

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: PCS 1900 GPRS 4TS; Frequency: 1880 MHz; Duty Cycle: 1:2

Medium: M1900 Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.5 \text{ mho/m}$; $\epsilon_r = 52.7$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(4.42, 4.42, 4.42); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Edge left position - Middle/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.375 mW/g

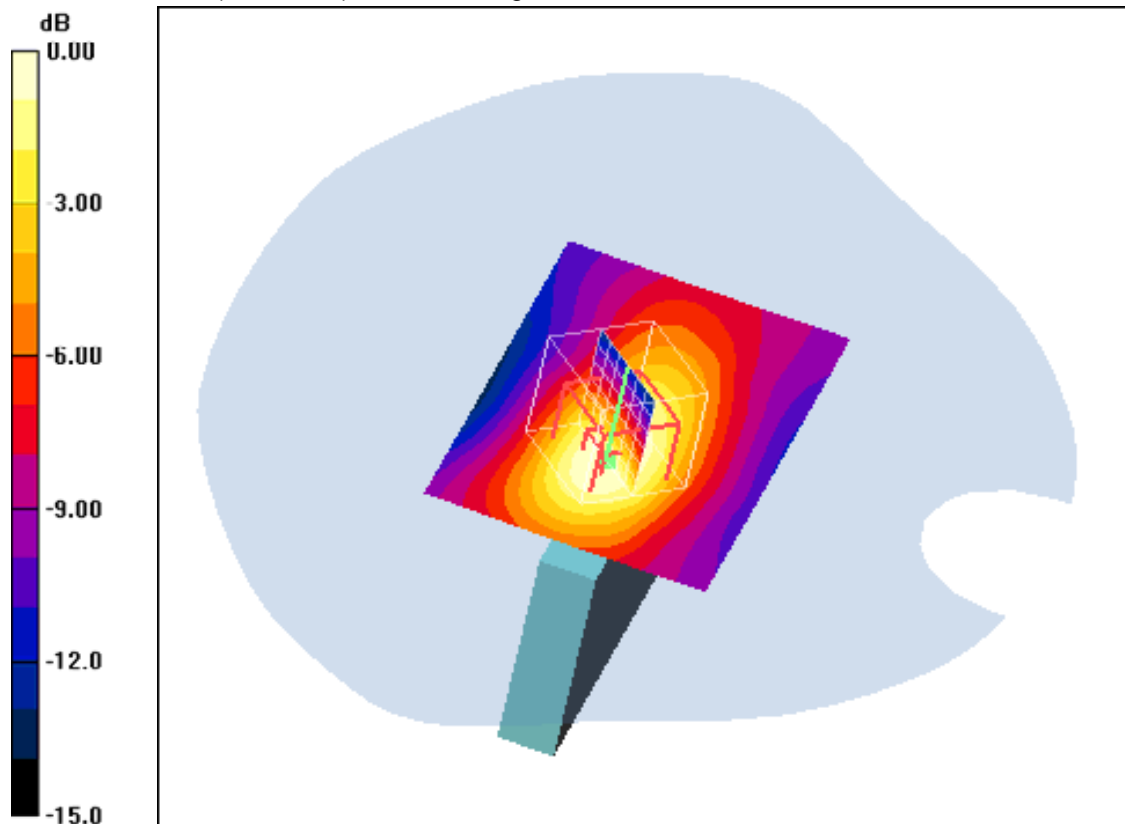
Edge left position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 14.0 V/m; Power Drift = 0.012 dB

Peak SAR (extrapolated) = 0.462 W/kg

SAR(1 g) = 0.290 mW/g; SAR(10 g) = 0.173 mW/g

Maximum value of SAR (measured) = 0.321 mW/g



0 dB = 0.321mW/g

Additional information:

position or distance of DUT to SAM: 10mm

ambient temperature: 23.4°C; liquid temperature: 23.5°C

Date/Time: 13.08.2011 19:31:14 Date/Time: 13.08.2011 19:38:14

IEEE1528_OET65-Body-GSM1900 GPRS 4TS

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: PCS 1900 GPRS 4TS; Frequency: 1880 MHz; Duty Cycle: 1:2

Medium: M1900 Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.5 \text{ mho/m}$; $\epsilon_r = 52.7$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(4.42, 4.42, 4.42); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Edge right position - Middle/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.272 mW/g

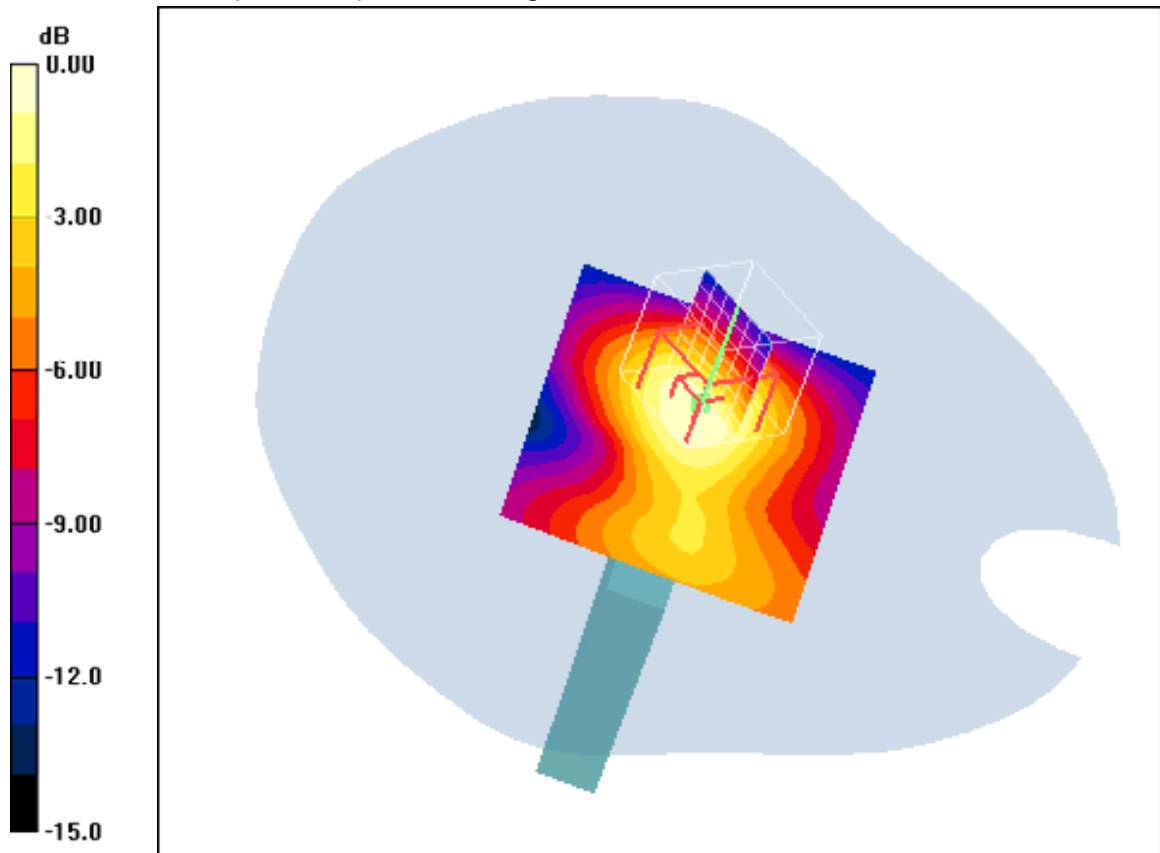
Edge right position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 13.5 V/m; Power Drift = -0.090 dB

Peak SAR (extrapolated) = 0.368 W/kg

SAR(1 g) = 0.241 mW/g; SAR(10 g) = 0.151 mW/g

Maximum value of SAR (measured) = 0.258 mW/g



0 dB = 0.258mW/g

Additional information:

position or distance of DUT to SAM: 10mm

ambient temperature: 23.4°C; liquid temperature: 23.5°C

Date/Time: 14.08.2011 12:43:19 Date/Time: 14.08.2011 12:49:26

IEEE1528_OET65-Body-GSM1900 GPRS 4TS

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: PCS 1900 GPRS 4TS; Frequency: 1880 MHz; Duty Cycle: 1:2

Medium: M1900 Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.5 \text{ mho/m}$; $\epsilon_r = 52.7$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(4.42, 4.42, 4.42); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Edge bottom position - Middle/Area Scan (61x61x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.489 mW/g

Edge bottom position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

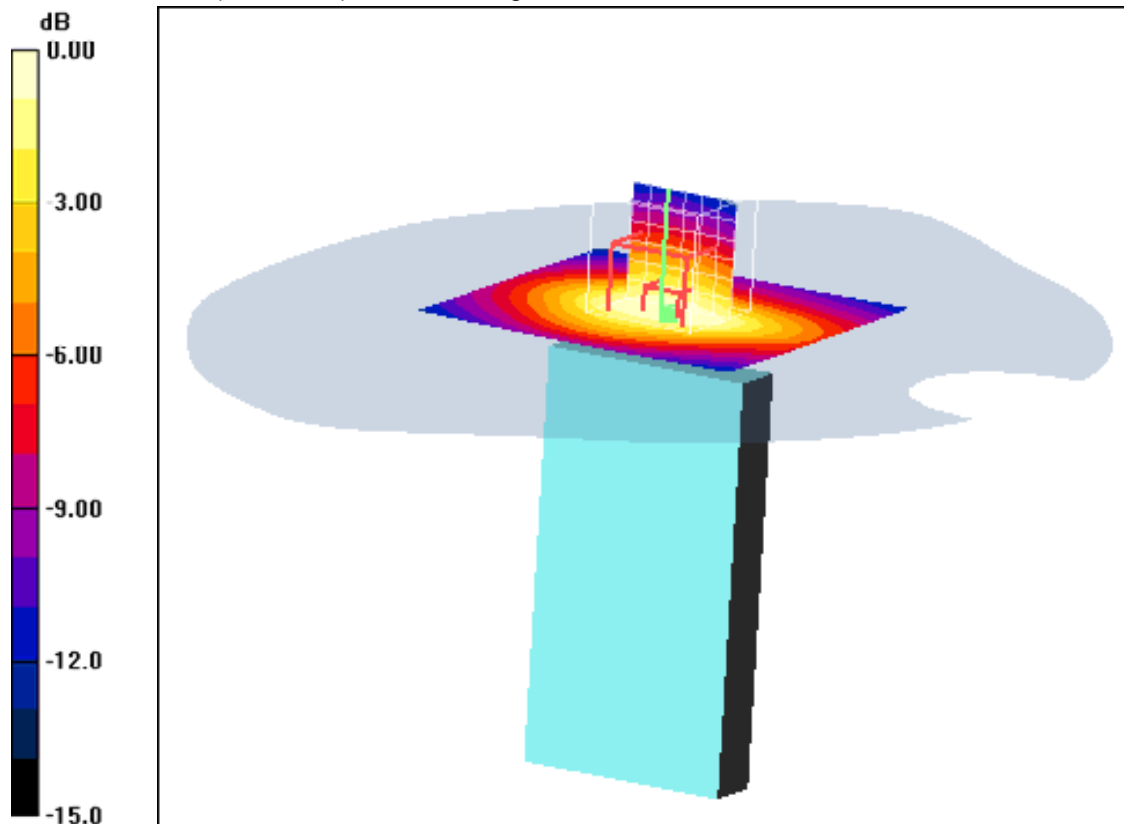
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 19.2 V/m; Power Drift = -0.151 dB

Peak SAR (extrapolated) = 0.674 W/kg

SAR(1 g) = 0.436 mW/g; SAR(10 g) = 0.263 mW/g

Maximum value of SAR (measured) = 0.472 mW/g



0 dB = 0.472mW/g

Additional information:

position or distance of DUT to SAM: 10mm

ambient temperature: 23.4°C; liquid temperature: 23.5°C

Date/Time: 14.08.2011 11:36:01 Date/Time: 14.08.2011 11:59:59

IEEE1528_OET65-Body-GSM1900 1TS

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: GSM 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8

Medium: M1900 Medium parameters used: $f = 1850.2$ MHz; $\sigma = 1.47$ mho/m; $\epsilon_r = 52.8$; $\rho = 1000$ kg/m³

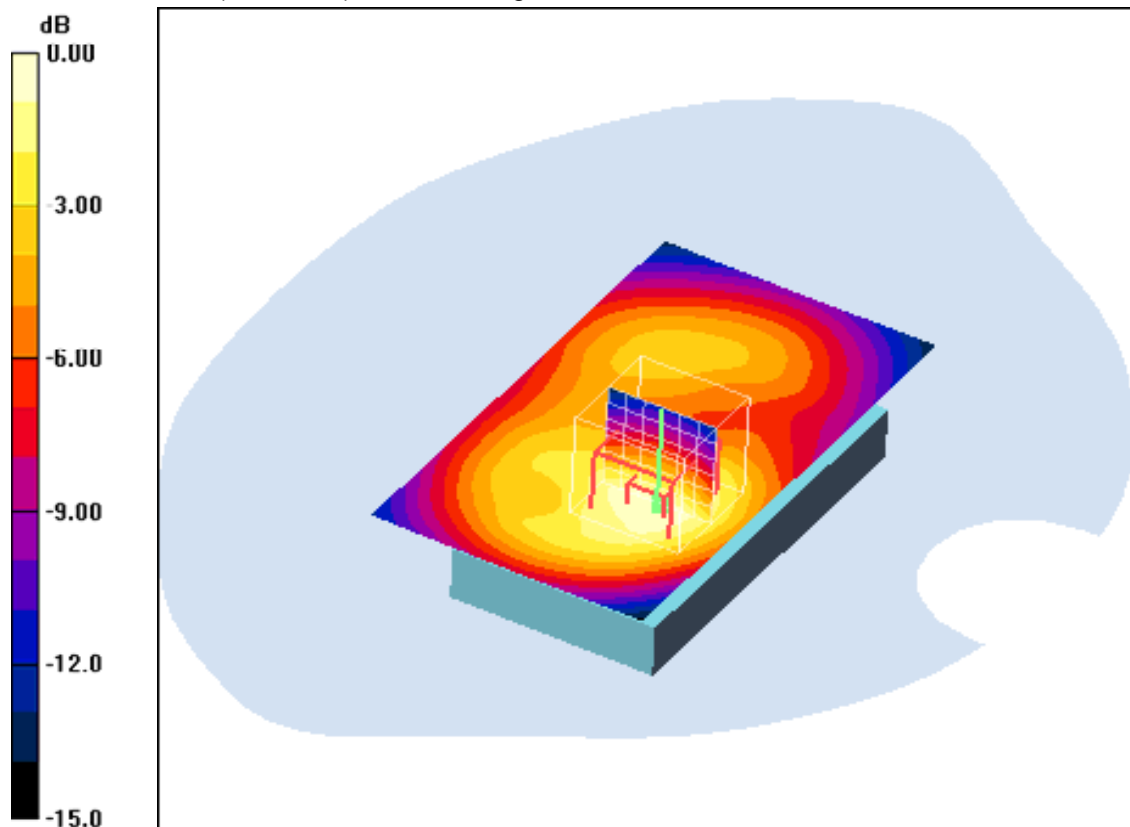
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(4.42, 4.42, 4.42); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Rear position - Low/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
 Maximum value of SAR (interpolated) = 0.375 mW/g

Rear position - Low/Zoom Scan (7x7x7) (9x8x7)/Cube 0: Measurement grid:
 dx=5mm, dy=5mm, dz=5mm
 Reference Value = 16.4 V/m; Power Drift = 0.022 dB
 Peak SAR (extrapolated) = 0.556 W/kg
SAR(1 g) = 0.371 mW/g; SAR(10 g) = 0.226 mW/g
 Maximum value of SAR (measured) = 0.407 mW/g



0 dB = 0.407mW/g

Additional information:

position or distance of DUT to SAM: 15 mm

ambient temperature: 23.4°C; liquid temperature: 23.5°C

Annex B.5: UMTS WCDMA FDD V 835MHz head

Date/Time: 09.08.2011 20:32:13 Date/Time: 09.08.2011 20:39:13

IEEE1528_OET65-LeftHandSide-WCDMA FDD V

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: WCDMA FDD V; Frequency: 826.4 MHz; Duty Cycle: 1:1

Medium: HSL850 Medium parameters used (interpolated): $f = 826.4 \text{ MHz}$; $\sigma = 0.874 \text{ mho/m}$; $\epsilon_r = 43.2$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(6.89, 6.89, 6.89); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Touch position - Low/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.874 mW/g

Touch position - Low/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

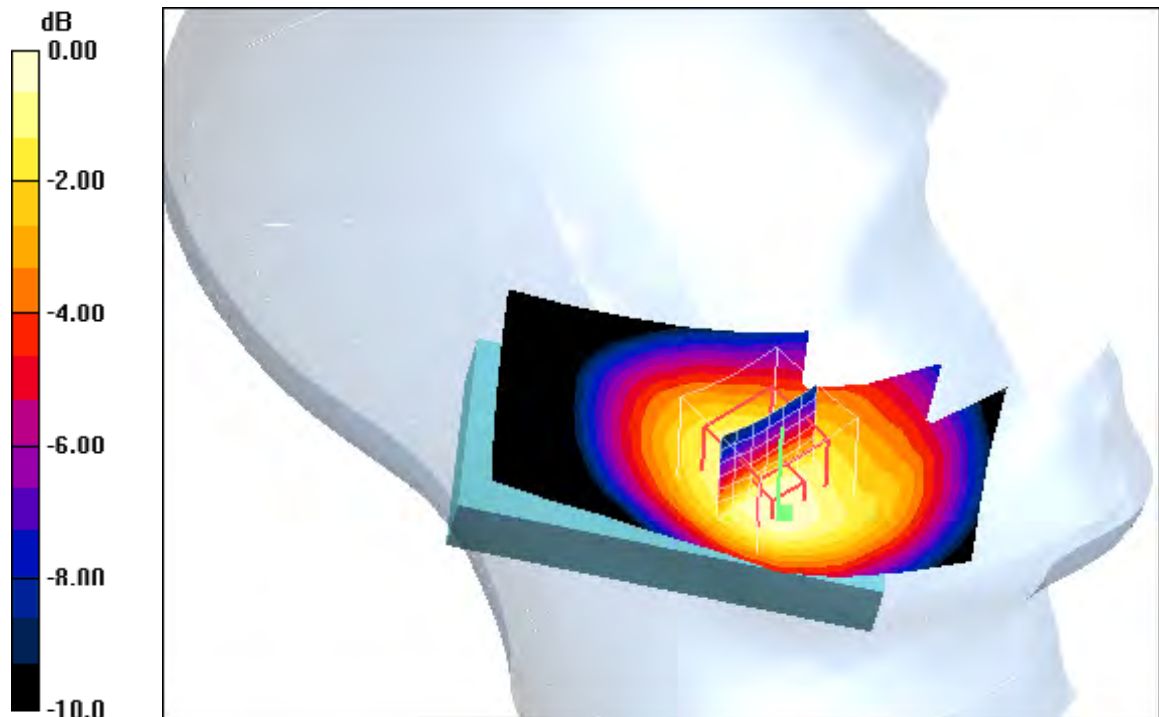
$dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 31.9 V/m; Power Drift = -0.067 dB

Peak SAR (extrapolated) = 1.24 W/kg

SAR(1 g) = 0.837 mW/g; SAR(10 g) = 0.572 mW/g

Maximum value of SAR (measured) = 0.895 mW/g



0 dB = 0.895mW/g

Additional information:

ambient temperature: 23.6°C; liquid temperature: 22.8°C

Date/Time: 09.08.2011 20:53:47 Date/Time: 09.08.2011 20:01:04

IEEE1528_OET65-LeftHandSide-WCDMA FDD V

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: WCDMA FDD V; Frequency: 836.4 MHz; Duty Cycle: 1:1

Medium: HSL850 Medium parameters used (interpolated): $f = 836.4$ MHz; $\sigma = 0.89$ mho/m; $\epsilon_r = 43$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(6.89, 6.89, 6.89); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Touch position - Middle/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.02 mW/g

Touch position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

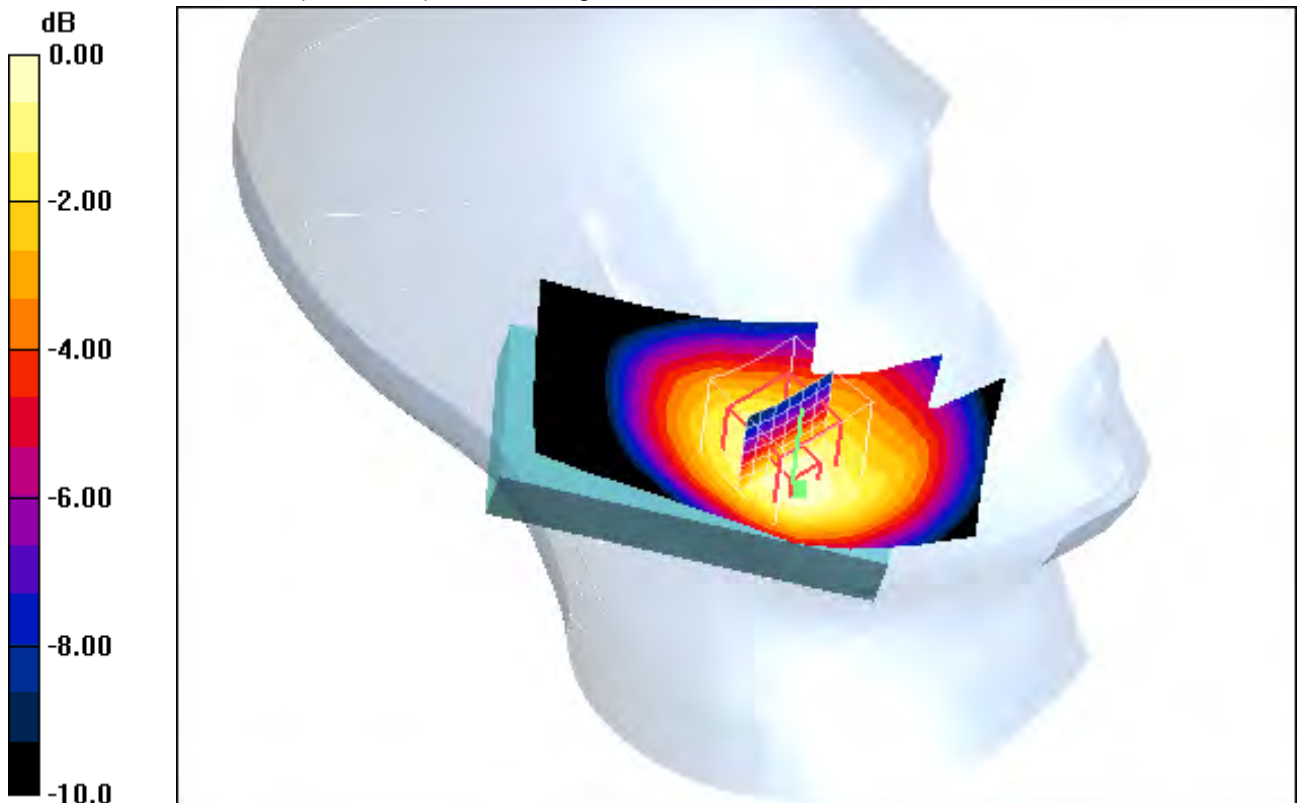
dx=5mm, dy=5mm, dz=5mm

Reference Value = 34.3 V/m; Power Drift = -0.070 dB

Peak SAR (extrapolated) = 1.45 W/kg

SAR(1 g) = 0.970 mW/g; SAR(10 g) = 0.663 mW/g

Maximum value of SAR (measured) = 1.04 mW/g



0 dB = 1.04mW/g

Additional information:

ambient temperature: 23.6°C; liquid temperature: 22.8°C

Date/Time: 09.08.2011 21:15:18 Date/Time: 09.08.2011 21:31:59

IEEE1528_OET65-LeftHandSide-WCDMA FDD V

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: WCDMA FDD V; Frequency: 846.6 MHz; Duty Cycle: 1:1

Medium: HSL850 Medium parameters used (interpolated): $f = 846.6 \text{ MHz}$; $\sigma = 0.898 \text{ mho/m}$; $\epsilon_r = 42.9$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(6.89, 6.89, 6.89); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Touch position - High/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 1.06 mW/g

Touch position - High/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

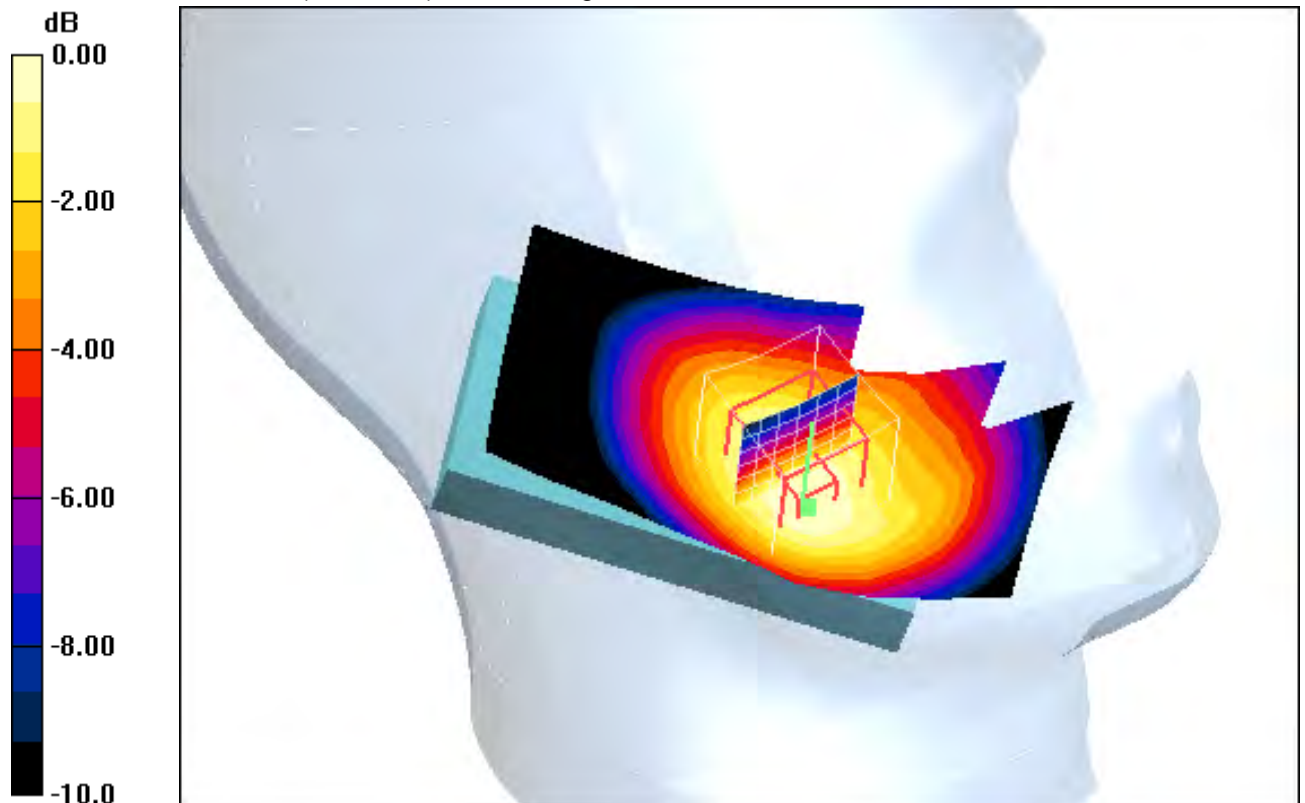
$dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 35.1 V/m; Power Drift = 0.018 dB

Peak SAR (extrapolated) = 1.51 W/kg

SAR(1 g) = 1.02 mW/g; SAR(10 g) = 0.699 mW/g

Maximum value of SAR (measured) = 1.09 mW/g



0 dB = 1.09mW/g

Additional information:

ambient temperature: 23.6°C; liquid temperature: 22.8°C

Date/Time: 09.08.2011 19:28:10 Date/Time: 09.08.2011 19:33:54

IEEE1528_OET65-LeftHandSide-WCDMA FDD V

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: WCDMA FDD V; Frequency: 826.4 MHz; Duty Cycle: 1:1

Medium: HSL850 Medium parameters used (interpolated): $f = 826.4 \text{ MHz}$; $\sigma = 0.874 \text{ mho/m}$; $\epsilon_r = 43.2$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(6.89, 6.89, 6.89); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Tilt position - Low/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.481 mW/g

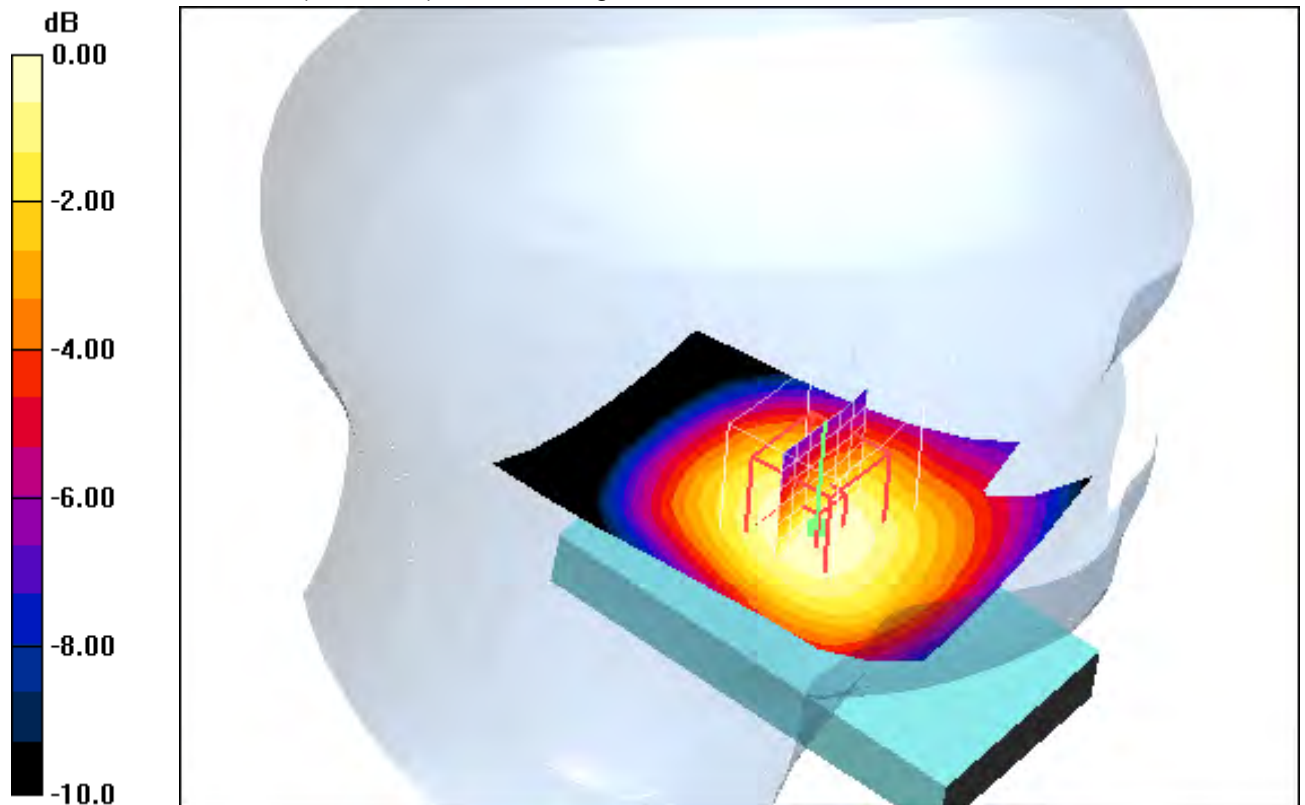
Tilt position - Low/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 23.9 V/m; Power Drift = -0.083 dB

Peak SAR (extrapolated) = 0.559 W/kg

SAR(1 g) = 0.453 mW/g; SAR(10 g) = 0.337 mW/g

Maximum value of SAR (measured) = 0.473 mW/g



0 dB = 0.473mW/g

Additional information:

ambient temperature: 23.6°C; liquid temperature: 22.8°C

Date/Time: 09.08.2011 19:46:59 Date/Time: 09.08.2011 19:52:46

IEEE1528_OET65-LeftHandSide-WCDMA FDD V

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: WCDMA FDD V; Frequency: 836.4 MHz; Duty Cycle: 1:1

Medium: HSL850 Medium parameters used (interpolated): $f = 836.4 \text{ MHz}$; $\sigma = 0.89 \text{ mho/m}$; $\epsilon_r = 43$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(6.89, 6.89, 6.89); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Tilt position - Middle/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.554 mW/g

Tilt position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

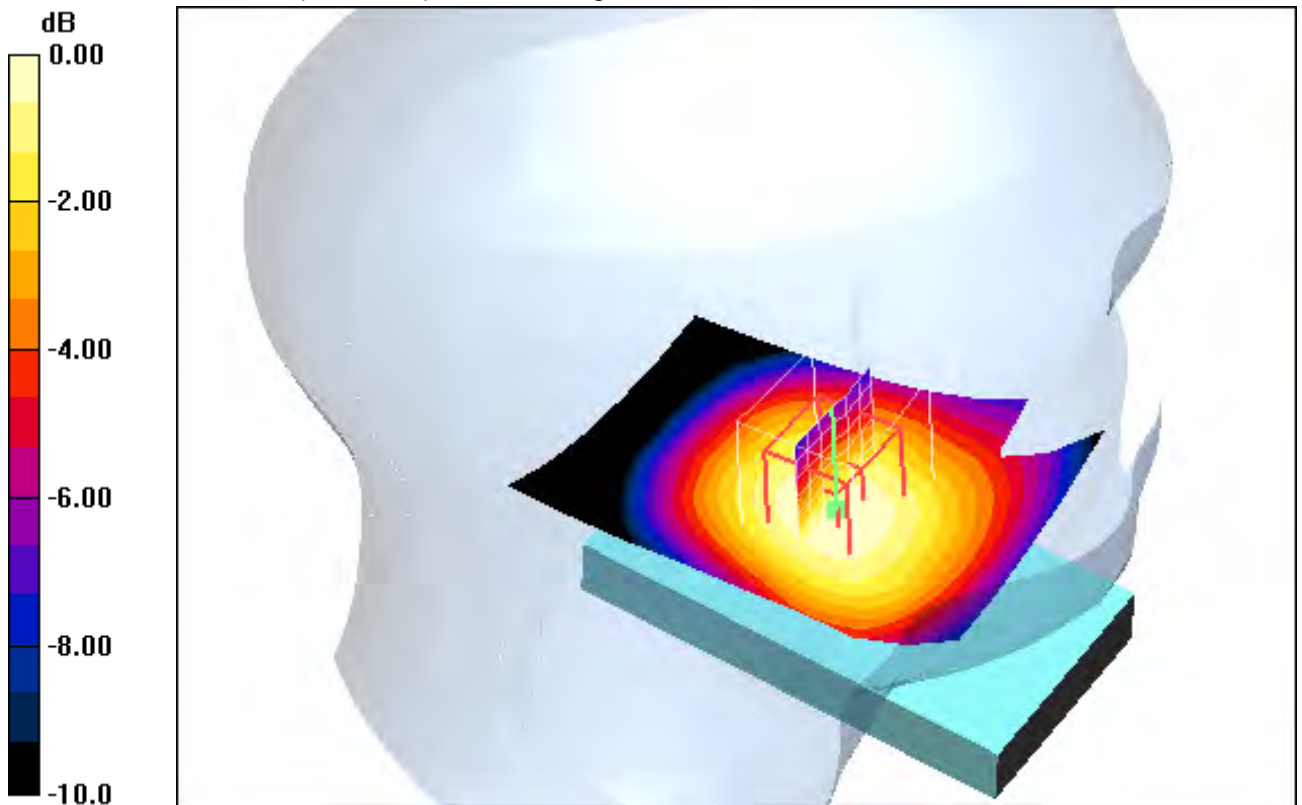
$dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 25.4 V/m; Power Drift = -0.081 dB

Peak SAR (extrapolated) = 0.637 W/kg

SAR(1 g) = 0.525 mW/g; SAR(10 g) = 0.390 mW/g

Maximum value of SAR (measured) = 0.548 mW/g



0 dB = 0.548mW/g

Additional information:

ambient temperature: 23.6°C; liquid temperature: 22.8°C

Date/Time: 09.08.2011 20:06:11 Date/Time: 09.08.2011 20:11:59

IEEE1528_OET65-LeftHandSide-WCDMA FDD V

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: WCDMA FDD V; Frequency: 846.6 MHz; Duty Cycle: 1:1

Medium: HSL850 Medium parameters used (interpolated): $f = 846.6 \text{ MHz}$; $\sigma = 0.898 \text{ mho/m}$; $\epsilon_r = 42.9$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(6.89, 6.89, 6.89); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Tilt position - High/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.574 mW/g

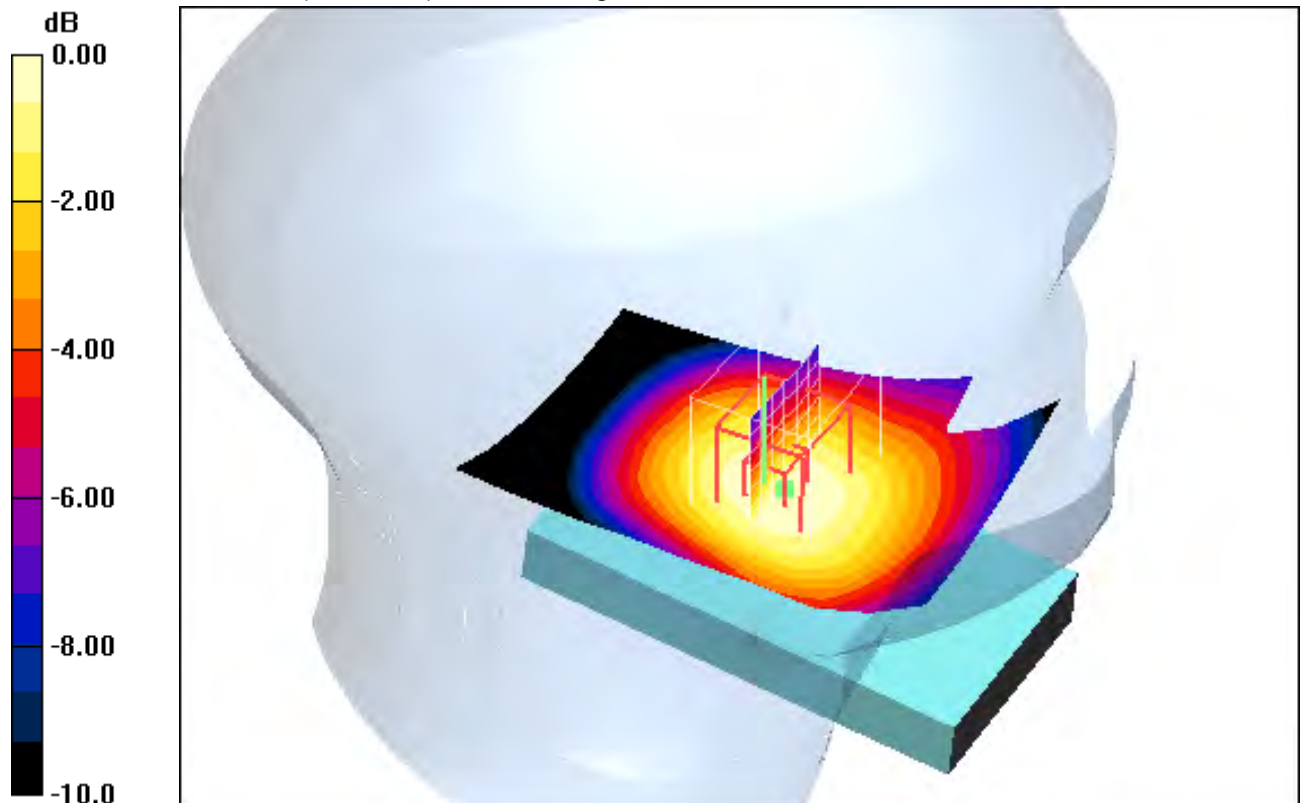
Tilt position - High/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 25.4 V/m; Power Drift = 0.065 dB

Peak SAR (extrapolated) = 0.665 W/kg

SAR(1 g) = 0.537 mW/g; SAR(10 g) = 0.397 mW/g

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



0 dB = 0.564mW/g

Additional information:

ambient temperature: 23.6°C; liquid temperature: 22.8°C

Date/Time: 09.08.2011 16:22:07 Date/Time: 09.08.2011 16:30:21

IEEE1528_OET65-RightHandSide-WCDMA FDD V

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: WCDMA FDD V; Frequency: 826.4 MHz; Duty Cycle: 1:1

Medium: HSL850 Medium parameters used (interpolated): $f = 826.4 \text{ MHz}$; $\sigma = 0.874 \text{ mho/m}$; $\epsilon_r = 43.2$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(6.89, 6.89, 6.89); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Touch position - Low/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.907 mW/g

Touch position - Low/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

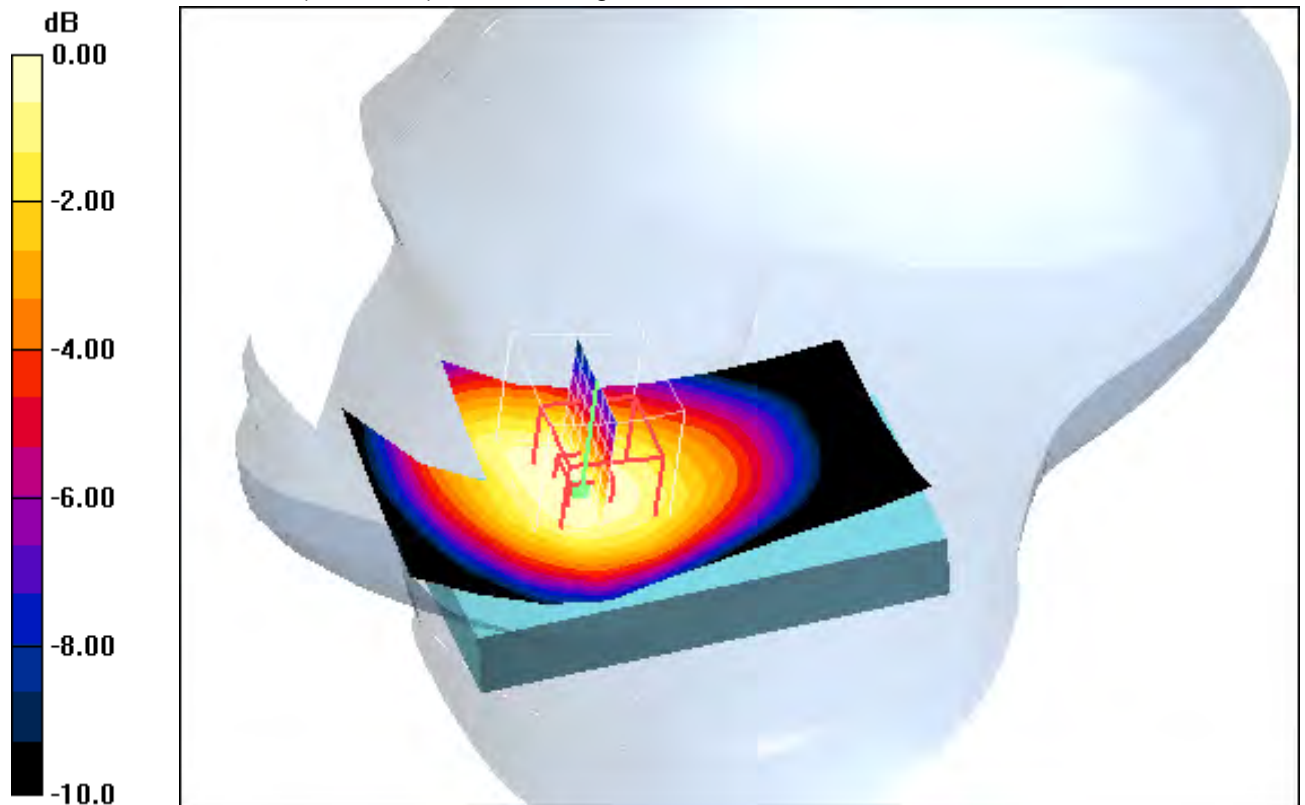
$dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 32.7 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 1.10 W/kg

SAR(1 g) = 0.849 mW/g; SAR(10 g) = 0.617 mW/g

Maximum value of SAR (measured) = 0.901 mW/g



0 dB = 0.901mW/g

Additional information:

ambient temperature: 23.5°C; liquid temperature: 22.8°C

Date/Time: 09.08.2011 16:45:10 Date/Time: 09.08.2011 16:51:22

IEEE1528_OET65-RightHandSide-WCDMA FDD V

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: WCDMA FDD V; Frequency: 836.4 MHz; Duty Cycle: 1:1

Medium: HSL850 Medium parameters used (interpolated): $f = 836.4 \text{ MHz}$; $\sigma = 0.89 \text{ mho/m}$; $\epsilon_r = 43$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(6.89, 6.89, 6.89); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Touch position - Middle/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 1.07 mW/g

Touch position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

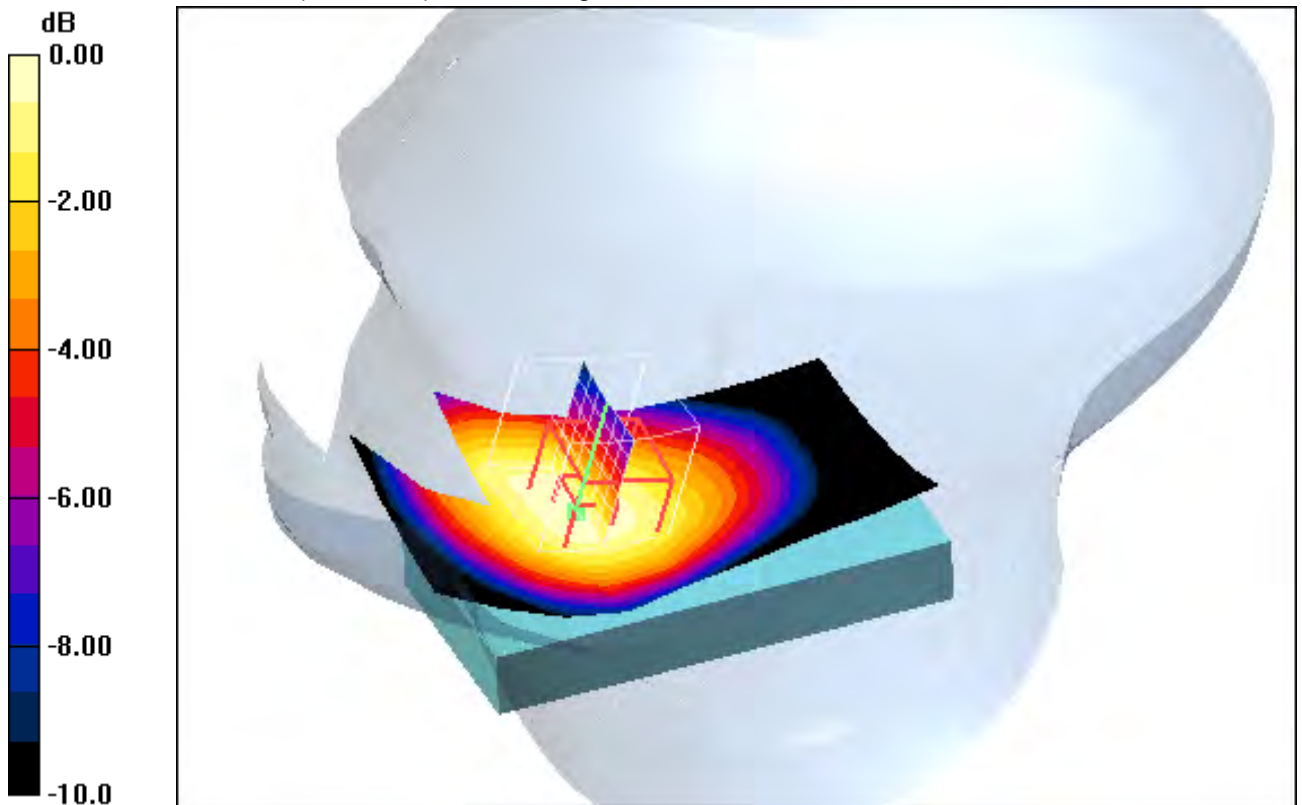
$dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 35.2 V/m; Power Drift = 0.061 dB

Peak SAR (extrapolated) = 1.35 W/kg

SAR(1 g) = 1.03 mW/g; SAR(10 g) = 0.740 mW/g

Maximum value of SAR (measured) = 1.09 mW/g



0 dB = 1.09mW/g

Additional information:

ambient temperature: 23.5°C; liquid temperature: 22.8°C

Date/Time: 09.08.2011 17:06:04 Date/Time: 09.08.2011 17:11:39

IEEE1528_OET65-RightHandSide-WCDMA FDD V

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: WCDMA FDD V; Frequency: 846.6 MHz; Duty Cycle: 1:1

Medium: HSL850 Medium parameters used (interpolated): $f = 846.6 \text{ MHz}$; $\sigma = 0.898 \text{ mho/m}$; $\epsilon_r = 42.9$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(6.89, 6.89, 6.89); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Touch position - High/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 1.13 mW/g

Touch position - High/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

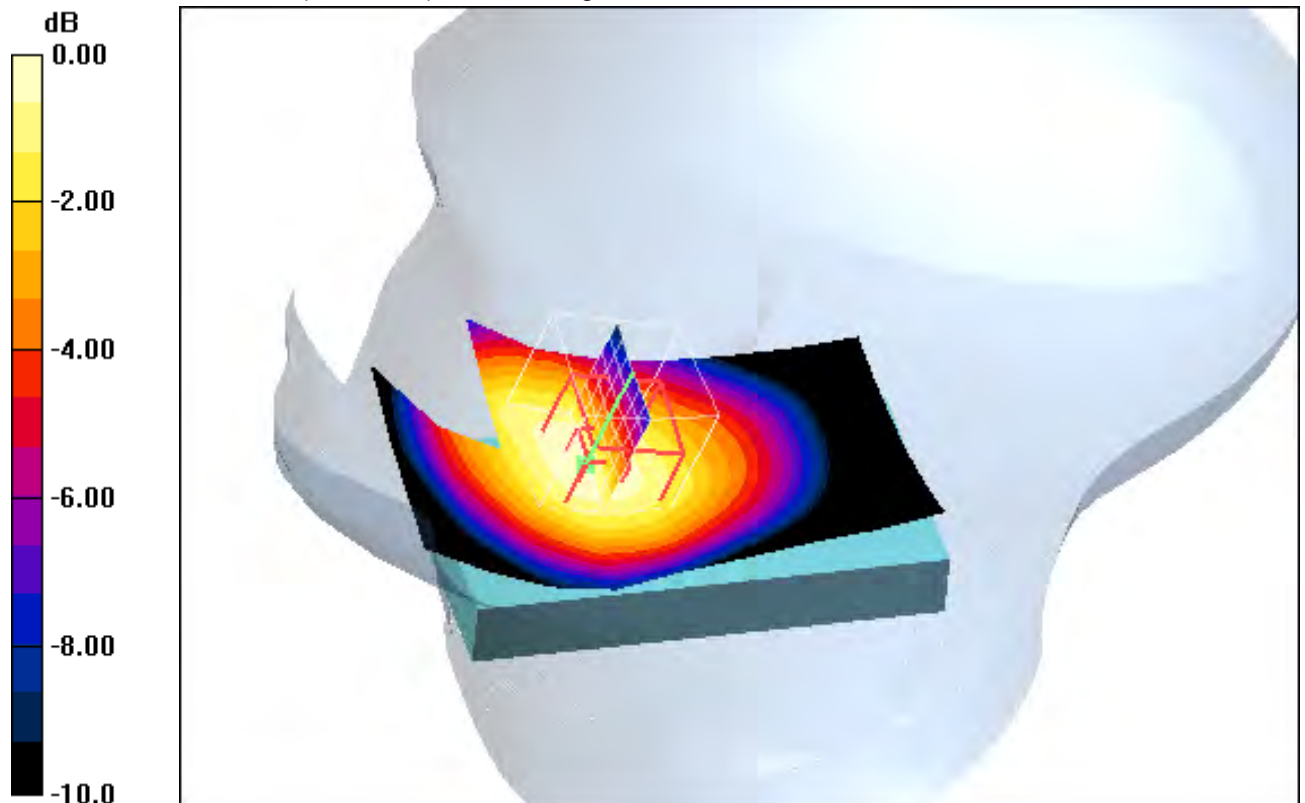
$dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 36.2 V/m; Power Drift = -0.083 dB

Peak SAR (extrapolated) = 1.42 W/kg

SAR(1 g) = 1.08 mW/g; SAR(10 g) = 0.776 mW/g

Maximum value of SAR (measured) = 1.17 mW/g



0 dB = 1.17mW/g

Additional information:

ambient temperature: 23.5°C; liquid temperature: 22.8°C

Date/Time: 09.08.2011 18:32:24 Date/Time: 09.08.2011 18:39:08

IEEE1528_OET65-RightHandSide-WCDMA FDD V

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: WCDMA FDD V; Frequency: 826.4 MHz; Duty Cycle: 1:1

Medium: HSL850 Medium parameters used (interpolated): $f = 826.4 \text{ MHz}$; $\sigma = 0.874 \text{ mho/m}$; $\epsilon_r = 43.2$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(6.89, 6.89, 6.89); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Tilt position - Low/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.436 mW/g

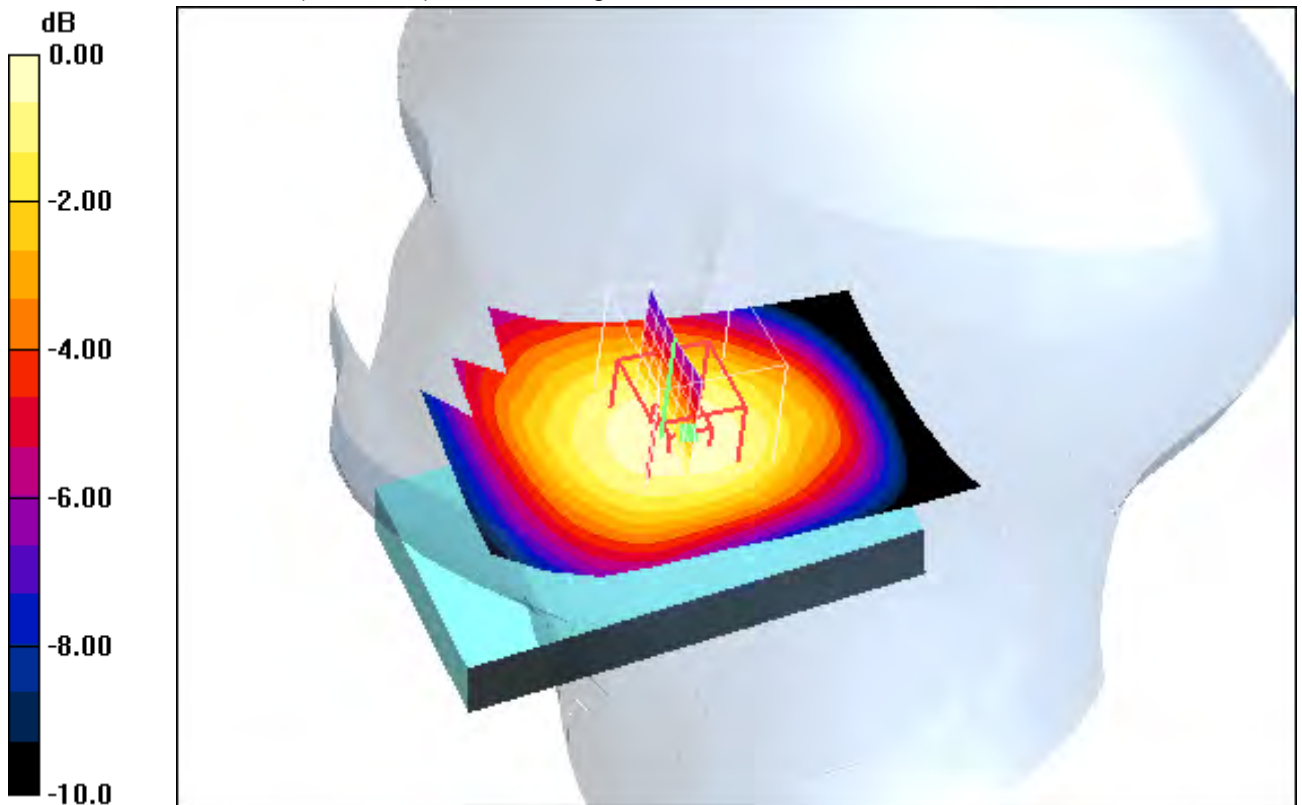
Tilt position - Low/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 22.6 V/m; Power Drift = 0.016 dB

Peak SAR (extrapolated) = 0.514 W/kg

SAR(1 g) = 0.416 mW/g; SAR(10 g) = 0.313 mW/g

Maximum value of SAR (measured) = 0.436 mW/g



0 dB = 0.436mW/g

Additional information:

ambient temperature: 23.5°C; liquid temperature: 22.8°C

Date/Time: 09.08.2011 18:01:14 Date/Time: 09.08.2011 18:07:54

IEEE1528_OET65-RightHandSide-WCDMA FDD V

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: WCDMA FDD V; Frequency: 836.4 MHz; Duty Cycle: 1:1

Medium: HSL850 Medium parameters used (interpolated): $f = 836.4 \text{ MHz}$; $\sigma = 0.89 \text{ mho/m}$; $\epsilon_r = 43$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(6.89, 6.89, 6.89); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Tilt position - Middle/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.518 mW/g

Tilt position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

$dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 24.5 V/m; Power Drift = -0.040 dB

Peak SAR (extrapolated) = 0.611 W/kg

SAR(1 g) = 0.495 mW/g; SAR(10 g) = 0.371 mW/g

Maximum value of SAR (measured) = 0.519 mW/g



0 dB = 0.519mW/g

Additional information:

ambient temperature: 23.5°C; liquid temperature: 22.8°C

Date/Time: 09.08.2011 17:34:39 Date/Time: 09.08.2011 17:47:19

IEEE1528_OET65-RightHandSide-WCDMA FDD V

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: WCDMA FDD V; Frequency: 846.6 MHz; Duty Cycle: 1:1

Medium: HSL850 Medium parameters used (interpolated): $f = 846.6 \text{ MHz}$; $\sigma = 0.898 \text{ mho/m}$; $\epsilon_r = 42.9$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(6.89, 6.89, 6.89); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Tilt position - High/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.541 mW/g

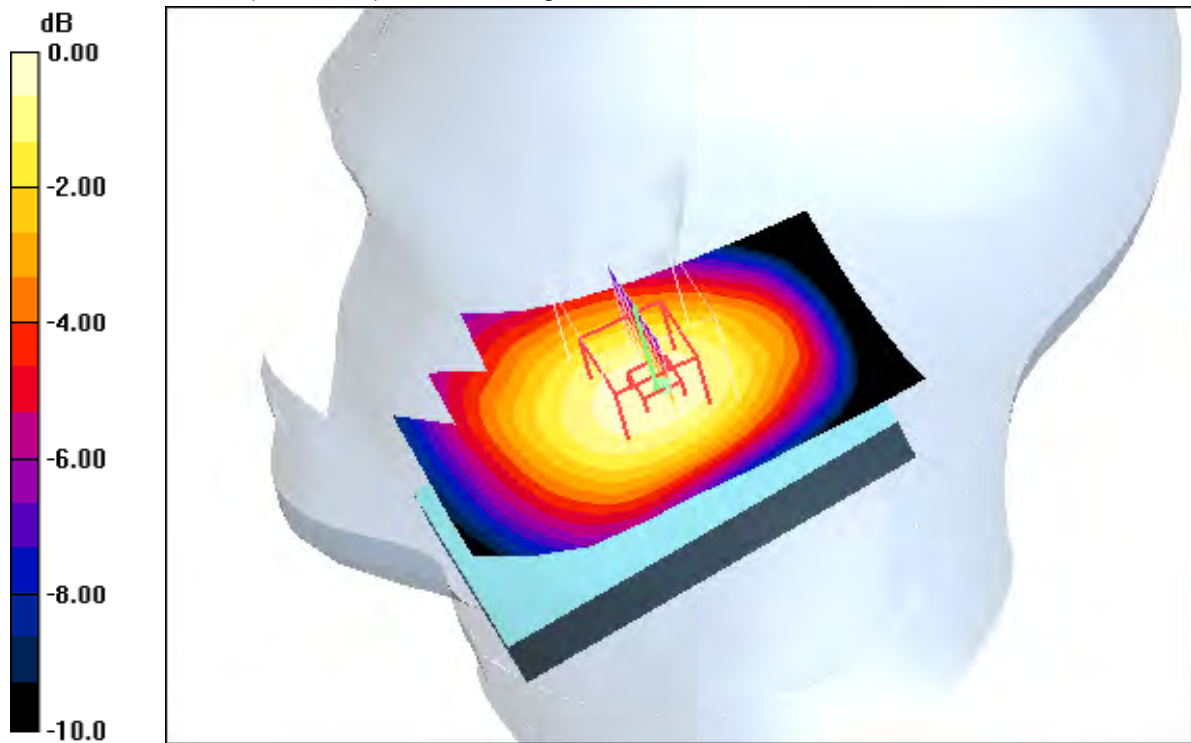
Tilt position - High/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 24.8 V/m; Power Drift = 0.060 dB

Peak SAR (extrapolated) = 0.653 W/kg

SAR(1 g) = 0.524 mW/g; SAR(10 g) = 0.391 mW/g

Maximum value of SAR (measured) = 0.552 mW/g



0 dB = 0.552mW/g

Additional information:

ambient temperature: 23.5°C; liquid temperature: 22.8°C

Annex B.6: UMTS WCDMA FDD V 835MHz body

Date/Time: 17.08.2011 17:08:02 Date/Time: 17.08.2011 17:14:38

IEEE1528_OET65-Body-UMTS-FDD-V

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: WCDMA FDD V; Frequency: 826.4 MHz; Duty Cycle: 1:1

Medium: M850 Medium parameters used (interpolated): $f = 826.4 \text{ MHz}$; $\sigma = 0.972 \text{ mho/m}$; $\epsilon_r = 54.8$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(6.75, 6.75, 6.75); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Front position - Low/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.720 mW/g

Front position - Low/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

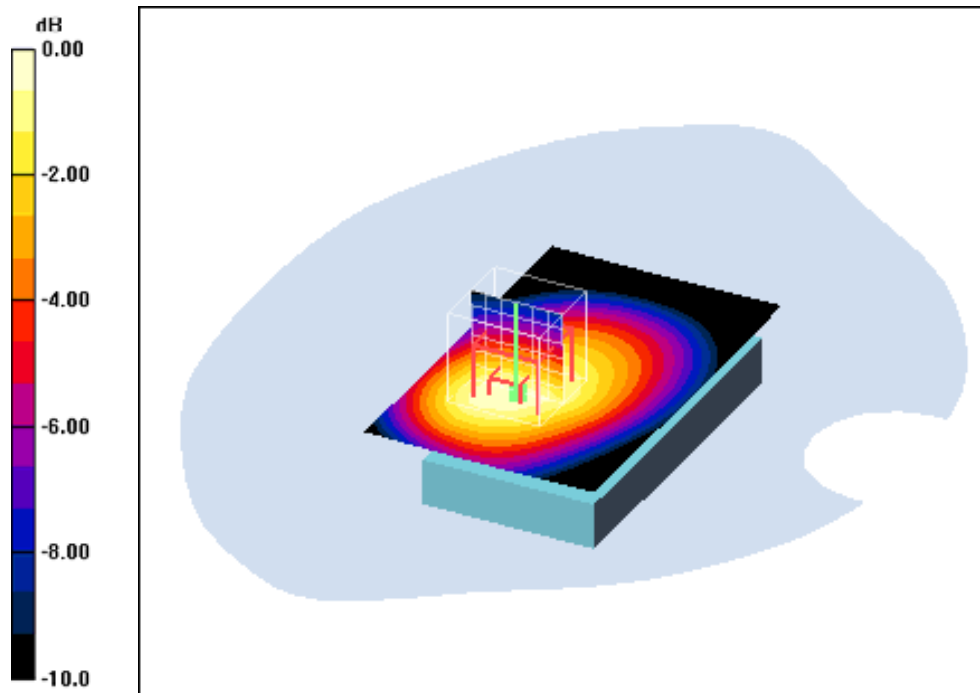
$dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 28.2 V/m; Power Drift = 0.023 dB

Peak SAR (extrapolated) = 0.949 W/kg

SAR(1 g) = 0.684 mW/g; SAR(10 g) = 0.471 mW/g

Maximum value of SAR (measured) = 0.732 mW/g



0 dB = 0.732mW/g

Additional information:

position or distance of DUT to SAM (if not standard head positions) : 10mm

ambient temperature: 23.8°C; liquid temperature: 23.0°C

Date/Time: 17.08.2011 17:28:28 Date/Time: 17.08.2011 17:35:10

IEEE1528_OET65-Body-UMTS-FDD-V

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: WCDMA FDD V; Frequency: 836.4 MHz; Duty Cycle: 1:1

Medium: M850 Medium parameters used (interpolated): $f = 836.4 \text{ MHz}$; $\sigma = 0.98 \text{ mho/m}$; $\epsilon_r = 54.7$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(6.75, 6.75, 6.75); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Front position - Middle/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.845 mW/g

Front position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

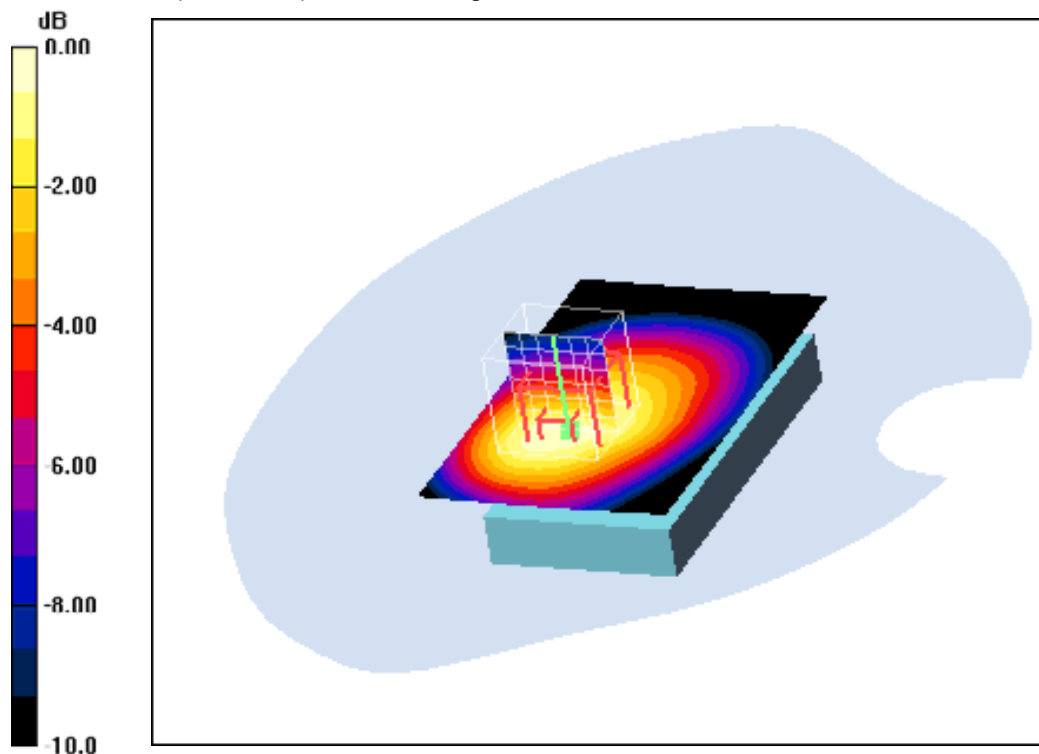
$dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 30.3 V/m; Power Drift = 0.033 dB

Peak SAR (extrapolated) = 1.11 W/kg

SAR(1 g) = 0.795 mW/g; SAR(10 g) = 0.549 mW/g

Maximum value of SAR (measured) = 0.864 mW/g



0 dB = 0.864mW/g

Additional information:

position or distance of DUT to SAM (if not standard head positions) : 10mm

ambient temperature: 23.8°C; liquid temperature: 23.0°C

Date/Time: 17.08.2011 17:49:09 Date/Time: 17.08.2011 17:57:09

IEEE1528_OET65-Body-UMTS-FDD-V

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: WCDMA FDD V; Frequency: 846.6 MHz; Duty Cycle: 1:1

Medium: M850 Medium parameters used (interpolated): $f = 846.6 \text{ MHz}$; $\sigma = 0.996 \text{ mho/m}$; $\epsilon_r = 54.6$; $\rho = 1000 \text{ kg/m}^3$

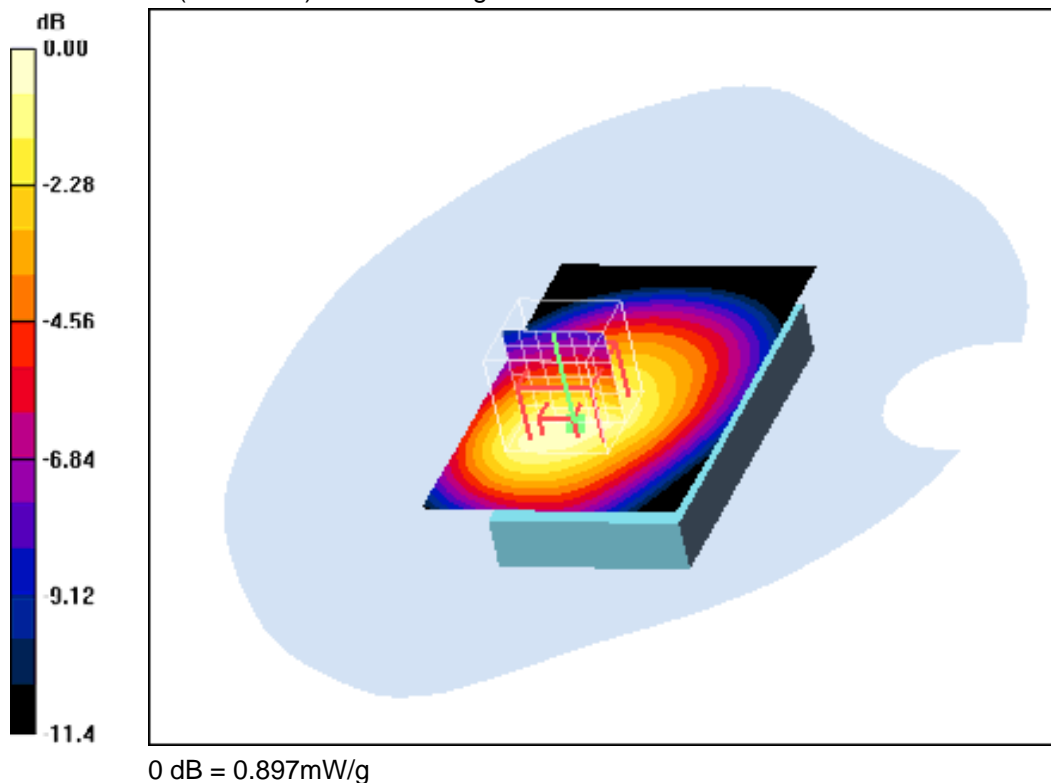
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(6.75, 6.75, 6.75); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection) Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Front position - High/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
 Maximum value of SAR (interpolated) = 0.890 mW/g

Front position - High/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:
 $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
 Reference Value = 30.8 V/m; Power Drift = -0.029 dB
 Peak SAR (extrapolated) = 1.12 W/kg
SAR(1 g) = 0.829 mW/g; SAR(10 g) = 0.574 mW/g
 Maximum value of SAR (measured) = 0.897 mW/g



Additional information:
 position or distance of DUT to SAM (if not standard head positions) : 10mm
 ambient temperature: 23.8°C; liquid temperature: 23.0°C

Date/Time: 17.08.2011 19:54:52 Date/Time: 17.08.2011 20:02:41

IEEE1528_OET65-Body-UMTS-FDD-V

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: WCDMA FDD V; Frequency: 826.4 MHz; Duty Cycle: 1:1

Medium: M850 Medium parameters used (interpolated): $f = 826.4 \text{ MHz}$; $\sigma = 0.972 \text{ mho/m}$; $\epsilon_r = 54.8$; $\rho = 1000 \text{ kg/m}^3$

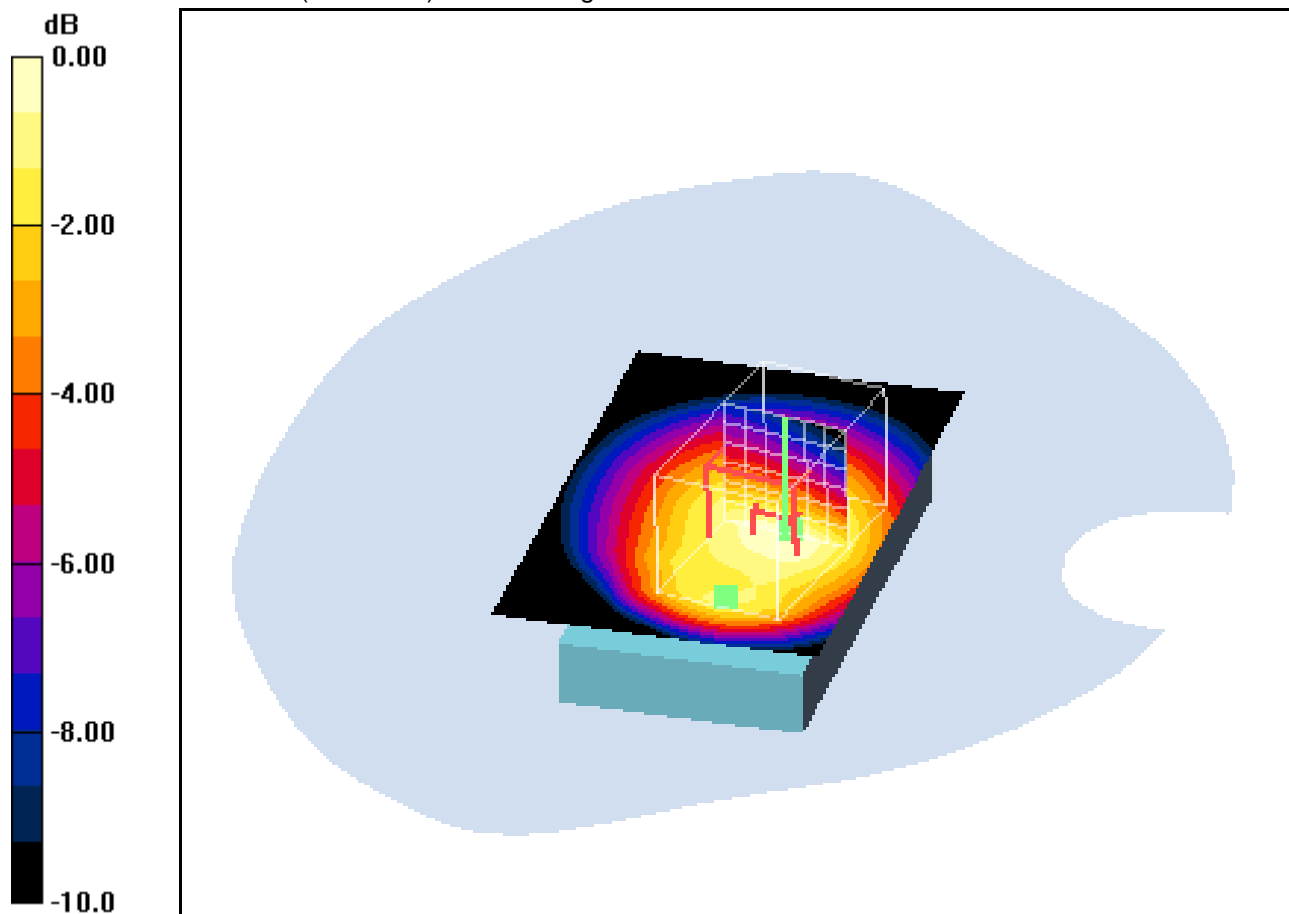
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(6.75, 6.75, 6.75); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Rear position - Low/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
 Maximum value of SAR (interpolated) = 1.13 mW/g

Rear position - Low/Zoom Scan (7x7x7) (7x12x7)/Cube 0: Measurement grid:
 $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
 Reference Value = 34.3 V/m; Power Drift = 0.00 dB
 Peak SAR (extrapolated) = 1.51 W/kg
SAR(1 g) = 1.08 mW/g; SAR(10 g) = 0.745 mW/g
 Maximum value of SAR (measured) = 1.16 mW/g



0 dB = 1.16mW/g

Additional information:

position or distance of DUT to SAM (if not standard head positions) : 10mm
ambient temperature: 23.8°C; liquid temperature: 23.0°C

Date/Time: 17.08.2011 20:54:54 Date/Time: 17.08.2011 21:04:40

IEEE1528_OET65-Body-UMTS-FDD-V

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: WCDMA FDD V; Frequency: 836.4 MHz; Duty Cycle: 1:1

Medium: M850 Medium parameters used (interpolated): $f = 836.4 \text{ MHz}$; $\sigma = 0.98 \text{ mho/m}$; $\epsilon_r = 54.7$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(6.75, 6.75, 6.75); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Rear position - Middle/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 1.25 mW/g

Rear position - Middle/Zoom Scan (7x7x7) (7x12x7)/Cube 0: Measurement grid:

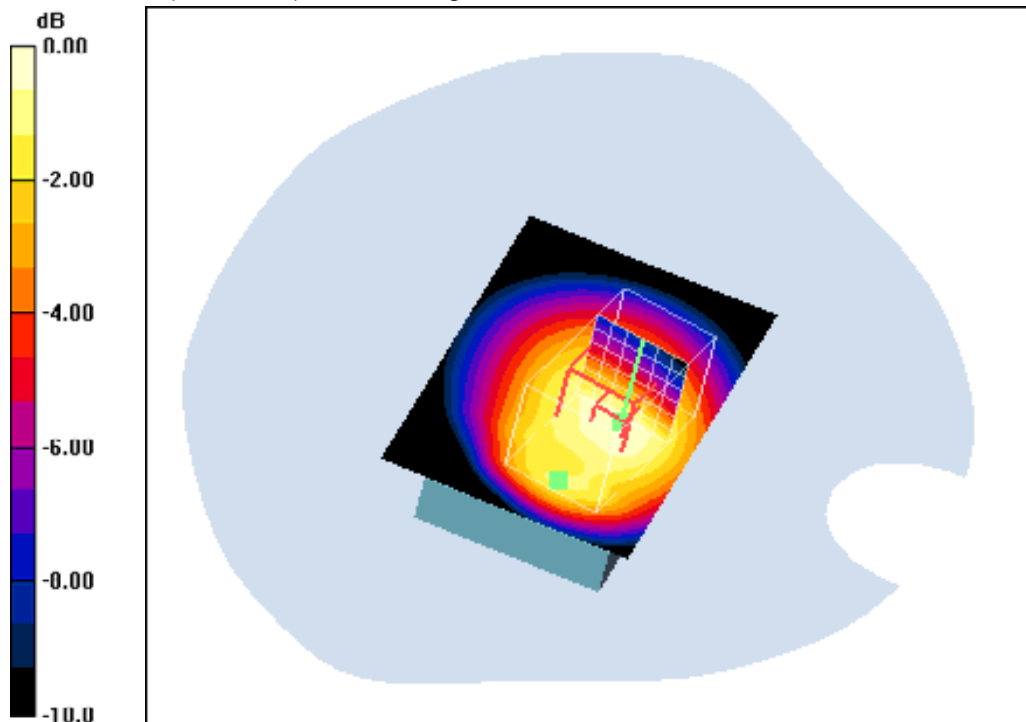
$dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 35.9 V/m; Power Drift = -0.028 dB

Peak SAR (extrapolated) = 1.67 W/kg

SAR(1 g) = 1.19 mW/g; SAR(10 g) = 0.816 mW/g

Maximum value of SAR (measured) = 1.26 mW/g



0 dB = 1.26mW/g

Additional information:

position or distance of DUT to SAM (if not standard head positions) : 10mm

ambient temperature: 23.8°C; liquid temperature: 23.0°C

Date/Time: 17.08.2011 20:27:09 Date/Time: 17.08.2011 20:35:06

IEEE1528_OET65-Body-UMTS-FDD-V

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: WCDMA FDD V; Frequency: 846.6 MHz; Duty Cycle: 1:1

Medium: M850 Medium parameters used (interpolated): $f = 846.6 \text{ MHz}$; $\sigma = 0.996 \text{ mho/m}$; $\epsilon_r = 54.6$; $\rho = 1000 \text{ kg/m}^3$

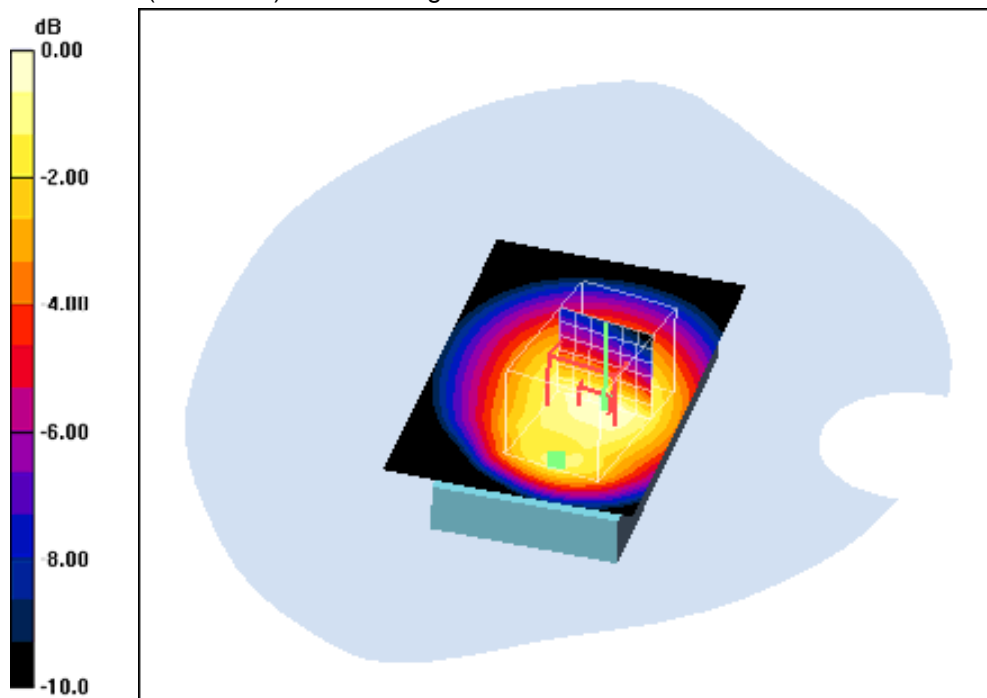
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(6.75, 6.75, 6.75); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection) Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Rear position - High/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
 Maximum value of SAR (interpolated) = 1.23 mW/g

Rear position - High/Zoom Scan (7x7x7) (7x11x7)/Cube 0: Measurement grid:
 $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
 Reference Value = 35.5 V/m; Power Drift = 0.040 dB
 Peak SAR (extrapolated) = 1.62 W/kg
SAR(1 g) = 1.17 mW/g; SAR(10 g) = 0.812 mW/g
 Maximum value of SAR (measured) = 1.25 mW/g



0 dB = 1.25mW/g

Additional information:

position or distance of DUT to SAM (if not standard head positions) : 10mm
 ambient temperature: 23.8°C; liquid temperature: 23.0°C

Date/Time: 17.08.2011 18:43:17 Date/Time: 17.08.2011 18:49:38

IEEE1528_OET65-Body-UMTS-FDD-V

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: WCDMA FDD V; Frequency: 836.4 MHz; Duty Cycle: 1:1

Medium: M850 Medium parameters used (interpolated): $f = 836.4 \text{ MHz}$; $\sigma = 0.98 \text{ mho/m}$; $\epsilon_r = 54.7$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(6.75, 6.75, 6.75); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Edge left position - Middle/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.455 mW/g

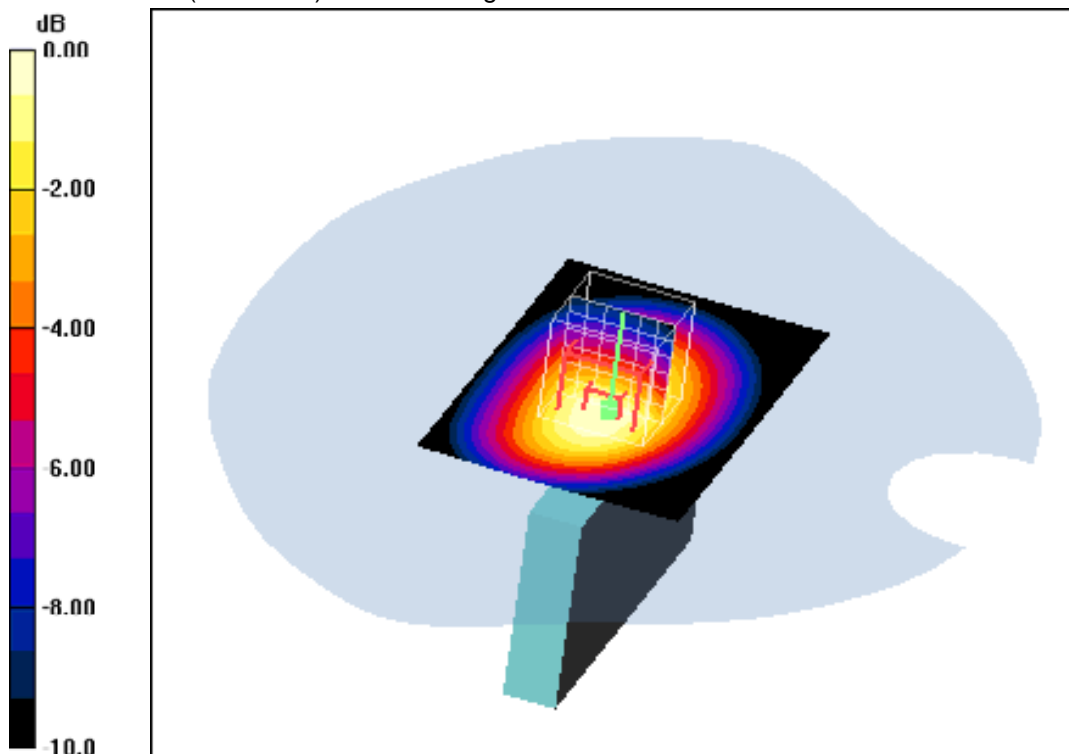
Edge left position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 21.0 V/m; Power Drift = -0.019 dB

Peak SAR (extrapolated) = 0.587 W/kg

SAR(1 g) = 0.418 mW/g; SAR(10 g) = 0.280 mW/g

Maximum value of SAR (measured) = 0.451 mW/g



0 dB = 0.451mW/g

Additional information:

position or distance of DUT to SAM (if not standard head positions) : 10mm

ambient temperature: 23.8°C; liquid temperature: 23.0°C

Date/Time: 17.08.2011 19:03:31 Date/Time: 17.08.2011 19:09:37

IEEE1528_OET65-Body-UMTS-FDD-V

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: WCDMA FDD V; Frequency: 836.4 MHz; Duty Cycle: 1:1

Medium: M850 Medium parameters used (interpolated): $f = 836.4 \text{ MHz}$; $\sigma = 0.98 \text{ mho/m}$; $\epsilon_r = 54.7$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(6.75, 6.75, 6.75); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Edge right position - Middle/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.363 mW/g

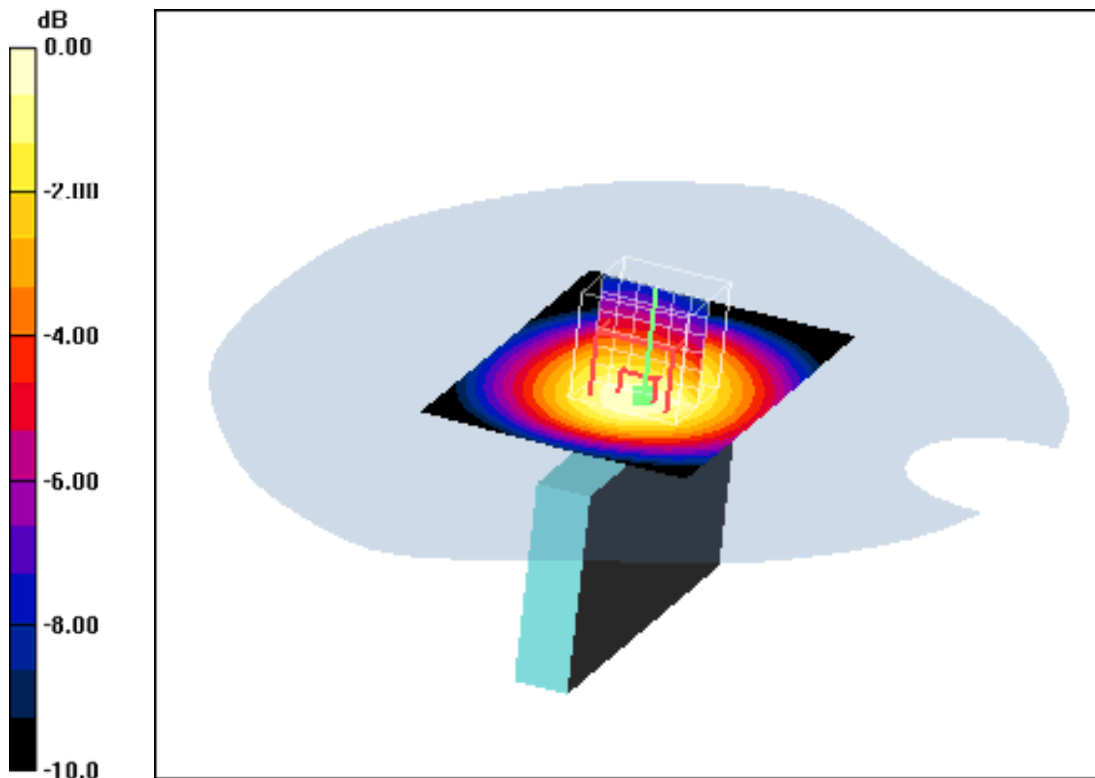
Edge right position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 19.5 V/m; Power Drift = 0.114 dB

Peak SAR (extrapolated) = 0.442 W/kg

SAR(1 g) = 0.334 mW/g; SAR(10 g) = 0.235 mW/g

Maximum value of SAR (measured) = 0.356 mW/g



0 dB = 0.356mW/g

Additional information:

position or distance of DUT to SAM (if not standard head positions) : 10mm

ambient temperature: 23.8°C; liquid temperature: 23.0°C

Date/Time: 17.08.2011 18:20:59 Date/Time: 17.08.2011 18:25:49

IEEE1528_OET65-Body-UMTS-FDD-V

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: WCDMA FDD V; Frequency: 836.4 MHz; Duty Cycle: 1:1

Medium: M850 Medium parameters used (interpolated): $f = 836.4$ MHz; $\sigma = 0.98$ mho/m; $\epsilon_r = 54.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(6.75, 6.75, 6.75); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Edge bottom position - Middle/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.151 mW/g

Edge bottom position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

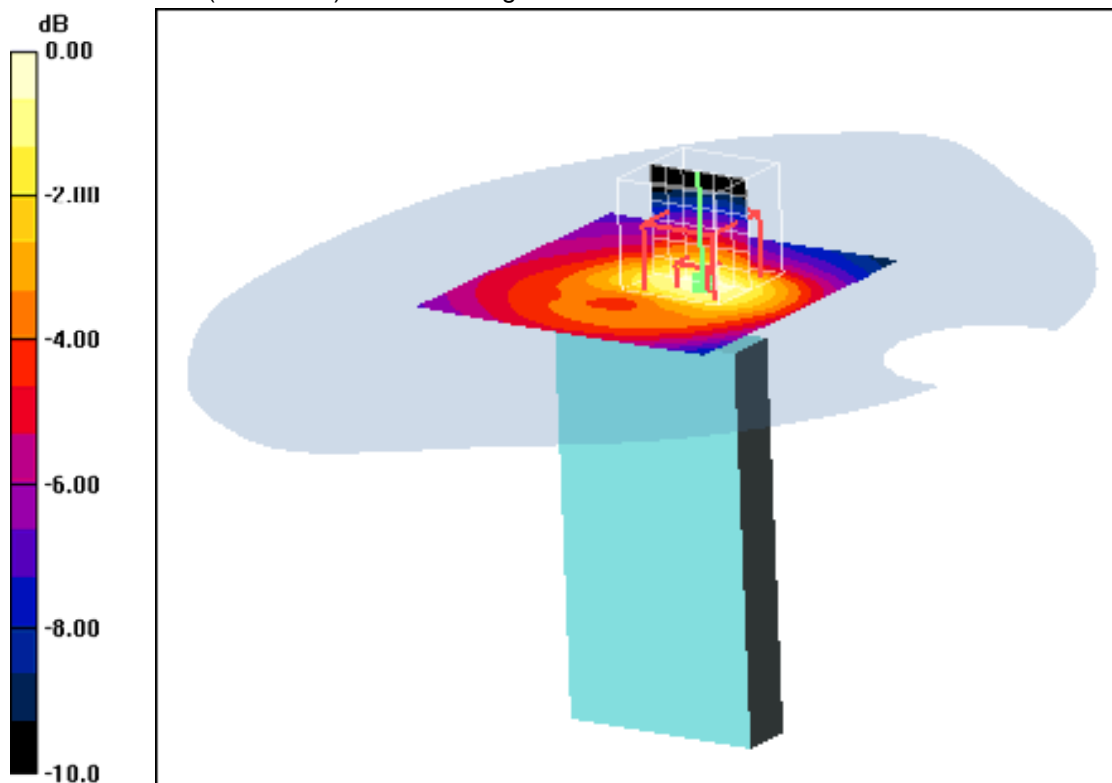
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 12.0 V/m; Power Drift = -0.067 dB

Peak SAR (extrapolated) = 0.225 W/kg

SAR(1 g) = 0.137 mW/g; SAR(10 g) = 0.082 mW/g

Maximum value of SAR (measured) = 0.153 mW/g



0 dB = 0.153mW/g

Additional information:

position or distance of DUT to SAM (if not standard head positions) : 10mm

ambient temperature: 23.8°C; liquid temperature: 23.0°C

Date/Time: 17.08.2011 21:29:08 Date/Time: 17.08.2011 21:40:41

IEEE1528_OET65-Body-UMTS-FDD-V

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: WCDMA FDD V; Frequency: 836.4 MHz; Duty Cycle: 1:1

Medium: M850 Medium parameters used (interpolated): $f = 836.4$ MHz; $\sigma = 0.98$ mho/m; $\epsilon_r = 54.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(6.75, 6.75, 6.75); Calibrated: 11.05.2011

- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection) Sensor-Surface: 4mm (Mechanical Surface Detection)

- Electronics: DAE3 Sn413; Calibrated: 13.01.2011

- Phantom: SAM 12; Type: SAM; Serial: 1043

- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Rear position - Middle 15mm/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.899 mW/g

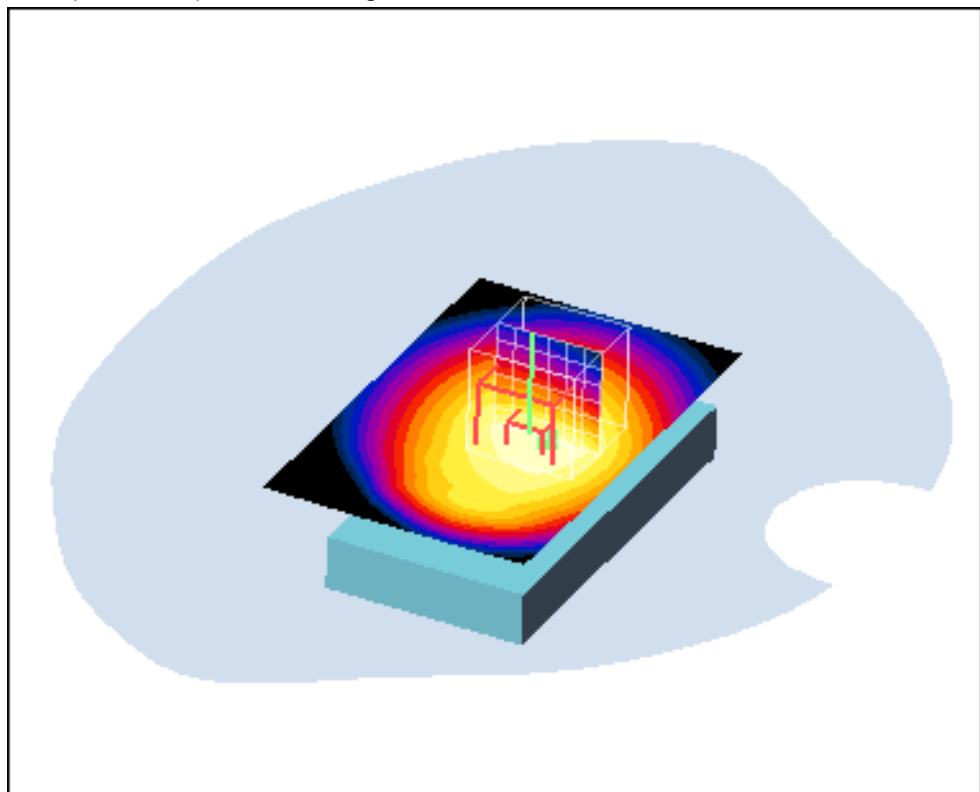
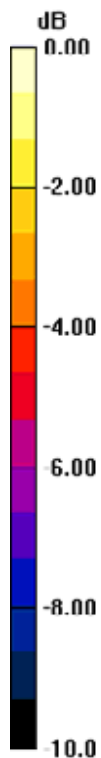
Rear position - Middle 15mm/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 30.9 V/m; Power Drift = 0.012 dB

Peak SAR (extrapolated) = 1.11 W/kg

SAR(1 g) = 0.831 mW/g; SAR(10 g) = 0.588 mW/g

Maximum value of SAR (measured) = 0.884 mW/g



0 dB = 0.884mW/g

Additional information:

position or distance of DUT to SAM (if not standard head positions) : 15mm (with headset)

ambient temperature: 23.8°C; liquid temperature: 23.0°C

Annex B.7: UMTS WCDMA FDD II 1900MHz head

Date/Time: 11.08.2011 15:00:44 Date/Time: 11.08.2011 15:06:52

IEEE1528_OET65-LeftHandSide-WCDMA FDD II

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: WCDMA FDD II; Frequency: 1852.5 MHz; Duty Cycle: 1:1

Medium: HSL1900 Medium parameters used (interpolated): $f = 1852.5 \text{ MHz}$; $\sigma = 1.34 \text{ mho/m}$; $\epsilon_r = 40.2$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(5.16, 5.16, 5.16); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Touch position - Low/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 1.50 mW/g

Touch position - Low/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

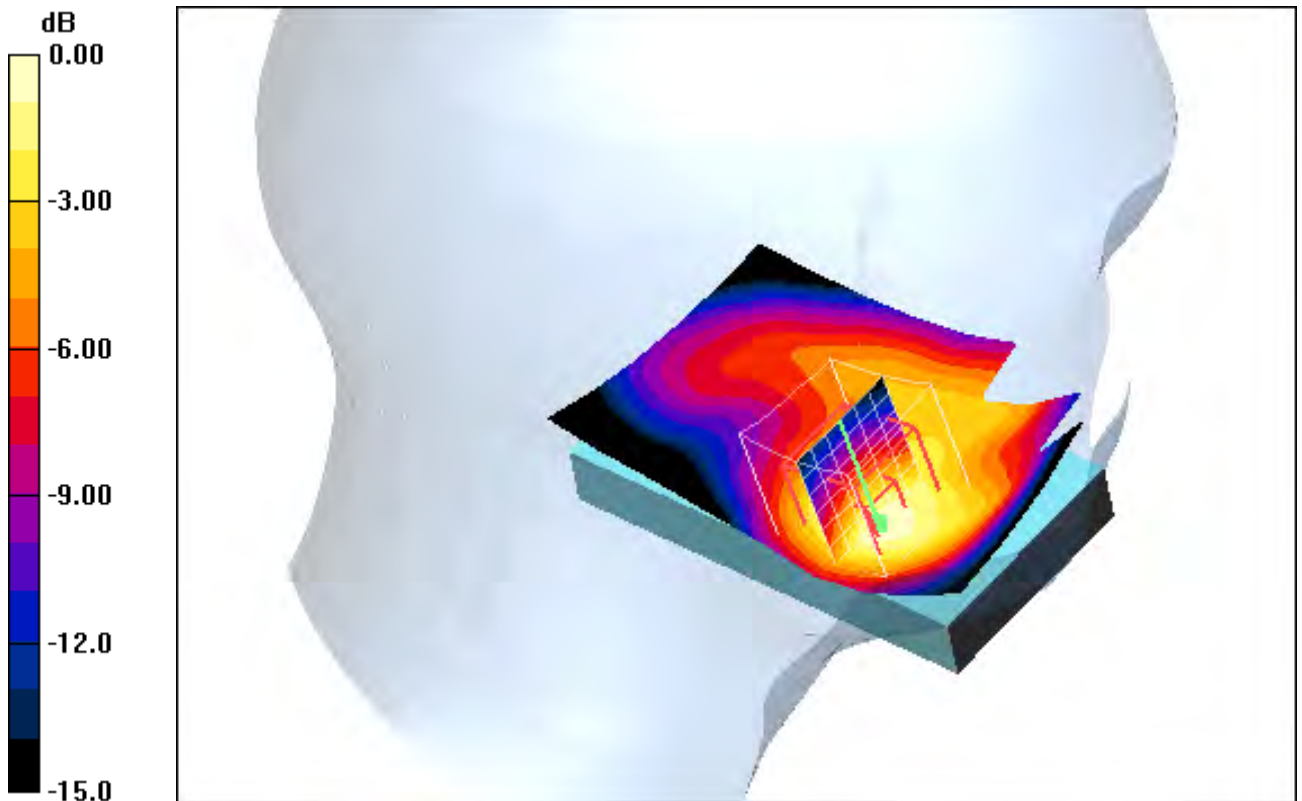
$dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 31.8 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 2.08 W/kg

SAR(1 g) = 1.38 mW/g; SAR(10 g) = 0.789 mW/g

Maximum value of SAR (measured) = 1.51 mW/g



0 dB = 1.51mW/g

Additional information:

ambient temperature: 23.8°C; liquid temperature: 22.1°C

Date/Time: 11.08.2011 14:40:33 Date/Time: 11.08.2011 14:47:23

IEEE1528_OET65-LeftHandSide-WCDMA FDD II

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: WCDMA FDD II; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: HSL1900 Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.37 \text{ mho/m}$; $\epsilon_r = 40.1$; $\rho = 1000 \text{ kg/m}^3$

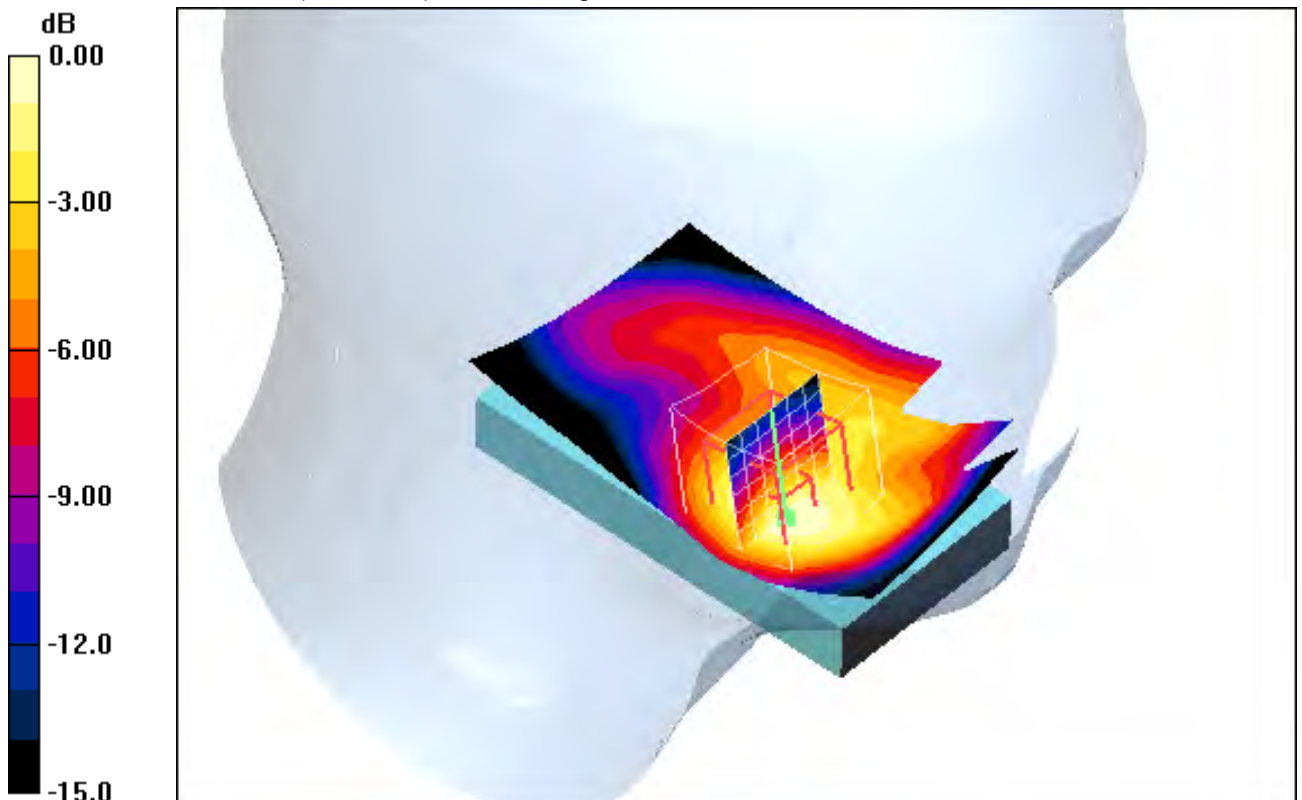
Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(5.16, 5.16, 5.16); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Touch position - Middle/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
 Maximum value of SAR (interpolated) = 1.27 mW/g

Touch position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:
 $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
 Reference Value = 28.5 V/m; Power Drift = 0.019 dB
 Peak SAR (extrapolated) = 1.75 W/kg
SAR(1 g) = 1.15 mW/g; SAR(10 g) = 0.660 mW/g
 Maximum value of SAR (measured) = 1.25 mW/g



0 dB = 1.25mW/g

Additional information:

ambient temperature: 23.8°C; liquid temperature: 22.1°C

Date/Time: 11.08.2011 14:17:33 Date/Time: 11.08.2011 14:26:21

IEEE1528_OET65-LeftHandSide-WCDMA FDD II

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: WCDMA FDD II; Frequency: 1907.6 MHz; Duty Cycle: 1:1

Medium: HSL1900 Medium parameters used (interpolated): $f = 1907.6 \text{ MHz}$; $\sigma = 1.39 \text{ mho/m}$; $\epsilon_r = 40$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(5.16, 5.16, 5.16); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Touch position - High/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 1.18 mW/g

Touch position - High/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

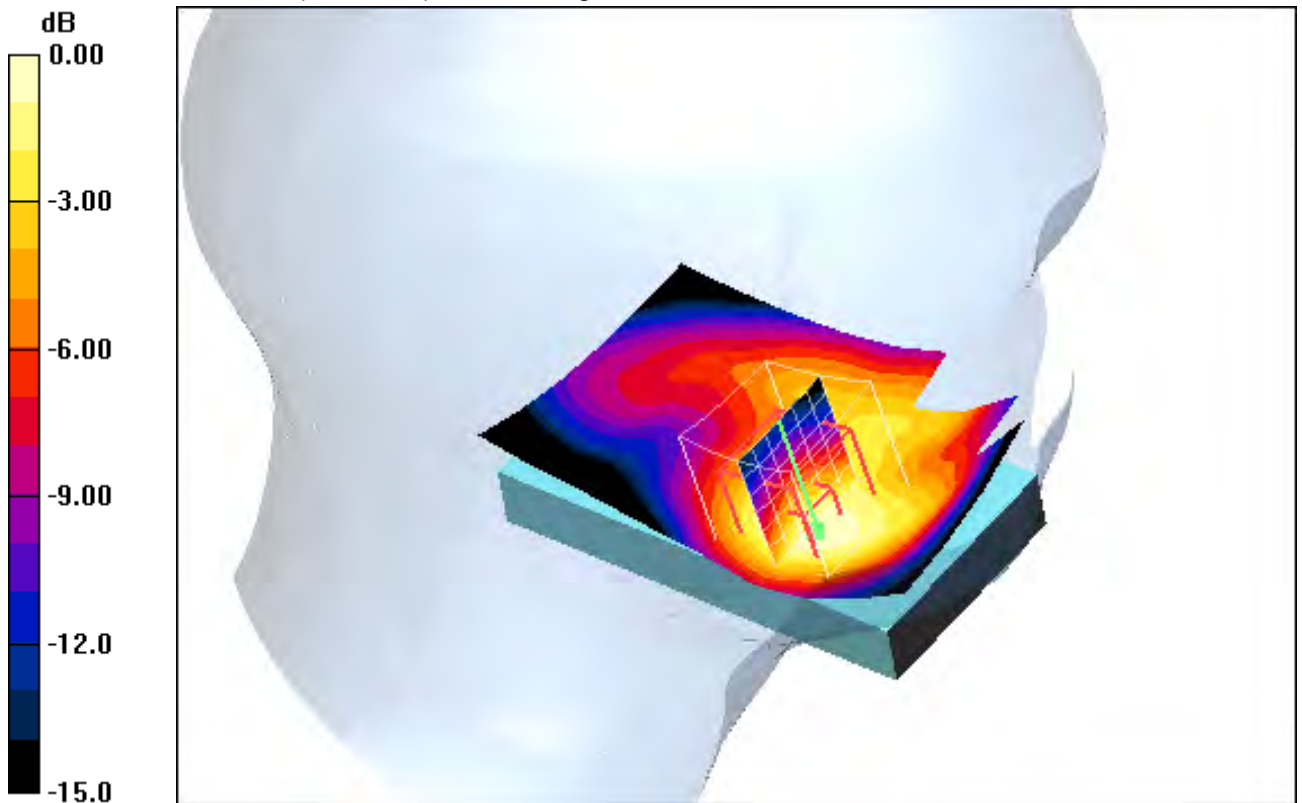
$dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 27.1 V/m; Power Drift = -0.018 dB

Peak SAR (extrapolated) = 1.64 W/kg

SAR(1 g) = 1.06 mW/g; SAR(10 g) = 0.602 mW/g

Maximum value of SAR (measured) = 1.16 mW/g



0 dB = 1.16mW/g

Additional information:

ambient temperature: 23.8°C; liquid temperature: 22.1°C

Date/Time: 11.08.2011 15:21:45 Date/Time: 11.08.2011 15:29:22

IEEE1528_OET65-LeftHandSide-WCDMA FDD II

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: WCDMA FDD II; Frequency: 1852.5 MHz; Duty Cycle: 1:1

Medium: HSL1900 Medium parameters used (interpolated): $f = 1852.5 \text{ MHz}$; $\sigma = 1.34 \text{ mho/m}$; $\epsilon_r = 40.2$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(5.16, 5.16, 5.16); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Tilt position - Low/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.541 mW/g

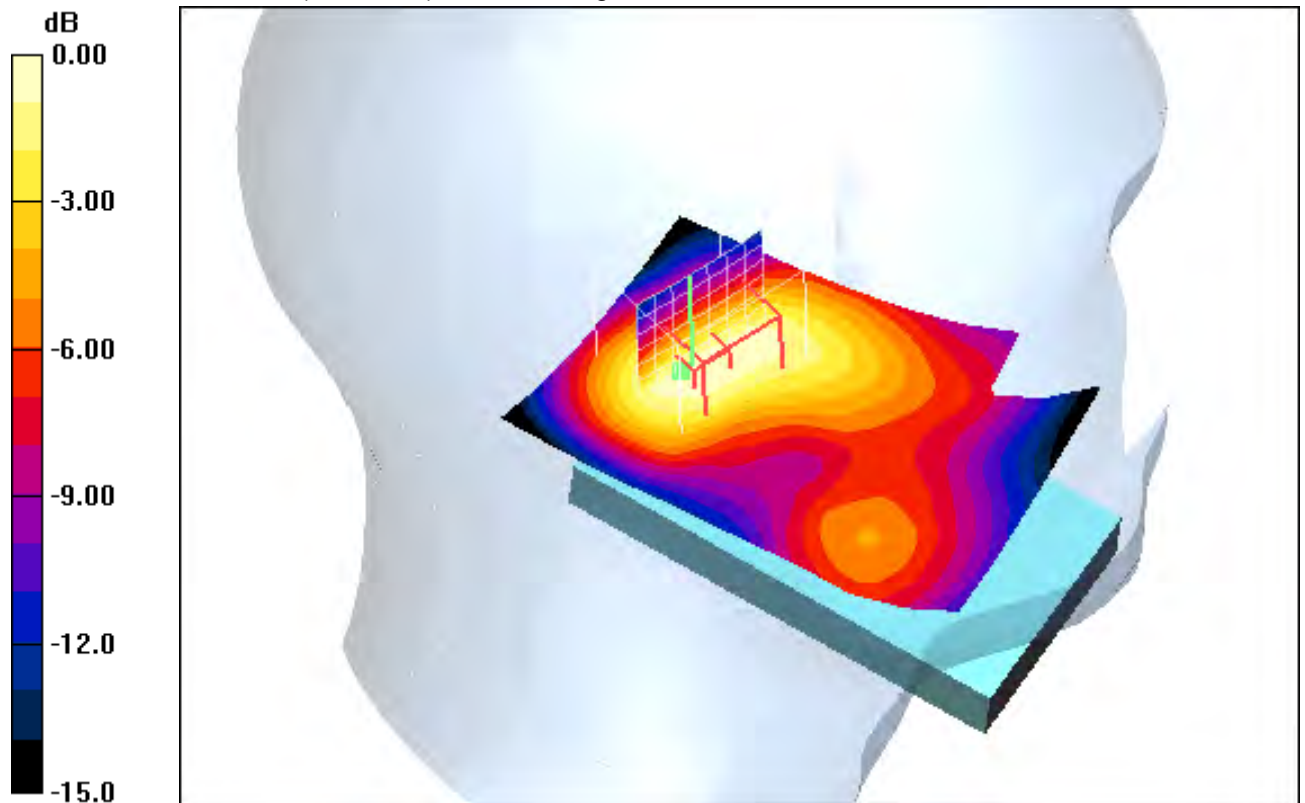
Tilt position - Low/Zoom Scan (7x7x7) (8x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 20.2 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.699 W/kg

SAR(1 g) = 0.488 mW/g; SAR(10 g) = 0.299 mW/g

Maximum value of SAR (measured) = 0.539 mW/g



0 dB = 0.539mW/g

Additional information:

position or distance of DUT to SAM (if not standard head positions) :

ambient temperature: °C; liquid temperature: °C

Date/Time: 11.08.2011 15:44:43 Date/Time: 11.08.2011 15:52:19

IEEE1528_OET65-LeftHandSide-WCDMA FDD II

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: WCDMA FDD II; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: HSL1900 Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.37 \text{ mho/m}$; $\epsilon_r = 40.1$; $\rho = 1000 \text{ kg/m}^3$

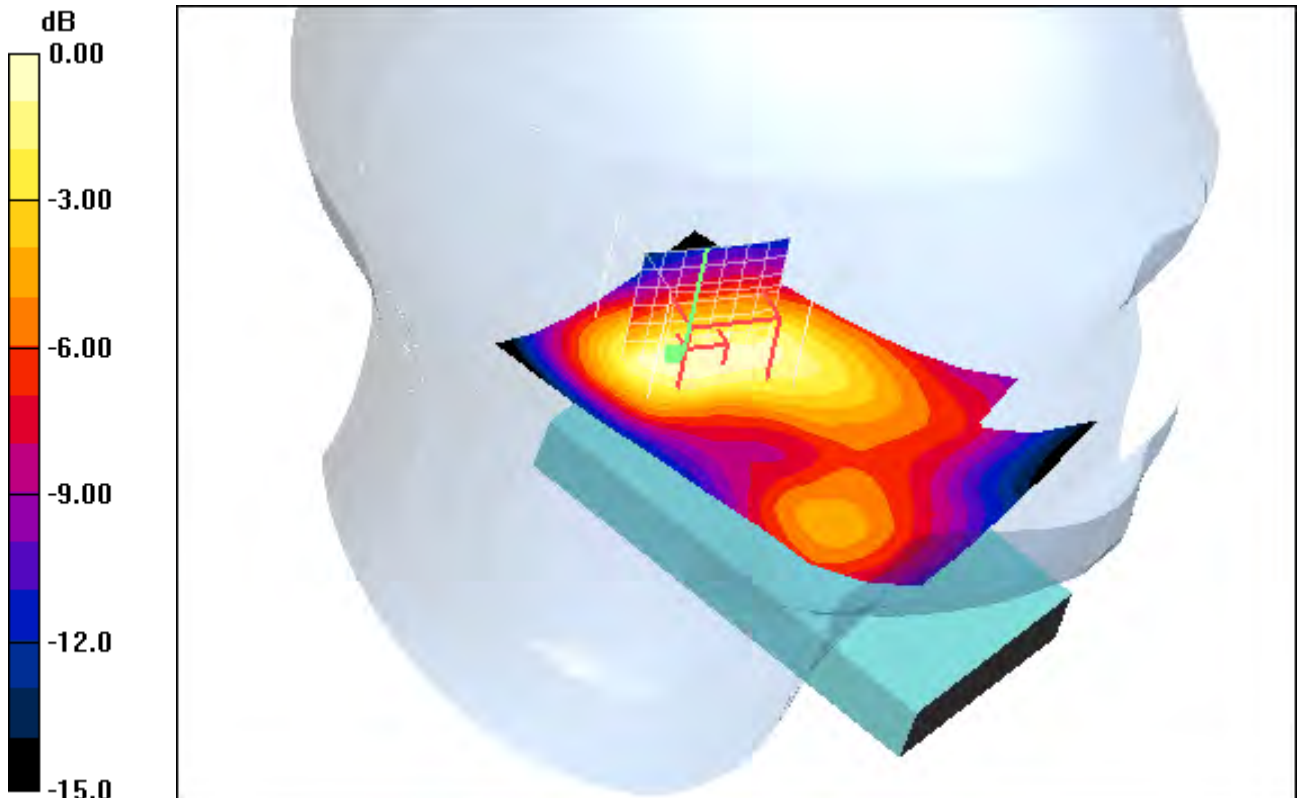
Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(5.16, 5.16, 5.16); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Tilt position - Middle/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
 Maximum value of SAR (interpolated) = 0.444 mW/g

Tilt position - Middle/Zoom Scan (7x7x7) (8x7x7)/Cube 0: Measurement grid:
 $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
 Reference Value = 17.8 V/m; Power Drift = 0.012 dB
 Peak SAR (extrapolated) = 0.571 W/kg
SAR(1 g) = 0.393 mW/g; SAR(10 g) = 0.239 mW/g
 Maximum value of SAR (measured) = 0.433 mW/g



0 dB = 0.433mW/g

Additional information:

ambient temperature: 23.8°C; liquid temperature: 22.1°C

Date/Time: 11.08.2011 16:27:39 Date/Time: 11.08.2011 16:33:27

IEEE1528_OET65-LeftHandSide-WCDMA FDD II

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: WCDMA FDD II; Frequency: 1907.6 MHz; Duty Cycle: 1:1

Medium: HSL1900 Medium parameters used (interpolated): $f = 1907.6 \text{ MHz}$; $\sigma = 1.39 \text{ mho/m}$; $\epsilon_r = 40$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(5.16, 5.16, 5.16); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Tilt position - High/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.410 mW/g

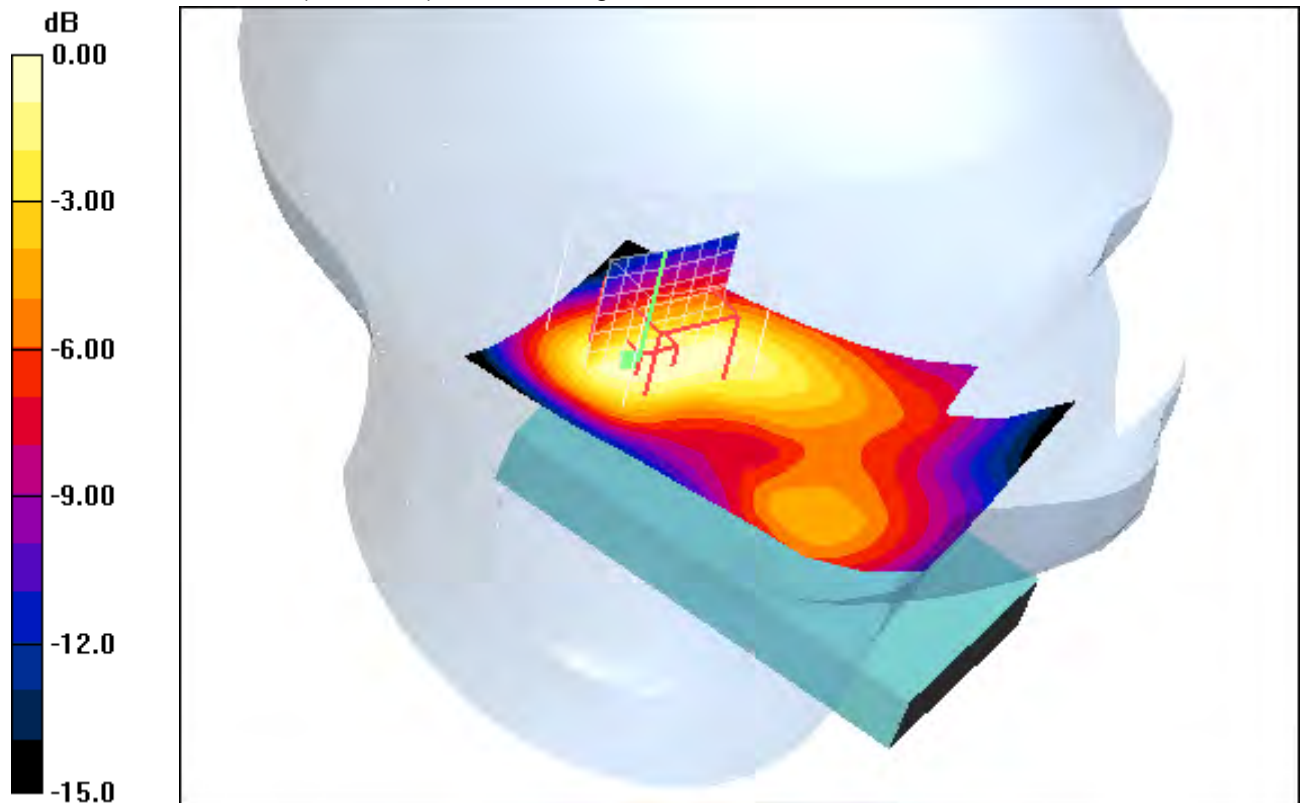
Tilt position - High/Zoom Scan (7x7x7) (8x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 17.0 V/m; Power Drift = -0.015 dB

Peak SAR (extrapolated) = 0.528 W/kg

SAR(1 g) = 0.358 mW/g; SAR(10 g) = 0.216 mW/g

Maximum value of SAR (measured) = 0.396 mW/g



0 dB = 0.396mW/g

Additional information:

ambient temperature: 23.8°C; liquid temperature: 22.1°C

Date/Time: 11.08.2011 17:59:41 Date/Time: 11.08.2011 18:07:58

IEEE1528_OET65-RightHandSide-WCDMA FDD II

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: WCDMA FDD II; Frequency: 1852.5 MHz; Duty Cycle: 1:1

Medium: HSL1900 Medium parameters used (interpolated): $f = 1852.5 \text{ MHz}$; $\sigma = 1.34 \text{ mho/m}$; $\epsilon_r = 40.2$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(5.16, 5.16, 5.16); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Touch position - Low/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 1.14 mW/g

Touch position - Low/Zoom Scan (7x7x7) (11x7x7)/Cube 0: Measurement grid:

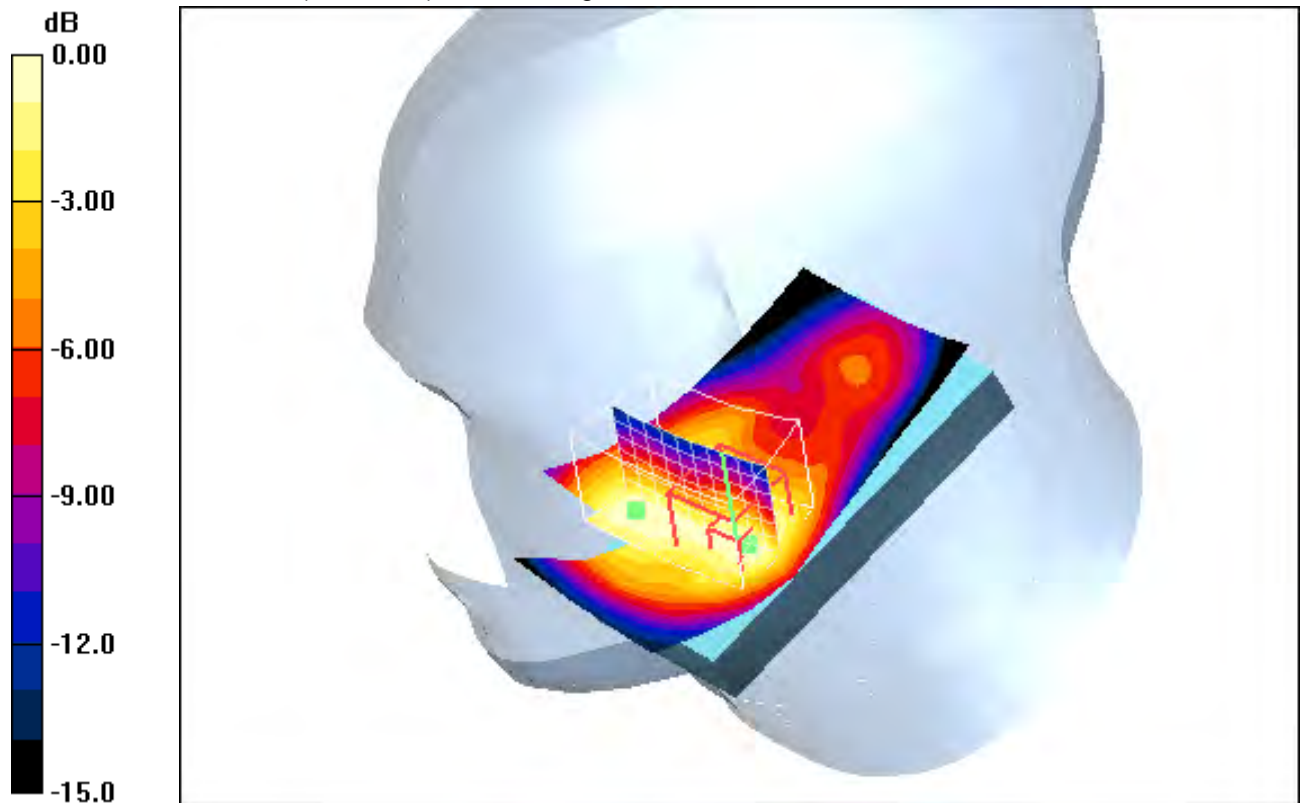
$dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 30.6 V/m; Power Drift = -0.082 dB

Peak SAR (extrapolated) = 1.58 W/kg

SAR(1 g) = 1.12 mW/g; SAR(10 g) = 0.668 mW/g

Maximum value of SAR (measured) = 1.22 mW/g



0 dB = 1.22mW/g

Additional information:

ambient temperature: 23.7°C; liquid temperature: 21.7°C

Date/Time: 11.08.2011 18:28:53 Date/Time: 11.08.2011 18:37:56

IEEE1528_OET65-RightHandSide-WCDMA FDD II

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: WCDMA FDD II; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: HSL1900 Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.37 \text{ mho/m}$; $\epsilon_r = 40.1$; $\rho = 1000 \text{ kg/m}^3$

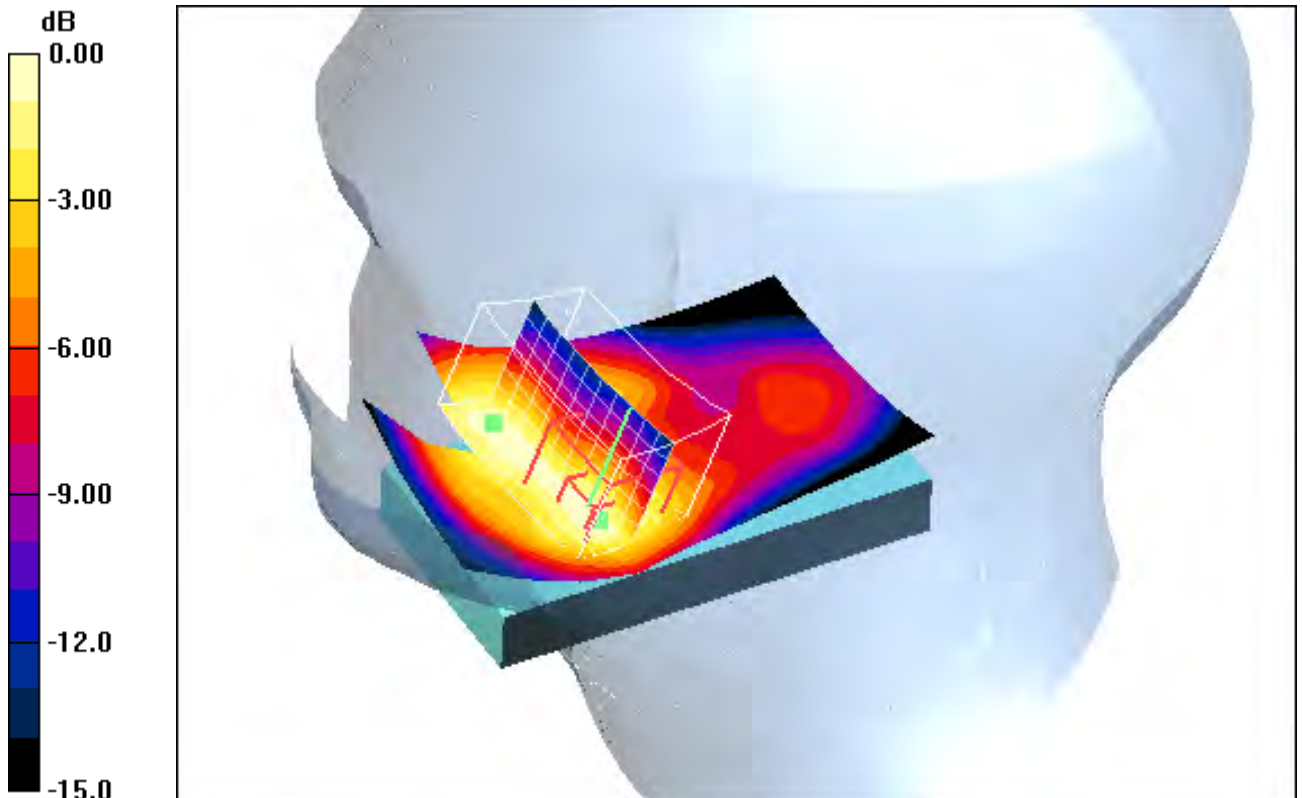
Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(5.16, 5.16, 5.16); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Touch position - Middle/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
 Maximum value of SAR (interpolated) = 0.987 mW/g

Touch position - Middle/Zoom Scan (7x7x7) (11x7x7)/Cube 0: Measurement grid:
 $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
 Reference Value = 28.0 V/m; Power Drift = 0.01 dB
 Peak SAR (extrapolated) = 1.41 W/kg
SAR(1 g) = 0.975 mW/g; SAR(10 g) = 0.577 mW/g
 Maximum value of SAR (measured) = 1.07 mW/g



0 dB = 1.07mW/g

Additional information:

ambient temperature: 23.7°C; liquid temperature: 21.7°C

Date/Time: 11.08.2011 19:00:49 Date/Time: 11.08.2011 19:07:45

IEEE1528_OET65-RightHandSide-WCDMA FDD II

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: WCDMA FDD II; Frequency: 1907.6 MHz; Duty Cycle: 1:1

Medium: HSL1900 Medium parameters used (interpolated): $f = 1907.6 \text{ MHz}$; $\sigma = 1.39 \text{ mho/m}$; $\epsilon_r = 40$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(5.16, 5.16, 5.16); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Touch position - High/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.905 mW/g

Touch position - High/Zoom Scan (7x7x7) (11x7x7)/Cube 0: Measurement grid:

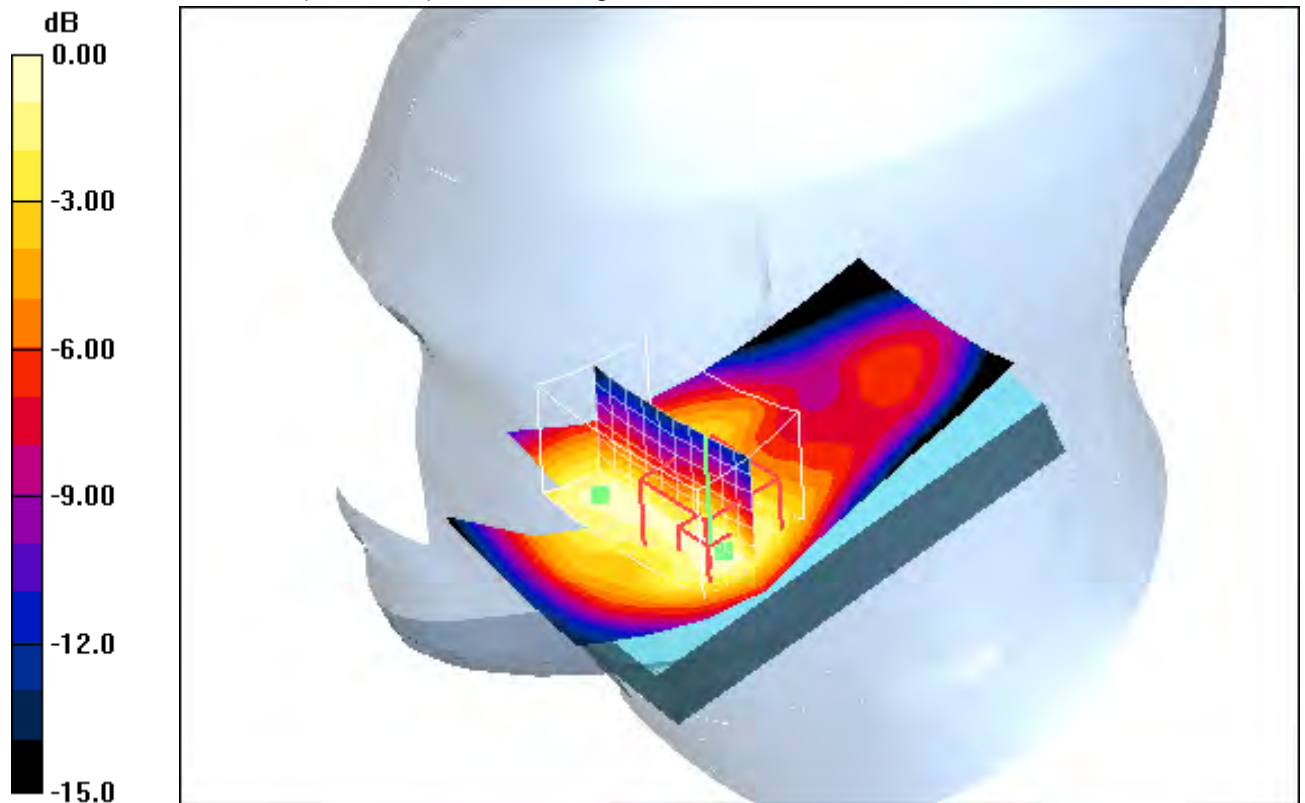
$dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 26.1 V/m; Power Drift = -0.040 dB

Peak SAR (extrapolated) = 1.27 W/kg

SAR(1 g) = 0.869 mW/g; SAR(10 g) = 0.507 mW/g

Maximum value of SAR (measured) = 0.951 mW/g



0 dB = 0.951mW/g

Additional information:

ambient temperature: 23.7°C; liquid temperature: 21.7°C

Date/Time: 11.08.2011 17:36:11 Date/Time: 11.08.2011 17:42:53

IEEE1528_OET65-RightHandSide-WCDMA FDD II

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: WCDMA FDD II; Frequency: 1852.5 MHz; Duty Cycle: 1:1

Medium: HSL1900 Medium parameters used (interpolated): $f = 1852.5 \text{ MHz}$; $\sigma = 1.34 \text{ mho/m}$; $\epsilon_r = 40.2$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(5.16, 5.16, 5.16); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Tilt position - Low/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.611 mW/g

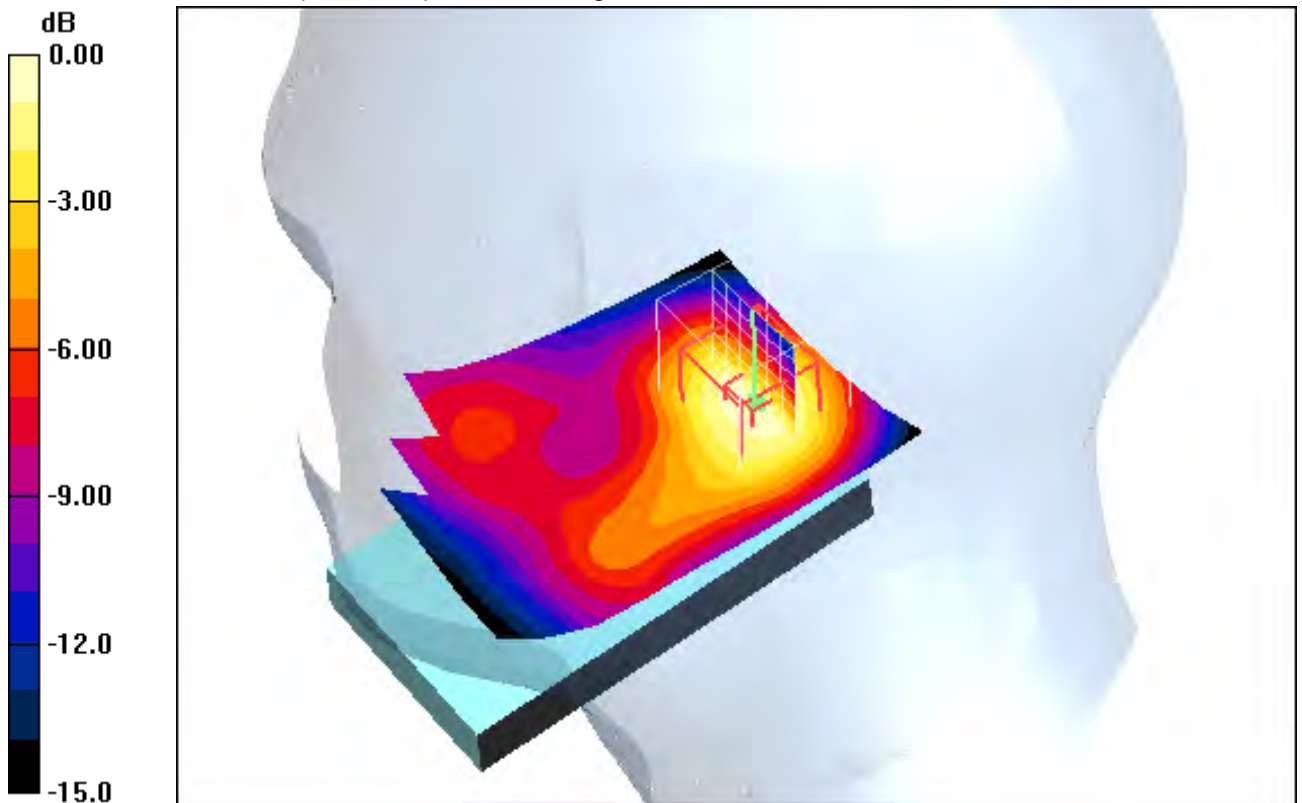
Tilt position - Low/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 20.5 V/m; Power Drift = -0.081 dB

Peak SAR (extrapolated) = 0.760 W/kg

SAR(1 g) = 0.515 mW/g; SAR(10 g) = 0.306 mW/g

Maximum value of SAR (measured) = 0.576 mW/g



0 dB = 0.576mW/g

Additional information:

ambient temperature: 23.7°C; liquid temperature: 21.7°C

Date/Time: 11.08.2011 17:12:32 Date/Time: 11.08.2011 17:19:21

IEEE1528_OET65-RightHandSide-WCDMA FDD II

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: WCDMA FDD II; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: HSL1900 Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.37 \text{ mho/m}$; $\epsilon_r = 40.1$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(5.16, 5.16, 5.16); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Tilt position - Middle/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.500 mW/g

Tilt position - Middle/Zoom Scan (7x7x7) (8x8x7)/Cube 0: Measurement grid:

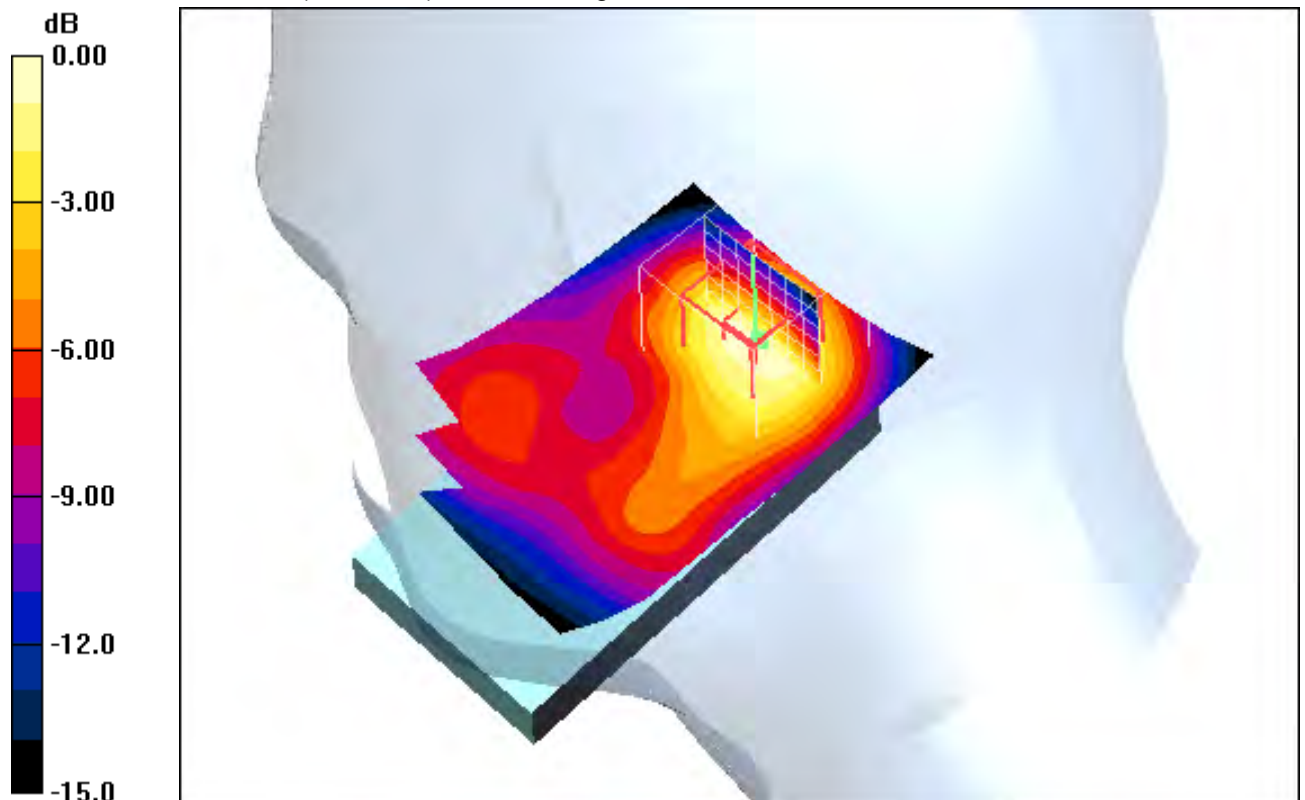
$dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 18.4 V/m; Power Drift = -0.028 dB

Peak SAR (extrapolated) = 0.627 W/kg

SAR(1 g) = 0.425 mW/g; SAR(10 g) = 0.251 mW/g

Maximum value of SAR (measured) = 0.469 mW/g



Additional information:

ambient temperature: 23.7°C; liquid temperature: 21.7°C

Date/Time: 11.08.2011 16:53:25 Date/Time: 11.08.2011 16:59:42

IEEE1528_OET65-RightHandSide-WCDMA FDD II

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: WCDMA FDD II; Frequency: 1907.6 MHz; Duty Cycle: 1:1

Medium: HSL1900 Medium parameters used (interpolated): $f = 1907.6 \text{ MHz}$; $\sigma = 1.39 \text{ mho/m}$; $\epsilon_r = 40$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(5.16, 5.16, 5.16); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Tilt position - High/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.447 mW/g

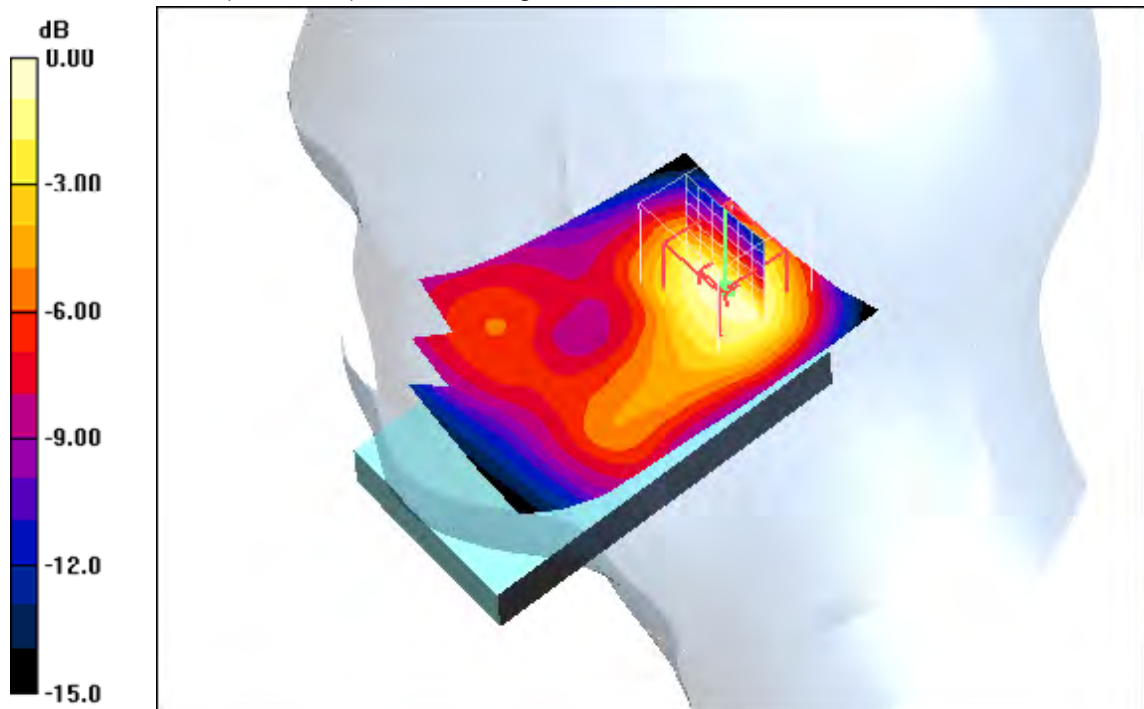
Tilt position - High/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 17.1 V/m; Power Drift = -0.085 dB

Peak SAR (extrapolated) = 0.548 W/kg

SAR(1 g) = 0.370 mW/g; SAR(10 g) = 0.218 mW/g

Maximum value of SAR (measured) = 0.410 mW/g



0 dB = 0.410mW/g

Additional information:

ambient temperature: 23.7°C; liquid temperature: 21.7°C

Annex B.8: UMTS WCDMA FDD II 1900MHz body

Date/Time: 14.08.2011 15:26:54 Date/Time: 14.08.2011 15:34:30

IEEE1528_OET65-Body-WCDMA FDD II

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: WCDMA FDD II; Frequency: 1852.5 MHz; Duty Cycle: 1:1

Medium: M1900 Medium parameters used (interpolated): $f = 1852.5 \text{ MHz}$; $\sigma = 1.47 \text{ mho/m}$; $\epsilon_r = 52.8$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(4.42, 4.42, 4.42); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Front position - Low/Area Scan (51x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.836 mW/g

Front position - Low/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

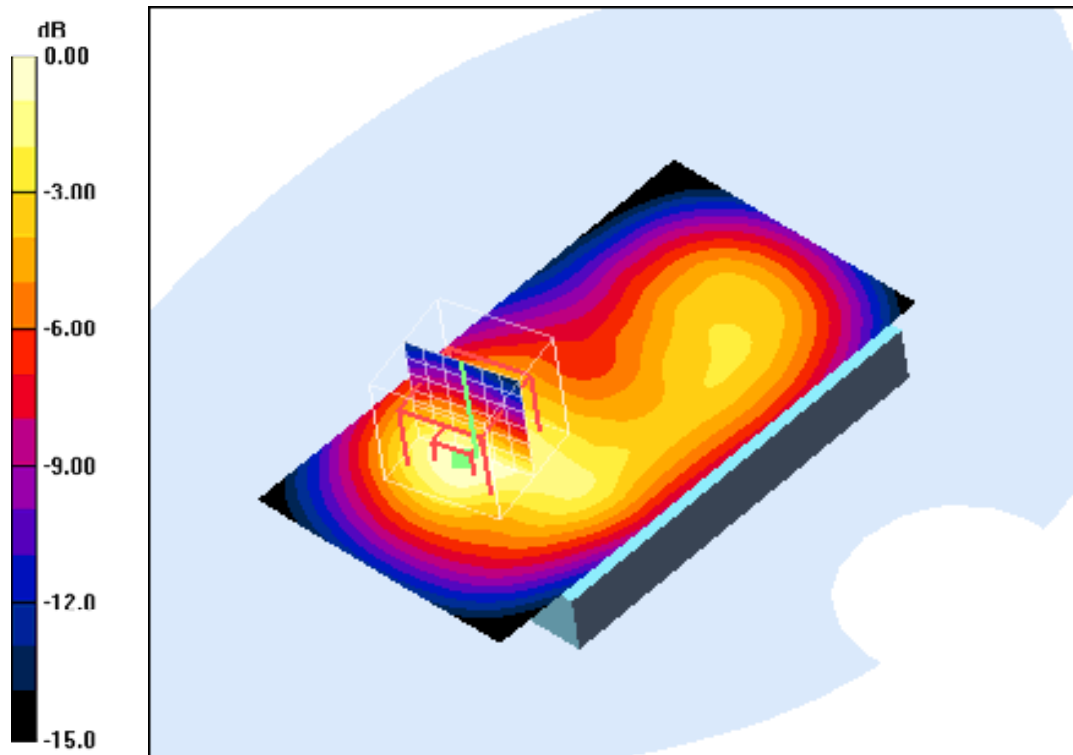
$dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 24.3 V/m; Power Drift = -0.037 dB

Peak SAR (extrapolated) = 1.21 W/kg

SAR(1 g) = 0.762 mW/g; SAR(10 g) = 0.448 mW/g

Maximum value of SAR (measured) = 0.830 mW/g



0 dB = 0.830mW/g

Additional information:

position or distance of DUT to SAM: 10 mm

ambient temperature: 23.7°C; liquid temperature: 23.0°C

Date/Time: 14.08.2011 15:48:01 Date/Time: 14.08.2011 15:55:34

IEEE1528_OET65-Body-WCDMA FDD II

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: WCDMA FDD II; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: M1900 Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.5 \text{ mho/m}$; $\epsilon_r = 52.7$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(4.42, 4.42, 4.42); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Front position - Middle/Area Scan (51x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.702 mW/g

Front position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

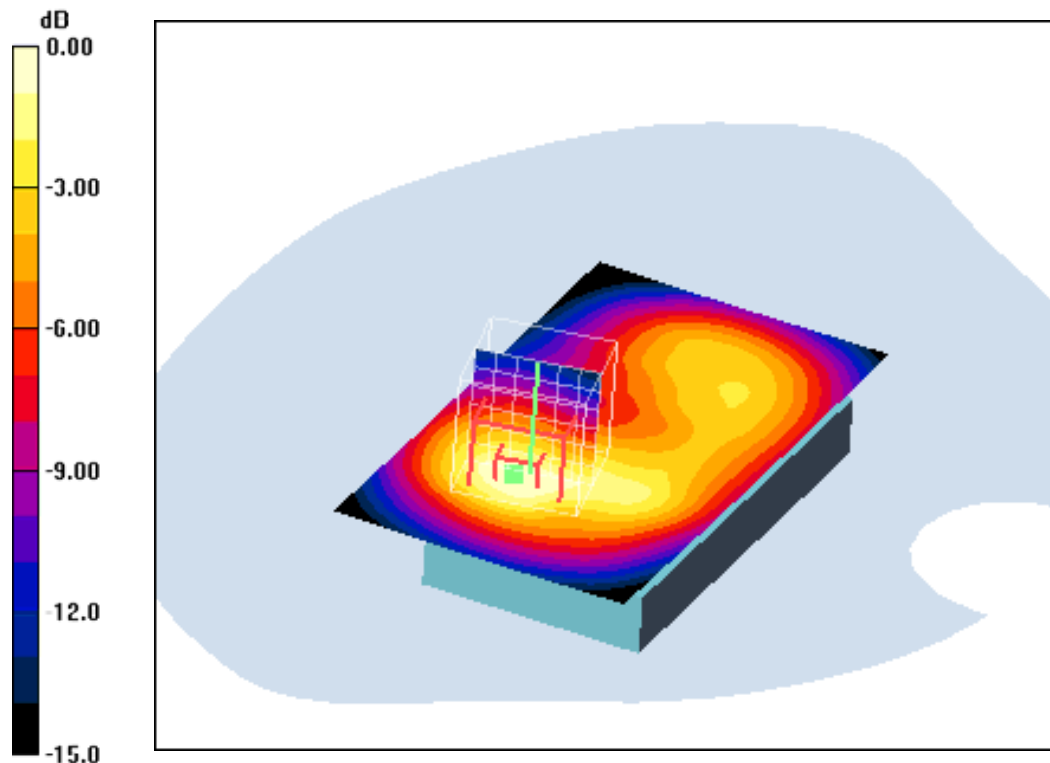
$dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 22.5 V/m; Power Drift = -0.119 dB

Peak SAR (extrapolated) = 1.04 W/kg

SAR(1 g) = 0.647 mW/g; SAR(10 g) = 0.378 mW/g

Maximum value of SAR (measured) = 0.700 mW/g



0 dB = 0.700mW/g

Additional information:

position or distance of DUT to SAM: 10 mm

ambient temperature: 23.7°C; liquid temperature: 23.0°C

Date/Time: 14.08.2011 16:21:27 Date/Time: 14.08.2011 16:28:36

IEEE1528_OET65-Body-WCDMA FDD II

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: WCDMA FDD II; Frequency: 1907.6 MHz; Duty Cycle: 1:1

Medium: M1900 Medium parameters used (interpolated): $f = 1907.6$ MHz; $\sigma = 1.53$ mho/m; $\epsilon_r = 52.6$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(4.42, 4.42, 4.42); Calibrated: 11.05.2011

- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)

- Electronics: DAE3 Sn413; Calibrated: 13.01.2011

- Phantom: SAM 12; Type: SAM; Serial: 1043

- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Front position - High/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.770 mW/g

Front position - High/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

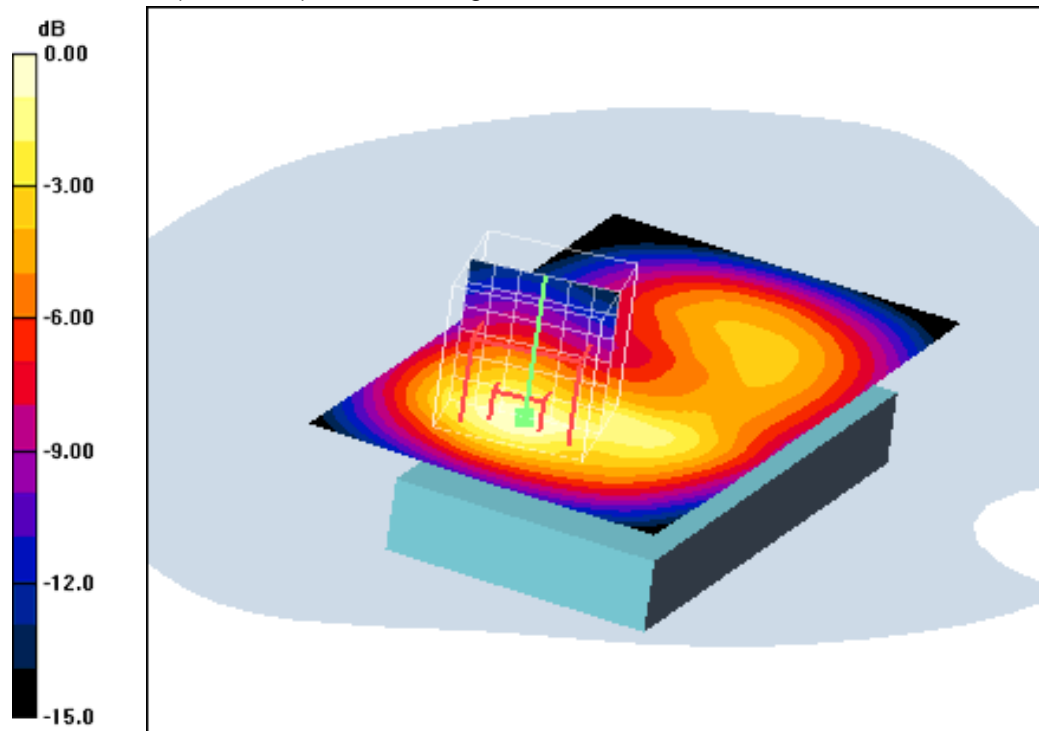
dx=5mm, dy=5mm, dz=5mm

Reference Value = 23.0 V/m; Power Drift = -0.141 dB

Peak SAR (extrapolated) = 1.11 W/kg

SAR(1 g) = 0.666 mW/g; SAR(10 g) = 0.385 mW/g

Maximum value of SAR (measured) = 0.739 mW/g



0 dB = 0.739mW/g

Additional information:

position or distance of DUT to SAM: 10mm

ambient temperature: 23.7°C; liquid temperature: 23.0°C

Date/Time: 14.08.2011 17:33:03 Date/Time: 14.08.2011 17:40:27

IEEE1528_OET65-Body-WCDMA FDD II

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: WCDMA FDD II; Frequency: 1852.5 MHz; Duty Cycle: 1:1

Medium: M1900 Medium parameters used (interpolated): $f = 1852.5$ MHz; $\sigma = 1.47$ mho/m; $\epsilon_r = 52.8$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(4.42, 4.42, 4.42); Calibrated: 11.05.2011

- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)

- Electronics: DAE3 Sn413; Calibrated: 13.01.2011

- Phantom: SAM 12; Type: SAM; Serial: 1043

- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Rear position - Low/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.992 mW/g

Rear position - Low/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

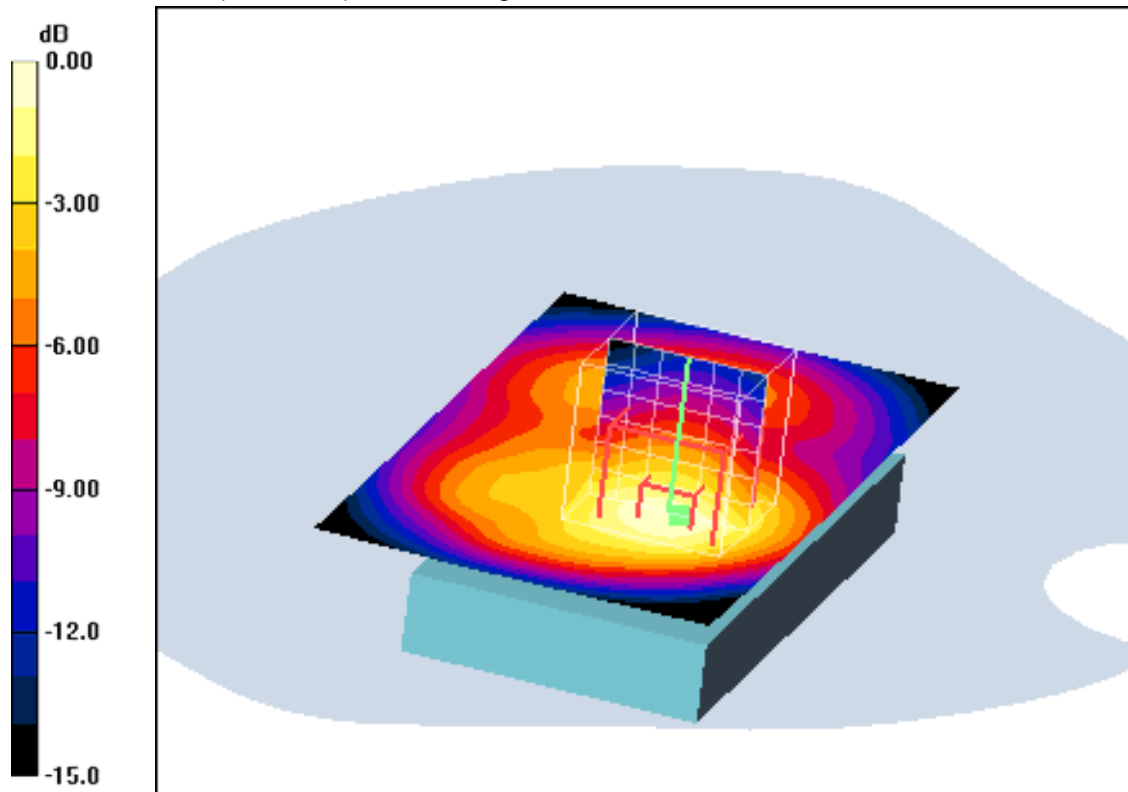
dx=5mm, dy=5mm, dz=5mm

Reference Value = 26.1 V/m; Power Drift = 0.099 dB

Peak SAR (extrapolated) = 1.41 W/kg

SAR(1 g) = 0.929 mW/g; SAR(10 g) = 0.548 mW/g

Maximum value of SAR (measured) = 1.04 mW/g



0 dB = 1.04mW/g

Additional information:

position or distance of DUT to SAM: 10mm

ambient temperature: 23.7°C; liquid temperature: 23.0°C

Date/Time: 14.08.2011 17:12:31 Date/Time: 14.08.2011 17:20:03

IEEE1528_OET65-Body-WCDMA FDD II

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: WCDMA FDD II; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: M1900 Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.5 \text{ mho/m}$; $\epsilon_r = 52.7$; $\rho = 1000 \text{ kg/m}^3$

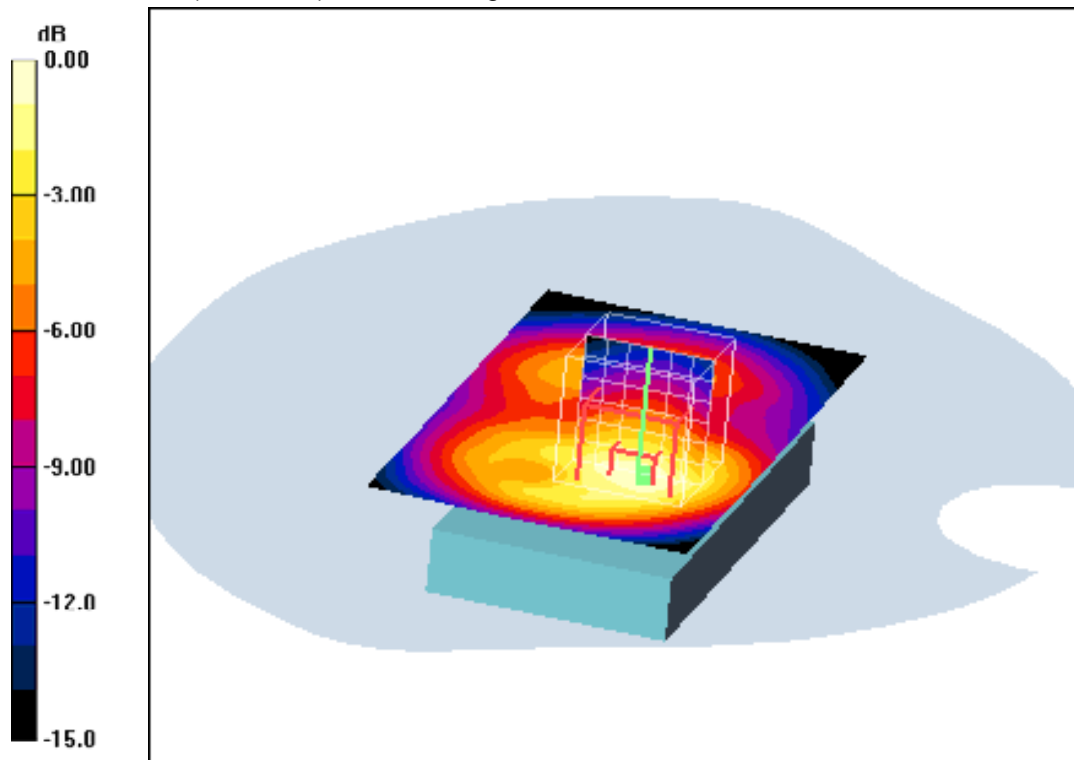
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(4.42, 4.42, 4.42); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Rear position - Middle/Area Scan (51x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
 Maximum value of SAR (interpolated) = 0.905 mW/g

Rear position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:
 $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
 Reference Value = 25.0 V/m; Power Drift = 0.039 dB
 Peak SAR (extrapolated) = 1.25 W/kg
SAR(1 g) = 0.818 mW/g; SAR(10 g) = 0.482 mW/g
 Maximum value of SAR (measured) = 0.893 mW/g



0 dB = 0.893mW/g

Additional information:

position or distance of DUT to SAM: 10mm
 ambient temperature: 23.7°C; liquid temperature: 23.0°C

Date/Time: 14.08.2011 16:46:14 Date/Time: 14.08.2011 16:54:32

IEEE1528_OET65-Body-WCDMA FDD II

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: WCDMA FDD II; Frequency: 1907.6 MHz; Duty Cycle: 1:1

Medium: M1900 Medium parameters used (interpolated): $f = 1907.6$ MHz; $\sigma = 1.53$ mho/m; $\epsilon_r = 52.6$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(4.42, 4.42, 4.42); Calibrated: 11.05.2011

- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)

- Electronics: DAE3 Sn413; Calibrated: 13.01.2011

- Phantom: SAM 12; Type: SAM; Serial: 1043

- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Rear position - High/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.922 mW/g

Rear position - High/Zoom Scan (7x7x7) (7x10x7)/Cube 0: Measurement grid:

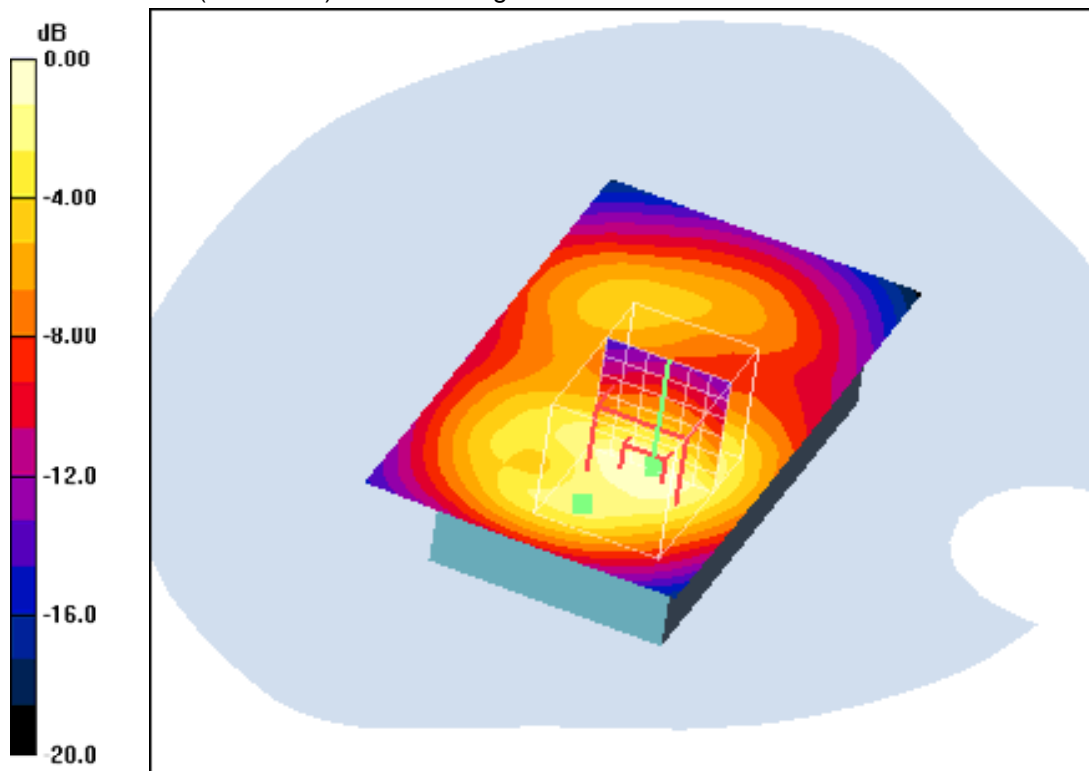
dx=5mm, dy=5mm, dz=5mm

Reference Value = 25.7 V/m; Power Drift = -0.172 dB

Peak SAR (extrapolated) = 1.29 W/kg

SAR(1 g) = 0.819 mW/g; SAR(10 g) = 0.477 mW/g

Maximum value of SAR (measured) = 0.900 mW/g



0 dB = 0.900mW/g

Additional information:

position or distance of DUT to SAM: 10mm

ambient temperature: 23.7°C; liquid temperature: 23.0°C

Date/Time: 14.08.2011 14:39:54 Date/Time: 14.08.2011 14:47:05

IEEE1528_OET65-Body-WCDMA FDD II

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: WCDMA FDD II; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: M1900 Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.5 \text{ mho/m}$; $\epsilon_r = 52.7$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(4.42, 4.42, 4.42); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Edge left position - Middle/Area Scan (51x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.286 mW/g

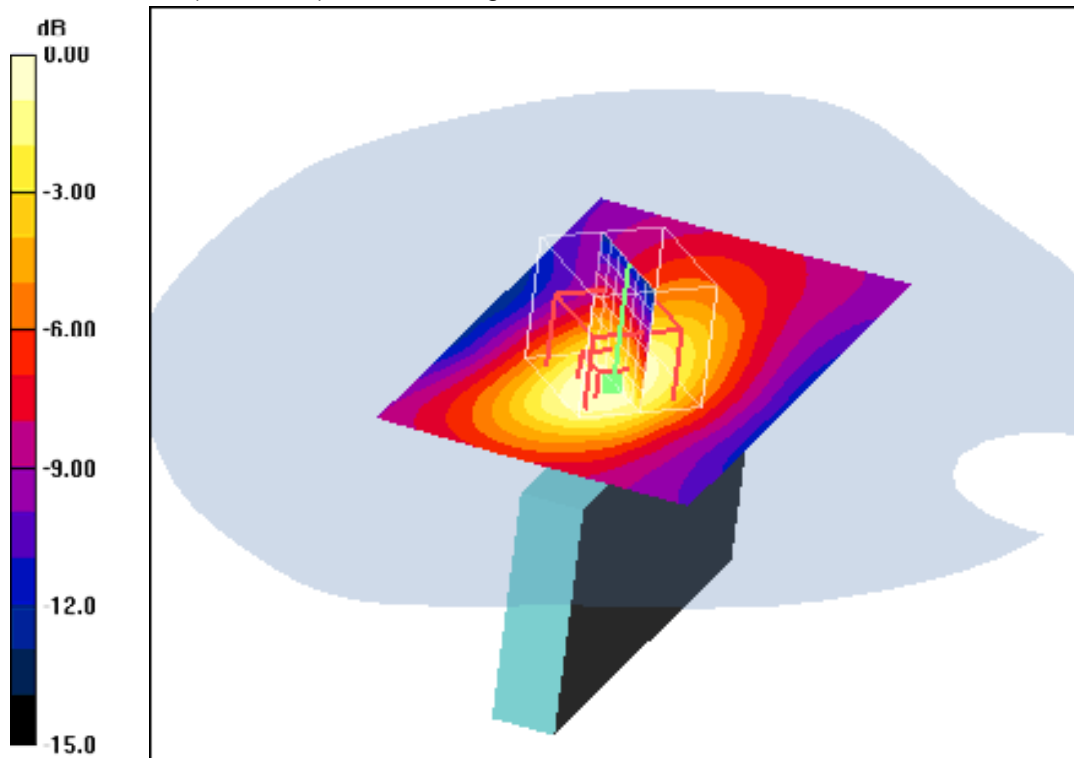
Edge left position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 12.9 V/m; Power Drift = -0.016 dB

Peak SAR (extrapolated) = 0.371 W/kg

SAR(1 g) = 0.234 mW/g; SAR(10 g) = 0.140 mW/g

Maximum value of SAR (measured) = 0.256 mW/g



0 dB = 0.256mW/g

Additional information:

position or distance of DUT to SAM: 10mm

ambient temperature: 23.7°C; liquid temperature: 23.0°C

Date/Time: 14.08.2011 15:01:10 Date/Time: 14.08.2011 15:08:37

IEEE1528_OET65-Body-WCDMA FDD II

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: WCDMA FDD II; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: M1900 Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.5 \text{ mho/m}$; $\epsilon_r = 52.7$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(4.42, 4.42, 4.42); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Edge right position - Middle/Area Scan (51x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.325 mW/g

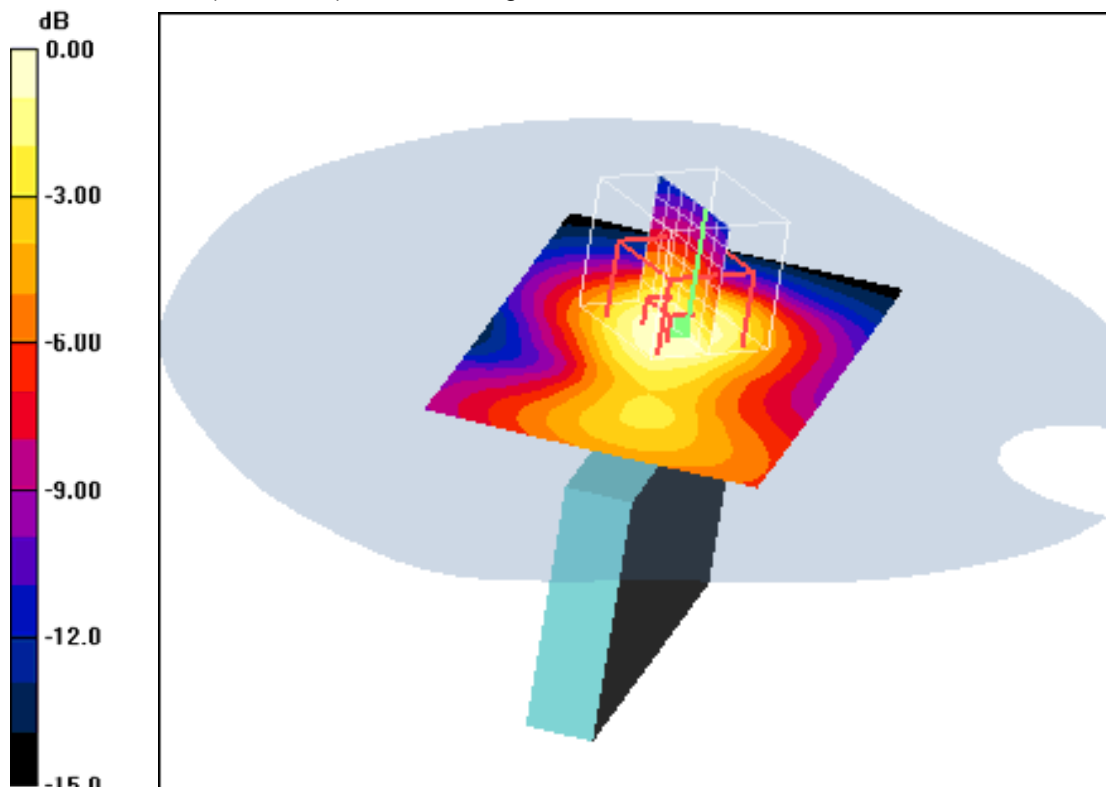
Edge right position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 13.7 V/m; Power Drift = -0.016 dB

Peak SAR (extrapolated) = 0.420 W/kg

SAR(1 g) = 0.274 mW/g; SAR(10 g) = 0.168 mW/g

Maximum value of SAR (measured) = 0.296 mW/g



0 dB = 0.296mW/g

Additional information:

position or distance of DUT to SAM: 10mm

ambient temperature: 23.7°C; liquid temperature: 23.0°C

Date/Time: 14.08.2011 13:53:06 Date/Time: 14.08.2011 13:59:06

IEEE1528_OET65-Body-WCDMA FDD II

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: WCDMA FDD II; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: M1900 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.5$ mho/m; $\epsilon_r = 52.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(4.42, 4.42, 4.42); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Edge bottom position - Middle/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.473 mW/g

Edge bottom position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

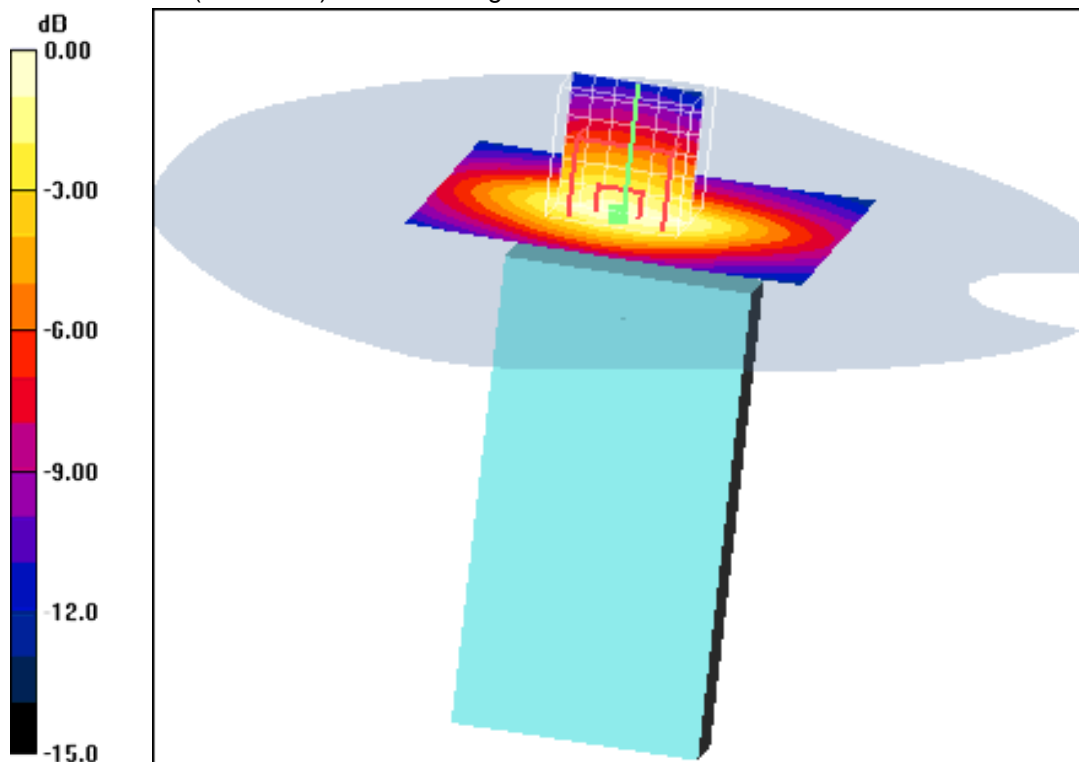
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 18.3 V/m; Power Drift = -0.028 dB

Peak SAR (extrapolated) = 0.639 W/kg

SAR(1 g) = 0.413 mW/g; SAR(10 g) = 0.248 mW/g

Maximum value of SAR (measured) = 0.454 mW/g



0 dB = 0.454mW/g

Additional information:

position or distance of DUT to SAM: 10mm

ambient temperature: 23.7°C; liquid temperature: 23.0°C

Date/Time: 14.08.2011 18:01:01 Date/Time: 14.08.2011 18:08:25

IEEE1528_OET65-Body-WCDMA FDD II spech

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GHYJB

Communication System: WCDMA FDD II; Frequency: 1852.5 MHz; Duty Cycle: 1:1

Medium: M1900 Medium parameters used (interpolated): $f = 1852.5 \text{ MHz}$; $\sigma = 1.47 \text{ mho/m}$; $\epsilon_r = 52.8$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1554; ConvF(4.42, 4.42, 4.42); Calibrated: 11.05.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 13.01.2011
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Rear position - Low/Area Scan (51x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.534 mW/g

Rear position - Low/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

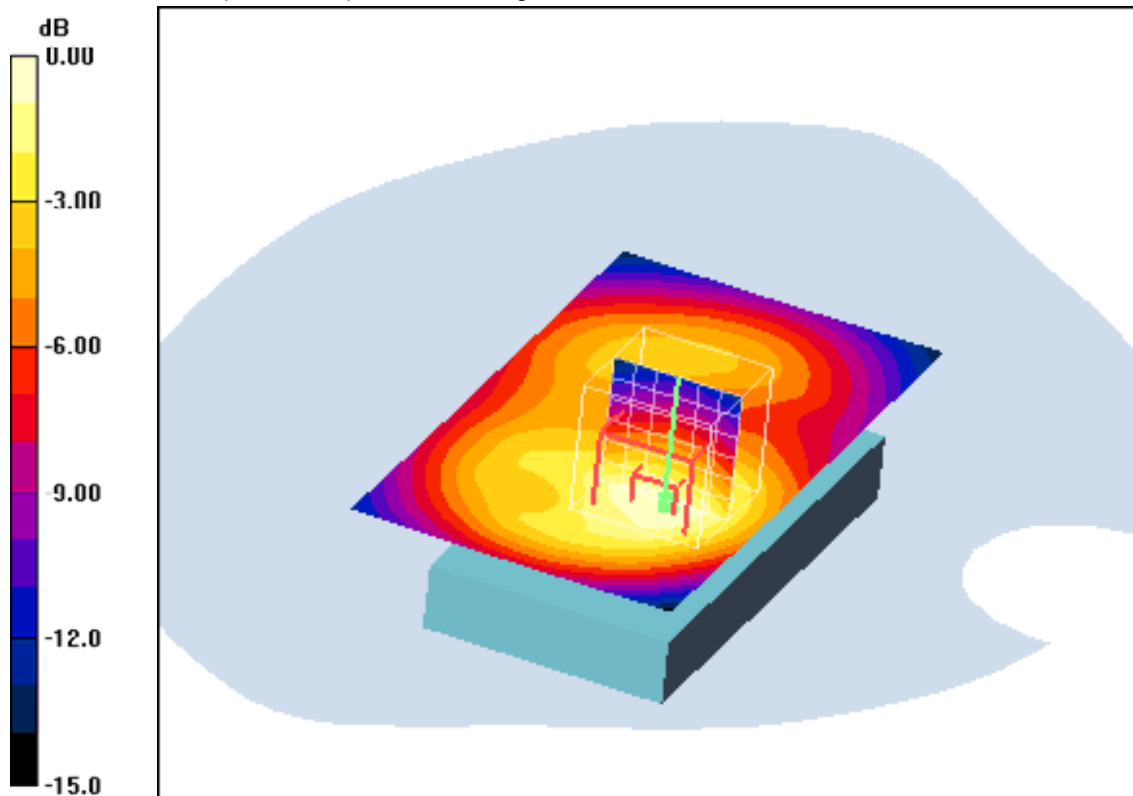
$dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 19.1 V/m; Power Drift = -0.068 dB

Peak SAR (extrapolated) = 0.721 W/kg

SAR(1 g) = 0.479 mW/g; SAR(10 g) = 0.293 mW/g

Maximum value of SAR (measured) = 0.524 mW/g



0 dB = 0.524mW/g

Additional information:

position or distance of DUT to SAM: 15mm (with headset)

ambient temperature: 23.7°C; liquid temperature: 23.0°C

Annex B.9: WLAN 2450MHz head

Date/Time: 18.08.2011 10:13:13 Date/Time: 18.08.2011 10:22:24

IEEE1528_OET65-LeftHandSide_WLAN

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GQPDP

Communication System: WLAN 2450 US; Frequency: 2412 MHz; Duty Cycle: 1:1

Medium: HSL2450 Medium parameters used: $f = 2412$ MHz; $\sigma = 1.81$ mho/m; $\epsilon_r = 39.3$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1559; ConvF(4.38, 4.38, 4.38); Calibrated: 19.01.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn477; Calibrated: 04.05.2011
- Phantom: SAM left; Type: SAM; Serial: 1041
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 146

Touch position - Low/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.358 mW/g

Touch position - Low/Zoom Scan (7x7x7) (9x7x7)/Cube 0: Measurement grid:

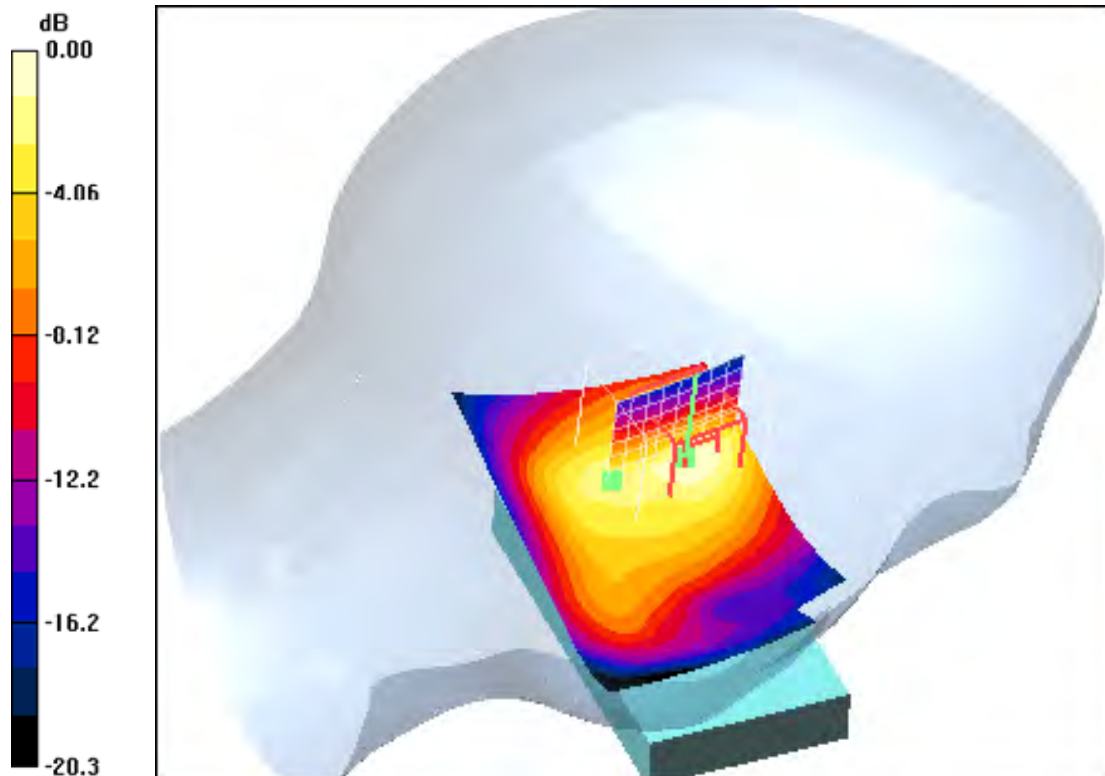
dx=5mm, dy=5mm, dz=5mm

Reference Value = 14.3 V/m; Power Drift = 0.103 dB

Peak SAR (extrapolated) = 0.620 W/kg

SAR(1 g) = 0.305 mW/g; SAR(10 g) = 0.152 mW/g

Maximum value of SAR (measured) = 0.332 mW/g



0 dB = 0.332mW/g

Additional information:

ambient temperature: 23.4°C; liquid temperature: 22.9°C

Date/Time: 18.08.2011 13:48:09 Date/Time: 18.08.2011 13:57:19

IEEE1528_OET65-LeftHandSide_WLAN

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GQPDP

Communication System: WLAN 2450 US; Frequency: 2437 MHz; Duty Cycle: 1:1

Medium: HSL2450 Medium parameters used (interpolated): $f = 2437$ MHz; $\sigma = 1.84$ mho/m; $\epsilon_r = 39.3$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1559; ConvF(4.38, 4.38, 4.38); Calibrated: 19.01.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn477; Calibrated: 04.05.2011
- Phantom: SAM left; Type: SAM; Serial: 1041
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 146

Touch position - Middle/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.268 mW/g

Touch position - Middle/Zoom Scan (7x7x7) (10x7x7)/Cube 0: Measurement grid:

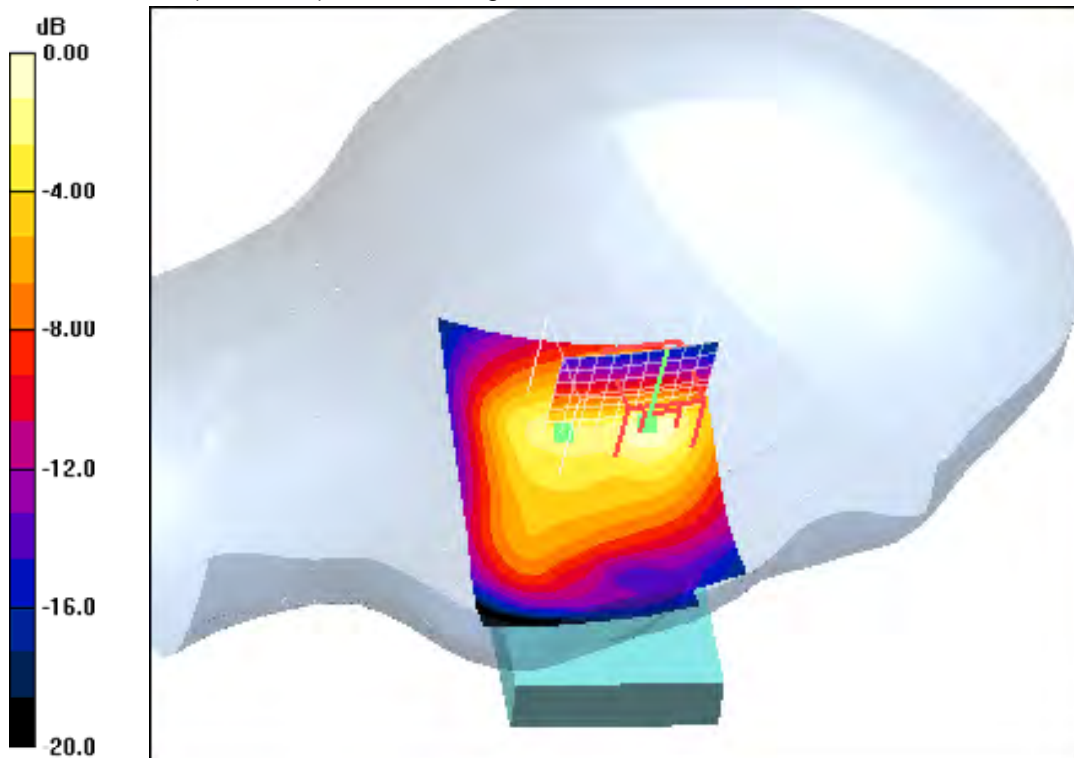
dx=5mm, dy=5mm, dz=5mm

Reference Value = 12.5 V/m; Power Drift = -0.080 dB

Peak SAR (extrapolated) = 0.513 W/kg

SAR(1 g) = 0.248 mW/g; SAR(10 g) = 0.122 mW/g

Maximum value of SAR (measured) = 0.273 mW/g



0 dB = 0.273mW/g

Additional information:

ambient temperature: 23.4°C; liquid temperature: 22.9°C

Date/Time: 18.08.2011 14:32:41 Date/Time: 18.08.2011 14:43:13

IEEE1528_OET65-LeftHandSide_WLAN**DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GQDPD**

Communication System: WLAN 2450 US; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium: HSL2450 Medium parameters used: $f = 2462$ MHz; $\sigma = 1.86$ mho/m; $\epsilon_r = 39.2$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1559; ConvF(4.38, 4.38, 4.38); Calibrated: 19.01.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn477; Calibrated: 04.05.2011
- Phantom: SAM left; Type: SAM; Serial: 1041
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 146

Touch position - High/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.310 mW/g

Touch position - High/Zoom Scan (7x7x7) (10x7x7)/Cube 0: Measurement grid:

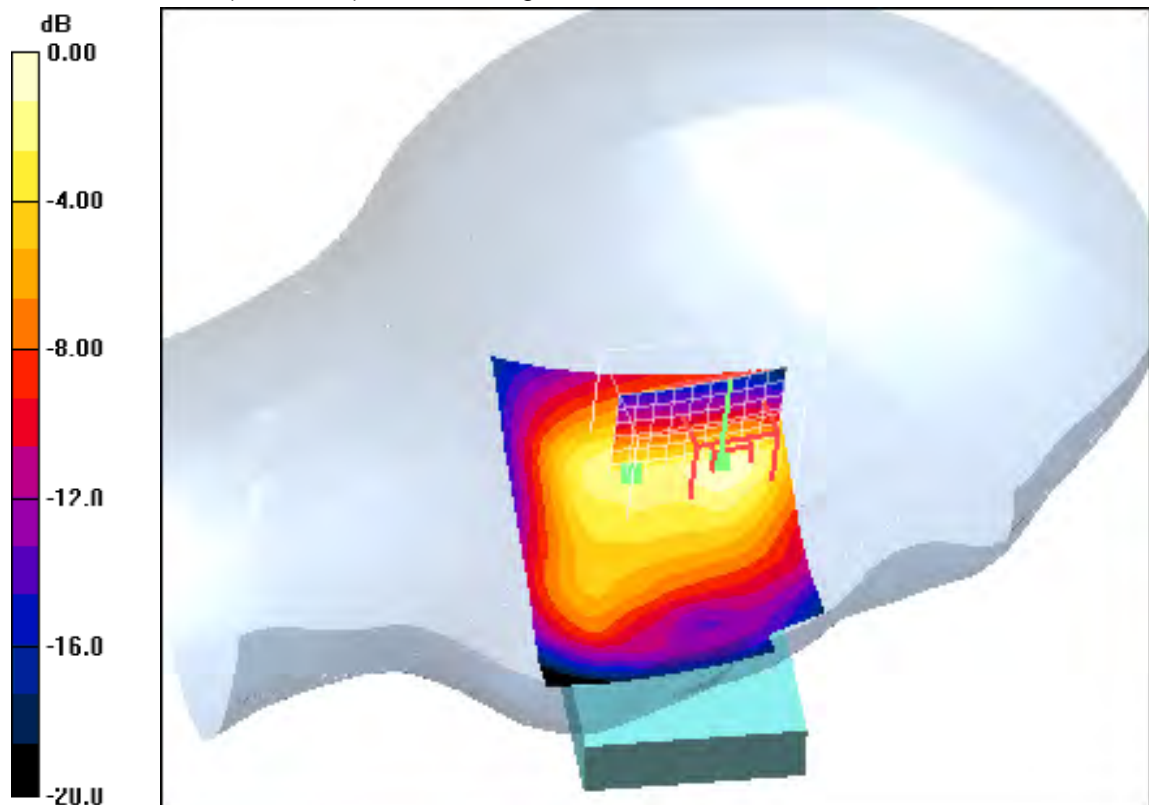
dx=5mm, dy=5mm, dz=5mm

Reference Value = 13.3 V/m; Power Drift = -0.060 dB

Peak SAR (extrapolated) = 0.564 W/kg

SAR(1 g) = 0.272 mW/g; SAR(10 g) = 0.135 mW/g

Maximum value of SAR (measured) = 0.300 mW/g



0 dB = 0.300mW/g

Additional information:

ambient temperature: 23.4°C; liquid temperature: 22.9°C

Date/Time: 18.08.2011 10:41:09 Date/Time: 18.08.2011 10:50:19

IEEE1528_OET65-LeftHandSide_WLAN**DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GQPDP**

Communication System: WLAN 2450 US; Frequency: 2412 MHz; Duty Cycle: 1:1

Medium: HSL2450 Medium parameters used: $f = 2412$ MHz; $\sigma = 1.81$ mho/m; $\epsilon_r = 39.3$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1559; ConvF(4.38, 4.38, 4.38); Calibrated: 19.01.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn477; Calibrated: 04.05.2011
- Phantom: SAM left; Type: SAM; Serial: 1041
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 146

Tilt position - Low/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.259 mW/g

Tilt position - Low/Zoom Scan (7x7x7) (10x7x7)/Cube 0: Measurement grid:

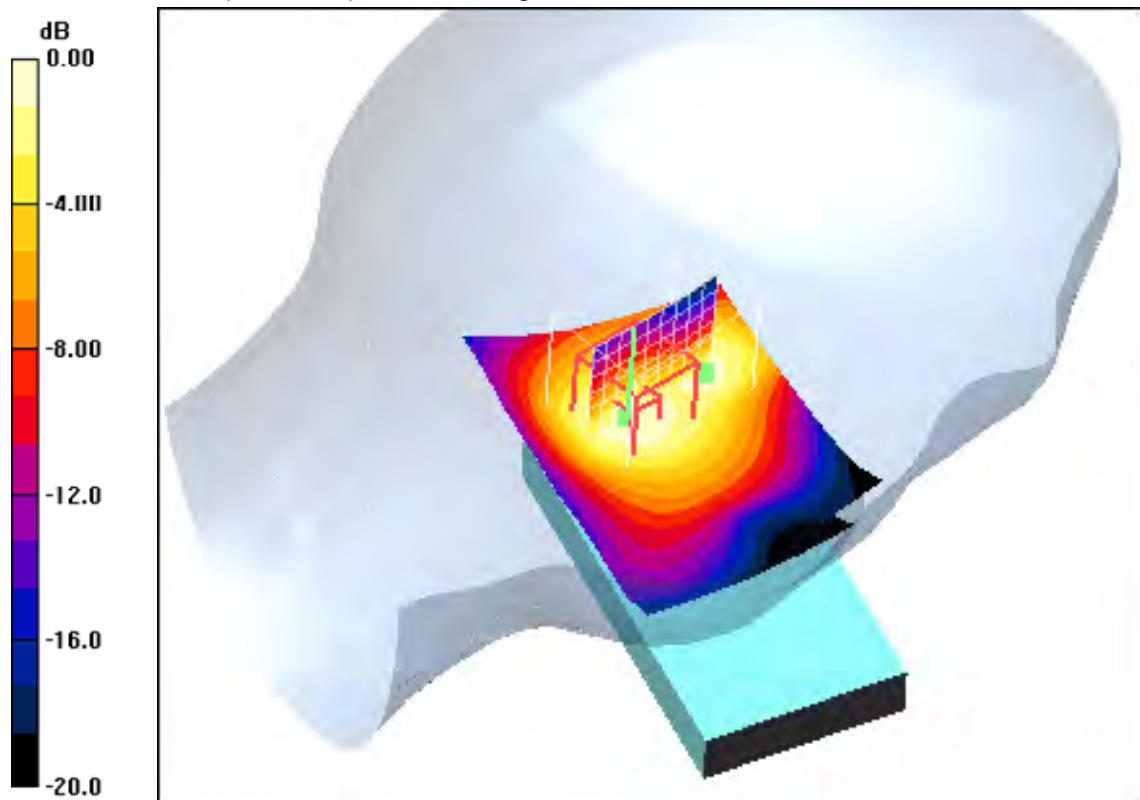
dx=5mm, dy=5mm, dz=5mm

Reference Value = 12.0 V/m; Power Drift = -0.120 dB

Peak SAR (extrapolated) = 0.455 W/kg

SAR(1 g) = 0.236 mW/g; SAR(10 g) = 0.133 mW/g

Maximum value of SAR (measured) = 0.259 mW/g



0 dB = 0.259mW/g

Additional information:

ambient temperature: 23.4°C; liquid temperature: 22.9°C

Date/Time: 18.08.2011 13:15:36 Date/Time: 18.08.2011 13:23:32

IEEE1528_OET65-LeftHandSide_WLAN

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GQPDP

Communication System: WLAN 2450 US; Frequency: 2437 MHz; Duty Cycle: 1:1

Medium: HSL2450 Medium parameters used (interpolated): $f = 2437 \text{ MHz}$; $\sigma = 1.84 \text{ mho/m}$; $\epsilon_r = 39.3$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1559; ConvF(4.38, 4.38, 4.38); Calibrated: 19.01.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn477; Calibrated: 04.05.2011
- Phantom: SAM left; Type: SAM; Serial: 1041
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 146

Tilt position - Middle/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.223 mW/g

Tilt position - Middle/Zoom Scan (7x7x7) (12x7x7)/Cube 0: Measurement grid:

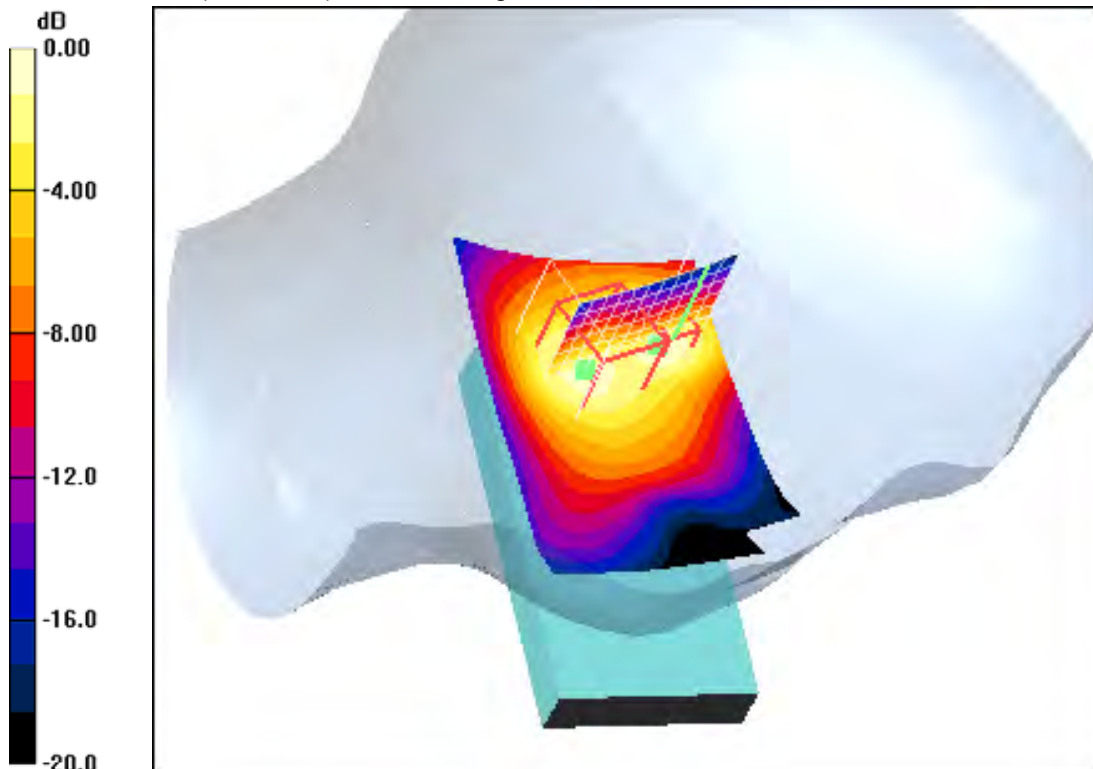
$dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 11.2 V/m; Power Drift = 0.104 dB

Peak SAR (extrapolated) = 0.425 W/kg

SAR(1 g) = 0.199 mW/g; SAR(10 g) = 0.103 mW/g

Maximum value of SAR (measured) = 0.218 mW/g



0 dB = 0.218mW/g

Additional information:

ambient temperature: 23.4°C; liquid temperature: 22.9°C

Date/Time: 18.08.2011 15:06:40 Date/Time: 18.08.2011 15:15:12

IEEE1528_OET65-LeftHandSide_WLAN

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GQPDP

Communication System: WLAN 2450 US; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium: HSL2450 Medium parameters used: $f = 2462 \text{ MHz}$; $\sigma = 1.86 \text{ mho/m}$; $\epsilon_r = 39.2$; $\rho = 1000 \text{ kg/m}^3$

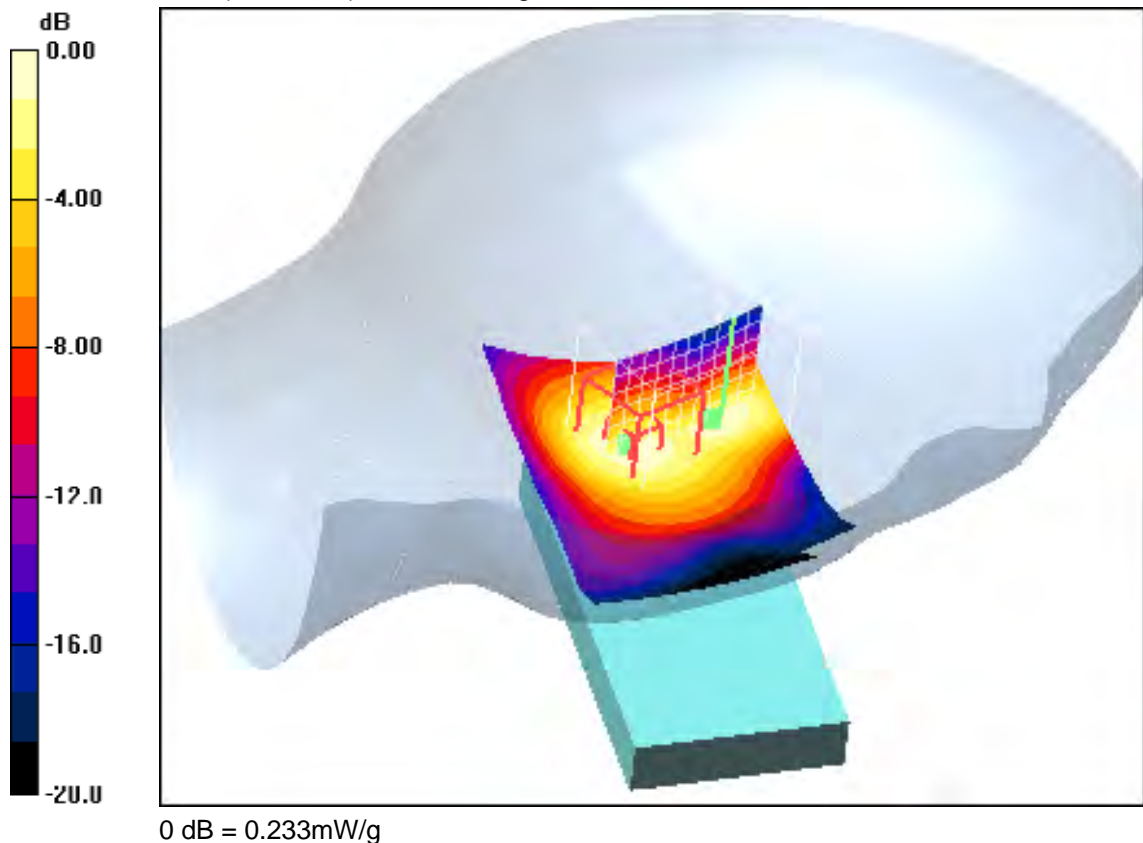
Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1559; ConvF(4.38, 4.38, 4.38); Calibrated: 19.01.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn477; Calibrated: 04.05.2011
- Phantom: SAM left; Type: SAM; Serial: 1041
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 146

Tilt position - High/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
 Maximum value of SAR (interpolated) = 0.236 mW/g

Tilt position - High/Zoom Scan (7x7x7) (11x7x7)/Cube 0: Measurement grid:
 $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
 Reference Value = 11.3 V/m; Power Drift = -0.089 dB
 Peak SAR (extrapolated) = 0.454 W/kg
SAR(1 g) = 0.214 mW/g; SAR(10 g) = 0.119 mW/g
 Maximum value of SAR (measured) = 0.233 mW/g



Additional information:
 ambient temperature: 23.4°C; liquid temperature: 22.9°C

Date/Time: 18.08.2011 11:34:30 Date/Time: 18.08.2011 11:53:20

IEEE1528_OET65-RightHandSide_WLAN

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GQPDP

Communication System: WLAN 2450 US; Frequency: 2412 MHz; Duty Cycle: 1:1

Medium: HSL2450 Medium parameters used: $f = 2412 \text{ MHz}$; $\sigma = 1.81 \text{ mho/m}$; $\epsilon_r = 39.3$; $\rho = 1000 \text{ kg/m}^3$

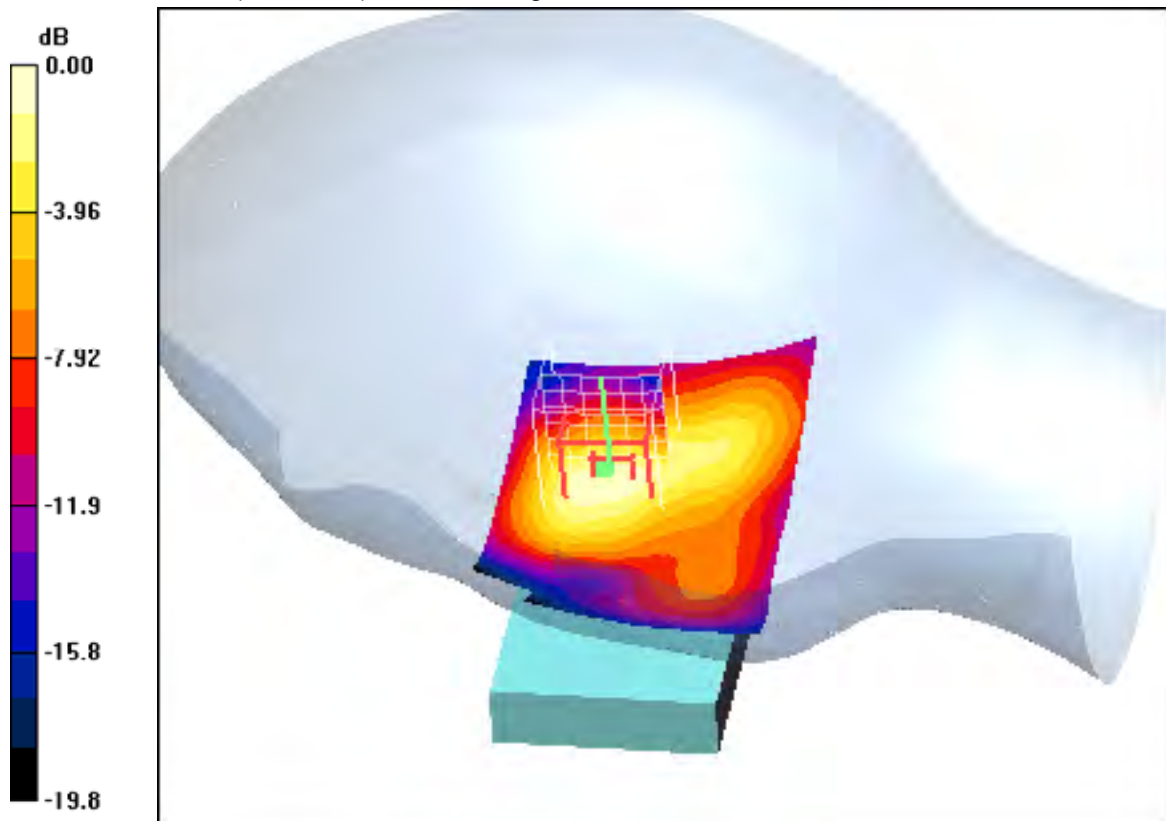
Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1559; ConvF(4.38, 4.38, 4.38); Calibrated: 19.01.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn477; Calibrated: 04.05.2011
- Phantom: SAM left; Type: SAM; Serial: 1041
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 146

Touch position - Low/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
 Maximum value of SAR (interpolated) = 0.344 mW/g

Touch position - Low/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:
 $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
 Reference Value = 13.6 V/m; Power Drift = -0.01 dB
 Peak SAR (extrapolated) = 0.473 W/kg
SAR(1 g) = 0.305 mW/g; SAR(10 g) = 0.172 mW/g
 Maximum value of SAR (measured) = 0.336 mW/g



0 dB = 0.336mW/g

Additional information:

ambient temperature: 23.4°C; liquid temperature: 22.9°C

Date/Time: 18.08.2011 12:28:02 Date/Time: 18.08.2011 12:35:22

IEEE1528_OET65-RightHandSide_WLAN

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GQPDP

Communication System: WLAN 2450 US; Frequency: 2437 MHz; Duty Cycle: 1:1

Medium: HSL2450 Medium parameters used (interpolated): $f = 2437$ MHz; $\sigma = 1.84$ mho/m; $\epsilon_r = 39.3$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1559; ConvF(4.38, 4.38, 4.38); Calibrated: 19.01.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn477; Calibrated: 04.05.2011
- Phantom: SAM left; Type: SAM; Serial: 1041
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 146

Touch position - Middle/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.291 mW/g

Touch position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

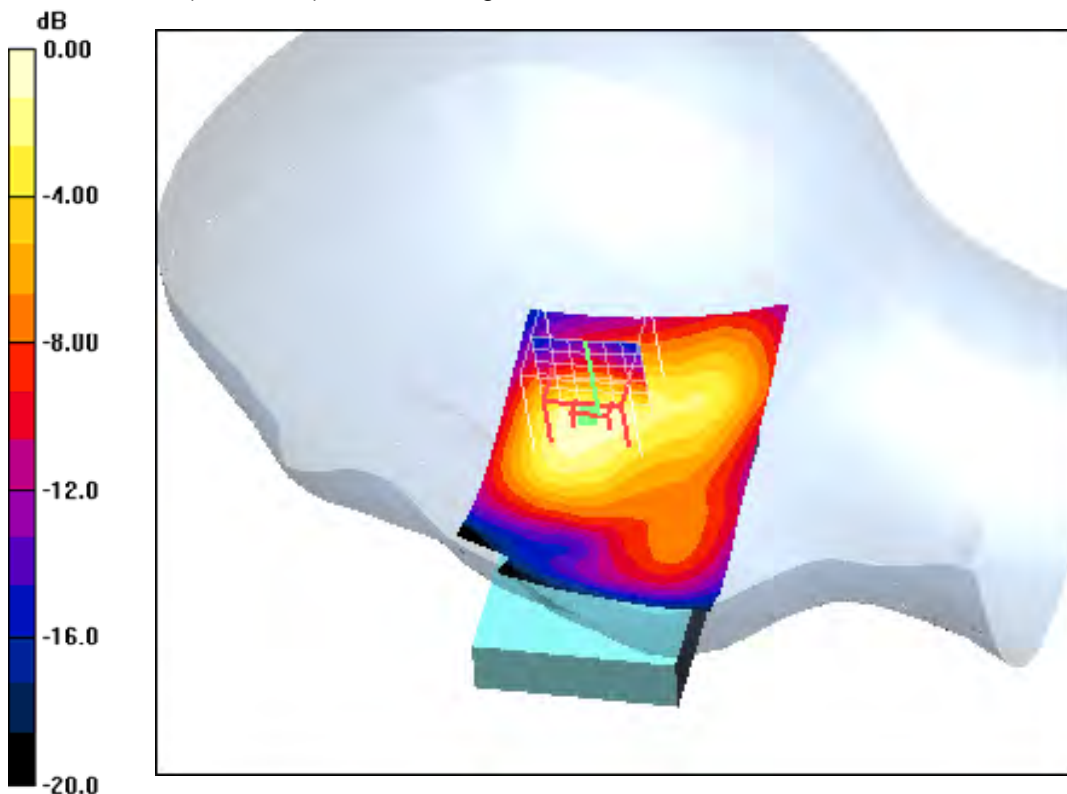
dx=5mm, dy=5mm, dz=5mm

Reference Value = 12.3 V/m; Power Drift = -0.056 dB

Peak SAR (extrapolated) = 0.391 W/kg

SAR(1 g) = 0.247 mW/g; SAR(10 g) = 0.139 mW/g

Maximum value of SAR (measured) = 0.274 mW/g



0 dB = 0.274mW/g

Additional information:

ambient temperature: 23.4°C; liquid temperature: 22.9°C

Date/Time: 18.08.2011 16:10:41 Date/Time: 18.08.2011 16:19:19

IEEE1528_OET65-RightHandSide_WLAN

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GQPDP

Communication System: WLAN 2450 US; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium: HSL2450 Medium parameters used: $f = 2462 \text{ MHz}$; $\sigma = 1.86 \text{ mho/m}$; $\epsilon_r = 39.2$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1559; ConvF(4.38, 4.38, 4.38); Calibrated: 19.01.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn477; Calibrated: 04.05.2011
- Phantom: SAM left; Type: SAM; Serial: 1041
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 146

Touch position - High/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.285 mW/g

Touch position - High/Zoom Scan (7x7x7) (8x8x7)/Cube 0: Measurement grid:

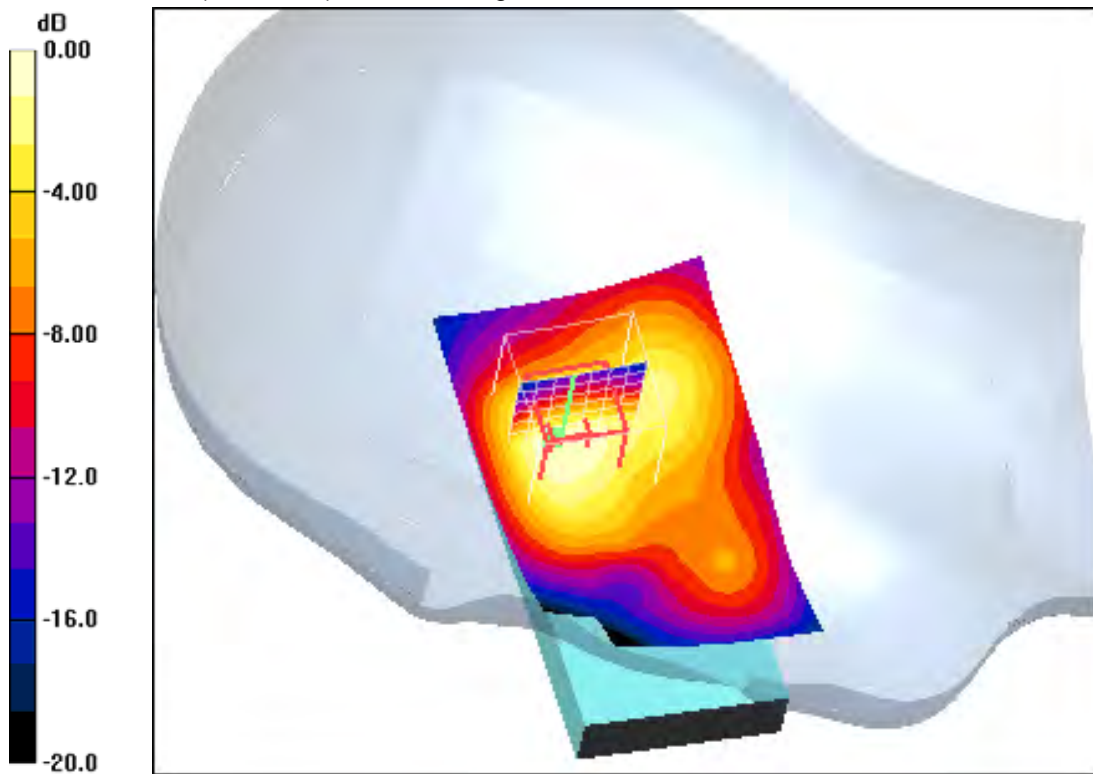
$dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 12.5 V/m; Power Drift = -0.133 dB

Peak SAR (extrapolated) = 0.406 W/kg

SAR(1 g) = 0.259 mW/g; SAR(10 g) = 0.146 mW/g

Maximum value of SAR (measured) = 0.289 mW/g



0 dB = 0.289mW/g

Additional information:

ambient temperature: 23.4°C; liquid temperature: 22.9°C

Date/Time: 18.08.2011 11:10:51 Date/Time: 18.08.2011 11:19:43

IEEE1528_OET65-RightHandSide_WLAN**DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GQPDP**

Communication System: WLAN 2450 US; Frequency: 2412 MHz; Duty Cycle: 1:1

Medium: HSL2450 Medium parameters used: $f = 2412$ MHz; $\sigma = 1.81$ mho/m; $\epsilon_r = 39.3$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1559; ConvF(4.38, 4.38, 4.38); Calibrated: 19.01.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn477; Calibrated: 04.05.2011
- Phantom: SAM left; Type: SAM; Serial: 1041
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 146

Tilt position - Low/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.325 mW/g

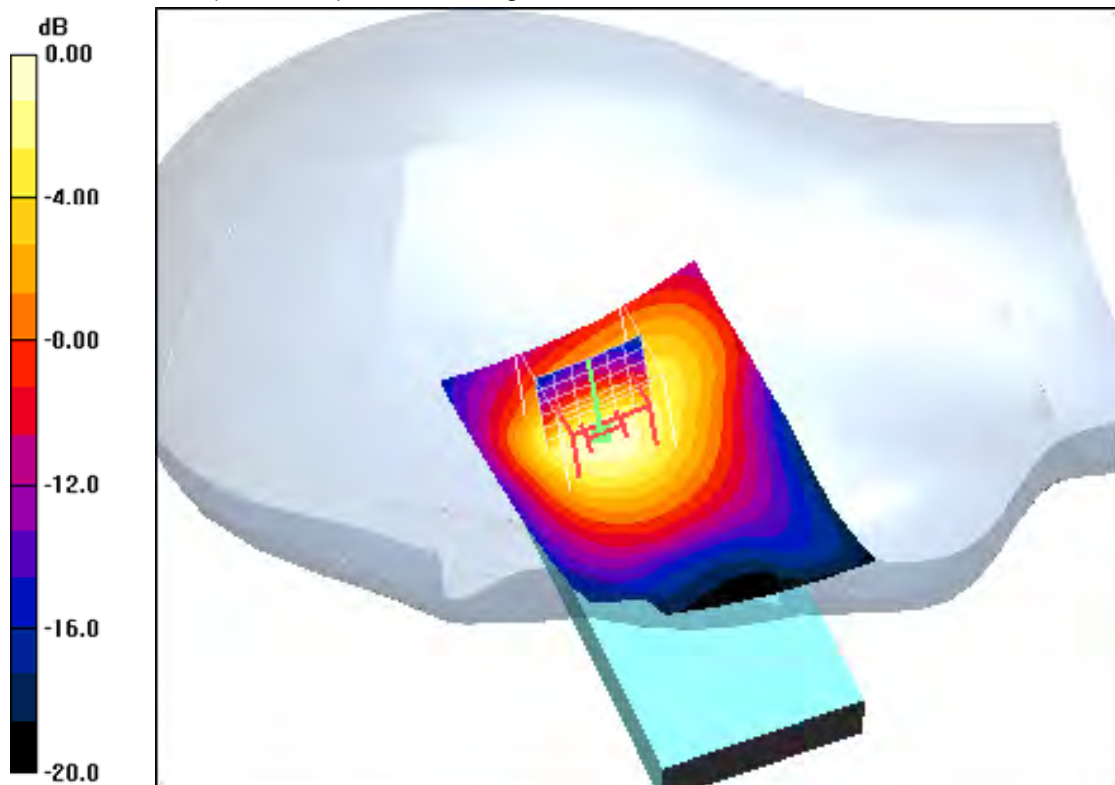
Tilt position - Low/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 13.4 V/m; Power Drift = -0.051 dB

Peak SAR (extrapolated) = 0.462 W/kg

SAR(1 g) = 0.280 mW/g; SAR(10 g) = 0.150 mW/g

Maximum value of SAR (measured) = 0.314 mW/g



0 dB = 0.314mW/g

Additional information:

ambient temperature: 23.4°C; liquid temperature: 22.9°C

Date/Time: 18.08.2011 12:50:55 Date/Time: 18.08.2011 12:57:33

IEEE1528_OET65-RightHandSide_WLAN**DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GQPDP**

Communication System: WLAN 2450 US; Frequency: 2437 MHz; Duty Cycle: 1:1

Medium: HSL2450 Medium parameters used (interpolated): $f = 2437$ MHz; $\sigma = 1.84$ mho/m; $\epsilon_r = 39.3$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1559; ConvF(4.38, 4.38, 4.38); Calibrated: 19.01.2011

- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)

- Electronics: DAE3 Sn477; Calibrated: 04.05.2011

- Phantom: SAM left; Type: SAM; Serial: 1041

- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 146

Tilt position - Middle/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.243 mW/g

Tilt position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

dx=5mm, dy=5mm, dz=5mm

Reference Value = 11.3 V/m; Power Drift = -0.045 dB

Peak SAR (extrapolated) = 0.354 W/kg

SAR(1 g) = 0.216 mW/g; SAR(10 g) = 0.117 mW/g

Maximum value of SAR (measured) = 0.241 mW/g



0 dB = 0.241mW/g

Additional information:

ambient temperature: 23.4°C; liquid temperature: 22.9°C

Date/Time: 18.08.2011 15:39:12 Date/Time: 18.08.2011 15:55:05

IEEE1528_OET65-RightHandSide_WLAN

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GQPDP

Communication System: WLAN 2450 US; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium: HSL2450 Medium parameters used: $f = 2462 \text{ MHz}$; $\sigma = 1.86 \text{ mho/m}$; $\epsilon_r = 39.2$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1559; ConvF(4.38, 4.38, 4.38); Calibrated: 19.01.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn477; Calibrated: 04.05.2011
- Phantom: SAM left; Type: SAM; Serial: 1041
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 146

Tilt position - High/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.288 mW/g

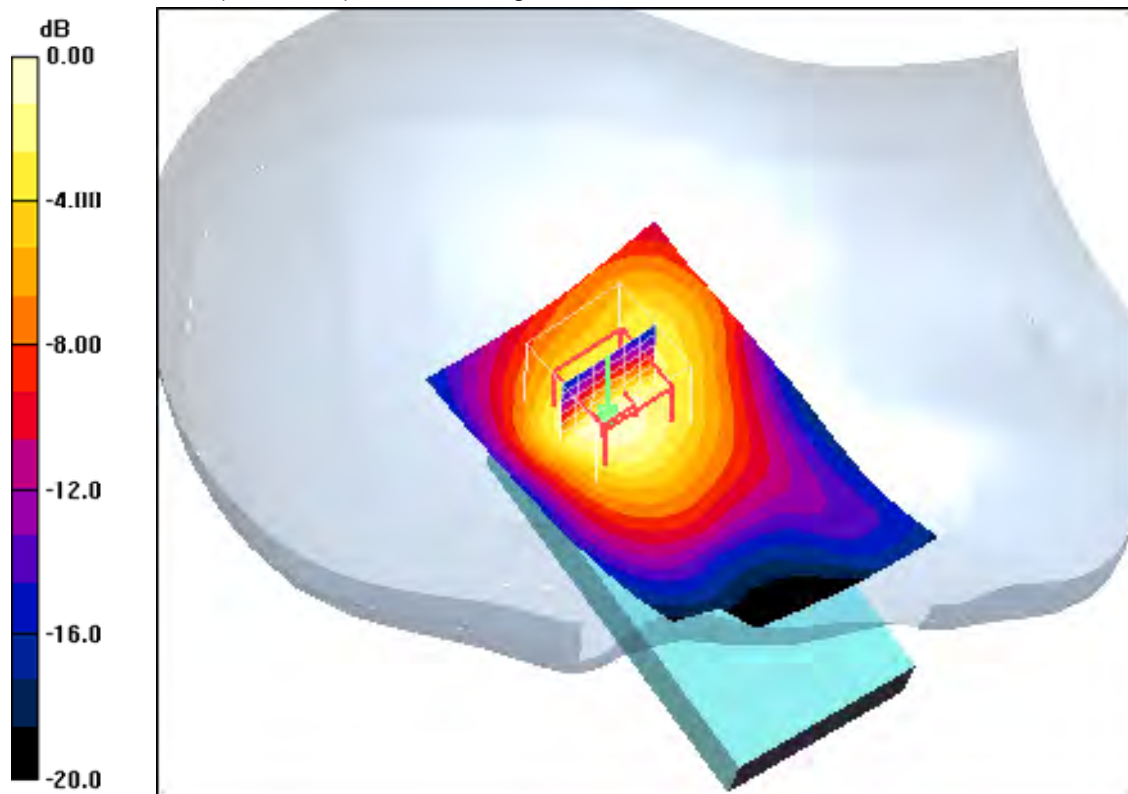
Tilt position - High/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 12.4 V/m; Power Drift = -0.079 dB

Peak SAR (extrapolated) = 0.406 W/kg

SAR(1 g) = 0.247 mW/g; SAR(10 g) = 0.132 mW/g

Maximum value of SAR (measured) = 0.277 mW/g



0 dB = 0.277mW/g

Additional information:

ambient temperature: 23.4°C; liquid temperature: 22.9°C

Date/Time: 18.08.2011 17:09:16 Date/Time: 18.08.2011 17:21:44

IEEE1528_OET65-RightHandSide_WLAN

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GQPDP

Communication System: WLAN 2450 US; Frequency: 2412 MHz; Duty Cycle: 1:1

Medium: HSL2450 Medium parameters used: $f = 2412 \text{ MHz}$; $\sigma = 1.81 \text{ mho/m}$; $\epsilon_r = 39.3$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1559; ConvF(4.38, 4.38, 4.38); Calibrated: 19.01.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn477; Calibrated: 04.05.2011
- Phantom: SAM left; Type: SAM; Serial: 1041
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 146

Touch position - Low 6Mbps/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.237 mW/g

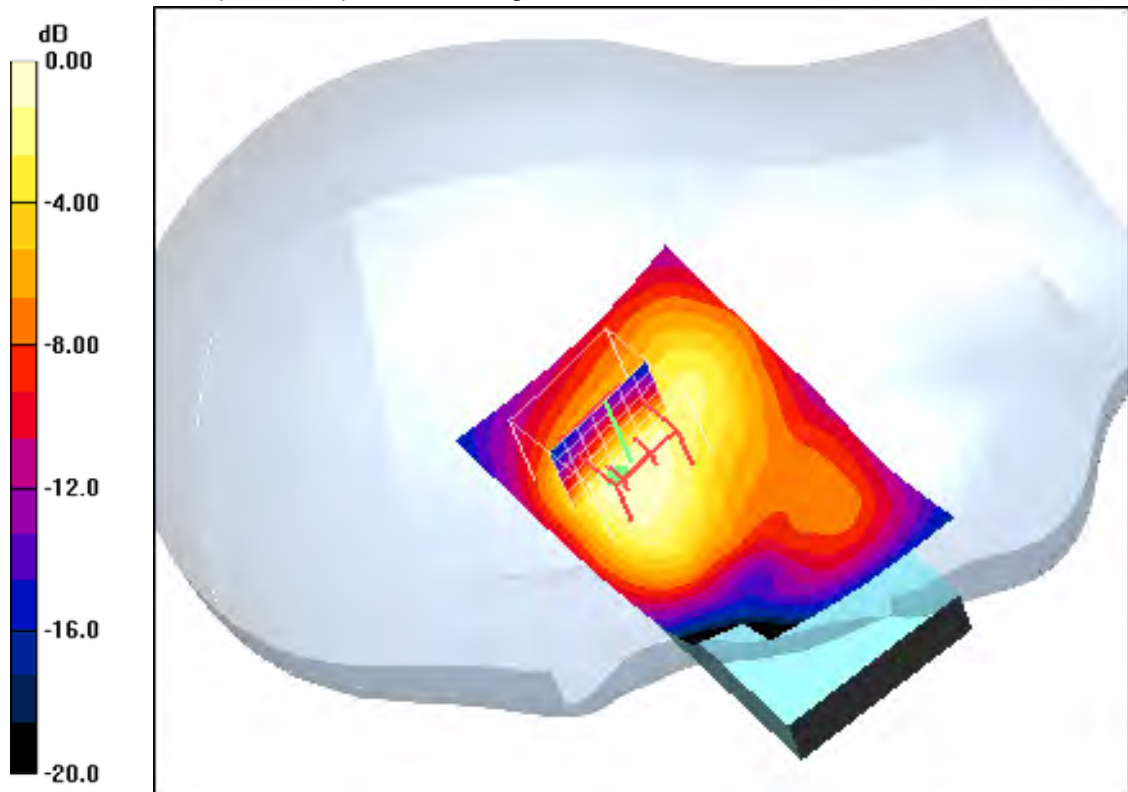
Touch position - Low 6Mbps/Zoom Scan (7x7x7) (8x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.9 V/m; Power Drift = -0.088 dB

Peak SAR (extrapolated) = 0.307 W/kg

SAR(1 g) = 0.203 mW/g; SAR(10 g) = 0.116 mW/g

Maximum value of SAR (measured) = 0.225 mW/g



0 dB = 0.225mW/g

Additional information:

ambient temperature: 23.4°C; liquid temperature: 22.9°C

Date/Time: 18.08.2011 17:41:00 Date/Time: 18.08.2011 17:49:25

IEEE1528_OET65-RightHandSide_WLAN

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GQDPD

Communication System: WLAN 2450 US; Frequency: 2412 MHz; Duty Cycle: 1:1

Medium: HSL2450 Medium parameters used: $f = 2412 \text{ MHz}$; $\sigma = 1.81 \text{ mho/m}$; $\epsilon_r = 39.3$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1559; ConvF(4.38, 4.38, 4.38); Calibrated: 19.01.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn477; Calibrated: 04.05.2011
- Phantom: SAM left; Type: SAM; Serial: 1041
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 146

Touch position - Low MCS0/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.247 mW/g

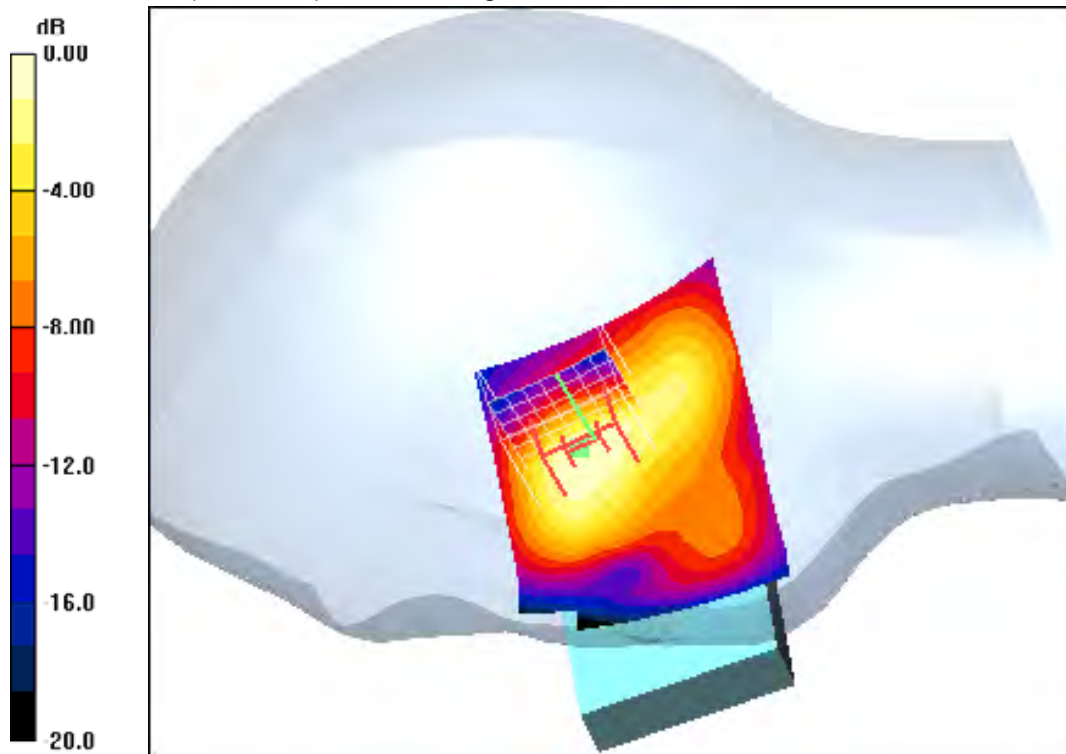
Touch position - Low MCS0/Zoom Scan (7x7x7) (8x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 11.4 V/m; Power Drift = 0.040 dB

Peak SAR (extrapolated) = 0.335 W/kg

SAR(1 g) = 0.218 mW/g; SAR(10 g) = 0.125 mW/g

Maximum value of SAR (measured) = 0.240 mW/g



0 dB = 0.240mW/g

Additional information:

ambient temperature: 23.4°C; liquid temperature: 22.9°C

Annex B.10: WLAN 2450MHz body

Date/Time: 19.08.2011 12:28:16 Date/Time: 19.08.2011 12:47:38

IEEE1528_OET65-Body_WLAN

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GQPDP

Communication System: WLAN 2450 US; Frequency: 2412 MHz; Duty Cycle: 1:1

Medium: M2450 Medium parameters used: $f = 2412 \text{ MHz}$; $\sigma = 1.94 \text{ mho/m}$; $\epsilon_r = 51.8$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1559; ConvF(3.91, 3.91, 3.91); Calibrated: 19.01.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn477; Calibrated: 04.05.2011
- Phantom: SAM right; Type: SAM; Serial: 1042
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 146

Front position - Low/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.133 mW/g

Front position - Low/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

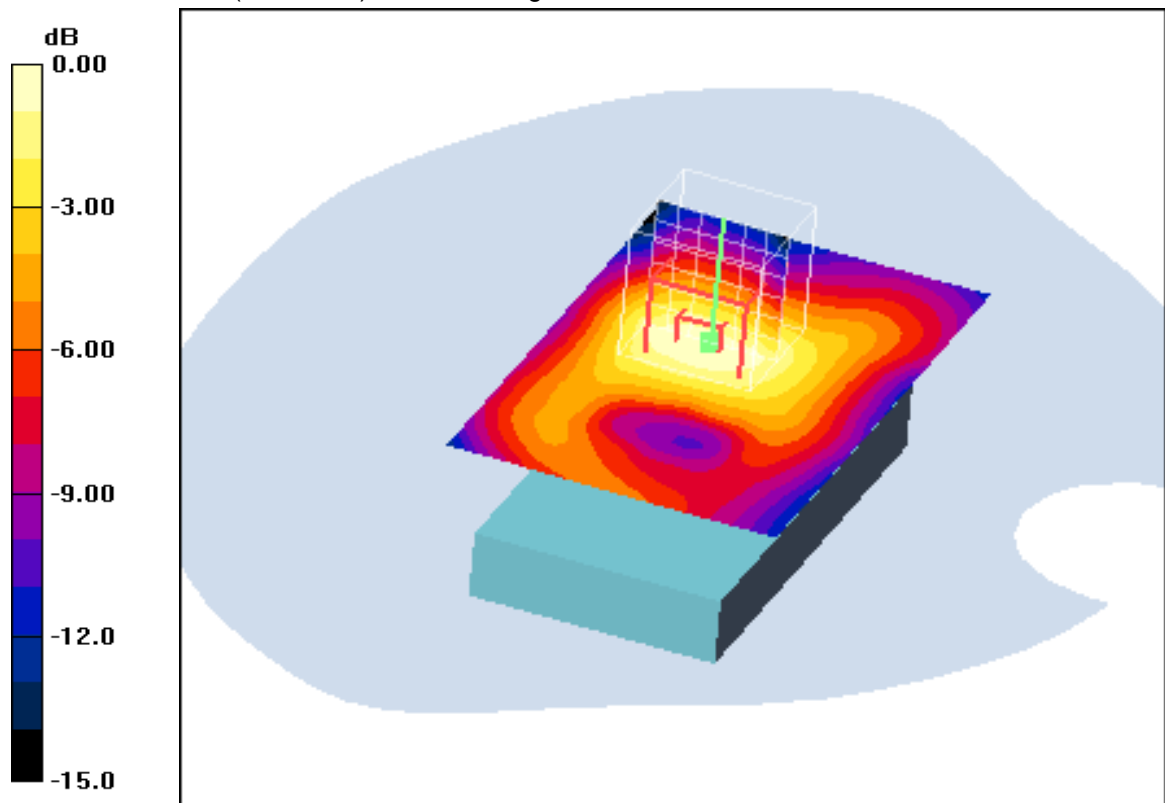
$dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 8.84 V/m; Power Drift = 0.070 dB

Peak SAR (extrapolated) = 0.167 W/kg

SAR(1 g) = 0.116 mW/g; SAR(10 g) = 0.071 mW/g

Maximum value of SAR (measured) = 0.124 mW/g



0 dB = 0.124mW/g

Additional information:

position or distance of DUT to SAM: 10mm

ambient temperature: 23.5°C; liquid temperature: 23.0°C

Date/Time: 19.08.2011 11:26:00 Date/Time: 19.08.2011 11:33:22

IEEE1528_OET65-Body_WLAN

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GQPDP

Communication System: WLAN 2450 US; Frequency: 2437 MHz; Duty Cycle: 1:1

Medium: M2450 Medium parameters used (interpolated): $f = 2437$ MHz; $\sigma = 1.97$ mho/m; $\epsilon_r = 51.8$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1559; ConvF(3.91, 3.91, 3.91); Calibrated: 19.01.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn477; Calibrated: 04.05.2011
- Phantom: SAM right; Type: SAM; Serial: 1042
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 146

Front position - Middle/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.099 mW/g

Front position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

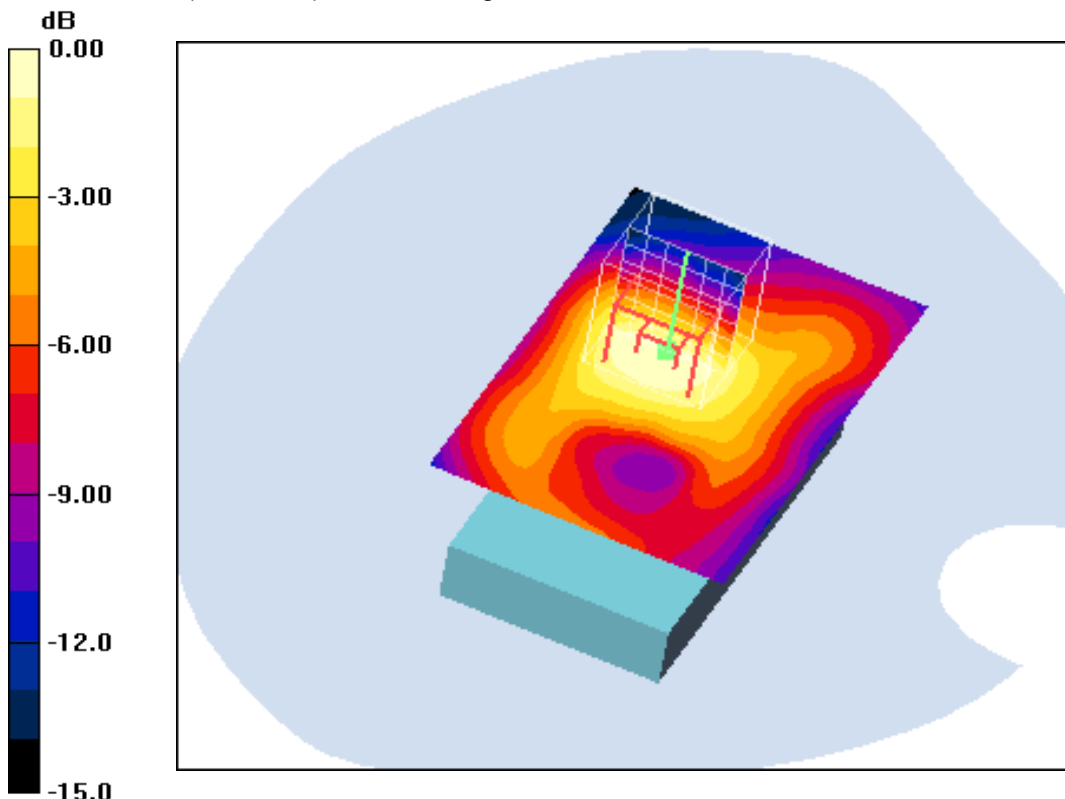
dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.30 V/m; Power Drift = 0.027 dB

Peak SAR (extrapolated) = 0.122 W/kg

SAR(1 g) = 0.083 mW/g; SAR(10 g) = 0.051 mW/g

Maximum value of SAR (measured) = 0.090 mW/g



0 dB = 0.090mW/g

Additional information:

position or distance of DUT to SAM: 10mm

ambient temperature: 23.5°C; liquid temperature: 23.0°C

Date/Time: 19.08.2011 13:41:59 Date/Time: 19.08.2011 13:49:31

IEEE1528_OET65-Body_WLAN

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GQPDP

Communication System: WLAN 2450 US; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium: M2450 Medium parameters used: $f = 2462 \text{ MHz}$; $\sigma = 2 \text{ mho/m}$; $\epsilon_r = 51.7$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1559; ConvF(3.91, 3.91, 3.91); Calibrated: 19.01.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection) Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn477; Calibrated: 04.05.2011
- Phantom: SAM right; Type: SAM; Serial: 1042
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 146

Front position - High/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.109 mW/g

Front position - High/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

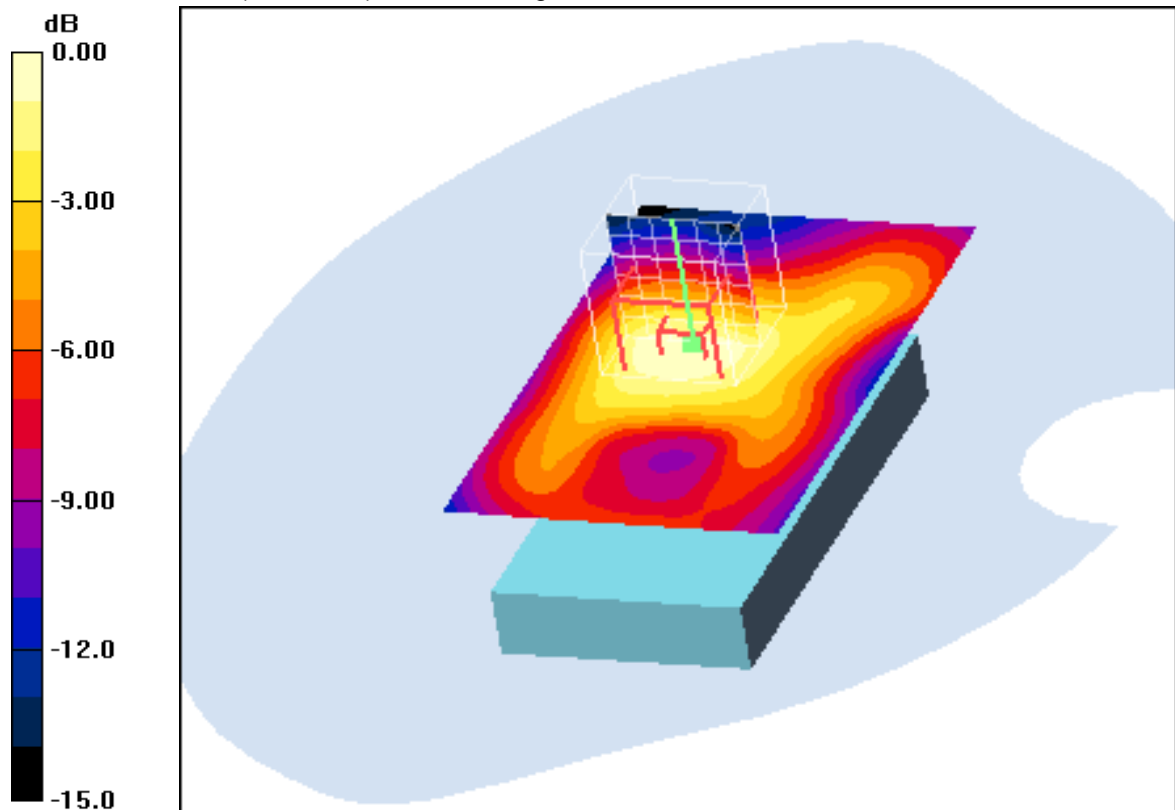
$dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 7.78 V/m; Power Drift = 0.017 dB

Peak SAR (extrapolated) = 0.136 W/kg

SAR(1 g) = 0.095 mW/g; SAR(10 g) = 0.058 mW/g

Maximum value of SAR (measured) = 0.104 mW/g



0 dB = 0.104mW/g

Additional information:

position or distance of DUT to SAM: 10mm

ambient temperature: 23.5°C; liquid temperature: 23.0°C

Date/Time: 19.08.2011 13:03:57 Date/Time: 19.08.2011 13:12:17

IEEE1528_OET65-Body_WLAN

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GQPDP

Communication System: WLAN 2450 US; Frequency: 2412 MHz; Duty Cycle: 1:1

Medium: M2450 Medium parameters used: $f = 2412 \text{ MHz}$; $\sigma = 1.94 \text{ mho/m}$; $\epsilon_r = 51.8$; $\rho = 1000 \text{ kg/m}^3$

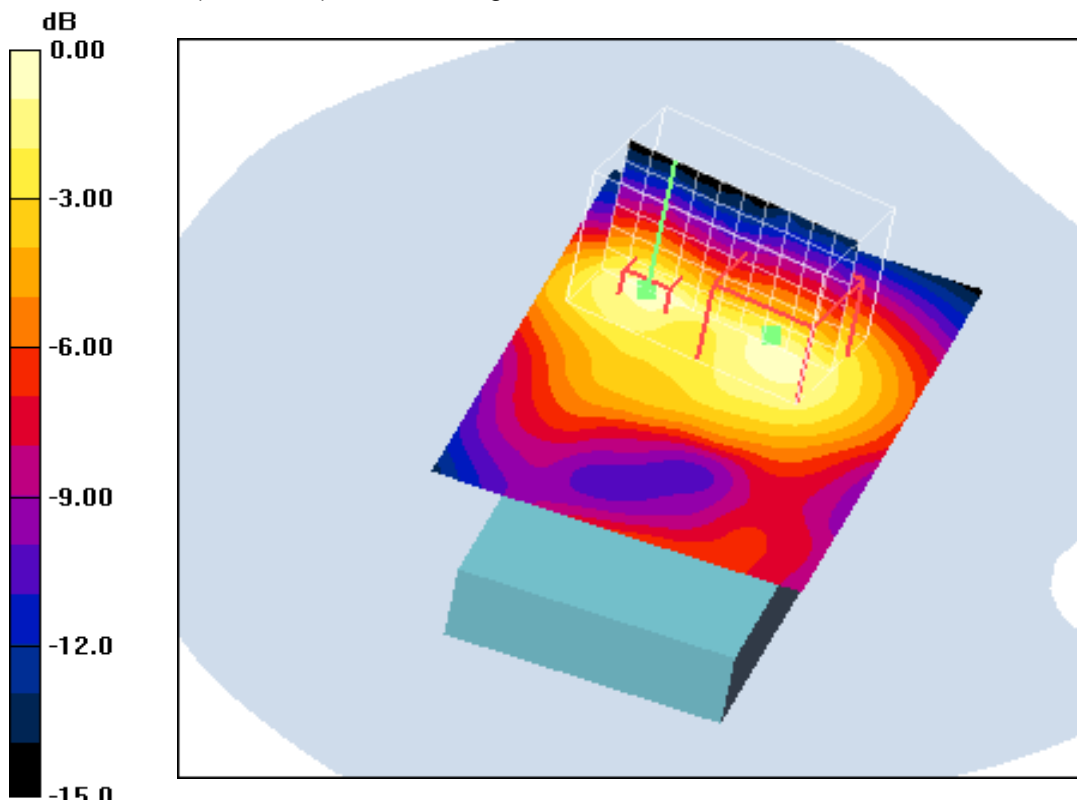
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1559; ConvF(3.91, 3.91, 3.91); Calibrated: 19.01.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn477; Calibrated: 04.05.2011
- Phantom: SAM right; Type: SAM; Serial: 1042
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 146

Rear position - Low/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
 Maximum value of SAR (interpolated) = 0.163 mW/g

Rear position - Low/Zoom Scan (7x7x7) (11x7x7)/Cube 0: Measurement grid:
 $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
 Reference Value = 9.47 V/m; Power Drift = -0.025 dB
 Peak SAR (extrapolated) = 0.255 W/kg
SAR(1 g) = 0.149 mW/g; SAR(10 g) = 0.082 mW/g
 Maximum value of SAR (measured) = 0.172 mW/g



0 dB = 0.172mW/g

Additional information:

position or distance of DUT to SAM: 10mm
 ambient temperature: 23.5°C; liquid temperature: 23.0°C

Date/Time: 19.08.2011 11:49:47 Date/Time: 19.08.2011 12:02:17

IEEE1528_OET65-Body_WLAN

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GQPDP

Communication System: WLAN 2450 US; Frequency: 2437 MHz; Duty Cycle: 1:1

Medium: M2450 Medium parameters used (interpolated): $f = 2437$ MHz; $\sigma = 1.97$ mho/m; $\epsilon_r = 51.8$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1559; ConvF(3.91, 3.91, 3.91); Calibrated: 19.01.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn477; Calibrated: 04.05.2011
- Phantom: SAM right; Type: SAM; Serial: 1042
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 146

Rear position - Middle/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.119 mW/g

Rear position - Middle/Zoom Scan (7x7x7) (11x7x7)/Cube 0: Measurement grid:

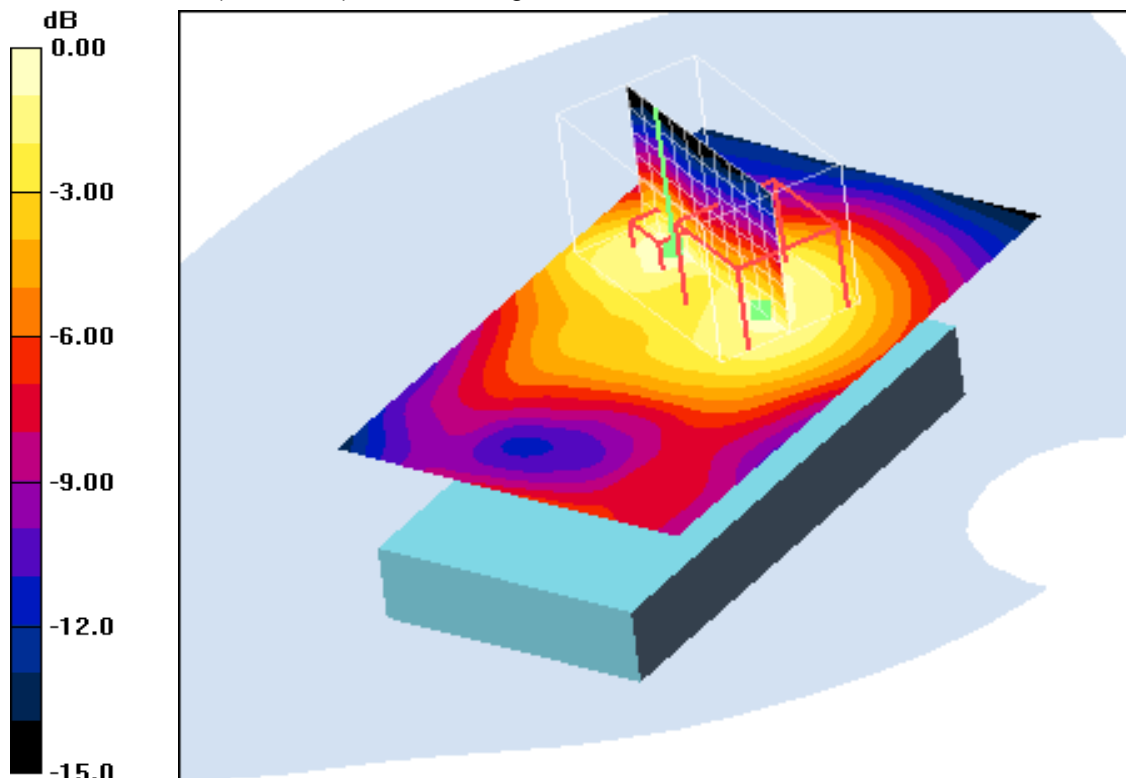
dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.12 V/m; Power Drift = -0.178 dB

Peak SAR (extrapolated) = 0.185 W/kg

SAR(1 g) = 0.109 mW/g; SAR(10 g) = 0.059 mW/g

Maximum value of SAR (measured) = 0.126 mW/g



0 dB = 0.126mW/g

Additional information:

position or distance of DUT to SAM: 10mm

ambient temperature: 23.5°C; liquid temperature: 23.0°C

Date/Time: 19.08.2011 14:09:06 Date/Time: 19.08.2011 14:19:00

IEEE1528_OET65-Body_WLAN

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GQPDP

Communication System: WLAN 2450 US; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium: M2450 Medium parameters used: $f = 2462 \text{ MHz}$; $\sigma = 2 \text{ mho/m}$; $\epsilon_r = 51.7$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1559; ConvF(3.91, 3.91, 3.91); Calibrated: 19.01.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection) Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn477; Calibrated: 04.05.2011
- Phantom: SAM right; Type: SAM; Serial: 1042
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 146

Rear position - High/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.148 mW/g

Rear position - High/Zoom Scan (7x7x7) (12x7x7)/Cube 0: Measurement grid:

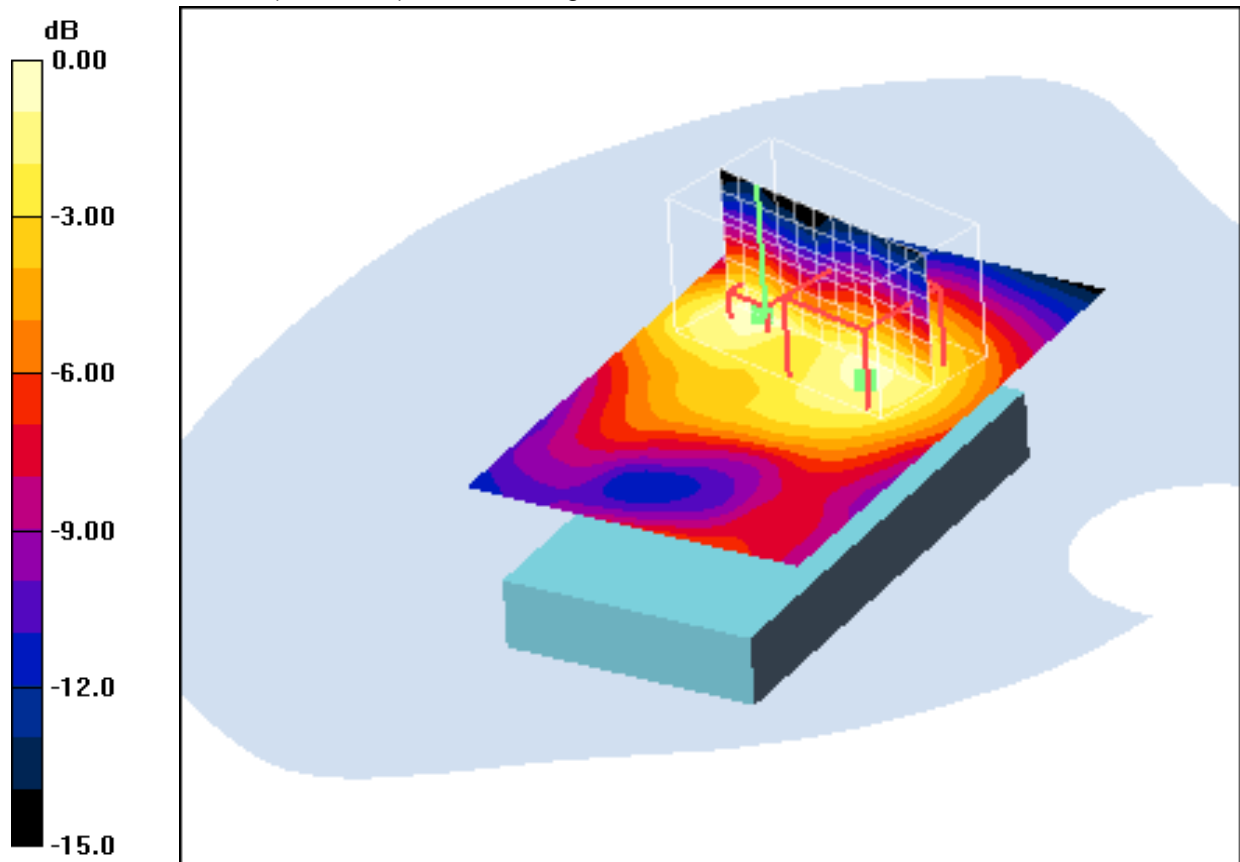
$dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 8.92 V/m; Power Drift = -0.152 dB

Peak SAR (extrapolated) = 0.233 W/kg

SAR(1 g) = 0.135 mW/g; SAR(10 g) = 0.074 mW/g

Maximum value of SAR (measured) = 0.154 mW/g



0 dB = 0.154mW/g

Additional information:

position or distance of DUT to SAM: 10mm

ambient temperature: 23.5°C; liquid temperature: 23.0°C

Date/Time: 19.08.2011 08:53:50 Date/Time: 19.08.2011 09:04:48 Date/Time: 19.08.2011 09:16:56

IEEE1528_OET65-Body_WLAN**DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GQPDP**

Communication System: WLAN 2450 US; Frequency: 2437 MHz; Duty Cycle: 1:1

Medium: M2450 Medium parameters used (interpolated): $f = 2437$ MHz; $\sigma = 1.97$ mho/m; $\epsilon_r = 51.8$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1559; ConvF(3.91, 3.91, 3.91); Calibrated: 19.01.2011

- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)

- Electronics: DAE3 Sn477; Calibrated: 04.05.2011

- Phantom: SAM right; Type: SAM; Serial: 1042

- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 146

Edge left position - Middle/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.052 mW/g

Edge left position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.62 V/m; Power Drift = -0.170 dB

Peak SAR (extrapolated) = 0.071 W/kg

SAR(1 g) = 0.047 mW/g; SAR(10 g) = 0.029 mW/g

Maximum value of SAR (measured) = 0.051 mW/g

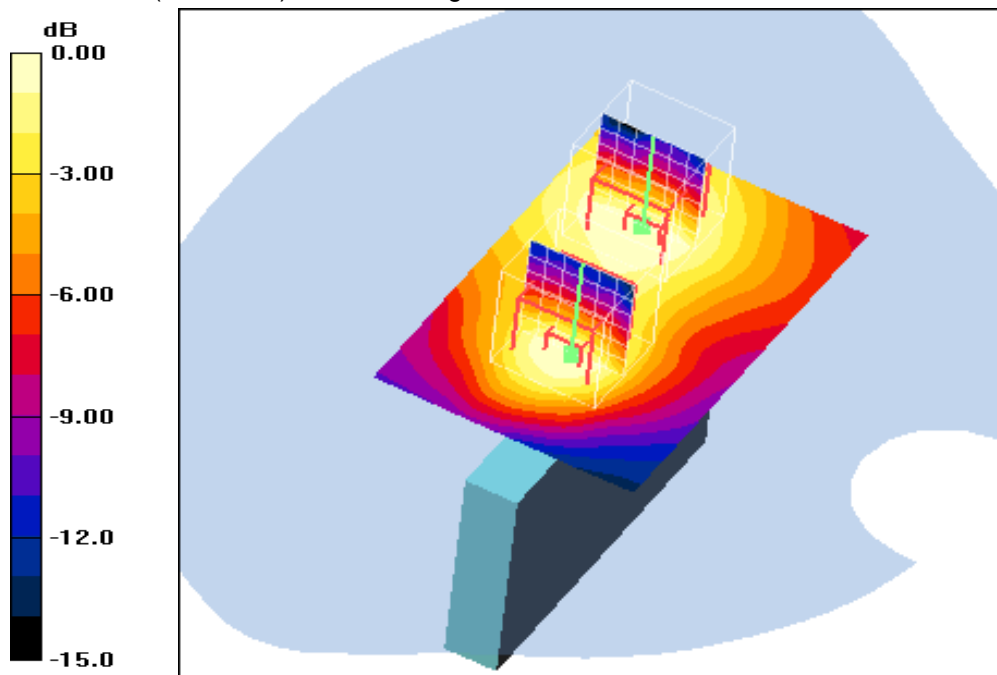
Edge left position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.62 V/m; Power Drift = -0.170 dB

Peak SAR (extrapolated) = 0.066 W/kg

SAR(1 g) = 0.044 mW/g; SAR(10 g) = 0.026 mW/g

Maximum value of SAR (measured) = 0.048 mW/g



0 dB = 0.048mW/g

Additional information:

position or distance of DUT to SAM: 10mm

ambient temperature: 23.5°C; liquid temperature: 23.0°C

Date/Time: 19.08.2011 09:32:11 Date/Time: 19.08.2011 10:19:35 Date/Time: 19.08.2011 10:31:46

IEEE1528_OET65-Body_WLAN

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GQPDP

Communication System: WLAN 2450 US; Frequency: 2437 MHz; Duty Cycle: 1:1

Medium: M2450 Medium parameters used (interpolated): $f = 2437$ MHz; $\sigma = 1.97$ mho/m; $\epsilon_r = 51.8$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1559; ConvF(3.91, 3.91, 3.91); Calibrated: 19.01.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn477; Calibrated: 04.05.2011
- Phantom: SAM right; Type: SAM; Serial: 1042
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 146

Edge right position - Middle/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.098 mW/g

Edge right position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.64 V/m; Power Drift = -0.119 dB

Peak SAR (extrapolated) = 0.141 W/kg

SAR(1 g) = 0.088 mW/g; SAR(10 g) = 0.048 mW/g

Maximum value of SAR (measured) = 0.100 mW/g

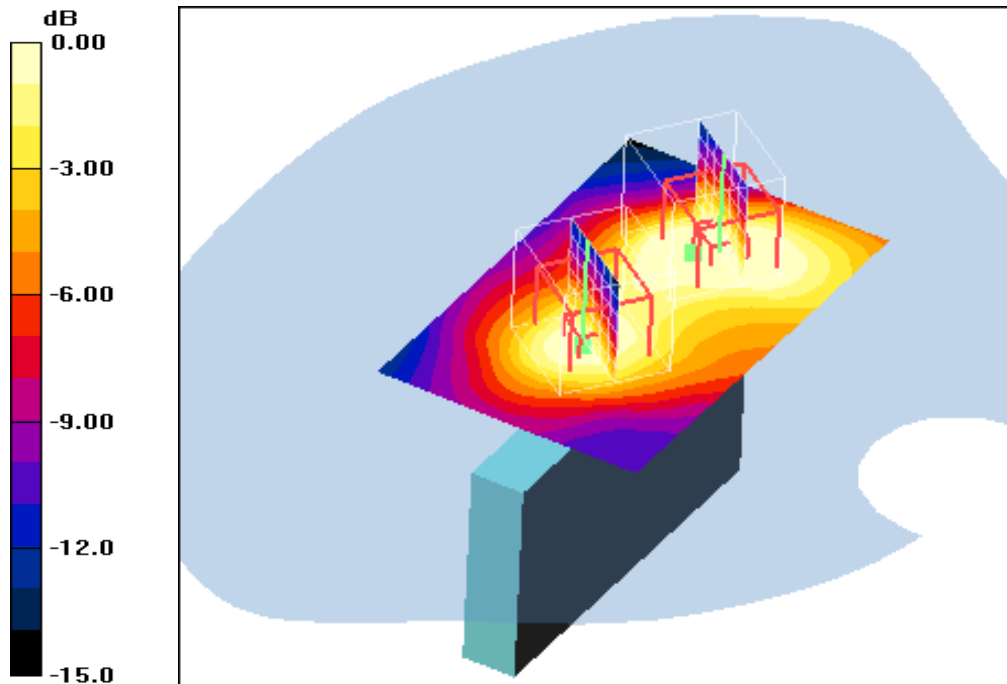
Edge right position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.64 V/m; Power Drift = -0.119 dB

Peak SAR (extrapolated) = 0.078 W/kg

SAR(1 g) = 0.052 mW/g; SAR(10 g) = 0.031 mW/g

Maximum value of SAR (measured) = 0.057 mW/g



0 dB = 0.057mW/g

Additional information:

position or distance of DUT to SAM: 10mm

ambient temperature: 23.5°C; liquid temperature: 23.0°C

Date/Time: 19.08.2011 08:32:58 Date/Time: 19.08.2011 08:39:24

IEEE1528_OET65-Body_WLAN

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GQPDP

Communication System: WLAN 2450 US; Frequency: 2437 MHz; Duty Cycle: 1:1

Medium: M2450 Medium parameters used (interpolated): $f = 2437$ MHz; $\sigma = 1.97$ mho/m; $\epsilon_r = 51.8$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1559; ConvF(3.91, 3.91, 3.91); Calibrated: 19.01.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn477; Calibrated: 04.05.2011
- Phantom: SAM right; Type: SAM; Serial: 1042
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 146

Edge top position - Middle/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.073 mW/g

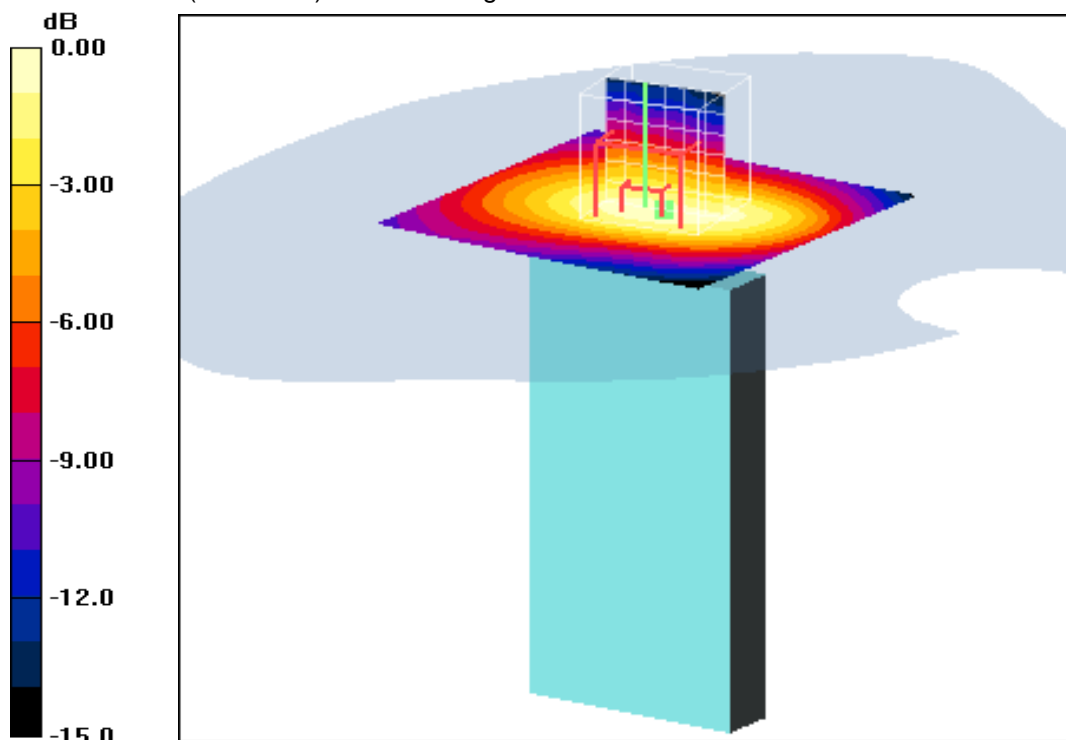
Edge top position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.71 V/m; Power Drift = -0.069 dB

Peak SAR (extrapolated) = 0.109 W/kg

SAR(1 g) = 0.067 mW/g; SAR(10 g) = 0.040 mW/g

Maximum value of SAR (measured) = 0.074 mW/g



0 dB = 0.074mW/g

Additional information:

position or distance of DUT to SAM: 10mm

ambient temperature: 23.5°C; liquid temperature: 23.0°C

Date/Time: 19.08.2011 15:35:49 Date/Time: 19.08.2011 15:48:52

IEEE1528_OET65-Body_WLAN

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GQPDP

Communication System: WLAN 2450 US; Frequency: 2412 MHz; Duty Cycle: 1:1

Medium: M2450 Medium parameters used: $f = 2412$ MHz; $\sigma = 1.94$ mho/m; $\epsilon_r = 51.8$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1559; ConvF(3.91, 3.91, 3.91); Calibrated: 19.01.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn477; Calibrated: 04.05.2011
- Phantom: SAM right; Type: SAM; Serial: 1042
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 146

Rear position - Low 6Mbps/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.121 mW/g

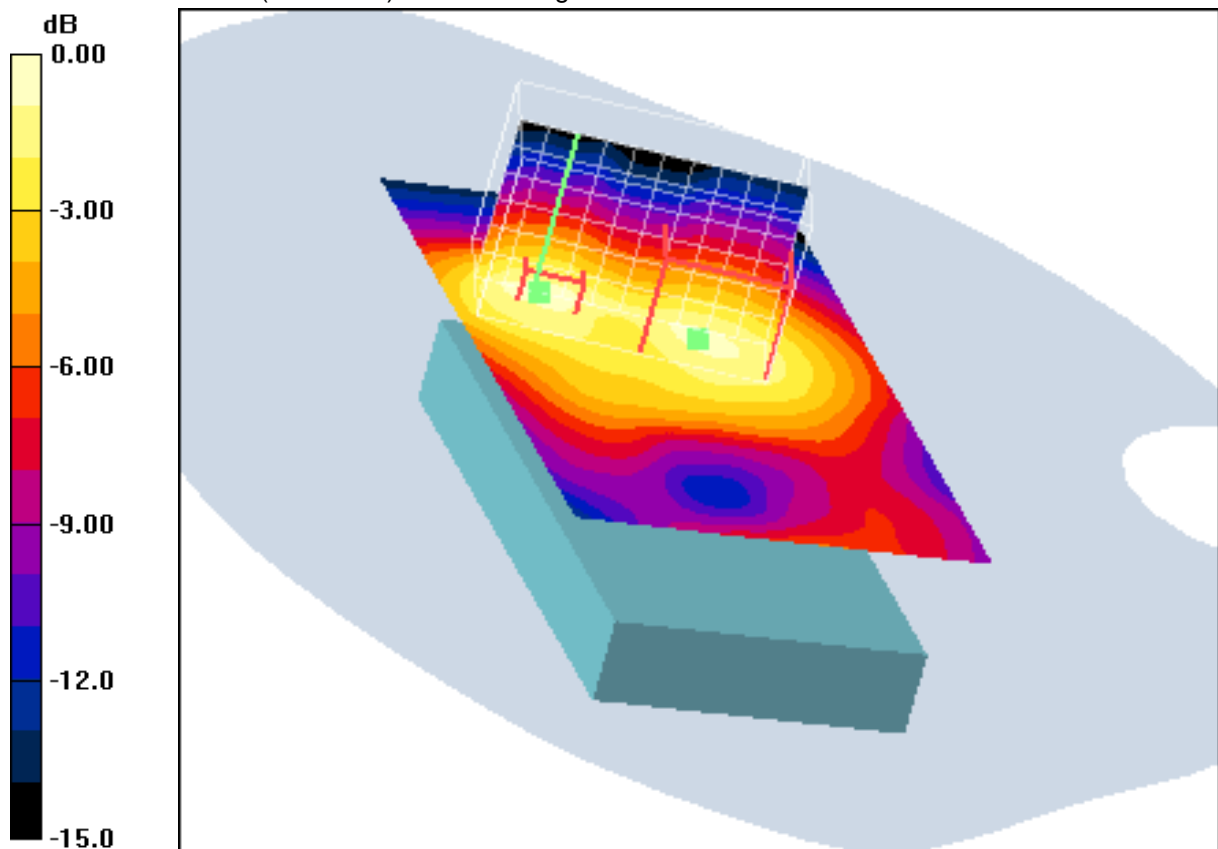
Rear position - Low 6Mbps/Zoom Scan (7x7x7) (11x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.36 V/m; Power Drift = -0.181 dB

Peak SAR (extrapolated) = 0.197 W/kg

SAR(1 g) = 0.114 mW/g; SAR(10 g) = 0.061 mW/g

Maximum value of SAR (measured) = 0.130 mW/g



0 dB = 0.130mW/g

Additional information:

position or distance of DUT to SAM: 10mm

ambient temperature: 23.5°C; liquid temperature: 23.0°C

Date/Time: 19.08.2011 16:29:44 Date/Time: 19.08.2011 16:41:58

IEEE1528_OET65-Body_WLAN

DUT: Sony Ericsson; Type: AAD-3880124-BV; Serial: BX902GQPDP

Communication System: WLAN 2450 US; Frequency: 2412 MHz; Duty Cycle: 1:1

Medium: M2450 Medium parameters used: $f = 2412$ MHz; $\sigma = 1.94$ mho/m; $\epsilon_r = 51.8$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1559; ConvF(3.91, 3.91, 3.91); Calibrated: 19.01.2011
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn477; Calibrated: 04.05.2011
- Phantom: SAM right; Type: SAM; Serial: 1042
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 146

Rear position - Low 6.5Mbps/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.116 mW/g

Rear position - Low 6.5Mbps/Zoom Scan (7x7x7) (11x7x7)/Cube 0:

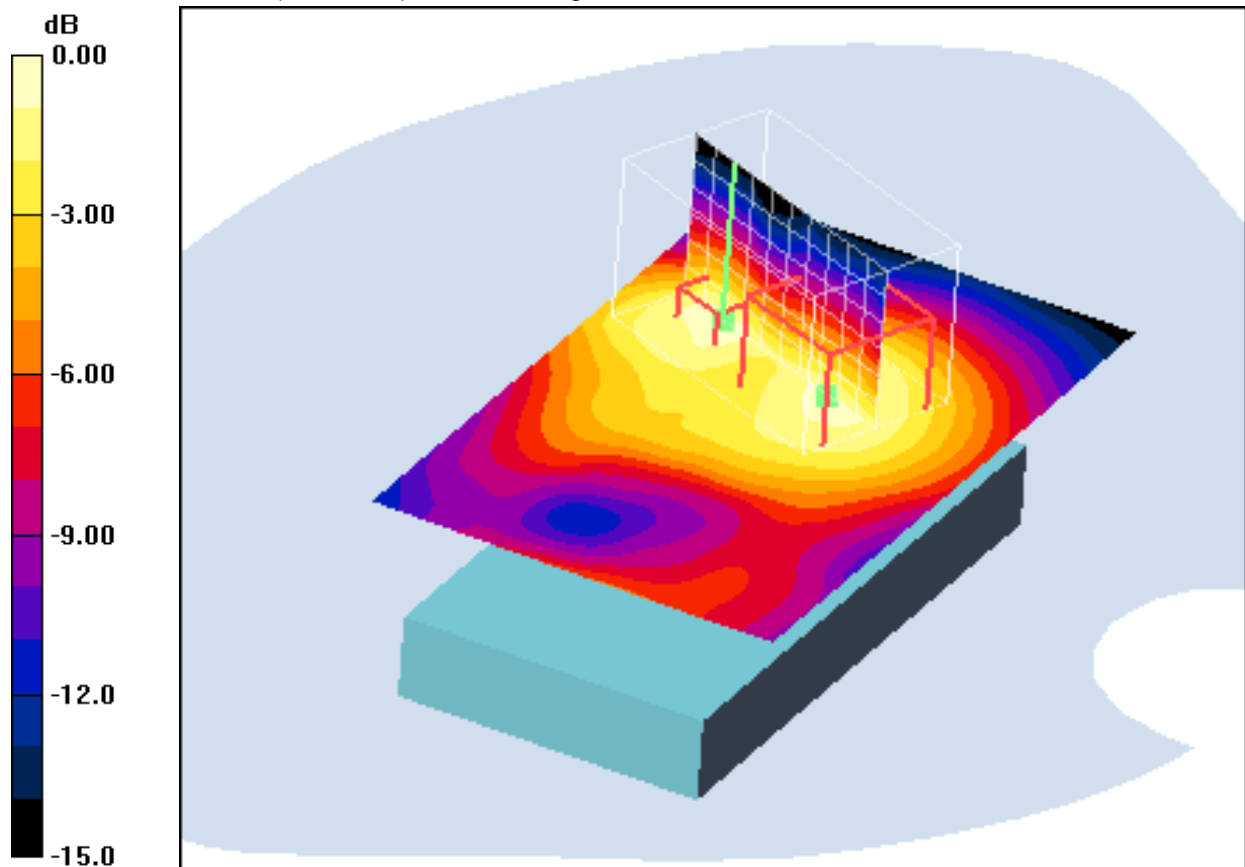
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.10 V/m; Power Drift = -0.050 dB

Peak SAR (extrapolated) = 0.179 W/kg

SAR(1 g) = 0.105 mW/g; SAR(10 g) = 0.057 mW/g

Maximum value of SAR (measured) = 0.121 mW/g



0 dB = 0.121mW/g

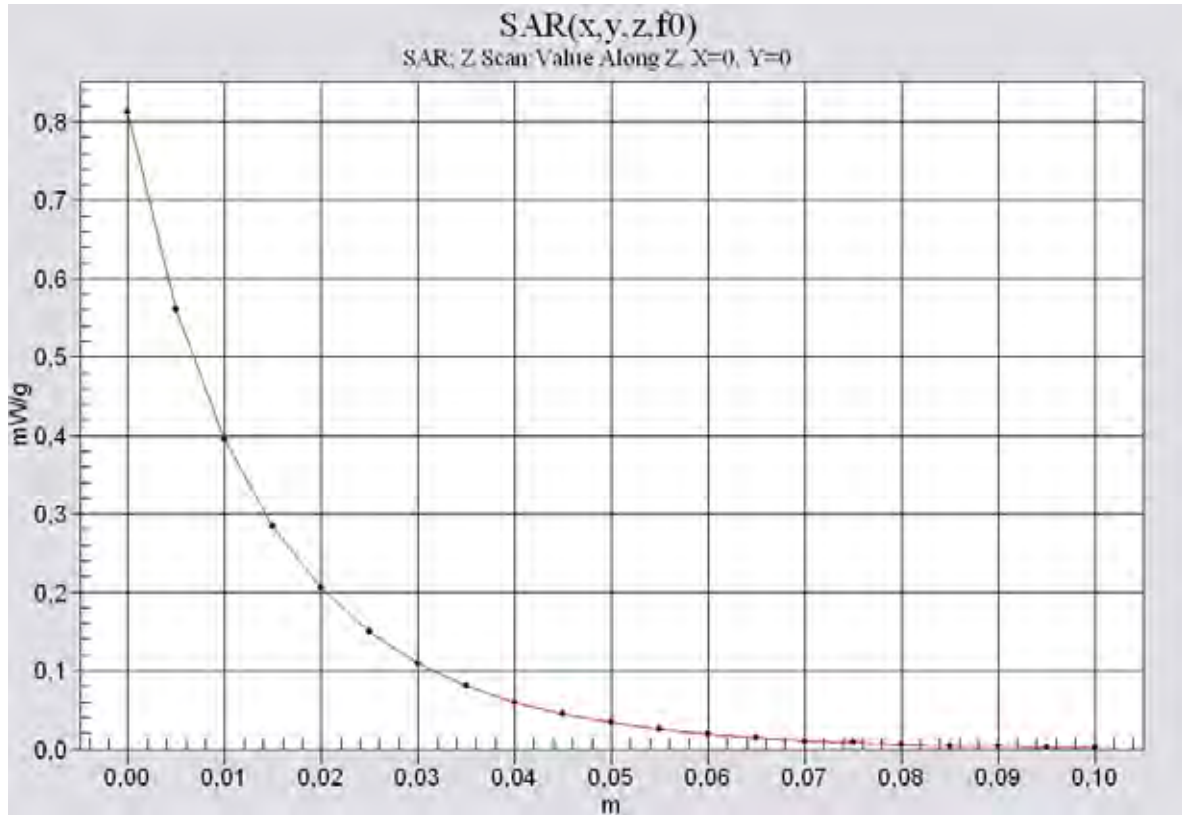
Additional information:

position or distance of DUT to SAM: 10mm

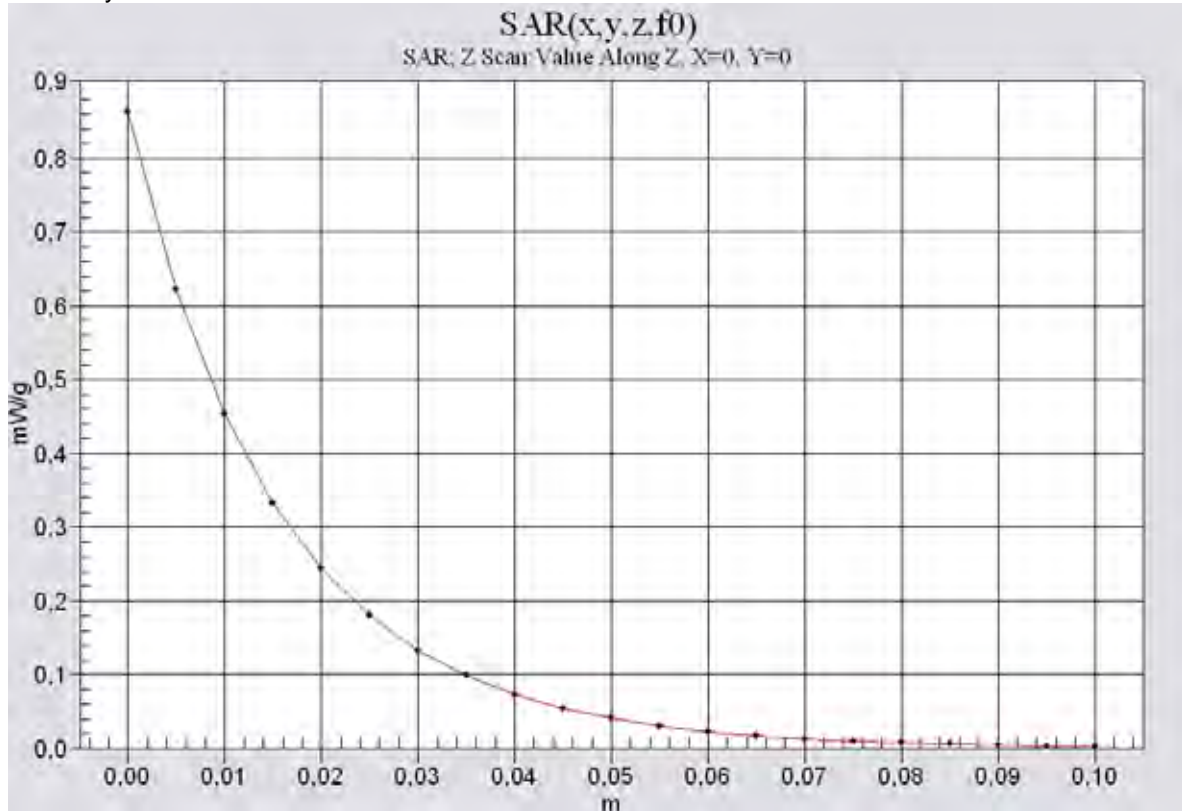
ambient temperature: 23.5°C; liquid temperature: 23.0°C

Annex B.11: Z-axis scan

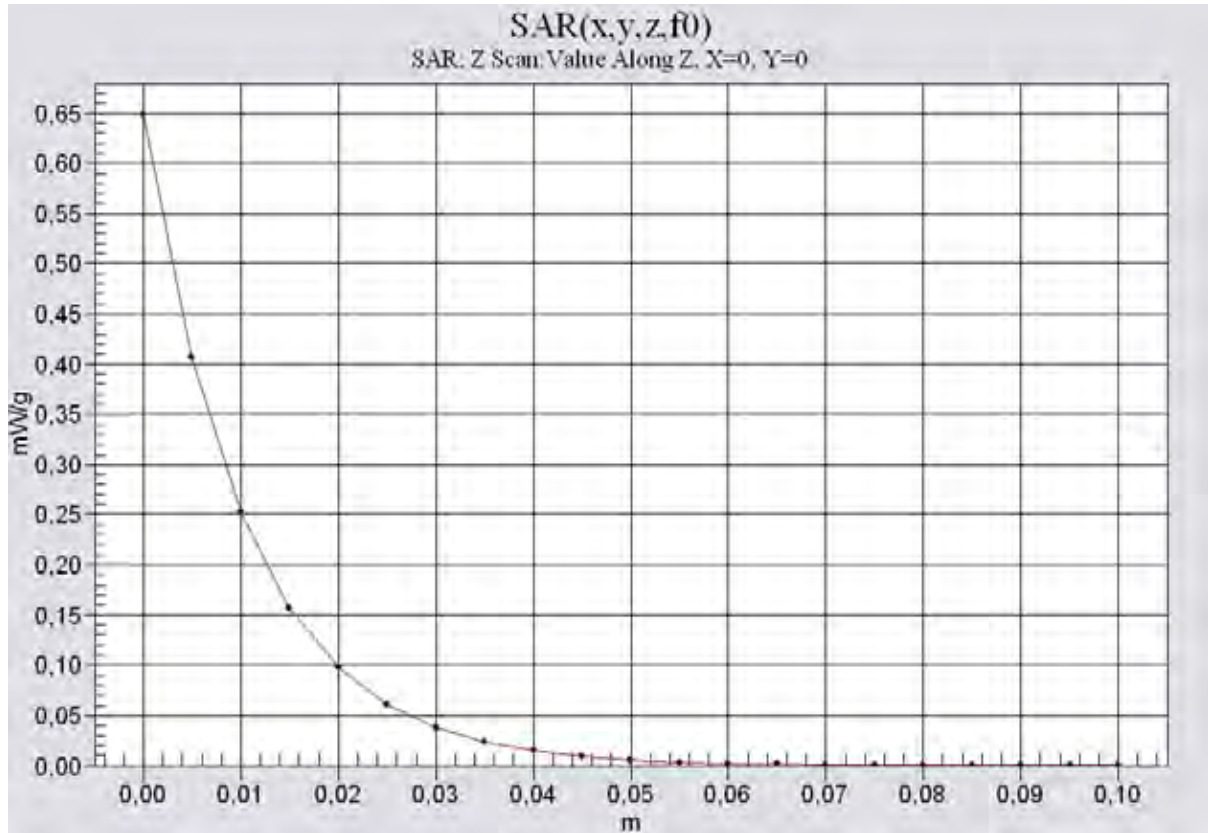
850 head



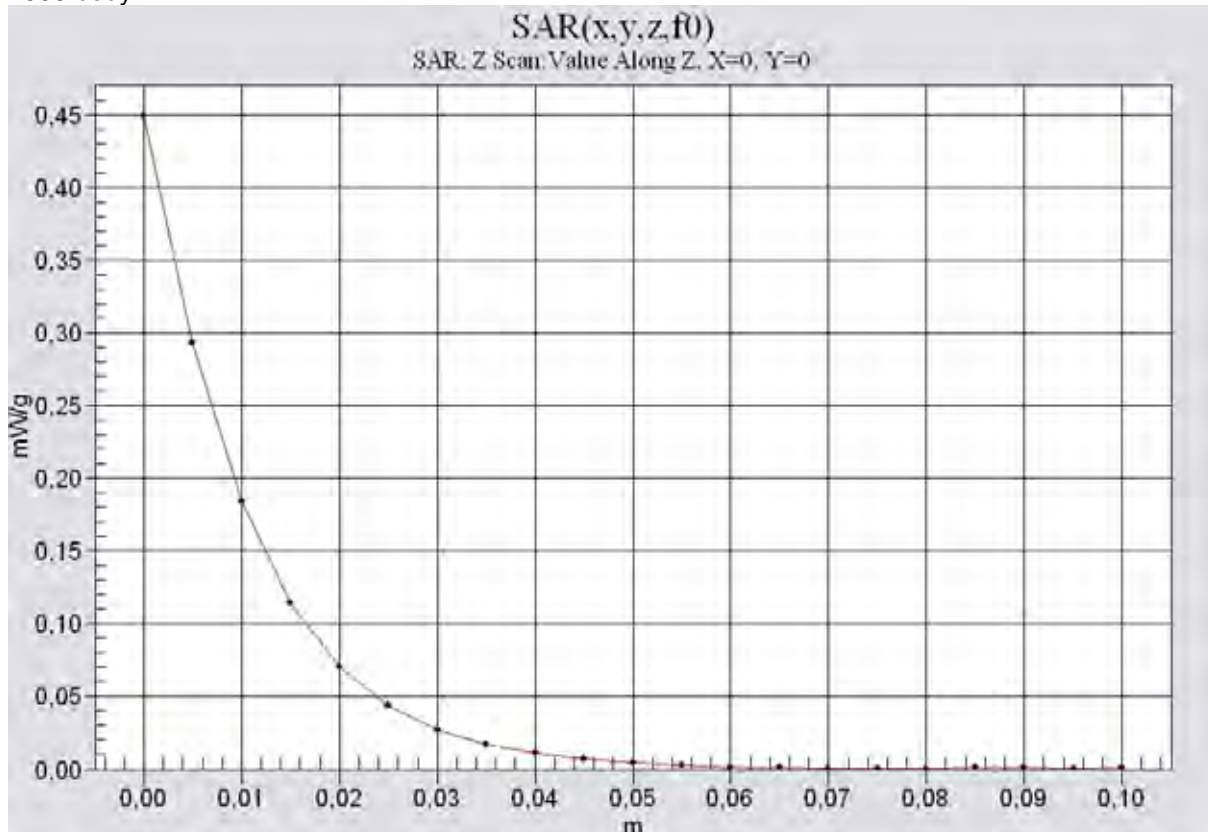
850 body



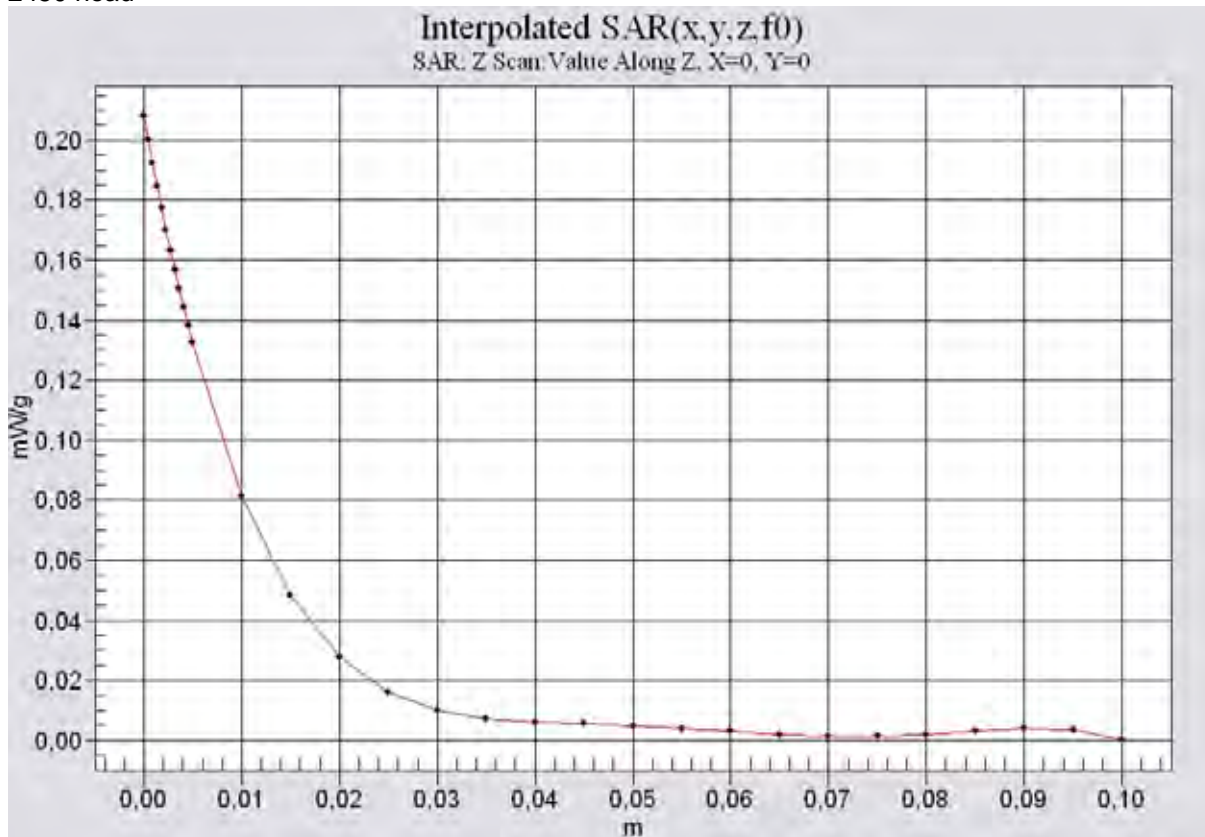
1900 head



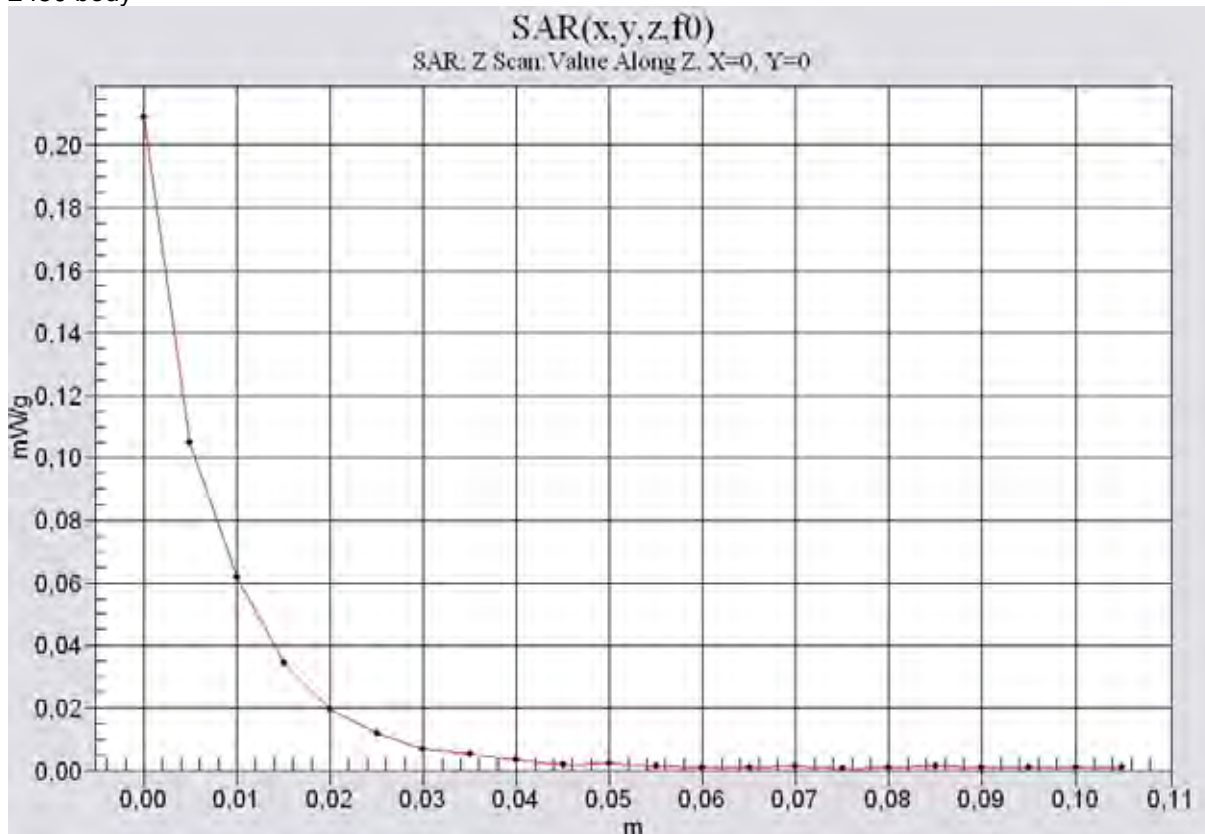
1900 body



2450 head



2450 body



Annex C: Photo documentation

Photo 1: Measurement System DASY 4



Photo 2: DUT - front view



Photo 3: DUT - side view



Photo 4: DUT - rear view



Photo 5: DUT - rear view (open)



Photo 6: DUT - rear view (open) without battery



Photo 7: DUT - label



Photo 8: Battery



Photo 9: Test position left hand touched

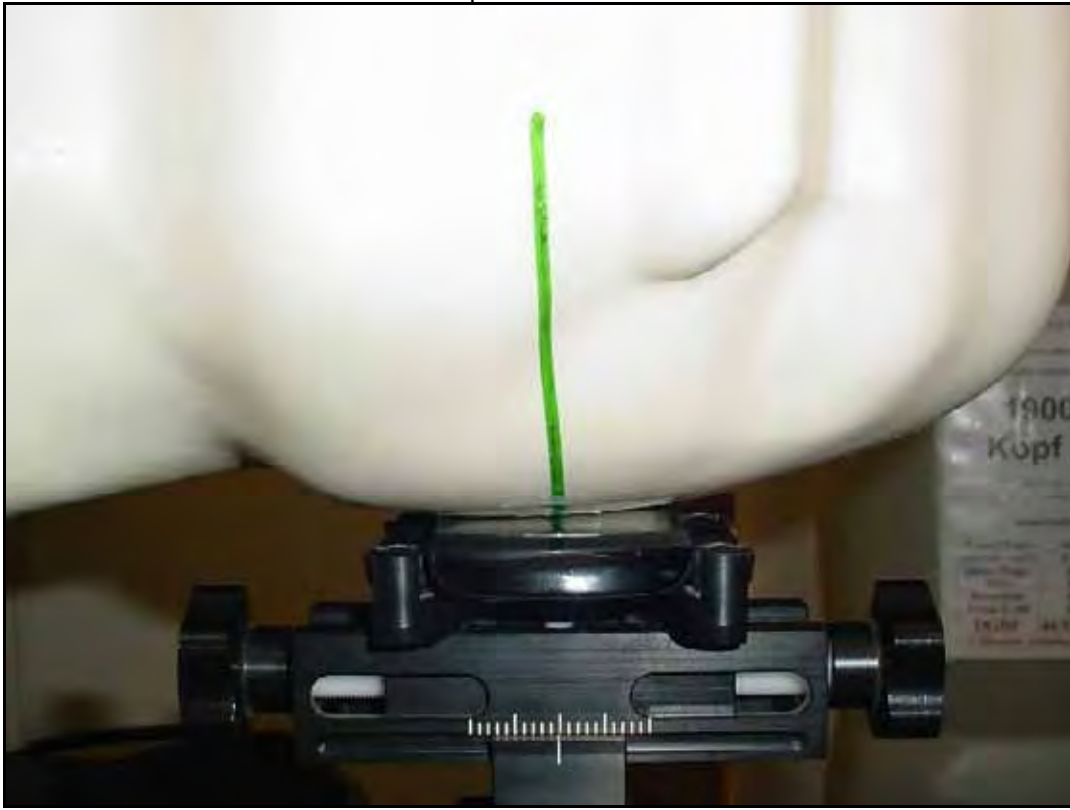


Photo 10: Test position left hand touched



Photo 11: Test position left hand touched



Photo 12: Test position left hand tilted 15°

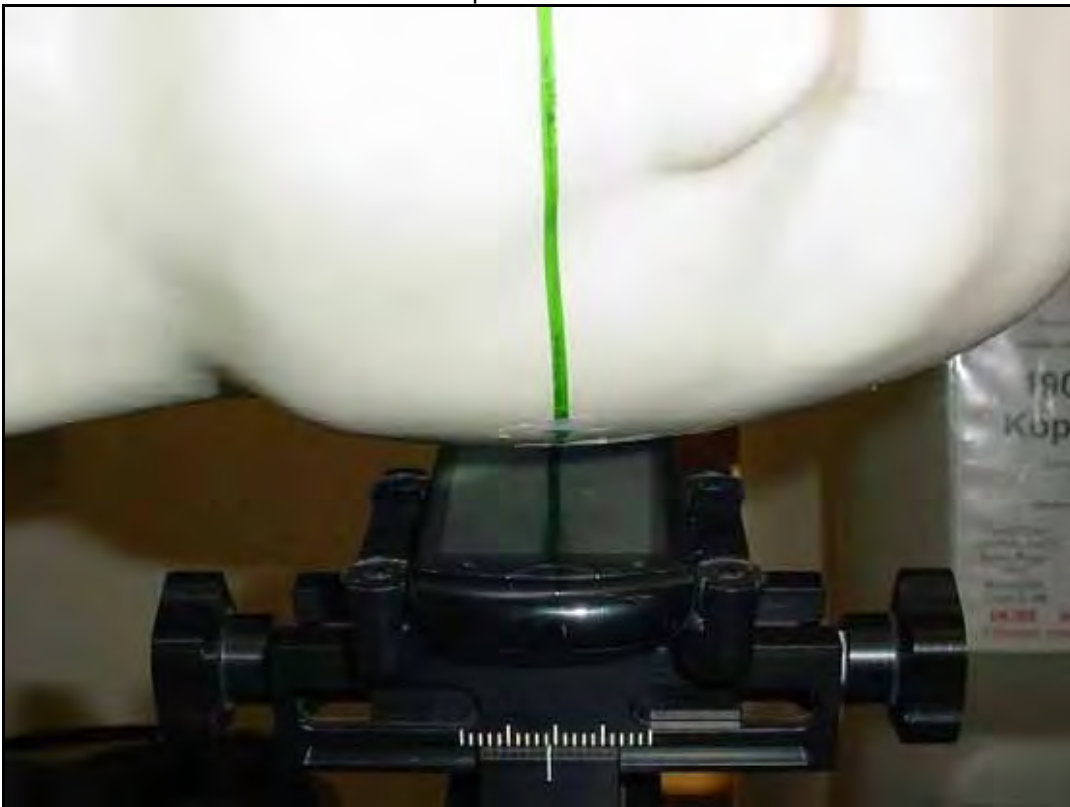


Photo 13: Test position left hand tilted 15°



Photo 14: Test position right hand touched

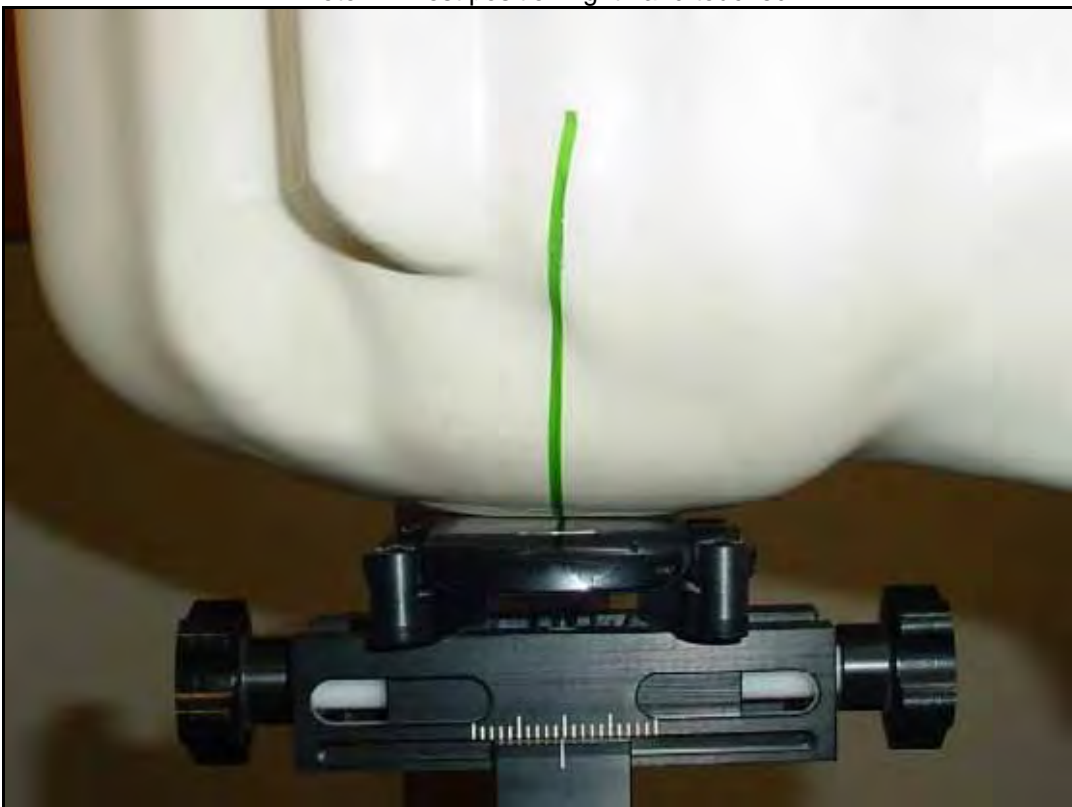


Photo 15: Test position right hand touched



Photo 16: Test position right hand touched



Photo 17: Test position right hand tilted 15°

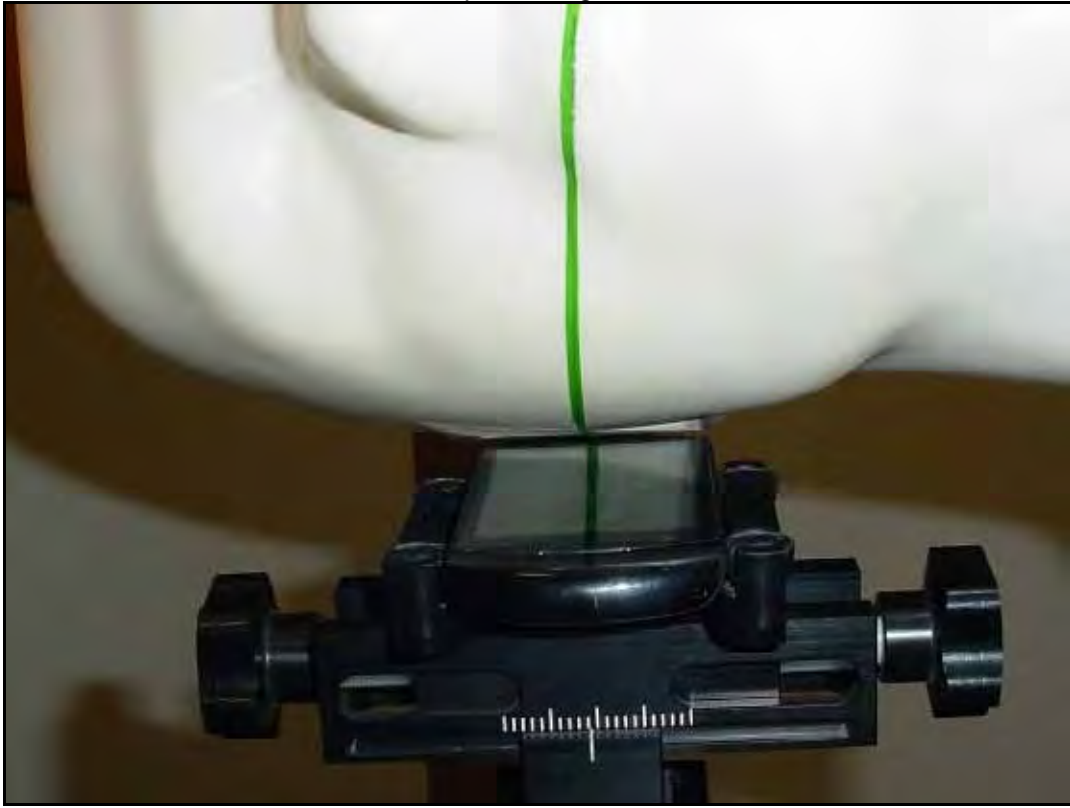


Photo 18: Test position right hand tilted 15°



Photo 19: Test position body worn front side with 10mm distance



Photo 20: Test position body worn rear side with 10mm distance



Photo 21: Test position body worn left side with 10mm distance



Photo 22: Test position body worn right side with 10mm distance



Photo 23: Test position body worn top side with 10mm distance



Photo 24: Test position body worn bottom side with 10mm distance



Photo 25: Test position body worn rear side with 15mm distance



Annex C.1: Liquid depth

Photo 1: Liquid depth 850 MHz head simulating liquid



Photo 2: Liquid depth 850 MHz body simulating liquid

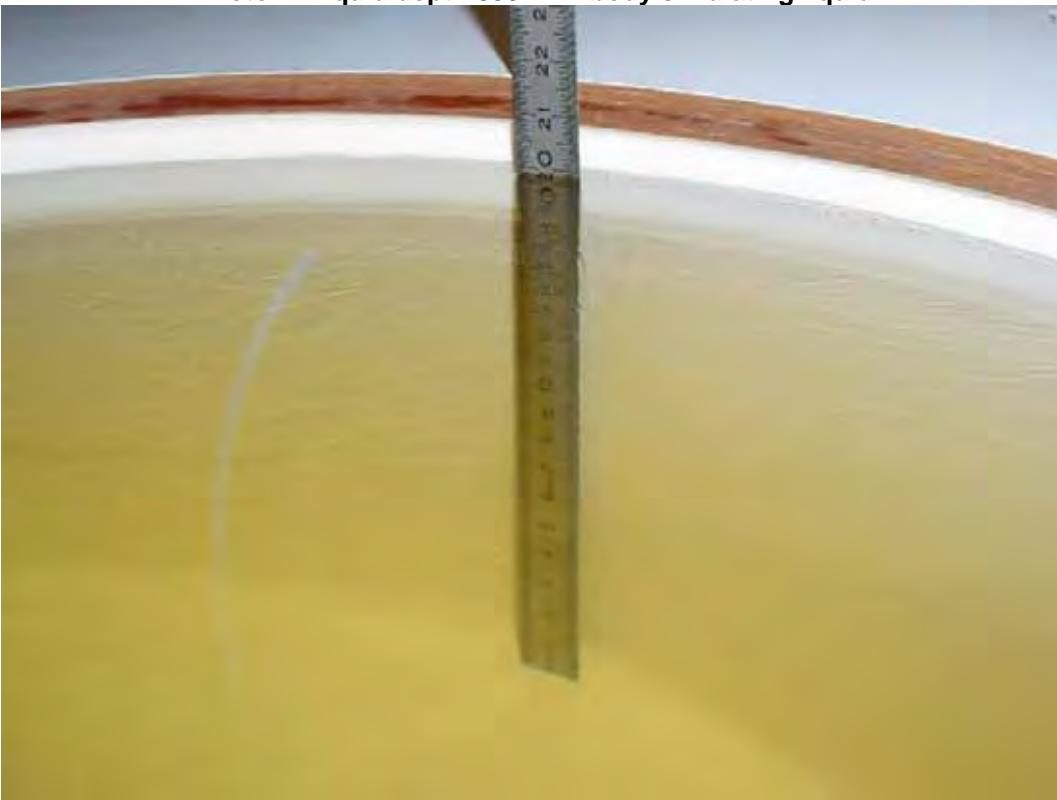


Photo 3: Liquid depth 1900MHz head simulating liquid

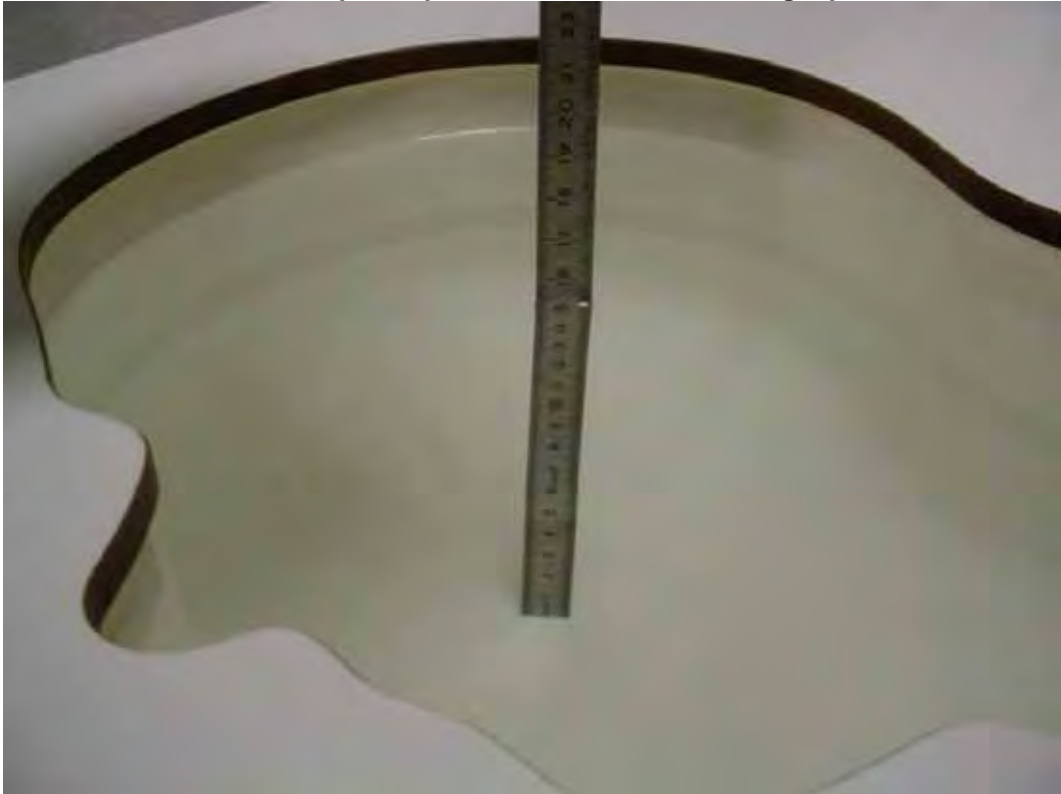


Photo 4: Liquid depth 1900 MHz body simulating liquid



Annex D: RF Technical Brief Cover Sheet acc. to RSS-102 Annex A

1. COMPANY NUMBER: 4170B

2. MODEL NUMBER: A3880124

3. MANUFACTURER: **Sony Ericsson Mobile Communications AB**

4. TYPE OF EVALUATION:

(a) SAR Evaluation: Device used in the Vicinity of the Human Head

- Multiple transmitters: Yes No
- Evaluated against exposure limits: General Public Use Controlled Use
- Duty cycle used in evaluation: 100 %
- Standard used for evaluation: RSS-102 Issue 4 (2010-03)
- SAR value: **1.380 W/kg.** Measured Computed Calculated


(b) SAR Evaluation: Body-worn Device

- Multiple transmitters: Yes No
- Evaluated against exposure limits: General Public Use Controlled Use
- Duty cycle used in evaluation: 100 %
- Standard used for evaluation: RSS-102 Issue 4 (2010-03)
- SAR value: **1.190 W/kg.** Measured Computed Calculated

Annex D.1: Declaration of RF Exposure Compliance

ATTESTATION: I attest that the information provided in Annex D: is correct; that a Technical Brief was prepared and the information it contains is correct; that the device evaluation was performed or supervised by me; that applicable measurement methods and evaluation methodologies have been followed and that the device meets the SAR and/or RF exposure limits of RSS-102.

Signature:



Date: 2011-10-07

NAME : **Thomas** Vogler

TITLE : Dipl.-Ing. (FH)

COMPANY : CETECOM ICT Services GmbH

Annex E: Calibration parameters

Calibration parameters are described in the additional document :

Appendix to test report no. 1-2977-81-02/11 Calibration data, Phantom certificate and detail information of the DASY4 System

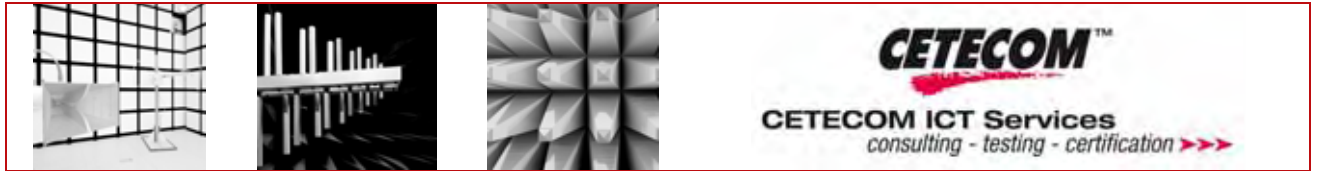
Annex F: Document History

Version	Applied Changes	Date of Release
	Initial Release	2011-08-22
A	Typo in Multiple transmitter information corrected	2011-10-07

Annex G: Further Information

Glossary

DUT	-	Device under Test
EUT	-	Equipment under Test
FCC	-	Federal Communication Commission
FCC ID	-	Company Identifier at FCC
HW	-	Hardware
IC	-	Industry Canada
Inv. No.	-	Inventory number
N/A	-	not applicable
SAR	-	Specific Absorption Rate
S/N	-	Serial Number
SW	-	Software



TEST REPORT

Test Report No.: 1-2977-81-02/11



Testing Laboratory

CETECOM ICT Services GmbH

Untertürkheimer Straße 6 – 10

66117 Saarbrücken/Germany

Phone: + 49 681 5 98 - 0

Fax: + 49 681 5 98 - 9075

Internet: <http://www.cetecom.com>

e-mail: ict@cetecom.com

Accredited Test Laboratory:

The test laboratory (area of testing) is accredited according to DIN EN ISO/IEC 17025

DAR registration number: DAT-P-176/94-D1

Appendix with Calibration data, Phantom certificate and system validation information

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2 Calibration report "Probe ET3DV6"

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



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

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

Accreditation No.: SCS 108

Client **Cetecom**

Certificate No: ET3-1554_May11

CALIBRATION CERTIFICATE

Object **ET3DV6 - SN:1554**

Calibration procedure(s) **QA CAL-01.v7, QA CAL-23.v4, QA CAL-25.v3
Calibration procedure for dosimetric E-field probes**

Calibration date: **May 11, 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	MY41499087	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: S5066 (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

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

Issued: May 13, 2011

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

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



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

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

Accreditation No.: SCS 108

Glossary:

TSL	Issue simulating liquid
NORM _{x,y,z}	sensitivity in free space
ConvF	sensitivity in TSL / NORM _{x,y,z}
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C	modulation dependent linearization parameters
Polarization ψ	ψ rotation around probe axis
Polarization θ	θ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., $\theta = 0$ is normal to probe axis

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
- IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear" (frequency range of 300 MHz to 3 GHz)", February 2005

Methods Applied and Interpretation of Parameters:

- NORM_{x,y,z}**: Assessed for E-field polarization $\theta = 0$ ($f < 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide). NORM_{x,y,z} are only intermediate values, i.e., the uncertainties of NORM_{x,y,z} does not affect the E-field uncertainty inside TSL (see below ConvF).
- NORM(f)_{x,y,z}** = NORM_{x,y,z} * frequency response (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of ConvF.
- DCP_{x,y,z}**: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- PAR**: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- A_{x,y,z}; B_{x,y,z}; C_{x,y,z}** are numerical linearization parameters in dB assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media.
- VR**: VR is the validity range of the calibration related to the average diode voltage or DAE voltage in mV
- ConvF and Boundary Effect Parameters**: Assessed in flat phantom using E-field (or Temperature Transfer Standard for $f \leq 800$ MHz) and inside waveguide using analytical field distributions based on power measurements for $f > 800$ MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORM_{x,y,z} * ConvF whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- Spherical isotropy (3D deviation from isotropy)**: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- Sensor Offset**: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.

E13DV6 - SN:1554

May 11, 2011

Probe ET3DV6

SN:1554

Manufactured: October 16, 2000
Calibrated: May 11, 2011

Calibrated for DASY/EASY Systems
(Note: non-compatible with DASY2 system!)

ET3DV6- SN:1554

May 11, 2011

DASY/EASY - Parameters of Probe: ET3DV6 - SN:1554

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm: $(\mu V/(V/m))^2$ ^A	1.42	1.62	1.35	$\pm 10.1\%$
DCP (mV) ^B	99.0	87.5	100.7	

Modulation Calibration Parameters

UID	Communication System Name	PAR	A dB	B dB	C dB	VR mV	Unc ^C (k=2)	
C300	CW	C.00	X	0.00	0.00	1.00	123.6	$\pm 2.7\%$
			Y	0.00	0.00	1.00	134.1	
			Z	0.00	0.00	1.00	122.7	

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor $k=2$, which for a normal distribution corresponds to a coverage probability of approximately 95%.

^A The uncertainties of Norm X, Y, Z do not affect the E²-field uncertainty inside TSL (see Pages 5 and 6).

^B Numerical linearization parameter; uncertainty not required.

^C Uncertainty is determined using 1mV max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

ET3DV6 - SN:1554

May 11, 2011

DASY/EASY - Parameters of Probe: ET3DV6 - SN:1554

Calibration Parameter Determined In Head Tissue Simulating Media

f (MHz) ^E	Relative Permittivity ^F	Conductivity (S/m) ^G	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unst. (k=2)
835	41.5	0.90	6.89	6.89	6.89	0.40	2.01	± 12.0 %
900	41.5	0.97	6.76	6.76	6.76	0.44	2.01	± 12.0 %
1750	40.1	1.37	5.41	5.41	5.41	0.38	2.94	± 12.0 %
1900	40.0	1.40	5.16	5.16	5.16	0.38	2.91	± 12.0 %

^E 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 a 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.

ET3DV6- SN:1554

May 11, 2011

DASY/EASY - Parameters of Probe: ET3DV6- SN:1554

Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) ^c	Relative Permittivity ^d	Conductivity (S/m) ^d	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
835	55.2	0.97	6.75	6.75	6.75	0.43	2.09	± 12.0 %
900	55.0	1.05	6.58	6.58	6.58	0.38	2.38	± 12.0 %
1750	53.4	1.49	4.72	4.72	4.72	0.47	3.00	+ 12.0 %
1900	53.3	1.52	4.42	4.42	4.42	0.46	2.99	+ 12.0 %
2150	53.1	1.66	4.28	4.28	4.28	0.44	2.57	+ 12.0 %

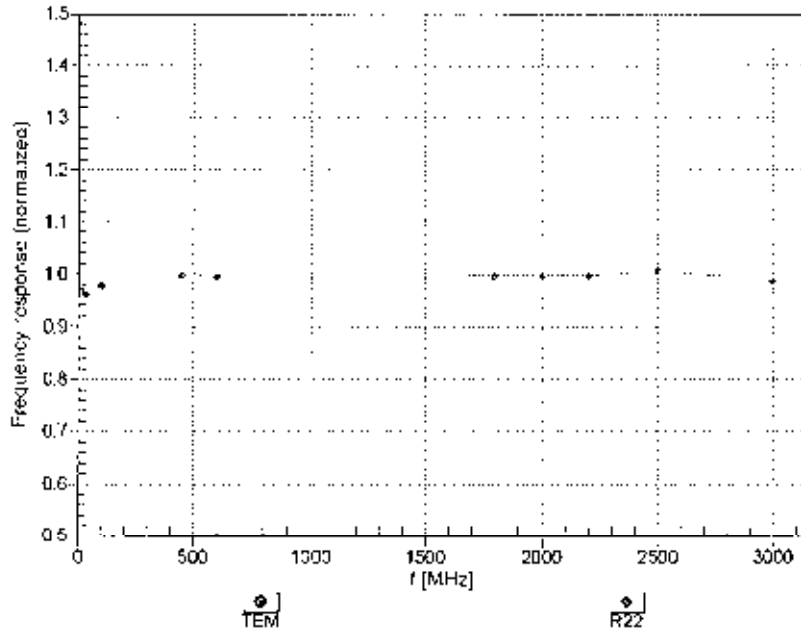
^c Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

^d 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.

ET3DV6- SN 1554

May 11, 2011

Frequency Response of E-Field (TEM-Cell:ifi110 EXX, Waveguide: R22)



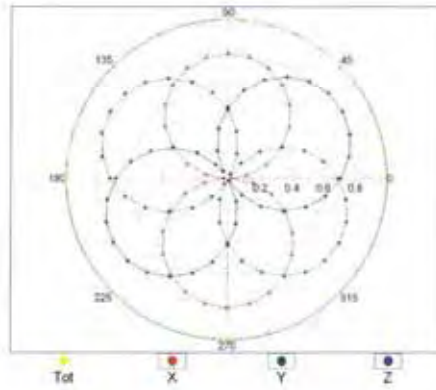
Uncertainty of Frequency Response of E-field: $\pm 6.3\%$ (k=2)

ET3DV6- SN:1554

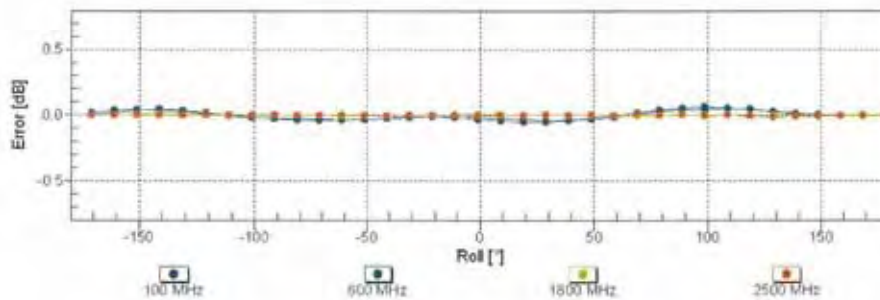
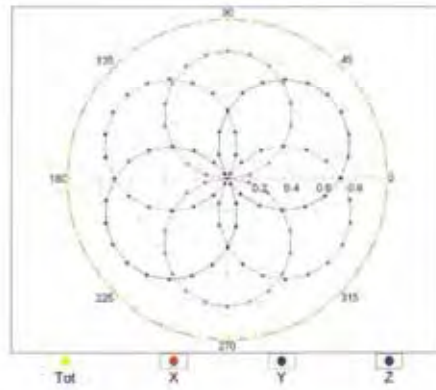
May 11, 2011

Receiving Pattern (ϕ), $\theta = 0^\circ$

f=600 MHz, TEM



f=1800 MHz, R22

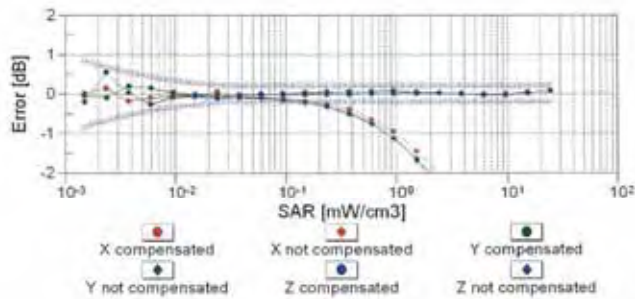
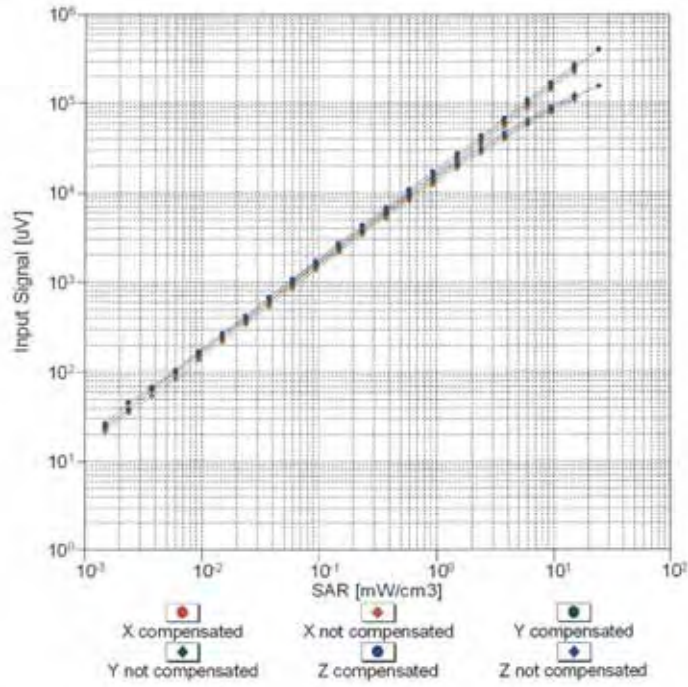


Uncertainty of Axial Isotropy Assessment: $\pm 0.5\%$ (k=2)

ET3DV6- SN:1554

May 11, 2011

Dynamic Range f(SAR_{head}) (TEM cell , f = 900 MHz)

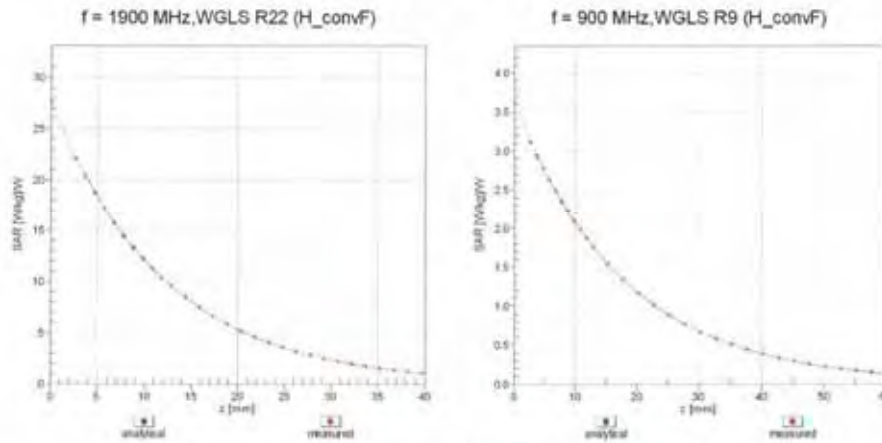


Uncertainty of Linearity Assessment: ± 0.6% (k=2)

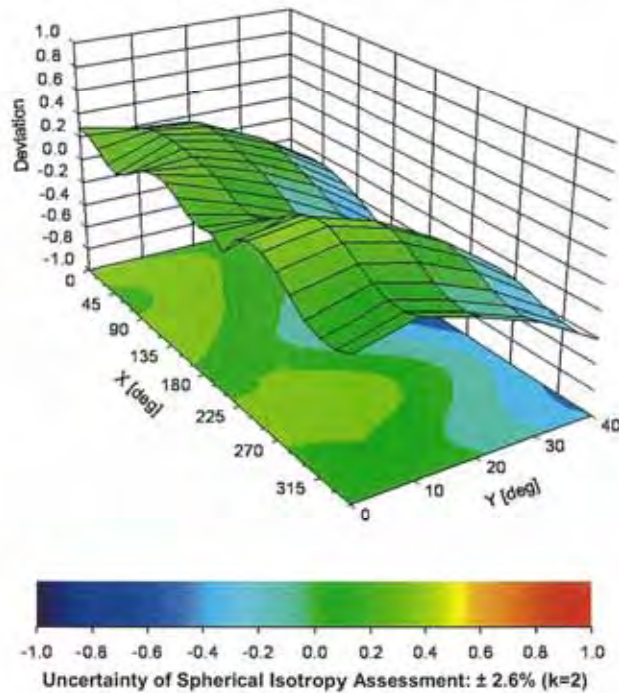
ET3DV6- SN:1554

May 11, 2011

Conversion Factor Assessment



Deviation from Isotropy in Liquid Error (ϕ, θ), $f = 900 \text{ MHz}$



ET3DV6 SN 1554

May 11, 2011

DASY/EASY - Parameters of Probe: ET3DV6 - SN:1554

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	Not applicable
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	enabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	10 mm
Tip Diameter	6.8 mm
Probe Tip to Sensor X Calibration Point	2.7 mm
Probe Tip to Sensor Y Calibration Point	2.7 mm
Probe Tip to Sensor Z Calibration Point	2.7 mm
Recommended Measurement Distance from Surface	4 mm

3 Calibration report "Probe ET3DV6"

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



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

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Accreditation No.: SCS 108

Client **Cetecom**

Certificate No: ET3-1559_Jan11

CALIBRATION CERTIFICATE																																																			
Object	ET3DV6 - SN:1559																																																		
Calibration procedure(s)	QA CAL-01.v7, QA CAL-12.v6, QA CAL-23.v4 and QA CAL-25.v3 Calibration procedure for dosimetric E-field probes																																																		
Calibration date:	January 19, 2011																																																		
<p>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.</p> <p>All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.</p> <p>Calibration Equipment used (M&TE critical for calibration)</p> <table border="1"> <thead> <tr> <th>Primary Standards</th> <th>ID #</th> <th>Cal Date (Certificate No.)</th> <th>Scheduled Calibration</th> </tr> </thead> <tbody> <tr> <td>Power meter E4419B</td> <td>GB41293874</td> <td>1-Apr-10 (No. 217-01136)</td> <td>Apr-11</td> </tr> <tr> <td>Power sensor E4412A</td> <td>MY41495277</td> <td>1-Apr-10 (No. 217-01136)</td> <td>Apr-11</td> </tr> <tr> <td>Power sensor E4412A</td> <td>MY41498087</td> <td>1-Apr-10 (No. 217-01136)</td> <td>Apr-11</td> </tr> <tr> <td>Reference 3 dB Attenuator</td> <td>SN: S5054 (3c)</td> <td>30-Mar-10 (No. 217-01159)</td> <td>Mar-11</td> </tr> <tr> <td>Reference 20 dB Attenuator</td> <td>SN: S5086 (20b)</td> <td>30-Mar-10 (No. 217-01161)</td> <td>Mar-11</td> </tr> <tr> <td>Reference 30 dB Attenuator</td> <td>SN: S5129 (30b)</td> <td>30-Mar-10 (No. 217-01160)</td> <td>Mar-11</td> </tr> <tr> <td>Reference Probe ES3DV2</td> <td>SN: 3013</td> <td>29-Dec-10 (No. ES3-3013_Dec10)</td> <td>Dec-11</td> </tr> <tr> <td>DAE4</td> <td>SN: 660</td> <td>20-Apr-10 (No. DAE4-660_Apr10)</td> <td>Apr-11</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Secondary Standards</th> <th>ID #</th> <th>Check Date (in house)</th> <th>Scheduled Check</th> </tr> </thead> <tbody> <tr> <td>RF generator HP 8648C</td> <td>US3642U01700</td> <td>4-Aug-99 (in house check Oct-09)</td> <td>In house check: Oct-11</td> </tr> <tr> <td>Network Analyzer HP 8753E</td> <td>US37390585</td> <td>18-Oct-01 (in house check Oct-10)</td> <td>In house check: Oct-11</td> </tr> </tbody> </table>				Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration	Power meter E4419B	GB41293874	1-Apr-10 (No. 217-01136)	Apr-11	Power sensor E4412A	MY41495277	1-Apr-10 (No. 217-01136)	Apr-11	Power sensor E4412A	MY41498087	1-Apr-10 (No. 217-01136)	Apr-11	Reference 3 dB Attenuator	SN: S5054 (3c)	30-Mar-10 (No. 217-01159)	Mar-11	Reference 20 dB Attenuator	SN: S5086 (20b)	30-Mar-10 (No. 217-01161)	Mar-11	Reference 30 dB Attenuator	SN: S5129 (30b)	30-Mar-10 (No. 217-01160)	Mar-11	Reference Probe ES3DV2	SN: 3013	29-Dec-10 (No. ES3-3013_Dec10)	Dec-11	DAE4	SN: 660	20-Apr-10 (No. DAE4-660_Apr10)	Apr-11	Secondary Standards	ID #	Check Date (in house)	Scheduled Check	RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Oct-09)	In house check: Oct-11	Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-10)	In house check: Oct-11
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Calibrated by:	Name Jeton Kastrati	Function Laboratory Technician	Signature 																																																
Approved by:	Name Katja Pokovic	Function Technical Manager	Signature 																																																
			Issued: January 20, 2011																																																
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Calibration Laboratory of
Schmid & Partner
Engineering AG
Zughausstrasse 43, 8304 Zurich, Switzerland



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Glossary:

TSL	Issue simulating liquid
$NORM_{x,y,z}$	sensitivity in free space
$ConvF$	sensitivity in TSL / $NORM_{x,y,z}$
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C	modulation dependent linearization parameters
Polarization ϕ	ϕ rotation around probe axis
Polarization β	β rotation around an axis that is in the plane normal to probe axis's (α : measurement center), i.e., $\beta = 0$ is normal to probe axis

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
- IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005

Methods Applied and Interpretation of Parameters:

- $NORM_{x,y,z}$: Assessed for E-field polarization $\beta = 0$ ($f \leq 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide). $NORM_{x,y,z}$ are only intermediate values, i.e., the uncertainties of $NORM_{x,y,z}$ does not affect the E^2 -field uncertainty inside TSL (see below $ConvF$).
- $NORM(f)_{x,y,z} = NORM_{x,y,z} \cdot frequency_response$ (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of $ConvF$.
- $DCP_{x,y,z}$: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- $A_{x,y,z}$; $B_{x,y,z}$; $C_{x,y,z}$; $VR_{x,y,z}$: A, B, C are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- $ConvF$ and Boundary Effect Parameters: Assessed in fat phantom using E-field (or Temperature Transfer Standard for $f \leq 800$ MHz) and inside waveguide using analytical field distributions based on power measurements for $f > 800$ MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to $NORM_{x,y,z} \cdot ConvF$ whereby the uncertainty corresponds to that given for $ConvF$. A frequency dependent $ConvF$ is used in DASY version 4.4 and higher which allows extending the validity from + 50 MHz to ± 100 MHz.
- Spherical isotropy (3D deviation from isotropy): in a field of low gradients realized using a fat phantom exposed by a patch antenna
- Sensor Offset: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (or probe axis). No tolerance required.

ET3DV6 SN:1559

January 19, 2011

Probe ET3DV6

SN:1559

Manufactured:	December 1, 2000
Last calibrated:	January 20, 2010
Recalibrated:	January 19, 2011

Calibrated for DASY/EASY Systems

(Note: non-compatible with DASY2 system!)

ET3DV6 SN:1559

January 19, 2011

DASY/EASY - Parameters of Probe: ET3DV6 SN:1559

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu\text{V}/(\text{V/m})^2$) ^A	1.79	1.59	1.64	$\pm 10.1\%$
DCP (mV) ^B	96.9	97.6	96.3	

Modulation Calibration Parameters

UID	Communication System Name	PAR		A dB	B dB μV	C	VR mV	Unc ^C (k=2)
10000	CW	0.00	X	0.00	0.00	1.00	132.1	$\pm 2.9\%$
			Y	0.00	0.00	1.00	137.6	
			Z	0.00	0.00	1.00	128.3	

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

^A The uncertainties of NormX,Y,Z do not affect the E²-field uncertainty (see Pages 5 and 6)

^B Numerical linearization parameter (uncertainty not required)

^C Uncertainty is determined using the maximum deviation from linear response applying rectangular distribution and is expressed for the square of the field value

ET3DV6 SN:1559

January 19, 2011

DASY/EASY - Parameters of Probe: ET3DV6 SN:1559

Calibration Parameter Determined in Head Tissue Simulating Media

f [MHz]	Validity [MHz] ²	Permittivity	Conductivity	ConvF X	ConvF Y	ConvF Z	Alpha	Depth Unc (k=2)
450	± 50 / ± 100	43.5 ± 5%	0.87 ± 5%	7.39	7.39	7.39	0.18	2.07 ± 13.3%
835	± 50 / ± 100	41.5 ± 5%	0.90 ± 5%	6.33	6.33	6.33	0.25	3.00 ± 11.0%
900	± 50 / ± 100	41.5 ± 5%	0.97 ± 5%	6.20	6.20	6.20	0.26	3.00 ± 11.0%
1750	± 50 / ± 100	40.1 ± 5%	1.37 ± 5%	5.28	5.28	5.28	0.79	1.69 ± 11.0%
1900	± 50 / ± 100	40.0 ± 5%	1.40 ± 5%	5.02	5.02	5.02	0.79	1.60 ± 11.0%
2450	± 50 / ± 100	39.2 ± 5%	1.80 ± 5%	4.38	4.38	4.38	0.79	2.02 ± 11.0%

² The validity of ± 100 MHz only applies for DASY v6.4 and higher (see Page 2). The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

ET3DV6 SN:1559

January 19, 2011

DASY/EASY - Parameters of Probe: ET3DV6 SN:1559

Calibration Parameter Determined in Body Tissue Simulating Media

f [MHz]	Validity [MHz] ^c	Permittivity	Conductivity	ConvF X	ConvF Y	ConvF Z	Alpha	Depth Unc (k=2)
450	± 50 / ± 100	56.7 ± 5%	0.94 ± 5%	7.73	7.73	7.73	0.12	2.07 ± 13.3%
635	± 50 / ± 100	55.2 ± 5%	0.97 ± 5%	6.22	6.22	6.22	0.25	2.98 ± 11.0%
900	± 50 / ± 100	55.0 ± 5%	1.05 ± 5%	6.10	6.10	6.10	0.29	2.87 ± 11.0%
1750	± 50 / ± 100	53.4 ± 5%	1.49 ± 5%	4.68	4.68	4.68	0.79	2.39 ± 11.0%
1900	± 50 / ± 100	53.3 ± 5%	1.52 ± 5%	4.40	4.40	4.40	0.79	2.32 ± 11.0%
2450	± 50 / ± 100	52.7 ± 5%	1.95 ± 5%	3.91	3.91	3.91	0.70	3.00 ± 11.0%

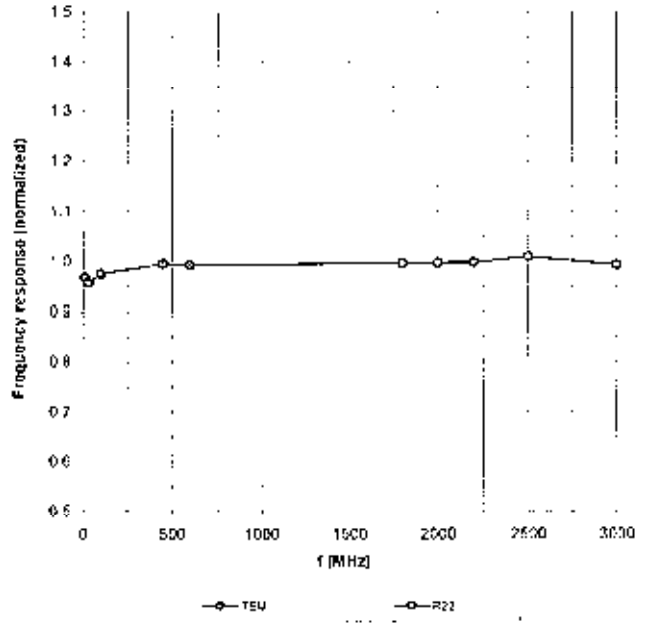
^c The validity of ± 100 MHz only applies for DASY-M4 and higher (see Page 2). The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

ET3DV6 SN:1559

January 19, 2011

Frequency Response of E-Field

(TEM-Cell: if1110 EXX, Waveguide: R22)

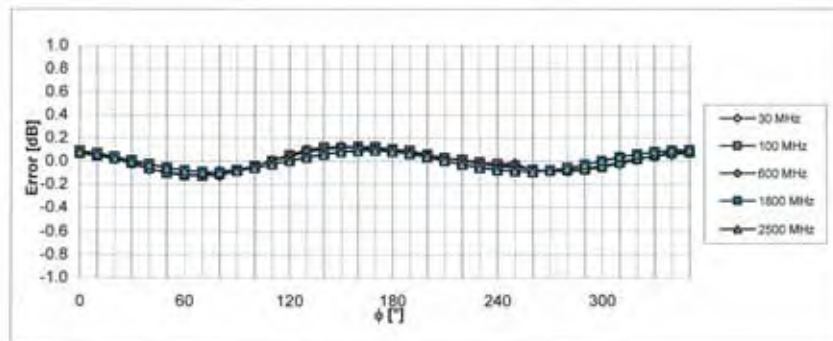
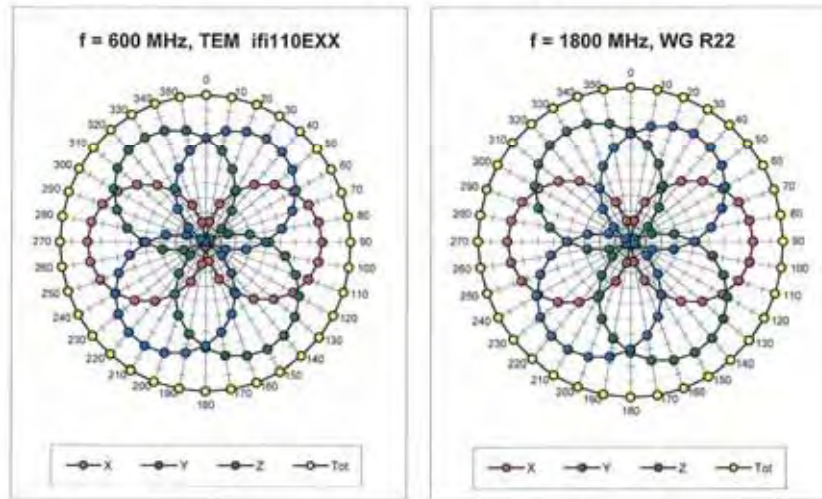


Uncertainty of Frequency Response of E-field: $\pm 6.3\%$ (k=2)

ET3DV6 SN:1559

January 19, 2011

Receiving Pattern (ϕ), $\vartheta = 0^\circ$

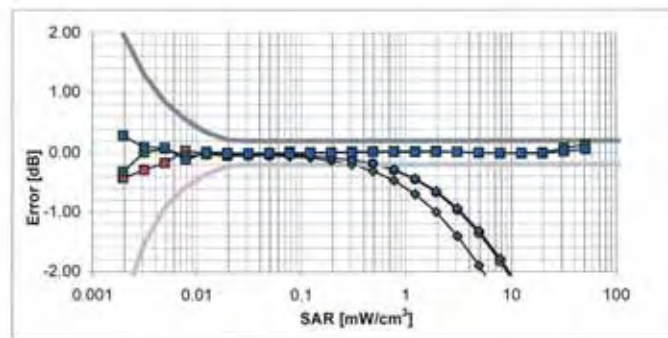
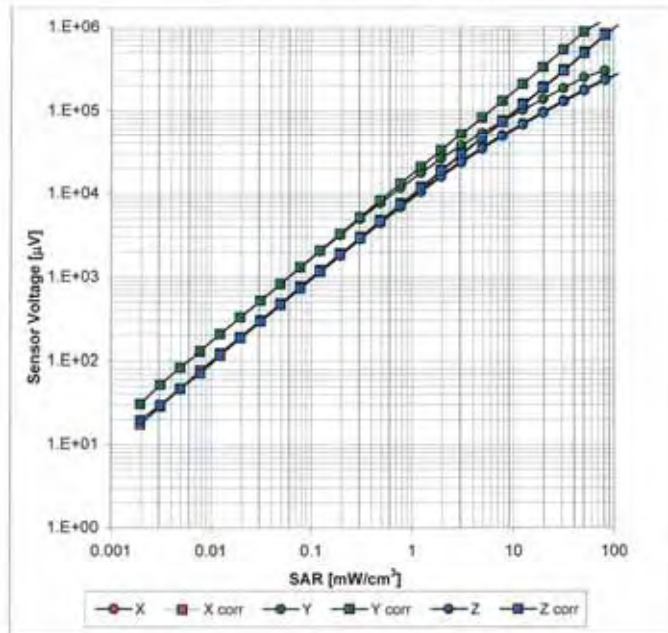


Uncertainty of Axial Isotropy Assessment: $\pm 0.5\%$ ($k=2$)

ET3DV6 SN:1559

January 19, 2011

Dynamic Range $f(\text{SAR}_{\text{head}})$ (TEM cell, $f = 900 \text{ MHz}$)

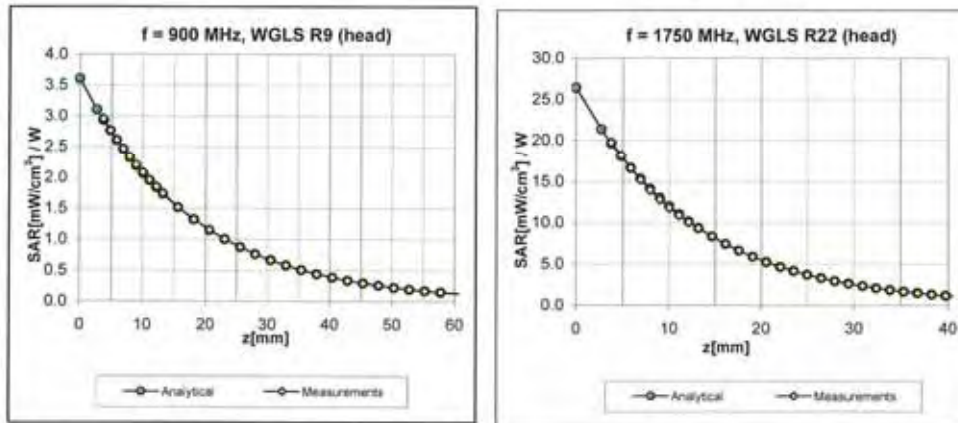


Uncertainty of Linearity Assessment: $\pm 0.6\%$ ($k=2$)

ET3DV6 SN:1559

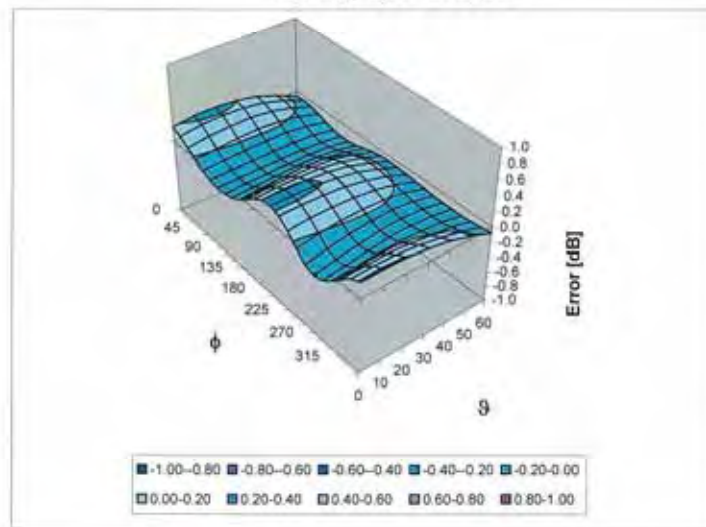
January 19, 2011

Conversion Factor Assessment



Deviation from Isotropy in HSL

Error (ϕ, ϑ), f = 900 MHz



Uncertainty of Spherical Isotropy Assessment: $\pm 2.6\%$ (k=2)

ET3DV6 SN:1559

January 19, 2011

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	Not applicable
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	enabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	10 mm
Tip Diameter	6.8 mm
Probe Tip to Sensor X Calibration Point	2.7 mm
Probe Tip to Sensor Y Calibration Point	2.7 mm
Probe Tip to Sensor Z Calibration Point	2.7 mm
Recommended Measurement Distance from Surface	3.7 mm

4 Calibration report “900 MHz System validation dipole”

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



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Accreditation No.: **SCS 108**

Client **Cetecom**

Certificate No: **D900V2-099_May11**

CALIBRATION CERTIFICATE

Object **D900V2 - SN: 099**

Calibration procedure(s) **QA CAL-05.v8
Calibration procedure for dipole validation kits above 700 MHz**

Calibration date: **May 09, 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	10-Jun-10 (No. DAE4-601_Jun10)	Jun-11
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-09)	In house check: Oct-11
RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585 S4205	18-Oct-01 (in house check Oct-10)	In house check: Oct-11

Calibrated by:	Name	Function	Signature
	Dimce Iliev	Laboratory Technician	

Approved by:	Name	Function	Signature
	Katja Pokovic	Technical Manager	

Issued: May 11, 2011

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



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Glossary:

TSL tissue simulating liquid
ConvF sensitivity in TSL / NORM x,y,z
N/A not applicable or not measured

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
- IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
- Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

Additional Documentation:

- DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- Measurement Conditions:** Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL:** The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss:** These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay:** One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- SAR measured:** SAR measured at the stated antenna input power.
- SAR normalized:** SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters:** The measured TSL parameters are used to calculate the nominal SAR result.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52 6.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	900 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	41.5	0.87 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	39.7 ± 6 %	0.94 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	---	---

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.62 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	10.6 mW / g ± 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.69 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	6.83 mW / g ± 16.5 % (k=2)

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	55.0	1.05 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	53.2 ± 6 %	1.06 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	---	---

SAR result with Body TSL

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.82 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	11.1 mW / g ± 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.91 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	7.17 mW / g ± 16.5 % (k=2)

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	$50.4 \Omega - 5.6 j\Omega$
Return Loss	-25.1 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	$46.0 \Omega + 7.2 j\Omega$
Return Loss	-21.4 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.402 ns
----------------------------------	----------

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	January 24, 2001

DASY5 Validation Report for Head TSL

Date: 09.05.2011

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 900 MHz; Type: D900V2; Serial: D900V2 - SN:099

Communication System: CW; Frequency: 900 MHz; Duty Cycle: 1:1
Medium: HSL900

Medium parameters used: $f = 900 \text{ MHz}$; $\sigma = 0.94 \text{ mho/m}$; $\epsilon_r = 39.7$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(5.97, 5.97, 5.97); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- Measurement SW: DASY52, V52.6.2 Build (424)
- Postprocessing SW: SEMCAD X, V14.4.4 Build (2829)

Dipole Calibration for Head Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:

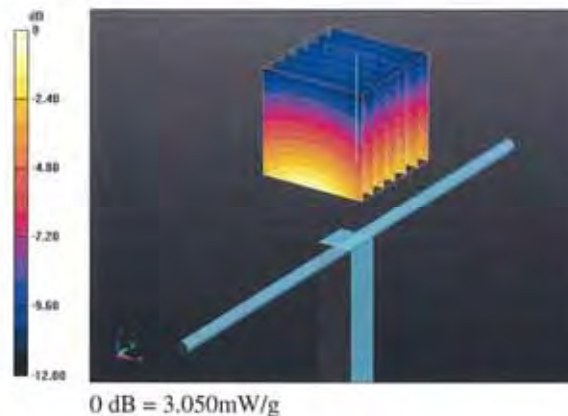
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 58.759 V/m; Power Drift = 0.05 dB

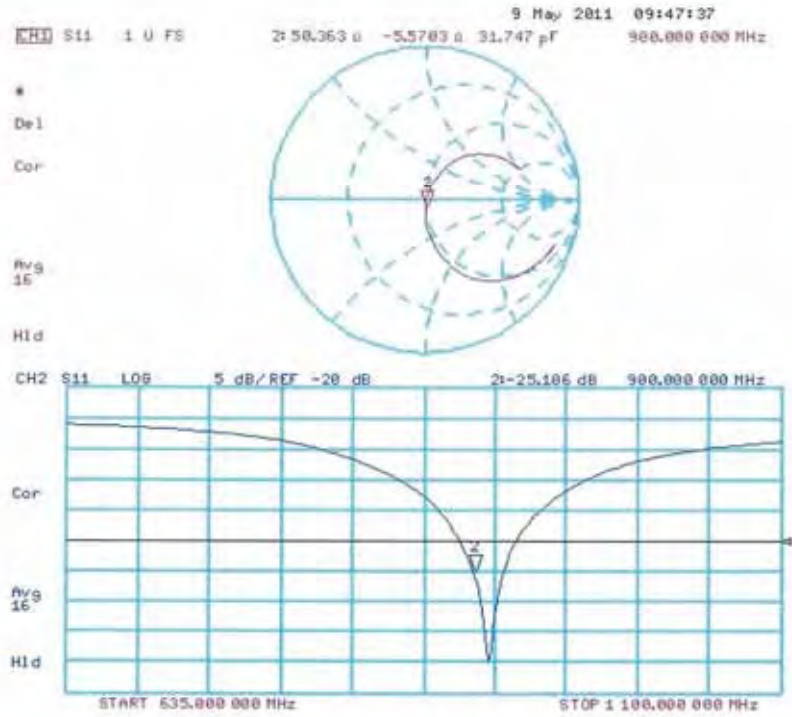
Peak SAR (extrapolated) = 3.902 W/kg

SAR(1 g) = 2.62 mW/g; SAR(10 g) = 1.69 mW/g

Maximum value of SAR (measured) = 3.047 mW/g



Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 09.05.2011

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 900 MHz; Type: D900V2; Serial: D900V2 - SN: 099

Communication System: CW; Frequency: 900 MHz; Duty Cycle: 1:1

Medium: MSL900

Medium parameters used: $f = 900 \text{ MHz}$; $\sigma = 1.06 \text{ mho/m}$; $\epsilon_r = 53.2$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(5.94, 5.94, 5.94); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- Measurement SW: DASY52, V52.6.2 Build (424)
- Postprocessing SW: SEMCAD X, V14.4.4 Build (2829)

Dipole Calibration for Body Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:

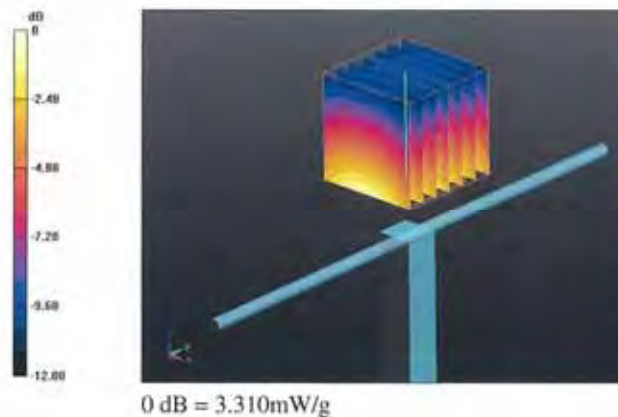
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 57.188 V/m; Power Drift = 0.02 dB

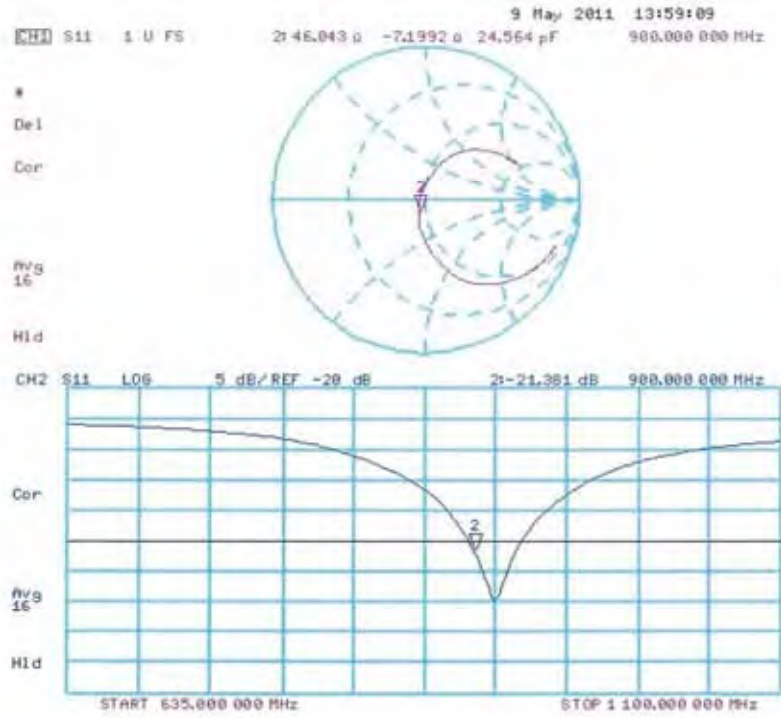
Peak SAR (extrapolated) = 4.318 W/kg

SAR(1 g) = 2.82 mW/g; SAR(10 g) = 1.81 mW/g

Maximum value of SAR (measured) = 3.306 mW/g



Impedance Measurement Plot for Body TSL



5 Calibration report “1900 MHz System validation dipole”

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



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Accreditation No.: **SCS 108**

Client **Cetecom**

Certificate No: **D1900V2-531_May11**

CALIBRATION CERTIFICATE

Object **D1900V2 - SN: 531**

Calibration procedure(s) **QA CAL-05.v8
Calibration procedure for dipole validation kits above 700 MHz**

Calibration date: **May 11, 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	10-Jun-10 (No. DAE4-601_Jun10)	Jun-11
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-09)	In house check: Oct-11
RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-10)	In house check: Oct-11

Calibrated by: **Name: Jeton Kastrati, Function: Laboratory Technician, Signature: [Signature]**

Approved by: **Name: Katja Pokovic, Function: Technical Manager, Signature: [Signature]**

Issued: May 11, 2011

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Accreditation No.: SCS 108

Glossary:

TSL tissue simulating liquid
ConvF sensitivity in TSL / NORM x,y,z
N/A not applicable or not measured

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
- IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
- Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

Additional Documentation:

- DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- Measurement Conditions:** Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL:** The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss:** These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay:** One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- SAR measured:** SAR measured at the stated antenna input power.
- SAR normalized:** SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters:** The measured TSL parameters are used to calculate the nominal SAR result.

Measurement Conditions

DASY system configuration, as far as not given on page 1

DASY Version	DASYS	V52.6.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	$dx, dy, dz = 5$ mm	
Frequency	1900 MHz \pm 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	40.0	1.40 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	$39.3 \pm 6 \%$	$1.41 \text{ mho/m} \pm 6 \%$
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	10.0 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	$39.7 \text{ mW / g} \pm 17.0 \%$ (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	5.22 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	$20.8 \text{ mW / g} \pm 16.5 \%$ (k=2)

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	53.3	1.52 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	$52.2 \pm 6 \%$	$1.52 \text{ mho/m} \pm 6 \%$
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	10.3 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	$39.8 \text{ mW / g} \pm 17.0 \%$ (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	Condition	
SAR measured	250 mW input power	5.23 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	$20.9 \text{ mW / g} \pm 16.5 \%$ (k=2)

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	52.5 Ω + 6.9 j Ω
Return Loss	23.8 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	47.9 Ω + 7.6 j Ω
Return Loss	- 21.9 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.201 ns
----------------------------------	----------

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	January 24, 2001

DASY5 Validation Report for Head TSL

Date: 10.05.2011

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 531

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: HSL U12 BB

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.41$ mho/m; $\epsilon_r = 39.3$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(5.01, 5.01, 5.01); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- Measurement SW: DASY52, V52.6.2 Build (424)
- Postprocessing SW: SEMCAD X, V14.4.4 Build (2829)

Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

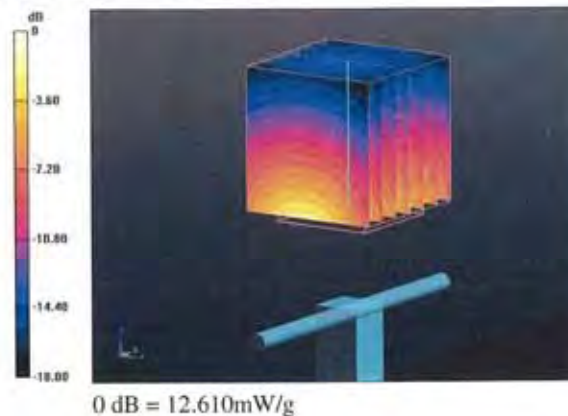
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 98.134 V/m; Power Drift = 0.03 dB

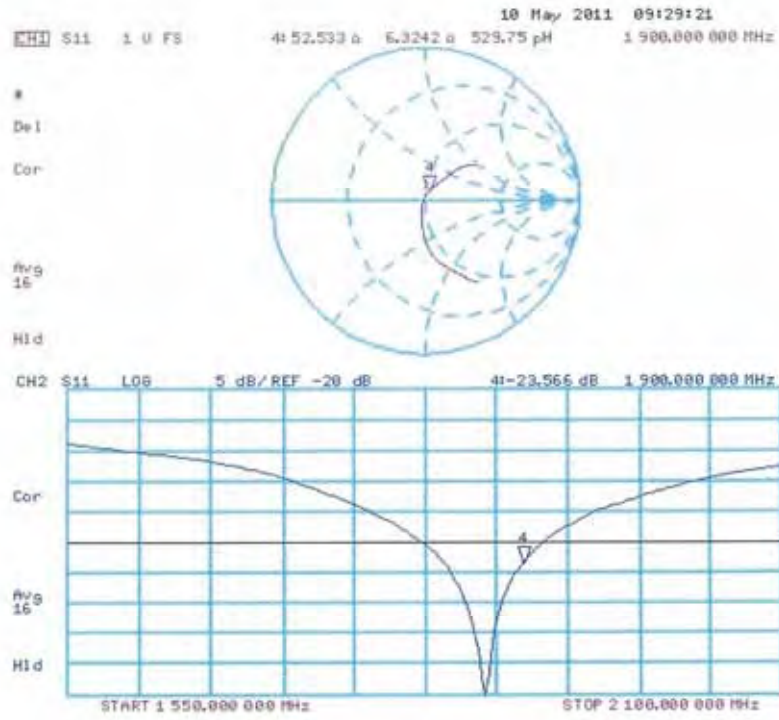
Peak SAR (extrapolated) = 18.101 W/kg

SAR(1 g) = 10 mW/g; SAR(10 g) = 5.22 mW/g

Maximum value of SAR (measured) = 12.605 mW/g



Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 11.05.2011

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 531

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: MSL U12 BB

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.52$ mho/m; $\epsilon_r = 52.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.62, 4.62, 4.62); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- Measurement SW: DASY52, V52.6.2 Build (424)
- Postprocessing SW: SEMCAD X, V14.4.4 Build (2829)

Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

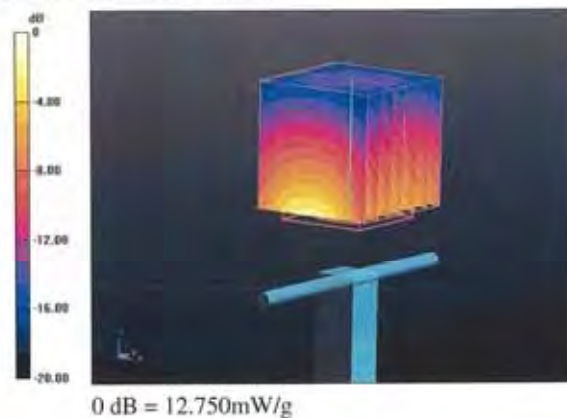
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 95.193 V/m; Power Drift = 0.0067 dB

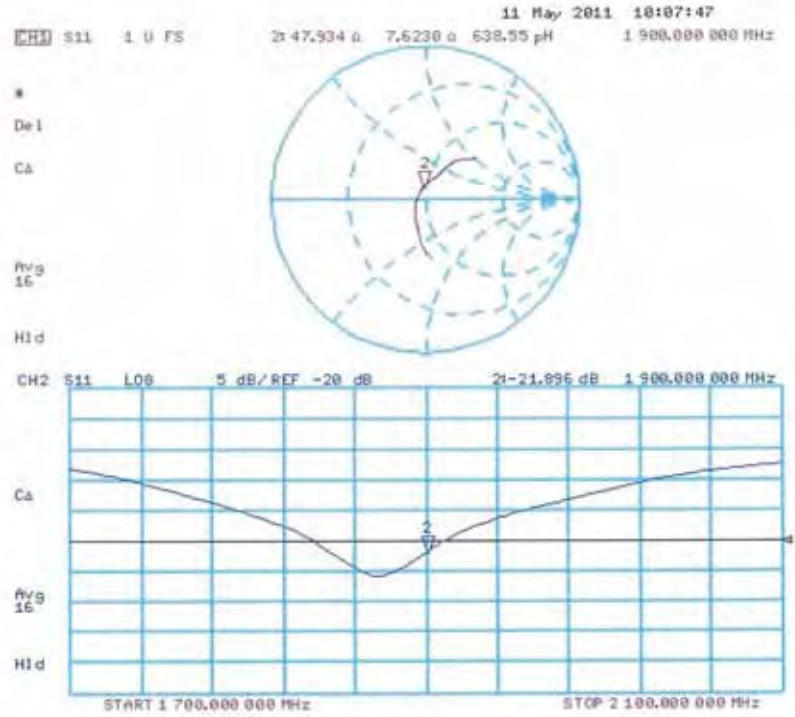
Peak SAR (extrapolated) = 17.939 W/kg

SAR(1 g) = 10 mW/g; SAR(10 g) = 5.23 mW/g

Maximum value of SAR (measured) = 12.751 mW/g



Impedance Measurement Plot for Body TSL



6 Calibration report “1800 MHz System validation dipole”

**Calibration Laboratory of
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Accreditation No.: **SCS 108**

Client **Cetecom**

Certificate No: **D1800V2-287 Aug11**

CALIBRATION CERTIFICATE																																															
Object	D1800V2 - SN: 287																																														
Calibration procedure(s)	QA CAL-05.v8 Calibration procedure for dipole validation kits above 700 MHz																																														
Calibration date:	August 17, 2011																																														
<p>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.</p> <p>All calibrations have been conducted in the closed laboratory facility: environment temperature: (22 ± 3) °C and humidity < 70%.</p> <p>Calibration Equipment used (MSTE critical for calibration)</p> <table border="1"> <thead> <tr> <th>Primary Standards</th> <th>ID #</th> <th>Cal Date (Certificate No.)</th> <th>Scheduled Calibration</th> </tr> </thead> <tbody> <tr> <td>Power meter EPM4424</td> <td>GB37480704</td> <td>06-Oct-10 (No. 2 7-01266)</td> <td>Oct-11</td> </tr> <tr> <td>Power sensor HP 3481A</td> <td>US37292783</td> <td>06-Oct-10 (No. 2 7-01266)</td> <td>Oct-11</td> </tr> <tr> <td>Reference 20 dB Attenuator</td> <td>SN: 35088 (20b)</td> <td>29-Mar-11 (No. 217-01367)</td> <td>Apr-12</td> </tr> <tr> <td>Type N mismatch combination</td> <td>SN: 0047.2 / 06027</td> <td>29-Mar-11 (No. 217-01371)</td> <td>Apr-12</td> </tr> <tr> <td>Reference Probe EGSDV3</td> <td>SN: 0205</td> <td>29-Apr-11 (No. EG3-0205_Apr11)</td> <td>Apr-12</td> </tr> <tr> <td>DAE4</td> <td>SN: 601</td> <td>04-Jul-11 (No. DAE4-601_Jul11)</td> <td>Jul-12</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Secondary Standards</th> <th>ID #</th> <th>Check Date (in house)</th> <th>Scheduled Check</th> </tr> </thead> <tbody> <tr> <td>Power sensor HP 3481A</td> <td>MY41082317</td> <td>18-Oct-12 (in house check Oct-09)</td> <td>In house check: Oct-11</td> </tr> <tr> <td>RF generator H&S SM1-06</td> <td>100005</td> <td>04-Aug-09 (in house check Oct-05)</td> <td>In house check: Oct-11</td> </tr> <tr> <td>Network Analyzer HP 8753E</td> <td>US37390585 S4206</td> <td>18-Oct-11 (in house check Oct-10)</td> <td>In house check: Oct-11</td> </tr> </tbody> </table>				Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration	Power meter EPM4424	GB37480704	06-Oct-10 (No. 2 7-01266)	Oct-11	Power sensor HP 3481A	US37292783	06-Oct-10 (No. 2 7-01266)	Oct-11	Reference 20 dB Attenuator	SN: 35088 (20b)	29-Mar-11 (No. 217-01367)	Apr-12	Type N mismatch combination	SN: 0047.2 / 06027	29-Mar-11 (No. 217-01371)	Apr-12	Reference Probe EGSDV3	SN: 0205	29-Apr-11 (No. EG3-0205_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 3481A	MY41082317	18-Oct-12 (in house check Oct-09)	In house check: Oct-11	RF generator H&S SM1-06	100005	04-Aug-09 (in house check Oct-05)	In house check: Oct-11	Network Analyzer HP 8753E	US37390585 S4206	18-Oct-11 (in house check Oct-10)	In house check: Oct-11
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Calibrated by:	Name Claudio Feibler	Function Laboratory Technician	Signature 																																												
Approved by:	Name Kolja Pokovic	Function Technical Manager	Signature 																																												
Issued August 17, 2011																																															
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Accreditation No.: SCS 108

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration Is Performed According to the Following Standards:

- IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
- IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
- Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

Additional Documentation:

- DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- Measurement Conditions:** Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL:** The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss:** These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay:** One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- SAR measured:** SAR measured at the stated antenna input power.
- SAR normalized:** SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters:** The measured TSL parameters are used to calculate the nominal SAR result.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.6.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1800 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	40.0	1.40 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	39.7 ± 6 %	1.37 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	---	---

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	9.28 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	37.5 mW / g ± 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	4.90 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	19.7 mW / g ± 16.5 % (k=2)

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	50.0	1.52 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	51.0 ± 6 %	1.50 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	---	---

SAR result with Body TSL

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	0.58 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	38.7 mW / g ± 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.06 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	20.4 mW / g ± 16.5 % (k=2)

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	49.4 Ω - 5.4 $j\Omega$
Return Loss	- 25.3 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	45.3 Ω - 4.8 $j\Omega$
Return Loss	- 23.0 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.205 ns
----------------------------------	----------

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	January 24, 2001

DASY5 Validation Report for Head TSL

Date: 16.08.2011

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1800 MHz; Type: D1800V2; Serial: D1800V2 - SN: 287

Communication System: CW; Frequency: 1800 MHz

Medium parameters used: $f = 1800$ MHz; $\sigma = 1.37$ mho/m; $\epsilon_r = 39.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; Convf(5.07, 5.07, 5.07); Calibrated: 29.04.2011
- Sensor Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.6.2(482), SEMCAD X 14.4.5(3634)

Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

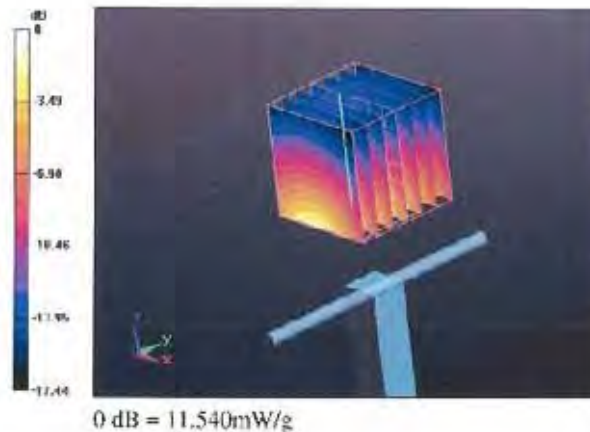
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 93.567 V/m; Power Drift = 0.06 dB

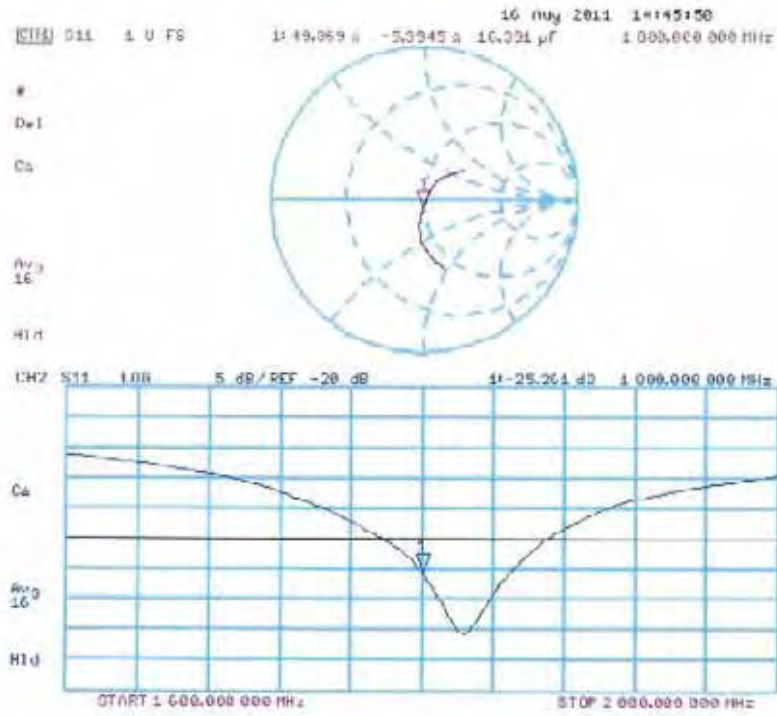
Peak SAR (extrapolated) = 16.557 W/kg

SAR(1 g) = 9.28 mW/g; SAR(10 g) = 4.9 mW/g

Maximum value of SAR (measured) = 11.541 mW/g



Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 17.08.2011

Test Laboratory: SPFAG, Zurich, Switzerland

DUT: Dipole 1800 MHz; Type: D1800V2; Serial: D1800V2 - SN: 287

Communication System: CW; Frequency: 1800 MHz

Medium parameters used; $f = 1800$ MHz; $\sigma = 1.5$ mho/m; $\epsilon_r = 54$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEF/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: FS3DV3 - SN3205; ConvP(4.74, 4.74, 4.74); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (back); Type: QDC00P50AA; Serial: 1002
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

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 = 90.491 V/m; Power Drift = 0.05 dB

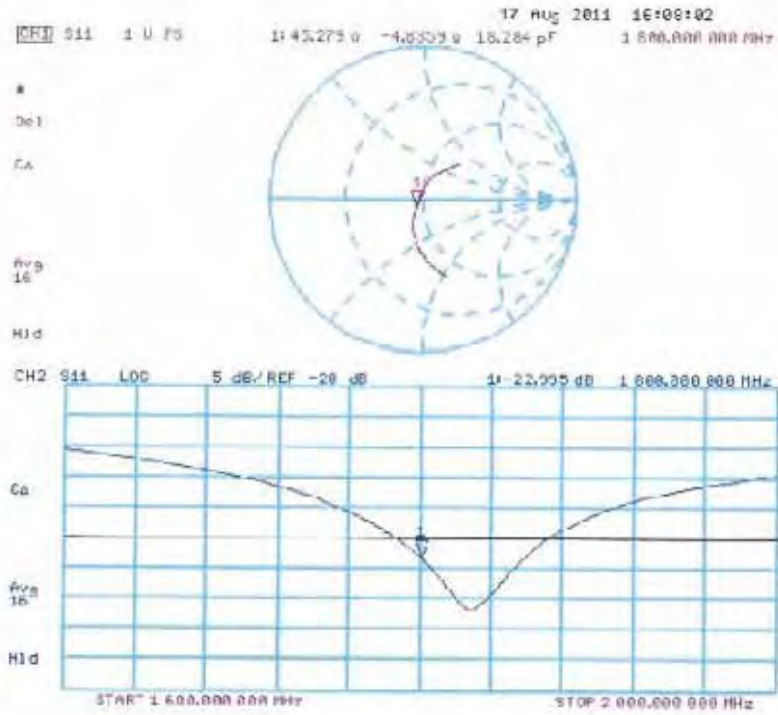
Peak SAR (extrapolated) = 16.947 W/kg

SAR(1 g) = 9.58 mW/g; SAR(10 g) = 5.06 mW/g

Maximum value of SAR (measured) = 11.829 mW/g



Impedance Measurement Plot for Body TSL



7 Calibration report “2450 MHz System validation dipole”

**Calibration Laboratory of
Schmid & Partner
Engineering AG**
Zoughausstrasse 48, 8004 Zurich, Switzerland



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Accreditation No.: **SCS 108**

Client: **Cetecom**

Certificate No.: **D2450V2-710_Aug11**

CALIBRATION CERTIFICATE

Object: **D2450V2 - SN: 710**

Calibration procedure(s): **QA CAL-05.v0
Calibration procedure for dipole validation kits above 700 MHz**

Calibration date: **August 10, 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 ± 0.1) °C and humidity < 70%.

Calibration Equipment Used (MRE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-4/2A	GB37480704	08 Oct 10 (No. 217-31266)	Oct 11
Power sensor HP 8401A	US37292783	06 Oct 10 (No. 217-31288)	Oct 11
Reference 20 dB Attenuator	SN: 55066 (2.3b)	29 Mar 11 (No. 217-011857)	Apr 12
Type-N mismatch combination	SN: 6047.2 / 08327	29 Mar 11 (No. 217-01371)	Apr 12
Reference Probe EG30V3	SN: 8505	29 Apr 11 (No. E89-3205_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 0401A	MY41092317	18 Oct 02 (in house check Oct-09)	In house check: Oct-11
RF generator R&S SMT-06	100005	04 Aug 09 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753B	US37390586 S4236	18 Oct 01 (in house check Oct-10)	In house check: Oct-11

Calibrated by: **Claudio Leubler** (Name), **Laboratory Technician** (Function), *[Signature]* (Signature)

Approved by: **Katja Pokovic** (Name), **Technical Manager** (Function), *[Signature]* (Signature)

Issued: August 22, 2011

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Accreditation No.: **SCS 108**

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
- IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
- Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

Additional Documentation:

- DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- Measurement Conditions:** Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL:** The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss:** These parameters are measured with the dipole positioned under the liquid filled phantom. The Impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay:** One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- SAR measured:** SAR measured at the stated antenna input power.
- SAR normalized:** SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters:** The measured TSL parameters are used to calculate the nominal SAR result.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.6.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2450 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	39.2	1.80 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	38.4 ± 0 %	1.85 mho/m ± 0 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	13.8 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	54.2 mW / g ± 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.42 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	25.5 mW / g ± 16.5 % (k=2)

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	52.7	1.95 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	51.8 ± 6 %	2.02 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	13.2 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	51.7 mW / g ± 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	6.10 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	24.2 mW / g ± 16.5 % (k=2)

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	$53.2 \Omega + 1.3 j\Omega$
Return Loss	- 29.6 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	$49.5 \Omega + 2.5 j\Omega$
Return Loss	- 31.8 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.156 ns
----------------------------------	----------

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 corrugated 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	July 05, 2002

DASY5 Validation Report for Head TSL

Date: 18.08.2011

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 710

Communication System: CW; Frequency: 2450 MHz

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.85$ mho/m; $\epsilon_r = 38.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/TEC/ANSI C63.19 2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvP(4.45, 4.45, 4.45); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

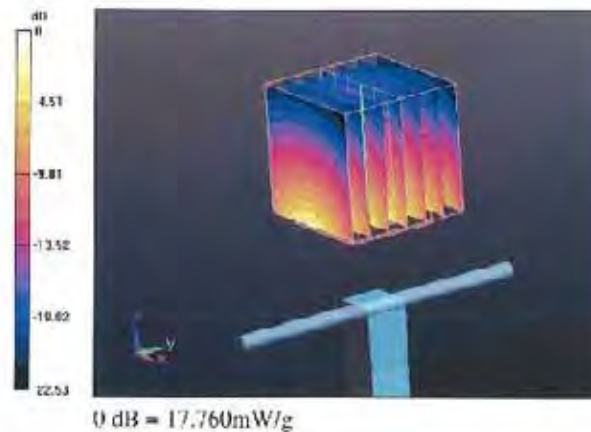
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 101.9 V/m; Power Drift = 0.00 dB

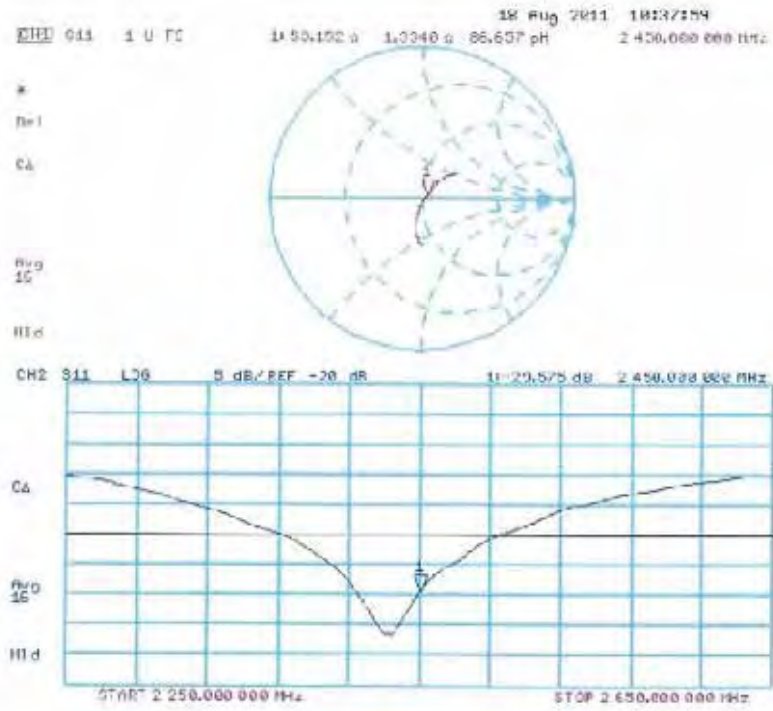
Peak SAR (extrapolated) = 28.588 W/kg

SAR(1 g) = 13.8 mW/g; SAR(10 g) = 6.42 mW/g

Maximum value of SAR (measured) = 17.763 mW/g



Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 19.08.2011

Test Laboratory: SPIAG, Zurich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 710

Communication System: CW; Frequency: 2450 MHz

Medium parameters used: $f = 2450$ MHz; $\sigma = 2.02$ mho/m; $\epsilon_r = 51.8$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.26, 4.26, 4.26); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAB4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

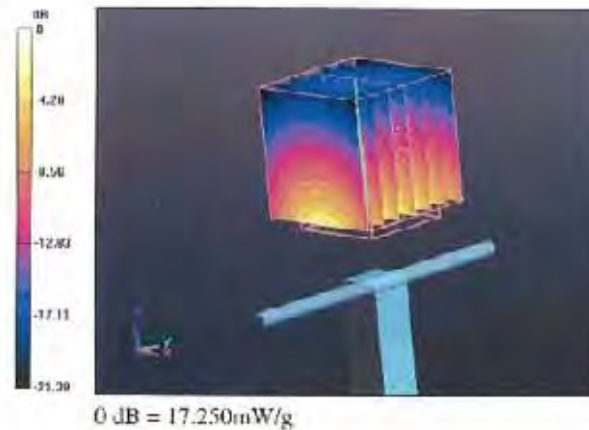
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 95.772 V/m; Power Diff = -0.03 dB

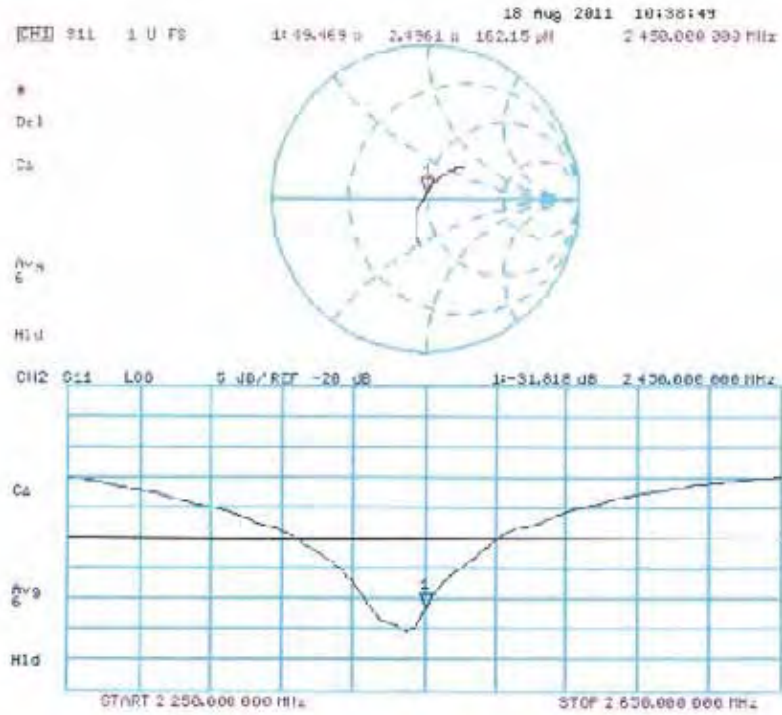
Peak SAR (extrapolated) = 26.990 W/kg

SAR(1 g) = 13.2 mW/g; SAR(10 g) = 6.1 mW/g

Maximum value of SAR (measured) = 17.251 mW/g



Impedance Measurement Plot for Body TSL



8 Calibration certificate of Data Acquisition Unit (DAE)

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



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Accreditation No.: **SCS 108**

Client **Cetecom**

Certificate No: **DAE3-413_Jan11**

CALIBRATION CERTIFICATE

Object: **DAE3 - SD 000 D03 AA - SN: 413**

Calibration procedure(s): **QA CAL-06.v22
Calibration procedure for the data acquisition electronics (DAE)**

Calibration date: **January 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
Keithley Multimeter Type 2001	SN: 0810278	28-Sep-10 (No:10376)	Sep-11
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Calibrator Box V1.1	SE UMS 006 AB 1004	07-Jun-10 (in house check)	In house check: Jun-11

Calibrated by:	Name Andrea Guntli	Function Technician	Signature
Approved by:	Name Fin Bomholt	Function R&D Director	Signature

Issued: January 13, 2011

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9 Calibration certificate of Data Acquisition Unit (DAE)

**Calibration Laboratory of
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Accreditation No.: **SCS 108**

Client **Cetecom**

Certificate No: **DAE3-477_May11**

CALIBRATION CERTIFICATE

Object: **DAE3 - SD 000 D03 AA - SN: 477**

Calibration procedure(s): **QA CAL-06.v22
Calibration procedure for the data acquisition electronics (DAE)**

Calibration date: **May 4, 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
Keithley Multimeter Type 2001	SN: 0810278	28-Sep-10 (No:10376)	Sep-11
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Calibrator Box V1.1	SE UMS 006 AB 1004	07-Jun-10 (in house check)	In house check: Jun-11

	Name	Function	Signature
Calibrated by:	Dominique Steffen	Technician	
Approved by:	Fin Bormholt	R&D Director	

Issued: May 4, 2011

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10 Certificate of "SAM Twin Phantom V4.0/V4.0C"

Schmid & Partner Engineering AG

Zeughausstrasse 43, 8004 Zurich, Switzerland, Phone +41 1 245 97 00, Fax +41 1 245 97 79

Certificate of conformity / First Article Inspection

Item	SAM Twin Phantom V4.0
Type No	QD 000 P40 BA
Series No	TP-1002 and higher
Manufacturer / Origin	Untersee Composites Hauptstr. 69 CH-8559 Fruthwilen Switzerland

Tests

The series production process used allows the limitation to test of first articles. Complete tests were made on the pre-series Type No. QD 000 P40 AA, Serial No. TP-1001 and on the series first article Type No. QD 000 P40 BA, Serial No. TP-1006. Certain parameters have been retested using further series units (called samples).

Test	Requirement	Details	Units tested
Shape	Compliance with the geometry according to the CAD model.	IT'IS CAD File (*)	First article, Samples
Material thickness	Compliant with the requirements according to the standards	2mm +/- 0.2mm in specific areas	First article, Samples
Material parameters	Dielectric parameters for required frequencies	200 MHz - 3 GHz Relative permittivity < 5 Loss tangent < 0.05	Material sample TP 104-5
Material resistivity	The material has been tested to be compatible with the liquids defined in the standards	Liquid type HSL 1800 and others according to the standard.	Pre-series, First article

Standards

- [1] CENELEC EN 50361
- [2] IEEE P1528-200x draft 6.5
- [3] IEC PT 62209 draft 0.9
- (*) The IT'IS CAD file is derived from [2] and is also within the tolerance requirements of the shapes of [1] and [3].

Conformity

Based on the sample tests above, we certify that this item is in compliance with the uncertainty requirements of SAR measurements specified in standard [1] and draft standards [2] and [3].

Date 18.11.2001

Signature / Stamp  Schmid & Partner Engineering AG 
 Zeughausstrasse 43, CH-8004 Zurich
 Tel. +41 1 245 97 00, Fax +41 1 245 97 79

11 Application Note System Performance Check

11.1 Purpose of system performance check

The system performance check verifies that the system operates within its specifications. System and operator errors can be detected and corrected. It is recommended that the system performance check is performed prior to any usage of the system in order to guarantee reproducible results.

The measurement of the Specific Absorption Rate (SAR) is a complicated task and the result depends on the proper functioning of many components and the correct settings of many parameters. Faulty results due to drift, failures or incorrect parameters might not be recognized, since they often look similar in distribution to the correct ones. The Dosimetric Assessment System DASY4 incorporates a system performance check procedure to test the proper functioning of the system. The system performance check uses normal SAR measurements in a simplified setup (the flat section of the SAM Twin Phantom) with a well characterized source (a matched dipole at a specified distance). This setup was selected to give a high sensitivity to all parameters that might fail or vary over time (e.g., probe, liquid parameters, and software settings) and a low sensitivity to external effects inherent in the system (e.g., positioning uncertainty of the device holder). The system performance check does not replace the calibration of the components. The accuracy of the system performance check is not sufficient for calibration purposes. It is possible to calculate the field quite accurately in this simple setup; however, due to the open field situation some factors (e.g., laboratory reflections) cannot be accounted for. Calibrations in the flat phantom are possible with transfer calibration methods, using either temperature probes or calibrated E-field probes. The system performance check also does not test the system performance for arbitrary field situations encountered during real measurements of mobile phones. These checks are performed at SPEAG by testing the components under various conditions (e.g., spherical isotropy measurements in liquid, linearity measurements, temperature variations, etc.), the results of which are used for an error estimation of the system. The system performance check will indicate situations where the system uncertainty is exceeded due to drift or failure.

11.2 System Performance check procedure

Preparation

The conductivity should be measured before the validation and the measured liquid parameters must be entered in the software. If the measured values differ from targeted values in the dipole document, the liquid composition should be adjusted. If the validation is performed with slightly different (measured) liquid parameters, the expected SAR will also be different. See the application note about SAR sensitivities for an estimate of possible SAR deviations. Note that the liquid parameters are temperature dependent with approximately – 0.5% decrease in permittivity and + 1% increase in conductivity for a temperature decrease of 1° C. The dipole must be placed beneath the flat phantom section of the Generic Twin Phantom with the correct distance holder in place. The distance holder should touch the phantom surface with a light pressure at the reference marking (little hole) and be oriented parallel to the long side of the phantom. Accurate positioning is not necessary, since the system will search for the peak SAR location, except that the dipole arms should be parallel to the surface. The device holder for mobile phones can be left in place but should be rotated away from the dipole. The forward power into the dipole at the dipole SMA connector should be determined as accurately as possible. See section 4 for a description of the recommended setup to measure the dipole input power. The actual dipole input power level can be between 20mW and several watts. The result can later be normalized to any power level. It is strongly recommended to note the actually used power level in the „comment“-window of the measurement file; otherwise you lose this crucial information for later reference.

System Performance Check

The DASY4 installation includes predefined files with recommended procedures for measurements and validation. They are read-only document files and destined as fully defined but unmeasured masks, so you must save the finished validation under a different name. The validation document requires the Generic Twin Phantom, so this phantom must be properly installed in your system. (You can create your own measurement procedures by opening a new document or editing an existing document file). Before you start the validation, you just have to tell the system with which components (probe, medium, and device) you are performing the validation; the system will take care of all parameters. After the validation, which will take about 20 minutes, the results of each task are displayed in the document window. Selecting all measured tasks and opening the predefined "validation" graphic format displays all necessary information for validation. A description of the different measurement tasks in the predefined document is given below, together with the information that can be deduced from their results:

- The „reference“ and „drift“ measurements are located at the beginning and end of the batch process. They measure the field drift at one single point in the liquid over the complete procedure. The indicated drift is mainly the variation of the amplifier output power. If it is too high (above $\pm 0.1\text{dB}$) the validation should be repeated; some amplifiers have very high drift during warm-up. A stable amplifier gives drift results in the DASY4 system below $\pm 0.02\text{ dB}$.
- The „surface check“ measurement tests the optical surface detection system of the DASY4 system by repeatedly detecting the surface with the optical and mechanical surface detector and comparing the results. The output gives the detecting heights of both systems, the difference between the two systems and the standard deviation of the detection repeatability. Air bubbles or refraction in the liquid due to separation of the sugar-water mixture gives poor repeatability (above $\pm 0.1\text{mm}$). In that case it is better to abort the validation and stir the liquid. The difference between the optical surface detection and the actual surface depends on the probe and is specified with each probe. (It does not depend on the surface reflectivity or the probe angle to the surface within $\pm 30^\circ$.) However, varying breaking indices of different liquid compositions might also influence the distance. If the indicated difference varies from the actual setting, the probe parameter „optical surface distance“ should be changed in the probe settings (see manual). For more information see the application note about SAR evaluation.
- The „area scan“ measures the SAR above the dipole on a parallel plane to the surface. It is used to locate the approximate location of the peak SAR with 2D spline interpolation. The proposed scan uses large grid spacing for faster measurement; due to the symmetric field the peak detection is reliable. If a finer graphic is desired, the grid spacing can be reduced. Grid spacing and orientation have no influence on the SAR result.
- The zoom scan job measures the field in a volume around the peak SAR value assessed in the previous „area“ scan (for more information see the application note on SAR evaluation).

If the validation measurements give reasonable results, the peak 1g and 10g spatial SAR values averaged between the two cubes and normalized to 1W dipole input power give the reference data for comparisons. The next section analyzes the expected uncertainties of these values. Section 6 describes some additional checks for further information or troubleshooting.

11.3 Uncertainty Budget

Please note that in the following Tables, the tolerance of the following uncertainty components depends on the actual equipment and setup at the user location and need to be either assessed or verified on-site by the end user of the DASY4 system:

- RF ambient conditions
- Dipole Axis to Liquid Distance
- Input power and SAR drift measurement
- Liquid permittivity - measurement uncertainty
- Liquid conductivity - measurement uncertainty

Note: All errors are given in percent of SAR, so 0.1 dB corresponds to 2.3%. The field error would be half of that. The liquid parameter assessment give the targeted values from the dipole document. All errors are given in percent of SAR, so 0.1dB corresponds to 2.3%. The field error would be half of that.

System validation

In the table below, the system validation uncertainty with respect to the analytically assessed SAR value of a dipole source as given in the P1528 standard is given. This uncertainty is smaller than the expected uncertainty for mobile phone measurements due to the simplified setup and the symmetric field distribution.

Error Sources	Uncertainty Value	Probability Distribution	Divisor	c_i 1g	c_i 10g	Standard Uncertainty 1g	Standard Uncertainty 10g	v_i^2 or v_{eff}
Measurement System								
Probe calibration	± 4.8%	Normal	1	1	1	± 4.8%	± 4.8%	∞
Axial isotropy	± 4.7%	Rectangular	√3	0.7	0.7	± 1.9%	± 1.9%	∞
Hemispherical isotropy	± 0.0%	Rectangular	√3	0.7	0.7	± 0.0%	± 3.9%	∞
Boundary effects	± 1.0%	Rectangular	√3	1	1	± 0.6%	± 0.6%	∞
Probe linearity	± 4.7%	Rectangular	√3	1	1	± 2.7%	± 2.7%	∞
System detection limits	± 1.0%	Rectangular	√3	1	1	± 0.6%	± 0.6%	∞
Readout electronics	± 1.0%	Normal	1	1	1	± 1.0%	± 1.0%	∞
Response time	± 0.0%	Rectangular	√3	1	1	± 0.0%	± 0.0%	∞
Integration time	± 0.0%	Rectangular	√3	1	1	± 0.0%	± 0.0%	∞
RF ambient conditions	± 3.0%	Rectangular	√3	1	1	± 1.7%	± 1.7%	∞
Probe positioner	± 0.4%	Rectangular	√3	1	1	± 0.2%	± 0.2%	∞
Probe positioning	± 2.9%	Rectangular	√3	1	1	± 1.7%	± 1.7%	∞
Max. SAR evaluation	± 1.0%	Rectangular	√3	1	1	± 0.6%	± 0.6%	∞
Test Sample Related								
Dipole axis to liquid distance	± 2.0%	Normal	1	1	1	± 1.2%	± 1.2%	∞
Power drift	± 4.7%	Rectangular	√3	1	1	± 2.7%	± 2.7%	∞
Phantom and Set-up								
Phantom uncertainty	± 4.0%	Rectangular	√3	1	1	± 2.3%	± 2.3%	∞
Liquid conductivity (target)	± 5.0%	Rectangular	√3	0.64	0.43	± 1.8%	± 1.2%	∞
Liquid conductivity (meas.)	± 2.5%	Normal	1	0.64	0.43	± 1.6%	± 1.1%	∞
Liquid permittivity (target)	± 5.0%	Rectangular	√3	0.6	0.49	± 1.7%	± 1.4%	∞
Liquid permittivity (meas.)	± 2.5%	Normal	1	0.6	0.49	± 1.5%	± 1.2%	∞
Combined Uncertainty						± 8.4%	± 8.1%	
Expanded Std. Uncertainty						± 16.8%	± 16.2%	

Performance check repeatability

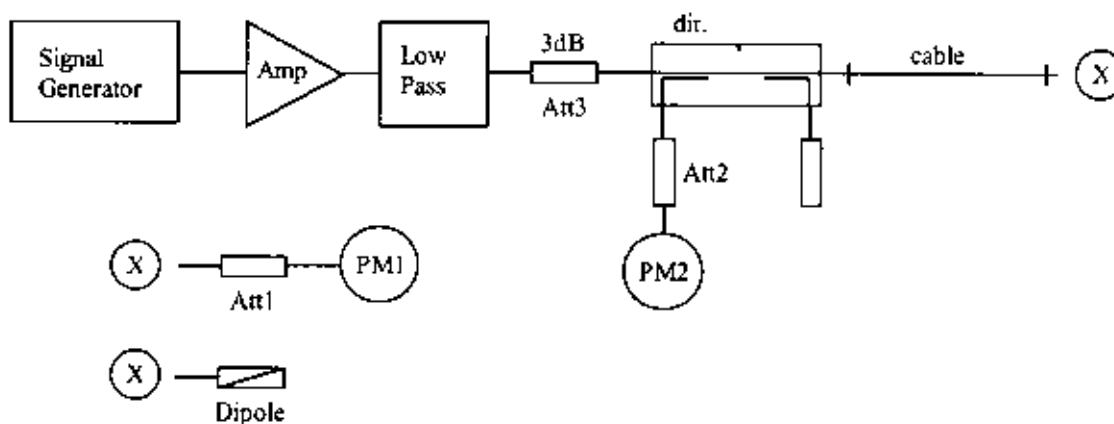
The repeatability check of the validation is insensitive to external effects and gives an indication of the variations in the DASY4 measurement system, provided that the same power reading setup is used for all validations. The repeatability estimate is given in the following table:

Error Sources	Uncertainty Value	Probability Distribution	Divisor	c_i 1g	c_i 10g	Standard Uncertainty 1g	Standard Uncertainty 10g	v_i^2 or v_{eff}
Measurement System								
Probe calibration	± 4.8%	Normal	1	1	1	0	0	∞
Axial isotropy	± 4.7%	Rectangular	√3	0.7	0.7	0	0	∞
Hemispherical isotropy	± 0.0%	Rectangular	√3	0.7	0.7	0	0	∞
Boundary effects	± 1.0%	Rectangular	√3	1	1	0	0	∞
Probe linearity	± 4.7%	Rectangular	√3	1	1	0	0	∞
System detection limits	± 1.0%	Rectangular	√3	1	1	0	0	∞
Readout electronics	± 1.0%	Normal	1	1	1	0	0	∞
Response time	± 0.0%	Rectangular	√3	1	1	0	0	∞
Integration time	± 0.0%	Rectangular	√3	1	1	0	0	∞
RF ambient conditions	± 3.0%	Rectangular	√3	1	1	0	0	∞
Probe positioner	± 0.4%	Rectangular	√3	1	1	0	0	∞
Probe positioning	± 2.9%	Rectangular	√3	1	1	0	0	∞
Max. SAR evaluation	± 1.0%	Rectangular	√3	1	1	0	0	∞
Test Sample Related								
Dipole axis to liquid distance	± 2.0%	Normal	1	1	1	± 1.2%	± 1.2%	∞
Power drift	± 4.7%	Rectangular	√3	1	1	± 2.7%	± 2.7%	∞
Phantom and Set-up								
Phantom uncertainty	± 4.0%	Rectangular	√3	1	1	± 2.3%	± 2.3%	∞
Liquid conductivity (target)	± 5.0%	Rectangular	√3	0.64	0.43	± 1.8%	± 1.2%	∞
Liquid conductivity (meas.)	± 2.5%	Normal	1	0.64	0.43	± 1.6%	± 1.1%	∞
Liquid permittivity (target)	± 5.0%	Rectangular	√3	0.6	0.49	± 1.7%	± 1.4%	∞
Liquid permittivity (meas.)	± 2.5%	Normal	1	0.6	0.49	± 1.5%	± 1.2%	∞
Combined Uncertainty						± 5.3%	± 4.9%	
Expanded Std. Uncertainty						± 10.6%	± 9.7%	

The expected repeatability deviation is low. Excessive drift (e.g., drift in liquid parameters), partial system failures or incorrect parameter settings (e.g., wrong probe or device settings) will lead to unexpectedly high repeatability deviations. The repeatability gives an indication that the system operates within its initial specifications. Excessive drift, system failure and operator errors are easily detected.

11.4 Power set-up for validation

The uncertainty of the dipole input power is a significant contribution to the absolute uncertainty and the expected deviation in interlaboratory comparisons. The values in Section 2 for a typical and a sophisticated setup are just average values. Refer to the manual of the power meter and the detector head for the evaluation of the uncertainty in your system. The uncertainty also depends on the source matching and the general setup. Below follows the description of a recommended setup and procedures to increase the accuracy of the power reading:



The figure shows the recommended setup. The PM1 (incl. Att1) measures the forward power at the location of the validation dipole connector. The signal generator is adjusted for the desired forward power at the dipole connector and the power meter PM2 is read at that level. After connecting the cable to the dipole, the signal generator is readjusted for the same reading at power meter PM2. If the signal generator does not allow a setting in 0.01dB steps, the remaining difference at PM2 must be noted and considered in the normalization of the validation results. The requirements for the components are:

- The signal generator and amplifier should be stable (after warm-up). The forward power to the dipole should be above 10mW to avoid the influence of measurement noise. If the signal generator can deliver 15dBm or more, an amplifier is not necessary. Some high power amplifiers should not be operated at a level far below their maximum output power level (e.g. a 100W power amplifier operated at 250mW output can be quite noisy). An attenuator between the signal generator and amplifier is recommended to protect the amplifier input.
- The low pass filter after the amplifier reduces the effect of harmonics and noise from the amplifier. For most amplifiers in normal operation the filter is not necessary.
- The attenuator after the amplifier improves the source matching and the accuracy of the power head. (See power meter manual.) It can also be used also to make the amplifier operate at its optimal output level for noise and stability. In a setup without directional coupler, this attenuator should be at least 10dB.
- The directional coupler (recommended ³ 20dB) is used to monitor the forward power and adjust the signal generator output for constant forward power. A medium quality coupler is sufficient because the loads (dipole and power head) are well matched. (If the setup is used for reflective loads, a high quality coupler with respect to directivity and output matching is necessary to avoid additional errors.)
- The power meter PM2 should have a low drift and a resolution of 0.01dBm, but otherwise its accuracy has no impact on the power setting. Calibration is not required.
- The cable between the coupler and dipole must be of high quality, without large attenuation and phase changes when it is moved. Otherwise, the power meter head PM1 should be brought to the location of the dipole for measuring.
- The power meter PM1 and attenuator Att1 must be high quality components. They should be calibrated, preferably together. The attenuator (³10dB) improves the accuracy of the power reading. (Some higher power heads come with a built-in calibrated attenuator.) The exact attenuation of the attenuator at the frequency used must be known; many attenuators are up to 0.2dB off from the specified value.

- Use the same power level for the power setup with power meter PM1 as for the actual measurement to avoid linearity and range switching errors in the power meter PM2. If the validation is performed at various power levels, do the power setting procedure at each level.
- The dipole must be connected directly to the cable at location "X". If the power meter has a different connector system, use high quality couplers. Preferably, use the couplers at the attenuator Att1 and calibrate the attenuator with the coupler.
- Always remember: We are measuring power, so 1% is equivalent to 0.04dB.

11.5 Laboratory reflection

In near-field situations, the absorption is predominantly caused by induction effects from the magnetic near-field. The absorption from reflected fields in the laboratory is negligible. On the other hand, the magnetic field around the dipole depends on the currents and therefore on the feed point impedance. The feed point impedance of the dipole is mainly determined from the proximity of the absorbing phantom, but reflections in the laboratory can change the impedance slightly. A 1% increase in the real part of the feed point impedance will produce approximately a 1% decrease in the SAR for the same forward power. The possible influence of laboratory reflections should be investigated during installation. The validation setup is suitable for this check, since the validation is sensitive to laboratory reflections. The same tests can be performed with a mobile phone, but most phones are less sensitive to reflections due to the shorter distance to the phantom. The fastest way to check for reflection effects is to position the probe in the phantom above the feed point and start a continuous field measurement in the DASY4 multi-meter window. Placing absorbers in front of possible reflectors (e.g. on the ground near the dipole or in front of a metallic robot socket) will reveal their influence immediately. A 10dB absorber (e.g. ferrite tiles or flat absorber mats) is probably sufficient, as the influence of the reflections is small anyway. If you place the absorber too near the dipole, the absorber itself will interact with the reactive near-field. Instead of measuring the SAR, it is also possible to monitor the dipole impedance with a network analyzer for reflection effects. The network analyzer must be calibrated at the SMA connector and the electrical delay (two times the forward delay in the dipole document) must be set in the NWA for comparisons with the reflection data in the dipole document. If the absorber has a significant influence on the results, the absorber should be left in place for validation or measurements. The reference data in the dipole document are produced in a low reflection environment.

11.6 Additional system checks

While the validation gives a good check of the DASY4 system components, it does not include all parameters necessary for real phone measurements (e.g. device modulation or device positioning). For system validation (repeatability) or comparisons between laboratories a reference device can be useful. This can be any mobile phone with a stable output power (preferably a device whose output power can be set through the keyboard). For comparisons, the same device should be sent around, since the SAR variations between samples can be large. Several measurement possibilities in the DASY software allow additional tests of the performance of the DASY system and components. These tests can be useful to localize component failures:

- The validation can be performed at different power levels to check the noise level or the correct compensation of the diode compression in the probe.
- If a pulsed signal with high peak power levels is fed to the dipole, the performance of the diode compression compensation can be tested. The correct crest factor parameter in the DASY software must be set (see manual). The system should give the same SAR output for the same averaged input power.
- The probe isotropy can be checked with a 1D-probe rotation scan above the feed point. The automatic probe alignment procedure must be passed through for accurate probe rotation movements (optional DASY4 feature with a robot-mounted light beam unit). Otherwise the probe tip might move on a small circle during rotation, producing some additional isotropy errors in gradient fields.