Deutscher Akkreditierungs Rat

DAR

Accredited testing laboratory

DAR registration number: DAT-P-176/94-D1

Test report no.	**: 1-1290-01-18/09**
Type identification	**: OT8x0**
Test specification	**: IEEE 1528-2003**
FCC-ID	**: M9HOT8x0**
IC-ID	**: 2599N-OT8X0**

Table of Contents

1 General Information

1.1 Notes

The test results of this test report relate exclusively to the test item specified in 1.5. The 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 the CETECOM ICT Services GmbH.

1.1.1 Statement of Compliance

The SAR values found for the OT8x0 GSM 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.
For body worn operation, this device has been tested and meets FCC RF exposure guidelines when used with any accessory that contains no metal and that positions the handset a minimum of 15 mm from the body. Use of other accessories may not ensure compliance with FCC RF exposure guidelines.
The measurement together with the test system set-up is described in chapter 2.3 of this test report. A detailed description of the equipment under test can be found in chapter 1.5.

Test engineer:

2009-09-25	**Oleksandr Hnatovskiy**	
Date	Name	Signature

Technical responsibility for area of testing:

2009-09-25	**Thomas Vogler**	Thomas Vog
Date	Name	Signature

1.2 Testing laboratory

CETECOM ICT Services GmbH
Untertuerkheimer Straße 6-10,
66117 Saarbruecken
Germany
Telephone: + 49 681 598 - 0
Fax: + 49 681 598 - 8475

e-mail: info@ict.cetecom.de
Internet: http://www.cetecom-ict.de

State of accreditation: The Test laboratory (area of testing) is accredited according to DIN EN ISO/IEC 17025. DAR registration number: DAT-P-176/94-D1

Test location, if different from CETECOM ICT Services GmbH

Name: ---
Street: ---
Town: ---
Country: ---
Phone: ---
Fax: ---

1.3 Details of applicant

Name: Sagem Wireless

Street: 2, rue du Petit Albi
BP 28250
Town: 95801 Cergy Pontoise Cedex
Country: France

Contact: Mrs. Xinni Yang
Telephone: 86-574-27960929

1.4 Application details

Date of receipt of application: 2009-08-14
Date of receipt of test item: 2009-09-15
Start/Date of test: 2009-09-16
End of test: 2009-09-21

Person(s) present during the test: ---

1.5 Test item

Description of the test item:	GSM Mobile Phone
Type identification:	OT8x0
FCC-ID :	M9HOT8x0
IC-ID :	2599N-OT8X0
Serial number:	N/A
Manufacturer:	Sagem Wireless
Name:	Sagem Wireless
Street:	2, rue du Petit Albi BP 28250
Town:	95801 Cergy Pontoise Cedex
Country:	France

additional information on the DUT:		
device type :	portable device	
IMEI No :	354797030000189	
exposure category:	uncontrolled environment / general population	
test device production information	identical prototype	
device operating configurations :		
operating mode(s)	GSM, DCS, PCS, Bluetooth, WLAN	
modulation	GMSK, 8-PSK, DSSS, OFDM	
GPRS mobile station class :	B	
GPRS multislot class :	10	voice mode : ---
EGPRS multislot class	E2	voice mode : ---
maximum no. of timeslots in uplink:	2	
operating frequency range(s)	transmitter frequency range	receiver frequency range
PCS 1900 (tested):	1850.2 MHz ~ 1909.8 MHz	1930.2 MHz ~ 1989.8 MHz
PCS 850 (tested):	824.2 MHz ~ 848.8 MHz	869.2 MHz ~ 893.8 MHz
DCS 1800	1710 MHz ~ 1785 MHz	1805 MHz ~ 1880 MHz
GSM 900	880 MHz ~ 915 MHz	925 MHz ~ 960 MHz
WLAN (tested):	2412 MHz ~ 2462 MHz	
Power class :	1, tested with power level 0 (1900 MHz band) 4, tested with power level 5 (850 MHz band)	
measured average output power (conducted):	850 MHz band: 32.3 dBm (GMSK); 28.0 dBm (8-PSK) 1900 MHz band: 29.0 dBm (GMSK); 25.9 dBm (8-PSK) WLAN: 19.73 dBm	
test channels (low-mid-high) :	128-190-251 (850 MHz band) 661 (1900 MHz band) 6 (WLAN band)	
hardware version :	V0X	
software version :	EYN,VA	
antenna type :	integrated antenna	
accessories/body-worn configurations:	stereo headset EMB-SGC714STKB S/N: 179132056	
battery options :	Li-Ion 880mAh / 3.3Wh SN: 189950240	

1.6 Test specification(s)

Supplement C (Edition 01-01) to OET Bulletin 65 (Edition 97-01)

IEEE 1528-2003 (April 21, 2003)

RSS-102: Radio Frequency Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands (Issue 2 of November 2005)

Canada's Safety Code 6: Limits of Human Exposure to Radiofrequency Electromagnetic Fields in the Frequency Range from 3 kHz to 300 GHz (99-EHD-237)

IEEE Std C95.3 – 1991, IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields – RF and Microwave.

IEEE Std C95.1 – 1999, IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz – 300 GHz.

1.6.1 RF exposure limits

Human Exposure	Uncontrolled Environment General Population	Controlled Environment Occupational
Spatial Peak SAR* (Brain)	**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).

2 Technical test

2.1 Summary of test results

No deviations from the technical specification(s) were ascertained in the course of the tests performed.	☒
The deviations as specified in 2.5 were ascertained in the course of the tests performed.	☐

2.2 Test environment

General Environment conditions in the test area are as follows:

Ambient temperature: 20°C – 24°C
Tissue simulating liquid: 20°C – 24°C
Humidity: 40% – 50%

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

2.3 Measurement and test set-up

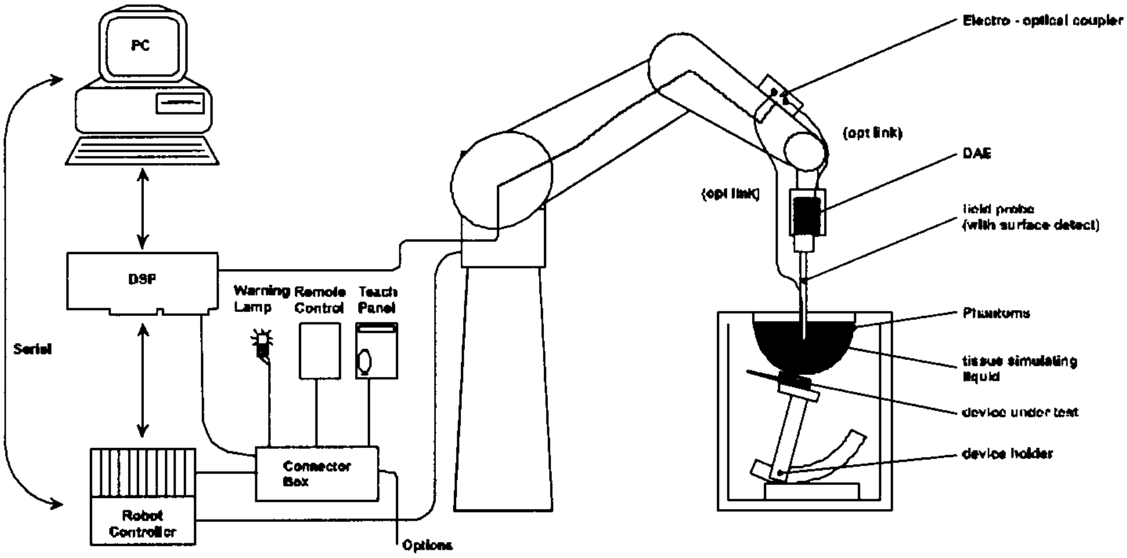
The measurement system is described in chapter 2.4.

The test setup for the system validation can be found in chapter 2.4.14.

A description of positioning and test signal control can be found in chapter 2.5 together with the test results.

2.4 Measurement system

2.4.1 System Description



The DASY4 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 DASY4 measurement server.
- The DASY4 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
- DASY4 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.

2.4.2 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.

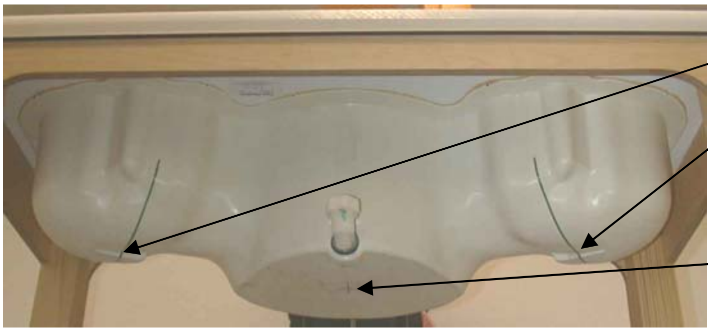
2.4.3 Probe description

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., glycolether)
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 ± 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 µW/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)

2.4.4 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.



2.4.5 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.

2.4.6 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 ± 0.1mm). 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 ± 30°.)

- 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 strenth 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 chapter 1.6.) are shown in table form in chapter 2.5.

- 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.

2.4.7 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 compansate boundary effects on E-field probes.

2.4.8 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	$Norm_i$, a_{i0}, a_{i1}, a_{i2}
	- Conversion factor	$ConvF_i$
	- Diode compression point	Dcpi
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/cm^3

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/cm^2
E_{tot} = total electric field strength in V/m
H_{tot} = total magnetic field strength in A/m

2.4.9 Test equipment utilized

This table gives a complete overview of the SAR measurement equipment

Devices used during the test described in chapter 2.5. are marked ☒

	Manufacturer	Device	Type	Serial number	Date of last calibration)*
☐	Schmid & Partner Engineering AG	Dosimetric E-Field Probe	ET3DV6	1558	August 21, 2009
☒	Schmid & Partner Engineering AG	Dosimetric E-Field Probe	ET3DV6	1559	January 14, 2009
☒	Schmid & Partner Engineering AG	900 MHz System Validation Dipole	D900V2	102	August 17, 2009
☐	Schmid & Partner Engineering AG	1800 MHz System Validation Dipole	D1800V2	287	August 18 2009
☒	Schmid & Partner Engineering AG	1900 MHz System Validation Dipole	D1900V2	5d009	August 18, 2009
☒	Schmid & Partner Engineering AG	2450 MHz System Validation Dipole	D2450V2	710	August 17, 2009
☒	Schmid & Partner Engineering AG	Data acquisition electronics	DAE3V1	413	January 8, 2009
☐	Schmid & Partner Engineering AG	Data acquisition electronics	DAE3V1	477	May 14, 2009
☒	Schmid & Partner Engineering AG	Software	DASY 4 V4.5	---	N/A
☒	Schmid & Partner Engineering AG	Phantom	SAM	---	N/A
☒	Rohde & Schwarz	Universal Radio Communication Tester	CMU 200	106826	January 15, 2009
☒	Hewlett Packard)*	Network Analyser 300 kHz to 6 GHz	8753C	2937U00269	January 9, 2009
☒	Hewlett Packard)*	Network Analyser 300 kHz to 6 GHz	85047A	2936A00872	January 9, 2009
☒	Hewlett Packard	Dielectric Probe Kit	85070C	US99360146	N/A
☒	Hewlett Packard	Signal Generator	8665A	2833A00112	January 8, 2009
☒	Amplifier Reasearch	Amplifier	25S1G4 (25 Watt)	20452	N/A
☒	Rohde & Schwarz	Power Meter	NRP	101367	January 9, 2009
☒	Rohde & Schwarz	Power Meter Sensor	NRP Z22	100227	January 9, 2009
☒	Rohde & Schwarz	Power Meter Sensor	NRP Z22	100234	January 9, 2009

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

2.4.10 Tissue simulating liquids: dielectric properties

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

(liquids used for tests described in chapter 2.5. are marked with ☒) :

Ingredients (% of weight)	Frequency (MHz)					
frequency band	☐ 450	☒ 835	☐ 900	☐ 1800	☒ 1900	☒ 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)					
frequency band	☐ 450	☒ 835	☐ 900	☐ 1800	☒ 1900	☒ 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.

2.4.11 Tissue simulating liquids: parameters

Used Target Frequency	Target Head Tissue		Measured Head Tissue		Measured Date
[MHz]	Permittivity	Conductivity [S/m]	Permittivity	Conductivity [S/m]	
835	41.5	0.90	41.5	0.88	2009-09-17
900	41.5	0.97	40.7	0.95	2009-09-17
1900	40.0	1.40	39.3	1.37	2009-09-16
2450	39.2	1.80	39.5	1.84	2009-09-18

Table 4: Parameter of the head tissue simulating liquid

Used Target Frequency	Target Body Tissue		Measured Body Tissue		Measured Date
[MHz]	Permittivity	Conductivity [S/m]	Permittivity	Conductivity [S/m]	
835	55.2	0.97	54.9	0.97	2009-09-17
900	55.0	1.05	54.3	1.04	2009-09-17
1900	53.3	1.52	52.6	1.52	2009-09-16
2450	52.7	1.95	52.3	1.96	2009-09-21

Table 5: Parameter of the body tissue simulating liquid

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

2.4.12 Measurement uncertainty evaluation for SAR test

The overall combined measurement uncertainty of the measurement system is ± 10,3% (K=1).
The expanded uncertainty (k=2) is assessed to be ± 20.6%
This measurement uncertainty budget is suggested by IEEE P1528 and determined by Schmid & Partner Engineering AG. The breakdown of the individual uncertainties is as follows:

Error Sources	Uncertainty Value	Probability Distribution	Divi-sor	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	± 9.6%	Rectangular	√3	0.7	0.7	± 3.9%	± 3.9%	∞
Spatial resolution	± 0.0%	Rectangular	√3	1	1	± 0.0%	± 0.0%	∞
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	± 0.8%	Rectangular	√3	1	1	± 0.5%	± 0.5%	∞
Integration time	± 2.6%	Rectangular	√3	1	1	± 1.5%	± 1.5%	∞
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								
Device positioning	± 2.9%	Normal	1	1	1	± 2.9%	± 2.9%	145
Device holder uncertainty	± 3.6%	Normal	1	1	1	± 3.6%	± 3.6%	5
Power drift	± 5.0%	Rectangular	√3	1	1	± 2.9%	± 2.9%	∞
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						± 10.3%	± 10.0%	330
Expanded Std. Uncertainty						**± 20.6%**	**± 20.1%**	

Table 6: Measurement uncertainties

2.4.13 Measurement uncertainty evaluation for system validation

The overall combined measurement uncertainty of the measurement system is ± 8.4% (K=1).
The expanded uncertainty (k=2) is assessed to be ± 16.8%
This measurement uncertainty budget is suggested by IEEE P1528 and determined by Schmid & Partner Engineering AG. The breakdown of the individual uncertainties is as follows:

Error Sources	Uncertainty Value	Probability Distribution	Divi-sor	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%**	

Table 7: Measurement uncertainties

2.4.14 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 P1528 (described above). The following table shows validation results for all frequency bands and tissue liquids used during the tests of the test item described in chapter 1.5.
(graphic plot(s) see annex 1).

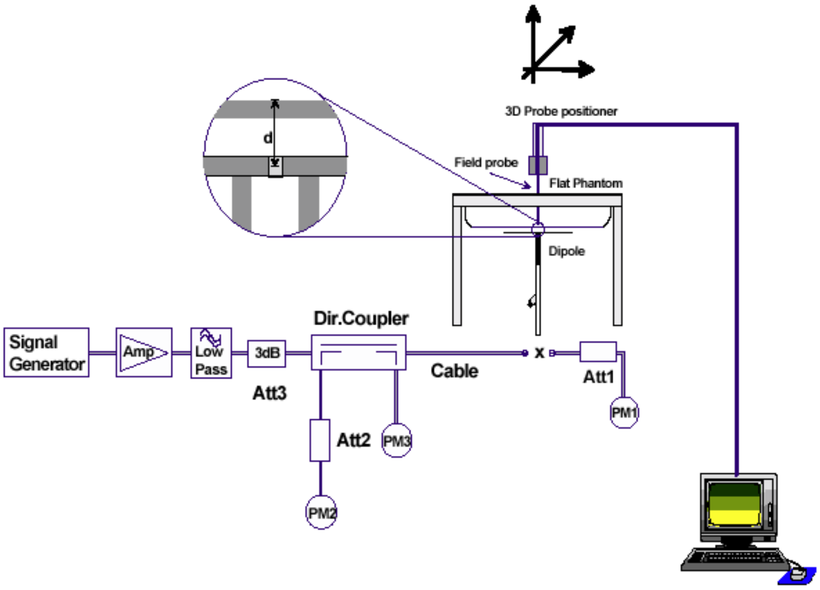
Validation Kit	Frequency	Target Peak SAR (1000 mW) (+/- 10%)	Target SAR_{1g} (1000 mW) (+/- 10%)	Measured Peak SAR (1000 mW)	Measured SAR_{1g} (1000 mW)	Measured date
D900V2 S/N: 102	**900 MHz head**	**16.7 mW/g**	**11.3 mW/g**	**16.1 mW/g**	**10.9 mW/g**	**2009-09-17**
D900V2 S/N: 102	**900 MHz body**	**16.8 mW/g**	**11.3 mW/g**	**15.7 mW/g**	**10.9 mW/g**	**2009-09-17**
D1900V2 S/N: 5d009	**1900 MHz head**	**72.4 mW/g**	**39.7 mW/g**	**65.6 mW/g**	**38.1 mW/g**	**2009-09-16**
D1900V2 S/N: 5d009	**1900 MHz body**	**68.1 mW/g**	**40.1 mW/g**	**63.4 mW/g**	**38.8 mW/g**	**2009-09-16**
D2450V2 S/N: 710	**2450 MHz head**	**108.8 mW/g**	**52.7 mW/g**	**116.4 mW/g**	**54.9 mW/g**	**2009-09-18**
D2450V2 S/N: 710	**2450 MHz body**	**109.6 mW/g**	**51.4 mW/g**	**114.2 mW/g**	**56.0 mW/g**	**2009-09-21**

Table 8: Results system validation

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

2.4.15 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.



2.5 Test Results

2.5.1 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.

2.5.2 Conducted power measurements GSM 850 MHz

Channel / frequency	mode	timeslots	slotted avg. power	timebased avg. power (calculated)
128 / 824.2 MHz	GPRS CS1	2	30.5dBm	24.5dBm
190 / 836.6 MHz	GPRS CS1	2	30.6dBm	24.6dBm
251 / 848.0 MHz	GPRS CS1	2	30.7dBm	**24.7dBm**
128 / 824.2 MHz	GPRS CS1	1	32.3dBm	23.3dBm
190 / 836.6 MHz	GPRS CS1	1	32.1dBm	23.1dBm
251 / 848.0 MHz	GPRS CS1	1	31.9dBm	22.9dBm
128 / 824.2 MHz	EDGE MCS8	2	27.9dBm	21.9dBm
190 / 836.6 MHz	EDGE MCS8	2	28.0dBm	22.0dBm
251 / 848.0 MHz	EDGE MCS8	2	27.9dBm	21.9dBm

Table 9: Test results conducted power measurement GSM 850 MHz

2.5.3 Conducted power measurements GSM 1900 MHz

Channel / frequency	mode	timeslots	slotted avg. power	timebased avg. power (calculated)
512 / 1850.2 MHz	GPRS CS1	2	26.6 dBm	**20.6dBm**
661 / 1880.0 MHz	GPRS CS1	2	26.5 dBm	20.5dBm
810 / 1909.8 MHz	GPRS CS1	2	26.4 dBm	20.4dBm
512 / 1850.2 MHz	GPRS CS1	1	28.5 dBm	19.5dBm
661 / 1880.0 MHz	GPRS CS1	1	28.9 dBm	19.9dBm
810 / 1909.8 MHz	GPRS CS1	1	29.0 dBm	20.0dBm
512 / 1850.2 MHz	EDGE MCS8	2	25.7 dBm	19.7dBm
661 / 1880.0 MHz	EDGE MCS8	2	25.9 dBm	19.9dBm
810 / 1909.8 MHz	EDGE MCS8	2	25.8 dBm	19.8dBm

Table 10: Test results conducted power measurement GSM 1900 MHz

2.5.4 Conducted power measurements WLAN 2450 MHz

	low channel	mid channel	high channel
Conducted power [dBm] (DSSS)	18.68	**19.73**	19.66
Conducted power [dBm] (OFDM)	15.01	**16.06**	15.99

Table 11: Test results conducted power measurement WLAN 2450 MHz
(see also test report no.: 1-1290-1-11/09)

2.5.5 Justification of SAR measurements in GSM mode

SAR measurements in body position were performed in GPRS mode with 2 active timeslots because highest timebased 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.

2.5.6 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 $(SAR_x + SAR_y)/d_{xy}$
P_{ref} : 12 mW at 2.4 GHz

a) head position left hand

Tx No.	Communcation system and frequency band	P_{avg} (mW)	single SAR (W/kg) (see ch. 2.6)	remarks
1a	GSM 850 MHz	250	0.924	routine evaluation
1b	GSM 1900 MHz	125	0.671	routine evaluation
2a	WLAN 2450 MHz	100	0.183	$P_{2a} > P_{ref}$
2b	Bluetooth 2450 MHz	< 3	:=0)**	$P_{2b} < P_{ref}$
Sum of 1g-SAR values (1a+2a)			1.11	
Sum of 1g-SAR values (1b+2a)			0.854	

Table 12: Communication systems and SAR values in head position left hand

antenna pair (x,y)	antenna distance d_{xy} (cm)	L_{xy} (cm)	$SPLSR_{xy}$	sim.-Tx SAR	remarks
(1a,2a)	1.6	0.375	2.96	N	$SPLSR_{xy} > 0.3$, $SAR_{GSM} < 1.2$ W/kg ∑SAR < 1.6 W/kg)*
(1b,2a)	1.6	1.38	0.62	N	$SPLSR_{xy} > 0.3$, $SAR_{GSM} < 1.2$ W/kg ∑SAR < 1.6 W/kg)*

Table 13: Antenna distances and SPLSR evaluation in head position left hand

)* antenna distance is smaller than 2.5 cm but simultaneous transmission measurement with WLAN not required, because BT output is < 12 mW , GSM SAR value remains below 1.2 W/kg, and the sum of stand-alone SAR is < 1.6 W/kg.

)** BT and WLAN antenna are identical. No BT stand-alone measurement performed, because $P_{2b} < P_{ref}$ and $P_{2b} << P_{2a}$.

b) head position right hand

Tx No.	Communcation system and frequency band	P_{avg} (mW)	single SAR (W/kg) (see ch. 2.6)	remarks
1a	GSM 850 MHz	250	0.975	routine evaluation
1b	GSM 1900 MHz	125	0.724	routine evaluation
2a	WLAN 2450 MHz	100	0.124	$P_{2a} > P_{ref}$
2b	Bluetooth 2450 MHz	< 3	:=0)**	$P_{2b} < P_{ref}$
Sum of 1g-SAR values (1a+ 2a)			1.10	
Sum of 1g-SAR values (1b+ 2a)			0.85	

Table 14: Communication systems and SAR values in head position right hand

antenna pair (x,y)	antenna distance d_{xy} (cm)	L_{xy} (cm)	$SPLSR_{xy}$	sim.-Tx SAR	remarks
(1a,2a)	1.6	1.92	0.572	N	$SPLSR_{xy} > 0.3$, $SAR_{GSM} < 1.2$ W/kg ∑SAR < 1.6 W/kg)*
(1b,2a)	1.6	0.69	1.23	N	$SPLSR_{xy} > 0.3$, $SAR_{GSM} < 1.2$ W/kg ∑SAR < 1.6 W/kg)*

Table 15: Antenna distances and SPLSR evaluation in head position right hand

)* antenna distance is smaller than 2.5 cm but simultaneous transmission measurement with WLAN not required, because BT output is < 12 mW , GSM SAR value remains below 1.2 W/kg, and the sum of stand-alone SAR is < 1.6 W/kg.

)** BT and WLAN antenna are identical. No BT stand-alone measurement performed, because $P_{2b} < P_{ref}$ and $P_{2b} << P_{2a}$.

c) body position

Tx No.	Communcation system and frequency band	P_{avg} (mW)	single SAR (W/kg) (see ch. 2.6)	remarks
1a	GSM 850 MHz	500	0.784	routine evaluation
1b	GSM 1900 MHz	250	0.388	routine evaluation
2a	WLAN 2450 MHz	100	0.033	$P_{2a} > P_{ref}$
2b	Bluetooth 2450 MHz	5	:=0)**	$P_{2b} < P_{ref}$
Sum of 1g-SAR (1a+2a)			0.817	
Sum of 1g-SAR (1b+2a)			0.421	

Table 16: Communication systems and SAR values in body position

antenna pair (x,y)	antenna distance d_{xy} (cm)	L_{xy} (cm)	$SPLSR_{xy}$	sim.-Tx SAR	remarks
(1a,2a)	1.6	1.5	0.54	N	$SPLSR_{xy} > 0.3$, $SAR_{GSM} < 1.2$ W/kg $\sum SAR < 1.6$ W/kg)*
(1b,2a)	1.6	2.5	0.168	N	$SPLSR_{xy} < 0.3$ $SAR_{GSM} < 1.2$ W/kg $\sum SAR < 1.6$ W/kg)*

Table 17: Antenna distances and SPLSR evaluation in body position

)* antenna distance is smaller than 2.5 cm but simultaneous transmission measurement with WLAN not required, because BT output is < 12 mW , GSM SAR value remains below 1.2 W/kg, and the sum of stand-alone SAR is < 1.6 W/kg.

)** BT and WLAN antenna are identical. No BT stand-alone measurement performed, because $P_{2b} < P_{ref}$ and $P_{2b} << P_{2a}$.

2.6 Test results (Head and Body SAR)

The table contains the measured SAR values averaged over a mass of 1 g					
Channel / frequency	Position	Left hand position	Right hand position	Limit	Liquid temperature
190 / 836.6 MHz	cheek	0.924 W/kg	**0.975 W/kg**	1.6 W/kg	23.1/23.0 °C
190 / 836.6 MHz	tilted 15°	0.404 W/kg	0.418 W/kg	1.6 W/kg	23.1/23.0 °C
128 / 824.2 MHz	cheek	0.891 W/kg	0.921 W/kg	1.6 W/kg	23.1/23.0 °C
251 / 848.8 MHz	cheek	0.887 W/kg	0.951 W/kg	1.6 W/kg	23.1/23.0 °C

Table 18: Test results (Head SAR 850 MHz)

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.

The table contains the measured SAR values averaged over a mass of 1 g				
Channel / frequency	Position	Body worn	Limit	Liquid temperature
190 / 836.6 MHz	front	0.768 W/kg	1.6 W/kg	23.0°C
190 / 836.6 MHz	rear	**0.784 W/kg**	1.6 W/kg	23.0°C
128 / 824.2 MHz	rear	not necessary	1.6 W/kg	----
251 / 848.8 MHz	rear	not necessary	1.6 W/kg	----

Table 19: Test results (Body SAR 850 MHz)

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.
Tests in body position were performed with 15 mm air gap between DUT and SAM to simulate the use of a non-metallic belt-clip or holster.

The table contains the measured SAR values averaged over a mass of 1 g					
Channel / frequency	Position	Left hand position	Right hand position	Limit	Liquid temperature
661 / 1880.0 MHz	cheek	0.671 W/kg	**0.724 W/kg**	1.6 W/kg	21.8/21.8 °C
661 / 1880.0 MHz	tilted 15°	0.247 W/kg	0.314 W/kg	1.6 W/kg	21.8/21.8 °C
512 / 1850.2 MHz	cheek	not necessary	not necessary	1.6 W/kg	---- °C
810 / 1909.8 MHz	cheek	not necessary	not necessary	1.6 W/kg	---- °C

Table 20: Test results (Head SAR 1900 MHz)

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.

The table contains the measured SAR values averaged over a mass of 1 g				
Channel / frequency	Position	Body worn	Limit	Liquid temperature
661 / 1880.0 MHz	front	0.343 W/kg	1.6 W/kg	22.0°C
661 / 1880.0 MHz	rear	**0.388 W/kg**	1.6 W/kg	22.0°C
512 / 1850.2 MHz	rear	not necessary	1.6 W/kg	----
810 / 1909.8 MHz	rear	not necessary	1.6 W/kg	----

Table 21: Test results (Body SAR 1900 MHz)

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.
Tests in body position were performed with 15 mm air gap between DUT and SAM to simulate the use of a non-metallic belt-clip or holster.

The table contains the measured SAR values averaged over a mass of 1 g					
Channel / frequency	Position	Left hand position	Right hand position	Limit	Liquid temperature
6 / 2437 MHz	cheek	**0.183 W/kg**	0.124 W/kg	1.6 W/kg	22.7/22.7 °C
6 / 2437 MHz	tilted 15°	0.062 W/kg	0.065 W/kg	1.6 W/kg	22.7/22.7 °C
6 / 2437 MHz	cheek (*	0.124 W/kg	not necessary	1.6 W/kg	22.7 °C
1 / 2412 MHz	cheek	not necessary	not necessary	1.6 W/kg	---- °C
11 / 2462 MHz	cheek	not necessary	not necessary	1.6 W/kg	---- °C

Table 22: Test results (Head SAR 2450 MHz)

The table contains the measured SAR values averaged over a mass of 1 g				
Channel / frequency	Position	Body worn	Limit	Liquid temperature
6 / 2437 MHz	front	0.033 W/kg	1.6 W/kg	22.8°C
6 / 2437 MHz	rear	0.033 W/kg	1.6 W/kg	22.8°C
1 / 2412 MHz	rear	not necessary	1.6 W/kg	----
11 / 2462 MHz	rear	not necessary	1.6 W/kg	----

Table 23: Test results (Body SAR 2450 MHz)

(* delta measurement in 802.11g mode

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.
Tests in body position were performed with 15 mm air gap between DUT and SAM to simulate the use of a non-metallic belt-clip or holster.

2.6.1 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 are performed with the maximum number of timeslots in uplink.
Tests in head position are performed in voice mode with 1 timeslot unless GPRS/EGPRS function allows parallel voice and data traffic on 2 or more timeslots (see chapter 1.5 for details).
Conducted output power was measured using an integrated RF connector and attached RF cable.
In WLAN mode the device was tested using a test software to set maximum output power in 802.11b mode with 11 Mbit/s (16 dBm) and at worst case in 802.11g mode with 6 Mbit/s (12 dBm).

Annex 1 System performance verification

Date/Time: 2009-09-17 10:41:11Date/Time: 2009-09-17 10:44:35

SystemPerformanceCheck-D900 head 2009-09-17

DUT: Dipole 900 MHz; Type: D900V2; Serial: 102

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

Medium: HSL850 Medium parameters used: f = 900 MHz; $\sigma = 0.95$ mho/m; $\varepsilon_r = 40.7$; $\rho = 1000$ kg/m^3

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1559; ConvF(6.25, 6.25, 6.25); Calibrated: 2009-01-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 2009-01-08
- 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) = 11.6 mW/g

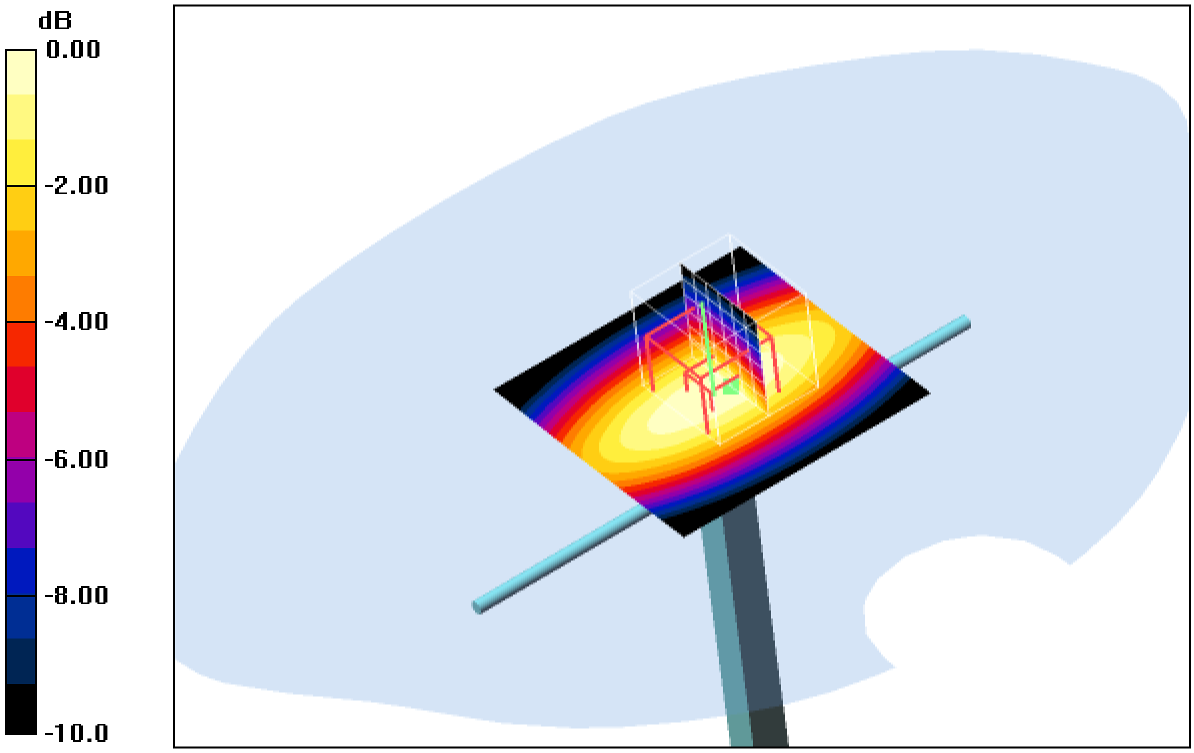
d=15mm, Pin=1000mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 115.8 V/m; Power Drift = -0.038 dB

Peak SAR (extrapolated) = 16.1 W/kg

SAR(1 g) = 10.9 mW/g; SAR(10 g) = 7.07 mW/g

Maximum value of SAR (measured) = 11.9 mW/g



0 dB = 11.9mW/g

Additional information:

ambient temperature: 23.5°C; liquid temperature: 23.1°C

Deviation of target: -3.5% (1 g)

Date/Time: 2009-09-17 08:36:12Date/Time: 2009-09-17 08:39:35

SystemPerformanceCheck-D900 body 2009-09-17

DUT: Dipole 900 MHz; Type: D900V2; Serial: 102

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

Medium: M850 Medium parameters used: f = 900 MHz; σ = 1.04 mho/m; ε_r = 54.3; ρ = 1000 kg/m^3

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1559; ConvF(6.15, 6.15, 6.15); Calibrated: 2009-01-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 2009-01-08
- 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) = 11.7 mW/g

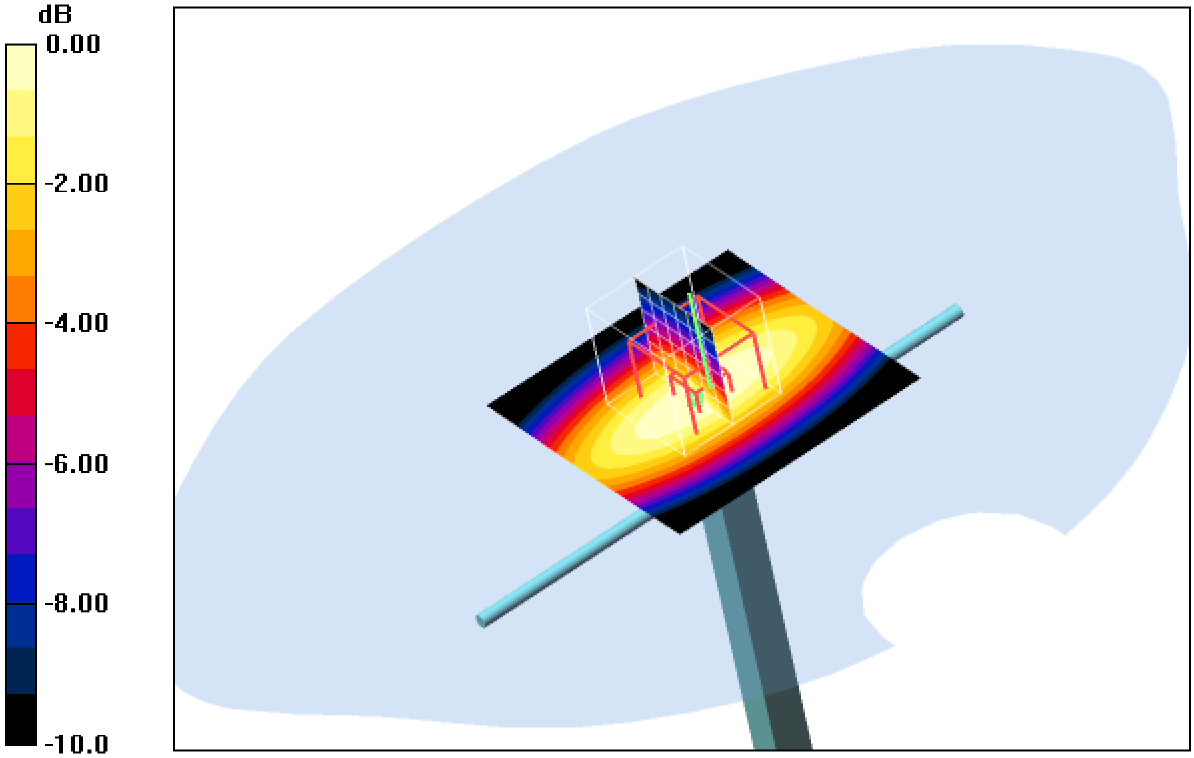
d=15mm, Pin=1000mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 111.0 V/m; Power Drift = -0.069 dB

Peak SAR (extrapolated) = 15.7 W/kg

SAR(1 g) = 10.9 mW/g; SAR(10 g) = 7.08 mW/g

Maximum value of SAR (measured) = 11.8 mW/g



0 dB = 11.8mW/g

Additional information:

ambient temperature: 23.5°C; liquid temperature: 23.2°C

Deviation of target: -3.5% (1 g)

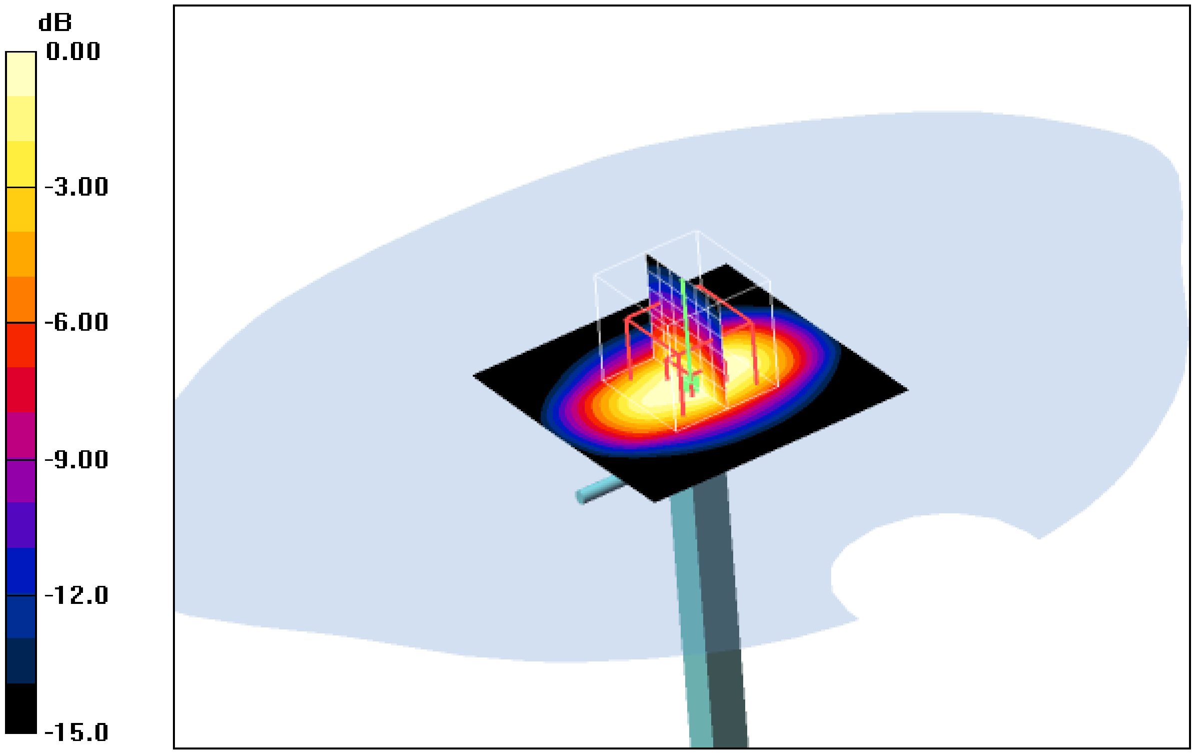
Date/Time: 2009-09-16 13:26:55Date/Time: 2009-09-16 13:30:16

SystemPerformanceCheck-D1900 head 2009-09-16

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d009
Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: HSL1900 Medium parameters used (interpolated): f = 1900 MHz; σ = 1.37 mho/m; ε_r = 39.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1559; ConvF(4.99, 4.99, 4.99); Calibrated: 2009-01-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 2009-01-08
- 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) = 52.5 mW/g

d=10mm, Pin=1000mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 185.8 V/m; Power Drift = -0.039 dB
Peak SAR (extrapolated) = 65.6 W/kg
SAR(1 g) = 38.1 mW/g; SAR(10 g) = 20.1 mW/g
Maximum value of SAR (measured) = 43.2 mW/g



0 dB = 43.2mW/g

Additional information:
ambient temperature: 23.8°C; liquid temperature: 21.8°C
Deviation of target: -4% (1 g)

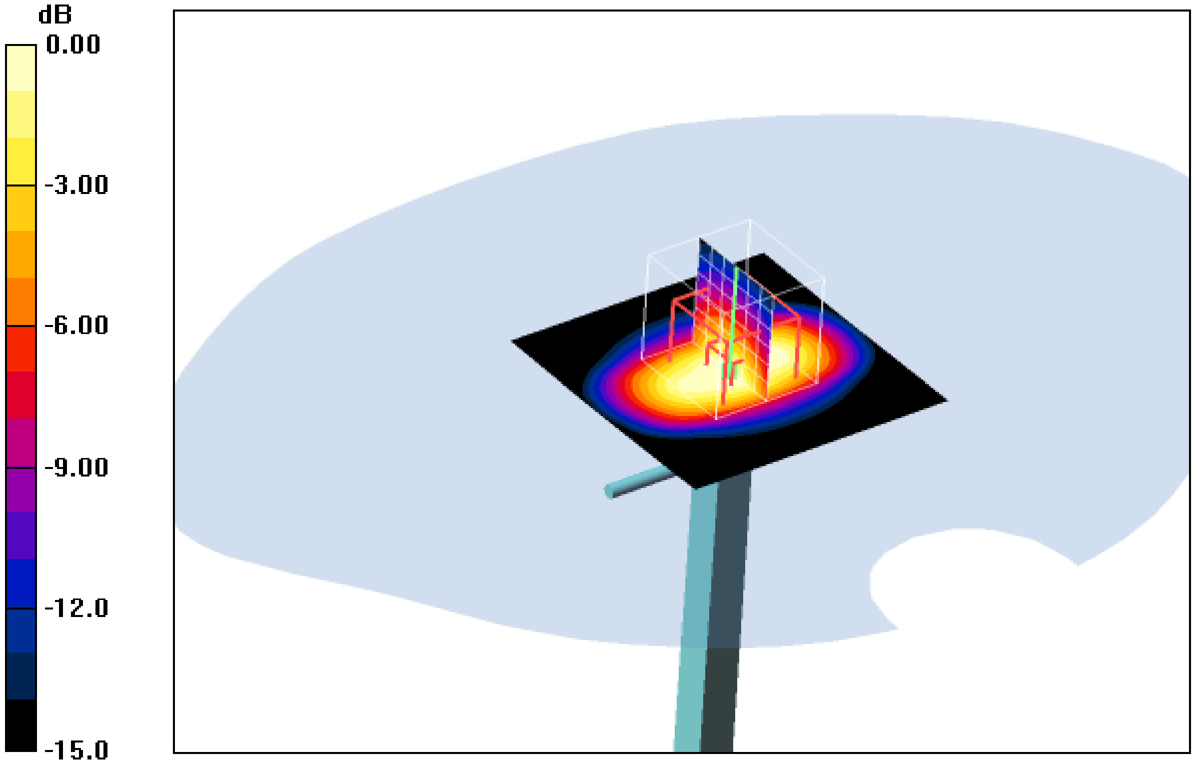
Date/Time: 2009-09-16 11:13:10Date/Time: 2009-09-16 11:16:31

SystemPerformanceCheck-D1900 body 2009-09-16

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d009
Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: M1900 Medium parameters used (interpolated): f = 1900 MHz; σ = 1.52 mho/m; ε_r = 52.6; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1559; ConvF(4.44, 4.44, 4.44); Calibrated: 2009-01-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 2009-01-08
- 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) = 57.6 mW/g

d=15mm, Pin=1000mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 183.9 V/m; Power Drift = -0.062 dB
Peak SAR (extrapolated) = 63.4 W/kg
SAR(1 g) = 38.8 mW/g; SAR(10 g) = 20.9 mW/g
Maximum value of SAR (measured) = 44.2 mW/g



0 dB = 44.2mW/g

Additional information:
ambient temperature: 23.1°C; liquid temperature: 22.0°C
Deviation of target: -3.2% (1 g)

Date/Time: 2009-09-18 09:23:25Date/Time: 2009-09-18 09:27:04

SystemPerformanceCheck-D2450 head 2009-09-18

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 MHz; σ = 1.84 mho/m; ε_r = 39.5; ρ = 1000 kg/m^3

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1559; ConvF(4.45, 4.45, 4.45); Calibrated: 2009-01-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 2009-01-08
- 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) = 83.3 mW/g

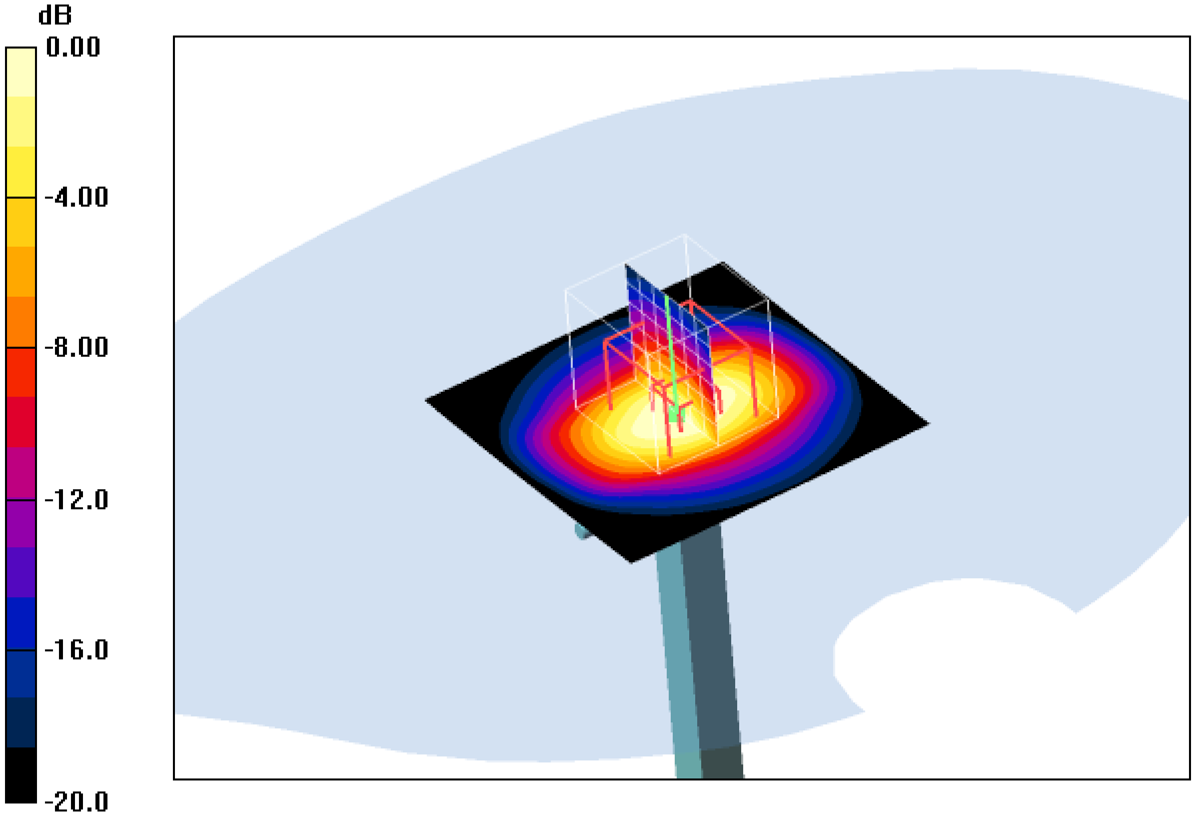
d=10mm, Pin=1000mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 191.7 V/m; Power Drift = -0.052 dB

Peak SAR (extrapolated) = 116.4 W/kg

SAR(1 g) = 54.9 mW/g; SAR(10 g) = 25.7 mW/g

Maximum value of SAR (measured) = 61.6 mW/g



0 dB = 61.6mW/g

Additional information:

ambient temperature: 23.8°C; liquid temperature: 22.8°C

Deviation of target: +4.2% (1 g); +4% (10 g)

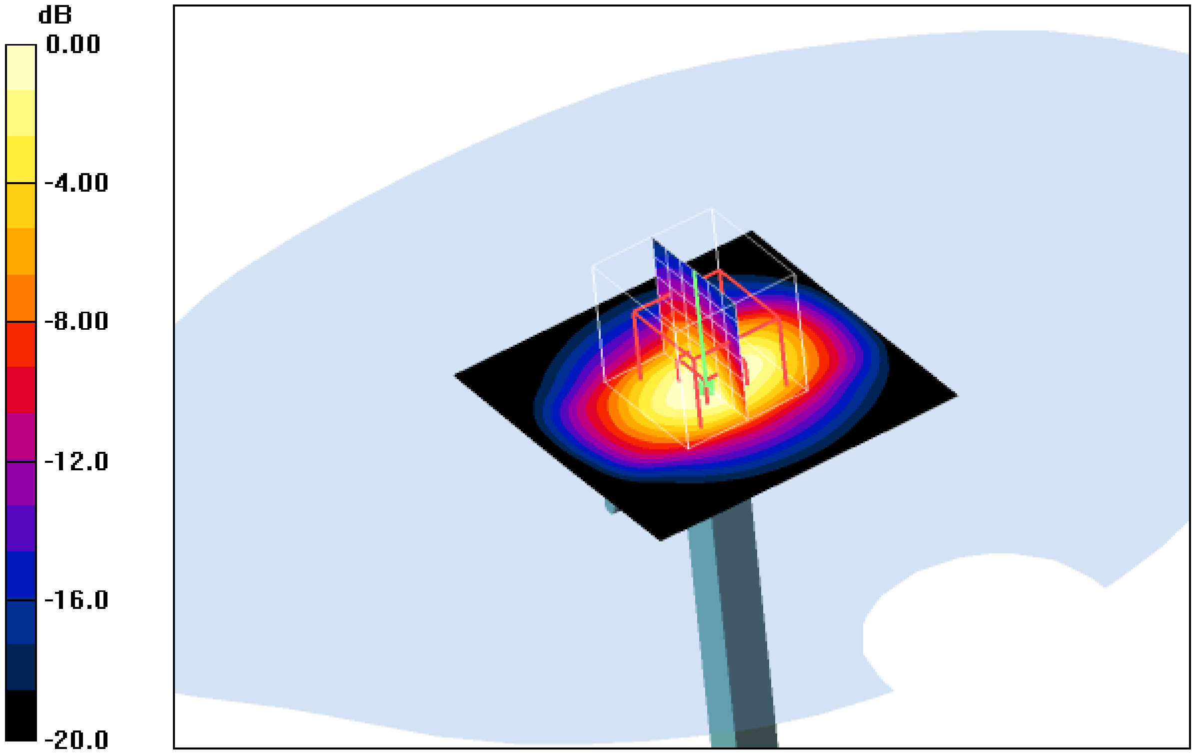
Date/Time: 2009-09-21 16:11:56Date/Time: 2009-09-21 16:15:51

SystemPerformanceCheck-D2450 body 2008-09-21

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; σ = 1.96 mho/m; ε_r = 52.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1559; ConvF(3.91, 3.91, 3.91); Calibrated: 2009-01-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 2009-01-08
- 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) = 82.5 mW/g

d=10mm, Pin=1000mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 184.3 V/m; Power Drift = -0.045 dB
Peak SAR (extrapolated) = 114.2 W/kg
SAR(1 g) = 56 mW/g; SAR(10 g) = 26 mW/g
Maximum value of SAR (measured) = 62.2 mW/g



0 dB = 62.2mW/g

Additional information:
ambient temperature: 23.5°C; liquid temperature: 22.8°C
Deviation of target: +8.9% (1 g); +8.8% (10 g)

Annex 2 Measurement results (printout from DASY TM)

Remark: results of conducted power measurements: see chapter 2.5/2.6 (if applicable)

Annex 2.1 PCS 850 MHz head

Date/Time: 2009-09-17 11:15:30Date/Time: 2009-09-17 11:22:29

IEEE1528_OET65-LeftHandSide-GSM850

DUT: Sagem; Type: OT800; Serial: 354797030000018901

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

Medium: HSL850 Medium parameters used: f = 836.6 MHz; σ = 0.88 mho/m; ε_r = 41.5; ρ = 1000 kg/m^3

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1559; ConvF(6.06, 6.06, 6.06); Calibrated: 2009-01-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 2009-01-08
- 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 (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.979 mW/g

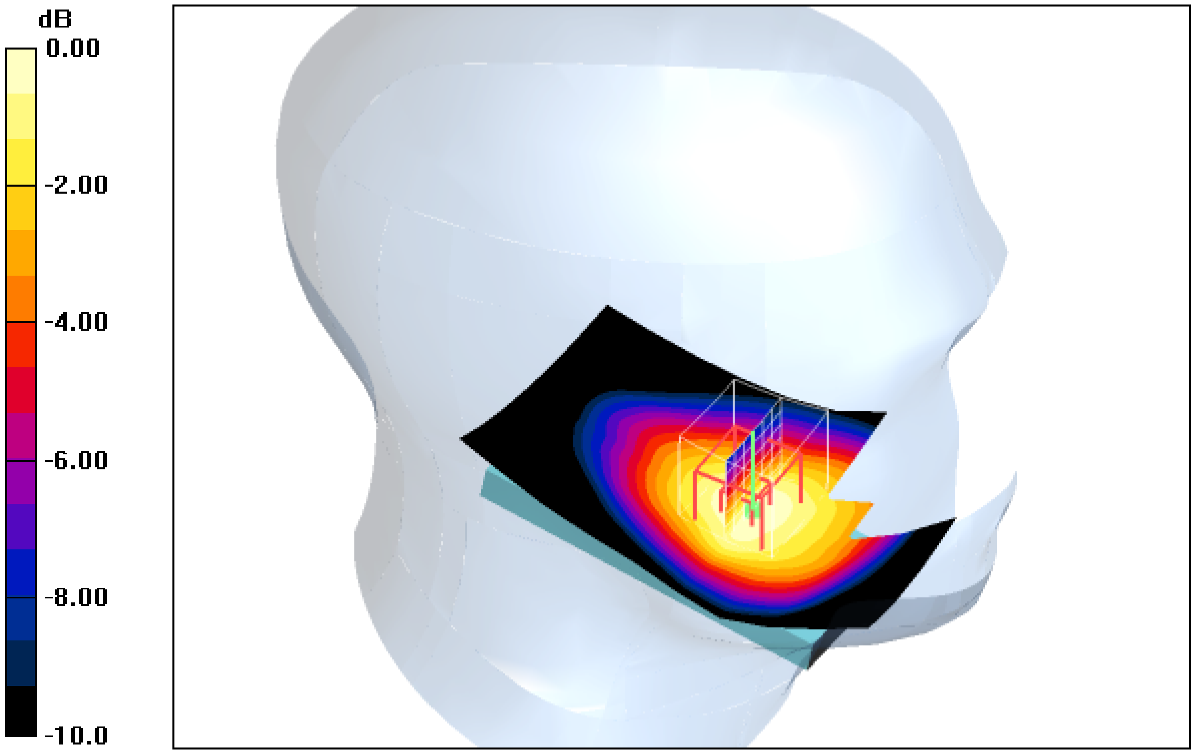
Touch position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 34.4 V/m; Power Drift = -0.091 dB

Peak SAR (extrapolated) = 1.22 W/kg

SAR(1 g) = 0.924 mW/g; SAR(10 g) = 0.640 mW/g

Maximum value of SAR (measured) = 0.975 mW/g



0 dB = 0.975mW/g

Additional information:

ambient temperature: 23.6°C; liquid temperature: 23.1°C

Date/Time: 2009-09-17 12:18:38Date/Time: 2009-09-17 12:25:43

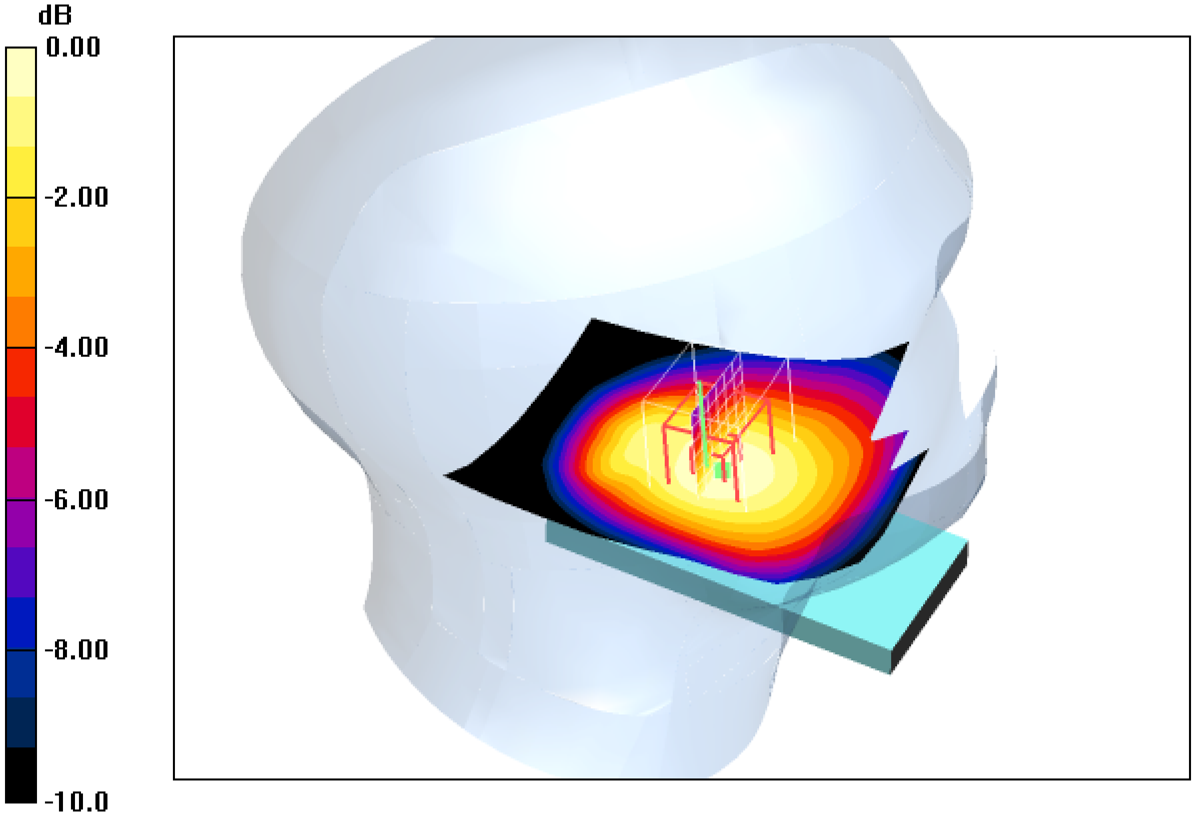
IEEE1528_OET65-LeftHandSide-GSM850

DUT: Sagem; Type: OT800; Serial: 354797030000189 01

Communication System: PCS 850; Frequency: 836.6 MHz; Duty Cycle: 1:8
Medium: HSL850 Medium parameters used: f = 836.6 MHz; σ = 0.88 mho/m; ε_r = 41.5; ρ = 1000 kg/m^3
Phantom section: Left Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1559; ConvF(6.06, 6.06, 6.06); Calibrated: 2009-01-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 2009-01-08
- 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 (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.425 mW/g

Tilt position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 22.8 V/m; Power Drift = -0.075 dB
Peak SAR (extrapolated) = 0.503 W/kg
SAR(1 g) = 0.404 mW/g; SAR(10 g) = 0.301 mW/g
Maximum value of SAR (measured) = 0.422 mW/g



0 dB = 0.422mW/g

Additional information:
ambient temperature: 23.6°C; liquid temperature: 23.1°C

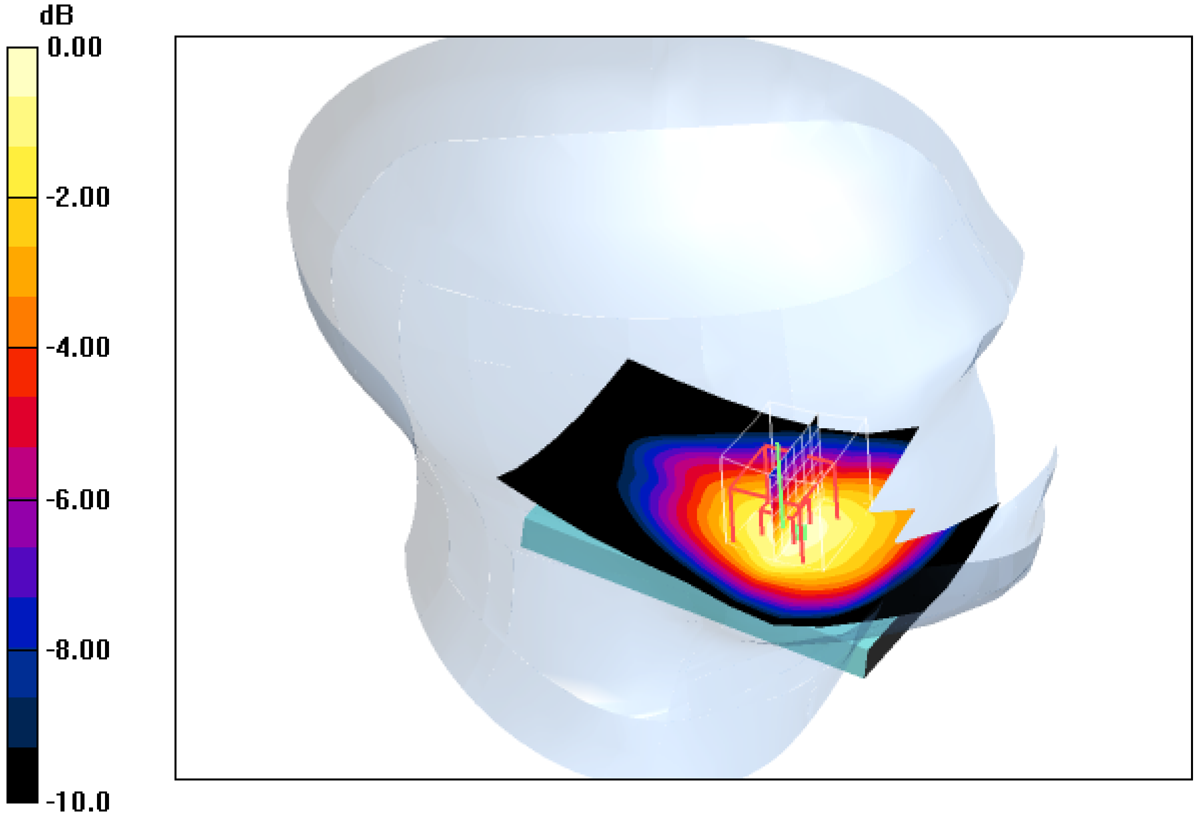
Date/Time: 2009-09-17 11:35:11Date/Time: 2009-09-17 11:42:12

IEEE1528_OET65-LeftHandSide-GSM850

DUT: Sagem; Type: OT800; Serial: 354797030000018901
Communication System: PCS 850; Frequency: 824.2 MHz; Duty Cycle: 1:8
Medium: HSL850 Medium parameters used: f = 824.2 MHz; σ = 0.88 mho/m; ε_r = 41.5; ρ = 1000 kg/m^3
Phantom section: Left Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1559; ConvF(6.06, 6.06, 6.06); Calibrated: 2009-01-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 2009-01-08
- 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 (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.910 mW/g

Touch position - Low/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 33.0 V/m; Power Drift = 0.057 dB
Peak SAR (extrapolated) = 1.18 W/kg
SAR(1 g) = 0.891 mW/g; SAR(10 g) = 0.621 mW/g
Maximum value of SAR (measured) = 0.951 mW/g



0 dB = 0.951mW/g

Additional information:
ambient temperature: 23.6°C; liquid temperature: 23.1°C

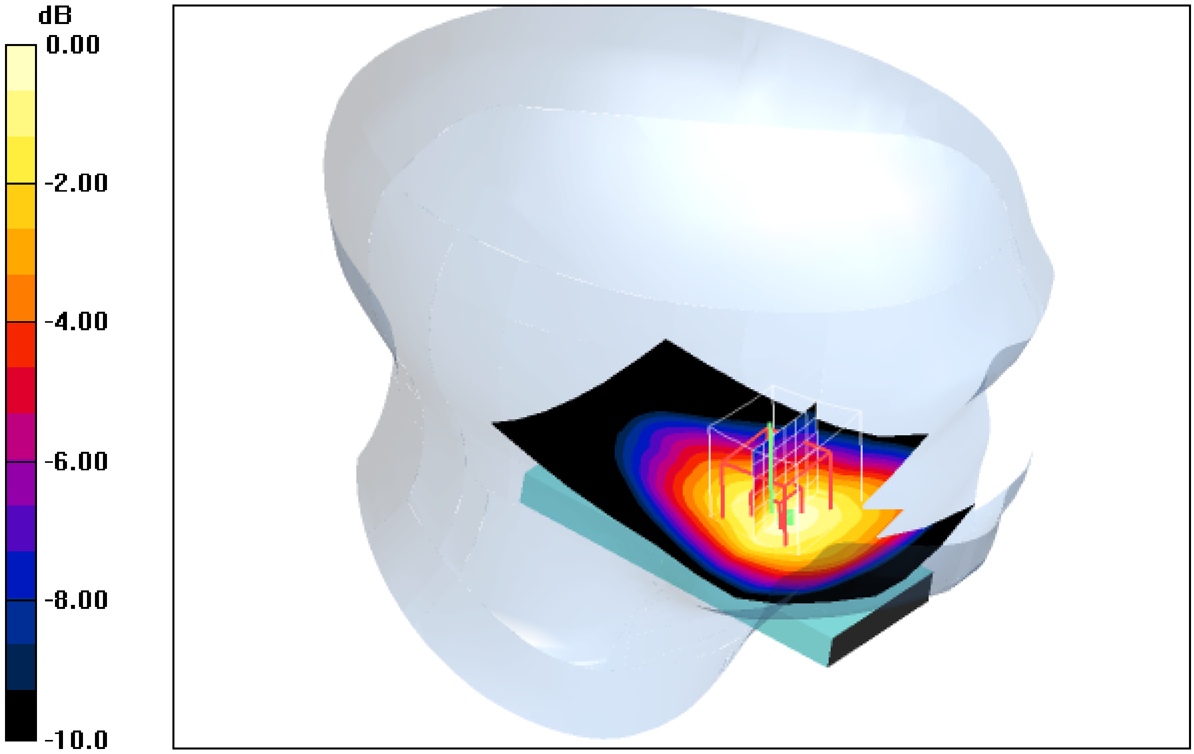
Date/Time: 2009-09-17 11:55:13Date/Time: 2009-09-17 12:03:38

IEEE1528_OET65-LeftHandSide-GSM850

DUT: Sagem; Type: OT800; Serial: 354797030000018901
Communication System: PCS 850; Frequency: 848.8 MHz; Duty Cycle: 1:8
Medium: HSL850 Medium parameters used: f = 848.8 MHz; σ = 0.88 mho/m; ε_r = 41.5; ρ = 1000 kg/m^3
Phantom section: Left Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1559; ConvF(6.06, 6.06, 6.06); Calibrated: 2009-01-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 2009-01-08
- 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 (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.912 mW/g

Touch position - High/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 33.0 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 1.19 W/kg
SAR(1 g) = 0.887 mW/g; SAR(10 g) = 0.611 mW/g
Maximum value of SAR (measured) = 0.949 mW/g



0 dB = 0.949mW/g

Additional information:
ambient temperature: 23.6°C; liquid temperature: 23.1°C

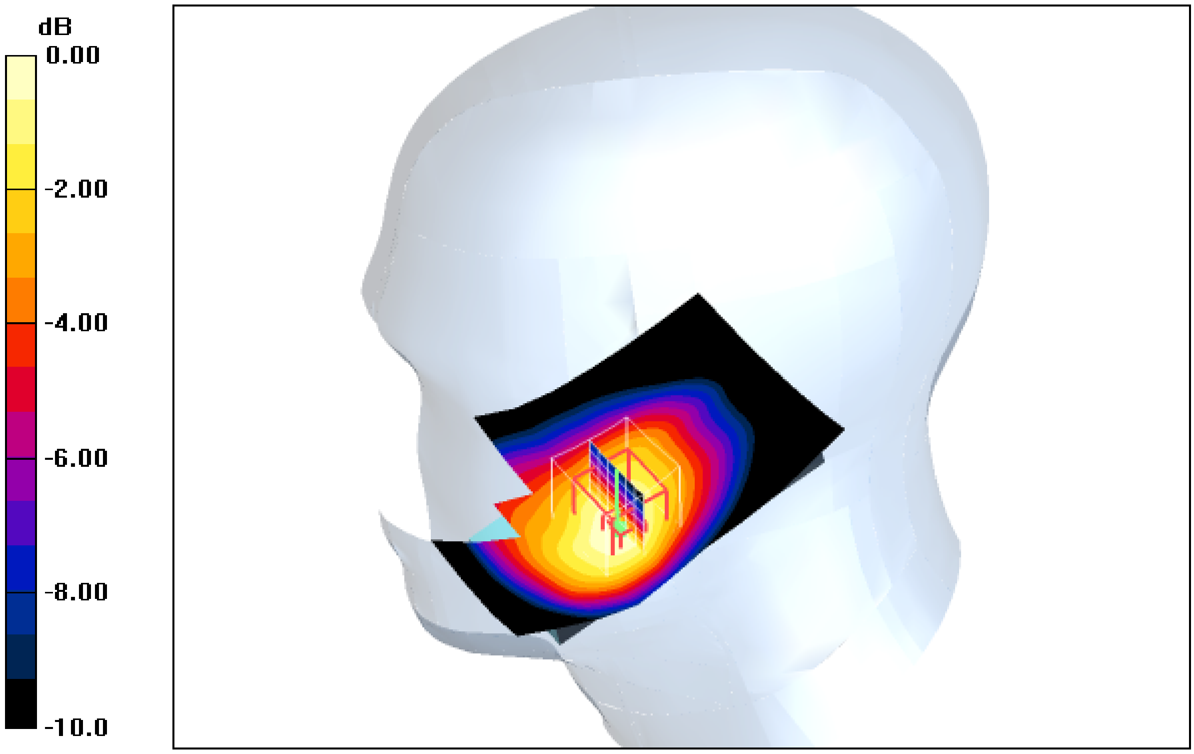
Date/Time: 2009-09-17 13:04:55Date/Time: 2009-09-17 13:11:51

IEEE1528_OET65-RightHandSide-GSM850

DUT: Sagem; Type: OT800; Serial: 354797030000018901
Communication System: PCS 850; Frequency: 836.6 MHz; Duty Cycle: 1:8
Medium: HSL850 Medium parameters used: f = 836.6 MHz; σ = 0.88 mho/m; ε_r = 41.5; ρ = 1000 kg/m^3
Phantom section: Right Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1559; ConvF(6.06, 6.06, 6.06); Calibrated: 2009-01-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 2009-01-08
- 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 (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.08 mW/g

Touch position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 35.3 V/m; Power Drift = 0.143 dB
Peak SAR (extrapolated) = 1.50 W/kg
SAR(1 g) = 0.975 mW/g; SAR(10 g) = 0.650 mW/g
Maximum value of SAR (measured) = 1.04 mW/g



0 dB = 1.04mW/g

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

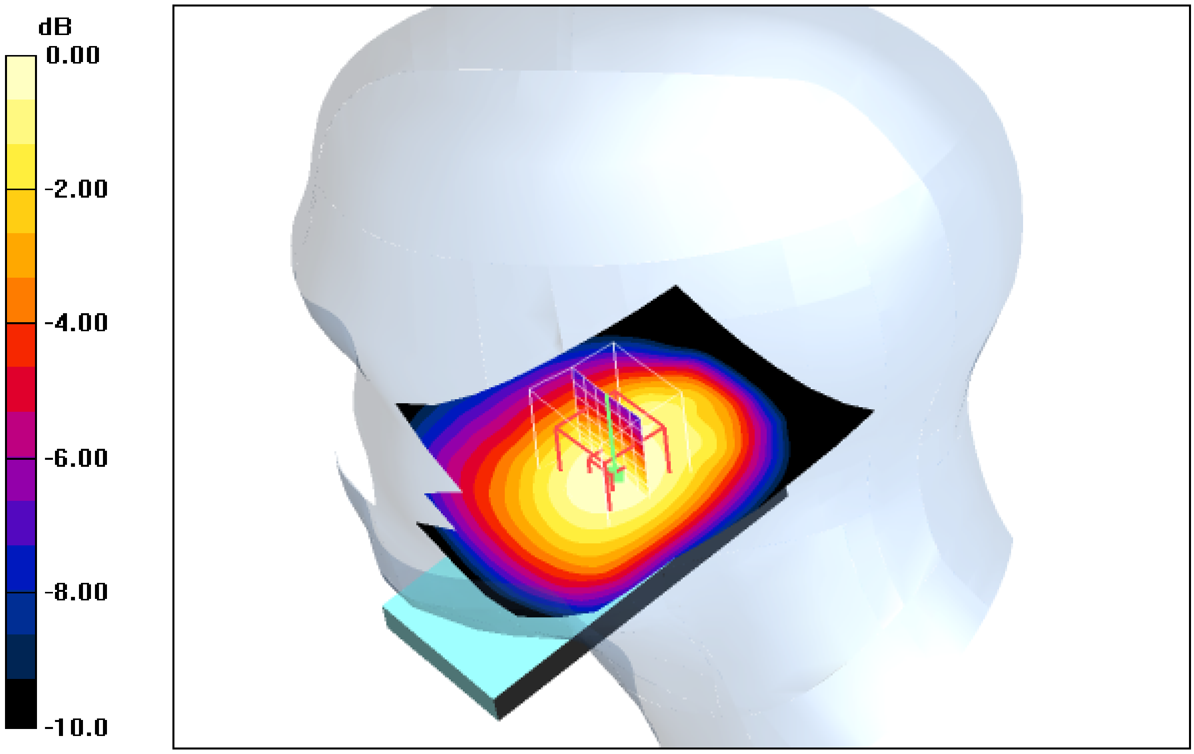
Date/Time: 2009-09-17 12:39:38Date/Time: 2009-09-17 12:46:48

IEEE1528_OET65-RightHandSide-GSM850

DUT: Sagem; Type: OT800; Serial: 354797030000018901
Communication System: PCS 850; Frequency: 836.6 MHz; Duty Cycle: 1:8
Medium: HSL850 Medium parameters used: f = 836.6 MHz; σ = 0.88 mho/m; ε_r = 41.5; ρ = 1000 kg/m^3
Phantom section: Right Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1559; ConvF(6.06, 6.06, 6.06); Calibrated: 2009-01-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 2009-01-08
- 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 (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.453 mW/g

Tilt position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 23.3 V/m; Power Drift = -0.043 dB
Peak SAR (extrapolated) = 0.527 W/kg
SAR(1 g) = 0.418 mW/g; SAR(10 g) = 0.310 mW/g
Maximum value of SAR (measured) = 0.441 mW/g



0 dB = 0.441mW/g

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

Date/Time: 2009-09-17 13:26:15Date/Time: 2009-09-17 13:33:12

IEEE1528_OET65-RightHandSide-GSM850

DUT: Sagem; Type: OT800; Serial: 354797030000018901

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

Medium: HSL850 Medium parameters used: f = 824.2 MHz; σ = 0.88 mho/m; ε_r = 41.5; ρ = 1000 kg/m^3

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1559; ConvF(6.06, 6.06, 6.06); Calibrated: 2009-01-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 2009-01-08
- 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 (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.970 mW/g

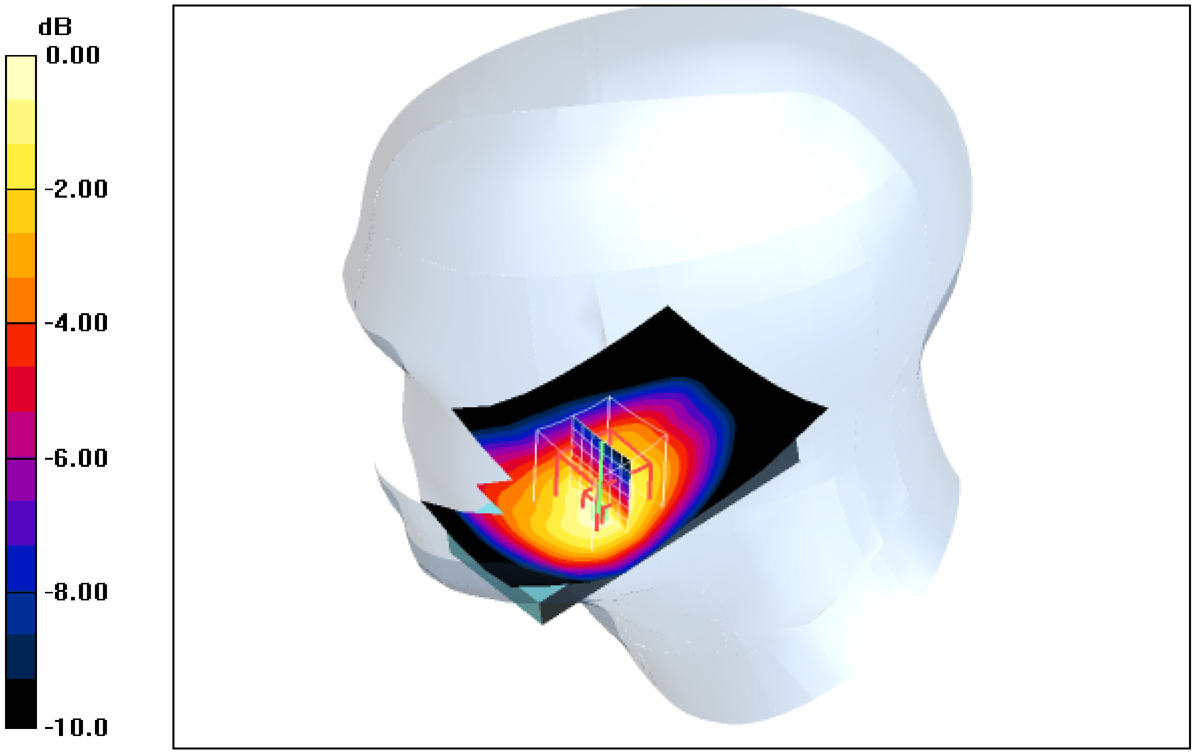
Touch position - Low/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 34.4 V/m; Power Drift = -0.013 dB

Peak SAR (extrapolated) = 1.39 W/kg

SAR(1 g) = 0.921 mW/g; SAR(10 g) = 0.618 mW/g

Maximum value of SAR (measured) = 0.988 mW/g



0 dB = 0.988mW/g

Additional information:

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

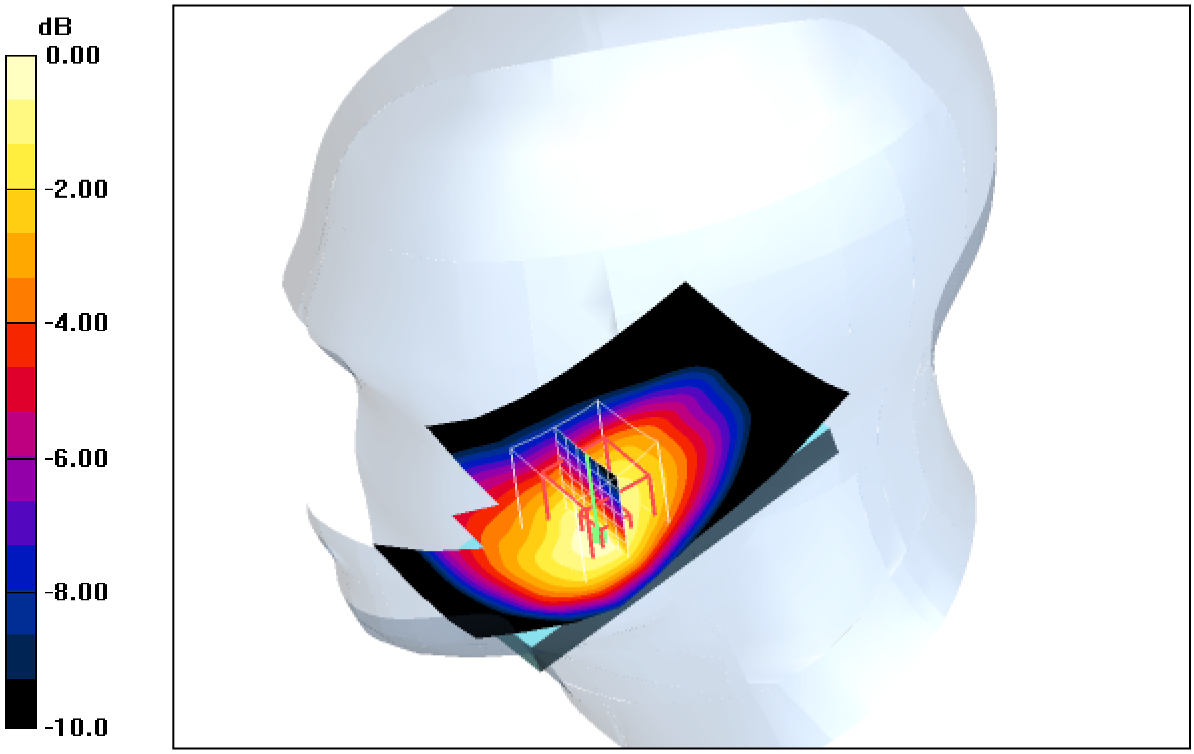
Date/Time: 2009-09-17 13:47:29Date/Time: 2009-09-17 13:54:27

IEEE1528_OET65-RightHandSide-GSM850

DUT: Sagem; Type: OT800; Serial: 354797030000018901
Communication System: PCS 850; Frequency: 848.8 MHz; Duty Cycle: 1:8
Medium: HSL850 Medium parameters used: f = 848.8 MHz; σ = 0.88 mho/m; ε_r = 41.5; ρ = 1000 kg/m^3
Phantom section: Right Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1559; ConvF(6.06, 6.06, 6.06); Calibrated: 2009-01-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 2009-01-08
- 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 (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.03 mW/g

Touch position - High/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 35.1 V/m; Power Drift = -0.036 dB
Peak SAR (extrapolated) = 1.43 W/kg
SAR(1 g) = 0.951 mW/g; SAR(10 g) = 0.633 mW/g
Maximum value of SAR (measured) = 1.02 mW/g



0 dB = 1.02mW/g

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

Annex 2.2 PCS 850MHz body

Date/Time: 2009-09-17 09:10:54Date/Time: 2009-09-17 09:18:10

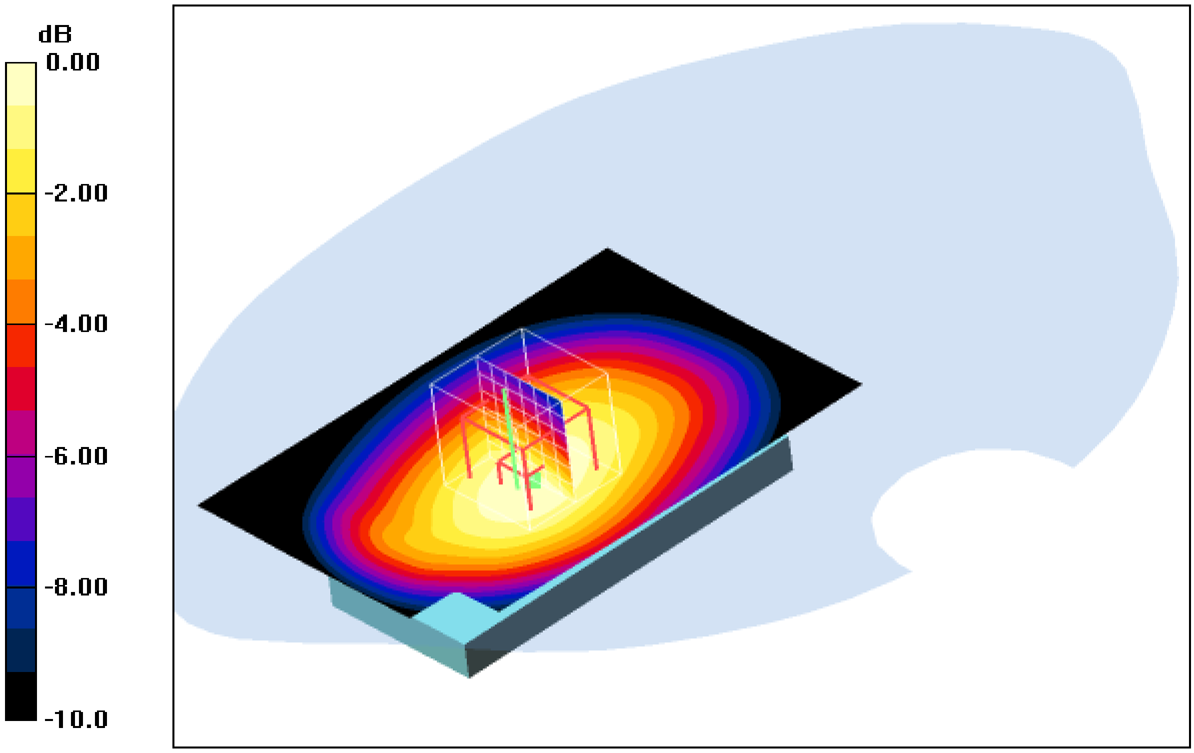
IEEE1528_OET65-Body-GSM850 GPRS 2TS

DUT: Sagem; Type: OT800; Serial: 354797030000189 01

Communication System: PCS 850 GPRS 2TS; Frequency: 836.6 MHz; Duty Cycle: 1:4
Medium: M850 Medium parameters used: f = 836.6 MHz; $\sigma = 0.97$ mho/m; $\varepsilon_r = 54.9$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1559; ConvF(5.99, 5.99, 5.99); Calibrated: 2009-01-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 2009-01-08
- 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 (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.814 mW/g

Front position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 29.6 V/m; Power Drift = 0.023 dB
Peak SAR (extrapolated) = 0.982 W/kg
SAR(1 g) = 0.768 mW/g; SAR(10 g) = 0.561 mW/g
Maximum value of SAR (measured) = 0.813 mW/g



0 dB = 0.813mW/g

Additional information:
position or distance of DUT to SAM: 15 mm
ambient temperature: 23.5°C; liquid temperature: 23.0°C

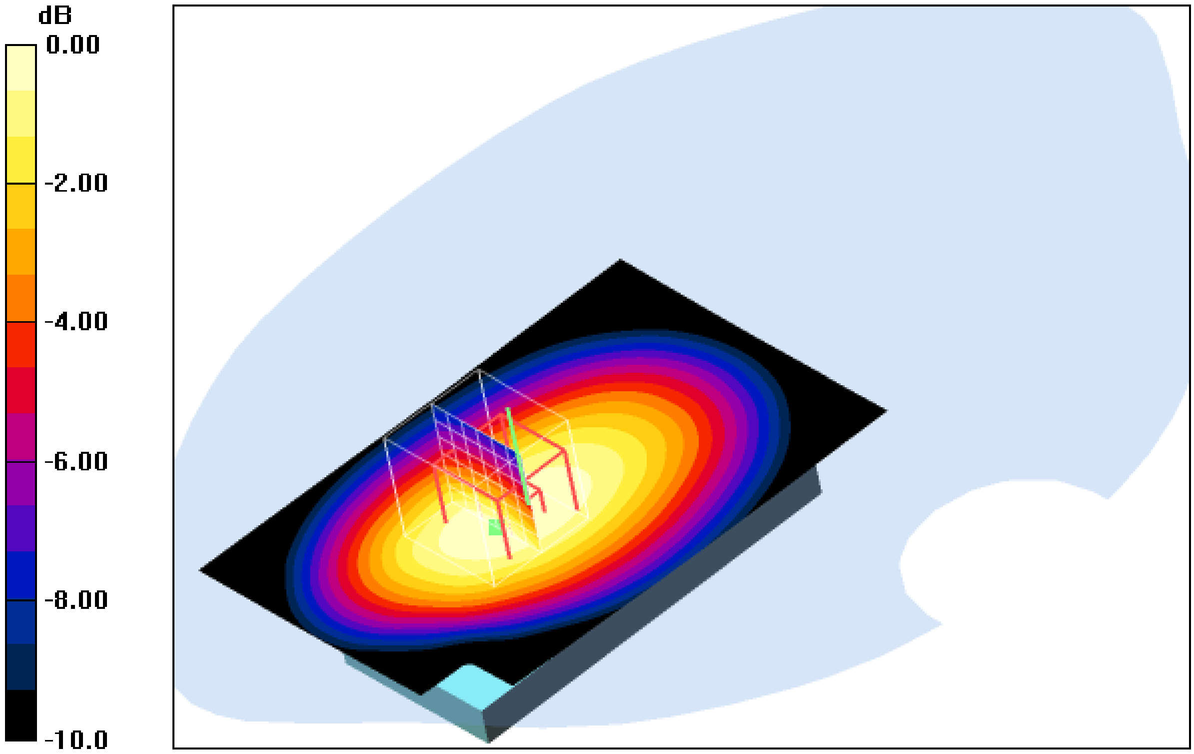
Date/Time: 2009-09-17 09:33:40Date/Time: 2009-09-17 09:40:41

IEEE1528_OET65-Body-GSM850 GPRS 2TS

DUT: Sagem; Type: OT800; Serial: 35479703000018901
Communication System: PCS 850 GPRS 2TS; Frequency: 836.6 MHz; Duty Cycle: 1:4
Medium: M850 Medium parameters used: f = 836.6 MHz; σ = 0.97 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1559; ConvF(5.99, 5.99, 5.99); Calibrated: 2009-01-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 2009-01-08
- 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 (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.832 mW/g

Rear position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 30.3 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 1.00 W/kg
SAR(1 g) = 0.784 mW/g; SAR(10 g) = 0.568 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: 15 mm
ambient temperature: 23.5°C; liquid temperature: 23.0°C

Annex 2.3 PCS 1900 MHz head

Date/Time: 2009-09-16 15:05:55Date/Time: 2009-09-16 15:13:07

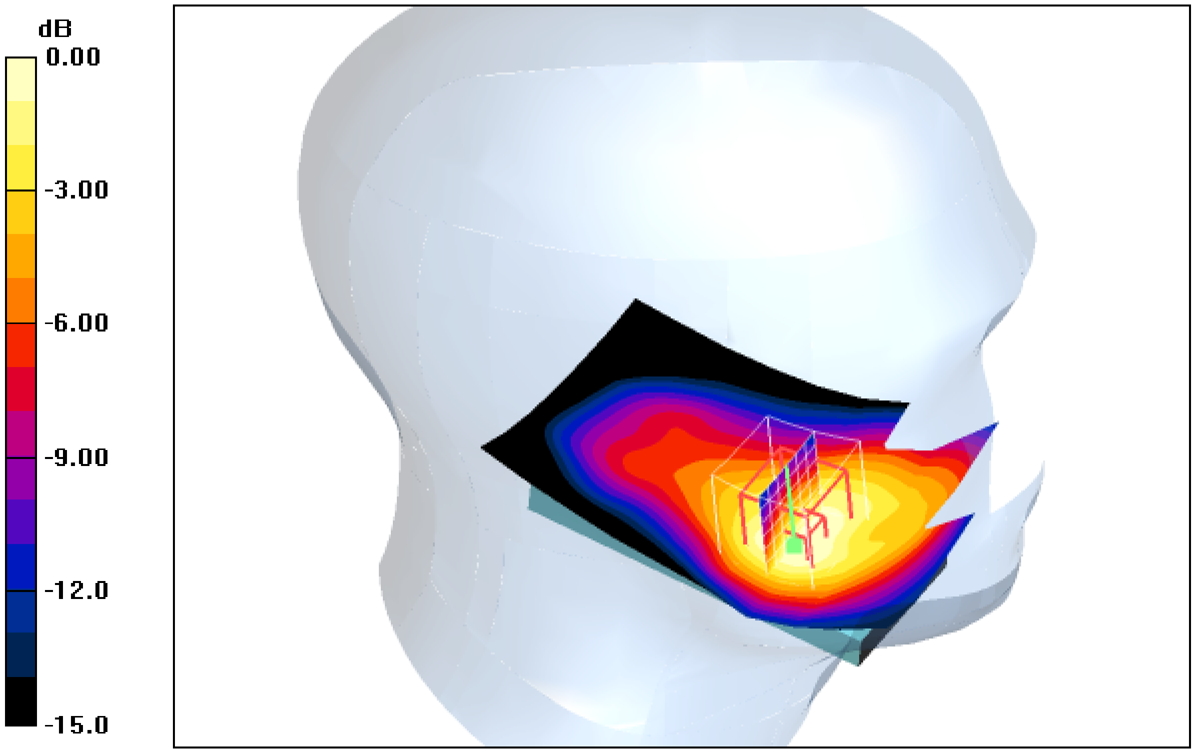
IEEE1528-LeftHandSide-GSM1900

DUT: Sagem; Type: OT800; Serial: 354797030000018901

Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:8
Medium: HSL1900 Medium parameters used: f = 1880 MHz; $\sigma = 1.37$ mho/m; $\varepsilon_r = 39.3$; $\rho = 1000$ kg/m^3
Phantom section: Left Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1559; ConvF(4.99, 4.99, 4.99); Calibrated: 2009-01-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 2009-01-08
- 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 (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.763 mW/g

Touch position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 23.1 V/m; Power Drift = -0.071 dB
Peak SAR (extrapolated) = 0.912 W/kg
SAR(1 g) = 0.671 mW/g; SAR(10 g) = 0.436 mW/g
Maximum value of SAR (measured) = 0.721 mW/g



0 dB = 0.721mW/g

Additional information:
ambient temperature: 23.8°C; liquid temperature: 21.8°C

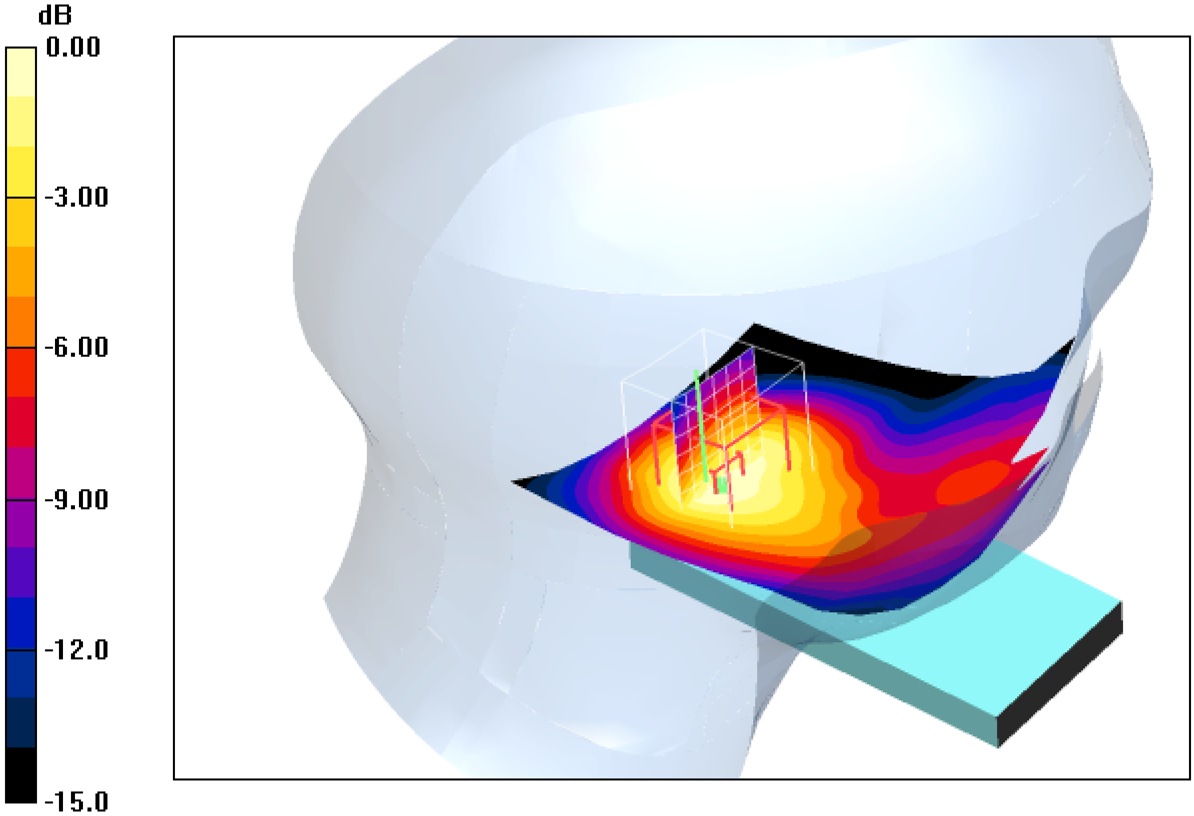
Date/Time: 2009-09-16 14:45:35Date/Time: 2009-09-16 14:52:45

IEEE1528-LeftHandSide-GSM1900

DUT: Sagem; Type: OT800; Serial: 354797030000189O1
Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:8
Medium: HSL1900 Medium parameters used: f = 1880 MHz; σ = 1.37 mho/m; ε_r = 39.3; ρ = 1000 kg/m^3
Phantom section: Left Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1559; ConvF(4.99, 4.99, 4.99); Calibrated: 2009-01-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 2009-01-08
- 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 (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.289 mW/g

Tilt position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.6 V/m; Power Drift = -0.083 dB
Peak SAR (extrapolated) = 0.362 W/kg
SAR(1 g) = 0.247 mW/g; SAR(10 g) = 0.156 mW/g
Maximum value of SAR (measured) = 0.268 mW/g



0 dB = 0.268mW/g

Additional information:
ambient temperature: 23.8°C; liquid temperature: 21.8°C

Date/Time: 2009-09-16 13:57:57Date/Time: 2009-09-16 14:04:51

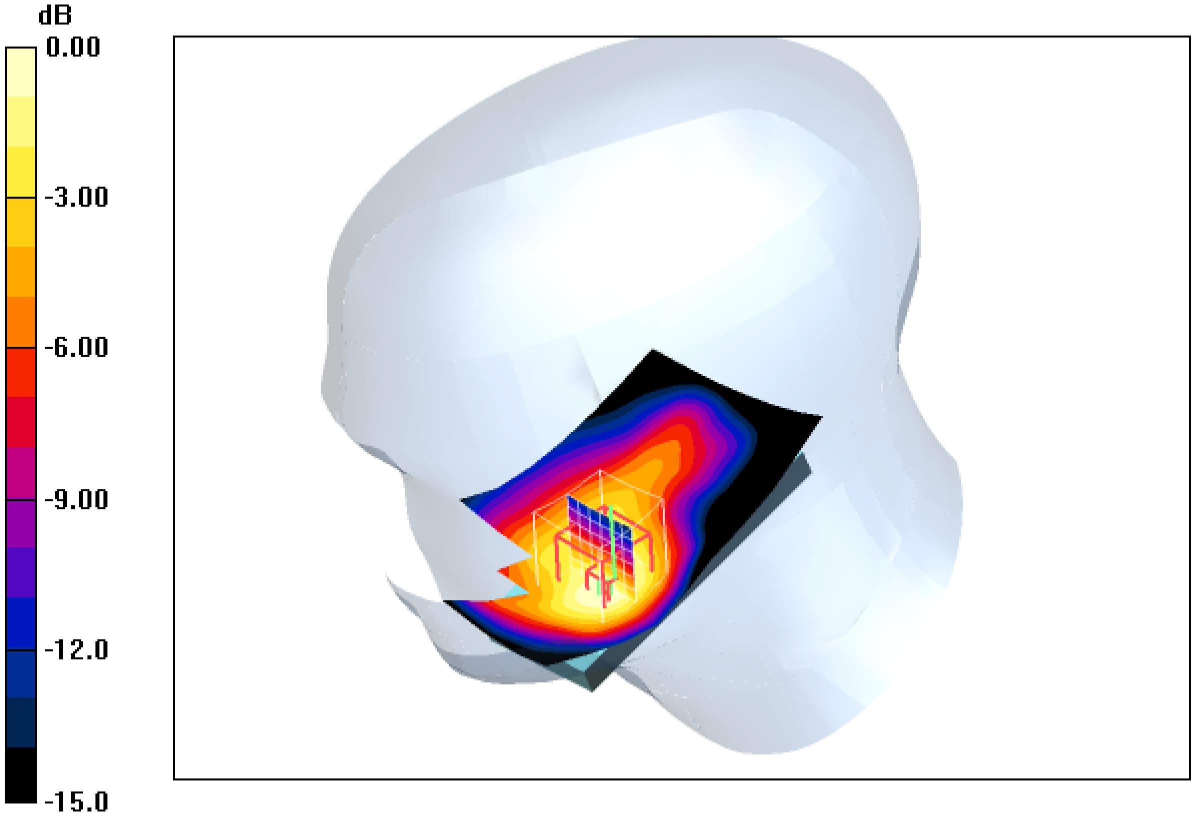
IEEE1528-RightHandSide-GSM1900

DUT: Sagem; Type: OT800; Serial: 354797030000018901

Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:8
Medium: HSL1900 Medium parameters used: f = 1880 MHz; σ = 1.37 mho/m; ε_r = 39.3; ρ = 1000 kg/m^3
Phantom section: Right Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1559; ConvF(4.99, 4.99, 4.99); Calibrated: 2009-01-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 2009-01-08
- 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 (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.821 mW/g

Touch position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 25.2 V/m; Power Drift = 0.036 dB
Peak SAR (extrapolated) = 1.16 W/kg
SAR(1 g) = 0.724 mW/g; SAR(10 g) = 0.422 mW/g
Maximum value of SAR (measured) = 0.788 mW/g



0 dB = 0.788mW/g

Additional information:
ambient temperature: 23.8°C; liquid temperature: 21.8°C

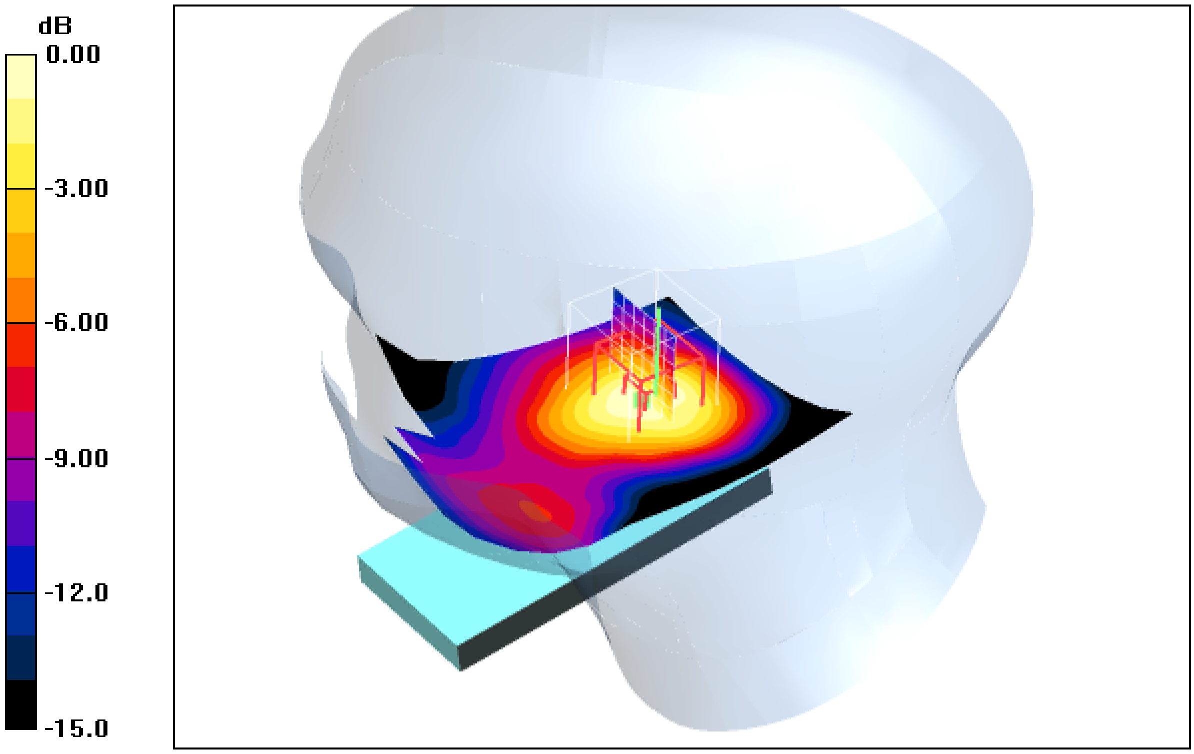
Date/Time: 2009-09-16 14:22:37Date/Time: 2009-09-16 14:29:36

IEEE1528-RightHandSide-GSM1900

DUT: Sagem; Type: OT800; Serial: 354797030000018901
Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:8
Medium: HSL1900 Medium parameters used: f = 1880 MHz; σ = 1.37 mho/m; ε_r = 39.3; ρ = 1000 kg/m^3
Phantom section: Right Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1559; ConvF(4.99, 4.99, 4.99); Calibrated: 2009-01-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 2009-01-08
- 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 (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.379 mW/g

Tilt position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 16.4 V/m; Power Drift = -0.142 dB
Peak SAR (extrapolated) = 0.482 W/kg
SAR(1 g) = 0.314 mW/g; SAR(10 g) = 0.191 mW/g
Maximum value of SAR (measured) = 0.346 mW/g



0 dB = 0.346mW/g

Additional information:
ambient temperature: 23.8°C; liquid temperature: 21.8°C

Annex 2.4 PCS 1900 MHz body

Date/Time: 2009-09-16 12:04:55Date/Time: 2009-09-16 12:12:12

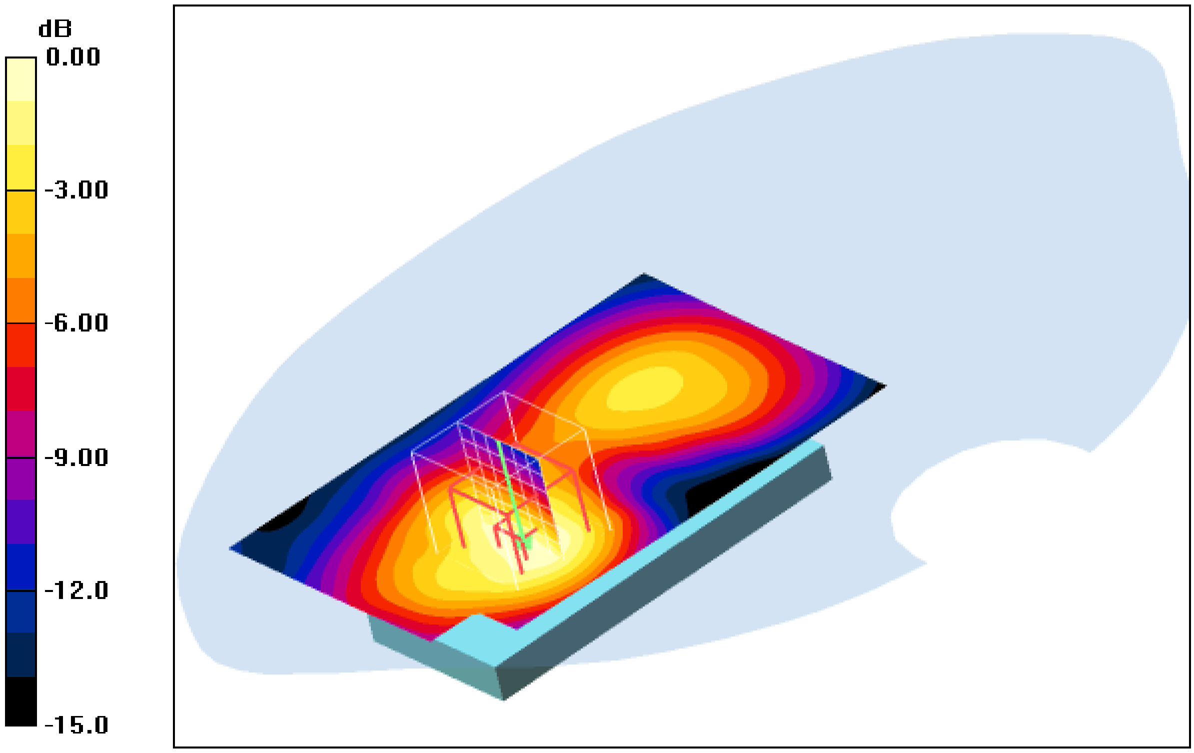
IEEE1528_OET65-Body-GSM1900 GPRS 2TS

DUT: Sagem; Type: OT800; Serial: 354797030000018901

Communication System: PCS 1900 GPRS 2TS; Frequency: 1880 MHz; Duty Cycle: 1:4
Medium: M1900 Medium parameters used: f = 1880 MHz; σ = 1.52 mho/m; ε_r = 52.6; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1559; ConvF(4.44, 4.44, 4.44); Calibrated: 2009-01-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 2009-01-08
- 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 (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.382 mW/g

Front position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 16.8 V/m; Power Drift = -0.086 dB
Peak SAR (extrapolated) = 0.514 W/kg
SAR(1 g) = 0.343 mW/g; SAR(10 g) = 0.210 mW/g
Maximum value of SAR (measured) = 0.377 mW/g



0 dB = 0.377mW/g

Additional information:
position or distance of DUT to SAM: 15 mm
ambient temperature: 23.3°C; liquid temperature: 22.0°C

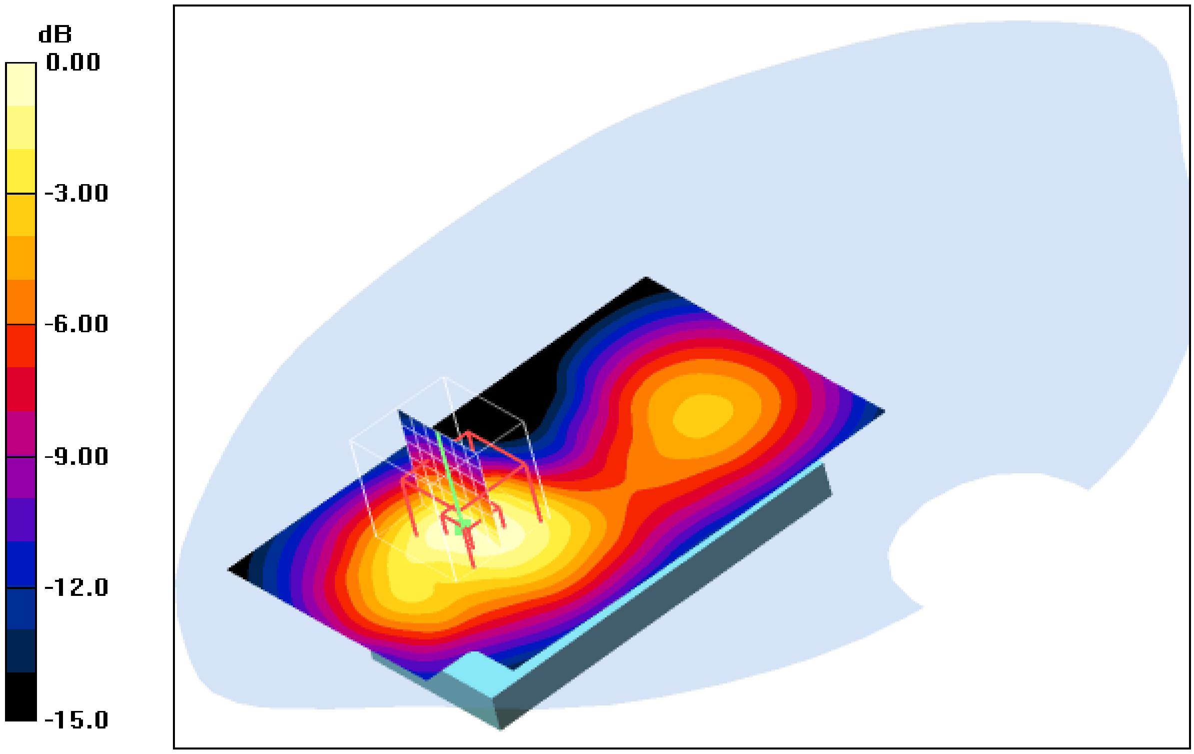
Date/Time: 2009-09-16 12:26:52Date/Time: 2009-09-16 12:33:56

P1528_OET65-Body-GSM1900 GPRS 2TS

DUT: Sagem; Type: OT800; Serial: 354797030000018901
Communication System: PCS 1900 GPRS 2TS; Frequency: 1880 MHz; Duty Cycle: 1:4
Medium: M1900 Medium parameters used: f = 1880 MHz; $\sigma = 1.52$ mho/m; $\varepsilon_r = 52.6$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1559; ConvF(4.44, 4.44, 4.44); Calibrated: 2009-01-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 2009-01-08
- 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 (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.440 mW/g

Rear position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 17.5 V/m; Power Drift = 0.018 dB
Peak SAR (extrapolated) = 0.589 W/kg
SAR(1 g) = 0.388 mW/g; SAR(10 g) = 0.229 mW/g
Maximum value of SAR (measured) = 0.425 mW/g



0 dB = 0.425mW/g

Additional information:
position or distance of DUT to SAM: 15 mm
ambient temperature: 23.3°C; liquid temperature: 22.0°C

Annex 2.5 WLAN 2450 MHz head

Date/Time: 2009-09-18 11:55:04Date/Time: 2009-09-18 12:01:26

IEEE1528_OET65_EN62209-LeftHandSide-WLAN

DUT: Sagem; Type: OT800; Serial: 35479703000018901

Communication System: WLAN 2450 US; Frequency: 2437 MHz; Duty Cycle: 1:1

Medium: HSL2450 Medium parameters used (interpolated): f = 2437 MHz; σ = 1.84 mho/m; ε_r = 39.5; ρ = 1000 kg/m^3

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1559; ConvF(4.45, 4.45, 4.45); Calibrated: 2009-01-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 2009-01-08
- 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 (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.194 mW/g

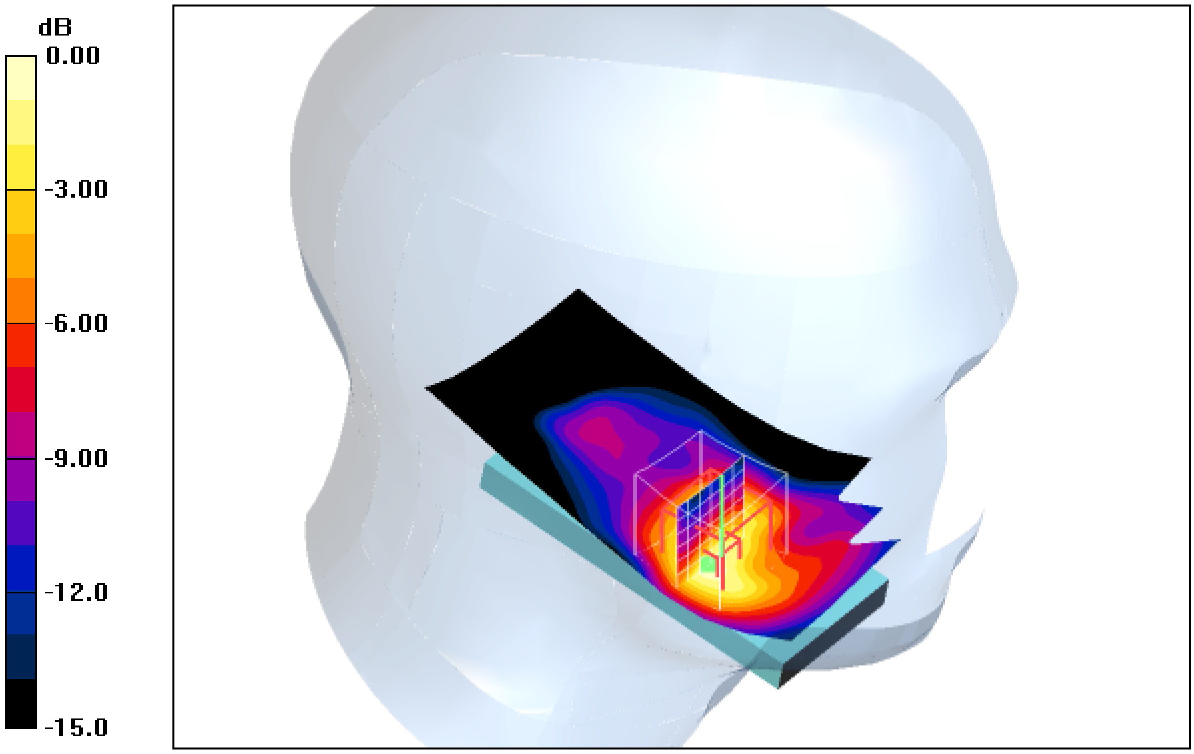
Touch position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.88 V/m; Power Drift = 0.146 dB

Peak SAR (extrapolated) = 0.311 W/kg

SAR(1 g) = 0.183 mW/g; SAR(10 g) = 0.096 mW/g

Maximum value of SAR (measured) = 0.207 mW/g



0 dB = 0.207mW/g

Additional information:

ambient temperature: 23.2°C; liquid temperature: 22.7°C

Date/Time: 2009-09-18 11:11:45Date/Time: 2009-09-18 11:40:34

IEEE1528_OET65_EN62209-LeftHandSide-WLAN

DUT: Sagem; Type: OT800; Serial: 354797030000018901

Communication System: WLAN 2450 US; Frequency: 2437 MHz; Duty Cycle: 1:1

Medium: HSL2450 Medium parameters used (interpolated): f = 2437 MHz; σ = 1.84 mho/m; ε_r = 39.5; ρ = 1000 kg/m^3

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1559; ConvF(4.45, 4.45, 4.45); Calibrated: 2009-01-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 2009-01-08
- 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 (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.066 mW/g

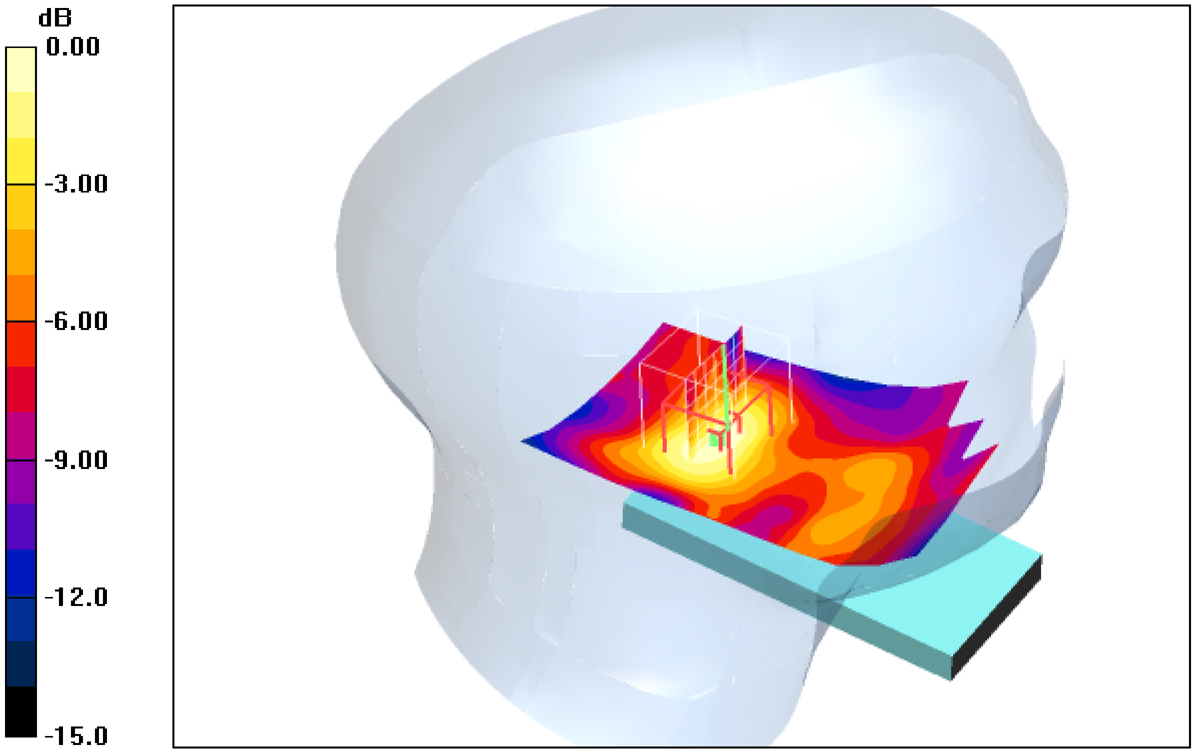
Tilt position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.52 V/m; Power Drift = -0.137 dB

Peak SAR (extrapolated) = 0.105 W/kg

SAR(1 g) = 0.062 mW/g; SAR(10 g) = 0.037 mW/g

Maximum value of SAR (measured) = 0.066 mW/g



0 dB = 0.066mW/g

Additional information:

ambient temperature: 23.2°C; liquid temperature: 22.7°C

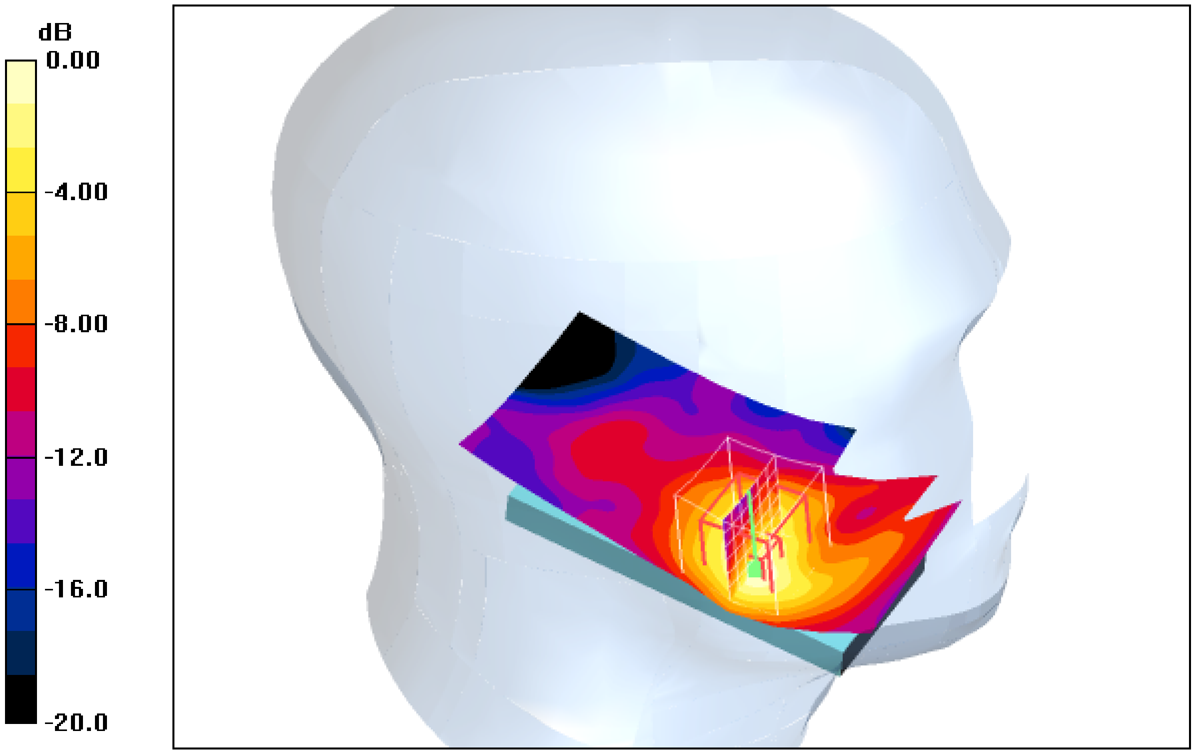
Date/Time: 2009-09-18 14:05:56Date/Time: 2009-09-18 14:12:22

IEEE1528_OET65_EN62209-LeftHandSide-WLAN

DUT: Sagem; Type: OT800; Serial: 354797030000018901
Communication System: WLAN 2450 US; Frequency: 2437 MHz; Duty Cycle: 1:1
Medium: HSL2450 Medium parameters used (interpolated): f = 2437 MHz; σ = 1.84 mho/m; ε_r = 39.5; ρ = 1000 kg/m^3
Phantom section: Left Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1559; ConvF(4.45, 4.45, 4.45); Calibrated: 2009-01-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 2009-01-08
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

Touch position - Middle 802.11g/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.129 mW/g

Touch position - Middle 802.11g/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.24 V/m; Power Drift = -0.143 dB
Peak SAR (extrapolated) = 0.228 W/kg
SAR(1 g) = 0.124 mW/g; SAR(10 g) = 0.064 mW/g
Maximum value of SAR (measured) = 0.141 mW/g



0 dB = 0.141mW/g

Additional information:
ambient temperature: 23.2°C; liquid temperature: 22.7°C

Date/Time: 2009-09-18 10:26:39Date/Time: 2009-09-18 10:34:43

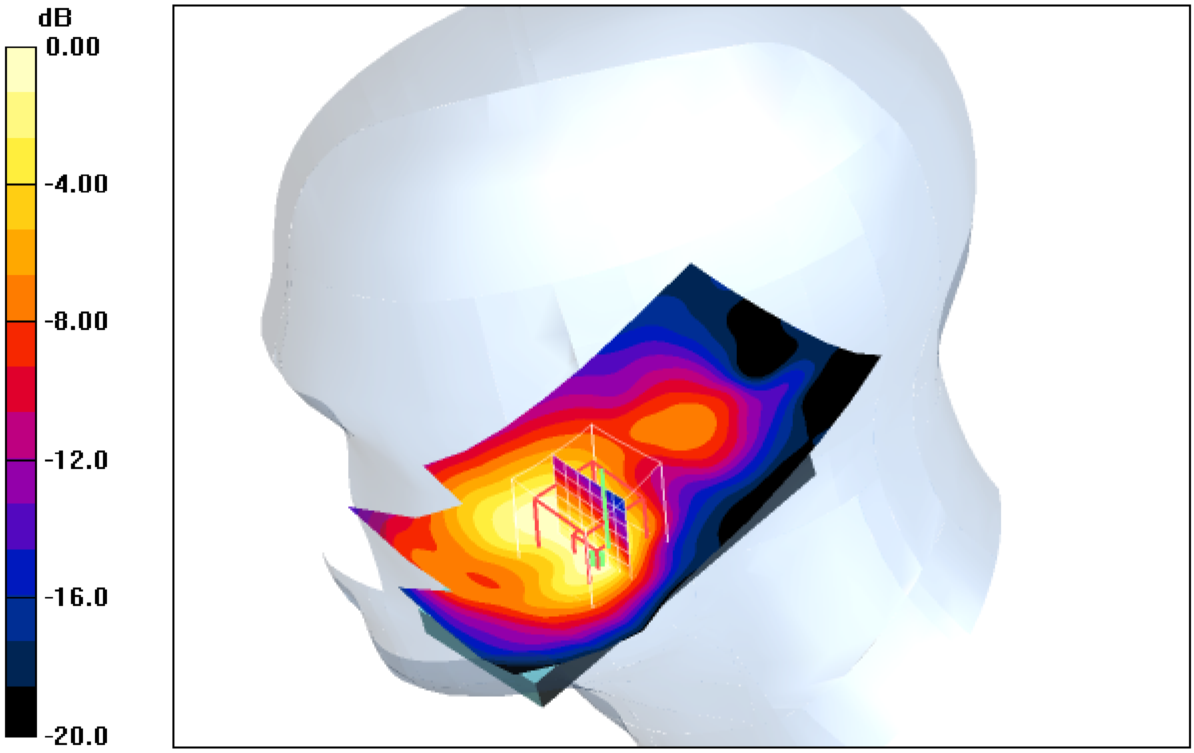
IEEE1528_OET65_EN62209-RightHandSide-WLAN

DUT: Sagem; Type: OT800; Serial: 354797030000018901

Communication System: WLAN 2450 US; Frequency: 2437 MHz; Duty Cycle: 1:1
Medium: HSL2450 Medium parameters used (interpolated): f = 2437 MHz; σ = 1.84 mho/m; ε_r = 39.5; ρ = 1000 kg/m^3
Phantom section: Right Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1559; ConvF(4.45, 4.45, 4.45); Calibrated: 2009-01-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 2009-01-08
- 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 (61x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.158 mW/g

Touch position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.16 V/m; Power Drift = -0.055 dB
Peak SAR (extrapolated) = 0.205 W/kg
SAR(1 g) = 0.124 mW/g; SAR(10 g) = 0.067 mW/g
Maximum value of SAR (measured) = 0.145 mW/g



0 dB = 0.145mW/g

Additional information:
ambient temperature: 23.2°C; liquid temperature: 22.7°C

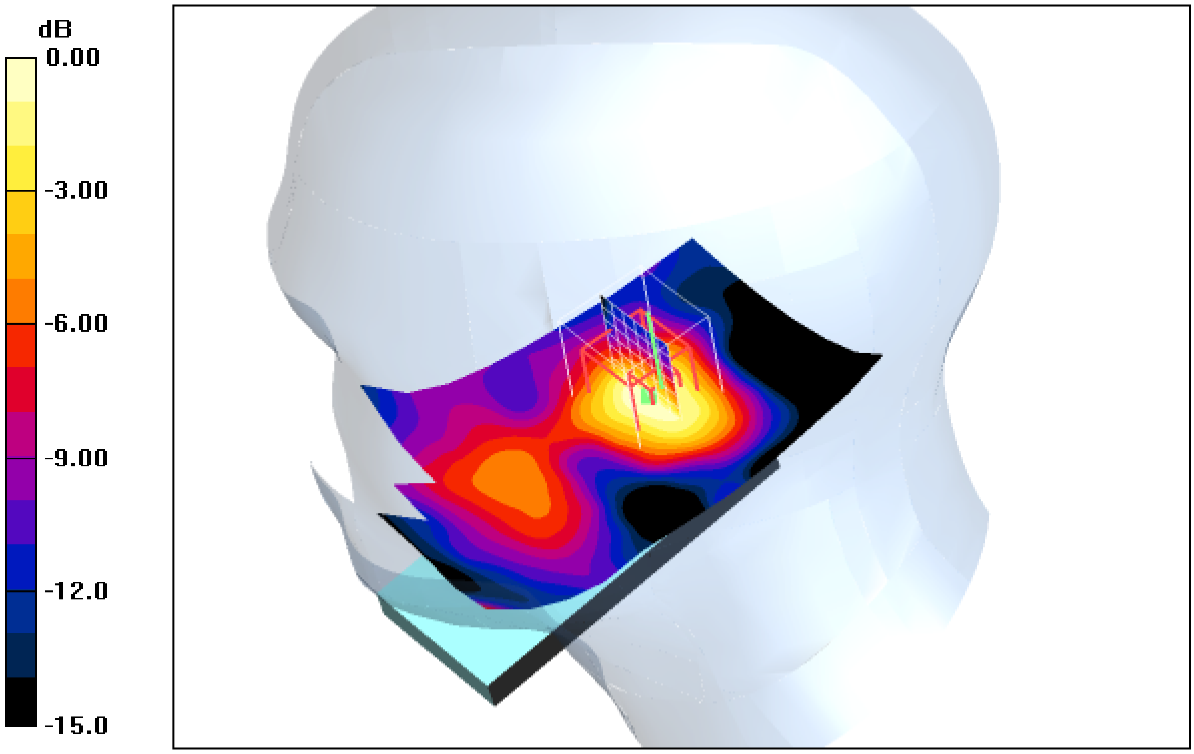
Date/Time: 2009-09-18 10:49:17Date/Time: 2009-09-18 10:57:11

IEEE1528_OET65_EN62209-RightHandSide-WLAN

DUT: Sagem; Type: OT800; Serial: 35479703000018901
Communication System: WLAN 2450 US; Frequency: 2437 MHz; Duty Cycle: 1:1
Medium: HSL2450 Medium parameters used (interpolated): f = 2437 MHz; σ = 1.84 mho/m; ε_r = 39.5; ρ = 1000 kg/m^3
Phantom section: Right Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1559; ConvF(4.45, 4.45, 4.45); Calibrated: 2009-01-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 2009-01-08
- 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 (61x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.080 mW/g

Tilt position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.33 V/m; Power Drift = -0.193 dB
Peak SAR (extrapolated) = 0.238 W/kg
SAR(1 g) = 0.065 mW/g; SAR(10 g) = 0.029 mW/g
Maximum value of SAR (measured) = 0.075 mW/g



0 dB = 0.075mW/g

Additional information:
ambient temperature: 23.2°C; liquid temperature: 22.7°C

Annex 2.6 WLAN 2450 MHz body

Date/Time: 2009-09-21 15:04:53Date/Time: 2009-09-21 15:12:04
Date/Time: 2009-09-21 15:23:40Date/Time: 2009-09-21 15:35:23

IEEE1528_OET65-Body-WLAN2450 US

DUT: Sagem; Type: OT800; Serial: 354797030000018901

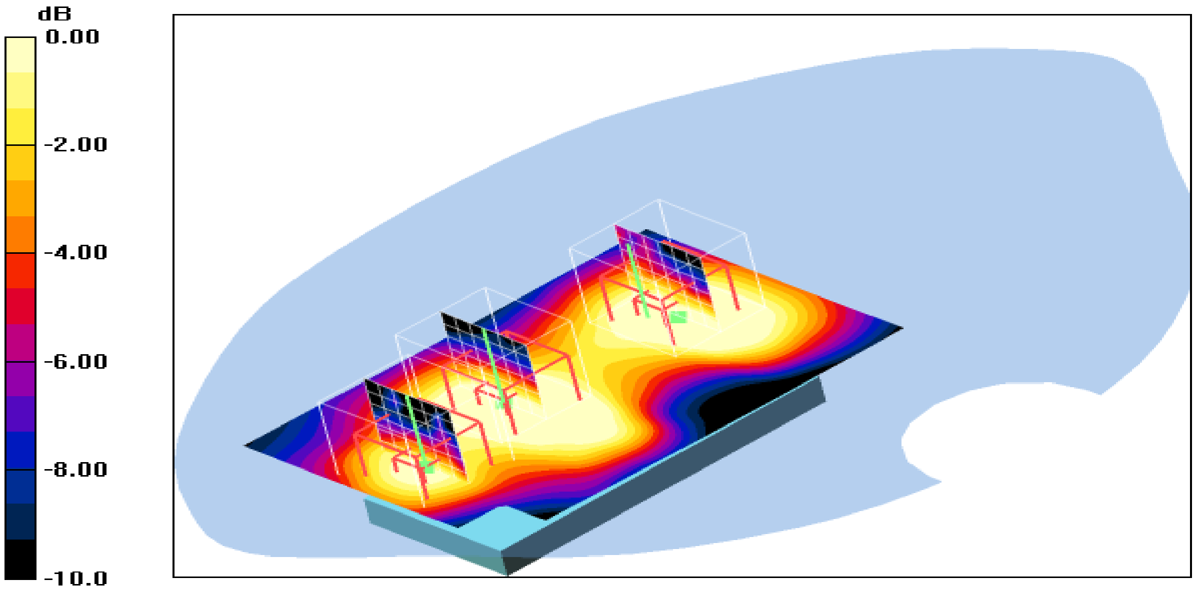
Communication System: WLAN 2450 US; Frequency: 2437 MHz; Duty Cycle: 1:1
Medium: M2450 Medium parameters used (interpolated): f = 2437 MHz; σ = 1.96 mho/m; ε_r = 52.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1559; ConvF(3.91, 3.91, 3.91); Calibrated: 2009-01-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 2009-01-08
- 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 (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.033 mW/g

Front position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.04 V/m; Power Drift = 0.076 dB
Peak SAR (extrapolated) = 0.072 W/kg
SAR(1 g) = 0.033 mW/g; SAR(10 g) = 0.019 mW/g
Maximum value of SAR (measured) = 0.035 mW/g

Front position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.04 V/m; Power Drift = 0.076 dB
Peak SAR (extrapolated) = 0.065 W/kg
SAR(1 g) = 0.032 mW/g; SAR(10 g) = 0.020 mW/g
Maximum value of SAR (measured) = 0.034 mW/g

Front position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 2: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.04 V/m; Power Drift = 0.076 dB
Peak SAR (extrapolated) = 0.036 W/kg
SAR(1 g) = 0.020 mW/g; SAR(10 g) = 0.011 mW/g
Maximum value of SAR (measured) = 0.021 mW/g



0 dB = 0.021mW/g

Additional information:
position or distance of DUT to SAM (if not standard head positions) : 15 mm
ambient temperature: 23.5°C; liquid temperature: 22.8°C

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Date/Time: 2009-09-21 13:41:07Date/Time: 2009-09-21 13:52:35

IEEE1528_OET65-Body-WLAN2450 US

DUT: Sagem; Type: OT800; Serial: 354797030000189O1

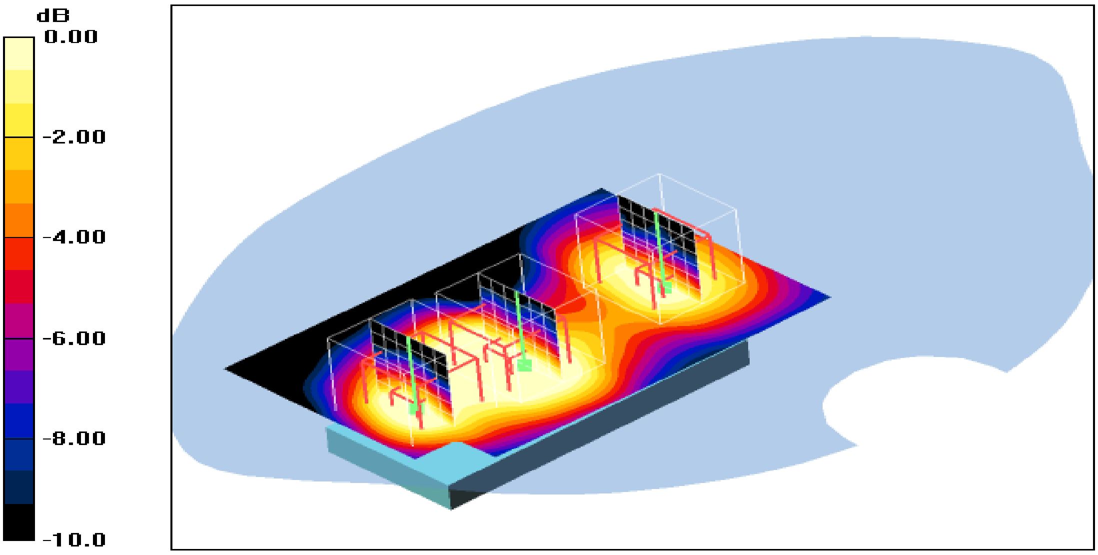
Communication System: WLAN 2450 US; Frequency: 2437 MHz; Duty Cycle: 1:1
Medium: M2450 Medium parameters used (interpolated): f = 2437 MHz; σ = 1.96 mho/m; ε_r = 52.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1559; ConvF(3.91, 3.91, 3.91); Calibrated: 2009-01-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 2009-01-08
- 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 (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.036 mW/g

Rear position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.23 V/m; Power Drift = -0.162 dB
Peak SAR (extrapolated) = 0.062 W/kg
SAR(1 g) = 0.033 mW/g; SAR(10 g) = 0.019 mW/g
Maximum value of SAR (measured) = 0.036 mW/g

Rear position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.23 V/m; Power Drift = -0.162 dB
Peak SAR (extrapolated) = 0.070 W/kg
SAR(1 g) = 0.032 mW/g; SAR(10 g) = 0.016 mW/g
Maximum value of SAR (measured) = 0.035 mW/g

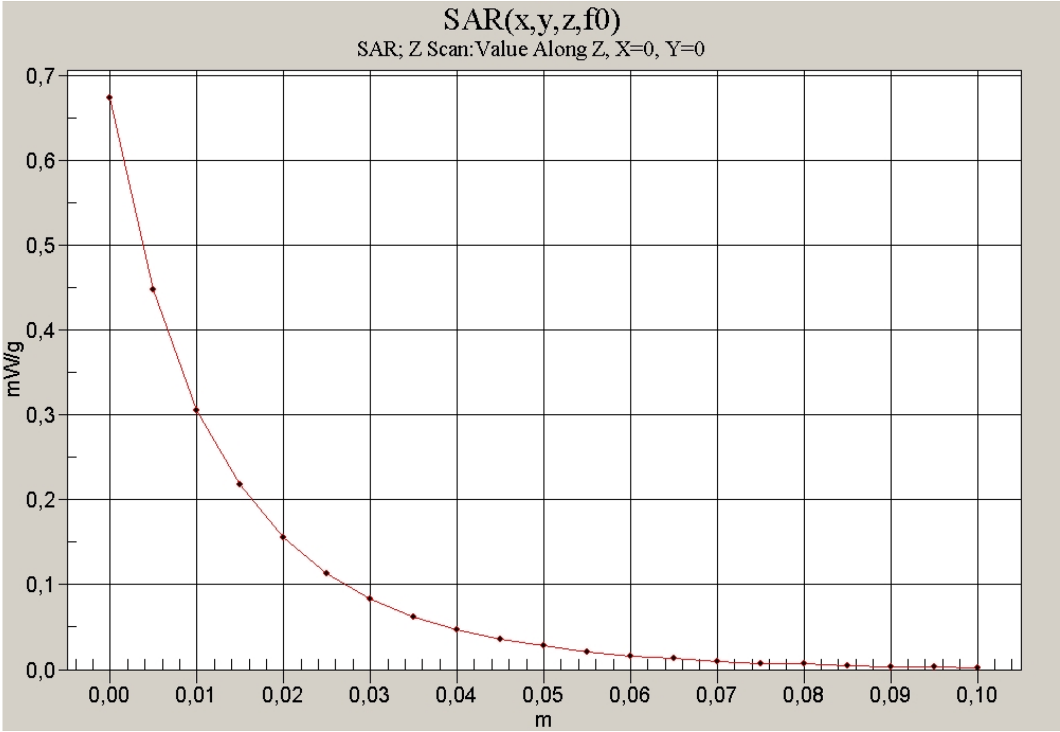
Rear position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 2: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.23 V/m; Power Drift = -0.162 dB
Peak SAR (extrapolated) = 0.047 W/kg
SAR(1 g) = 0.022 mW/g; SAR(10 g) = 0.013 mW/g
Maximum value of SAR (measured) = 0.024 mW/g



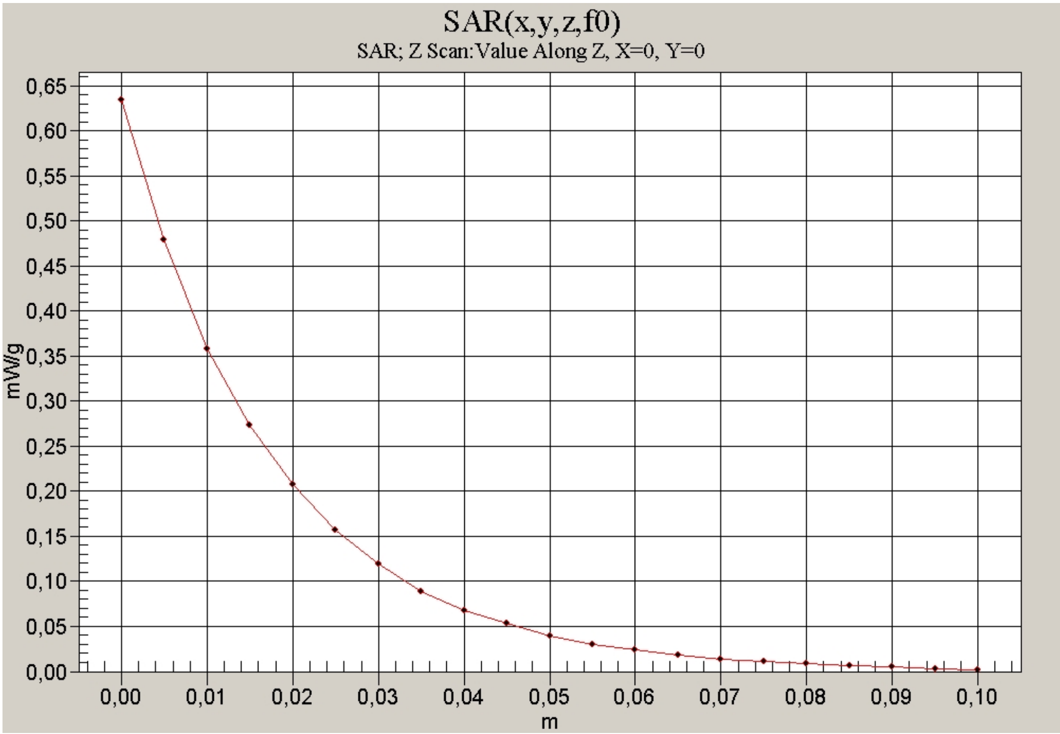
0 dB = 0.024mW/g

Additional information:
position or distance of DUT to SAM (if not standard head positions) : 15 mm
ambient temperature: 23.5°C; liquid temperature: 22.8°C

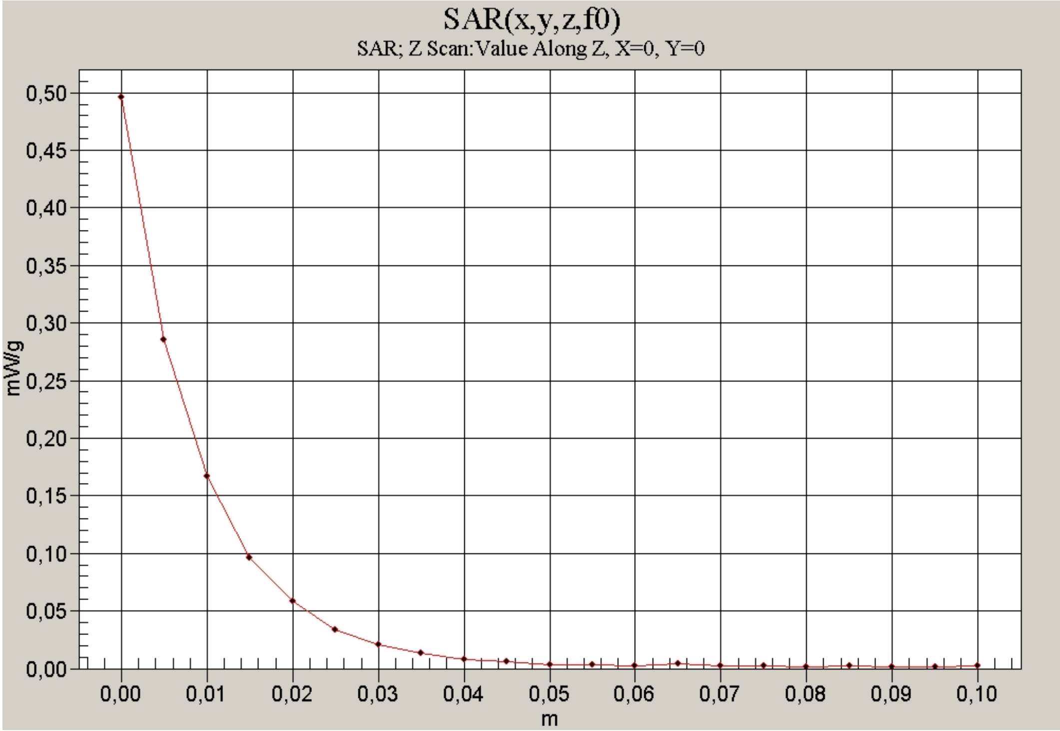
Annex 2.7 Z-axis scans



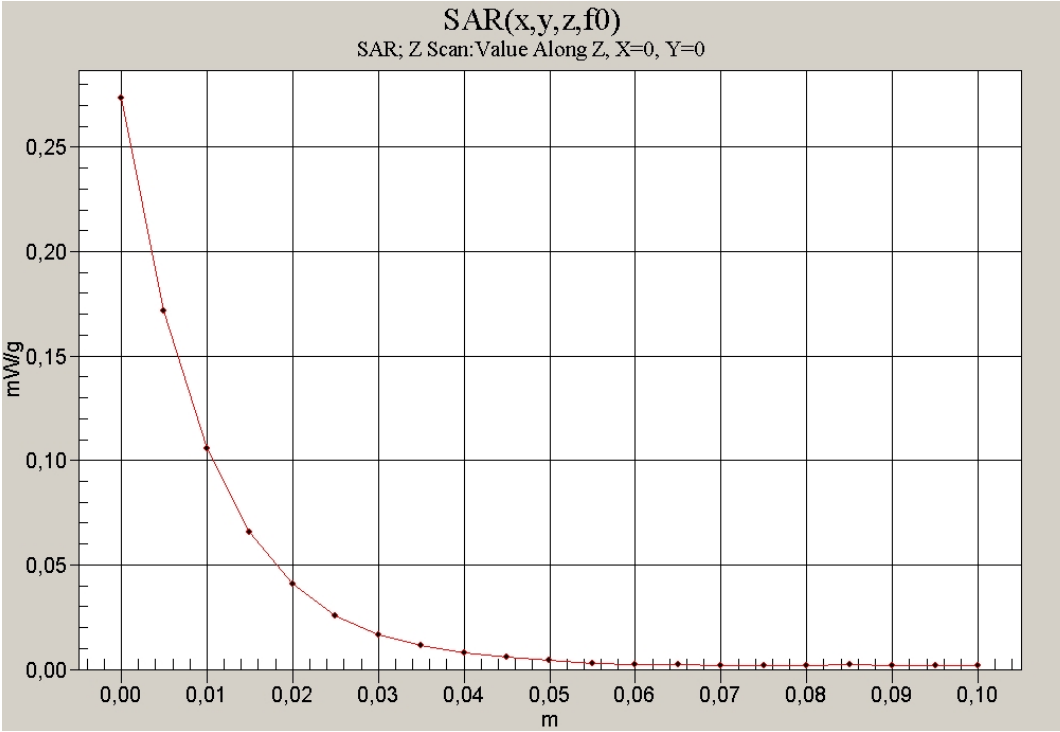
850 head



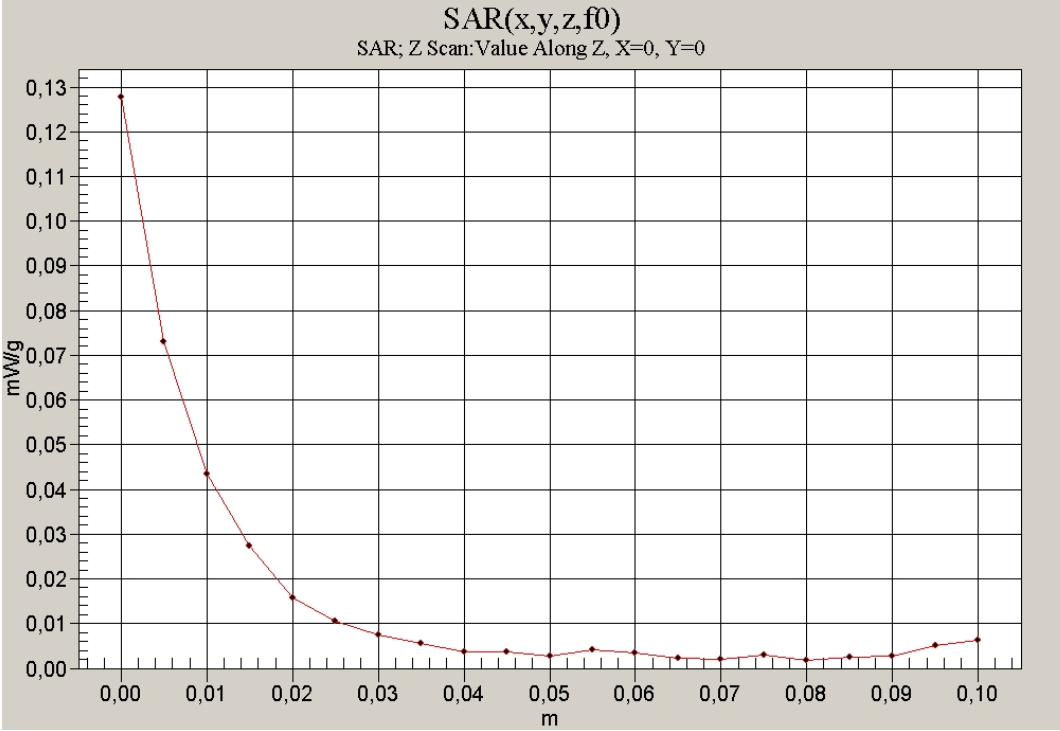
850 body



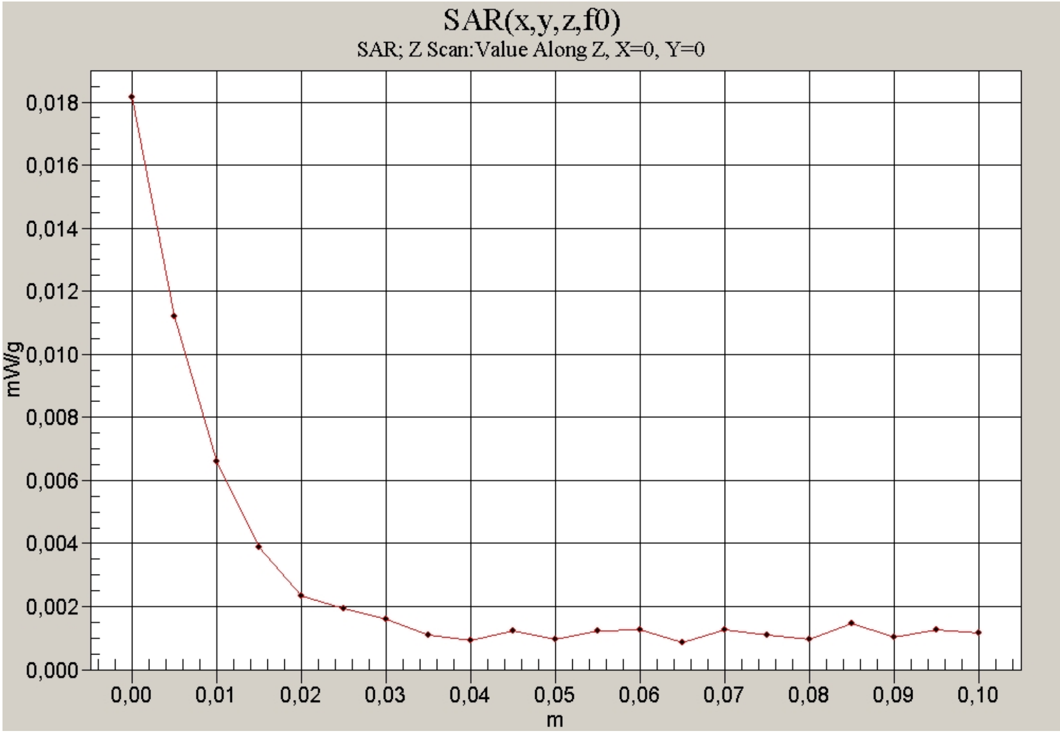
1900 head



1900 body



2450 head



2450 body

Annex 3 Photo documentation

Photo 1: Measurement System DASY 4

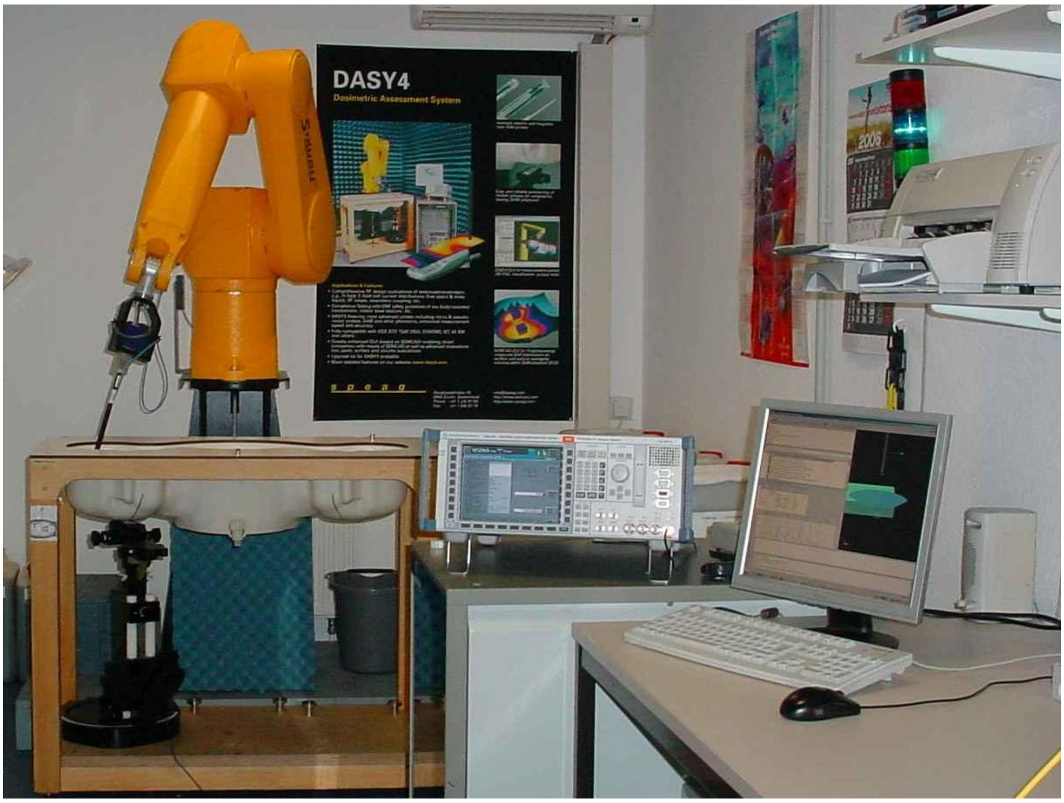


Photo 2: DUT - front view

Photo 3: DUT - side view

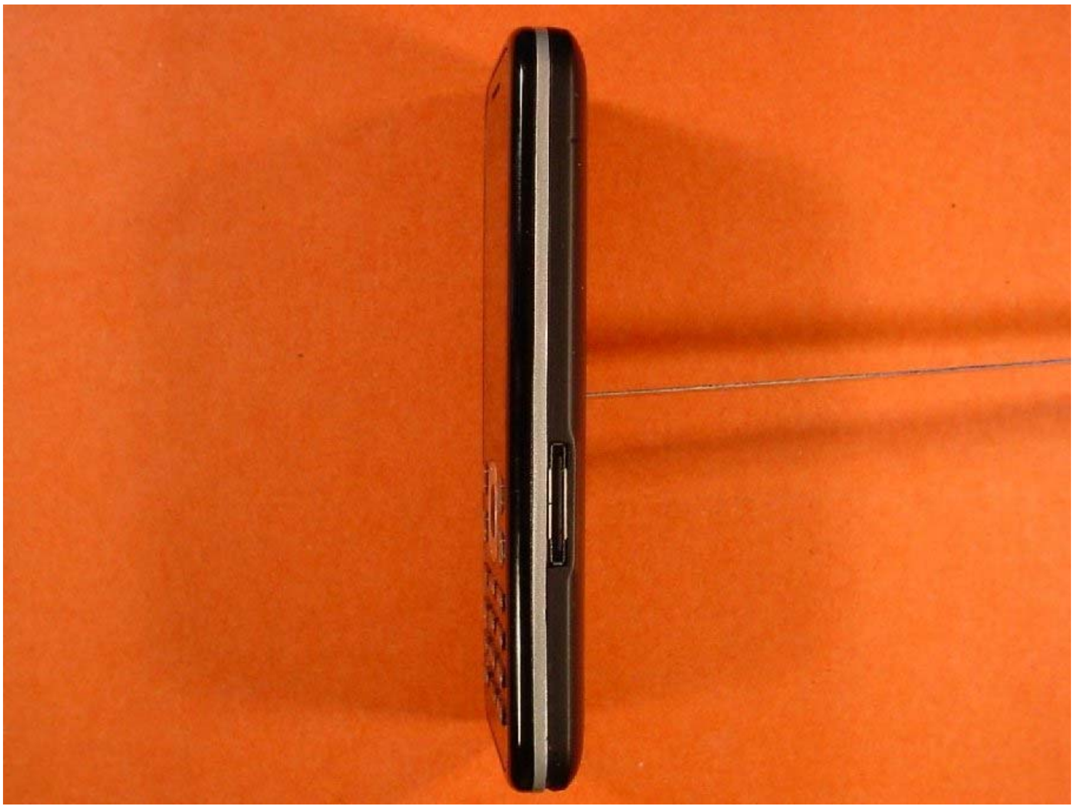


Photo 4: DUT - rear view

Photo 5: DUT - rear view (open)

Photo 6: DUT - rear view (open) without battery

Photo 7: DUT - rear view (label)

Photo 8: The battery

Photo 9: Test position left hand touched

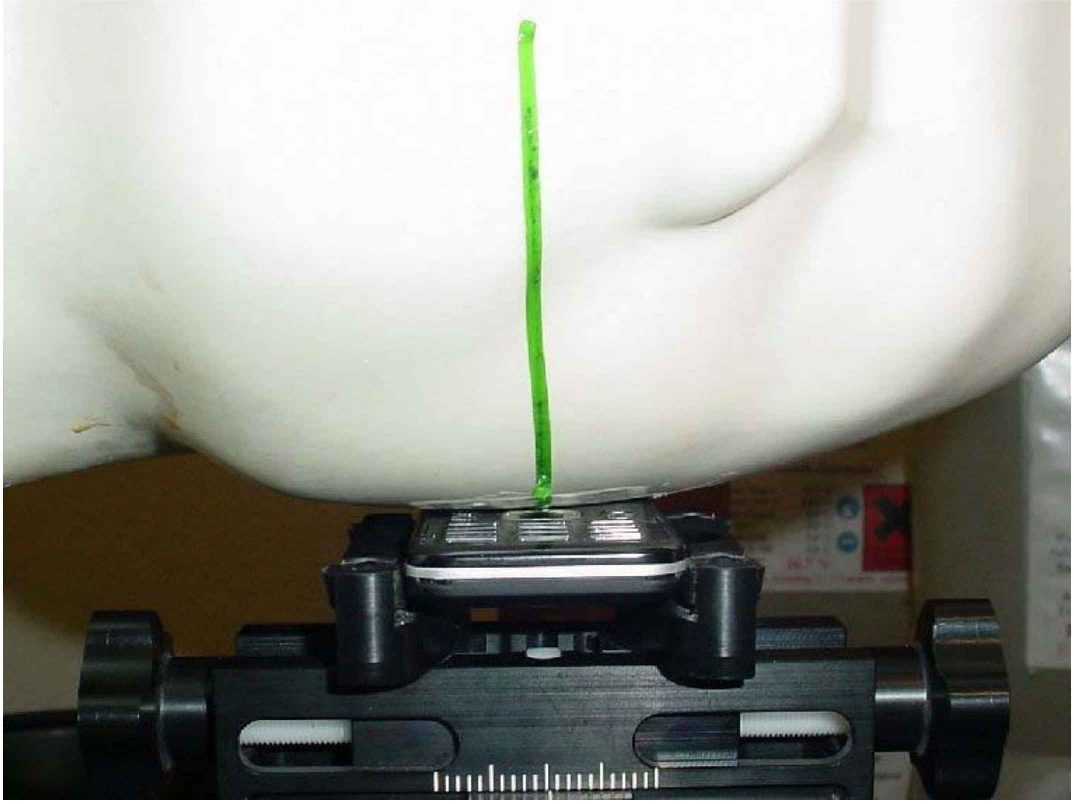


Photo 10: Test position left hand touched

Photo 11: Test position left hand touched

Photo 12: Test position left hand tilted 15°

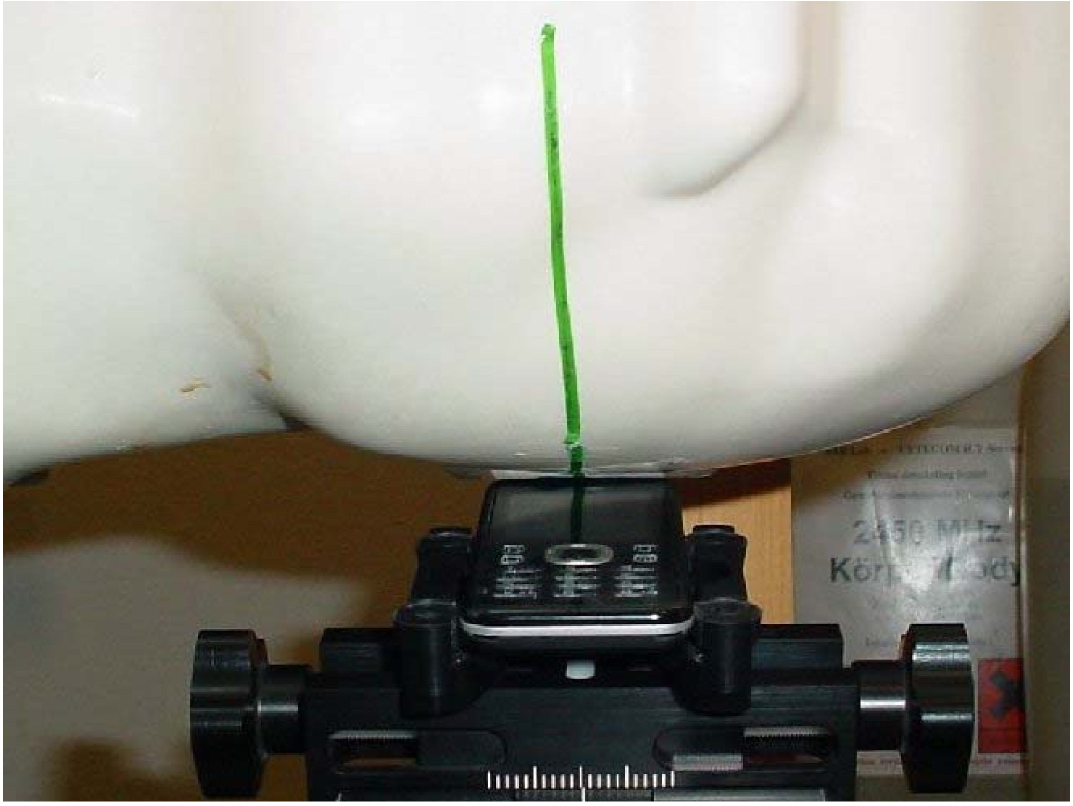


Photo 13: Test position left hand tilted 15°

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 15 mm distance

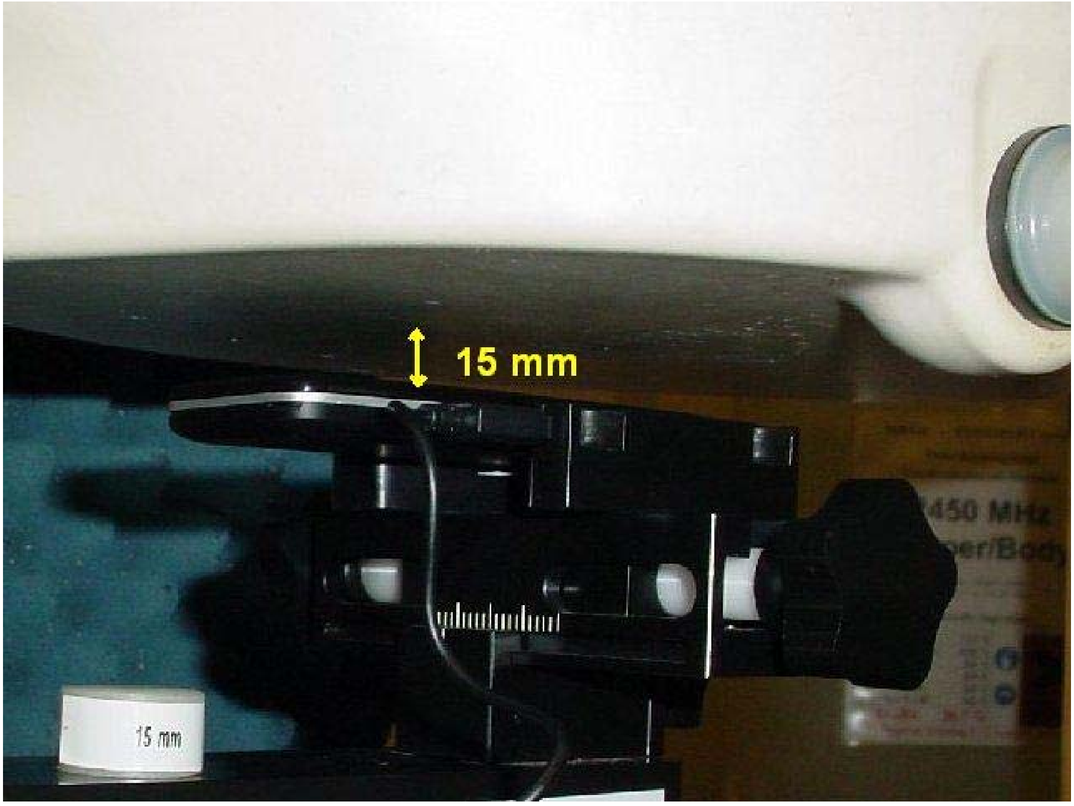


Photo 20: Test position body worn front side with 15 mm distance

Photo 21: Test position body worn rear side with 15 mm distance

Photo 22: Test position body worn rear side with 15 mm distance

Annex 3.1 Liquid depth

Photo 23: Liquid depth 850 MHz head simulating liquid

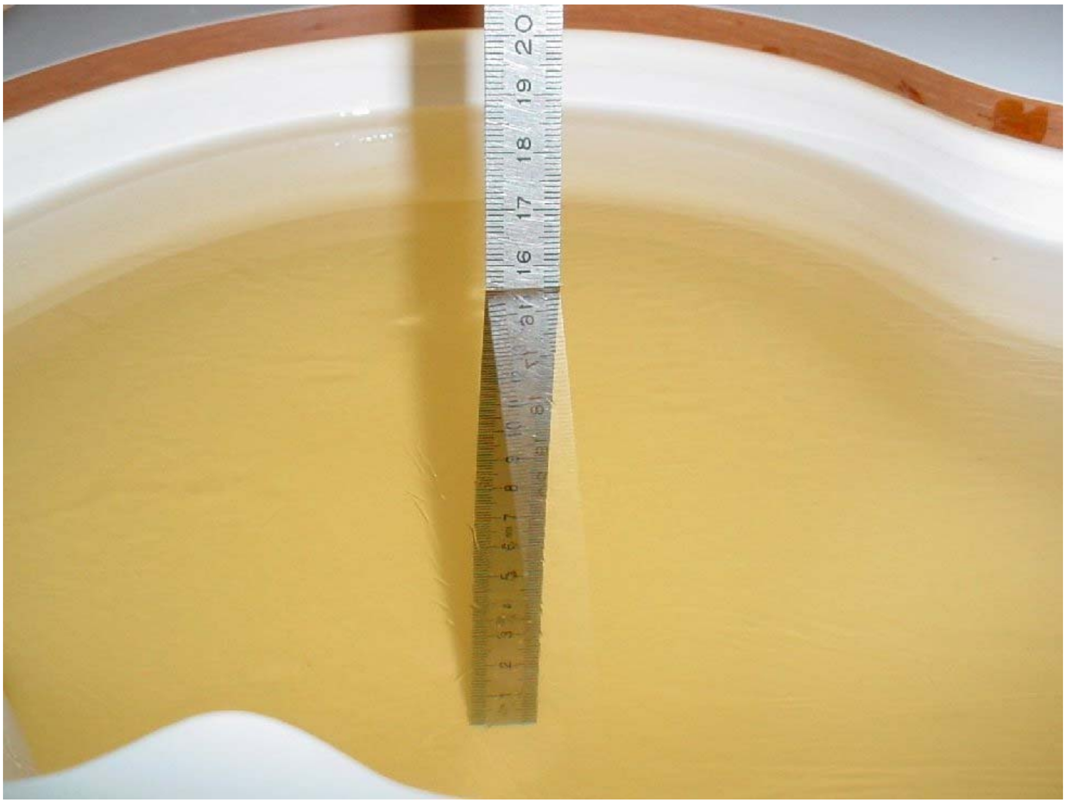


Photo 24: Liquid depth 850 MHz body simulating liquid

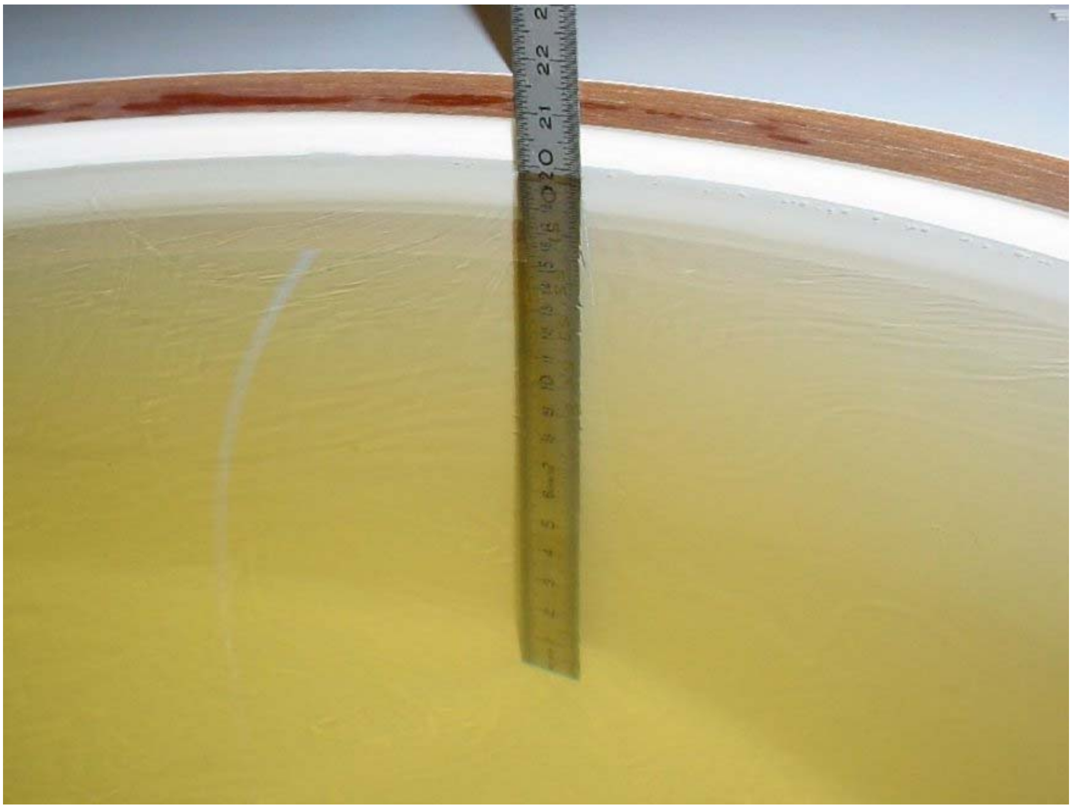


Photo 25: Liquid depth 1900 MHz head simulating liquid

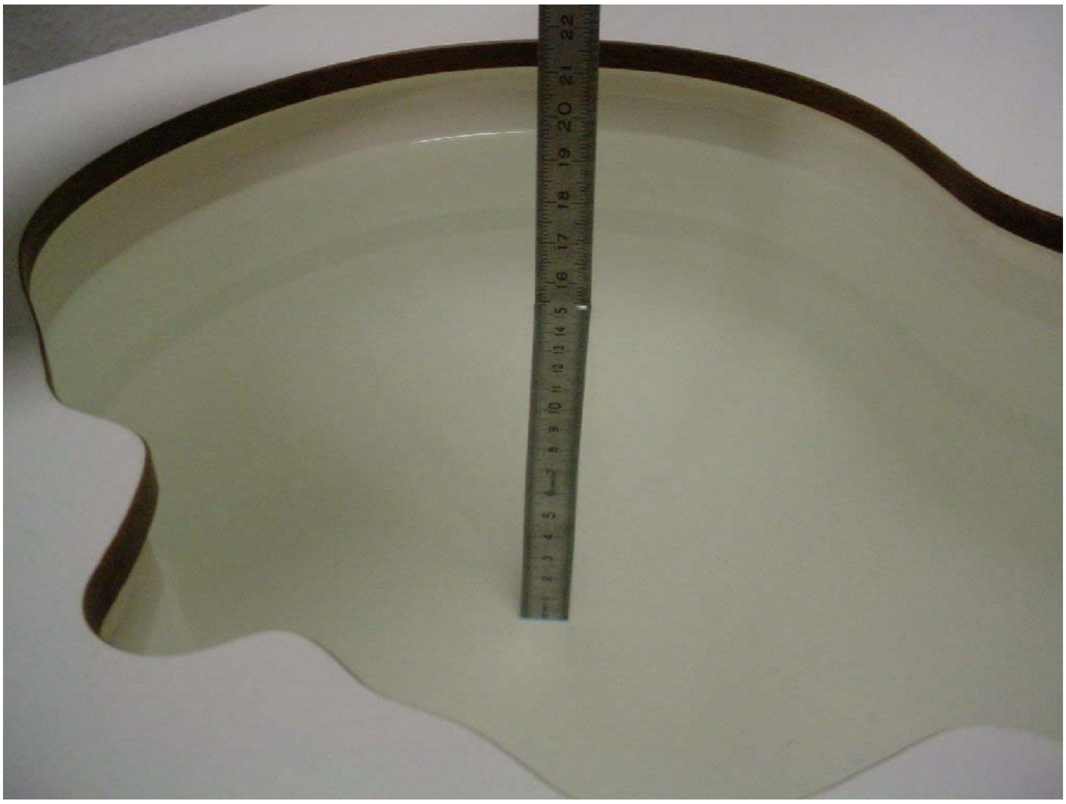


Photo 26: Liquid depth 1900 MHz body simulating liquid

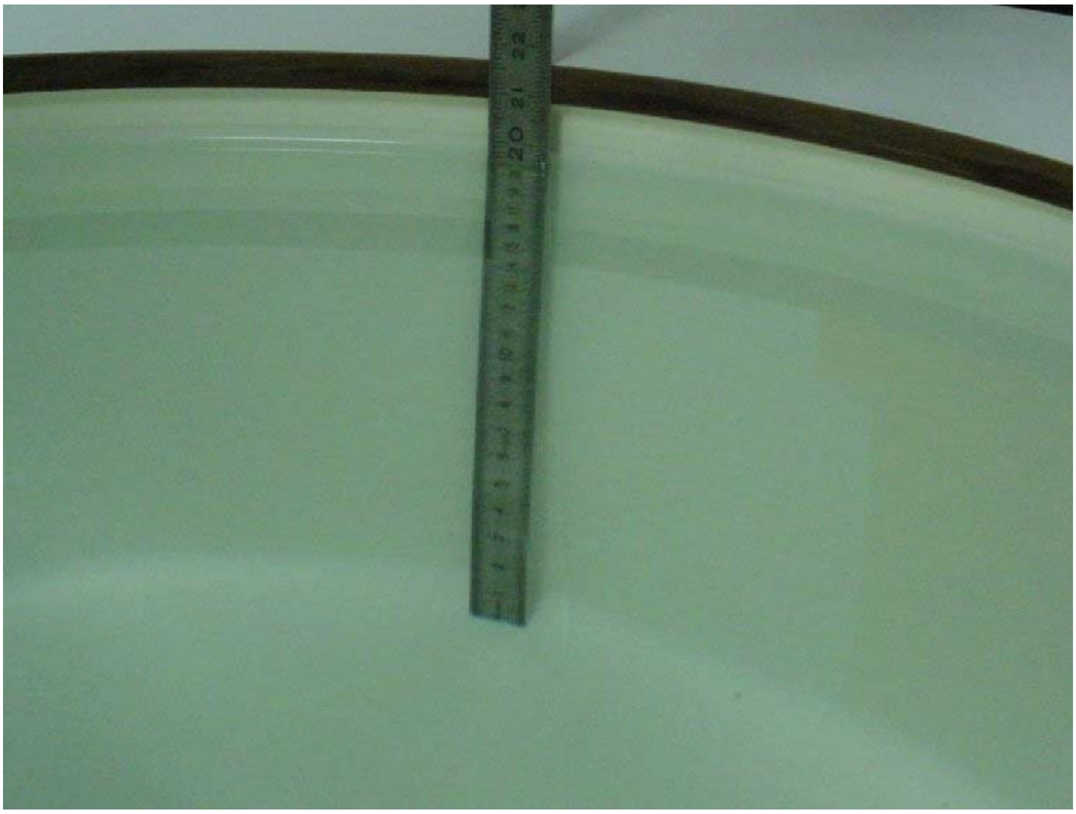


Photo 27: Liquid depth 1900 MHz head simulating liquid

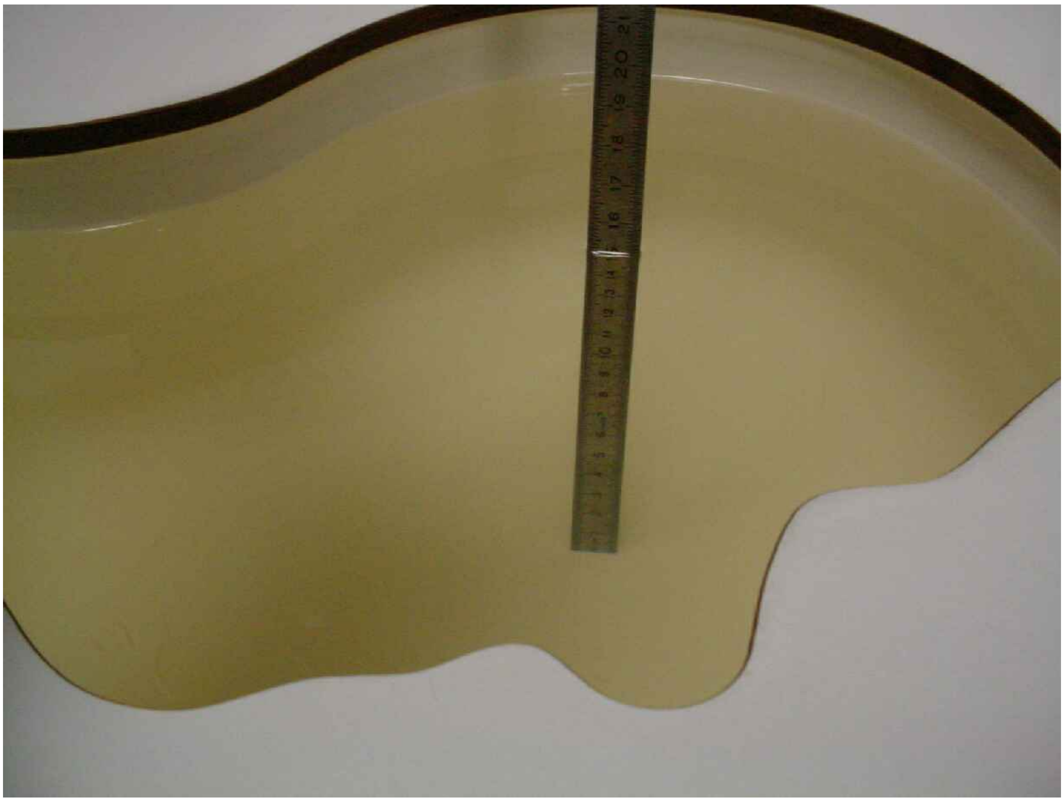
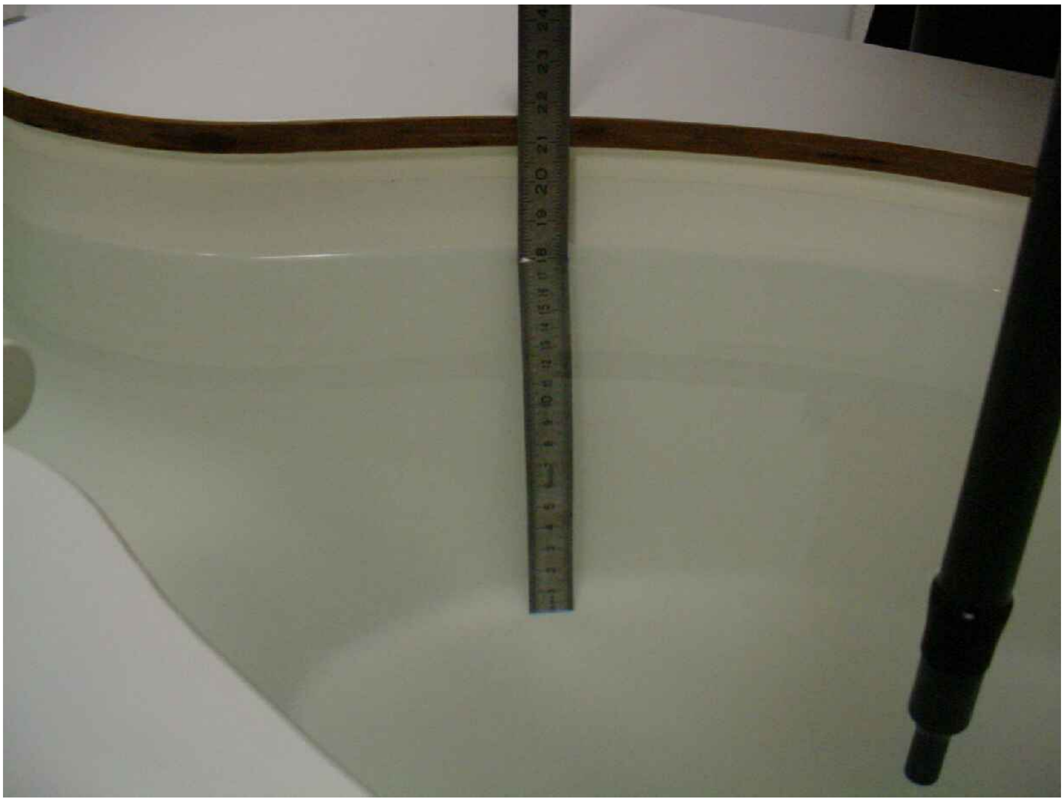


Photo 28: Liquid depth 1900 MHz body simulating liquid



Annex 4 RF Technical Brief Cover Sheet acc. to RSS-102

1. COMPANY NUMBER: 2599N

2. MODEL NUMBER: OT8X0

3. MANUFACTURER: Sagem Wireless

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: 12.5 %**
- **Standard used for evaluation: RSS-102 Issue 2 (2005-11)**
- **SAR value: 0.975 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: 25 %**
- **Standard used for evaluation: RSS-102 Issue 2 (2005-11)**
- **SAR value: 0.784 W/kg. Measured ☒ Computed ☐ Calculated ☐**

Annex 4.1 Declaration of RF Exposure Compliance

ATTESTATION: I attest that the information provided in Annex 4 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: Thomas Vogler **Date: 2009-09-25**

NAME : Thomas Vogler

TITLE : Dipl.-Ing. (FH)

COMPANY : CETECOM ICT Services GmbH

Annex 5 Calibration parameters

Calibration parameters are described in the additional document :

Appendix to test report no. 1-1290-01-18/09‘
Calibration data, Phantom certificate
and detail information of the DASY4 System