CETECOM ICT Services GmbH
Untertuerkheimer Str. 6-10, 66117 Saarbruecken, Germany Phone: +49 (0) 681 598-0 Fax: -8475
SAR-Laboratory Phone: +49 (0) 681 598-8454 .


# Accredited testing laboratory

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

**Test report no. : 4-2872-01-03/07-A**
**Type identification : FAD-3232021-BV**
**Test specification : IEEE P1528/D1.2**
**FCC-ID : PY7F3232021**
**IC-ID : 4170B-F3232021**

## 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 FAD-3232021-BV USB Dongle (GSM/UMTS) 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:

| **2008-02-19** | **Oleksandr Hnatovskiy** |  |
|---|---|---|
| Date | Name | Signature |

## Technical responsibility for area of testing:

| **2008-02-19** | **Thomas Vogler** |  |
|---|---|---|
| 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: Sony Ericsson Mobile Computing

Street: 7001 Development Drive
Town: Research Triangle Park, NC 27709
Country: USA

Contact: Mr. Louis Le
Telephone: +1-919-472-1431

## 1.4 Application details

Date of receipt of application: 2008-02-05
Date of receipt of test item: 2008-02-11
Start/Date of test: 2008-02-12
End of test: 2008-02-15

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

## 1.5 Test item

| | |
|---|---|
| Description of the test item: | USB Dongle (GSM/UMTS) |
| Type identification: | FAD-3232021-BV |
| FCC-ID : | PY7F3232021 |
| IC-ID : | 4170B-F3232021 |
| Serial number: | BDX00029NZ |
| Manufacturer: | |
| Name: | Sony Ericsson Mobile Communications AB |
| Street: | Nya Vattentornet |
| Town: | 22188 Lund |
| Country: | Sweden |

| additional information on the DUT: | | |
|---|---|---|
| device type : | portable device | |
| IMEI No : | 00440107-092012-5 | |
| exposure category: | uncontrolled environment / general population | |
| test device production information | Production model | |
| device operating configurations : | | |
| operating mode(s) | GSM, DCS, PCS, UMTS (WCDMA/HSDPA) | |
| modulation | GMSK, 8-PSK; QPSK(dl), 2*BPSK/HPSK(ul) | |
| GPRS mobile station class : | B | |
| GPRS multislot class : | 10 | voice mode : --- |
| EGPRS multislot class | 10 | 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 |
| UMTS 1950 (FDD I) | 1922.4 MHz ~ 1977.6 MHz | 2112.4 MHz ~ 2167.6 MHz |
| UMTS 1900 (FDD II) (tested): | 1852.4 MHz ~ 1907.6 MHz | 1932.4 MHz ~ 1987.6 MHz |
| UMTS 850 (FDD V) (tested): | 826.4 MHz ~ 846.6 MHz | 871.4 MHz ~ 891.6 MHz |
| Power class : | 1, tested with power level 0 (1900 MHz band)<br>4, tested with power level 5 ( 850 MHz band)<br>3, tested with maximum output power (FDD II – FDD V) | |
| measured peak output power (conducted): | 850 MHz band: 32.3 dBm (GSM); 30.7 dBm (EDGE)<br>1900 MHz band: 29.1 dBm (GSM); 29.1 dBm (EDGE)<br>FDD band V: 23.2 dBm<br>FDD band II: 23.7 dBm | |
| test channels (low – mid – high) : | 190 (850 MHz)<br>512 – 661 – 810 (1900 MHz) | 4132-4182-4233 (FDD V)<br>9262 – 9400 – 9538 (FDD II) |
| hardware version: | --- | |
| software version: | --- | |
| antenna type: | integrated antenna | |
| accessories / body-worn configurations: | 1st Laptop – Acer TravelMate C310<br>2nd Laptop – IBM 2628<br>3rd Laptop – Gateway W350A | |

## 1.6 Test specification(s)

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

**IEEE P1528/D1.2 (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

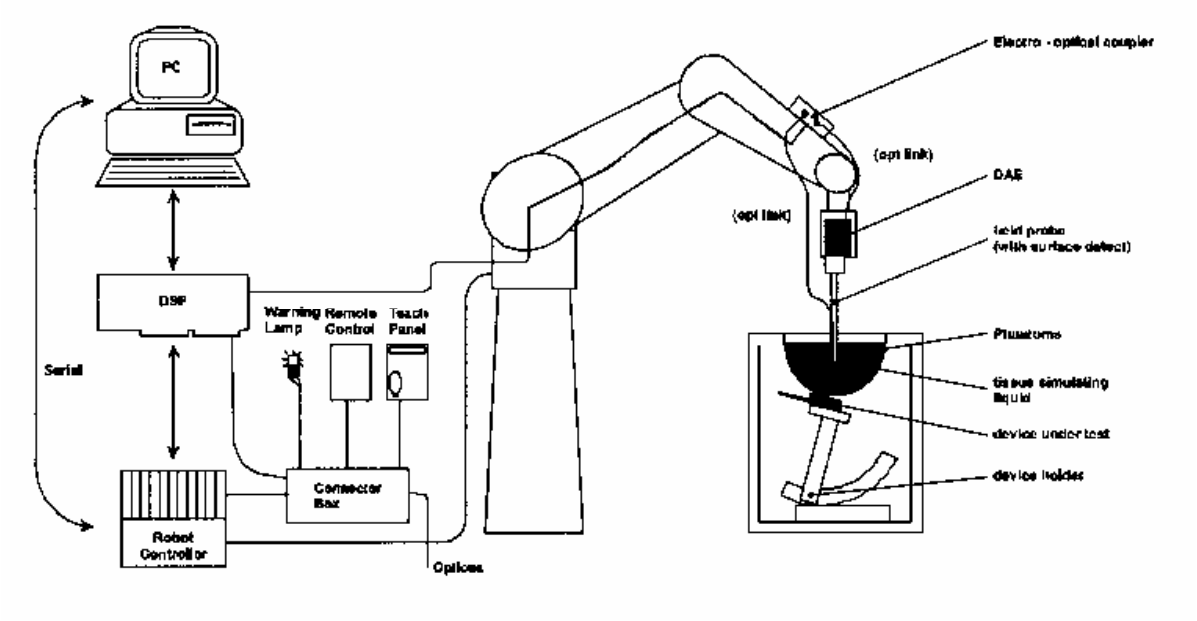
The measurement system is described in chapter 2.4.

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.

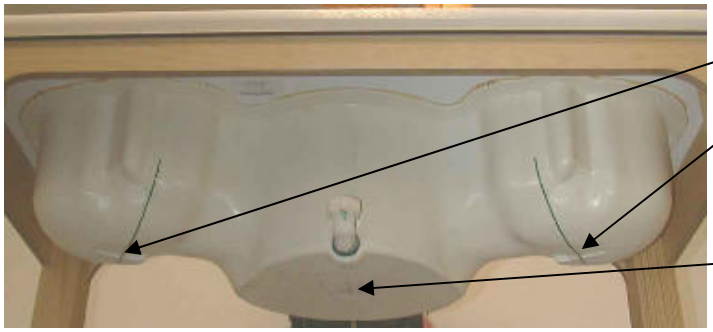
### 2.4.3 Probe description

Isotropic E-Field Probe ET3DV6 for Dosimetric Measurements

| **Technical data according to manufacturer information** | |
|---|---|
| Construction | Symmetrical design with triangular core<br>Built-in optical fiber for surface detection system<br>Built-in shielding against static charges<br>PEEK enclosure material (resistant to organic solvents, e.g., glycolether) |
| Calibration | In air from 10 MHz to 2.5 GHz<br>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)<br>± 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<br>Tip length: 16 mm<br>Body diameter: 12 mm<br>Tip diameter: 6.8 mm<br>Distance from probe tip to dipole centers: 2.7 mm |
| Application | General dosimetry up to 3 GHz<br>Compliance tests of mobile phones<br>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 | $\sigma$ |
| | - Density | $\rho$ |

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 [mV/(V/m)$^2$] for E-field Probes (i = x, y, z)
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
$\sigma$ = conductivity in [mho/m] or [Siemens/m]
$\rho$ = 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.

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

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 23, 2007 |
| ☐ | Schmid & Partner Engineering AG | Dosimetric E-Field Probe | ET3DV6 | 1559 | January 23, 2008 |
| ☒ | Schmid & Partner Engineering AG | 900 MHz System Validation Dipole | D900V2 | 102 | August 23, 2007 |
| ☐ | Schmid & Partner Engineering AG | 1800 MHz System Validation Dipole | D1800V2 | 287 | August 21, 2007 |
| ☒ | Schmid & Partner Engineering AG | 1900 MHz System Validation Dipole | D1900V2 | 5d009 | August 21, 2007 |
| ☐ | Schmid & Partner Engineering AG | 2450 MHz System Validation Dipole | D2450V2 | 710 | August 20, 2007 |
| ☒ | Schmid & Partner Engineering AG | Data acquisition electronics | DAE3V1 | 413 | January 18, 2008 |
| ☒ | 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 | March 14, 2007 |
| | | | | | |
| ☒ | Hewlett Packard)* | Network Analyser 300 kHz to 6 GHz | 8753C | 2937U00269 | March 13, 2007 |
| ☒ | Hewlett Packard)* | Network Analyser 300 kHz to 6 GHz | 85047A | 2936A00872 | March 13, 2007 |
| ☒ | Hewlett Packard | Dielectric Probe Kit | 85070C | US99360146 | N/A |
| | | | | | |
| ☒ | Hewlett Packard | Signal Generator | 8665A | 2833A00112 | November 12, 2007 |
| ☒ | Amplifier Reasearch | Amplifier | 25S1G4 (25 Watt) | 20452 | N/A |
| ☒ | Rohde & Schwarz | Power Meter | NRP | 101367 | January 9, 2008 |
| ☒ | Rohde & Schwarz | Power Meter Sensor | NRP Z22 | 100227 | January 9, 2008 |
| ☒ | Rohde & Schwarz | Power Meter Sensor | NRP Z22 | 100234 | January 9, 2008 |

)* : 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 | 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 2: 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

### 2.4.11 Tissue simulating liquids: parameters

| **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 | 55.0 | 0.98 | 2008-02-12 |
| 900 | 55.0 | 1.05 | 54.4 | 1.05 | 2008-02-12 |
| 1900 | 53.3 | 1.52 | 52.6 | 1.54 | 2008-02-13 |
| 1900 | 53.3 | 1.52 | 52.6 | 1.54 | 2008-02-14 |

Table 3: Parameter of the body tissue simulating liquid

Note: The dielectric properties have been measured using the contact probe method at 21°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 4: 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 5: Measurement uncertainties

### 2.4.14 System validation

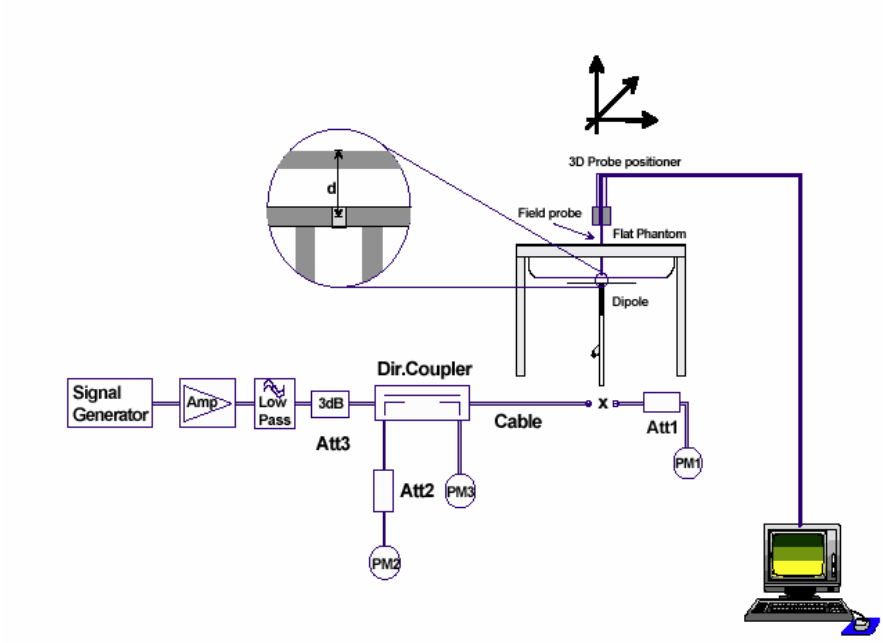
The system validation is performed for verifying the accuracy of the complete measurement system and performance of the software. The system validation is performed with tissue equivalent material according to IEEE P1528 (described above). The following table shows validation results for all frequency 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 | Measured $SAR_{1g}$ | Measured date |
|---|---|---|---|---|---|---|
| D900V2 S/N: 102 | 900 MHz body | 15.2 mW/g | 10.6 mW/g | 14.0 mW/g | 10.1 mW/g | 2008-02-12 |
| D1900V2 S/N: 5d009 | 1900 MHz body | 63.2 mW/g | 37.7 mW/g | 68.8 mW/g | 39.8 mW/g | 2008-02-13 |
| D1900V2 S/N: 5d009 | 1900 MHz body | 63.2 mW/g | 37.7 mW/g | 68.1 mW/g | 39.6 mW/g | 2008-02-14 |

Table 6: Results system validation

### 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 (Body SAR)

GPRS / EDGE 850 MHz

| The table contains the measured SAR values averaged over a mass of 1 g | | | | | |
|---|---|---|---|---|---|
| Channel / frequency | Position | Distance of DUT to SAM | Body worn | Limit | Liquid temperature |
| Acer TravelMate C310 | | | | | |
| 190 / 836.6 MHz | underside | 11 mm | 0.673 W/kg | 1.6 W/kg | 21.6°C |
| 128 / 824.2 MHz | underside | 11 mm | not necessary | 1.6 W/kg | --- |
| 251 / 848.8 MHz | underside | 11 mm | not necessary | 1.6 W/kg | --- |
| IBM 2628 | | | | | |
| 190 / 836.6 MHz | underside | 4 mm | **0.704 W/kg** | 1.6 W/kg | 21.5°C |
| 128 / 824.2 MHz | underside | 4 mm | not necessary | 1.6 W/kg | --- |
| 251 / 848.8 MHz | underside | 4 mm | not necessary | 1.6 W/kg | --- |
| Gateway W350A | | | | | |
| 190 / 836.6 MHz | underside | 12 mm | 0.548 W/kg | 1.6 W/kg | 21.7°C |
| 128 / 824.2 MHz | underside | 12 mm | not necessary | 1.6 W/kg | --- |
| 251 / 848.8 MHz | underside | 12 mm | not necessary | 1.6 W/kg | --- |
| worst case position of IBM 2628 with EDGE (E-GPRS) | | | | | |
| 190 / 836.6 MHz | underside | 4 mm | 0.500 W/kg | 1.6 W/kg | 21.7°C |

Table 7: Test results (Body SAR 850 MHz GPRS)

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.

WCDMA / HSDPA 850 MHz

| The table contains the measured SAR values averaged over a mass of 1 g | | | | | |
|---|---|---|---|---|---|
| Channel / frequency | Position | Distance of DUT to SAM | Body worn | Limit | Liquid temperature |
| Acer TravelMate C310 | | | | | |
| 4182 / 836.4 MHz | underside | 11 mm | 0.720 W/kg | 1.6 W/kg | 21.6°C |
| 4132 / 826.4 MHz | underside | 11 mm | not necessary | 1.6 W/kg | --- |
| 4233 / 846.6 MHz | underside | 11 mm | not necessary | 1.6 W/kg | --- |
| IBM 2628 | | | | | |
| 4182 / 836.4 MHz | underside | 4 mm | **0.809 W/kg** | 1.6 W/kg | 21.8°C |
| 4132 / 826.4 MHz | underside | 4 mm | 0.718 W/kg | 1.6 W/kg | 21.8°C |
| 4233 / 846.6 MHz | underside | 4 mm | 0.797 W/kg | 1.6 W/kg | 21.8°C |
| Gateway W350A | | | | | |
| 4182 / 836.4 MHz | underside | 12 mm | 0.667 W/kg | 1.6 W/kg | 21.6°C |
| 4132 / 826.4 MHz | underside | 12 mm | not necessary | 1.6 W/kg | --- |
| 4233 / 846.6 MHz | underside | 12 mm | not necessary | 1.6 W/kg | --- |
| worst case position of IBM 2628 with HSDPA | | | | | |
| 4182 / 836.4 MHz | underside | 4 mm | 0.752 W/kg | 1.6 W/kg | 21.6°C |

Table 8: Test results (Body SAR 850 MHz WCDMA)

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.

GPRS / EDGE 1900 MHz

| The table contains the measured SAR values averaged over a mass of 1 g | | | | | |
|---|---|---|---|---|---|
| Channel / frequency | Position | Distance of DUT to SAM | Body worn | Limit | Liquid temperature |
| Acer TravelMate C310 | | | | | |
| 661 / 1880.0 MHz | underside | 11 mm | 0.704 W/kg | 1.6 W/kg | 22.2°C |
| 512 / 1850.2 MHz | underside | 11 mm | not necessary | 1.6 W/kg | --- |
| 810 / 1909.8 MHz | underside | 11 mm | not necessary | 1.6 W/kg | --- |
| IBM 2628 | | | | | |
| 661 / 1880.0 MHz | underside | 4 mm | **1.360 W/kg** | 1.6 W/kg | 22.5°C |
| 512 / 1850.2 MHz | underside | 4 mm | 1.220 W/kg | 1.6 W/kg | 22.4°C |
| 810 / 1909.8 MHz | underside | 4 mm | 1.100 W/kg | 1.6 W/kg | 22.4°C |
| Gateway W350A | | | | | |
| 661 / 1880.0 MHz | underside | 12 mm | 0.988 W/kg | 1.6 W/kg | 22.4°C |
| 512 / 1850.2 MHz | underside | 12 mm | 0.819 W/kg | 1.6 W/kg | 22.4°C |
| 810 / 1909.8 MHz | underside | 12 mm | 0.750 W/kg | 1.6 W/kg | 22.3°C |
| worst case position of IBM 2628 with EDGE (E-GPRS) | | | | | |
| 661 / 1880.0 MHz | underside | 4 mm | 1.210 W/kg | 1.6 W/kg | 22.4°C |

Table 9: Test results (Body SAR 1900 MHz GPRS)

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.

WCDMA / HSDPA 1900 MHz

| The table contains the measured SAR values averaged over a mass of 1 g | | | | | |
|---|---|---|---|---|---|
| Channel / frequency | Position | Distance of DUT to SAM | Body worn | Limit | Liquid temperature |
| Acer TravelMate C310 | | | | | |
| 9400 / 1880.0 MHz | underside | 11 mm | 0.416 W/kg | 1.6 W/kg | 21.7°C |
| 9262 / 1852.4 MHz | underside | 11 mm | not necessary | 1.6 W/kg | --- |
| 9538 / 1907.6 MHz | underside | 11 mm | not necessary | 1.6 W/kg | --- |
| IBM 2628 | | | | | |
| 9400 / 1880.0 MHz | underside | 4 mm | 1.280 W/kg | 1.6 W/kg | 21.7°C |
| 9262 / 1852.4 MHz | underside | 4 mm | **1.410 W/kg** | 1.6 W/kg | 21.8°C |
| 9538 / 1907.6 MHz | underside | 4 mm | 1.240 W/kg | 1.6 W/kg | 21.8°C |
| Gateway W350A | | | | | |
| 9400 / 1880.0 MHz | underside | 12 mm | 0.641 W/kg | 1.6 W/kg | 21.7°C |
| 9262 / 1852.4 MHz | underside | 12 mm | not necessary | 1.6 W/kg | --- |
| 9538 / 1907.6 MHz | underside | 12 mm | not necessary | 1.6 W/kg | --- |
| worst case position of IBM 2628 with HSDPA | | | | | |
| 9262 / 1852.4 MHz | underside | 4 mm | 1.390 W/kg | 1.6 W/kg | 21.8°C |

Table 10: Test results (Body SAR 1900 MHz WCDMA)

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.
SAR tests shall be performed for WCDMA, HSDPA. If the SAR measured in WCDMA mode is < 75% of the SAR limit or conducted output power of all HSDPA sub tests (see chapter 2.6) does not exceed the conducted power of WCDMA in RMC mode at 12.2 kbit/s by more than 0.25 dB, SAR tests in HSDPA are optional.

### 2.5.1 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. Conducted output power was measured using an integrated RF connector and attached RF cable.
The used notebooks offered the following distances between DUT and SAM phantom when positioned in direct contact to the flat part of the phantom :

1st Laptop – Acer TravelMate C310: 11 mm
2nd Laptop – IBM 2628: 4 mm
3rd Laptop – Gateway W350A: 12 mm

Tests in body position for GSM/GPRS were performed with the maximum number of timeslots in uplink.
In WCDMA mode the device was tested with RMC at 12.2 kbit/s and transmit power control setting 'all bits up' to have the device transmit at maximum output power.
In HSDPA mode the tests were performed with the following settings :

- Fixed reference channel (FRC) using QPSK
- H-set 1
- UE-category 6 (automatically detected)

| HS-DSCH category | min. inter-TTI interval | Max. HS-DSCH transport block bits | data rate |
|---|---|---|---|
| 6 | 1 | 7298 | 3.65 Mbit/s |

- DPCCH/DPDCH gain factors :
  βc : 2
  βd : 15
- power offset parameters :
  ΔACK : 8
  ΔNACK : 8
  ΔCQI : 8

The following code channels were active during the test :

- DPCCH with spreading factor 256
- HS-DPCCH with spreading factor 256
- DPDCH with spreading factor 64

For details about the required settings of gain factors for HSDPA see chapter 2.6.1.

## 2.6 Test results (conducted power measurement)

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 measured before and after each SAR measurement. The resulting power values were within a 0.2 dB tolerance of the values shown below.

| **GSM 850** | | | |
|---|---|---|---|
| Channel / frequency | GSM/GPRS | EDGE avg. | EDGE peak |
| 190 / 836.6 MHz | 32.3 dBm | 27.6 dBm | 30.7 dBm |
| **GSM 1900** | | | |
| Channel / frequency | GSM/GPRS | EDGE avg. | EDGE peak |
| 512 / 1850.2 MHz | 29.1 dBm | 25.8 dBm | 29.1 dBm |
| 661 / 1880.0 MHz | 28.7 dBm | 25.5 dBm | 28.7 dBm |
| 810 / 1909.8 MHz | 28.6 dBm | 25.4 dBm | 28.5 dBm |

Table 11: Test results conducted peak power measurement GSM

| **WCDMA 850 (RMC 12.2 kBit/s)** | | |
|---|---|---|
| Channel / frequency | Max. RMS | Peak |
| 4132 / 826.4 MHz | 23.2 dBm | 26.2 dBm |
| 4182 / 836.6 MHz | 23.2 dBm | 26.4 dBm |
| 4233 / 846.6 MHz | 23.1 dBm | 26.3 dBm |
| **WCDMA 1900 (RMC 12.2 kBit/s)** | | |
| Channel / frequency | Max. RMS | Peak |
| 9400 / 1880.0 MHz | 23.7 dBm | 26.7 dBm |
| 9262 / 1852.4 MHz | 23.7 dBm | 26.7 dBm |
| 9538 / 1907.6 MHz | 23.7 dBm | 26.4 dBm |

Table 12: Test results conducted peak and RMS power measurement WCDMA

| WCDMA + HSDPA 850 | | | |
|---|---|---|---|
| Channel / frequency | sub-test | Max. RMS | Peak |
| 4132 / 826.4 MHz | 1 | **23.1 dBm** | 26.3 dBm |
| 4182 / 836.6 MHz | 1 | **23.0 dBm** | 26.3 dBm |
| 4233 / 846.6 MHz | 1 | **23.1 dBm** | 26.3 dBm |
| 4132 / 826.4 MHz | 2 | 21.5 dBm | 25.8 dBm |
| 4182 / 836.6 MHz | 2 | 21.5 dBm | 25.9 dBm |
| 4233 / 846.6 MHz | 2 | 21.3 dBm | 25.8 dBm |
| 4132 / 826.4 MHz | 3 | 21.2 dBm | 25.8 dBm |
| 4182 / 836.6 MHz | 3 | 21.3 dBm | 25.8 dBm |
| 4233 / 846.6 MHz | 3 | 21.1 dBm | 25.7 dBm |
| 4132 / 826.4 MHz | 4 | 20.6 dBm | 25.4 dBm |
| 4182 / 836.6 MHz | 4 | 20.6 dBm | 25.4 dBm |
| 4233 / 846.6 MHz | 4 | 20.5 dBm | 25.3 dBm |

| WCDMA + HSDPA 1900 | | | |
|---|---|---|---|
| Channel / frequency | sub-test | Max. RMS | Peak |
| 9400 / 1880.0 MHz | 1 | **23.5 dBm** | 26.6 dBm |
| 9262 / 1852.4 MHz | 1 | **23.5 dBm** | 26.6 dBm |
| 9538 / 1907.6 MHz | 1 | **23.5 dBm** | 26.3 dBm |
| 9400 / 1880.0 MHz | 2 | 22.3 dBm | 26.7 dBm |
| 9262 / 1852.4 MHz | 2 | 22.2 dBm | 26.6 dBm |
| 9538 / 1907.6 MHz | 2 | 22.1 dBm | 26.5 dBm |
| 9400 / 1880.0 MHz | 3 | 22.0 dBm | 26.7 dBm |
| 9262 / 1852.4 MHz | 3 | 22.1 dBm | 26.6 dBm |
| 9538 / 1907.6 MHz | 3 | 22.1 dBm | 26.6 dBm |
| 9400 / 1880.0 MHz | 4 | 21.5 dBm | 26.4 dBm |
| 9262 / 1852.4 MHz | 4 | 21.4 dBm | 26.3 dBm |
| 9538 / 1907.6 MHz | 4 | 21.3 dBm | 26.3 dBm |

Table 13: Test results conducted peak power measurement WCDMA + HSDPA

Remark : values in bold letters represent the subtest with maximum output power, which was compared to the standard WCDMA set-up to decide which modes need to be tested for SAR.

### 2.6.1 Test set-up requirements according to 3GPP 34.121

The following HSDPA sub-tests are defined by 3GPP 34.121 (table C.10.1.4)

| Sub-test | $\beta_c$ | $\beta_d$ | $\beta_d$ (SF) | $\beta_c/\beta_d$ | $\beta_{hs}$ (1) | CM(dB) (2) |
|---|---|---|---|---|---|---|
| 1 | 2/15 | 15/15 | 64 | 2/15 | 4/15 | 0.0 |
| 2 | 12/15 (3) | 15/15 (3) | 64 | 12/15 (3) | 24/15 | 1.0 |
| 3 | 15/15 | 8/15 | 64 | 15/8 | 30/15 | 1.5 |
| 4 | 15/15 | 4/15 | 64 | 15/4 | 30/15 | 1.5 |
| Note 1: $\Delta_{ACK}$, $\Delta_{NACK}$, $\Delta_{CQI}$ = 8 $\Leftarrow\Rightarrow$ $A_{hs} = \beta_{hs}/\beta_c$ = 30/15 $\Leftarrow\Rightarrow$ $\beta_{hs}$ = 30/15 * $\beta_c$<br>Note 2 : CM = 1 for $\beta_c/\beta_d$ = 12/15, $\beta_{hs}/\beta_c$ = 24/15<br>Note 3 : For subtest 2 the $\beta_c/\beta_d$ ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1,TF1) to $\beta_c$ = 11/15 and $\beta_d$ = 15/15 | | | | | | |

Table 14: Subtests for UMTS Release 5 HSDPA

They were tested using the following settings for HSDPA FRC + H-Set 1 QPSK (see table C.8.1.1 of 3GPP 34.121

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

Table 15: settings of required H-Set 1 QPSK in HSDPA mode

# Annex 1 System performance verification

Date/Time: 2008-02-12 09:29:59Date/Time: 2008-02-12 09:36:22

## SystemPerformanceCheck-D900 body 2008-02-12

**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; $\sigma$ = 1.05 mho/m; $\varepsilon_r$ = 54.4; $\rho$ = 1000 kg/m$^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(5.92, 5.92, 5.92); Calibrated: 2007-08-23
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 2008-01-18
- 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 (61x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 11.1 mW/g

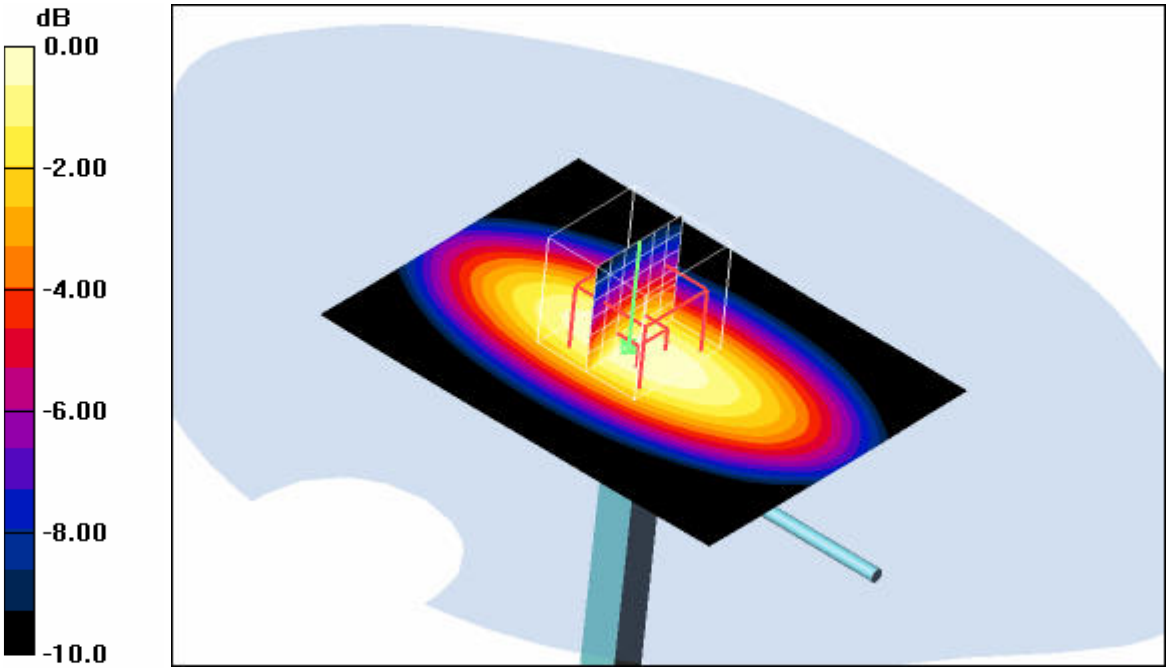
### d=15mm, Pin=1000mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 108.6 V/m; Power Drift = -0.040 dB

Peak SAR (extrapolated) = 14.0 W/kg

**SAR(1 g) = 10.1 mW/g; SAR(10 g) = 6.67 mW/g**

Maximum value of SAR (measured) = 11.0 mW/g




0 dB = 11.0mW/g

**Additional information:**

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

ambient temperature: 22.5°C; liquid temperature: 21.5°C

Date/Time: 2008-02-13 11:16:48Date/Time: 2008-02-13 11:21:26

## SystemPerformanceCheck-D1900 body 2008-02-13

**DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d009**

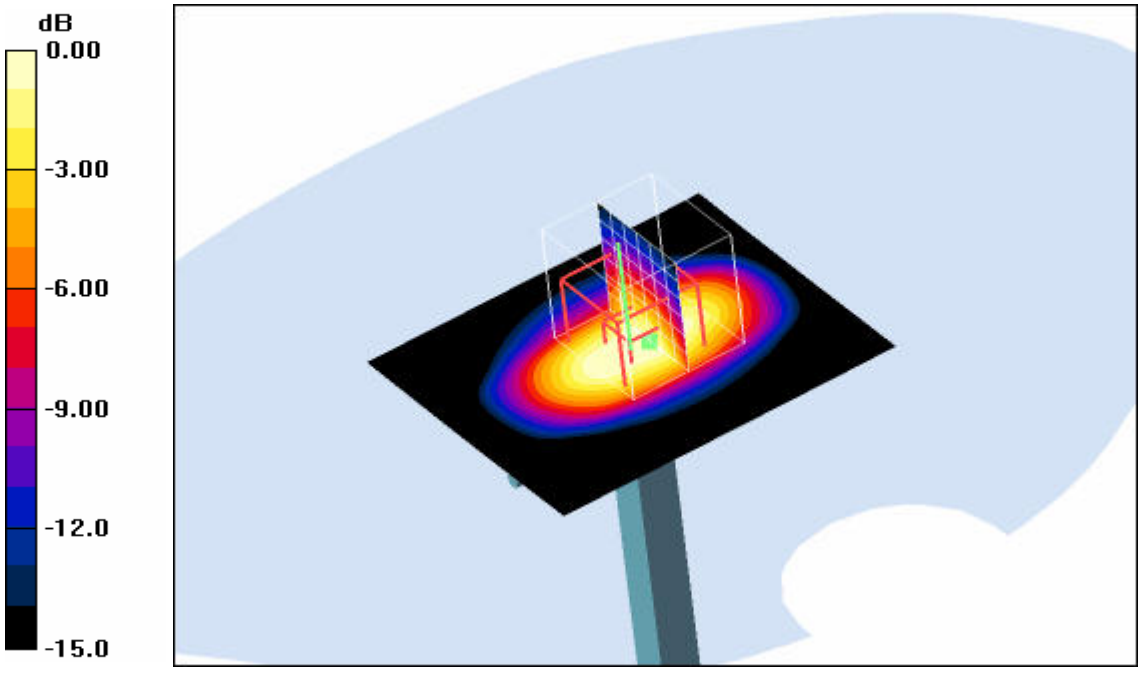
Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: M1900 Medium parameters used (interpolated): f = 1900 MHz; $\sigma$ = 1.54 mho/m; $\varepsilon_r$ = 52.6; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(4.46, 4.46, 4.46); Calibrated: 2007-08-23
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 2008-01-18
- 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 (51x61x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 53.9 mW/g

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

Reference Value = 179.3 V/m; Power Drift = -0.024 dB
Peak SAR (extrapolated) = 68.8 W/kg
**SAR(1 g) = 39.8 mW/g; SAR(10 g) = 21.1 mW/g**
Maximum value of SAR (measured) = 44.7 mW/g




0 dB = 44.7mW/g

**Additional information:**
position or distance of DUT to SAM (if not standard head positions) :
ambient temperature: 21.7°C; liquid temperature: 21.7°C

Date/Time: 2008-02-14 08:59:28Date/Time: 2008-02-14 09:03:43

## SystemPerformanceCheck-D1900 body 2008-02-14

**DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d009**

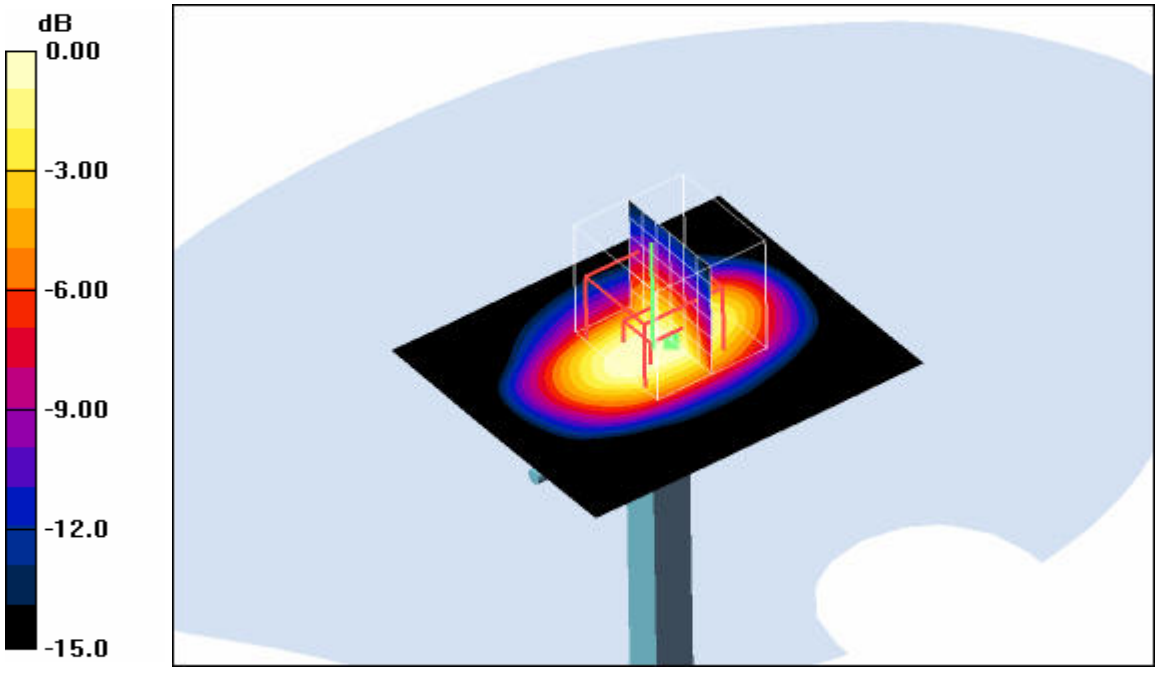
Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: M1900 Medium parameters used (interpolated): f = 1900 MHz; $\sigma$ = 1.54 mho/m; $\varepsilon_r$ = 52.6; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(4.46, 4.46, 4.46); Calibrated: 2007-08-23
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 2008-01-18
- 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 (51x61x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 51.8 mW/g

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

Reference Value = 177.3 V/m; Power Drift = -0.081 dB
Peak SAR (extrapolated) = 68.1 W/kg
**SAR(1 g) = 39.6 mW/g; SAR(10 g) = 21.1 mW/g**
Maximum value of SAR (measured) = 44.6 mW/g




0 dB = 44.6mW/g

**Additional information:**
position or distance of DUT to SAM (if not standard head positions) :
ambient temperature: 22.8°C; liquid temperature: 22.9°C

# 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 GSM 850 MHz body**

Date/Time: 2008-02-12 10:51:59Date/Time: 2008-02-12 11:03:37

## P1528_OET65-Body-GSM850 GPRS class 10 1st Laptop

**DUT: Sony Ericsson; Type: MD300; Serial: BDX00029NZ**

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

Medium: M850 Medium parameters used: f = 836.6 MHz; $\sigma$ = 0.98 mho/m; $\varepsilon_r$ = 55; $\rho$ = 1000 kg/m$^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1558; ConvF(6.17, 6.17, 6.17); Calibrated: 2007-08-23
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 2008-01-18
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

**Underside position - Middle/Area Scan (91x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.726 mW/g

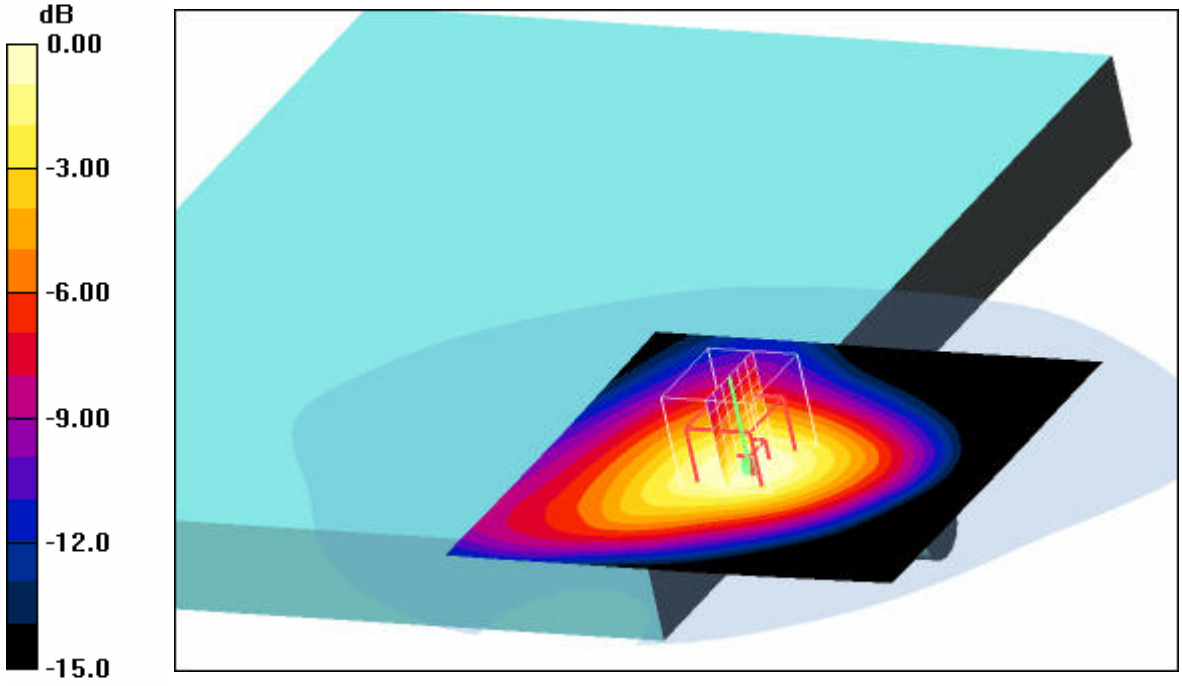
**Underside position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 27.4 V/m; Power Drift = 0.027 dB

Peak SAR (extrapolated) = 0.954 W/kg

**SAR(1 g) = 0.673 mW/g; SAR(10 g) = 0.456 mW/g**

Maximum value of SAR (measured) = 0.727 mW/g




0 dB = 0.727mW/g

**Additional information:**

position or distance of DUT to SAM: 11 mm (without any distance of the laptop to SAM)

ambient temperature: 22.5°C; liquid temperature: 21.6°C

Date/Time: 2008-02-12 12:04:58Date/Time: 2008-02-12 12:15:47

## P1528_OET65-Body-GSM850 GPRS class 10 2nd Laptop

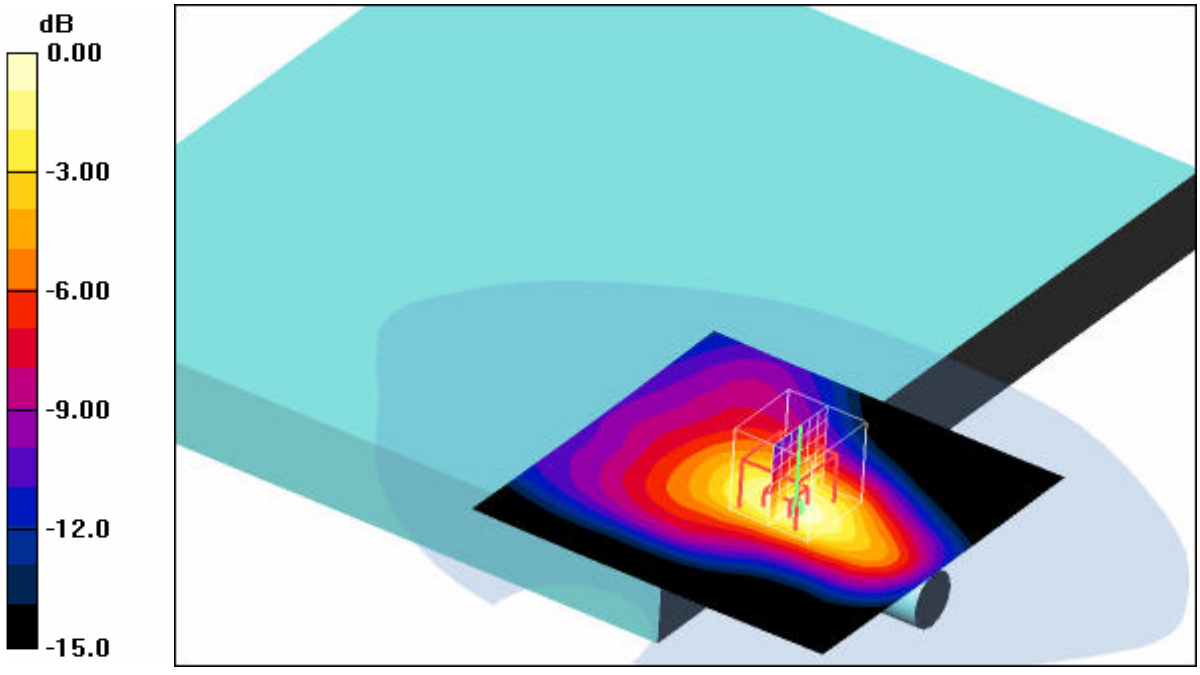
**DUT: Sony Ericsson; Type: MD300; Serial: BDX00029NZ**
Communication System: PCS 850 GPRS; Frequency: 836.6 MHz; Duty Cycle: 1:4
Medium: M850 Medium parameters used: f = 836.6 MHz; $\sigma$ = 0.98 mho/m; $\varepsilon_r$ = 55; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(6.17, 6.17, 6.17); Calibrated: 2007-08-23
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 2008-01-18
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

### Underside position - Middle/Area Scan (91x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.711 mW/g

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

Reference Value = 25.4 V/m; Power Drift = -0.024 dB
Peak SAR (extrapolated) = 1.15 W/kg
**SAR(1 g) = 0.704 mW/g; SAR(10 g) = 0.427 mW/g**
Maximum value of SAR (measured) = 0.765 mW/g




0 dB = 0.765mW/g

**Additional information:**
position or distance of DUT to SAM: 4 mm (without any distance of the laptop to SAM)
ambient temperature: 22.6°C; liquid temperature: 21.5°C

Date/Time: 2008-02-12 12:54:47Date/Time: 2008-02-12 13:05:16

## P1528_OET65-Body-GSM850 GPRS class 10 3rd Laptop

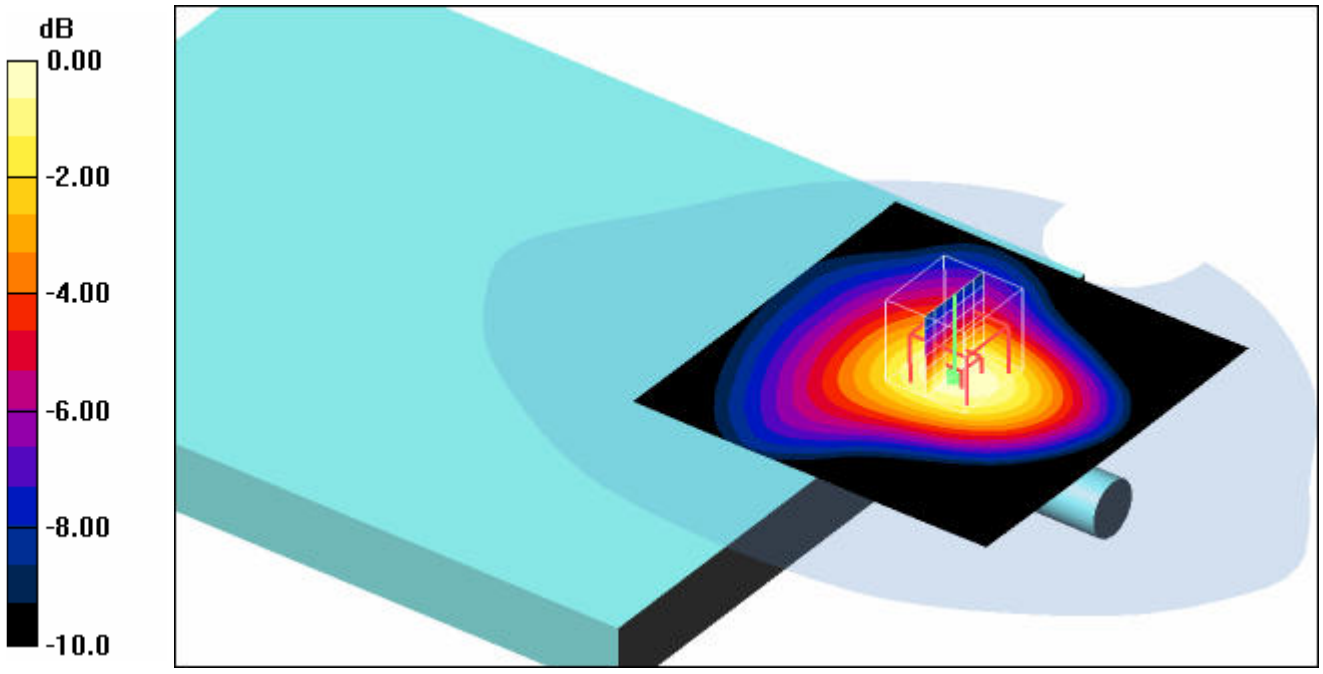
**DUT: Sony Ericsson; Type: MD300; Serial: BDX00029NZ**
Communication System: PCS 850 GPRS; Frequency: 836.6 MHz; Duty Cycle: 1:4
Medium: M850 Medium parameters used: f = 836.6 MHz; $\sigma$ = 0.98 mho/m; $\varepsilon_r$ = 55; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(6.17, 6.17, 6.17); Calibrated: 2007-08-23
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 2008-01-18
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

### Underside position - Middle/Area Scan (91x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.585 mW/g

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

Reference Value = 24.9 V/m; Power Drift = 0.038 dB
Peak SAR (extrapolated) = 0.764 W/kg
**SAR(1 g) = 0.548 mW/g; SAR(10 g) = 0.376 mW/g**
Maximum value of SAR (measured) = 0.590 mW/g




0 dB = 0.590mW/g

**Additional information:**
position or distance of DUT to SAM: 12 mm (without any distance of the laptop to SAM)
ambient temperature: 22.8°C; liquid temperature: 21.7°C

Date/Time: 2008-02-12 13:38:20Date/Time: 2008-02-12 13:48:40

## P1528_OET65-Body-GSM850 EGPRS class 10 2nd Laptop

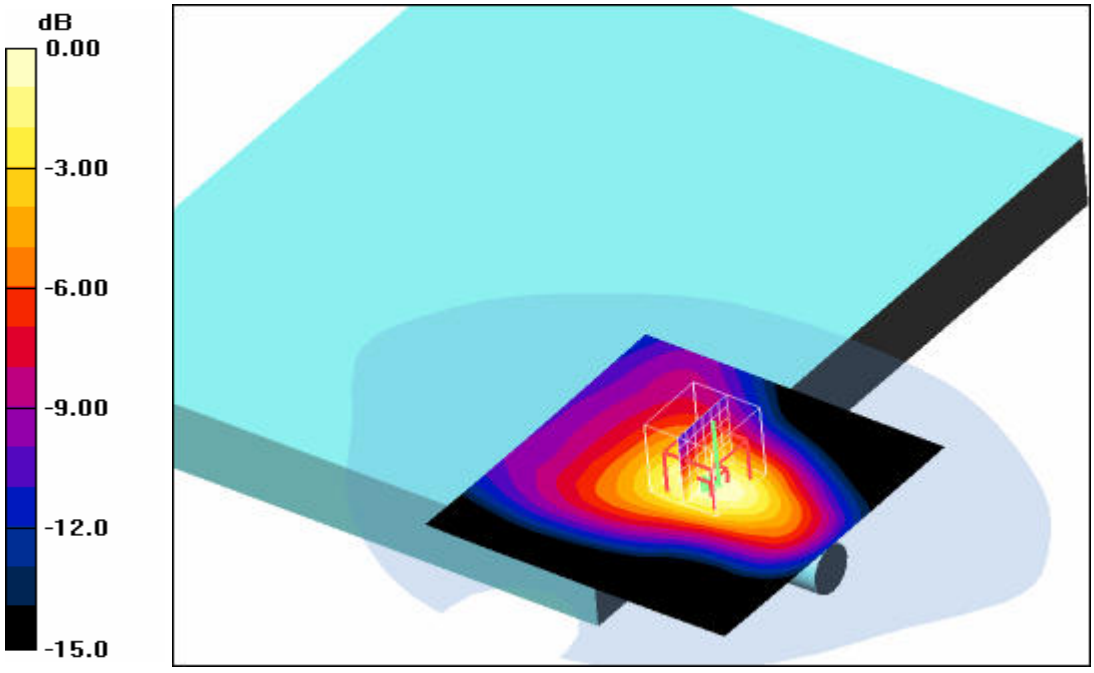
**DUT: Sony Ericsson; Type: MD300; Serial: BDX00029NZ**
Communication System: PCS 850 EGPRS; Frequency: 836.6 MHz; Duty Cycle: 1:4
Medium: M850 Medium parameters used: f = 836.6 MHz; $\sigma$ = 0.98 mho/m; $\varepsilon_r$ = 55; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(6.17, 6.17, 6.17); Calibrated: 2007-08-23
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 2008-01-18
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

### Underside position - Middle/Area Scan (91x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.549 mW/g

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

Reference Value = 24.3 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.817 W/kg
**SAR(1 g) = 0.500 mW/g; SAR(10 g) = 0.303 mW/g**
Maximum value of SAR (measured) = 0.546 mW/g




0 dB = 0.546mW/g

**Additional information:**
position or distance of DUT to SAM: 4 mm (without any distance of the laptop to SAM)
ambient temperature: 22.9°C; liquid temperature: 21.7°C

## Annex 2.2 WCDMA 850 MHz body

Date/Time: 2008-02-12 17:40:05Date/Time: 2008-02-12 17:51:26

# P1528_OET65-Body-WCDMA850 1st Laptop

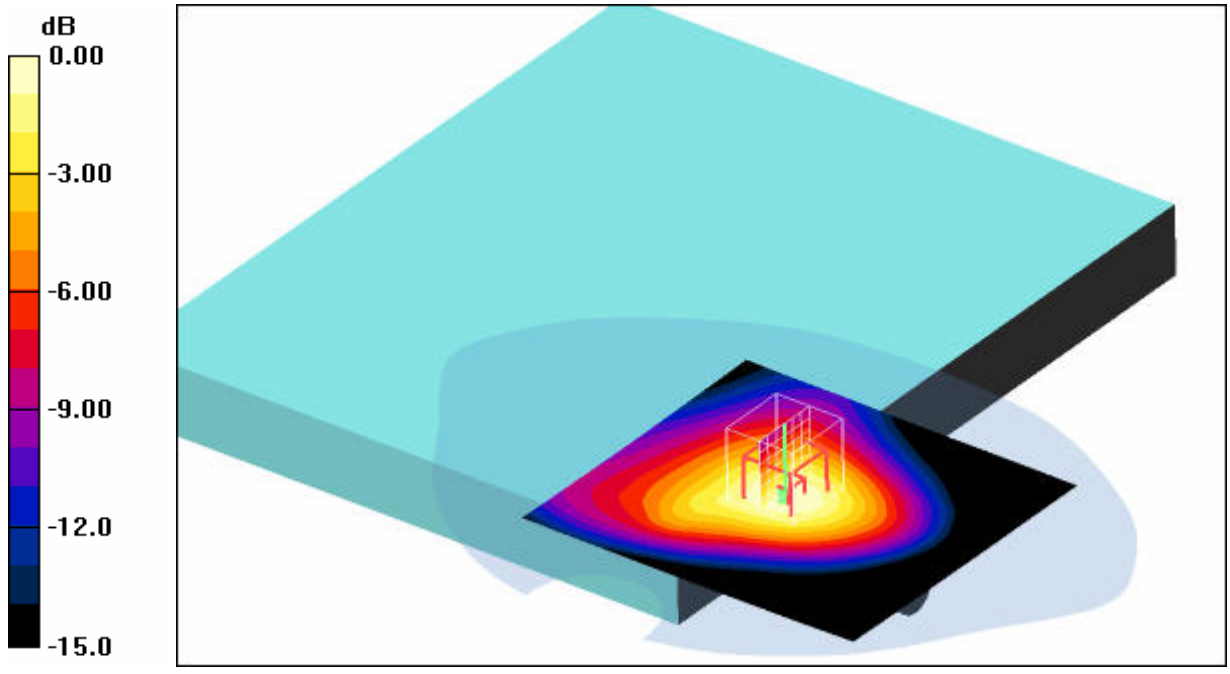
**DUT: Sony Ericsson; Type: MD300; Serial: BDX00029NZ**
Communication System: UMTS band V; Frequency: 836.4 MHz; Duty Cycle: 1:1
Medium: M850 Medium parameters used (interpolated): f = 836.4 MHz; $\sigma$ = 0.98 mho/m; $\varepsilon_r$ = 55; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(6.17, 6.17, 6.17); Calibrated: 2007-08-23
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 2008-01-18
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

## Underside position - Middle/Area Scan (91x101x1): Measurement grid: dx=15mm, dy=15mm

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

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

Reference Value = 27.6 V/m; Power Drift = 0.041 dB
Peak SAR (extrapolated) = 1.02 W/kg
**SAR(1 g) = 0.720 mW/g; SAR(10 g) = 0.486 mW/g**
Maximum value of SAR (measured) = 0.776 mW/g




0 dB = 0.776mW/g

**Additional information:**
position or distance of DUT to SAM: 11 mm (without any distance of the laptop to SAM)
ambient temperature: 22.1°C; liquid temperature: 21.6°C

Date/Time: 2008-02-12 14:25:34Date/Time: 2008-02-12 14:36:00

## P1528_OET65-Body-WCDMA850 2nd Laptop

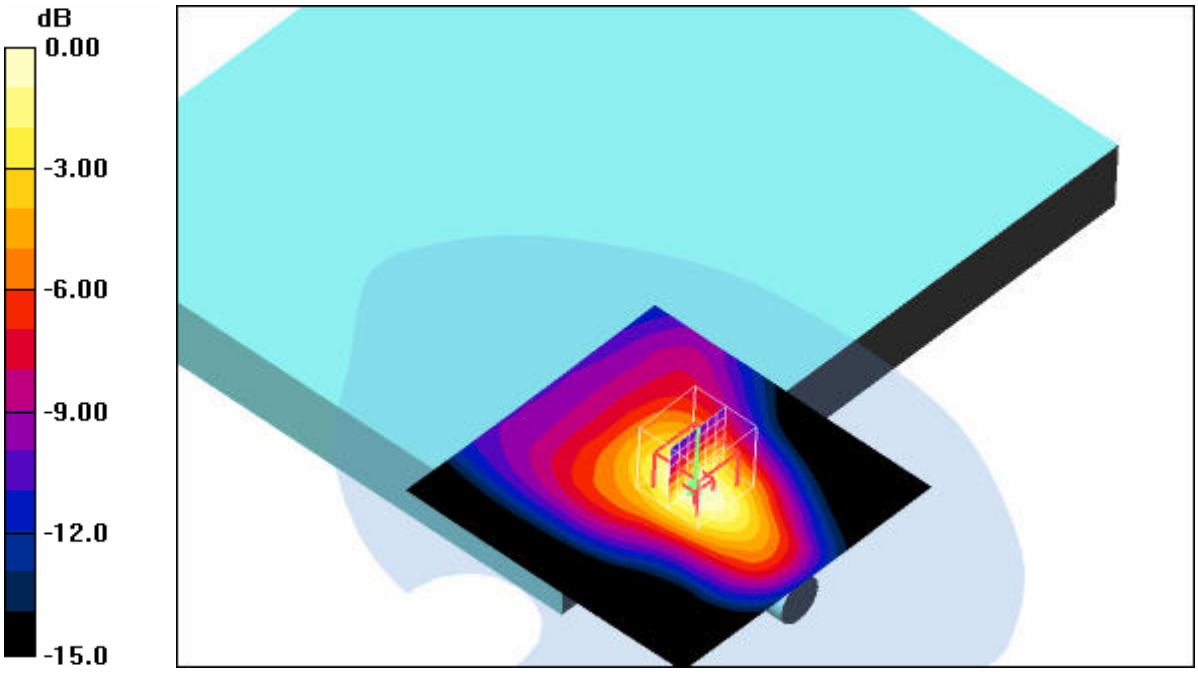
**DUT: Sony Ericsson; Type: MD300; Serial: BDX00029NZ**
Communication System: UMTS band V; Frequency: 836.4 MHz; Duty Cycle: 1:1
Medium: M850 Medium parameters used (interpolated): f = 836.4 MHz; $\sigma$ = 0.98 mho/m; $\varepsilon_r$ = 55; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(6.17, 6.17, 6.17); Calibrated: 2007-08-23
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 2008-01-18
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

### Underside position - Middle/Area Scan (91x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.869 mW/g

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

Reference Value = 31.0 V/m; Power Drift = 0.046 dB
Peak SAR (extrapolated) = 1.35 W/kg
**SAR(1 g) = 0.809 mW/g; SAR(10 g) = 0.488 mW/g**
Maximum value of SAR (measured) = 0.878 mW/g




0 dB = 0.878mW/g

**Additional information:**
position or distance of DUT to SAM: 4 mm (without any distance of the laptop to SAM)
ambient temperature: 22.9°C; liquid temperature: 21.8°C

Date/Time: 2008-02-12 15:23:58Date/Time: 2008-02-12 15:34:19

## P1528_OET65-Body-WCDMA850 2nd Laptop

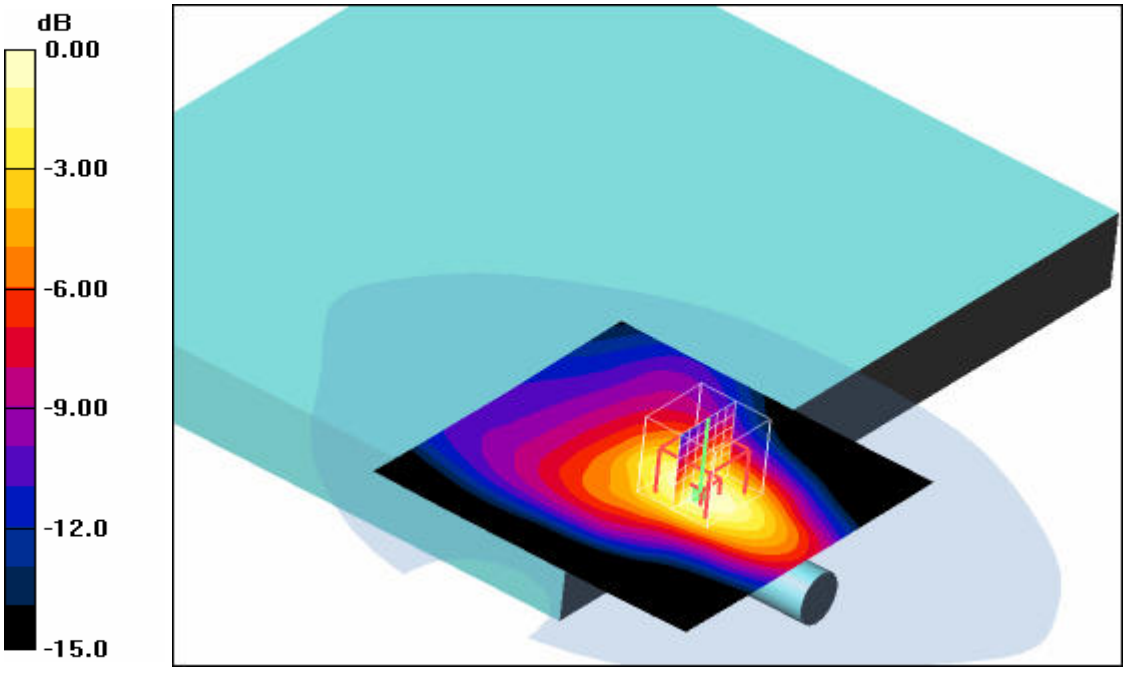
**DUT: Sony Ericsson; Type: MD300; Serial: BDX00029NZ**
Communication System: UMTS band V; Frequency: 826.4 MHz; Duty Cycle: 1:1
Medium: M850 Medium parameters used (interpolated): f = 826.4 MHz; $\sigma$ = 0.98 mho/m; $\varepsilon_r$ = 55; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(6.17, 6.17, 6.17); Calibrated: 2007-08-23
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 2008-01-18
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

### Underside position - Low/Area Scan (91x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.768 mW/g

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

Reference Value = 28.0 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 1.20 W/kg
**SAR(1 g) = 0.718 mW/g; SAR(10 g) = 0.433 mW/g**
Maximum value of SAR (measured) = 0.784 mW/g




0 dB = 0.784mW/g

**Additional information:**
position or distance of DUT to SAM: 4 mm (without any distance of the laptop to SAM)
ambient temperature: 22.6°C; liquid temperature: 21.8°C

Date/Time: 2008-02-12 15:49:19Date/Time: 2008-02-12 15:59:46

## P1528_OET65-Body-WCDMA850 2nd Laptop

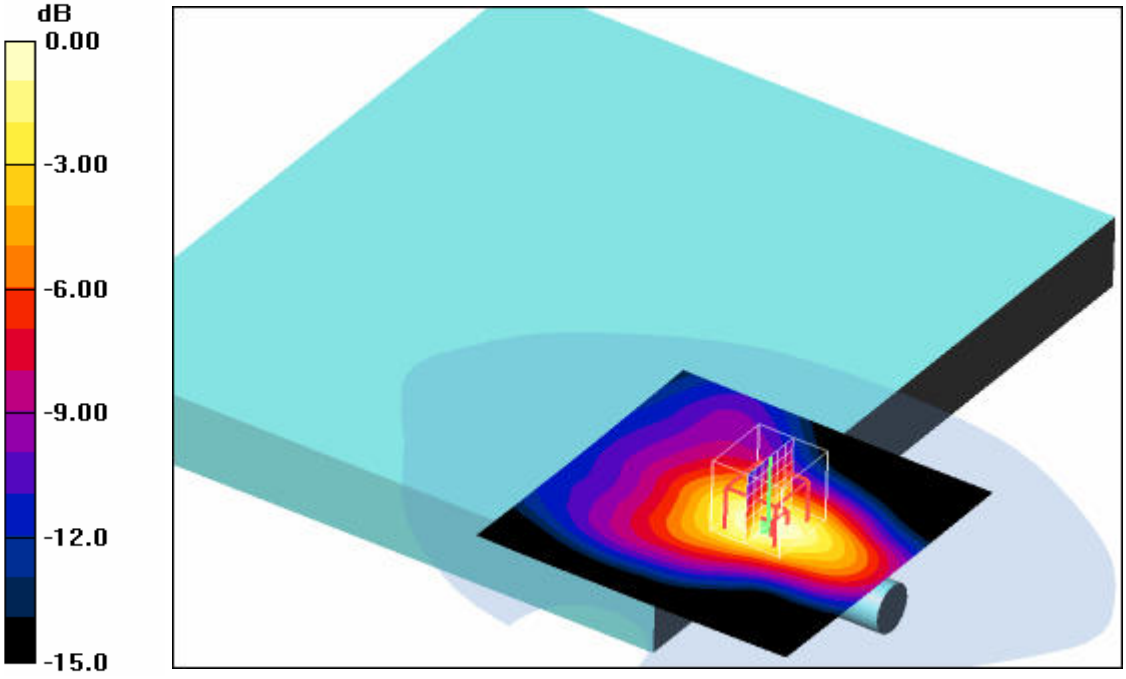
**DUT: Sony Ericsson; Type: MD300; Serial: BDX00029NZ**
Communication System: UMTS band V; Frequency: 846.6 MHz; Duty Cycle: 1:1
Medium: M850 Medium parameters used (interpolated): f = 846.6 MHz; $\sigma$ = 0.98 mho/m; $\varepsilon_r$ = 55; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(6.17, 6.17, 6.17); Calibrated: 2007-08-23
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 2008-01-18
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

### Underside position - High/Area Scan (91x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.844 mW/g

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

Reference Value = 28.2 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 1.30 W/kg
**SAR(1 g) = 0.797 mW/g; SAR(10 g) = 0.479 mW/g**
Maximum value of SAR (measured) = 0.873 mW/g




0 dB = 0.873mW/g

**Additional information:**
position or distance of DUT to SAM: 4 mm (without any distance of the laptop to SAM)
ambient temperature: 22.3°C; liquid temperature: 21.8°C

Date/Time: 2008-02-12 18:13:16Date/Time: 2008-02-12 18:24:09

## P1528_OET65-Body-WCDMA850 3rd Laptop

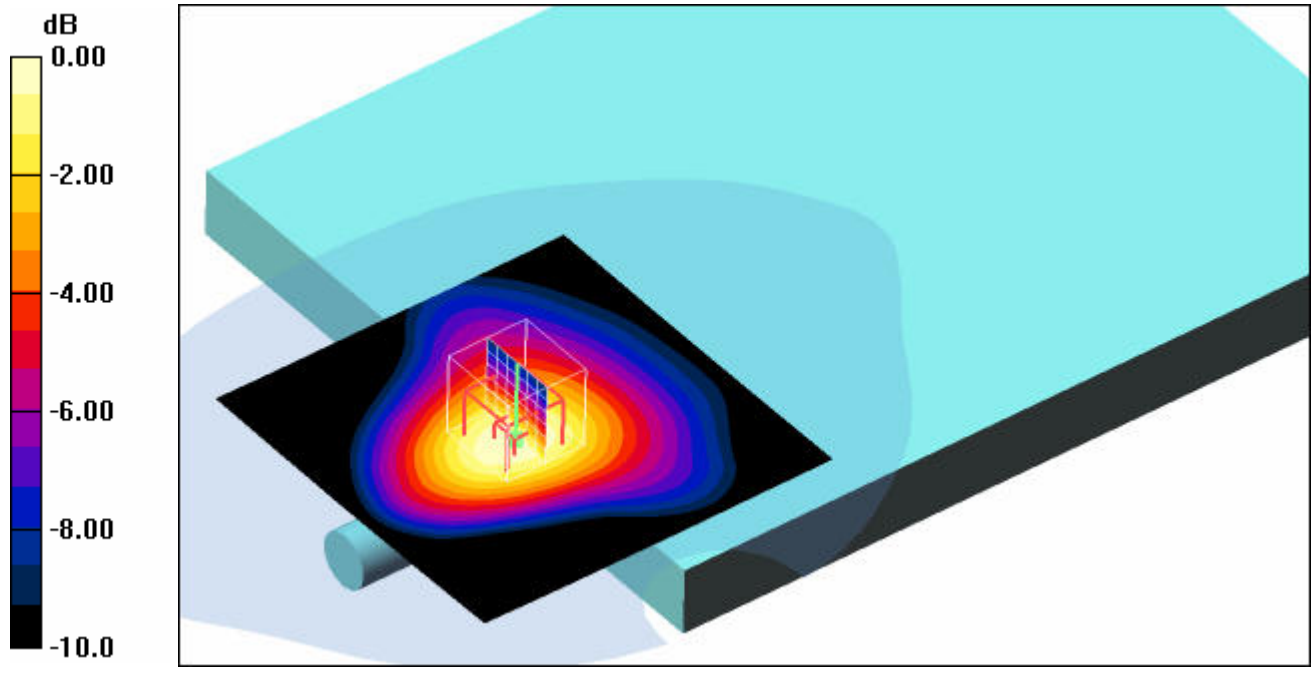
**DUT: Sony Ericsson; Type: MD300; Serial: BDX00029NZ**
Communication System: UMTS band V; Frequency: 836.4 MHz; Duty Cycle: 1:1
Medium: M850 Medium parameters used (interpolated): f = 836.4 MHz; $\sigma$ = 0.98 mho/m; $\varepsilon_r$ = 55; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(6.17, 6.17, 6.17); Calibrated: 2007-08-23
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 2008-01-18
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

### Underside position - Middle/Area Scan (91x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.717 mW/g

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

Reference Value = 27.1 V/m; Power Drift = 0.048 dB
Peak SAR (extrapolated) = 0.936 W/kg
**SAR(1 g) = 0.667 mW/g; SAR(10 g) = 0.454 mW/g**
Maximum value of SAR (measured) = 0.715 mW/g




0 dB = 0.715mW/g

**Additional information:**
position or distance of DUT to SAM: 12 mm (without any distance of the laptop to SAM)
ambient temperature: 22.0°C; liquid temperature: 21.6°C

Date/Time: 2008-02-12 17:05:05Date/Time: 2008-02-12 17:15:47

## P1528_OET65-Body-WCDMA-HSDPA-850 2nd Laptop

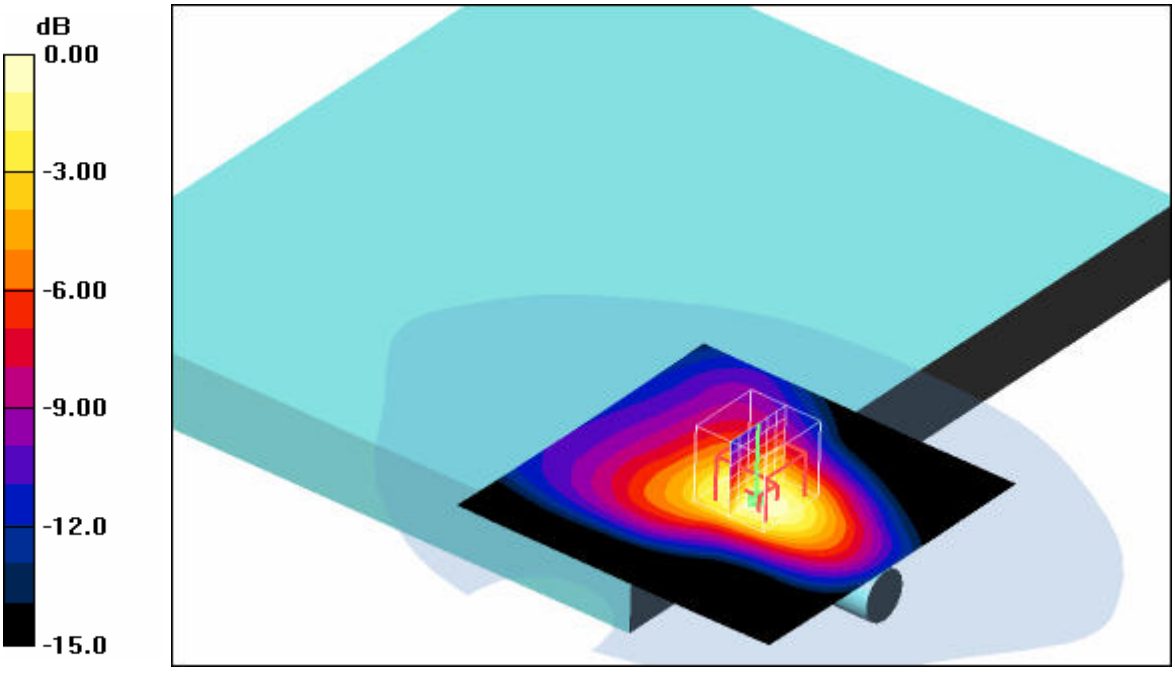
**DUT: Sony Ericsson; Type: MD300; Serial: BDX00029NZ**
Communication System: UMTS band V; Frequency: 836.4 MHz; Duty Cycle: 1:1
Medium: M850 Medium parameters used (interpolated): f = 836.4 MHz; $\sigma$ = 0.98 mho/m; $\varepsilon_r$ = 55; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(6.17, 6.17, 6.17); Calibrated: 2007-08-23
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 2008-01-18
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

### Underside position - Middle/Area Scan (91x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.793 mW/g

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

Reference Value = 28.7 V/m; Power Drift = 0.017 dB
Peak SAR (extrapolated) = 1.21 W/kg
**SAR(1 g) = 0.752 mW/g; SAR(10 g) = 0.456 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: 4 mm (without any distance of the laptop to SAM)
ambient temperature: 22.1°C; liquid temperature: 21.6°C

## Annex 2.3 GSM 1900 MHz body

Date/Time: 2008-02-14 16:27:08Date/Time: 2008-02-14 16:37:20

# P1528_OET65-Body-GSM1900 GPRS 1st Laptop

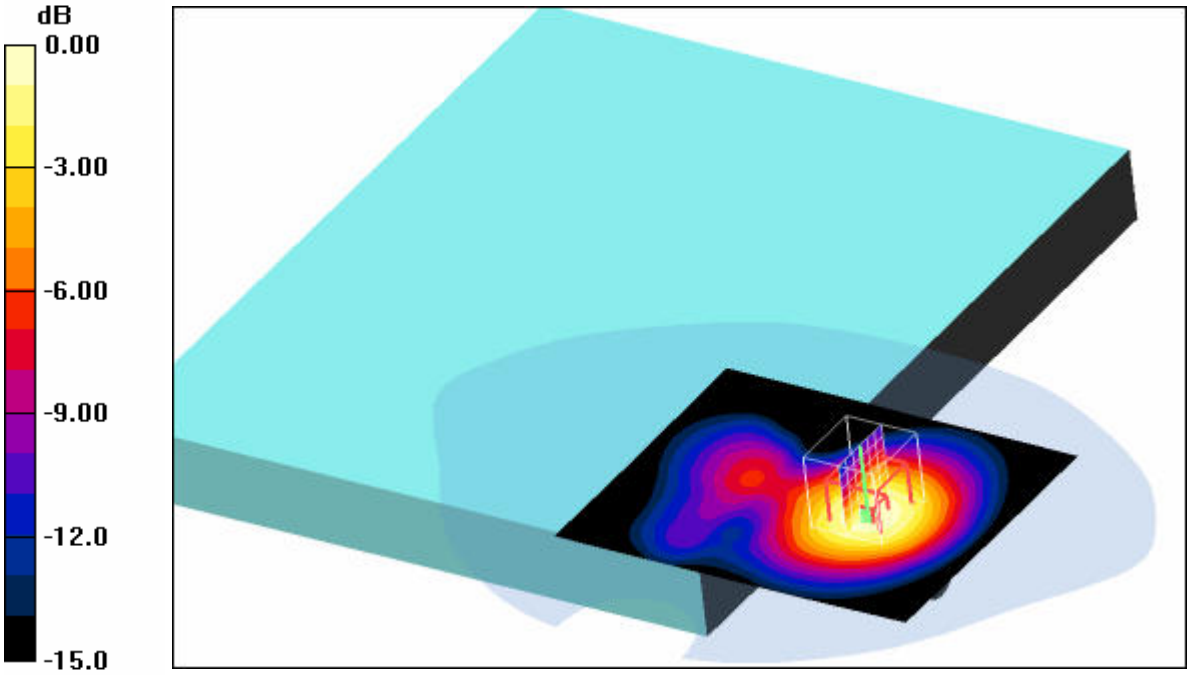
**DUT: Sony Ericsson; Type: MD300; Serial: BDX00029NZ**
Communication System: PCS 1900 GPRS class 10; Frequency: 1880 MHz; Duty Cycle: 1:4
Medium: M1900 Medium parameters used: f = 1880 MHz; $\sigma$ = 1.54 mho/m; $\varepsilon_r$ = 52.6; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(4.46, 4.46, 4.46); Calibrated: 2007-08-23
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 2008-01-18
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

## Underside position - Middle/Area Scan (81x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.778 mW/g

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

Reference Value = 23.1 V/m; Power Drift = 0.016 dB
Peak SAR (extrapolated) = 1.05 W/kg
**SAR(1 g) = 0.704 mW/g; SAR(10 g) = 0.445 mW/g**
Maximum value of SAR (measured) = 0.766 mW/g




0 dB = 0.766mW/g

**Additional information:**
position or distance of DUT to SAM: 11 mm (without any distance of the laptop to SAM)
ambient temperature: 22.4°C; liquid temperature: 22.2°C

Date/Time: 2008-02-14 12:52:57Date/Time: 2008-02-14 13:03:20

## P1528_OET65-Body-GSM1900 GPRS 2nd Laptop

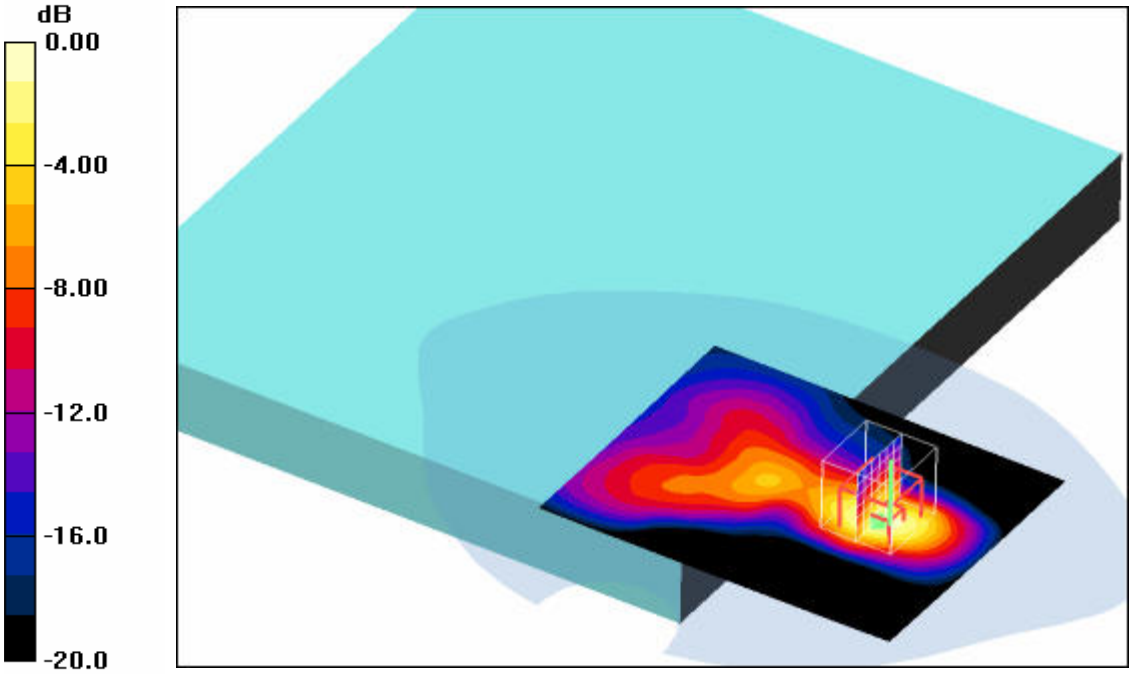
**DUT: Sony Ericsson; Type: MD300; Serial: BDX00029NZ**
Communication System: PCS 1900 GPRS class 10; Frequency: 1880 MHz; Duty Cycle: 1:4
Medium: M1900 Medium parameters used: f = 1880 MHz; $\sigma$ = 1.54 mho/m; $\varepsilon_r$ = 52.6; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(4.46, 4.46, 4.46); Calibrated: 2007-08-23
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 2008-01-18
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

### Underside position - Middle/Area Scan (81x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.50 mW/g

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

Reference Value = 32.9 V/m; Power Drift = -0.034 dB
Peak SAR (extrapolated) = 2.76 W/kg
**SAR(1 g) = 1.36 mW/g; SAR(10 g) = 0.642 mW/g**
Maximum value of SAR (measured) = 1.58 mW/g




0 dB = 1.58mW/g

**Additional information:**
position or distance of DUT to SAM: 4 mm (without any distance of the laptop to SAM)
ambient temperature: 22.8°C; liquid temperature: 22.5°C

Date/Time: 2008-02-14 13:18:53Date/Time: 2008-02-14 13:29:18

## P1528_OET65-Body-GSM1900 GPRS 2nd Laptop

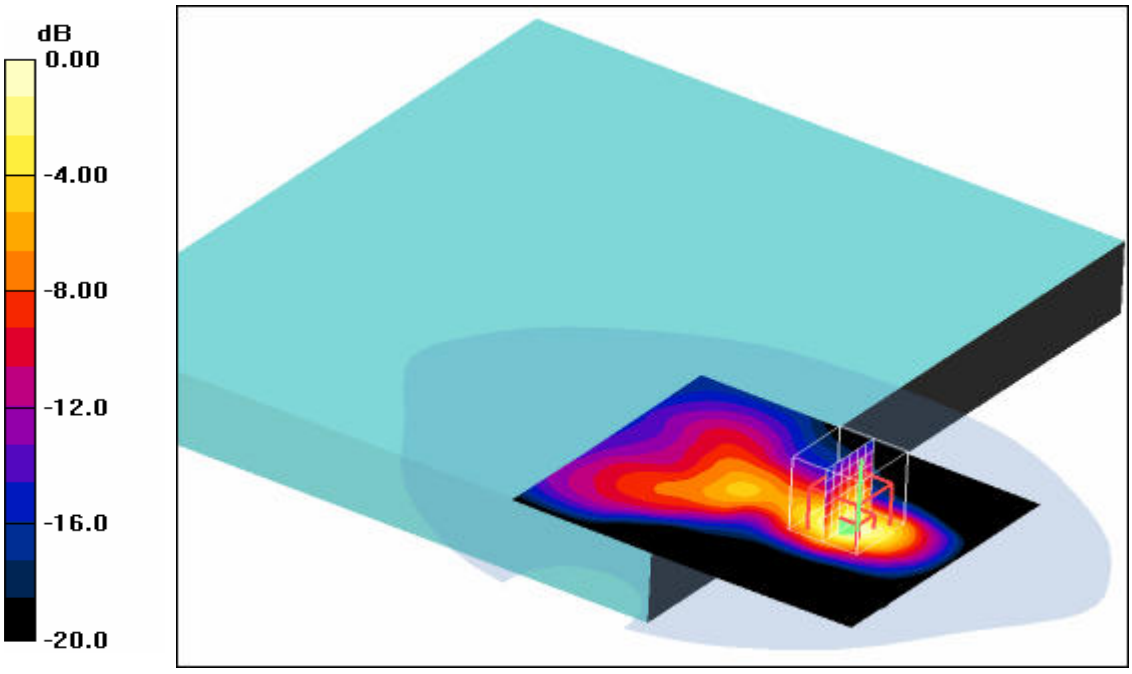
**DUT: Sony Ericsson; Type: MD300; Serial: BDX00029NZ**
Communication System: PCS 1900 GPRS class 10; Frequency: 1850.2 MHz; Duty Cycle: 1:4
Medium: M1900 Medium parameters used: f = 1850.2 MHz; $\sigma$ = 1.54 mho/m; $\varepsilon_r$ = 52.6; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(4.46, 4.46, 4.46); Calibrated: 2007-08-23
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 2008-01-18
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

### Underside position - Low/Area Scan (81x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.34 mW/g

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

Reference Value = 31.4 V/m; Power Drift = -0.016 dB
Peak SAR (extrapolated) = 2.44 W/kg
**SAR(1 g) = 1.22 mW/g; SAR(10 g) = 0.581 mW/g**
Maximum value of SAR (measured) = 1.42 mW/g




0 dB = 1.42mW/g

**Additional information:**
position or distance of DUT to SAM: 4 mm (without any distance of the laptop to SAM)
ambient temperature: 22.9°C; liquid temperature: 22.4°C

Date/Time: 2008-02-14 13:46:46Date/Time: 2008-02-14 13:57:16

## P1528_OET65-Body-GSM1900 GPRS 2nd Laptop

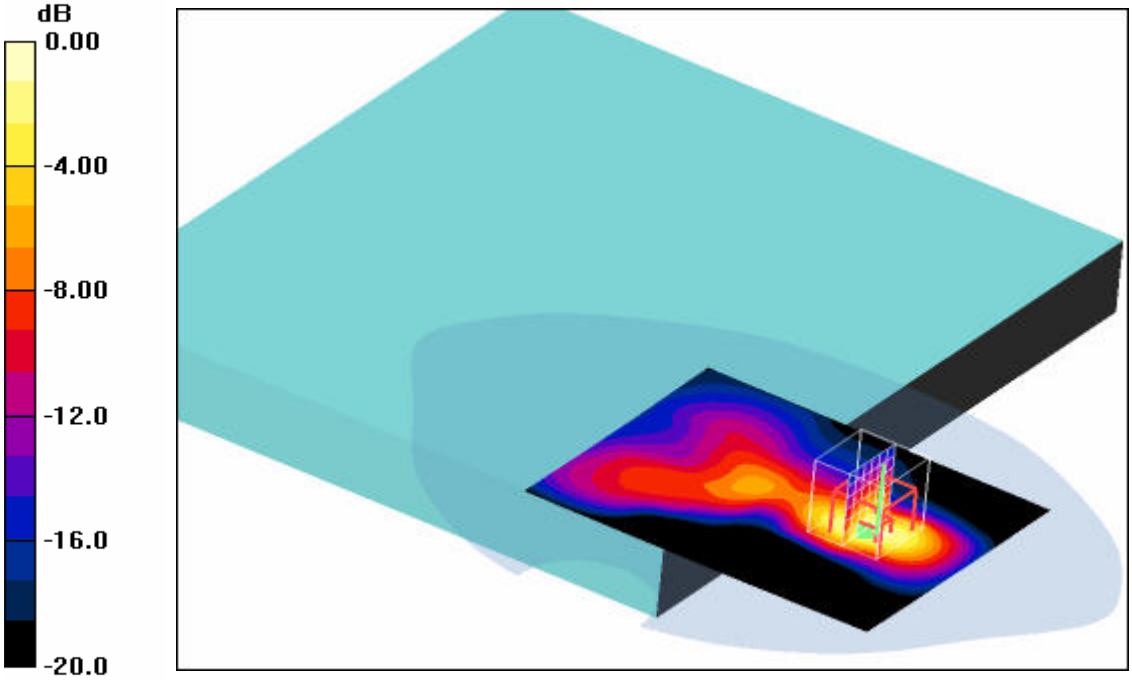
**DUT: Sony Ericsson; Type: MD300; Serial: BDX00029NZ**
Communication System: PCS 1900 GPRS class 10; Frequency: 1909.8 MHz; Duty Cycle: 1:4
Medium: M1900 Medium parameters used: f = 1909.8 MHz; $\sigma$ = 1.54 mho/m; $\varepsilon_r$ = 52.6; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(4.46, 4.46, 4.46); Calibrated: 2007-08-23
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 2008-01-18
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

### Underside position - High/Area Scan (81x101x1): Measurement grid: dx=15mm, dy=15mm

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

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

Reference Value = 28.3 V/m; Power Drift = -0.051 dB
Peak SAR (extrapolated) = 2.38 W/kg
**SAR(1 g) = 1.1 mW/g; SAR(10 g) = 0.504 mW/g**
Maximum value of SAR (measured) = 1.27 mW/g




0 dB = 1.27mW/g

**Additional information:**
position or distance of DUT to SAM: 4 mm (without any distance of the laptop to SAM)
ambient temperature: 23.0°C; liquid temperature: 22.4°C

Date/Time: 2008-02-14 15:06:19Date/Time: 2008-02-14 15:16:38

## P1528_OET65-Body-GSM1900 GPRS 3rd Laptop

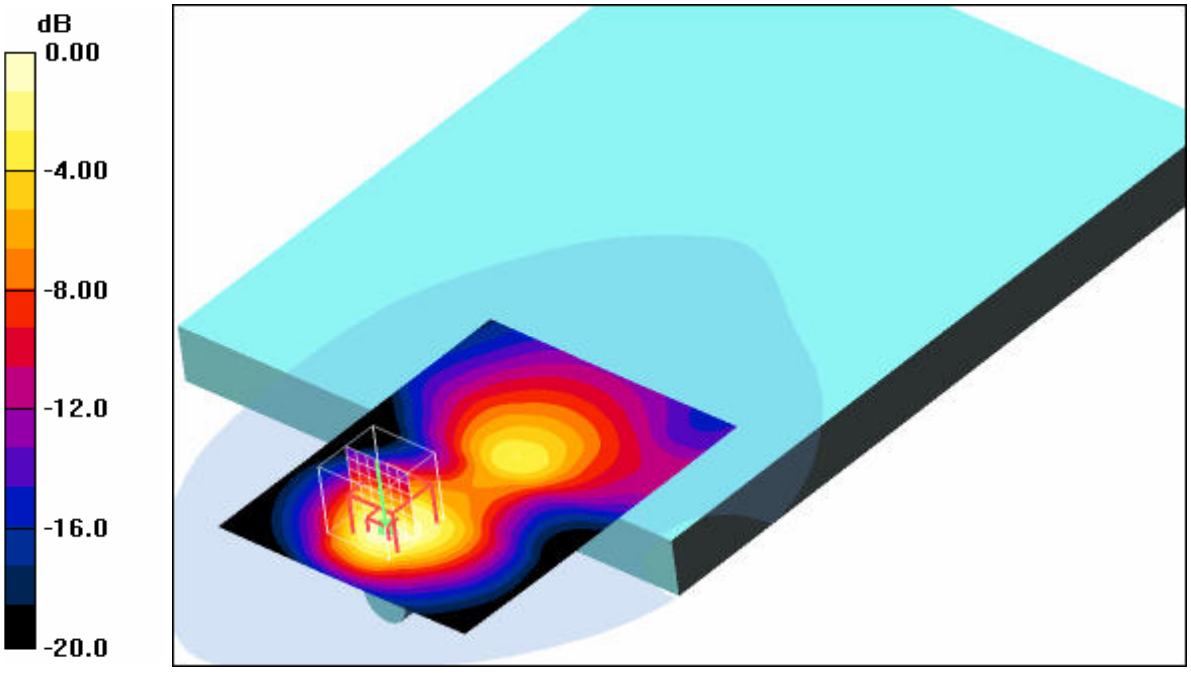
**DUT: Sony Ericsson; Type: MD300; Serial: BDX00029NZ**
Communication System: PCS 1900 GPRS class 10; Frequency: 1880 MHz; Duty Cycle: 1:4
Medium: M1900 Medium parameters used: f = 1880 MHz; $\sigma$ = 1.54 mho/m; $\varepsilon_r$ = 52.6; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(4.46, 4.46, 4.46); Calibrated: 2007-08-23
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 2008-01-18
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

### Underside position - Middle/Area Scan (81x101x1): Measurement grid: dx=15mm, dy=15mm

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

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

Reference Value = 25.9 V/m; Power Drift = -0.031 dB
Peak SAR (extrapolated) = 1.77 W/kg
**SAR(1 g) = 0.988 mW/g; SAR(10 g) = 0.556 mW/g**
Maximum value of SAR (measured) = 1.10 mW/g




0 dB = 1.10mW/g

**Additional information:**
position or distance of DUT to SAM: 12 mm (without any distance of the laptop to SAM)
ambient temperature: 22.6°C; liquid temperature: 22.4°C

Date/Time: 2008-02-14 15:31:52Date/Time: 2008-02-14 15:42:10

## P1528_OET65-Body-GSM1900 GPRS 3rd Laptop

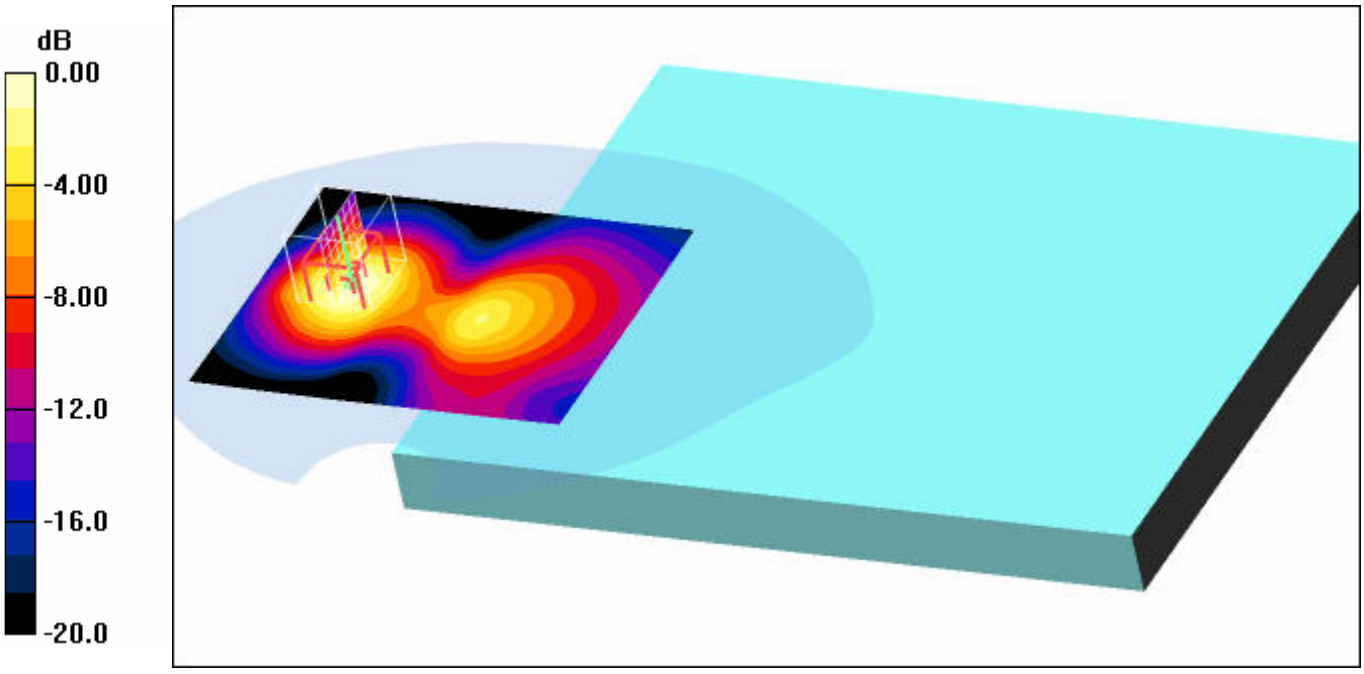
**DUT: Sony Ericsson; Type: MD300; Serial: BDX00029NZ**
Communication System: PCS 1900 GPRS class 10; Frequency: 1850.2 MHz; Duty Cycle: 1:4
Medium: M1900 Medium parameters used: f = 1850.2 MHz; $\sigma$ = 1.54 mho/m; $\varepsilon_r$ = 52.6; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(4.46, 4.46, 4.46); Calibrated: 2007-08-23
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 2008-01-18
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

### Underside position - Low/Area Scan (81x101x1): Measurement grid: dx=15mm, dy=15mm

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

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

Reference Value = 23.4 V/m; Power Drift = -0.049 dB
Peak SAR (extrapolated) = 1.45 W/kg
**SAR(1 g) = 0.819 mW/g; SAR(10 g) = 0.461 mW/g**
Maximum value of SAR (measured) = 0.917 mW/g




0 dB = 0.917mW/g

**Additional information:**
position or distance of DUT to SAM: 12 mm (without any distance of the laptop to SAM)
ambient temperature: 22.6°C; liquid temperature: 22.4°C

Date/Time: 2008-02-14 15:56:34Date/Time: 2008-02-14 16:06:53

## P1528_OET65-Body-GSM1900 GPRS 3rd Laptop

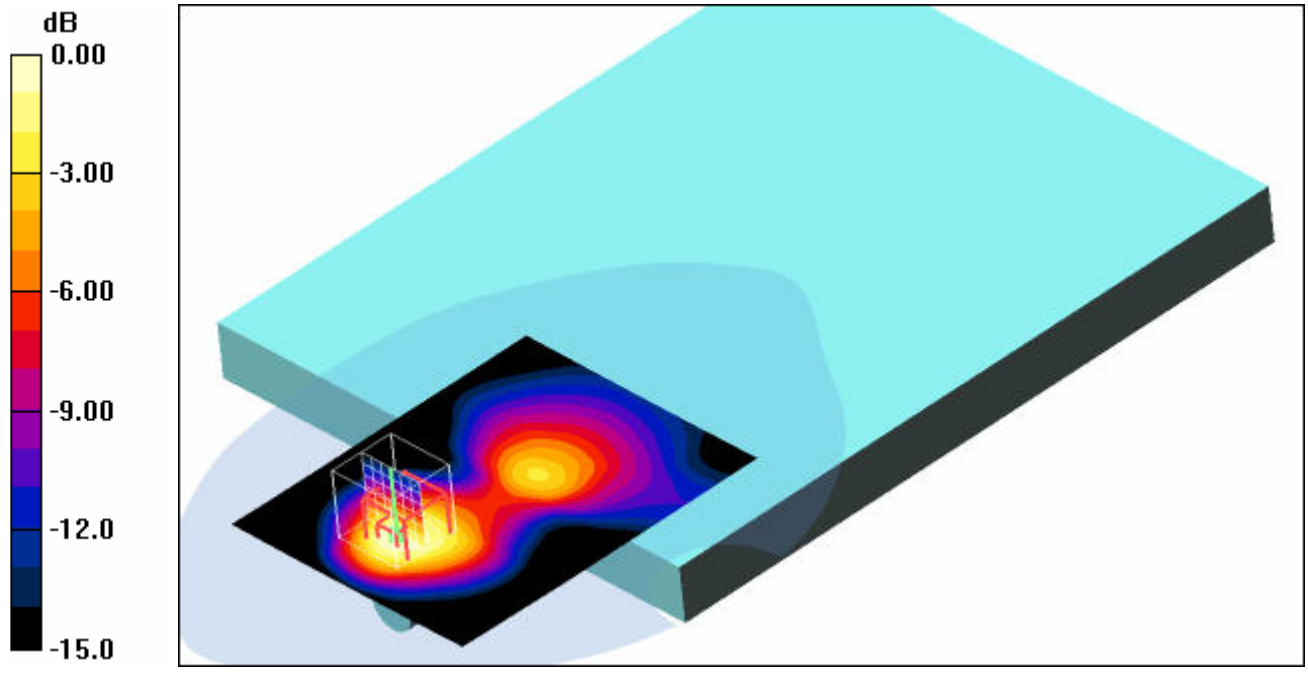
**DUT: Sony Ericsson; Type: MD300; Serial: BDX00029NZ**
Communication System: PCS 1900 GPRS class 10; Frequency: 1909.8 MHz; Duty Cycle: 1:4
Medium: M1900 Medium parameters used: f = 1909.8 MHz; $\sigma$ = 1.54 mho/m; $\varepsilon_r$ = 52.6; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(4.46, 4.46, 4.46); Calibrated: 2007-08-23
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 2008-01-18
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

### Underside position - High/Area Scan (81x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.927 mW/g

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

Reference Value = 22.6 V/m; Power Drift = 0.055 dB
Peak SAR (extrapolated) = 1.36 W/kg
**SAR(1 g) = 0.750 mW/g; SAR(10 g) = 0.421 mW/g**
Maximum value of SAR (measured) = 0.829 mW/g




0 dB = 0.829mW/g

**Additional information:**
position or distance of DUT to SAM: 12 mm (without any distance of the laptop to SAM)
ambient temperature: 22.5°C; liquid temperature: 22.3°C

Date/Time: 2008-02-14 14:20:29Date/Time: 2008-02-14 14:32:00

## P1528_OET65-Body-GSM1900 EGPRS 2nd Laptop

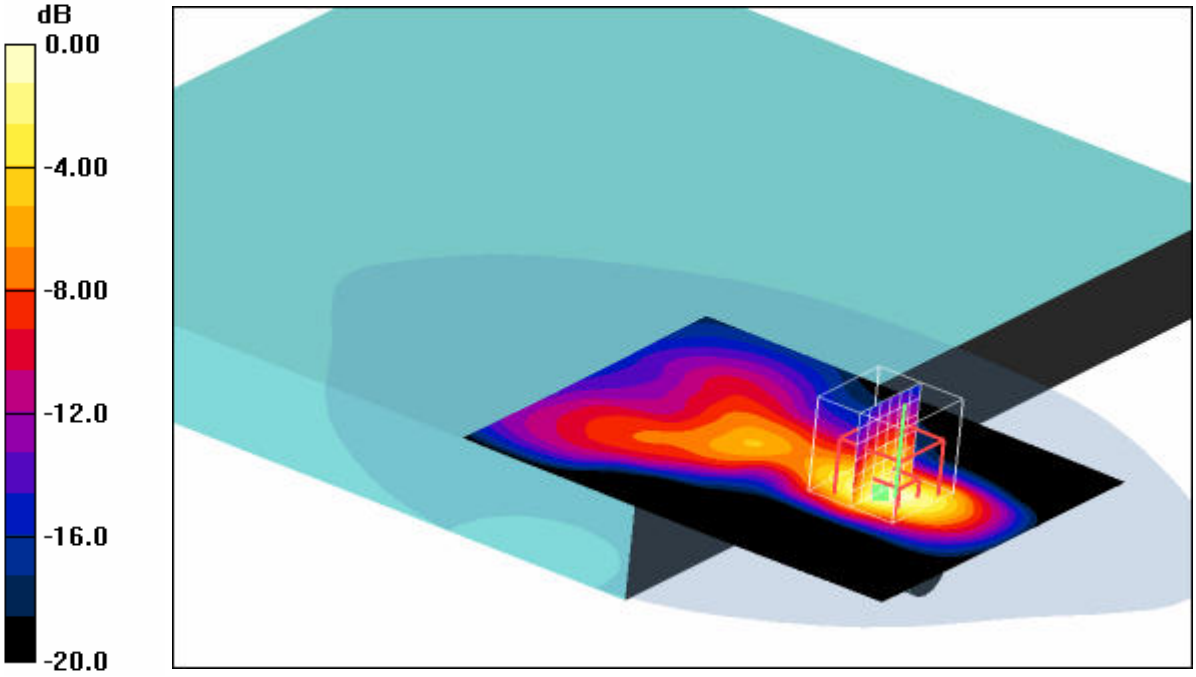
**DUT: Sony Ericsson; Type: MD300; Serial: BDX00029NZ**
Communication System: PCS 1900 EGPRS class 10; Frequency: 1880 MHz; Duty Cycle: 1:4
Medium: M1900 Medium parameters used: f = 1880 MHz; $\sigma$ = 1.54 mho/m; $\varepsilon_r$ = 52.6; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(4.46, 4.46, 4.46); Calibrated: 2007-08-23
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 2008-01-18
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

### Underside position - Middle/Area Scan (81x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.32 mW/g

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

Reference Value = 30.9 V/m; Power Drift = -0.041 dB
Peak SAR (extrapolated) = 2.42 W/kg
**SAR(1 g) = 1.21 mW/g; SAR(10 g) = 0.572 mW/g**
Maximum value of SAR (measured) = 1.42 mW/g




0 dB = 1.42mW/g

**Additional information:**
position or distance of DUT to SAM: 4 mm (without any distance of the laptop to SAM)
ambient temperature: 22.4°C; liquid temperature: 22.4°C

## Annex 2.4 WCDMA 1900 MHz body

Date/Time: 2008-02-13 15:01:13Date/Time: 2008-02-13 15:12:34

# P1528_OET65-Body-WCDMA1900 1st Laptop

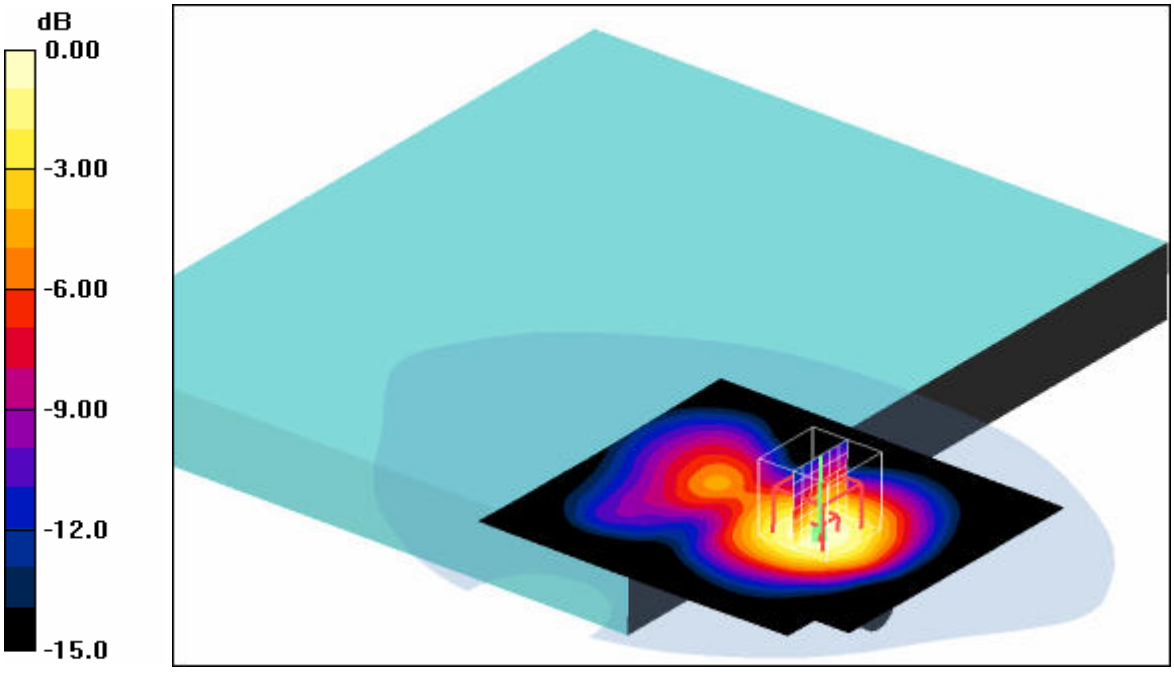
**DUT: Sony Ericsson; Type: MD300; Serial: BDX00029NZ**
Communication System: WCDMA US; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: M1900 Medium parameters used: f = 1880 MHz; $\sigma$ = 1.54 mho/m; $\varepsilon_r$ = 52.6; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(4.46, 4.46, 4.46); Calibrated: 2007-08-23
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 2008-01-18
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

## Underside position - Middle/Area Scan (91x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.455 mW/g

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

Reference Value = 17.3 V/m; Power Drift = 0.036 dB
Peak SAR (extrapolated) = 0.626 W/kg
**SAR(1 g) = 0.416 mW/g; SAR(10 g) = 0.261 mW/g**
Maximum value of SAR (measured) = 0.451 mW/g




0 dB = 0.451mW/g

**Additional information:**
position or distance of DUT to SAM: 11 mm (without any distance of the laptop to SAM)
ambient temperature: 21.9°C; liquid temperature: 21.7°C

Date/Time: 2008-02-13 12:10:46Date/Time: 2008-02-13 12:21:21

## P1528_OET65-Body-WCDMA1900 2nd Laptop

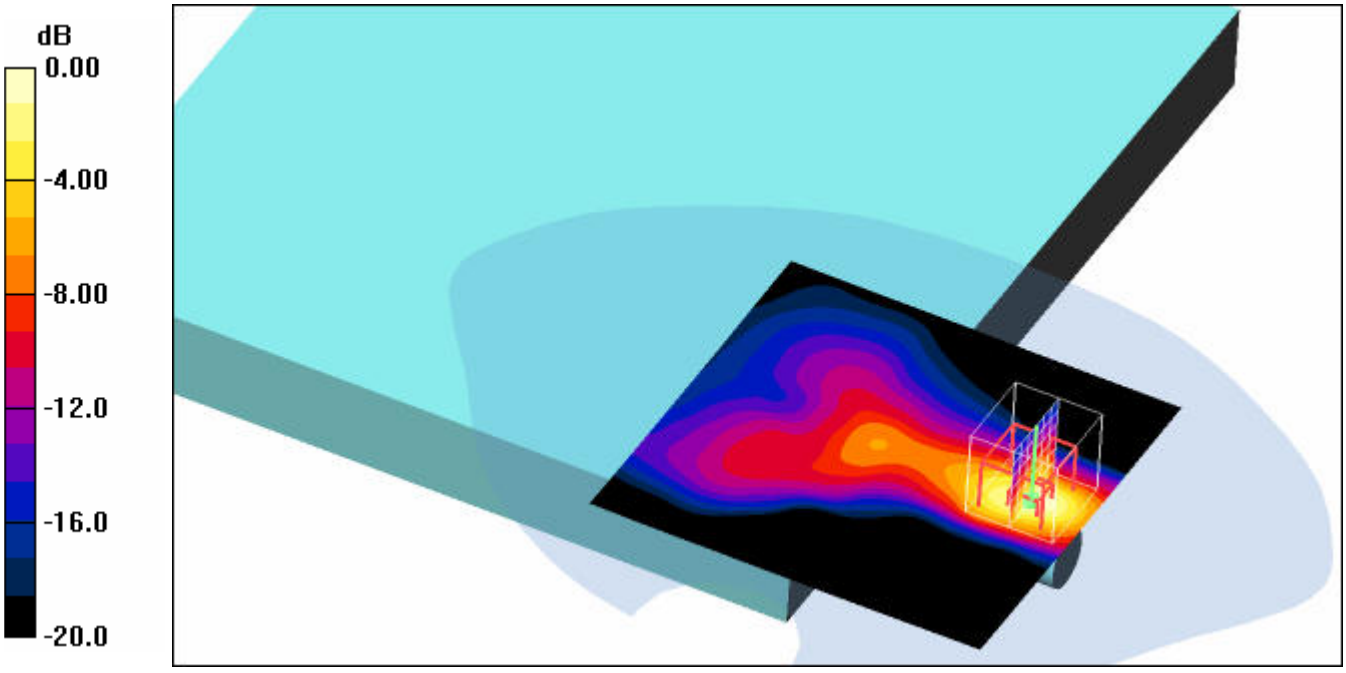
**DUT: Sony Ericsson; Type: MD300; Serial: BDX00029NZ**
Communication System: WCDMA US; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: M1900 Medium parameters used: f = 1880 MHz; $\sigma$ = 1.54 mho/m; $\varepsilon_r$ = 52.6; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(4.46, 4.46, 4.46); Calibrated: 2007-08-23
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 2008-01-18
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

### Underside position - Middle/Area Scan (91x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.41 mW/g

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

Reference Value = 30.8 V/m; Power Drift = 0.037 dB
Peak SAR (extrapolated) = 2.76 W/kg
**SAR(1 g) = 1.28 mW/g; SAR(10 g) = 0.574 mW/g**
Maximum value of SAR (measured) = 1.53 mW/g




0 dB = 1.53mW/g

**Additional information:**
position or distance of DUT to SAM: 4 mm (without any distance of the laptop to SAM)
ambient temperature: 21.9°C; liquid temperature: 21.7°C

Date/Time: 2008-02-13 12:38:34Date/Time: 2008-02-13 12:49:53

## P1528_OET65-Body-WCDMA1900 2nd Laptop

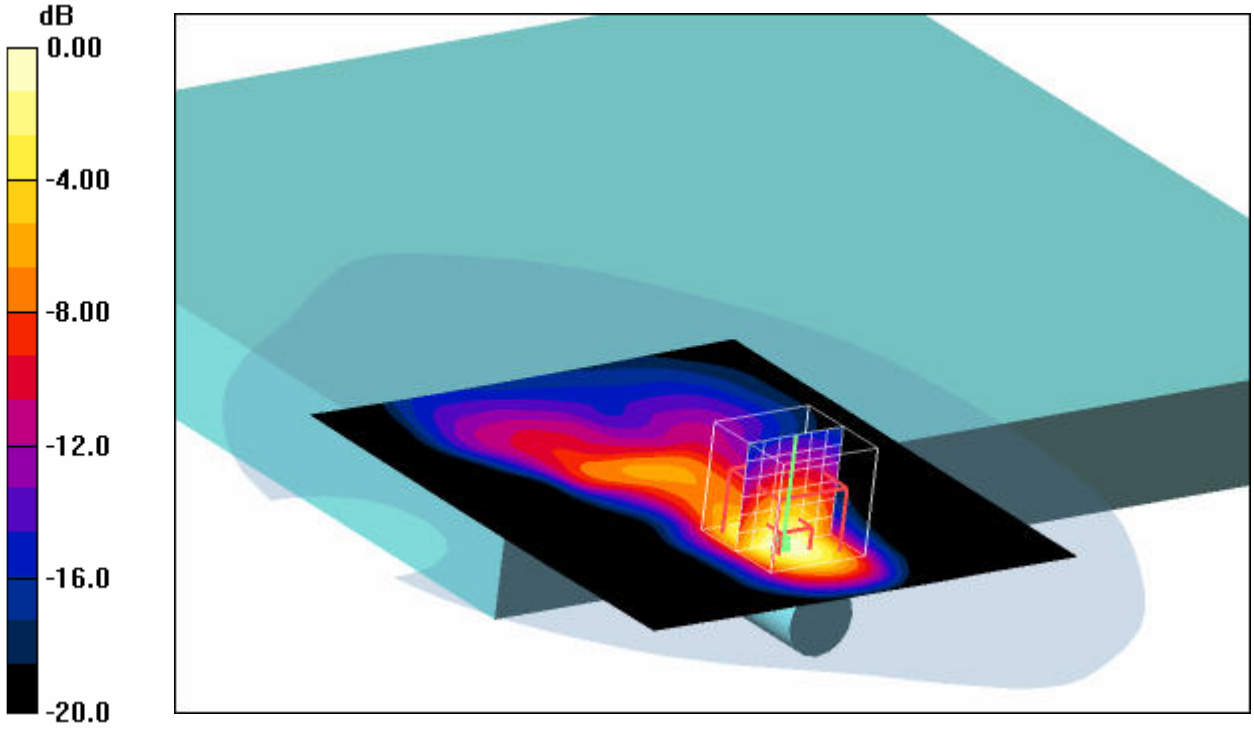
**DUT: Sony Ericsson; Type: MD300; Serial: BDX00029NZ**
Communication System: WCDMA US; Frequency: 1852.5 MHz; Duty Cycle: 1:1
Medium: M1900 Medium parameters used (interpolated): f = 1852.5 MHz; $\sigma$ = 1.54 mho/m; $\varepsilon_r$ = 52.6; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(4.46, 4.46, 4.46); Calibrated: 2007-08-23
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 2008-01-18
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

### Underside position - Low/Area Scan (91x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.62 mW/g

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

Reference Value = 25.9 V/m; Power Drift = -0.012 dB
Peak SAR (extrapolated) = 2.97 W/kg
**SAR(1 g) = 1.41 mW/g; SAR(10 g) = 0.634 mW/g**
Maximum value of SAR (measured) = 1.66 mW/g




0 dB = 1.66mW/g

**Additional information:**
position or distance of DUT to SAM: 4 mm (without any distance of the laptop to SAM)
ambient temperature: 21.7°C; liquid temperature: 21.8°C

Date/Time: 2008-02-13 13:04:08Date/Time: 2008-02-13 13:14:37

## P1528_OET65-Body-WCDMA1900 2nd Laptop

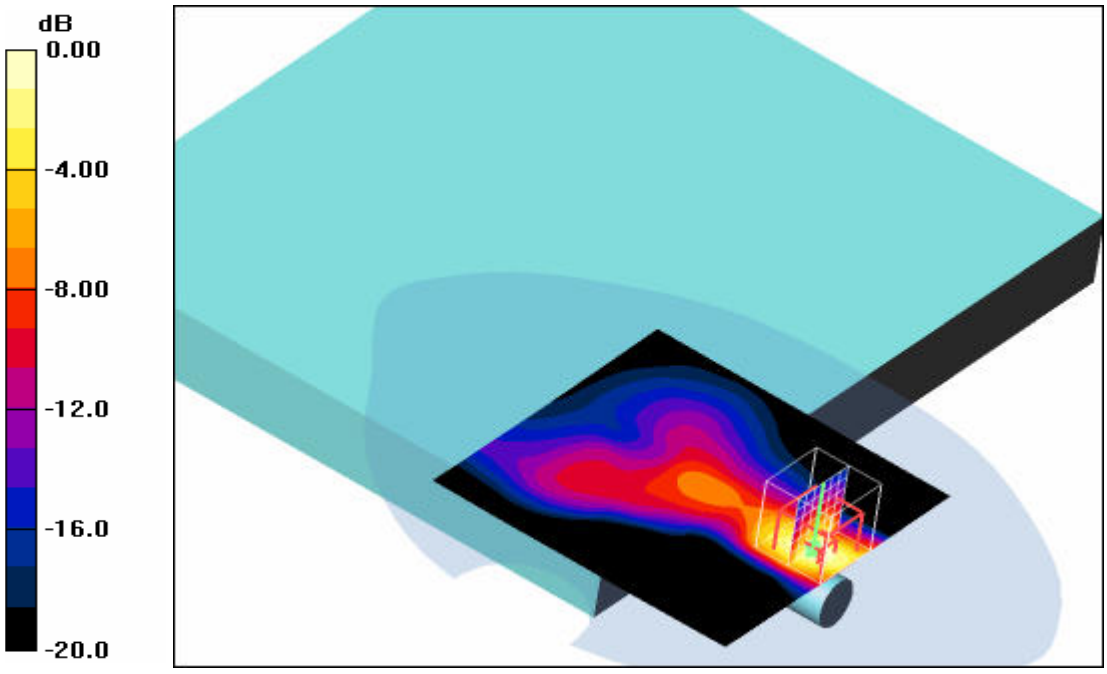
**DUT: Sony Ericsson; Type: MD300; Serial: BDX00029NZ**
Communication System: WCDMA US; Frequency: 1907.6 MHz; Duty Cycle: 1:1
Medium: M1900 Medium parameters used (interpolated): f = 1907.6 MHz; $\sigma$ = 1.54 mho/m; $\varepsilon_r$ = 52.6; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(4.46, 4.46, 4.46); Calibrated: 2007-08-23
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 2008-01-18
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

### Underside position - High/Area Scan (91x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.38 mW/g

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

Reference Value = 30.3 V/m; Power Drift = -0.00 dB
Peak SAR (extrapolated) = 2.82 W/kg
**SAR(1 g) = 1.24 mW/g; SAR(10 g) = 0.541 mW/g**
Maximum value of SAR (measured) = 1.42 mW/g




0 dB = 1.42mW/g

**Additional information:**
position or distance of DUT to SAM: 4 mm (without any distance of the laptop to SAM)
ambient temperature: 21.9°C; liquid temperature: 21.8°C

Date/Time: 2008-02-13 15:40:23Date/Time: 2008-02-13 15:51:37

## P1528_OET65-Body-WCDMA1900 3rd Laptop

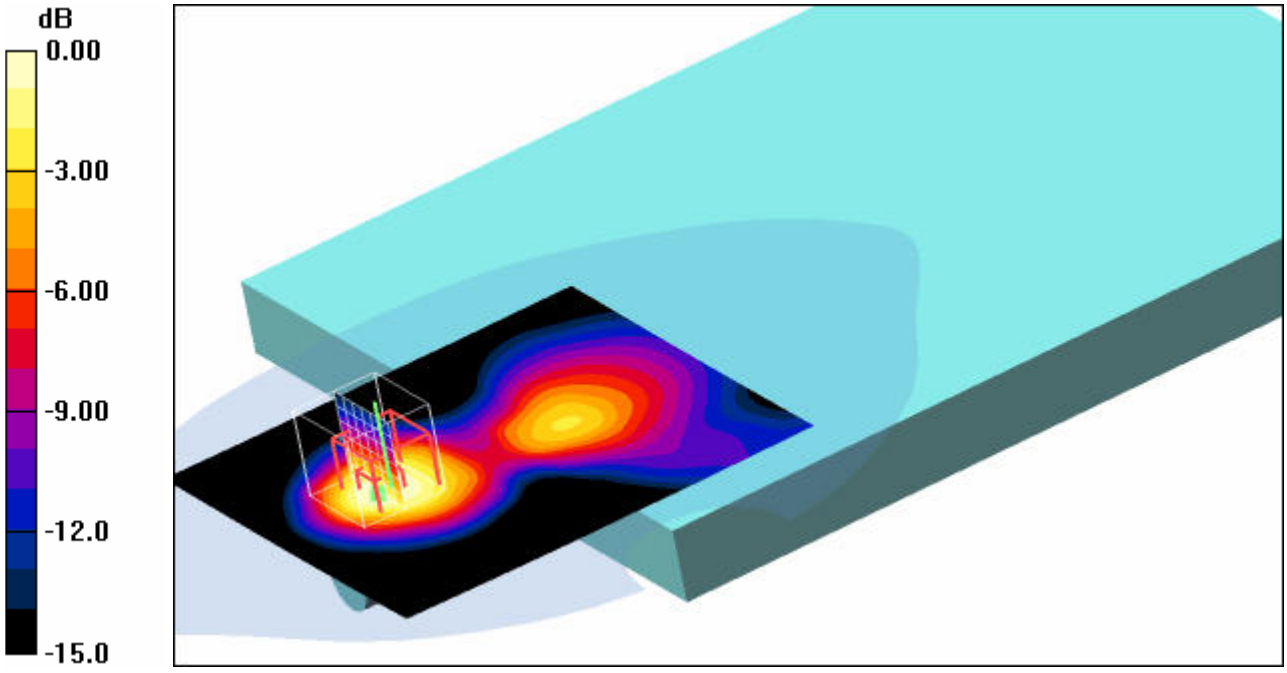
**DUT: Sony Ericsson; Type: MD300; Serial: BDX00029NZ**
Communication System: WCDMA US; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: M1900 Medium parameters used: f = 1880 MHz; $\sigma$ = 1.54 mho/m; $\varepsilon_r$ = 52.6; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(4.46, 4.46, 4.46); Calibrated: 2007-08-23
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 2008-01-18
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

### Underside position - Middle/Area Scan (91x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.701 mW/g

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

Reference Value = 22.3 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 1.16 W/kg
**SAR(1 g) = 0.641 mW/g; SAR(10 g) = 0.360 mW/g**
Maximum value of SAR (measured) = 0.687 mW/g




0 dB = 0.687mW/g

**Additional information:**
position or distance of DUT to SAM: 12 mm (without any distance of the laptop to SAM)
ambient temperature: 21.8°C; liquid temperature: 21.7°C

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## P1528_OET65-Body-WCDMA1900 2nd Laptop

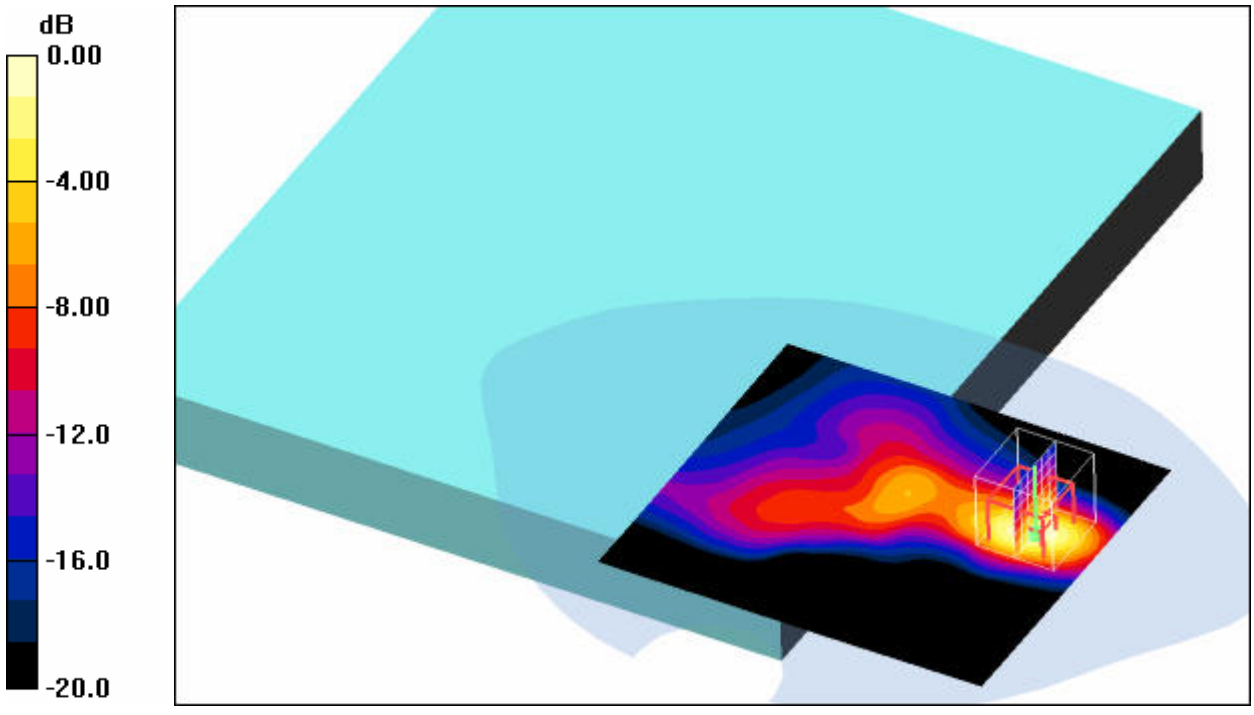
**DUT: Sony Ericsson; Type: MD300; Serial: BDX00029NZ**
Communication System: WCDMA US; Frequency: 1852.5 MHz; Duty Cycle: 1:1
Medium: M1900 Medium parameters used (interpolated): f = 1852.5 MHz; $\sigma$ = 1.54 mho/m; $\varepsilon_r$ = 52.6; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section
DASY4 Configuration:
- Probe: ET3DV6 - SN1558; ConvF(4.46, 4.46, 4.46); Calibrated: 2007-08-23
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn413; Calibrated: 2008-01-18
- Phantom: SAM 12; Type: SAM; Serial: 1043
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

## Underside position - Low HSDPA/Area Scan (91x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.55 mW/g

## Underside position - Low HSDPA/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:

dx=5mm, dy=5mm, dz=5mm
Reference Value = 27.3 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 2.86 W/kg
**SAR(1 g) = 1.39 mW/g; SAR(10 g) = 0.642 mW/g**
Maximum value of SAR (measured) = 1.64 mW/g




0 dB = 1.64mW/g

**Additional information:**
position or distance of DUT to SAM: 4 mm (without any distance of the laptop to SAM)
ambient temperature: 21.7°C; liquid temperature: 21.8°C

Photo 25: Z-axis scans 850 MHz

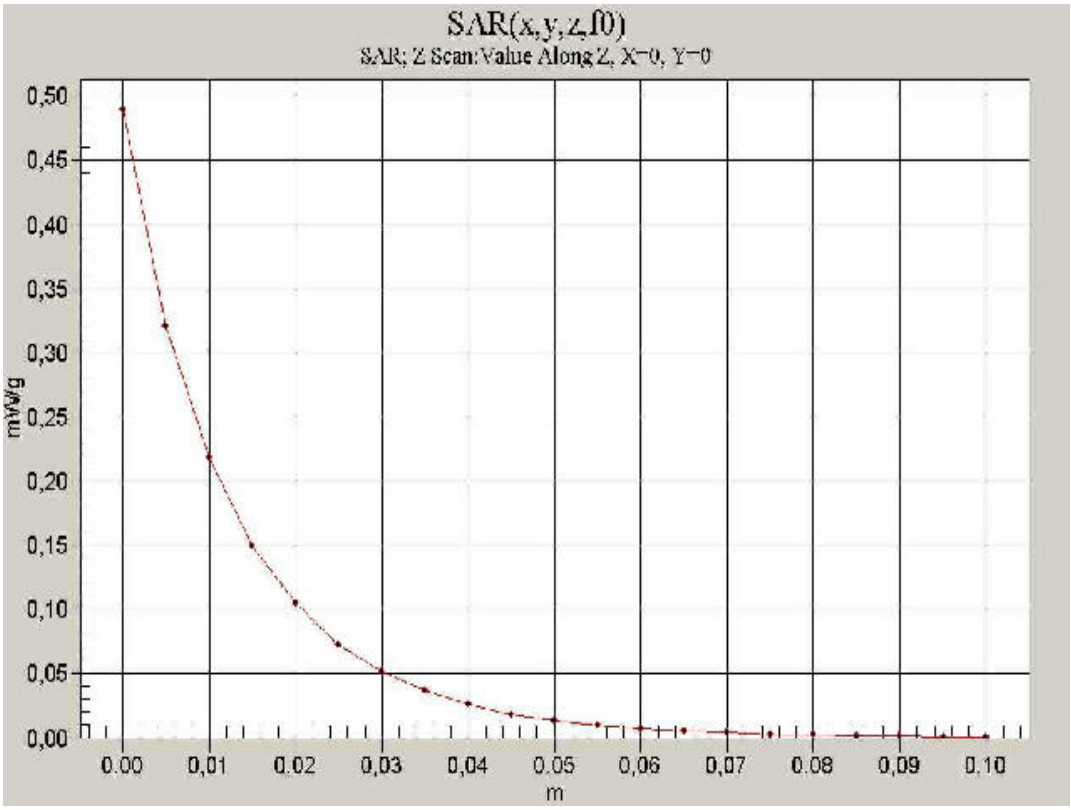
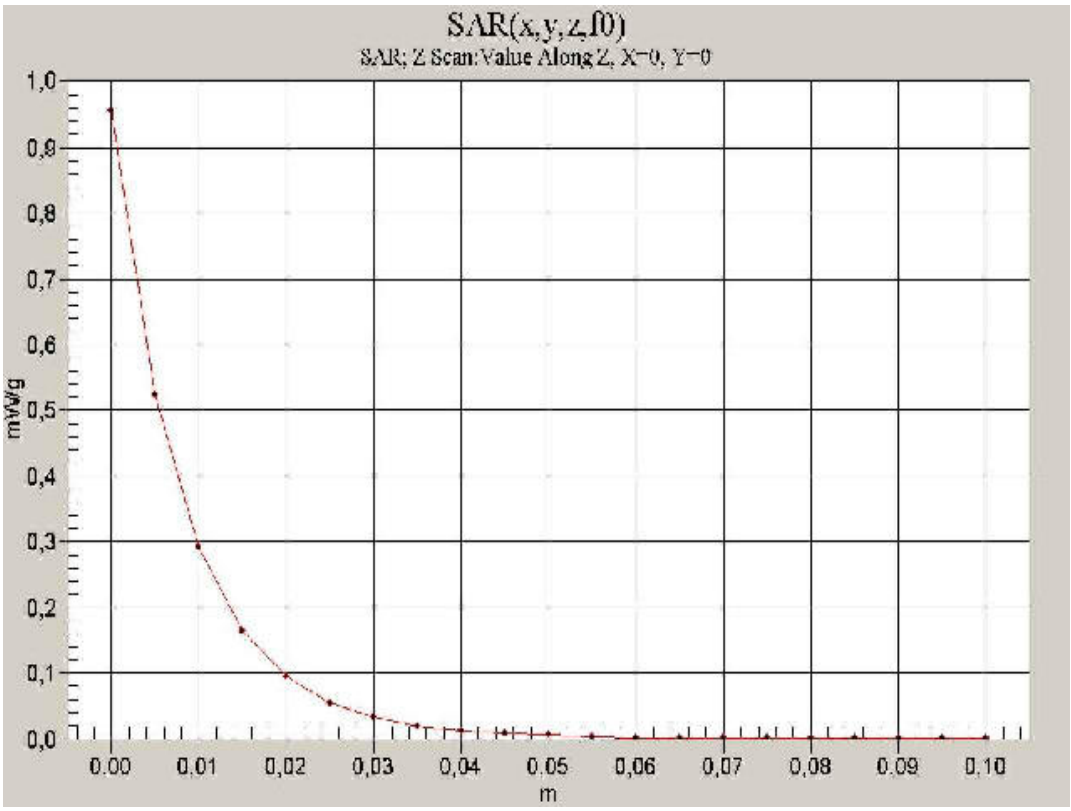



Photo 26: Z-axis scans 1900 MHz



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

**1. COMPANY NUMBER: 4170B**

**2. MODEL NUMBER: F3232021**

**3. MANUFACTURER: Sony Ericsson Mobile Communications AB**

**4. TYPE OF EVALUATION:**

**SAR Evaluation: Body-worn Device**

- **Multiple transmitters: Yes ☐ No ☒**
- **Evaluated against exposure limits: General Public Use ☒ Controlled Use ☐**
- **Duty cycle used in evaluation: 25 % (GPRS) / 100 % (WCDMA)**
- **Standard used for evaluation: RSS-102 Issue 2 (2005-11)**
- **SAR value: 1.41 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: 2008-02-19**

**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. 4-2872-01-03/07-A‘**
**Calibration data, Phantom certificate**
**and detail information of the DASY4 System**