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LD/SEMC/BGGI/NM *Hamid Kami Shirazi*

Approved

LD/SEMC/BGGI/NMC *Mats hansson*

Checked

060713

Company Internal  
REPORT

No.

*BGGIN06:291*

Date

060712

Rev

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File

**Report issued by Accredited SAR Laboratory**

**For**

*PY7AF022011 (K790i)*

**Date of test:** 28 to 26, June, 2006

**Laboratory:** Sony Ericsson SAR Test Laboratory  
Soniericsson Mobile Communications AB  
Nya Vattentornet  
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**Statement of Compliance**

Sony Ericsson Mobile Communications AB declares under its sole responsibility that the product

***Sony Ericsson Type AAF-1022011-BV; FCC ID: PY7AF022011; IC:4170B-AF022011***

to which this declaration relates, is in conformity with the appropriate RF exposure standards recommendations and guidelines. It also declares that the product was tested in accordance with the appropriate measurement standards, guidelines and recommended practices. Any deviations from these standards, guidelines and recommended practices are noted below:

(None)

This laboratory is accredited to ISO/IEC 17025 (SWEDAC accreditation no. 1847).



Laboratories are accredited by the Swedish Board for Accreditation and Conformity Assessment (SWEDAC) under the terms of Swedish legislation. The accredited laboratory activities meet the requirements in SS-EN ISO/IEC 17025 (2000). This report may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.

The results and statements contained herein relate only to the items tested. The names of individuals involved may be mentioned only in connection with the statements or results from this report.

Sony Ericsson encourages all feedback, both positive and negative, on this report.

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## 2 Introduction

In this test report, compliance of the Sony Ericsson PY7AF022011 (K790i) portable telephone with RF safety guidelines is demonstrated. The applicable RF safety guidelines and the SAR measurement specifications used for the test are described in the *SAR Measurement Specifications of Wireless Handsets* [1].

## 3 Device under Test

### 3.1 Antenna Description

|                      |                          |      |
|----------------------|--------------------------|------|
| <b>Type</b>          | Internal antenna         |      |
| <b>Location</b>      | Inside, Back, at the Top |      |
| <b>Dimensions</b>    | Max length               | 38mm |
|                      | Max width                | 16mm |
| <b>Configuration</b> | PIFA                     |      |

### 3.2 Device description

|                                           |                                   |       |       |
|-------------------------------------------|-----------------------------------|-------|-------|
| <b>Device model</b>                       | PY7AF022011(K790i)                |       |       |
| <b>Serial number</b>                      | CB5108M7EL                        |       |       |
| <b>Mode</b>                               | GSM1900                           |       |       |
| <b>Crest Factor</b>                       | 8.3                               |       |       |
| <b>Multiple Access Scheme</b>             | TDMA                              |       |       |
| <b>Maximum Output Power Setting (dBm)</b> | Ch512                             | Ch661 | Ch810 |
|                                           | 30.0                              | 30.0  | 30.0  |
| <b>Factory Tolerance in Power Setting</b> | ±0.5dB                            |       |       |
| <b>Maximum Peak Output Power (dBm)</b>    | 30.5                              | 30.5  | 30.5  |
| <b>Mode</b>                               | GPRS2TX and EGPRS2TX              |       |       |
| <b>Crest Factor</b>                       | 4.15                              |       |       |
| <b>Maximum Output Power Setting dBm</b>   | Ch512                             | Ch661 | Ch810 |
|                                           | 28.0                              | 28.0  | 28.0  |
| <b>Factory Tolerance in Power Setting</b> | ±0.5dB                            |       |       |
| <b>Maximum Peak Output Power (dBm)</b>    | 28.5                              | 28.5  | 28.5  |
| <b>Transmitting Frequency Range(MHz)</b>  | 1850.2 – 1909.8                   |       |       |
| <b>Prototype or Production Unit</b>       | Preproduction                     |       |       |
| <b>Device Category</b>                    | Portable                          |       |       |
| <b>RF exposure environment</b>            | General population / uncontrolled |       |       |

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**4 Test equipment****4.1 Dosimetric system**

SAR measurements were made using the DASY4 professional system (software version 4.6, Build 23/7) with SAM twin phantom, manufactured by Schmid & Partner Engineering AG (SPEAG). The list of calibrated equipment is given below.

| <b>Description</b>             | <b>Serial Number</b> | <b>Due Date</b> |
|--------------------------------|----------------------|-----------------|
| DAE3                           | 419                  | March 2007      |
| E-field probe ETDV6            | 1585                 | March 2007      |
| Dipole Validation Kit, D1900V2 | 5d002                | March 2007      |

**4.2 Additional equipment**

| <b>Description</b>            | <b>Inventory Number</b> | <b>Due Date</b> |
|-------------------------------|-------------------------|-----------------|
| Signal generator R&S SML03    | INV 20007667            | Dec. 2007       |
| Power meter R&S NRVZ          | INV 20007669            | Dec. 2007       |
| Power sensor R&S NRV-Z5       | INV 20007672            | Dec. 2007       |
| Power sensor R&S NRV-Z5       | INV 20007673            | Dec. 2007       |
| Network analyzer HP8753C      | INV421671               | March 2007      |
| S-parameter test set HP85047A | INV 421670              | March 2007      |
| Dielectric probe kit HP8507D  | INV 200 000 53          | Self calibrated |
| CMU200                        | INV 20002149            | March 2007      |



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## 5 Electrical parameters on the tissue simulating liquid

Prior to conducting SAR measurements, the relative permittivity,  $\epsilon_r$ , and the conductivity,  $\sigma$ , of the tissue simulating liquids were measured with the dielectric probe kit. These values are shown in the table below. The mass density,  $\rho$ , entered into the DASY4 software is also given.

Recommended limits for permittivity  $\epsilon_r$ , conductivity  $\sigma$  and mass density  $\rho$  are also shown.

| f<br>(MHz) | Tissue<br>type | Limits / Measured      | Dielectric Parameters |                |                             |
|------------|----------------|------------------------|-----------------------|----------------|-----------------------------|
|            |                |                        | $\epsilon_r$          | $\sigma$ (S/m) | $\rho$ (g/cm <sup>3</sup> ) |
| 1900       | Head           | Measured, 28/June/2006 | 40.4                  | 1.43           | 1.00                        |
|            |                | Recommended            | 40.0                  | 1.40           | 1.00                        |
|            | Body           | Measured, 29/June/2006 | 51.3                  | 1.53           | 1.00                        |
|            |                | Recommended            | 53.3                  | 1.52           | 1.00                        |

## 6 System accuracy verification

A system accuracy verification of the DASY4 was performed using the dipole validation kit listed in section 3.1. Measurement made in ambient temperature (22-23) °C and humidity (22-23) %. The obtained results are displayed in the table below.

RF noise had been measured in liquid when all RF equipment in lab was set off. Measured value was 0.0002mW/g in 1g mass

| f<br>(MHz) | Tissue<br>type | Measured / Reference   | SAR (W/kg)<br>1g/10g | Dielectric Parameters |                |                             | Liquid<br>t(°C) |
|------------|----------------|------------------------|----------------------|-----------------------|----------------|-----------------------------|-----------------|
|            |                |                        |                      | $\epsilon_r$          | $\sigma$ (S/m) | $\rho$ (g/cm <sup>3</sup> ) |                 |
| 1900       | Head           | Measured, 28/June/2006 | 39.8/20.8            | 40.4                  | 1.43           | 1.00                        | 22±0.2          |
|            |                | Reference              | 39.2/20.6            | 39.6                  | 1.45           | 1.00                        | 22±0.2          |
|            | Body           | Measured, 29/June/2006 | 40.3/21.4            | 51.3                  | 1.53           | 1.00                        | 22±0.2          |
|            |                | Reference              | 39.6/20.9            | 51.6                  | 1.58           | 1.00                        | 22±0.2          |



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## 7 SAR measurement uncertainty

### *SAR measurement uncertainty evaluation for Sonyericsson PY7AF022011 (K790i) phone*

| Uncertainty Component                            | Uncer. (%) | Prob Dist. | Div. | C <sub>i</sub> | GSM 1900-Head | GSM 1900-Body |
|--------------------------------------------------|------------|------------|------|----------------|---------------|---------------|
| <b>Measurement System</b>                        |            |            |      |                |               |               |
| Probe Calibration                                | ±4.8       | N          | 1    | 1              | ±4.8          | ±4.8          |
| Axial Isotropy                                   | ±4.7       | R          | √3   | 0.7            | ±1.9          | ±1.9          |
| Spherical Isotropy                               | ±9.6       | R          | √3   | 0.7            | ±3.9          | ±3.9          |
| Boundary effect                                  | ±1.0       | R          | √3   | 1              | ±1.0          | ±1.0          |
| Probe linearity                                  | ±4.7       | R          | √3   | 1              | ±2.7          | ±2.7          |
| Detection limit                                  | ±1.0       | R          | √3   | 1              | ±0.6          | ±0.6          |
| Readout electronics                              | ±1.0       | N          | 1    | 1              | ±1.0          | ±1.0          |
| Response time                                    | ±0.8       | R          | √3   | 1              | ±0.5          | ±0.5          |
| Integration time                                 | ±1.4       | R          | √3   | 1              | ±0.8          | ±0.8          |
| RF Ambient Conditions                            | ±3.0       | R          | √3   | 1              | ±1.7          | ±1.7          |
| Mech. Constraints of robot                       | ±0.4       | R          | √3   | 1              | ±0.2          | ±0.2          |
| Probe positioning                                | ±2.9       | R          | √3   | 1              | ±1.7          | ±1.7          |
| Extrap, interpolation and integration            | ±3.9       | R          | √3   | 1              | ±2.3          | ±2.3          |
| <b>Measurement System Uncertainty</b>            |            |            |      |                | <b>±8.0</b>   | <b>±8.0</b>   |
| <b>Test Sample Related</b>                       |            |            |      |                |               |               |
| Device positioning                               | ±3.5       | N          | 1    | 1              | ±3.5          | ±3.5          |
| Device holder uncertainty                        | ±3.5       | N          | 1    | 1              | ±3.5          | ±3.5          |
| Power drift                                      | ±(0.6/0.2) | R          | √3   | 1              | ±0.3          | ±0.1          |
| <b>Test Sample Related Uncertainty</b>           |            |            |      |                | <b>±5.0</b>   | <b>±5.0</b>   |
| <b>Phantom and Tissue Parameters</b>             |            |            |      |                |               |               |
| Phantom uncertainty                              | ±4.0       | R          | √3   | 1              | ±2.3          | ±2.3          |
| Liquid conductivity (measurement)                | ±(2.1/0.7) | N          | 1    | 0.64           | ±1.3          | ±0.5          |
| Liquid conductivity (target)                     | ±5.0       | R          | √3   | 0.64           | ±1.8          | ±1.8          |
| Liquid Permittivity (measurement)                | ±(1.0/3.8) | N          | 1    | 0.6            | ±0.6          | ±2.4          |
| Liquid Permittivity (target)                     | ±5.0       | R          | √3   | 0.6            | ±1.7          | ±1.7          |
| <b>Phantom and Tissue Parameters Uncertainty</b> |            |            |      |                | <b>±3.7</b>   | <b>±4.2</b>   |
| <b>Combined standard uncertainty</b>             |            |            |      |                | <b>±10.2</b>  | <b>±10.3</b>  |
| <b>Extended standard uncertainty (k=2)</b>       |            |            |      |                | <b>±20.4</b>  | <b>±20.6</b>  |



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## 8 Test results

The measured 1-gram averaged SAR values of the device against head and body are provided in tables 1 and 2. The ambient temperature and humidity of test facility were 22°C–23°C and 22%–23% respectively. The depth of tissue simulating liquid for head and body are 15.1cm and 15cm. A base station simulator was used to control the device during the SAR measurement. The phone was supplied with full-charged battery for each measurement.

For head measurement, the device was tested on the right-hand phantom (corresponding to the right side of the head) and the left-hand phantom in two phone position, cheek (touch) and tilt (cheek + 15deg).

For body measurement phone was tested on the antenna (back) and Front against flat section of phantom with 15mm distance in both speech and Data (EGPRS and GPRS) mode. For all modes, the device was tested at the lowest, middle and highest frequencies in the transmit band. For Hands free used Sony Ericsson head set (HPB-60) and for Blue Tooth phone was paired with Sony Ericsson HBH-60 Blue Tooth accessory and measured on worst case speech mode and for body.

| Mode          | Channel | Power (dB) | Phone Position | Liquid t (°C) | SAR (W/kg)         |                   |
|---------------|---------|------------|----------------|---------------|--------------------|-------------------|
|               |         |            |                |               | Right-hand 1g mass | Left-hand 1g mass |
| 1900 GSM Head | 512     | 30.3       | Cheek          | 22±0.2        | 0.43               | 0.40              |
|               |         |            | Tilt           | 22±0.2        | 0.61               | 0.58              |
|               | 661     | 30.3       | Cheek          | 22±0.2        | 0.31               | 0.27              |
|               |         |            | Tilt           | 22±0.2        | 0.42               | 0.42              |
|               | 810     | 30.4       | Cheek          | 22±0.2        | 0.21               | 0.18              |
|               |         |            | Tilt           | 22±0.2        | 0.29               | 0.30              |

Table1: SAR measurement result for Sony Ericsson PY7AF022011 (K790i) telephone at highest possible output power. The phone has measured against head.

| Mode          | Channel | Power (dBm) | Phone Position                | Liquid t (°C) | SAR (W/kg) in 1 g mass |
|---------------|---------|-------------|-------------------------------|---------------|------------------------|
| GSM 1900 Body | 512     | 30.3        | Antenna to phantom Hands Free | 22±0.2        | 0.15                   |
|               |         | 30.3        | Antenna to phantom Blue Tooth | 22±0.2        | 0.19                   |
|               |         | 28.5        | Antenna to phantom GPRS2TX    | 22±0.2        | 0.28                   |
|               |         |             | Antenna to phantom EGPRS2TX   | 22±0.2        | 0.28                   |
|               |         |             | Front to phantom EGPRS2TX     | 22±0.2        | 0.25                   |
|               | 661     | 30.3        | Antenna to phantom Blue Tooth | 22±0.2        | 0.12                   |
|               |         | 28.5        | Antenna to phantom GPRS2TX    | 22±0.2        | 0.19                   |
|               | 810     | 30.4        | Antenna to phantom Blue Tooth | 22±0.2        | 0.11                   |
|               |         | 28.5        | Antenna to phantom GPRS2TX    | 22±0.2        | 0.16                   |

Table2: SAR measurement result for Sony Ericsson PY7AF022011 (790i) telephone at highest possible output power. The phone has measured against the Body.



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## References

- [1] R.Plicanic, "SAR Measurement Specification of Wireless Handsets", Sony Ericsson SAR Test Laboratory internal document GUG/N 03:141
- [2] Basic standard for the Measurement of Specific Absorption Rate related to human exposure to electromagnetic fields from mobile phones (300MHz-3GHz), European Standard EN 50361, July 2001
- [3] FCC, "Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields: Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radio Frequency Emissions," Supplement C (Edition 01-01) to OET Bulletin 65 (Edition 97-01).
- [4] IEEE, "Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Body Due to Wireless Communications Devices: Experimental Techniques," STD 1528-2003, June, 2003.

## 10 Appendix

### 10.1 Photographs of the device under test



**Front & Back side**



**Back with Battery**



**Down Connector**



**Sides**

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## 10.2 Device position on SAM Twins Phantom



Device position against the head: Cheek (touch) phone position



Device position against the head: Tilt (cheek+15deg) phone position



Device position against the body: Phone on 15mm distance against Phantom



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### 10.3 Attachment

- Probe & Dipole Calibration
- Measurement plots and system validation
- Annex

Date/Time: 2006-06-29 13:51:13

Test Laboratory: Sony Ericsson Mobile Communications AB

**DUT: #4993; Type: PY7AF022011; Serial: CB5108M7EL**

Communication System: GSM1900 Data; Frequency: 1850.2 MHz; Duty Cycle: 1:4.15  
 Medium parameters used (interpolated):  $f = 1850.2$  MHz;  $\sigma = 1.46$  mho/m;  $\epsilon_r = 51.1$ ;  $\rho = 1000$

kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1585; ConvF(4.56, 4.56, 4.56); Calibrated: 2006-03-16
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn419; Calibrated: 2006-03-08
- Phantom: SAM 4; Type: SAM; Serial: 1053
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 161

**d=15mm, Low,EDGE/Area Scan (61x121x1):** Measurement grid: dx=10mm, dy=10mm[Info: Interpolated medium parameters used for SAR evaluation.](#)

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

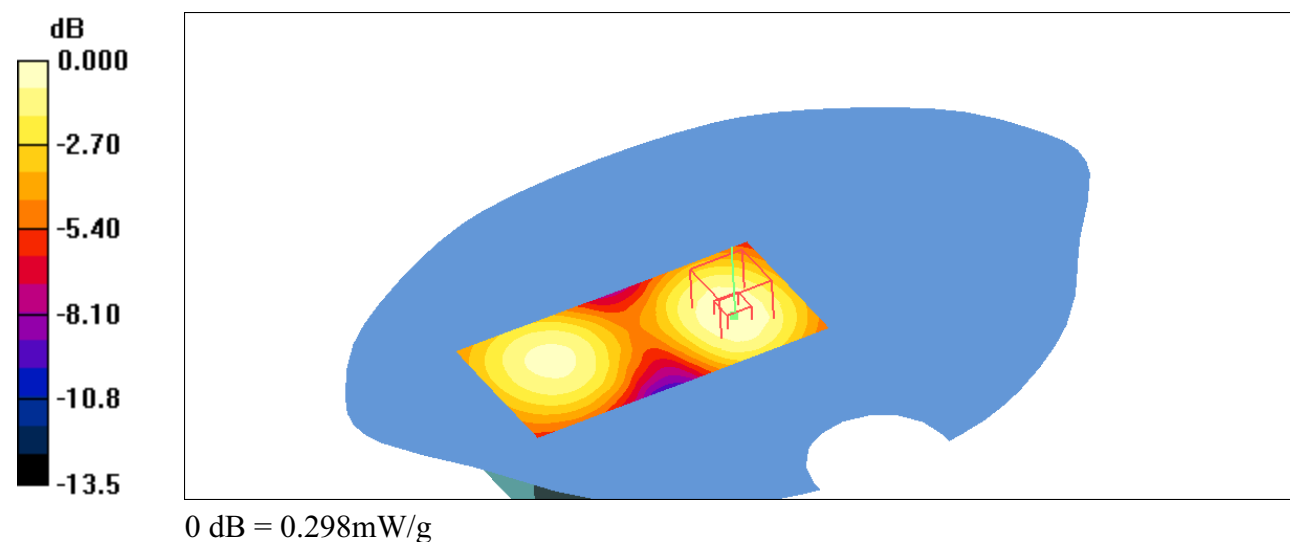
**d=15mm, Low,EDGE/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 14.7 V/m; Power Drift = 0.007 dB

Peak SAR (extrapolated) = 0.442 W/kg

**SAR(1 g) = 0.280 mW/g; SAR(10 g) = 0.177 mW/g**[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.298 mW/g



Date/Time: 2006-06-29 08:36:42

Test Laboratory: Sony Ericsson Mobile Communications AB

**DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d002**

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

Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.53$  mho/m;  $\epsilon_r = 51.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>

DASY4 Configuration:

- Probe: ET3DV6 - SN1585; ConvF(4.56, 4.56, 4.56); Calibrated: 2006-03-16

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

- Electronics: DAE3 Sn419; Calibrated: 2006-03-08

- Phantom: SAM 4; Type: SAM; Serial: 1053

- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 161

**d=10mm, Pin=100mW/Area Scan (71x81x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 4.65 mW/g

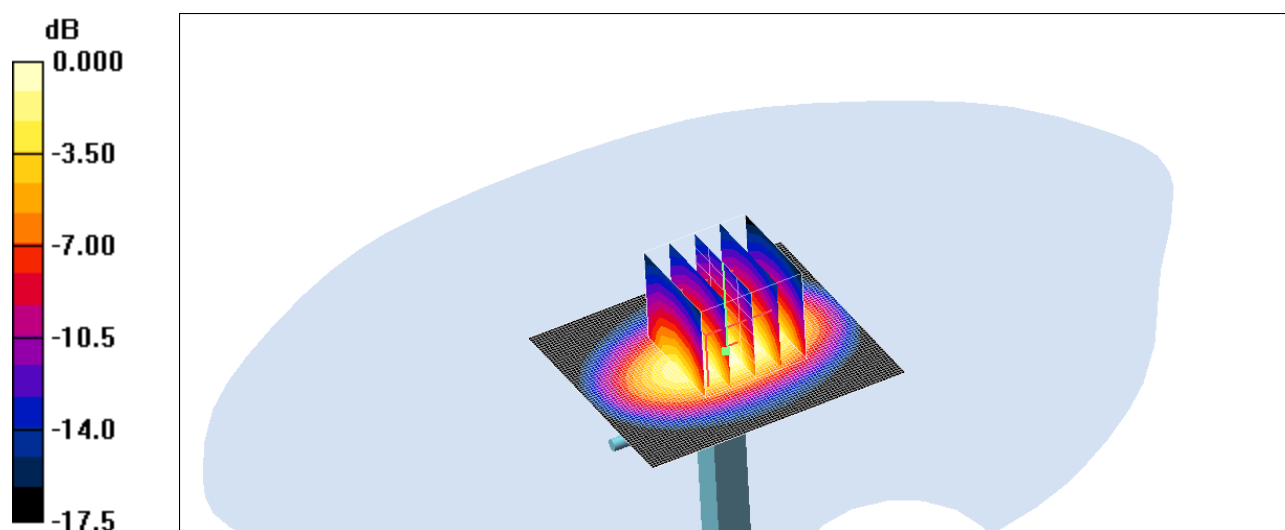
**d=10mm, Pin=100mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 57.7 V/m; Power Drift = -0.019 dB

Peak SAR (extrapolated) = 6.87 W/kg

**SAR(1 g) = 4.03 mW/g; SAR(10 g) = 2.14 mW/g**

Maximum value of SAR (measured) = 4.52 mW/g



0 dB = 4.52mW/g

Date/Time: 2006-06-28 13:17:20

Test Laboratory: Sony Ericsson Mobile Communications AB

**DUT: #4993; Type: PY7AF022011; Serial: CB5108M7EL**

Communication System: DCS 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated):  $f = 1850.2$  MHz;  $\sigma = 1.34$  mho/m;  $\epsilon_r = 40.9$ ;  $\rho = 1000$  $\text{kg/m}^3$ 

Phantom section: Right Section

DASY4 Configuration:

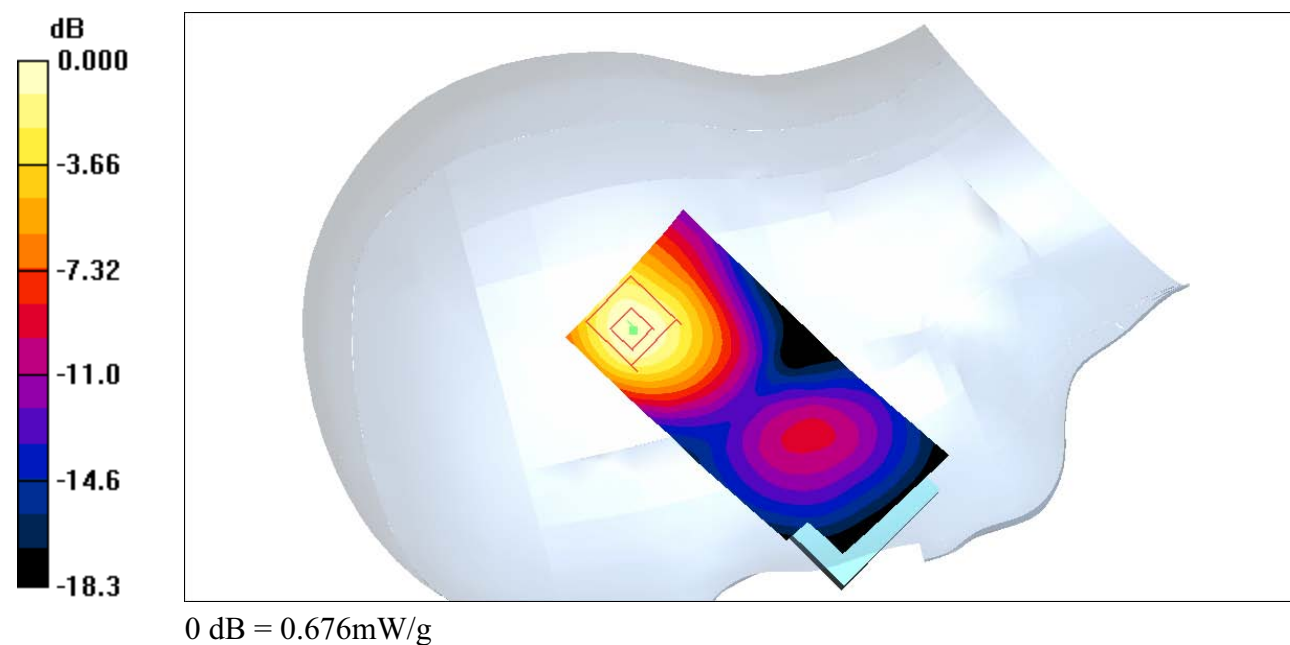
- Probe: ET3DV6 - SN1585; ConvF(5.11, 5.11, 5.11); Calibrated: 2006-03-16

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

- Electronics: DAE3 Sn419; Calibrated: 2006-03-08

- Phantom: SAM 4; Type: SAM; Serial: 1053

- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 161

**Tilt position - Low/Area Scan (61x131x1):** Measurement grid:  $dx=10\text{mm}$ ,  $dy=10\text{mm}$ [Info: Interpolated medium parameters used for SAR evaluation.](#)Maximum value of SAR (interpolated) =  $0.693 \text{ mW/g}$ **Tilt position - Low/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$ Reference Value =  $18.4 \text{ V/m}$ ; Power Drift =  $-0.027 \text{ dB}$ Peak SAR (extrapolated) =  $1.07 \text{ W/kg}$ **SAR(1 g) =  $0.611 \text{ mW/g}$ ; SAR(10 g) =  $0.331 \text{ mW/g}$** [Info: Interpolated medium parameters used for SAR evaluation.](#)Maximum value of SAR (measured) =  $0.676 \text{ mW/g}$ 

Date/Time: 2006-06-28 11:54:54

Test Laboratory: Sony Ericsson Mobile Communications AB

**DUT: #4993; Type: PY7AF022011; Serial: CB5108M7EL**

Communication System: DCS 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated):  $f = 1850.2$  MHz;  $\sigma = 1.34$  mho/m;  $\epsilon_r = 40.9$ ;  $\rho = 1000$  $\text{kg/m}^3$ 

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1585; ConvF(5.11, 5.11, 5.11); Calibrated: 2006-03-16

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

- Electronics: DAE3 Sn419; Calibrated: 2006-03-08

- Phantom: SAM 4; Type: SAM; Serial: 1053

- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 16

**Touch position - Low/Area Scan (61x131x1):** Measurement grid:  $dx=10\text{mm}$ ,  $dy=10\text{mm}$ [Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.479 mW/g

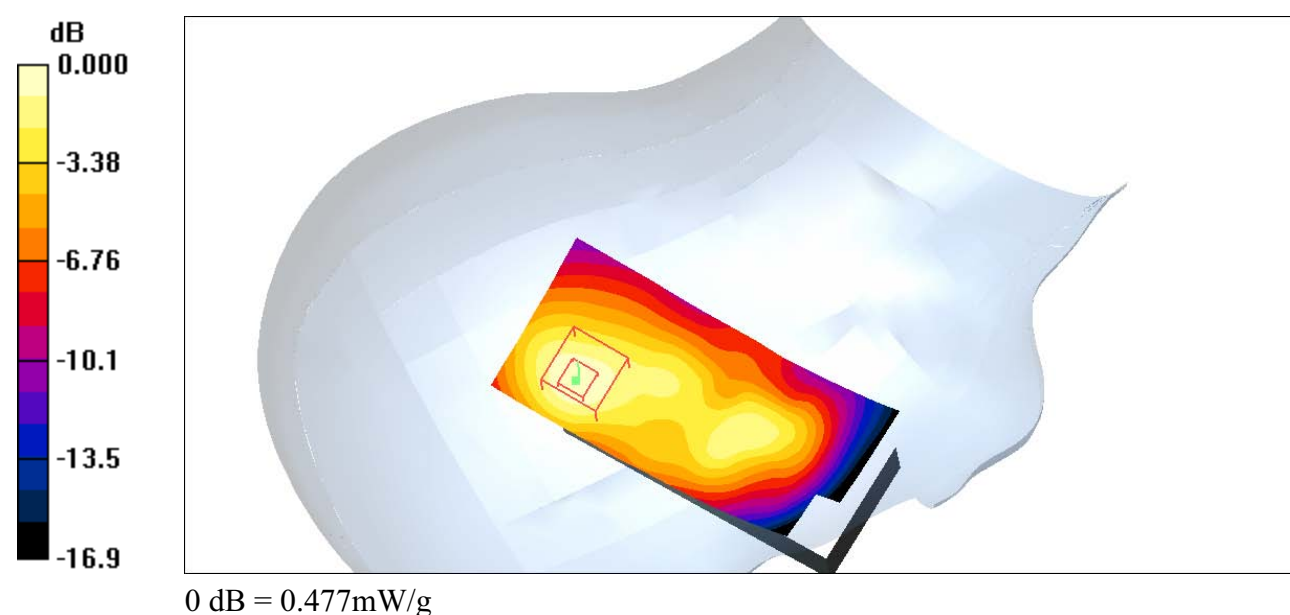
**Touch position - Low/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$ 

Reference Value = 16.5 V/m; Power Drift = -0.041 dB

Peak SAR (extrapolated) = 0.730 W/kg

**SAR(1 g) = 0.428 mW/g; SAR(10 g) = 0.239 mW/g**[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.477 mW/g



Date/Time: 2006-06-28 14:53:53

Test Laboratory: Sony Ericsson Mobile Communications AB

**DUT: #4993; Type: PY7AF022011; Serial: CB5108M7EL**

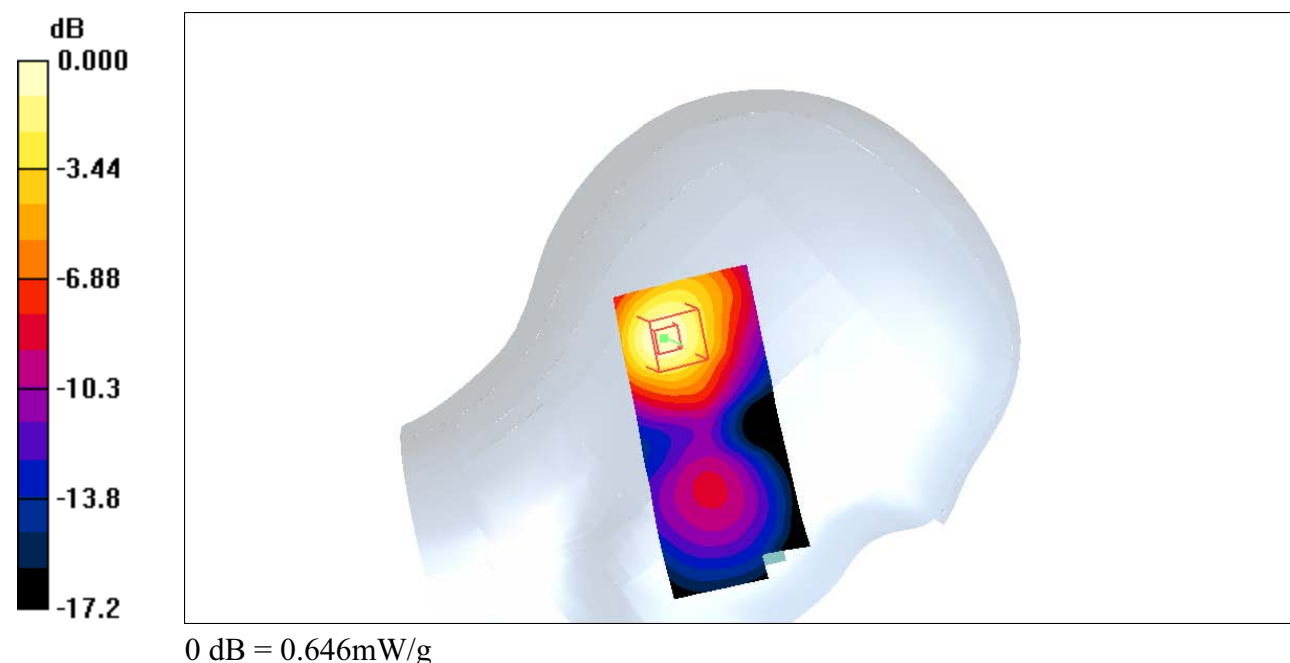
Communication System: DCS 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated):  $f = 1850.2$  MHz;  $\sigma = 1.34$  mho/m;  $\epsilon_r = 40.9$ ;  $\rho = 1000$  $\text{kg/m}^3$ 

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1585; ConvF(5.11, 5.11, 5.11); Calibrated: 2006-03-16
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn419; Calibrated: 2006-03-08
- Phantom: SAM 4; Type: SAM; Serial: 1053
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 161

**Tilt position - Low/Area Scan (61x131x1):** Measurement grid:  $dx=10\text{mm}$ ,  $dy=10\text{mm}$ [Info: Interpolated medium parameters used for SAR evaluation.](#)Maximum value of SAR (interpolated) =  $0.658$  mW/g**Tilt position - Low/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$ Reference Value =  $18.0$  V/m; Power Drift =  $-0.051$  dBPeak SAR (extrapolated) =  $0.965$  W/kg**SAR(1 g) =  $0.581$  mW/g; SAR(10 g) =  $0.319$  mW/g**[Info: Interpolated medium parameters used for SAR evaluation.](#)Maximum value of SAR (measured) =  $0.646$  mW/g

Date/Time: 2006-06-28 14:36:15

Test Laboratory: Sony Ericsson Mobile Communications AB

**DUT: #4993; Type: PY7AF022011; Serial: CB5108M7EL**

Communication System: DCS 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated):  $f = 1850.2$  MHz;  $\sigma = 1.34$  mho/m;  $\epsilon_r = 40.9$ ;  $\rho = 1000$  $\text{kg/m}^3$ 

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1585; ConvF(5.11, 5.11, 5.11); Calibrated: 2006-03-16
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn419; Calibrated: 2006-03-08
- Phantom: SAM 4; Type: SAM; Serial: 1053
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 161

**Touch position - Low/Area Scan (61x131x1):** Measurement grid:  $dx=10\text{mm}$ ,  $dy=10\text{mm}$ [Info: Interpolated medium parameters used for SAR evaluation.](#)Maximum value of SAR (interpolated) =  $0.457 \text{ mW/g}$ **Touch position - Low/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$ Reference Value =  $14.9 \text{ V/m}$ ; Power Drift =  $-0.045 \text{ dB}$ Peak SAR (extrapolated) =  $0.579 \text{ W/kg}$ **SAR(1 g) =  $0.398 \text{ mW/g}$ ; SAR(10 g) =  $0.228 \text{ mW/g}$** [Info: Interpolated medium parameters used for SAR evaluation.](#)Maximum value of SAR (measured) =  $0.442 \text{ mW/g}$ 0 dB =  $0.442 \text{ mW/g}$

Date/Time: 2006-06-29 15:09:20

Test Laboratory: Sony Ericsson Mobile Communications AB

**DUT: #4993; Type: PY7AF022011; Serial: CB5108M7EL**

Communication System: GSM1900 Data; Frequency: 1850.2 MHz; Duty Cycle: 1:4.15

Medium parameters used (interpolated):  $f = 1850.2$  MHz;  $\sigma = 1.46$  mho/m;  $\epsilon_r = 51.1$ ;  $\rho = 1000$  $\text{kg/m}^3$ 

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1585; ConvF(4.56, 4.56, 4.56); Calibrated: 2006-03-16
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn419; Calibrated: 2006-03-08
- Phantom: SAM 4; Type: SAM; Serial: 1053
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 161

**d=15mm, Low,EDGE,Front /Area Scan (61x121x1):** Measurement grid: dx=10mm, dy=10mm[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.263 mW/g

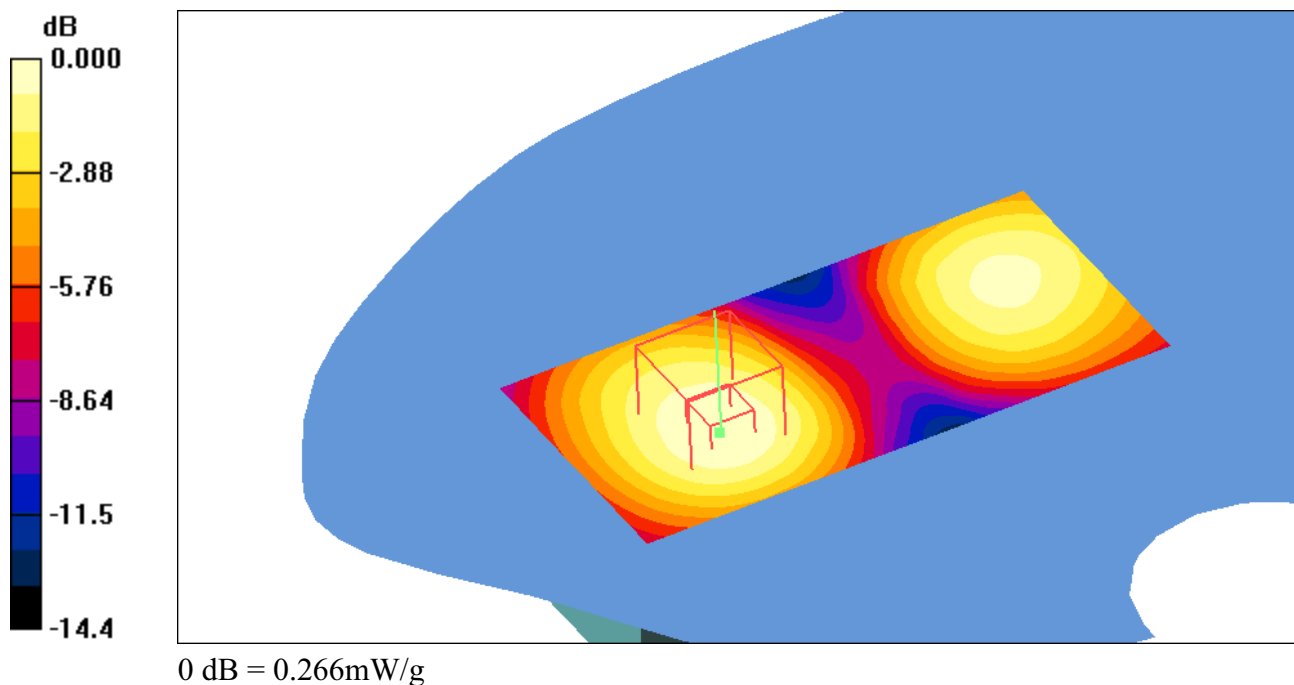
**d=15mm, Low,EDGE,Front/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 13.0 V/m; Power Drift = 0.012 dB

Peak SAR (extrapolated) = 0.368 W/kg

**SAR(1 g) = 0.245 mW/g; SAR(10 g) = 0.156 mW/g**[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.266 mW/g



Date/Time: 2006-06-28 11:08:18

Test Laboratory: Sony Ericsson Mobile Communications AB

**DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d002**

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

Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.43$  mho/m;  $\epsilon_r = 40.4$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1585; ConvF(5.11, 5.11, 5.11); Calibrated: 2006-03-16
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn419; Calibrated: 2006-03-08
- Phantom: SAM 4; Type: SAM; Serial: 1053
- Measurement SW: DASY4, V4.6 Build 23; Postprocessing SW: SEMCAD, V1.8 Build 161

**d=10mm, Pin=100mW/Area Scan (71x81x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 4.56 mW/g

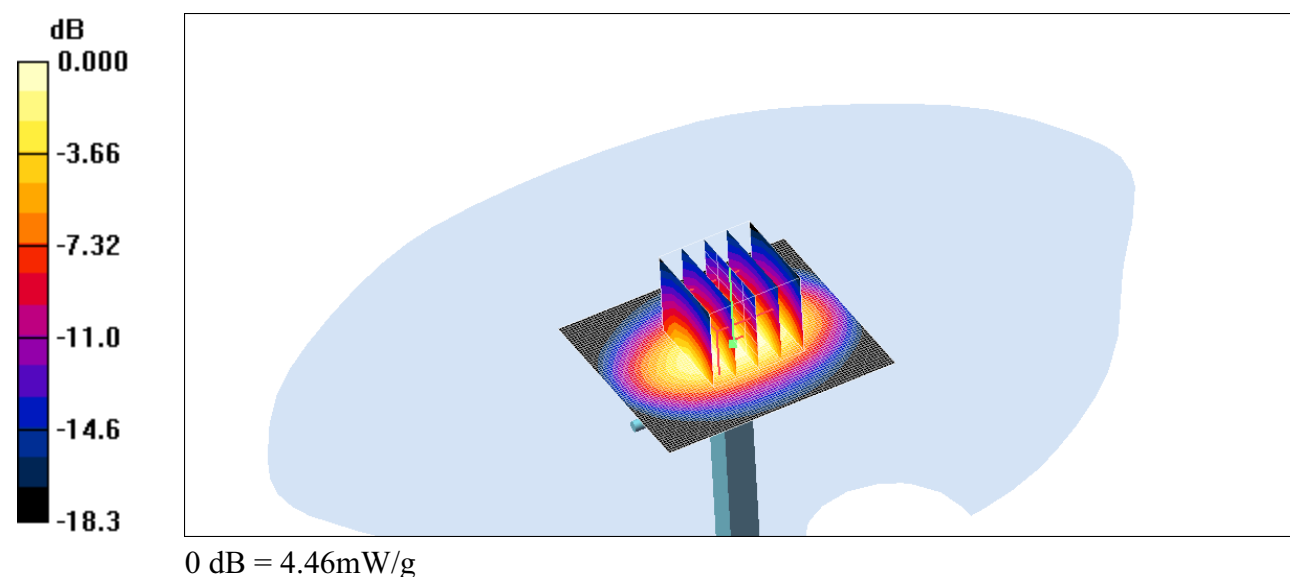
**d=10mm, Pin=100mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 58.7 V/m; Power Drift = -0.012 dB

Peak SAR (extrapolated) = 6.96 W/kg

**SAR(1 g) = 3.98 mW/g; SAR(10 g) = 2.08 mW/g**

Maximum value of SAR (measured) = 4.46 mW/g



## DASY4 Validation Report for Body TSL

Date/Time: 15.03.2005 15:20:32

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d002**

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

Medium: MSL 1900 MHz;

Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.57$  mho/m;  $\epsilon_r = 52.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1507; ConvF(4.43, 4.43, 4.43); Calibrated: 26.10.2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 07.01.2005
- Phantom: Flat Phantom 5.0; Type: QD000P50AA; Serial: 1001;
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

**Pin = 250 mW; d = 10 mm/Area Scan (81x81x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 11.4 mW/g

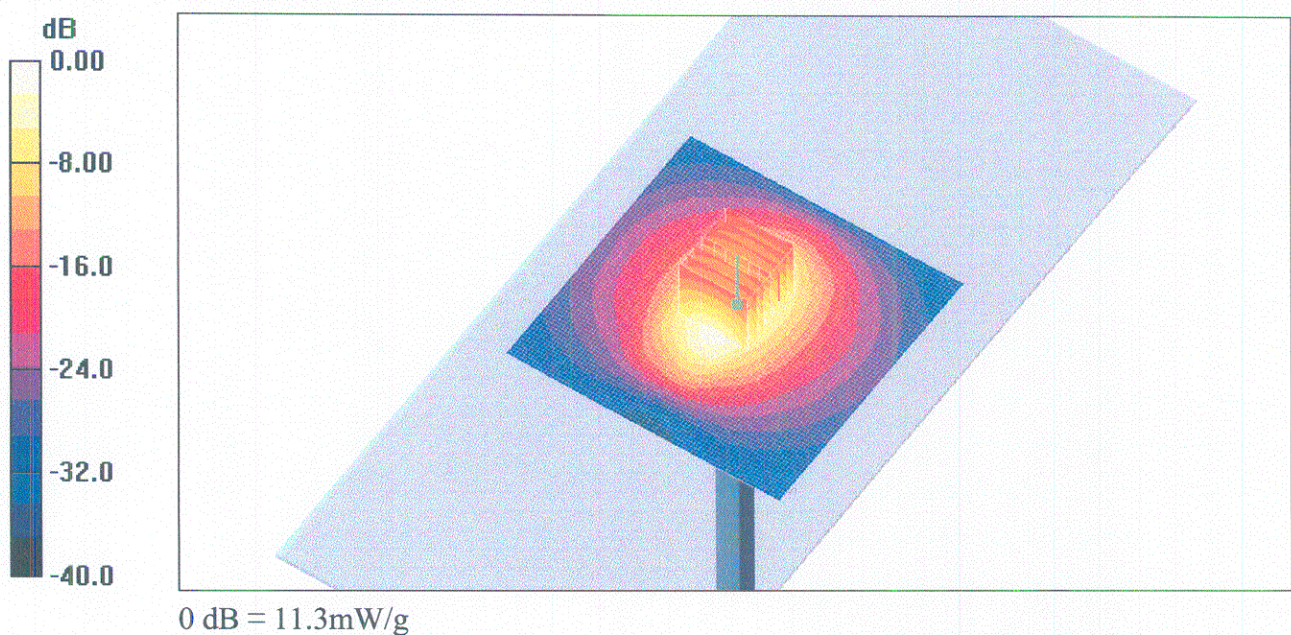
**Pin = 250 mW; d = 10 mm/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 87.3 V/m; Power Drift = 0.061 dB

Peak SAR (extrapolated) = 16.8 W/kg

**SAR(1 g) = 9.91 mW/g; SAR(10 g) = 5.23 mW/g**

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



## DASY4 Validation Report for Head TSL

Date/Time: 09.03.2005 15:20:45

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d002**

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

Medium: HSL 1900 MHz;

Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.46$  mho/m;  $\epsilon_r = 39.5$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

### DASY4 Configuration:

- Probe: ET3DV6 - SN1507; ConvF(4.96, 4.96, 4.96); Calibrated: 26.10.2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 07.01.2005
- Phantom: Flat Phantom 5.0; Type: QD000P50AA; Serial: 1001;
- Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 146

**Pin = 250 mW; d = 10 mm/Area Scan (81x81x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 11.4 mW/g

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

Reference Value = 91.4 V/m; Power Drift = 0.037 dB

Peak SAR (extrapolated) = 16.9 W/kg

**SAR(1 g) = 9.81 mW/g; SAR(10 g) = 5.15 mW/g**

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

