

The Testcenter facility 'Dosimetric Test Lab' within IMST GmbH is accredited by the German National 'Deutsche Akkreditierungsstelle GmbH (DAkkS)' for testing according to the scope as listed in the accreditation certificate: D-PL-12139-01-01.

---

# **Appendix for the Report**

## **Dosimetric Assessment of the Portable Device KX-TGA680 (FCC ID: ACJ96NKX-TGA680)**

### **According to the FCC Requirements SAR Distribution Plots**

December 19, 2012

**IMST GmbH**  
Carl-Friedrich-Gauß-Str. 2  
D-47475 Kamp-Lintfort

**Customer**  
Panasonic System Networks Co., Ltd.  
1 - 62, 4 - chome Minoshima, Hakata,  
Fukuoka 812-8531  
Japan

The test results only relate to the items tested. This report shall not be reproduced except in full without the written approval of the testing laboratory.

**Table of Contents**

1 SAR DISTRIBUTION PLOTS, HEAD MEASUREMENT ..... 3

2 SAR DISTRIBUTION PLOTS, BODY MEASUREMENT ..... 7

3 SAR Z-AXIS SCANS (VALIDATION) ..... 9

4 SAR Z-AXIS SCANS (MEASUREMENTS)..... 10

## 1 SAR Distribution Plots, Head Measurement

Test Laboratory: Imst GmbH, DASY Yellow (II); File Name: [680yplm\\_1.da4](#)

DUT: Panasonic; Type: KX-TGA680;

Program Name: DECT

Communication System: DECT US; Frequency: 1888.7 MHz; Duty Cycle: 1:24  
Medium parameters used:  $f = 1924.99$  MHz;  $\sigma = 1.45$  mho/m;  $\epsilon_r = 38.5$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Left Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3536; ConvF(8.41, 8.41, 8.41); Calibrated: 24.09.2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn631; Calibrated: 20.09.2012
- Phantom: SAM Glycol 1340; Type: QD 000 P40 CB; Serial: TP-1340
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Cheek Left/Area Scan (7x13x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.002 mW/g

**Cheek Left/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 0.927 V/m; Power Drift = -0.128 dB

Peak SAR (extrapolated) = 0.008 W/kg

**SAR(1 g) = 0.0023 mW/g; SAR(10 g) = 0.0007 mW/g**

Maximum value of SAR (measured) = 0.003 mW/g

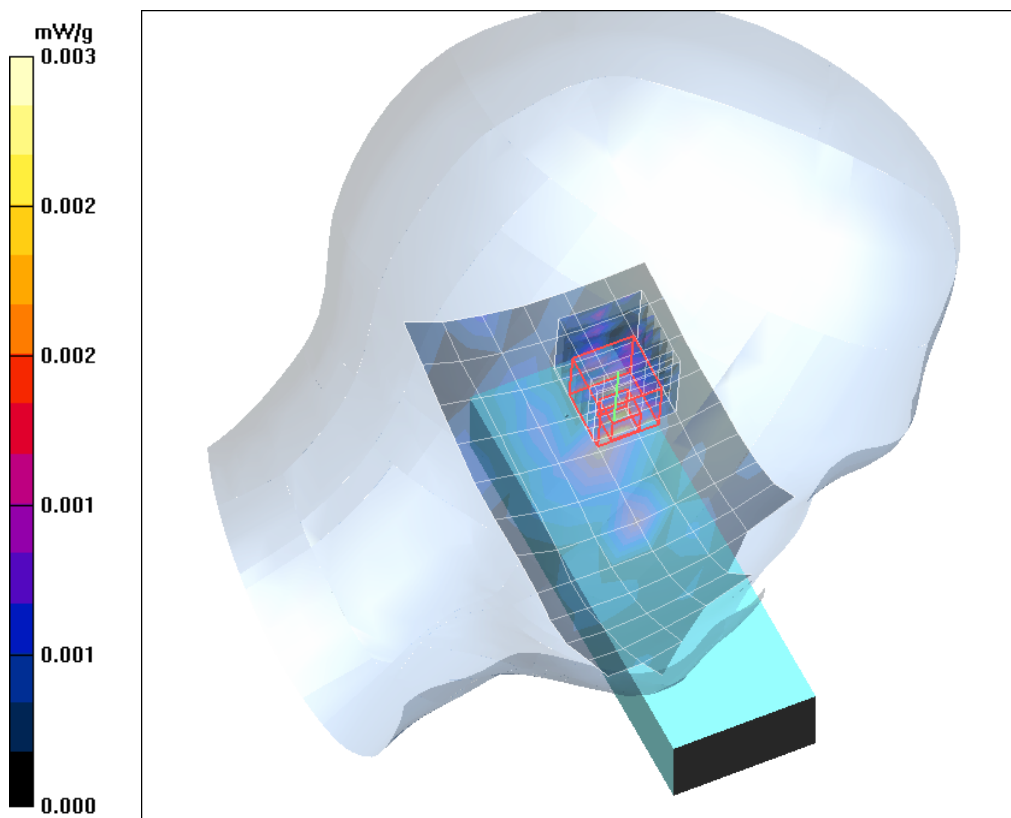


Fig. 1: SAR distribution for DECT US, channel 2, cheek position, left side of head (December 11, 2012; Ambient Temperature: 21.8°C; Liquid Temperature: 21.6°C).

Test Laboratory: Imst GmbH, DASY Yellow (II); File Name: [680yplm 2.da4](#)

DUT: Panasonic; Type: KX-TGA680;

Program Name: DECT

Communication System: DECT US; Frequency: 1888.7 MHz; Duty Cycle: 1:24

Medium parameters used:  $f = 1924.99$  MHz;  $\sigma = 1.45$  mho/m;  $\epsilon_r = 38.5$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3536; ConvF(8.41, 8.41, 8.41); Calibrated: 24.09.2012

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

- Electronics: DAE4 Sn631; Calibrated: 20.09.2012

- Phantom: SAM Glycol 1340; Type: QD 000 P40 CB; Serial: TP-1340

- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Tilted Left/Area Scan (7x13x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.001 mW/g

**Tilted Left/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 0.440 V/m; Power Drift = -0.156 dB

Peak SAR (extrapolated) = 0.003 W/kg

**SAR(1 g) = 0.0007 mW/g; SAR(10 g) = 0.0001 mW/g**

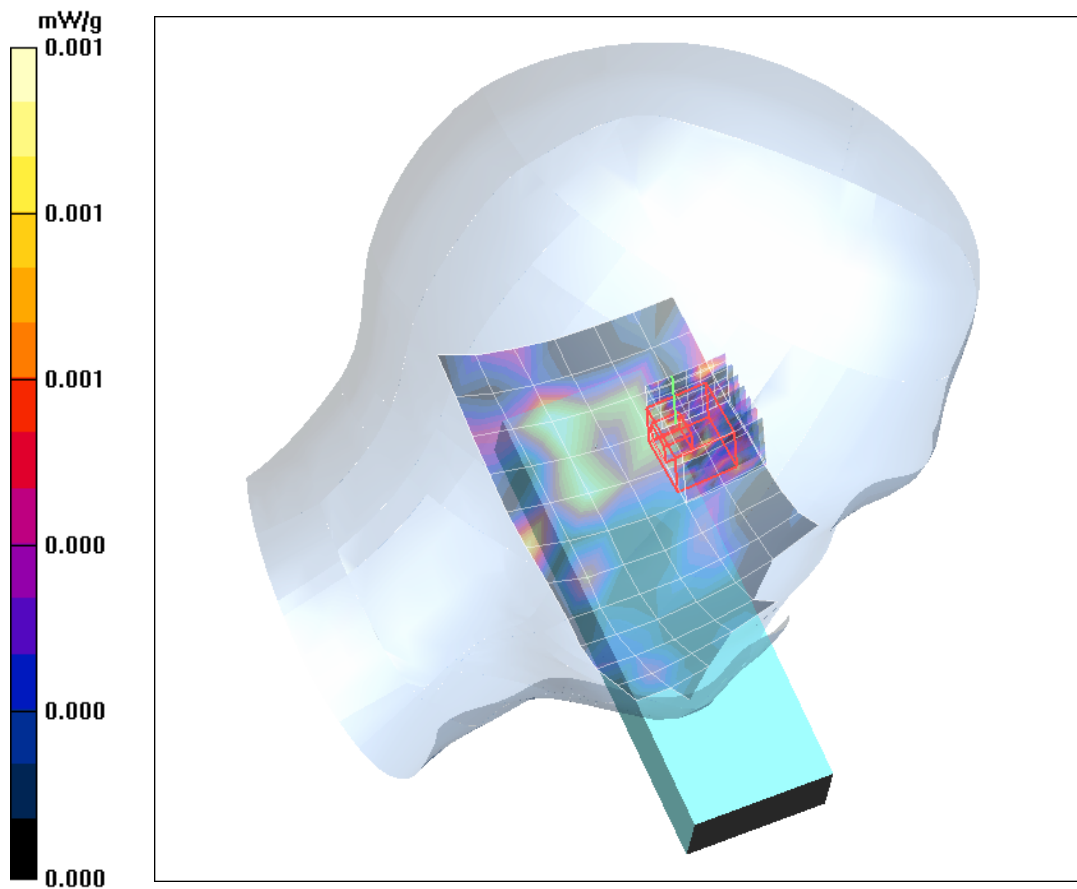


Fig. 2: SAR distribution for DECT US, channel 2, tilted position, left side of head (December 11, 2012; Ambient Temperature: 21.8°C; Liquid Temperature: 21.6°C).

Test Laboratory: Imst GmbH, DASY Yellow (II); File Name: [680yprm\\_1.da4](#)

DUT: Panasonic; Type: KX-TGA680;

Program Name: DECT

Communication System: DECT US; Frequency: 1924.99 MHz; Duty Cycle: 1:24

Medium parameters used:  $f = 1924.99$  MHz;  $\sigma = 1.45$  mho/m;  $\epsilon_r = 38.5$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3536; ConvF(8.41, 8.41, 8.41); Calibrated: 24.09.2012

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

- Electronics: DAE4 Sn631; Calibrated: 20.09.2012

- Phantom: SAM Glycol 1340; Type: QD 000 P40 CB; Serial: TP-1340

- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Cheek Right/Area Scan (7x13x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.002 mW/g

**Cheek Right/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 1.02 V/m; Power Drift = 0.112 dB

Peak SAR (extrapolated) = 0.008 W/kg

**SAR(1 g) = 0.0021 mW/g; SAR(10 g) = 0.0009 mW/g**

Maximum value of SAR (measured) = 0.003 mW/g

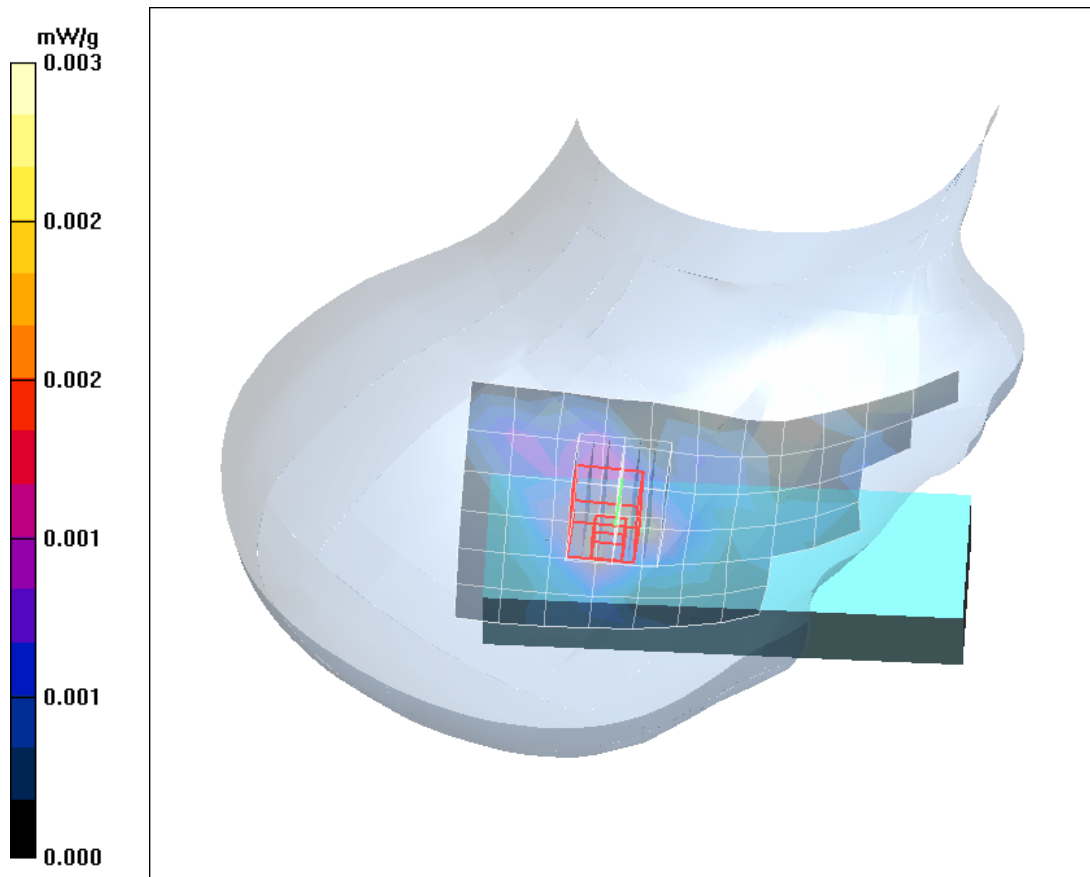


Fig. 3: SAR distribution for DECT US, channel 2, cheek position, right side of head (December 11, 2012; Ambient Temperature: 21.8°C; Liquid Temperature: 21.6°C).

Test Laboratory: Imst GmbH, DASY Yellow (II); File Name: [680yprm 2.da4](#)

DUT: Panasonic; Type: KX-TGA680;

Program Name: DECT

Communication System: DECT US; Frequency: 1924.99 MHz; Duty Cycle: 1:24

Medium parameters used:  $f = 1924.99$  MHz;  $\sigma = 1.45$  mho/m;  $\epsilon_r = 38.5$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3536; ConvF(8.41, 8.41, 8.41); Calibrated: 24.09.2012

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

- Electronics: DAE4 Sn631; Calibrated: 20.09.2012

- Phantom: SAM Glycol 1340; Type: QD 000 P40 CB; Serial: TP-1340

- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Tilted Right/Area Scan (7x13x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.002 mW/g

**Tilted Right/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 0.731 V/m; Power Drift = 0.125 dB

Peak SAR (extrapolated) = 0.004 W/kg

**SAR(1 g) = 0.0012 mW/g; SAR(10 g) = 0.0004 mW/g**

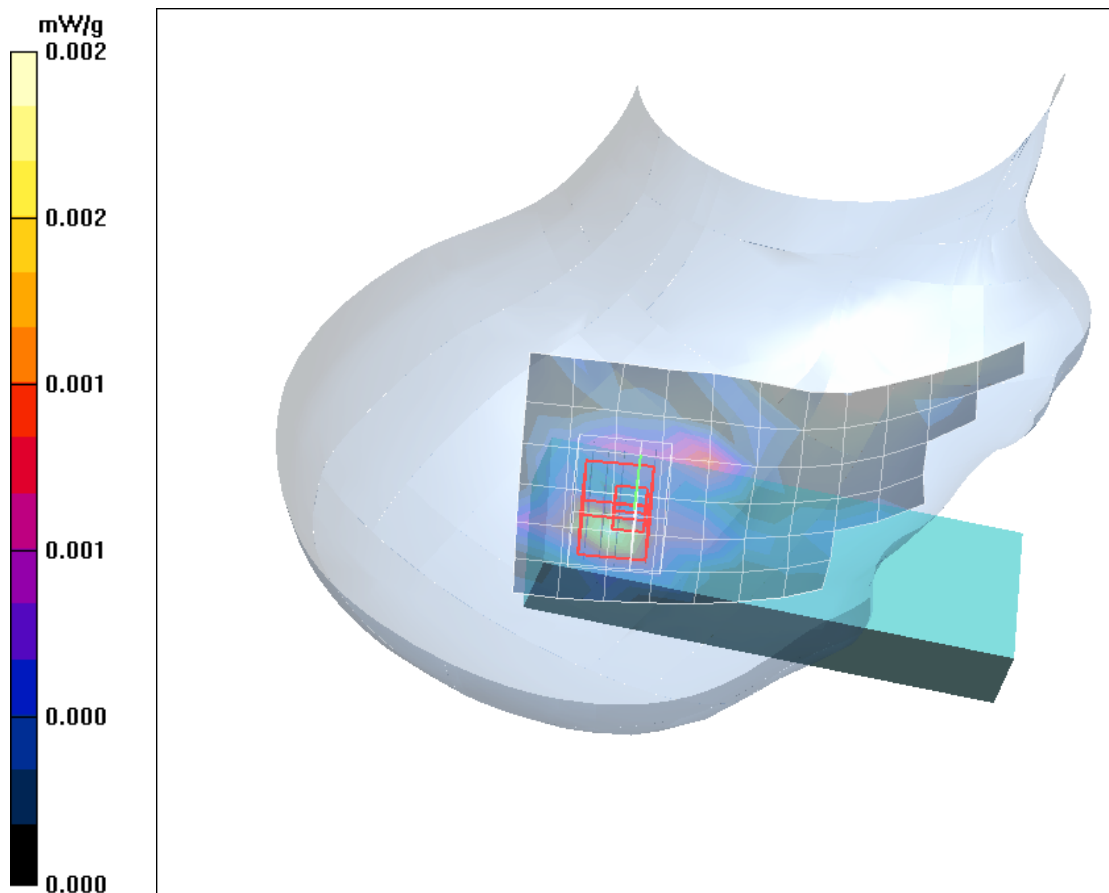


Fig. 4: SAR distribution for DECT US, channel 2, tilted position, right side of head (December 11, 2012; Ambient Temperature: 21.8°C; Liquid Temperature: 21.6°C)

## 2 SAR Distribution Plots, Body Measurement

Test Laboratory: Imst GmbH, DASY Yellow (II); File Name: [680\\_yphm\\_1\\_up\\_hs.da4](#)

DUT: Panasonic; Type: KX-TGA680;

Program Name: DECT

Communication System: DECT US; Frequency: 1924.99 MHz; Duty Cycle: 1:24

Medium parameters used:  $f = 1924.99$  MHz;  $\sigma = 1.56$  mho/m;  $\epsilon_r = 54.6$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3536; ConvF(8.4, 8.4, 8.4); Calibrated: 24.09.2012

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

- Electronics: DAE3 Sn335; Calibrated: 20.02.2012

- Phantom: SAM Glycol 1340; Type: QD 000 P40 CB; Serial: TP-1340

- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Body/Area Scan (7x13x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.001 mW/g

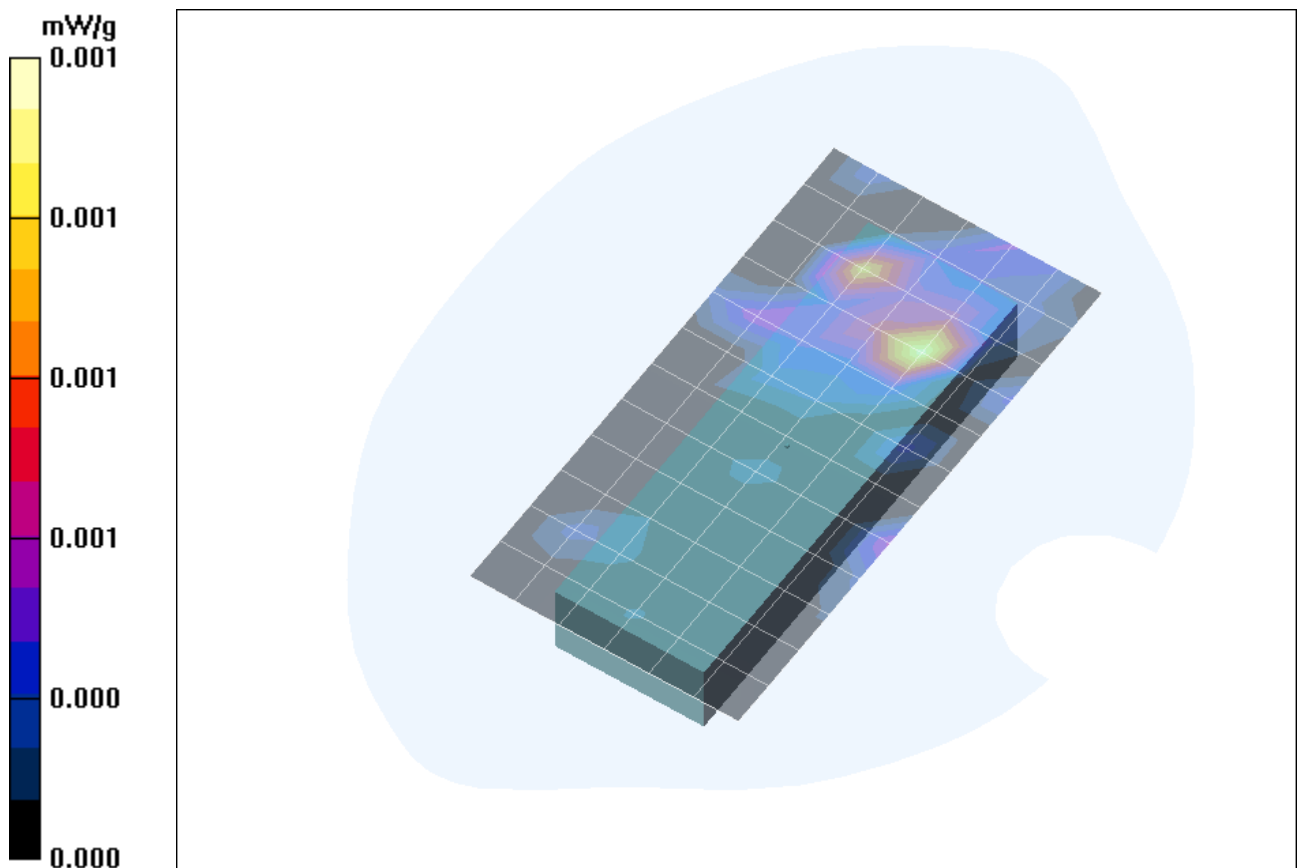


Fig. 5: SAR distribution for DECT US, channel 2, body worn configuration, position 1, with belt clip and headset (December 17, 2012; Ambient Temperature: 21.5°C; Liquid Temperature: 21.2°C).

Test Laboratory: Imst GmbH, DASY Yellow (II); File Name: [680\\_yphm\\_2\\_down\\_hs.da4](#)

DUT: Panasonic; Type: KX-TGA680;

Program Name: DECT

Communication System: DECT US; Frequency: 1924.99 MHz; Duty Cycle: 1:24

Medium parameters used:  $f = 1924.99$  MHz;  $\sigma = 1.56$  mho/m;  $\epsilon_r = 54.6$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3536; ConvF(8.4, 8.4, 8.4); Calibrated: 24.09.2012

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

- Electronics: DAE3 Sn335; Calibrated: 20.02.2012

- Phantom: SAM Glycol 1340; Type: QD 000 P40 CB; Serial: TP-1340

- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Body/Area Scan (7x13x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.001 mW/g

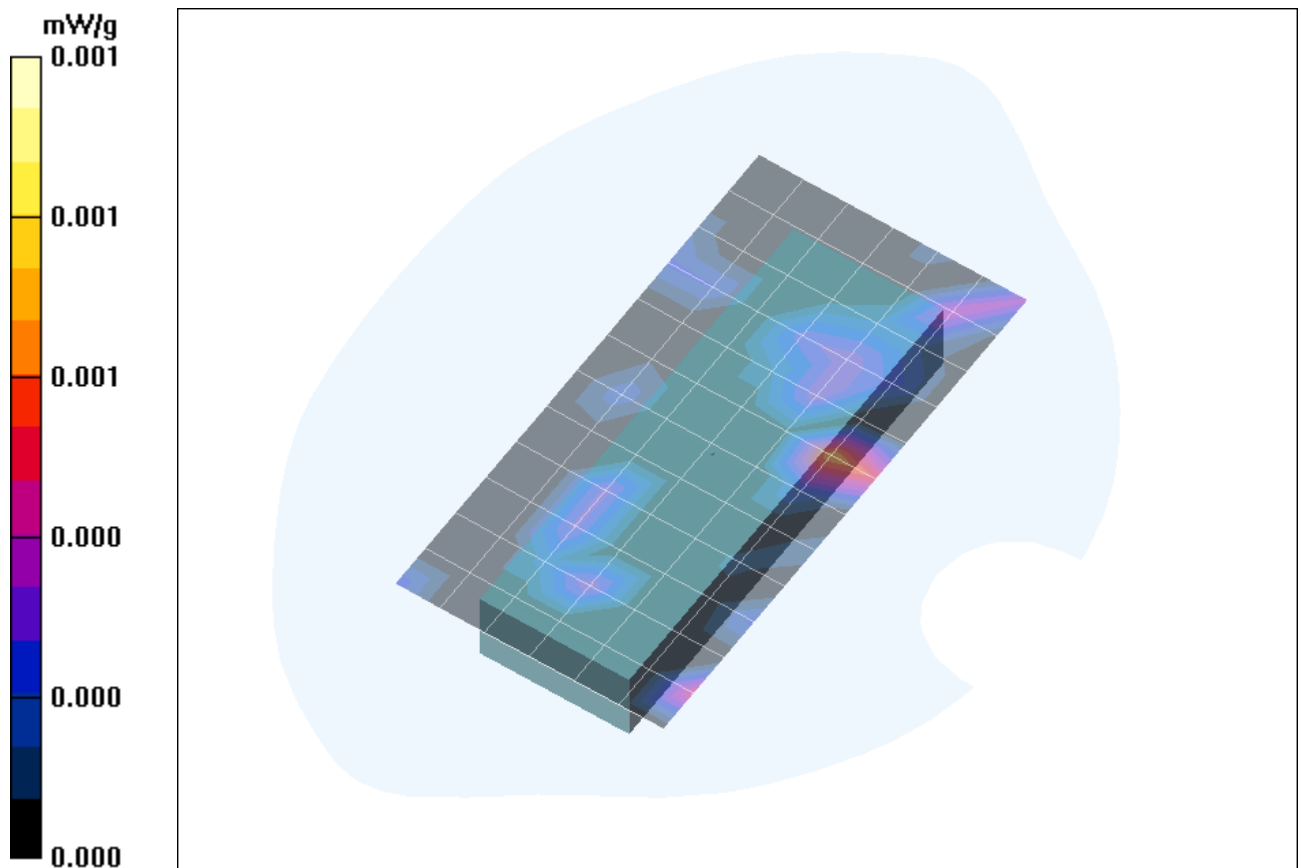


Fig. 6: SAR distribution for DECT US, channel 2, body worn configuration, position 2, with belt clip and headset (December 17, 2012; Ambient Temperature: 21.5°C; Liquid Temperature: 21.2°C).

### 3 SAR Z-Axis Scans (Validation)

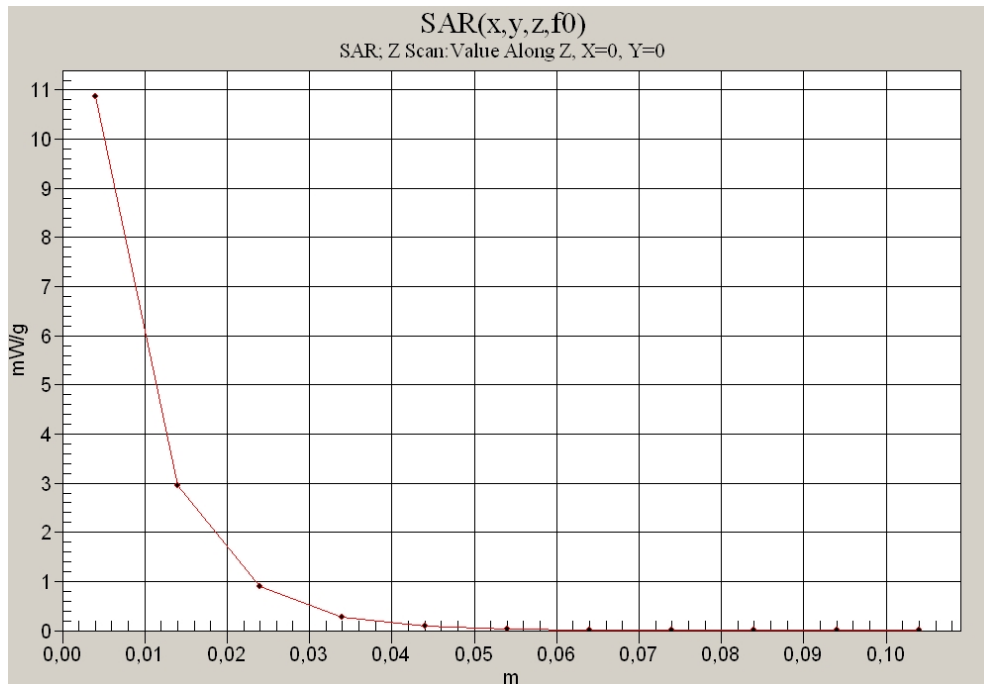


Fig. 7: SAR versus liquid depth, 1900 MHz, head (December 11, 2012; Ambient Temperature: 21.8° C; Liquid Temperature: 21.6° C).

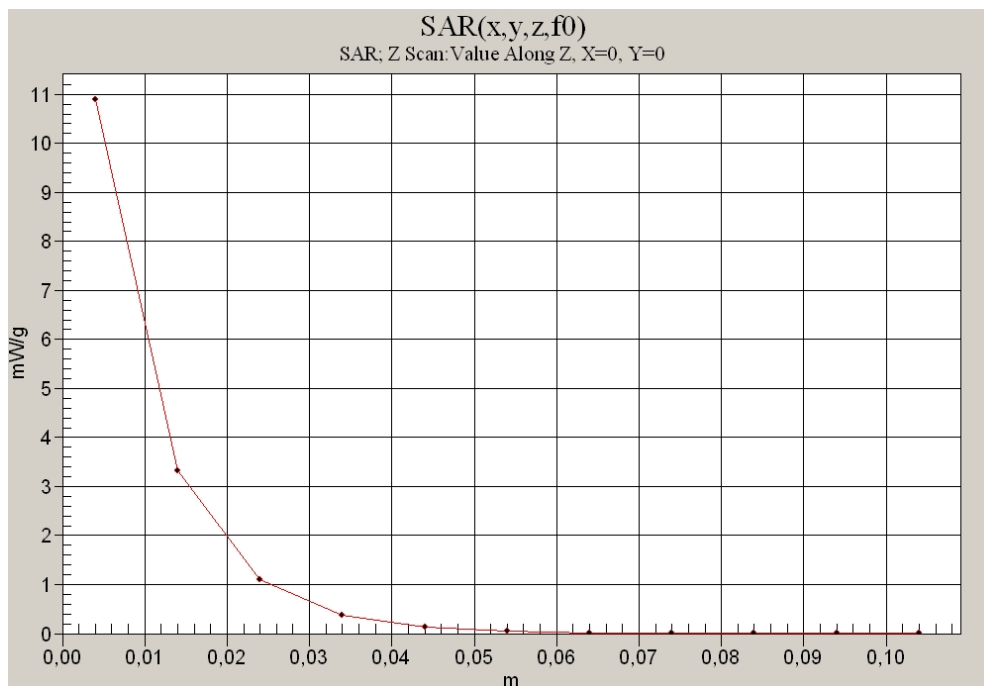


Fig. 8: SAR versus liquid depth, 1900 MHz, body (December 17, 2012; Ambient Temperature: 21.5° C; Liquid Temperature: 21.2° C).

#### 4 SAR Z-Axis Scans (Measurements)

The following pictures show the plots of SAR versus liquid depth for the worst case values.

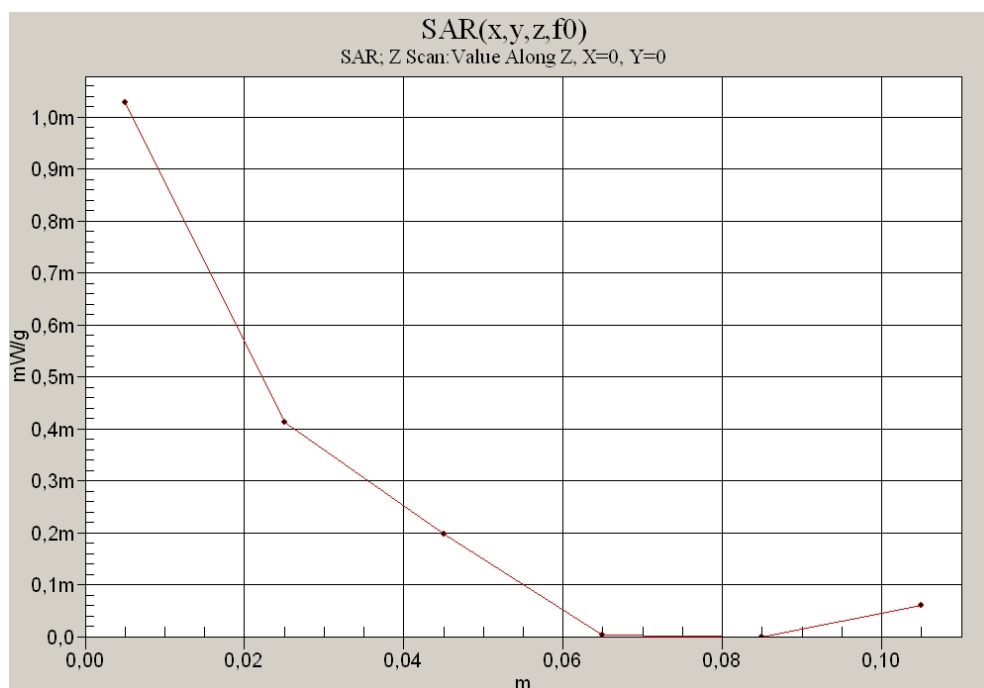


Fig. 9: SAR versus liquid depth, head: DECT US, channel 2, cheek position, left side of head (December 11, 2012; Ambient Temperature: 21.8° C; Liquid Temperature : 21.6° C).