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-TGA470 (FCC ID: ACJ96NKX-TGA470)

# According to the FCC Requirements SAR Distribution Plots

November 24, 2011


**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

# Table of Contents

# 1 SAR Distribution Plots, Head Measurements

**Test Laboratory: Imst GmbH, DASY Yellow (II); File Name: TGA470_yplm_1.da4**

**DUT: Panasonic; Type: KX-TGA470;**
**Program Name: DECT**

Communication System: DECT US; Frequency: 1924.99 MHz;Duty Cycle: 1:24
Medium parameters used: f = 1924.99 MHz; $\sigma$ = 1.46 mho/m; $\varepsilon_r$ = 40.8; $\rho$ = 1000 kg/m$^3$
Phantom section: Left Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3536; ConvF(8.07, 8.07, 8.07); Calibrated: 26.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn631; Calibrated: 21.09.2011
- 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 (7x14x1):** Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.032 mW/g
**Cheek Left/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.31 V/m; Power Drift = 0.024 dB
Peak SAR (extrapolated) = 0.062 W/kg
**SAR(1 g) = 0.031 mW/g; SAR(10 g) = 0.016 mW/g**
Maximum value of SAR (measured) = 0.034 mW/g

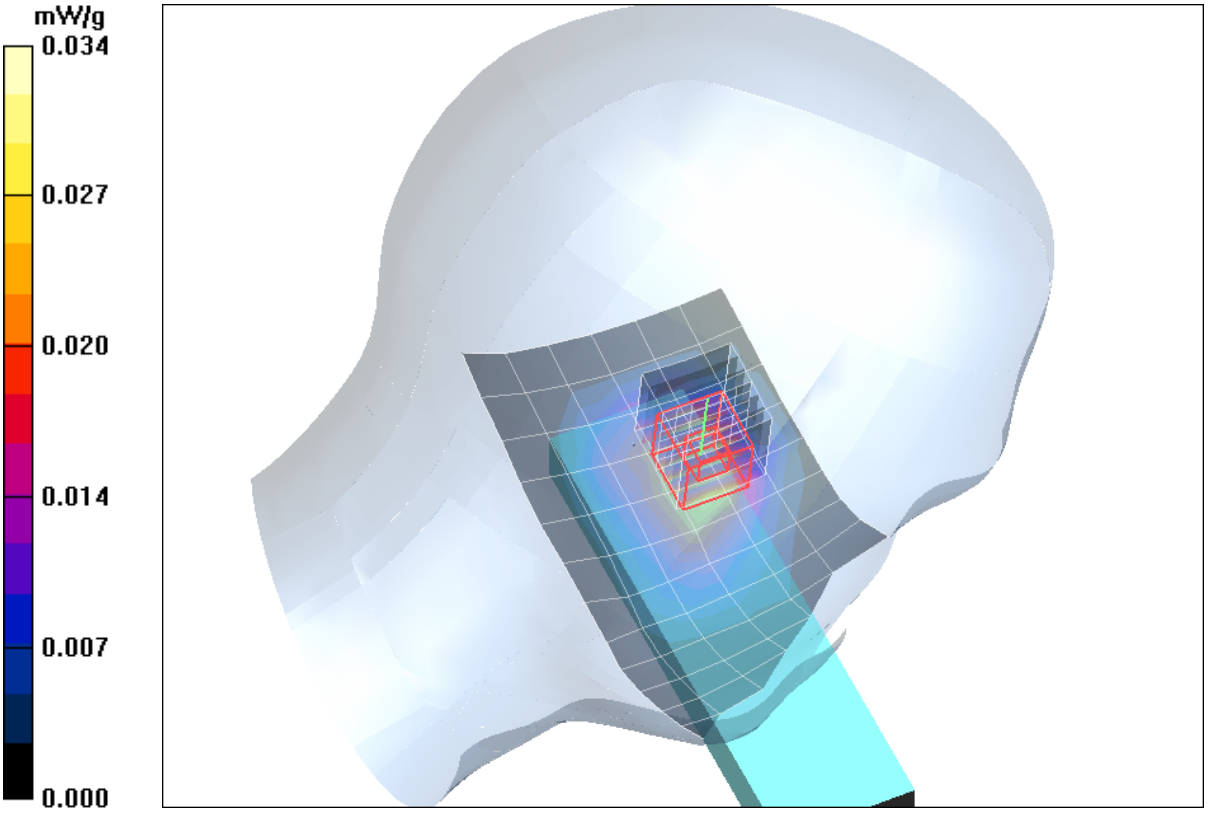


Fig. 1: SAR distribution for DECT US, channel 2, cheek position, left side of head (November 16, 2011; Ambient Temperature: 21.8°C; Liquid Temperature: 21.5°C).

**Test Laboratory: Imst GmbH, DASY Yellow (II); File Name: TGA470_yplm_2.da4**

**DUT: Panasonic; Type: KX-TGA470;**
**Program Name: DECT**

Communication System: DECT US; Frequency: 1924.99 MHz;Duty Cycle: 1:24
Medium parameters used: f = 1924.99 MHz; $\sigma$ = 1.46 mho/m; $\varepsilon_r$ = 40.8; $\rho$ = 1000 kg/m$^3$
Phantom section: Left Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3536; ConvF(8.07, 8.07, 8.07); Calibrated: 26.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn631; Calibrated: 21.09.2011
- 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 (7x14x1):** Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.016 mW/g
**Tilted Left/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.41 V/m; Power Drift = 0.163 dB
Peak SAR (extrapolated) = 0.032 W/kg
**SAR(1 g) = 0.017 mW/g; SAR(10 g) = 0.00932 mW/g**
Maximum value of SAR (measured) = 0.019 mW/g

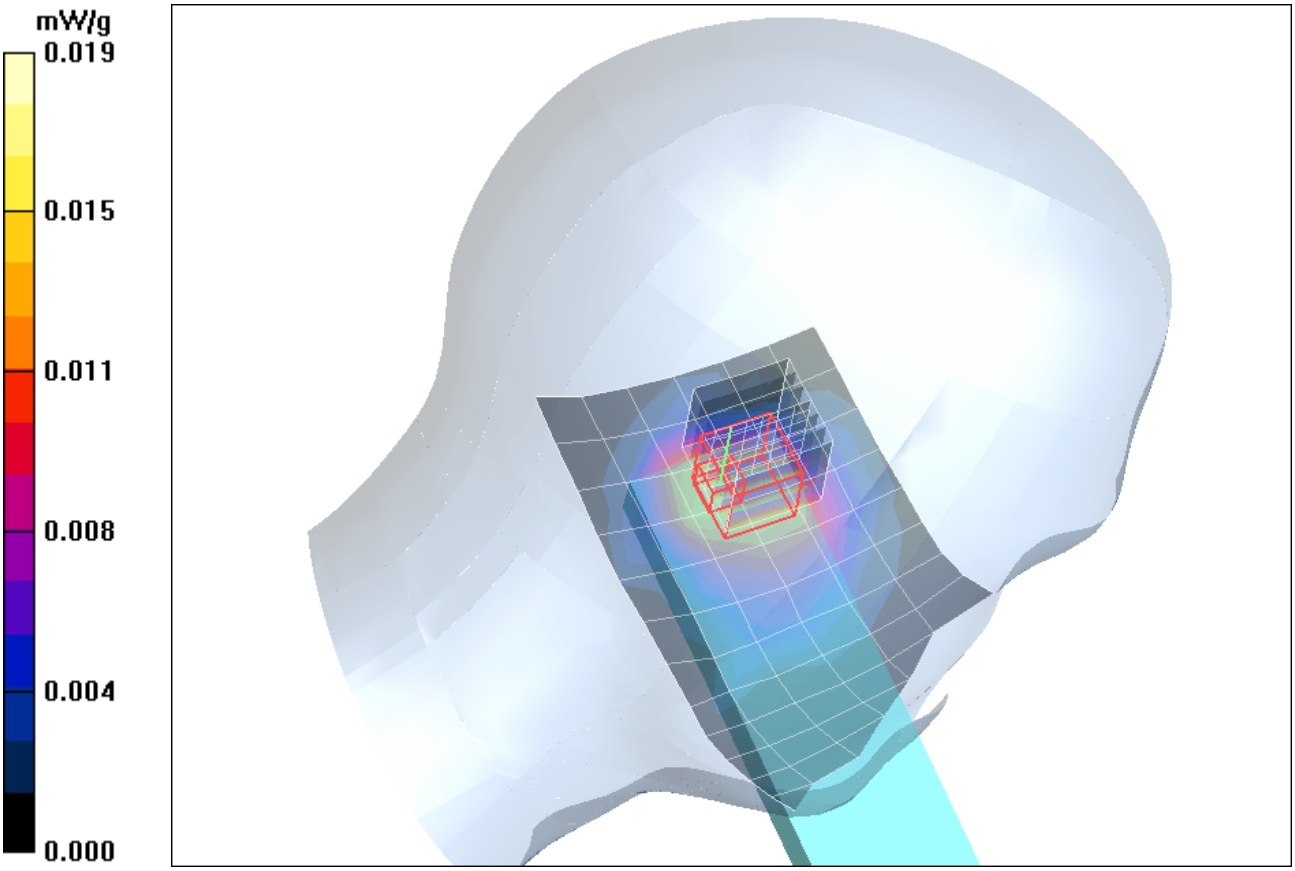


Fig. 2: SAR distribution for DECT US, channel 2, tilted position, left side of head (November 16, 2011; Ambient Temperature: 21.9°C; Liquid Temperature: 21.5°C).

**Test Laboratory: Imst GmbH, DASY Yellow (II); File Name: TGA470_yprm_1.da4**

**DUT: Panasonic; Type: KX-TGA470;**
**Program Name: DECT**

Communication System: DECT US; Frequency: 1924.99 MHz;Duty Cycle: 1:24
Medium parameters used: f = 1924.99 MHz; $\sigma$ = 1.46 mho/m; $\varepsilon_r$ = 40.8; $\rho$ = 1000 kg/m$^3$
Phantom section: Right Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3536; ConvF(8.07, 8.07, 8.07); Calibrated: 26.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn631; Calibrated: 21.09.2011
- 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 (7x14x1):** Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.023 mW/g
**Cheek Right/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.59 V/m; Power Drift = 0.191 dB
Peak SAR (extrapolated) = 0.042 W/kg
**SAR(1 g) = 0.022 mW/g; SAR(10 g) = 0.013 mW/g**
Maximum value of SAR (measured) = 0.025 mW/g

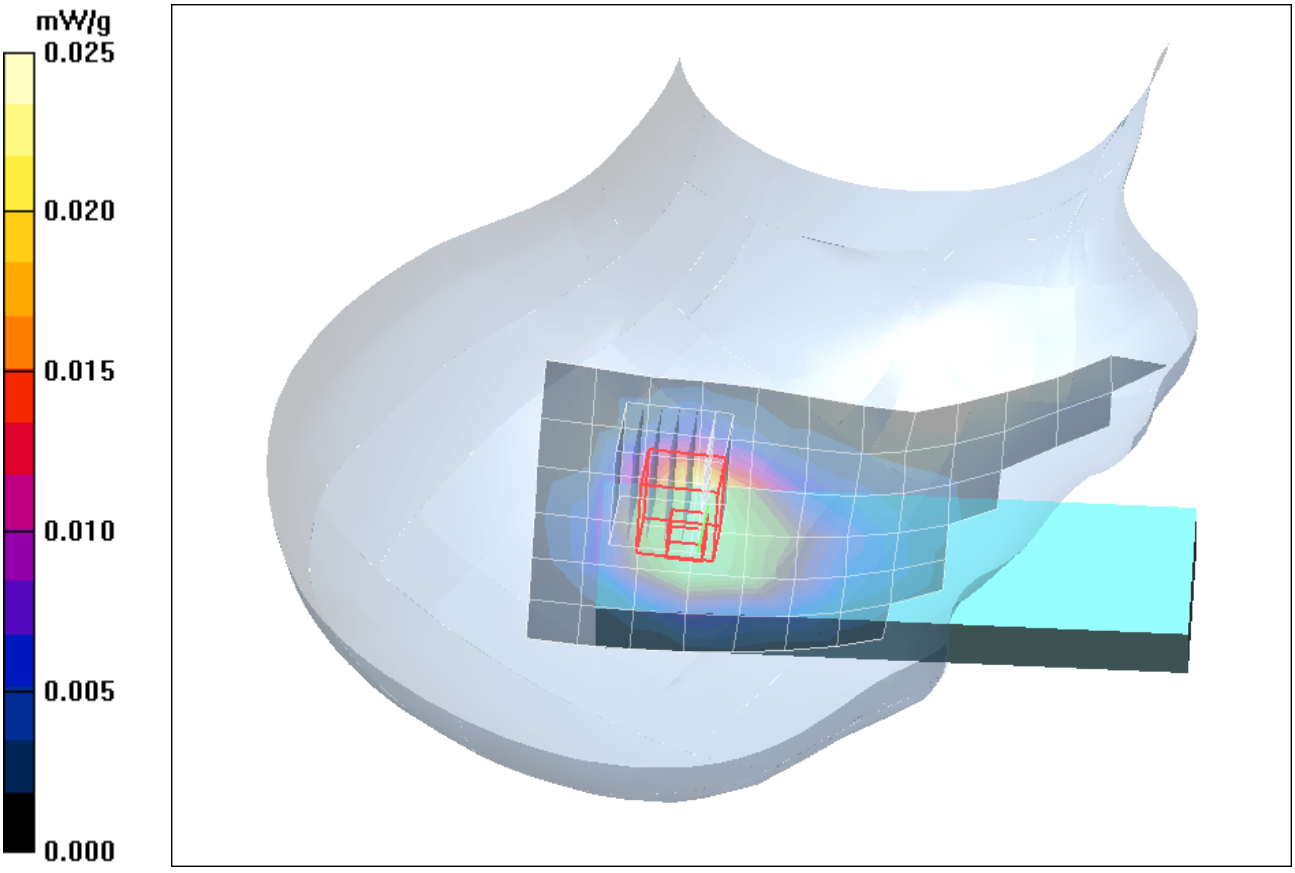


Fig. 3: SAR distribution for DECT US, channel 2, cheek position, right side of head (November 16, 2011; Ambient Temperature: 21.9°C; Liquid Temperature: 21.5°C).

**Test Laboratory: Imst GmbH, DASY Yellow (II); File Name: TGA470_yprm_2.da4**

**DUT: Panasonic; Type: KX-TGA470;**
**Program Name: DECT**

Communication System: DECT US; Frequency: 1924.99 MHz;Duty Cycle: 1:24
Medium parameters used: f = 1924.99 MHz; $\sigma$ = 1.46 mho/m; $\varepsilon_r$ = 40.8; $\rho$ = 1000 kg/m$^3$
Phantom section: Right Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3536; ConvF(8.07, 8.07, 8.07); Calibrated: 26.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn631; Calibrated: 21.09.2011
- 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 (7x14x1):** Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.018 mW/g
**Tilted Right/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.71 V/m; Power Drift = -0.199 dB
Peak SAR (extrapolated) = 0.034 W/kg
**SAR(1 g) = 0.019 mW/g; SAR(10 g) = 0.011 mW/g**
Maximum value of SAR (measured) = 0.021 mW/g

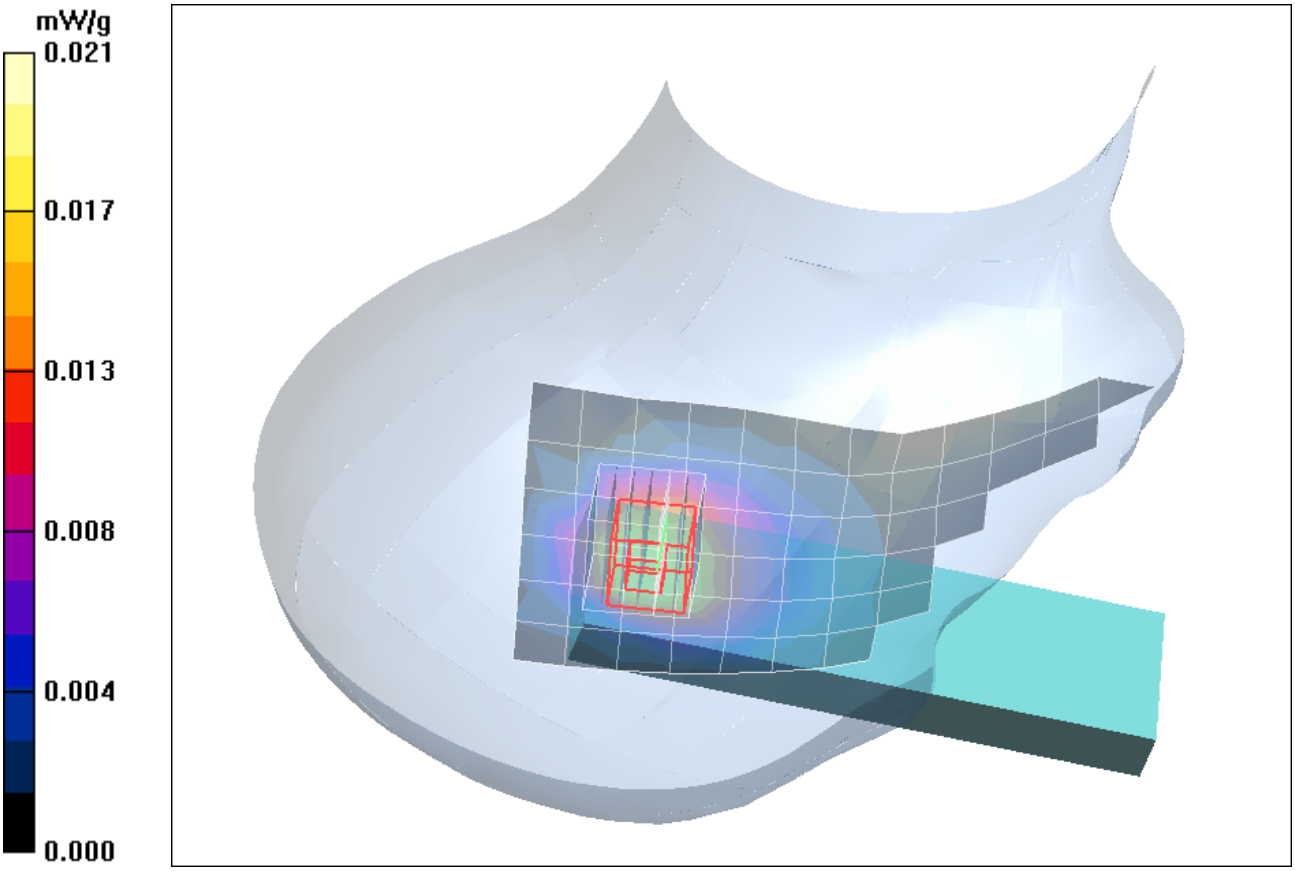


Fig. 4: SAR distribution for DECT US, channel 2, tilted position, right side of head (November 16, 2011; Ambient Temperature: 21.9°C; Liquid Temperature: 21.5°C)

# 2 SAR Distribution Plots, Body Measurements

**Test Laboratory: Imst GmbH, DASY Yellow (II); File Name: TGA470_yphm_1_dspl_up_hs.da4**

**DUT: Panasonic; Type: KX-TGA470;**
**Program Name: DECT**

Communication System: DECT US; Frequency: 1924.99 MHz;Duty Cycle: 1:24
Medium parameters used: f = 1924.99 MHz; $\sigma$ = 1.54 mho/m; $\varepsilon_r$ = 51.8; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3536; ConvF(8.03, 8.03, 8.03); Calibrated: 26.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn631; Calibrated: 21.09.2011
- 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 (8x14x1):** Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.025 mW/g
**Body/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.99 V/m; Power Drift = 0.050 dB
Peak SAR (extrapolated) = 0.047 W/kg
**SAR(1 g) = 0.024 mW/g; SAR(10 g) = 0.014 mW/g**
Maximum value of SAR (measured) = 0.026 mW/g

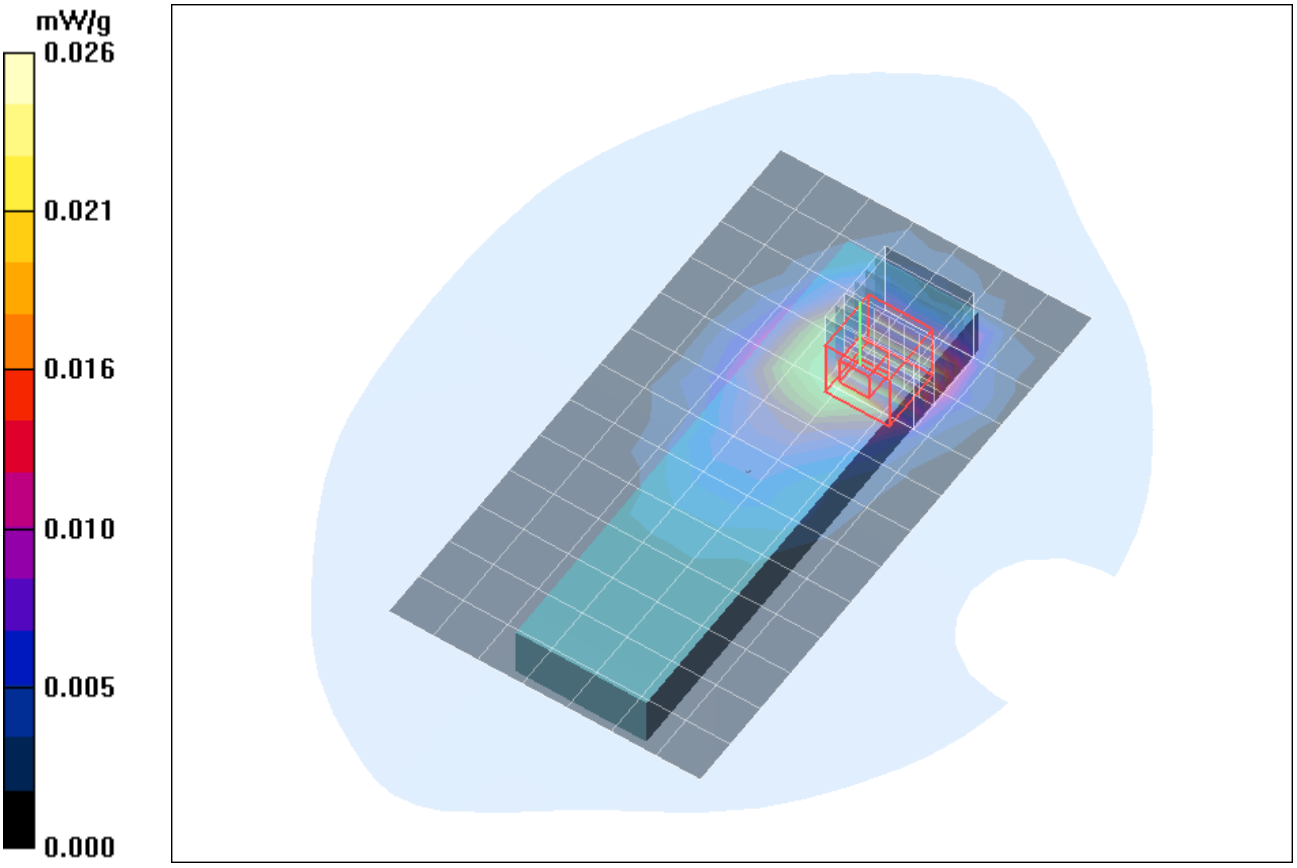


Fig. 5: SAR distribution for DECT US, channel 2, position 1, display towards the phantom, belt clip and headset attached, 0 mm distance (November 23, 2011; Ambient Temperature: 21.3°C; Liquid Temperature: 20.9°C).

**Test Laboratory: Imst GmbH, DASY Yellow (II); File Name: TGA470_yphm_2_dspl_down_hs.da4**

**DUT: Panasonic; Type: KX-TGA470;**
**Program Name: DECT**

Communication System: DECT US; Frequency: 1924.99 MHz;Duty Cycle: 1:24
Medium parameters used: f = 1924.99 MHz; $\sigma$ = 1.54 mho/m; $\varepsilon_r$ = 51.8; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section

DASY4 Configuration:
- Probe: EX3DV4 - SN3536; ConvF(8.03, 8.03, 8.03); Calibrated: 26.09.2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn631; Calibrated: 21.09.2011
- 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 (8x14x1):** Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.011 mW/g
**Body/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.55 V/m; Power Drift = -0.032 dB
Peak SAR (extrapolated) = 0.019 W/kg
**SAR(1 g) = 0.0097 mW/g; SAR(10 g) = 0.00563 mW/g**

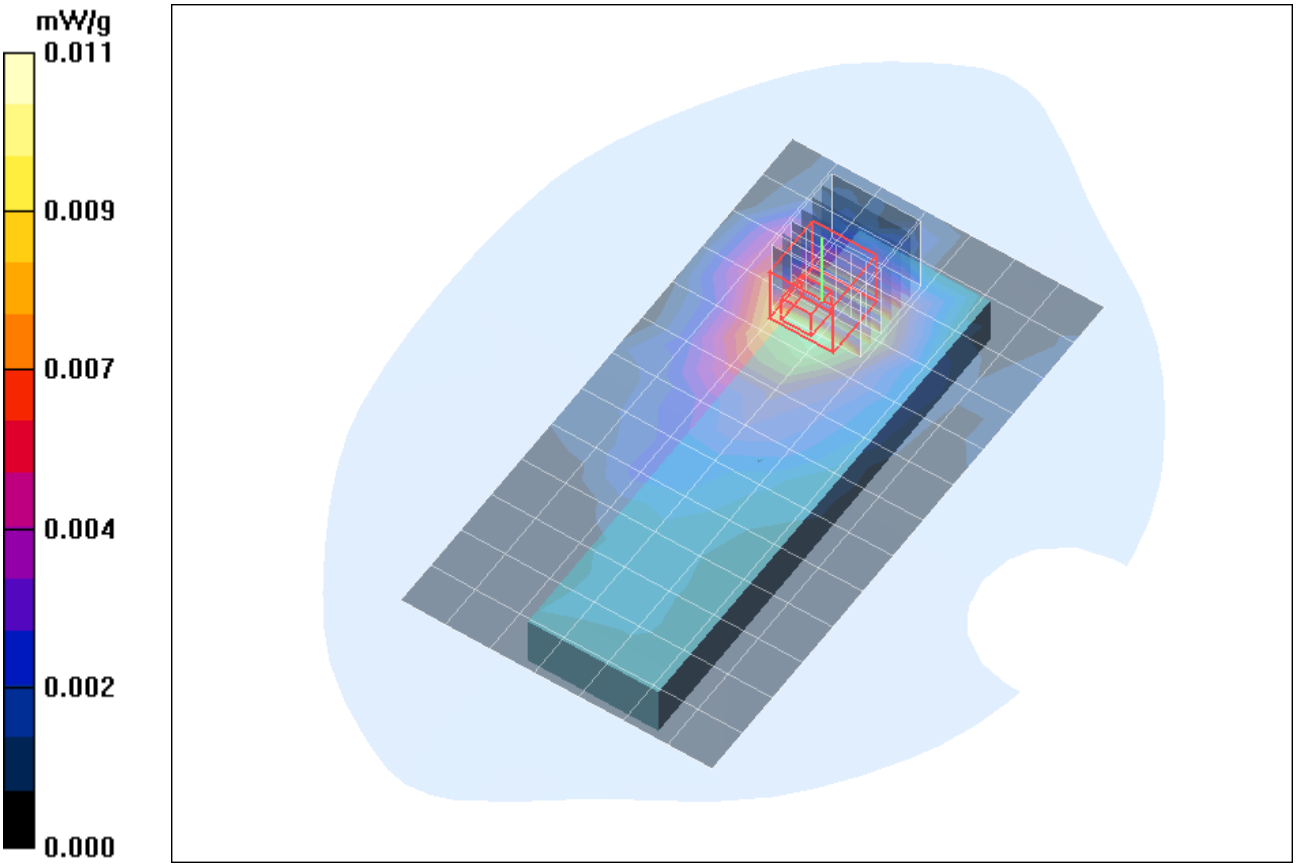


Fig. 6: SAR distribution for DECT US, channel 2, position 2, display towards the ground, belt clip and headset attached, 0 mm distance (November 23, 2011; Ambient Temperature: 21.3°C; Liquid Temperature: 20.9°C).

# 3 SAR Z-Axis Scans (Validation)

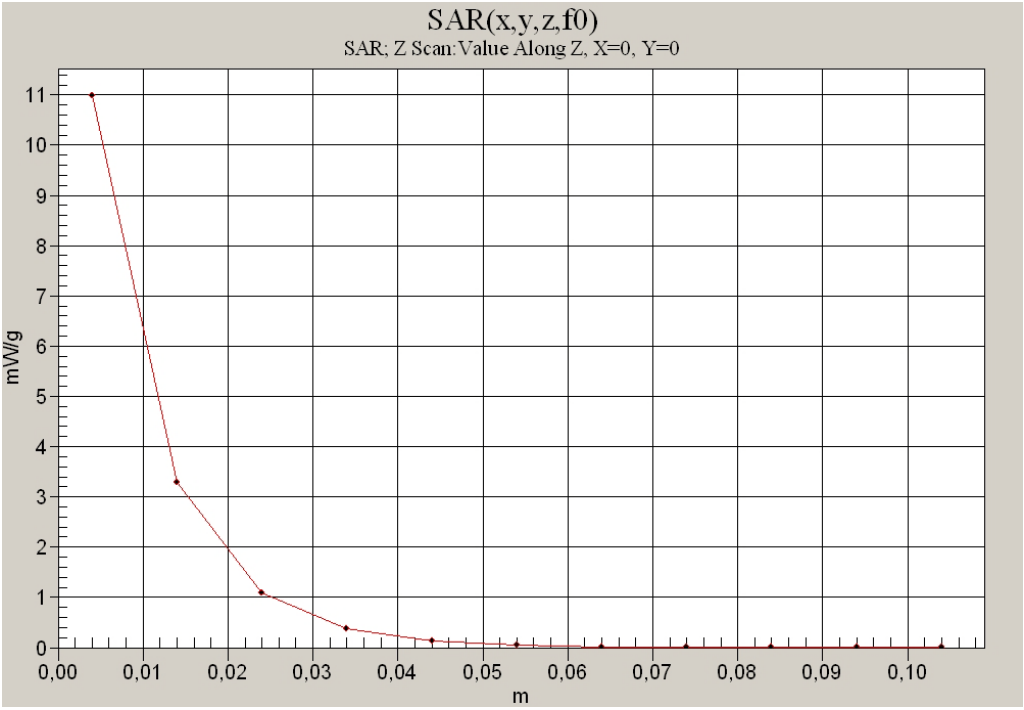


Fig. 7: SAR versus liquid depth, 1900 MHz, head (November 16, 2011; Ambient Temperature: 21.7° C; Liquid Temperature : 21.3° C).

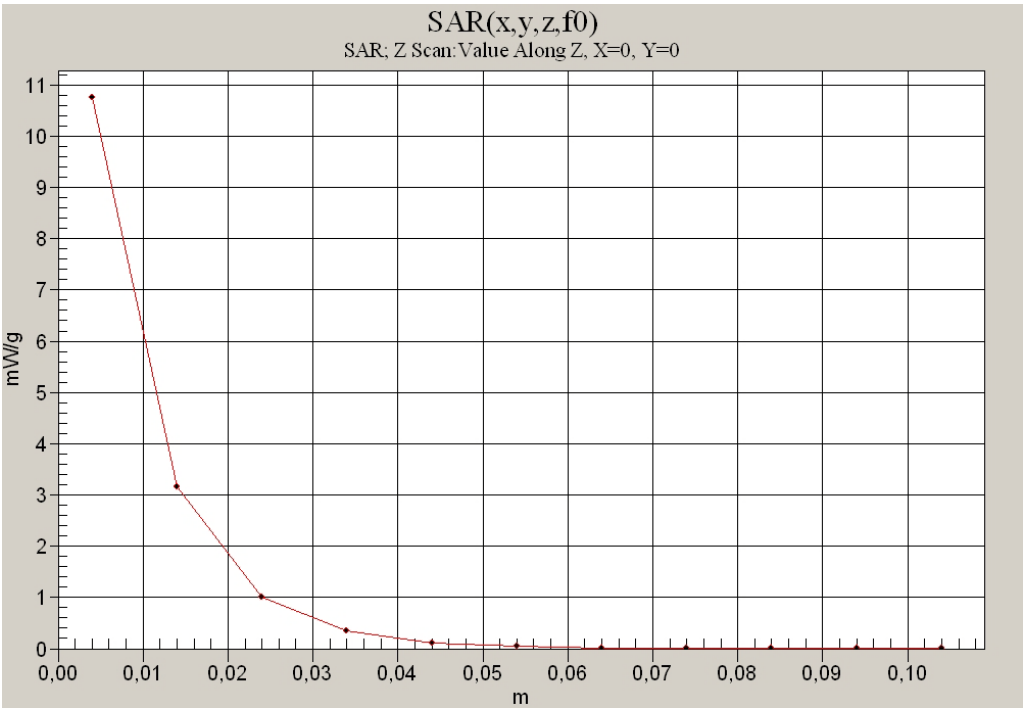


Fig. 8: SAR versus liquid depth, 1900 MHz, body (November 23, 2011; Ambient Temperature: 21.2° C; Liquid Temperature : 20.9° C).

# 4 SAR Z-Axis Scans (Measurements)

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

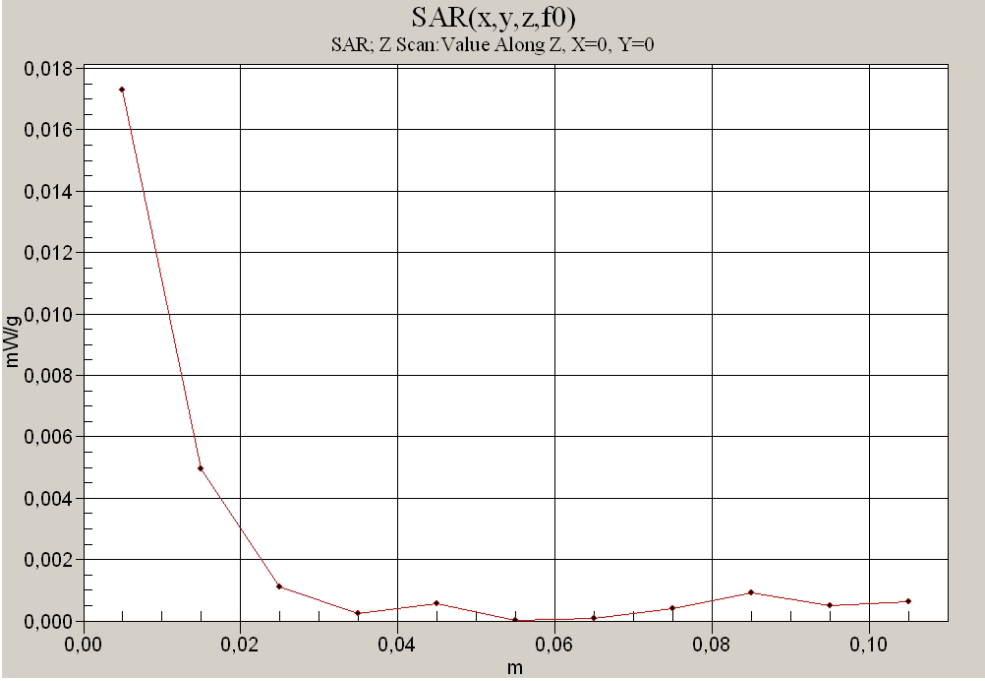


Fig. 9: SAR versus liquid depth, head: DECT US, channel 2, cheek position, left side of head (November 16, 2011; Ambient Temperature: 21.8° C; Liquid Temperature : 21.6° C).

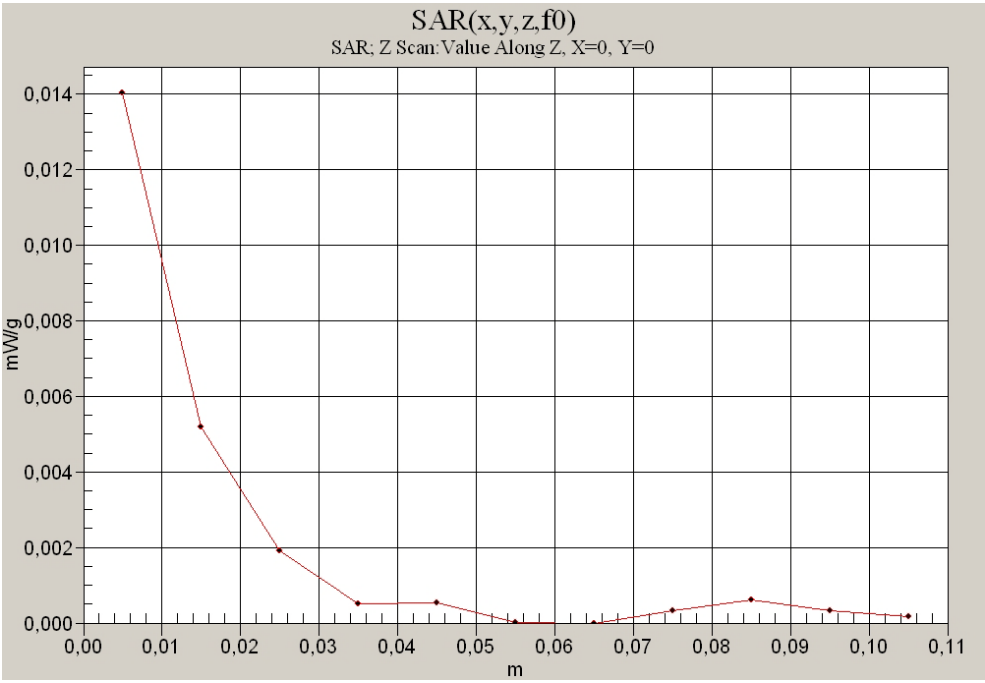


Fig. 10: SAR versus liquid depth, head: DECT US, channel 2, position 1, display towards the phantom, belt clip and headset attached, 0 mm distance (November 23, 2011; Ambient Temperature: 21.3° C; Liquid Temperature : 20.9° C).