
Appendix for the Report
Dosimetric Assessment
of the Portable Device
Sennheiser Communications DW 20 HS
(FCC ID: DMOCDHDFC)

According to the FCC Requirements

SAR Distribution Plots

July 29, 2010

IMST GmbH

Carl-Friedrich-Gauß-Str. 2

D-47475 Kamp-Lintfort

Customer

Sennheiser Communications A/S

Langager 6

DK-2680 Solrod Strand

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 MEASUREMENTS, ANTENNA 1..... 3

2 SAR DISTRIBUTION PLOTS, HEAD MEASUREMENTS, ANTENNA 2..... 5

3 SAR Z-AXIS SCANS (VALIDATION) 7

4 SAR Z-AXIS SCANS (MEASUREMENTS)..... 7

1 SAR Distribution Plots, Head Measurements, Antenna 1

Test Laboratory: Imst GmbH, DASY Yellow (II); File Name: [DW20_136_yplm_1_ant1.da4](#)

DUT: Sennheiser; Type: DW20HS; Serial: 10000136

Program Name: Cheek Left

Communication System: DECT US; Frequency: 1924.99 MHz; Duty Cycle: 1:15

Medium parameters used: $f = 1924.99$ MHz; $\sigma = 1.45$ mho/m; $\epsilon_r = 40.5$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3536; ConvF(7.95, 7.95, 7.95); Calibrated: 18.09.2009
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn335; Calibrated: 10.02.2010
- 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) = 0.022 mW/g

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

Reference Value = 3.26 V/m; Power Drift = -0.192 dB

Peak SAR (extrapolated) = 0.044 W/kg

SAR(1 g) = 0.023 mW/g; SAR(10 g) = 0.012 mW/g

Maximum value of SAR (measured) = 0.025 mW/g

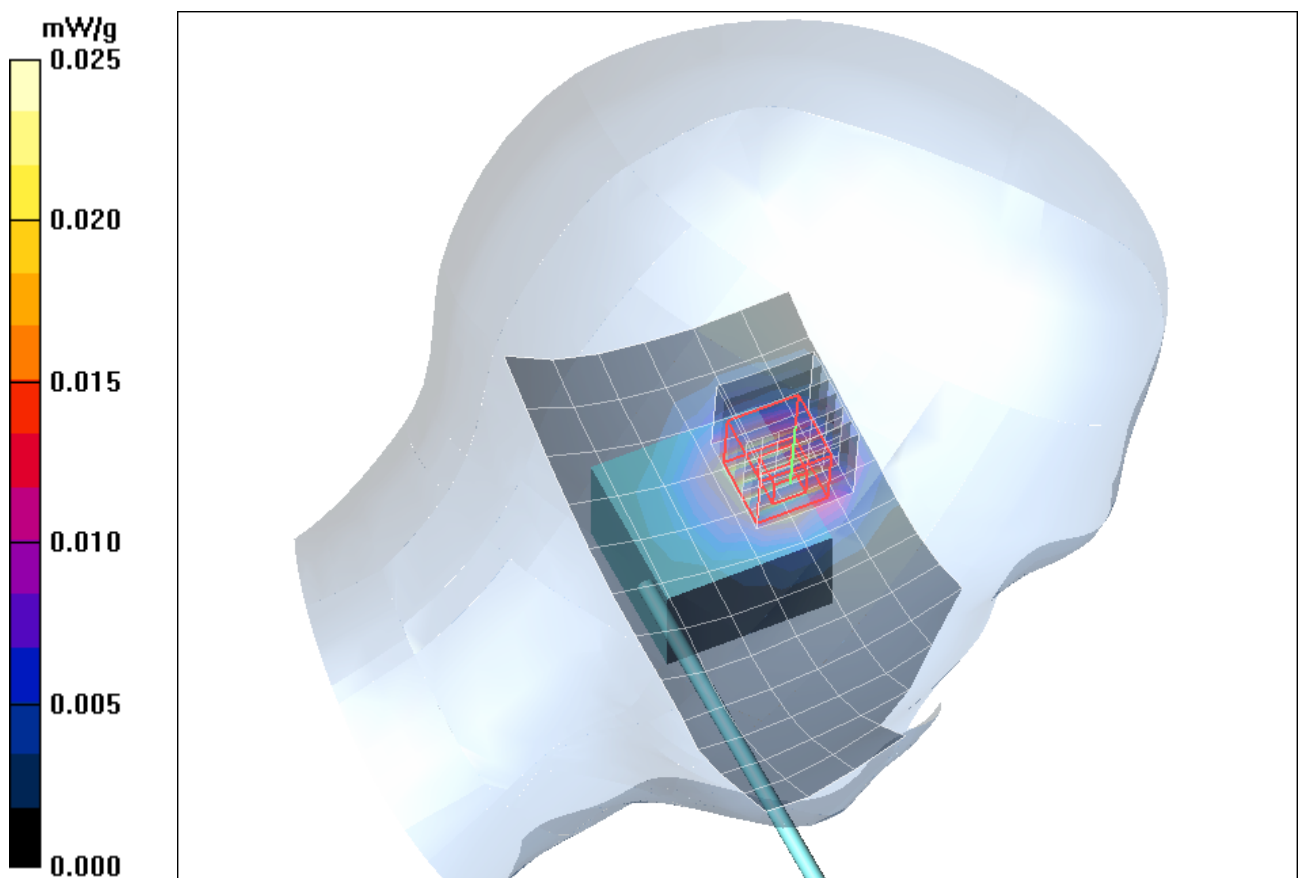


Fig. 1: SAR distribution for DECT US, channel 2, cheek position, left side of head, the view looking from above the phantom (June 14, 2010; Ambient Temperature: 20.9°C; Liquid Temperature: 20.3°C).

Test Laboratory: Imst GmbH, DASY Yellow (II); File Name: [DW20_136_yprm_1_ant1_wdh.da4](#)

DUT: Sennheiser; Type: DW20HS; Serial: 10000136

Program Name: Cheek Right

Communication System: DECT US; Frequency: 1924.99 MHz; Duty Cycle: 1:15

Medium parameters used: $f = 1924.99$ MHz; $\sigma = 1.45$ mho/m; $\epsilon_r = 40.5$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3536; ConvF(7.95, 7.95, 7.95); Calibrated: 18.09.2009

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

- Electronics: DAE3 Sn335; Calibrated: 10.02.2010

- 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 (8x13x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.018 mW/g

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

Reference Value = 1.97 V/m; Power Drift = 0.002 dB

Peak SAR (extrapolated) = 0.037 W/kg

SAR(1 g) = 0.020 mW/g; SAR(10 g) = 0.00997 mW/g

Maximum value of SAR (measured) = 0.022 mW/g

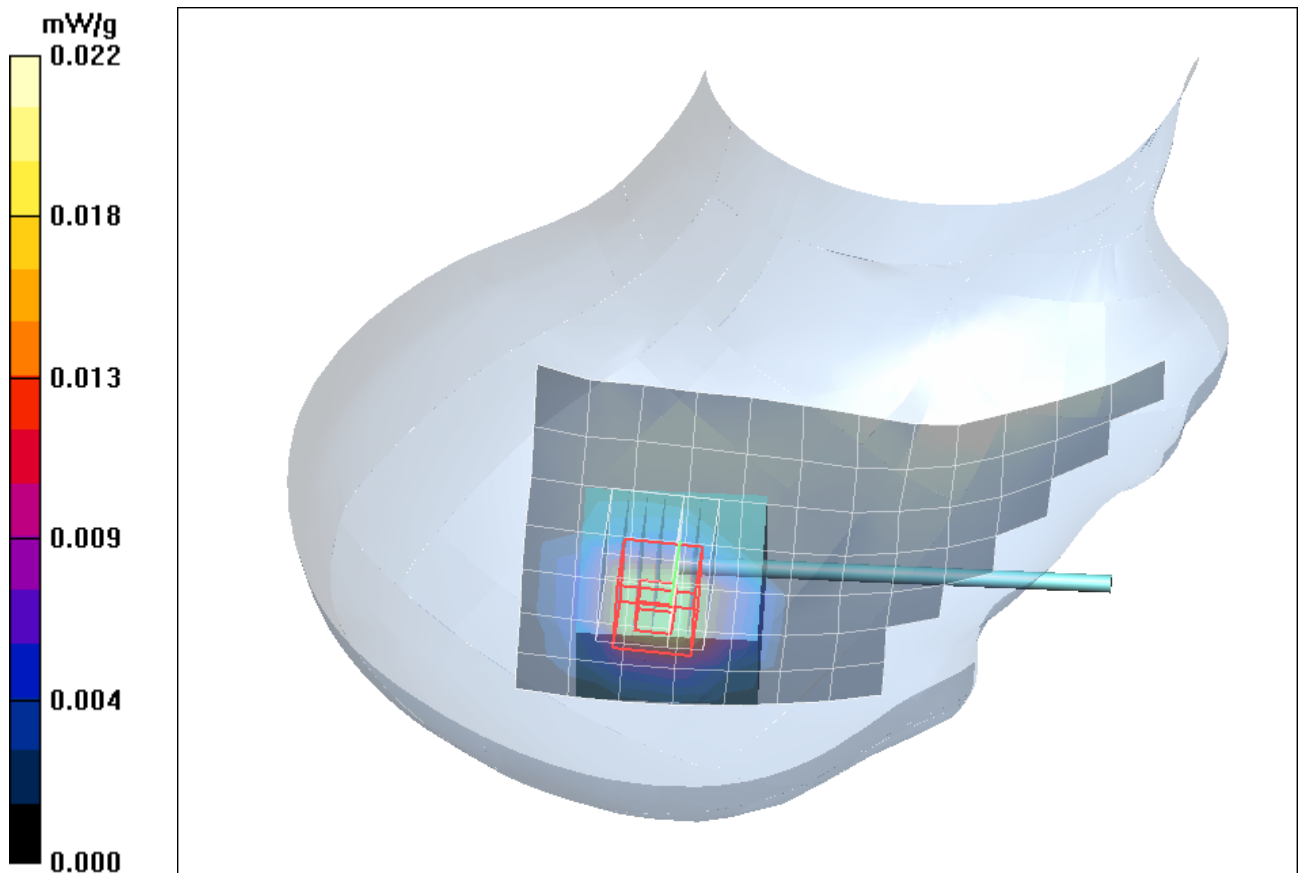


Fig. 2: SAR distribution for DECT US, channel 2, cheek position, right side of head, the view looking from above the phantom (June 14, 2010; Ambient Temperature: 20.9°C; Liquid Temperature: 20.3°C).

2 SAR Distribution Plots, Head Measurements, Antenna 2

Test Laboratory: Imst GmbH, DASY Yellow (II); File Name: [DW20_136_yplm_1_ant2.da4](#)

DUT: Sennheiser; Type: DW20HS; Serial: 10000136

Program Name: Cheek Left

Communication System: DECT US; Frequency: 1924.99 MHz; Duty Cycle: 1:15

Medium parameters used: $f = 1924.99$ MHz; $\sigma = 1.45$ mho/m; $\epsilon_r = 40.5$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3536; ConvF(7.95, 7.95, 7.95); Calibrated: 18.09.2009
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn335; Calibrated: 10.02.2010
- 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) = 0.030 mW/g

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

Reference Value = 4.41 V/m; Power Drift = -0.191 dB

Peak SAR (extrapolated) = 0.054 W/kg

SAR(1 g) = 0.029 mW/g; SAR(10 g) = 0.015 mW/g

Maximum value of SAR (measured) = 0.032 mW/g

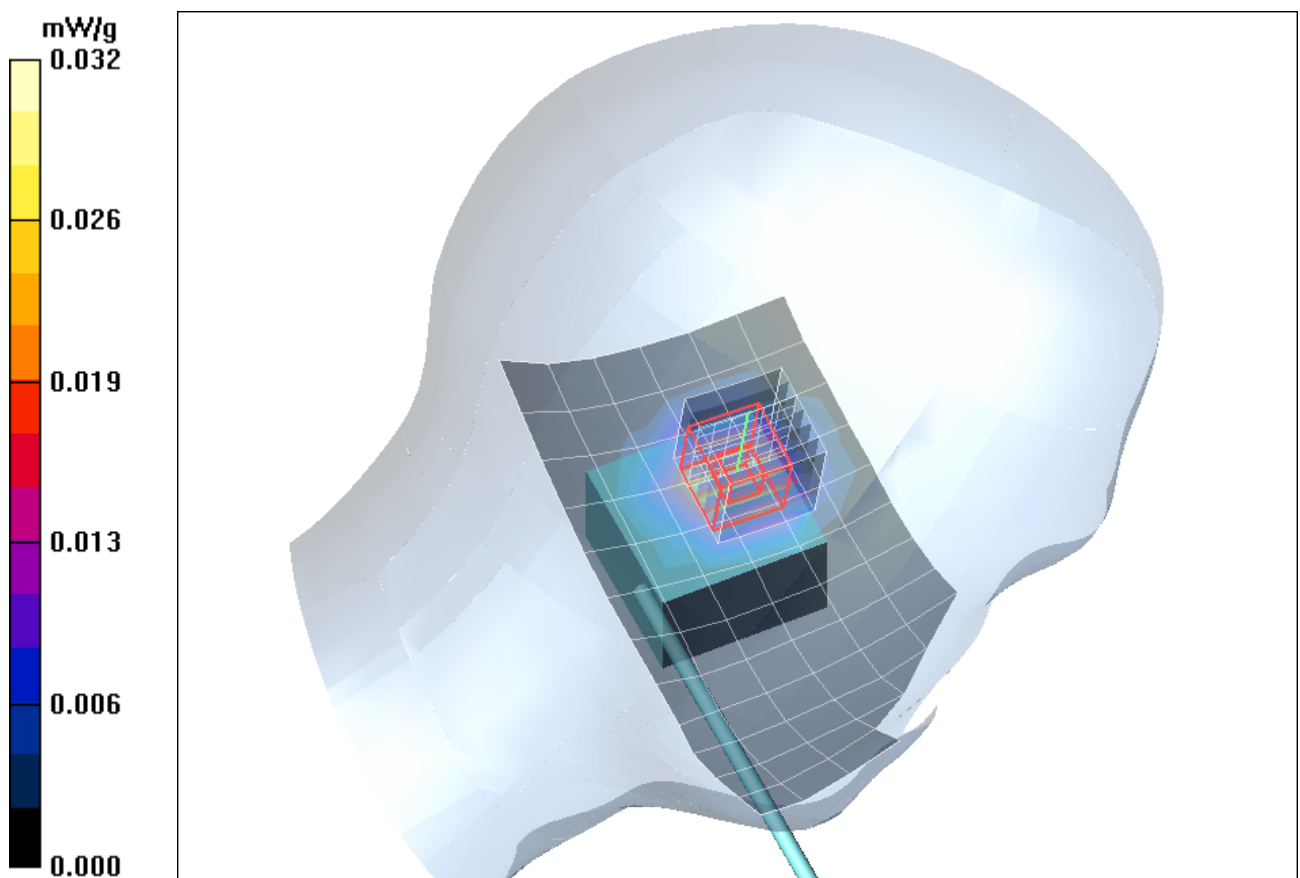


Fig. 3: SAR distribution for DECT US, channel 2, cheek position, left side of head, the view looking from above the phantom (June 14, 2010; Ambient Temperature: 20.9°C; Liquid Temperature: 20.3°C).

Test Laboratory: Imst GmbH, DASY Yellow (II); File Name: [DW20_136_yprm_1_ant2.da4](#)

DUT: Sennheiser; Type: DW20HS; Serial: 10000136

Program Name: Cheek Right

Communication System: DECT US; Frequency: 1924.99 MHz; Duty Cycle: 1:15

Medium parameters used: $f = 1924.99$ MHz; $\sigma = 1.45$ mho/m; $\epsilon_r = 40.5$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3536; ConvF(7.95, 7.95, 7.95); Calibrated: 18.09.2009

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

- Electronics: DAE3 Sn335; Calibrated: 10.02.2010

- 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) = 0.029 mW/g

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

Reference Value = 3.92 V/m; Power Drift = -0.136 dB

Peak SAR (extrapolated) = 0.047 W/kg

SAR(1 g) = 0.026 mW/g; SAR(10 g) = 0.013 mW/g

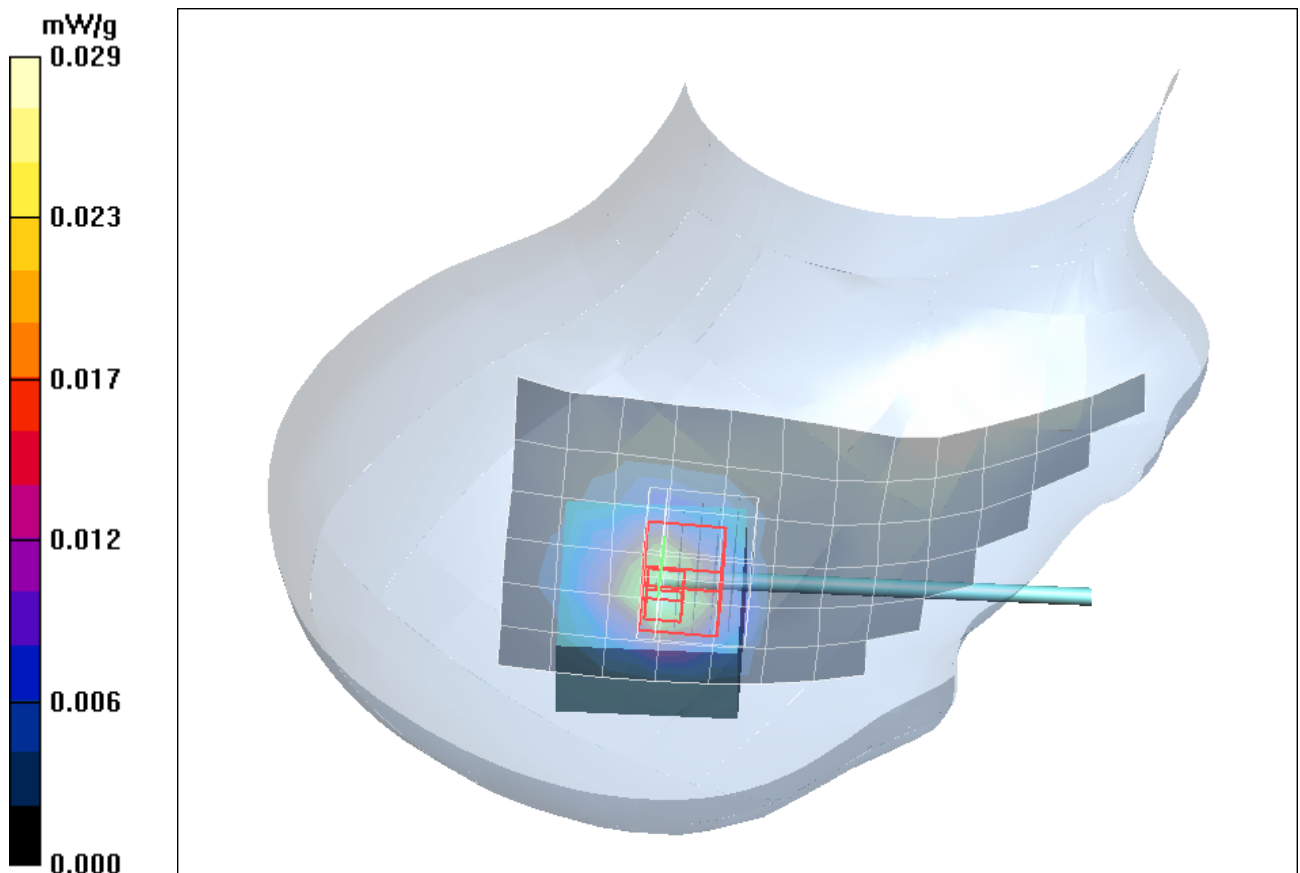


Fig. 4: SAR distribution for DECT US, channel 2, cheek position, right side of head, the view looking from above the phantom (June 14, 2010; Ambient Temperature: 20.9°C; Liquid Temperature: 20.3°C).

3 SAR z-axis scans (Validation)

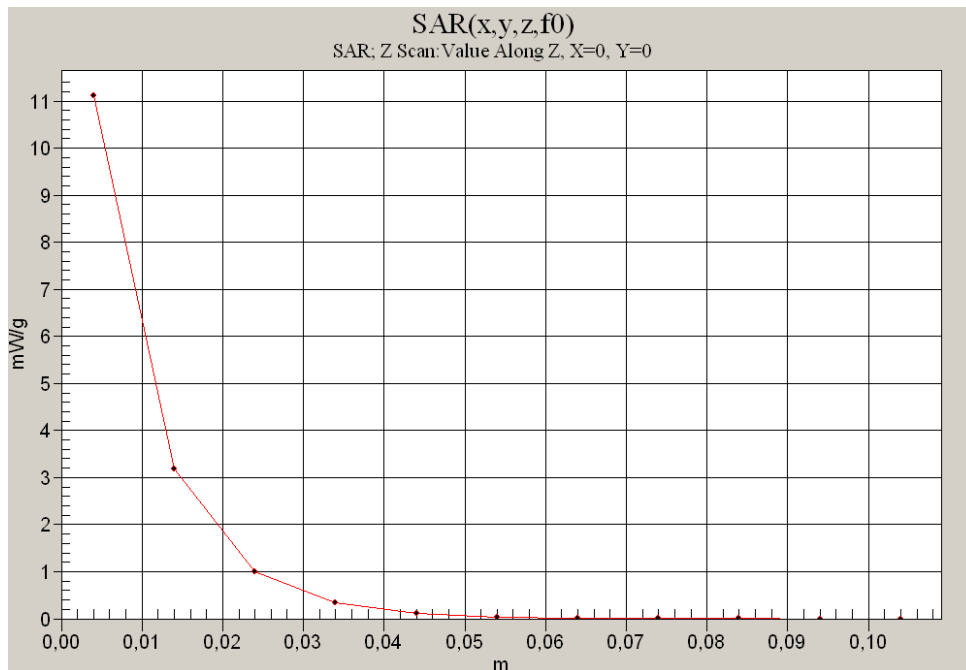


Fig. 5: SAR versus liquid depth, 1900 MHz, head (June 14, 2010; Ambient Temperature: 20.9° C; Liquid Temperature : 20.3° C).

4 SAR z-axis scans (Measurements)

The following picture shows the plot of SAR versus liquid depth for the worst case values.

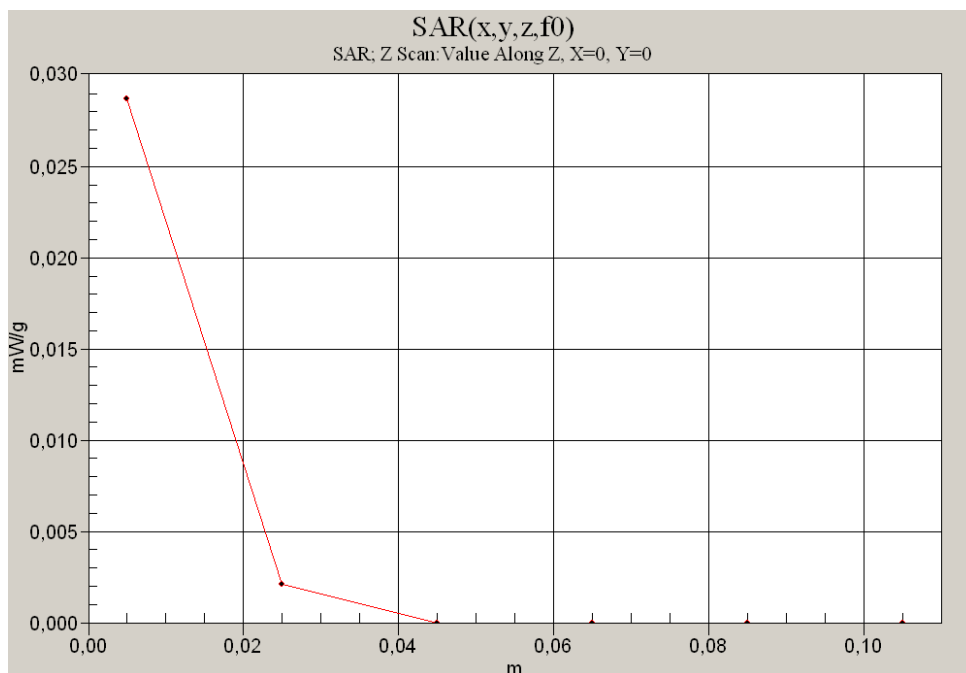


Fig. 6: SAR versus liquid depth, head: DECT US, channel 2, cheek position, left side of head, antenna 2 (June 14, 2010; Ambient Temperature: 20.9° C; Liquid Temperature : 20.3° C).