
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

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Customer

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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.

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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

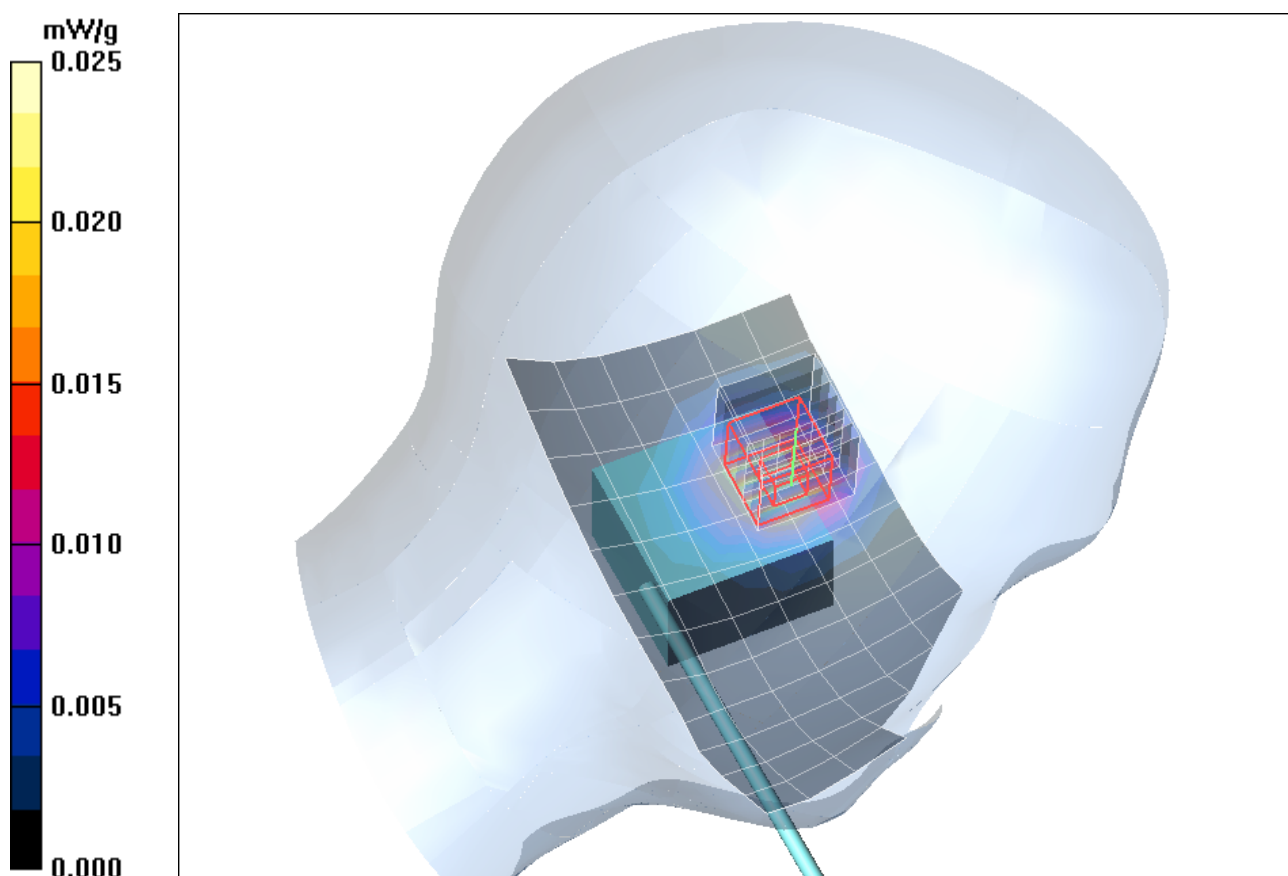


Fig. 1: SAR distribution for DECT US, channel 2, cheek position, left side of head, the view looking from above the phantom (June 14, 2010; Ambient Temperature: 20.9°C; Liquid Temperature: 20.3°C).

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

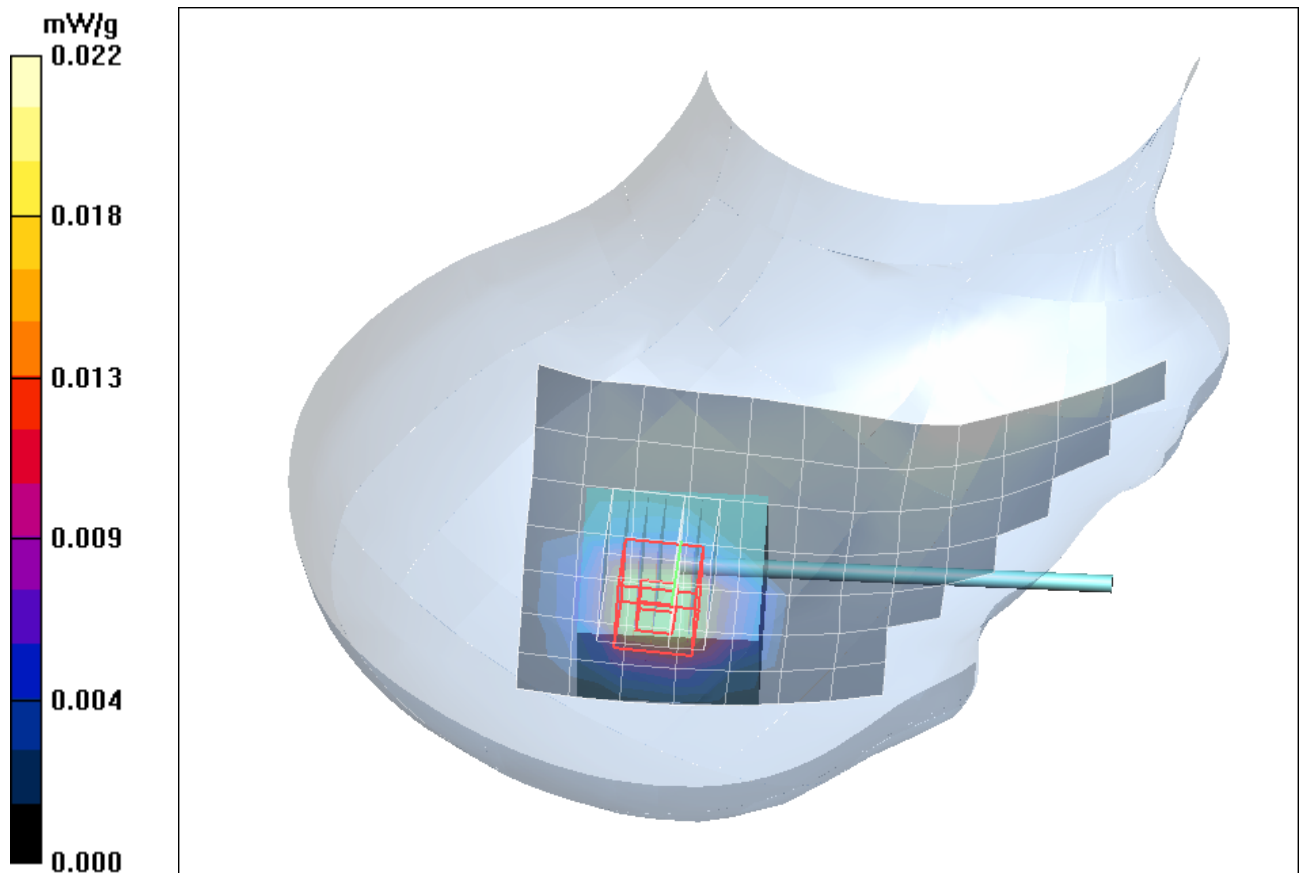


Fig. 2: SAR distribution for DECT US, channel 2, cheek position, right side of head, the view looking from above the phantom (June 14, 2010; Ambient Temperature: 20.9°C; Liquid Temperature: 20.3°C).

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

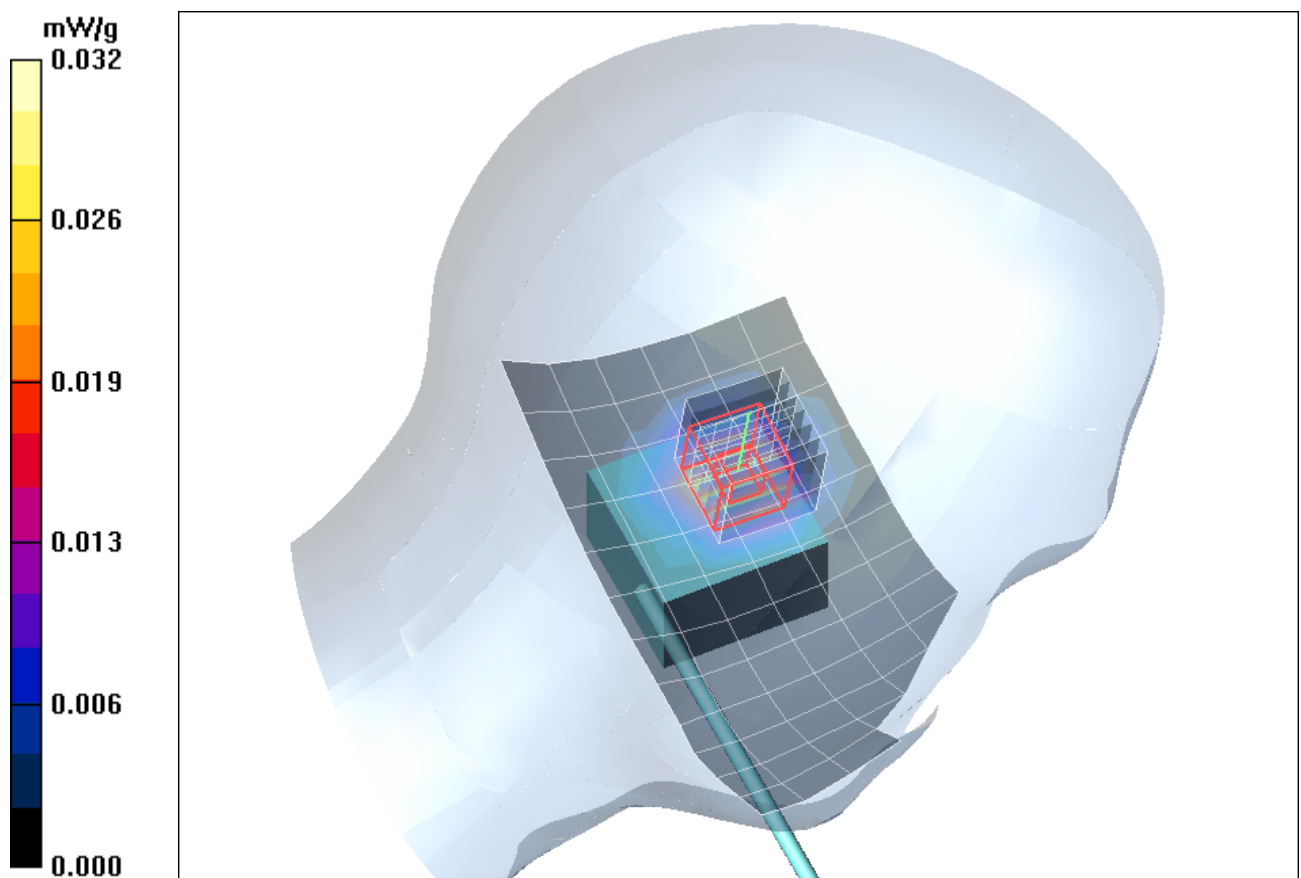


Fig. 3: SAR distribution for DECT US, channel 2, cheek position, left side of head, the view looking from above the phantom (June 14, 2010; Ambient Temperature: 20.9°C; Liquid Temperature: 20.3°C).

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

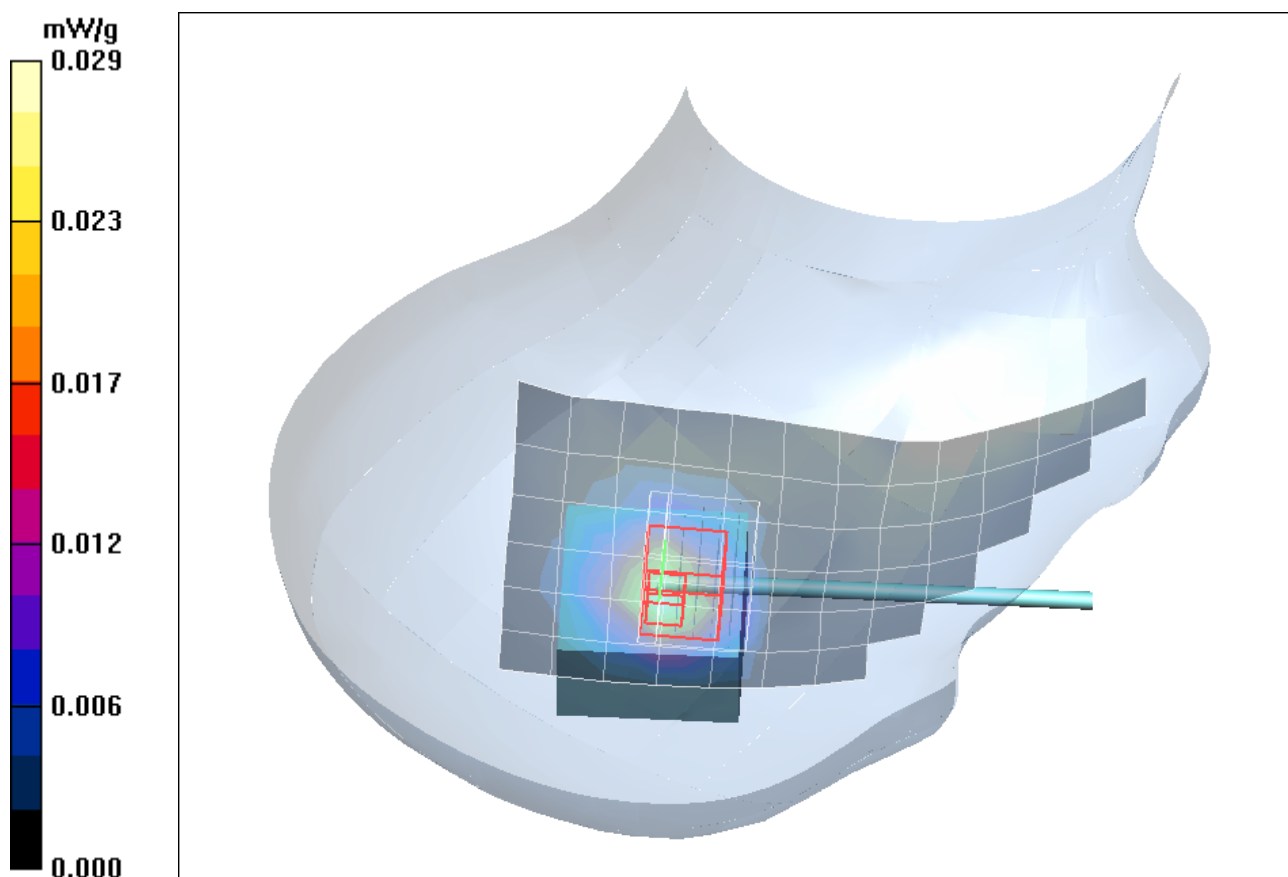


Fig. 4: SAR distribution for DECT US, channel 2, cheek position, right side of head, the view looking from above the phantom (June 14, 2010; Ambient Temperature: 20.9°C; Liquid Temperature: 20.3°C).

3 SAR z-axis scans (Validation)

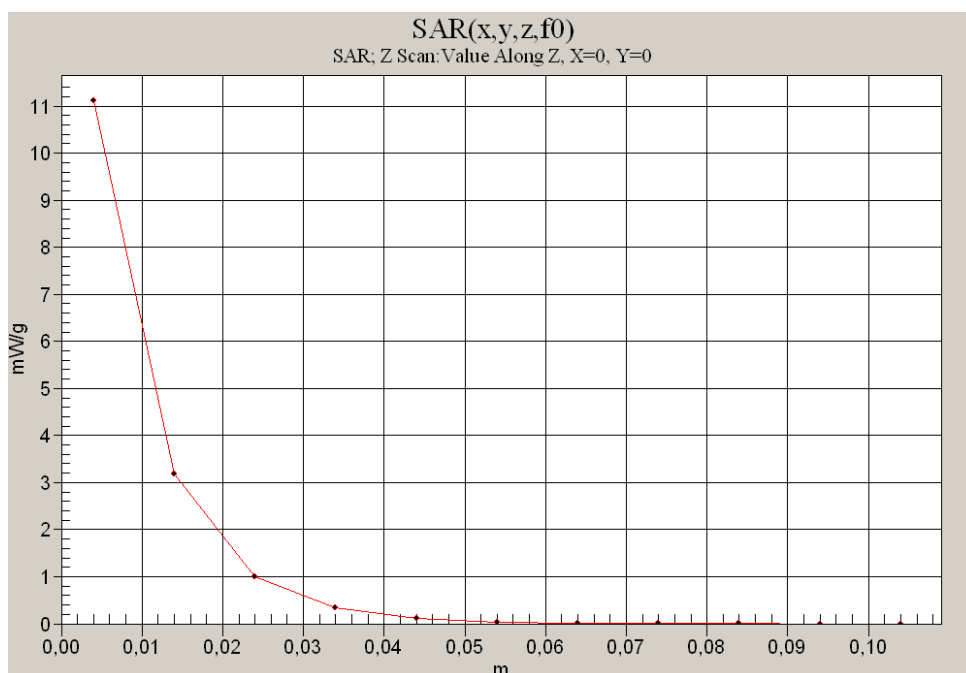


Fig. 5: SAR versus liquid depth, 1900 MHz, head (June 14, 2010; Ambient Temperature: 20.9° C; Liquid Temperature : 20.3° C).

4 SAR z-axis scans (Measurements)

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

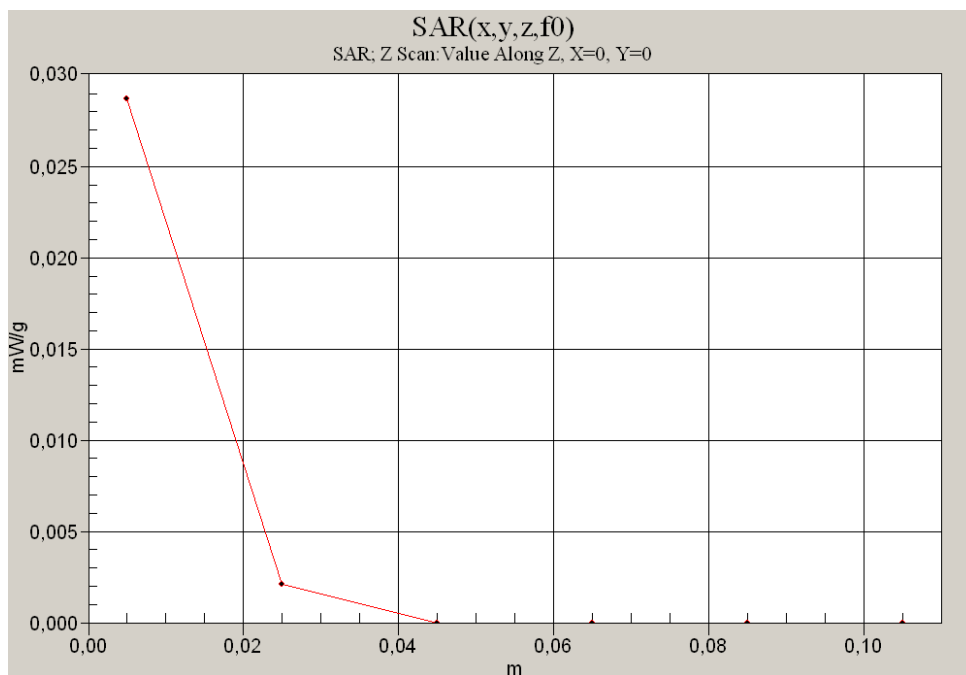


Fig. 6: SAR versus liquid depth, head: DECT US, channel 2, cheek position, left side of head, antenna 2 (June 14, 2010; Ambient Temperature: 20.9° C; Liquid Temperature : 20.3° C).