



TTI-P-G 158



Appendix for the Report

Dosimetric Assessment of the Panasonic X70 (FCC ID: NWJ22B001A) According to the FCC Requirements

SAR Distribution Plots

September 15, 2003

IMST GmbH

Carl-Friedrich-Gauß-Str. 2

D-47475 Kamp-Lintfort

Customer

Panasonic (PMCDE)

2 Gables Way, Colthrop, Thatcham

Berks -RG19 4ZB

The test results only relate to the items tested.
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1 SAR Distribution Plots, PCS 1900 Head

Test Laboratory: IMST; File Name: [358plm_1.da4](#)

DUT: Panasonic; Type: EB-X70; Serial: 004400622870358

Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:8

Medium: Head 1900 MHz ($\sigma = 1.4 \text{ mho/m}$, $\epsilon_r = 38.5$, $\rho = 1000 \text{ kg/m}^3$)

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1669; ConvF(5.2, 5.2, 5.2); Calibrated: 21.03.2003

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

- Electronics: DAE3 Sn335; Calibrated: 05.05.2003

- Phantom: SAM TP:1176;

- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

cheek left/Area Scan (6x11x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 5.19 V/m

Power Drift = -0.006 dB

Maximum value of SAR = 0.619 mW/g

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

Peak SAR (extrapolated) = 0.972 W/kg

SAR(1 g) = 0.626 mW/g; SAR(10 g) = 0.347 mW/g

Reference Value = 5.19 V/m

Power Drift = -0.006 dB

Maximum value of SAR = 0.691 mW/g

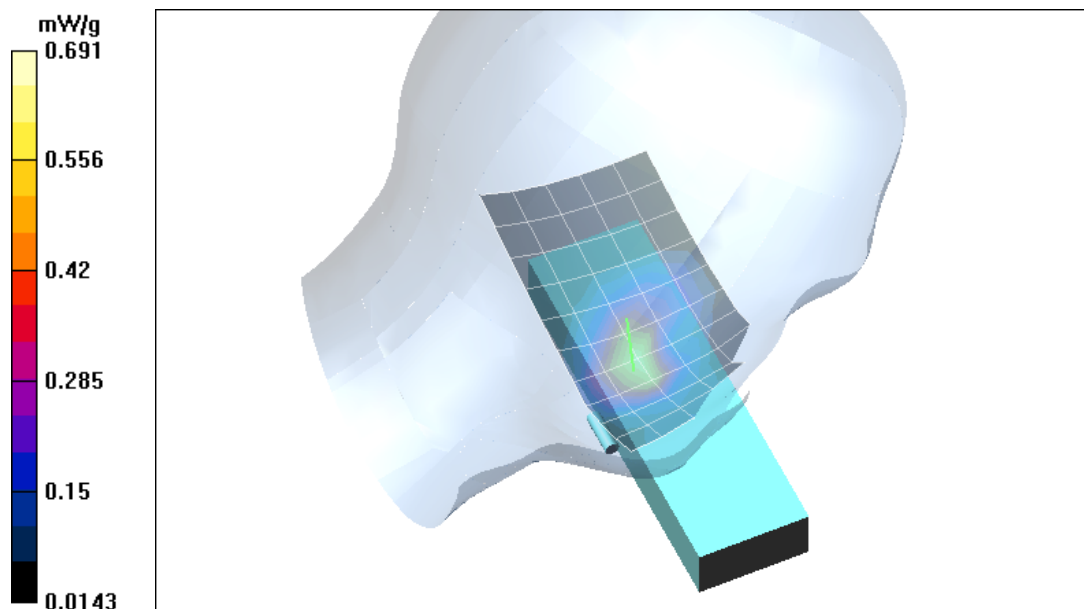


Fig. 1: SAR distribution for PCS 1900, channel 661, cheek position, left side of head. (September 01, 2003; Liquid Temperature: 20.1° C; Ambient Temperature : 20.9° C).

Test Laboratory: IMST; File Name: [358plm_2.da4](#)

DUT: Panasonic; Type: EB-X70; Serial: 004400622870358

Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:8

Medium: Head 1900 MHz ($\sigma = 1.4$ mho/m, $\epsilon_r = 38.5$, $\rho = 1000$ kg/m³)

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1669; ConvF(5.2, 5.2, 5.2); Calibrated: 21.03.2003

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

- Electronics: DAE3 Sn335; Calibrated: 05.05.2003

- Phantom: SAM TP:1176;

- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

tilted left/Area Scan (6x11x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 6.47 V/m

Power Drift = 0.0002 dB

Maximum value of SAR = 0.19 mW/g

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

Peak SAR (extrapolated) = 0.251 W/kg

SAR(1 g) = 0.181 mW/g; SAR(10 g) = 0.116 mW/g

Reference Value = 6.47 V/m

Power Drift = 0.0002 dB

Maximum value of SAR = 0.195 mW/g

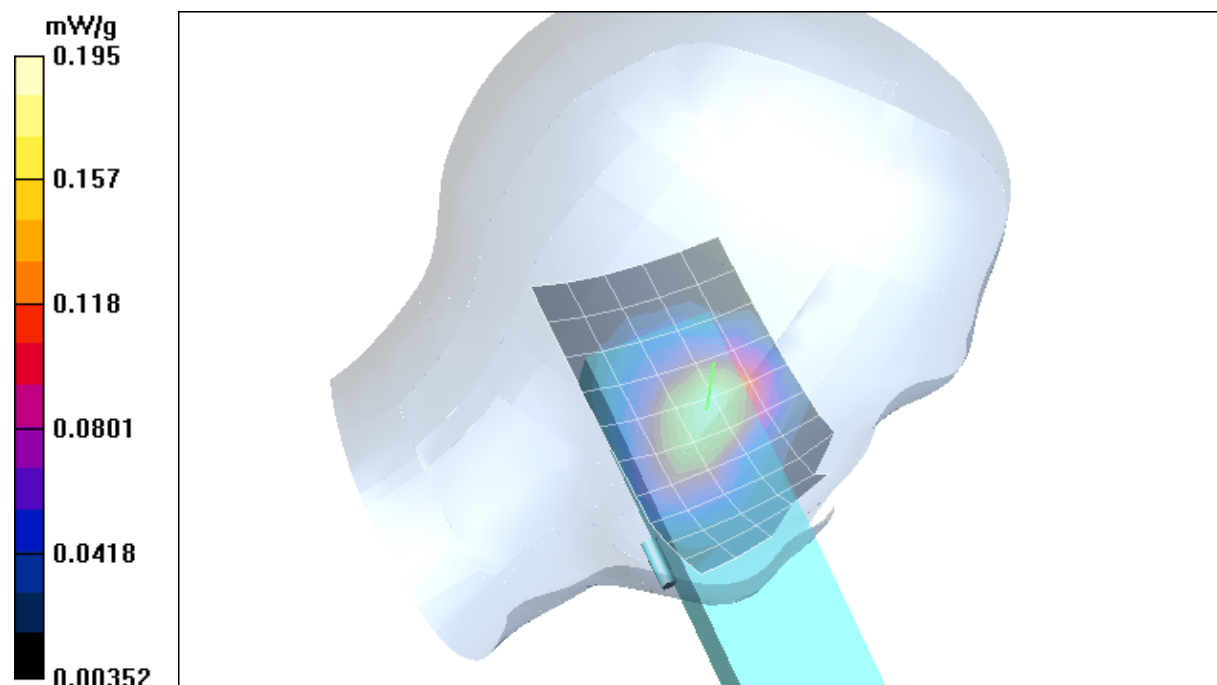


Fig. 2: SAR distribution for PCS 1900, channel 661, tilted position, left side of head. (September 01, 2003; Liquid Temperature: 20.0° C; Ambient Temperature : 21.0°C).

Test Laboratory: IMST; File Name: [358prm_1.da4](#)

DUT: Panasonic; Type: EB-X70; Serial: 004400622870358

Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:8

Medium: Head 1900 MHz ($\sigma = 1.4$ mho/m, $\epsilon_r = 38.5$, $\rho = 1000$ kg/m³)

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1669; ConvF(5.2, 5.2, 5.2); Calibrated: 21.03.2003

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

- Electronics: DAE3 Sn335; Calibrated: 05.05.2003

- Phantom: SAM TP:1176;

- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

cheek right/Area Scan (6x11x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 5.13 V/m

Power Drift = 0.02 dB

Maximum value of SAR = 0.478 mW/g

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

Peak SAR (extrapolated) = 0.808 W/kg

SAR(1 g) = 0.507 mW/g; SAR(10 g) = 0.291 mW/g

Reference Value = 5.13 V/m

Power Drift = 0.02 dB

Maximum value of SAR = 0.556 mW/g

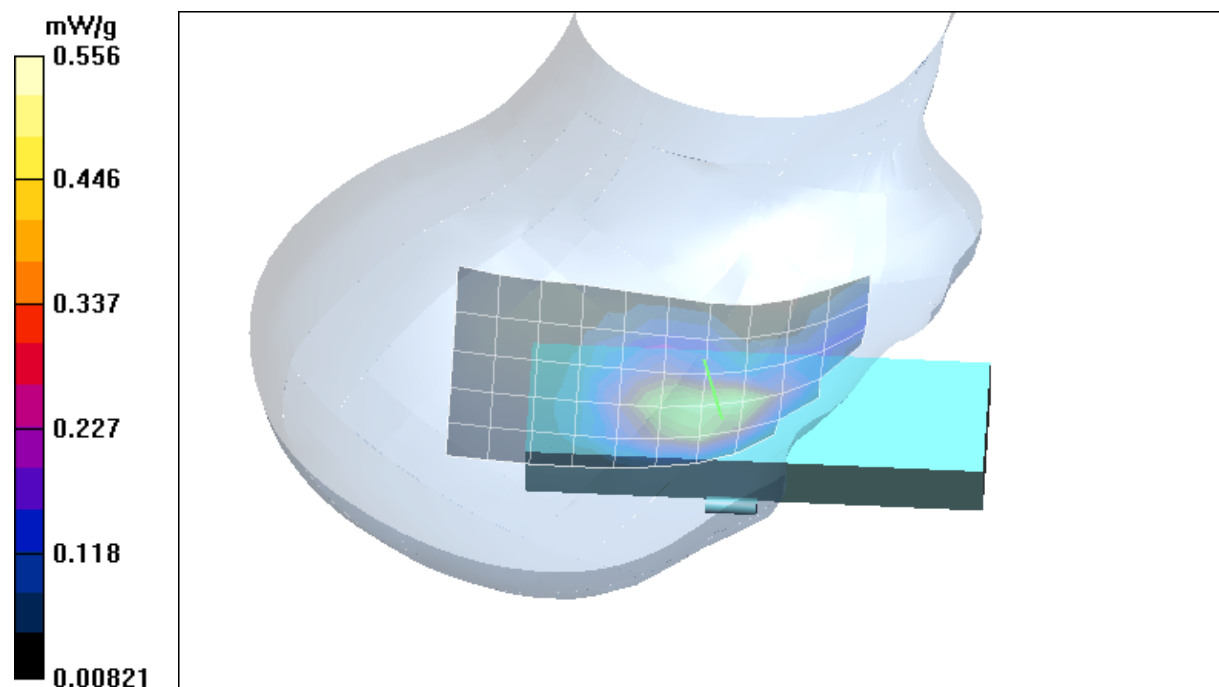


Fig. 3: SAR distribution for PCS 1900, channel 661, cheek position, right side of head. (September 01, 2003; Liquid Temperature: 20.0° C; Ambient Temperature : 21.1°C).

Test Laboratory: IMST; File Name: [358prm_2.da4](#)

DUT: Panasonic; Type: EB-X70; Serial: 004400622870358

Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:8

Medium: Head 1900 MHz ($\sigma = 1.4$ mho/m, $\epsilon_r = 38.5$, $\rho = 1000$ kg/m³)

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1669; ConvF(5.2, 5.2, 5.2); Calibrated: 21.03.2003

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

- Electronics: DAE3 Sn335; Calibrated: 05.05.2003

- Phantom: SAM TP:1176; Type:

- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

tilted right/Area Scan (6x11x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 5.98 V/m

Power Drift = -0.02 dB

Maximum value of SAR = 0.172 mW/g

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

Peak SAR (extrapolated) = 0.268 W/kg

SAR(1 g) = 0.179 mW/g; SAR(10 g) = 0.113 mW/g

Reference Value = 5.98 V/m

Power Drift = -0.02 dB

Maximum value of SAR = 0.185 mW/g

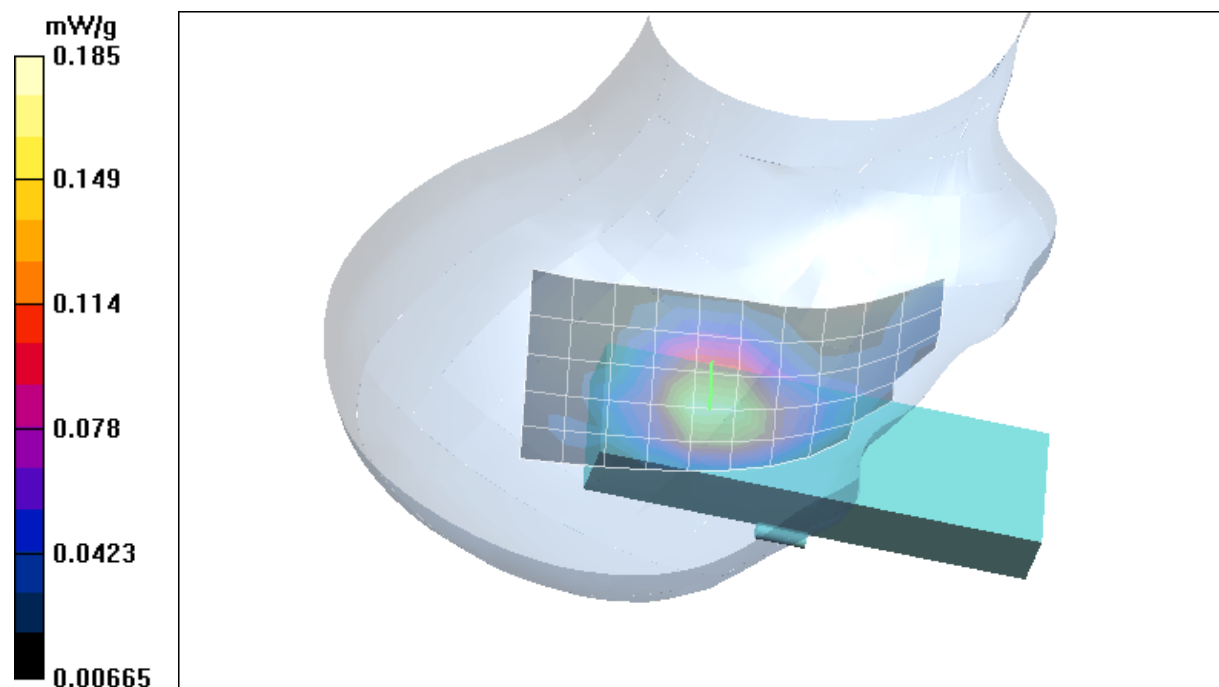


Fig. 4: SAR distribution for PCS 1900, channel 661, tilted position, right side of head. (September 01, 2003; Liquid Temperature: 20.0° C; Ambient Temperature : 21.3°C).

2 SAR Distribution Plots, PCS 1900 Body with Carry case

Test Laboratory: IMST; File Name: [358phm_1.da4](#)

DUT: Panasonic; Type: X70; Serial: 004400622870358

Program: Unnamed Program

Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:8

Medium: Body1900 MHz ($\sigma = 1.52$ mho/m, $\epsilon_r = 51.9$, $\rho = 1000$ kg/m³)

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1669; ConvF(4.8, 4.8, 4.8); Calibrated: 21.03.2003

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

- Electronics: DAE3 Sn335; Calibrated: 05.05.2003

- Phantom: SAM TP:1176;

- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Unnamed procedure/Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 14.4 V/m

Power Drift = -0.01 dB

Maximum value of SAR = 0.579 mW/g

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

Peak SAR (extrapolated) = 1.02 W/kg

SAR(1 g) = 0.622 mW/g; SAR(10 g) = 0.37 mW/g

Reference Value = 14.4 V/m

Power Drift = -0.01 dB

Maximum value of SAR = 0.666 mW/g

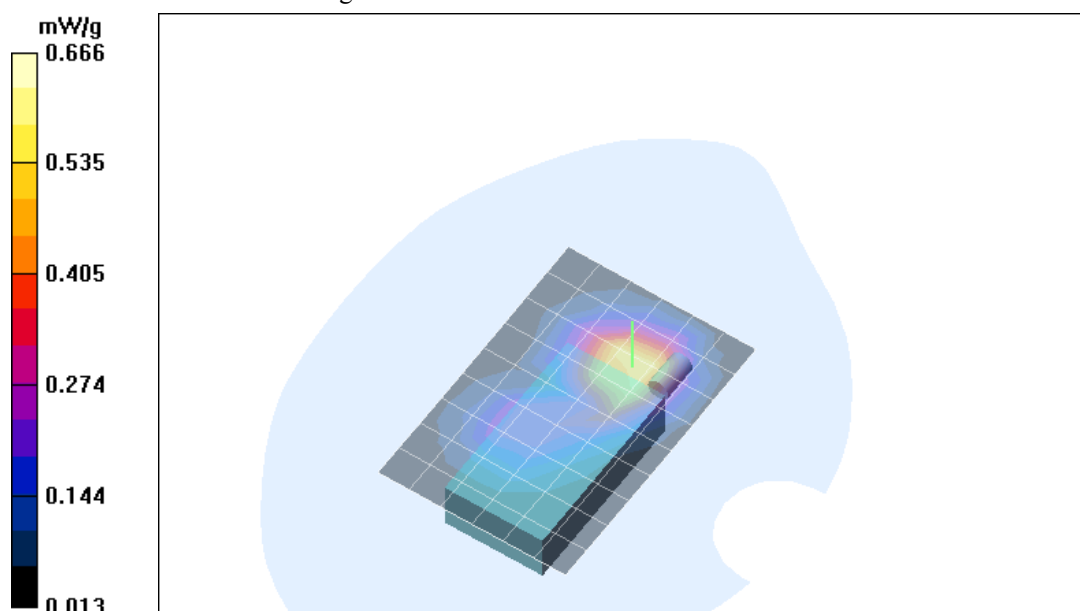


Fig. 5: SAR distribution for PCS 1900, channel 661, body worn configuration, antenna towards the phantom, with headset (September 02, 2003; Liquid Temperature: 19.8° C; Ambient Temperature : 21.1° C).

Test Laboratory: IMST, File Name: [358phm_2.da4](#)

DUT: Panasonic; Type: X70; Serial: 004400622870358

Program: Unnamed Program

Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:8

Medium: Body1900 MHz ($\sigma = 1.52$ mho/m, $\epsilon_r = 51.9$, $\rho = 1000$ kg/m³)

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1669; ConvF(4.8, 4.8, 4.8); Calibrated: 21.03.2003

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

- Electronics: DAE3 Sn335; Calibrated: 05.05.2003

- Phantom: SAM TP:1176;

- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Unnamed procedure/Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 16.5 V/m

Power Drift = -0.06 dB

Maximum value of SAR = 0.565 mW/g

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

Peak SAR (extrapolated) = 1.01 W/kg

SAR(1 g) = 0.61 mW/g; SAR(10 g) = 0.357 mW/g

Reference Value = 16.5 V/m

Power Drift = -0.06 dB

Maximum value of SAR = 0.654 mW/g

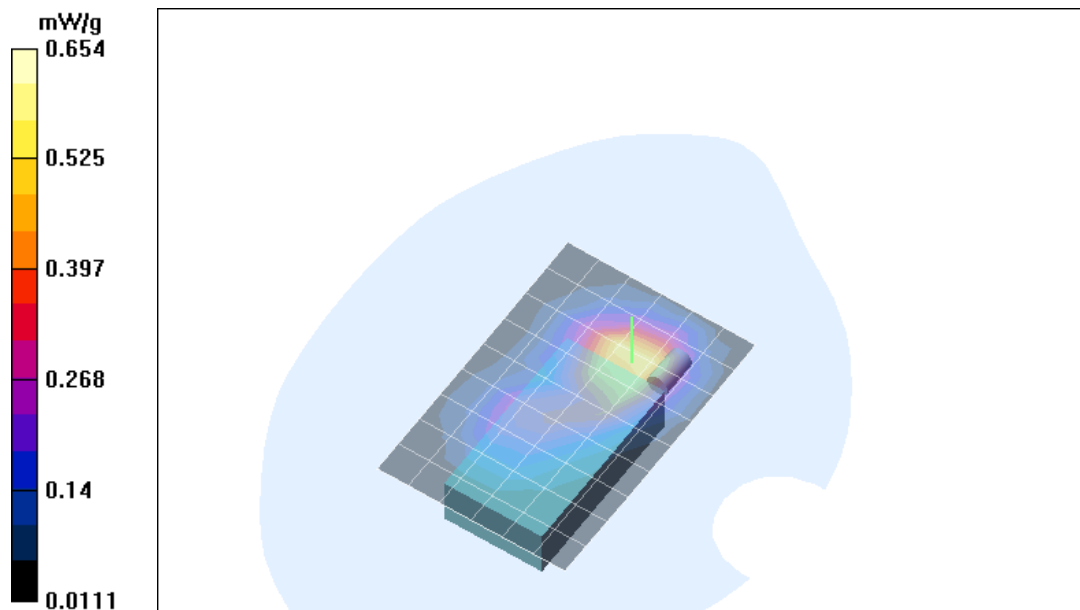


Fig. 6: SAR distribution for PCS 1900, channel 661, body worn configuration, antenna towards the phantom, without headset, (September 02, 2003; Liquid Temperature: 19.8° C; Ambient Temperature : 21.1° C).

Test Laboratory: IMST; File Name: [358phm_5.da4](#)

DUT: Panasonic; Type: X70; Serial: 004400622870358

Program: Unnamed Program

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:8

Medium: Body1900 MHz ($\sigma = 1.52$ mho/m, $\epsilon_r = 51.9$, $\rho = 1000$ kg/m³)

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1669; ConvF(4.8, 4.8, 4.8); Calibrated: 21.03.2003

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

- Electronics: DAE3 Sn335; Calibrated: 05.05.2003

- Phantom: SAM TP:1176;

- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Unnamed procedure/Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 16.1 V/m

Power Drift = -0.03 dB

Maximum value of SAR = 0.542 mW/g

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

Peak SAR (extrapolated) = 0.954 W/kg

SAR(1 g) = 0.578 mW/g; SAR(10 g) = 0.343 mW/g

Reference Value = 16.1 V/m

Power Drift = -0.03 dB

Maximum value of SAR = 0.618 mW/g

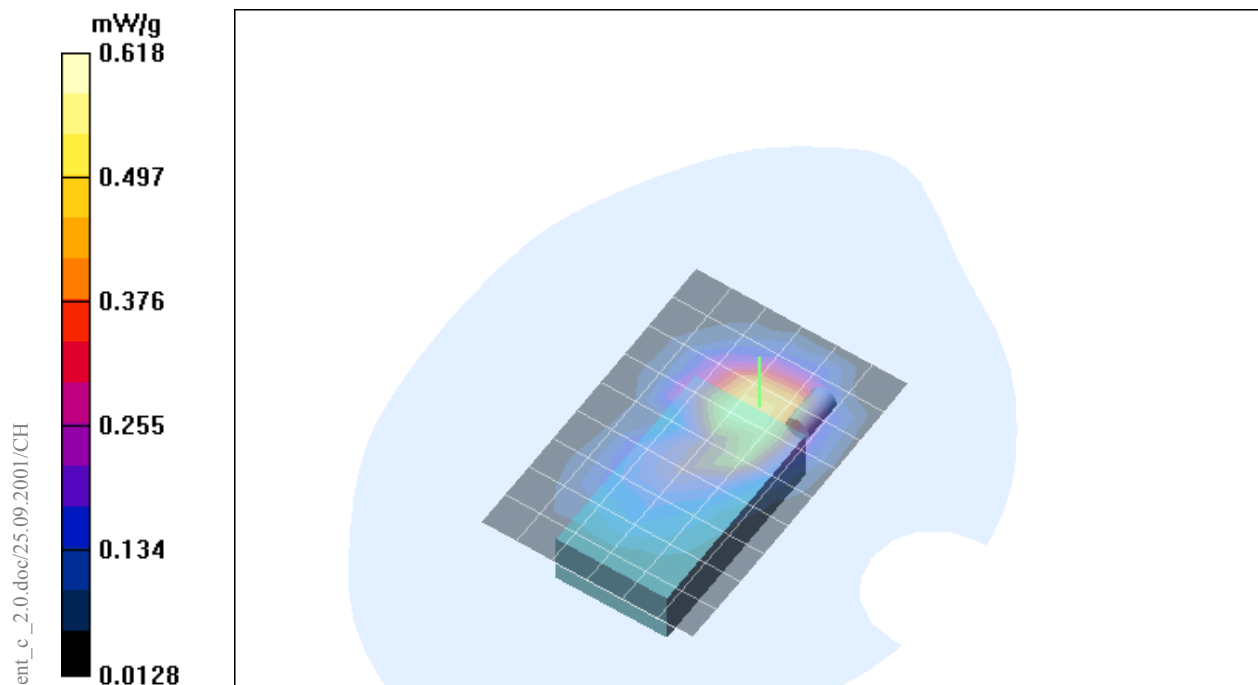


Fig. 7: SAR distribution for PCS 1900, channel 661, body worn configuration, antenna towards the phantom, with headset and activated Bluetooth, (September 02, 2003; Liquid Temperature: 19.8° C; Ambient Temperature : 21.5° C).

3 SAR Distribution Plots, PCS 1900 Body without Carry case

Test Laboratory: IMST; File Name: [358phm_3.da4](#)

DUT: Panasonic; Type: X70; Serial: 004400622870358

Program: Unnamed Program

Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:8

Medium: Body1900 MHz ($\sigma = 1.52$ mho/m, $\epsilon_r = 51.9$, $\rho = 1000$ kg/m³)

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1669; ConvF(4.8, 4.8, 4.8); Calibrated: 21.03.2003

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

- Electronics: DAE3 Sn335; Calibrated: 05.05.2003

- Phantom: SAM TP:1176;

- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Unnamed procedure/Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 13.1 V/m

Power Drift = -0.02 dB

Maximum value of SAR = 0.345 mW/g

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

Peak SAR (extrapolated) = 0.603 W/kg

SAR(1 g) = 0.36 mW/g; SAR(10 g) = 0.214 mW/g

Reference Value = 13.1 V/m

Power Drift = -0.02 dB Maximum value of SAR = 0.384 mW/g

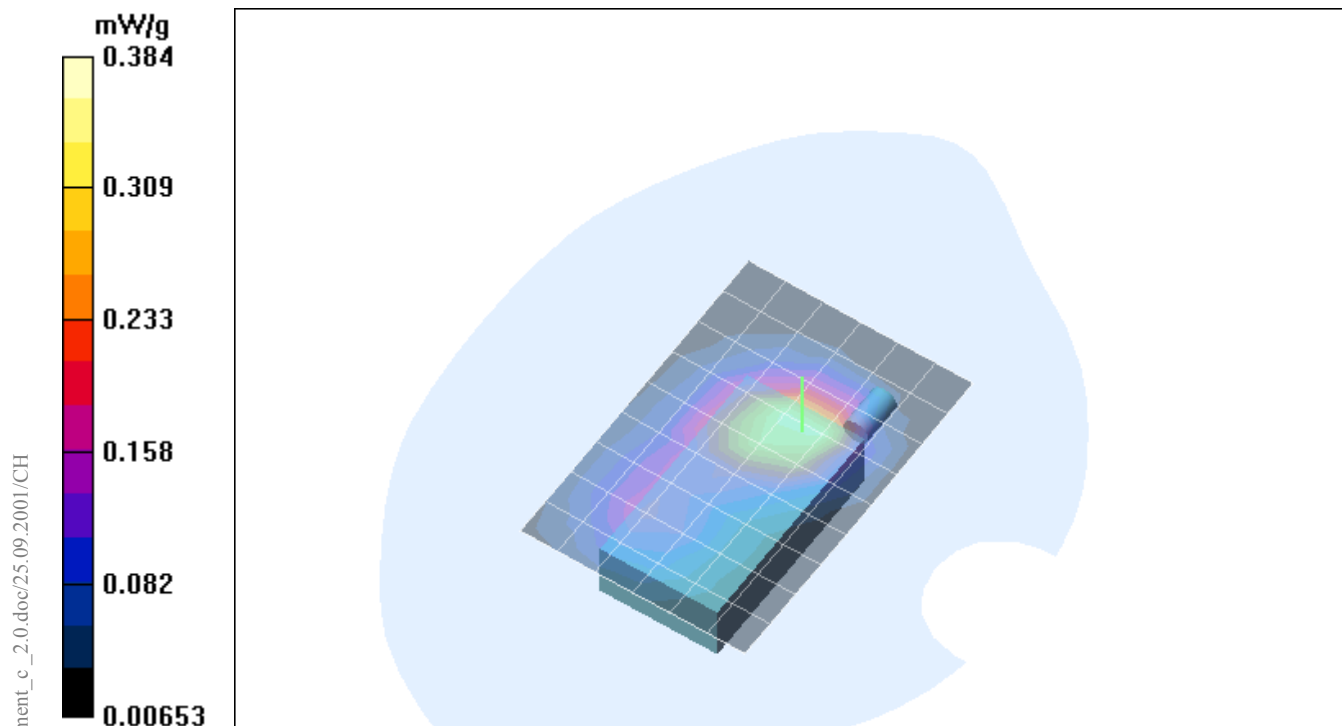


Fig. 8: SAR distribution for PCS 1900, channel 661, body worn configuration, antenna towards the phantom with headset (September 02, 2003; Liquid Temperature: 19.8° C; Ambient Temperature : 21.2° C).

Test Laboratory: IMST; File Name: [358pnm_4.da4](#)

DUT: Panasonic; Type: X70; Serial: 004400622870358

Program: Unnamed Program

Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:8

Medium: Body1900 MHz ($\sigma = 1.52$ mho/m, $\epsilon_r = 51.9$, $\rho = 1000$ kg/m³)

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1669; ConvF(4.8, 4.8, 4.8); Calibrated: 21.03.2003

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

- Electronics: DAE3 Sn335; Calibrated: 05.05.2003

- Phantom: SAM TP:1176;

- Measurement SW: DASY4, V4.1 Build 47; Postprocessing SW: SEMCAD, V1.6 Build 115

Unnamed procedure/Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 12.9 V/m

Power Drift = 0.0004 dB

Maximum value of SAR = 0.34 mW/g

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

Peak SAR (extrapolated) = 0.6 W/kg

SAR(1 g) = 0.36 mW/g; SAR(10 g) = 0.211 mW/g

Reference Value = 12.9 V/m

Power Drift = 0.0004 dB

Maximum value of SAR = 0.389 mW/g

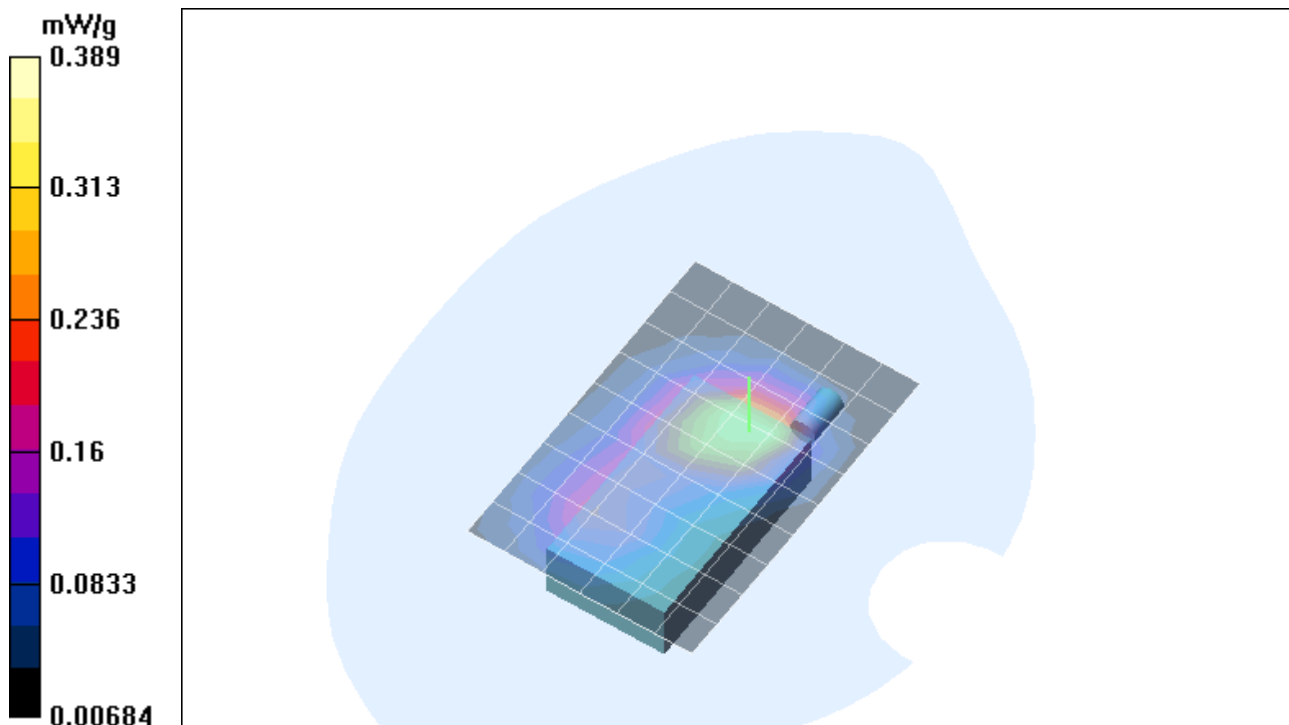


Fig. 9: SAR distribution for PCS 1900, channel 661, body worn configuration, antenna towards the phantom without headset (September 02, 2003; Liquid Temperature: 19.8° C; Ambient Temperature : 21.4° C).

4 SAR z-axis scans (Validation)

The following pictures show the plots of SAR versus liquid depth.

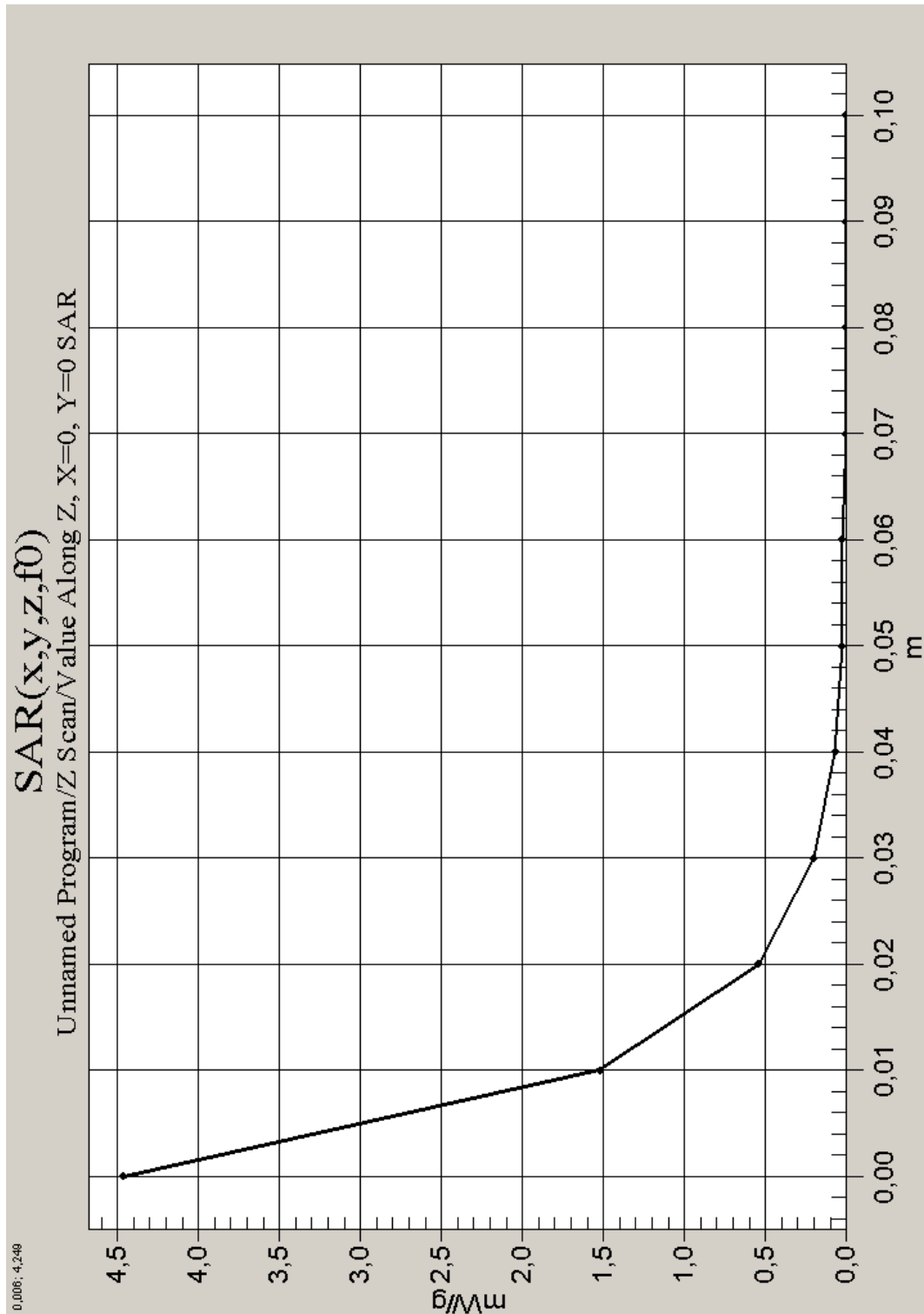


Fig. 10: SAR versus liquid depth, 1900 MHz, head (September 01, 2003; Liquid Temperature: 20.1° C; Ambient Temperature : 20.9° C).

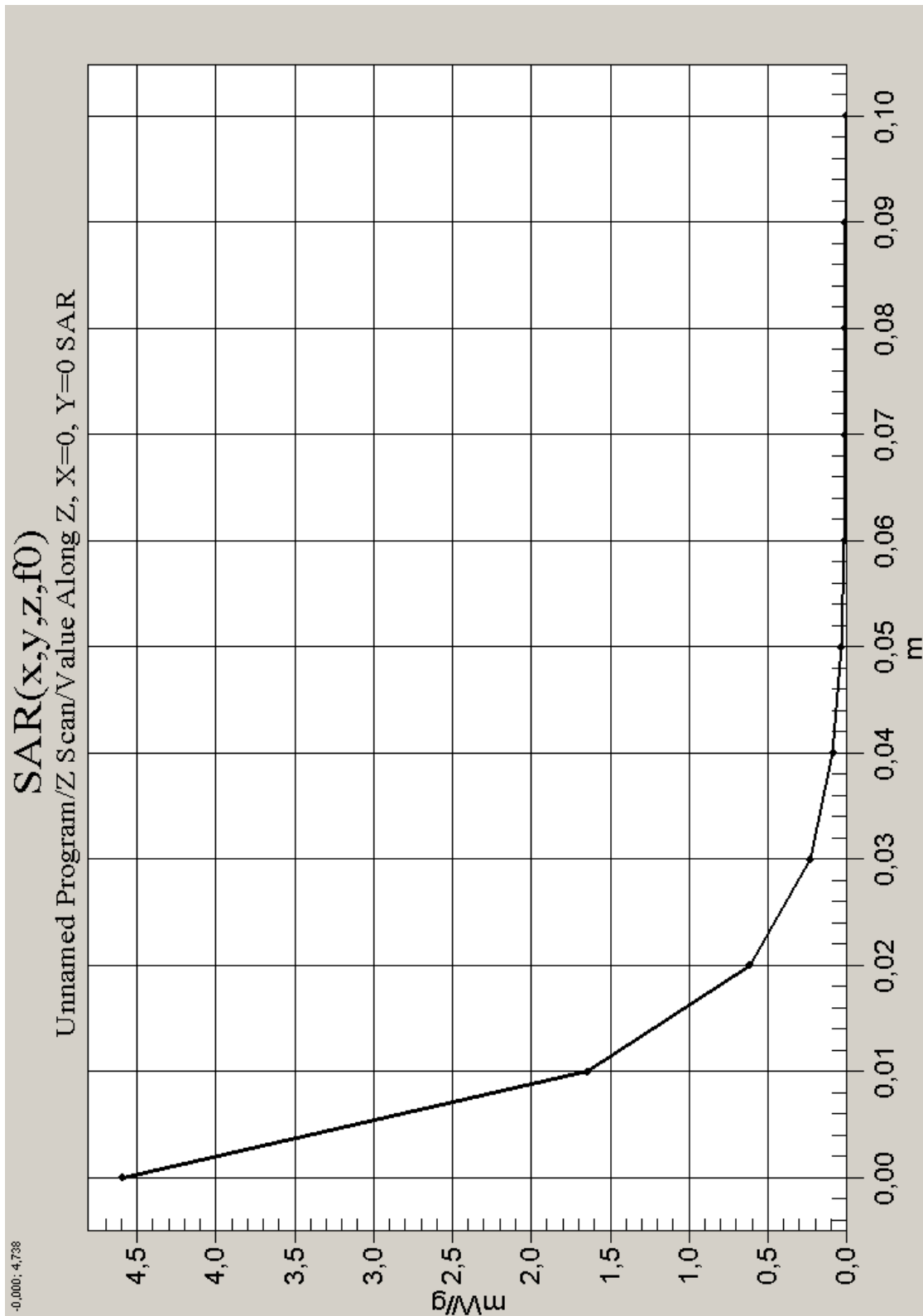


Fig. 11: SAR versus liquid depth, 1900 MHz, body (September 02, 2003; Liquid Temperature: 19.8° C; Ambient Temperature : 20.9° C).

5 SAR z-axis scans (Measurements)

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

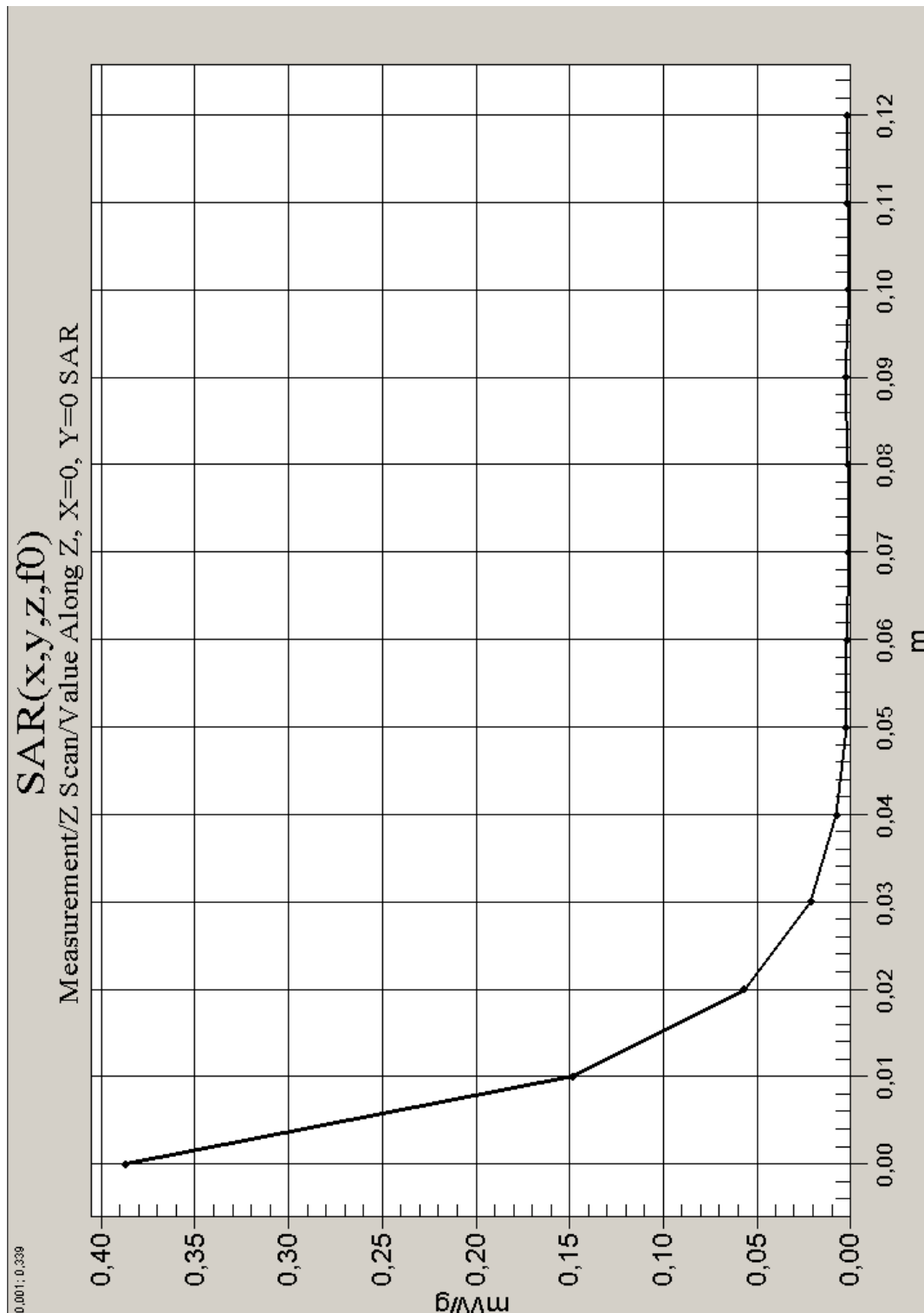


Fig. 12: SAR versus liquid depth, head: PCS 1900, channel 661, cheek position, left side of head. (September 01, 2003; Liquid Temperature: 20.1° C; Ambient Temperature : 20.1° C).

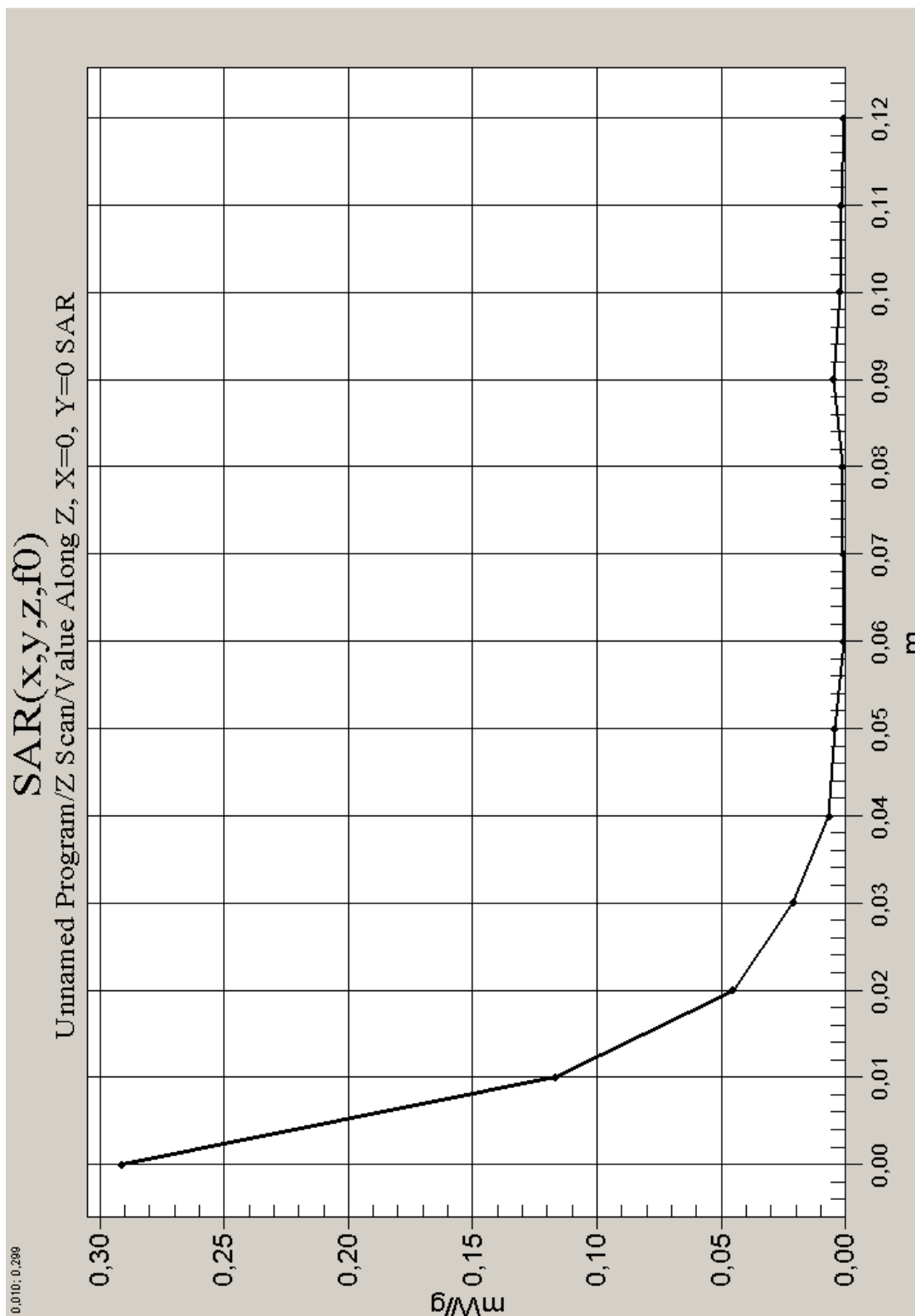


Fig. 13: SAR versus liquid depth: PCS 1900, channel 661, body worn configuration, antenna towards the phantom, with carry case and headset (September 02, 2003; Liquid Temperature: 19.8° C; Ambient Temperature : 21.1° C).