Deutscher Akkreditierungs Rat

TTI-P-G 158

Appendix for the Report

Dosimetric Assessment of the Siemens C65 (FCC ID: PWX-C65) According to the FCC Requirements

SAR Distribution Plots

May 13, 2004

IMST GmbH
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Customer
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The test results only relate to the items tested.
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Since all three covers have similar distributions for each position, only the plots for the worst case cover are attached.

1 SAR Distribution Plots, PCS 1900 Head without Flash

Test Laboratory: IMST GmbH; File Name: stdplm_1.da4

DUT: Siemens; Type: C65; Serial: 004400005166655

Program Name: Cheek Left

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3

Medium parameters used: f = 1880 MHz; σ = 1.43 mho/m; ε_r = 39.4; ρ = 1000 kg/m^3

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1669; ConvF(5.19, 5.19, 5.19); Calibrated: 18.03.2004
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn335; Calibrated: 26.04.2004
- Phantom: SAM Glycol; Type: Speag; Serial: 1176
- Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112

Cheek Left/Area Scan (6x10x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 19.3 V/m; Power Drift = -0.0355 dB

Maximum value of SAR (measured) = 0.502 mW/g

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

Reference Value = 19.3 V/m; Power Drift = -0.00355 dB

Maximum value of SAR (measured) = 0.494 mW/g

Peak SAR (extrapolated) = 0.680 W/kg

SAR(1 g) = 0.460 mW/g; SAR(10 g) = 0.285 mW/g

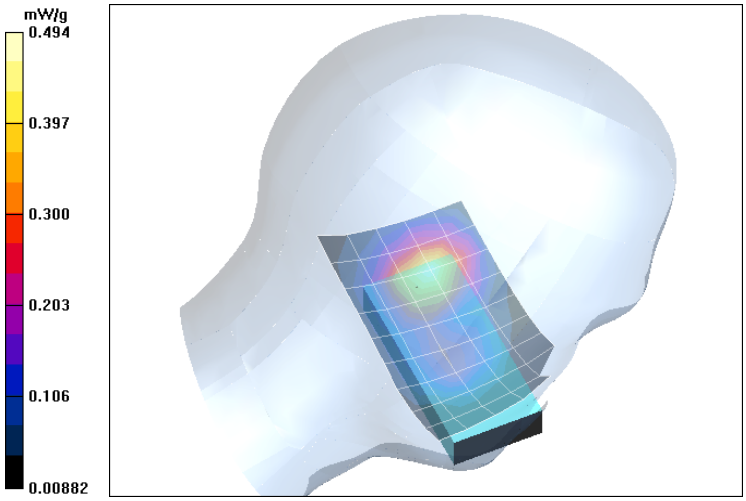

Fig. 1: SAR distribution for PCS 1900, channel 661, cheek position, left side of head, Standard. (May 11, 2004; Ambient Temperature: 20.1° C; Liquid Temperature: 19.6° C).

Test Laboratory: IMST GmbH; File Name: stdplm_2.da4

DUT: Siemens; Type: C65; Serial: 004400005166655

Program Name: Tilted Left

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3

Medium parameters used: f = 1880 MHz; σ = 1.43 mho/m; ε_r = 39.4; ρ = 1000 kg/m^3

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1669; ConvF(5.19, 5.19, 5.19); Calibrated: 18.03.2004
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn335; Calibrated: 26.04.2004
- Phantom: SAM Glycol; Type: Speag; Serial: 1176
- Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112

Tilted Left/Area Scan (6x10x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 22 V/m; Power Drift = 0.006 dB

Maximum value of SAR (measured) = 0.609 mW/g

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

Reference Value = 22 V/m; Power Drift = 0.006 dB

Maximum value of SAR (measured) = 0.645 mW/g

Peak SAR (extrapolated) = 0.860 W/kg

SAR(1 g) = 0.582 mW/g; SAR(10 g) = 0.341 mW/g

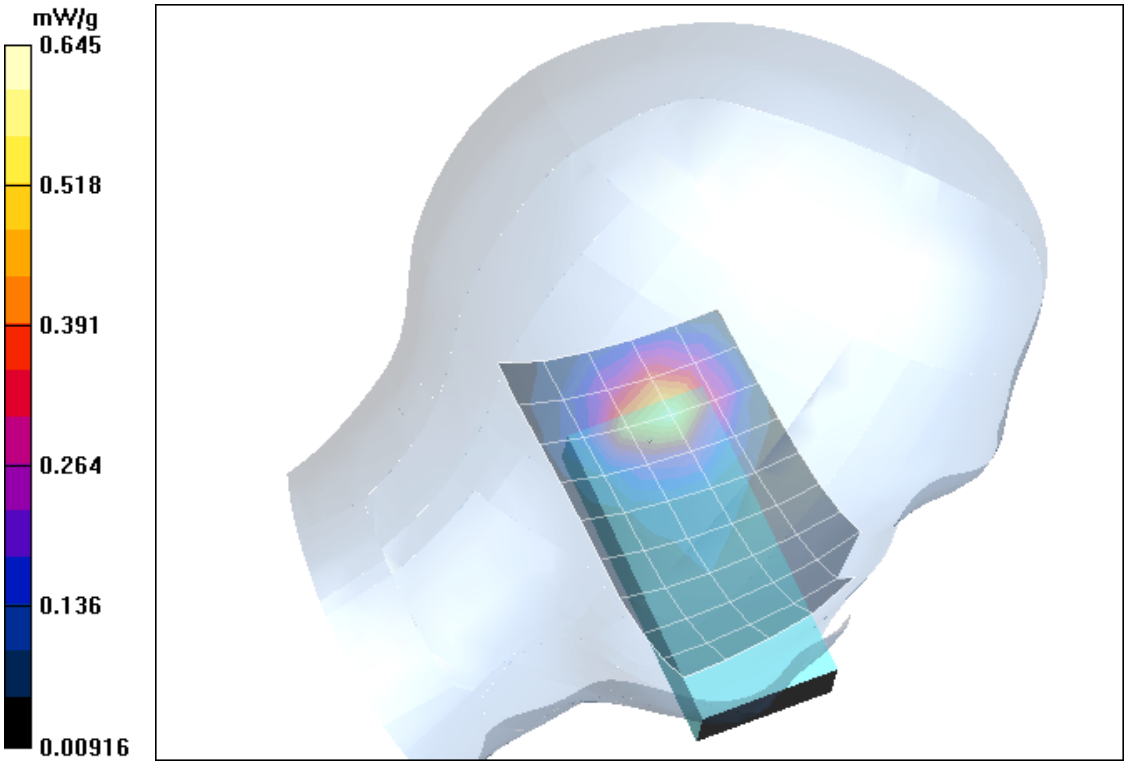

Fig. 2: SAR distribution for PCS 1900, channel 661, tilted position, left side of head, Standard. (May 11, 2004; Ambient Temperature: 20.1° C; Liquid Temperature : 19.6° C).

Test Laboratory: IMST GmbH; File Name: arcprm_1.da4

DUT: Siemens; Type: C65; Serial: 004400005166655

Program Name: Cheek Right

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3

Medium parameters used: f = 1880 MHz; σ = 1.43 mho/m; ε_r = 39.4; ρ = 1000 kg/m^3

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1669; ConvF(5.19, 5.19, 5.19); Calibrated: 18.03.2004
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn335; Calibrated: 26.04.2004
- Phantom: SAM Glycol; Type: Speag; Serial: 1176
- Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112

Cheek Right/Area Scan (6x10x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 18 V/m; Power Drift = 0.04 dB

Maximum value of SAR (measured) = 0.461 mW/g

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

Reference Value = 18 V/m; Power Drift = 0.04 dB

Maximum value of SAR (measured) = 0.496 mW/g

Peak SAR (extrapolated) = 0.700 W/kg

SAR(1 g) = 0.453 mW/g; SAR(10 g) = 0.279 mW/g

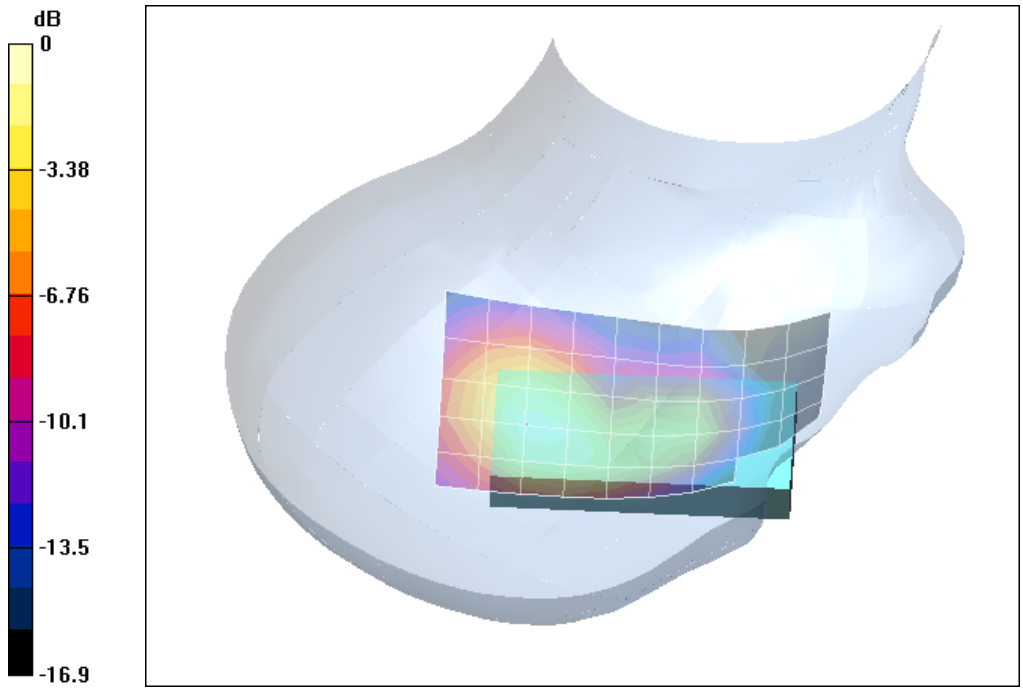

Fig. 3: SAR distribution for PCS 1900, channel 661, cheek position, right side of head, ARC (May 11, 2004; Ambient Temperature: 20.1° C; Liquid Temperature : 19.6° C).

Test Laboratory: IMST GmbH; File Name: stdprm_2.da4

DUT: Siemens; Type: C65; Serial: 004400005166655

Program Name: Tilted Right

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3

Medium parameters used: f = 1880 MHz; σ = 1.43 mho/m; ε_r = 39.4; ρ = 1000 kg/m^3

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1669; ConvF(5.19, 5.19, 5.19); Calibrated: 18.03.2004
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn335; Calibrated: 26.04.2004
- Phantom: SAM Glycol; Type: Speag; Serial: 1176
- Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112

Tilted Right/Area Scan (6x10x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 19.8 V/m; Power Drift = -0.037 dB

Maximum value of SAR (measured) = 0.573 mW/g

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

Reference Value = 19.8 V/m; Power Drift = -0.037 dB

Maximum value of SAR (measured) = 0.577 mW/g

Peak SAR (extrapolated) = 0.743 W/kg

SAR(1 g) = 0.521 mW/g; SAR(10 g) = 0.308 mW/g

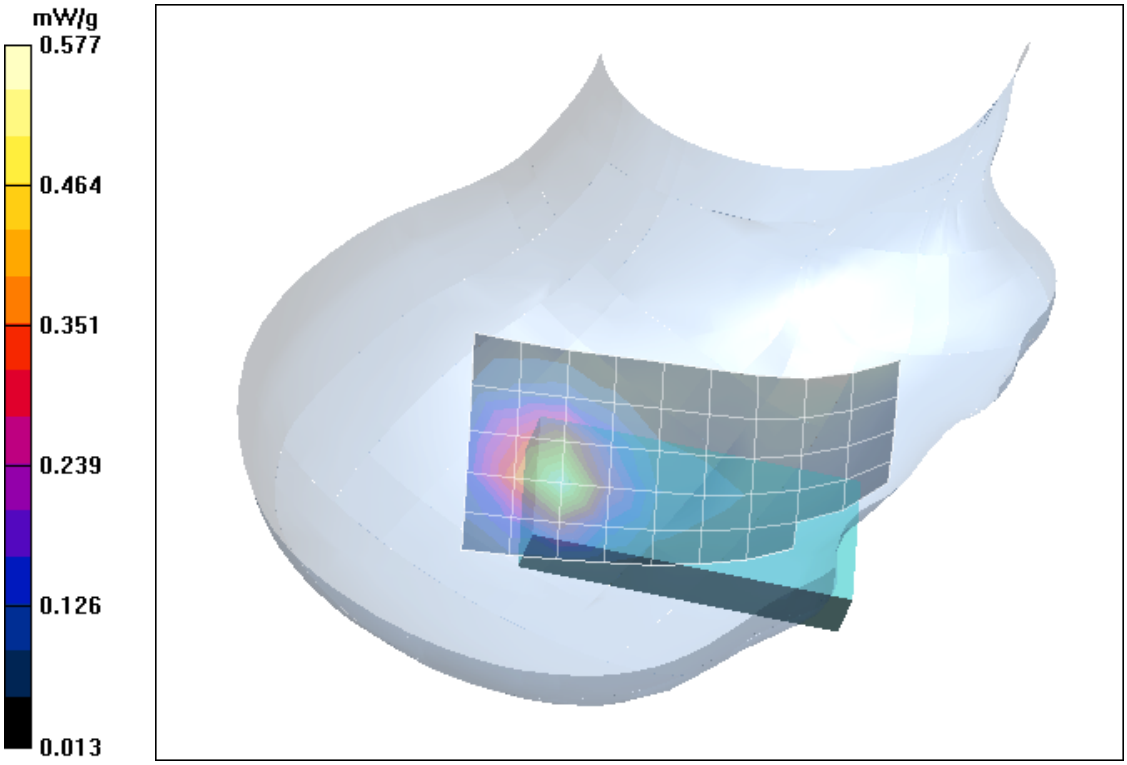

Fig. 4: SAR distribution for PCS 1900, channel 661, tilted position, right side of head, Standard. (May 11, 2004; Ambient Temperature: 20.1° C; Liquid Temperature : 19.6° C).

2 SAR Distribution Plots, PCS 1900 Head with Flash

Test Laboratory: IMST GmbH; File Name: butplm_1_flash.da4

DUT: Siemens; Type: C65 Flash; Serial: Serial: 004400005166655

Program Name: Cheek Left

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3

Medium parameters used: f = 1880 MHz; σ = 1.42 mho/m; ε_r = 40.9; ρ = 1000 kg/m^3

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1669; ConvF(5.19, 5.19, 5.19); Calibrated: 18.03.2004
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn335; Calibrated: 26.04.2004
- Phantom: SAM Glycol; Type: Speag; Serial: 1176
- Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112

Cheek Left/Area Scan (6x12x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 17.8 V/m; Power Drift = -0.02 dB

Maximum value of SAR (measured) = 0.404 mW/g

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

Reference Value = 17.8 V/m; Power Drift = -0.02 dB

Maximum value of SAR (measured) = 0.449 mW/g

Peak SAR (extrapolated) = 0.599 W/kg

SAR(1 g) = 0.414 mW/g; SAR(10 g) = 0.255 mW/g

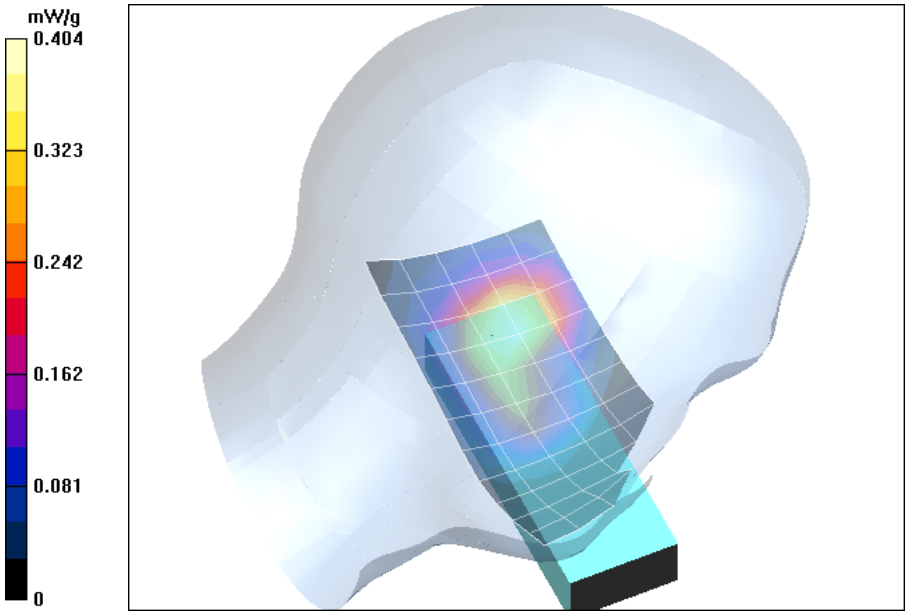

Fig. 5: SAR distribution for PCS 1900, channel 661, cheek position, left side of head, Butterfly. (May 12, 2004; Ambient Temperature: 19.9° C; Liquid Temperature : 19.4° C).

Test Laboratory: IMST GmbH; File Name: stdplm_2_flash.da4

DUT: Siemens; Type: C65 Flash; Serial: 004400005166655

Program Name: Tilted Left

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3

Medium parameters used: f = 1880 MHz; σ = 1.42 mho/m; ε_r = 40.9; ρ = 1000 kg/m^3

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1669; ConvF(5.19, 5.19, 5.19); Calibrated: 18.03.2004
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn335; Calibrated: 26.04.2004
- Phantom: SAM Glycol; Type: Speag; Serial: 1176
- Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112

Tilted Left/Area Scan (6x12x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 19.8 V/m; Power Drift = -0.0401 dB

Maximum value of SAR (measured) = 0.479 mW/g

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

Reference Value = 19.8 V/m; Power Drift = -0.0401 dB

Maximum value of SAR (measured) = 0.569 mW/g

Peak SAR (extrapolated) = 0.780 W/kg

SAR(1 g) = 0.517 mW/g; SAR(10 g) = 0.300 mW/g

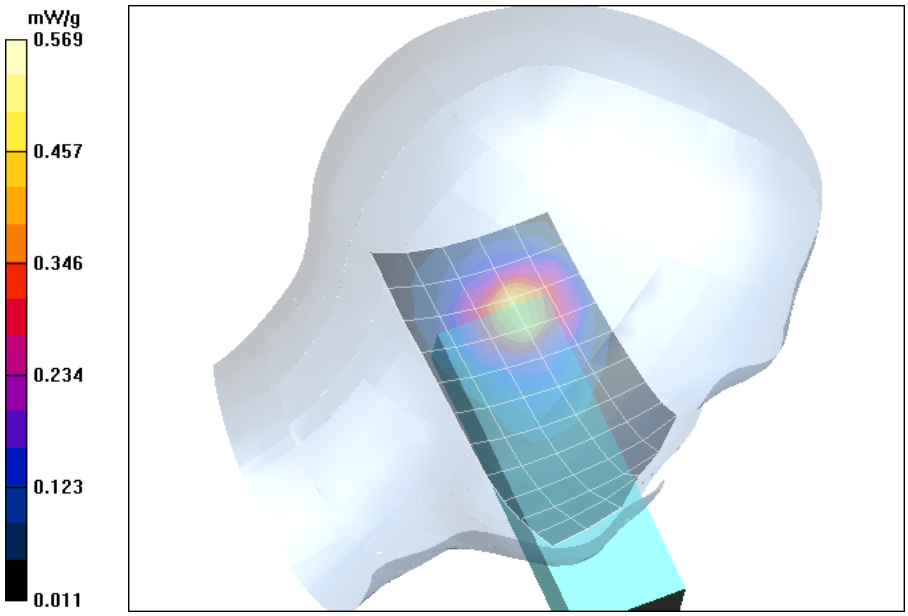

Fig. 6: SAR distribution for PCS 1900, channel 661, tilted position, left side of head, Standard. (May 12, 2004; Ambient Temperature: 20.5° C; Liquid Temperature : 19.6° C).

Test Laboratory: IMST GmbH; File Name: arcprm_1_flash.da4

DUT: Siemens; Type: C65; Serial: 004400005166655

Program Name: Cheek Right

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3

Medium parameters used: f = 1880 MHz; σ = 1.42 mho/m; ε_r = 40.9; ρ = 1000 kg/m^3

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1669; ConvF(5.19, 5.19, 5.19); Calibrated: 18.03.2004
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn335; Calibrated: 26.04.2004
- Phantom: SAM Glycol; Type: Speag; Serial: 1176
- Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112

Cheek Right/Area Scan (6x12x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 17.1 V/m; Power Drift = 0.1 dB

Maximum value of SAR (measured) = 0.471 mW/g

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

Reference Value = 17.1 V/m; Power Drift = 0.1 dB

Maximum value of SAR (measured) = 1.03 mW/g

Peak SAR (extrapolated) = 1.03 W/kg

SAR(1 g) = 0.433 mW/g; SAR(10 g) = 0.272 mW/g

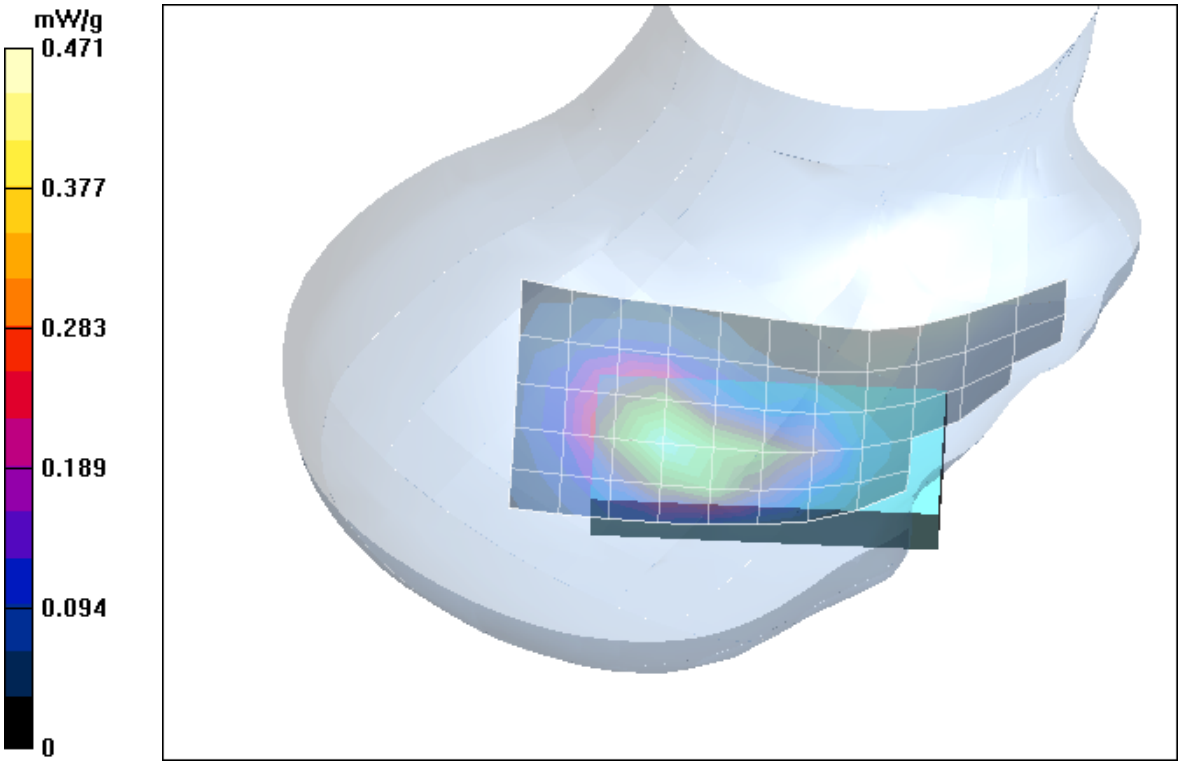

Fig. 7: SAR distribution for PCS 1900, channel 661, cheek position, right side of head, ARC. (May 12, 2004; Ambient Temperature: 20.3° C; Liquid Temperature : 19.6° C).

Test Laboratory: IMST GmbH; File Name: stdprm_2_flash.da4

DUT: Siemens; Type: C65 Flash; Serial: Serial: 004400005166655

Program Name: Tilted Right

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3

Medium parameters used: f = 1880 MHz; σ = 1.42 mho/m; ε_r = 40.9; ρ = 1000 kg/m^3

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1669; ConvF(5.19, 5.19, 5.19); Calibrated: 18.03.2004
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn335; Calibrated: 26.04.2004
- Phantom: SAM Glycol; Type: Speag; Serial: 1176
- Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112

Tilted Right/Area Scan (6x12x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 19.3 V/m; Power Drift = -0.07 dB

Maximum value of SAR (measured) = 0.389 mW/g

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

Reference Value = 19.3 V/m; Power Drift = -0.07 dB

Maximum value of SAR (measured) = 0.474 mW/g

Peak SAR (extrapolated) = 0.634 W/kg

SAR(1 g) = 0.433 mW/g; SAR(10 g) = 0.261 mW/g

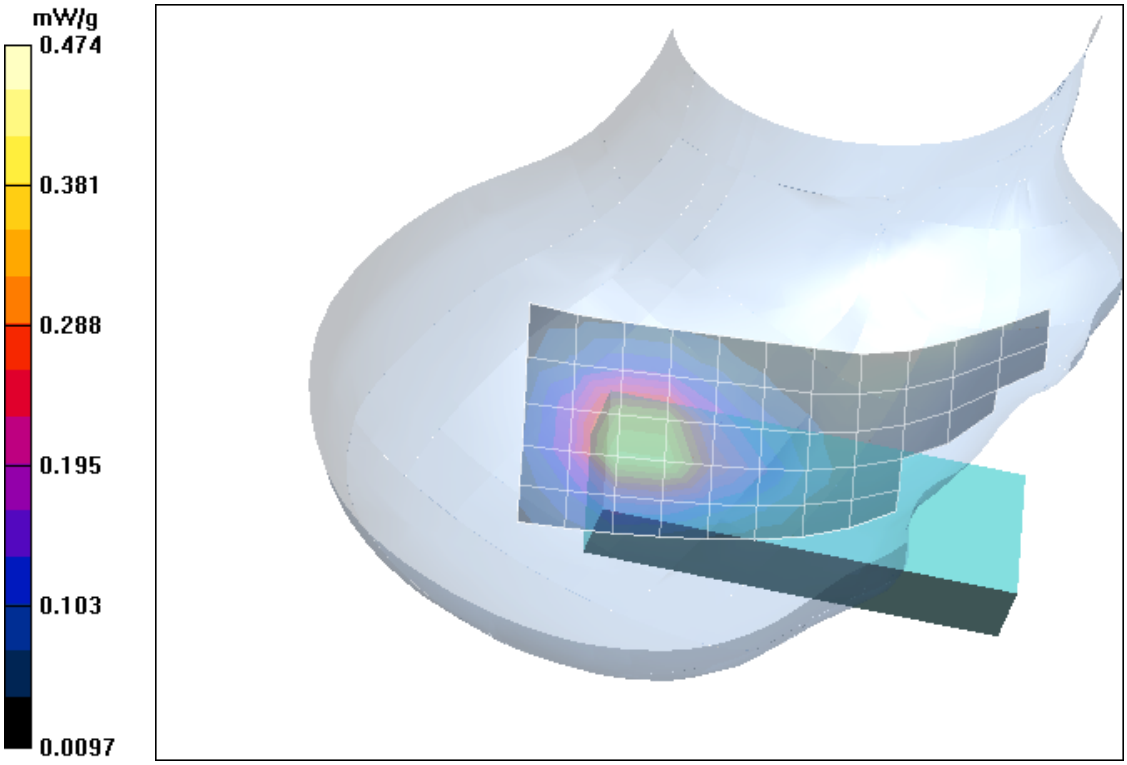

Fig. 8: SAR distribution for PCS 1900, channel 661, tilted position, right side of head, Standard. (May 12, 2004; Ambient Temperature: 20.4° C; Liquid Temperature : 19.6° C).

3 SAR Distribution Plots, PCS 1900 Body with headset

Test Laboratory: IMST GmbH; File Name: stdphm_2.da4

DUT: Siemens; Type: C65; Serial: 004400005166655

Program Name: Body Worn

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3

Medium parameters used: σ = 1.58; mho/m, ε_r = 51.8; ρ = 1000 kg/m^3

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1579; ConvF(4.8, 4.8, 4.8); Calibrated: 15.05.2003
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn335; Calibrated: 26.04.2004
- Phantom: SAM Glycol; Type: Speag; Serial: 1176
- Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112

Body Worn/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 6.25 V/m; Power Drift = 0.03 dB

Maximum value of SAR (measured) = 0.393 mW/g

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

Reference Value = 6.25 V/m; Power Drift = 0.03 dB

Maximum value of SAR (measured) = 0.431 mW/g

Peak SAR (extrapolated) = 0.635 W/kg

SAR(1 g) = 0.390 mW/g; SAR(10 g) = 0.223 mW/g

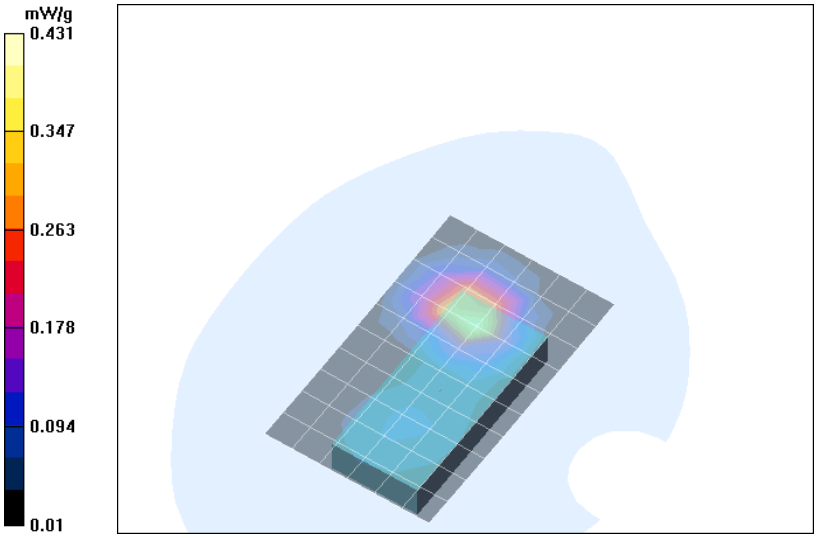

Fig. 9: SAR distribution for PCS 1900, channel 661, body worn configuration, antenna towards the phantom, Standard cover with headset (May 06, 2004; Ambient Temperature: 20.2° C; Liquid Temperature : 19.2° C).

4 SAR Distribution Plots, PCS 1900 Body with data cable

Test Laboratory: IMST GmbH; File Name: butphm_1.da4

DUT: Siemens; Type: C65; Serial: 004400005166655

Program Name: Body Worn

Communication System: GPRS 1900; Frequency: 1880 MHz;Duty Cycle: 1:4

Medium parameters used: σ = 1.58; mho/m, ε_r = 51.8; ρ = 1000 kg/m^3

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1579; ConvF(4.8, 4.8, 4.8); Calibrated: 15.05.2003
- Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
- Electronics: DAE3 Sn335; Calibrated: 26.04.2004
- Phantom: SAM Glycol; Type: Speag; Serial: 1176
- Measurement SW: DASY4, V4.2 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 112

Body Worn/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm

Reference Value = 10.1 V/m; Power Drift = -0.007 dB

Maximum value of SAR (measured) = 0.816 mW/g

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

Reference Value = 10.1 V/m; Power Drift = -0.007 dB

Maximum value of SAR (measured) = 0.864 mW/g

Peak SAR (extrapolated) = 1.28 W/kg

SAR(1 g) = 0.791 mW/g; SAR(10 g) = 0.457 mW/g

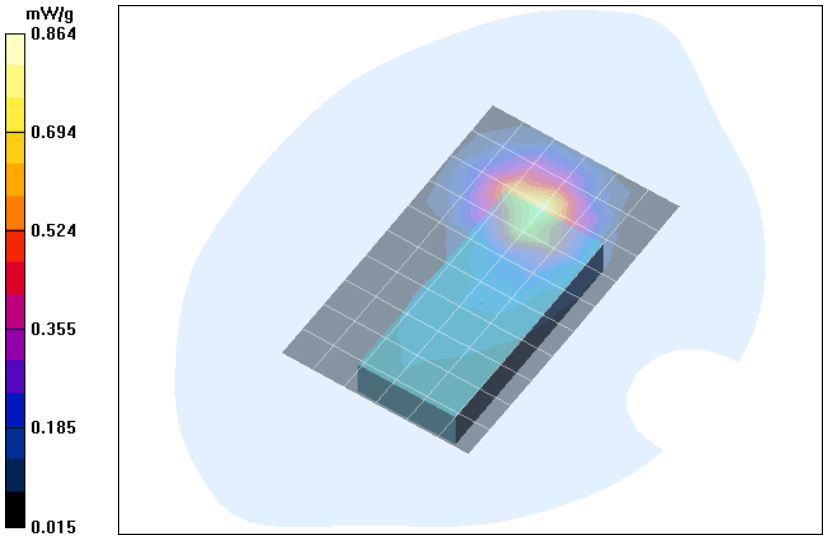

Fig. 10: SAR distribution for PCS 1900, channel 661, body worn configuration, antenna towards the phantom, Standard cover with data cable, 2 TX (May 06, 2004; Ambient Temperature: 20.3° C; Liquid Temperature : 19.2° C).

5 SAR z-axis scans (Validation)

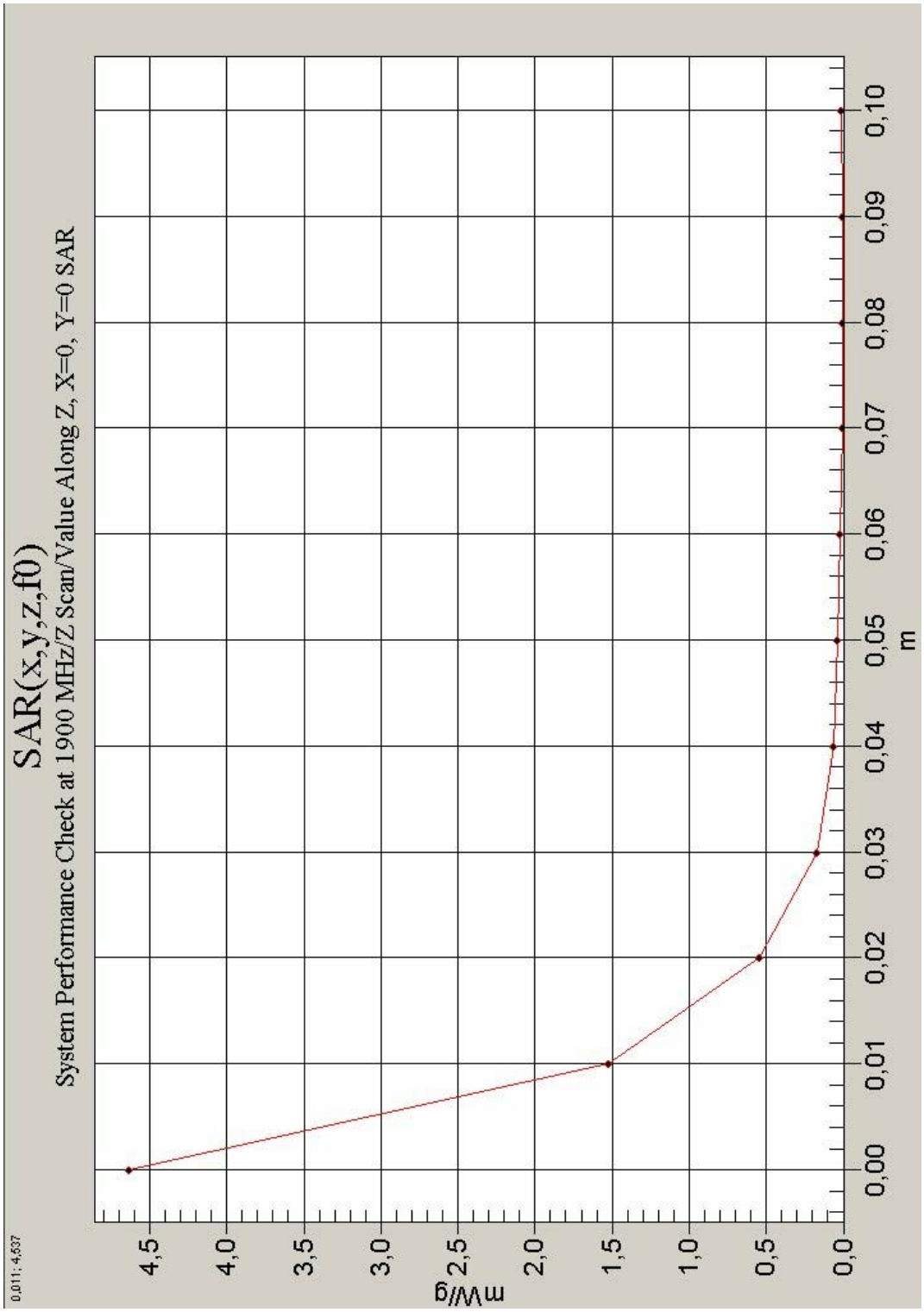

Fig. 11: SAR versus liquid depth, 1900 MHz, head (May 11, 2004; Ambient Temperature: 20.2° C; Liquid Temperature : 19.6° C).

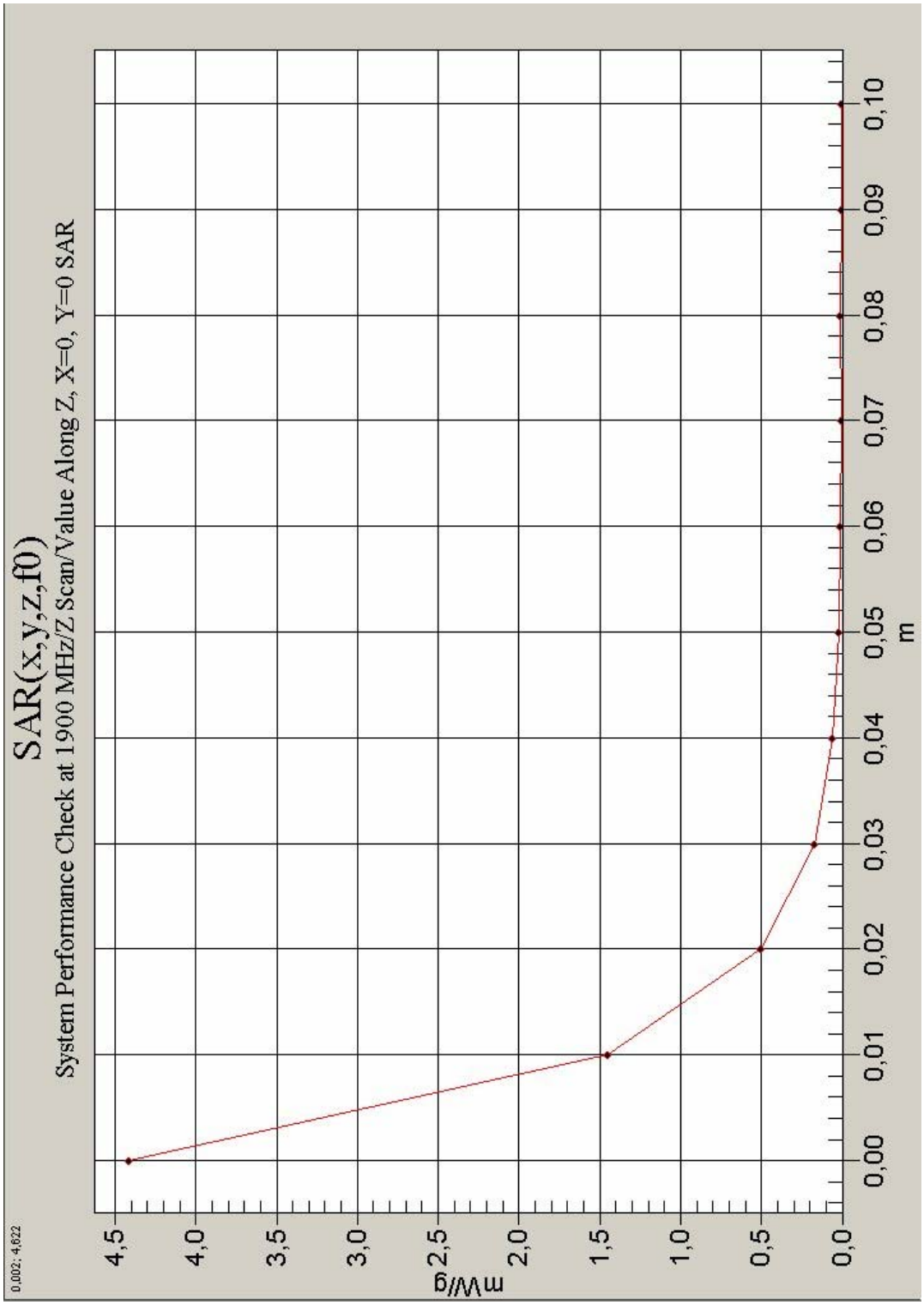

Fig. 12: SAR versus liquid depth, 1900 MHz, head (May 12, 2004; Ambient Temperature: 20.0° C; Liquid Temperature : 19.4° C).

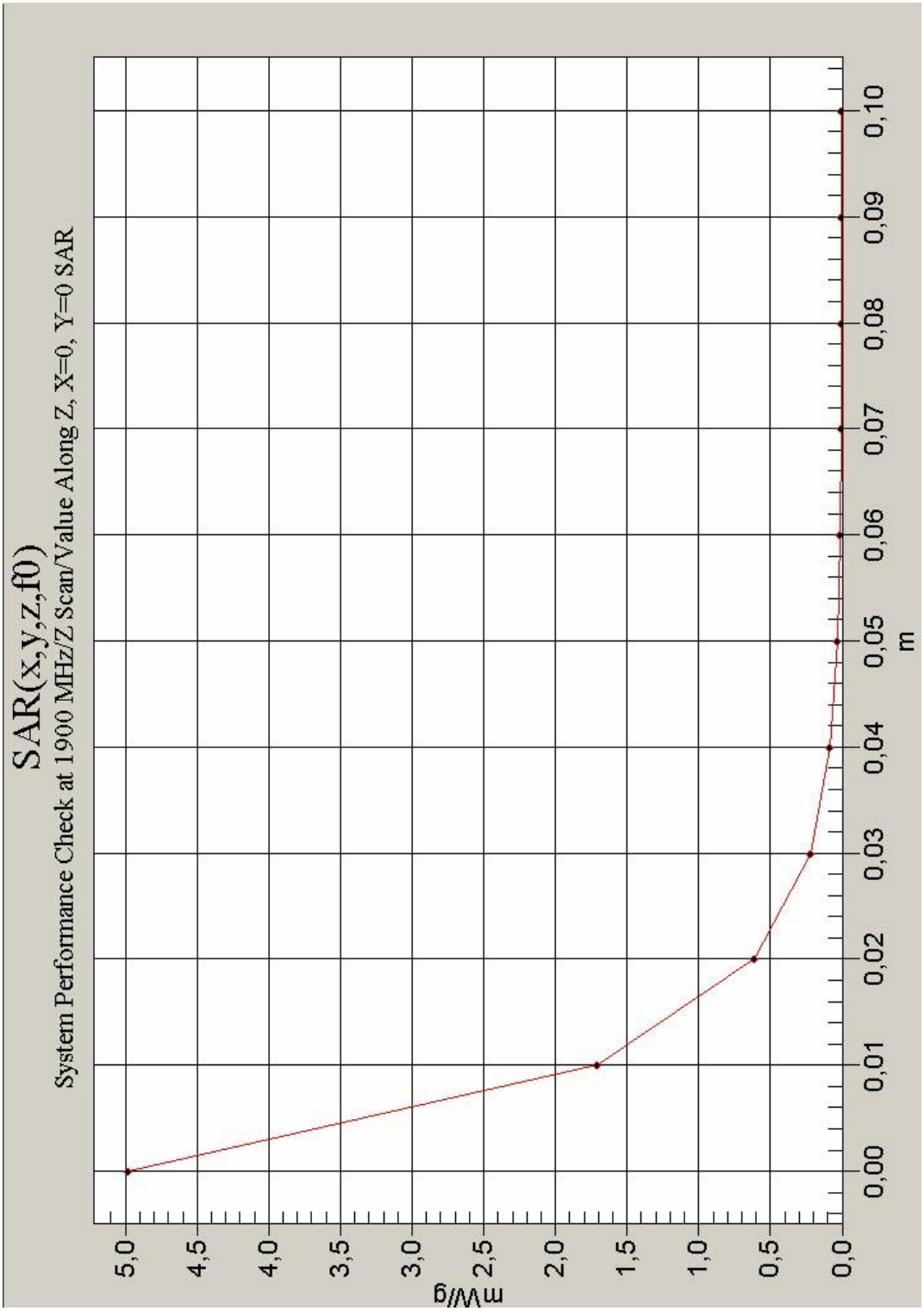

Fig. 13: SAR versus liquid depth, 1900 MHz, body (May 06, 2004; Ambient Temperature: 20.1° C; Liquid Temperature : 19.1° C).

6 SAR z-axis scans (Measurements)

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

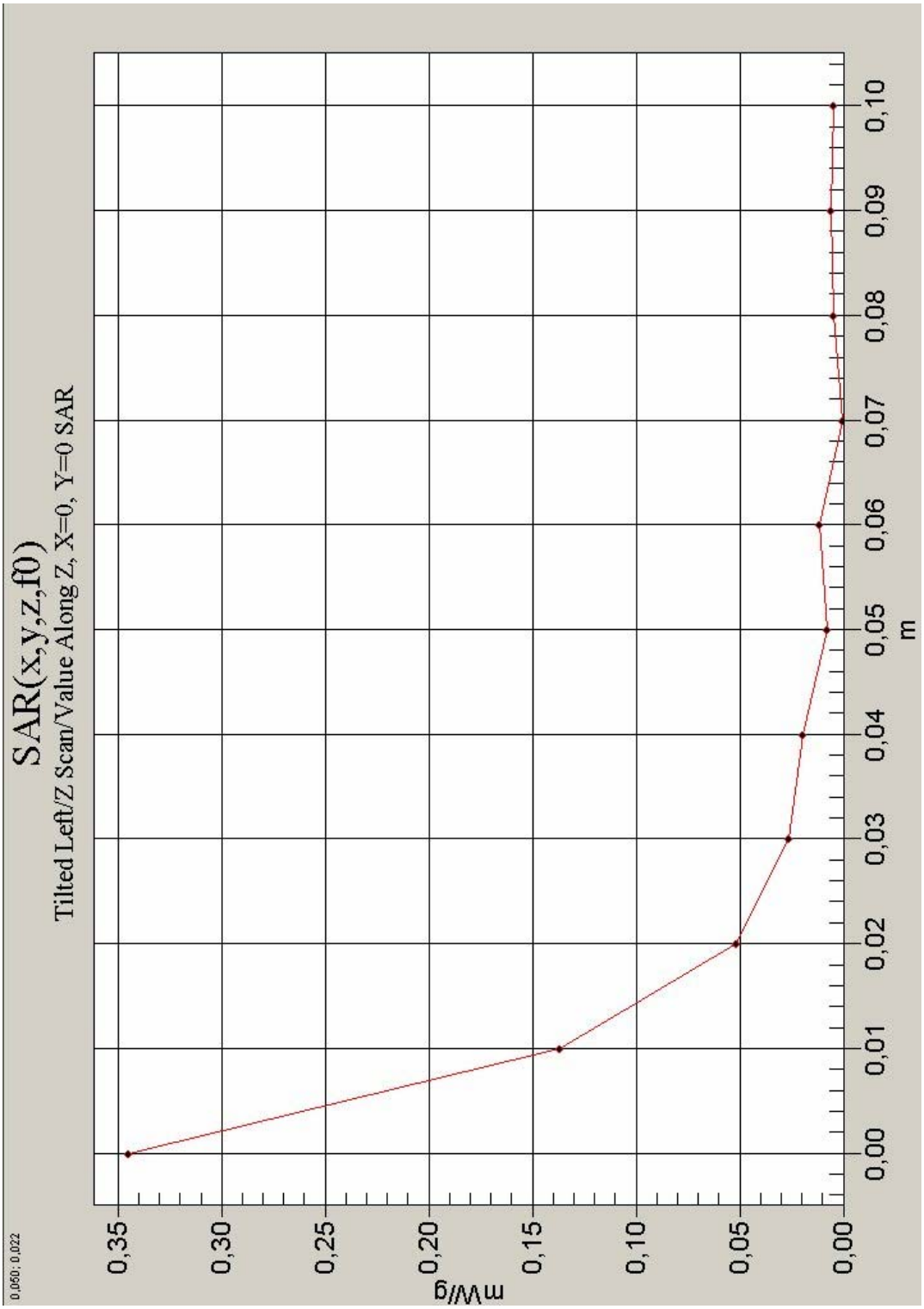

Fig. 14: SAR versus liquid depth, head: without flash, PCS 1900, channel 661, tilted position, left side of head with Standard cover. (May 11, 2004, Ambient Temperature: 20.1° C; Liquid Temperature : 19.6° C).

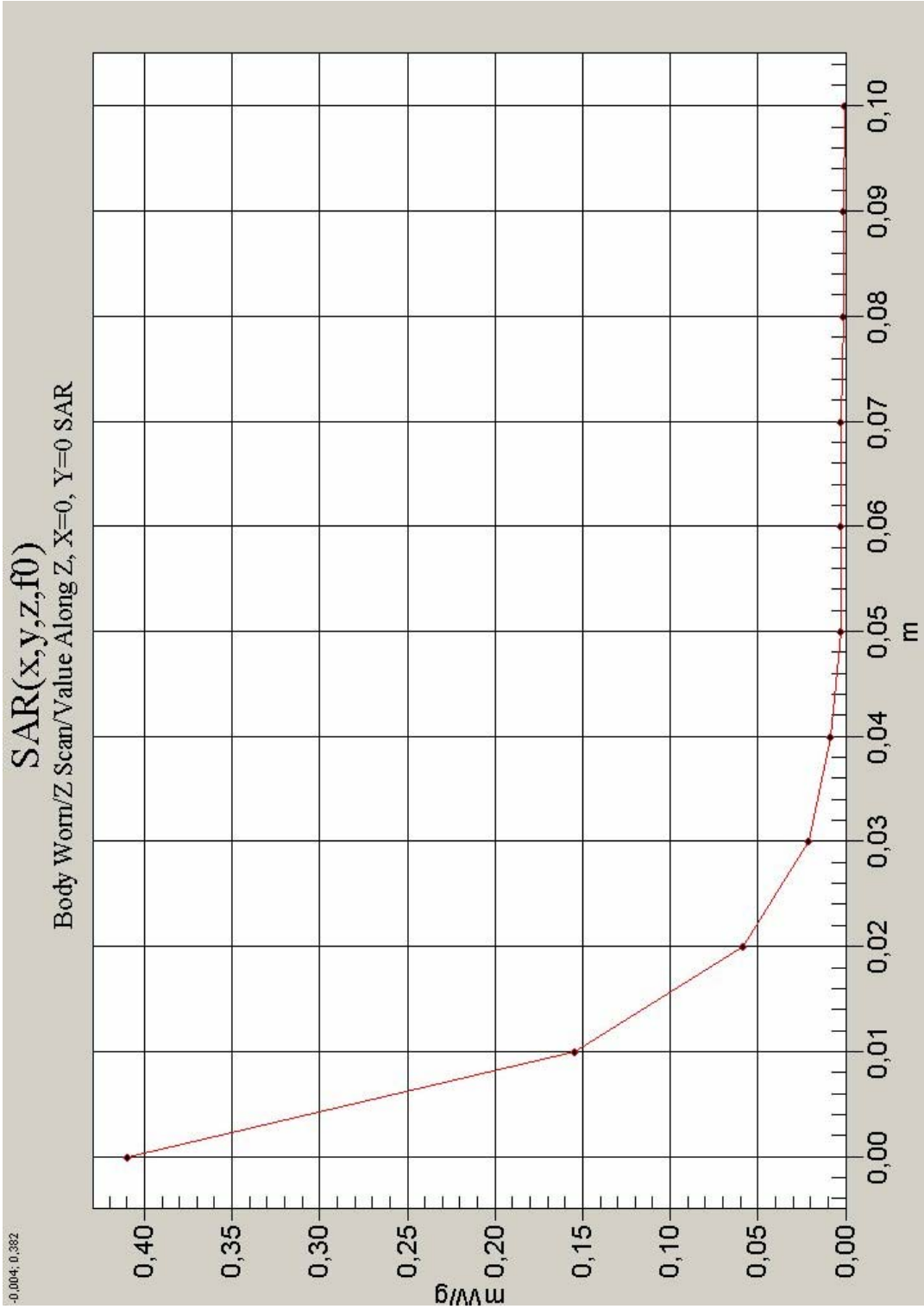

Fig. 15: SAR versus liquid depth: PCS 1900 body, channel 661, body worn configuration, antenna towards the phantom, data cable, 2 TX with Butterfly cover (May 06, 2004, Ambient Temperature: 20.3° C; Liquid Temperature : 19.2° C).