
Appendix for the Report

Dosimetric Assessment of the Ascom DH4 with Bluetooth (FCC ID: BXZDH4BL)

According to the FCC Requirements

SAR Distribution Plots

September 03, 2008
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The test results only relate to the items tested.
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1 SAR Distribution Plots, Head Measurements, Antenna 1

Test Laboratory: IMST GmbH, DASY Blue (I); File Name: [DT690_us_bplm_1_ant1.da4](#)

DUT: ascom; Type: DT690; Serial: T26103JA47

Program Name: Cheek Left

Communication System: DECT US; Frequency: 1924.99 MHz; Duty Cycle: 1:24

Medium parameters used: $f = 1924.99$ MHz; $\sigma = 1.45$ mho/m; $\epsilon_r = 41.3$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3536; ConvF(7.85, 7.85, 7.85); Calibrated: 18.09.2007

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

- Electronics: DAE4 Sn631; Calibrated: 17.09.2007

- Phantom: SAM Glycol 1176; Type: Speag; Serial: 1176

- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Cheek Left/Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.101 mW/g

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

Reference Value = 6.26 V/m; Power Drift = -0.153 dB

Peak SAR (extrapolated) = 0.159 W/kg

SAR(1 g) = 0.104 mW/g; SAR(10 g) = 0.061 mW/g

Maximum value of SAR (measured) = 0.113 mW/g

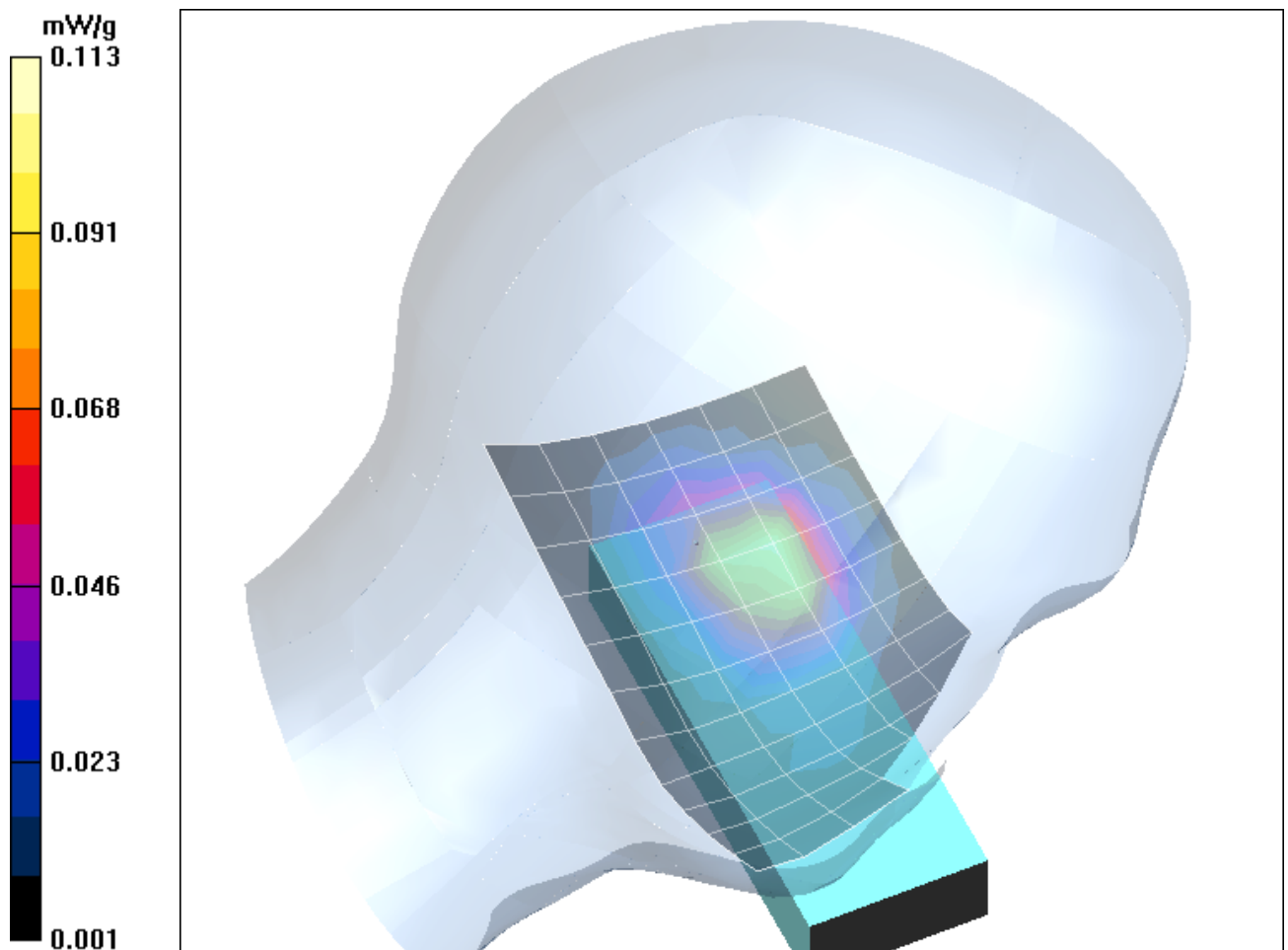


Fig. 1: SAR distribution for DECT US, channel 2, cheek position, left side of head (May 15, 2008; Ambient Temperature: 23.0°C; Liquid Temperature: 21.9°C).

Test Laboratory: IMST GmbH, DASY Blue (I); File Name: [DT690 us bplm 2 ant1.da4](#)

DUT: ascom; Type: DT690; Serial: T26103JA47

Program Name: Tilted Left

Communication System: DECT US; Frequency: 1924.99 MHz; Duty Cycle: 1:24

Medium parameters used: $f = 1924.99$ MHz; $\sigma = 1.45$ mho/m; $\epsilon_r = 41.3$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3536; ConvF(7.85, 7.85, 7.85); Calibrated: 18.09.2007

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

- Electronics: DAE4 Sn631; Calibrated: 17.09.2007

- Phantom: SAM Glycol 1176; Type: Speag; Serial: 1176

- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Tilted Left/Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.073 mW/g

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

Reference Value = 5.51 V/m; Power Drift = 0.022 dB

Peak SAR (extrapolated) = 0.118 W/kg

SAR(1 g) = 0.072 mW/g; SAR(10 g) = 0.041 mW/g

Maximum value of SAR (measured) = 0.079 mW/g

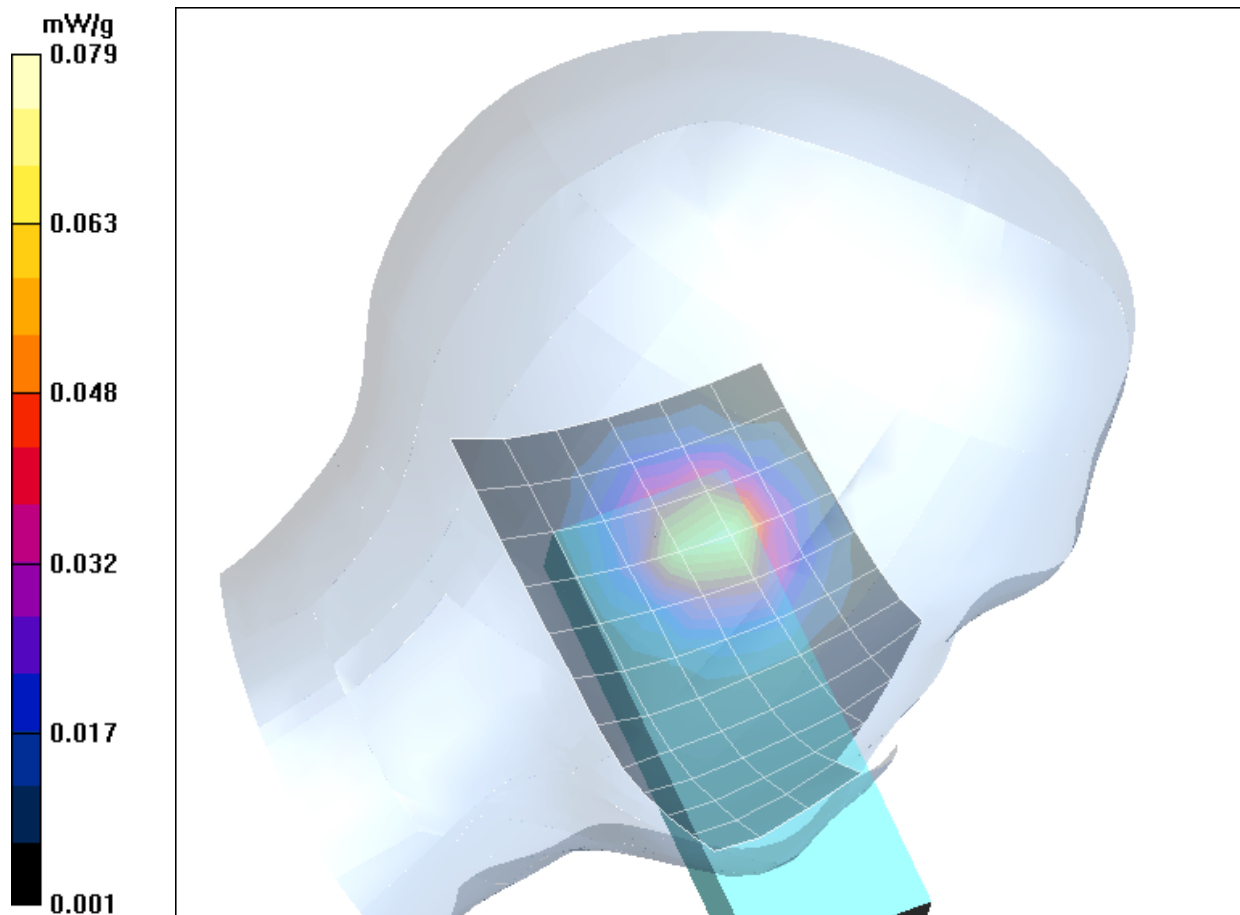


Fig. 2: SAR distribution for DECT US, channel 2, tilted position, left side of head (May 15, 2008; Ambient Temperature: 23.0°C; Liquid Temperature: 21.9°C).

Test Laboratory: IMST GmbH, DASY Blue (I); File Name: [DT690 us bprm 1 ant1.da4](#)

DUT: ascom; Type: DT690; Serial: T26103JA47

Program Name: Cheek Right

Communication System: DECT US; Frequency: 1924.99 MHz; Duty Cycle: 1:24

Medium parameters used: $f = 1924.99$ MHz; $\sigma = 1.45$ mho/m; $\epsilon_r = 41.3$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3536; ConvF(7.85, 7.85, 7.85); Calibrated: 18.09.2007

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

- Electronics: DAE4 Sn631; Calibrated: 17.09.2007

- Phantom: SAM Glycol 1176; Type: Speag; Serial: 1176

- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Cheek Right/Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.063 mW/g

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

Reference Value = 4.67 V/m; Power Drift = 0.158 dB

Peak SAR (extrapolated) = 0.113 W/kg

SAR(1 g) = 0.071 mW/g; SAR(10 g) = 0.042 mW/g

Maximum value of SAR (measured) = 0.078 mW/g

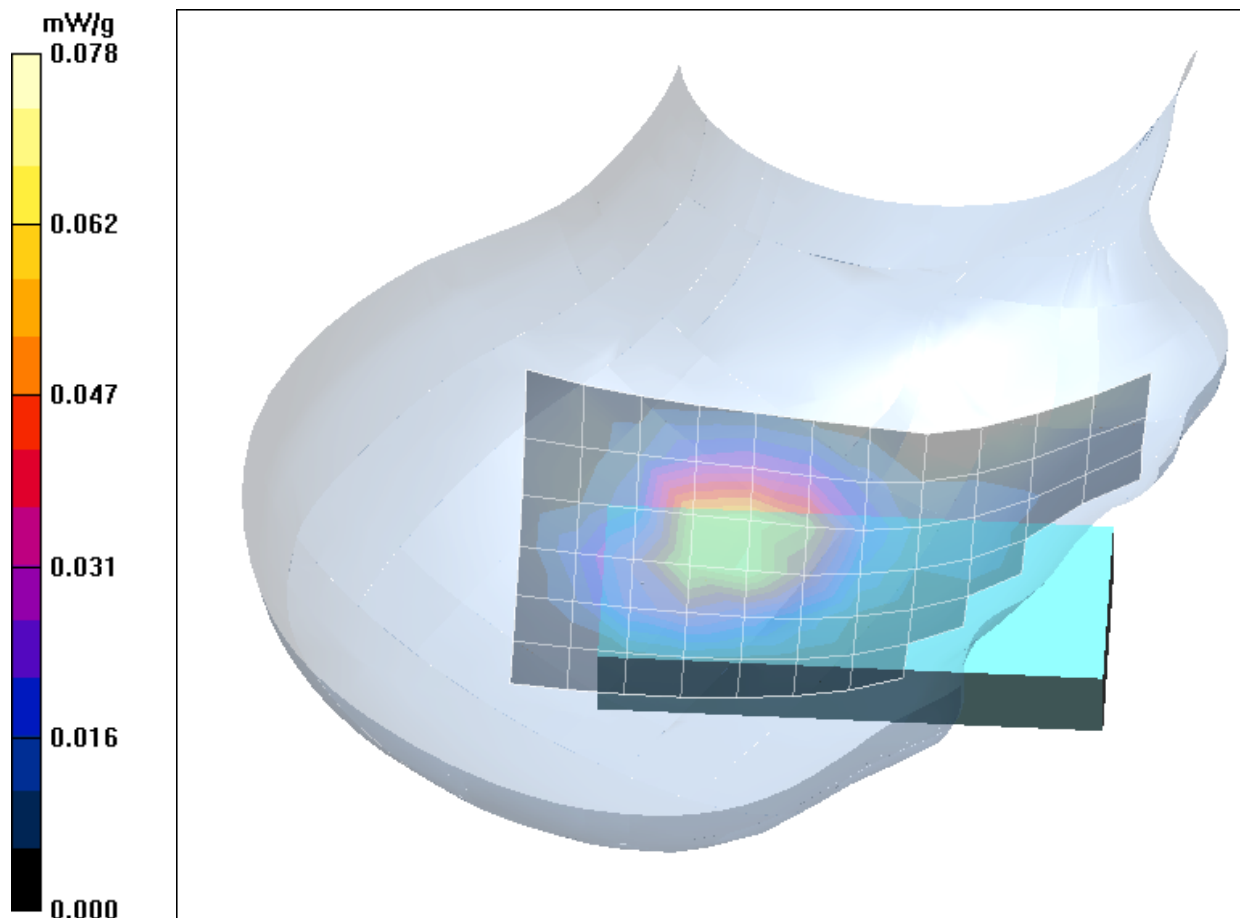


Fig. 3: SAR distribution for DECT US, channel 2, cheek position, right side of head (May 15, 2008; Ambient Temperature: 23.0°C; Liquid Temperature: 21.9°C).

Test Laboratory: IMST GmbH, DASY Blue (I); File Name: [DT690 us bprm 2 ant1.da4](#)

DUT: ascom; Type: DT690; Serial: T26103JA47

Program Name: Tilted Right

Communication System: DECT US; Frequency: 1924.99 MHz; Duty Cycle: 1:24

Medium parameters used: $f = 1924.99$ MHz; $\sigma = 1.45$ mho/m; $\epsilon_r = 41.3$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3536; ConvF(7.85, 7.85, 7.85); Calibrated: 18.09.2007

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

- Electronics: DAE4 Sn631; Calibrated: 17.09.2007

- Phantom: SAM Glycol 1176; Type: Speag; Serial: 1176

- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Tilted Right/Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.055 mW/g

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

Reference Value = 4.21 V/m; Power Drift = 0.106 dB

Peak SAR (extrapolated) = 0.092 W/kg

SAR(1 g) = 0.055 mW/g; SAR(10 g) = 0.031 mW/g

Maximum value of SAR (measured) = 0.062 mW/g

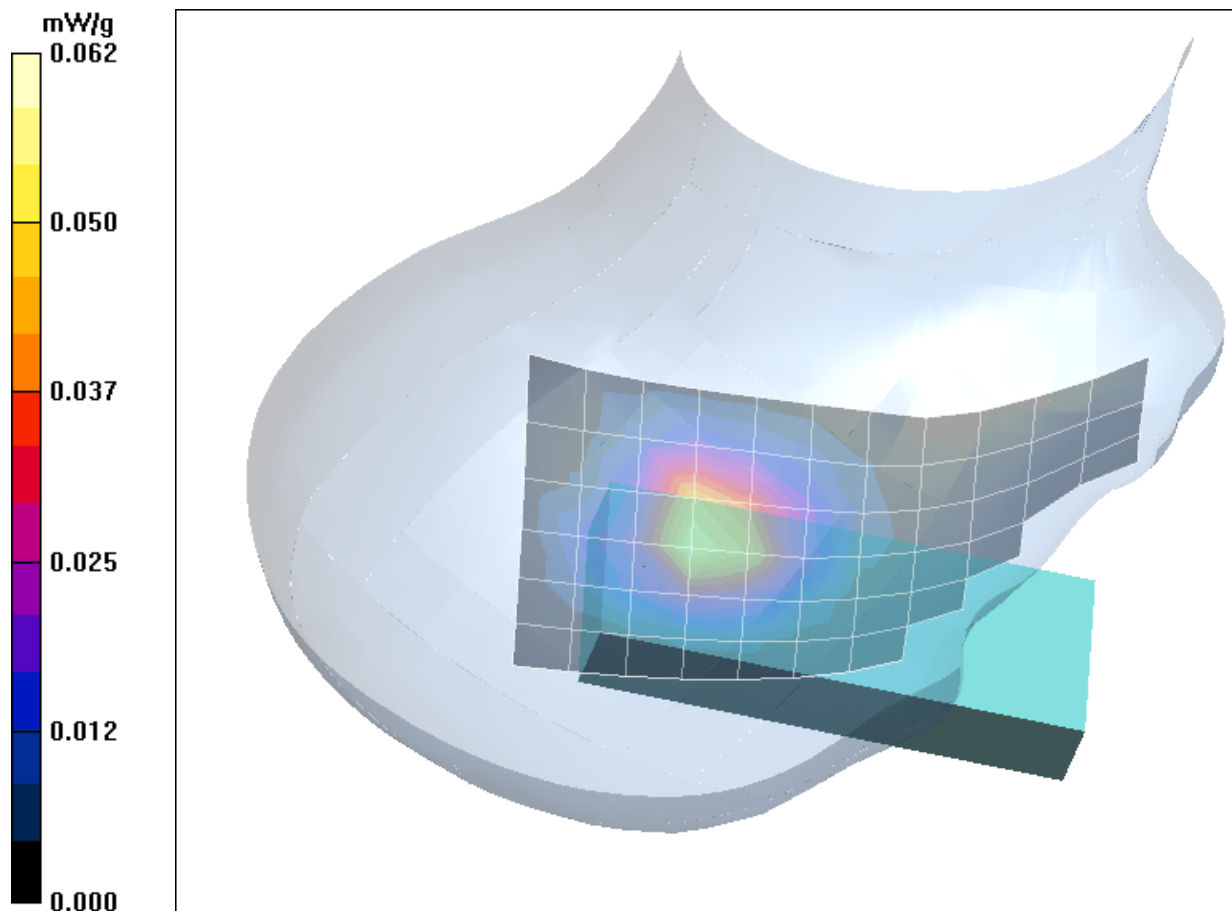


Fig. 4: SAR distribution for DECT US, channel 2, tilted position, right side of head (May 15, 2008; Ambient Temperature: 23.0°C; Liquid Temperature: 21.9°C)

2 SAR Distribution Plots, Head Measurements, Antenna 2

Test Laboratory: IMST GmbH, DASY Blue (I); File Name: [DT690_us_bplm_1_ant2.da4](#)

DUT: ascom; Type: DT690; Serial: T26103JA47

Program Name: Cheek Left

Communication System: DECT US; Frequency: 1924.99 MHz; Duty Cycle: 1:24

Medium parameters used: $f = 1924.99$ MHz; $\sigma = 1.45$ mho/m; $\epsilon_r = 41.3$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3536; ConvF(7.85, 7.85, 7.85); Calibrated: 18.09.2007

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

- Electronics: DAE4 Sn631; Calibrated: 17.09.2007

- Phantom: SAM Glycol 1176; Type: Speag; Serial: 1176

- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Cheek Left/Area Scan (7x12x1): 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 = 3.82 V/m; Power Drift = 0.192 dB

Peak SAR (extrapolated) = 0.046 W/kg

SAR(1 g) = 0.027 mW/g; SAR(10 g) = 0.016 mW/g

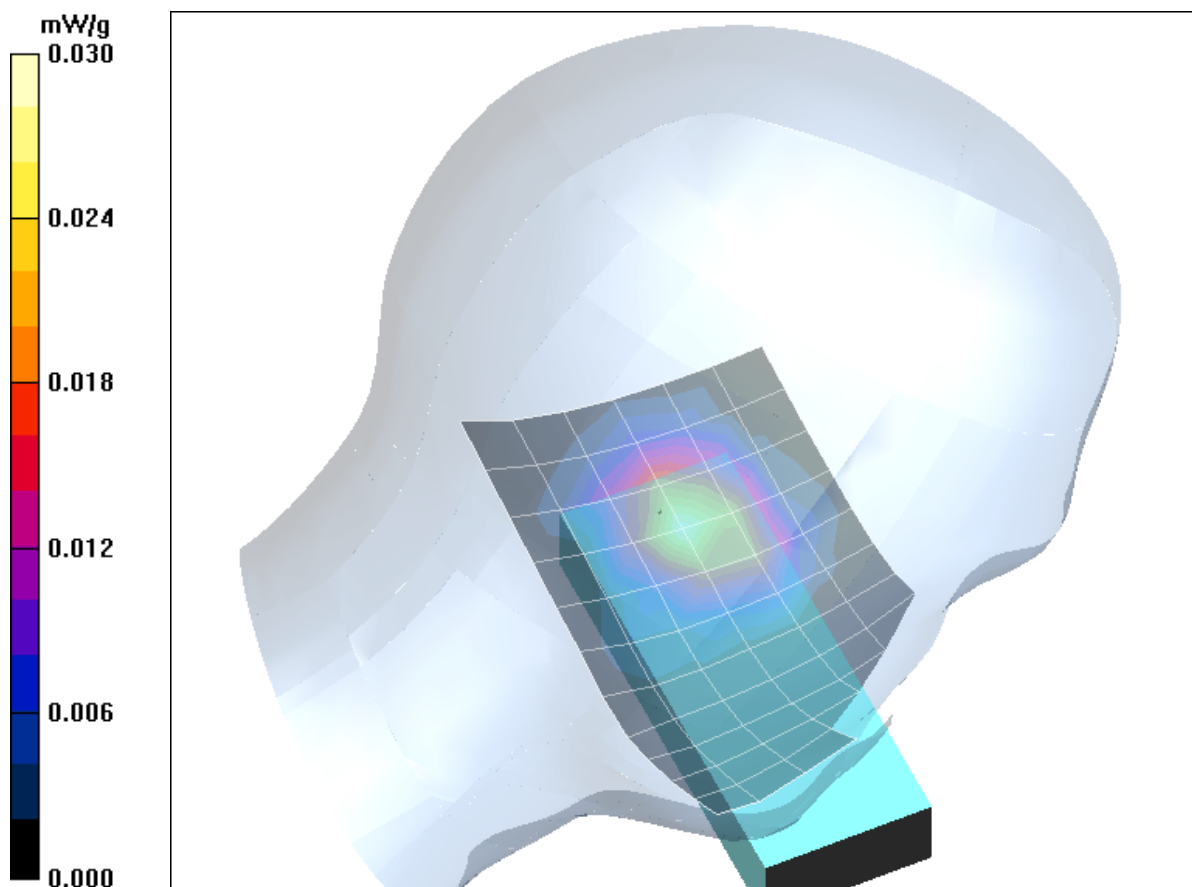


Fig. 5: SAR distribution for DECT US, channel 2, cheek position, left side of head (May 15, 2008; Ambient Temperature: 23.0°C; Liquid Temperature: 21.9°C).

Test Laboratory: IMST GmbH, DASY Blue (I); File Name: [DT690 us bplm 2 ant2.da4](#)

DUT: ascom; Type: DT690; Serial: T26103JA47

Program Name: Tilted Left

Communication System: DECT US; Frequency: 1924.99 MHz; Duty Cycle: 1:24

Medium parameters used: $f = 1924.99$ MHz; $\sigma = 1.45$ mho/m; $\epsilon_r = 41.3$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3536; ConvF(7.85, 7.85, 7.85); Calibrated: 18.09.2007

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

- Electronics: DAE4 Sn631; Calibrated: 17.09.2007

- Phantom: SAM Glycol 1176; Type: Speag; Serial: 1176

- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Tilted Left/Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.023 mW/g

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

Reference Value = 3.93 V/m; Power Drift = 0.182 dB

Peak SAR (extrapolated) = 0.040 W/kg

SAR(1 g) = 0.022 mW/g; SAR(10 g) = 0.013 mW/g

Maximum value of SAR (measured) = 0.024 mW/g

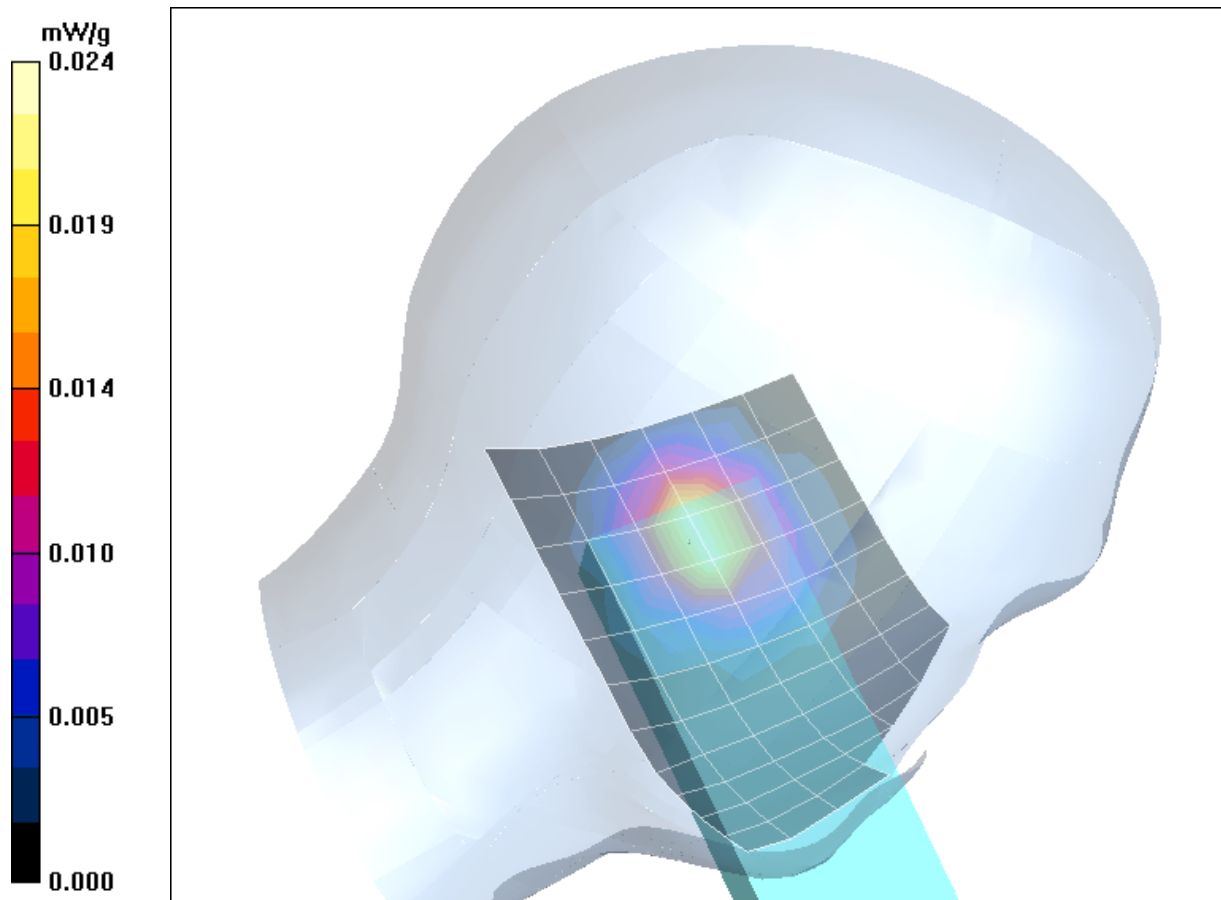


Fig. 6: SAR distribution for DECT US, channel 2, tilted position, left side of head (May 15, 2008; Ambient Temperature: 23.0°C; Liquid Temperature: 21.9°C).

Test Laboratory: IMST GmbH, DASY Blue (I); File Name: [DT690 us bprm 1 ant2.da4](#)

DUT: ascom; Type: DT690; Serial: T26103JA47

Program Name: Cheek Right

Communication System: DECT US; Frequency: 1924.99 MHz; Duty Cycle: 1:24

Medium parameters used: $f = 1924.99$ MHz; $\sigma = 1.45$ mho/m; $\epsilon_r = 41.3$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3536; ConvF(7.85, 7.85, 7.85); Calibrated: 18.09.2007

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

- Electronics: DAE4 Sn631; Calibrated: 17.09.2007

- Phantom: SAM Glycol 1176; Type: Speag; Serial: 1176

- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Cheek Right/Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.030 mW/g

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

Reference Value = 3.40 V/m; Power Drift = 0.053 dB

Peak SAR (extrapolated) = 0.043 W/kg

SAR(1 g) = 0.026 mW/g; SAR(10 g) = 0.015 mW/g

Maximum value of SAR (measured) = 0.029 mW/g

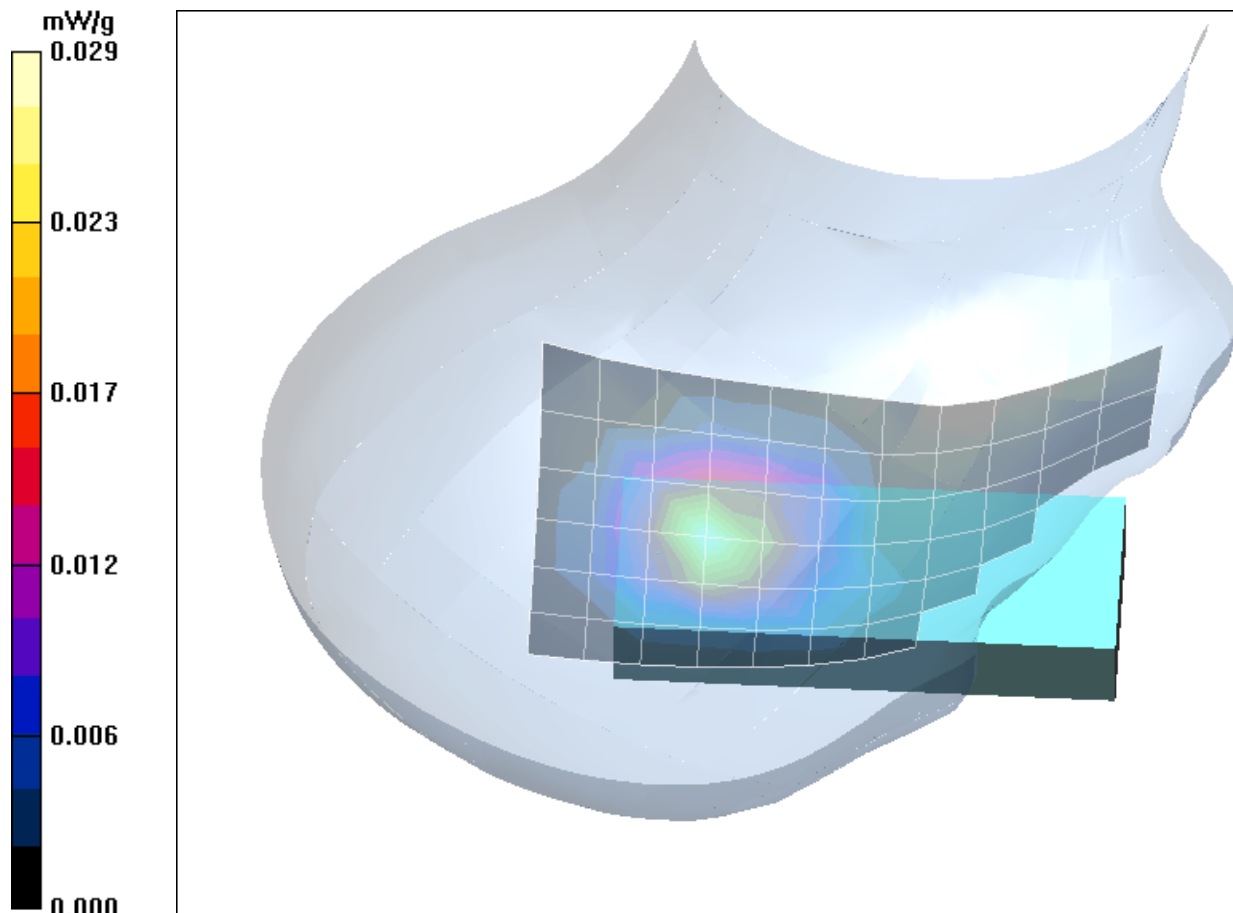


Fig. 7: SAR distribution for DECT US, channel 2, cheek position, right side of head (May 15, 2008; Ambient Temperature: 23.0°C; Liquid Temperature: 21.9°C).

Test Laboratory: IMST GmbH, DASY Blue (I); File Name: [DT690 us bprm 2 ant2.da4](#)

DUT: ascom; Type: DT690; Serial: T26103JA47

Program Name: Tilted Right

Communication System: DECT US; Frequency: 1924.99 MHz; Duty Cycle: 1:24

Medium parameters used: $f = 1924.99$ MHz; $\sigma = 1.45$ mho/m; $\epsilon_r = 41.3$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3536; ConvF(7.85, 7.85, 7.85); Calibrated: 18.09.2007

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

- Electronics: DAE4 Sn631; Calibrated: 17.09.2007

- Phantom: SAM Glycol 1176; Type: Speag; Serial: 1176

- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Tilted Right/Area Scan (7x12x1): Measurement grid: dx=15mm, dy=15mm

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

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

Reference Value = 3.77 V/m; Power Drift = -0.164 dB

Peak SAR (extrapolated) = 0.097 W/kg

SAR(1 g) = 0.021 mW/g; SAR(10 g) = 0.011 mW/g

Maximum value of SAR (measured) = 0.024 mW/g

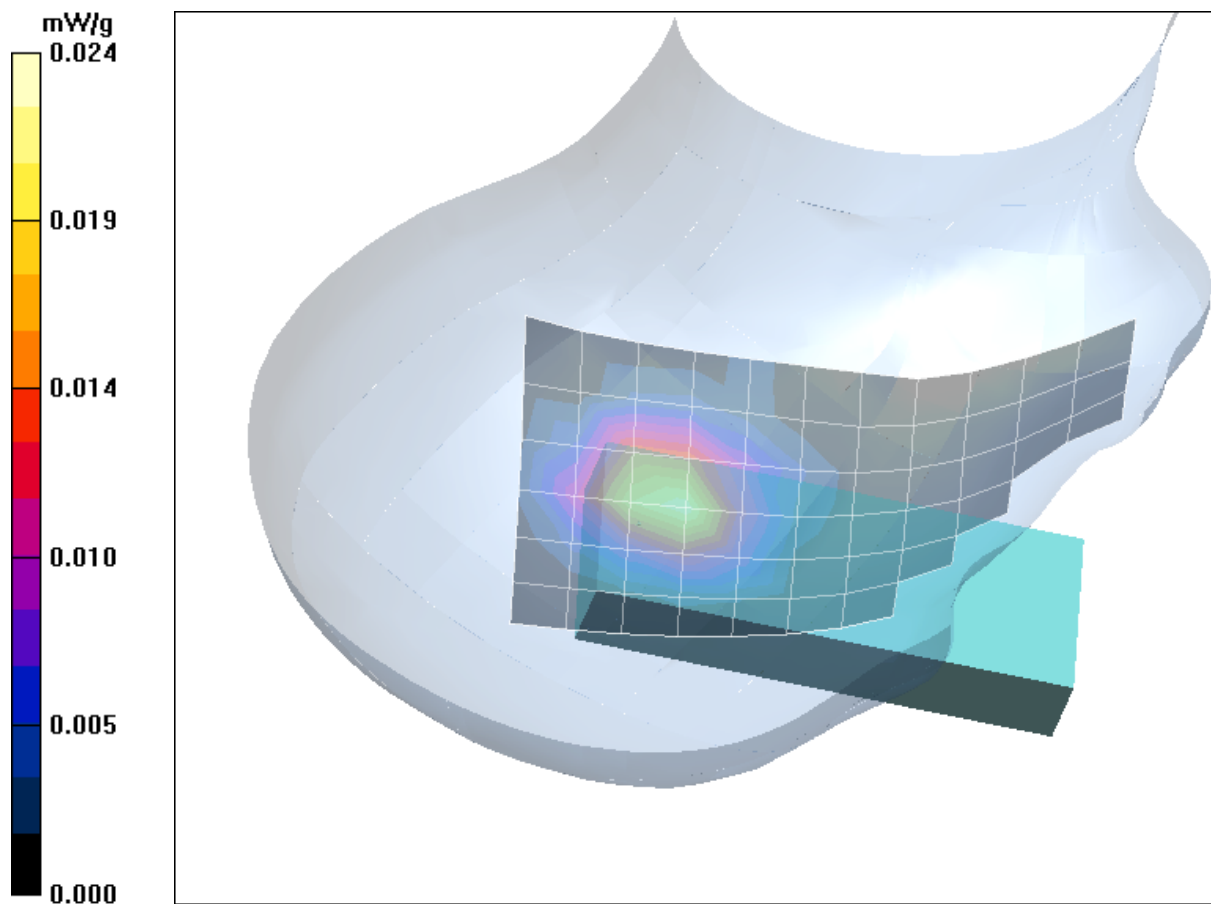


Fig. 8: SAR distribution for DECT US, channel 2, tilted position, right side of head (May 15, 2008; Ambient Temperature: 23.0°C; Liquid Temperature: 21.9°C)

3 SAR Distribution Plots, Body Measurements, Antenna 1

Test Laboratory: IMST GmbH, DASY Blue (I); File Name:
[DT690 bphm 1 ant1 clip headset dspl up.da4](#)

DUT: ascom; Type: DT690; Serial: T26103JA47
 Program Name: Body Worn

Communication System: DECT US; Frequency: 1924.99 MHz; Duty Cycle: 1:24
 Medium parameters used: $f = 1924.99$ MHz; $\sigma = 1.58$ mho/m; $\epsilon_r = 53.3$; $\rho = 1000$ kg/m³
 Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3536; ConvF(7.67, 7.67, 7.67); Calibrated: 18.09.2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn631; Calibrated: 17.09.2007
- Phantom: SAM Glycol 1176; Type: Speag; Serial: 1176
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Body Worn/Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.029 mW/g

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

Reference Value = 2.06 V/m; Power Drift = -0.026 dB

Peak SAR (extrapolated) = 0.052 W/kg

SAR(1 g) = 0.023 mW/g; SAR(10 g) = 0.013 mW/g

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

Body Worn/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 2.06 V/m; Power Drift = -0.026 dB

Peak SAR (extrapolated) = 0.047 W/kg

SAR(1 g) = 0.029 mW/g; SAR(10 g) = 0.016 mW/g

Maximum value of SAR (measured) = 0.033 mW/g

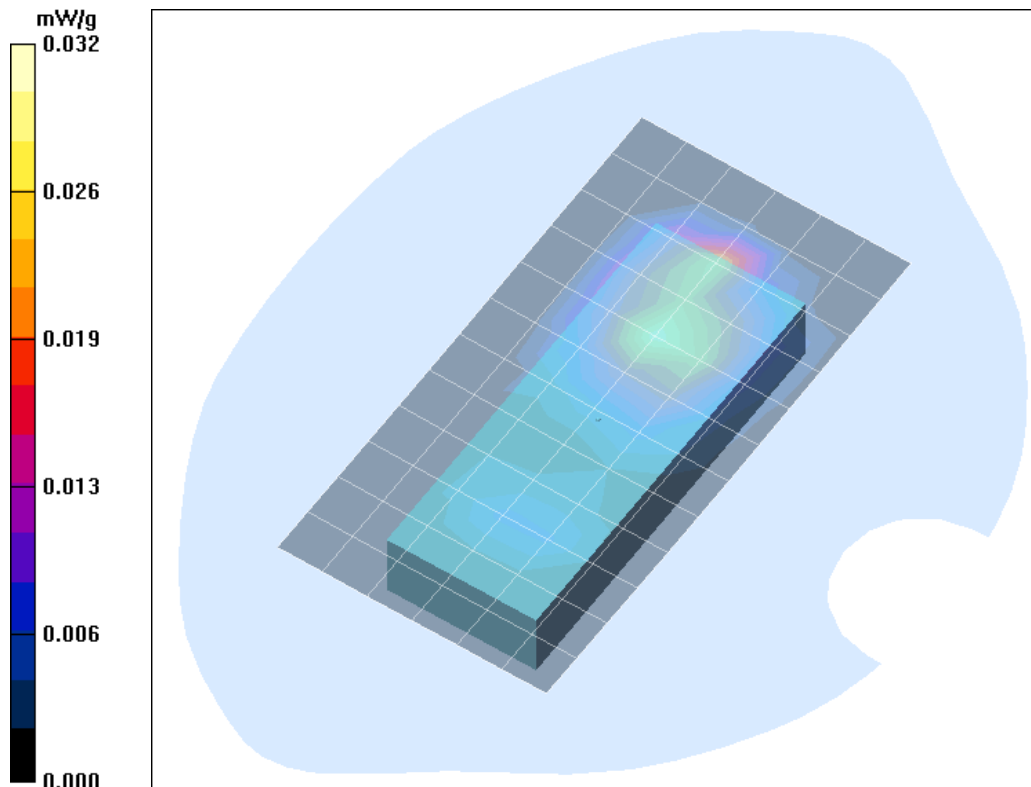


Fig. 9: SAR distribution for DECT US, channel 2, body worn configuration, display towards the phantom, with headset and 0 mm distance (May 19, 2008; Ambient Temperature: 22.8° C; Liquid Temperature: 21.8° C).

Test Laboratory: IMST GmbH, DASY Blue (I); File Name:
[DT690 bphm 3 ant1 clip headset dspl DOWN.da4](#)

DUT: ascom; Type: DT690; Serial: T26103JA47
 Program Name: Body Worn

Communication System: DECT US; Frequency: 1924.99 MHz; Duty Cycle: 1:24
 Medium parameters used: $f = 1924.99$ MHz; $\sigma = 1.58$ mho/m; $\epsilon_r = 53.3$; $\rho = 1000$ kg/m³
 Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3536; ConvF(7.67, 7.67, 7.67); Calibrated: 18.09.2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn631; Calibrated: 17.09.2007
- Phantom: SAM Glycol 1176; Type: Speag; Serial: 1176
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Body Worn/Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.011 mW/g

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

Reference Value = 1.73 V/m; Power Drift = -0.169 dB

Peak SAR (extrapolated) = 0.023 W/kg

SAR(1 g) = 0.011 mW/g; SAR(10 g) = 0.00534 mW/g

Maximum value of SAR (measured) = 0.013 mW/g

Body Worn/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 1.73 V/m; Power Drift = -0.169 dB

Peak SAR (extrapolated) = 0.017 W/kg

SAR(1 g) = 0.00928 mW/g; SAR(10 g) = 0.00505 mW/g

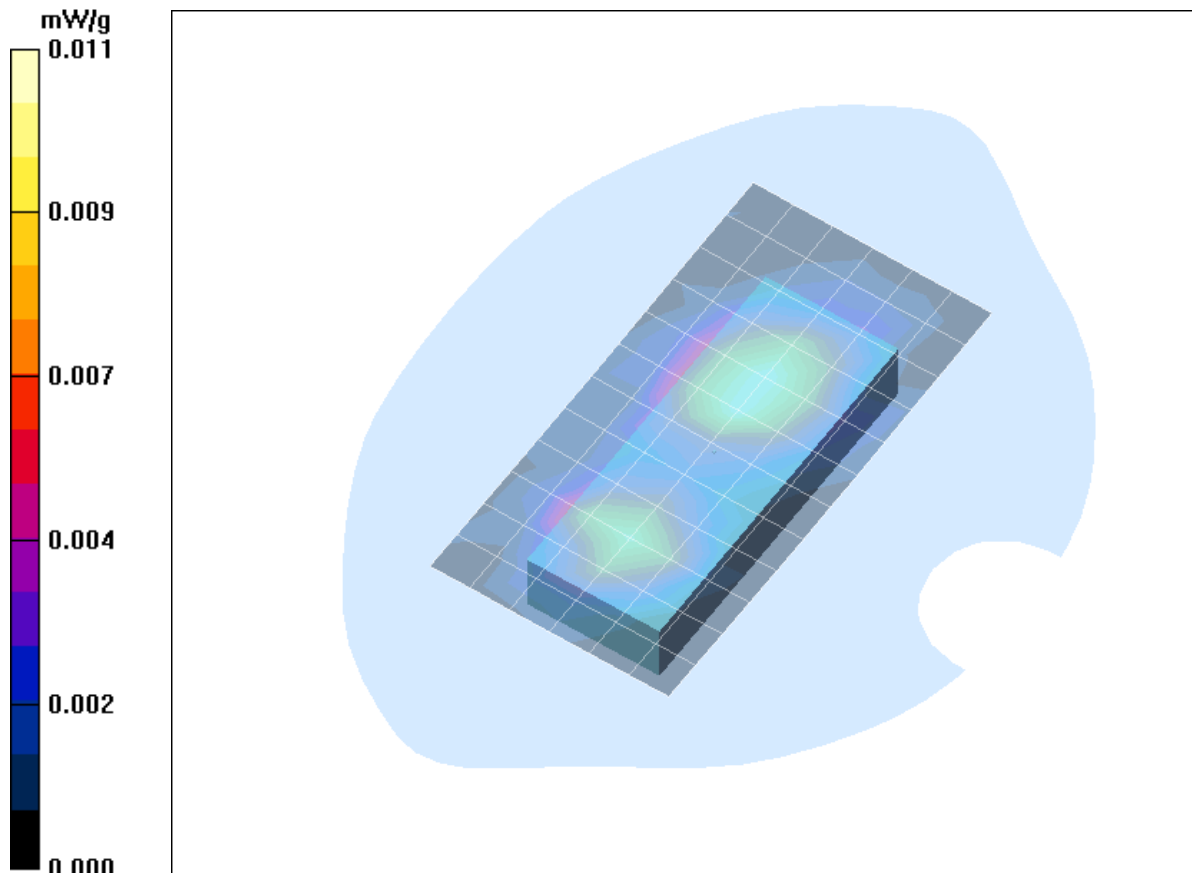


Fig. 10: SAR distribution for DECT US, channel 2, body worn configuration, display towards the ground, with headset and 0 mm distance (May 19, 2008; Ambient Temperature: 22.8° C; Liquid Temperature: 21.8° C).

4 SAR Distribution Plots, Body Measurements, Antenna 2

Test Laboratory: IMST GmbH, DASY Blue (I); File Name:
[DT690 bphm 2 ant2 clip headset dspl up.da4](#)

DUT: ascom; Type: DT690; Serial: T26103JA47
 Program Name: Body Worn

Communication System: DECT US; Frequency: 1924.99 MHz; Duty Cycle: 1:24
 Medium parameters used: $f = 1924.99$ MHz; $\sigma = 1.58$ mho/m; $\epsilon_r = 53.3$; $\rho = 1000$ kg/m³
 Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3536; ConvF(7.67, 7.67, 7.67); Calibrated: 18.09.2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn631; Calibrated: 17.09.2007
- Phantom: SAM Glycol 1176; Type: Speag; Serial: 1176
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Body Worn/Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.031 mW/g

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

Reference Value = 0.953 V/m; Power Drift = 0.040 dB

Peak SAR (extrapolated) = 0.050 W/kg

SAR(1 g) = 0.029 mW/g; SAR(10 g) = 0.016 mW/g

Maximum value of SAR (measured) = 0.033 mW/g

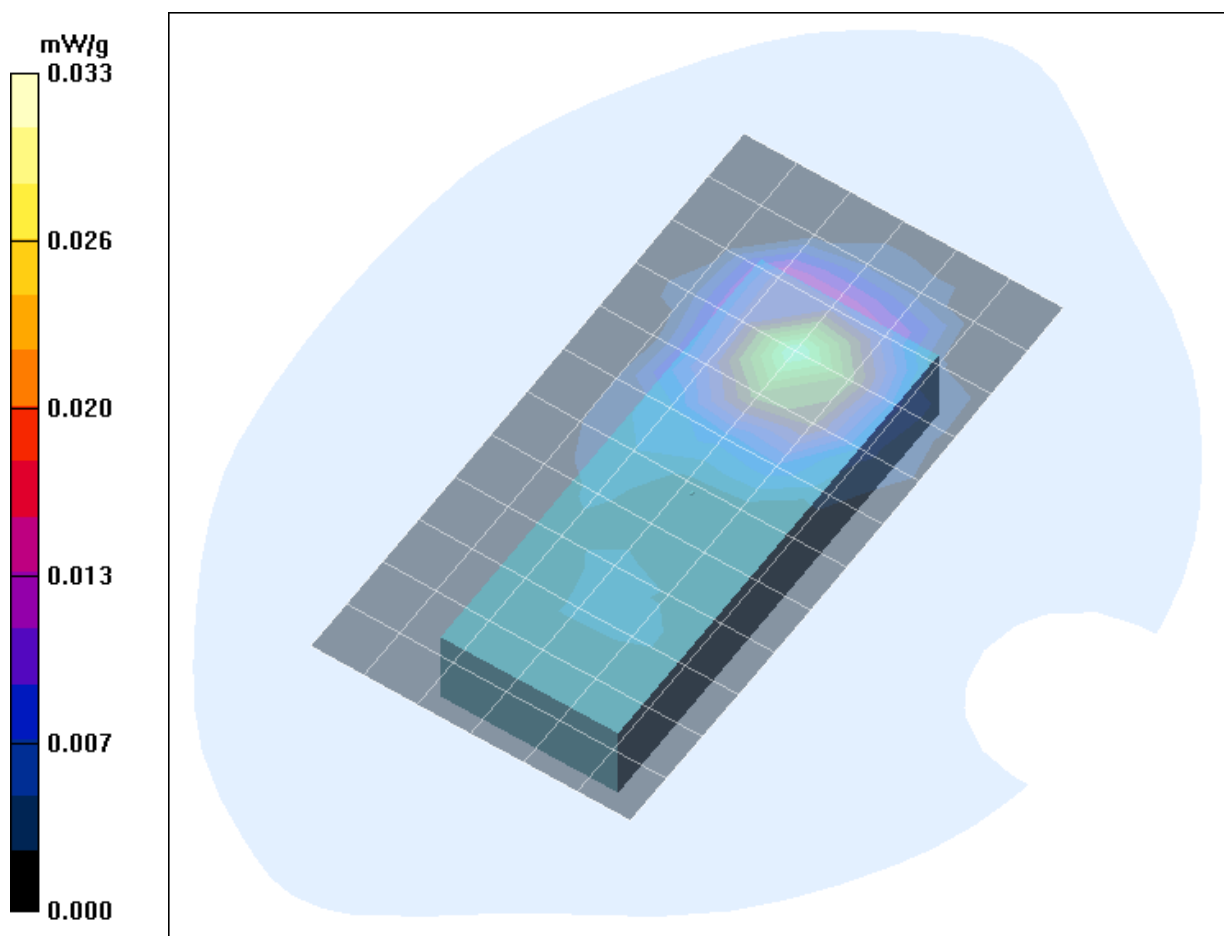


Fig. 11: SAR distribution for DECT US, channel 2, body worn configuration, display towards the phantom, with headset and 0 mm distance (May 19, 2008; Ambient Temperature: 22.8° C; Liquid Temperature: 21.8° C).

5 SAR z-axis scans (Validation)

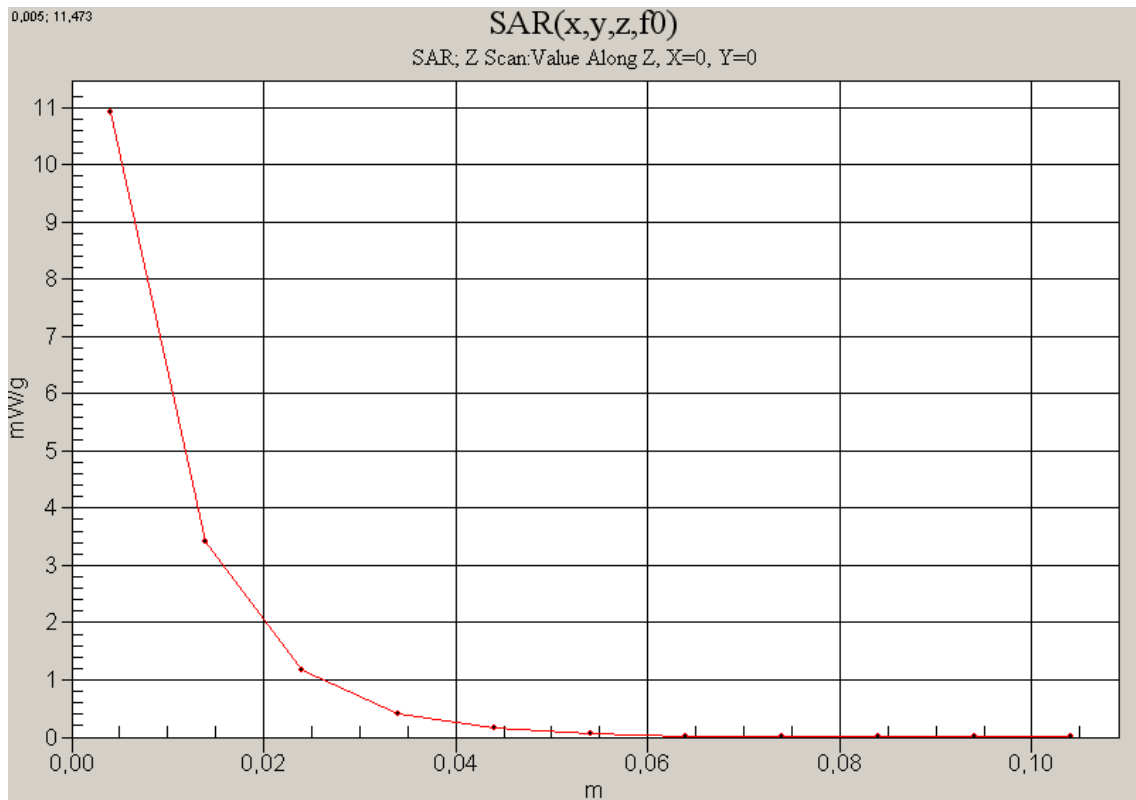


Fig. 12: SAR versus liquid depth, 1900 MHz, head (May 15, 2008; Ambient Temperature: 23.0° C; Liquid Temperature : 21.9° C).

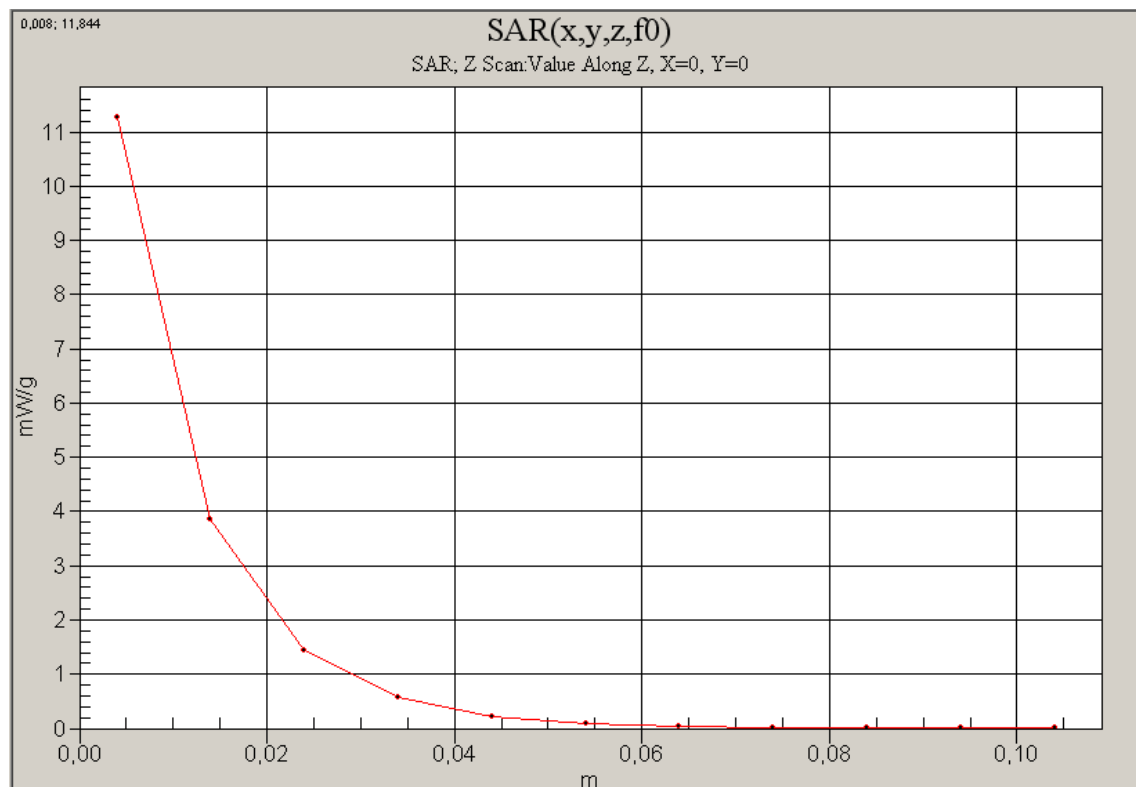


Fig. 13: SAR versus liquid depth, 1900 MHz, body (May 19, 2008; Ambient Temperature: 22.7° C; Liquid Temperature : 21.8° C).

6 SAR z-axis scans (Measurements)

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

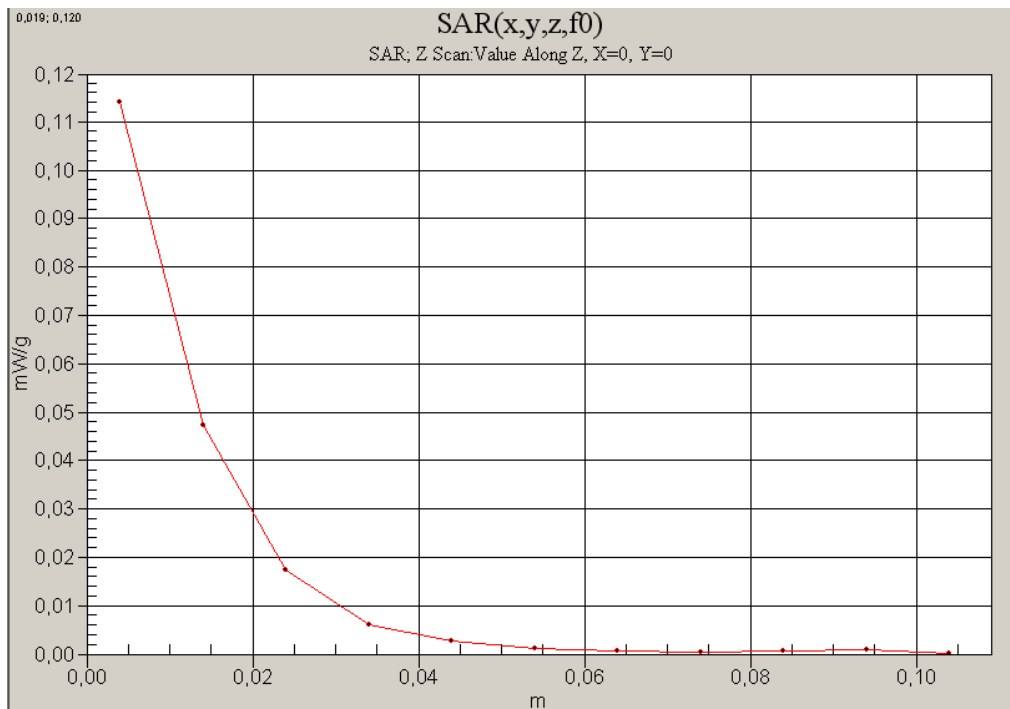


Fig. 14: SAR versus liquid depth, head: DECT US, channel 2, cheek position, left side of head, antenna 1 (May 15, 2008; Ambient Temperature: 23.0° C; Liquid Temperature : 21.9° C).

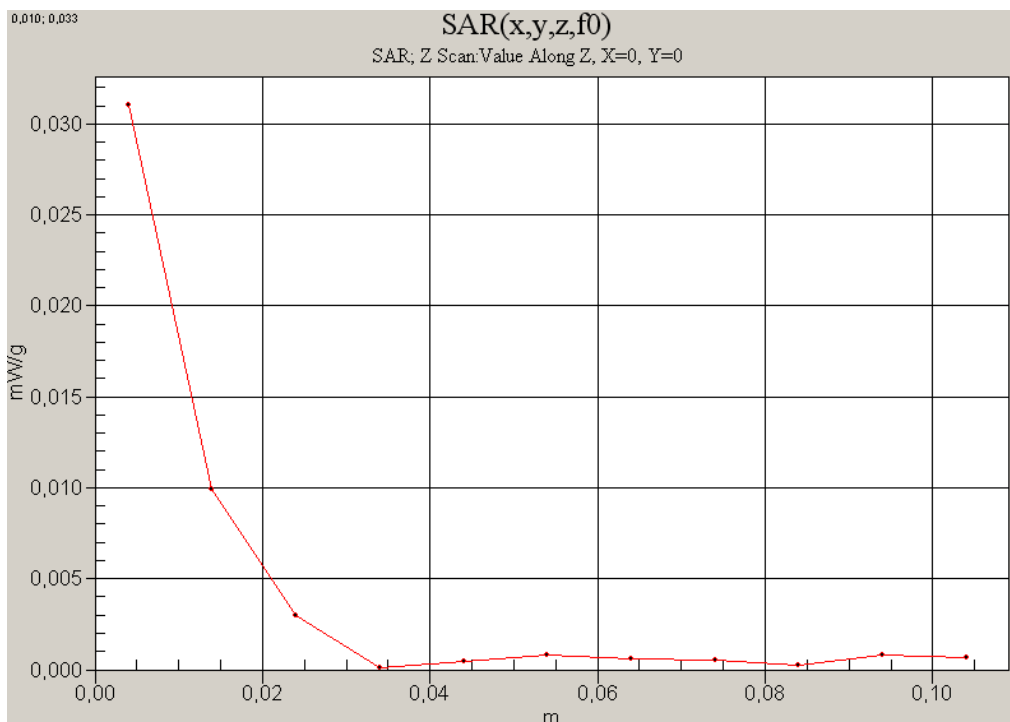


Fig. 15: SAR versus liquid depth, body: DECT US, channel 2, headset and 0 mm distance, antenna 1 (May 19, 2008; Ambient Temperature: 22.8° C; Liquid Temperature: 21.8° C).