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## **Appendix for the Report**

### **Dosimetric Assessment of the Portable Device Datalogic Joya (Contains FCC ID: U4G004W) (Contains IC: 3862E-004W)**

### **According to the FCC and IC Requirements SAR Distribution Plots**

June 15, 2011

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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, IEEE 802.11 g

Test Laboratory: IMST GmbH, DASY Blue (I); File Name: [Joya\\_ywhm\\_g\\_CH6\\_dspl\\_down.da4](#)

DUT: Datalogic; Type: Joya+ A; Serial: D10P00477

Program Name: WLAN

Communication System: WLAN 2450; Frequency: 2437 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated):  $f = 2437$  MHz;  $\sigma = 2.02$  mho/m;  $\epsilon_r = 52.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3536; ConvF(7.48, 7.48, 7.48); Calibrated: 16.09.2010
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn631; Calibrated: 17.09.2010
- 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

**Body Worn/Area Scan (9x14x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.161 mW/g

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

Reference Value = 5.59 V/m; Power Drift = -0.081 dB

Peak SAR (extrapolated) = 0.283 W/kg

**SAR(1 g) = 0.155 mW/g; SAR(10 g) = 0.089 mW/g**

Maximum value of SAR (measured) = 0.165 mW/g

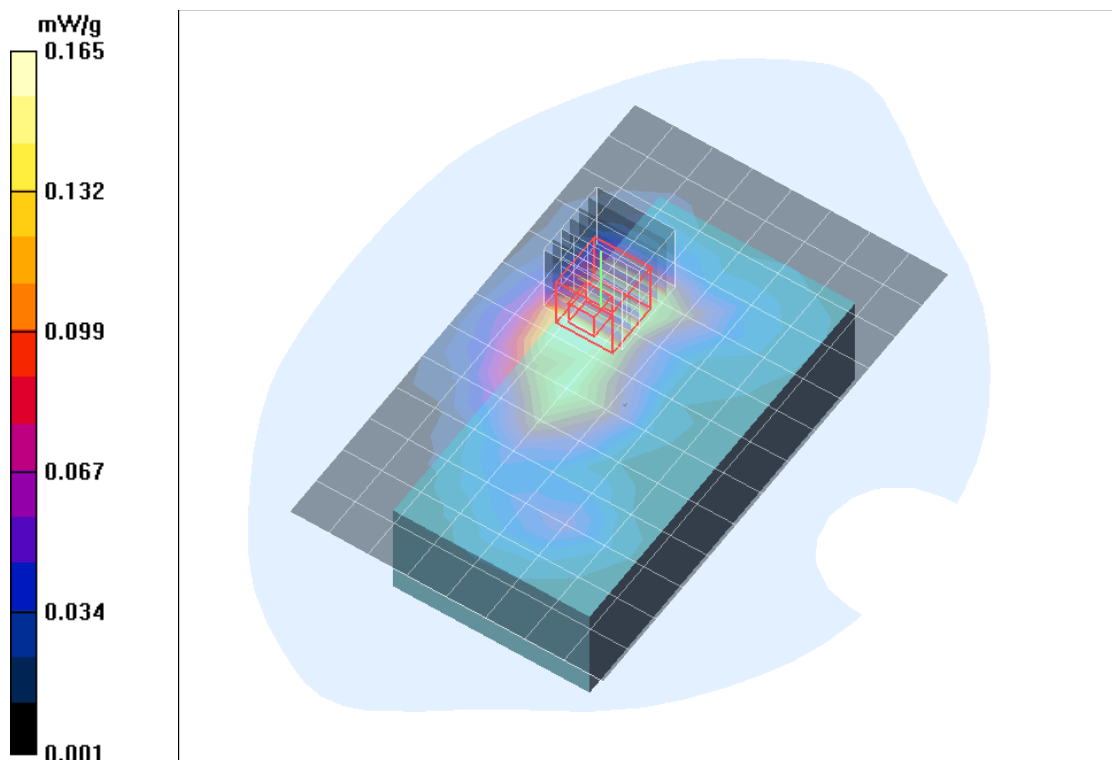


Fig. 1: SAR distribution for IEEE 802.11 g, channel 6, worst case body worn configuration, display towards the ground, 0 mm distance (May 26, 2011; Ambient Temperature: 21.5° C; Liquid Temperature: 21.3° C).

## 2 SAR Distribution Plots, IEEE 802.11 a (5200 MHz Range)

Test Laboratory: IMST GmbH, DASY Blue (I); File Name: [Joya\\_ywhm\\_a\\_CH36\\_dspl\\_down.da4](#)

DUT: Datalogic; Type: Joya; Serial: D10P00477

Program Name: WiFi 5200 MHz

Communication System: 5 GHz ; Frequency: 5180 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 5180$  MHz;  $\sigma = 5.22$  mho/m;  $\epsilon_r = 48.8$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3536; ConvF(4.36, 4.36, 4.36); Calibrated: 16.09.2010
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn631; Calibrated: 17.09.2010
- Phantom: SAM Glycol 1176; Type: Speag; Serial: 1176
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Body Worn/Area Scan (12x19x1):** Measurement grid:  $dx=10$ mm,  $dy=10$ mm

Maximum value of SAR (measured) = 0.858 mW/g

**Body Worn/Zoom Scan (8x8x8)/Cube 0:** Measurement grid:  $dx=4.3$ mm,  $dy=4.3$ mm,  $dz=3$ mm

Reference Value = 14.2 V/m; Power Drift = -0.100 dB

Peak SAR (extrapolated) = 1.83 W/kg

**SAR(1 g) = 0.432 mW/g; SAR(10 g) = 0.113 mW/g**

Maximum value of SAR (measured) = 0.882 mW/g

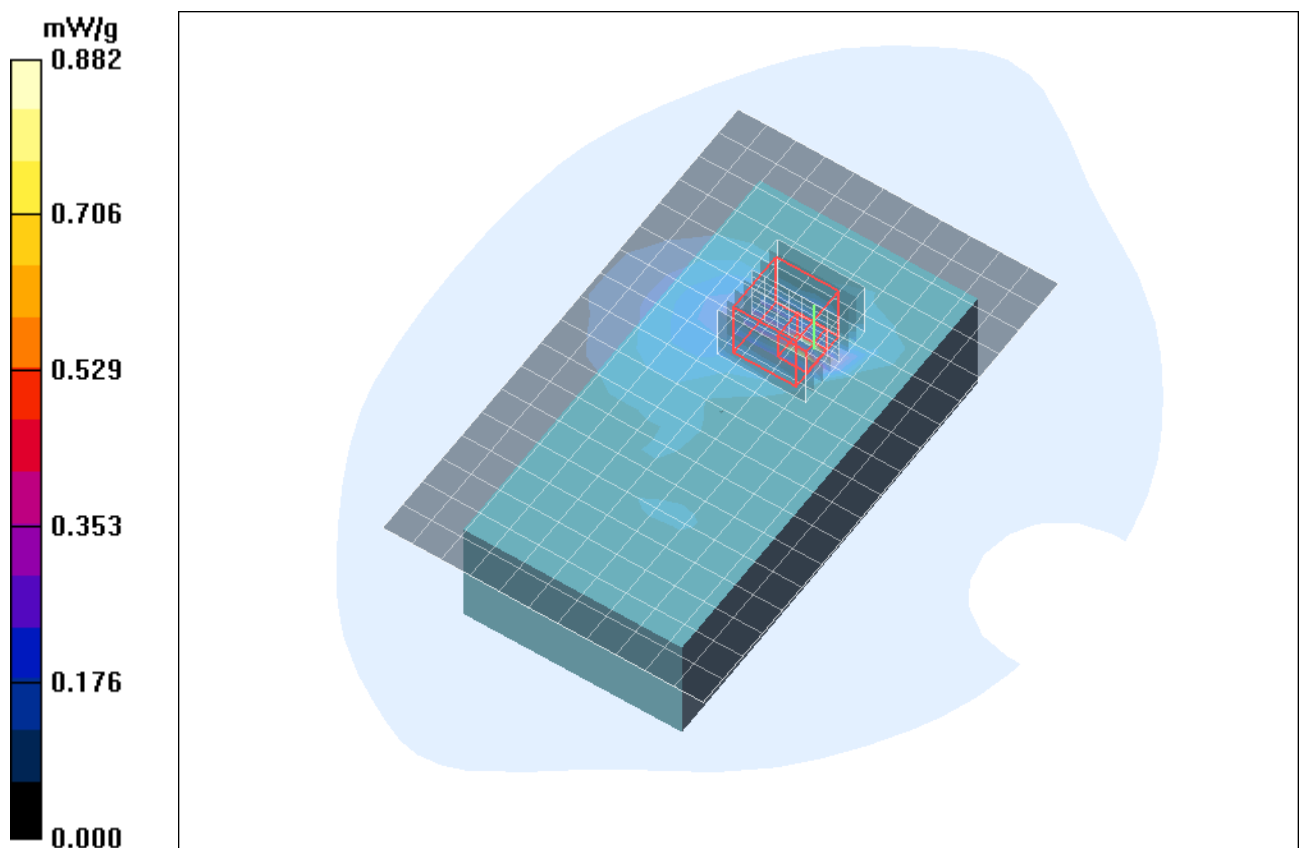


Fig. 2: SAR distribution for IEEE 802.11 a, channel 36, worst case body worn configuration, display towards the ground, 0 mm distance (May 26, 2011; Ambient Temperature: 22.0° C; Liquid Temperature: 21.8° C).

### 3 SAR Distribution Plots, IEEE 802.11 a (5500 MHz Range)

Test Laboratory: IMST GmbH, DASY Blue (I); File Name: [Joya\\_bwhm\\_ch104\\_dspl\\_down.da4](#)

DUT: Datalogic; Type: Joya; Serial: D10P00477

Program Name: WiFi 5500 MHz

Communication System: 5 GHz ; Frequency: 5520 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 5520$  MHz;  $\sigma = 5.71$  mho/m;  $\epsilon_r = 48$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3536; ConvF(3.9, 3.9, 3.9); Calibrated: 16.09.2010
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn631; Calibrated: 17.09.2010
- Phantom: SAM Glycol 1176; Type: Speag; Serial: 1176
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Body Worn/Area Scan (12x19x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.278 mW/g

**Body Worn/Zoom Scan (8x8x8)/Cube 0:** Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 7.73 V/m; Power Drift = 0.049 dB

Peak SAR (extrapolated) = 0.468 W/kg

**SAR(1 g) = 0.160 mW/g; SAR(10 g) = 0.069 mW/g**

Maximum value of SAR (measured) = 0.293 mW/g

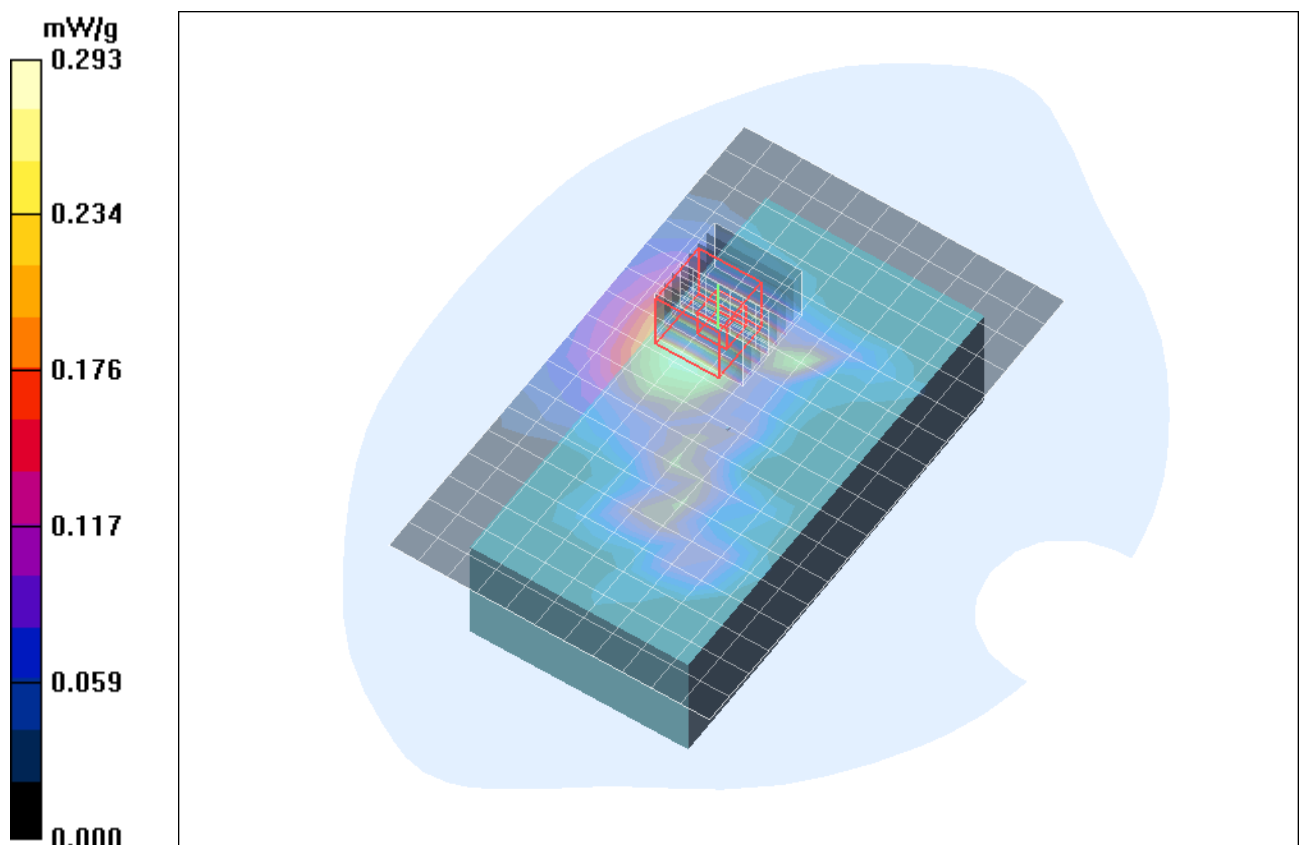


Fig. 3: SAR distribution for IEEE 802.11 a, channel 104, worst case body worn configuration, display towards the ground, 0 mm distance (May 26, 2011; Ambient Temperature: 22.0° C; Liquid Temperature: 21.8° C).

## 4 SAR Distribution Plots, IEEE 802.11 a (5800 MHz Range)

Test Laboratory: IMST GmbH, DASY Blue (I); File Name: [Joya\\_bwhm\\_ch161\\_dspl\\_down.da4](#)

DUT: Datalogic; Type: Joya; Serial: D10P00477

Program Name: WiFi 5800 MHz

Communication System: 5 GHz ; Frequency: 5805 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 5805$  MHz;  $\sigma = 6.18$  mho/m;  $\epsilon_r = 47.5$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3536; ConvF(4.1, 4.1, 4.1); Calibrated: 16.09.2010
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn631; Calibrated: 17.09.2010
- Phantom: SAM Glycol 1176; Type: Speag; Serial: 1176
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Body Worn/Area Scan (12x19x1):** Measurement grid:  $dx=10$ mm,  $dy=10$ mm

Maximum value of SAR (measured) = 0.368 mW/g

**Body Worn/Zoom Scan (8x8x8)/Cube 0:** Measurement grid:  $dx=4.3$ mm,  $dy=4.3$ mm,  $dz=3$ mm

Reference Value = 8.73 V/m; Power Drift = -0.001 dB

Peak SAR (extrapolated) = 0.695 W/kg

**SAR(1 g) = 0.211 mW/g; SAR(10 g) = 0.088 mW/g**

Maximum value of SAR (measured) = 0.386 mW/g

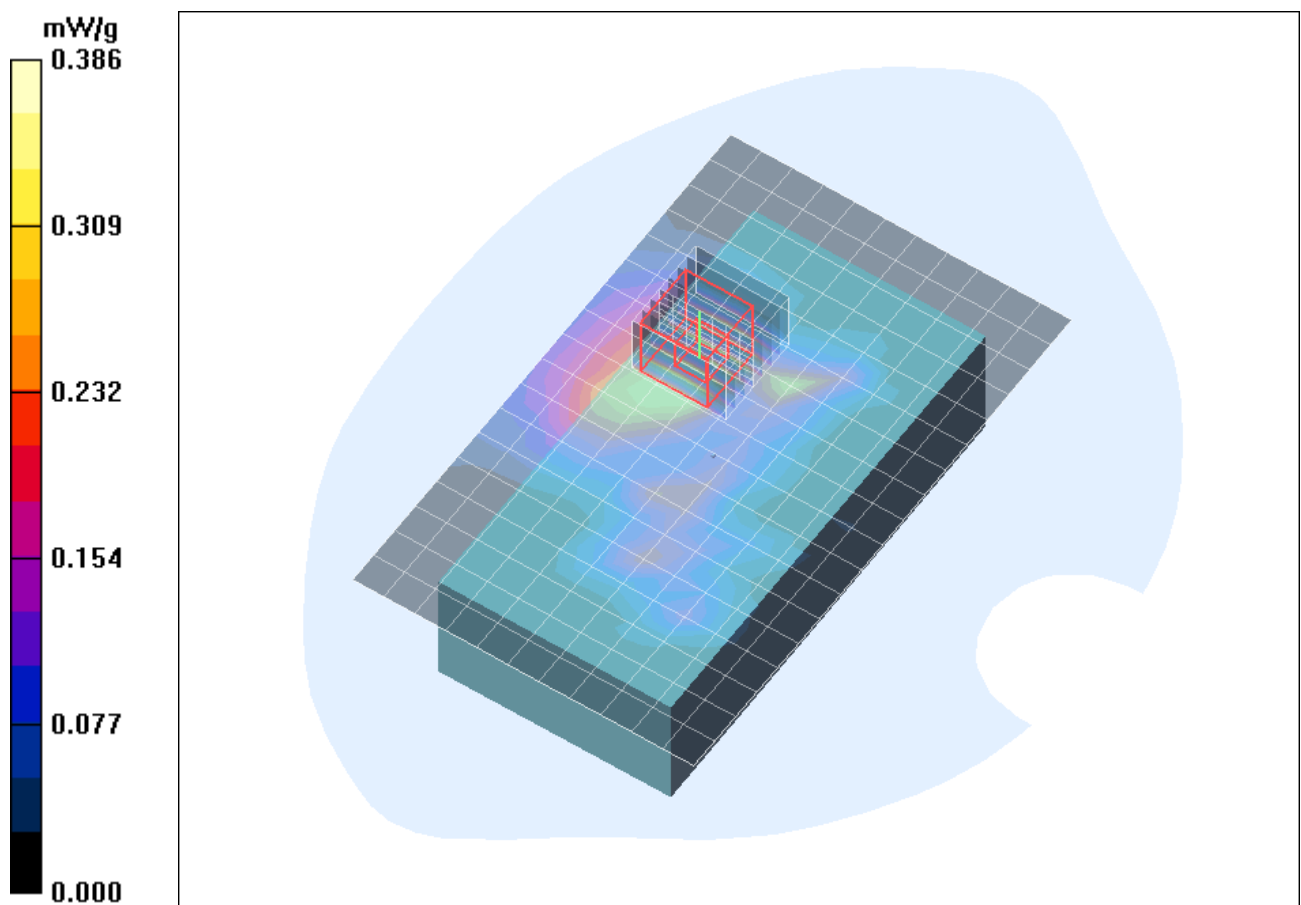


Fig. 4: SAR distribution for IEEE 802.11 a, channel 161, worst case body worn configuration, display towards the ground, 0 mm distance (May 26, 2011; Ambient Temperature: 22.0° C; Liquid Temperature: 21.8° C).

## 5 SAR Z-axis Scans (Validation)

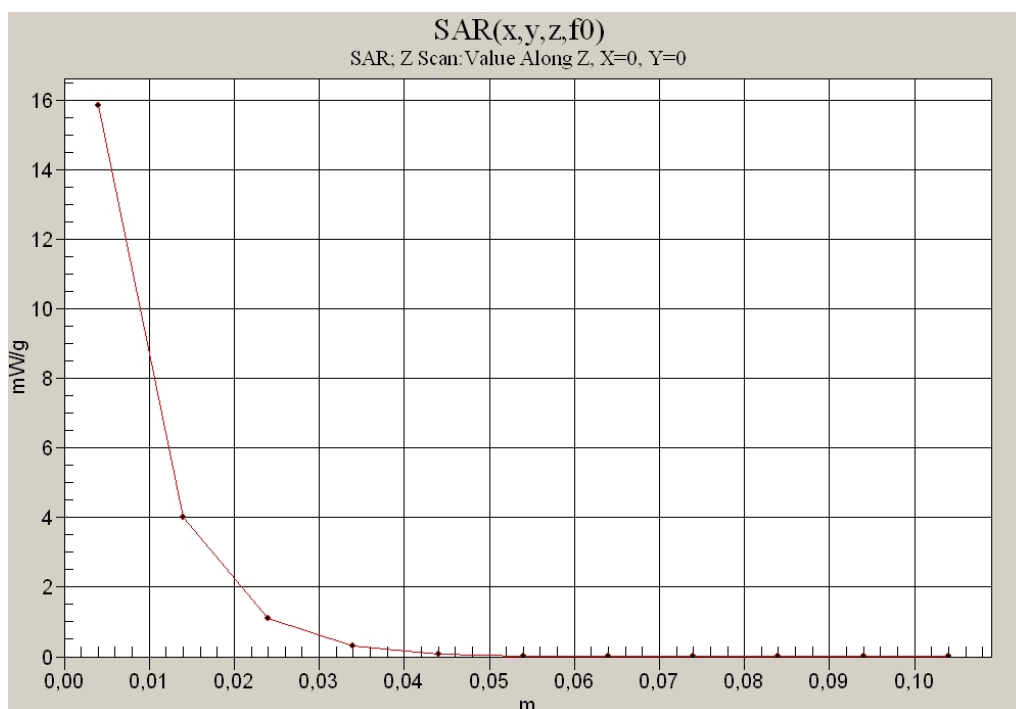


Fig. 5: SAR versus liquid depth, 2450 MHz, body (May 26, 2011; Ambient Temperature: 21.5° C; Liquid Temperature: 21.3° C).

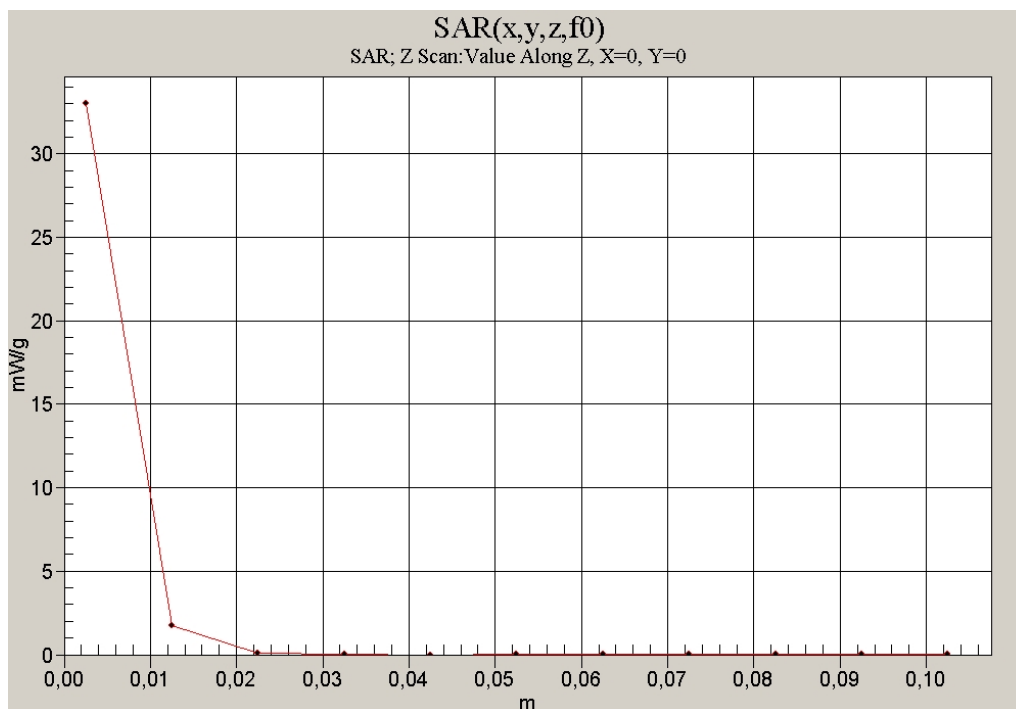


Fig. 6: SAR versus liquid depth, 5200 MHz, body (May 26, 2011; Ambient Temperature: 22.0° C; Liquid Temperature: 21.8° C).

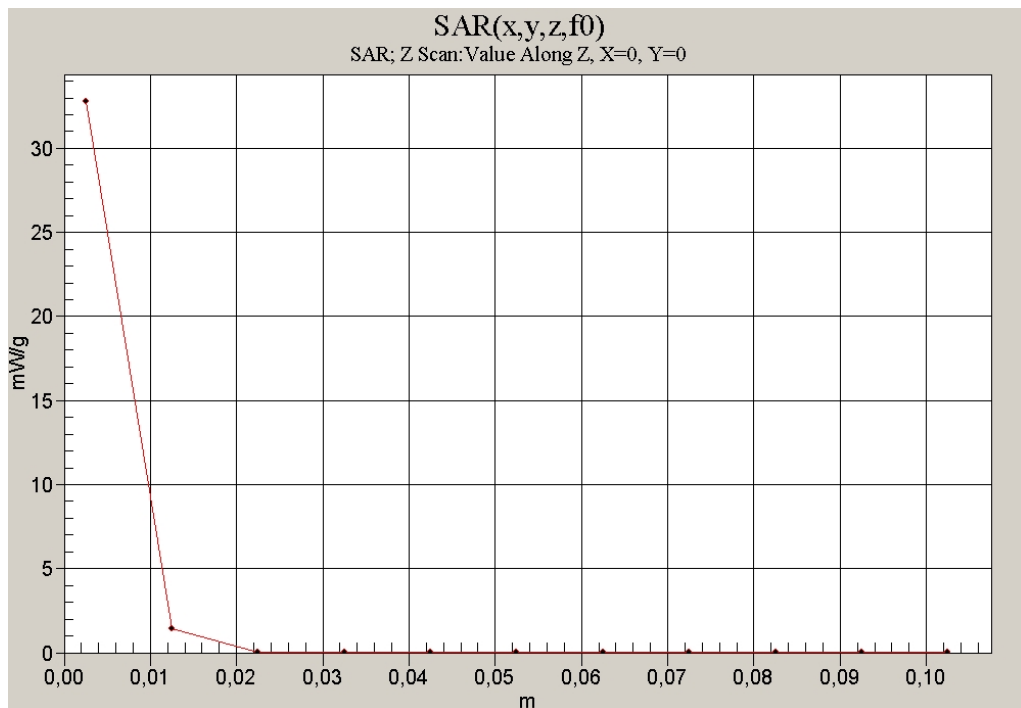


Fig. 7: SAR versus liquid depth, 5500 MHz, body (May 26, 2011; Ambient Temperature: 22.0° C; Liquid Temperature: 21.8° C).

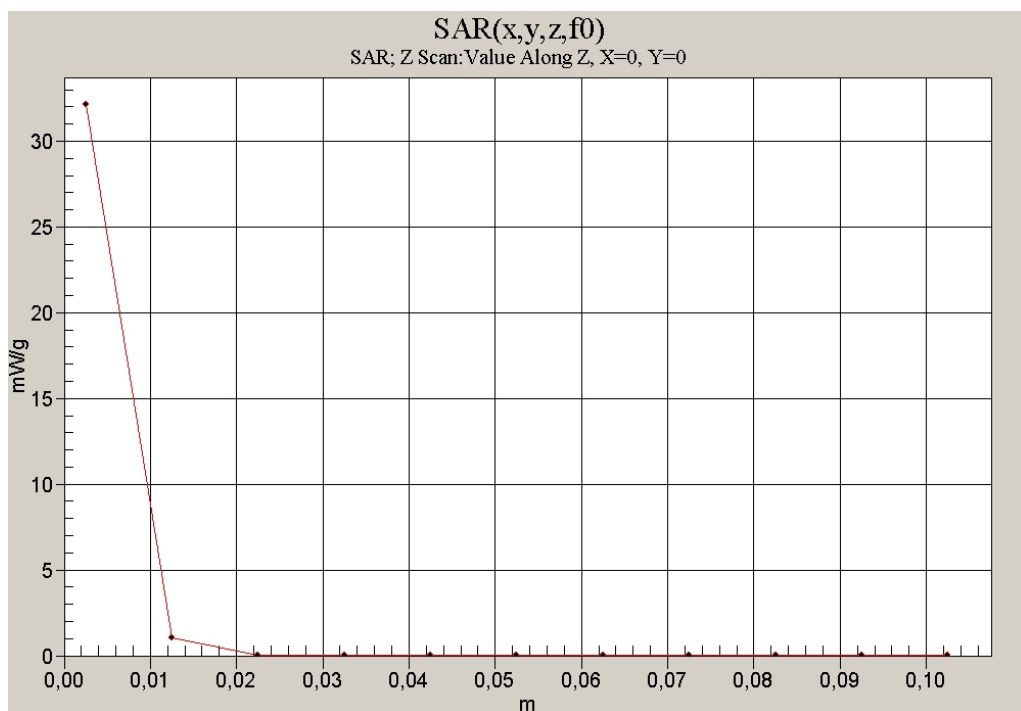


Fig. 8: SAR versus liquid depth, 5800 MHz, body (May 26, 2011; Ambient Temperature: 22.1° C; Liquid Temperature: 21.8° C).



## 6 SAR Z-axis Scans (Measurements)

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

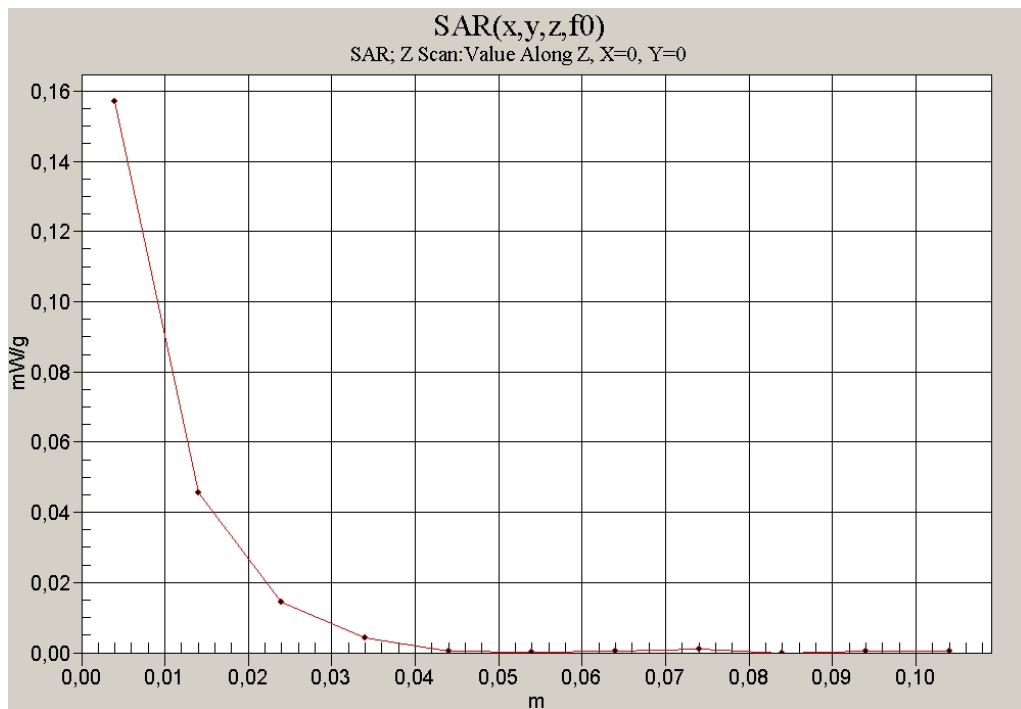


Fig. 9: SAR versus liquid depth, body: IEEE 802.11 g, channel 6, display towards the ground (May 26, 2011; Ambient Temperature: 21.5° C; Liquid Temperature: 21.3° C).

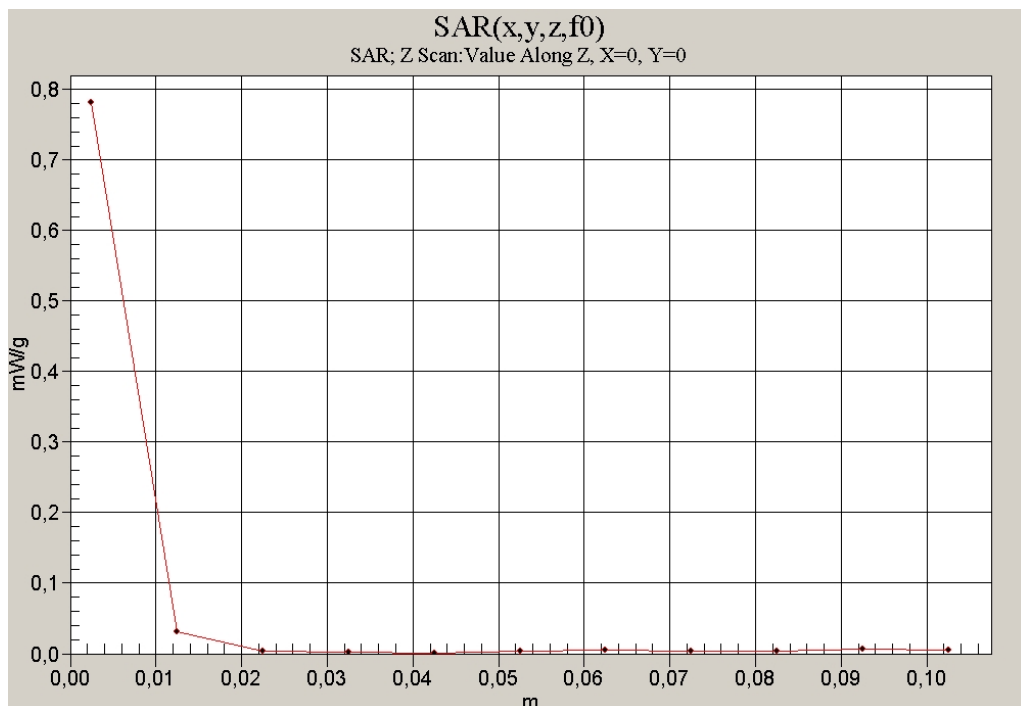


Fig. 10: SAR versus liquid depth, body: IEEE 802.11 a, channel 36, display towards the ground (May 26, 2011; Ambient Temperature: 22.0° C; Liquid Temperature: 21.8° C).