

## Appendix A. SAR Plots of System Verification

The plots for system verification are shown as follows.

## System Check\_H835\_121201

**DUT: Dipole 835 MHz; Type: D835V2; SN: 4d021**

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium: H835\_1201 Medium parameters used:  $f = 835$  MHz;  $\sigma = 0.896$  mho/m;  $\epsilon_r = 42.43$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 21.5 °C; Liquid Temperature : 20.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3801; ConvF(8.71, 8.71, 8.71); Calibrated: 2012/06/22;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2012/07/19
- Phantom: SAM Phantom\_Front; Type: SAM V4.0; Serial: TP 1127
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**Pin=250mW/Area Scan (61x61x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 3.18 W/kg

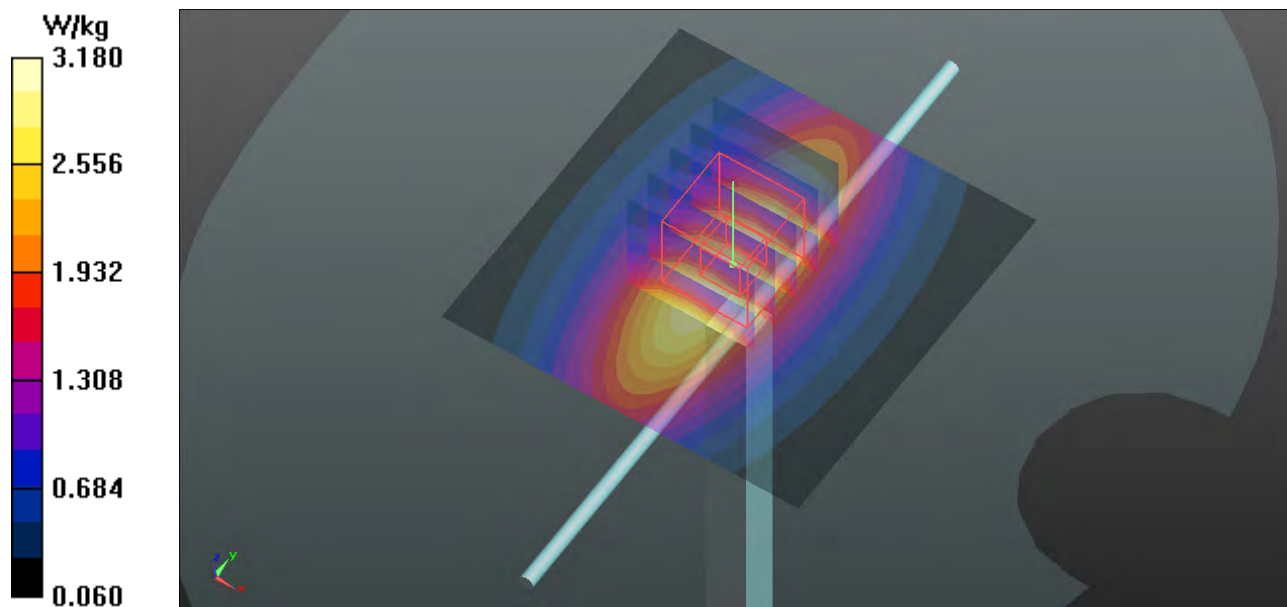
**Pin=250mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 57.684 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 3.730 mW/g

**SAR(1 g) = 2.48 mW/g; SAR(10 g) = 1.63 mW/g**

Maximum value of SAR (measured) = 3.17 W/kg



## System Check\_H835\_121202

**DUT: Dipole 835 MHz; Type: D835V2; SN: 4d021**

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium: H835\_1202 Medium parameters used:  $f = 835$  MHz;  $\sigma = 0.906$  mho/m;  $\epsilon_r = 42.387$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 21.6 °C; Liquid Temperature : 20.6 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3650; ConvF(8.89, 8.89, 8.89); Calibrated: 2012/10/26;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2012/04/27
- Phantom: SAM Phantom\_Front; Type: SAM V4.0; Serial: TP 1485
- Measurement SW: DASY52, Version 52.8 (3); SEMCAD X Version 14.6.7 (6848)

**Pin=250mW/Area Scan (61x61x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 3.11 W/kg

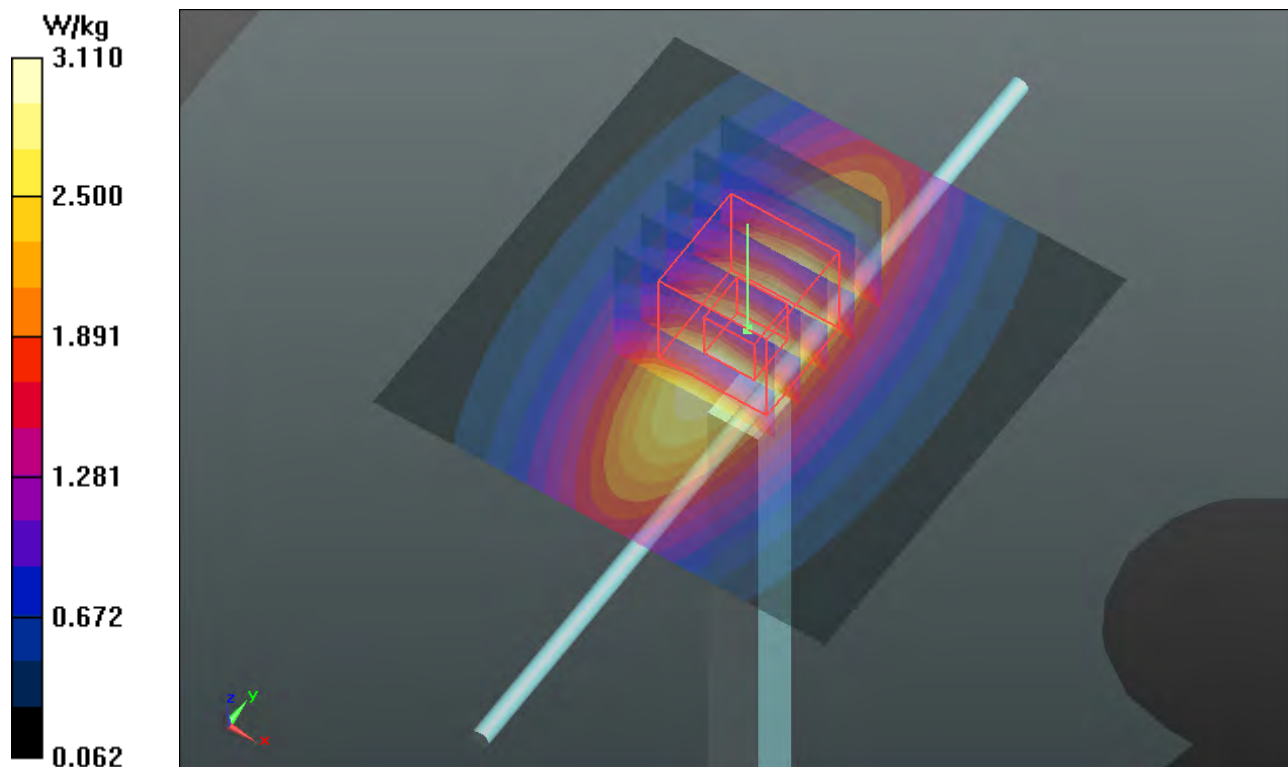
**Pin=250mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 56.477 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 3.59 W/kg

**SAR(1 g) = 2.43 W/kg; SAR(10 g) = 1.59 W/kg**

Maximum value of SAR (measured) = 3.07 W/kg



## System Check\_H835\_121204

**DUT: Dipole 835 MHz; Type: D835V2; SN: 4d021**

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium: H835\_1426 Medium parameters used:  $f = 835$  MHz;  $\sigma = 0.897$  mho/m;  $\epsilon_r = 41.95$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 21.6 °C; Liquid Temperature : 20.4 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3864; ConvF(9.8, 9.8, 9.8); Calibrated: 2012/07/19;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2012/04/27
- Phantom: SAM with CRP v5.0 Front; Type: QD000P40CD; Serial: TP:1653
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**Pin=250mW/Area Scan (61x61x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 3.01 W/kg

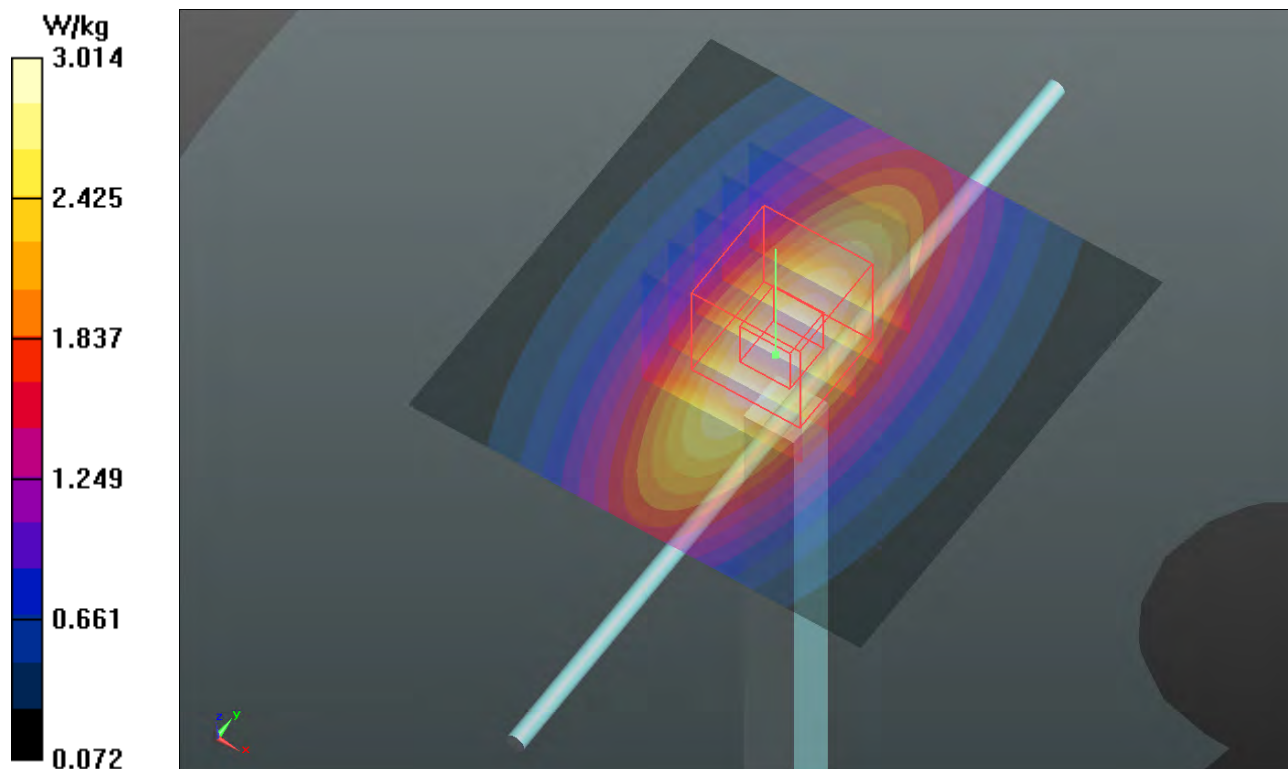
**Pin=250mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 55.508 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 3.584 mW/g

**SAR(1 g) = 2.35 mW/g; SAR(10 g) = 1.55 mW/g**

Maximum value of SAR (measured) = 3.01 W/kg



## System Check\_H1900\_121202

**DUT: Dipole 1900 MHz; Type: D1900V2; SN: 5d022**

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: H1900\_1202 Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.422$  mho/m;  $\epsilon_r = 40.423$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 21.7 °C; Liquid Temperature : 20.7 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3650; ConvF(7.61, 7.61, 7.61); Calibrated: 2012/10/26;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2012/04/27
- Phantom: SAM Phantom\_Front; Type: SAM V4.0; Serial: TP 1485
- Measurement SW: DASY52, Version 52.8 (3); SEMCAD X Version 14.6.7 (6848)

**Pin=250mW/Area Scan (61x61x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 14.1 W/kg

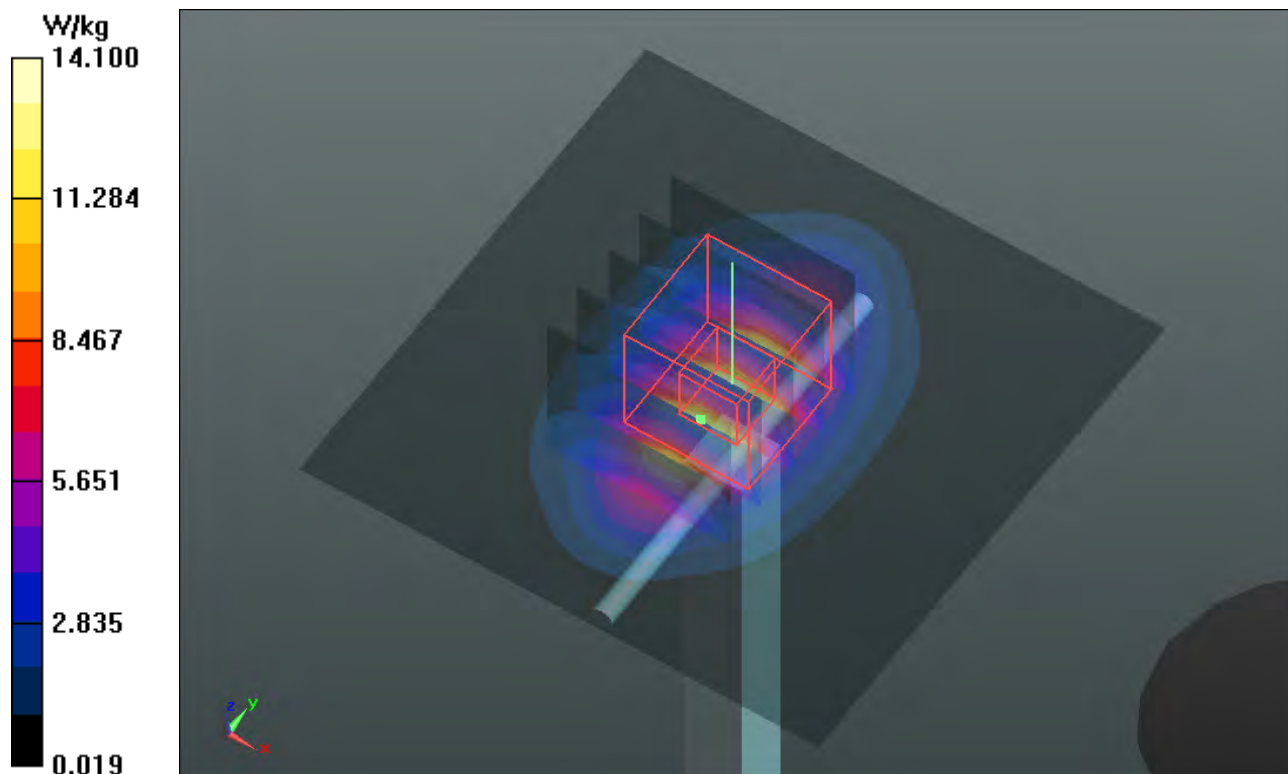
**Pin=250mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 100.9 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 17.9 W/kg

**SAR(1 g) = 9.58 W/kg; SAR(10 g) = 4.94 W/kg**

Maximum value of SAR (measured) = 13.8 W/kg



## System Check\_H1900\_121203

**DUT: Dipole 1900 MHz; Type: D1900V2; SN: 5d036**

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: H1900\_1203 Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.412$  mho/m;  $\epsilon_r = 40.293$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 21.8 °C; Liquid Temperature : 21.0 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3864; ConvF(8.13, 8.13, 8.13); Calibrated: 2012/07/19;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn861; Calibrated: 2012/08/23
- Phantom: SAM Phantom\_Front; Type: SAM V4.0; Serial: TP 1485
- Measurement SW: DASY52, Version 52.8 (3); SEMCAD X Version 14.6.7 (6848)

**Pin=250mW/Area Scan (61x61x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 14.6 W/kg

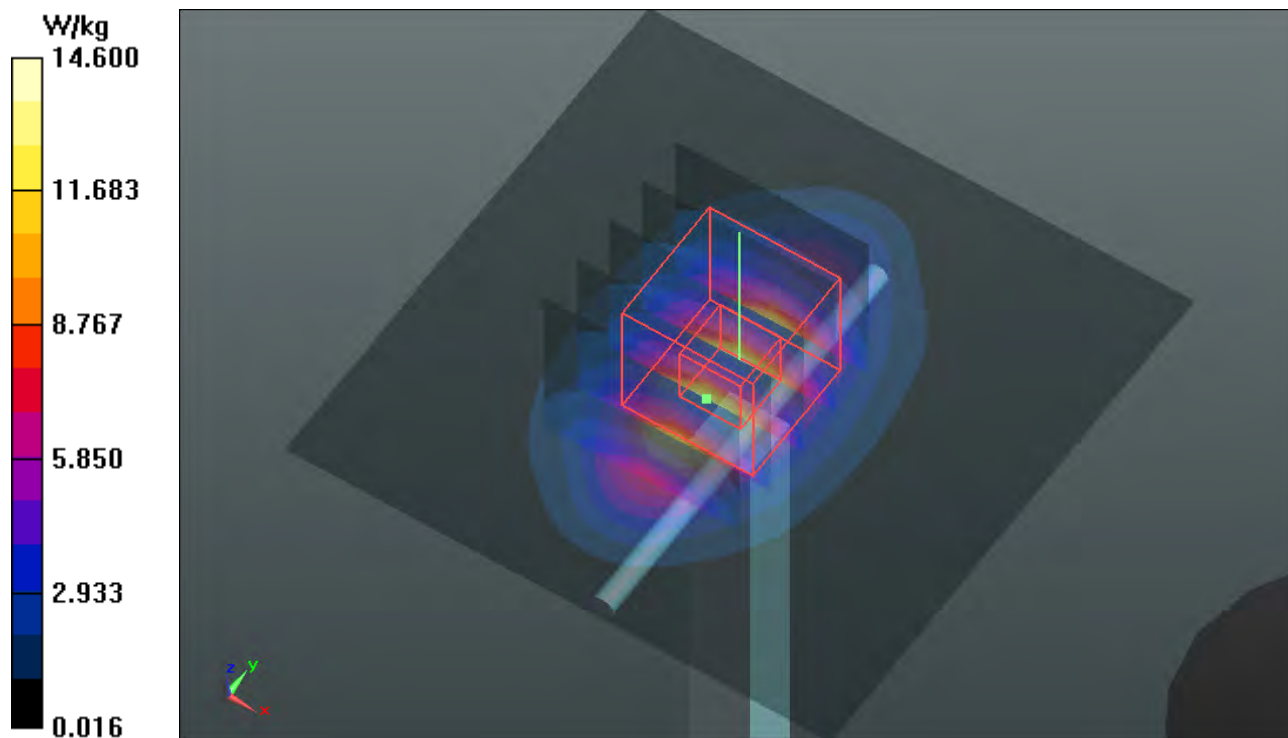
**Pin=250mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 100.8 V/m; Power Drift = 0.015 dB

Peak SAR (extrapolated) = 18.0 W/kg

**SAR(1 g) = 9.51 W/kg; SAR(10 g) = 4.85 W/kg**

Maximum value of SAR (measured) = 13.6 W/kg





**System Check\_H1900\_121204****DUT: Dipole 1900 MHz; Type: D1900V2; SN: 5d036**

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: H1900\_1426 Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.426$  mho/m;  $\epsilon_r = 40.405$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 21.6 °C; Liquid Temperature : 20.2 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3864; ConvF(8.13, 8.13, 8.13); Calibrated: 2012/07/19;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2012/04/27
- Phantom: SAM with CRP v5.0 Front; Type: QD000P40CD; Serial: TP:1653
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**Pin=250mW/Area Scan (61x61x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 14.5 W/kg

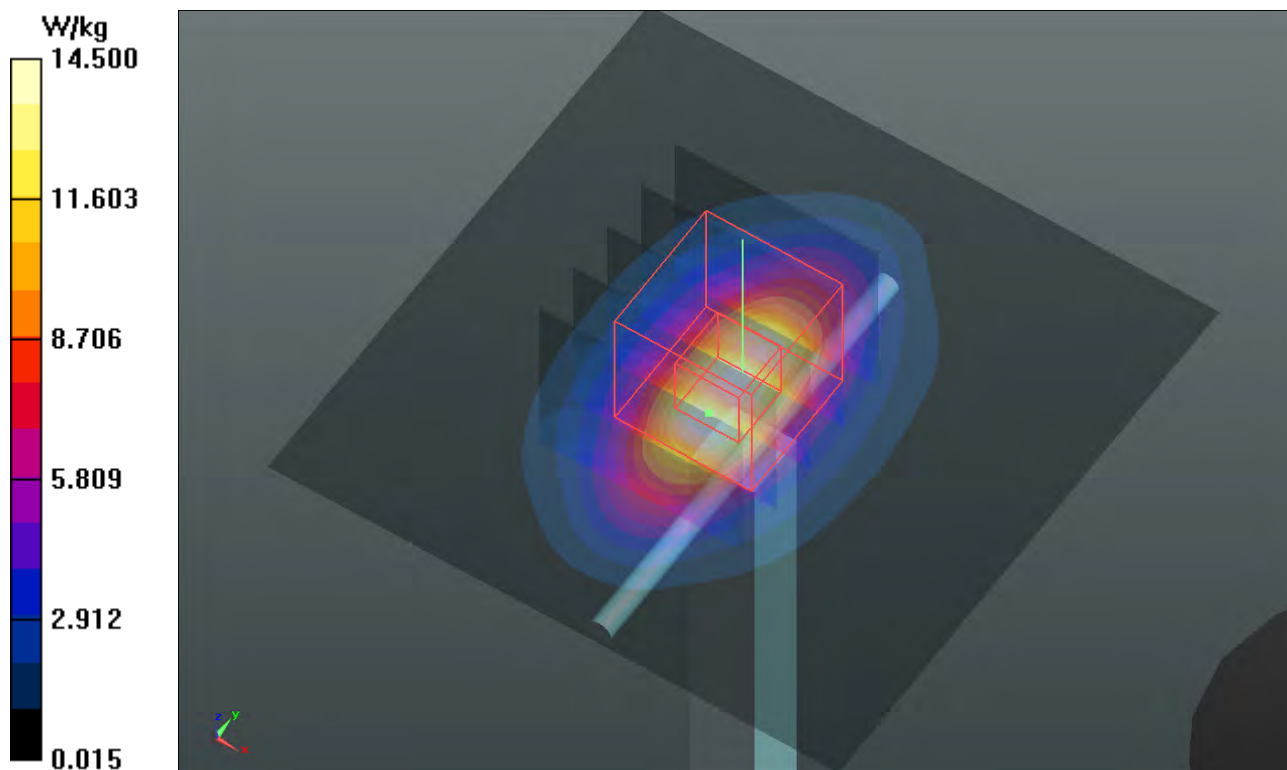
**Pin=250mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 99.797 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 17.779 mW/g

**SAR(1 g) = 9.42 mW/g; SAR(10 g) = 4.81 mW/g**

Maximum value of SAR (measured) = 13.5 W/kg



**System Check\_H2450\_121203****DUT: Dipole 2450 MHz; Type: D2450V2; SN: 737**

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: H2450\_1203 Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.865$  mho/m;  $\epsilon_r = 40.834$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 21.7 °C; Liquid Temperature : 20.9 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3864; ConvF(7.28, 7.28, 7.28); Calibrated: 2012/07/19;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn861; Calibrated: 2012/08/23
- Phantom: SAM Phantom\_Front; Type: SAM V4.0; Serial: TP 1485
- Measurement SW: DASY52, Version 52.8 (3); SEMCAD X Version 14.6.7 (6848)

**Pin=250mW/Area Scan (61x61x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 22.9 W/kg

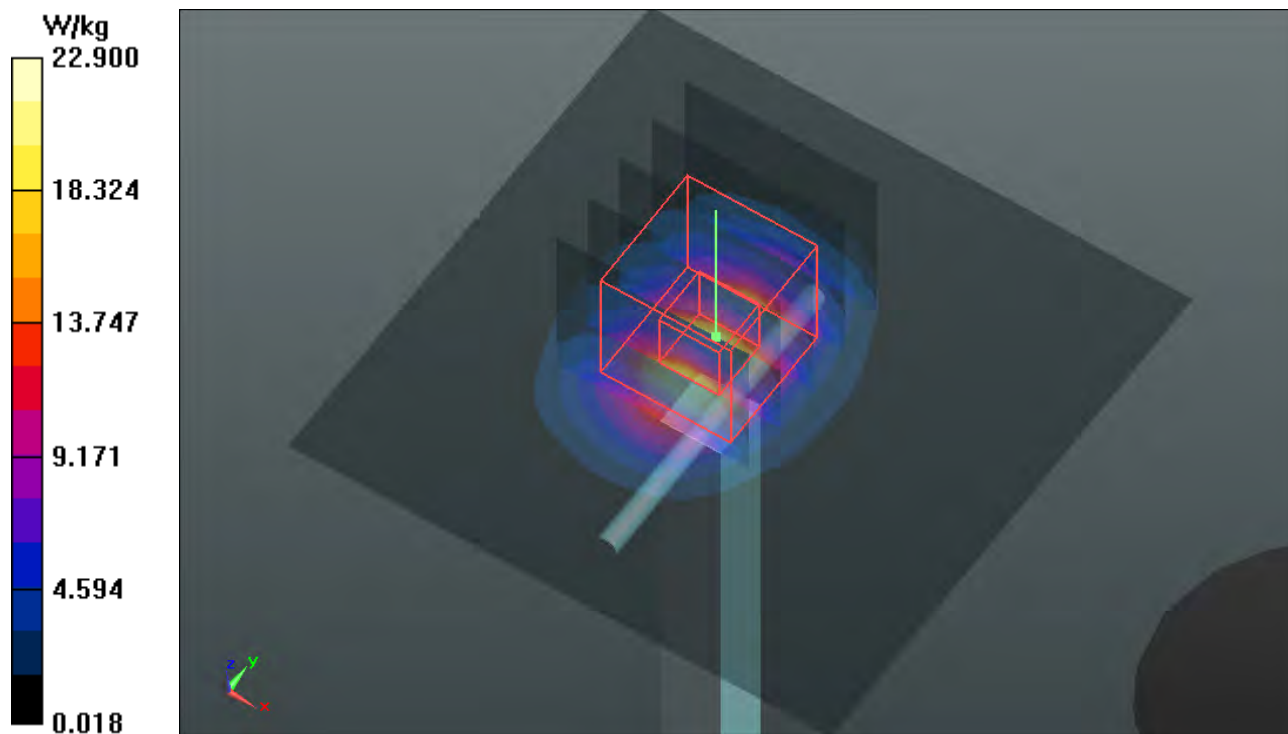
**Pin=250mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 108.7 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 29.1 W/kg

**SAR(1 g) = 13.6 W/kg; SAR(10 g) = 6.21 W/kg**

Maximum value of SAR (measured) = 21.0 W/kg





## System Check\_H2450\_121204

**DUT: Dipole 2450 MHz; Type: D2450V2; SN: 737**

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: H2450\_1204 Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.87$  mho/m;  $\epsilon_r = 40.258$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 21.6 °C ; Liquid Temperature : 20.6 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3864; ConvF(7.28, 7.28, 7.28); Calibrated: 2012/07/19;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2012/04/27
- Phantom: SAM with CRP v5.0 Front; Type: QD000P40CD; Serial: TP:1653
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**Pin=250mW/Area Scan (61x61x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 22.6 W/kg

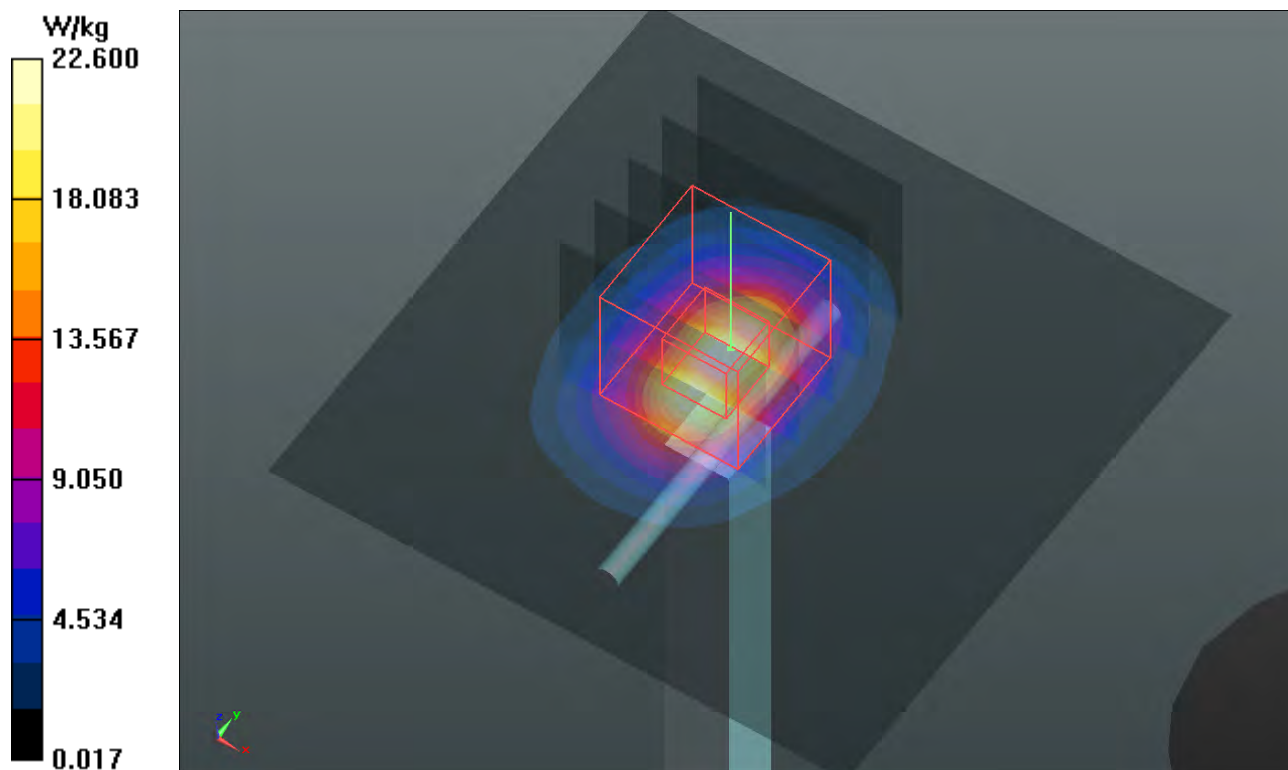
**Pin=250mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 108.1 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 28.898 mW/g

**SAR(1 g) = 13.5 mW/g; SAR(10 g) = 6.16 mW/g**

Maximum value of SAR (measured) = 20.4 W/kg



**System Check\_B835\_121023****DUT: Dipole 835 MHz; Type: D835V2; SN: 4d021**

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium: B835\_1023 Medium parameters used:  $f = 835$  MHz;  $\sigma = 0.98$  mho/m;  $\epsilon_r = 55.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 21.9 °C; Liquid Temperature : 20.9 °C

DASY4 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(8.45, 8.45, 8.45); Calibrated: 2012/06/21
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2012/07/19
- Phantom: SAM Phantom\_Front; Type: SAM V4.0; Serial: TP 1654
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Pin=250mW/Area Scan (61x61x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 3.05 mW/g

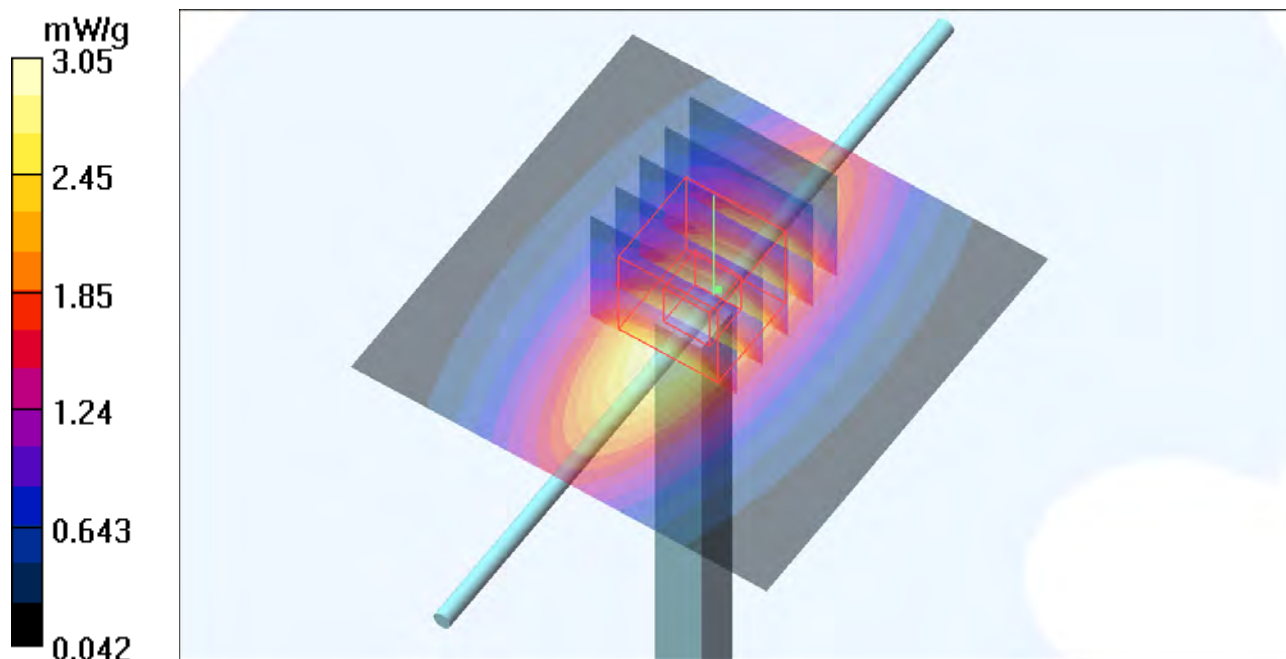
**Pin=250mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 53.8 V/m; Power Drift = -0.018 dB

Peak SAR (extrapolated) = 3.58 W/kg

**SAR(1 g) = 2.4 mW/g; SAR(10 g) = 1.58 mW/g**

Maximum value of SAR (measured) = 3.03 mW/g



**System Check\_B1900\_121023****DUT: Dipole 1900 MHz; Type: D1900V2; SN: 5d036**

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: B1900\_1023 Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.54$  mho/m;  $\epsilon_r = 52.8$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 21.8 °C; Liquid Temperature : 20.7 °C

DASY4 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(6.69, 6.69, 6.69); Calibrated: 2012/06/21
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2012/07/19
- Phantom: SAM Phantom\_Left; Type: SAM V4.0; Serial: TP 1652
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Pin=250mW/Area Scan (61x61x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 14.9 mW/g

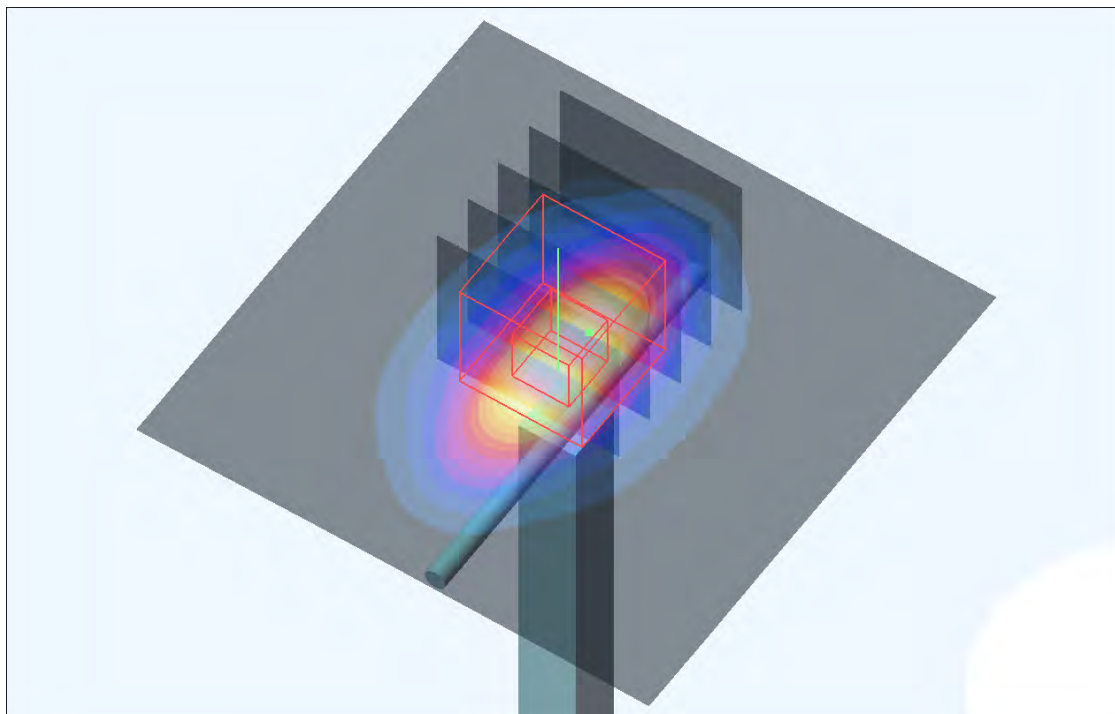
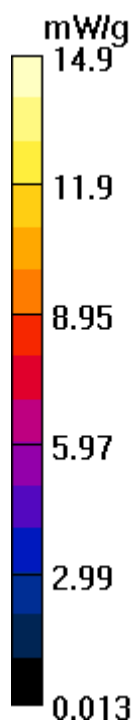
**Pin=250mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 99.4 V/m; Power Drift = -0.004 dB

Peak SAR (extrapolated) = 18.5 W/kg

**SAR(1 g) = 10.2 mW/g; SAR(10 g) = 5.25 mW/g**

Maximum value of SAR (measured) = 14.7 mW/g



**System Check\_B1900\_121031****DUT: Dipole 1900 MHz; Type: D1900V2; SN: 5d036**

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: B1900\_1031 Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.545$  mho/m;  $\epsilon_r = 51.143$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 21.4 °C ; Liquid Temperature : 20.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3590; ConvF(8.07, 8.07, 8.07); Calibrated: 2012/02/23;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn861; Calibrated: 2012/08/23
- Phantom: SAM Phantom\_Front; Type: SAM V4.0; Serial: TP 1127
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

**Pin=250mW/Area Scan (61x61x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 13.5 W/kg

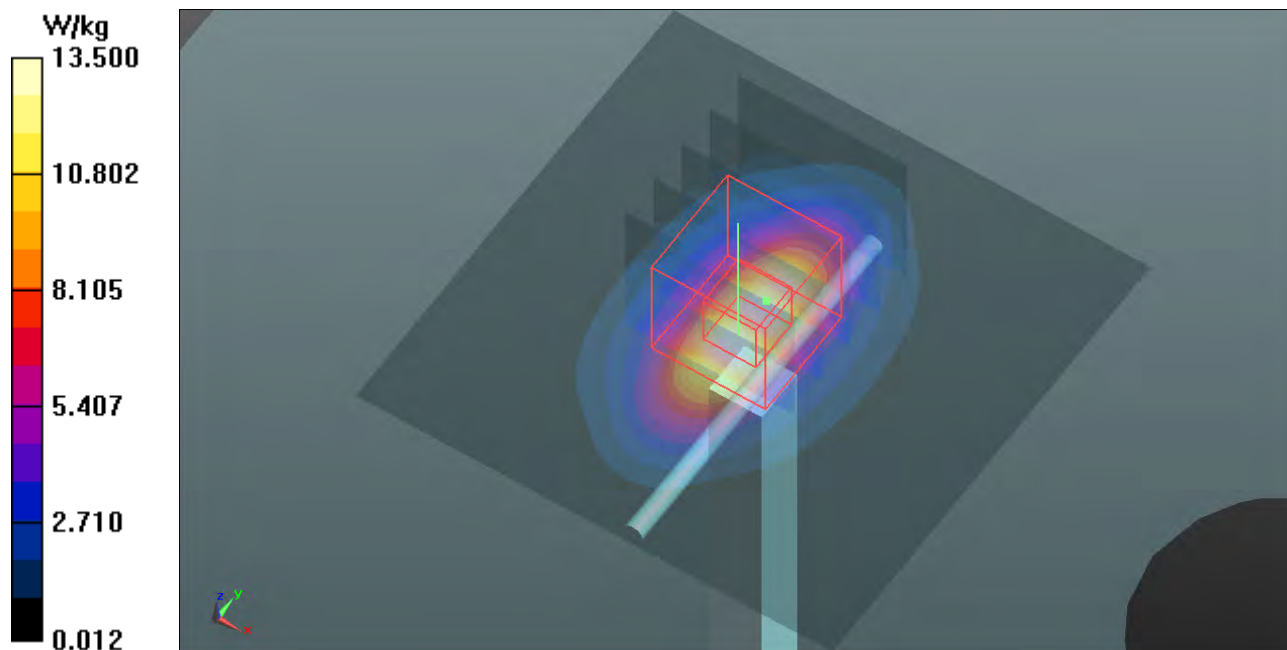
**Pin=250mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 93.909 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 16.388 mW/g

**SAR(1 g) = 9.29 mW/g; SAR(10 g) = 4.87 mW/g**

Maximum value of SAR (measured) = 13.1 W/kg



**System Check\_B2450\_121027****DUT: Dipole 2450 MHz; Type: D2450V2; SN: 737**

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: B2450\_1027 Medium parameters used:  $f = 2450$  MHz;  $\sigma = 2.03$  mho/m;  $\epsilon_r = 53$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 21.5 °C; Liquid Temperature : 20.5 °C

DASY4 Configuration:

- Probe: EX3DV4 - SN3578; ConvF(6.43, 6.43, 6.43); Calibrated: 2012/06/21
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1277; Calibrated: 2012/07/19
- Phantom: SAM Phantom\_Left; Type: SAM V4.0; Serial: TP 1652
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Pin=250mW/Area Scan (61x61x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 20.5 mW/g

**Pin=250mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 100.9 V/m; Power Drift = -0.081 dB

Peak SAR (extrapolated) = 27.0 W/kg

**SAR(1 g) = 12.9 mW/g; SAR(10 g) = 5.9 mW/g**

Maximum value of SAR (measured) = 19.3 mW/g

