



## **Appendix A. SAR Plots of System Verification**

The plots for system verification with largest deviation for each SAR system combination are shown as follows.

**System Check\_H835\_150901****DUT: Dipole 835 MHz; Type: D835V2; SN: 4d092**

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

Medium: H07T10N2\_0901 Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.911 \text{ S/m}$ ;  $\epsilon_r = 42.634$ ;  $\rho = 1000 \text{ kg/m}^3$ 

Ambient Temperature : 23.5 °C; Liquid Temperature : 23.0 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3864; ConvF(9.9, 9.9, 9.9); Calibrated: 2015/07/23;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn915; Calibrated: 2015/06/11
- Phantom: Twin SAM Phantom\_1652; Type: QD000P40;
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Pin=250mW/Area Scan (61x61x1):** Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$ 

Maximum value of SAR (interpolated) = 3.12 W/kg

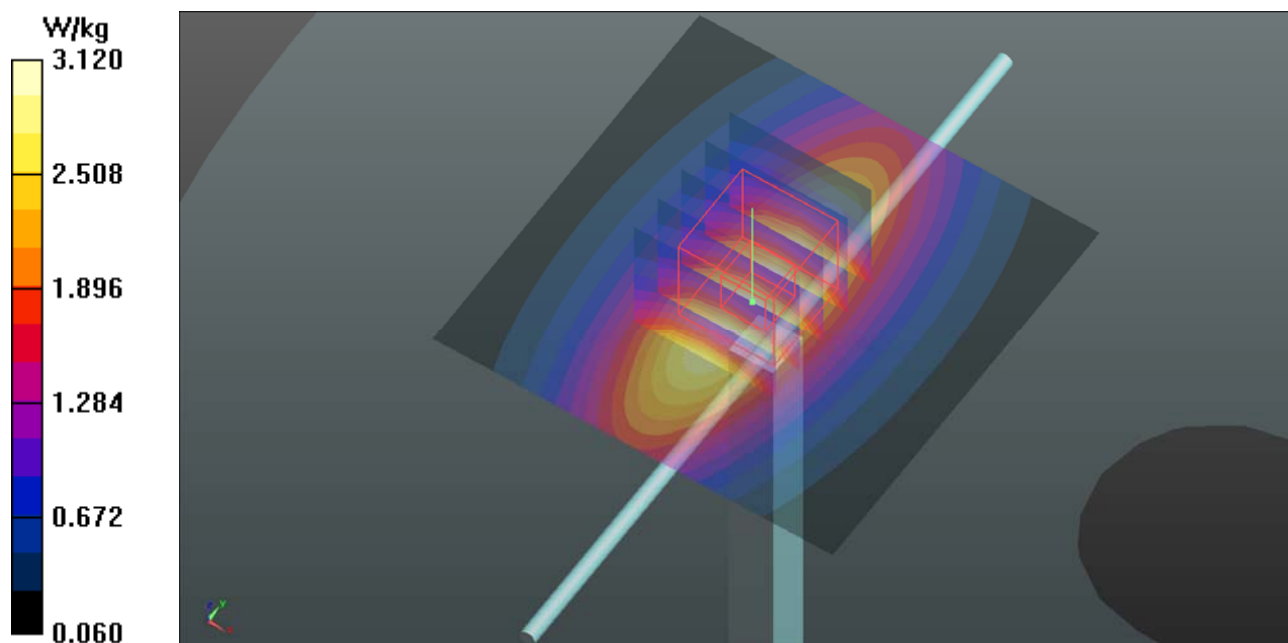
**Pin=250mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$ 

Reference Value = 59.66 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 3.63 W/kg

**SAR(1 g) = 2.45 W/kg; SAR(10 g) = 1.61 W/kg**

Maximum value of SAR (measured) = 3.10 W/kg



**System Check\_H1900\_150829****DUT: Dipole 1900 MHz; Type: D1900V2; SN: 5d036**

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

Medium: H16T20N1\_0829 Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.459$  S/m;  $\epsilon_r = 38.859$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.5 °C; Liquid Temperature : 23.1 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3864; ConvF(8.21, 8.21, 8.21); Calibrated: 2015/07/23;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn915; Calibrated: 2015/06/11
- Phantom: Twin SAM Phantom\_1653; Type: QD000P40;
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Pin=250mW/Area Scan (61x61x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 16.1 W/kg

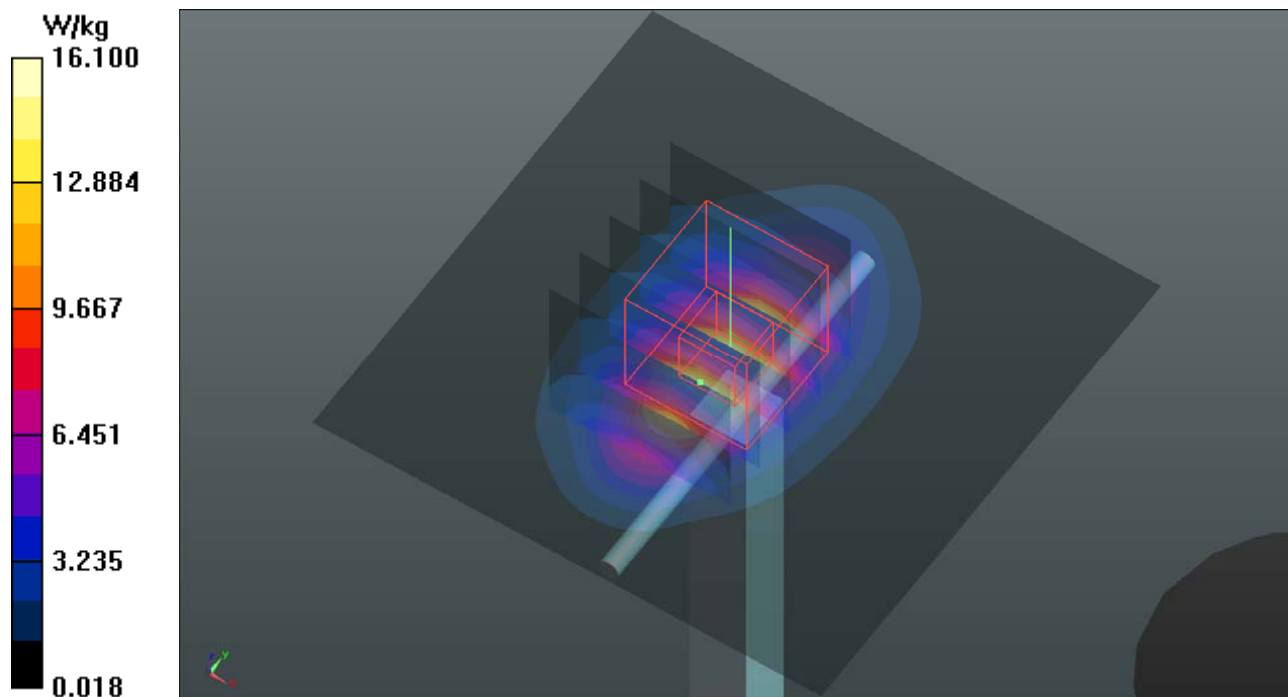
**Pin=250mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 103.0 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 19.1 W/kg

**SAR(1 g) = 10.5 W/kg; SAR(10 g) = 5.48 W/kg**

Maximum value of SAR (measured) = 14.8 W/kg



**System Check\_H2450\_150824****DUT: Dipole 2450 MHz; Type: D2450V2; SN: 835**

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

Medium: H19T27N2\_0824 Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.869$  S/m;  $\epsilon_r = 37.935$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.8°C; Liquid Temperature : 23.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3590; ConvF(7.89, 7.89, 7.89); Calibrated: 2015/02/26;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn861; Calibrated: 2015/04/28
- Phantom: Twin SAM Phantom\_1654; Type: QD000P40;
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Pin=250mW/Area Scan (81x81x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 19.0 W/kg

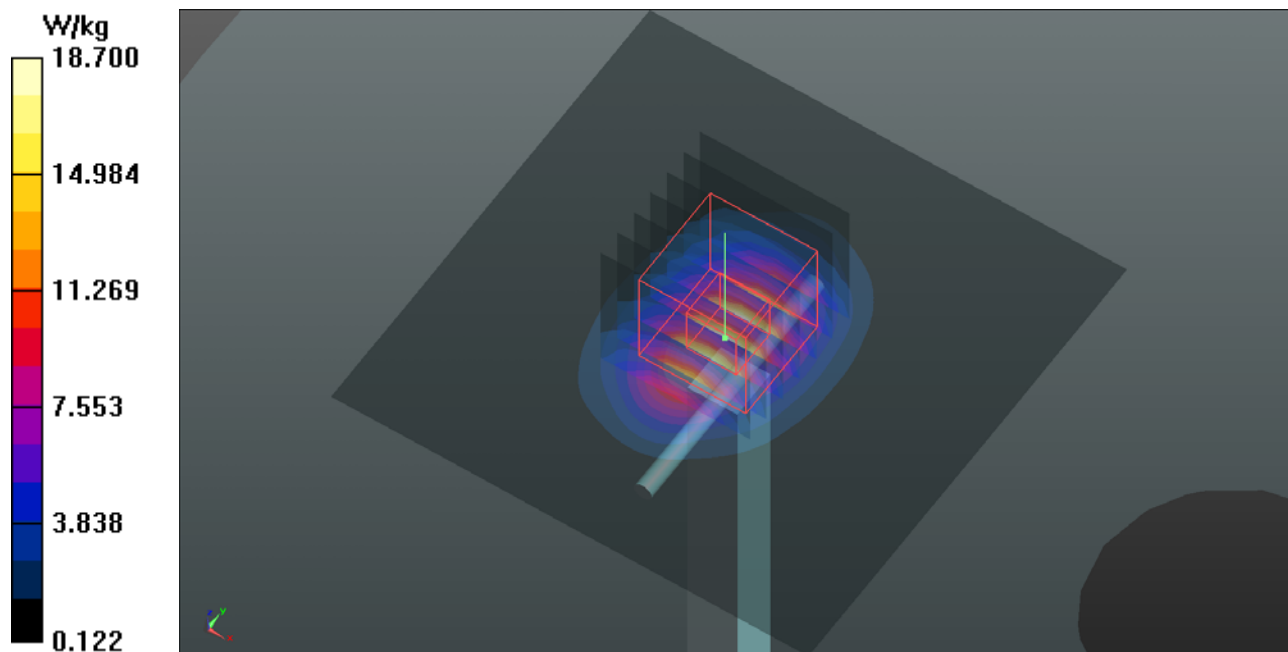
**Pin=250mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 102.1 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 25.1 W/kg

**SAR(1 g) = 12.3 W/kg; SAR(10 g) = 5.73 W/kg**

Maximum value of SAR (measured) = 18.7 W/kg



**System Check\_H2600\_150902****DUT: Dipole 2600 MHz; Type: D2600V2; SN: 1058**

Communication System: CW; Frequency: 2600 MHz; Duty Cycle: 1:1

Medium: H19T27N1\_0902 Medium parameters used:  $f = 2600$  MHz;  $\sigma = 2.045$  S/m;  $\epsilon_r = 38.308$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.5 °C; Liquid Temperature : 23.0 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3864; ConvF(7.26, 7.26, 7.26); Calibrated: 2015/07/23;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn915; Calibrated: 2015/06/11
- Phantom: Twin SAM Phantom\_1653; Type: QD000P40;
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Pin=250mW/Area Scan (81x81x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 23.7 W/kg

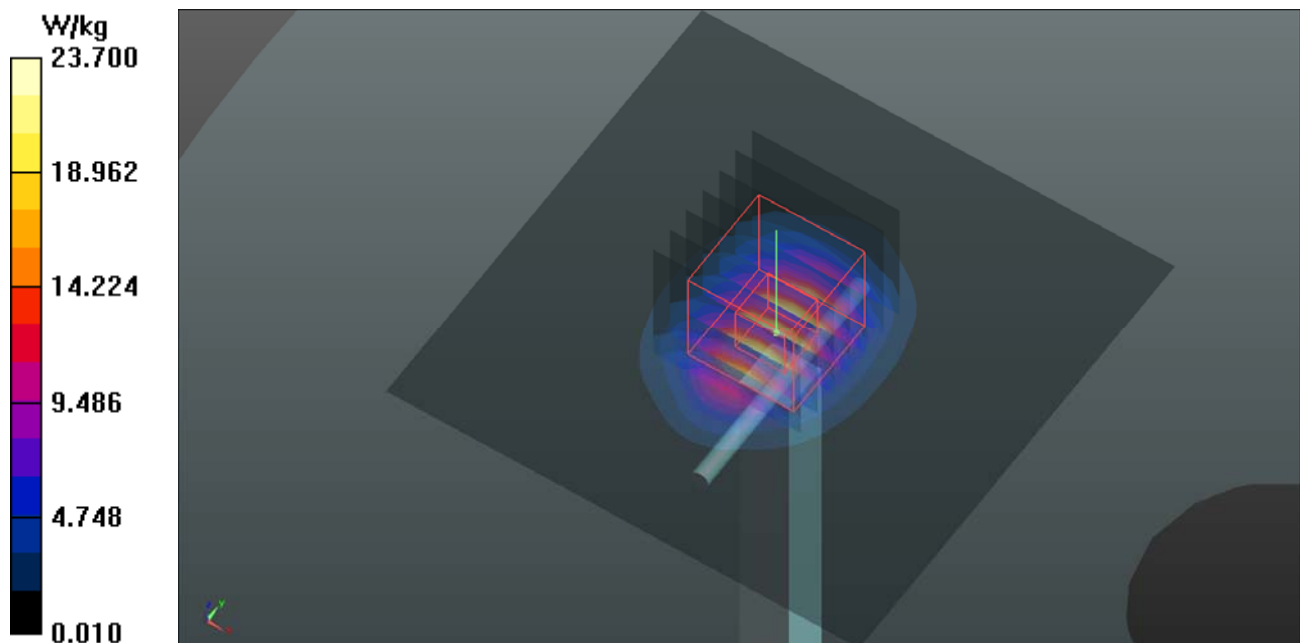
**Pin=250mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 109.6 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 32.2 W/kg

**SAR(1 g) = 15 W/kg; SAR(10 g) = 6.63 W/kg**

Maximum value of SAR (measured) = 23.5 W/kg



**System Check\_H5300\_150821****DUT: Dipole 5 GHz; Type: D5GHzV2; SN: 1040**

Communication System: CW; Frequency: 5300 MHz; Duty Cycle: 1:1

Medium: H34T60N3\_0821 Medium parameters used:  $f = 5300$  MHz;  $\sigma = 4.888$  S/m;  $\epsilon_r = 35.16$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.8°C; Liquid Temperature : 23.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3590; ConvF(5.47, 5.47, 5.47); Calibrated: 2015/02/26;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn861; Calibrated: 2015/04/28
- Phantom: Twin SAM Phantom\_1654; Type: QD000P40;
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Pin=100mW/Area Scan (91x91x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 17.1 W/kg

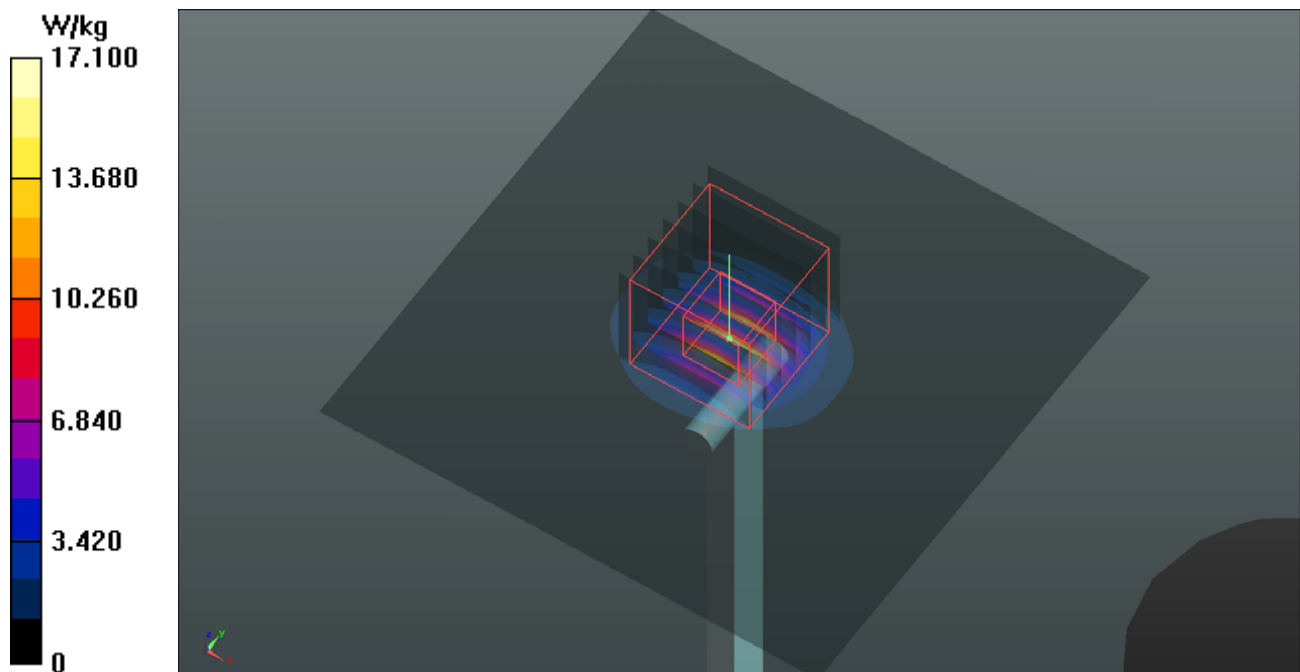
**Pin=100mW/Zoom Scan (7x7x12)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 62.75 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 35.6 W/kg

**SAR(1 g) = 8.27 W/kg; SAR(10 g) = 2.34 W/kg**

Maximum value of SAR (measured) = 17.5 W/kg



**System Check\_H5600\_150821****DUT: Dipole 5 GHz; Type: D5GHzV2; SN: 1040**

Communication System: CW; Frequency: 5600 MHz; Duty Cycle: 1:1

Medium: H34T60N3\_0821 Medium parameters used:  $f = 5600$  MHz;  $\sigma = 5.213$  S/m;  $\epsilon_r = 34.584$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.8°C; Liquid Temperature : 23.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3590; ConvF(4.72, 4.72, 4.72); Calibrated: 2015/02/26;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn861; Calibrated: 2015/04/28
- Phantom: Twin SAM Phantom\_1654; Type: QD000P40;
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Pin=100mW/Area Scan (91x91x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 17.3 W/kg

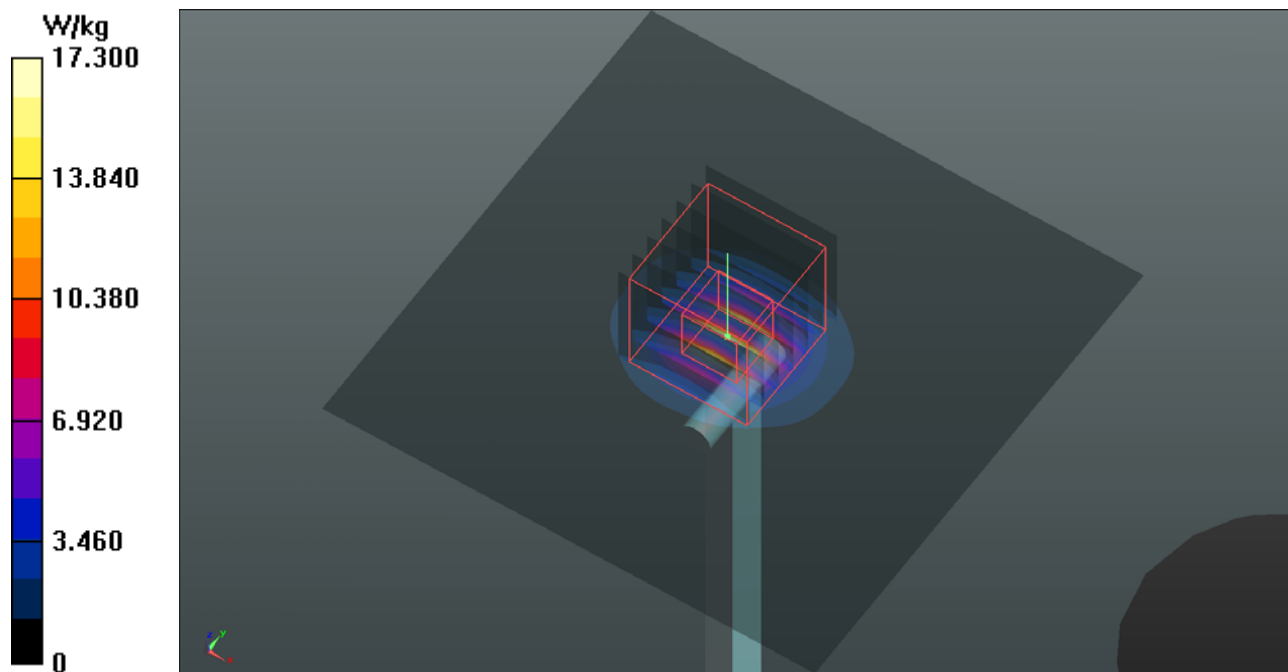
**Pin=100mW/Zoom Scan (7x7x12)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 62.34 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 36.7 W/kg

**SAR(1 g) = 8.25 W/kg; SAR(10 g) = 2.33 W/kg**

Maximum value of SAR (measured) = 17.9 W/kg



**System Check\_H5800\_150821****DUT: Dipole 5 GHz; Type: D5GHzV2; SN: 1040**

Communication System: CW; Frequency: 5800 MHz; Duty Cycle: 1:1

Medium: H34T60N3\_0821 Medium parameters used:  $f = 5800$  MHz;  $\sigma = 5.427$  S/m;  $\epsilon_r = 34.282$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.8°C; Liquid Temperature : 23.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3590; ConvF(4.97, 4.97, 4.97); Calibrated: 2015/02/26;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn861; Calibrated: 2015/04/28
- Phantom: Twin SAM Phantom\_1654; Type: QD000P40;
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Pin=100mW/Area Scan (91x91x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 15.9 W/kg

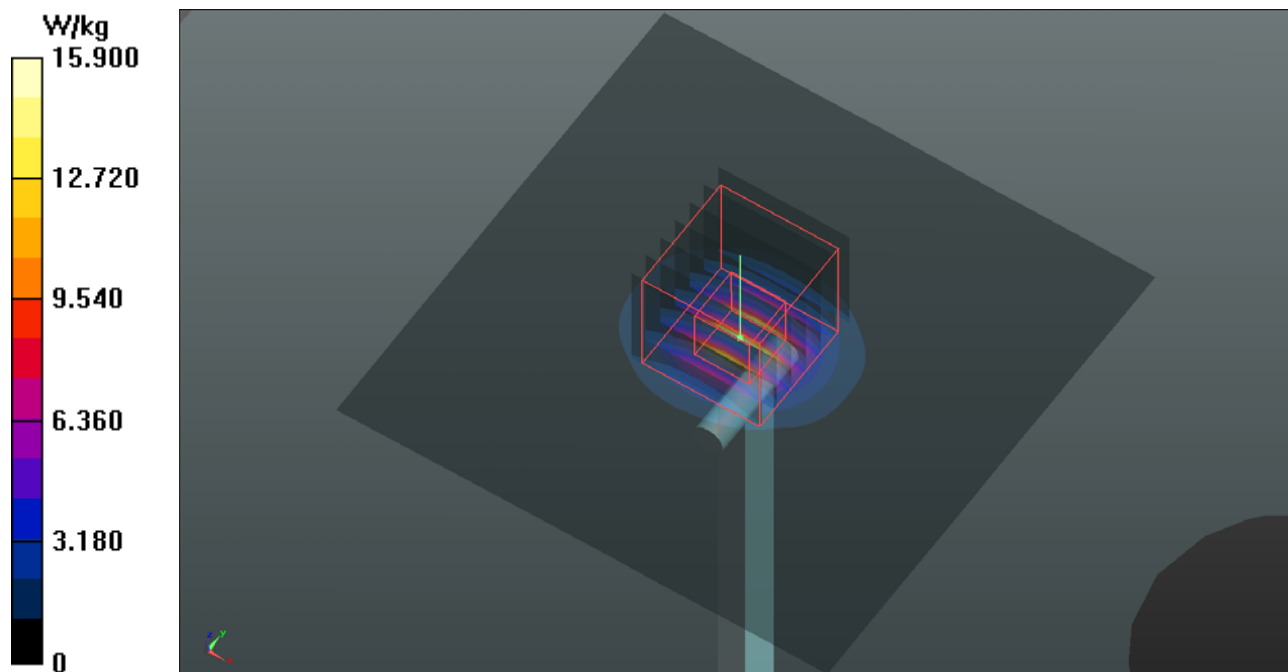
**Pin=100mW/Zoom Scan (7x7x12)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 59.15 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 33.1 W/kg

**SAR(1 g) = 7.6 W/kg; SAR(10 g) = 2.15 W/kg**

Maximum value of SAR (measured) = 16.3 W/kg



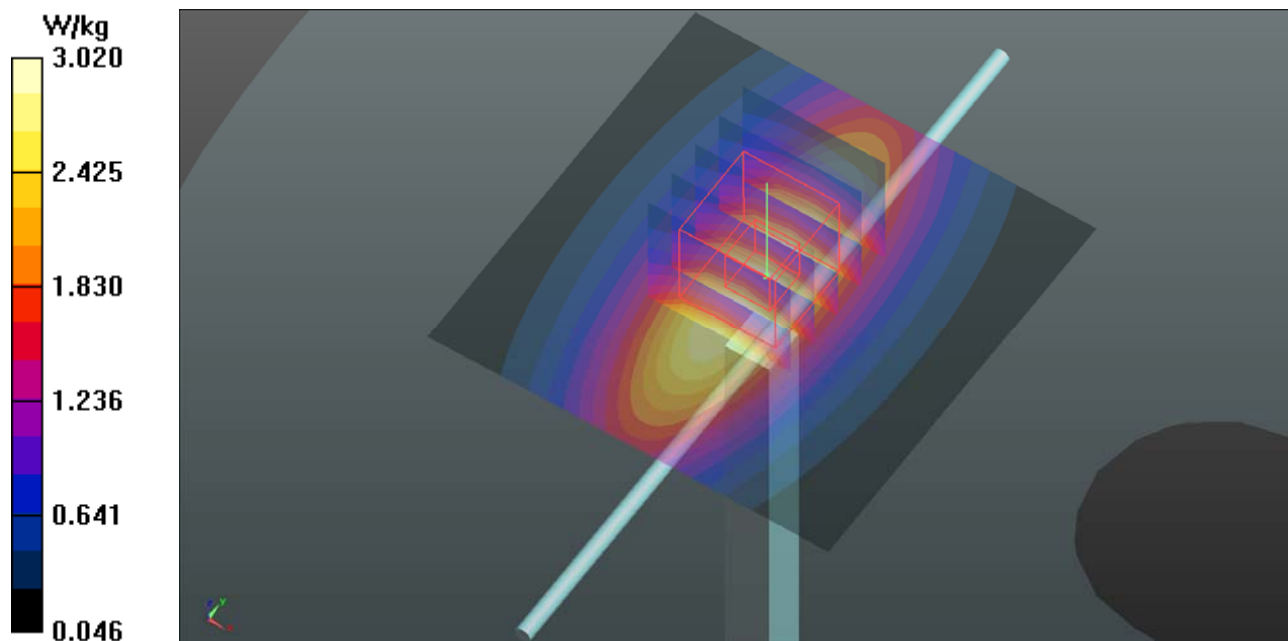
**System Check\_B835\_150905****DUT: Dipole 835 MHz; Type: D835V2; SN: 4d092**

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

Medium: B07T10N2\_0905 Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 1.017 \text{ S/m}$ ;  $\epsilon_r = 54.443$ ;  $\rho = 1000 \text{ kg/m}^3$ Ambient Temperature :  $23.5^\circ\text{C}$ ; Liquid Temperature :  $23.0^\circ\text{C}$ 

DASY5 Configuration:

- Probe: EX3DV4 - SN3864; ConvF(9.83, 9.83, 9.83); Calibrated: 2015/07/23;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn915; Calibrated: 2015/06/11
- Phantom: Twin SAM Phantom\_1652; Type: QD000P40;
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Pin=250mW/Area Scan (61x61x1):** Interpolated grid:  $dx=1.500 \text{ mm}$ ,  $dy=1.500 \text{ mm}$ Maximum value of SAR (interpolated) =  $3.02 \text{ W/kg}$ **Pin=250mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$ Reference Value =  $52.04 \text{ V/m}$ ; Power Drift =  $0.01 \text{ dB}$ Peak SAR (extrapolated) =  $3.58 \text{ W/kg}$ **SAR(1 g) =  $2.37 \text{ W/kg}$ ; SAR(10 g) =  $1.56 \text{ W/kg}$** Maximum value of SAR (measured) =  $3.00 \text{ W/kg}$ 

**System Check\_B1900\_150905****DUT: Dipole 1900 MHz; Type: D1900V2; SN: 5d036**

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

Medium: B16T20N1\_0905 Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.578$  S/m;  $\epsilon_r = 51.891$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.6 °C; Liquid Temperature : 23.1 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3864; ConvF(7.88, 7.88, 7.88); Calibrated: 2015/07/23;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn915; Calibrated: 2015/06/11
- Phantom: Twin SAM Phantom\_1653; Type: QD000P40;
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Pin=250mW/Area Scan (61x61x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 15.2 W/kg

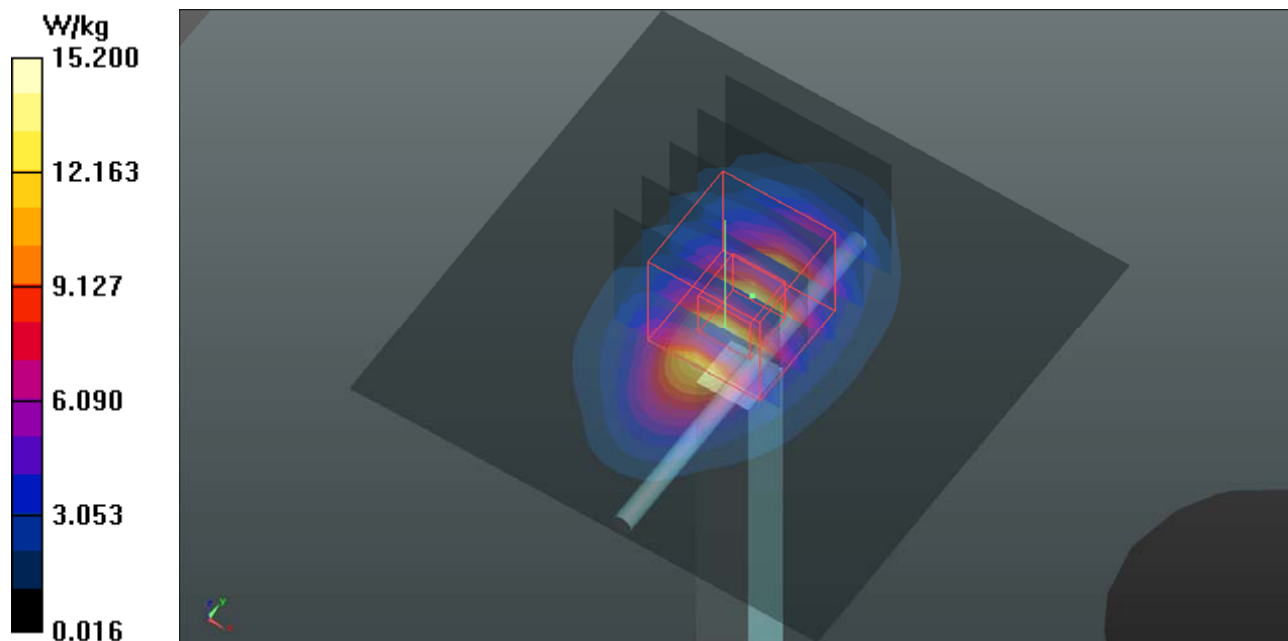
**Pin=250mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 96.70 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 18.3 W/kg

**SAR(1 g) = 10.1 W/kg; SAR(10 g) = 5.24 W/kg**

Maximum value of SAR (measured) = 14.2 W/kg



**System Check\_B2450\_150821****DUT: Dipole 2450 MHz; Type: D2450V2; SN: 835**

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

Medium: B19T27N3\_0821 Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.997$  S/m;  $\epsilon_r = 51.222$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.8°C; Liquid Temperature : 23.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3590; ConvF(7.78, 7.78, 7.78); Calibrated: 2015/02/26;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn861; Calibrated: 2015/04/28
- Phantom: Twin SAM Phantom\_1654; Type: QD000P40;
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Pin=250mW/Area Scan (81x81x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 19.1 W/kg

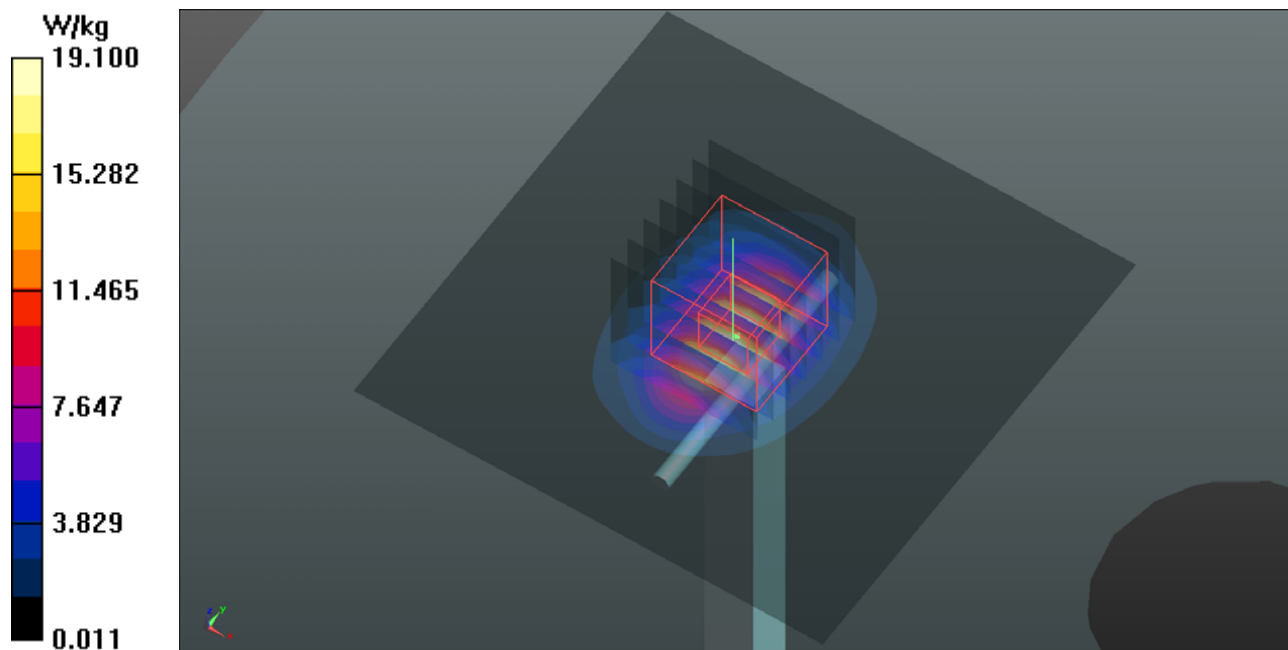
**Pin=250mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 97.94 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 26.1 W/kg

**SAR(1 g) = 12.3 W/kg; SAR(10 g) = 5.67 W/kg**

Maximum value of SAR (measured) = 19.0 W/kg



**System Check\_B2600\_150905****DUT: Dipole 2600 MHz; Type: D2600V2; SN: 1058**

Communication System: CW; Frequency: 2600 MHz; Duty Cycle: 1:1

Medium: B19T27N3\_0905 Medium parameters used:  $f = 2600$  MHz;  $\sigma = 2.19$  S/m;  $\epsilon_r = 50.373$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.7 °C; Liquid Temperature : 23.2 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3864; ConvF(7.19, 7.19, 7.19); Calibrated: 2015/07/23;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn915; Calibrated: 2015/06/11
- Phantom: Twin SAM Phantom\_1652; Type: QD000P40;
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Pin=250mW/Area Scan (81x81x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 22.2 W/kg

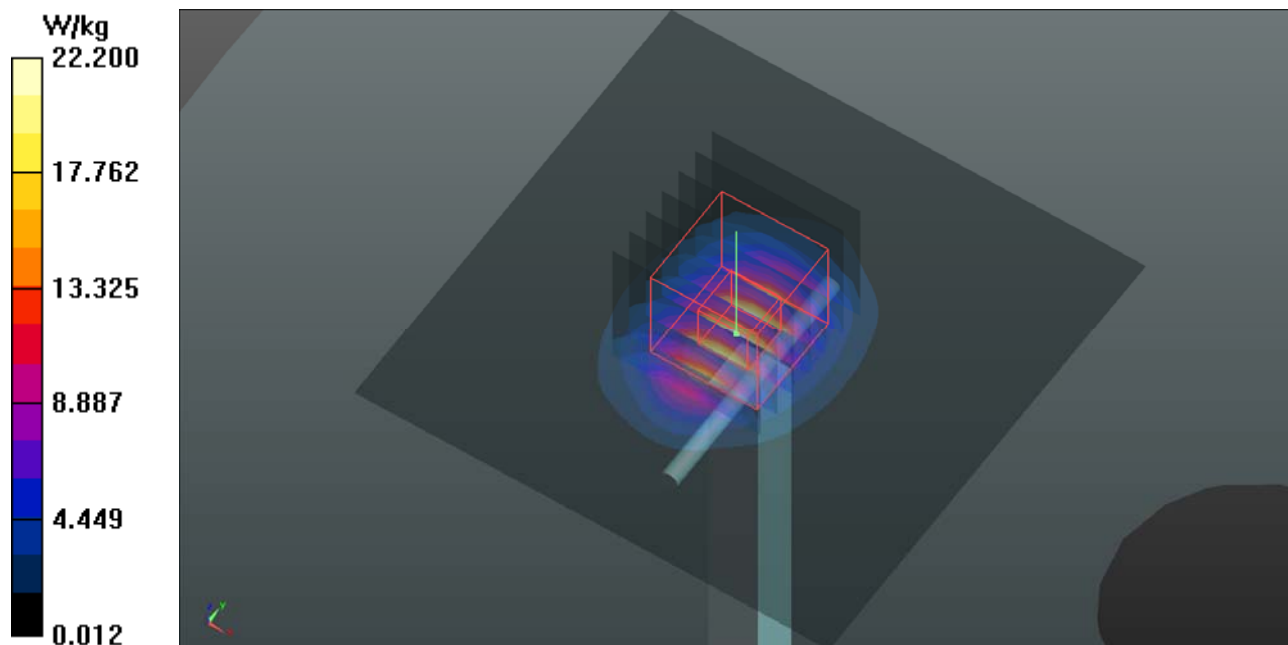
**Pin=250mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 99.67 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 31.1 W/kg

**SAR(1 g) = 14.1 W/kg; SAR(10 g) = 6.25 W/kg**

Maximum value of SAR (measured) = 22.3 W/kg



**System Check\_B5300\_150821****DUT: Dipole 5 GHz; Type: D5GHzV2; SN: 1040**

Communication System: CW; Frequency: 5300 MHz; Duty Cycle: 1:1

Medium: B34T60N3\_0821 Medium parameters used:  $f = 5300$  MHz;  $\sigma = 5.507$  S/m;  $\epsilon_r = 47.625$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.8°C; Liquid Temperature : 23.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3590; ConvF(4.82, 4.82, 4.82); Calibrated: 2015/02/26;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn861; Calibrated: 2015/04/28
- Phantom: Twin SAM Phantom\_1202; Type: QD000P40;
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Pin=100mW/Area Scan (91x91x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 15.8 W/kg

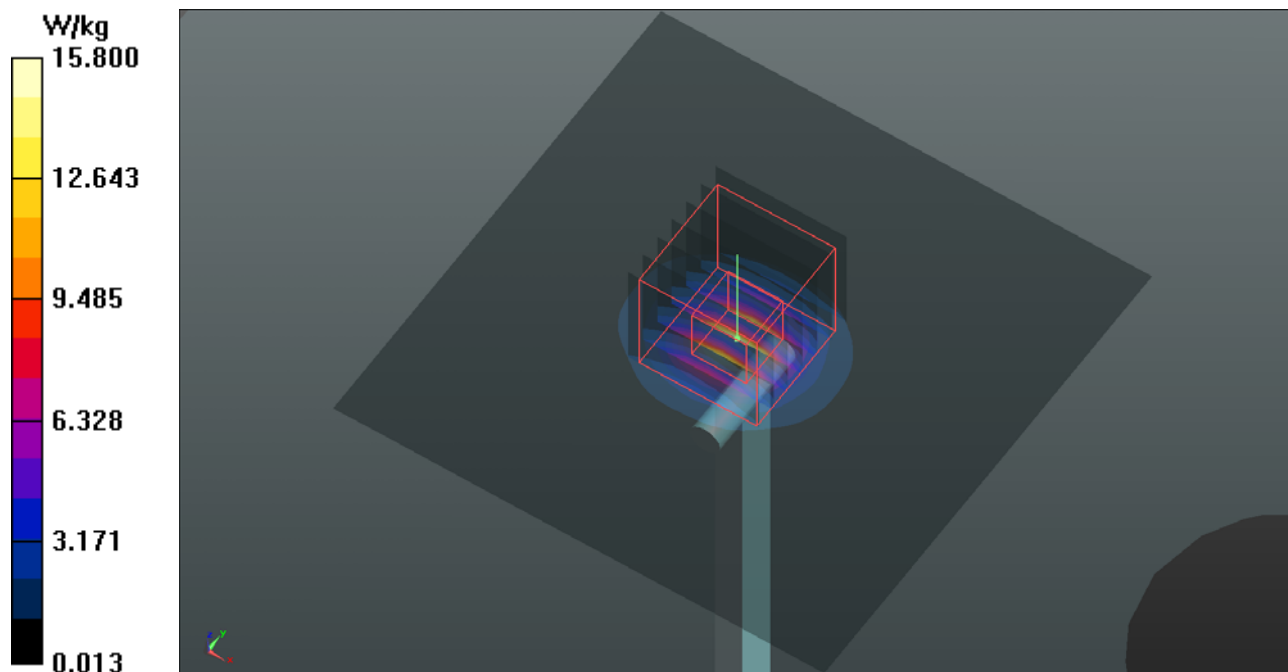
**Pin=100mW/Zoom Scan (7x7x12)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 58.29 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 29.6 W/kg

**SAR(1 g) = 7.47 W/kg; SAR(10 g) = 2.12 W/kg**

Maximum value of SAR (measured) = 15.5 W/kg



**System Check\_B5600\_150821****DUT: Dipole 5 GHz; Type: D5GHzV2; SN: 1040**

Communication System: CW; Frequency: 5600 MHz; Duty Cycle: 1:1

Medium: B34T60N3\_0821 Medium parameters used:  $f = 5600$  MHz;  $\sigma = 5.947$  S/m;  $\epsilon_r = 47.073$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.8°C; Liquid Temperature : 23.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3590; ConvF(4.41, 4.41, 4.41); Calibrated: 2015/02/26;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn861; Calibrated: 2015/04/28
- Phantom: Twin SAM Phantom\_1202; Type: QD000P40;
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Pin=100mW/Area Scan (91x91x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 16.3 W/kg

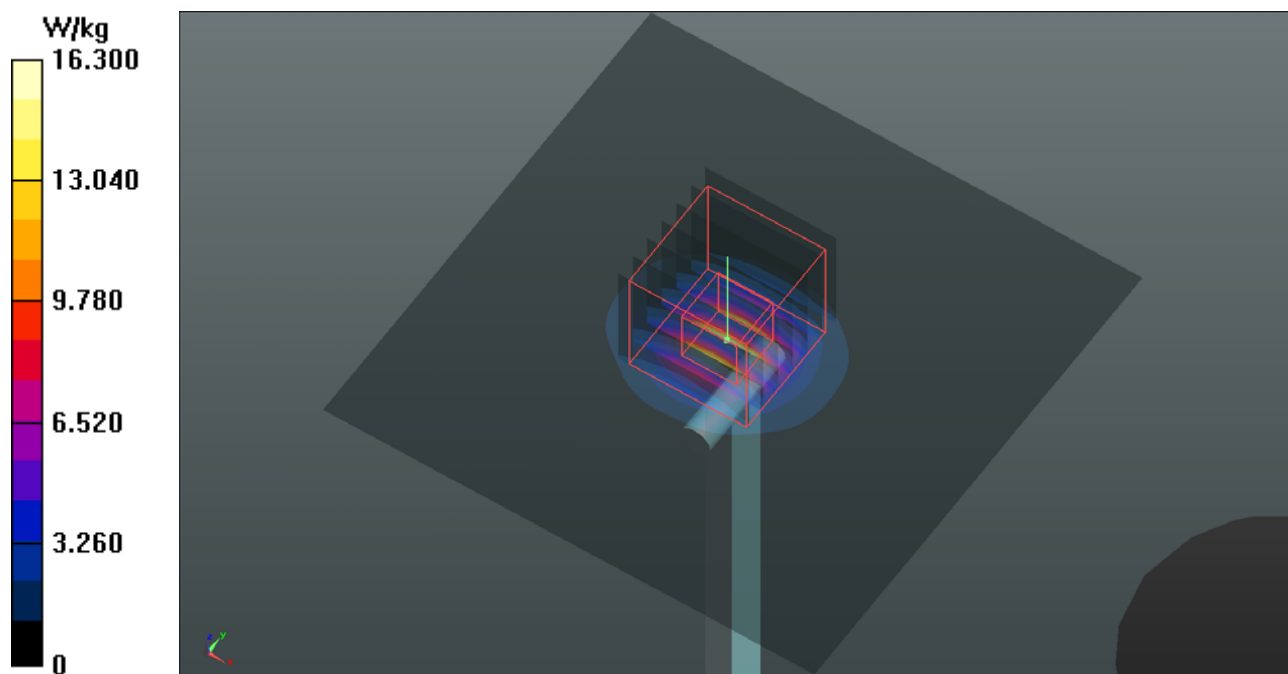
**Pin=100mW/Zoom Scan (7x7x12)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 59.95 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 30.7 W/kg

**SAR(1 g) = 7.94 W/kg; SAR(10 g) = 2.25 W/kg**

Maximum value of SAR (measured) = 16.6 W/kg



**System Check\_B5800\_150821****DUT: Dipole 5 GHz; Type: D5GHzV2; SN: 1040**

Communication System: CW; Frequency: 5800 MHz; Duty Cycle: 1:1

Medium: B34T60N3\_0821 Medium parameters used:  $f = 5800$  MHz;  $\sigma = 6.239$  S/m;  $\epsilon_r = 46.673$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature : 23.8°C; Liquid Temperature : 23.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3590; ConvF(4.63, 4.63, 4.63); Calibrated: 2015/02/26;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn861; Calibrated: 2015/04/28
- Phantom: Twin SAM Phantom\_1202; Type: QD000P40;
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Pin=100mW/Area Scan (91x91x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 15.5 W/kg

**Pin=100mW/Zoom Scan (7x7x12)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 55.68 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 29.9 W/kg

**SAR(1 g) = 7.31 W/kg; SAR(10 g) = 2.09 W/kg**

Maximum value of SAR (measured) = 15.7 W/kg

