

**APPENDIX B: SYSTEM VERIFICATION**

# ELEMENT

**DUT: Dipole 2450.0 MHz; Type: D2450V2 - SN855**

Communication System: UID: 0, CW; Frequency: 2450.0 MHz

Medium: 2450 Head; Medium parameters used:

$f = 2450.0$  MHz;  $\text{cond} = 1.84$  S/m;  $\text{perm} = 38.6$ ;  $\text{density} = 1000$  kg/m<sup>3</sup>

Phantom Section: Flat; Space: 10 mm

Test Date: 8/13/2024; Ambient Temp: 22.5°C; Tissue Temp: 22.5°C

Probe: EX3DV4 - SN7499; ConvF:(7.13,7.46,7.69); Calibrated: 2024-01-16

Sensor-Surface: 1.4mm (VMS + 6p)

Electronics: DAE4 Sn1644; Calibrated: 2023-12-07

Phantom: Twin-SAM V8.0; Serial: 1357

Measurement SW: DASY Module SAR V16.2.4.2524

## 2450.0 MHz System Verification at 20.0 dBm (100 mW)

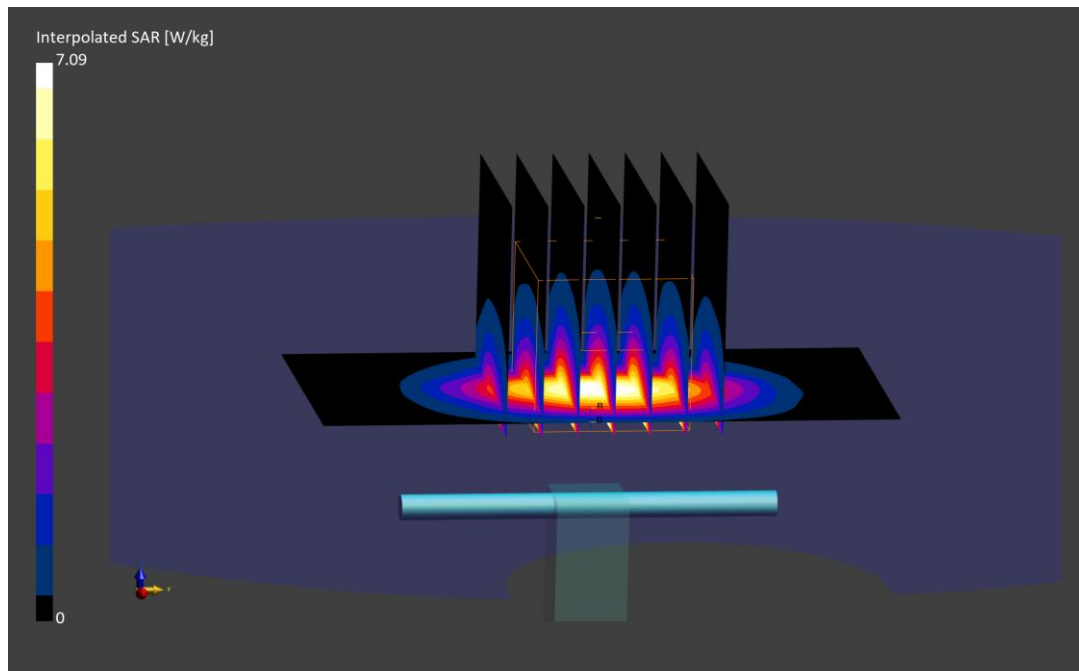
**Area Scan (40.0 x 80.0):** Measurement grid:  $dx=10.0$  mm,  $dy=10.0$  mm

**Zoom Scan (30.0 x 30.0 x 30.0):** Measurement grid:  $dx=5.0$  mm,  $dy=5.0$  mm,  $dz=1.5$  mm; Graded Ratio: 1.5

Peak SAR (extrapolated) = 11.9 W/kg

**SAR(1 g) = 5.29 W/kg; SAR(10 g) = 2.35 W/kg**

Deviation (1 g) = 0.95%; Deviation (10 g) = -4.47%



# ELEMENT

**DUT: Dipole 2450.0 MHz; Type: D2450V2 - SN750**

Communication System: UID: 0, CW; Frequency: 2450.0 MHz

Medium: 2450 Head; Medium parameters used:

$f = 2450.0$  MHz;  $\text{cond} = 1.86$  S/m;  $\text{perm} = 38.8$ ;  $\text{density} = 1000$  kg/m<sup>3</sup>

Phantom Section: Flat; Space: 10 mm

Test Date: 08/19/2024; Ambient Temp: 20.1°C; Tissue Temp: 24.0°C

Probe: EX3DV4 - SN7499; ConvF:(7.13,7.46,7.69); Calibrated: 2024-01-16

Sensor-Surface: 1.4mm (VMS + 6p)

Electronics: DAE4 Sn1644; Calibrated: 2023-12-07

Phantom: Twin-SAM V8.0; Serial: 1357

Measurement SW: DASY Module SAR V16.2.4.2524

## 2450.0 MHz System Verification at 20.0 dBm (100 mW)

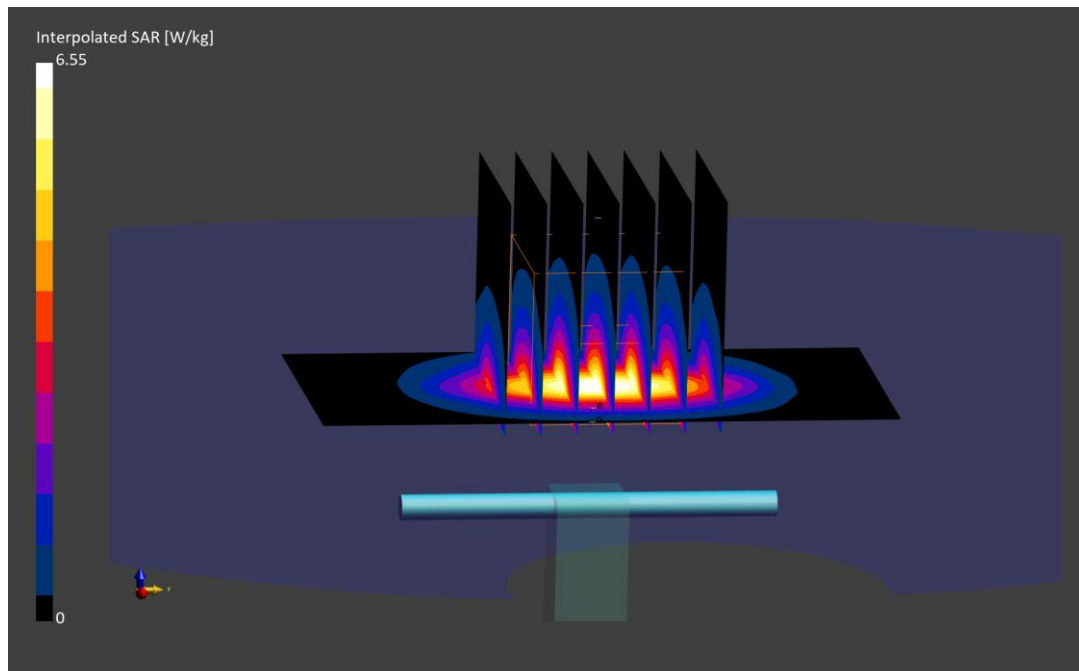
**Area Scan (40.0 x 80.0):** Measurement grid:  $dx=10.0$  mm,  $dy=10.0$  mm

**Zoom Scan (30.0 x 30.0 x 30.0):** Measurement grid:  $dx=5.0$  mm,  $dy=5.0$  mm,  $dz=1.5$  mm; Graded Ratio: 1.5

Peak SAR (extrapolated) = 11.1 W/kg

**SAR(1 g) = 5.06 W/kg; SAR(10 g) = 2.28 W/kg**

Deviation (1 g) = -3.80%; Deviation (10 g) = -6.94%



# ELEMENT

**DUT: Dipole 5250.0 MHz; Type: D5GHzV2 - SN1163**

Communication System: UID: 0, CW; Frequency: 5250.0 MHz

Medium: 5200-5800 Head; Medium parameters used:

f = 5250.0 MHz; cond = 4.50 S/m; perm = 35.2; density = 1000 kg/m<sup>3</sup>

Phantom Section: Flat; Space: 10 mm

Test Date: 07/24/2024; Ambient Temp: 21.5°C; Tissue Temp: 21.4°C

Probe: EX3DV4 - SN3746; ConvF:(5.12,5.12,5.12); Calibrated: 2023-10-16

Sensor-Surface: 1.4mm (VMS + 6p)

Electronics: DAE4 Sn1237; Calibrated: 2023-10-18

Phantom: Twin-SAM V8.0; Serial: 2027

Measurement SW: DASY Module SAR V16.2.4.2524

## 5250.0 MHz System Verification at 17.0 dBm (50 mW)

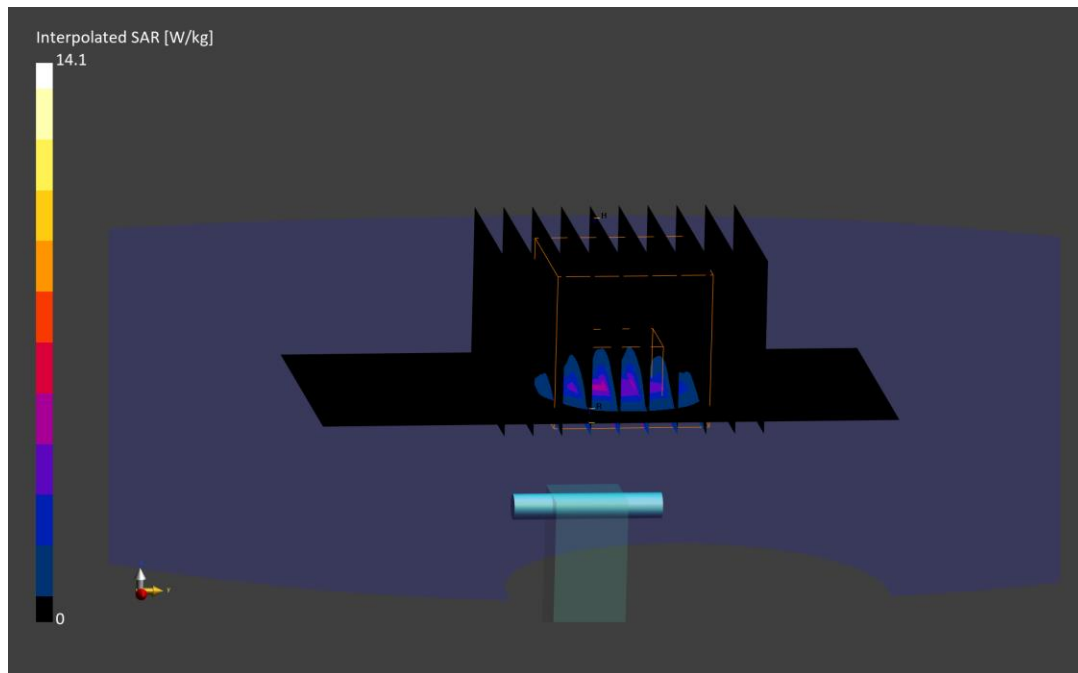
**Area Scan (40.0 x 80.0):** Measurement grid: dx=10.0 mm, dy=10.0 mm

**Zoom Scan (22.0 x 22.0 x 22.0):** Measurement grid: dx=4.0 mm, dy=4.0 mm, dz=1.4 mm; Graded Ratio: 1.4

Peak SAR (extrapolated) = 14.1 W/kg

**SAR(1 g) = 3.68 W/kg; SAR(10 g) = 1.05 W/kg**

Deviation (1 g) = -7.54%; Deviation (10 g) = -7.08%



# ELEMENT

**DUT: Dipole 5250.0 MHz; Type: D5GHzV2 - SN1123**

Communication System: UID: 0, CW; Frequency: 5250.0 MHz

Medium: 5200-5800 Head; Medium parameters used:

f = 5250.0 MHz; cond = 4.52 S/m; perm = 36.5; density = 1000 kg/m<sup>3</sup>

Phantom Section: Flat; Space: 10 mm

Test Date: 07/29/2024; Ambient Temp: 21.7°C; Tissue Temp: 20.0°C

Probe: EX3DV4 - SN3746; ConvF:(5.12,5.12,5.12); Calibrated: 2023-10-16

Sensor-Surface: 1.4mm (VMS + 6p)

Electronics: DAE4 Sn1237; Calibrated: 2023-10-18

Phantom: Twin-SAM V8.0; Serial: 2027

Measurement SW: DASY Module SAR V16.2.4.2524

## 5250.0 MHz System Verification at 17.0 dBm (50 mW)

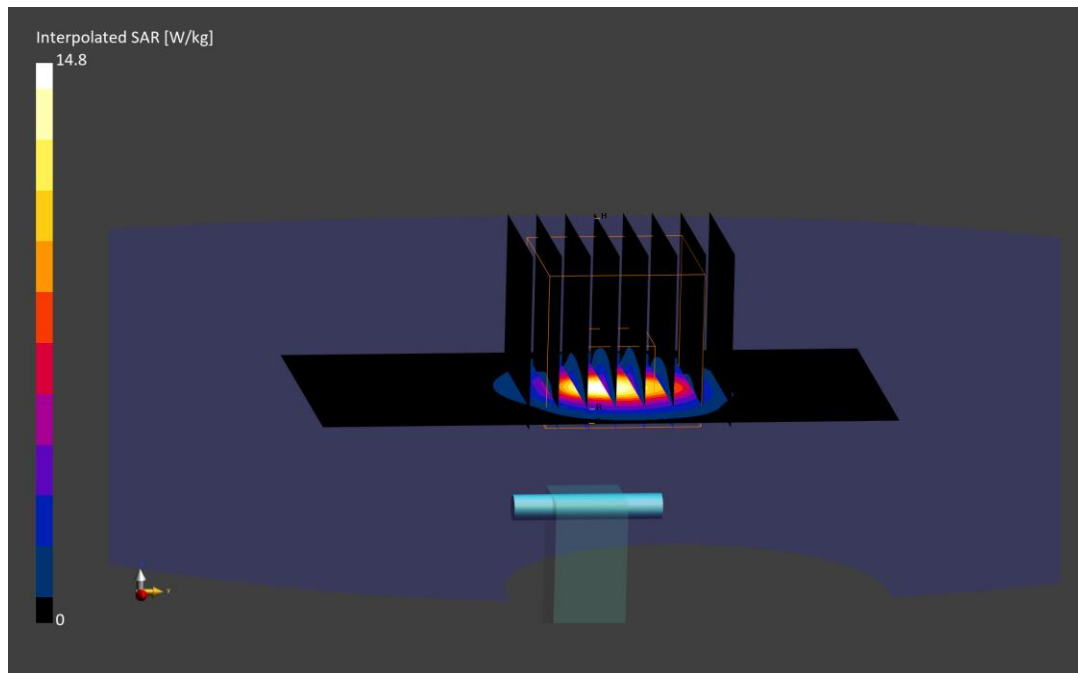
**Area Scan (40.0 x 80.0):** Measurement grid: dx=10.0 mm, dy=10.0 mm

**Zoom Scan (22.0 x 22.0 x 22.0):** Measurement grid: dx=4.0 mm, dy=4.0 mm, dz=1.4 mm; Graded Ratio: 1.4

Peak SAR (extrapolated) = 14.8 W/kg

**SAR(1 g) = 3.85 W/kg; SAR(10 g) = 1.09 W/kg**

Deviation (1 g) = -3.02%; Deviation (10 g) = -4.39%



# ELEMENT

**DUT: Dipole 5600.0 MHz; Type: D5GHzV2 - SN1123**

Communication System: UID: 0, CW; Frequency: 5600.0 MHz

Medium: 5200-5800 Head; Medium parameters used:

f = 5600.0 MHz; cond = 4.85 S/m; perm = 34.6; density = 1000 kg/m<sup>3</sup>

Phantom Section: Flat; Space: 10 mm

Test Date: 07/24/2024; Ambient Temp: 21.5°C; Tissue Temp: 21.4°C

Probe: EX3DV4 - SN3746; ConvF:(4.45,4.45,4.45); Calibrated: 2023-10-16

Sensor-Surface: 1.4mm (VMS + 6p)

Electronics: DAE4 Sn1237; Calibrated: 2023-10-18

Phantom: Twin-SAM V8.0; Serial: 2027

Measurement SW: DASY Module SAR V16.2.4.2524

## 5600.0 MHz System Verification at 17.0 dBm (50 mW)

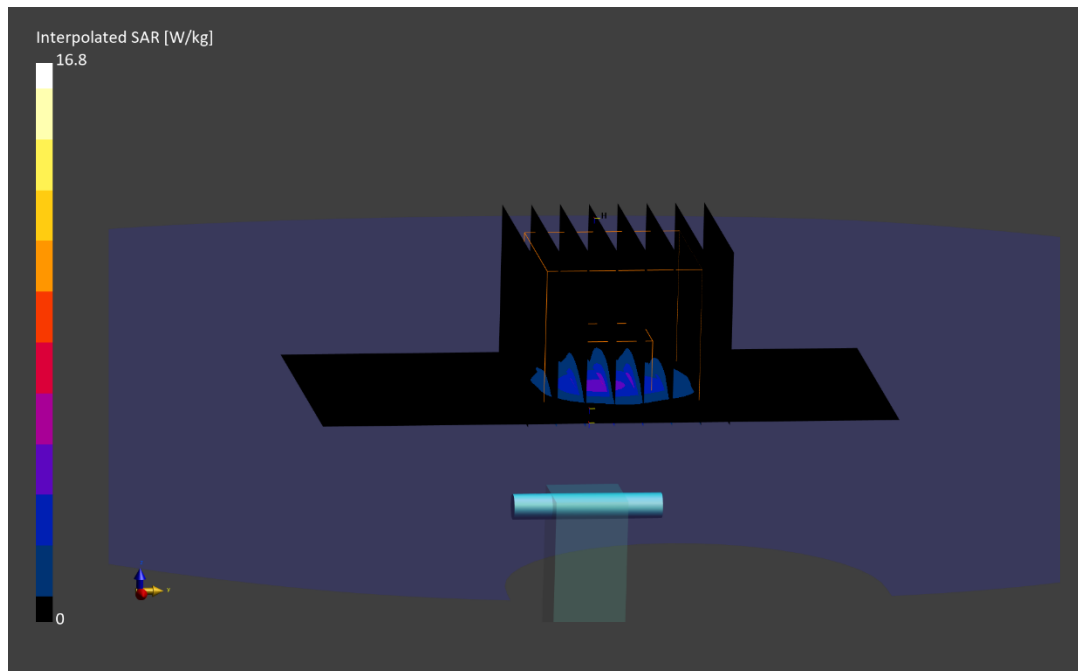
**Area Scan (40.0 x 80.0):** Measurement grid: dx=10.0 mm, dy=10.0 mm

**Zoom Scan (22.0 x 22.0 x 22.0):** Measurement grid: dx=4.0 mm, dy=4.0 mm, dz=1.4 mm; Graded Ratio: 1.4

Peak SAR (extrapolated) = 16.8 W/kg

**SAR(1 g) = 3.99 W/kg; SAR(10 g) = 1.11 W/kg**

Deviation (1 g) = -3.27%; Deviation (10 g) = -5.93%



# ELEMENT

**DUT: Dipole 5600.0 MHz; Type: D5GHzV2 - SN1123**

Communication System: UID: 0, CW; Frequency: 5600.0 MHz

Medium: 5200-5800 Head; Medium parameters used:

f = 5600.0 MHz; cond = 4.90 S/m; perm = 36.0; density = 1000 kg/m<sup>3</sup>

Phantom Section: Flat; Space: 10 mm

Test Date: 07/29/2024; Ambient Temp: 21.7°C; Tissue Temp: 20.0°C

Probe: EX3DV4 - SN3746; ConvF:(4.45,4.45,4.45); Calibrated: 2023-10-16

Sensor-Surface: 1.4mm (VMS + 6p)

Electronics: DAE4 Sn1237; Calibrated: 2023-10-18

Phantom: Twin-SAM V8.0; Serial: 2027

Measurement SW: DASY Module SAR V16.2.4.2524

## 5600.0 MHz System Verification at 17.0 dBm (50 mW)

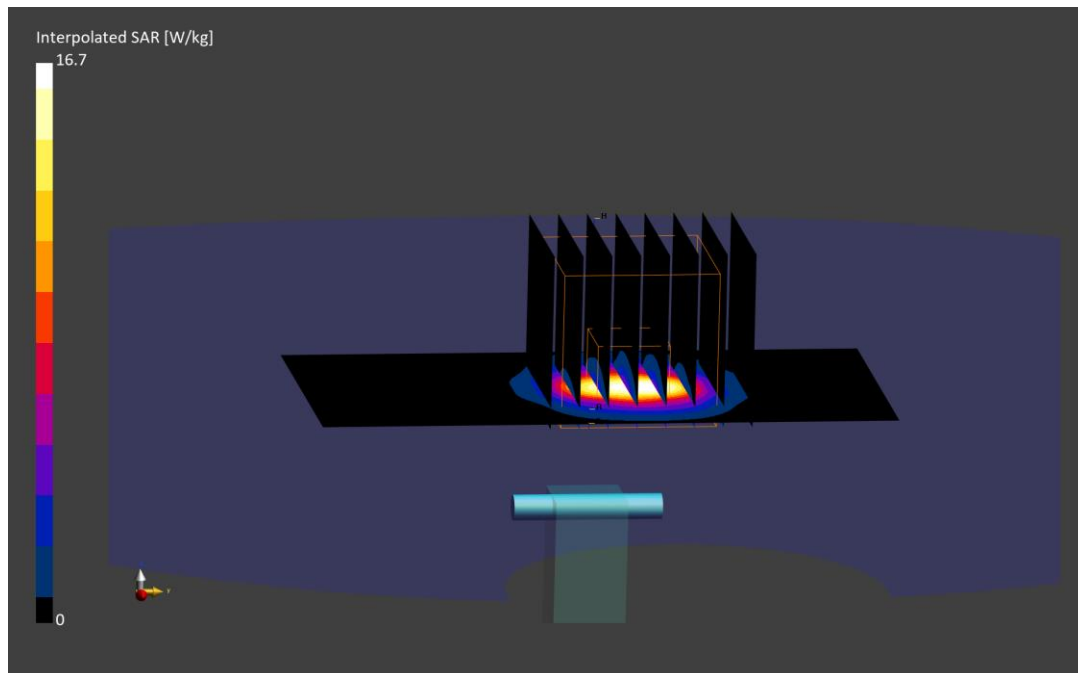
**Area Scan (40.0 x 80.0):** Measurement grid: dx=10.0 mm, dy=10.0 mm

**Zoom Scan (22.0 x 22.0 x 22.0):** Measurement grid: dx=4.0 mm, dy=4.0 mm, dz=1.4 mm; Graded Ratio: 1.4

Peak SAR (extrapolated) = 16.7 W/kg

**SAR(1 g) = 3.98 W/kg; SAR(10 g) = 1.11 W/kg**

Deviation (1 g) = -3.52%; Deviation (10 g) = -5.93%



# ELEMENT

**DUT: Dipole 5750.0 MHz; Type: D5GHzV2 - SN1123**

Communication System: UID: 0, CW; Frequency: 5750.0 MHz

Medium: 5200-5800 Head; Medium parameters used:

f = 5750.0 MHz; cond = 5.02 S/m; perm = 34.4; density = 1000 kg/m<sup>3</sup>

Phantom Section: Flat; Space: 10 mm

Test Date: 07/24/2024; Ambient Temp: 21.5°C; Tissue Temp: 21.4°C

Probe: EX3DV4 - SN3746; ConvF:(4.59,4.59,4.59); Calibrated: 2023-10-16

Sensor-Surface: 1.4mm (VMS + 6p)

Electronics: DAE4 Sn1237; Calibrated: 2023-10-18

Phantom: Twin-SAM V8.0; Serial: 2027

Measurement SW: DASY Module SAR V16.2.4.2524

## 5750.0 MHz System Verification at 17.0 dBm (50 mW)

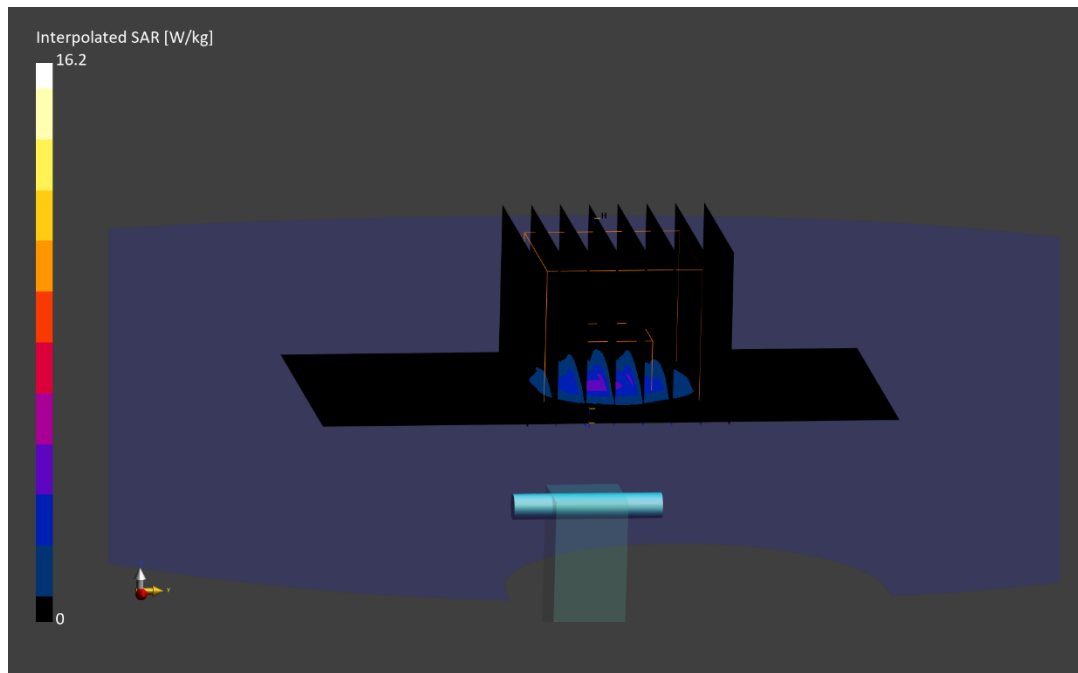
**Area Scan (40.0 x 80.0):** Measurement grid: dx=10.0 mm, dy=10.0 mm

**Zoom Scan (22.0 x 22.0 x 22.0):** Measurement grid: dx=4.0 mm, dy=4.0 mm, dz=1.4 mm; Graded Ratio: 1.4

Peak SAR (extrapolated) = 16.2 W/kg

**SAR(1 g) = 3.74 W/kg; SAR(10 g) = 1.05 W/kg**

Deviation (1 g) = -5.79%; Deviation (10 g) = -7.08%



# ELEMENT

**DUT: Dipole 5750.0 MHz; Type: D5GHzV2 - SN1123**

Communication System: UID: 0, CW; Frequency: 5750.0 MHz

Medium: 5200-5800 Head; Medium parameters used:

f = 5750.0 MHz; cond = 5.06 S/m; perm = 35.8; density = 1000 kg/m<sup>3</sup>

Phantom Section: Flat; Space: 10 mm

Test Date: 07/29/2024; Ambient Temp: 21.7°C; Tissue Temp: 20.0°C

Probe: EX3DV4 - SN3746; ConvF:(4.59,4.59,4.59); Calibrated: 2023-10-16

Sensor-Surface: 1.4mm (VMS + 6p)

Electronics: DAE4 Sn1237; Calibrated: 2023-10-18

Phantom: Twin-SAM V8.0; Serial: 2027

Measurement SW: DASY Module SAR V16.2.4.2524

## 5750.0 MHz System Verification at 17.0 dBm (50 mW)

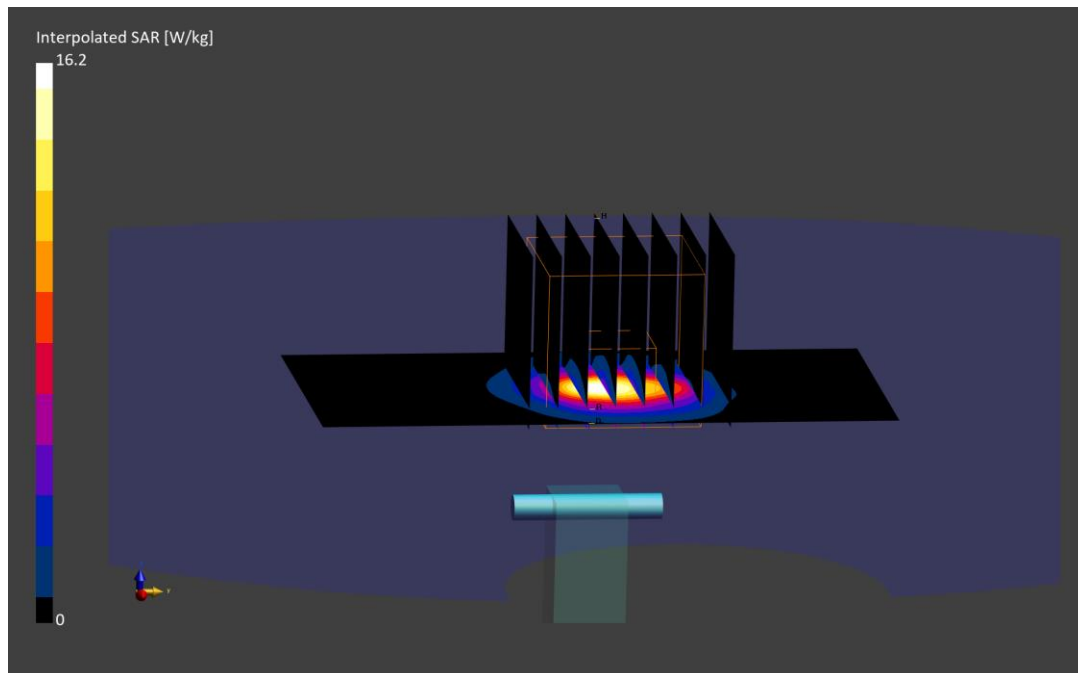
**Area Scan (40.0 x 80.0):** Measurement grid: dx=10.0 mm, dy=10.0 mm

**Zoom Scan (22.0 x 22.0 x 22.0):** Measurement grid: dx=4.0 mm, dy=4.0 mm, dz=1.4 mm; Graded Ratio: 1.4

Peak SAR (extrapolated) = 16.2 W/kg

**SAR(1 g) = 3.85 W/kg; SAR(10 g) = 1.10 W/kg**

Deviation (1 g) = -3.02%; Deviation (10 g) = -2.65%



# ELEMENT

**DUT: Dipole 5850.0 MHz; Type: D5GHzV2 - SN1163**

Communication System: UID: 0, CW; Frequency: 5850.0 MHz

Medium: 5200-5800 Head; Medium parameters used:

f = 5850.0 MHz; cond = 5.12 S/m; perm = 34.2; density = 1000 kg/m<sup>3</sup>

Phantom Section: Flat; Space: 10 mm

Test Date: 07/24/2024; Ambient Temp: 21.5°C; Tissue Temp: 21.4°C

Probe: EX3DV4 - SN3746; ConvF:(4.5,4.5,4.5); Calibrated: 2023-10-16

Sensor-Surface: 1.4mm (VMS + 6p)

Electronics: DAE4 Sn1237; Calibrated: 2023-10-18

Phantom: Twin-SAM V8.0; Serial: 2027

Measurement SW: DASY Module SAR V16.2.4.2524

## 5850.0 MHz System Verification at 17.0 dBm (50 mW)

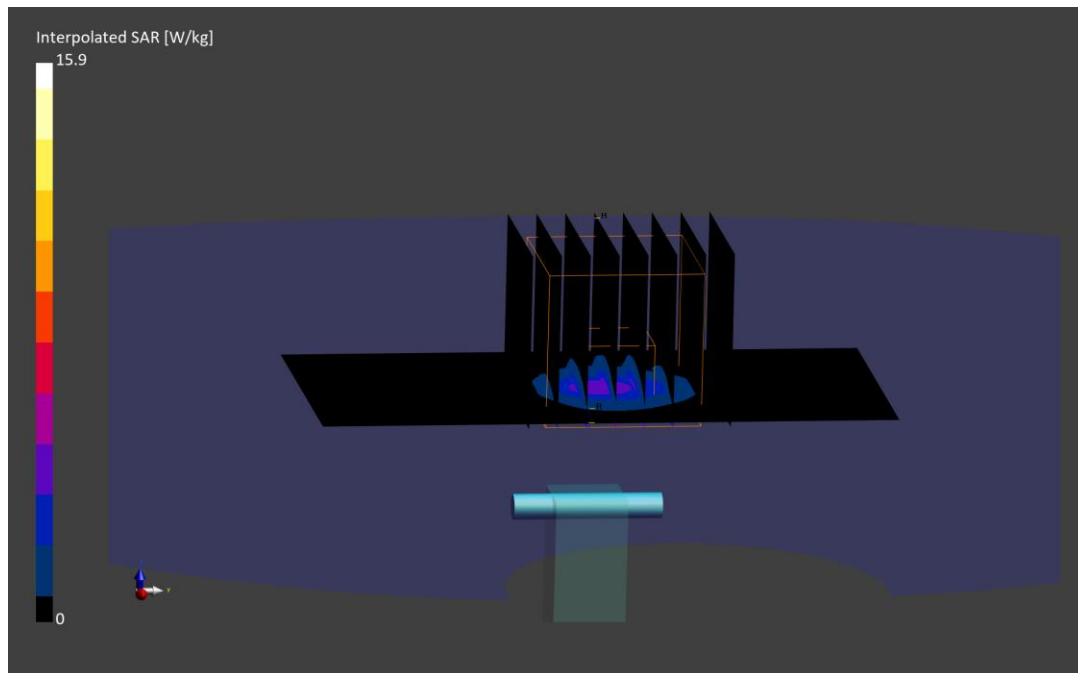
**Area Scan (40.0 x 80.0):** Measurement grid: dx=10.0 mm, dy=10.0 mm

**Zoom Scan (22.0 x 22.0 x 22.0):** Measurement grid: dx=4.0 mm, dy=4.0 mm, dz=1.4 mm; Graded Ratio: 1.4

Peak SAR (extrapolated) = 15.9 W/kg

**SAR(1 g) = 3.69 W/kg; SAR(10 g) = 1.03 W/kg**

Deviation (1 g) = -6.58%; Deviation (10 g) = -7.21%



# ELEMENT

**DUT: Dipole 5850.0 MHz; Type: D5GHzV2 - SN1123**

Communication System: UID: 0, CW; Frequency: 5850.0 MHz

Medium: 5200-5800 Head; Medium parameters used:

f = 5850.0 MHz; cond = 5.17 S/m; perm = 35.7; density = 1000 kg/m<sup>3</sup>

Phantom Section: Flat; Space: 10 mm

Test Date: 07/29/2024; Ambient Temp: 21.7°C; Tissue Temp: 20.0°C

Probe: EX3DV4 - SN3746; ConvF:(4.5,4.5,4.5); Calibrated: 2023-10-16

Sensor-Surface: 1.4mm (VMS + 6p)

Electronics: DAE4 Sn1237; Calibrated: 2023-10-18

Phantom: Twin-SAM V8.0; Serial: 2027

Measurement SW: DASY Module SAR V16.2.4.2524

## 5850.0 MHz System Verification at 17.0 dBm (50 mW)

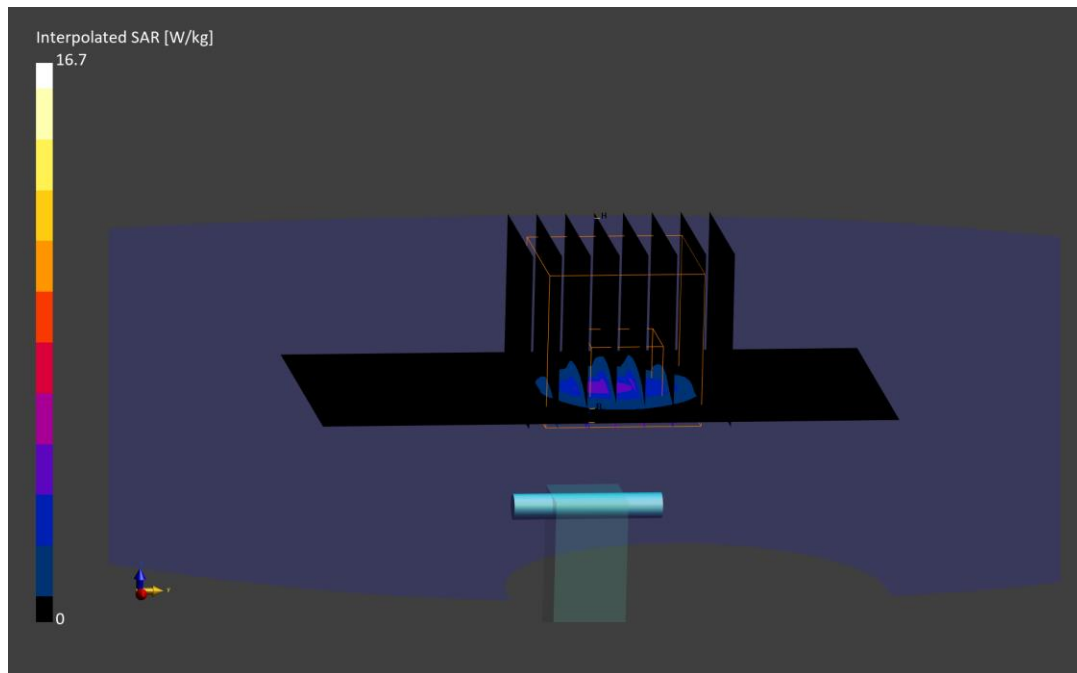
**Area Scan (40.0 x 80.0):** Measurement grid: dx=10.0 mm, dy=10.0 mm

**Zoom Scan (22.0 x 22.0 x 22.0):** Measurement grid: dx=4.0 mm, dy=4.0 mm, dz=1.4 mm; Graded Ratio: 1.4

Peak SAR (extrapolated) = 16.7 W/kg

**SAR(1 g) = 3.79 W/kg; SAR(10 g) = 1.06 W/kg**

Deviation (1 g) = -5.37%; Deviation (10 g) = -7.02%



# ELEMENT

**DUT: Dipole 6500.000 MHz; Type: D6.5GHzV2 - SN1019**

Communication System: UID: 0, CW; Frequency: 6500.0 MHz

Medium: 6000 Head; Medium parameters used:

f = 6500.0 MHz; cond = 5.91 S/m; perm = 34.9; density = 1000 kg/m<sup>3</sup>

Phantom Section: Flat; Space: 5 mm

Test Date: 08/14/2024; Ambient Temp: 21.2°C; Tissue Temp: 20.3°C

Probe: EX3DV4 - SN7420; ConvF:(5.21,5.12,5.28); Calibrated: 2023-10-16

Sensor-Surface: 1.4mm (VMS + 6p)

Electronics: DAE4 Sn1333; Calibrated: 2023-10-18

Phantom: Twin-SAM V4.0; Serial: 1275

Measurement SW: DASY Module SAR V16.2.4.2524

## 6500.0 MHz System Verification at 14.0 dBm (25 mW)

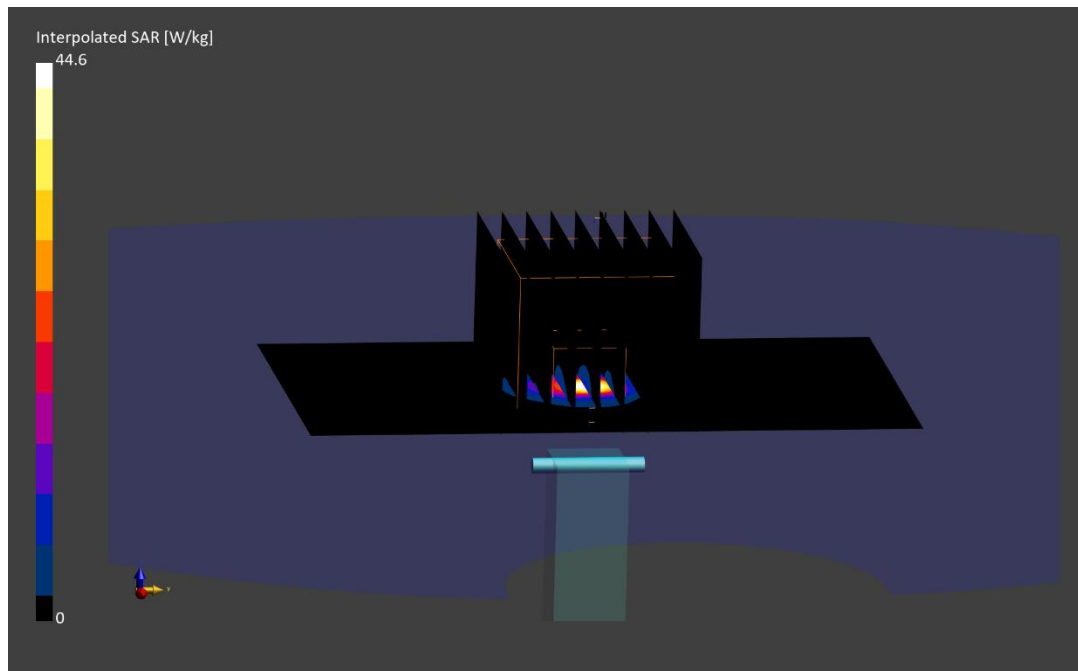
**Area Scan (51.0 x 85.0):** Measurement grid: dx=8.5 mm, dy=8.5 mm

**Zoom Scan (22.0 x 22.0 x 22.0):** Measurement grid: dx=3.4 mm, dy=3.4 mm, dz=1.4 mm; Graded Ratio: 1.4

Peak SAR (extrapolated) = 44.6 W/kg

**SAR(1 g) = 7.32 W/kg; SAR(10 g) = 1.34 W/kg; APD(4 cm<sup>2</sup>) = 32.8 W/m<sup>2</sup>**

Deviation (1 g) = -0.07%; Deviation (10 g) = -0.92%; Deviation (APD) = -0.61%



Date: 08/17/2024

Measurement Group

Device Under Test Properties

| DUT                        | Serial Number |
|----------------------------|---------------|
| 10 GHz Verification Source | 1006          |

Exposure Conditions

| Phantom Section | Position | Test Distance [mm] | Band            | Frequency [MHz] |
|-----------------|----------|--------------------|-----------------|-----------------|
| 5G              | FRONT    | 10.00              | Validation band | 10000.0         |

Hardware Setup

| Probe, Calibration Date      | DAE, Calibration Date     |
|------------------------------|---------------------------|
| EUmmWV4 – SN9487, 04/08/2024 | DAE4 – SN1582, 04/09/2024 |

Software Setup

| Software             | Software Version |
|----------------------|------------------|
| cDASY6 Module mmWave | 3.2.0.1840       |

Scans Setup

|                     |             |
|---------------------|-------------|
| Scan Type           | 5G Scan     |
| Grid Extents [mm]   | 60.0 x 60.0 |
| Grid Steps [lambda] | 0.25 x 0.25 |
| Sensor Surface [mm] | 10.0        |

Measurement Results

|                                  |         |
|----------------------------------|---------|
| Scan Type                        | 5G Scan |
| Avg. Area [cm²]                  | 4.00    |
| pS <sub>tot</sub> avg [W/m²]     | 67.2    |
| pS <sub>n</sub> avg [W/m²]       | 67.1    |
| E <sub>peak</sub> [V/m]          | 168     |
| Deviation [dB] pS <sub>tot</sub> | 0.57    |
| Deviation [dB] pS <sub>n</sub>   | 0.60    |

