

APPENDIX B: SAR DIPOLE VERIFICATION PLOTS

ELEMENT

DUT: Dipole 13.0 MHz; Type: CLA-13 - SN1004

Communication System: UID: 0, CW; Frequency: 13.0 MHz
Medium: 13 Head; Medium parameters used:
 $f = 13.0$ MHz; $\text{cond} = 0.722$ S/m; $\text{perm} = 52.9$; $\text{density} = 1000$ kg/m³
Phantom Section: Flat; Space: 0 mm

Test Date: 6/22/2024; Ambient Temp: 21.0°C; Tissue Temp: 21.2°C

Probe: EX3DV4 - SN3746; ConvF:(16.19,16.19,16.19); Calibrated: 2023-10-16
Sensor-Surface: 1.4mm (All points)
Electronics: DAE4 Sn1237; Calibrated: 2023-10-18
Phantom: ELI V6.0; Serial: 2003
Measurement SW: DASY Module SAR V16.2.4.2524

13.0 MHz System Verification at 30.0 dBm (1000 mW)

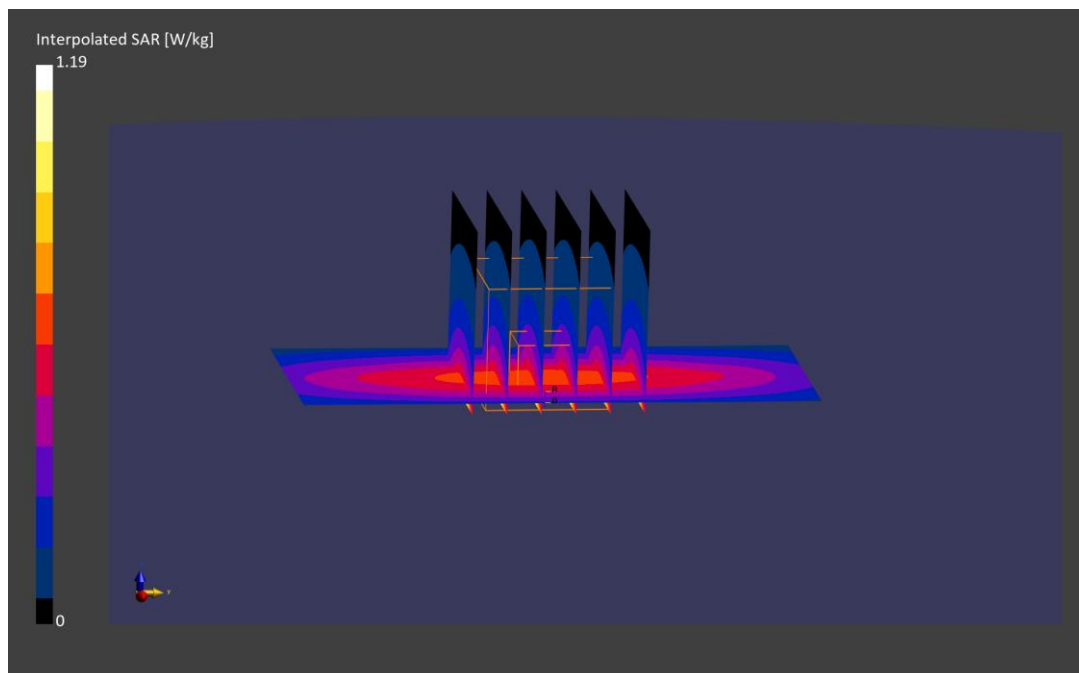
Area Scan (40.0 x 90.0): Measurement grid: $dx=10.0$ mm, $dy=15.0$ mm

Zoom Scan (30.0 x 30.0 x 30.0): Measurement grid: $dx=6.0$ mm, $dy=6.0$ mm, $dz=1.5$ mm; Graded Ratio: 1.5

Peak SAR (extrapolated) = 1.19 W/kg

SAR(1 g) = 0.590 W/kg; SAR(10 g) = 0.363 W/kg

Deviation (1 g) = 2.08%; Deviation (10 g) = 1.97%



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; cond = 1.87 S/m; perm = 39.8; density = 1000 kg/m³

Phantom Section: Flat; Space: 10 mm

Test Date: 05/20/2024; Ambient Temp: 21.5°C; Tissue Temp: 22.9°C

Probe: EX3DV4 - SN7638; ConvF:(7.38,7.72,7.8); Calibrated: 2024-03-11

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

Electronics: DAE4 Sn1408; Calibrated: 2024-03-06

Phantom: Twin-SAM V8.0; Serial: 1935

Measurement SW: DASY Module SAR V16.2.4.2524

2450.0 MHz System Verification at 20.0 dBm (100 mW)

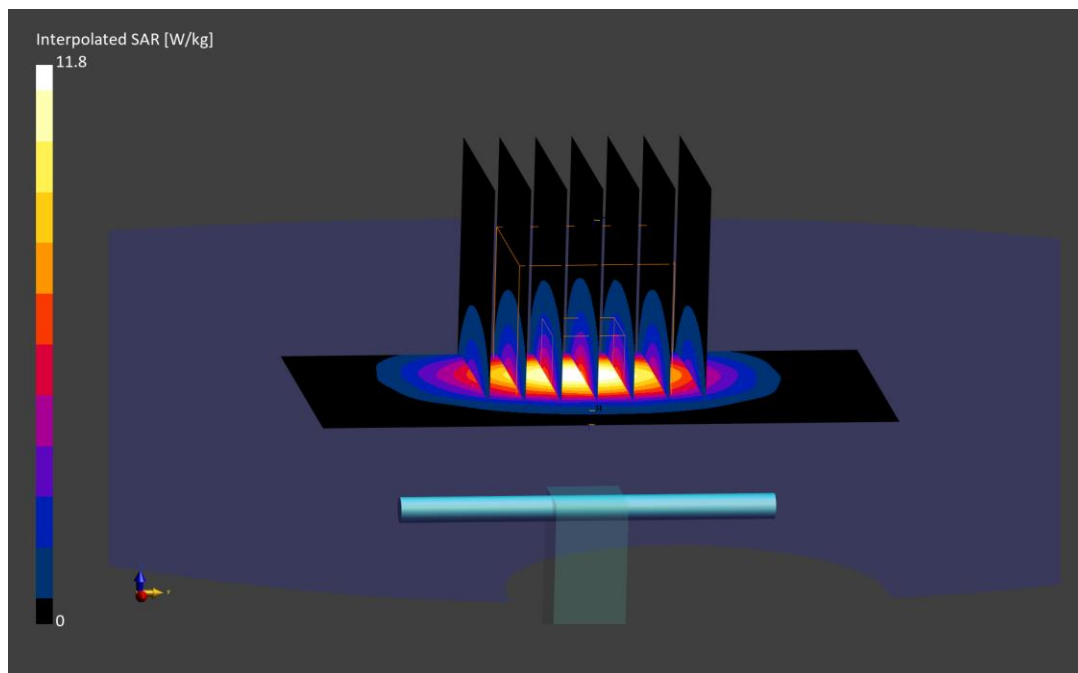
Area Scan (40.0 x 80.0): Measurement grid: dx=10.0 mm, dy=10.0 mm

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) = 11.8 W/kg

SAR(1 g) = 5.53 W/kg; SAR(10 g) = 2.48 W/kg

Deviation (1 g) = 5.13%; Deviation (10 g) = 1.22%



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; cond = 1.89 S/m; perm = 38.9; density = 1000 kg/m³

Phantom Section: Flat; Space: 10 mm

Test Date: 05/22/2024; Ambient Temp: 21.0°C; Tissue Temp: 22.8°C

Probe: EX3DV4 - SN7638; ConvF:(7.38,7.72,7.8); Calibrated: 2024-03-11

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

Electronics: DAE4 Sn1408; Calibrated: 2024-03-06

Phantom: Twin-SAM V8.0; Serial: 1935

Measurement SW: DASY Module SAR V16.2.4.2524

2450.0 MHz System Verification at 20.0 dBm (100 mW)

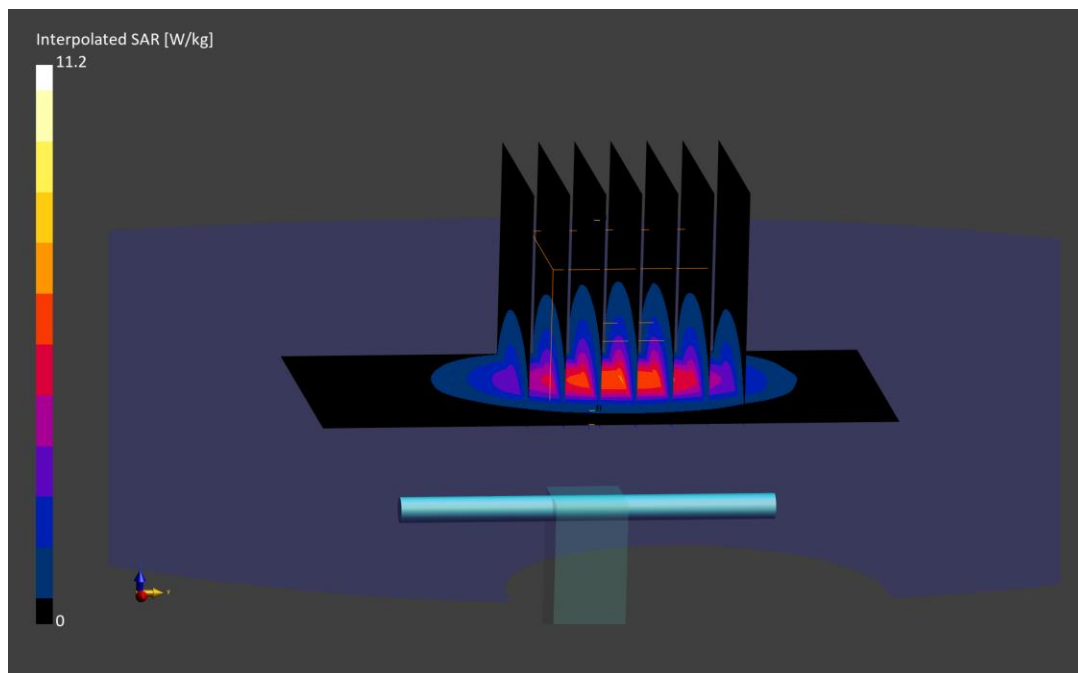
Area Scan (40.0 x 80.0): Measurement grid: dx=10.0 mm, dy=10.0 mm

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) = 11.2 W/kg

SAR(1 g) = 5.19 W/kg; SAR(10 g) = 2.33 W/kg

Deviation (1 g) = -1.33%; Deviation (10 g) = -4.90%



ELEMENT

DUT: Dipole 2450.0 MHz; Type: D2450V2 - SN921

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

Medium: 2450 Head; Medium parameters used:

f = 2450.0 MHz; cond = 1.76 S/m; perm = 40.0; density = 1000 kg/m³

Phantom Section: Flat; Space: 10 mm

Test Date: 06/26/2024; Ambient Temp: 22.5°C; Tissue Temp: 21.4°C

Probe: EX3DV4 - SN7682; ConvF:(7.87,7.72,8.18); Calibrated: 2024-05-13

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

Electronics: DAE4 Sn1683; Calibrated: 2024-05-08

Phantom: Twin-SAM V8.0; Serial: 1917

Measurement SW: DASY Module SAR V16.2.4.2524

2450.0 MHz System Verification at 20.0 dBm (100 mW)

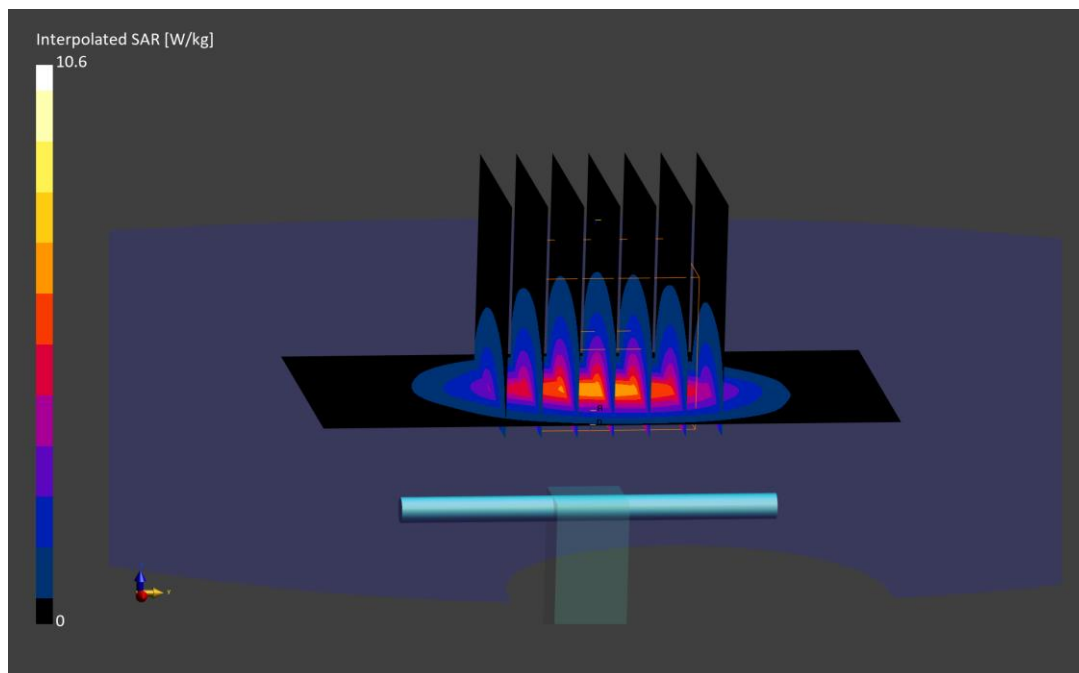
Area Scan (40.0 x 80.0): Measurement grid: dx=10.0 mm, dy=10.0 mm

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) = 10.6 W/kg

SAR(1 g) = 5.30 W/kg; SAR(10 g) = 2.52 W/kg

Deviation (1 g) = -2.21%; Deviation (10 g) = -1.18%



ELEMENT

DUT: Dipole 5250.0 MHz; Type: D5GHzV2 - SN1066

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

Medium: 5200-5800 Head; Medium parameters used:

f = 5250.0 MHz; cond = 4.61 S/m; perm = 36.2; density = 1000 kg/m³

Phantom Section: Flat; Space: 10 mm

Test Date: 05/20/2024; Ambient Temp: 20.7°C; Tissue Temp: 19.8°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)

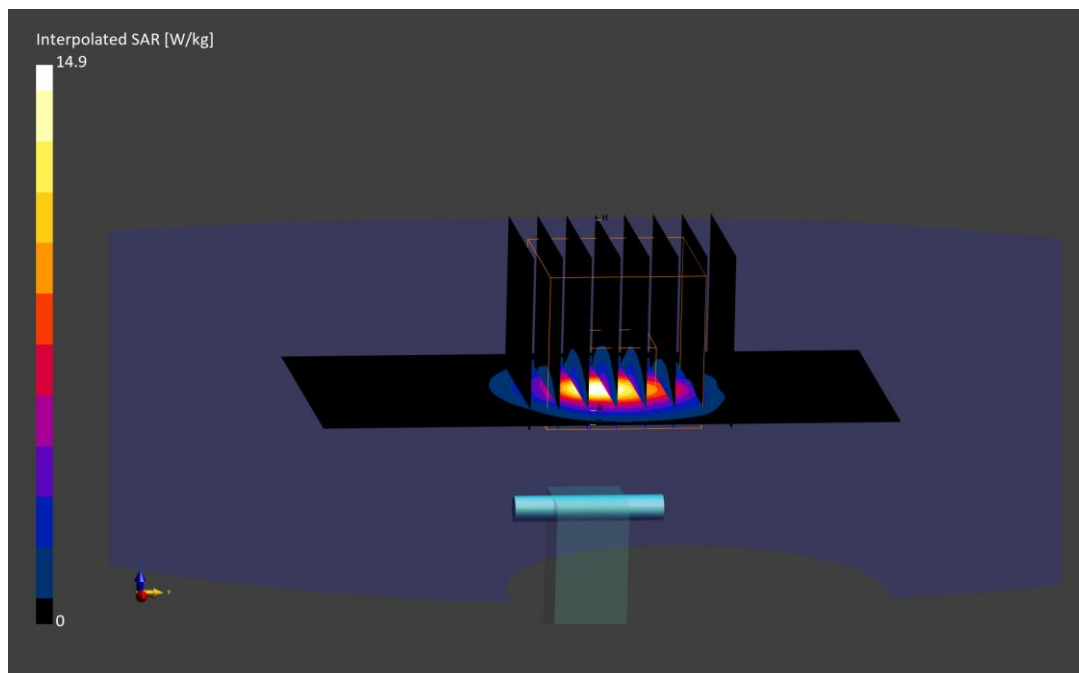
Area Scan (40.0 x 80.0): Measurement grid: dx=10.0 mm, dy=10.0 mm

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) = 14.9 W/kg

SAR(1 g) = 4.13 W/kg; SAR(10 g) = 1.19 W/kg

Deviation (1 g) = 2.86%; Deviation (10 g) = 3.03%



ELEMENT

DUT: Dipole 5250.0 MHz; Type: D5GHzV2 - SN1066

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

Medium: 5200-5800 Head; Medium parameters used:

f = 5250.0 MHz; cond = 4.56 S/m; perm = 34.6; density = 1000 kg/m³

Phantom Section: Flat; Space: 10 mm

Test Date: 06/27/2024; Ambient Temp: 20.8°C; Tissue Temp: 19.8°C

Probe: EX3DV4 - SN7427; ConvF:(4.73,5.26,5.35); Calibrated: 2024-02-09

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

Electronics: DAE4 Sn467; Calibrated: 2024-02-09

Phantom: Twin-SAM V8.0; Serial: 2070

Measurement SW: DASY Module SAR V16.2.4.2524

5250.0 MHz System Verification at 17.0 dBm (50 mW)

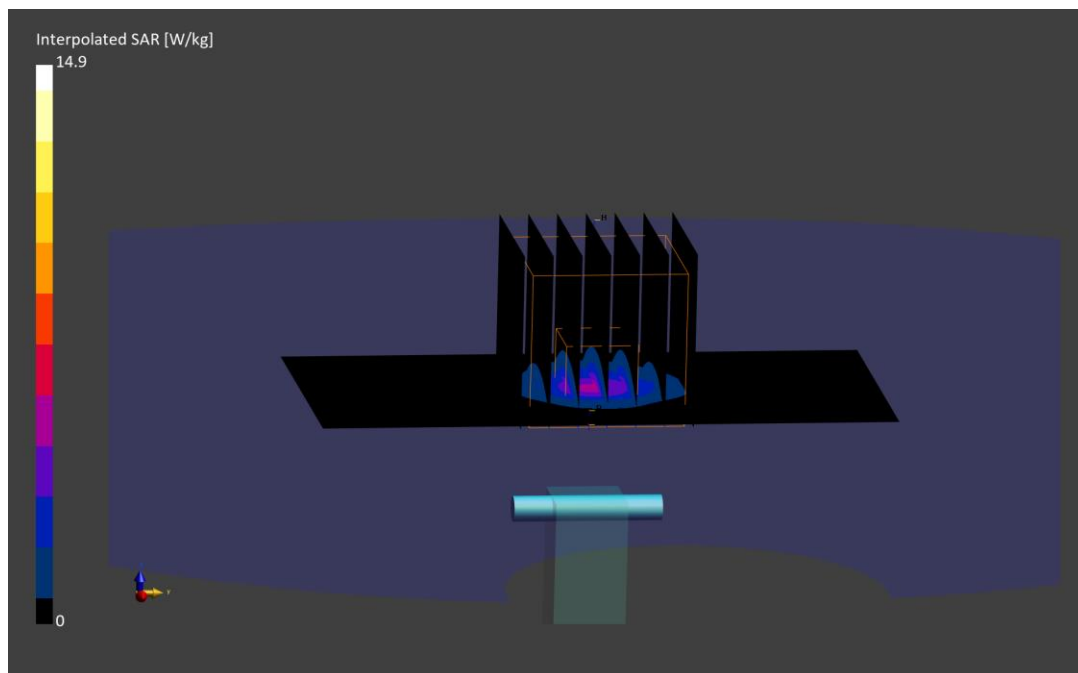
Area Scan (40.0 x 80.0): Measurement grid: dx=10.0 mm, dy=10.0 mm

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) = 14.9 W/kg

SAR(1 g) = 3.80 W/kg; SAR(10 g) = 1.09 W/kg

Deviation (1 g) = -5.35%; Deviation (10 g) = -5.63%



ELEMENT

DUT: Dipole 5600.0 MHz; Type: D5GHzV2 - SN1066

Communication System: UID: 0, CW; Frequency: 5600.0 MHz
Medium: 5200-5800 Head; Medium parameters used:
 $f = 5600.0$ MHz; $\text{cond} = 5.03$ S/m; $\text{perm} = 35.5$; $\text{density} = 1000$ kg/m³
Phantom Section: Flat; Space: 10 mm

Test Date: 05/20/2024; Ambient Temp: 20.7°C; Tissue Temp: 19.8°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) = 15.5 W/kg

SAR(1 g) = 3.96 W/kg; SAR(10 g) = 1.12 W/kg

Deviation (1 g) = -5.60%; Deviation (10 g) = -7.05%



ELEMENT

DUT: Dipole 5600.0 MHz; Type: D5GHzV2 - SN1066

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

Medium: 5200-5800 Head; Medium parameters used:

f = 5600.0 MHz; cond = 4.93 S/m; perm = 34.1; density = 1000 kg/m³

Phantom Section: Flat; Space: 10 mm

Test Date: 06/27/2024; Ambient Temp: 20.8°C; Tissue Temp: 19.8°C

Probe: EX3DV4 - SN7427; ConvF:(4.18,4.62,4.72); Calibrated: 2024-02-09

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

Electronics: DAE4 Sn467; Calibrated: 2024-02-09

Phantom: Twin-SAM V8.0; Serial: 2070

Measurement SW: DASY Module SAR V16.2.4.2524

5600.0 MHz System Verification at 17.0 dBm (50 mW)

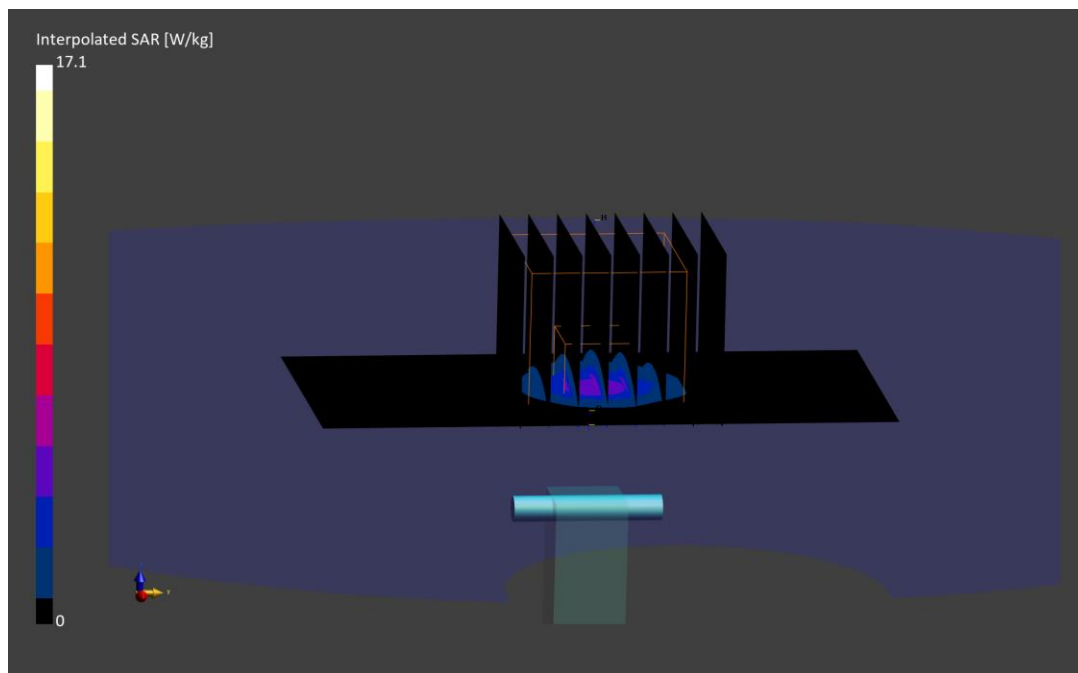
Area Scan (40.0 x 80.0): Measurement grid: dx=10.0 mm, dy=10.0 mm

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) = 17.1 W/kg

SAR(1 g) = 4.12 W/kg; SAR(10 g) = 1.18 W/kg

Deviation (1 g) = -1.79%; Deviation (10 g) = -2.07%



ELEMENT

DUT: Dipole 5750.0 MHz; Type: D5GHzV2 - SN1066

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

Medium: 5200-5800 Head; Medium parameters used:

f = 5750.0 MHz; cond = 5.22 S/m; perm = 35.3; density = 1000 kg/m³

Phantom Section: Flat; Space: 10 mm

Test Date: 05/20/2024; Ambient Temp: 20.7°C; Tissue Temp: 19.8°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)

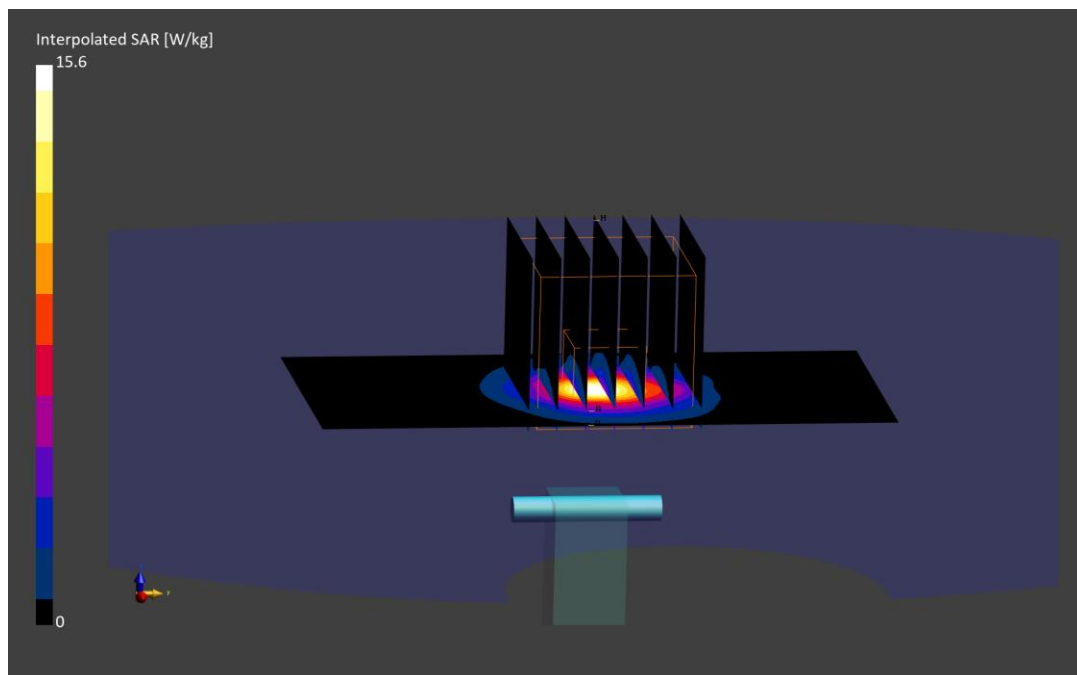
Area Scan (40.0 x 80.0): Measurement grid: dx=10.0 mm, dy=10.0 mm

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) = 15.6 W/kg

SAR(1 g) = 3.87 W/kg; SAR(10 g) = 1.11 W/kg

Deviation (1 g) = -2.64%; Deviation (10 g) = -1.77%



ELEMENT

DUT: Dipole 5750.0 MHz; Type: D5GHzV2 - SN1066

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

Medium: 5200-5800 Head; Medium parameters used:

f = 5750.0 MHz; cond = 5.10 S/m; perm = 33.8; density = 1000 kg/m³

Phantom Section: Flat; Space: 10 mm

Test Date: 06/27/2024; Ambient Temp: 20.8°C; Tissue Temp: 19.8°C

Probe: EX3DV4 - SN7427; ConvF:(4.35,4.78,4.93); Calibrated: 2024-02-09

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

Electronics: DAE4 Sn467; Calibrated: 2024-02-09

Phantom: Twin-SAM V8.0; Serial: 2070

Measurement SW: DASY Module SAR V16.2.4.2524

5750.0 MHz System Verification at 17.0 dBm (50 mW)

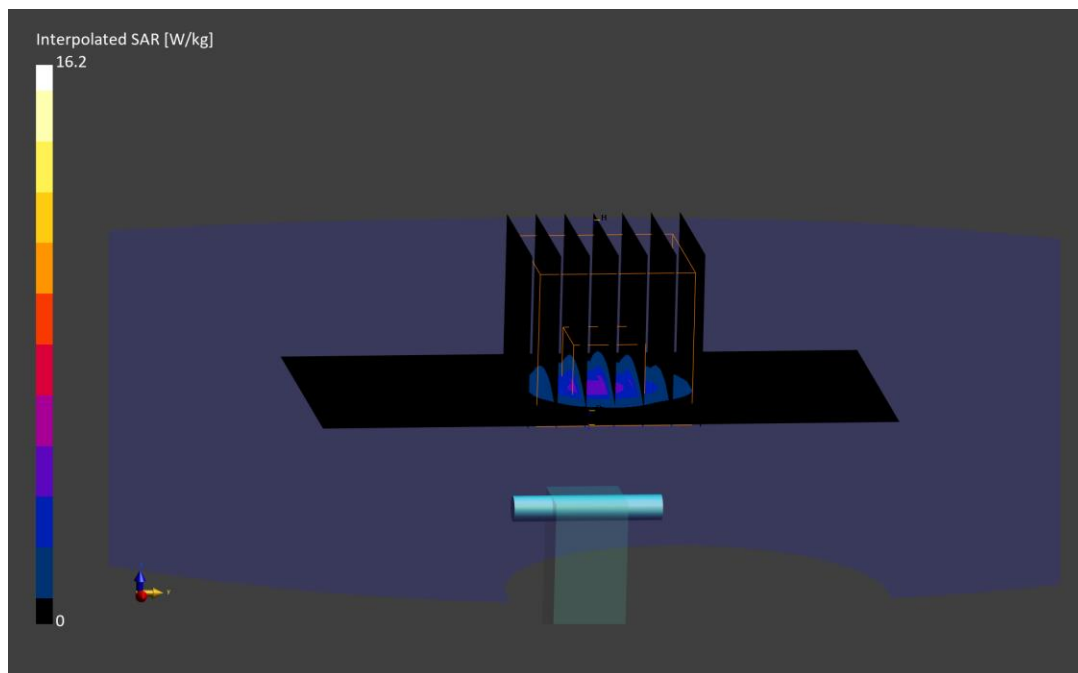
Area Scan (40.0 x 80.0): Measurement grid: dx=10.0 mm, dy=10.0 mm

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) = 3.80 W/kg; SAR(10 g) = 1.09 W/kg

Deviation (1 g) = -4.40%; Deviation (10 g) = -3.54%



ELEMENT

DUT: Dipole 5850.0 MHz; Type: D5GHzV2 - SN1066

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

Medium: 5200-5800 Head; Medium parameters used:

f = 5850.0 MHz; cond = 5.20 S/m; perm = 33.7; density = 1000 kg/m³

Phantom Section: Flat; Space: 10 mm

Test Date: 06/27/2024; Ambient Temp: 20.8°C; Tissue Temp: 19.8°C

Probe: EX3DV4 - SN7427; ConvF:(4.04,4.57,4.63); Calibrated: 2024-02-09

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

Electronics: DAE4 Sn467; Calibrated: 2024-02-09

Phantom: Twin-SAM V8.0; Serial: 2070

Measurement SW: DASY Module SAR V16.2.4.2524

5850.0 MHz System Verification at 17.0 dBm (50 mW)

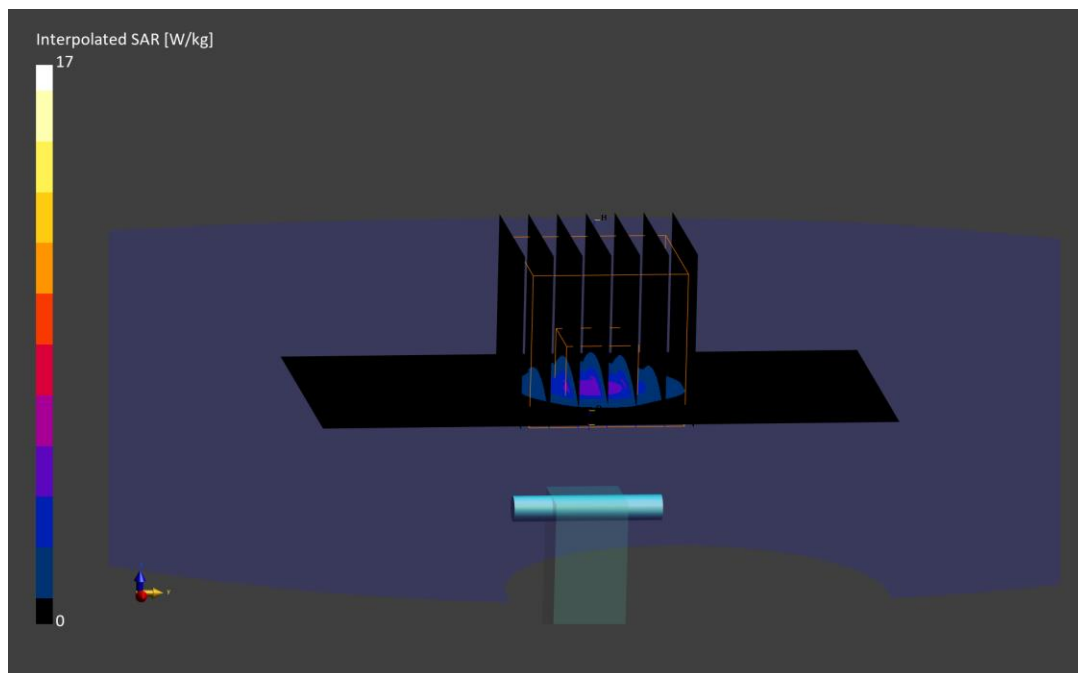
Area Scan (40.0 x 80.0): Measurement grid: dx=10.0 mm, dy=10.0 mm

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) = 17.0 W/kg

SAR(1 g) = 3.96 W/kg; SAR(10 g) = 1.12 W/kg

Deviation (1 g) = -3.65%; Deviation (10 g) = -4.27%



ELEMENT

DUT: Dipole 6500.0 MHz; Type: D6.5GHzV2 - SN1019

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

Medium: 6500 Head; Medium parameters used:

f = 6500.0 MHz; cond = 5.92 S/m; perm = 34.9; density = 1000 kg/m³

Phantom Section: Flat; Space: 5 mm

Test Date: 05/28/2024; Ambient Temp: 21.3°C; Tissue Temp: 20.0°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)

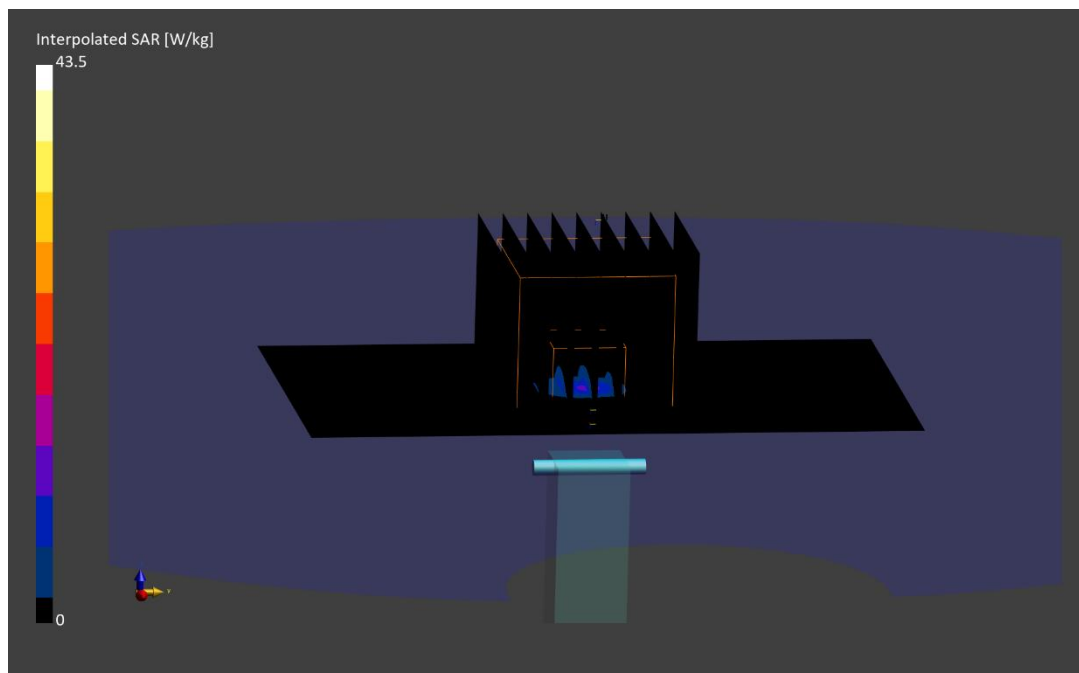
Area Scan (51.0 x 85.0): Measurement grid: dx=8.5 mm, dy=8.5 mm

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) = 43.5 W/kg

SAR(1 g) = 7.10 W/kg; SAR(10 g) = 1.30 W/kg; APD (4 cm²) = 31.8 W/m²

Deviation (1 g) = -3.07%; Deviation (10 g) = -3.88%; Deviation (4 cm²) = -3.64%



Date: 06/12/2024

10 GHz System Verification

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
EUmmWV3 – SN9407, 10/09/2023	DAE4 – SN793, 10/18/2023

Software Setup

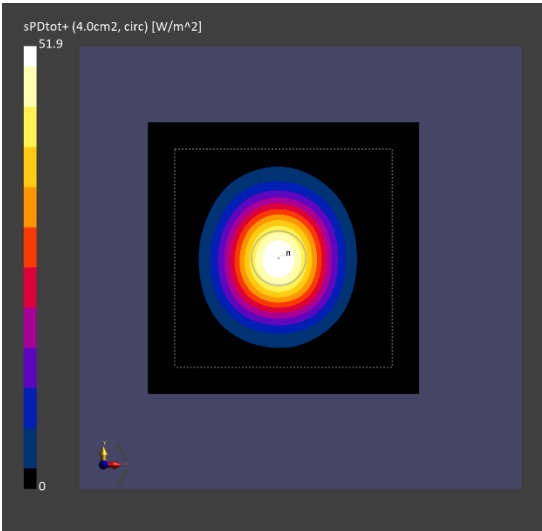
Software	Software Version
cDASY6 Module mmWave	3.2.0.1840

Scans Setup

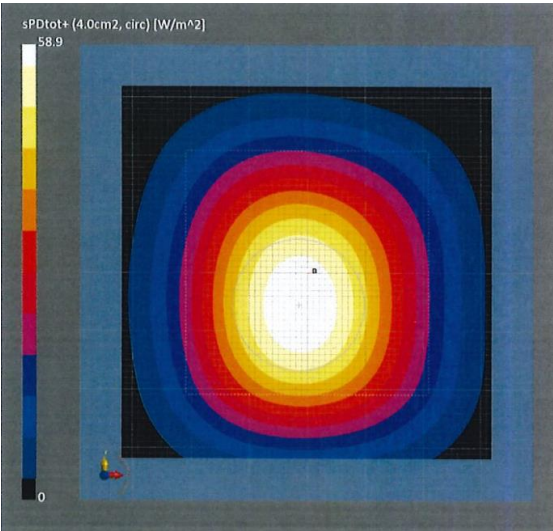
Scan Type	5G Scan
Grid Extents [mm]	60.0 × 60.0
Grid Steps [lambda]	0.25 × 0.25
Sensor Surface [mm]	10.0

Measurement Results

Scan Type	5G Scan
Avg. Area [cm²]	4.00
pS _{tot} avg [W/m²]	51.9
pS _n avg [W/m²]	51.8
E _{peak} [V/m]	148
Deviation [dB] pS _{tot}	-0.55
Deviation [dB] pS _n	-0.53



10 GHz System Verification



Calibration Certificate