

APPENDIX B: SYSTEM VERIFICATION

ELEMENT

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

Communication System: UID: 0, CW; Frequency: 13.0 MHz
Medium: 30 Head; Medium parameters used:
 $f = 13.0$ MHz; $\text{cond} = 0.727$ S/m; $\text{perm} = 53.5$; $\text{density} = 1000$ kg/m³
Phantom Section: Flat; Space: 0 mm

Test Date: 02/14/2024; Ambient Temp: 22.6°C; Tissue Temp: 21.9°C

Probe: EX3DV4 - SN7360; ConvF:(17.98,17.98,17.98); Calibrated: 2023-03-16
Sensor-Surface: 1.4mm (All points)
Electronics: DAE4 Sn534; 2023-03-15
Phantom: ELI V6.0; Serial: 2044
Measurement SW: DASY Module SAR V16.2.0.1425

13.0 MHz System Verification at 30.0 dBm (1000 mW)

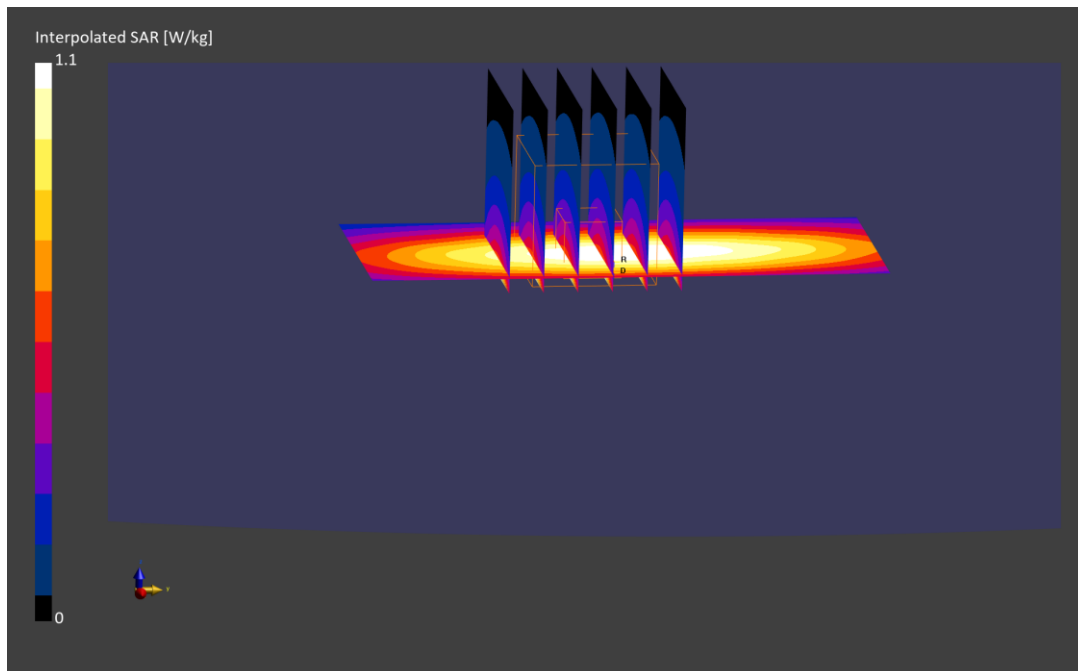
Area Scan (40.0 x 90.0): Measurement grid: $dx=10.0$ mm, $dy=15.0$ mm

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) = 1.10 W/kg

SAR(1 g) = 0.552 W/kg

Deviation (1 g) = -4.50%



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 = 1.77 S/m; perm = 40.3; density = 1000 kg/m³

Phantom Section: Flat; Space: 10 mm

Test Date: 01/18/2024; Ambient Temp: 19.9°C; Tissue Temp: 19.5°C

Probe: EX3DV4 - SN7421; ConvF:(7.45,7.45,7.45); Calibrated: 2023-03-16

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

Electronics: DAE4 Sn604; 2023-03-15

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

Measurement SW: DASY Module SAR V16.2.0.1425

2450.0 MHz System Verification at 20.0 dBm (100 mW)

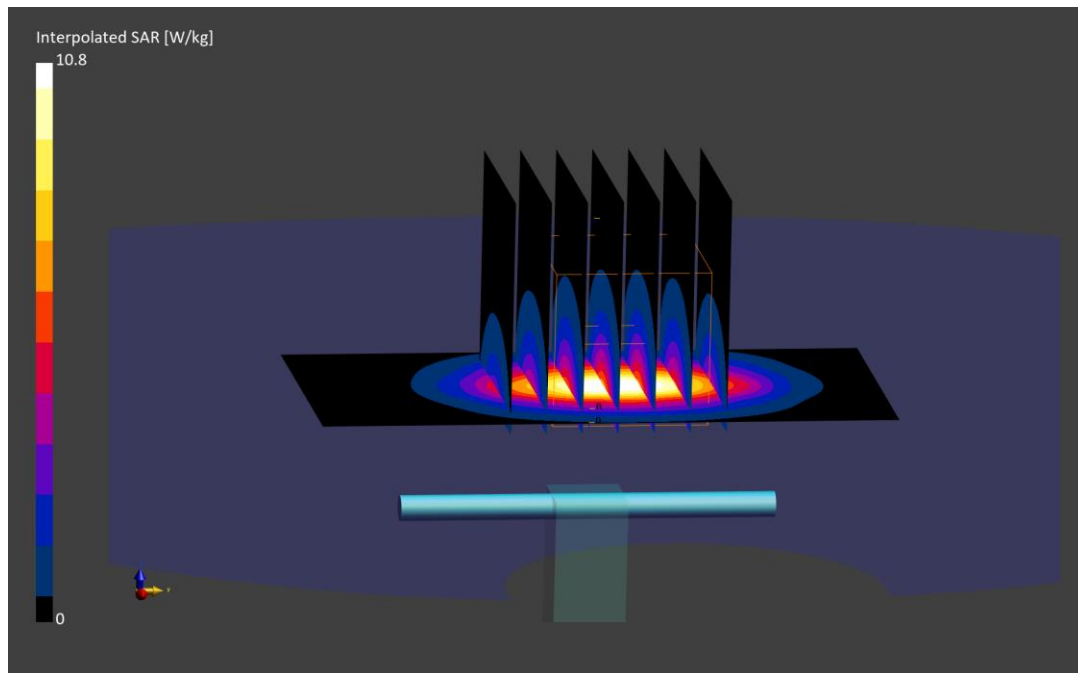
Area Scan (40.0 x 80.0): Measurement grid: dx=10.0 mm, dy=10.0 mm

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) = 10.7 W/kg

SAR(1 g) = 5.23 W/kg

Deviation (1 g) = -3.51%



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; cond = 1.76 S/m; perm = 40.4; density = 1000 kg/m³

Phantom Section: Flat; Space: 10 mm

Test Date: 01/28/2024; Ambient Temp: 21.3°C; Tissue Temp: 19.8°C

Probe: EX3DV4 - SN7421; ConvF:(7.45,7.45,7.45); Calibrated: 2023-03-16

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

Electronics: DAE4 Sn604; 2023-03-15

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

Measurement SW: DASY Module SAR V16.2.0.1425

2450.0 MHz System Verification at 20.0 dBm (100 mW)

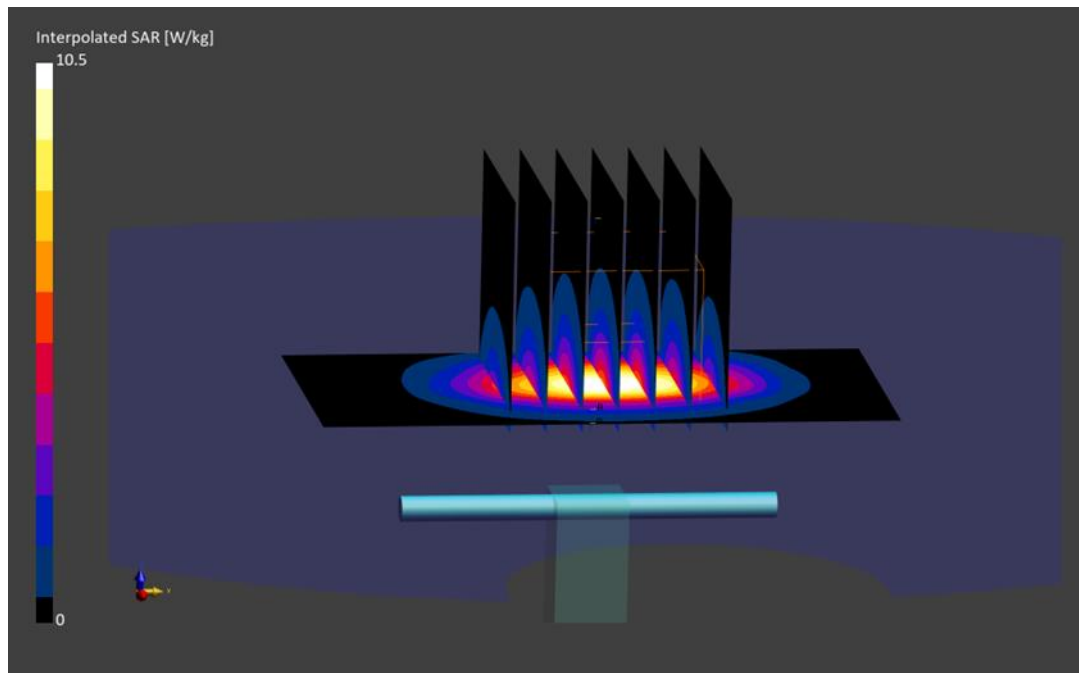
Area Scan (40.0 x 80.0): Measurement grid: dx=10.0 mm, dy=10.0 mm

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) = 10.5 W/kg

SAR(1 g) = 5.04 W/kg

Deviation (1 g) = -3.82%



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; $\text{cond} = 1.74$ S/m; $\text{perm} = 40.8$; $\text{density} = 1000$ kg/m³

Phantom Section: Flat; Space: 10 mm

Test Date: 02/25/2024; Ambient Temp: 20.1°C; Tissue Temp: 19.3°C

Probe: EX3DV4 - SN7421; ConvF:(7.45,7.45,7.45); Calibrated: 2023-03-16

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

Electronics: DAE4 Sn604; 2023-03-15

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

Measurement SW: DASY Module SAR V16.2.0.1425

2450.0 MHz System Verification at 20.0 dBm (100 mW)

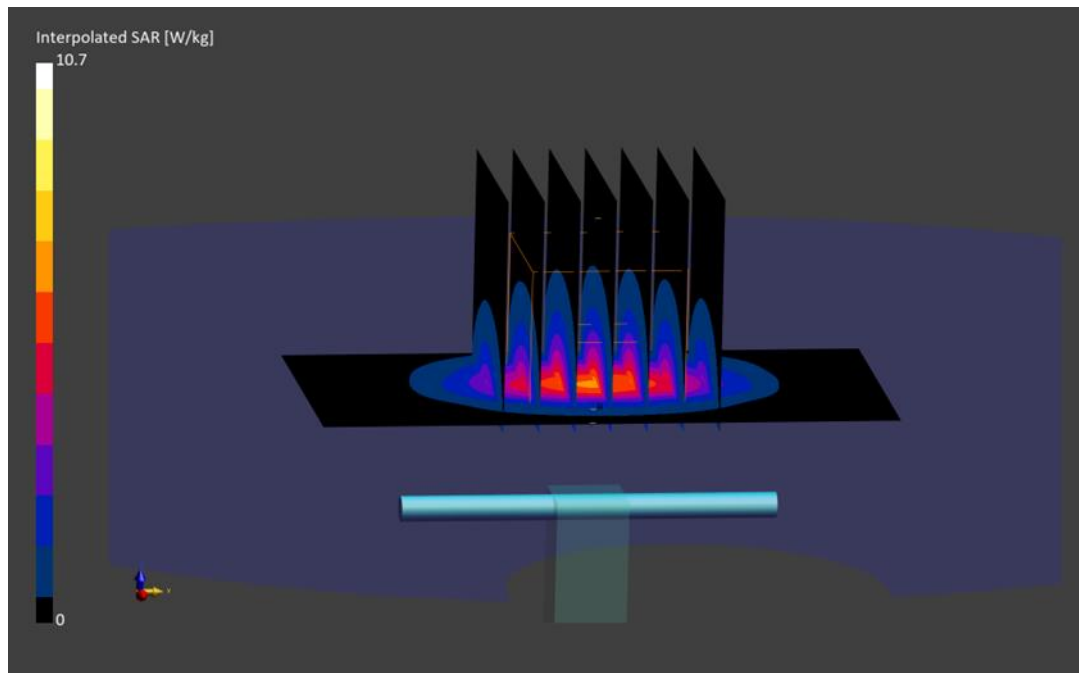
Area Scan (40.0 x 80.0): Measurement grid: $dx=10.0$ mm, $dy=10.0$ mm

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) = 10.7 W/kg

SAR(1 g) = 5.16 W/kg

Deviation (1 g) = -4.80%



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 = 4.59 S/m; perm = 36.0; density = 1000 kg/m³

Phantom Section: Flat; Space: 10 mm

Test Date: 01/18/2024; Ambient Temp: 23.0°C; Tissue Temp: 20.1°C

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

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

Electronics: DAE4 Sn1237; 2023-10-18

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

Measurement SW: DASY Module SAR V16.2.0.1425

5250.0 MHz System Verification at 17.0 dBm (50 mW)

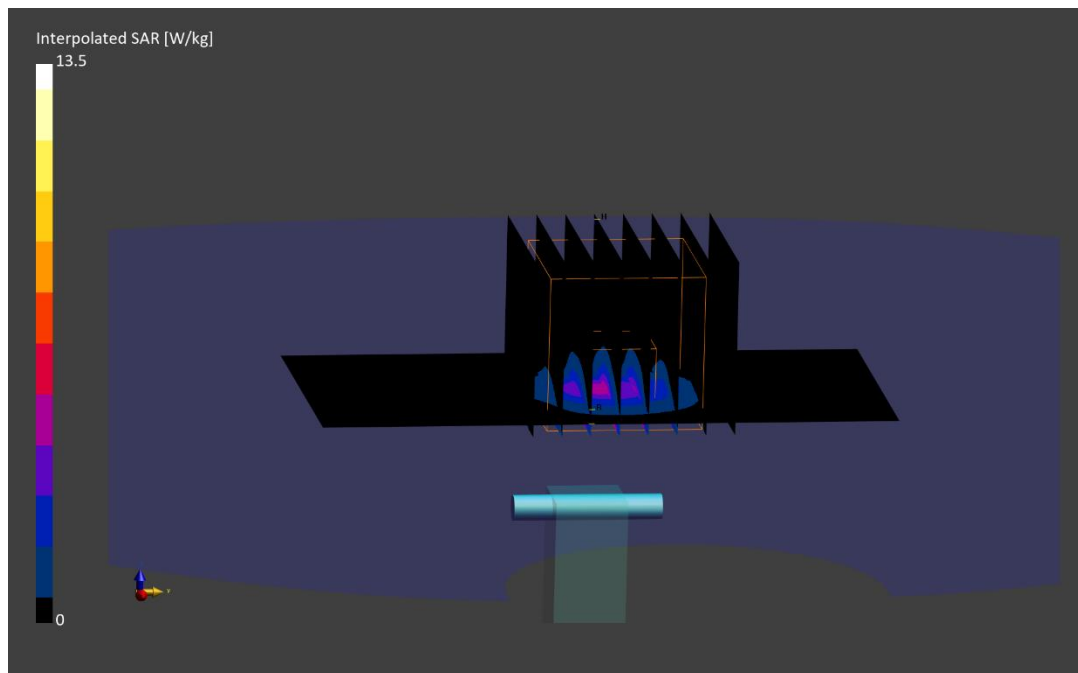
Area Scan (40.0 x 80.0): Measurement grid: dx=10.0 mm, dy=10.0 mm

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) = 13.5 W/kg

SAR(1 g) = 3.71 W/kg

Deviation (1 g) = -7.83%



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 = 4.48 S/m; perm = 36.0; density = 1000 kg/m³

Phantom Section: Flat; Space: 10 mm

Test Date: 01/28/2024; Ambient Temp: 22.8°C; Tissue Temp: 20.7°C

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

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

Electronics: DAE4 Sn1237; 2023-10-18

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

Measurement SW: DASY Module SAR V16.2.0.1425

5250.0 MHz System Verification at 17.0 dBm (50 mW)

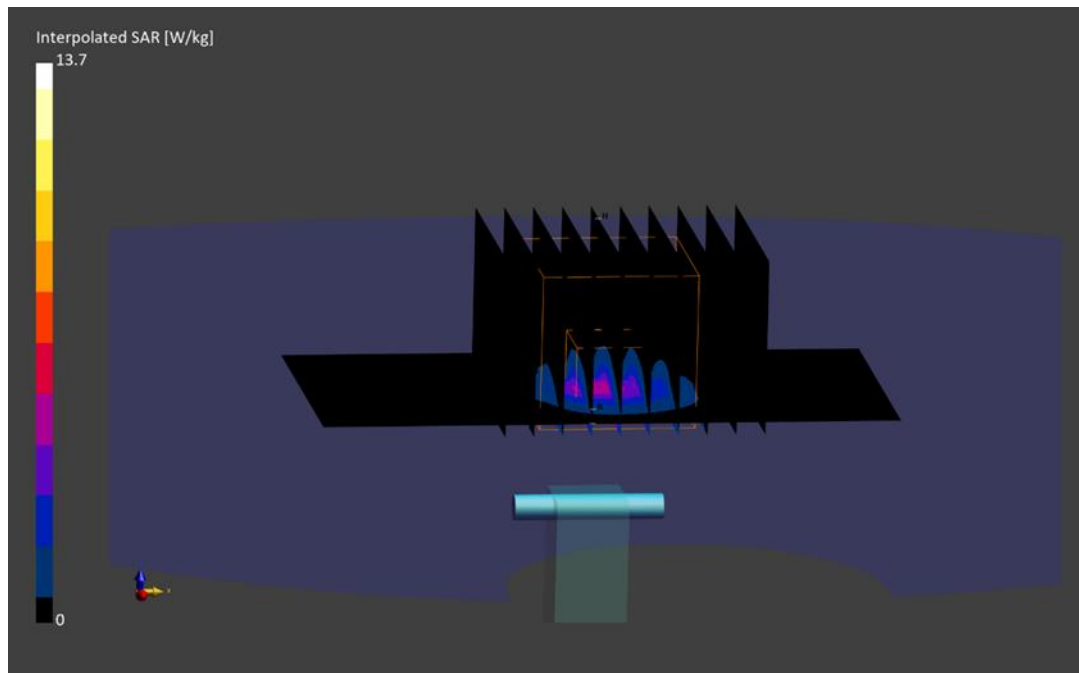
Area Scan (40.0 x 80.0): Measurement grid: dx=10.0 mm, dy=10.0 mm

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) = 13.7 W/kg

SAR(1 g) = 3.79 W/kg

Deviation (1 g) = -5.84%



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 = 4.98 S/m; perm = 35.4; density = 1000 kg/m³

Phantom Section: Flat; Space: 10 mm

Test Date: 01/18/2024; Ambient Temp: 23.0°C; Tissue Temp: 20.1°C

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

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

Electronics: DAE4 Sn1237; 2023-10-18

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

Measurement SW: DASY Module SAR V16.2.0.1425

5600.0 MHz System Verification at 17.0 dBm (50 mW)

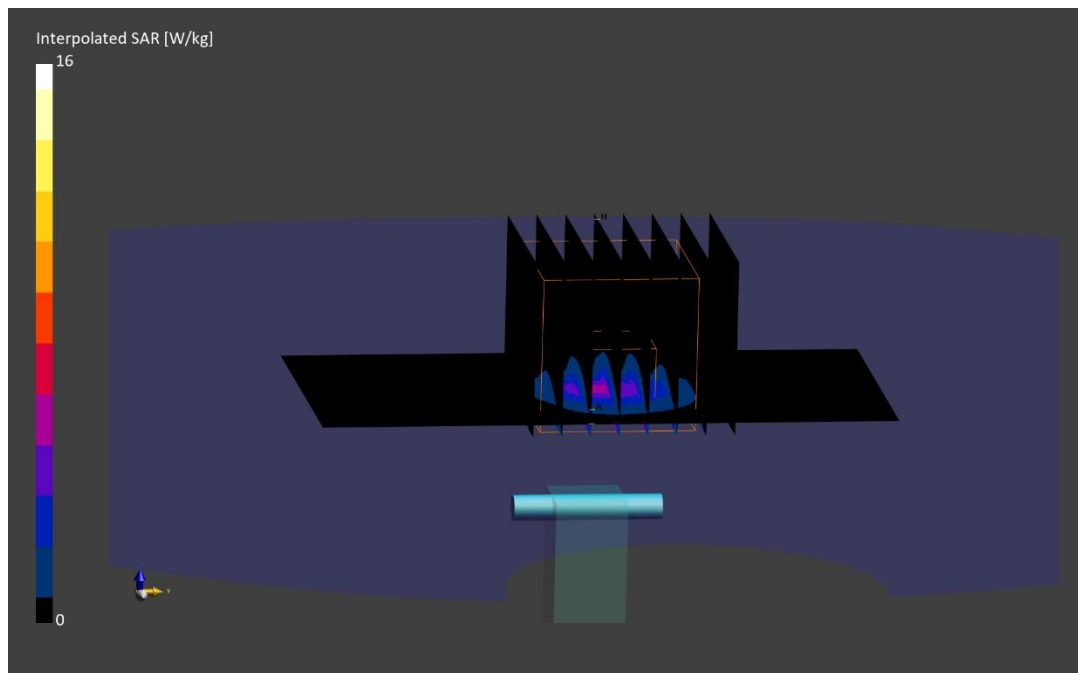
Area Scan (40.0 x 80.0): Measurement grid: dx=10.0 mm, dy=10.0 mm

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) = 16.0 W/kg

SAR(1 g) = 4.05 W/kg

Deviation (1 g) = -3.23%



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 = 4.88 S/m; perm = 35.4; density = 1000 kg/m³

Phantom Section: Flat; Space: 10 mm

Test Date: 01/28/2024; Ambient Temp: 22.8°C; Tissue Temp: 20.7°C

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

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

Electronics: DAE4 Sn1237; 2023-10-18

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

Measurement SW: DASY Module SAR V16.2.0.1425

5600.0 MHz System Verification at 17.0 dBm (50 mW)

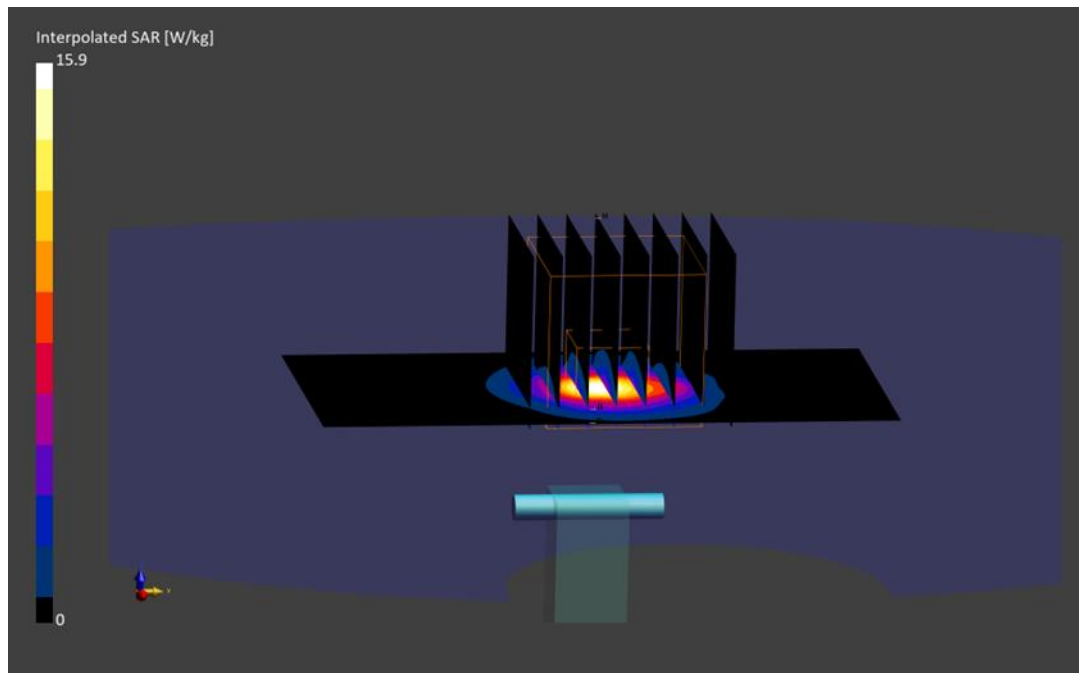
Area Scan (40.0 x 80.0): Measurement grid: dx=10.0 mm, dy=10.0 mm

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) = 15.9 W/kg

SAR(1 g) = 4.08 W/kg

Deviation (1 g) = -2.51%



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 = 5.16 S/m; perm = 35.1; density = 1000 kg/m³

Phantom Section: Flat; Space: 10 mm

Test Date: 01/18/2024; Ambient Temp: 23.0°C; Tissue Temp: 20.1°C

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

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

Electronics: DAE4 Sn1237; 2023-10-18

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

Measurement SW: DASY Module SAR V16.2.0.1425

5750.0 MHz System Verification at 17.0 dBm (50 mW)

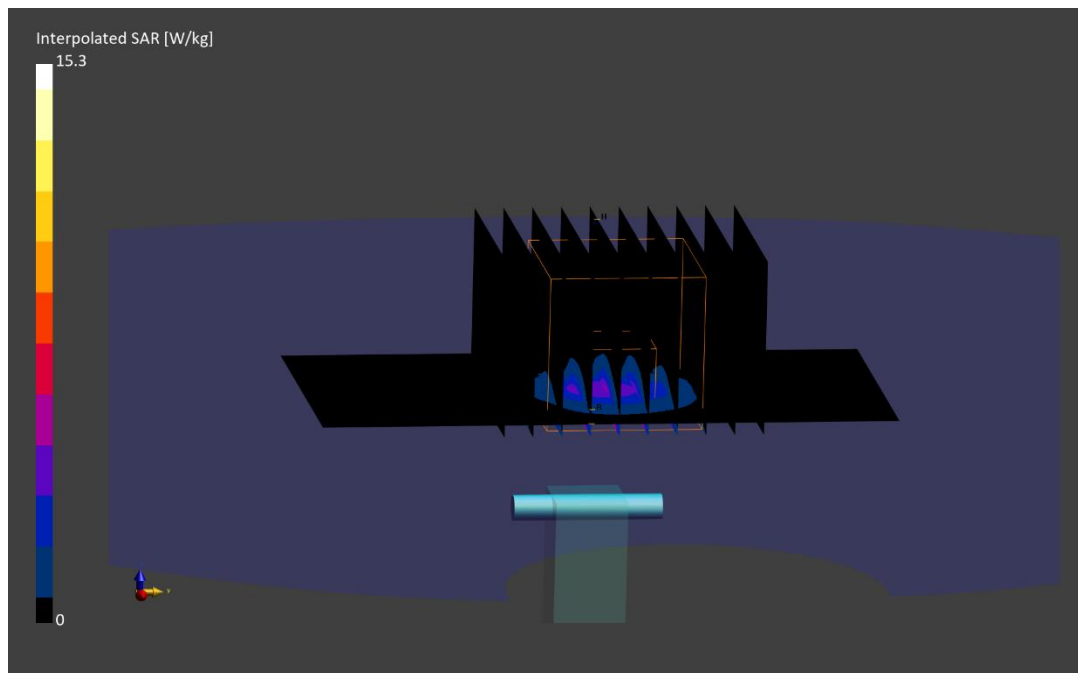
Area Scan (40.0 x 80.0): Measurement grid: dx=10.0 mm, dy=10.0 mm

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) = 15.3 W/kg

SAR(1 g) = 3.75 W/kg

Deviation (1 g) = -6.83%



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 = 5.05 S/m; perm = 35.2; density = 1000 kg/m³

Phantom Section: Flat; Space: 10 mm

Test Date: 01/28/2024; Ambient Temp: 22.8°C; Tissue Temp: 20.7°C

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

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

Electronics: DAE4 Sn1237; 2023-10-18

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

Measurement SW: DASY Module SAR V16.2.0.1425

5750.0 MHz System Verification at 17.0 dBm (50 mW)

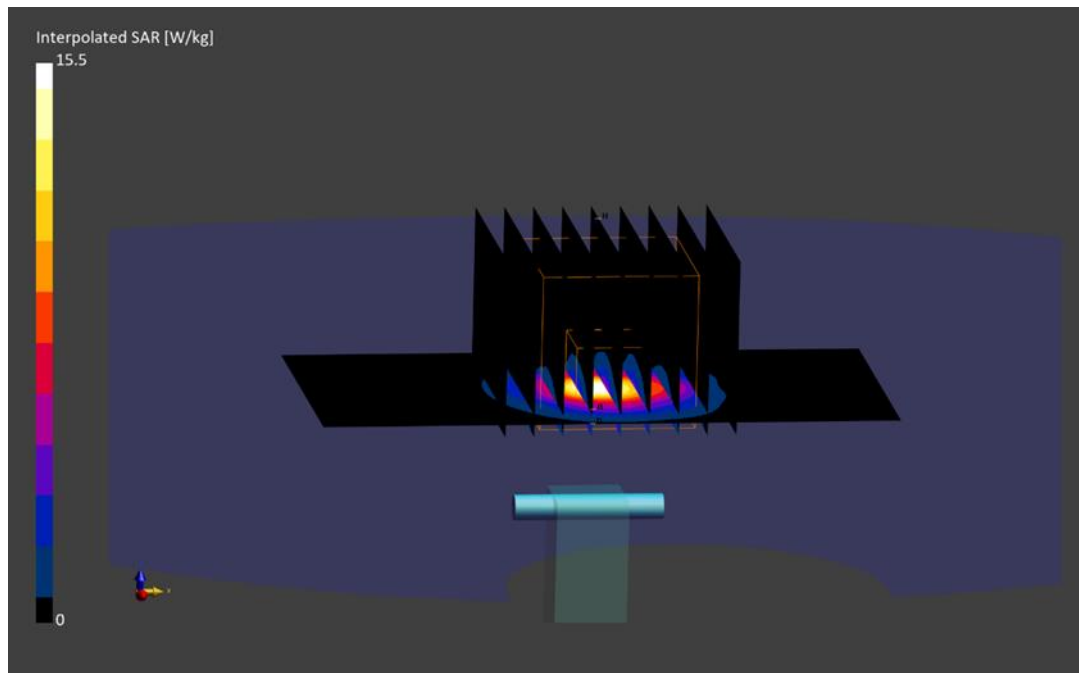
Area Scan (40.0 x 80.0): Measurement grid: dx=10.0 mm, dy=10.0 mm

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) = 15.5 W/kg

SAR(1 g) = 3.87 W/kg

Deviation (1 g) = -3.85%



ELEMENT

DUT: Dipole 5800.0 MHz; Type: D5GHzV2 - SN1123

Communication System: UID: 0, CW; Frequency: 5800.0 MHz

Medium: 5200-5800 Head; Medium parameters used:

f = 5800.0 MHz; cond = 5.21 S/m; perm = 35.0; density = 1000 kg/m³

Phantom Section: Flat; Space: 10 mm

Test Date: 01/18/2024; Ambient Temp: 23.0°C; Tissue Temp: 20.1°C

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

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

Electronics: DAE4 Sn1237; 2023-10-18

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

Measurement SW: DASY Module SAR V16.2.0.1425

5800.0 MHz System Verification at 17.0 dBm (50 mW)

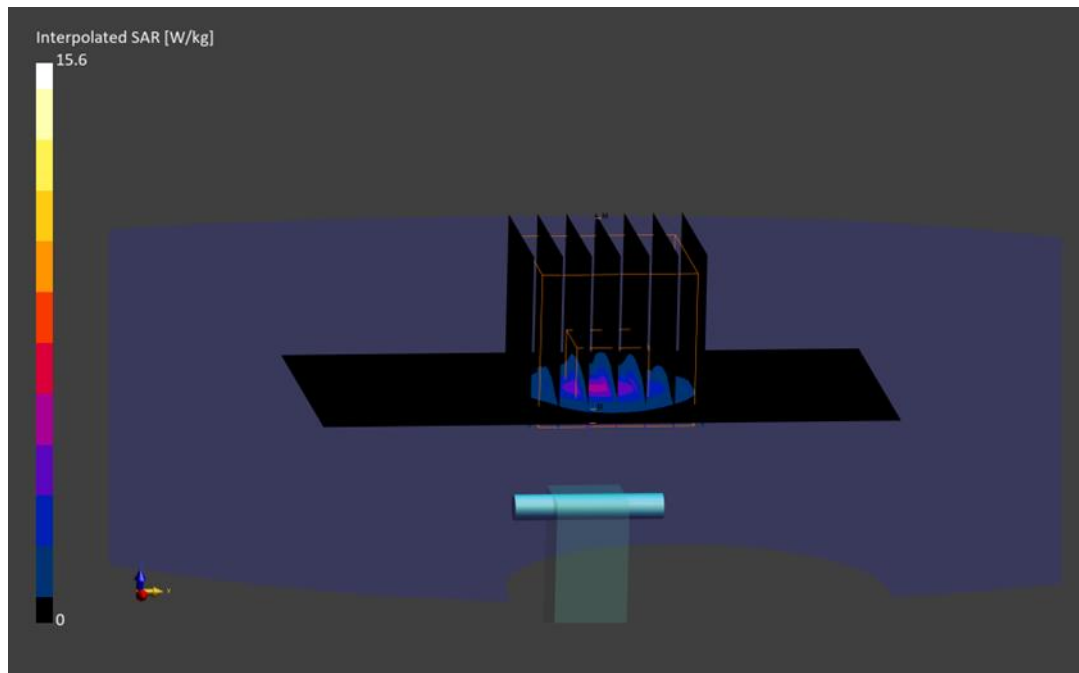
Area Scan (40.0 x 80.0): Measurement grid: dx=10.0 mm, dy=10.0 mm

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) = 15.7 W/kg

SAR(1 g) = 3.81 W/kg

Deviation (1 g) = -5.34%



ELEMENT

DUT: Dipole 5800.0 MHz; Type: D5GHzV2 - SN1123

Communication System: UID: 0, CW; Frequency: 5800.0 MHz

Medium: 5200-5800 Head; Medium parameters used:

f = 5800.0 MHz; cond = 5.10 S/m; perm = 35.1; density = 1000 kg/m³

Phantom Section: Flat; Space: 10 mm

Test Date: 01/28/2024; Ambient Temp: 22.8°C; Tissue Temp: 20.7°C

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

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

Electronics: DAE4 Sn1237; 2023-10-18

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

Measurement SW: DASY Module SAR V16.2.0.1425

5800.0 MHz System Verification at 17.0 dBm (50 mW)

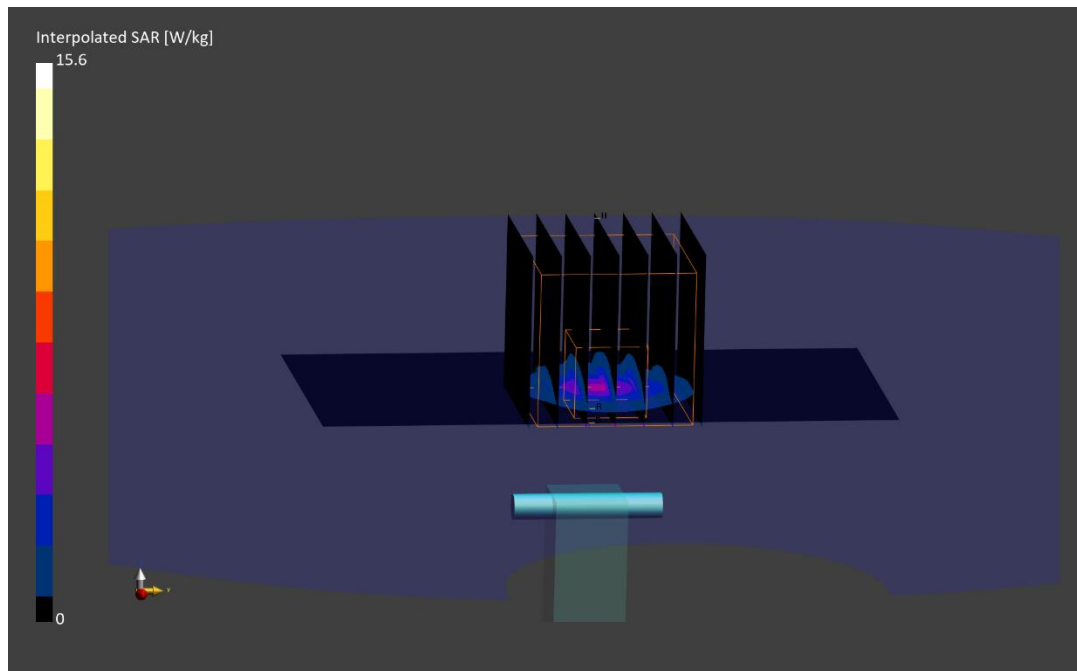
Area Scan (40.0 x 80.0): Measurement grid: dx=10.0 mm, dy=10.0 mm

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) = 3.85 W/kg

Deviation (1 g) = -4.35%



ELEMENT

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

Communication System: UID: 0, CW; Frequency: 6500.000 MHz
Medium: 6000 Head; Medium parameters used:
 $f = 6500.000$ MHz; $\text{cond} = 5.88$ S/m; $\text{perm} = 33.1$; $\text{density} = 1000$ kg/m³
Phantom Section: Flat; Space: 5 mm

Test Date: 01/24/2024; Ambient Temp: 22.2°C; Tissue Temp: 20.0°C

Probe: EX3DV4 - SN7420; ConvF:(5.21,5.12,5.28); Calibrated: 2023-10-16
Sensor-Surface: 1.4mm (All points)
Electronics: DAE4 Sn1333; 2023-10-18
Phantom: Twin-SAM V4.0 (30deg probe tilt); Serial: 1275
Measurement SW: DASY Module SAR V16.2.0.1425

6500.0 MHz System Verification at 14.0 dBm (25 mW)

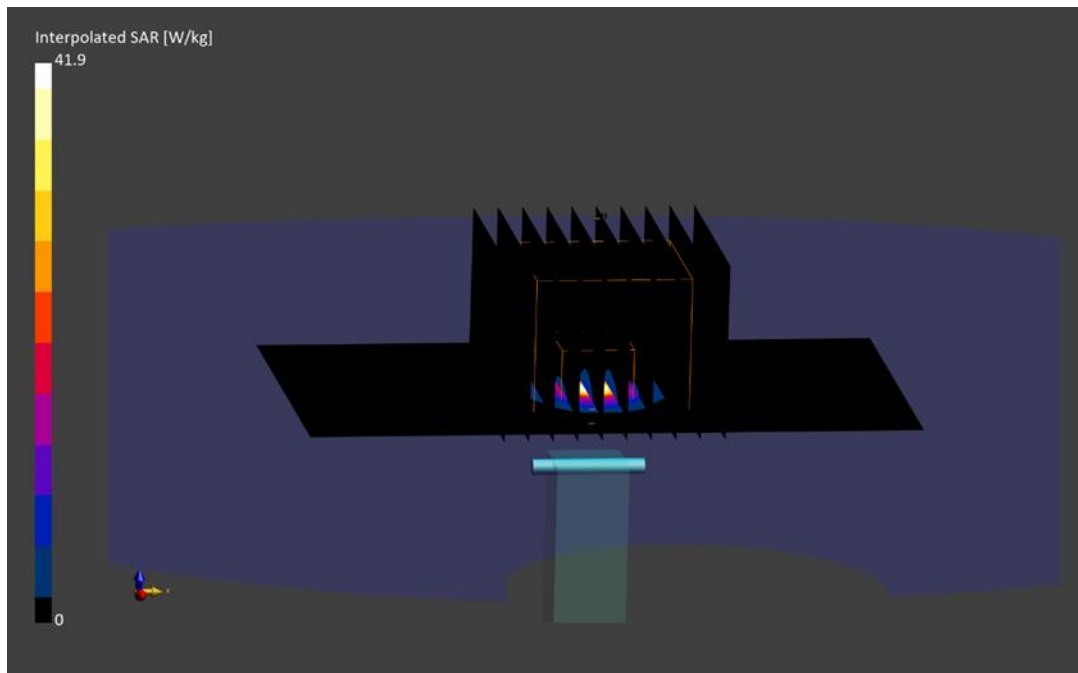
Area Scan (51.0 x 85.0): Measurement grid: $dx=8.5$ mm, $dy=8.5$ mm

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) = 7.09 W/kg

Deviation (1 g) = -3.21%



Date: 01/29/2024

10 GHz System Verification

Device Under Test Properties

DUT	Serial Number
10 GHz Verification Source	1002

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

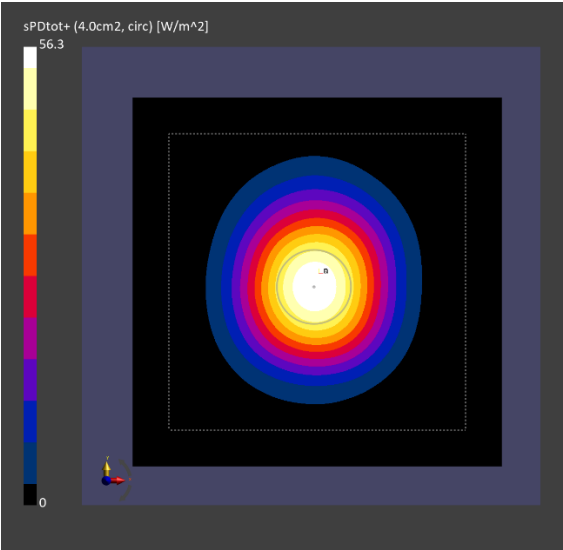
Software	Software Version
cDASY6 Module mmWave	3.2.0.1840

Scans Setup

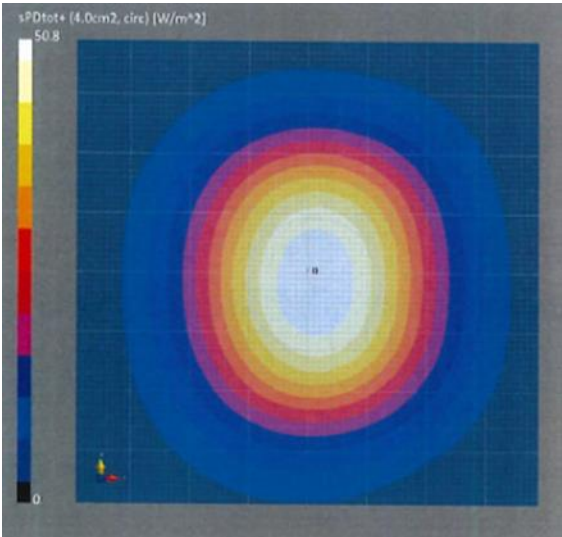
Scan Type	5G Scan
Grid Extents [mm]	60.0 x 60.0
Grid Steps [lambda]	0.25 x 0.25
Sensor Surface [mm]	10.0

Measurement Results

Scan Type	5G Scan
Avg. Area [cm²]	4.00
pS _{tot} avg [W/m²]	56.3
pS _n avg [W/m²]	56.2
E _{peak} [V/m]	153
Deviation [dB] pS _{tot}	0.25
Deviation [dB] pS _n	0.27



10 GHz System Verification



Calibration Certificate