APPENDIX B: SAR DIPOLE VERIFICATION PLOTS

ELEMENT

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

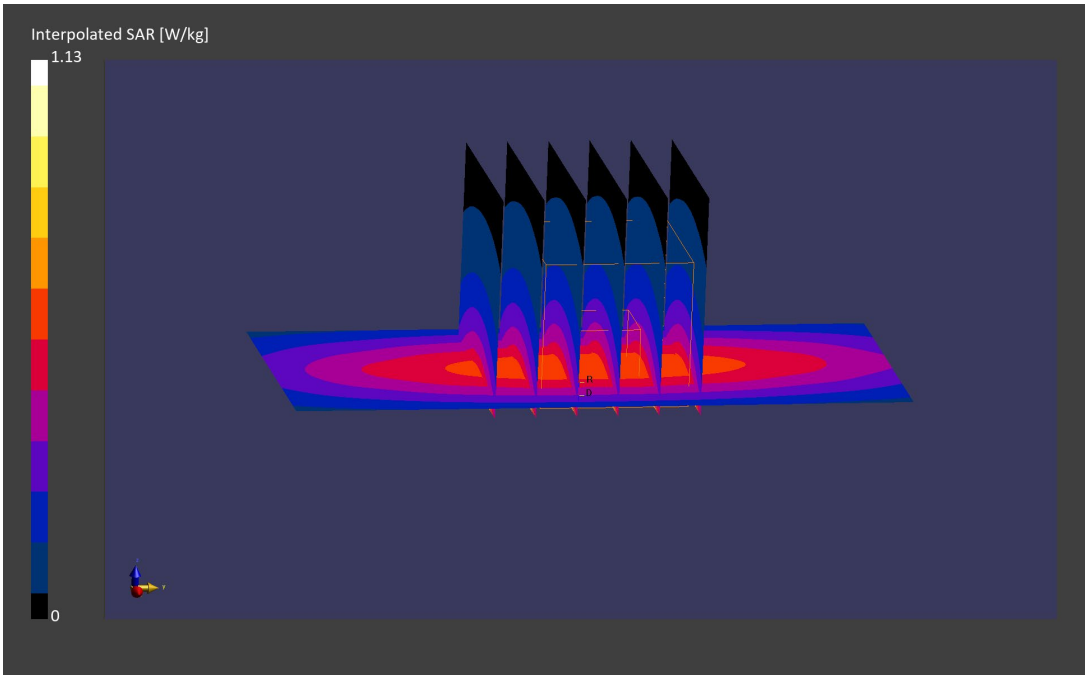
Communication System: UID: 0, CW; Frequency: 13.0 MHz
Medium: 30 Head; Medium parameters used:
f = 13.0 MHz; cond = 0.725 S/m; perm = 53.3; density = 1000 kg/m^3
Phantom Section: Flat; Space: 0 mm

Test Date: 01/02/2024; Ambient Temp: 21.2°C; Tissue Temp: 20.8°C

Probe: EX3DV4 - SN7360; ConvF:(17.98,17.98,17.98); 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) = 1.13 W/kg
SAR(1 g) = 0.574 W/kg; SAR(10 g) = 0.353 W/kg
Deviation (1 g) = -0.69%; Deviation (10 g) = -0.84%



ELEMENT

DUT: Dipole 2450.0 MHz; Type: D2450V2 - SN750

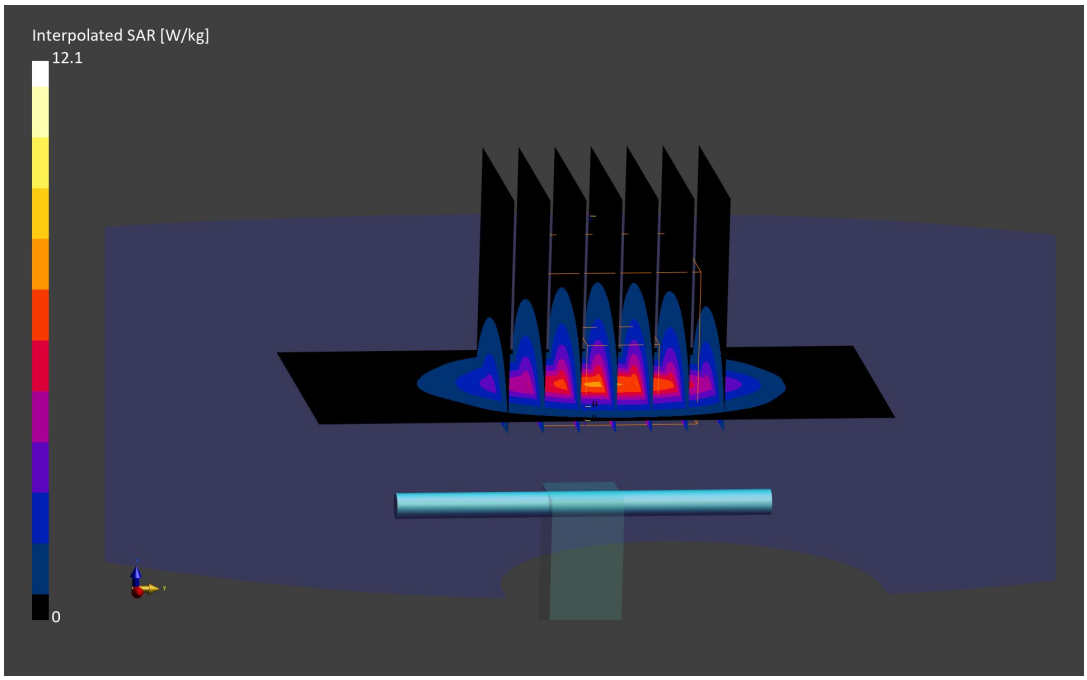
Communication System: UID: 0, CW; Frequency: 2450.0 MHz
Medium: 2450 Head; Medium parameters used:
f = 2450.0 MHz; cond = 1.87 S/m; perm = 38.0; density = 1000 kg/m^3
Phantom Section: Flat; Space: 10 mm

Test Date: 11/29/2023; Ambient Temp: 22.1°C; Tissue Temp: 23.5°C

Probe: EX3DV4 - SN7546; ConvF:(7.29,7.29,7.29); 2023-04-14
Sensor-Surface: 1.4mm (VMS + 6p)
Electronics: DAE4 Sn1402; 2023-04-14
Phantom: Twin-SAM V8.0 (30deg probe tilt); Serial: 1935
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) = 12.1 W/kg
SAR(1 g) = 5.59 W/kg; SAR(10 g) = 2.55 W/kg
Deviation (1 g) = 6.27%; Deviation (10 g) = 4.08%



ELEMENT

DUT: Dipole 2450.0 MHz; Type: D2450V2 - SN921

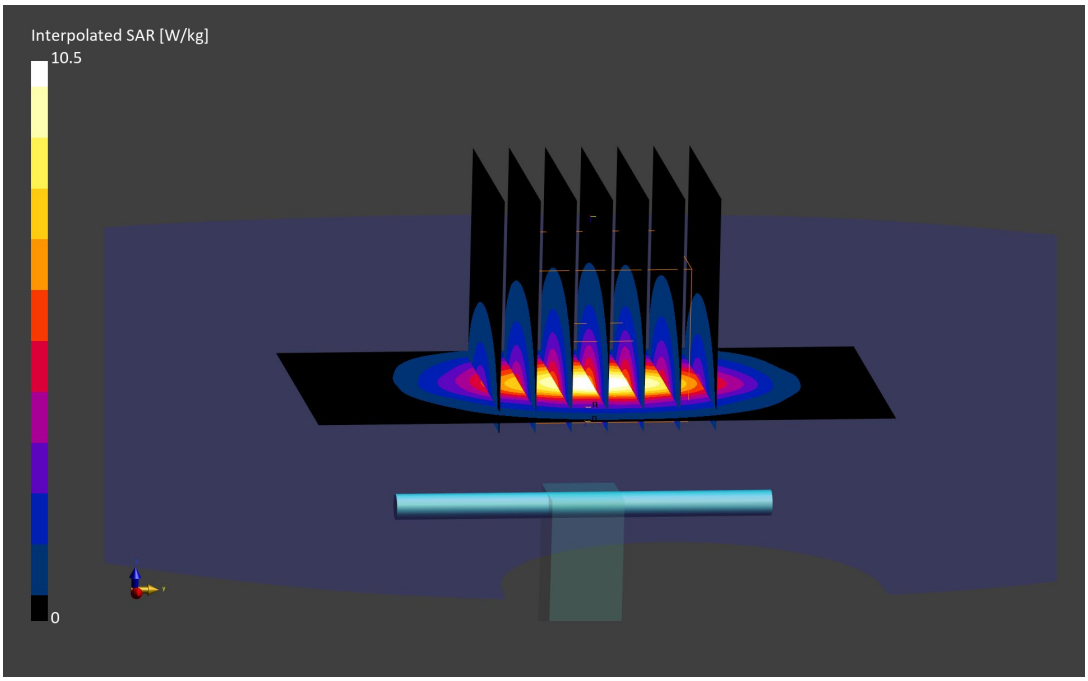
Communication System: UID: 0, CW; Frequency: 2450.0 MHz
Medium: 2450 Head; Medium parameters used:
f = 2450.0 MHz; cond = 1.77 S/m; perm = 40.7; density = 1000 kg/m^3
Phantom Section: Flat; Space: 10 mm

Test Date: 11/29/2023; Ambient Temp: 21.2°C; Tissue Temp: 20.2°C

Probe: EX3DV4 - SN7421; ConvF:(7.45,7.45,7.45); 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) = 5.11 W/kg; SAR(10 g) = 2.42 W/kg
Deviation (1 g) = -5.72%; Deviation (10 g) = -5.10%



ELEMENT

DUT: Dipole 2450.0 MHz; Type: D2450V2 - SN750

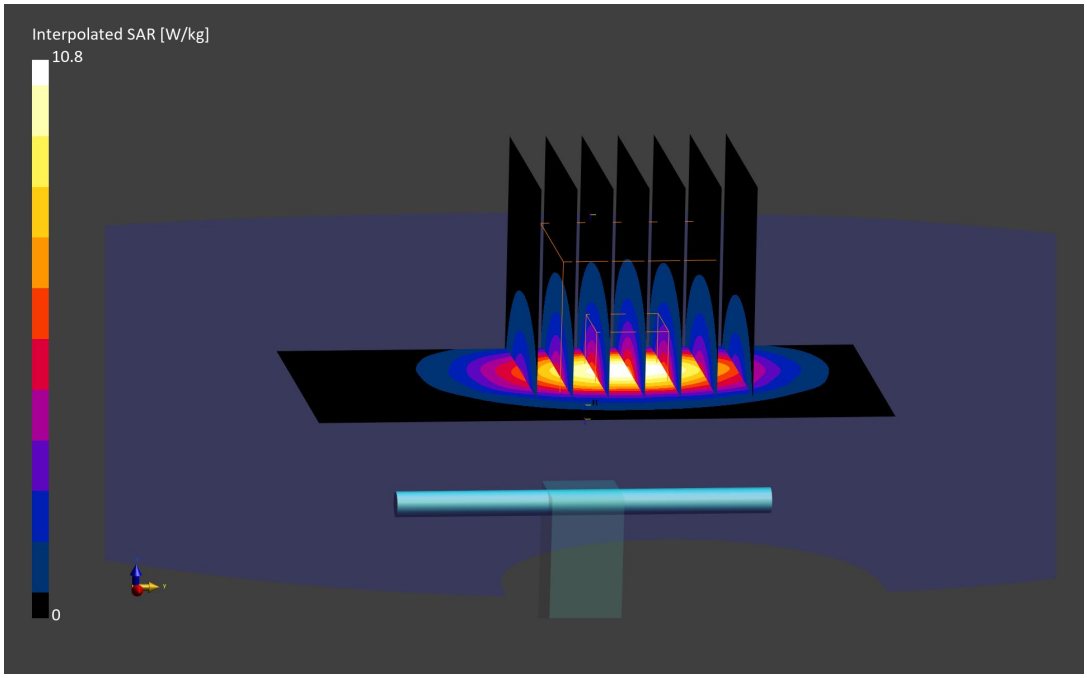
Communication System: UID: 0, CW; Frequency: 2450.0 MHz
Medium: 2450 Head; Medium parameters used:
f = 2450.0 MHz; cond = 1.75 S/m; perm = 38.5; density = 1000 kg/m^3
Phantom Section: Flat; Space: 10 mm

Test Date: 02/26/2024; Ambient Temp: 20.3°C; Tissue Temp: 19.8°C

Probe: EX3DV4 - SN7416; ConvF:(7.27,7.27,7.27); 2023-05-08
Sensor-Surface: 1.4mm (VMS + 6p)
Electronics: DAE4 Sn701; 2023-05-11
Phantom: Twin-SAM V8.0; Serial: 2029
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) = 10.8 W/kg
SAR(1 g) = 5.16 W/kg; SAR(10 g) = 2.41 W/kg
Deviation (1 g) = -1.90%; Deviation (10 g) = -1.63%



ELEMENT

DUT: Dipole 5250.0 MHz; Type: D5GHzV2 - SN1123

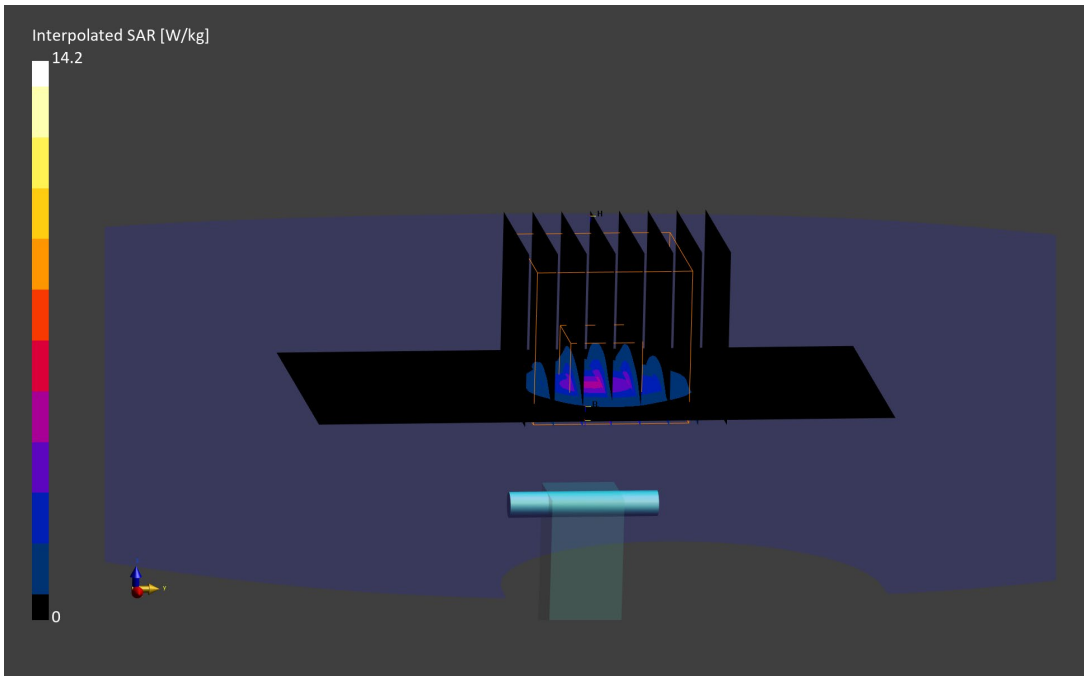
Communication System: UID: 0, CW; Frequency: 5250.0 MHz
Medium: 5200-5800 Head; Medium parameters used:
f = 5250.0 MHz; cond = 4.50 S/m; perm = 35.0; density = 1000 kg/m^3
Phantom Section: Flat; Space: 10 mm

Test Date: 12/14/2023; Ambient Temp: 20.4°C; Tissue Temp: 19.3°C

Probe: EX3DV4 - SN3746; ConvF:(5.12,5.12,5.12); 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) = 14.2 W/kg
SAR(1 g) = 3.74 W/kg; SAR(10 g) = 1.07 W/kg
Deviation (1 g) = -7.08%; Deviation (10 g) = -6.55%



ELEMENT

DUT: Dipole 5250.0 MHz; Type: D5GHzV2 - SN1163

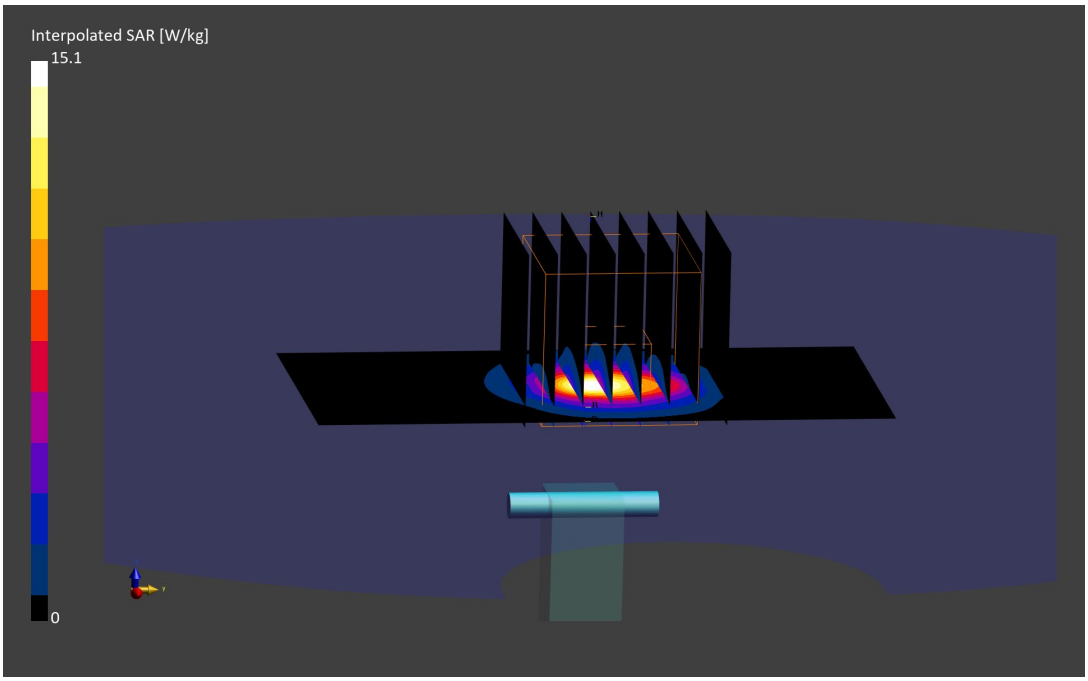
Communication System: UID: 0, CW; Frequency: 5250.0 MHz
Medium: 5200-5800 Head; Medium parameters used:
f = 5250.0 MHz; cond = 4.49 S/m; perm = 35.6; density = 1000 kg/m^3
Phantom Section: Flat; Space: 10 mm

Test Date: 12/26/2023; Ambient Temp: 20.1°C; Tissue Temp: 19.0°C

Probe: EX3DV4 - SN3746; ConvF:(5.12,5.12,5.12); 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) = 15.1 W/kg
SAR(1 g) = 4.04 W/kg; SAR(10 g) = 1.16 W/kg
Deviation (1 g) = 0.75%; Deviation (10 g) = 0.43%



ELEMENT

DUT: Dipole 5600.0 MHz; Type: D5GHzV2 - SN1123

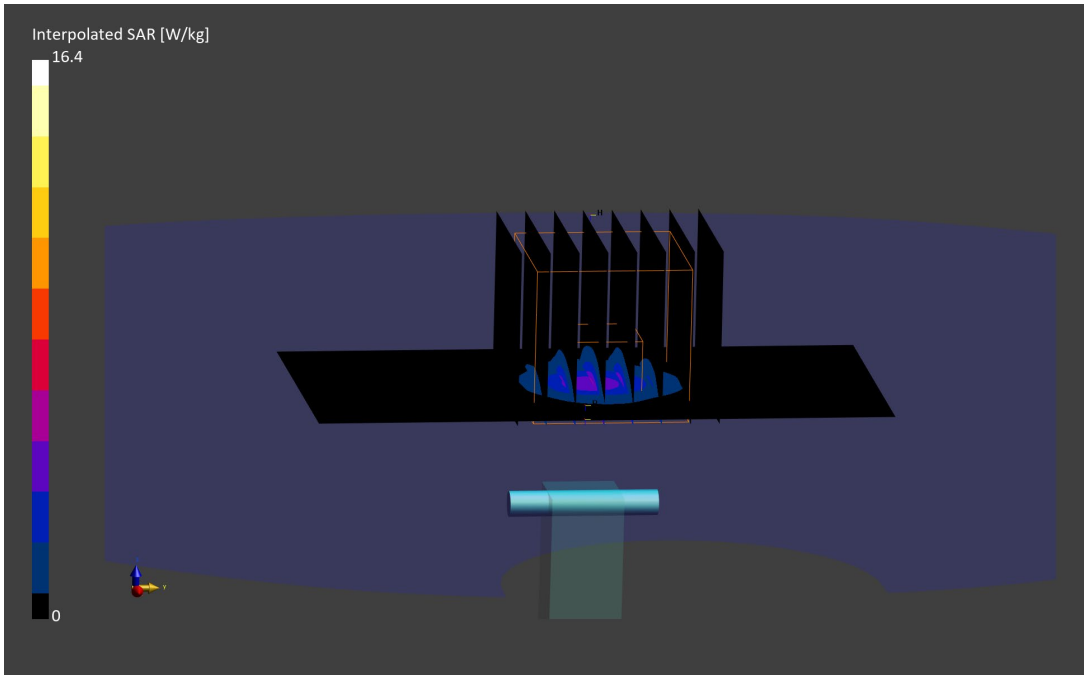
Communication System: UID: 0, CW; Frequency: 5600.0 MHz
Medium: 5200-5800 Head; Medium parameters used:
f = 5600.0 MHz; cond = 4.89 S/m; perm = 34.3; density = 1000 kg/m^3
Phantom Section: Flat; Space: 10 mm

Test Date: 12/14/2023; Ambient Temp: 20.4°C; Tissue Temp: 19.3°C

Probe: EX3DV4 - SN3746; ConvF:(4.45,4.45,4.45); 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) = 16.3 W/kg
SAR(1 g) = 3.94 W/kg; SAR(10 g) = 1.11 W/kg
Deviation (1 g) = -5.85%; Deviation (10 g) = -6.33%



ELEMENT

DUT: Dipole 5600.0 MHz; Type: D5GHzV2 - SN1163

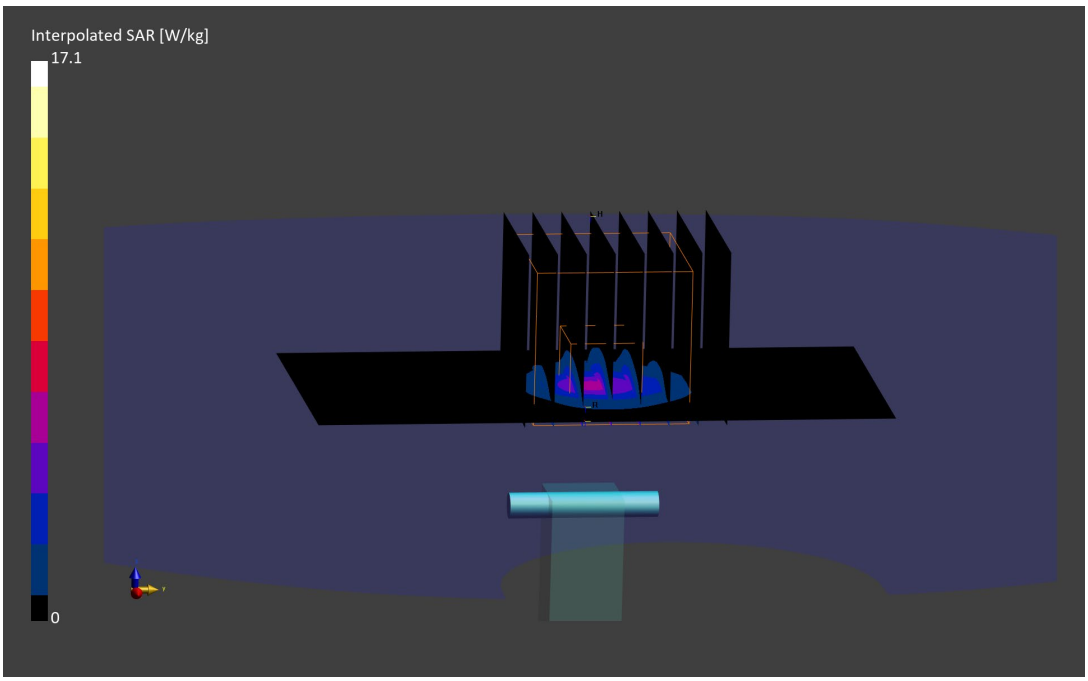
Communication System: UID: 0, CW; Frequency: 5600.0 MHz
Medium: 5200-5800 Head; Medium parameters used:
f = 5600.0 MHz; cond = 4.87 S/m; perm = 34.9; density = 1000 kg/m^3
Phantom Section: Flat; Space: 10 mm

Test Date: 12/26/2023; Ambient Temp: 20.1°C; Tissue Temp: 19.0°C

Probe: EX3DV4 - SN3746; ConvF:(4.45,4.45,4.45); 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) = 17.1 W/kg
SAR(1 g) = 4.30 W/kg; SAR(10 g) = 1.21 W/kg
Deviation (1 g) = 3.24%; Deviation (10 g) = 1.68%



ELEMENT

DUT: Dipole 5750.0 MHz; Type: D5GHzV2 - SN1123

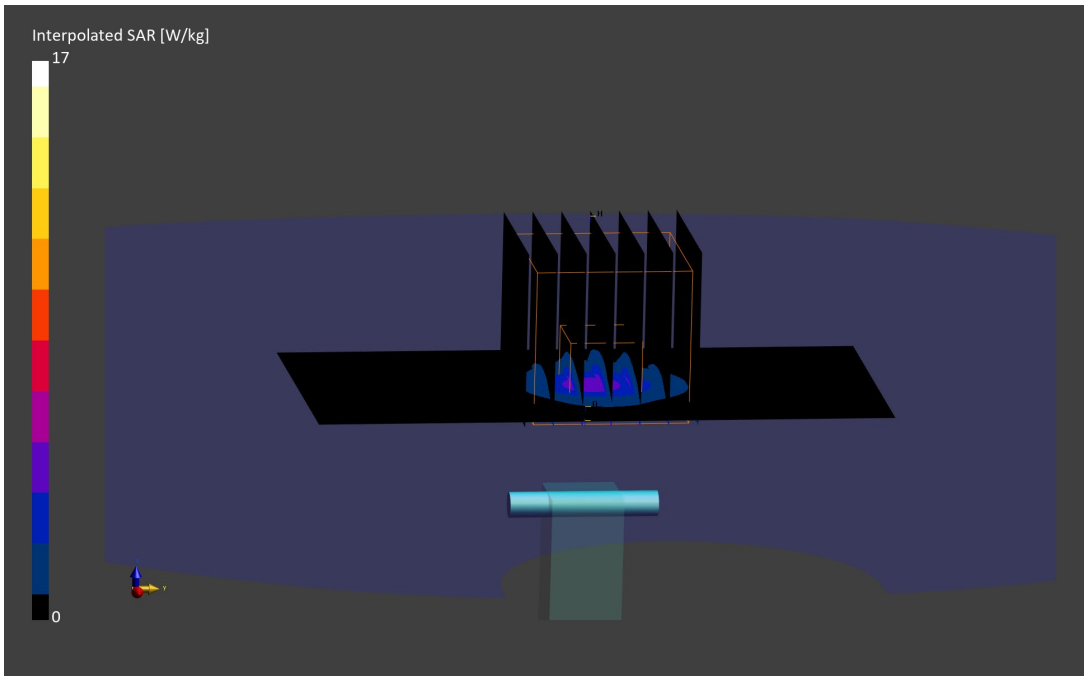
Communication System: UID: 0, CW; Frequency: 5750.0 MHz
Medium: 5200-5800 Head; Medium parameters used:
f = 5750.0 MHz; cond = 5.06 S/m; perm = 34.0; density = 1000 kg/m^3
Phantom Section: Flat; Space: 10 mm

Test Date: 12/14/2023; Ambient Temp: 20.4°C; Tissue Temp: 19.3°C

Probe: EX3DV4 - SN3746; ConvF:(4.59,4.59,4.59); 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) = 17.0 W/kg
SAR(1 g) = 3.95 W/kg; SAR(10 g) = 1.12 W/kg
Deviation (1 g) = -1.86%; Deviation (10 g) = -1.32%



ELEMENT

DUT: Dipole 5750.0 MHz; Type: D5GHzV2 - SN1163

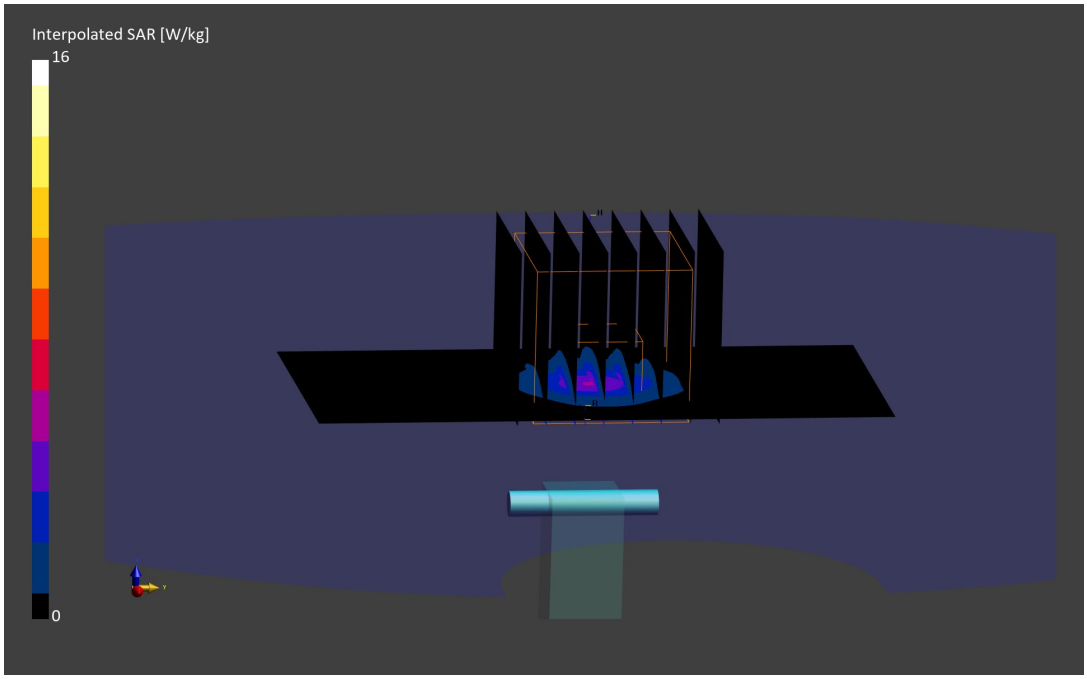
Communication System: UID: 0, CW; Frequency: 5750.0 MHz
Medium: 5200-5800 Head; Medium parameters used:
f = 5750.0 MHz; cond = 5.04 S/m; perm = 34.7; density = 1000 kg/m^3
Phantom Section: Flat; Space: 10 mm

Test Date: 12/26/2023; Ambient Temp: 20.1°C; Tissue Temp: 19.0°C

Probe: EX3DV4 - SN3746; ConvF:(4.59,4.59,4.59); 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) = 16.0 W/kg
SAR(1 g) = 3.84 W/kg; SAR(10 g) = 1.10 W/kg
Deviation (1 g) = -5.19%; Deviation (10 g) = -4.35%



ELEMENT

DUT: Dipole 5800.0 MHz; Type: D5GHzV2 - SN1123

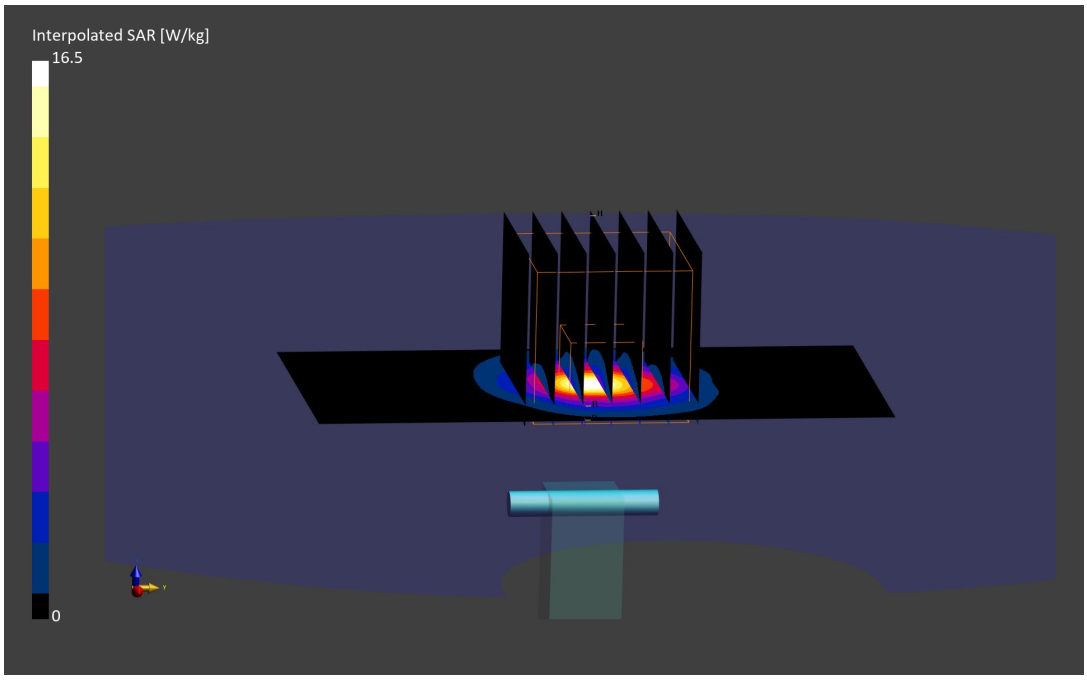
Communication System: UID: 0, CW; Frequency: 5800.0 MHz
Medium: 5200-5800 Head; Medium parameters used:
f = 5800.0 MHz; cond = 5.10 S/m; perm = 33.9; density = 1000 kg/m^3
Phantom Section: Flat; Space: 10 mm

Test Date: 12/14/2023; Ambient Temp: 20.4°C; Tissue Temp: 19.3°C

Probe: EX3DV4 - SN3746; ConvF:(4.5,4.5,4.5); 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) = 16.5 W/kg
SAR(1 g) = 3.81 W/kg; SAR(10 g) = 1.08 W/kg
Deviation (1 g) = -5.34%; Deviation (10 g) = -4.00%



ELEMENT

DUT: Dipole 5800.0 MHz; Type: D5GHzV2 - SN1123

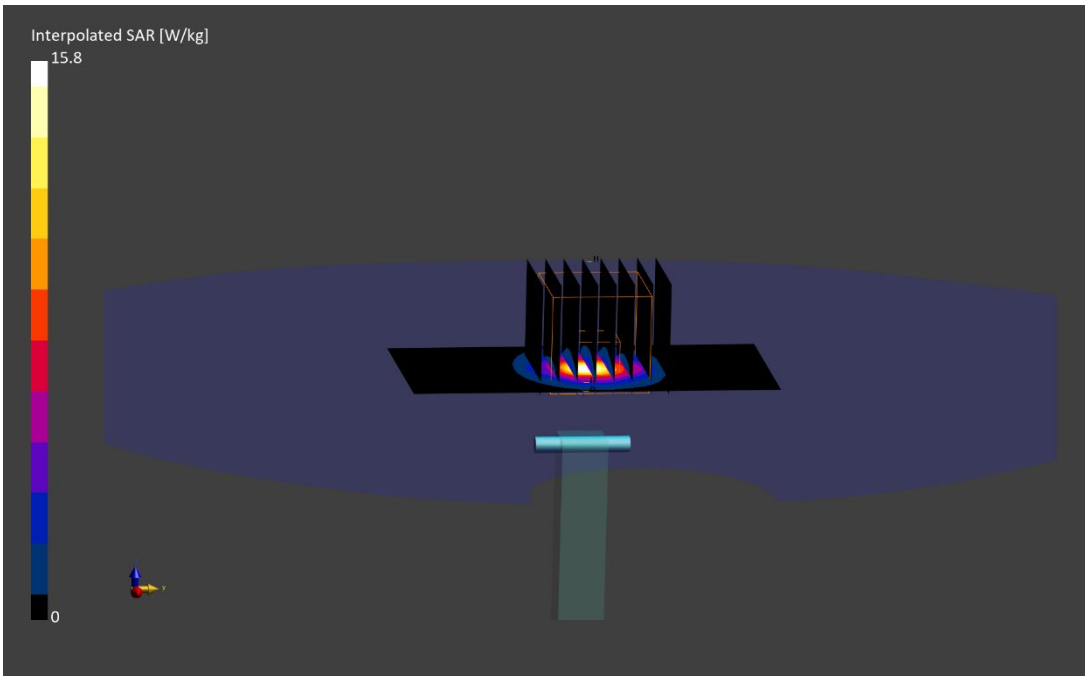
Communication System: UID: 0, CW; Frequency: 5800.0 MHz
Medium: 5200-5800 Head; Medium parameters used:
f = 5800.0 MHz; cond = 5.09 S/m; perm = 34.6; density = 1000 kg/m^3
Phantom Section: Flat; Space: 10 mm

Test Date: 12/26/2023; Ambient Temp: 20.1°C; Tissue Temp: 19.0°C

Probe: EX3DV4 - SN3746; ConvF:(4.5,4.5,4.5); 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) = 15.8 W/kg
SAR(1 g) = 3.77 W/kg; SAR(10 g) = 1.08 W/kg
Deviation (1 g) = -6.34%; Deviation (10 g) = -4.00%



ELEMENT

DUT: Dipole 6500.0 MHz; Type: D6.5GHzV2 - SN1020

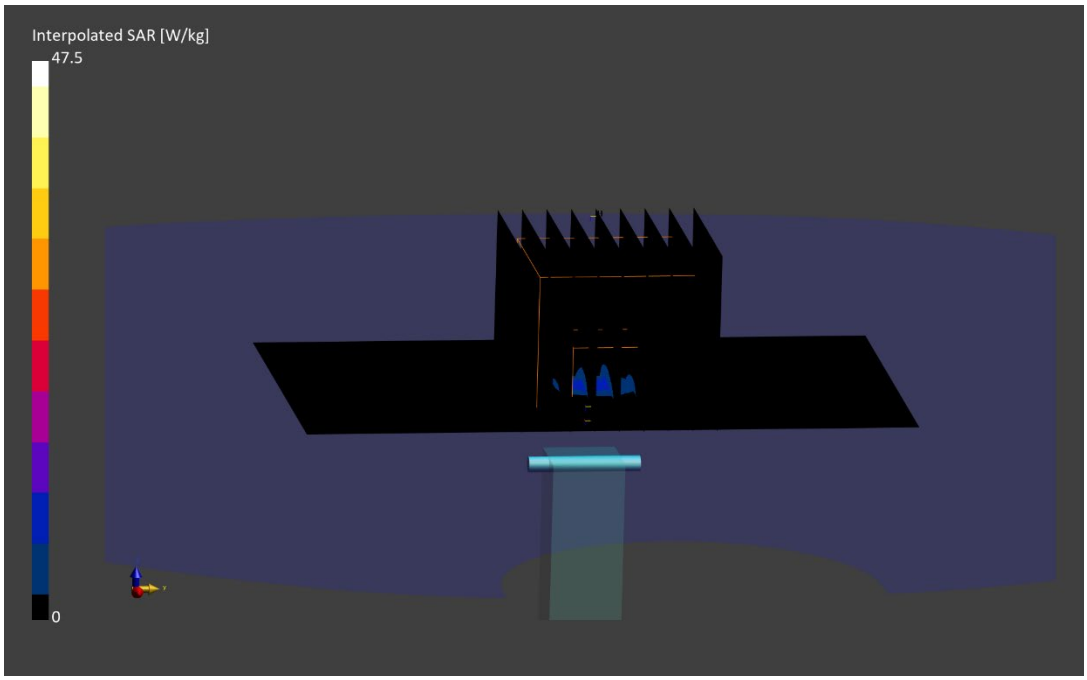
Communication System: UID: 0, CW; Frequency: 6500.0 MHz
Medium: 6000 Head; Medium parameters used:
f = 6500.0 MHz; cond = 6.07 S/m; perm = 34.1; density = 1000 kg/m^3
Phantom Section: Flat; Space: 5 mm

Test Date: 12/03/2023; Ambient Temp: 21.7°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN7420; ConvF:(5.21,5.12,5.28); 2023-10-16
Sensor-Surface: 1.4mm (VMS + 6p)
Electronics: DAE4 Sn1333; 2023-10-18
Phantom: Twin-SAM V4.0; 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) = 47.6 W/kg
SAR(1 g) = 7.67 W/kg; SAR(10 g) = 1.39 W/kg
Deviation (1 g) = 3.65%; Deviation (10 g) = 1.98%



Date: 11/28/2023

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
EUmmWV4 - SN9523, 01/16/2023	DAE4 - SN793, 10/18/2023

Software Setup

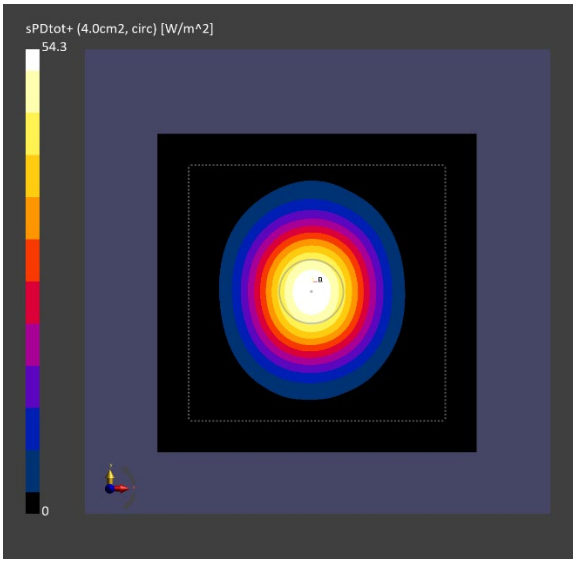
Software	Software Version
cDASY6 Module mmWave	3.2.0.1840

Scans Setup

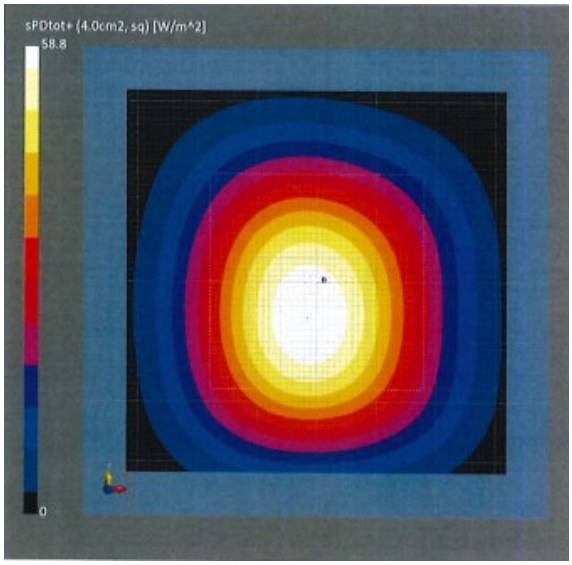
Scan Type	5G Scan
Grid Extents [mm]	60.0 x 60.0
Grid Steps [lambda]	0.25 x 0.25
Sensor Surface [mm]	10.0

Measurement Results

Scan Type	5G Scan
Avg. Area [cm²]	4.00
pS_{tot} avg [W/m²]	54.3
pS_n avg [W/m²]	54.2
E_{peak} [V/m]	154
Deviation [dB] pS_{tot}	-0.35
Deviation [dB] pS_n	-0.33



10 GHz System Verification



Calibration Certificate