

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; $\text{cond} = 0.744$ S/m; $\text{perm} = 52.5$; $\text{density} = 1000$ kg/m³
Phantom Section: Flat; Space: 0 mm

Test Date: 12/11/2024; Ambient Temp: 21.9°C; Tissue Temp: 24.0°C

Probe: EX3DV4 - SN7308; ConvF:(16.59,16.59,16.59); Calibrated: 2024-02-09
Sensor-Surface: 1.4mm (All points)
Electronics: DAE4 Sn534; Calibrated: 2024-03-06
Phantom: ELI V6.0; Serial: 2003
Measurement SW: DASY Module SAR V16.4.0.5005

13.0 MHz System Verification at 30.0 dBm (1000 mW)

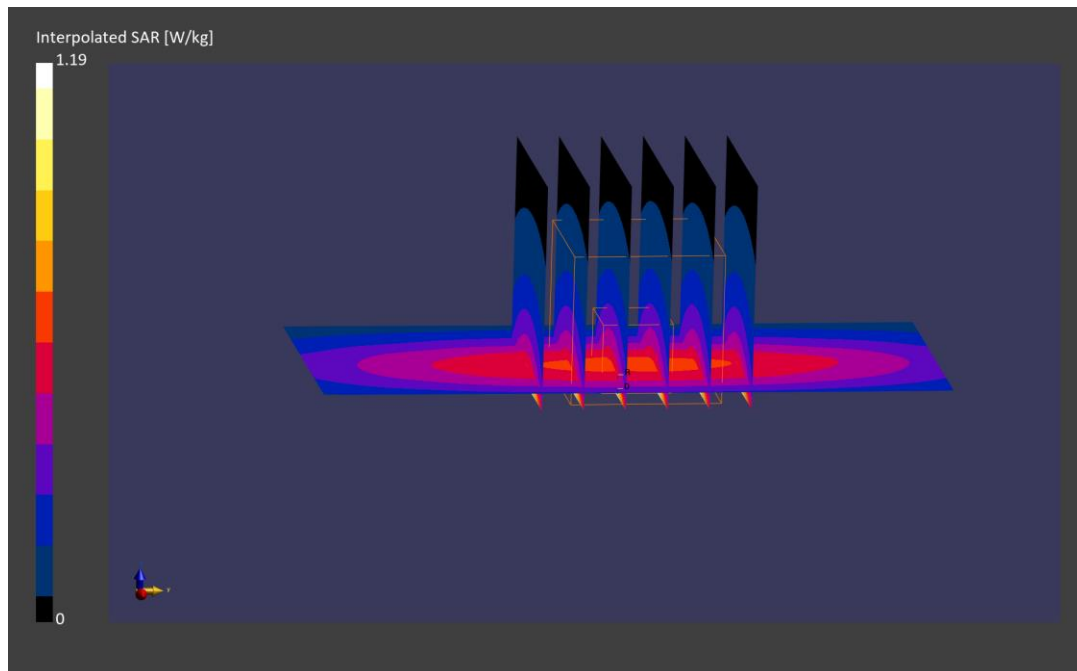
Area Scan (40.0 x 90.0): Measurement grid: $dx=10.0$ mm, $dy=15.0$ mm

Zoom Scan (30.0 x 30.0 x 31.2): 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) = 0.566 W/kg

Deviation (1 g) = -1.57%



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 = 1.81 S/m; perm = 38.3; density = 1000 kg/m³

Phantom Section: Flat; Space: 10 mm

Test Date: 10/26/2024; Ambient Temp: 21.5°C; Tissue Temp: 20.6°C

Probe: EX3DV4 - SN7639; ConvF:(7.43,7.55,8.26); Calibrated: 2024-09-09

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

Electronics: DAE4 Sn1403; Calibrated: 2024-09-04

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

Measurement SW: DASY Module SAR V16.4.0.5005

2450.0 MHz System Verification at 20.0 dBm (100 mW)

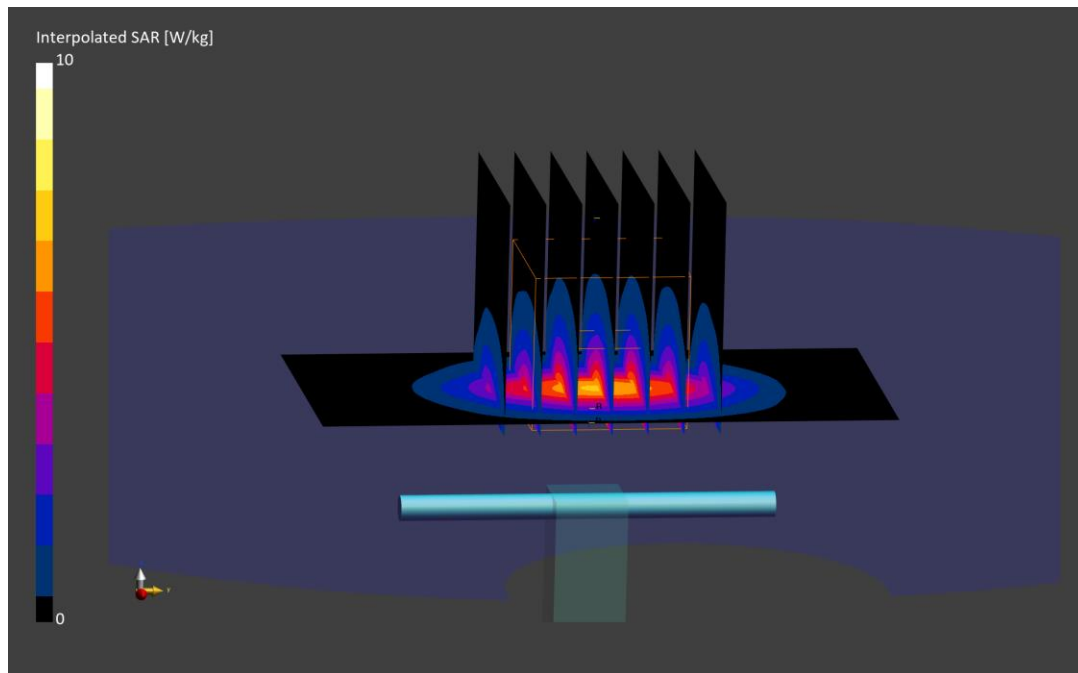
Area Scan (40.0 x 80.0): Measurement grid: dx=10.0 mm, dy=10.0 mm

Zoom Scan (30.0 x 30.0 x 31.2): Measurement grid: dx=5.0 mm, dy=5.0 mm, dz=1.5 mm; Graded Ratio: 1.5

Peak SAR (extrapolated) = 10.0 W/kg

SAR(1 g) = 5.10 W/kg

Deviation (1 g) = -2.67%



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; $\text{cond} = 1.87$ S/m; $\text{perm} = 38.0$; $\text{density} = 1000$ kg/m³

Phantom Section: Flat; Space: 10 mm

Test Date: 11/03/2024; Ambient Temp: 22.8°C; Tissue Temp: 19.2°C

Probe: EX3DV4 - SN7639; ConvF:(7.43,7.55,8.26); Calibrated: 2024-09-09

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

Electronics: DAE4 Sn1403; Calibrated: 2024-09-04

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

Measurement SW: DASY Module SAR V16.4.0.5005

2450.0 MHz System Verification at 20.0 dBm (100 mW)

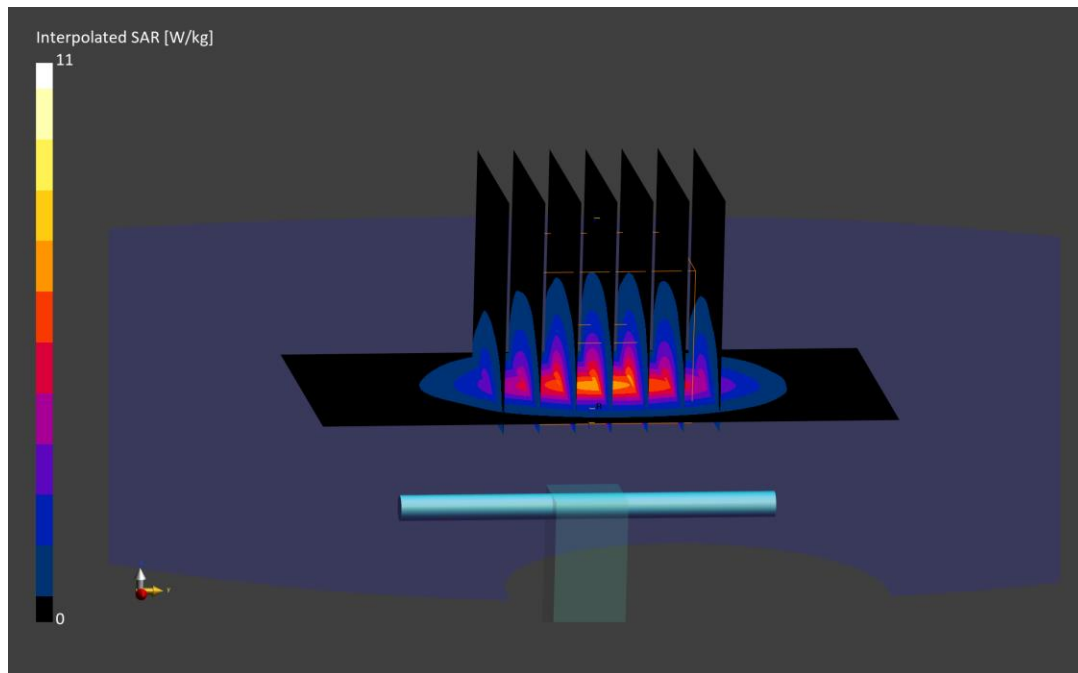
Area Scan (40.0 x 80.0): Measurement grid: $dx=10.0$ mm, $dy=10.0$ mm

Zoom Scan (30.0 x 30.0 x 31.2): Measurement grid: $dx=5.0$ mm, $dy=5.0$ mm, $dz=1.5$ mm; Graded Ratio: 1.5

Peak SAR (extrapolated) = 11.0 W/kg

SAR(1 g) = 5.44 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; cond = 1.86 S/m; perm = 38.4; density = 1000 kg/m³

Phantom Section: Flat; Space: 10 mm

Test Date: 11/19/2024; Ambient Temp: 21.4°C; Tissue Temp: 20.9°C

Probe: EX3DV4 - SN7639; ConvF:(7.43,7.55,8.26); Calibrated: 2024-09-09

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

Electronics: DAE4 Sn1403; Calibrated: 2024-09-04

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

Measurement SW: DASY Module SAR V16.4.0.5005

2450.0 MHz System Verification at 20.0 dBm (100 mW)

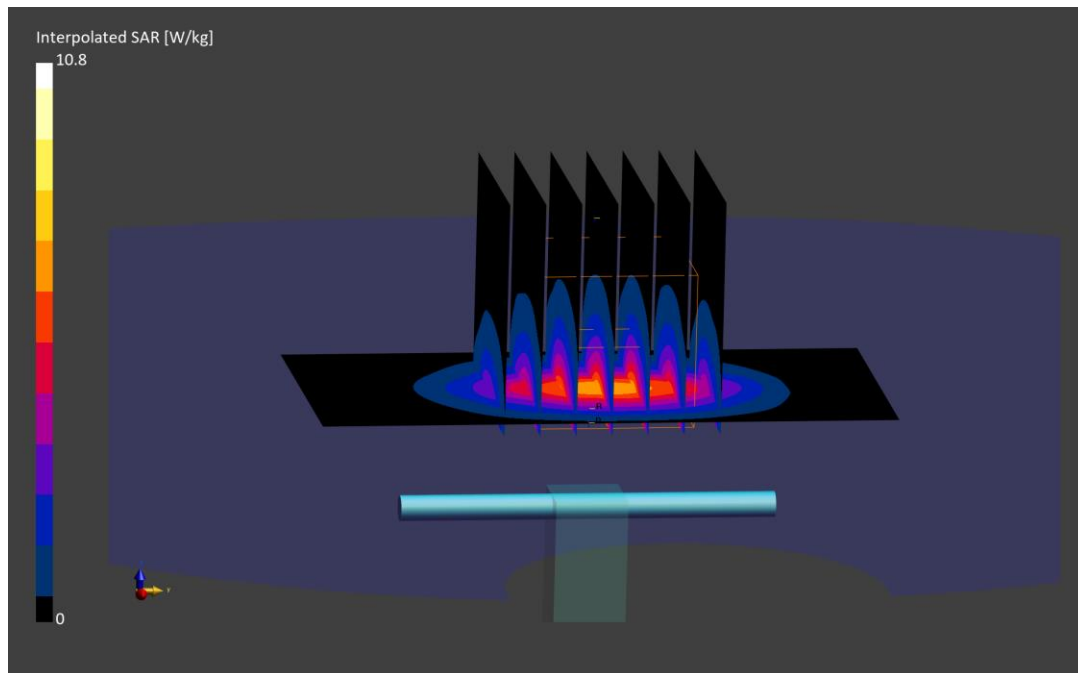
Area Scan (40.0 x 80.0): Measurement grid: dx=10.0 mm, dy=10.0 mm

Zoom Scan (30.0 x 30.0 x 31.2): 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) = 5.43 W/kg

Deviation (1 g) = 4.02%



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 = 4.63 S/m; perm = 34.8; density = 1000 kg/m³
Phantom Section: Flat; Space: 10 mm

Test Date: 10/30/2024; Ambient Temp: 21.3°C; Tissue Temp: 19.4°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 V16.4.0.5005

5250.0 MHz System Verification at 17.0 dBm (50 mW)

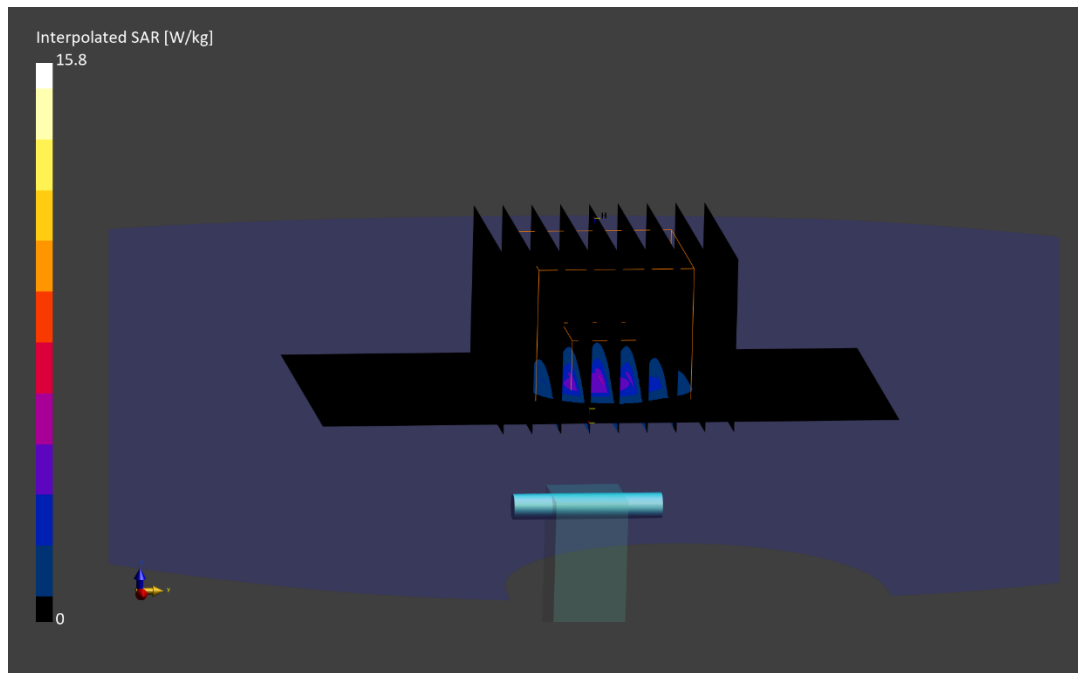
Area Scan (40.0 x 80.0): Measurement grid: dx=10.0 mm, dy=10.0 mm

Zoom Scan (32.0 x 32.0 x 22.9): 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) = 3.97 W/kg

Deviation (1 g) = -0.25%



ELEMENT

DUT: Dipole 5250.000 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 = 4.80 S/m; perm = 34.6; density = 1000 kg/m³

Phantom Section: Flat; Space: 10 mm

Test Date: 12/10/2024; Ambient Temp: 20.1°C; Tissue Temp: 19.0°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 V16.4.0.5005

5250.0 MHz System Verification at 17.0 dBm (50 mW)

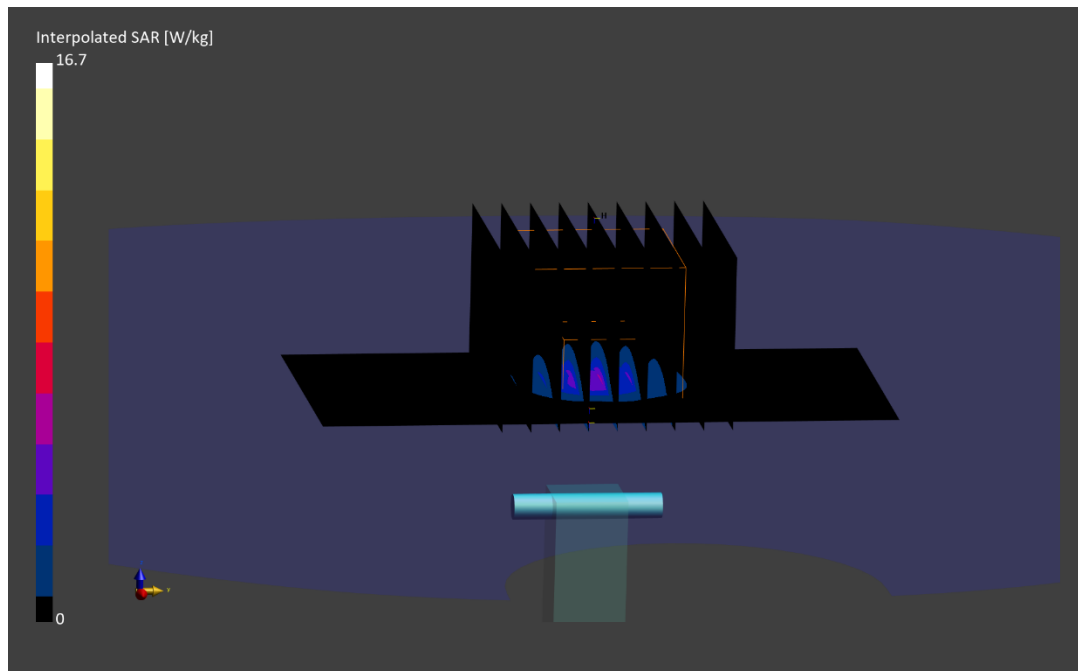
Area Scan (40.0 x 80.0): Measurement grid: dx=10.0 mm, dy=10.0 mm

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) = 16.7 W/kg

SAR(1 g) = 4.19 W/kg

Deviation (1 g) = 7.57%



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 = 4.99 S/m; perm = 34.2; density = 1000 kg/m³

Phantom Section: Flat; Space: 10 mm

Test Date: 10/30/2024; Ambient Temp: 21.3°C; Tissue Temp: 19.4°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 V16.4.0.5005

5600.0 MHz System Verification at 17.0 dBm (50 mW)

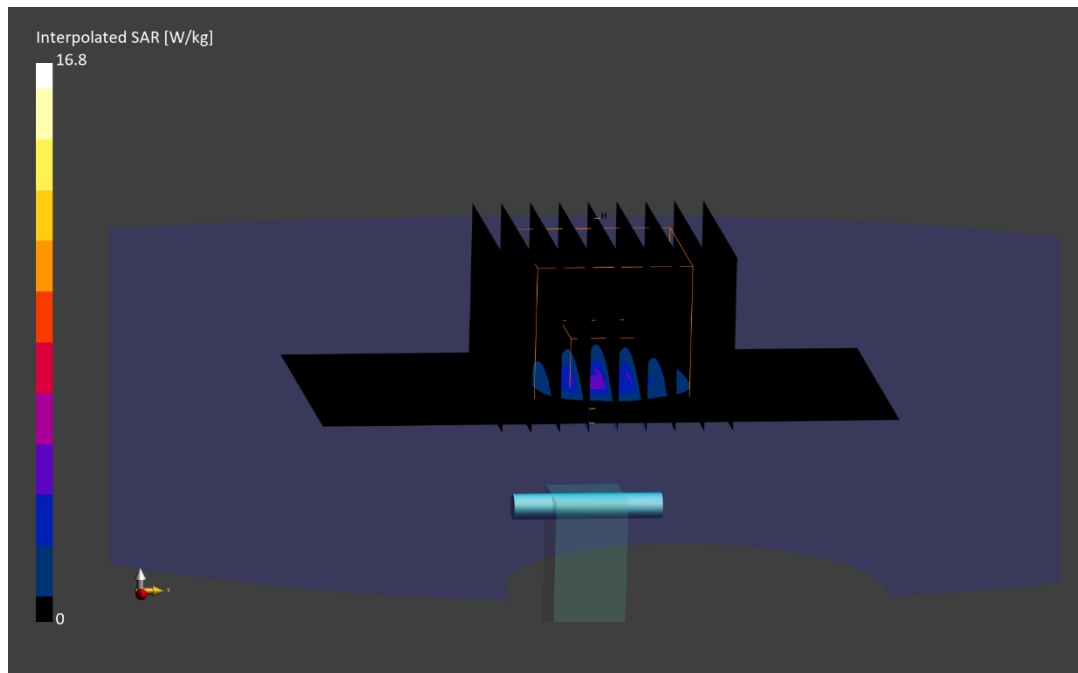
Area Scan (40.0 x 80.0): Measurement grid: dx=10.0 mm, dy=10.0 mm

Zoom Scan (32.0 x 32.0 x 22.9): 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) = 3.97 W/kg

Deviation (1 g) = -4.11%



ELEMENT

DUT: Dipole 5600.000 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 = 5.21 S/m; perm = 34.0; density = 1000 kg/m³

Phantom Section: Flat; Space: 10 mm

Test Date: 12/10/2024; Ambient Temp: 20.1°C; Tissue Temp: 19.0°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 V16.4.0.5005

5600.0 MHz System Verification at 17.0 dBm (50 mW)

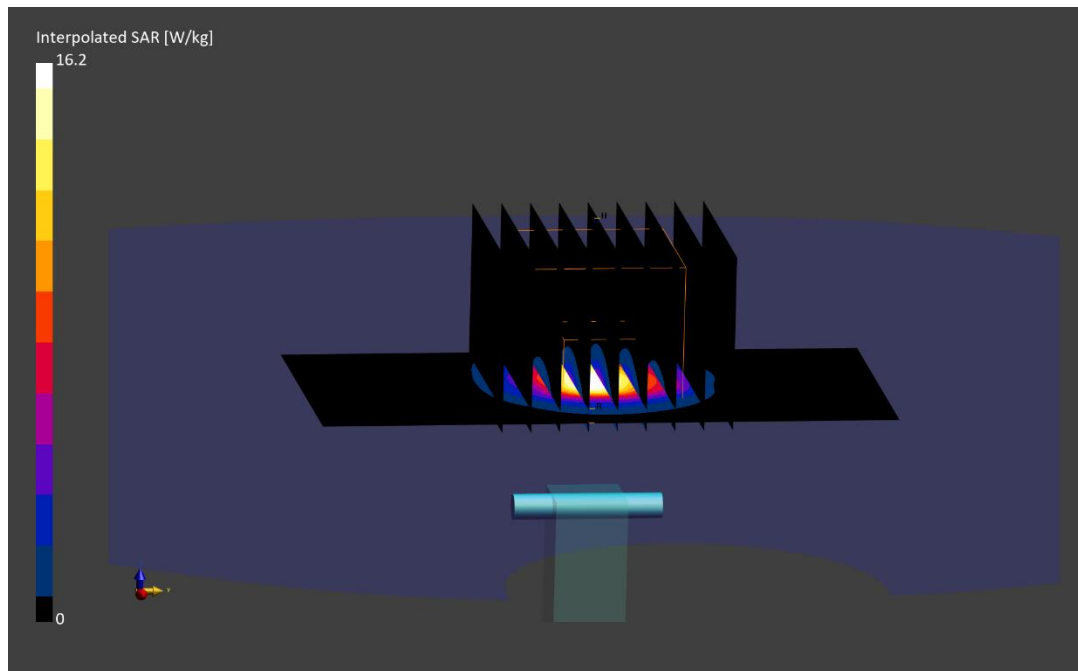
Area Scan (40.0 x 80.0): Measurement grid: dx=10.0 mm, dy=10.0 mm

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) = 16.2 W/kg

SAR(1 g) = 3.90 W/kg

Deviation (1 g) = -4.65%



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 = 5.15 S/m; perm = 34.0; density = 1000 kg/m³
Phantom Section: Flat; Space: 10 mm

Test Date: 10/30/2024; Ambient Temp: 21.3°C; Tissue Temp: 19.4°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 V16.4.0.5005

5750.0 MHz System Verification at 17.0 dBm (50 mW)

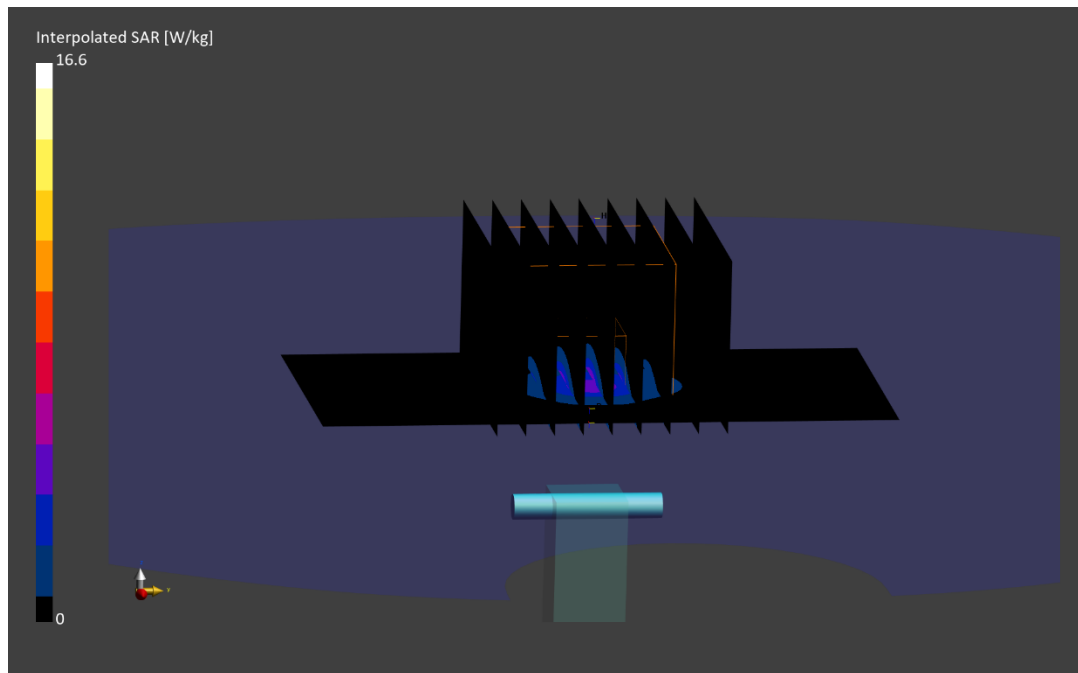
Area Scan (40.0 x 80.0): Measurement grid: dx=10.0 mm, dy=10.0 mm

Zoom Scan (36.0 x 32.0 x 22.9): Measurement grid: dx=4.0 mm, dy=4.0 mm, dz=1.4 mm; Graded Ratio: 1.4

Peak SAR (extrapolated) = 16.6 W/kg

SAR(1 g) = 3.83 W/kg

Deviation (1 g) = -5.55%



ELEMENT

DUT: Dipole 5750.000 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 = 5.36 S/m; perm = 33.8; density = 1000 kg/m³

Phantom Section: Flat; Space: 10 mm

Test Date: 12/10/2024; Ambient Temp: 20.1°C; Tissue Temp: 19.0°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 V16.4.0.5005

5750.0 MHz System Verification at 17.0 dBm (50 mW)

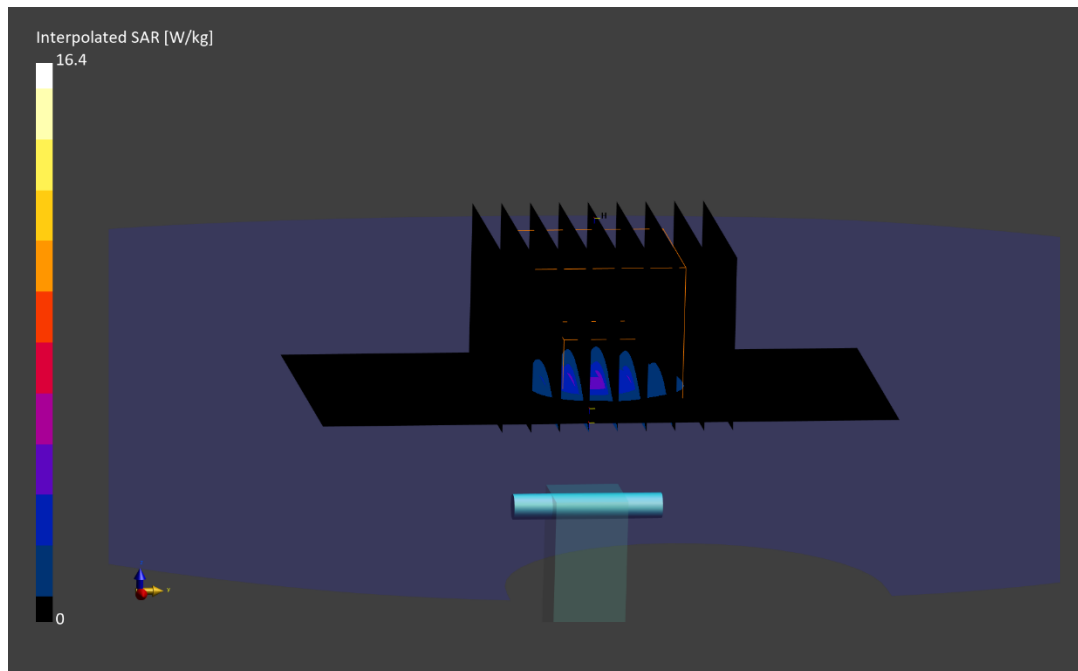
Area Scan (40.0 x 80.0): Measurement grid: dx=10.0 mm, dy=10.0 mm

Zoom Scan (32.0 x 32.0 x 22.9): Measurement grid: dx=4.0 mm, dy=4.0 mm, dz=1.4 mm; Graded Ratio: 1.4

Peak SAR (extrapolated) = 16.4 W/kg

SAR(1 g) = 3.77 W/kg

Deviation (1 g) = -6.57%



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 = 5.26 S/m; perm = 33.9; density = 1000 kg/m³

Phantom Section: Flat; Space: 10 mm

Test Date: 10/30/2024; Ambient Temp: 21.3°C; Tissue Temp: 19.4°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 V16.4.0.5005

5850.0 MHz System Verification at 17.0 dBm (50 mW)

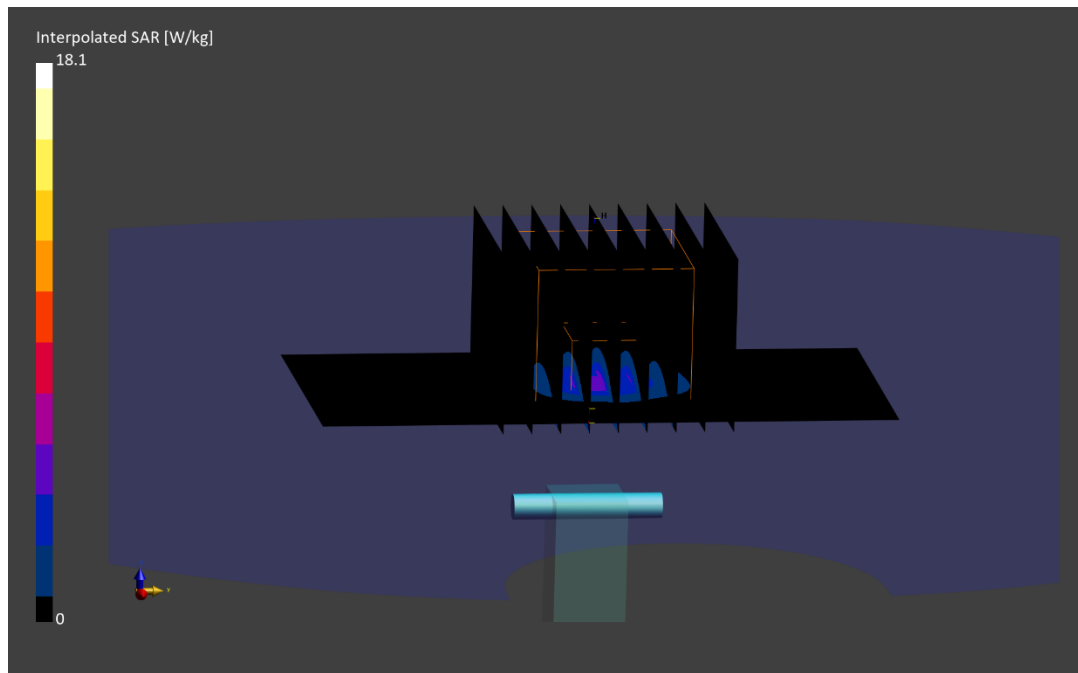
Area Scan (40.0 x 80.0): Measurement grid: dx=10.0 mm, dy=10.0 mm

Zoom Scan (32.0 x 32.0 x 22.9): Measurement grid: dx=4.0 mm, dy=4.0 mm, dz=1.4 mm; Graded Ratio: 1.4

Peak SAR (extrapolated) = 18.1 W/kg

SAR(1 g) = 4.15 W/kg

Deviation (1 g) = 5.06%



ELEMENT

DUT: Dipole 5850.000 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 = 5.44 S/m; perm = 33.6; density = 1000 kg/m³

Phantom Section: Flat; Space: 10 mm

Test Date: 12/10/2024; Ambient Temp: 20.1°C; Tissue Temp: 19.0°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 V16.4.0.5005

5850.0 MHz System Verification at 17.0 dBm (50 mW)

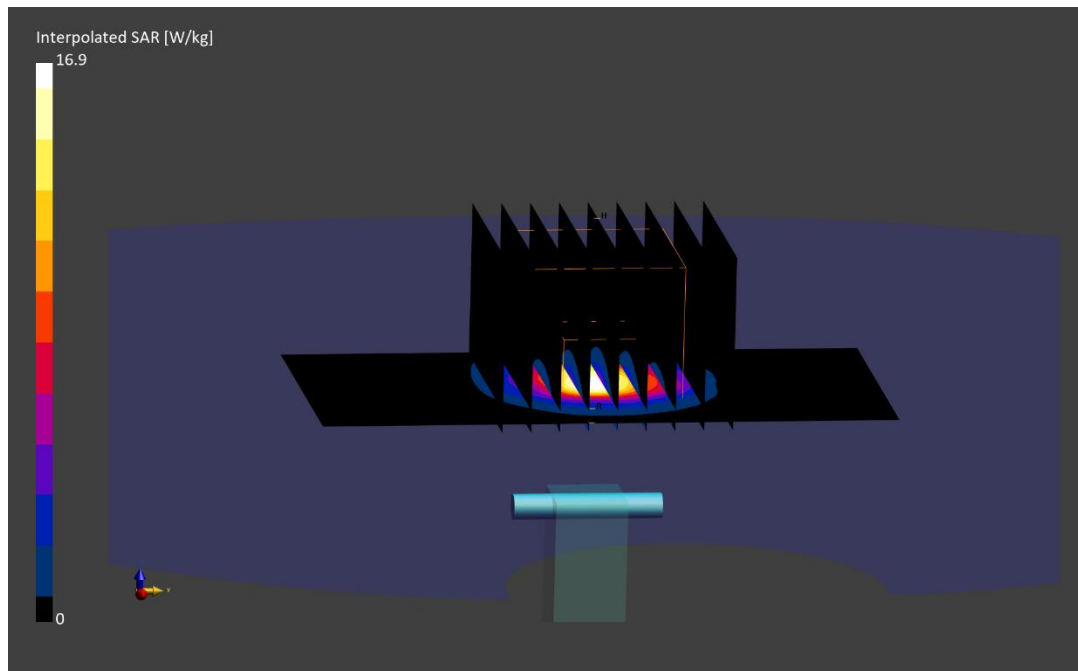
Area Scan (40.0 x 80.0): Measurement grid: dx=10.0 mm, dy=10.0 mm

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) = 16.9 W/kg

SAR(1 g) = 3.89 W/kg

Deviation (1 g) = 0.52%



ELEMENT

DUT: Dipole 6500.0 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 = 6.00 S/m; perm = 34.3; density = 1000 kg/m³

Phantom Section: Flat; Space: 5 mm

Test Date: 10/27/2024; Ambient Temp: 22.1°C; Tissue Temp: 20.7°C

Probe: EX3DV4 - SN3949; ConvF:(5.23,5.7,5.57); Calibrated: 2024-09-09

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

Electronics: DAE4 Sn1684; Calibrated: 2024-09-04

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

Measurement SW: DASY Module SAR V16.4.0.5005

6500.0 MHz System Verification at 14.0 dBm (25 mW)

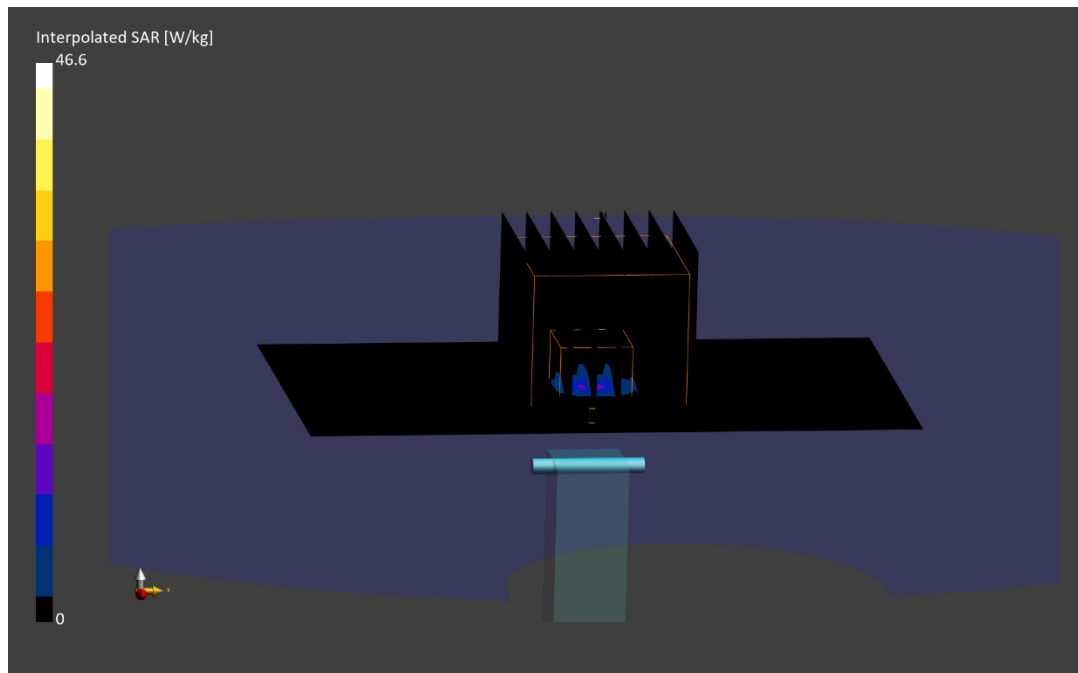
Area Scan (51.0 x 85.0): Measurement grid: dx=8.5 mm, dy=8.5 mm

Zoom Scan (23.8 x 23.8 x 22.9): Measurement grid: dx=3.4 mm, dy=3.4 mm, dz=1.4 mm; Graded Ratio: 1.4

Peak SAR (extrapolated) = 46.6 W/kg

SAR(1 g) = 7.67 W/kg; APD (1g) = 34.6 W/m²

Deviation (1 g) = 2.27%; Deviation (APD) = 4.85%



Date: 01/02/2025

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 – SN9487, 04/08/2024	DAE4 – SN1333, 10/09/2024

Software Setup

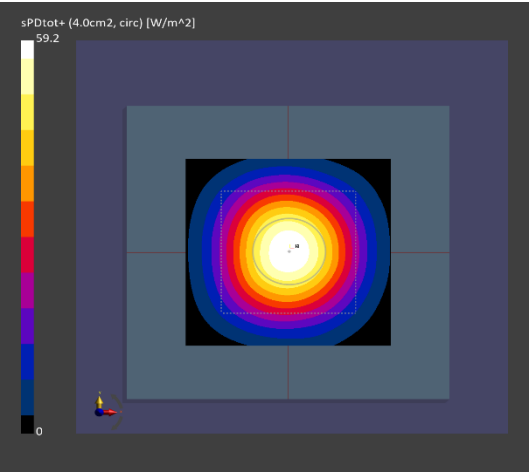
Software	Software Version
cDASY6 Module mmWave	3.2.0.1840

Scans Setup

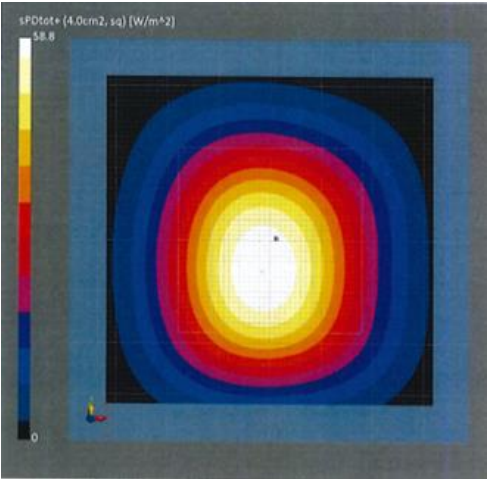
Scan Type	5G Scan
Grid Extents [mm]	60.0 x 60.0
Grid Steps [lambda]	0.125 x 0.125
Sensor Surface [mm]	10.0

Measurement Results

Scan Type	5G Scan
Avg. Area [cm²]	4.00
pS _{tot} avg [W/m²]	59.2
pS _n avg [W/m²]	58.9
E _{peak} [V/m]	155
Deviation [dB] pS _{tot}	0.02
Deviation [dB] pS _n	0.03



10 GHz System Verification



Calibration Certificate