

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; $\text{cond} = 0.725$ S/m; $\text{perm} = 53.3$; $\text{density} = 1000$ kg/m³
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); Calibrated: 2023-03-16
Sensor-Surface: 1.4mm (All points)
Electronics: DAE4 Sn534; Calibrated: 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)

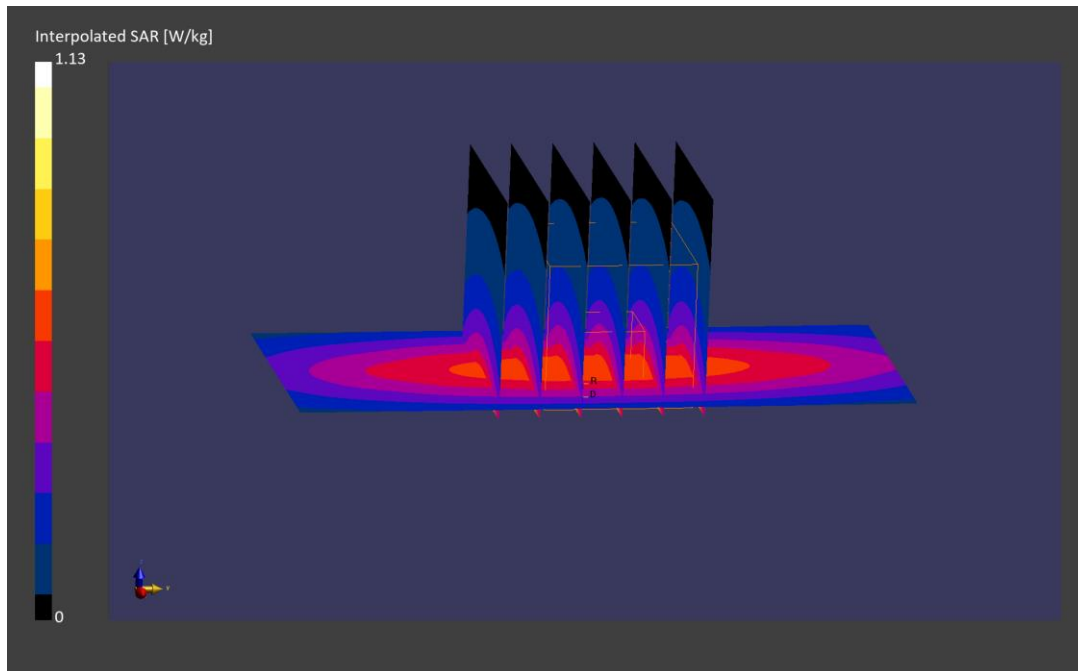
Area Scan (40.0 x 90.0): Measurement grid: $dx=10.0$ mm, $dy=15.0$ mm

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

Deviation (1 g) = -0.69%



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 = 1.73 S/m; perm = 40.2; density = 1000 kg/m³

Phantom Section: Flat; Space: 10 mm

Test Date: 12/11/2023; Ambient Temp: 20.0°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; Calibrated: 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)

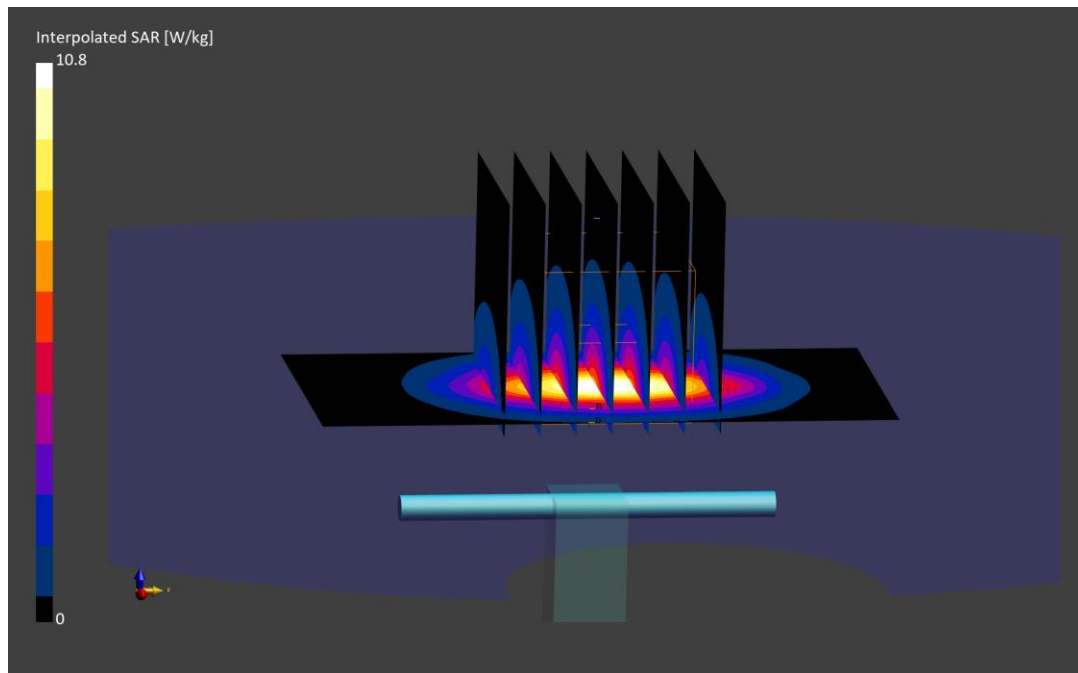
Area Scan (40.0 x 80.0): Measurement grid: dx=10.0 mm, dy=10.0 mm

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) = 10.8 W/kg

SAR(1 g) = 5.34 W/kg

Deviation (1 g) = 1.52%



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; $\text{perm} = 39.2$; $\text{density} = 1000$ kg/m³

Phantom Section: Flat; Space: 10 mm

Test Date: 12/13/2023; Ambient Temp: 20.3°C; Tissue Temp: 19.7°C

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

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

Electronics: DAE4 Sn604; Calibrated: 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)

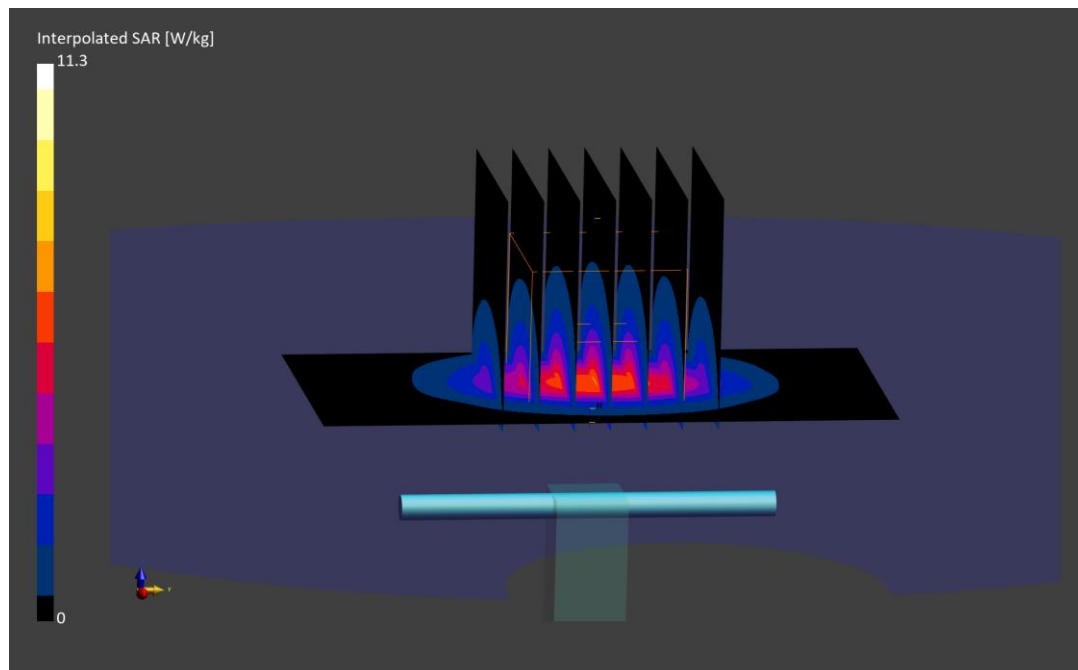
Area Scan (40.0 x 80.0): Measurement grid: $dx=10.0$ mm, $dy=10.0$ mm

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) = 11.3 W/kg

SAR(1 g) = 5.42 W/kg

Deviation (1 g) = 0.00%



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/m³

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); 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 V16.2.0.1425

5250.0 MHz System Verification at 17.0 dBm (50 mW)

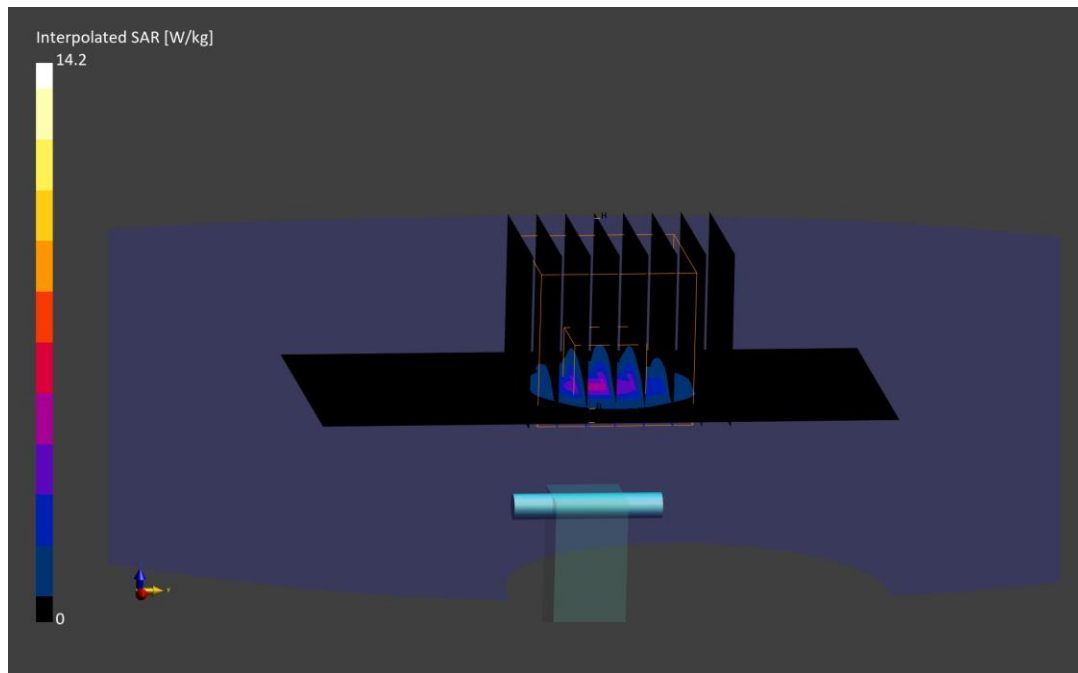
Area Scan (40.0 x 80.0): Measurement grid: dx=10.0 mm, dy=10.0 mm

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

Deviation (1 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 = 4.49 S/m; perm = 36.5; density = 1000 kg/m³

Phantom Section: Flat; Space: 10 mm

Test Date: 12/20/2023; Ambient Temp: 19.6°C; Tissue Temp: 19.1°C

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

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

Electronics: DAE4 Sn1237; Calibrated: 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)

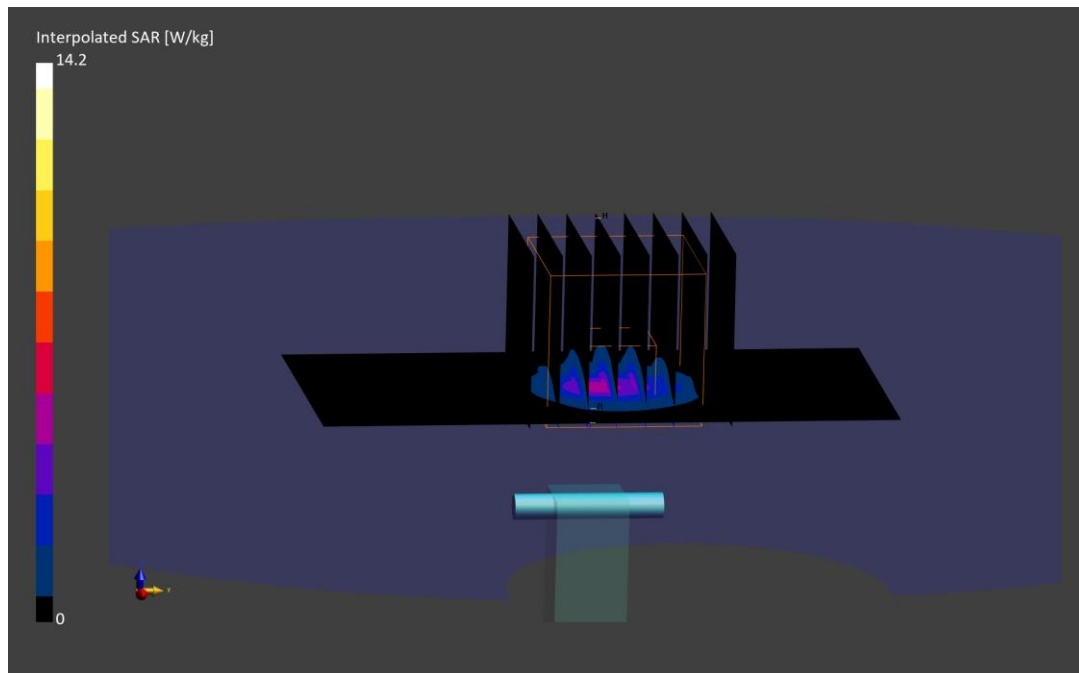
Area Scan (40.0 x 80.0): Measurement grid: dx=10.0 mm, dy=10.0 mm

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) = 3.81 W/kg

Deviation (1 g) = -5.34%



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/m³

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); 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 V16.2.0.1425

5600.0 MHz System Verification at 17.0 dBm (50 mW)

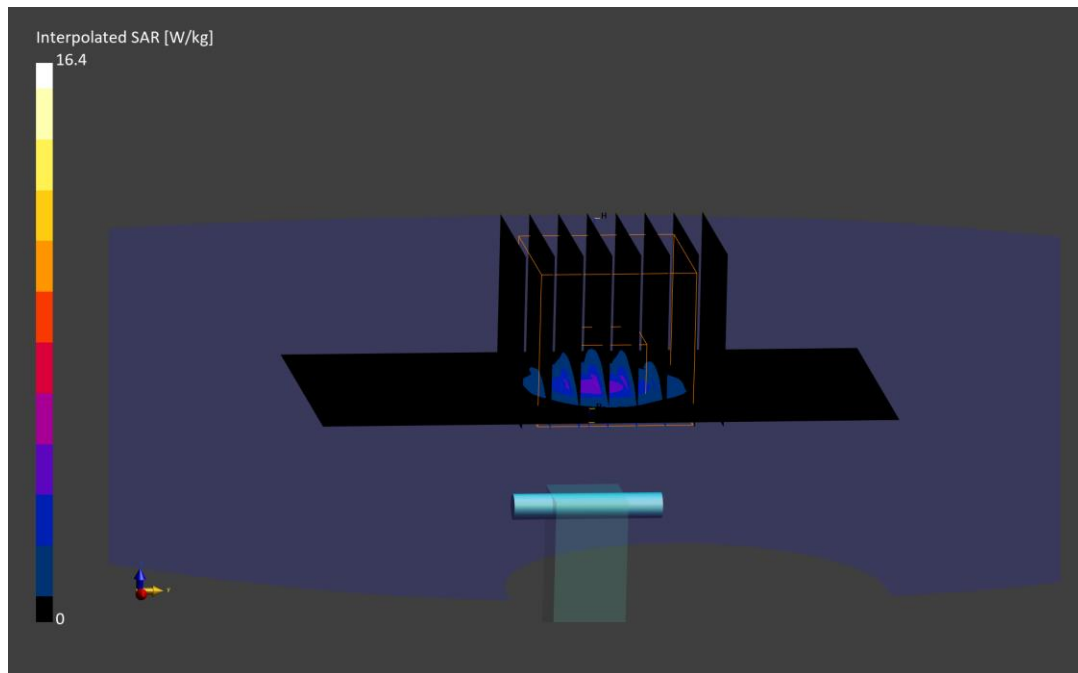
Area Scan (40.0 x 80.0): Measurement grid: dx=10.0 mm, dy=10.0 mm

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

Deviation (1 g) = -5.85%



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 = 35.9; density = 1000 kg/m³

Phantom Section: Flat; Space: 10 mm

Test Date: 12/20/2023; Ambient Temp: 19.6°C; Tissue Temp: 19.1°C

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

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

Electronics: DAE4 Sn1237; Calibrated: 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)

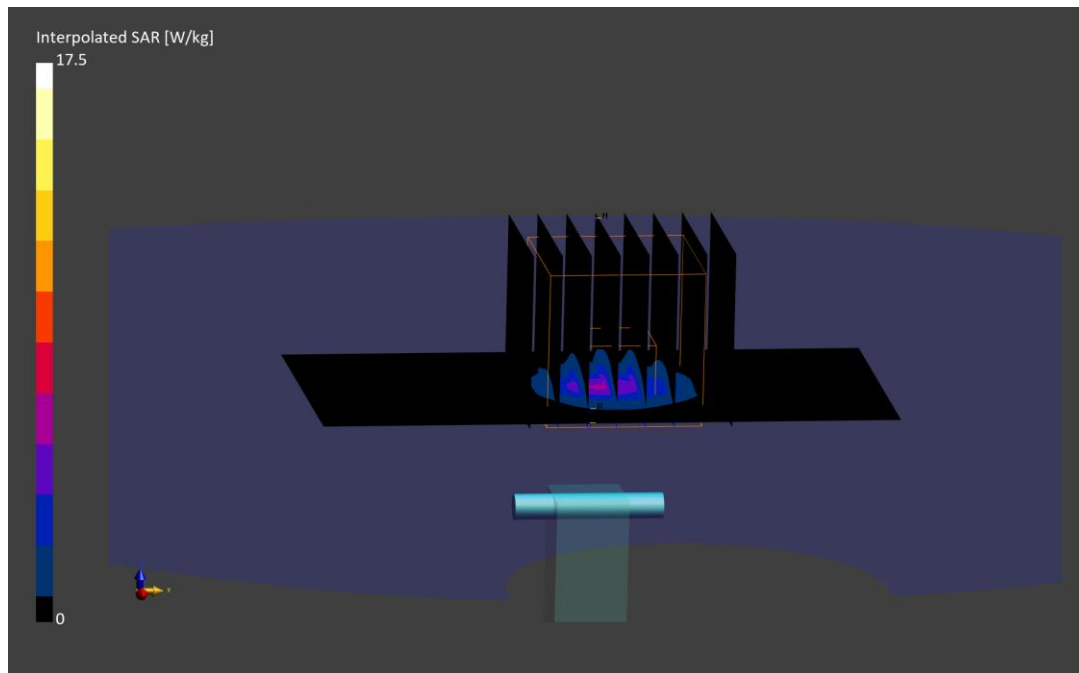
Area Scan (40.0 x 80.0): Measurement grid: dx=10.0 mm, dy=10.0 mm

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) = 17.5 W/kg

SAR(1 g) = 4.40 W/kg

Deviation (1 g) = 5.14%



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/m³

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); 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 V16.2.0.1425

5750.0 MHz System Verification at 17.0 dBm (50 mW)

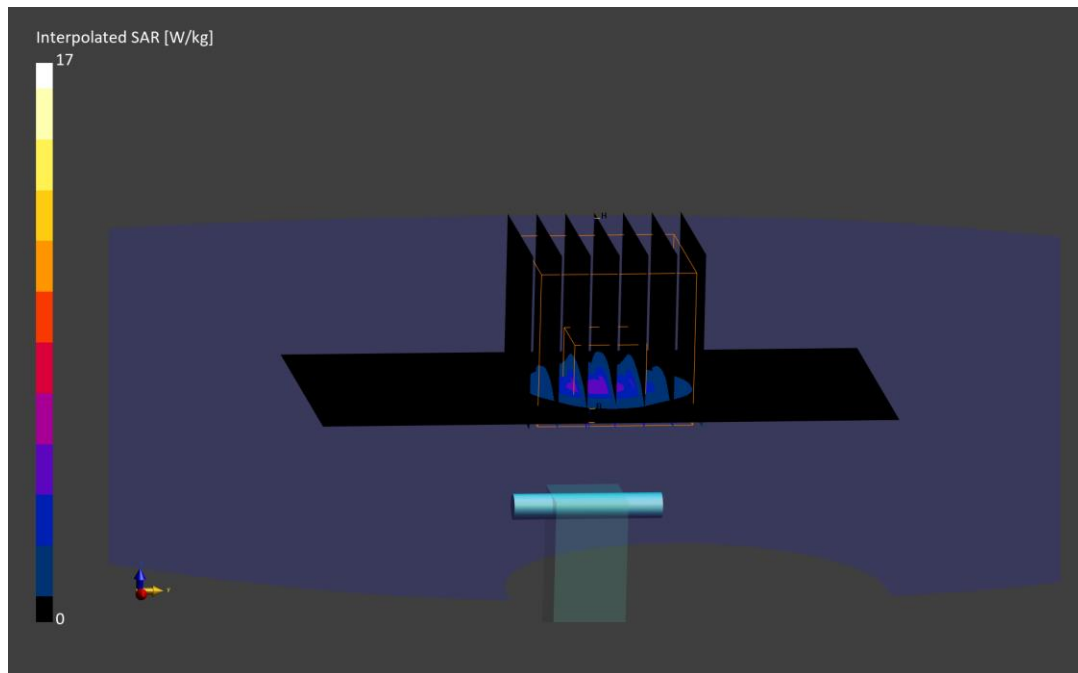
Area Scan (40.0 x 80.0): Measurement grid: dx=10.0 mm, dy=10.0 mm

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

Deviation (1 g) = -1.86%



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 = 35.6; density = 1000 kg/m³

Phantom Section: Flat; Space: 10 mm

Test Date: 12/20/2023; Ambient Temp: 19.6°C; Tissue Temp: 19.1°C

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

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

Electronics: DAE4 Sn1237; Calibrated: 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)

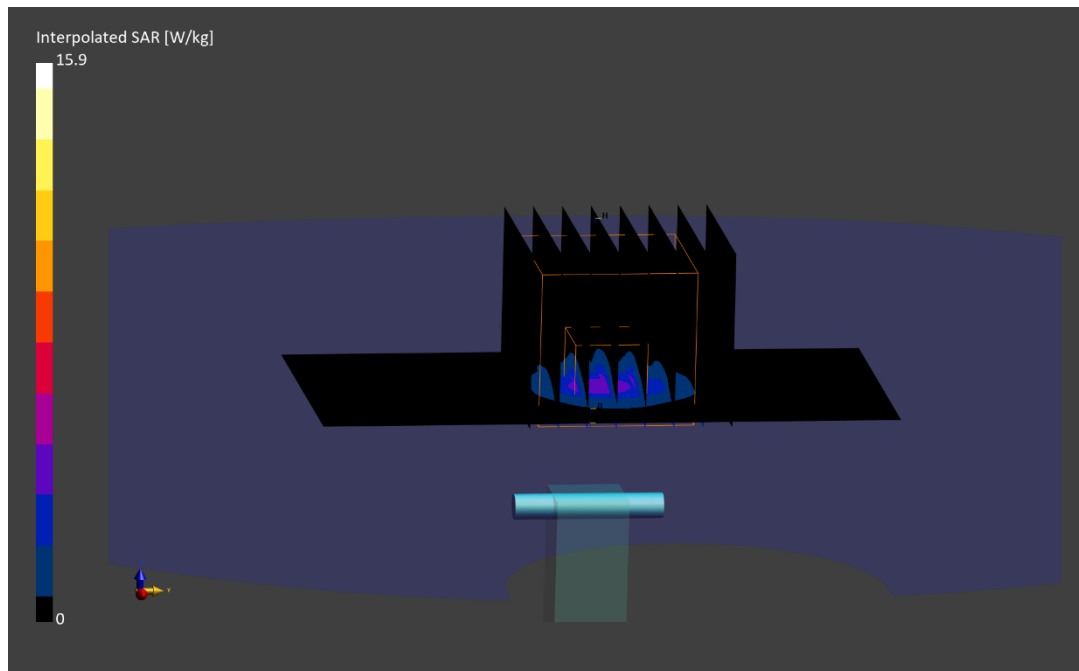
Area Scan (40.0 x 80.0): Measurement grid: dx=10.0 mm, dy=10.0 mm

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) = 15.9 W/kg

SAR(1 g) = 3.82 W/kg

Deviation (1 g) = -5.09%



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; $\text{cond} = 6.05$ S/m; $\text{perm} = 35.3$; $\text{density} = 1000$ kg/m³

Phantom Section: Flat; Space: 5 mm

Test Date: 12/15/2023; Ambient Temp: 21.3°C; Tissue Temp: 20.3°C

Probe: EX3DV4 - SN7682; ConvF:(5.5,5.5,5.5); Calibrated: 2023-05-11

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

Electronics: DAE4 Sn1683; Calibrated: 2023-05-11

Phantom: Twin-SAM V4.0; Serial: 1598

Measurement SW: DASY Module SAR V16.2.0.1425

6500.0 MHz System Verification at 14.0 dBm (25 mW)

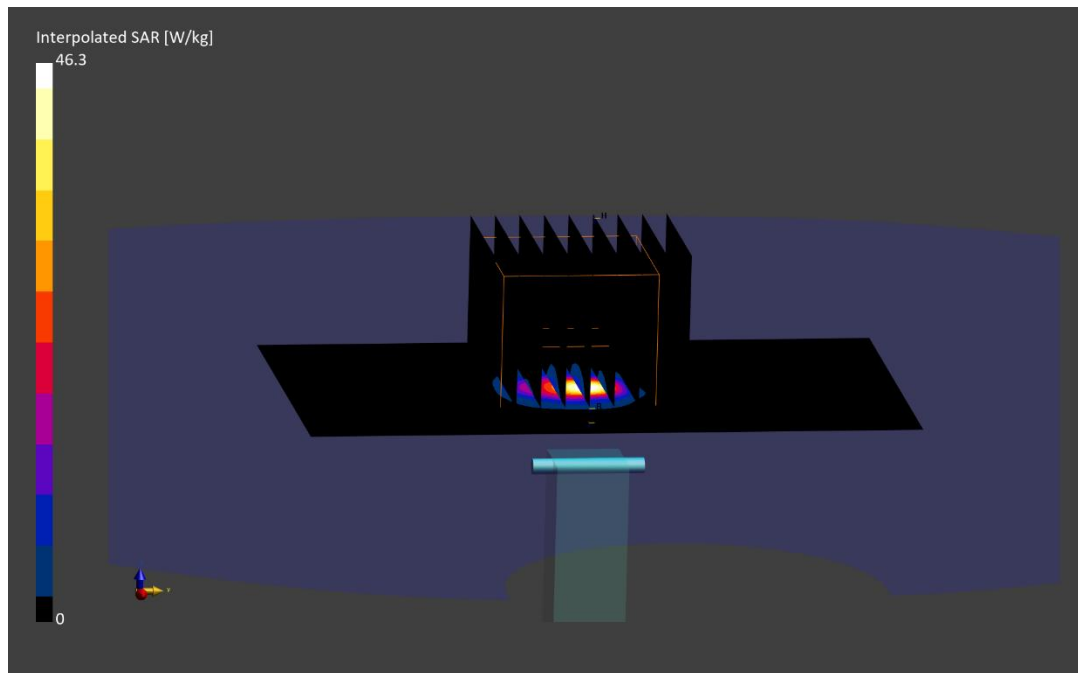
Area Scan (51.0 x 85.0): Measurement grid: $dx=8.5$ mm, $dy=8.5$ mm

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) = 46.3 W/kg

SAR (1 g) = 7.74 W/kg; APD (4 cm²) = 35.2 W/m²

Deviation (1 g) = 5.67%; Deviation (4 cm²) = 6.67%



Date: 12/11/2023

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

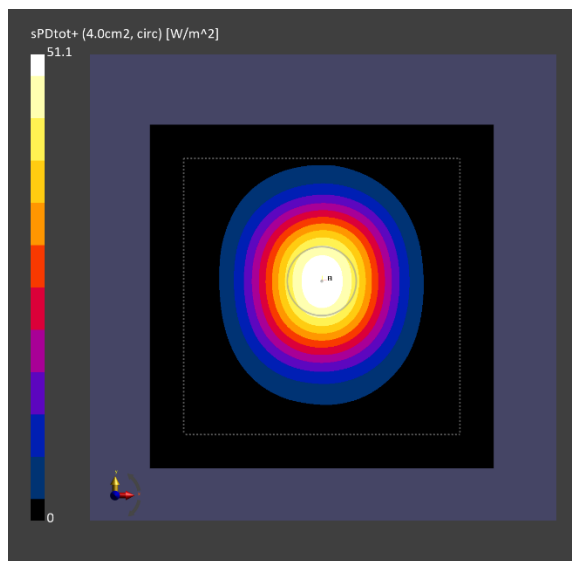
Software	Software Version
cDASY6 Module mmWave	3.2.0.1840

Scans Setup

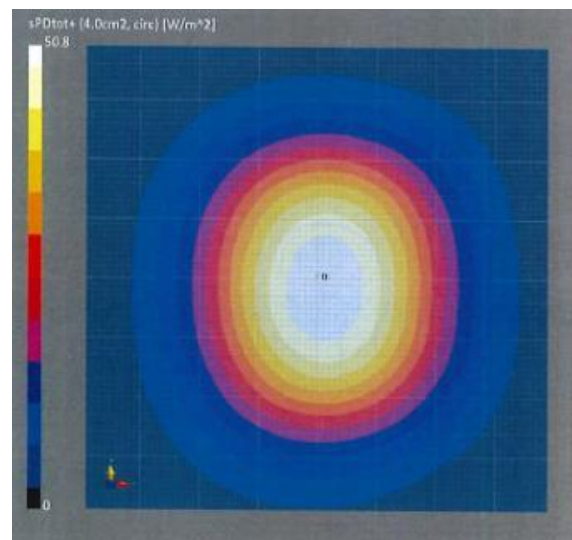
Scan Type	5G Scan
Grid Extents [mm]	60.0 x 60.0
Grid Steps [lambda]	0.25 x 0.25
Sensor Surface [mm]	10.0

Measurement Results

Scan Type	5G Scan
Avg. Area [cm ²]	4.00
pS _{tot} avg [W/m ²]	51.1
pS _n avg [W/m ²]	51.1
E _{peak} [V/m]	148
Deviation [dB] pS _{tot}	-0.62
Deviation [dB] pS _n	-0.59



10 GHz System Verification



Calibration Certificate

Date: 12/15/2023

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

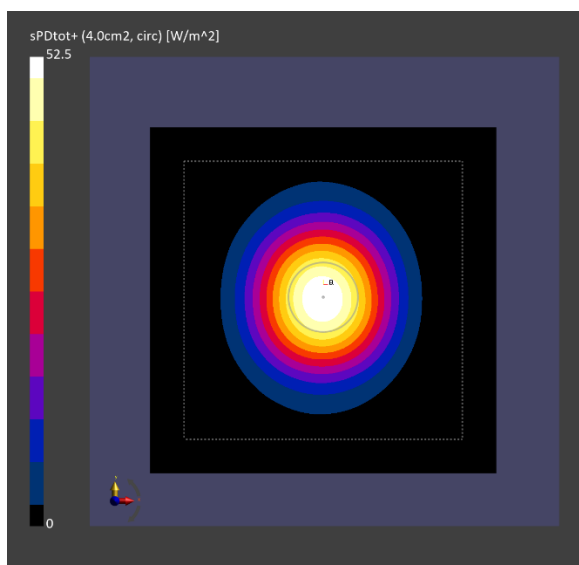
Software	Software Version
cDASY6 Module mmWave	3.2.0.1840

Scans Setup

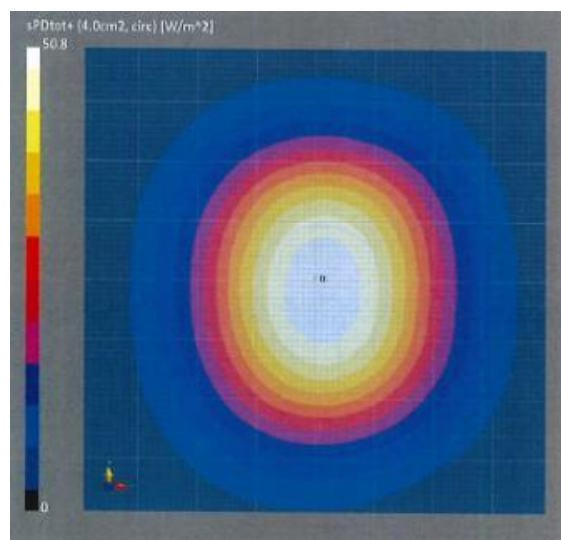
Scan Type	5G Scan
Grid Extents [mm]	60.0 x 60.0
Grid Steps [lambda]	0.25 x 0.25
Sensor Surface [mm]	10.0

Measurement Results

Scan Type	5G Scan
Avg. Area [cm ²]	4.00
pS _{tot} avg [W/m ²]	52.5
pS _n avg [W/m ²]	52.4
E _{peak} [V/m]	147
Deviation [dB] pS _{tot}	-0.50
Deviation [dB] pS _n	-0.48



10 GHz System Verification



Calibration Certificate

Date: 12/18/2023

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
EUMmWV4 - SN9523, 01/16/2023	DAE4 - SN793, 10/18/2023

Software Setup

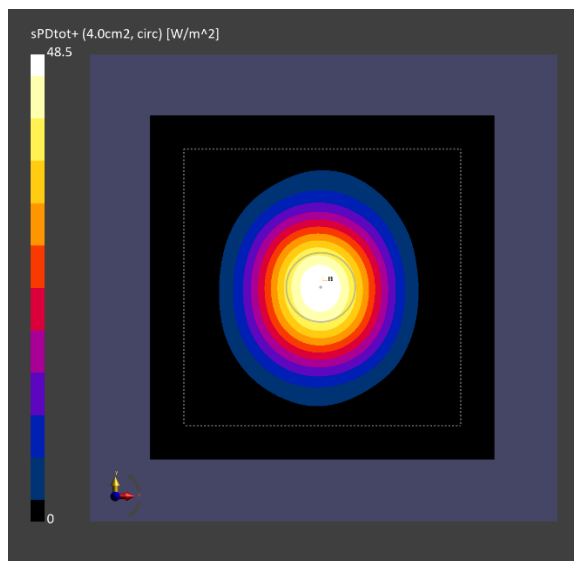
Software	Software Version
cDASY6 Module mmWave	3.2.0.1840

Scans Setup

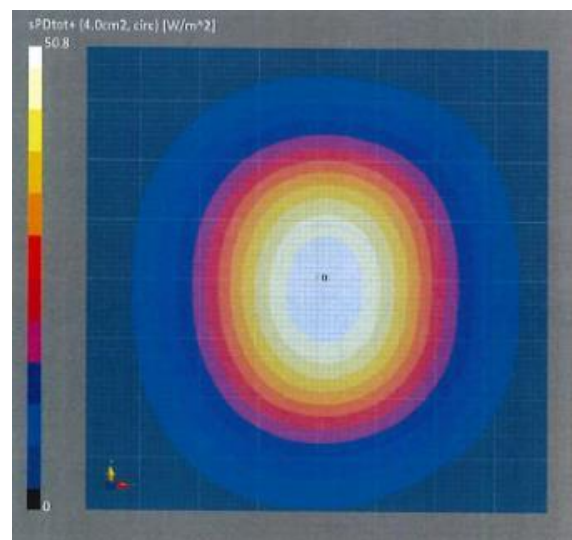
Scan Type	5G Scan
Grid Extents [mm]	60.0 x 60.0
Grid Steps [lambda]	0.25 x 0.25
Sensor Surface [mm]	10.0

Measurement Results

Scan Type	5G Scan
Avg. Area [cm ²]	4.00
pS _{tot} avg [W/m ²]	48.5
pS _n avg [W/m ²]	48.4
E _{peak} [V/m]	142
Deviation [dB] pS _{tot}	-0.40
Deviation [dB] pS _n	-0.38



10 GHz System Verification



Calibration Certificate

Date: 12/20/2023

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

Software Setup

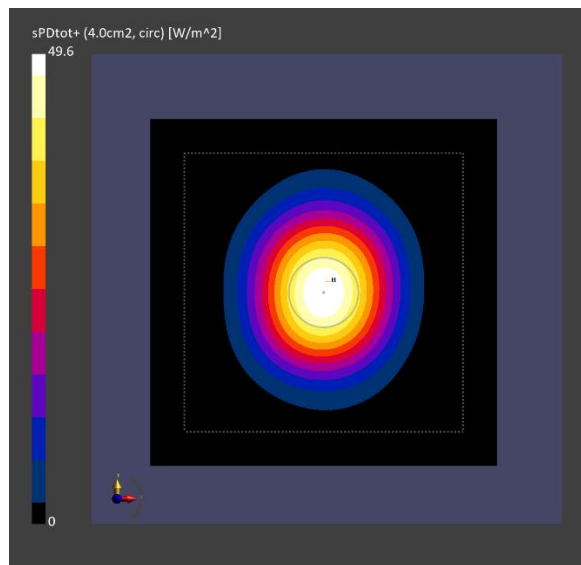
Software	Software Version
cDASY6 Module mmWave	3.2.0.1840

Scans Setup

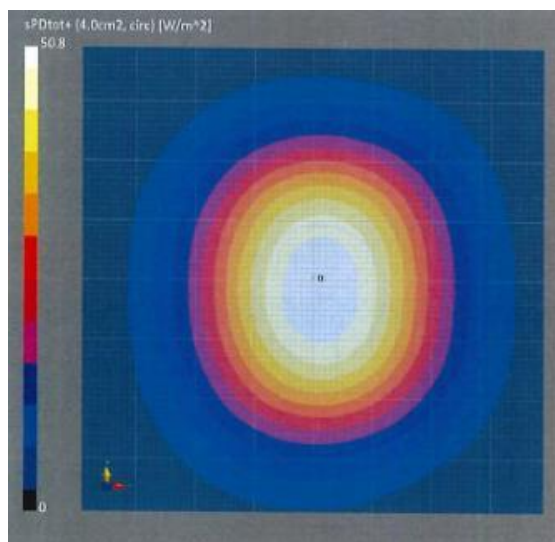
Scan Type	5G Scan
Grid Extents [mm]	60.0 x 60.0
Grid Steps [lambda]	0.25 x 0.25
Sensor Surface [mm]	10.0

Measurement Results

Scan Type	5G Scan
Avg. Area [cm ²]	4.00
pS _{tot} avg [W/m ²]	49.6
pS _n avg [W/m ²]	49.5
E _{peak} [V/m]	146
Deviation [dB] pS _{tot}	-0.30
Deviation [dB] pS _n	-0.28



10 GHz System Verification



Calibration Certificate

Date: 12/26/2023

10 GHz System Verification

Device Under Test Properties

DUT	Serial Number
10 GHz Verification Source	1004

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

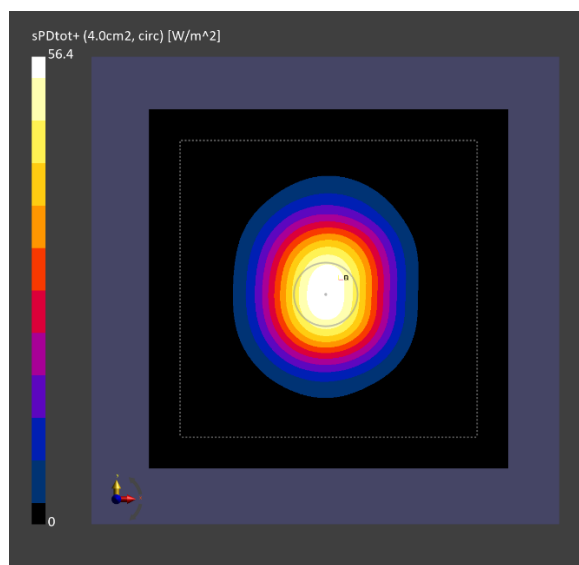
Software	Software Version
cDASY6 Module mmWave	3.2.0.1840

Scans Setup

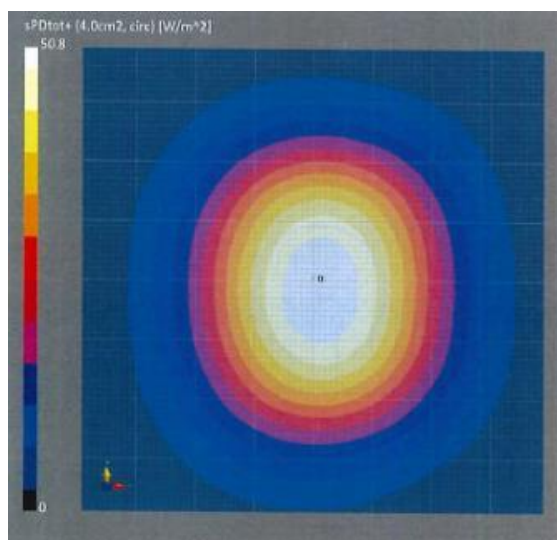
Scan Type	5G Scan
Grid Extents [mm]	120.0 x 120.0
Grid Steps [lambda]	0.25 x 0.25
Sensor Surface [mm]	10.0

Measurement Results

Scan Type	5G Scan
Avg. Area [cm ²]	4.00
pS _{tot} avg [W/m ²]	56.4
pS _n avg [W/m ²]	56.3
E _{peak} [V/m]	155
Deviation [dB] pS _{tot}	0.26
Deviation [dB] pS _n	0.28



10 GHz System Verification



Calibration Certificate

Date: 12/28/2023

10 GHz System Verification

Device Under Test Properties

DUT	Serial Number
10 GHz Verification Source	1004

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

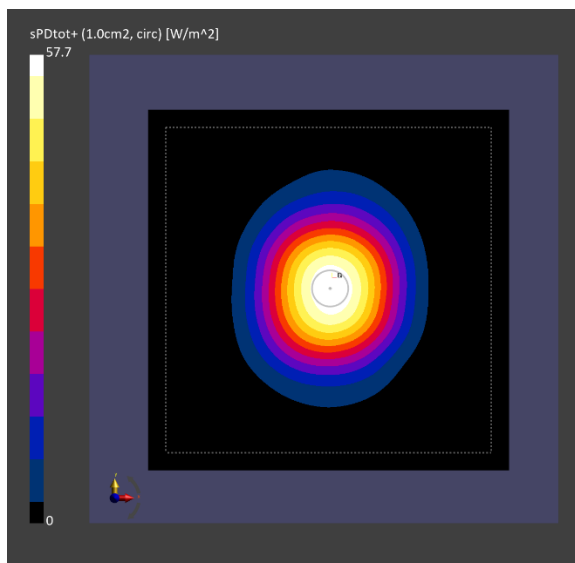
Software	Software Version
cDASY6 Module mmWave	3.2.0.1840

Scans Setup

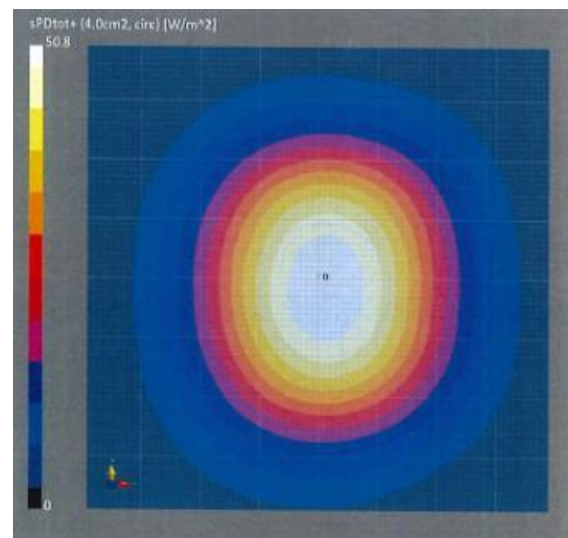
Scan Type	5G Scan
Grid Extents [mm]	60.0 x 60.0
Grid Steps [lambda]	0.25 x 0.25
Sensor Surface [mm]	10.0

Measurement Results

Scan Type	5G Scan
Avg. Area [cm ²]	4.00
pS _{tot} avg [W/m ²]	53.0
pS _n avg [W/m ²]	52.9
E _{peak} [V/m]	148
Deviation [dB] pS _{tot}	-0.01
Deviation [dB] pS _n	0.01



10 GHz System Verification



Calibration Certificate



Date: 01/27/2024

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

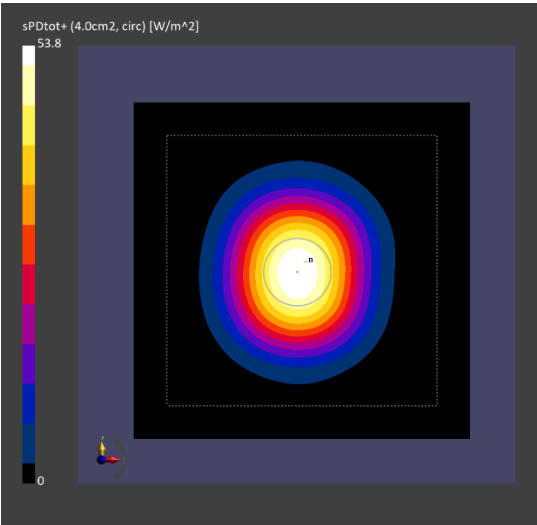
Software	Software Version
cDASY6 Module mmWave	3.2.0.1840

Scans Setup

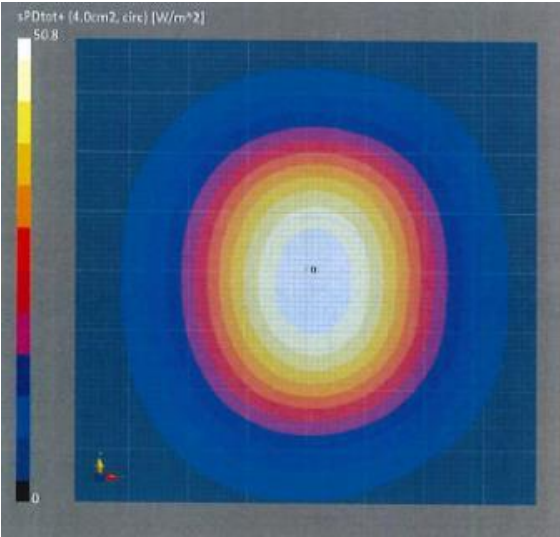
Scan Type	5G Scan
Grid Extents [mm]	60.0 x 60.0
Grid Steps [lambda]	0.25 x 0.25
Sensor Surface [mm]	10.0

Measurement Results

Scan Type	5G Scan
Avg. Area [cm²]	4.00
pS _{tot} avg [W/m²]	53.8
pS _n avg [W/m²]	53.7
E _{peak} [V/m]	149
Deviation [dB] pS _{tot}	
Deviation [dB] pS _n	



10 GHz System Verification



Calibration Certificate