

APPENDIX A: VERIFICATION PLOTS

ELEMENT

DUT: Dipole 835.0 MHz; Type: D835V2 - SN4d132

Communication System: UID: 0, CW; Frequency: 835.0 MHz
Medium: 835 Body; Medium parameters used:
f = 835.0 MHz; cond = 0.989 S/m; perm = 53.6; density = 1000 kg/m³
Phantom Section: Flat; Space: 15 mm

Test Date: 06/06/2022; Ambient Temp: 22.0°C; Tissue Temp: 20.9°C

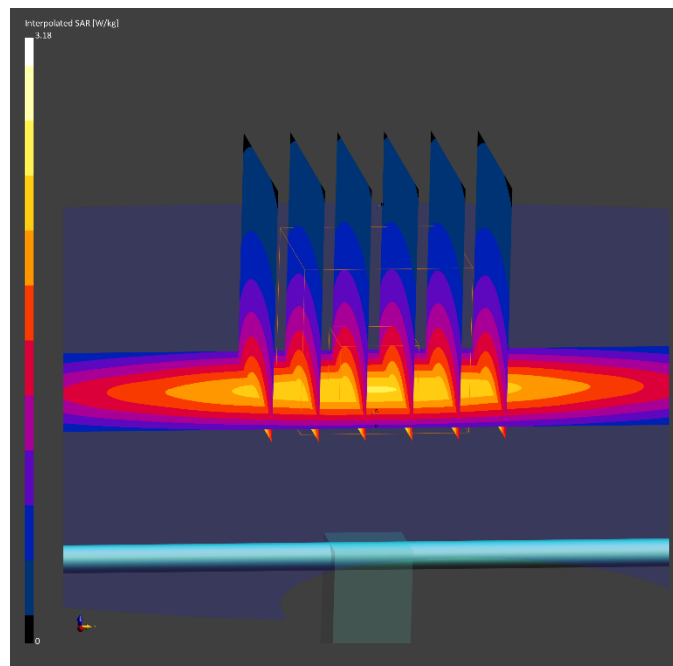
Probe: EX3DV4 - SN7551; ConvF:(9.98,9.98,9.98); Calibrated: 2021-10-26
Sensor-Surface: 1.4mm (VMS + 6p)
Electronics: DAE4 Sn1449; Calibrated: 2021-09-15
Phantom: Twin-SAM V8.0 (Left); Serial: 1964
Measurement SW: DASY Module SAR V16.0.2.136

835 MHz System Verification at 23 dBm (200 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) = 3.18 W/kg
SAR(1 g) = 2.06 W/kg; SAR(10 g) = 1.35 W/kg
Deviation (1 g) = 4.99%



ELEMENT

DUT: Dipole 835.0 MHz; Type: D835V2 - SN4d132

Communication System: UID: 0, CW; Frequency: 835.0 MHz
Medium: 835 Body; Medium parameters used:
f = 835.0 MHz; cond = 0.989 S/m; perm = 53.6; density = 1000 kg/m³
Phantom Section: Flat; Space: 15 mm

Test Date: 06/07/2022; Ambient Temp: 21.3°C; Tissue Temp: 20.7°C

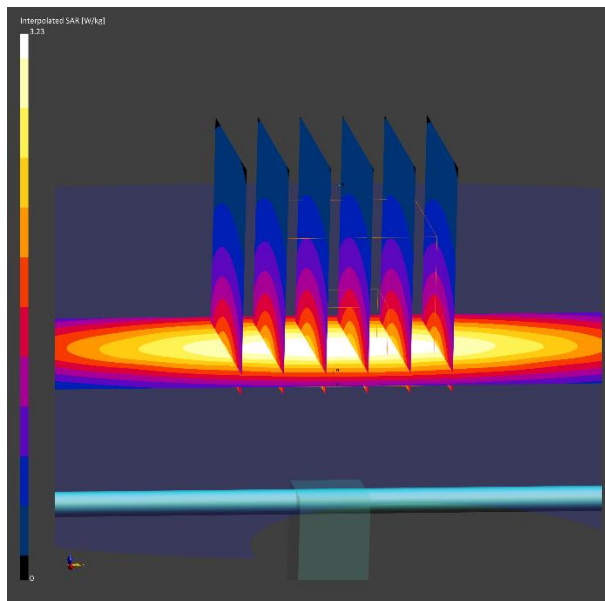
Probe: EX3DV4 - SN7713; ConvF:(9.91,9.91,9.91); Calibrated: 2022-02-04
Sensor-Surface: 1.4mm (VMS + 6p)
Electronics: DAE4 Sn1530; Calibrated: 2022-01-12
Phantom: Twin-SAM V8.0; Serial: 1978
Measurement SW: DASY Module SAR V16.0.2.136

835 MHz System Verification at 23 dBm (200 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) = 3.23 W/kg
SAR(1 g) = 2.09 W/kg; SAR(10 g) = 1.38 W/kg
Deviation (1 g) = 6.52%



ELEMENT

DUT: Dipole 835.0 MHz; Type: D835V2 - SN4d132

Communication System: UID: 0, CW; Frequency: 835.0 MHz
Medium: 835 Body; Medium parameters used:
f = 835.0 MHz; cond = 0.963 S/m; perm = 53.4; density = 1000 kg/m³
Phantom Section: Flat; Space: 15 mm

Test Date: 06/16/2022; Ambient Temp: 22.9°C; Tissue Temp: 21.0°C

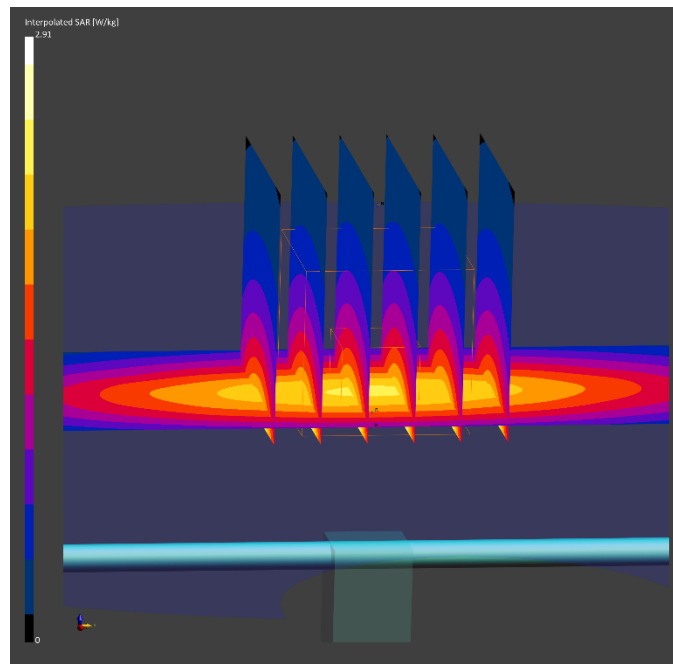
Probe: EX3DV4 - SN7551; ConvF:(9.98,9.98,9.98); Calibrated: 2021-10-26
Sensor-Surface: 1.4mm (VMS + 6p)
Electronics: DAE4 Sn1449; Calibrated: 2021-09-15
Phantom: Twin-SAM V8.0 (Left); Serial: 1964
Measurement SW: DASY Module SAR V16.0.2.136

835 MHz System Verification at 23 dBm (200 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) = 2.91 W/kg
SAR(1 g) = 1.89 W/kg; SAR(10 g) = 1.24 W/kg
Deviation (1 g) = -3.67%



ELEMENT

DUT: Dipole 1900.0 MHz; Type: D1900V2 - SN5d148

Communication System: UID: 0, CW; Frequency: 1900.0 MHz
Medium: 1900 Body; Medium parameters used:
f = 1900.0 MHz; cond = 1.58 S/m; perm = 51.9; density = 1000 kg/m³
Phantom Section: Flat; Space: 10 mm

Test Date: 06/06/2022; Ambient Temp: 22.0°C; Tissue Temp: 20.9°C

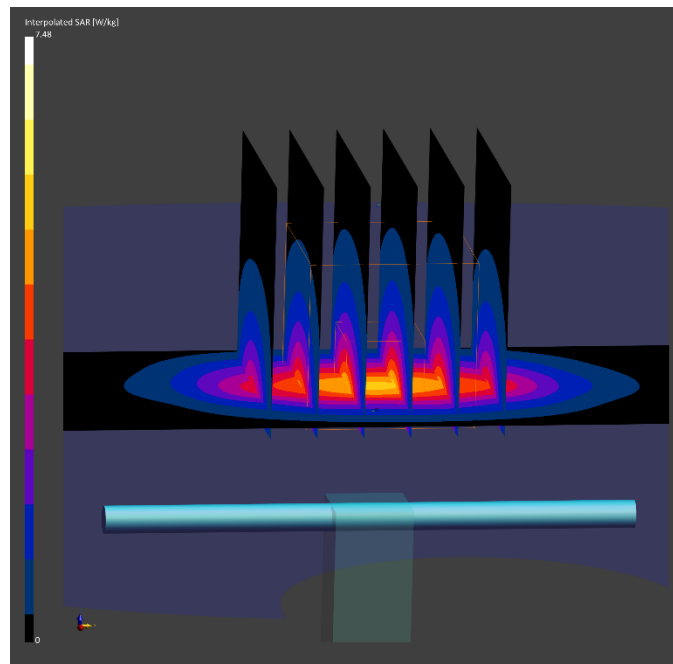
Probe: EX3DV4 - SN7551; ConvF:(7.82,7.82,7.82); Calibrated: 2021-10-26
Sensor-Surface: 1.4mm (VMS + 6p)
Electronics: DAE4 Sn1449; Calibrated: 2021-09-15
Phantom: Twin-SAM V8.0 (Left); Serial: 1964
Measurement SW: DASY Module SAR V16.0.2.136

1900 MHz System Verification at 20 dBm (100 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) = 7.48 W/kg
SAR(1 g) = 4.13 W/kg; SAR(10 g) = 2.15 W/kg
Deviation (1 g) = 3.51%



ELEMENT

DUT: Dipole 1900.0 MHz; Type: D1900V2 - SN5d148

Communication System: UID: 0, CW; Frequency: 1900.0 MHz
Medium: 1900 Body; Medium parameters used:
f = 1900.0 MHz; cond = 1.58 S/m; perm = 51.9; density = 1000 kg/m³
Phantom Section: Flat; Space: 10 mm

Test Date: 06/07/2022; Ambient Temp: 20.7°C; Tissue Temp: 21.3°C

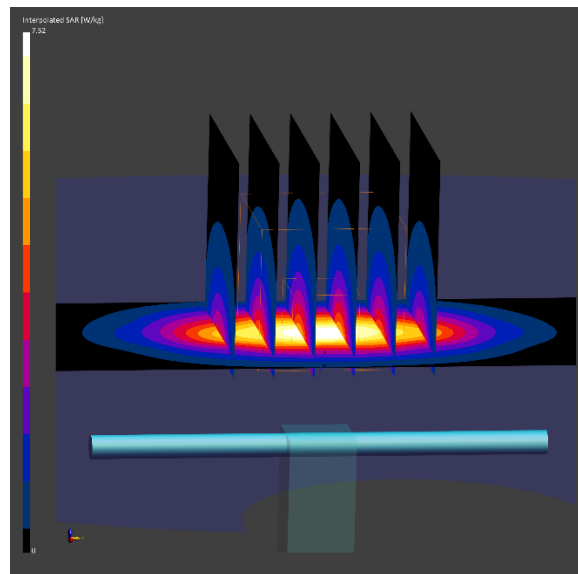
Probe: EX3DV4 - SN7713; ConvF:(8.17,8.17,8.17); Calibrated: 2022-02-04
Sensor-Surface: 1.4mm (VMS + 6p)
Electronics: DAE4 Sn1530; Calibrated: 2022-01-12
Phantom: Twin-SAM V8.0; Serial: 1978
Measurement SW: DASY Module SAR V16.0.2.136

1900 MHz System Verification at 20 dBm (100 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) = 7.52 W/kg
SAR(1 g) = 4.09 W/kg; SAR(10 g) = 2.12 W/kg
Deviation (1 g) = 2.51%



ELEMENT

DUT: Dipole 3700.0 MHz; Type: D3700V2 - SN1067

Communication System: UID: 0, CW; Frequency: 3700.0 MHz
Medium: 3700 Body; Medium parameters used:
f = 3700.0 MHz; cond = 3.38 S/m; perm = 49.8; density = 1000 kg/m³
Phantom Section: Flat; Space: 10 mm

Test Date: 06/06/2022; Ambient Temp: 22.0°C; Tissue Temp: 20.9°C

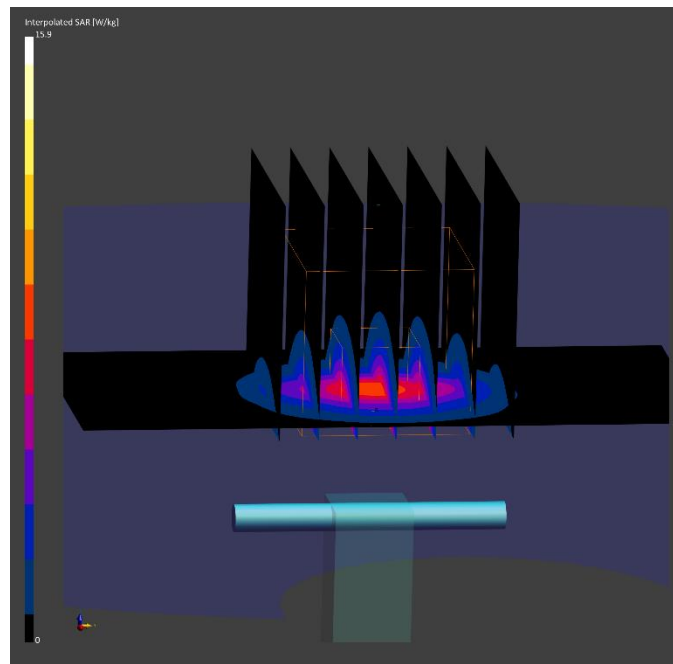
Probe: EX3DV4 - SN7551; ConvF:(6.4,6.4,6.4); Calibrated: 2021-10-26
Sensor-Surface: 1.4mm (VMS + 6p)
Electronics: DAE4 Sn1449; Calibrated: 2021-09-15
Phantom: Twin-SAM V8.0 (Left); Serial: 1964
Measurement SW: DASY Module SAR V16.0.2.136

3700 MHz System Verification at 20 dBm (100 mW)

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

Zoom Scan (28.0 x 28.0 x 28.0): Measurement grid: dx=5.0 mm, dy=5.0 mm, dz=1.4 mm; Graded
Ratio: 1.5

Peak SAR (extrapolated) = 15.9 W/kg
SAR(1 g) = 6.32 W/kg; SAR(10 g) = 2.34 W/kg
Deviation (1 g) = -3.07%



ELEMENT

Date: 06/14/2022

30 GHz System Verification

Device Under Test Properties

DUT	Serial Number
30 GHz Verification Source	1045

Exposure Conditions

Phantom Section	Position	Test Distance [mm]	Band	Frequency [MHz]
5G	FRONT	5.55	Validation band	30000.0

Hardware Setup

Probe, Calibration Date	DAE, Calibration Date
EUmmWV3 - SN9421_F1-55GHz, 2022-03-15	DAE4 Sn1530, 2022-01-12

Software Setup

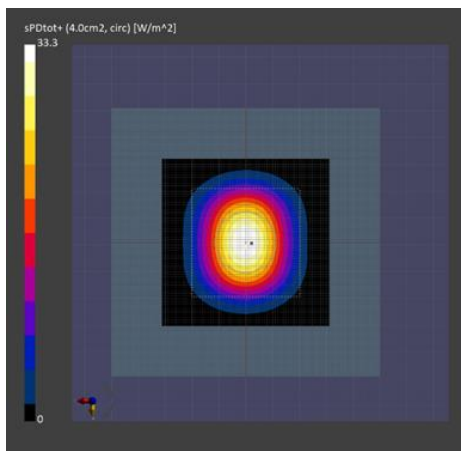
Software	Software Version
cDasy6 Module mmWave	3.0.0.841

Scans Setup

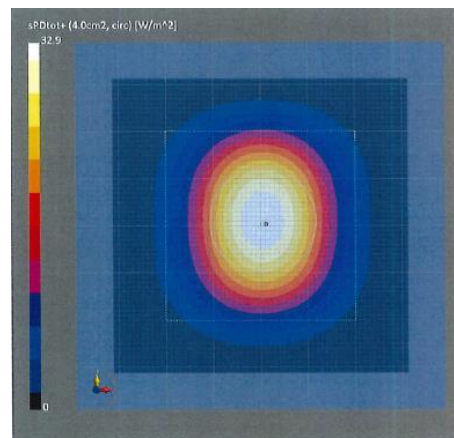
Scan Type	5G Scan
Grid Extents [mm]	60.0 x 60.0
Grid Steps [lambda]	0.25 x 0.25
Sensor Surface [mm]	5.55

Measurement Results

Scan Type	5G Scan
Avg. Area [cm ²]	4.00
pS _{tot} avg [W/m ²]	33.3
pS _n avg [W/m ²]	32.9
E _{peak} [V/m]	131
Power Drift [dB]	-0.02



30GHz System Verification



Calibration Certificate

ELEMENT

Date: 07/12/2022

30 GHz System Verification

Device Under Test Properties

DUT	Serial Number
30 GHz Verification Source	1045

Exposure Conditions

Phantom Section	Position	Test Distance [mm]	Band	Frequency [MHz]
5G	FRONT	5.55	Validation band	30000.0

Hardware Setup

Probe, Calibration Date	DAE, Calibration Date
EUmmWV3 - SN9421_F1-55GHz, 2022-03-15	DAE4 Sn1530, 2022-01-12

Software Setup

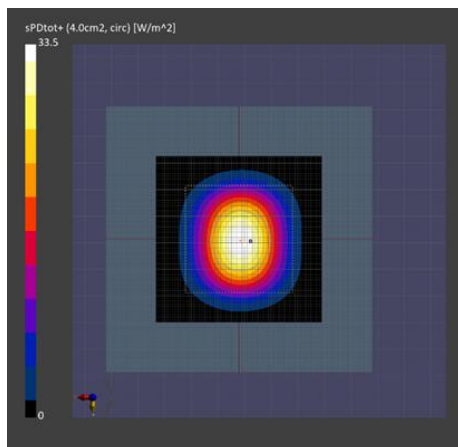
Software	Software Version
cDasy6 Module mmWave	3.0.0.841

Scans Setup

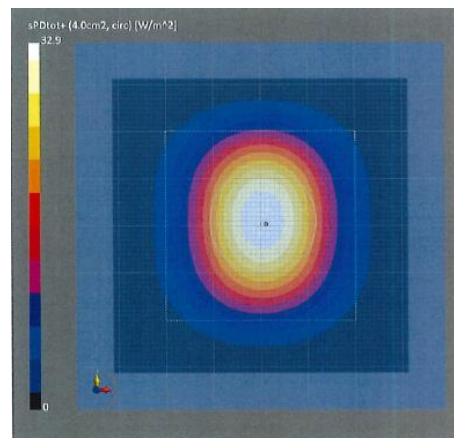
Scan Type	5G Scan
Grid Extents [mm]	60.0 x 60.0
Grid Steps [lambda]	0.25 x 0.25
Sensor Surface [mm]	5.55

Measurement Results

Scan Type	5G Scan
Avg. Area [cm ²]	4.00
pS _{tot} avg [W/m ²]	33.5
pS _n avg [W/m ²]	33.0
E _{peak} [V/m]	132
Power Drift [dB]	-0.01



30GHz System Verification



Calibration Certificate