

SAR Plots of System Verification

Test Laboratory: TÜV Rheinland IoT Excellence Center

Date: 2020/11/27

System Check-D750V2_B750

DUT: Dipole 750 MHz D750V3 SN:1109

Communication System: CW; Frequency: 750 MHz; Duty Cycle: 1:1

Medium: B750 Medium parameters used: $f = 750 \text{ MHz}$; $\sigma = 0.963 \text{ S/m}$; $\epsilon_r = 53.779$; $\rho = 1000 \text{ kg/m}^3$

DASY5 Configuration:

- Probe: EX3DV4 - SN7506; ConvF(10.37, 10.37, 10.37) @ 750 MHz; Calibrated: 2020/5/29
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1557; Calibrated: 2020/5/27
- Phantom: ELI V8.0; Type: QD OVA 004 Ax; Serial: 2094
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

Pin=250 mW/Area Scan (71x141x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 2.93 W/kg

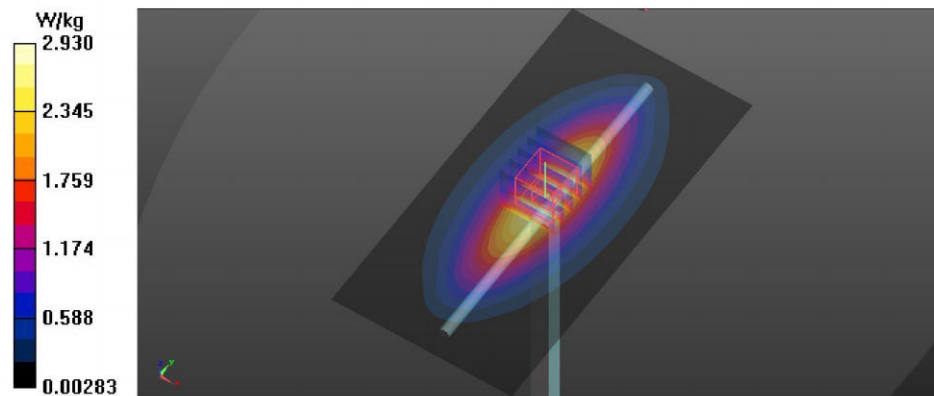
Pin=250 mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 59.66 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 3.54 W/kg

SAR(1 g) = 2.17 W/kg; SAR(10 g) = 1.41 W/kg

Maximum value of SAR (measured) = 3.03 W/kg



Test Laboratory: TÜV Rheinland IoT Excellence Center

Date: 2020/12/1

System Check-D835V2_B835

DUT: Dipole 835 MHz D835V2 SN:4d242

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1

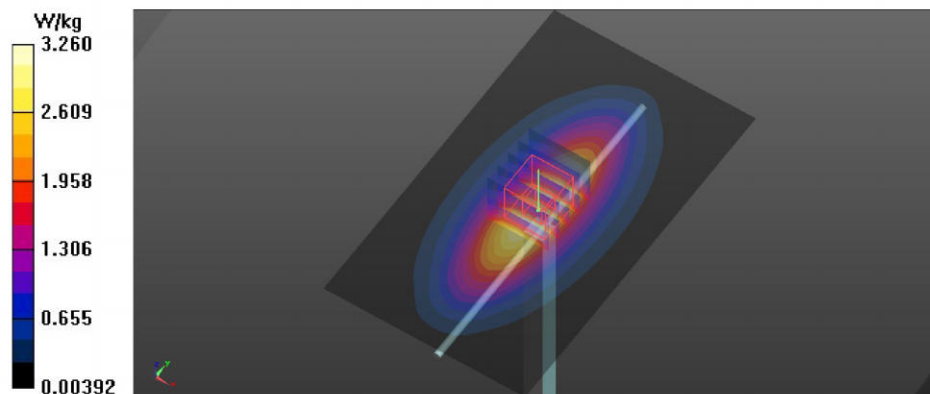
Medium: B835 Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.954 \text{ S/m}$; $\epsilon_r = 56.029$; $\rho = 1000 \text{ kg/m}^3$

DASY5 Configuration:

- Probe: EX3DV4 - SN7506; ConvF(10.01, 10.01, 10.01) @ 835 MHz; Calibrated: 2020/5/29
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1557; Calibrated: 2020/5/27
- Phantom: ELI V8.0; Type: QD OVA 004 Ax; Serial: 2094
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

Pin=250 mW/Area Scan (71x121x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$
Maximum value of SAR (interpolated) = 3.26 W/kg

Pin=250 mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 61.24 V/m; Power Drift = -0.00 dB
Peak SAR (extrapolated) = 3.78 W/kg
SAR(1 g) = 2.41 W/kg; SAR(10 g) = 1.56 W/kg
Maximum value of SAR (measured) = 3.30 W/kg



Test Laboratory: TÜV Rheinland IoT Excellence Center

Date: 2020/12/2

System Check-D1750V2_B1750

DUT: Dipole 1750 MHz D1750V2 SN:1166

Communication System: CW; Frequency: 1750 MHz; Duty Cycle: 1:1

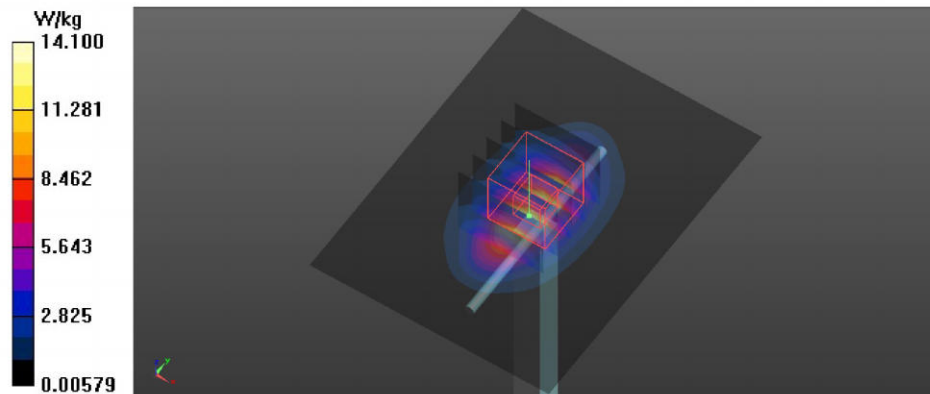
Medium: B1750 Medium parameters used: $f = 1750$ MHz; $\sigma = 1.439$ S/m; $\epsilon_r = 53.695$; $\rho = 1000$ kg/m³

DASY5 Configuration:

- Probe: EX3DV4 - SN7506; ConvF(8.35, 8.35, 8.35) @ 1750 MHz; Calibrated: 2020/5/29
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1557; Calibrated: 2020/5/27
- Phantom: ELI V8.0; Type: QD OVA 004 Ax; Serial: 2094
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

Pin=250 mW/Area Scan (61x81x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 14.1 W/kg

Pin=250 mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 100.9 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 16.2 W/kg
SAR(1 g) = 8.84 W/kg; SAR(10 g) = 4.66 W/kg
Maximum value of SAR (measured) = 13.5 W/kg



Test Laboratory: TÜV Rheinland IoT Excellence Center

Date: 2020/11/30

System Check-D1900V2_B1900

DUT: Dipole 1900 MHz D1900V2 SN:5d229

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1

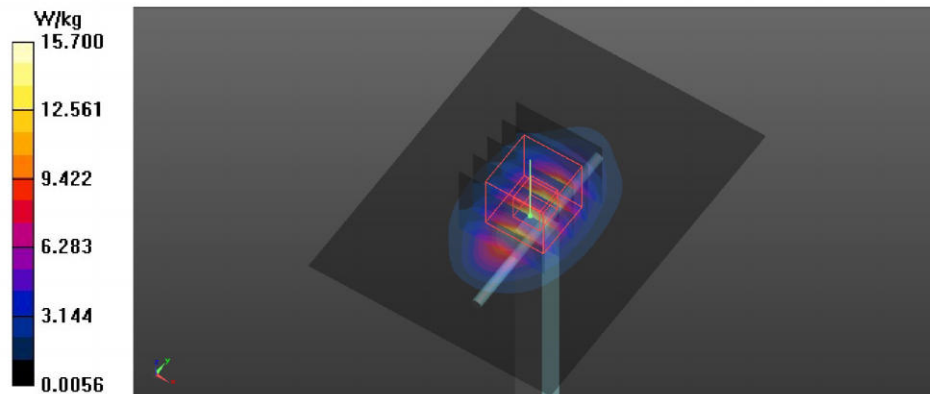
Medium: B1900 Medium parameters used: $f = 1900 \text{ MHz}$; $\sigma = 1.585 \text{ S/m}$; $\epsilon_r = 53.657$; $\rho = 1000 \text{ kg/m}^3$

DASY5 Configuration:

- Probe: EX3DV4 - SN7506; ConvF(8.08, 8.08, 8.08) @ 1900 MHz; Calibrated: 2020/5/29
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1557; Calibrated: 2020/5/27
- Phantom: ELI V8.0; Type: QD OVA 004 Ax; Serial: 2094
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

Pin=250 mW/Area Scan (61x81x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$
Maximum value of SAR (interpolated) = 15.7 W/kg

Pin=250 mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 100.4 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 18.1 W/kg
SAR(1 g) = 9.69 W/kg; SAR(10 g) = 4.99 W/kg
Maximum value of SAR (measured) = 15.1 W/kg



Test Laboratory: TÜV Rheinland IoT Excellence Center

Date: 2020/12/3

System Check-D2450V2_B2450

DUT: Dipole 2450 MHz D2450V2 SN:1014

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1

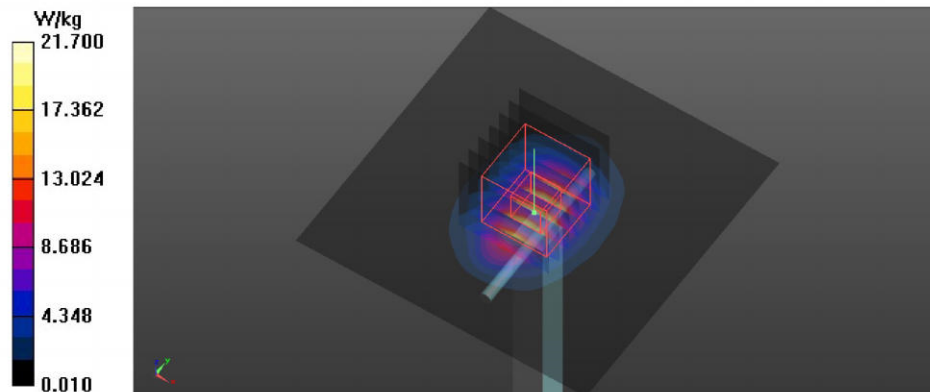
Medium: B2450 Medium parameters used: $f = 2450$ MHz; $\sigma = 1.957$ S/m; $\epsilon_r = 51.763$; $\rho = 1000$ kg/m³

DASY5 Configuration:

- Probe: EX3DV4 - SN7506; ConvF(7.51, 7.51, 7.51) @ 2450 MHz; Calibrated: 2020/5/29
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1557; Calibrated: 2020/5/27
- Phantom: ELI V8.0; Type: QD OVA 004 Ax; Serial: 2094
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

Pin=250 mW/Area Scan (81x81x1): Interpolated grid: $dx=1.200$ mm, $dy=1.200$ mm
Maximum value of SAR (interpolated) = 21.7 W/kg

Pin=250 mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm
Reference Value = 107.7 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 27.1 W/kg
SAR(1 g) = 12.9 W/kg; SAR(10 g) = 5.94 W/kg
Maximum value of SAR (measured) = 21.8 W/kg



Test Laboratory: TÜV Rheinland IoT Excellence Center

Date: 2020/12/2

System Check-D2600V2_B2600

DUT: Dipole 2600 MHz D2600V2 SN:1153

Communication System: CW; Frequency: 2600 MHz; Duty Cycle: 1:1

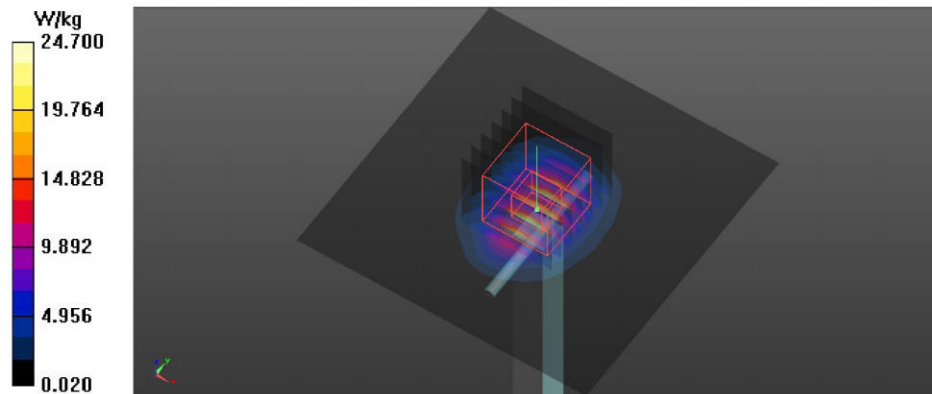
Medium: B2600 Medium parameters used: $f = 2600$ MHz; $\sigma = 2.117$ S/m; $\epsilon_r = 51.117$; $\rho = 1000$ kg/m³

DASY5 Configuration:

- Probe: EX3DV4 - SN7506; ConvF(7.48, 7.48, 7.48) @ 2600 MHz; Calibrated: 2020/5/29
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1557; Calibrated: 2020/5/27
- Phantom: ELI V8.0; Type: QD OVA 004 Ax; Serial: 2094
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

Pin=250 mW/Area Scan (81x81x1): Interpolated grid: $dx=1.200$ mm, $dy=1.200$ mm
Maximum value of SAR (interpolated) = 24.7 W/kg

Pin=250 mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm
Reference Value = 110.2 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 31.7 W/kg
SAR(1 g) = 14.2 W/kg; SAR(10 g) = 6.21 W/kg
Maximum value of SAR (measured) = 24.9 W/kg



Test Laboratory: TÜV Rheinland IoT Excellence Center

Date: 2020/11/4

System Check_B5250

DUT: Dipole D5GHzV2 SN:1280

Communication System: CW; Frequency: 5250 MHz; Duty Cycle: 1:1

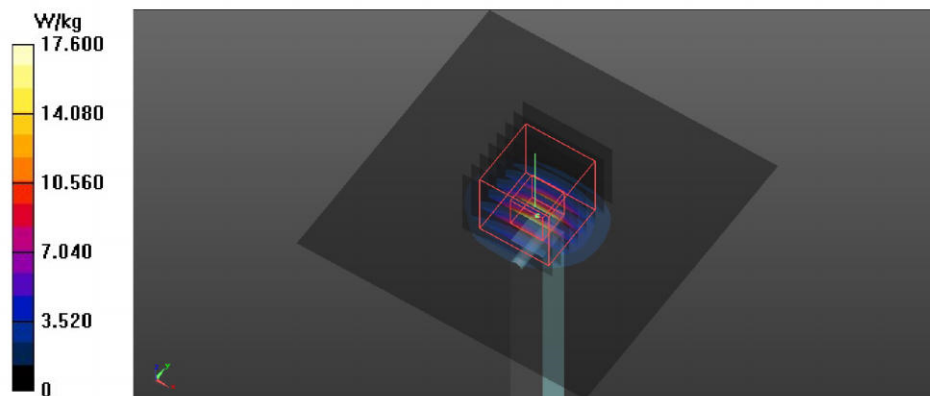
Medium: B5G Medium parameters used: $f = 5250 \text{ MHz}$; $\sigma = 5.494 \text{ S/m}$; $\epsilon_r = 48.293$; $\rho = 1000 \text{ kg/m}^3$

DASY5 Configuration:

- Probe: EX3DV4 - SN7506; ConvF(5, 5, 5) @ 5250 MHz; Calibrated: 2020/5/29
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1557; Calibrated: 2020/5/27
- Phantom: ELI V8.0; Type: QD OVA 004 Ax; Serial: 2094
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

Pin=100mW/Area Scan (91x91x1): Interpolated grid: $dx=1.000 \text{ mm}$, $dy=1.000 \text{ mm}$
Maximum value of SAR (interpolated) = 17.6 W/kg

Pin=100mW/Zoom Scan (8x8x7)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=1.4\text{mm}$
Reference Value = 64.38 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 32.4 W/kg
SAR(1 g) = 7.61 W/kg; SAR(10 g) = 2.15 W/kg
Maximum value of SAR (measured) = 18.3 W/kg



Test Laboratory: TÜV Rheinland IoT Excellence Center

Date: 2020/11/4

System Check_B5600

DUT: Dipole D5GHzV2 SN:1280

Communication System: CW; Frequency: 5600 MHz; Duty Cycle: 1:1

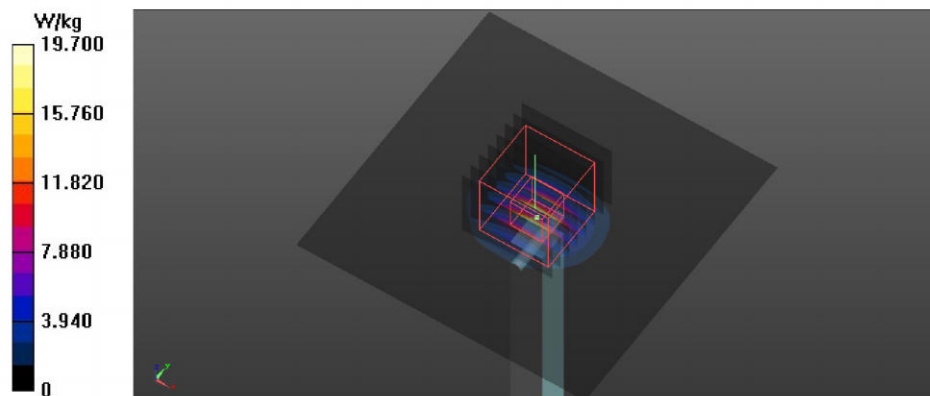
Medium: B5G Medium parameters used: $f = 5600 \text{ MHz}$; $\sigma = 5.957 \text{ S/m}$; $\epsilon_r = 47.703$; $\rho = 1000 \text{ kg/m}^3$

DASY5 Configuration:

- Probe: EX3DV4 - SN7506; ConvF(4.28, 4.28, 4.28) @ 5600 MHz; Calibrated: 2020/5/29
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1557; Calibrated: 2020/5/27
- Phantom: ELI V8.0; Type: QD OVA 004 Ax; Serial: 2094
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

Pin=100mW/Area Scan (91x91x1): Interpolated grid: $dx=1.000 \text{ mm}$, $dy=1.000 \text{ mm}$
Maximum value of SAR (interpolated) = 19.7 W/kg

Pin=100mW/Zoom Scan (8x8x7)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=1.4\text{mm}$
Reference Value = 64.23 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 36.2 W/kg
SAR(1 g) = 7.96 W/kg; SAR(10 g) = 2.22 W/kg
Maximum value of SAR (measured) = 19.5 W/kg



Test Laboratory: TÜV Rheinland IoT Excellence Center

Date: 2020/11/4

System Check_B5800

DUT: Dipole D5GHzV2 SN:1280

Communication System: CW; Frequency: 5800 MHz; Duty Cycle: 1:1

Medium: B5G Medium parameters used: $f = 5800 \text{ MHz}$; $\sigma = 6.221 \text{ S/m}$; $\epsilon_r = 47.4$; $\rho = 1000 \text{ kg/m}^3$

DASY5 Configuration:

- Probe: EX3DV4 - SN7506; ConvF(4.32, 4.32, 4.32) @ 5800 MHz; Calibrated: 2020/5/29
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1557; Calibrated: 2020/5/27
- Phantom: ELI V8.0; Type: QD OVA 004 Ax; Serial: 2094
- Measurement SW: DASY52, Version 52.10 (3); SEMCAD X Version 14.6.13 (7474)

Pin=100mW/Area Scan (91x91x1): Interpolated grid: $dx=1.000 \text{ mm}$, $dy=1.000 \text{ mm}$
Maximum value of SAR (interpolated) = 19.6 W/kg

Pin=100mW/Zoom Scan (8x8x7)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=1.4\text{mm}$
Reference Value = 62.46 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 36.8 W/kg
SAR(1 g) = 7.72 W/kg; SAR(10 g) = 2.16 W/kg
Maximum value of SAR (measured) = 19.5 W/kg

