

835 Head system

DUT: Dipole 835 MHz D835V2; Type: D835V2

Communication System: CW; Communication System Band: D835 (835.0 MHz); Frequency: 835 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.89 \text{ mho/m}$; $\epsilon_r = 41.5$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7047; ConvF(9.39, 9.39, 9.39); Calibrated: 3/13/2017;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 2/23/2017
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

835Head/System/Area Scan (31x181x1): Interpolated grid: $dx=1.000 \text{ mm}$, $dy=1.000 \text{ mm}$

Reference Value = 54.569 V/m; Power Drift = -0.06 dB

Maximum value of SAR (interpolated) = 2.54 W/kg

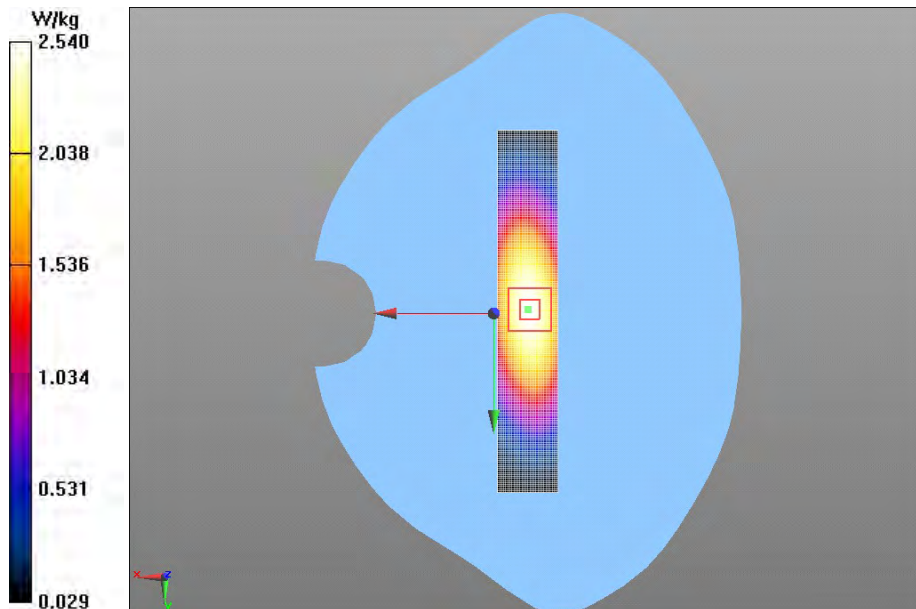
835Head/System/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 54.569 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 3.477 mW/g

SAR(1 g) = 2.36 mW/g; SAR(10 g) = 1.56 mW/g

Maximum value of SAR (measured) = 2.55 W/kg



1800 Head system**DUT: Dipole 1800 MHz D1800V2; Type: D1800V2**

Communication System: CW; Communication System Band: D1800 (1800.0 MHz); Frequency: 1800 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1800$ MHz; $\sigma = 1.349$ mho/m; $\epsilon_r = 39.576$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7407; ConvF(8.2, 8.2, 8.2); Calibrated: 3/13/2017;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 2/23/2017
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

1800 Head/System/Area Scan (31x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Reference Value = 52.851 V/m; Power Drift = 0.01 dB

Maximum value of SAR (interpolated) = 10.1 W/kg

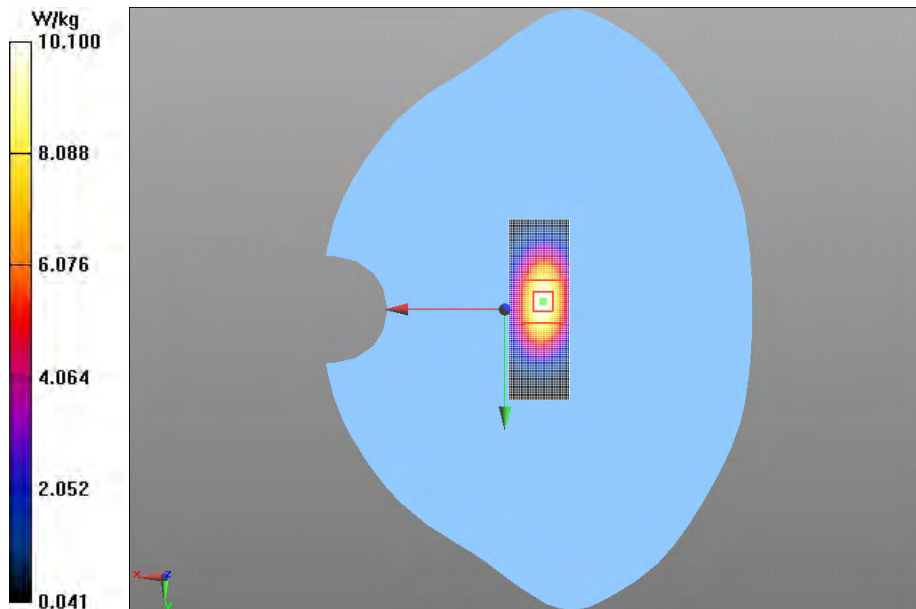
1800 Head/System/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 52.851 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 16.281 mW/g

SAR(1 g) = 9.15 mW/g; SAR(10 g) = 4.88 mW/g

Maximum value of SAR (measured) = 10.2 W/kg



1900 Head system**DUT: Dipole 1900 MHz D1900V2; Type: D1900V2**

Communication System: CW; Communication System Band: D1900 (1900.0 MHz); Frequency: 1900 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.422$ mho/m; $\epsilon_r = 40.328$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7407; ConvF(7.93, 7.93, 7.93); Calibrated: 3/13/2017;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 2/23/2017
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

1900Head/System/Area Scan (31x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Reference Value = 52.851 V/m; Power Drift = 0.01 dB

Maximum value of SAR (interpolated) = 11.4 W/kg

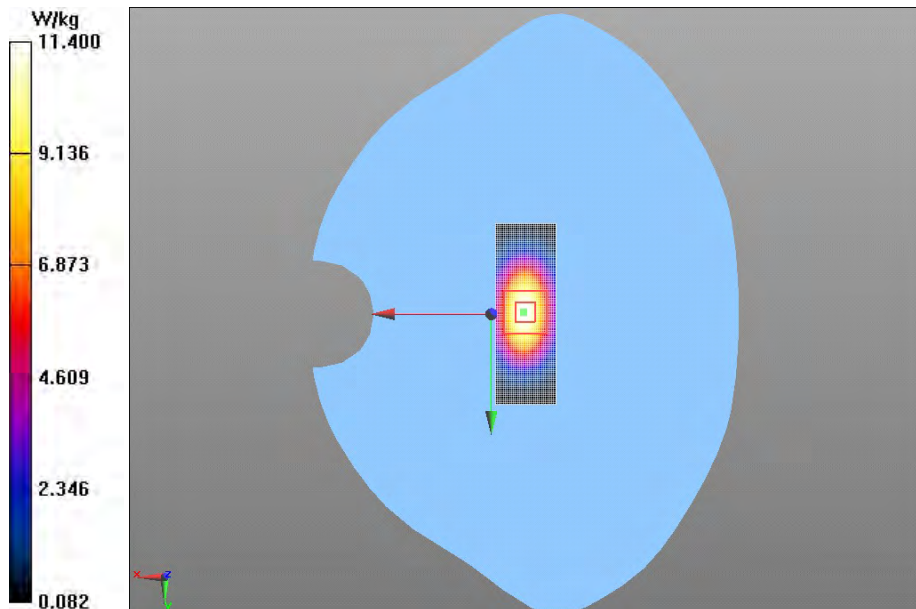
1900Head/System/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 52.851 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 18.017 mW/g

SAR(1 g) = 9.85 mW/g; SAR(10 g) = 5.14 mW/g

Maximum value of SAR (measured) = 11.1 W/kg



2450 Head system**DUT: Dipole 2450 MHz D2450V2; Type: D2450V2**

Communication System: CW; Communication System Band: D2450 (2450.0 MHz); Frequency: 2450 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.854$ mho/m; $\epsilon_r = 40.086$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7407; ConvF(7.52, 7.52, 7.52); Calibrated: 3/13/2017;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 2/23/2017
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

2450 Head/System/Area Scan (31x71x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Reference Value = 52.851 V/m; Power Drift = 0.01 dB

Maximum value of SAR (interpolated) = 15.8 W/kg

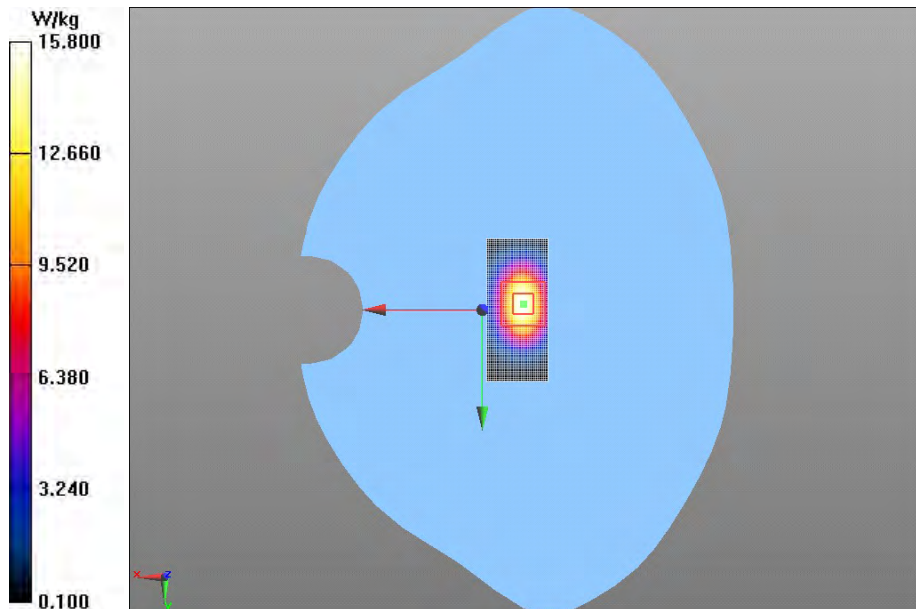
2450 Head/System/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 52.851 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 27.516 mW/g

SAR(1 g) = 13.4 mW/g; SAR(10 g) = 6.33 mW/g

Maximum value of SAR (measured) = 15.3 W/kg



2600 Head system**DUT: Dipole 2600 MHz D2600V2; Type: D2600V2**

Communication System: CW; Communication System Band: D2600 (2600.0 MHz); Frequency: 2600 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2600$ MHz; $\sigma = 2.002$ mho/m; $\epsilon_r = 38.832$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7407; ConvF(7.12, 7.12, 7.12); Calibrated: 3/13/2017;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 2/23/2017
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

2600 head/System/Area Scan (51x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Reference Value = 90.728 V/m; Power Drift = -0.20 dB

Maximum value of SAR (interpolated) = 16.2 W/kg

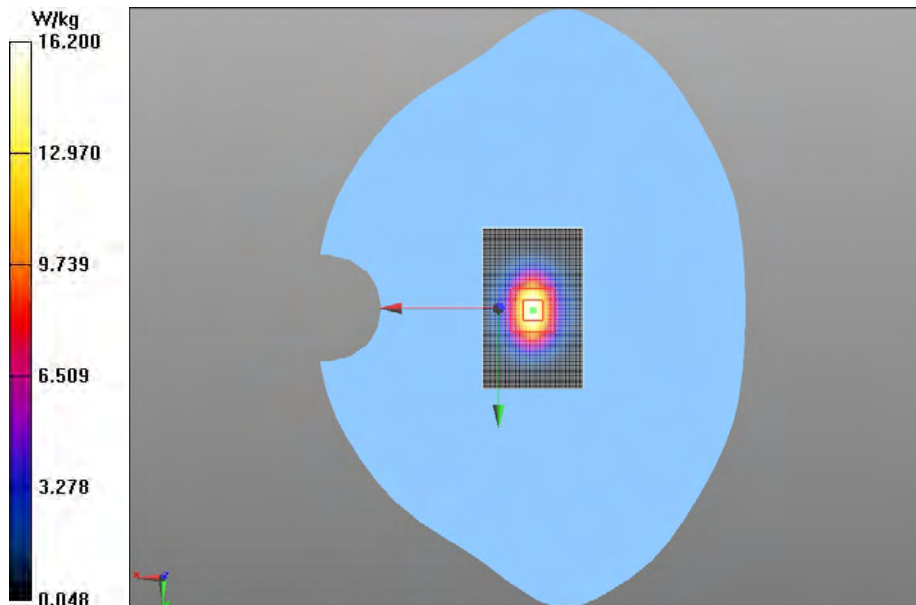
2600 head/System/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 90.728 V/m; Power Drift = -0.20 dB

Peak SAR (extrapolated) = 28.573 mW/g

SAR(1 g) = 13.8 mW/g; SAR(10 g) = 6.2 mW/g

Maximum value of SAR (measured) = 15.4 W/kg



5.25G Head system

DUT: Dipole D5GHzV2; Type: D5GHzV2

Communication System: CW; Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5250 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 5250$ MHz; $\sigma = 4.6$ mho/m; $\epsilon_r = 36.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7407; ConvF(5.4, 5.4, 5.4); Calibrated: 3/13/2017;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 2/23/2017
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

System check/Area Scan (61x71x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Reference Value = 21.522 V/m; Power Drift = -0.02 dB

Maximum value of SAR (interpolated) = 2.62 W/kg

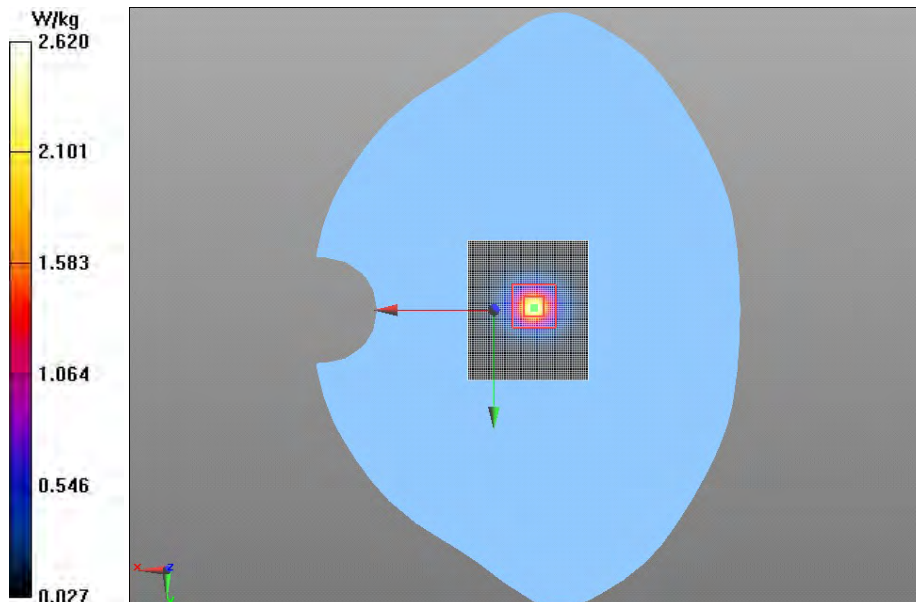
System check/Zoom Scan (7x7x16)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=2mm

Reference Value = 21.522 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 4.885 mW/g

SAR(1 g) = 1.91 mW/g; SAR(10 g) = 0.562 mW/g

Maximum value of SAR (measured) = 2.35 W/kg



5.6G Head system

DUT: Dipole D5GHzV2; Type: D5GHzV2

Communication System: CW; Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5600 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 5600$ MHz; $\sigma = 5.06$ mho/m; $\epsilon_r = 35.6$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7407; ConvF(4.8, 4.8, 4.8); Calibrated: 3/13/2017;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 2/23/2017
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

System check/Area Scan (61x71x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Reference Value = 20.168 V/m; Power Drift = -0.01 dB

Maximum value of SAR (interpolated) = 2.61 W/kg

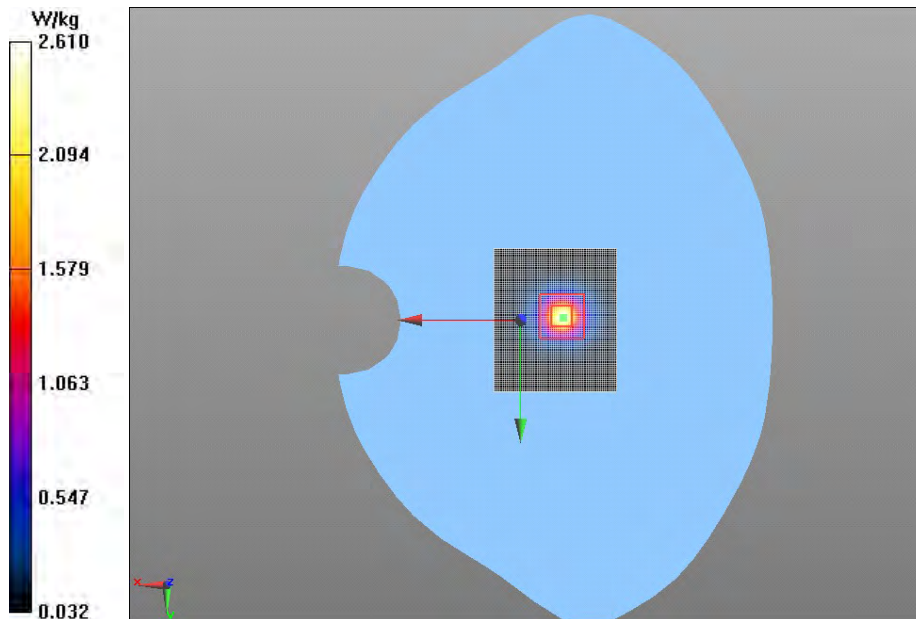
System check/Zoom Scan (7x7x16)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=2mm

Reference Value = 20.168 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 5.160 mW/g

SAR(1 g) = 2.03 mW/g; SAR(10 g) = 0.587 mW/g

Maximum value of SAR (measured) = 2.33 W/kg



5.8G Head system

DUT: Dipole D5GHzV2; Type: D5GHzV2

Communication System: CW; Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5800 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 5800$ MHz; $\sigma = 5.3$ mho/m; $\epsilon_r = 35.5$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7407; ConvF(4.66, 4.66, 4.66); Calibrated: 3/13/2017;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 2/23/2017
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

System check/Area Scan (61x71x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Reference Value = 19.622 V/m; Power Drift = 0.09 dB

Maximum value of SAR (interpolated) = 2.47 W/kg

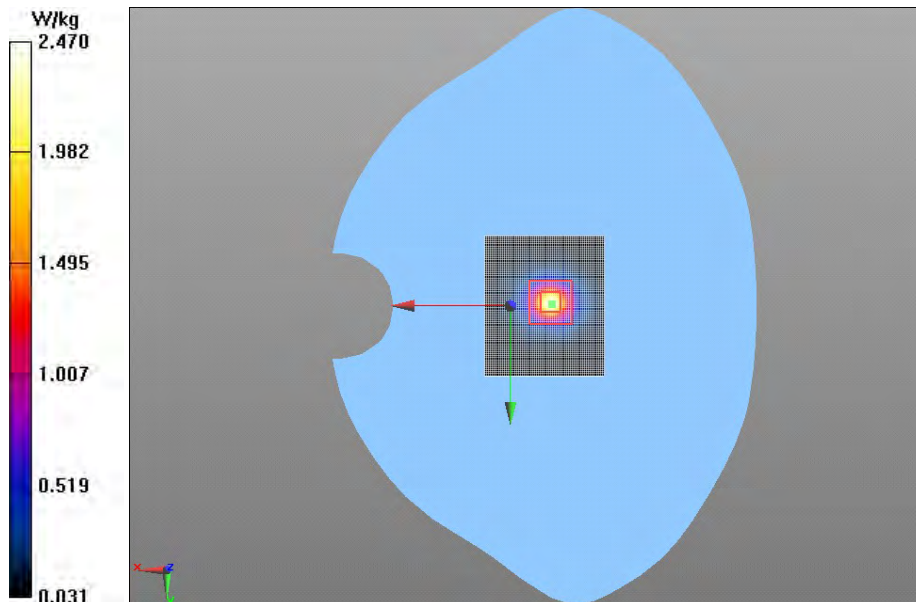
System check/Zoom Scan (7x7x16)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=2mm

Reference Value = 19.622 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 5.121 mW/g

SAR(1 g) = 1.89 mW/g; SAR(10 g) = 0.544 mW/g

Maximum value of SAR (measured) = 2.25 W/kg



835 Body system**DUT: Dipole 835 MHz D835V2; Type: D835V2**

Communication System: CW; Communication System Band: D835 (835.0 MHz); Frequency: 835 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.96 \text{ mho/m}$; $\epsilon_r = 55.87$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7407; ConvF(9.55, 9.55, 9.55); Calibrated: 3/13/2017;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 2/23/2017
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

835Body/System/Area Scan (31x181x1): Interpolated grid: $dx=1.000 \text{ mm}$, $dy=1.000 \text{ mm}$

Reference Value = 52.851 V/m; Power Drift = 0.01 dB

Maximum value of SAR (interpolated) = 2.61 W/kg

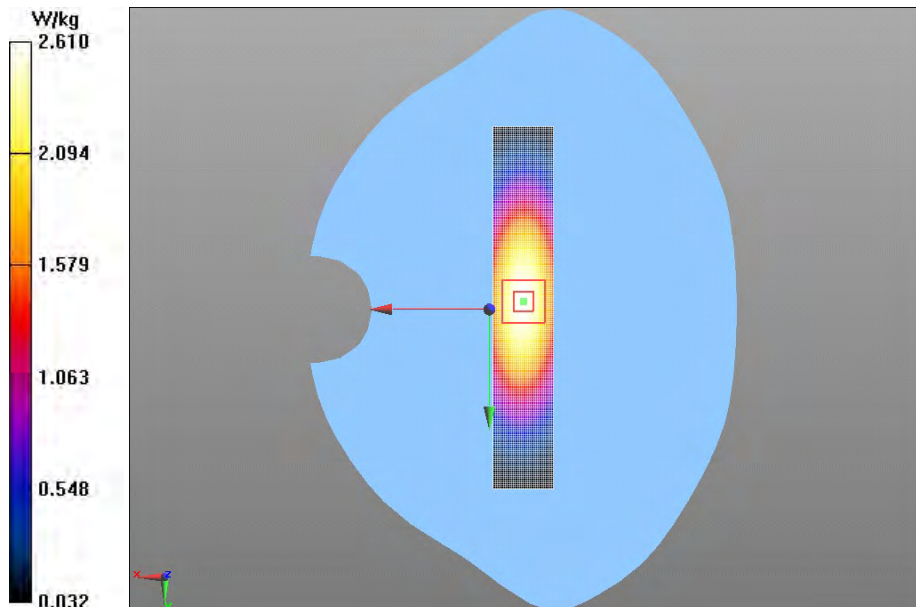
835Body/System/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 52.851 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 3.508 mW/g

SAR(1 g) = 2.43 mW/g; SAR(10 g) = 1.61 mW/g

Maximum value of SAR (measured) = 2.63 W/kg



1800 Body system**DUT: Dipole 1800 MHz D1800V2; Type: D1800V2**

Communication System: CW; Communication System Band: D1800 (1800.0 MHz); Frequency: 1800 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1800$ MHz; $\sigma = 1.48$ mho/m; $\epsilon_r = 51.39$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7407; ConvF(7.97, 7.97, 7.97); Calibrated: 3/13/2017;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 2/23/2017
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

1800Body/System/Area Scan (31x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Reference Value = 52.851 V/m; Power Drift = 0.01 dB

Maximum value of SAR (interpolated) = 11.5 W/kg

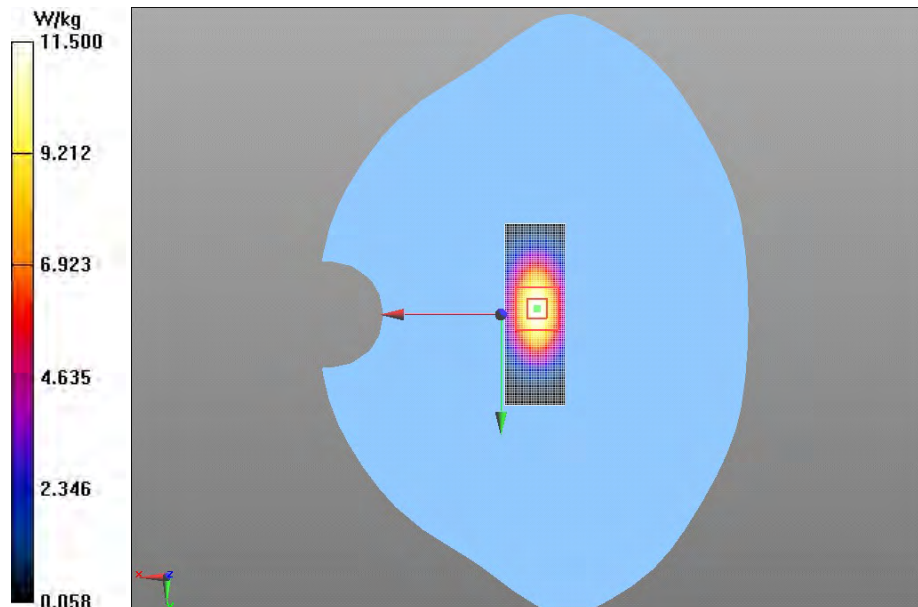
1800Body/System/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 52.851 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 17.741 mW/g

SAR(1 g) = 9.94 mW/g; SAR(10 g) = 5.26 mW/g

Maximum value of SAR (measured) = 11.2 W/kg



1900 Body system**DUT: Dipole 1900 MHz D1900V2; Type: D1900V2**

Communication System: CW; Communication System Band: D1900 (1900.0 MHz); Frequency: 1900 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.56$ mho/m; $\epsilon_r = 51.05$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7407; ConvF(7.62, 7.62, 7.62); Calibrated: 3/13/2017;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 2/23/2017
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

1900Body/System/Area Scan (21x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Reference Value = 52.851 V/m; Power Drift = 0.01 dB

Maximum value of SAR (interpolated) = 11.8 W/kg

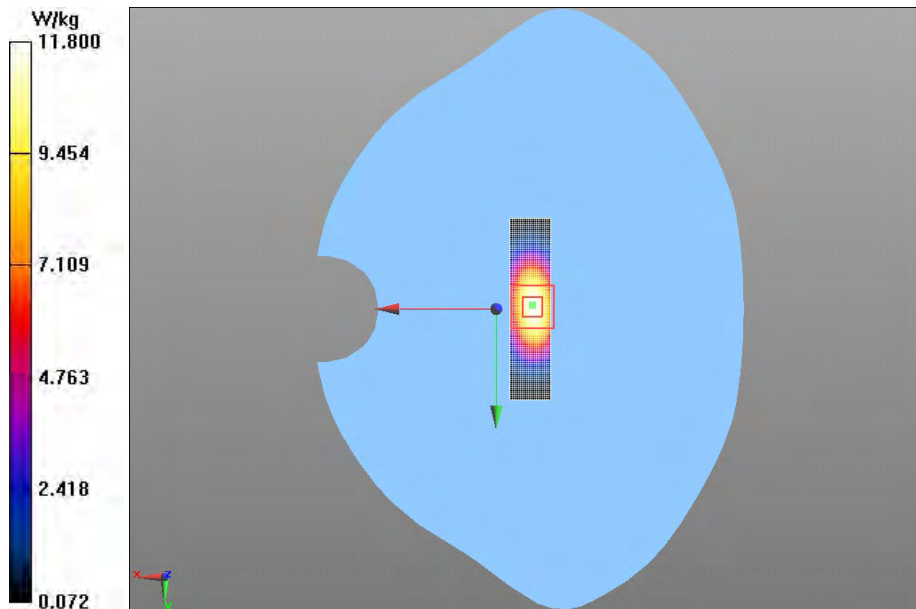
1900Body/System/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 52.851 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 18.272 mW/g

SAR(1 g) = 10.3 mW/g; SAR(10 g) = 5.44 mW/g

Maximum value of SAR (measured) = 11.6 W/kg



2450 Body system**DUT: Dipole 2450 MHz D2450V2; Type: D2450V2**

Communication System: CW; Communication System Band: D2450 (2450.0 MHz); Frequency: 2450 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.912$ mho/m; $\epsilon_r = 52.15$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7407; ConvF(7.3, 7.3, 7.3); Calibrated: 3/13/2017;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 2/23/2017
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

2450 Body/System check/Area Scan (31x71x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Reference Value = 86.695 V/m; Power Drift = -0.03 dB

Maximum value of SAR (interpolated) = 14.7 W/kg

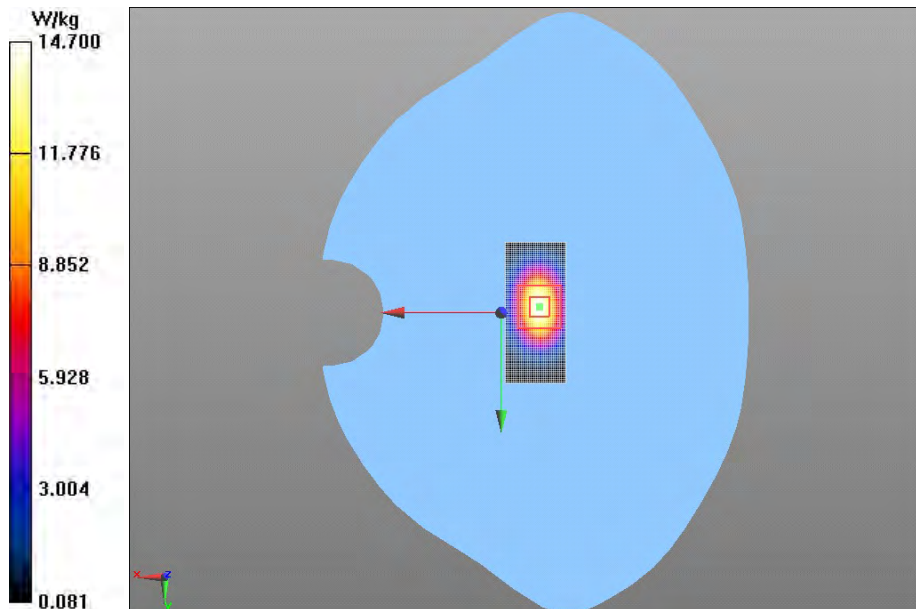
2450 Body/System check/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 86.695 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 25.317 mW/g

SAR(1 g) = 12.6 mW/g; SAR(10 g) = 5.91 mW/g

Maximum value of SAR (measured) = 14.4 W/kg



2600 Body system**DUT: Dipole 2600 MHz D2600V2; Type: D2600V2**

Communication System: CW; Communication System Band: D2600 (2600.0 MHz); Frequency: 2600 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2600$ MHz; $\sigma = 2.088$ mho/m; $\epsilon_r = 51.711$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7407; ConvF(7.07, 7.07, 7.07); Calibrated: 3/13/2017;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 2/23/2017
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

2600 body/System/Area Scan (51x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Reference Value = 90.728 V/m; Power Drift = -0.20 dB

Maximum value of SAR (interpolated) = 17.0 W/kg

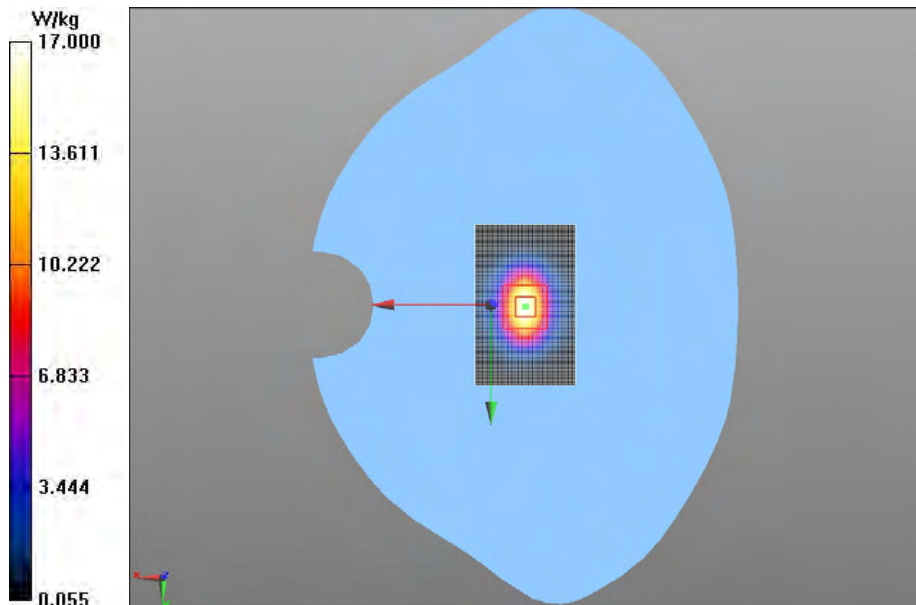
2600 body/System/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 90.728 V/m; Power Drift = -0.20 dB

Peak SAR (extrapolated) = 30.989 mW/g

SAR(1 g) = 14.2 mW/g; SAR(10 g) = 6.3 mW/g

Maximum value of SAR (measured) = 16.5 W/kg



5250 Body system**DUT: Dipole D5GHzV2; Type: D5GHzV2**

Communication System: CW; Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5250 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 5250$ MHz; $\sigma = 5.54$ mho/m; $\epsilon_r = 48.1$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7407; ConvF(4.79, 4.79, 4.79); Calibrated: 3/13/2017;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 2/23/2017
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

System check/Area Scan (61x71x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Reference Value = 18.596 V/m; Power Drift = 0.14 dB

Maximum value of SAR (interpolated) = 2.39 W/kg

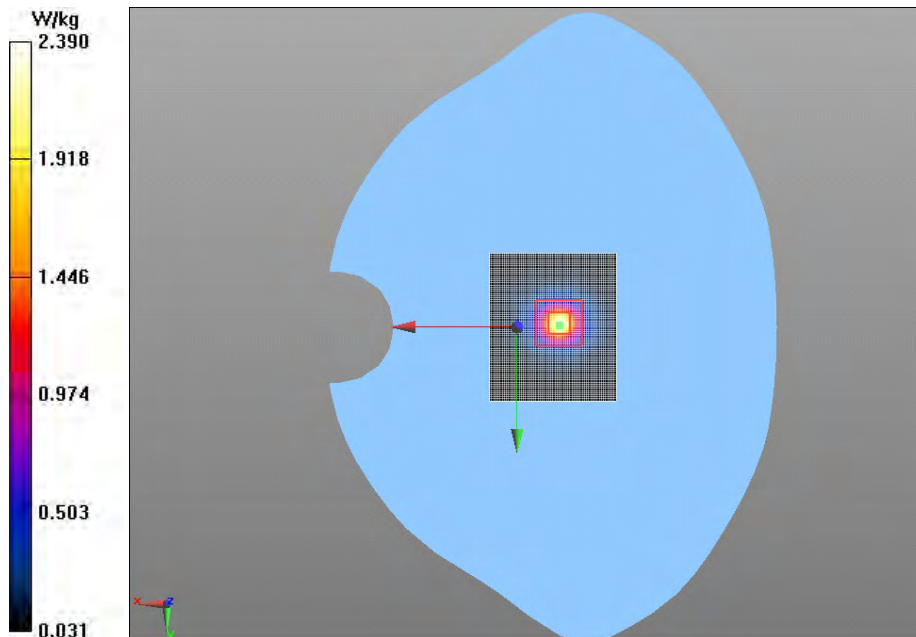
System check/Zoom Scan (7x7x16)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=2mm

Reference Value = 18.596 V/m; Power Drift = 0.14 dB

Peak SAR (extrapolated) = 4.498 mW/g

SAR(1 g) = 1.88 mW/g; SAR(10 g) = 0.540 mW/g

Maximum value of SAR (measured) = 2.17 W/kg



5.6G Body system

DUT: Dipole D5GHzV2; Type: D5GHzV2

Communication System: CW; Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5600 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 5600$ MHz; $\sigma = 5.98$ mho/m; $\epsilon_r = 47.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7407; ConvF(4.23, 4.23, 4.23); Calibrated: 3/13/2017;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 2/23/2017
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

System check/Area Scan (61x71x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Reference Value = 18.604 V/m; Power Drift = 0.11 dB

Maximum value of SAR (interpolated) = 2.47 W/kg

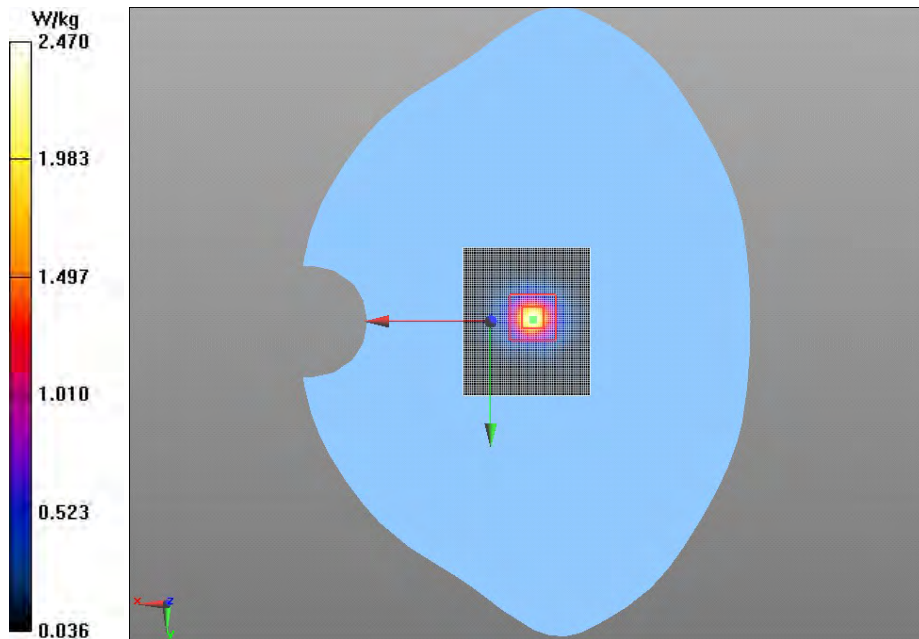
System check/Zoom Scan (7x7x16)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=2mm

Reference Value = 18.604 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 4.929 mW/g

SAR(1 g) = 1.97 mW/g; SAR(10 g) = 0.540 mW/g

Maximum value of SAR (measured) = 2.26 W/kg



5.8G Body system

DUT: Dipole D5GHzV2; Type: D5GHzV2

Communication System: CW; Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5800 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 5800$ MHz; $\sigma = 6.28$ mho/m; $\epsilon_r = 47.0$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7407; ConvF(4.49, 4.49, 4.49); Calibrated: 3/13/2017;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 2/23/2017
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

System check/Area Scan (61x71x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Reference Value = 17.188 V/m; Power Drift = 0.09 dB

Maximum value of SAR (interpolated) = 2.18 W/kg

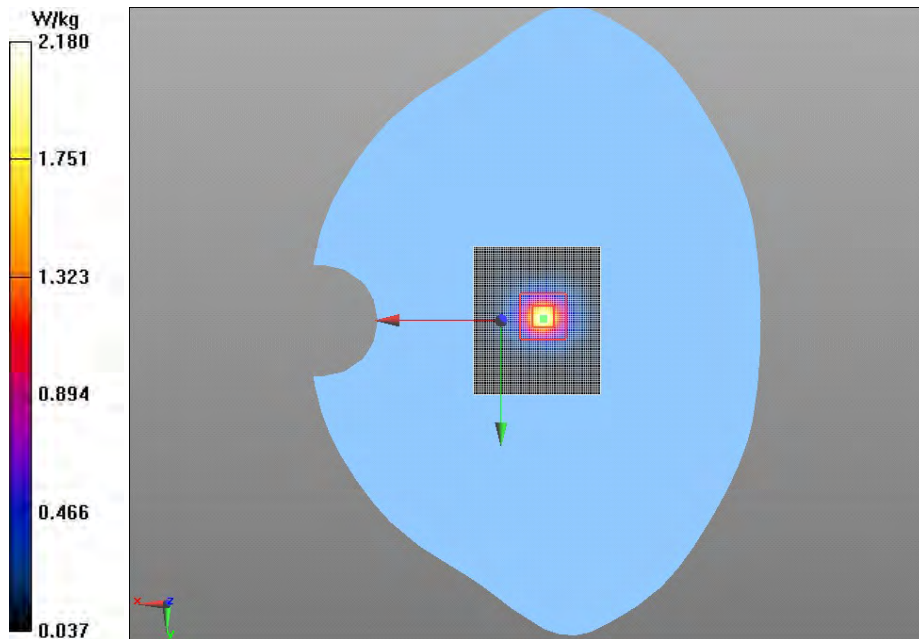
System check/Zoom Scan (7x7x16)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=2mm

Reference Value = 17.188 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 4.500 mW/g

SAR(1 g) = 1.85 mW/g; SAR(10 g) = 0.529 mW/g

Maximum value of SAR (measured) = 2.01 W/kg



Appendix B. SAR Plots of SAR Measurement

The SAR plots for highest measured SAR in each exposure configuration, wireless mode and frequency band combination, and measured SAR > 1.5 W/kg are shown as follows.



P01 GSM850 Right cheek High-Up**DUT: Mobile Phone; Type: MDG2**

Communication System: GPRS(4slots); Communication System Band: GSM850; Frequency: 848.8 MHz; Duty Cycle: 1:2

Medium parameters used (interpolated): $f = 848.8$ MHz; $\sigma = 0.919$ mho/m; $\epsilon_r = 41.202$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7407; ConvF(9.39, 9.39, 9.39); Calibrated: 3/13/2017;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 2/23/2017
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

GSM850 RIGHT/CHEEK-Mid-Up/Area Scan (61x111x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Reference Value = 16.547 V/m; Power Drift = 0.17 dB

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.563 W/kg

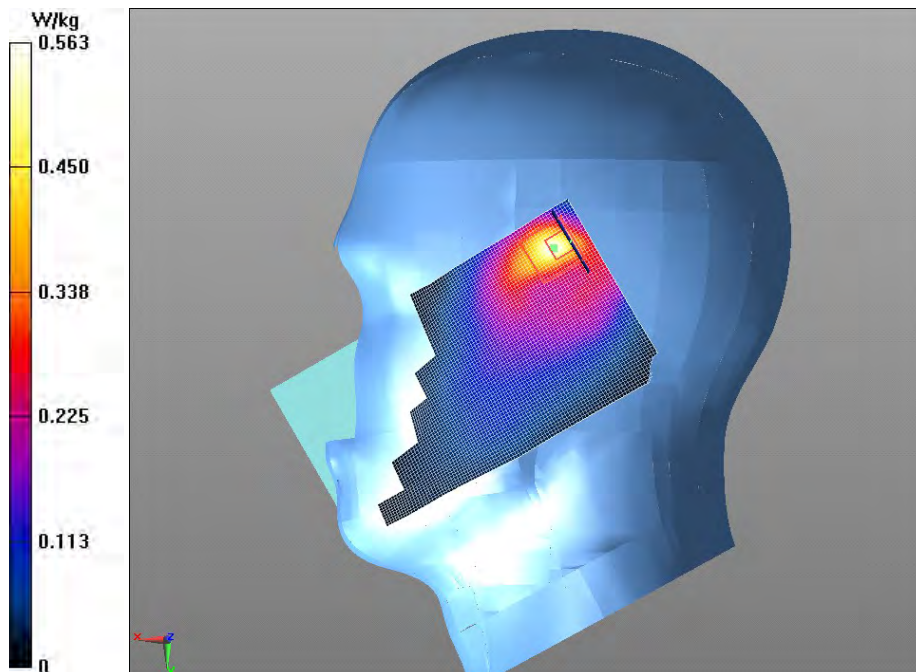
GSM850 RIGHT/CHEEK-Mid-Up/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 16.547 V/m; Power Drift = 0.17 dB

Peak SAR (extrapolated) = 1.114 mW/g

SAR(1 g) = 0.472 mW/g; SAR(10 g) = 0.231 mW/g[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.515 W/kg



P02 GSM1900 Right cheek low-Up**DUT: Mobile Phone; Type: MDG2**

Communication System: GPRS(4slots); Communication System Band: PCS1900; Frequency: 1850.2 MHz; Duty Cycle: 1:2
Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.419$ mho/m; $\epsilon_r = 38.565$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7407; ConvF(7.93, 7.93, 7.93); Calibrated: 3/13/2017;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 2/23/2017
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

GSM1900 RIGHT/CHEEK-Low-Up/Area Scan (61x111x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Reference Value = 7.094 V/m; Power Drift = 0.14 dB

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.952 W/kg

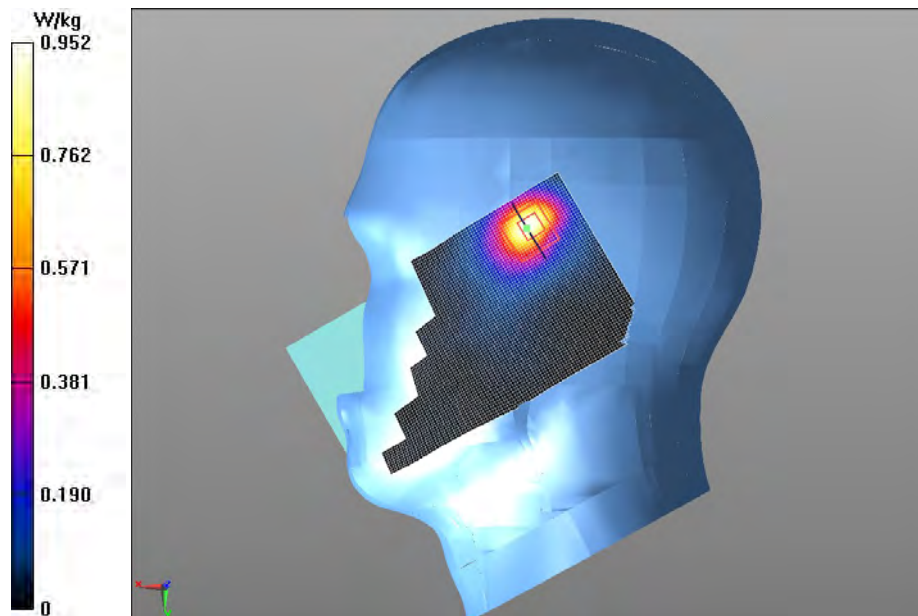
GSM1900 RIGHT/CHEEK-Low-Up/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 7.094 V/m; Power Drift = 0.14 dB

Peak SAR (extrapolated) = 2.064 mW/g

SAR(1 g) = 0.876 mW/g; SAR(10 g) = 0.408 mW/g[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.994 W/kg



P03 WCDMA Band II Left cheek mid-Down**DUT: Mobile Phone; Type: MDG2**

Communication System: UMTS-FDD(WCDMA); Communication System Band: Band2; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.319$ mho/m; $\epsilon_r = 38.747$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7407; ConvF(7.93, 7.93, 7.93); Calibrated: 3/13/2017;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 2/23/2017
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

WCDMA Band II LEFT/CHEEK-Mid-Down/Area Scan (61x111x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Reference Value = 2.412 V/m; Power Drift = 0.11 dB

Maximum value of SAR (interpolated) = 0.0378 W/kg

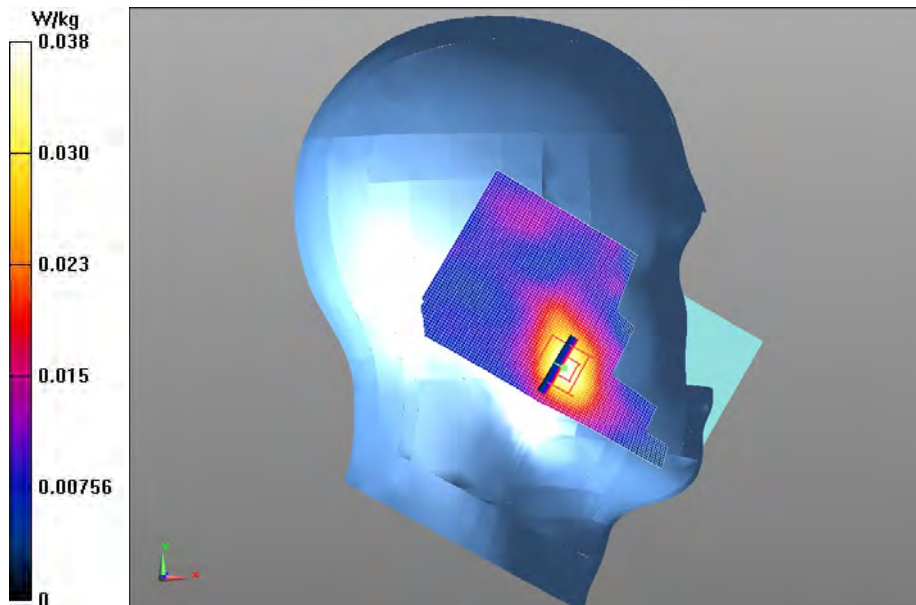
WCDMA Band II LEFT/CHEEK-Mid-Down/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 2.412 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 0.066 mW/g

SAR(1 g) = 0.034 mW/g; SAR(10 g) = 0.020 mW/g

Maximum value of SAR (measured) = 0.0357 W/kg



P04 WCDMA Band V Right cheek low-Up**DUT: Mobile Phone; Type: MDG2**

Communication System: UMTS-FDD(WCDMA); Communication System Band: Band 5; Frequency: 826.4 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 826.4$ MHz; $\sigma = 0.896$ mho/m; $\epsilon_r = 41.492$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7407; ConvF(9.39, 9.39, 9.39); Calibrated: 3/13/2017;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 2/23/2017
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

WCDMA Band V RIGHT/CHEEK-Low-Up/Area Scan (61x111x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Reference Value = 3.481 V/m; Power Drift = 0.16 dB

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.294 W/kg

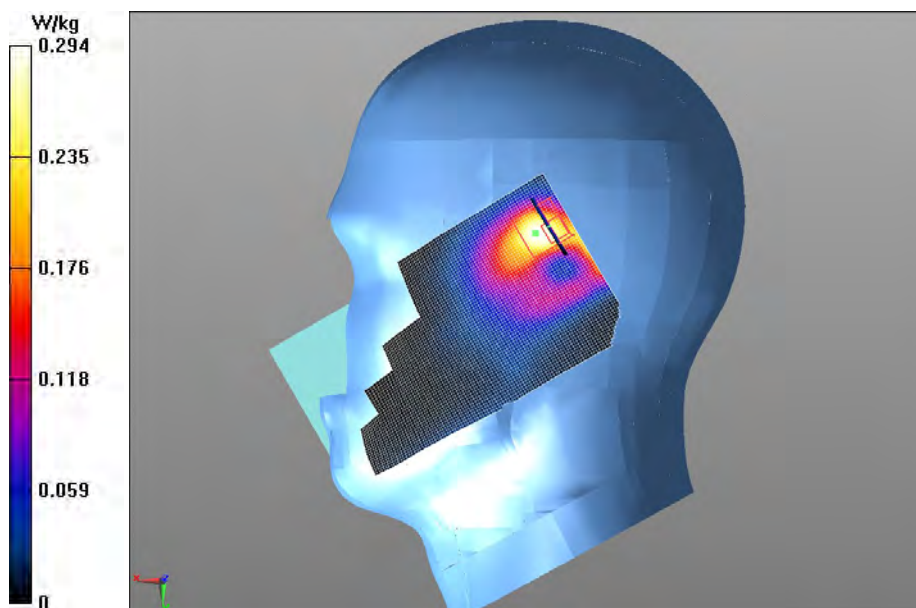
WCDMA Band V RIGHT/CHEEK-Low-Up/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 3.481 V/m; Power Drift = 0.16 dB

Peak SAR (extrapolated) = 1.007 mW/g

SAR(1 g) = 0.354 mW/g; SAR(10 g) = 0.154 mW/g[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.343 W/kg



P05 Band 4 Right cheek-20175-1RB High offset-Up**DUT: Mobile Phone; Type: MDG2**

Communication System: LTE; Communication System Band: Band 4 (20MHz); Frequency: 1732.5 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 1732.5$ MHz; $\sigma = 1.304$ mho/m; $\epsilon_r = 40.408$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7407; ConvF(8.2, 8.2, 8.2); Calibrated: 3/13/2017;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 2/23/2017
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

LTE Band 4 RIGHT/CHEEK-20175 1RB High offset-Up/Area Scan (61x111x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Reference Value = 6.239 V/m; Power Drift = -0.08 dB

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.447 W/kg

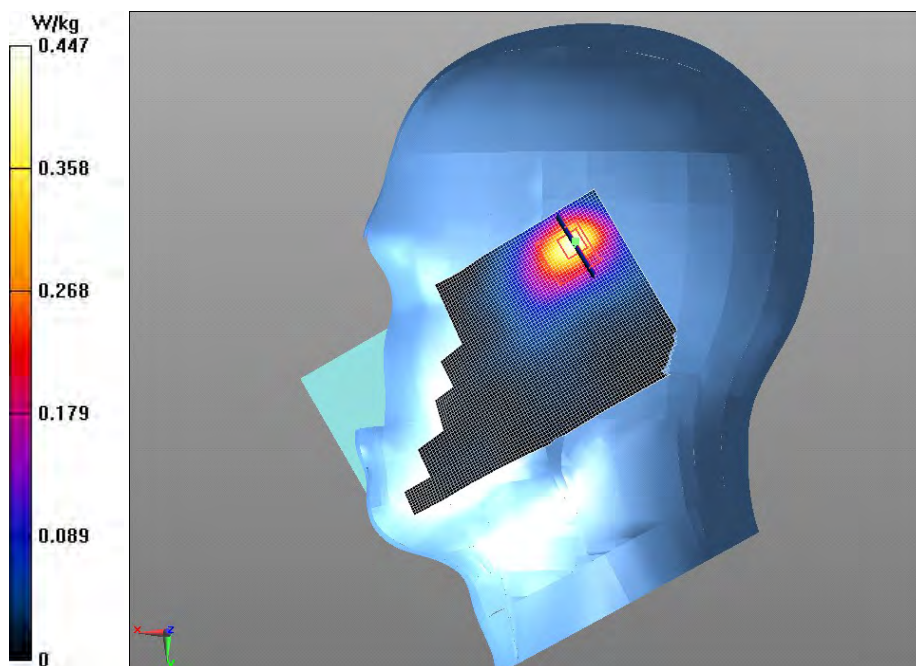
LTE Band 4 RIGHT/CHEEK-20175 1RB High offset-Up/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 6.239 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 0.786 mW/g

SAR(1 g) = 0.374 mW/g; SAR(10 g) = 0.185 mW/g[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.413 W/kg



P06 LTE Band 5 Left cheek 20600-1RB-high offset-Up**DUT: Mobile Phone; Type: MDG2**

Communication System: LTE; Communication System Band: Band 5 (10MHz); Frequency: 844 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 844 \text{ MHz}$; $\sigma = 0.914 \text{ mho/m}$; $\epsilon_r = 41.241$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7407; ConvF(9.39, 9.39, 9.39); Calibrated: 3/13/2017;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 2/23/2017
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

LTE Band 5 LEFT/CHEEK-20600 1RB High offset-Up/Area Scan (61x111x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Reference Value = 20.874 V/m; Power Drift = -0.00 dB

Maximum value of SAR (interpolated) = 0.424 W/kg

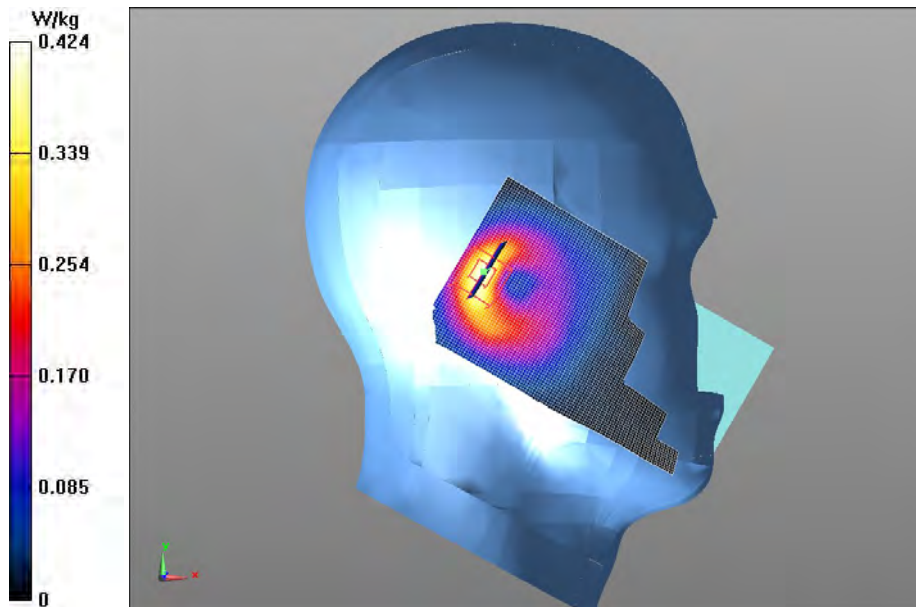
LTE Band 5 LEFT/CHEEK-20600 1RB High offset-Up/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 20.874 V/m; Power Drift = -0.00 dB

Peak SAR (extrapolated) = 0.808 mW/g

SAR(1 g) = 0.366 mW/g; SAR(10 g) = 0.184 mW/g

Maximum value of SAR (measured) = 0.418 W/kg



P07 LTE Band 7 Right cheek 20850-50RB high offset-Up**DUT: Mobile Phone; Type: MDG2**

Communication System: LTE; Communication System Band: Band 7 (20MHz); Frequency: 2510 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2510$ MHz; $\sigma = 1.901$ mho/m; $\epsilon_r = 39.158$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7407; ConvF(7.52, 7.52, 7.52); Calibrated: 3/13/2017;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 2/23/2017
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

LTE Band 7 RIGHT/CHEEK-20850 50%RB High offset-Up/Area Scan (61x111x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Reference Value = 6.883 V/m; Power Drift = 0.19 dB

Maximum value of SAR (interpolated) = 0.538 W/kg

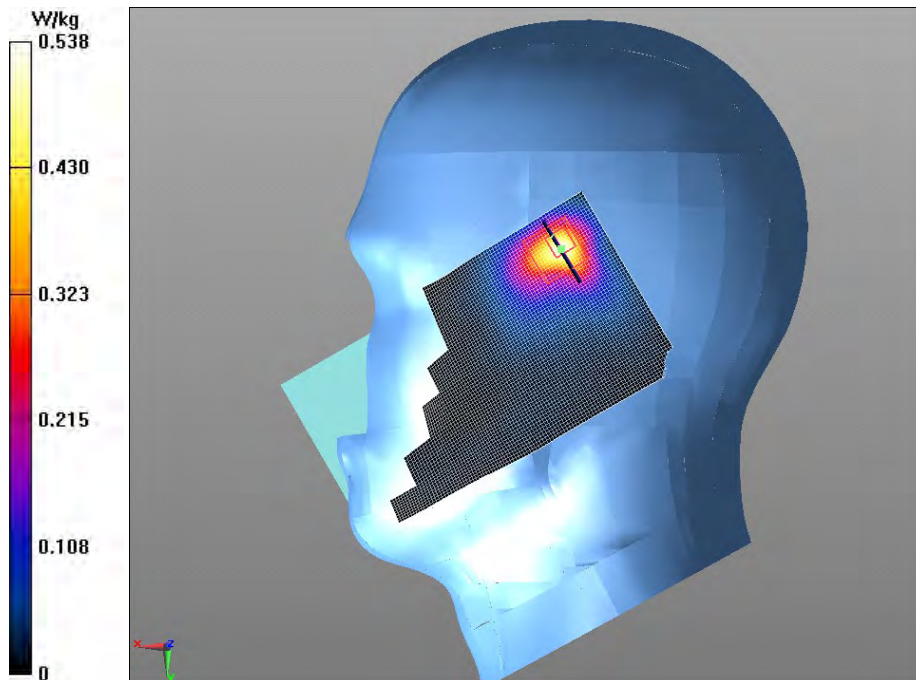
LTE Band 7 RIGHT/CHEEK-20850 50%RB High offset-Up/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 6.883 V/m; Power Drift = 0.19 dB

Peak SAR (extrapolated) = 1.187 mW/g

SAR(1 g) = 0.425 mW/g; SAR(10 g) = 0.189 mW/g

Maximum value of SAR (measured) = 0.424 W/kg



P08 LTE Band 38 Right cheek 37850-50RB high offset-Up**DUT: Mobile Phone; Type: MDG2**

Communication System: LTE; Communication System Band: Band 38 (20MHz); Frequency: 2580 MHz; Duty Cycle: 1:1.58
Medium parameters used: $f = 2580$ MHz; $\sigma = 1.979$ mho/m; $\epsilon_r = 38.903$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7407; ConvF(7.12, 7.12, 7.12); Calibrated: 3/13/2017;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 2/23/2017
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

LTE Band 38 RIGHT/CHEEK-37850 50%RB High offset/Area Scan (61x111x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Reference Value = 6.413 V/m; Power Drift = 0.17 dB

Maximum value of SAR (interpolated) = 0.368 W/kg

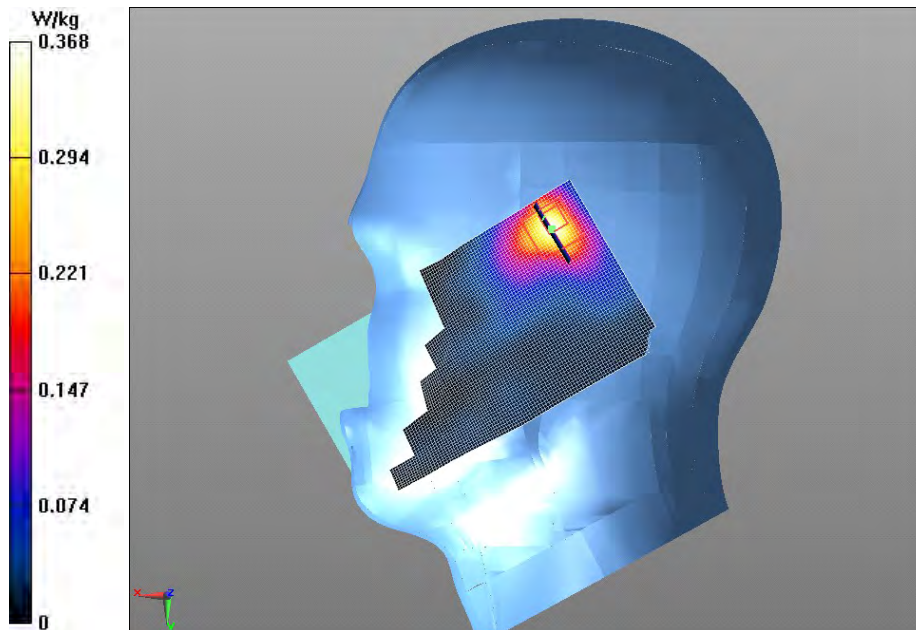
LTE Band 38 RIGHT/CHEEK-37850 50%RB High offset/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 6.413 V/m; Power Drift = 0.17 dB

Peak SAR (extrapolated) = 0.916 mW/g

SAR(1 g) = 0.335 mW/g; SAR(10 g) = 0.153 mW/g

Maximum value of SAR (measured) = 0.356 W/kg



P10 2.4G WIFI 802.11b left cheek high**DUT: Mobile Phone; Type: MDG2**

Communication System: WiFi ; Communication System Band: 2450; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2462$ MHz; $\sigma = 1.893$ mho/m; $\epsilon_r = 39.297$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7407; ConvF(7.52, 7.52, 7.52); Calibrated: 3/13/2017;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 2/23/2017
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

802.11b LEFT/CHEEK-High/Area Scan (81x151x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Reference Value = 10.575 V/m; Power Drift = -0.08 dB

Maximum value of SAR (interpolated) = 0.874 W/kg

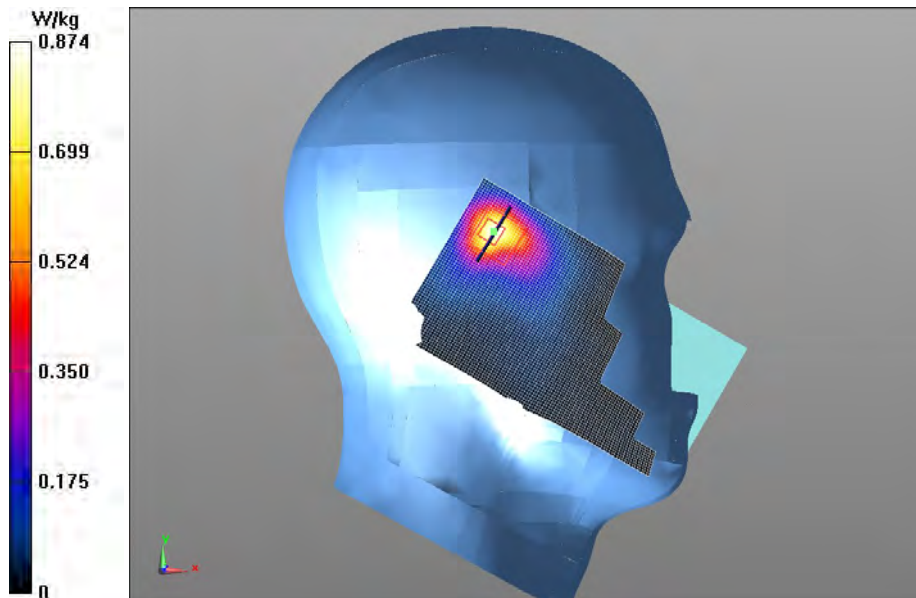
802.11b LEFT/CHEEK-High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.575 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 1.895 mW/g

SAR(1 g) = 0.777 mW/g; SAR(10 g) = 0.349 mW/g

Maximum value of SAR (measured) = 0.867 W/kg



P11 5G WIFI Left cheek Ch52**DUT: Mobile Phone; Type: MDG2**

Communication System: WiFi ; Communication System Band: 5G; Frequency: 5260 MHz; Duty Cycle: 1:2.46

Medium parameters used (interpolated): $f = 5260$ MHz; $\sigma = 4.672$ mho/m; $\epsilon_r = 36.52$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7407; ConvF(5.4, 5.4, 5.4); Calibrated: 3/13/2017;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 2/23/2017
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

5G WIFI LEFT/CHEEK-Ch52/Area Scan (91x181x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Reference Value = 2.633 V/m; Power Drift = 0.19 dB

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.903 W/kg

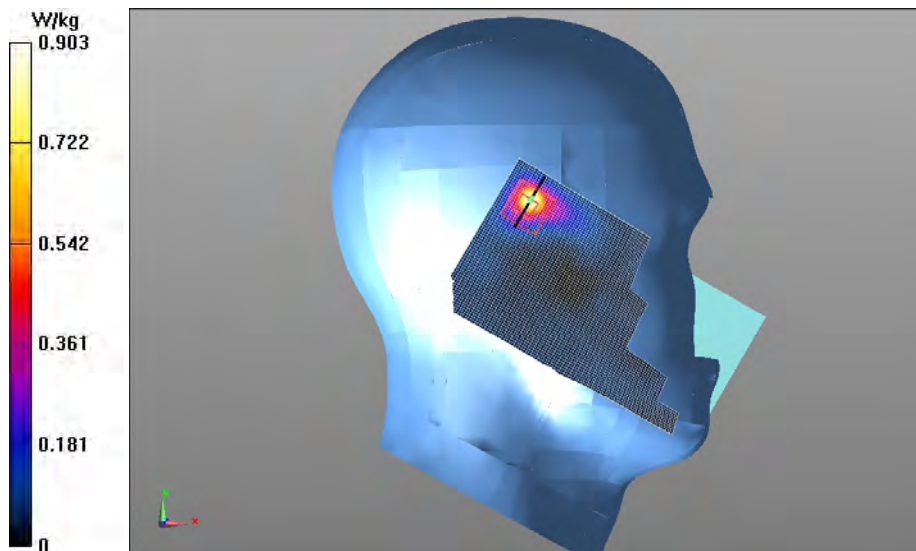
5G WIFI LEFT/CHEEK-Ch52/Zoom Scan (7x7x16)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=2mm

Reference Value = 2.633 V/m; Power Drift = 0.19 dB

Peak SAR (extrapolated) = 2.188 mW/g

SAR(1 g) = 0.744 mW/g; SAR(10 g) = 0.224 mW/g[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.983 W/kg



P12 5G WIFI Left cheek Ch100**DUT: Mobile Phone; Type: MDG2**

Communication System: WiFi ; Communication System Band: 5G; Frequency: 5500 MHz; Duty Cycle: 1:2.46

Medium parameters used: $f = 5500$ MHz; $\sigma = 4.94$ mho/m; $\epsilon_r = 35.9$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7407; ConvF(4.8, 4.8, 4.8); Calibrated: 3/13/2017;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 2/23/2017
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

5G WIFI LEFT/CHEEK-Ch100/Area Scan (91x181x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Reference Value = 2.252 V/m; Power Drift = 0.15 dB

Maximum value of SAR (interpolated) = 0.711 W/kg

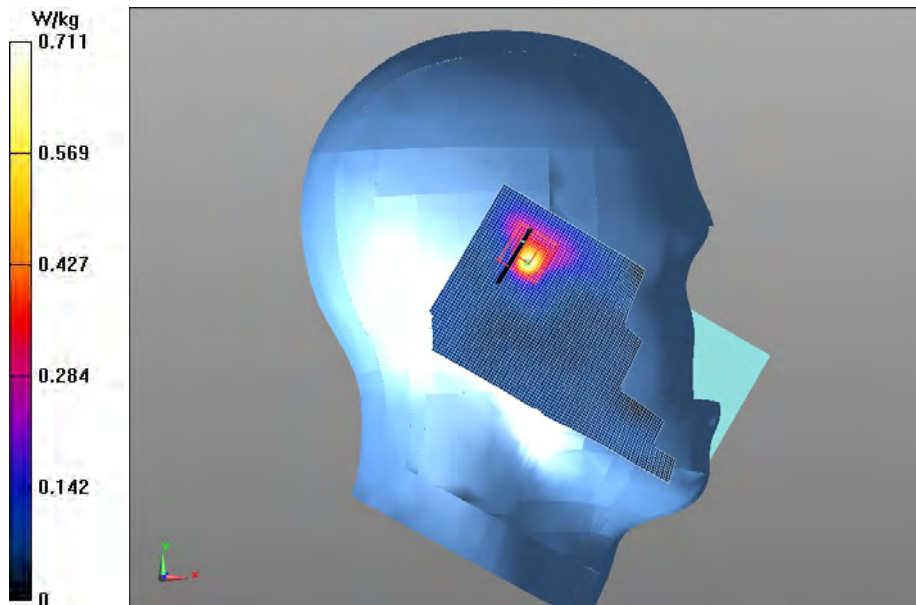
5G WIFI LEFT/CHEEK-Ch100/Zoom Scan (7x7x16)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=2mm

Reference Value = 2.252 V/m; Power Drift = 0.15 dB

Peak SAR (extrapolated) = 1.949 mW/g

SAR(1 g) = 0.681 mW/g; SAR(10 g) = 0.236 mW/g

Maximum value of SAR (measured) = 0.812 W/kg



P13 5G WIFI Left cheek Ch155**DUT: Mobile Phone; Type: MDG2**

Communication System: WiFi ; Communication System Band: 5G; Frequency: 5775 MHz; Duty Cycle: 1:1.8

Medium parameters used: $f = 5775$ MHz; $\sigma = 5.28$ mho/m; $\epsilon_r = 35.5$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7407; ConvF(4.66, 4.66, 4.66); Calibrated: 3/13/2017;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 2/23/2017
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

5G WIFI LEFT/CHEEK-Ch155/Area Scan (91x181x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Reference Value = 2.370 V/m; Power Drift = -0.13 dB

Maximum value of SAR (interpolated) = 0.427 W/kg

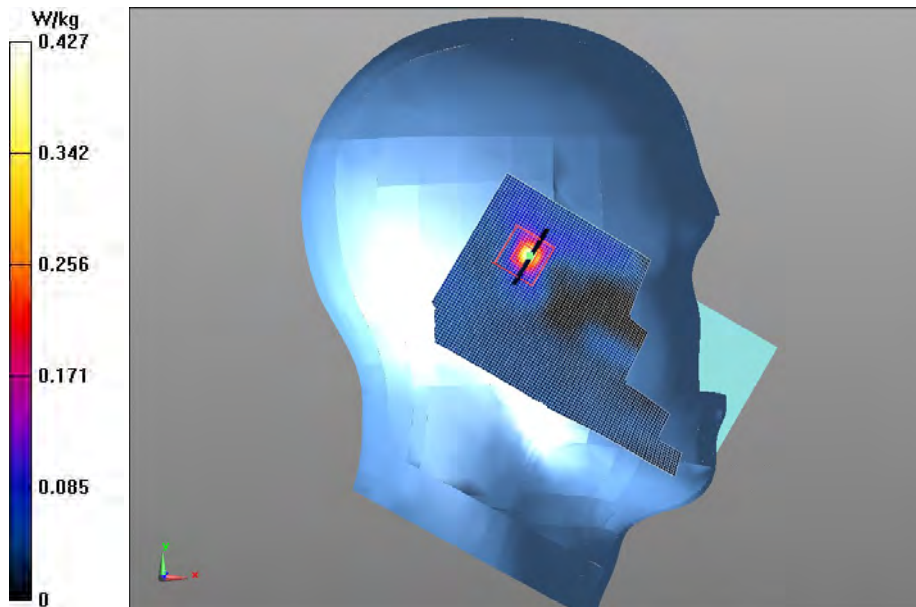
5G WIFI LEFT/CHEEK-Ch155/Zoom Scan (7x7x16)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=2mm

Reference Value = 2.370 V/m; Power Drift = -0.13 dB

Peak SAR (extrapolated) = 0.807 mW/g

SAR(1 g) = 0.253 mW/g; SAR(10 g) = 0.083 mW/g

Maximum value of SAR (measured) = 0.380 W/kg



P14 GSM1900 Rear side mid-Up**DUT: Mobile Phone; Type: MDG2**

Communication System: GPRS(4slots); Communication System Band: PCS1900; Frequency: 1880 MHz; Duty Cycle: 1:2

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.552$ mho/m; $\epsilon_r = 52.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7407; ConvF(7.62, 7.62, 7.62); Calibrated: 3/13/2017;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 2/23/2017
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

GPRS1900 Body/Back side-Mid-Up/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Reference Value = 5.100 V/m; Power Drift = -0.13 dB

Maximum value of SAR (interpolated) = 0.0955 W/kg

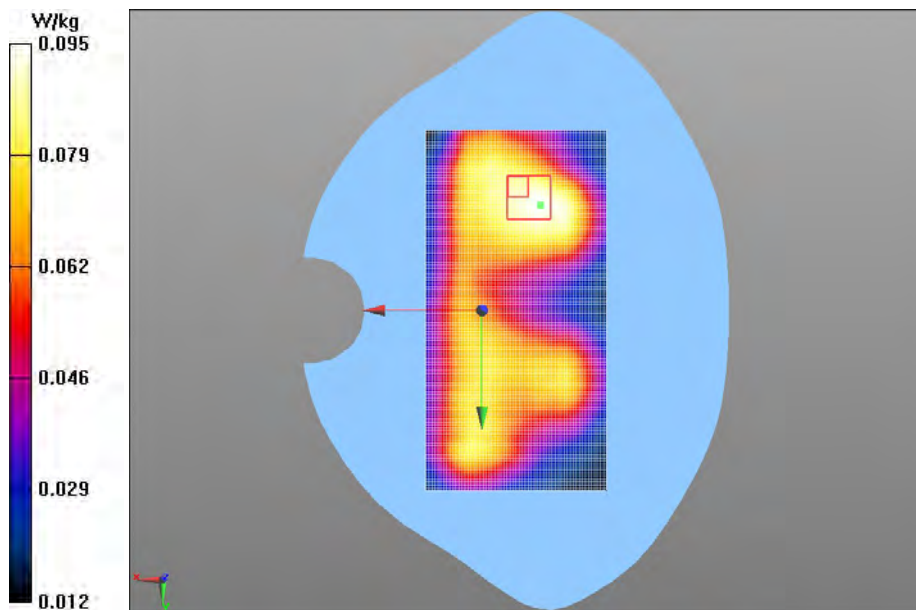
GPRS1900 Body/Back side-Mid-Up/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 5.100 V/m; Power Drift = -0.13 dB

Peak SAR (extrapolated) = 0.120 mW/g

SAR(1 g) = 0.079 mW/g; SAR(10 g) = 0.055 mW/g

Maximum value of SAR (measured) = 0.0843 W/kg



P15 WCDMA Band II Front side mid-Down**DUT: Mobile Phone; Type: MDG2**

Communication System: UMTS-FDD(WCDMA); Communication System Band: Band2; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.57$ mho/m; $\epsilon_r = 51.14$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7407; ConvF(7.62, 7.62, 7.62); Calibrated: 3/13/2017;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 2/23/2017
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

WCDMA Band II Body/Front side-Mid-Down/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Reference Value = 2.686 V/m; Power Drift = -0.17 dB

Maximum value of SAR (interpolated) = 0.0639 W/kg

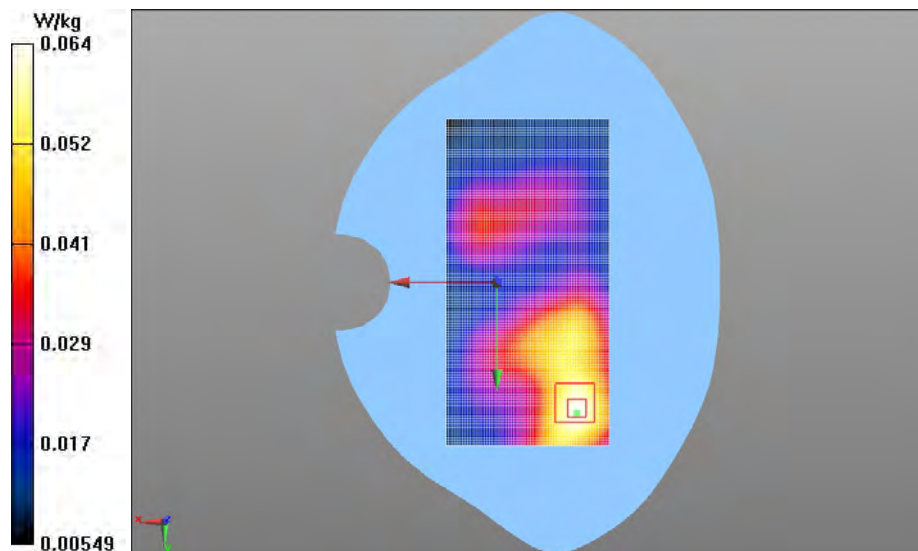
WCDMA Band II Body/Front side-Mid-Down/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 2.686 V/m; Power Drift = -0.17 dB

Peak SAR (extrapolated) = 0.100 mW/g

SAR(1 g) = 0.054 mW/g; SAR(10 g) = 0.031 mW/g

Maximum value of SAR (measured) = 0.0582 W/kg



P16 LTE Band 4 Fronr side 20175-1RB high offset-Up**DUT: Mobile Phone; Type: MDG2**

Communication System: LTE; Communication System Band: Band 4 (20MHz); Frequency: 1732.5 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 1732.5$ MHz; $\sigma = 1.404$ mho/m; $\epsilon_r = 51.622$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7407; ConvF(7.97, 7.97, 7.97); Calibrated: 3/13/2017;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 2/23/2017
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

LTE Band 4 Body/Front side-20175 1RB High offset-Up/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Reference Value = 3.122 V/m; Power Drift = -0.12 dB

Maximum value of SAR (interpolated) = 0.0393 W/kg

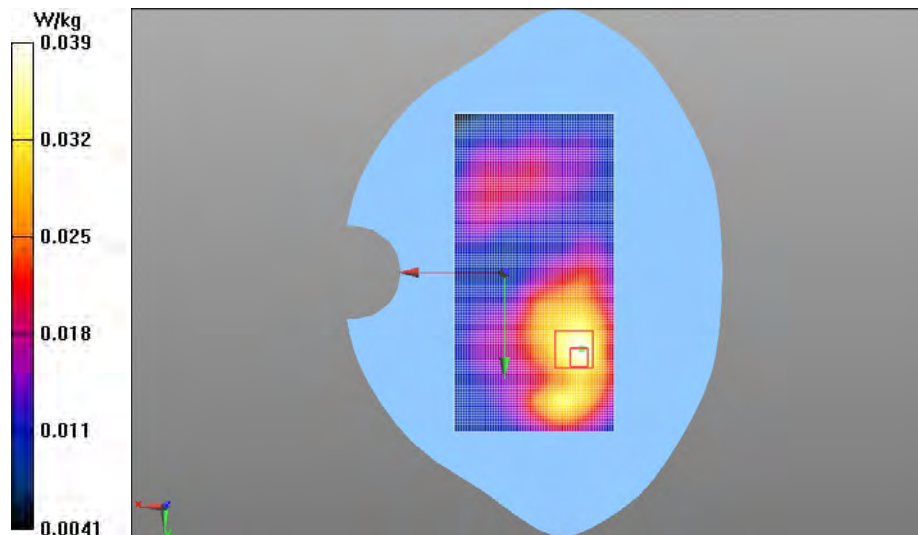
LTE Band 4 Body/Front side-20175 1RB High offset-Up/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 3.122 V/m; Power Drift = -0.12 dB

Peak SAR (extrapolated) = 0.066 mW/g

SAR(1 g) = 0.033 mW/g; SAR(10 g) = 0.021 mW/g

Maximum value of SAR (measured) = 0.0353 W/kg



P17 5G WIFI Front side Ch52**DUT: Mobile Phone; Type: MDG2**

Communication System: WiFi ; Communication System Band: 5G; Frequency: 5260 MHz; Duty Cycle: 1:2.46

Medium parameters used (interpolated): $f = 5260$ MHz; $\sigma = 5.484$ mho/m; $\epsilon_r = 48.08$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7407; ConvF(4.79, 4.79, 4.79); Calibrated: 3/13/2017;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 2/23/2017
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

5G Wi-Fi Body/Front-Ch52/Area Scan (91x181x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Reference Value = 2.094 V/m; Power Drift = -0.04 dB

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.185 W/kg

5G Wi-Fi Body/Front-Ch52/Zoom Scan (7x7x16)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=2mm

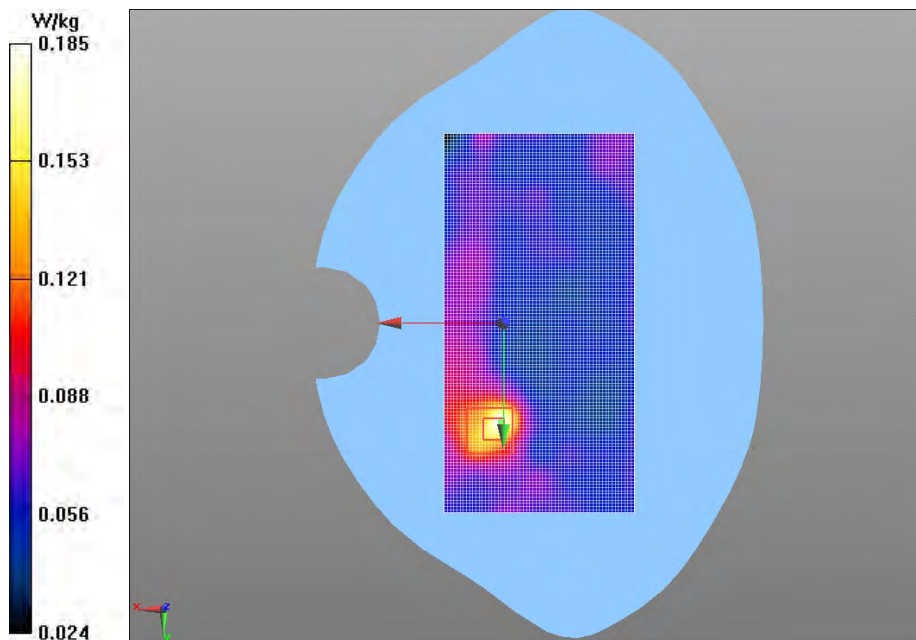
Reference Value = 2.094 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.446 mW/g

SAR(1 g) = 0.166 mW/g; SAR(10 g) = 0.073 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.190 W/kg



P18 5.6G WIFI Front side Ch100**DUT: Mobile Phone; Type: MDG2**

Communication System: WiFi ; Communication System Band: 5G; Frequency: 5500 MHz; Duty Cycle: 1:2.46

Medium parameters used: $f = 5500$ MHz; $\sigma = 5.83$ mho/m; $\epsilon_r = 47.6$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7407; ConvF(4.23, 4.23, 4.23); Calibrated: 3/13/2017;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 2/23/2017
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

5G Wi-Fi Body/Front-Ch100/Area Scan (91x181x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Reference Value = 2.074 V/m; Power Drift = -0.17 dB

Maximum value of SAR (interpolated) = 0.213 W/kg

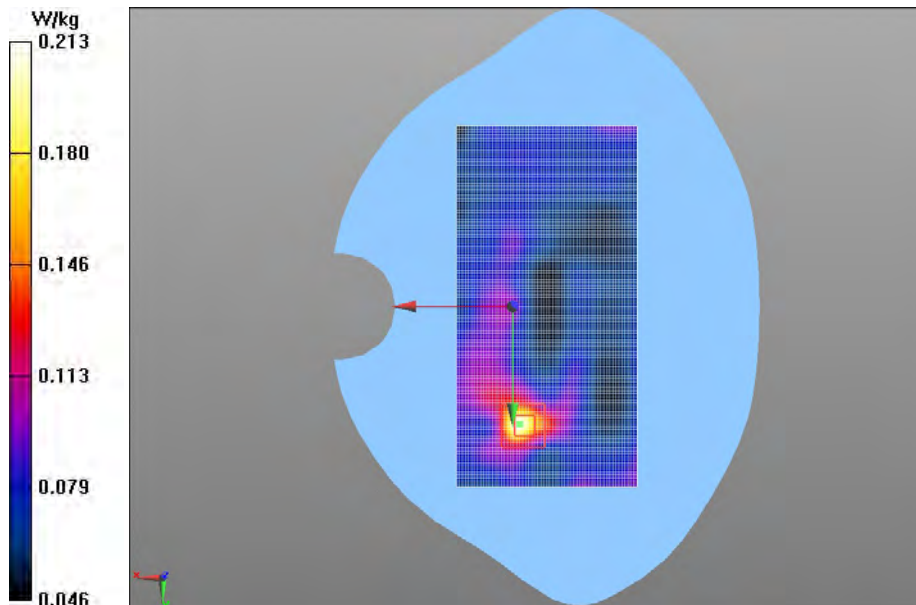
5G Wi-Fi Body/Front-Ch100/Zoom Scan (7x7x16)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=2mm

Reference Value = 2.074 V/m; Power Drift = -0.17 dB

Peak SAR (extrapolated) = 0.424 mW/g

SAR(1 g) = 0.151 mW/g; SAR(10 g) = 0.064 mW/g

Maximum value of SAR (measured) = 0.169 W/kg



P19 5.8G WIFI Front side Ch155**DUT: Mobile Phone; Type: MDG2**

Communication System: WiFi ; Communication System Band: 5G; Frequency: 5775 MHz; Duty Cycle: 1:1.8

Medium parameters used: $f = 5775$ MHz; $\sigma = 6.21$ mho/m; $\epsilon_r = 47.1$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7407; ConvF(4.49, 4.49, 4.49); Calibrated: 3/13/2017;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 2/23/2017
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

5G Wi-Fi Body/Front-Ch155/Area Scan (91x181x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Reference Value = 2.251 V/m; Power Drift = -0.17 dB

Maximum value of SAR (interpolated) = 0.127 W/kg

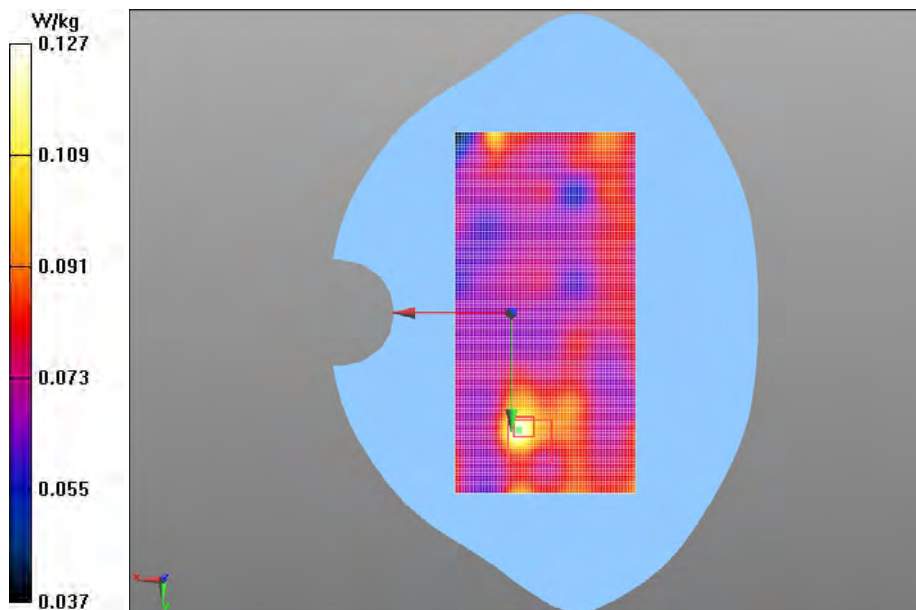
5G Wi-Fi Body/Front-Ch155/Zoom Scan (7x7x16)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=2mm

Reference Value = 2.251 V/m; Power Drift = -0.17 dB

Peak SAR (extrapolated) = 0.523 mW/g

SAR(1 g) = 0.112 mW/g; SAR(10 g) = 0.059 mW/g

Maximum value of SAR (measured) = 0.0970 W/kg



P20 GSM850 Front High Up**DUT: Mobile Phone; Type: MDG2**

Communication System: GPRS(4slots); Communication System Band: GSM850; Frequency: 848.8 MHz; Duty Cycle: 1:2

Medium parameters used (interpolated): $f = 848.8$ MHz; $\sigma = 0.969$ mho/m; $\epsilon_r = 55.75$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7407; ConvF(9.55, 9.55, 9.55); Calibrated: 3/13/2017;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 2/23/2017
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

GPRS850 Body/Front side-High/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Reference Value = 9.214 V/m; Power Drift = 0.17 dB

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.117 W/kg

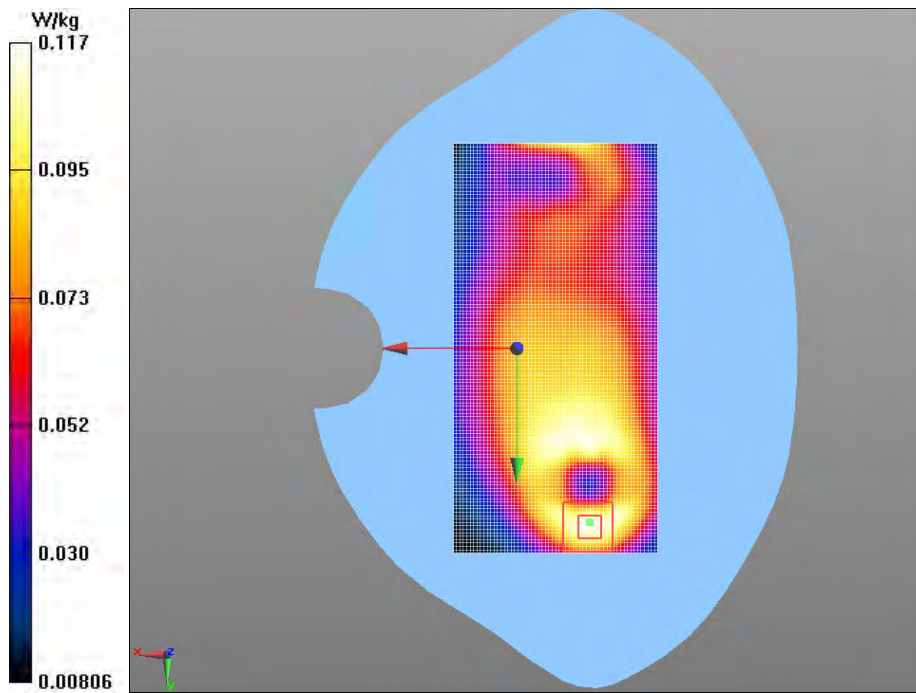
GPRS850 Body/Front side-High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.214 V/m; Power Drift = 0.17 dB

Peak SAR (extrapolated) = 0.202 mW/g

SAR(1 g) = 0.104 mW/g; SAR(10 g) = 0.059 mW/g[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.118 W/kg



P21 GSM1900 Left side mid-Down**DUT: Mobile Phone; Type: MDG2**

Communication System: GPRS(4slots); Communication System Band: PCS1900; Frequency: 1880 MHz; Duty Cycle: 1:2

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.552$ mho/m; $\epsilon_r = 52.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7407; ConvF(7.62, 7.62, 7.62); Calibrated: 3/13/2017;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 2/23/2017
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

GSM1900 Body/Left side-Mid-Down/Area Scan (31x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Reference Value = 8.316 V/m; Power Drift = 0.03 dB

Maximum value of SAR (interpolated) = 0.191 W/kg

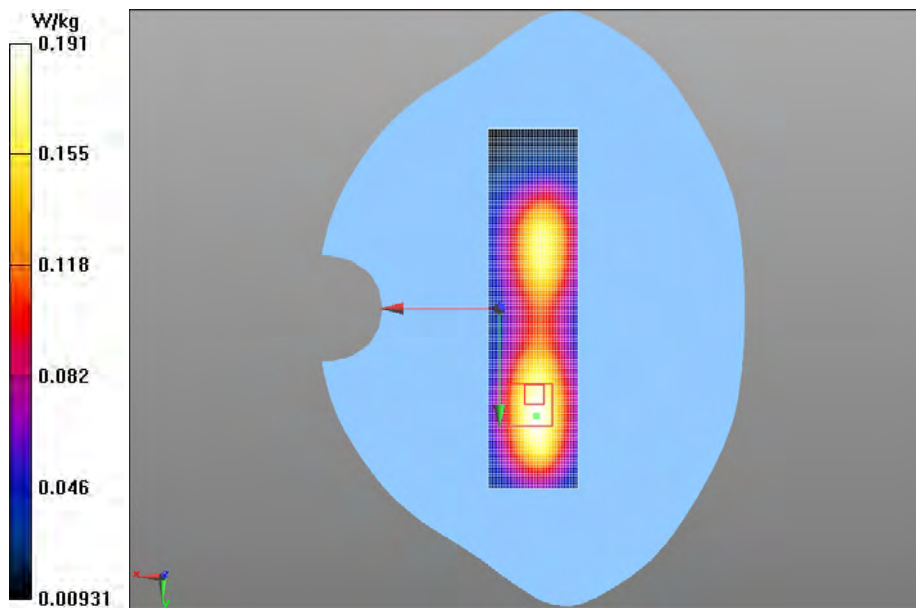
GSM1900 Body/Left side-Mid-Down/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 8.316 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 0.294 mW/g

SAR(1 g) = 0.164 mW/g; SAR(10 g) = 0.089 mW/g

Maximum value of SAR (measured) = 0.189 W/kg



P22 WCDMA Band II Left side mid -Up**DUT: Mobile Phone; Type: MDG2**

Communication System: UMTS-FDD(WCDMA); Communication System Band: Band2; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.57$ mho/m; $\epsilon_r = 51.14$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7407; ConvF(7.62, 7.62, 7.62); Calibrated: 3/13/2017;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 2/23/2017
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

WCDMA Band II Body/Left side-Mid-Up/Area Scan (31x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Reference Value = 3.855 V/m; Power Drift = -0.03 dB

Maximum value of SAR (interpolated) = 0.0625 W/kg

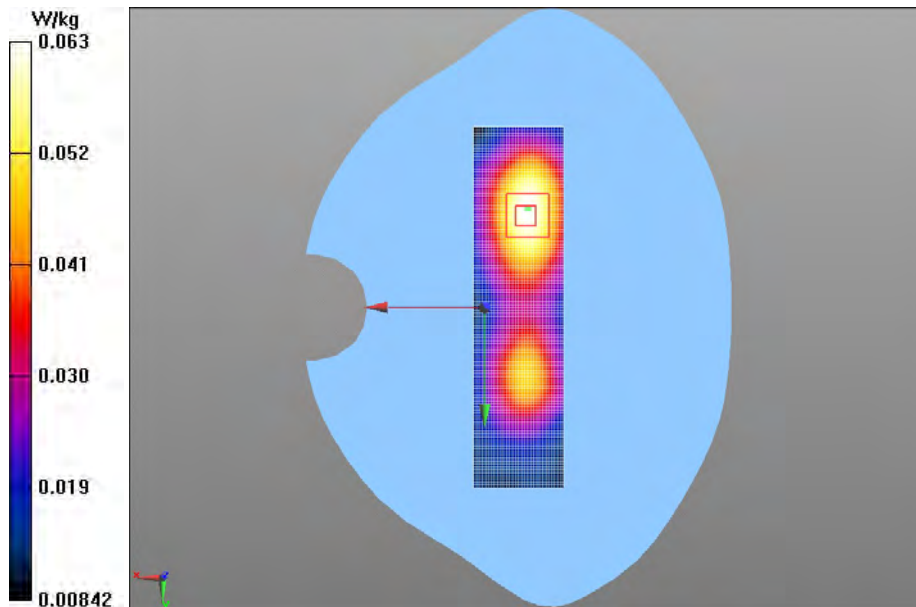
WCDMA Band II Body/Left side-Mid-Up/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 3.855 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 0.101 mW/g

SAR(1 g) = 0.057 mW/g; SAR(10 g) = 0.034 mW/g

Maximum value of SAR (measured) = 0.0606 W/kg



P23 WCDMA Band V Rear side low-Up**DUT: Mobile Phone; Type: MDG2**

Communication System: UMTS-FDD(WCDMA); Communication System Band: Band 5; Frequency: 826.4 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 826.4$ MHz; $\sigma = 0.952$ mho/m; $\epsilon_r = 55.941$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7407; ConvF(9.55, 9.55, 9.55); Calibrated: 3/13/2017;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 2/23/2017
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

WCDMA Band V Body/Back side-Low-Up/Area Scan (61x111x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Reference Value = 5.823 V/m; Power Drift = 0.17 dB

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.264 W/kg

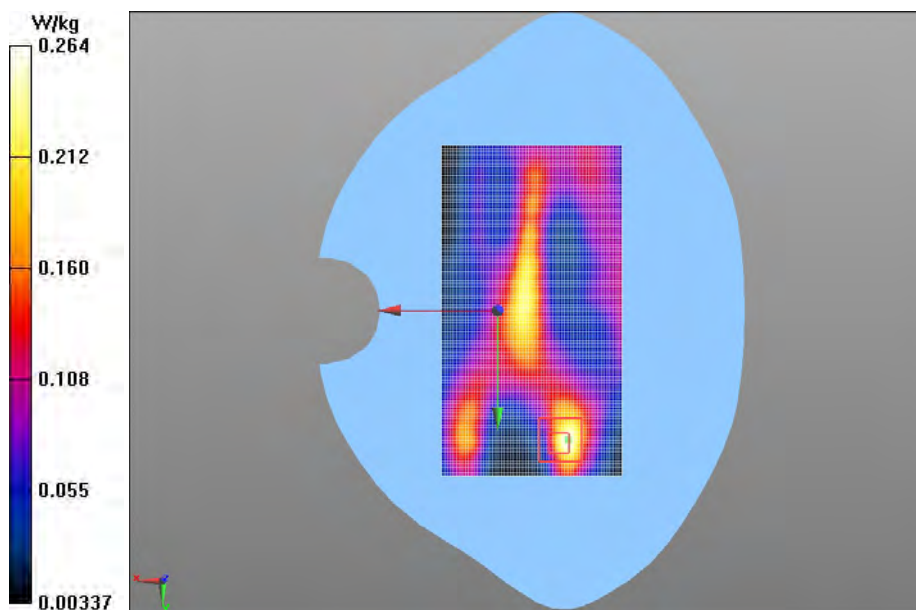
WCDMA Band V Body/Back side-Low-Up/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 5.823 V/m; Power Drift = 0.17 dB

Peak SAR (extrapolated) = 0.905 mW/g

SAR(1 g) = 0.263 mW/g; SAR(10 g) = 0.113 mW/g[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.279 W/kg



P24 LTE Band 4 Left side-20175-1RB High offset-Up**DUT: Mobile Phone; Type: MDG2**

Communication System: LTE; Communication System Band: Band 4 (20MHz); Frequency: 1732.5 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 1732.5$ MHz; $\sigma = 1.404$ mho/m; $\epsilon_r = 51.622$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7407; ConvF(7.97, 7.97, 7.97); Calibrated: 3/13/2017;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 2/23/2017
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

LTE Band 4 Body 2/Left side-20175 1RB High offset-Up/Area Scan (31x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Reference Value = 4.364 V/m; Power Drift = -0.18 dB

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.0431 W/kg

LTE Band 4 Body 2/Left side-20175 1RB High offset-Up/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

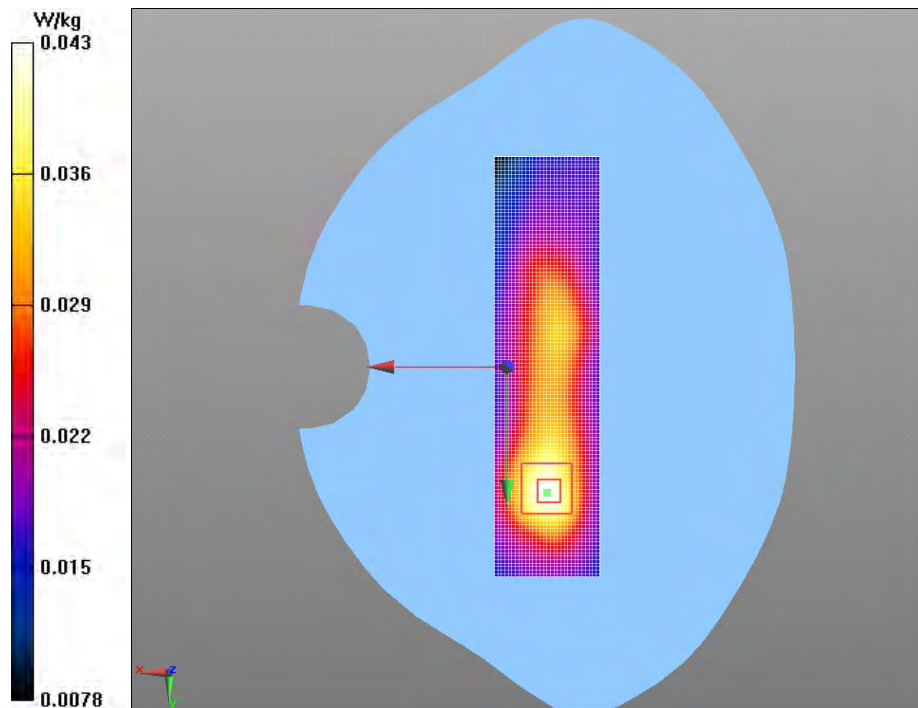
Reference Value = 4.364 V/m; Power Drift = -0.18 dB

Peak SAR (extrapolated) = 0.072 mW/g

SAR(1 g) = 0.038 mW/g; SAR(10 g) = 0.022 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.0405 W/kg



P25 LTE Band 5 Front side 20600-1RB high offset-Up**DUT: Mobile Phone; Type: MDG2**

Communication System: LTE; Communication System Band: Band 5 (10MHz); Frequency: 844 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 844$ MHz; $\sigma = 0.966$ mho/m; $\epsilon_r = 55.793$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7407; ConvF(9.55, 9.55, 9.55); Calibrated: 3/13/2017;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 2/23/2017
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

LTE Band 5 Body/Front side-20600 1RB High offset-Up/Area Scan (61x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Reference Value = 5.960 V/m; Power Drift = 0.19 dB

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.128 W/kg

LTE Band 5 Body/Front side-20600 1RB High offset-Up/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

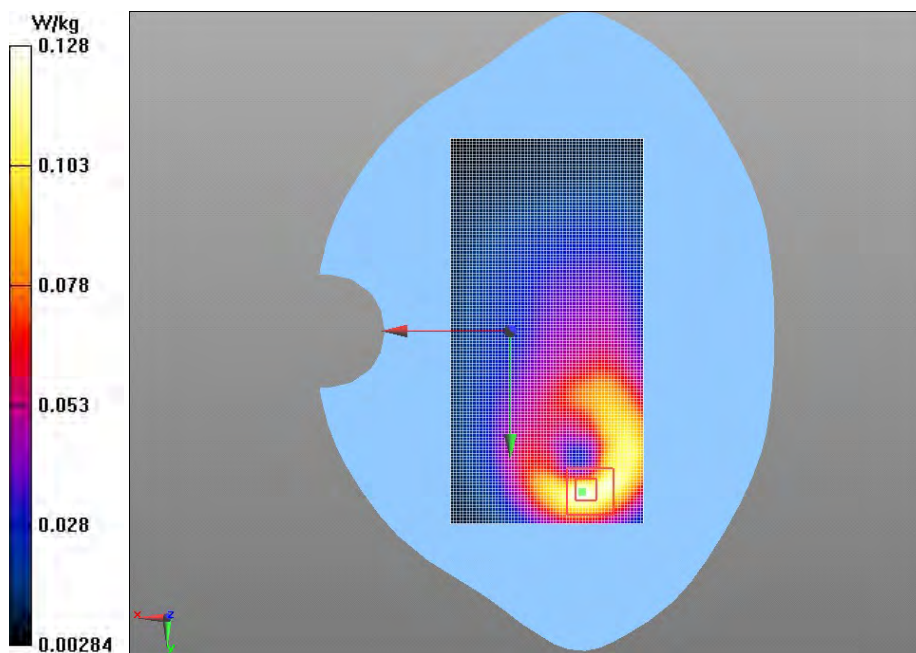
Reference Value = 5.960 V/m; Power Drift = 0.19 dB

Peak SAR (extrapolated) = 0.234 mW/g

SAR(1 g) = 0.119 mW/g; SAR(10 g) = 0.064 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.129 W/kg



P26 LTE Band 7 Rear Face 20850-1RB mid offset-Down**DUT: Mobile Phone; Type: MDG2**

Communication System: LTE; Communication System Band: Band 7 (20MHz); Frequency: 2510 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2510$ MHz; $\sigma = 2.054$ mho/m; $\epsilon_r = 49.264$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7407; ConvF(7.3, 7.3, 7.3); Calibrated: 3/13/2017;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 2/23/2017
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

LTE Band 7 Body/Back side-20850 1RB Mid offset-Down/Area Scan (61x121x1); Interpolated grid: dx=1.200 mm, dy=1.200 mm

Reference Value = 4.710 V/m; Power Drift = -0.10 dB

Maximum value of SAR (interpolated) = 0.155 W/kg

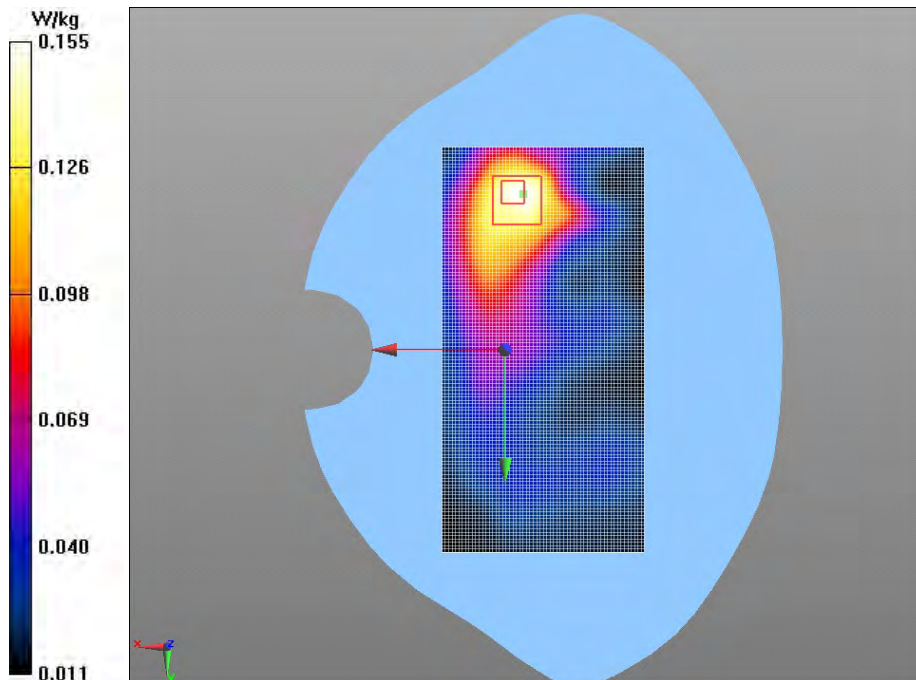
LTE Band 7 Body/Back side-20850 1RB Mid offset-Down/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 4.710 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 0.272 mW/g

SAR(1 g) = 0.131 mW/g; SAR(10 g) = 0.076 mW/g

Maximum value of SAR (measured) = 0.139 W/kg



P27 LTE Band 38 Front side 37850-1RB high offset -Down**DUT: Mobile Phone; Type: MDG2**

Communication System: LTE; Communication System Band: Band 38 (20MHz); Frequency: 2580 MHz; Duty Cycle: 1:1.58

Medium parameters used: $f = 2580$ MHz; $\sigma = 2.142$ mho/m; $\epsilon_r = 49.023$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7407; ConvF(7.07, 7.07, 7.07); Calibrated: 3/13/2017;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 2/23/2017
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

LTE Band 38 Body/Front side-37850 1RB High offset-Down/Area Scan (61x121x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Reference Value = 2.420 V/m; Power Drift = -0.06 dB

Maximum value of SAR (interpolated) = 0.0936 W/kg

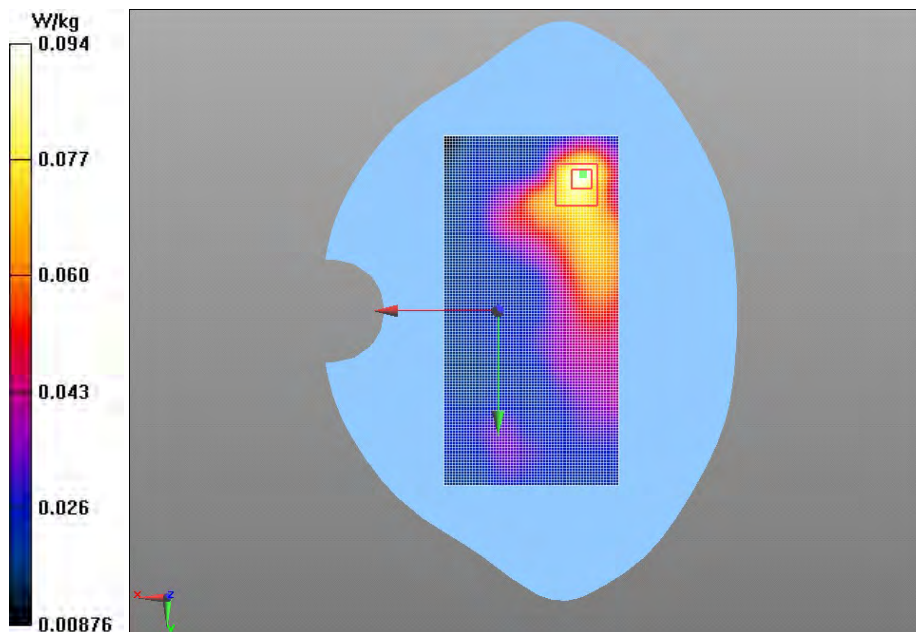
LTE Band 38 Body/Front side-37850 1RB High offset-Down/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 2.420 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 0.191 mW/g

SAR(1 g) = 0.080 mW/g; SAR(10 g) = 0.042 mW/g

Maximum value of SAR (measured) = 0.0846 W/kg



P29 2.4G WIFI 802.11b Rear side high**DUT: Mobile Phone; Type: MDG2**

Communication System: WiFi ; Co mmunication System Band : 2450; Frequency: 2462 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 2462$ MHz; $\sigma = 1.929$ mho/m; $\epsilon_r = 51.583$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASYS Configuration:

- Probe: EX3DV4 - SN7407; ConvF(7.3, 7.3, 7.3); Calibrated: 3/13/2017;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 2/23/2017
- Measurement SW: DASYS2, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

802.11b Body/Back side High/Area Scan (81x151x1): Interpolated grid: $dx=1.200$ mm, $dy=1.200$ mm

Reference Value = 4.996 V/m; Power Drift = 0.17 dB

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.165 W/kg

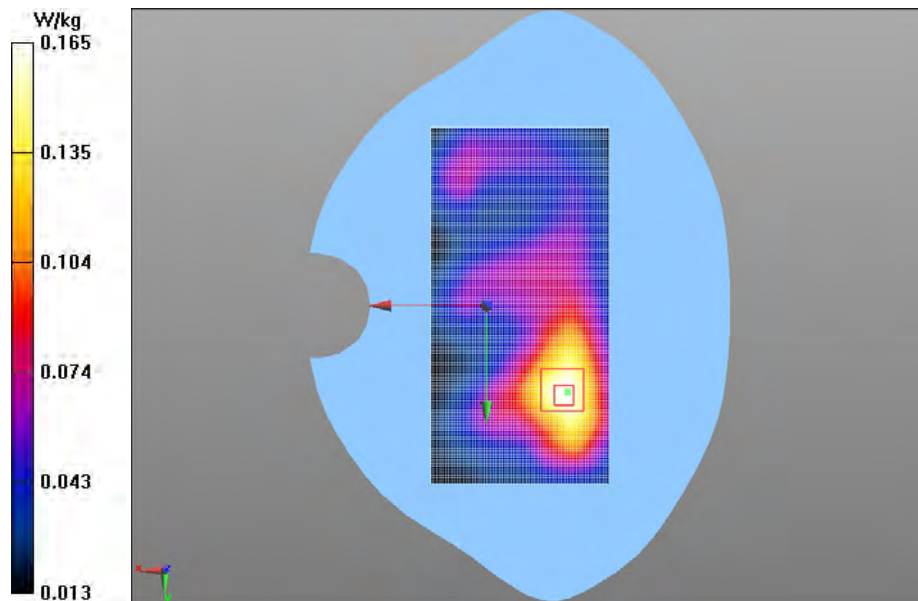
802.11b Body/Back side High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 4.996 V/m; Power Drift = 0.17 dB

Peak SAR (extrapolated) = 0.262 mW/g

SAR(1 g) = 0.144 mW/g; SAR(10 g) = 0.082 mW/g[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.155 W/kg



P30 5.3G WIFI Front Ch52 0mm**DUT: Mobile Phone; Type: MDG2**

Communication System: WiFi ; Communication System Band: 5G; Frequency: 5260 MHz; Duty Cycle: 1:2.46

Medium parameters used (interpolated): $f = 5260$ MHz; $\sigma = 5.484$ mho/m; $\epsilon_r = 48.08$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7407; ConvF(4.79, 4.79, 4.79); Calibrated: 3/13/2017;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 2/23/2017
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

5G Wi-Fi Body/Front-Ch52 0mm/Area Scan (91x181x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Reference Value = 1.683 V/m; Power Drift = -0.12 dB

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 2.08 W/kg

5G Wi-Fi Body/Front-Ch52 0mm/Zoom Scan (7x7x16)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=2mm

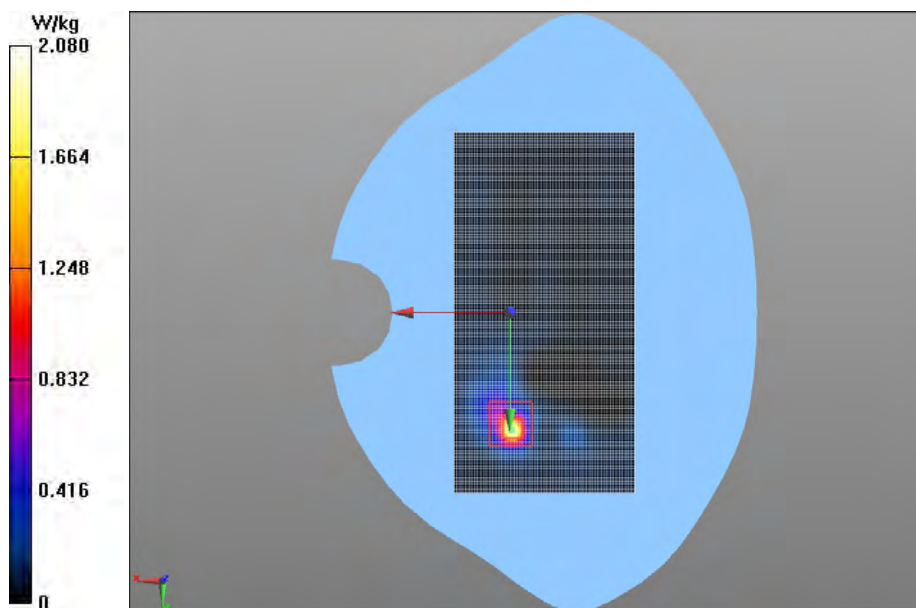
Reference Value = 1.683 V/m; Power Drift = -0.12 dB

Peak SAR (extrapolated) = 4.788 mW/g

SAR(1 g) = 1.57 mW/g; SAR(10 g) = 0.438 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 2.67 W/kg



P31 5.6G WIFI Front Ch100 0mm**DUT: Mobile Phone; Type: MDG2**

Communication System: WiFi ; Communication System Band: 5G; Frequency: 5500 MHz; Duty Cycle: 1:2.46

Medium parameters used: $f = 5500$ MHz; $\sigma = 5.83$ mho/m; $\epsilon_r = 47.6$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7407; ConvF(4.23, 4.23, 4.23); Calibrated: 3/13/2017;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 2/23/2017
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

5G Wi-Fi Body/Front-Ch100 0mm/Area Scan (91x181x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Reference Value = 2.556 V/m; Power Drift = 0.14 dB

Maximum value of SAR (interpolated) = 2.39 W/kg

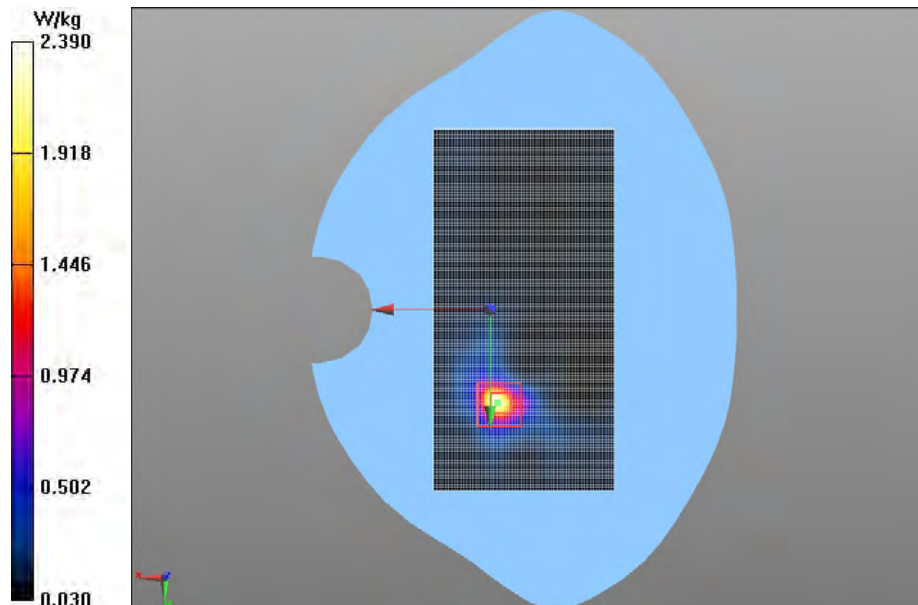
5G Wi-Fi Body/Front-Ch100 0mm/Zoom Scan (7x7x16)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=2mm

Reference Value = 2.556 V/m; Power Drift = 0.14 dB

Peak SAR (extrapolated) = 6.573 mW/g

SAR(1 g) = 2.13 mW/g; SAR(10 g) = 0.563 mW/g

Maximum value of SAR (measured) = 3.64 W/kg



P32 5.8G WIFI Rear Ch155 0mm**DUT: Mobile Phone; Type: MDG2**

Communication System: WiFi ; Communication System Band: 5G; Frequency: 5775 MHz; Duty Cycle: 1:1.8

Medium parameters used: $f = 5775$ MHz; $\sigma = 6.21$ mho/m; $\epsilon_r = 47.1$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN7407; ConvF(4.49, 4.49, 4.49); Calibrated: 3/13/2017;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn893; Calibrated: 2/23/2017
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6824)

5G Wi-Fi Body/Back-Ch155 0mm/Area Scan (91x181x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Reference Value = 1.368 V/m; Power Drift = 0.18 dB

Maximum value of SAR (interpolated) = 0.369 W/kg

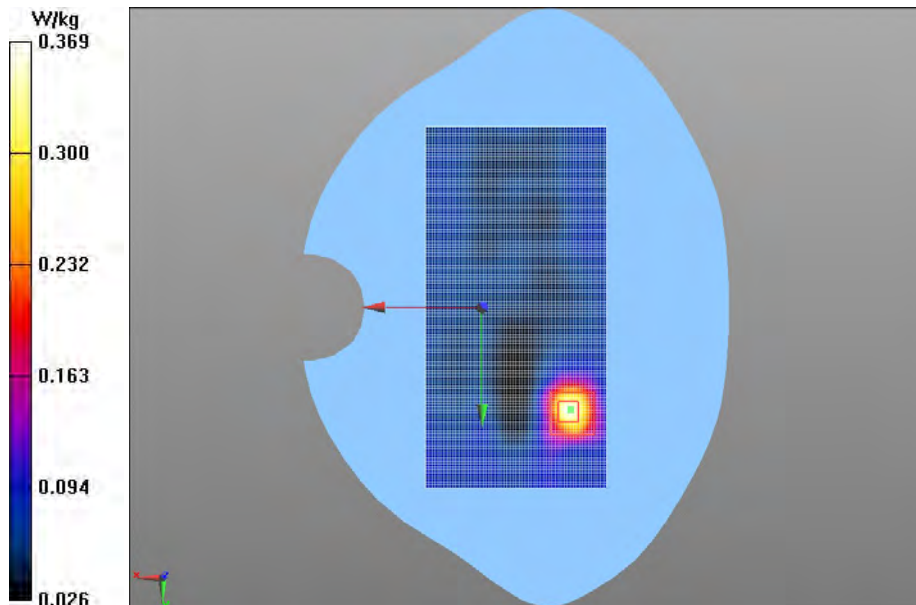
5G Wi-Fi Body/Back-Ch155 0mm/Zoom Scan (7x7x16)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=2mm

Reference Value = 1.368 V/m; Power Drift = 0.18 dB

Peak SAR (extrapolated) = 1.273 mW/g

SAR(1 g) = 0.419 mW/g; SAR(10 g) = 0.134 mW/g

Maximum value of SAR (measured) = 0.649 W/kg



Appendix C. Calibration Certificate for Probe and Dipole

The calibration certificates are shown as follows.





In Collaboration with
s p e a g
CALIBRATION LABORATORY



中国认可
国际互认
校准
CALIBRATION
CNAS L0570

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2218 Fax: +86-10-62304633-2209
E-mail: cttl@chinattl.com [Http://www.chinattl.cn](http://www.chinattl.cn)

Client **GCCT**

Certificate No: **Z17-97027**

CALIBRATION CERTIFICATE

Object **EX3DV4 - SN:7407**

Calibration Procedure(s) **FF-Z11-004-01**
Calibration Procedures for Dosimetric E-field Probes

Calibration date: **March 13, 2017**

This calibration Certificate documents the traceability to national standards, which realize the physical units of measurements(SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature(22±3)°C and humidity<70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Power Meter NRP2	101919	27-Jun-16 (CTTL, No.J16X04777)	Jun-17
Power sensor NRP-Z91	101547	27-Jun-16 (CTTL, No.J16X04777)	Jun-17
Power sensor NRP-Z91	101548	27-Jun-16 (CTTL, No.J16X04777)	Jun-17
Reference10dBAttenuator	18N50W-10dB	13-Mar-16(CTTL, No.J16X01547)	Mar-18
Reference20dBAttenuator	18N50W-20dB	13-Mar-16(CTTL, No.J16X01548)	Mar-18
Reference Probe EX3DV4	SN 7433	26-Sep-16(SPEAG, No.EX3-7433_Sep16)	Sep-17
DAE4	SN 549	13-Dec-16(SPEAG, No.DAE4-549_Dec16)	Dec-17
Secondary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
SignalGeneratorMG3700A	6201052605	27-Jun-16 (CTTL, No.J16X04776)	Jun-17
Network Analyzer E5071C	MY46110673	13-Jan-17 (CTTL, No.J17X00285)	Jan-18

Calibrated by:	Name	Function	Signature
	Yu Zongying	SAR Test Engineer	
Reviewed by:	Qi Dianyuan	SAR Project Leader	
Approved by:	Lu Bingsong	Deputy Director of the laboratory	

Issued: March 14, 2017

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.



In Collaboration with

s p e a g
CALIBRATION LABORATORY

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2218 Fax: +86-10-62304633-2209
E-mail: cttl@chinattl.com [Http://www.chinattl.cn](http://www.chinattl.cn)

Glossary:

TSL	tissue simulating liquid
NORM _{x,y,z}	sensitivity in free space
ConvF	sensitivity in TSL / NORM _{x,y,z}
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A,B,C,D	modulation dependent linearization parameters
Polarization Φ	Φ rotation around probe axis
Polarization θ	θ rotation around an axis that is in the plane normal to probe axis (at measurement center), $\theta=0$ is normal to probe axis
Connector Angle	information used in DASY system to align probe sensor X to the robot coordinate system

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300MHz to 3GHz)", February 2005
- IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Methods Applied and Interpretation of Parameters:

- NORM_{x,y,z}**: Assessed for E-field polarization $\theta=0$ ($f \leq 900\text{MHz}$ in TEM-cell; $f > 1800\text{MHz}$: waveguide). NORM_{x,y,z} are only intermediate values, i.e., the uncertainties of NORM_{x,y,z} does not effect the E^2 -field uncertainty inside TSL (see below ConvF).
- NORM(f)_{x,y,z}** = NORM_{x,y,z} * frequency_response (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of ConvF.
- DCP_{x,y,z}**: DCP are numerical linearization parameters assessed based on the data of power sweep (no uncertainty required). DCP does not depend on frequency nor media.
- PAR**: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics.
- A_{x,y,z}; B_{x,y,z}; C_{x,y,z}; VR_{x,y,z}**: A,B,C are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- ConvF and Boundary Effect Parameters**: Assessed in flat phantom using E-field (or Temperature Transfer Standard for $f \leq 800\text{MHz}$) and inside waveguide using analytical field distributions based on power measurements for $f > 800\text{MHz}$. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty valued are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORM_{x,y,z} * ConvF whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from $\pm 50\text{MHz}$ to $\pm 100\text{MHz}$.
- Spherical isotropy (3D deviation from isotropy)**: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- Sensor Offset**: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- Connector Angle**: The angle is assessed using the information gained by determining the NORM_x (no uncertainty required).



In Collaboration with

s p e a g

CALIBRATION LABORATORY

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2218 Fax: +86-10-62304633-2209
E-mail: cttl@chinattl.com [Http://www.chinattl.cn](http://www.chinattl.cn)

Probe EX3DV4

SN: 7407

Calibrated: March 13, 2017

Calibrated for DASY/EASY Systems

(Note: non-compatible with DASY2 system!)



DASY/EASY – Parameters of Probe: EX3DV4 – SN: 7407

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm($\mu\text{V}/(\text{V}/\text{m})^2$) ^A	0.31	0.45	0.47	±10.8%
DCP(mV) ^B	105.6	102.0	105.5	

Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB/ μV	C	D dB	VR mV	Unc ^E (k=2)
0	CW	X	0.0	0.0	1.0	0.00	148.9	±2.0%
		Y	0.0	0.0	1.0		186.3	
		Z	0.0	0.0	1.0		194.5	

The reported uncertainty of measurement is stated as the standard uncertainty of Measurement multiplied by the coverage factor k=2, which for a normal distribution Corresponds to a coverage probability of approximately 95%.

^A The uncertainties of Norm X, Y, Z do not affect the E²-field uncertainty inside TSL (see Page 5 and Page 6).
^B Numerical linearization parameter: uncertainty not required.

^E Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.



DASY/EASY – Parameters of Probe: EX3DV4 – SN: 7407

Calibration Parameter Determined in Head Tissue Simulating Media

f [MHz] ^C	Relative Permittivity ^F	Conductivity (S/m) ^F	ConvF X	ConvF Y	ConvF Z	Alpha ^G	Depth ^G (mm)	Unct. (k=2)
750	41.9	0.89	9.51	9.51	9.51	0.30	0.80	± 12%
835	41.5	0.90	9.39	9.39	9.39	0.16	1.31	± 12%
900	41.5	0.97	9.27	9.27	9.27	0.16	1.25	± 12%
1750	40.1	1.37	8.20	8.20	8.20	0.24	1.04	± 12%
1900	40.0	1.40	7.93	7.93	7.93	0.25	1.03	± 12%
2000	40.0	1.40	7.83	7.83	7.83	0.22	1.11	± 12%
2300	39.5	1.67	7.64	7.64	7.64	0.61	0.68	± 12%
2450	39.2	1.80	7.52	7.52	7.52	0.36	1.04	± 12%
2600	39.0	1.96	7.12	7.12	7.12	0.41	0.98	± 12%
5250	35.9	4.71	5.40	5.40	5.40	0.40	1.20	± 13%
5600	35.5	5.07	4.80	4.80	4.80	0.40	1.40	± 13%
5750	35.4	5.22	4.66	4.66	4.66	0.45	1.50	± 13%

^C Frequency validity above 300 MHz of ±100MHz only applies for DASY v4.4 and higher (Page 2), else it is restricted to ±50MHz. The uncertainty is the RSS of ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to ± 110 MHz.

^F At frequency below 3 GHz, the validity of tissue parameters (ϵ and σ) can be relaxed to ±10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ϵ and σ) is restricted to ±5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

^G Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for the frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.



In Collaboration with

s p e a g
CALIBRATION LABORATORY

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2218 Fax: +86-10-62304633-2209
E-mail: cttl@chinattl.com [Http://www.chinattl.cn](http://www.chinattl.cn)

DASY/EASY – Parameters of Probe: EX3DV4 – SN: 7407

Calibration Parameter Determined in Body Tissue Simulating Media

f [MHz] ^C	Relative Permittivity ^F	Conductivity (S/m) ^F	ConvF X	ConvF Y	ConvF Z	Alpha ^G	Depth ^G (mm)	Unct. (k=2)
750	55.5	0.96	9.79	9.79	9.79	0.30	0.90	± 12%
835	55.2	0.97	9.55	9.55	9.55	0.21	1.28	± 12%
900	55.0	1.05	9.41	9.41	9.41	0.26	1.10	± 12%
1750	53.4	1.49	7.97	7.97	7.97	0.29	0.97	± 12%
1900	53.3	1.52	7.62	7.62	7.62	0.19	1.21	± 12%
2000	53.3	1.52	7.70	7.70	7.70	0.13	1.89	± 12%
2300	52.9	1.81	7.56	7.56	7.56	0.42	0.98	± 12%
2450	52.7	1.95	7.30	7.30	7.30	0.42	0.96	± 12%
2600	52.5	2.16	7.07	7.07	7.07	0.51	0.82	± 12%
5250	48.9	5.36	4.79	4.79	4.79	0.50	1.65	± 13%
5600	48.5	5.77	4.23	4.23	4.23	0.58	1.45	± 13%
5750	48.3	5.94	4.49	4.49	4.49	0.56	1.57	± 13%

^C Frequency validity above 300 MHz of ±100MHz only applies for DASY v4.4 and higher (Page 2), else it is restricted to ±50MHz. The uncertainty is the RSS of ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to ± 110 MHz.

^F At frequency below 3 GHz, the validity of tissue parameters (ϵ and σ) can be relaxed to ±10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ϵ and σ) is restricted to ±5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

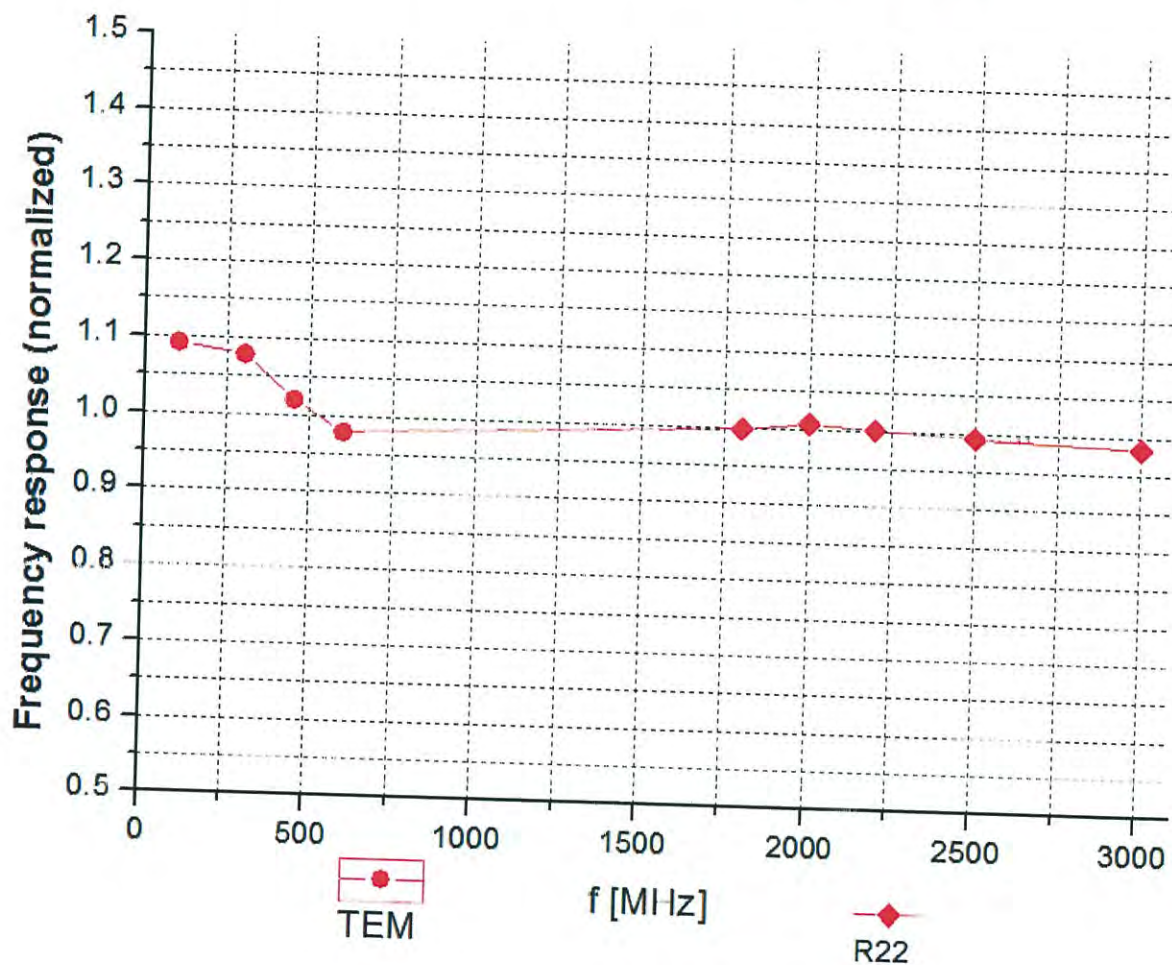
^G Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for the frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.



In Collaboration with
s p e a g
CALIBRATION LABORATORY

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2218 Fax: +86-10-62304633-2209
E-mail: cttl@chinattl.com [Http://www.chinattl.cn](http://www.chinattl.cn)

Frequency Response of E-Field (TEM-Cell: ifi110 EXX, Waveguide: R22)



Uncertainty of Frequency Response of E-field: $\pm 7.5\%$ ($k=2$)

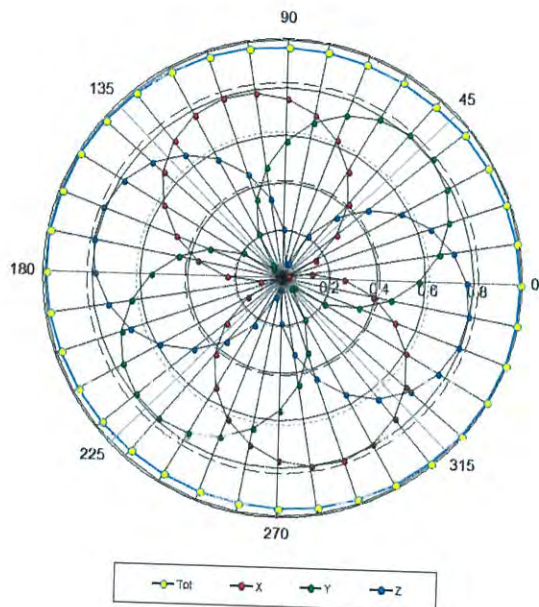


In Collaboration with
s p e a g
CALIBRATION LABORATORY

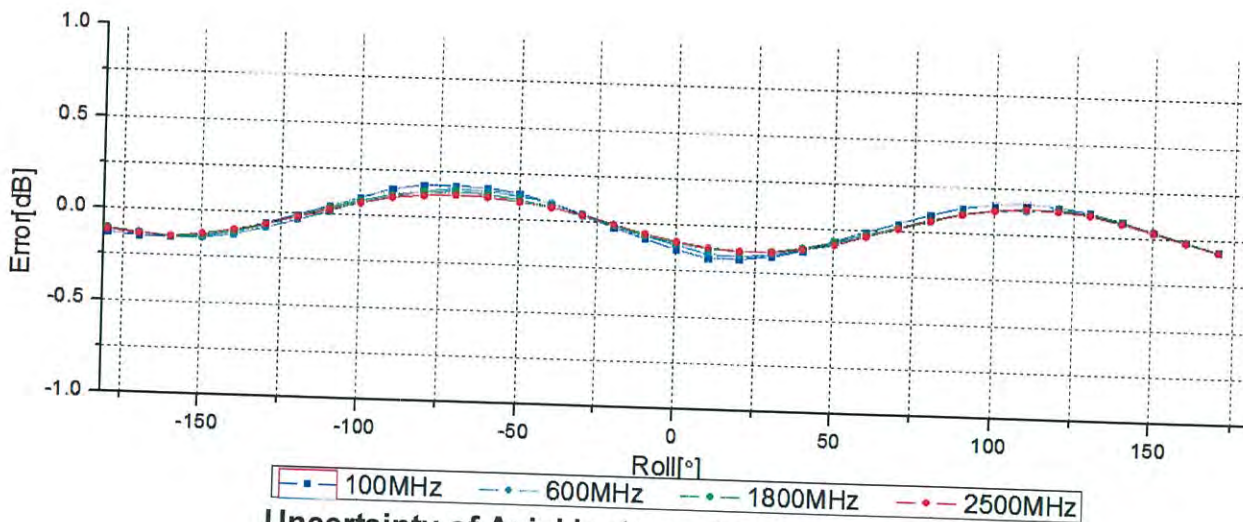
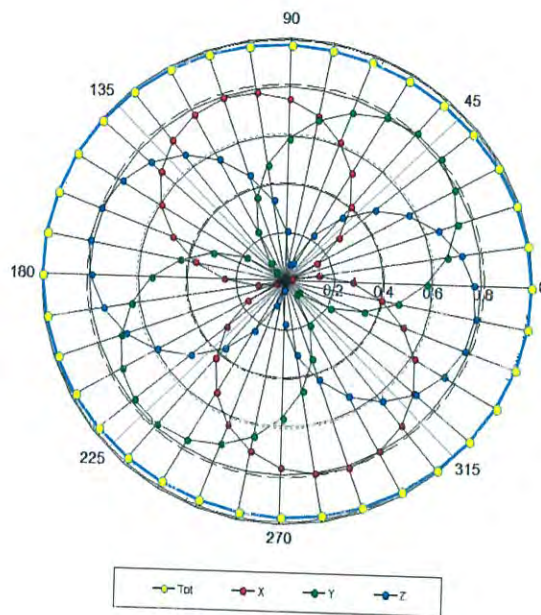
Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2218 Fax: +86-10-62304633-2209
E-mail: cttl@chinattl.com [Http://www.chinattl.cn](http://www.chinattl.cn)

Receiving Pattern (Φ), $\theta=0^\circ$

f=600 MHz, TEM



f=1800 MHz, R22



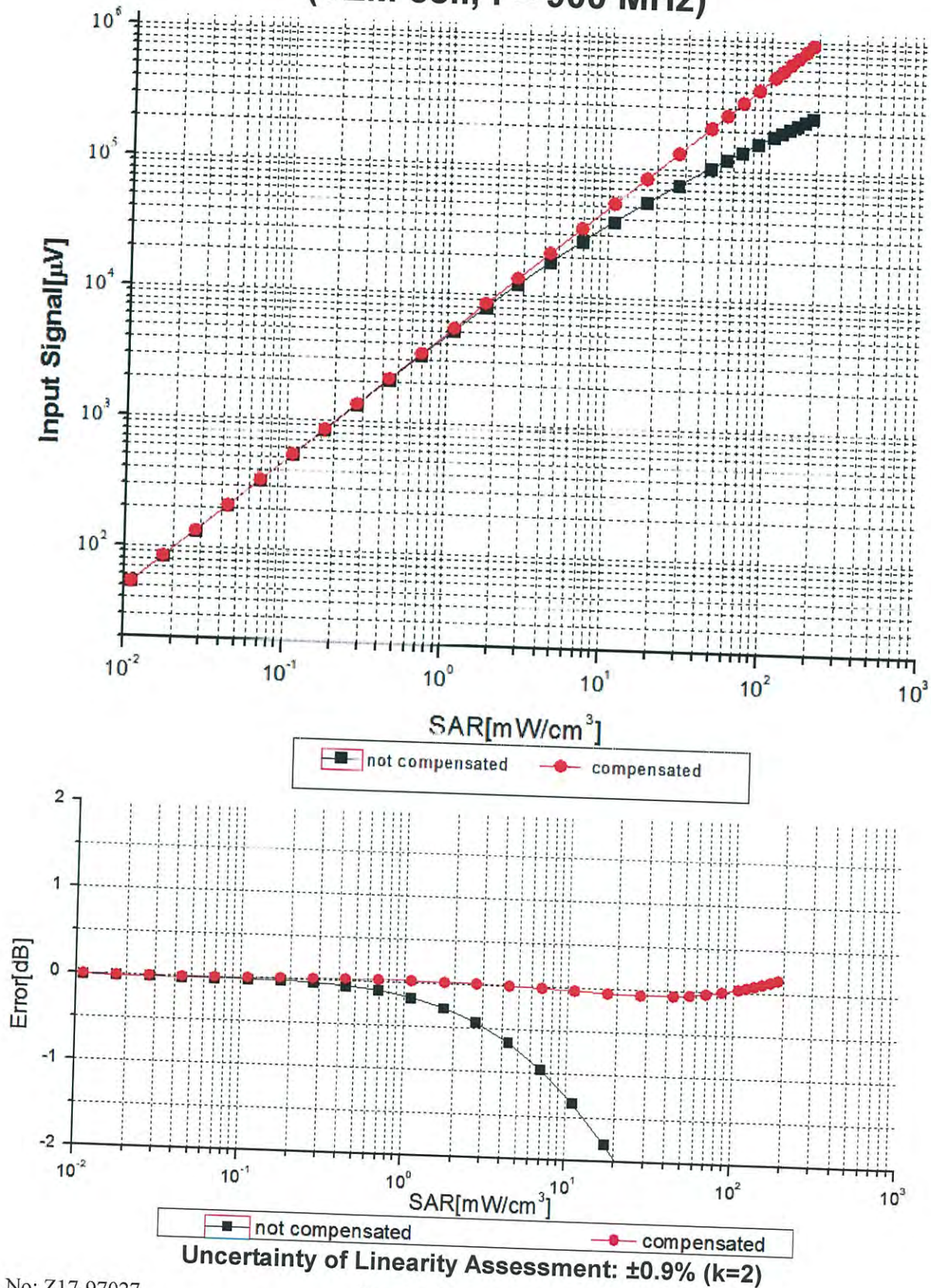
Uncertainty of Axial Isotropy Assessment: $\pm 0.9\%$ ($k=2$)



In Collaboration with
s p e a g
CALIBRATION LABORATORY

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2218 Fax: +86-10-62304633-2209
E-mail: cttl@chinattl.com [Http://www.chinattl.cn](http://www.chinattl.cn)

Dynamic Range f(SAR_{head}) (TEM cell, f = 900 MHz)





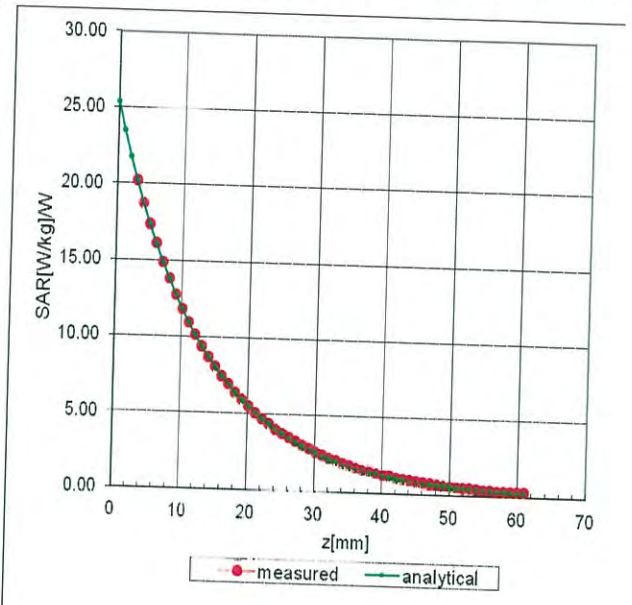
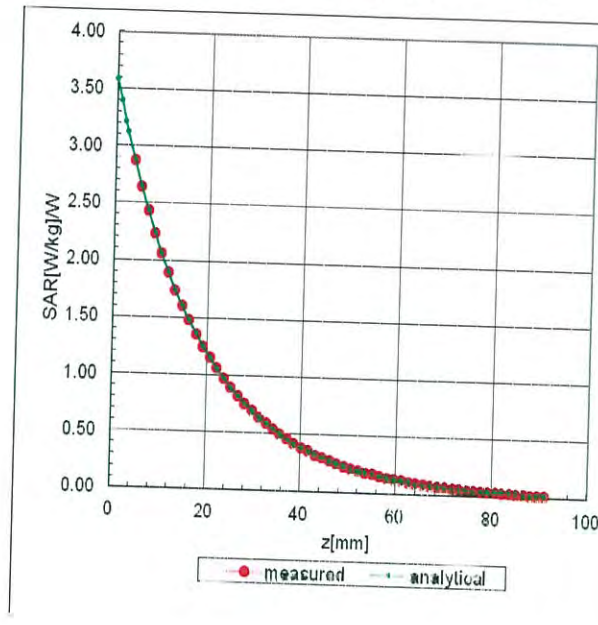
In Collaboration with
s p e a g
CALIBRATION LABORATORY

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2218 Fax: +86-10-62304633-2209
E-mail: cttl@chinattl.com [Http://www.chinattl.cn](http://www.chinattl.cn)

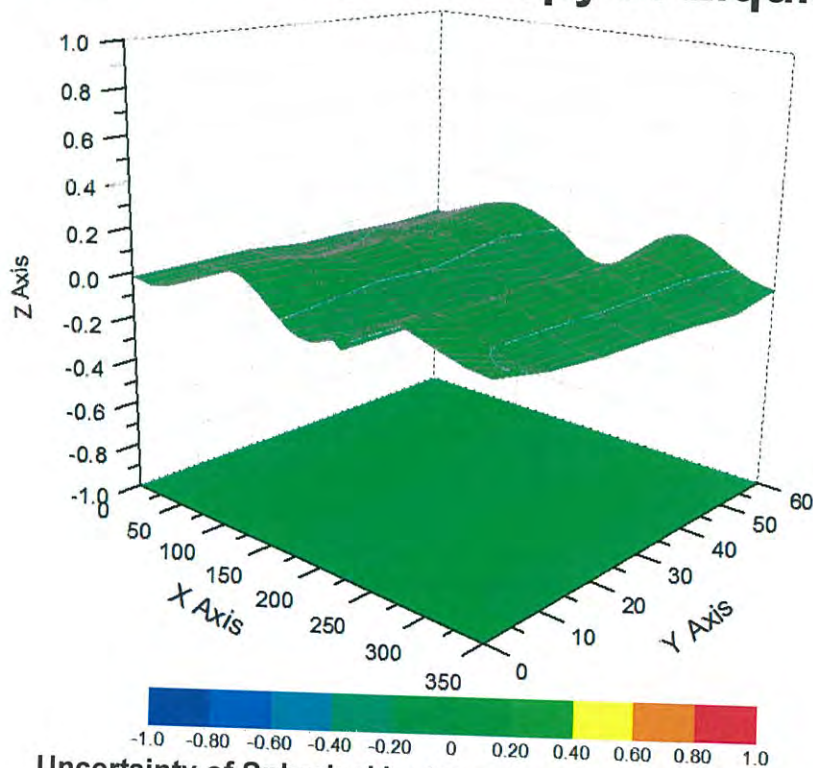
Conversion Factor Assessment

f=900 MHz, WGLS R9(H_convF)

f=1750 MHz, WGLS R22(H_convF)



Deviation from Isotropy in Liquid



Uncertainty of Spherical Isotropy Assessment: $\pm 2.8\%$ (K=2)



In Collaboration with
s p e a g
CALIBRATION LABORATORY

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2218 Fax: +86-10-62304633-2209
E-mail: cttl@chinattl.com [Http://www.chinattl.cn](http://www.chinattl.cn)

DASY/EASY – Parameters of Probe: EX3DV4 – SN: 7407

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	86.9
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disable
Probe Overall Length	337mm
Probe Body Diameter	10mm
Tip Length	9mm
Tip Diameter	2.5mm
Probe Tip to Sensor X Calibration Point	1mm
Probe Tip to Sensor Y Calibration Point	1mm
Probe Tip to Sensor Z Calibration Point	1mm
Recommended Measurement Distance from Surface	1.4mm



In Collaboration with
s p e a g
CALIBRATION LABORATORY



Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com [Http://www.chinattl.cn](http://www.chinattl.cn)

CALIBRATION
No. L0570

Client

GCCT

Certificate No: **Z15-97123**

CALIBRATION CERTIFICATE

Object

D835V2 - SN: 4d150

Calibration Procedure(s)

FD-Z11-2-003-01

Calibration Procedures for dipole validation kits

Calibration date:

September 18, 2015

This calibration Certificate documents the traceability to national standards, which realize the physical units of measurements(SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature(22±3)℃ and humidity<70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Power Meter NRP2	101919	01-Jul-15 (CTTL, No.J15X04256)	Jun-16
Power sensor NRP-Z91	101547	01-Jul-15 (CTTL, No.J15X04256)	Jun-16
Reference Probe EX3DV4	SN 3846	24-Sep-14(SPEAG,No.EX3-3846_Sep14)	Sep-15
DAE4	SN 910	16-Jun-15(SPEAG,No.DAE4-910_Jun15)	Jun-16
Secondary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Signal Generator E4438C	MY49071430	02-Feb-15 (CTTL, No.J15X00729)	Feb-16
Network Analyzer E5071C	MY46110673	03-Feb-15 (CTTL, No.J15X00728)	Feb-16

	Name	Function	Signature
Calibrated by:	Zhao Jing	SAR Test Engineer	
Reviewed by:	Qi Dianyuan	SAR Project Leader	
Approved by:	Lu Bingsong	Deputy Director of the laboratory	

Issued: September 23, 2015

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.



In Collaboration with

s p e a g
CALIBRATION LABORATORY

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com Http://www.chinattl.cn

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM _{x,y,z}
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) For hand-held devices used in close proximity to the ear (frequency range of 300MHz to 3GHz)", February 2005
- KDB865664, SAR Measurement Requirements for 100 MHz to 6 GHz

Additional Documentation:

- DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- Measurement Conditions:** Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL:** The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss:** These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay:** One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- SAR measured:** SAR measured at the stated antenna input power.
- SAR normalized:** SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters:** The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of Measurement multiplied by the coverage factor $k=2$, which for a normal distribution Corresponds to a coverage probability of approximately 95%.



Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
 Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504
 E-mail: cttl@chinattl.com Http://www.chinattl.cn

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY52	52.8.8.1222
Extrapolation	Advanced Extrapolation	
Phantom	Triple Flat Phantom 5.1C	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	835 MHz $\pm$ 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	41.5	0.90 mho/m
Measured Head TSL parameters	(22.0 $\pm$ 0.2) °C	42.0 $\pm$ 6 %	0.89 mho/m $\pm$ 6 %
Head TSL temperature change during test	<1.0 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.37 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	9.62 mW / g $\pm$ 20.8 % (k=4)
SAR averaged over 10 cm ³ (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	1.55 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	6.27 mW / g $\pm$ 20.4 % (k=2)

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	55.2	0.97 mho/m
Measured Body TSL parameters	(22.0 $\pm$ 0.2) °C	56.0 $\pm$ 6 %	0.98 mho/m $\pm$ 6 %
Body TSL temperature change during test	<1.0 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.40 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	9.55 mW / g $\pm$ 20.8 % (k=2)
SAR averaged over 10 cm ³ (10 g) of Body TSL	Condition	
SAR measured	250 mW input power	1.58 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	6.29 mW / g $\pm$ 20.4 % (k=2)



Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com Http://www.chinattl.cn

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	49.1Ω- 3.20jΩ
Return Loss	- 29.5dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	45.4Ω- 5.18jΩ
Return Loss	- 22.8dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.447 ns
----------------------------------	----------

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
-----------------	-------



In Collaboration with

s p e a g
CALIBRATION LABORATORY

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com Http://www.chinattl.cn

DASY5 Validation Report for Head TSL

Date: 09.18.2015

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d150

Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.886 \text{ S/m}$; $\epsilon_r = 41.95$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3846; ConvF(9.18, 9.18, 9.18); Calibrated: 9/24/2014;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn910; Calibrated: 6/16/2015
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1161/1
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

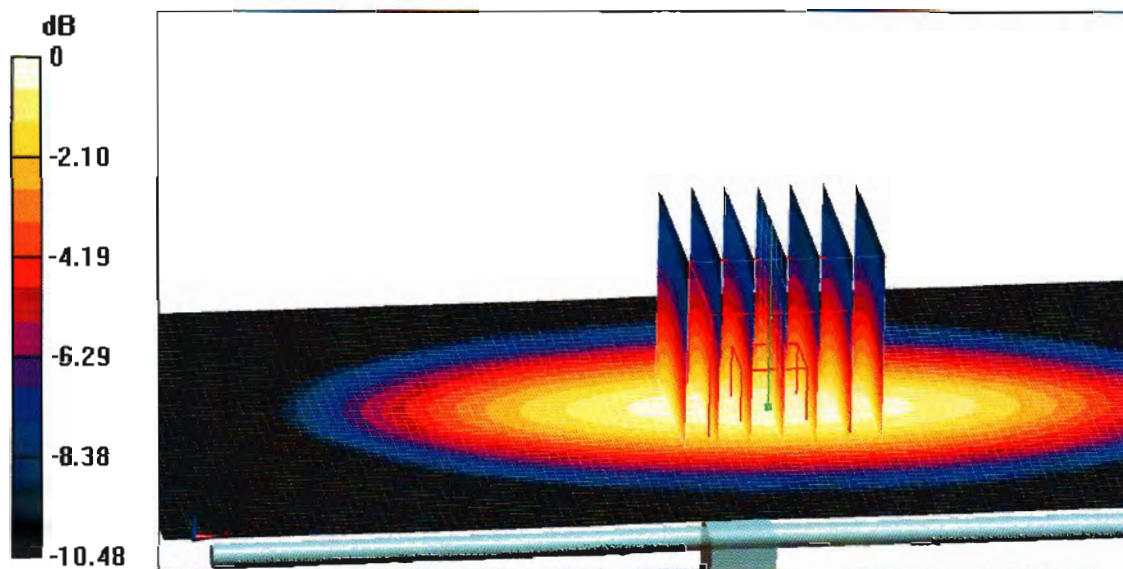
Dipole Calibration/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 59.19 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 3.52 W/kg

SAR(1 g) = 2.37 W/kg; SAR(10 g) = 1.55 W/kg

Maximum value of SAR (measured) = 3.00 W/kg



0 dB = 3.00 W/kg = 4.77 dBW/kg

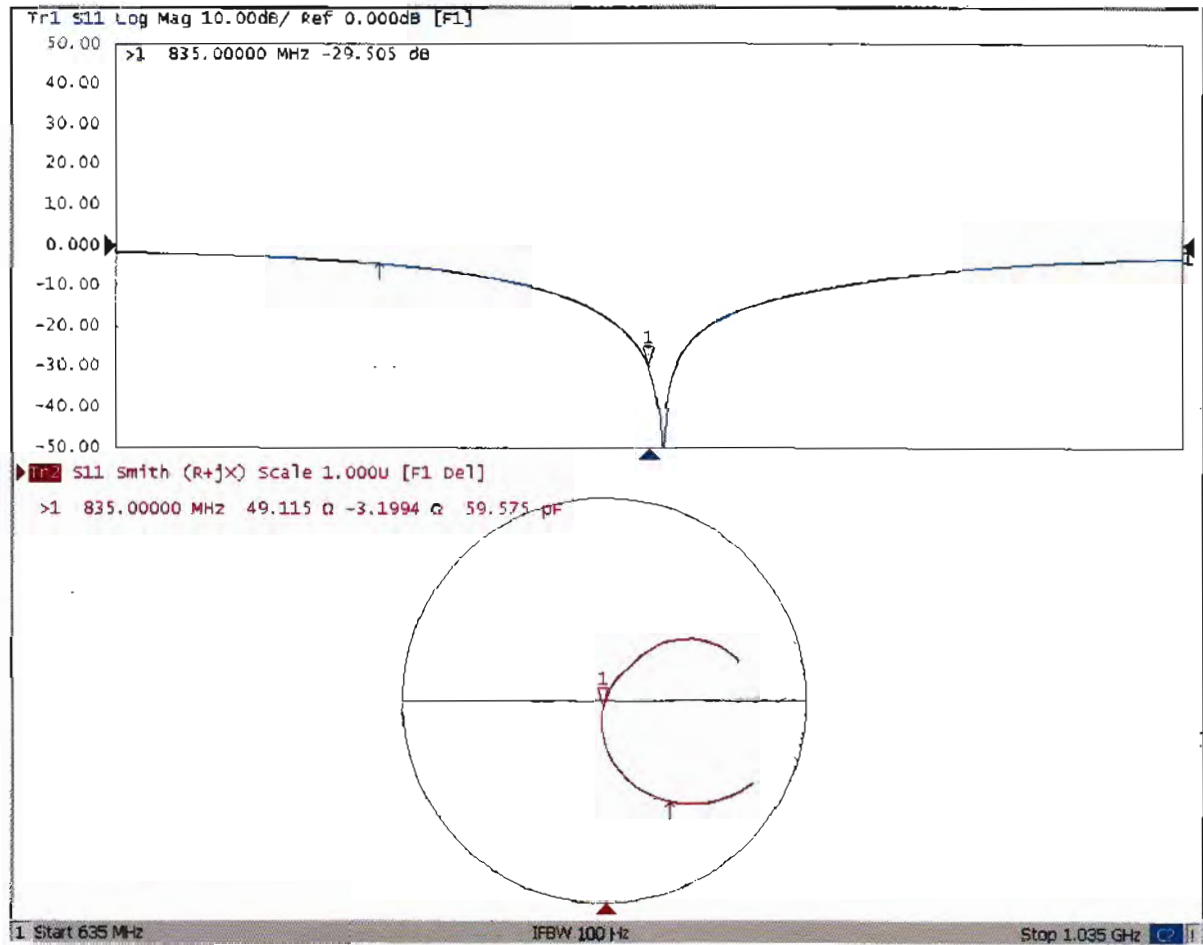


In Collaboration with

s p e a g
CALIBRATION LABORATORY

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com Http://www.chinattl.cn

Impedance Measurement Plot for Head TSL





In Collaboration with

s p e a k
CALIBRATION LABORATORY

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191. China
Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com Http://www.chinattl.cn

DASY5 Validation Report for Body TSL

Date: 09.18.2015

Test Laboratory: CCTL, Beijing, China

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d150

Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 835$ MHz; $\sigma = 0.981$ S/m; $\epsilon_r = 55.99$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3846; ConvF(9.09,9.09, 9.09); Calibrated: 9/24/2014;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn910; Calibrated: 6/16/2015
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1161/1
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

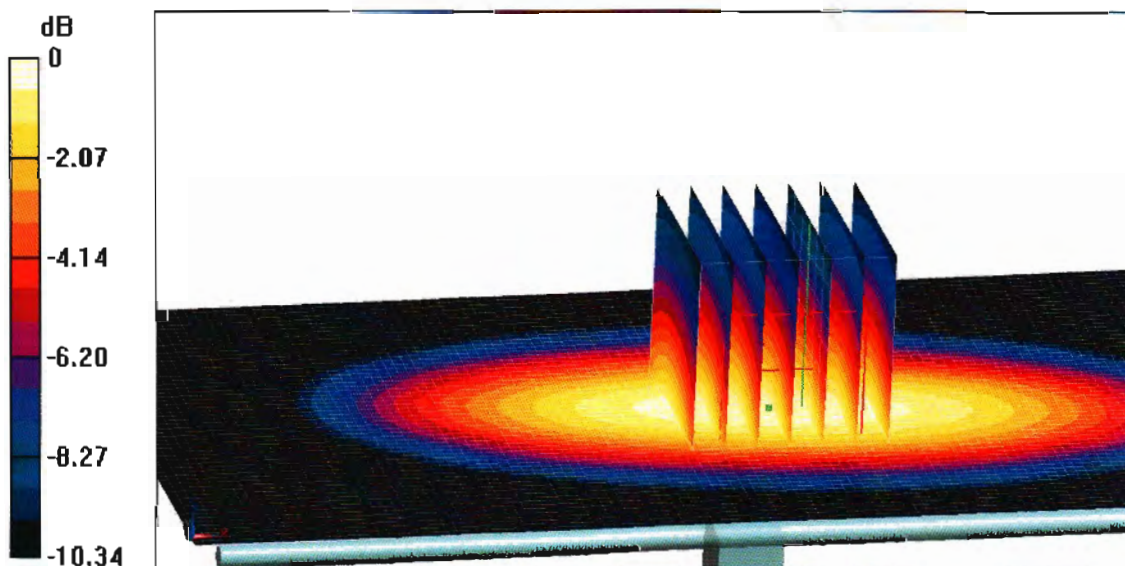
Dipole Calibration/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 56.48 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 3.59 W/kg

SAR(1 g) = 2.40 W/kg; SAR(10 g) = 1.58 W/kg

Maximum value of SAR (measured) = 3.04 W/kg



0 dB = 3.04 W/kg = 4.83 dBW/kg

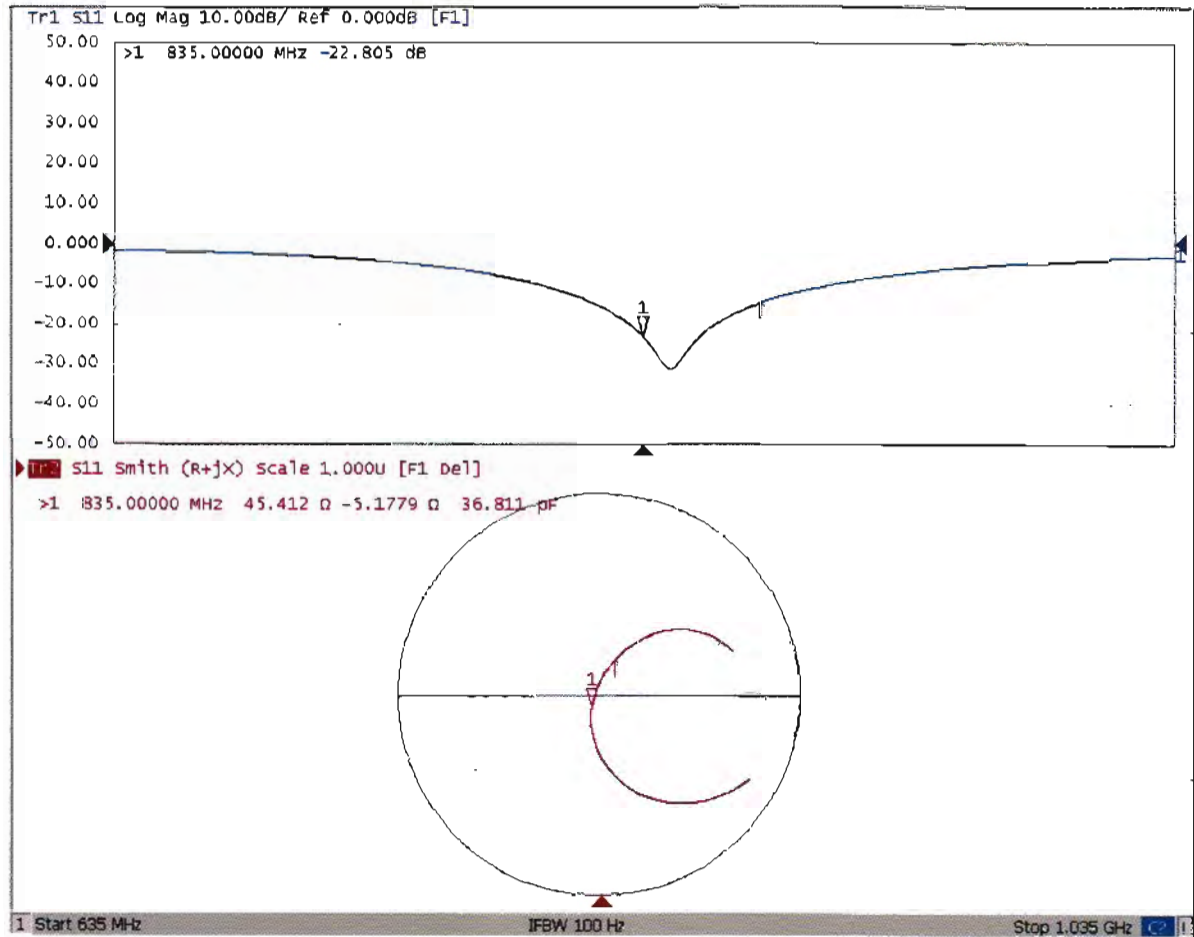


In Collaboration with

s p e a g
CALIBRATION LABORATORY

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com Http://www.chinattl.cn

Impedance Measurement Plot for Body TSL





In Collaboration with
s p e a g
CALIBRATION LABORATORY



Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com [Http://www.chinattl.cn](http://www.chinattl.cn)

CALIBRATION
No. L0570

Client

GCCT

Certificate No: **Z15-97125**

CALIBRATION CERTIFICATE

Object

D1800V2 - SN: 2d173

Calibration Procedure(s)

FD-Z11-2-003-01

Calibration Procedures for dipole validation kits

Calibration date:

September 16, 2015

This calibration Certificate documents the traceability to national standards, which realize the physical units of measurements(SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature(22 ± 3) $^{\circ}\text{C}$ and humidity<70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Power Meter NRP2	101919	01-Jul-15 (CTTL, No.J15X04256)	Jun-16
Power sensor NRP-Z91	101547	01-Jul-15 (CTTL, No.J15X04256)	Jun-16
Reference Probe EX3DV4	SN 3846	24-Sep-14(SPEAG,No.EX3-3846_Sep14)	Sep-15
DAE4	SN 910	16-Jun-15(SPEAG,No.DAE4-910_Jun15)	Jun-16
Secondary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Signal Generator E4438C	MY49071430	02-Feb-15 (CTTL, No.J15X00729)	Feb-16
Network Analyzer E5071C	MY46110673	03-Feb-15 (CTTL, No.J15X00728)	Feb-16

	Name	Function	Signature
Calibrated by:	Zhao Jing	SAR Test Engineer	
Reviewed by:	Qi Dianyuan	SAR Project Leader	
Approved by:	Lu Bingsong	Deputy Director of the laboratory	

Issued: September 23, 2015

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.



In Collaboration with

s p e a g
CALIBRATION LABORATORY

Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2079 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com Http://www.chinattl.cn

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM _{x,y,z}
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) For hand-held devices used in close proximity to the ear (frequency range of 300MHz to 3GHz)", February 2005
- KDB865664, SAR Measurement Requirements for 100 MHz to 6 GHz

Additional Documentation:

- DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- SAR measured:* SAR measured at the stated antenna input power.
- SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of Measurement multiplied by the coverage factor $k=2$, which for a normal distribution Corresponds to a coverage probability of approximately 95%.



Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China

Tel: +86-10-62304633-2079

Fax: +86-10-62304633-2504

E-mail: cttl@chinattl.com

Http://www.chinattl.cn

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY52	52.8.8.1222
Extrapolation	Advanced Extrapolation	
Phantom	Triple Flat Phantom 5.1C	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1800 MHz $\pm$ 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	40.0	1.40 mho/m
Measured Head TSL parameters	(22.0 $\pm$ 0.2) °C	40.7 $\pm$ 6 %	1.39 mho/m $\pm$ 6 %
Head TSL temperature change during test	<1.0 °C	---	---

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	9.59 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	38.7 mW / g $\pm$ 20.8 % (k=2)
SAR averaged over 10 cm ³ (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	5.13 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	20.6 mW / g $\pm$ 20.4 % (k=2)

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	53.3	1.52 mho/m
Measured Body TSL parameters	(22.0 $\pm$ 0.2) °C	53.5 $\pm$ 6 %	1.54 mho/m $\pm$ 6 %
Body TSL temperature change during test	<1.0 °C	---	---

SAR result with Body TSL

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	9.98 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	39.6 mW / g $\pm$ 20.8 % (k=2)
SAR averaged over 10 cm ³ (10 g) of Body TSL	Condition	
SAR measured	250 mW input power	5.35 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	21.3 mW / g $\pm$ 20.4 % (k=2)