

System Check_B1750_180211

DUT: Dipole:1750 MHz; Type:D1750V2; SN:1071

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

Medium: B1750_0211 Medium parameters used: $f = 1750 \text{ MHz}$; $\sigma = 1.477 \text{ S/m}$; $\epsilon_r = 52.379$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature : 23.2 °C; Liquid Temperature : 22.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(8.04, 8.04, 8.04); Calibrated: 2017/08/25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1341; Calibrated: 2017/08/23
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1205
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

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

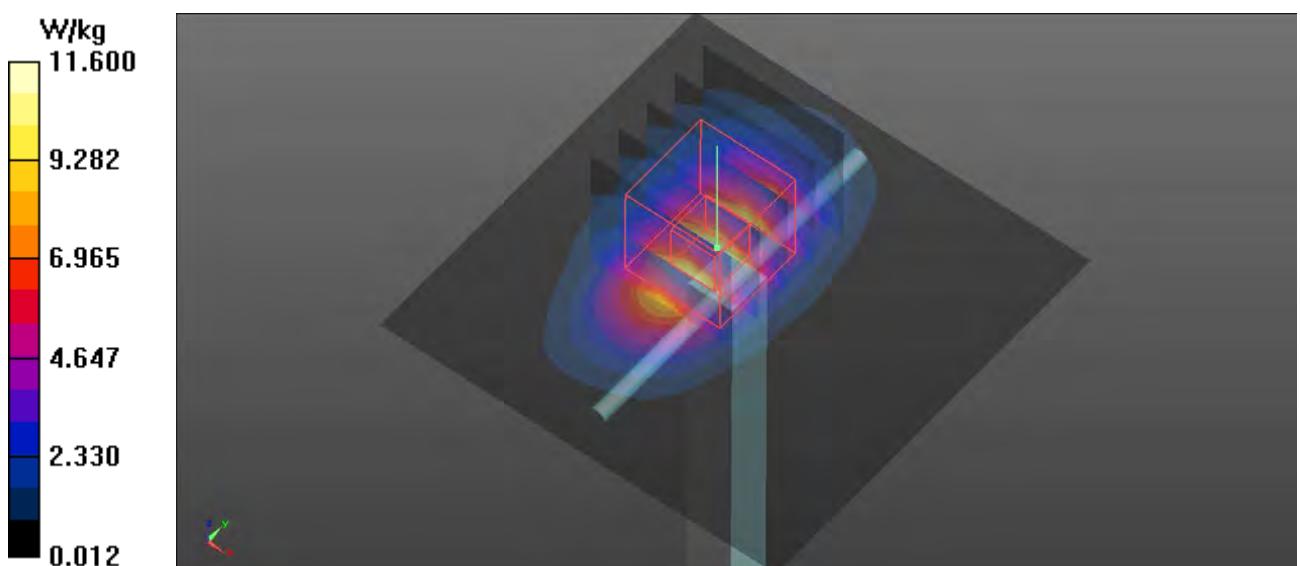
Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 83.07 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 14.5 W/kg

SAR(1 g) = 9.35 W/kg; SAR(10 g) = 5.21 W/kg

Maximum value of SAR (measured) = 11.7 W/kg



System Check_B1900_180213

DUT: Dipole 1900MHz; Type:D1900V2; SN:5d159

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

Medium: B1900_0213 Medium parameters used: $f = 1900 \text{ MHz}$; $\sigma = 1.528 \text{ S/m}$; $\epsilon_r = 53.42$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature : 23.2 °C; Liquid Temperature : 22.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(7.77, 7.77, 7.77); Calibrated: 2017/08/25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1341; Calibrated: 2017/08/23
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1205
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=250mW/Area Scan (61x61x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 14.1 W/kg

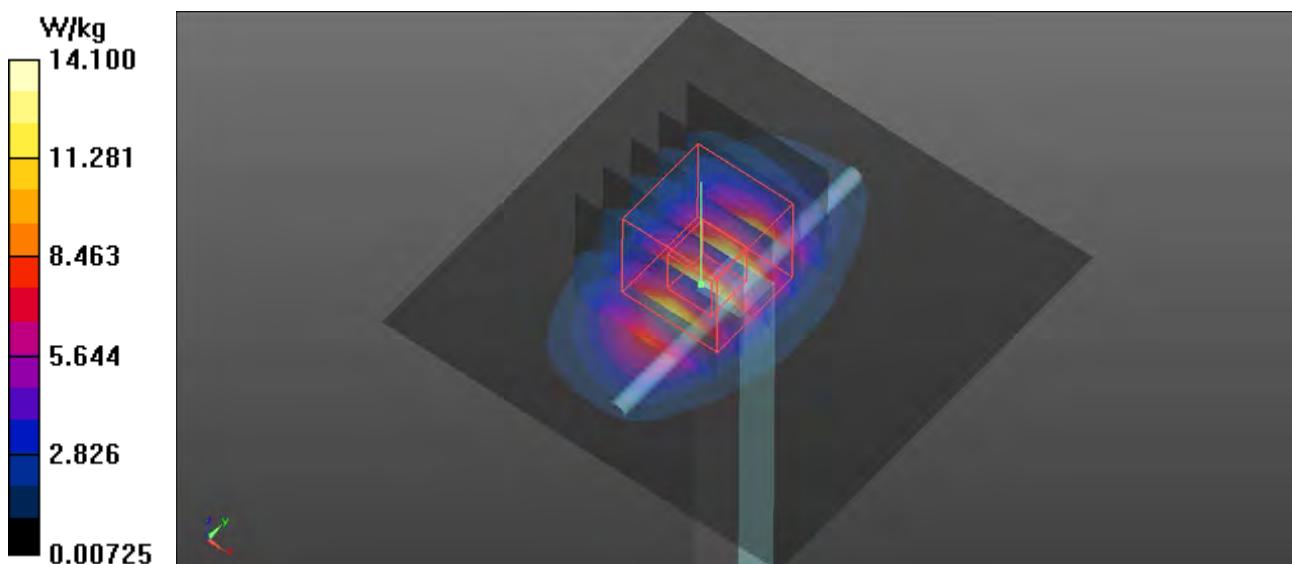
Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 98.63 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 18.1 W/kg

SAR(1 g) = 10.3 W/kg; SAR(10 g) = 5.39 W/kg

Maximum value of SAR (measured) = 14.5 W/kg



System Check_B2450_180204

DUT: Dipole 2450 MHz; Type:D2450V2; SN:893

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

Medium: B2450_0204 Medium parameters used: $f = 2450 \text{ MHz}$; $\sigma = 1.963 \text{ S/m}$; $\epsilon_r = 50.972$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature : 23.1 °C; Liquid Temperature : 22.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(7.45, 7.45, 7.45); Calibrated: 2017/08/25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1341; Calibrated: 2017/08/23
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1205
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=250mW/Area Scan (71x81x1): Interpolated grid: $dx=1.200 \text{ mm}$, $dy=1.200 \text{ mm}$

Maximum value of SAR (interpolated) = 21.5 W/kg

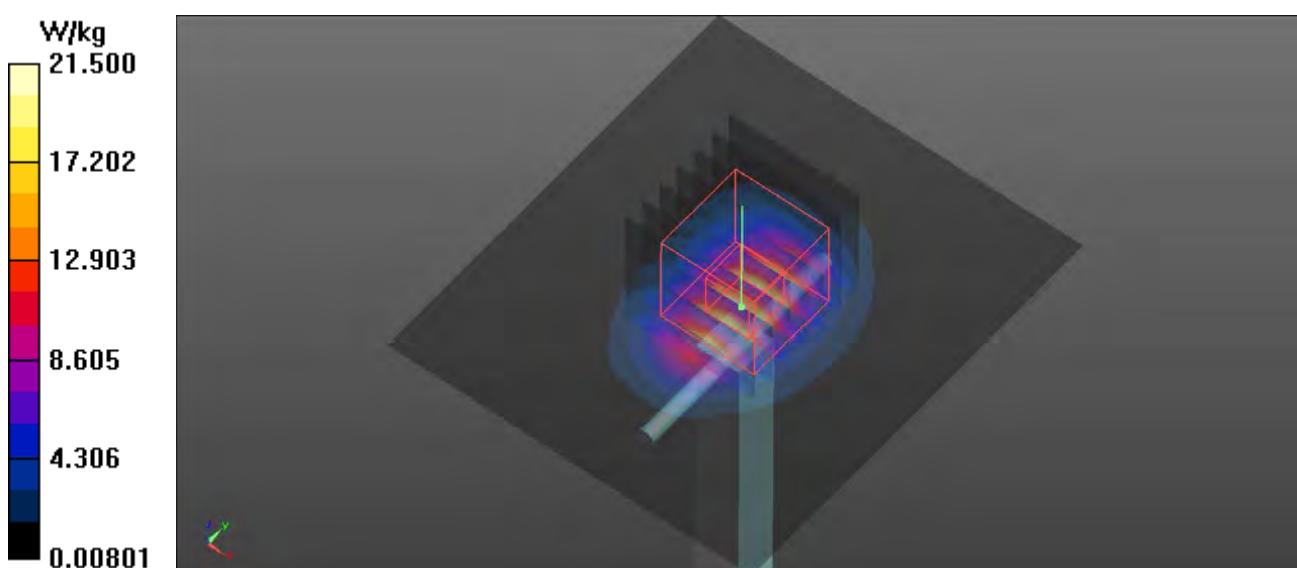
Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 98.62 V/m; Power Drift = -0.14 dB

Peak SAR (extrapolated) = 25.9 W/kg

SAR(1 g) = 13.1 W/kg; SAR(10 g) = 6.18 W/kg

Maximum value of SAR (measured) = 21.3 W/kg



System Check_B2600_180208

DUT: Dipole 2600 MHz; Type:D2600V2; SN:1110

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

Medium: B2600_0208 Medium parameters used: $f = 2600 \text{ MHz}$; $\sigma = 2.096 \text{ S/m}$; $\epsilon_r = 50.743$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature : 23.1 °C; Liquid Temperature : 22.2 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(7.19, 7.19, 7.19); Calibrated: 2017/08/25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1341; Calibrated: 2017/08/23
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1205
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=250mW/Area Scan (71x81x1): Interpolated grid: $dx=1.200 \text{ mm}$, $dy=1.200 \text{ mm}$

Maximum value of SAR (interpolated) = 23.2 W/kg

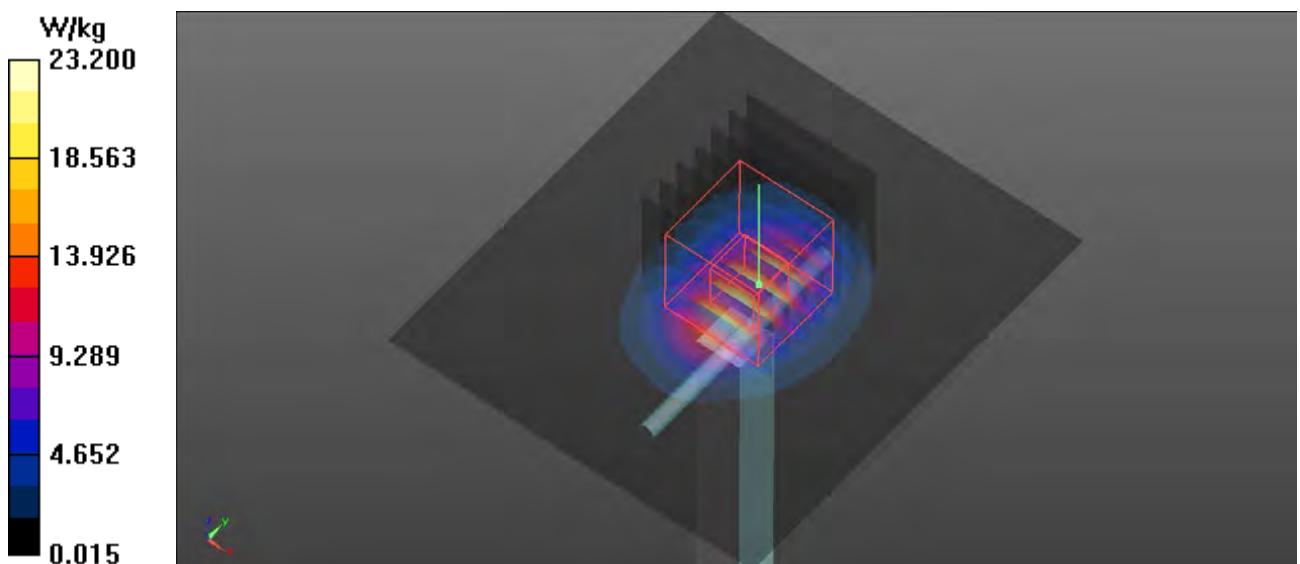
Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 97.87 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 28.3 W/kg

SAR(1 g) = 13.8 W/kg; SAR(10 g) = 6.22 W/kg

Maximum value of SAR (measured) = 22.7 W/kg



System Check_B5250_180210

DUT: Dipole D5GHzV2; Type:D5GHzV2; SN:1133

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

Medium: B5G_0210 Medium parameters used: $f = 5250$ MHz; $\sigma = 5.313$ S/m; $\epsilon_r = 51.017$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.3 °C; Liquid Temperature : 22.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(4.61, 4.61, 4.61); Calibrated: 2017/08/25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1341; Calibrated: 2017/08/23
- Phantom: Left Phantom with CRP v5.0; Type: QD000P40CD; Serial: TP:1722
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=100mW/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

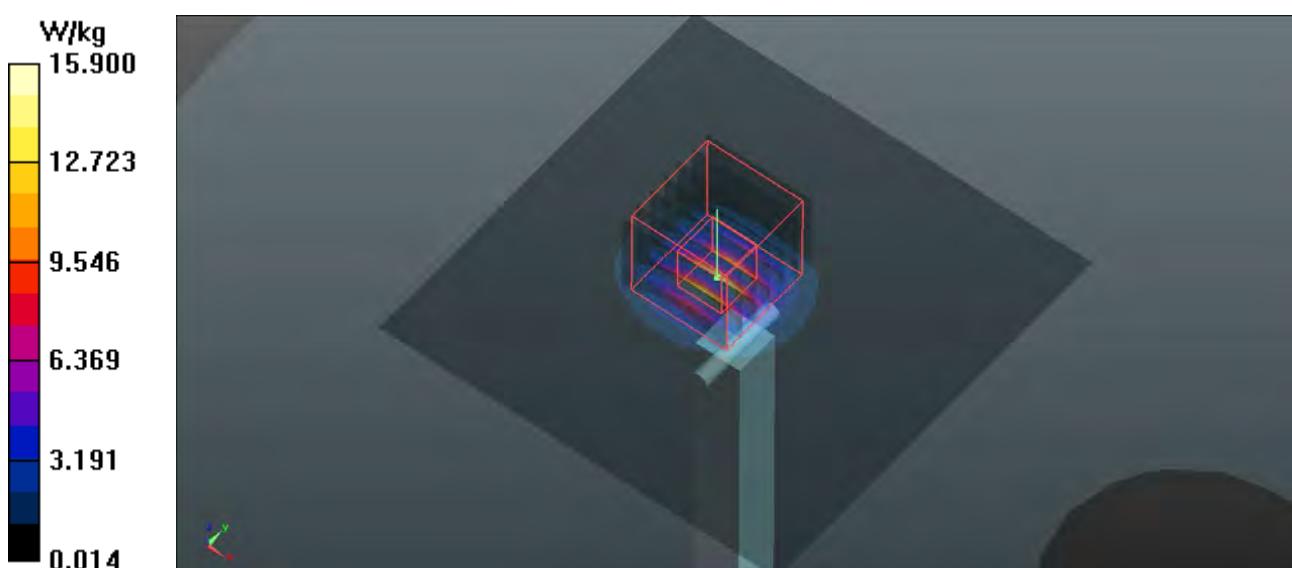
Maximum value of SAR (interpolated) = 15.9 W/kg

Pin=100mW/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 44.94 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 28.3 W/kg

SAR(1 g) = 7.33 W/kg; SAR(10 g) = 2.10 W/kg

Maximum value of SAR (measured) = 16.7 W/kg



System Check_B5600_180210

DUT: Dipole D5GHzV2; Type:D5GHzV2; SN:1133

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

Medium: B5G_0210 Medium parameters used: $f = 5600$ MHz; $\sigma = 5.909$ S/m; $\epsilon_r = 50.389$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.3 °C; Liquid Temperature : 22.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(3.9, 3.9, 3.9); Calibrated: 2017/08/25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1341; Calibrated: 2017/08/23
- Phantom: Left Phantom with CRP v5.0; Type: QD000P40CD; Serial: TP:1722
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=100mW/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 19.8 W/kg

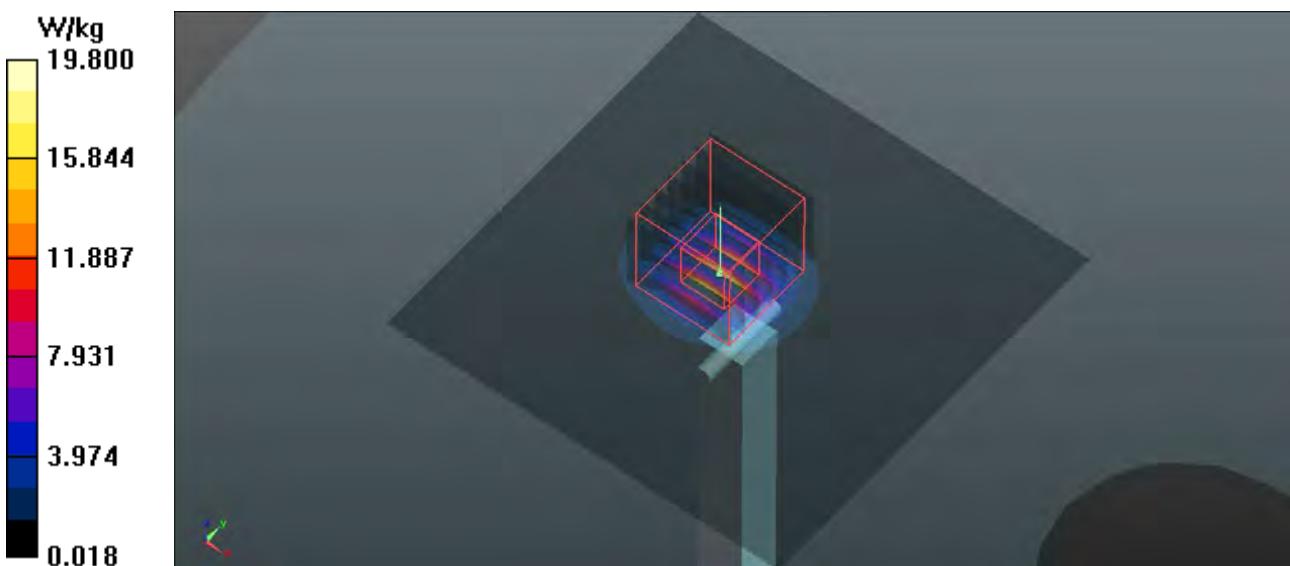
Pin=100mW/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 48.86 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 33.3 W/kg

SAR(1 g) = 7.95 W/kg; SAR(10 g) = 2.24 W/kg

Maximum value of SAR (measured) = 20.7 W/kg



System Check_B5800_180210

DUT: Dipole D5GHzV2; Type:D5GHzV2; SN:1133

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

Medium: B5G_0210 Medium parameters used: $f = 5800$ MHz; $\sigma = 6.216$ S/m; $\epsilon_r = 49.887$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.3 °C; Liquid Temperature : 22.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(4.16, 4.16, 4.16); Calibrated: 2017/08/25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1341; Calibrated: 2017/08/23
- Phantom: Left Phantom with CRP v5.0; Type: QD000P40CD; Serial: TP:1722
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Pin=100mW/Area Scan (91x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 16.4 W/kg

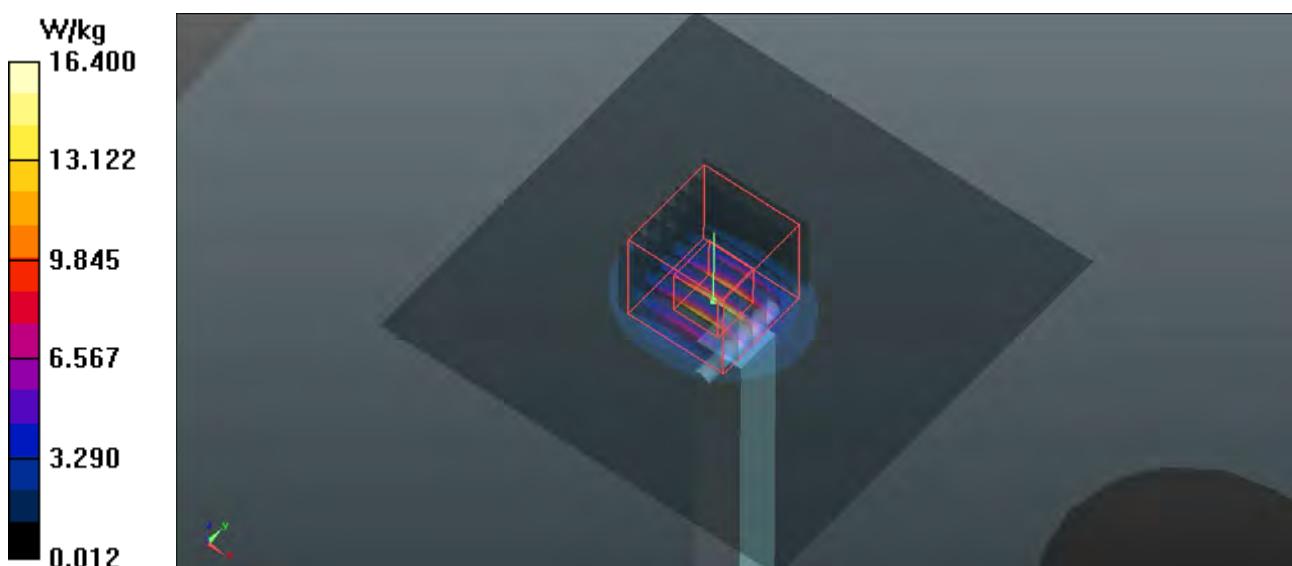
Pin=100mW/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 46.77 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 30.3 W/kg

SAR(1 g) = 7.65 W/kg; SAR(10 g) = 2.15 W/kg

Maximum value of SAR (measured) = 17.9 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.

The plots for SAR measurement are shown as follows.

P01 GSM850_GPRS12_Right Cheek_Ch189**DUT: 180125W001**

Communication System: GPRS12; Frequency: 836.4 MHz; Duty Cycle: 1:2

Medium: H835_0210 Medium parameters used: $f = 836.4 \text{ MHz}$; $\sigma = 0.89 \text{ S/m}$; $\epsilon_r = 40.74$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature : 23.1 °C; Liquid Temperature : 22.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(9.74, 9.74, 9.74); Calibrated: 2017/08/25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1341; Calibrated: 2017/08/23
- Phantom: Left Phantom with CRP v5.0; Type: QD000P40CD; Serial: TP:1722
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

- Area Scan (71x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.25 W/kg

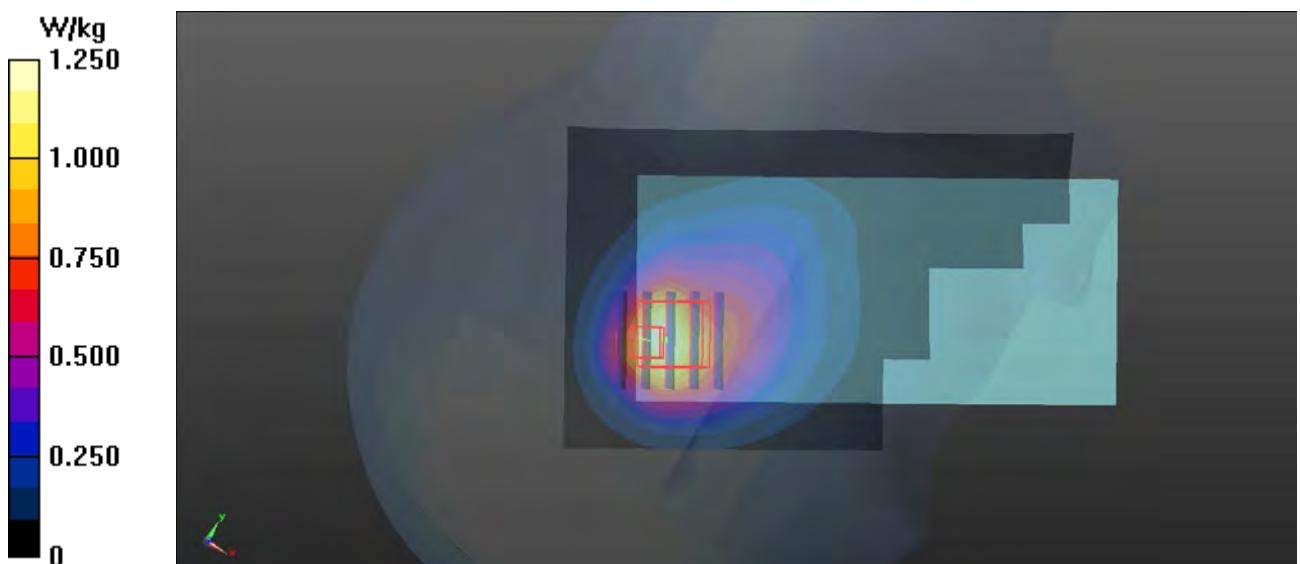
- Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 26.01 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 1.88 W/kg

SAR(1 g) = 0.830 W/kg; SAR(10 g) = 0.498 W/kg

Maximum value of SAR (measured) = 1.46 W/kg



P02 GSM1900_GPRS12_Right Cheek_Ch661

DUT: 180125W001

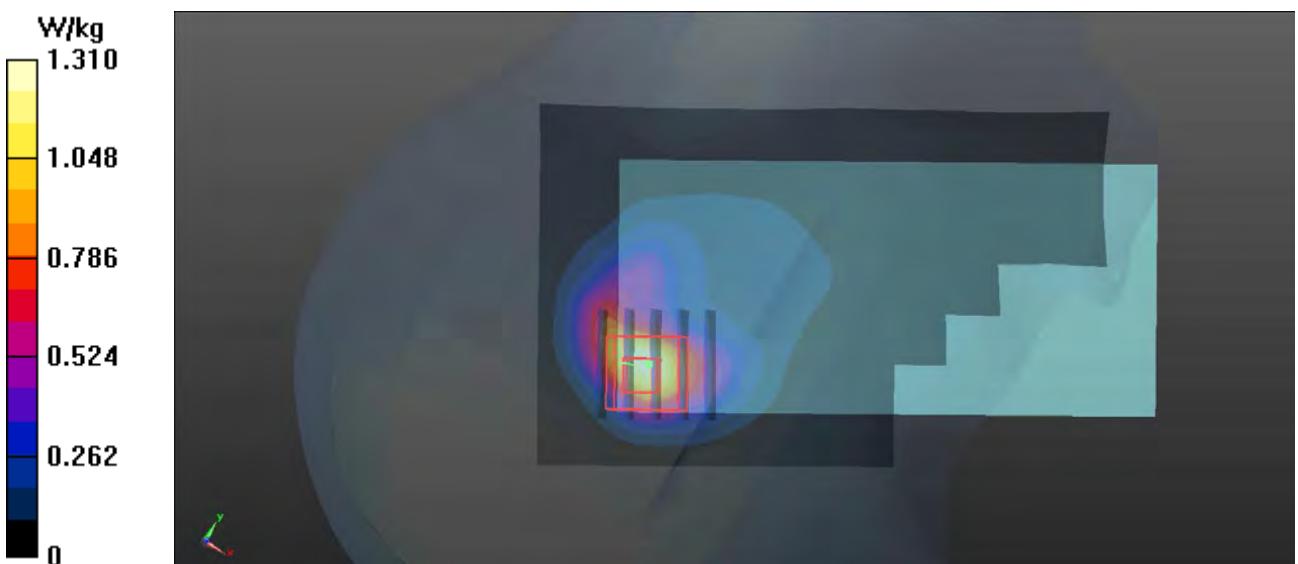
Communication System: GPRS12; Frequency: 1880 MHz; Duty Cycle: 1:2
Medium: H1900_0206 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.387$ S/m; $\epsilon_r = 39.605$; $\rho = 1000$ kg/m³
Ambient Temperature : 23.4 °C; Liquid Temperature : 22.2 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(8.37, 8.37, 8.37); Calibrated: 2017/08/25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1341; Calibrated: 2017/08/23
- Phantom: Front Phantom with CRP v5.0; Type: QD000P40CD; Serial: TP:1695
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

- Area Scan (71x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.31 W/kg

- Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.52 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 1.90 W/kg
SAR(1 g) = 0.857 W/kg; SAR(10 g) = 0.390 W/kg
Maximum value of SAR (measured) = 1.41 W/kg



P03 WCDMA II_RMC12.2K_Right Cheek_Ch9262**DUT: 180125W001**

Communication System: WCDMA; Frequency: 1852.4 MHz; Duty Cycle: 1:1

Medium: H1900_0206 Medium parameters used: $f = 1852.4$ MHz; $\sigma = 1.4$ S/m; $\epsilon_r = 39.362$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.4 °C; Liquid Temperature : 22.2 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(8.37, 8.37, 8.37); Calibrated: 2017/08/25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1341; Calibrated: 2017/08/23
- Phantom: Front Phantom with CRP v5.0; Type: QD000P40CD; Serial: TP:1695
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

- Area Scan (71x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.42 W/kg

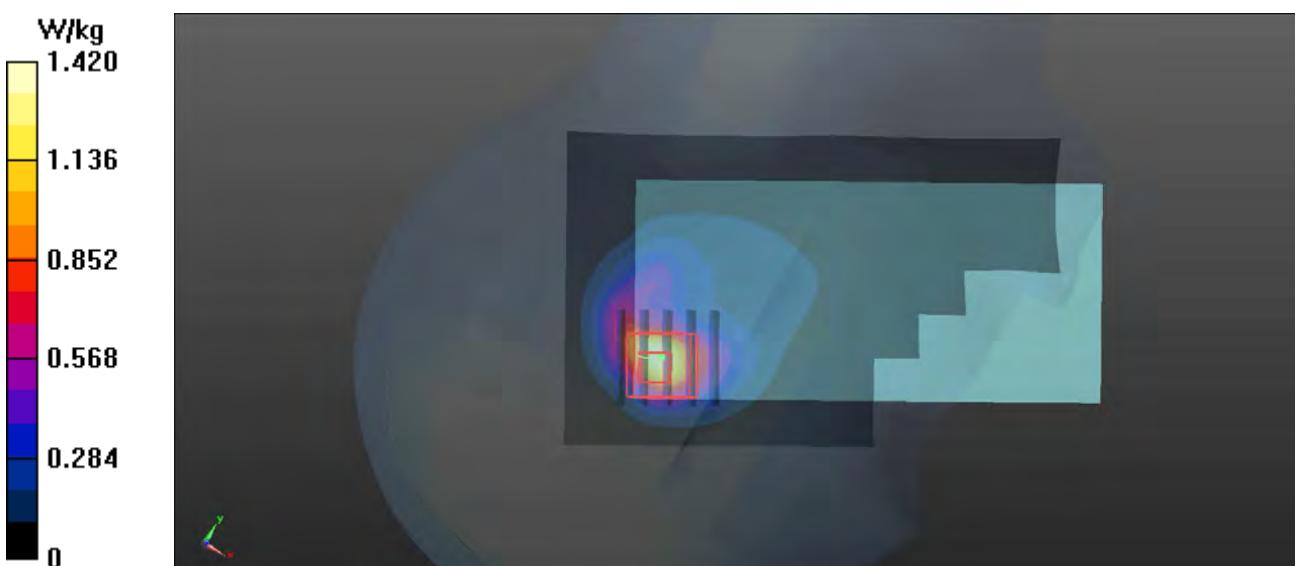
- Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 17.18 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 1.93 W/kg

SAR(1 g) = 0.893 W/kg; SAR(10 g) = 0.406 W/kg

Maximum value of SAR (measured) = 1.43 W/kg



P04 WCDMA IV_RMC12.2K_Right Cheek_Ch1513**DUT: 180125W001**

Communication System: WCDMA; Frequency: 1752.6 MHz; Duty Cycle: 1:1

Medium: H1750_0207 Medium parameters used: $f = 1752.6$ MHz; $\sigma = 1.35$ S/m; $\epsilon_r = 39.493$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.3 °C; Liquid Temperature : 22.4 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(8.62, 8.62, 8.62); Calibrated: 2017/08/25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1341; Calibrated: 2017/08/23
- Phantom: Front Phantom with CRP v5.0; Type: QD000P40CD; Serial: TP:1695
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

- Area Scan (71x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.38 W/kg

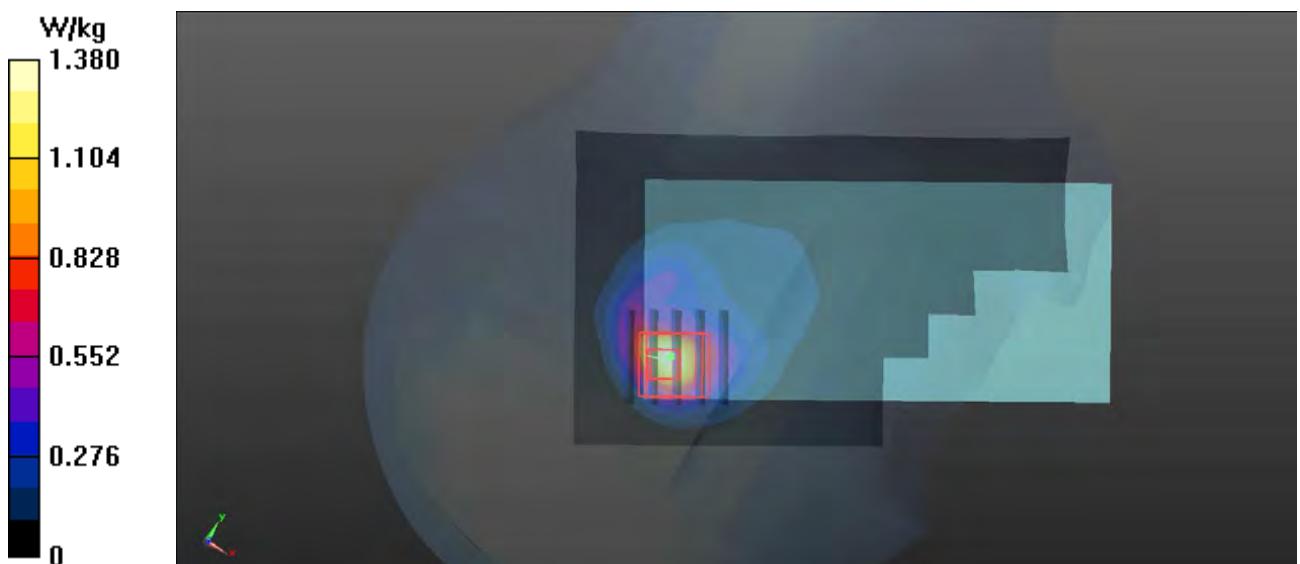
- Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 16.23 V/m; Power Drift = -0.00 dB

Peak SAR (extrapolated) = 1.81 W/kg

SAR(1 g) = 0.855 W/kg; SAR(10 g) = 0.397 W/kg

Maximum value of SAR (measured) = 1.33 W/kg



P05 WCDMA V_RMC12.2K_Right Cheek_Ch4233**DUT: 180125W001**

Communication System: WCDMA; Frequency: 846.6 MHz; Duty Cycle: 1:1

Medium: H835_0210 Medium parameters used: $f = 846.6 \text{ MHz}$; $\sigma = 0.9 \text{ S/m}$; $\epsilon_r = 40.605$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature : 23.1 °C; Liquid Temperature : 22.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(9.74, 9.74, 9.74); Calibrated: 2017/08/25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1341; Calibrated: 2017/08/23
- Phantom: Left Phantom with CRP v5.0; Type: QD000P40CD; Serial: TP:1722
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

- Area Scan (71x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.736 W/kg

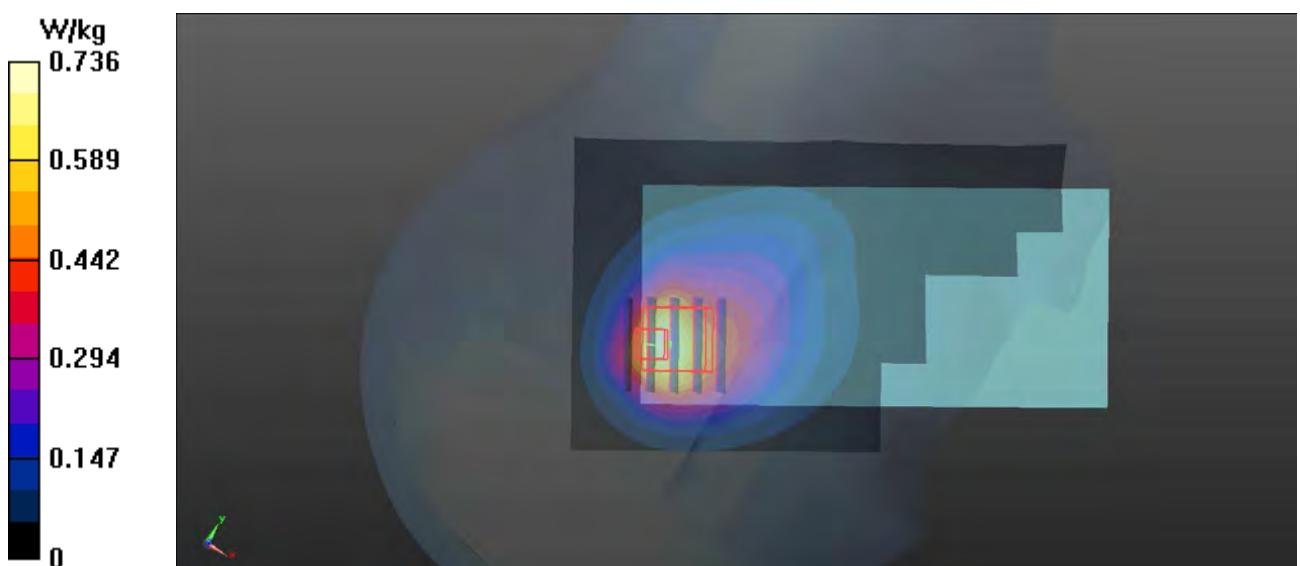
- Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 19.81 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 1.10 W/kg

SAR(1 g) = 0.481 W/kg; SAR(10 g) = 0.288 W/kg

Maximum value of SAR (measured) = 0.850 W/kg



P06 LTE 2_QPSK20M_Right Cheek_Ch18700_1RB_OS0**DUT: 180125W001**

Communication System: LTE; Frequency: 1860 MHz; Duty Cycle: 1:1

Medium: H1900_0206 Medium parameters used: $f = 1860 \text{ MHz}$; $\sigma = 1.402 \text{ S/m}$; $\epsilon_r = 39.436$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature : 23.4 °C; Liquid Temperature : 22.2 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(8.37, 8.37, 8.37); Calibrated: 2017/08/25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1341; Calibrated: 2017/08/23
- Phantom: Front Phantom with CRP v5.0; Type: QD000P40CD; Serial: TP:1695
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

- Area Scan (71x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.837 W/kg

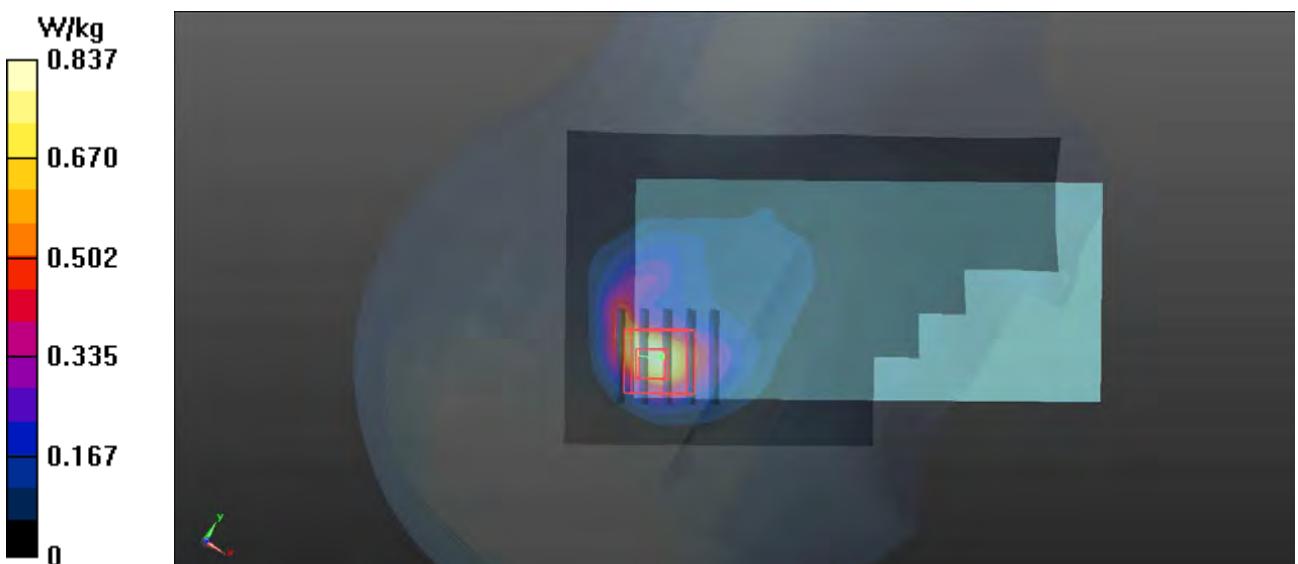
- Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 12.89 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 1.16 W/kg

SAR(1 g) = 0.534 W/kg; SAR(10 g) = 0.244 W/kg

Maximum value of SAR (measured) = 0.893 W/kg



P07 LTE 4_QPSK20M_Right Cheek_Ch20300_1RB_OS0**DUT: 180125W001**

Communication System: LTE; Frequency: 1745 MHz; Duty Cycle: 1:1

Medium: H1750_0207 Medium parameters used: $f = 1745 \text{ MHz}$; $\sigma = 1.341 \text{ S/m}$; $\epsilon_r = 39.523$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature : 23.3 °C; Liquid Temperature : 22.4 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(8.62, 8.62, 8.62); Calibrated: 2017/08/25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1341; Calibrated: 2017/08/23
- Phantom: Front Phantom with CRP v5.0; Type: QD000P40CD; Serial: TP:1695
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

- Area Scan (71x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.822 W/kg

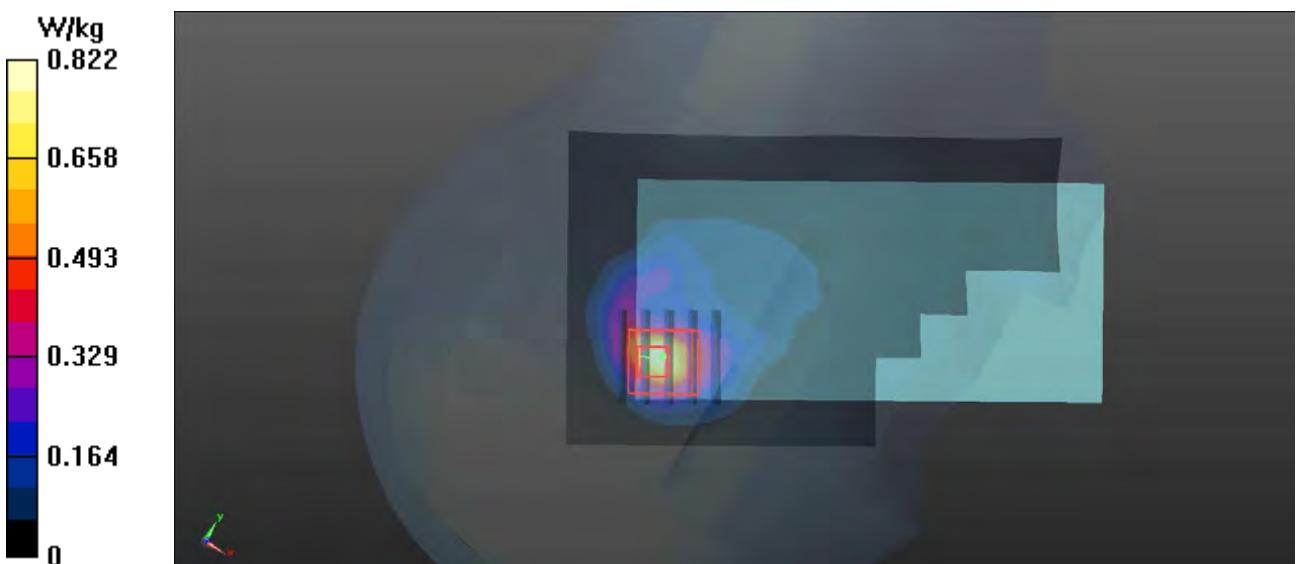
- Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 12.32 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 1.06 W/kg

SAR(1 g) = 0.502 W/kg; SAR(10 g) = 0.237 W/kg

Maximum value of SAR (measured) = 0.828 W/kg



P08 LTE 5_QPSK10M_Right Cheek_Ch20525_1RB_OS0**DUT: 180125W001**

Communication System: LTE; Frequency: 836.5 MHz; Duty Cycle: 1:1

Medium: H835_0210 Medium parameters used: $f = 836.5 \text{ MHz}$; $\sigma = 0.89 \text{ S/m}$; $\epsilon_r = 40.739$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature : 23.1 °C; Liquid Temperature : 22.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(9.74, 9.74, 9.74); Calibrated: 2017/08/25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1341; Calibrated: 2017/08/23
- Phantom: Left Phantom with CRP v5.0; Type: QD000P40CD; Serial: TP:1722
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

- Area Scan (71x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.654 W/kg

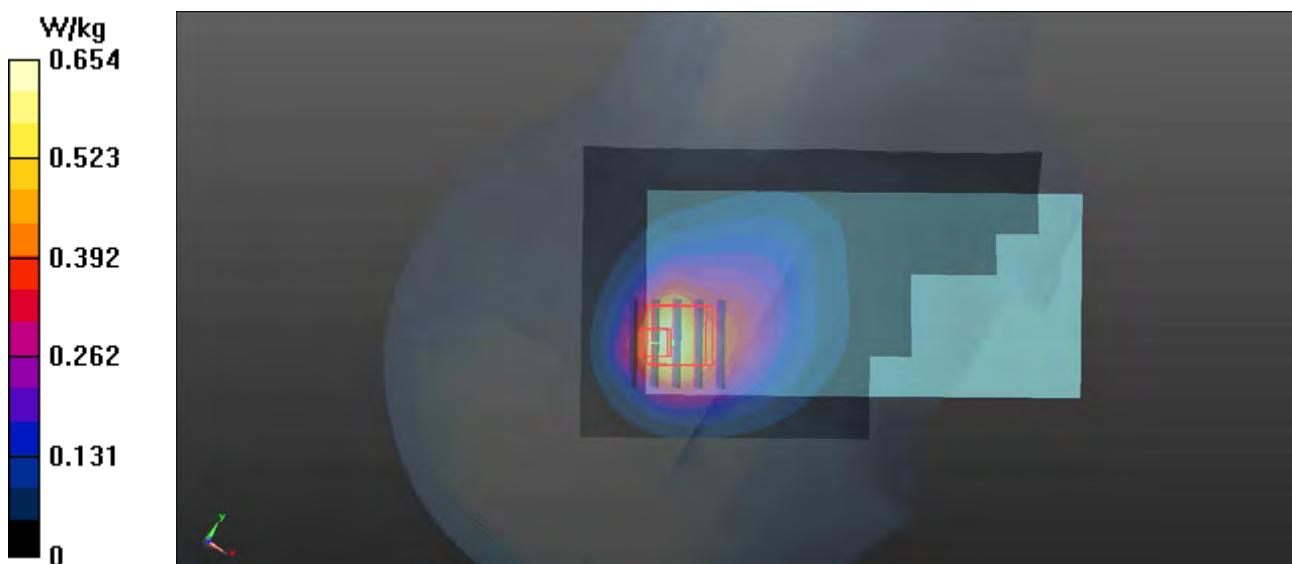
- Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 18.65 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 0.995 W/kg

SAR(1 g) = 0.426 W/kg; SAR(10 g) = 0.253 W/kg

Maximum value of SAR (measured) = 0.768 W/kg



P09 LTE 7_QPSK20M_Right Cheek_Ch21350_50RB_OS0**DUT: 180125W001**

Communication System: LTE; Frequency: 2560 MHz; Duty Cycle: 1:1

Medium: H2600_0205 Medium parameters used: $f = 2560 \text{ MHz}$; $\sigma = 1.946 \text{ S/m}$; $\epsilon_r = 38.459$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature : 23.3 °C; Liquid Temperature : 22.2 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(7.17, 7.17, 7.17); Calibrated: 2017/08/25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1341; Calibrated: 2017/08/23
- Phantom: Front Phantom with CRP v5.0; Type: QD000P40CD; Serial: TP:1695
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

- Area Scan (91x151x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 1.19 W/kg

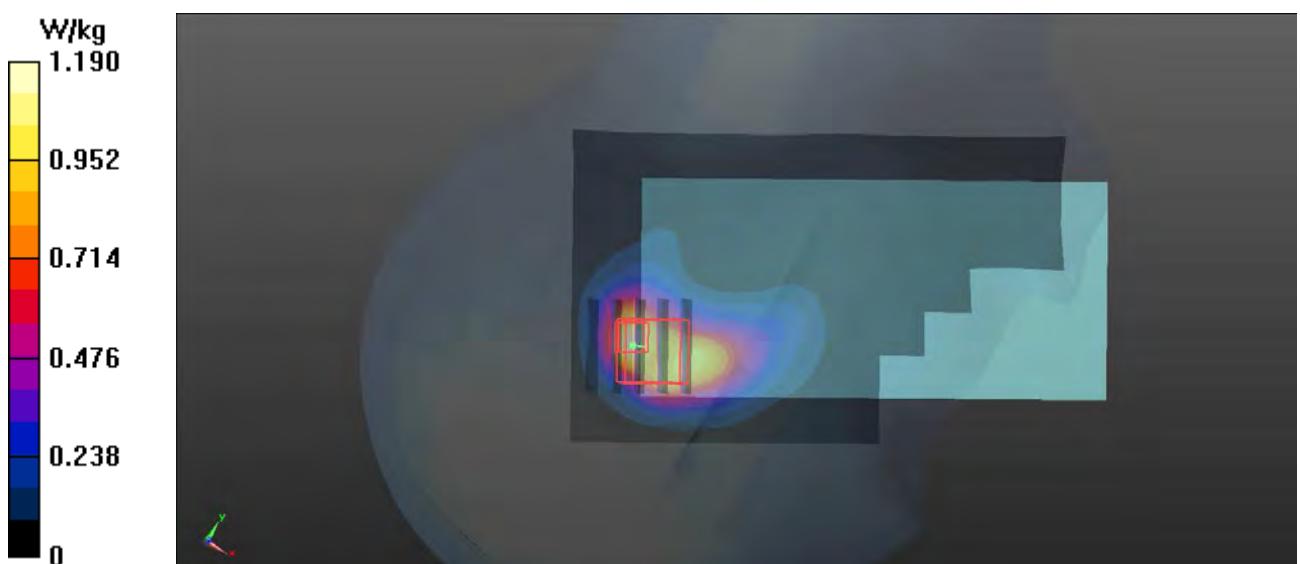
- Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.547 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 2.14 W/kg

SAR(1 g) = 0.928 W/kg; SAR(10 g) = 0.371 W/kg

Maximum value of SAR (measured) = 1.66 W/kg



P10 LTE 38_QPSK20M_Right Tilted_Ch38150_1RB_OS0**DUT: 180125W001**

Communication System: LTE; Frequency: 2610 MHz; Duty Cycle: 1:1.58

Medium: H2600_0205 Medium parameters used: $f = 2610 \text{ MHz}$; $\sigma = 1.999 \text{ S/m}$; $\epsilon_r = 38.273$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature : 23.3 °C; Liquid Temperature : 22.2 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(7.17, 7.17, 7.17); Calibrated: 2017/08/25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1341; Calibrated: 2017/08/23
- Phantom: Front Phantom with CRP v5.0; Type: QD000P40CD; Serial: TP:1695
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

- Area Scan (91x151x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 1.08 W/kg

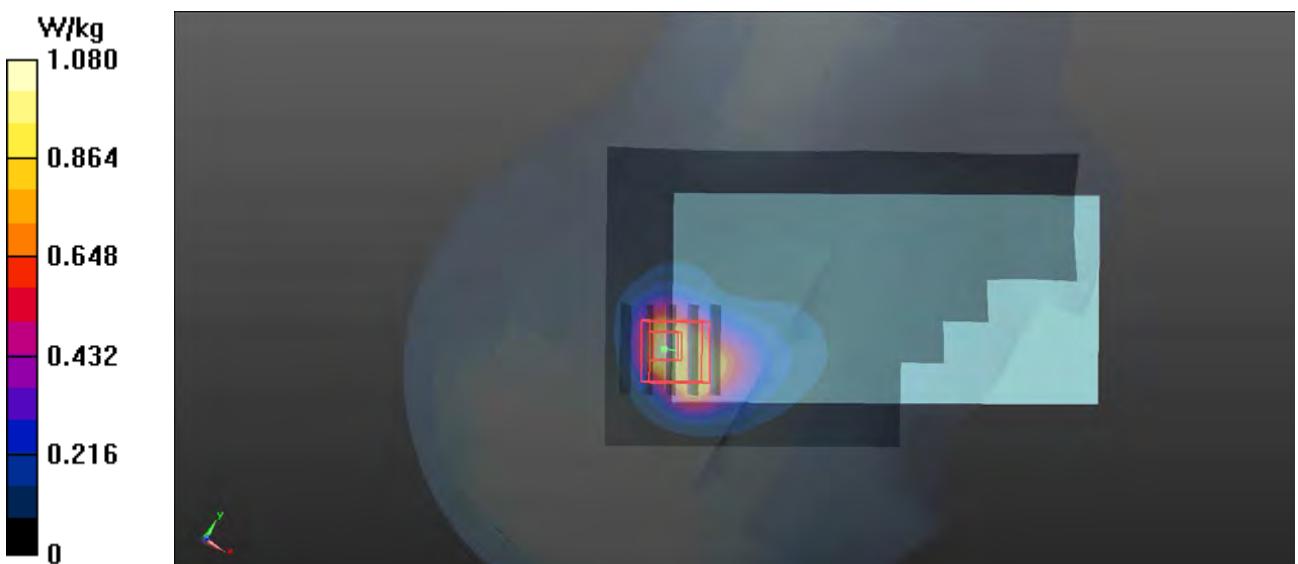
- Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 8.044 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 2.20 W/kg

SAR(1 g) = 0.837 W/kg; SAR(10 g) = 0.341 W/kg

Maximum value of SAR (measured) = 1.73 W/kg



P11 802.11b_Left Cheek_Ch6

DUT: 180125W002

Communication System: 802.11b; Frequency: 2437 MHz; Duty Cycle: 1:1.01

Medium: H2450_0203 Medium parameters used: $f = 2437 \text{ MHz}$; $\sigma = 1.781 \text{ S/m}$; $\epsilon_r = 38.872$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature : 22.9 °C; Liquid Temperature : 21.9 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(7.36, 7.36, 7.36); Calibrated: 2017/08/25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1341; Calibrated: 2017/08/23
- Phantom: Front Phantom with CRP v5.0; Type: QD000P40CD; Serial: TP:1695
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

- **Area Scan (91x151x1):** Interpolated grid: $dx=1.200 \text{ mm}$, $dy=1.200 \text{ mm}$

Maximum value of SAR (interpolated) = 1.10 W/kg

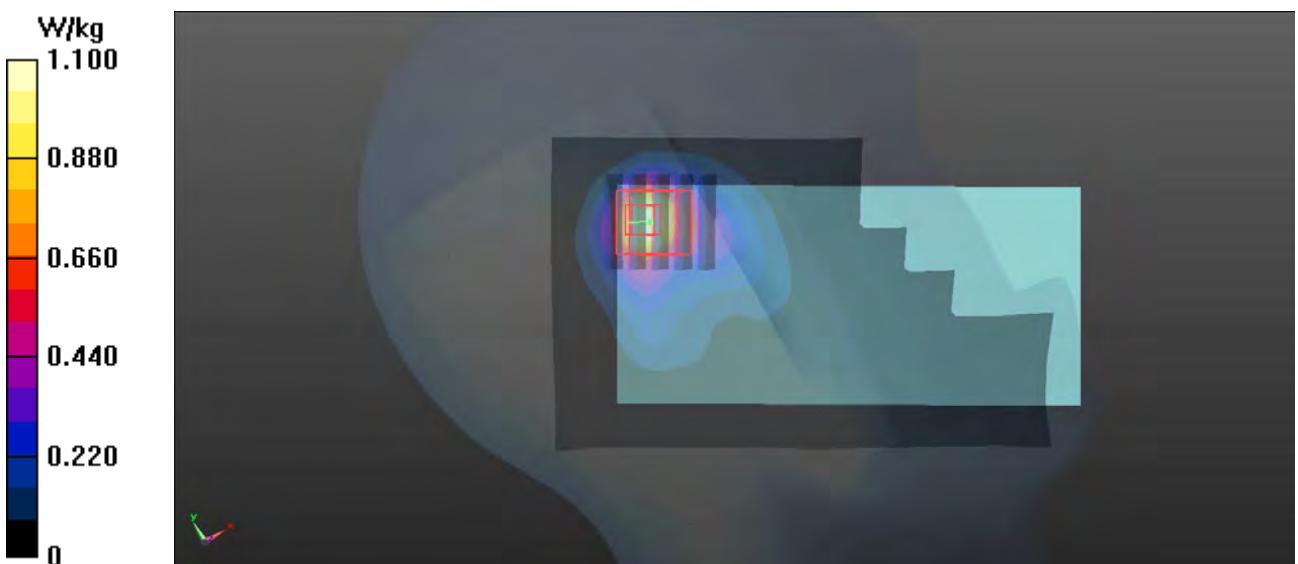
- **Zoom Scan (5x5x7)/Cube 0:** Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 10.47 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 1.53 W/kg

SAR(1 g) = 0.631 W/kg; SAR(10 g) = 0.296 W/kg

Maximum value of SAR (measured) = 1.11 W/kg



P12 802.11a_Left Tilted_Ch56

DUT: 180125W002

Communication System: 802.11a; Frequency: 5280 MHz; Duty Cycle: 1:1.15

Medium: H5G_0209 Medium parameters used: $f = 5280 \text{ MHz}$; $\sigma = 4.719 \text{ S/m}$; $\epsilon_r = 35.28$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature : 23.5 °C; Liquid Temperature : 22.4 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(5.04, 5.04, 5.04); Calibrated: 2017/08/25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1341; Calibrated: 2017/08/23
- Phantom: Left Phantom with CRP v5.0; Type: QD000P40CD; Serial: TP:1722
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

- **Area Scan (111x181x1):** Interpolated grid: $dx=1.000 \text{ mm}$, $dy=1.000 \text{ mm}$

Maximum value of SAR (interpolated) = 1.63 W/kg

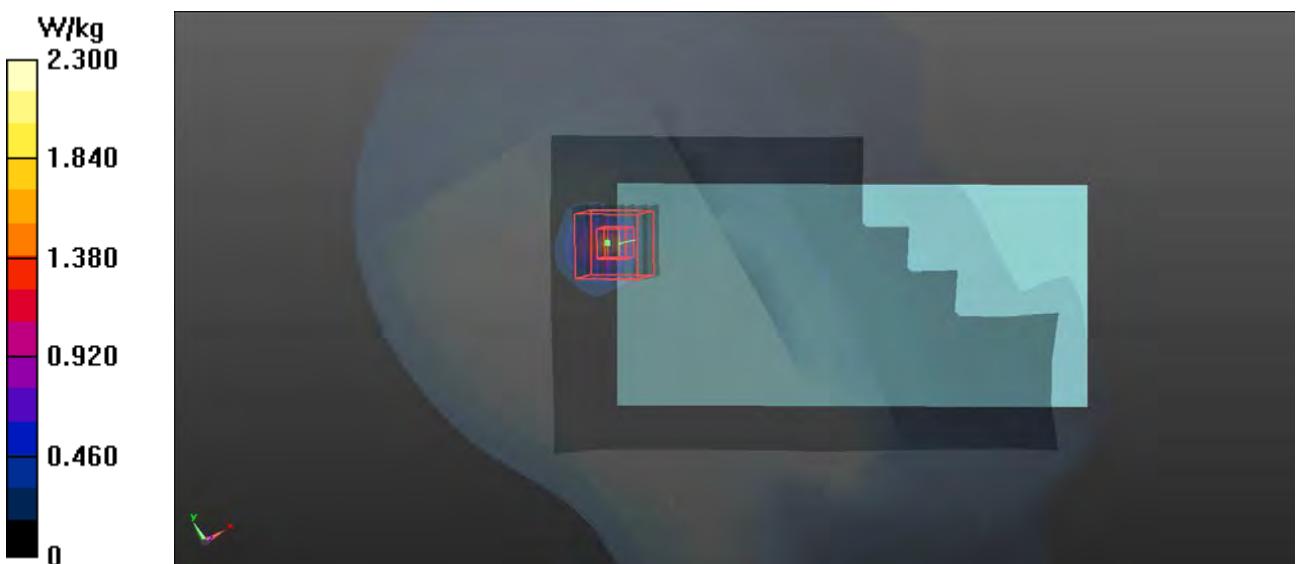
- **Zoom Scan (7x7x12)/Cube 0:** Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=2\text{mm}$

Reference Value = 1.699 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 3.99 W/kg

SAR(1 g) = 0.892 W/kg; SAR(10 g) = 0.228 W/kg

Maximum value of SAR (measured) = 2.30 W/kg



P13 802.11a_Left Cheek_Ch140

DUT: 180125W002

Communication System: 802.11a; Frequency: 5700 MHz; Duty Cycle: 1:1.15

Medium: H5G_0209 Medium parameters used: $f = 5700 \text{ MHz}$; $\sigma = 5.146 \text{ S/m}$; $\epsilon_r = 34.677$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature : 23.5 °C; Liquid Temperature : 22.4 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(4.66, 4.66, 4.66); Calibrated: 2017/08/25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1341; Calibrated: 2017/08/23
- Phantom: Left Phantom with CRP v5.0; Type: QD000P40CD; Serial: TP:1722
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

- **Area Scan (111x181x1):** Interpolated grid: $dx=1.000 \text{ mm}$, $dy=1.000 \text{ mm}$

Maximum value of SAR (interpolated) = 1.39 W/kg

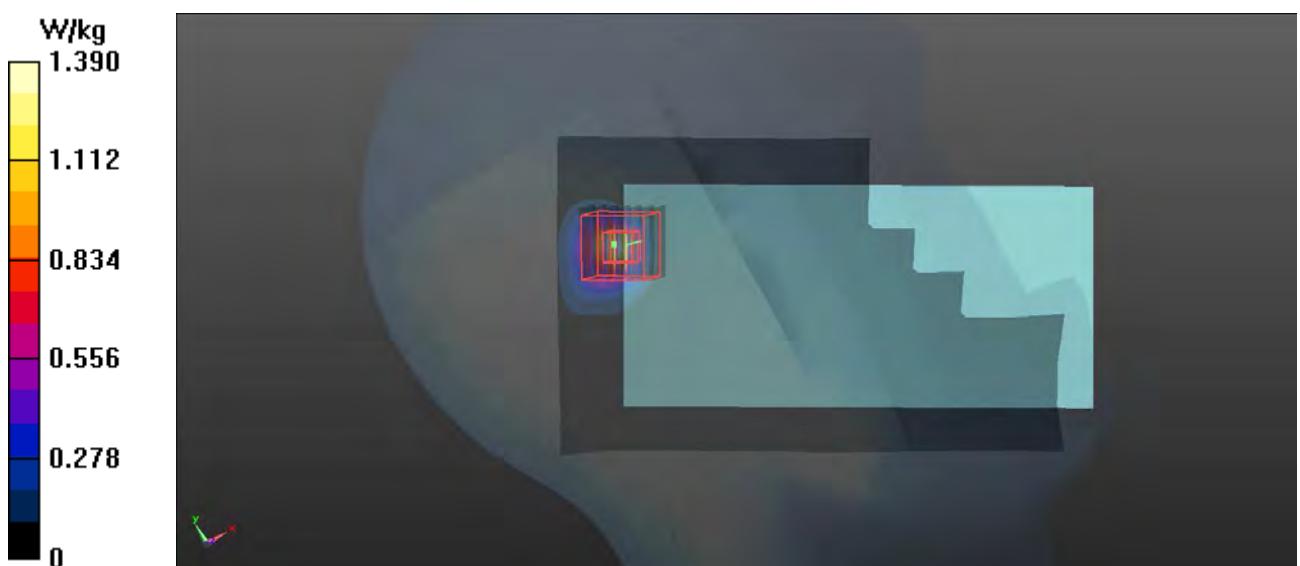
- **Zoom Scan (7x7x12)/Cube 0:** Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=2\text{mm}$

Reference Value = 2.999 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 2.99 W/kg

SAR(1 g) = 0.607 W/kg; SAR(10 g) = 0.168 W/kg

Maximum value of SAR (measured) = 1.65 W/kg



P14 802.11a_Left Cheek_Ch149**DUT: 180125W002**

Communication System: 802.11a; Frequency: 5745 MHz; Duty Cycle: 1:1.15

Medium: H5G_0209 Medium parameters used: $f = 5745 \text{ MHz}$; $\sigma = 5.196 \text{ S/m}$; $\epsilon_r = 34.614$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature : 23.5 °C; Liquid Temperature : 22.4 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(4.7, 4.7, 4.7); Calibrated: 2017/08/25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1341; Calibrated: 2017/08/23
- Phantom: Left Phantom with CRP v5.0; Type: QD000P40CD; Serial: TP:1722
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

- Area Scan (111x181x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 1.03 W/kg

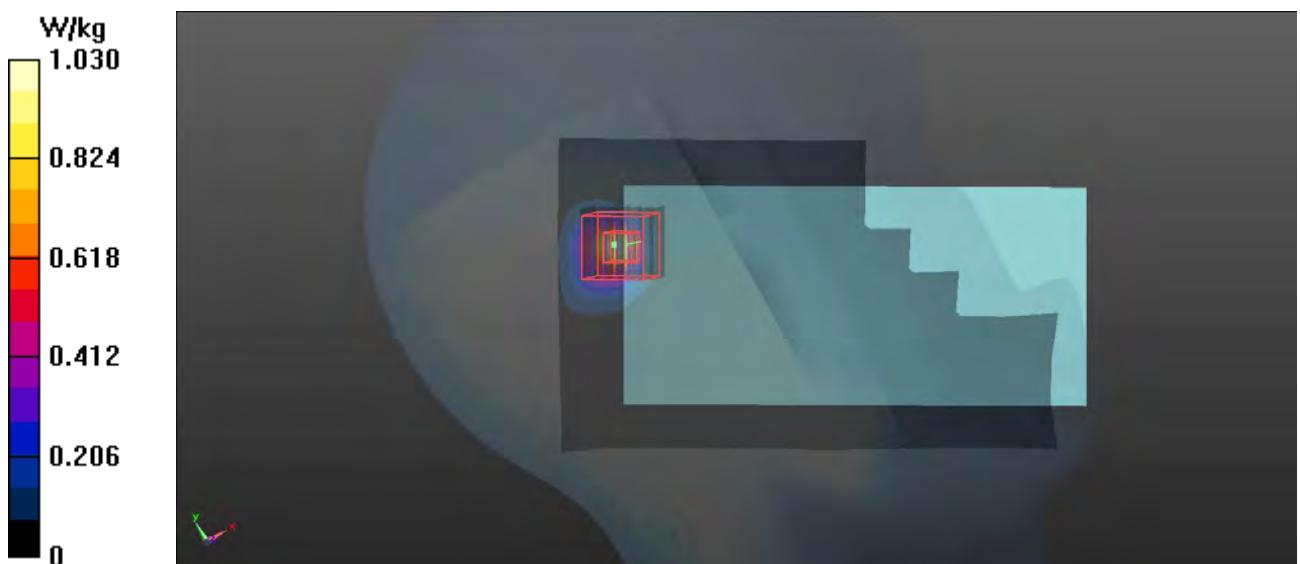
- Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 2.954 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 2.08 W/kg

SAR(1 g) = 0.460 W/kg; SAR(10 g) = 0.134 W/kg

Maximum value of SAR (measured) = 1.11 W/kg



P15 802.11a_Rear Face_1cm_Ch56

DUT: 180125W002

Communication System: 802.11a; Frequency: 5280 MHz; Duty Cycle: 1:1.15

Medium: B5G_0210 Medium parameters used: $f = 5280 \text{ MHz}$; $\sigma = 5.363 \text{ S/m}$; $\epsilon_r = 50.999$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature : 23.3 °C; Liquid Temperature : 22.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(4.61, 4.61, 4.61); Calibrated: 2017/08/25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1341; Calibrated: 2017/08/23
- Phantom: Left Phantom with CRP v5.0; Type: QD000P40CD; Serial: TP:1722
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

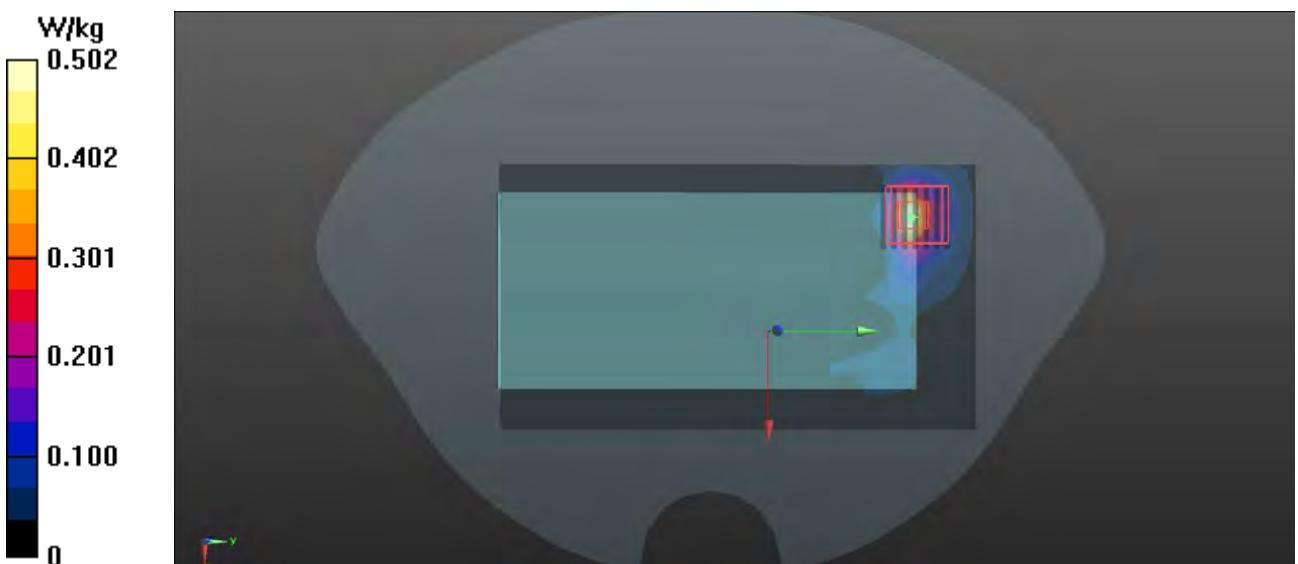
- Area Scan (101x181x1): Interpolated grid: $dx=1.000 \text{ mm}$, $dy=1.000 \text{ mm}$
Maximum value of SAR (interpolated) = 0.502 W/kg

- Zoom Scan (7x7x12)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=2\text{mm}$
Reference Value = 0.2460 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 0.817 W/kg

SAR(1 g) = 0.195 W/kg; SAR(10 g) = 0.061 W/kg

Maximum value of SAR (measured) = 0.469 W/kg



P16 802.11a_Rear Face_1cm_Ch140**DUT: 180125W002**

Communication System: 802.11a; Frequency: 5700 MHz; Duty Cycle: 1:1.15

Medium: B5G_0210 Medium parameters used: $f = 5700$ MHz; $\sigma = 6.066$ S/m; $\epsilon_r = 50.136$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.3 °C; Liquid Temperature : 22.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(3.9, 3.9, 3.9); Calibrated: 2017/08/25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1341; Calibrated: 2017/08/23
- Phantom: Left Phantom with CRP v5.0; Type: QD000P40CD; Serial: TP:1722
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

- Area Scan (101x201x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.454 W/kg

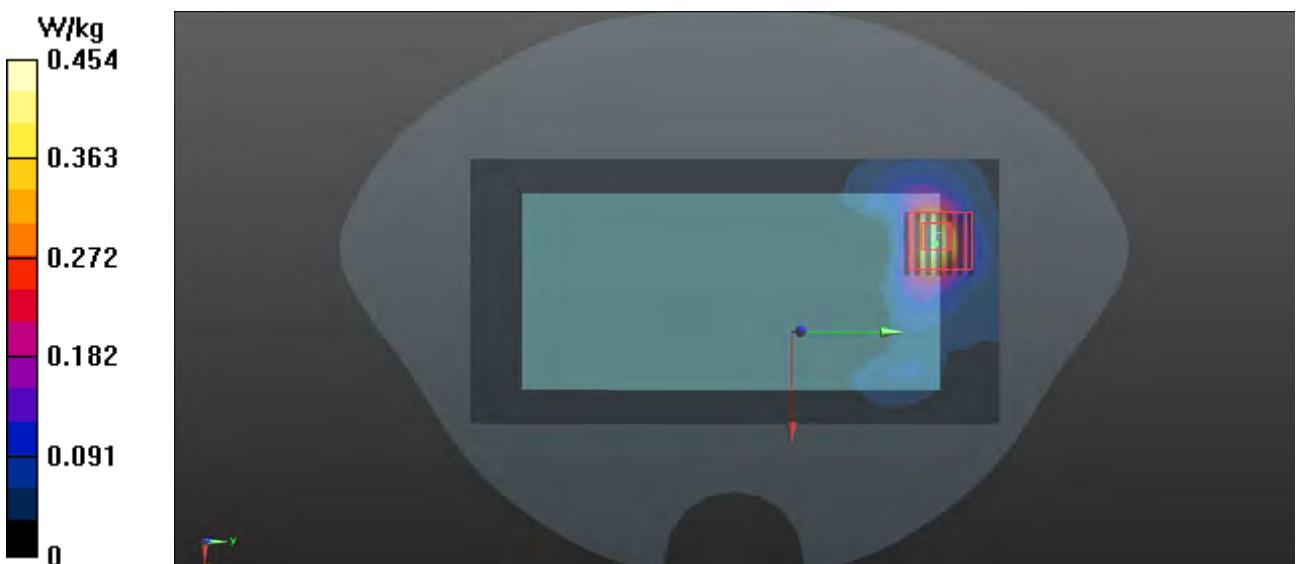
- Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 0 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 0.520 W/kg

SAR(1 g) = 0.168 W/kg; SAR(10 g) = 0.057 W/kg

Maximum value of SAR (measured) = 0.444 W/kg



P17 802.11a_Rear Face_1cm_Ch149**DUT: 180125W002**

Communication System: 802.11a; Frequency: 5745 MHz; Duty Cycle: 1:1.15

Medium: B5G_0210 Medium parameters used: $f = 5745 \text{ MHz}$; $\sigma = 6.132 \text{ S/m}$; $\epsilon_r = 50.042$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature : 23.3 °C; Liquid Temperature : 22.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(4.16, 4.16, 4.16); Calibrated: 2017/08/25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1341; Calibrated: 2017/08/23
- Phantom: Left Phantom with CRP v5.0; Type: QD000P40CD; Serial: TP:1722
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

- Area Scan (101x201x1): Interpolated grid: $dx=1.000 \text{ mm}$, $dy=1.000 \text{ mm}$

Maximum value of SAR (interpolated) = 0.374 W/kg

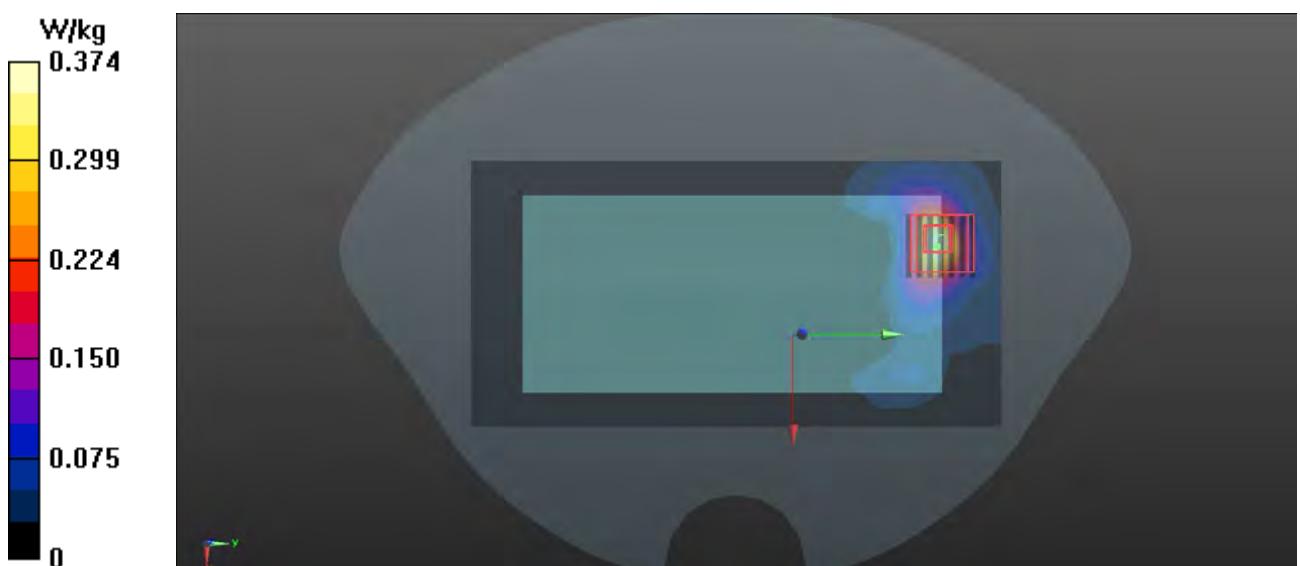
- Zoom Scan (7x7x12)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=2\text{mm}$

Reference Value = 0 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 0.674 W/kg

SAR(1 g) = 0.158 W/kg; SAR(10 g) = 0.052 W/kg

Maximum value of SAR (measured) = 0.387 W/kg



P18 GSM850_GPRS12_Rear Face_1cm_Ch128

DUT: 180125W001

Communication System: GPRS12; Frequency: 824.2 MHz; Duty Cycle: 1:2

Medium: B835_0212 Medium parameters used: $f = 824.2 \text{ MHz}$; $\sigma = 0.982 \text{ S/m}$; $\epsilon_r = 55.725$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature : 23.2 °C; Liquid Temperature : 22.2 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(9.62, 9.62, 9.62); Calibrated: 2017/08/25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1341; Calibrated: 2017/08/23
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1205
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

- **Area Scan (71x131x1):** Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 0.239 W/kg

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

Reference Value = 14.74 V/m; Power Drift = -0.17 dB

Peak SAR (extrapolated) = 0.259 W/kg

SAR(1 g) = 0.202 W/kg; SAR(10 g) = 0.158 W/kg

Maximum value of SAR (measured) = 0.240 W/kg

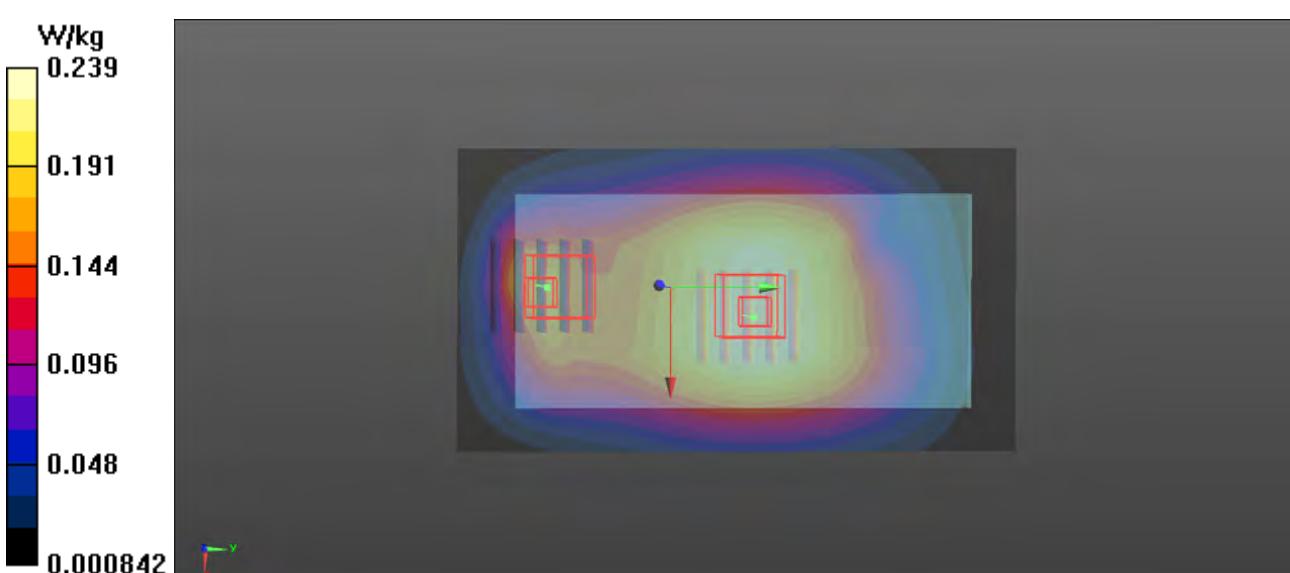
- **Zoom Scan (5x5x7)/Cube 1:** Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 14.74 V/m; Power Drift = -0.17 dB

Peak SAR (extrapolated) = 0.228 W/kg

SAR(1 g) = 0.138 W/kg; SAR(10 g) = 0.090 W/kg

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



P19 GSM1900_GPRS12_Rear Face_1cm_Ch512**DUT: 180125W001**

Communication System: GPRS12; Frequency: 1850.2 MHz; Duty Cycle: 1:2

Medium: B1900_0213 Medium parameters used: $f = 1850.2 \text{ MHz}$; $\sigma = 1.502 \text{ S/m}$; $\epsilon_r = 54.945$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature : 23.2 °C; Liquid Temperature : 22.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(7.77, 7.77, 7.77); Calibrated: 2017/08/25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1341; Calibrated: 2017/08/23
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1205
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

- Area Scan (71x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.224 W/kg

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

Reference Value = 5.069 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 0.303 W/kg

SAR(1 g) = 0.357 W/kg; SAR(10 g) = 0.157 W/kg

Maximum value of SAR (measured) = 0.246 W/kg

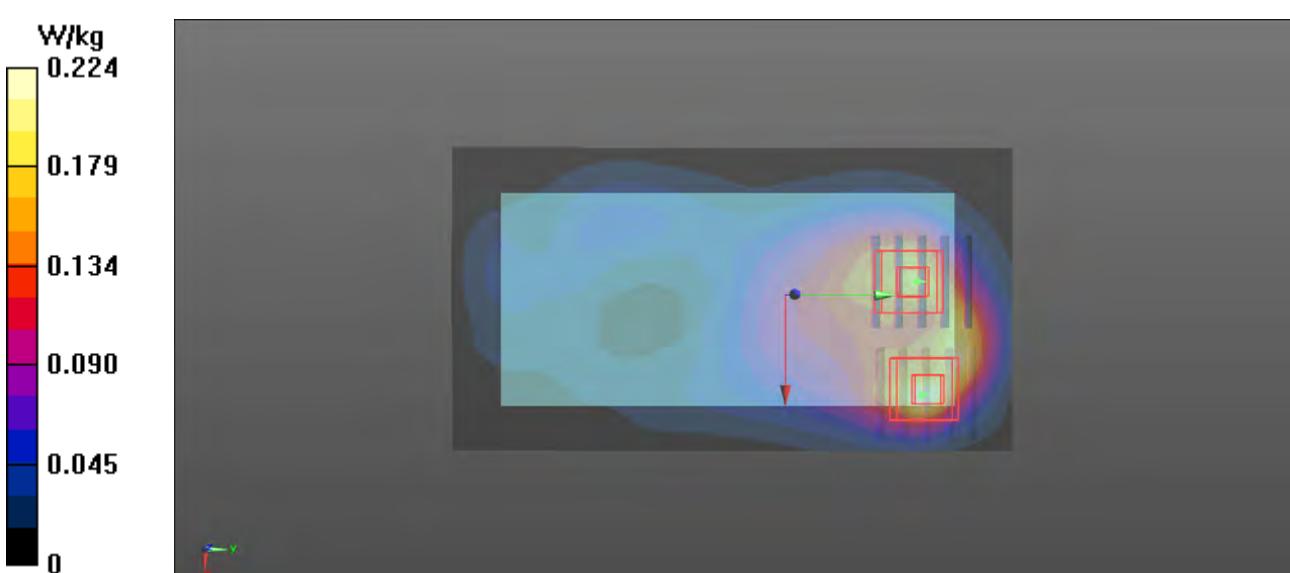
- Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 5.069 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 0.206 W/kg

SAR(1 g) = 0.304 W/kg; SAR(10 g) = 0.124 W/kg

Maximum value of SAR (measured) = 0.181 W/kg



P20 WCDMA II_RMC12.2K_Rear Face_1cm_Ch9262**DUT: 180125W001**

Communication System: WCDMA; Frequency: 1852.4 MHz; Duty Cycle: 1:1

Medium: B1900_0213 Medium parameters used: $f = 1852.4$ MHz; $\sigma = 1.504$ S/m; $\epsilon_r = 54.937$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.2 °C; Liquid Temperature : 22.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(7.77, 7.77, 7.77); Calibrated: 2017/08/25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1341; Calibrated: 2017/08/23
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1205
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

- Area Scan (71x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.620 W/kg

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

Reference Value = 8.572 V/m; Power Drift = -0.00 dB

Peak SAR (extrapolated) = 0.844 W/kg

SAR(1 g) = 0.609 W/kg; SAR(10 g) = 0.281 W/kg

Maximum value of SAR (measured) = 0.644 W/kg

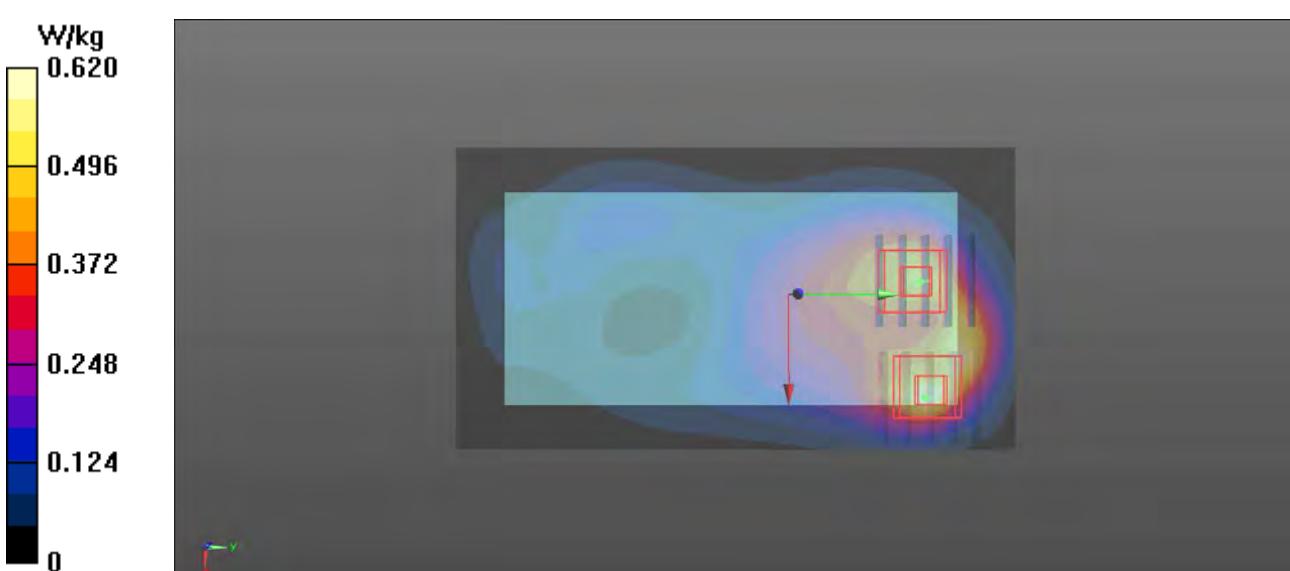
- Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 8.572 V/m; Power Drift = -0.00 dB

Peak SAR (extrapolated) = 0.581 W/kg

SAR(1 g) = 0.576 W/kg; SAR(10 g) = 0.238 W/kg

Maximum value of SAR (measured) = 0.508 W/kg



P21 WCDMA IV_RMC12.2K_Rear Face_1cm_Ch1513**DUT: 180125W001**

Communication System: WCDMA; Frequency: 1752.6 MHz; Duty Cycle: 1:1

Medium: B1750_0211 Medium parameters used: $f = 1752.6 \text{ MHz}$; $\sigma = 1.483 \text{ S/m}$; $\epsilon_r = 52.373$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature : 23.2 °C; Liquid Temperature : 22.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(8.04, 8.04, 8.04); Calibrated: 2017/08/25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1341; Calibrated: 2017/08/23
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1205
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

- Area Scan (71x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.653 W/kg

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

Reference Value = 7.589 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.860 W/kg

SAR(1 g) = 0.653 W/kg; SAR(10 g) = 0.321 W/kg

Maximum value of SAR (measured) = 0.686 W/kg

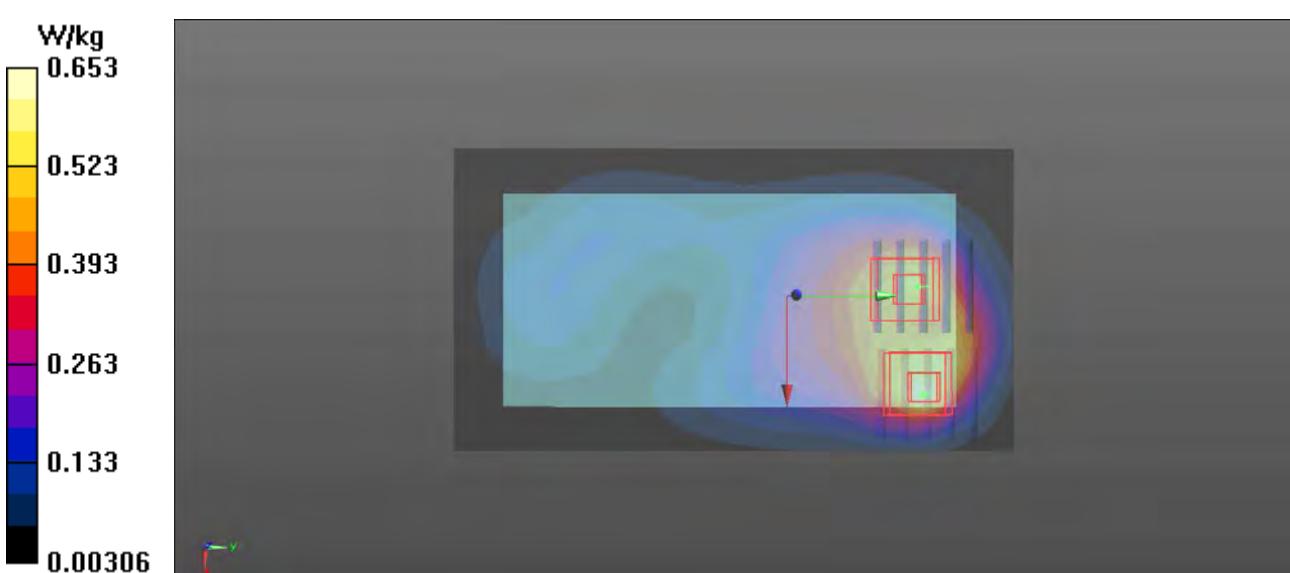
- Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 7.589 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.622 W/kg

SAR(1 g) = 0.611 W/kg; SAR(10 g) = 0.315 W/kg

Maximum value of SAR (measured) = 0.544 W/kg



P22 WCDMA V_RMC12.2K_Rear Face_1cm_Ch4233**DUT: 180125W001**

Communication System: WCDMA; Frequency: 846.6 MHz; Duty Cycle: 1:1
 Medium: B835_0212 Medium parameters used: $f = 846.6$ MHz; $\sigma = 1.004$ S/m; $\epsilon_r = 55.49$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.2 °C; Liquid Temperature : 22.2 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(9.62, 9.62, 9.62); Calibrated: 2017/08/25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1341; Calibrated: 2017/08/23
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1205
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

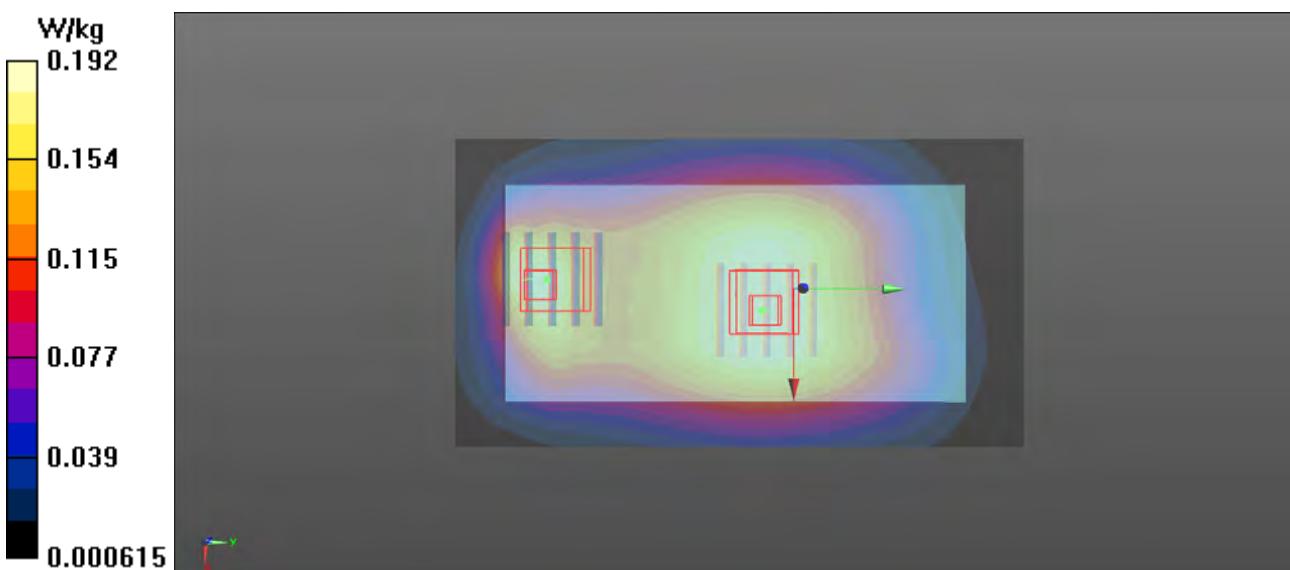
- Area Scan (71x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
 Maximum value of SAR (interpolated) = 0.192 W/kg

- Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
 Reference Value = 12.79 V/m; Power Drift = -0.01 dB
 Peak SAR (extrapolated) = 0.207 W/kg

SAR(1 g) = 0.161 W/kg; SAR(10 g) = 0.126 W/kg
 Maximum value of SAR (measured) = 0.192 W/kg

- Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
 Reference Value = 12.79 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.233 W/kg
SAR(1 g) = 0.142 W/kg; SAR(10 g) = 0.090 W/kg
 Maximum value of SAR (measured) = 0.191 W/kg



P23 LTE 2_QPSK20M_Rear Face_1cm_Ch18700_1RB_OS0**DUT: 180125W001**

Communication System: LTE; Frequency: 1860 MHz; Duty Cycle: 1:1

Medium: B1900_0213 Medium parameters used: $f = 1860 \text{ MHz}$; $\sigma = 1.514 \text{ S/m}$; $\epsilon_r = 54.901$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature : 23.2 °C; Liquid Temperature : 22.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(7.77, 7.77, 7.77); Calibrated: 2017/08/25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1341; Calibrated: 2017/08/23
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1205
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

- Area Scan (71x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.690 W/kg

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

Reference Value = 8.200 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 0.920 W/kg

SAR(1 g) = 0.625 W/kg; SAR(10 g) = 0.269 W/kg

Maximum value of SAR (measured) = 0.770 W/kg

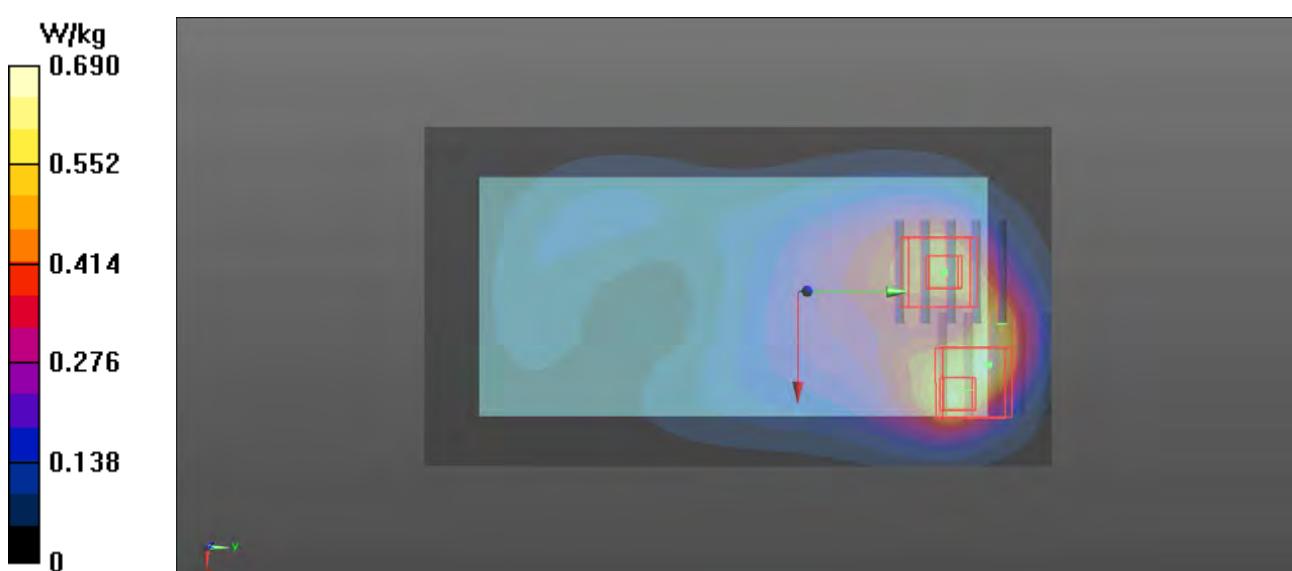
- Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 8.200 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 0.632 W/kg

SAR(1 g) = 0.593 W/kg; SAR(10 g) = 0.287 W/kg

Maximum value of SAR (measured) = 0.552 W/kg



P24 LTE 4_QPSK20M_Rear Face_1cm_Ch20300_1RB_OS0**DUT: 180125W001**

Communication System: LTE; Frequency: 1745 MHz; Duty Cycle: 1:1

Medium: B1750_0211 Medium parameters used: $f = 1745 \text{ MHz}$; $\sigma = 1.473 \text{ S/m}$; $\epsilon_r = 52.395$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature : 23.2 °C; Liquid Temperature : 22.5 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(8.04, 8.04, 8.04); Calibrated: 2017/08/25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1341; Calibrated: 2017/08/23
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1205
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

- Area Scan (71x131x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 0.619 W/kg

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

Reference Value = 7.217 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.841 W/kg

SAR(1 g) = 0.623 W/kg; SAR(10 g) = 0.302 W/kg

Maximum value of SAR (measured) = 0.694 W/kg

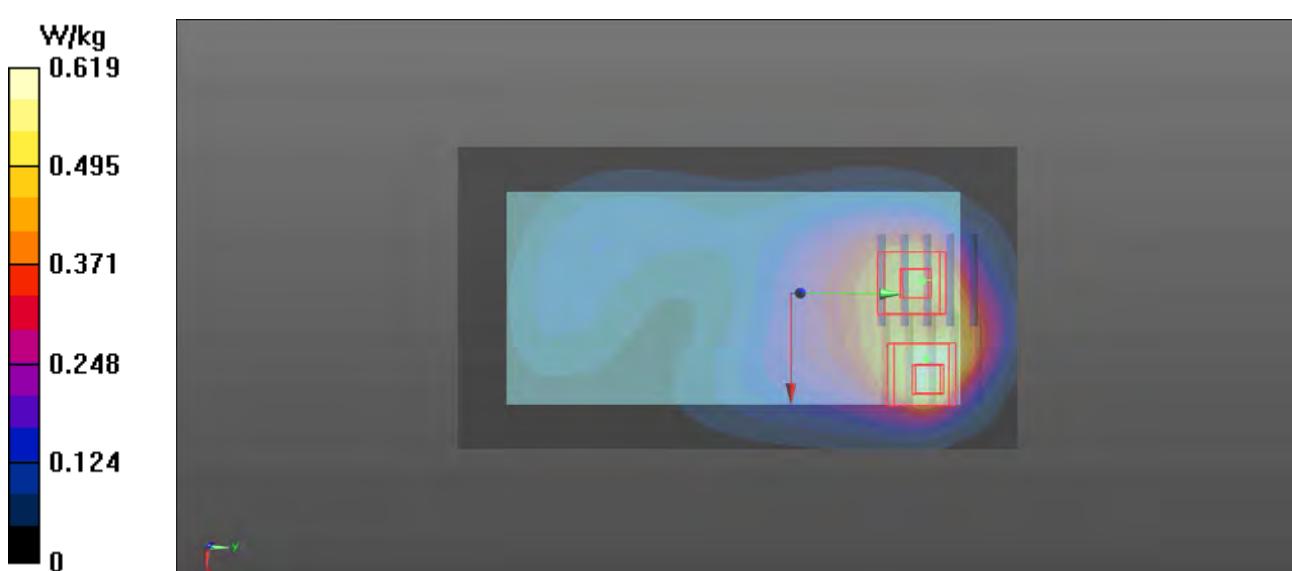
- Zoom Scan (5x5x7)/Cube 1: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 7.217 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.603 W/kg

SAR(1 g) = 0.612 W/kg; SAR(10 g) = 0.286 W/kg

Maximum value of SAR (measured) = 0.529 W/kg



P25 LTE 5_QPSK10M_Rear Face_1cm_Ch20525_1RB_OS0**DUT: 180125W001**

Communication System: LTE; Frequency: 836.5 MHz; Duty Cycle: 1:1

Medium: B835_0212 Medium parameters used: $f = 836.5 \text{ MHz}$; $\sigma = 0.993 \text{ S/m}$; $\epsilon_r = 55.598$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature : 23.2 °C; Liquid Temperature : 22.2 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(9.62, 9.62, 9.62); Calibrated: 2017/08/25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1341; Calibrated: 2017/08/23
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1205
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

- Area Scan (71x131x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

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

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

Reference Value = 13.02 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.204 W/kg

SAR(1 g) = 0.160 W/kg; SAR(10 g) = 0.126 W/kg

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

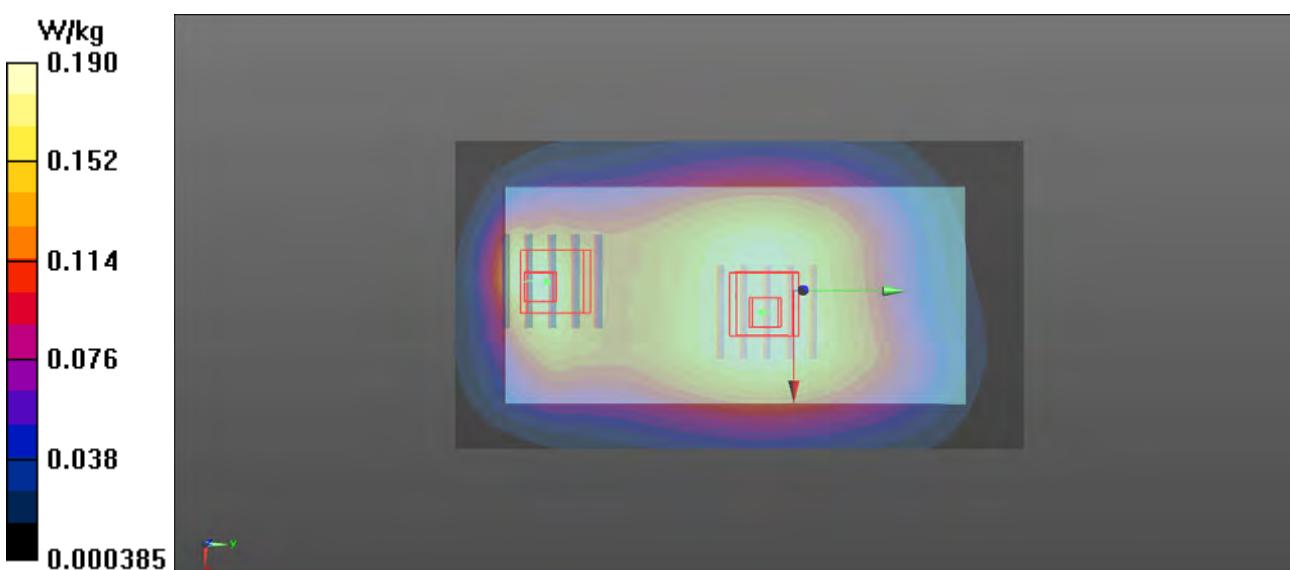
- Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 13.02 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.183 W/kg

SAR(1 g) = 0.113 W/kg; SAR(10 g) = 0.077 W/kg

Maximum value of SAR (measured) = 0.154 W/kg



P26 LTE 7_QPSK20M_Rear Face_1cm_Ch21100_1RB_OS0**DUT: 180125W001**

Communication System: LTE; Frequency: 2535 MHz; Duty Cycle: 1:1

Medium: B2600_0208 Medium parameters used: $f = 2535 \text{ MHz}$; $\sigma = 2.017 \text{ S/m}$; $\epsilon_r = 50.982$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature : 23.1 °C; Liquid Temperature : 22.2 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(7.19, 7.19, 7.19); Calibrated: 2017/08/25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1341; Calibrated: 2017/08/23
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1205
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

- Area Scan (91x151x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 1.14 W/kg

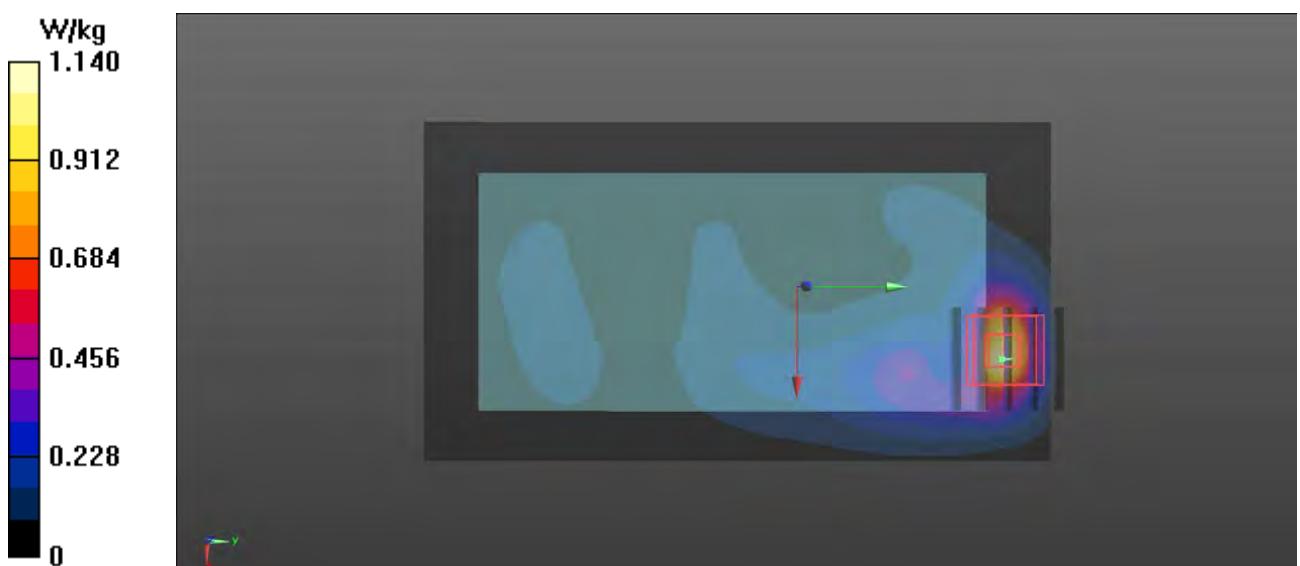
- Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 6.065 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 1.42 W/kg

SAR(1 g) = 0.677 W/kg; SAR(10 g) = 0.306 W/kg

Maximum value of SAR (measured) = 1.16 W/kg



P27 LTE 38_QPSK20M_Rear Face_1cm_Ch38150_1RB_OS0**DUT: 180125W001**

Communication System: LTE; Frequency: 2610 MHz; Duty Cycle: 1:1.58

Medium: B2600_0208 Medium parameters used: $f = 2610 \text{ MHz}$; $\sigma = 2.129 \text{ S/m}$; $\epsilon_r = 51.096$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature : 23.1 °C; Liquid Temperature : 22.2 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(7.19, 7.19, 7.19); Calibrated: 2017/08/25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1341; Calibrated: 2017/08/23
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1205
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

- Area Scan (91x151x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.958 W/kg

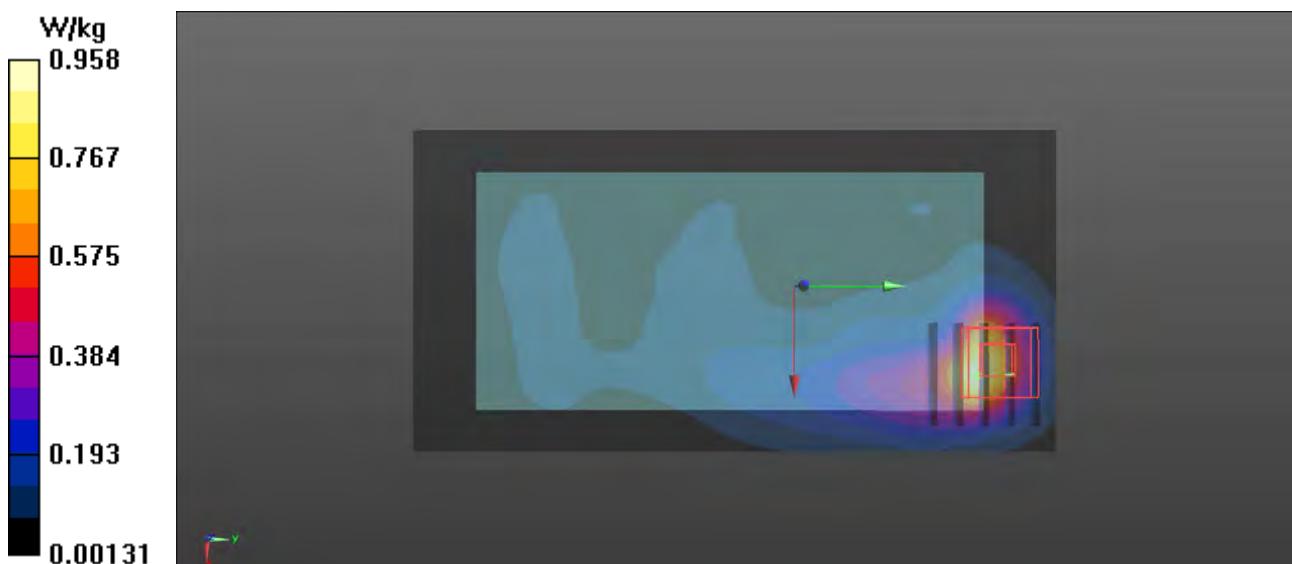
- Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 5.449 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 1.12 W/kg

SAR(1 g) = 0.519 W/kg; SAR(10 g) = 0.229 W/kg

Maximum value of SAR (measured) = 0.777 W/kg



P28 802.11b_Rear Face_1cm_Ch6

DUT: 180125W002

Communication System: 802.11b; Frequency: 2437 MHz; Duty Cycle: 1:1.01

Medium: B2450_0204 Medium parameters used: $f = 2437 \text{ MHz}$; $\sigma = 1.946 \text{ S/m}$; $\epsilon_r = 51.011$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature : 23.1 °C; Liquid Temperature : 22.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(7.45, 7.45, 7.45); Calibrated: 2017/08/25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1341; Calibrated: 2017/08/23
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1205
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

- Area Scan (91x151x1): Interpolated grid: $dx=1.200 \text{ mm}$, $dy=1.200 \text{ mm}$

Maximum value of SAR (interpolated) = 0.219 W/kg

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

Reference Value = 3.635 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 0.293 W/kg

SAR(1 g) = 0.139 W/kg; SAR(10 g) = 0.067 W/kg

Maximum value of SAR (measured) = 0.227 W/kg

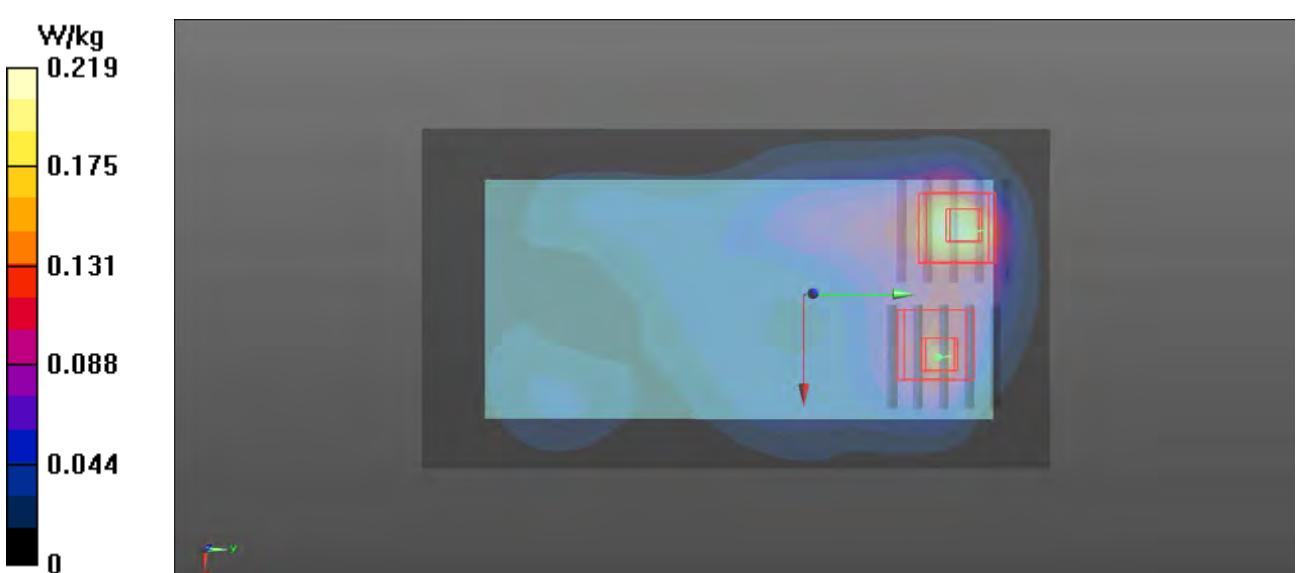
- Zoom Scan (5x5x7)/Cube 1: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 3.635 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 0.161 W/kg

SAR(1 g) = 0.090 W/kg; SAR(10 g) = 0.051 W/kg

Maximum value of SAR (measured) = 0.134 W/kg



P29 802.11a_Top Side_1cm_Ch40

DUT: 180125W002

Communication System: 802.11a; Frequency: 5200 MHz; Duty Cycle: 1:1.15

Medium: B5G_0210 Medium parameters used: $f = 5200$ MHz; $\sigma = 5.228$ S/m; $\epsilon_r = 51.063$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.3 °C; Liquid Temperature : 22.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(4.61, 4.61, 4.61); Calibrated: 2017/08/25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1341; Calibrated: 2017/08/23
- Phantom: Left Phantom with CRP v5.0; Type: QD000P40CD; Serial: TP:1722
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

- Area Scan (61x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.542 W/kg

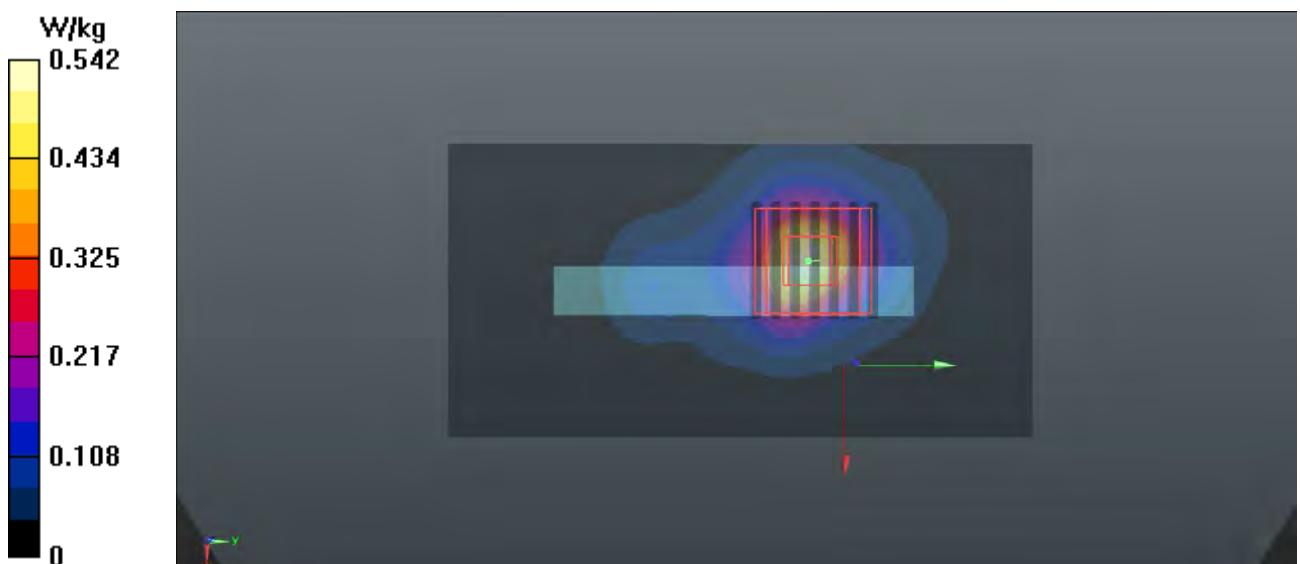
- Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 3.202 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 0.996 W/kg

SAR(1 g) = 0.262 W/kg; SAR(10 g) = 0.088 W/kg

Maximum value of SAR (measured) = 0.619 W/kg



P30 802.11a_Top Side_1cm_Ch149

DUT: 180125W002

Communication System: 802.11a; Frequency: 5745 MHz; Duty Cycle: 1:1.15

Medium: B5G_0210 Medium parameters used: $f = 5745 \text{ MHz}$; $\sigma = 6.132 \text{ S/m}$; $\epsilon_r = 50.042$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature : 23.3 °C; Liquid Temperature : 22.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(4.16, 4.16, 4.16); Calibrated: 2017/08/25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1341; Calibrated: 2017/08/23
- Phantom: Left Phantom with CRP v5.0; Type: QD000P40CD; Serial: TP:1722
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

- Area Scan (61x121x1): Interpolated grid: $dx=1.000 \text{ mm}$, $dy=1.000 \text{ mm}$

Maximum value of SAR (interpolated) = 0.706 W/kg

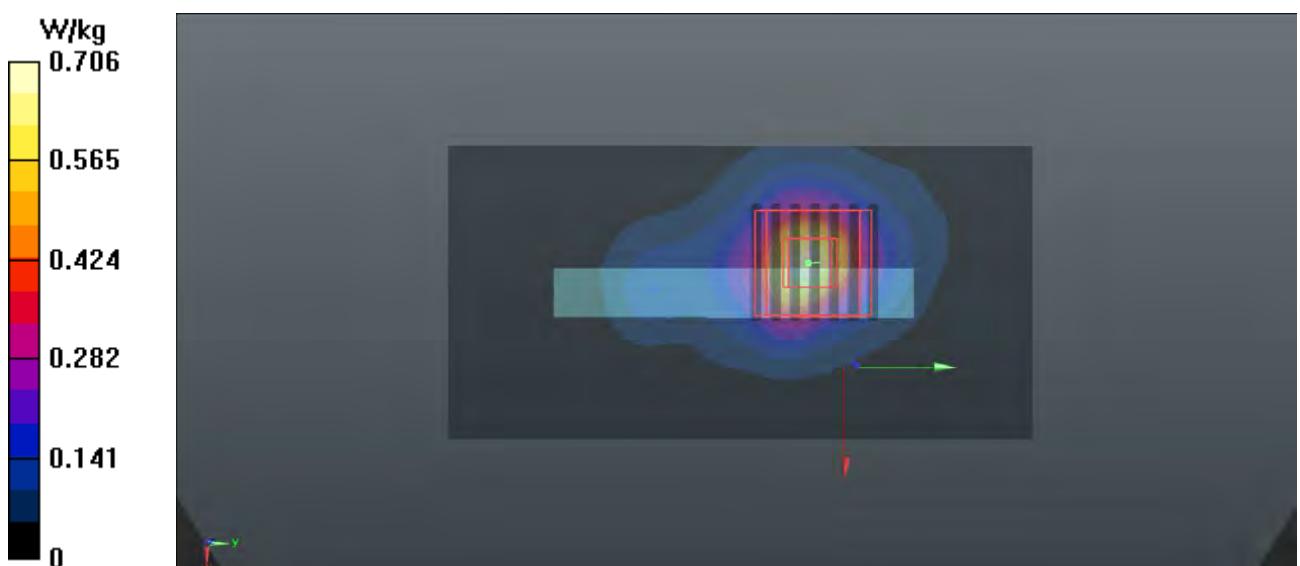
- Zoom Scan (7x7x12)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=2\text{mm}$

Reference Value = 3.767 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 1.19 W/kg

SAR(1 g) = 0.284 W/kg; SAR(10 g) = 0.097 W/kg

Maximum value of SAR (measured) = 0.688 W/kg



P31 802.11a_Top Side_0cm_Ch56

DUT: 180125W002

Communication System: 802.11a; Frequency: 5280 MHz; Duty Cycle: 1:1.15

Medium: B5G_0210 Medium parameters used: $f = 5280$ MHz; $\sigma = 5.363$ S/m; $\epsilon_r = 50.999$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.3 °C; Liquid Temperature : 22.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(4.61, 4.61, 4.61); Calibrated: 2017/08/25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1341; Calibrated: 2017/08/23
- Phantom: Left Phantom with CRP v5.0; Type: QD000P40CD; Serial: TP:1722
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

- Area Scan (61x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 5.80 W/kg

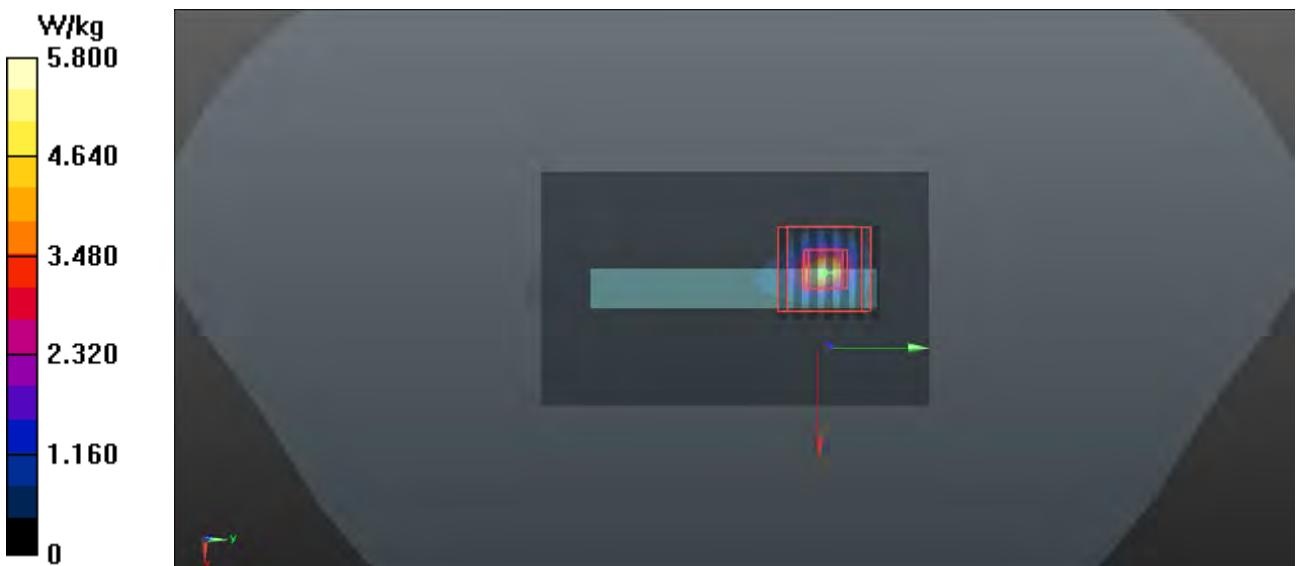
- Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 4.719 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 21.9 W/kg

SAR(1 g) = 2.95 W/kg; SAR(10 g) = 0.505 W/kg

Maximum value of SAR (measured) = 10.9 W/kg



P32 802.11a_Top Side_0cm_Ch140

DUT: 180125W002

Communication System: 802.11a; Frequency: 5700 MHz; Duty Cycle: 1:1.15

Medium: B5G_0210 Medium parameters used: $f = 5700$ MHz; $\sigma = 6.066$ S/m; $\epsilon_r = 50.136$; $\rho = 1000$ kg/m³

Ambient Temperature : 23.3 °C; Liquid Temperature : 22.3 °C

DASY5 Configuration:

- Probe: EX3DV4 - SN3873; ConvF(3.9, 3.9, 3.9); Calibrated: 2017/08/25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1341; Calibrated: 2017/08/23
- Phantom: Left Phantom with CRP v5.0; Type: QD000P40CD; Serial: TP:1722
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

- Area Scan (61x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 2.70 W/kg

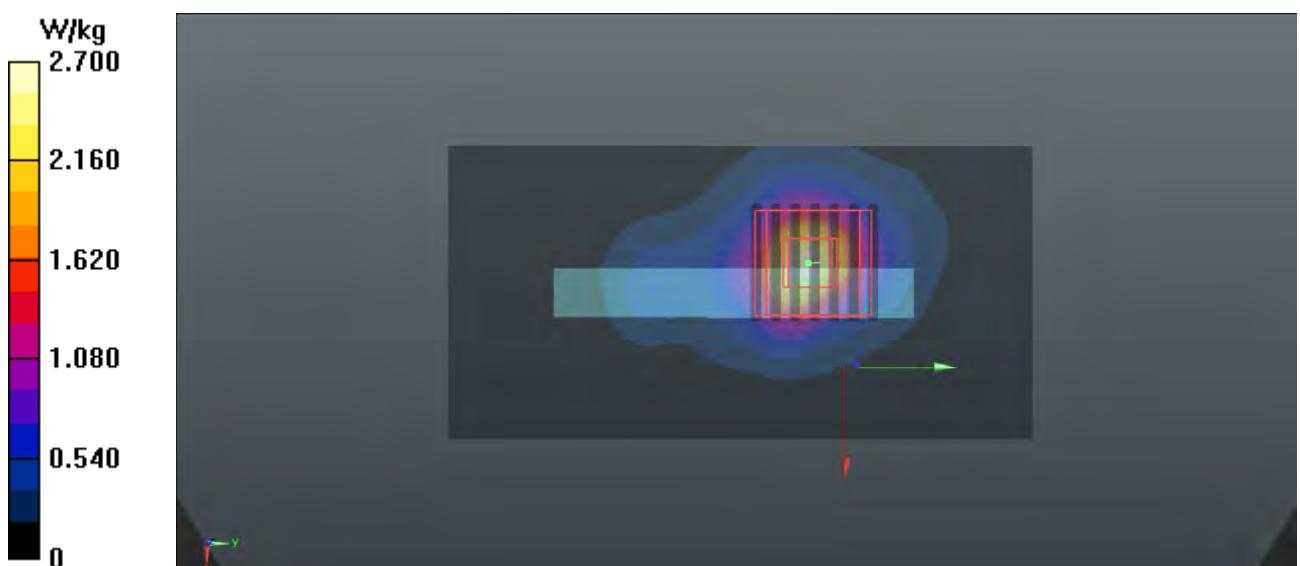
- Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 10.79 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 12.2 W/kg

SAR(1 g) = 1.93 W/kg; SAR(10 g) = 0.363 W/kg

Maximum value of SAR (measured) = 7.27 W/kg





Appendix C. Calibration Certificate for Probe and Dipole

The SPEAG calibration certificates are shown as follows.



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 CALIBRATION LABORATORY

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



中国认可
 国际互认
 校准
 CALIBRATION
 CNAS L0570

Client

ADT_CN

Certificate No: Z17-97118

CALIBRATION CERTIFICATE

Object D835V2 - SN: 4d139

Calibration Procedure(s) FF-Z11-003-01
 Calibration Procedures for dipole validation kits

Calibration date: August 28, 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 NRVD	102083	22-Sep-16 (CTTL, No.J16X06809)	Sep-17
Power sensor NRV-Z5	100595	22-Sep-16 (CTTL, No.J16X06809)	Sep-17
Reference Probe EX3DV4	SN 3617	23-Jan-17(SPEAG, No.EX3-3617_Jan17)	Jan-18
DAE4	SN 1331	19-Jan-17(CTTL-SPEAG, No.Z17-97015)	Jan-18
Secondary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Signal Generator E4438C	MY49071430	13-Jan-17 (CTTL, No.J17X00286)	Jan-18
Network Analyzer E5071C	MY46110673	13-Jan-17 (CTTL, No.J17X00285)	Jan-18

	Name	Function	Signature
Calibrated by:	Zhao Jing	SAR Test Engineer	
Reviewed by:	Lin Hao	SAR Test Engineer	
Approved by:	Qi Dianyuan	SAR Project Leader	

Issued: August 31, 2017

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



Add: No.51 Xueyuan Road, Haidian District, Beijing, 100191, China
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E-mail: ctl@chinattl.com http://www.chinattl.cn

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORMx,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

- a) 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
- b) IEC 62209-1, "Measurement procedure for assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices- Part 1: Device used next to the ear (Frequency range of 300MHz to 6GHz)", July 2016
- c) IEC 62209-2, "Procedure to measure the Specific Absorption Rate (SAR) For wireless communication devices used in close proximity to the human body (frequency range of 30MHz to 6GHz)", March 2010
- d) KDB865664, SAR Measurement Requirements for 100 MHz to 6 GHz

Additional Documentation:

- e) 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%.



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Measurement Conditions

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

DASY Version	DASY52	52.10.0.1446
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 ± 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 ± 0.2) °C	41.2 ± 6 %	0.89 mho/m ± 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	2.35 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	9.49 mW /g ± 18.8 % (k=2)
SAR averaged over 10 cm ³ (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	1.52 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	6.13 mW /g ± 18.7 % (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 ± 0.2) °C	55.6 ± 6 %	0.98 mho/m ± 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	2.45 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	9.71 mW /g ± 18.8 % (k=2)
SAR averaged over 10 cm ³ (10 g) of Body TSL	Condition	
SAR measured	250 mW input power	1.61 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	6.39 mW /g ± 18.7 % (k=2)



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E-mail: ctl@chinattl.com <http://www.chinattl.cn>

Appendix (Additional assessments outside the scope of CNAS L0570)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	48.4Ω- 2.62jΩ
Return Loss	- 30.1dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	45.6Ω- 4.60jΩ
Return Loss	- 23.6dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.497 ns
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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
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DASY5 Validation Report for Head TSL

Date: 08.28.2017

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d139

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

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.887 \text{ S/m}$; $\epsilon_r = 41.22$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3617; ConvF(9.73, 9.73, 9.73); Calibrated: 1/23/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1331; Calibrated: 1/19/2017
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1161/1
- Measurement SW: DASY52, Version 52.10 (0); SEMCAD X Version 14.6.10 (7417)

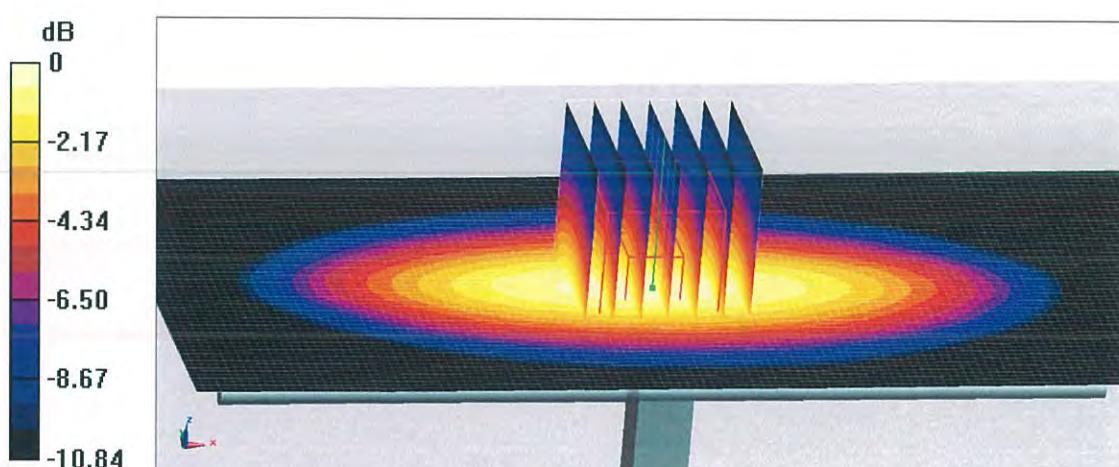
Dipole Calibration/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 58.65V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 3.61 W/kg

SAR(1 g) = 2.35 W/kg; SAR(10 g) = 1.52 W/kg

Maximum value of SAR (measured) = 3.18 W/kg

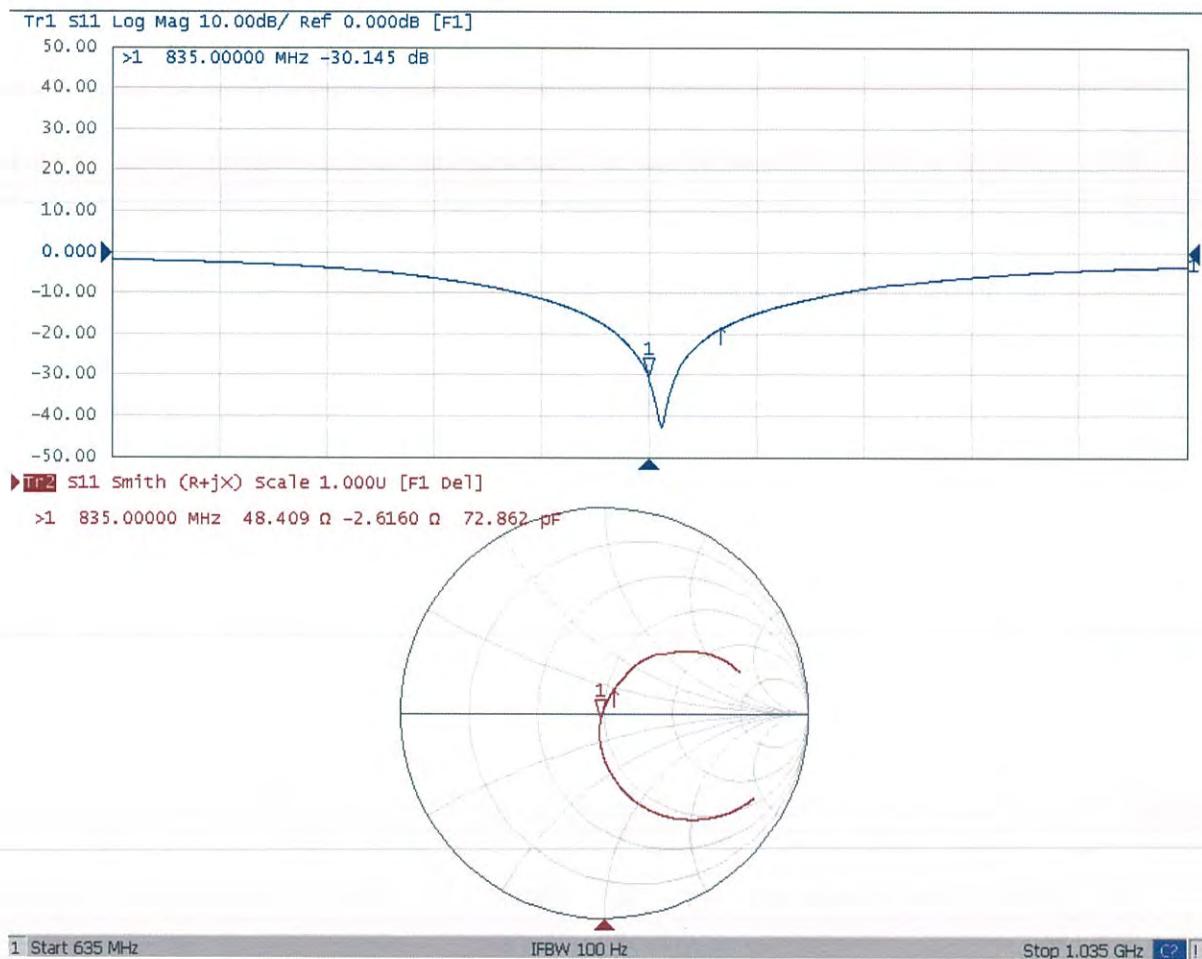




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Impedance Measurement Plot for Head TSL





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DASY5 Validation Report for Body TSL

Date: 08.27.2017

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d139

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

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.984 \text{ S/m}$; $\epsilon_r = 55.62$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3617; ConvF(9.64,9.64, 9.64); Calibrated: 1/23/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1331; Calibrated: 1/19/2017
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1161/1
- Measurement SW: DASY52, Version 52.10 (0); SEMCAD X Version 14.6.10 (7417)

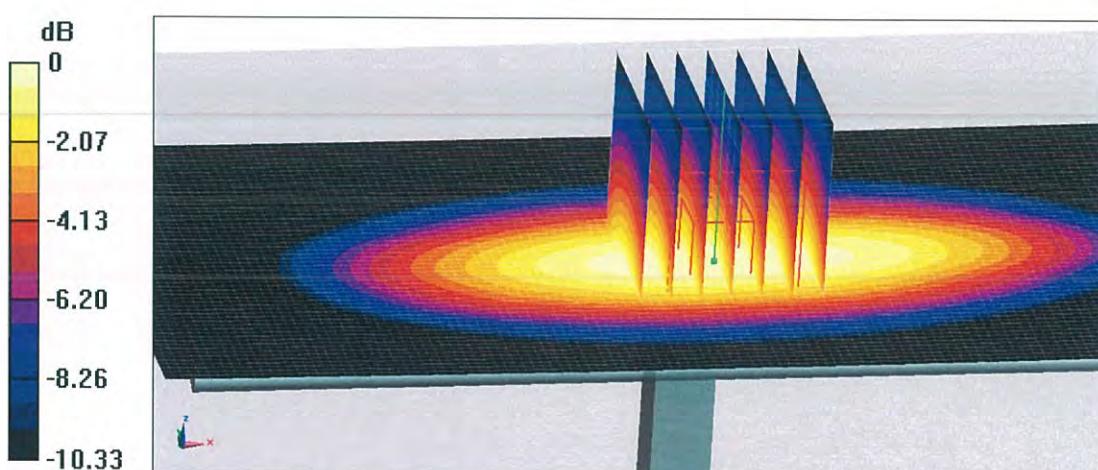
Dipole Calibration/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 56.07 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 3.71 W/kg

SAR(1 g) = 2.45 W/kg; SAR(10 g) = 1.61 W/kg

Maximum value of SAR (measured) = 3.29 W/kg



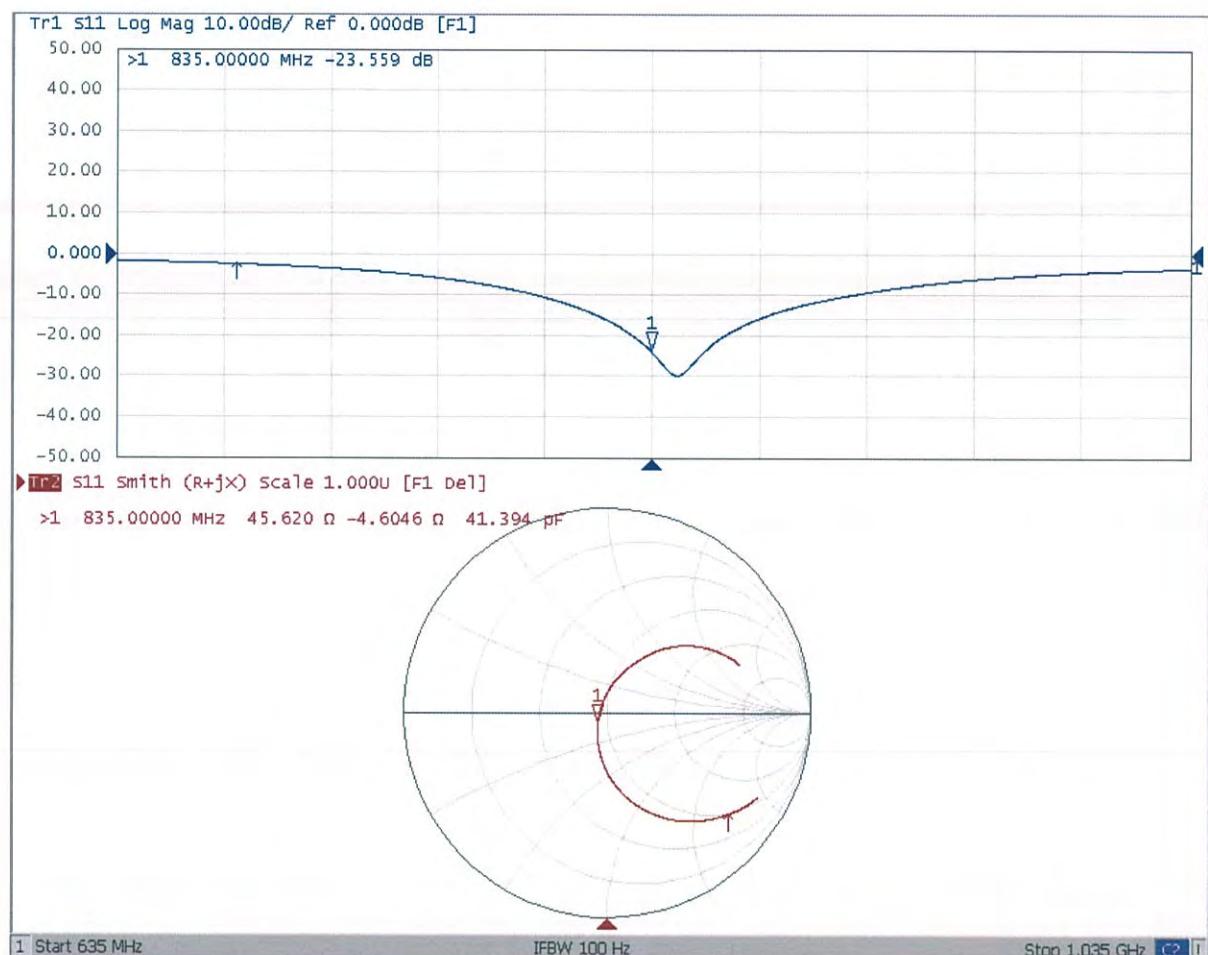
0 dB = 3.29 W/kg = 5.17 dBW/kg



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Impedance Measurement Plot for Body TSL





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 CNAS L0570

Client

ADT_CN

Certificate No: Z17-97120

CALIBRATION CERTIFICATE

Object D1750V2 - SN: 1071

Calibration Procedure(s) FF-Z11-003-01
 Calibration Procedures for dipole validation kits

Calibration date: August 26, 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 NRVD	102083	22-Sep-16 (CTTL, No.J16X06809)	Sep-17
Power sensor NRV-Z5	100595	22-Sep-16 (CTTL, No.J16X06809)	Sep-17
Reference Probe EX3DV4	SN 3617	23-Jan-17(SPEAG, No.EX3-3617_Jan17)	Jan-18
DAE4	SN 1331	19-Jan-17(CTTL-SPEAG, No.Z17-97015)	Jan-18
Secondary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Signal Generator E4438C	MY49071430	13-Jan-17 (CTTL, No.J17X00286)	Jan-18
Network Analyzer E5071C	MY46110673	13-Jan-17 (CTTL, No.J17X00285)	Jan-18

	Name	Function	Signature
Calibrated by:	Zhao Jing	SAR Test Engineer	
Reviewed by:	Lin Hao	SAR Test Engineer	
Approved by:	Qi Dianyuan	SAR Project Leader	

Issued: August 30, 2017

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



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Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORMx,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

- a) 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
- b) IEC 62209-1, "Measurement procedure for assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices- Part 1: Device used next to the ear (Frequency range of 300MHz to 6GHz)", July 2016
- c) IEC 62209-2, "Procedure to measure the Specific Absorption Rate (SAR) For wireless communication devices used in close proximity to the human body (frequency range of 30MHz to 6GHz)", March 2010
- d) KDB865664, SAR Measurement Requirements for 100 MHz to 6 GHz

Additional Documentation:

- e) 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%.



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Measurement Conditions

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

DASY Version	DASY52	52.10.0.1446
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	1750 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	40.1	1.37 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	39.6 ± 6 %	1.36 mho/m ± 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	9.29 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	37.3 mW /g ± 18.8 % (k=2)
SAR averaged over 10 cm ³ (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	4.91 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	19.7 mW /g ± 18.7 % (k=2)

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	53.4	1.49 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	52.8 ± 6 %	1.50 mho/m ± 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	9.66 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	38.3 mW /g ± 18.8 % (k=2)
SAR averaged over 10 cm ³ (10 g) of Body TSL	Condition	
SAR measured	250 mW input power	5.08 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	20.2 mW /g ± 18.7 % (k=2)



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Appendix (Additional assessments outside the scope of CNAS L0570)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	48.4Ω- 0.75 jΩ
Return Loss	- 35.1 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	45.4Ω- 1.39 jΩ
Return Loss	- 25.9 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.326 ns
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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

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DASY5 Validation Report for Head TSL

Date: 08.26.2017

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 1750 MHz; Type: D1750V2; Serial: D1750V2 - SN: 1071

Communication System: UID 0, CW; Frequency: 1750 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1750 \text{ MHz}$; $\sigma = 1.355 \text{ S/m}$; $\epsilon_r = 39.56$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3617; ConvF(8.49, 8.49, 8.49); Calibrated: 1/23/2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1331; Calibrated: 1/19/2017
- Phantom: Triple Flat Phantom 5.1C; Type: QD 000 P51 CA; Serial: 1161/1
- Measurement SW: DASY52, Version 52.10 (0); SEMCAD X Version 14.6.10 (7417)

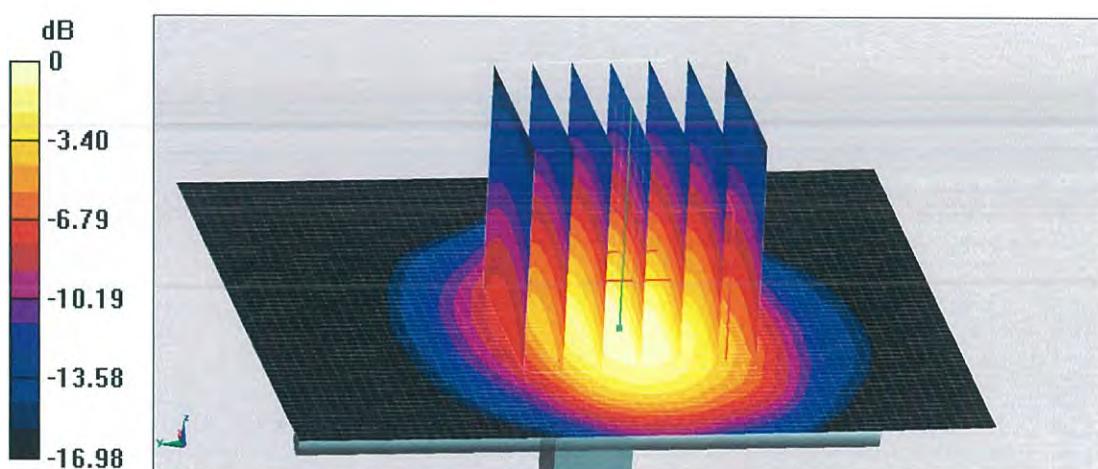
System Performance Check/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 93.52 V/m; Power Drift = -0.00 dB

Peak SAR (extrapolated) = 17.4 W/kg

SAR(1 g) = 9.29 W/kg; SAR(10 g) = 4.91 W/kg

Maximum value of SAR (measured) = 14.3 W/kg



$$0 \text{ dB} = 14.3 \text{ W/kg} = 11.55 \text{ dBW/kg}$$