



Appendix A. Plots of System Performance Check

The plots are shown as follows.

System Check_Head_835MHz_111216**DUT: Dipole 835 MHz**

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

Medium: HSL_850_111216 Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.9 \text{ mho/m}$; $\epsilon_r = 40.246$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature : 22.4°C ; Liquid Temperature : 21.4°C

DASY5 Configuration:

- Probe: ET3DV6 - SN1788; ConvF(6.35, 6.35, 6.35); Calibrated: 2011/9/28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn577; Calibrated: 2011/6/20
- Phantom: SAM Right; Type: QD000P40CD; Serial: TP:1644
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Pin=250mW/Area Scan (61x61x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 2.720 mW/g

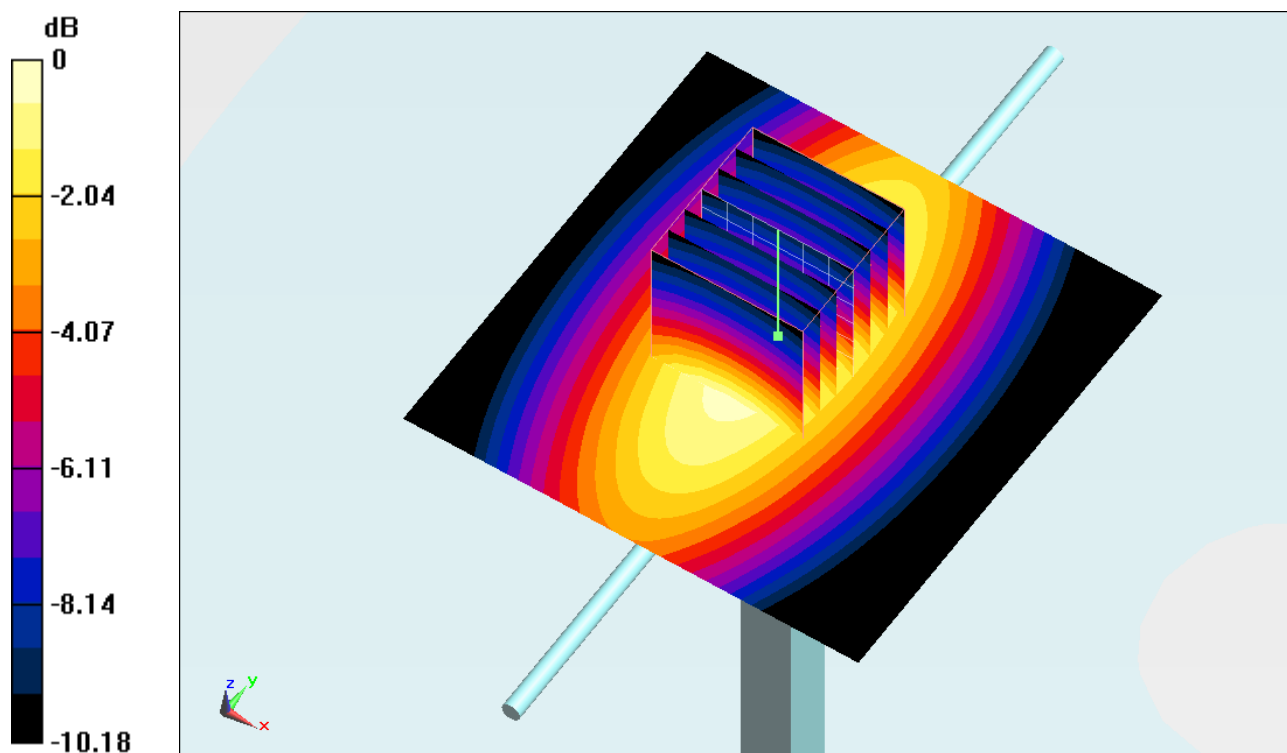
Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 56.869 V/m ; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 3.605 W/kg

SAR(1 g) = 2.53 mW/g ; SAR(10 g) = 1.67 mW/g

Maximum value of SAR (measured) = 2.736 mW/g



0 dB = 2.740 mW/g

System Check_Body_835MHz_111215**DUT: Dipole 835 MHz**

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

Medium: MSL_850_111215 Medium parameters used: $f = 835$ MHz; $\sigma = 0.955$ mho/m; $\epsilon_r = 52.69$; $\rho = 1000$ kg/m³

Ambient Temperature : 22.3 °C ; Liquid Temperature : 21.3 °C

DASY5 Configuration

- Probe: ET3DV6 - SN1788; ConvF(6.24, 6.24, 6.24); Calibrated: 2011/9/28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn577; Calibrated: 2011/6/20
- Phantom: SAM Right; Type: QD000P40CD; Serial: TP:1644
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Pin=250mW/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 2.710 mW/g

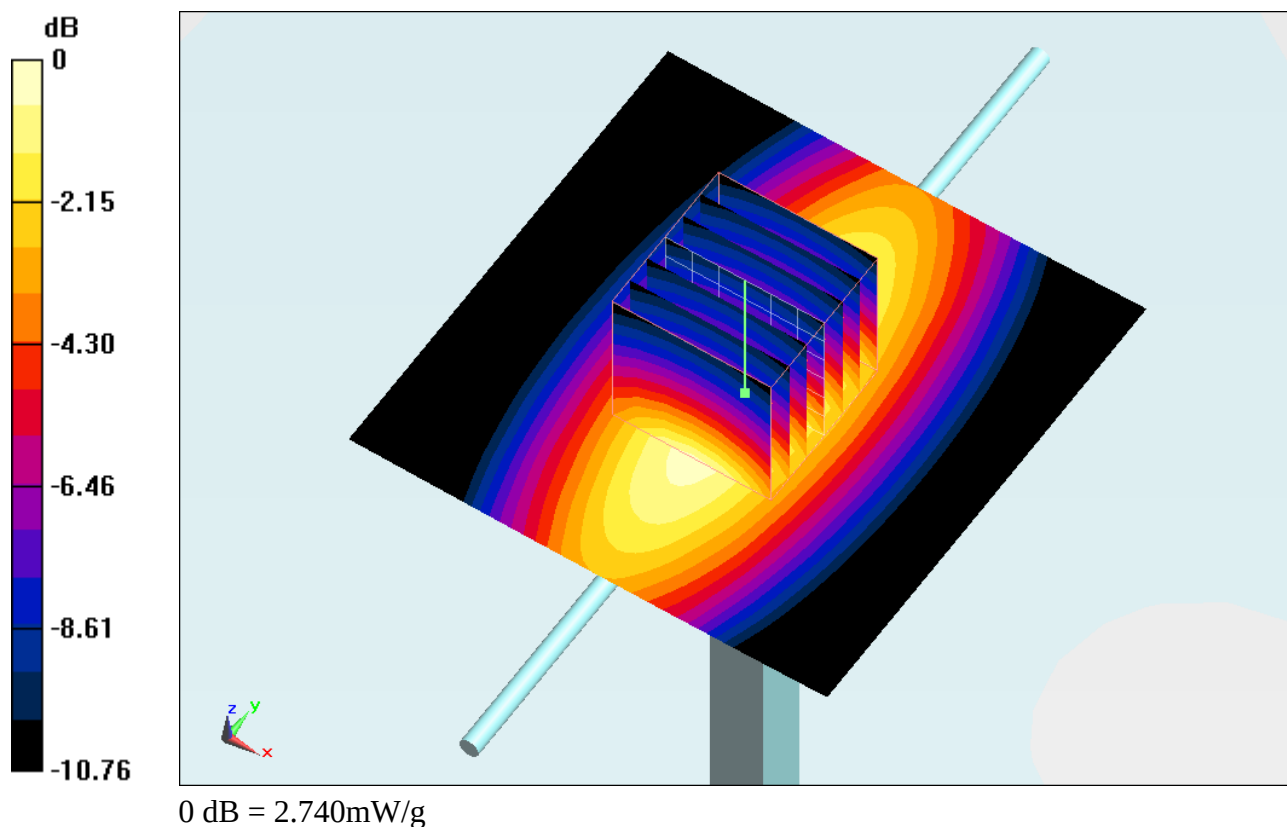
Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 55.110 V/m; Power Drift = -0.11 dB

Peak SAR (extrapolated) = 3.883 W/kg

SAR(1 g) = 2.51 mW/g; SAR(10 g) = 1.58 mW/g

Maximum value of SAR (measured) = 2.745 mW/g



System Check_Head_1900MHz_111216**DUT: Dipole 1900 MHz**

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

Medium: HSL_1900_111216 Medium parameters used: $f = 1900$ MHz; $\sigma = 1.424$ mho/m; $\epsilon_r =$

39.269; $\rho = 1000$ kg/m³

Ambient Temperature : 22.2 °C ; Liquid Temperature : 21.2 °C

DASY5 Configuration:

- Probe: ET3DV6 - SN1788; ConvF(5.19, 5.19, 5.19); Calibrated: 2011/9/28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn577; Calibrated: 2011/6/20
- Phantom: SAM Left; Type: QD000P40CD; Serial: TP:1542
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Pin=250mW/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 12.144 mW/g

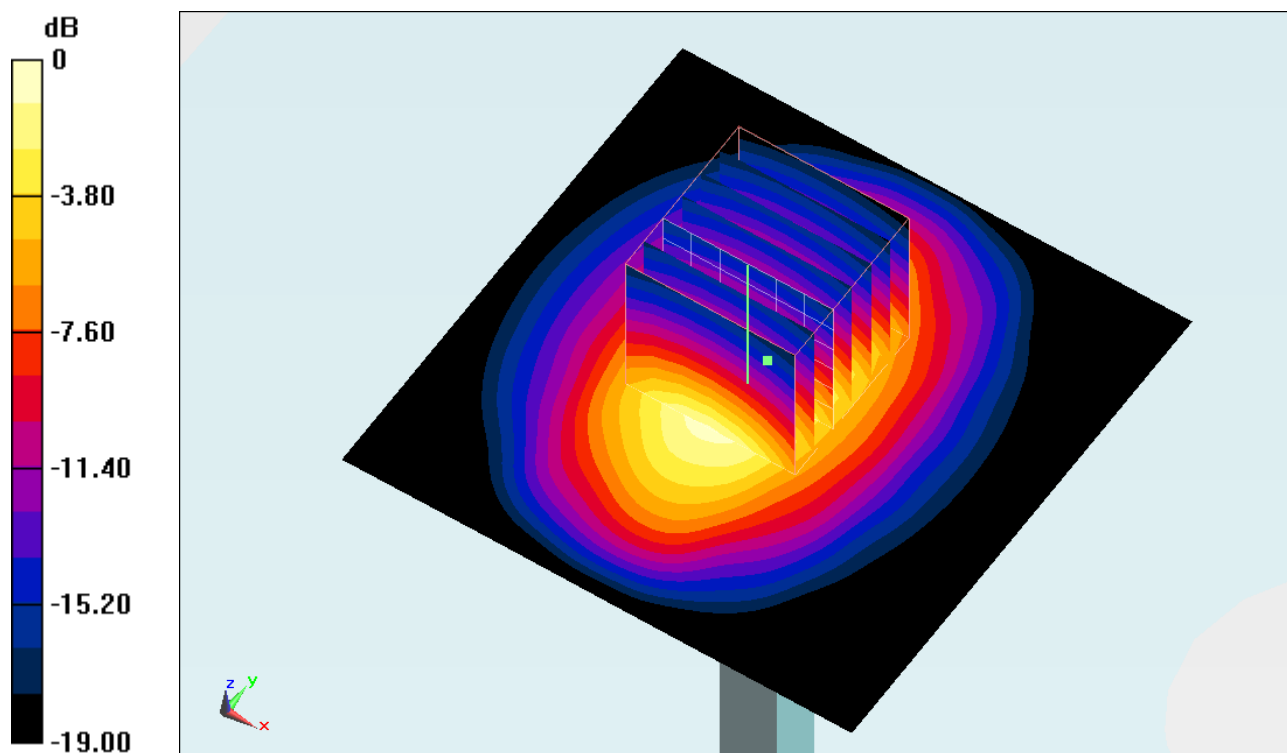
Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 93.770 V/m; Power Drift = 0.20 dB

Peak SAR (extrapolated) = 19.119 W/kg

SAR(1 g) = 10.7 mW/g; SAR(10 g) = 5.52 mW/g

Maximum value of SAR (measured) = 12.082 mW/g



System Check_Body_1900MHz_111216**DUT: Dipole 1900 MHz**

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

Medium: MSL_1900_111216 Medium parameters used: $f = 1900$ MHz; $\sigma = 1.532$ mho/m; $\epsilon_r =$

52.506; $\rho = 1000$ kg/m³

Ambient Temperature : 22.5 °C ; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: ET3DV6 - SN1788; ConvF(4.5, 4.5, 4.5); Calibrated: 2011/9/28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn577; Calibrated: 2011/6/20
- Phantom: SAM Left; Type: QD000P40CD; Serial: TP:1542
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Pin=250mW/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 12.295 mW/g

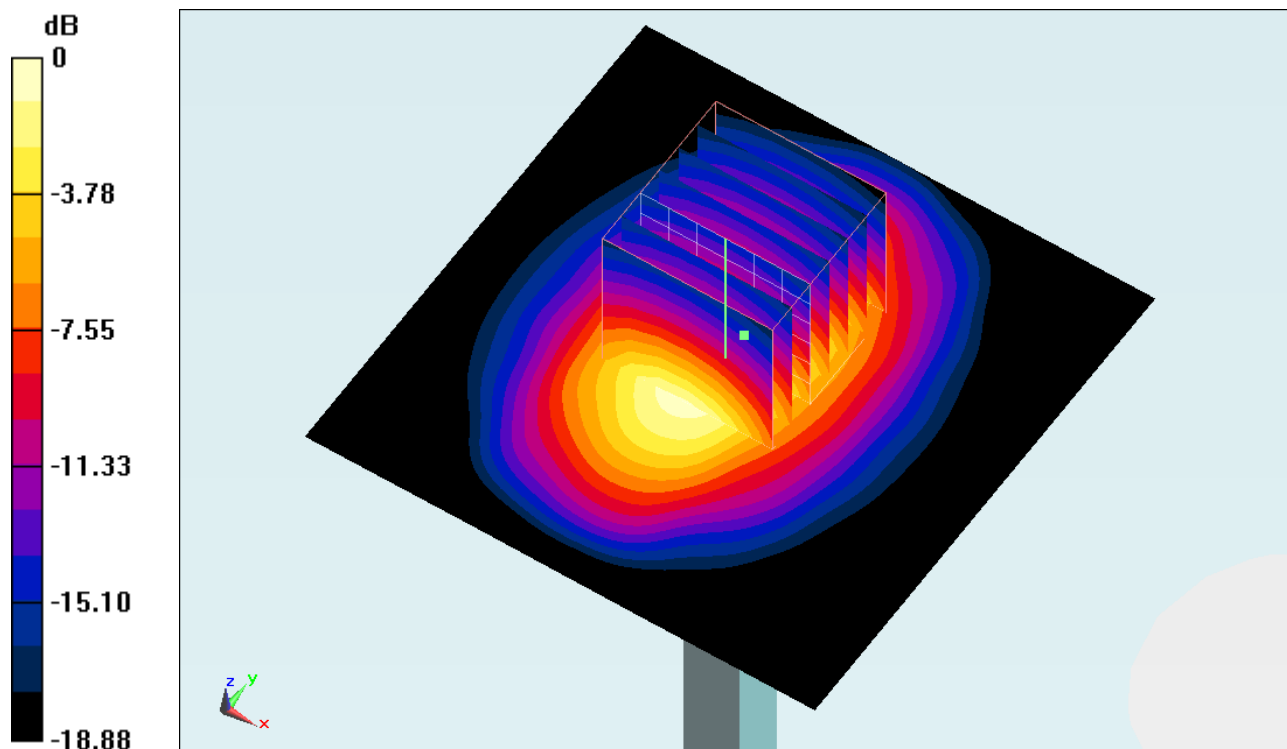
Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 92.456 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 18.502 W/kg

SAR(1 g) = 10.5 mW/g; SAR(10 g) = 5.43 mW/g

Maximum value of SAR (measured) = 11.936 mW/g



0 dB = 11.940mW/g

System Check_Head_2450MHz_111220**DUT: Dipole 2450 MHz**

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

Medium: HSL_2450_111220 Medium parameters used: $f = 2450$ MHz; $\sigma = 1.86$ mho/m; $\epsilon_r = 39.2$; $\rho = 1000$ kg/m³

Ambient Temperature : 22.2 °C ; Liquid Temperature : 21.2 °C

DASY4 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(4.52, 4.52, 4.52); Calibrated: 2011-09-12
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn495; Calibrated: 2011-04-28
- Phantom: SAM_Left; Type: SAM; Serial: TP-1150
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Pin=250mW/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 16.1 mW/g

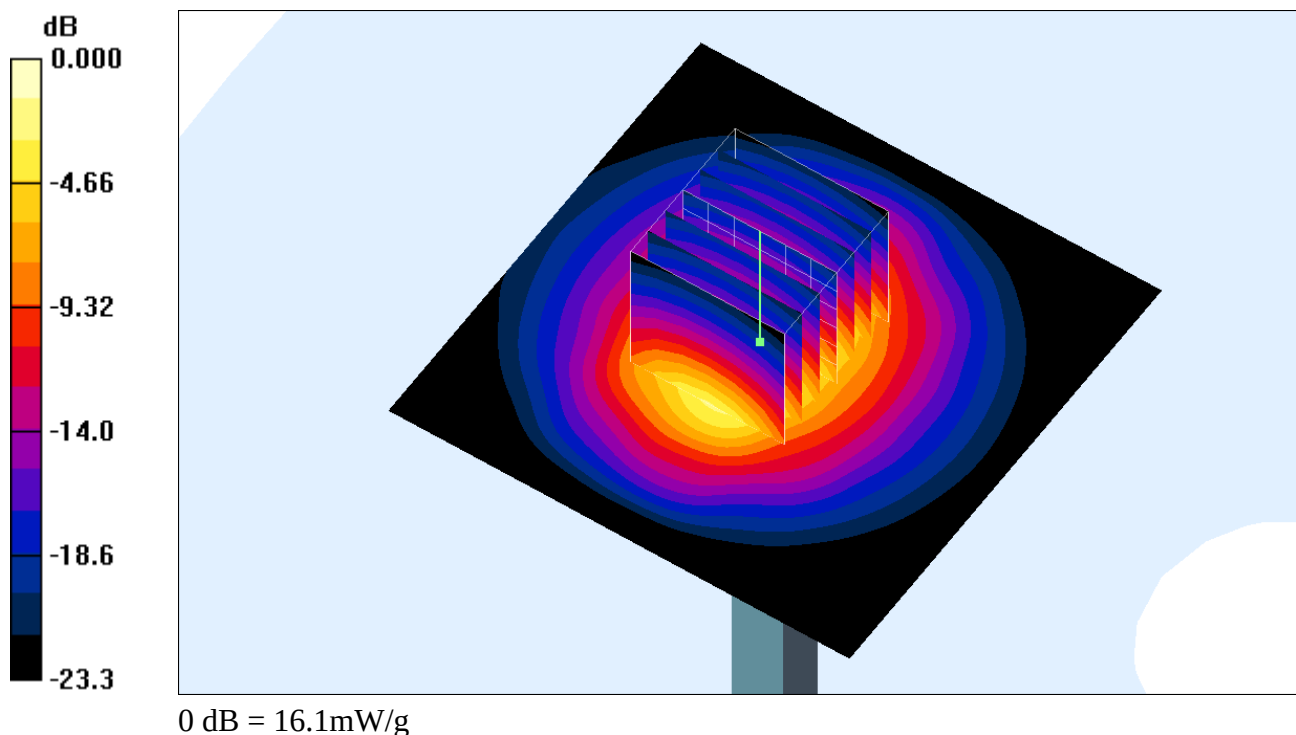
Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 91.3 V/m; Power Drift = 0.164 dB

Peak SAR (extrapolated) = 31.1 W/kg

SAR(1 g) = 14.1 mW/g; SAR(10 g) = 6.31 mW/g

Maximum value of SAR (measured) = 16.1 mW/g



System Check_Body_2450MHz_111220**DUT: Dipole 2450 MHz**

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

Medium: MSL_2450_111220 Medium parameters used: $f = 2450$ MHz; $\sigma = 2$ mho/m; $\epsilon_r = 54$; $\rho = 1000$ kg/m³

Ambient Temperature : 22.2 °C ; Liquid Temperature : 21.2 °C

DASY4 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(4.28, 4.28, 4.28); Calibrated: 2011-09-12
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn495; Calibrated: 2011-04-28
- Phantom: SAM_Right; Type: SAM; Serial: TP-1303
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Pin=250mW/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 15.3 mW/g

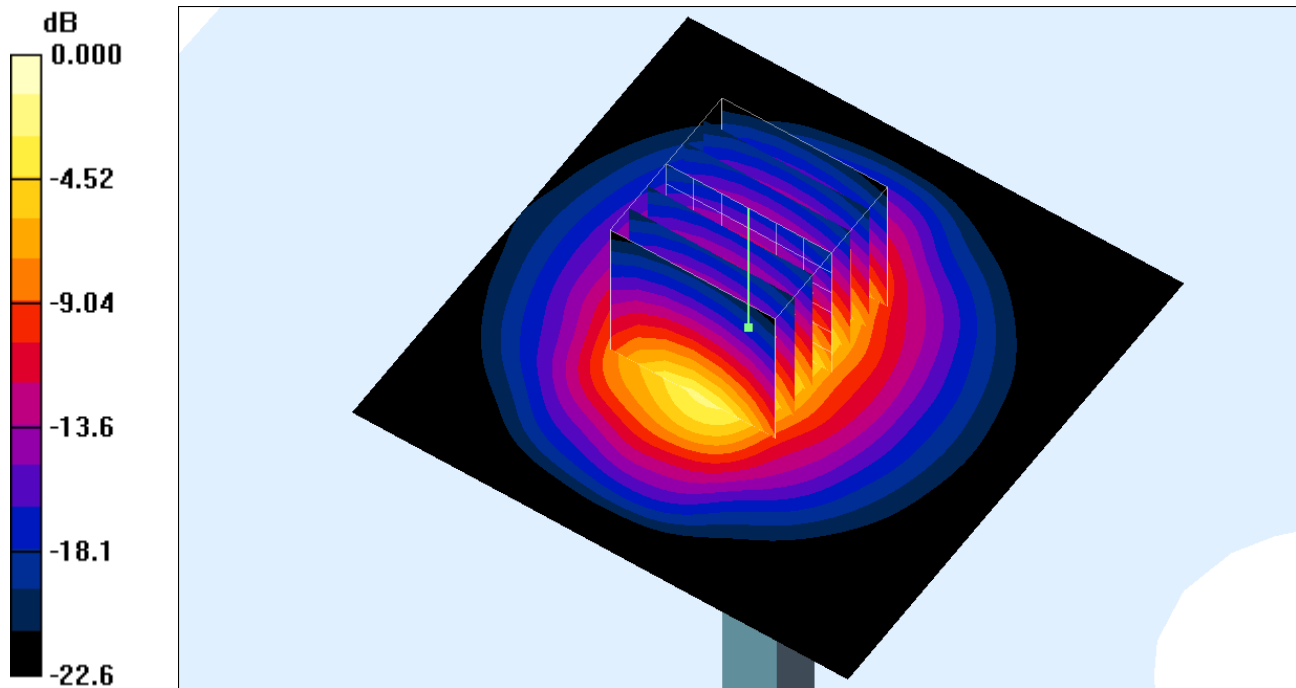
Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 83.0 V/m; Power Drift = 0.033 dB

Peak SAR (extrapolated) = 29.8 W/kg

SAR(1 g) = 13.5 mW/g; SAR(10 g) = 6.08 mW/g

Maximum value of SAR (measured) = 15.4 mW/g



0 dB = 15.4mW/g



Appendix B. Plots of SAR Measurement

The plots are shown as follows.

#26 GSM850_Right Cheek_Ch189**DUT: 1D0840**

Communication System: GSM850; Frequency: 836.4 MHz; Duty Cycle: 1:8.3

Medium: HSL_850_111216 Medium parameters used : $f = 836.4$ MHz; $\sigma = 0.901$ mho/m; $\epsilon_r =$

40.233 ; $\rho = 1000$ kg/m³

Ambient Temperature : 22.4 °C ; Liquid Temperature : 21.4 °C

DASY5 Configuration:

- Probe: ET3DV6 - SN1788; ConvF(6.35, 6.35, 6.35); Calibrated: 2011/9/28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn577; Calibrated: 2011/6/20
- Phantom: SAM Right; Type: QD000P40CD; Serial: TP:1644
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Ch189/Area Scan (41x81x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.613 mW/g

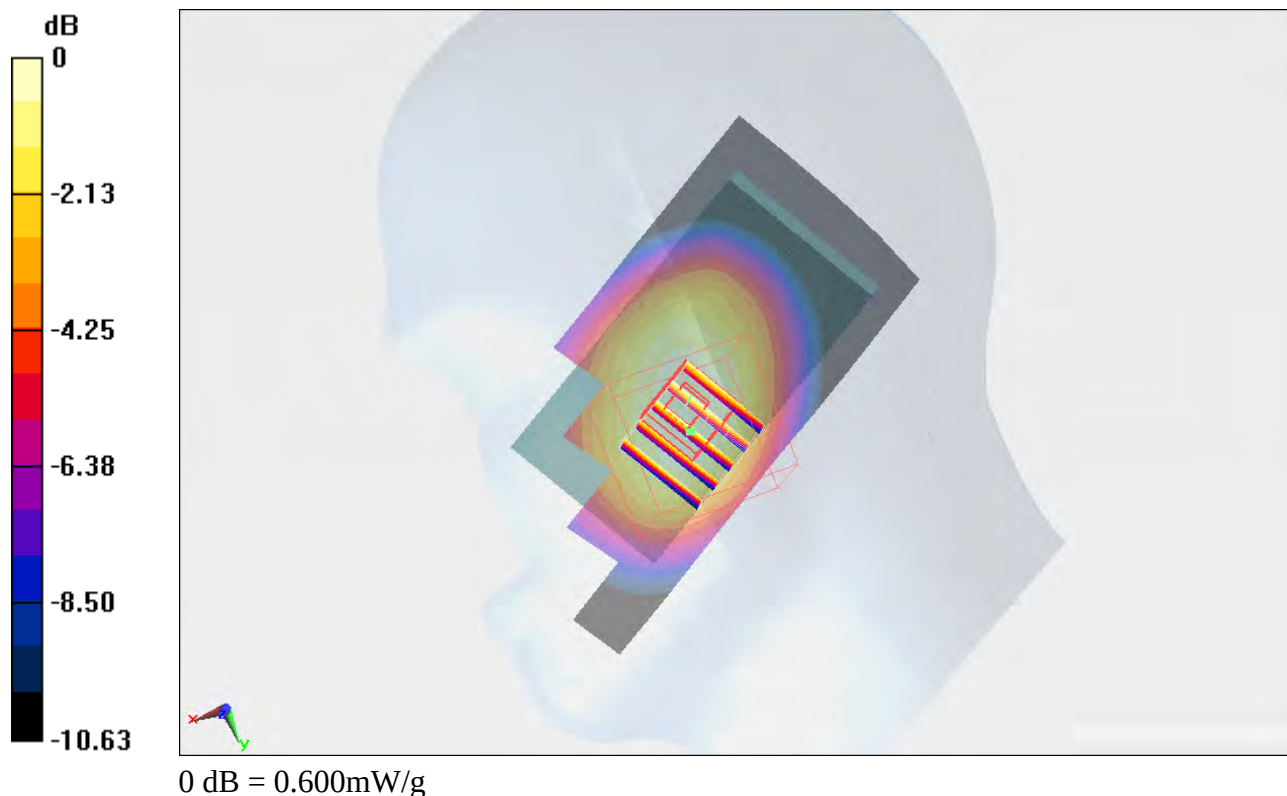
Ch189/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 11.619 V/m; Power Drift = -0.13 dB

Peak SAR (extrapolated) = 0.717 W/kg

SAR(1 g) = 0.571 mW/g; SAR(10 g) = 0.423 mW/g

Maximum value of SAR (measured) = 0.598 mW/g



#26 GSM850_Right Cheek_Ch189_2D**DUT: 1D0840**

Communication System: GSM850; Frequency: 836.4 MHz; Duty Cycle: 1:8.3

Medium: HSL_850_111216 Medium parameters used : $f = 836.4$ MHz; $\sigma = 0.901$ mho/m; $\epsilon_r =$

40.233; $\rho = 1000$ kg/m³

Ambient Temperature : 22.4 °C ; Liquid Temperature : 21.4 °C

DASY5 Configuration:

- Probe: ET3DV6 - SN1788; ConvF(6.35, 6.35, 6.35); Calibrated: 2011/9/28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn577; Calibrated: 2011/6/20
- Phantom: SAM Right; Type: QD000P40CD; Serial: TP:1644
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Ch189/Area Scan (41x81x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.613 mW/g

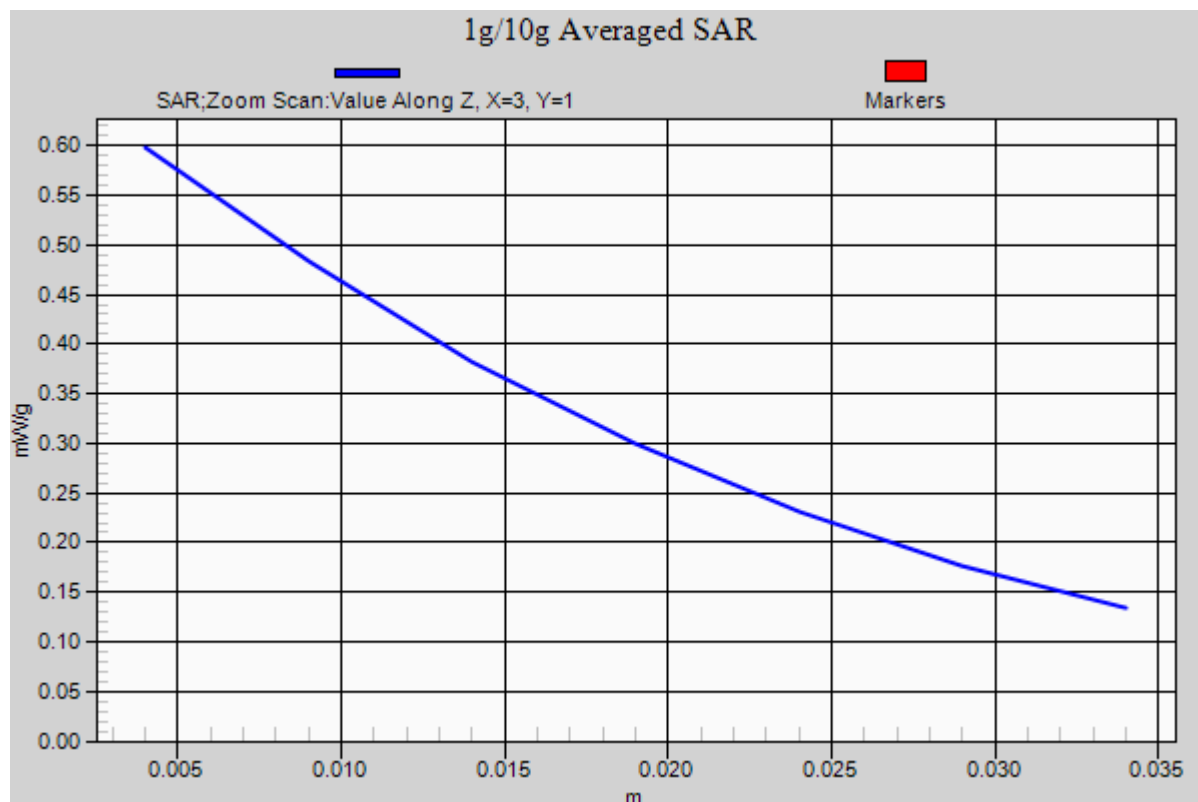
Ch189/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 11.619 V/m; Power Drift = -0.13 dB

Peak SAR (extrapolated) = 0.717 W/kg

SAR(1 g) = 0.571 mW/g; SAR(10 g) = 0.423 mW/g

Maximum value of SAR (measured) = 0.598 mW/g



#27 GSM850_Right Tilted_Ch189**DUT: 1D0840**

Communication System: GSM850; Frequency: 836.4 MHz; Duty Cycle: 1:8.3

Medium: HSL_850_111216 Medium parameters used : $f = 836.4$ MHz; $\sigma = 0.901$ mho/m; $\epsilon_r =$

40.233 ; $\rho = 1000$ kg/m³

Ambient Temperature : 22.4 °C ; Liquid Temperature : 21.4 °C

DASY5 Configuration:

- Probe: ET3DV6 - SN1788; ConvF(6.35, 6.35, 6.35); Calibrated: 2011/9/28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn577; Calibrated: 2011/6/20
- Phantom: SAM Right; Type: QD000P40CD; Serial: TP:1644
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Ch189/Area Scan (41x81x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.489 mW/g

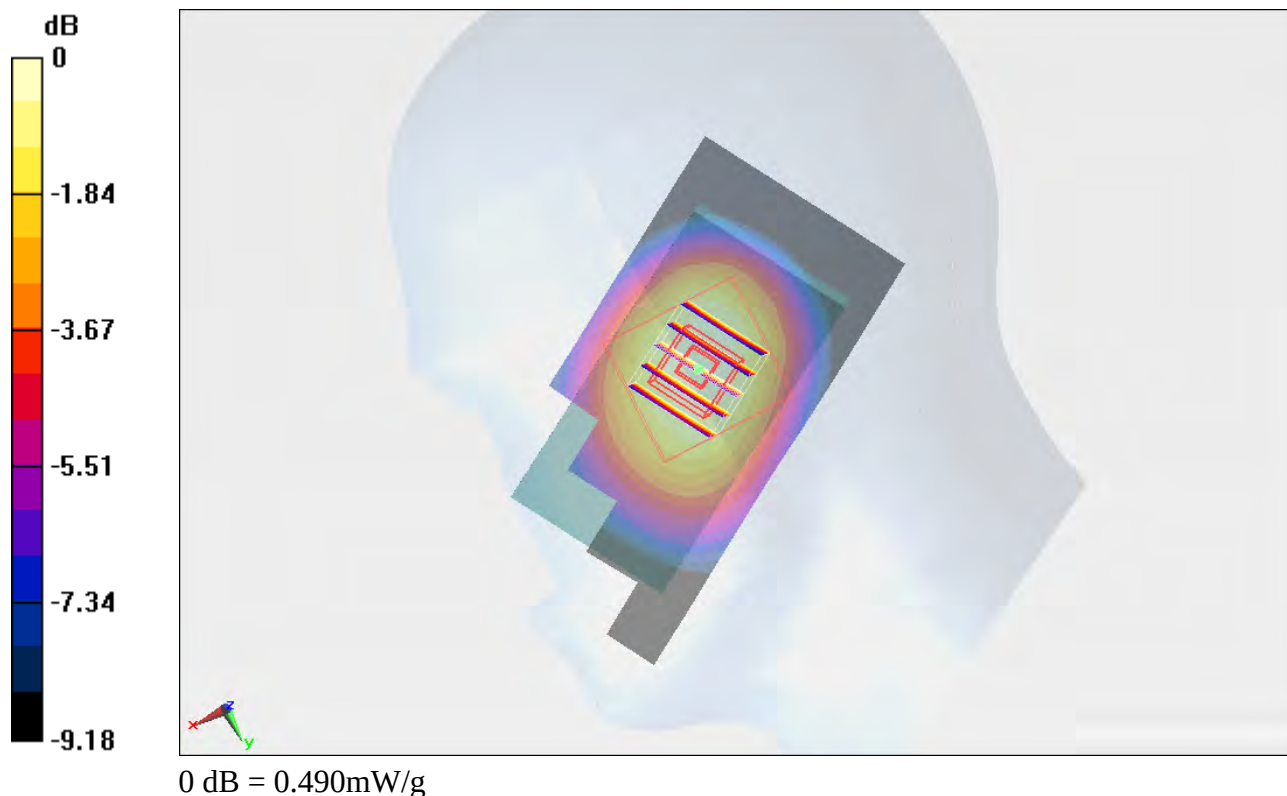
Ch189/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 18.046 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 0.559 W/kg

SAR(1 g) = 0.461 mW/g; SAR(10 g) = 0.346 mW/g

Maximum value of SAR (measured) = 0.487 mW/g



#28 GSM850_Left Cheek_Ch189**DUT: 1D0840**

Communication System: GSM850; Frequency: 836.4 MHz; Duty Cycle: 1:8.3

Medium: HSL_850_111216 Medium parameters used : $f = 836.4$ MHz; $\sigma = 0.901$ mho/m; $\epsilon_r =$

40.233; $\rho = 1000$ kg/m³

Ambient Temperature : 22.4 °C ; Liquid Temperature : 21.4 °C

DASY5 Configuration:

- Probe: ET3DV6 - SN1788; ConvF(6.35, 6.35, 6.35); Calibrated: 2011/9/28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn577; Calibrated: 2011/6/20
- Phantom: SAM Right; Type: QD000P40CD; Serial: TP:1644
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Ch189/Area Scan (41x81x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.581 mW/g

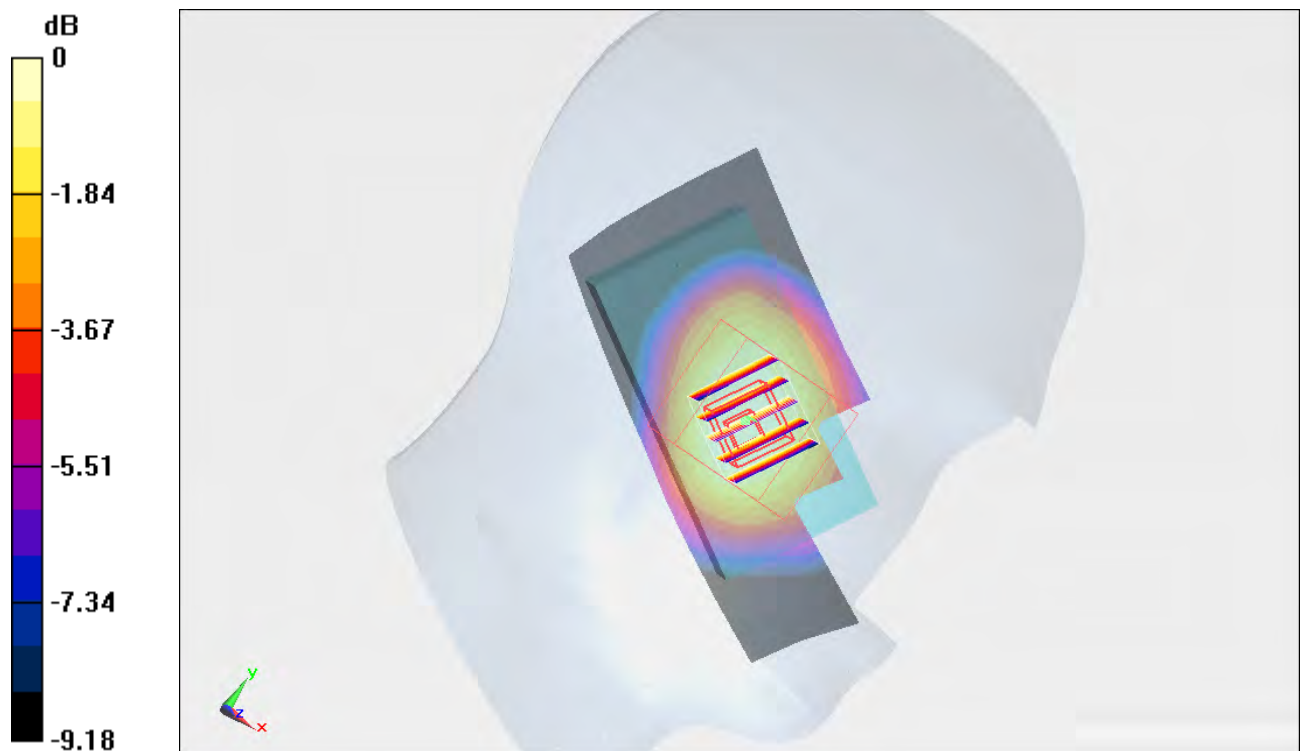
Ch189/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 12.454 V/m; Power Drift = -0.13 dB

Peak SAR (extrapolated) = 0.669 W/kg

SAR(1 g) = 0.552 mW/g; SAR(10 g) = 0.417 mW/g

Maximum value of SAR (measured) = 0.571 mW/g



0 dB = 0.570mW/g

#29 GSM850_Left Tilted_Ch189**DUT: 1D0840**

Communication System: GSM850; Frequency: 836.4 MHz; Duty Cycle: 1:8.3

Medium: HSL_850_111216 Medium parameters used : $f = 836.4$ MHz; $\sigma = 0.901$ mho/m; $\epsilon_r =$

40.233 ; $\rho = 1000$ kg/m³

Ambient Temperature : 22.4 °C ; Liquid Temperature : 21.4 °C

DASY5 Configuration:

- Probe: ET3DV6 - SN1788; ConvF(6.35, 6.35, 6.35); Calibrated: 2011/9/28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn577; Calibrated: 2011/6/20
- Phantom: SAM Right; Type: QD000P40CD; Serial: TP:1644
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Ch189/Area Scan (41x81x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.442 mW/g

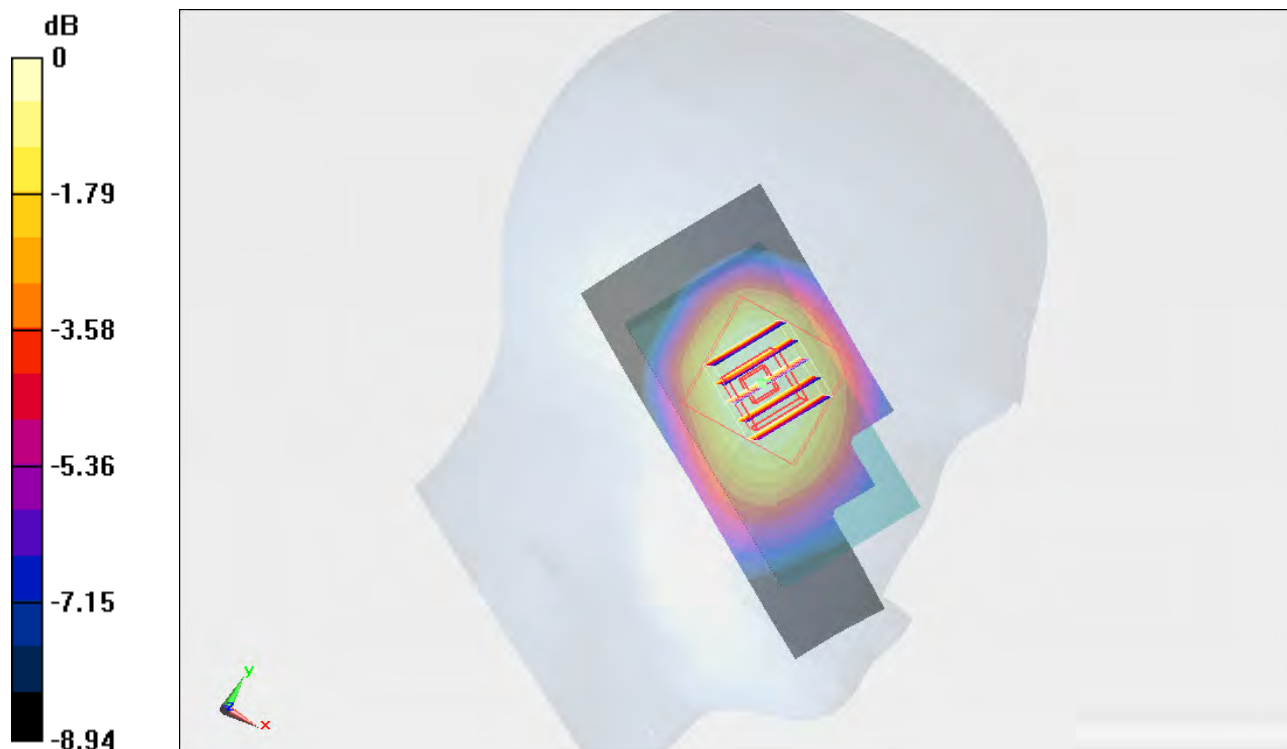
Ch189/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 17.945 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.506 W/kg

SAR(1 g) = 0.413 mW/g; SAR(10 g) = 0.312 mW/g

Maximum value of SAR (measured) = 0.437 mW/g



0 dB = 0.440mW/g

#34 GSM1900_Right Cheek_Ch661

DUT: 1D0840

Communication System: PCS; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium: HSL_1900_111216 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.409$ mho/m; $\epsilon_r =$

39.321; $\rho = 1000$ kg/m³

Ambient Temperature : 22.2 °C ; Liquid Temperature : 21.2 °C

DASY5 Configuration:

- Probe: ET3DV6 - SN1788; ConvF(5.19, 5.19, 5.19); Calibrated: 2011/9/28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn577; Calibrated: 2011/6/20
- Phantom: SAM Left; Type: QD000P40CD; Serial: TP:1542
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Ch661/Area Scan (41x81x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.580 mW/g

Ch661/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 7.372 V/m; Power Drift = -0.19 dB

Peak SAR (extrapolated) = 0.830 W/kg

SAR(1 g) = 0.512 mW/g; SAR(10 g) = 0.290 mW/g

Maximum value of SAR (measured) = 0.537 mW/g

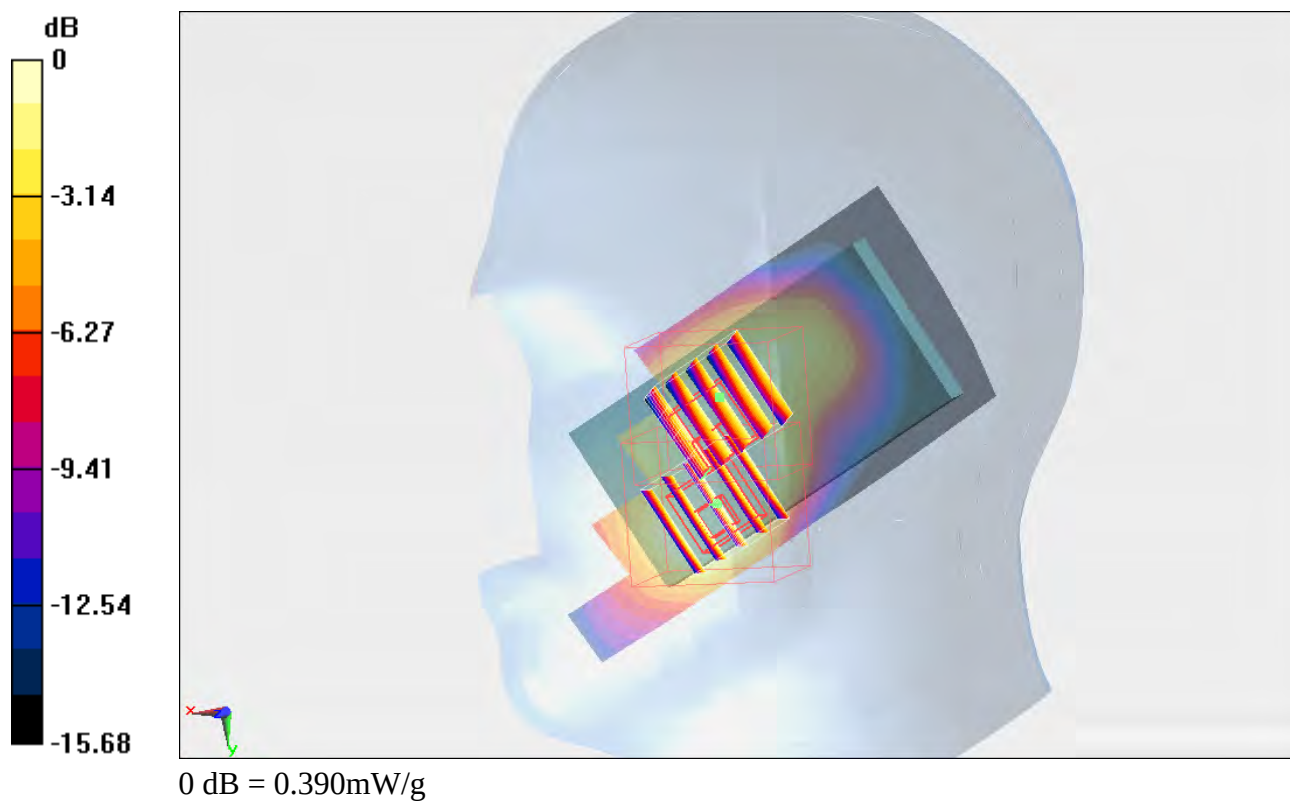
Ch661/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 7.372 V/m; Power Drift = -0.19 dB

Peak SAR (extrapolated) = 0.496 W/kg

SAR(1 g) = 0.341 mW/g; SAR(10 g) = 0.233 mW/g

Maximum value of SAR (measured) = 0.392 mW/g



#34 GSM1900_Right Cheek_Ch661_2D

DUT: 1D0840

Communication System: PCS; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium: HSL_1900_111216 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.409$ mho/m; $\epsilon_r =$

39.321; $\rho = 1000$ kg/m³

Ambient Temperature : 22.2 °C ; Liquid Temperature : 21.2 °C

DASY5 Configuration:

- Probe: ET3DV6 - SN1788; ConvF(5.19, 5.19, 5.19); Calibrated: 2011/9/28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn577; Calibrated: 2011/6/20
- Phantom: SAM Left; Type: QD000P40CD; Serial: TP:1542
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Ch661/Area Scan (41x81x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.580 mW/g

Ch661/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 7.372 V/m; Power Drift = -0.19 dB

Peak SAR (extrapolated) = 0.830 W/kg

SAR(1 g) = 0.512 mW/g; SAR(10 g) = 0.290 mW/g

Maximum value of SAR (measured) = 0.537 mW/g

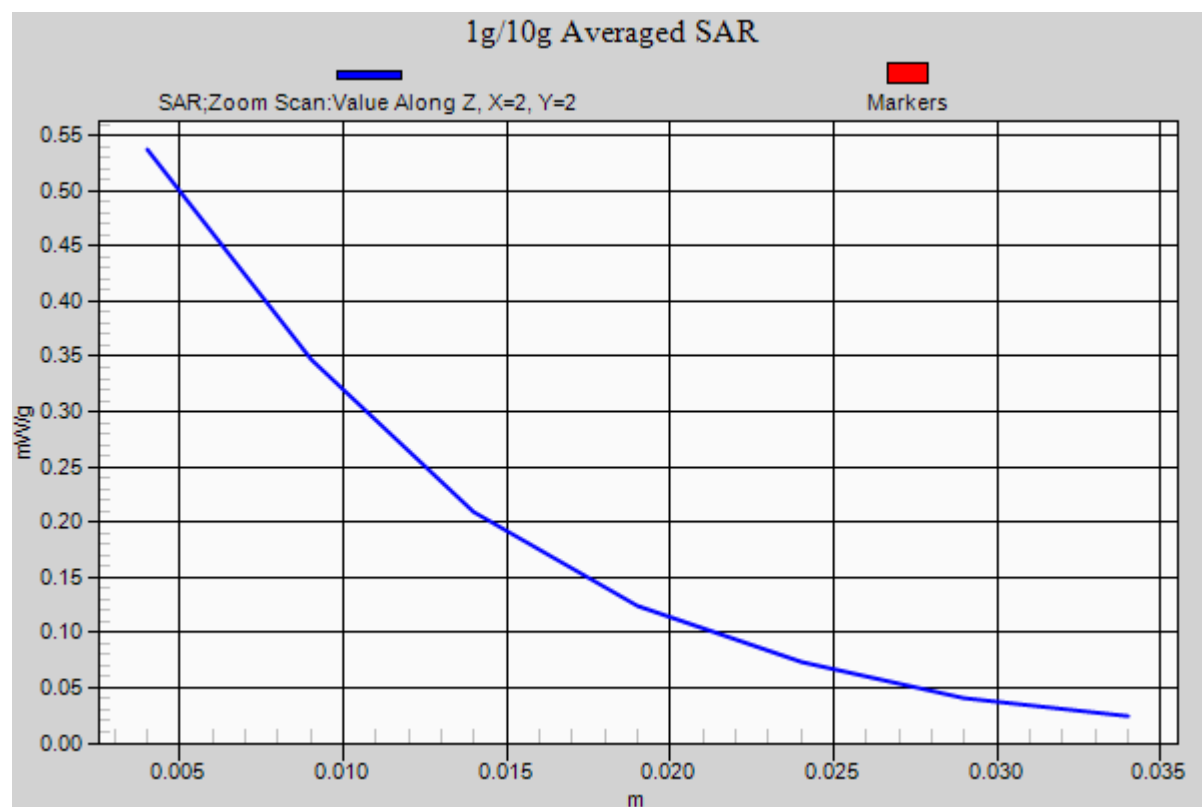
Ch661/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 7.372 V/m; Power Drift = -0.19 dB

Peak SAR (extrapolated) = 0.496 W/kg

SAR(1 g) = 0.341 mW/g; SAR(10 g) = 0.233 mW/g

Maximum value of SAR (measured) = 0.392 mW/g



#35 GSM1900_Right Tilted_Ch661**DUT: 1D0840**

Communication System: PCS; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium: HSL_1900_111216 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.409$ mho/m; $\epsilon_r =$

39.321; $\rho = 1000$ kg/m³

Ambient Temperature : 22.2 °C ; Liquid Temperature : 21.2 °C

DASY5 Configuration:

- Probe: ET3DV6 - SN1788; ConvF(5.19, 5.19, 5.19); Calibrated: 2011/9/28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn577; Calibrated: 2011/6/20
- Phantom: SAM Left; Type: QD000P40CD; Serial: TP:1542
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Ch661/Area Scan (41x81x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.354 mW/g

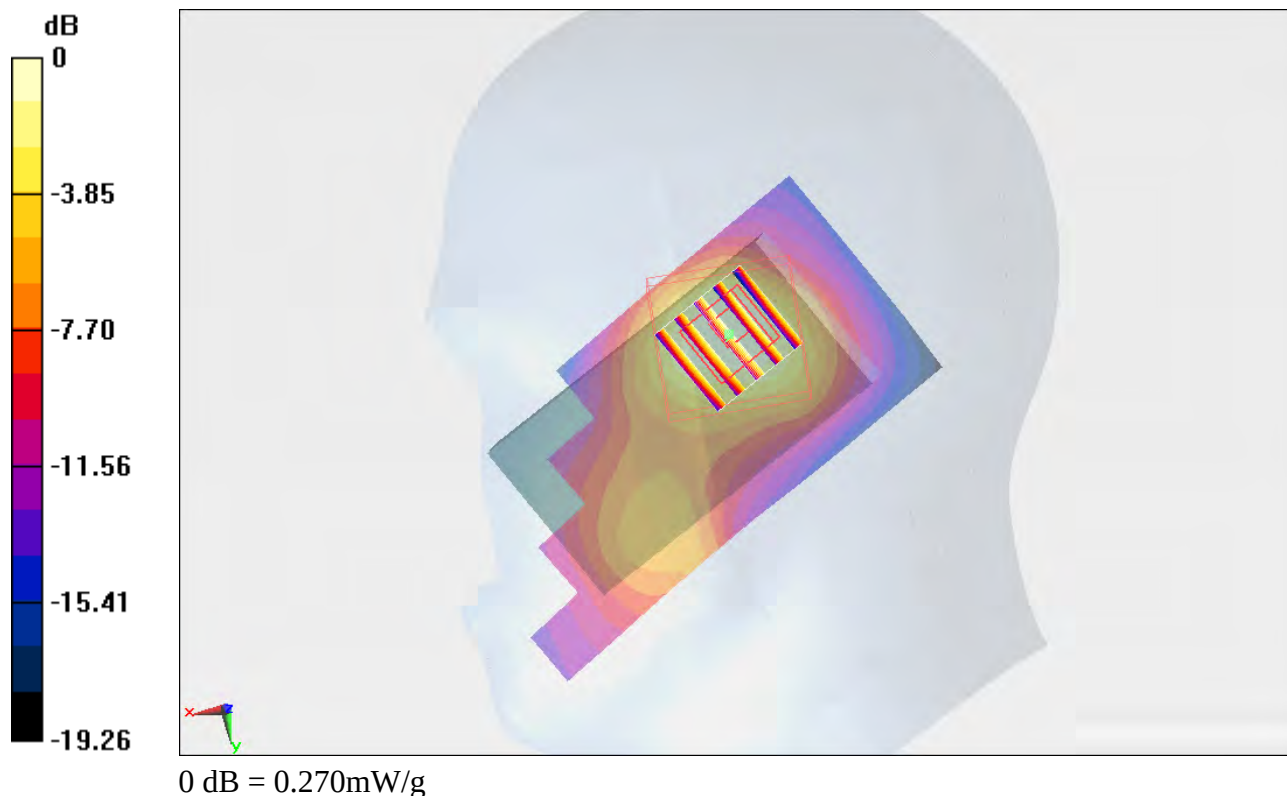
Ch661/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 11.134 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 0.388 W/kg

SAR(1 g) = 0.258 mW/g; SAR(10 g) = 0.157 mW/g

Maximum value of SAR (measured) = 0.271 mW/g



#36 GSM1900_Left Cheek_Ch661**DUT: 1D0840**

Communication System: PCS; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium: HSL_1900_111216 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.409$ mho/m; $\epsilon_r =$

39.321; $\rho = 1000$ kg/m³

Ambient Temperature : 22.2 °C ; Liquid Temperature : 21.2 °C

DASY5 Configuration:

- Probe: ET3DV6 - SN1788; ConvF(5.19, 5.19, 5.19); Calibrated: 2011/9/28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn577; Calibrated: 2011/6/20
- Phantom: SAM Left; Type: QD000P40CD; Serial: TP:1542
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Ch661/Area Scan (41x81x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.549 mW/g

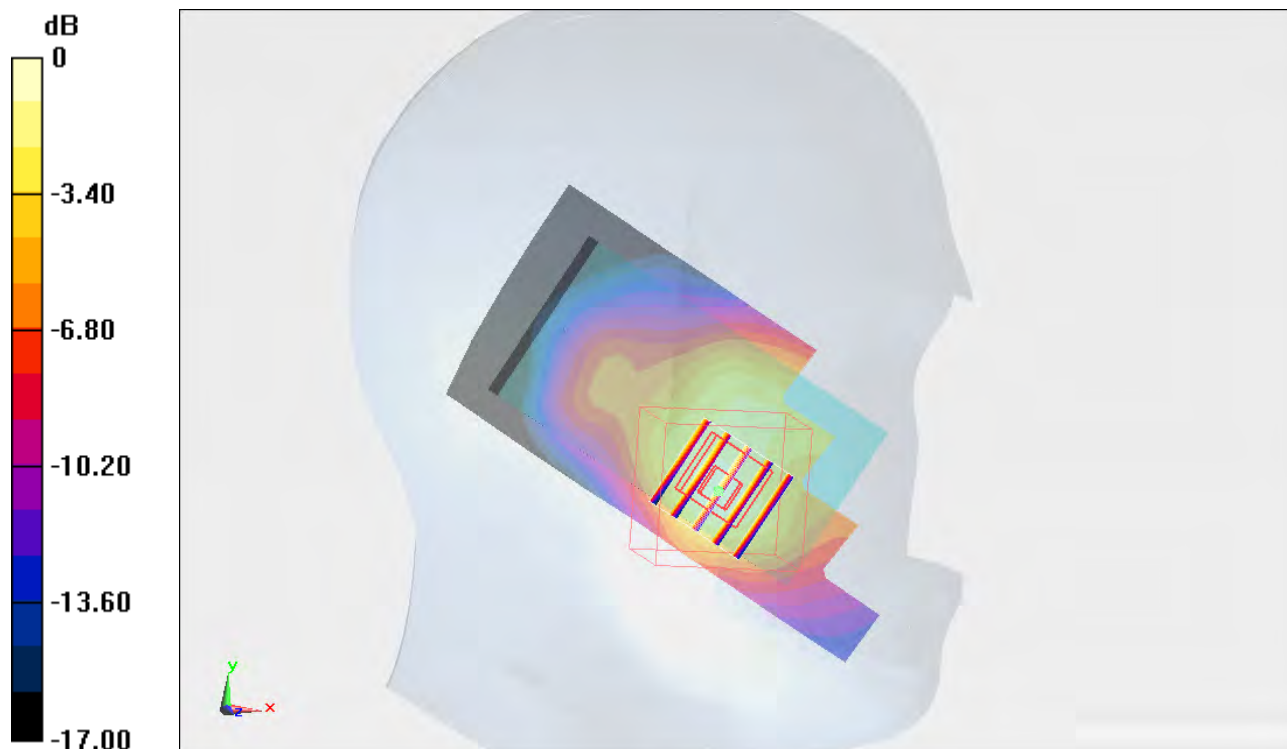
Ch661/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 7.733 V/m; Power Drift = -0.12 dB

Peak SAR (extrapolated) = 0.722 W/kg

SAR(1 g) = 0.485 mW/g; SAR(10 g) = 0.294 mW/g

Maximum value of SAR (measured) = 0.539 mW/g



0 dB = 0.540mW/g

#37 GSM1900_Left Tilted_Ch661**DUT: 1D0840**

Communication System: PCS; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium: HSL_1900_111216 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.409$ mho/m; $\epsilon_r =$

39.321; $\rho = 1000$ kg/m³

Ambient Temperature : 22.2 °C ; Liquid Temperature : 21.2 °C

DASY5 Configuration:

- Probe: ET3DV6 - SN1788; ConvF(5.19, 5.19, 5.19); Calibrated: 2011/9/28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn577; Calibrated: 2011/6/20
- Phantom: SAM Left; Type: QD000P40CD; Serial: TP:1542
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Ch661/Area Scan (41x81x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.253 mW/g

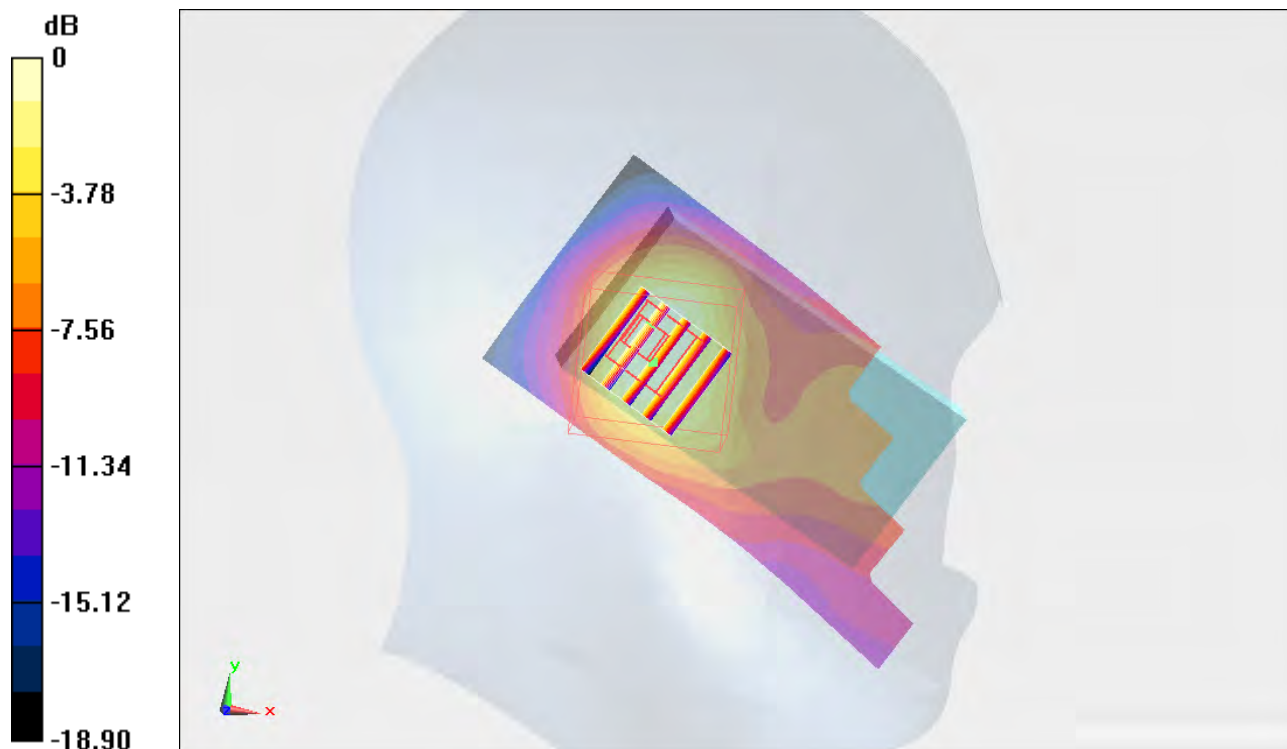
Ch661/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 12.516 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 0.324 W/kg

SAR(1 g) = 0.213 mW/g; SAR(10 g) = 0.128 mW/g

Maximum value of SAR (measured) = 0.230 mW/g



0 dB = 0.230mW/g

#30 WCDMA V_RMC12.2K_Right Cheek_Ch4182**DUT: 1D0840**

Communication System: WCDMA; Frequency: 836.4 MHz; Duty Cycle: 1:1

Medium: HSL_850_111216 Medium parameters used : $f = 836.4$ MHz; $\sigma = 0.901$ mho/m; $\epsilon_r =$

40.233; $\rho = 1000$ kg/m³

Ambient Temperature : 22.4 °C ; Liquid Temperature : 21.4 °C

DASY5 Configuration:

- Probe: ET3DV6 - SN1788; ConvF(6.35, 6.35, 6.35); Calibrated: 2011/9/28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn577; Calibrated: 2011/6/20
- Phantom: SAM Right; Type: QD000P40CD; Serial: TP:1644
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Ch4182/Area Scan (41x81x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.623 mW/g

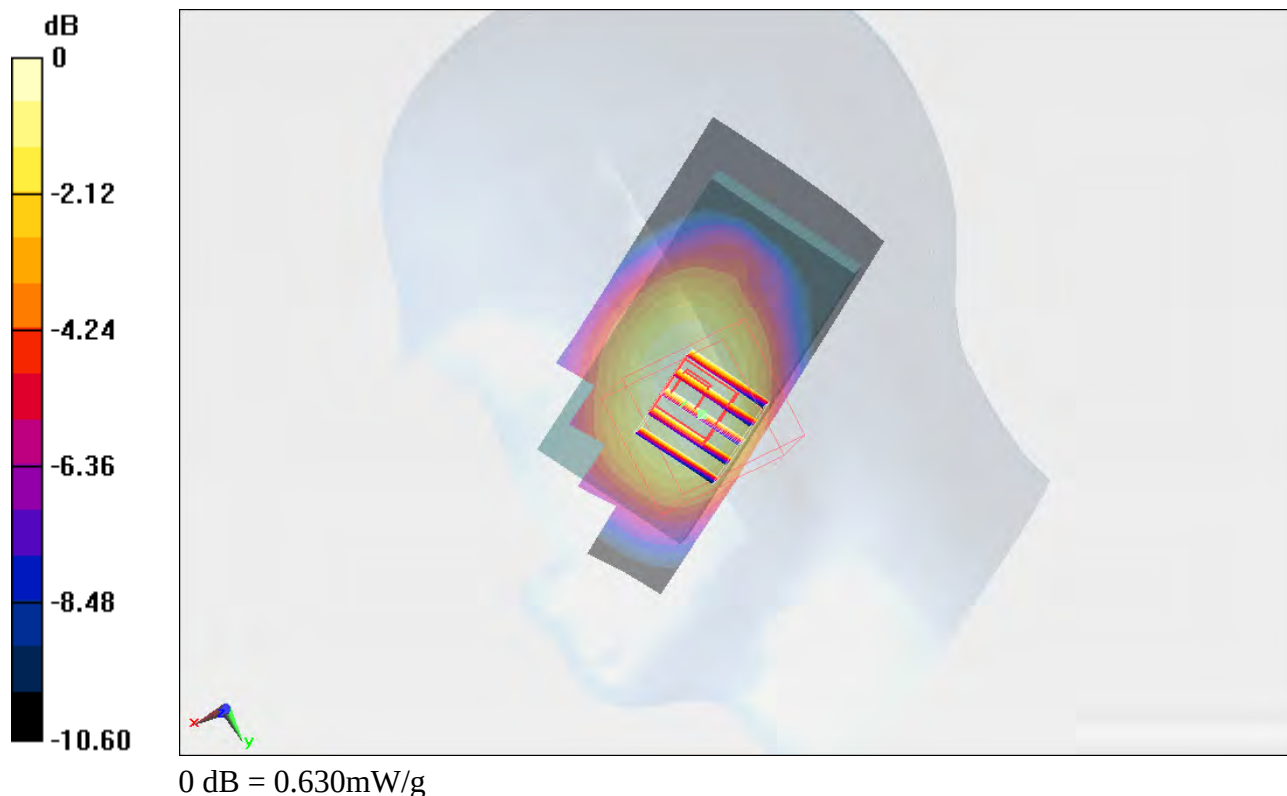
Ch4182/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 11.944 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.736 W/kg

SAR(1 g) = 0.598 mW/g; SAR(10 g) = 0.440 mW/g

Maximum value of SAR (measured) = 0.628 mW/g



#31 WCDMA V_RMC12.2K_Right Tilted_Ch4182**DUT: 1D0840**

Communication System: WCDMA; Frequency: 836.4 MHz; Duty Cycle: 1:1

Medium: HSL_850_111216 Medium parameters used : $f = 836.4$ MHz; $\sigma = 0.901$ mho/m; $\epsilon_r =$

40.233; $\rho = 1000$ kg/m³

Ambient Temperature : 22.4 °C ; Liquid Temperature : 21.4 °C

DASY5 Configuration:

- Probe: ET3DV6 - SN1788; ConvF(6.35, 6.35, 6.35); Calibrated: 2011/9/28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn577; Calibrated: 2011/6/20
- Phantom: SAM Right; Type: QD000P40CD; Serial: TP:1644
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Ch4182/Area Scan (41x81x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.465 mW/g

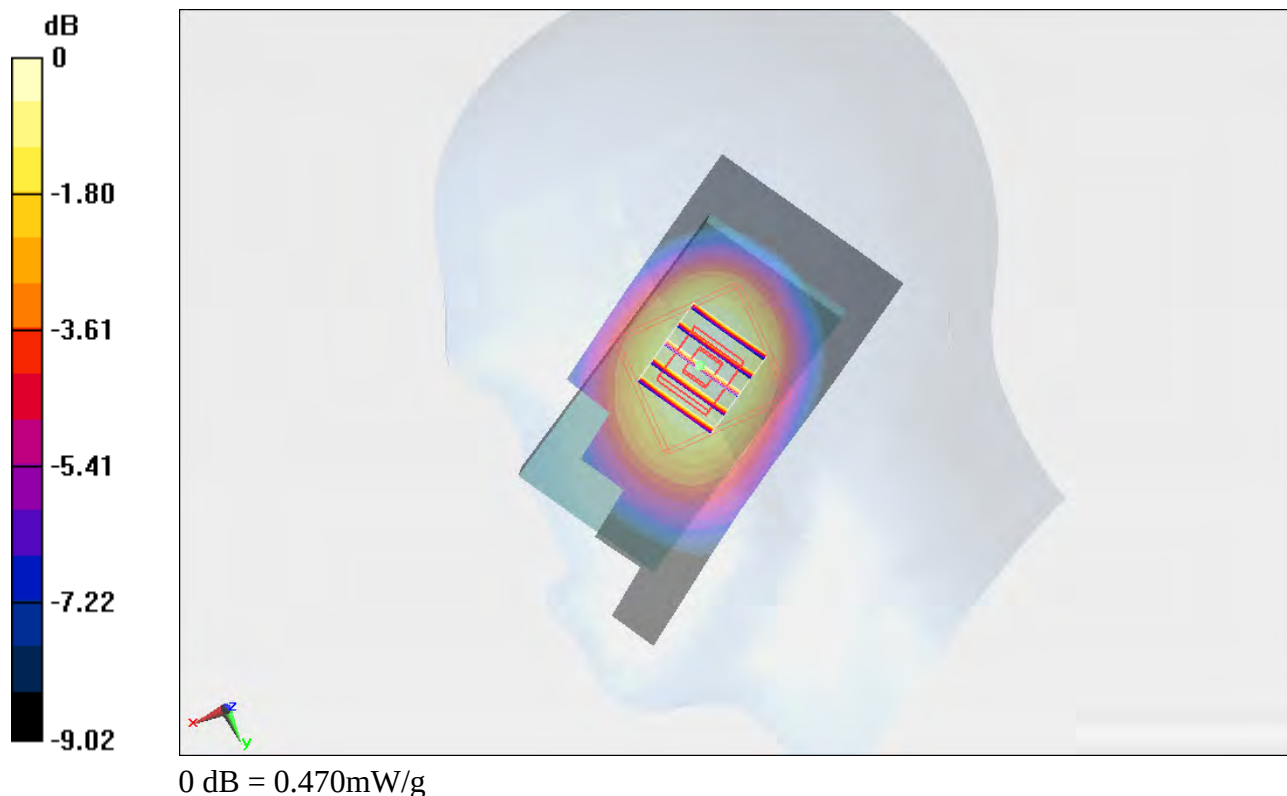
Ch4182/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 17.513 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 0.534 W/kg

SAR(1 g) = 0.439 mW/g; SAR(10 g) = 0.331 mW/g

Maximum value of SAR (measured) = 0.467 mW/g



#32 WCDMA V_RMC12.2K_Left Cheek_Ch4182**DUT: 1D0840**

Communication System: WCDMA; Frequency: 836.4 MHz; Duty Cycle: 1:1

Medium: HSL_850_111216 Medium parameters used : $f = 836.4$ MHz; $\sigma = 0.901$ mho/m; $\epsilon_r =$

40.233; $\rho = 1000$ kg/m³

Ambient Temperature : 22.4 °C ; Liquid Temperature : 21.4 °C

DASY5 Configuration:

- Probe: ET3DV6 - SN1788; ConvF(6.35, 6.35, 6.35); Calibrated: 2011/9/28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn577; Calibrated: 2011/6/20
- Phantom: SAM Right; Type: QD000P40CD; Serial: TP:1644
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Ch4182/Area Scan (41x81x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.639 mW/g

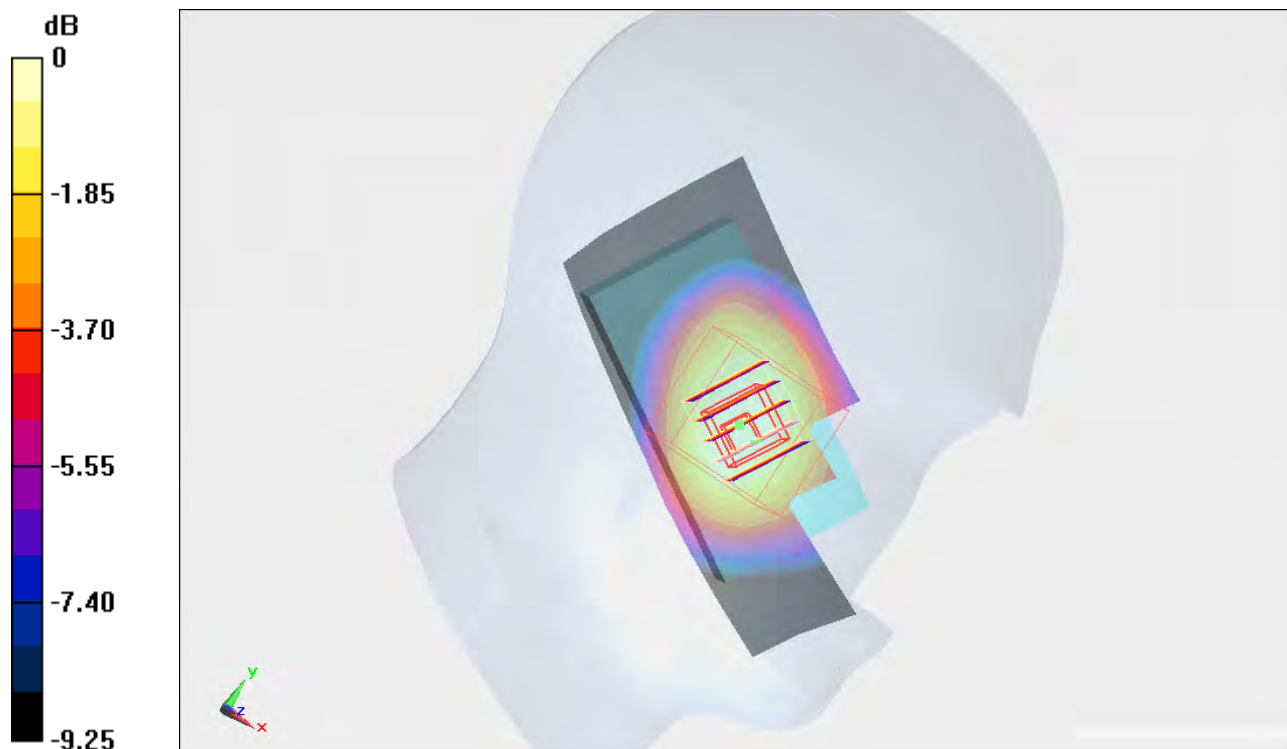
Ch4182/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 12.128 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 0.748 W/kg

SAR(1 g) = 0.613 mW/g; SAR(10 g) = 0.459 mW/g

Maximum value of SAR (measured) = 0.638 mW/g



0 dB = 0.640mW/g

#32 WCDMA V_RMC12.2K_Left Cheek_Ch4182_2D**DUT: 1D0840**

Communication System: WCDMA; Frequency: 836.4 MHz; Duty Cycle: 1:1

Medium: HSL_850_111216 Medium parameters used : $f = 836.4$ MHz; $\sigma = 0.901$ mho/m; $\epsilon_r =$

40.233; $\rho = 1000$ kg/m³

Ambient Temperature : 22.4 °C; Liquid Temperature : 21.4 °C

DASY5 Configuration:

- Probe: ET3DV6 - SN1788; ConvF(6.35, 6.35, 6.35); Calibrated: 2011/9/28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn577; Calibrated: 2011/6/20
- Phantom: SAM Right; Type: QD000P40CD; Serial: TP:1644
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Ch4182/Area Scan (41x81x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.639 mW/g

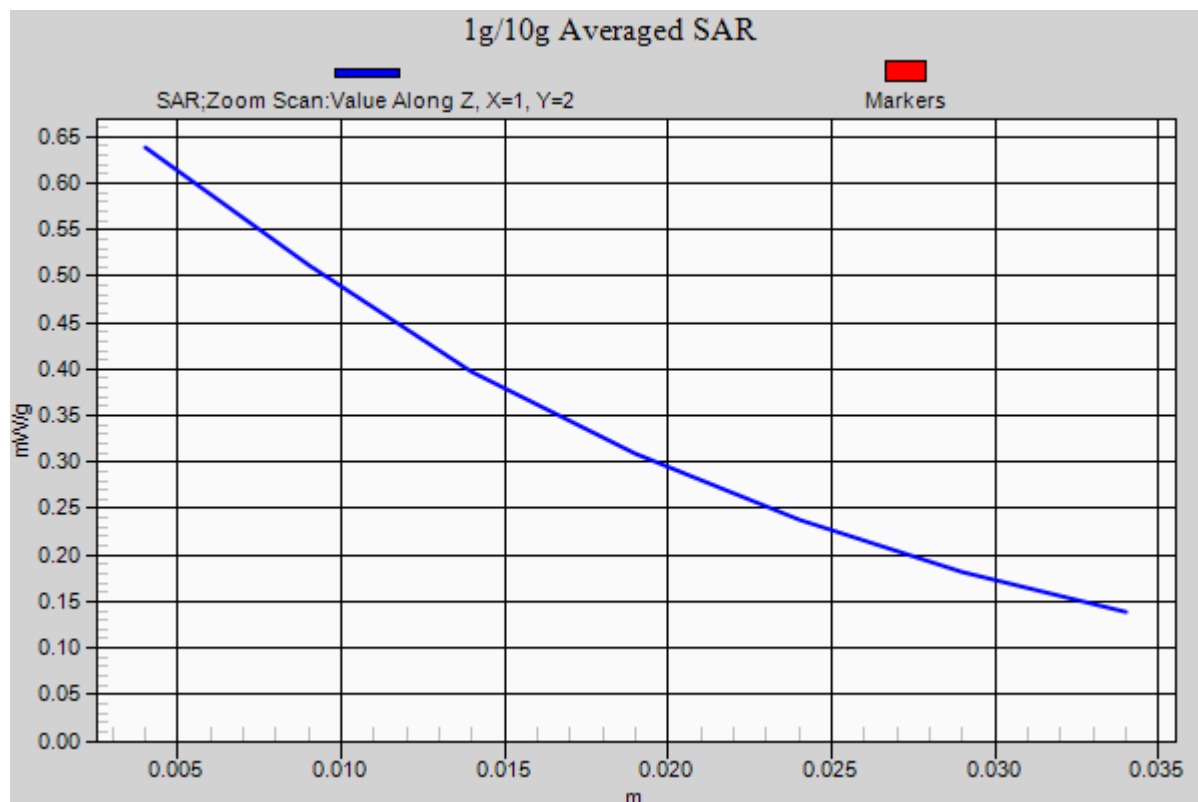
Ch4182/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 12.128 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 0.748 W/kg

SAR(1 g) = 0.613 mW/g; SAR(10 g) = 0.459 mW/g

Maximum value of SAR (measured) = 0.638 mW/g



#33 WCDMA V_RMC12.2K_Left Tilted_Ch4182**DUT: 1D0840**

Communication System: WCDMA; Frequency: 836.4 MHz; Duty Cycle: 1:1

Medium: HSL_850_111216 Medium parameters used: $f = 836.4$ MHz; $\sigma = 0.901$ mho/m; $\epsilon_r = 40.233$;

$\rho = 1000$ kg/m³

Ambient Temperature : 22.4 °C ; Liquid Temperature : 21.4 °C

DASY5 Configuration:

- Probe: ET3DV6 - SN1788; ConvF(6.35, 6.35, 6.35); Calibrated: 2011/9/28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn577; Calibrated: 2011/6/20
- Phantom: SAM Right; Type: QD000P40CD; Serial: TP:1644
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Ch4182/Area Scan (41x81x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.444 mW/g

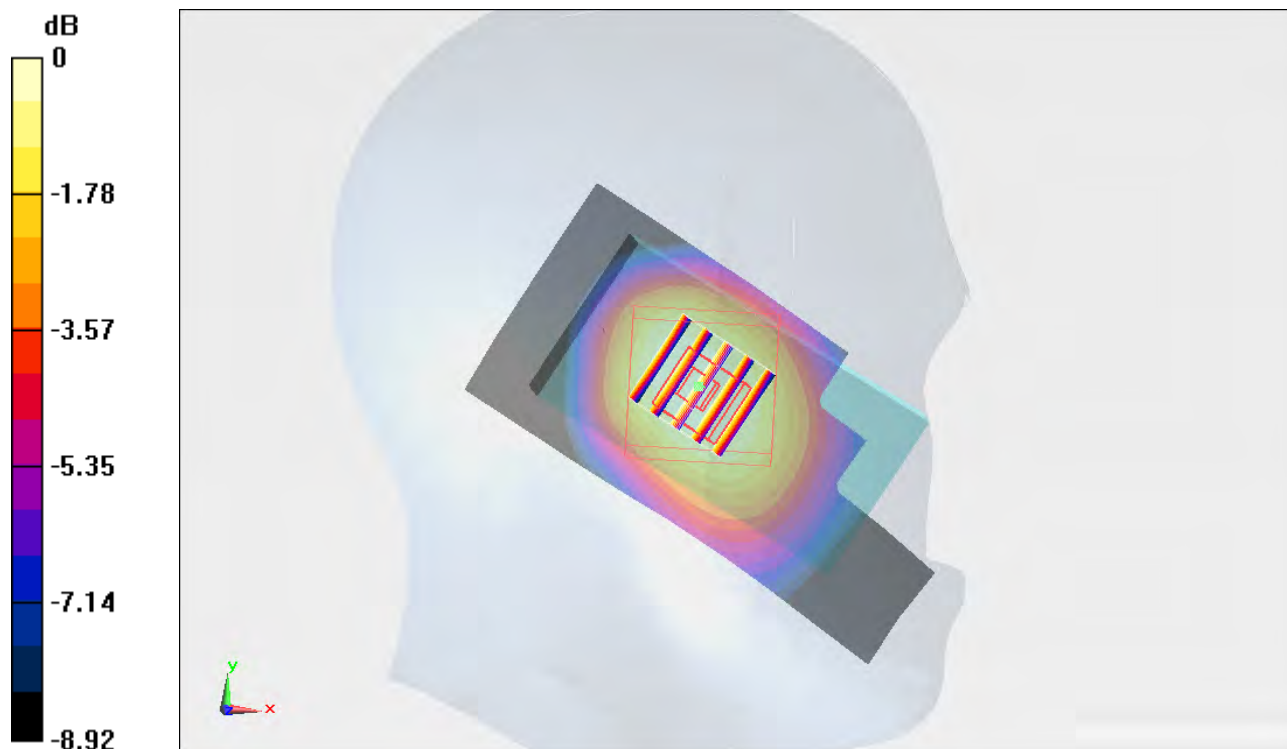
Ch4182/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 17.822 V/m; Power Drift = 0.0095 dB

Peak SAR (extrapolated) = 0.507 W/kg

SAR(1 g) = 0.416 mW/g; SAR(10 g) = 0.314 mW/g

Maximum value of SAR (measured) = 0.440 mW/g



0 dB = 0.440mW/g

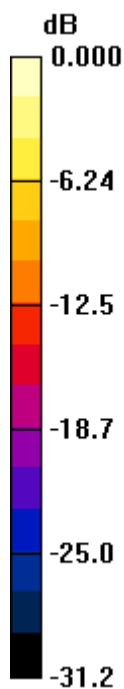
#45 802.11b_Right Cheek_Ch1**DUT: 1D0840**

Communication System: 802.11b ; Frequency: 2412 MHz;Duty Cycle: 1:1

Medium: HSL_2450_111220 Medium parameters used: $f = 2412 \text{ MHz}$; $\sigma = 1.82 \text{ mho/m}$; $\epsilon_r = 39.4$; $\rho = 1000 \text{ kg/m}^3$ Ambient Temperature : 22.2°C ; Liquid Temperature : 21.2°C

DASY4 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(4.52, 4.52, 4.52); Calibrated: 2011-09-12
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn495; Calibrated: 2011-04-28
- Phantom: SAM_Left; Type: SAM; Serial: TP-1150
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch1/Area Scan (51x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (interpolated) = 0.102 mW/g **Ch1/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$ Reference Value = 3.83 V/m ; Power Drift = 0.14 dB Peak SAR (extrapolated) = 0.221 W/kg **SAR(1 g) = 0.103 mW/g ; SAR(10 g) = 0.050 mW/g** Maximum value of SAR (measured) = 0.115 mW/g 0 dB = 0.115mW/g

#46 802.11b_Right Tilted_Ch1**DUT: 1D0840**

Communication System: 802.11b ; Frequency: 2412 MHz;Duty Cycle: 1:1

Medium: HSL_2450_111220 Medium parameters used: $f = 2412$ MHz; $\sigma = 1.82$ mho/m; $\epsilon_r = 39.4$; $\rho = 1000$ kg/m³

Ambient Temperature : 22.2 °C ; Liquid Temperature : 21.2 °C

DASY4 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(4.52, 4.52, 4.52); Calibrated: 2011-09-12
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn495; Calibrated: 2011-04-28
- Phantom: SAM_Left; Type: SAM; Serial: TP-1150
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch1/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.043 mW/g

Ch1/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 3.93 V/m; Power Drift = -0.005 dB

Peak SAR (extrapolated) = 0.081 W/kg

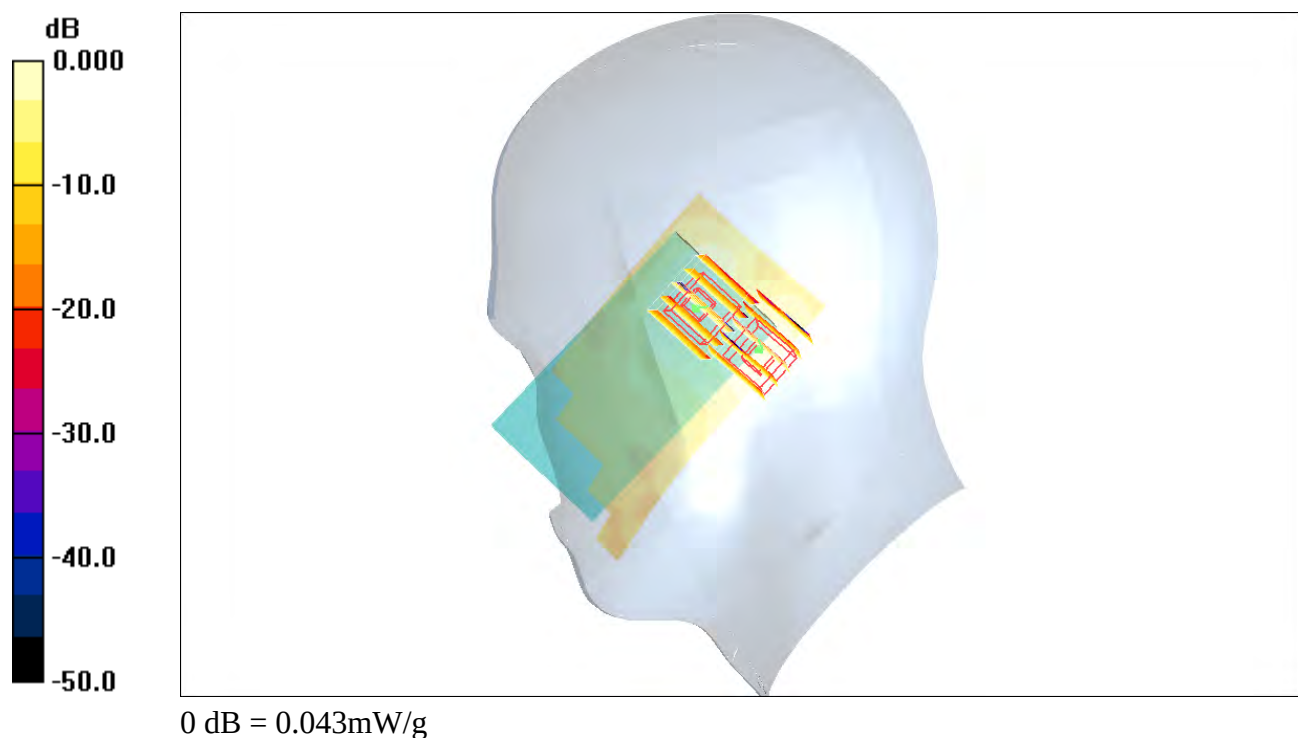
SAR(1 g) = 0.039 mW/g; SAR(10 g) = 0.019 mW/g

Maximum value of SAR (measured) = 0.043 mW/g

Ch1/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 3.93 V/m; Power Drift = -0.005 dB

Peak SAR (extrapolated) = 0.072 W/kg

SAR(1 g) = 0.037 mW/g; SAR(10 g) = 0.018 mW/g

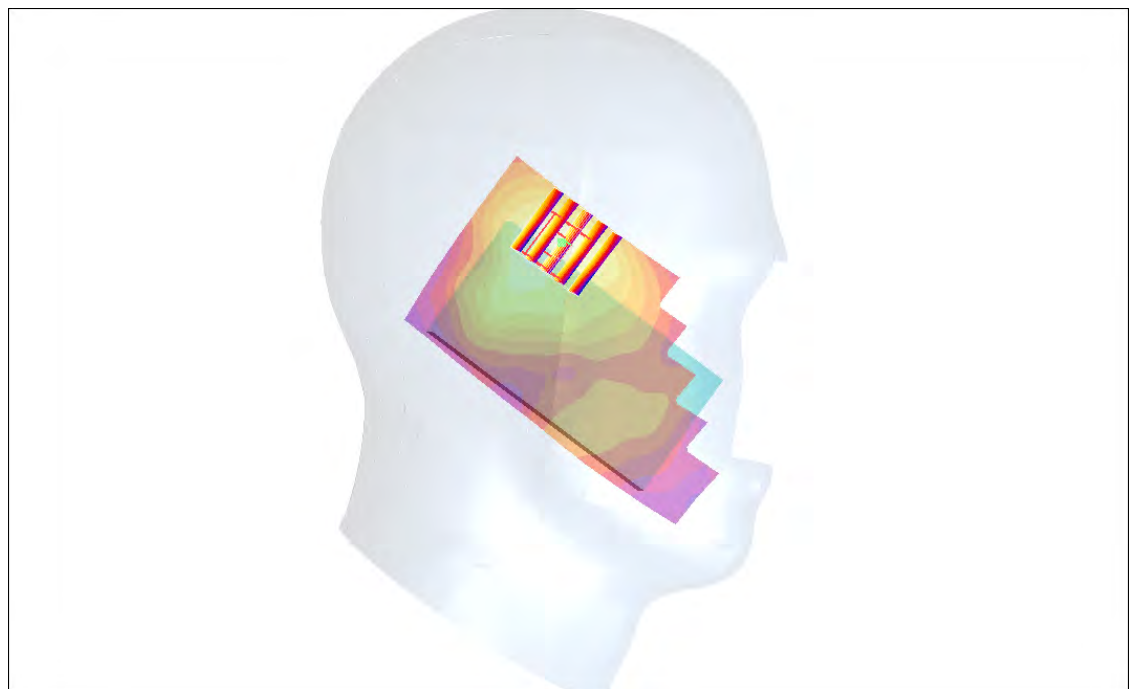
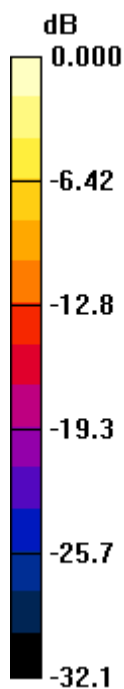
#47 802.11b_Left Cheek_Ch1**DUT: 1D0840**

Communication System: 802.11b ; Frequency: 2412 MHz;Duty Cycle: 1:1

Medium: HSL_2450_111220 Medium parameters used: $f = 2412 \text{ MHz}$; $\sigma = 1.82 \text{ mho/m}$; $\epsilon_r = 39.4$; $\rho = 1000 \text{ kg/m}^3$ Ambient Temperature : 22.2°C ; Liquid Temperature : 21.2°C

DASY4 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(4.52, 4.52, 4.52); Calibrated: 2011-09-12
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn495; Calibrated: 2011-04-28
- Phantom: SAM_Left; Type: SAM; Serial: TP-1150
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch1/Area Scan (61x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$ Maximum value of SAR (interpolated) = 0.227 mW/g **Ch1/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$ Reference Value = 5.72 V/m ; Power Drift = 0.013 dB Peak SAR (extrapolated) = 0.518 W/kg **SAR(1 g) = 0.222 mW/g ; SAR(10 g) = 0.099 mW/g** Maximum value of SAR (measured) = 0.234 mW/g 0 dB = 0.234mW/g

#47 802.11b_Left Cheek_Ch1_2D**DUT: 1D0840**

Communication System: 802.11b ; Frequency: 2412 MHz;Duty Cycle: 1:1

Medium: HSL_2450_111220 Medium parameters used: $f = 2412$ MHz; $\sigma = 1.82$ mho/m; $\epsilon_r = 39.4$; $\rho = 1000$ kg/m³

Ambient Temperature : 22.2 °C ; Liquid Temperature : 21.2 °C

DASY4 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(4.52, 4.52, 4.52); Calibrated: 2011-09-12
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn495; Calibrated: 2011-04-28
- Phantom: SAM_Left; Type: SAM; Serial: TP-1150
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch1/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.227 mW/g

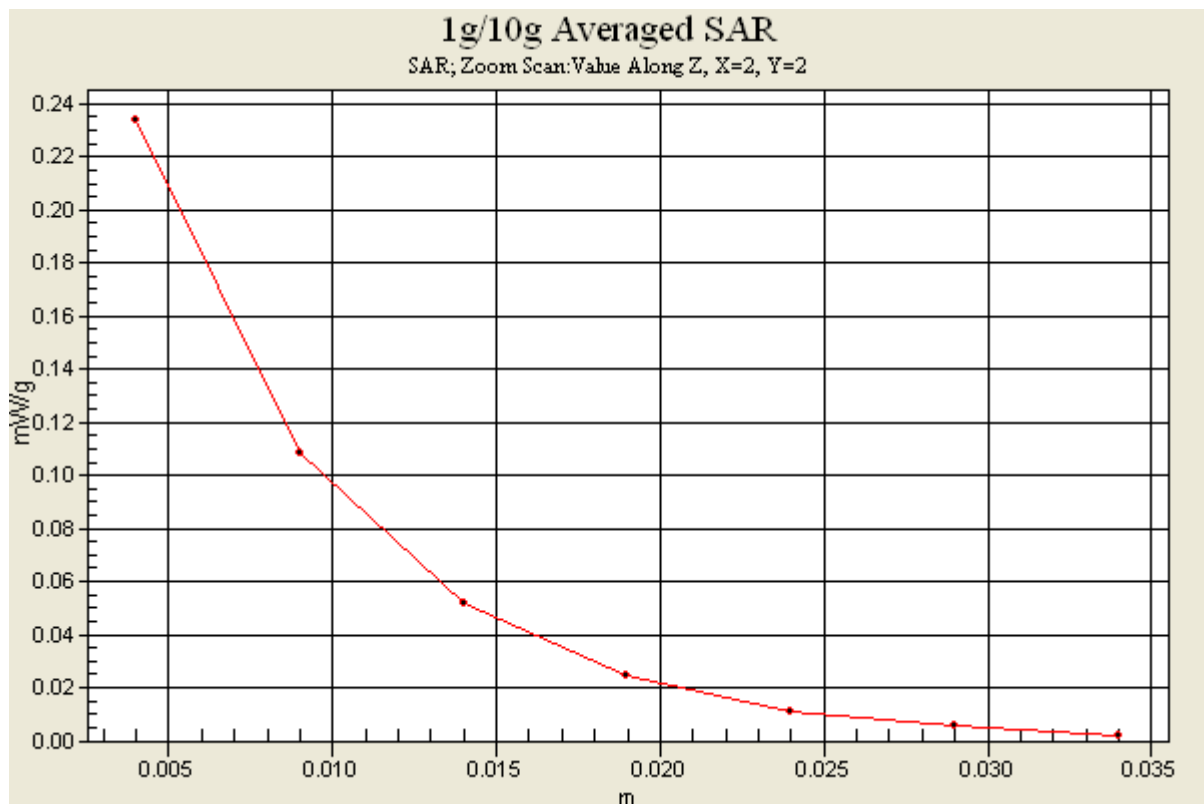
Ch1/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 5.72 V/m; Power Drift = 0.013 dB

Peak SAR (extrapolated) = 0.518 W/kg

SAR(1 g) = 0.222 mW/g; SAR(10 g) = 0.099 mW/g

Maximum value of SAR (measured) = 0.234 mW/g



#48 802.11b_Left Tilted_Ch1**DUT: 1D0840**

Communication System: 802.11b ; Frequency: 2412 MHz;Duty Cycle: 1:1

Medium: HSL_2450_111220 Medium parameters used: $f = 2412$ MHz; $\sigma = 1.82$ mho/m; $\epsilon_r = 39.4$; $\rho = 1000$ kg/m³

Ambient Temperature : 22.2 °C ; Liquid Temperature : 21.2 °C

DASY4 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(4.52, 4.52, 4.52); Calibrated: 2011-09-12
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn495; Calibrated: 2011-04-28
- Phantom: SAM_Left; Type: SAM; Serial: TP-1150
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch1/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.062 mW/g

Ch1/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 4.97 V/m; Power Drift = 0.082 dB

Peak SAR (extrapolated) = 0.122 W/kg

SAR(1 g) = 0.060 mW/g; SAR(10 g) = 0.029 mW/g

Maximum value of SAR (measured) = 0.065 mW/g

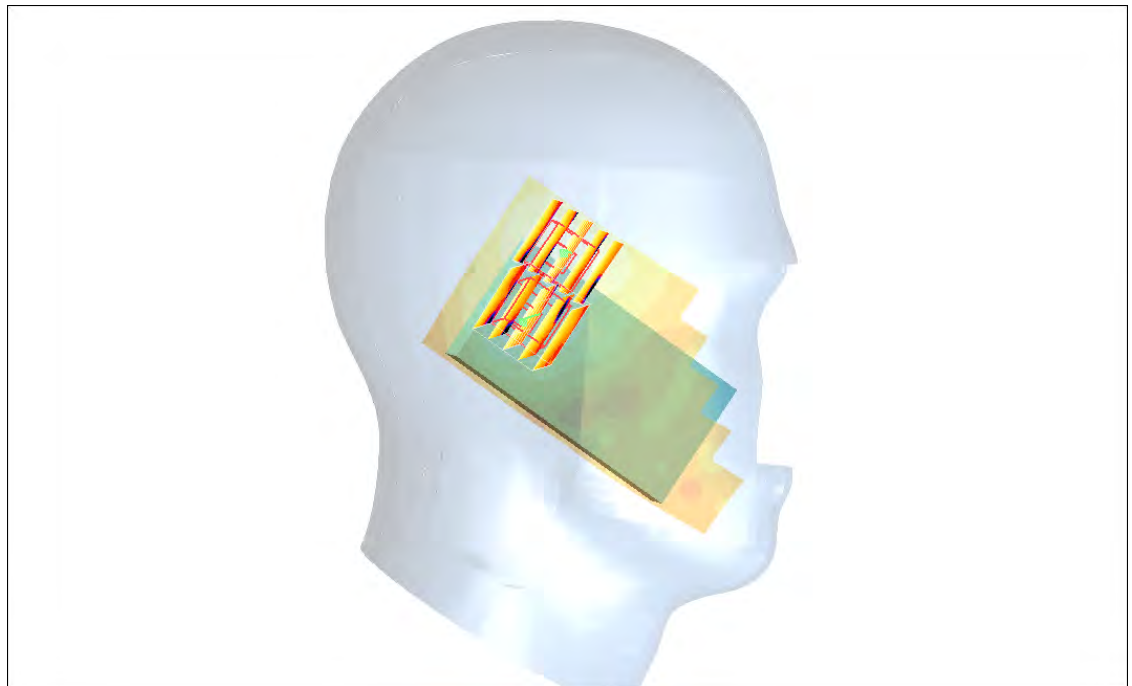
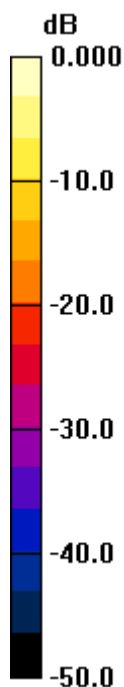
Ch1/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 4.97 V/m; Power Drift = 0.082 dB

Peak SAR (extrapolated) = 0.098 W/kg

SAR(1 g) = 0.049 mW/g; SAR(10 g) = 0.024 mW/g

Maximum value of SAR (measured) = 0.055 mW/g



0 dB = 0.062mW/g

#01 GSM850_GPRS8_Front_1cm_Ch189**DUT: 1D0840**

Communication System: GSM850; Frequency: 836.4 MHz; Duty Cycle: 1:8.3

Medium: MSL_850_111215 Medium parameters used : $f = 836.4$ MHz; $\sigma = 0.956$ mho/m; $\epsilon_r =$

52.678; $\rho = 1000$ kg/m³

Ambient Temperature : 22.3 °C ; Liquid Temperature : 21.3 °C

DASY5 Configuration:

- Probe: ET3DV6 - SN1788; ConvF(6.24, 6.24, 6.24); Calibrated: 2011/9/28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn577; Calibrated: 2011/6/20
- Phantom: SAM Right; Type: QD000P40CD; Serial: TP:1644
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Ch189/Area Scan (41x71x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.645 mW/g

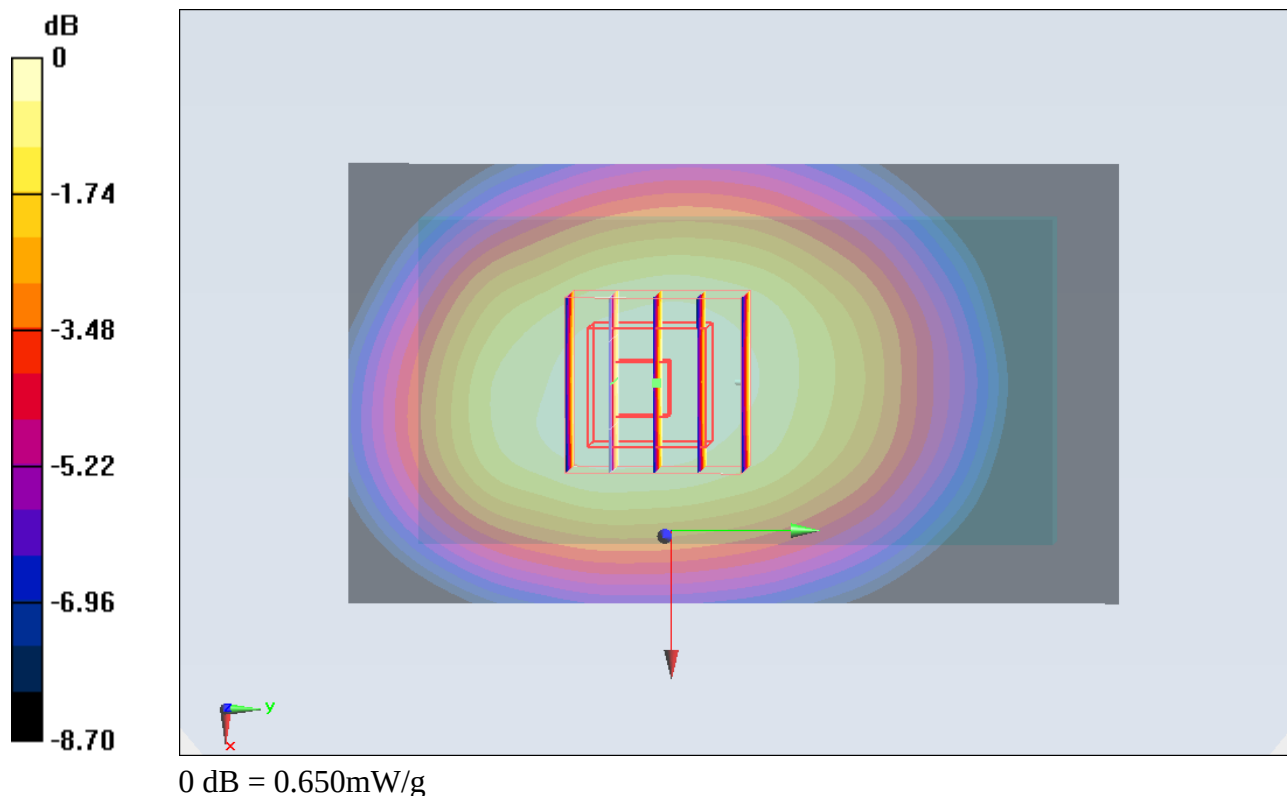
Ch189/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 25.951 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.768 W/kg

SAR(1 g) = 0.619 mW/g; SAR(10 g) = 0.465 mW/g

Maximum value of SAR (measured) = 0.646 mW/g



#02 GSM850_GPRS8_Back_1cm_Ch189

DUT: 1D0840

Communication System: GSM850; Frequency: 836.4 MHz; Duty Cycle: 1:8.3

Medium: MSL_850_111215 Medium parameters used : $f = 836.4$ MHz; $\sigma = 0.956$ mho/m; $\epsilon_r =$

52.678; $\rho = 1000$ kg/m³

Ambient Temperature : 22.3 °C ; Liquid Temperature : 21.3 °C

DASY5 Configuration:

- Probe: ET3DV6 - SN1788; ConvF(6.24, 6.24, 6.24); Calibrated: 2011/9/28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn577; Calibrated: 2011/6/20
- Phantom: SAM Right; Type: QD000P40CD; Serial: TP:1644
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Ch189/Area Scan (41x71x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 1.036 mW/g

Ch189/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 32.457 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 1.257 W/kg

SAR(1 g) = 0.987 mW/g; SAR(10 g) = 0.718 mW/g

Maximum value of SAR (measured) = 1.039 mW/g

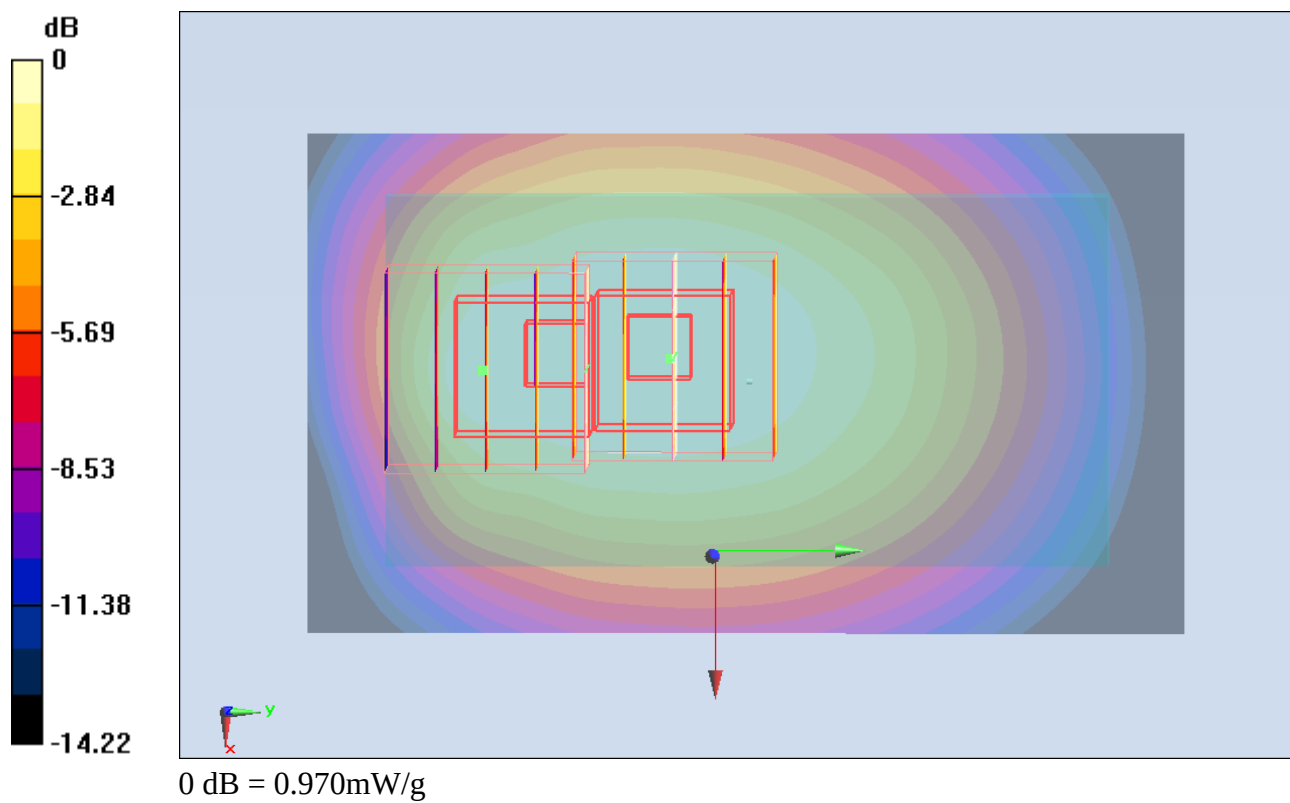
Ch189/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 32.457 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 1.194 W/kg

SAR(1 g) = 0.875 mW/g; SAR(10 g) = 0.593 mW/g

Maximum value of SAR (measured) = 0.970 mW/g



#03 GSM850_GPRS8_Left Side_1cm_Ch189**DUT: 1D0840**

Communication System: GSM850; Frequency: 836.4 MHz; Duty Cycle: 1:8.3

Medium: MSL_850_111215 Medium parameters used : $f = 836.4$ MHz; $\sigma = 0.956$ mho/m; $\epsilon_r =$

52.678; $\rho = 1000$ kg/m³

Ambient Temperature : 22.3 °C ; Liquid Temperature : 21.3 °C

DASY5 Configuration:

- Probe: ET3DV6 - SN1788; ConvF(6.24, 6.24, 6.24); Calibrated: 2011/9/28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn577; Calibrated: 2011/6/20
- Phantom: SAM Right; Type: QD000P40CD; Serial: TP:1644
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Ch189/Area Scan (21x71x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.434 mW/g

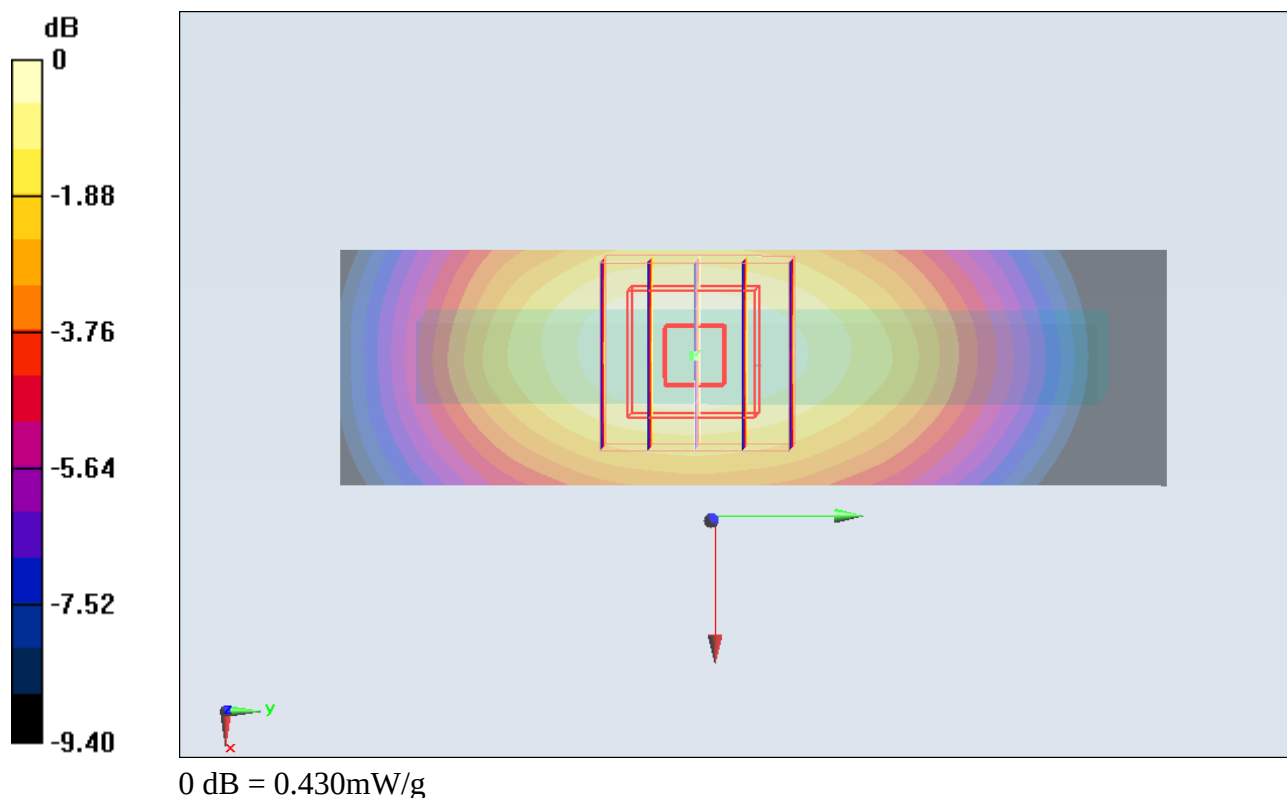
Ch189/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 21.719 V/m; Power Drift = -0.0098 dB

Peak SAR (extrapolated) = 0.539 W/kg

SAR(1 g) = 0.406 mW/g; SAR(10 g) = 0.284 mW/g

Maximum value of SAR (measured) = 0.433 mW/g



#04 GSM850_GPRS8_Right Side_1cm_Ch189**DUT: 1D0840**

Communication System: GSM850; Frequency: 836.4 MHz; Duty Cycle: 1:8.3

Medium: MSL_850_111215 Medium parameters used : $f = 836.4$ MHz; $\sigma = 0.956$ mho/m; $\epsilon_r =$

52.678; $\rho = 1000$ kg/m³

Ambient Temperature : 22.3 °C ; Liquid Temperature : 21.3 °C

DASY5 Configuration:

- Probe: ET3DV6 - SN1788; ConvF(6.24, 6.24, 6.24); Calibrated: 2011/9/28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn577; Calibrated: 2011/6/20
- Phantom: SAM Right; Type: QD000P40CD; Serial: TP:1644
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Ch189/Area Scan (21x71x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.387 mW/g

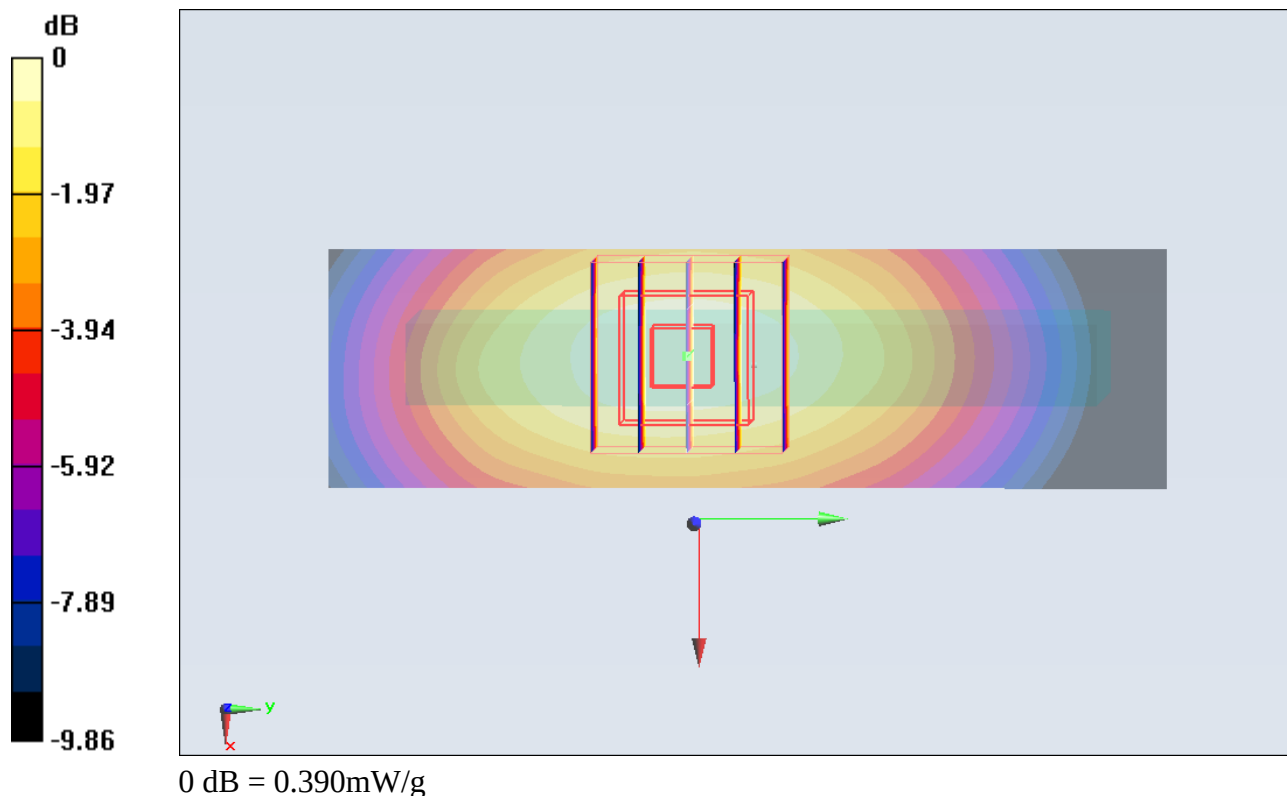
Ch189/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 20.457 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.490 W/kg

SAR(1 g) = 0.363 mW/g; SAR(10 g) = 0.252 mW/g

Maximum value of SAR (measured) = 0.388 mW/g



#06 GSM850_GPRS8_Bottom Side_1cm_Ch189**DUT: 1D0840**

Communication System: GSM850; Frequency: 836.4 MHz; Duty Cycle: 1:8.3

Medium: MSL_850_111215 Medium parameters used : $f = 836.4$ MHz; $\sigma = 0.956$ mho/m; $\epsilon_r =$

52.678; $\rho = 1000$ kg/m³

Ambient Temperature : 22.3 °C ; Liquid Temperature : 21.3 °C

DASY5 Configuration:

- Probe: ET3DV6 - SN1788; ConvF(6.24, 6.24, 6.24); Calibrated: 2011/9/28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn577; Calibrated: 2011/6/20
- Phantom: SAM Right; Type: QD000P40CD; Serial: TP:1644
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Ch189/Area Scan (31x41x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.106 mW/g

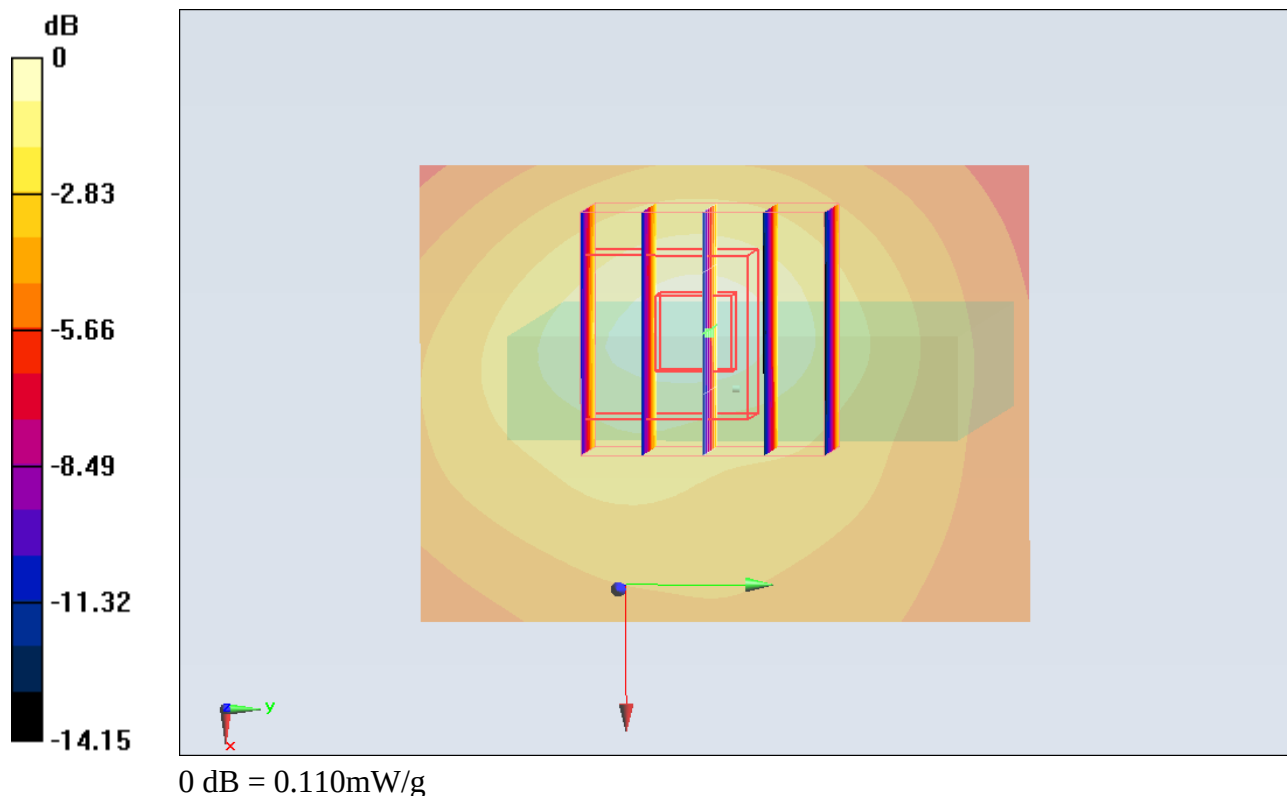
Ch189/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.998 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 0.223 W/kg

SAR(1 g) = 0.101 mW/g; SAR(10 g) = 0.058 mW/g

Maximum value of SAR (measured) = 0.105 mW/g



#08 GSM850_GPRS8_Back_1cm_Ch128**DUT: 1D0840**

Communication System: GSM850; Frequency: 824.2 MHz; Duty Cycle: 1:8.3

Medium: MSL_850_111215 Medium parameters used : $f = 824.2$ MHz; $\sigma = 0.943$ mho/m; $\epsilon_r =$

52.797; $\rho = 1000$ kg/m³

Ambient Temperature : 22.3 °C ; Liquid Temperature : 21.3 °C

DASY5 Configuration:

- Probe: ET3DV6 - SN1788; ConvF(6.24, 6.24, 6.24); Calibrated: 2011/9/28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn577; Calibrated: 2011/6/20
- Phantom: SAM Right; Type: QD000P40CD; Serial: TP:1644
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Ch128/Area Scan (41x71x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.997 mW/g

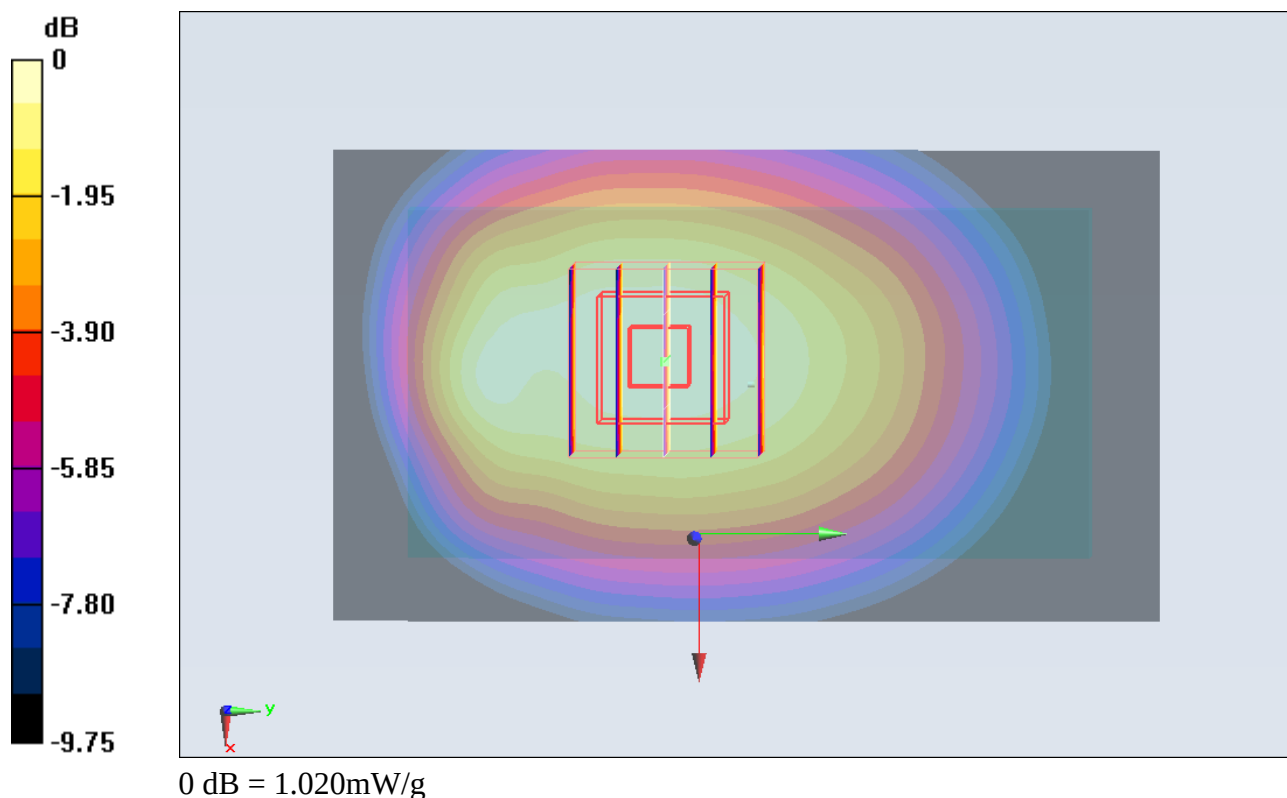
Ch128/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 31.868 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 1.228 W/kg

SAR(1 g) = 0.959 mW/g; SAR(10 g) = 0.695 mW/g

Maximum value of SAR (measured) = 1.018 mW/g



#09 GSM850_GPRS8_Back_1cm_Ch251

DUT: 1D0840

Communication System: GSM850; Frequency: 848.8 MHz; Duty Cycle: 1:8.3

Medium: MSL_850_111215 Medium parameters used: $f = 849$ MHz; $\sigma = 0.969$ mho/m; $\epsilon_r = 52.551$;

$\rho = 1000$ kg/m³

Ambient Temperature : 22.3 °C; Liquid Temperature : 21.3 °C

DASY5 Configuration:

- Probe: ET3DV6 - SN1788; ConvF(6.24, 6.24, 6.24); Calibrated: 2011/9/28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn577; Calibrated: 2011/6/20
- Phantom: SAM Right; Type: QD000P40CD; Serial: TP:1644
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Ch251/Area Scan (41x71x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 1.134 mW/g

Ch251/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 33.889 V/m; Power Drift = -0.0081 dB

Peak SAR (extrapolated) = 1.379 W/kg

SAR(1 g) = 1.08 mW/g; SAR(10 g) = 0.782 mW/g

Maximum value of SAR (measured) = 1.145 mW/g

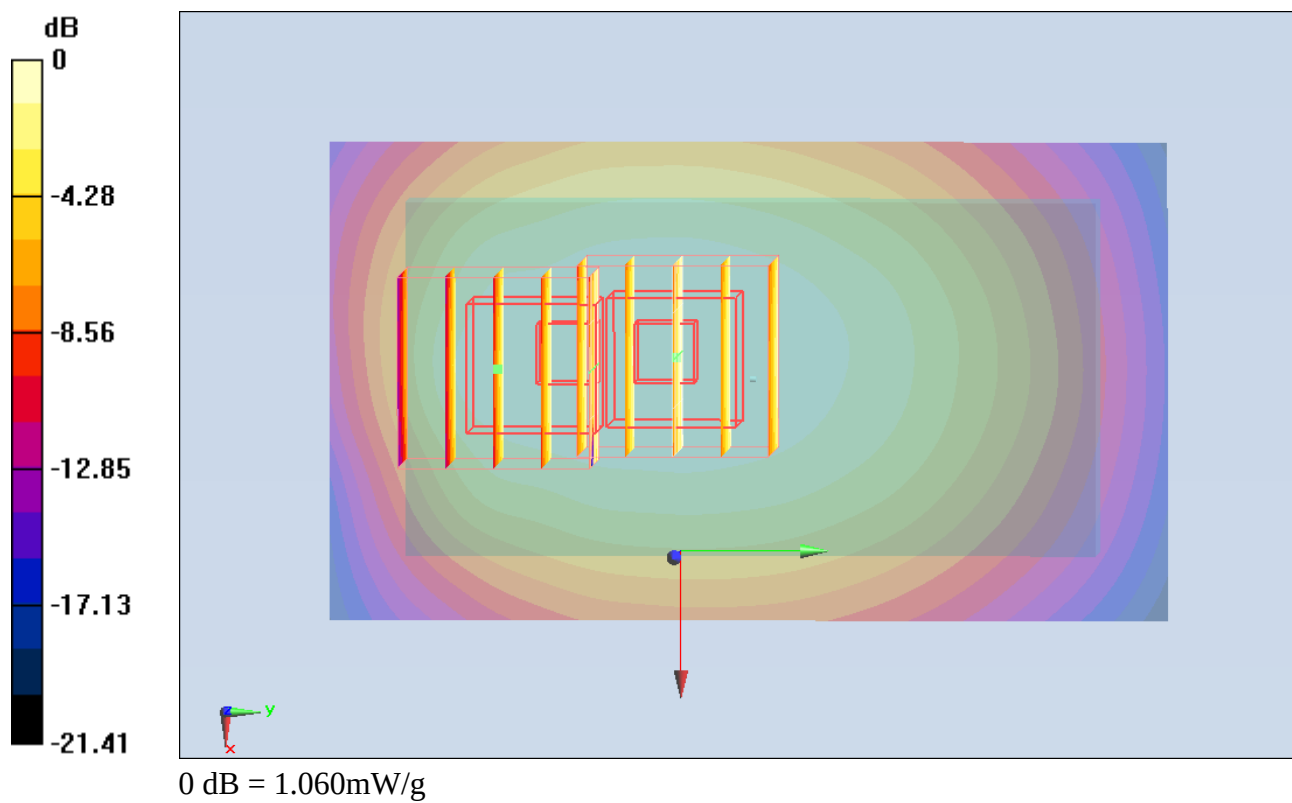
Ch251/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 33.889 V/m; Power Drift = -0.0081 dB

Peak SAR (extrapolated) = 1.328 W/kg

SAR(1 g) = 0.943 mW/g; SAR(10 g) = 0.635 mW/g

Maximum value of SAR (measured) = 1.061 mW/g



#09 GSM850_GPRS8_Back_1cm_Ch251_2D

DUT: 1D0840

Communication System: GSM850; Frequency: 848.8 MHz; Duty Cycle: 1:8.3

Medium: MSL_850_111215 Medium parameters used: $f = 849$ MHz; $\sigma = 0.969$ mho/m; $\epsilon_r = 52.551$;

$\rho = 1000$ kg/m³

Ambient Temperature : 22.3 °C ; Liquid Temperature : 21.3 °C

DASY5 Configuration:

- Probe: ET3DV6 - SN1788; ConvF(6.24, 6.24, 6.24); Calibrated: 2011/9/28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn577; Calibrated: 2011/6/20
- Phantom: SAM Right; Type: QD000P40CD; Serial: TP:1644
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Ch251/Area Scan (41x71x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 1.134 mW/g

Ch251/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 33.889 V/m; Power Drift = -0.0081 dB

Peak SAR (extrapolated) = 1.379 W/kg

SAR(1 g) = 1.08 mW/g; SAR(10 g) = 0.782 mW/g

Maximum value of SAR (measured) = 1.145 mW/g

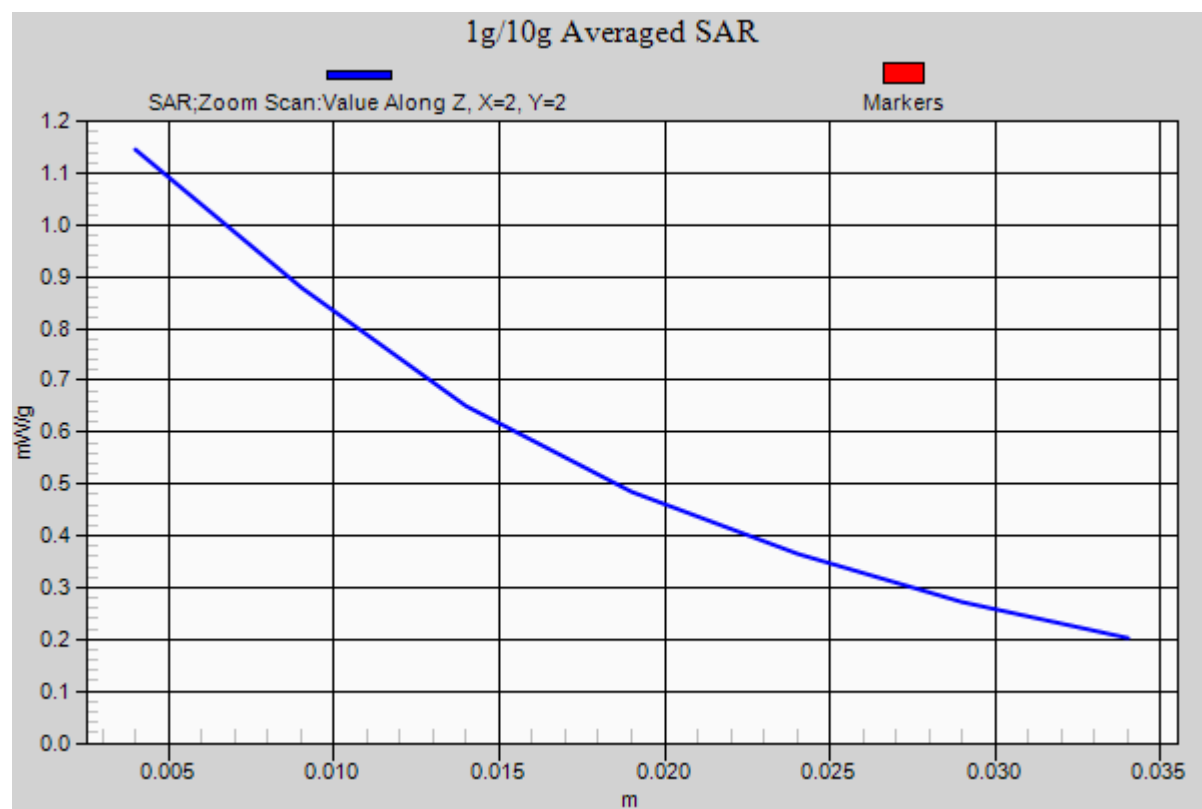
Ch251/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 33.889 V/m; Power Drift = -0.0081 dB

Peak SAR (extrapolated) = 1.328 W/kg

SAR(1 g) = 0.943 mW/g; SAR(10 g) = 0.635 mW/g

Maximum value of SAR (measured) = 1.061 mW/g



#01 GSM850_GPRS8_Front_1cm_Ch189**DUT: 1D0840**

Communication System: GSM850; Frequency: 836.4 MHz; Duty Cycle: 1:8.3

Medium: MSL_850_111215 Medium parameters used : $f = 836.4$ MHz; $\sigma = 0.956$ mho/m; $\epsilon_r =$

52.678; $\rho = 1000$ kg/m³

Ambient Temperature : 22.3 °C ; Liquid Temperature : 21.3 °C

DASY5 Configuration:

- Probe: ET3DV6 - SN1788; ConvF(6.24, 6.24, 6.24); Calibrated: 2011/9/28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn577; Calibrated: 2011/6/20
- Phantom: SAM Right; Type: QD000P40CD; Serial: TP:1644
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Ch189/Area Scan (41x71x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.645 mW/g

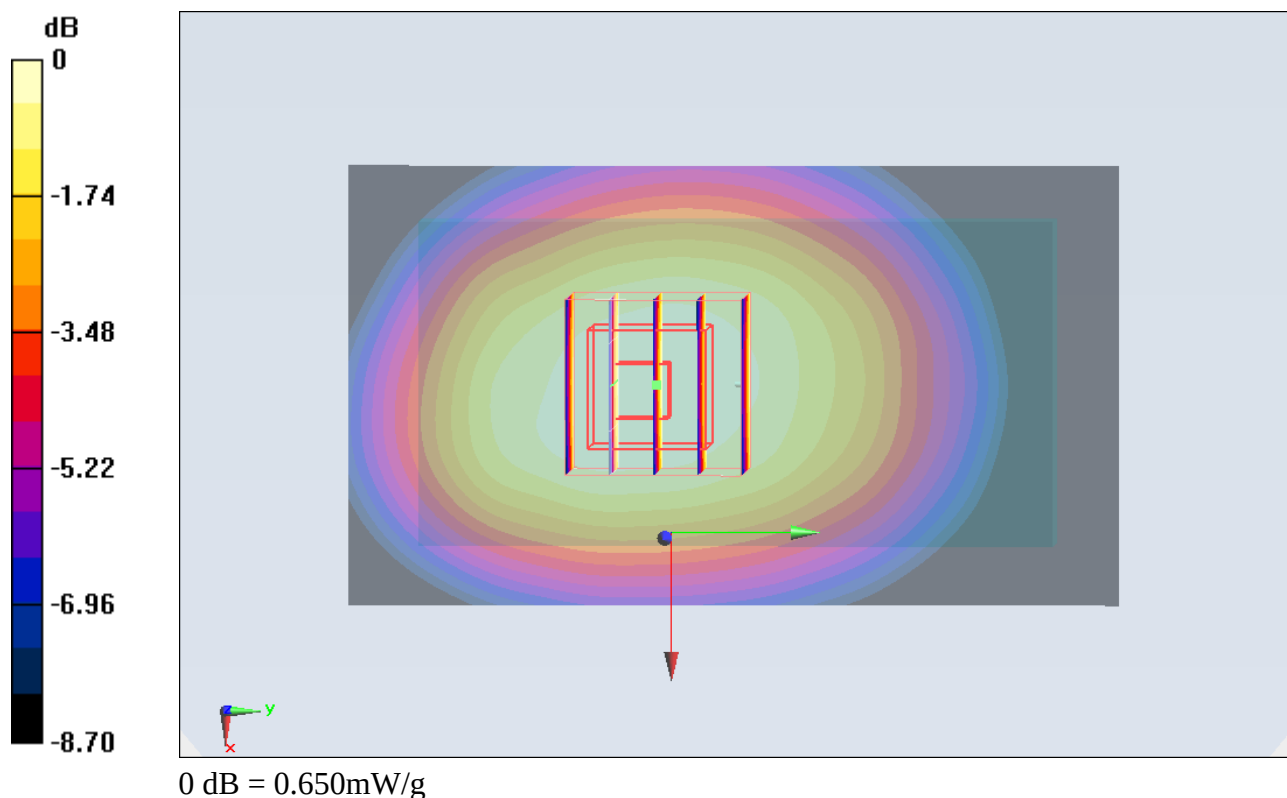
Ch189/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 25.951 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.768 W/kg

SAR(1 g) = 0.619 mW/g; SAR(10 g) = 0.465 mW/g

Maximum value of SAR (measured) = 0.646 mW/g



#02 GSM850_GPRS8_Back_1cm_Ch189

DUT: 1D0840

Communication System: GSM850; Frequency: 836.4 MHz; Duty Cycle: 1:8.3

Medium: MSL_850_111215 Medium parameters used : $f = 836.4$ MHz; $\sigma = 0.956$ mho/m; $\epsilon_r =$

52.678; $\rho = 1000$ kg/m³

Ambient Temperature : 22.3 °C ; Liquid Temperature : 21.3 °C

DASY5 Configuration:

- Probe: ET3DV6 - SN1788; ConvF(6.24, 6.24, 6.24); Calibrated: 2011/9/28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn577; Calibrated: 2011/6/20
- Phantom: SAM Right; Type: QD000P40CD; Serial: TP:1644
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Ch189/Area Scan (41x71x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 1.036 mW/g

Ch189/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 32.457 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 1.257 W/kg

SAR(1 g) = 0.987 mW/g; SAR(10 g) = 0.718 mW/g

Maximum value of SAR (measured) = 1.039 mW/g

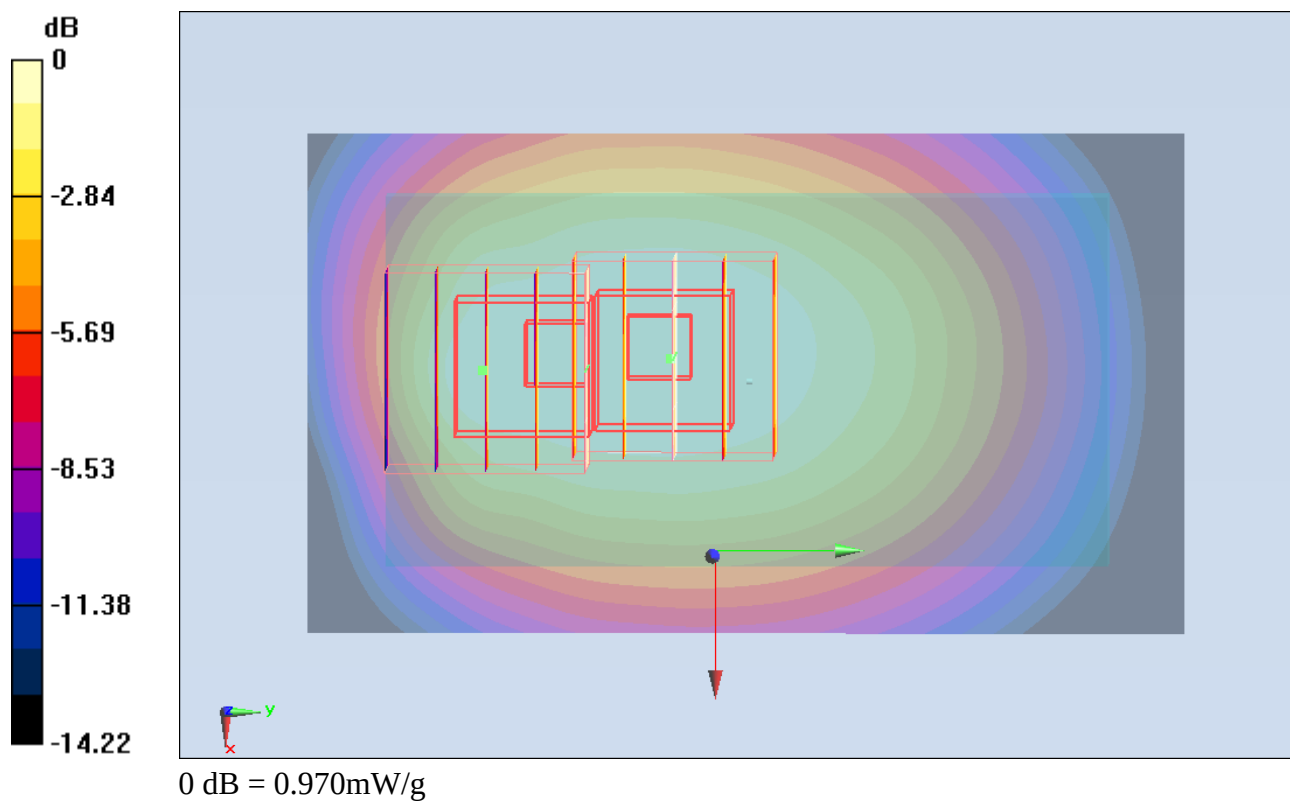
Ch189/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 32.457 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 1.194 W/kg

SAR(1 g) = 0.875 mW/g; SAR(10 g) = 0.593 mW/g

Maximum value of SAR (measured) = 0.970 mW/g



#08 GSM850_GPRS8_Back_1cm_Ch128**DUT: 1D0840**

Communication System: GSM850; Frequency: 824.2 MHz; Duty Cycle: 1:8.3

Medium: MSL_850_111215 Medium parameters used : $f = 824.2$ MHz; $\sigma = 0.943$ mho/m; $\epsilon_r =$

52.797; $\rho = 1000$ kg/m³

Ambient Temperature : 22.3 °C ; Liquid Temperature : 21.3 °C

DASY5 Configuration:

- Probe: ET3DV6 - SN1788; ConvF(6.24, 6.24, 6.24); Calibrated: 2011/9/28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn577; Calibrated: 2011/6/20
- Phantom: SAM Right; Type: QD000P40CD; Serial: TP:1644
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Ch128/Area Scan (41x71x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.997 mW/g

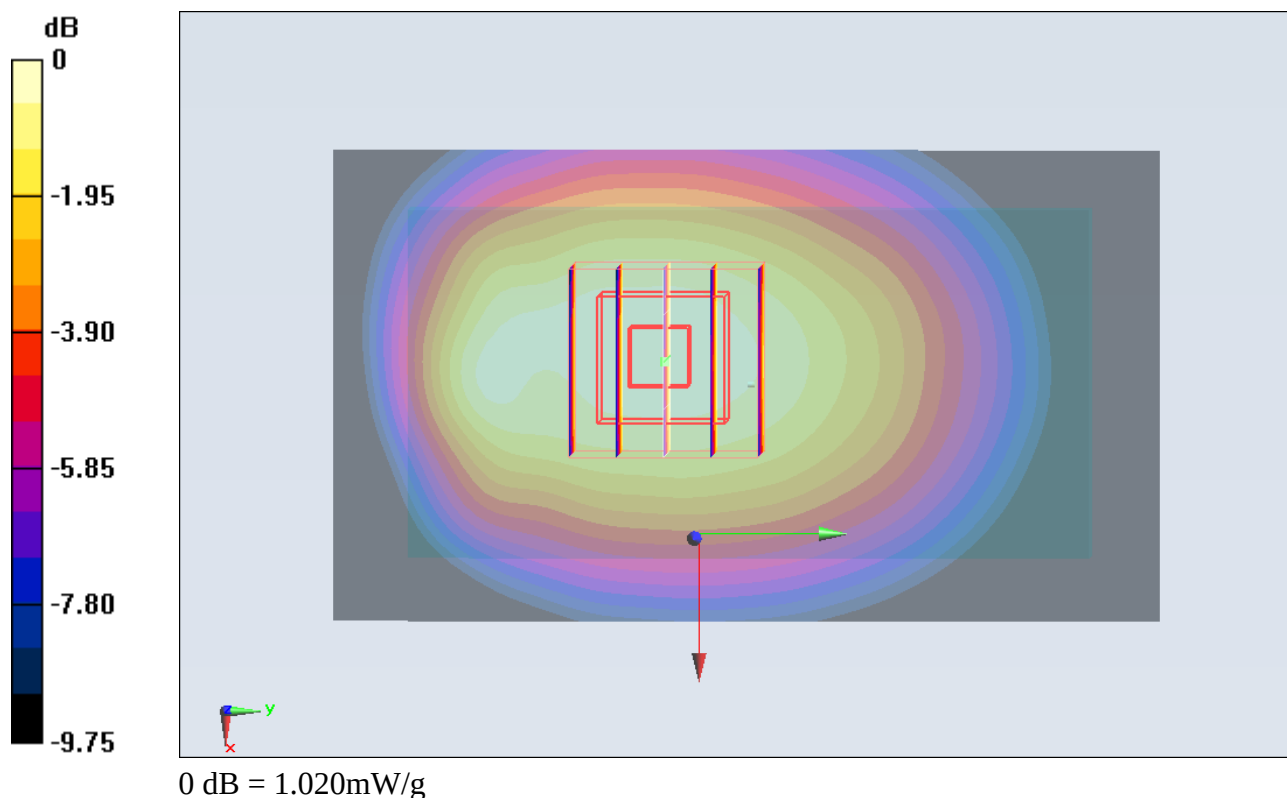
Ch128/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 31.868 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 1.228 W/kg

SAR(1 g) = 0.959 mW/g; SAR(10 g) = 0.695 mW/g

Maximum value of SAR (measured) = 1.018 mW/g



#09 GSM850_GPRS8_Back_1cm_Ch251

DUT: 1D0840

Communication System: GSM850; Frequency: 848.8 MHz; Duty Cycle: 1:8.3

Medium: MSL_850_111215 Medium parameters used: $f = 849$ MHz; $\sigma = 0.969$ mho/m; $\epsilon_r = 52.551$;

$\rho = 1000$ kg/m³

Ambient Temperature : 22.3 °C; Liquid Temperature : 21.3 °C

DASY5 Configuration:

- Probe: ET3DV6 - SN1788; ConvF(6.24, 6.24, 6.24); Calibrated: 2011/9/28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn577; Calibrated: 2011/6/20
- Phantom: SAM Right; Type: QD000P40CD; Serial: TP:1644
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Ch251/Area Scan (41x71x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 1.134 mW/g

Ch251/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 33.889 V/m; Power Drift = -0.0081 dB

Peak SAR (extrapolated) = 1.379 W/kg

SAR(1 g) = 1.08 mW/g; SAR(10 g) = 0.782 mW/g

Maximum value of SAR (measured) = 1.145 mW/g

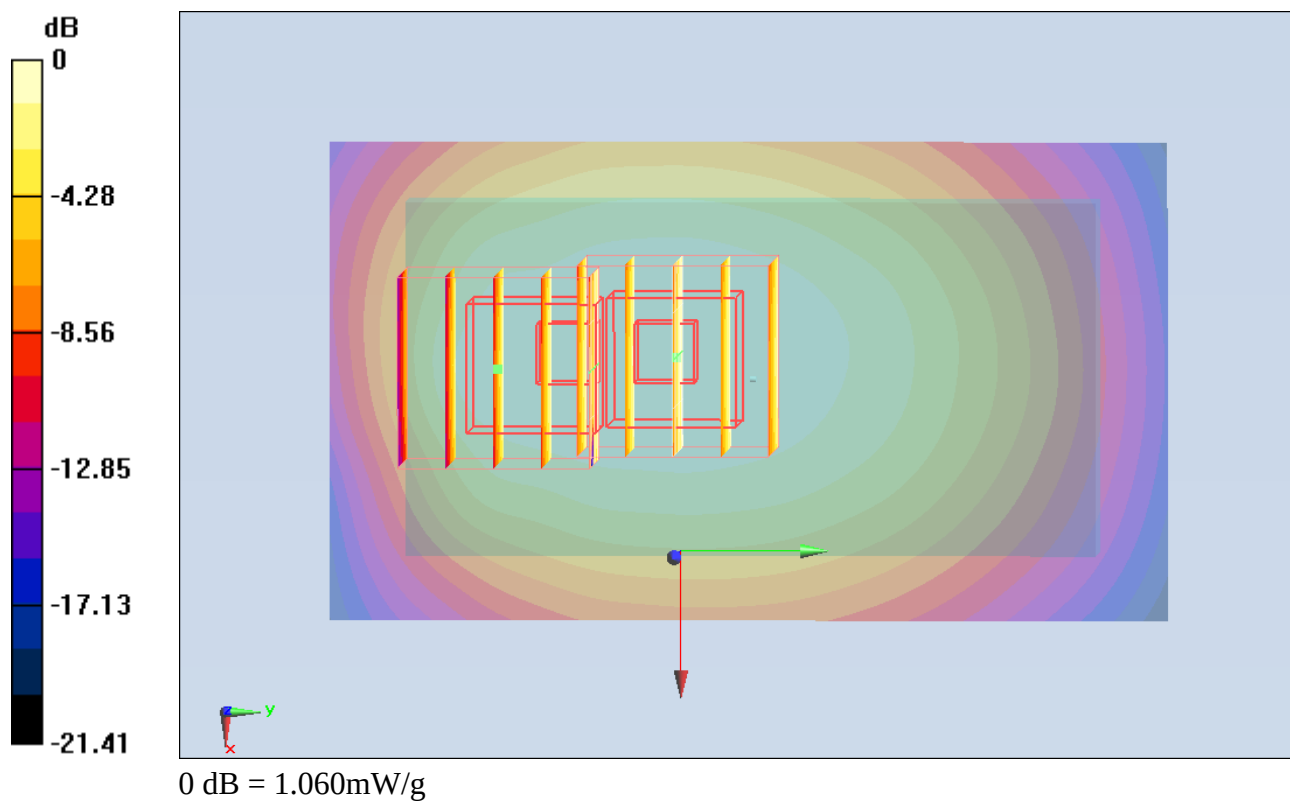
Ch251/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 33.889 V/m; Power Drift = -0.0081 dB

Peak SAR (extrapolated) = 1.328 W/kg

SAR(1 g) = 0.943 mW/g; SAR(10 g) = 0.635 mW/g

Maximum value of SAR (measured) = 1.061 mW/g



#07 GSM850_GPRS8_Back_1cm_Ch251_Earphone**DUT: 1D0840**

Communication System: GSM850; Frequency: 848.8 MHz; Duty Cycle: 1:8.3

Medium: MSL_850_111215 Medium parameters used: $f = 849$ MHz; $\sigma = 0.969$ mho/m; $\epsilon_r = 52.551$;

$\rho = 1000$ kg/m³

Ambient Temperature : 22.3 °C ; Liquid Temperature : 21.3 °C

DASY5 Configuration:

- Probe: ET3DV6 - SN1788; ConvF(6.24, 6.24, 6.24); Calibrated: 2011/9/28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn577; Calibrated: 2011/6/20
- Phantom: SAM Right; Type: QD000P40CD; Serial: TP:1644
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Ch251/Area Scan (41x71x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.823 mW/g

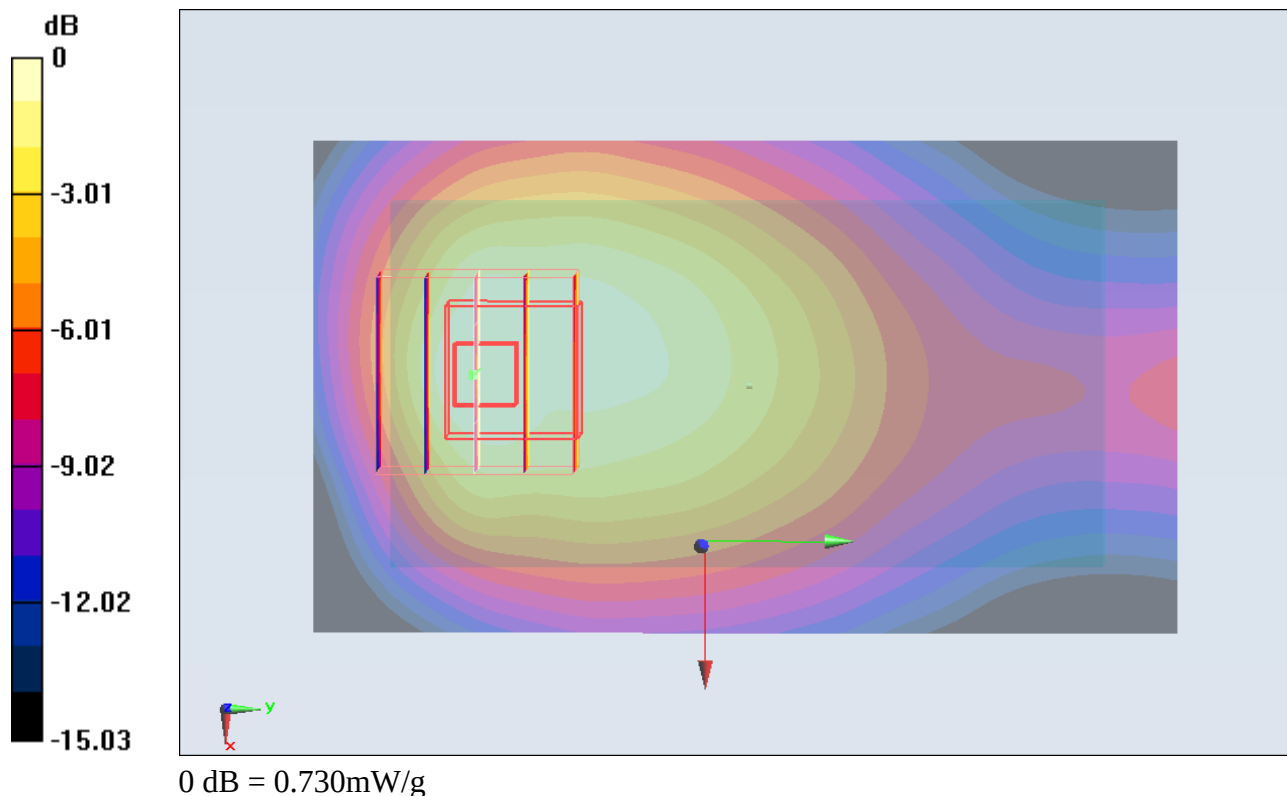
Ch251/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 21.942 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 1.096 W/kg

SAR(1 g) = 0.671 mW/g; SAR(10 g) = 0.435 mW/g

Maximum value of SAR (measured) = 0.731 mW/g



#19 GSM1900_GPRS8_Front_1cm_Ch661**DUT: 1D0840**

Communication System: PCS; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium: MSL_1900_111216 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.515$ mho/m; $\epsilon_r =$

52.615; $\rho = 1000$ kg/m³

Ambient Temperature : 22.5 °C ; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: ET3DV6 - SN1788; ConvF(4.5, 4.5, 4.5); Calibrated: 2011/9/28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn577; Calibrated: 2011/6/20
- Phantom: SAM Left; Type: QD000P40CD; Serial: TP:1542
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Ch661/Area Scan (41x71x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.624 mW/g

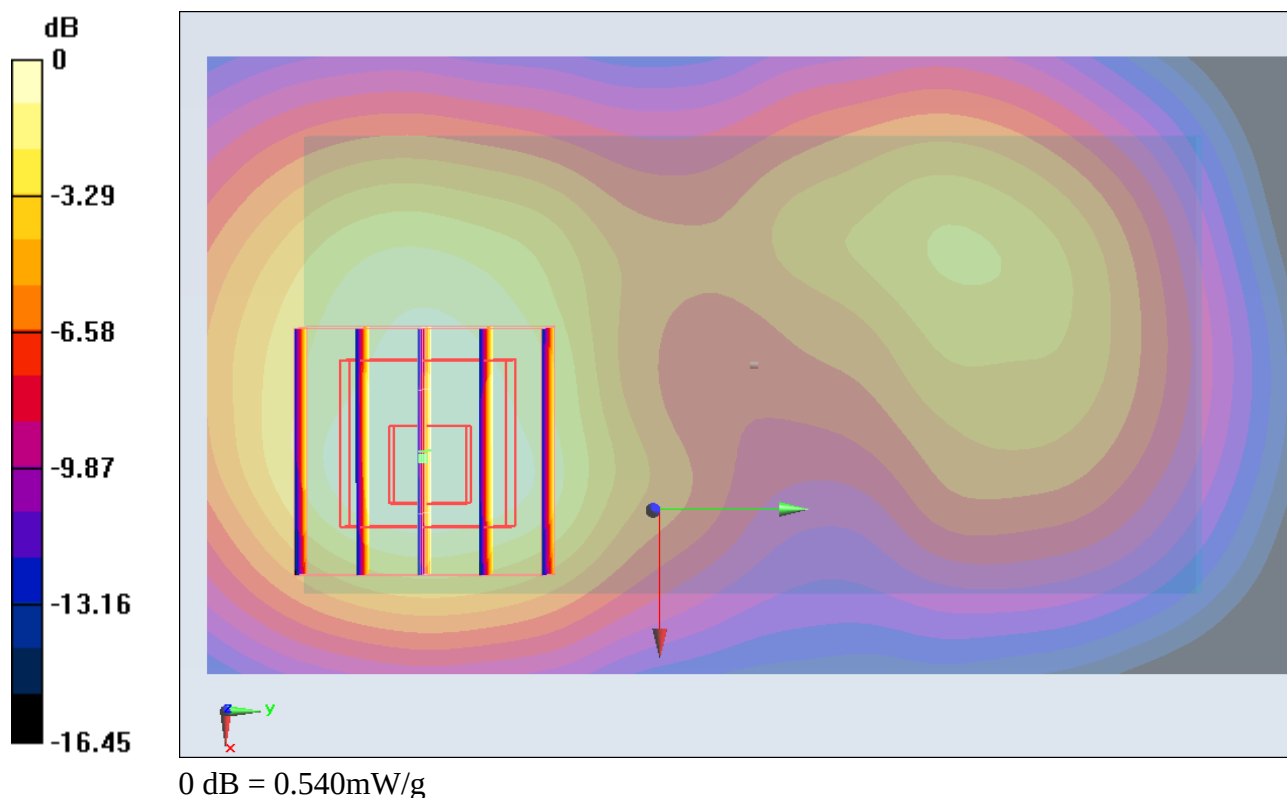
Ch661/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 7.818 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 0.822 W/kg

SAR(1 g) = 0.504 mW/g; SAR(10 g) = 0.297 mW/g

Maximum value of SAR (measured) = 0.544 mW/g



#20 GSM1900_GPRS8_Back_1cm_Ch661**DUT: 1D0840**

Communication System: PCS; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium: MSL_1900_111216 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.515$ mho/m; $\epsilon_r =$

52.615; $\rho = 1000$ kg/m³

Ambient Temperature : 22.5 °C ; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: ET3DV6 - SN1788; ConvF(4.5, 4.5, 4.5); Calibrated: 2011/9/28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn577; Calibrated: 2011/6/20
- Phantom: SAM Left; Type: QD000P40CD; Serial: TP:1542
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Ch661/Area Scan (41x71x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.807 mW/g

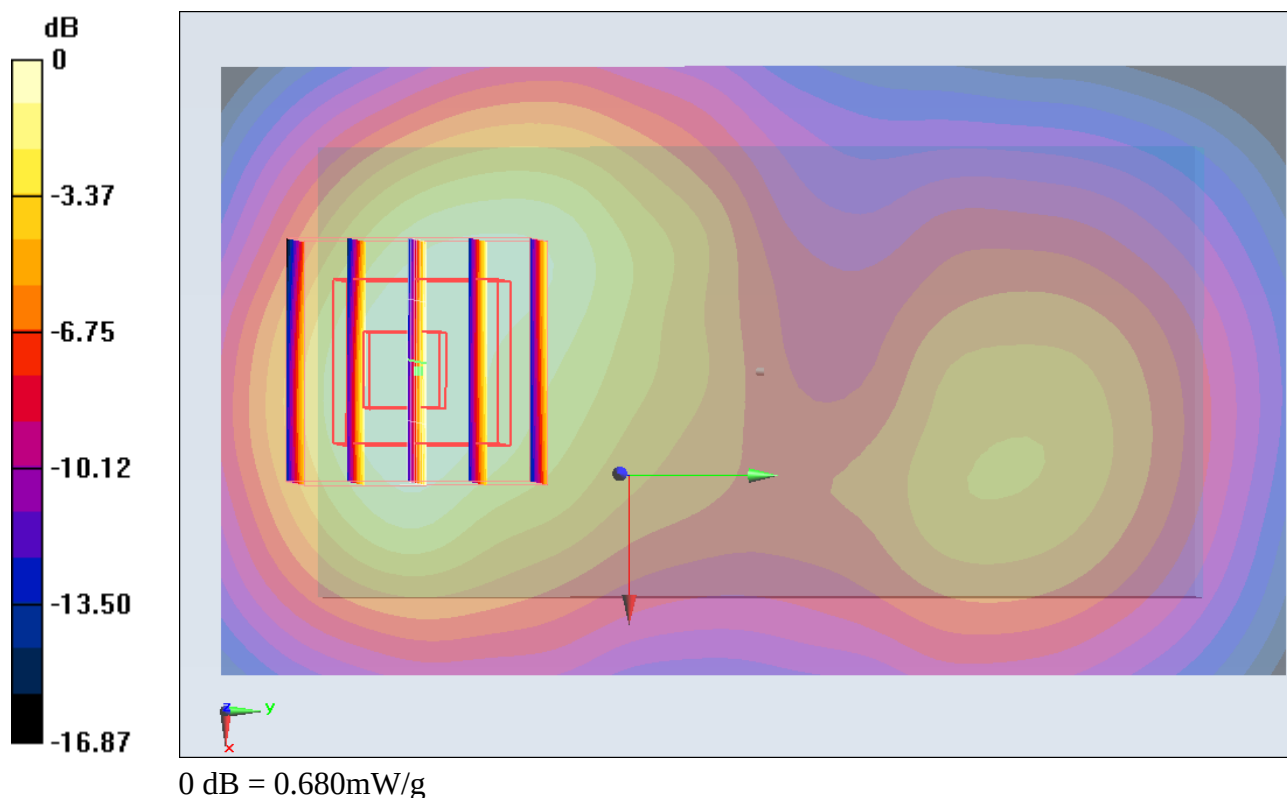
Ch661/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.536 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 1.104 W/kg

SAR(1 g) = 0.646 mW/g; SAR(10 g) = 0.376 mW/g

Maximum value of SAR (measured) = 0.682 mW/g



#20 GSM1900_GPRS8_Back_1cm_Ch661_2D**DUT: 1D0840**

Communication System: PCS; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium: MSL_1900_111216 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.515$ mho/m; $\epsilon_r =$

52.615; $\rho = 1000$ kg/m³

Ambient Temperature : 22.5 °C ; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: ET3DV6 - SN1788; ConvF(4.5, 4.5, 4.5); Calibrated: 2011/9/28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn577; Calibrated: 2011/6/20
- Phantom: SAM Left; Type: QD000P40CD; Serial: TP:1542
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Ch661/Area Scan (41x71x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.807 mW/g

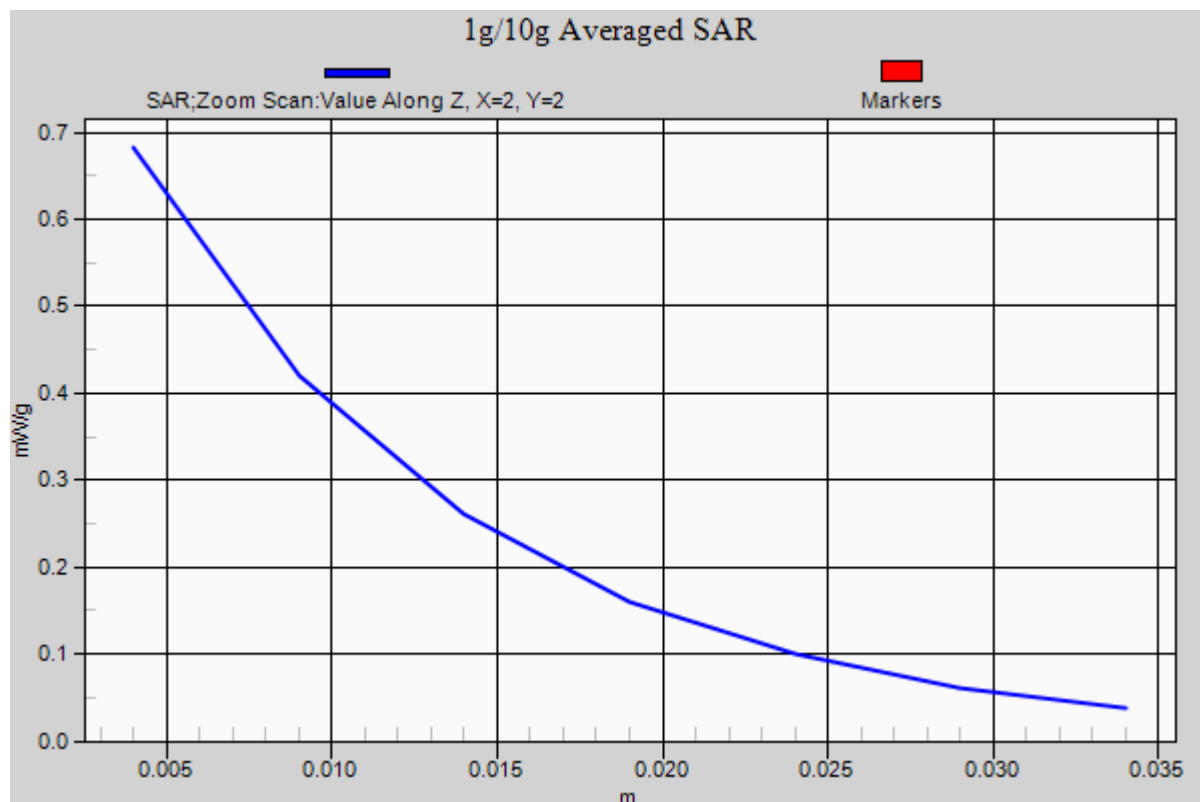
Ch661/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.536 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 1.104 W/kg

SAR(1 g) = 0.646 mW/g; SAR(10 g) = 0.376 mW/g

Maximum value of SAR (measured) = 0.682 mW/g



#21 GSM1900_GPRS8_Left Side_1cm_Ch661

DUT: 1D0840

Communication System: PCS; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium: MSL_1900_111216 Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.515 \text{ mho/m}$; $\epsilon_r =$

52.615 ; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature : 22.5°C ; Liquid Temperature : 21.5°C

DASY5 Configuration:

- Probe: ET3DV6 - SN1788; ConvF(4.5, 4.5, 4.5); Calibrated: 2011/9/28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn577; Calibrated: 2011/6/20
- Phantom: SAM Left; Type: QD000P40CD; Serial: TP:1542
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Ch661/Area Scan (31x71x1): Measurement grid: $dx=20\text{mm}$, $dy=20\text{mm}$

Maximum value of SAR (interpolated) = 0.181 mW/g

Ch661/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 7.525 V/m ; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.250 W/kg

SAR(1 g) = 0.158 mW/g ; SAR(10 g) = 0.094 mW/g

Maximum value of SAR (measured) = 0.172 mW/g

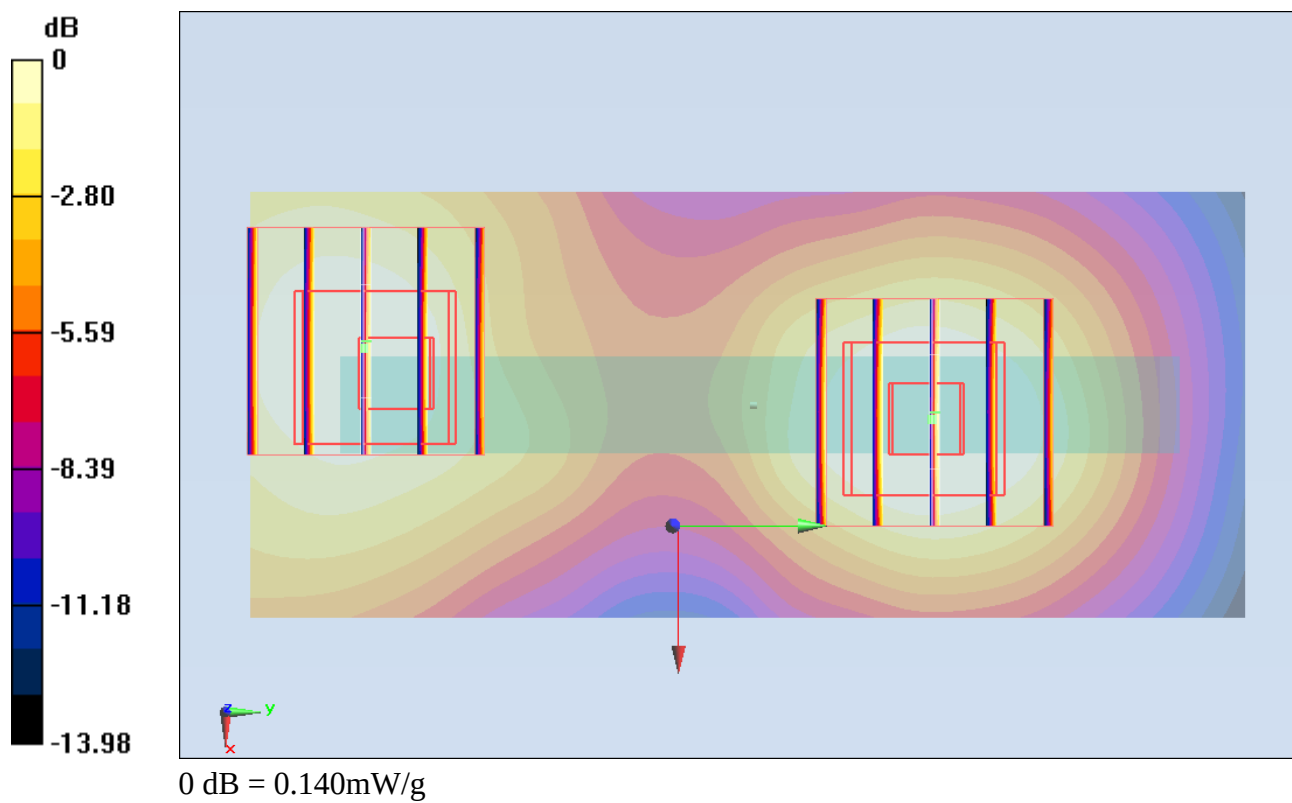
Ch661/Zoom Scan (5x5x7)/Cube 1: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 7.525 V/m ; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.206 W/kg

SAR(1 g) = 0.132 mW/g ; SAR(10 g) = 0.083 mW/g

Maximum value of SAR (measured) = 0.138 mW/g



#22 GSM1900_GPRS8_Right Side_1cm_Ch661**DUT: 1D0840**

Communication System: PCS; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium: MSL_1900_111216 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.515$ mho/m; $\epsilon_r =$

52.615; $\rho = 1000$ kg/m³

Ambient Temperature : 22.5 °C ; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: ET3DV6 - SN1788; ConvF(4.5, 4.5, 4.5); Calibrated: 2011/9/28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn577; Calibrated: 2011/6/20
- Phantom: SAM Left; Type: QD000P40CD; Serial: TP:1542
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Ch661/Area Scan (31x71x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.220 mW/g

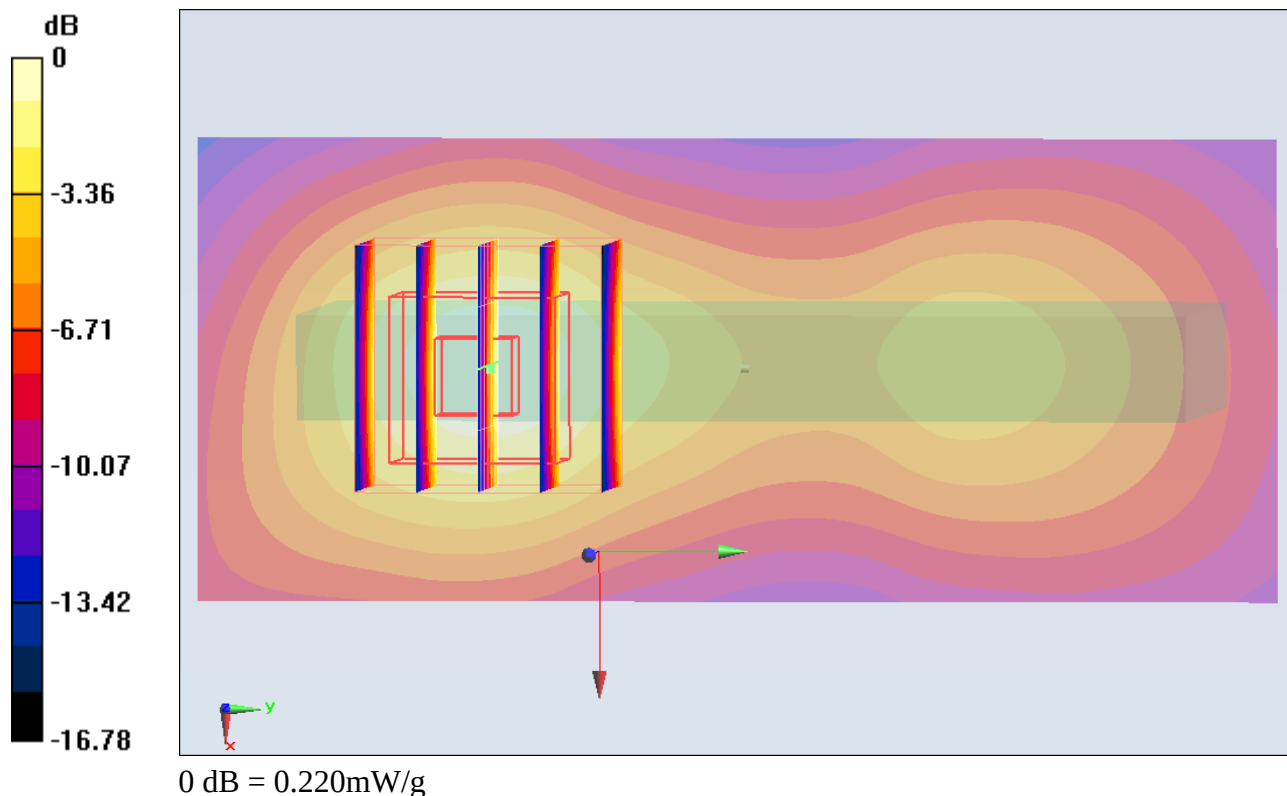
Ch661/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 7.783 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 0.340 W/kg

SAR(1 g) = 0.204 mW/g; SAR(10 g) = 0.116 mW/g

Maximum value of SAR (measured) = 0.220 mW/g



#24 GSM1900_GPRS8_Bottom Side_1cm_Ch661**DUT: 1D0840**

Communication System: PCS; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium: MSL_1900_111216 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.515$ mho/m; $\epsilon_r =$

52.615 ; $\rho = 1000$ kg/m³

Ambient Temperature : 22.5 °C ; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: ET3DV6 - SN1788; ConvF(4.5, 4.5, 4.5); Calibrated: 2011/9/28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn577; Calibrated: 2011/6/20
- Phantom: SAM Left; Type: QD000P40CD; Serial: TP:1542
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Ch661/Area Scan (41x61x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.643 mW/g

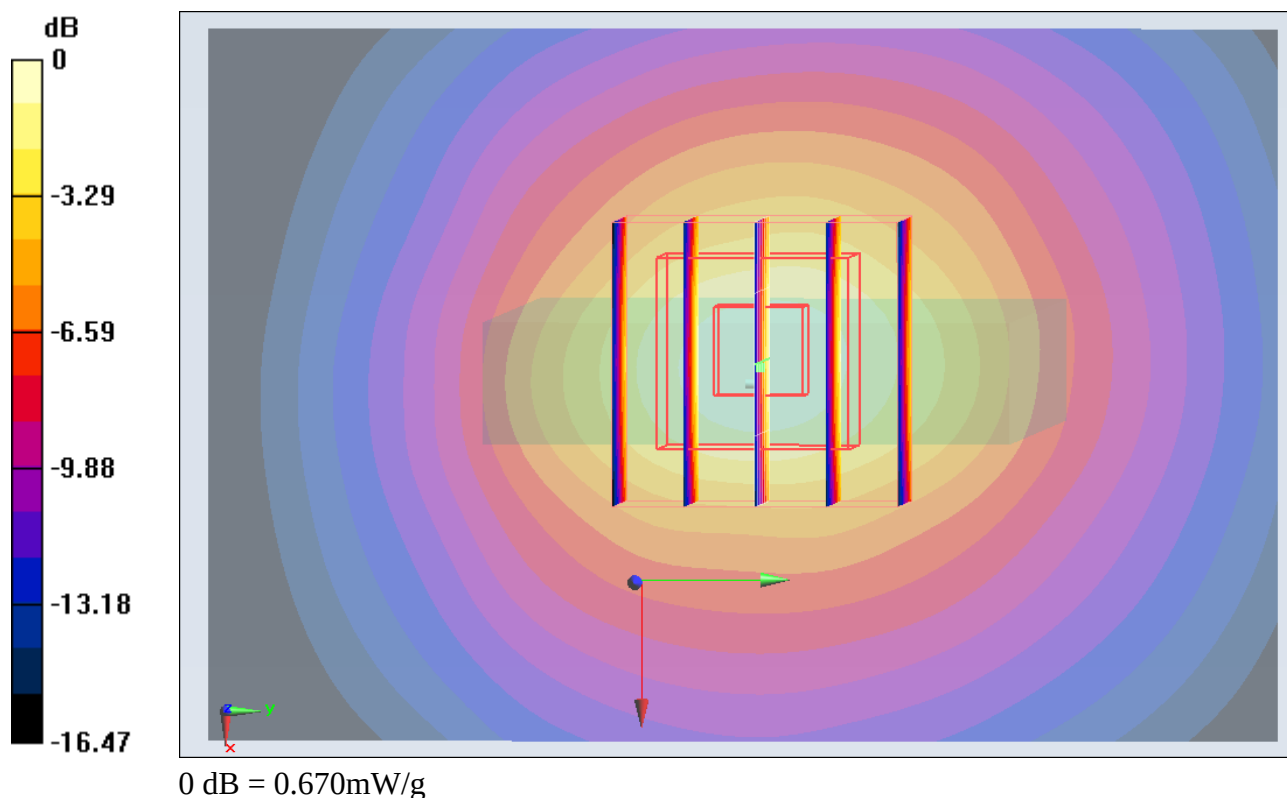
Ch661/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 21.464 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 0.973 W/kg

SAR(1 g) = 0.597 mW/g; SAR(10 g) = 0.336 mW/g

Maximum value of SAR (measured) = 0.666 mW/g



#19 GSM1900_GPRS8_Front_1cm_Ch661**DUT: 1D0840**

Communication System: PCS; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium: MSL_1900_111216 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.515$ mho/m; $\epsilon_r =$

52.615; $\rho = 1000$ kg/m³

Ambient Temperature : 22.5 °C ; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: ET3DV6 - SN1788; ConvF(4.5, 4.5, 4.5); Calibrated: 2011/9/28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn577; Calibrated: 2011/6/20
- Phantom: SAM Left; Type: QD000P40CD; Serial: TP:1542
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Ch661/Area Scan (41x71x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.624 mW/g

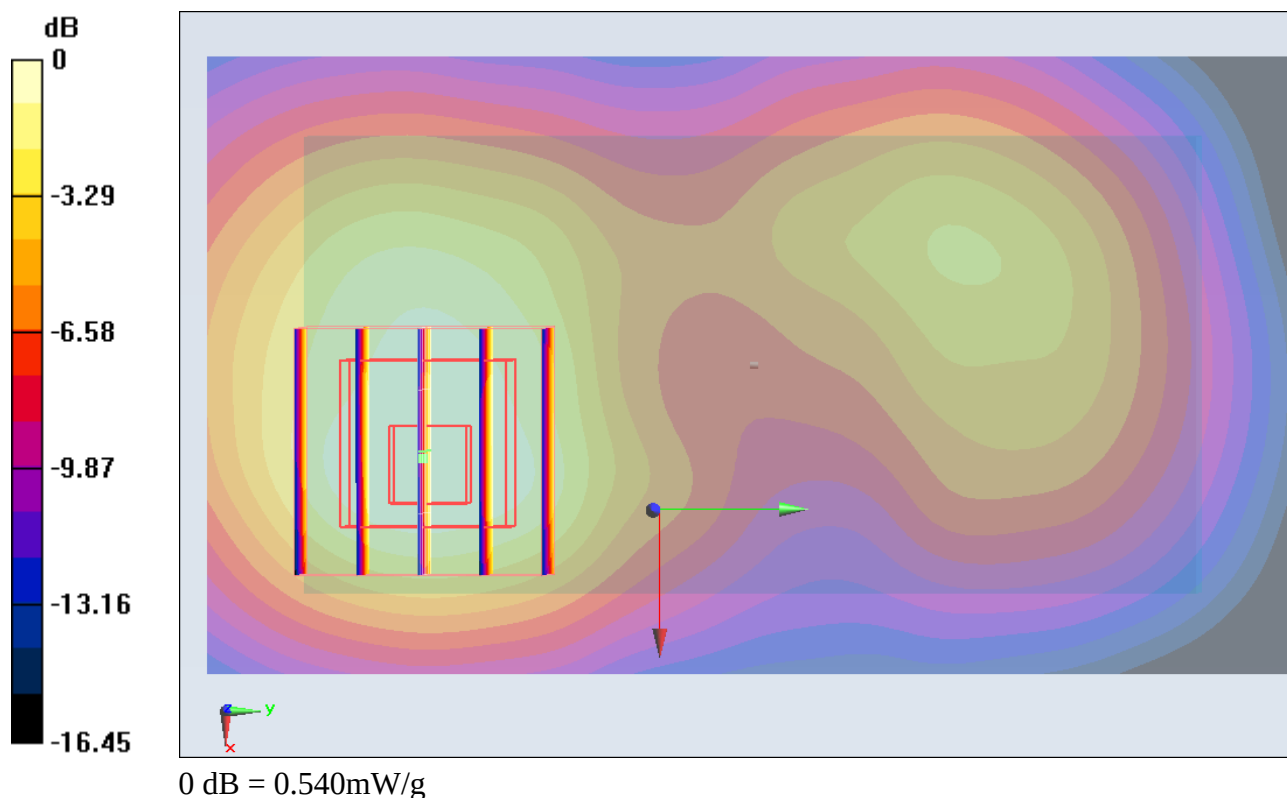
Ch661/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 7.818 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 0.822 W/kg

SAR(1 g) = 0.504 mW/g; SAR(10 g) = 0.297 mW/g

Maximum value of SAR (measured) = 0.544 mW/g



#20 GSM1900_GPRS8_Back_1cm_Ch661**DUT: 1D0840**

Communication System: PCS; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium: MSL_1900_111216 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.515$ mho/m; $\epsilon_r =$

52.615; $\rho = 1000$ kg/m³

Ambient Temperature : 22.5 °C ; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: ET3DV6 - SN1788; ConvF(4.5, 4.5, 4.5); Calibrated: 2011/9/28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn577; Calibrated: 2011/6/20
- Phantom: SAM Left; Type: QD000P40CD; Serial: TP:1542
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Ch661/Area Scan (41x71x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.807 mW/g

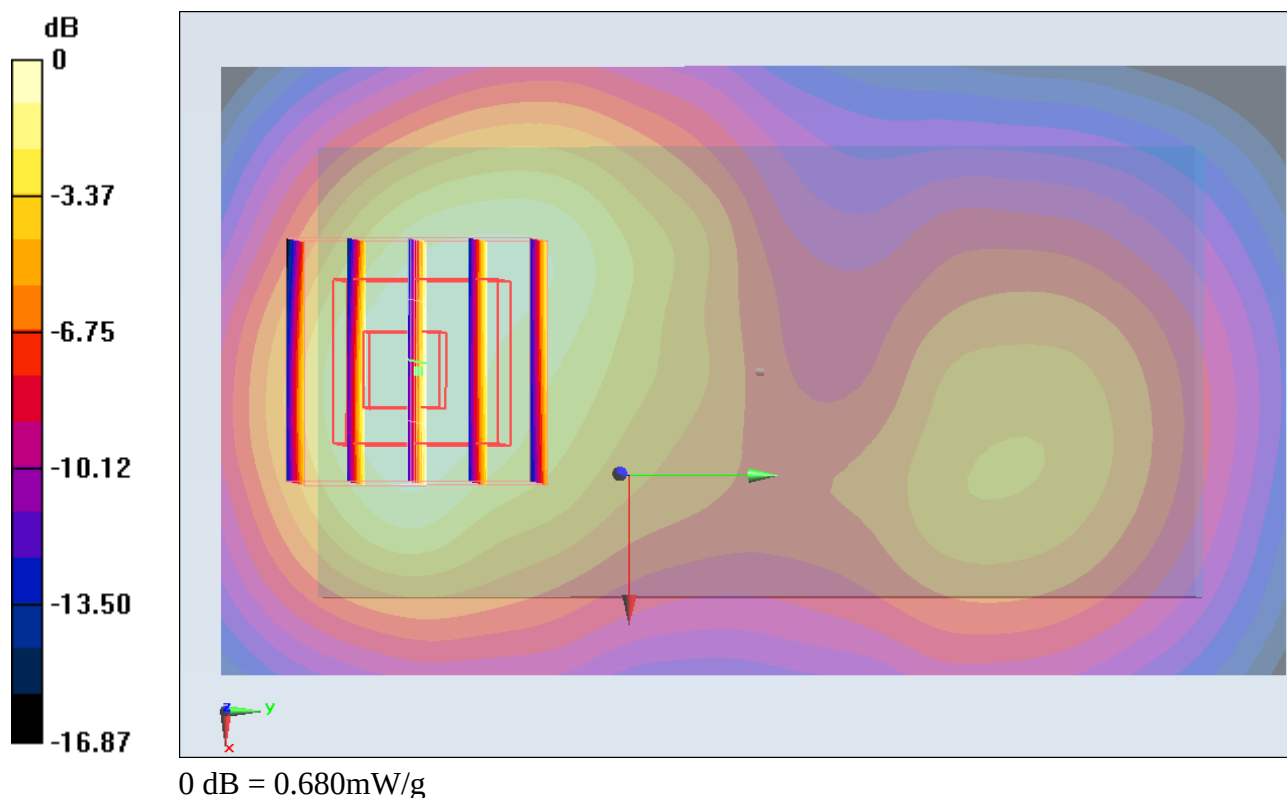
Ch661/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.536 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 1.104 W/kg

SAR(1 g) = 0.646 mW/g; SAR(10 g) = 0.376 mW/g

Maximum value of SAR (measured) = 0.682 mW/g



#25 GSM1900_GPRS8_Back_1cm_Ch661_Earphone**DUT: 1D0840**

Communication System: PCS; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium: MSL_1900_111216 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.515$ mho/m; $\epsilon_r =$

52.615; $\rho = 1000$ kg/m³

Ambient Temperature : 22.5 °C ; Liquid Temperature : 21.5 °C

DASY5 Configuration:

- Probe: ET3DV6 - SN1788; ConvF(4.5, 4.5, 4.5); Calibrated: 2011/9/28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn577; Calibrated: 2011/6/20
- Phantom: SAM Left; Type: QD000P40CD; Serial: TP:1542
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Ch661/Area Scan (41x71x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.776 mW/g

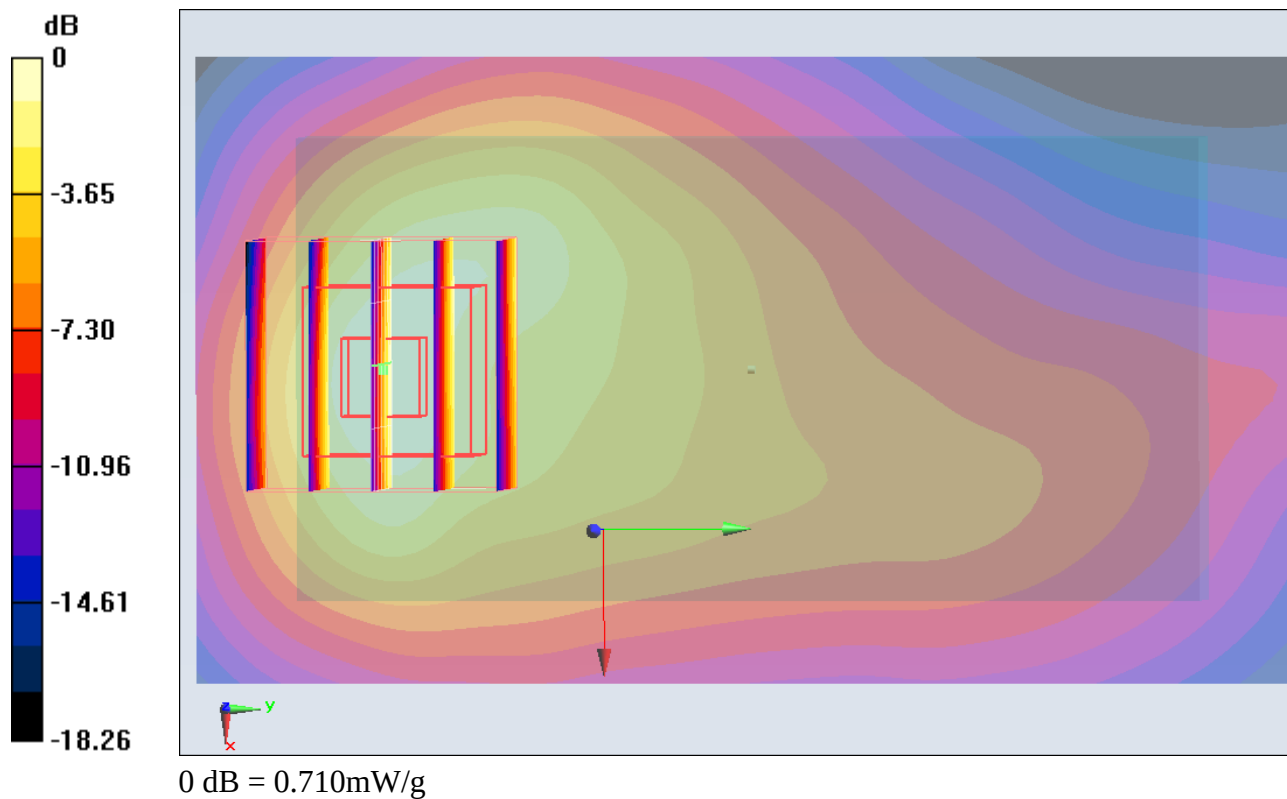
Ch661/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 12.081 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 1.095 W/kg

SAR(1 g) = 0.644 mW/g; SAR(10 g) = 0.366 mW/g

Maximum value of SAR (measured) = 0.715 mW/g



#10 WCDMA V_RMC12.2K_Front_1cm_Ch4182**DUT: 1D0840**

Communication System: WCDMA; Frequency: 836.4 MHz; Duty Cycle: 1:1

Medium: MSL_850_111215 Medium parameters used : $f = 836.4$ MHz; $\sigma = 0.956$ mho/m; $\epsilon_r =$

52.678; $\rho = 1000$ kg/m³

Ambient Temperature : 22.3 °C ; Liquid Temperature : 21.3 °C

DASY5 Configuration:

- Probe: ET3DV6 - SN1788; ConvF(6.24, 6.24, 6.24); Calibrated: 2011/9/28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn577; Calibrated: 2011/6/20
- Phantom: SAM Right; Type: QD000P40CD; Serial: TP:1644
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Ch4182/Area Scan (41x71x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.650 mW/g

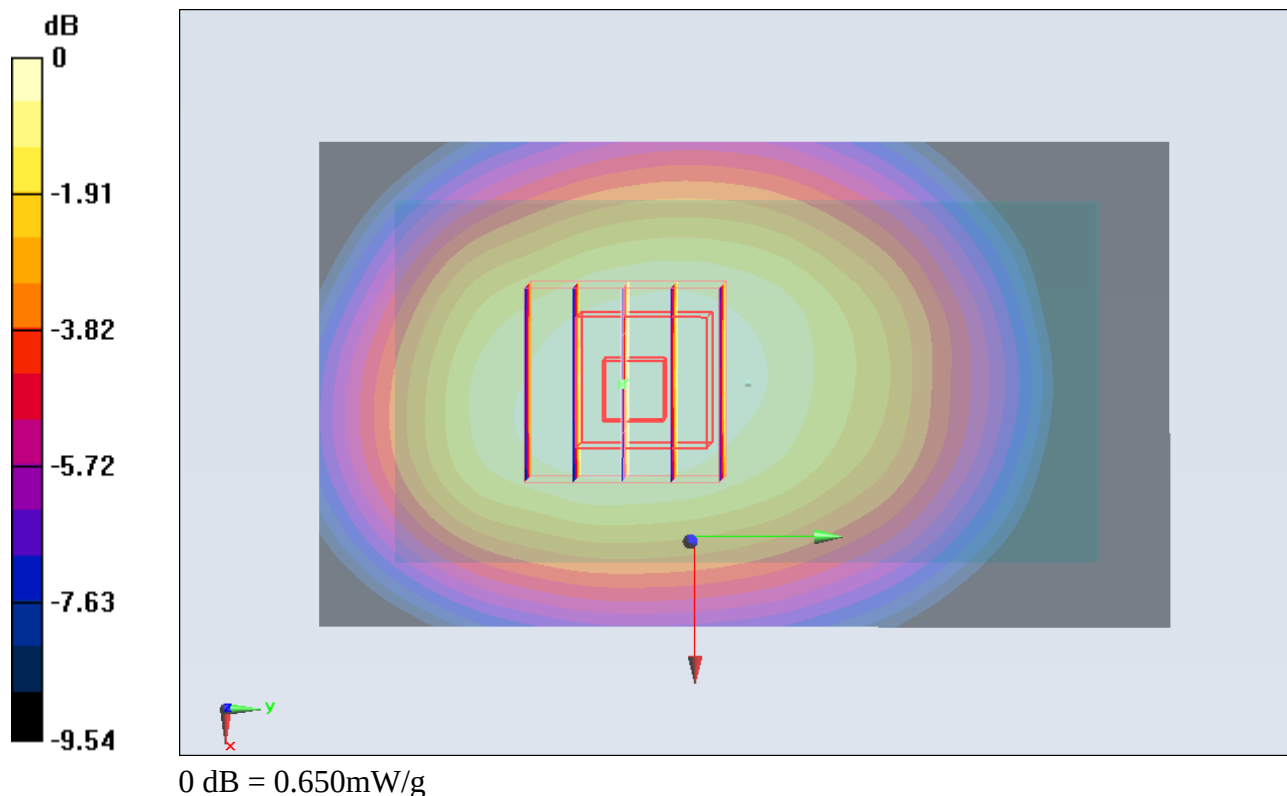
Ch4182/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 25.826 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 0.780 W/kg

SAR(1 g) = 0.622 mW/g; SAR(10 g) = 0.463 mW/g

Maximum value of SAR (measured) = 0.653 mW/g



#11 WCDMA V_RMC12.2K_Back_1cm_Ch4182

DUT: 1D0840

Communication System: WCDMA; Frequency: 836.4 MHz; Duty Cycle: 1:1

Medium: MSL_850_111215 Medium parameters used : $f = 836.4$ MHz; $\sigma = 0.956$ mho/m; $\epsilon_r =$

52.678; $\rho = 1000$ kg/m³

Ambient Temperature : 22.3 °C ; Liquid Temperature : 21.3 °C

DASY5 Configuration:

- Probe: ET3DV6 - SN1788; ConvF(6.24, 6.24, 6.24); Calibrated: 2011/9/28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn577; Calibrated: 2011/6/20
- Phantom: SAM Right; Type: QD000P40CD; Serial: TP:1644
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Ch4182/Area Scan (41x71x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 1.010 mW/g

Ch4182/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 32.313 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 1.216 W/kg

SAR(1 g) = 0.957 mW/g; SAR(10 g) = 0.691 mW/g

Maximum value of SAR (measured) = 1.013 mW/g

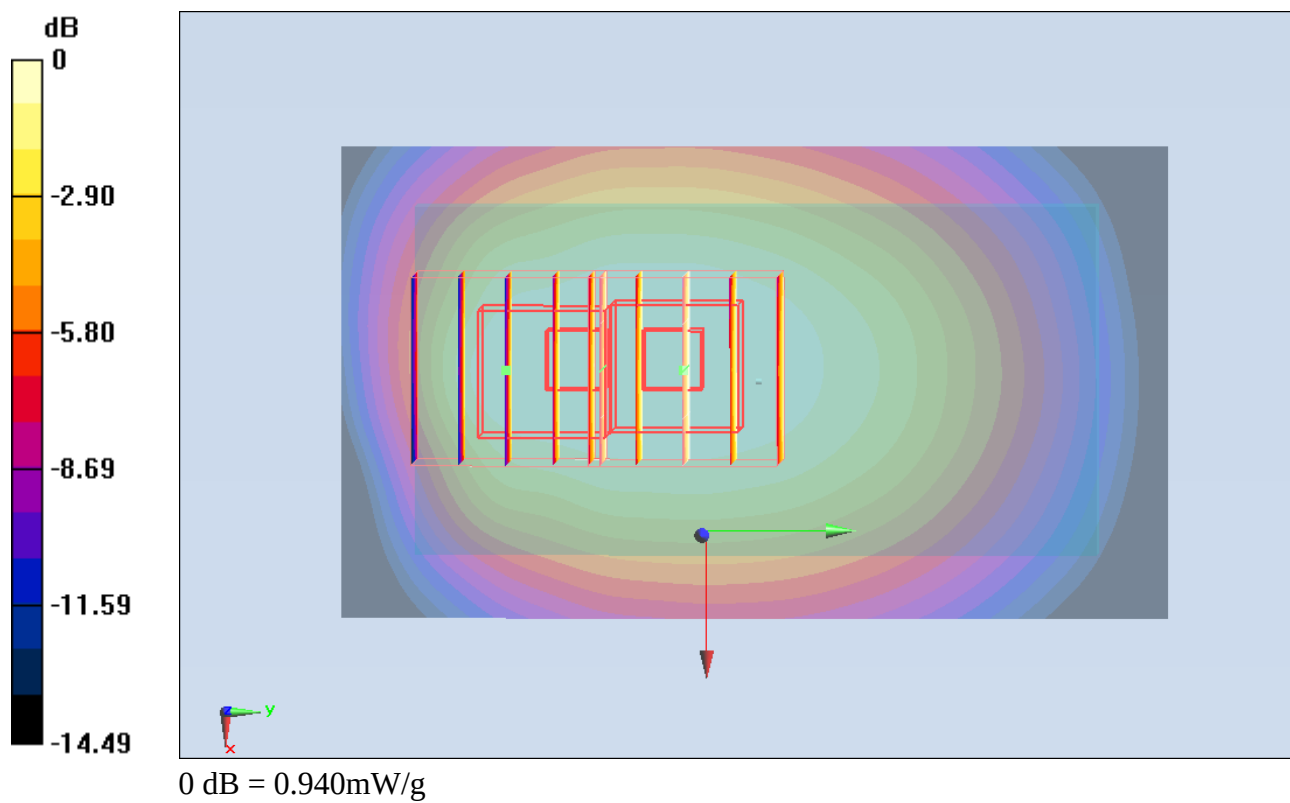
Ch4182/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 32.313 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 1.249 W/kg

SAR(1 g) = 0.848 mW/g; SAR(10 g) = 0.576 mW/g

Maximum value of SAR (measured) = 0.942 mW/g



#12 WCDMA V_RMC12.2K_Left Side_1cm_Ch4182**DUT: 1D0840**

Communication System: WCDMA; Frequency: 836.4 MHz; Duty Cycle: 1:1

Medium: MSL_850_111215 Medium parameters used : $f = 836.4$ MHz; $\sigma = 0.956$ mho/m; $\epsilon_r =$

52.678; $\rho = 1000$ kg/m³

Ambient Temperature : 22.3 °C; Liquid Temperature : 21.3 °C

DASY5 Configuration:

- Probe: ET3DV6 - SN1788; ConvF(6.24, 6.24, 6.24); Calibrated: 2011/9/28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn577; Calibrated: 2011/6/20
- Phantom: SAM Right; Type: QD000P40CD; Serial: TP:1644
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Ch4182/Area Scan (21x71x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.496 mW/g

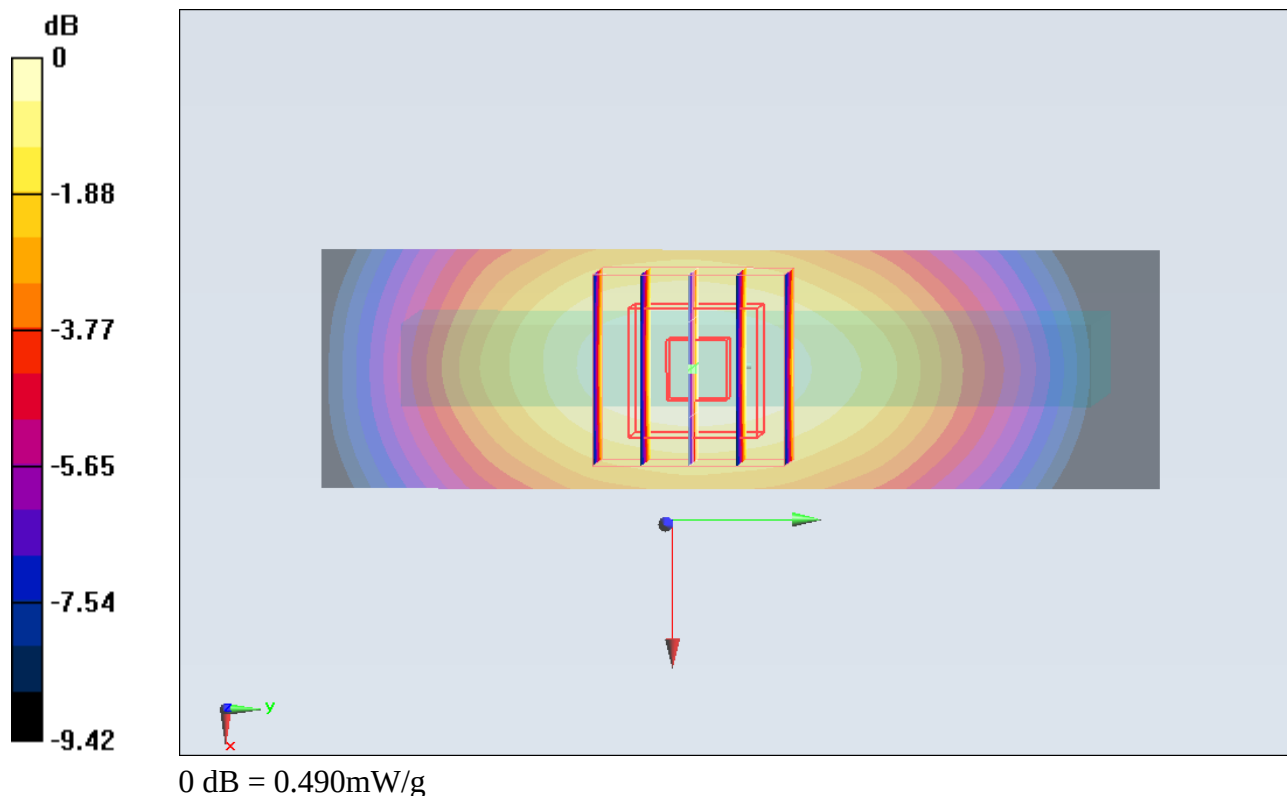
Ch4182/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 23.462 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 0.616 W/kg

SAR(1 g) = 0.463 mW/g; SAR(10 g) = 0.325 mW/g

Maximum value of SAR (measured) = 0.493 mW/g



#13 WCDMA V_RMC12.2K_Right Side_1cm_Ch4182**DUT: 1D0840**

Communication System: WCDMA; Frequency: 836.4 MHz; Duty Cycle: 1:1

Medium: MSL_850_111215 Medium parameters used : $f = 836.4$ MHz; $\sigma = 0.956$ mho/m; $\epsilon_r =$

52.678; $\rho = 1000$ kg/m³

Ambient Temperature : 22.3 °C ; Liquid Temperature : 21.3 °C

DASY5 Configuration:

- Probe: ET3DV6 - SN1788; ConvF(6.24, 6.24, 6.24); Calibrated: 2011/9/28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn577; Calibrated: 2011/6/20
- Phantom: SAM Right; Type: QD000P40CD; Serial: TP:1644
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Ch4182/Area Scan (21x71x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.492 mW/g

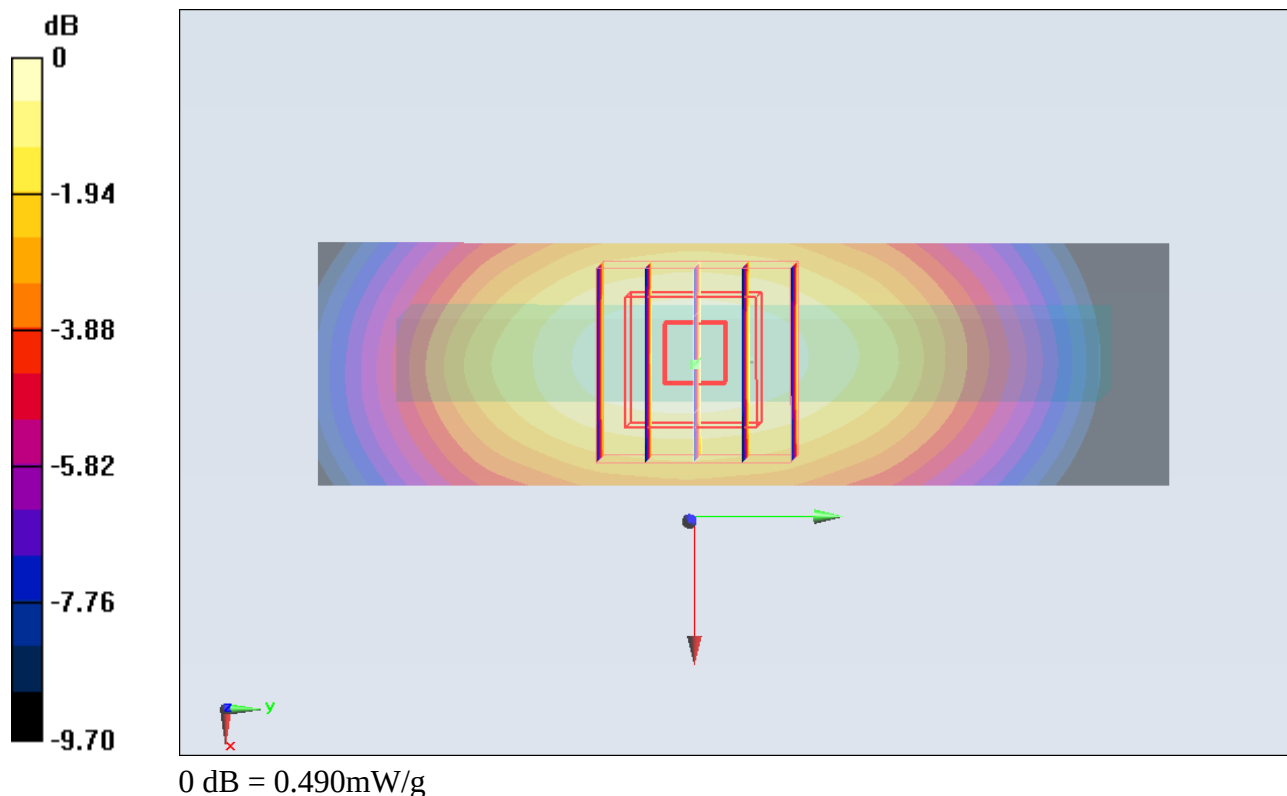
Ch4182/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 23.255 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 0.619 W/kg

SAR(1 g) = 0.461 mW/g; SAR(10 g) = 0.320 mW/g

Maximum value of SAR (measured) = 0.493 mW/g



#15 WCDMA V_RMC12.2K_Bottom Side_1cm_Ch4182**DUT: 1D0840**

Communication System: WCDMA; Frequency: 836.4 MHz; Duty Cycle: 1:1

Medium: MSL_850_111215 Medium parameters used : $f = 836.4$ MHz; $\sigma = 0.956$ mho/m; $\epsilon_r =$

52.678; $\rho = 1000$ kg/m³

Ambient Temperature : 22.3 °C ; Liquid Temperature : 21.3 °C

DASY5 Configuration:

- Probe: ET3DV6 - SN1788; ConvF(6.24, 6.24, 6.24); Calibrated: 2011/9/28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn577; Calibrated: 2011/6/20
- Phantom: SAM Right; Type: QD000P40CD; Serial: TP:1644
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Ch4182/Area Scan (31x41x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.091 mW/g

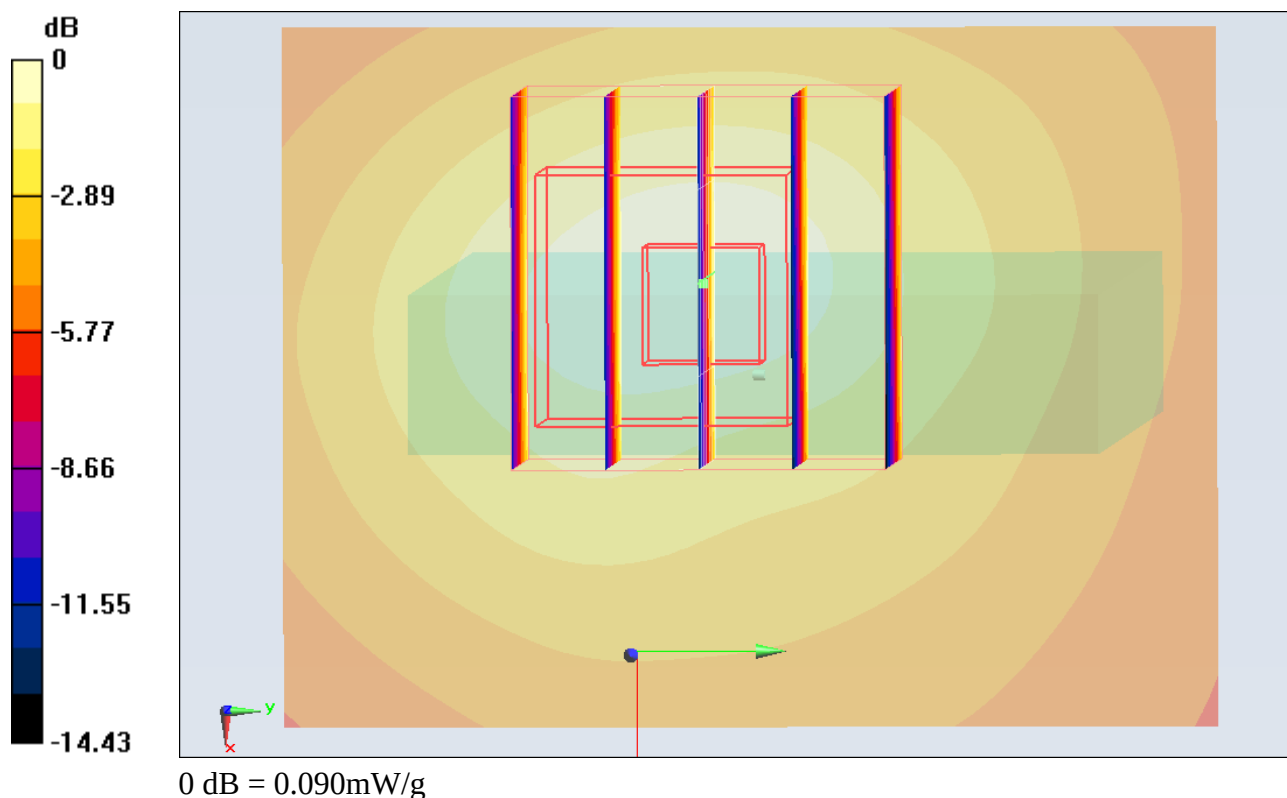
Ch4182/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.651 V/m; Power Drift = -0.0075 dB

Peak SAR (extrapolated) = 0.194 W/kg

SAR(1 g) = 0.089 mW/g; SAR(10 g) = 0.051 mW/g

Maximum value of SAR (measured) = 0.092 mW/g



#16 WCDMA V_RMC12.2K_Back_1cm_Ch4132

DUT: 1D0840

Communication System: WCDMA; Frequency: 826.4 MHz; Duty Cycle: 1:1

Medium: MSL_850_111215 Medium parameters used : $f = 826.4$ MHz; $\sigma = 0.946$ mho/m; $\epsilon_r =$

52.774; $\rho = 1000$ kg/m³

Ambient Temperature : 22.3 °C ; Liquid Temperature : 21.3 °C

DASY5 Configuration:

- Probe: ET3DV6 - SN1788; ConvF(6.24, 6.24, 6.24); Calibrated: 2011/9/28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn577; Calibrated: 2011/6/20
- Phantom: SAM Right; Type: QD000P40CD; Serial: TP:1644
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Ch4132/Area Scan (41x71x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 1.010 mW/g

Ch4132/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 32.413 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 1.223 W/kg

SAR(1 g) = 0.958 mW/g; SAR(10 g) = 0.693 mW/g

Maximum value of SAR (measured) = 1.014 mW/g

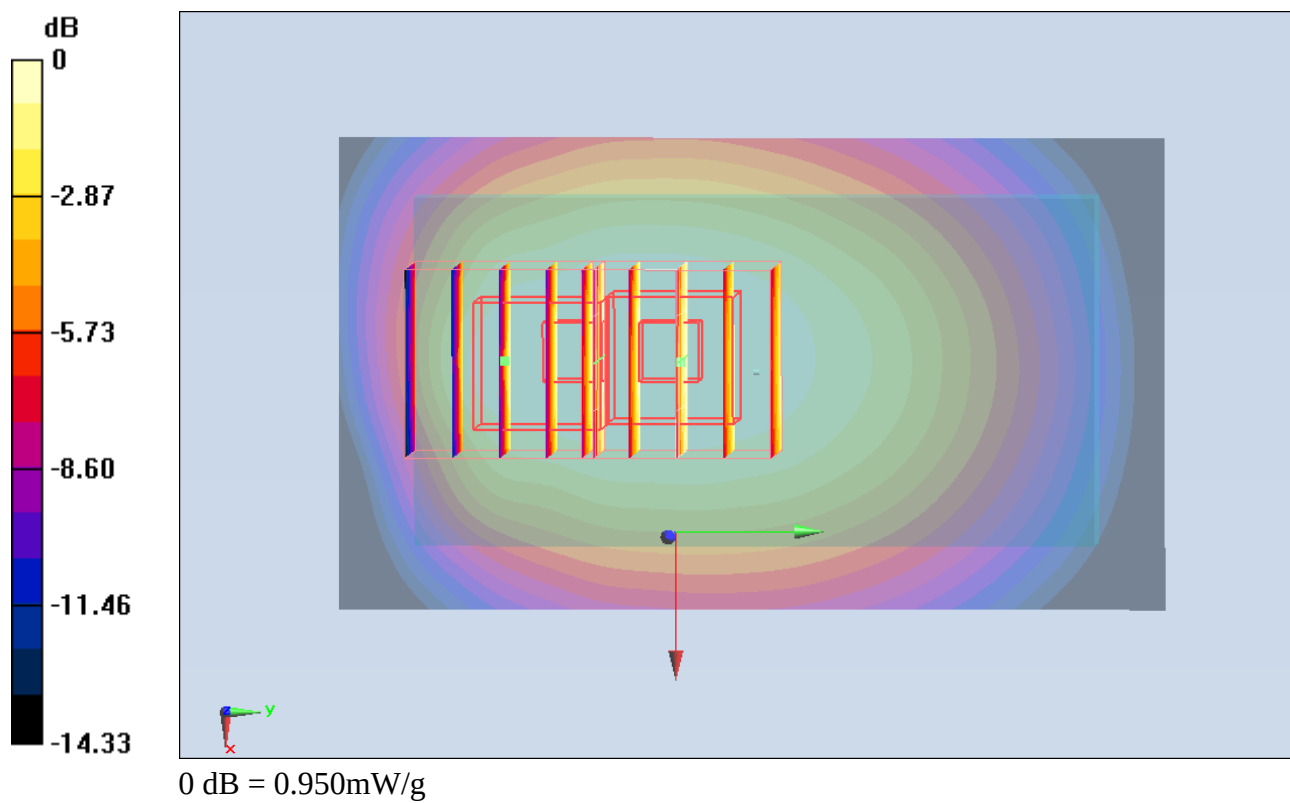
Ch4132/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 32.413 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 1.252 W/kg

SAR(1 g) = 0.860 mW/g; SAR(10 g) = 0.585 mW/g

Maximum value of SAR (measured) = 0.952 mW/g



#17 WCDMA V_RMC12.2K_Back_1cm_Ch4233

DUT: 1D0840

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

Medium: MSL_850_111215 Medium parameters used: $f = 847$ MHz; $\sigma = 0.967$ mho/m; $\epsilon_r = 52.566$;

$\rho = 1000$ kg/m³

Ambient Temperature : 22.3 °C; Liquid Temperature : 21.3 °C

DASY5 Configuration:

- Probe: ET3DV6 - SN1788; ConvF(6.24, 6.24, 6.24); Calibrated: 2011/9/28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn577; Calibrated: 2011/6/20
- Phantom: SAM Right; Type: QD000P40CD; Serial: TP:1644
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Ch4233/Area Scan (41x71x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 1.038 mW/g

Ch4233/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 32.662 V/m; Power Drift = -0.0015 dB

Peak SAR (extrapolated) = 1.296 W/kg

SAR(1 g) = 0.993 mW/g; SAR(10 g) = 0.712 mW/g

Maximum value of SAR (measured) = 1.057 mW/g

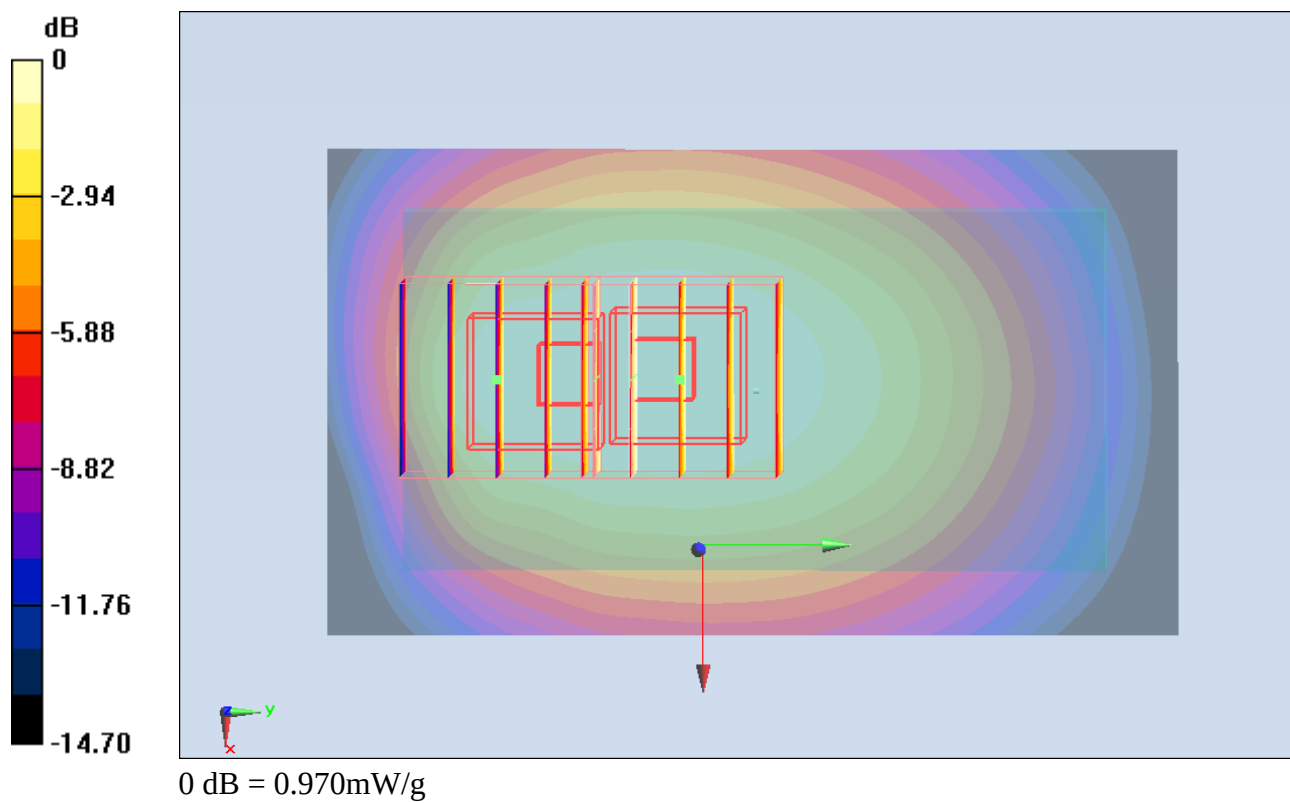
Ch4233/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 32.662 V/m; Power Drift = -0.0015 dB

Peak SAR (extrapolated) = 1.265 W/kg

SAR(1 g) = 0.869 mW/g; SAR(10 g) = 0.588 mW/g

Maximum value of SAR (measured) = 0.975 mW/g



#17 WCDMA V_RMC12.2K_Back_1cm_Ch4233_2D

DUT: 1D0840

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

Medium: MSL_850_111215 Medium parameters used: $f = 847$ MHz; $\sigma = 0.967$ mho/m; $\epsilon_r = 52.566$;

$\rho = 1000$ kg/m³

Ambient Temperature : 22.3 °C; Liquid Temperature : 21.3 °C

DASY5 Configuration:

- Probe: ET3DV6 - SN1788; ConvF(6.24, 6.24, 6.24); Calibrated: 2011/9/28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn577; Calibrated: 2011/6/20
- Phantom: SAM Right; Type: QD000P40CD; Serial: TP:1644
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Ch4233/Area Scan (41x71x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 1.038 mW/g

Ch4233/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 32.662 V/m; Power Drift = -0.0015 dB

Peak SAR (extrapolated) = 1.296 W/kg

SAR(1 g) = 0.993 mW/g; SAR(10 g) = 0.712 mW/g

Maximum value of SAR (measured) = 1.057 mW/g

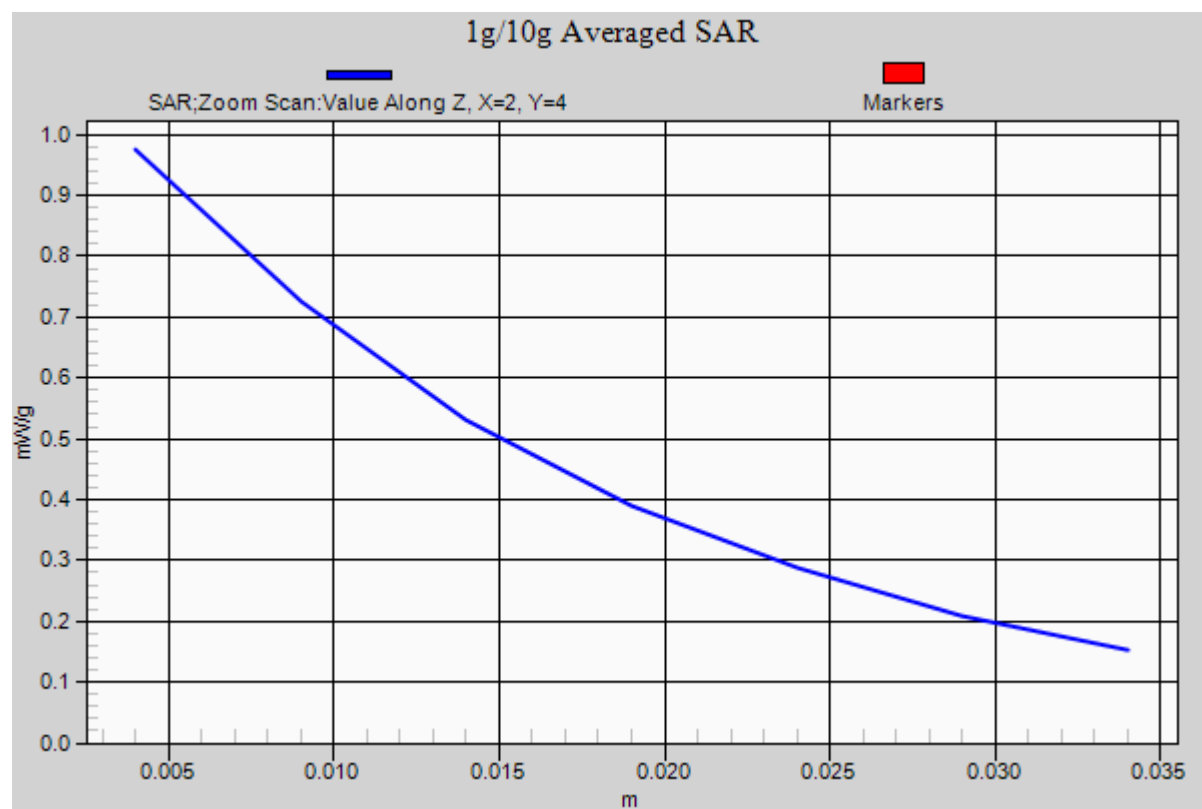
Ch4233/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 32.662 V/m; Power Drift = -0.0015 dB

Peak SAR (extrapolated) = 1.265 W/kg

SAR(1 g) = 0.869 mW/g; SAR(10 g) = 0.588 mW/g

Maximum value of SAR (measured) = 0.975 mW/g



#10 WCDMA V_RMC12.2K_Front_1cm_Ch4182**DUT: 1D0840**

Communication System: WCDMA; Frequency: 836.4 MHz; Duty Cycle: 1:1

Medium: MSL_850_111215 Medium parameters used : $f = 836.4$ MHz; $\sigma = 0.956$ mho/m; $\epsilon_r =$

52.678; $\rho = 1000$ kg/m³

Ambient Temperature : 22.3 °C ; Liquid Temperature : 21.3 °C

DASY5 Configuration:

- Probe: ET3DV6 - SN1788; ConvF(6.24, 6.24, 6.24); Calibrated: 2011/9/28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn577; Calibrated: 2011/6/20
- Phantom: SAM Right; Type: QD000P40CD; Serial: TP:1644
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Ch4182/Area Scan (41x71x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.650 mW/g

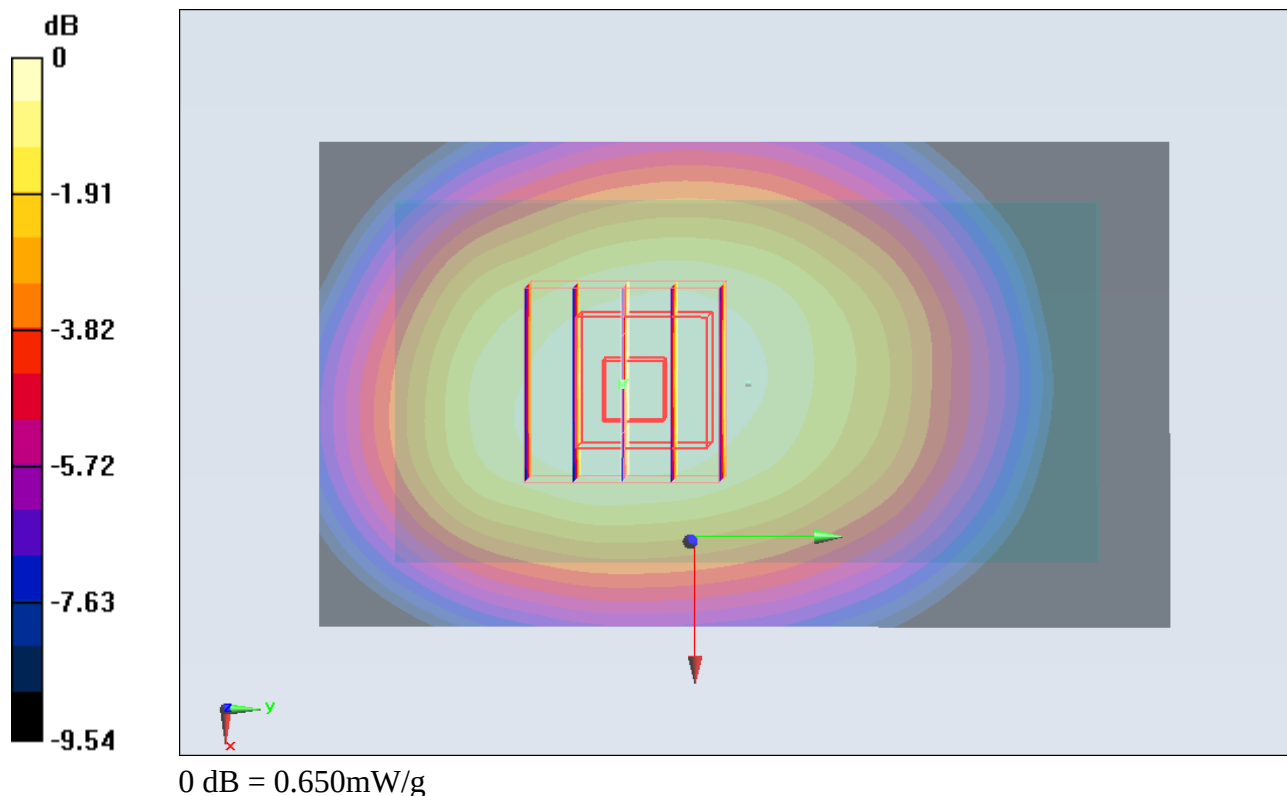
Ch4182/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 25.826 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 0.780 W/kg

SAR(1 g) = 0.622 mW/g; SAR(10 g) = 0.463 mW/g

Maximum value of SAR (measured) = 0.653 mW/g



#11 WCDMA V_RMC12.2K_Back_1cm_Ch4182

DUT: 1D0840

Communication System: WCDMA; Frequency: 836.4 MHz; Duty Cycle: 1:1

Medium: MSL_850_111215 Medium parameters used : $f = 836.4$ MHz; $\sigma = 0.956$ mho/m; $\epsilon_r =$

52.678; $\rho = 1000$ kg/m³

Ambient Temperature : 22.3 °C ; Liquid Temperature : 21.3 °C

DASY5 Configuration:

- Probe: ET3DV6 - SN1788; ConvF(6.24, 6.24, 6.24); Calibrated: 2011/9/28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn577; Calibrated: 2011/6/20
- Phantom: SAM Right; Type: QD000P40CD; Serial: TP:1644
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Ch4182/Area Scan (41x71x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 1.010 mW/g

Ch4182/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 32.313 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 1.216 W/kg

SAR(1 g) = 0.957 mW/g; SAR(10 g) = 0.691 mW/g

Maximum value of SAR (measured) = 1.013 mW/g

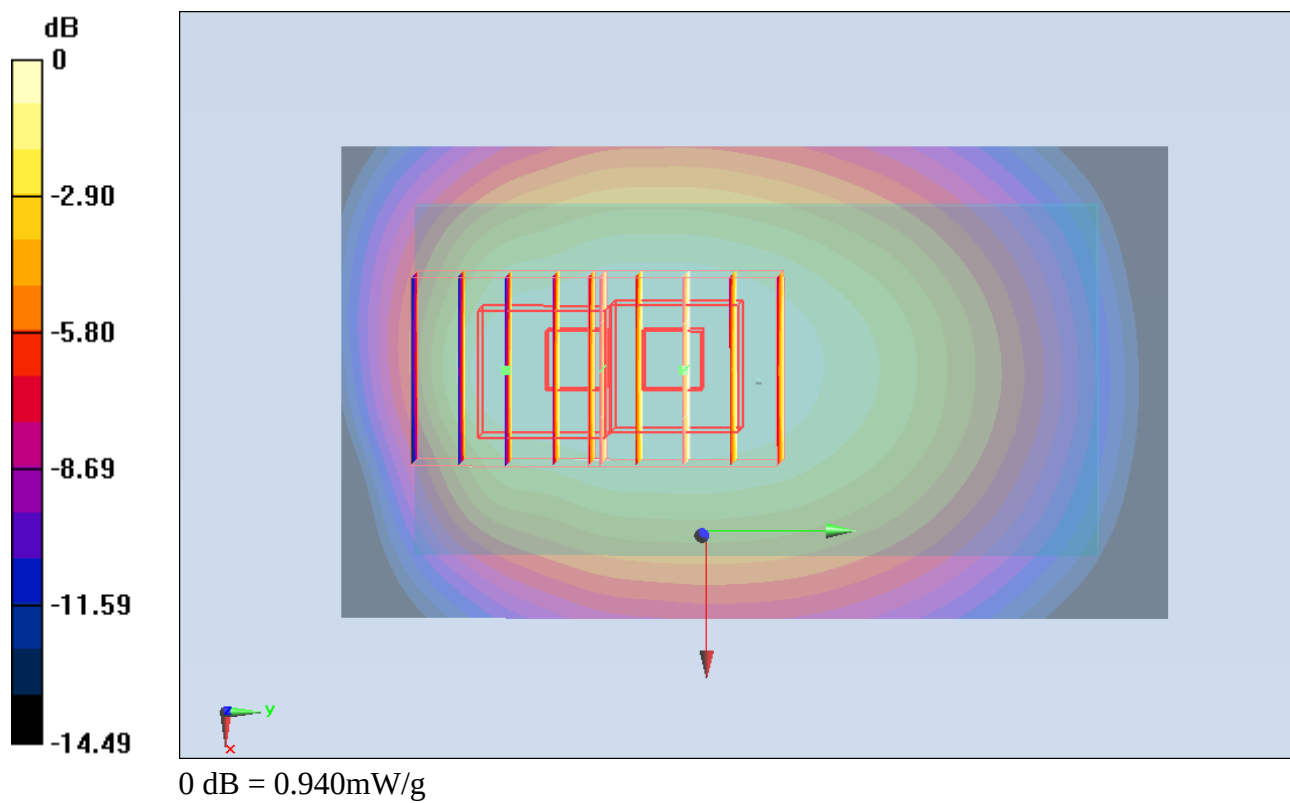
Ch4182/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 32.313 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 1.249 W/kg

SAR(1 g) = 0.848 mW/g; SAR(10 g) = 0.576 mW/g

Maximum value of SAR (measured) = 0.942 mW/g



#16 WCDMA V_RMC12.2K_Back_1cm_Ch4132

DUT: 1D0840

Communication System: WCDMA; Frequency: 826.4 MHz; Duty Cycle: 1:1

Medium: MSL_850_111215 Medium parameters used : $f = 826.4$ MHz; $\sigma = 0.946$ mho/m; $\epsilon_r =$

52.774; $\rho = 1000$ kg/m³

Ambient Temperature : 22.3 °C ; Liquid Temperature : 21.3 °C

DASY5 Configuration:

- Probe: ET3DV6 - SN1788; ConvF(6.24, 6.24, 6.24); Calibrated: 2011/9/28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn577; Calibrated: 2011/6/20
- Phantom: SAM Right; Type: QD000P40CD; Serial: TP:1644
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Ch4132/Area Scan (41x71x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 1.010 mW/g

Ch4132/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 32.413 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 1.223 W/kg

SAR(1 g) = 0.958 mW/g; SAR(10 g) = 0.693 mW/g

Maximum value of SAR (measured) = 1.014 mW/g

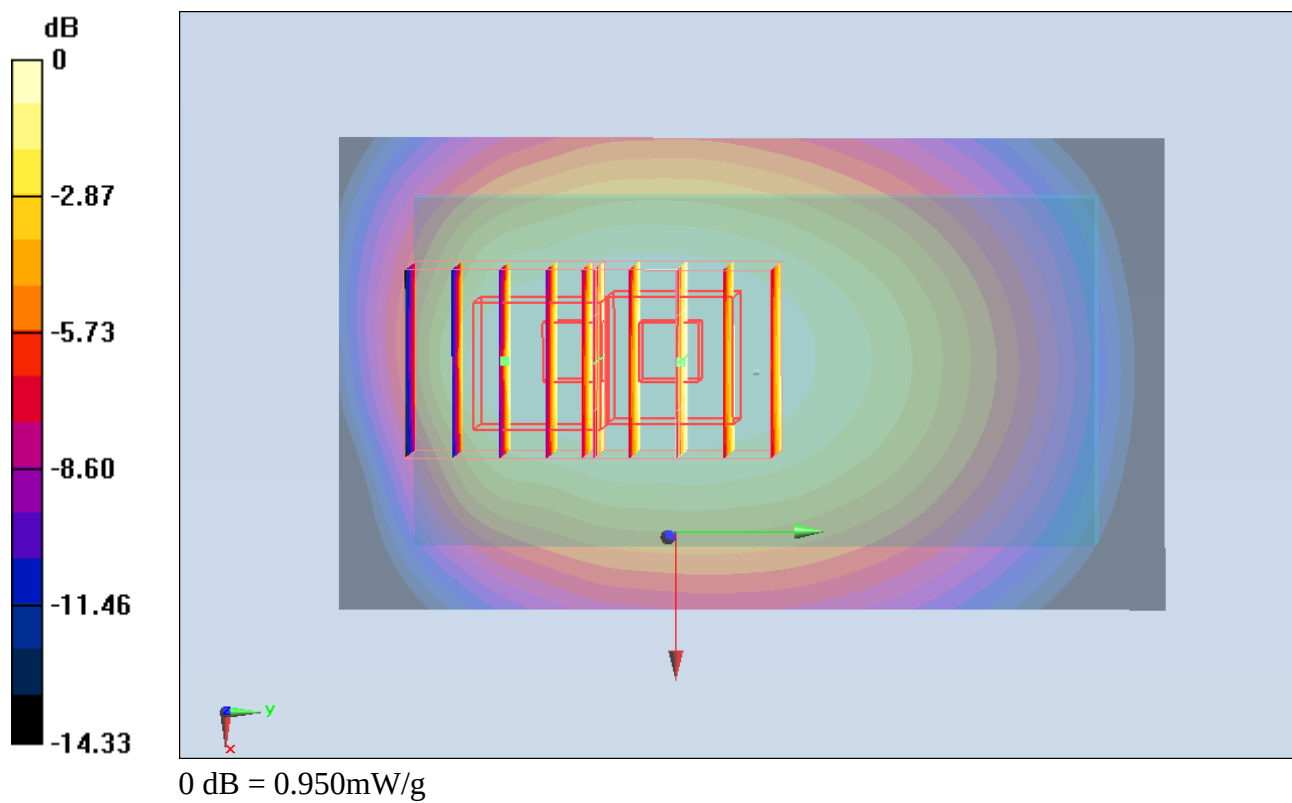
Ch4132/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 32.413 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 1.252 W/kg

SAR(1 g) = 0.860 mW/g; SAR(10 g) = 0.585 mW/g

Maximum value of SAR (measured) = 0.952 mW/g



#17 WCDMA V_RMC12.2K_Back_1cm_Ch4233

DUT: 1D0840

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

Medium: MSL_850_111215 Medium parameters used: $f = 847$ MHz; $\sigma = 0.967$ mho/m; $\epsilon_r = 52.566$;

$\rho = 1000$ kg/m³

Ambient Temperature : 22.3 °C; Liquid Temperature : 21.3 °C

DASY5 Configuration:

- Probe: ET3DV6 - SN1788; ConvF(6.24, 6.24, 6.24); Calibrated: 2011/9/28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn577; Calibrated: 2011/6/20
- Phantom: SAM Right; Type: QD000P40CD; Serial: TP:1644
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Ch4233/Area Scan (41x71x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 1.038 mW/g

Ch4233/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 32.662 V/m; Power Drift = -0.0015 dB

Peak SAR (extrapolated) = 1.296 W/kg

SAR(1 g) = 0.993 mW/g; SAR(10 g) = 0.712 mW/g

Maximum value of SAR (measured) = 1.057 mW/g

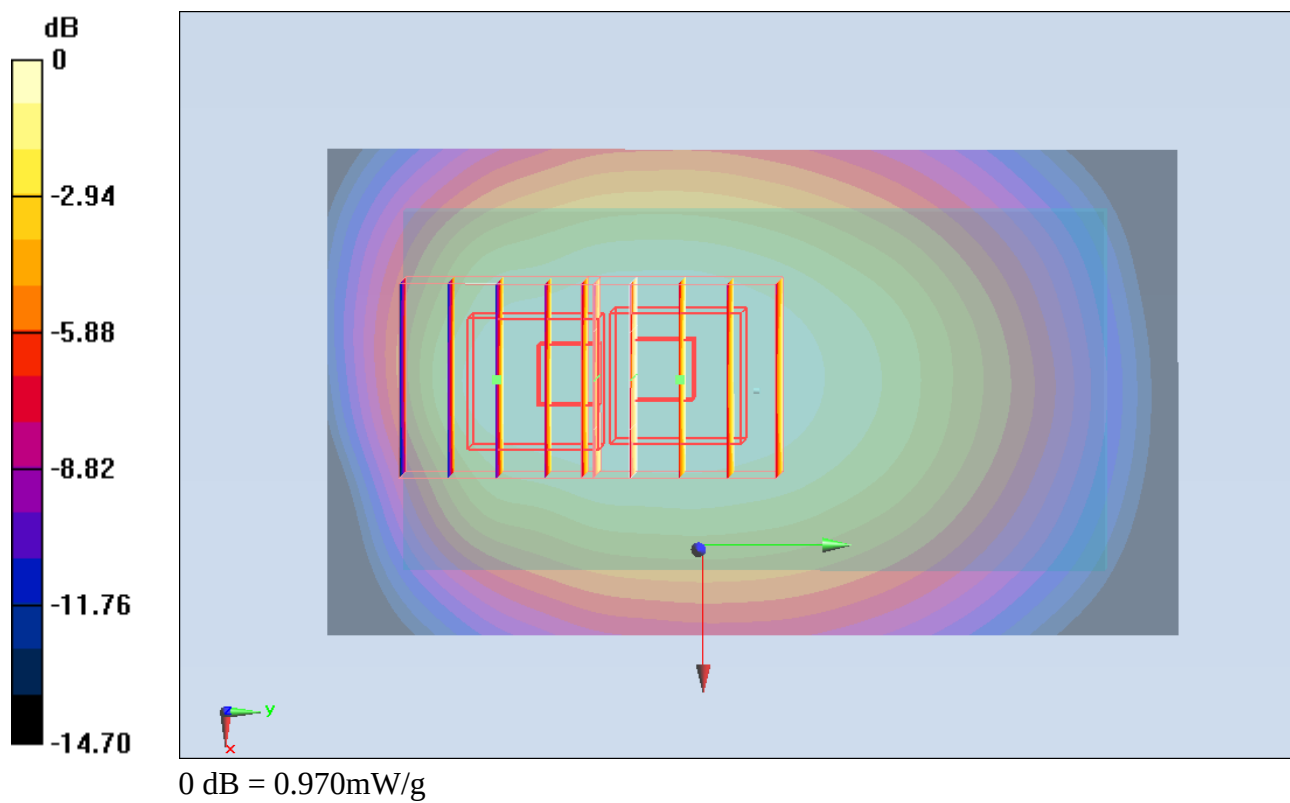
Ch4233/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 32.662 V/m; Power Drift = -0.0015 dB

Peak SAR (extrapolated) = 1.265 W/kg

SAR(1 g) = 0.869 mW/g; SAR(10 g) = 0.588 mW/g

Maximum value of SAR (measured) = 0.975 mW/g



#18 WCDMA V_RMC12.2K_Back_1cm_Ch4233_Earphone**DUT: 1D0840**

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

Medium: MSL_850_111215 Medium parameters used: $f = 847$ MHz; $\sigma = 0.967$ mho/m; $\epsilon_r = 52.566$;

$\rho = 1000$ kg/m³

Ambient Temperature : 22.3 °C ; Liquid Temperature : 21.3 °C

DASY5 Configuration:

- Probe: ET3DV6 - SN1788; ConvF(6.24, 6.24, 6.24); Calibrated: 2011/9/28
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn577; Calibrated: 2011/6/20
- Phantom: SAM Right; Type: QD000P40CD; Serial: TP:1644
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Ch4233/Area Scan (41x71x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.849 mW/g

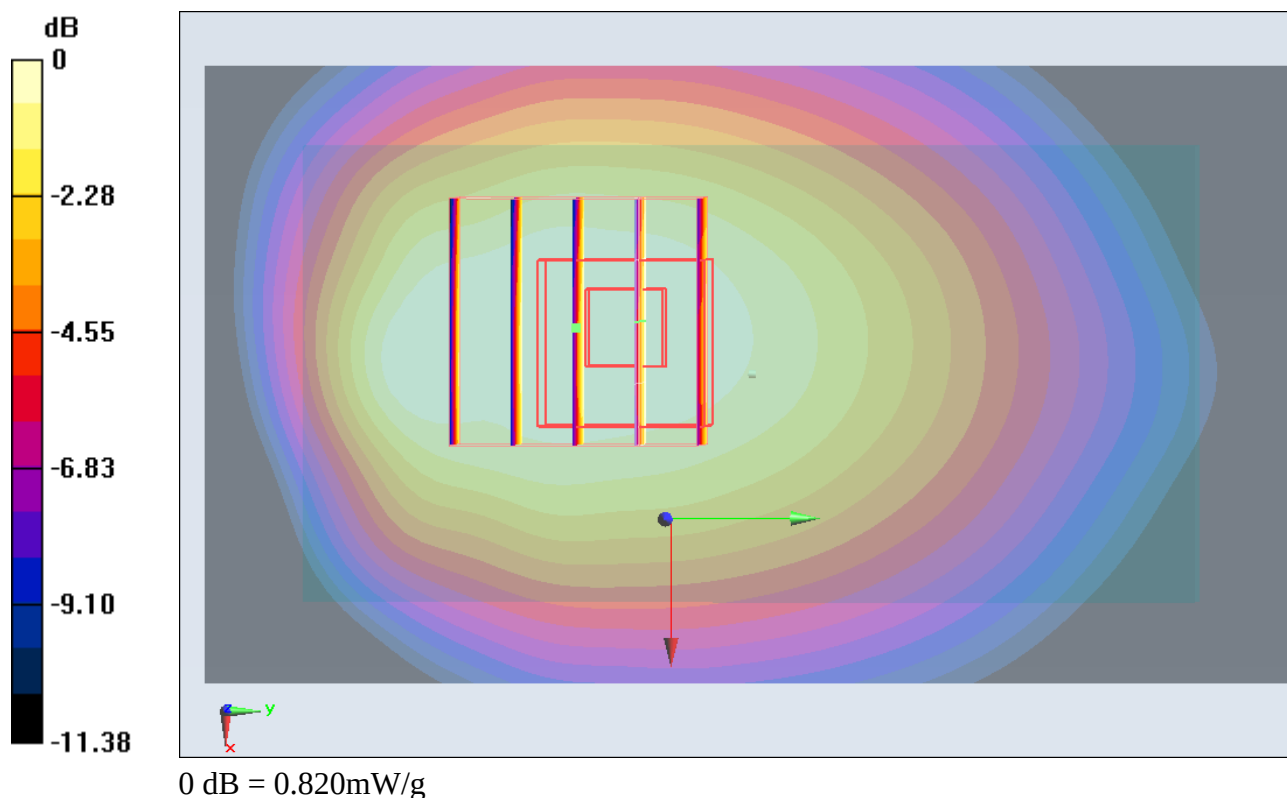
Ch4233/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 27.959 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 1.089 W/kg

SAR(1 g) = 0.775 mW/g; SAR(10 g) = 0.555 mW/g

Maximum value of SAR (measured) = 0.823 mW/g



#38 802.11b_Front_1cm_Ch1**DUT: 1D0840**

Communication System: 802.11b ; Frequency: 2412 MHz;Duty Cycle: 1:1

Medium: MSL_2450_111220 Medium parameters used: $f = 2412$ MHz; $\sigma = 1.95$ mho/m; $\epsilon_r = 54$; $\rho = 1000$ kg/m³

Ambient Temperature : 22.2 °C ; Liquid Temperature : 21.2 °C

DASY4 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(4.28, 4.28, 4.28); Calibrated: 2011-09-12
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn495; Calibrated: 2011-04-28
- Phantom: SAM_Right; Type: SAM; Serial: TP-1303
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch1/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.032 mW/g

Ch1/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 1.75 V/m; Power Drift = -0.074 dB

Peak SAR (extrapolated) = 0.135 W/kg

SAR(1 g) = 0.031 mW/g; SAR(10 g) = 0.015 mW/g

Maximum value of SAR (measured) = 0.033 mW/g

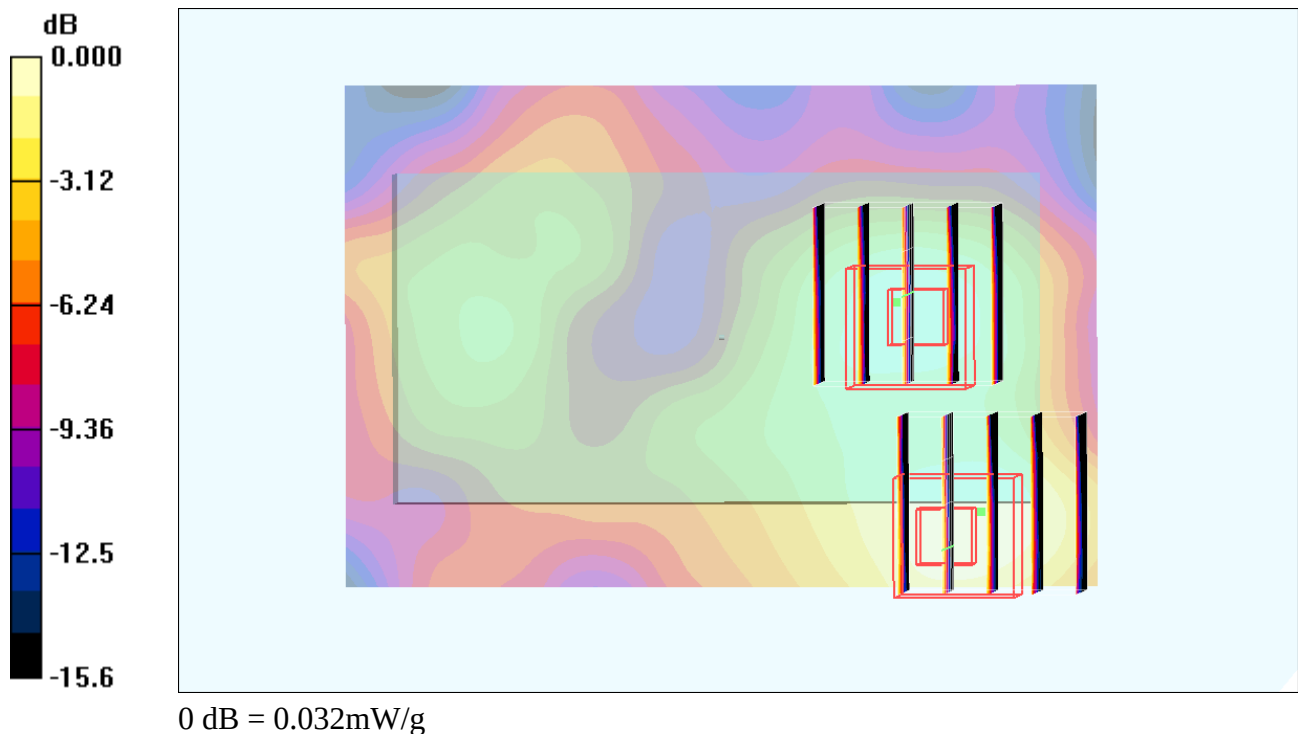
Ch1/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 1.75 V/m; Power Drift = -0.074 dB

Peak SAR (extrapolated) = 0.049 W/kg

SAR(1 g) = 0.026 mW/g; SAR(10 g) = 0.014 mW/g

Maximum value of SAR (measured) = 0.027 mW/g



#39 802.11b_Back_1cm_Ch1**DUT: 1D0840**

Communication System: 802.11b ; Frequency: 2412 MHz;Duty Cycle: 1:1

Medium: MSL_2450_111220 Medium parameters used: $f = 2412$ MHz; $\sigma = 1.95$ mho/m; $\epsilon_r = 54$; $\rho = 1000$ kg/m³

Ambient Temperature : 22.2 °C ; Liquid Temperature : 21.2 °C

DASY4 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(4.28, 4.28, 4.28); Calibrated: 2011-09-12
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn495; Calibrated: 2011-04-28
- Phantom: SAM_Right; Type: SAM; Serial: TP-1303
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch1/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.388 mW/g

Ch1/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 7.93 V/m; Power Drift = -0.020 dB

Peak SAR (extrapolated) = 0.814 W/kg

SAR(1 g) = 0.371 mW/g; SAR(10 g) = 0.170 mW/g

Maximum value of SAR (measured) = 0.397 mW/g

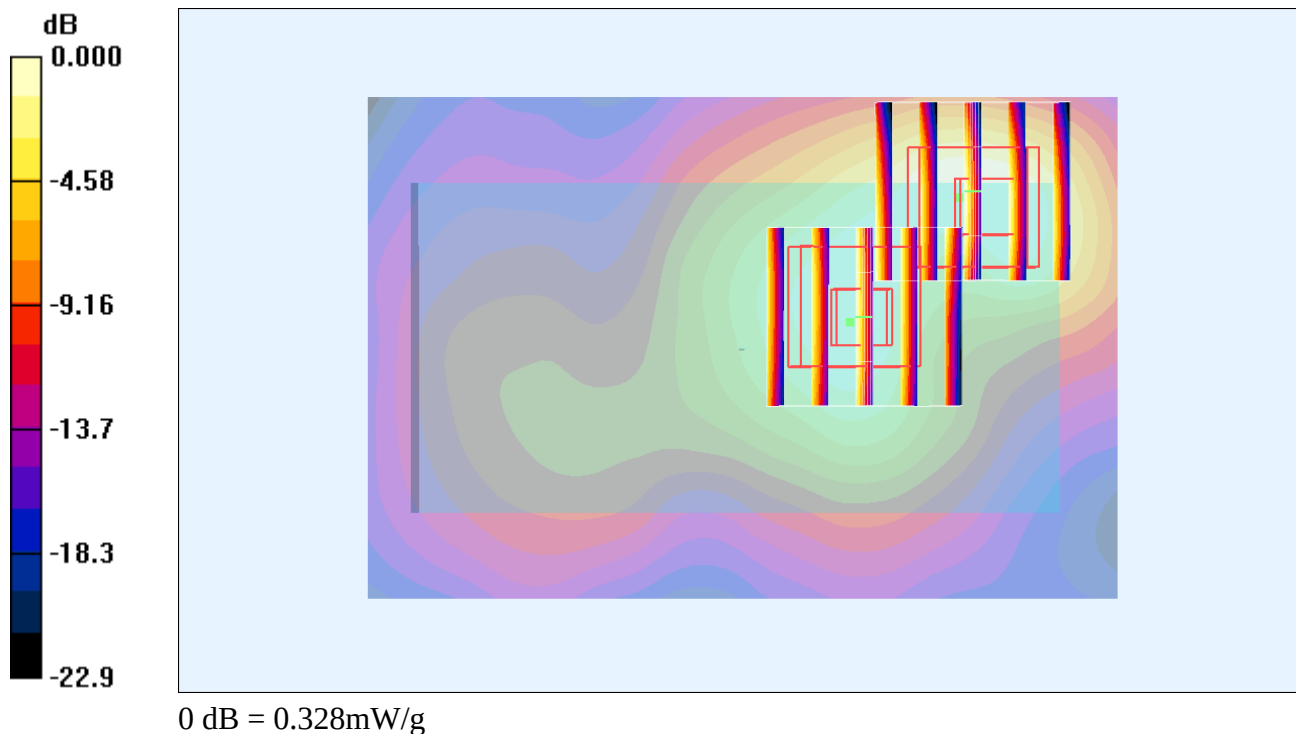
Ch1/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 7.93 V/m; Power Drift = -0.020 dB

Peak SAR (extrapolated) = 0.593 W/kg

SAR(1 g) = 0.304 mW/g; SAR(10 g) = 0.162 mW/g

Maximum value of SAR (measured) = 0.328 mW/g



#39 802.11b_Back_1cm_Ch1_2D**DUT: 1D0840**

Communication System: 802.11b ; Frequency: 2412 MHz;Duty Cycle: 1:1

Medium: MSL_2450_111220 Medium parameters used: $f = 2412$ MHz; $\sigma = 1.95$ mho/m; $\epsilon_r = 54$; $\rho = 1000$ kg/m³

Ambient Temperature : 22.2 °C ; Liquid Temperature : 21.2 °C

DASY4 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(4.28, 4.28, 4.28); Calibrated: 2011-09-12
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn495; Calibrated: 2011-04-28
- Phantom: SAM_Right; Type: SAM; Serial: TP-1303
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch1/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.388 mW/g

Ch1/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 7.93 V/m; Power Drift = -0.020 dB

Peak SAR (extrapolated) = 0.814 W/kg

SAR(1 g) = 0.371 mW/g; SAR(10 g) = 0.170 mW/g

Maximum value of SAR (measured) = 0.397 mW/g

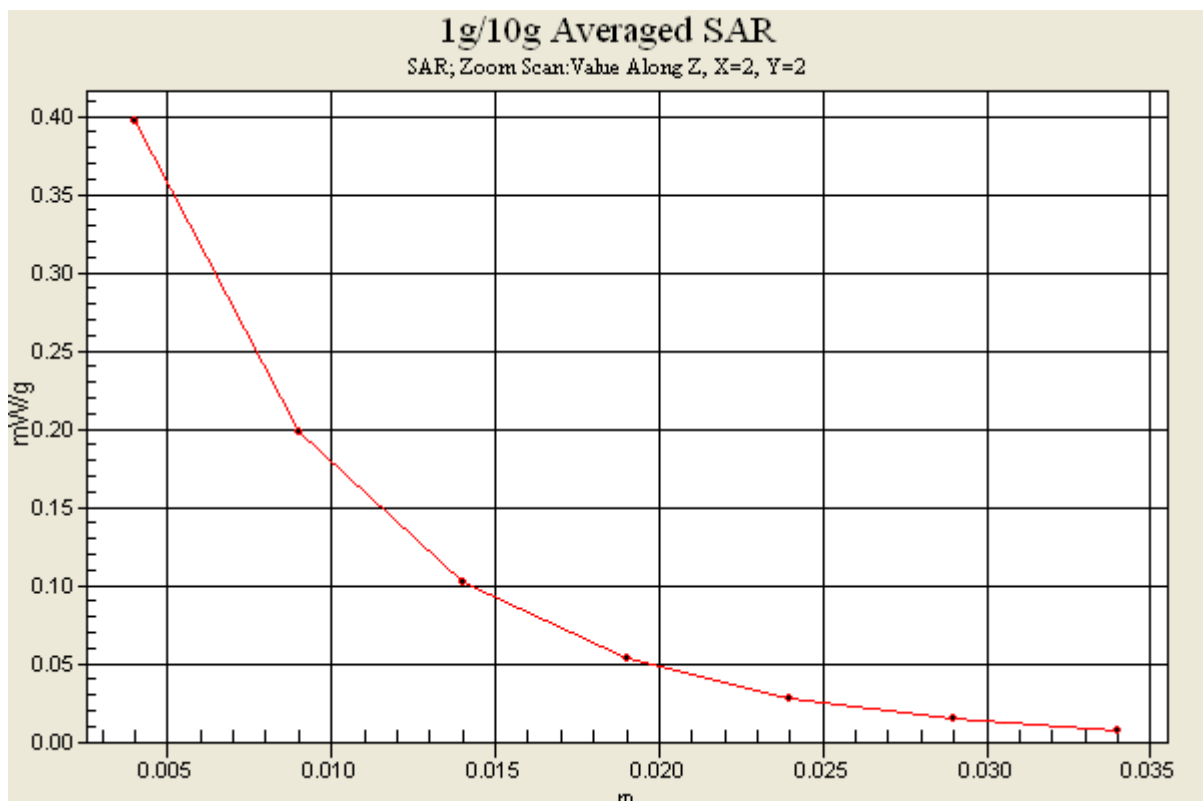
Ch1/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 7.93 V/m; Power Drift = -0.020 dB

Peak SAR (extrapolated) = 0.593 W/kg

SAR(1 g) = 0.304 mW/g; SAR(10 g) = 0.162 mW/g

Maximum value of SAR (measured) = 0.328 mW/g



#41 802.11b_Right Side_1cm_Ch1**DUT: 1D0840**

Communication System: 802.11b ; Frequency: 2412 MHz;Duty Cycle: 1:1

Medium: MSL_2450_111220 Medium parameters used: $f = 2412$ MHz; $\sigma = 1.95$ mho/m; $\epsilon_r = 54$; $\rho = 1000$ kg/m³

Ambient Temperature : 22.2 °C ; Liquid Temperature : 21.2 °C

DASY4 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(4.28, 4.28, 4.28); Calibrated: 2011-09-12
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn495; Calibrated: 2011-04-28
- Phantom: SAM_Right; Type: SAM; Serial: TP-1303
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch1/Area Scan (31x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.092 mW/g

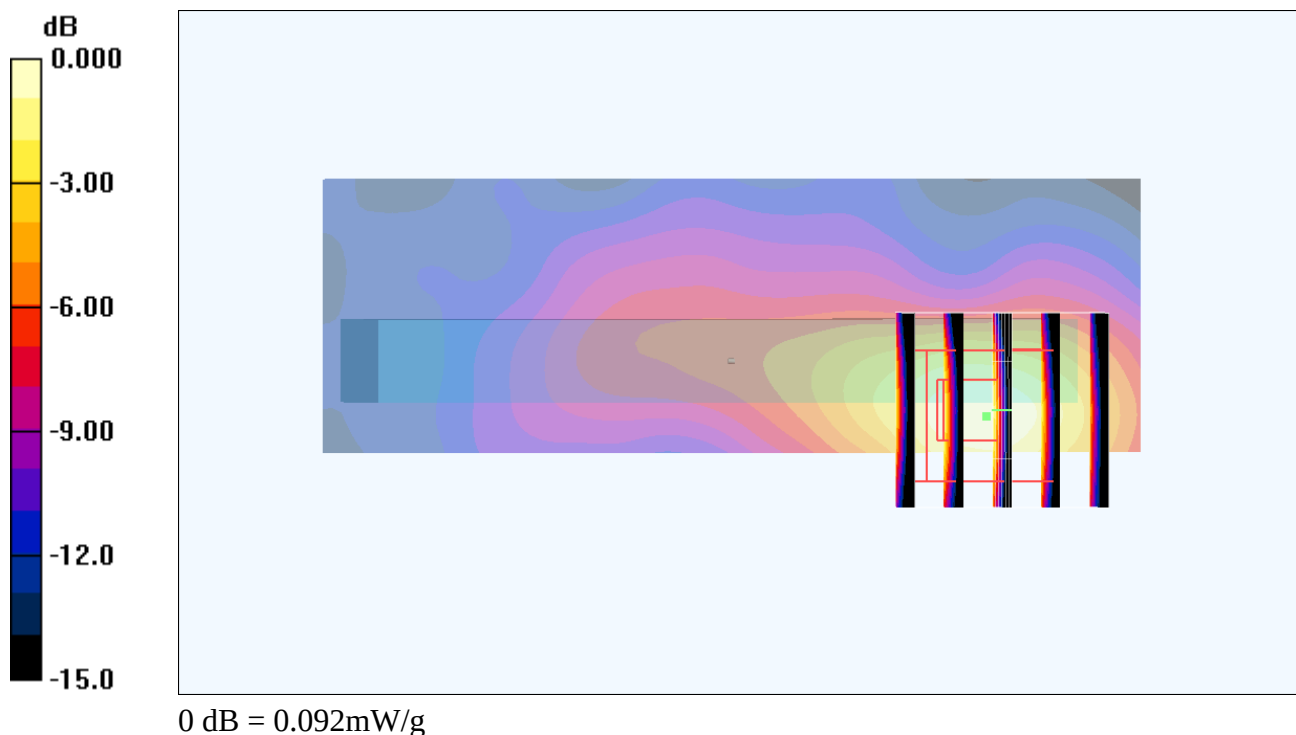
Ch1/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 3.25 V/m; Power Drift = -0.042 dB

Peak SAR (extrapolated) = 0.182 W/kg

SAR(1 g) = 0.084 mW/g; SAR(10 g) = 0.038 mW/g

Maximum value of SAR (measured) = 0.093 mW/g



#42 802.11b_Top Side_1cm_Ch1**DUT: 1D0840**

Communication System: 802.11b ; Frequency: 2412 MHz;Duty Cycle: 1:1

Medium: MSL_2450_111220 Medium parameters used: $f = 2412$ MHz; $\sigma = 1.95$ mho/m; $\epsilon_r = 54$; $\rho = 1000$ kg/m³

Ambient Temperature : 22.2 °C ; Liquid Temperature : 21.2 °C

DASY4 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(4.28, 4.28, 4.28); Calibrated: 2011-09-12
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn495; Calibrated: 2011-04-28
- Phantom: SAM_Right; Type: SAM; Serial: TP-1303
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch1/Area Scan (31x51x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.035 mW/g

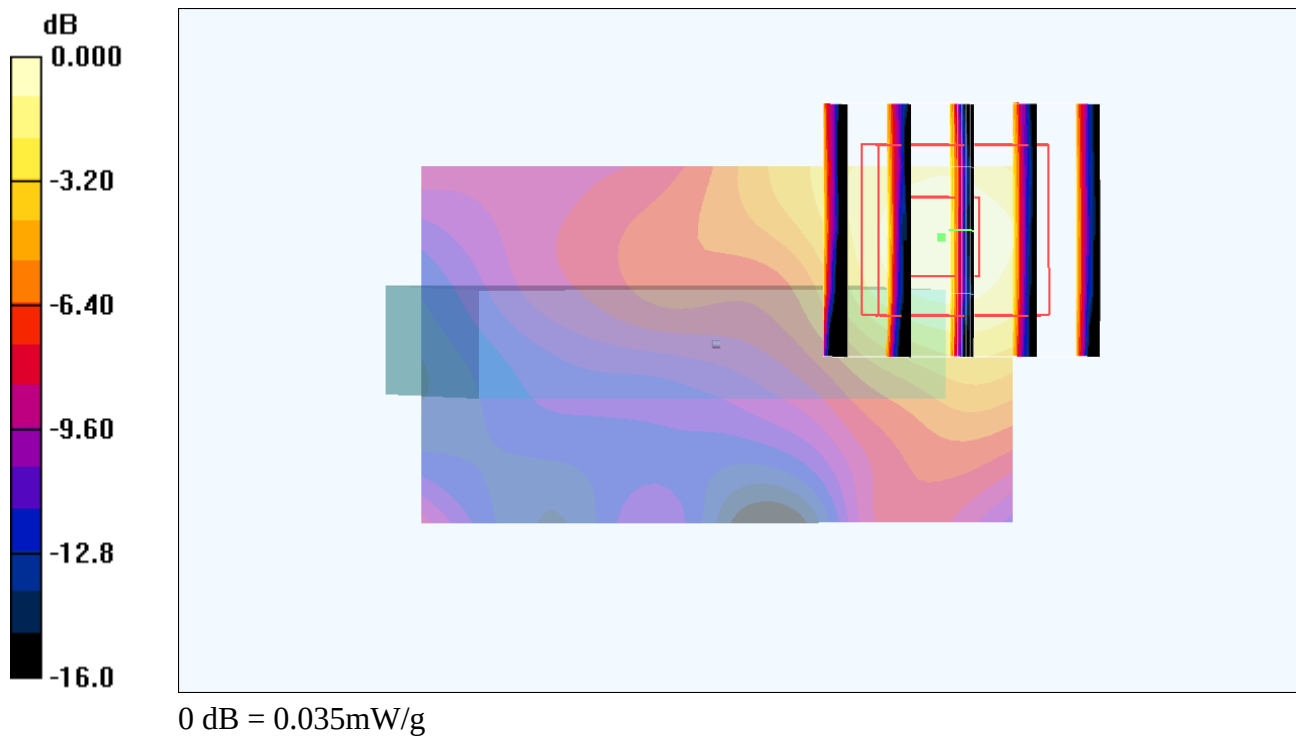
Ch1/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 1.35 V/m; Power Drift = -0.020 dB

Peak SAR (extrapolated) = 0.044 W/kg

SAR(1 g) = 0.025 mW/g; SAR(10 g) = 0.013 mW/g

Maximum value of SAR (measured) = 0.028 mW/g



#38 802.11b_Front_1cm_Ch1**DUT: 1D0840**

Communication System: 802.11b ; Frequency: 2412 MHz;Duty Cycle: 1:1

Medium: MSL_2450_111220 Medium parameters used: $f = 2412$ MHz; $\sigma = 1.95$ mho/m; $\epsilon_r = 54$; $\rho = 1000$ kg/m³

Ambient Temperature : 22.2 °C ; Liquid Temperature : 21.2 °C

DASY4 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(4.28, 4.28, 4.28); Calibrated: 2011-09-12
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn495; Calibrated: 2011-04-28
- Phantom: SAM_Right; Type: SAM; Serial: TP-1303
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch1/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.032 mW/g

Ch1/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 1.75 V/m; Power Drift = -0.074 dB

Peak SAR (extrapolated) = 0.135 W/kg

SAR(1 g) = 0.031 mW/g; SAR(10 g) = 0.015 mW/g

Maximum value of SAR (measured) = 0.033 mW/g

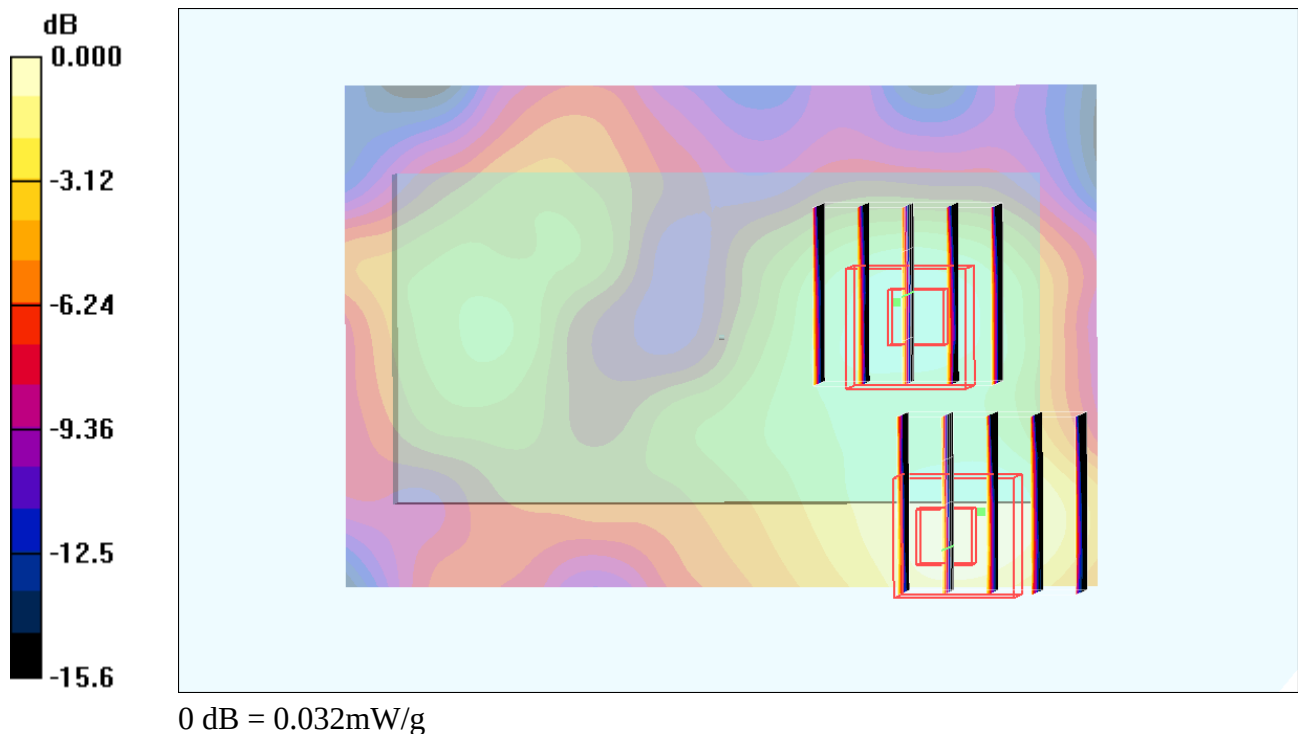
Ch1/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 1.75 V/m; Power Drift = -0.074 dB

Peak SAR (extrapolated) = 0.049 W/kg

SAR(1 g) = 0.026 mW/g; SAR(10 g) = 0.014 mW/g

Maximum value of SAR (measured) = 0.027 mW/g



#39 802.11b_Back_1cm_Ch1**DUT: 1D0840**

Communication System: 802.11b ; Frequency: 2412 MHz;Duty Cycle: 1:1

Medium: MSL_2450_111220 Medium parameters used: $f = 2412$ MHz; $\sigma = 1.95$ mho/m; $\epsilon_r = 54$; $\rho = 1000$ kg/m³

Ambient Temperature : 22.2 °C ; Liquid Temperature : 21.2 °C

DASY4 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(4.28, 4.28, 4.28); Calibrated: 2011-09-12
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn495; Calibrated: 2011-04-28
- Phantom: SAM_Right; Type: SAM; Serial: TP-1303
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch1/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.388 mW/g

Ch1/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 7.93 V/m; Power Drift = -0.020 dB

Peak SAR (extrapolated) = 0.814 W/kg

SAR(1 g) = 0.371 mW/g; SAR(10 g) = 0.170 mW/g

Maximum value of SAR (measured) = 0.397 mW/g

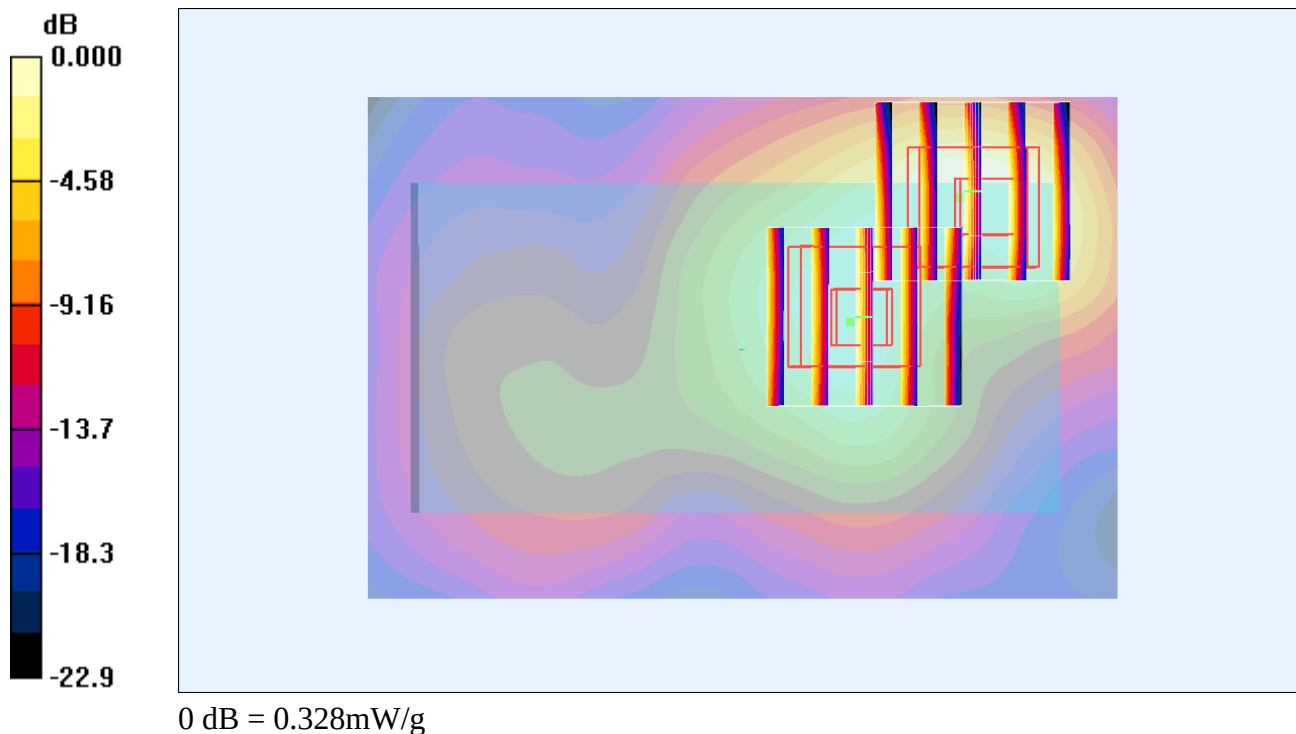
Ch1/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 7.93 V/m; Power Drift = -0.020 dB

Peak SAR (extrapolated) = 0.593 W/kg

SAR(1 g) = 0.304 mW/g; SAR(10 g) = 0.162 mW/g

Maximum value of SAR (measured) = 0.328 mW/g



#44 802.11b_Back_1cm_Ch1_Earphone**DUT: 1D0840**

Communication System: 802.11b ; Frequency: 2412 MHz;Duty Cycle: 1:1

Medium: MSL_2450_111220 Medium parameters used: $f = 2412$ MHz; $\sigma = 1.95$ mho/m; $\epsilon_r = 54$; $\rho = 1000$ kg/m³

Ambient Temperature : 22.2 °C ; Liquid Temperature : 21.2 °C

DASY4 Configuration:

- Probe: ES3DV3 - SN3270; ConvF(4.28, 4.28, 4.28); Calibrated: 2011-09-12
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn495; Calibrated: 2011-04-28
- Phantom: SAM_Right; Type: SAM; Serial: TP-1303
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch1/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.378 mW/g

Ch1/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 7.44 V/m; Power Drift = -0.049 dB

Peak SAR (extrapolated) = 0.799 W/kg

SAR(1 g) = 0.361 mW/g; SAR(10 g) = 0.165 mW/g

Maximum value of SAR (measured) = 0.395 mW/g

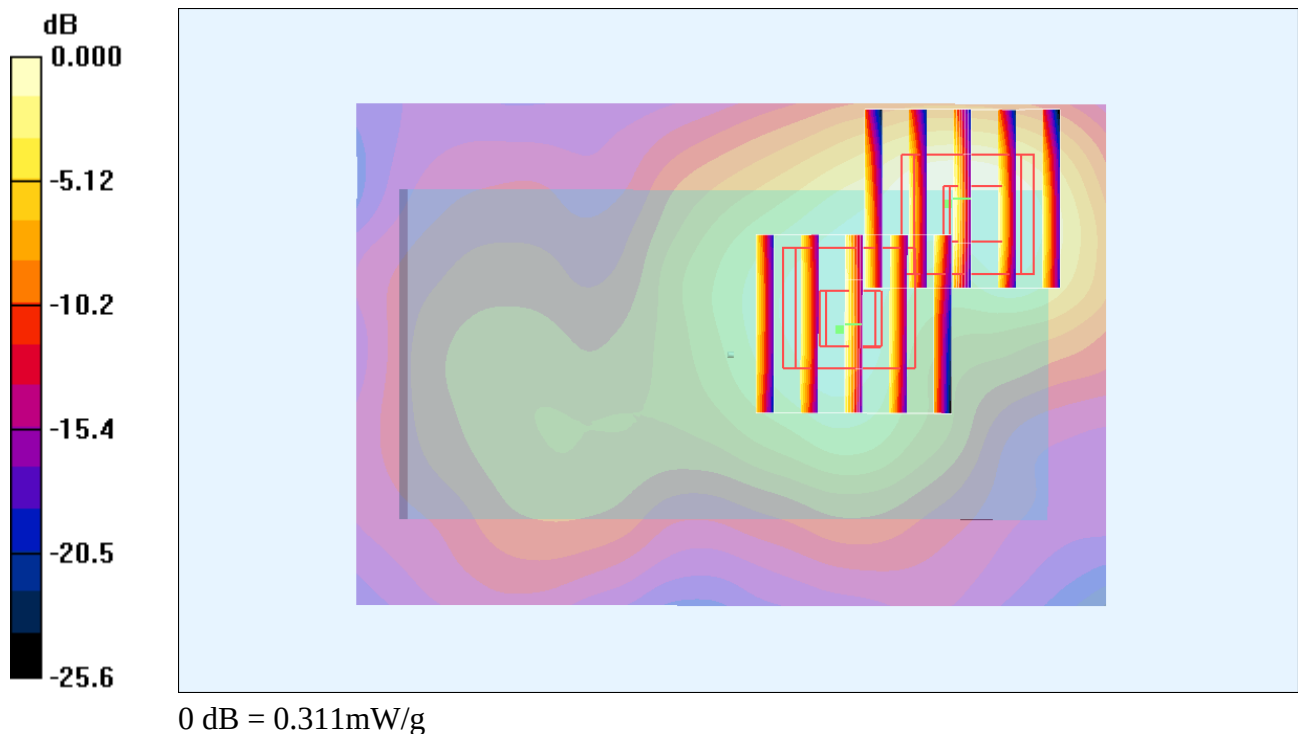
Ch1/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 7.44 V/m; Power Drift = -0.049 dB

Peak SAR (extrapolated) = 0.547 W/kg

SAR(1 g) = 0.288 mW/g; SAR(10 g) = 0.152 mW/g

Maximum value of SAR (measured) = 0.311 mW/g





Appendix C. DASY Calibration Certificate

The DASY calibration certificates are shown as follows.



Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland



S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
S Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Client **Sporton (Auden)**

Certificate No: **D835V2-499_Mar10**

CALIBRATION CERTIFICATE

Object **D835V2 - SN: 499**

Calibration procedure(s) **QA CAL-05.v7**
Calibration procedure for dipole validation kits

Calibration date: **March 22, 2010**

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 $(22 \pm 3)^\circ\text{C}$ and humidity $< 70\%$.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	06-Oct-09 (No. 217-01086)	Oct-10
Power sensor HP 8481A	US37292783	06-Oct-09 (No. 217-01086)	Oct-10
Reference 20 dB Attenuator	SN: 5086 (20g)	31-Mar-09 (No. 217-01025)	Mar-10
Type-N mismatch combination	SN: 5047.2 / 06327	31-Mar-09 (No. 217-01029)	Mar-10
Reference Probe ES3DV3	SN: 3205	26-Jun-09 (No. ES3-3205_Jun09)	Jun-10
DAE4	SN: 601	02-Mar-10 (No. DAE4-601_Mar10)	Mar-11
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-09)	In house check: Oct-11
RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-09)	In house check: Oct-10

Calibrated by: **Dimce Iliev** **Laboratory Technician**

Approved by: **Katja Pokovic** **Technical Manager**

Issued: March 22, 2010

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

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland



S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
S Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

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 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
- 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 300 MHz to 3 GHz)", February 2005
- Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

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.

Measurement Conditions

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

DASY Version	DASY5	V5.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V4.9	
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	42.9 $\pm$ 6 %	0.91 mho/m $\pm$ 6 %
Head TSL temperature during test	(22.0 $\pm$ 0.2) °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.43 mW / g
SAR normalized	normalized to 1W	9.72 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	9.71 mW / g $\pm$ 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.58 mW / g
SAR normalized	normalized to 1W	6.32 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	6.31 mW / g $\pm$ 16.5 % (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	55.3 ± 6 %	1.01 mho/m ± 6 %
Body TSL temperature during test	(22.0 ± 0.2) °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.53 mW / g
SAR normalized	normalized to 1W	10.1 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	9.82 mW / g ± 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.66 mW / g
SAR normalized	normalized to 1W	6.64 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	6.49 mW / g ± 16.5 % (k=2)

Appendix**Antenna Parameters with Head TSL**

Impedance, transformed to feed point	52.2 Ω - 3.2 j Ω
Return Loss	- 28.4 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	50.1 Ω - 5.9 j Ω
Return Loss	- 24.7 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.391 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.

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
Manufactured on	July 10, 2003

DASY5 Validation Report for Head TSL

Date/Time: 22.03.2010 10:17:58

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:499

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

Medium: HSL900

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.91 \text{ mho/m}$; $\epsilon_r = 42.9$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(6.04, 6.04, 6.04); Calibrated: 26.06.2009
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 02.03.2010
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Pin=250 mW /d=15mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) /Cube 0: Measurement

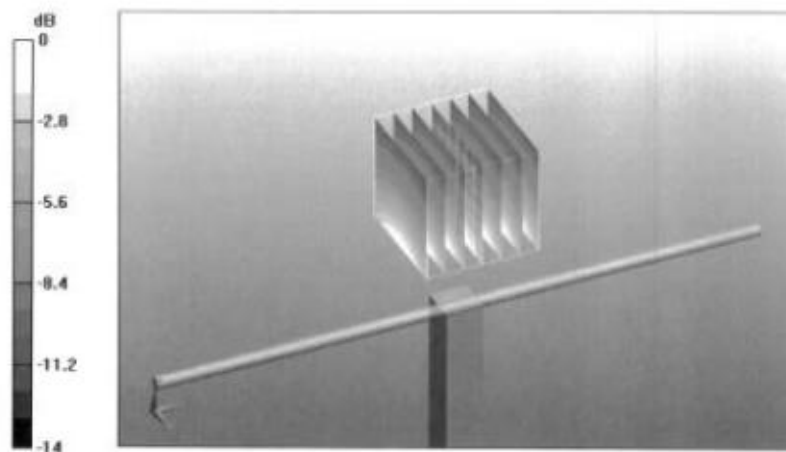
grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 57.5 V/m; Power Drift = 0.00691 dB

Peak SAR (extrapolated) = 3.63 W/kg

SAR(1 g) = 2.43 mW/g; SAR(10 g) = 1.58 mW/g

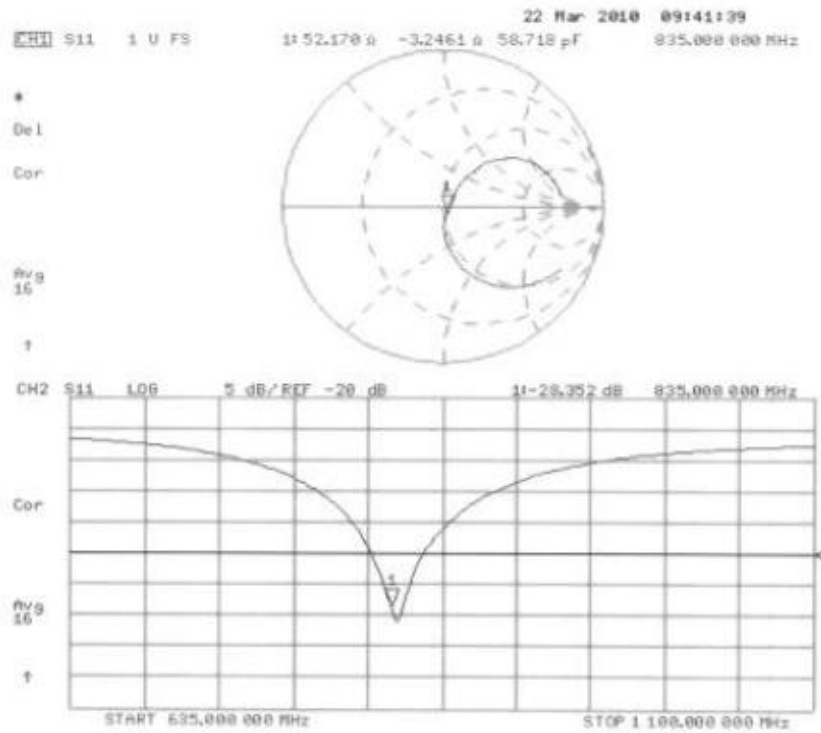
Maximum value of SAR (measured) = 2.84 mW/g



0 dB = 2.84mW/g



Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body

Date/Time: 22.03.2010 14:07:53

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:499

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

Medium: MSL900

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 1.01 \text{ mho/m}$; $\epsilon_r = 55.3$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(5.97, 5.97, 5.97); Calibrated: 26.06.2009
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 02.03.2010
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Pin250 mW /d=15mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) /Cube 0: Measurement

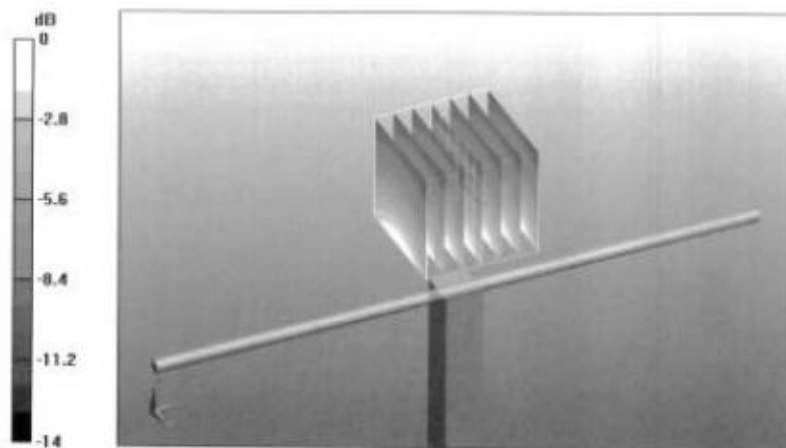
grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 55.6 V/m; Power Drift = 0.011 dB

Peak SAR (extrapolated) = 3.73 W/kg

SAR(1 g) = 2.53 mW/g; SAR(10 g) = 1.66 mW/g

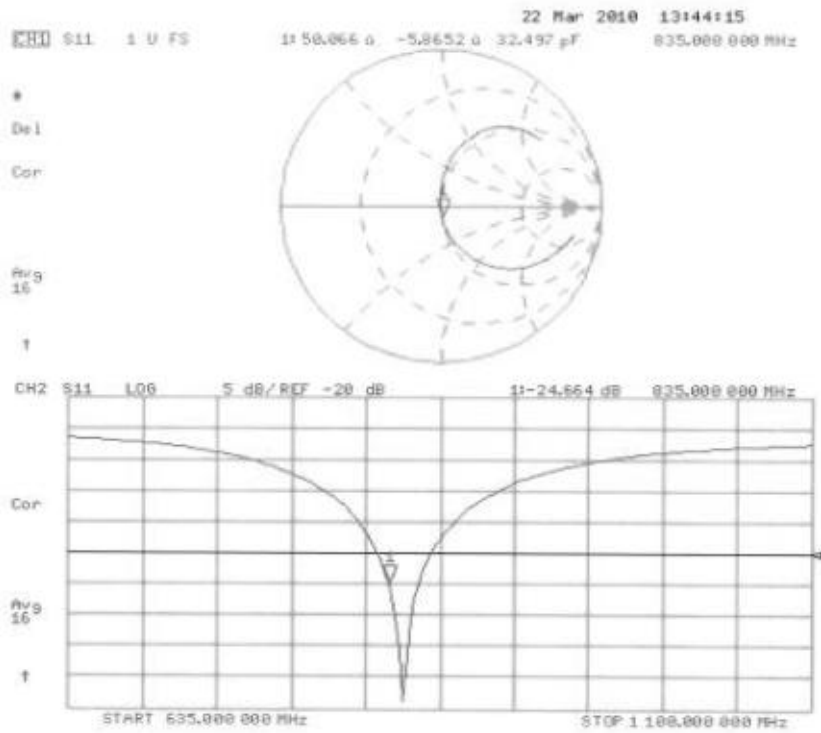
Maximum value of SAR (measured) = 2.94 mW/g



0 dB = 2.94mW/g



Impedance Measurement Plot for Body TSL



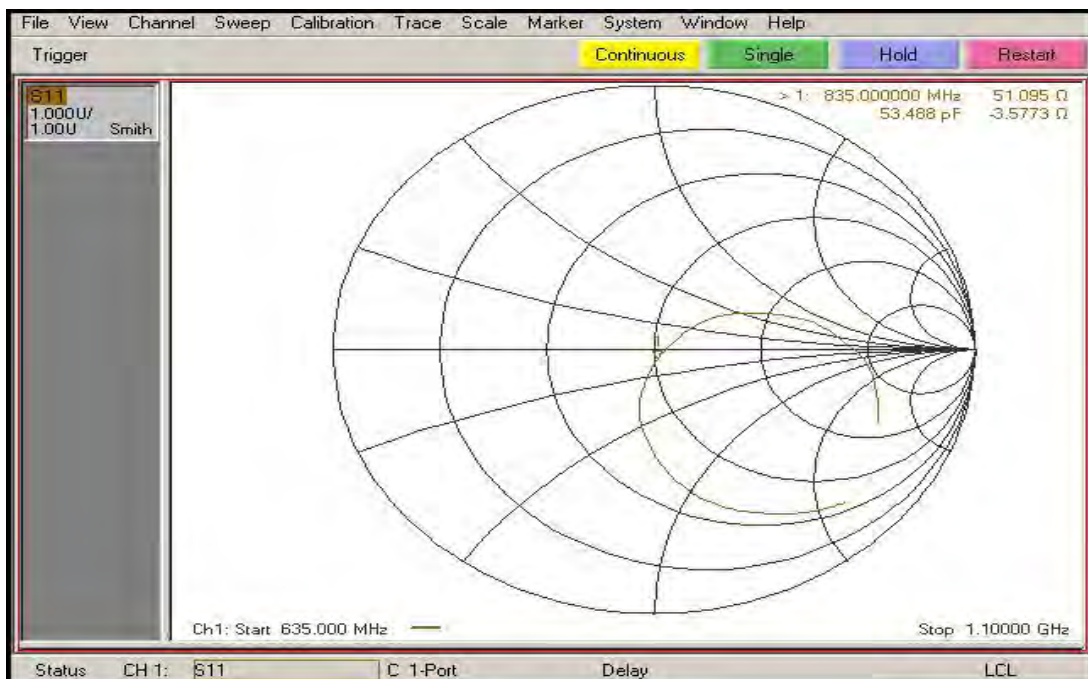


D835V2, serial no. 499 Extended Dipole Calibrations

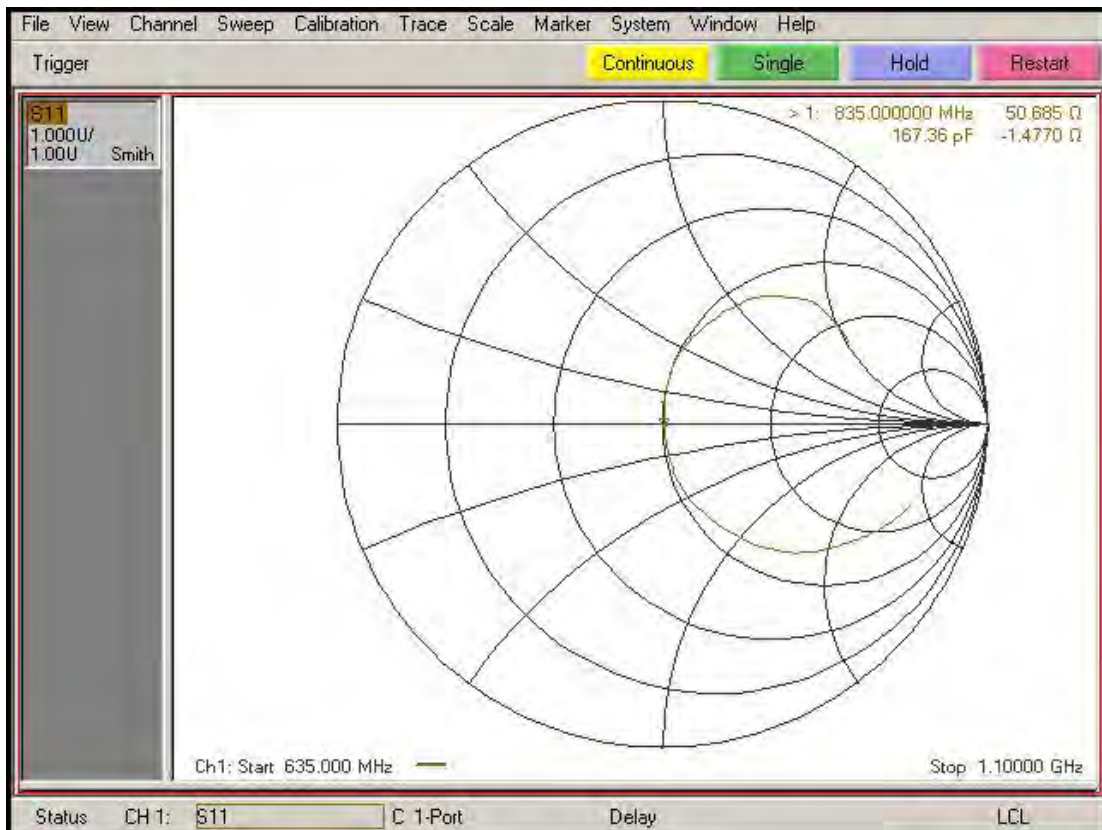
Referring to KDB 450824, if dipoles are verified in return loss ($< -20\text{dB}$, within 20% of prior calibration), and in impedance (within 5 ohm of prior calibration), the annual calibration is not necessary and the calibration interval can be extended.

<Dipole Verification Data> - D835 V2, serial no. 499

835 MHz - Head



835 MHz – Body





FCC Test Report

<Justification of the extended calibration>

D835V2 – serial no. 499												
	835 Head						835 Body					
Date of Measurement	Return-Loss (dB)	Delta (%)	Real Impedance (ohm)	Delta (ohm)	Imaginary Impedance (ohm)	Delta (ohm)	Return-Loss (dB)	Delta (%)	Real Impedance (ohm)	Delta (ohm)	Imaginary Impedance (ohm)	Delta (ohm)
3.22.2010	-28.352		52.17		-3.2461		-24.664		50.066		-5.8652	
3.22.2011	-28.323	0.102	51.095	1.075	-3.5773	0.331	-24.665	-0.004	50.685	-0.619	-1.477	-4.388

The return loss is < -20dB, within 20% of prior calibration; the impedance is within 5 ohm of prior calibration.

Therefore the verification result should support extended calibration.

Calibration Laboratory of
Schmid & Partner
Engineering AG
 Zeughausstrasse 43, 8004 Zurich, Switzerland



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Accreditation No.: **SCS 108**

Client **Sporton (Auden)**

Certificate No: **D1900V2-5d041_Mar10**

CALIBRATION CERTIFICATE

Object **D1900V2 - SN: 5d041**

Calibration procedure(s) **QA CAL-05.v7**
Calibration procedure for dipole validation kits

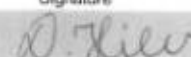
Calibration date: **March 23, 2010**

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 $(22 \pm 3)^{\circ}\text{C}$ and humidity $< 70\%$.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	06-Oct-09 (No. 217-01086)	Oct-10
Power sensor HP 8481A	US37292783	06-Oct-09 (No. 217-01086)	Oct-10
Reference 20 dB Attenuator	SN: 5086 (20g)	31-Mar-09 (No. 217-01025)	Mar-10
Type-N mismatch combination	SN: 5047.2 / 06327	31-Mar-09 (No. 217-01029)	Mar-10
Reference Probe ES3DV3	SN: 3205	26-Jun-09 (No. ES3-3205_Jun09)	Jun-10
DAE4	SN: 601	02-Mar-10 (No. DAE4-601_Mar10)	Mar-11
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-09)	In house check: Oct-11
RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-09)	In house check: Oct-10

Calibrated by: **Dimce Iliev** Function: **Laboratory Technician** Signature: 

Approved by: **Katja Pokovic** Technical Manager

Issued: March 23, 2010

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

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland



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Accreditation No.: **SCS 108**

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 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
- 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 300 MHz to 3 GHz)", February 2005
- Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

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.

Measurement Conditions

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

DASY Version	DASY5	V5.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V5.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1900 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	41.1 $\pm$ 6 %	1.45 mho/m $\pm$ 6 %
Head TSL temperature during test	(21.5 $\pm$ 0.2) °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	10.1 mW / g
SAR normalized	normalized to 1W	40.4 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	39.8 mW / g $\pm$ 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	5.25 mW / g
SAR normalized	normalized to 1W	21.0 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	20.9 mW / g $\pm$ 16.5 % (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 ± 0.2) °C	54.9 ± 6 %	1.58 mho/m ± 6 %
Body TSL temperature during test	(21.5 ± 0.2) °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	10.4 mW / g
SAR normalized	normalized to 1W	41.6 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	40.0 mW / g ± 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.57 mW / g
SAR normalized	normalized to 1W	22.3 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	22.1 mW / g ± 16.5 % (k=2)

**Appendix****Antenna Parameters with Head TSL**

Impedance, transformed to feed point	50.9 Ω + 5.9 j Ω
Return Loss	- 24.6 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	46.3 Ω + 5.7 j Ω
Return Loss	- 23.1 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.202 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.

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
Manufactured on	July 04, 2003

DASY5 Validation Report for Head TSL

Date/Time: 23.03.2010 12:03:30

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d041

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

Medium: HSL U11 BB

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.45$ mho/m; $\epsilon_r = 41.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(5.09, 5.09, 5.09); Calibrated: 26.06.2009
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 02.03.2010
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

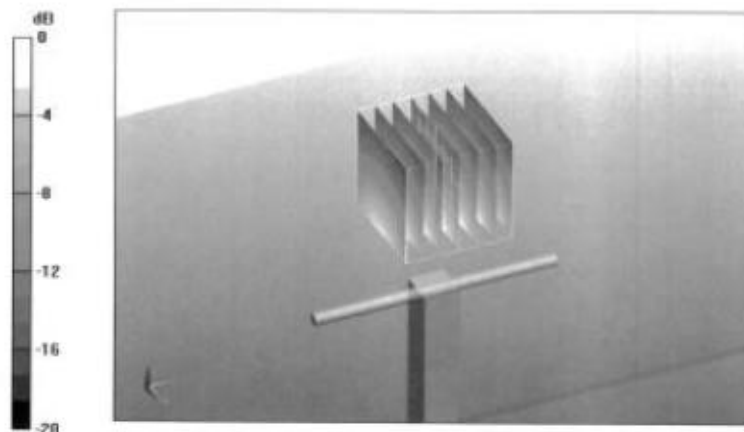
Pin=250 mW /d=10mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) /Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 96.8 V/m; Power Drift = 0.040 dB

Peak SAR (extrapolated) = 18.4 W/kg

SAR(1 g) = 10.1 mW/g; SAR(10 g) = 5.25 mW/g

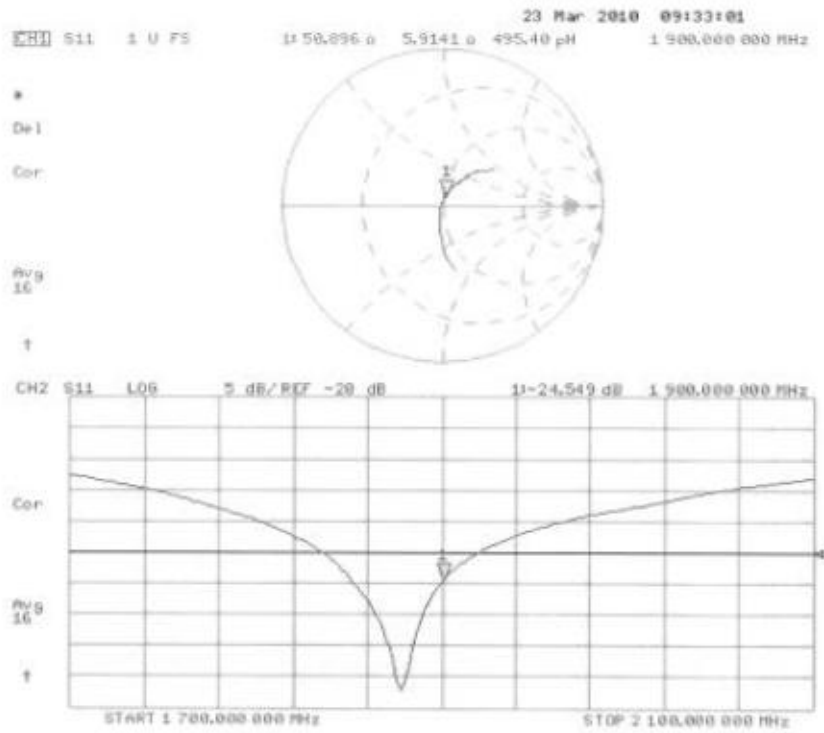
Maximum value of SAR (measured) = 12.7 mW/g



0 dB = 12.7mW/g



Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body

Date/Time: 17.03.2010 12:43:32

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d041

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

Medium: MSL U11 BB

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.58$ mho/m; $\epsilon_r = 55$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.59, 4.59, 4.59); Calibrated: 26.06.2009
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 02.03.2010
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Pin250 mW /d=10mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) /Cube 0: Measurement

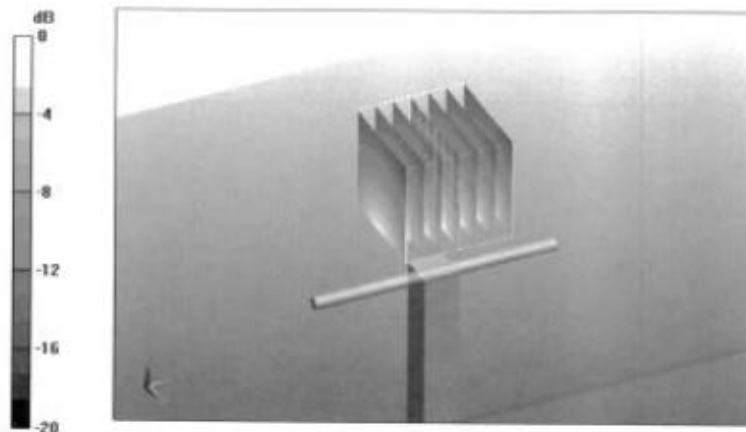
grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 96.1 V/m; Power Drift = 0.017 dB

Peak SAR (extrapolated) = 17.5 W/kg

SAR(1 g) = 10.4 mW/g; SAR(10 g) = 5.57 mW/g

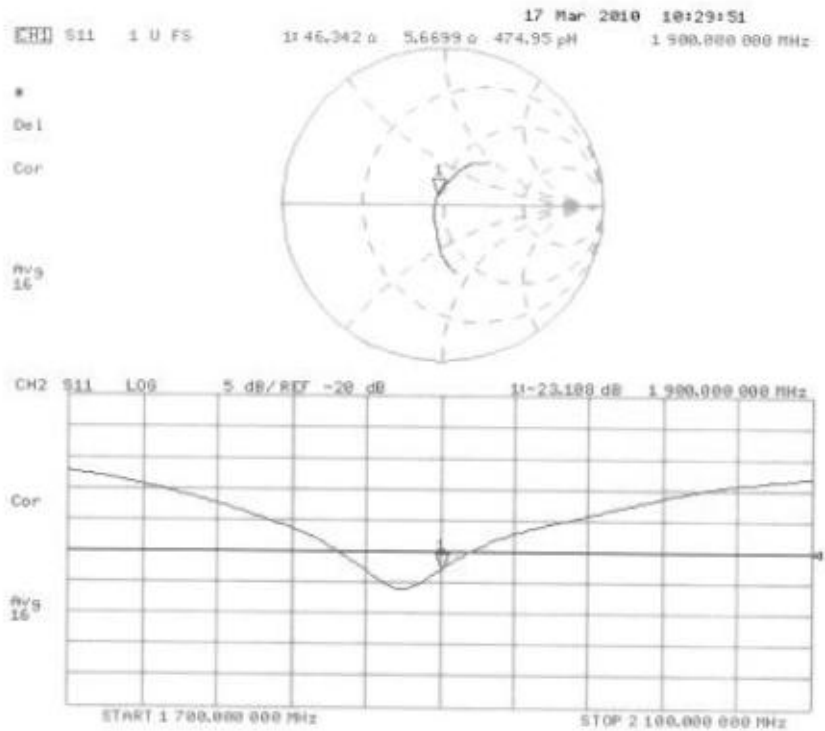
Maximum value of SAR (measured) = 13.1 mW/g



0 dB = 13.1mW/g



Impedance Measurement Plot for Body TSL

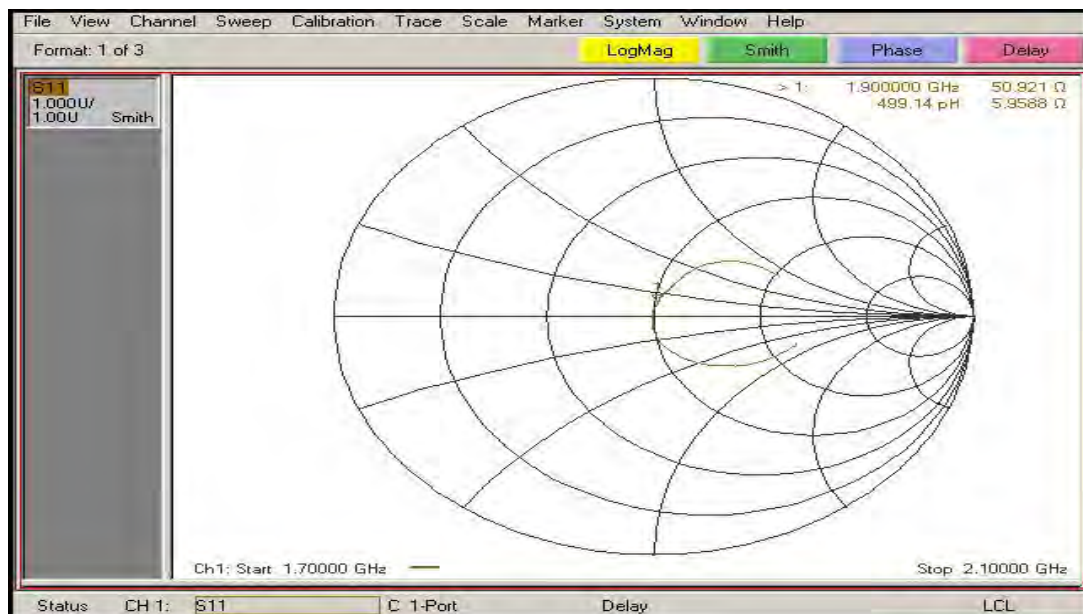


D1900V2, serial no. 5D041 Extended Dipole Calibrations

Referring to KDB 450824, if dipoles are verified in return loss ($< -20\text{dB}$, within 20% of prior calibration), and in impedance (within 5 ohm of prior calibration), the annual calibration is not necessary and the calibration interval can be extended.

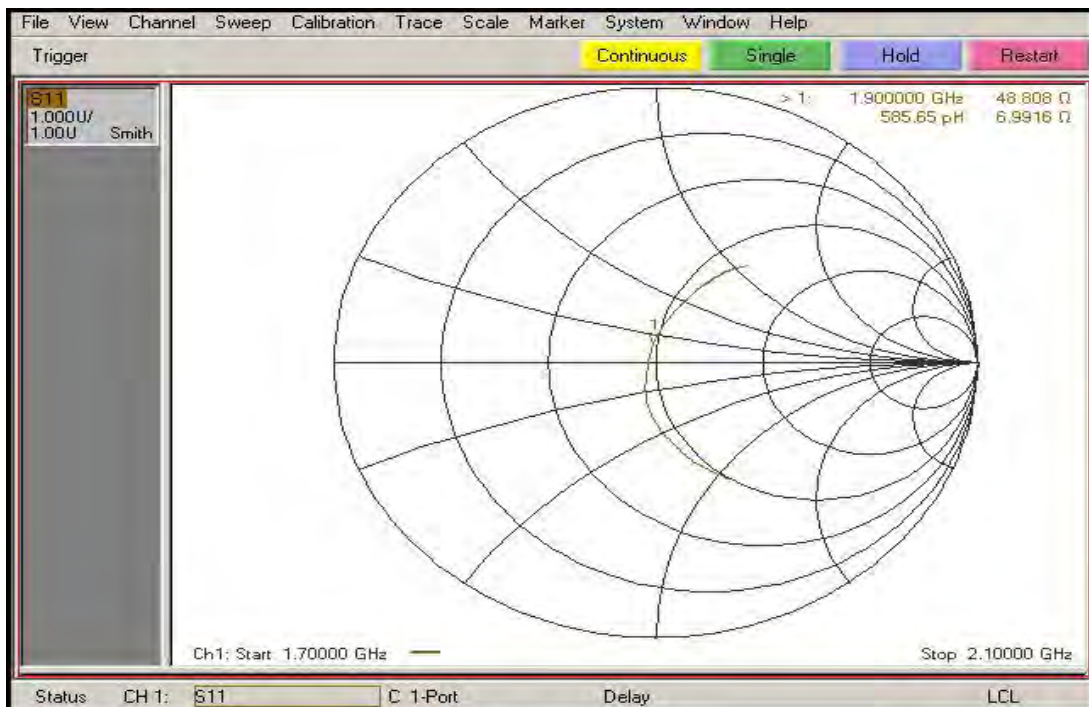
<Dipole Verification Data> - D1900 V2, serial no. 5D041

1900 MHz – Head





FCC Test Report



1900 MHz – Body

SPORTON INTERNATIONAL INC.

TEL : 886-3-327-3456

FAX : 886-3-328-4978

**<Justification of the extended calibration>**

D1900V2 – serial no. 5D041												
	1900 Head						1900 Body					
Date of Measurement	Return-Loss (dB)	Delta (%)	Real Impedance (ohm)	Delta (ohm)	Imaginary Impedance (ohm)	Delta (ohm)	Return-Loss (dB)	Delta (%)	Real Impedance (ohm)	Delta (ohm)	Imaginary Impedance (ohm)	Delta (ohm)
3.23.2010	-24.549		50.896		5.9141		-23.108		46.342		5.669	
3.23.2011	-24.489	0.244	50.921	-0.025	5.9588	-0.045	-23.022	0.372	48.808	-2.466	6.991	-1.322

The return loss is < -20dB, within 20% of prior calibration; the impedance is within 5 ohm of prior calibration.

Therefore the verification result should support extended calibration.



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Client

Sporton (Audan)

Certificate No: **D2450V2-736_Jul11**

CALIBRATION CERTIFICATE

Object

D2450V2 - SN: 736

Calibration procedure(s)

QA CAL-05 v8

Calibration procedure for dipole validation kits above 700 MHz

Calibration date:

July 25, 2011

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 $(22 \pm 3)^\circ\text{C}$ and humidity $< 70\%$.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	06-Oct-10 (No. 217-01266)	Oct-11
Power sensor HP 8481A	US37292783	06-Oct-10 (No. 217-01266)	Oct-11
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-11 (No. 217-01367)	Apr-12
Type-N mismatch combination	SN: 5047.2 / 06327	29-Mar-11 (No. 217-01371)	Apr-12
Reference Probe ES3DV3	SN: 3205	29-Apr-11 (No. ES3-3205_Apr11)	Apr-12
DAE4	SN: 601	04-Jul-11 (No. DAE4-601_Jul11)	Jul-12
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-09)	In house check: Oct-11
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-10)	In house check: Oct-11

Calibrated by:

Name

Claudio Leubler

Function

Laboratory Technician

Signature

Approved by:

Katja Pokovic

Technical Manager

Issued: July 25, 2011

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Accredited by the Swiss Accreditation Service (SAS)

Accreditation No.: **SCS 108**

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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 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
- 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 300 MHz to 3 GHz)", February 2005
- Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

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.

Measurement Conditions

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

DASY Version	DASY5	V52.6.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2450 MHz $\pm$ 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	39.2	1.80 mho/m
Measured Head TSL parameters	(22.0 $\pm$ 0.2) °C	38.9 $\pm$ 6 %	1.85 mho/m $\pm$ 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	13.9 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	54.8 mW / g $\pm$ 17.0 % (k=2)

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.44 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	25.6 mW / g $\pm$ 16.5 % (k=2)

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	52.7	1.95 mho/m
Measured Body TSL parameters	(22.0 $\pm$ 0.2) °C	51.7 $\pm$ 6 %	2.00 mho/m $\pm$ 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	13.3 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	52.3 mW / g $\pm$ 17.0 % (k=2)

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	6.18 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	24.5 mW / g $\pm$ 16.5 % (k=2)

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	$54.4 \Omega + 1.5 j\Omega$
Return Loss	- 27.0 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	$50.8 \Omega + 2.8 j\Omega$
Return Loss	- 30.7 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.159 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.

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
Manufactured on	August 26, 2003

DASY5 Validation Report for Head TSL

Date: 25.07.2011

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 736

Communication System: CW; Frequency: 2450 MHz

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.85$ mho/m; $\epsilon_r = 38.9$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.45, 4.45, 4.45); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

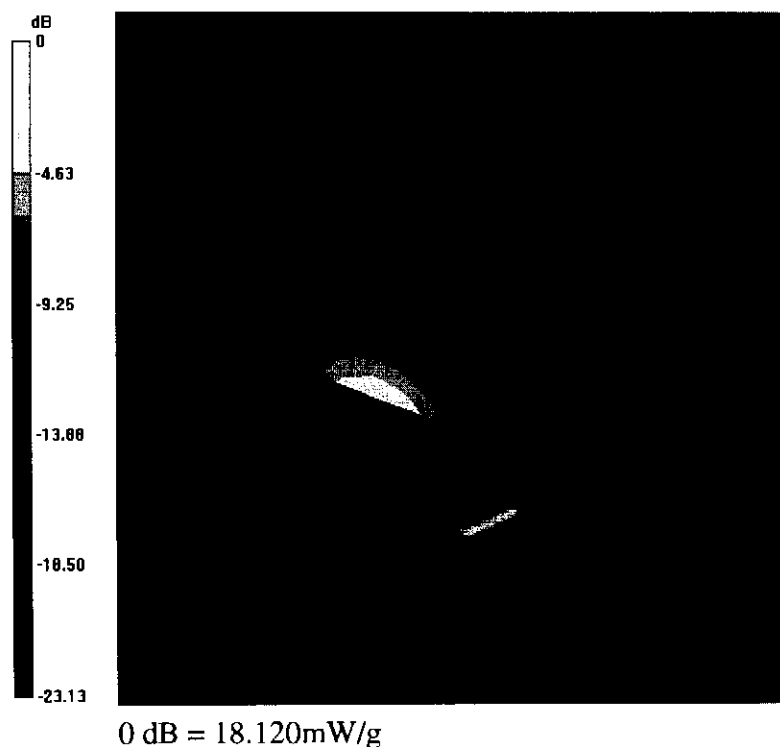
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 98.095 V/m; Power Drift = 0.09 dB

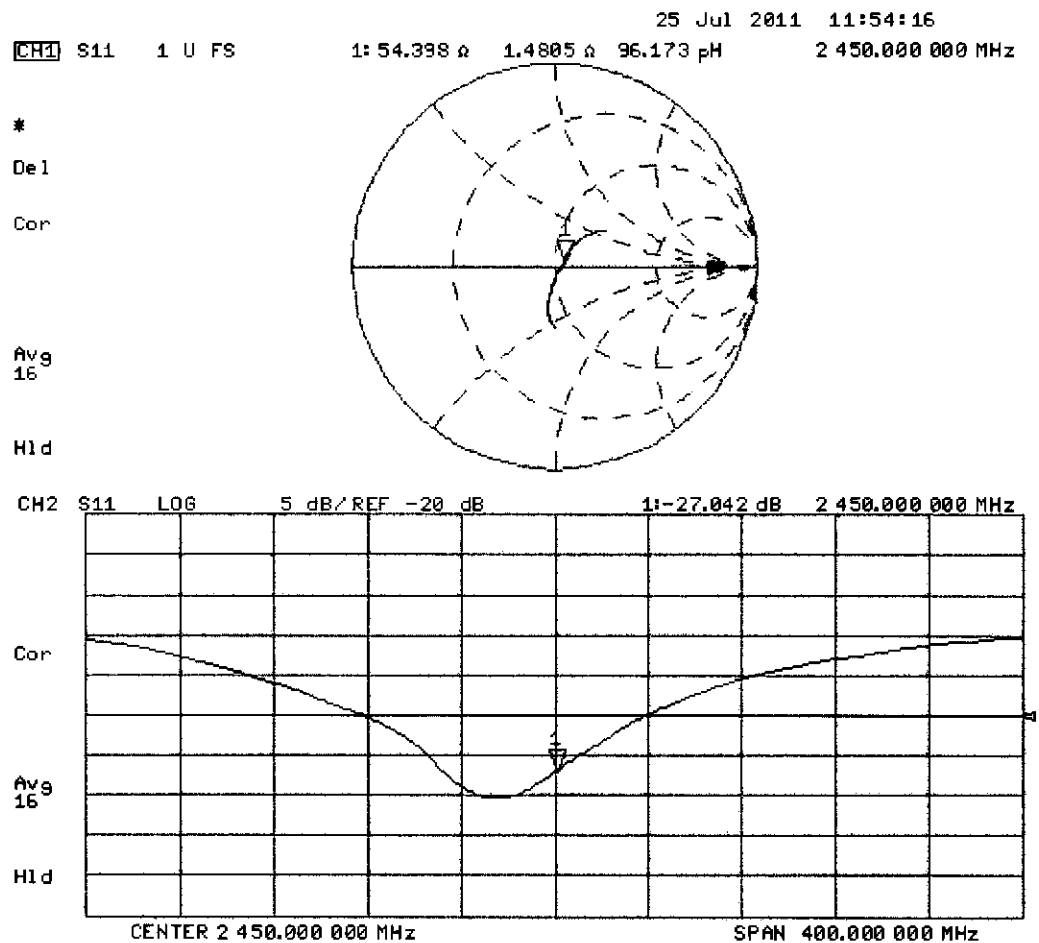
Peak SAR (extrapolated) = 28.615 W/kg

SAR(1 g) = 13.9 mW/g; SAR(10 g) = 6.44 mW/g

Maximum value of SAR (measured) = 18.121 mW/g



Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 25.07.2011

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 736

Communication System: CW; Frequency: 2450 MHz

Medium parameters used: $f = 2450$ MHz; $\sigma = 2$ mho/m; $\epsilon_r = 51.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.26, 4.26, 4.26); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

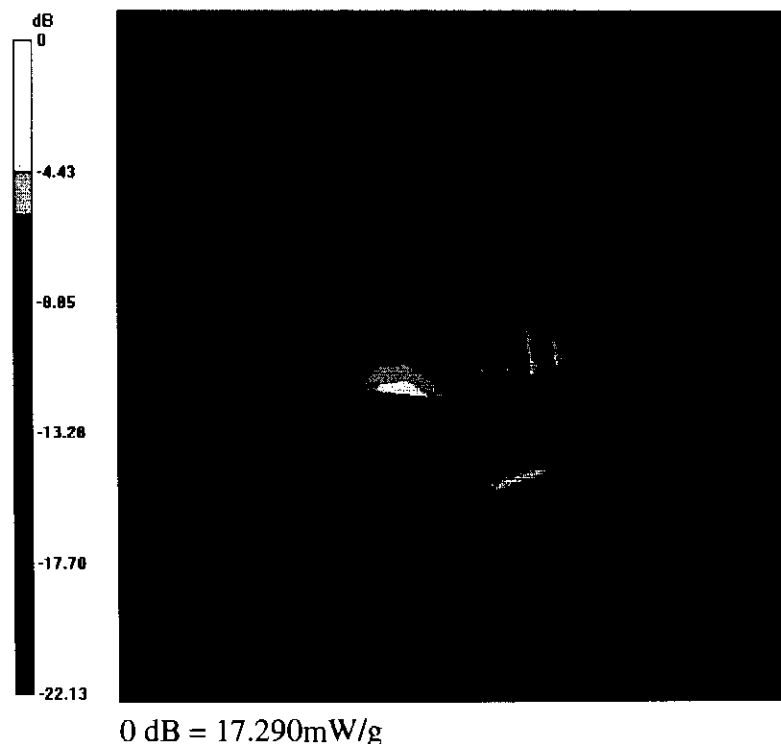
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 96.550 V/m; Power Drift = 0.02 dB

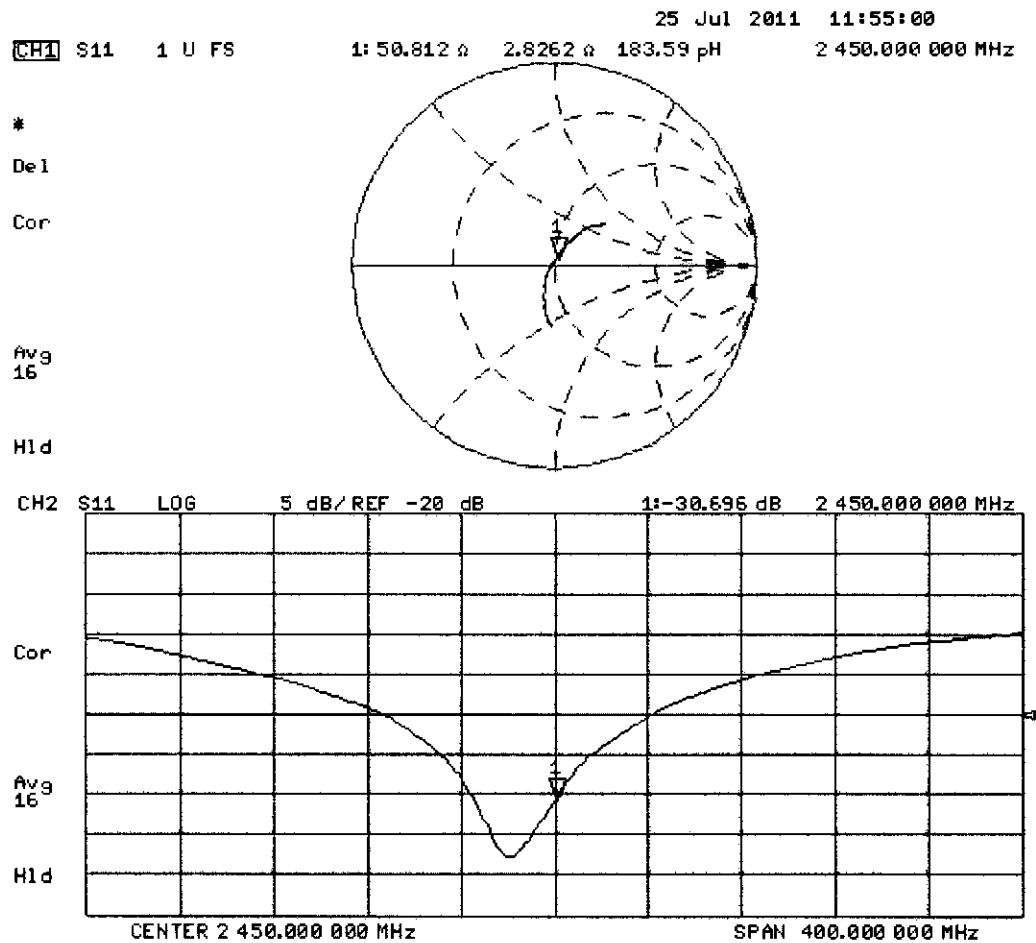
Peak SAR (extrapolated) = 27.432 W/kg

SAR(1 g) = 13.3 mW/g; SAR(10 g) = 6.18 mW/g

Maximum value of SAR (measured) = 17.294 mW/g



Impedance Measurement Plot for Body TSL



IMPORTANT NOTICE

USAGE OF THE DAE 3

The DAE unit is a delicate, high precision instrument and requires careful treatment by the user. There are no serviceable parts inside the DAE. Special attention shall be given to the following points:

Battery Exchange: The battery cover of the DAE3 unit is connected to a fragile 3-pin battery connector. Customer is responsible to apply utmost caution not to bend or damage the connector when changing batteries.

Shipping of the DAE: Before shipping the DAE to SPEAG for calibration the customer shall remove the batteries and pack the DAE in an antistatic bag. This antistatic bag shall then be packed into a larger box or container which protects the DAE from impacts transportation. The package shall be marked to indicate that a fragile instrument is inside.

E-Stop Failures: Touch detection may be malfunctioning due to broken magnets in the E-stop. Rough handling of the E-stop may lead to damage of these magnets. Touch and collision errors are often caused by dust and dirt accumulated in the E-stop. To prevent E-stop failure, Customer shall always mount the probe to the DAE carefully and keep the DAE unit in a non-dusty environment if not used for measurements.

Repair: Minor repairs are performed at no extra cost during the annual calibration. However, SPEAG reserves the right to charge for any repair especially if rough unprofessional handling caused the defect.

DASY Configuration Files: Since the exact values of the DAE input resistances, as measured during the calibration procedure of a DAE unit, are not used by the DASY software, a nominal value of 200 MOhm is given in the corresponding configuration file.

Important Note:

Warranty and calibration is void if the DAE unit is disassembled partly or fully by the Customer.

Important Note:

Never attempt to grease or oil the E-stop assembly. Cleaning and readjusting of the E-stop assembly is allowed by certified SPEAG personnel only and is part of the annual calibration procedure.

Important Note:

To prevent damage of the DAE probe connector pins, use great care when installing the probe to the DAE. Carefully connect the probe with the connector notch oriented in the mating position. Avoid any rotational movement of the probe body versus the DAE while turning the locking nut of the connector. The same care shall be used when disconnecting the probe from the DAE.



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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Client **Sporton TW (Auden)**

Certificate No: **DAE3-577_Jun11**

CALIBRATION CERTIFICATE

Object **DAE3 - SD 000 D03 AA - SN: 577**

Calibration procedure(s) **QA CAL-06.v23
Calibration procedure for the data acquisition electronics (DAE)**

Calibration date: **June 20, 2011**

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 (Certificate No.)	Scheduled Calibration
Keithley Multimeter Type 2001	SN: 0810278	28-Sep-10 (No:10376)	Sep-11
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Calibrator Box V1.1	SE UMS 006 AB 1004	08-Jun-11 (in house check)	In house check: Jun-12

	Name	Function	Signature
Calibrated by:	Dominique Steffen	Technician	

	Name	Function	Signature
Approved by:	Fin Bornholt	R&D Director	

Issued: June 20, 2011

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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Glossary

DAE data acquisition electronics
Connector angle information used in DASY system to align probe sensor X to the robot coordinate system.

Methods Applied and Interpretation of Parameters

- *DC Voltage Measurement:* Calibration Factor assessed for use in DASY system by comparison with a calibrated instrument traceable to national standards. The figure given corresponds to the full scale range of the voltmeter in the respective range.
- *Connector angle:* The angle of the connector is assessed measuring the angle mechanically by a tool inserted. Uncertainty is not required.
- The following parameters as documented in the Appendix contain technical information as a result from the performance test and require no uncertainty.
 - *DC Voltage Measurement Linearity:* Verification of the Linearity at +10% and -10% of the nominal calibration voltage. Influence of offset voltage is included in this measurement.
 - *Common mode sensitivity:* Influence of a positive or negative common mode voltage on the differential measurement.
 - *Channel separation:* Influence of a voltage on the neighbor channels not subject to an input voltage.
 - *AD Converter Values with inputs shorted:* Values on the internal AD converter corresponding to zero input voltage
 - *Input Offset Measurement:* Output voltage and statistical results over a large number of zero voltage measurements.
 - *Input Offset Current:* Typical value for information; Maximum channel input offset current, not considering the input resistance.
 - *Input resistance:* Typical value for information: DAE input resistance at the connector, during internal auto-zeroing and during measurement.
 - *Low Battery Alarm Voltage:* Typical value for information. Below this voltage, a battery alarm signal is generated.
 - *Power consumption:* Typical value for information. Supply currents in various operating modes.

DC Voltage Measurement

A/D - Converter Resolution nominal

High Range: 1LSB = 6.1 μ V , full range = -100...+300 mV

Low Range: 1LSB = 61 nV , full range = -1.....+3mV

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Calibration Factors	X	Y	Z
High Range	404.381 $\pm$ 0.1% (k=2)	403.844 $\pm$ 0.1% (k=2)	404.277 $\pm$ 0.1% (k=2)
Low Range	3.93296 $\pm$ 0.7% (k=2)	3.93560 $\pm$ 0.7% (k=2)	3.95800 $\pm$ 0.7% (k=2)

Connector Angle

Connector Angle to be used in DASY system	101.5 ° $\pm$ 1 °
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Appendix

1. DC Voltage Linearity

High Range	Reading (μV)	Difference (μV)	Error (%)
Channel X + Input	199995.4	-2.24	-0.00
Channel X + Input	20003.13	3.03	0.02
Channel X - Input	-19996.01	3.89	-0.02
Channel Y + Input	199996.5	-0.01	-0.00
Channel Y + Input	20000.48	0.58	0.00
Channel Y - Input	-19998.50	2.10	-0.01
Channel Z + Input	199994.4	-1.15	-0.00
Channel Z + Input	20003.30	3.40	0.02
Channel Z - Input	-19996.26	3.24	-0.02

Low Range	Reading (μV)	Difference (μV)	Error (%)
Channel X + Input	2000.4	0.29	0.01
Channel X + Input	200.33	0.43	0.21
Channel X - Input	-199.88	-0.08	0.04
Channel Y + Input	1999.9	-0.31	-0.02
Channel Y + Input	200.45	0.55	0.28
Channel Y - Input	-200.38	-0.58	0.29
Channel Z + Input	1999.6	-0.23	-0.01
Channel Z + Input	199.26	-0.64	-0.32
Channel Z - Input	-200.62	-0.82	0.41

2. Common mode sensitivity

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Common mode Input Voltage (mV)	High Range Average Reading (μV)	Low Range Average Reading (μV)
Channel X	200	15.32	13.45
	- 200	-13.16	-14.40
Channel Y	200	-5.58	-5.70
	- 200	4.51	4.52
Channel Z	200	-1.42	-1.57
	- 200	0.56	0.17

3. Channel separation

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Input Voltage (mV)	Channel X (μV)	Channel Y (μV)	Channel Z (μV)
Channel X	200	-	0.73	-0.43
Channel Y	200	3.10	-	4.07
Channel Z	200	0.93	-1.25	-

4. AD-Converter Values with inputs shorted

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	High Range (LSB)	Low Range (LSB)
Channel X	15973	16638
Channel Y	15856	15275
Channel Z	16211	16876

5. Input Offset Measurement

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Input 10M Ω

	Average (μ V)	min. Offset (μ V)	max. Offset (μ V)	Std. Deviation (μ V)
Channel X	-0.94	-2.52	0.28	0.54
Channel Y	-1.05	-1.87	0.16	0.43
Channel Z	-0.85	-1.57	1.34	0.39

6. Input Offset Current

Nominal Input circuitry offset current on all channels: <25fA

7. Input Resistance (Typical values for information)

	Zeroing (kOhm)	Measuring (MOhm)
Channel X	200	200
Channel Y	200	200
Channel Z	200	200

8. Low Battery Alarm Voltage (Typical values for information)

Typical values	Alarm Level (VDC)
Supply (+ Vcc)	+7.9
Supply (- Vcc)	-7.6

9. Power Consumption (Typical values for information)

Typical values	Switched off (mA)	Stand by (mA)	Transmitting (mA)
Supply (+ Vcc)	+0.01	+6	+14
Supply (- Vcc)	-0.01	-8	-9



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Accreditation No.: **SCS 108**

Client **Amphenol CN (Auden)**

Certificate No: **DAE3-495_Apr11**

CALIBRATION CERTIFICATE

Object **DAE3 - SD 000 D03 AD - SN: 495**

Calibration procedure(s) **QA CAL-06.v22**
Calibration procedure for the data acquisition electronics (DAE)

Calibration date: **April 28, 2011**

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 (Certificate No.)	Scheduled Calibration
Keithley Multimeter Type 2001	SN: 0810278	28-Sep-10 (No:10376)	Sep-11
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Calibrator Box V1.1	SE UMS 006 AB 1004	07-Jun-10 (in house check)	In house check: Jun-11

Calibrated by:

Name	Function	Signature
Dominique Steffen	Technician	

Approved by:

Fin Bomholt	R&D Director
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Issued: April 28, 2011



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Accreditation No.: **SCS 108**

Glossary

DAE data acquisition electronics
Connector angle information used in DASY system to align probe sensor X to the robot coordinate system.

Methods Applied and Interpretation of Parameters

- **DC Voltage Measurement:** Calibration Factor assessed for use in DASY system by comparison with a calibrated instrument traceable to national standards. The figure given corresponds to the full scale range of the voltmeter in the respective range.
- **Connector angle:** The angle of the connector is assessed measuring the angle mechanically by a tool inserted. Uncertainty is not required.
- The following parameters as documented in the Appendix contain technical information as a result from the performance test and require no uncertainty.
 - **DC Voltage Measurement Linearity:** Verification of the Linearity at +10% and -10% of the nominal calibration voltage. Influence of offset voltage is included in this measurement.
 - **Common mode sensitivity:** Influence of a positive or negative common mode voltage on the differential measurement.
 - **Channel separation:** Influence of a voltage on the neighbor channels not subject to an input voltage.
 - **AD Converter Values with inputs shorted:** Values on the internal AD converter corresponding to zero input voltage
 - **Input Offset Measurement:** Output voltage and statistical results over a large number of zero voltage measurements.
 - **Input Offset Current:** Typical value for information; Maximum channel input offset current, not considering the input resistance.
 - **Input resistance:** Typical value for information; DAE input resistance at the connector, during internal auto-zeroing and during measurement.
 - **Low Battery Alarm Voltage:** Typical value for information. Below this voltage, a battery alarm signal is generated.
 - **Power consumption:** Typical value for information. Supply currents in various operating modes.

DC Voltage Measurement

A/D - Converter Resolution nominal

High Range: 1LSB = 6.1 μ V, full range = -100...+300 mV

Low Range: 1LSB = 61 nV, full range = -1.....+3mV

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Calibration Factors	X	Y	Z
High Range	404.324 $\pm$ 0.1% (k=2)	405.291 $\pm$ 0.1% (k=2)	405.622 $\pm$ 0.1% (k=2)
Low Range	3.95043 $\pm$ 0.7% (k=2)	3.97613 $\pm$ 0.7% (k=2)	3.95159 $\pm$ 0.7% (k=2)

Connector Angle

Connector Angle to be used in DASY system	227.5 $^{\circ}$ $\pm$ 1 $^{\circ}$
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Appendix

1. DC Voltage Linearity

High Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	199993.1	-2.74	-0.00
Channel X	+ Input	20001.66	1.46	0.01
Channel X	- Input	-19994.94	5.16	-0.03
Channel Y	+ Input	200006.0	1.16	0.00
Channel Y	+ Input	20002.16	1.86	0.01
Channel Y	- Input	-19997.98	2.02	-0.01
Channel Z	+ Input	200005.6	1.57	0.00
Channel Z	+ Input	20003.05	3.05	0.02
Channel Z	- Input	-19998.31	1.59	-0.01

Low Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	2000.3	0.26	0.01
Channel X	+ Input	199.66	-0.24	-0.12
Channel X	- Input	-200.28	-0.38	0.19
Channel Y	+ Input	2001.0	1.06	0.05
Channel Y	+ Input	200.75	0.85	0.42
Channel Y	- Input	-202.12	-2.12	1.06
Channel Z	+ Input	1999.0	-1.13	-0.06
Channel Z	+ Input	198.35	-1.65	-0.82
Channel Z	- Input	-200.94	-1.04	0.52

2. Common mode sensitivity

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Common mode Input Voltage (mV)	High Range Average Reading (μV)	Low Range Average Reading (μV)
Channel X	200	2.91	1.12
	- 200	0.15	-1.40
Channel Y	200	-0.69	-0.74
	- 200	-0.12	-0.47
Channel Z	200	2.83	2.71
	- 200	-4.22	-4.44

3. Channel separation

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Input Voltage (mV)	Channel X (μV)	Channel Y (μV)	Channel Z (μV)
Channel X	200	-	2.33	0.36
Channel Y	200	2.17	-	4.08
Channel Z	200	3.22	-0.54	-

4. AD-Converter Values with inputs shorted

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

		High Range (LSB)	Low Range (LSB)
Channel X		15791	16416
Channel Y		15742	16582
Channel Z		15883	16533

5. Input Offset Measurement

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Input 10M Ω

		Average (μ V)	min. Offset (μ V)	max. Offset (μ V)	Std. Deviation (μ V)
Channel X		-1.87	-3.03	-0.77	0.45
Channel Y		-1.74	-2.98	-0.06	0.56
Channel Z		-1.44	-2.79	-0.14	0.61

6. Input Offset Current

Nominal Input circuitry offset current on all channels: <25fA

7. Input Resistance (Typical values for information)

		Zeroing (kOhm)	Measuring (MOhm)
Channel X		200	200
Channel Y		200	200
Channel Z		200	200

8. Low Battery Alarm Voltage (Typical values for information)

Typical values	Alarm Level (VDC)
Supply (+ Vcc)	+7.9
Supply (- Vcc)	-7.6

9. Power Consumption (Typical values for information)

Typical values	Switched off (mA)	Stand by (mA)	Transmitting (mA)
Supply (+ Vcc)	+0.01	+6	+14
Supply (- Vcc)	-0.01	-8	-9



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Accreditation No.: **SCS 108**

Client **Sporton-TW (Auden)**

Certificate No: **ET3-1788_Sep11**

CALIBRATION CERTIFICATE

Object **ET3DV6 - SN:1788**

Calibration procedure(s) **QA CAL-01.v8, QA CAL-23.v4, QA CAL-25.v4**
Calibration procedure for dosimetric E-field probes

Calibration date: **September 28, 2011**

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 $(22 \pm 3)^{\circ}\text{C}$ and humidity $< 70\%$.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	31-Mar-11 (No. 217-01372)	Apr-12
Power sensor E4412A	MY41498087	31-Mar-11 (No. 217-01372)	Apr-12
Reference 3 dB Attenuator	SN: S5054 (3c)	29-Mar-11 (No. 217-01369)	Apr-12
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-11 (No. 217-01367)	Apr-12
Reference 30 dB Attenuator	SN: S5129 (30b)	29-Mar-11 (No. 217-01370)	Apr-12
Reference Probe ES3DV2	SN: 3013	29-Dec-10 (No. ES3-3013_Dec10)	Dec-11
DAE4	SN: 654	3-May-11 (No. DAE4-654_May11)	May-12
Secondary Standards	ID	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-10)	In house check: Oct-11

Calibrated by:	Name Jeton Kastrati	Function Laboratory Technician	Signature 
Approved by:	Name Katja Pokovic	Function Technical Manager	
This calibration certificate shall not be reproduced except in full without written approval of the laboratory.			Issued: September 29, 2011



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Accreditation No.: **SCS 108**

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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	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), i.e., $\vartheta = 0$ is normal to probe axis

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
- 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 300 MHz to 3 GHz)", February 2005

Methods Applied and Interpretation of Parameters:

- NORM_{x,y,z}**: Assessed for E-field polarization $\vartheta = 0$ ($f \leq 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide). NORM_{x,y,z} are only intermediate values, i.e., the uncertainties of NORM_{x,y,z} does not affect the E²-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 with CW signal (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 $f \leq 800$ MHz) and inside waveguide using analytical field distributions based on power measurements for $f > 800$ MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values 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 ± 50 MHz to ± 100 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.

Probe ET3DV6

SN:1788

Manufactured: May 28, 2003
Calibrated: September 28, 2011

Calibrated for DASY/EASY Systems
(Note: non-compatible with DASY2 system!)

DASY/EASY - Parameters of Probe: ET3DV6 - SN:1788

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu\text{V}/(\text{V/m})^2$) ^A	1.71	1.62	1.80	$\pm 10.1 \%$
DCP (mV) ^B	97.3	98.4	95.4	

Modulation Calibration Parameters

UID	Communication System Name	PAR		A dB	B dB	C dB	VR mV	Unc ^E (k=2)
10000	CW	0.00	X	0.00	0.00	1.00	98.8	$\pm 3.0 \%$
			Y	0.00	0.00	1.00	102.6	
			Z	0.00	0.00	1.00	102.0	

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 NormX,Y,Z do not affect the E^2 -field uncertainty inside TSL (see Pages 5 and 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: ET3DV6 - SN:1788

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	Depth (mm)	Unct. (k=2)
835	41.5	0.90	6.35	6.35	6.35	0.61	1.97	± 12.0 %
900	41.5	0.97	6.19	6.19	6.19	0.52	2.23	± 12.0 %
1750	40.1	1.37	5.47	5.47	5.47	0.52	2.57	± 12.0 %
1900	40.0	1.40	5.19	5.19	5.19	0.52	2.54	± 12.0 %
2000	40.0	1.40	5.15	5.15	5.15	0.55	2.36	± 12.0 %
2450	39.2	1.80	4.44	4.44	4.44	0.78	1.73	± 12.0 %

^C Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

^F At frequencies 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.

DASY/EASY - Parameters of Probe: ET3DV6- SN:1788

Calibration Parameter Determined in Body Tissue Simulating Media

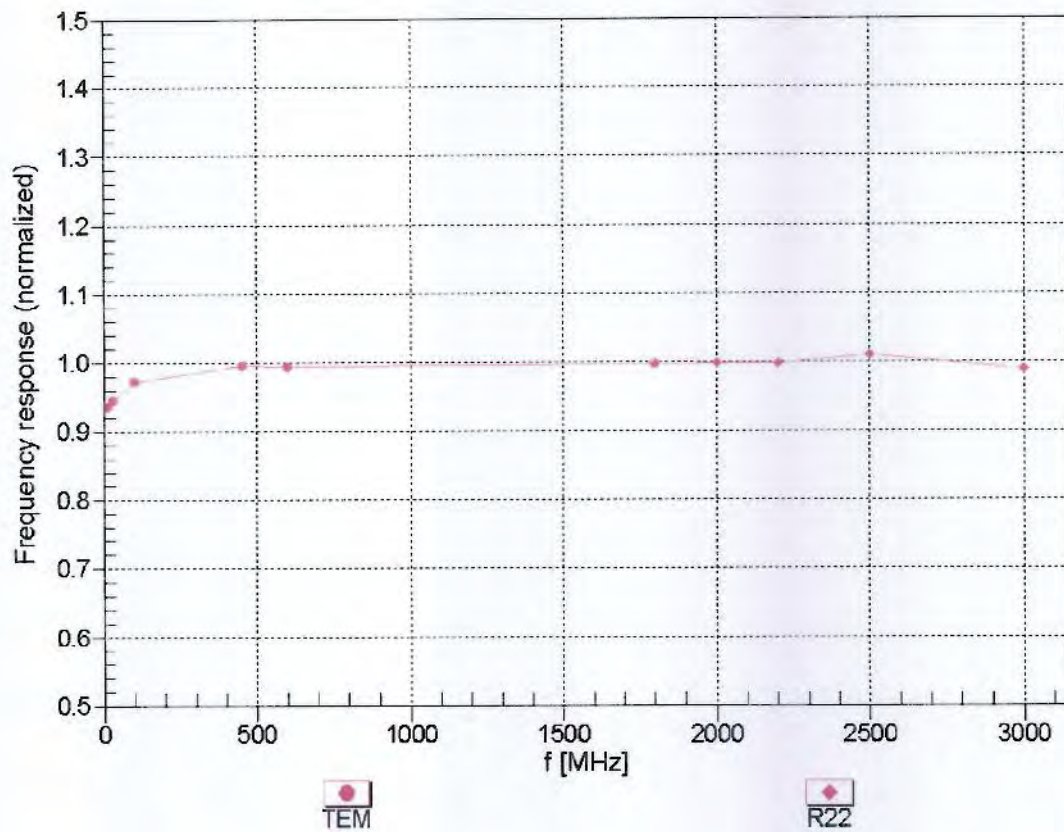
f (MHz) ^C	Relative Permittivity ^F	Conductivity (S/m) ^F	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
835	55.2	0.97	6.24	6.24	6.24	0.67	1.87	± 12.0 %
900	55.0	1.05	6.13	6.13	6.13	0.61	2.01	± 12.0 %
1750	53.4	1.49	4.71	4.71	4.71	0.55	2.84	± 12.0 %
1900	53.3	1.52	4.50	4.50	4.50	0.58	2.54	± 12.0 %
2000	53.3	1.52	4.55	4.55	4.55	0.61	2.39	± 12.0 %
2450	52.7	1.95	4.01	4.01	4.01	1.00	1.24	± 12.0 %

^C Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

^F At frequencies 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.

Frequency Response of E-Field

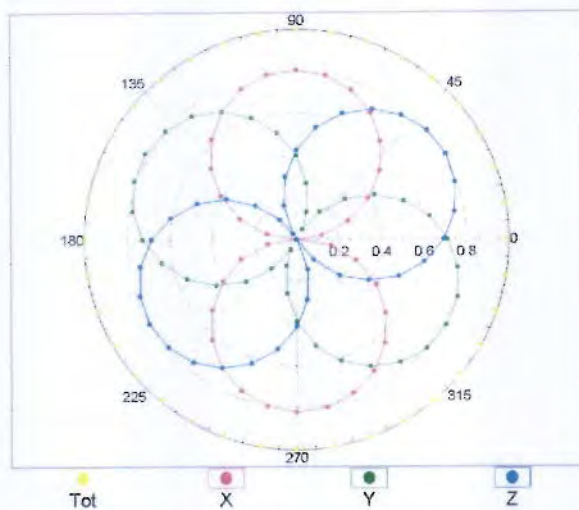
(TEM-Cell:ifi110 EXX, Waveguide: R22)



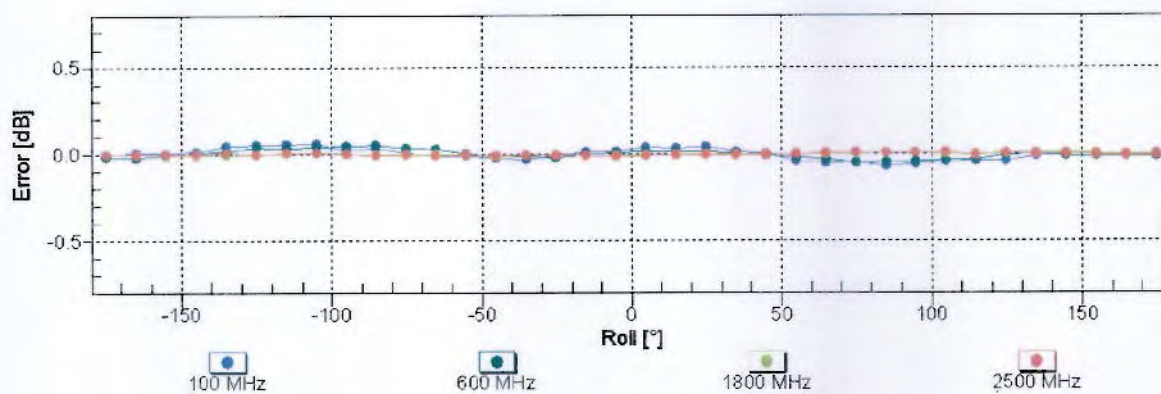
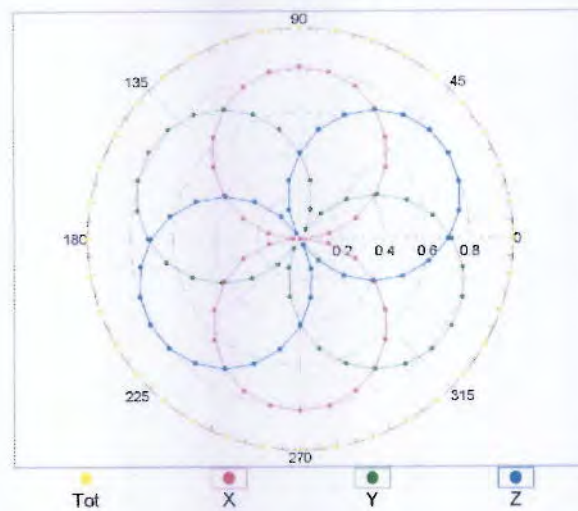
Uncertainty of Frequency Response of E-field: $\pm 6.3\%$ ($k=2$)

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

$f=600$ MHz, TEM



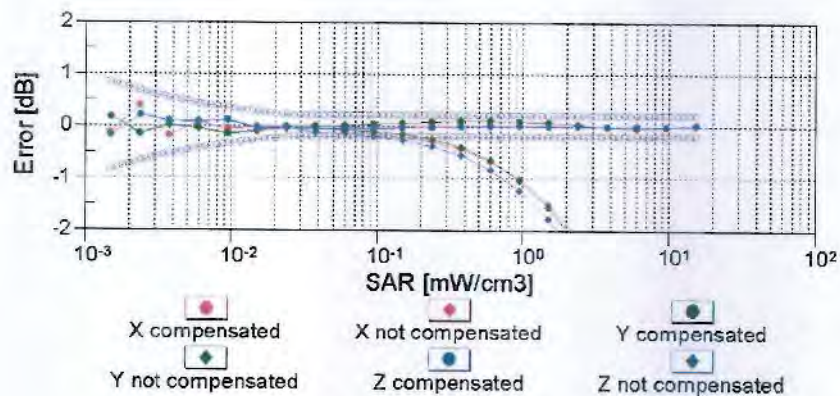
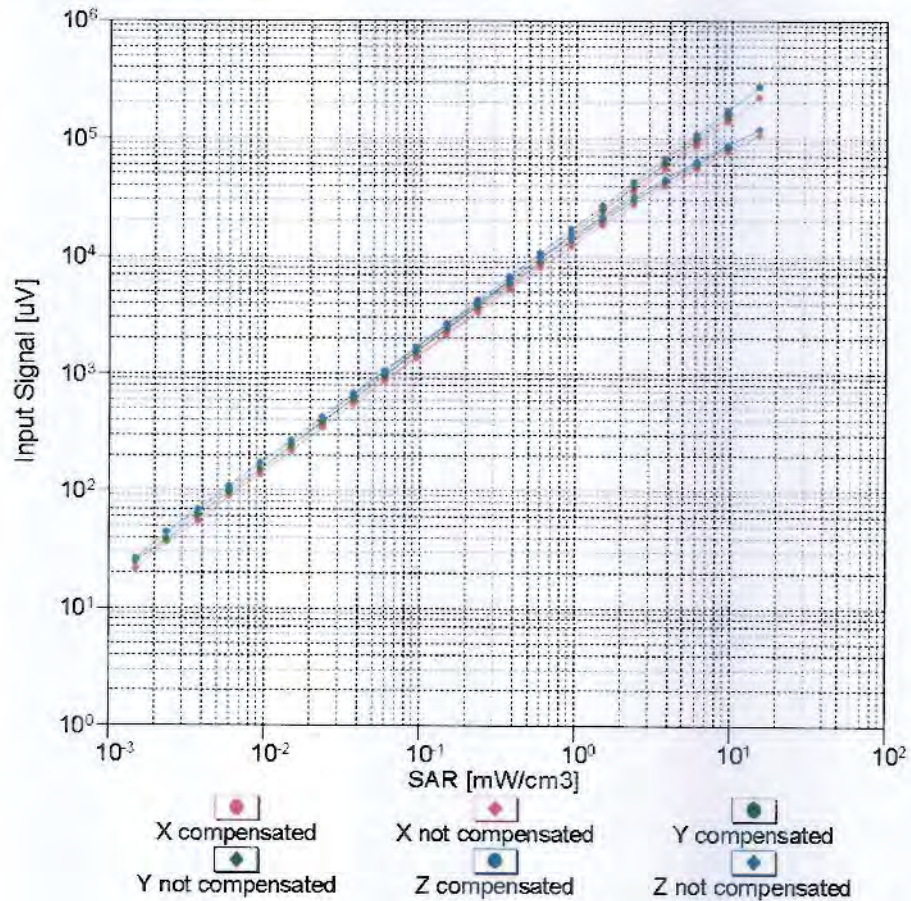
$f=1800$ MHz, R22



Uncertainty of Axial Isotropy Assessment: $\pm 0.5\%$ ($k=2$)

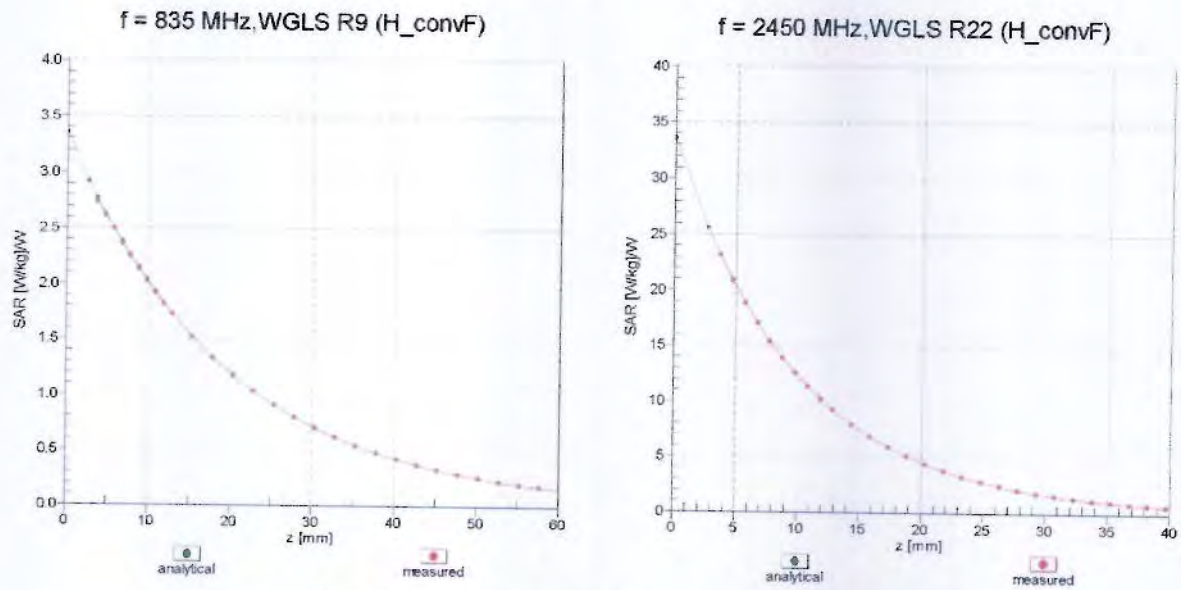
Dynamic Range f(SAR_{head})

(TEM cell , f = 900 MHz)



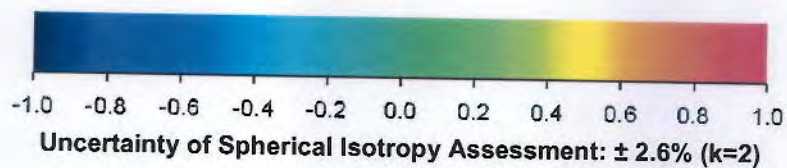
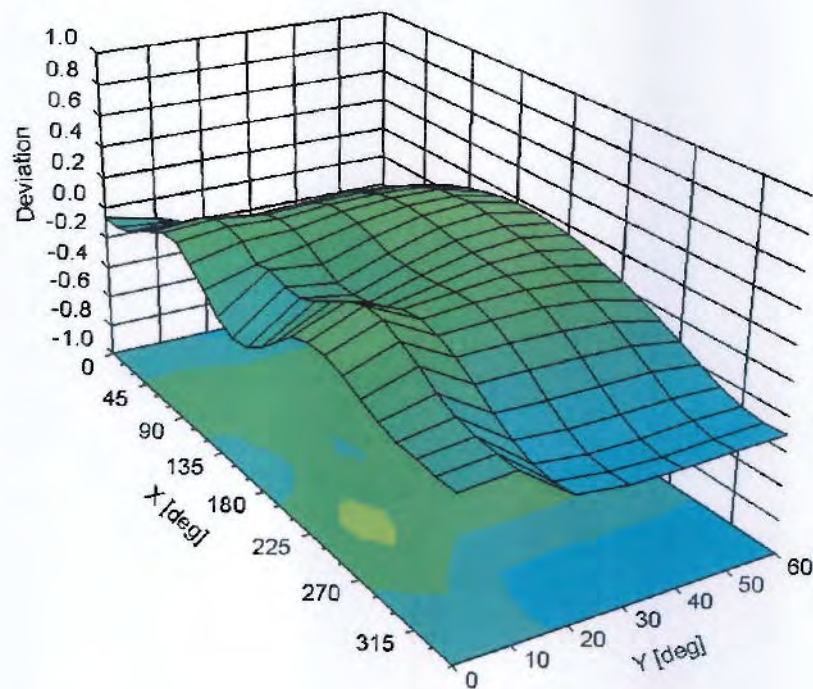
Uncertainty of Linearity Assessment: $\pm 0.6\%$ (k=2)

Conversion Factor Assessment



Deviation from Isotropy in Liquid

Error (ϕ, θ), $f = 900 \text{ MHz}$



DASY/EASY - Parameters of Probe: ET3DV6 - SN:1788**Other Probe Parameters**

Sensor Arrangement	Triangular
Connector Angle (°)	Not applicable
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	10 mm
Tip Diameter	6.8 mm
Probe Tip to Sensor X Calibration Point	2.7 mm
Probe Tip to Sensor Y Calibration Point	2.7 mm
Probe Tip to Sensor Z Calibration Point	2.7 mm
Recommended Measurement Distance from Surface	4 mm



Accredited by the Swiss Accreditation Service (SAS)

Accreditation No.: **SCS 108**

The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Client **Sporton-TW (Auden)**

Certificate No: **ES3-3270_Sep11**

CALIBRATION CERTIFICATE

Object **ES3DV3 - SN:3270**

Calibration procedure(s) **QA CAL-01.v8, QA CAL-23.v4, QA CAL-25.v4
Calibration procedure for dosimetric E-field probes**

Calibration date: **September 12, 2011**

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 $(22 \pm 3)^\circ\text{C}$ and humidity $< 70\%$.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	31-Mar-11 (No. 217-01372)	Apr-12
Power sensor E4412A	MY41498087	31-Mar-11 (No. 217-01372)	Apr-12
Reference 3 dB Attenuator	SN: S5054 (3c)	29-Mar-11 (No. 217-01369)	Apr-12
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-11 (No. 217-01367)	Apr-12
Reference 30 dB Attenuator	SN: S5129 (30b)	29-Mar-11 (No. 217-01370)	Apr-12
Reference Probe ES3DV2	SN: 3013	29-Dec-10 (No. ES3-3013_Dec10)	Dec-11
DAE4	SN: 654	3-May-11 (No. DAE4-654_May11)	May-12
Secondary Standards	ID	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-10)	In house check: Oct-11

Calibrated by:	Name Jeton Kastrati	Function Laboratory Technician	Signature
Approved by:	Name Katja Pokovic	Function Technical Manager	Signature
This calibration certificate shall not be reproduced except in full without written approval of the laboratory.			Issued: September 12, 2011



Accredited by the Swiss Accreditation Service (SAS)

Accreditation No.: **SCS 108**

The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

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	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), i.e., $\vartheta = 0$ is normal to probe axis

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
- 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 300 MHz to 3 GHz)", February 2005

Methods Applied and Interpretation of Parameters:

- NORM_{x,y,z}**: Assessed for E-field polarization $\vartheta = 0$ ($f \leq 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide). NORM_{x,y,z} are only intermediate values, i.e., the uncertainties of NORM_{x,y,z} does not affect the E²-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 with CW signal (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 $f \leq 800$ MHz) and inside waveguide using analytical field distributions based on power measurements for $f > 800$ MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values 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 ± 50 MHz to ± 100 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.

Probe ES3DV3

SN:3270

Manufactured: February 25, 2010
Calibrated: September 12, 2011

Calibrated for DASY/EASY Systems
(Note: non-compatible with DASY2 system!)

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3270

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu\text{V}/(\text{V/m})^2$) ^A	1.11	1.20	1.22	$\pm 10.1 \%$
DCP (mV) ^B	100.4	98.9	101.1	

Modulation Calibration Parameters

UID	Communication System Name	PAR		A dB	B dB	C dB	VR mV	Unc ^E (k=2)
10000	CW	0.00	X	0.00	0.00	1.00	102.9	$\pm 2.7 \%$
			Y	0.00	0.00	1.00	111.6	
			Z	0.00	0.00	1.00	108.5	

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 NormX,Y,Z do not affect the E^2 -field uncertainty inside TSL (see Pages 5 and 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: ES3DV3 - SN:3270

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	Depth (mm)	Unct. (k=2)
835	41.5	0.90	6.04	6.04	6.04	0.80	1.00	± 12.0 %
900	41.5	0.97	5.95	5.95	5.95	0.80	1.00	± 12.0 %
1750	40.1	1.37	5.32	5.32	5.32	0.80	1.24	± 12.0 %
1900	40.0	1.40	5.14	5.14	5.14	0.80	1.25	± 12.0 %
2000	40.0	1.40	5.12	5.12	5.12	0.80	1.24	± 12.0 %
2450	39.2	1.80	4.52	4.52	4.52	0.80	1.23	± 12.0 %

^C Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

^F At frequencies 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.

DASY/EASY - Parameters of Probe: ES3DV3- SN:3270

Calibration Parameter Determined in Body Tissue Simulating Media

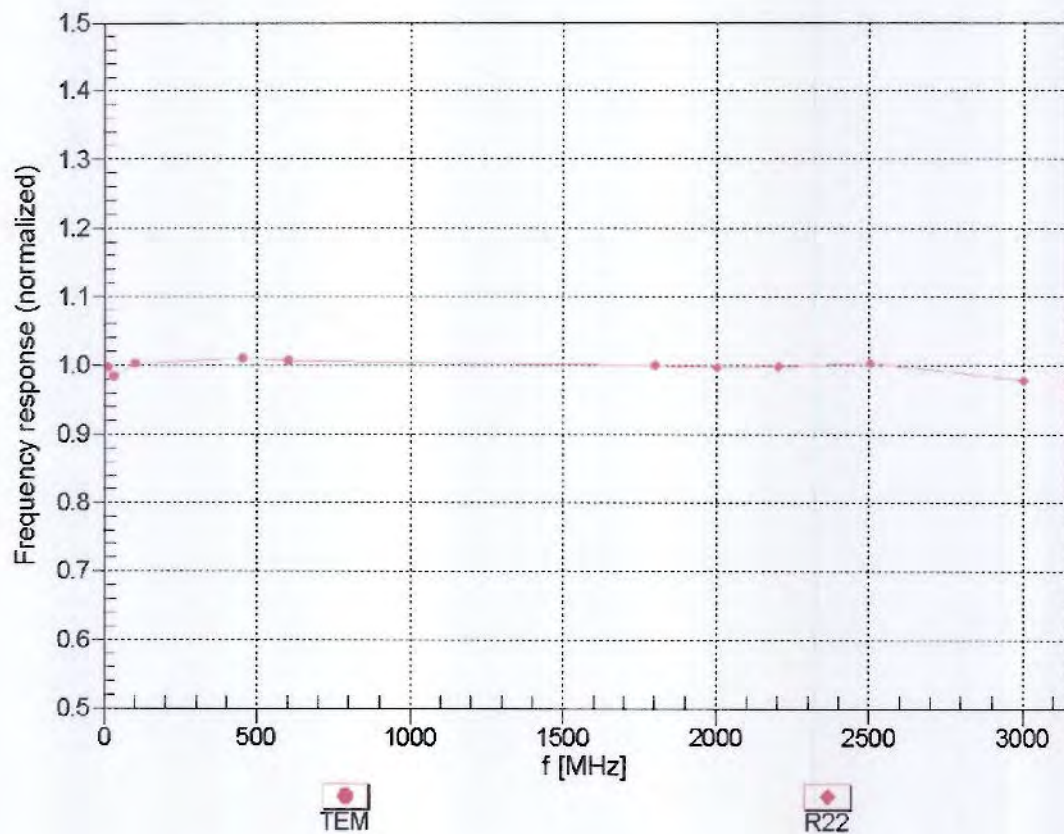
f (MHz) ^C	Relative Permittivity ^F	Conductivity (S/m) ^F	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
835	55.2	0.97	6.16	6.16	6.16	0.80	1.00	± 12.0 %
900	55.0	1.05	6.07	6.07	6.07	0.80	1.00	± 12.0 %
1750	53.4	1.49	4.87	4.87	4.87	0.80	1.31	± 12.0 %
1900	53.3	1.52	4.64	4.64	4.64	0.80	1.31	± 12.0 %
2000	53.3	1.52	4.71	4.71	4.71	0.80	1.31	± 12.0 %
2450	52.7	1.95	4.28	4.28	4.28	0.80	1.00	± 12.0 %

^C Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

^F At frequencies 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.

Frequency Response of E-Field

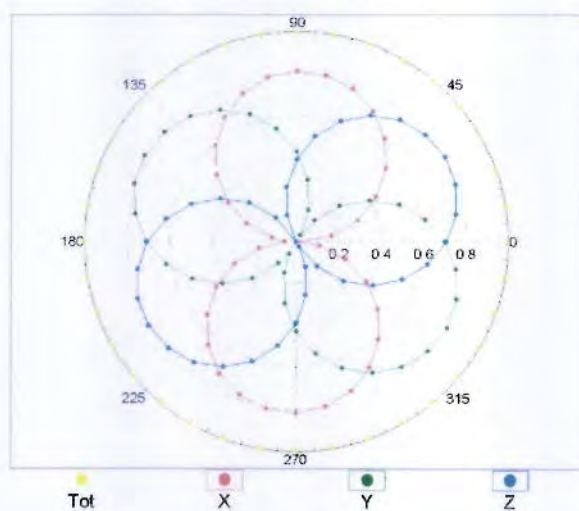
(TEM-Cell:ifi110 EXX, Waveguide: R22)



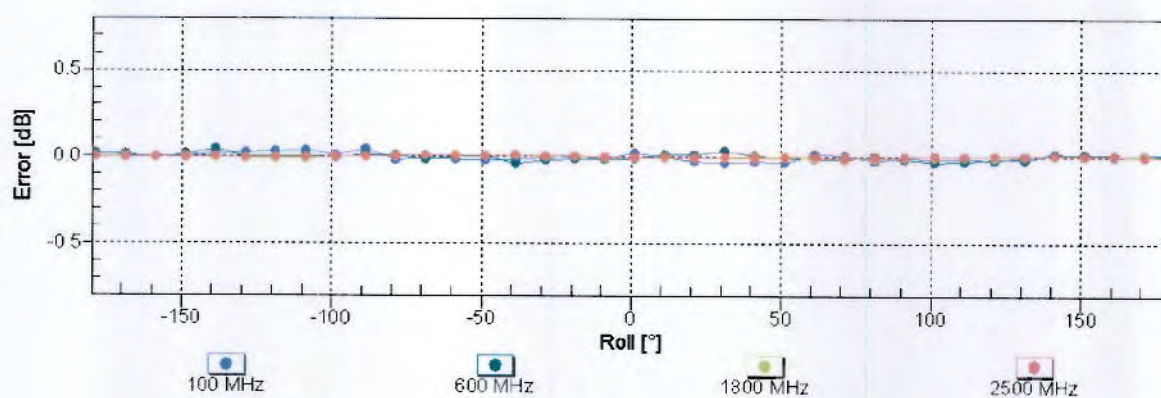
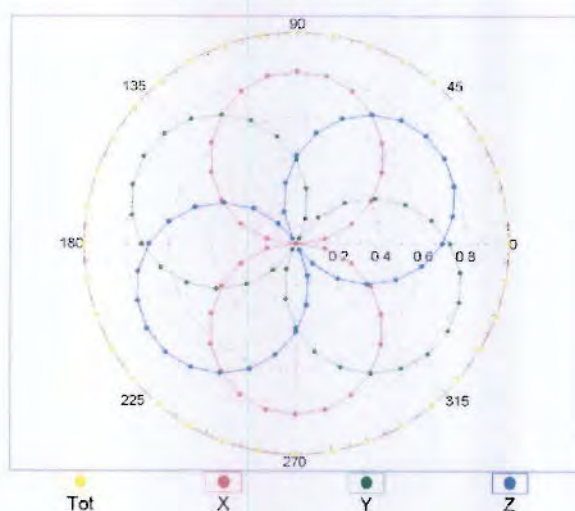
Uncertainty of Frequency Response of E-field: $\pm 6.3\%$ ($k=2$)

Receiving Pattern (ϕ), $\vartheta = 0^\circ$

f=600 MHz,TEM

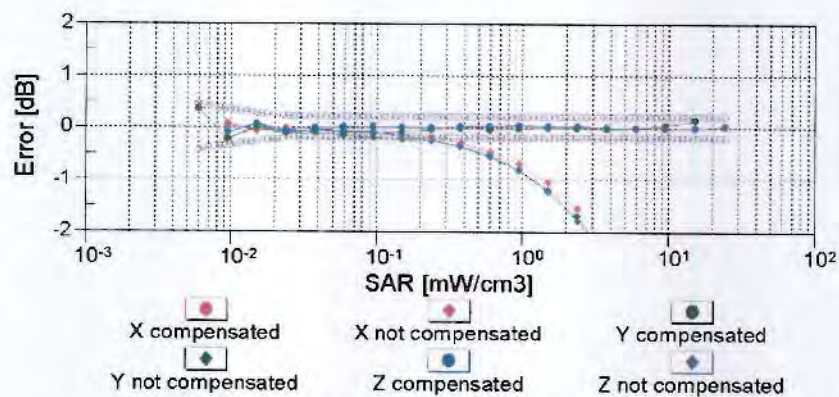
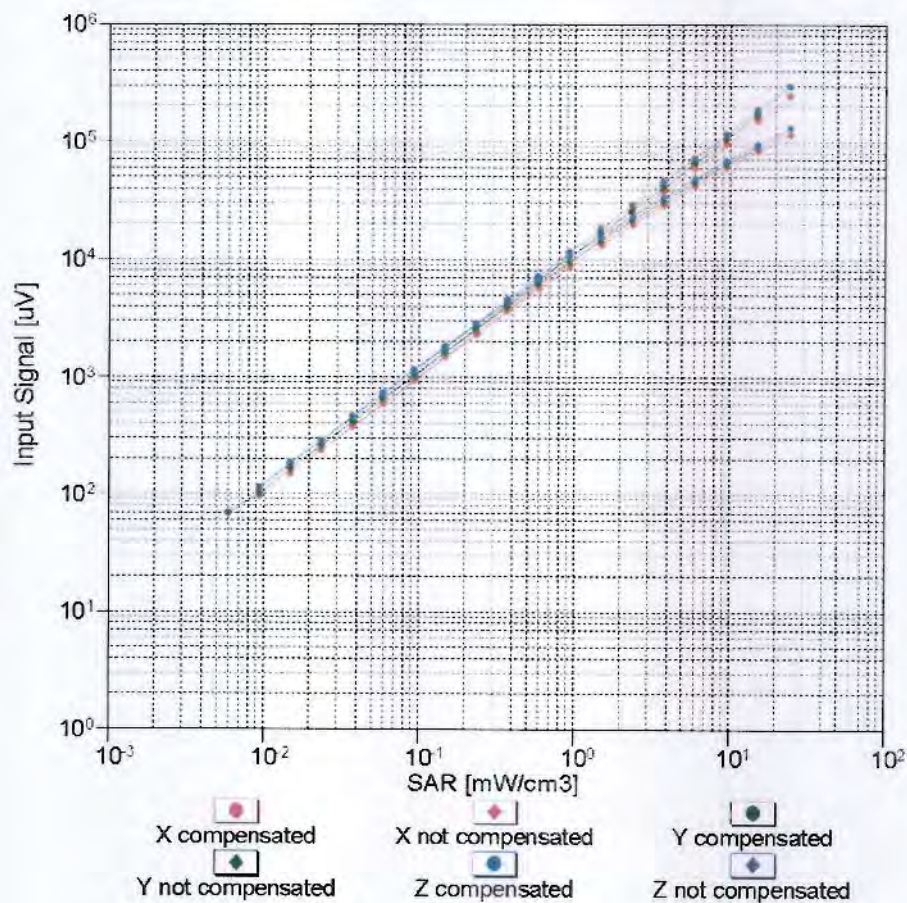


f=1800 MHz,R22



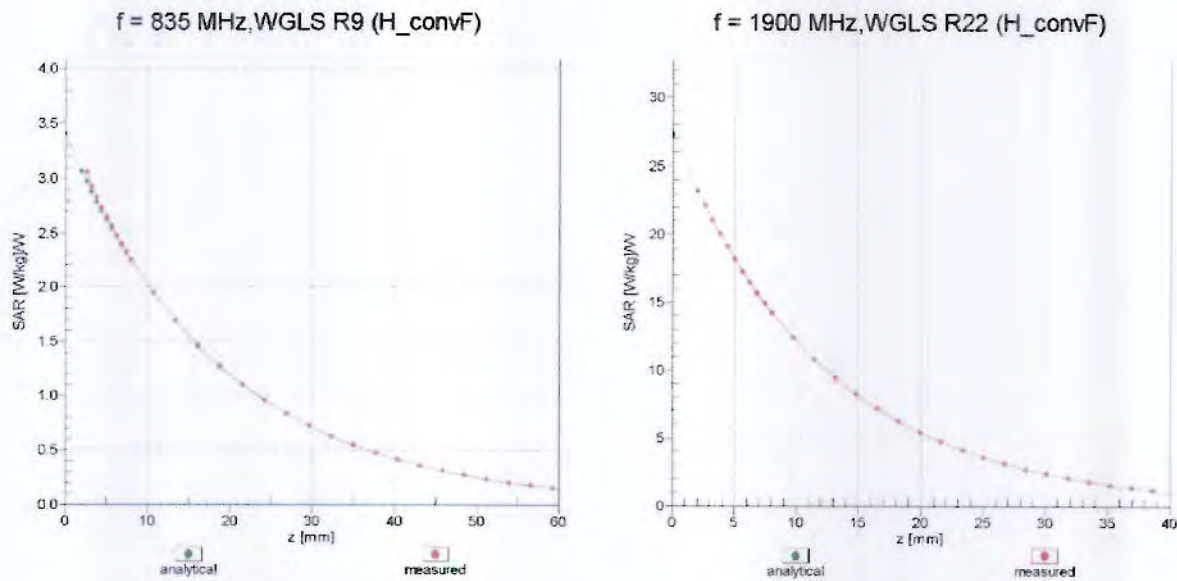
Uncertainty of Axial Isotropy Assessment: $\pm 0.5\%$ ($k=2$)

Dynamic Range $f(\text{SAR}_{\text{head}})$ (TEM cell , $f = 900 \text{ MHz}$)



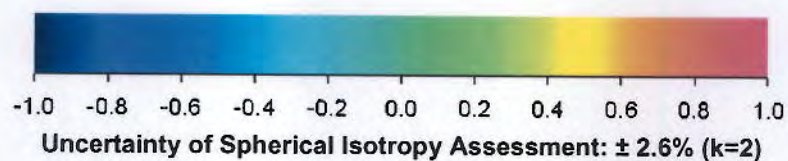
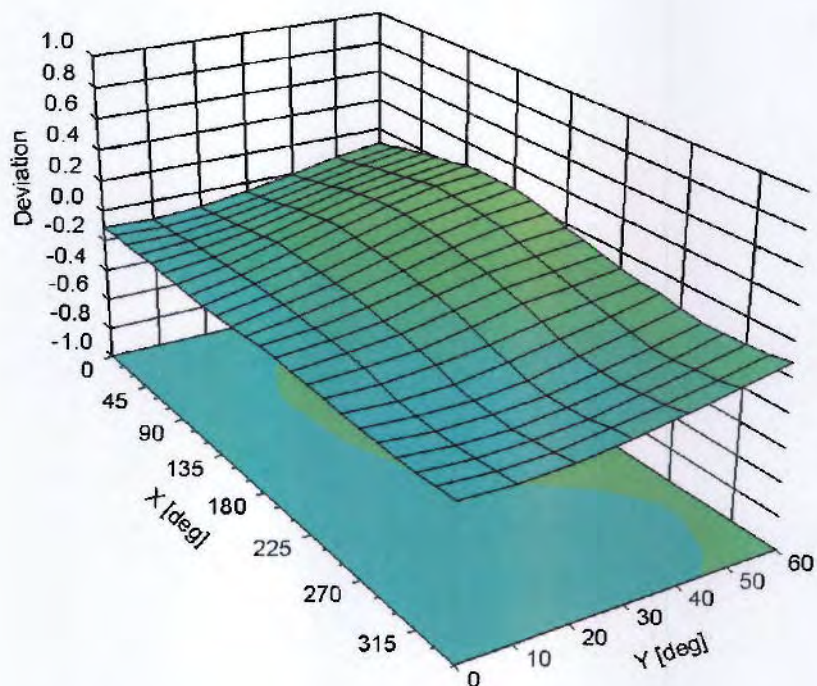
Uncertainty of Linearity Assessment: $\pm 0.6\%$ ($k=2$)

Conversion Factor Assessment



Deviation from Isotropy in Liquid

Error (ϕ, θ), $f = 900 \text{ MHz}$



DASY/EASY - Parameters of Probe: ES3DV3 - SN:3270**Other Probe Parameters**

Sensor Arrangement	Triangular
Connector Angle (°)	Not applicable
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	10 mm
Tip Diameter	4 mm
Probe Tip to Sensor X Calibration Point	2 mm
Probe Tip to Sensor Y Calibration Point	2 mm
Probe Tip to Sensor Z Calibration Point	2 mm
Recommended Measurement Distance from Surface	3 mm