WCDMA BAND II towards ground mid

Date/Time: 14/03/2013 11:16:27

Communication System: WCDMA; Communication System Band: BAND 2; Frequency: 1880 MHz; Communication System PAR: 0 dB

Medium parameters used: f = 1880 MHz; σ = 1.477 mho/m; ε_r = 52.425; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65c)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.66, 4.66, 4.66); Calibrated: 31/08/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 03/09/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/towards ground mid/Area Scan (111x181x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 1.00 mW/g

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

Reference Value = 6.697 V/m; Power Drift = -0.00 dB

Peak SAR (extrapolated) = 1.390 mW/g

SAR(1 g) = 0.790 mW/g; SAR(10 g) = 0.430 mW/g

Maximum value of SAR (measured) = 0.990 mW/g

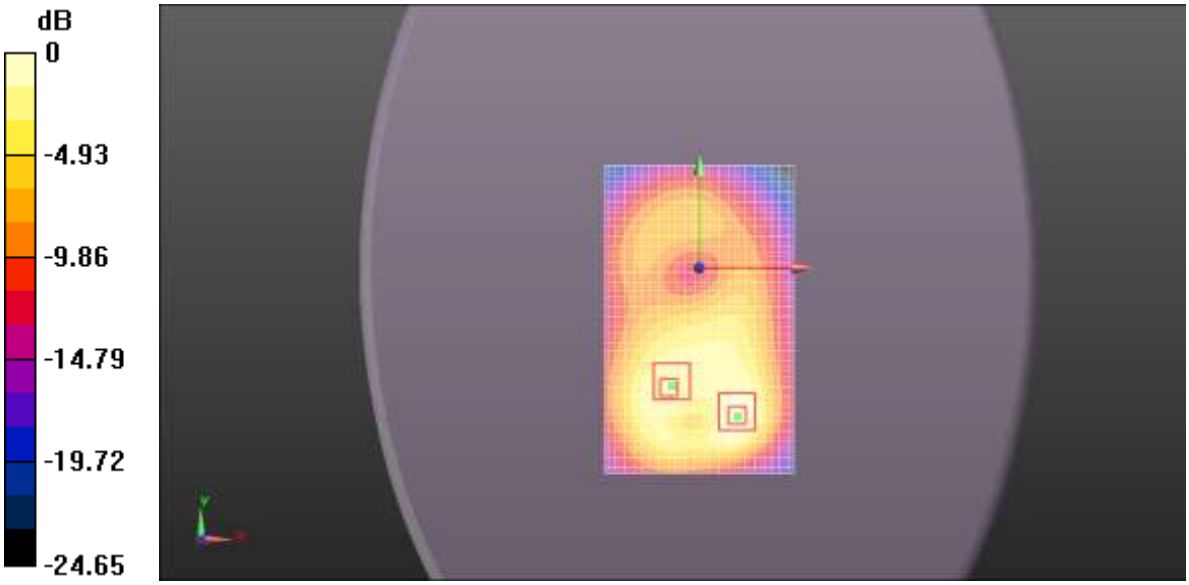
body/towards ground mid/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.697 V/m; Power Drift = -0.00 dB

Peak SAR (extrapolated) = 0.910 mW/g

SAR(1 g) = 0.592 mW/g; SAR(10 g) = 0.370 mW/g

Maximum value of SAR (measured) = 0.700 mW/g



0 dB = 1.00 mW/g = 0.04 dB mW/g

WCDMA BAND II front mid

Date/Time: 15/03/2013 11:10:06

Communication System: WCDMA; Communication System Band: BAND 2; Frequency: 1880 MHz; Communication System PAR: 0 dB

Medium parameters used: f = 1880 MHz; σ = 1.477 mho/m; ε_r = 52.425; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65c)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.66, 4.66, 4.66); Calibrated: 31/08/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 03/09/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/front mid/Area Scan (81x131x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.670 mW/g

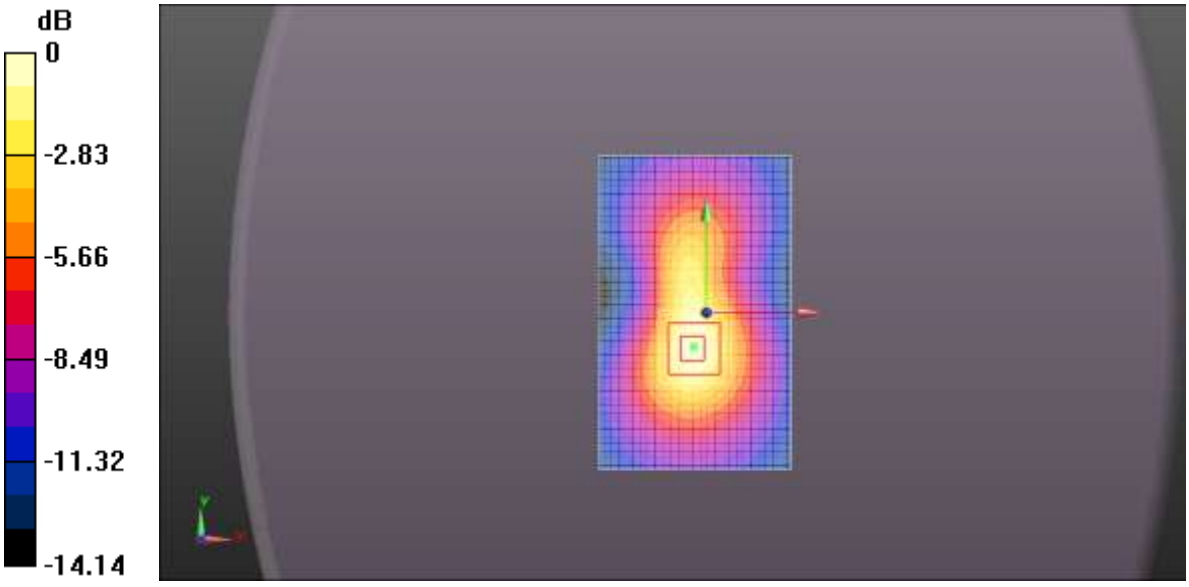
body/front mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 18.242 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 0.895 mW/g

SAR(1 g) = 0.547 mW/g; SAR(10 g) = 0.309 mW/g

Maximum value of SAR (measured) = 0.668 mW/g



0 dB = 0.670 mW/g = -3.48 dB mW/g

WCDMA BAND II left side mid

Date/Time: 14/03/2013 14:18:50

Communication System: WCDMA; Communication System Band: BAND 2; Frequency: 1880 MHz; Communication System PAR: 0 dB

Medium parameters used: f = 1880 MHz; σ = 1.477 mho/m; ε_r = 52.425; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65c)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.66, 4.66, 4.66); Calibrated: 31/08/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 03/09/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body2/left side mid/Area Scan (71x201x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.655 mW/g

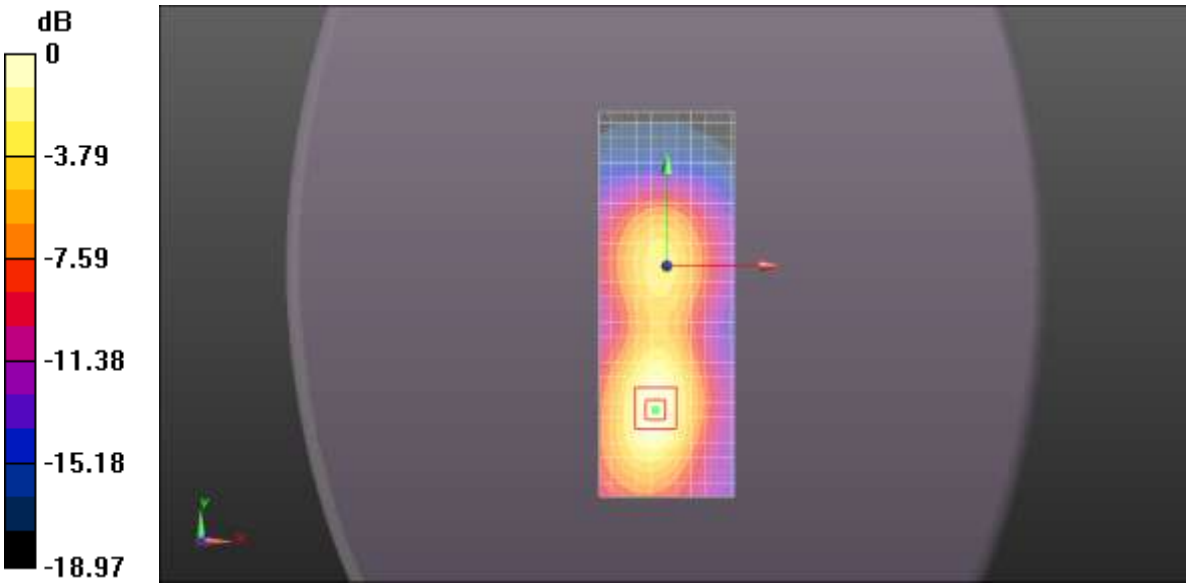
body2/left side mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 15.546 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.858 mW/g

SAR(1 g) = 0.533 mW/g; SAR(10 g) = 0.310 mW/g

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



0 dB = 0.655 mW/g = -3.68 dB mW/g

WCDMA BAND II right side mid

Date/Time: 15/03/2013 10:33:07

Communication System: WCDMA; Communication System Band: BAND 2; Frequency: 1880 MHz; Communication System PAR: 0 dB

Medium parameters used: f = 1880 MHz; σ = 1.477 mho/m; ε_r = 52.425; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65c)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.66, 4.66, 4.66); Calibrated: 31/08/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 03/09/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body2/right side mid/Area Scan (71x201x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.376 mW/g

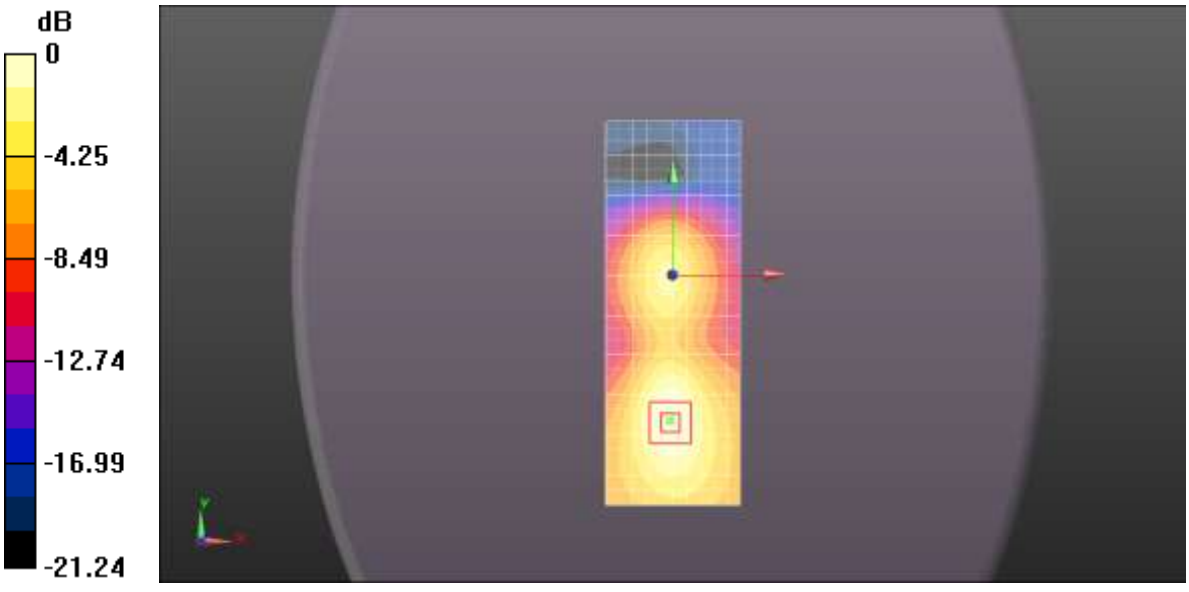
body2/right side mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 12.313 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 0.488 mW/g

SAR(1 g) = 0.311 mW/g; SAR(10 g) = 0.186 mW/g

Maximum value of SAR (measured) = 0.373 mW/g



0 dB = 0.376 mW/g = -8.50 dB mW/g

WCDMA BAND II towards phantom low

Date/Time: 11/03/2013 20:04:36

Communication System: WCDMA; Communication System Band: BAND 2; Frequency: 1852.4 MHz; Communication System PAR: 0 dB

Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.451 mho/m; ε_r = 52.481; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65c)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.66, 4.66, 4.66); Calibrated: 31/08/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 03/09/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/towards phantom low/Area Scan (111x181x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 1.10 mW/g

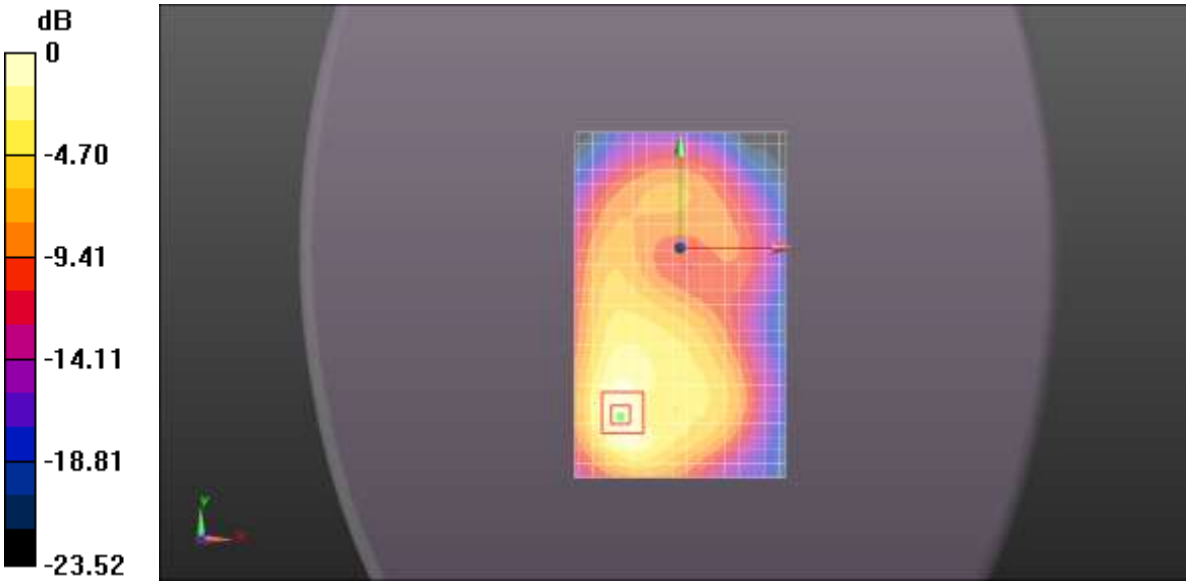
body/towards phantom low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.718 V/m; Power Drift = 0.16 dB

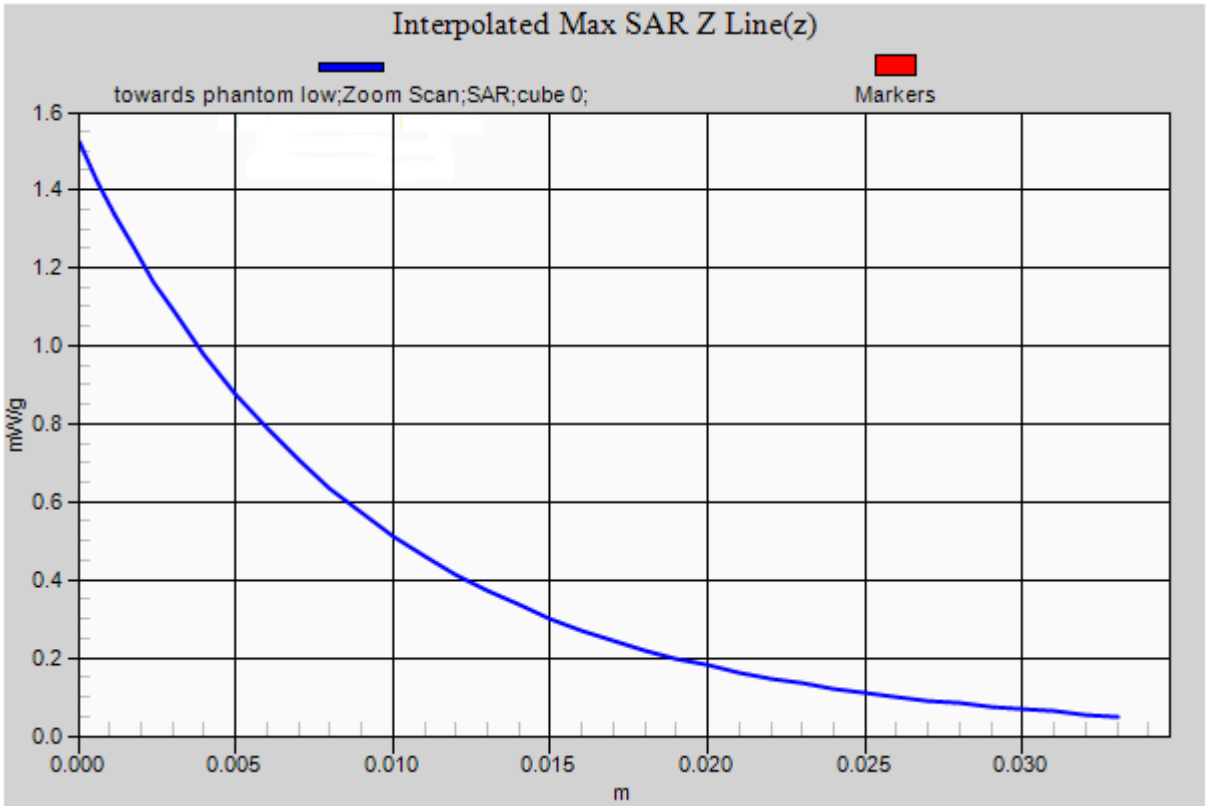
Peak SAR (extrapolated) = 1.522 mW/g

SAR(1 g) = 0.878 mW/g; SAR(10 g) = 0.490 mW/g

Maximum value of SAR (measured) = 1.09 mW/g



0 dB = 1.10 mW/g = 0.79 dB mW/g


Interpolated Max SAR Z Line(z)
towards phantom low;Zoom Scan;SAR;cube 0;
Markers
mW/g
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

WCDMA BAND II towards phantom high

Date/Time: 14/03/2013 10:18:20

Communication System: WCDMA; Communication System Band: BAND 2; Frequency: 1907.6 MHz; Communication System PAR: 0 dB

Medium parameters used: f = 1908 MHz; σ = 1.502 mho/m; ε_r = 52.332; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65c)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.66, 4.66, 4.66); Calibrated: 31/08/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 03/09/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/towards phantom high/Area Scan (111x181x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.741 mW/g

body/towards phantom high/Zoom Scan (7x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.880 V/m; Power Drift = -0.12 dB

Peak SAR (extrapolated) = 0.958 mW/g

SAR(1 g) = 0.614 mW/g; SAR(10 g) = 0.386 mW/g

Maximum value of SAR (measured) = 0.725 mW/g

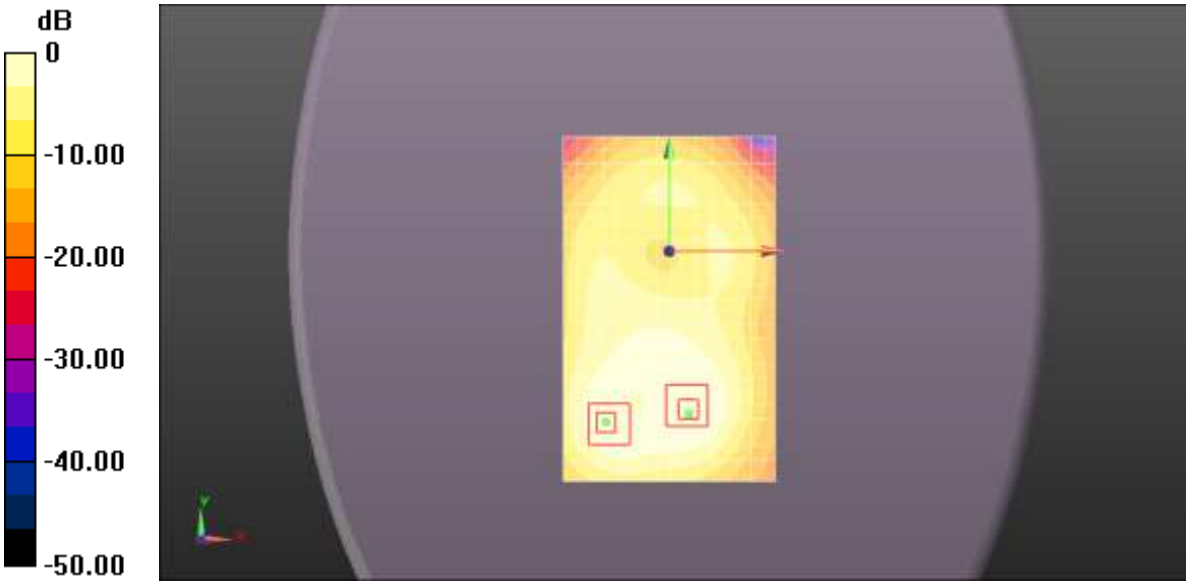
body/towards phantom high/Zoom Scan (7x8x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.880 V/m; Power Drift = -0.12 dB

Peak SAR (extrapolated) = 0.940 mW/g

SAR(1 g) = 0.527 mW/g; SAR(10 g) = 0.292 mW/g

Maximum value of SAR (measured) = 0.660 mW/g



0 dB = 0.741 mW/g = -2.60 dB mW/g

WCDMA BAND II towards ground low

Date/Time: 14/03/2013 12:19:59

Communication System: WCDMA; Communication System Band: BAND 2; Frequency: 1852.4 MHz; Communication System PAR: 0 dB

Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.451 mho/m; ε_r = 52.481; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65c)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.66, 4.66, 4.66); Calibrated: 31/08/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 03/09/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/towards ground low/Area Scan (111x181x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.886 mW/g

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

Reference Value = 6.689 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 1.218 mW/g

SAR(1 g) = 0.699 mW/g; SAR(10 g) = 0.385 mW/g

Maximum value of SAR (measured) = 0.872 mW/g

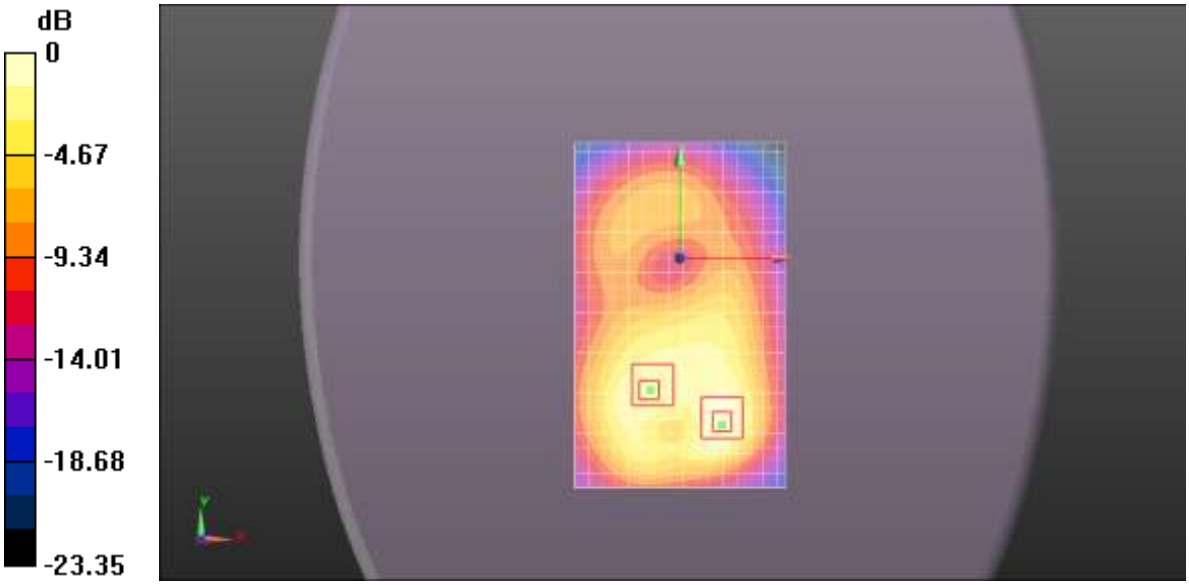
body/towards ground low/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.689 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 0.806 mW/g

SAR(1 g) = 0.533 mW/g; SAR(10 g) = 0.336 mW/g

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



0 dB = 0.886 mW/g = -1.05 dB mW/g

WCDMA BAND II towards ground high

Date/Time: 14/03/2013 13:18:33

Communication System: WCDMA; Communication System Band: BAND 2; Frequency: 1907.6 MHz; Communication System PAR: 0 dB

Medium parameters used: f = 1908 MHz; σ = 1.502 mho/m; ε_r = 52.332; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65c)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.66, 4.66, 4.66); Calibrated: 31/08/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 03/09/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/towards ground high/Area Scan (111x181x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 1.04 mW/g

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

Reference Value = 6.281 V/m; Power Drift = -0.17 dB

Peak SAR (extrapolated) = 1.439 mW/g

SAR(1 g) = 0.810 mW/g; SAR(10 g) = 0.434 mW/g

Maximum value of SAR (measured) = 1.02 mW/g

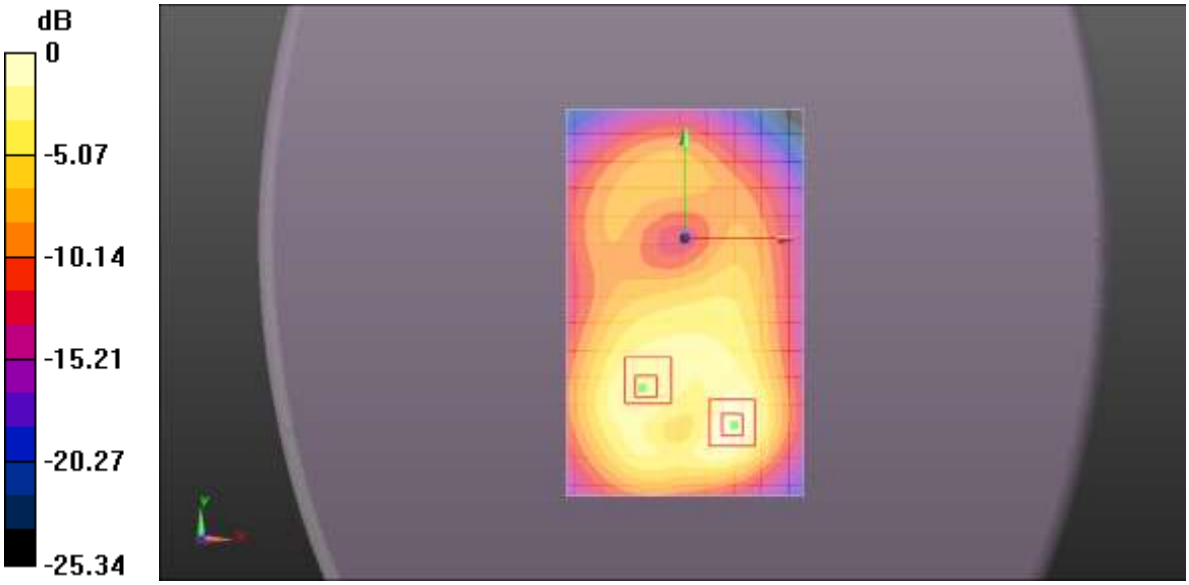
body/towards ground high/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.281 V/m; Power Drift = -0.17 dB

Peak SAR (extrapolated) = 0.893 mW/g

SAR(1 g) = 0.580 mW/g; SAR(10 g) = 0.360 mW/g

Maximum value of SAR (measured) = 0.687 mW/g



0 dB = 1.04 mW/g = 0.34 dB mW/g

WCDMA BAND II front low

Date/Time: 15/03/2013 11:48:33

Communication System: WCDMA; Communication System Band: BAND 2; Frequency: 1852.4 MHz; Communication System PAR: 0 dB

Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.451 mho/m; ε_r = 52.481; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65c)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.66, 4.66, 4.66); Calibrated: 31/08/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 03/09/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/front low/Area Scan (81x131x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.602 mW/g

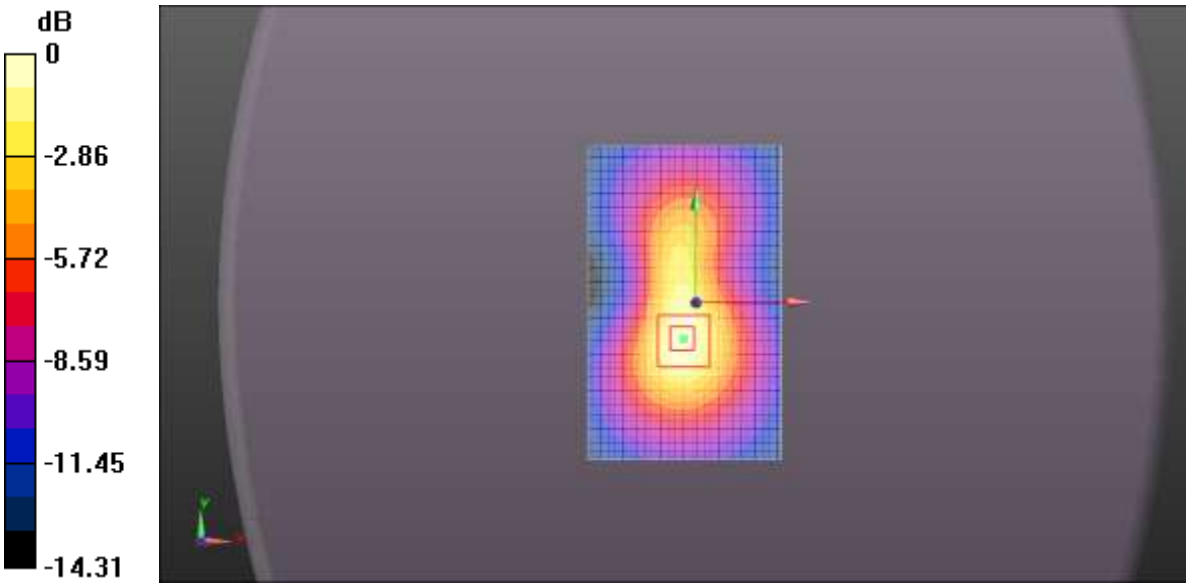
body/front low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 17.300 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 0.799 mW/g

SAR(1 g) = 0.492 mW/g; SAR(10 g) = 0.279 mW/g

Maximum value of SAR (measured) = 0.601 mW/g



0 dB = 0.602 mW/g = -4.41 dB mW/g

WCDMA BAND II front high

Date/Time: 15/03/2013 12:21:09

Communication System: WCDMA; Communication System Band: BAND 2; Frequency: 1907.6 MHz; Communication System PAR: 0 dB

Medium parameters used: f = 1908 MHz; σ = 1.502 mho/m; ε_r = 52.332; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65c)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.66, 4.66, 4.66); Calibrated: 31/08/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 03/09/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/front high/Area Scan (81x131x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.710 mW/g

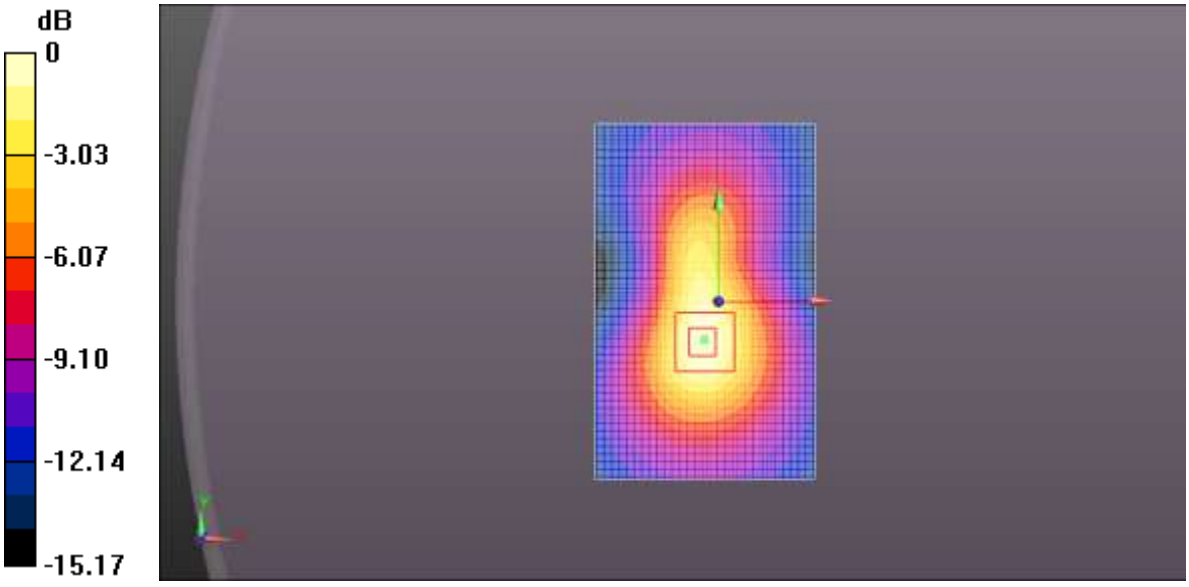
body/front high/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 18.422 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 0.953 mW/g

SAR(1 g) = 0.579 mW/g; SAR(10 g) = 0.325 mW/g

Maximum value of SAR (measured) = 0.713 mW/g



0 dB = 0.710 mW/g = -2.97 dB mW/g

WCDMA BAND II left side low

Date/Time: 15/03/2013 09:25:05

Communication System: WCDMA; Communication System Band: BAND 2; Frequency: 1852.4 MHz; Communication System PAR: 0 dB

Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.451 mho/m; ε_r = 52.481; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65c)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.66, 4.66, 4.66); Calibrated: 31/08/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 03/09/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body2/left side low/Area Scan (71x201x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.713 mW/g

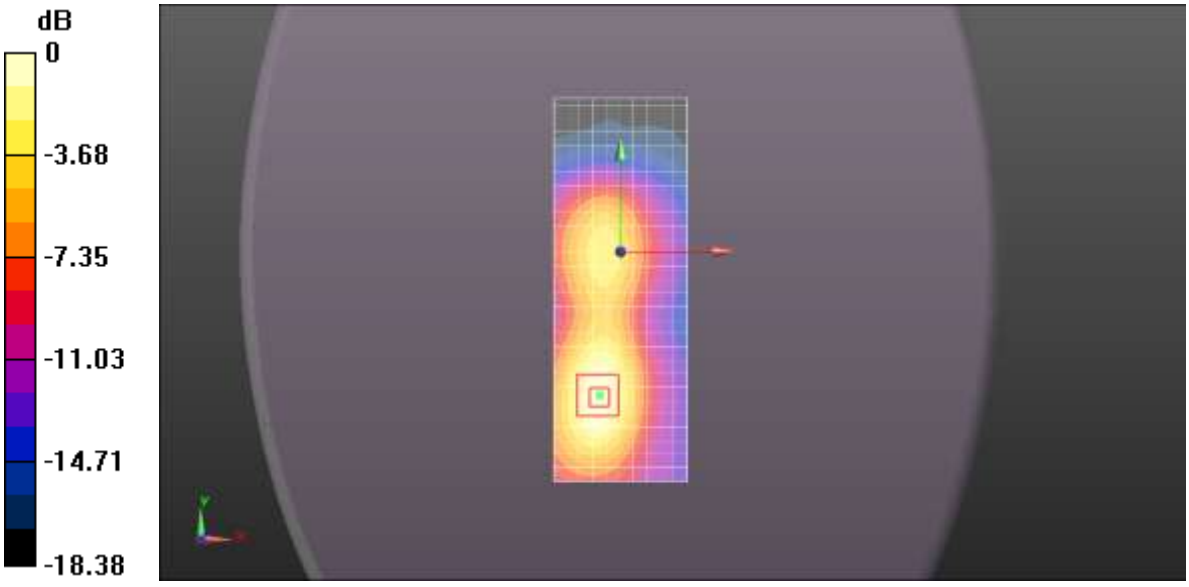
body2/left side low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 15.121 V/m; Power Drift = 0.15 dB

Peak SAR (extrapolated) = 0.950 mW/g

SAR(1 g) = 0.589 mW/g; SAR(10 g) = 0.343 mW/g

Maximum value of SAR (measured) = 0.716 mW/g



0 dB = 0.713 mW/g = -2.94 dB mW/g

WCDMA BAND II left side high

Date/Time: 15/03/2013 10:00:02

Communication System: WCDMA; Communication System Band: BAND 2; Frequency: 1907.6 MHz; Communication System PAR: 0 dB

Medium parameters used: f = 1908 MHz; σ = 1.502 mho/m; ε_r = 52.332; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65c)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.66, 4.66, 4.66); Calibrated: 31/08/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 03/09/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body2/left side high/Area Scan (71x201x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.721 mW/g

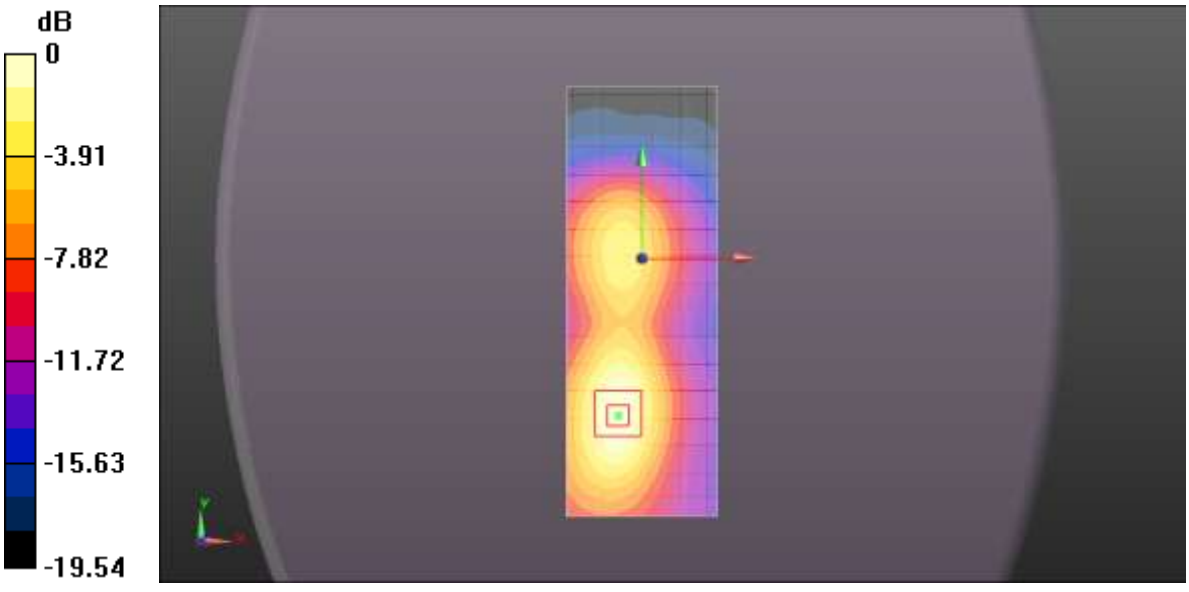
body2/left side high/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 14.950 V/m; Power Drift = -0.16 dB

Peak SAR (extrapolated) = 0.916 mW/g

SAR(1 g) = 0.560 mW/g; SAR(10 g) = 0.325 mW/g

Maximum value of SAR (measured) = 0.684 mW/g



0 dB = 0.721 mW/g = -2.84 dB mW/g

WCDMA BAND II towards phantom low with earphone

Date/Time: 15/03/2013 13:09:53

Communication System: WCDMA; Communication System Band: BAND 2; Frequency: 1852.4 MHz; Communication System PAR: 0 dB

Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.451 mho/m; ε_r = 52.481; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65c)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.66, 4.66, 4.66); Calibrated: 31/08/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 03/09/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/towards phantom low with earphone/Area Scan (111x181x1):

Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.818 mW/g

body/towards phantom low with earphone/Zoom Scan (7x7x7)/Cube 0:

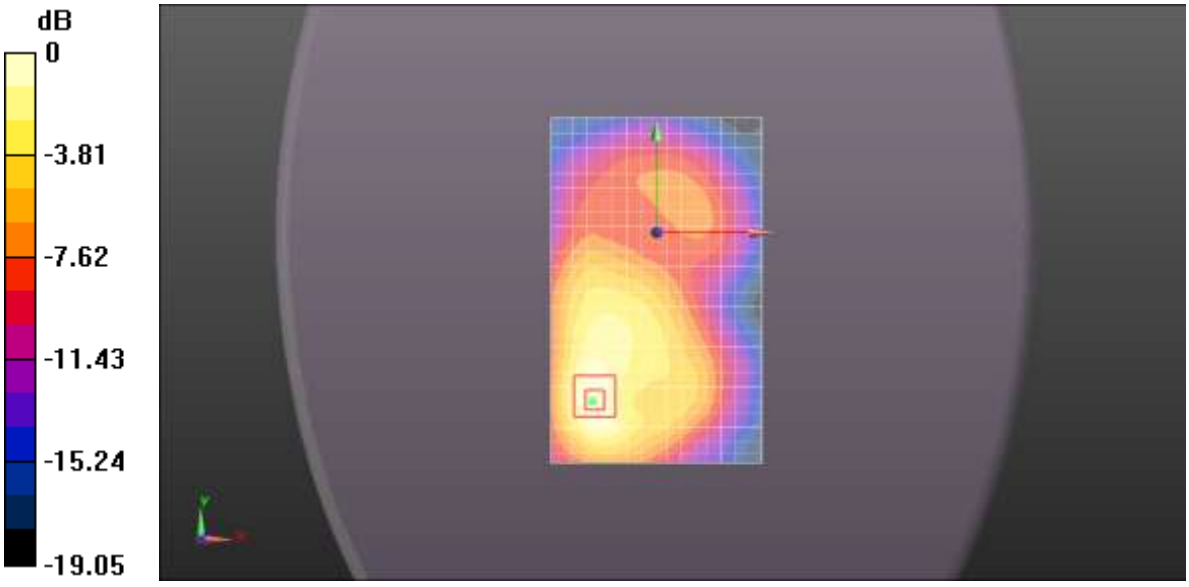
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.660 V/m; Power Drift = -0.14 dB

Peak SAR (extrapolated) = 1.118 mW/g

SAR(1 g) = 0.667 mW/g; SAR(10 g) = 0.387 mW/g

Maximum value of SAR (measured) = 0.813 mW/g



0 dB = 0.818 mW/g = -1.75 dB mW/g

WCDMA BAND II towards phantom low with HSDPA

Date/Time: 15/03/2013 13:51:16

Communication System: WCDMA; Communication System Band: BAND 2; Frequency: 1852.4 MHz; Communication System PAR: 0 dB

Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.451 mho/m; ε_r = 52.481; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65c)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.66, 4.66, 4.66); Calibrated: 31/08/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 03/09/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/towards phantom low with HSDPA/Area Scan (111x181x1):

Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.793 mW/g

body/towards phantom low with HSDPA/Zoom Scan (7x7x7)/Cube 0:

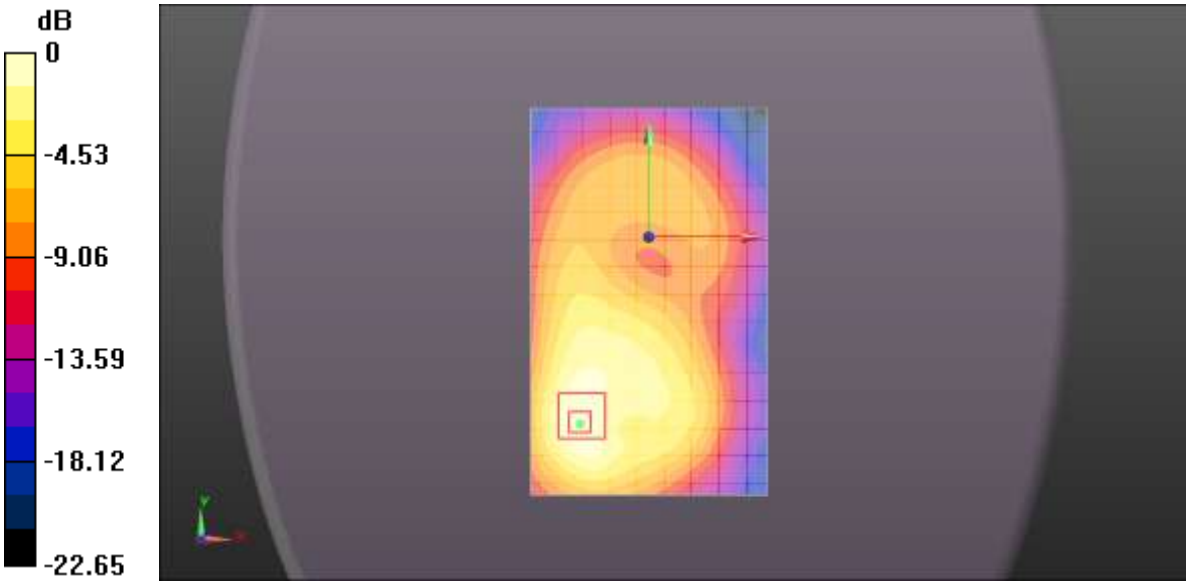
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.168 V/m; Power Drift = -0.00 dB

Peak SAR (extrapolated) = 1.081 mW/g

SAR(1 g) = 0.644 mW/g; SAR(10 g) = 0.377 mW/g

Maximum value of SAR (measured) = 0.787 mW/g



0 dB = 0.793 mW/g = -2.02 dB mW/g

WCDMA BAND II towards phantom low with HSUPA

Date/Time: 15/03/2013 14:34:23

Communication System: WCDMA; Communication System Band: BAND 2; Frequency: 1852.4 MHz; Communication System PAR: 0 dB

Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.451 mho/m; ε_r = 52.481; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65c)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.66, 4.66, 4.66); Calibrated: 31/08/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 03/09/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/towards phantom low with HSUPA/Area Scan (111x181x1):

Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.616 mW/g

body/towards phantom low with HSUPA/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.075 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 0.794 mW/g

SAR(1 g) = 0.523 mW/g; SAR(10 g) = 0.337 mW/g

Maximum value of SAR (measured) = 0.611 mW/g

body/towards phantom low with HSUPA/Zoom Scan (7x7x7)/Cube 1:

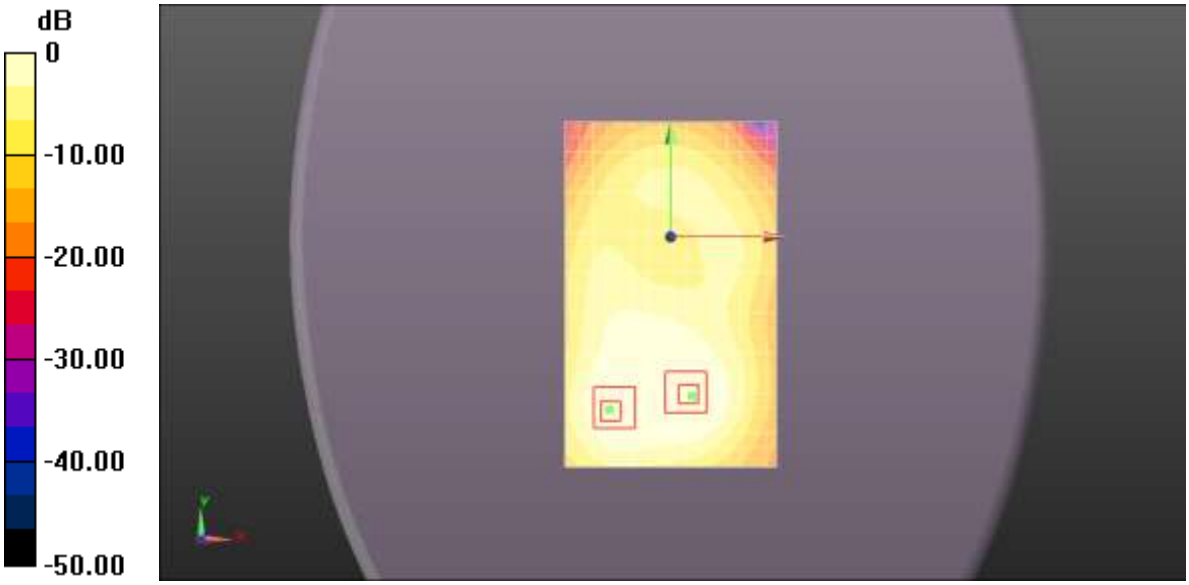
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.075 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 0.829 mW/g

SAR(1 g) = 0.482 mW/g; SAR(10 g) = 0.280 mW/g

Maximum value of SAR (measured) = 0.593 mW/g



0 dB = 0.616 mW/g = -4.21 dB mW/g

WCDMA BAND II towards phantom low additional card

Date/Time: 15/03/2013 15:34:39

Communication System: WCDMA; Communication System Band: BAND 2; Frequency: 1852.4 MHz; Communication System PAR: 0 dB

Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.451 mho/m; ε_r = 52.481; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65c)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.66, 4.66, 4.66); Calibrated: 31/08/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 03/09/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/towards phantom low additional card/Area Scan (111x181x1):

Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.680 mW/g

body/towards phantom low additional card/Zoom Scan (7x7x7)/Cube 0:

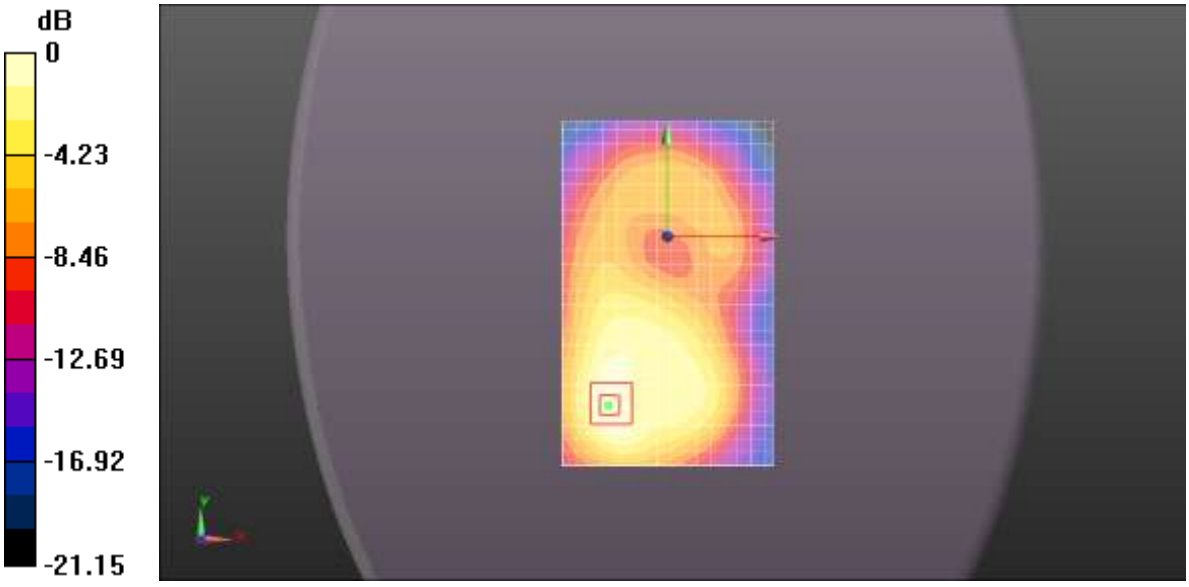
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.116 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 0.949 mW/g

SAR(1 g) = 0.560 mW/g; SAR(10 g) = 0.327 mW/g

Maximum value of SAR (measured) = 0.684 mW/g



0 dB = 0.680 mW/g = -3.35 dB mW/g

WCDMA BAND II towards phantom low repeat

Date/Time: 15/03/2013 16:19:35

Communication System: WCDMA; Communication System Band: BAND 2; Frequency: 1852.4 MHz; Communication System PAR: 0 dB

Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.451 mho/m; ε_r = 52.481; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65c)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.66, 4.66, 4.66); Calibrated: 31/08/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 03/09/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/towards phantom low repeat/Area Scan (111x181x1): Measurement grid: dx=10mm, dy=10mm

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

body/towards phantom low repeat/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.243 V/m; Power Drift = -0.17 dB

Peak SAR (extrapolated) = 0.824 mW/g

SAR(1 g) = 0.842 mW/g; SAR(10 g) = 0.478 mW/g

Maximum value of SAR (measured) = 0.633 mW/g

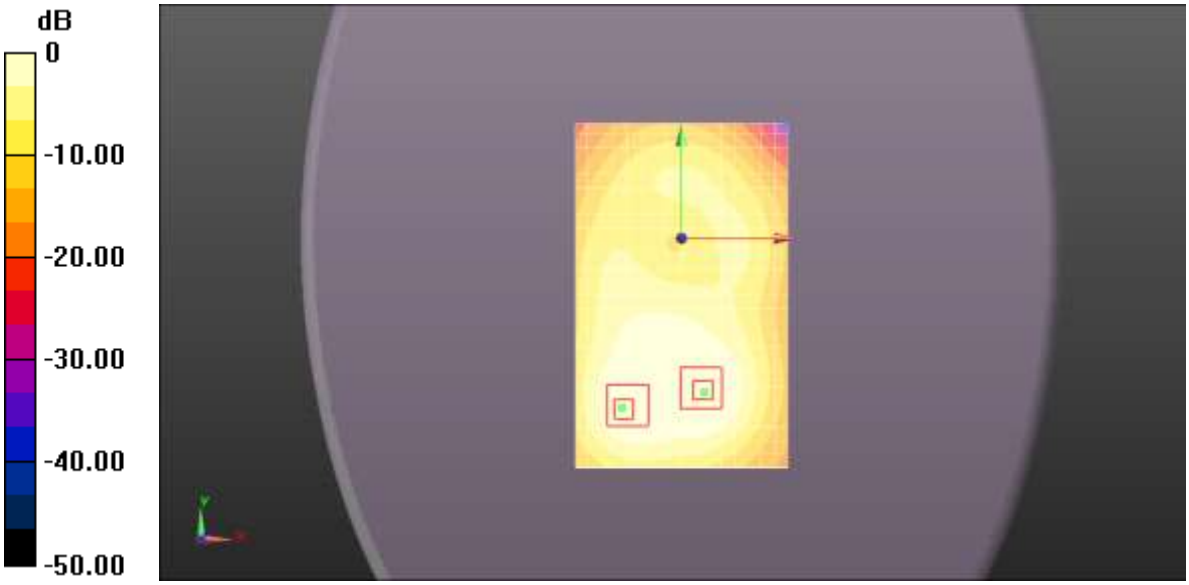
body/towards phantom low repeat/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.243 V/m; Power Drift = -0.17 dB

Peak SAR (extrapolated) = 0.837 mW/g

SAR(1 g) = 0.682 mW/g; SAR(10 g) = 0.375 mW/g

Maximum value of SAR (measured) = 0.596 mW/g



0 dB = 0.643 mW/g = -3.84 dB mW/g

WCDMA BAND V left touch mid

Date/Time: 12/3/2013 11:56:12

Communication System: WCDMA; Communication System Band: BAND 5; Frequency: 836.6 MHz; Communication System PAR: 0 dB

Medium parameters used: f = 837 MHz; σ = 0.914 mho/m; ε_r = 43.026; ρ = 1000 kg/m^3

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE1528/OET65c)

DASY5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(6.36, 6.36, 6.36); Calibrated: 10/4/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/4/2012
- Phantom: SAM1; Type: SAM; Serial: TP1576
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

left/touch mid/Area Scan (111x181x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.0763 mW/g

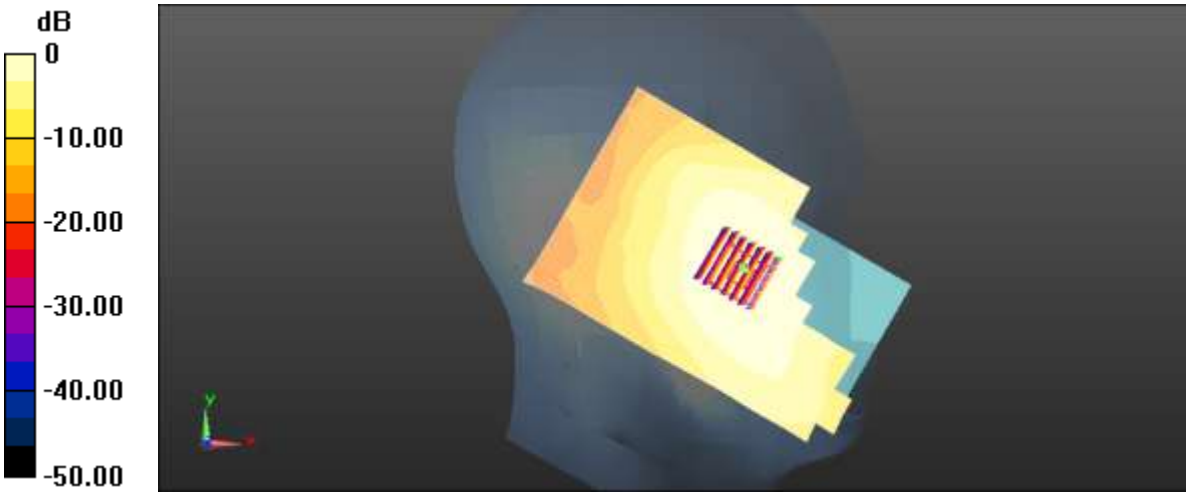
left/touch mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 3.391 V/m; Power Drift = -0.17 dB

Peak SAR (extrapolated) = 0.086 mW/g

SAR(1 g) = 0.070 mW/g; SAR(10 g) = 0.055 mW/g

Maximum value of SAR (measured) = 0.0763 mW/g



0 dB = 0.0763 mW/g = -22.35 dB mW/g

WCDMA BAND V left tilt mid

Date/Time: 12/3/2013 12:30:59

Communication System: WCDMA; Communication System Band: BAND 5; Frequency: 836.6 MHz; Communication System PAR: 0 dB

Medium parameters used: f = 837 MHz; σ = 0.914 mho/m; ε_r = 43.026; ρ = 1000 kg/m^3

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE1528/OET65c)

DASY5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(6.36, 6.36, 6.36); Calibrated: 10/4/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/4/2012
- Phantom: SAM1; Type: SAM; Serial: TP1576
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

left/tilt mid/Area Scan (111x181x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.0515 mW/g

left/tilt mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.664 V/m; Power Drift = -0.15 dB

Peak SAR (extrapolated) = 0.058 mW/g

SAR(1 g) = 0.048 mW/g; SAR(10 g) = 0.038 mW/g

Maximum value of SAR (measured) = 0.0514 mW/g

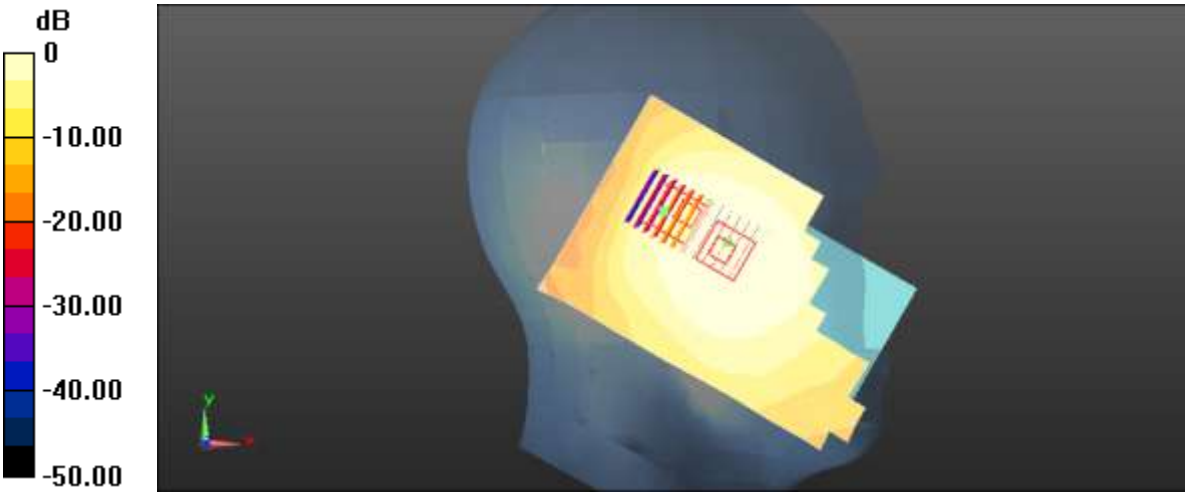
left/tilt mid/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.664 V/m; Power Drift = -0.15 dB

Peak SAR (extrapolated) = 0.049 mW/g

SAR(1 g) = 0.034 mW/g; SAR(10 g) = 0.023 mW/g

Maximum value of SAR (measured) = 0.0424 mW/g



0 dB = 0.0515 mW/g = -25.77 dB mW/g

WCDMA BAND V right touch mid

Date/Time: 12/3/2013 13:27:00

Communication System: WCDMA; Communication System Band: BAND 5; Frequency: 836.6 MHz; Communication System PAR: 0 dB

Medium parameters used: f = 837 MHz; σ = 0.914 mho/m; ε_r = 43.026; ρ = 1000 kg/m^3

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE1528/OET65c)

DASY5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(6.36, 6.36, 6.36); Calibrated: 10/4/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/4/2012
- Phantom: SAM1; Type: SAM; Serial: TP1576
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

right/touch mid/Area Scan (111x181x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.0982 mW/g

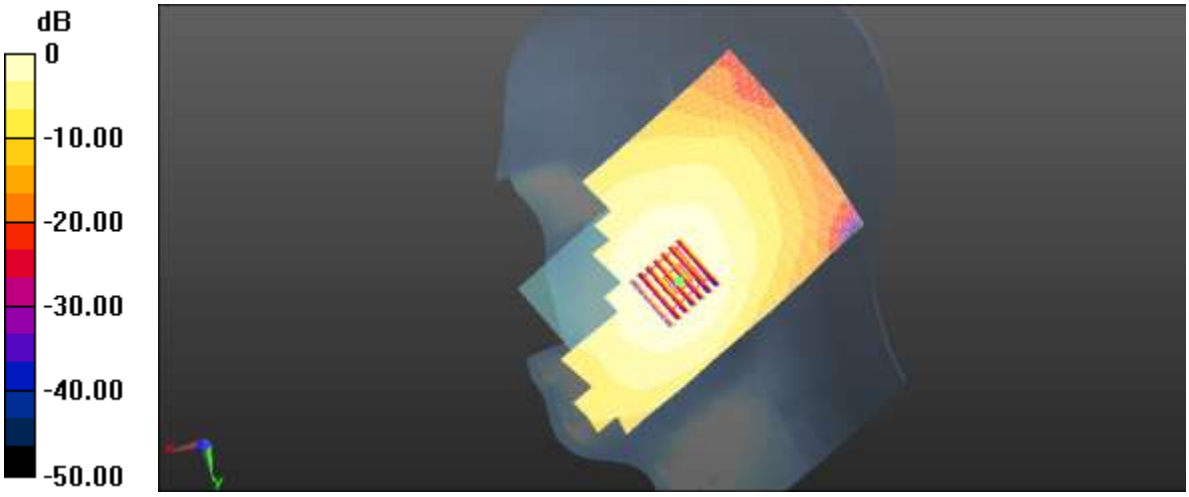
right/touch mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 3.642 V/m; Power Drift = -0.18 dB

Peak SAR (extrapolated) = 0.111 mW/g

SAR(1 g) = 0.090 mW/g; SAR(10 g) = 0.070 mW/g

Maximum value of SAR (measured) = 0.0981 mW/g



0 dB = 0.0982 mW/g = -20.16 dB mW/g

WCDMA BAND V right tilt mid

Date/Time: 12/3/2013 14:03:49

Communication System: WCDMA; Communication System Band: BAND 5; Frequency: 836.6 MHz; Communication System PAR: 0 dB

Medium parameters used: f = 837 MHz; σ = 0.914 mho/m; ε_r = 43.026; ρ = 1000 kg/m^3

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE1528/OET65c)

DASY5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(6.36, 6.36, 6.36); Calibrated: 10/4/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/4/2012
- Phantom: SAM1; Type: SAM; Serial: TP1576
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

right/tilt mid/Area Scan (111x181x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.0576 mW/g

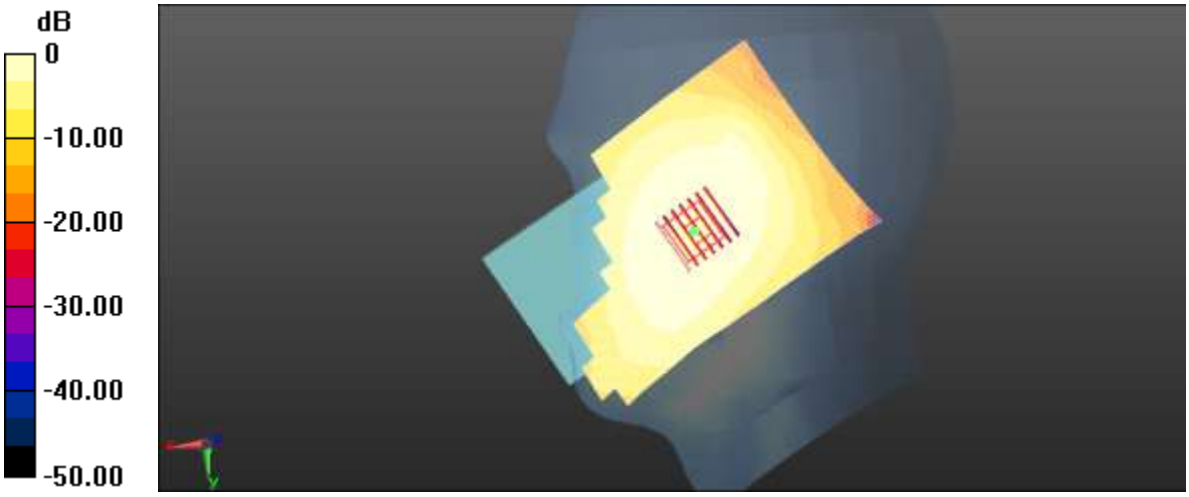
right/tilt mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.864 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 0.064 mW/g

SAR(1 g) = 0.053 mW/g; SAR(10 g) = 0.042 mW/g

Maximum value of SAR (measured) = 0.0571 mW/g



0 dB = 0.0576 mW/g = -24.79 dB mW/g

WCDMA BAND V right touch low

Date/Time: 12/3/2013 14:39:34

Communication System: WCDMA; Communication System Band: BAND 5; Frequency: 826.4 MHz; Communication System PAR: 0 dB

Medium parameters used (interpolated): f = 826.4 MHz; σ = 0.903 mho/m; ε_r = 43.191; ρ = 1000 kg/m^3

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE1528/OET65c)

DASY5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(6.36, 6.36, 6.36); Calibrated: 10/4/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/4/2012
- Phantom: SAM1; Type: SAM; Serial: TP1576
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

right/touch low/Area Scan (111x181x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.177 mW/g

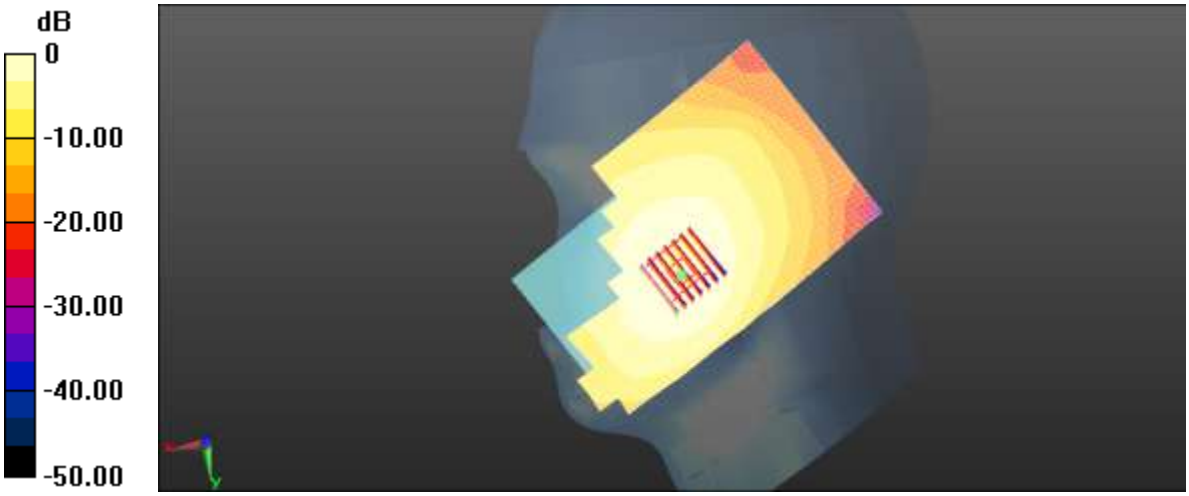
right/touch low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 4.693 V/m; Power Drift = 0.17 dB

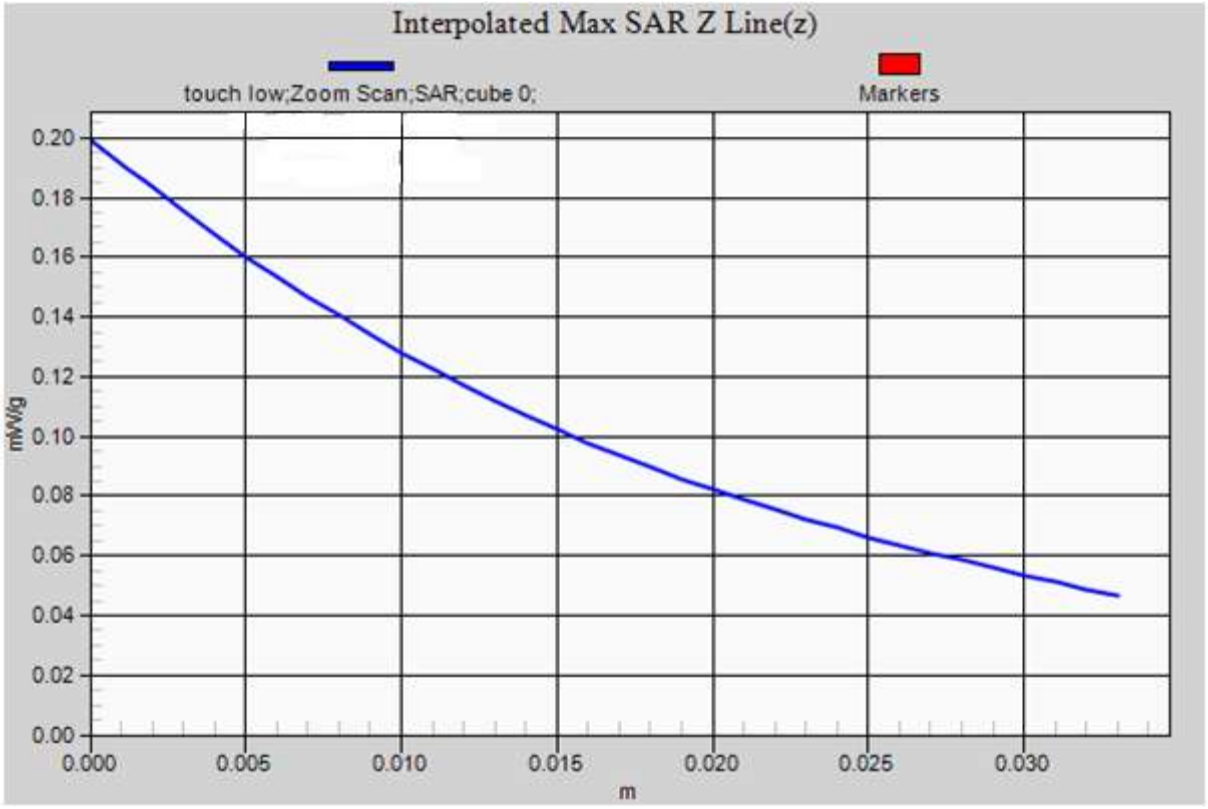
Peak SAR (extrapolated) = 0.199 mW/g

SAR(1 g) = 0.162 mW/g; SAR(10 g) = 0.125 mW/g

Maximum value of SAR (measured) = 0.177 mW/g



0 dB = 0.177 mW/g = -15.04 dB mW/g


Interpolated Max SAR Z Line(z)
touch low;Zoom Scan;SAR;cube 0;
Markers
0.20
0.18
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
mW/g
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

WCDMA BAND V right touch high

Date/Time: 12/3/2013 15:14:32

Communication System: WCDMA; Communication System Band: BAND 5; Frequency: 846.6 MHz; Communication System PAR: 0 dB

Medium parameters used: f = 847 MHz; σ = 0.923 mho/m; ε_r = 42.875; ρ = 1000 kg/m^3

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE1528/OET65c)

DASY5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(6.36, 6.36, 6.36); Calibrated: 10/4/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/4/2012
- Phantom: SAM1; Type: SAM; Serial: TP1576
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

right/touch high/Area Scan (111x181x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.0746 mW/g

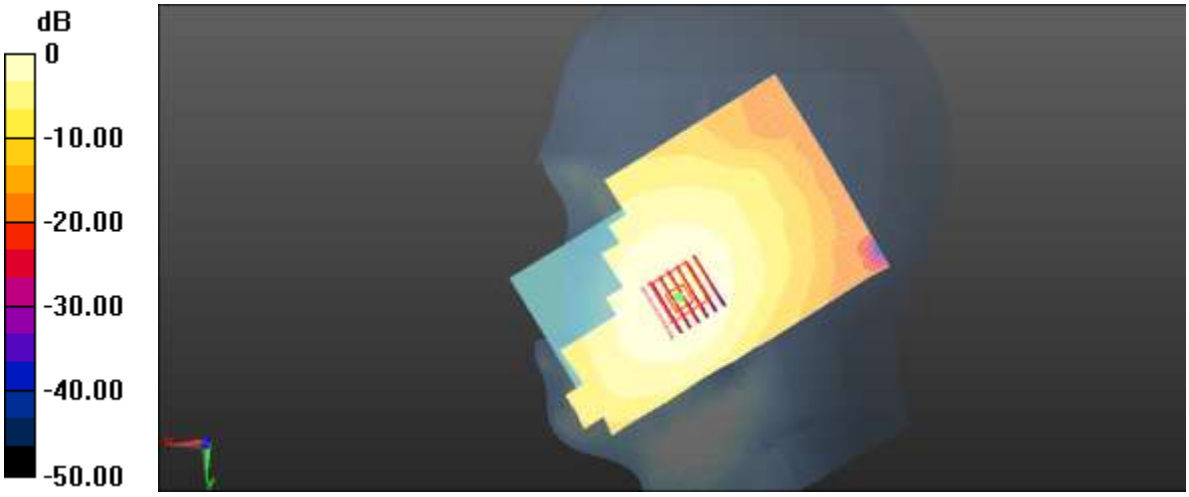
right/touch high/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 2.736 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 0.085 mW/g

SAR(1 g) = 0.068 mW/g; SAR(10 g) = 0.052 mW/g

Maximum value of SAR (measured) = 0.0739 mW/g



0 dB = 0.0746 mW/g = -22.55 dB mW/g

WCDMA BAND V right touch low additional card

Date/Time: 12/3/2013 18:09:15

Communication System: WCDMA; Communication System Band: BAND 5; Frequency: 826.4 MHz; Communication System PAR: 0 dB

Medium parameters used (interpolated): f = 826.4 MHz; σ = 0.903 mho/m; ε_r = 43.191; ρ = 1000 kg/m^3

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE1528/OET65c)

DASY5 Configuration:

- Probe: ES3DV3 - SN3297; ConvF(6.36, 6.36, 6.36); Calibrated: 10/4/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1327; Calibrated: 11/4/2012
- Phantom: SAM1; Type: SAM; Serial: TP1576
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

right/touch low additional card/Area Scan (111x181x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.0560 mW/g

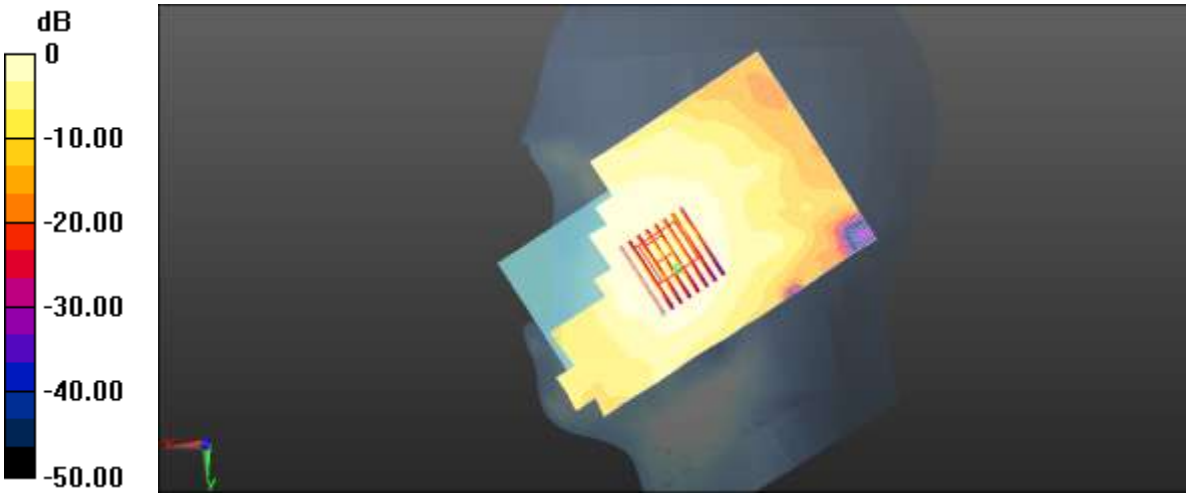
right/touch low additional card/Zoom Scan (9x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 3.422 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 0.065 mW/g

SAR(1 g) = 0.053 mW/g; SAR(10 g) = 0.043 mW/g

Maximum value of SAR (measured) = 0.0587 mW/g



0 dB = 0.0560 mW/g = -25.04 dB mW/g

WCDMA BAND V towards phantom mid

Date/Time: 18/03/2013 09:10:13

Communication System: WCDMA; Communication System Band: BAND 5; Frequency: 836.6 MHz; Communication System PAR: 0 dB

Medium parameters used: f = 837 MHz; σ = 0.951 mho/m; ε_r = 54.241; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65c)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.25, 6.25, 6.25); Calibrated: 31/08/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 03/09/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/towards phantom mid/Area Scan (111x181x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.115 mW/g

body/towards phantom mid/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.454 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 0.143 mW/g

SAR(1 g) = 0.104 mW/g; SAR(10 g) = 0.076 mW/g

Maximum value of SAR (measured) = 0.117 mW/g

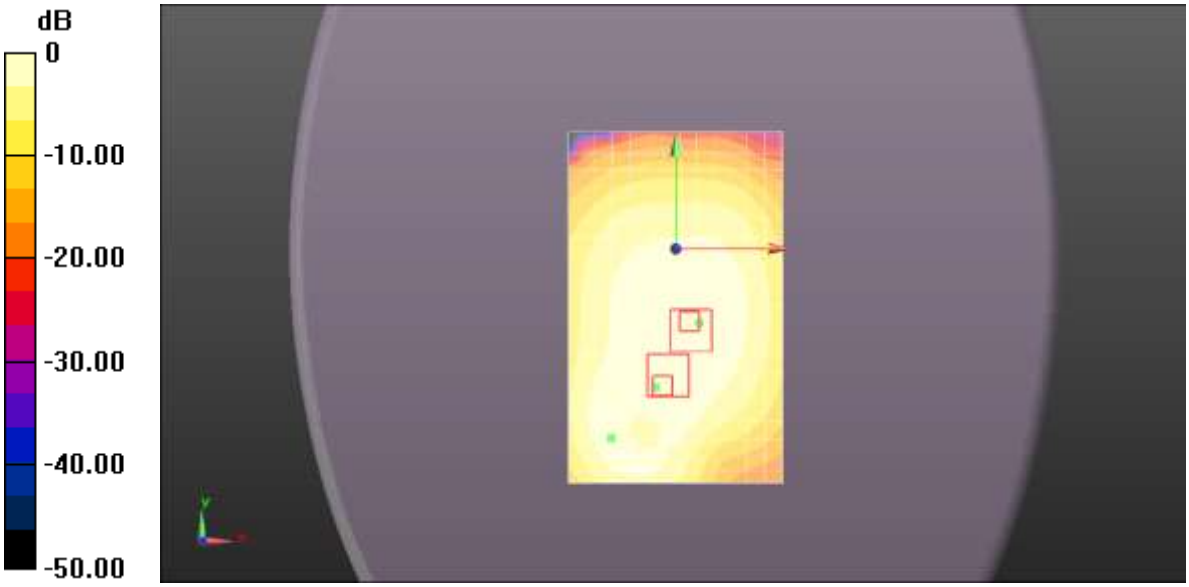
body/towards phantom mid/Zoom Scan (8x8x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.454 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 0.117 mW/g

SAR(1 g) = 0.092 mW/g; SAR(10 g) = 0.071 mW/g

Maximum value of SAR (measured) = 0.101 mW/g



0 dB = 0.115 mW/g = -18.75 dB mW/g

WCDMA BAND V towards ground mid

Date/Time: 18/03/2013 10:12:51

Communication System: WCDMA; Communication System Band: BAND 5; Frequency: 836.6 MHz; Communication System PAR: 0 dB

Medium parameters used: f = 837 MHz; σ = 0.951 mho/m; ε_r = 54.241; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65c)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.25, 6.25, 6.25); Calibrated: 31/08/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 03/09/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/towards ground mid/Area Scan (111x181x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.316 mW/g

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

Reference Value = 12.233 V/m; Power Drift = -0.19 dB

Peak SAR (extrapolated) = 0.452 mW/g

SAR(1 g) = 0.249 mW/g; SAR(10 g) = 0.133 mW/g

Maximum value of SAR (measured) = 0.315 mW/g

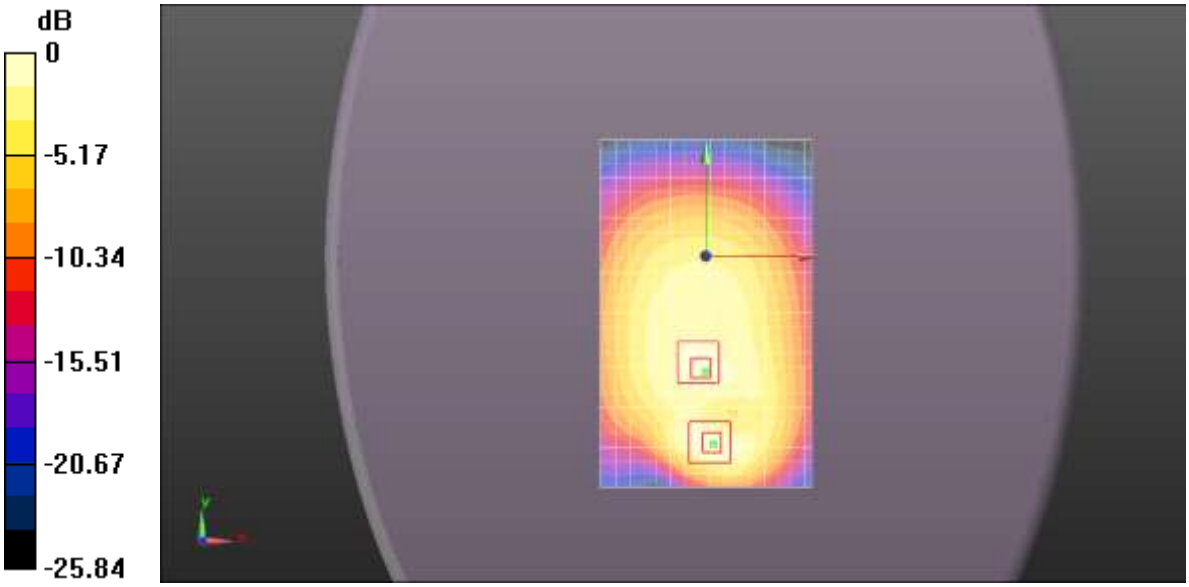
body/towards ground mid/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 12.233 V/m; Power Drift = -0.19 dB

Peak SAR (extrapolated) = 0.267 mW/g

SAR(1 g) = 0.207 mW/g; SAR(10 g) = 0.155 mW/g

Maximum value of SAR (measured) = 0.229 mW/g



0 dB = 0.316 mW/g = -10.02 dB mW/g

WCDMA BAND V front mid

Date/Time: 18/03/2013 12:56:54

Communication System: WCDMA; Communication System Band: BAND 5; Frequency: 836.6 MHz; Communication System PAR: 0 dB

Medium parameters used: f = 837 MHz; σ = 0.951 mho/m; ε_r = 54.241; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65c)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.25, 6.25, 6.25); Calibrated: 31/08/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 03/09/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/front mid/Area Scan (81x131x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.0867 mW/g

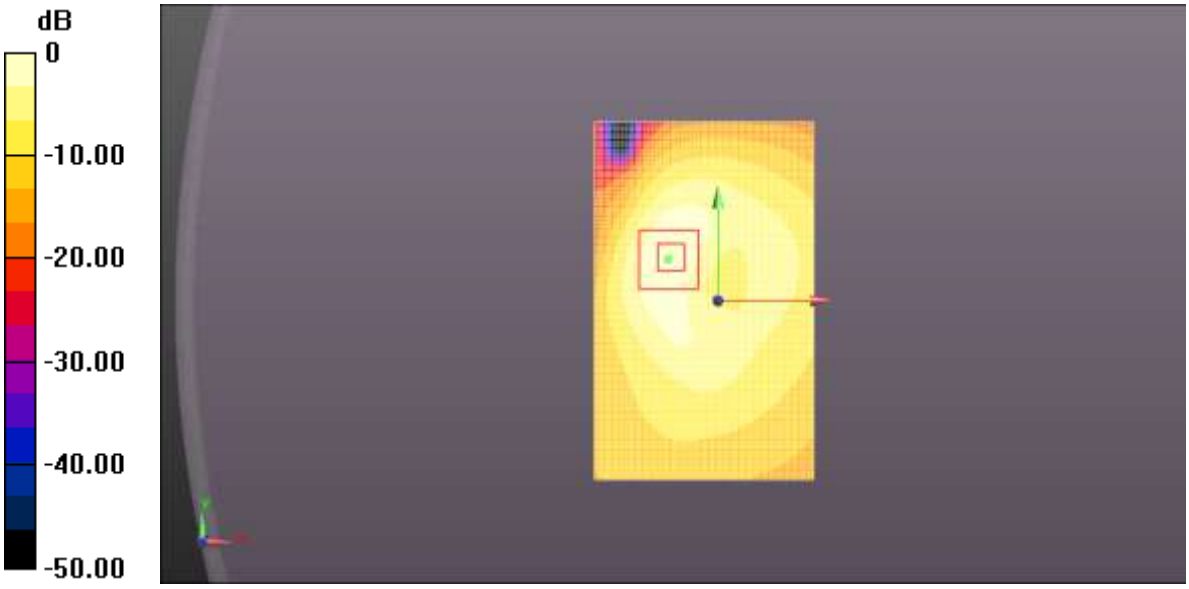
body/front mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 4.093 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.123 mW/g

SAR(1 g) = 0.068 mW/g; SAR(10 g) = 0.037 mW/g

Maximum value of SAR (measured) = 0.0848 mW/g



0 dB = 0.0867 mW/g = -21.24 dB mW/g

WCDMA BAND V left side mid

Date/Time: 18/03/2013 11:16:59

Communication System: WCDMA; Communication System Band: BAND 5; Frequency: 836.6 MHz; Communication System PAR: 0 dB

Medium parameters used: f = 837 MHz; σ = 0.951 mho/m; ε_r = 54.241; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65c)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.25, 6.25, 6.25); Calibrated: 31/08/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 03/09/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body2/left side mid/Area Scan (71x201x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.0519 mW/g

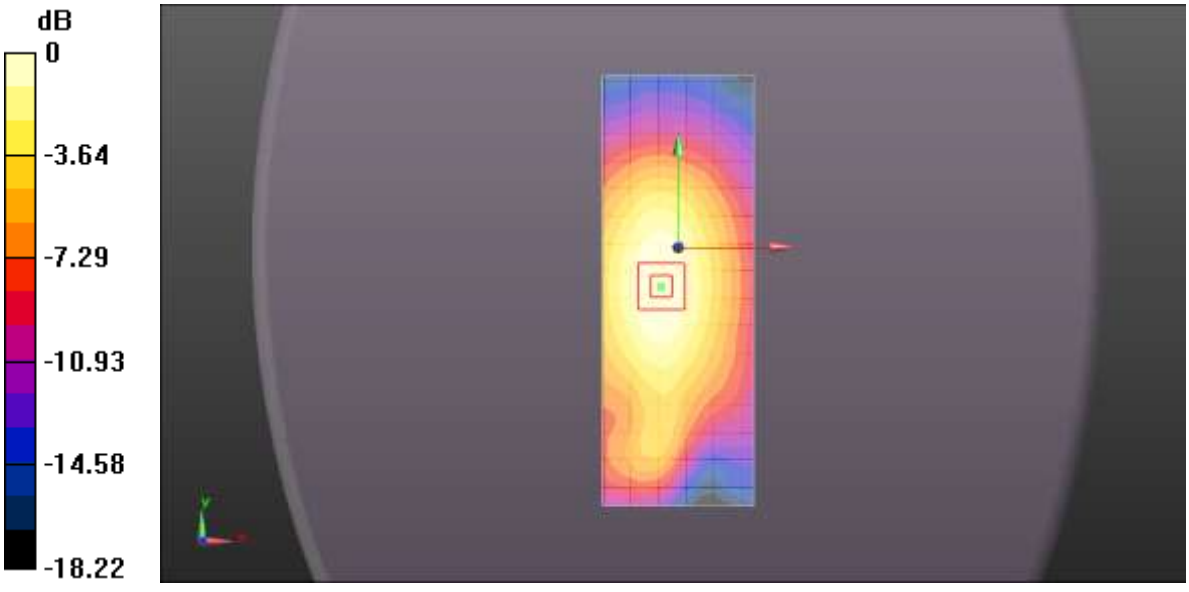
body2/left side mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.714 V/m; Power Drift = 0.14 dB

Peak SAR (extrapolated) = 0.064 mW/g

SAR(1 g) = 0.045 mW/g; SAR(10 g) = 0.031 mW/g

Maximum value of SAR (measured) = 0.0519 mW/g



0 dB = 0.0519 mW/g = -25.70 dB mW/g

WCDMA BAND V right side mid

Date/Time: 18/03/2013 11:58:34

Communication System: WCDMA; Communication System Band: BAND 5; Frequency: 836.6 MHz; Communication System PAR: 0 dB

Medium parameters used: f = 837 MHz; σ = 0.951 mho/m; ε_r = 54.241; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65c)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.25, 6.25, 6.25); Calibrated: 31/08/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 03/09/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body2/right side mid/Area Scan (71x201x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.142 mW/g

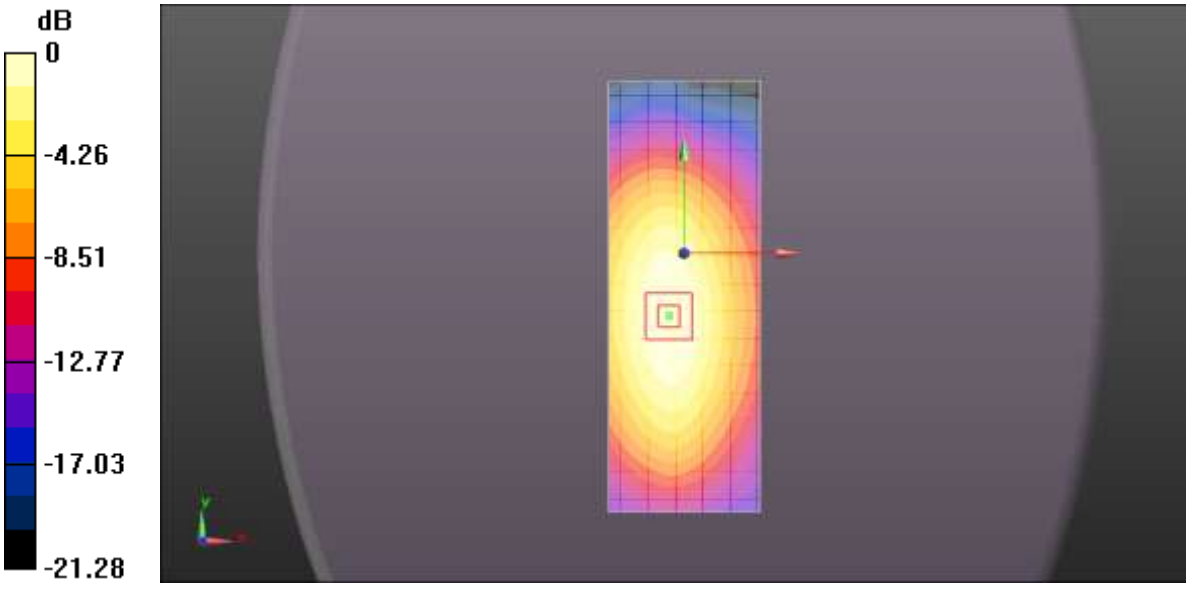
body2/right side mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.140 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.172 mW/g

SAR(1 g) = 0.123 mW/g; SAR(10 g) = 0.085 mW/g

Maximum value of SAR (measured) = 0.141 mW/g



0 dB = 0.142 mW/g = -16.97 dB mW/g

WCDMA BAND V towards ground low

Date/Time: 18/03/2013 18:59:48

Communication System: WCDMA; Communication System Band: BAND 5; Frequency: 826.4 MHz; Communication System PAR: 0 dB

Medium parameters used (interpolated): f = 826.4 MHz; σ = 0.936 mho/m; ε_r = 54.3; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65c)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.25, 6.25, 6.25); Calibrated: 31/08/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 03/09/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/towards ground low/Area Scan (111x181x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.170 mW/g

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

Reference Value = 7.812 V/m; Power Drift = 0.17 dB

Peak SAR (extrapolated) = 0.250 mW/g

SAR(1 g) = 0.135 mW/g; SAR(10 g) = 0.072 mW/g

Maximum value of SAR (measured) = 0.167 mW/g

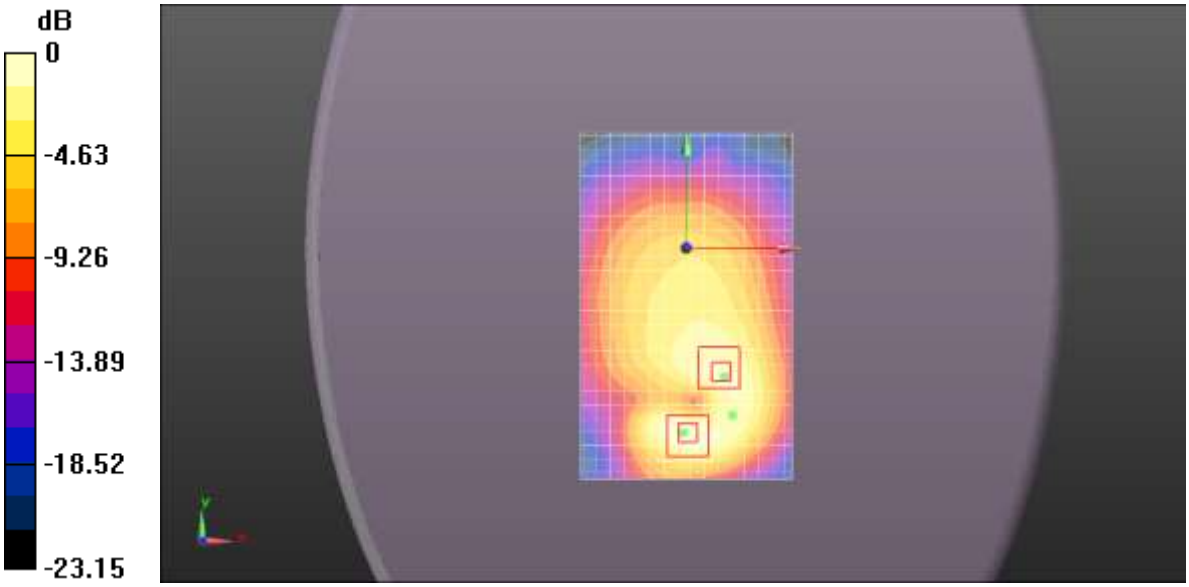
body/towards ground low/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.812 V/m; Power Drift = 0.17 dB

Peak SAR (extrapolated) = 0.172 mW/g

SAR(1 g) = 0.110 mW/g; SAR(10 g) = 0.073 mW/g

Maximum value of SAR (measured) = 0.129 mW/g



0 dB = 0.170 mW/g = -15.41 dB mW/g

WCDMA BAND V towards ground high

Date/Time: 18/03/2013 15:04:40

Communication System: WCDMA; Communication System Band: BAND 5; Frequency: 846.6 MHz; Communication System PAR: 0 dB

Medium parameters used: f = 847 MHz; σ = 0.965 mho/m; ε_r = 54.169; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65c)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.25, 6.25, 6.25); Calibrated: 31/08/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 03/09/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/towards ground high/Area Scan (111x181x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.276 mW/g

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

Reference Value = 10.289 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 0.370 mW/g

SAR(1 g) = 0.203 mW/g; SAR(10 g) = 0.106 mW/g

Maximum value of SAR (measured) = 0.257 mW/g

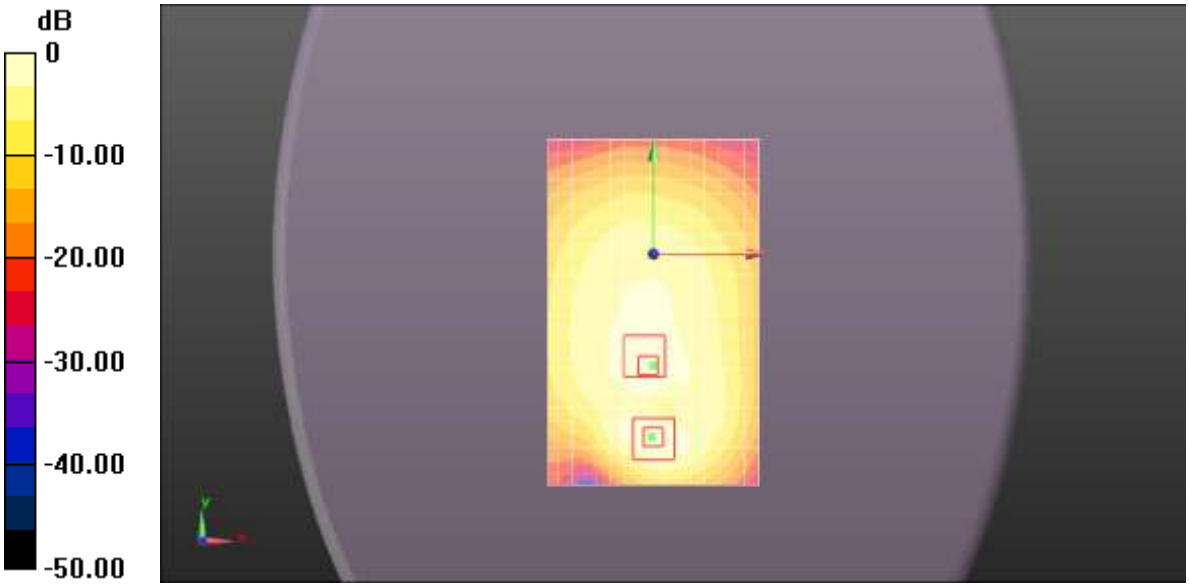
body/towards ground high/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.289 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 0.213 mW/g

SAR(1 g) = 0.155 mW/g; SAR(10 g) = 0.112 mW/g

Maximum value of SAR (measured) = 0.176 mW/g



0 dB = 0.276 mW/g = -11.17 dB mW/g

WCDMA BAND V towards ground mid with earphone

Date/Time: 18/03/2013 21:02:56

Communication System: WCDMA; Communication System Band: BAND 5; Frequency: 836.6 MHz; Communication System PAR: 0 dB

Medium parameters used: f = 837 MHz; σ = 0.951 mho/m; ε_r = 54.241; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65c)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.25, 6.25, 6.25); Calibrated: 31/08/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 03/09/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/towards ground mid with earphone/Area Scan (111x181x1):

Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.241 mW/g

body/towards ground mid with earphone/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.605 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 0.392 mW/g

SAR(1 g) = 0.196 mW/g; SAR(10 g) = 0.100 mW/g

Maximum value of SAR (measured) = 0.251 mW/g

body/towards ground mid with earphone/Zoom Scan (7x7x7)/Cube 1:

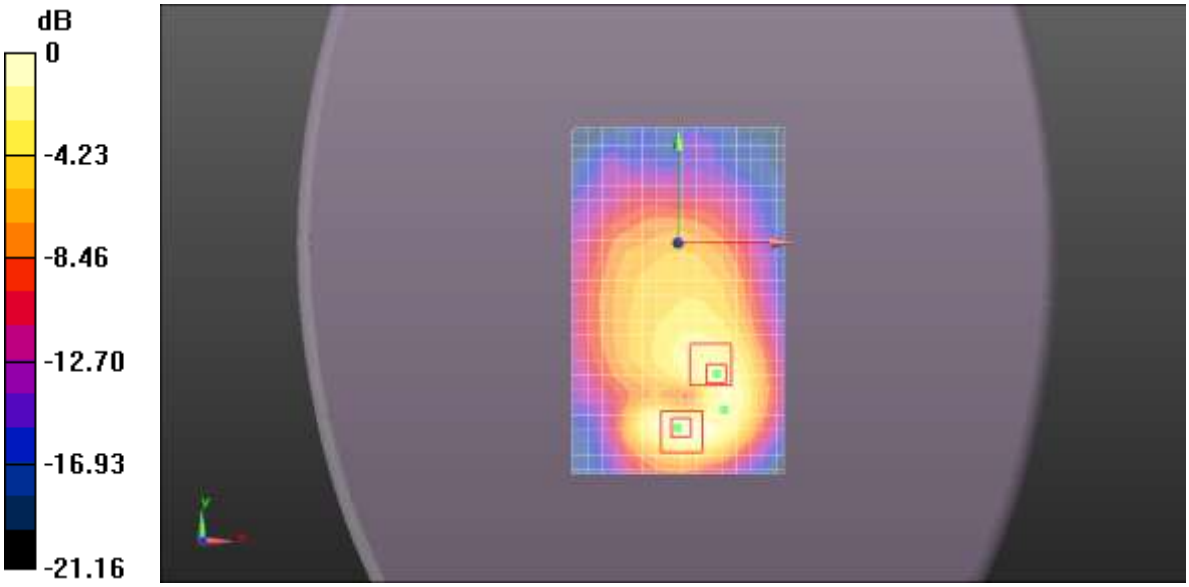
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.605 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 0.266 mW/g

SAR(1 g) = 0.158 mW/g; SAR(10 g) = 0.103 mW/g

Maximum value of SAR (measured) = 0.186 mW/g



0 dB = 0.241 mW/g = -12.36 dB mW/g

WCDMA BAND V towards ground mid with HSDPA

Date/Time: 18/03/2013 22:05:15

Communication System: WCDMA; Communication System Band: BAND 5; Frequency: 836.6 MHz; Communication System PAR: 0 dB

Medium parameters used: f = 837 MHz; σ = 0.951 mho/m; ε_r = 54.241; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65c)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.25, 6.25, 6.25); Calibrated: 31/08/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 03/09/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/towards ground mid with HSDPA/Area Scan (111x181x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.248 mW/g

body/towards ground mid with HSDPA/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.999 V/m; Power Drift = 0.16 dB

Peak SAR (extrapolated) = 0.419 mW/g

SAR(1 g) = 0.209 mW/g; SAR(10 g) = 0.106 mW/g

Maximum value of SAR (measured) = 0.265 mW/g

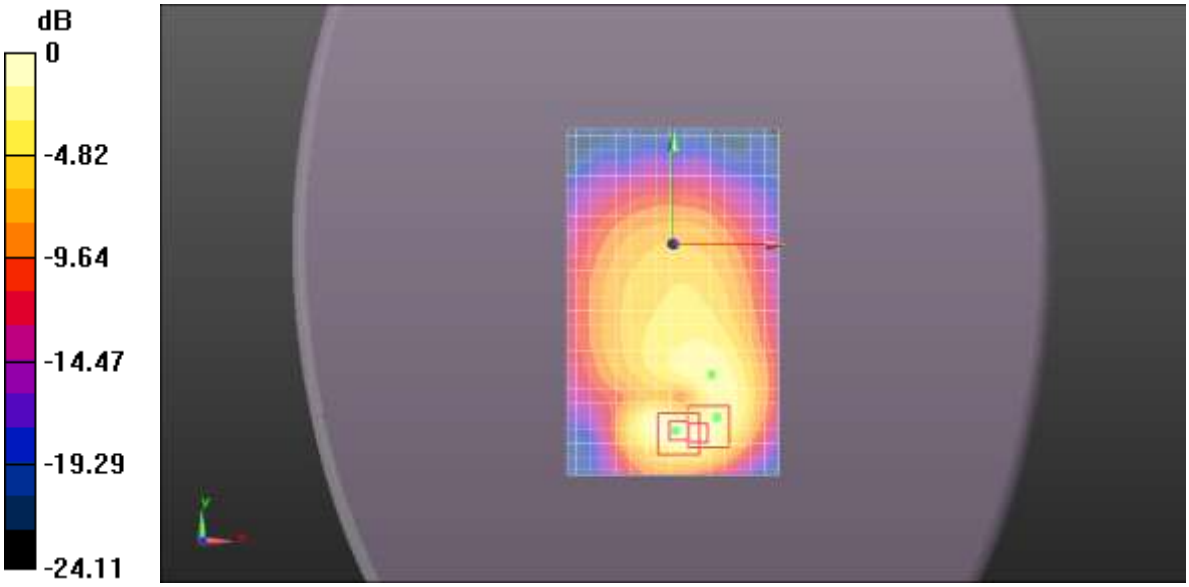
body/towards ground mid with HSDPA/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.999 V/m; Power Drift = 0.16 dB

Peak SAR (extrapolated) = 0.420 mW/g

SAR(1 g) = 0.181 mW/g; SAR(10 g) = 0.087 mW/g

Maximum value of SAR (measured) = 0.246 mW/g



0 dB = 0.248 mW/g = -12.12 dB mW/g

WCDMA BAND V towards ground mid with HSUPA

Date/Time: 19/03/2013 08:58:36

Communication System: WCDMA; Communication System Band: BAND 5; Frequency: 836.6 MHz; Communication System PAR: 0 dB

Medium parameters used: f = 837 MHz; σ = 0.951 mho/m; ε_r = 54.241; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65c)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.25, 6.25, 6.25); Calibrated: 31/08/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 03/09/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/towards ground mid with HSUPA/Area Scan (111x181x1): Measurement grid: dx=10mm, dy=10mm

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

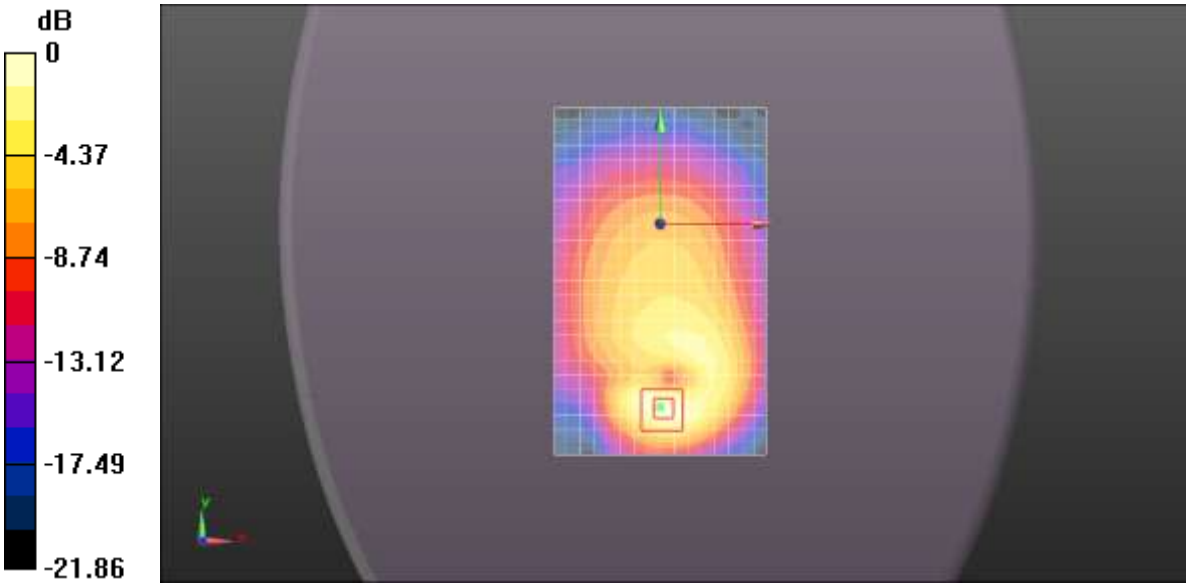
body/towards ground mid with HSUPA/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.365 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 0.329 mW/g

SAR(1 g) = 0.171 mW/g; SAR(10 g) = 0.088 mW/g

Maximum value of SAR (measured) = 0.217 mW/g



0 dB = 0.220 mW/g = -13.16 dB mW/g

WCDMA BAND V towards ground mid additional card

Date/Time: 19/03/2013 11:52:14

Communication System: WCDMA; Communication System Band: BAND 5; Frequency: 836.6 MHz; Communication System PAR: 0 dB

Medium parameters used: f = 837 MHz; σ = 0.951 mho/m; ε_r = 54.241; ρ = 1000 kg/m^3

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE1528/OET65c)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(6.25, 6.25, 6.25); Calibrated: 31/08/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 03/09/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/towards ground mid additional card/Area Scan (111x181x1):

Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.372 mW/g

body/towards ground mid additional card/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 12.829 V/m; Power Drift = 0.16 dB

Peak SAR (extrapolated) = 0.549 mW/g

SAR(1 g) = 0.297 mW/g; SAR(10 g) = 0.156 mW/g

Maximum value of SAR (measured) = 0.375 mW/g

body/towards ground mid additional card/Zoom Scan (7x7x7)/Cube 1:

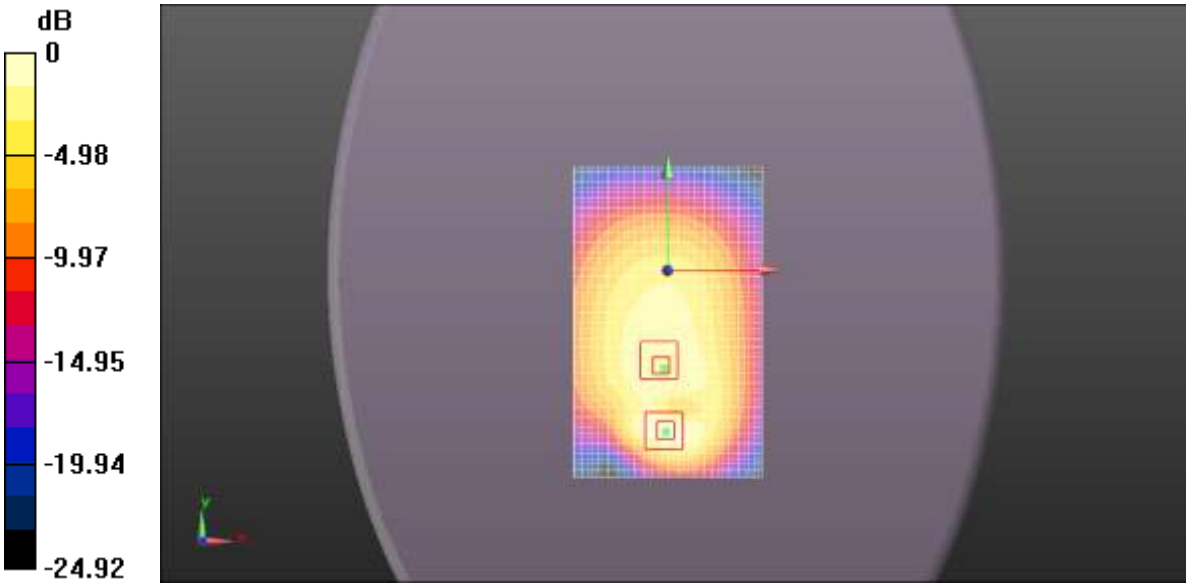
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 12.829 V/m; Power Drift = 0.16 dB

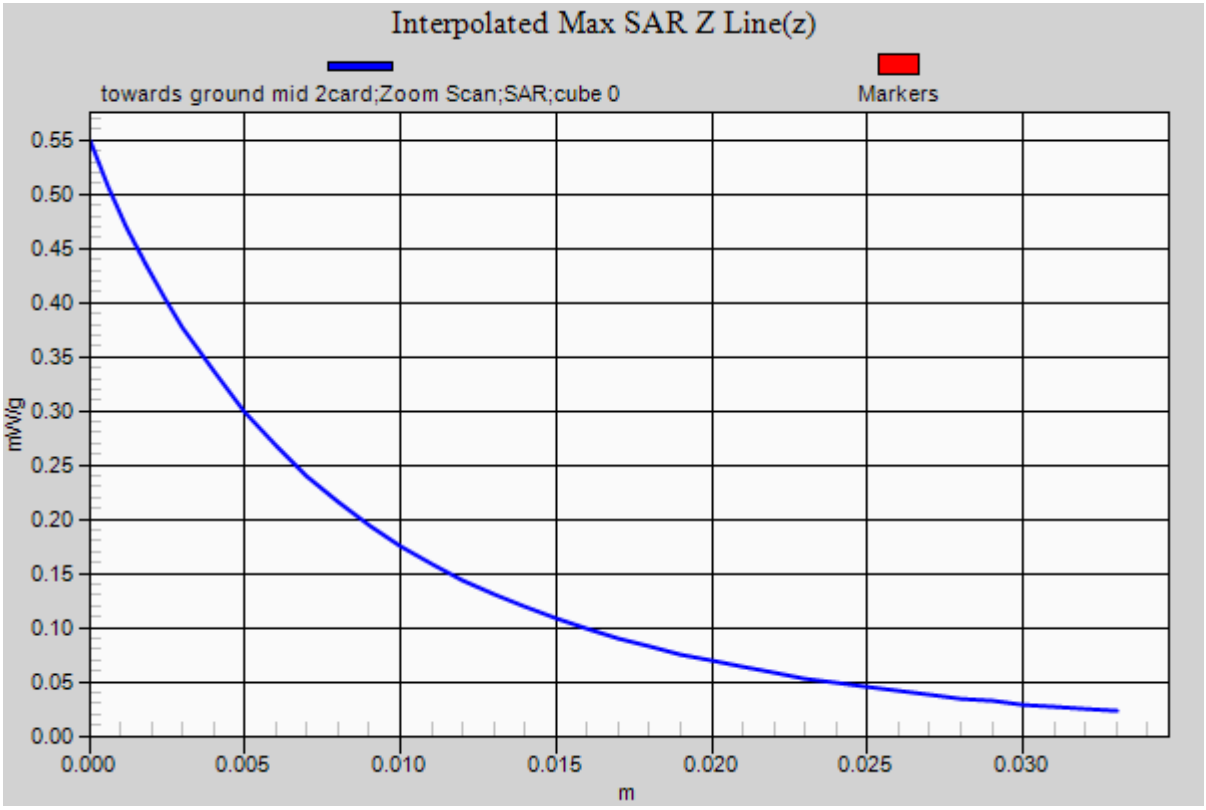
Peak SAR (extrapolated) = 0.294 mW/g

SAR(1 g) = 0.224 mW/g; SAR(10 g) = 0.167 mW/g

Maximum value of SAR (measured) = 0.249 mW/g



0 dB = 0.372 mW/g = -8.59 dB mW/g



Wi-Fi 802.11b Data Rate： 1Mbps left touch mid

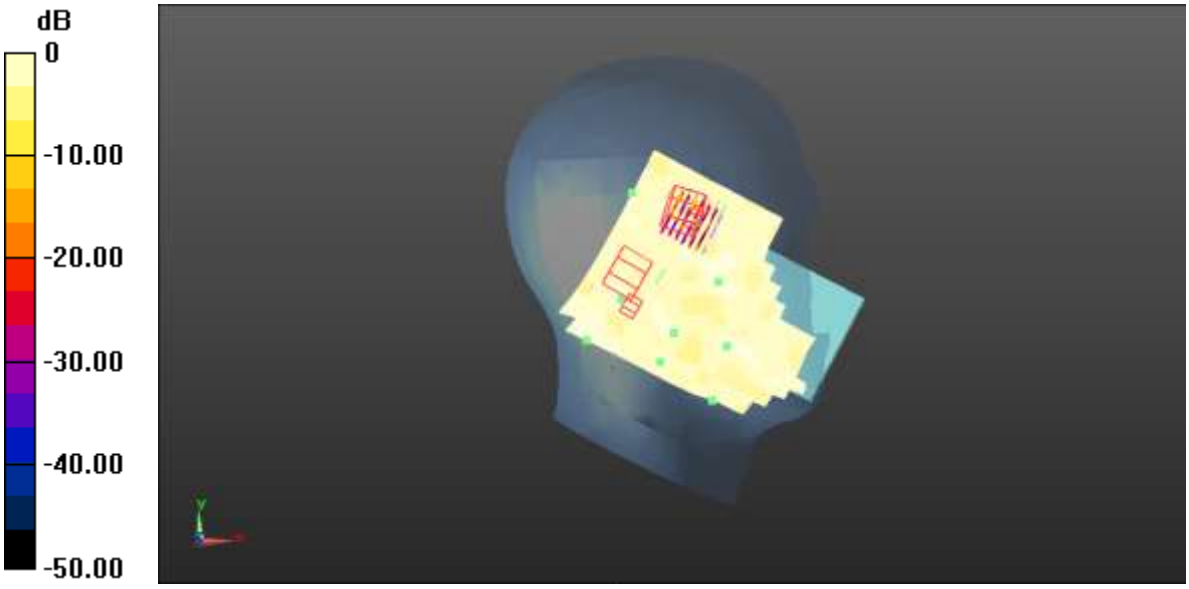
Date/Time: 01/03/2013 13:51:20
Communication System: 802.11b/g/n 2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2437 MHz; Communication System PAR: 1.872 dB
Medium parameters used: f = 2437 MHz; σ = 1.781 mho/m; ε_r = 37.848; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE1528/OET65c)
DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.45, 4.45, 4.45); Calibrated: 31/08/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 03/09/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

left/touch mid/Area Scan (131x191x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.0315 mW/g

left/touch mid/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.564 V/m; Power Drift = 0.42 dB
Peak SAR (extrapolated) = 0.059 mW/g
SAR(1 g) = 0.023 mW/g; SAR(10 g) = 0.015 mW/g
Maximum value of SAR (measured) = 0.0350 mW/g

left/touch mid/Zoom Scan (8x8x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.564 V/m; Power Drift = 0.42 dB
Peak SAR (extrapolated) = 0.040 mW/g
SAR(1 g) = 0.023 mW/g; SAR(10 g) = 0.015 mW/g
Maximum value of SAR (measured) = 0.0341 mW/g



0 dB = 0.0315 mW/g = -30.03 dB mW/g

Wi-Fi 802.11b Data Rate： 1Mbps left tilt mid

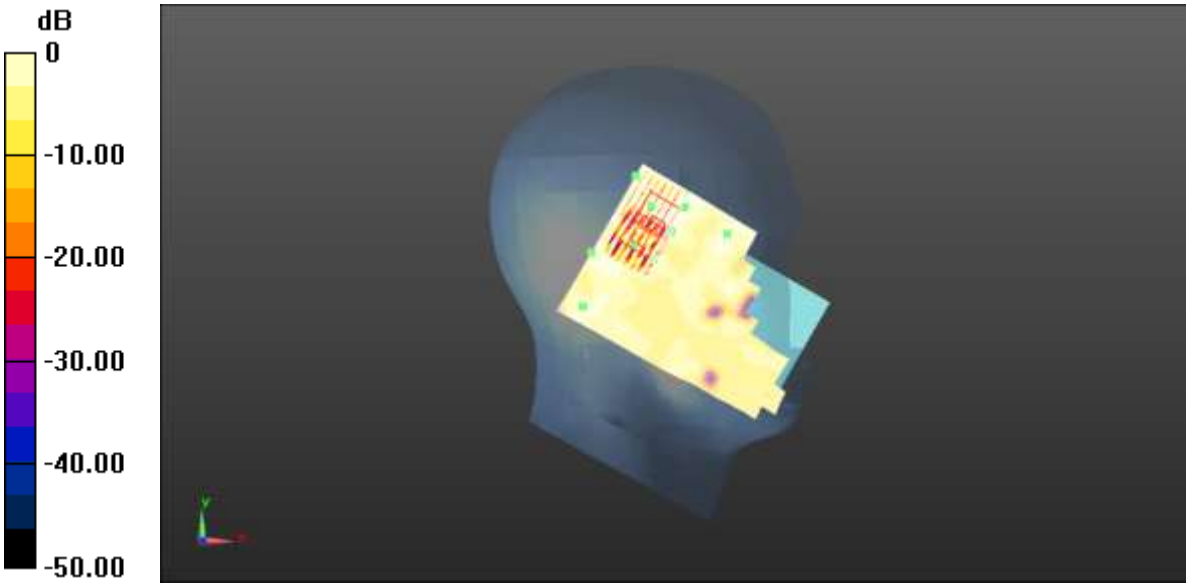
Date/Time: 01/03/2013 14:53:41
Communication System: 802.11b/g/n 2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2437 MHz; Communication System PAR: 1.872 dB
Medium parameters used: f = 2437 MHz; σ = 1.781 mho/m; ε_r = 37.848; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE1528/OET65c)
DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.45, 4.45, 4.45); Calibrated: 31/08/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 03/09/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

left/tilt mid/Area Scan (111x181x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.0120 mW/g

left/tilt mid/Zoom Scan (8x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.853 V/m; Power Drift = 0.23 dB
Peak SAR (extrapolated) = 0.019 mW/g
SAR(1 g) = 0.00975 mW/g; SAR(10 g) = 0.00601 mW/g
Maximum value of SAR (measured) = 0.0135 mW/g

left/tilt mid/Zoom Scan (8x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.853 V/m; Power Drift = 0.23 dB
Peak SAR (extrapolated) = 0.032 mW/g
SAR(1 g) = 0.00923 mW/g; SAR(10 g) = 0.00566 mW/g
Maximum value of SAR (measured) = 0.0254 mW/g



0 dB = 0.0120 mW/g = -38.40 dB mW/g

Wi-Fi 802.11b Data Rate： 1Mbps right touch mid

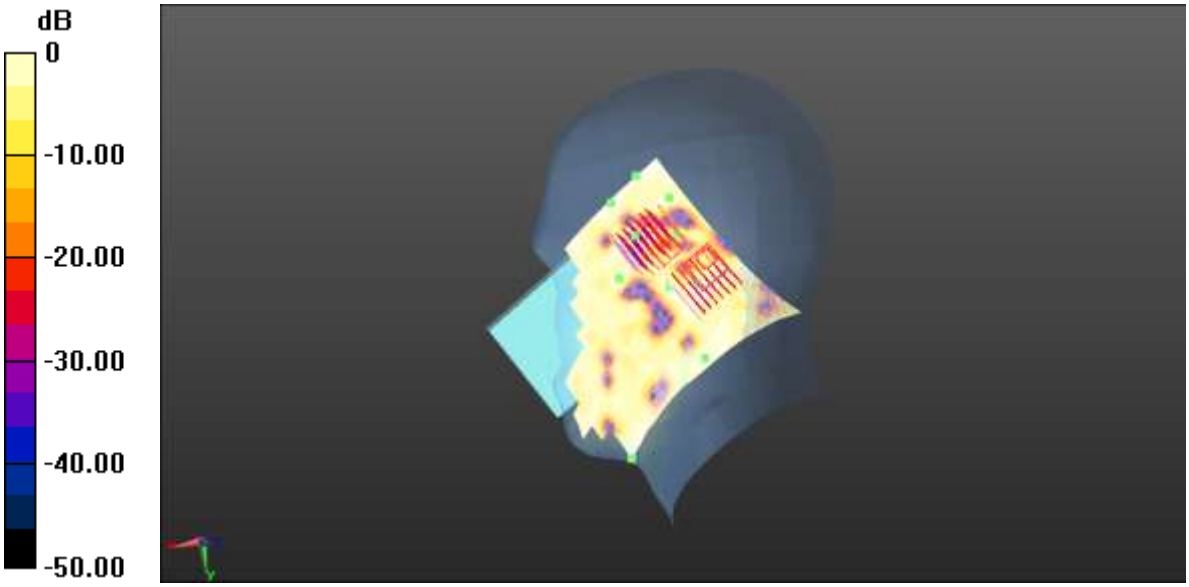
Date/Time: 01/03/2013 17:02:37
Communication System: 802.11b/g/n 2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2437 MHz; Communication System PAR: 1.872 dB
Medium parameters used: f = 2437 MHz; σ = 1.781 mho/m; ε_r = 37.848; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE1528/OET65c)
DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.45, 4.45, 4.45); Calibrated: 31/08/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 03/09/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

right/touch mid/Area Scan (131x181x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.00990 mW/g

right/touch mid/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.570 V/m; Power Drift = 0.60 dB
Peak SAR (extrapolated) = 0.049 mW/g
SAR(1 g) = 0.014 mW/g; SAR(10 g) = 0.00615 mW/g
Maximum value of SAR (measured) = 0.0175 mW/g

right/touch mid/Zoom Scan (8x8x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.570 V/m; Power Drift = 0.60 dB
Peak SAR (extrapolated) = 0.023 mW/g
SAR(1 g) = 0.013 mW/g; SAR(10 g) = 0.00623 mW/g
Maximum value of SAR (measured) = 0.0215 mW/g



0 dB = 0.00990 mW/g = -40.08 dB mW/g

Wi-Fi 802.11b Data Rate： 1Mbps right tilt mid

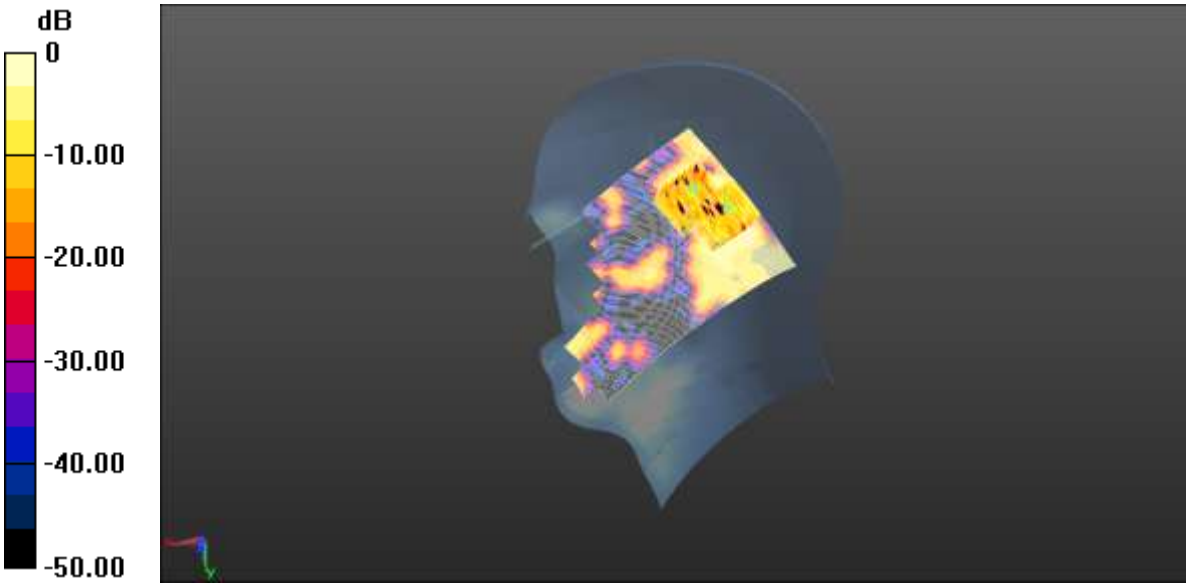
Date/Time: 01/03/2013 16:45:38
Communication System: 802.11b/g/n 2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2437 MHz; Communication System PAR: 1.872 dB
Medium parameters used: f = 2437 MHz; σ = 1.781 mho/m; ε_r = 37.848; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE1528/OET65c)
DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.45, 4.45, 4.45); Calibrated: 31/08/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 03/09/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

right/tilt mid/Area Scan (111x181x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.0127 mW/g

right/tilt mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.165 V/m; Power Drift = 0.50 dB
Peak SAR (extrapolated) = 0.021 mW/g
SAR(1 g) = 0.0055 mW/g; SAR(10 g) = 0.00248 mW/g
Maximum value of SAR (measured) = 0.00699 mW/g

right/tilt mid/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.165 V/m; Power Drift = 0.50 dB
Peak SAR (extrapolated) = 0.022 mW/g
SAR(1 g) = 0.0055 mW/g; SAR(10 g) = 0.00199 mW/g
Maximum value of SAR (measured) = 0.00753 mW/g



0 dB = 0.0127 mW/g = -37.95 dB mW/g

Wi-Fi 802.11b Data Rate： 1Mbps left touch low

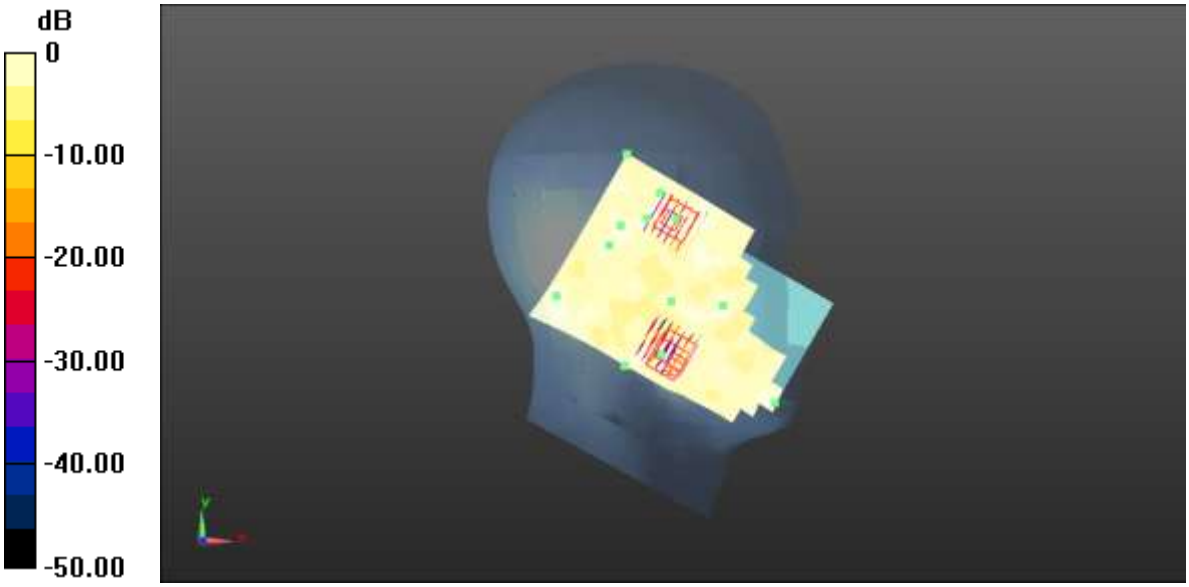
Date/Time: 04/03/2013 12:02:20
Communication System: 802.11b/g/n 2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2412 MHz; Communication System PAR: 1.872 dB
Medium parameters used: f = 2412 MHz; σ = 1.74 mho/m; ε_r = 37.907; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE1528/OET65c)
DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.45, 4.45, 4.45); Calibrated: 31/08/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 03/09/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

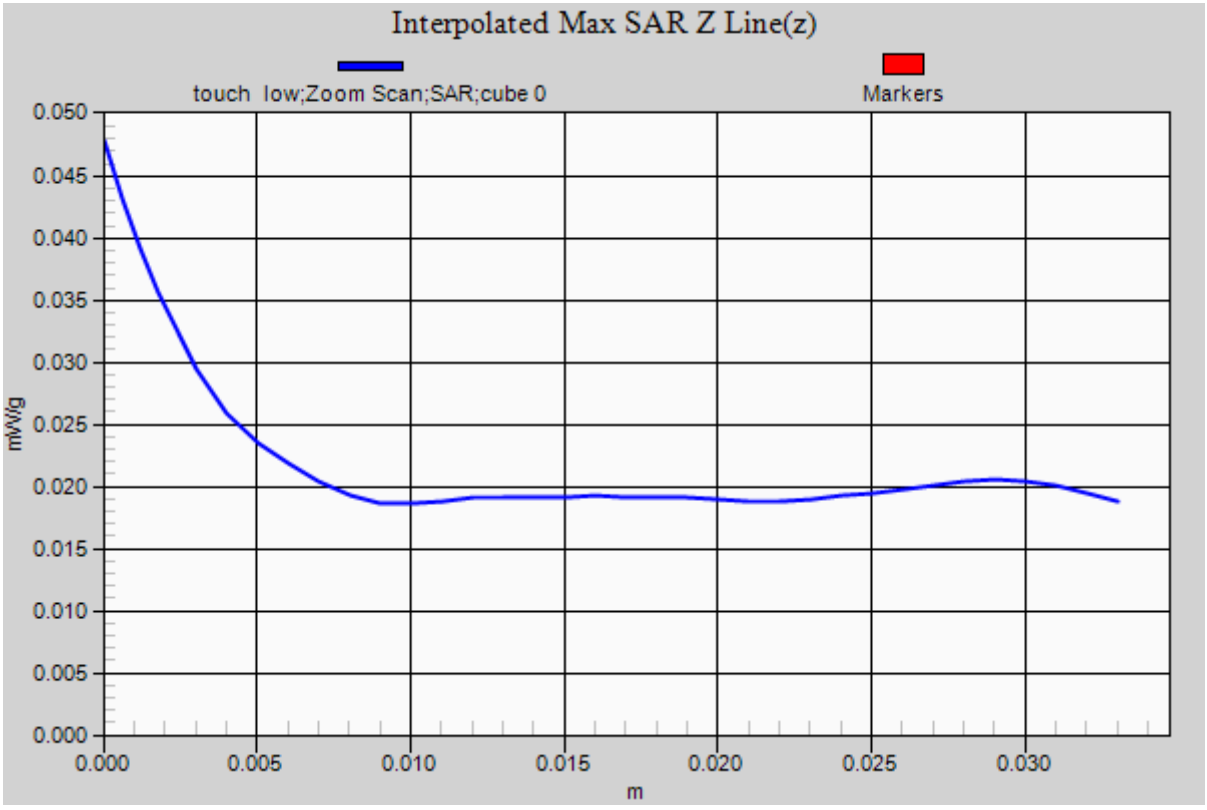
left/touch low/Area Scan (121x191x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.0338 mW/g

left/touch low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.994 V/m; Power Drift = -0.29 dB
Peak SAR (extrapolated) = 0.048 mW/g
SAR(1 g) = 0.028 mW/g; SAR(10 g) = 0.018 mW/g
Maximum value of SAR (measured) = 0.0338 mW/g

left/touch low/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.994 V/m; Power Drift = -0.29 dB
Peak SAR (extrapolated) = 0.036 mW/g
SAR(1 g) = 0.022 mW/g; SAR(10 g) = 0.016 mW/g
Maximum value of SAR (measured) = 0.0349 mW/g



0 dB = 0.0338 mW/g = -29.43 dB mW/g



Wi-Fi 802.11b Data Rate： 1Mbps left touch high

Date/Time: 04/03/2013 13:30:41

Communication System: 802.11b/g/n 2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2462 MHz; Communication System PAR: 1.872 dB

Medium parameters used: f = 2462 MHz; σ = 1.789 mho/m; ε_r = 37.883; ρ = 1000 kg/m^3

Phantom section: Left Section

Measurement Standard: DASY5 (IEEE1528/OET65c)

DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.45, 4.45, 4.45); Calibrated: 31/08/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 03/09/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

left/touch high/Area Scan (131x191x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.0277 mW/g

left/touch high/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 2.753 V/m; Power Drift = 0.60 dB

Peak SAR (extrapolated) = 0.049 mW/g

SAR(1 g) = 0.022 mW/g; SAR(10 g) = 0.016 mW/g

Maximum value of SAR (measured) = 0.0316 mW/g

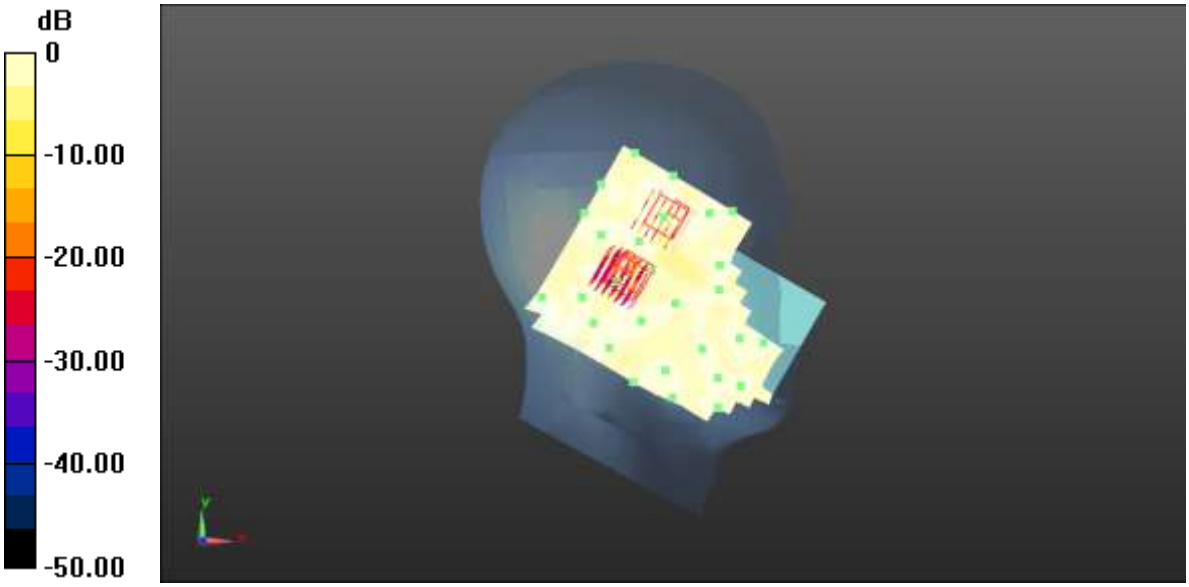
left/touch high/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 2.753 V/m; Power Drift = 0.60 dB

Peak SAR (extrapolated) = 0.037 mW/g

SAR(1 g) = 0.017 mW/g; SAR(10 g) = 0.013 mW/g

Maximum value of SAR (measured) = 0.0338 mW/g



0 dB = 0.0277 mW/g = -31.16 dB mW/g

Wi-Fi 802.11g Data Rate： 6Mbps left touch low

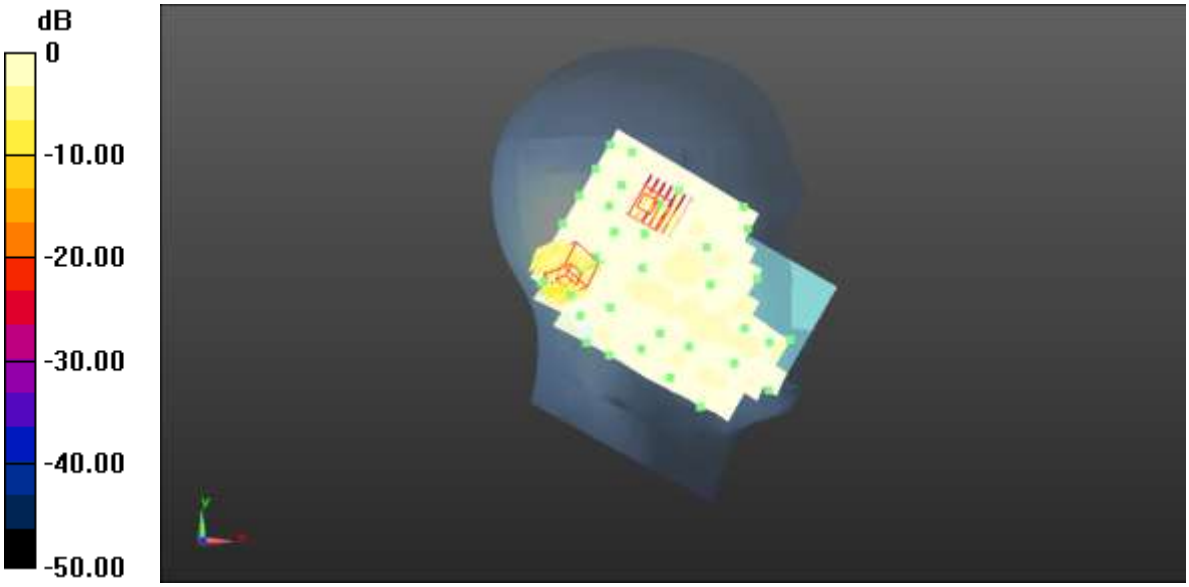
Date/Time: 04/03/2013 16:00:24
Communication System: 802.11b/g/n 2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2412 MHz; Communication System PAR: 1.872 dB
Medium parameters used: f = 2412 MHz; σ = 1.74 mho/m; ε_r = 37.907; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE1528/OET65c)
DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.45, 4.45, 4.45); Calibrated: 31/08/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 03/09/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

left/touch low with g/Area Scan (131x201x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.0104 mW/g

left/touch low with g/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.098 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.028 mW/g
SAR(1 g) = 0.011 mW/g; SAR(10 g) = 0.00755 mW/g
Maximum value of SAR (measured) = 0.0283 mW/g

left/touch low with g/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.098 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.016 mW/g
SAR(1 g) = 0.00933 mW/g; SAR(10 g) = 0.00731 mW/g
Maximum value of SAR (measured) = 0.0114 mW/g



0 dB = 0.0104 mW/g = -39.62 dB mW/g

Wi-Fi 802.11n Data Rate： 6.5Mbps left touch low

Date/Time: 04/03/2013 15:00:39
Communication System: 802.11b/g/n 2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2412 MHz; Communication System PAR: 1.872 dB
Medium parameters used: f = 2412 MHz; σ = 1.74 mho/m; ε_r = 37.907; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE1528/OET65c)
DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.45, 4.45, 4.45); Calibrated: 31/08/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 03/09/2012
- Phantom: SAM 1; Type: SAM; Serial: TP:1702
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

left/touch low with n/Area Scan (131x201x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.0172 mW/g

left/touch low with n/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.665 V/m; Power Drift = 0.25 dB
Peak SAR (extrapolated) = 0.027 mW/g
SAR(1 g) = 0.00941 mW/g; SAR(10 g) = 0.00817 mW/g
Maximum value of SAR (measured) = 0.0237 mW/g

left/touch low with n/Zoom Scan (8x8x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.665 V/m; Power Drift = 0.25 dB
Peak SAR (extrapolated) = 0.012 mW/g
SAR(1 g) = 0.00838 mW/g; SAR(10 g) = 0.0069 mW/g
Maximum value of SAR (measured) = 0.0107 mW/g

0 dB = 0.0172 mW/g = -35.27 dB mW/g

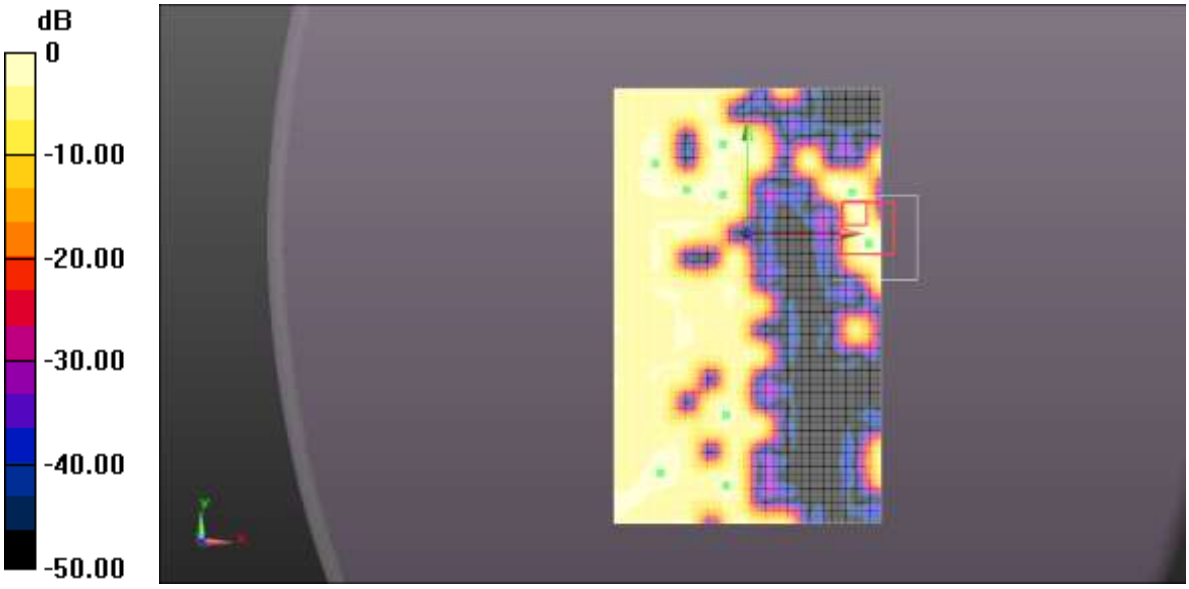
Wi-Fi 802.11b Data Rate： 1Mbps towards phantom mid

Date/Time: 20/03/2013 10:50:56
Communication System: 802.11b/g/n 2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2437 MHz; Communication System PAR: 1.872 dB
Medium parameters used: f = 2437 MHz; σ = 1.906 mho/m; ε_r = 51.957; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE1528/OET65c)
DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.2, 4.2, 4.2); Calibrated: 31/08/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 03/09/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/towards phantom mid/Area Scan (111x181x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.00315 mW/g

body/towards phantom mid/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 0.300 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 0.00831 mW/g
SAR(1 g) = 0.00332 mW/g; SAR(10 g) = 0.00221 mW/g
Maximum value of SAR (measured) = 0.00407 mW/g



0 dB = 0.00315 mW/g = -50.03 dB mW/g

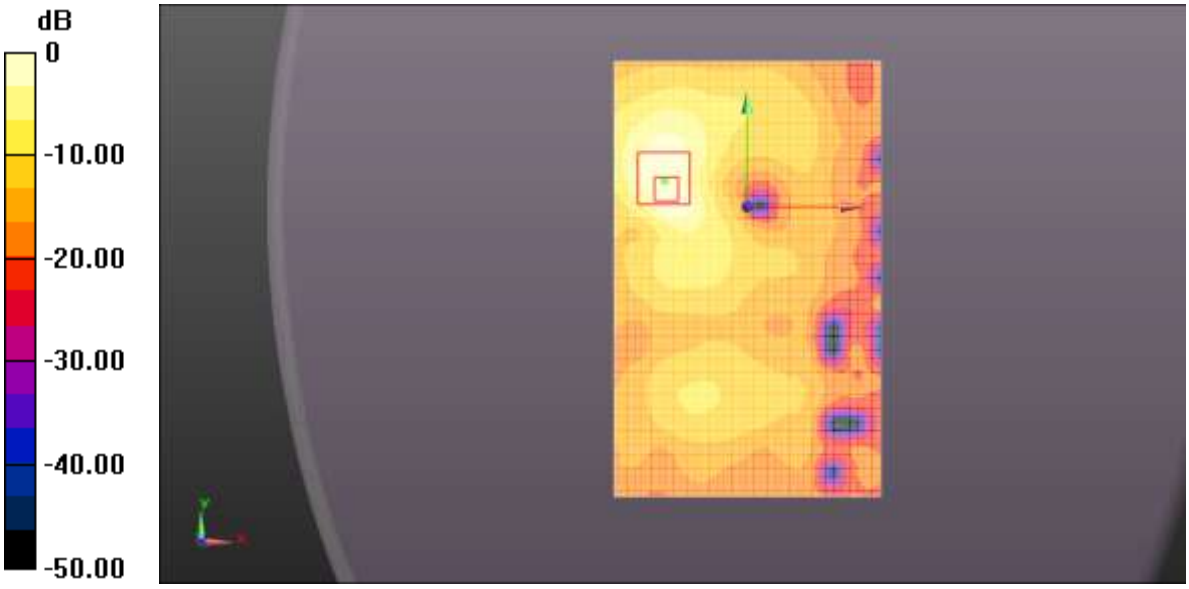
Wi-Fi 802.11b Data Rate： 1Mbps towards ground mid

Date/Time: 20/03/2013 10:00:40
Communication System: 802.11b/g/n 2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2437 MHz; Communication System PAR: 1.872 dB
Medium parameters used: f = 2437 MHz; σ = 1.906 mho/m; ε_r = 51.957; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE1528/OET65c)
DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.2, 4.2, 4.2); Calibrated: 31/08/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 03/09/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/towards ground mid/Area Scan (111x181x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.0876 mW/g

body/towards ground mid/Zoom Scan (8x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.024 V/m; Power Drift = -0.29 dB
Peak SAR (extrapolated) = 0.165 mW/g
SAR(1 g) = 0.069 mW/g; SAR(10 g) = 0.030 mW/g
Maximum value of SAR (measured) = 0.0937 mW/g



0 dB = 0.0876 mW/g = -21.15 dB mW/g

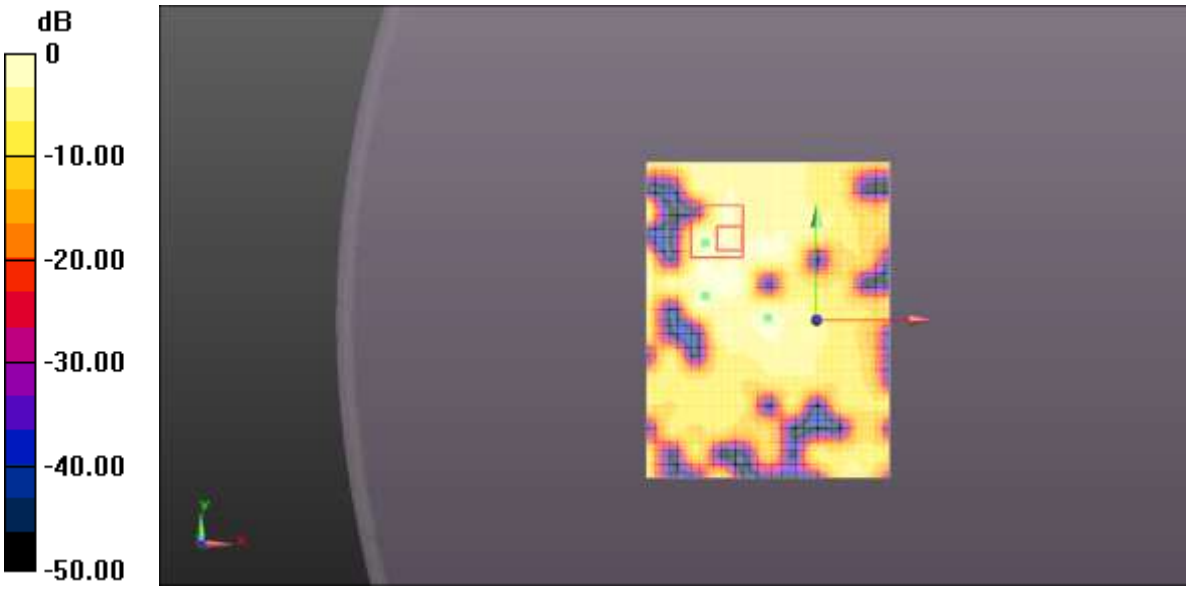
Wi-Fi 802.11b Data Rate： 1Mbps back mid

Date/Time: 20/03/2013 13:27:29
Communication System: 802.11b/g/n 2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2437 MHz; Communication System PAR: 1.872 dB
Medium parameters used: f = 2437 MHz; σ = 1.906 mho/m; ε_r = 51.957; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE1528/OET65c)
DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.2, 4.2, 4.2); Calibrated: 31/08/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 03/09/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/back mid/Area Scan (101x131x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.00725 mW/g

body/back mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 0.677 V/m; Power Drift = -0.30 dB
Peak SAR (extrapolated) = 0.016 mW/g
SAR(1 g) = 0.00286 mW/g; SAR(10 g) = 0.00101 mW/g
Maximum value of SAR (measured) = 0.00471 mW/g



0 dB = 0.00725 mW/g = -42.80 dB mW/g

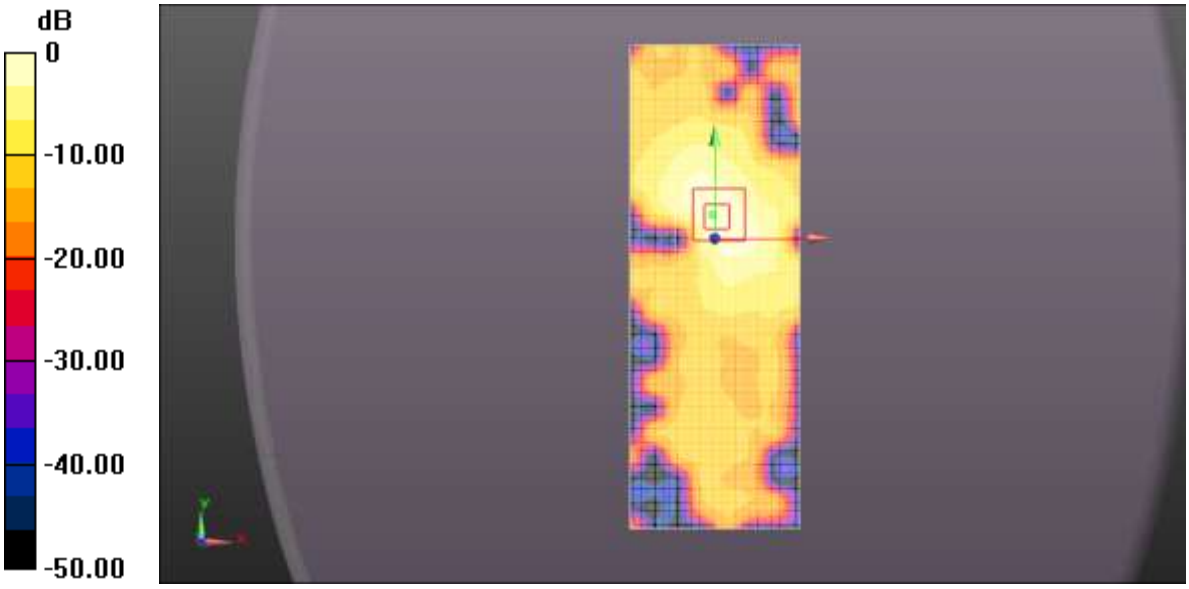
Wi-Fi 802.11b Data Rate： 1Mbps right side mid

Date/Time: 20/03/2013 11:48:58
Communication System: 802.11b/g/n 2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2437 MHz; Communication System PAR: 1.872 dB
Medium parameters used: f = 2437 MHz; σ = 1.906 mho/m; ε_r = 51.957; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE1528/OET65c)
DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.2, 4.2, 4.2); Calibrated: 31/08/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 03/09/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body2/right side mid/Area Scan (71x201x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.0213 mW/g

body2/right side mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.708 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.033 mW/g
SAR(1 g) = 0.015 mW/g; SAR(10 g) = 0.00769 mW/g
Maximum value of SAR (measured) = 0.0189 mW/g



0 dB = 0.0213 mW/g = -33.44 dB mW/g

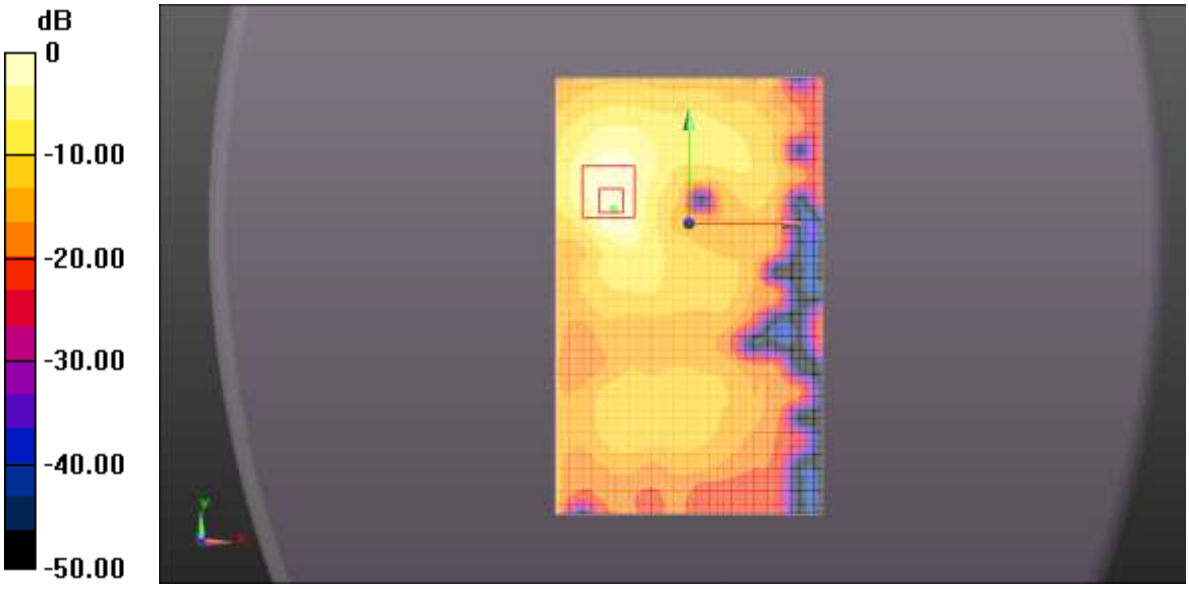
Wi-Fi 802.11b Data Rate： 1Mbps towards ground low

Date/Time: 20/03/2013 14:06:14
Communication System: 802.11b/g/n 2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2412 MHz; Communication System PAR: 1.872 dB
Medium parameters used: f = 2412 MHz; σ = 1.874 mho/m; ε_r = 51.963; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE1528/OET65c)
DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.2, 4.2, 4.2); Calibrated: 31/08/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 03/09/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/towards ground low/Area Scan (111x181x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.0744 mW/g

body/towards ground low/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.071 V/m; Power Drift = 0.59 dB
Peak SAR (extrapolated) = 0.123 mW/g
SAR(1 g) = 0.056 mW/g; SAR(10 g) = 0.027 mW/g
Maximum value of SAR (measured) = 0.0748 mW/g



0 dB = 0.0744 mW/g = -22.57 dB mW/g

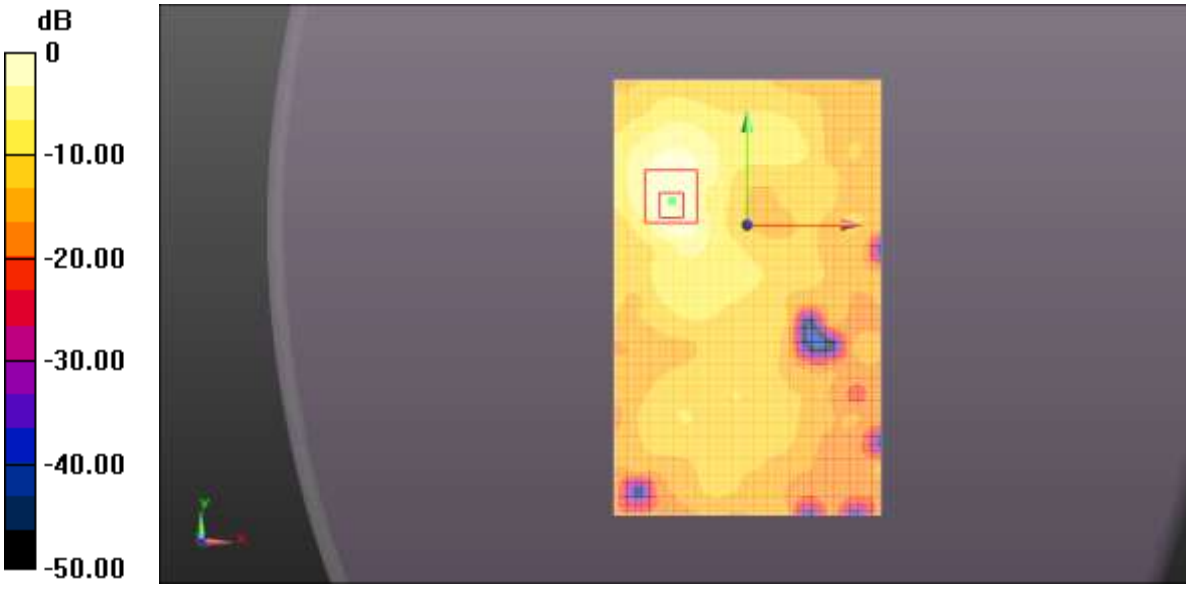
Wi-Fi 802.11b Data Rate： 1Mbps towards ground high

Date/Time: 20/03/2013 14:51:34
Communication System: 802.11b/g/n 2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2462 MHz; Communication System PAR: 1.872 dB
Medium parameters used: f = 2462 MHz; σ = 1.934 mho/m; ε_r = 51.886; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE1528/OET65c)
DASY5 Configuration:

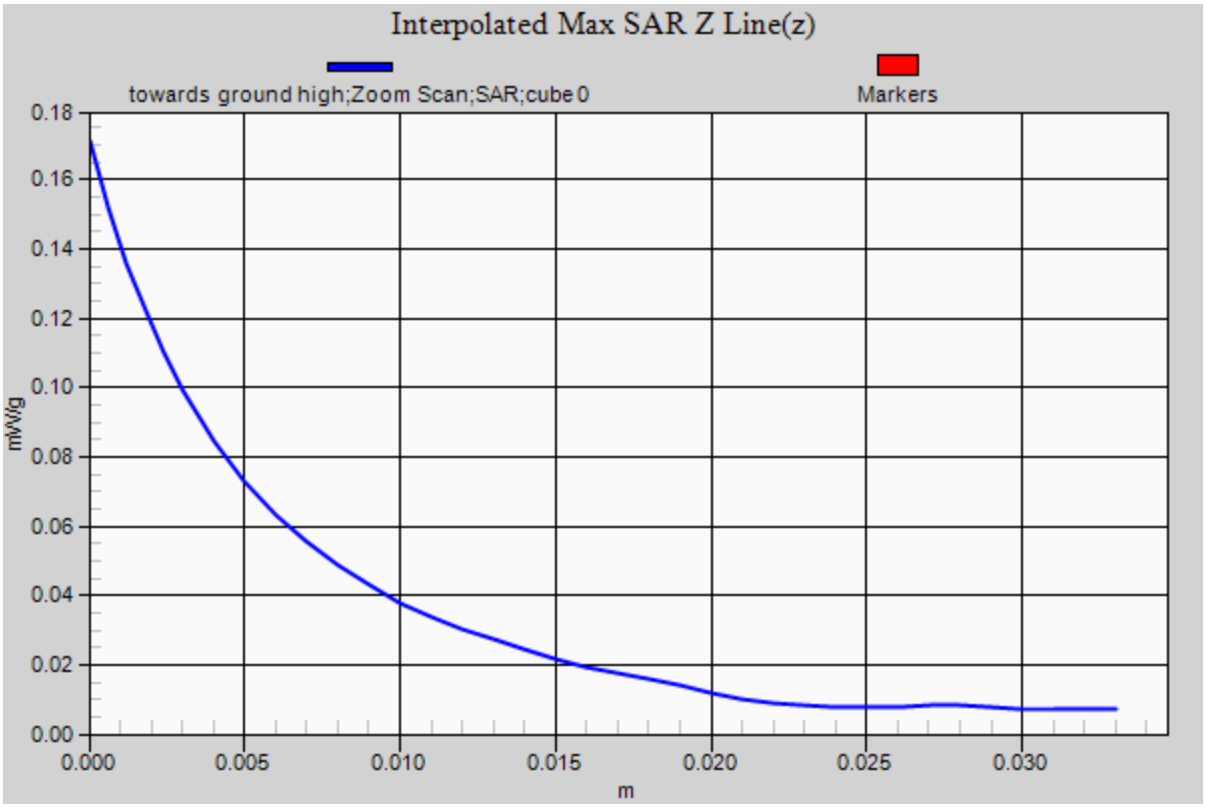
- Probe: ES3DV3 - SN3241; ConvF(4.2, 4.2, 4.2); Calibrated: 31/08/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 03/09/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/towards ground high/Area Scan (111x181x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.0956 mW/g

body/towards ground high/Zoom Scan (8x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.602 V/m; Power Drift = 0.47 dB
Peak SAR (extrapolated) = 0.171 mW/g
SAR(1 g) = 0.074 mW/g; SAR(10 g) = 0.035 mW/g
Maximum value of SAR (measured) = 0.0976 mW/g



0 dB = 0.0956 mW/g = -20.39 dB mW/g


Interpolated Max SAR Z Line(z)
towards ground high;Zoom Scan;SAR;cube 0
Markers
0.18
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
mW/g
0.000
0.005
0.010
0.015
0.020
0.025
0.030
m

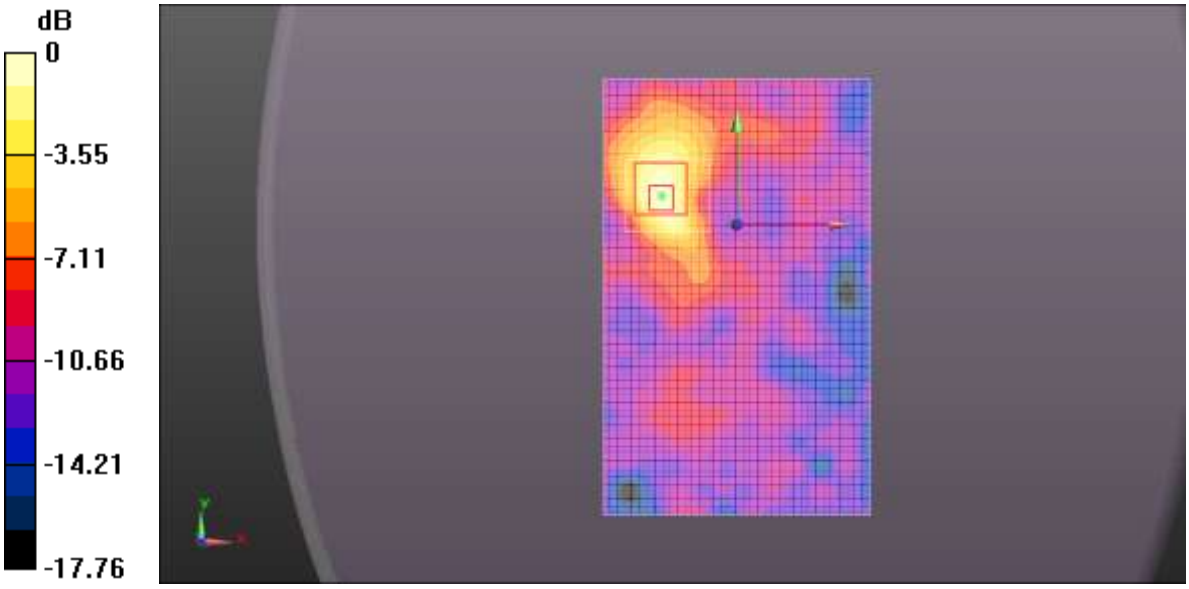
Wi-Fi 802.11g Data Rate： 6Mbps towards ground high

Date/Time: 20/03/2013 15:38:56
Communication System: 802.11b/g/n 2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2462 MHz; Communication System PAR: 1.872 dB
Medium parameters used: f = 2462 MHz; σ = 1.934 mho/m; ε_r = 51.886; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE1528/OET65c)
DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.2, 4.2, 4.2); Calibrated: 31/08/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 03/09/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/towards ground high with g/Area Scan (111x181x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.0470 mW/g

body/towards ground high with g/Zoom Scan (8x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 0.761 V/m; Power Drift = 0.77 dB
Peak SAR (extrapolated) = 0.078 mW/g
SAR(1 g) = 0.033 mW/g; SAR(10 g) = 0.017 mW/g
Maximum value of SAR (measured) = 0.0428 mW/g



0 dB = 0.0470 mW/g = -26.56 dB mW/g

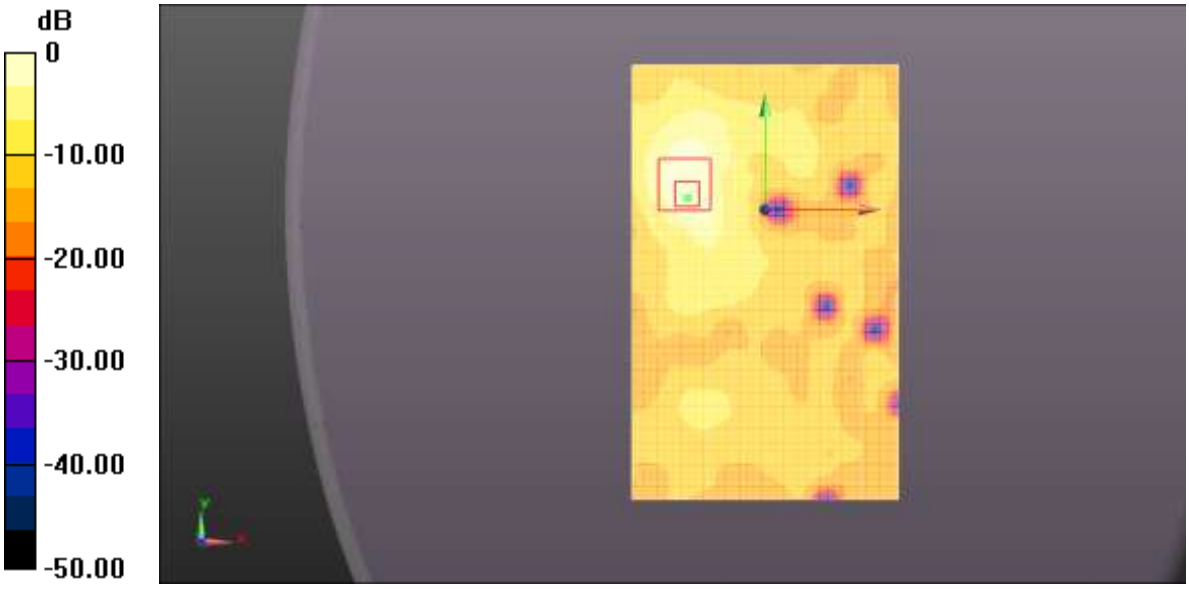
Wi-Fi 802.11n Data Rate： 6.5Mbps towards ground high

Date/Time: 20/03/2013 16:26:49
Communication System: 802.11b/g/n 2.45GHz; Communication System Band: 2400-2483.5; Frequency: 2462 MHz; Communication System PAR: 1.872 dB
Medium parameters used: f = 2462 MHz; σ = 1.934 mho/m; ε_r = 51.886; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE1528/OET65c)
DASY5 Configuration:

- Probe: ES3DV3 - SN3241; ConvF(4.2, 4.2, 4.2); Calibrated: 31/08/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1226; Calibrated: 03/09/2012
- Phantom: ELI v4.0; Type: ELI4; Serial: TP:1086
- Measurement SW: DASY52, Version 52.8 (2); SEMCAD X Version 14.6.6 (6477)

body/towards ground high with n/Area Scan (111x181x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.0467 mW/g

body/towards ground high with n/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.332 V/m; Power Drift = 0.78 dB
Peak SAR (extrapolated) = 0.090 mW/g
SAR(1 g) = 0.038 mW/g; SAR(10 g) = 0.019 mW/g
Maximum value of SAR (measured) = 0.0513 mW/g



0 dB = 0.0467 mW/g = -26.61 dB mW/g

ANNEX B: Calibration Certificate

Annex B.1 Probe Calibration Certificate

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 Tejet (Auden)

Certificate No: ES3-3297_Apr12

CALIBRATION CERTIFICATE

Object ES3DV3 - SN:3297

Calibration procedure(s) QA CAL-01.v8, QA CAL-23.v4, QA CAL-25.v4
Calibration procedure for dosimetric E-field probes

Calibration date: April 10, 2012

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
Power meter E4419B	GB41293874	29-Mar-12 (No. 217-01508)	Apr-13
Power sensor E4412A	MY41498087	29-Mar-12 (No. 217-01508)	Apr-13
Reference 3 dB Attenuator	SN: S5054 (3c)	27-Mar-12 (No. 217-01531)	Apr-13
Reference 20 dB Attenuator	SN: S5086 (20b)	27-Mar-12 (No. 217-01529)	Apr-13
Reference 30 dB Attenuator	SN: S5129 (30b)	27-Mar-12 (No. 217-01532)	Apr-13
Reference Probe ES3DV2	SN: 3013	29-Dec-11 (No. ES3-3013_Dec11)	Dec-12
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 Apr-11)	In house check: Apr-13
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-11)	In house check: Oct-12

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: April 10, 2012

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
NORMx,y,z	sensitivity in free space
ConvF	sensitivity in TSL / NORMx,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., ϑ = 0 is normal to probe axis

Calibration is Performed According to the Following Standards:

a) 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
b) 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:

- *NORMx,y,z:* Assessed for E-field polarization ϑ = 0 (f ≤ 900 MHz in TEM-cell; f > 1800 MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not affect the E^2-field uncertainty inside TSL (see below *ConvF*).
- *NORM(f)x,y,z = NORMx,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*.
- *DCPx,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
- *Ax,y,z; Bx,y,z; Cx,y,z; VRx,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 ≤ 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 *NORMx,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:3297

Manufactured: July 6, 2010
Calibrated: April 10, 2012

Calibrated for DASY/EASY Systems
(Note: non-compatible with DASY2 system!)

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3297

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	1.16	1.08	1.16	± 10.1 %
DCP (mV)[B]	103.8	109.8	104.8	

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	109.5	±2.7 %
			Y	0.00	0.00	1.00	107.5	
			Z	0.00	0.00	1.00	111.6	

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:3297

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)
750	41.9	0.89	6.62	6.62	6.62	0.80	1.12	± 12.0 %
835	41.5	0.90	6.36	6.36	6.36	0.31	1.83	± 12.0 %
900	41.5	0.97	6.24	6.24	6.24	0.35	1.75	± 12.0 %
1750	40.1	1.37	5.73	5.73	5.73	0.80	1.18	± 12.0 %
1950	40.0	1.40	5.10	5.10	5.10	0.80	1.22	± 12.0 %
2450	39.2	1.80	4.59	4.59	4.59	0.80	1.25	± 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:3297

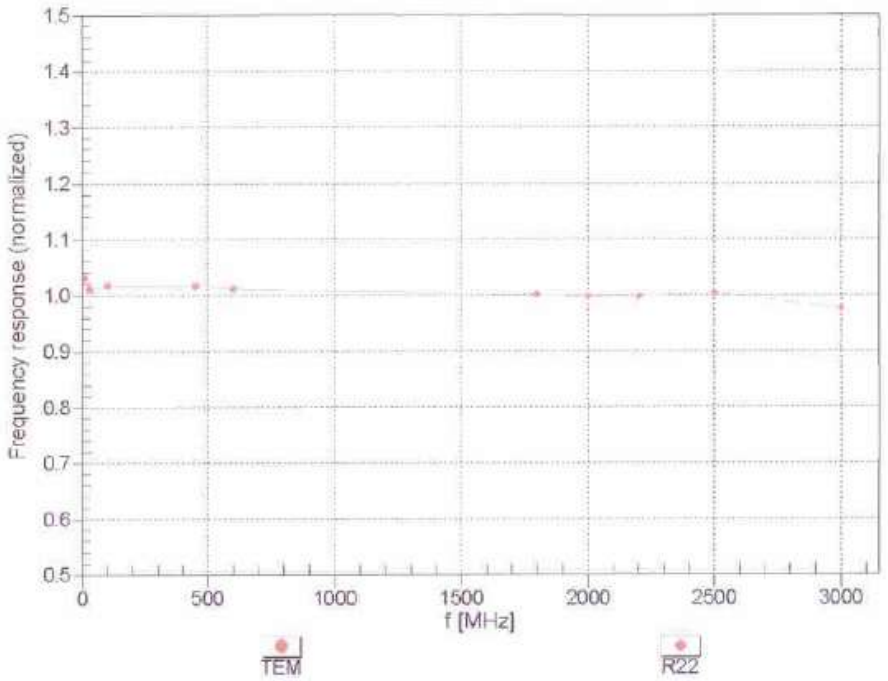
Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
750	55.5	0.96	6.33	6.33	6.33	0.25	2.18	± 12.0 %
835	55.2	0.97	6.24	6.24	6.24	0.52	1.48	± 12.0 %
900	55.0	1.05	6.21	6.21	6.21	0.57	1.39	± 12.0 %
1750	53.4	1.49	5.02	5.02	5.02	0.47	1.71	± 12.0 %
1950	53.3	1.52	4.88	4.88	4.88	0.71	1.37	± 12.0 %
2450	52.7	1.95	4.34	4.34	4.34	0.80	1.03	± 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.

ES3DV3– SN:3297 April 10, 2012

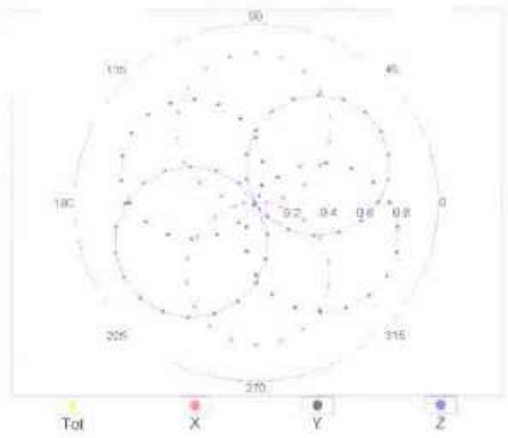
Frequency Response of E-Field
(TEM-Cell:ifi110 EXX, Waveguide: R22)



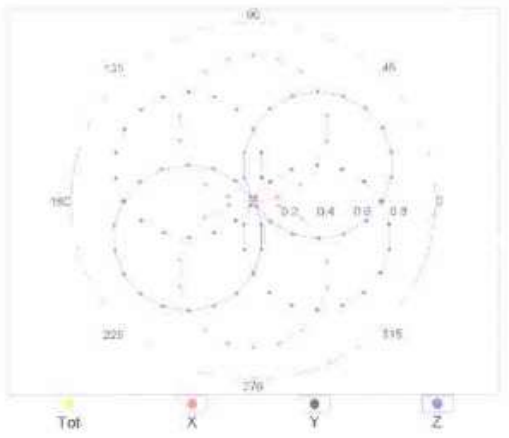
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

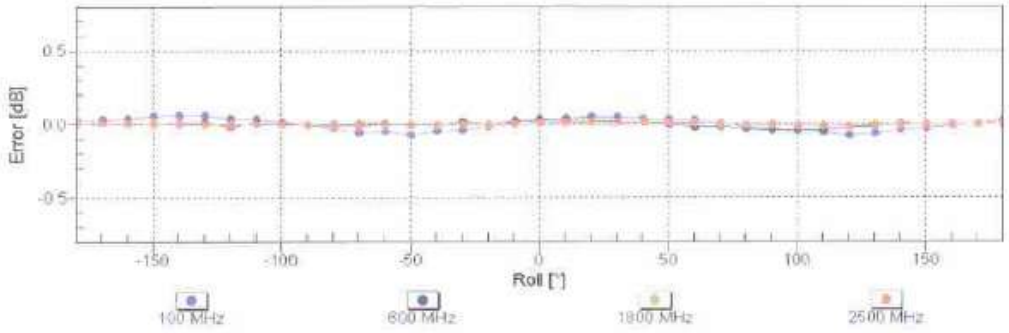
Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM



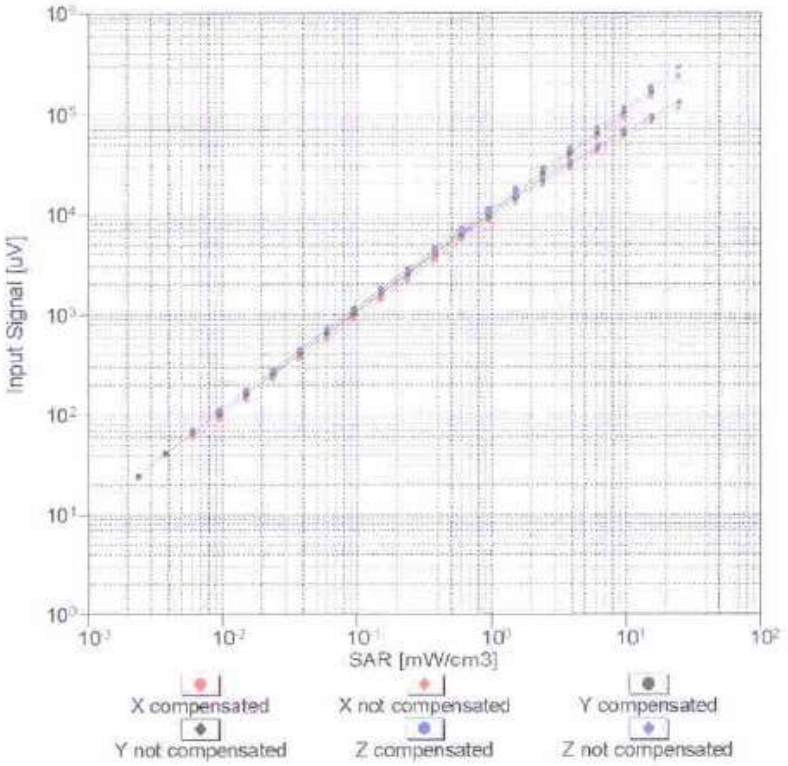
f=1800 MHz,R22

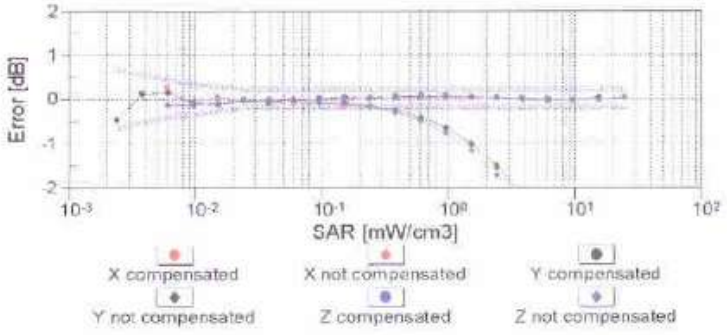




Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

Dynamic Range f(SAR$_{head}$)
(TEM cell , f = 900 MHz)

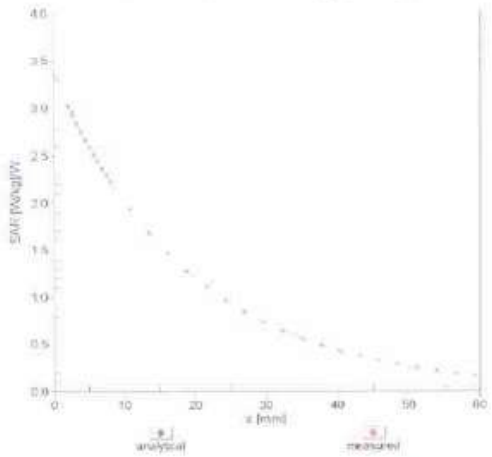




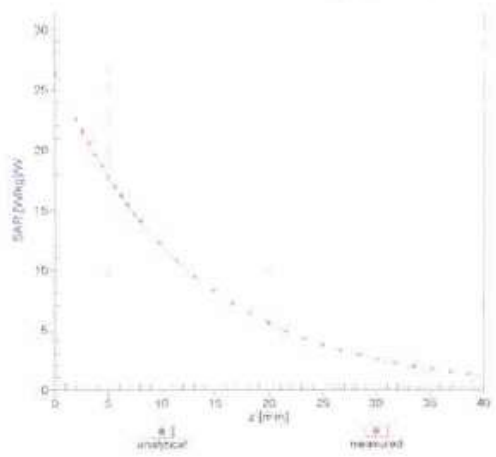
Uncertainty of Linearity Assessment: ± 0.6% (k=2)

Conversion Factor Assessment

f = 835 MHz,WGLS R9 (H_convF)

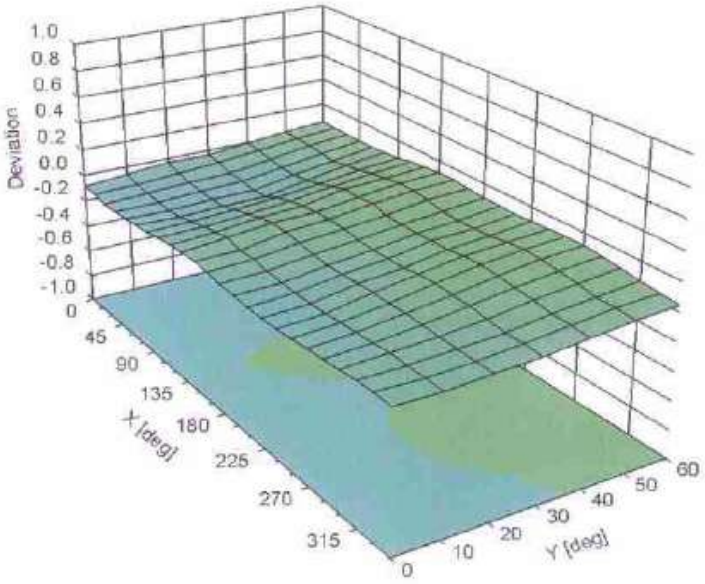


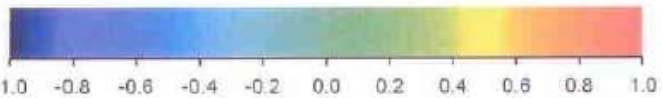
f = 1750 MHz,WGLS R22 (H_convF)



Deviation from Isotropy in Liquid

Error (ϕ, ϑ), f = 900 MHz





Uncertainty of Spherical Isotropy Assessment: ± 2.6% (k=2)

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3297

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

Calibration Laboratory of
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Engineering AG
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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 **Tejet-SH (Auden)**

Certificate No: ES3-3241_Aug12

CALIBRATION CERTIFICATE

Object ES3DV3 - SN:3241

Calibration procedure(s) QA CAL-01.v8, QA CAL-23.v4, QA CAL-25.v4
Calibration procedure for dosimetric E-field probes

Calibration date: August 31, 2012

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
Power meter E4419B	GB41293874	29-Mar-12 (No. 217-01508)	Apr-13
Power sensor E4412A	MY41498087	29-Mar-12 (No. 217-01508)	Apr-13
Reference 3 dB Attenuator	SN: S5054 (3c)	27-Mar-12 (No. 217-01531)	Apr-13
Reference 20 dB Attenuator	SN: S5086 (20b)	27-Mar-12 (No. 217-01529)	Apr-13
Reference 30 dB Attenuator	SN: S5129 (30b)	27-Mar-12 (No. 217-01532)	Apr-13
Reference Probe ES3DV2	SN: 3013	29-Dec-11 (No. ES3-3013_Dec11)	Dec-12
DAE4	SN: 660	20-Jun-12 (No. DAE4-660_Jun12)	Jun-13
Secondary Standards	ID	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Apr-11)	In house check: Apr-13
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-11)	In house check: Oct-12

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: September 3, 2012

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

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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
NORMx,y,z	sensitivity in free space
ConvF	sensitivity in TSL / NORMx,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., ϑ = 0 is normal to probe axis

Calibration is Performed According to the Following Standards:

a) 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
b) 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:

- *NORMx,y,z:* Assessed for E-field polarization ϑ = 0 (f ≤ 900 MHz in TEM-cell; f > 1800 MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not affect the E^2-field uncertainty inside TSL (see below *ConvF*).
- *NORM(f)x,y,z = NORMx,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*.
- *DCPx,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
- *Ax,y,z; Bx,y,z; Cx,y,z, VRx,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 ≤ 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 *NORMx,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:3241

Manufactured: May 5, 2009
Calibrated: August 31, 2012

Calibrated for DASY/EASY Systems
(Note: non-compatible with DASY2 system!)

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3241

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	1.17	0.86	1.04	± 10.1 %
DCP (mV)[B]	103.8	105.4	104.3	

Modulation Calibration Parameters

UID	Communication System Name	PAR		A dB	B dB	C dB	VR mV	Unc[E] (k=2)
0	CW	0.00	X	0.00	0.00	1.00	151.6	±3.3 %
			Y	0.00	0.00	1.00	128.8	
			Z	0.00	0.00	1.00	140.7	

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:3241

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	6.21	6.21	6.21	0.63	1.30	± 12.0 %
900	41.5	0.97	6.14	6.14	6.14	0.35	1.71	± 12.0 %
1750	40.1	1.37	5.33	5.33	5.33	0.49	1.44	± 12.0 %
1810	40.0	1.40	5.18	5.18	5.18	0.77	1.20	± 12.0 %
1900	40.0	1.40	5.12	5.12	5.12	0.64	1.27	± 12.0 %
2000	40.0	1.40	5.05	5.05	5.05	0.80	1.19	± 12.0 %
2450	39.2	1.80	4.45	4.45	4.45	0.65	1.39	± 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:3241

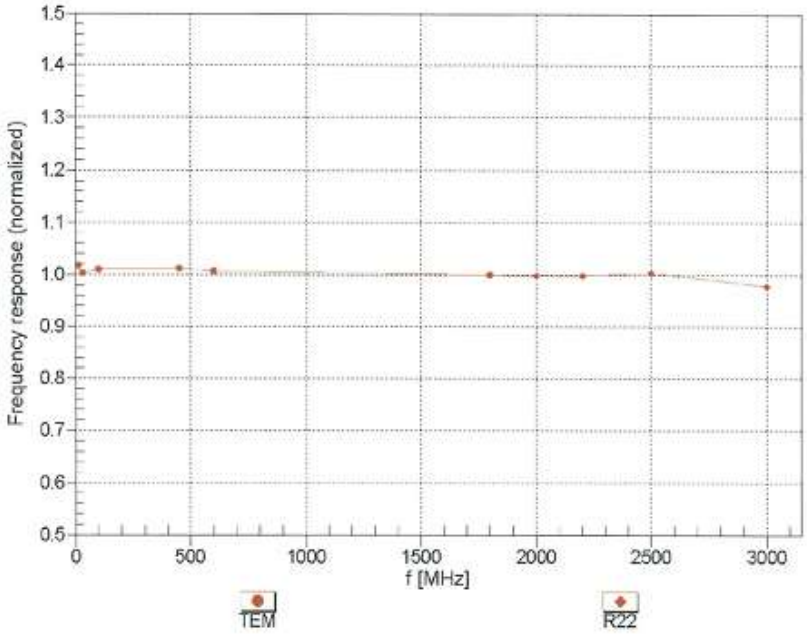
Calibration Parameter Determined in Body Tissue Simulating Media

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	6.25	6.25	6.25	0.44	1.54	± 12.0 %
900	55.0	1.05	6.19	6.19	6.19	0.80	1.13	± 12.0 %
1750	53.4	1.49	5.05	5.05	5.05	0.48	1.69	± 12.0 %
1810	53.3	1.52	4.86	4.86	4.86	0.64	1.42	± 12.0 %
1900	53.3	1.52	4.66	4.66	4.66	0.51	1.66	± 12.0 %
2000	53.3	1.52	4.70	4.70	4.70	0.51	1.66	± 12.0 %
2450	52.7	1.95	4.20	4.20	4.20	0.74	1.06	± 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.

ES3DV3– SN:3241 August 31, 2012

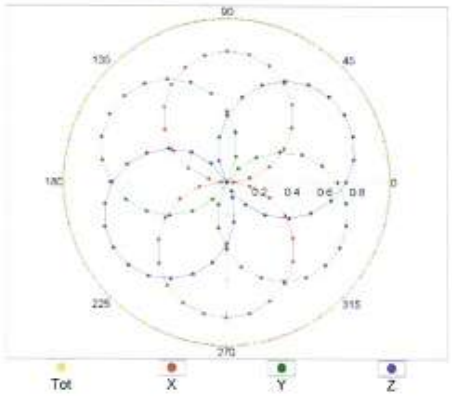
Frequency Response of E-Field
(TEM-Cell:ifi110 EXX, Waveguide: R22)



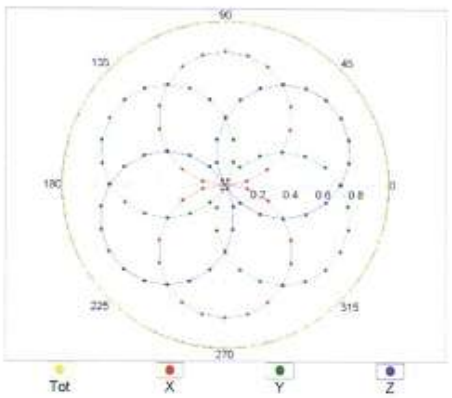
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

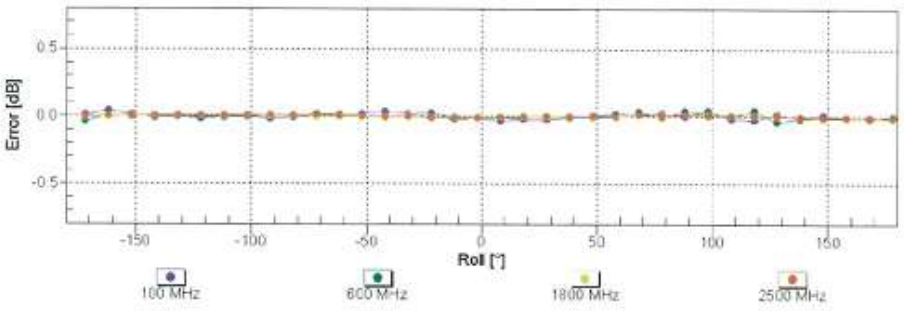
Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM



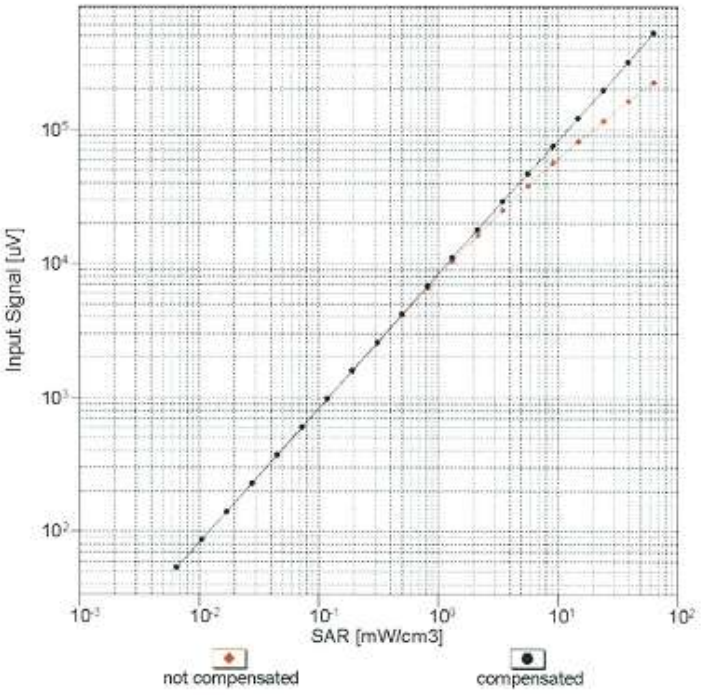
f=1800 MHz,R22

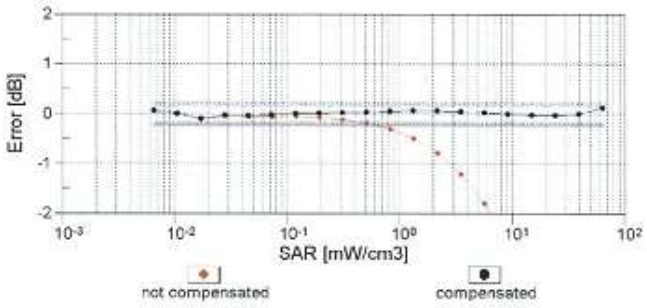




Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

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

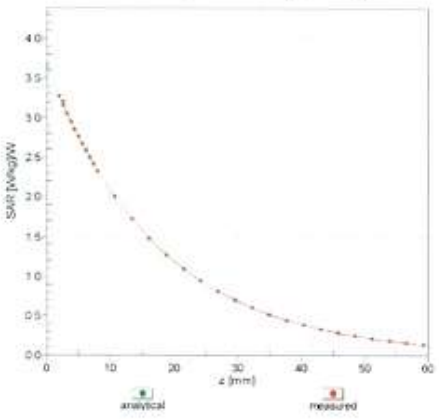




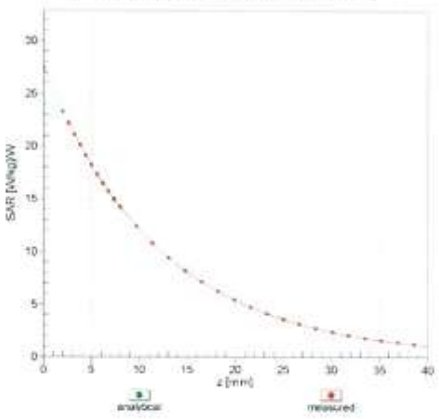
Uncertainty of Linearity Assessment: ± 0.6% (k=2)

Conversion Factor Assessment

f = 900 MHz,WGLS R9 (H_convF)

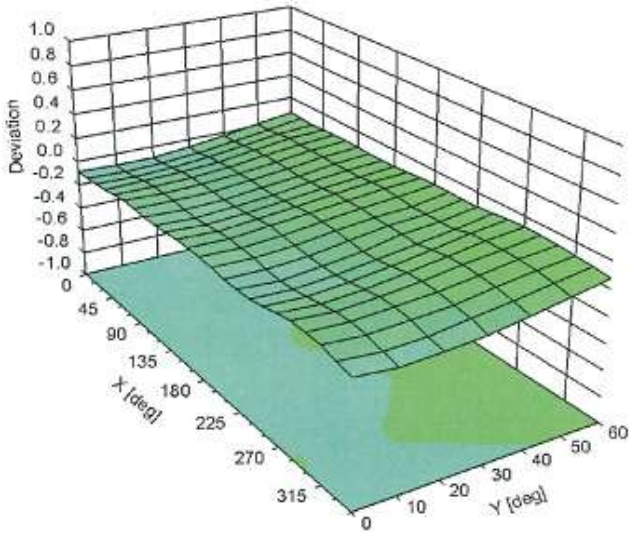


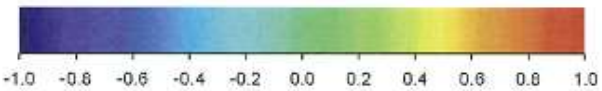
f = 1810 MHz,WGLS R22 (H_convF)



Deviation from Isotropy in Liquid

Error (ϕ, ϑ), f = 900 MHz





Uncertainty of Spherical Isotropy Assessment: ± 2.6% (k=2)

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3241

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	148.1
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

Annex B.2 DAE4 Calibration Certificate

Calibration Laboratory of
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Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

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Accreditation No.: SCS 108

Client: Tejet (Auden)

Certificate No: DAE4-1327_Apr12

CALIBRATION CERTIFICATE

Object	DAE4 - SD 000 D04 BJ - SN: 1327
Calibration procedure(s)	QA CAL-06.v24 Calibration procedure for the data acquisition electronics (DAE)
Calibration date:	April 11, 2012

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-11 (No:11450)	Sep-12
Secondary Standards	**ID #**	**Check Date (in house)**	**Scheduled Check**
Calibrator Box V2.1	SE UWS 053 AA 1001	05-Jan-12 (in house check)	In house check: Jan-13

	Name	Function	Signature
Calibrated by:	Andrea Guntli	Technician	
Approved by:	Fin Bomholt	R&D Director	i.V.

Issued: April 11, 2012

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

Certificate No: DAE4-1327_Apr12 Page 1 of 5

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Zeughausstrasse 43, 8004 Zurich, Switzerland

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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 =	6.1μV ,	full range =	-100...+300 mV
Low Range:	1LSB =	61nV ,	full range =	-1.....+3mV

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Calibration Factors	X	Y	Z
High Range	404.849 ± 0.1% (k=2)	404.696 ± 0.1% (k=2)	404.897 ± 0.1% (k=2)
Low Range	3.99410 ± 0.7% (k=2)	3.99326 ± 0.7% (k=2)	3.99970 ± 0.7% (k=2)

Connector Angle

Connector Angle to be used in DASY system	186.5 ° ± 1 °

Appendix

1. DC Voltage Linearity

High Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	199996.73	2.35	0.00
Channel X	+ Input	20001.32	1.56	0.01
Channel X	- Input	-19998.20	2.53	-0.01
Channel Y	+ Input	199998.58	3.98	0.00
Channel Y	+ Input	19997.38	-2.07	-0.01
Channel Y	- Input	-20001.91	-0.93	0.00
Channel Z	+ Input	199993.82	-0.25	-0.00
Channel Z	+ Input	19998.97	-0.56	-0.00
Channel Z	- Input	-20001.68	-0.52	0.00

Low Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	2001.53	1.29	0.06
Channel X	+ Input	199.90	-0.79	-0.39
Channel X	- Input	-199.12	-0.00	0.00
Channel Y	+ Input	2002.17	2.03	0.10
Channel Y	+ Input	201.07	0.47	0.23
Channel Y	- Input	-200.44	-1.22	0.61
Channel Z	+ Input	2000.26	0.05	0.00
Channel Z	+ Input	199.53	-1.09	-0.54
Channel Z	- Input	-199.89	-0.77	0.39

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	-1.44	-3.17
	- 200	5.42	3.57
Channel Y	200	14.80	14.53
	- 200	-16.24	-16.38
Channel Z	200	-10.48	-10.35
	- 200	8.13	7.97

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	-	-4.80	-1.45
Channel Y	200	8.78	-	-3.61
Channel Z	200	9.48	8.95	-

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	16013	15974
Channel Y	16276	15957
Channel Z	15628	16228

5. Input Offset Measurement

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Input 10MΩ

	Average (μV)	min. Offset (μV)	max. Offset (μV)	Std. Deviation (μV)
Channel X	0.76	-0.80	2.17	0.57
Channel Y	1.11	-0.19	2.66	0.57
Channel Z	-0.96	-2.45	0.94	0.71

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 Tejet - SH (Auden)

Certificate No: DAE4-1226_Sep12

CALIBRATION CERTIFICATE

Object	DAE4 - SD 000 D04 BJ - SN: 1226
Calibration procedure(s)	QA CAL-06.v25 Calibration procedure for the data acquisition electronics (DAE)
Calibration date:	September 03, 2012

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-11 (No:11450)	Sep-12
Secondary Standards	**ID #**	**Check Date (in house)**	**Scheduled Check**
Calibrator Box V2.1	SE UWS 053 AA 1001	05-Jan-12 (in house check)	In house check: Jan-13

	Name	Function	Signature
Calibrated by:	Dominic Steffen	Technician	
Approved by:	Fin Bomholt	R&D Director	

Issued: September 3, 2012

Calibration Laboratory of
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Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

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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 =	6.1μV ,	full range =	-100...+300 mV
Low Range:	1LSB =	61nV ,	full range =	-1.....+3mV

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Calibration Factors	X	Y	Z
High Range	404.563 ± 0.1% (k=2)	404.323 ± 0.1% (k=2)	404.060 ± 0.1% (k=2)
Low Range	3.97790 ± 0.7% (k=2)	4.00200 ± 0.7% (k=2)	3.98452 ± 0.7% (k=2)

Connector Angle

Connector Angle to be used in DASY system	112.5 ° ± 1 °

Appendix

1. DC Voltage Linearity

High Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	199994.13	-3.29	-0.00
Channel X	+ Input	20002.22	1.79	0.01
Channel X	- Input	-20000.19	0.57	-0.00
Channel Y	+ Input	199999.11	1.45	0.00
Channel Y	+ Input	19999.27	-1.16	-0.01
Channel Y	- Input	-20000.21	0.66	-0.00
Channel Z	+ Input	199996.04	-1.66	-0.00
Channel Z	+ Input	20000.92	0.53	0.00
Channel Z	- Input	-20003.29	-2.46	0.01

Low Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	2000.97	0.21	0.01
Channel X	+ Input	200.76	-0.56	-0.28
Channel X	- Input	-198.41	0.28	-0.14
Channel Y	+ Input	2000.82	0.08	0.00
Channel Y	+ Input	200.79	-0.40	-0.20
Channel Y	- Input	-199.07	-0.35	0.18
Channel Z	+ Input	2000.85	0.25	0.01
Channel Z	+ Input	200.61	-0.52	-0.26
Channel Z	- Input	-200.16	-1.36	0.69

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	4.31	2.87
	- 200	-2.40	-4.30
Channel Y	200	-9.84	-9.31
	- 200	8.85	8.15
Channel Z	200	-7.59	-7.99
	- 200	5.93	6.05

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	-	2.88	-3.94
Channel Y	200	7.98	-	4.29
Channel Z	200	9.60	6.52	-

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	16070	16317
Channel Y	15890	16765
Channel Z	15996	15080

5. Input Offset Measurement

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec
Input 10MΩ

	Average (μV)	min. Offset (μV)	max. Offset (μV)	Std. Deviation (μV)
Channel X	0.65	-1.14	2.07	0.52
Channel Y	-0.27	-2.18	0.71	0.45
Channel Z	-0.49	-1.86	0.44	0.42

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

Annex B.3 D835V2 Calibration Certificate

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Accreditation No.: SCS 108

Client: Tejet-SH (Auden)

Certificate No: D835V2-4d100_Aug12

CALIBRATION CERTIFICATE

Object	D835V2 - SN: 4d100
Calibration procedure(s)	QA CAL-05.v8 Calibration procedure for dipole validation kits above 700 MHz
Calibration date:	August 28, 2012

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
Power meter EPM-442A	GB37480704	05-Oct-11 (No. 217-01451)	Oct-12
Power sensor HP 8481A	US37292783	05-Oct-11 (No. 217-01451)	Oct-12
Reference 20 dB Attenuator	SN: 5058 (20k)	27-Mar-12 (No. 217-01530)	Apr-13
Type-N mismatch combination	SN: 5047.2 / 06327	27-Mar-12 (No. 217-01533)	Apr-13
Reference Probe ES3DV3	SN: 3205	30-Dec-11 (No. ES3-3205_Dec11)	Dec-12
DAE4	SN: 601	27-Jun-12 (No. DAE4-601_Jun12)	Jun-13

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8401A	MY41092317	18-Oct-02 (in house check Oct-11)	In house check: Oct-13
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-11)	In house check: Oct-13
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-11)	In house check: Oct-12

	Name	Function	Signature
Calibrated by:	Israa El-Naouq	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: August 28, 2012

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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:

a) 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
b) 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
c) 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:

d) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

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

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

Measurement Conditions

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

DASY Version	DASY5	V52.8.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	835 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	41.5	0.90 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	41.3 ± 6 %	0.90 mho/m ± 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	2.33 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**9.31 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.53 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**6.12 mW /g ± 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	53.2 ± 6 %	1.00 mho/m ± 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	2.46 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**9.54 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.62 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**6.33 mW / g ± 16.5 % (k=2)**

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	53.0 Ω - 1.9 jΩ
Return Loss	- 29.4 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	49.6 Ω - 2.7 jΩ
Return Loss	- 31.4 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.392 ns

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

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	September 15, 2009

DASY5 Validation Report for Head TSL

Date: 28.08.2012

Test Laboratory: SPEAG, Zurich, Switzerland

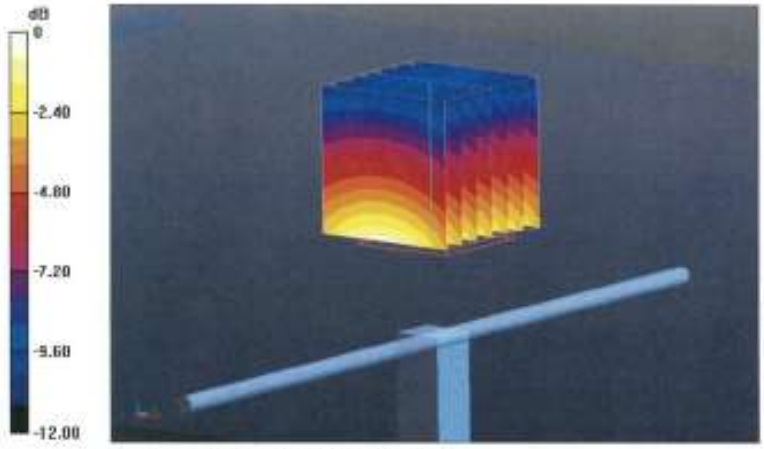
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d100

Communication System: CW; Frequency: 835 MHz
Medium parameters used: f = 835 MHz; σ = 0.9 mho/m; ε_r = 41.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

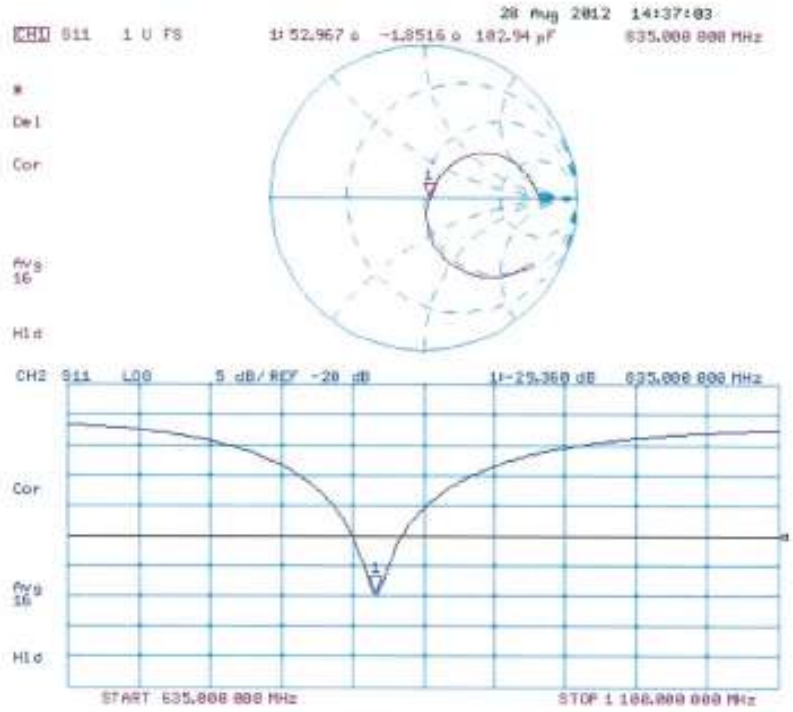
- Probe: ES3DV3 - SN3205; ConvF(6.07, 6.07, 6.07); Calibrated: 30.12.2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 27.06.2012
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.8.2(969); SEMCAD X 14.6.6(6824)

Dipole Calibration for Head Tissue/Pin=250 mW, d=15mm 2/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 56.666 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 3.441 mW/g
SAR(1 g) = 2.33 mW/g; SAR(10 g) = 1.53 mW/g
Maximum value of SAR (measured) = 2.71 W/kg



0 dB = 2.71 W/kg = 8.66 dB W/kg

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 28.08.2012

Test Laboratory: SPEAG, Zurich, Switzerland

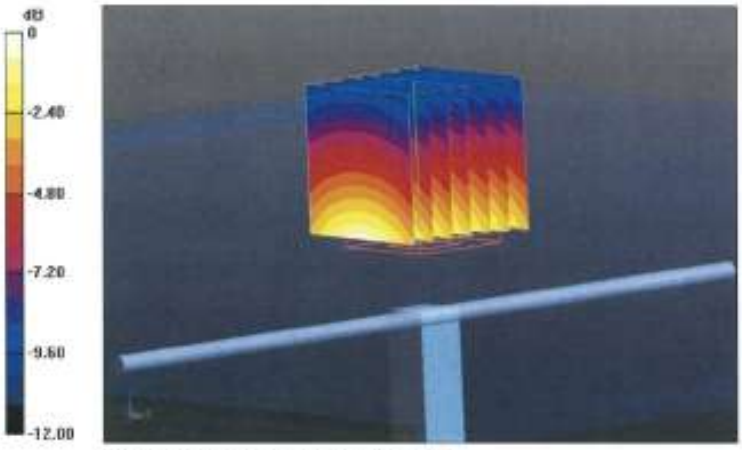
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d100

Communication System: CW; Frequency: 835 MHz
Medium parameters used: f = 835 MHz; σ = 1 mho/m; ε_r = 53.2; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

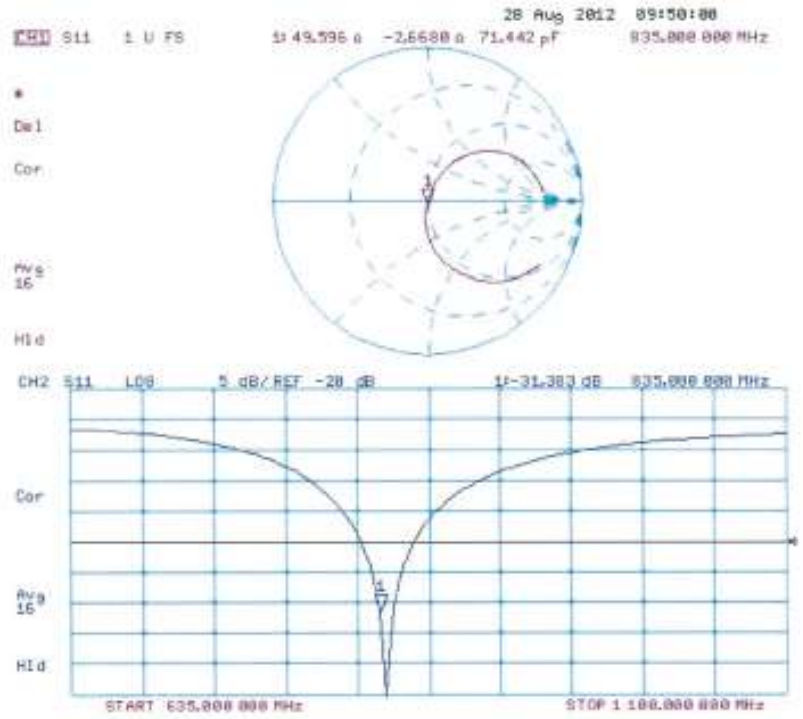
- Probe: ES3DV3 - SN3205; ConvF(6.02, 6.02, 6.02); Calibrated: 30.12.2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 27.06.2012
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.8.2(969); SEMCAD X 14.6.6(6824)

Dipole Calibration for Body Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 55.606 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 3.576 mW/g
SAR(1 g) = 2.46 mW/g; SAR(10 g) = 1.62 mW/g
Maximum value of SAR (measured) = 2.87 W/kg



0 dB = 2.87 W/kg = 9.16 dB W/kg

Impedance Measurement Plot for Body TSL



Annex B.4 D1900V2 Calibration Certificate

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Accreditation No.: SCS 108

Client: Tejet (Auden)

Certificate No: D1900V2-5d155_Apr12

CALIBRATION CERTIFICATE

Object: D1900V2 - SN: 5d155

Calibration procedure(s): QA CAL-05.v8
Calibration procedure for dipole validation kits above 700 MHz

Calibration date: April 03, 2012

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
Power meter EPM-442A	GB37480704	05-Oct-11 (No. 217-01451)	Oct-12
Power sensor HP 8481A	US37292783	05-Oct-11 (No. 217-01451)	Oct-12
Reference 20 dB Attenuator	SN: 5058 (20k)	27-Mar-12 (No. 217-01530)	Apr-13
Type-N mismatch combination	SN: 5047.2 / 06327	27-Mar-12 (No. 217-01533)	Apr-13
Reference Probe ES3DV3	SN: 3205	30-Dec-11 (No. ES3-3205_Dec11)	Dec-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-11)	In house check: Oct-13
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-11)	In house check: Oct-13
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-11)	In house check: Oct-12

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: April 12, 2012

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Certificate No: D1900V2-5d155_Apr12 Page 1 of 8

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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:

a) 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
b) 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
c) 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:

d) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

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

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

Measurement Conditions

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

DASY Version	DASY5	V52.8.0
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1900 MHz ± 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 ± 0.2) °C	40.8 ± 6 %	1.37 mho/m ± 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	9.65 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**39.3 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	5.09 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**20.6 mW /g ± 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	53.3 ± 6 %	1.51 mho/m ± 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	10.0 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**40.2 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.30 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**21.3 mW / g ± 16.5 % (k=2)**

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	52.3 Ω + 5.4 jΩ
Return Loss	- 24.8 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	48.7 Ω + 6.0 jΩ
Return Loss	- 24.2 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. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	December 20, 2011

DASY5 Validation Report for Head TSL

Date: 03.04.2012

Test Laboratory: SPEAG, Zurich, Switzerland

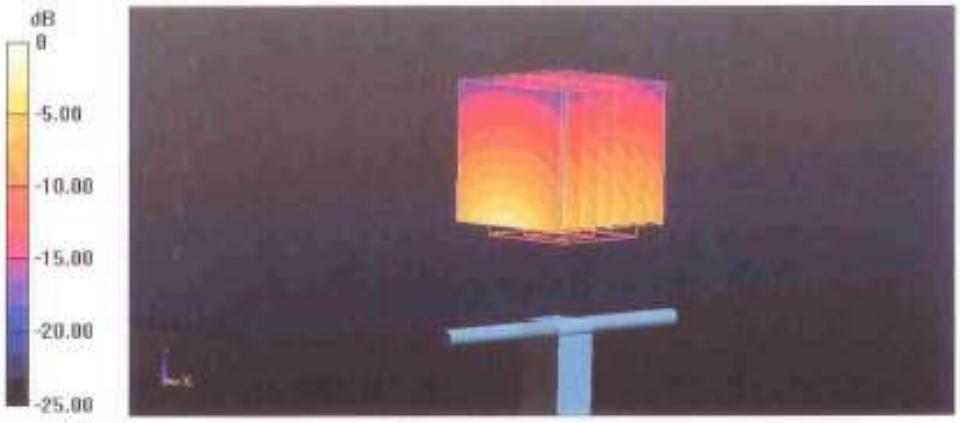
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d155

Communication System: CW; Frequency: 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.37 mho/m; ε_r = 40.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

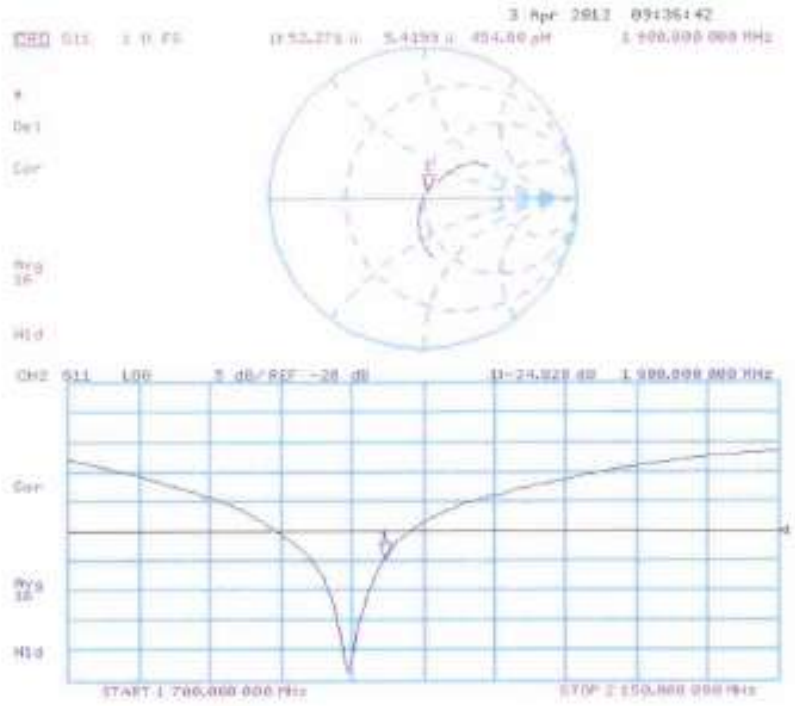
- Probe: ES3DV3 - SN3205; ConvF(5.01, 5.01, 5.01); Calibrated: 30.12.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

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 = 97.442 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 17.1390
SAR(1 g) = 9.65 mW/g; SAR(10 g) = 5.09 mW/g
Maximum value of SAR (measured) = 12.105 mW/g



0 dB = 12.110mW/g = 21.66 dB mW/g

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 03.04.2012

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d155

Communication System: CW; Frequency: 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.51 mho/m; ε_r = 53.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

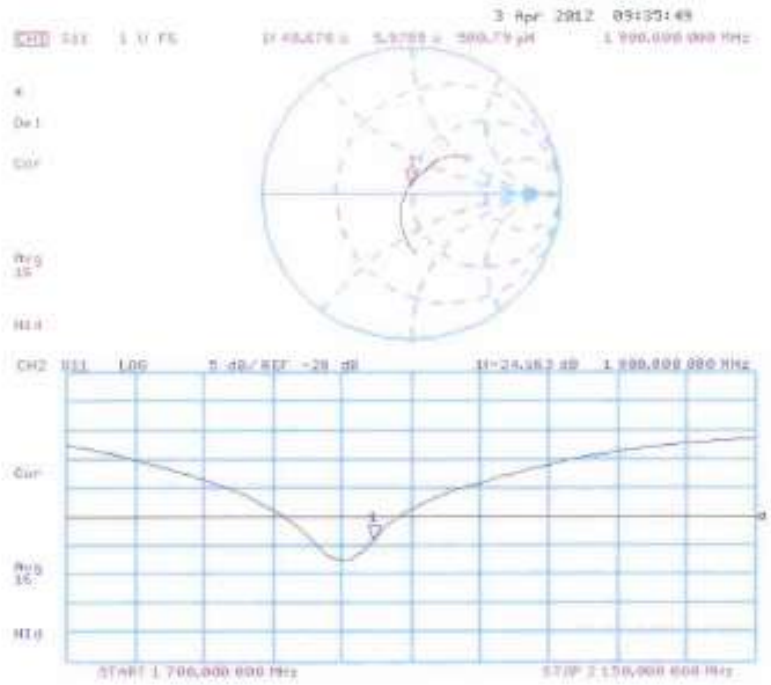
DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.62, 4.62, 4.62); Calibrated: 30.12.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

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 = 95.405 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 17.4140
SAR(1 g) = 10 mW/g; SAR(10 g) = 5.3 mW/g
Maximum value of SAR (measured) = 12.631 mW/g

0 dB = 12.630mW/g = 22.03 dB mW/g

Impedance Measurement Plot for Body TSL



Annex B.5 D2450V2 Calibration Certificate

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Engineering AG
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Accreditation No.: SCS 108

Client: Tejet-SH (Auden)

Certificate No: D2450V2-845_Aug12

CALIBRATION CERTIFICATE

Object: D2450V2 - SN: 845

Calibration procedure(s): QA CAL-05.v8
Calibration procedure for dipole validation kits above 700 MHz

Calibration date: August 27, 2012

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
Power meter EPM-442A	GB37480704	05-Oct-11 (No. 217-01451)	Oct-12
Power sensor HP 8481A	US37292783	05-Oct-11 (No. 217-01451)	Oct-12
Reference 20 dB Attenuator	SN: 5058 (20k)	27-Mar-12 (No. 217-01530)	Apr-13
Type-N mismatch combination	SN: 5047.2 / 06327	27-Mar-12 (No. 217-01533)	Apr-13
Reference Probe ES3DV3	SN: 3205	30-Dec-11 (No. ES3-3205_Dec11)	Dec-12
DAE4	SN: 601	27-Jun-12 (No. DAE4-601_Jun12)	Jun-13

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-11)	In house check: Oct-13
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-11)	In house check: Oct-13
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-11)	In house check: Oct-12

	Name	Function	Signature
Calibrated by:	Israe El-Naouq	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: August 28, 2012

Calibration Laboratory of
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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:

a) 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
b) 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
c) 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:

d) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

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

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

Measurement Conditions

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

DASY Version	DASY5	V52.8.2
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 ± 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 ± 0.2) °C	39.2 ± 6 %	1.81 mho/m ± 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	13.3 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**53.1 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.24 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**24.9 mW /g ± 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 ± 0.2) °C	51.3 ± 6 %	1.99 mho/m ± 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	13.1 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**51.6 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	6.11 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**24.2 mW / g ± 16.5 % (k=2)**

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	52.3 Ω + 2.6 jΩ
Return Loss	- 29.3 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	49.2 Ω + 4.6 jΩ
Return Loss	- 26.6 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.160 ns

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

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	November 10, 2009

DASY5 Validation Report for Head TSL

Date: 27.08.2012

Test Laboratory: SPEAG, Zurich, Switzerland

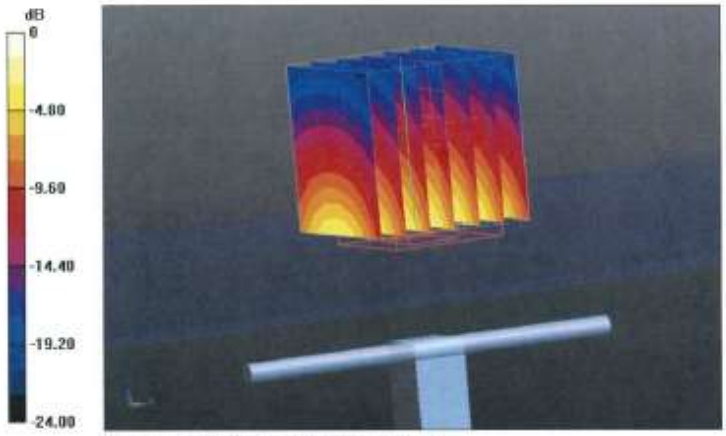
DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 845

Communication System: CW; Frequency: 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 1.81 mho/m; ε_r = 39.2; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

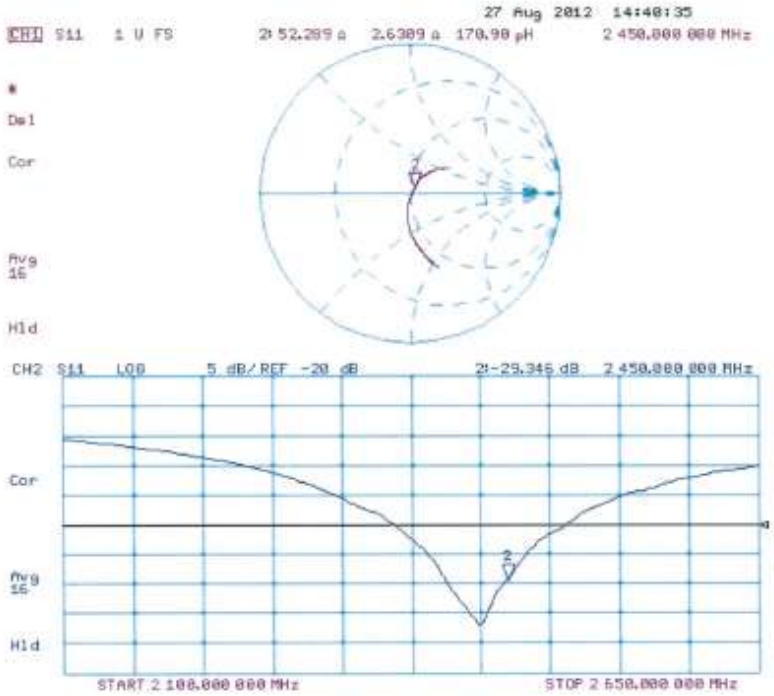
- Probe: ES3DV3 - SN3205; ConvF(4.45, 4.45, 4.45); Calibrated: 30.12.2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 27.06.2012
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.2(969); SEMCAD X 14.6.6(6824)

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 = 100.5 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 27.145 mW/g
SAR(1 g) = 13.3 mW/g; SAR(10 g) = 6.24 mW/g
Maximum value of SAR (measured) = 16.9 W/kg



0 dB = 16.9 W/kg = 24.56 dB W/kg

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 27.08.2012

Test Laboratory: SPEAG, Zurich, Switzerland

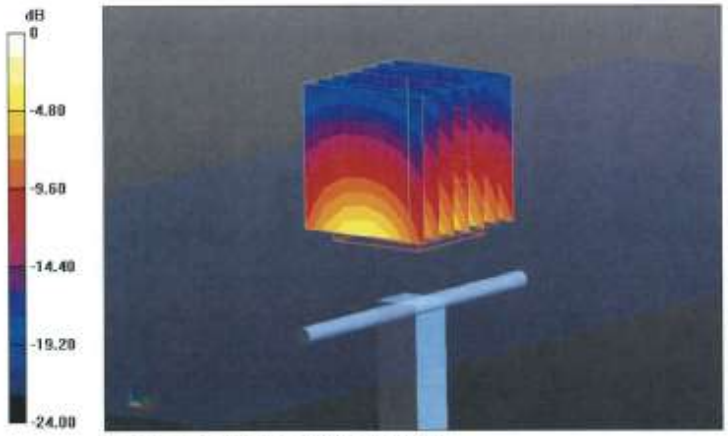
DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 845

Communication System: CW; Frequency: 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 1.99 mho/m; ε_r = 51.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

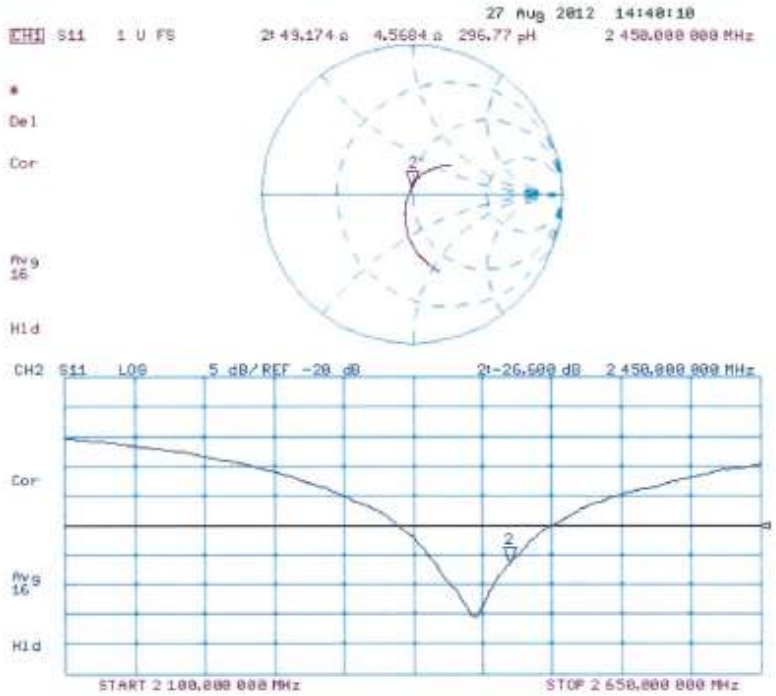
- Probe: ES3DV3 - SN3205; ConvF(4.26, 4.26, 4.26); Calibrated: 30.12.2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 27.06.2012
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.2(969); SEMCAD X 14.6.6(6824)

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 = 96.080 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 26.716 mW/g
SAR(1 g) = 13.1 mW/g; SAR(10 g) = 6.11 mW/g
Maximum value of SAR (measured) = 17.1 W/kg



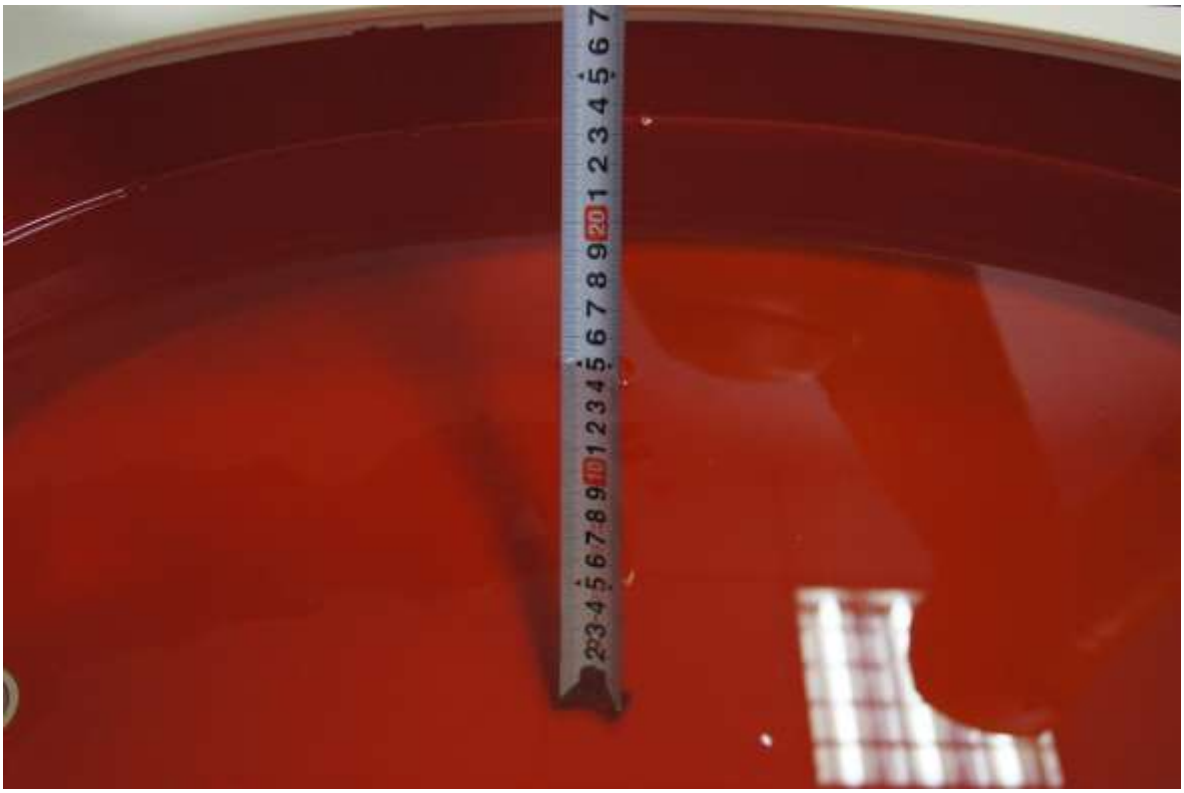
0 dB = 17.1 W/kg = 24.66 dB W/kg

Impedance Measurement Plot for Body TSL

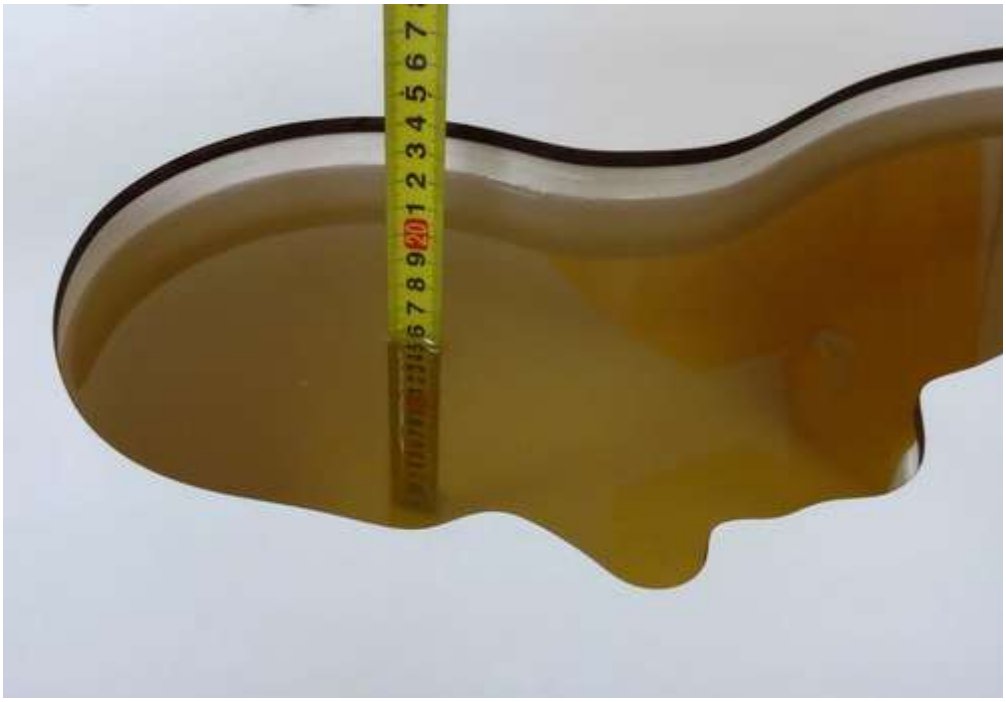


ANNEX C: Test Layout

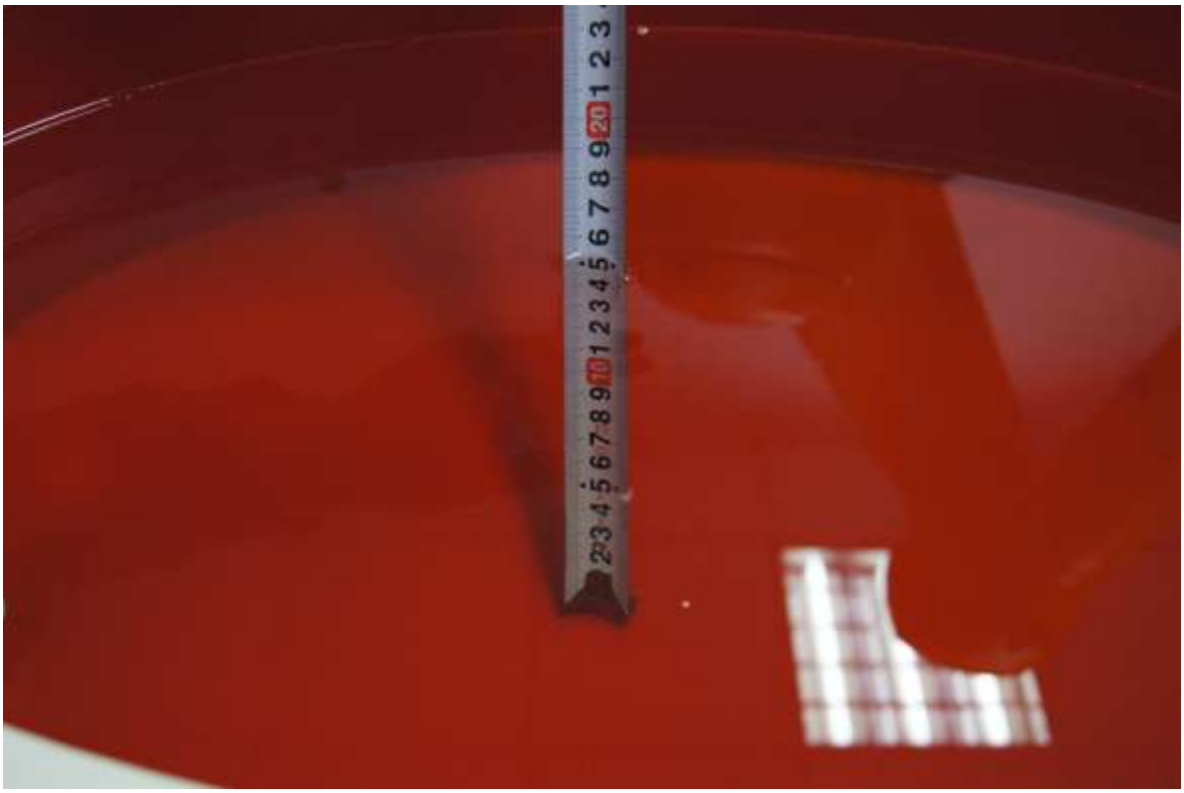
Picture C.1: Specific Absorption Rate Test Layout



Picture C.2: Liquid depth in the flat Phantom (835MHz) (15.1cm deep)

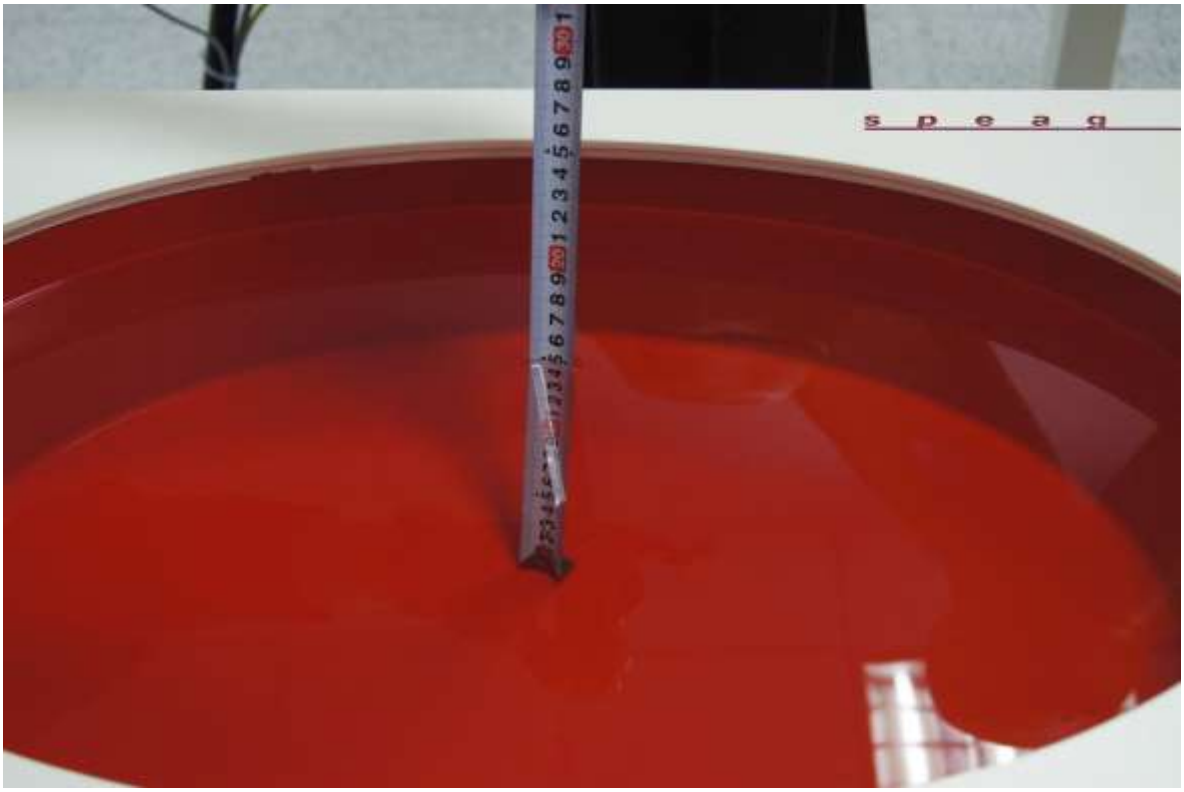


Picture C.3: Liquid depth in the head Phantom (835MHz) (15.4cm deep)



Picture C.4: Liquid depth in the flat Phantom (1900 MHz) (15.3cm deep)

Picture C.5: liquid depth in the head Phantom (1900 MHz) (15.2cm deep)



Picture C.6: Liquid depth in the flat Phantom (2450 MHz) (15.1cm deep)

Picture C.7: liquid depth in the head Phantom (2450 MHz) (15.2cm deep)

----------END OF REPORT----------