

Test Laboratory: Sony Ericsson Mobile Communications AB

File Name: [PerfCheck_835_1.da4](#)

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:484

Program Name: System Performance Check

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1; Communication System
Channel Number: 3

Medium parameters used (interpolated): $f = 835 \text{ MHz}$; $\sigma = 0.871 \text{ mho/m}$; $\epsilon_r = 41.9$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1569; ConvF(6.71, 6.71, 6.71); Calibrated: 2008-01-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)- Electronics: DAE3 Sn419; Calibrated: 2007-03-08
- Phantom: SAM 1; Type: Twin SAM; Serial: TP-1144
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

PerformanceCheck/Area Scan (41x61x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 2.51 mW/g

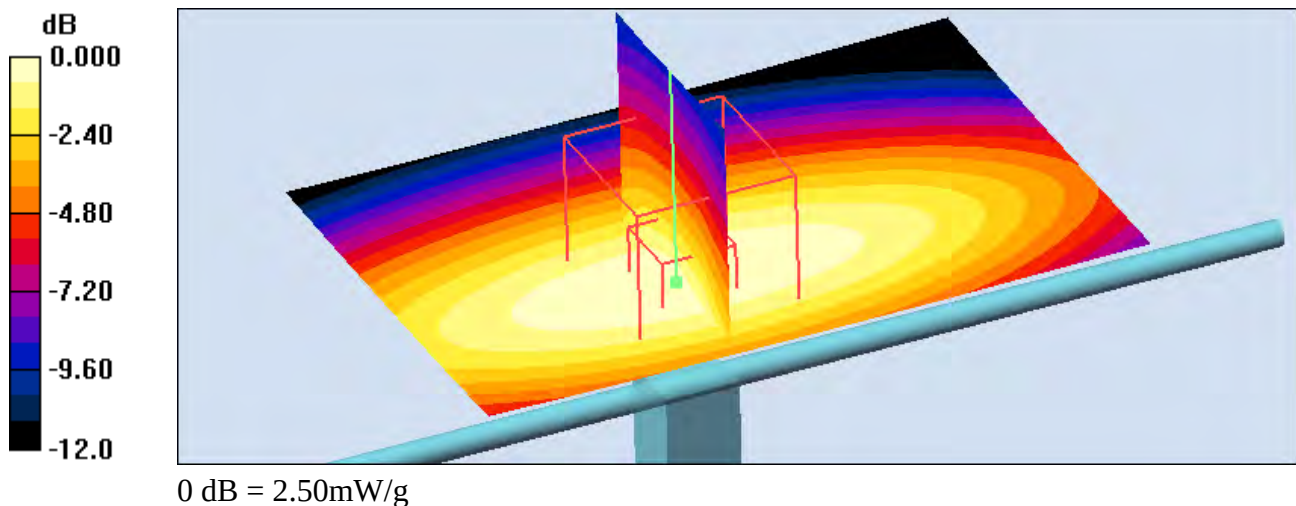
PerformanceCheck/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$,
 $dz=5\text{mm}$

Reference Value = 49.0 V/m ; Power Drift = -0.006 dB

Peak SAR (extrapolated) = 3.22 W/kg

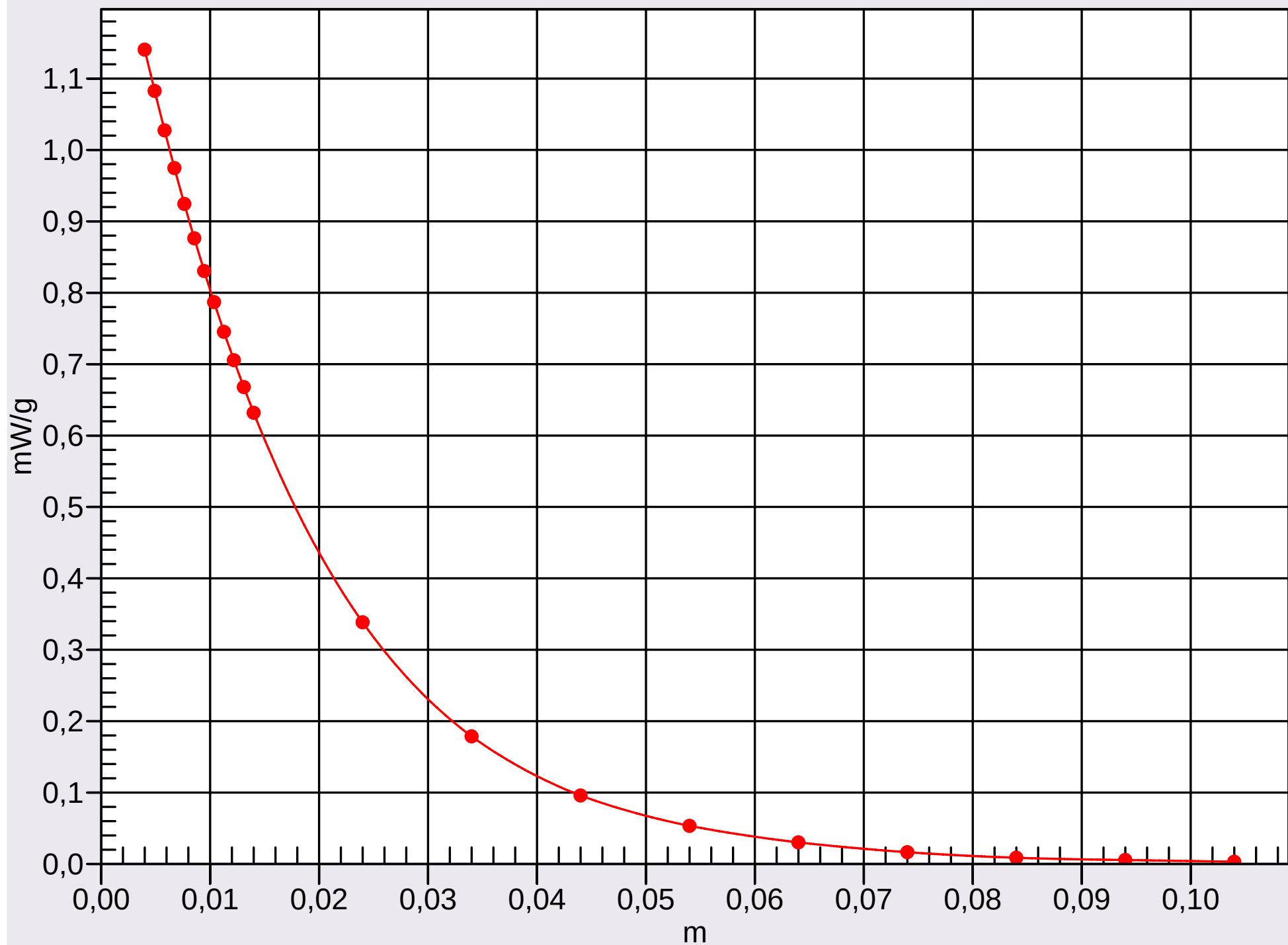
SAR(1 g) = 2.31 mW/g ; SAR(10 g) = 1.54 mW/g

Maximum value of SAR (measured) = 2.50 mW/g



Interpolated SAR(x,y,z,f0)

HSL835; Z Scan: Value Along Z, X=0, Y=0



Test Laboratory: Sony Ericsson Mobile Communications AB

File Name: [PerfCheck_835_2.da4](#)

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:484

Program Name: Unnamed Program

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1; Communication System
Channel Number: 3

Medium parameters used (interpolated): $f = 835 \text{ MHz}$; $\sigma = 0.965 \text{ mho/m}$; $\epsilon_r = 54.6$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1569; ConvF(6.54, 6.54, 6.54); Calibrated: 2008-01-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)- Electronics: DAE3 Sn419; Calibrated: 2007-03-08
- Phantom: SAM 2; Type: SAM QD 000 P40 CB; Serial: TP-1396
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Unnamed procedure/Area Scan (41x61x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 2.58 mW/g

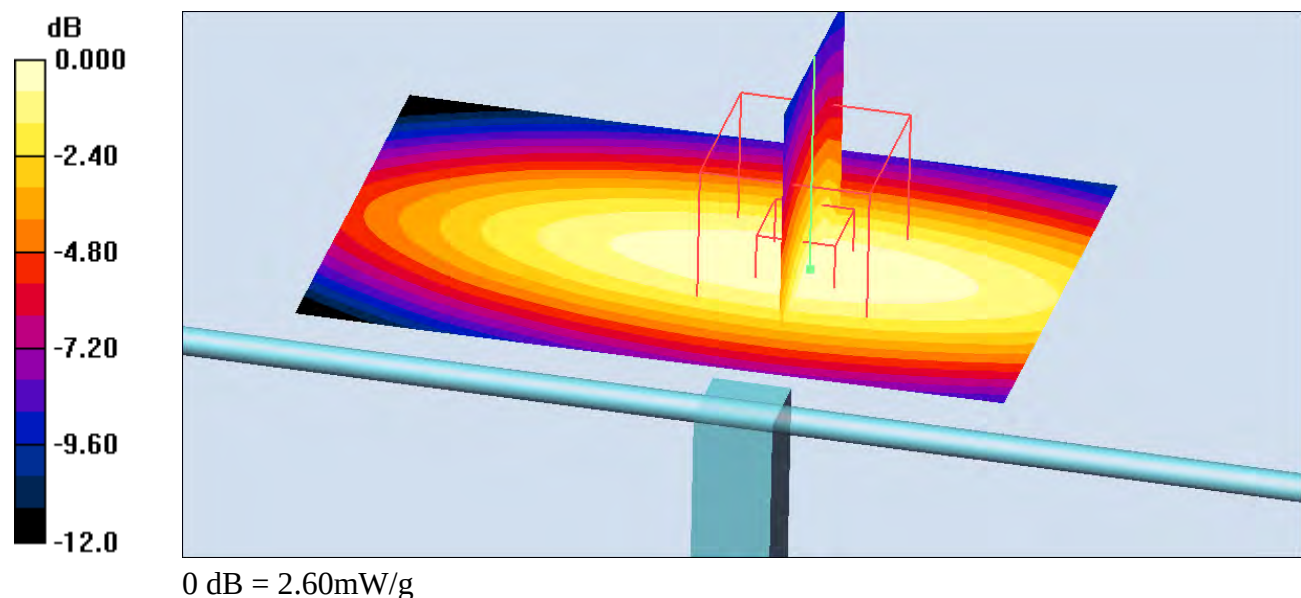
Unnamed procedure/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$,
 $dz=5\text{mm}$

Reference Value = 53.5 V/m ; Power Drift = -0.011 dB

Peak SAR (extrapolated) = 3.31 W/kg

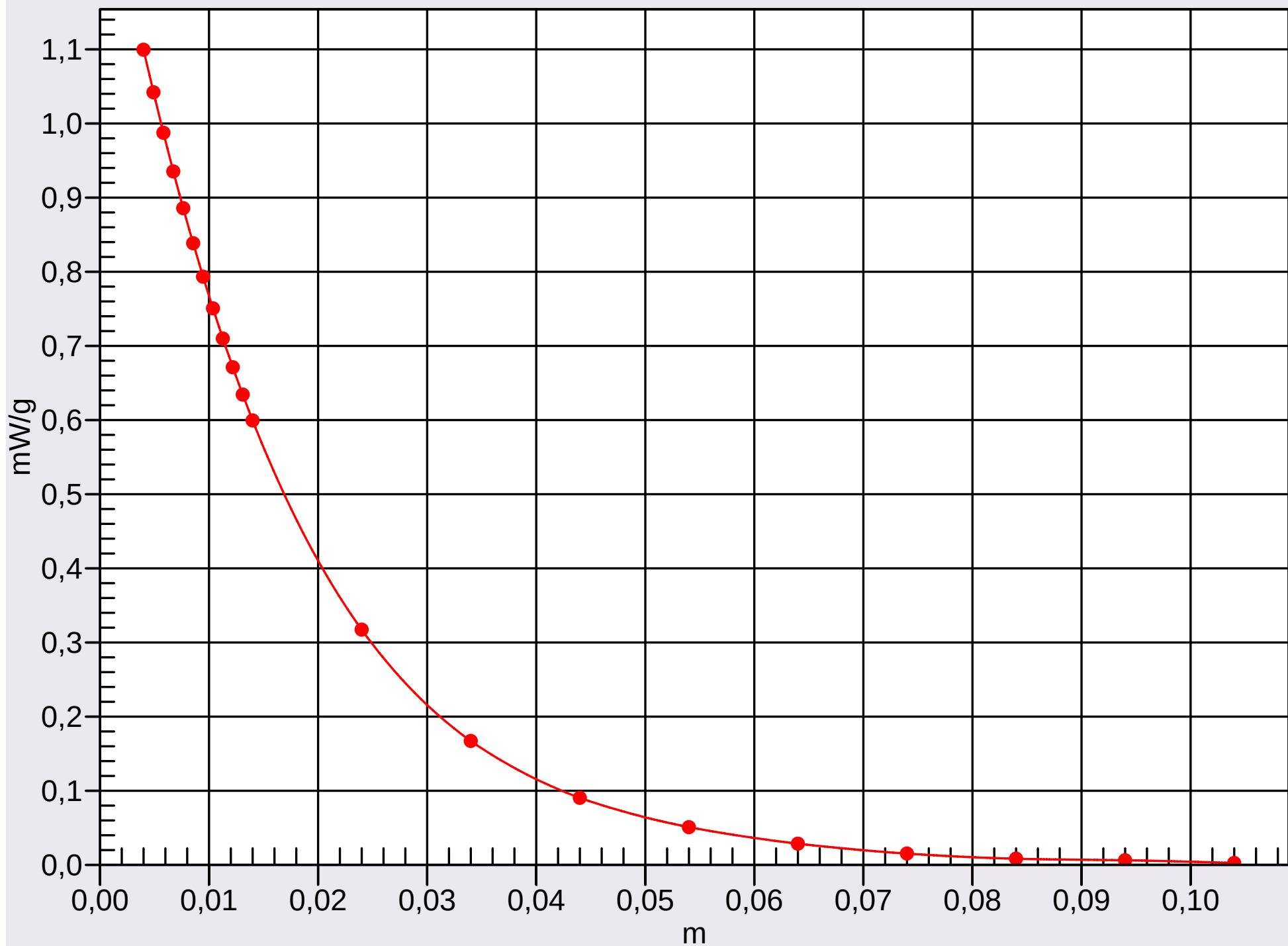
SAR(1 g) = 2.4 mW/g ; SAR(10 g) = 1.59 mW/g

Maximum value of SAR (measured) = 2.60 mW/g



Interpolated SAR(x,y,z,f0)

MSL835; Z Scan: Value Along Z, X=0, Y=0



Test Laboratory: Sony Ericsson Mobile Communications AB

File Name: [PerfCheck_1900_1.da4](#)

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d073

Program Name: Unnamed Program

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1; Communication System Channel Number: 9

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.46$ mho/m; $\epsilon_r = 38.6$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1569; ConvF(5.13, 5.13, 5.13); Calibrated: 2008-01-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)- Electronics: DAE3 Sn419; Calibrated: 2007-03-08
- Phantom: SAM 2; Type: SAM QD 000 P40 CB; Serial: TP-1396
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

PerformanceCheck/Area Scan (41x61x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 11.7 mW/g

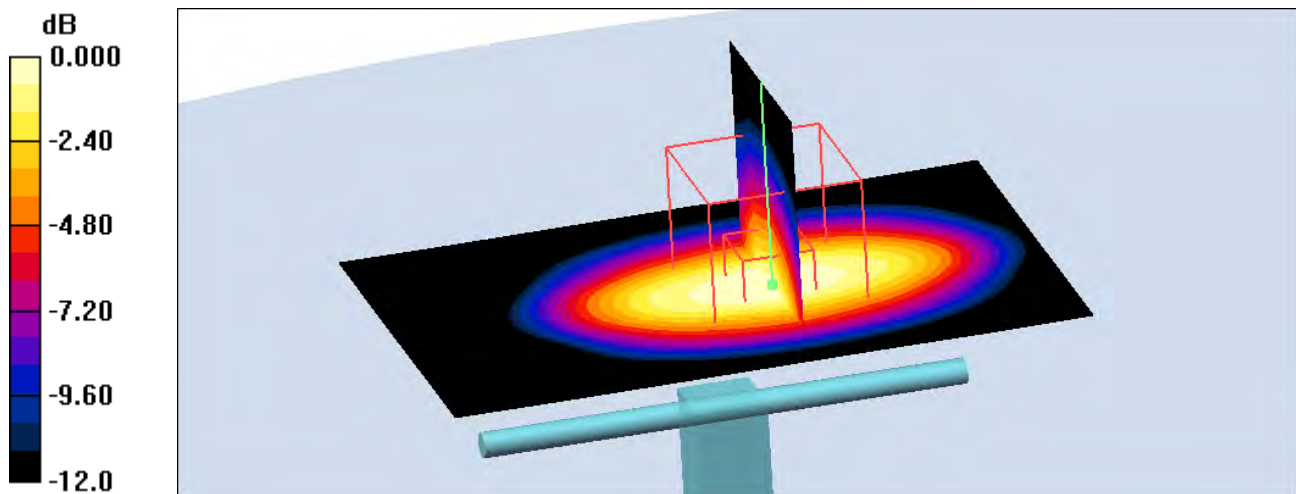
PerformanceCheck/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 88.2 V/m; Power Drift = -0.043 dB

Peak SAR (extrapolated) = 17.2 W/kg

SAR(1 g) = 9.78 mW/g; SAR(10 g) = 5.08 mW/g

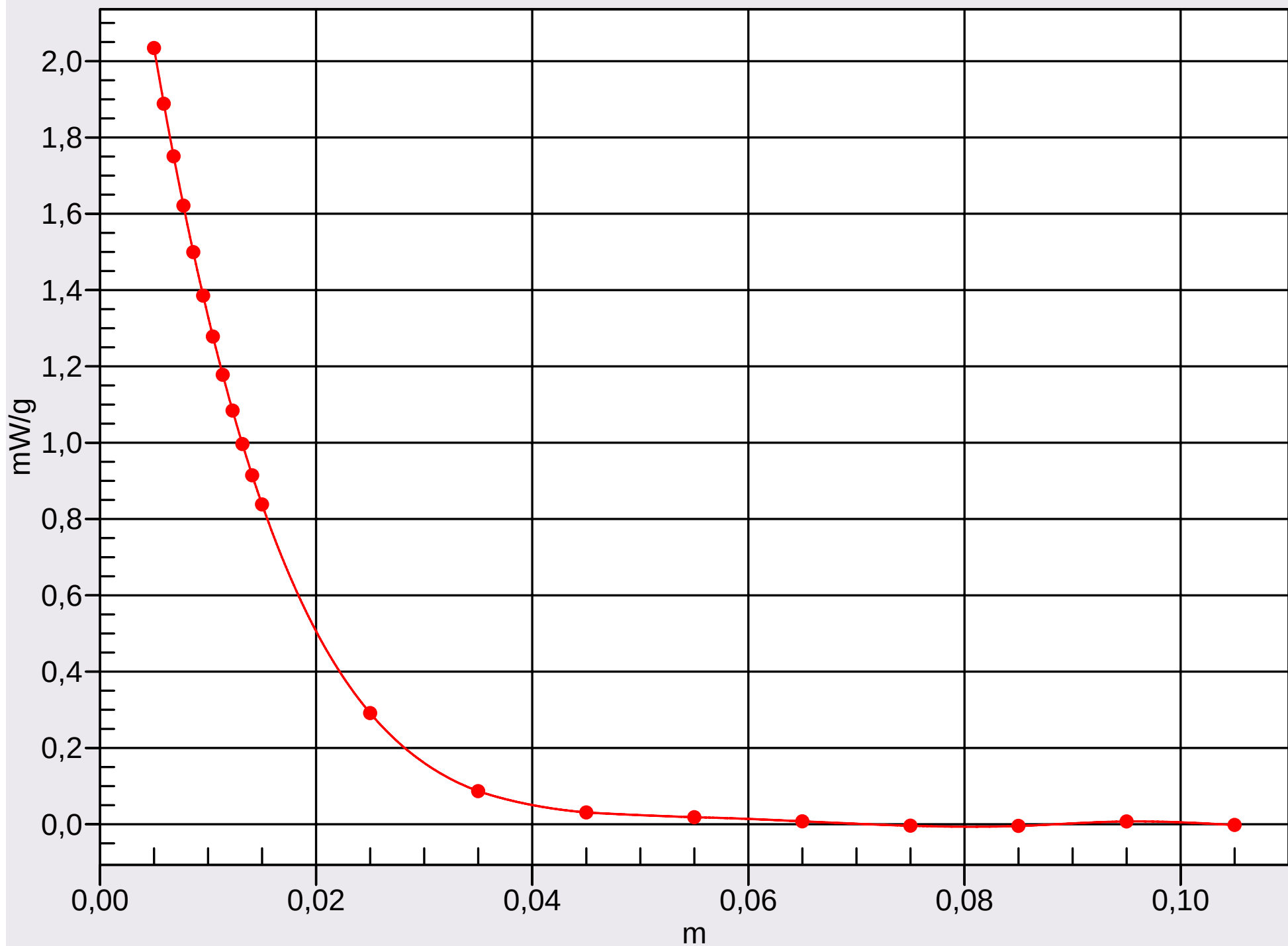
Maximum value of SAR (measured) = 11.1 mW/g



0 dB = 11.1mW/g

Interpolated SAR(x,y,z,f0)

HSL1900; Z Scan: Value Along Z, X=0, Y=0



Test Laboratory: Sony Ericsson Mobile Communications AB
File Name: [PerfCheck 1900 2.da4](#)

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d073
Program Name: Unnamed Program

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

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.46$ mho/m; $\epsilon_r = 38.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1569; ConvF(5.13, 5.13, 5.13); Calibrated: 2008-01-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn419; Calibrated: 2007-03-08
- Phantom: SAM 2; Type: SAM QD 000 P40 CB; Serial: TP-1396
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

PerformanceCheck/Area Scan (41x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 12.0 mW/g

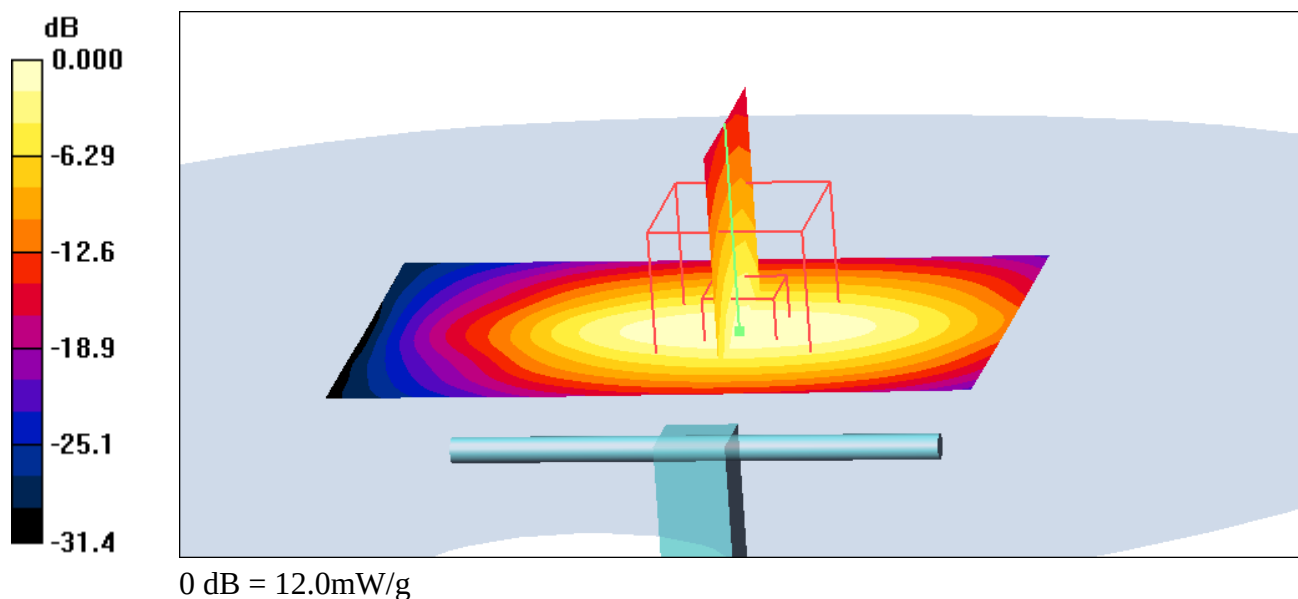
PerformanceCheck/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 88.0 V/m; Power Drift = -0.018 dB

Peak SAR (extrapolated) = 17.6 W/kg

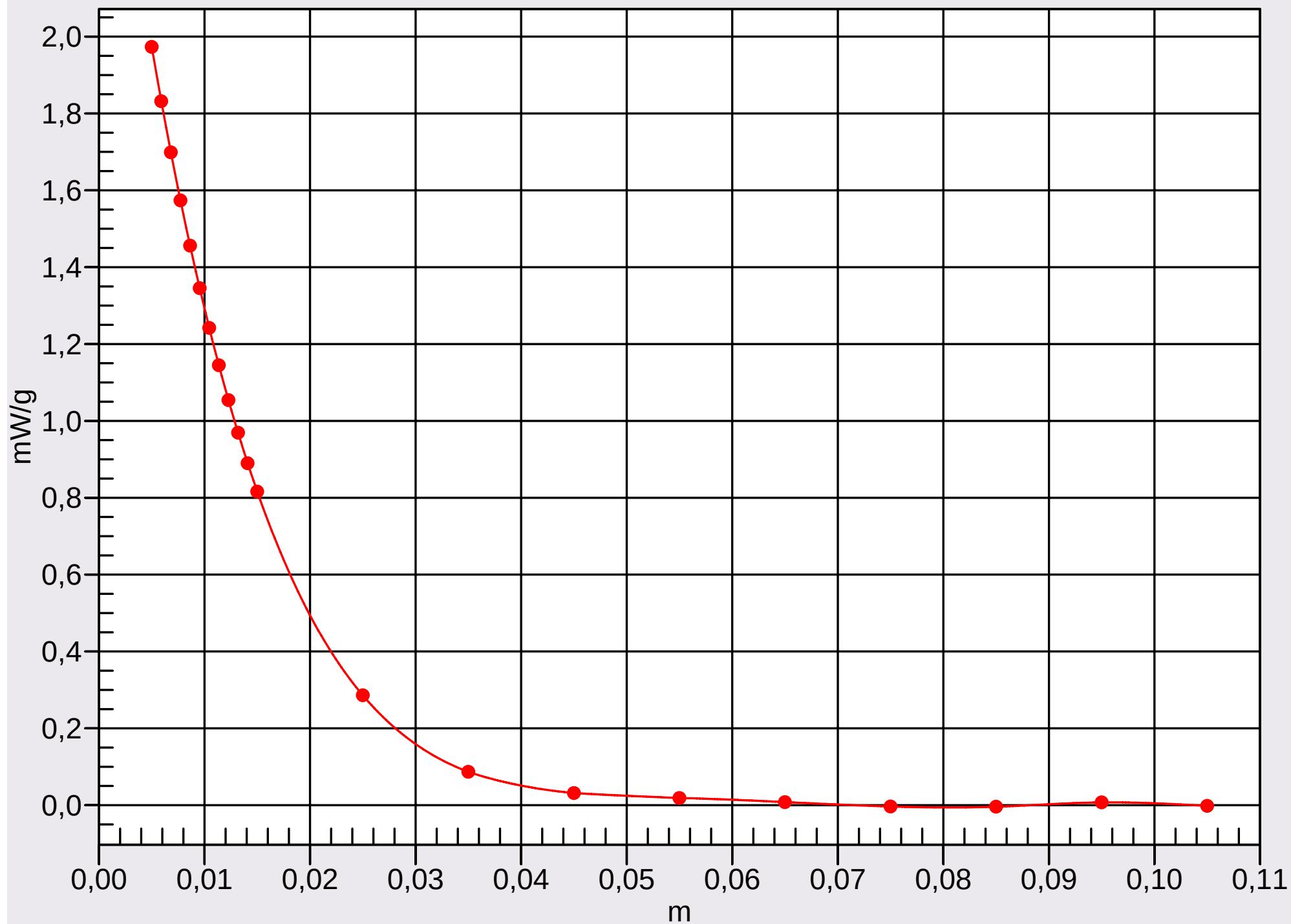
SAR(1 g) = 10 mW/g; SAR(10 g) = 5.21 mW/g

Maximum value of SAR (measured) = 11.3 mW/g



Interpolated SAR(x,y,z,f0)

HSL1900; Z Scan: Value Along Z, X=0, Y=0



Test Laboratory: Sony Ericsson Mobile Communications AB
File Name: [PerfCheck 1900 3.da4](#)

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d073
Program Name: Unnamed Program

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

Medium parameters used (interpolated): $f = 1900$ MHz; $\sigma = 1.54$ mho/m; $\epsilon_r = 51.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1569; ConvF(4.68, 4.68, 4.68); Calibrated: 2008-01-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn419; Calibrated: 2007-03-08
- Phantom: SAM 2; Type: SAM QD 000 P40 CB; Serial: TP-1396
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

PerformanceCheck/Area Scan (41x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 11.2 mW/g

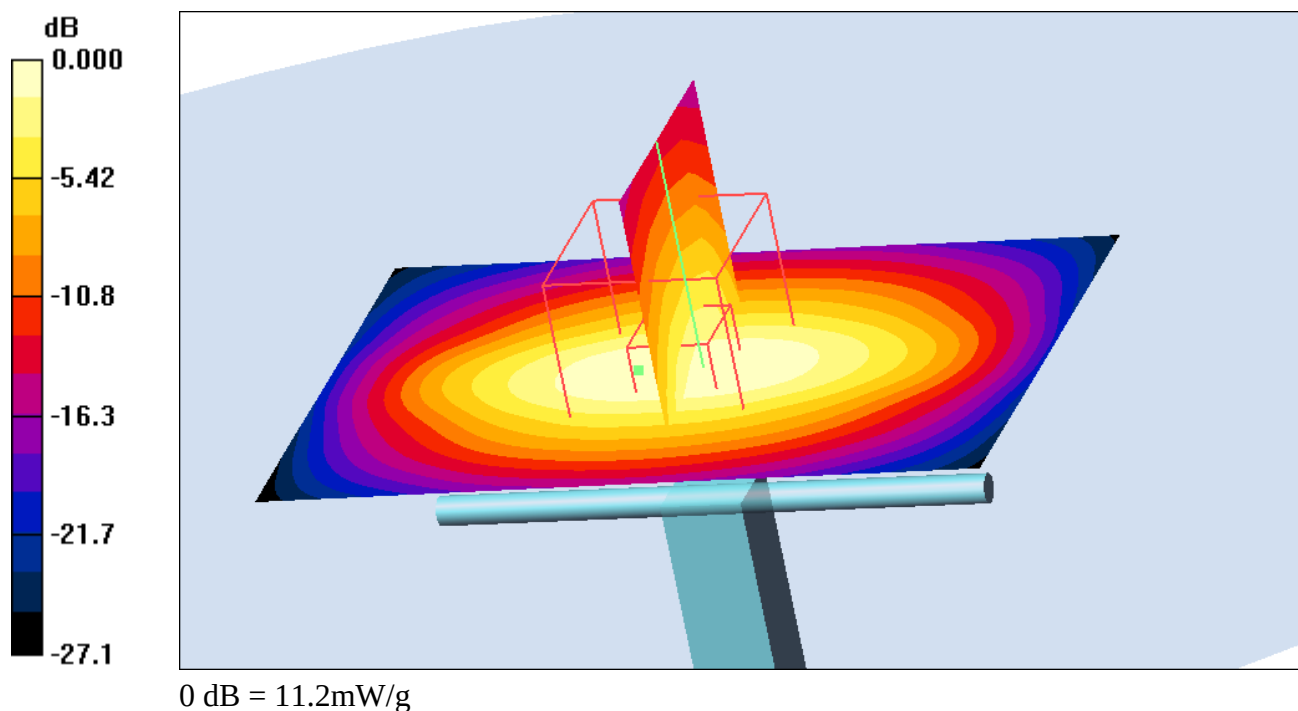
PerformanceCheck/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 89.4 V/m; Power Drift = 0.010 dB

Peak SAR (extrapolated) = 17.9 W/kg

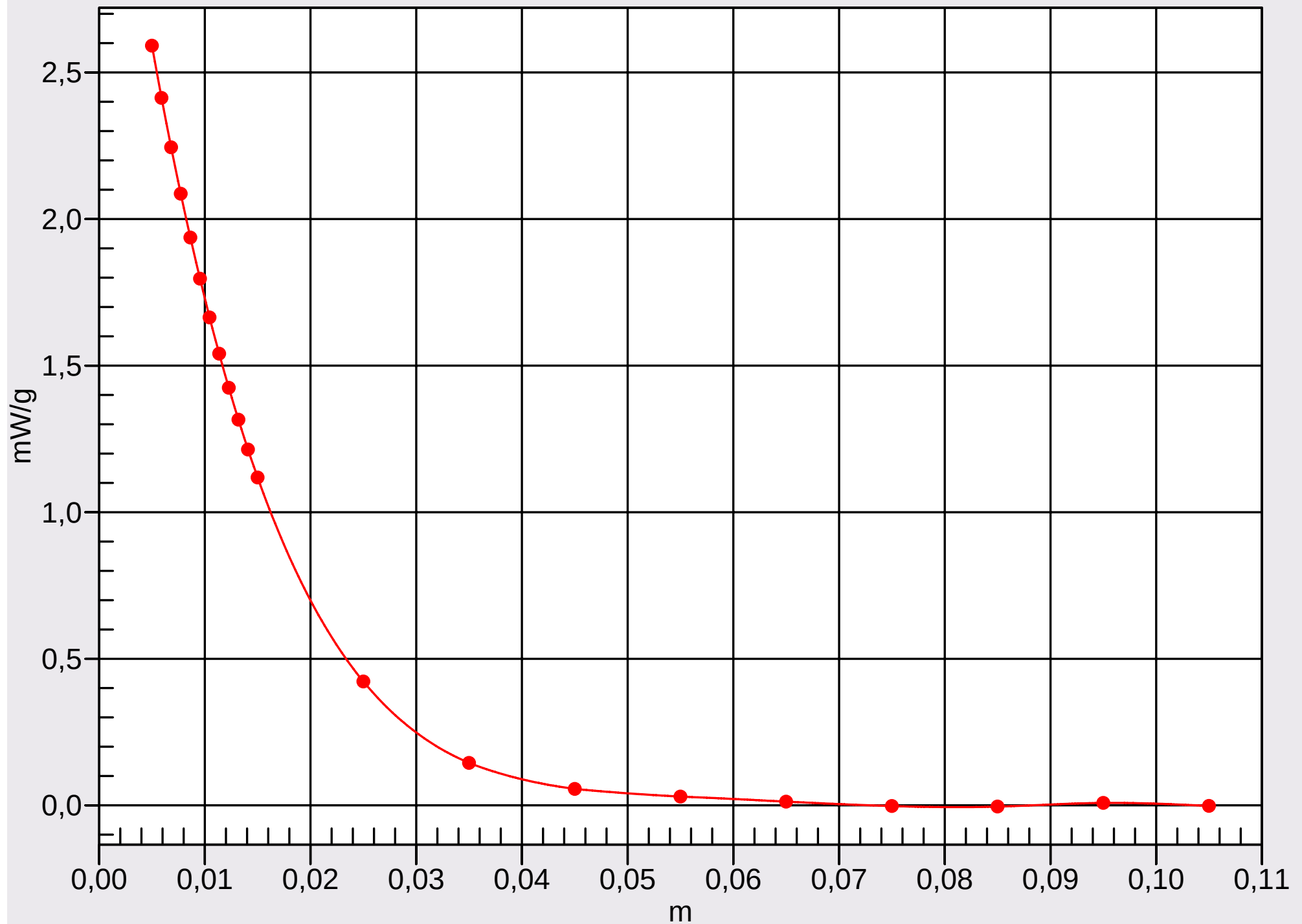
SAR(1 g) = 9.89 mW/g; SAR(10 g) = 5.19 mW/g

Maximum value of SAR (measured) = 11.1 mW/g



Interpolated SAR(x,y,z,f0)

MSL1900; Z Scan: Value Along Z, X=0, Y=0



Test Laboratory: Sony Ericsson Mobile Communications AB
File Name: [Left UMTS V.da4](#)

DUT: PTX-826; Type: AAD-3724011-BV; Serial: 2816
Program Name: Unnamed Program

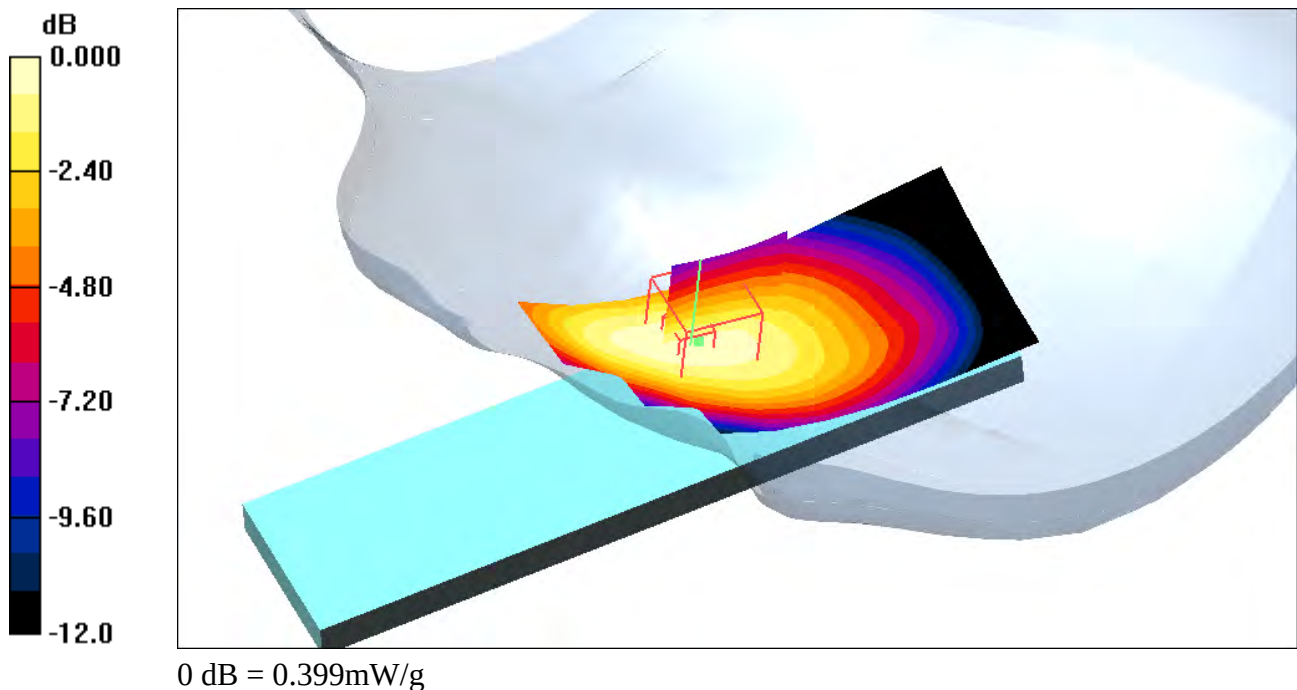
Communication System: UMTS V; Frequency: 836.6 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.872$ mho/m; $\epsilon_r = 41.9$; $\rho = 1000$ kg/m³
Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1569; ConvF(6.71, 6.71, 6.71); Calibrated: 2008-01-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn419; Calibrated: 2007-03-08
- Phantom: SAM 1; Type: Twin SAM; Serial: TP-1144
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Touch Mid/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.413 mW/g

Touch Mid/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.7 V/m; Power Drift = 0.054 dB
Peak SAR (extrapolated) = 0.503 W/kg
SAR(1 g) = 0.377 mW/g; SAR(10 g) = 0.263 mW/g
Maximum value of SAR (measured) = 0.399 mW/g



Test Laboratory: Sony Ericsson Mobile Communications AB
File Name: [Left UMTS V.da4](#)

DUT: PTX-826; Type: AAD-3724011-BV; Serial: 2816
Program Name: Unnamed Program

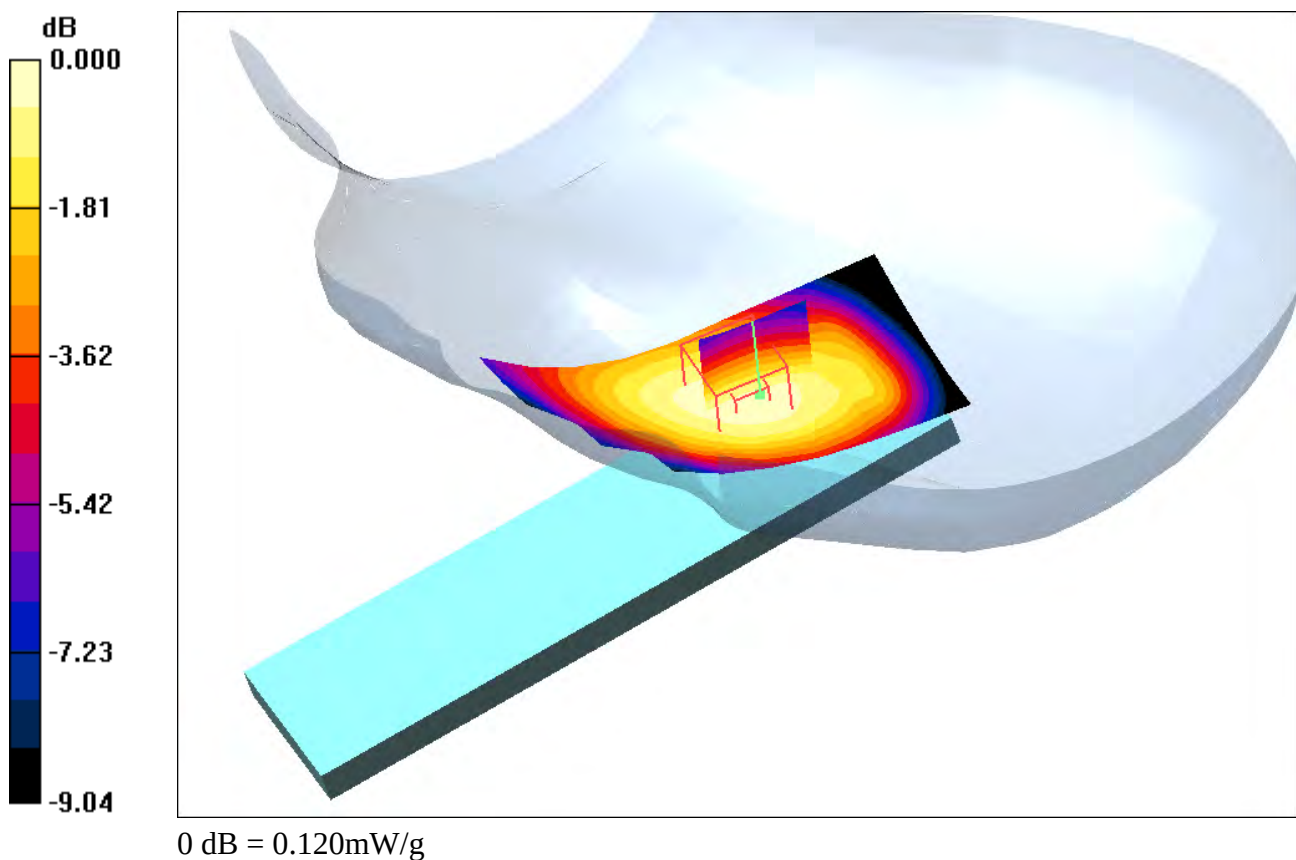
Communication System: UMTS V; Frequency: 836.6 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.872$ mho/m; $\epsilon_r = 41.9$; $\rho = 1000$
kg/m³
Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1569; ConvF(6.71, 6.71, 6.71); Calibrated: 2008-01-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn419; Calibrated: 2007-03-08
- Phantom: SAM 1; Type: Twin SAM; Serial: TP-1144
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Tilt mid/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.119 mW/g

Tilt mid/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.7 V/m; Power Drift = 0.013 dB
Peak SAR (extrapolated) = 0.136 W/kg
SAR(1 g) = 0.114 mW/g; SAR(10 g) = 0.087 mW/g
Maximum value of SAR (measured) = 0.120 mW/g



Test Laboratory: Sony Ericsson Mobile Communications AB
File Name: Right UMTS V.da4

DUT: PTX-826; Type: AAD-3724011-BV; Serial: 2816
Program Name: Right hand side

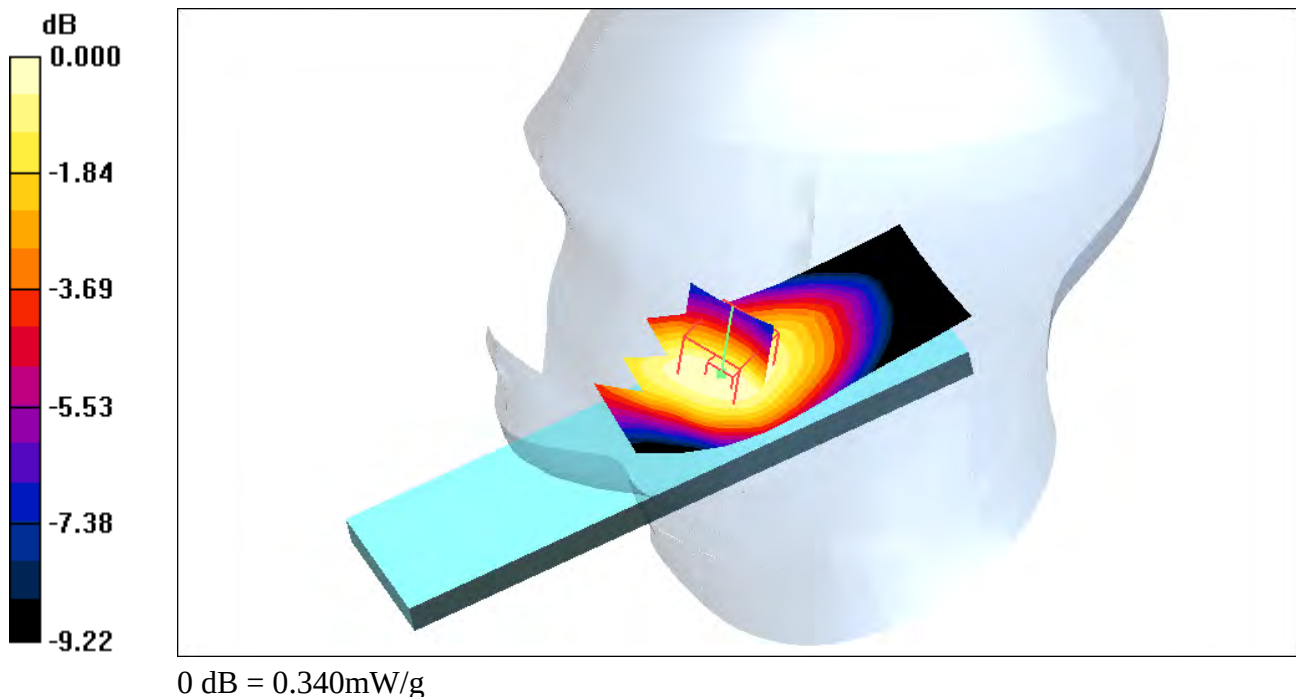
Communication System: UMTS V; Frequency: 846.6 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 846.6$ MHz; $\sigma = 0.882$ mho/m; $\epsilon_r = 41.8$; $\rho = 1000$
kg/m³
Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1569; ConvF(6.71, 6.71, 6.71); Calibrated: 2008-01-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn419; Calibrated: 2007-03-08
- Phantom: SAM 1; Type: Twin SAM; Serial: TP-1144
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Touch High/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.347 mW/g

Touch High/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.7 V/m; Power Drift = -0.001 dB
Peak SAR (extrapolated) = 0.384 W/kg
SAR(1 g) = 0.326 mW/g; SAR(10 g) = 0.243 mW/g
Maximum value of SAR (measured) = 0.340 mW/g



Test Laboratory: Sony Ericsson Mobile Communications AB
File Name: Right UMTS V.da4

DUT: PTX-826; Type: AAD-3724011-BV; Serial: 2816
Program Name: Right hand side

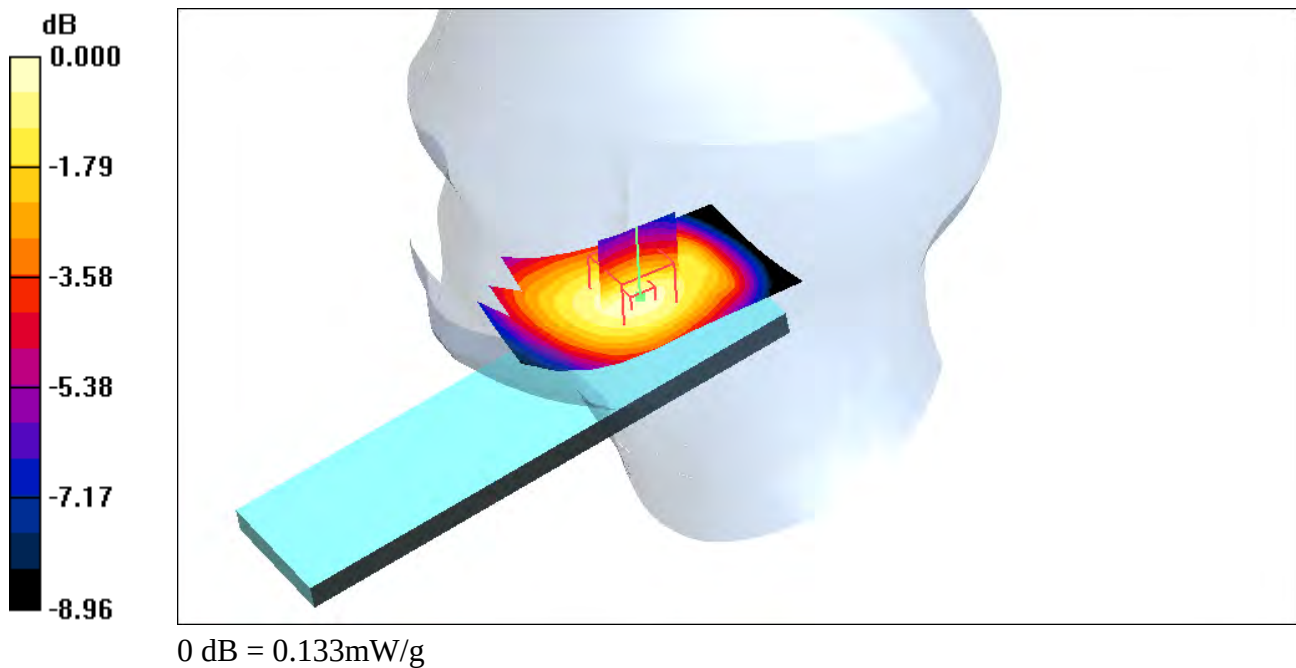
Communication System: UMTS V; Frequency: 836.6 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.872$ mho/m; $\epsilon_r = 41.9$; $\rho = 1000$
kg/m³
Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1569; ConvF(6.71, 6.71, 6.71); Calibrated: 2008-01-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn419; Calibrated: 2007-03-08
- Phantom: SAM 1; Type: Twin SAM; Serial: TP-1144
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Tilt Mid/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm.
Maximum value of SAR (interpolated) = 0.131 mW/g

Tilt Mid/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.1 V/m; Power Drift = 0.012 dB
Peak SAR (extrapolated) = 0.148 W/kg
SAR(1 g) = 0.125 mW/g; SAR(10 g) = 0.094 mW/g
Maximum value of SAR (measured) = 0.133 mW/g



Test Laboratory: Sony Ericsson Mobile Communications AB
File Name: Body UMTS V.da4

DUT: PTX-826 Closed; Type: AAD-3724011-BV; Serial: 2816
Program Name: Body d=15mm

Communication System: UMTS V; Frequency: 836.6 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.967$ mho/m; $\epsilon_r = 54.6$; $\rho = 1000$ kg/m³
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1569; ConvF(6.54, 6.54, 6.54); Calibrated: 2008-01-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn419; Calibrated: 2007-03-08
- Phantom: SAM 2; Type: SAM QD 000 P40 CB; Serial: TP-1396
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Speech PHF Mid/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.483 mW/g

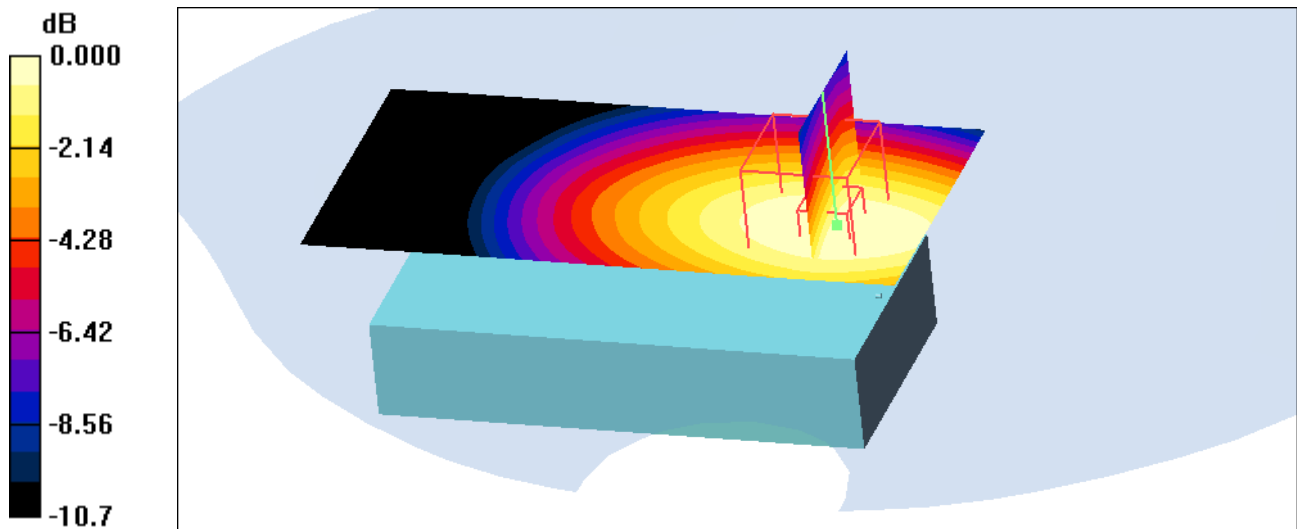
Speech PHF Mid/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 21.8 V/m; Power Drift = 0.015 dB

Peak SAR (extrapolated) = 0.582 W/kg

SAR(1 g) = 0.447 mW/g; SAR(10 g) = 0.322 mW/g

Maximum value of SAR (measured) = 0.476 mW/g



0 dB = 0.476mW/g

Test Laboratory: Sony Ericsson Mobile Communications AB
File Name: Body UMTS V.da4

DUT: PTX-826 Closed; Type: AAD-3724011-BV; Serial: 2816
Program Name: Body d=15mm

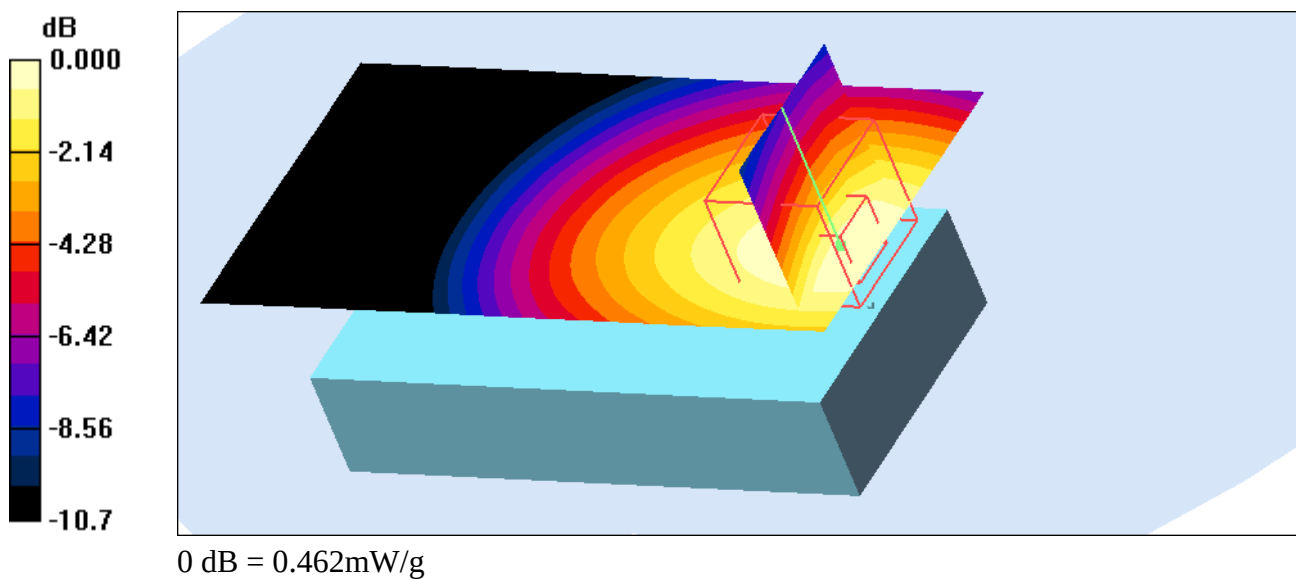
Communication System: UMTS V; Frequency: 836.6 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.967$ mho/m; $\epsilon_r = 54.6$; $\rho = 1000$ kg/m³
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1569; ConvF(6.54, 6.54, 6.54); Calibrated: 2008-01-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn419; Calibrated: 2007-03-08
- Phantom: SAM 2; Type: SAM QD 000 P40 CB; Serial: TP-1396
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

CS Data Mid/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.462 mW/g

CS Data Mid/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.6 V/m; Power Drift = -0.049 dB
Peak SAR (extrapolated) = 0.558 W/kg
SAR(1 g) = 0.433 mW/g; SAR(10 g) = 0.312 mW/g
Maximum value of SAR (measured) = 0.462 mW/g



Test Laboratory: Sony Ericsson Mobile Communications AB
File Name: Body UMTS V.da4

DUT: PTX-826 Closed; Type: AAD-3724011-BV; Serial: 2816
Program Name: Body d=15mm

Communication System: UMTS V; Frequency: 836.6 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.967$ mho/m; $\epsilon_r = 54.6$; $\rho = 1000$
kg/m³
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1569; ConvF(6.54, 6.54, 6.54); Calibrated: 2008-01-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn419; Calibrated: 2007-03-08
- Phantom: SAM 2; Type: SAM QD 000 P40 CB; Serial: TP-1396
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

CS Data Mid Frontside up/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.154 mW/g

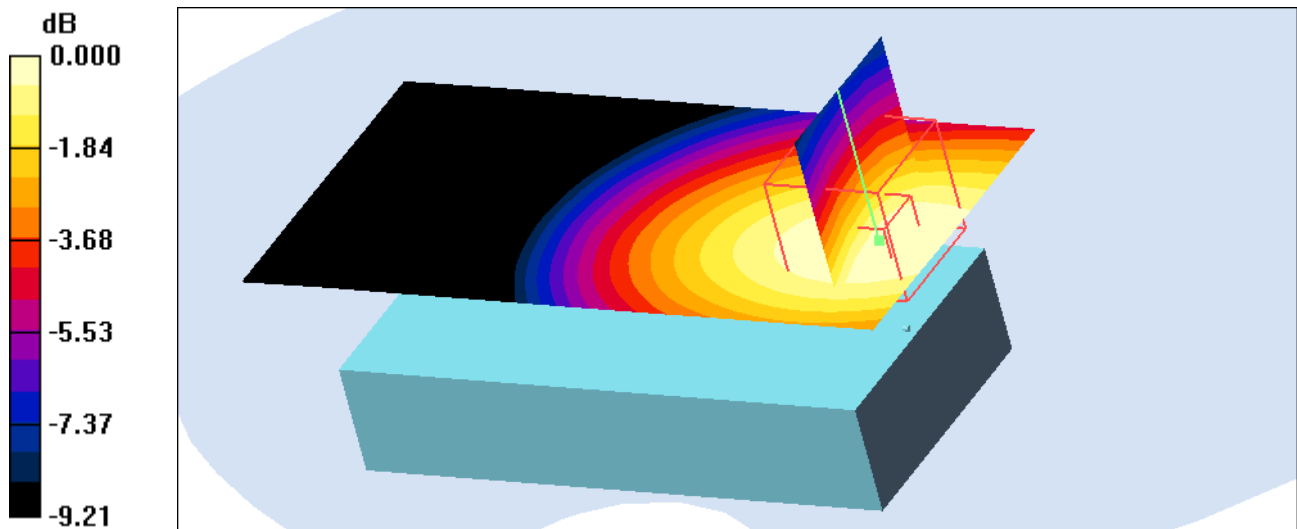
CS Data Mid Frontside up/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 13.0 V/m; Power Drift = -0.020 dB

Peak SAR (extrapolated) = 0.177 W/kg

SAR(1 g) = 0.144 mW/g; SAR(10 g) = 0.105 mW/g

Maximum value of SAR (measured) = 0.152 mW/g



0 dB = 0.152mW/g

Test Laboratory: Sony Ericsson Mobile Communications AB
File Name: [Left_1900.da4](#)

DUT: PTX-826; Type: AAD-3724011-BV; Serial: 3158
Program Name: Left Hand Side

Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3
Medium parameters used: $f = 1880$ MHz; $\sigma = 1.44$ mho/m; $\epsilon_r = 38.7$; $\rho = 1000$ kg/m³
Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1569; ConvF(5.13, 5.13, 5.13); Calibrated: 2008-01-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn419; Calibrated: 2007-03-08
- Phantom: SAM 2; Type: SAM QD 000 P40 CB; Serial: TP-1396
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Mid Touch Antenna out/Area Scan (41x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.415 mW/g

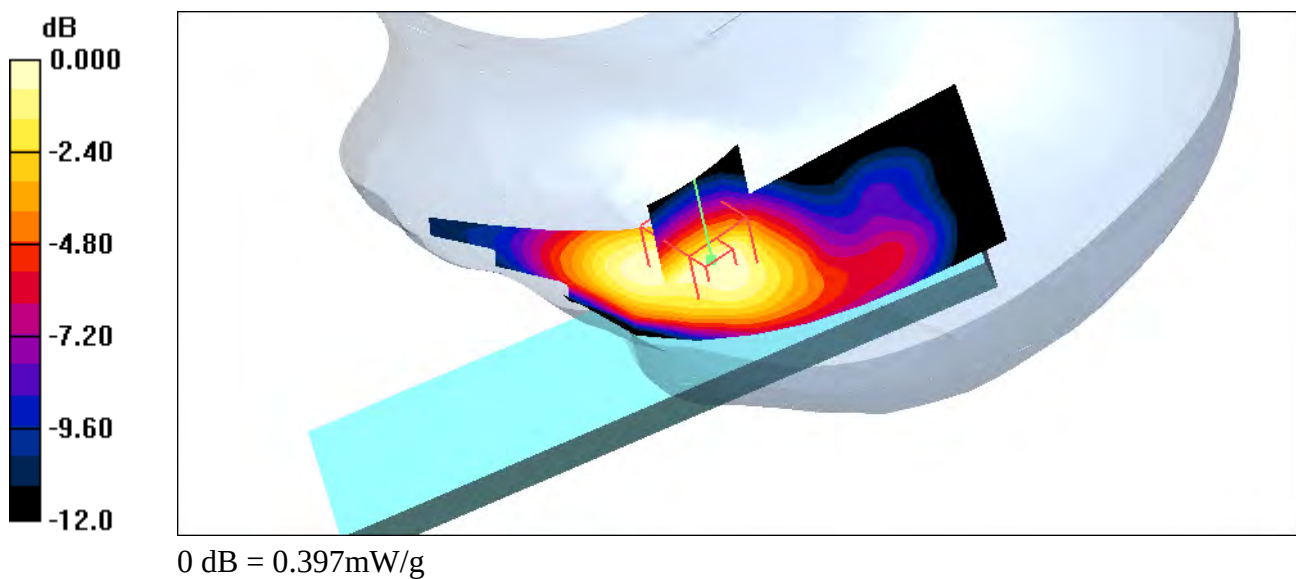
Mid Touch Antenna out/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 17.3 V/m; Power Drift = -0.197 dB

Peak SAR (extrapolated) = 0.528 W/kg

SAR(1 g) = 0.371 mW/g; SAR(10 g) = 0.235 mW/g

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



Test Laboratory: Sony Ericsson Mobile Communications AB

File Name: [Left_1900.da4](#)

DUT: PTX-826; Type: AAD-3724011-BV; Serial: 3158

Program Name: Left Hand Side

Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.44$ mho/m; $\epsilon_r = 38.7$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1569; ConvF(5.13, 5.13, 5.13); Calibrated: 2008-01-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn419; Calibrated: 2007-03-08
- Phantom: SAM 2; Type: SAM QD 000 P40 CB; Serial: TP-1396
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Mid Tilt/Area Scan (41x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.300 mW/g

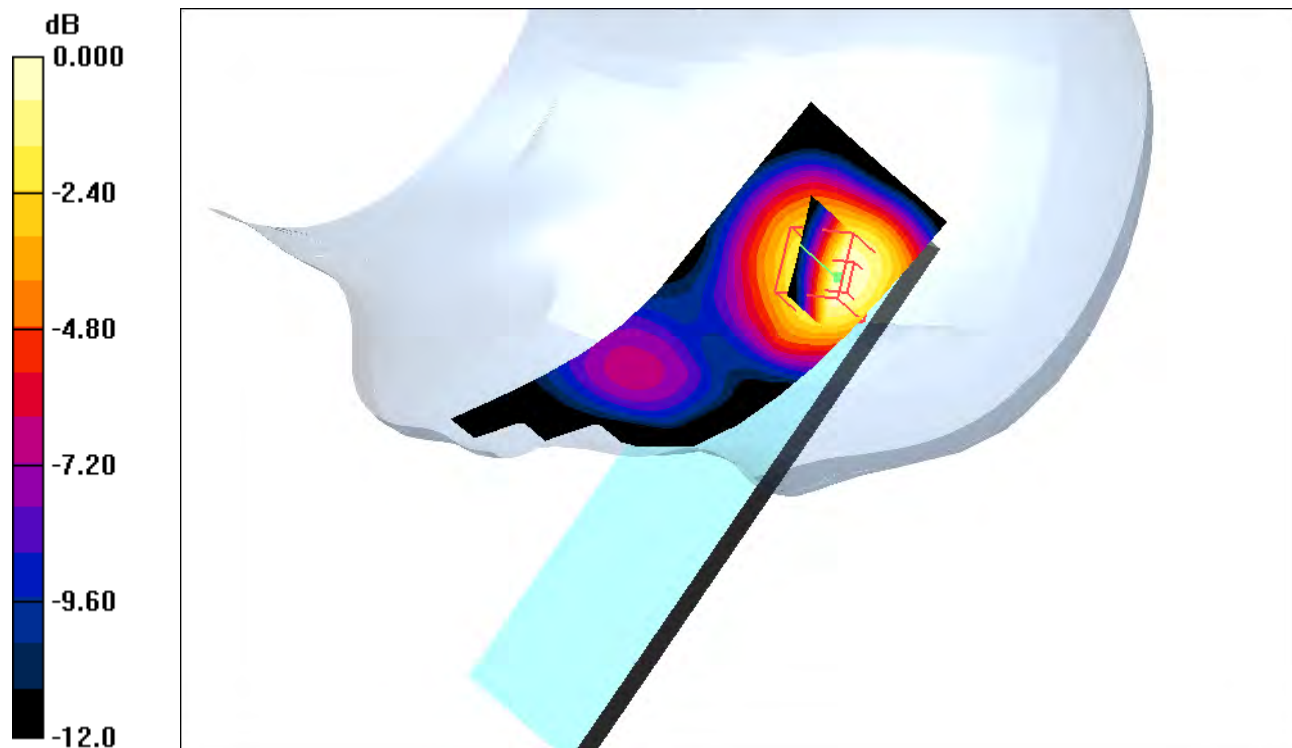
Mid Tilt/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 5.17 V/m; Power Drift = 0.123 dB

Peak SAR (extrapolated) = 0.397 W/kg

SAR(1 g) = 0.270 mW/g; SAR(10 g) = 0.163 mW/g

Maximum value of SAR (measured) = 0.291 mW/g



0 dB = 0.291mW/g

Test Laboratory: Sony Ericsson Mobile Communications AB

File Name: [Right_1900.da4](#)

DUT: PTX-826; Type: AAD-3724011-BV; Serial: 3158

Program Name: Right Hand Side

Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.44$ mho/m; $\epsilon_r = 38.7$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1569; ConvF(5.13, 5.13, 5.13); Calibrated: 2008-01-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn419; Calibrated: 2007-03-08
- Phantom: SAM 2; Type: SAM QD 000 P40 CB; Serial: TP-1396
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Mid Touch Antenna Out/Area Scan (41x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.374 mW/g

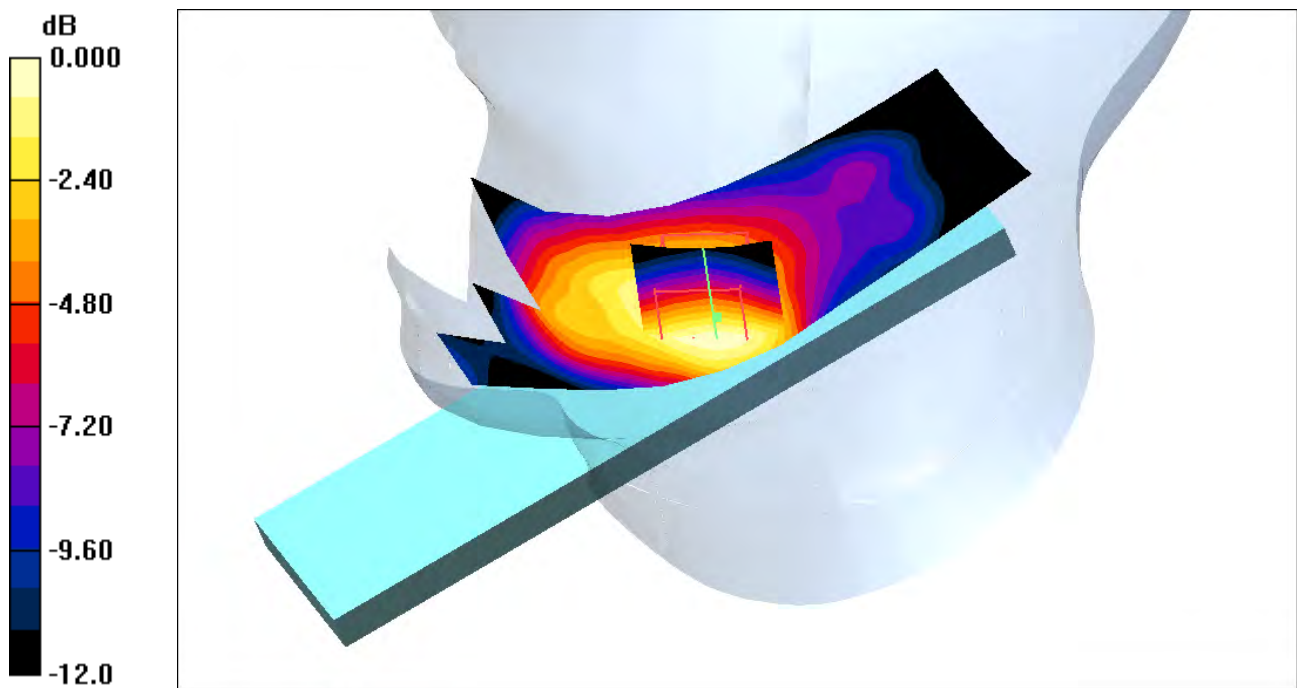
Mid Touch Antenna Out/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 15.5 V/m; Power Drift = -0.019 dB

Peak SAR (extrapolated) = 0.439 W/kg

SAR(1 g) = 0.323 mW/g; SAR(10 g) = 0.211 mW/g

Maximum value of SAR (measured) = 0.347 mW/g



Test Laboratory: Sony Ericsson Mobile Communications AB

File Name: [Right_1900.da4](#)

DUT: PTX-826; Type: AAD-3724011-BV; Serial: 3158

Program Name: Right Hand Side

Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.44$ mho/m; $\epsilon_r = 38.7$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1569; ConvF(5.13, 5.13, 5.13); Calibrated: 2008-01-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn419; Calibrated: 2007-03-08
- Phantom: SAM 2; Type: SAM QD 000 P40 CB; Serial: TP-1396
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Mid Tilt/Area Scan (41x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.211 mW/g

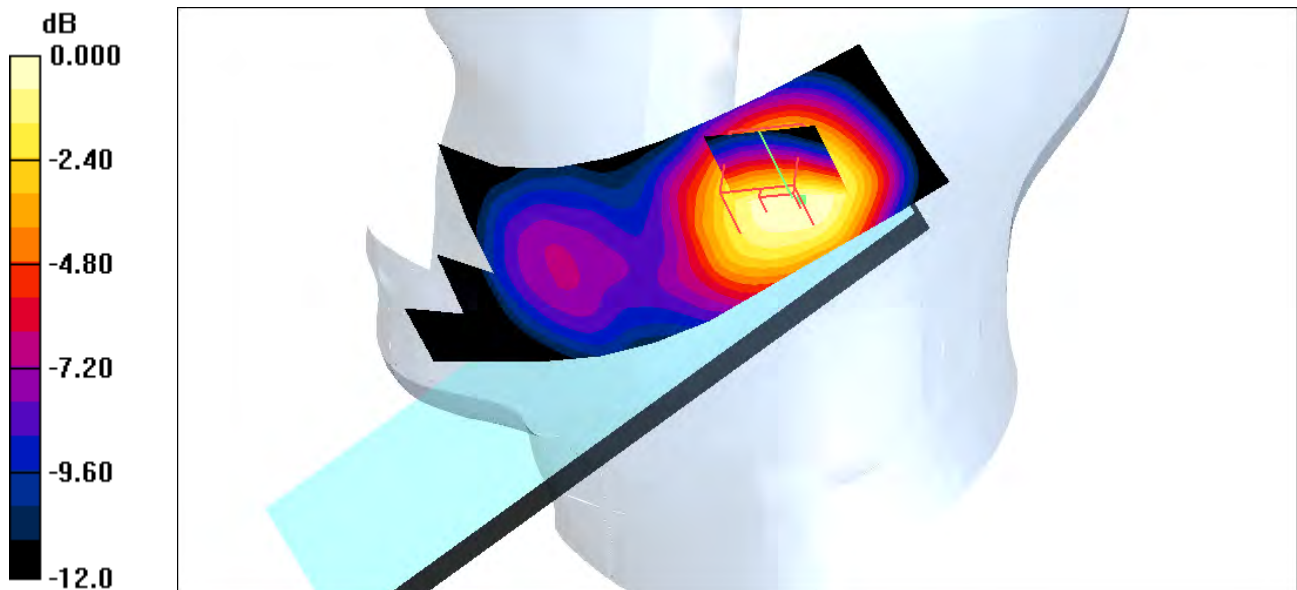
Mid Tilt/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 4.56 V/m; Power Drift = 0.049 dB

Peak SAR (extrapolated) = 0.258 W/kg

SAR(1 g) = 0.183 mW/g; SAR(10 g) = 0.118 mW/g

Maximum value of SAR (measured) = 0.197 mW/g



0 dB = 0.197mW/g

Test Laboratory: Sony Ericsson Mobile Communications AB

File Name: [Body_1900.da4](#)

DUT: PTX-826 Closed; Type: AAD-3724011-BV; Serial: 2816

Program Name: Body d=15mm

Communication System: GSM 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3

Medium parameters used: $f = 1850$ MHz; $\sigma = 1.54$ mho/m; $\epsilon_r = 51.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1569; ConvF(4.68, 4.68, 4.68); Calibrated: 2008-01-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn419; Calibrated: 2007-03-08
- Phantom: SAM 2; Type: SAM QD 000 P40 CB; Serial: TP-1396
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

GPRS Low/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.429 mW/g

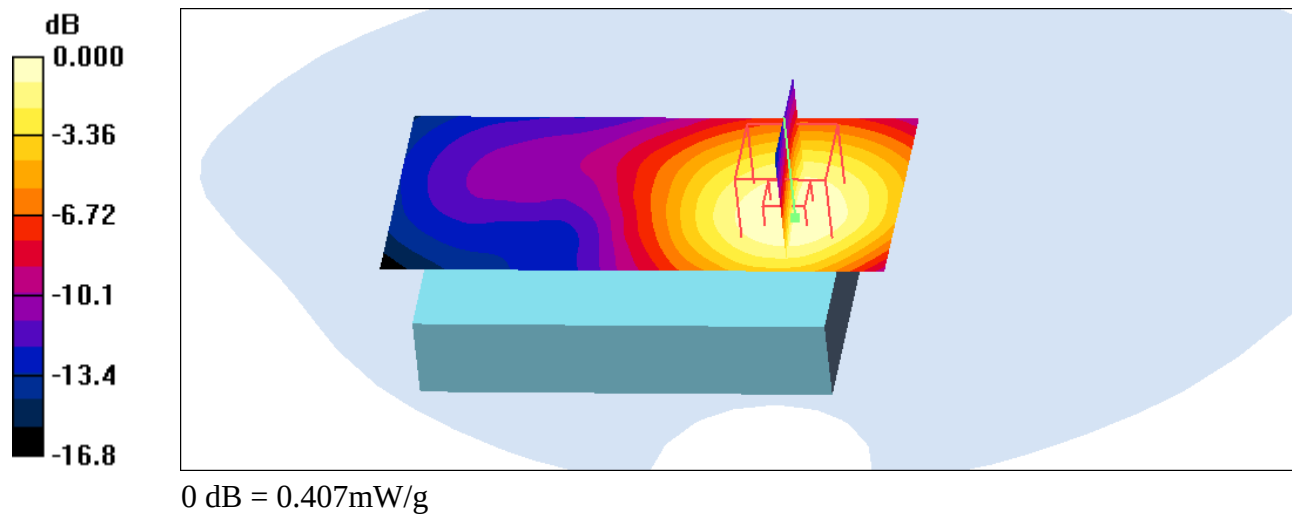
GPRS Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 16.3 V/m; Power Drift = -0.037 dB

Peak SAR (extrapolated) = 0.612 W/kg

SAR(1 g) = 0.379 mW/g; SAR(10 g) = 0.233 mW/g

Maximum value of SAR (measured) = 0.407 mW/g



Test Laboratory: Sony Ericsson Mobile Communications AB

File Name: [Body_1900_2.da4](#)

DUT: PTX-826 Closed; Type: AAD-3724011-BV; Serial: 2816

Program Name: Body d=15mm

Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated): $f = 1880$ MHz; $\sigma = 1.56$ mho/m; $\epsilon_r = 51.6$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1569; ConvF(4.68, 4.68, 4.68); Calibrated: 2008-01-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn419; Calibrated: 2007-03-08
- Phantom: SAM 2; Type: SAM QD 000 P40 CB; Serial: TP-1396
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

PHF mid/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

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

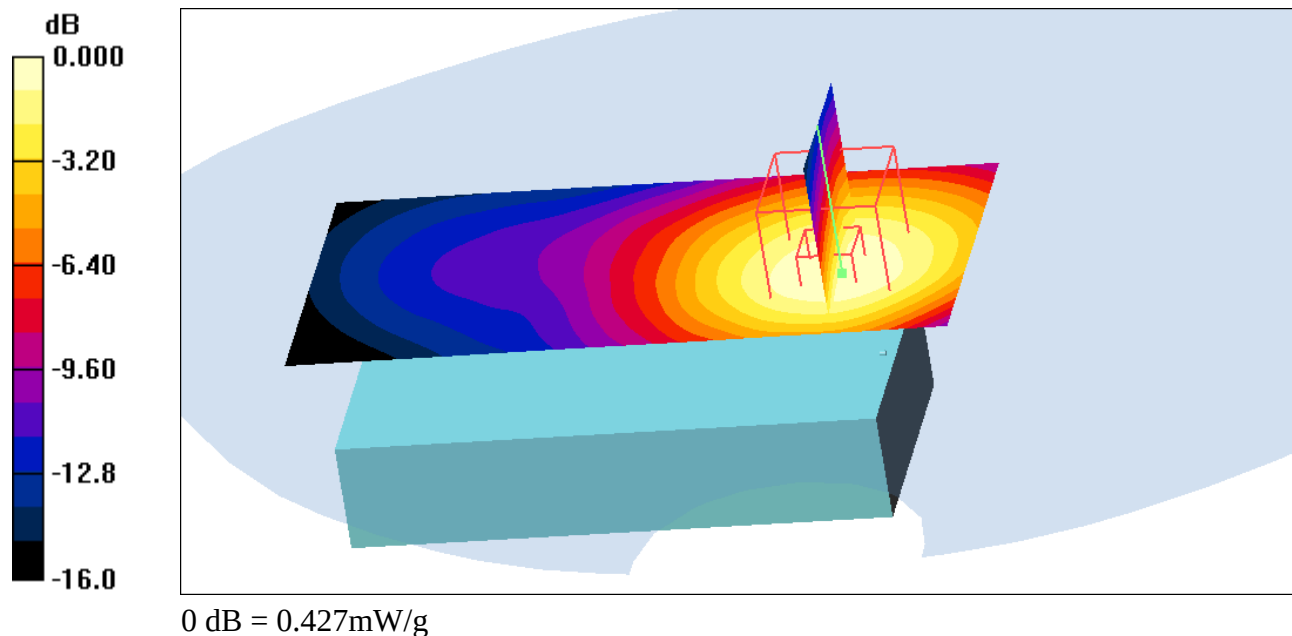
PHF mid/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 16.5 V/m; Power Drift = -0.015 dB

Peak SAR (extrapolated) = 0.641 W/kg

SAR(1 g) = 0.382 mW/g; SAR(10 g) = 0.231 mW/g

Maximum value of SAR (measured) = 0.408 mW/g



Test Laboratory: Sony Ericsson Mobile Communications AB

File Name: [Body_1900_2.da4](#)

DUT: PTX-826 Closed; Type: AAD-3724011-BV; Serial: 2816

Program Name: Body d=15mm

Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated): $f = 1880$ MHz; $\sigma = 1.56$ mho/m; $\epsilon_r = 51.6$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1569; ConvF(4.68, 4.68, 4.68); Calibrated: 2008-01-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn419; Calibrated: 2007-03-08
- Phantom: SAM 2; Type: SAM QD 000 P40 CB; Serial: TP-1396
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Display turned/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.427 mW/g

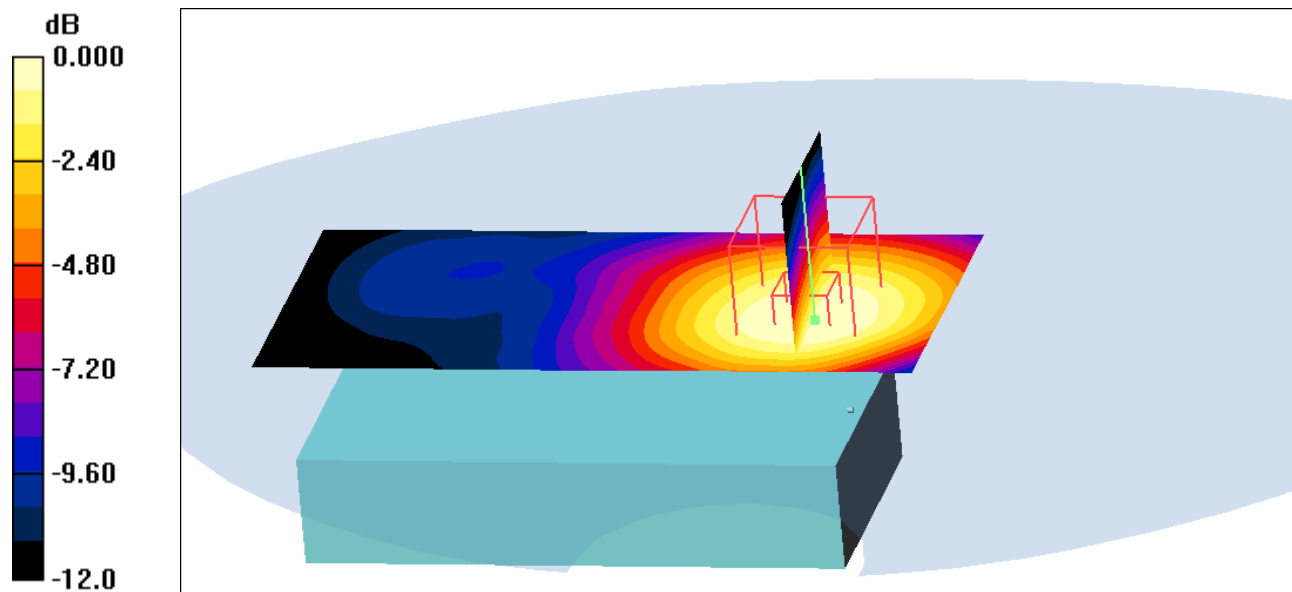
Display turned/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 16.5 V/m; Power Drift = -0.059 dB

Peak SAR (extrapolated) = 0.620 W/kg

SAR(1 g) = 0.375 mW/g; SAR(10 g) = 0.231 mW/g

Maximum value of SAR (measured) = 0.398 mW/g



0 dB = 0.398mW/g

Test Laboratory: Sony Ericsson Mobile Communications AB

File Name: [Body_1900_2.da4](#)

DUT: PTX-826 Closed; Type: AAD-3724011-BV; Serial: 2816

Program Name: Body d=15mm

Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated): $f = 1880$ MHz; $\sigma = 1.56$ mho/m; $\epsilon_r = 51.6$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1569; ConvF(4.68, 4.68, 4.68); Calibrated: 2008-01-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn419; Calibrated: 2007-03-08
- Phantom: SAM 2; Type: SAM QD 000 P40 CB; Serial: TP-1396
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

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

Reference Value = 11.2 V/m; Power Drift = -0.049 dB

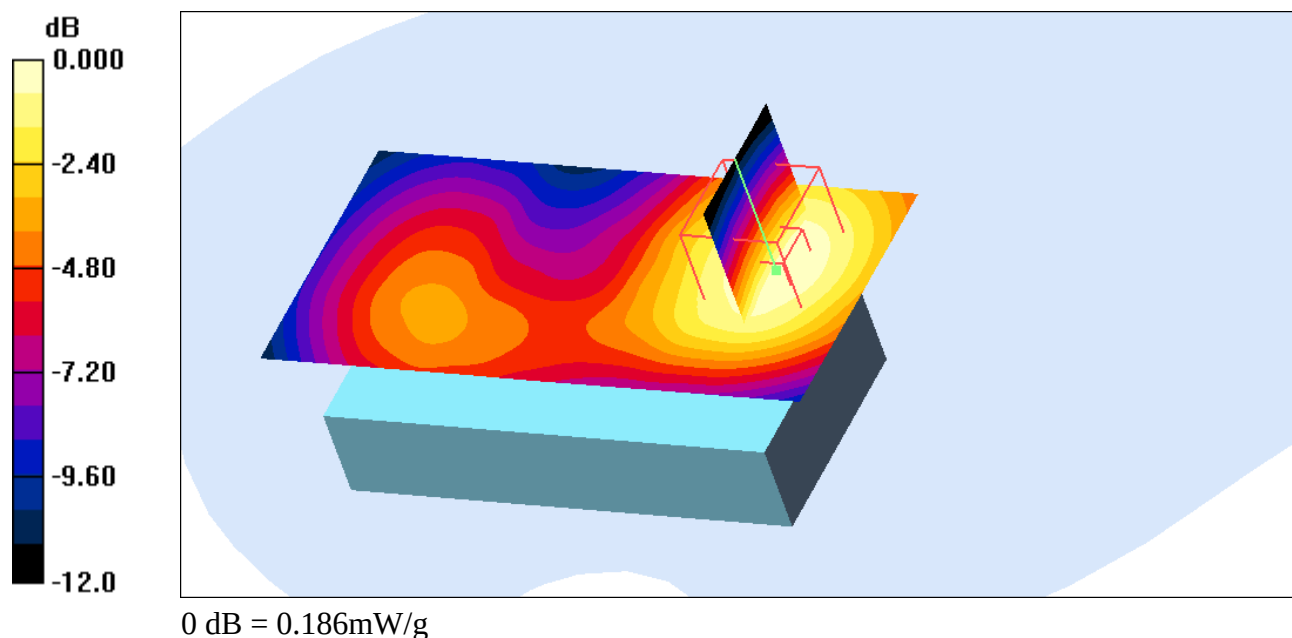
Peak SAR (extrapolated) = 0.272 W/kg

SAR(1 g) = 0.170 mW/g; SAR(10 g) = 0.106 mW/g

Maximum value of SAR (measured) = 0.183 mW/g

Frontside/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

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





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Accreditation No.: **SCS 108**

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Multilateral Agreement for the recognition of calibration certificates

Client **Sony Ericsson Lund**

CALIBRATION CERTIFICATE

Object **ES3DV6 - SN 1008**

Calibration procedure(s) **QA CAL-01-06**
Calibration procedure for digital multi-meters

Calibration date: **January 23, 2008**

Condition of the calibrated item **In Tolerance**

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	29-Mar-07 (METAS, No. 217-00670)	Mar-08
Power sensor E4412A	MY41495277	29-Mar-07 (METAS, No. 217-00670)	Mar-08
Power sensor E4412A	MY41498087	29-Mar-07 (METAS, No. 217-00670)	Mar-08
Reference 3 dB Attenuator	SN: S5054 (3c)	8-Aug-07 (METAS, No. 217-00719)	Aug-08
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-07 (METAS, No. 217-00671)	Mar-08
Reference 30 dB Attenuator	SN: S5129 (30b)	8-Aug-07 (METAS, No. 217-00720)	Aug-08
Reference Probe ES3DV2	SN: 3013	2-Jan-08 (SPEAG, No. ES3-3013_Jan08)	Jan-09
DAE4	SN: 654	20-Apr-07 (SPEAG, No. DAE4-654_Apr07)	Apr-08
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (SPEAG, in house check Oct-07)	In house check: Oct-09
Network Analyzer HP 8753E	US37390585	18-Oct-01 (SPEAG, in house check Oct-07)	In house check: Oct-08

	Name	Function	Signature
Calibrated by:	Karin Pöhlke	Calibration Technician	
Approved by:	Markus Kuster	Quality Manager	

Issued: January 23, 2008

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Accreditation No.: **SCS 108**

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Multilateral Agreement for the recognition of calibration certificates

Glossary:

TSL	tissue simulating liquid
NORM _{x,y,z}	sensitivity in free space
ConF	sensitivity in TSL / NORM _{x,y,z}
DCP	diode compression point
Polarization ϕ	ϕ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., $\vartheta = 0$ is normal to probe axis

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
- IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005

Methods Applied and Interpretation of Parameters:

- NORM_{x,y,z}**: Assessed for E-field polarization $\vartheta = 0$ ($f \leq 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide). NORM_{x,y,z} are only intermediate values, i.e., the uncertainties of NORM_{x,y,z} does not effect the E^2 -field uncertainty inside TSL (see below *ConvF*).
- NORM(f)_{x,y,z}** = NORM_{x,y,z} * *frequency_response* (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of *ConvF*.
- DCP_{x,y,z}**: DCP are numerical linearization parameters assessed based on the data of power sweep (no uncertainty required). DCP does not depend on frequency nor media.
- ConvF and Boundary Effect Parameters**: Assessed in flat phantom using E-field (or Temperature Transfer Standard for $f \leq 800$ MHz) and inside waveguide using analytical field distributions based on power measurements for $f > 800$ MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORM_{x,y,z} * *ConvF* whereby the uncertainty corresponds to that given for *ConvF*. A frequency dependent *ConvF* is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- Spherical isotropy (3D deviation from isotropy)**: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- Sensor Offset**: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.

Probe ET3DV6

SN:1569

Manufactured:	May 19, 2001
Last calibrated:	January 16, 2007
Recalibrated:	January 23, 2008

Calibrated for DASY Systems

(Note: non-compatible with DASY2 system!)

DASY - Parameters of Probe: ET3DV6 SN:1569

Sensitivity in Free Space^A

Diode Compression^B

NormX	1.84 ± 10.1%	$\mu\text{V}/(\text{V}/\text{m})^2$	DCP X	95 mV
NormY	2.10 ± 10.1%	$\mu\text{V}/(\text{V}/\text{m})^2$	DCP Y	94 mV
NormZ	1.96 ± 10.1%	$\mu\text{V}/(\text{V}/\text{m})^2$	DCP Z	93 mV

Sensitivity in Tissue Simulating Liquid (Conversion Factors)

Please see Page 8.

Boundary Effect

TSL **900 MHz** **Typical SAR gradient: 5 % per mm**

Sensor Center to Phantom Surface Distance		3.7 mm	4.7 mm
SAR _{be} [%]	Without Correction Algorithm	9.6	6.1
SAR _{be} [%]	With Correction Algorithm	0.8	0.6

TSL **1750 MHz** **Typical SAR gradient: 10 % per mm**

Sensor Center to Phantom Surface Distance		3.7 mm	4.7 mm
SAR _{be} [%]	Without Correction Algorithm	11.6	7.3
SAR _{be} [%]	With Correction Algorithm	0.7	0.6

Sensor Offset

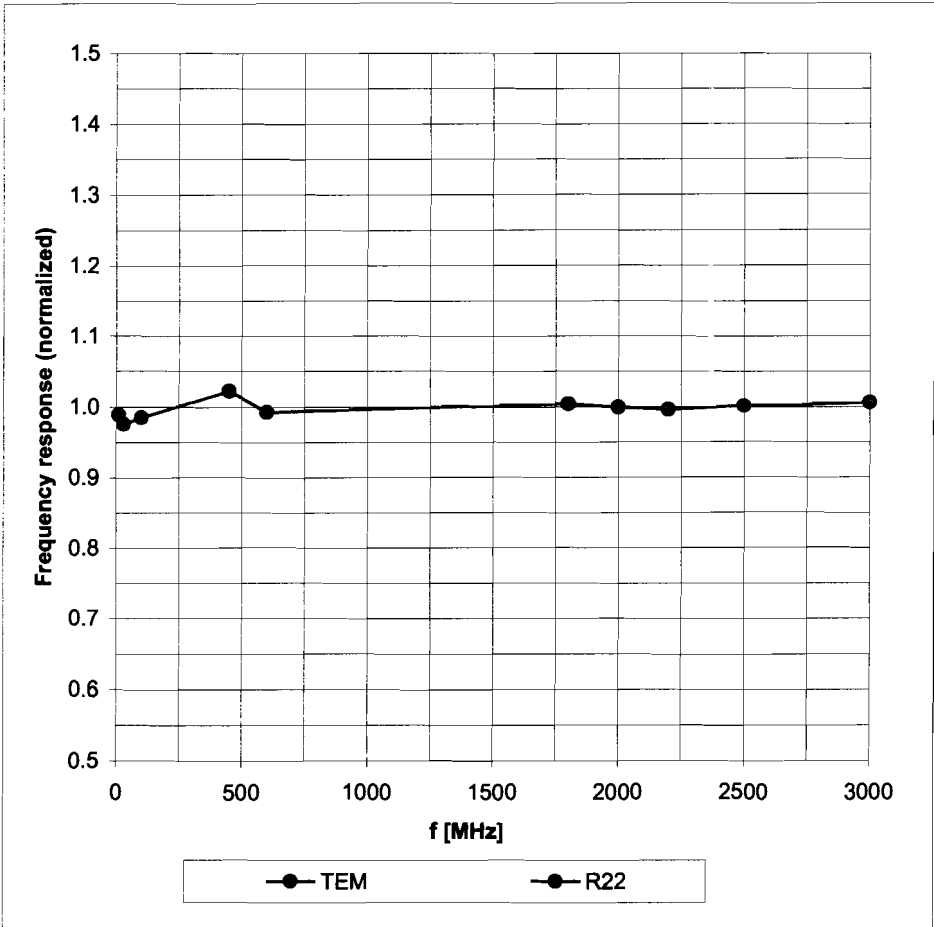
Probe Tip to Sensor Center **2.7 mm**

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 E²-field uncertainty inside TSL (see Page 8).

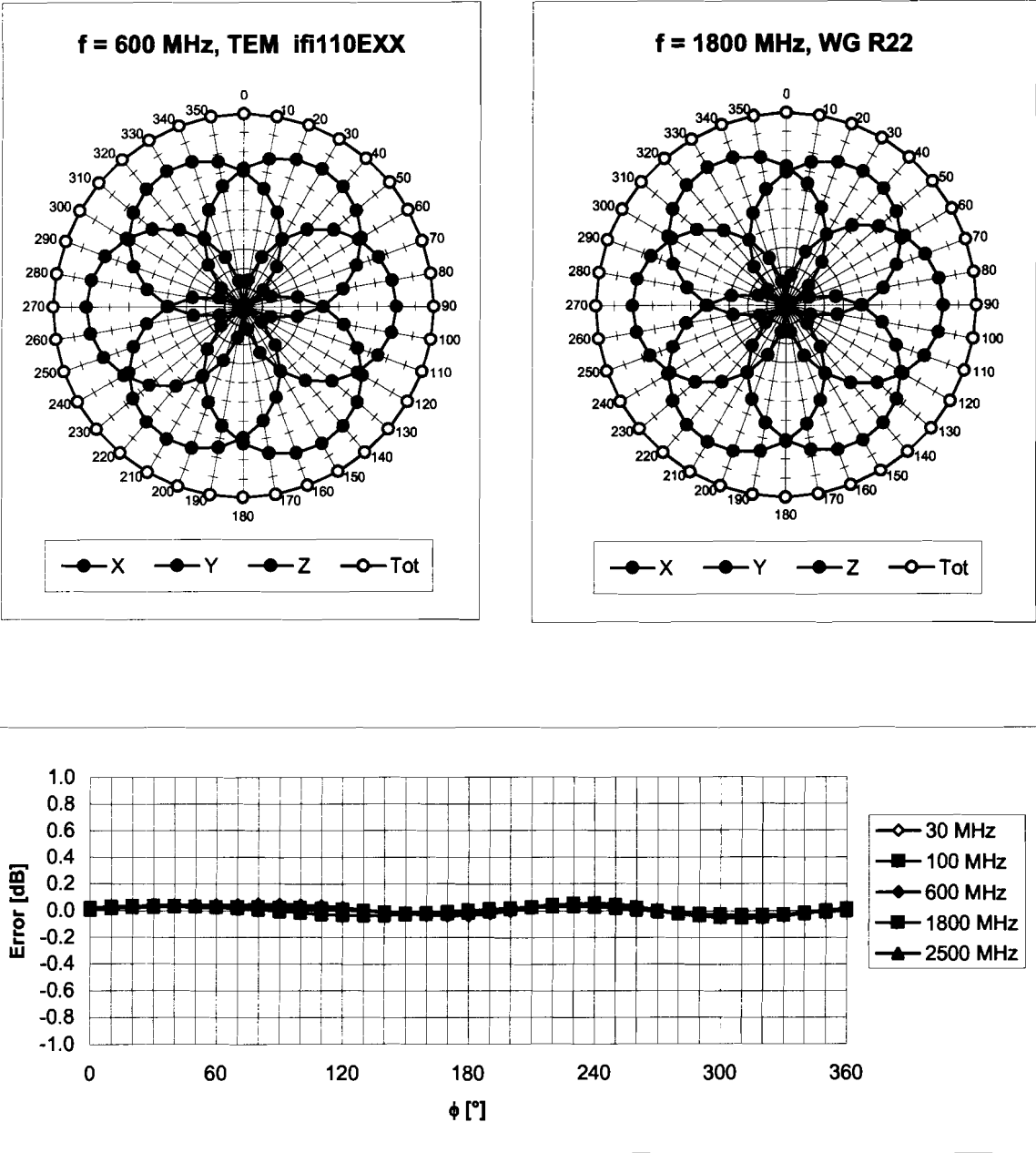
^B Numerical linearization parameter: uncertainty not required.

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



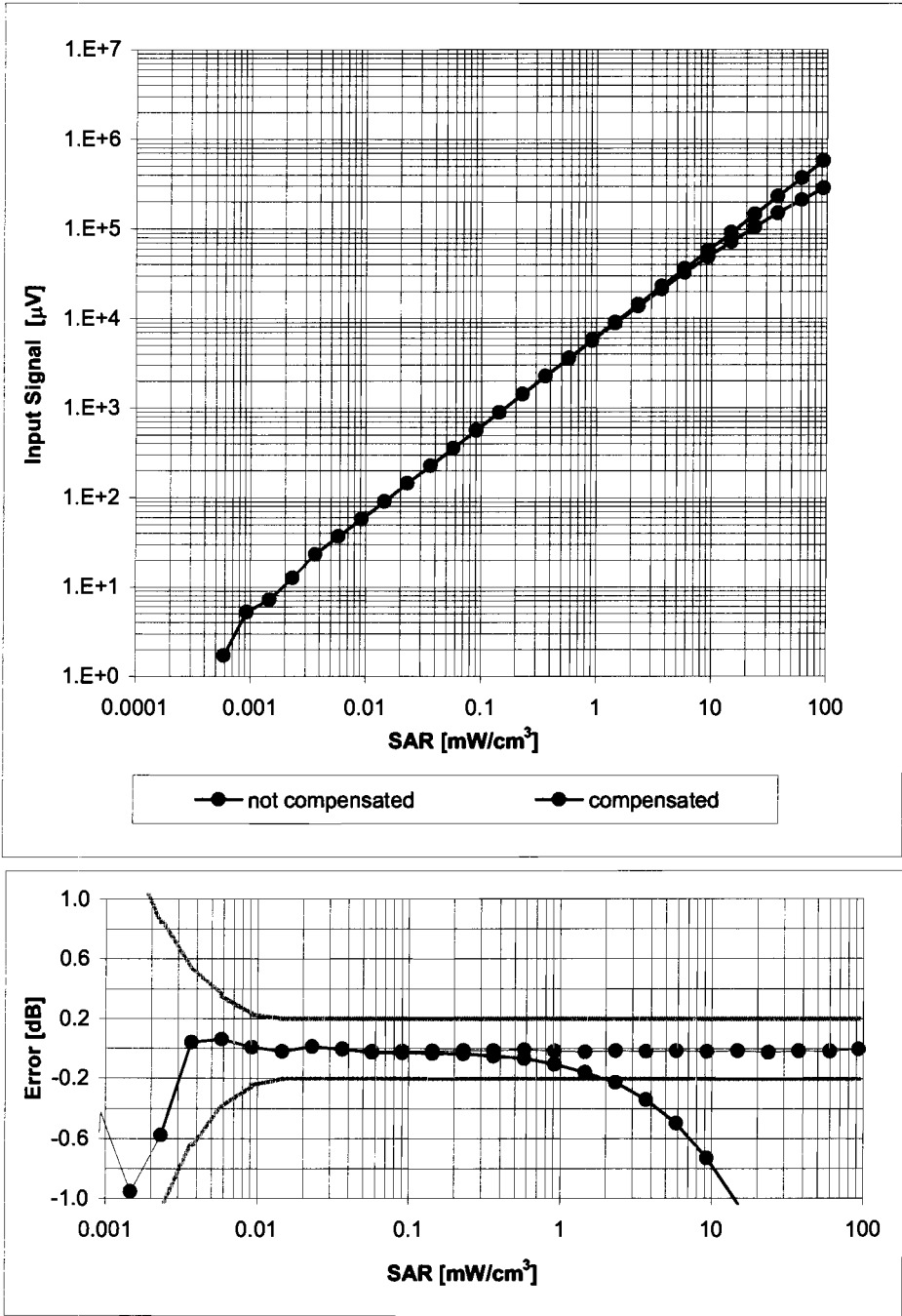
Uncertainty of Frequency Response of E-field: $\pm 6.3\%$ ($k=2$)

Receiving Pattern (ϕ), $\vartheta = 0^\circ$



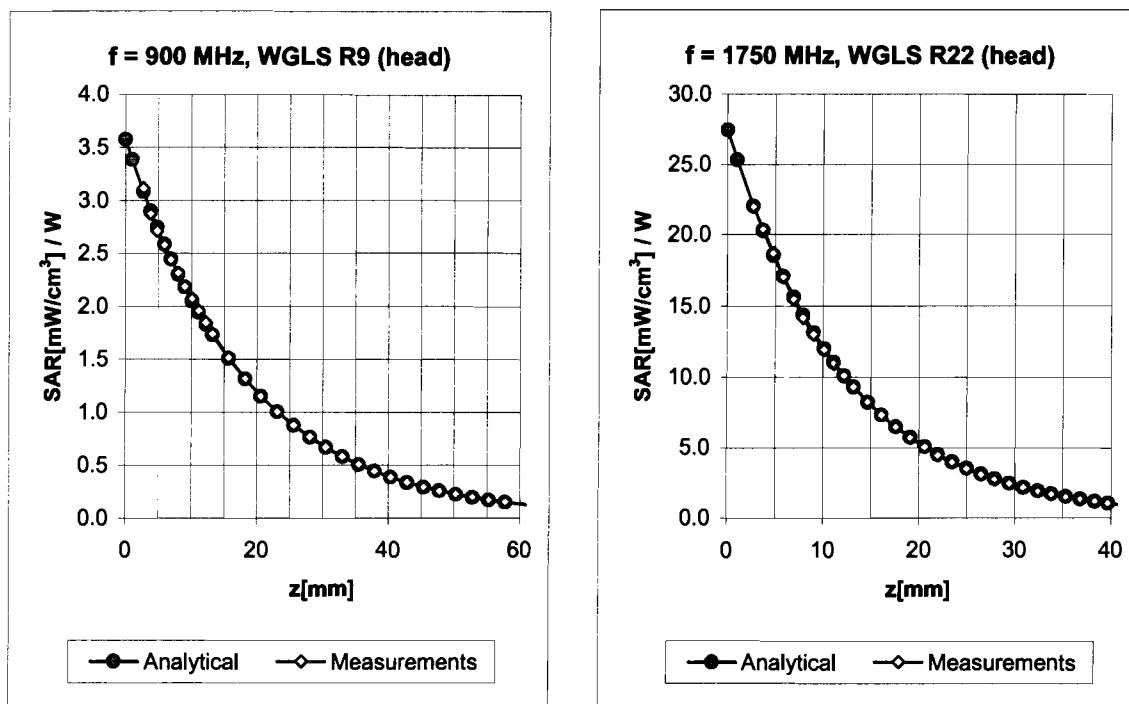
Uncertainty of Axial Isotropy Assessment: $\pm 0.5\%$ ($k=2$)

Dynamic Range $f(\text{SAR}_{\text{head}})$
(Waveguide R22, $f = 1800 \text{ MHz}$)



Uncertainty of Linearity Assessment: $\pm 0.6\%$ ($k=2$)

Conversion Factor Assessment

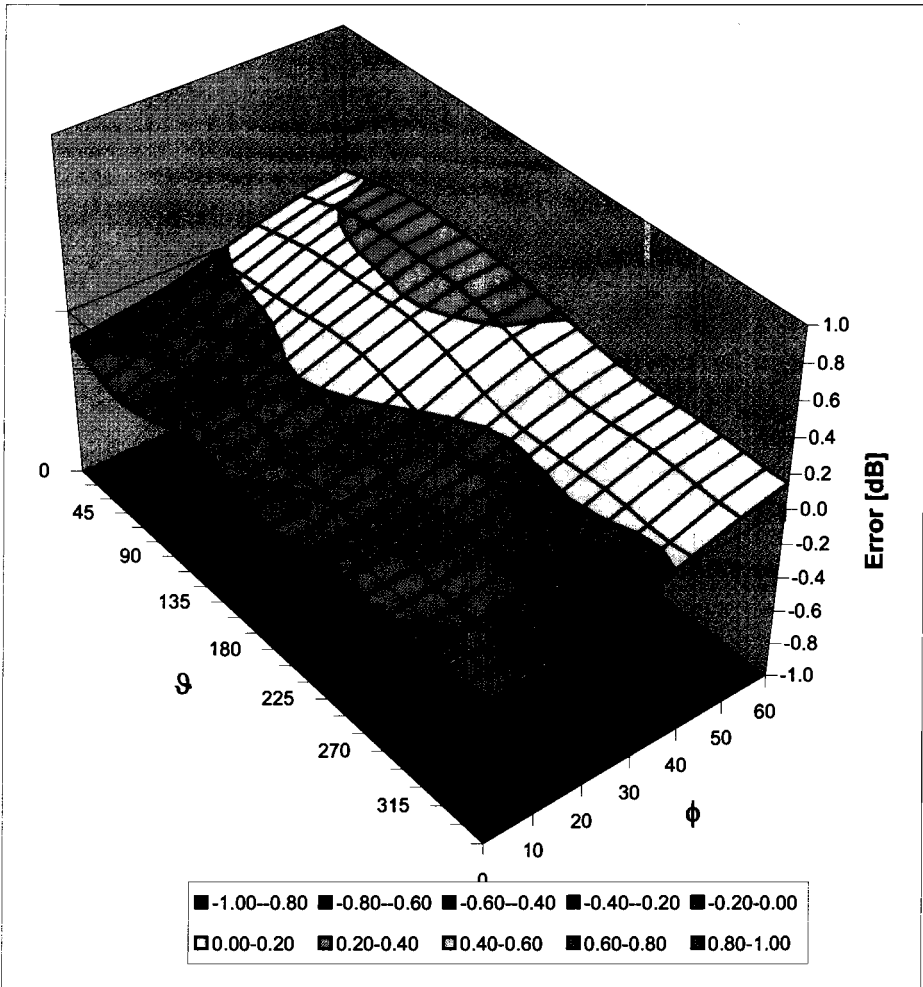


f [MHz]	Validity [MHz] ^c	TSL	Permittivity	Conductivity	Alpha	Depth	ConvF Uncertainty
835	± 50 / ± 100	Head	41.5 ± 5%	0.90 ± 5%	0.37	2.70	6.71 ± 11.0% (k=2)
900	± 50 / ± 100	Head	41.5 ± 5%	0.97 ± 5%	0.33	3.13	6.55 ± 11.0% (k=2)
1750	± 50 / ± 100	Head	40.1 ± 5%	1.37 ± 5%	0.36	3.31	5.26 ± 11.0% (k=2)
1900	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.39	3.02	5.13 ± 11.0% (k=2)
2450	± 50 / ± 100	Head	39.2 ± 5%	1.80 ± 5%	0.50	2.04	4.52 ± 11.8% (k=2)
835	± 50 / ± 100	Body	55.2 ± 5%	0.97 ± 5%	0.47	2.30	6.54 ± 11.0% (k=2)
900	± 50 / ± 100	Body	55.0 ± 5%	1.05 ± 5%	0.38	2.67	6.26 ± 11.0% (k=2)
1750	± 50 / ± 100	Body	53.4 ± 5%	1.49 ± 5%	0.35	4.19	4.87 ± 11.0% (k=2)
1900	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.38	3.00	4.68 ± 11.0% (k=2)
2450	± 50 / ± 100	Body	52.7 ± 5%	1.95 ± 5%	0.46	2.02	3.88 ± 11.8% (k=2)

^c The validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2). The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

Deviation from Isotropy in HSL

Error (ϕ , ϑ), $f = 900 \text{ MHz}$



Uncertainty of Spherical Isotropy Assessment: $\pm 2.6\%$ ($k=2$)



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Accreditation No.: **SCS 108**

Client **Sony Ericsson Lund**

Certificate No: **D835V2-484_Jan07**

CALIBRATION CERTIFICATE

Object **D835V2 - SN: 484**

Calibration procedure(s) **QA CAL-05 v6
 Calibration procedure for dipole validation kits**

Calibration date: **January 15, 2007**

Condition of the calibrated item **In Tolerance**

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	03-Oct-06 (METAS, No. 217-00608)	Oct-07
Power sensor HP 8481A	US37292783	03-Oct-06 (METAS, No. 217-00608)	Oct-07
Reference 20 dB Attenuator	SN: 5086 (20g)	10-Aug-06 (METAS, No 217-00591)	Aug-07
Reference 10 dB Attenuator	SN: 5047.2 (10r)	10-Aug-06 (METAS, No 217-00591)	Aug-07
Reference Probe ET3DV6 (HF)	SN 1507	19-Oct-06 (SPEAG, No. ET3-1507_Oct06)	Oct-07
DAE4	SN 907	20-Jul-06 (SPEAG, No. DAE4-907_Jul06)	Jul-07
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (SPEAG, in house check Oct-05)	In house check: Oct-07
RF generator Agilent E4421B	MY41000675	11-May-05 (SPEAG, in house check Nov-05)	In house check: Nov-07
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (SPEAG, in house check Oct-06)	In house check: Oct-07

	Name	Function	Signature
Calibrated by:	Marcel Fehr	Laboratory Technician	
Approved by:	Katja Polovic	Technical Manager	

Issued: January 16, 2007

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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) CENELEC EN 50361, "Basic standard for the measurement of Specific Absorption Rate related to human exposure to electromagnetic fields from mobile phones (300 MHz - 3 GHz), July 2001
- 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 System Handbook

Methods Applied and Interpretation of Parameters:

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

Measurement Conditions

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

DASY Version	DASY4	V4.7
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V4.9	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	835 MHz ± 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	40.2 ± 6 %	0.88 mho/m ± 6 %
Head TSL temperature during test	(22.1 ± 0.2) °C	---	---

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.31 mW / g
SAR normalized	normalized to 1W	9.24 mW / g
SAR for nominal Head TSL parameters ¹	normalized to 1W	9.20 mW / g ± 17.0 % (k=2)

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.51 mW / g
SAR normalized	normalized to 1W	6.04 mW / g
SAR for nominal Head TSL parameters ¹	normalized to 1W	6.00 mW / g ± 16.5 % (k=2)

¹ Correction to nominal TSL parameters according to d), chapter "SAR Sensitivities"

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	54.1 ± 6 %	1.01 mho/m ± 6 %
Body TSL temperature during test	(21.9 ± 0.2) °C	---	---

SAR result with Body TSL

SAR averaged over 1 cm ³ (1 g) of Body TSL	condition	
SAR measured	250 mW input power	2.47 mW / g
SAR normalized	normalized to 1W	9.88 mW / g
SAR for nominal Body TSL parameters ²	normalized to 1W	9.48 mW / g ± 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.62 mW / g
SAR normalized	normalized to 1W	6.48 mW / g
SAR for nominal Body TSL parameters ²	normalized to 1W	6.29 mW / g ± 16.5 % (k=2)

² Correction to nominal TSL parameters according to d), chapter "SAR Sensitivities"

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	52.4 Ω - 3.2 j Ω
Return Loss	- 28.1 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	48.2 Ω - 4.8 j Ω
Return Loss	- 25.6 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.395 ns
----------------------------------	----------

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

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals.

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

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	April 23, 2003

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 484

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

Medium: HSL 900 MHz;

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.88 \text{ mho/m}$; $\epsilon_r = 40.3$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1507 (HF); ConvF(6.09, 6.09, 6.09); Calibrated: 19.10.2006
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn907; Calibrated: 20.07.2006
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; ;
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

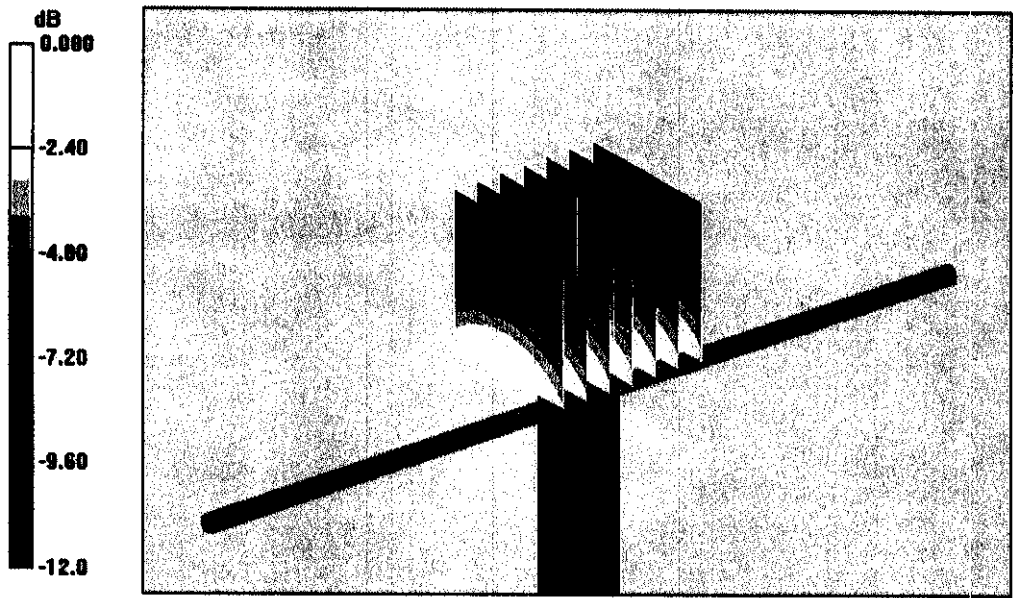
Pin = 250 mW; d = 15 mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 55.7 V/m; Power Drift = -0.006 dB

Peak SAR (extrapolated) = 3.40 W/kg

SAR(1 g) = 2.31 mW/g; SAR(10 g) = 1.51 mW/g

Maximum value of SAR (measured) = 2.47 mW/g

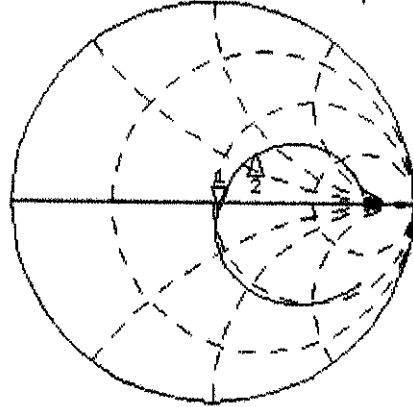


Impedance Measurement Plot for Head TSL

8 Jan 2007 11:17:02

CH1 S11 1 U FS 1i 52.436 Ω -3.2129 Ω 59.325 pF 835.000 000 MHz

*
Del
Cor



CH1 Markers
2i 65.203 Ω
33.645 Ω
900.000 MHz

Avg
16

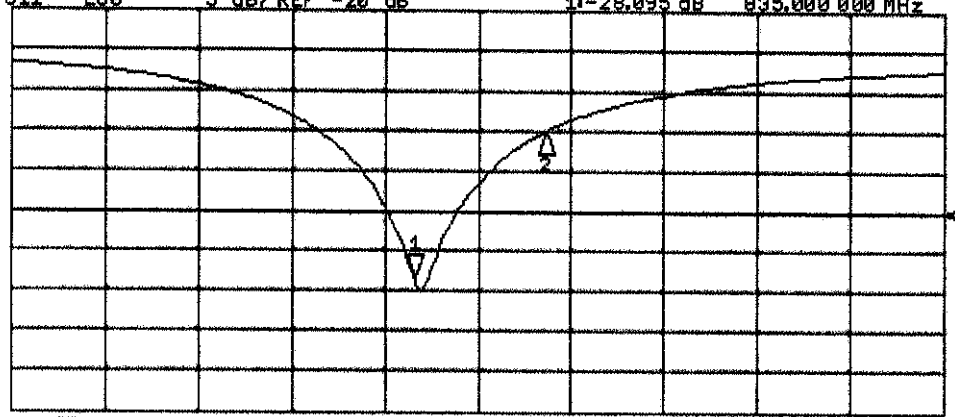
↑

CH2 S11 L00 5 dB/REF -20 dB 1i-28.095 dB 835.000 000 MHz

Cor

Avg
16

↑



CH2 Markers
2i-10.240 dB
900.000 MHz

START 635.000 000 MHz STOP 1 1000.000 000 MHz

Test Laboratory: SPEAG, Zurich, Switzerland

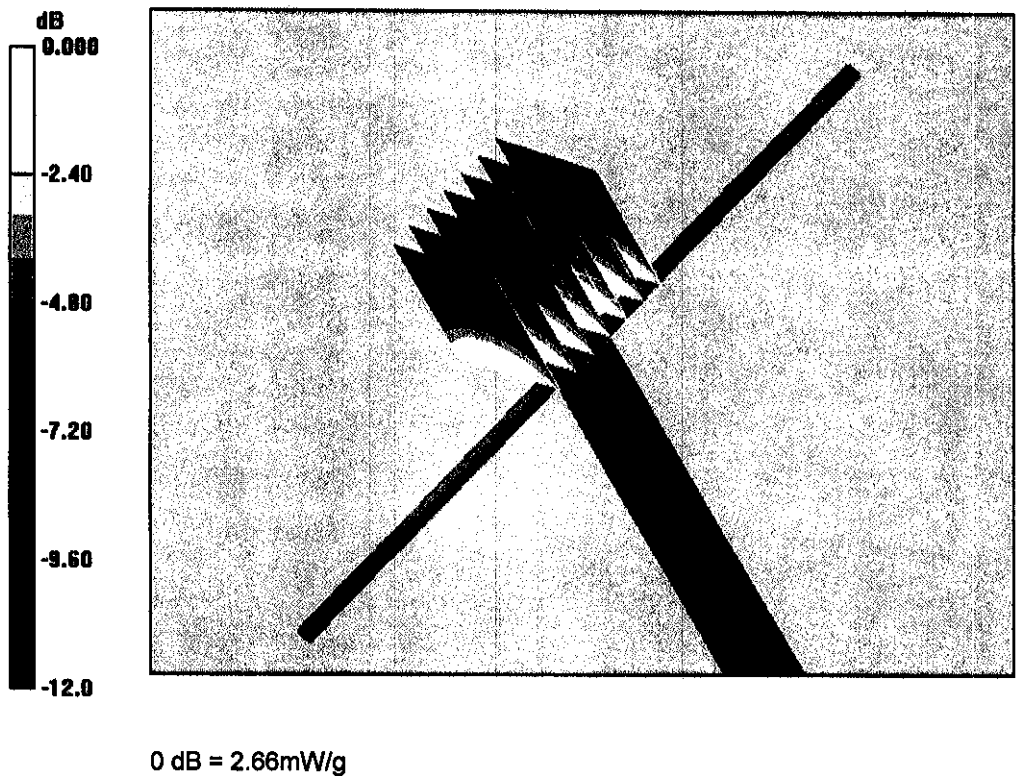
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:484

Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium: MSL900;
Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 1.01 \text{ mho/m}$; $\epsilon_r = 54.1$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1507 (HF); ConvF(5.75, 5.75, 5.75); Calibrated: 19.10.2006
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn907; Calibrated: 20.07.2006
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; ;
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

Unnamed procedure/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
Reference Value = 53.8 V/m; Power Drift = 0.018 dB
Peak SAR (extrapolated) = 3.55 W/kg
SAR(1 g) = 2.47 mW/g; SAR(10 g) = 1.62 mW/g
Maximum value of SAR (measured) = 2.66 mW/g

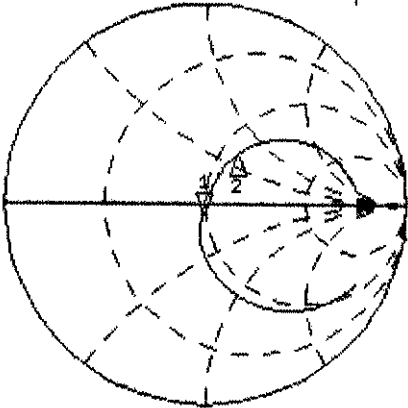


Impedance Measurement Plot for Body TSL

15 Jan 2007 13:01:41

CH1 S11 1 U FS 1: 48.154 Ω -4.8301 Ω 39.462 pF 835.000 000 MHz

*
De1
Cor

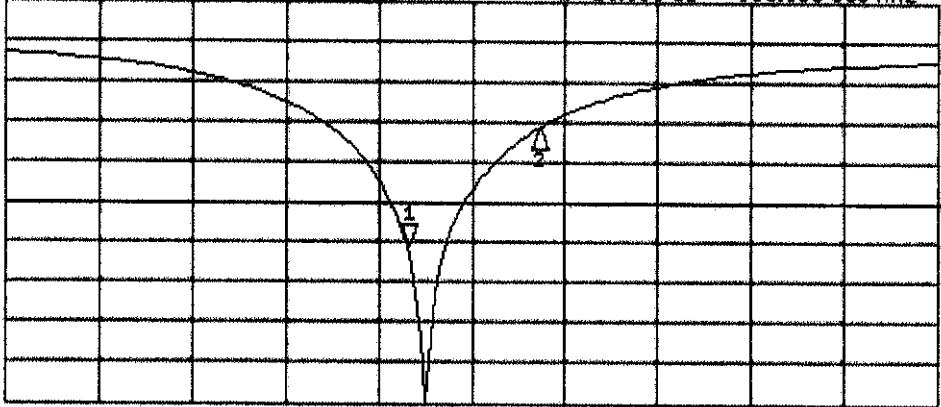


CH1 Markers
2: 58.496 Ω
31.262 Ω
900.000 MHz

Avg
16

CH2 S11 L00 5 dB/REF -20 dB 1: -25.586 dB 835.000 000 MHz

Cor
Avg
16



CH2 Markers
2: -10.845 dB
900.000 MHz

START 635.000 000 MHz STOP 1 100.000 000 MHz



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 **Sony Ericsson Lund**

Certificate No: D1900V2-5d073_Jan08

CALIBRATION CERTIFICATE

Object **D1900V2 - SN: 5d073**

Calibration procedure(s) **QA CAL-05.v7**
Calibration procedure for dipole validation kits

Calibration date: **January 22, 2008**

Condition of the calibrated item **In Tolerance**

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	04-Oct-07 (METAS, No. 217-00736)	Oct-08
Power sensor HP 8481A	US37292783	04-Oct-07 (METAS, No. 217-00736)	Oct-08
Reference 20 dB Attenuator	SN: 5086 (20g)	07-Aug-07 (METAS, No 217-00718)	Aug-08
Reference 10 dB Attenuator	SN: 5047.2 (10r)	07-Aug-07 (METAS, No 217-00718)	Aug-08
Reference Probe ET3DV6 (HF)	SN: 1507	26-Oct-07 (SPEAG, No. ET3-1507_Oct07)	Oct-08
DAE4	SN 601	3-Jan-08 (SPEAG, No. DAE4-601_Jan08)	Jan-09
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (SPEAG, in house check Oct-07)	In house check: Oct-08
RF generator R&S SMT-06	100005	4-Aug-99 (SPEAG, in house check Oct-07)	In house check: Oct-09
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (SPEAG, in house check Oct-07)	In house check: Oct-08

	Name	Function	Signature
Calibrated by:	Marcel Fehr	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: January 24, 2008

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



Accredited by the Swiss Accreditation Service (SAS)

The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Glossary:

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

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
- IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
- Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

Additional Documentation:

- DASY4 System Handbook

Methods Applied and Interpretation of Parameters:

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

Measurement Conditions

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

DASY Version	DASY4	V4.7
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V5.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1900 MHz $\pm$ 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	40.0	1.40 mho/m
Measured Head TSL parameters	(22.0 $\pm$ 0.2) °C	38.5 $\pm$ 6 %	1.46 mho/m $\pm$ 6 %
Head TSL temperature during test	(20.7 $\pm$ 0.2) °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	condition	
SAR measured	250 mW input power	10.0 mW / g
SAR normalized	normalized to 1W	40.0 mW / g
SAR for nominal Head TSL parameters ¹	normalized to 1W	38.3 mW / g $\pm$ 17.0 % (k=2)

SAR averaged over 10 cm³ (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	5.26 mW / g
SAR normalized	normalized to 1W	21.0 mW / g
SAR for nominal Head TSL parameters ¹	normalized to 1W	20.5 mW / g $\pm$ 16.5 % (k=2)

¹ Correction to nominal TSL parameters according to d), chapter "SAR Sensitivities"

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	52.9 ± 6 %	1.54 mho/m ± 6 %
Body TSL temperature during test	(20.6 ± 0.2) °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	9.59 mW / g
SAR normalized	normalized to 1W	38.4 mW / g
SAR for nominal Body TSL parameters ²	normalized to 1W	37.9 mW / g ± 17.0 % (k=2)

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.11 mW / g
SAR normalized	normalized to 1W	20.4 mW / g
SAR for nominal Body TSL parameters ²	normalized to 1W	20.3 mW / g ± 16.5 % (k=2)

² Correction to nominal TSL parameters according to d), chapter "SAR Sensitivities"

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	$54.6 \Omega + 6.5 j\Omega$
Return Loss	- 22.4 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	$50.0 \Omega + 6.8 j\Omega$
Return Loss	- 23.4 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.196 ns
----------------------------------	----------

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

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals.

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

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	January 24, 2006

DASY4 Validation Report for Head TSL

Date/Time: 16.01.2008 16:35:30

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d073

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

Medium: HSL U10 BB;

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.46$ mho/m; $\epsilon_r = 38.5$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1507 (HF); ConvF(4.86, 4.86, 4.86); Calibrated: 26.10.2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 03.01.2008
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; ;
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 172

Pin = 250 mW; d = 10 mm/Zoom Scan (7x7x7)/Cube 0:

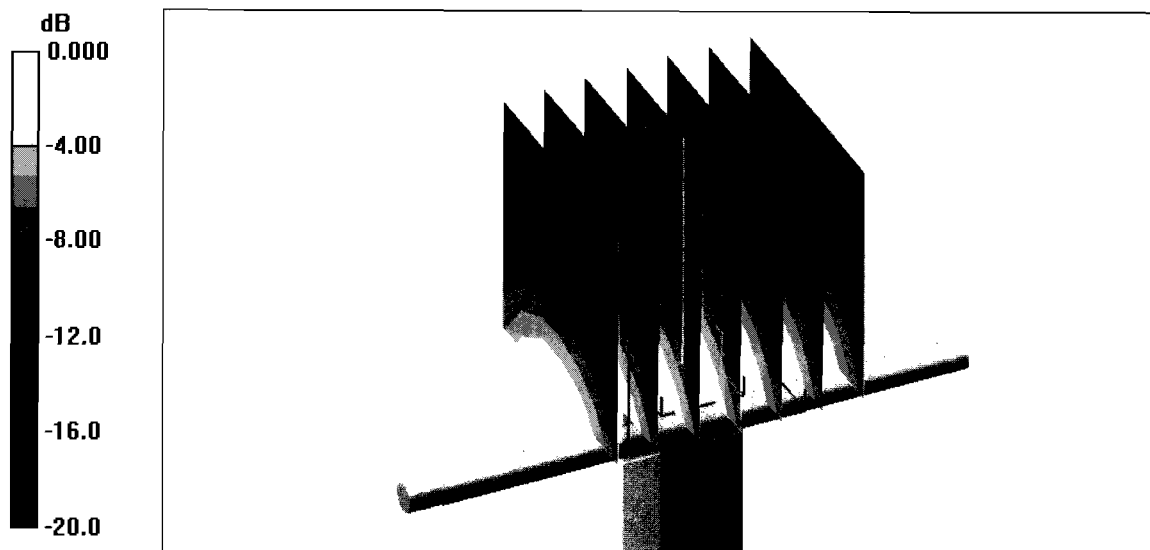
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 93.6 V/m; Power Drift = 0.021 dB

Peak SAR (extrapolated) = 17.6 W/kg

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

Maximum value of SAR (measured) = 11.2 mW/g



0 dB = 11.2mW/g

Impedance Measurement Plot for Head TSL

16 Jan 2008 13:28:50
CH1 S11 1 U FS 1: 54.566 Ω 6.5312 Ω 547.10 μ H 1 900.000 000 MHz

*

De1

Ca

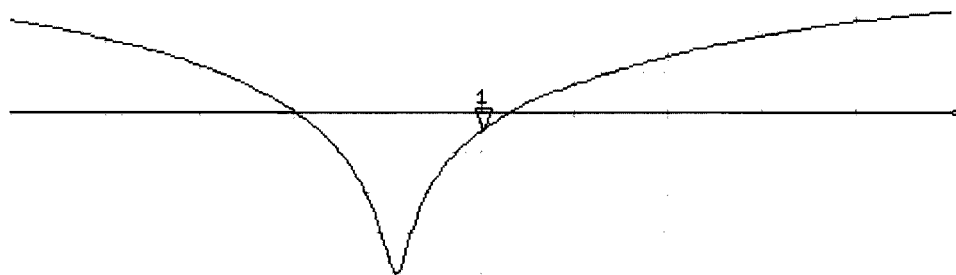


Avg
16

CH2 S11 LOG 5 dB/REF -20 dB 1:-22.368 dB 1 900.000 000 MHz

Ca

Avg
16



CENTER 1 900.000 000 MHz

SPAN 400.000 000 MHz

DASY4 Validation Report for Body TSL

Date/Time: 22.01.2008 14:52:53

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d073

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

Medium: MSL U10 BB;

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.54$ mho/m; $\epsilon_r = 53.1$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1507 (HF); ConvF(4.48, 4.48, 4.48); Calibrated: 26.10.2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 03.01.2008
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; ;
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 172

Pin = 250 mW; d = 10 mm/Zoom Scan (7x7x7)/Cube 0:

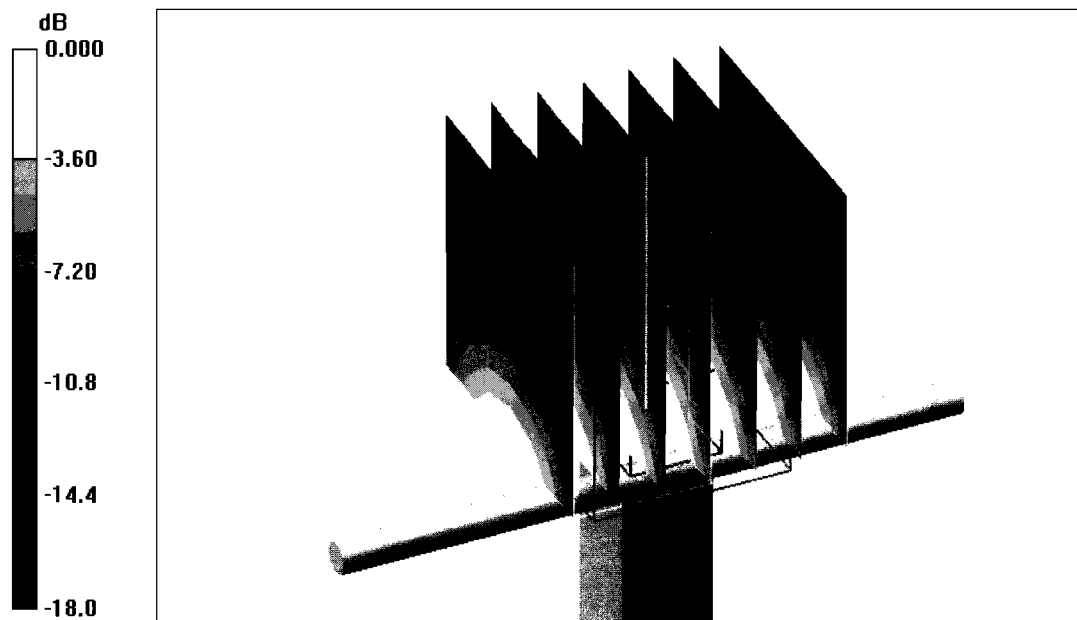
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 90.3 V/m; Power Drift = -0.016 dB

Peak SAR (extrapolated) = 16.5 W/kg

SAR(1 g) = 9.59 mW/g; SAR(10 g) = 5.11 mW/g

Maximum value of SAR (measured) = 10.9 mW/g



0 dB = 10.9mW/g

Impedance Measurement Plot for Body TSL

22 Jan 2008 12:20:06

CH1 S11 1 U FS 2: 49.994 Ω 6.7930 Ω 569.02 μH 1 900.000 000 MHz

#

De1

Cor

Avg
16



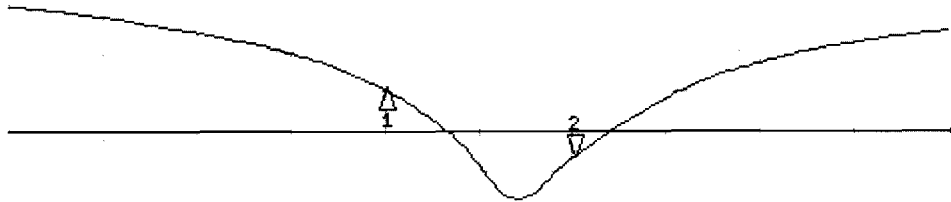
CH1 Markers

1: 41.348 Ω
-14.223 Ω
1.80000 GHz

CH2 S11 LOG 5 dB/REF -20 dB 2:-23.372 dB 1 900.000 000 MHz

Cor

Avg
16



CH2 Markers

1:-14.891 dB
1.80000 GHz

START 1 600.000 000 MHz

STOP 2 100.000 000 MHz