

Amendment

To Report I 10GC0429-FCC-SAR

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1 Scan plots

4.9.2 Test Data for Head mode

GSM850 head

Test configuration	Test position	SAR _{1g} [W/kg] / Power Drift [dB]		
		Channel 128 [low] 824.2 MHz	Channel 190 [Mid] 836.6 MHz	Channel 251 [high] 848.8 MHz
Right side of Head	Cheek	0.779 / -0.112	0.766 / 0.023	0.818 / -0.146
	Tilted	-- / --	0.512 / -0.007	-- / --
Left side of Head	Cheek	-- / --	0.710 / -0.261	-- / --
	Tilted	-- / --	0.476 / -0.968	-- / --

PCS1900 head

Test configuration	Test position	SAR _{1g} [W/kg] / Power Drift [dB]		
		Channel 512 [low] 1850.2 MHz	Channel 661 [Mid] 1880.0 MHz	Channel 810 [high] 1909.8 MHz
Right side of Head	Cheek	0.708 / 0.046	0.829 / -0.026	0.901 / -0.295
	Tilted	-- / --	0.342 / 0.037	-- / --
Left side of Head	Cheek	-- / --	0.652 / 0.013	-- / --
	Tilted	-- / --	0.396 / -0.024	-- / --

4.9.3 Test Data for Body-Worn mode

GSM850 body

Test configuration	SAR _{1g} [W/kg] / Power Drift [dB]		
	Channel 128 [low] 824.2 MHz	Channel 190 [Mid] 836.6 MHz	Channel 251 [high] 848.8 MHz
Face towards phantom	-- / --	0.576 / 0.234	-- / --
Back toward phantom	0.616 / 0.100	0.605 / -0.065	0.519 / 0.0456
Back toward phantom with belt	0.657 / -0.024	0.569 / 0.148	0.549 / 0.146
Back toward phantom with earphone	0.453 / -0.0156	-- / --	-- / --
Back toward phantom with BT on	0.513 / -0.0336	-- / --	-- / --
Back toward phantom with GPRS (4TS)	0.478 / 0.117	-- / --	-- / --
Back toward phantom with EGPRS (4TS)	0.555 / 0.0396	-- / --	-- / --

PCS1900 body

Test configuration	SAR _{1g} [W/kg] / Power Drift [dB]		
	Channel 512 [low] 1850.2 MHz	Channel 661 [Mid] 1880.0 MHz	Channel 810 [high] 1909.8 MHz
Face towards phantom	0.267 / 0.260	0.313 / -0.0811	0.306 / 0.235
Back toward phantom	-- / --	0.297 / 0.371	-- / --
Back toward phantom with belt	0.253 / 0.238	0.286 / -0.208	0.303 / -0.064
Face toward phantom with earphone	-- / --	0.280 / -0.016	-- / --
Face toward phantom with BT on	-- / --	0.275 / 0.210	-- / --
Face toward phantom with GPRS (4TS)	-- / --	0.310 / -0.052	-- / --
Face toward phantom with EGPRS (2TS)	-- / --	0.267 / 0.002	-- / --

Head:

Plot 1: GSM 850 head, right cheek, low channel

Test Laboratory: CTTL

GSM850_Head_Right_Cheek_Low

DUT: SONIM XP 1300-A; Type: SONIM XP 1300-A; Serial: --

Communication System: GSM 850; Frequency: 824.2 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated): $f = 824.2$ MHz; $\sigma = 0.902$ mho/m; ϵ_r

$= 42.3$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC)

DASY4 Configuration:

- Probe: ES3DV3 - SN3158; ConvF(5.97, 5.97, 5.97); Calibrated: 2010-5-20
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn549; Calibrated: 2010-5-20
- Phantom: North SAM; Type: SAM; Serial: TP-1472
- Measurement SW: DASY5, V5.0 Build 119; SEMCAD X Version 13.2 Build 87

Sonim_Right_Touch_Low/Area Scan (81x41x1): Measurement grid:

dx=15mm, dy=15mm

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

Maximum value of SAR (interpolated) = 0.863 mW/g

Sonim_Right_Touch_Low/Zoom Scan (7x7x6)/Cube 0: Measurement

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

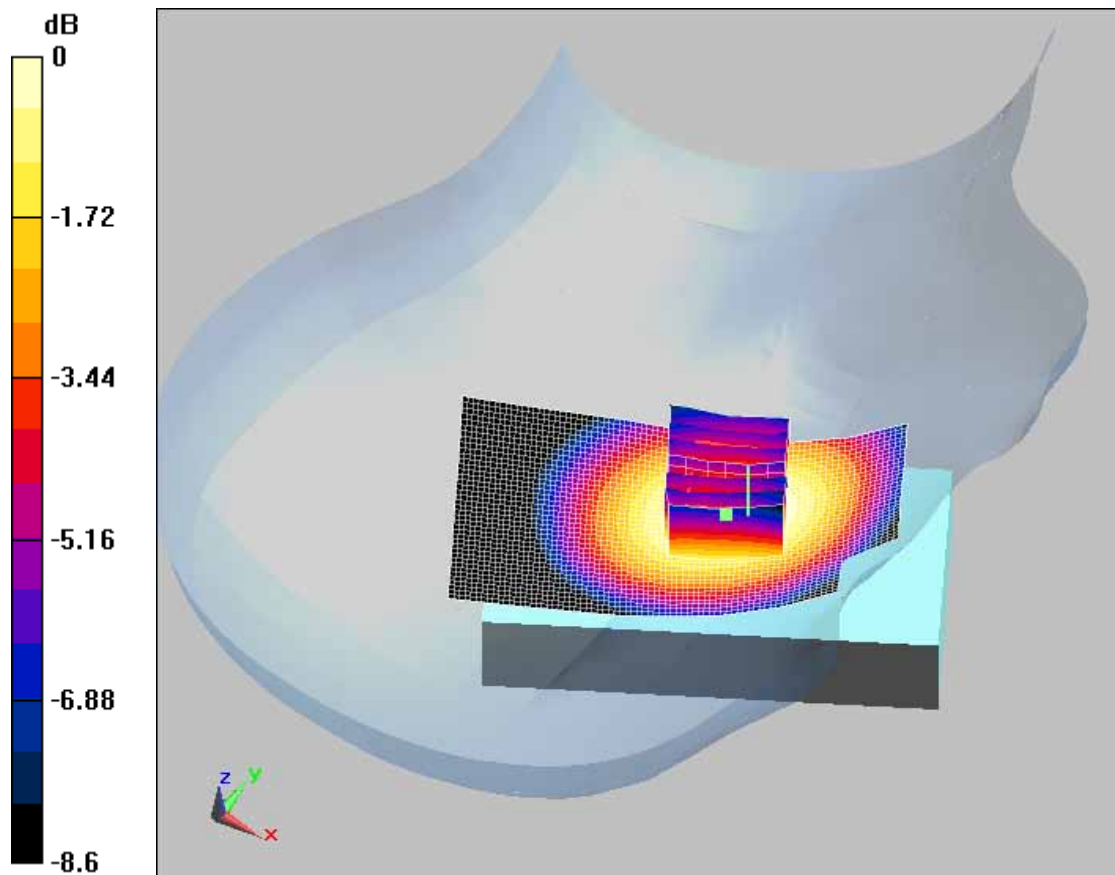
Reference Value = 12 V/m; Power Drift = -0.112 dB

Peak SAR (extrapolated) = 0.986 W/kg

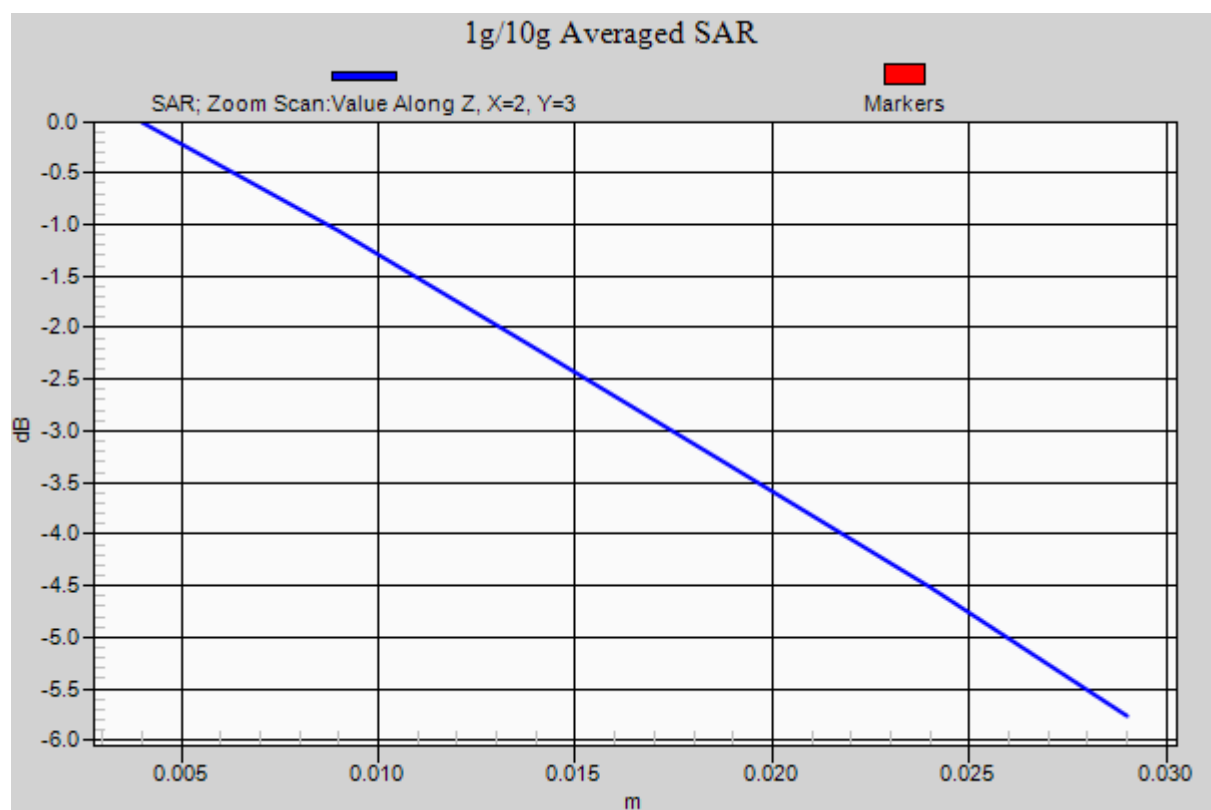
SAR(1 g) = 0.779 mW/g; SAR(10 g) = 0.577 mW/g

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

Maximum value of SAR (measured) = 0.822 mW/g



0 dB = 0.822mW/g



Plot 2: GSM 850 head, right cheek, middle channel

Test Laboratory: CTTL

GSM850_Head_Right_Cheek_Middle

DUT: SONIM XP 1300-A; Type: SONIM XP 1300-A; Serial: --

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium parameters used: $f = 837$ MHz; $\sigma = 0.923$ mho/m; $\epsilon_r = 42.1$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC)

DASY4 Configuration:

- Probe: ES3DV3 - SN3158; ConvF(5.97, 5.97, 5.97); Calibrated: 2010-5-20
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn549; Calibrated: 2010-5-20
- Phantom: North SAM; Type: SAM; Serial: TP-1472
- Measurement SW: DASY5, V5.0 Build 119; SEMCAD X Version 13.2 Build 87

Sonim_Right_Touch_Mid/Area Scan (81x41x1): Measurement grid:

$dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.812 mW/g

Sonim_Right_Touch_Mid/Zoom Scan (7x7x6)/Cube 0: Measurement

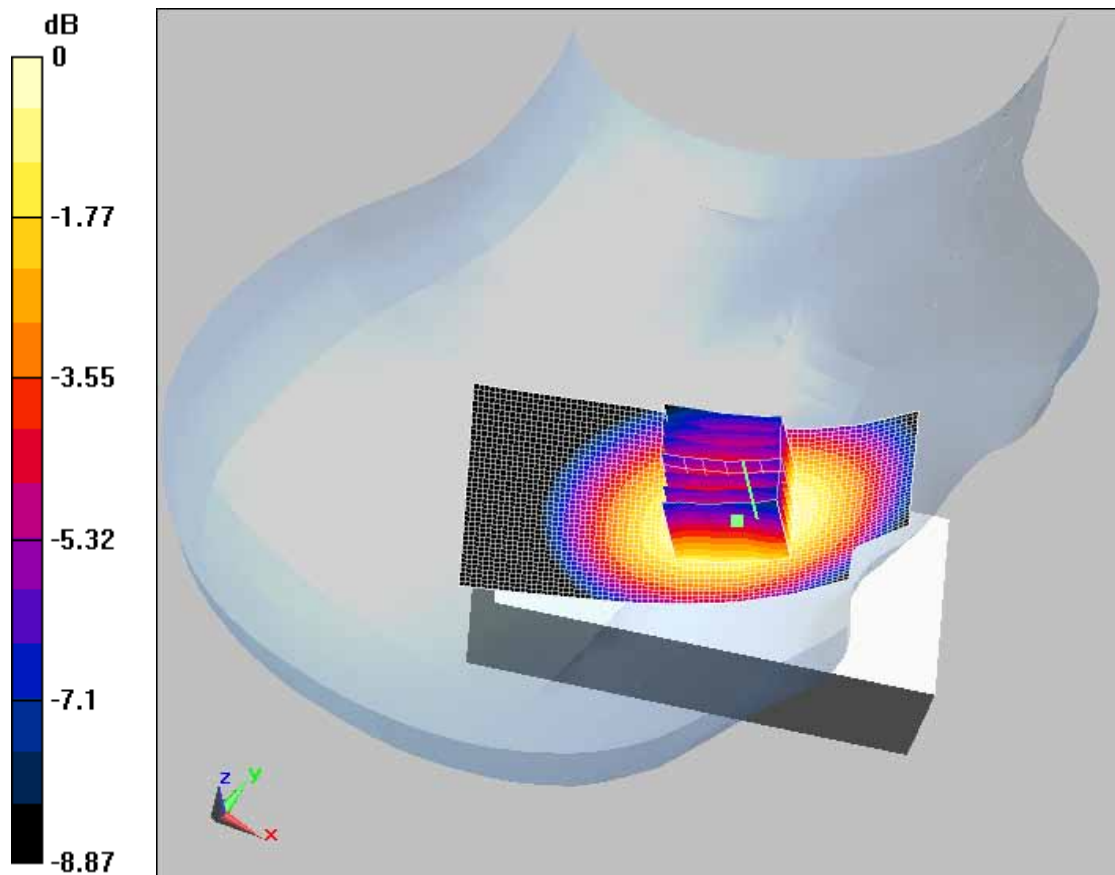
grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 11.3 V/m; Power Drift = 0.023 dB

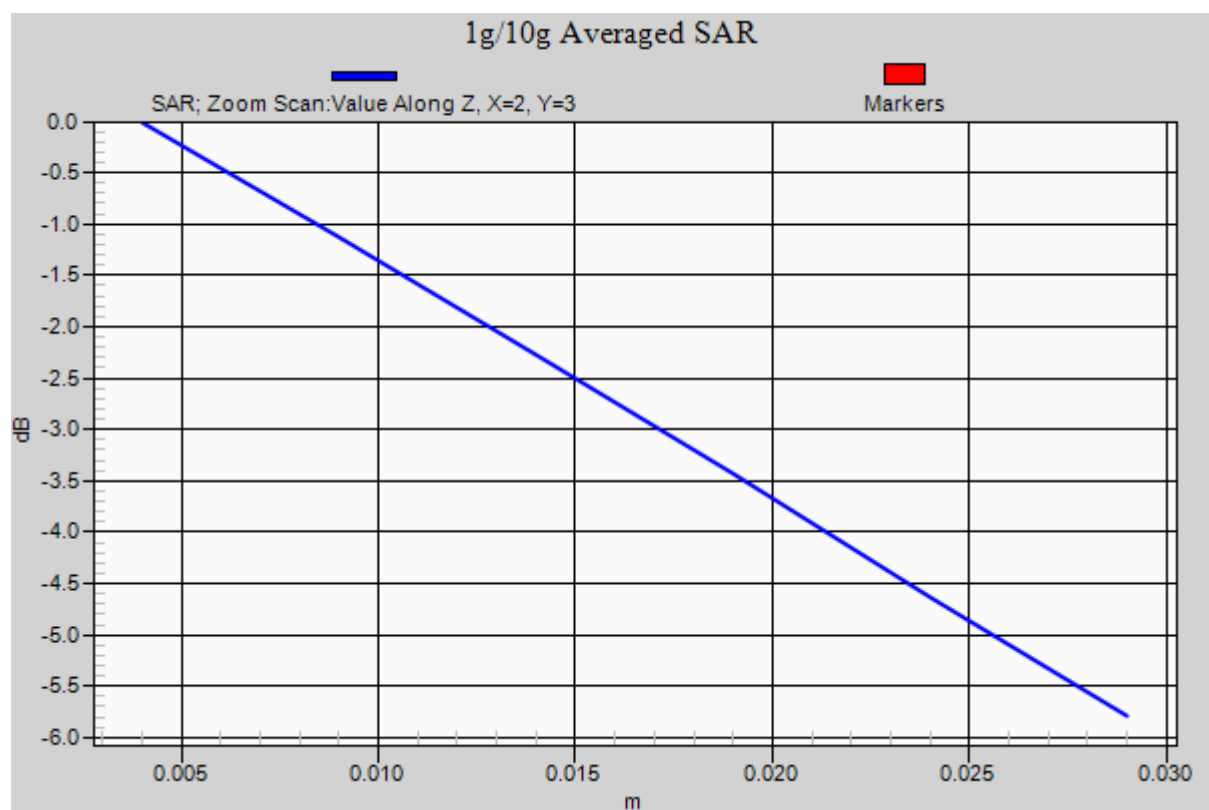
Peak SAR (extrapolated) = 0.970 W/kg

SAR(1 g) = 0.766 mW/g; SAR(10 g) = 0.564 mW/g

Maximum value of SAR (measured) = 0.820 mW/g



0 dB = 0.820mW/g



Plot 3: GSM 850 head, right cheek, high channel

Test Laboratory: CTTL

GSM850_Head_Right_Cheek_High

DUT: SONIM XP 1300-A; Type: SONIM XP 1300-A; Serial: --

Communication System: GSM 850; Frequency: 848.8 MHz; Duty Cycle: 1:8.3

Medium parameters used: $f = 849$ MHz; $\sigma = 0.93$ mho/m; $\epsilon_r = 41.8$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASYS (IEEE/IEC)

DASY4 Configuration:

- Probe: ES3DV3 - SN3158; ConvF(5.97, 5.97, 5.97); Calibrated: 2010-5-20
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn549; Calibrated: 2010-5-20
- Phantom: North SAM; Type: SAM; Serial: TP-1472
- Measurement SW: DASYS, V5.0 Build 119; SEMCAD X Version 13.2 Build 87

Sonim_Right_Touch_High/Zoom Scan (7x7x6)/Cube 0: Measurement

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

Reference Value = 11.7 V/m; Power Drift = 0.146 dB

Peak SAR (extrapolated) = 1.03 W/kg

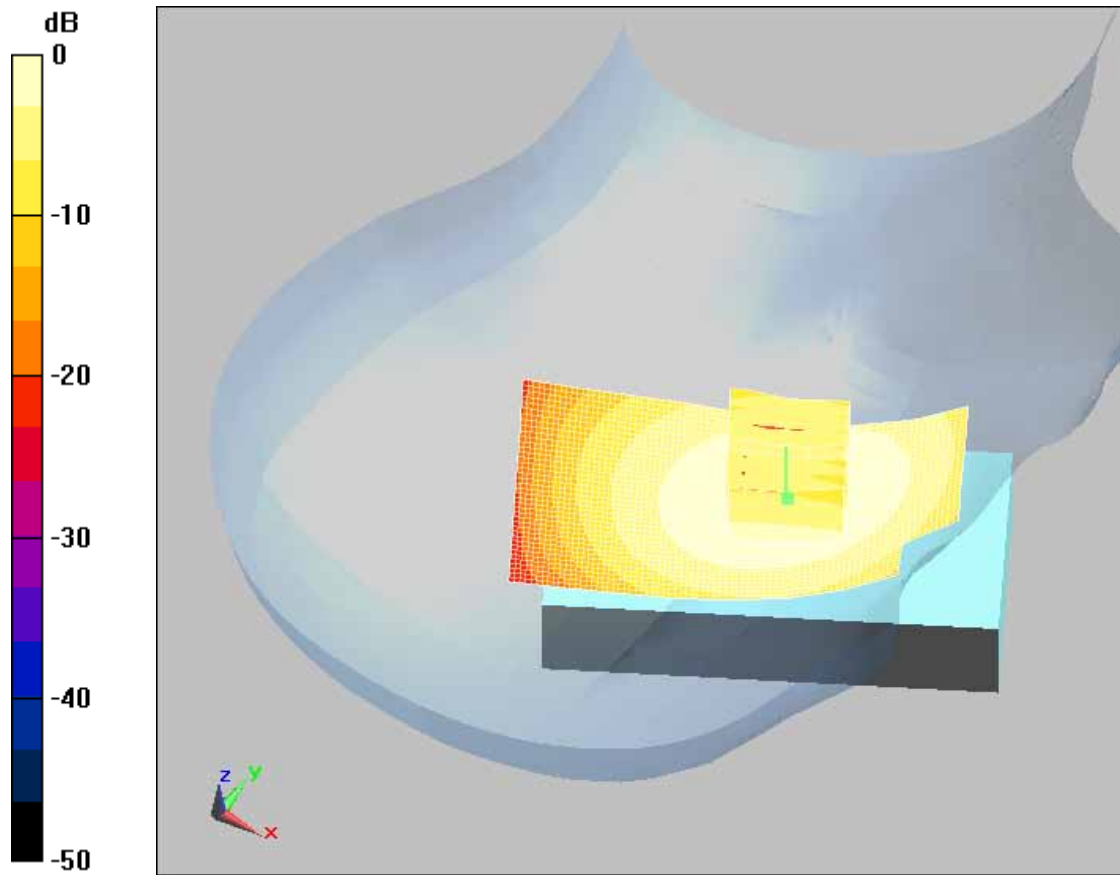
SAR(1 g) = 0.818 mW/g; SAR(10 g) = 0.607 mW/g

Maximum value of SAR (measured) = 0.860 mW/g

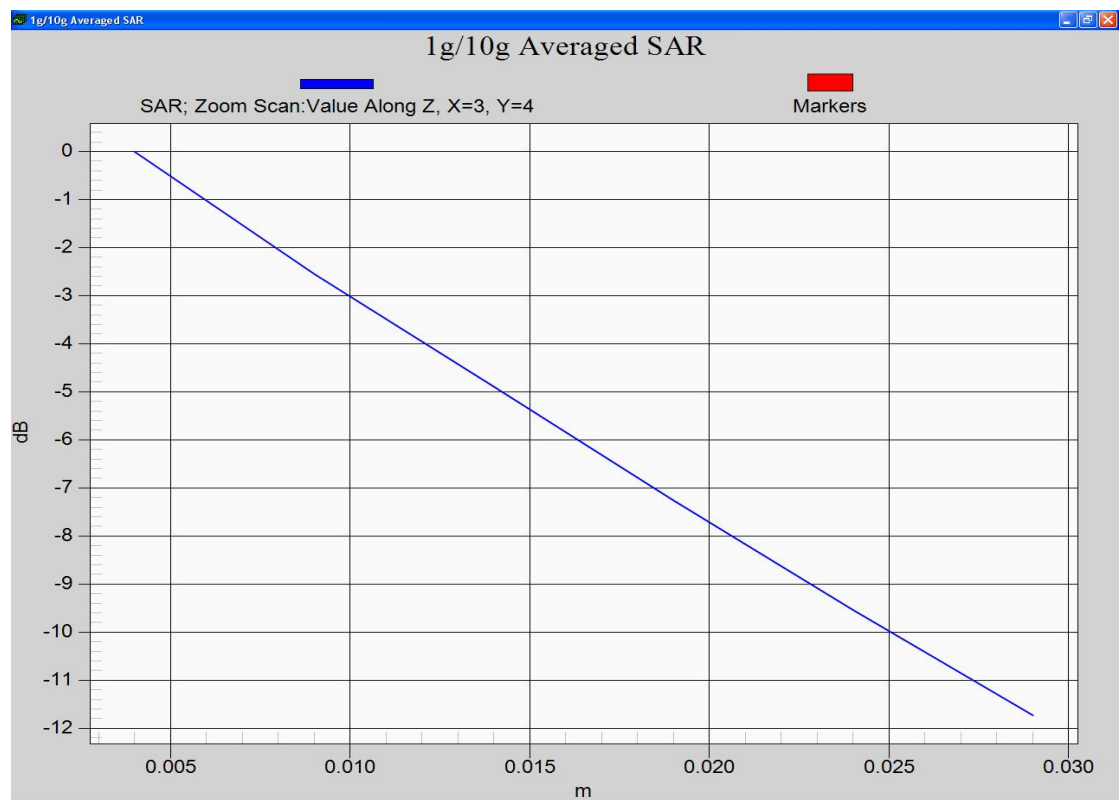
Sonim_Right_Touch_High/Area Scan (81x41x1): Measurement grid:

dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.868 mW/g



0 dB = 0.868mW/g



Plot 4: GSM 850 head, right tilt, middle channel

Test Laboratory: CTTL

GSM850_Head_Right_Tilt_Middle

DUT: SONIM XP 1300-A; Type: SONIM XP 1300-A; Serial: --

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium parameters used: $f = 837$ MHz; $\sigma = 0.923$ mho/m; $\epsilon_r = 42.1$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASYS (IEEE/IEC)

DASY4 Configuration:

- Probe: ES3DV3 - SN3158; ConvF(5.97, 5.97, 5.97); Calibrated: 2010-5-20
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn549; Calibrated: 2010-5-20
- Phantom: North SAM; Type: SAM; Serial: TP-1472
- Measurement SW: DASYS, V5.0 Build 119; SEMCAD X Version 13.2 Build 87

Sonim_Right_Titl_Mid/Zoom Scan (7x7x6)/Cube 0: Measurement grid:

$dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 15.3 V/m; Power Drift = -0.0065 dB

Peak SAR (extrapolated) = 0.664 W/kg

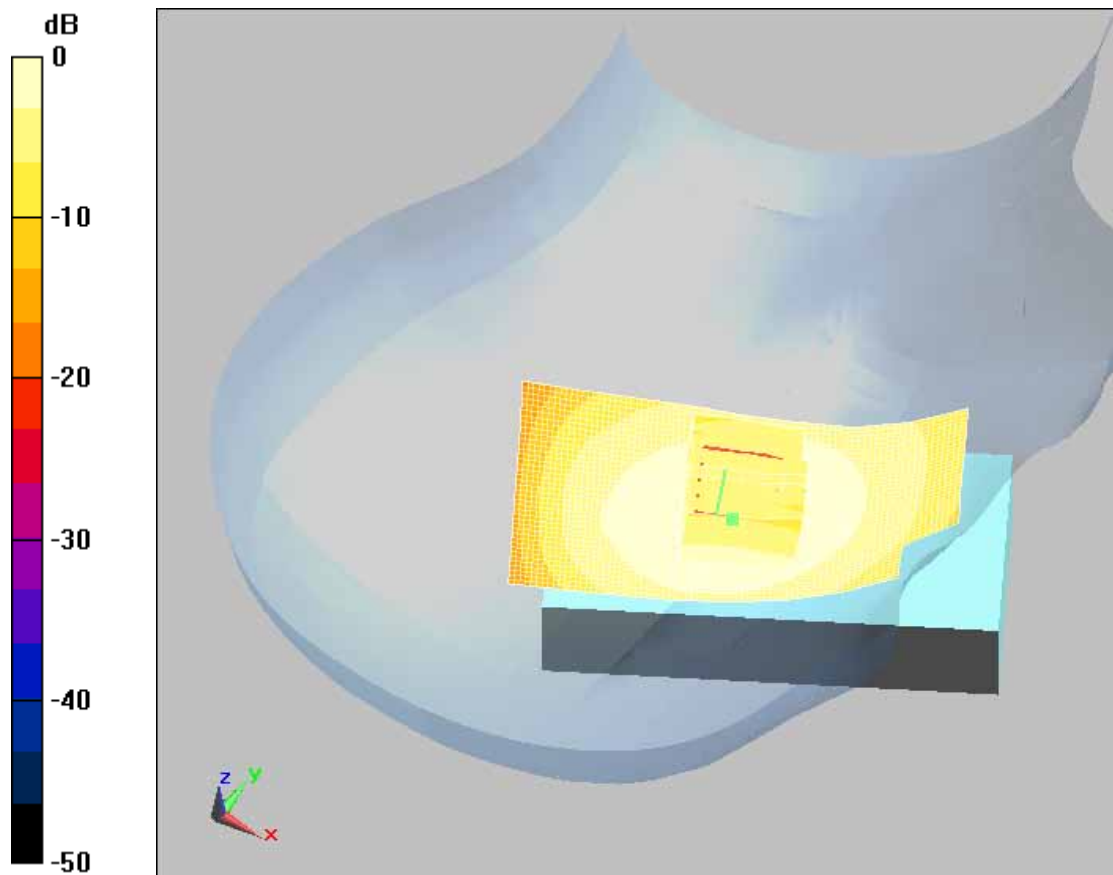
SAR(1 g) = 0.512 mW/g; SAR(10 g) = 0.373 mW/g

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

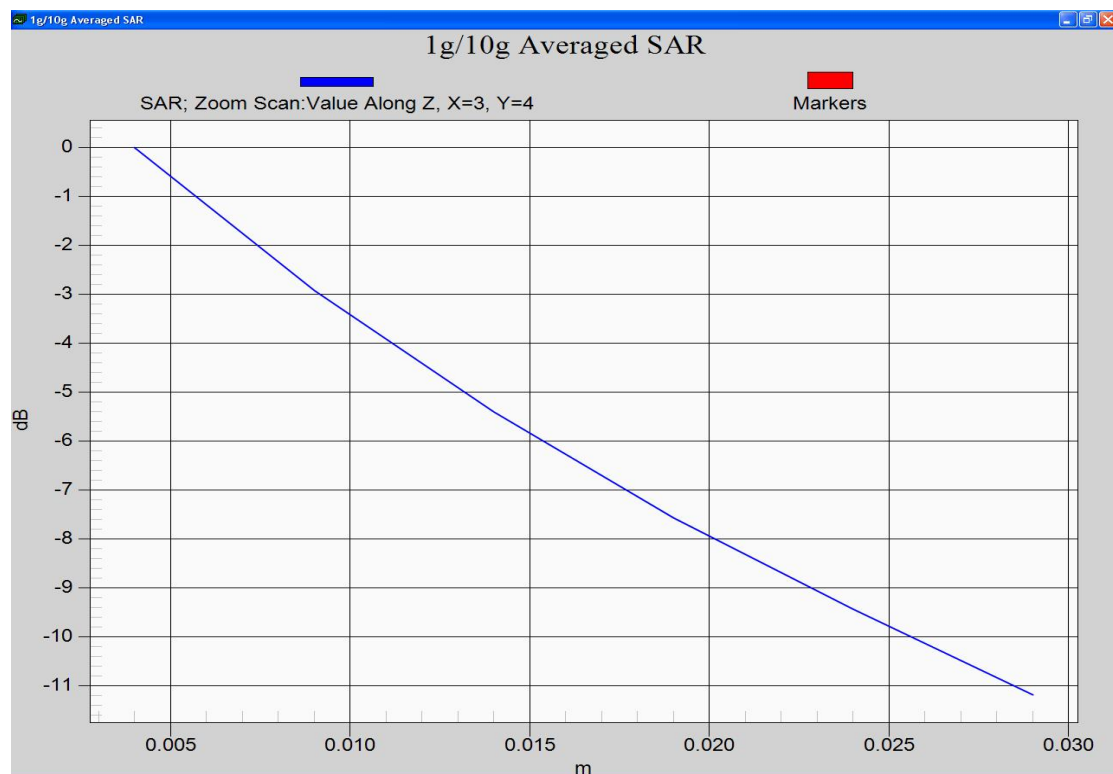
Sonim_Right_Titl_Mid/Area Scan (81x41x1): Measurement grid:

$dx=15$ mm, $dy=15$ mm

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



0 dB = 0.544mW/g



Plot 5: GSM 850 head, left cheek, middle channel

Test Laboratory: CTTL

GSM850_Head_Left_Cheek_Middle

DUT: SONIM XP 1300-A; Type: SONIM XP 1300-A; Serial: --

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3
Medium parameters used: $f = 837$ MHz; $\sigma = 0.923$ mho/m; $\epsilon_r = 42.1$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASYS (IEEE/IEC)

DASY4 Configuration:

- Probe: ES3DV3 - SN3158; ConvF(5.97, 5.97, 5.97); Calibrated: 2010-5-20
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn549; Calibrated: 2010-5-20
- Phantom: North SAM; Type: SAM; Serial: TP-1472
- Measurement SW: DASYS, V5.0 Build 119; SEMCAD X Version 13.2 Build 87

Sonim cheek mid Left/Area Scan (81x41x1): Measurement grid:

$dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.759 mW/g

Sonim cheek mid Left/Zoom Scan (7x7x6)/Cube 0: Measurement grid:

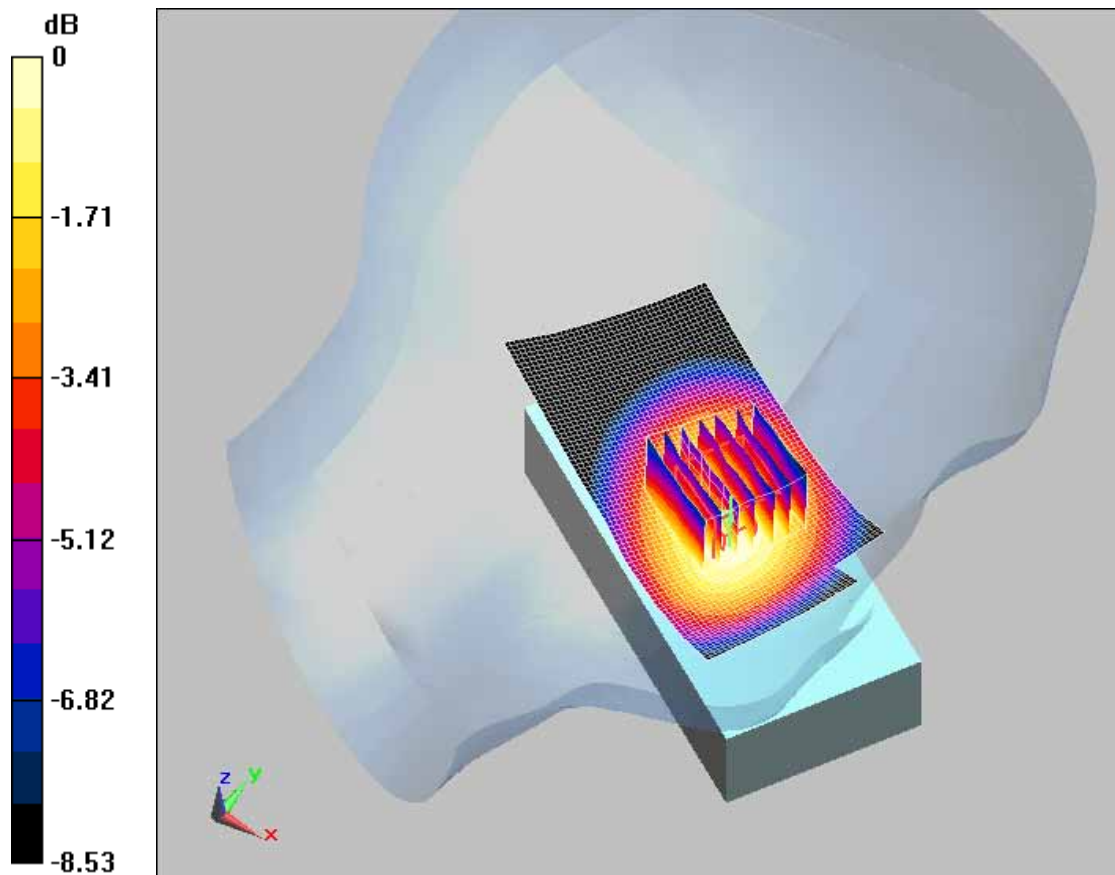
$dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 10.8 V/m; Power Drift = -0.261 dB

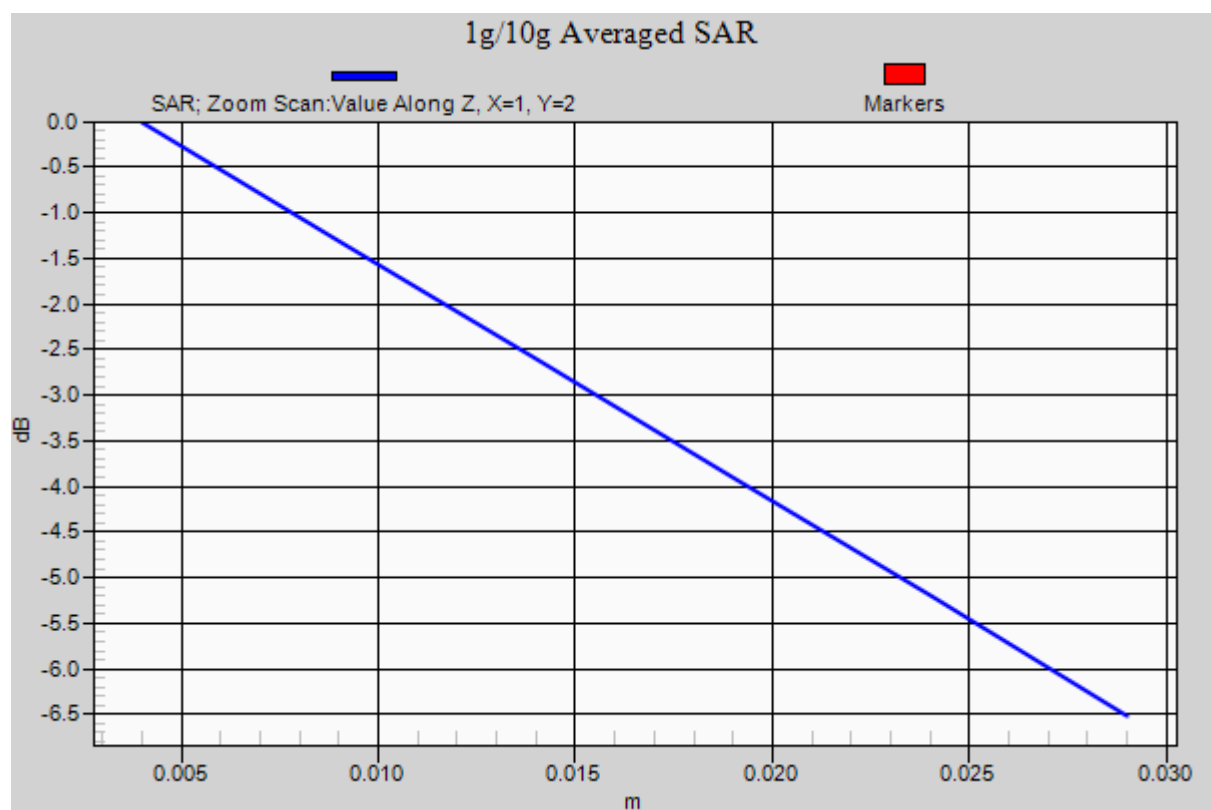
Peak SAR (extrapolated) = 0.930 W/kg

SAR(1 g) = 0.710 mW/g; SAR(10 g) = 0.521 mW/g

Maximum value of SAR (measured) = 0.748 mW/g



0 dB = 0.748mW/g



Plot 6: GSM 850 head, left tilt, middle channel

Test Laboratory: CTTL

GSM850_Head_Left_Tilt_Middle

DUT: SONIM XP 1300-A; Type: SONIM XP 1300-A; Serial: --

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium parameters used: $f = 837$ MHz; $\sigma = 0.923$ mho/m; $\epsilon_r = 42.1$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASYS (IEEE/IEC)

DASY4 Configuration:

- Probe: ES3DV3 - SN3158; ConvF(5.97, 5.97, 5.97); Calibrated: 2010-5-20
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn549; Calibrated: 2010-5-20
- Phantom: North SAM; Type: SAM; Serial: TP-1472
- Measurement SW: DASYS, V5.0 Build 119; SEMCAD X Version 13.2 Build 87

Sonim tilt mid Left/Area Scan (81x41x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.506 mW/g

Sonim tilt mid Left/Zoom Scan (7x7x6)/Cube 0: Measurement grid:

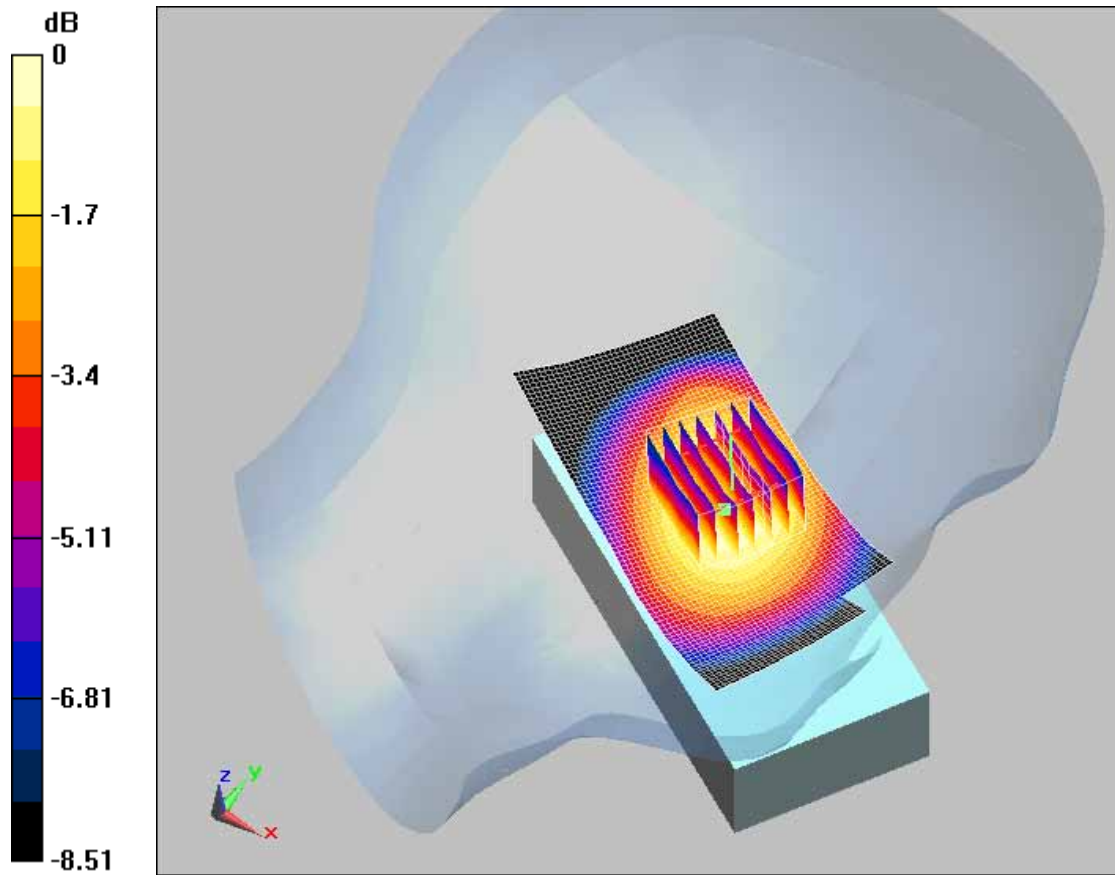
dx=5mm, dy=5mm, dz=5mm

Reference Value = 13.7 V/m; Power Drift = -0.097 dB

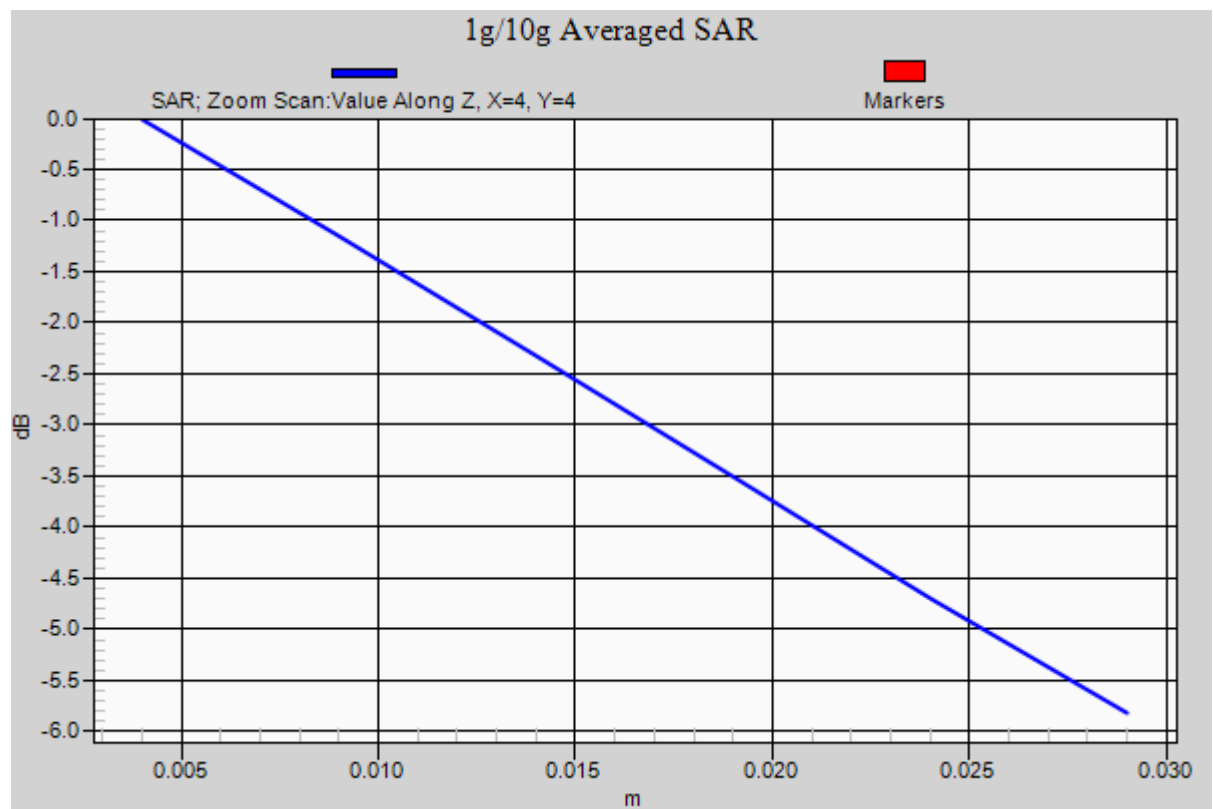
Peak SAR (extrapolated) = 0.609 W/kg

SAR(1 g) = 0.476 mW/g; SAR(10 g) = 0.349 mW/g

Maximum value of SAR (measured) = 0.503 mW/g



0 dB = 0.503mW/g



Plot 7: PCS 1900 head, right cheek, low channel

Test Laboratory: CTTL

PCS1900_Head_Right_Cheek_Low

DUT: SONIM XP 1300-A; Type: SONIM XP 1300-A; Serial: --

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

Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.48$ mho/m; ϵ_r

$= 40.2$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC)

DASY4 Configuration:

- Probe: ES3DV3 - SN3158; ConvF(5.00, 5.00, 5.00); Calibrated: 2010-5-20
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn549; Calibrated: 2010-5-20
- Phantom: West SAM; Type: SAM; Serial: **Not Specified**
- Measurement SW: DASY5, V5.0 Build 119; SEMCAD X Version 13.2 Build 87

PCS_Touch_Right_Low/Area Scan (81x41x1): Measurement grid:

$dx=15$ mm, $dy=15$ mm

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

Maximum value of SAR (interpolated) = 0.779 mW/g

PCS_Touch_Right_Low/Zoom Scan (7x7x6)/Cube 0: Measurement grid:

$dx=5$ mm, $dy=5$ mm, $dz=5$ mm

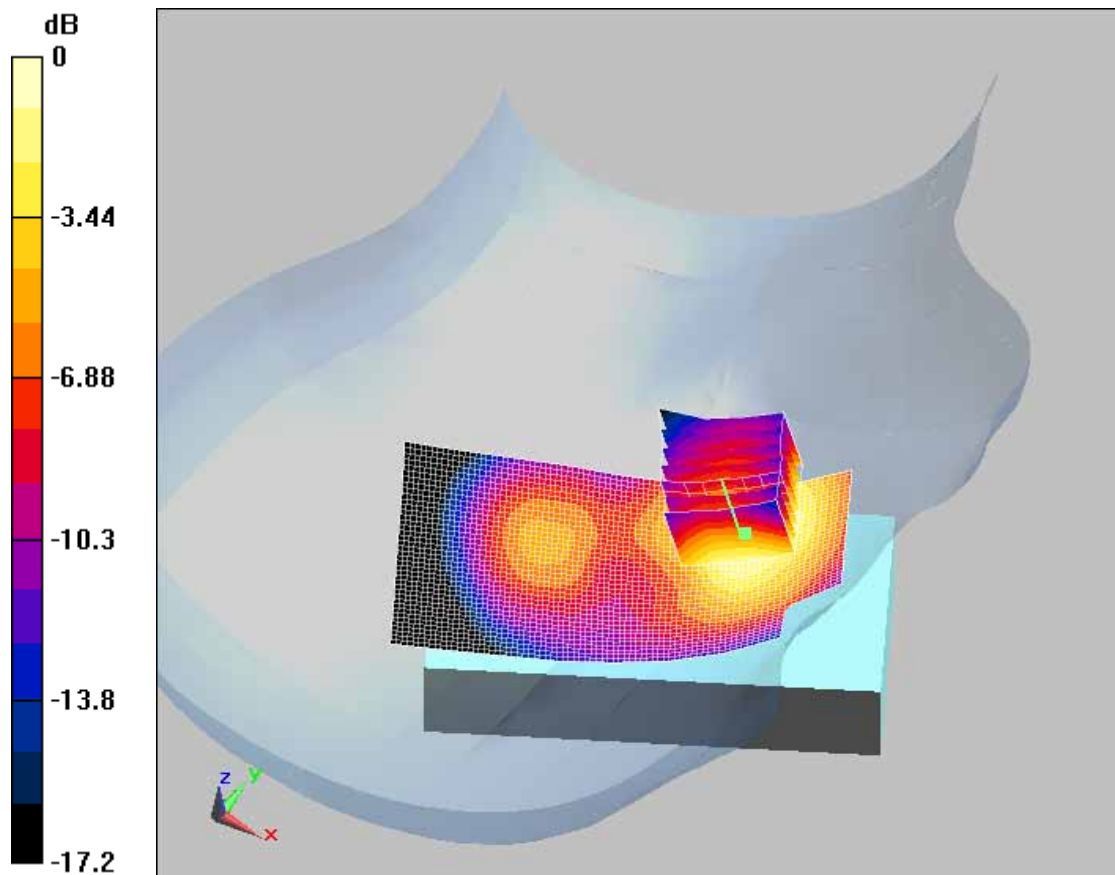
Reference Value = 6.63 V/m; Power Drift = 0.046 dB

Peak SAR (extrapolated) = 1.04 W/kg

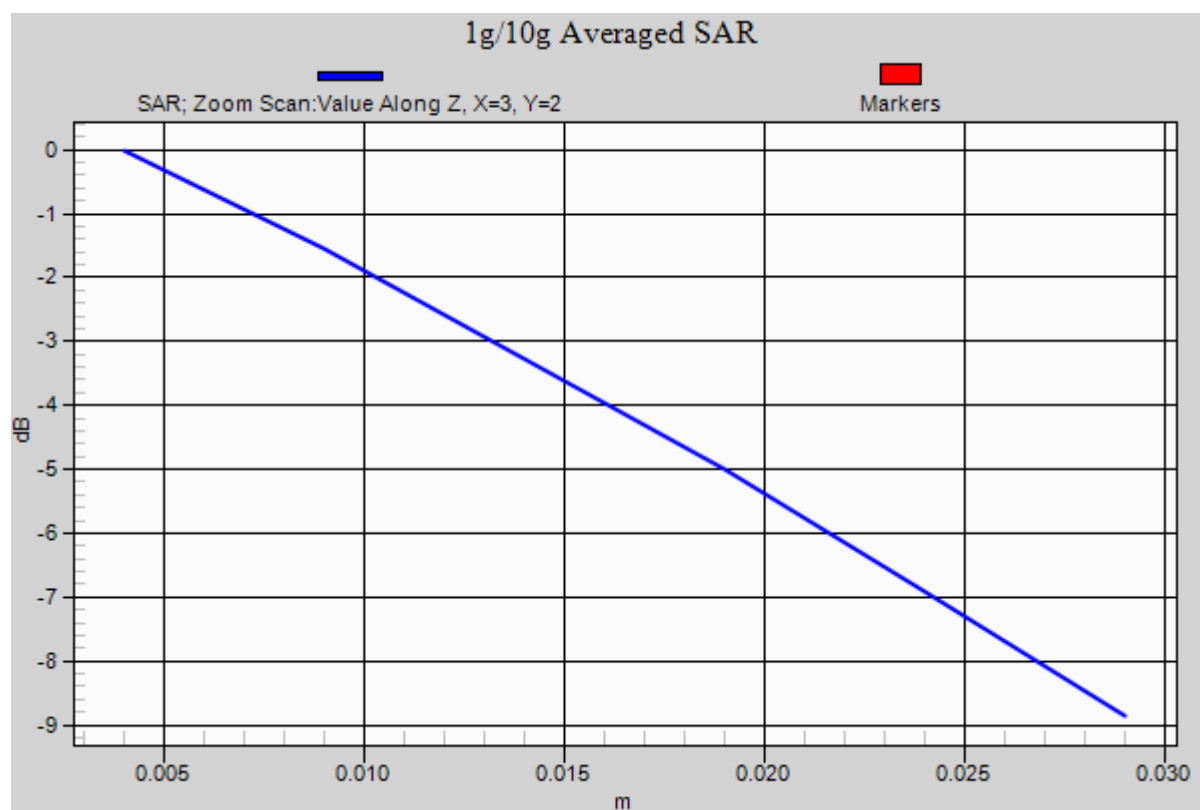
SAR(1 g) = 0.708 mW/g; SAR(10 g) = 0.430 mW/g

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

Maximum value of SAR (measured) = 0.765 mW/g



0 dB = 0.765mW/g



Plot 8: PCS 1900 head, right cheek, middle channel

Test Laboratory: CTTL

PCS1900_Head_Right_Cheek_Middle

DUT: SONIM XP 1300-A; Type: SONIM XP 1300-A; Serial: --

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

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.52$ mho/m; $\epsilon_r = 40.2$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASYS (IEEE/IEC)

DASY4 Configuration:

- Probe: ES3DV3 - SN3158; ConvF(5.00, 5.00, 5.00); Calibrated: 2010-5-20
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn549; Calibrated: 2010-5-20
- Phantom: West SAM; Type: SAM; Serial: **Not Specified**
- Measurement SW: DASYS, V5.0 Build 119; SEMCAD X Version 13.2 Build 87

PCS_Touch_Right_Mid/Area Scan (81x41x1): Measurement grid:

$dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.923 mW/g

PCS_Touch_Right_Mid/Zoom Scan (7x7x6)/Cube 0: Measurement grid:

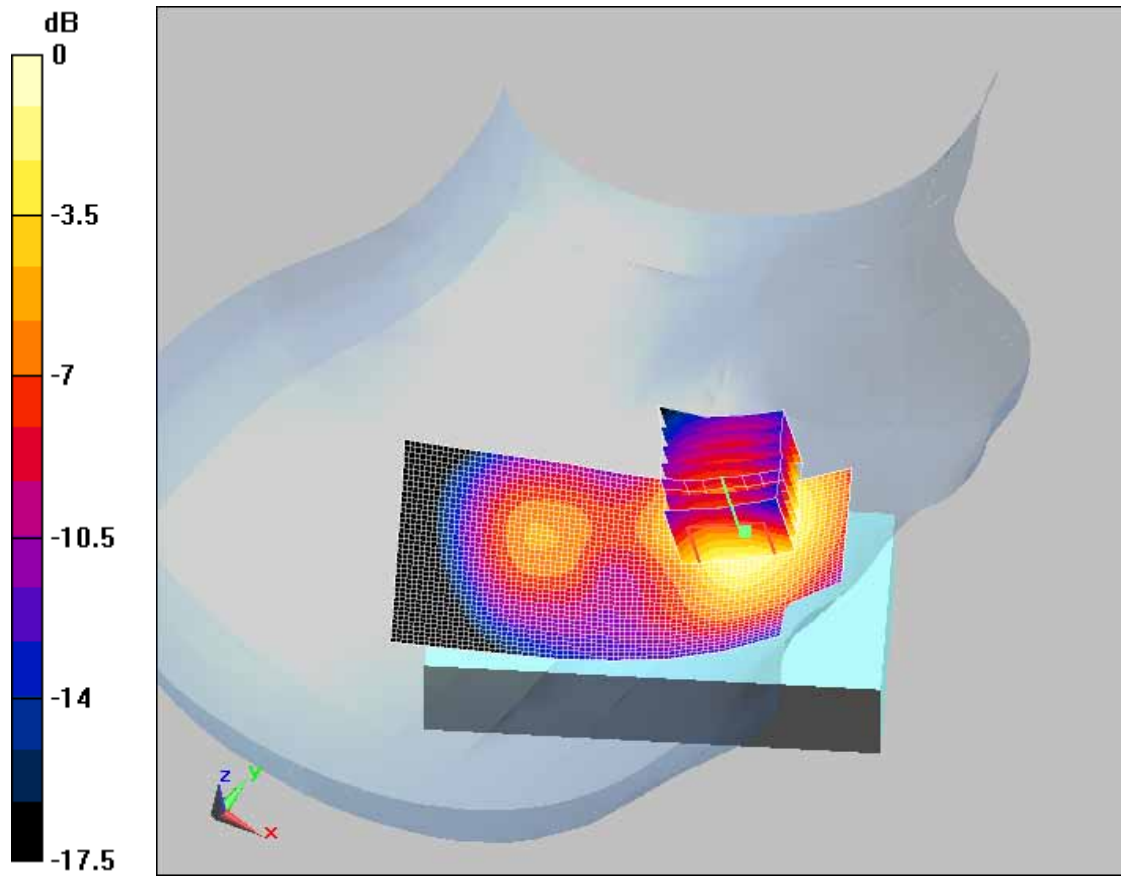
$dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 6.81 V/m; Power Drift = -0.026 dB

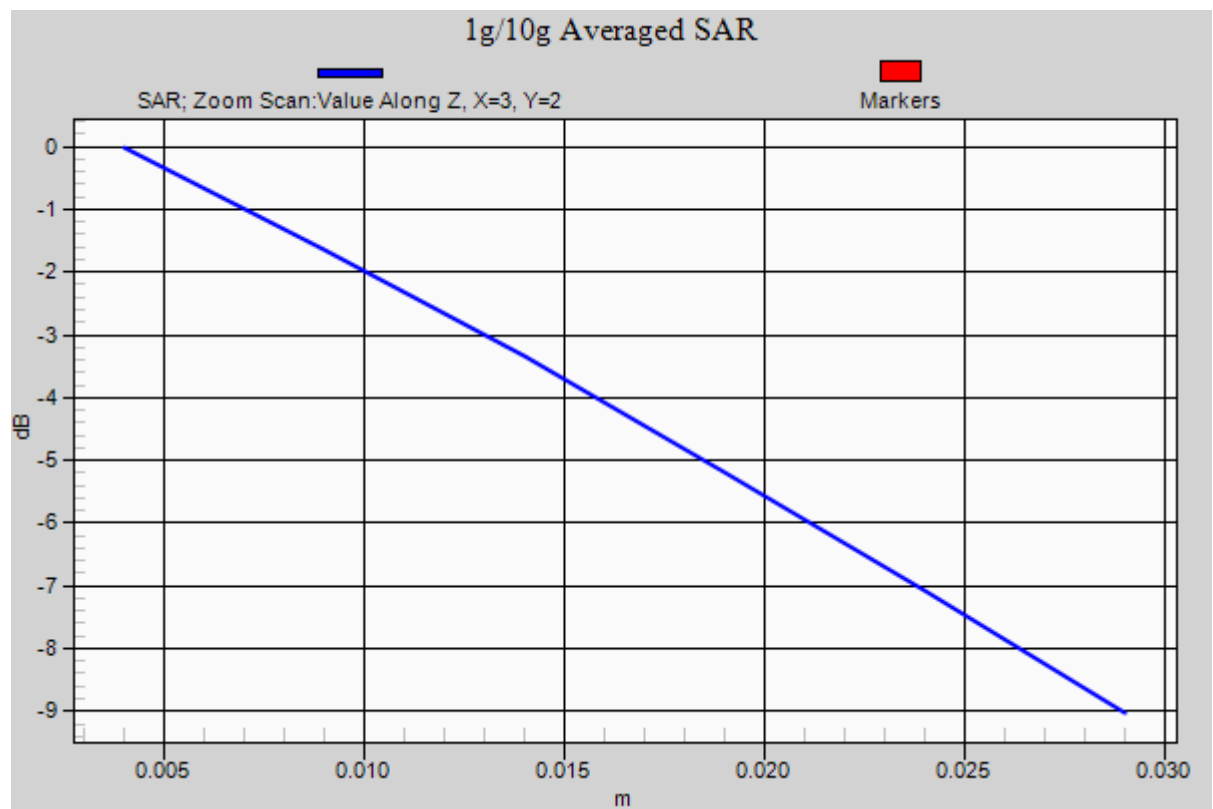
Peak SAR (extrapolated) = 1.24 W/kg

SAR(1 g) = 0.829 mW/g; SAR(10 g) = 0.499 mW/g

Maximum value of SAR (measured) = 0.909 mW/g



0 dB = 0.909mW/g



Plot 9: PCS 1900 head, right cheek, high channel

Test Laboratory: CTTL

PCS1900_Head_Right_Cheek_High

DUT: SONIM XP 1300-A; Type: SONIM XP 1300-A; Serial: --

Communication System: PCS 1900; Frequency: 1909.8 MHz; Duty Cycle: 1:8.3

Medium parameters used: $f = 1910$ MHz; $\sigma = 1.54$ mho/m; $\epsilon_r = 40.2$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC)

DASY4 Configuration:

- Probe: ES3DV3 - SN3158; ConvF(5.00, 5.00, 5.00); Calibrated: 2010-5-20
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn549; Calibrated: 2010-5-20
- Phantom: West SAM; Type: SAM; Serial: **Not Specified**
- Measurement SW: DASY5, V5.0 Build 119; SEMCAD X Version 13.2 Build 87

PCS_Touch_Right_High/Area Scan (81x41x1): Measurement grid:

$dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 1 mW/g

PCS_Touch_Right_High/Zoom Scan (7x7x6)/Cube 0: Measurement grid:

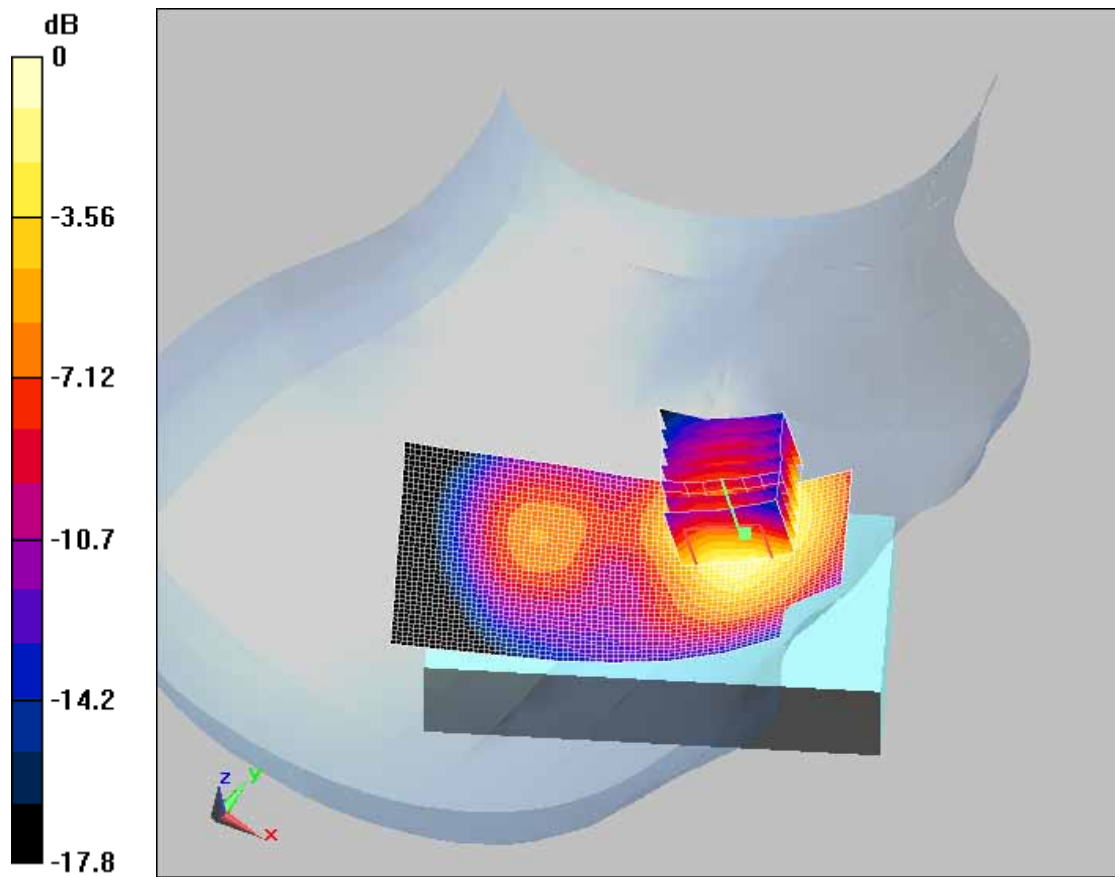
$dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 6.76 V/m; Power Drift = 0.295 dB

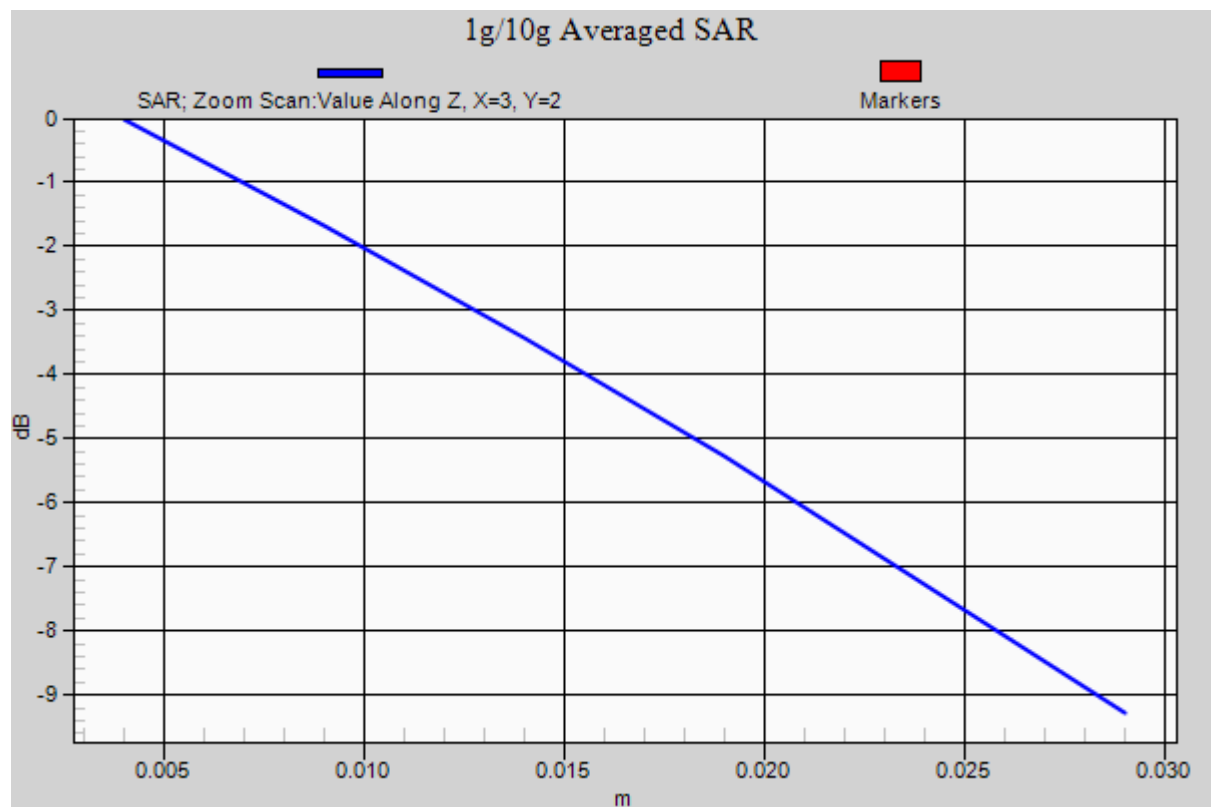
Peak SAR (extrapolated) = 1.36 W/kg

SAR(1 g) = 0.901 mW/g; SAR(10 g) = 0.537 mW/g

Maximum value of SAR (measured) = 0.984 mW/g



0 dB = 0.984mW/g



Plot 10: PCS 1900 head, right tilt, middle channel

Test Laboratory: CTTL

PCS1900_Head_Right_Tilt_Middle

DUT: SONIM XP 1300-A; Type: SONIM XP 1300-A; Serial: --

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

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.52$ mho/m; $\epsilon_r = 40.2$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASY5 (IEEE/IEC)

DASY4 Configuration:

- Probe: ES3DV3 - SN3158; ConvF(5.00, 5.00, 5.00); Calibrated: 2010-5-20
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn549; Calibrated: 2010-5-20
- Phantom: West SAM; Type: SAM; Serial: **Not Specified**
- Measurement SW: DASY5, V5.0 Build 119; SEMCAD X Version 13.2 Build 87

PCS_Tilt_Right_Mid/Area Scan (81x41x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.422 mW/g

PCS_Tilt_Right_Mid/Zoom Scan (7x7x6)/Cube 0: Measurement grid:

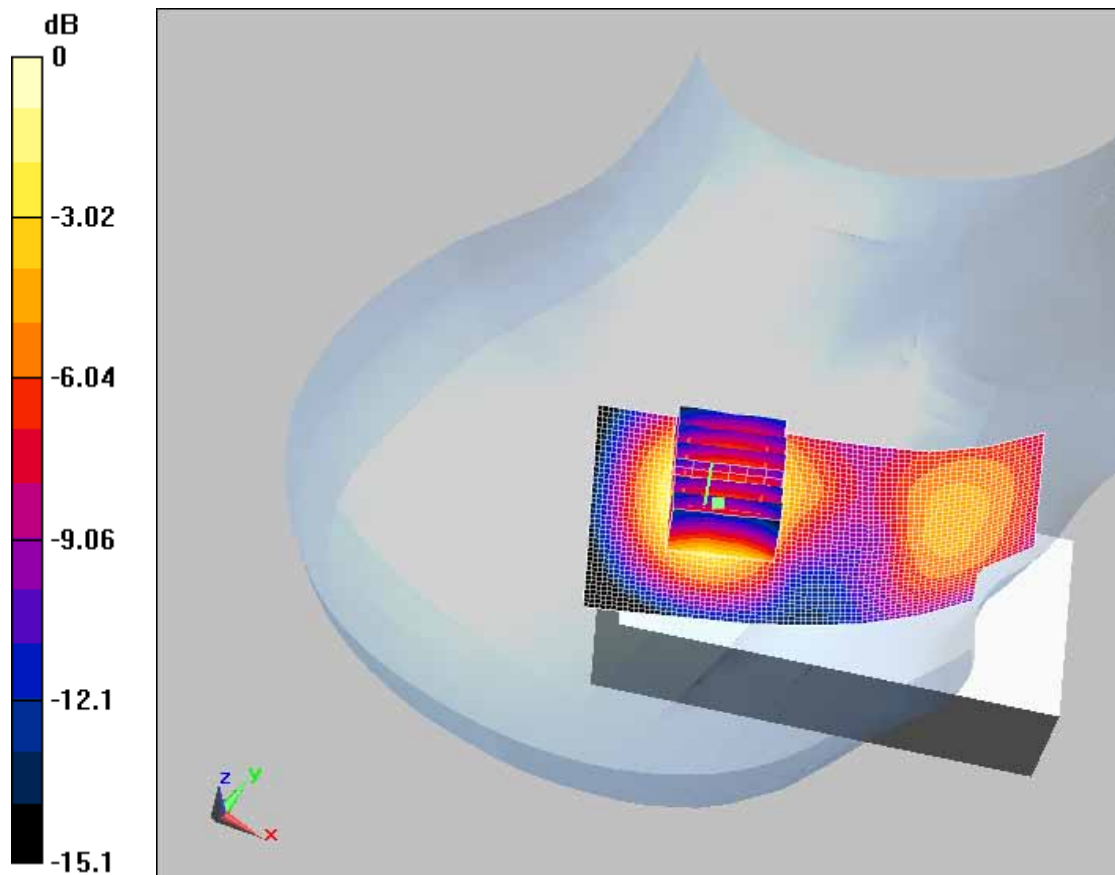
dx=5mm, dy=5mm, dz=5mm

Reference Value = 11.6 V/m; Power Drift = 0.037 dB

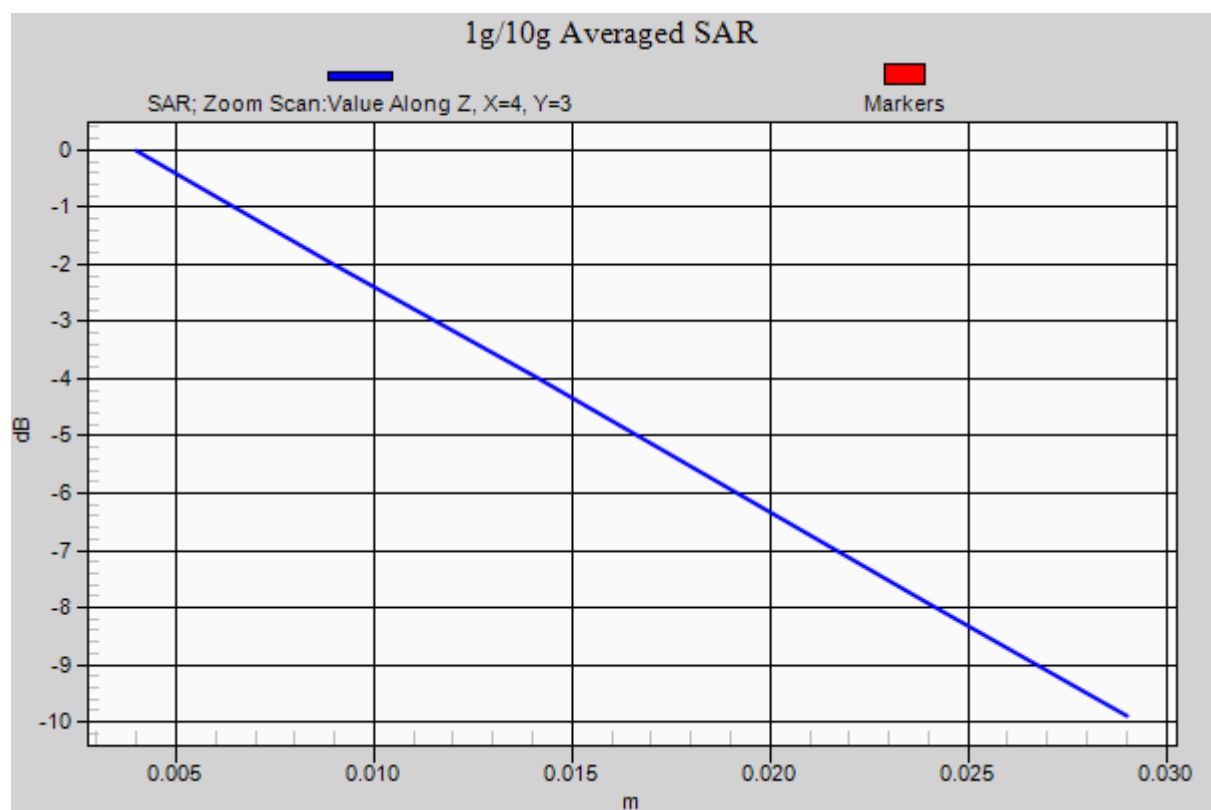
Peak SAR (extrapolated) = 0.538 W/kg

SAR(1 g) = 0.342 mW/g; SAR(10 g) = 0.203 mW/g

Maximum value of SAR (measured) = 0.367 mW/g



0 dB = 0.367mW/g



Plot 11: PCS 1900 head, left cheek, middle channel

Test Laboratory: CTTL

PCS1900_Head_Left_Cheek_Middle

DUT: SONIM XP 1300-A; Type: SONIM XP 1300-A; Serial: --

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

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.52$ mho/m; $\epsilon_r = 40.2$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASYS (IEEE/IEC)

DASY4 Configuration:

- Probe: ES3DV3 - SN3158; ConvF(5.00, 5.00, 5.00); Calibrated: 2010-5-20
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn549; Calibrated: 2010-5-20
- Phantom: West SAM; Type: SAM; Serial: **Not Specified**
- Measurement SW: DASYS, V5.0 Build 119; SEMCAD X Version 13.2 Build 87

PCS_Touch_Left/Zoom Scan (7x7x6)/Cube 0: Measurement grid:

$dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 7.65 V/m; Power Drift = 0.013 dB

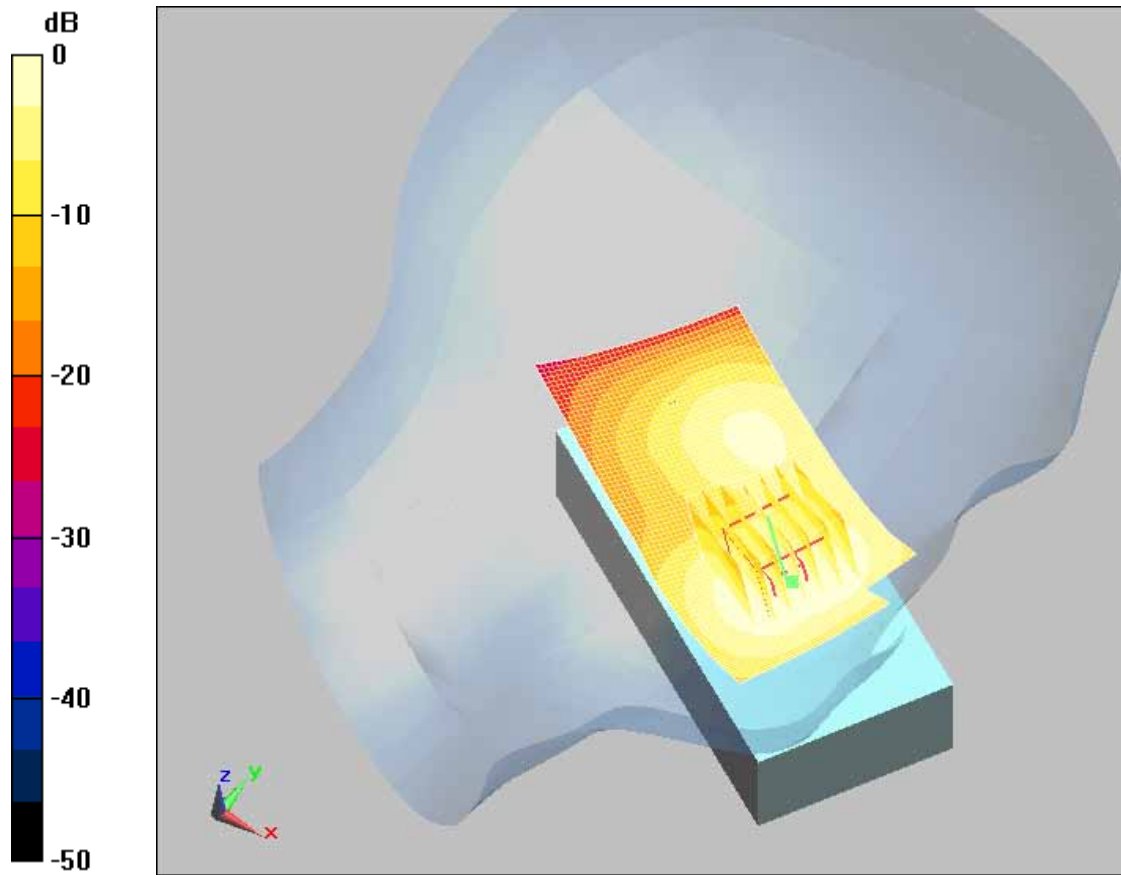
Peak SAR (extrapolated) = 0.961 W/kg

SAR(1 g) = 0.652 mW/g; SAR(10 g) = 0.414 mW/g

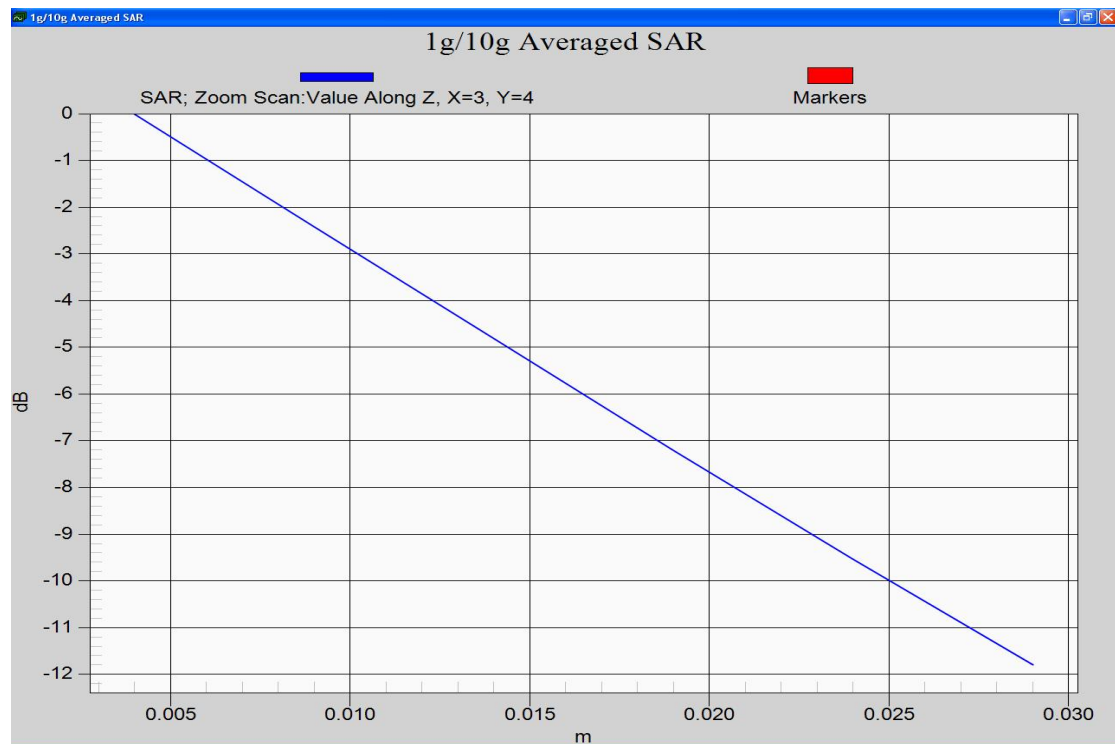
Maximum value of SAR (measured) = 0.701 mW/g

PCS_Touch_Left/Area Scan (81x41x1): Measurement grid: $dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.706 mW/g



0 dB = 0.706mW/g



Plot 12: PCS 1900 head, left tilt, middle channel

Test Laboratory: CTTL

PCS1900_Head_Left_Tilt_Middle

DUT: SONIM XP 1300-A; Type: SONIM XP 1300-A; Serial: --

Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3
Medium parameters used: $f = 1880$ MHz; $\sigma = 1.52$ mho/m; $\epsilon_r = 40.2$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASYS (IEEE/IEC)

DASY4 Configuration:

- Probe: ES3DV3 - SN3158; ConvF(5.00, 5.00, 5.00); Calibrated: 2010-5-20
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn549; Calibrated: 2010-5-20
- Phantom: West SAM; Type: SAM; Serial: **Not Specified**
- Measurement SW: DASYS, V5.0 Build 119; SEMCAD X Version 13.2 Build 87

PCS_Tilt_Left/Zoom Scan (7x7x6)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.9 V/m; Power Drift = -0.024 dB

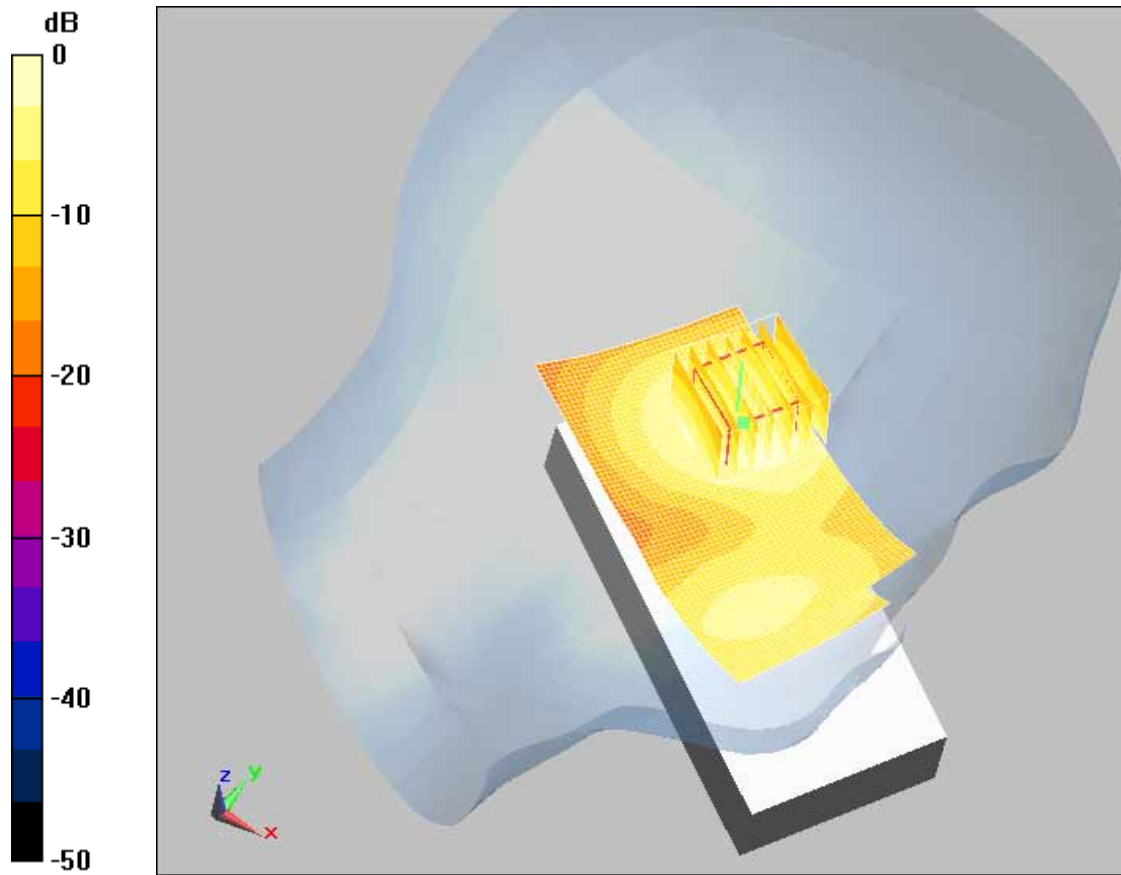
Peak SAR (extrapolated) = 0.608 W/kg

SAR(1 g) = 0.396 mW/g; SAR(10 g) = 0.234 mW/g

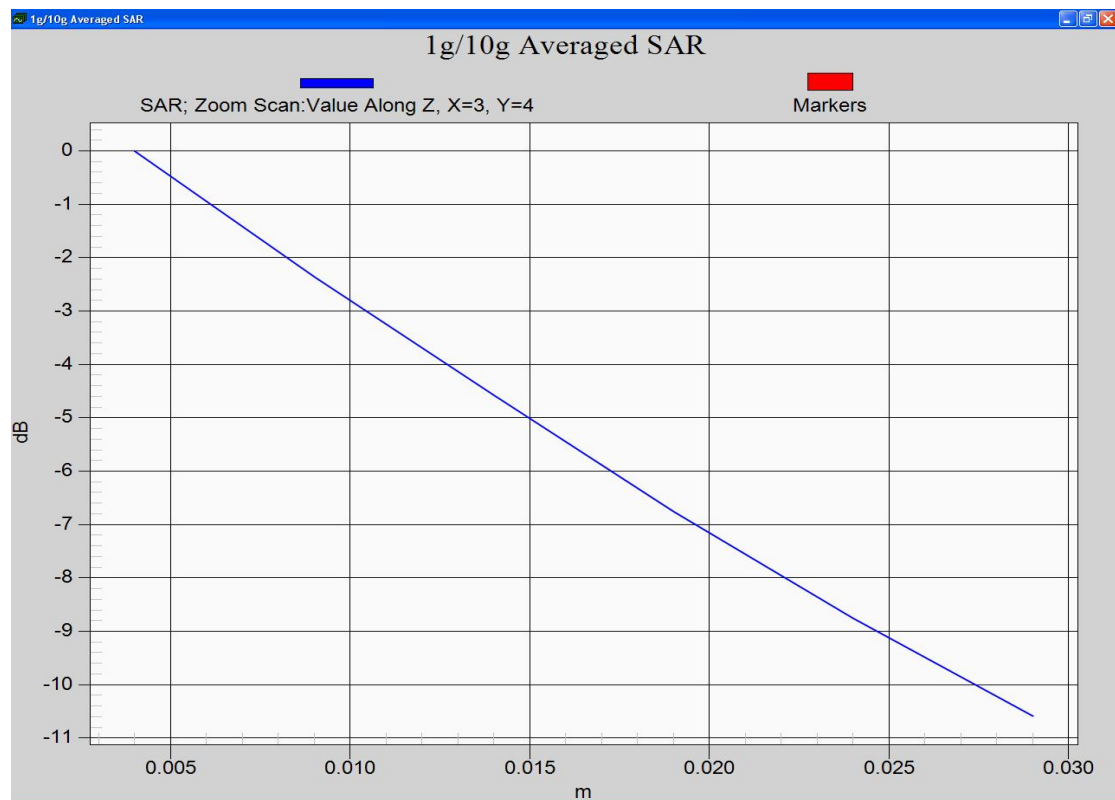
Maximum value of SAR (measured) = 0.429 mW/g

PCS_Tilt_Left/Area Scan (81x41x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.456 mW/g



0 dB = 0.456mW/g



Body:

Plot 13: GSM 850 body, face toward phantom, middle channel

Test Laboratory: CTTL

GSM850_Body_Face_Middle

DUT: SONIM XP 1300-A; Type: SONIM XP 1300-A; Serial: --

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3
Medium parameters used: $f = 837$ MHz; $\sigma = 0.963$ mho/m; $\epsilon_r = 55.5$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC)

DASY4 Configuration:

- Probe: ES3DV3 - SN3158; ConvF(5.93, 5.93, 5.93); Calibrated: 2010-5-20
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn549; Calibrated: 2010-5-20
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx
- Measurement SW: DASYS, V5.0 Build 119; SEMCAD X Version 13.2 Build 87

GSM_Face_Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid:

$dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 10.6 V/m; Power Drift = 0.234 dB

Peak SAR (extrapolated) = 0.739 W/kg

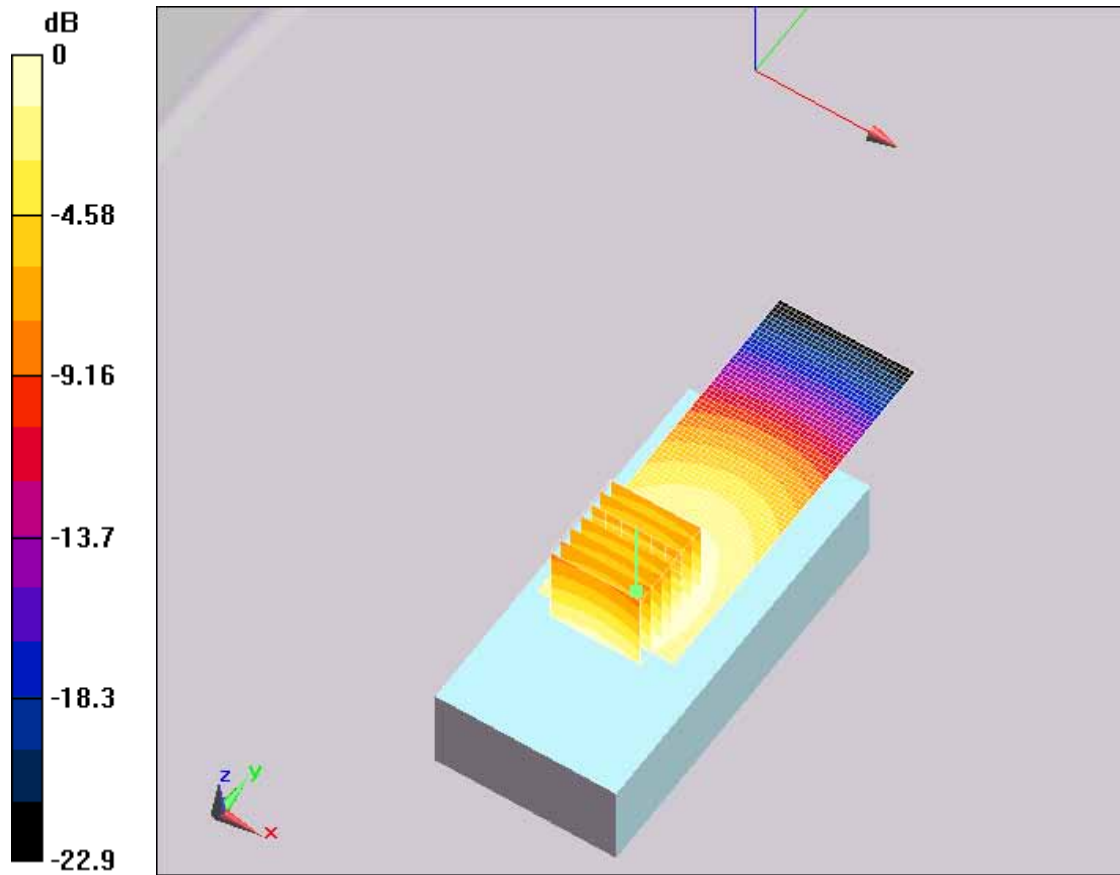
SAR(1 g) = 0.576 mW/g; SAR(10 g) = 0.427 mW/g

Maximum value of SAR (measured) = 0.610 mW/g

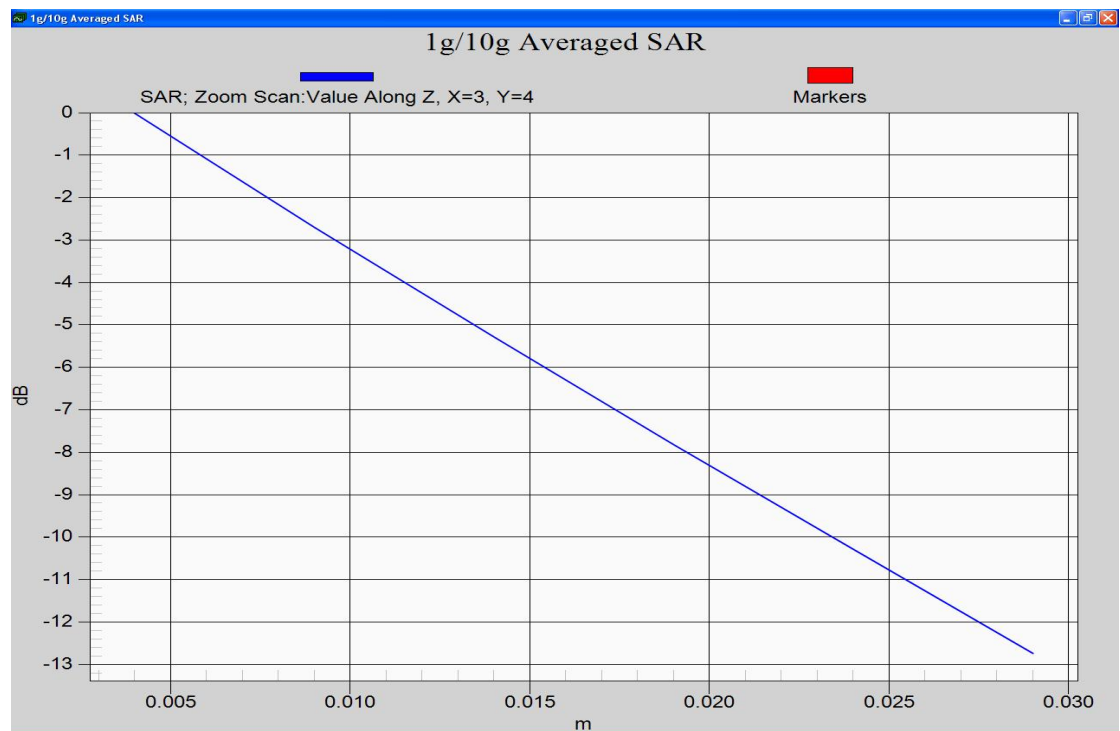
GSM_Face_Mid/Area Scan (31x81x1): Measurement grid: $dx=15$ mm,

$dy=15$ mm

Maximum value of SAR (interpolated) = 0.594 mW/g



0 dB = 0.594mW/g



Plot 14: GSM 850 body, back toward phantom, low channel

Test Laboratory: CTTL

GSM850_Body_Back_Low

DUT: SONIM XP 1300-A; Type: SONIM XP 1300-A; Serial: --

Communication System: GSM 850; Frequency: 824.2 MHz; Duty Cycle: 1:8.3
Medium parameters used (interpolated): $f = 824.2$ MHz; $\sigma = 0.953$ mho/m; $\epsilon_r = 55.6$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC)

DASY4 Configuration:

- Probe: ES3DV3 - SN3158; ConvF(5.93, 5.93, 5.93); Calibrated: 2010-5-20
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn549; Calibrated: 2010-5-20
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx
- Measurement SW: DASYS, V5.0 Build 119; SEMCAD X Version 13.2 Build 87

gsm_Back_Low/Zoom Scan (7x7x6)/Cube 0: Measurement grid:

$dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 12.8 V/m; Power Drift = 0.099 dB

Peak SAR (extrapolated) = 0.785 W/kg

SAR(1 g) = 0.616 mW/g; SAR(10 g) = 0.456 mW/g

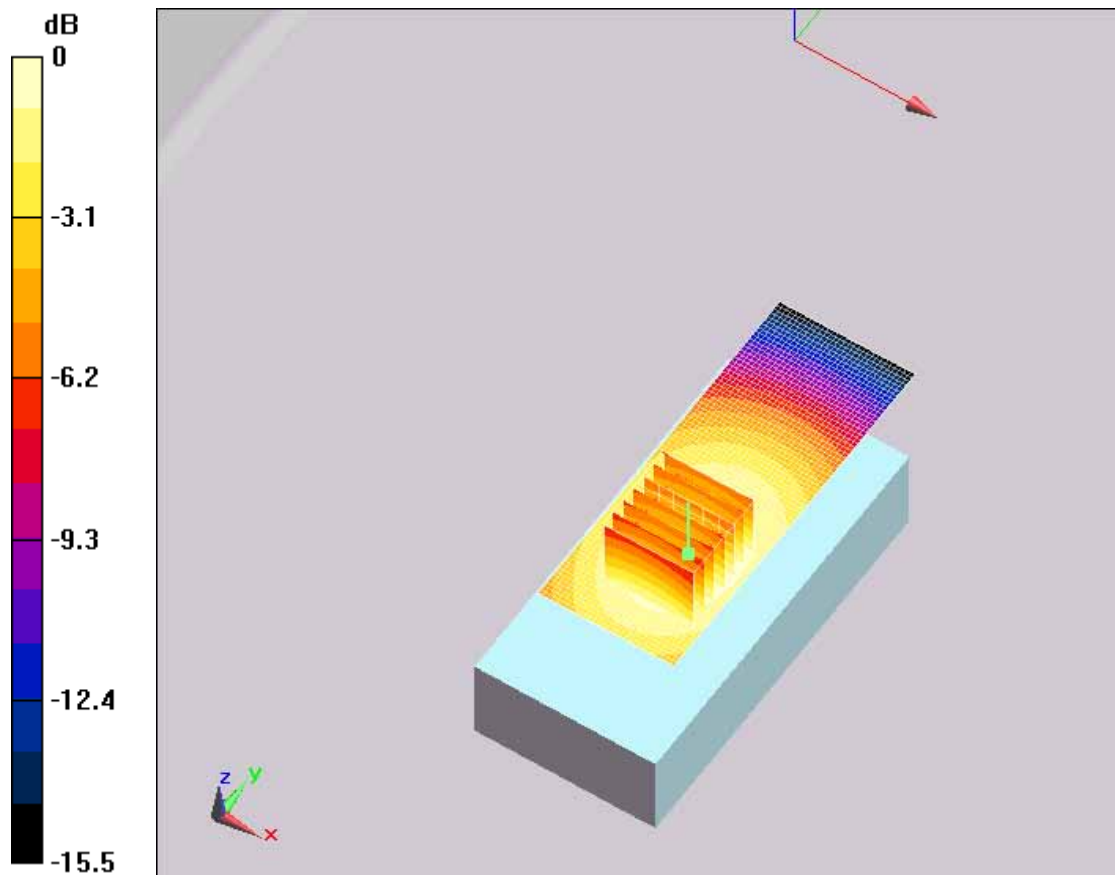
[Info: Interpolated medium parameters used for SAR evaluation.](#)

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

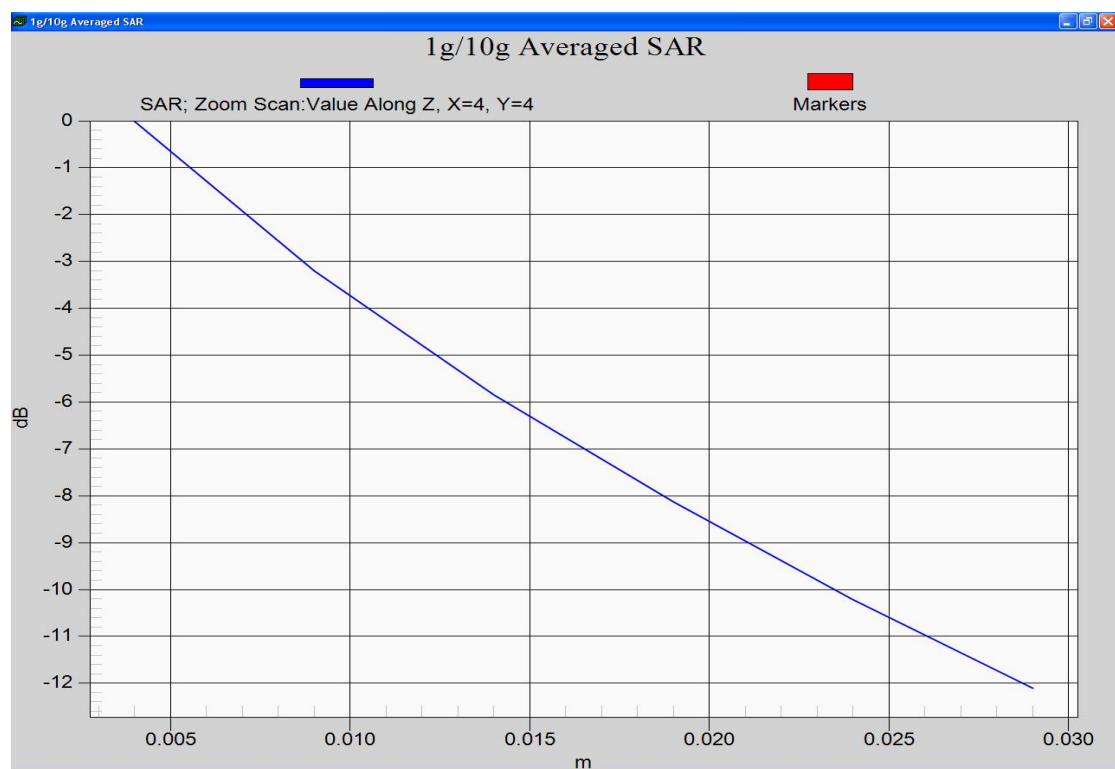
gsm_Back_Low/Area Scan (31x81x1): Measurement grid: $dx=15$ mm, $dy=15$ mm

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

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



0 dB = 0.650mW/g



Plot 15: GSM 850 body, back toward phantom, middle channel

Test Laboratory: CTTL

GSM850_Body_Back_Middle

DUT: SONIM XP 1300-A; Type: SONIM XP 1300-A; Serial: --

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3
Medium parameters used: $f = 837$ MHz; $\sigma = 0.963$ mho/m; $\epsilon_r = 55.5$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC)

DASY4 Configuration:

- Probe: ES3DV3 - SN3158; ConvF(5.93, 5.93, 5.93); Calibrated: 2010-5-20
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn549; Calibrated: 2010-5-20
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx
- Measurement SW: DASYS, V5.0 Build 119; SEMCAD X Version 13.2 Build 87

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

Reference Value = 12.1 V/m; Power Drift = -0.065 dB

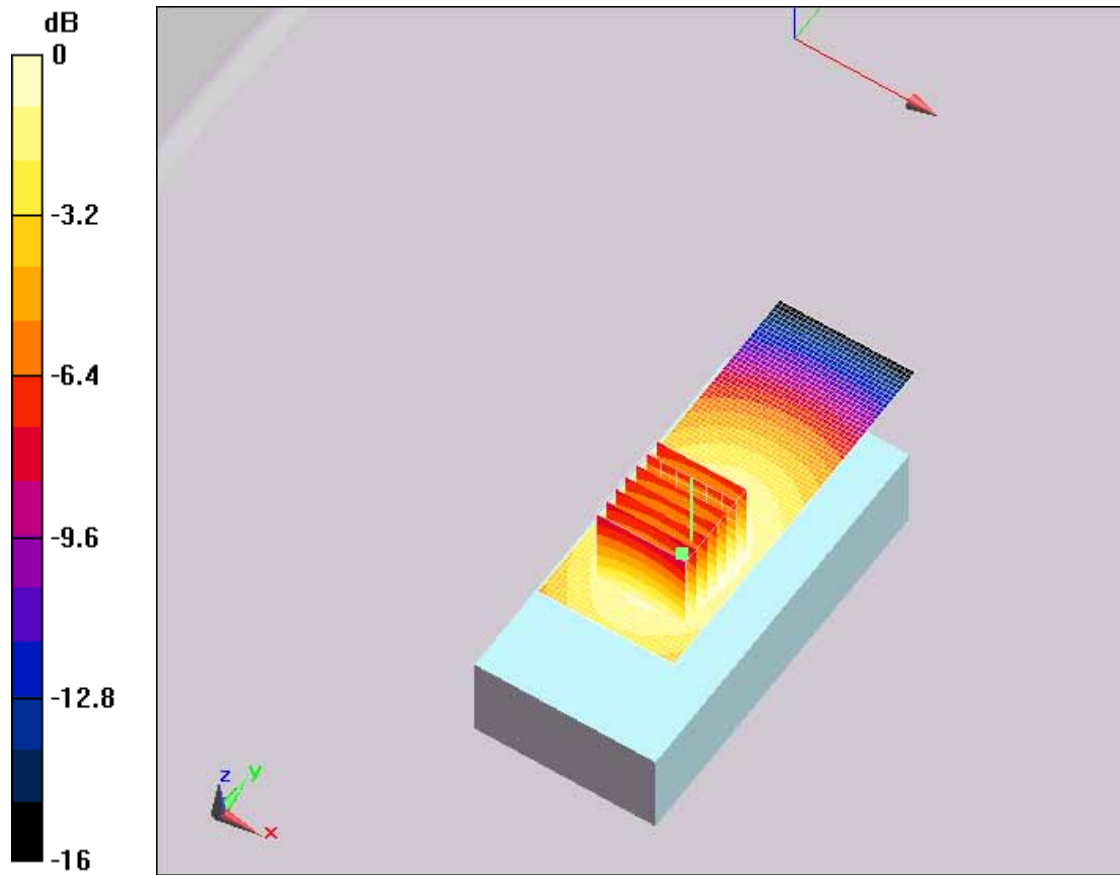
Peak SAR (extrapolated) = 0.771 W/kg

SAR(1 g) = 0.605 mW/g; SAR(10 g) = 0.448 mW/g

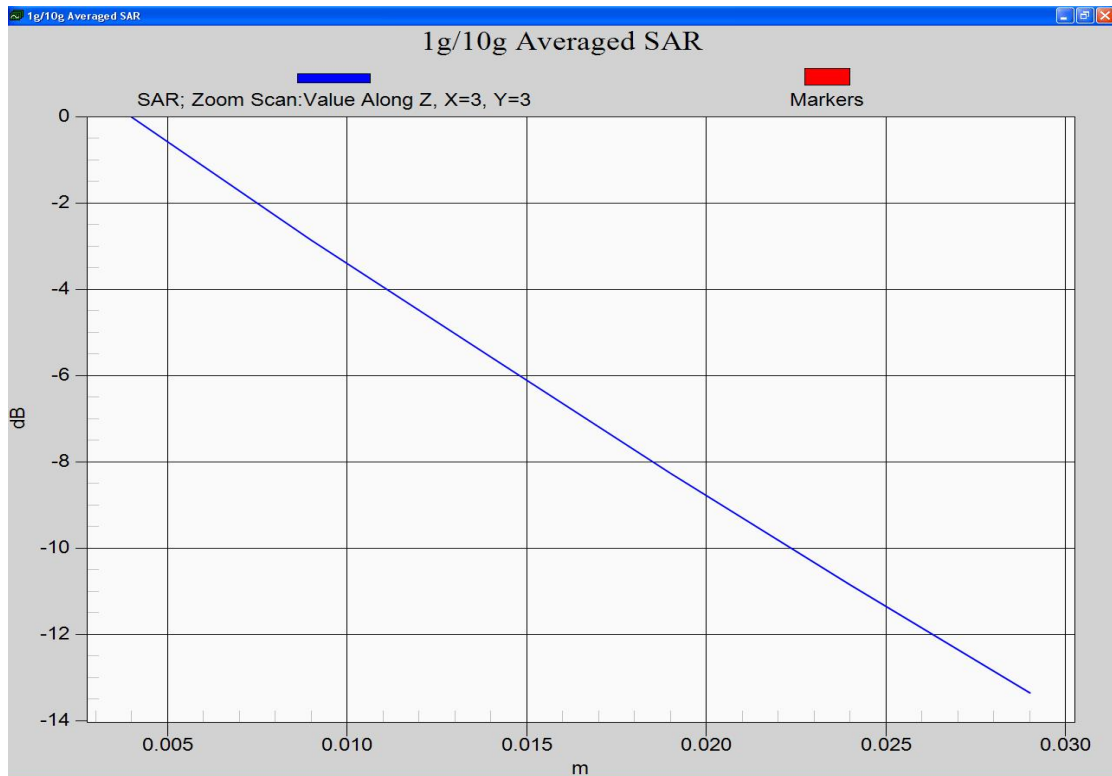
Maximum value of SAR (measured) = 0.635 mW/g

GSM_Back_Mid/Area Scan (31x81x1): Measurement grid: dx=15mm, dy=15mm

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



0 dB = 0.653mW/g



Plot 16: GSM 850 body, back toward phantom, high channel

Test Laboratory: CTTL

GSM850_Body_Back_High

DUT: SONIM XP 1300-A; Type: SONIM XP 1300-A; Serial: --

Communication System: GSM 850; Frequency: 848.8 MHz; Duty Cycle: 1:8.3
Medium parameters used: $f = 849$ MHz; $\sigma = 0.971$ mho/m; $\epsilon_r = 55.3$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC)

DASY4 Configuration:

- Probe: ES3DV3 - SN3158; ConvF(5.93, 5.93, 5.93); Calibrated: 2010-5-20
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn549; Calibrated: 2010-5-20
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx
- Measurement SW: DASYS, V5.0 Build 119; SEMCAD X Version 13.2 Build 87

gsm_Back_High/Area Scan (31x81x1): Measurement grid: $dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.547 mW/g

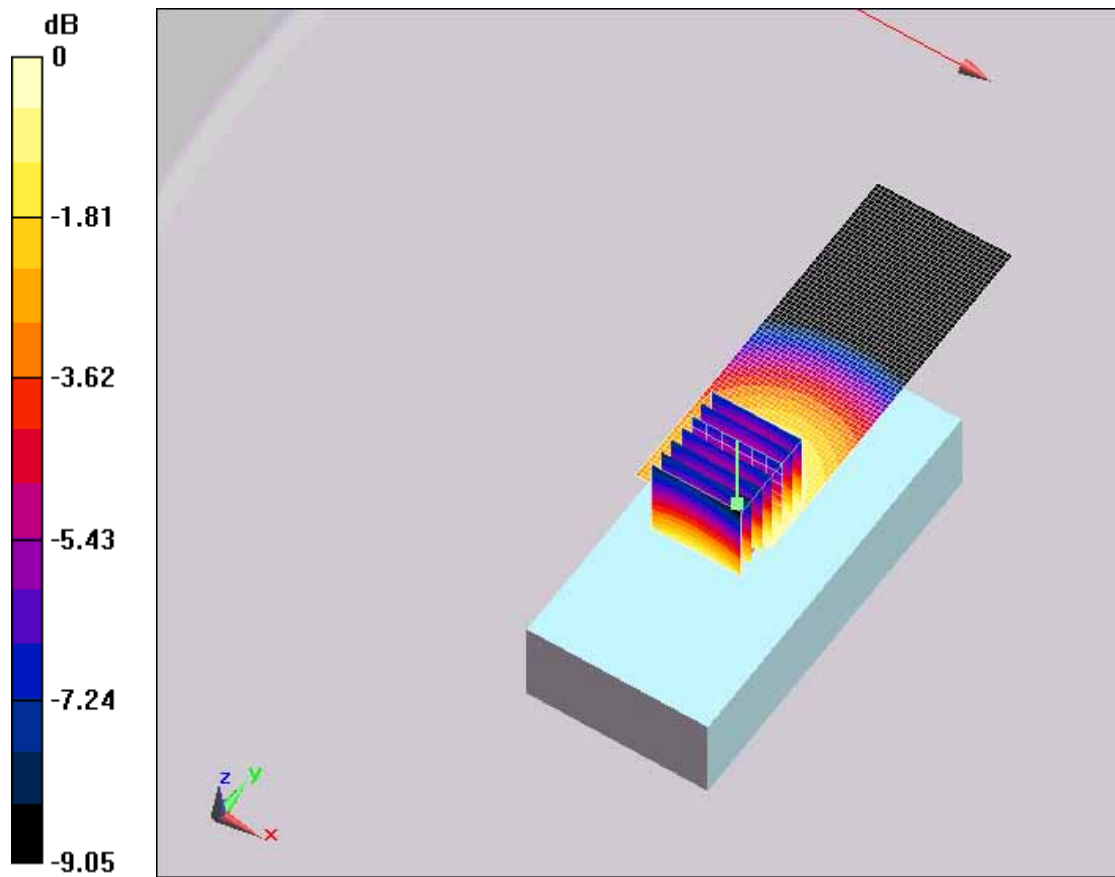
gsm_Back_High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 12.3 V/m; Power Drift = 0.046 dB

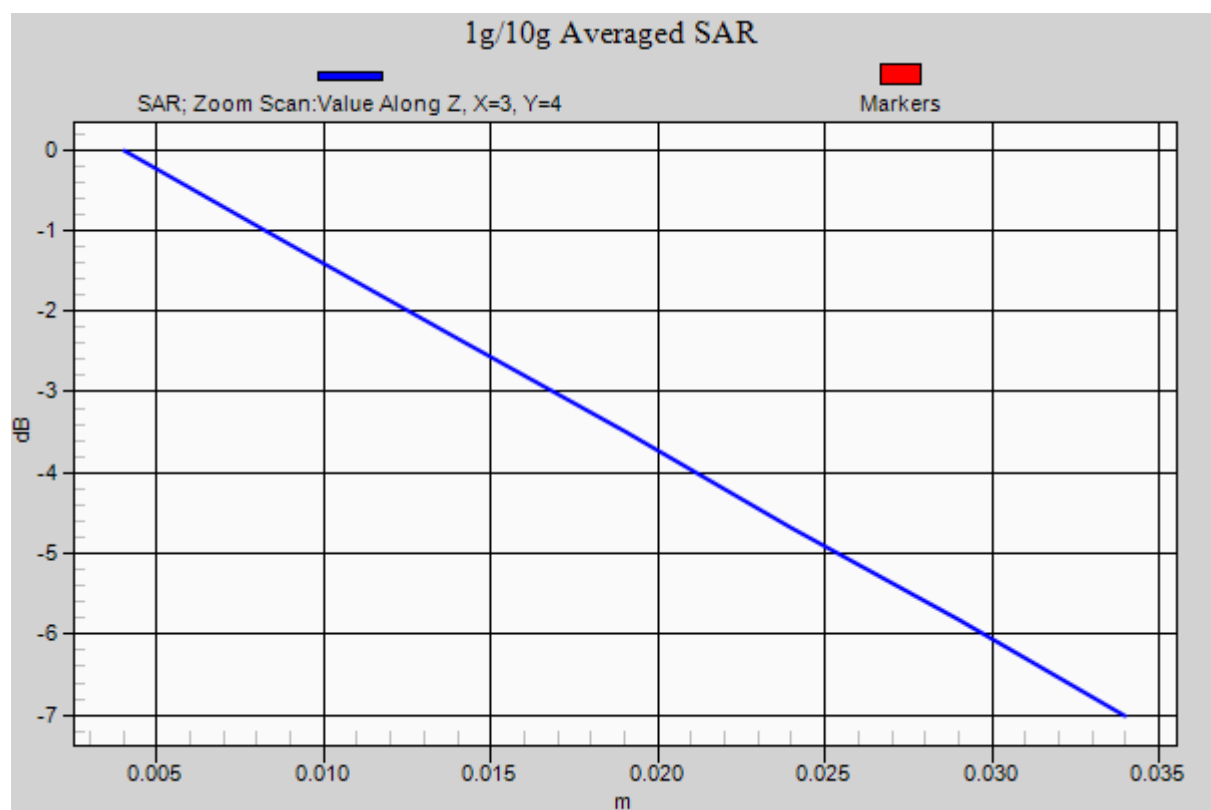
Peak SAR (extrapolated) = 0.673 W/kg

SAR(1 g) = 0.519 mW/g; SAR(10 g) = 0.382 mW/g

Maximum value of SAR (measured) = 0.548 mW/g



0 dB = 0.548mW/g



Plot 17: GSM 850 body, back toward phantom with belt, low channel

Test Laboratory: CTTL

GSM850_Body_Back_Belt_Low

DUT: SONIM XP 1300-A; Type: SONIM XP 1300-A; Serial: --

Communication System: GSM 850; Frequency: 824.2 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated): $f = 824.2$ MHz; $\sigma = 0.953$ mho/m; ϵ_r

$= 55.6$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC)

DASY4 Configuration:

- Probe: ES3DV3 - SN3158; ConvF(5.93, 5.93, 5.93); Calibrated: 2010-5-20
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn549; Calibrated: 2010-5-20
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx
- Measurement SW: DASYS, V5.0 Build 119; SEMCAD X Version 13.2 Build 87

GSM_Belt_Back_Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid:

$dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 10.5 V/m; Power Drift = -0.024 dB

Peak SAR (extrapolated) = 0.849 W/kg

SAR(1 g) = 0.657 mW/g; SAR(10 g) = 0.483 mW/g

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

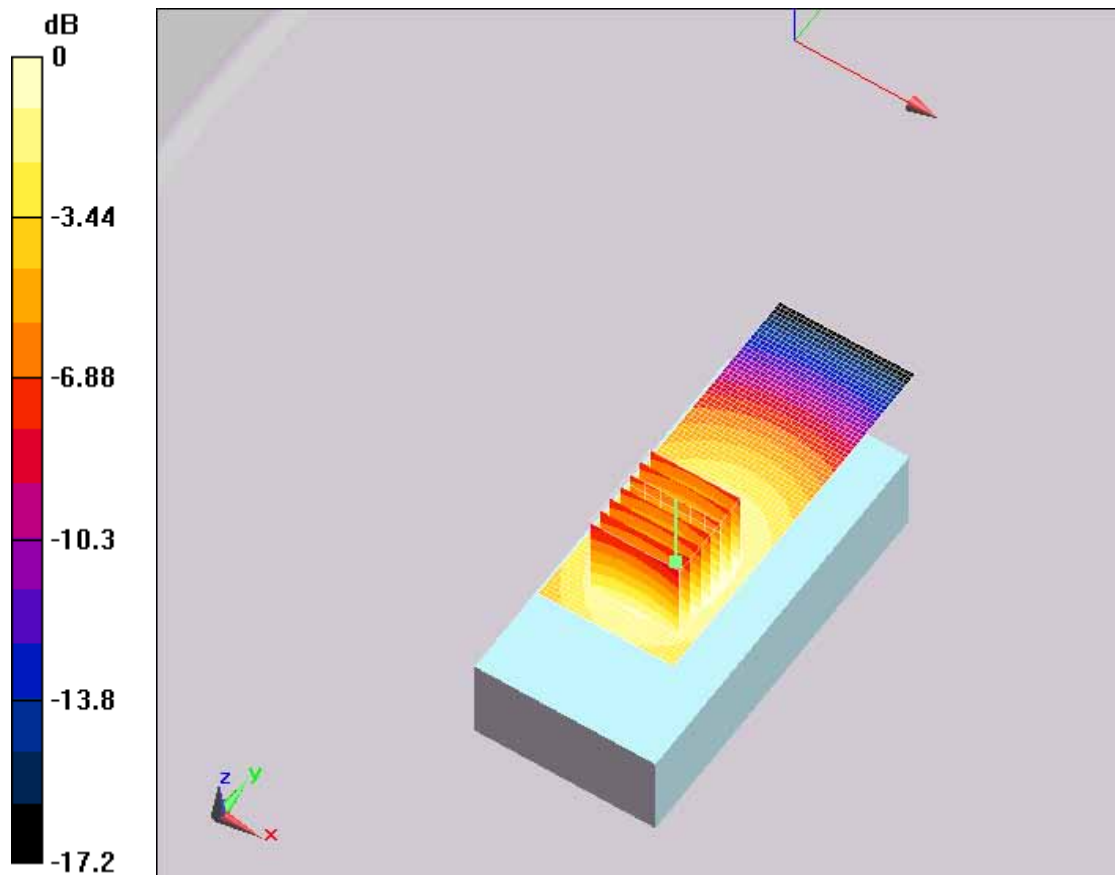
Maximum value of SAR (measured) = 0.695 mW/g

GSM_Belt_Back_Low/Area Scan (31x81x1): Measurement grid:

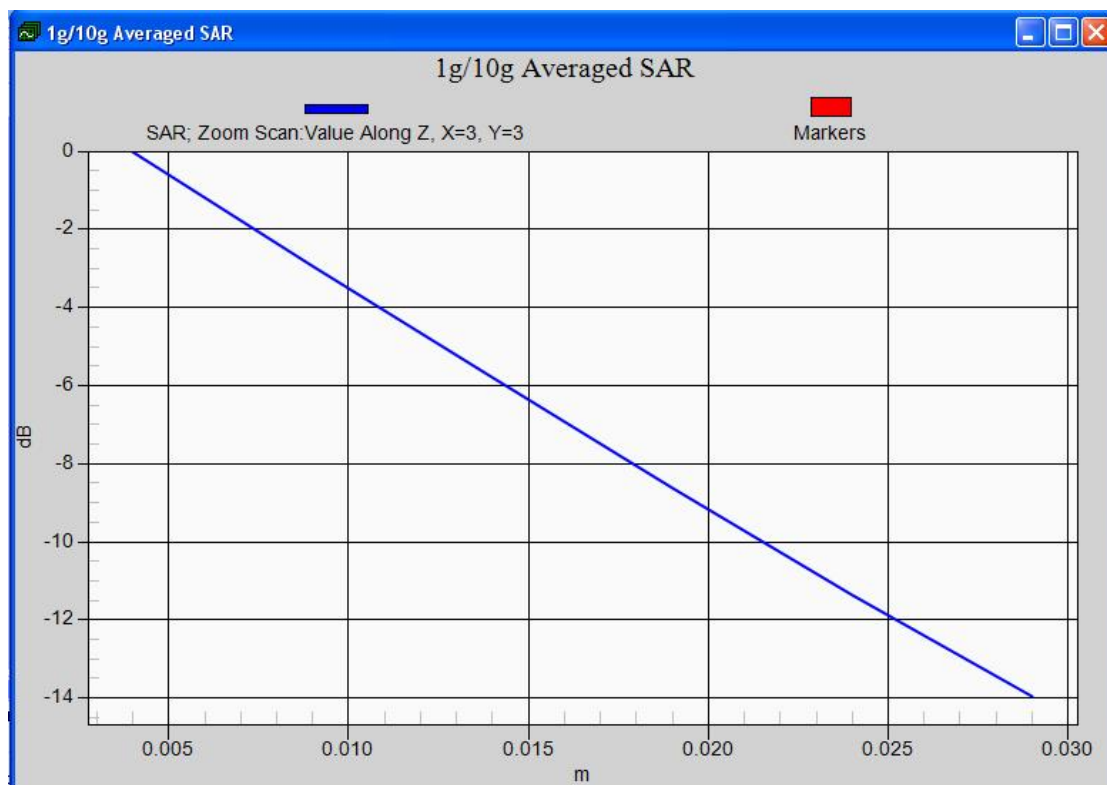
$dx=15$ mm, $dy=15$ mm

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

Maximum value of SAR (interpolated) = 0.697 mW/g



0 dB = 0.697mW/g



Plot 18: GSM 850 body, back toward phantom with belt, middle channel

Test Laboratory: CTTL

GSM850_Body_Back_Belt_Middle

DUT: SONIM XP 1300-A; Type: SONIM XP 1300-A; Serial: --

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3
Medium parameters used: $f = 837$ MHz; $\sigma = 0.963$ mho/m; $\epsilon_r = 55.5$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC)

DASY4 Configuration:

- Probe: ES3DV3 - SN3158; ConvF(5.93, 5.93, 5.93); Calibrated: 2010-5-20
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn549; Calibrated: 2010-5-20
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx
- Measurement SW: DASYS, V5.0 Build 119; SEMCAD X Version 13.2 Build 87

GSM_Belt_Back_Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid:

$dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 10.9 V/m; Power Drift = 0.148 dB

Peak SAR (extrapolated) = 0.733 W/kg

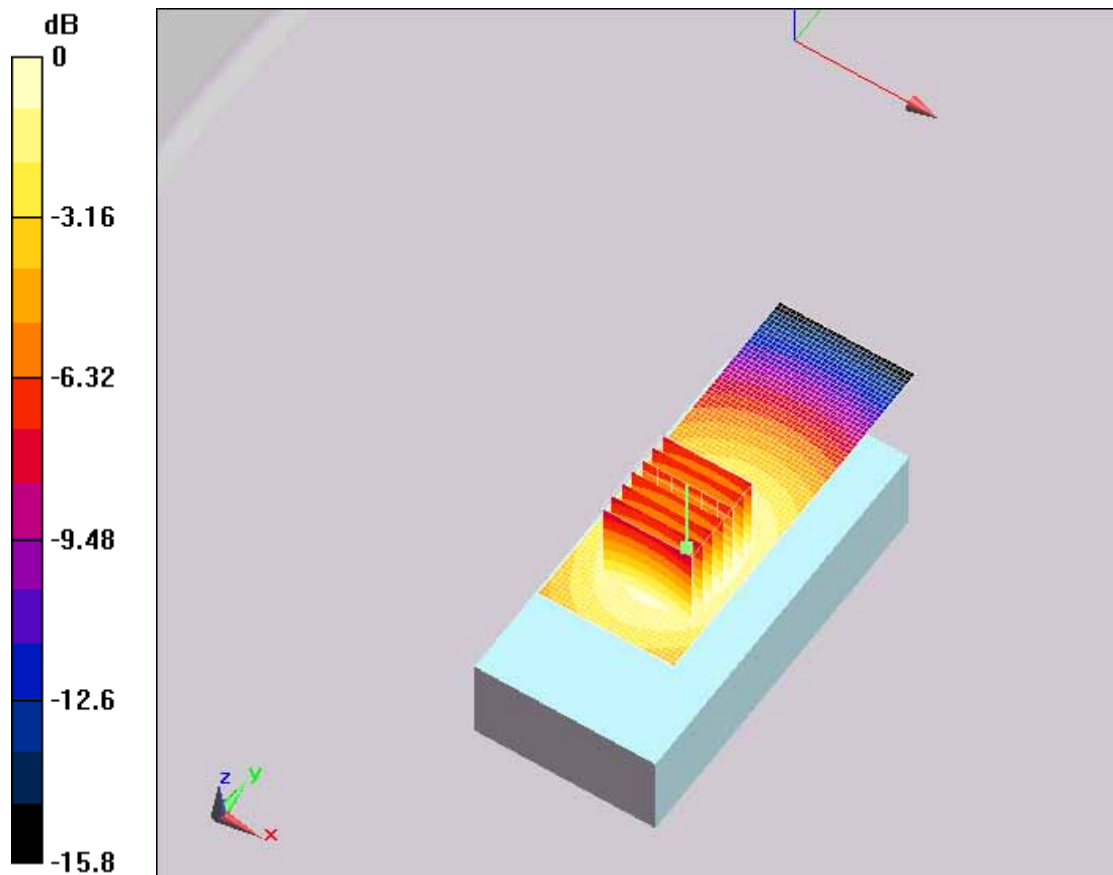
SAR(1 g) = 0.569 mW/g; SAR(10 g) = 0.418 mW/g

Maximum value of SAR (measured) = 0.600 mW/g

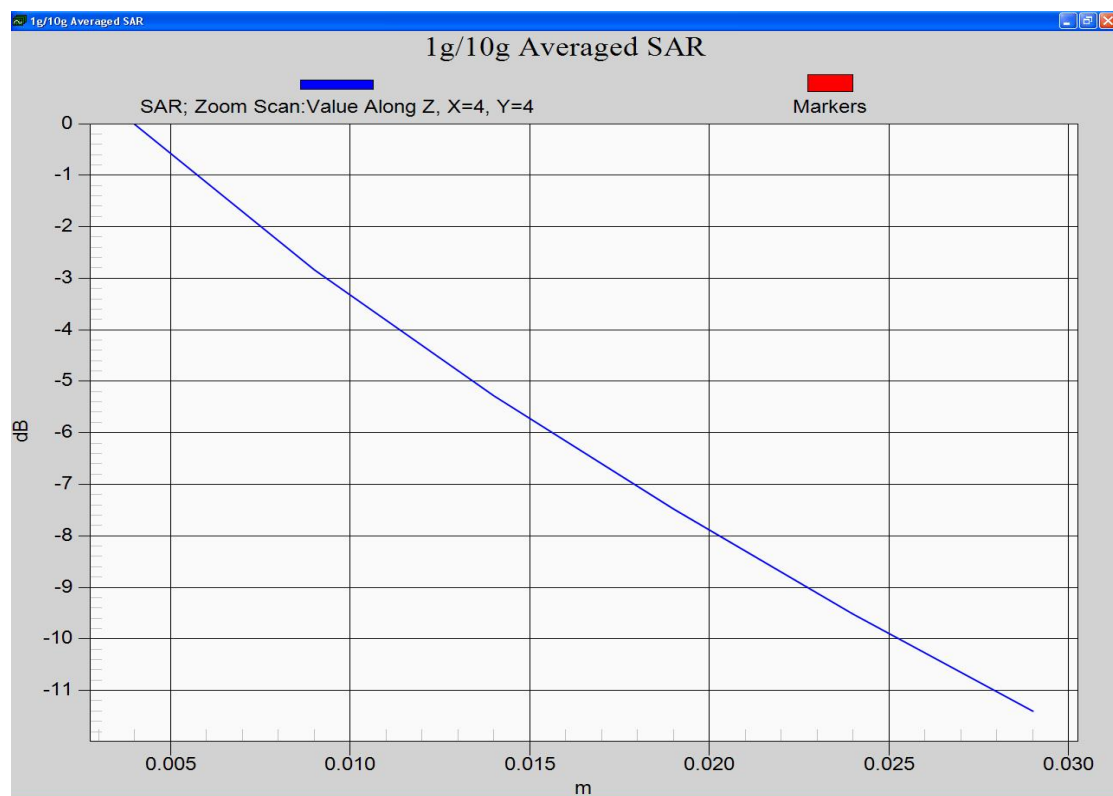
GSM_Belt_Back_Mid/Area Scan (31x81x1): Measurement grid:

$dx=15$ mm, $dy=15$ mm

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



0 dB = 0.598mW/g



Plot 19: GSM 850 body, back toward phantom with belt, high channel

Test Laboratory: CTTL

GSM850_Body_Back_Belt_High

DUT: SONIM XP 1300-A; Type: SONIM XP 1300-A; Serial: --

Communication System: GSM 850; Frequency: 848.8 MHz; Duty Cycle: 1:8.3
Medium parameters used: $f = 849$ MHz; $\sigma = 0.971$ mho/m; $\epsilon_r = 55.3$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC)

DASY4 Configuration:

- Probe: ES3DV3 - SN3158; ConvF(5.93, 5.93, 5.93); Calibrated: 2010-5-20
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn549; Calibrated: 2010-5-20
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx
- Measurement SW: DASYS, V5.0 Build 119; SEMCAD X Version 13.2 Build 87

GSM_Belt_Back_High/Area Scan (31x81x1): Measurement grid:

$dx = 15$ mm, $dy = 15$ mm

Maximum value of SAR (interpolated) = 0.582 mW/g

GSM_Belt_Back_High/Zoom Scan (7x7x7)/Cube 0: Measurement grid:

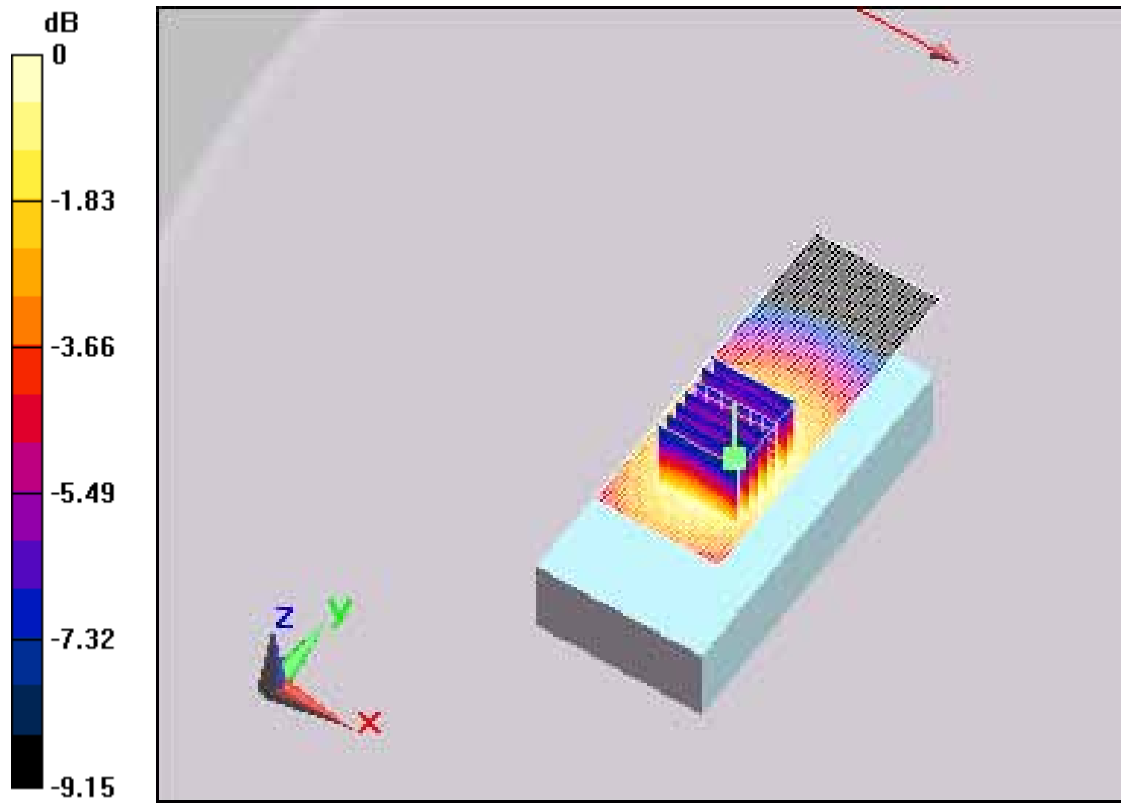
$dx = 5$ mm, $dy = 5$ mm, $dz = 5$ mm

Reference Value = 10.8 V/m; Power Drift = 0.146 dB

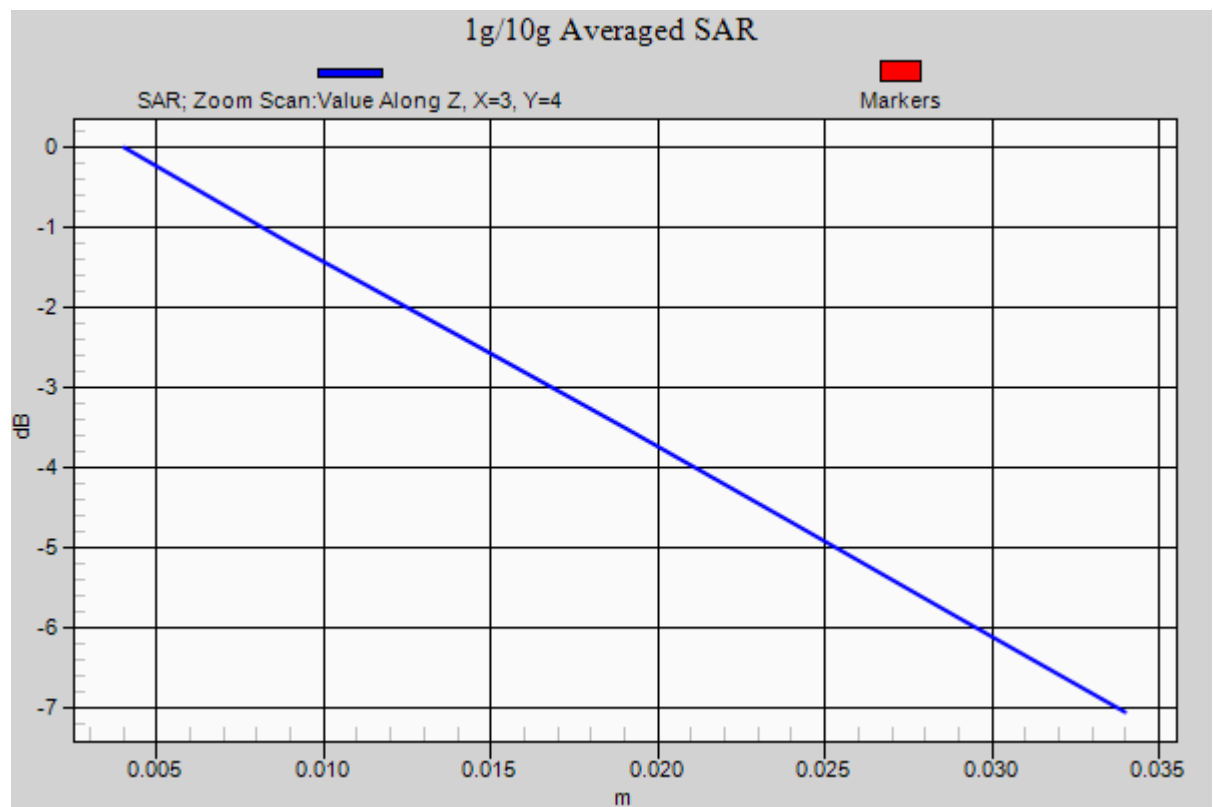
Peak SAR (extrapolated) = 0.713 W/kg

SAR(1 g) = 0.549 mW/g; SAR(10 g) = 0.402 mW/g

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



0 dB = 0.581mW/g



Plot 20: GSM 850 body, back toward phantom with earphone, low channel

Test Laboratory: CTTL

GSM850_Body_Back_Earphone_Low

DUT: SONIM XP 1300-A; Type: SONIM XP 1300-A; Serial: --

Communication System: GSM 850; Frequency: 824.2 MHz; Duty Cycle: 1:8.3
Medium parameters used (interpolated): $f = 824.2$ MHz; $\sigma = 0.953$ mho/m; $\epsilon_r = 55.6$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC)

DASY4 Configuration:

- Probe: ES3DV3 - SN3158; ConvF(5.93, 5.93, 5.93); Calibrated: 2010-5-20
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn549; Calibrated: 2010-5-20
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx
- Measurement SW: DASYS, V5.0 Build 119; SEMCAD X Version 13.2 Build 87

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

Reference Value = 10.9 V/m; Power Drift = -0.016 dB

Peak SAR (extrapolated) = 0.583 W/kg

SAR(1 g) = 0.453 mW/g; SAR(10 g) = 0.334 mW/g

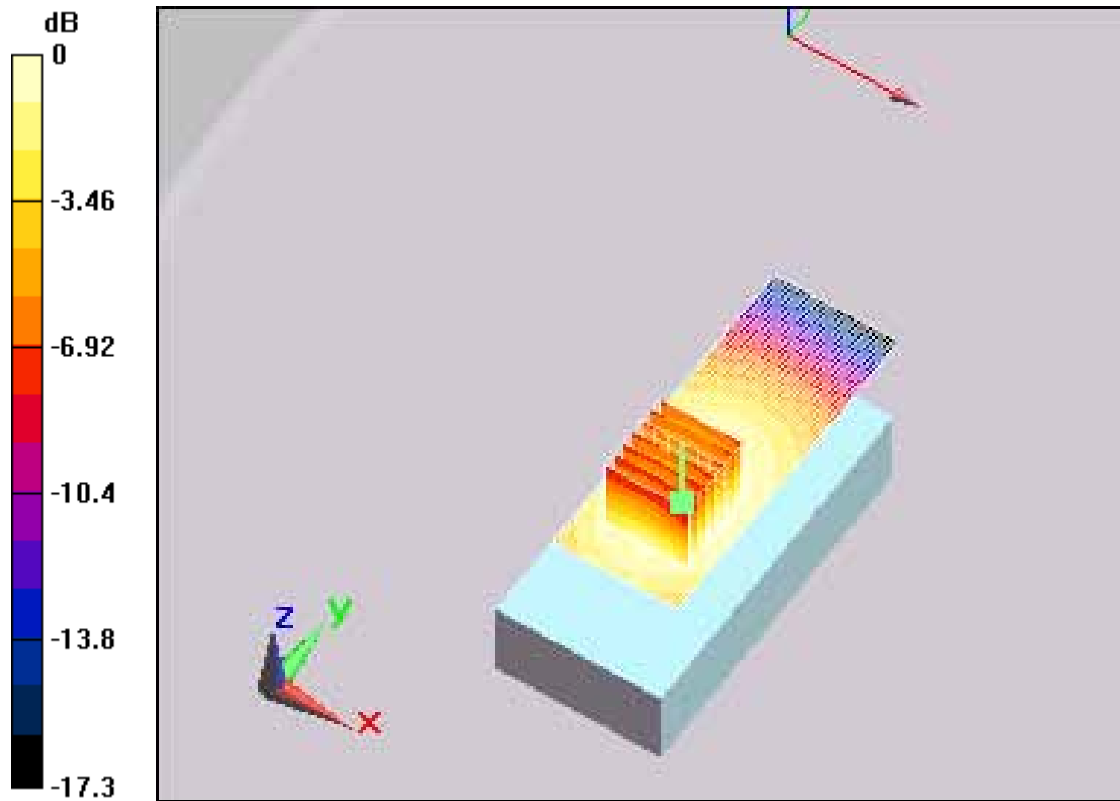
[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.480 mW/g

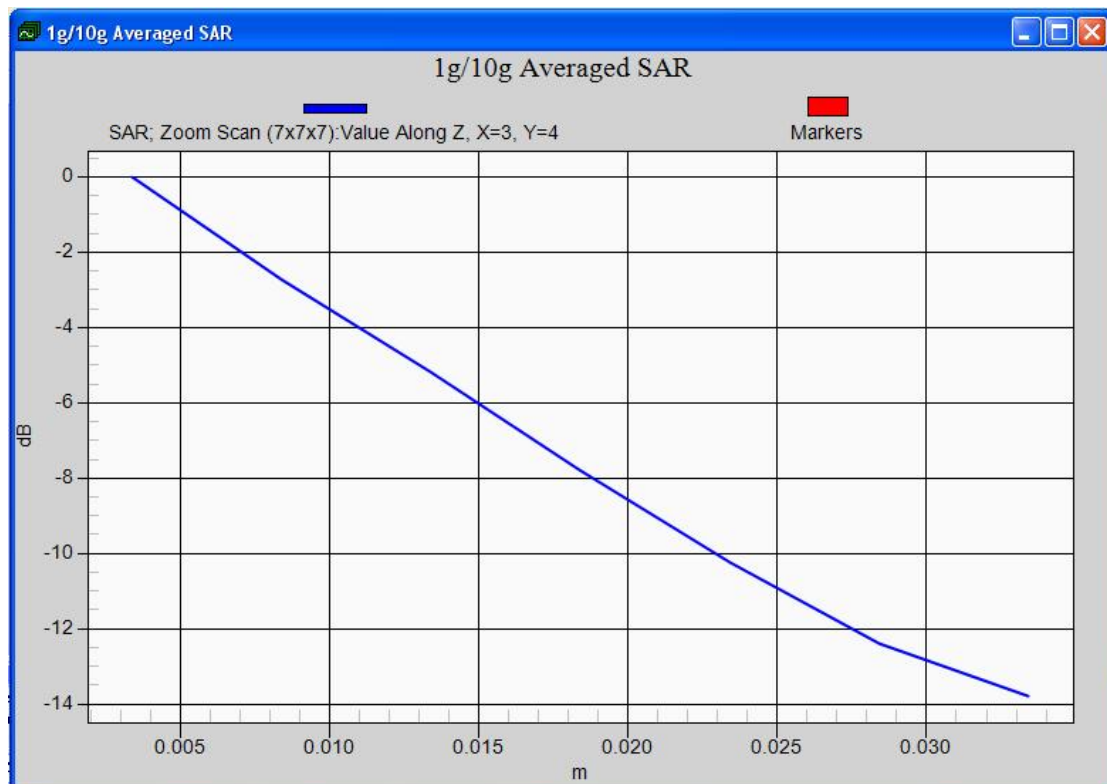
GSM_Back_Mid_earphone/Area Scan (31x81x1): Measurement grid: $dx=15$ mm, $dy=15$ mm

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

Maximum value of SAR (interpolated) = 0.475 mW/g



0 dB = 0.475mW/g



Plot 21: GSM 850 body, back toward phantom with BT on, low channel

Test Laboratory: CTTL

GSM850_Body_Back_BT_Low

DUT: SONIM XP 1300-A; Type: SONIM XP 1300-A; Serial: --

Communication System: GSM 850; Frequency: 824.2 MHz; Duty Cycle: 1:8.3
Medium parameters used (interpolated): $f = 824.2$ MHz; $\sigma = 0.953$ mho/m; $\epsilon_r = 55.6$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC)

DASY4 Configuration:

- Probe: ES3DV3 - SN3158; ConvF(5.93, 5.93, 5.93); Calibrated: 2010-5-20
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn549; Calibrated: 2010-5-20
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx
- Measurement SW: DASYS, V5.0 Build 119; SEMCAD X Version 13.2 Build 87

GSM_Back_Mid_BT/Zoom Scan (7x7x7)/Cube 0: Measurement grid:

$dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 11.4 V/m; Power Drift = -0.034 dB

Peak SAR (extrapolated) = 0.660 W/kg

SAR(1 g) = 0.513 mW/g; SAR(10 g) = 0.378 mW/g

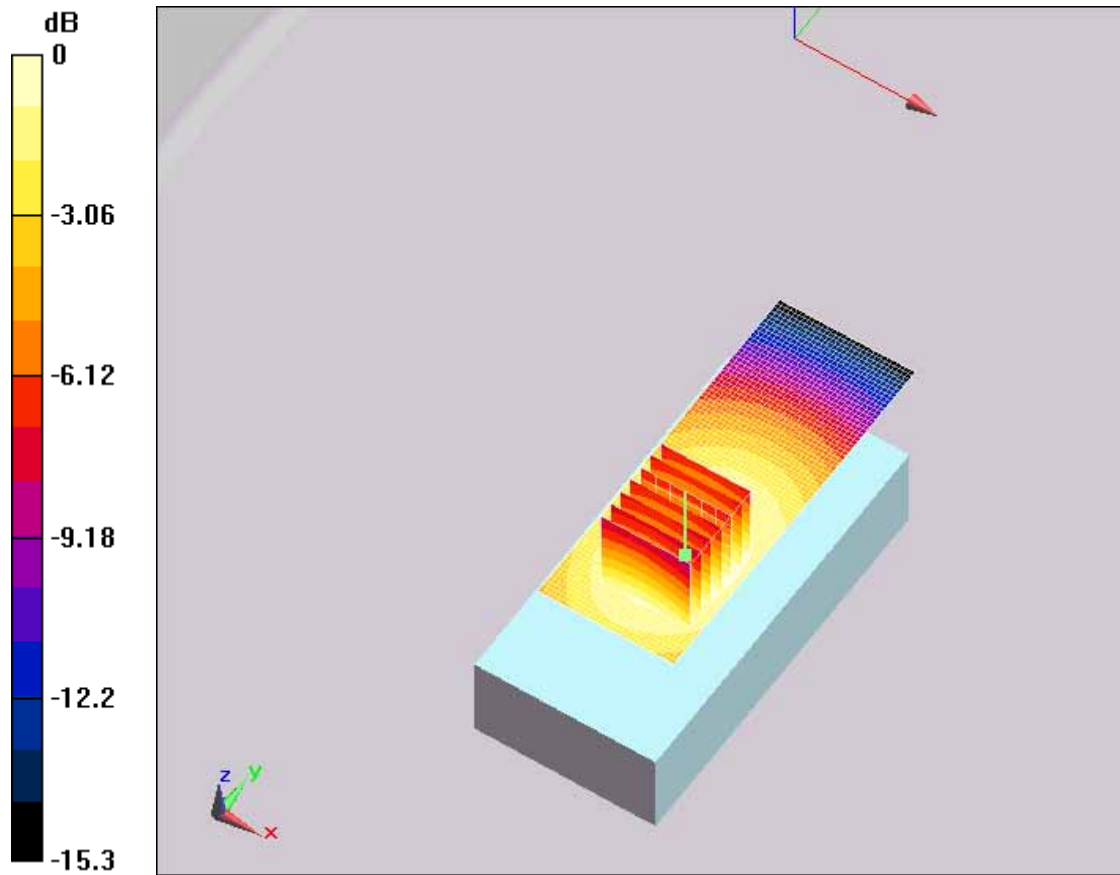
[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.543 mW/g

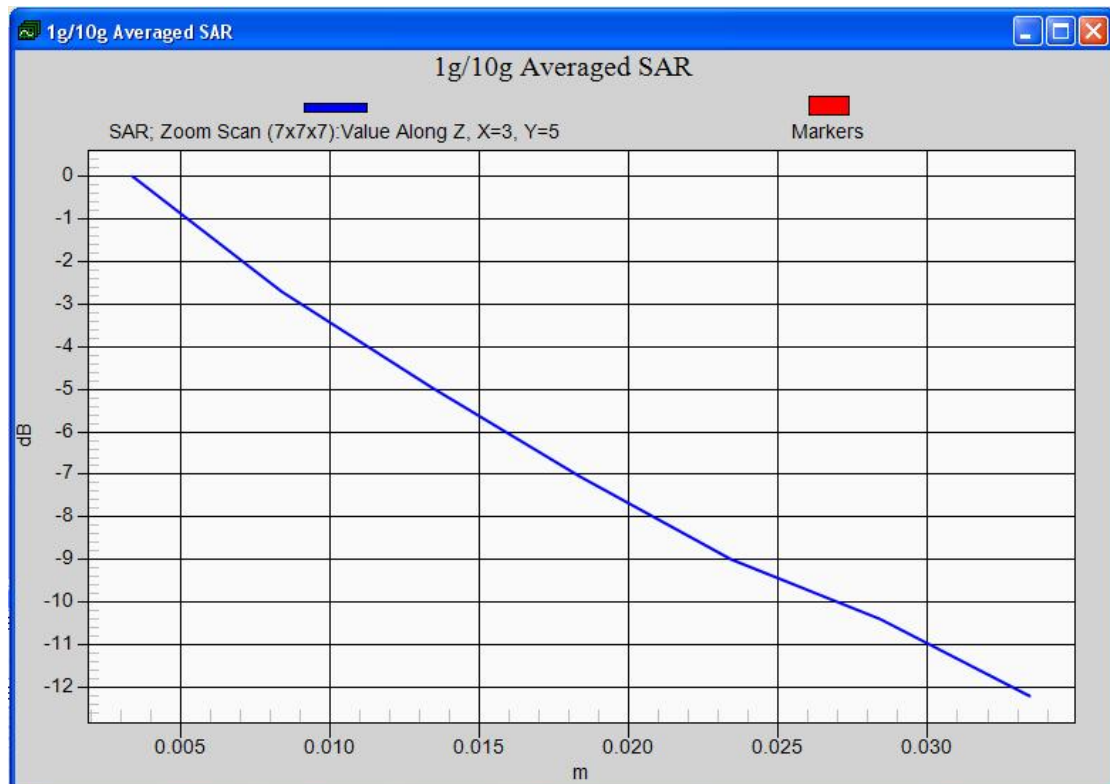
GSM_Back_Mid_BT/Area Scan (31x81x1): Measurement grid: $dx=15$ mm, $dy=15$ mm

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

Maximum value of SAR (interpolated) = 0.536 mW/g



0 dB = 0.536mW/g



Plot 22: GSM 850 body, back toward phantom, low channel, GPRS 4TS

Test Laboratory: CTTL

GSM850_Body_Back_GPRS_4TS_Low

DUT: SONIM XP 1300-A; Type: SONIM XP 1300-A; Serial: --

Communication System: GSM 850; Frequency: 824.2 MHz; Duty Cycle: 1:2
Medium parameters used (interpolated): $f = 824.2$ MHz; $\sigma = 0.953$ mho/m; $\epsilon_r = 55.6$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC)

DASY4 Configuration:

- Probe: ES3DV3 - SN3158; ConvF(5.93, 5.93, 5.93); Calibrated: 2010-5-20
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn549; Calibrated: 2010-5-20
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx
- Measurement SW: DASYS, V5.0 Build 119; SEMCAD X Version 13.2 Build 87

GSM_Back_Mid_GPRS/Area Scan (31x81x1): Measurement grid:

$dx=15$ mm, $dy=15$ mm

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

Maximum value of SAR (interpolated) = 0.500 mW/g

GSM_Back_Mid_GPRS/Zoom Scan (7x7x7)/Cube 0: Measurement grid:

$dx=5$ mm, $dy=5$ mm, $dz=5$ mm

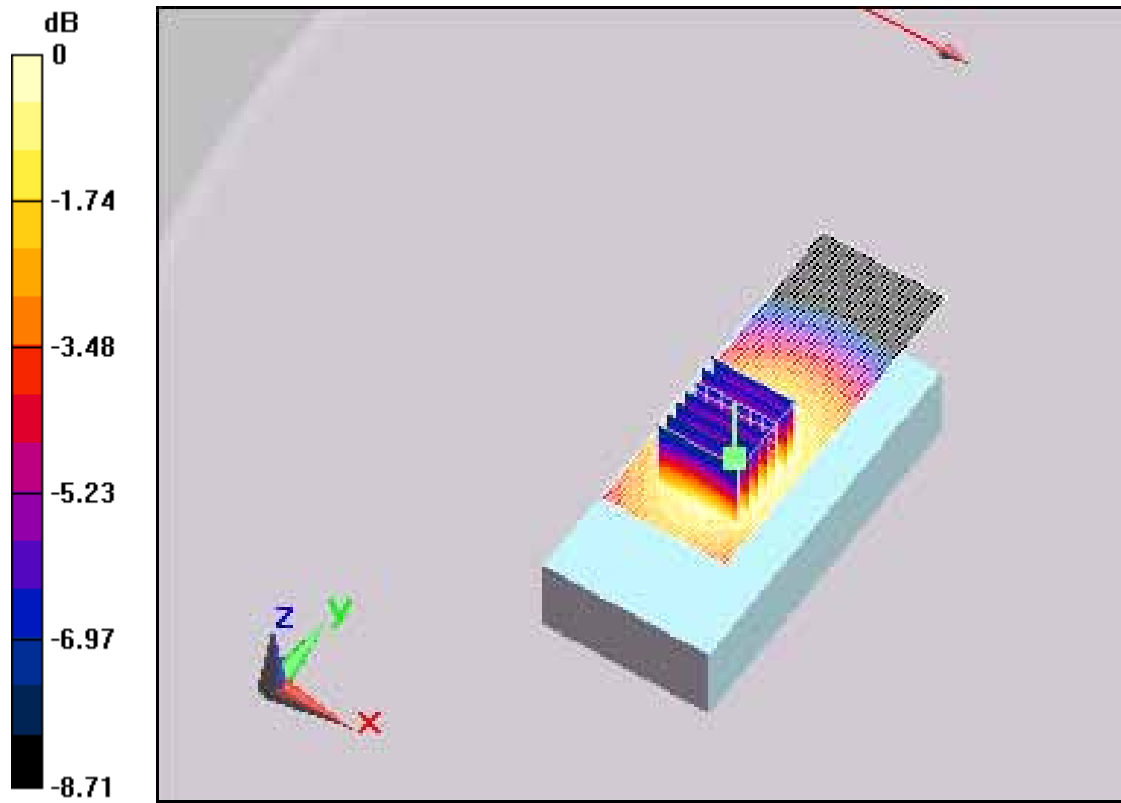
Reference Value = 10.9 V/m; Power Drift = 0.117 dB

Peak SAR (extrapolated) = 0.615 W/kg

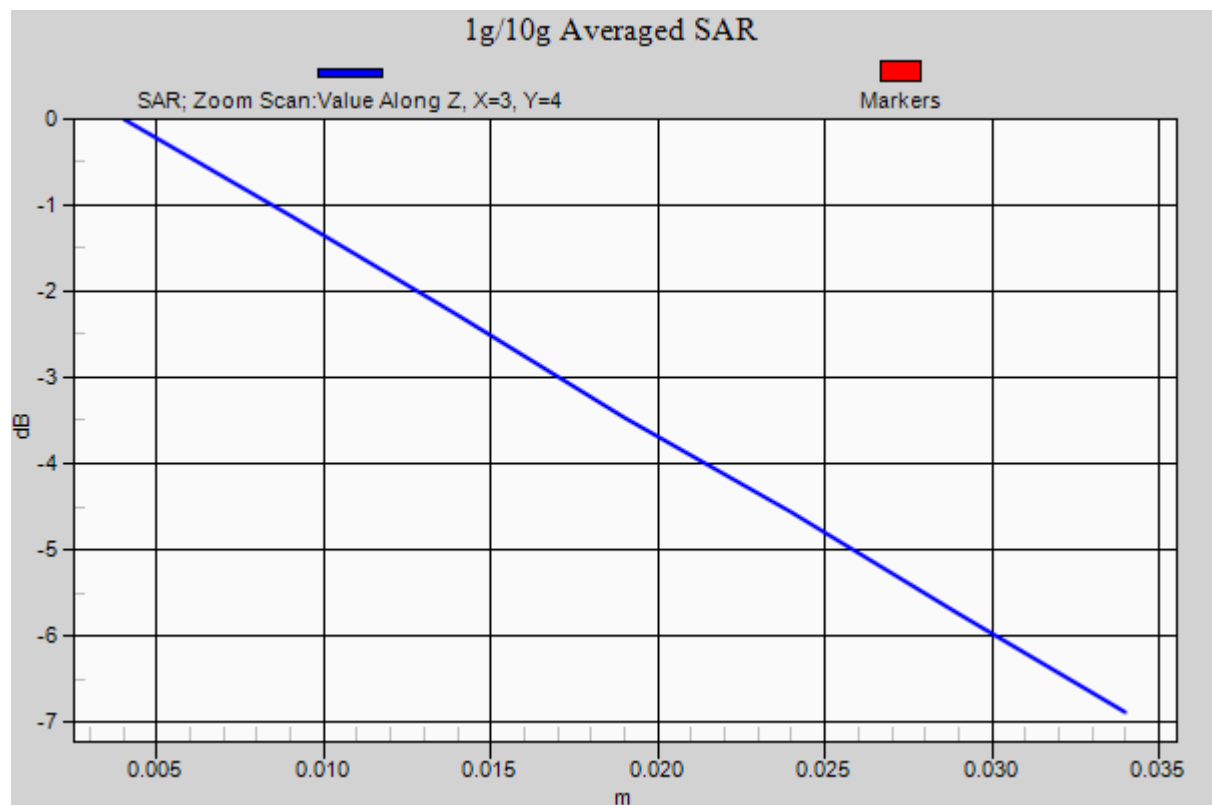
SAR(1 g) = 0.478 mW/g; SAR(10 g) = 0.354 mW/g

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

Maximum value of SAR (measured) = 0.505 mW/g



0 dB = 0.505mW/g



Plot 23: GSM 850 body, back toward phantom, low channel, EGPRS 4TS

Test Laboratory: CTTL

GSM850_Body_Back_EGPRS_4TS_Low

DUT: SONIM XP 1300-A; Type: SONIM XP 1300-A; Serial: --

Communication System: GSM 850; Frequency: 824.2 MHz; Duty Cycle: 1:2
Medium parameters used (interpolated): $f = 824.2$ MHz; $\sigma = 0.953$ mho/m; $\epsilon_r = 55.6$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC)

DASY4 Configuration:

- Probe: ES3DV3 - SN3158; ConvF(5.93, 5.93, 5.93); Calibrated: 2010-5-20
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn549; Calibrated: 2010-5-20
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx
- Measurement SW: DASYS, V5.0 Build 119; SEMCAD X Version 13.2 Build 87

GSM_Back_Mid_EGPRS/Zoom Scan (7x7x7)/Cube 0: Measurement grid:

$dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 10.6 V/m; Power Drift = 0.040 dB

Peak SAR (extrapolated) = 0.702 W/kg

SAR(1 g) = 0.555 mW/g; SAR(10 g) = 0.413 mW/g

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

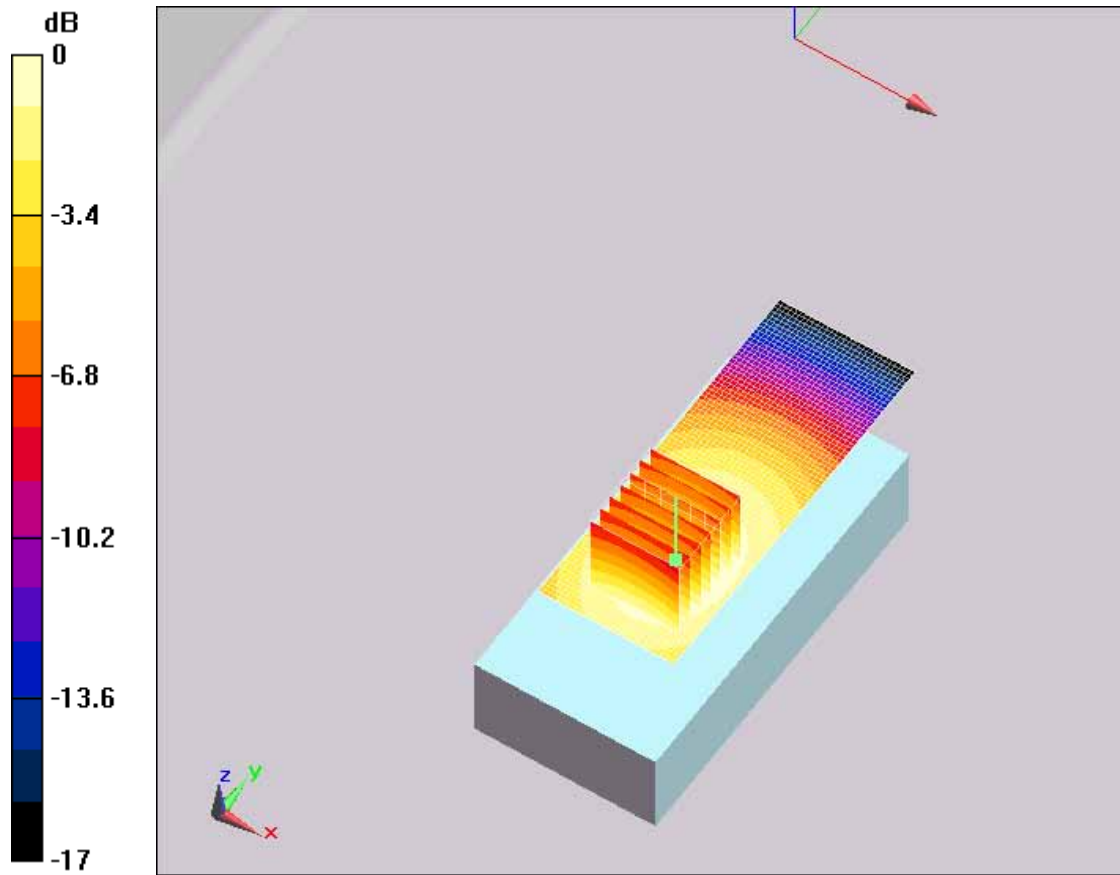
Maximum value of SAR (measured) = 0.585 mW/g

GSM_Back_Mid_EGPRS/Area Scan (31x81x1): Measurement grid:

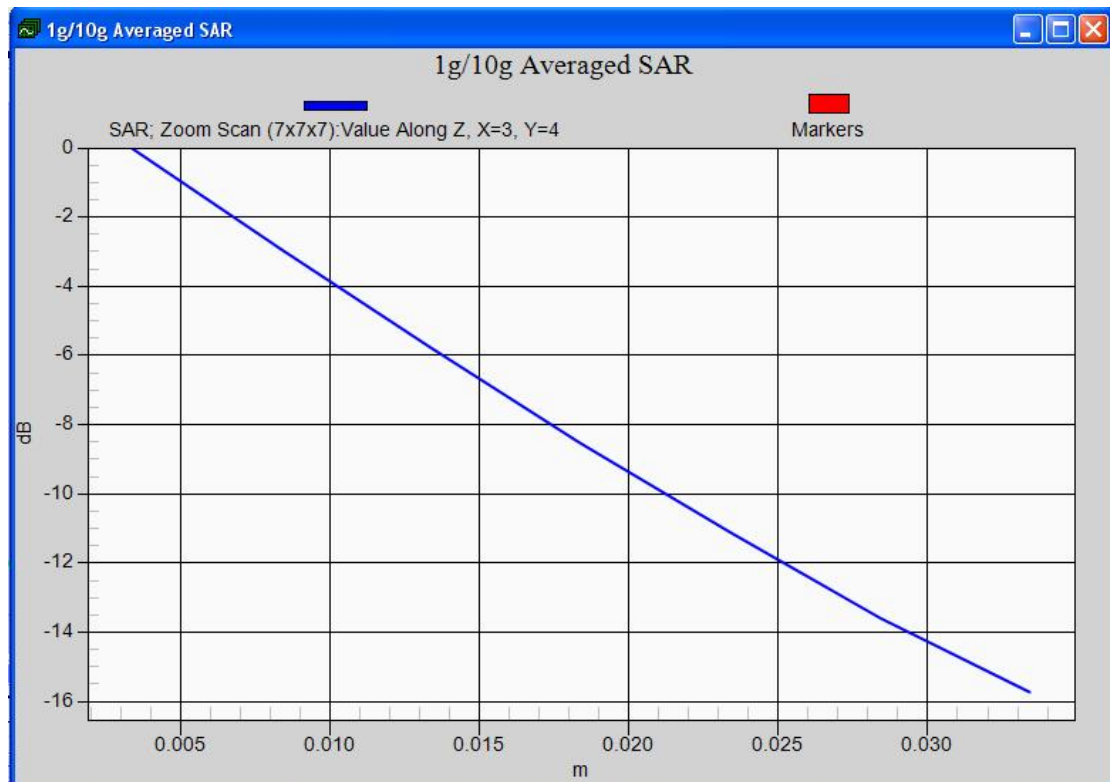
$dx=15$ mm, $dy=15$ mm

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

Maximum value of SAR (interpolated) = 0.594 mW/g



0 dB = 0.594mW/g



Plot 24: PCS 1900 body, face toward phantom, low channel

Test Laboratory: CTTL

PCS1900_Body_Face_Low

DUT: SONIM XP 1300-A; Type: SONIM XP 1300-A; Serial: --

Communication System: PCS 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3
Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.54$ mho/m; $\epsilon_r = 53.5$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC)

DASY4 Configuration:

- Probe: ES3DV3 - SN3158; ConvF(4.58, 4.58, 4.58); Calibrated: 2010-5-20
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn549; Calibrated: 2010-5-20
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx
- Measurement SW: DASY5, V5.0 Build 119; SEMCAD X Version 13.2 Build 87

GSM_Face_Low/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

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

Maximum value of SAR (interpolated) = 0.299 mW/g

GSM_Face_Low/Zoom Scan (7x7x6)/Cube 0: Measurement grid:

dx=5mm, dy=5mm, dz=5mm

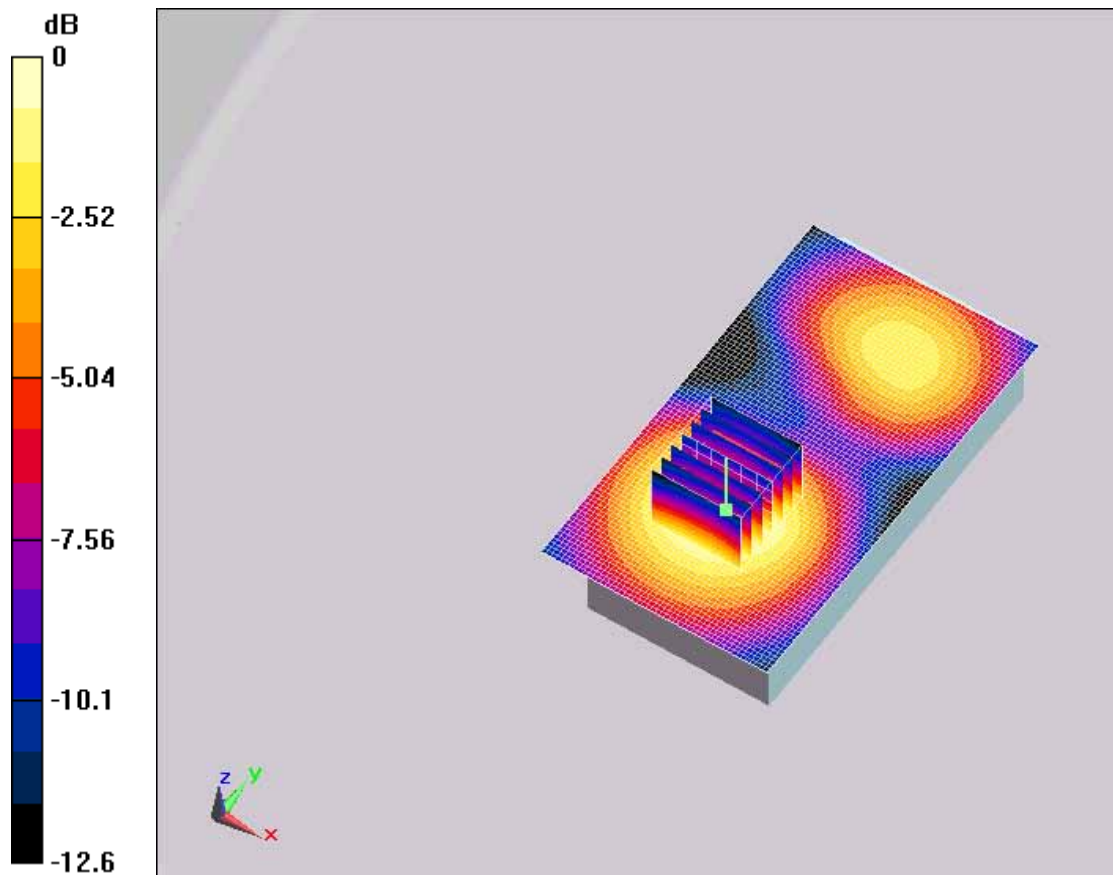
Reference Value = 8.13 V/m; Power Drift = 0.260 dB

Peak SAR (extrapolated) = 0.418 W/kg

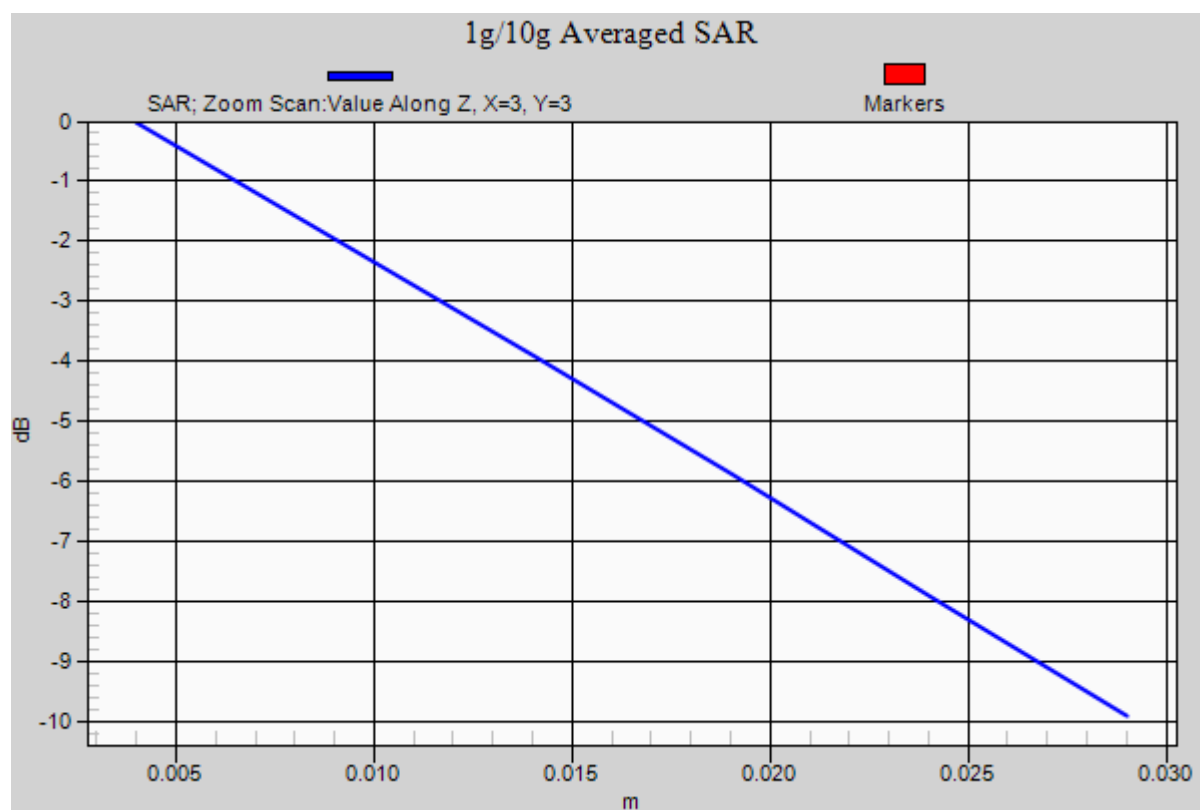
SAR(1 g) = 0.267 mW/g; SAR(10 g) = 0.166 mW/g

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

Maximum value of SAR (measured) = 0.290 mW/g



0 dB = 0.290mW/g



Plot 25: PCS 1900 body, face toward phantom, middle channel

Test Laboratory: CTTL

PCS1900_Body_Face_Middle

DUT: SONIM XP 1300-A; Type: SONIM XP 1300-A; Serial: --

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

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.57$ mho/m; $\epsilon_r = 53.5$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC)

DASY4 Configuration:

- Probe: ES3DV3 - SN3158; ConvF(4.58, 4.58, 4.58); Calibrated: 2010-5-20
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn549; Calibrated: 2010-5-20
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxxx
- Measurement SW: DASYS, V5.0 Build 119; SEMCAD X Version 13.2 Build 87

GSM_Face_Mid/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

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

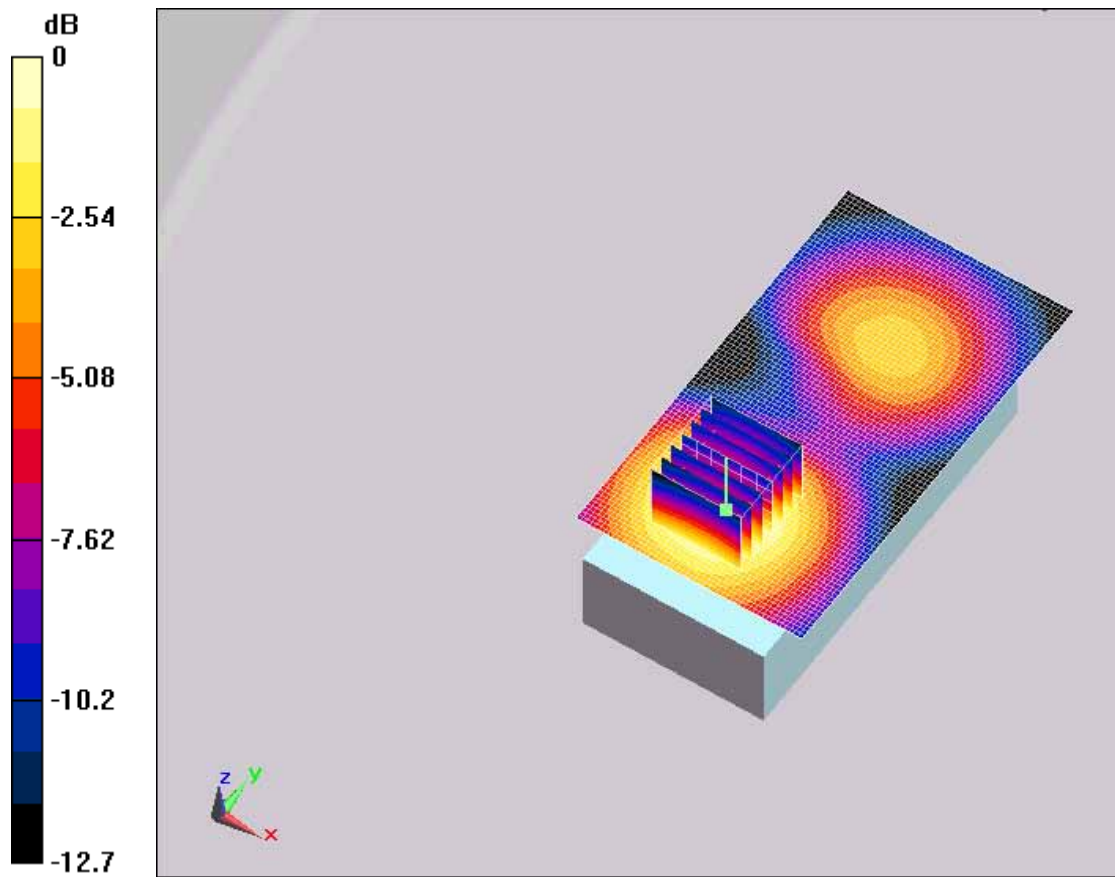
GSM_Face_Mid/Zoom Scan (7x7x6)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.66 V/m; Power Drift = -0.081 dB

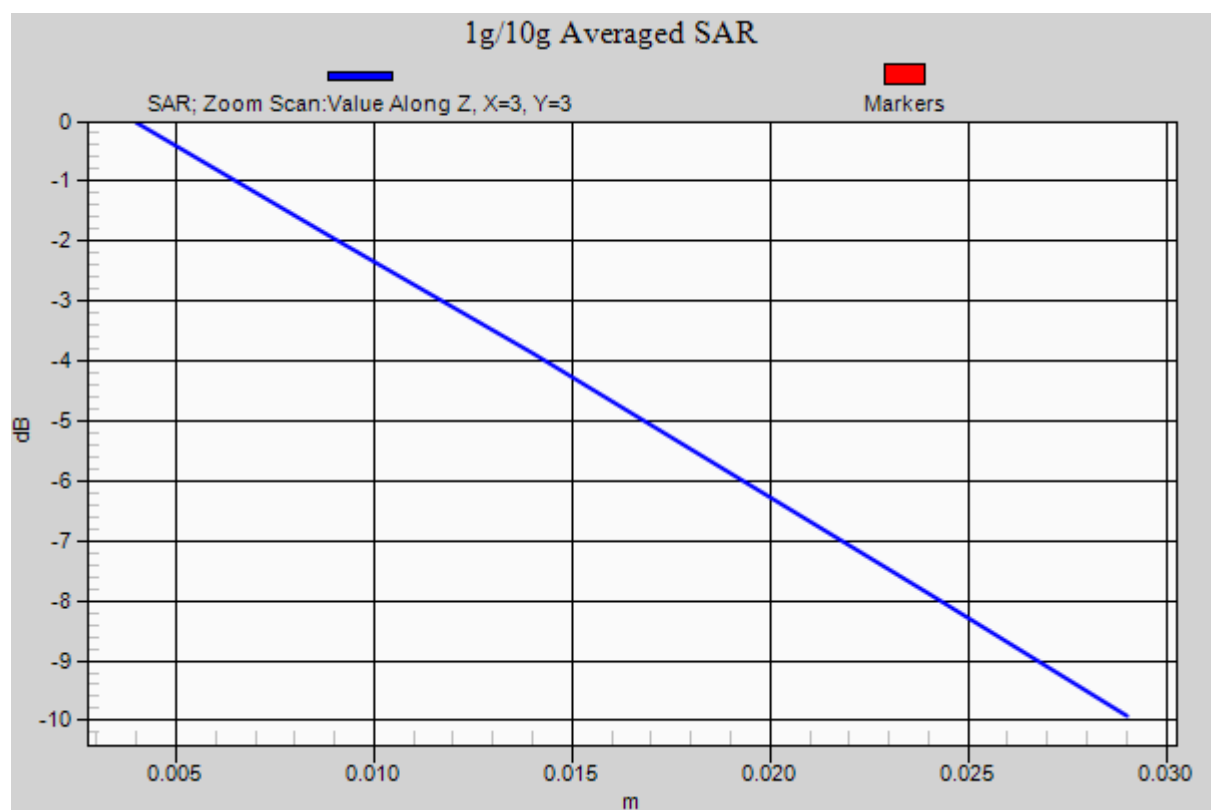
Peak SAR (extrapolated) = 0.492 W/kg

SAR(1 g) = 0.313 mW/g; SAR(10 g) = 0.193 mW/g

Maximum value of SAR (measured) = 0.339 mW/g



0 dB = 0.339mW/g



Plot 26: PCS 1900 body, face toward phantom, high channel

Test Laboratory: CTTL

PCS1900_Body_Face_High

DUT: SONIM XP 1300-A; Type: SONIM XP 1300-A; Serial: --

Communication System: PCS 1900; Frequency: 1909.8 MHz; Duty Cycle: 1:8.3

Medium parameters used: $f = 1910$ MHz; $\sigma = 1.6$ mho/m; $\epsilon_r = 53.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC)

DASY4 Configuration:

- Probe: ES3DV3 - SN3158; ConvF(4.58, 4.58, 4.58); Calibrated: 2010-5-20
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn549; Calibrated: 2010-5-20
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx
- Measurement SW: DASYS, V5.0 Build 119; SEMCAD X Version 13.2 Build 87

GSM_Face_High/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.345 mW/g

GSM_Face_High/Zoom Scan (7x7x6)/Cube 0: Measurement grid:

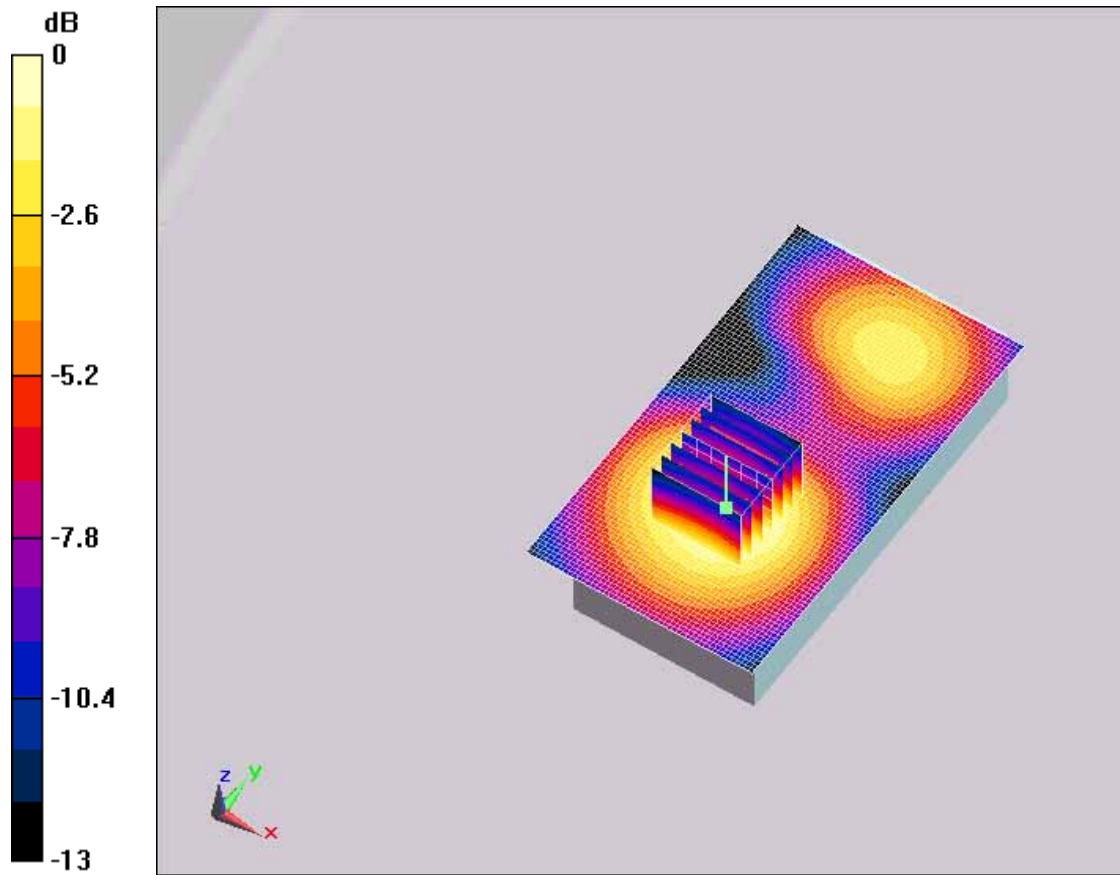
dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.52 V/m; Power Drift = 0.235 dB

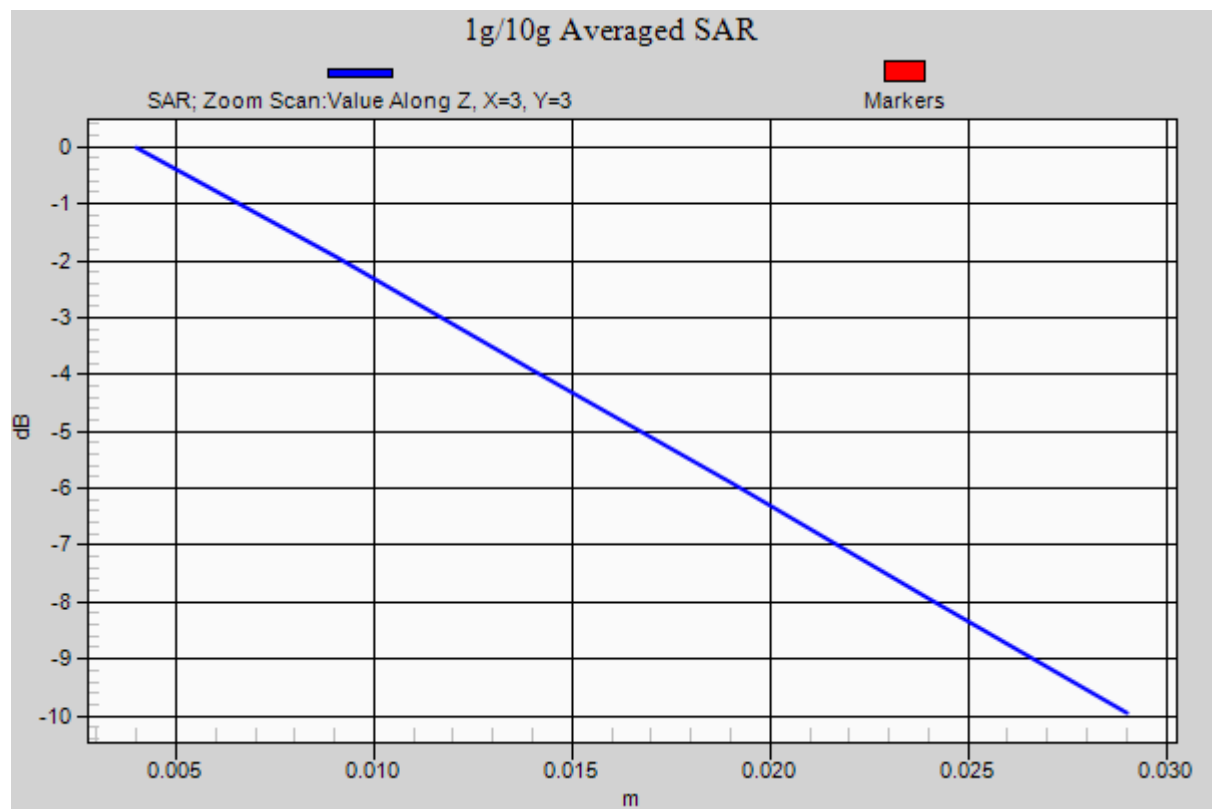
Peak SAR (extrapolated) = 0.477 W/kg

SAR(1 g) = 0.306 mW/g; SAR(10 g) = 0.189 mW/g

Maximum value of SAR (measured) = 0.329 mW/g



0 dB = 0.329mW/g



Plot 27: PCS 1900 body, back toward phantom, middle channel

Test Laboratory: CTTL

PCS1900_Body_Back_Middle

DUT: SONIM XP 1300-A; Type: SONIM XP 1300-A; Serial: --

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

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.57$ mho/m; $\epsilon_r = 53.5$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC)

DASY4 Configuration:

- Probe: ES3DV3 - SN3158; ConvF(4.58, 4.58, 4.58); Calibrated: 2010-5-20
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn549; Calibrated: 2010-5-20
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx
- Measurement SW: DASYS, V5.0 Build 119; SEMCAD X Version 13.2 Build 87

GSM_Back_Mid/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.329 mW/g

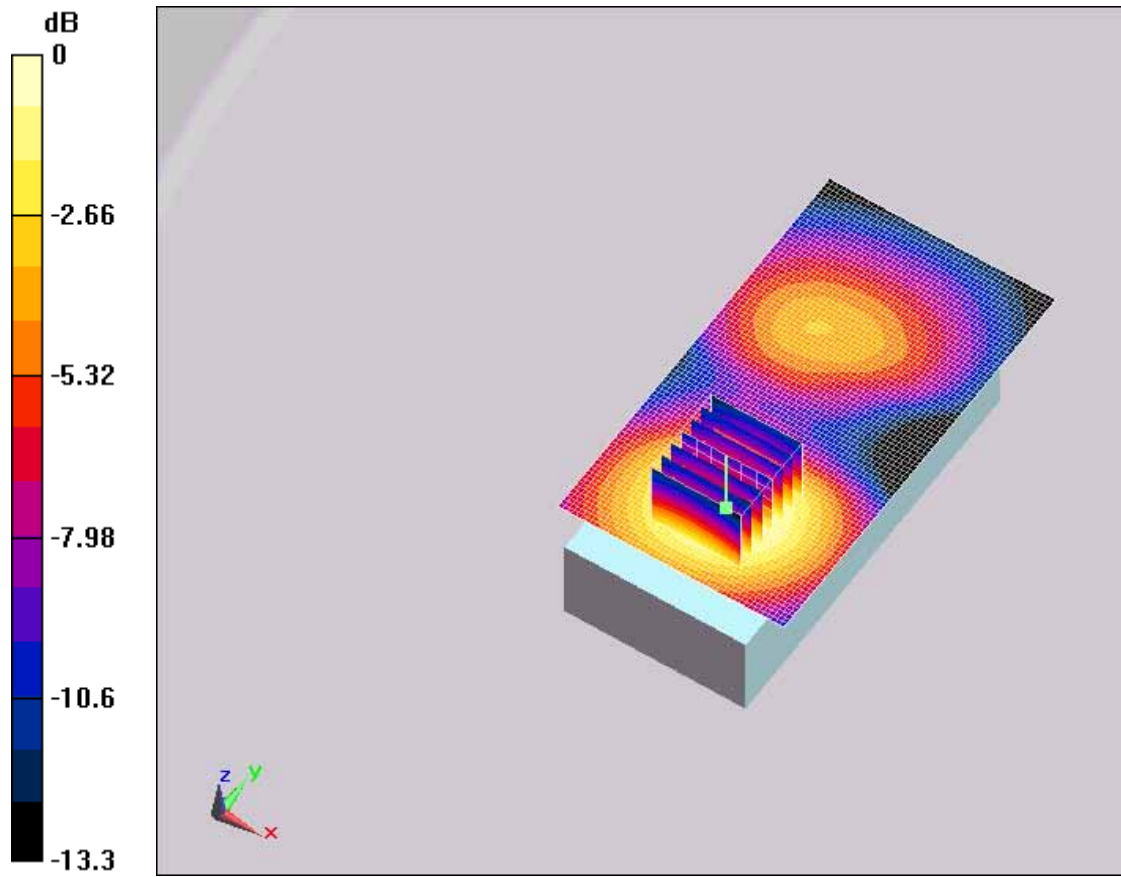
GSM_Back_Mid/Zoom Scan (7x7x6)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.23 V/m; Power Drift = 0.371 dB

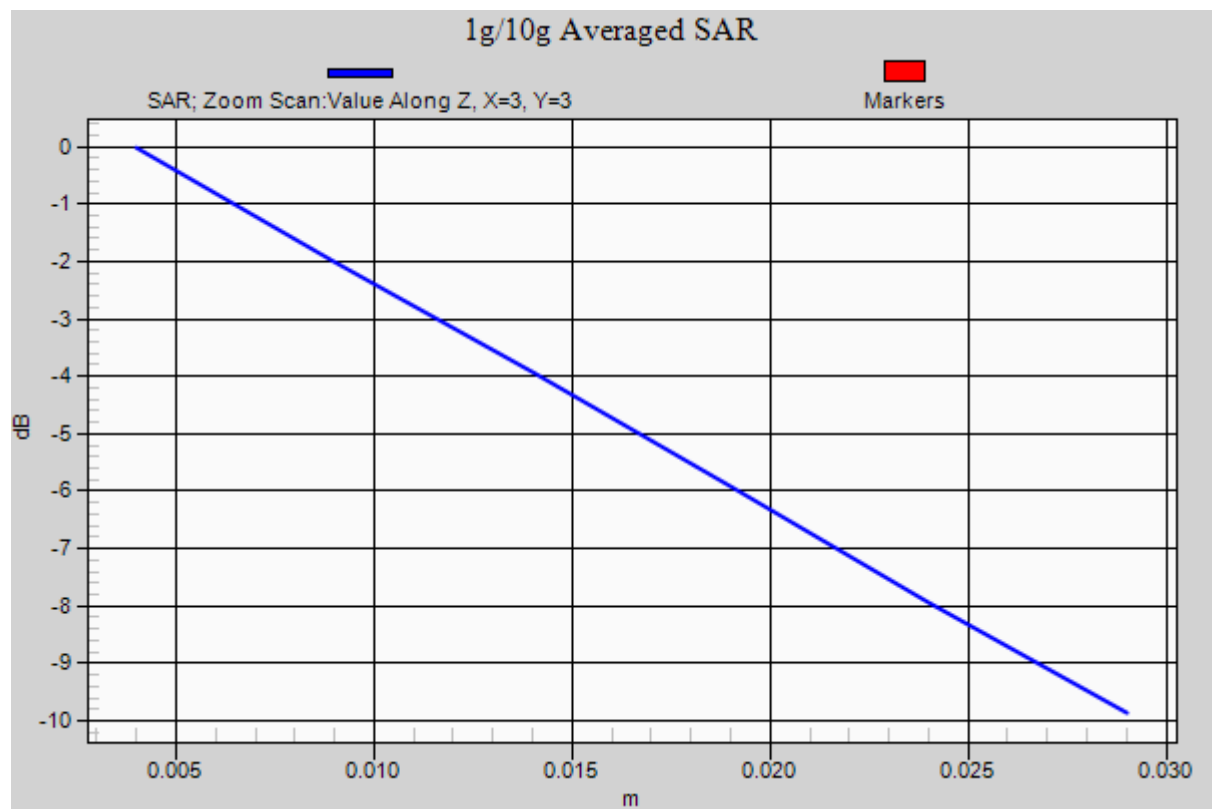
Peak SAR (extrapolated) = 0.471 W/kg

SAR(1 g) = 0.297 mW/g; SAR(10 g) = 0.182 mW/g

Maximum value of SAR (measured) = 0.321 mW/g



0 dB = 0.321mW/g



Plot 28: PCS 1900 body, back toward phantom with belt, low channel

Test Laboratory: CTTL

PCS1900_Body_Back_Belt_Low

DUT: SONIM XP 1300-A; Type: SONIM XP 1300-A; Serial: --

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

Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.62$ mho/m; ϵ_r

$= 51.6$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC)

DASY4 Configuration:

- Probe: ES3DV3 - SN3158; ConvF(4.58, 4.58, 4.58); Calibrated: 2010-5-20
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn549; Calibrated: 2010-5-20
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx
- Measurement SW: DASYS, V5.0 Build 119; SEMCAD X Version 13.2 Build 87

GSM_Low/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

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

Maximum value of SAR (interpolated) = 0.285 mW/g

GSM_Low/Zoom Scan (7x7x6)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

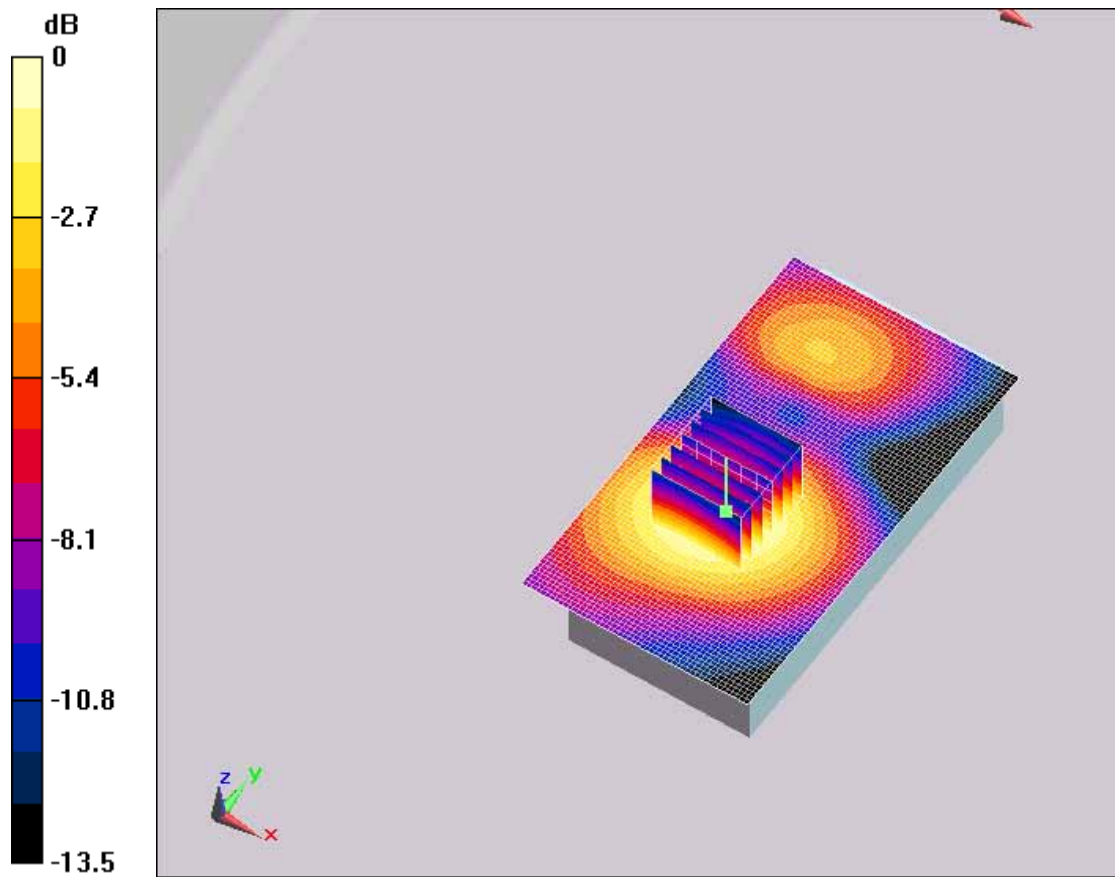
Reference Value = 6.47 V/m; Power Drift = 0.238 dB

Peak SAR (extrapolated) = 0.399 W/kg

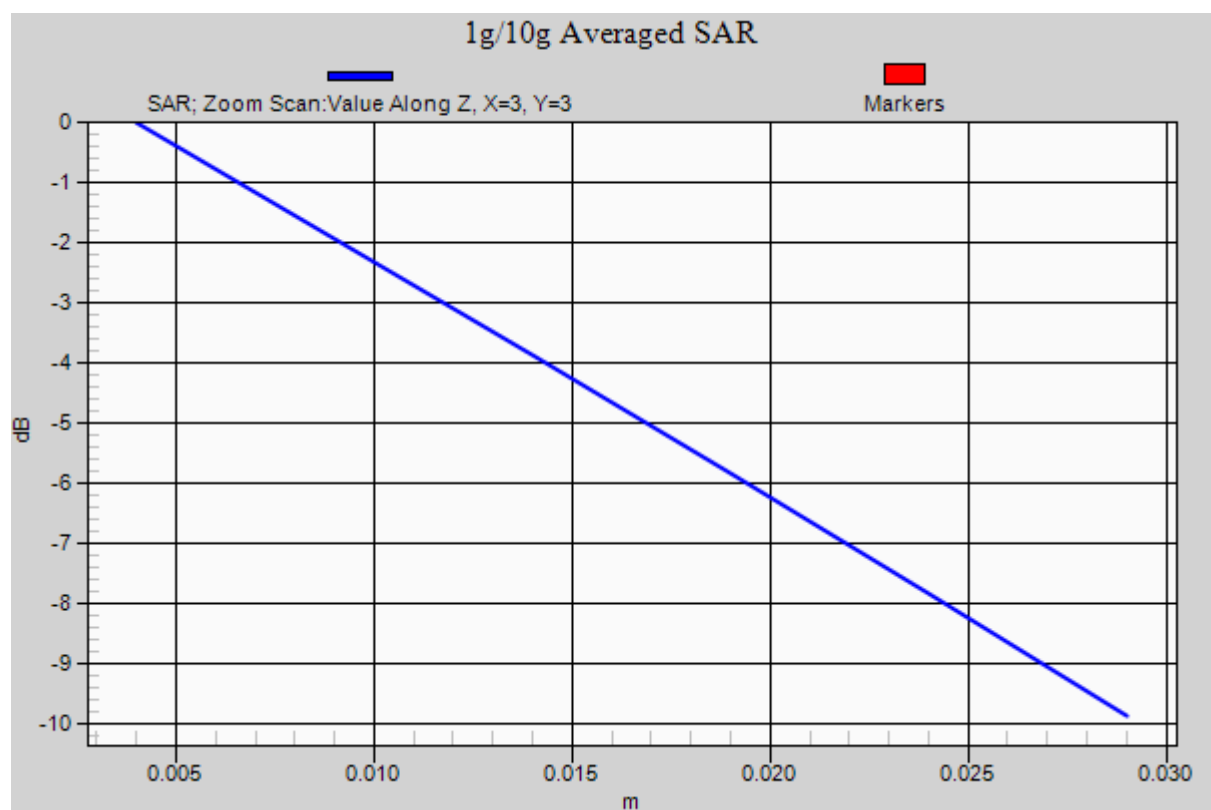
SAR(1 g) = 0.253 mW/g; SAR(10 g) = 0.156 mW/g

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

Maximum value of SAR (measured) = 0.273 mW/g



0 dB = 0.273mW/g



Plot 29: PCS 1900 body, back toward phantom with belt, middle channel

Test Laboratory: CTTL

PCS1900_Body_Back_Belt_Middle

DUT: SONIM XP 1300-A; Type: SONIM XP 1300-A; Serial: --

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

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.65$ mho/m; $\epsilon_r = 51.5$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC)

DASY4 Configuration:

- Probe: ES3DV3 - SN3158; ConvF(4.58, 4.58, 4.58); Calibrated: 2010-5-20
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn549; Calibrated: 2010-5-20
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxxx
- Measurement SW: DASYS, V5.0 Build 119; SEMCAD X Version 13.2 Build 87

GSM_Mid/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.318 mW/g

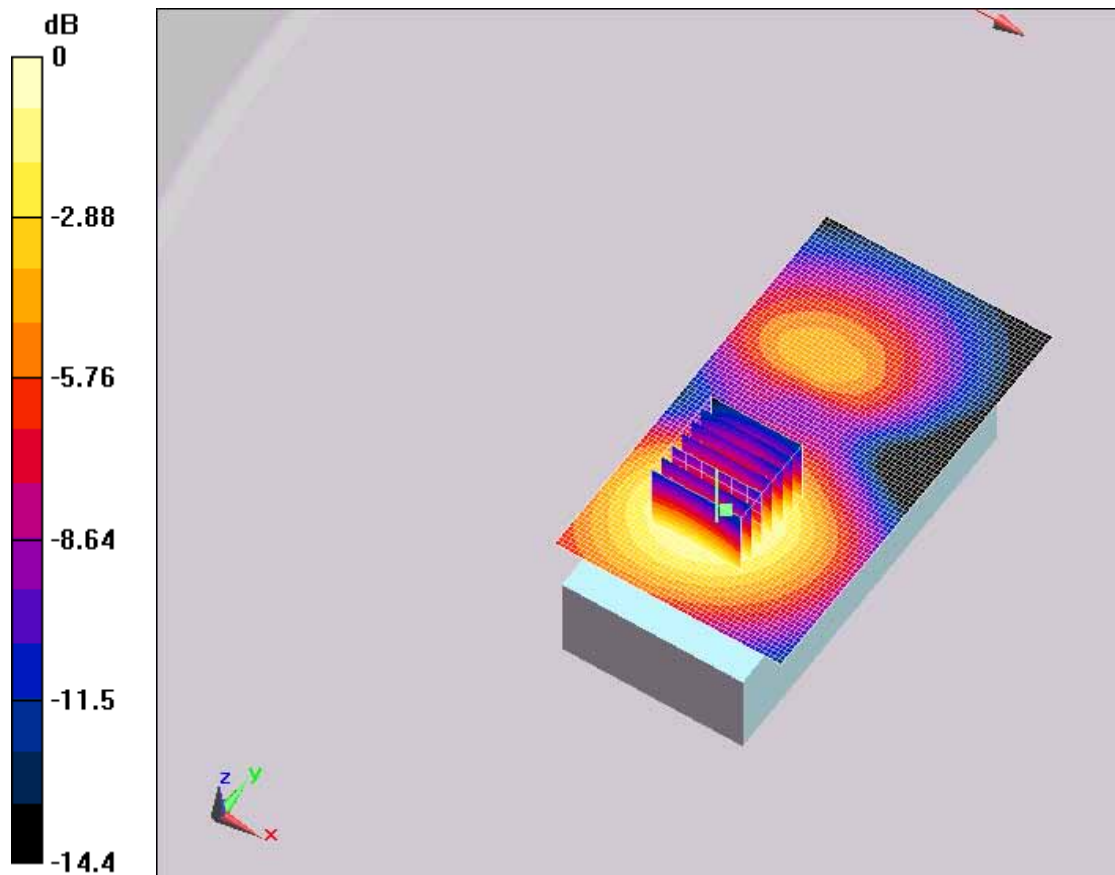
GSM_Mid/Zoom Scan (7x7x6)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.93 V/m; Power Drift = -0.208 dB

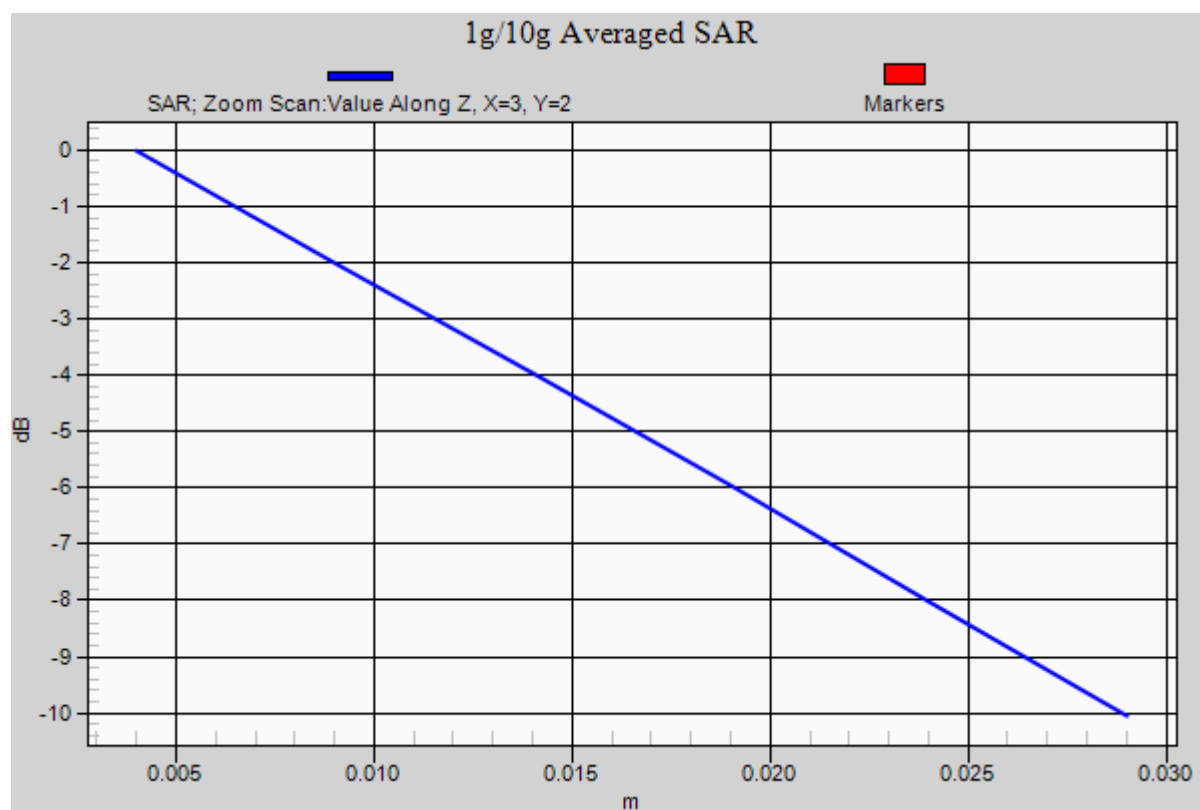
Peak SAR (extrapolated) = 0.450 W/kg

SAR(1 g) = 0.286 mW/g; SAR(10 g) = 0.174 mW/g

Maximum value of SAR (measured) = 0.308 mW/g



0 dB = 0.308mW/g



Plot 30: PCS 1900 body, back toward phantom with belt, high channel

Test Laboratory: CTTL

PCS1900_Body_Back_Belt_High

DUT: SONIM XP 1300-A; Type: SONIM XP 1300-A; Serial: --

Communication System: PCS 1900; Frequency: 1909.8 MHz; Duty Cycle: 1:8.3

Medium parameters used: $f = 1910$ MHz; $\sigma = 1.69$ mho/m; $\epsilon_r = 51.6$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC)

DASY4 Configuration:

- Probe: ES3DV3 - SN3158; ConvF(4.58, 4.58, 4.58); Calibrated: 2010-5-20
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn549; Calibrated: 2010-5-20
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx
- Measurement SW: DASYS, V5.0 Build 119; SEMCAD X Version 13.2 Build 87

GSM_High/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.335 mW/g

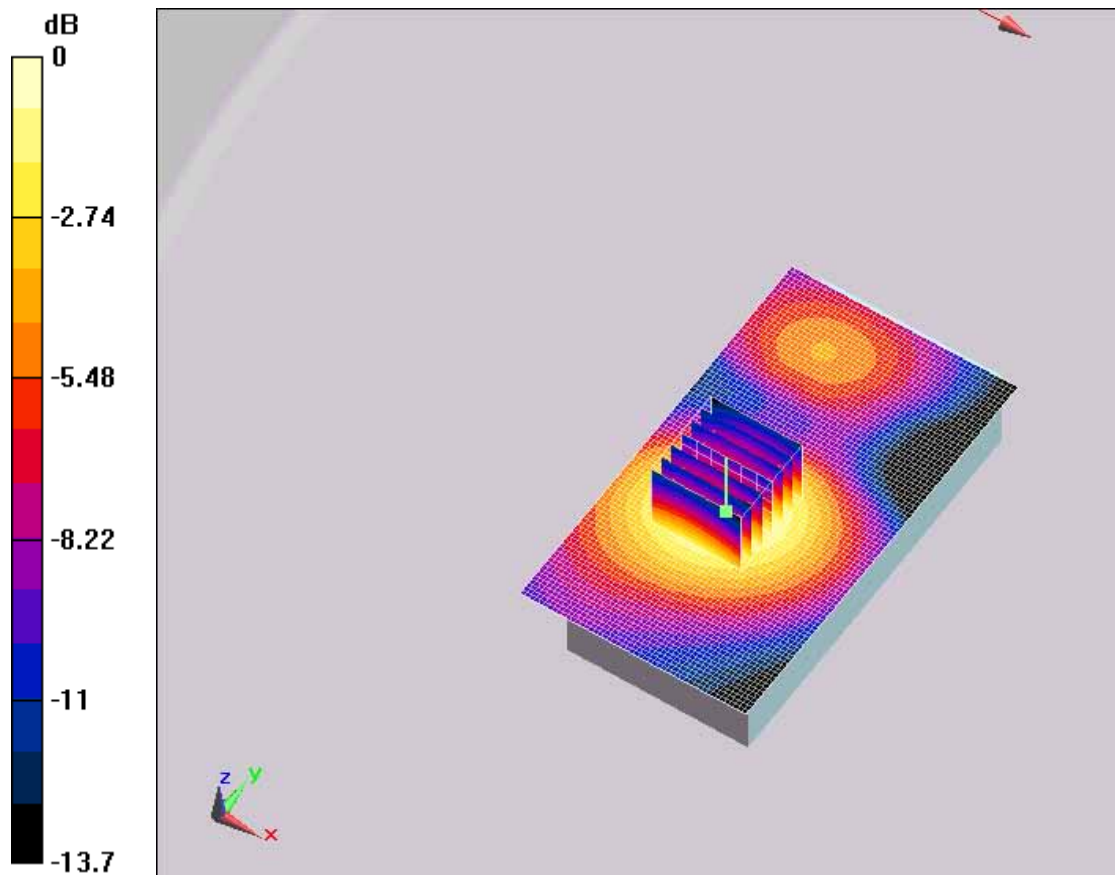
GSM_High/Zoom Scan (7x7x6)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.84 V/m; Power Drift = -0.064 dB

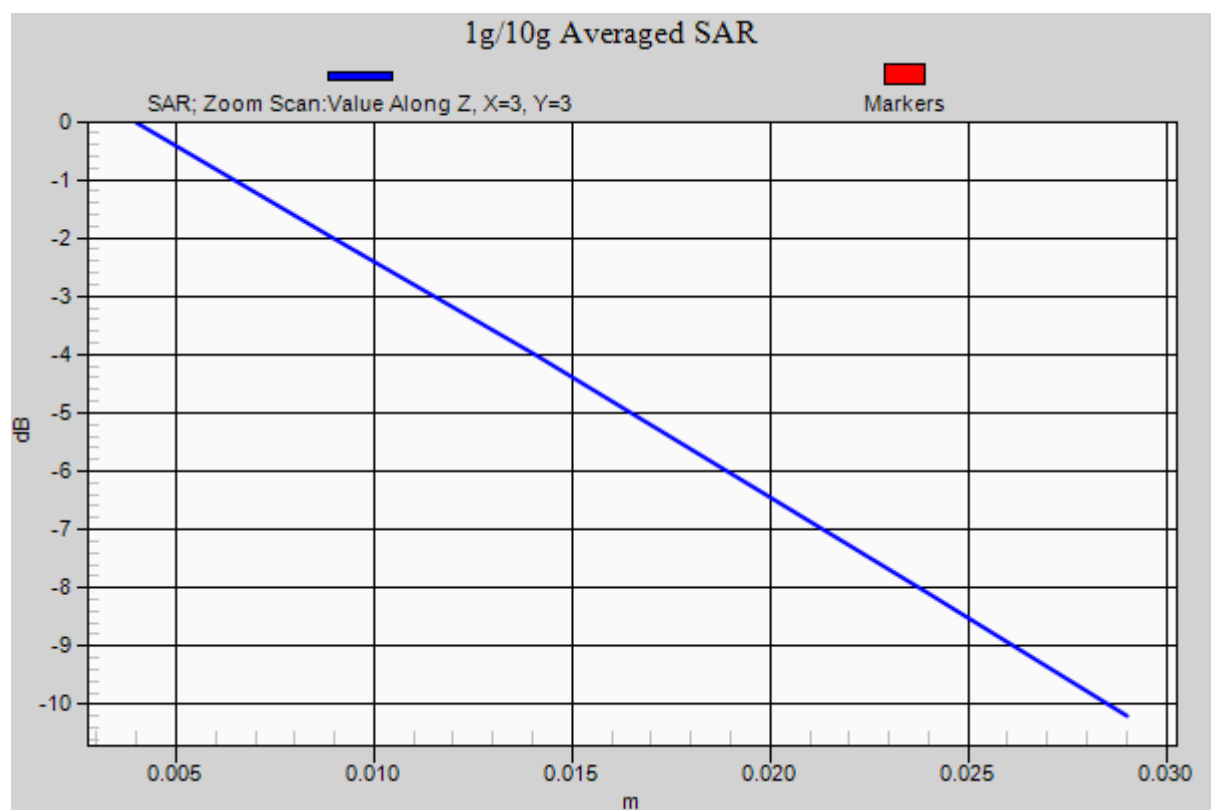
Peak SAR (extrapolated) = 0.481 W/kg

SAR(1 g) = 0.303 mW/g; SAR(10 g) = 0.183 mW/g

Maximum value of SAR (measured) = 0.330 mW/g



0 dB = 0.330mW/g



Plot 31: PCS 1900 body, face toward phantom with earphone, middle channel

Test Laboratory: CTTL

PCS1900_Body_Face_Earphone_Middle

DUT: SONIM XP 1300-A; Type: SONIM XP 1300-A; Serial: --

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

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.57$ mho/m; $\epsilon_r = 53.5$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC)

DASY4 Configuration:

- Probe: ES3DV3 - SN3158; ConvF(4.58, 4.58, 4.58); Calibrated: 2010-5-20
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn549; Calibrated: 2010-5-20
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx
- Measurement SW: DASYS, V5.0 Build 119; SEMCAD X Version 13.2 Build 87

GSM_Face_Mid_Earphone/Zoom Scan (7x7x6)/Cube 0: Measurement

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

Reference Value = 7.73 V/m; Power Drift = -0.016 dB

Peak SAR (extrapolated) = 0.443 W/kg

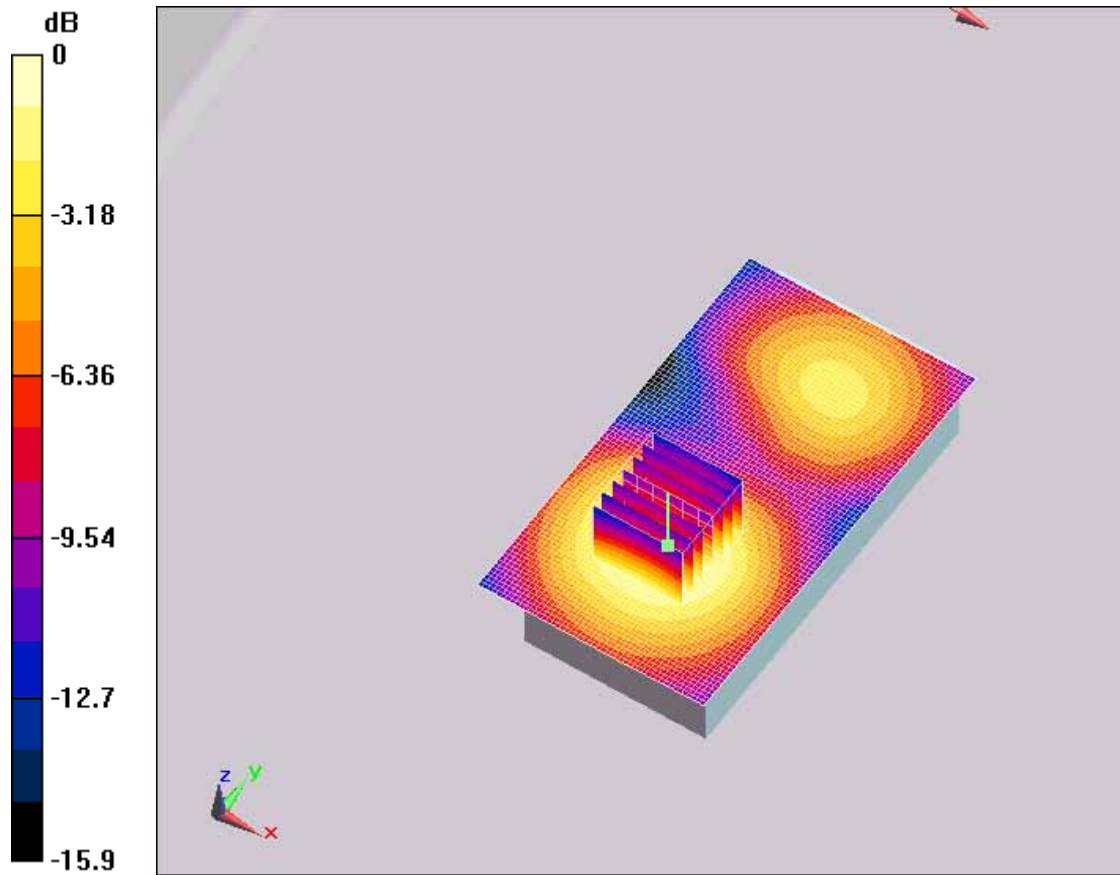
SAR(1 g) = 0.280 mW/g; SAR(10 g) = 0.171 mW/g

Maximum value of SAR (measured) = 0.301 mW/g

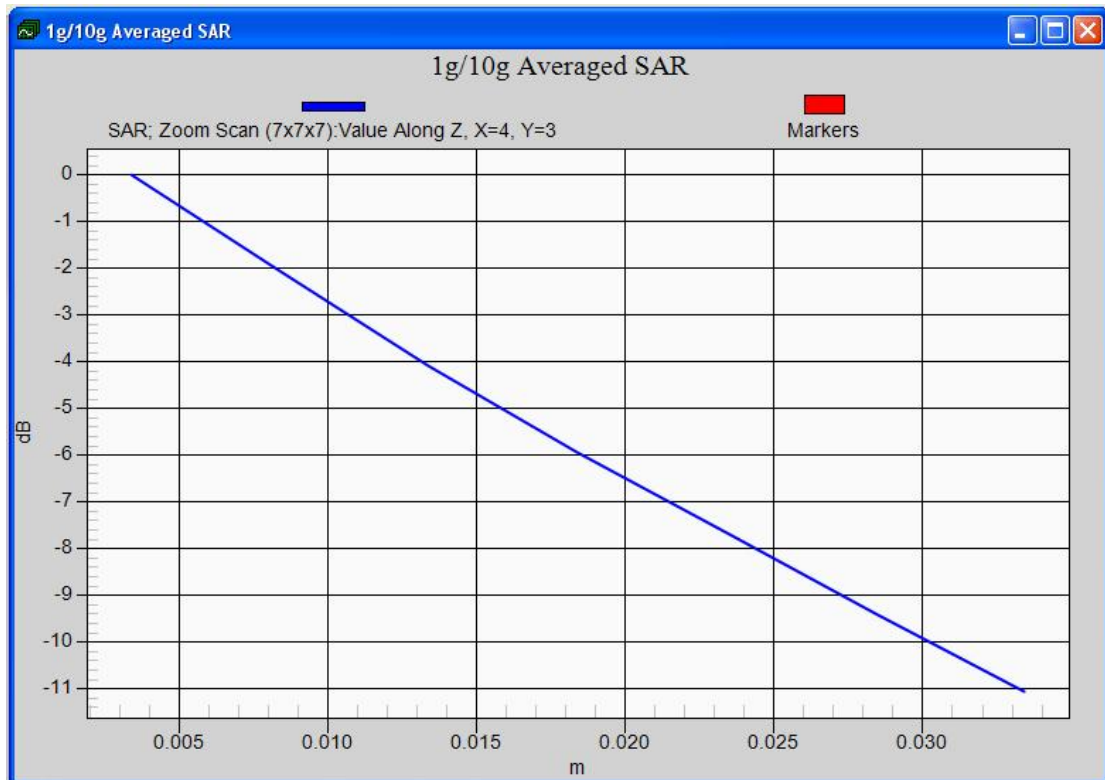
GSM_Face_Mid_Earphone/Area Scan (51x91x1): Measurement grid:

dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.310 mW/g



0 dB = 0.310mW/g



Plot 32: PCS 1900 body, face toward phantom with BT on, middle channel

Test Laboratory: CTTL

PCS1900_Body_Face_BT_Middle

DUT: SONIM XP 1300-A; Type: SONIM XP 1300-A; Serial: --

Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3
Medium parameters used: $f = 1880$ MHz; $\sigma = 1.57$ mho/m; $\epsilon_r = 53.5$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC)

DASY4 Configuration:

- Probe: ES3DV3 - SN3158; ConvF(4.58, 4.58, 4.58); Calibrated: 2010-5-20
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn549; Calibrated: 2010-5-20
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx
- Measurement SW: DASYS, V5.0 Build 119; SEMCAD X Version 13.2 Build 87

GSM_Face_Mid_BT/Zoom Scan (7x7x6)/Cube 0: Measurement grid:

$dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 7.45 V/m; Power Drift = 0.210 dB

Peak SAR (extrapolated) = 0.432 W/kg

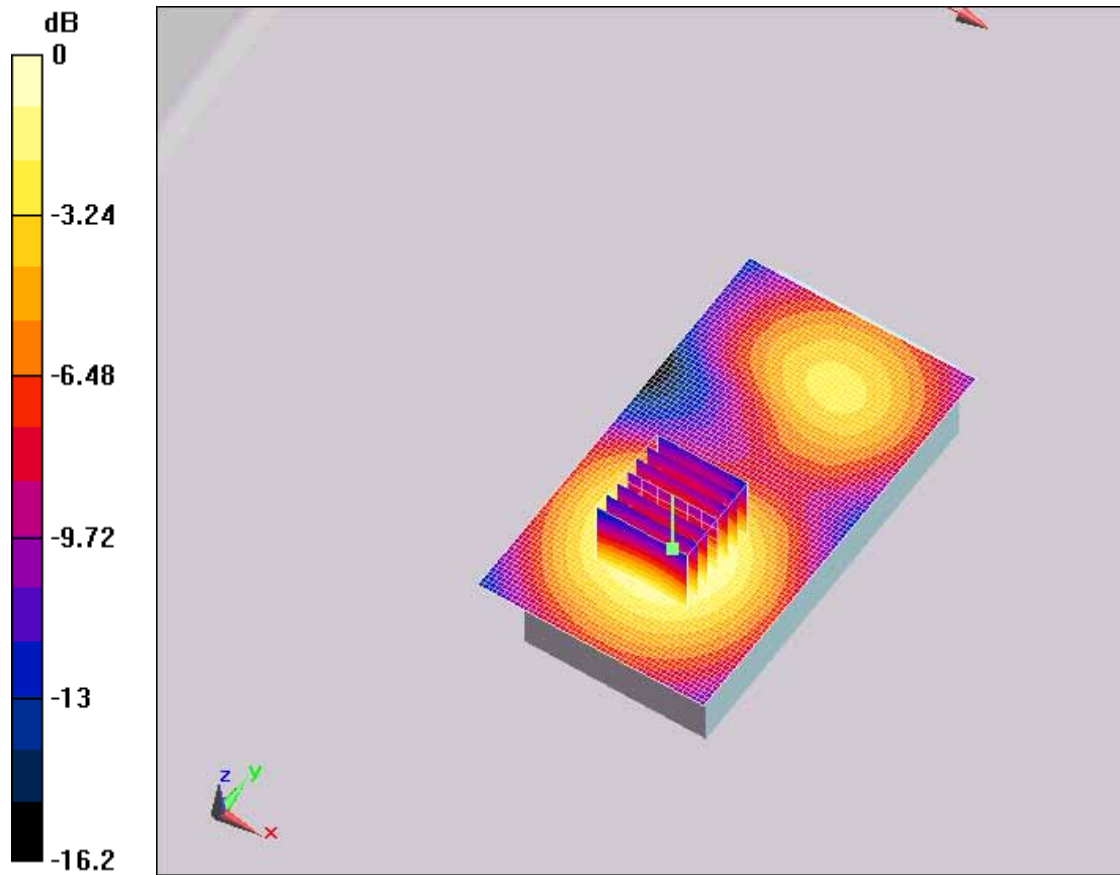
SAR(1 g) = 0.275 mW/g; SAR(10 g) = 0.168 mW/g

Maximum value of SAR (measured) = 0.297 mW/g

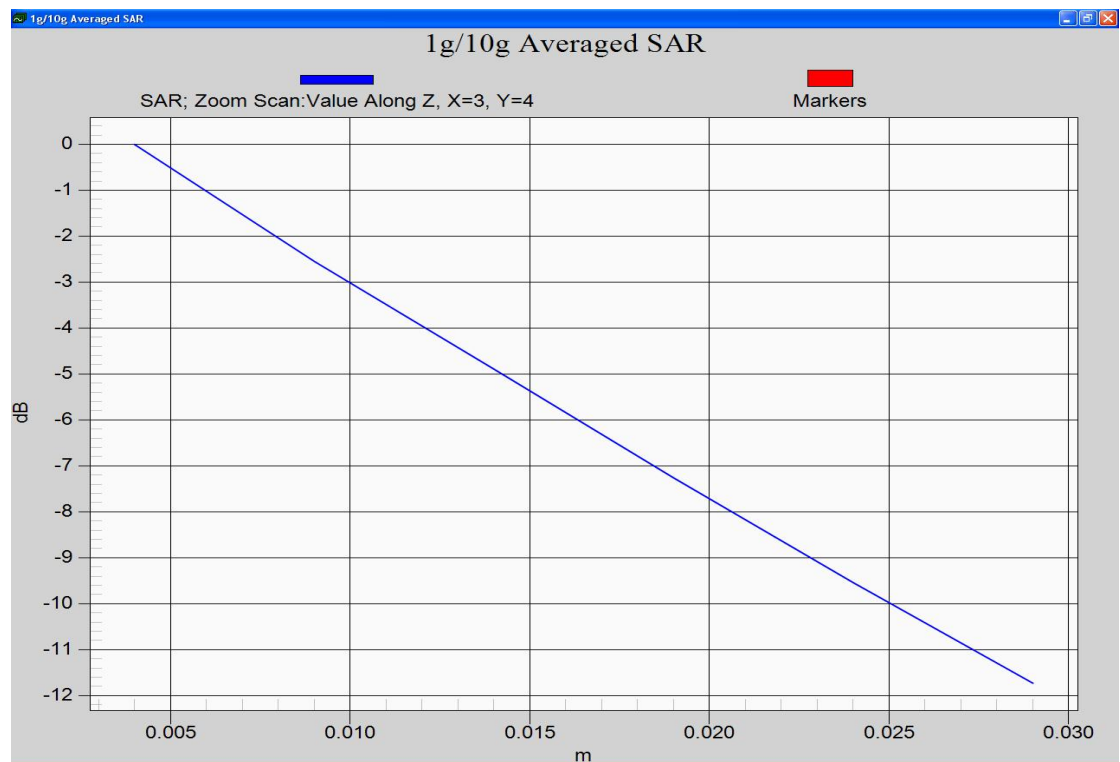
GSM_Face_Mid_BT/Area Scan (51x91x1): Measurement grid: $dx=15$ mm,

$dy=15$ mm

Maximum value of SAR (interpolated) = 0.305 mW/g



0 dB = 0.305mW/g



Plot 33: PCS 1900 body, face toward phantom, middle channel, GPRS 4 TS

Test Laboratory: CTTL

PCS1900_Body_Face_GPRS_4TS_Middle

DUT: SONIM XP 1300-A; Type: SONIM XP 1300-A; Serial: --

Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:2
Medium parameters used: $f = 1880$ MHz; $\sigma = 1.57$ mho/m; $\epsilon_r = 53.5$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC)

DASY4 Configuration:

- Probe: ES3DV3 - SN3158; ConvF(4.58, 4.58, 4.58); Calibrated: 2010-5-20
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn549; Calibrated: 2010-5-20
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx
- Measurement SW: DASYS, V5.0 Build 119; SEMCAD X Version 13.2 Build 87

GSM_Face_Mid_GPRS/Zoom Scan (7x7x6)/Cube 0: Measurement grid:

$dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 9.51 V/m; Power Drift = -0.051 dB

Peak SAR (extrapolated) = 0.492 W/kg

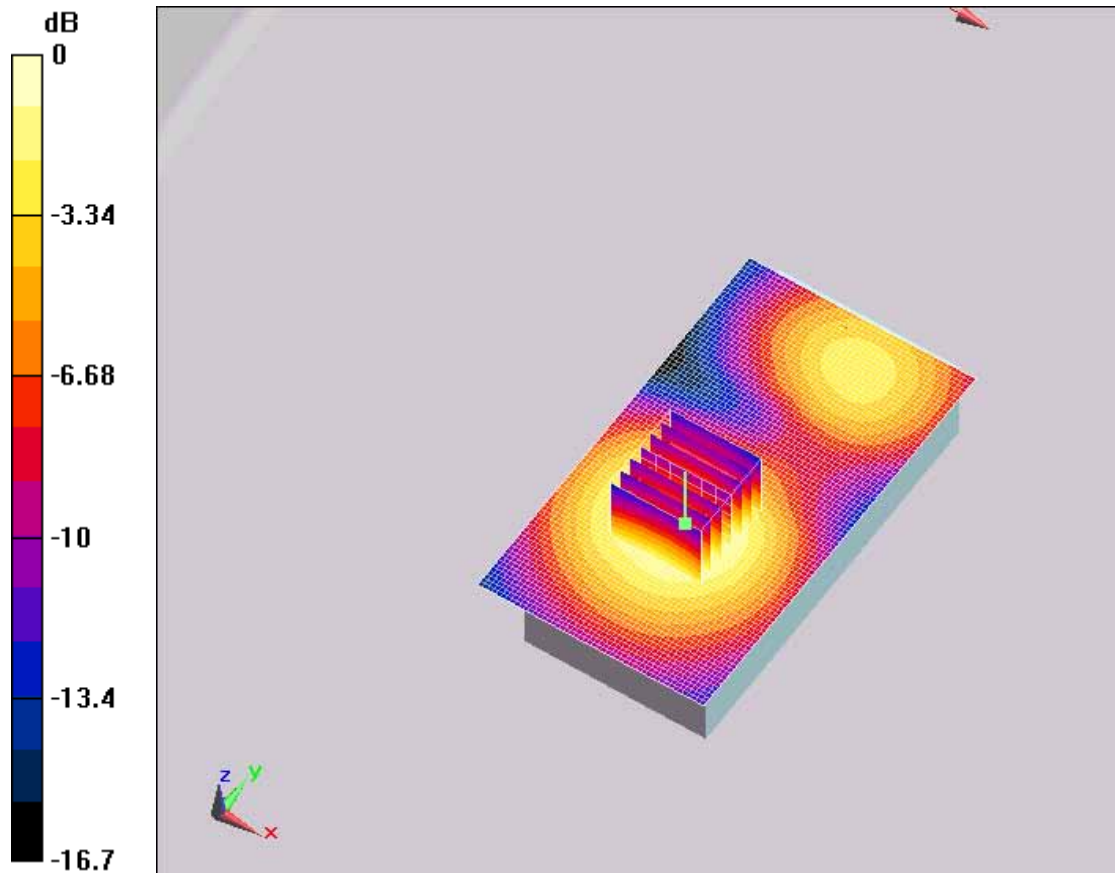
SAR(1 g) = 0.310 mW/g; SAR(10 g) = 0.190 mW/g

Maximum value of SAR (measured) = 0.335 mW/g

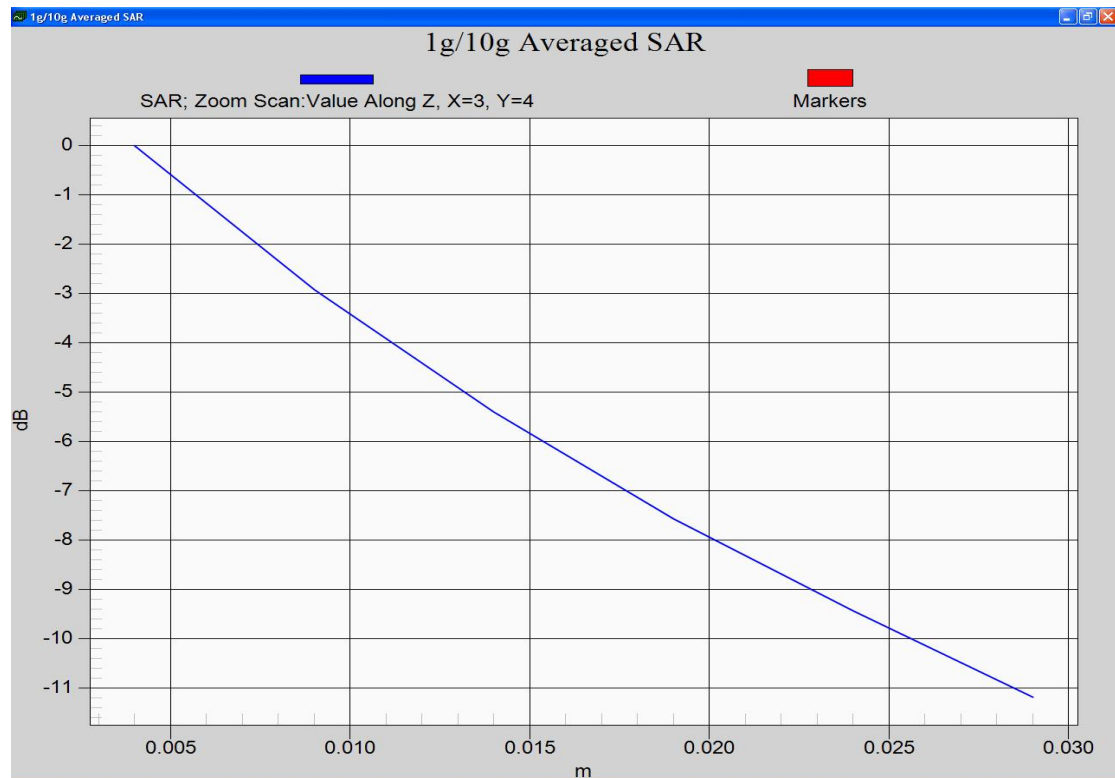
GSM_Face_Mid_GPRS/Area Scan (51x91x1): Measurement grid:

$dx=15$ mm, $dy=15$ mm

Maximum value of SAR (interpolated) = 0.345 mW/g



0 dB = 0.345mW/g



Plot 34: PCS 1900 body, face toward phantom, middle channel, EGPRS 2 TS

Test Laboratory: CTTL

PCS1900_Body_Face_EGPRS_2TS_Middle

DUT: SONIM XP 1300-A; Type: SONIM XP 1300-A; Serial: --

Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:4.15
Medium parameters used: $f = 1880$ MHz; $\sigma = 1.57$ mho/m; $\epsilon_r = 53.5$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC)

DASY4 Configuration:

- Probe: ES3DV3 - SN3158; ConvF(4.58, 4.58, 4.58); Calibrated: 2010-5-20
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn549; Calibrated: 2010-5-20
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx
- Measurement SW: DASYS, V5.0 Build 119; SEMCAD X Version 13.2 Build 87

GSM_Face_Mid_EGPRS/Zoom Scan (7x7x6)/Cube 0: Measurement grid:

$dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 8.32 V/m; Power Drift = 0.00163 dB

Peak SAR (extrapolated) = 0.421 W/kg

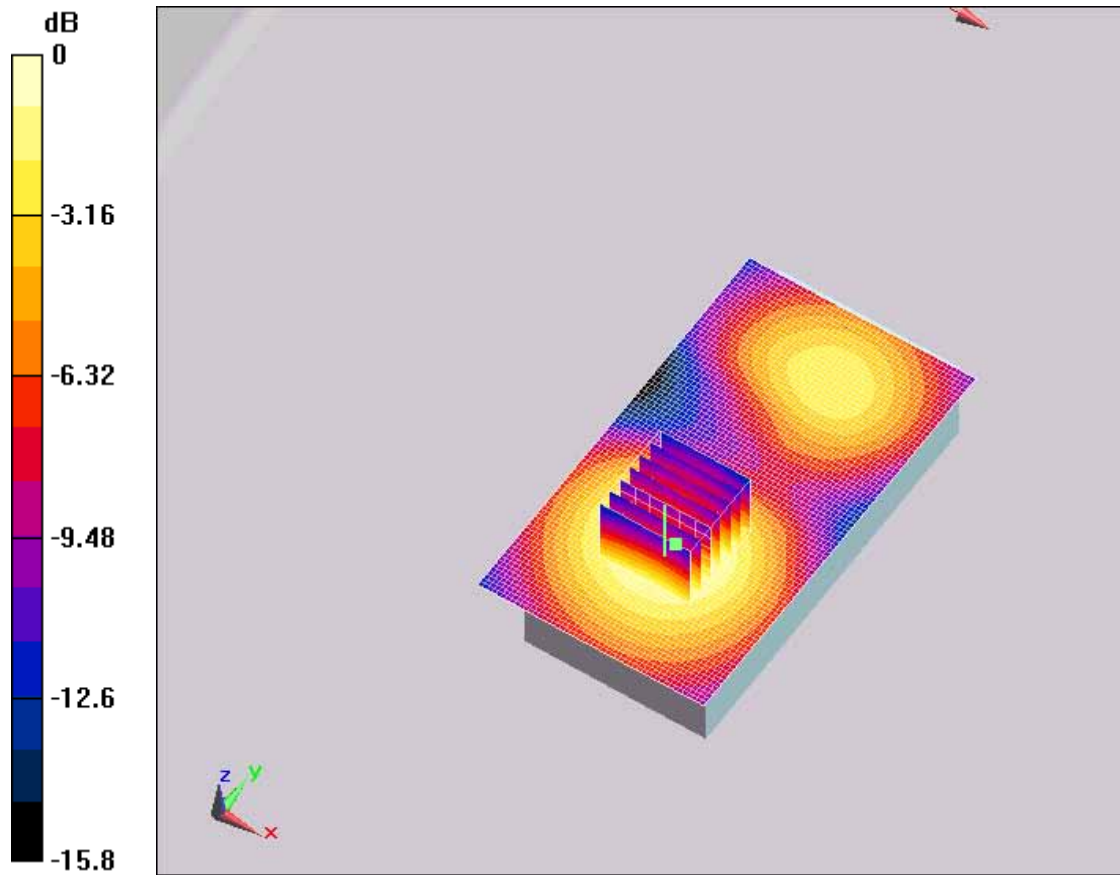
SAR(1 g) = 0.267 mW/g; SAR(10 g) = 0.164 mW/g

Maximum value of SAR (measured) = 0.286 mW/g

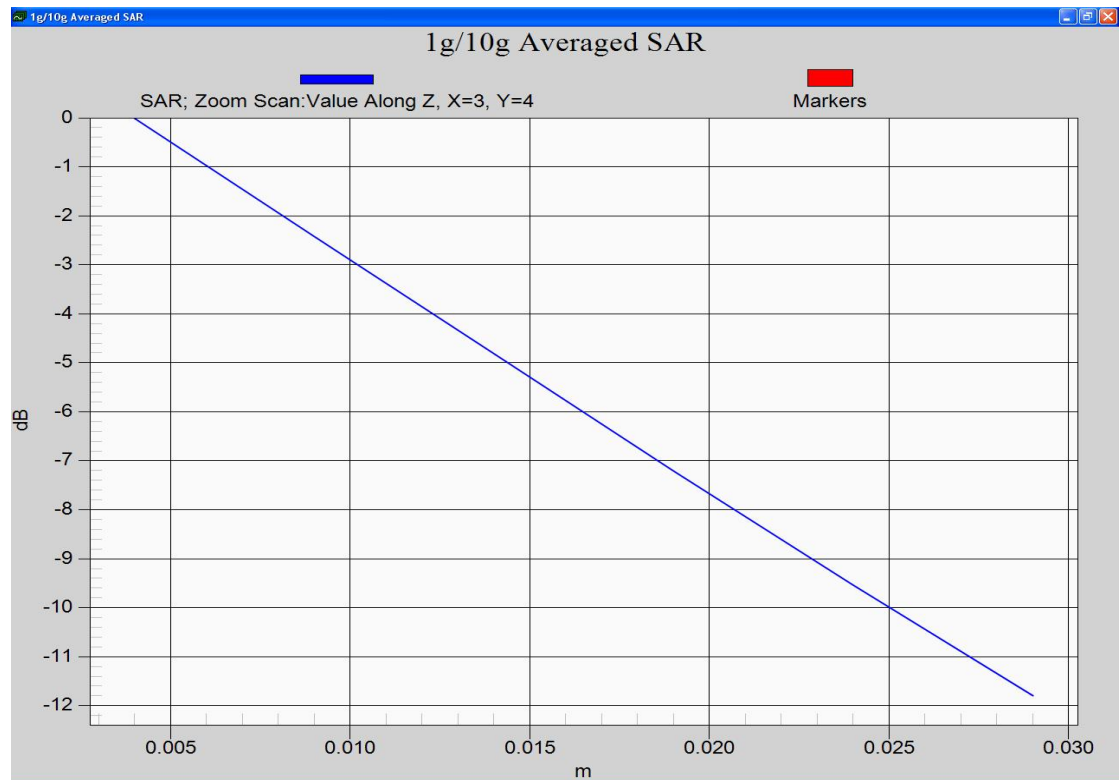
GSM_Face_Mid_EGPRS/Area Scan (51x91x1): Measurement grid:

$dx=15$ mm, $dy=15$ mm

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



0 dB = 0.300mW/g



2 Dipole 835 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 **CTTL**

Certificate No: **D835V2-473_May10**

CALIBRATION CERTIFICATE

Object **D835V2 - SN: 473**

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

Calibration date: **May 21, 2010**

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

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 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	06-Oct-09 (No. 217-01086)	Oct-10
Power sensor HP 8481A	US37292783	06-Oct-09 (No. 217-01086)	Oct-10
Reference 20 dB Attenuator	SN: 5086 (20g)	30-Mar-10 (No. 217-01158)	Mar-11
Type-N mismatch combination	SN: 5047.2 / 06327	30-Mar-10 (No. 217-01162)	Mar-11
Reference Probe ES3DV3	SN: 3205	30-Apr-10 (No. ES3-3205_Apr10)	Apr-11
DAE4	SN: 601	02-Mar-10 (No. DAE4-601_Mar10)	Mar-11
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-09)	In house check: Oct-11
RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-09)	In house check: Oct-10

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

Issued: May 26, 2010

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Certificate No: D835V2-473_May10

Page 1 of 9

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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Glossary:

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

Calibration is Performed According to the Following Standards:

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

Additional Documentation:

- DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

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

Measurement Conditions

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

DASY Version	DASY5	V5.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V4.9	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	835 MHz ± 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	41.7 ± 6 %	0.91 mho/m ± 6 %
Head TSL temperature during test	(22.5 ± 0.2) °C	---	---

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.42 mW / g
SAR normalized	normalized to 1W	9.68 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	9.62 mW / g ± 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.58 mW / g
SAR normalized	normalized to 1W	6.32 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	6.29 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	54.2 ± 6 %	0.98 mho/m ± 6 %
Body TSL temperature during test	(22.0 ± 0.2) °C	---	---

SAR result with Body TSL

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.50 mW / g
SAR normalized	normalized to 1W	10.0 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	9.88 mW / g ± 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.64 mW / g
SAR normalized	normalized to 1W	6.56 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	6.51 mW / g ± 16.5 % (k=2)

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	51.0 Ω - 2.9 $j\Omega$
Return Loss	- 30.3 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	46.2 Ω - 4.1 $j\Omega$
Return Loss	- 24.7 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.393 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	November 15, 2002

DASY5 Validation Report for Head TSL

Date/Time: 21.05.2010 10:11:44

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:473

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

Medium: HSL900

Medium parameters used: $f = 835$ MHz; $\sigma = 0.91$ mho/m; $\epsilon_r = 41.9$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(6.03, 6.03, 6.03); Calibrated: 30.04.2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 02.03.2010
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 61

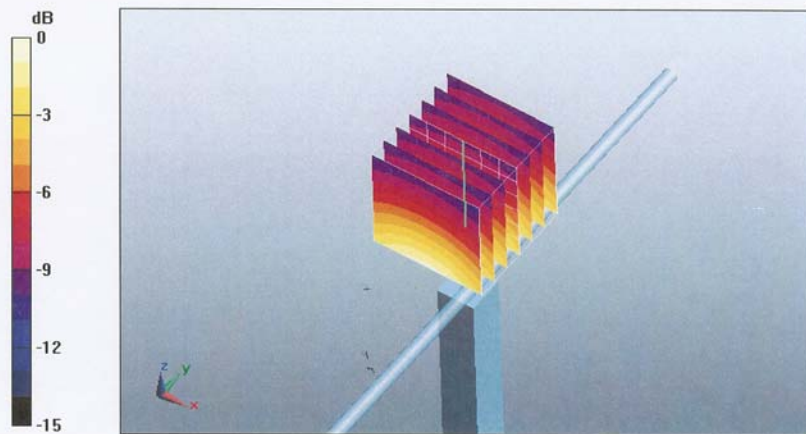
Pin=250 mW /d=15mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 57.3 V/m; Power Drift = 0.00528 dB

Peak SAR (extrapolated) = 3.62 W/kg

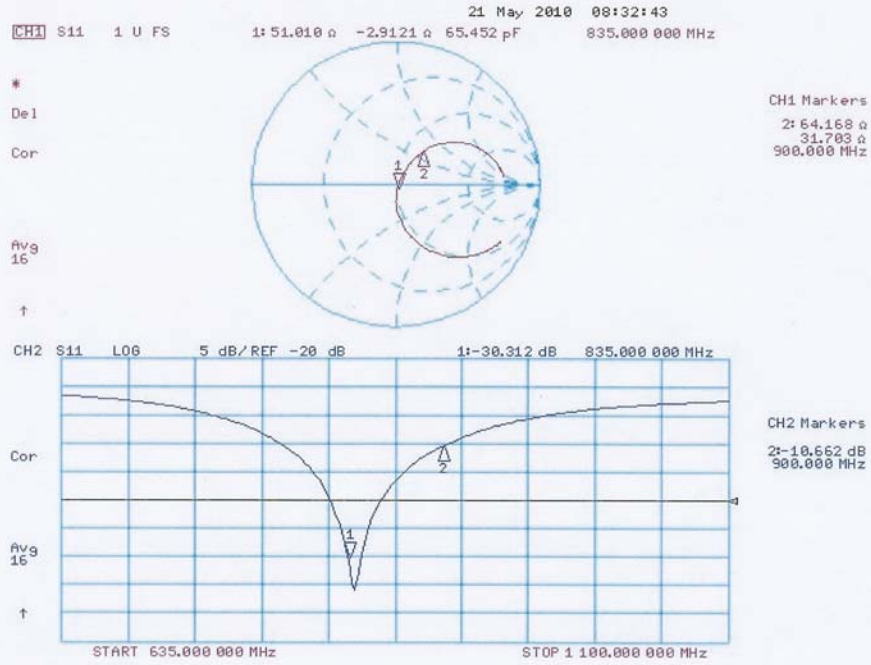
SAR(1 g) = 2.42 mW/g; SAR(10 g) = 1.58 mW/g

Maximum value of SAR (measured) = 2.82 mW/g



0 dB = 2.82mW/g

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body

Date/Time: 20.05.2010 10:11:44

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:473

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

Medium: MSL900

Medium parameters used: $f = 835$ MHz; $\sigma = 0.98$ mho/m; $\epsilon_r = 54.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(5.86, 5.86, 5.86); Calibrated: 30.04.2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 02.03.2010
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 61

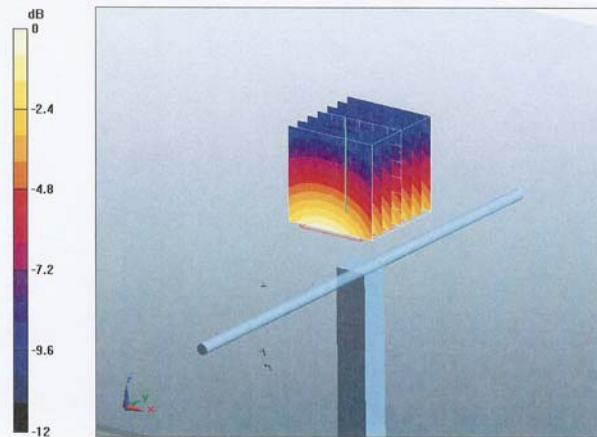
Pin250 mW /d=15mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 55.7 V/m; Power Drift = 0.014 dB

Peak SAR (extrapolated) = 3.68 W/kg

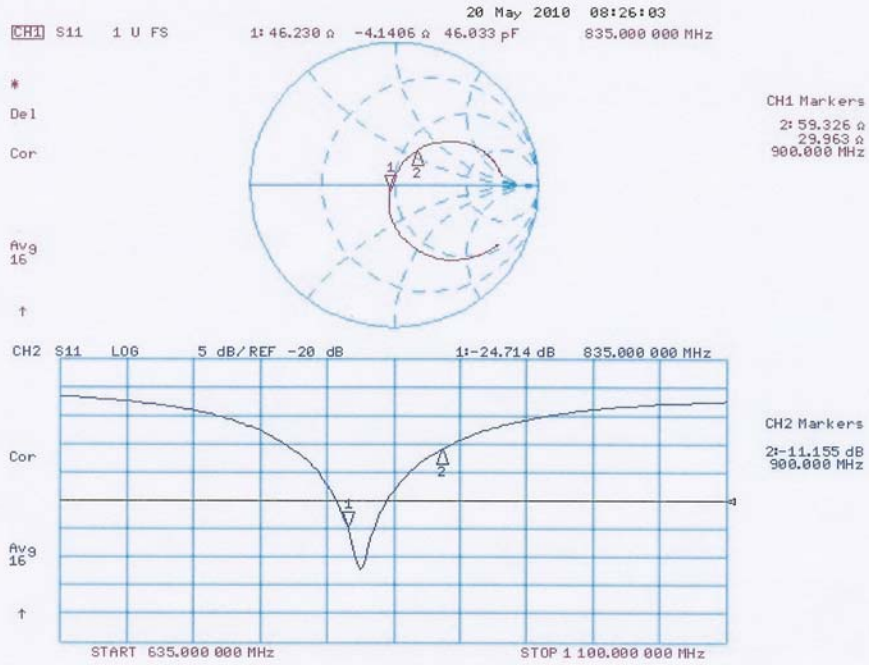
SAR(1 g) = 2.5 mW/g; SAR(10 g) = 1.64 mW/g

Maximum value of SAR (measured) = 2.89 mW/g



0 dB = 2.89mW/g

Impedance Measurement Plot for Body TSL



3 Dipole 1900 Certificate

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Accreditation No.: **SCS 108**

Client **CTTL**

Certificate No: **D1900V2-5d024_May10**

CALIBRATION CERTIFICATE

Object **D1900V2 - SN: 5d024**

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

Calibration date: **May 26, 2010**

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

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 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	06-Oct-09 (No. 217-01086)	Oct-10
Power sensor HP 8481A	US37292783	06-Oct-09 (No. 217-01086)	Oct-10
Reference 20 dB Attenuator	SN: 5086 (20g)	30-Mar-10 (No. 217-01158)	Mar-11
Type-N mismatch combination	SN: 5047.2 / 06327	30-Mar-10 (No. 217-01162)	Mar-11
Reference Probe ES3DV3	SN: 3205	30-Apr-10 (No. ES3-3205_Apr10)	Apr-11
DAE4	SN: 601	02-Mar-10 (No. DAE4-601_Mar10)	Mar-11
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-09)	In house check: Oct-11
RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-09)	In house check: Oct-10

	Name	Function	Signature
Calibrated by:	Dimce Iliev	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: May 27, 2010

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Accreditation No.: **SCS 108**

Glossary:

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

Calibration is Performed According to the Following Standards:

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

Additional Documentation:

- DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

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

Measurement Conditions

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

DASY Version	DASY5	V5.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V5.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1900 MHz \pm 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	40.0	1.40 mho/m
Measured Head TSL parameters	(22.0 \pm 0.2) °C	39.7 \pm 6 %	1.41 mho/m \pm 6 %
Head TSL temperature during test	(21.5 \pm 0.2) °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	9.97 mW / g
SAR normalized	normalized to 1W	39.9 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	39.7 mW / g \pm 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	5.19 mW / g
SAR normalized	normalized to 1W	20.8 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	20.7 mW / g \pm 16.5 % (k=2)

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	53.3	1.52 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	54.1 ± 6 %	1.52 mho/m ± 6 %
Body TSL temperature during test	(22.0 ± 0.2) °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	10.3 mW / g
SAR normalized	normalized to 1W	41.2 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	41.3 mW / g ± 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.54 mW / g
SAR normalized	normalized to 1W	22.2 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	22.2 mW / g ± 16.5 % (k=2)

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	51.1 Ω + 5.5 $j\Omega$
Return Loss	- 25.2 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	48.0 Ω + 8.0 $j\Omega$
Return Loss	- 21.6 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.200 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	September 28, 2002

DASY5 Validation Report for Head TSL

Date/Time: 17.05.2010 15:08:31

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d024

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

Medium: HSL U11 BB

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.41$ mho/m; $\epsilon_r = 39.8$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(5.09, 5.09, 5.09); Calibrated: 30.04.2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 02.03.2010
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 61

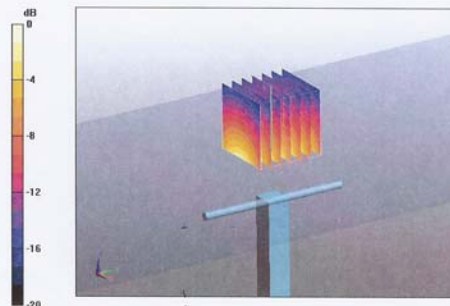
Pin=250 mW /d=10mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) /Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 97.5 V/m; Power Drift = 0.037 dB

Peak SAR (extrapolated) = 18.4 W/kg

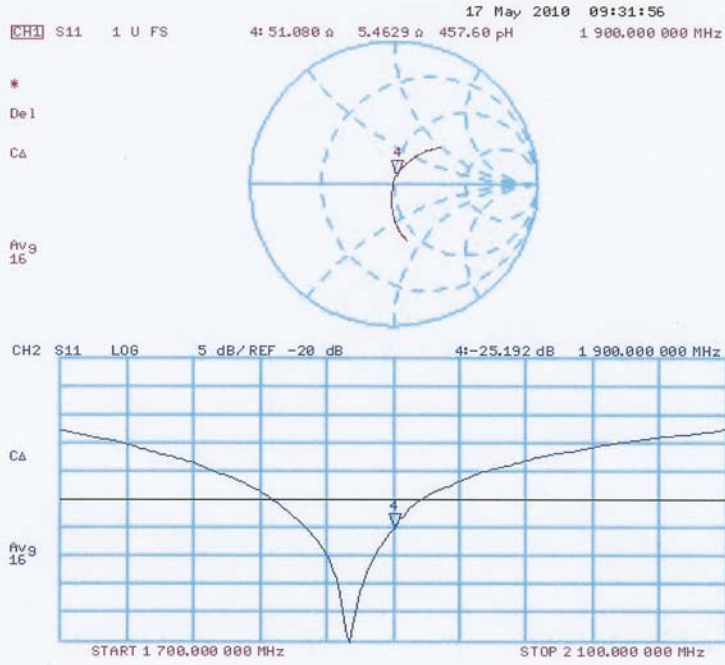
SAR(1 g) = 9.97 mW/g; SAR(10 g) = 5.19 mW/g

Maximum value of SAR (measured) = 12.5 mW/g



0 dB = 12.5mW/g

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body

Date/Time: 26.05.2010 13:59:06

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d024

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

Medium: MSL U11 BB

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.52$ mho/m; $\epsilon_r = 54.1$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.59, 4.59, 4.59); Calibrated: 30.04.2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 02.03.2010
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 61

Pin=250 mW /d=10mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) /Cube 0: Measurement

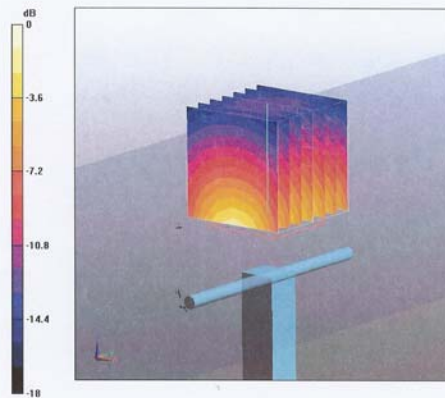
grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 97.8 V/m; Power Drift = -0.025 dB

Peak SAR (extrapolated) = 17.1 W/kg

SAR(1 g) = 10.3 mW/g; SAR(10 g) = 5.54 mW/g

Maximum value of SAR (measured) = 13 mW/g



0 dB = 13mW/g

Impedance Measurement Plot for Body TSL

