APPENDIX A: SAR TEST DATA

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-C1; Type: Convertible Tablet PC with WLAN, Bluetooth, and WWAN
Serial: CF-C1ADABZDM

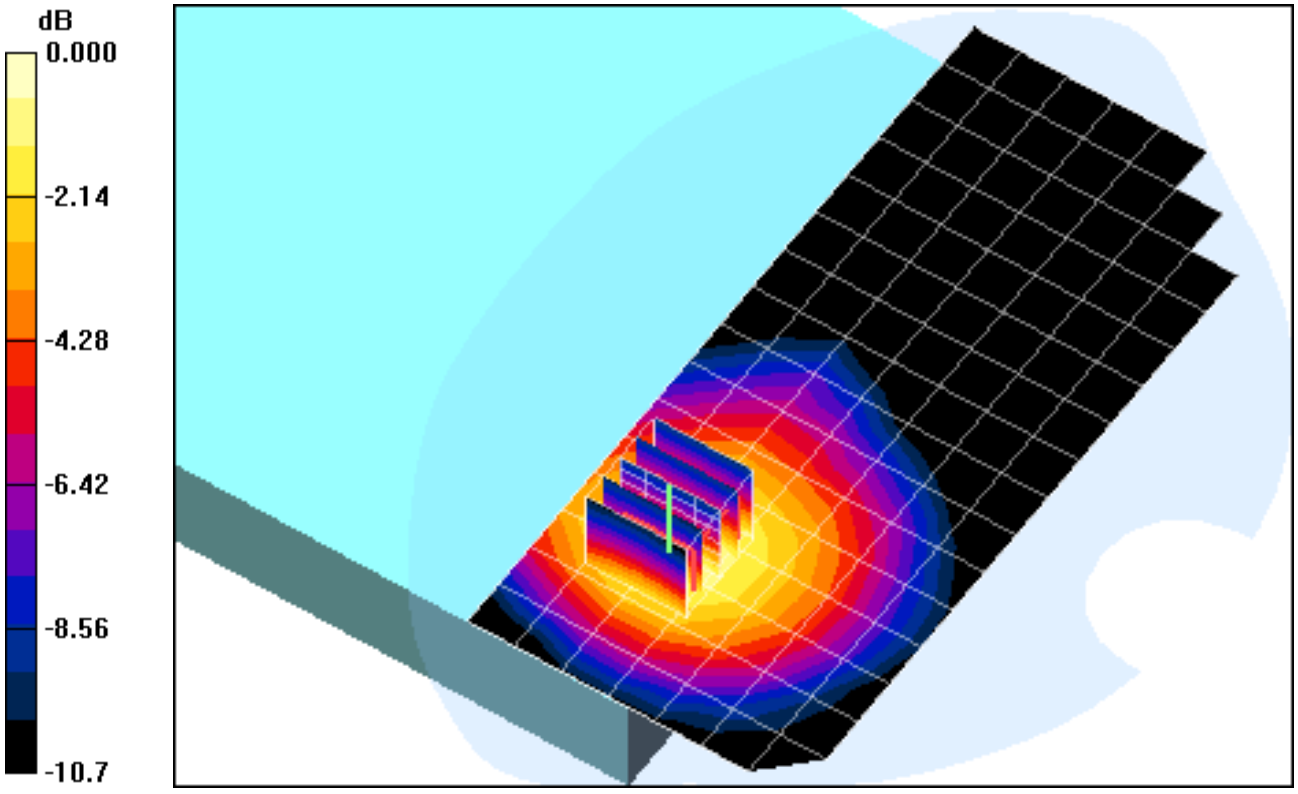
Communication System: GSM850 GPRS; 2 Tx slots; Frequency: 836.6 MHz;Duty Cycle: 1:4.15
Medium: 835 Muscle; Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.991 mho/m; ε_r = 54.1; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-06-2010; Ambient Temp: 23.5°C; Tissue Temp: 22.4°C

Probe: EX3DV4 - SN3550; ConvF(8.3, 8.3, 8.3); Calibrated: 1/26/2010
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 1/22/2010
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: GPRS850, Lap position, LCD Flip, Mid.ch, 2Tx Slots, Main Ant

Area Scan (8x17x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.9 V/m
Peak SAR (extrapolated) = 0.457 W/kg
SAR(1 g) = 0.303 mW/g; SAR(10 g) = 0.201 mW/g



0 dB = 0.360mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-C1; Type: Convertible Tablet PC with WLAN, Bluetooth, and WWAN
Serial: CF-C1ADABZDM

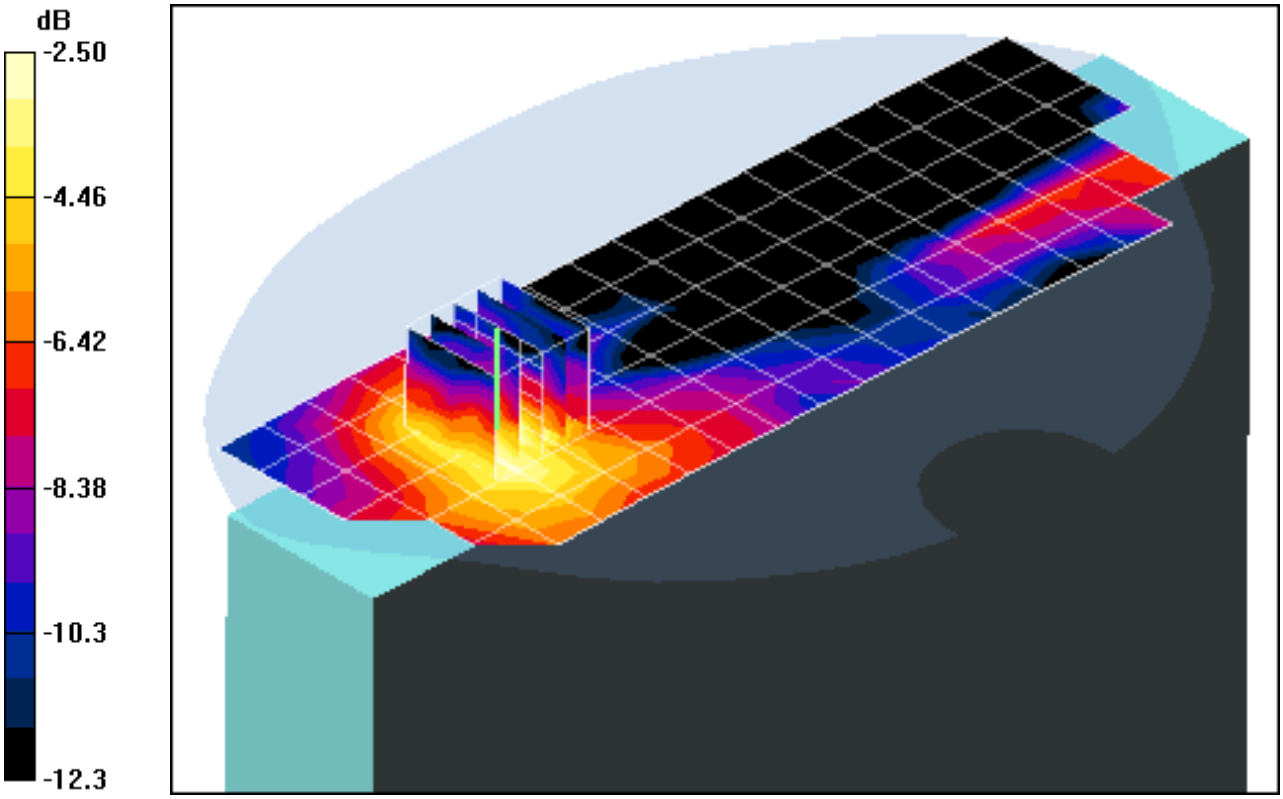
Communication System: GSM850 GPRS; 2 Tx slots; Frequency: 836.6 MHz;Duty Cycle: 1:4.15
Medium: 835 Muscle; Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.991 mho/m; ε_r = 54.1; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-06-2010; Ambient Temp: 23.5°C; Tissue Temp: 22.4°C

Probe: EX3DV4 - SN3550; ConvF(8.3, 8.3, 8.3); Calibrated: 1/26/2010
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 1/22/2010
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: GPRS850, Edge Bottom position, LCD Flip, Mid.ch, 2Tx Slots, Main Ant

Area Scan (7x20x1): Measurement grid: dx=15mm, dy=15mm
/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.52 V/m
Peak SAR (extrapolated) = 0.049 W/kg
SAR(1 g) = 0.024 mW/g; SAR(10 g) = 0.013 mW/g



0 dB = 0.031mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-C1; Type: Convertible Tablet PC with WLAN, Bluetooth, and WWAN
Serial: CF-C1ADABZDM

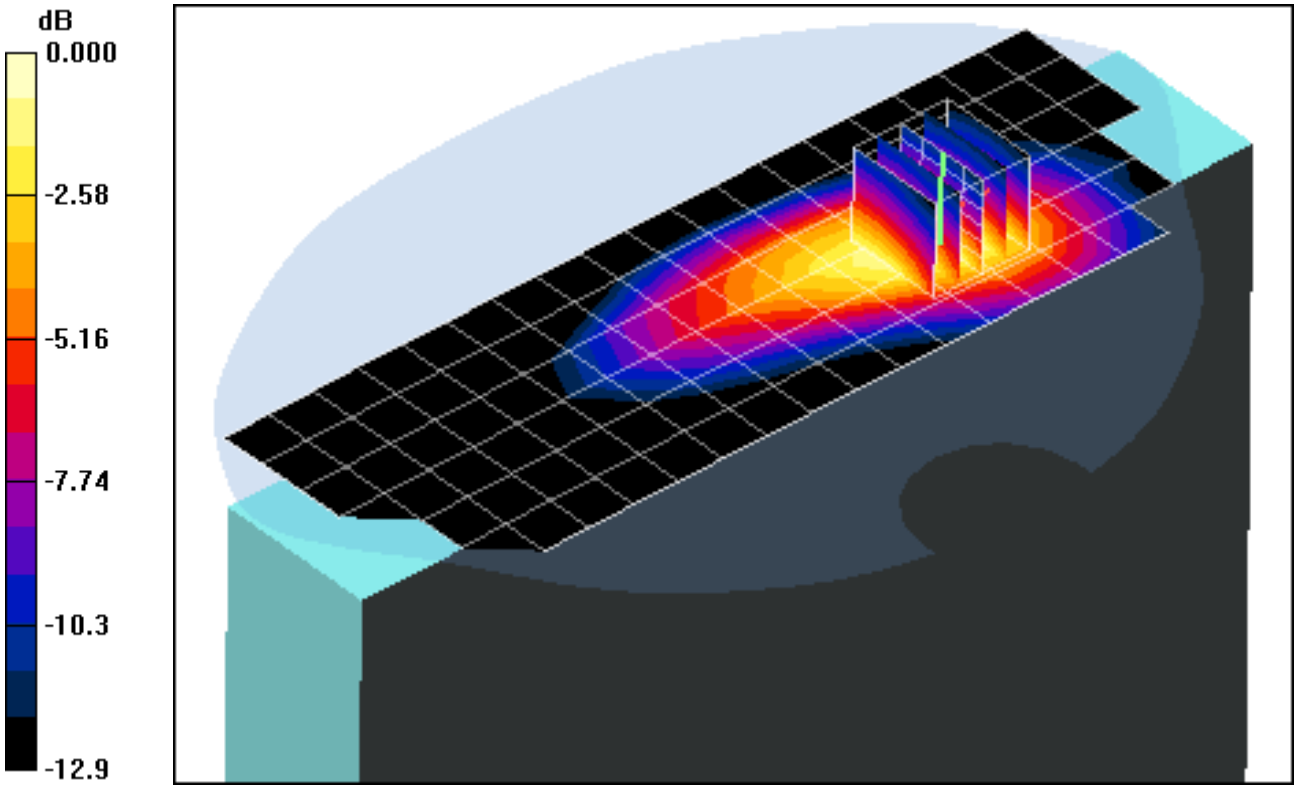
Communication System: GSM850 GPRS; 2 Tx slots; Frequency: 836.6 MHz;Duty Cycle: 1:4.15
Medium: 835 Muscle; Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.991 mho/m; ε_r = 54.1; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-06-2010; Ambient Temp: 23.5°C; Tissue Temp: 22.4°C

Probe: EX3DV4 - SN3550; ConvF(8.3, 8.3, 8.3); Calibrated: 1/26/2010
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 1/22/2010
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: GPRS850, Edge Top position, LCD Flip, Mid.ch, 2Tx Slots, Main Ant

Area Scan (7x20x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 23.4 V/m
Peak SAR (extrapolated) = 0.821 W/kg
SAR(1 g) = 0.447 mW/g; SAR(10 g) = 0.262 mW/g



0 dB = 0.541mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-C1; Type: Convertible Tablet PC with WLAN, Bluetooth and WWAN
Serial: CF-C1ADABZDM

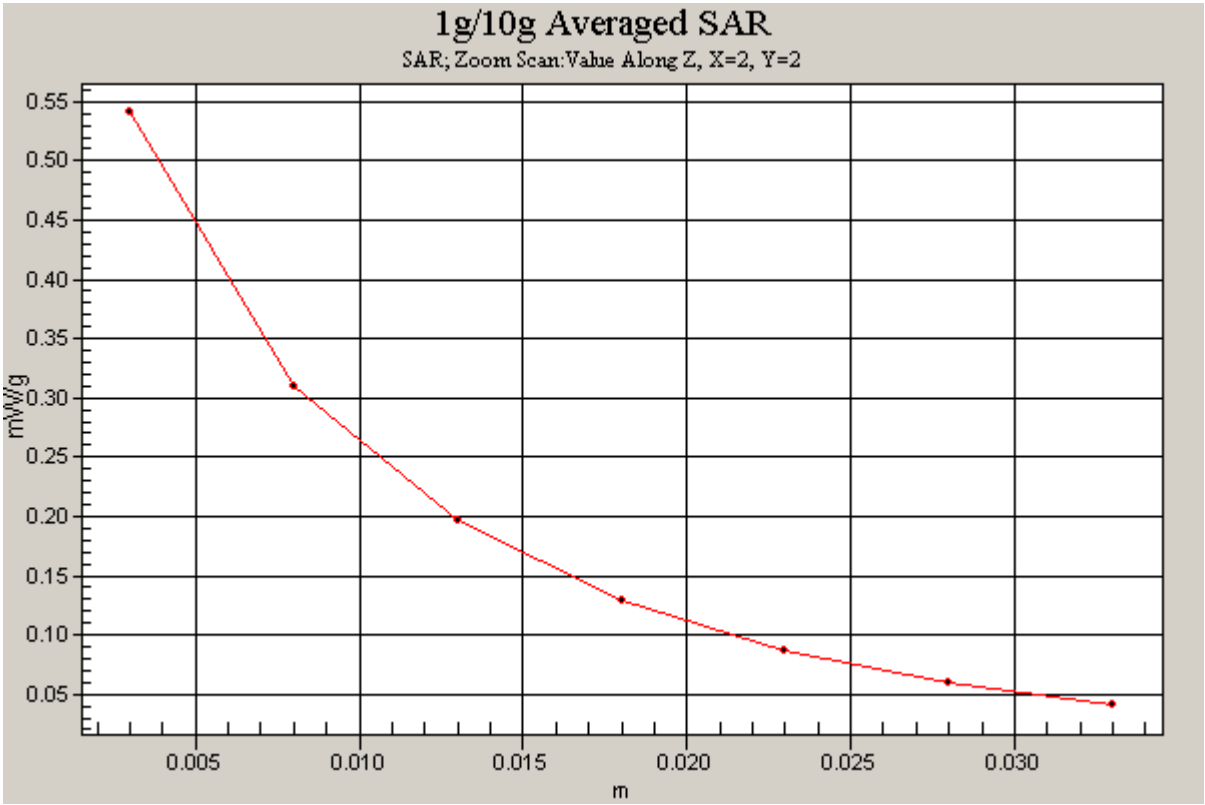
Communication System: GSM850 GPRS; 2 Tx slots; Frequency: 836.6 MHz;Duty Cycle: 1:4.15
Medium: 835 Muscle; Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.991 mho/m; ε_r = 54.1; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-06-2010; Ambient Temp: 23.5°C; Tissue Temp: 22.4°C

Probe: EX3DV4 - SN3550; ConvF(8.3, 8.3, 8.3); Calibrated: 1/26/2010
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 1/22/2010
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: GPRS850, Edge Top position, LCD Flip, Mid.ch, 2Tx Slots, Main Ant

Area Scan (7x20x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 23.4 V/m
Peak SAR (extrapolated) = 0.821 W/kg
SAR(1 g) = 0.447 mW/g; SAR(10 g) = 0.262 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-C1; Type: Convertible Tablet PC with WLAN, Bluetooth, and WWAN
Serial: CF-C1ADABZDM

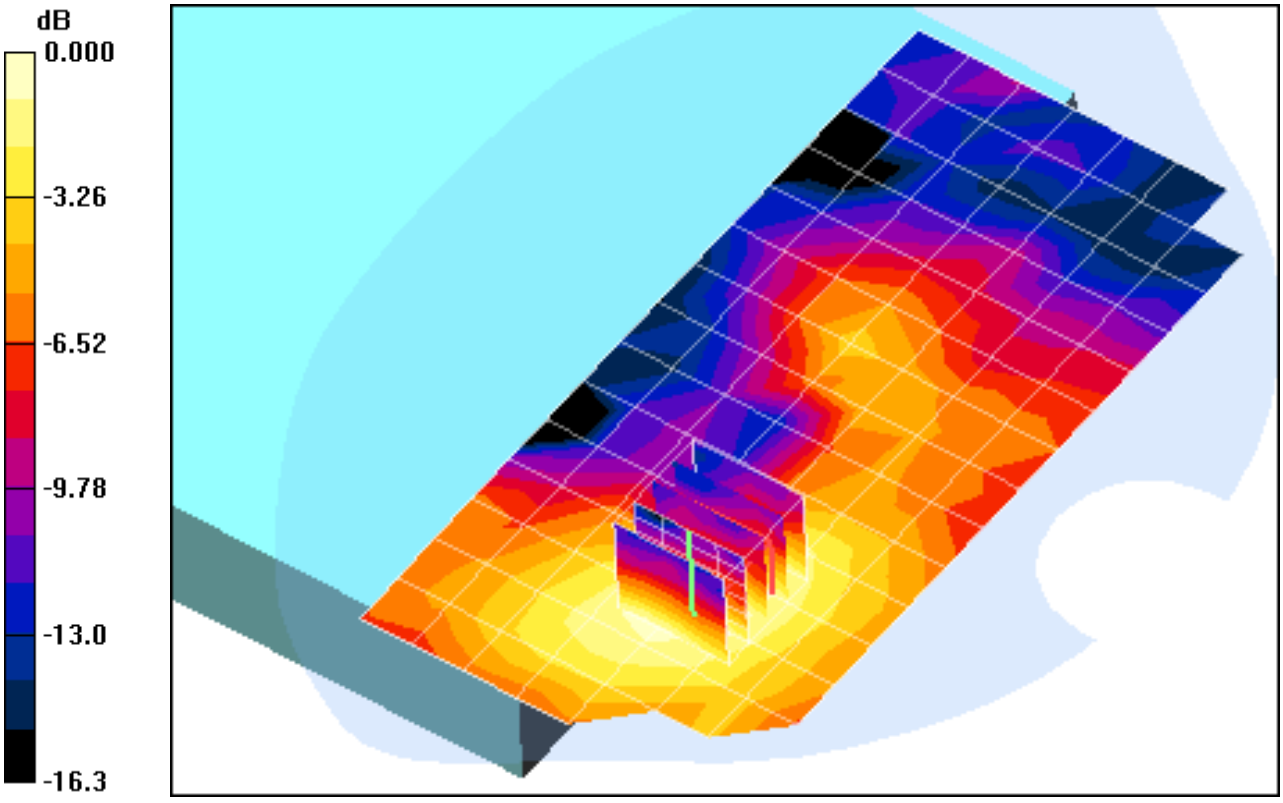
Communication System: GSM1900 GPRS; 2 Tx slots; Frequency: 1880 MHz;Duty Cycle: 1:4.15
Medium: 1900 Muscle; Medium parameters used:
f = 1880 MHz; σ = 1.52 mho/m; ε_r = 52.1; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-08-2010; Ambient Temp: 23.7°C; Tissue Temp: 22.8°C

Probe: EX3DV4 - SN3550; ConvF(6.63, 6.63, 6.63); Calibrated: 1/26/2010
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 1/22/2010
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: GPRS1900, Lap position, LCD Flip, Mid.ch, 2Tx Slots, Main Ant

Area Scan (8x16x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.28 V/m
Peak SAR (extrapolated) = 0.099 W/kg
SAR(1 g) = 0.030 mW/g; SAR(10 g) = 0.018 mW/g



0 dB = 0.034mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-C1; Type: Convertible Tablet PC with WLAN, Bluetooth, and WWAN
Serial: CF-C1ADABZDM

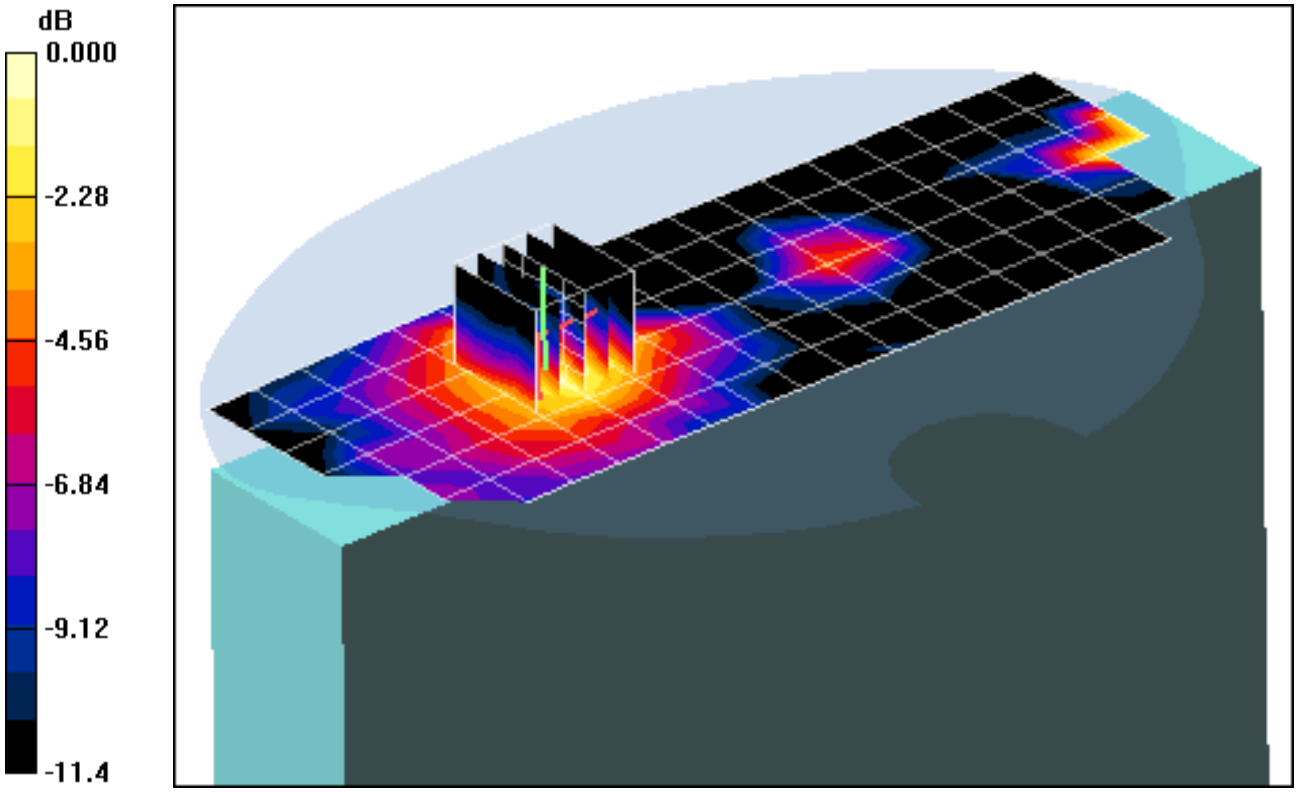
Communication System: GSM1900 EGPRS; 2 Tx slots; Frequency: 1880 MHz;Duty Cycle: 1:4.15
Medium: 1900 Muscle; Medium parameters used:
f = 1880 MHz; σ = 1.52 mho/m; ε_r = 52.1; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-08-2010; Ambient Temp: 23.7°C; Tissue Temp: 22.8°C

Probe: EX3DV4 - SN3550; ConvF(6.63, 6.63, 6.63); Calibrated: 1/26/2010
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 1/22/2010
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: GPRS 1900, Edge Bottom position, LCD Flip, Mid.ch, 2Tx Slots, Main Ant

Area Scan (7x21x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.45 V/m
Peak SAR (extrapolated) = 0.052 W/kg
SAR(1 g) = 0.030 mW/g; SAR(10 g) = 0.017 mW/g



0 dB = 0.036mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-C1; Type: Convertible Tablet PC with WLAN, Bluetooth, and WWAN;
Serial: CF-C1ADABZDM

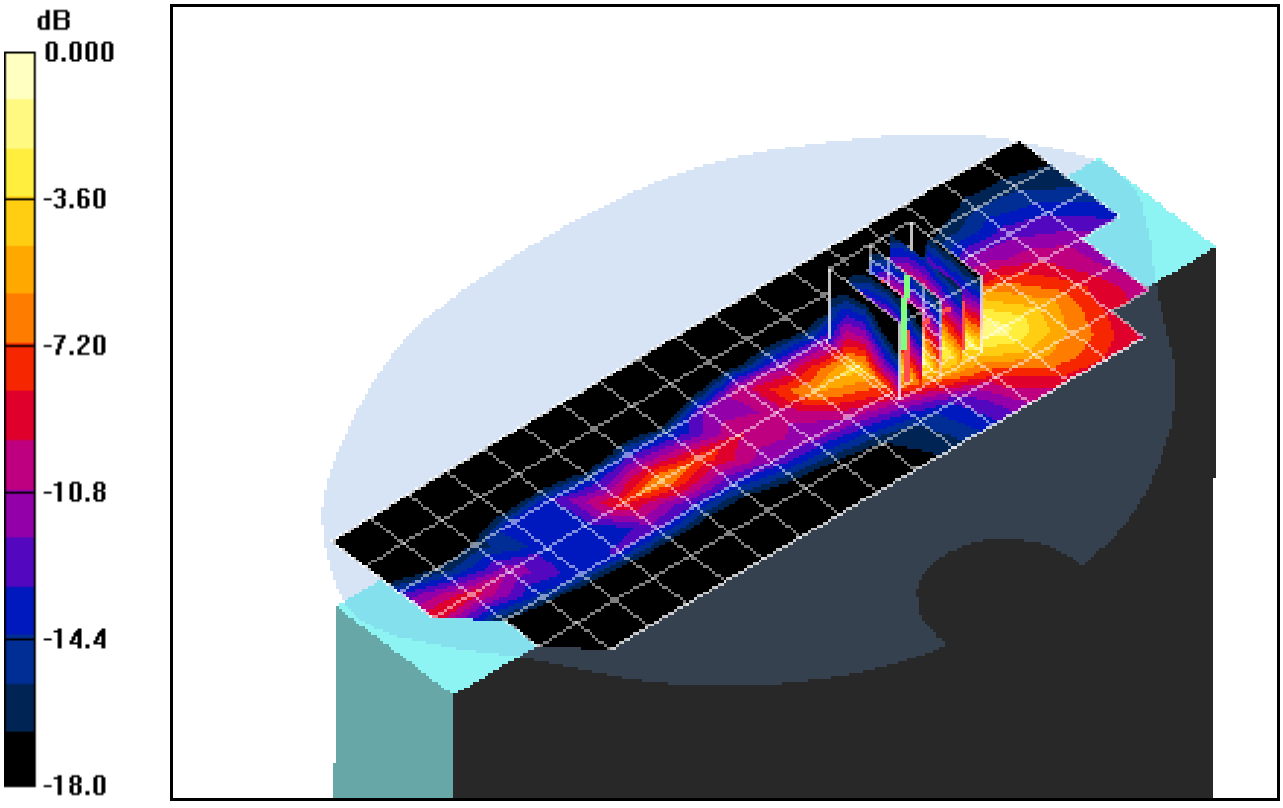
Communication System: GSM1900 EGPRS; 2 Tx slots; Frequency: 1880 MHz;Duty Cycle: 1:4.15
Medium: 1900 Muscle Medium parameters used:
f = 1880 MHz; σ = 1.52 mho/m; ε_r = 52.1; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-08-2010; Ambient Temp: 23.7°C; Tissue Temp: 22.8°C

Probe: EX3DV4 - SN3550; ConvF(6.63, 6.63, 6.63); Calibrated: 1/26/2010
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 1/22/2010
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: GPRS 1900, Edge Top position, LCD Flip, Mid.ch, 2Tx Slots, Main Ant

Area Scan (7x21x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.1 V/m
Peak SAR (extrapolated) = 0.949 W/kg
SAR(1 g) = 0.487 mW/g; SAR(10 g) = 0.236 mW/g



0 dB = 0.609mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-C1; Type: Convertible Tablet PC with WLAN, Bluetooth, and WWAN
Serial: CF-C1ADABZDM

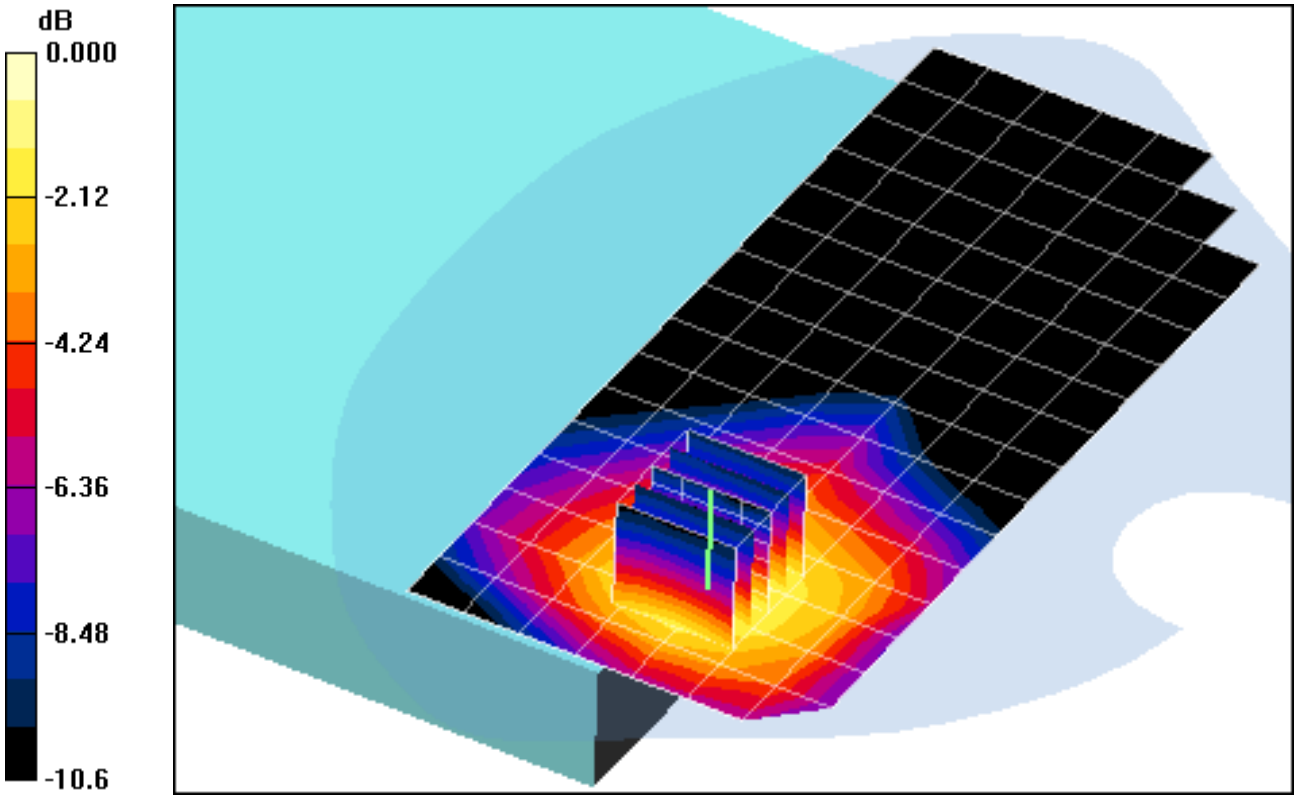
Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium: 835 Muscle; Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.991 mho/m; ε_r = 54.1; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-06-2010; Ambient Temp: 23.5°C; Tissue Temp: 22.4°C

Probe: EX3DV4 - SN3550; ConvF(8.3, 8.3, 8.3); Calibrated: 1/26/2010
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 1/22/2010
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: WCDMA 850, Lap position, LCD Flip, Mid.ch, Main Ant

Area Scan (8x17x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.9 V/m
Peak SAR (extrapolated) = 0.341 W/kg
SAR(1 g) = 0.228 mW/g; SAR(10 g) = 0.150 mW/g



0 dB = 0.268mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-C1; Type: Convertible Tablet PC with WLAN, Bluetooth, and WWAN
Serial: CF-C1ADABZDM

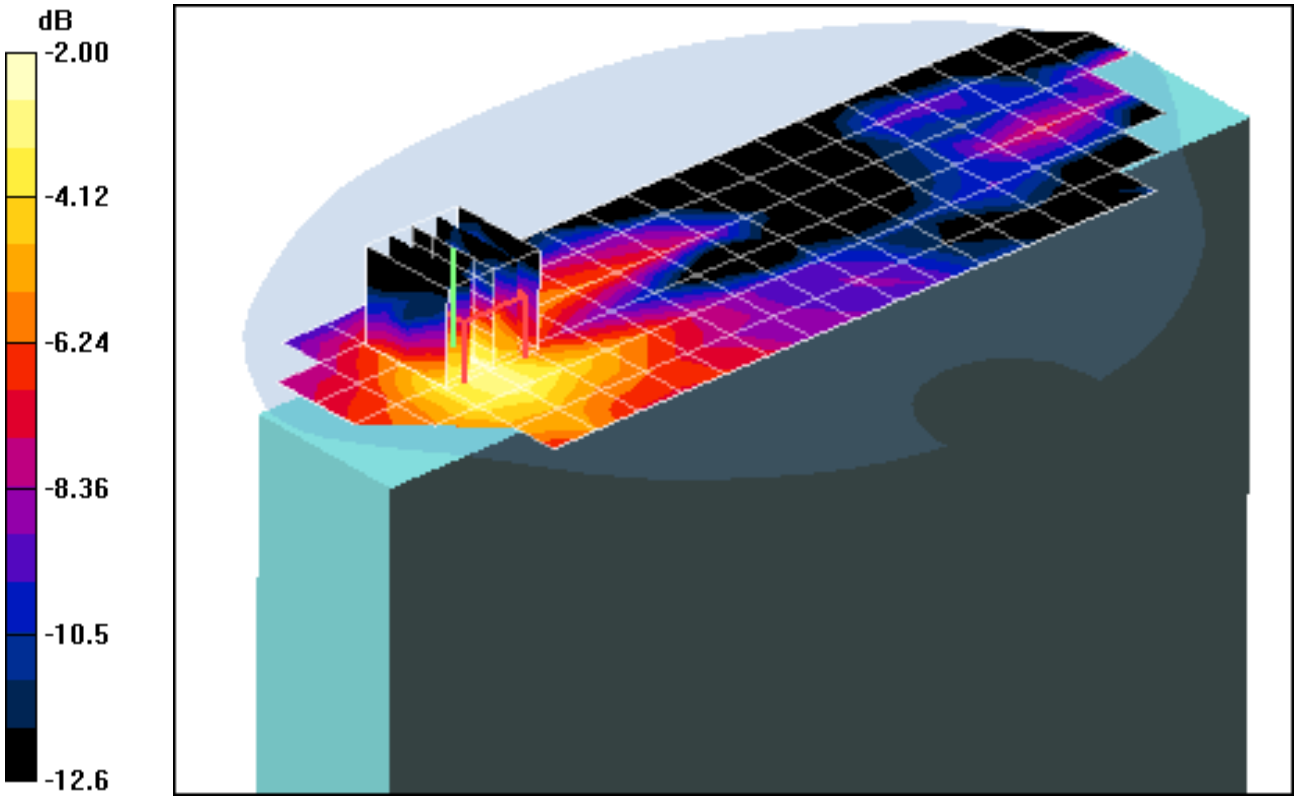
Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium: 835 Muscle; Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.991 mho/m; ε_r = 54.1; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-06-2010; Ambient Temp: 23.5°C; Tissue Temp: 22.4°C

Probe: EX3DV4 - SN3550; ConvF(8.3, 8.3, 8.3); Calibrated: 1/26/2010
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 1/22/2010
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: WCDMA 850, Edge Bottom position, LCD Flip, Mid.ch, Main Antenna

Area Scan (7x20x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.36 V/m
Peak SAR (extrapolated) = 0.039 W/kg
SAR(1 g) = 0.018 mW/g; SAR(10 g) = 0.0087 mW/g



0 dB = 0.027mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-C1; Type: Convertible Tablet PC with WLAN, Bluetooth, and WWAN
Serial: CF-C1ADABZDM

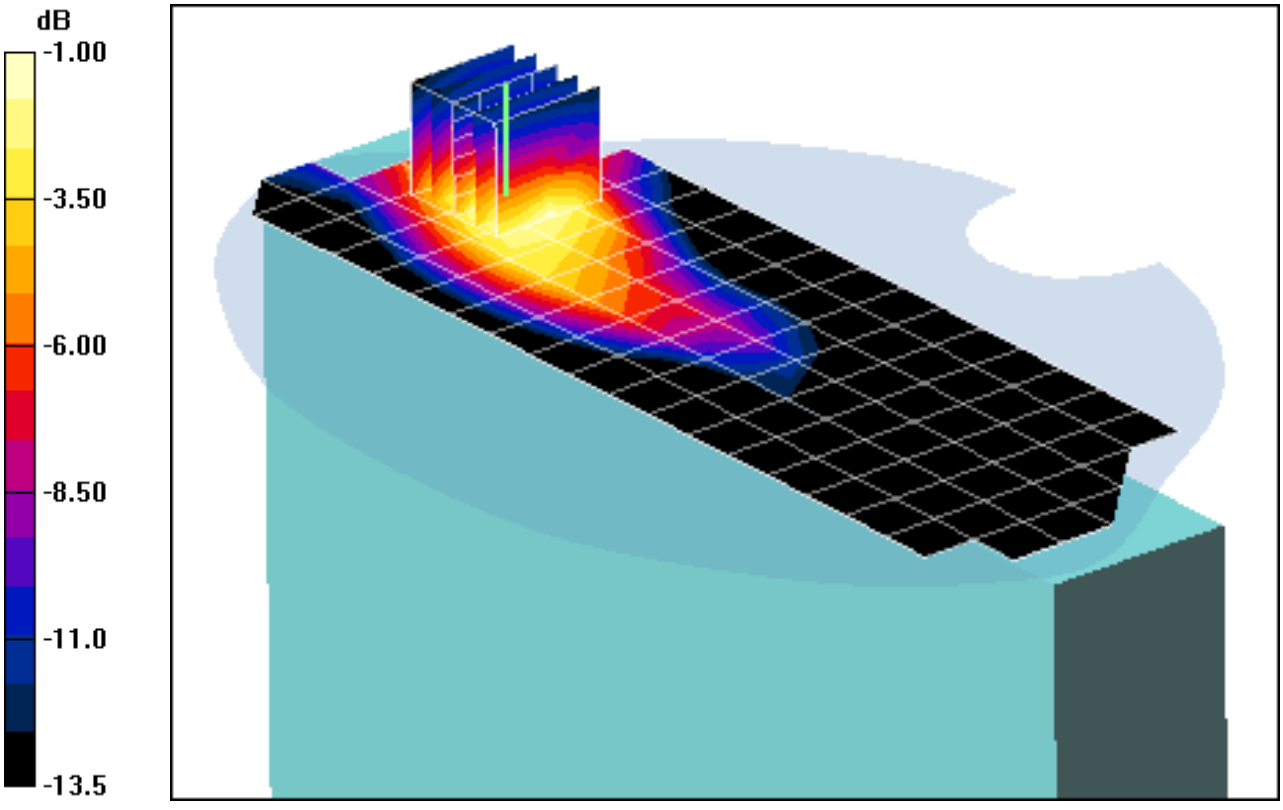
Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium: 835 Muscle; Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.991 mho/m; ε_r = 54.1; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-06-2010; Ambient Temp: 23.5°C; Tissue Temp: 22.4°C

Probe: EX3DV4 - SN3550; ConvF(8.3, 8.3, 8.3); Calibrated: 1/26/2010
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 1/22/2010
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: WCDMA 850, Edge Top position, LCD Flip, Mid.ch, Main Antenna

Area Scan (7x20x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.9 V/m
Peak SAR (extrapolated) = 0.586 W/kg
SAR(1 g) = 0.316 mW/g; SAR(10 g) = 0.180 mW/g



0 dB = 0.395mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-C1; Type: Convertible Tablet PC with WLAN, Bluetooth, and WWAN
Serial: CF-C1ADABZDM

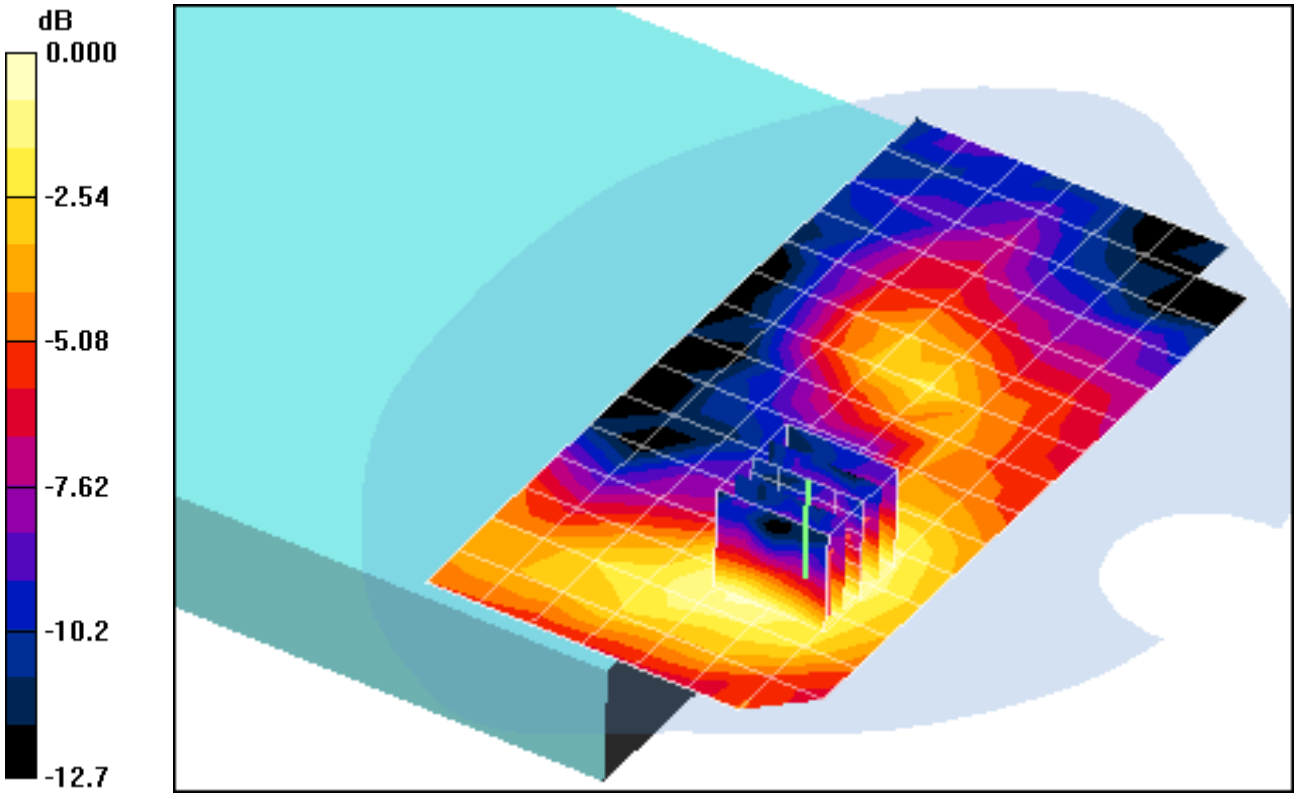
Communication System: WCDMA1900; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: 1900 Muscle; Medium parameters used:
f = 1880 MHz; σ = 1.52 mho/m; ε_r = 52.1; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-08-2010; Ambient Temp: 23.7°C; Tissue Temp: 22.8°C

Probe: EX3DV4 - SN3550; ConvF(6.63, 6.63, 6.63); Calibrated: 1/26/2010
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 1/22/2010
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: WCDMA 1900, Lap position, LCD Flip, Mid.ch, Main Ant

Area Scan (8x16x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.65 V/m
Peak SAR (extrapolated) = 0.042 W/kg
SAR(1 g) = 0.025 mW/g; SAR(10 g) = 0.016 mW/g



0 dB = 0.030mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-C1; Type: Convertible Tablet PC with WLAN, Bluetooth, and WWAN
Serial: CF-C1ADABZDM

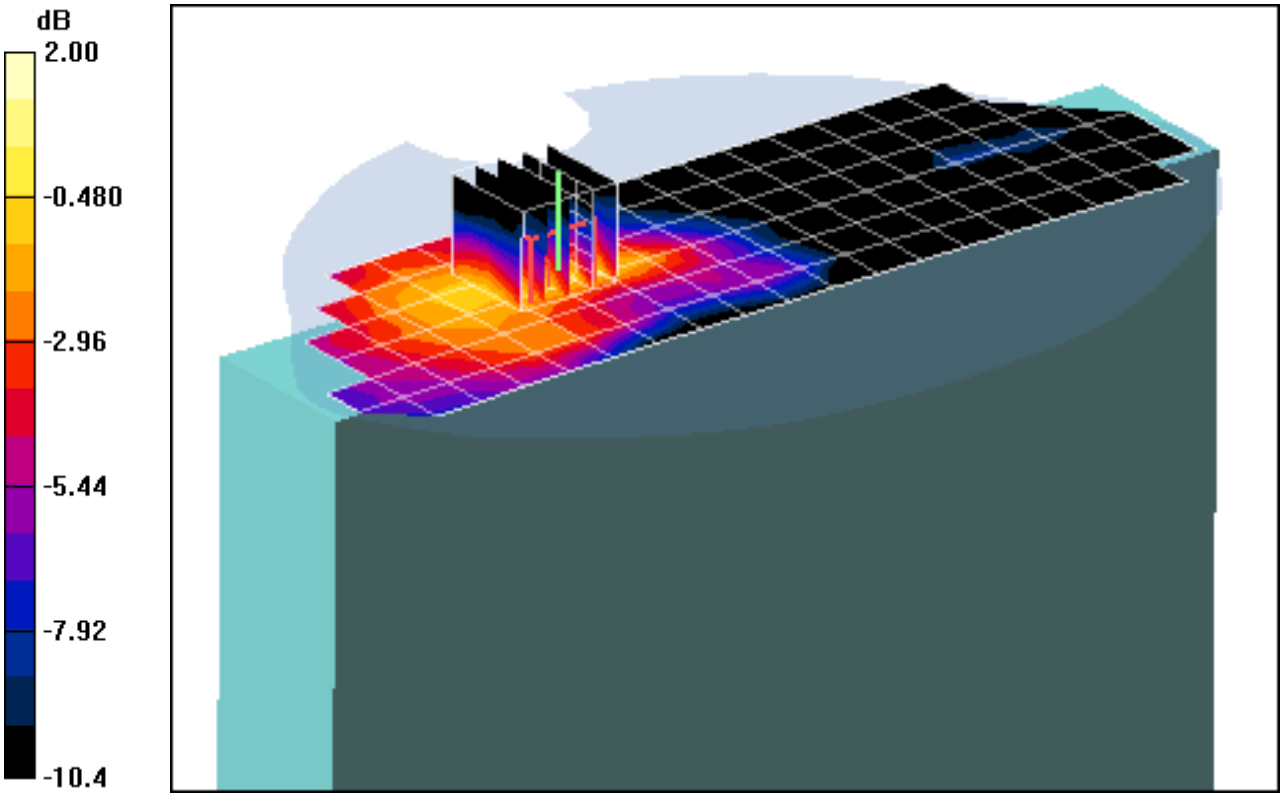
Communication System: WCDMA1900; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: 1900 Muscle; Medium parameters used:
f = 1880 MHz; σ = 1.52 mho/m; ε_r = 52.1; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-08-2010; Ambient Temp: 23.7°C; Tissue Temp: 22.8°C

Probe: EX3DV4 - SN3550; ConvF(6.63, 6.63, 6.63); Calibrated: 1/26/2010
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 1/22/2010
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: WCDMA 1900, Edge Bottom position, LCD Flip, Mid.ch, Main Ant

Area Scan (7x21x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.66 V/m
Peak SAR (extrapolated) = 0.079 W/kg
SAR(1 g) = 0.049 mW/g; SAR(10 g) = 0.029 mW/g



0 dB = 0.058mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-C1; Type: Convertible Tablet PC with WLAN, Bluetooth, and WWAN
Serial: CF-C1ADABZDM

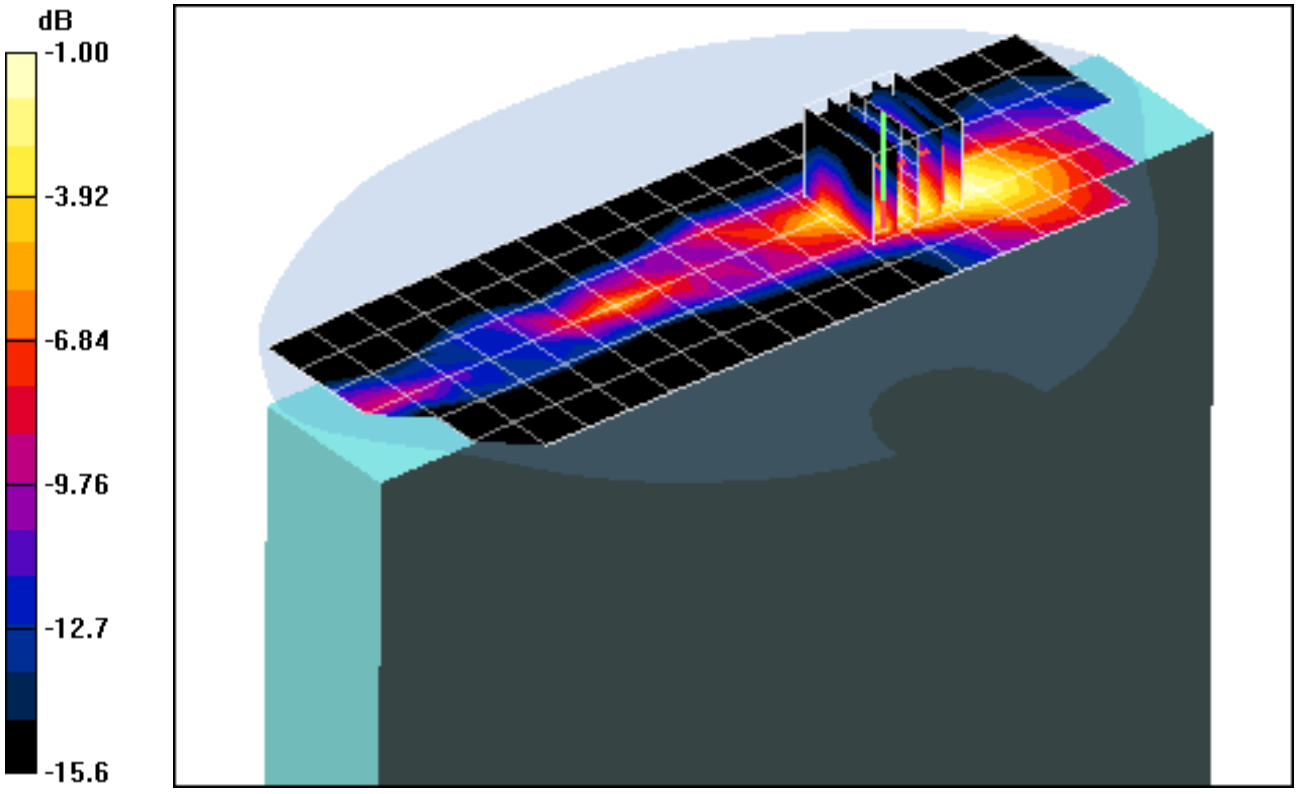
Communication System: WCDMA1900; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: 1900 Muscle; Medium parameters used:
f = 1880 MHz; σ = 1.52 mho/m; ε_r = 52.1; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-08-2010; Ambient Temp: 23.7°C; Tissue Temp: 22.8°C

Probe: EX3DV4 - SN3550; ConvF(6.63, 6.63, 6.63); Calibrated: 1/26/2010
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 1/22/2010
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: WCDMA 1900, Edge Top position, LCD Flip, Mid.ch, Main Ant

Area Scan (7x21x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.6 V/m
Peak SAR (extrapolated) = 1.04 W/kg
SAR(1 g) = 0.526 mW/g; SAR(10 g) = 0.257 mW/g



0 dB = 0.639mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-C1; Type: Convertible Tablet PC with WLAN, Bluetooth, and WWAN
Serial: CF-C1ADABZDM

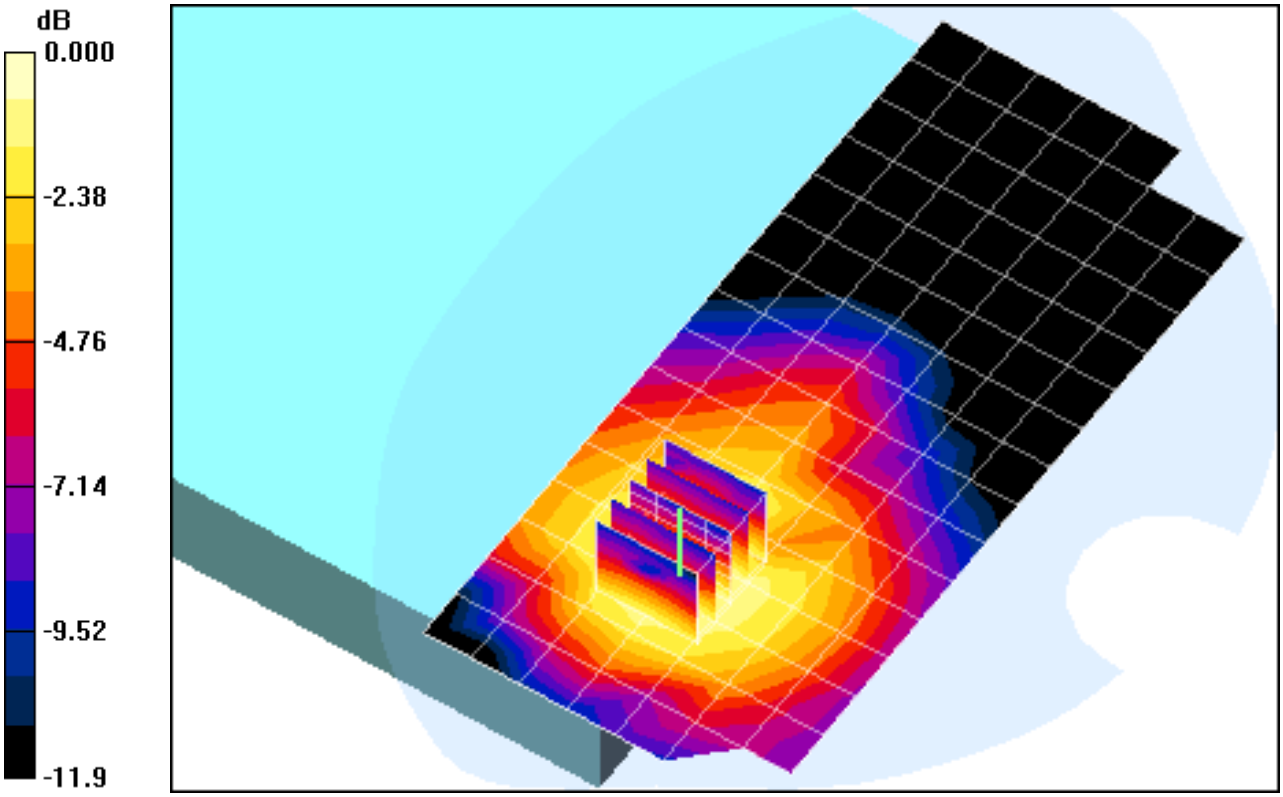
Communication System: Cellular CDMA; Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium: 835 Muscle; Medium parameters used (interpolated):
f = 836.52 MHz; σ = 0.991 mho/m; ε_r = 54.1; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-06-2010; Ambient Temp: 23.5°C; Tissue Temp: 22.4°C

Probe: EX3DV4 - SN3550; ConvF(8.3, 8.3, 8.3); Calibrated: 1/26/2010
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 1/22/2010
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: EvDO Cellular, Lap position, LCD Flip, Mid.ch, Main Ant

Area Scan (8x17x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.3 V/m
Peak SAR (extrapolated) = 0.352 W/kg
SAR(1 g) = 0.182 mW/g; SAR(10 g) = 0.125 mW/g



0 dB = 0.209mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-C1; Type: Convertible Tablet PC with WLAN, Bluetooth, and WWAN
Serial: CF-C1ADABZDM

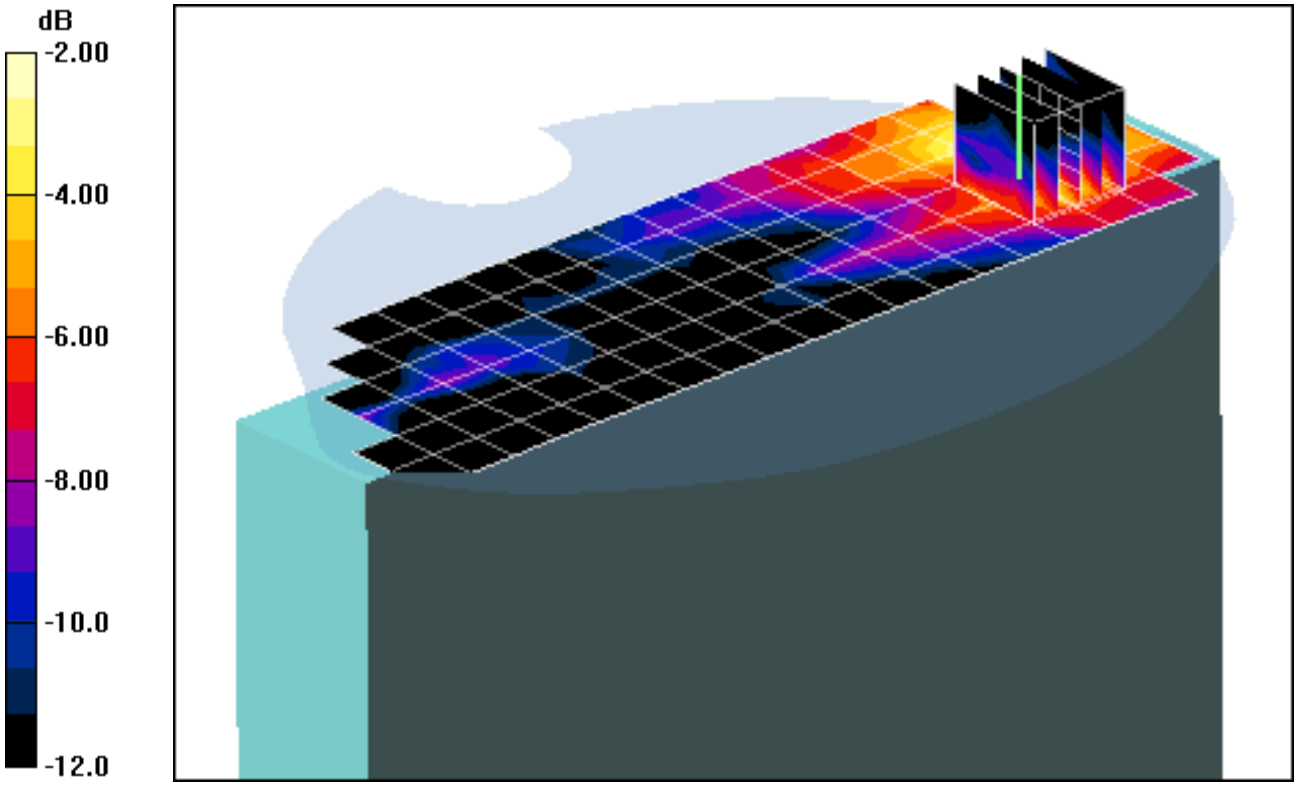
Communication System: Cellular CDMA; Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium: 835 Muscle; Medium parameters used (interpolated):
f = 836.52 MHz; σ = 0.991 mho/m; ε_r = 54.1; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-06-2010; Ambient Temp: 23.5°C; Tissue Temp: 22.4°C

Probe: EX3DV4 - SN3550; ConvF(8.3, 8.3, 8.3); Calibrated: 1/26/2010
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 1/22/2010
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: EvDO Cellular, Edge Bottom position, LCD Flip, Mid.ch, Main Ant

Area Scan (7x20x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.25 V/m
Peak SAR (extrapolated) = 0.042 W/kg
SAR(1 g) = 0.019 mW/g; SAR(10 g) = 0.00918 mW/g



0 dB = 0.024mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-C1; Type: Convertible Tablet PC with WLAN, Bluetooth, and WWAN
Serial: CF-C1ADABZDM

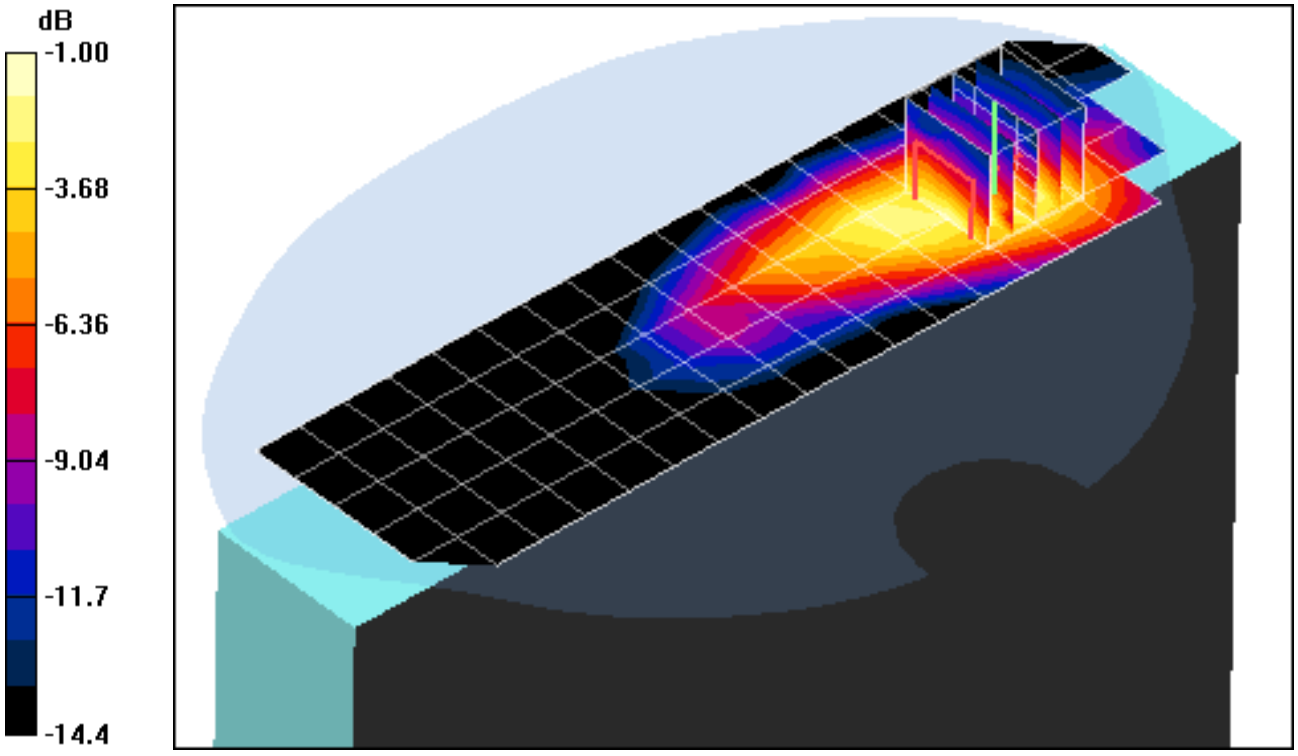
Communication System: Cellular CDMA; Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium: 835 Muscle Medium parameters used (interpolated):
f = 836.52 MHz; σ = 0.991 mho/m; ε_r = 54.1; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-06-2010; Ambient Temp: 23.5°C; Tissue Temp: 22.4°C

Probe: EX3DV4 - SN3550; ConvF(8.3, 8.3, 8.3); Calibrated: 1/26/2010
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 1/22/2010
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: EvDO Cellular, Edge Top position, LCD Flip, Mid.ch, Main Ant

Area Scan (6x19x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.3 V/m
Peak SAR (extrapolated) = 0.547 W/kg
SAR(1 g) = 0.304 mW/g; SAR(10 g) = 0.170 mW/g



0 dB = 0.410mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-C1; Type: Convertible Tablet PC with WLAN, Bluetooth, and WWAN
Serial: CF-C1ADABZDM

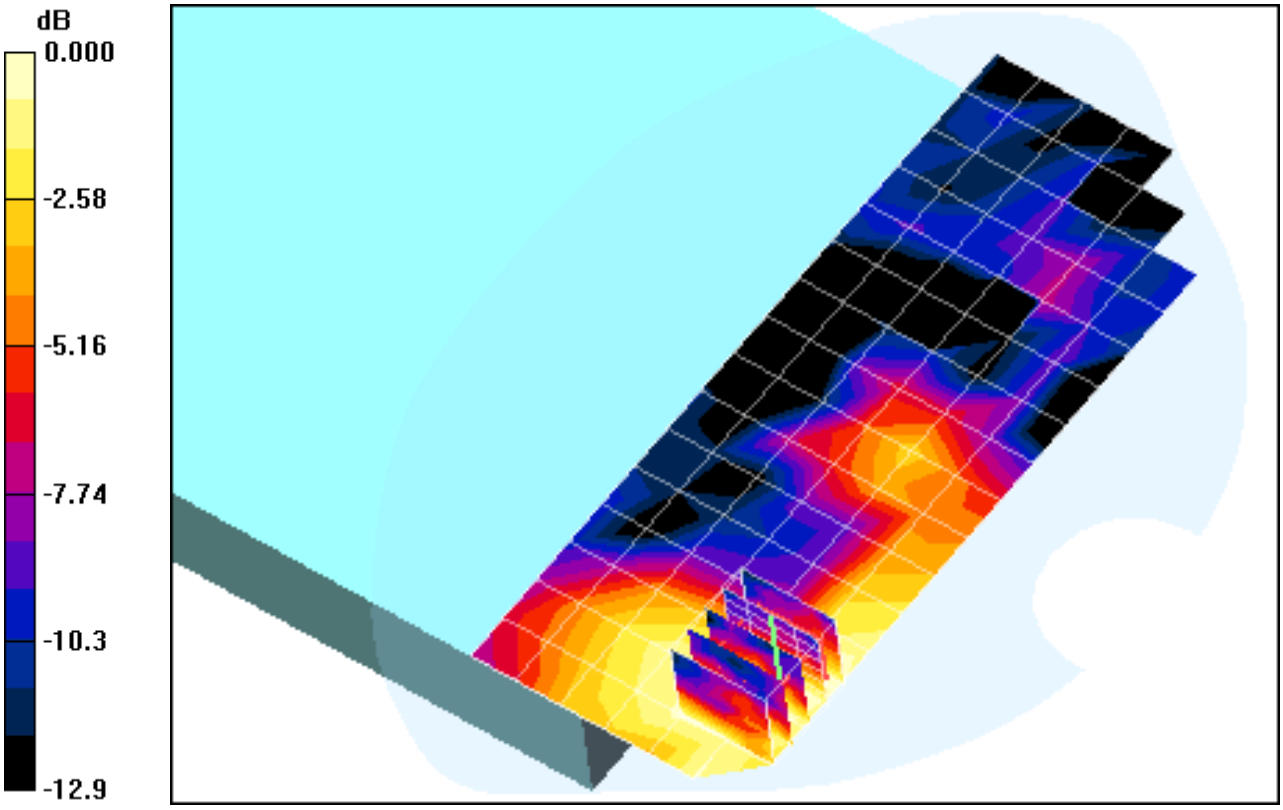
Communication System: PCS CDMA; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: 1900 Muscle; Medium parameters used:
f = 1880 MHz; σ = 1.52 mho/m; ε_r = 52.1; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-08-2010; Ambient Temp: 23.7°C; Tissue Temp: 22.8°C

Probe: EX3DV4 - SN3550; ConvF(6.63, 6.63, 6.63); Calibrated: 1/26/2010
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 1/22/2010
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: EvDO PCS, Lap position, LCD Flip, Mid.ch, Main Ant

Area Scan (7x17x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.73 V/m
Peak SAR (extrapolated) = 0.049 W/kg
SAR(1 g) = 0.031 mW/g; SAR(10 g) = 0.019 mW/g



0 dB = 0.035mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-C1; Type: Convertible Tablet PC with WLAN, Bluetooth, and WWAN
Serial: CF-C1ADABZDM

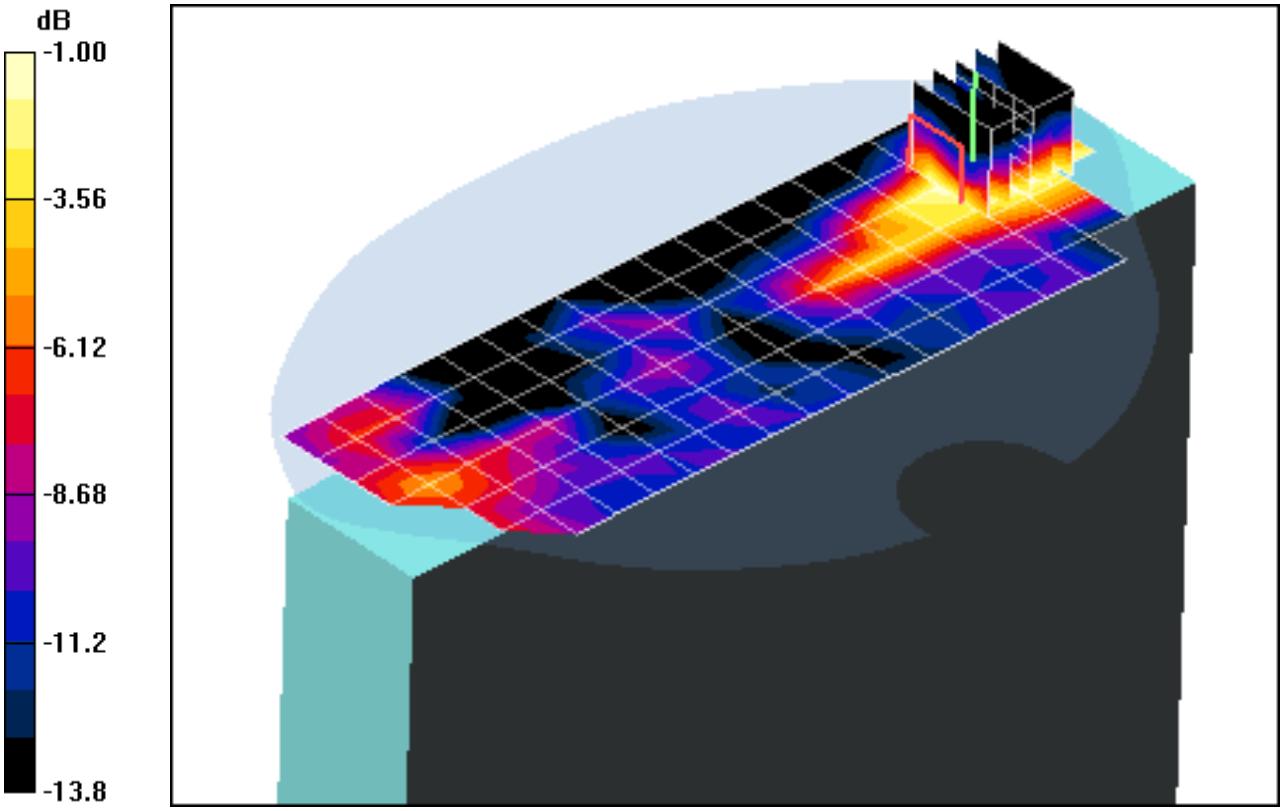
Communication System: PCS CDMA; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: 1900 Muscle; Medium parameters used:
f = 1880 MHz; σ = 1.52 mho/m; ε_r = 52.1; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-08-2010; Ambient Temp: 23.7°C; Tissue Temp: 22.8°C

Probe: EX3DV4 - SN3550; ConvF(6.63, 6.63, 6.63); Calibrated: 1/26/2010
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 1/22/2010
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: EvDO PCS, Edge Bottom position, LCD Flip, Mid.ch, Main Ant

Area Scan (7x21x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.25 V/m
Peak SAR (extrapolated) = 0.080 W/kg
SAR(1 g) = 0.043 mW/g; SAR(10 g) = 0.020 mW/g



0 dB = 0.064mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-C1; Type: Convertible Tablet PC with WLAN, Bluetooth, and WWAN
Serial: CF-C1ADABZDM

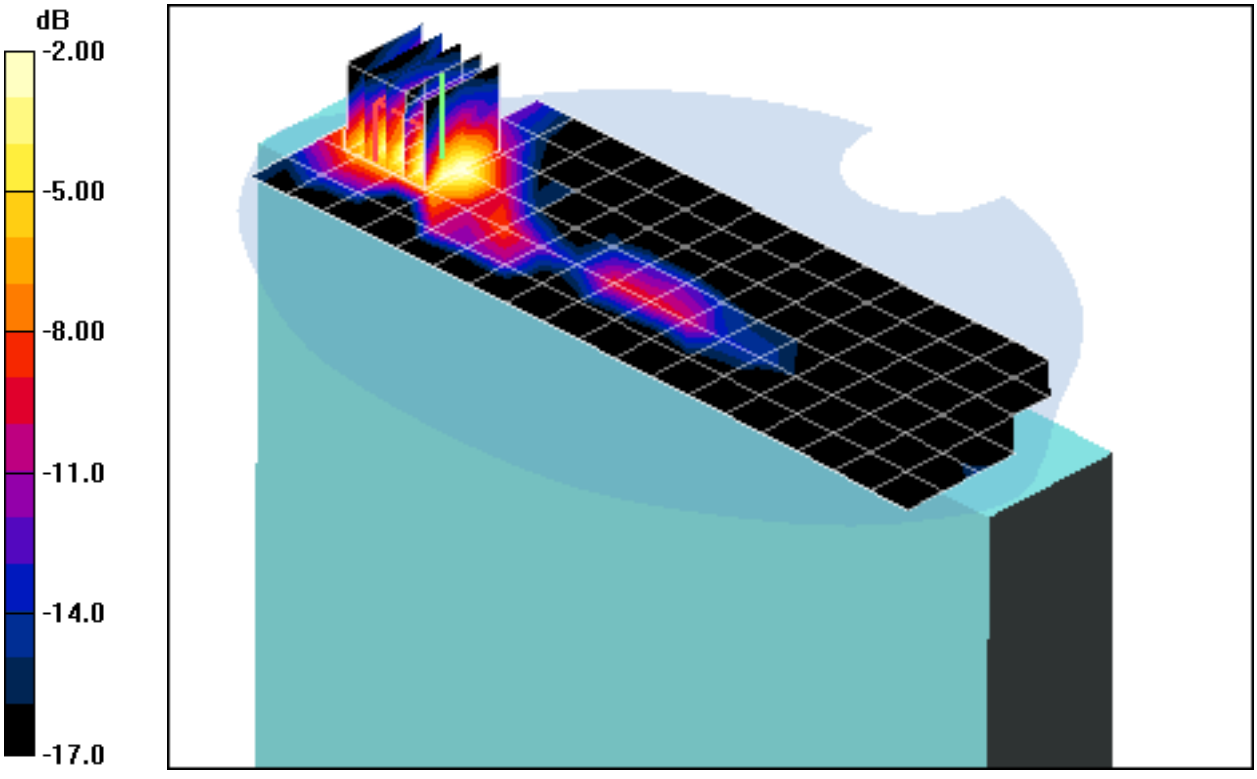
Communication System: PCS CDMA; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: 1900 Muscle; Medium parameters used:
f = 1880 MHz; σ = 1.52 mho/m; ε_r = 52.1; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-08-2010; Ambient Temp: 23.7°C; Tissue Temp: 22.8°C

Probe: EX3DV4 - SN3550; ConvF(6.63, 6.63, 6.63); Calibrated: 1/26/2010
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 1/22/2010
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: EvDO PCS, Edge Top position, LCD Flip, Mid.ch, Main Ant

Area Scan (7x21x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.24 V/m;
Peak SAR (extrapolated) = 1.25 W/kg
SAR(1 g) = 0.666 mW/g; SAR(10 g) = 0.314 mW/g
Maximum value of SAR (measured) = 0.825 mW/g



0 dB = 0.825mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-C1; Type: Laptop/Tablet PC with WWAN, WLAN and Bluetooth
Serial: CF-C1ADABZDM

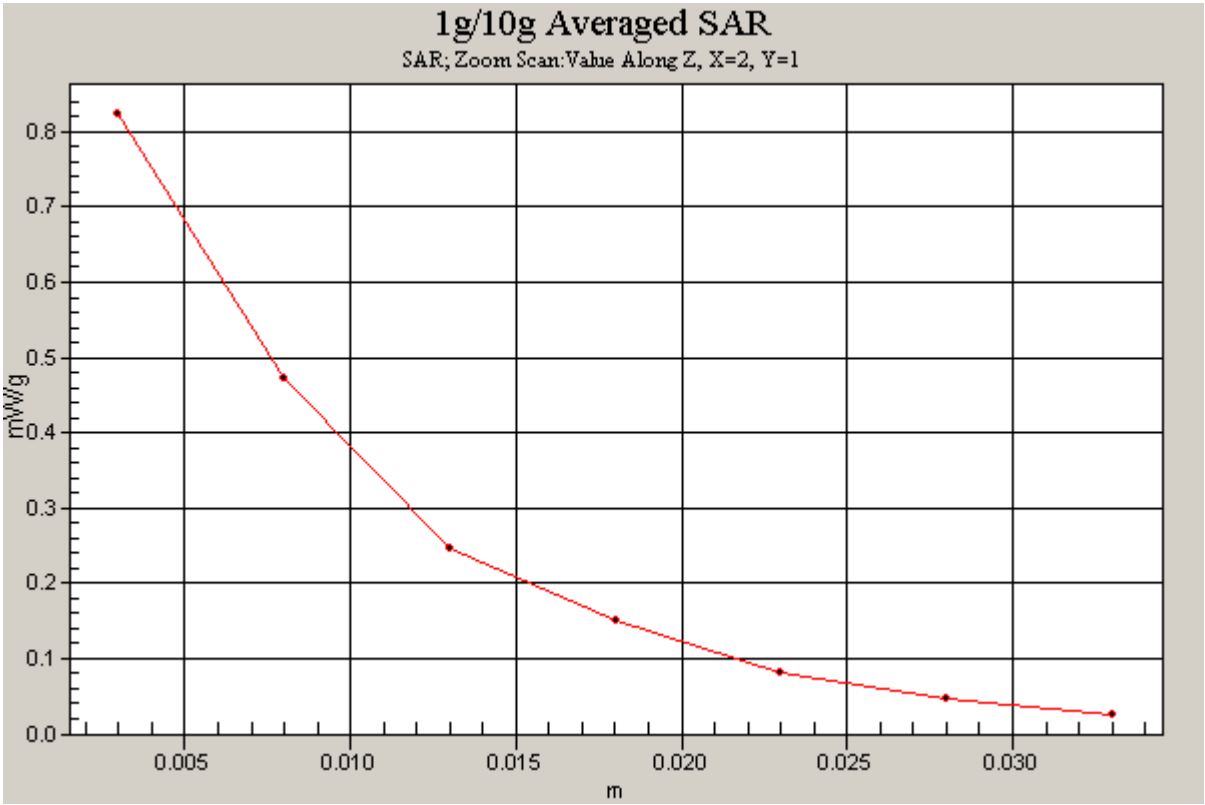
Communication System: PCS CDMA; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: 1900 Muscle; Medium parameters used:
f = 1880 MHz; σ = 1.52 mho/m; ε_r = 52.1; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-08-2010; Ambient Temp: 23.7°C; Tissue Temp: 22.8°C

Probe: EX3DV4 - SN3550; ConvF(6.63, 6.63, 6.63); Calibrated: 1/26/2010
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 1/22/2010
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: EvDO PCS, Edge Top position, LCD Flip, Mid.ch, Main Ant

Area Scan (7x21x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.24 V/m
Peak SAR (extrapolated) = 1.25 W/kg
SAR(1 g) = 0.666 mW/g; SAR(10 g) = 0.314 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-C1; Type: Convertible Tablet PC with WLAN, Bluetooth, and WWAN
Serial: CF-C1ADABZDM

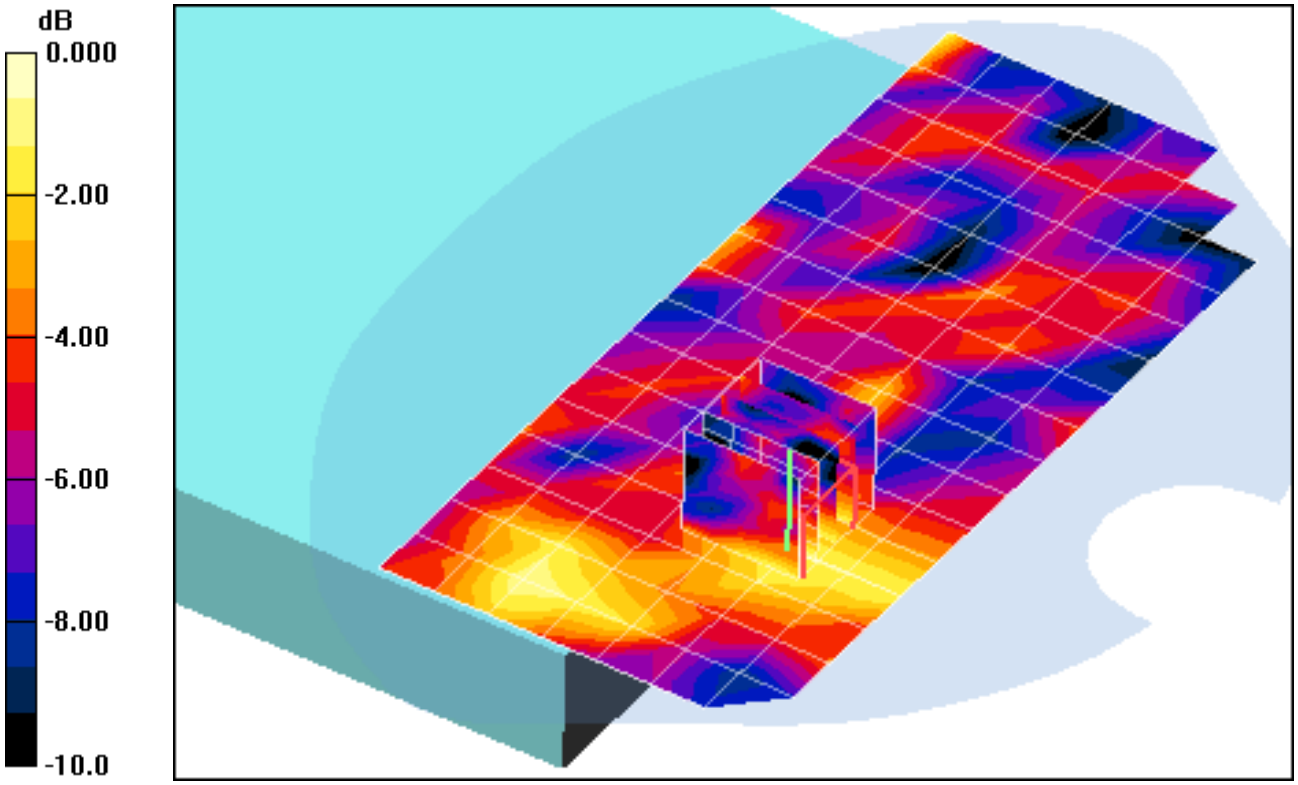
Communication System: IEEE 802.11b; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium: 2450 Muscle; Medium parameters used (interpolated):
f = 2437 MHz; σ = 1.94 mho/m; ε_r = 50.7; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-08-2010; Ambient Temp: 23.8°C; Tissue Temp: 22.6°C

Probe: EX3DV4 - SN3550; ConvF(6.4, 6.4, 6.4); Calibrated: 1/26/2010
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 1/22/2010
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: WLAN 802.11b, Lap position, LCD Flip, Mid.ch, 1 Mbps, Tx Chain B

Area Scan (8x17x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.64 V/m
Peak SAR (extrapolated) = 0.028 W/kg
SAR(1 g) = 0.012 mW/g; SAR(10 g) = 0.00771 mW/g



0 dB = 0.015mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-C1; Type: Convertible Tablet PC with WLAN, Bluetooth, and WWAN
Serial: CF-C1ADABZDM

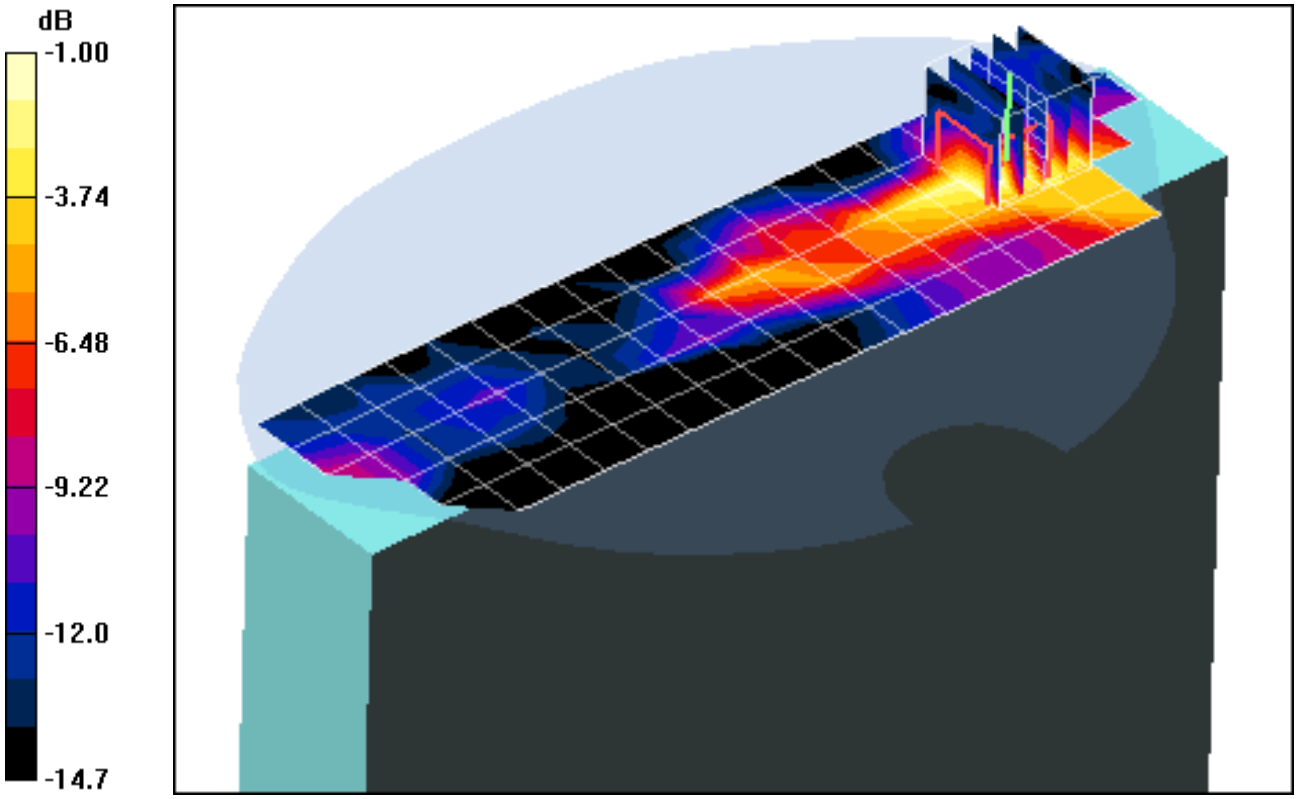
Communication System: IEEE 802.11b; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium: 2450 Muscle; Medium parameters used (interpolated):
f = 2437 MHz; σ = 1.94 mho/m; ε_r = 50.7; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-08-2010; Ambient Temp: 23.8°C; Tissue Temp: 22.6°C

Probe: EX3DV4 - SN3550; ConvF(6.4, 6.4, 6.4); Calibrated: 1/26/2010
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 1/22/2010
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: WLAN 802.11b, Edge Bottom position, LCD Flip, Mid.ch, 1Mbps, Tx chain B

Area Scan (6x20x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.17 V/m
Peak SAR (extrapolated) = 0.092 W/kg
SAR(1 g) = 0.048 mW/g; SAR(10 g) = 0.023 mW/g



0 dB = 0.058mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-C1; Type: Convertible Tablet PC with WLAN, Bluetooth, and WWAN
Serial: CF-C1ADABZDM

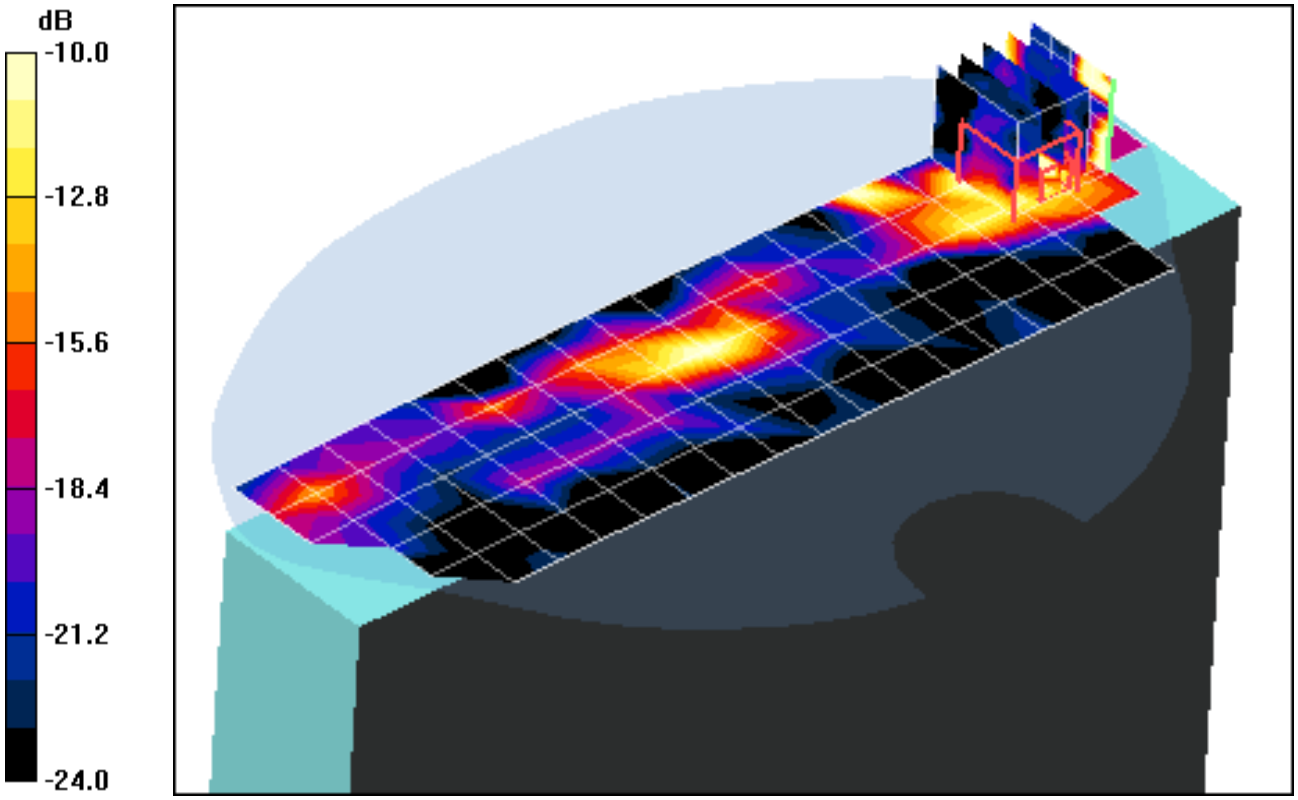
Communication System: IEEE 802.11b; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium: 2450 Muscle; Medium parameters used (interpolated):
f = 2437 MHz; σ = 1.94 mho/m; ε_r = 50.7; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-08-2010; Ambient Temp: 23.8°C; Tissue Temp: 22.6°C

Probe: EX3DV4 - SN3550; ConvF(6.4, 6.4, 6.4); Calibrated: 1/26/2010
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 1/22/2010
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: WLAN 802.11b, Edge Top position, LCD Flip, Mid.ch, 1Mbps, Tx chain A

Area Scan (6x20x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.00 V/m
Peak SAR (extrapolated) = 0.378 W/kg
SAR(1 g) = 0.021 mW/g; SAR(10 g) = 0.00564 mW/g



0 dB = 0.234mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-C1; Type: Convertible Tablet PC with WLAN, Bluetooth, and WWAN
Serial: CF-C1ADABZDM

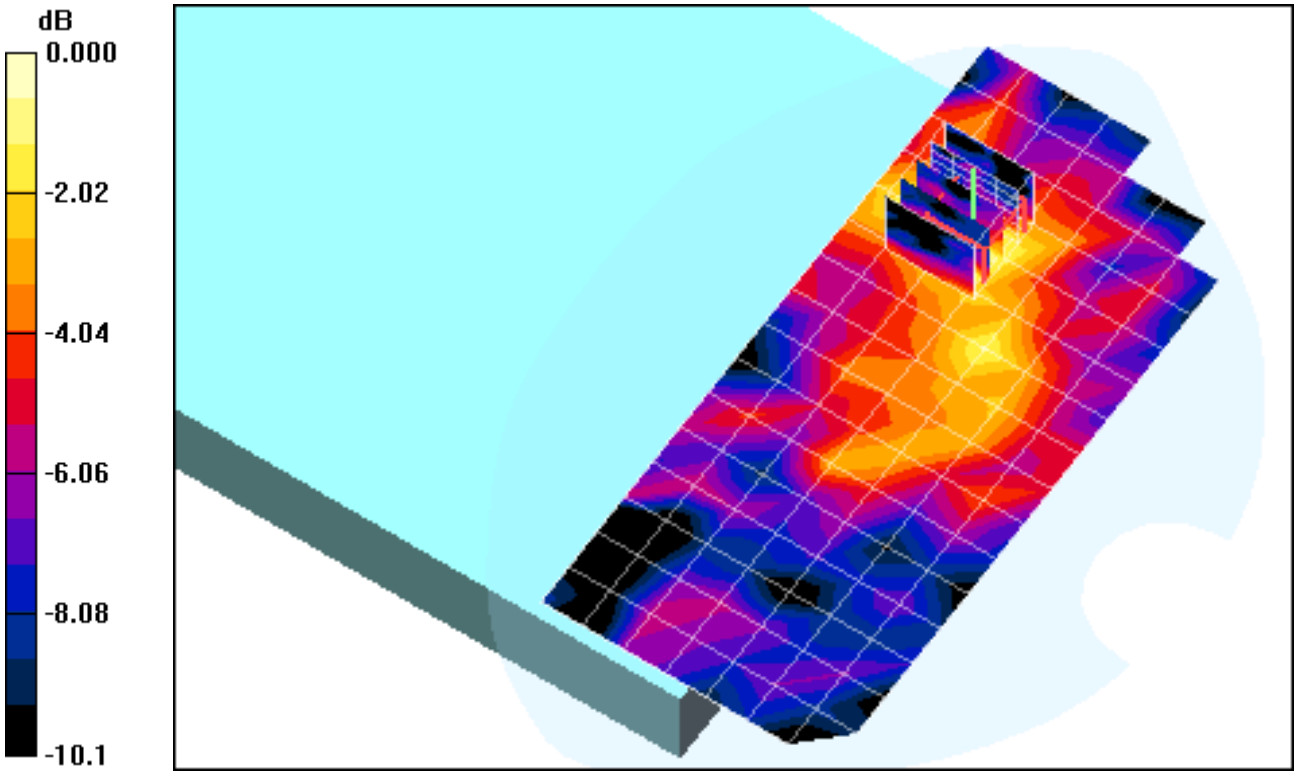
Communication System: IEEE 802.11g; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium: 2450 Muscle; Medium parameters used (interpolated):
f = 2437 MHz; σ = 1.94 mho/m; ε_r = 50.7; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-08-2010; Ambient Temp: 23.8°C; Tissue Temp: 22.6°C

Probe: EX3DV4 - SN3550; ConvF(6.4, 6.4, 6.4); Calibrated: 1/26/2010
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 1/22/2010
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: WLAN 802.11g, Lap position, LCD Flip, Mid.ch, 6 Mbps, Tx Chain A

Area Scan (8x17x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.20 V/m
Peak SAR (extrapolated) = 0.036 W/kg
SAR(1 g) = 0.021 mW/g; SAR(10 g) = 0.012 mW/g



0 dB = 0.026mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-C1; Convertible Tablet PC with WLAN, Bluetooth, and WWAN
Serial: CF-C1ADABZDM

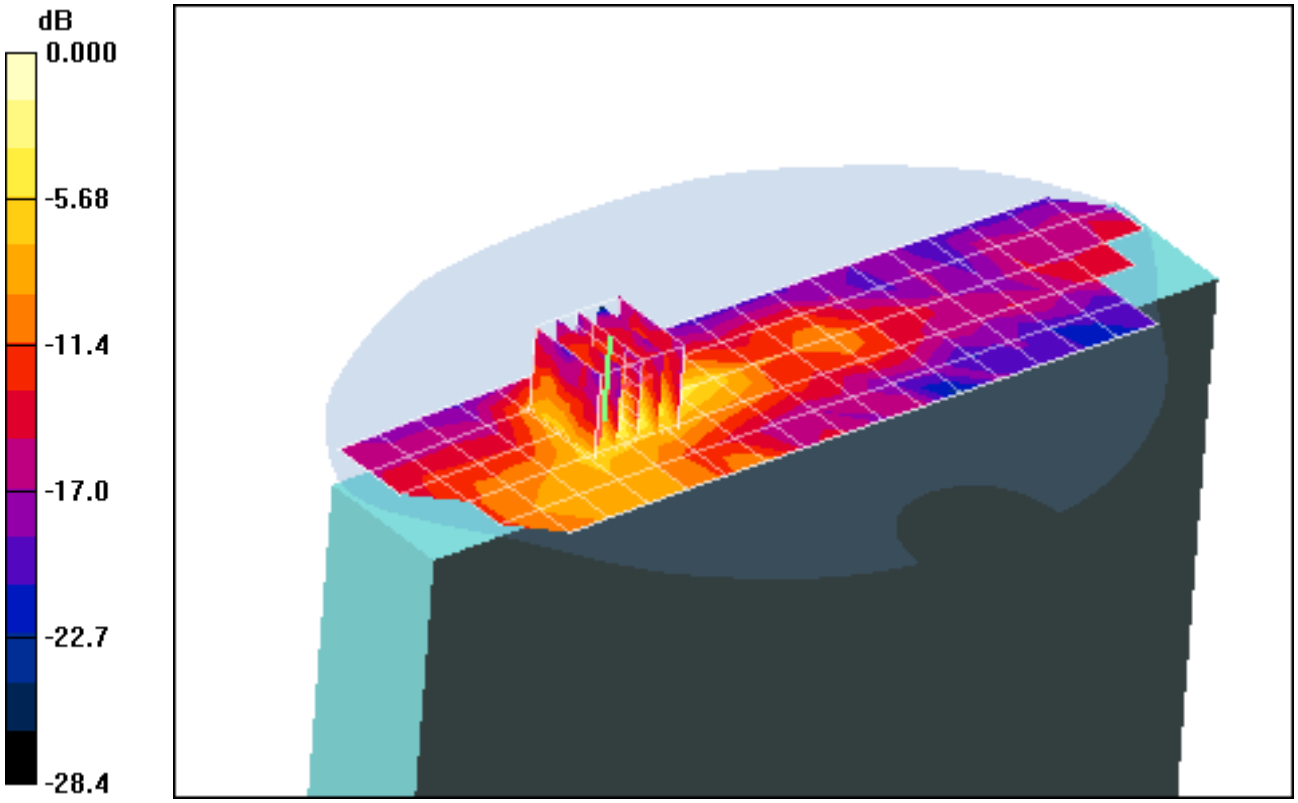
Communication System: IEEE 802.11g; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium: 2450 Muscle Medium parameters used (interpolated):
f = 2437 MHz; σ = 1.94 mho/m; ε_r = 50.7; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-08-2010; Ambient Temp: 23.8°C; Tissue Temp: 22.6°C

Probe: EX3DV4 - SN3550; ConvF(6.4, 6.4, 6.4); Calibrated: 1/26/2010
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 1/22/2010
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: WLAN 802.11g, Tablet Bottom position, LCD Flip, Mid.ch, 1 Mbps, Tx chain A

Area Scan (6x20x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.3 V/m
Peak SAR (extrapolated) = 0.294 W/kg
SAR(1 g) = 0.142 mW/g; SAR(10 g) = 0.063 mW/g



0 dB = 0.192mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-C1; Convertible Tablet PC with WLAN, Bluetooth, and WWAN
Serial: CF-C1ADABZDM

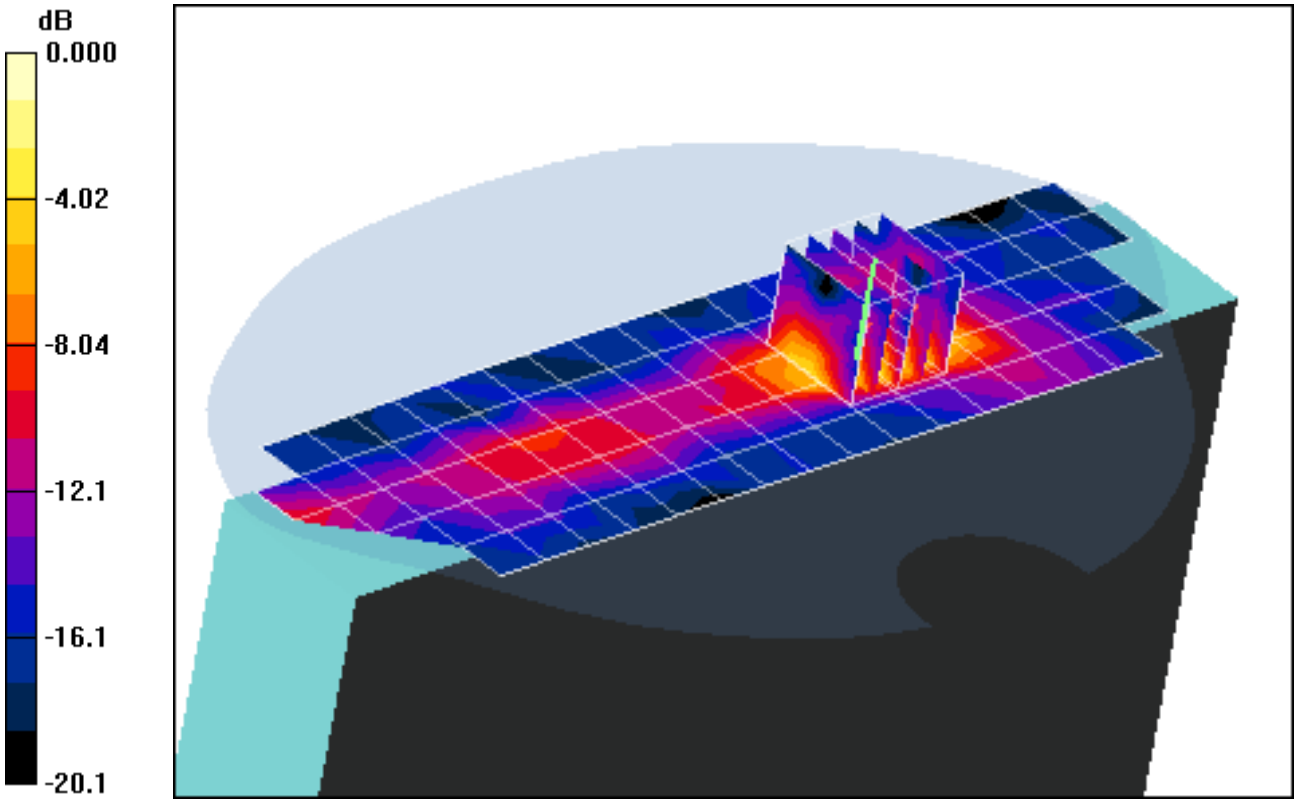
Communication System: IEEE 802.11g; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium: 2450 Muscle Medium parameters used (interpolated):
f = 2437 MHz; σ = 1.94 mho/m; ε_r = 50.7; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-08-2010; Ambient Temp: 23.8°C; Tissue Temp: 22.6°C

Probe: EX3DV4 - SN3550; ConvF(6.4, 6.4, 6.4); Calibrated: 1/26/2010
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 1/22/2010
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: WLAN 802.11g, Tablet Top position, LCD Flip, Mid.ch, 1 Mbps, Tx chain A

Area Scan (6x21x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.63 V/m
Peak SAR (extrapolated) = 0.165 W/kg
SAR(1 g) = 0.081 mW/g; SAR(10 g) = 0.037 mW/g



0 dB = 0.107mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-C1; Type: Convertible Tablet PC with WLAN, Bluetooth, and WWAN
Serial: CF-C1ADABZDM

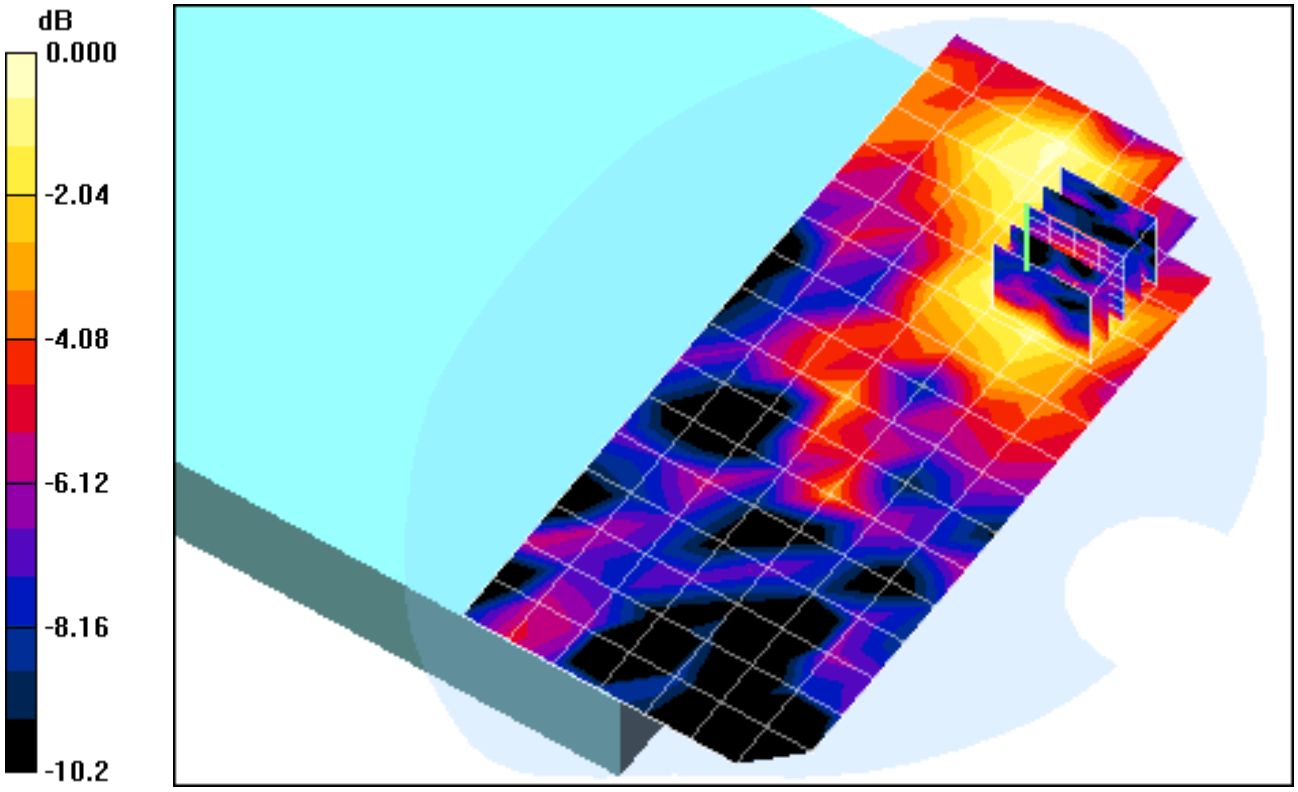
Communication System: IEEE 802.11n; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium: 2450 Muscle; Medium parameters used (interpolated):
f = 2437 MHz; σ = 1.94 mho/m; ε_r = 50.7; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-08-2010; Ambient Temp: 23.8°C; Tissue Temp: 22.6°C

Probe: EX3DV4 - SN3550; ConvF(6.4, 6.4, 6.4); Calibrated: 1/26/2010
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 1/22/2010
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: WLAN 802.11n, Lap position, LCD Flip, Mid.ch, MCS/HT0, Tx Chain A

Area Scan (8x17x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.56 V/m
Peak SAR (extrapolated) = 0.027 W/kg
SAR(1 g) = 0.016 mW/g; SAR(10 g) = 0.00969 mW/g



0 dB = 0.020mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-C1; Type: Convertible Tablet PC with WLAN, Bluetooth, and WWAN
Serial: CF-C1ADABZDM

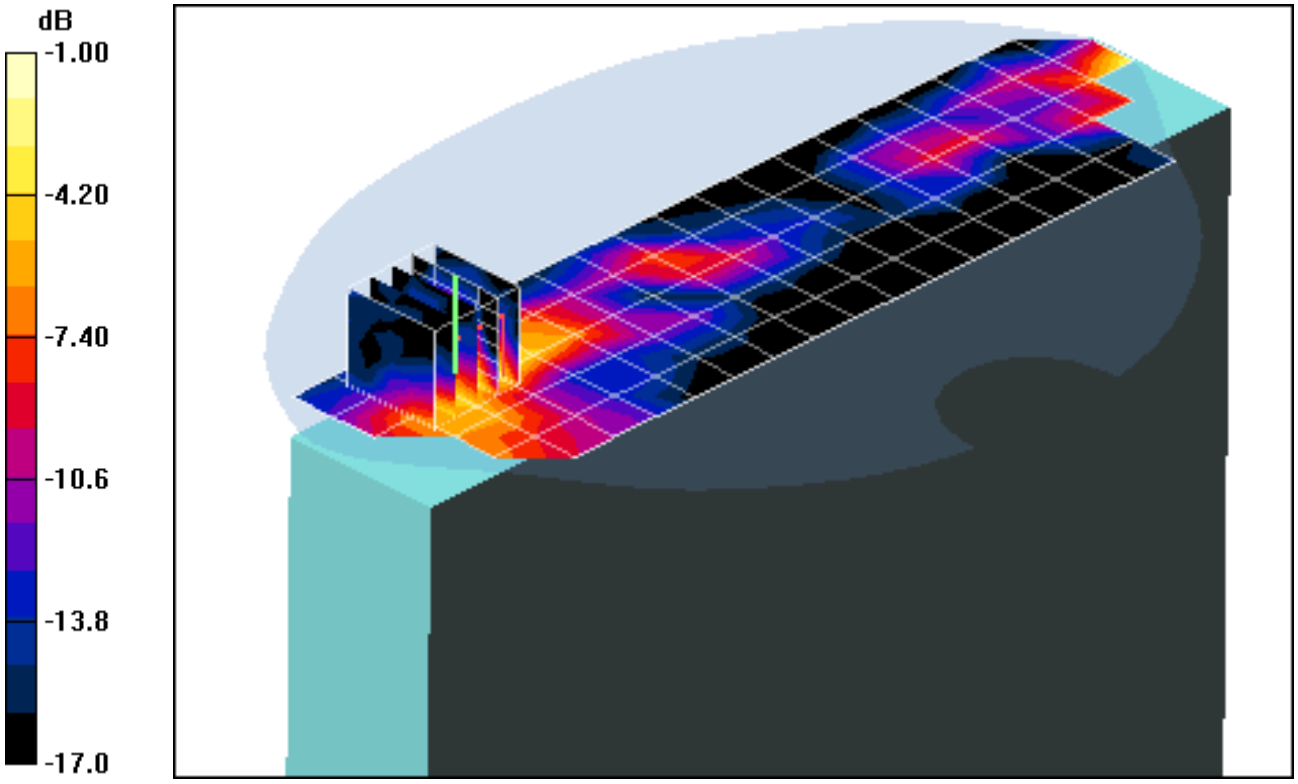
Communication System: IEEE 802.11n; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium: 2450 Muscle; Medium parameters used (interpolated):
f = 2437 MHz; σ = 1.94 mho/m; ε_r = 50.7; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-08-2010; Ambient Temp: 23.8°C; Tissue Temp: 22.6°C

Probe: EX3DV4 - SN3550; ConvF(6.4, 6.4, 6.4); Calibrated: 1/26/2010
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 1/22/2010
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: WLAN 802.11n, Edge Bottom position, LCD Flip, Mid.ch, MCS/HT0, Tx chain A

Area Scan (6x20x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.95 V/m
Peak SAR (extrapolated) = 0.176 W/kg
SAR(1 g) = 0.083 mW/g; SAR(10 g) = 0.037 mW/g



0 dB = 0.110mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-C1; Type: Convertible Tablet PC with WLAN, Bluetooth, and WWAN
Serial: CF-C1ADABZDM

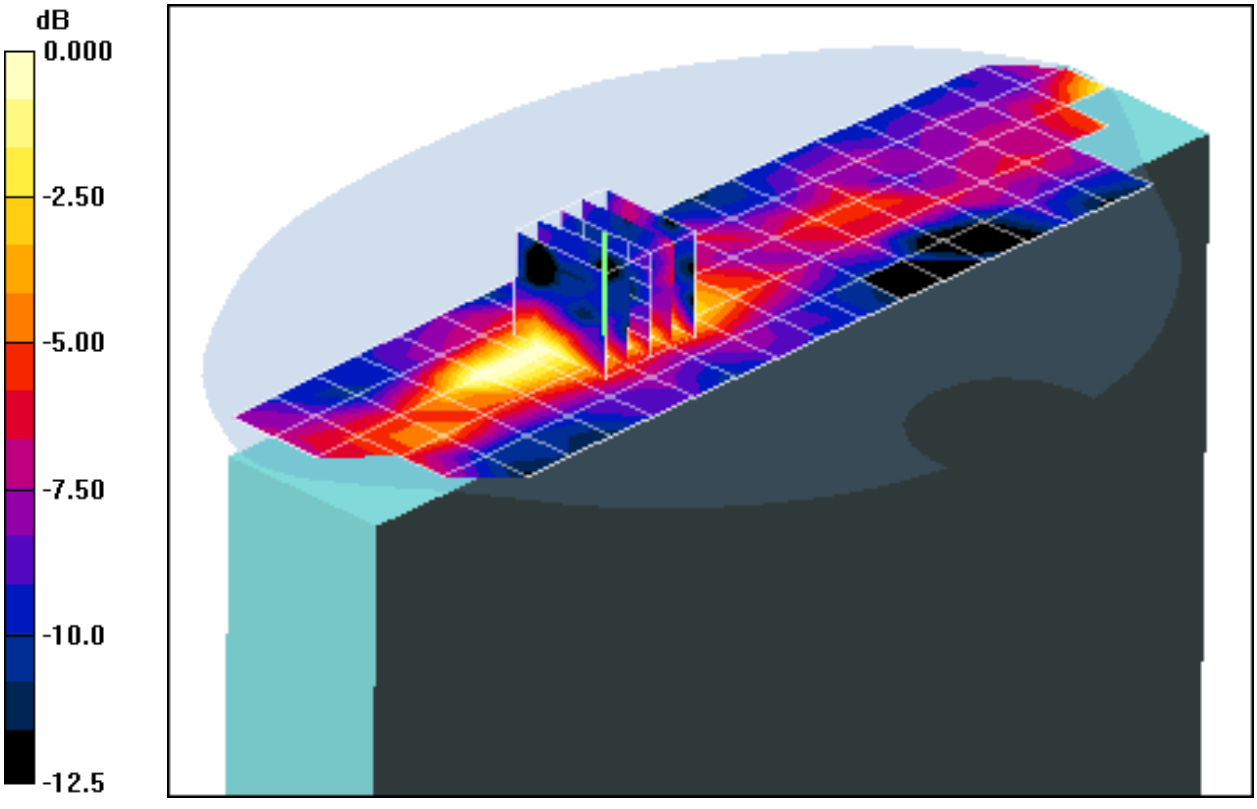
Communication System: IEEE 802.11n; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium: 2450 Muscle; Medium parameters used (interpolated):
f = 2437 MHz; σ = 1.94 mho/m; ε_r = 50.7; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-08-2010; Ambient Temp: 23.8°C; Tissue Temp: 22.6°C

Probe: EX3DV4 - SN3550; ConvF(6.4, 6.4, 6.4); Calibrated: 1/26/2010
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 1/22/2010
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: WLAN 802.11n, Edge Top position, LCD Flip, Mid.ch, MCS/HT0, Tx chain A

Area Scan (6x20x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.63 V/m
Peak SAR (extrapolated) = 0.088 W/kg
SAR(1 g) = 0.037 mW/g; SAR(10 g) = 0.016 mW/g



0 dB = 0.047mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-C1; Type: Convertible Tablet PC with WLAN, Bluetooth, and WWAN
Serial: CF-C1ADABZDM

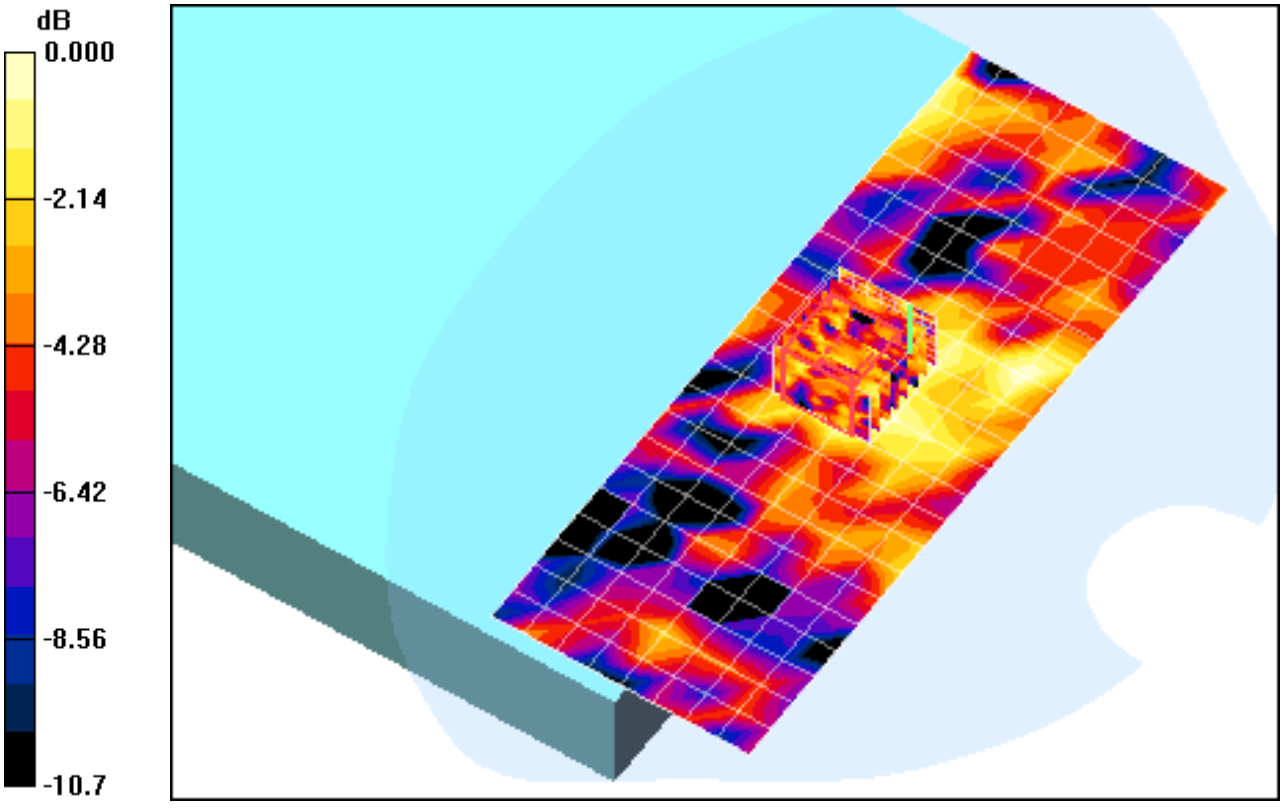
Communication System: IEEE 802.11a 5.2GHz Band; Frequency: 5220 MHz;Duty Cycle: 1:1
Medium: 5.2-5.8 GHz Muscle; Medium parameters used (interpolated):
f = 5220 MHz; σ = 5.17 mho/m; ε_r = 47.3; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-12-2010; Ambient Temp: 23.9° C; Tissue Temp: 22.7°C

Probe: EX3DV4 - SN3550; ConvF(3.73, 3.73, 3.73); Calibrated: 1/26/2010
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 1/22/2010
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: WLAN 802.11a, Lap position, LCD Flip, Ch.44, 24 Mbps, Tx Chain A

Area Scan (9x23x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 1.43 V/m
Peak SAR (extrapolated) = 0.080 W/kg
SAR(1 g) = 0.030 mW/g; SAR(10 g) = 0.018 mW/g



0 dB = 0.040mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-C1; Convertible Tablet PC with WLAN, Bluetooth, and WWAN
Serial: CF-C1ADABZDM

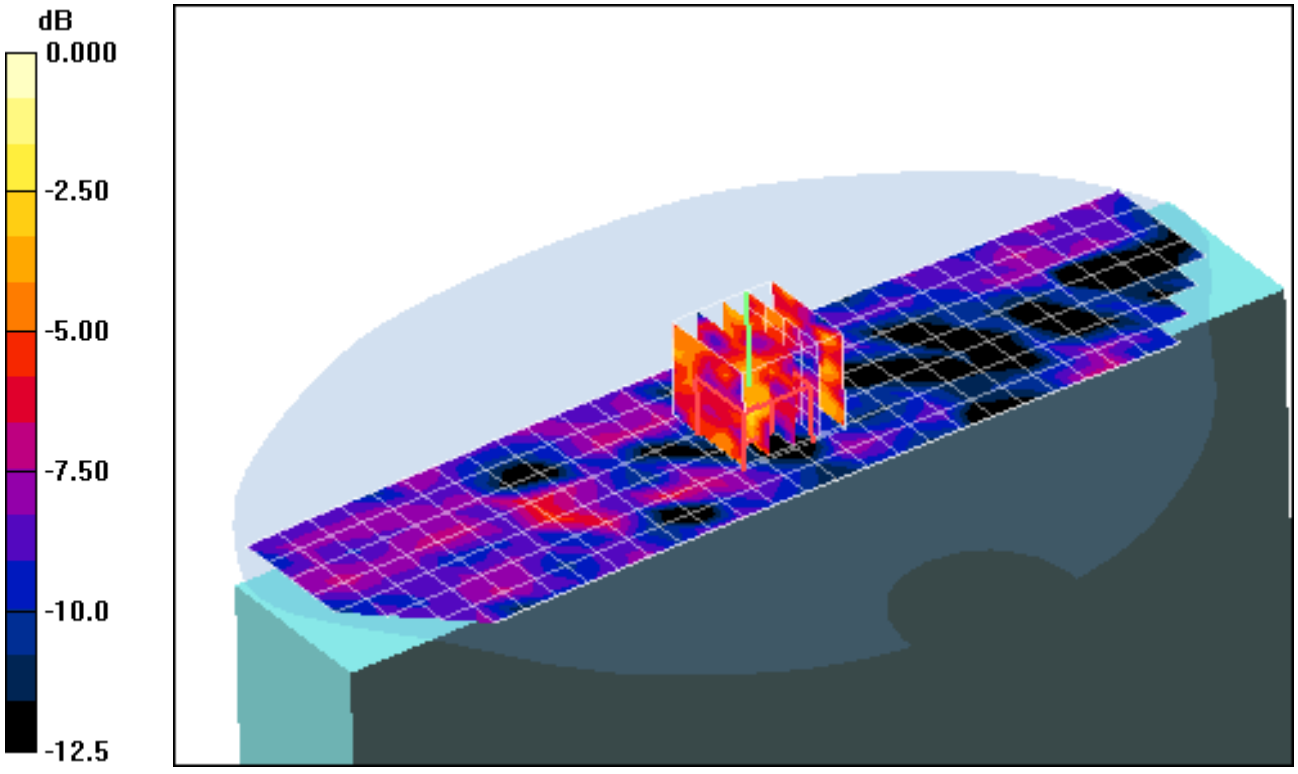
Communication System: IEEE 802.11a 5.2GHz Band; Frequency: 5220 MHz;Duty Cycle: 1:1
Medium: 5.2-5.8 GHz Muscle Medium parameters used (interpolated):
f = 5220 MHz; σ = 5.17 mho/m; ε_r = 47.3; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-12-2010; Ambient Temp: 23.9°C; Tissue Temp: 22.7°C

Probe: EX3DV4 - SN3550; ConvF(3.73, 3.73, 3.73); Calibrated: 1/26/2010
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 1/22/2010
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: WLAN 802.11a, Edge Top Bottom, LCD Flip, Ch. 44, 24 Mbps, Tx chain B

Area Scan (8x31x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.08 V/m
Peak SAR (extrapolated) = 0.262 W/kg
SAR(1 g) = 0.090 mW/g; SAR(10 g) = 0.028 mW/g



0 dB = 0.144mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-C1; Type: Convertible Tablet PC with WLAN, Bluetooth, and WWAN
Serial: CF-C1ADABZDM

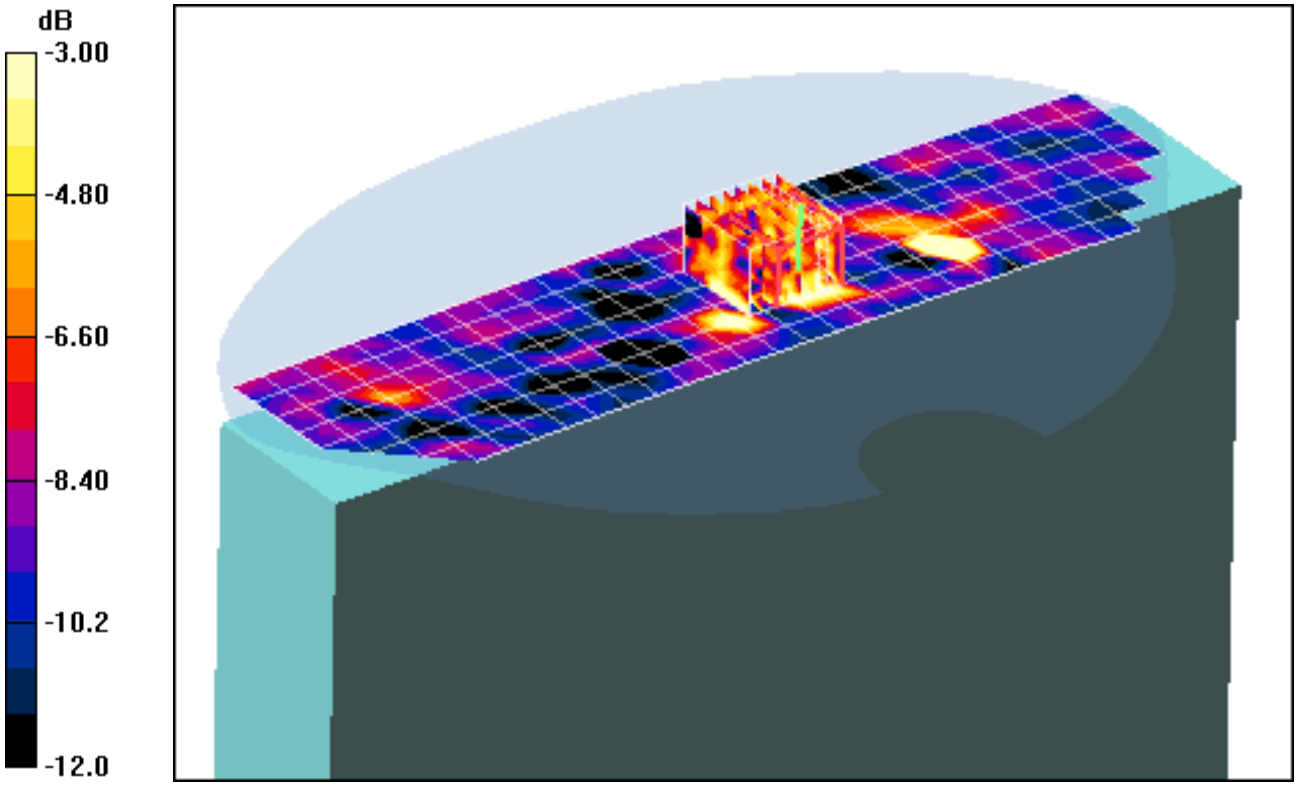
Communication System: IEEE 802.11a 5.2GHz Band; Frequency: 5220 MHz;Duty Cycle: 1:1
Medium: 5.2-5.8 GHz Muscle; Medium parameters used (interpolated):
f = 5220 MHz; σ = 5.17 mho/m; ε_r = 47.3; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-12-2010; Ambient Temp: 23.9° C; Tissue Temp: 22.7°C

Probe: EX3DV4 - SN3550; ConvF(3.73, 3.73, 3.73); Calibrated: 1/26/2010
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 1/22/2010
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: WLAN 802.11a, Edge Top position, LCD Flip, Ch. 44, 24 Mbps, Tx chain A

Area Scan (8x31x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x8) Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 1.20 V/m
Peak SAR (extrapolated) = 0.413 W/kg
SAR(1 g) = 0.058 mW/g; SAR(10 g) = 0.017 mW/g



0 dB = 0.074mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-C1; Type: Convertible Tablet PC with WLAN, Bluetooth, and WWAN
Serial: CF-C1ADABZDM

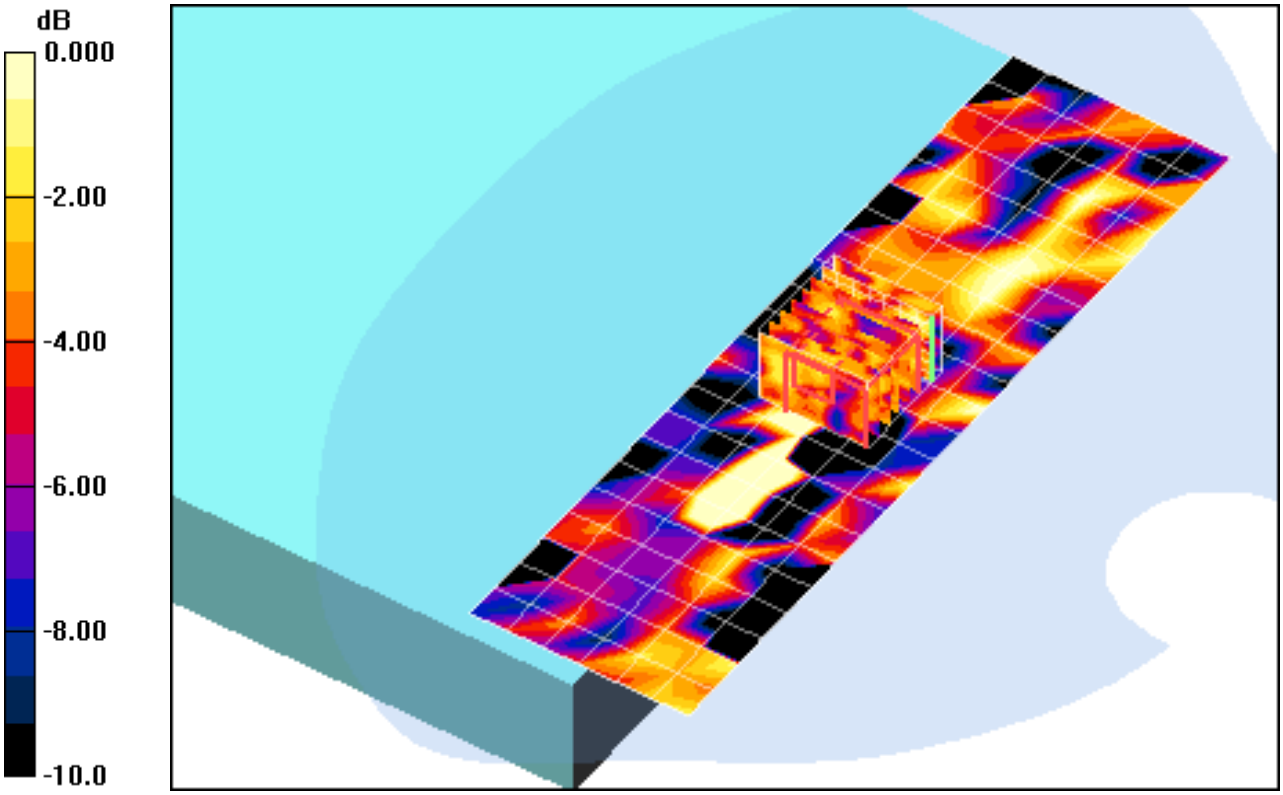
Communication System: IEEE 802.11a 5.3GHz Band; Frequency: 5300 MHz;Duty Cycle: 1:1
Medium: 5.2-5.8 GHz Muscle; Medium parameters used (interpolated):
f = 5300 MHz; σ = 5.29 mho/m; ε_r = 47.2; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-12-2010; Ambient Temp: 23.9° C; Tissue Temp: 22.7°C

Probe: EX3DV4 - SN3550; ConvF(3.52, 3.52, 3.52); Calibrated: 1/26/2010
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 1/22/2010
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: WLAN 802.11a, Lap position, LCD Flip, Ch.60, 12 Mbps, Tx Chain B

Area Scan (7x23x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x8) Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 2.37 V/m
Peak SAR (extrapolated) = 0.153 W/kg
SAR(1 g) = 0.046 mW/g; SAR(10 g) = 0.026 mW/g



0 dB = 0.064mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-C1; Type: Convertible Tablet PC with WLAN, Bluetooth and WWAN
Serial: CF-C1ADABZDM

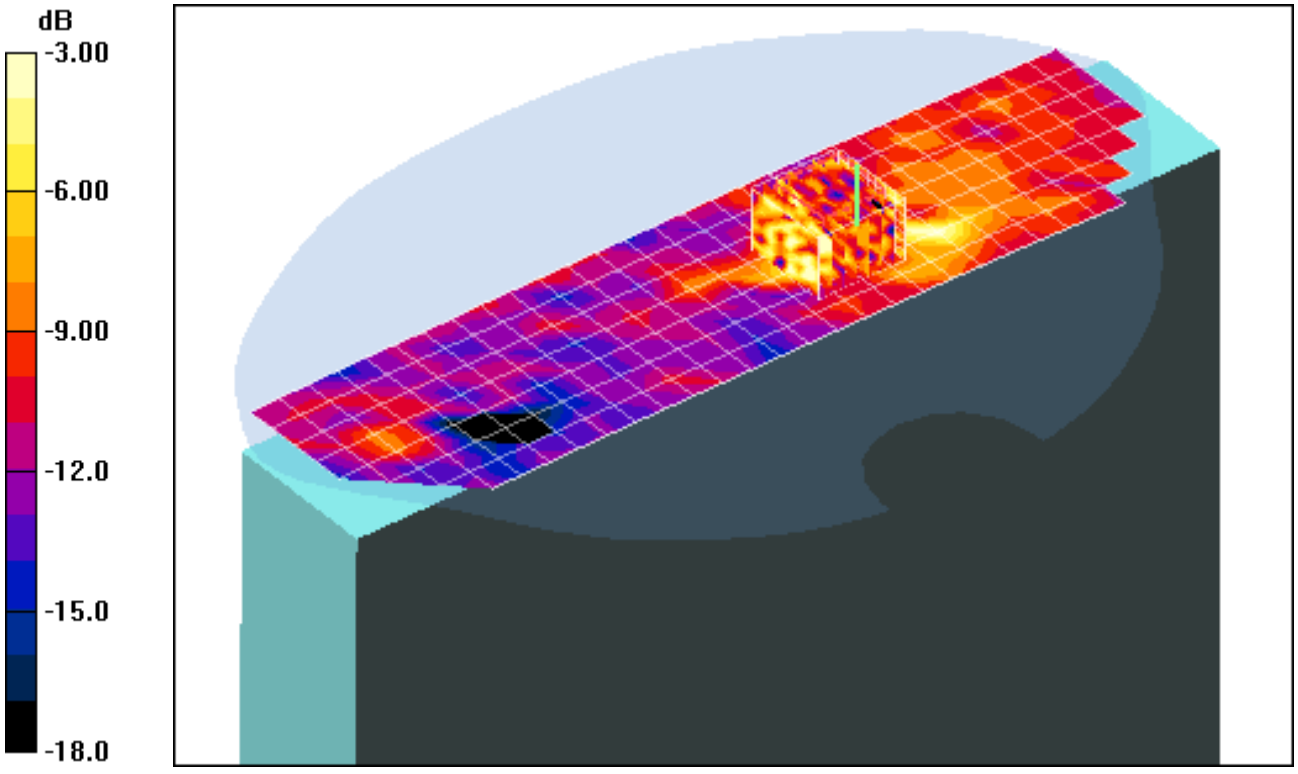
Communication System: IEEE 802.11a 5.3GHz Band; Frequency: 5300 MHz;Duty Cycle: 1:1
Medium: 5.2-5.8 GHz Muscle; Medium parameters used (interpolated):
f = 5300 MHz; σ = 5.29 mho/m; ε_r = 47.2; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-09-2010; Ambient Temp: 23.9°C; Tissue Temp: 22.7°C

Probe: EX3DV4 - SN3550; ConvF(3.52, 3.52, 3.52); Calibrated: 1/26/2010
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 1/22/2010
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: WLAN 802.11a, Edge Bottom position, LCD Flip, Ch. 60, 12 Mbps, Tx chain B

Area Scan (8x31x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x8) Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 5.53 V/m
Peak SAR (extrapolated) = 1.10 W/kg
SAR(1 g) = 0.041 mW/g; SAR(10 g) = 0.00579 mW/g



0 dB = 0.157mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-C1; Type: Convertible Tablet PC with WLAN, Bluetooth and WLAN
Serial: CF-C1ADABZDM

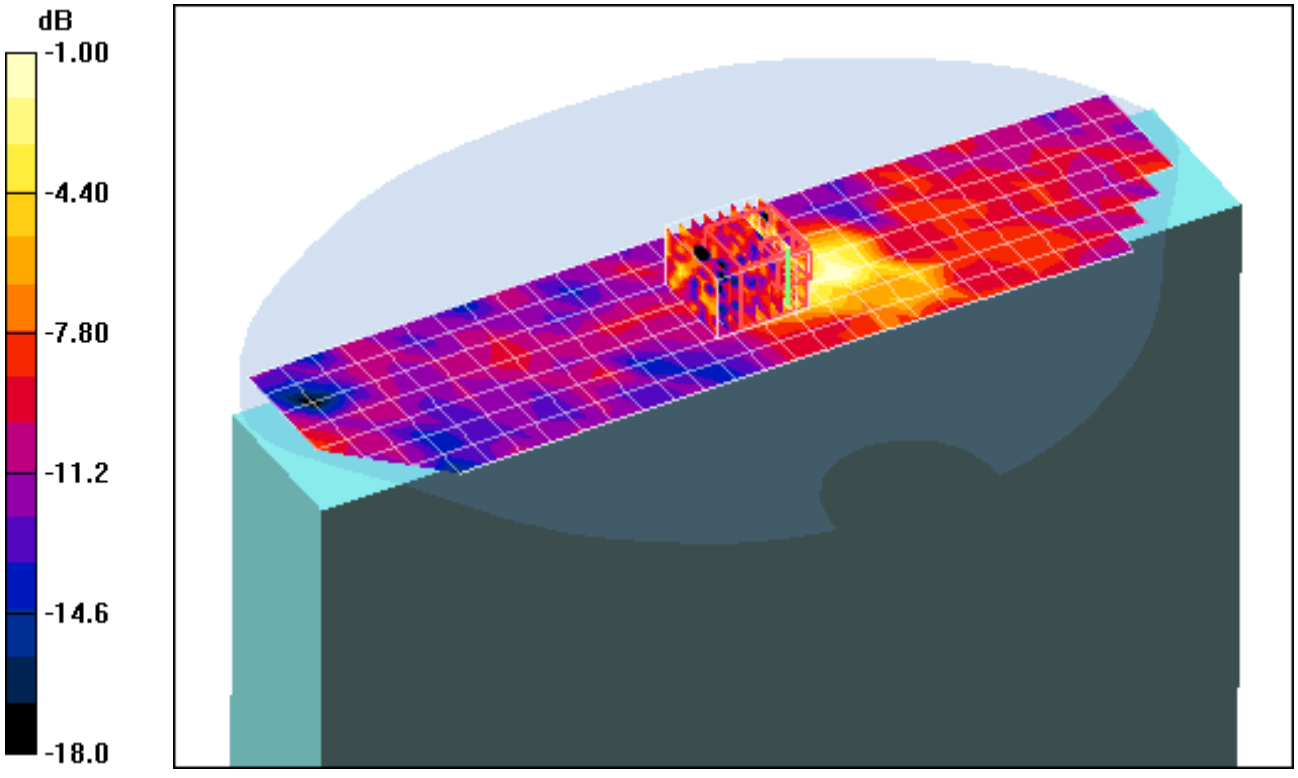
Communication System: IEEE 802.11a 5.3GHz Band; Frequency: 5300 MHz;Duty Cycle: 1:1
Medium: 5.2-5.8 GHz Muscle; Medium parameters used (interpolated):
f = 5300 MHz; σ = 5.29 mho/m; ε_r = 47.2; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-09-2010; Ambient Temp: 23.9°C; Tissue Temp: 22.7°C

Probe: EX3DV4 - SN3550; ConvF(3.52, 3.52, 3.52); Calibrated: 1/26/2010
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 1/22/2010
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: WLAN 802.11a, Edge Top position, LCD Flip, Ch. 60, 12 Mbps, Tx chain B

Area Scan (8x31x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x8) Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 5.47 V/m
Peak SAR (extrapolated) = 0.203 W/kg
SAR(1 g) = 0.072 mW/g; SAR(10 g) = 0.019 mW/g



0 dB = 0.141mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-C1; Type: Convertible Tablet PC with WLAN, Bluetooth, and WWAN
Serial: CF-C1ADABZDM

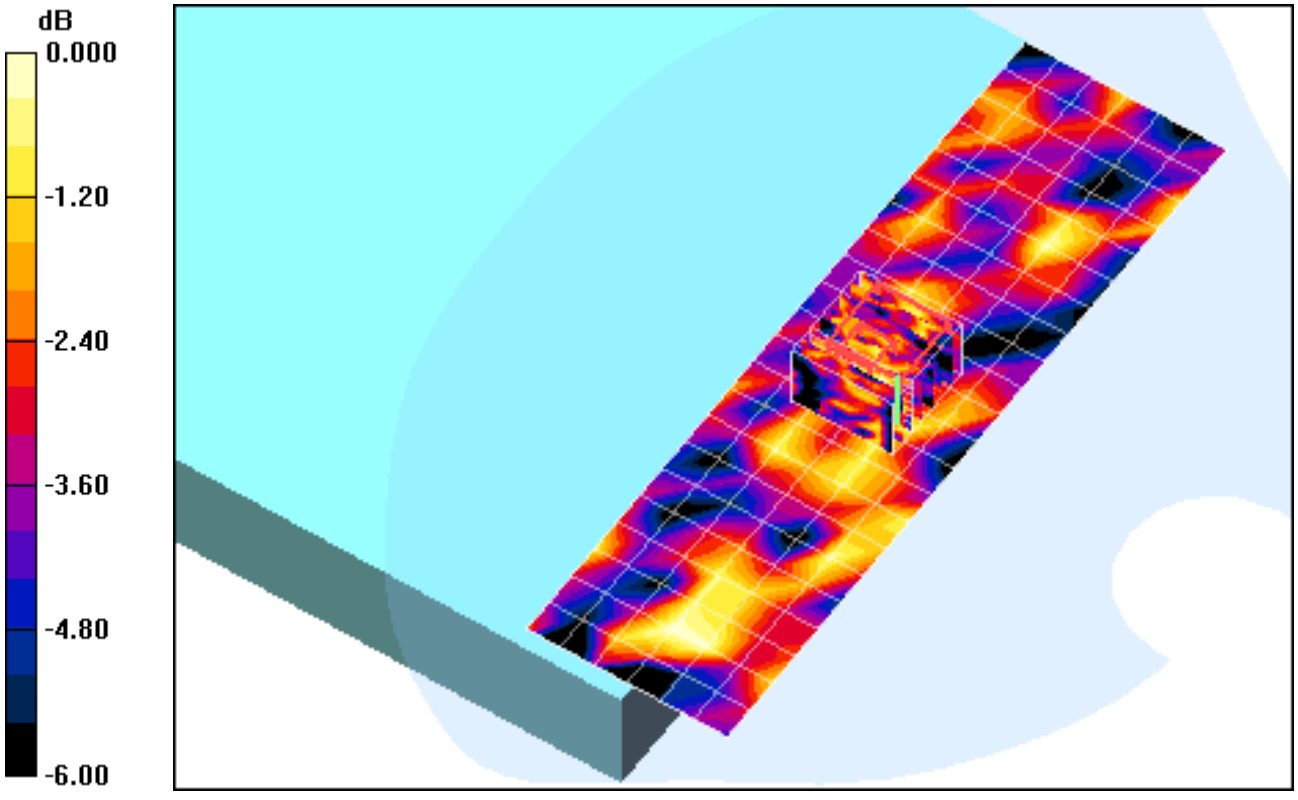
Communication System: IEEE 802.11a 5.5GHz Band; Frequency: 5540 MHz;Duty Cycle: 1:1
Medium: 5.2-5.8 GHz Muscle; Medium parameters used (interpolated):
f = 5540 MHz; σ = 5.58 mho/m; ε_r = 46.7; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-13-2010; Ambient Temp: 23.7° C; Tissue Temp: 22.6°C

Probe: EX3DV4 - SN3550; ConvF(3.25, 3.25, 3.25); Calibrated: 1/26/2010
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 1/22/2010
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: WLAN 802.11a, Lap position, LCD Flip, Ch.108, 12 Mbps, Tx Chain B

Area Scan (7x23x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x8) Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 2.34 V/m
Peak SAR (extrapolated) = 0.048 W/kg
SAR(1 g) = 0.036 mW/g; SAR(10 g) = 0.027 mW/g



0 dB = 0.048mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-C1; Type: Convertible Tablet PC with WLAN, Bluetooth, and WWAN
Serial: CF-C1ADABZDM

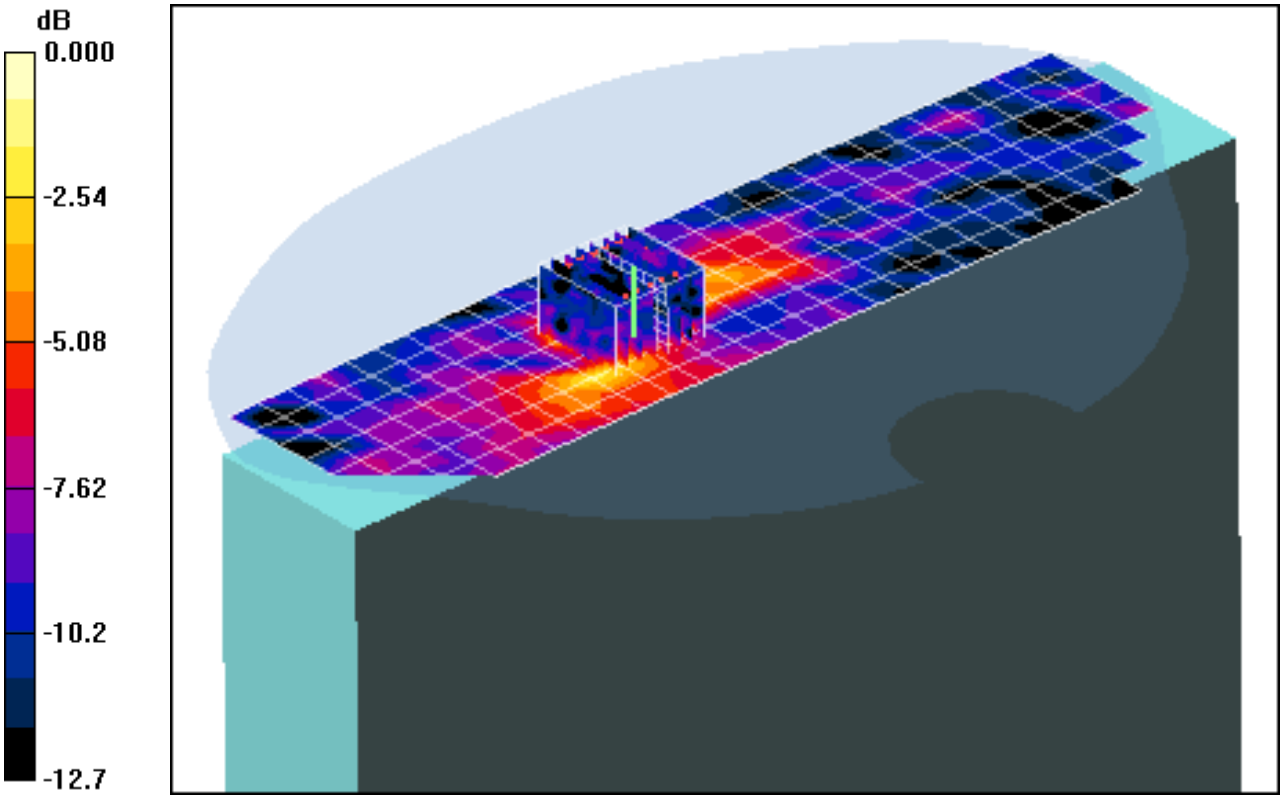
Communication System: IEEE 802.11a 5.5GHz Band; Frequency: 5200 MHz;Duty Cycle: 1:1
Medium: 5.2-5.8 GHz; Muscle Medium parameters used (interpolated):
f = 5200 MHz; σ = 5.15 mho/m; ε_r = 47.4; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-13-2010; Ambient Temp: 23.7° C; Tissue Temp: 22.6°C

Probe: EX3DV4 - SN3550; ConvF(3.73, 3.73, 3.73); Calibrated: 1/26/2010
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 1/22/2010
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: WLAN 802.11a, Edge Bottom Position, LCD Flip, Ch.108, 12 Mbps, Tx Chain A

Area Scan (8x31x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 5.72 V/m
Peak SAR (extrapolated) = 0.399 W/kg
SAR(1 g) = 0.119 mW/g; SAR(10 g) = 0.050 mW/g



0 dB = 0.172mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-C1; Type: Convertible Tablet PC with WLAN, Bluetooth, and WWAN
Serial: CF-C1ADABZDM

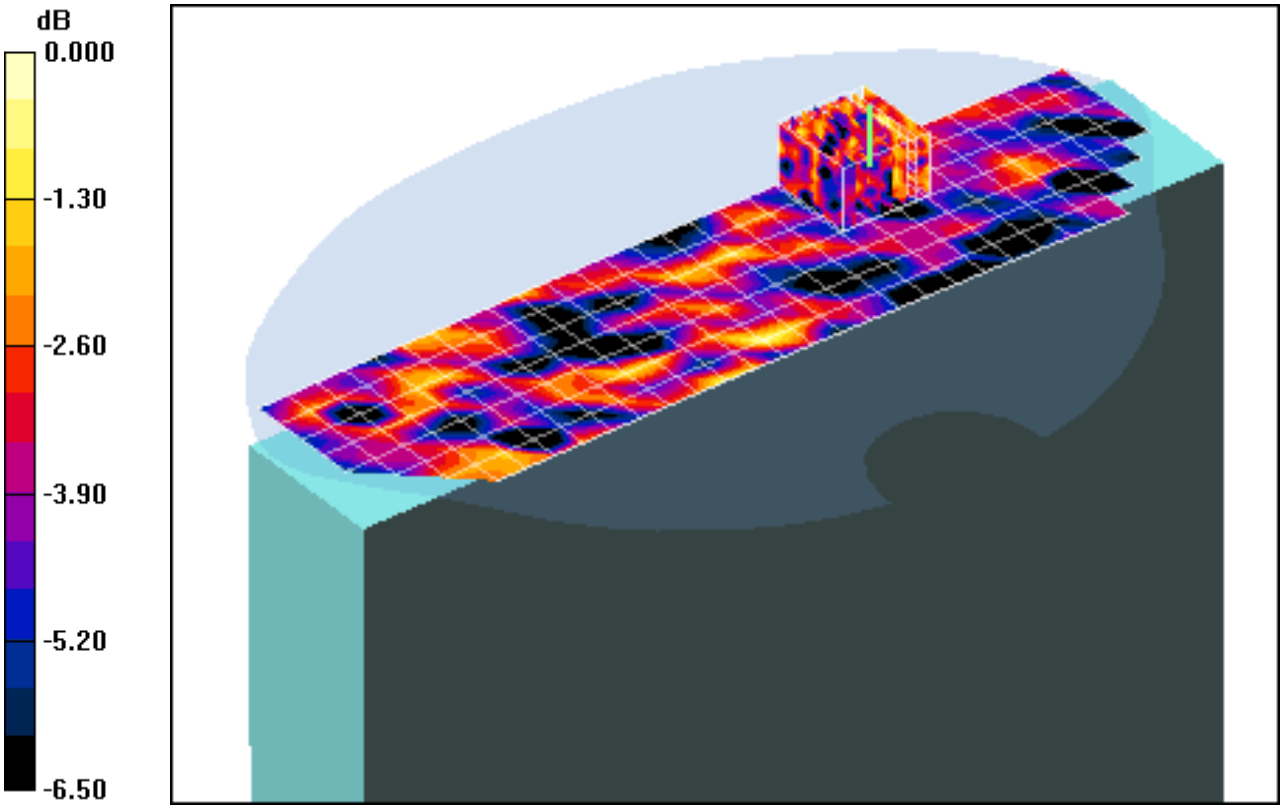
Communication System: IEEE 802.11a 5.5GHz Band; Frequency: 5540 MHz;Duty Cycle: 1:1
Medium: 5.2-5.8 GHz Muscle; Medium parameters used (interpolated):
f = 5540 MHz; σ = 5.58 mho/m; ε_r = 46.7; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-13-2010; Ambient Temp: 23.7° C; Tissue Temp: 22.6°C

Probe: EX3DV4 - SN3550; ConvF(3.25, 3.25, 3.25); Calibrated: 1/26/2010
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 1/22/2010
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: WLAN 802.11a, Edge Top Position, LCD Flip, Ch.108, 12 Mbps, Tx Chain B

Area Scan 2 (8x31x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x8) Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 1.53 V/m
Peak SAR (extrapolated) = 0.091 W/kg
SAR(1 g) = 0.029 mW/g; SAR(10 g) = 0.021 mW/g



0 dB = 0.049mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-C1; Type: Convertible Tablet PC with WLAN, Bluetooth, and WWAN
Serial: CF-C1ADABZDM

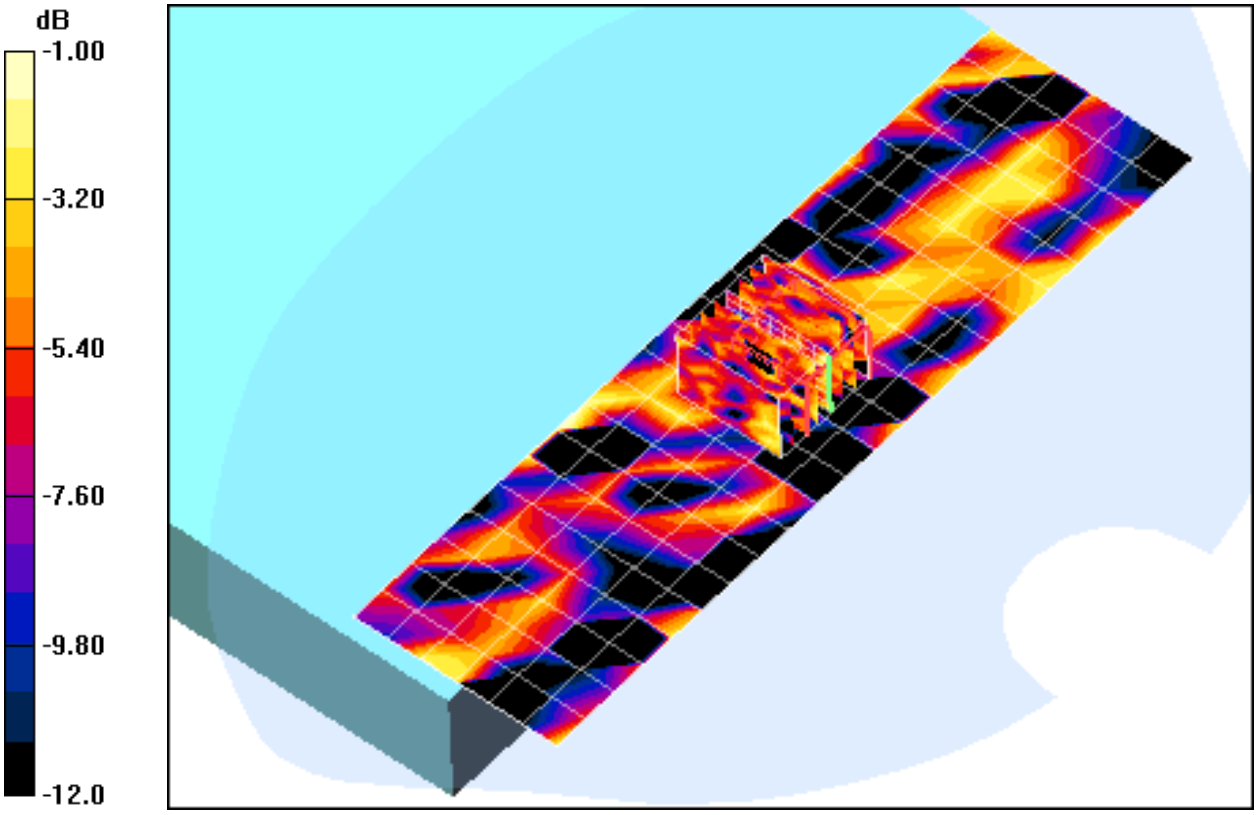
Communication System: IEEE 802.11a 5.8GHz Band; Frequency: 5825 MHz;Duty Cycle: 1:1
Medium: 5.2-5.8 GHz Muscle; Medium parameters used (interpolated):
f = 5825 MHz; σ = 5.97 mho/m; ε_r = 46.2; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-13-2010; Ambient Temp: 23.8°C; Tissue Temp: 22.7°C

Probe: EX3DV4 - SN3550; ConvF(3.3, 3.3, 3.3); Calibrated: 1/26/2010
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 1/22/2010
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: WLAN 802.11a, Lap position, LCD Flip, Ch.165, 6 Mbps, Tx Chain A

Area Scan (7x23x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x8) Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 2.32 V/m
Peak SAR (extrapolated) = 0.115 W/kg
SAR(1 g) = 0.031 mW/g; SAR(10 g) = 0.023 mW/g



0 dB = 0.050mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-C1; Type: Convertible Tablet PC with WLAN, Bluetooth, and WWAN
Serial: CF-C1ADABZDM

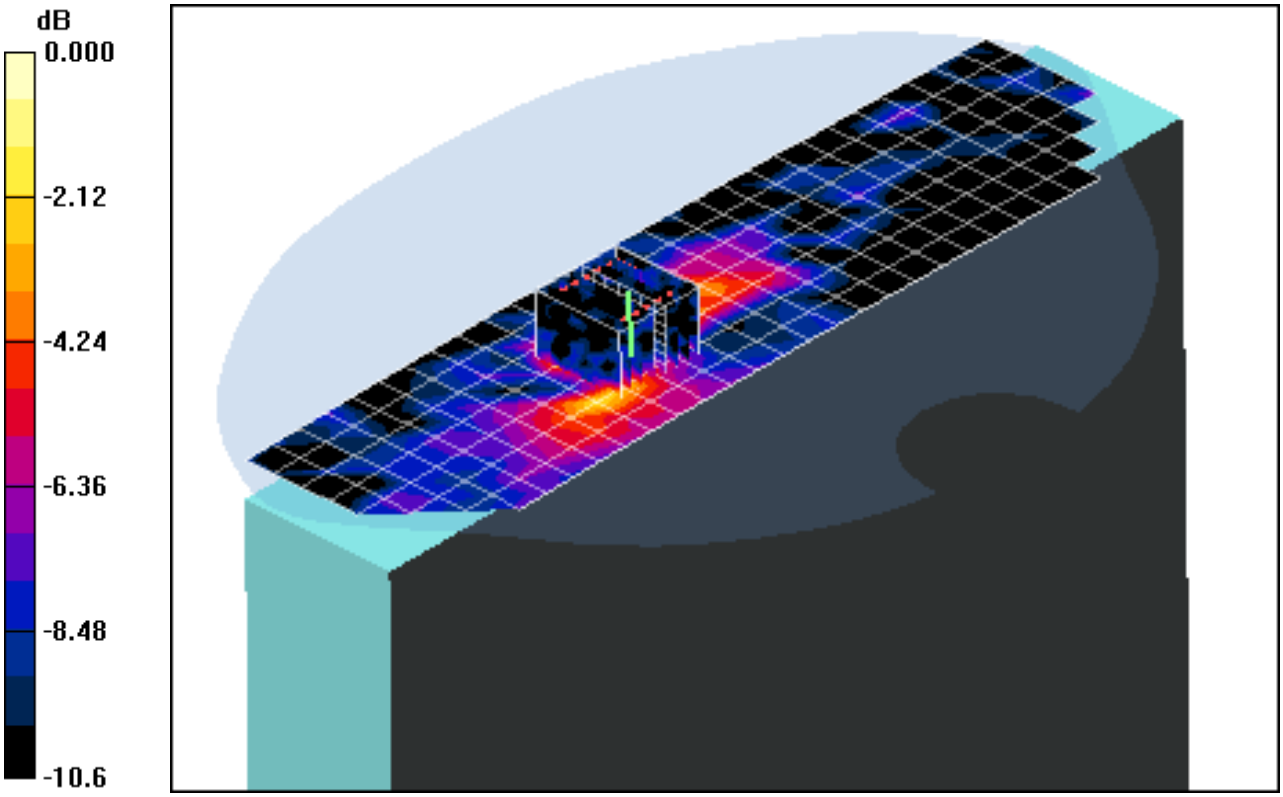
Communication System: IEEE 802.11a 5.8GHz Band; Frequency: 5825 MHz;Duty Cycle: 1:1
Medium: 5.2-5.8 GHz Muscle: Medium parameters used (interpolated):
f = 5825 MHz; σ = 5.97 mho/m; ε_r = 46.2; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-13-2010; Ambient Temp: 23.8° C; Tissue Temp: 22.7°C

Probe: EX3DV4 - SN3550; ConvF(3.3, 3.3, 3.3); Calibrated: 1/26/2010
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 1/22/2010
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: WLAN 802.11a, Edge Bottom Position, LCD Flip, Ch.165, 6 Mbps, Tx Chain A

Area Scan (8x31x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 6.11 V/m
Peak SAR (extrapolated) = 0.515 W/kg
SAR(1 g) = 0.154 mW/g; SAR(10 g) = 0.064 mW/g



0 dB = 0.223mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-C1; Type: Convertible Tablet PC with WLAN, Bluetooth, and WWAN
Serial: CF-C1ADABZDM

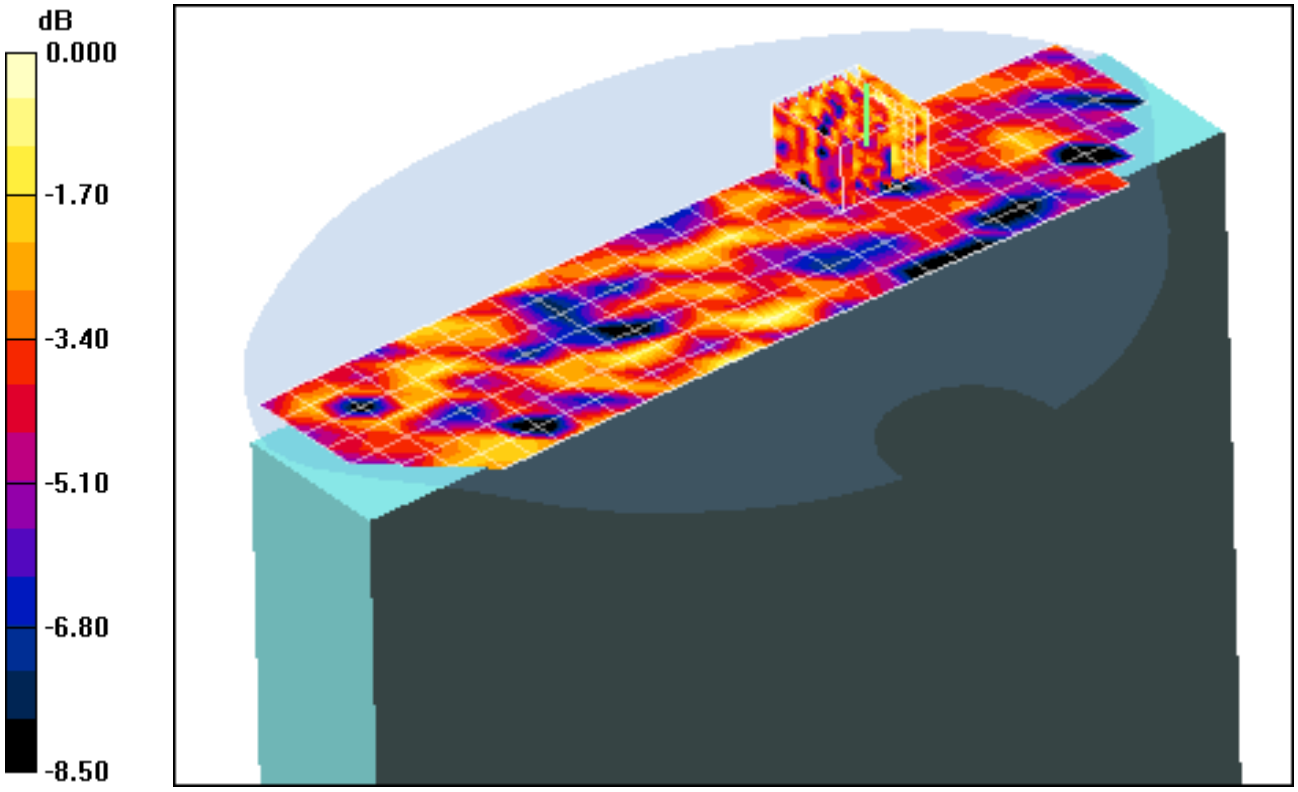
Communication System: IEEE 802.11a 5.8GHz Band; Frequency: 5825 MHz;Duty Cycle: 1:1
Medium: 5.2-5.8 GHz Muscle; Medium parameters used (interpolated):
f = 5825 MHz; σ = 5.97 mho/m; ε_r = 46.2; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-13-2010; Ambient Temp: 23.8° C; Tissue Temp: 22.7°C

Probe: EX3DV4 - SN3550; ConvF(3.3, 3.3, 3.3); Calibrated: 1/26/2010
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 1/22/2010
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: WLAN 802.11a, Edge Top Position, LCD Flip, Ch.165, 6 Mbps, Tx Chain B

Area Scan 2 (8x31x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 1.51 V/m
Peak SAR (extrapolated) = 0.095 W/kg
SAR(1 g) = 0.031 mW/g; SAR(10 g) = 0.022 mW/g



0 dB = 0.052mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5200 MHz; Type: D5GHzV2; Serial: 1057

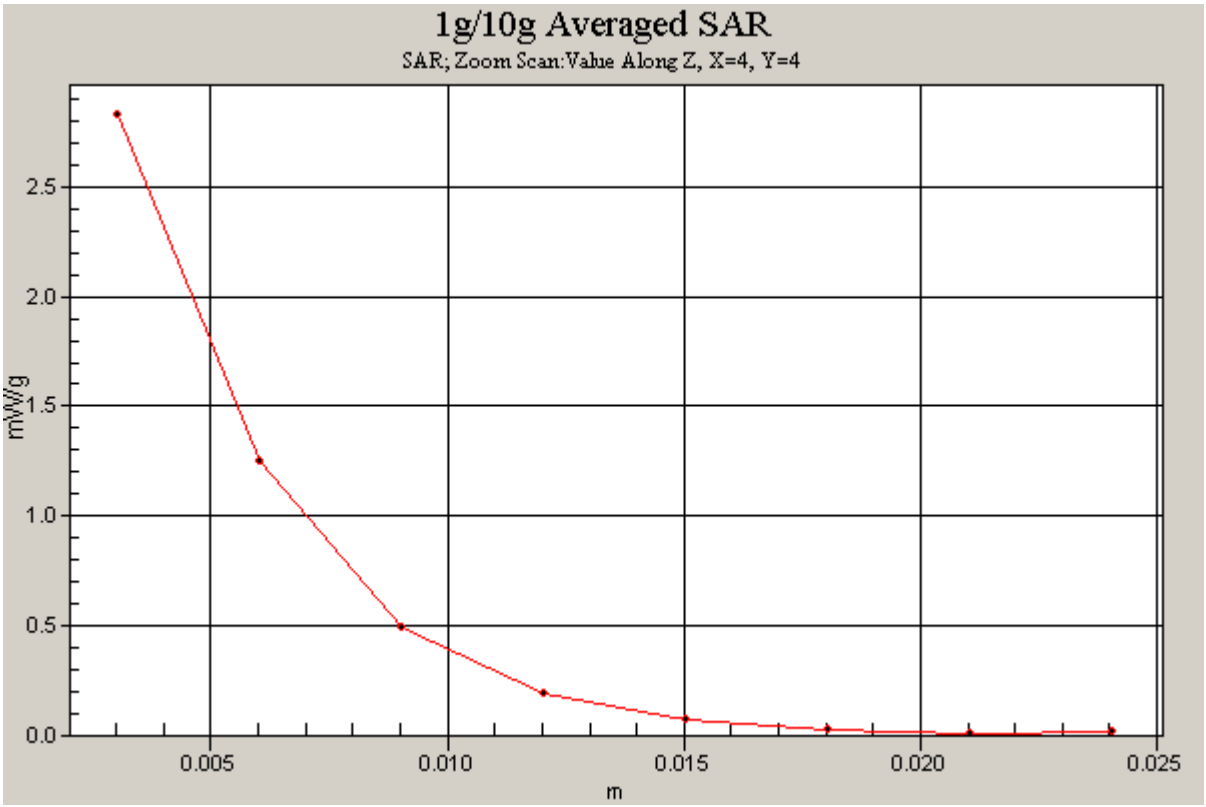
Communication System: CW; Frequency: 5200 MHz;Duty Cycle: 1:1
Medium: 5200 Muscle; Medium parameters used (interpolated):
f = 5200 MHz; σ = 5.15 mho/m; ε_r = 47.4; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-12-2010; Ambient Temp: 23.9° C; Tissue Temp: 22.7°C

Probe: EX3DV4 - SN3550; ConvF(3.73, 3.73, 3.73); Calibrated: 1/26/2010
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 1/22/2010
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

5200MHz System Verification

Area Scan (7x9x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x8) Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Input Power = 14.0 dBm (25mW)
SAR(1 g) = 1.9 mW/g; SAR(10 g) = 0.533 mW/g
Deviation = -3.92 %



PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-C1; Type: Convertible Tablet PC with WLAN, Bluetooth and WWAN;
Serial: CF-C1ADABZDM

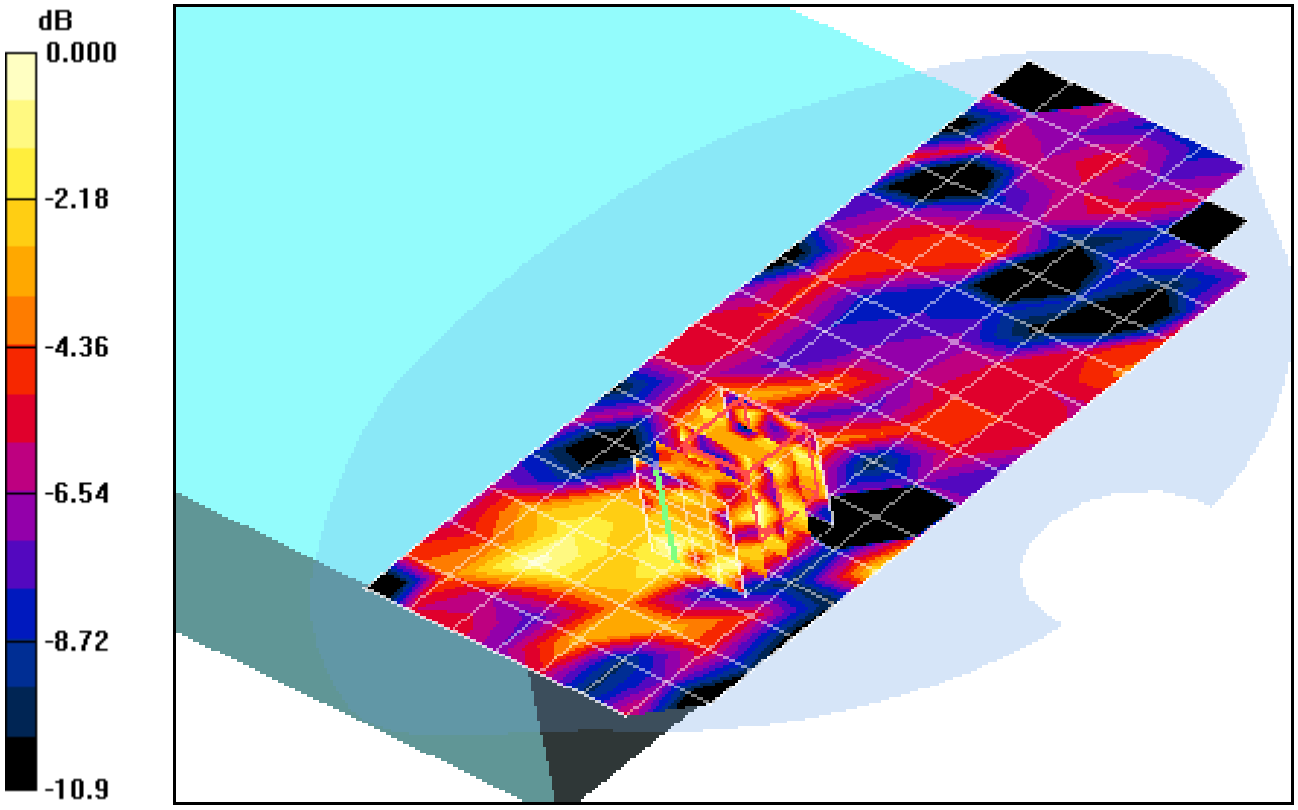
Communication System: Bluetooth; Frequency: 2441 MHz;Duty Cycle: 1:1
Medium: 2450 Muscle Medium parameters used (interpolated):
f = 2441 MHz; σ = 1.91 mho/m; ε_r = 50.5; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-12-2010; Ambient Temp: 23.9°C; Tissue Temp: 23.0°C

Probe: EX3DV4 - SN3550; ConvF(6.4, 6.4, 6.4); Calibrated: 1/26/2010
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 1/22/2010
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: Bluetooth, Lap position, LCD Flip, Mid.ch, Tx

Area Scan (8x17x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.31 V/m
Peak SAR (extrapolated) = 0.016 W/kg
SAR(1 g) = 0.00156 mW/g; SAR(10 g) = 0.000397 mW/g



0 dB = 0.011mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-C1; Type: Convertible Tablet PC with WLAN, Bluetooth and WWAN;
Serial: CF-C1ADABZDM

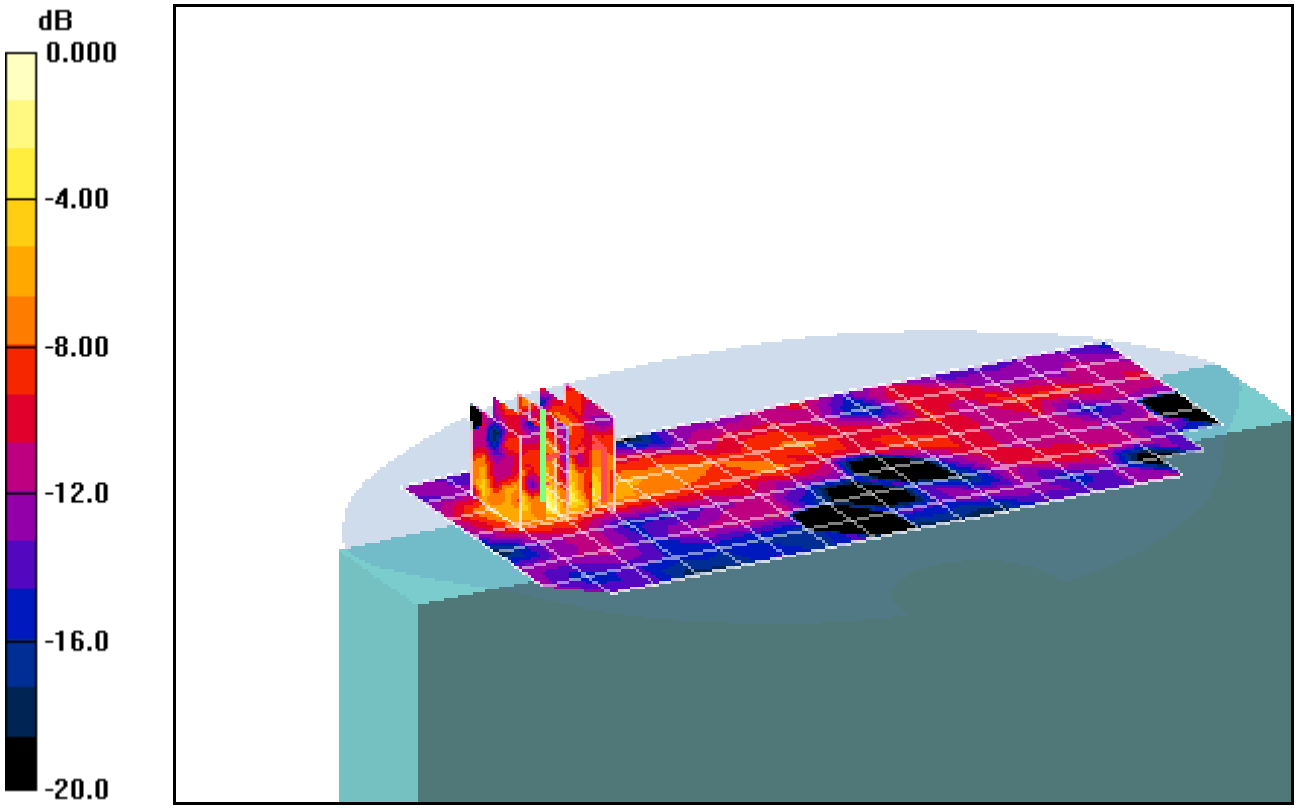
Communication System: Bluetooth; Frequency: 2441 MHz;Duty Cycle: 1:1
Medium: 2450 Muscle Medium parameters used (interpolated):
f = 2441 MHz; σ = 1.91 mho/m; ε_r = 50.5; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-12-2010; Ambient Temp: 23.9°C; Tissue Temp: 23.0°C

Probe: EX3DV4 - SN3550; ConvF(6.4, 6.4, 6.4); Calibrated: 1/26/2010
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 1/22/2010
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: Bluetooth, Tablet Top position, LCD Flip, Mid.ch, Tx

Area Scan (8x17x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.46 V/m
Peak SAR (extrapolated) = 0.126 W/kg
SAR(1 g) = 0.056 mW/g; SAR(10 g) = 0.019 mW/g



0 dB = 0.055mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-C1; Type: Convertible Tablet PC with WLAN, Bluetooth and WWAN; Serial: CF-C1ADABZDM

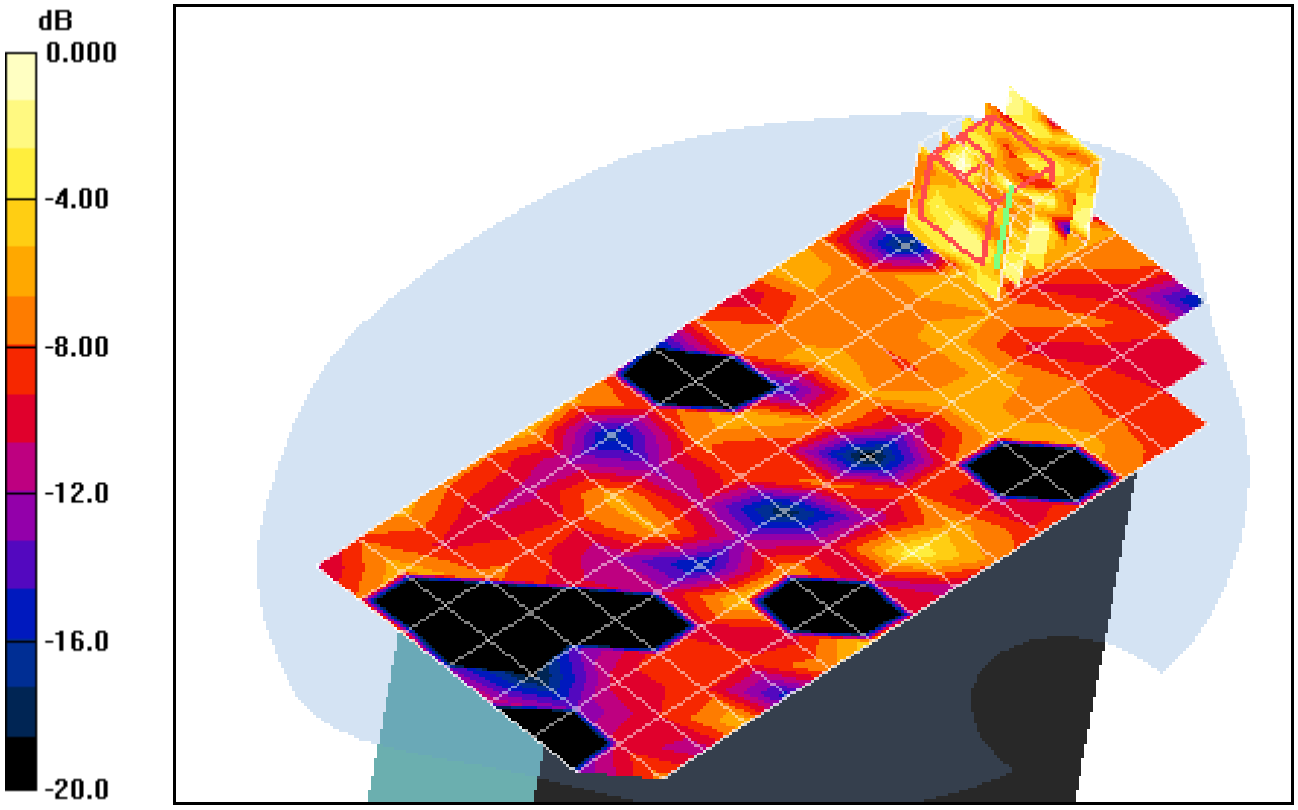
Communication System: Bluetooth; Frequency: 2441 MHz;Duty Cycle: 1:1
Medium: 2450 Muscle Medium parameters used (interpolated):
f = 2441 MHz; σ = 1.91 mho/m; ε_r = 50.5; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-12-2010; Ambient Temp: 23.9°C; Tissue Temp: 23.0°C

Probe: EX3DV4 - SN3550; ConvF(6.4, 6.4, 6.4); Calibrated: 1/26/2010
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 1/22/2010
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Mode: Bluetooth, Tablet Edge position, LCD Flip, Mid.ch, Tx

Area Scan (8x17x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 0.885 V/m
Peak SAR (extrapolated) = 0.014 W/kg
SAR(1 g) = 0.00136 mW/g; SAR(10 g) = 0.000205 mW/g



0 dB = 0.014mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: SAR Dipole 2450 MHz; Type: D2450V2; Serial: 719

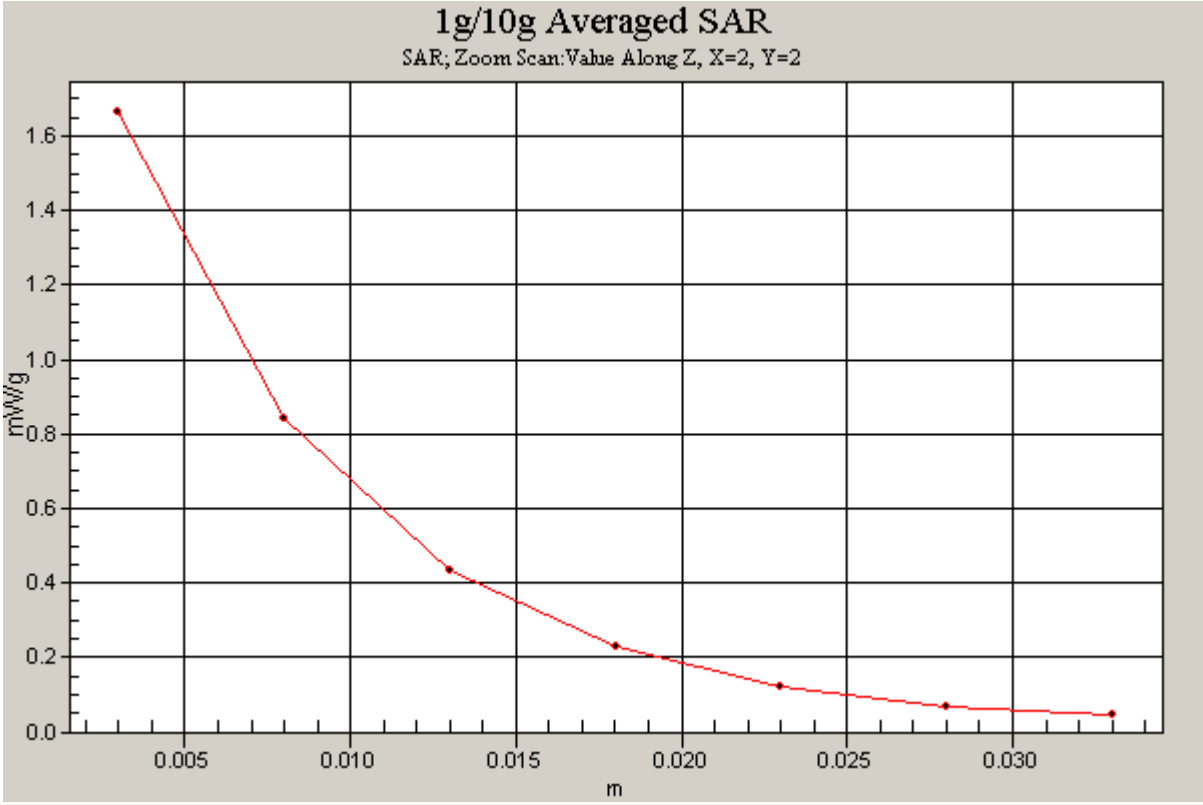
Communication System: CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium: 2450 Muscle Medium parameters used:
f = 2450 MHz; σ = 1.92 mho/m; ε_r = 50.6; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-12-2010; Ambient Temp: 23.9°C; Tissue Temp: 23.0°C

Probe: EX3DV4 - SN3550; ConvF(6.4, 6.4, 6.4); Calibrated: 1/26/2010
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 1/22/2010
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

2450MHz System Verification

Area Scan (5x7x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Input Power = 14 dBm (25mW)
SAR(1 g) = 1.29 mW/g; SAR(10 g) = 0.594 mW/g
Maximum value of SAR (measured) = 1.67 mW/g
Deviation = 0.39%



APPENDIX B: DIPOLE VALIDATION

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d047

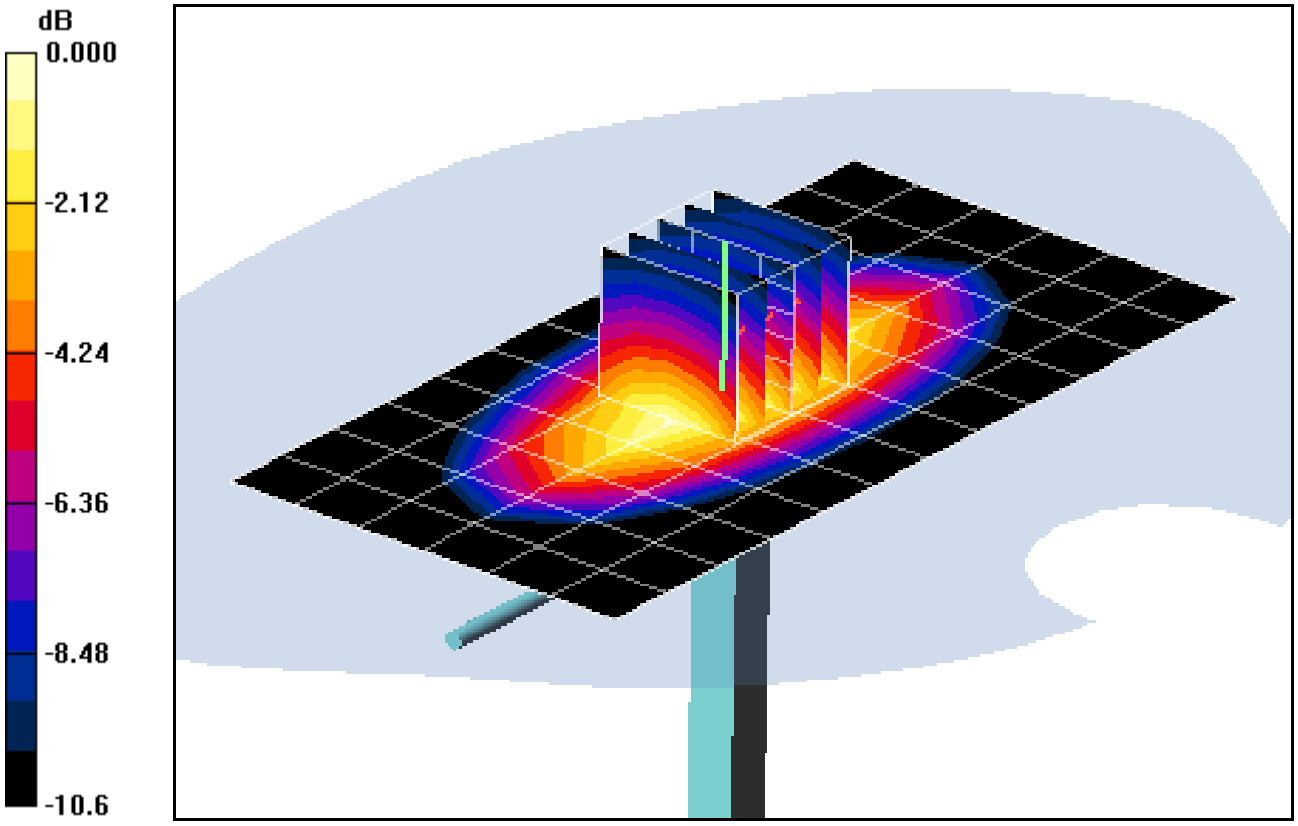
Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium: 835 Muscle; Medium parameters used:
f = 835 MHz; σ = 0.99 mho/m; ε_r = 54.1; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 04-06-2010; Ambient Temp: 23.5°C; Tissue Temp: 22.4°C

Probe: EX3DV4 - SN3550; ConvF(8.3, 8.3, 8.3); Calibrated: 1/26/2010
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 1/22/2010
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

835MHz System Verification

Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Input Power = 20.0 dBm (100mW)
SAR(1 g) = 0.953 mW/g; SAR(10 g) = 0.622 mW/g
Deviation = -2.95%



0 dB = 1.12mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: SAR Dipole 1900 MHz; Type: D1900V2; Serial: 5d080

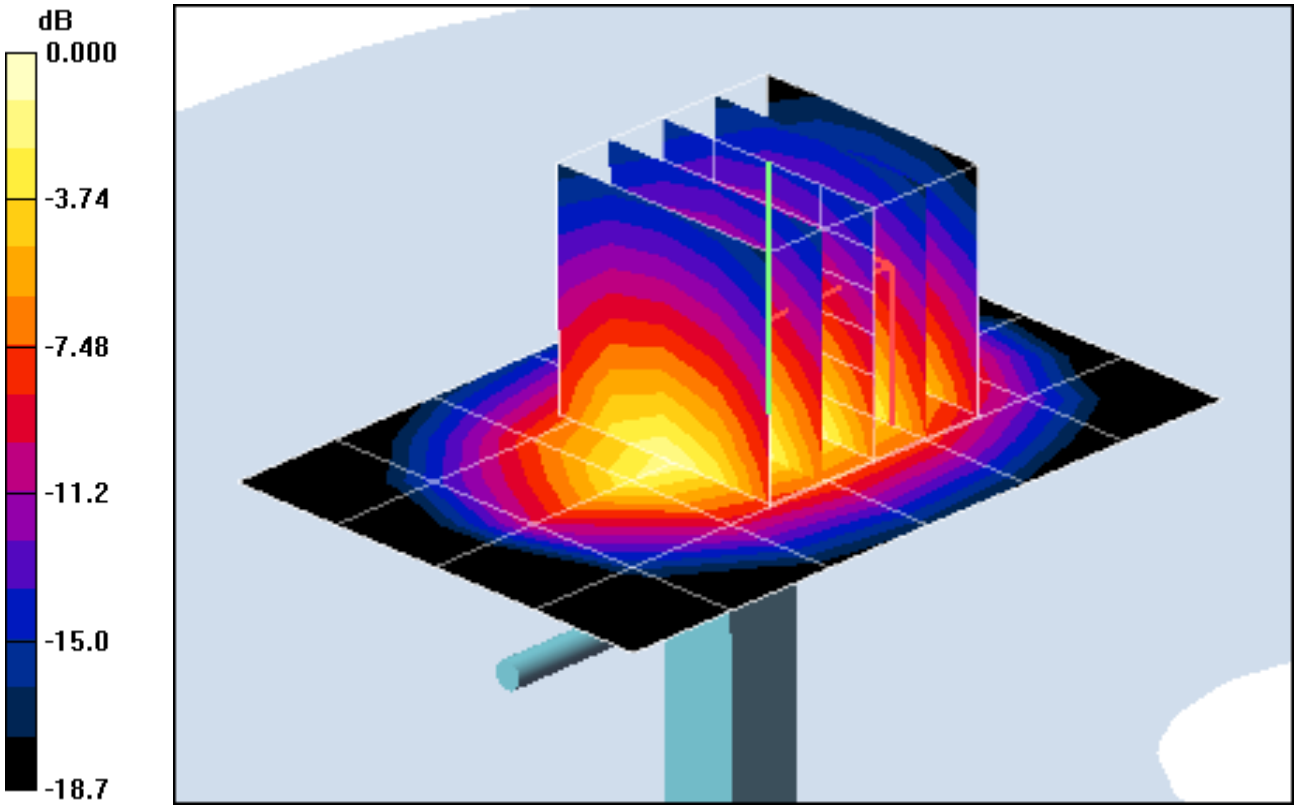
Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: 1900 Muscle; Medium parameters used (interpolated):
f = 1900 MHz; σ = 1.54 mho/m; ε_r = 51.9; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-08-2010; Ambient Temp: 23.7°C; Tissue Temp: 22.8°C

Probe: EX3DV4 - SN3550; ConvF(6.63, 6.63, 6.63); Calibrated: 1/26/2010
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 1/22/2010
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

1900MHz System Verification

Area Scan (5x7x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Input Power = 16.0 dBm (40mW)
SAR(1 g) = 1.68 mW/g; SAR(10 g) = 0.865 mW/g
Deviation = 3.70 %



0 dB = 2.12mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: SAR Dipole 2450 MHz; Type: D2450V2; Serial: 719

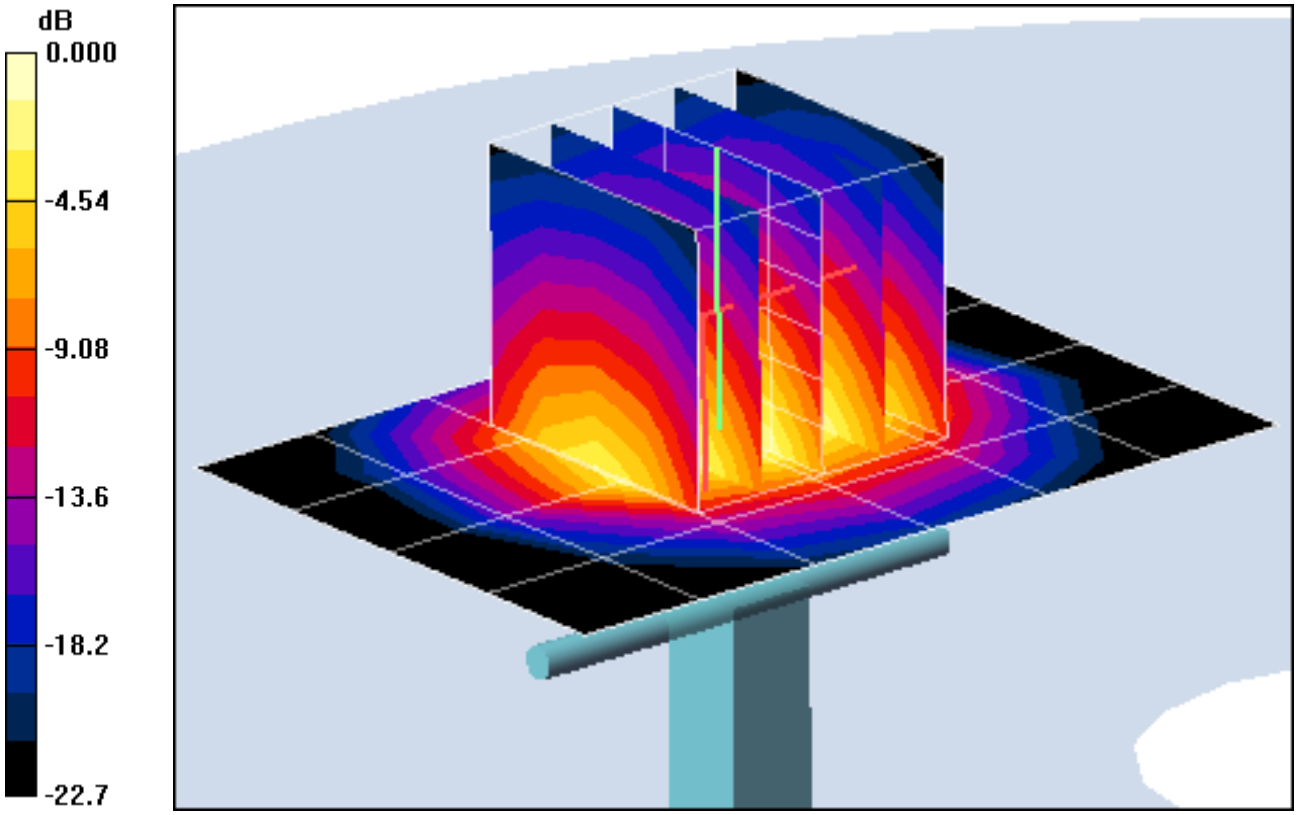
Communication System: CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium: 2450 Muscle; Medium parameters used:
f = 2450 MHz; σ = 1.96 mho/m; ε_r = 50.6; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-08-2010; Ambient Temp: 23.8°C; Tissue Temp: 22.6°C

Probe: EX3DV4 - SN3550; ConvF(6.4, 6.4, 6.4); Calibrated: 1/26/2010
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 1/22/2010
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

2450MHz System Verification

Area Scan (5x7x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Input Power = 14.0 dBm (25mW)
SAR(1 g) = 1.35 mW/g; SAR(10 g) = 0.620 mW/g
Deviation = 5.06 %



0 dB = 1.77mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5200 MHz; Type: D5GHzV2; Serial: 1057

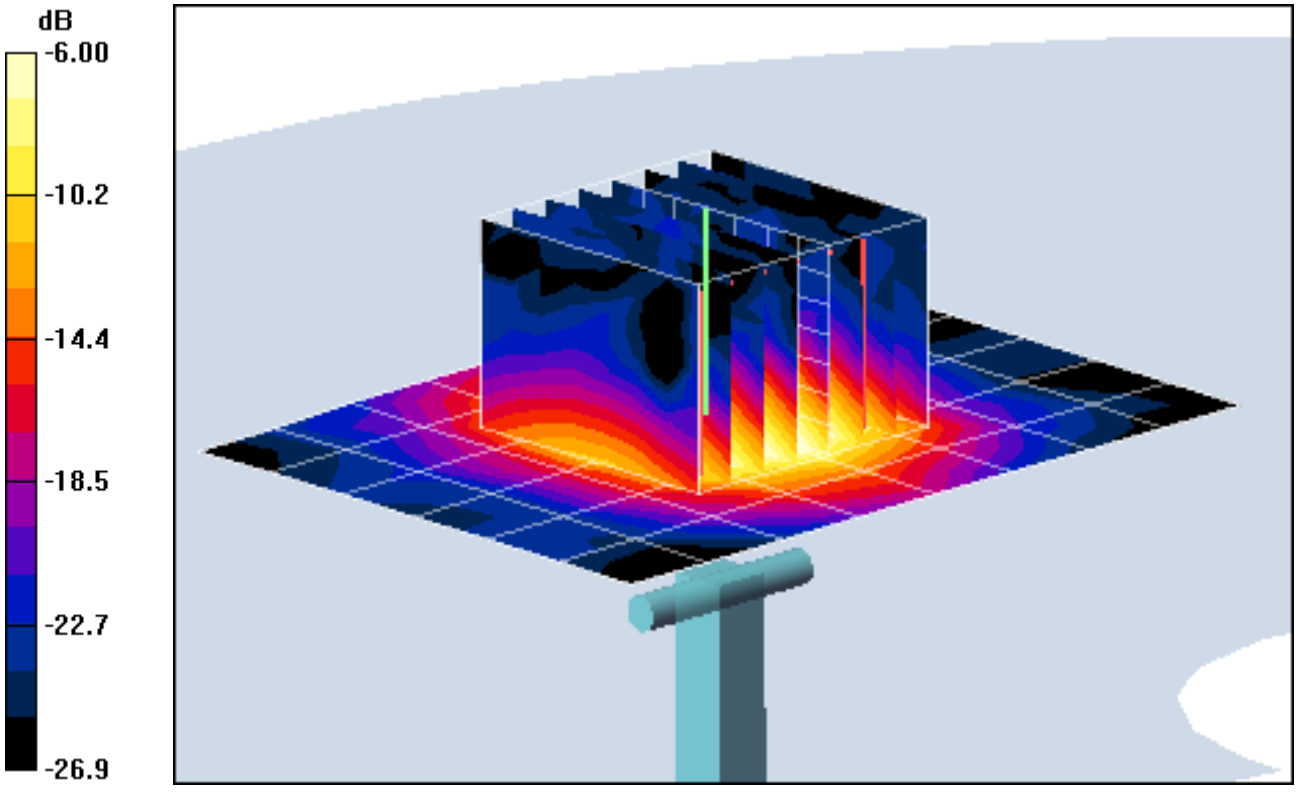
Communication System: CW; Frequency: 5200 MHz;Duty Cycle: 1:1
Medium: 5200 Muscle; Medium parameters used (interpolated):
f = 5200 MHz; σ = 5.15 mho/m; ε_r = 47.4; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-12-2010; Ambient Temp: 23.9° C; Tissue Temp: 22.7°C

Probe: EX3DV4 - SN3550; ConvF(3.73, 3.73, 3.73); Calibrated: 1/26/2010
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 1/22/2010
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

5200MHz System Verification

Area Scan (7x9x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Input Power = 14.0 dBm (25mW)
SAR(1 g) = 1.9 mW/g; SAR(10 g) = 0.533 mW/g
Deviation = -3.92%



0 dB = 2.83mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5500 MHz; Type: D5GHzV2; Serial: 1057

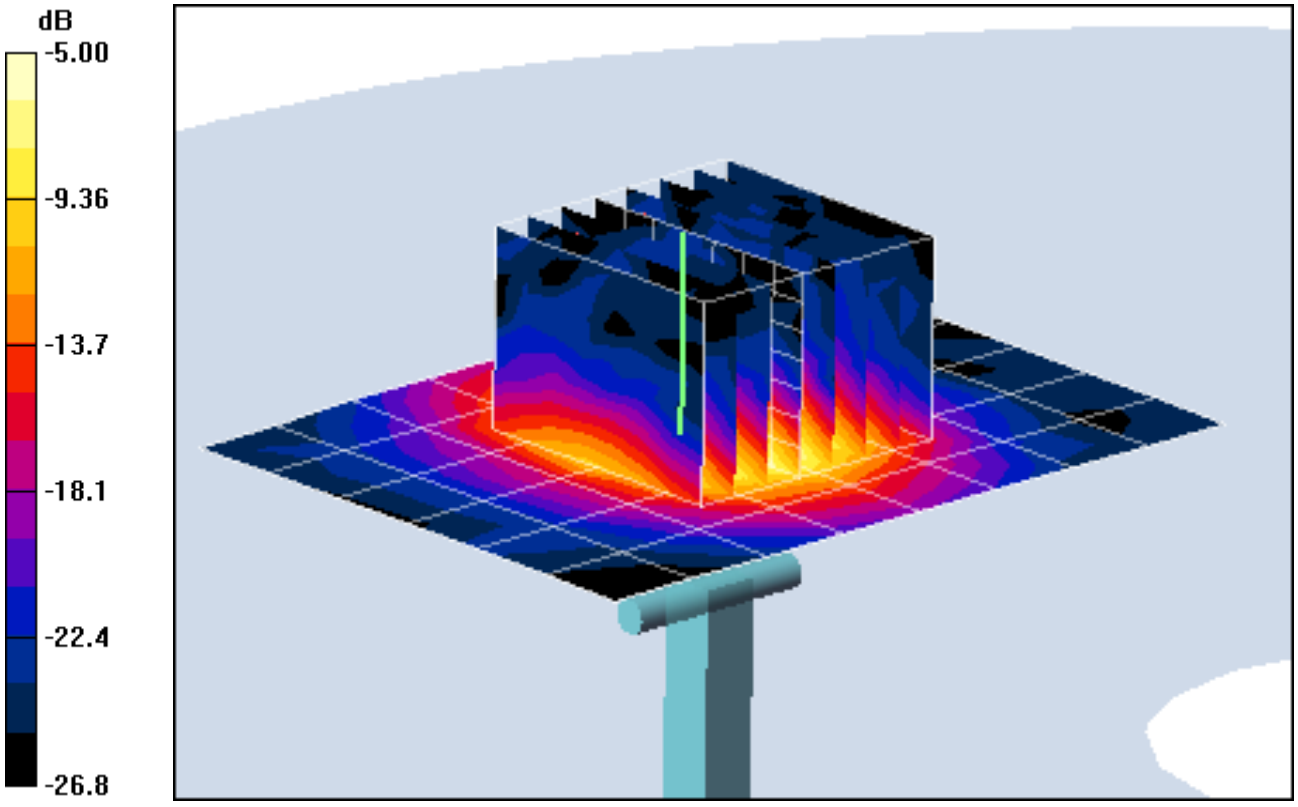
Communication System: CW; Frequency: 5500 MHz;Duty Cycle: 1:1
Medium: 5500 Muscle; Medium parameters used (interpolated):
f = 5500 MHz; σ = 5.54 mho/m; ε_r = 46.8; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-13-2010; Ambient Temp: 23.7° C; Tissue Temp: 22.6°C

Probe: EX3DV4 - SN3550; ConvF(3.25, 3.25, 3.25); Calibrated: 1/26/2010
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 1/22/2010
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

5500MHz System Verification

Area Scan (7x9x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x8) Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Input Power = 14.0 dBm (25mW
SAR(1 g) = 1.88 mW/g; SAR(10 g) = 0.517 mW/g
Deviation = -7.84 %



0 dB = 2.92mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5800 MHz; Type: D5GHzV2; Serial: 1057

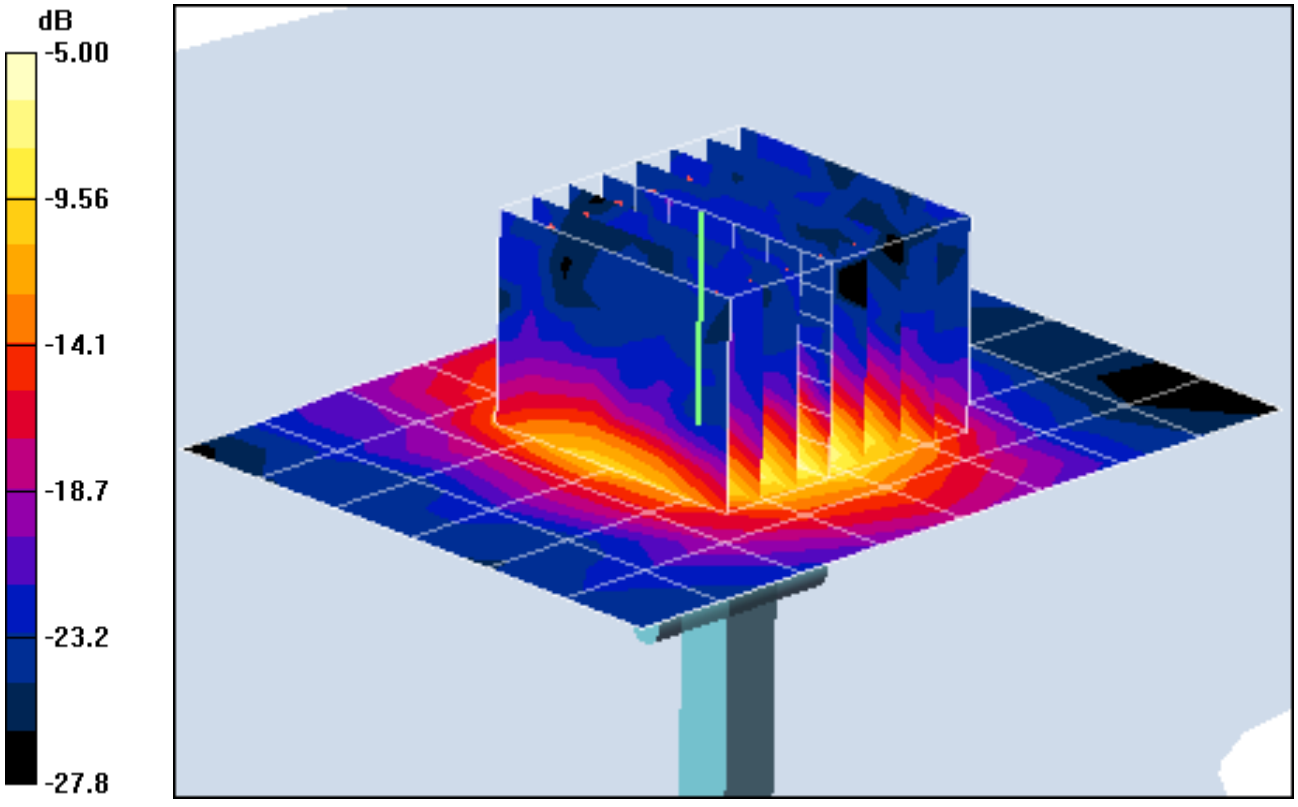
Communication System: CW; Frequency: 5800 MHz;Duty Cycle: 1:1
Medium: 5800 Muscle; Medium parameters used (interpolated):
f = 5800 MHz; σ = 5.95 mho/m; ε_r = 46.2; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-13-2010; Ambient Temp: 23.8° C; Tissue Temp: 22.7°C

Probe: EX3DV4 - SN3550; ConvF(3.3, 3.3, 3.3); Calibrated: 1/26/2010
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 1/22/2010
Phantom: SAM Sub; Type: SAM 4.0; Serial: TP-1357
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

5800MHz System Verification

Area Scan (7x9x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x8) Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Input Power = 14.0 dBm (25mW)
SAR(1 g) = 1.66 mW/g; SAR(10 g) = 0.461 mW/g
Deviation = -7.82 %



0 dB = 2.53mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: SAR Dipole 2450 MHz; Type: D2450V2; Serial: 719

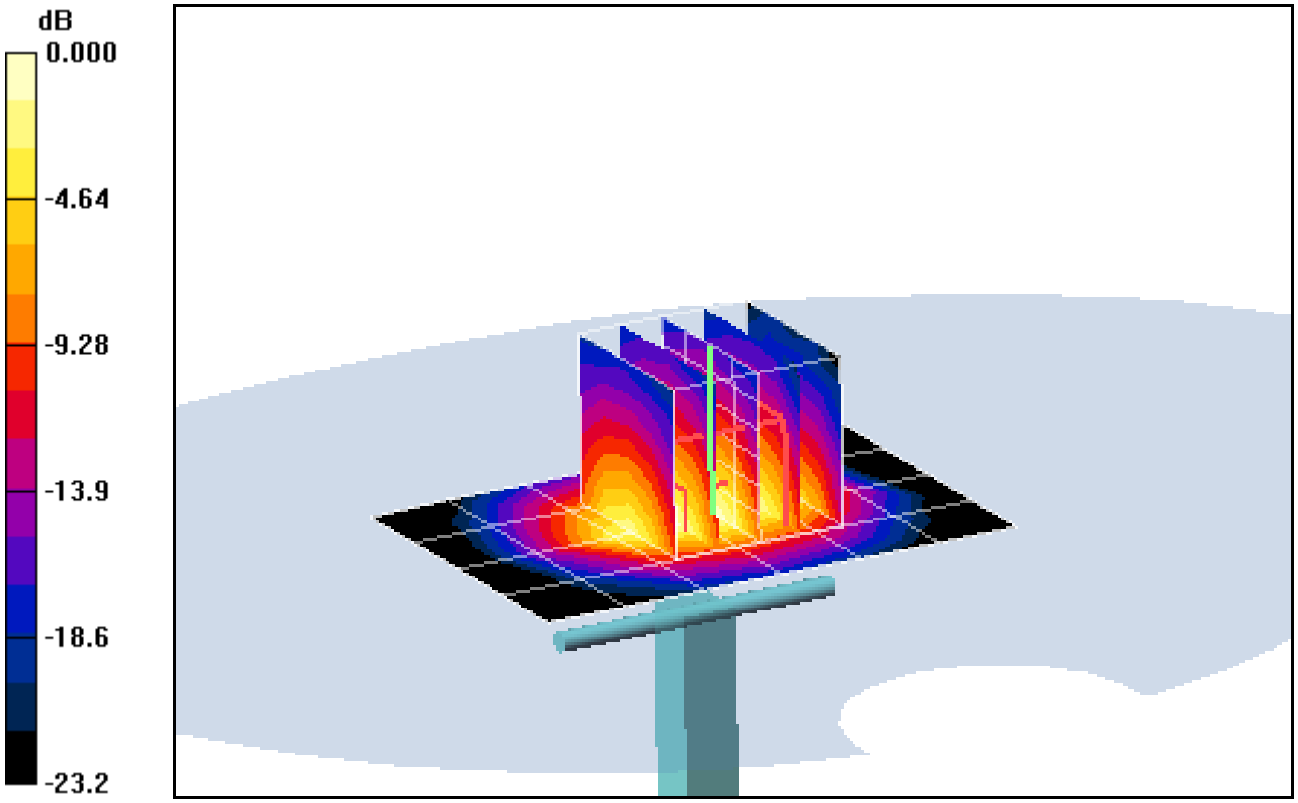
Communication System: CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium: 2450 Muscle Medium parameters used:
f = 2450 MHz; σ = 1.92 mho/m; ε_r = 50.6; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-12-2010; Ambient Temp: 23.9°C; Tissue Temp: 23.0°C

Probe: EX3DV4 - SN3550; ConvF(6.4, 6.4, 6.4); Calibrated: 1/26/2010
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn649; Calibrated: 1/22/2010
Phantom: SAM Main; Type: SAM 4.0; Serial: TP-1114
Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

2450MHz System Verification

Area Scan (5x7x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Input Power = 14 dBm (25mW)
SAR(1 g) = 1.29 mW/g; SAR(10 g) = 0.594 mW/g
Maximum value of SAR (measured) = 1.67 mW/g
Deviation = 0.39%



0 dB = 1.67mW/g

APPENDIX C: PROBE CALIBRATION

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 **PC Test**

Certificate No: EX3-3550_Jan10

CALIBRATION CERTIFICATE

Object: EX3DV4 - SN:3550

Calibration procedure(s): QA CAL-01.v6, QA CAL-14.v3, QA CAL-23.v3 and QA CAL-25.v2
Calibration procedure for dosimetric E-field probes

Calibration date: January 26, 2010

1/20/10

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	1-Apr-09 (No. 217-01030)	Apr-10
Power sensor E4412A	MY41495277	1-Apr-09 (No. 217-01030)	Apr-10
Power sensor E4412A	MY41498087	1-Apr-09 (No. 217-01030)	Apr-10
Reference 3 dB Attenuator	SN: S5054 (3c)	31-Mar-09 (No. 217-01026)	Mar-10
Reference 20 dB Attenuator	SN: S5086 (20b)	31-Mar-09 (No. 217-01028)	Mar-10
Reference 30 dB Attenuator	SN: S5129 (30b)	31-Mar-09 (No. 217-01027)	Mar-10
Reference Probe ES3DV2	SN: 3013	30-Dec-09 (No. ES3-3013_Dec09)	Dec-10
DAE4	SN: 660	29-Sep-09 (No. DAE4-660_Sep09)	Sep-10

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-09)	In house check: Oct10

	Name	Function	Signature
Calibrated by:	Katja Pokovic	Technical Manager	
Approved by:	Fin Bomholt	R&D Director	

Issued: January 26, 2010

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

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
S Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 108

Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConvF	sensitivity in TSL / NORMx,y,z
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C	modulation dependent linearization parameters
Polarization φ	φ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., ϑ = 0 is normal to probe axis

Calibration is Performed According to the Following Standards:

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

Methods Applied and Interpretation of Parameters:

- *NORMx,y,z:* Assessed for E-field polarization $\vartheta = 0$ ($f \leq 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not effect the E^2-field uncertainty inside TSL (see below *ConvF*).
- *NORM(f)x,y,z = NORMx,y,z * frequency_response* (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of *ConvF*.
- *DCPx,y,z:* DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- *Ax,y,z; Bx,y,z; Cx,y,z, VRx,y,z: A, B, C* are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. *VR* is the maximum calibration range expressed in RMS voltage across the diode.
- *ConvF and Boundary Effect Parameters:* Assessed in flat phantom using E-field (or Temperature Transfer Standard for $f \leq 800$ 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 *NORMx,y,z * ConvF* whereby the uncertainty corresponds to that given for *ConvF*. A frequency dependent *ConvF* is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- *Spherical isotropy (3D deviation from isotropy)*: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- *Sensor Offset*: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.

Probe EX3DV4

SN:3550

Manufactured:	May 19, 2004
Last calibrated:	January 21, 2009
Recalibrated:	January 26, 2010

Calibrated for DASY Systems

(Note: non-compatible with DASY2 system!)

DASY - Parameters of Probe: EX3DV4 SN:3550

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	0.48	0.47	0.48	± 10.1%
DCP (mV)[B]	92.9	88.4	91.4	

Modulation Calibration Parameters

UID	Communication System Name	PAR		A dB	B dBuV	C	VR mV	Unc[E] (k=2)
10000	CW	0.00	X	0.00	0.00	1.00	300	± 1.5%
			Y	0.00	0.00	1.00	300	
			Z	0.00	0.00	1.00	300	

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

[A] The uncertainties of NormX,Y,Z do not affect the E^2-field uncertainty inside TSL (see Pages 5 and 6).

[B] Numerical linearization parameter: uncertainty not required.

[E] Uncertainty is determined using the maximum deviation from linear response applying recatangular distribution and is expressed for the square of the field value.

DASY - Parameters of Probe: EX3DV4 SN:3550

Calibration Parameter Determined in Head Tissue Simulating Media

f [MHz]	Validity [MHz][C]	Permittivity	Conductivity	ConvF X	ConvF Y	ConvF Z	Alpha	Depth Unc (k=2)
835	± 50 / ± 100	41.5 ± 5%	0.90 ± 5%	8.28	8.28	8.28	0.45	0.70 ± 11.0%
1750	± 50 / ± 100	40.1 ± 5%	1.37 ± 5%	7.03	7.03	7.03	0.39	0.75 ± 11.0%
1900	± 50 / ± 100	40.0 ± 5%	1.40 ± 5%	6.81	6.81	6.81	0.32	0.81 ± 11.0%
2450	± 50 / ± 100	39.2 ± 5%	1.80 ± 5%	6.21	6.21	6.21	0.22	1.07 ± 11.0%

[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.

DASY - Parameters of Probe: EX3DV4 SN:3550

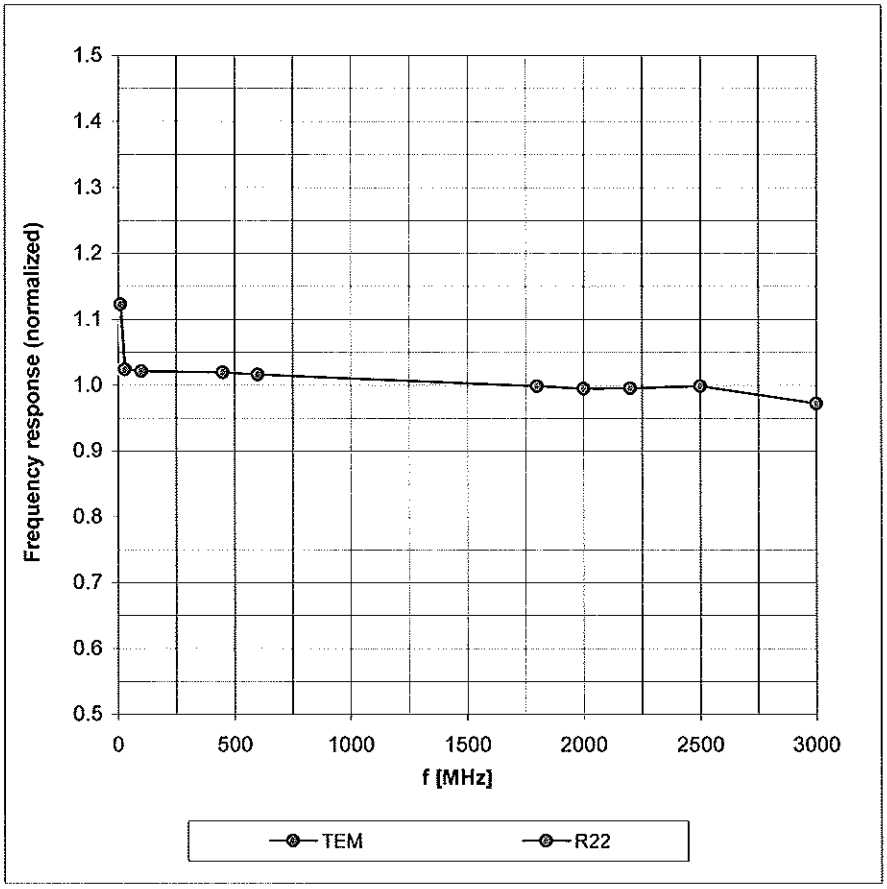
Calibration Parameter Determined in Body Tissue Simulating Media

f [MHz]	Validity [MHz][C]	Permittivity	Conductivity	ConvF X	ConvF Y	ConvF Z	Alpha	Depth	Unc (k=2)
835	± 50 / ± 100	55.2 ± 5%	0.97 ± 5%	8.30	8.30	8.30	0.47	0.76	± 11.0%
1750	± 50 / ± 100	53.4 ± 5%	1.49 ± 5%	6.90	6.90	6.90	0.49	0.69	± 11.0%
1900	± 50 / ± 100	53.3 ± 5%	1.52 ± 5%	6.63	6.63	6.63	0.76	0.54	± 11.0%
2450	± 50 / ± 100	52.7 ± 5%	1.95 ± 5%	6.40	6.40	6.40	0.22	1.09	± 11.0%
2600	± 50 / ± 100	52.5 ± 5%	2.16 ± 5%	6.26	6.26	6.26	0.19	1.42	± 11.0%
4950	± 50 / ± 100	49.4 ± 5%	5.01 ± 5%	3.64	3.64	3.64	0.50	1.75	± 13.1%
5200	± 50 / ± 100	49.0 ± 5%	5.30 ± 5%	3.73	3.73	3.73	0.50	1.75	± 13.1%
5300	± 50 / ± 100	48.5 ± 5%	5.42 ± 5%	3.52	3.52	3.52	0.52	1.75	± 13.1%
5500	± 50 / ± 100	48.6 ± 5%	5.65 ± 5%	3.26	3.26	3.26	0.55	1.80	± 13.1%
5600	± 50 / ± 100	48.5 ± 5%	5.77 ± 5%	3.16	3.16	3.16	0.65	1.80	± 13.1%
5800	± 50 / ± 100	48.2 ± 5%	6.00 ± 5%	3.30	3.30	3.30	0.60	1.75	± 13.1%

[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.

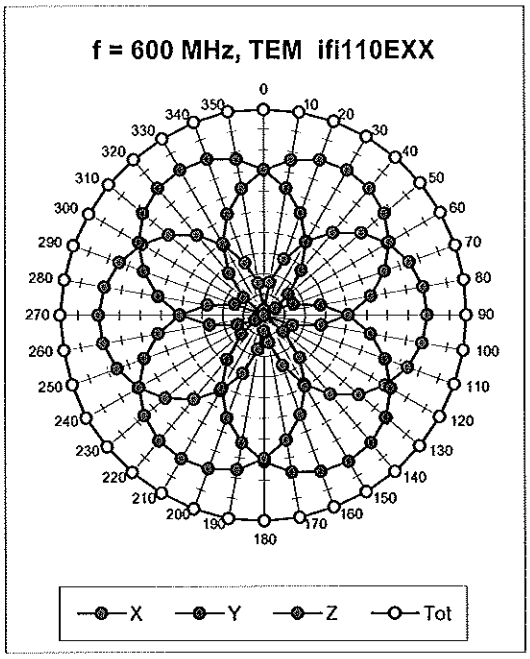
Frequency Response of E-Field

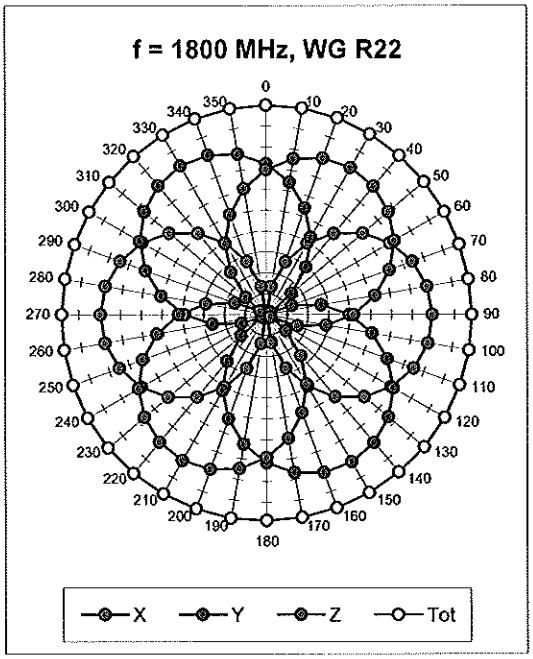
(TEM-Cell:ifi110 EXX, Waveguide: R22)

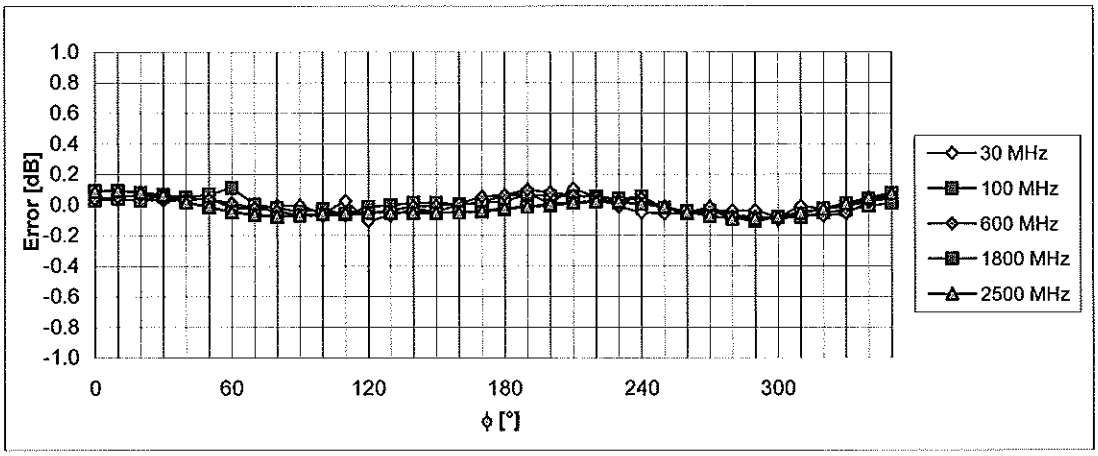


Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

Receiving Pattern (ϕ), ϑ = 0°



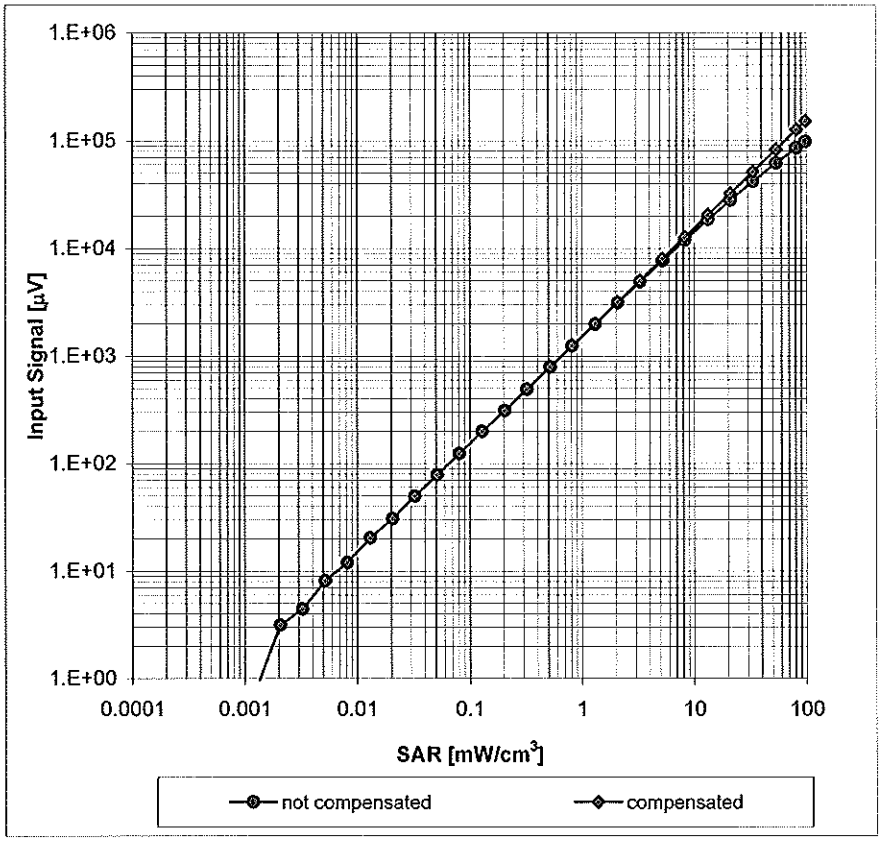


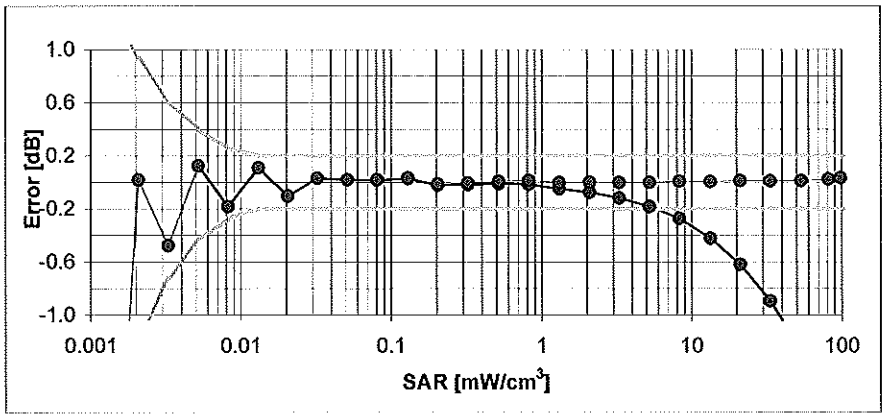


Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

Dynamic Range f(SAR_{head})

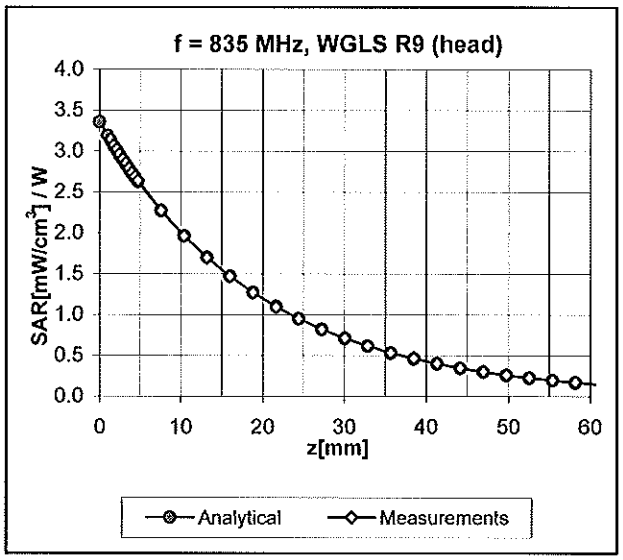
(Waveguide R22, f = 1800 MHz)

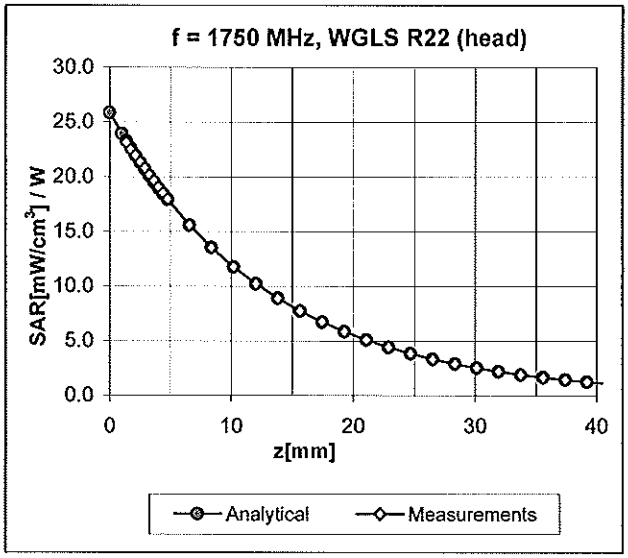




Uncertainty of Linearity Assessment: ± 0.6% (k=2)

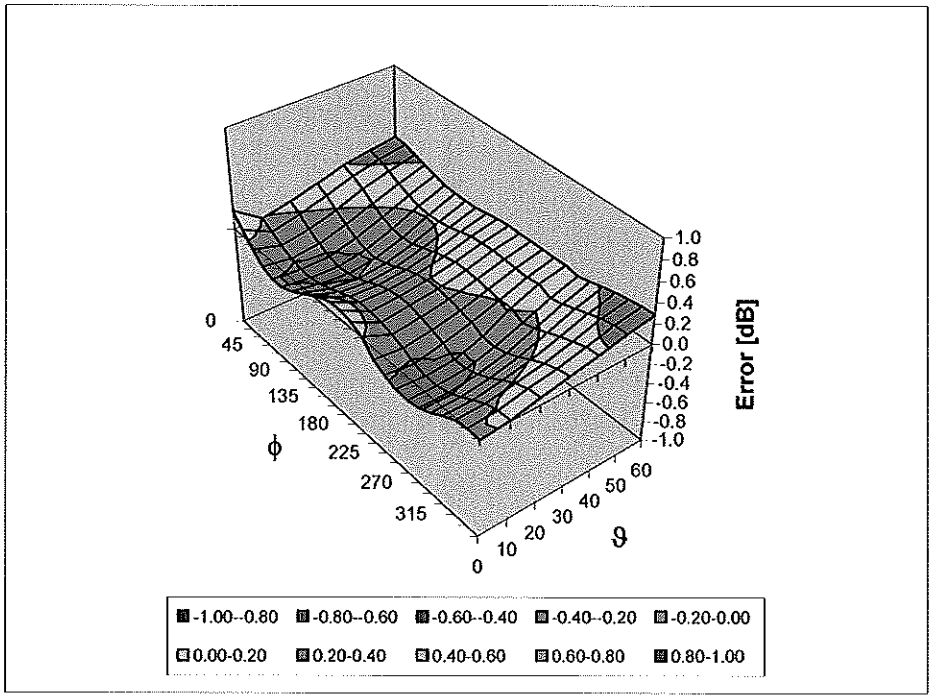
Conversion Factor Assessment





Deviation from Isotropy in HSL

Error (ϕ, ϑ), f = 900 MHz



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

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	Not applicable
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	9 mm
Tip Diameter	2.5 mm
Probe Tip to Sensor X Calibration Point	1 mm
Probe Tip to Sensor Y Calibration Point	1 mm
Probe Tip to Sensor Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	2 mm

Calibration Laboratory of
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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 PC Test

Certificate No: D835V2-4d047_Jan09

CALIBRATION CERTIFICATE

Object: D835V2 - SN: 4d047

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

Calibration date: January 19, 2009

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 (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	08-Oct-08 (No. 217-00898)	Oct-09
Power sensor HP 8481A	US37292783	08-Oct-08 (No. 217-00898)	Oct-09
Reference 20 dB Attenuator	SN: 5086 (20g)	01-Jul-08 (No. 217-00864)	Jul-09
Type-N mismatch combination	SN: 5047.2 / 06327	01-Jul-08 (No. 217-00867)	Jul-09
Reference Probe ES3DV2	SN: 3025	28-Apr-08 (No. ES3-3025_Apr08)	Apr-09
DAE4	SN: 601	14-Mar-08 (No. DAE4-601_Mar08)	Mar-09

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-07)	In house check: Oct-09
RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-07)	In house check: Oct-09
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-08)	In house check: Oct-09

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

Issued: January 20, 2009

Glossary:

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

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003

b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005

c) Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

Additional Documentation:

d) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

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

Measurement Conditions

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

DASY Version	DASY5	V5.0
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	41.3 ± 6 %	0.91 mho/m ± 6 %
Head TSL temperature during test	(21.5 ± 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	2.45 mW / g
SAR normalized	normalized to 1W	9.80 mW / g
SAR for nominal Head TSL parameters [1]	normalized to 1W	**9.70 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.61 mW / g
SAR normalized	normalized to 1W	6.44 mW / g
SAR for nominal Head TSL parameters [1]	normalized to 1W	**6.39 mW / g ± 16.5 % (k=2)**

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

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	50.9 Ω -3.7 jΩ
Return Loss	- 28.4 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	46.8 Ω -5.5 jΩ
Return Loss	- 23.7 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.386 ns

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

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	August 16, 2006

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	55.2	0.97 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	53.5 ± 6 %	1.00 mho/m ± 6 %
Body TSL temperature during test	(21.5 ± 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	2.53 mW / g
SAR normalized	normalized to 1W	10.1 mW / g
SAR for nominal Body TSL parameters [2]	normalized to 1W	**9.82 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.67 mW / g
SAR normalized	normalized to 1W	6.68 mW / g
SAR for nominal Body TSL parameters [2]	normalized to 1W	**6.54 mW / g ± 16.5 % (k=2)**

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

Date/Time: 19.01.2009 11:45:19

Test Laboratory: SPEAG, Zurich, Switzerland

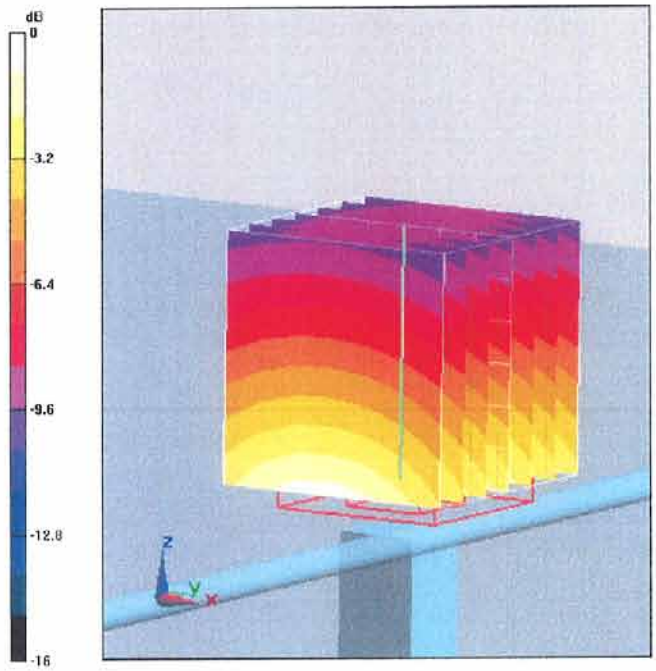
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:4d047

Communication System: CW-835; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: HSL 900 MHz
Medium parameters used: f = 835 MHz; σ = 0.91 mho/m; ε_r = 41.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

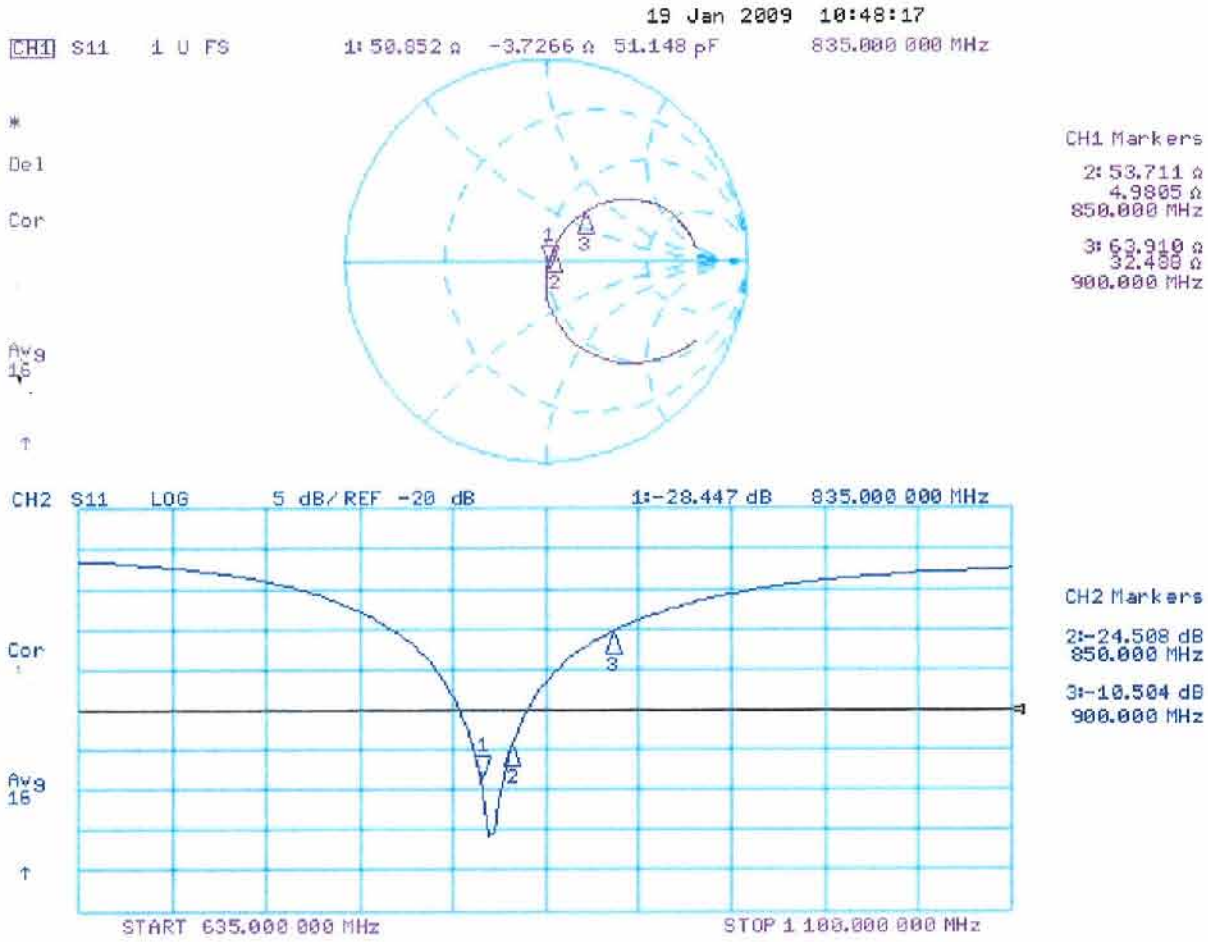
- Probe: ES3DV2 - SN3025; ConvF(5.97, 5.97, 5.97); Calibrated: 28.04.2008
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 14.03.2008
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

Pin=250mW; dip=15mm; dist=3.4mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 56.4 V/m; Power Drift = -0.00691 dB
Peak SAR (extrapolated) = 3.61 W/kg
SAR(1 g) = 2.45 mW/g; SAR(10 g) = 1.61 mW/g
Maximum value of SAR (measured) = 2.77 mW/g



0 dB = 2.77mW/g

Impedance Measurement Plot for Head TSL



Date/Time: 12.01.2009 12:18:12

Test Laboratory: SPEAG, Zurich, Switzerland

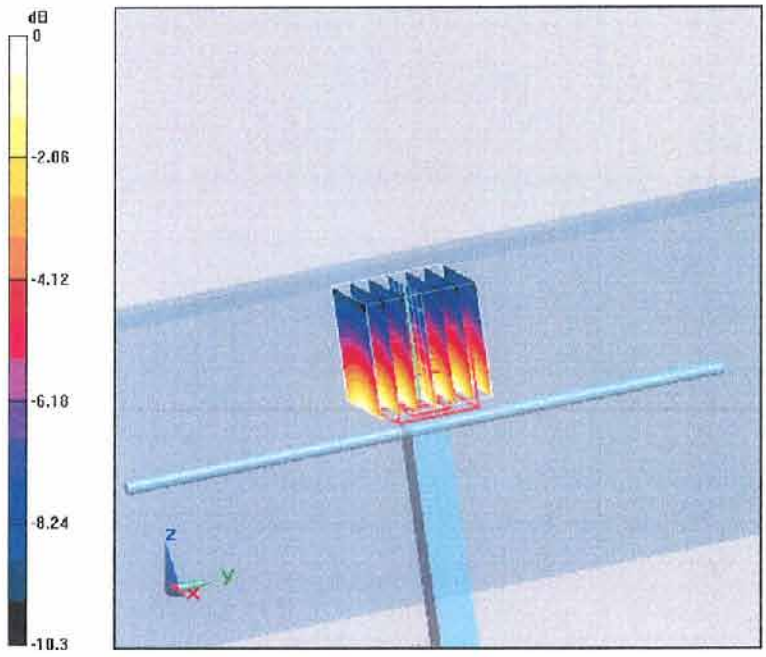
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:4d047

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: MSL900
Medium parameters used: f = 835 MHz; σ = 1 mho/m; ε_r = 53.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

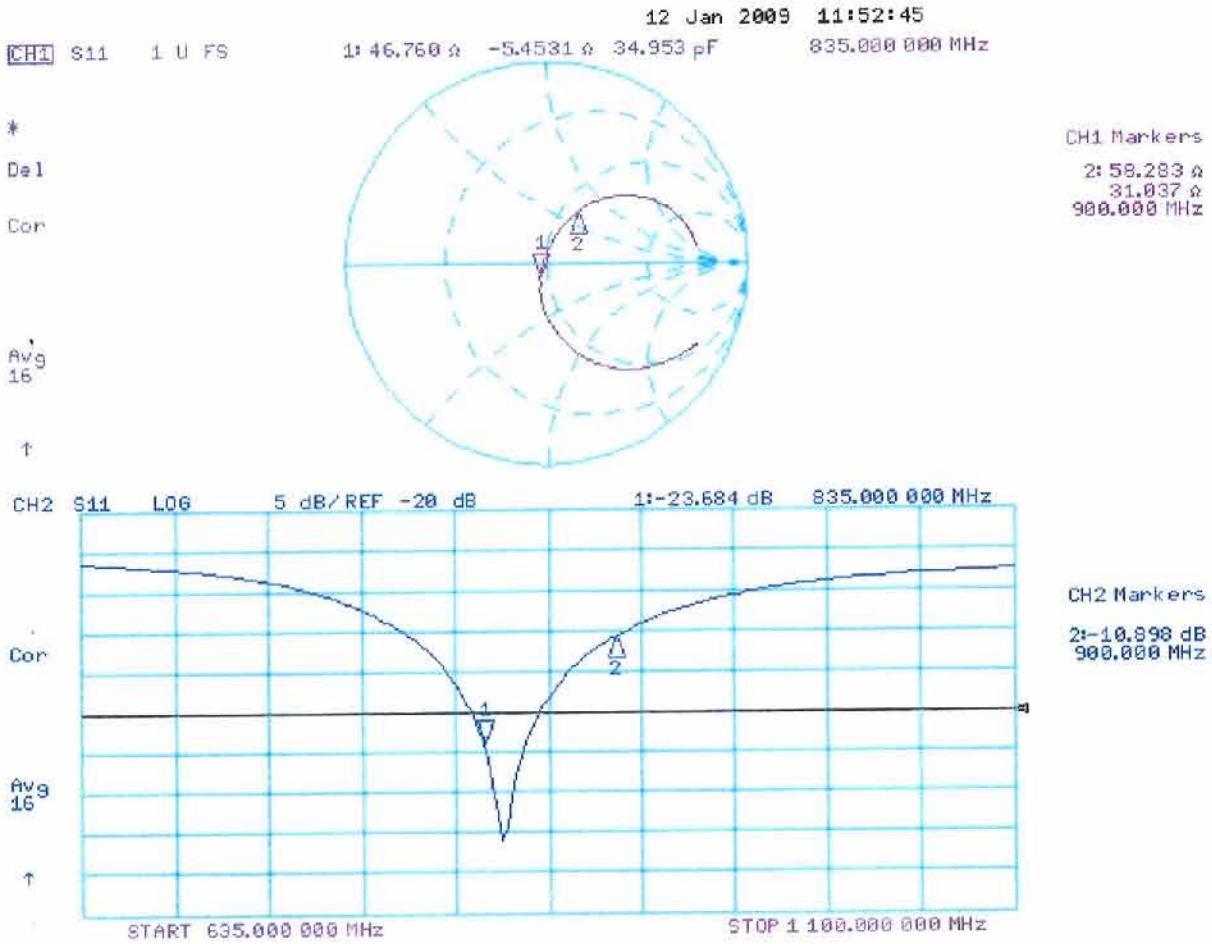
- Probe: ES3DV2 - SN3025; ConvF(5.9, 5.9, 5.9); Calibrated: 28.04.2008
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 14.03.2008
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

Pin = 250mW, d = 15mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 54.5 V/m; Power Drift = 0.010 dB
Peak SAR (extrapolated) = 3.65 W/kg
SAR(1 g) = 2.53 mW/g; SAR(10 g) = 1.67 mW/g
Maximum value of SAR (measured) = 2.82 mW/g



0 dB = 2.82mW/g

Impedance Measurement Plot for Body TSL



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

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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 PC Test

Certificate No: D1900V2-5d080-Aug09

CALIBRATION CERTIFICATE

Object	D1900V2 - SN: 5d080
Calibration procedure(s)	QA CAL-05.v7 Calibration procedure for dipole validation kits
Calibration date:	August 18, 2009
Condition of the calibrated item	In Tolerance

OK ✓
8/31/09

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	08-Oct-08 (No. 217-00898)	Oct-09
Power sensor HP 8481A	US37292783	08-Oct-08 (No. 217-00898)	Oct-09
Reference 20 dB Attenuator	SN: 5086 (20g)	31-Mar-09 (No. 217-01025)	Mar-10
Type-N mismatch combination	SN: 5047.2 / 06327	31-Mar-09 (No. 217-01029)	Mar-10
Reference Probe ES3DV3	SN: 3205	26-Jun-09 (No. ES3-3205_Jun09)	Jun-10
DAE4	SN: 601	07-Mar-09 (No. DAE4-601_Mar09)	Mar-10

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-07)	In house check: Oct-09
RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-07)	In house check: Oct-09
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-08)	In house check: Oct-09

	Name	Function	Signature
Calibrated by:	Claudio Leubler	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: August 19, 2009

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) DASY4/5 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	V5.0
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 ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	40.0	1.40 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	40.8 ± 6 %	1.45 mho/m ± 6 %
Head TSL temperature during test	(22.0 ± 0.2) °C	----	----

.

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	condition	
SAR measured	250 mW input power	10.2 mW / g
SAR normalized	normalized to 1W	40.8 mW / g
SAR for nominal Head TSL parameters [1]	normalized to 1W	**40.1 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	5.30 mW / g
SAR normalized	normalized to 1W	21.2 mW / g
SAR for nominal Head TSL parameters [1]	normalized to 1W	**21.0 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	53.3	1.52 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	53.9 ± 6 %	1.57 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 [2]	normalized to 1W	**40.5 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.41 mW / g
SAR normalized	normalized to 1W	21.6 mW / g
SAR for nominal Body TSL parameters [2]	normalized to 1W	**21.5 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	50.0 Ω + 6.1 jΩ
Return Loss	- 24.3 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	47.1 Ω + 5.7 jΩ
Return Loss	- 23.6 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.193 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	June 28, 2006

DASY5 Validation Report for Head TSL

Date/Time: 05.08.2009 14:25:51

Test Laboratory: SPEAG, Zurich, Switzerland

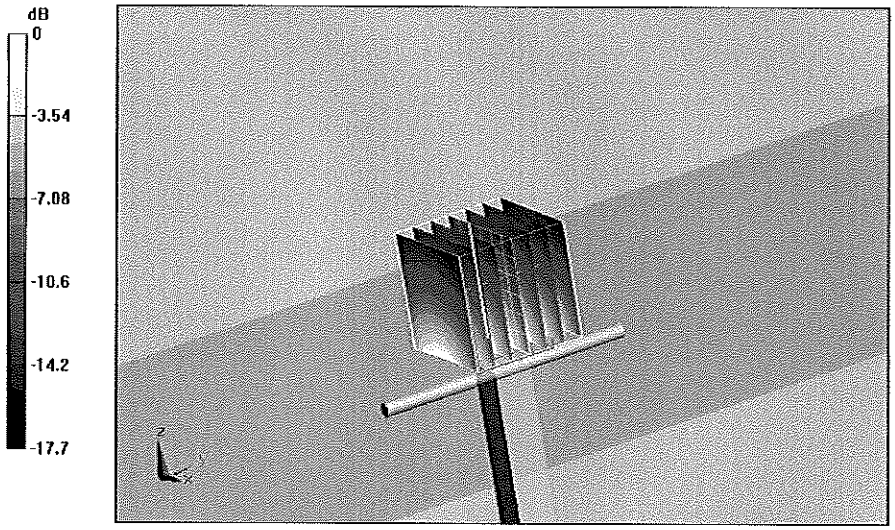
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d080

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: HSL U11 BB
Medium parameters used: f = 1900 MHz; σ = 1.45 mho/m; ε_r = 40.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

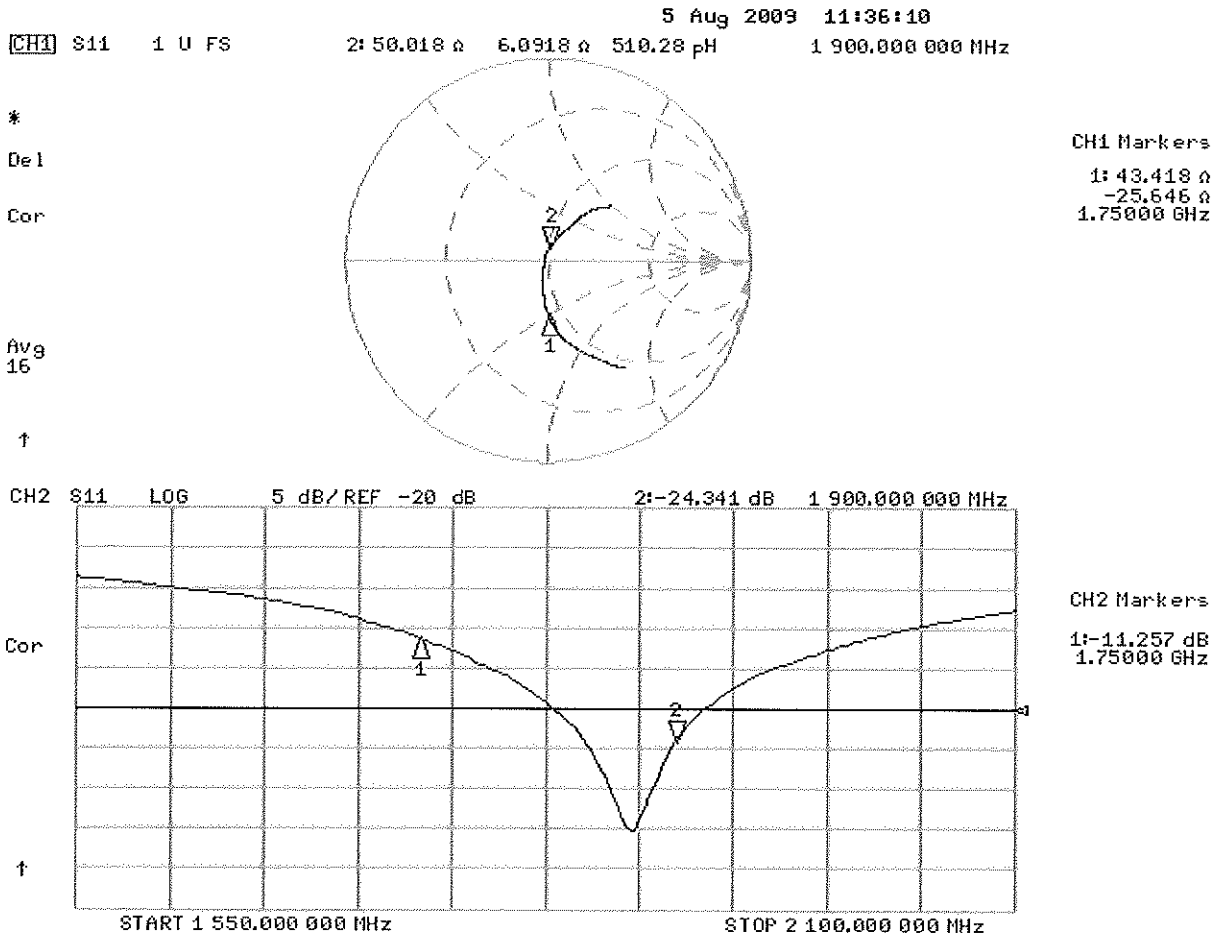
- Probe: ES3DV3 - SN3205; ConvF(5.09, 5.09, 5.09); Calibrated: 26.06.2009
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 07.03.2009
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

Pin = 250 mW; dip = 10 mm, scan at 3.0 mm/Zoom Scan (dist=3.0 mm, probe 0deg) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 94.9 V/m; Power Drift = 0.040 dB
Peak SAR (extrapolated) = 18.7 W/kg
SAR(1 g) = 10.2 mW/g; SAR(10 g) = 5.3 mW/g
Maximum value of SAR (measured) = 12.6 mW/g



0 dB = 12.6mW/g

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date/Time: 18.08.2009 14:14:25

Test Laboratory: SPEAG, Zurich, Switzerland

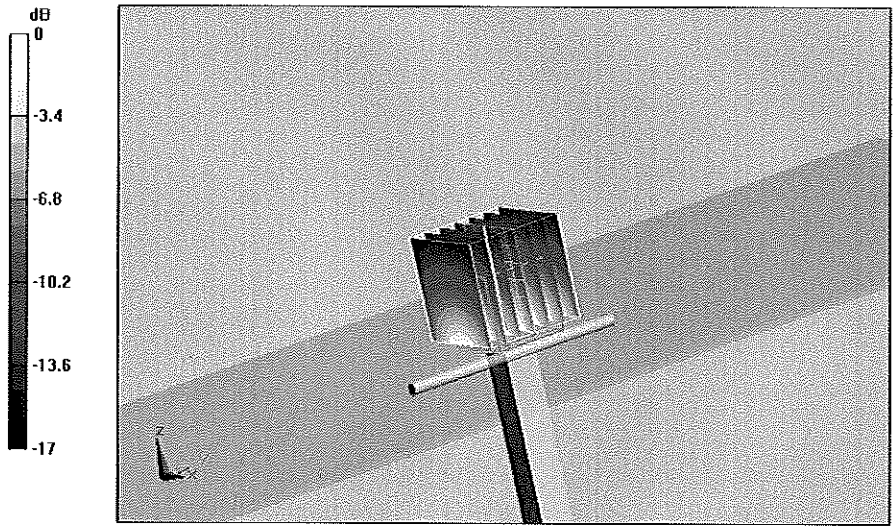
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d080

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: MSL U10 BB
Medium parameters used: f = 1900 MHz; σ = 1.57 mho/m; ε_r = 53.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

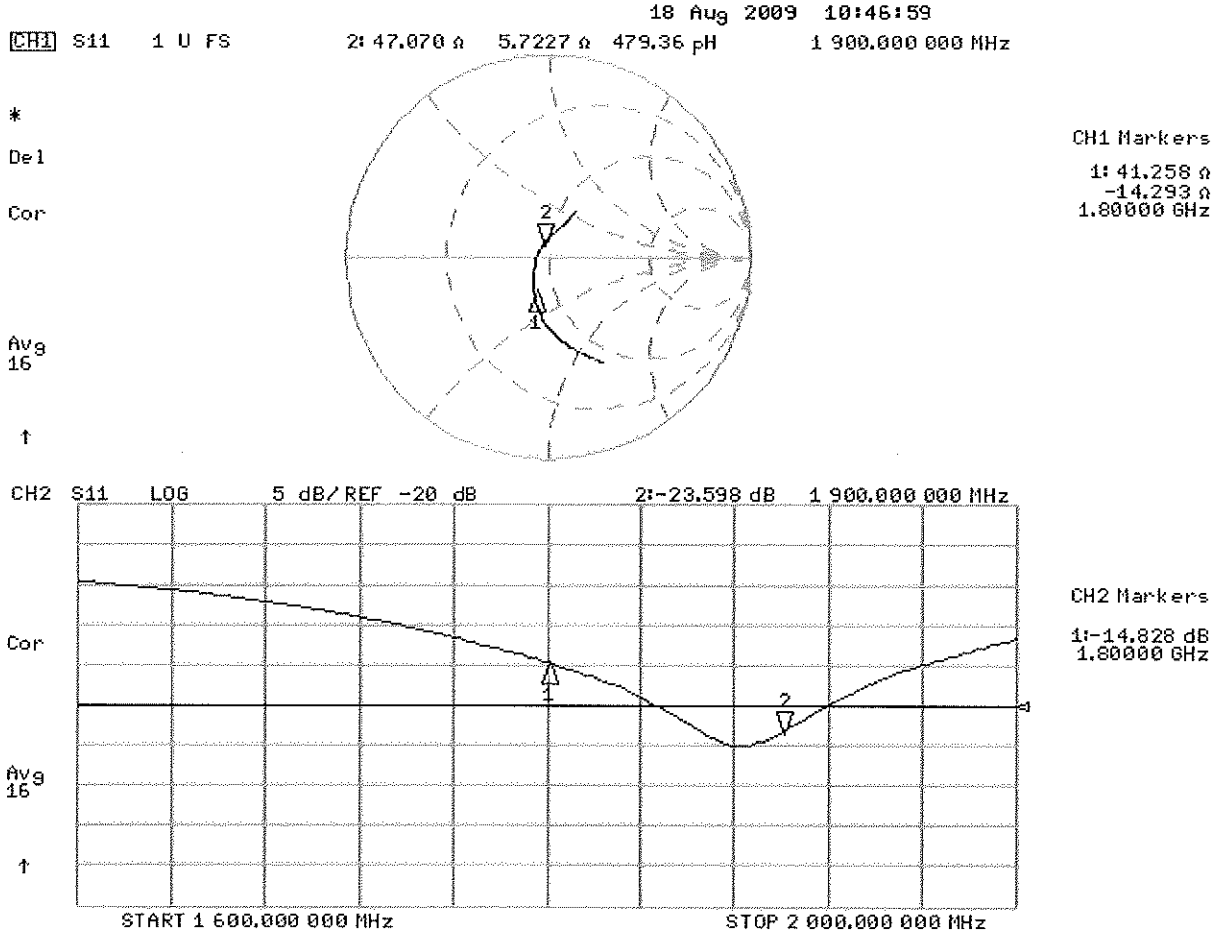
- Probe: ES3DV3 - SN3205; ConvF(4.59, 4.59, 4.59); Calibrated: 26.06.2009
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 07.03.2009
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

Pin = 250 mW; dip = 10 mm, scan at 3.0mm/Zoom Scan (dist=3.0mm, probe 0deg) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 96.7 V/m; Power Drift = -0.00545 dB
Peak SAR (extrapolated) = 17.7 W/kg
SAR(1 g) = 10.3 mW/g; SAR(10 g) = 5.41 mW/g
Maximum value of SAR (measured) = 13.1 mW/g



0 dB = 13.1mW/g

Impedance Measurement Plot for Body TSL



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S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
S Swiss Calibration Service

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

Accreditation No.: SCS 108

Client PC Test

Certificate No: D2450V2-719_Aug09

CALIBRATION CERTIFICATE

Object: D2450V2 - SN: 719

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

Calibration date: August 27, 2009

Condition of the calibrated item: In Tolerance

ok
8/31/09

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	08-Oct-08 (No. 217-00898)	Oct-09
Power sensor HP 8481A	US37292783	08-Oct-08 (No. 217-00898)	Oct-09
Reference 20 dB Attenuator	SN: 5086 (20g)	31-Mar-09 (No. 217-01025)	Mar-10
Type-N mismatch combination	SN: 5047.2 / 06327	31-Mar-09 (No. 217-01029)	Mar-10
Reference Probe ES3DV3	SN: 3205	26-Jun-09 (No. ES3-3205_Jun09)	Jun-10
DAE4	SN: 601	07-Mar-09 (No. DAE4-601_Mar09)	Mar-10

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-07)	In house check: Oct-09
RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-07)	In house check: Oct-09
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-08)	In house check: Oct-09

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

Issued: August 27, 2009

Glossary:

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

Calibration is Performed According to the Following Standards:

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

Additional Documentation:

d) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

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

Measurement Conditions

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

DASY Version	DASY5	V5.0
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	2450 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	39.2	1.80 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	40.1 ± 6 %	1.80 mho/m ± 6 %
Head TSL temperature during test	(22.3 ± 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	13.3 mW / g
SAR normalized	normalized to 1W	53.2 mW / g
SAR for nominal Head TSL parameters [1]	normalized to 1W	**53.5 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.23 mW / g
SAR normalized	normalized to 1W	24.9 mW / g
SAR for nominal Head TSL parameters [1]	normalized to 1W	**25.0 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	52.7	1.95 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	53.2 ± 6 %	2.01 mho/m ± 6 %
Body TSL temperature during test	(22.5 ± 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	13.0 mW / g
SAR normalized	normalized to 1W	52.0 mW / g
SAR for nominal Body TSL parameters [2]	normalized to 1W	**51.4 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	6.00 mW / g
SAR normalized	normalized to 1W	24.0 mW / g
SAR for nominal Body TSL parameters [2]	normalized to 1W	**23.9 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	53.4 Ω + 1.8 jΩ
Return Loss	- 28.6 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	48.2 Ω + 3.9 jΩ
Return Loss	- 27.2 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.150 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 10, 2002

DASY5 Validation Report for Head TSL

Date/Time: 27.08.2009 11:14:47

Test Laboratory: SPEAG, Zurich, Switzerland

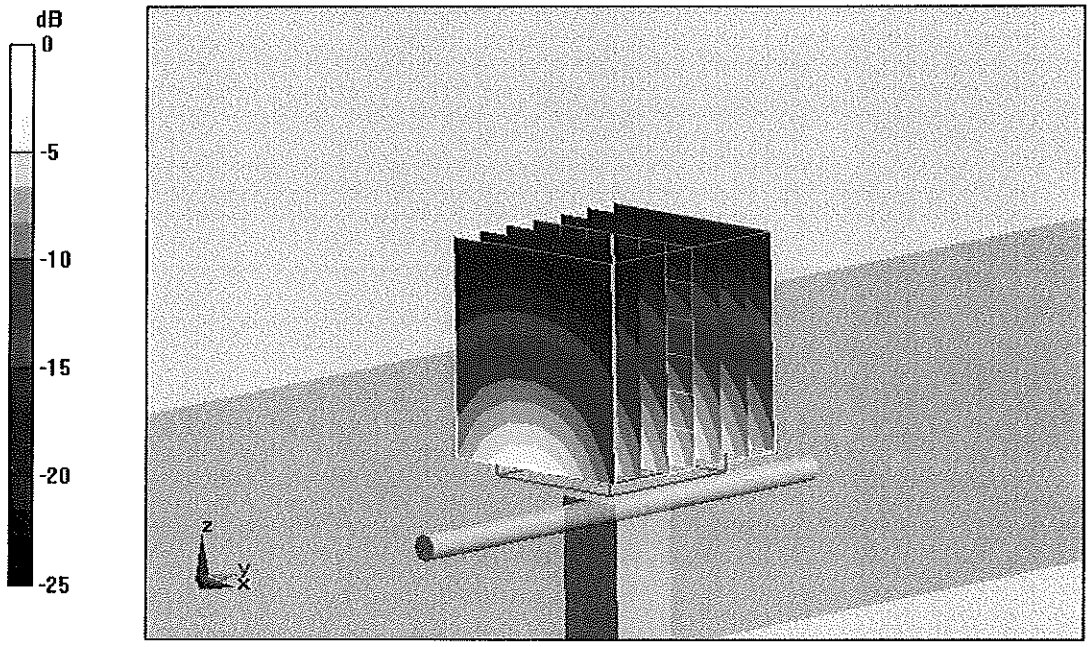
DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN719

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: HSL U11 BB
Medium parameters used: f = 2450 MHz; σ = 1.8 mho/m; ε_r = 40.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

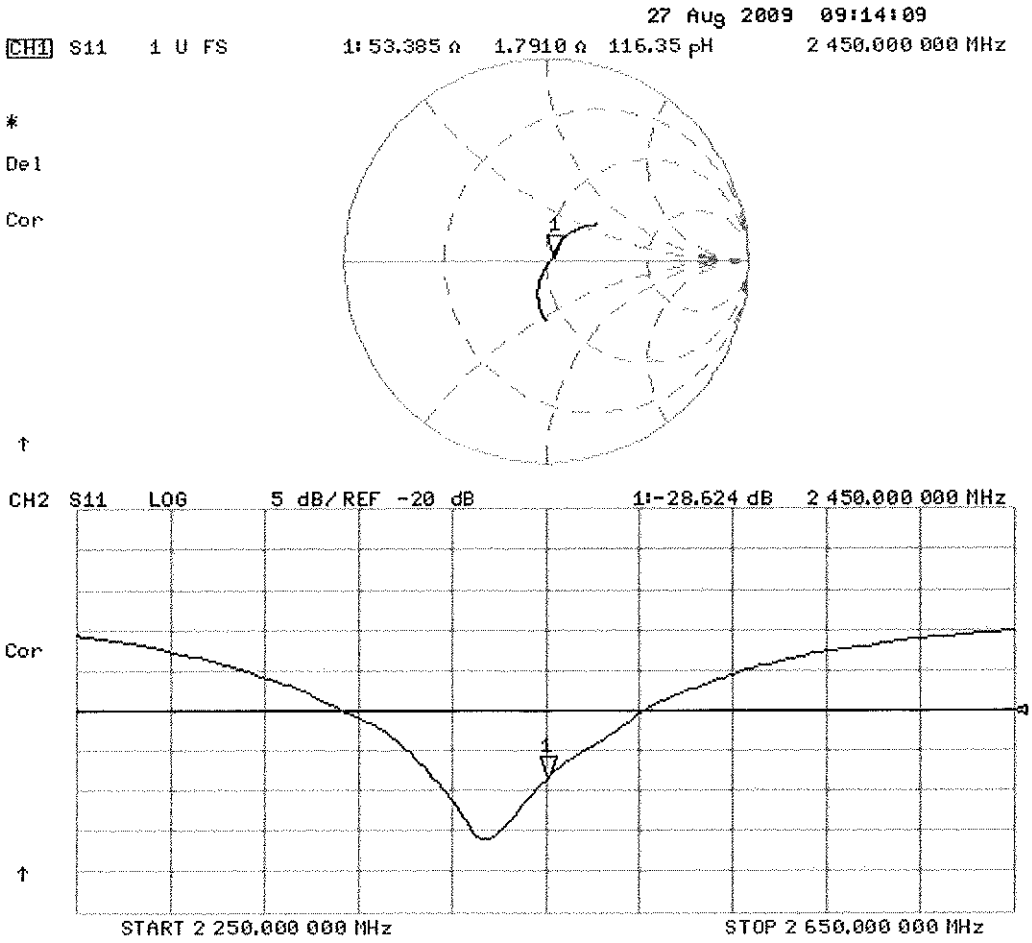
- Probe: ES3DV3 - SN3205; ConvF(4.53, 4.53, 4.53); Calibrated: 26.06.2009
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 07.03.2009
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

Pin = 250 mW; d = 10 mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 101.4 V/m; Power Drift = 0.025 dB
Peak SAR (extrapolated) = 27 W/kg
SAR(1 g) = 13.3 mW/g; SAR(10 g) = 6.23 mW/g
Maximum value of SAR (measured) = 17.2 mW/g



0 dB = 17.2mW/g

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date/Time: 17.08.2009 15:35:28

Test Laboratory: SPEAG, Zurich, Switzerland

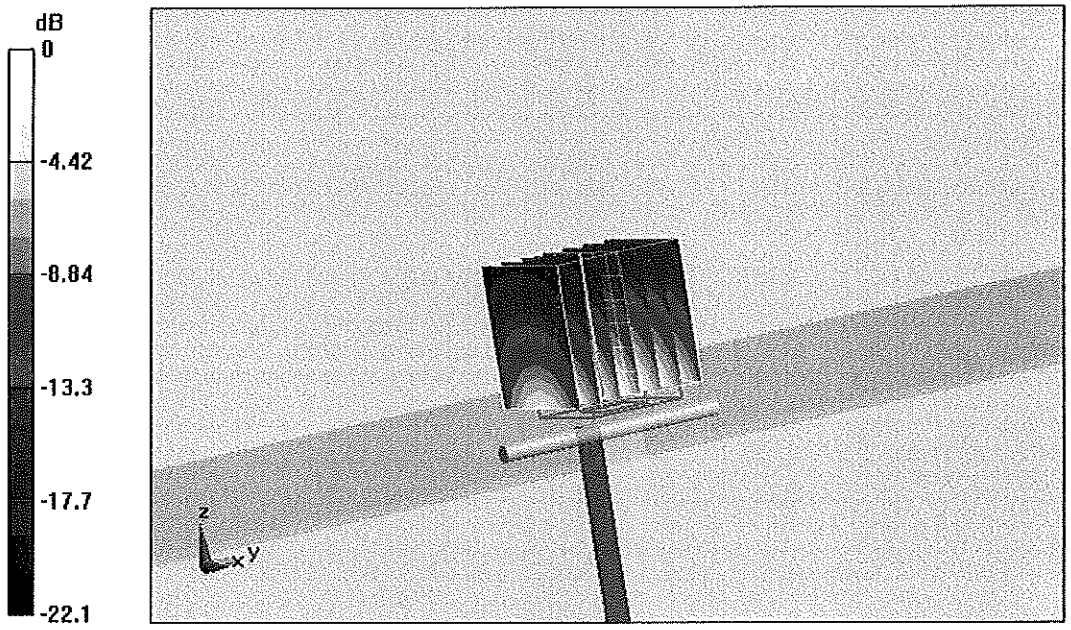
DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:719

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: MSL U10 BB
Medium parameters used: f = 2450 MHz; σ = 2.01 mho/m; ε_r = 53.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

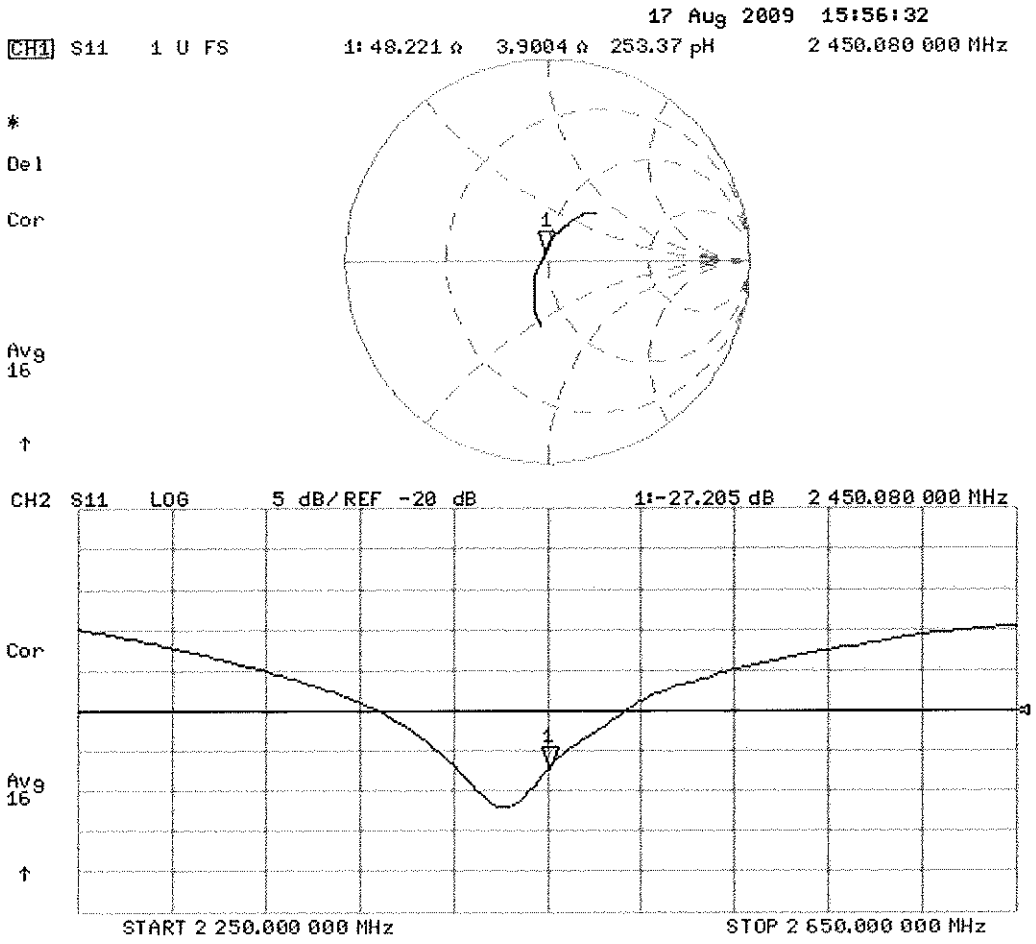
- Probe: ES3DV3 - SN3205; ConvF(4.31, 4.31, 4.31); Calibrated: 26.06.2009
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 07.03.2009
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

Pin = 250 mW; d = 10 mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 94.8 V/m; Power Drift = -0.00649 dB
Peak SAR (extrapolated) = 27.2 W/kg
SAR(1 g) = 13 mW/g; SAR(10 g) = 6 mW/g
Maximum value of SAR (measured) = 17 mW/g



0 dB = 17mW/g

Impedance Measurement Plot for Body TSL



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

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

Accreditation No.: SCS 108

Client PC Test

Certificate No: D5GHzV2-1057_Jan09

CALIBRATION CERTIFICATE

Object D5GHzV2 - SN: 1057

Calibration procedure(s) QA CAL-22.v1
Calibration procedure for dipole validation kits between 3-6 GHz

Calibration date: January 15, 2009

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 (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	08-Oct-08 (No. 217-00898)	Oct-09
Power sensor HP 8481A	US37292783	08-Oct-08 (No. 217-00898)	Oct-09
Reference 20 dB Attenuator	SN: 5086 (20g)	01-Jul-08 (No. 217-00864)	Jul-09
Type-N mismatch combination	SN: 5047.2 / 06327	01-Jul-08 (No. 217-00867)	Jul-09
Reference Probe EX3DV4	SN: 3503	8-Mar-08 (No. EX3-3503_Mar08)	Mar-09
DAE4	SN: 601	14-Mar-08 (No. DAE4-601_Mar08)	Mar-09

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-07)	In house check: Oct-09
RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-07)	In house check: Oct-09
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-08)	In house check: Oct-09

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

Issued: January 16, 2009

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) IEC Std 62209 Part 2, "Evaluation of Human Exposure to Radio Frequency Fields from Handheld and Body-Mounted Wireless Communication Devices in the Frequency Range of 30 MHz to 6 GHz: Human models, Instrumentation, and Procedures"; Part 2: "Procedure to determine the Specific Absorption Rate (SAR) for including accessories and multiple transmitters", Draft Version 0.9, December 2004

b) 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:

c) 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	V5.0
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V5.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Area Scan resolution	dx, dy = 10 mm	
Zoom Scan Resolution	dx, dy = 4.0 mm, dz = 2.5 mm	
Frequency	5200 MHz ± 1 MHz 5500 MHz ± 1 MHz 5800 MHz ± 1 MHz	

Body TSL parameters at 5200 MHz

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Body TSL parameters	22.0 °C	49.0	5.30 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	47.4 ± 6 %	5.34 mho/m ± 6 %
Body TSL temperature during test	(21.6 ± 0.2) °C	----	----

SAR result with Body TSL at 5200 MHz

SAR averaged over 1 cm³ (1 g) of Body TSL	condition	
SAR measured	100 mW input power	7.96 mW / g
SAR normalized	normalized to 1W	79.6 mW / g
SAR for nominal Body TSL parameters [1]	normalized to 1W	**79.1 mW / g ± 19.9 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.22 mW / g
SAR normalized	normalized to 1W	22.2 mW / g
SAR for nominal Body TSL parameters [1]	normalized to 1W	**22.1 mW / g ± 19.5 % (k=2)**

[1] Correction to nominal TSL parameters according to c), chapter "SAR Sensitivities

Body TSL parameters at 5500 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.6	5.65 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	46.7 ± 6 %	5.70 mho/m ± 6 %
Body TSL temperature during test	(21.6 ± 0.2) °C	----	----

SAR result with Body TSL at 5500 MHz

SAR averaged over 1 cm³ (1 g) of Body TSL	condition	
SAR measured	100 mW input power	8.23 mW / g
SAR normalized	normalized to 1W	82.3 mW / g
SAR for nominal Body TSL parameters [2]	normalized to 1W	**81.6 mW / g ± 19.9 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.27 mW / g
SAR normalized	normalized to 1W	22.7 mW / g
SAR for nominal Body TSL parameters [2]	normalized to 1W	**22.5 mW / g ± 19.5 % (k=2)**

Body TSL parameters at 5800 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.2	6.00 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	46.1 ± 6 %	6.03 mho/m ± 6 %
Body TSL temperature during test	(21.6 ± 0.2) °C	----	----

SAR result with Body TSL at 5800 MHz

SAR averaged over 1 cm³ (1 g) of Body TSL	condition	
SAR measured	100 mW input power	7.22 mW / g
SAR normalized	normalized to 1W	72.2 mW / g
SAR for nominal Body TSL parameters [2]	normalized to 1W	**71.6 mW / g ± 19.9 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	100 mW input power	1.99 mW / g
SAR normalized	normalized to 1W	19.9 mW / g
SAR for nominal Body TSL parameters [2]	normalized to 1W	**19.7 mW / g ± 19.5 % (k=2)**

[2] Correction to nominal TSL parameters according to c), chapter "SAR Sensitivities

Appendix

Antenna Parameters with Body TSL at 5200 MHz

Impedance, transformed to feed point	50.8 Ω - 5.2 jΩ
Return Loss	-25.6 dB

Antenna Parameters with Body TSL at 5500 MHz

Impedance, transformed to feed point	51.5 Ω - 2.8 jΩ
Return Loss	-30.2 dB

Antenna Parameters with Body TSL at 5800 MHz

Impedance, transformed to feed point	53.5 Ω - 1.4 jΩ
Return Loss	-28.8 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.202 ns

After long term use with 40 W 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 27, 2006

DASY5 Validation Report for Body TSL

Date/Time: 15.01.2009 13:31:25

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 5GHz; Type: D5GHz; Serial: D5GHzV2 - SN:1057

Communication System: CW-5GHz; Frequency: 5200 MHzFrequency: 5500 MHzFrequency: 5800 MHz; Duty Cycle: 1:1
Medium: MSL 5800 MHz
Medium parameters used: f = 5200 MHz; σ = 5.37 mho/m; ε_r = 47.4; ρ = 1000 kg/m^3 Medium parameters used: f = 5500 MHz; σ = 5.73 mho/m; ε_r = 46.6; ρ = 1000 kg/m^3 Medium parameters used: f = 5800 MHz; σ = 6.06 mho/m; ε_r = 46.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

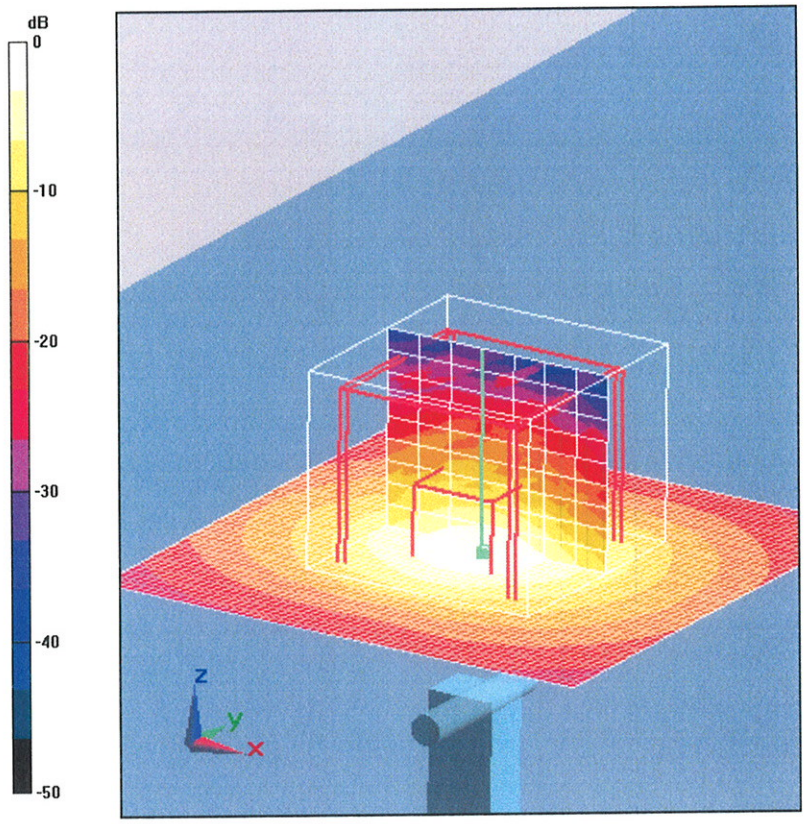
- Probe: EX3DV4 - SN3503; ConvF(4.95, 4.95, 4.95)ConvF(4.61, 4.61, 4.61)ConvF(4.74, 4.74, 4.74); Calibrated: 08.03.2008
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 14.03.2008
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

d=10mm, Pin=100mW, f=5200 MHz/Area Scan (61x61x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 16.4 mW/g

d=10mm, Pin=100mW, f=5200 MHz/Zoom Scan (8x8x10), dist=2mm (8x8x10)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 60.1 V/m; Power Drift = -0.034 dB
Peak SAR (extrapolated) = 30.1 W/kg
SAR(1 g) = 7.96 mW/g; SAR(10 g) = 2.22 mW/g
Maximum value of SAR (measured) = 16.5 mW/g

d=10mm, Pin=100mW, f=5500 MHz/Zoom Scan (8x8x10), dist=2mm (8x8x10)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 59.3 V/m; Power Drift = 0.012 dB
Peak SAR (extrapolated) = 33.9 W/kg
SAR(1 g) = 8.23 mW/g; SAR(10 g) = 2.27 mW/g
Maximum value of SAR (measured) = 17.6 mW/g

d=10mm, Pin=100mW, f=5800 MHz/Zoom Scan (8x8x10), dist=2mm (8x8x10)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 54.6 V/m; Power Drift = 0.014 dB
Peak SAR (extrapolated) = 31.2 W/kg
SAR(1 g) = 7.22 mW/g; SAR(10 g) = 1.99 mW/g
Maximum value of SAR (measured) = 15.6 mW/g



0 dB = 15.6mW/g

Impedance Measurement Plot for Body TSL