APPENDIX A: SAR TEST DATA

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-18; Type: Panasonic Notebook PC with WLAN, EVDO & Bluetooth; Serial: 4AKYA20526

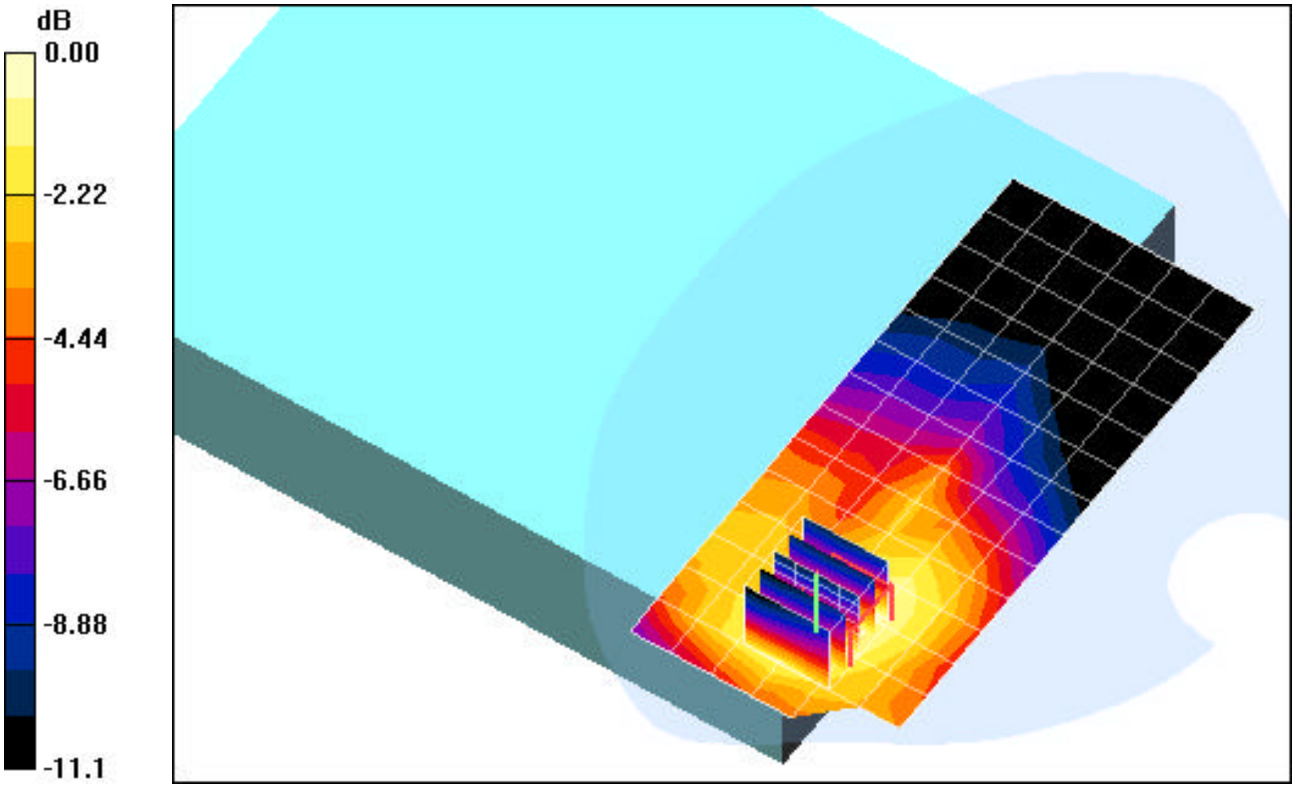
Communication System: Cellular CDMA; Frequency: 835.89 MHz;Duty Cycle: 1:1
Medium: 835 Muscle (σ = 0.96 mho/m, ε_r = 54.1, ρ = 1000 kg/m^3)
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 03-11-2005; Ambient Temp: 22.8°C; Tissue Temp: 20.2°C

Probe: EX3DV4 - SN3550; ConvF(7.99, 7.99, 7.99); Calibrated: 10/26/2004
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn637; Calibrated: 9/22/2004
Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197
Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

Mode: EVDO CDMA, Laptop Position, ch.0363, LCD Flip

Area Scan (7x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.65 V/m
Peak SAR (extrapolated) = 0.302 W/kg
SAR(1 g) = 0.183 mW/g; SAR(10 g) = 0.122 mW/g



0 dB = 0.224mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-18; Type: Panasonic Notebook PC with WLAN, EVDO & Bluetooth; Serial: 4AKYA20526

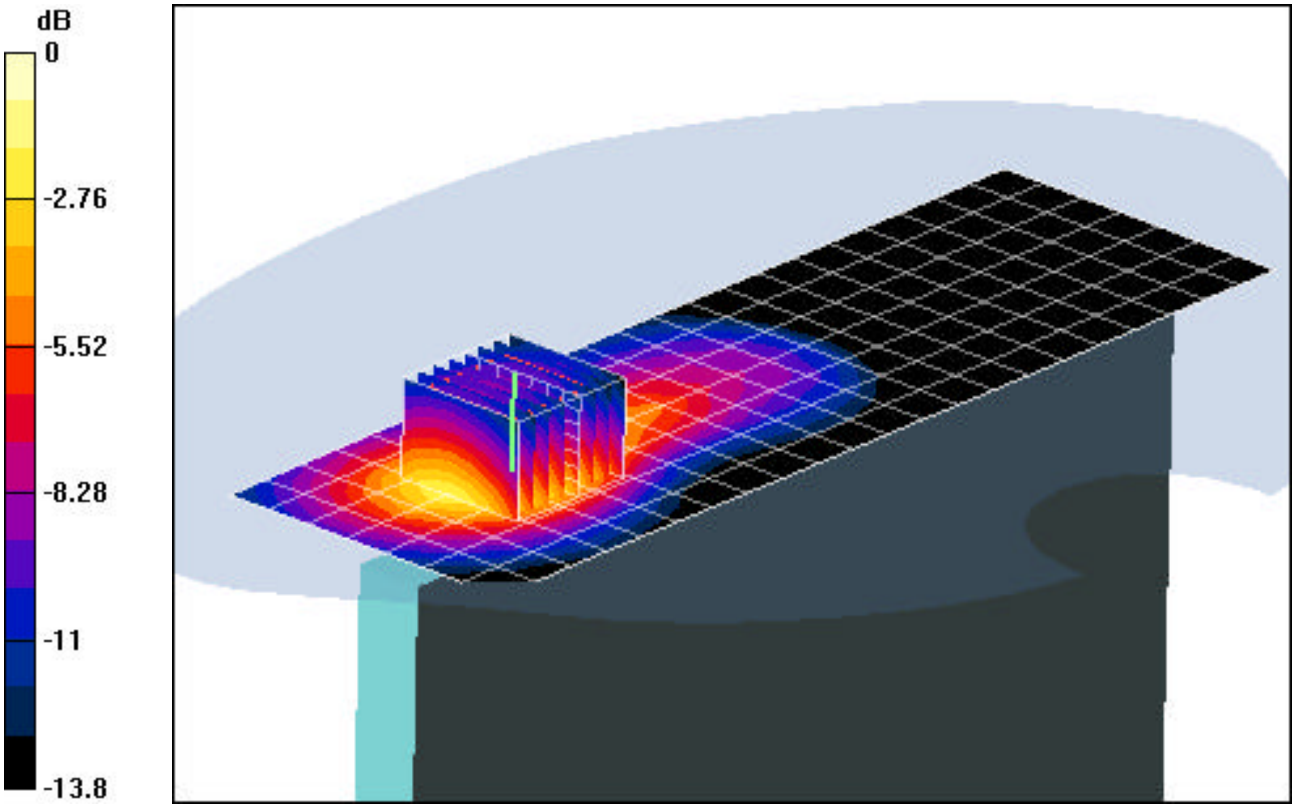
Communication System: Cellular CDMA; Frequency: 835.89 MHz;Duty Cycle: 1:1
Medium: 835 Muscle (σ = 0.96 mho/m, ε_r = 54.1, ρ = 1000 kg/m^3)
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 03-11-2005; Ambient Temp: 22.8°C; Tissue Temp: 20.2°C

Probe: EX3DV4 - SN3550; ConvF(7.99, 7.99, 7.99); Calibrated: 10/26/2004
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn637; Calibrated: 9/22/2004
Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197
Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

Mode: EVDO CDMA, Bystander position, LCD Open, ch.0363

Area Scan (8x23x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.19 V/m
Peak SAR (extrapolated) = 0.715 W/kg
SAR(1 g) = 0.438 mW/g; SAR(10 g) = 0.261 mW/g



0 dB = 0.542mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-18; Type: Panasonic Notebook PC with WLAN, EVDO & Bluetooth; Serial: 4AKYA20526

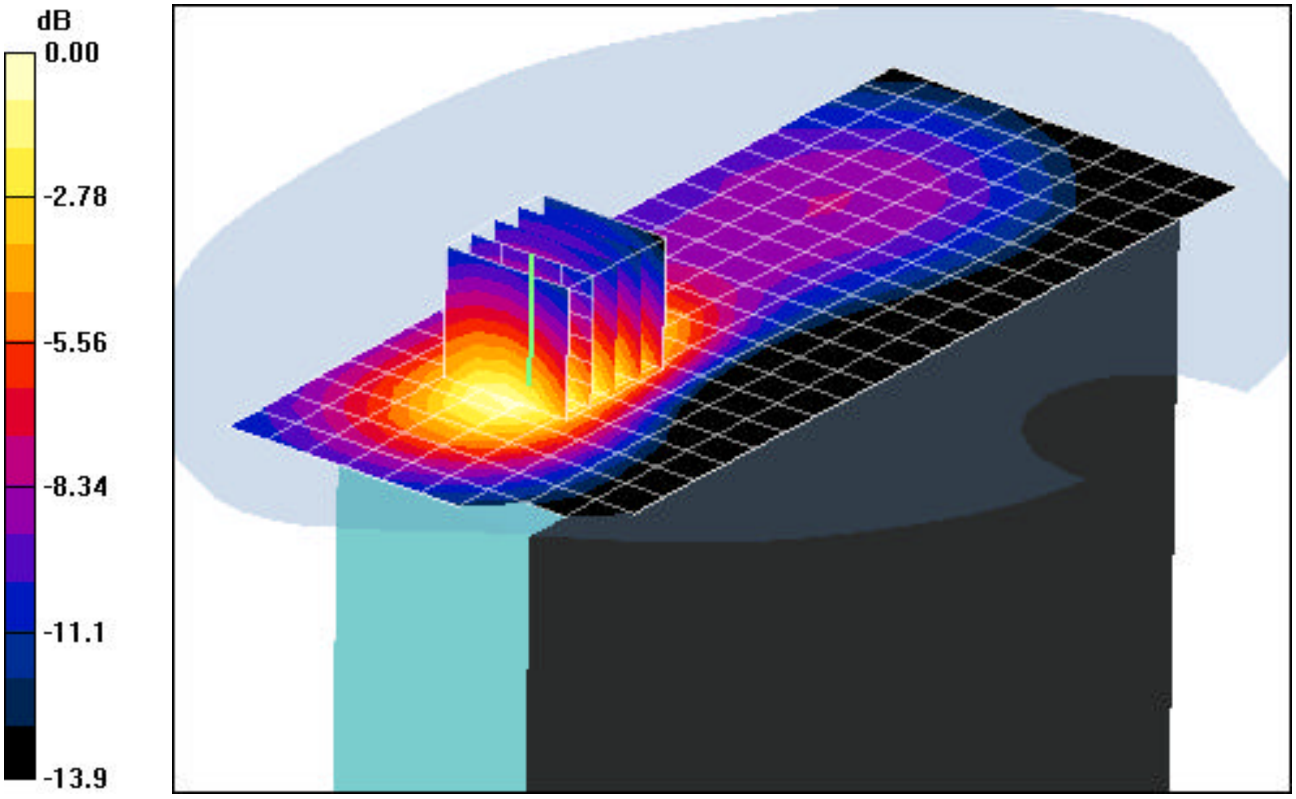
Communication System: Cellular CDMA; Frequency: 835.89 MHz;Duty Cycle: 1:1
Medium: 835 Muscle (σ = 0.96 mho/m, ε_r = 54.1, ρ = 1000 kg/m^3)
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 03-11-2005; Ambient Temp: 22.8°C; Tissue Temp: 20.2°C

Probe: EX3DV4 - SN3550; ConvF(7.99, 7.99, 7.99); Calibrated: 10/26/2004
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn637; Calibrated: 9/22/2004
Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197
Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

Mode: EVDO CDMA, Bystander position, LCD Flip, ch.0363

Area Scan (10x23x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.72 V/m
Peak SAR (extrapolated) = 0.684 W/kg
SAR(1 g) = 0.428 mW/g; SAR(10 g) = 0.261 mW/g



0 dB = 0.508mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-18; Type: Panasonic Notebook PC with WLAN, EVDO & Bluetooth; Serial: 4AKYA20526

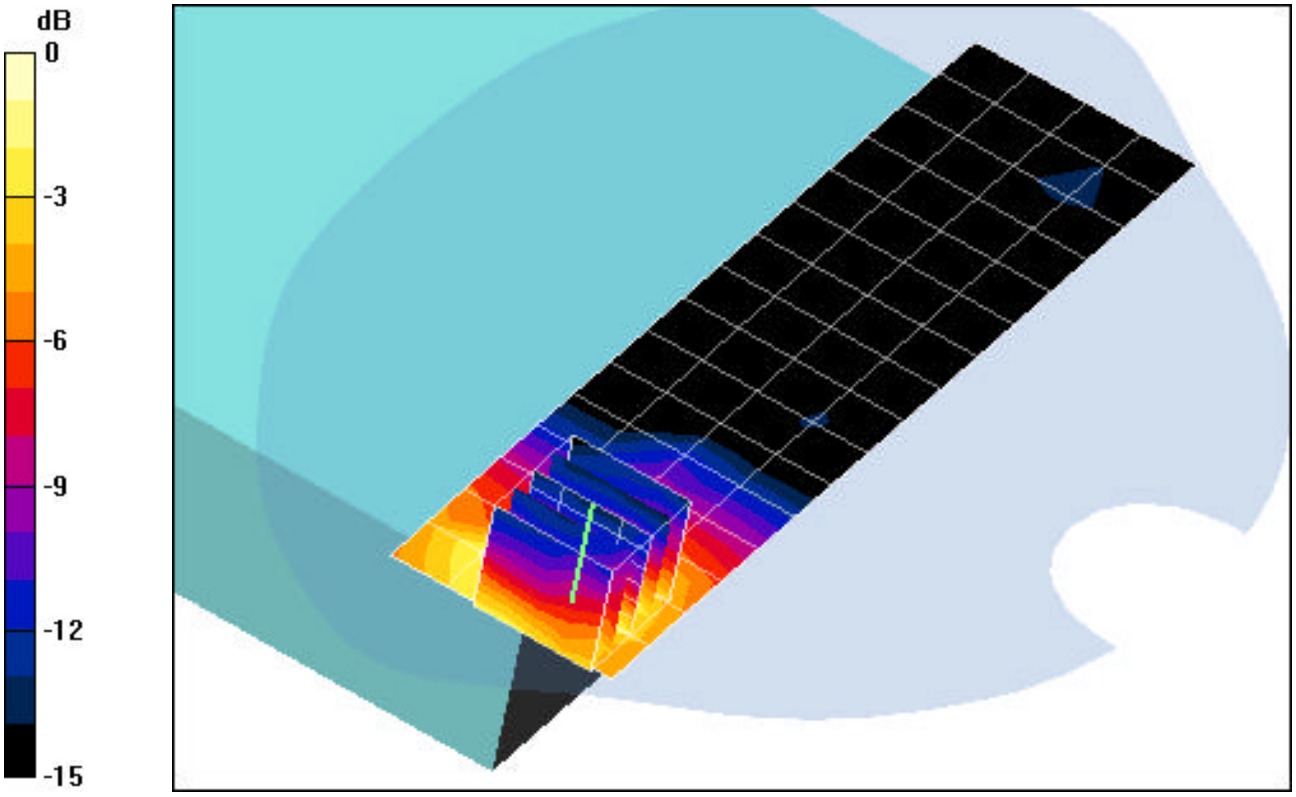
Communication System: PCS CDMA; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: 1900 Muscle (σ = 1.56 mho/m, ε_r = 52.6, ρ = 1000 kg/m^3)
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 03-11-2005; Ambient Temp: 23.0°C; Tissue Temp: 20.5°C

Probe: EX3DV4 - SN3550; ConvF(6.35, 6.35, 6.35); Calibrated: 10/26/2004
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn637; Calibrated: 9/22/2004
Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197
Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

Mode: EVDO PCS, Laptop Position, LCD Flip, ch.0600

Area Scan (5x17x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.629 V/m
Peak SAR (extrapolated) = 0.285 W/kg
SAR(1 g) = 0.167 mW/g; SAR(10 g) = 0.201 mW/g



0 dB = 0.195mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-18; Type: Panasonic Notebook PC with WLAN, EVDO & Bluetooth; Serial: 4AKYA20526

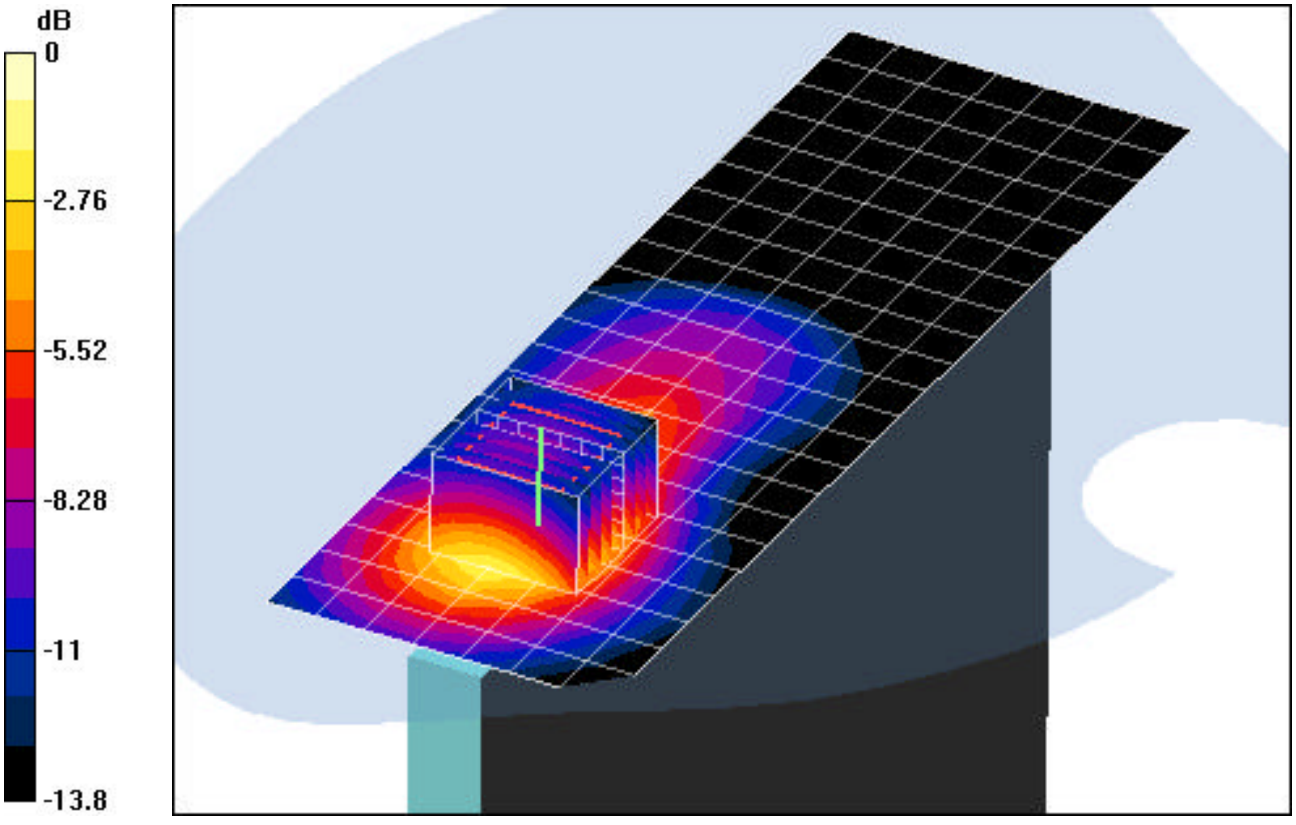
Communication System: PCS CDMA; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: 1900 Muscle (σ = 1.56 mho/m, ε_r = 52.6, ρ = 1000 kg/m^3)
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 03-11-2005; Ambient Temp: 23.0°C; Tissue Temp: 20.5°C

Probe: EX3DV4 - SN3550; ConvF(6.35, 6.35, 6.35); Calibrated: 10/26/2004
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn637; Calibrated: 9/22/2004
Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197
Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

Mode: EVDO PCS, Bystander position, LCD Open, ch.0600

Area Scan (8x23x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (5x5x8)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.22 V/m
Peak SAR (extrapolated) = 1.45 W/kg
SAR(1 g) = 0.887 mW/g; SAR(10 g) = 0.483 mW/g



0 dB = 1.14mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-18; Type: Panasonic Notebook PC with WLAN, EVDO & Bluetooth; Serial: 4AKYA20526

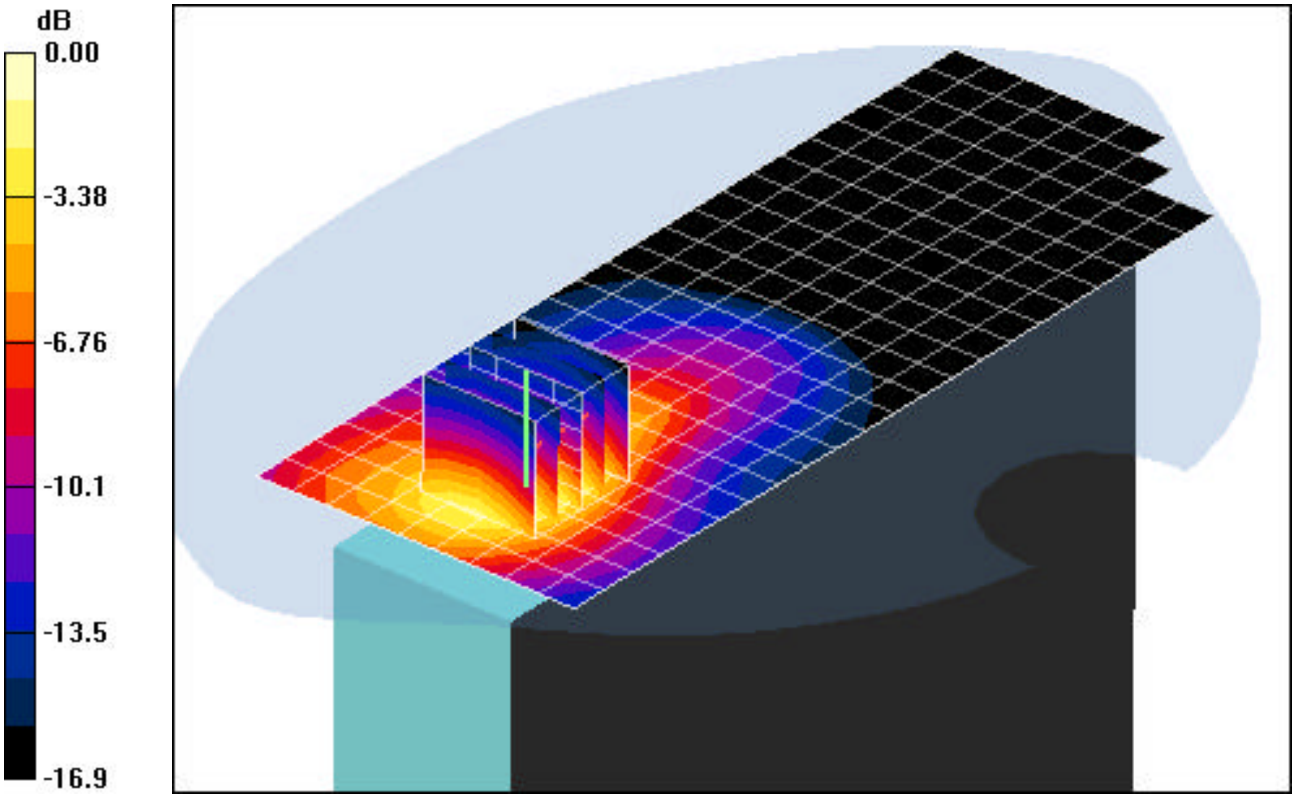
Communication System: PCS CDMA; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: 1900 Muscle (σ = 1.56 mho/m, ε_r = 52.6, ρ = 1000 kg/m^3)
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 03-11-2003; Ambient Temp: 23.0°C; Tissue Temp: 20.5°C

Probe: EX3DV4 - SN3550; ConvF(6.35, 6.35, 6.35); Calibrated: 10/26/2004
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn637; Calibrated: 9/22/2004
Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197
Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

Mode: EVDO PCS, Bystander position, LCD Flip, ch.0600

Area Scan (10x25x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.21 V/m
Peak SAR (extrapolated) = 1.17 W/kg
SAR(1 g) = 0.695 mW/g; SAR(10 g) = 0.382 mW/g



0 dB = 0.883mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-18; Type: Panasonic Notebook PC with WLAN, EVDO & Bluetooth; Serial: 4AKYA20526

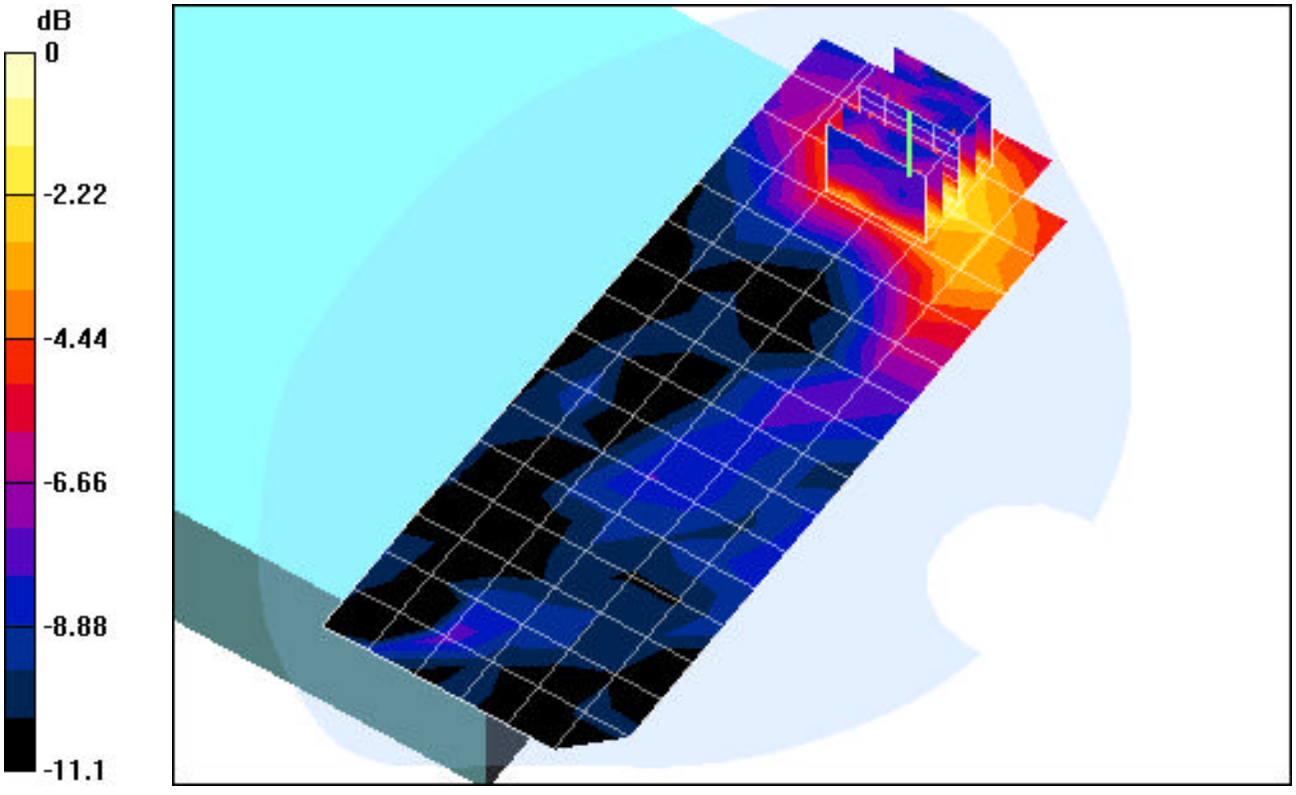
Communication System: IEEE 802.11b; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium: 2450 Muscle (σ = 1.93 mho/m, ε_r = 53.74, ρ = 1000 kg/m^3)
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 03-07-2005; Ambient Temp: 22.6°C; Tissue Temp: 19.8°C

Probe: EX3DV4 - SN3550; ConvF(6.27, 6.27, 6.27); Calibrated: 10/26/2004
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn637; Calibrated: 9/22/2004
Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197
Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

Mode: IEEE 802.11b, Laptop Position, LCD Flip, ch.06, 5.5Mbps

Area Scan (7x17x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.67 V/m
Peak SAR (extrapolated) = 0.064 W/kg
SAR(1 g) = 0.040 mW/g; SAR(10 g) = 0.021 mW/g



0 dB = 0.044mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-18; Type: Panasonic Notebook PC with WLAN, EVDO & Bluetooth; Serial: 4AKYA20526

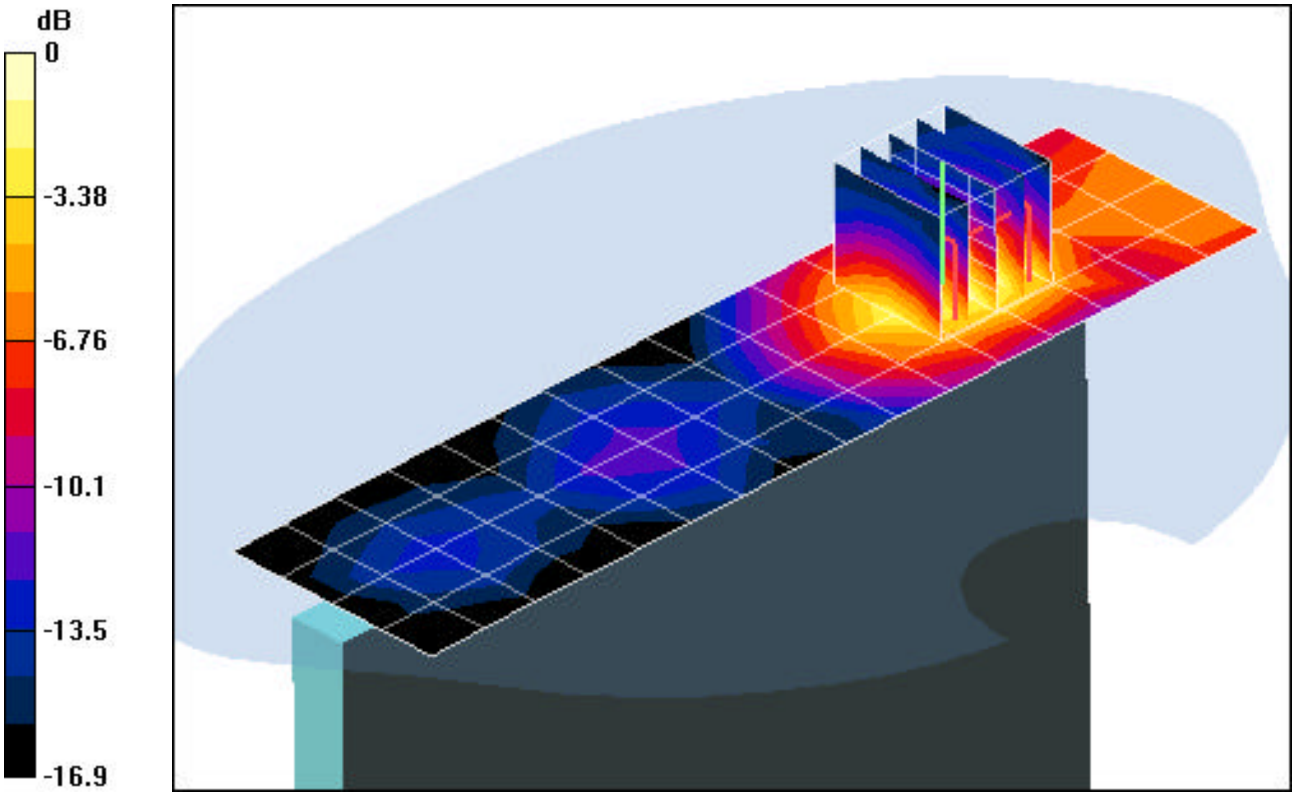
Communication System: IEEE 802.11b; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium: 2450 Muscle (σ = 1.93 mho/m, ε_r = 53.74, ρ = 1000 kg/m^3)
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 03-07-2005; Ambient Temp: 22.6°C; Tissue Temp: 19.8°C

Probe: EX3DV4 - SN3550; ConvF(6.27, 6.27, 6.27); Calibrated: 10/26/2004
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn637; Calibrated: 9/22/2004
Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197
Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

Mode: IEEE 802.11b, Bystander position, LCD Open, ch.06, 5.5Mbps

Area Scan (5x17x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.44 V/m
Peak SAR (extrapolated) = 0.519 W/kg
SAR(1 g) = 0.276 mW/g; SAR(10 g) = 0.148 mW/g



0 dB = 0.349mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-18; Type: Panasonic Notebook PC with WLAN, EVDO & Bluetooth; Serial: 4AKYA20526

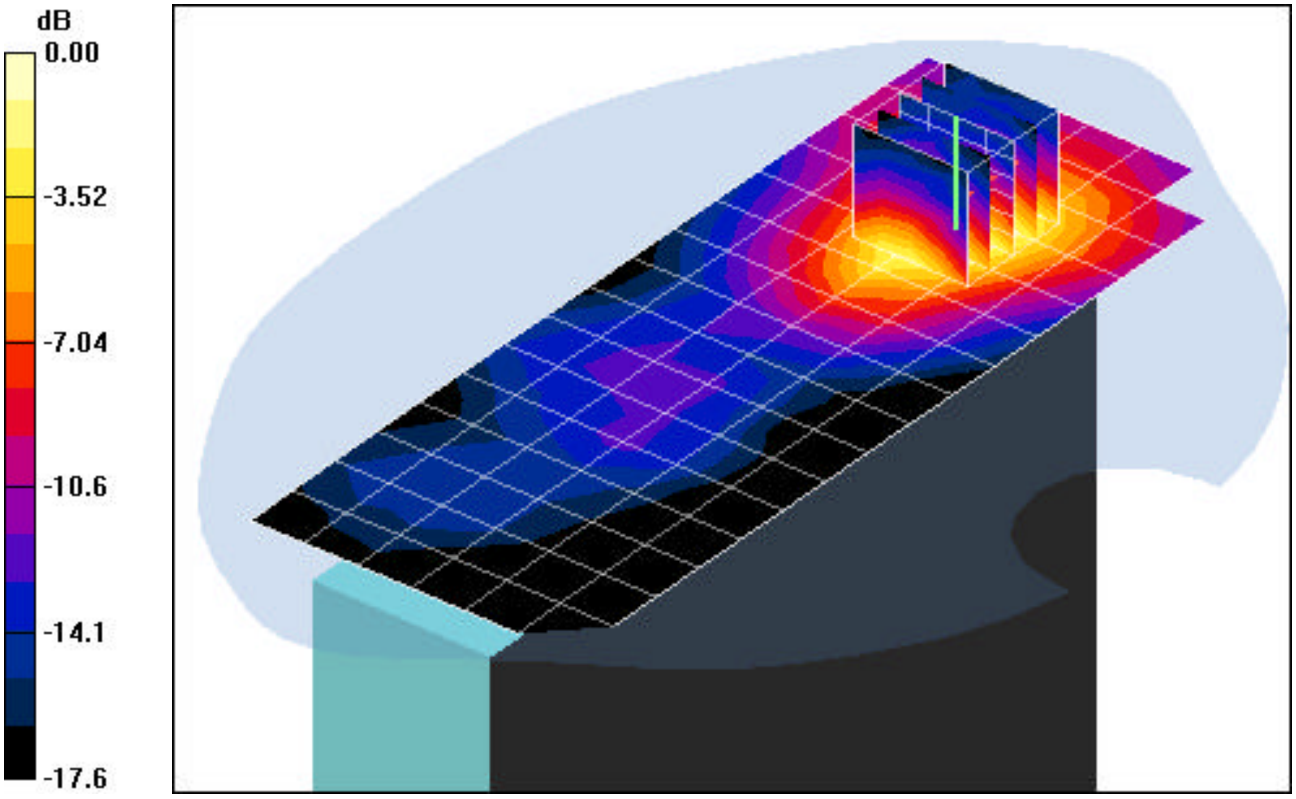
Communication System: IEEE 802.11b; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium: 2450 Muscle (σ = 1.93 mho/m, ε_r = 53.74, ρ = 1000 kg/m^3)
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 03-07-2005; Ambient Temp: 22.6°C; Tissue Temp: 19.8°C

Probe: EX3DV4 - SN3550; ConvF(6.27, 6.27, 6.27); Calibrated: 10/26/2004
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn637; Calibrated: 9/22/2004
Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197
Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

Mode: IEEE 802.11b, Bystander position, LCD Flip, ch.06, 5.5Mbps

Area Scan (7x17x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.99 V/m
Peak SAR (extrapolated) = 0.429 W/kg
SAR(1 g) = 0.232 mW/g; SAR(10 g) = 0.122 mW/g



0 dB = 0.291mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-18; Type: Panasonic Notebook PC with WLAN, EVDO & Bluetooth; Serial: 4AKYA20526

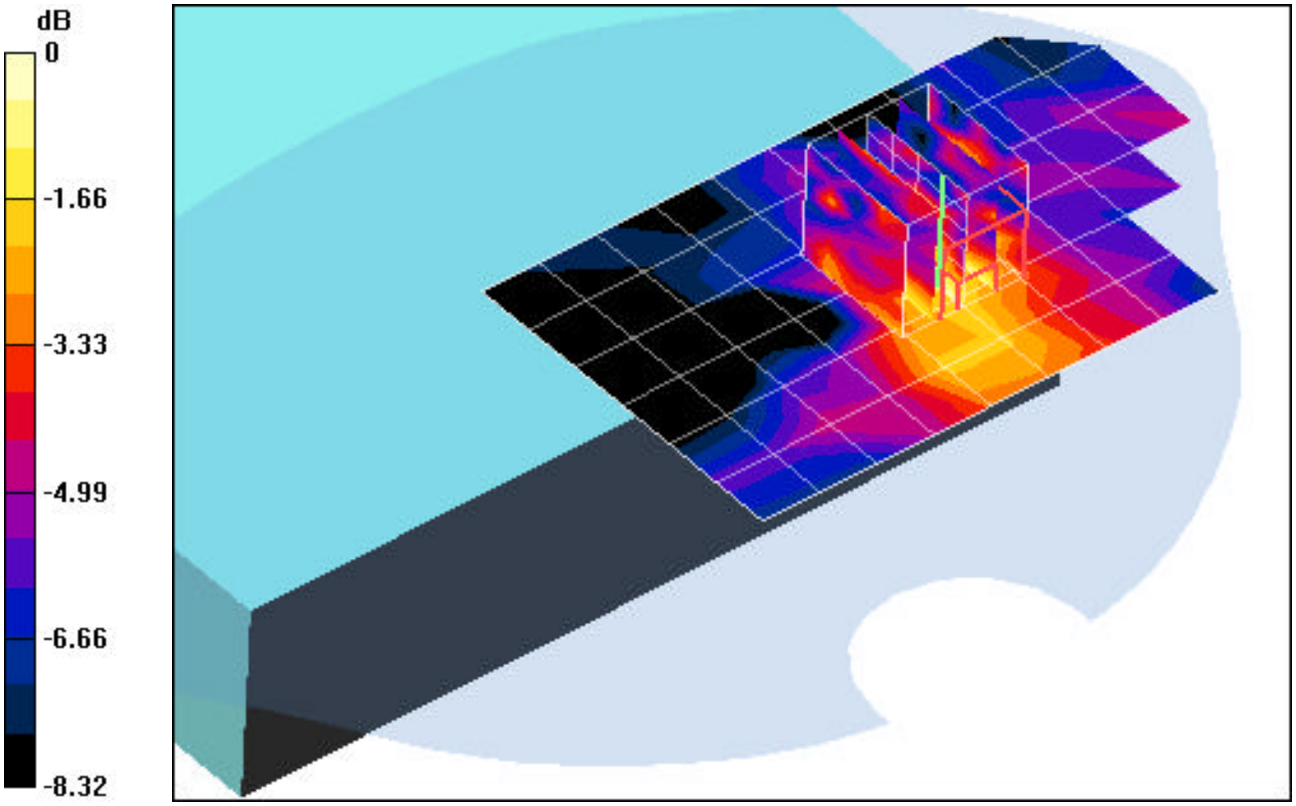
Communication System: IEEE 802.11g; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium: 2450 Muscle (σ = 1.93 mho/m, ε_r = 53.74, ρ = 1000 kg/m^3)
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 03-07-2005; Ambient Temp: 22.6°C; Tissue Temp: 19.8°C

Probe: EX3DV4 - SN3550; ConvF(6.27, 6.27, 6.27); Calibrated: 10/26/2004
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn637; Calibrated: 9/22/2004
Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197
Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

Mode: IEEE 802.11g, Laptop position, LCD Flip, ch.06, 12Mbps

Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.18 V/m
Peak SAR (extrapolated) = 4795.4 W/kg
SAR(1 g) = 0.131 mW/g; SAR(10 g) = 0.026 mW/g



0 dB = 0.019mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-18; Type: Panasonic Notebook PC with WLAN, EVDO & Bluetooth; Serial: 4AKYA20526

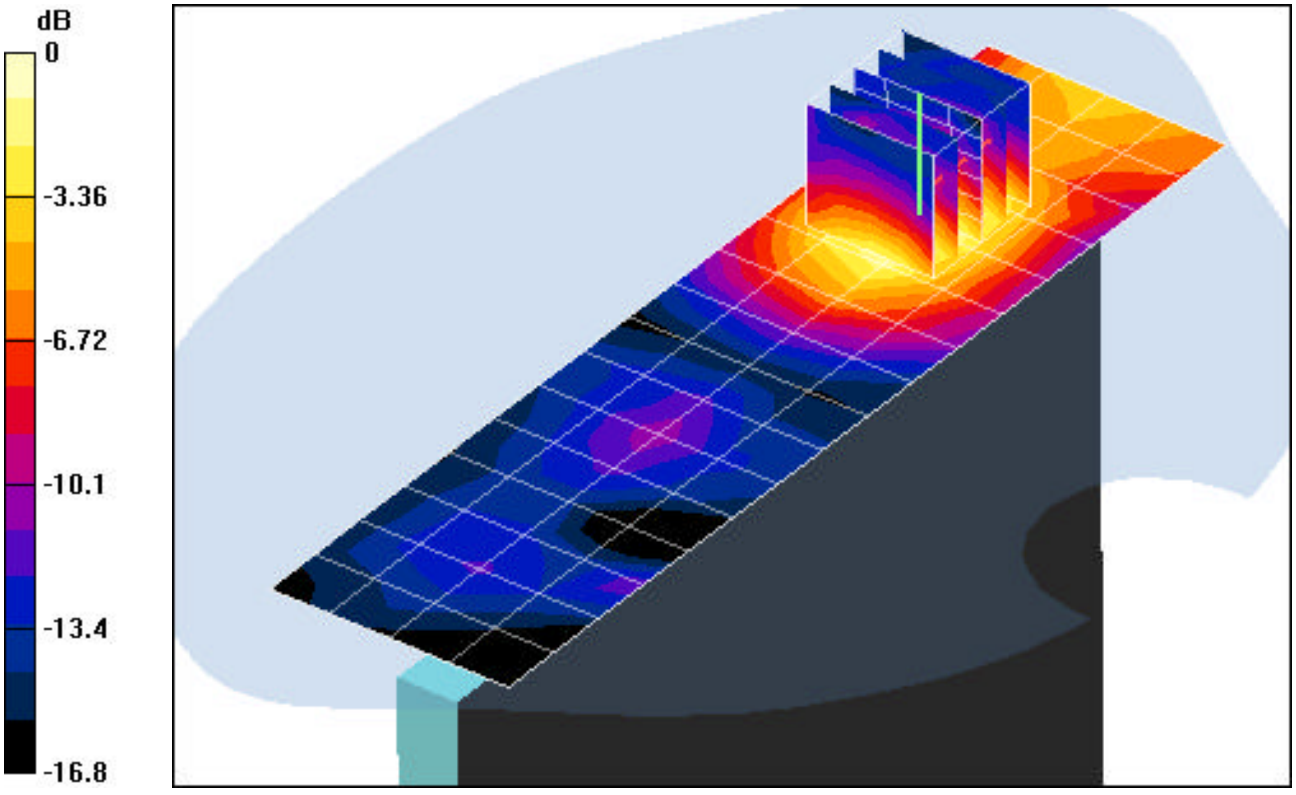
Communication System: IEEE 802.11g; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium: 2450 Muscle (σ = 1.93 mho/m, ε_r = 53.74, ρ = 1000 kg/m^3)
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 03-07-2005; Ambient Temp: 22.6°C; Tissue Temp: 19.8°C

Probe: EX3DV4 - SN3550; ConvF(6.27, 6.27, 6.27); Calibrated: 10/26/2004
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn637; Calibrated: 9/22/2004
Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197
Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

Mode: IEEE 802.11g, Bystander position, LCD Open, ch.06, 12Mbps

Area Scan (5x17x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.79 V/m
Peak SAR (extrapolated) = 0.307 W/kg
SAR(1 g) = 0.163 mW/g; SAR(10 g) = 0.084 mW/g



0 dB = 0.200mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-18; Type: Panasonic Notebook PC with WLAN, EVDO & Bluetooth; Serial: 4AKYA20526

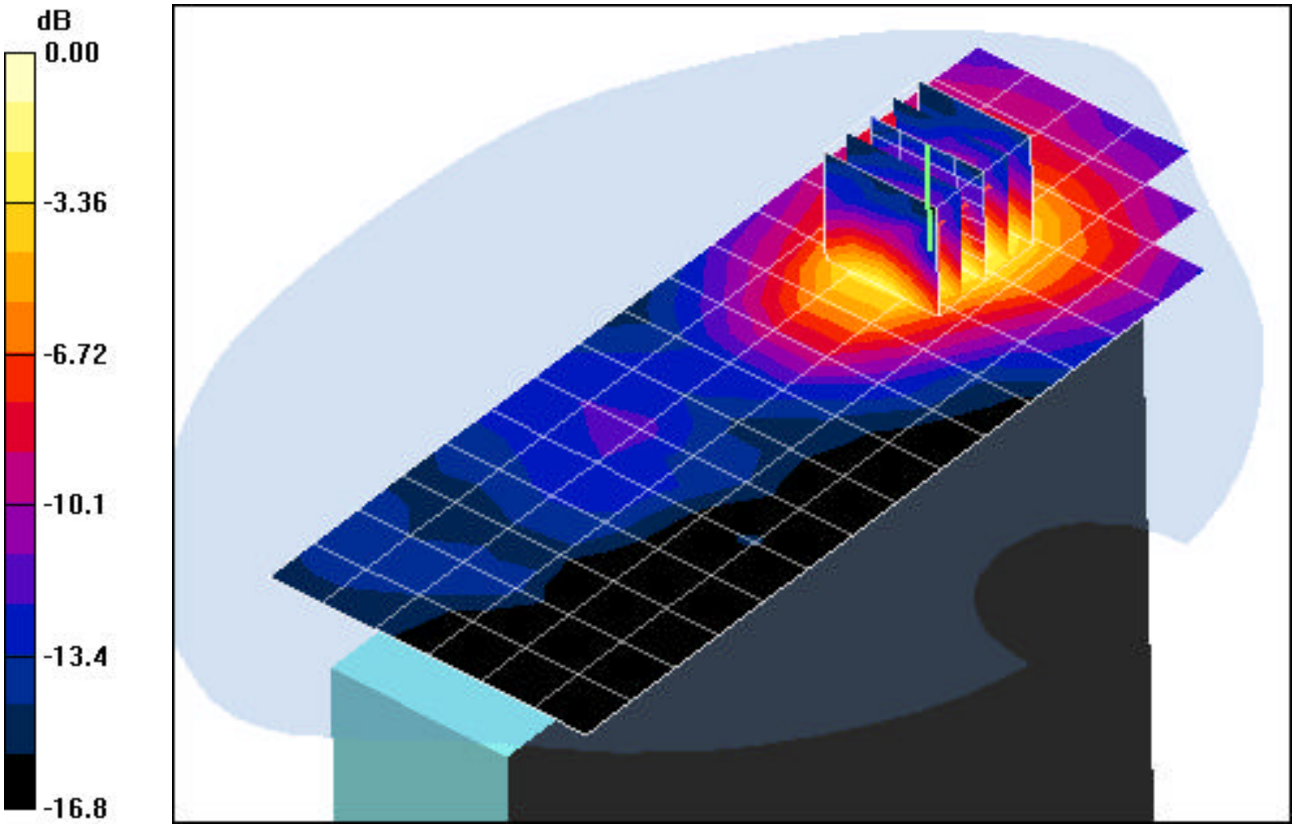
Communication System: IEEE 802.11g; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium: 2450 Muscle (σ = 1.93 mho/m, ε_r = 53.74, ρ = 1000 kg/m^3)
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 03-07-2005; Ambient Temp: 22.6°C; Tissue Temp: 19.8°C

Probe: EX3DV4 - SN3550; ConvF(6.27, 6.27, 6.27); Calibrated: 10/26/2004
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn637; Calibrated: 9/22/2004
Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197
Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

Mode: IEEE 802.11g, Bystander position, LCD Flip, ch.06, 12Mbps

Area Scan (7x17x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.88 V/m
Peak SAR (extrapolated) = 0.253 W/kg
SAR(1 g) = 0.135 mW/g; SAR(10 g) = 0.072 mW/g



0 dB = 0.171mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-18; Type: Panasonic Notebook PC with WLAN, EVDO & Bluetooth; Serial: 4AKYA20526

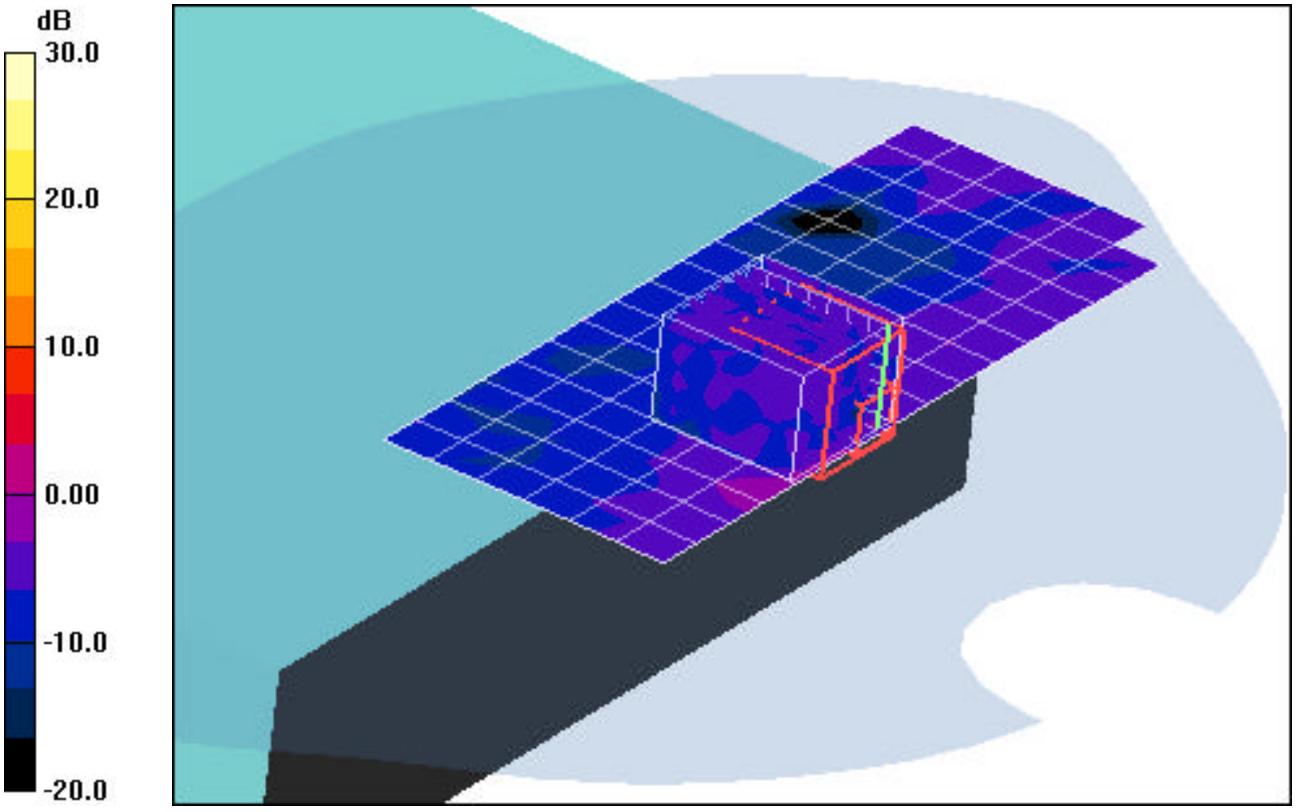
Communication System: IEEE 802.11a WLAN; Frequency: 5260 MHz;Duty Cycle: 1:1
Medium: 5300 Muscle (σ = 5.41 mho/m, ε_r = 48.10, ρ = 1000 kg/m^3)
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 03-08-2005; Ambient Temp: 22.9°C; Tissue Temp: 20.3°C

Probe: EX3DV4 - SN3550; ConvF(3.72, 3.72, 3.72); Calibrated: 10/26/2004
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn637; Calibrated: 9/22/2004
Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197
Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

Mode: IEEE 802.11a, Laptop position, LCD Flip, ch.52, 12Mbps

Area Scan (7x17x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 1.63 V/m
Peak SAR (extrapolated) = 0.161 W/kg
SAR(1 g) = 0.004 mW/g; SAR(10 g) = 0.000431 mW/g



0 dB = 0.070mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-18; Type: Panasonic Notebook PC with WLAN, EVDO & Bluetooth; Serial: 4AKYA20526

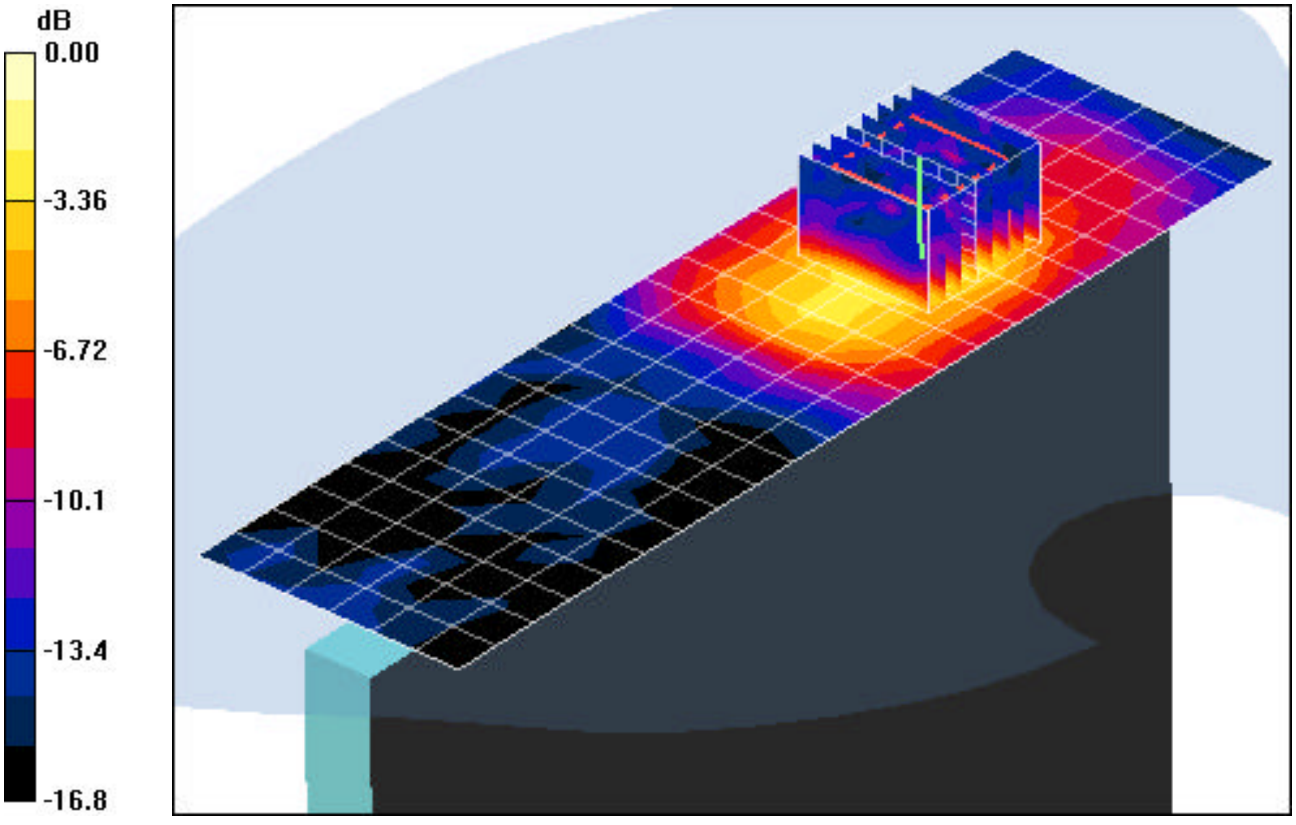
Communication System: IEEE 802.11a WLAN; Frequency: 5260 MHz;Duty Cycle: 1:1
Medium: 5300 Muscle (σ = 5.41 mho/m, ε_r = 48.10, ρ = 1000 kg/m^3)
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 03-08-2005; Ambient Temp: 22.9°C; Tissue Temp: 20.3°C

Probe: EX3DV4 - SN3550; ConvF(3.72, 3.72, 3.72); Calibrated: 10/26/2004
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn637; Calibrated: 9/22/2004
Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197
Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

Mode: IEEE 802.11a, Bystander position, LCD Open, ch.52, 12Mbps

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 = 2.75 V/m
Peak SAR (extrapolated) = 1.25 W/kg
SAR(1 g) = 0.349 mW/g; SAR(10 g) = 0.142 mW/g



0 dB = 0.488mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-18; Type: Panasonic Notebook PC with WLAN, EVDO & Bluetooth; Serial: 4AKYA20526

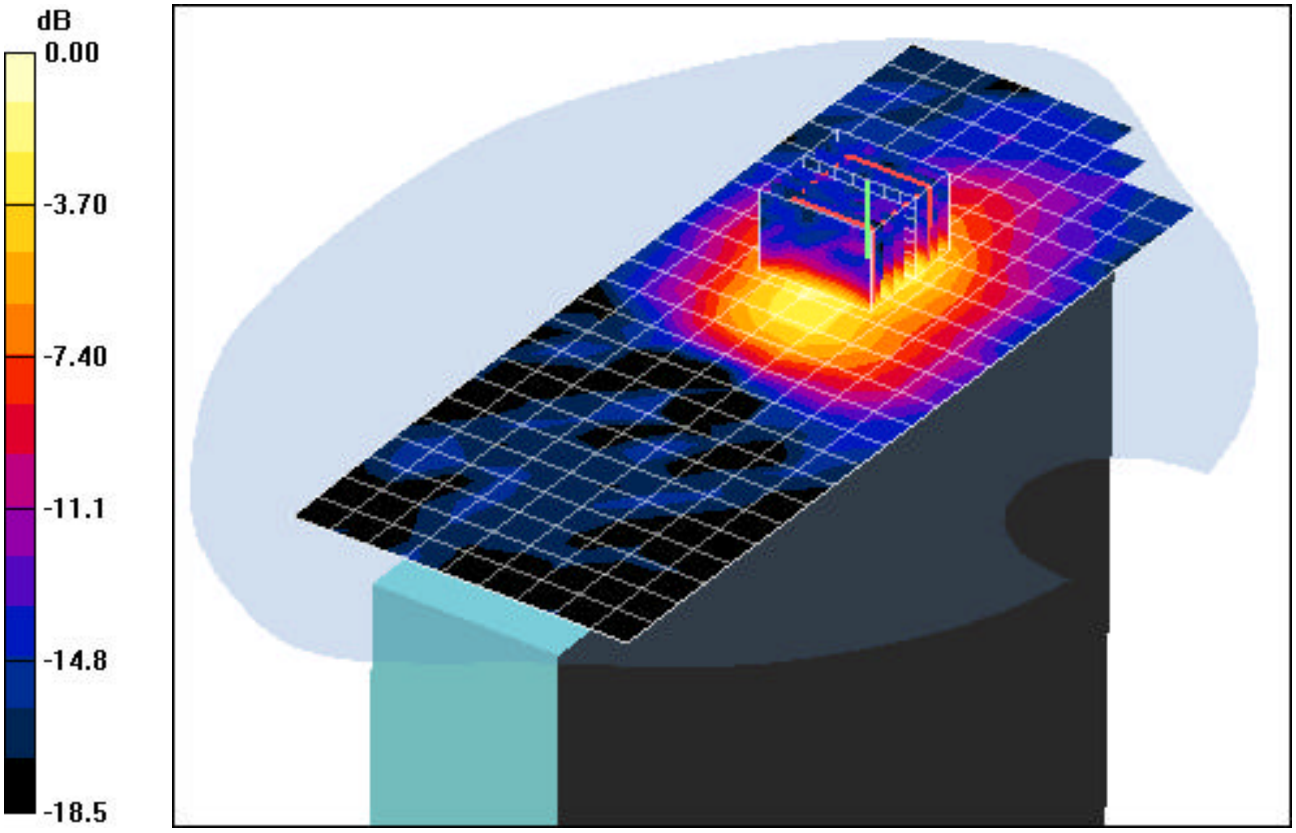
Communication System: IEEE 802.11a WLAN; Frequency: 5260 MHz;Duty Cycle: 1:1
Medium: 5300 Muscle (σ = 5.41 mho/m, ε_r = 48.10, ρ = 1000 kg/m^3)
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 03-08-2005; Ambient Temp: 22.9°C; Tissue Temp: 20.3°C

Probe: EX3DV4 - SN3550; ConvF(3.72, 3.72, 3.72); Calibrated: 10/26/2004
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn637; Calibrated: 9/22/2004
Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197
Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

Mode: IEEE 802.11a, Bystander position, LCD Flip, ch.52, 12Mbps

Area Scan (10x25x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 2.18 V/m
Peak SAR (extrapolated) = 1.18 W/kg
SAR(1 g) = 0.340 mW/g; SAR(10 g) = 0.139 mW/g



0 dB = 0.479mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-18; Type: Panasonic Notebook PC with WLAN, EVDO & Bluetooth; Serial: 4AKYA20526

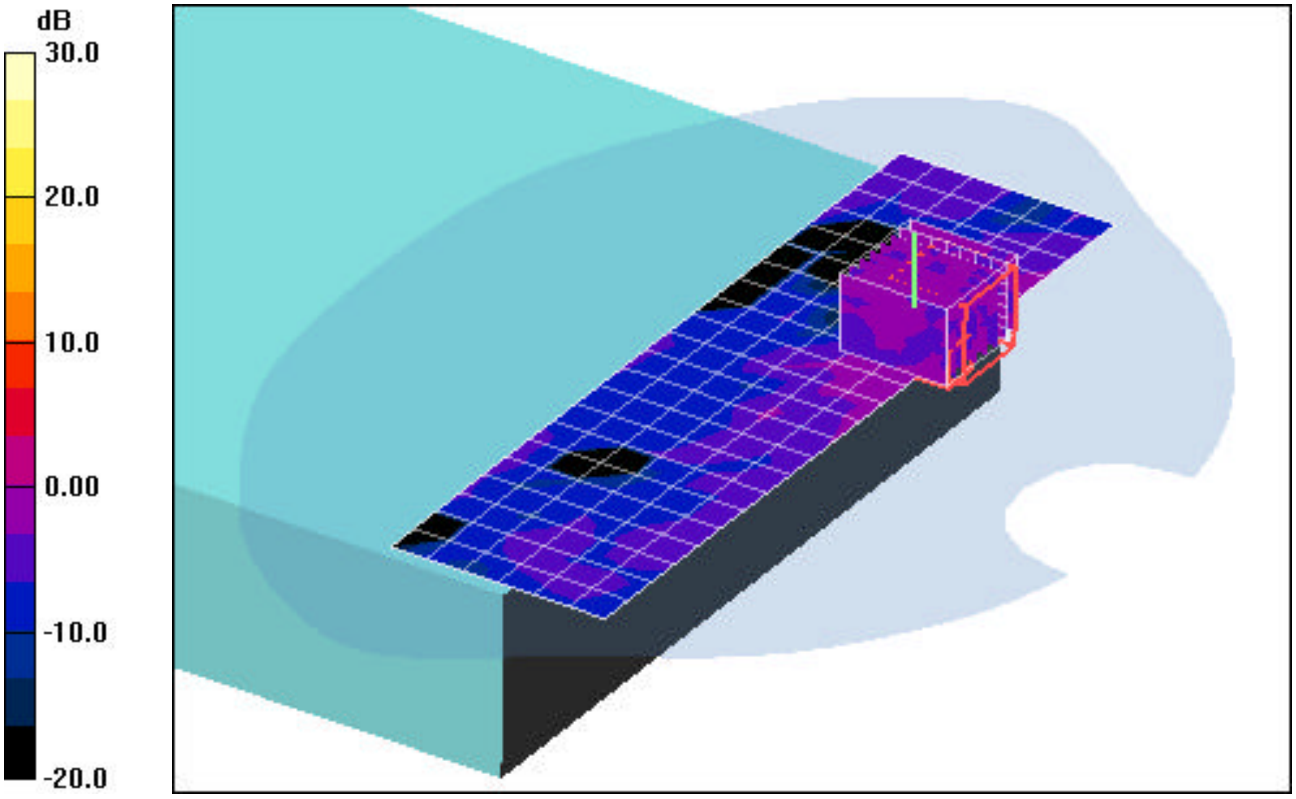
Communication System: IEEE 802.11a WLAN; Frequency: 5785 MHz;Duty Cycle: 1:1
Medium: 5800 Muscle (σ = 5.94 mho/m, ε_r = 48.22, ρ = 1000 kg/m^3)
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 03-09-2005; Ambient Temp: 22.6°C; Tissue Temp: 20.5°C

Probe: EX3DV4 - SN3550; ConvF(3.48, 3.48, 3.48); Calibrated: 10/26/2004
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn637; Calibrated: 9/22/2004
Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197
Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

Mode: IEEE 802.11a, Laptop position, LCD Flip, ch.157, 12Mbps

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 = 1.00 V/m
Peak SAR (extrapolated) = 0.138 W/kg
SAR(1 g) = 0.028 mW/g; SAR(10 g) = 0.021 mW/g



0 dB = 0.046mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-18; Type: Panasonic Notebook PC with WLAN, EVDO & Bluetooth; Serial: 4AKYA20526

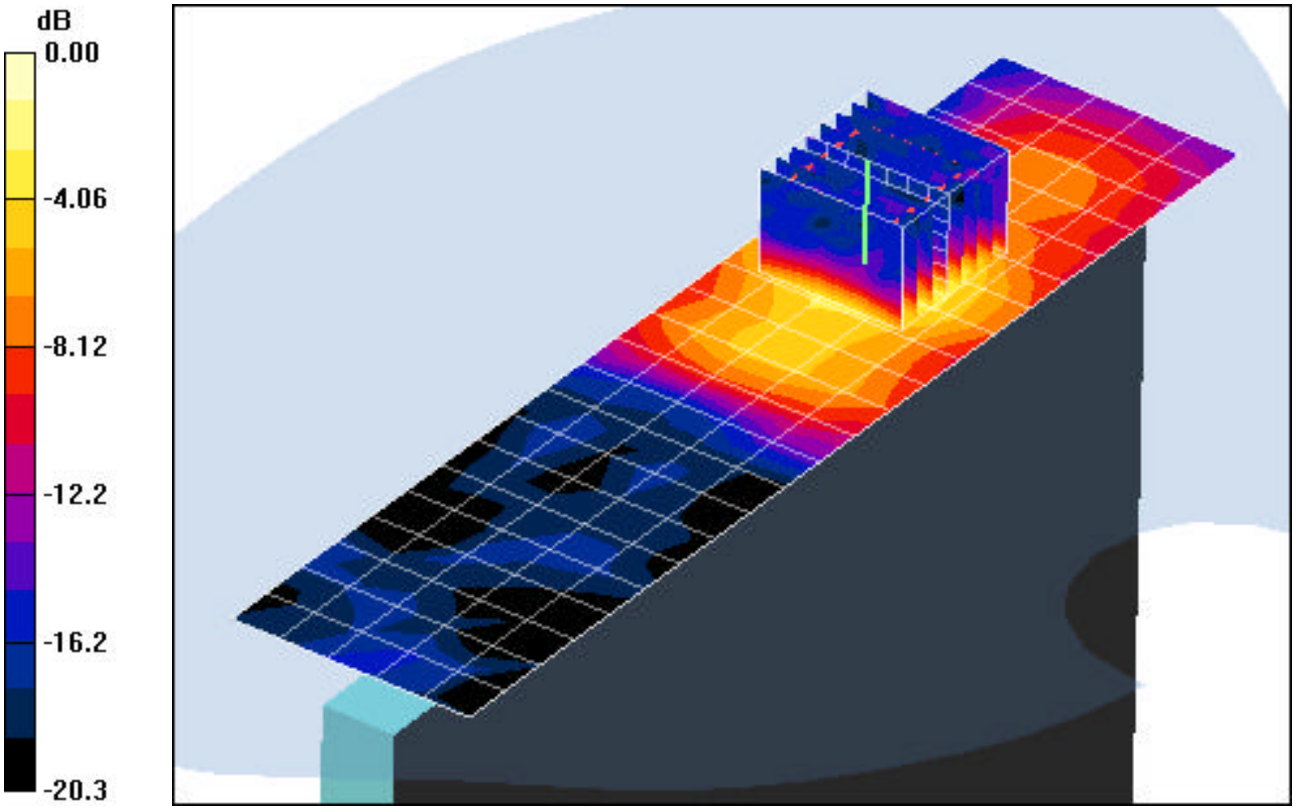
Communication System: IEEE 802.11a WLAN; Frequency: 5785 MHz;Duty Cycle: 1:1
Medium: 5800 Muscle (σ = 5.94 mho/m, ε_r = 48.22, ρ = 1000 kg/m^3)
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 03-09-2005; Ambient Temp: 22.6°C; Tissue Temp: 20.5°C

Probe: EX3DV4 - SN3550; ConvF(3.48, 3.48, 3.48); Calibrated: 10/26/2004
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn637; Calibrated: 9/22/2004
Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197
Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

Mode: IEEE 802.11a, Bystander position, LCD Open, ch.157, 12Mbps

Area Scan (6x23x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 4.60 V/m
Peak SAR (extrapolated) = 2.79 W/kg
SAR(1 g) = 0.582 mW/g; SAR(10 g) = 0.224 mW/g



0 dB = 0.776mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-18; Type: Panasonic Notebook PC with WLAN, EVDO & Bluetooth; Serial: 4AKYA20526

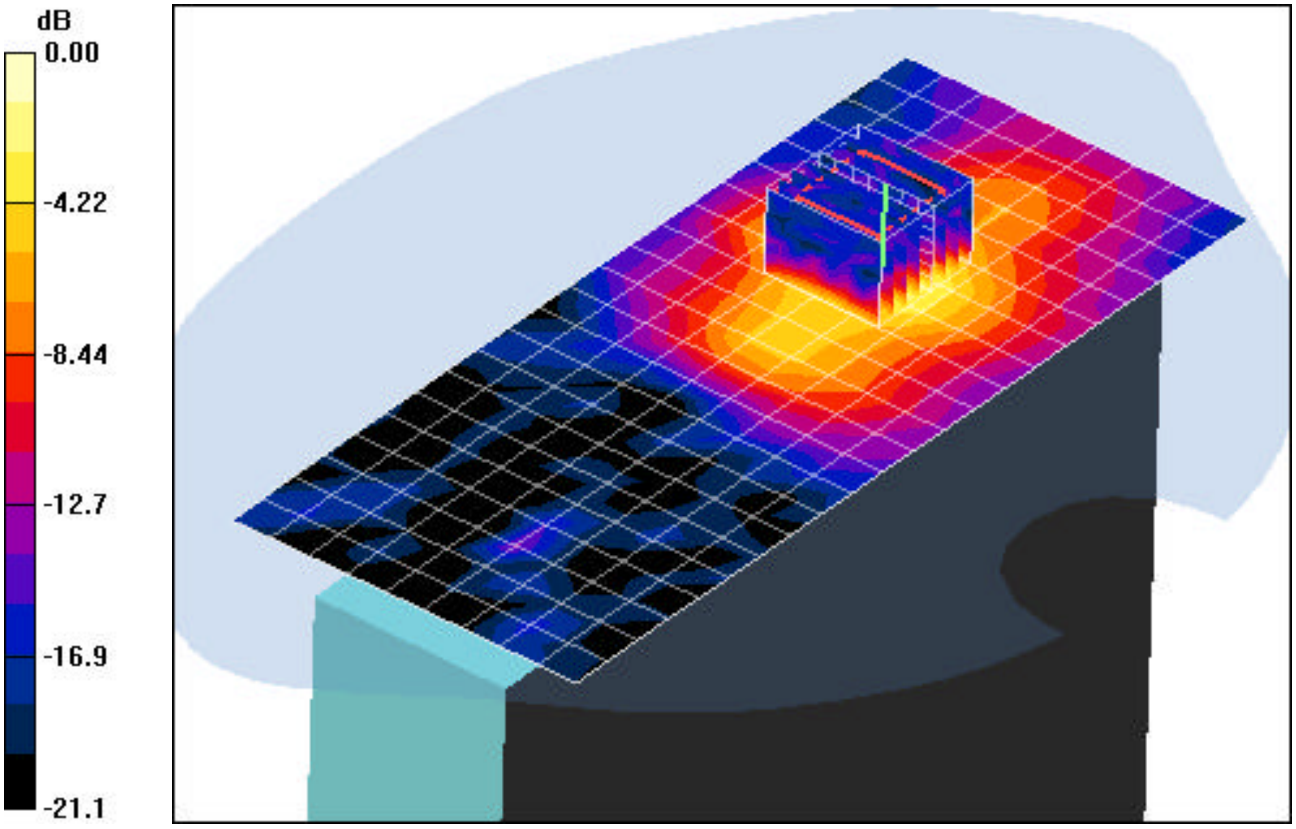
Communication System: IEEE 802.11a WLAN; Frequency: 5785 MHz;Duty Cycle: 1:1
Medium: 5800 Muscle (σ = 5.94 mho/m, ε_r = 48.22, ρ = 1000 kg/m^3)
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 03-09-2005; Ambient Temp: 22.6°C; Tissue Temp: 20.5°C

Probe: EX3DV4 - SN3550; ConvF(3.48, 3.48, 3.48); Calibrated: 10/26/2004
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn637; Calibrated: 9/22/2004
Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197
Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

Mode: IEEE 802.11a, Bystander position, LCD Flip, ch.157, 12Mbps

Area Scan (10x23x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 4.69 V/m
Peak SAR (extrapolated) = 1.99 W/kg
SAR(1 g) = 0.561 mW/g; SAR(10 g) = 0.222 mW/g



0 dB = 0.782mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-18; Type: Panasonic Notebook PC with WLAN, EVDO & Bluetooth; Serial: 4AKYA20526

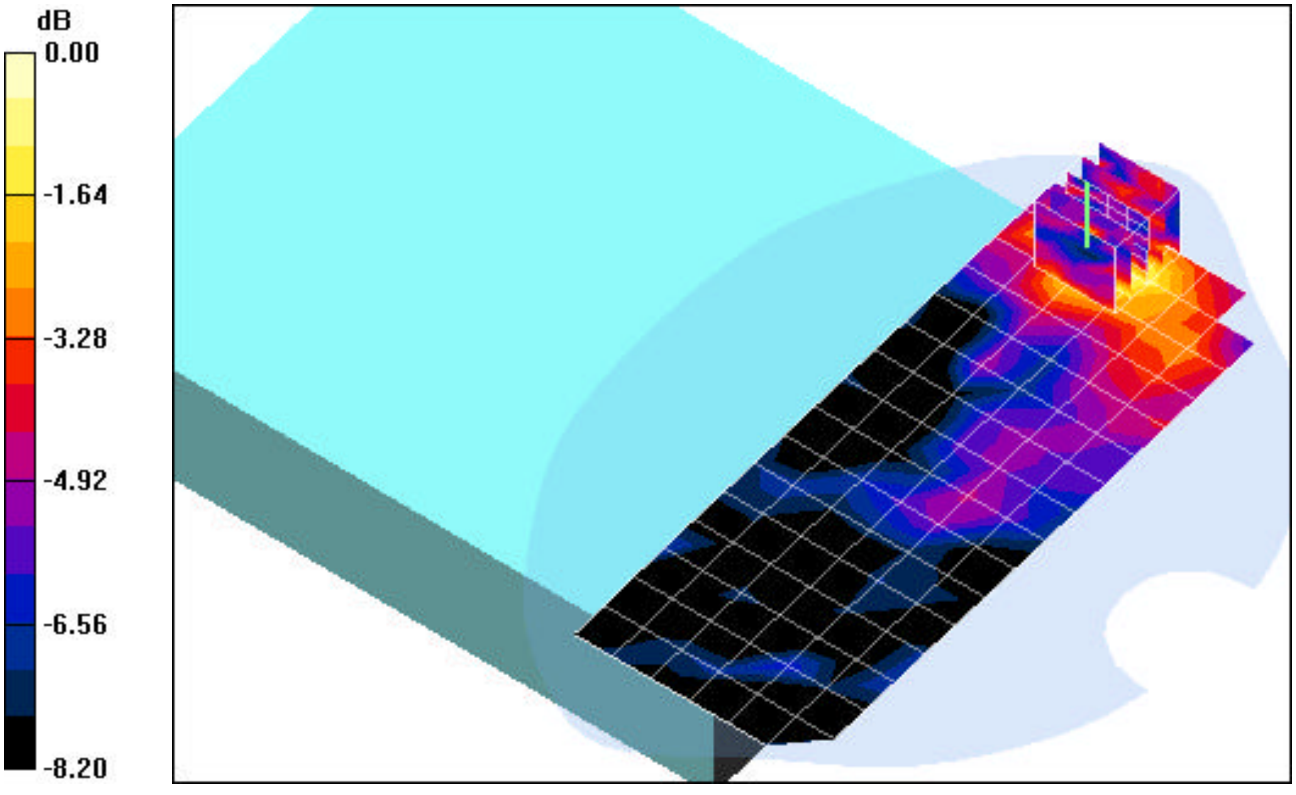
Communication System: Bluetooth; Frequency: 2441 MHz;Duty Cycle: 1:1
Medium: 2450 Muscle (σ = 1.93 mho/m, ε_r = 53.74, ρ = 1000 kg/m^3)
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 03-24-2005; Ambient Temp: 23.4°C; Tissue Temp: 21.7°C

Probe: EX3DV4 - SN3550; ConvF(6.27, 6.27, 6.27); Calibrated: 10/26/2004
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn637; Calibrated: 9/22/2004
Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197
Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

Mode: Bluetooth, Laptop Position, LCD Flip, ch.39

Area Scan (7x17x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.44 V/m
Peak SAR (extrapolated) = 0.066 W/kg
SAR(1 g) = 0.016 mW/g; SAR(10 g) = 0.00861 mW/g



0 dB = 0.020mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-18; Type: Panasonic Notebook PC with WLAN, EVDO & Bluetooth; Serial: 4AKYA20526

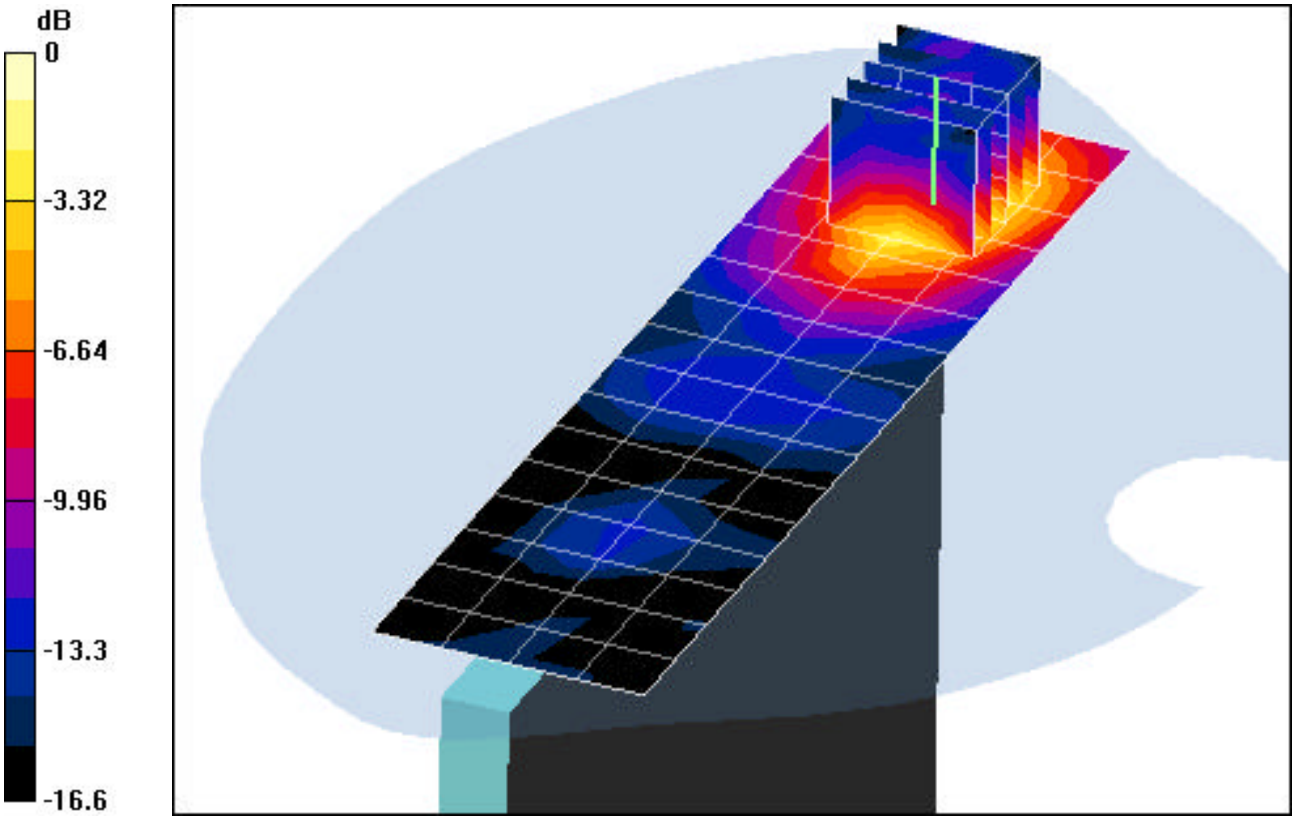
Communication System: Bluetooth; Frequency: 2441 MHz;Duty Cycle: 1:1
Medium: 2450 Muscle (σ = 1.93 mho/m, ε_r = 53.74, ρ = 1000 kg/m^3)
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 03-24-2005; Ambient Temp: 23.4°C Tissue Temp: 21.7°C

Probe: EX3DV4 - SN3550; ConvF(6.27, 6.27, 6.27); Calibrated: 10/26/2004
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn637; Calibrated: 9/22/2004
Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197
Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

Mode: Bluetooth, Bystander position, LCD Open, ch.39

Area Scan (5x17x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.73 V/m
Peak SAR (extrapolated) = 0.212 W/kg
SAR(1 g) = 0.110 mW/g; SAR(10 g) = 0.057 mW/g



0 dB = 0.140mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-18; Type: Panasonic Notebook PC with WLAN, EVDO & Bluetooth; Serial: 4AKYA20526

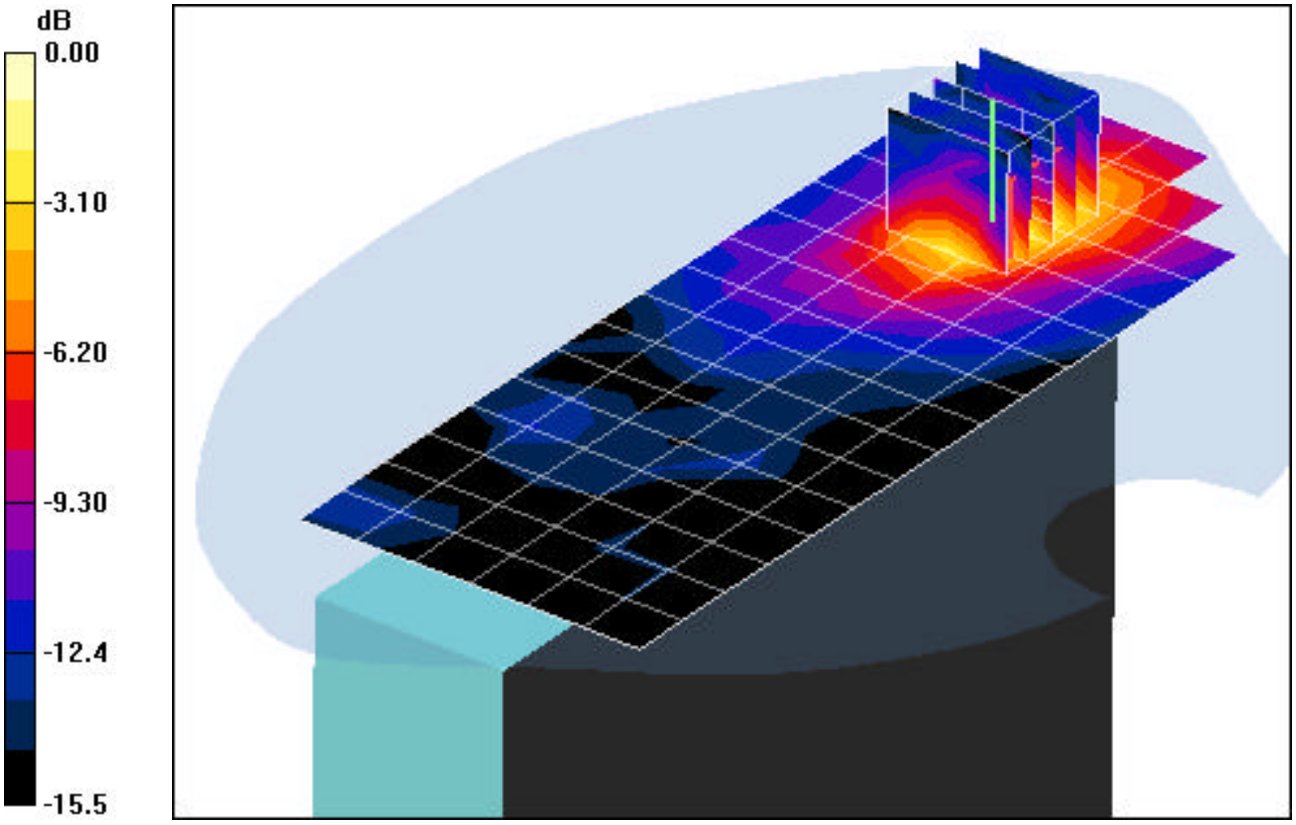
Communication System: Bluetooth; Frequency: 2441 MHz;Duty Cycle: 1:1
Medium: 2450 Muscle (σ = 1.93 mho/m, ε_r = 53.74, ρ = 1000 kg/m^3)
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 03-24-2005; Ambient Temp: 23.4°C Tissue Temp: 21.7°C

Probe: EX3DV4 - SN3550; ConvF(6.27, 6.27, 6.27); Calibrated: 10/26/2004
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn637; Calibrated: 9/22/2004
Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197
Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

Mode: Bluetooth, Bystander position, LCD Flip, ch.39

Area Scan (7x17x1): 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) = 0.151 W/kg
SAR(1 g) = 0.078 mW/g; SAR(10 g) = 0.041 mW/g



0 dB = 0.100mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-18; Type: Panasonic Notebook PC with WLAN, EVDO & Bluetooth; Serial: 4AKYA20526

Communication System: Cellular CDMA; Frequency: 835.89 MHz;Duty Cycle: 1:1
Medium: 835 Muscle (σ = 0.98 mho/m, ε_r = 53.94, ρ = 1000 kg/m^3)
Phantom section: Flat Section; Space: 1.5 cm

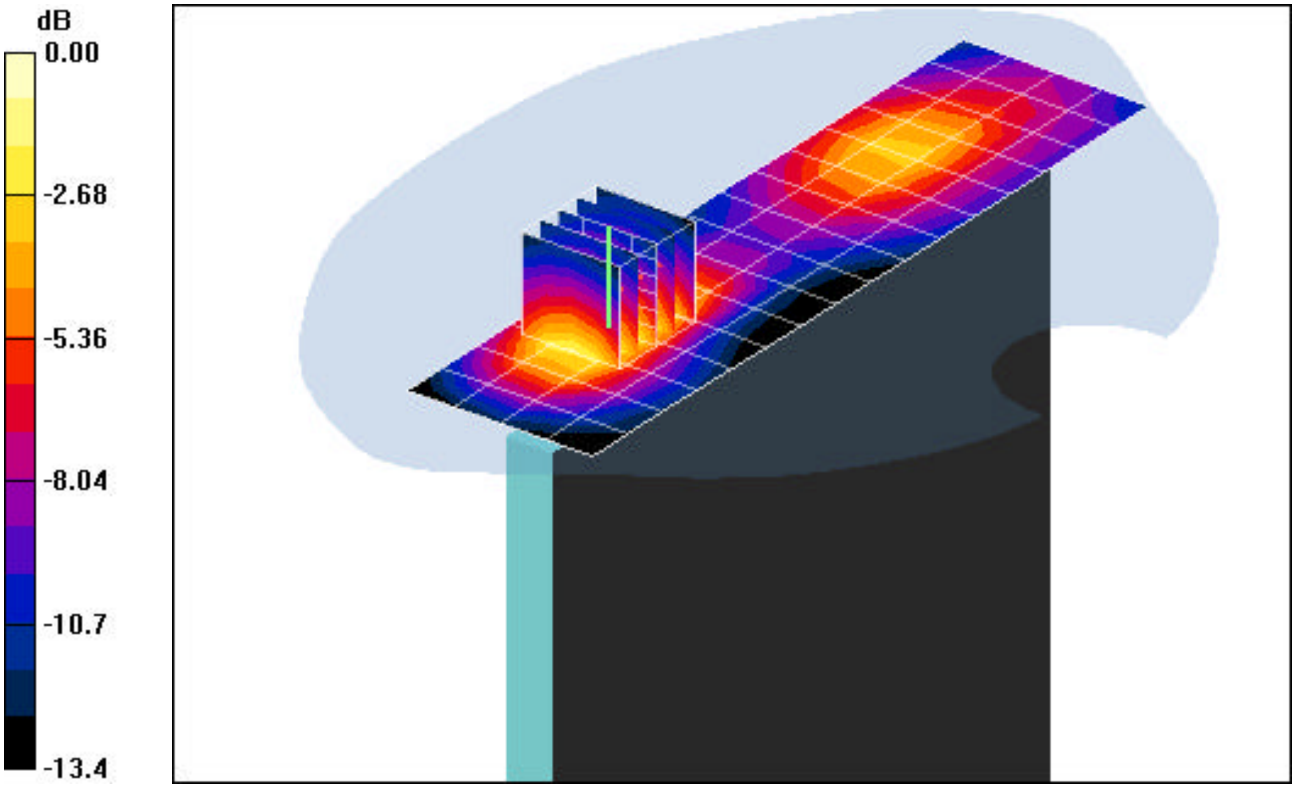
Test Date: 04-01-2005; Ambient Temp: 23.1°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN3550; ConvF(7.99, 7.99, 7.99); Calibrated: 10/26/2004
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn637; Calibrated: 9/22/2004
Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197
Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

Mode: EVDO CDMA, ch.0363 + IEEE 802.11b, ch.06, 5.5Mbps

Bystander position, LCD Open

Area Scan (5x17x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.50 V/m
Peak SAR (extrapolated) = 0.725 W/kg
SAR(1 g) = 0.421 mW/g; SAR(10 g) = 0.241 mW/g



0 dB = 0.518mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-18; Type: Panasonic Notebook PC with WLAN, EVDO & Bluetooth; Serial: 4AKYA20526

Communication System: Cellular CDMA; Frequency: 835.89 MHz;Duty Cycle: 1:1
Medium: 835 Muscle (σ = 0.98 mho/m, ε_r = 53.94, ρ = 1000 kg/m^3)
Phantom section: Flat Section; Space: 1.5 cm

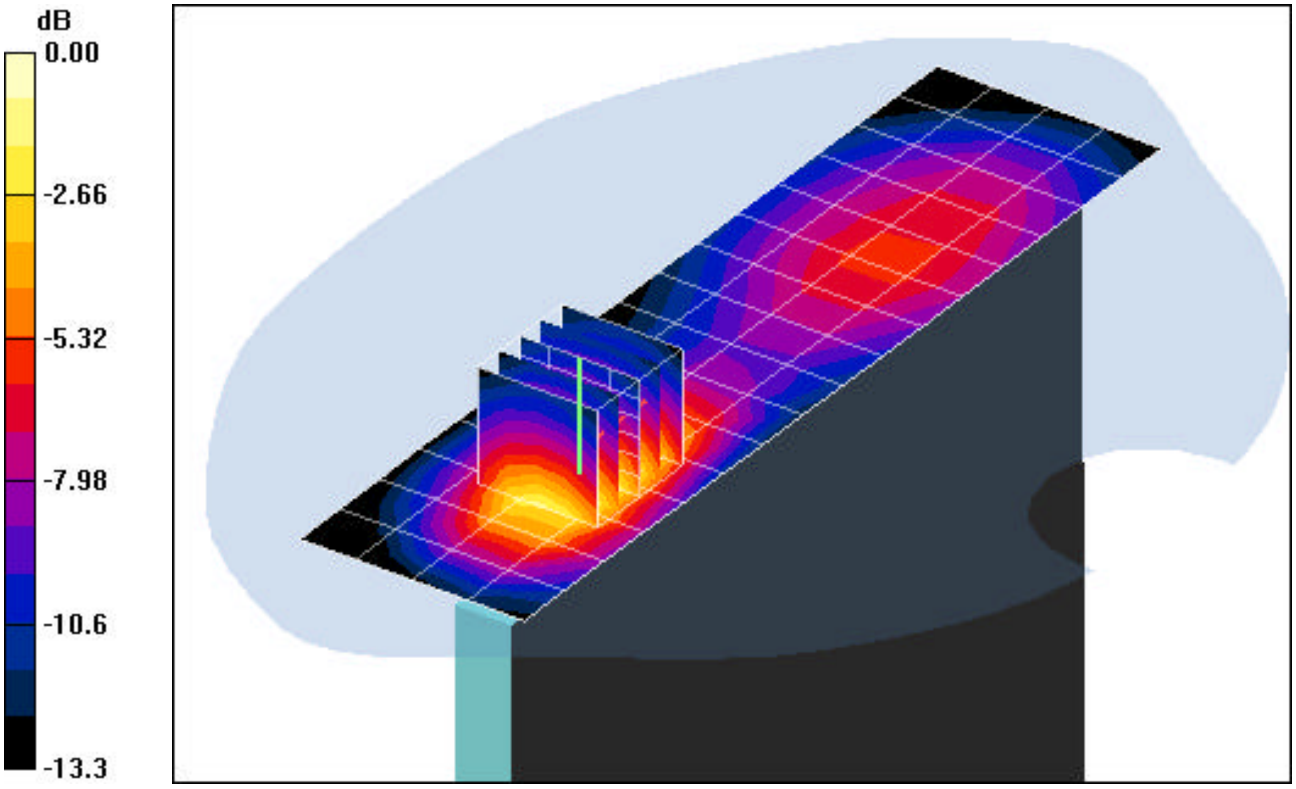
Test Date: 04-04-2005; Ambient Temp: 23.3°C; Tissue Temp: 21.2°C

Probe: EX3DV4 - SN3550; ConvF(7.99, 7.99, 7.99); Calibrated: 10/26/2004
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn637; Calibrated: 9/22/2004
Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197
Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

Mode: EVDO CDMA, ch.0363 + IEEE 802.11a, ch.157, 12Mbps

Bystander position, LCD Open

Area Scan (5x17x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.90 V/m
Peak SAR (extrapolated) = 0.625 W/kg
SAR(1 g) = 0.372 mW/g; SAR(10 g) = 0.222 mW/g



0 dB = 0.465mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-18; Type: Panasonic Notebook PC with WLAN, EVDO & Bluetooth; Serial: 4AKYA20526

Communication System: PCS CDMA; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: 1900 Muscle (σ = 1.57 mho/m, ε_r = 52.78, ρ = 1000 kg/m^3)
Phantom section: Flat Section; Space: 1.5 cm

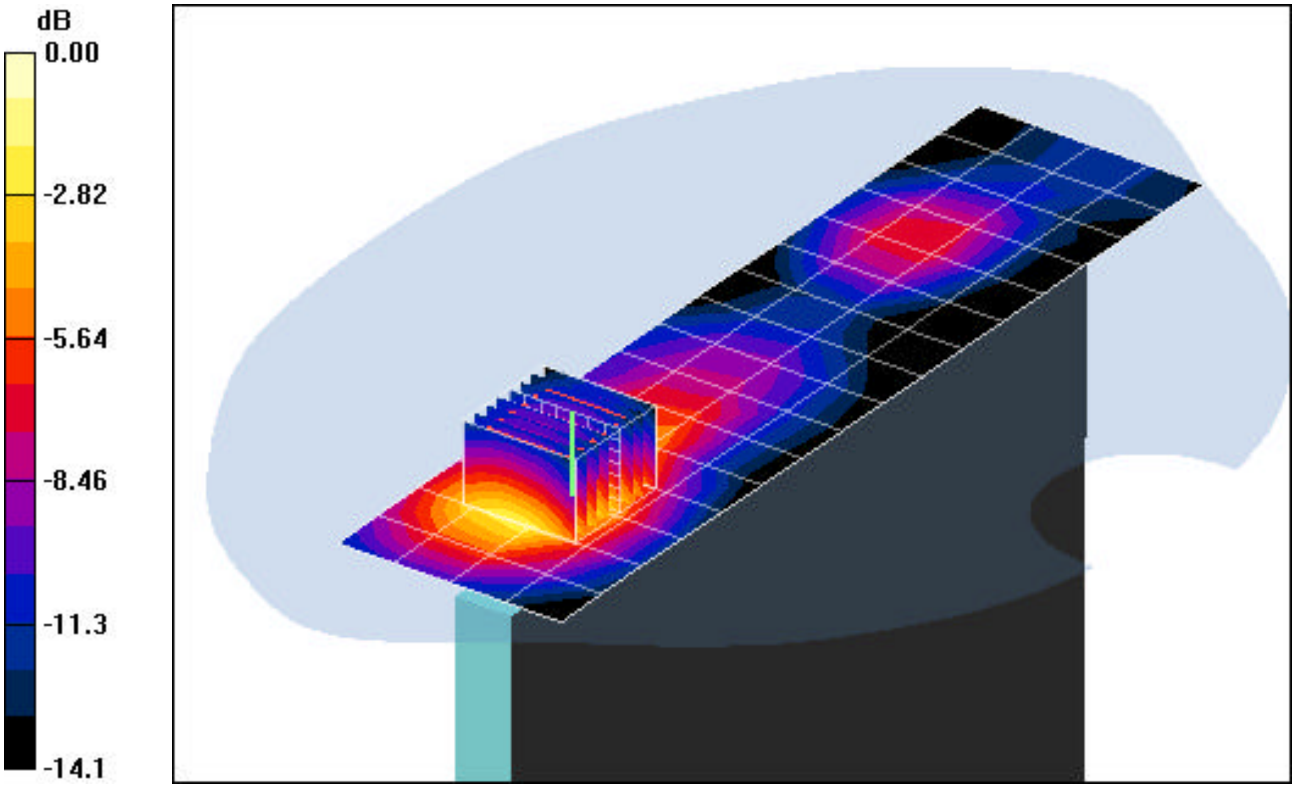
Test Date: 04-04-2005; Ambient Temp: 22.8°C; Tissue Temp: 20.6°C

Probe: EX3DV4 - SN3550; ConvF(6.35, 6.35, 6.35); Calibrated: 10/26/2004
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn637; Calibrated: 9/22/2004
Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197
Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

Mode: EVDO PCS, ch.0600 + IEEE 802.11b, ch.06, 5.5Mbps

Bystander position, LCD Open

Area Scan (5x17x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 9.25 V/m
Peak SAR (extrapolated) = 1.49 W/kg
SAR(1 g) = 0.876 mW/g; SAR(10 g) = 0.453 mW/g



0 dB = 1.13mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-18; Type: Panasonic Notebook PC with WLAN, EVDO & Bluetooth; Serial: 4AKYA20526

Communication System: PCS CDMA; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: 1900 Muscle (σ = 1.57 mho/m, ε_r = 52.78, ρ = 1000 kg/m^3)
Phantom section: Flat Section; Space: 1.5 cm

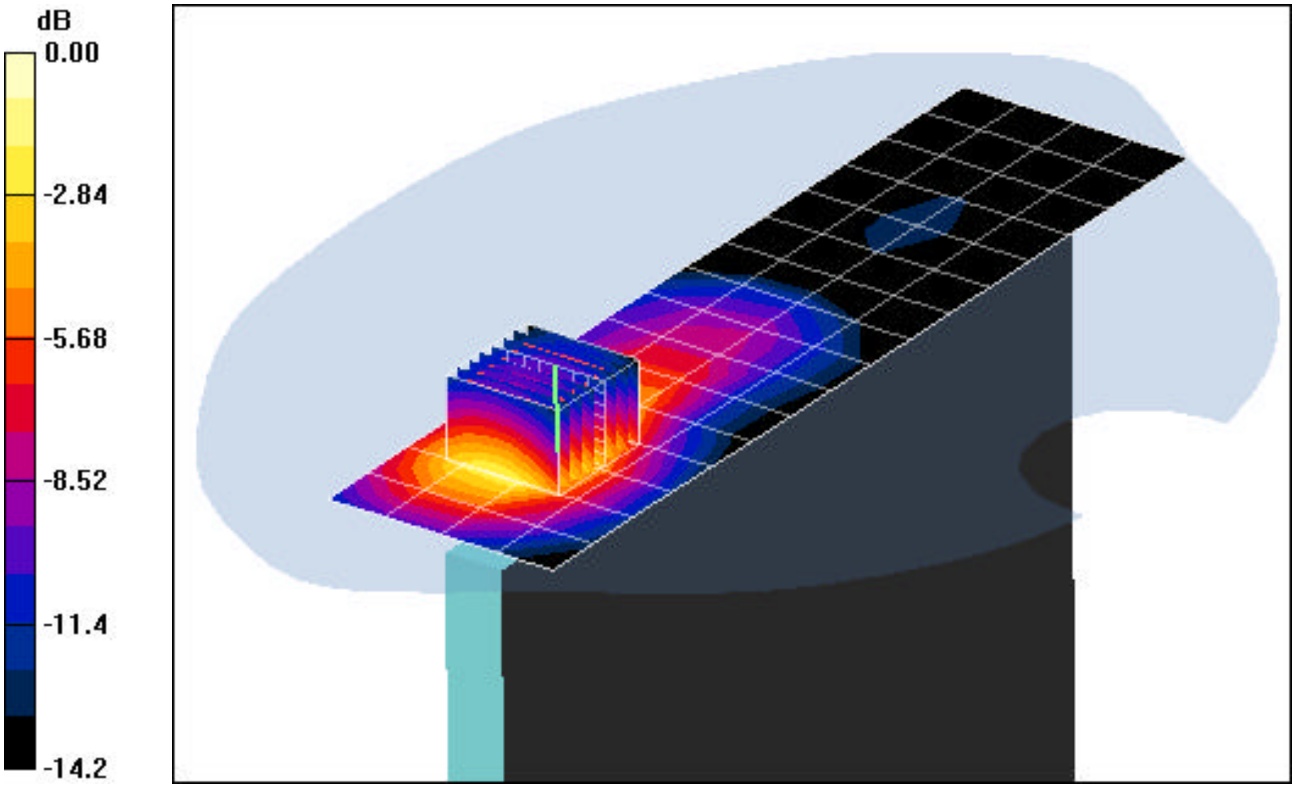
Test Date: 04-04-2005; Ambient Temp: 22.8°C; Tissue Temp: 20.6°C

Probe: EX3DV4 - SN3550; ConvF(6.35, 6.35, 6.35); Calibrated: 10/26/2004
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn637; Calibrated: 9/22/2004
Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197
Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

Mode: EVDO PCS, ch.0600 + IEEE 802.11a, ch.157, 12Mbps

Bystander position, LCD Open,

Area Scan (5x17x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 9.89 V/m
Peak SAR (extrapolated) = 1.53 W/kg
SAR(1 g) = 0.871 mW/g; SAR(10 g) = 0.471mW/g



0 dB = 1.12mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-18; Type: Panasonic Notebook PC with WLAN, EVDO & Bluetooth; Serial: 4AKYA20526

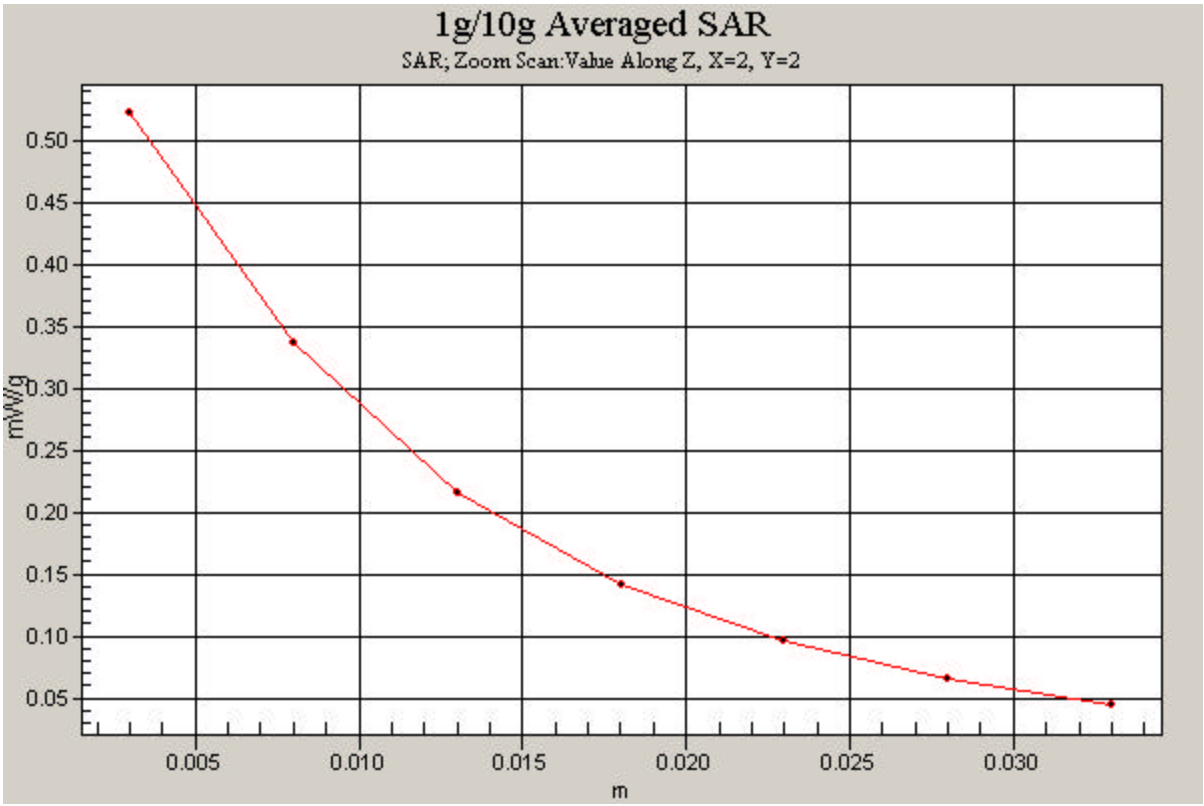
Communication System: Cellular CDMA; Frequency: 835.89 MHz;Duty Cycle: 1:1
Medium: 835 Muscle (σ = 0.96 mho/m, ε_r = 54.10, ρ = 1000 kg/m^3)
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 03-11-2005; Ambient Temp: 22.8°C; Tissue Temp: 20.2°C

Probe: EX3DV4 - SN3550; ConvF(7.99, 7.99, 7.99); Calibrated: 10/26/2004
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn637; Calibrated: 9/22/2004
Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197
Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

Mode: EVDO CDMA, Bystander position, LCD Open, ch.0363

Area Scan (8x23x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.19 V/m
Peak SAR (extrapolated) = 0.715 W/kg
SAR(1 g) = 0.438 mW/g; SAR(10 g) = 0.261 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-18; Type: Panasonic Notebook PC with WLAN, EVDO & Bluetooth; Serial: 4AKYA20526

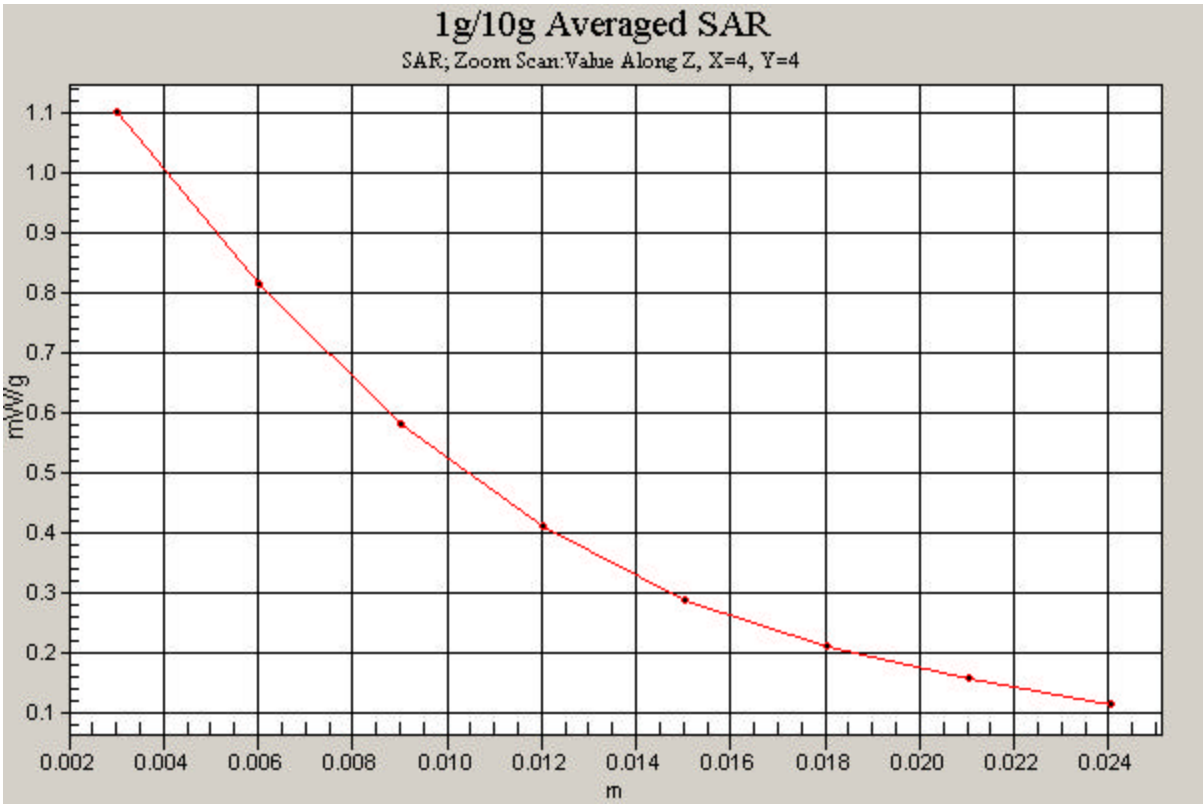
Communication System: PCS CDMA; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: 1900 Muscle (σ = 1.56 mho/m, ε_r = 52.6, ρ = 1000 kg/m^3)
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 03-11-2005; Ambient Temp: 23.0°C; Tissue Temp: 20.5°C

Probe: EX3DV4 - SN3550; ConvF(6.35, 6.35, 6.35); Calibrated: 10/26/2004
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn637; Calibrated: 9/22/2004
Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197
Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

Mode: EVDO PCS, Bystander position, LCD Open, ch.0600

Area Scan (8x23x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.22 V/m
Peak SAR (extrapolated) = 1.45 W/kg
SAR(1 g) = 0.887 mW/g; SAR(10 g) = 0.483 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-18; Type: Panasonic Notebook PC with WLAN, EVDO & Bluetooth; Serial: 4AKYA20526

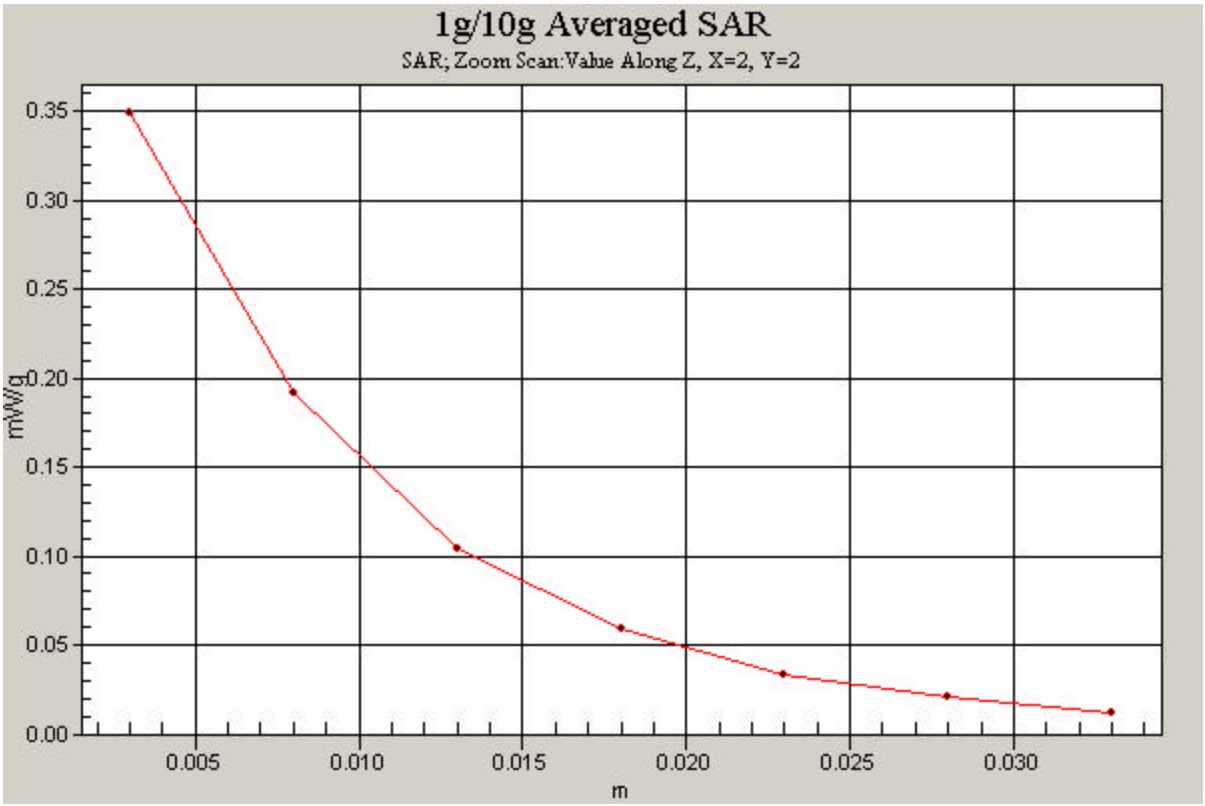
Communication System: IEEE 802.11b; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium: 2450 Muscle (σ = 1.93 mho/m, ε_r = 53.74, ρ = 1000 kg/m^3)
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 03-07-2005; Ambient Temp: 22.6°C; Tissue Temp: 19.8°C

Probe: EX3DV4 - SN3550; ConvF(6.27, 6.27, 6.27); Calibrated: 10/26/2004
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn637; Calibrated: 9/22/2004
Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197
Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

Mode: IEEE 802.11b, Bystander position, LCD Open, ch.06, 5.5Mbps

Area Scan (5x17x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.44 V/m
Peak SAR (extrapolated) = 0.519 W/kg
SAR(1 g) = 0.276 mW/g; SAR(10 g) = 0.148 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-18; Type: Panasonic Notebook PC with WLAN, EVDO & Bluetooth; Serial: 4AKYA20526

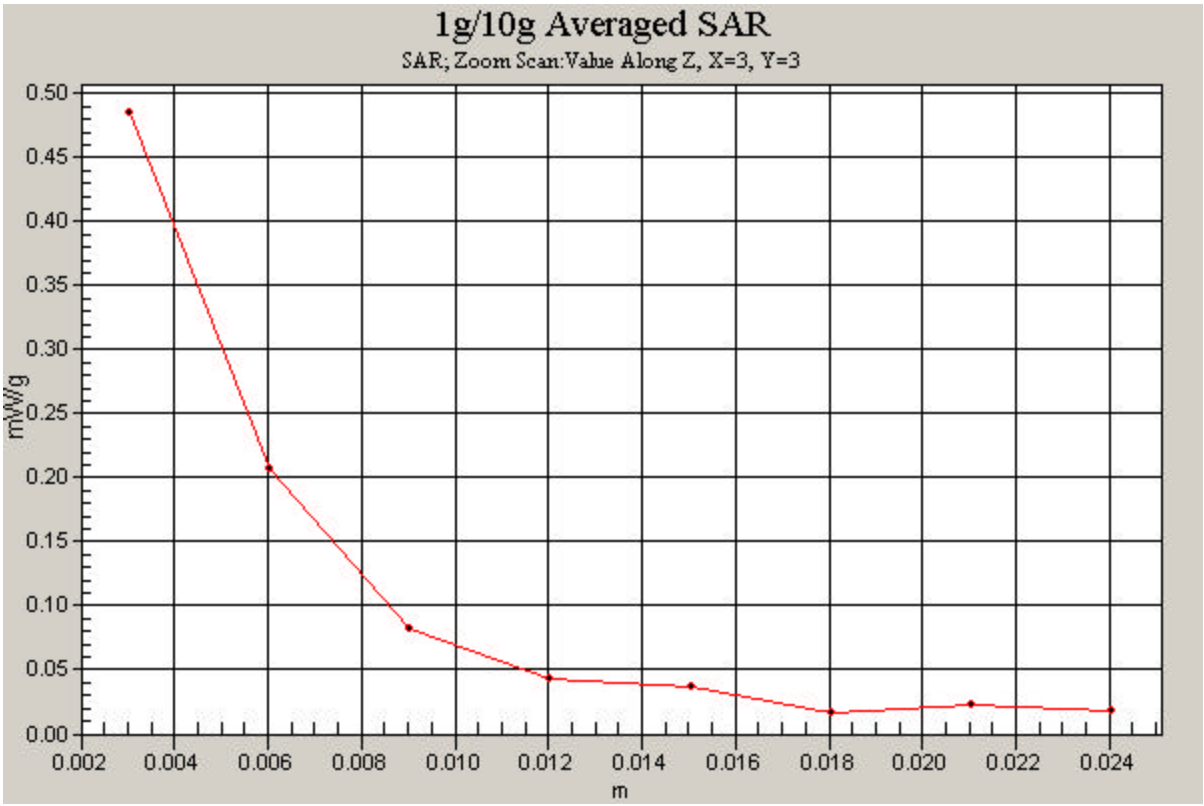
Communication System: IEEE 802.11a WLAN; Frequency: 5260 MHz;Duty Cycle: 1:1
Medium: 5300 Muscle (σ = 5.41 mho/m, ε_r = 48.10, ρ = 1000 kg/m^3)
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 03-08-2005; Ambient Temp: 22.9°C; Tissue Temp: 20.3°C

Probe: EX3DV4 - SN3550; ConvF(3.72, 3.72, 3.72); Calibrated: 10/26/2004
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn637; Calibrated: 9/22/2004
Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197
Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

Mode: IEEE 802.11a, Bystander position, LCD Open, ch.52, 12Mbps

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 = 2.75 V/m
Peak SAR (extrapolated) = 1.25 W/kg
SAR(1 g) = 0.349 mW/g; SAR(10 g) = 0.142 mW/g



PCTEST ENGINEERING LABORATORY, INC.

DUT: CF-18; Type: Panasonic Notebook PC with WLAN, EVDO & Bluetooth; Serial: 4AKYA20526

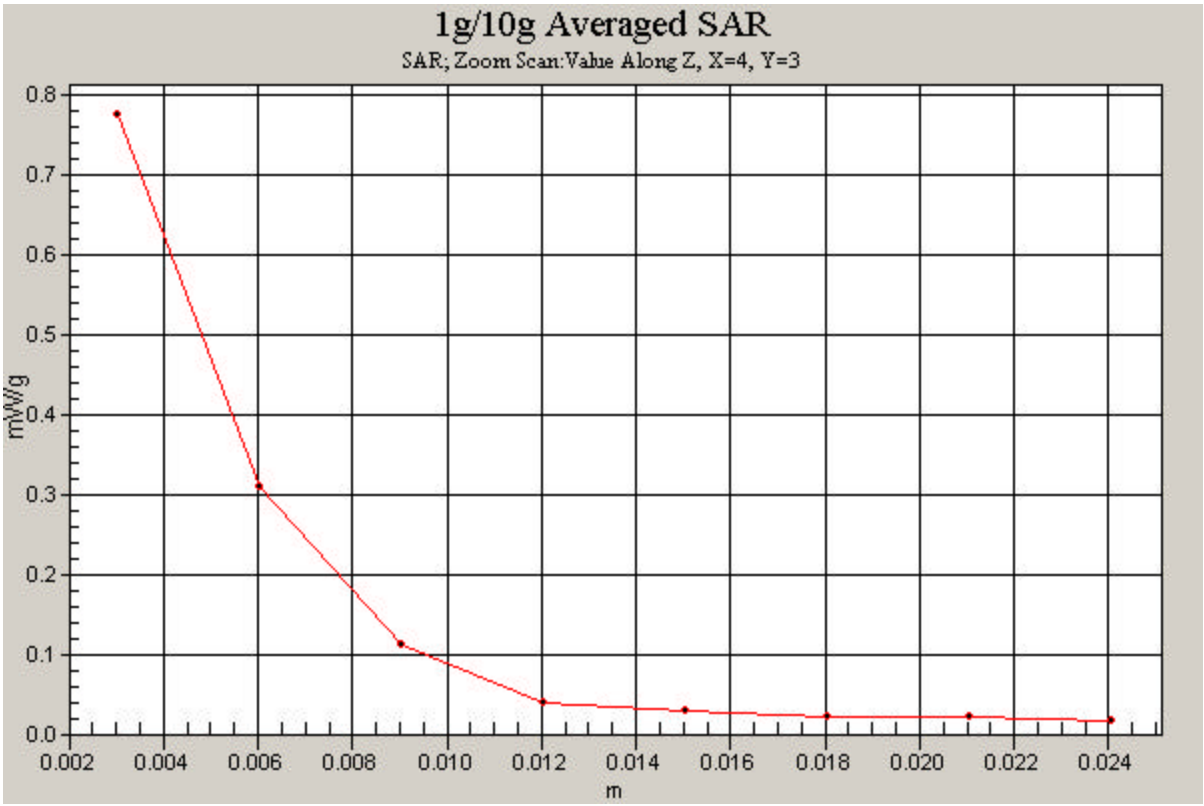
Communication System: IEEE 802.11a WLAN; Frequency: 5785 MHz;Duty Cycle: 1:1
Medium: 5800 Muscle (σ = 5.94 mho/m, ε_r = 48.22, ρ = 1000 kg/m^3)
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 03-09-2005; Ambient Temp: 22.6°C; Tissue Temp: 20.5°C

Probe: EX3DV4 - SN3550; ConvF(3.48, 3.48, 3.48); Calibrated: 10/26/2004
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn637; Calibrated: 9/22/2004
Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197
Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

Mode: IEEE 802.11a, Bystander position, LCD Open, ch.157, 12Mbps

Area Scan (6x23x1): Measurement grid: dx=10mm, dy=10mm
BystandZoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 4.60 V/m
Peak SAR (extrapolated) = 2.79 W/kg
SAR(1 g) = 0.582 mW/g; SAR(10 g) = 0.224 mW/g



APPENDIX B: DIPOLE VALIDATION

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 835 MHz; Type: D835V2; Serial: 406

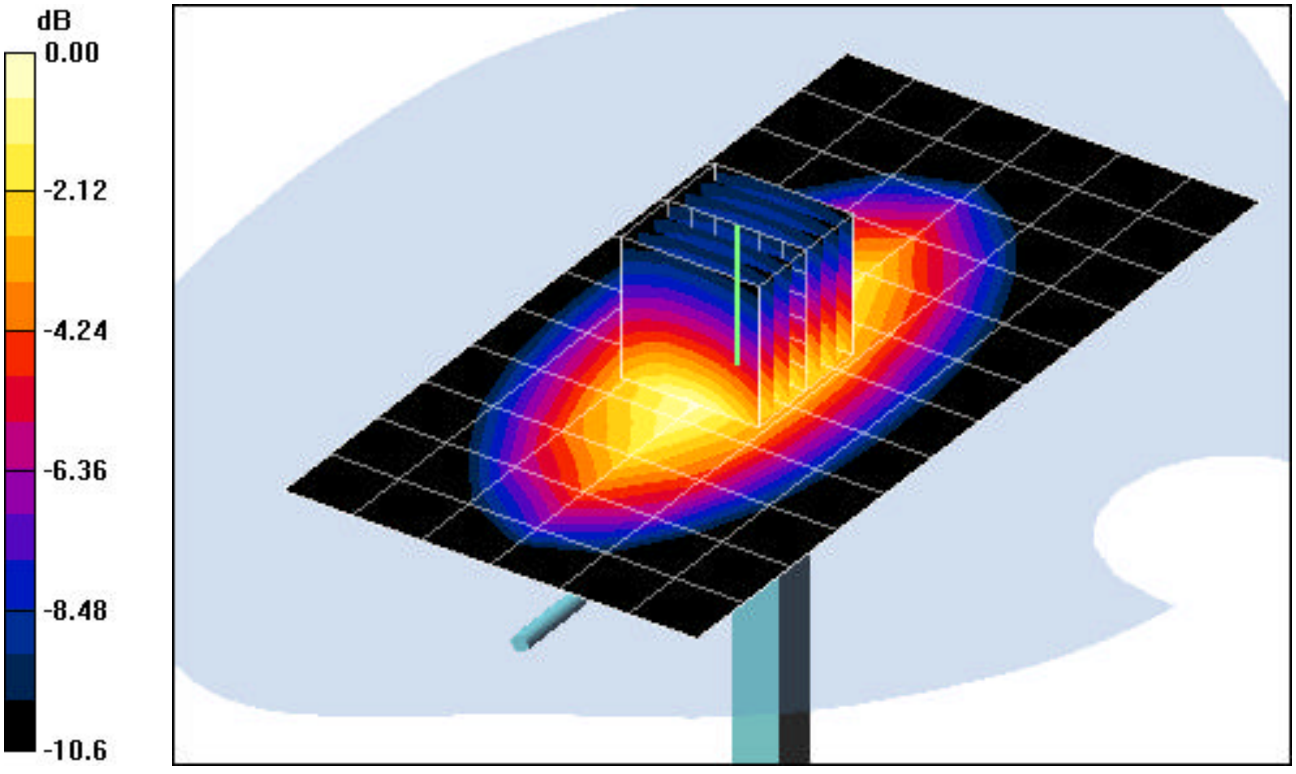
Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium: 835 Brain (σ = 0.87 mho/m, ε_r = 41.30, ρ = 1000 kg/m^3)
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 03-11-2005; Ambient Temp: 23.0°C; Tissue Temp: 21.4°C

Probe: EX3DV4 - SN3550; ConvF(8.12, 8.12, 8.12); Calibrated: 10/26/2004
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn637; Calibrated: 9/22/2004
Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197
Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

835MHz Dipole Validation

Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Input Power = 24.0 dBm (250 mW)
SAR(1 g) = 2.28 mW/g; SAR(10 g) = 1.48 mW/g
Target SAR(1g) = 2.375 mW/g; Deviation = -4.00 %



0 dB = 2.68mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 835 MHz; Type: D835V2; Serial: 406

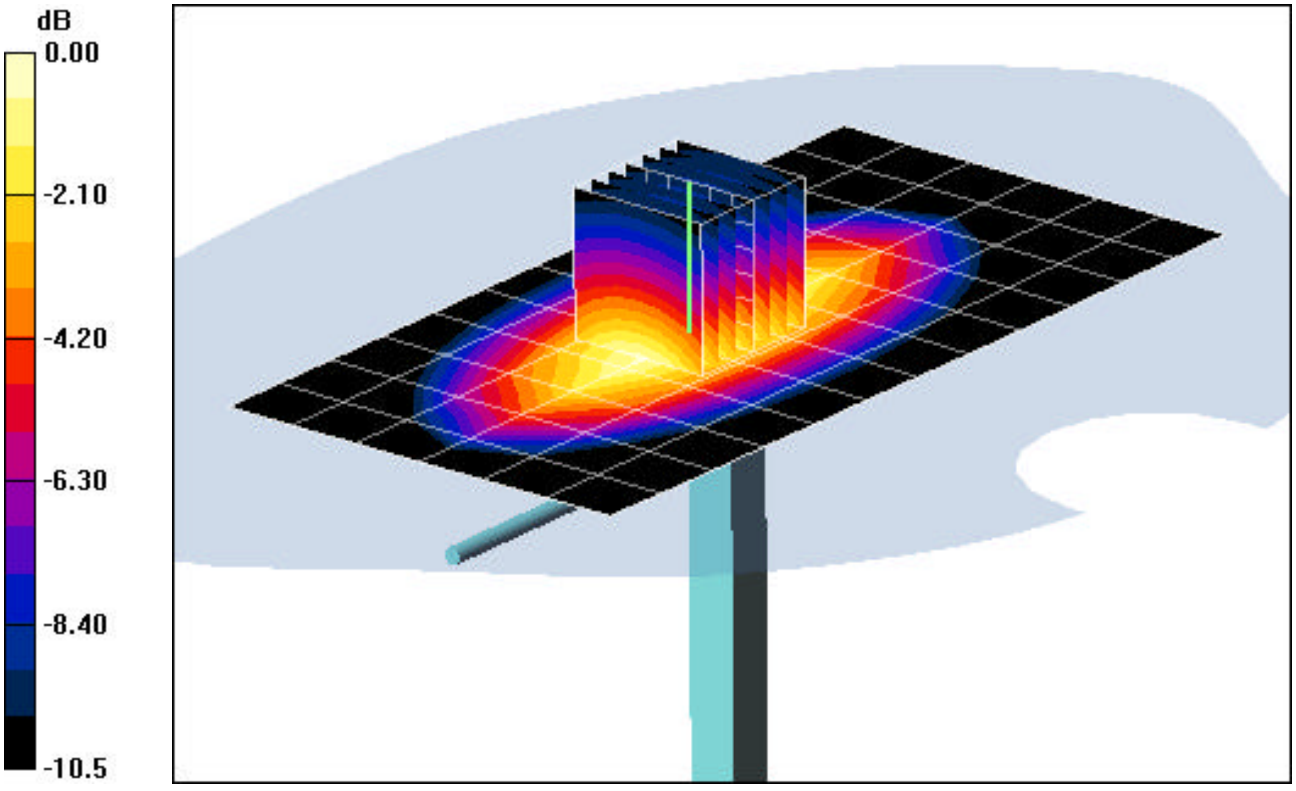
Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium: 835 Brain (σ = 0.88 mho/m, ε_r = 40.65, ρ = 1000 kg/m^3)
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 04-01-2005; Ambient Temp: 23.2°C; Tissue Temp: 21.0°C

Probe: EX3DV4 - SN3550; ConvF(8.12, 8.12, 8.12); Calibrated: 10/26/2004
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn637; Calibrated: 9/22/2004
Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197
Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

835MHz Dipole Validation

Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Input Power = 24.0 dBm (250 mW)
SAR(1 g) = 2.38 mW/g; SAR(10 g) = 1.54 mW/g
Target SAR(1g) = 2.375 mW/g; Deviation = +0.21 %



0 dB = 2.80mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 835 MHz; Type: D835V2; Serial: 406

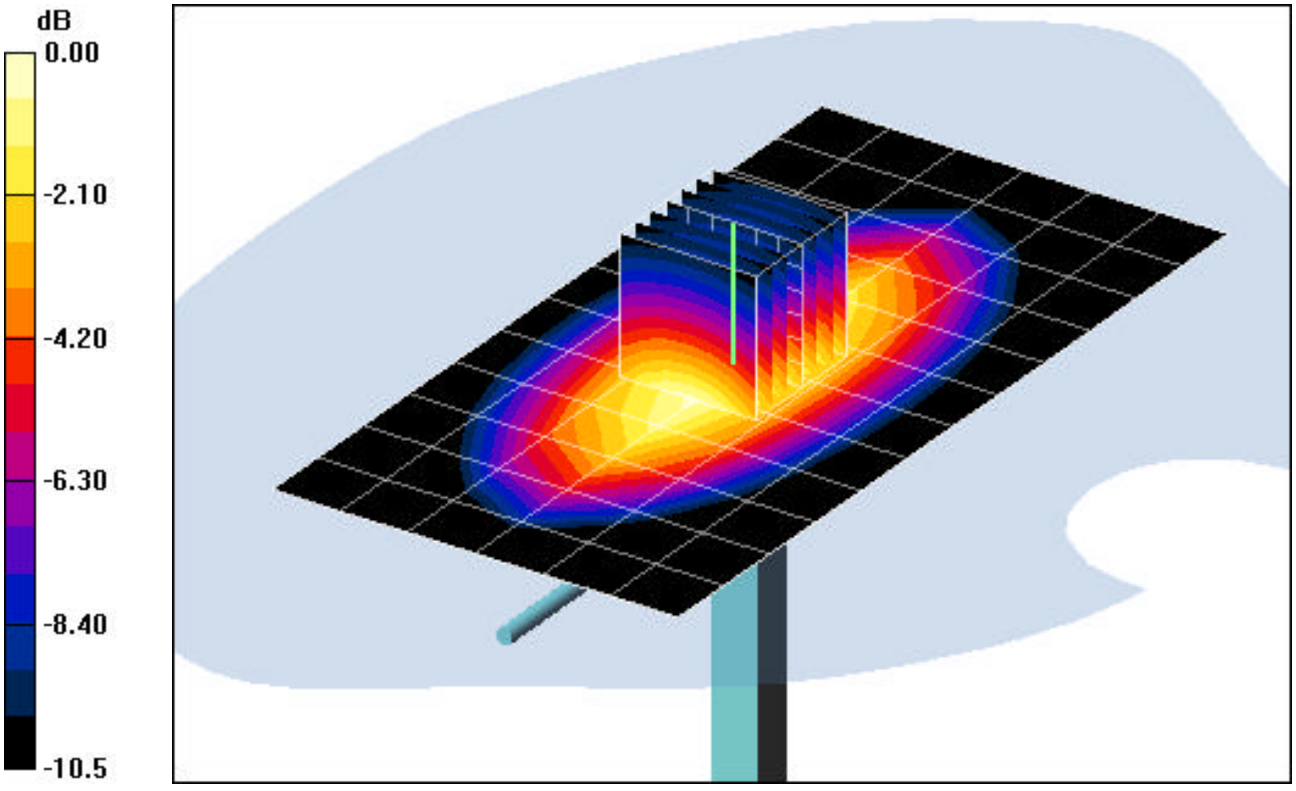
Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium: 835 Brain (σ = 0.88 mho/m, ε_r = 40.65, ρ = 1000 kg/m^3)
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 04-04-2005; Ambient Temp: 23.4°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN3550; ConvF(8.12, 8.12, 8.12); Calibrated: 10/26/2004
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn637; Calibrated: 9/22/2004
Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197
Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

835MHz Dipole Validation

Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Input Power = 24.0 dBm (250 mW)
SAR(1 g) = 2.3 mW/g; SAR(10 g) = 1.49 mW/g
Target SAR(1g) = 2.375 mW/g; Deviation = -3.15 %



0 dB = 2.69mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 502

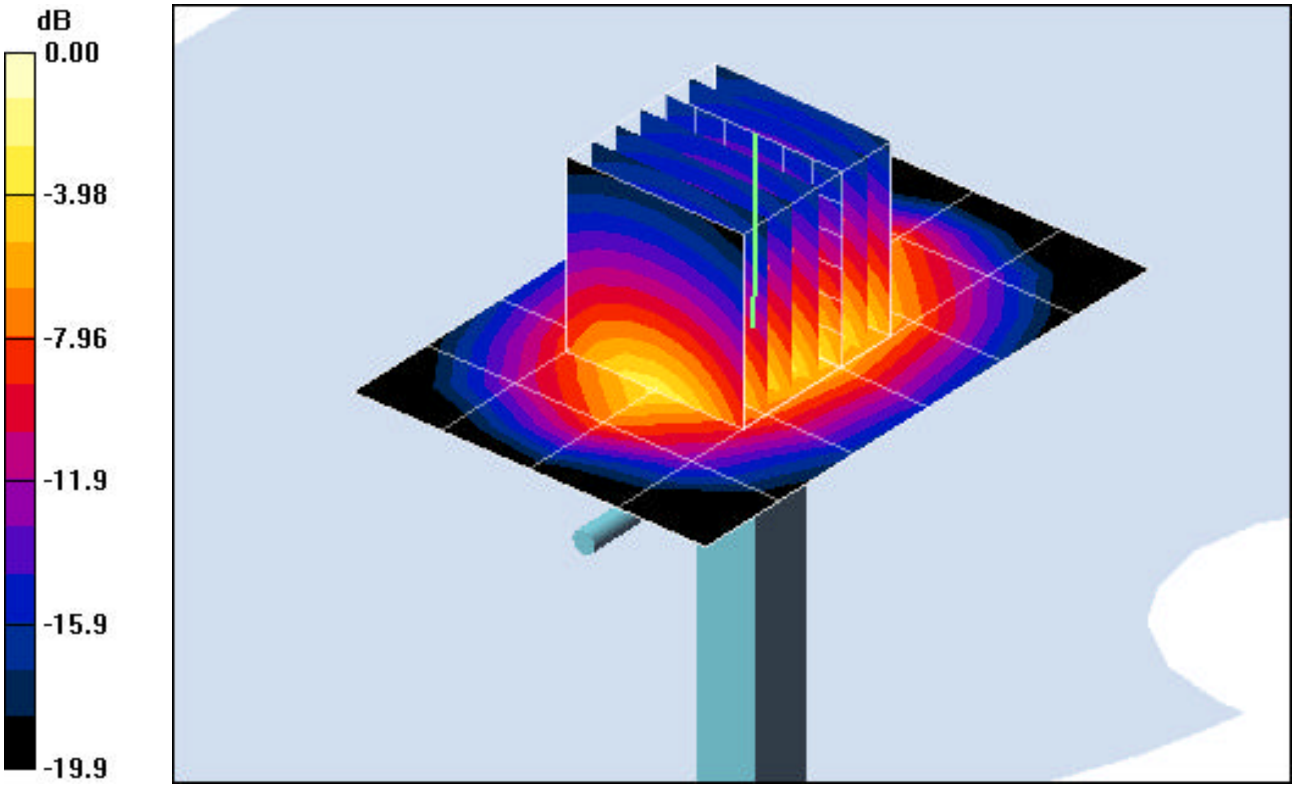
Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: 1900 Brain (σ = 1.41 mho/m, ε_r = 39.80, ρ = 1000 kg/m^3)
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-11-2005; Ambient Temp: 23.2°C; Tissue Temp: 21.1°C

Probe: EX3DV4 - SN3550; ConvF(6.75, 6.75, 6.75); Calibrated: 10/26/2004
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn637; Calibrated: 9/22/2004
Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197
Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

1900MHz Dipole Validation

Area Scan (5x7x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Input Power = 20.0 dBm (100 mW)
SAR(1 g) = 4.03 mW/g; SAR(10 g) = 2.01 mW/g
Target SAR(1g) = 3.97 mW/g; Deviation = +1.51 %



0 dB = 5.25mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 502

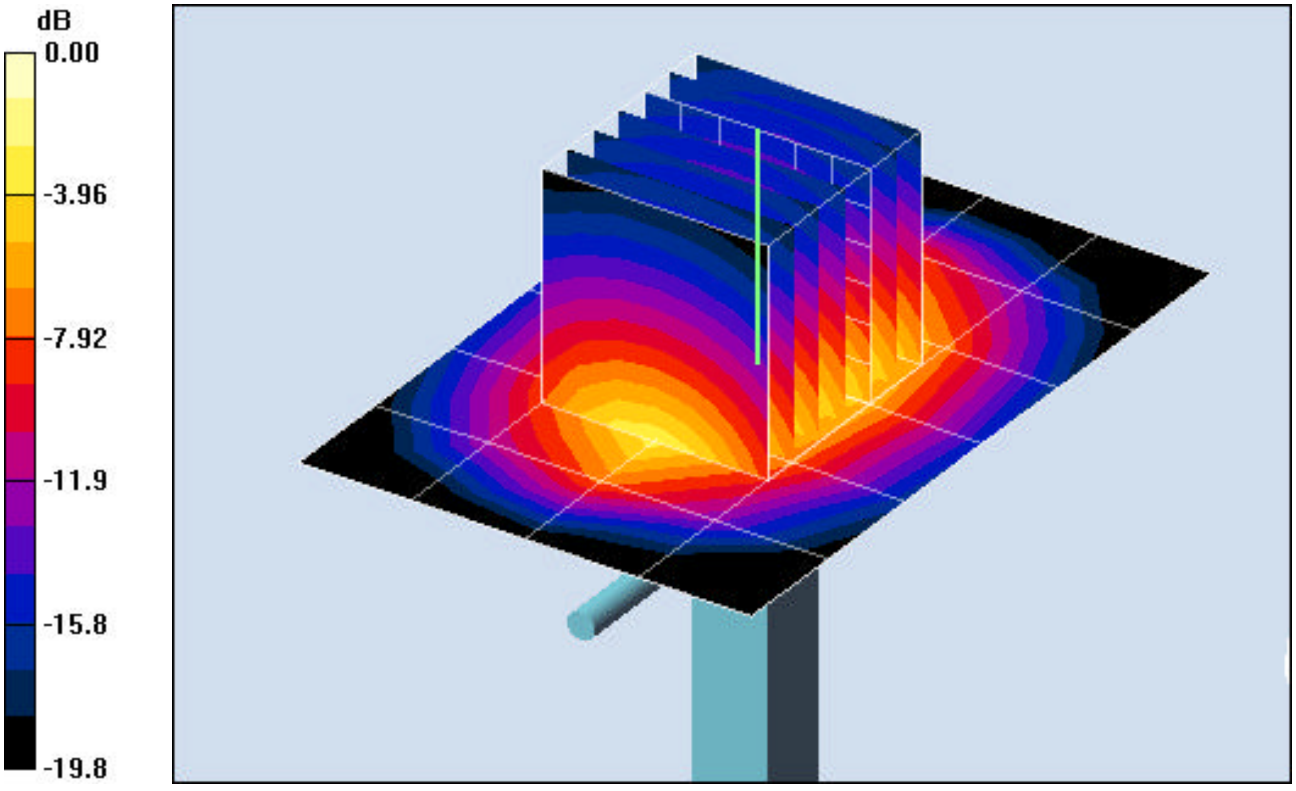
Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: 1900 Brain (σ = 1.44 mho/m, ε_r = 40.80, ρ = 1000 kg/m^3)
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-04-2005; Ambient Temp: 23.3°C; Tissue Temp: 20.8°C

Probe: EX3DV4 - SN3550; ConvF(6.75, 6.75, 6.75); Calibrated: 10/26/2004
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn637; Calibrated: 9/22/2004
Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197
Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

1900MHz Dipole Validation

Area Scan (5x7x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Input Power = 20.0 dBm (100 mW)
SAR(1 g) = 3.93 mW/g; SAR(10 g) = 1.96 mW/g
Target SAR(1g) = 3.97 mW/g; Deviation = -1.00 %



0 dB = 5.07mW/g

PCTEST ENGINEERING LABORATORY, INC.

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

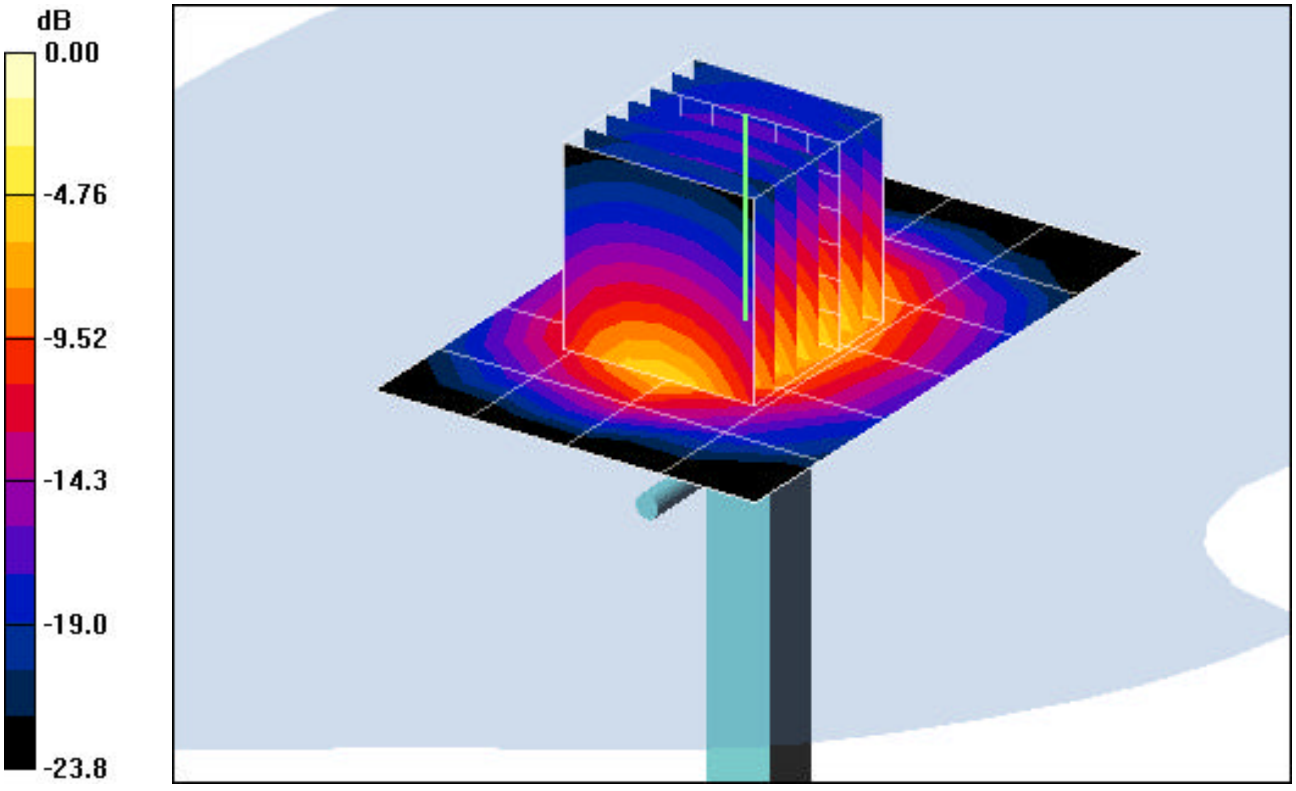
Communication System: CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium: 2450 Brain (σ = 1.81 mho/m, ε_r = 38.21, ρ = 1000 kg/m^3)
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-07-2005; Ambient Temp: 23.2°C; Tissue Temp: 20.6°C

Probe: EX3DV4 - SN3550; ConvF(6.33, 6.33, 6.33); Calibrated: 10/26/2004
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn637; Calibrated: 9/22/2004
Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197
Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

2450MHz Dipole Validation

Area Scan (5x7x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Input Power = 20.0 dBm (100 mW)
SAR(1 g) = 5.1 mW/g; SAR(10 g) = 2.29 mW/g
Target SAR(1g) = 5.24 mW/g; Deviation = -2.67 %



0 dB = 6.87mW/g

PCTEST ENGINEERING LABORATORY, INC.

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

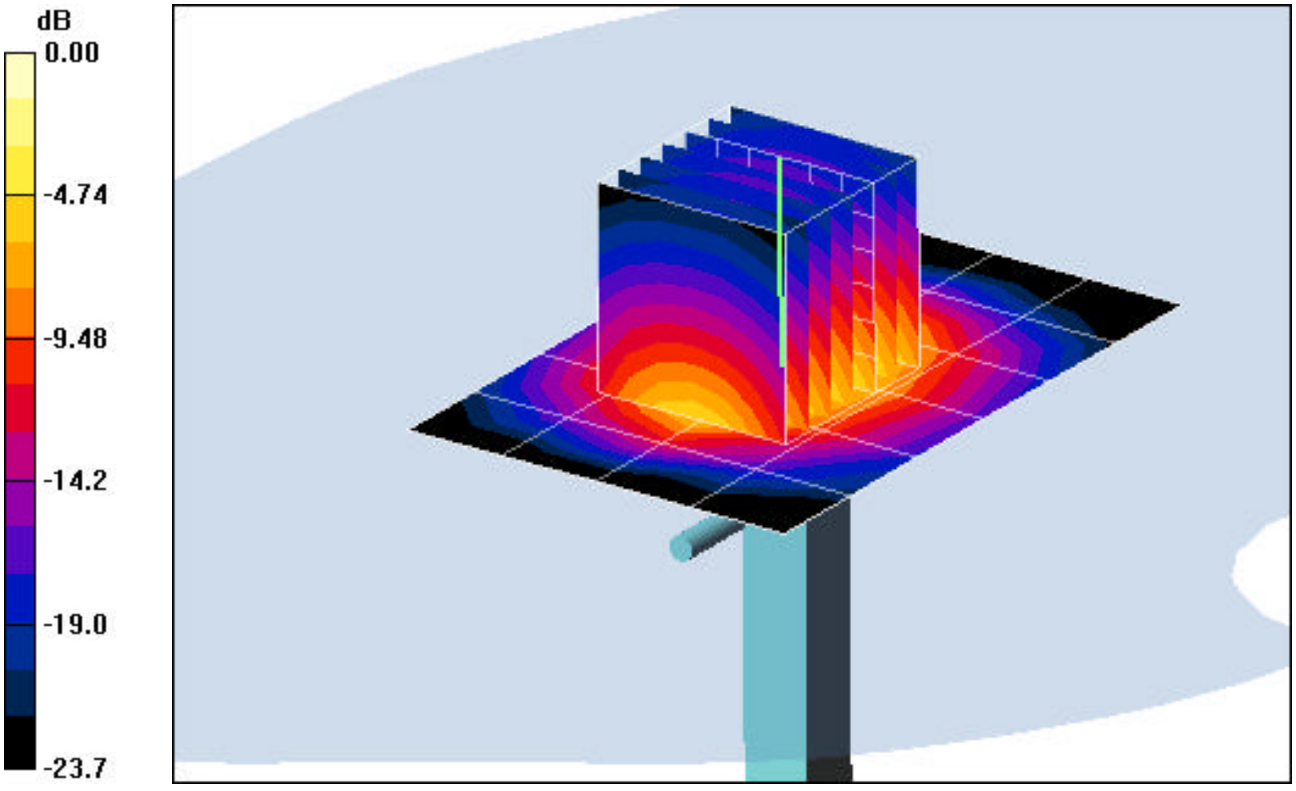
Communication System: CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium: 2450 Brain (σ = 1.79 mho/m, ε_r = 39.52, ρ = 1000 kg/m^3)
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-24-2005; Ambient Temp: 22.9°C; Tissue Temp: 21.2°C

Probe: EX3DV4 - SN3550; ConvF(6.33, 6.33, 6.33); Calibrated: 10/26/2004
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn637; Calibrated: 9/22/2004
Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197
Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

2450MHz Dipole Validation

Area Scan (5x7x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Input Power = 20.0 dBm (100 mW)
SAR(1 g) = 4.96 mW/g; SAR(10 g) = 2.22 mW/g
Target SAR(1g) = 5.24 mW/g; Deviation = -5.34 %



0 dB = 6.67mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5800 MHz; Type: D5GHzV2; Serial: 1007

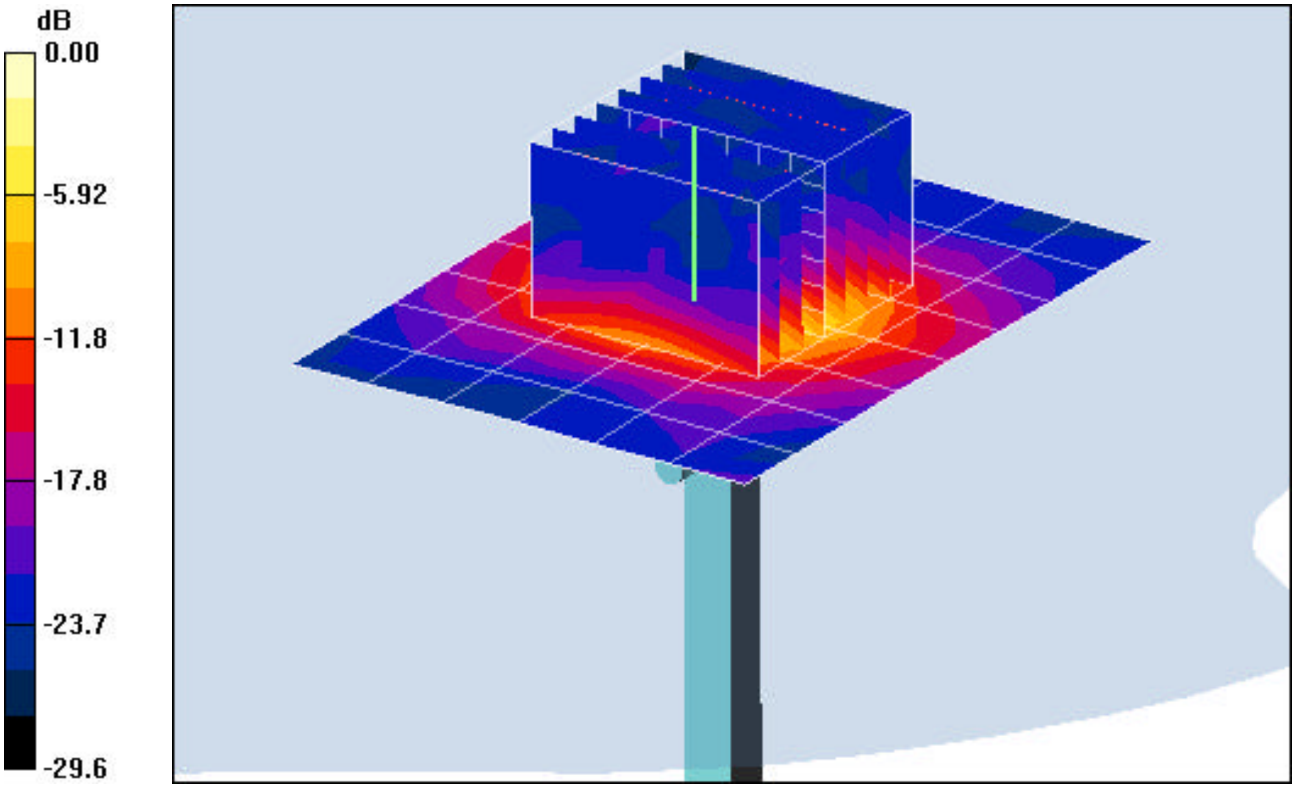
Communication System: CW; Frequency: 5800 MHz;Duty Cycle: 1:1
Medium: 5800 Brain (σ = 5.40 mho/m, ε_r = 35.53, ρ = 1000 kg/m^3)
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-08-2005; Ambient Temp: 23.1°C Tissue Temp: 20.3°C

Probe: EX3DV4 - SN3550; ConvF(3.74, 3.74, 3.74); Calibrated: 10/26/2004
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn637; Calibrated: 9/22/2004
Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197
Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

5800MHz Dipole Validation

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 (25 mW)
SAR(1 g) = 2.22 mW/g; SAR(10 g) = 0.619 mW/g
Target SAR(1g) = 2.25 mW/g; Deviation = -1.33 %



0 dB = 3.04mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5800 MHz; Type: D5GHzV2; Serial: 1007

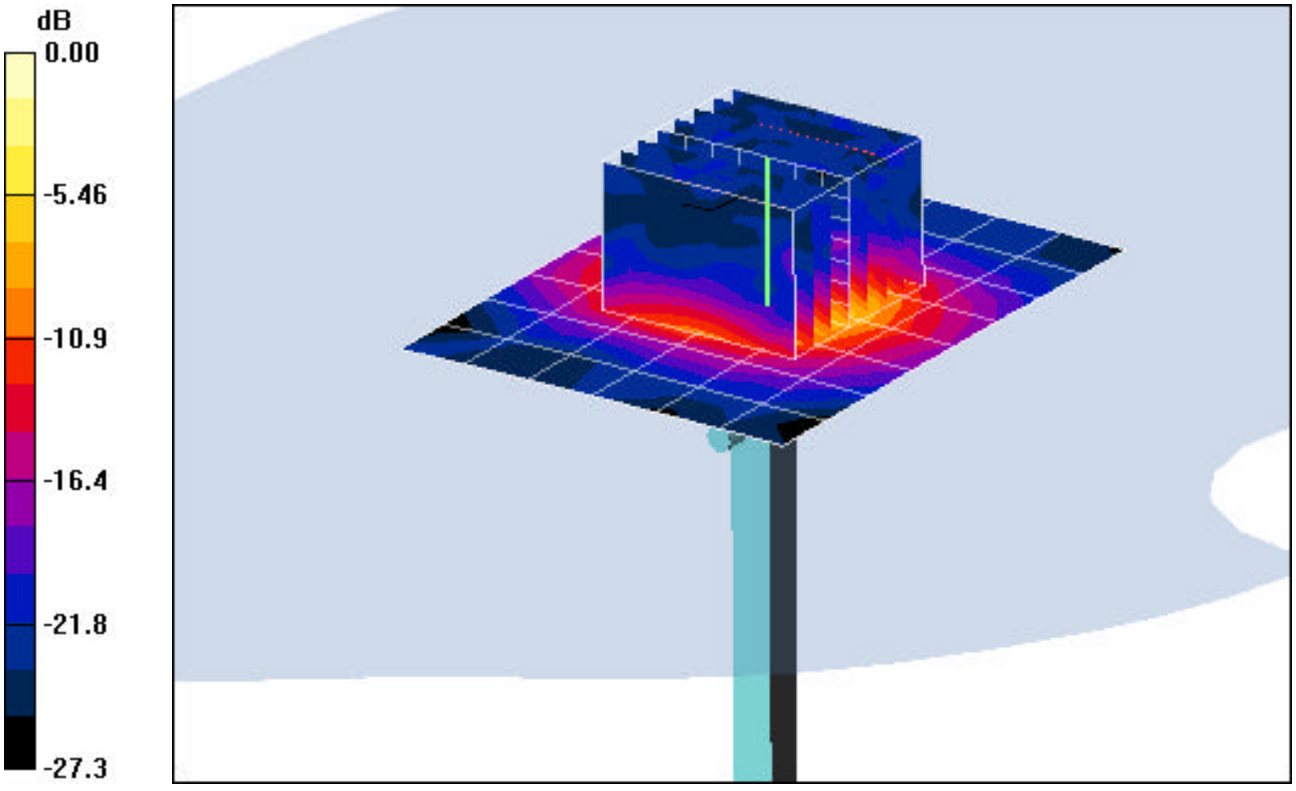
Communication System: CW; Frequency: 5800 MHz;Duty Cycle: 1:1
Medium: 5800 Brain (σ = 5.40 mho/m, ε_r = 35.53, ρ = 1000 kg/m^3)
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-09-2005; Ambient Temp: 22.6°C; Tissue Temp: 20.2°C

Probe: EX3DV4 - SN3550; ConvF(3.74, 3.74, 3.74); Calibrated: 10/26/2004
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn637; Calibrated: 9/22/2004
Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197
Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

5800MHz Dipole Validation

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 (25 mW)
SAR(1 g) = 2.28 mW/g; SAR(10 g) = 0.630 mW/g
Target SAR(1g) = 2.25 mW/g; Deviation = +1.33 %



0 dB = 3.10mW/g

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5800 MHz; Type: D5GHzV2; Serial: 1007

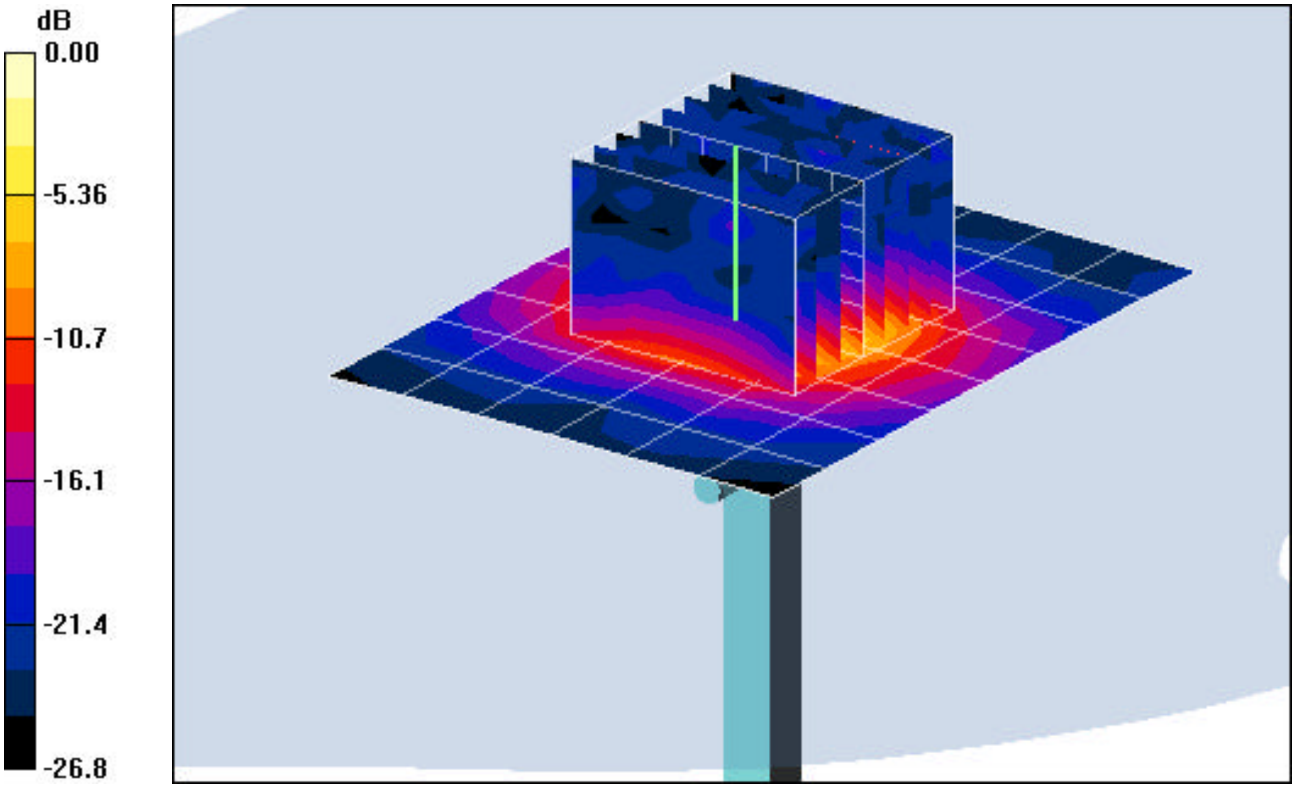
Communication System: CW; Frequency: 5800 MHz;Duty Cycle: 1:1
Medium: 5800 Brain (σ = 5.32 mho/m, ε_r = 36.14, ρ = 1000 kg/m^3)
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-25-2005; Ambient Temp: 22.8°C; Tissue Temp: 21.4°C

Probe: EX3DV4 - SN3550; ConvF(3.74, 3.74, 3.74); Calibrated: 10/26/2004
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn637; Calibrated: 9/22/2004
Phantom: SAM 12b; Type: SAM 4.0; Serial: TP:1197
Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

5800MHz Dipole Validation

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 (25 mW)
SAR(1 g) = 2.32 mW/g; SAR(10 g) = 0.638 mW/g
Target SAR(1g) = 2.25 mW/g; Deviation = +3.11 %



0 dB = 3.24mW/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 Federal Office of Metrology and Accreditation
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_Oct04

CALIBRATION CERTIFICATE

Object	EX3DV4 - SN:3550
Calibration procedure(s)	QA CAL-01.v5 and QA CAL-12.v4 Calibration procedure for dosimetric E-field probes
Calibration date:	October 26, 2004
Condition of the calibrated item	In Tolerance

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	5-May-04 (METAS, No. 251-00388)	May-05
Power sensor E4412A	MY41495277	5-May-04 (METAS, No. 251-00388)	May-05
Reference 3 dB Attenuator	SN: S5054 (3c)	3-Apr-03 (METAS, No. 251-00403)	Aug-05
Reference 20 dB Attenuator	SN: S5086 (20b)	3-May-04 (METAS, No. 251-00389)	May-05
Reference 30 dB Attenuator	SN: S5129 (30b)	3-Apr-03 (METAS, No. 251-00404)	Aug-05
Reference Probe ES3DV2	SN:3013	8-Jan-04 (SPEAG, No. ES3-3013_Jan04)	Jan-05
DAE4	SN: 617	26-May-04 (SPEAG, No. DAE4-617_May04)	May-05

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092180	18-Sep-02 (SPEAG, in house check Oct-03)	In house check: Oct 05
RF generator HP 8648C	US3642U01700	4-Aug-99 (SPEAG, in house check Dec-03)	In house check: Dec-05
Network Analyzer HP 8753E	US37390585	18-Oct-01 (SPEAG, in house check Nov-03)	In house check: Nov 04

	Name	Function	Signature
Calibrated by:	Katja Pokovic	Technical Manager	
Approved by:	Niels Kuster	Quality Manager	

Issued: October 30, 2004

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 Federal Office of Metrology and Accreditation
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
ConF	sensitivity in TSL / NORMx,y,z
DCP	diode compression point
Polarization φ	φ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., $\vartheta = 0$ is normal to probe axis

Calibration is Performed According to the Following Standards:

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

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 (no uncertainty required). DCP does not depend on frequency nor media.
- *ConvF and Boundary Effect Parameters:* Assessed in flat phantom using E-field (or Temperature Transfer Standard for $f \leq 800$ MHz) and inside waveguide using analytical field distributions based on power measurements for $f > 800$ MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to *NORMx,y,z * ConvF* whereby the uncertainty corresponds to that given for *ConvF*. A frequency dependent *ConvF* is used in DASY 4.3 B17 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
Calibrated: October 26, 2004

Calibrated for DASY Systems

(Note: non-compatible with DASY2 system!)

DASY - Parameters of Probe: EX3DV4 SN:3550

Sensitivity in Free Space[A] Diode Compression[B]

NormX	**0.47** ± 9.9%	$\mu V/(V/m)^2$	DCP X	**92** mV
NormY	**0.49** ± 9.9%	$\mu V/(V/m)^2$	DCP Y	**92** mV
NormZ	**0.47** ± 9.9%	$\mu V/(V/m)^2$	DCP Z	**92** mV

Sensitivity in Tissue Simulating Liquid (Conversion Factors)

Please see Page 8.

Boundary Effect

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

Sensor Center to Phantom Surface Distance		**2.0 mm**	**3.0 mm**
SAR_{be} [%]	Without Correction Algorithm	3.8	1.1
SAR_{be} [%]	With Correction Algorithm	0.1	0.4

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

Sensor Center to Phantom Surface Distance		**2.0 mm**	**3.0 mm**
SAR_{be} [%]	Without Correction Algorithm	4.8	2.4
SAR_{be} [%]	With Correction Algorithm	0.8	0.9

Sensor Offset

Probe Tip to Sensor Center	**1.0** mm

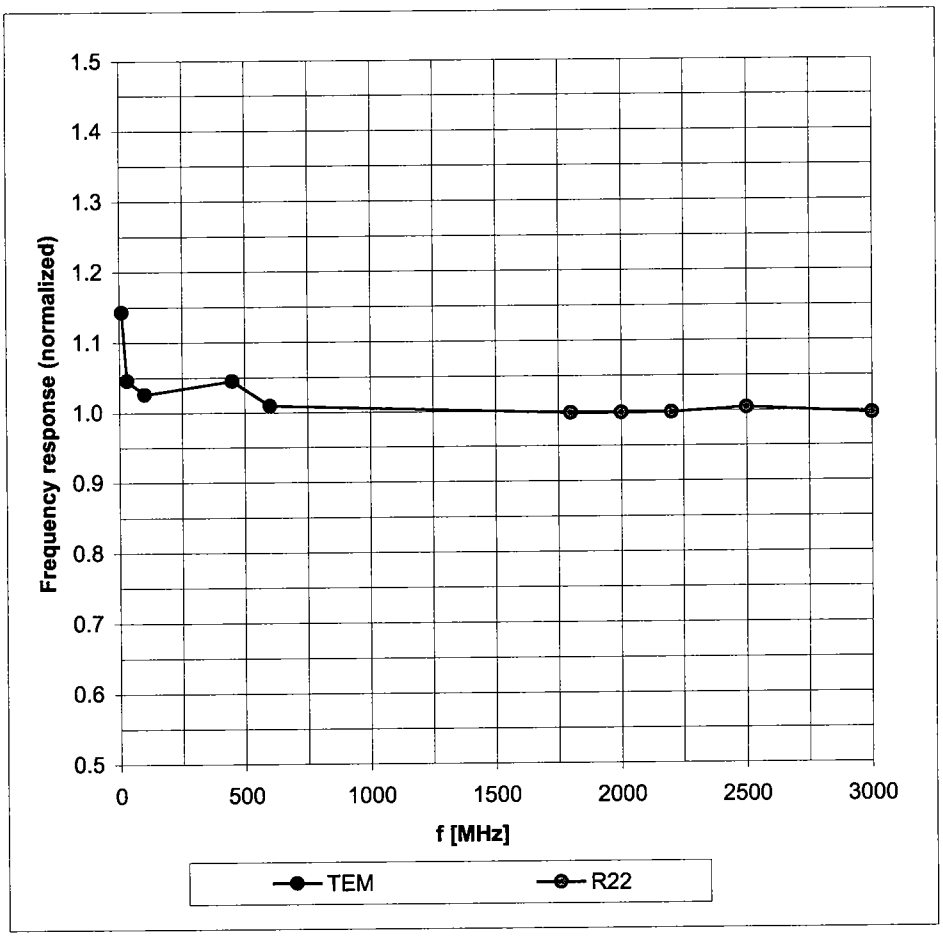
The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

[A] The uncertainties of NormX,Y,Z do not affect the E^2-field uncertainty inside TSL (see Page 8).

[B] Numerical linearization parameter: uncertainty not required.

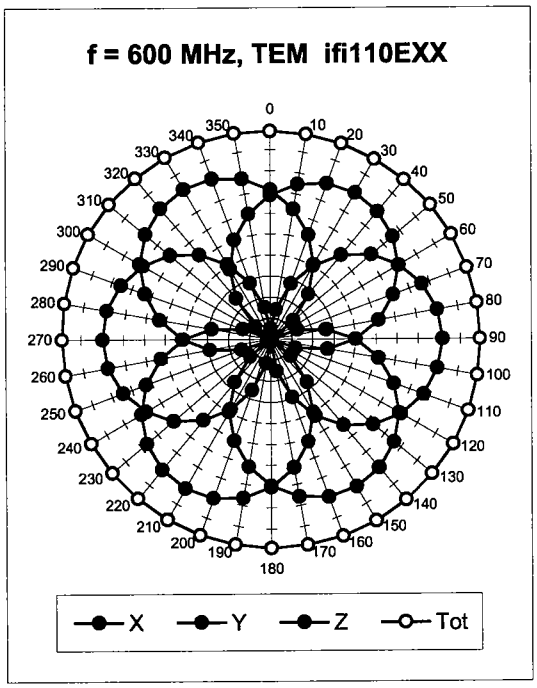
Frequency Response of E-Field

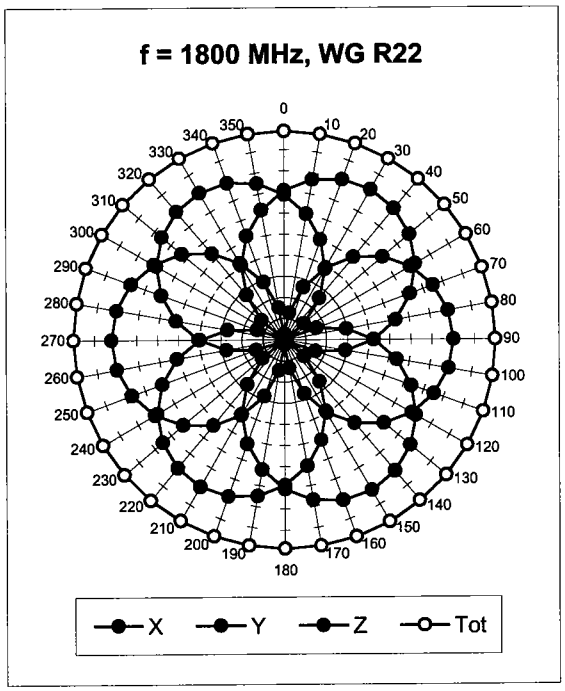
(TEM-Cell:ifi110 EXX, Waveguide: R22)

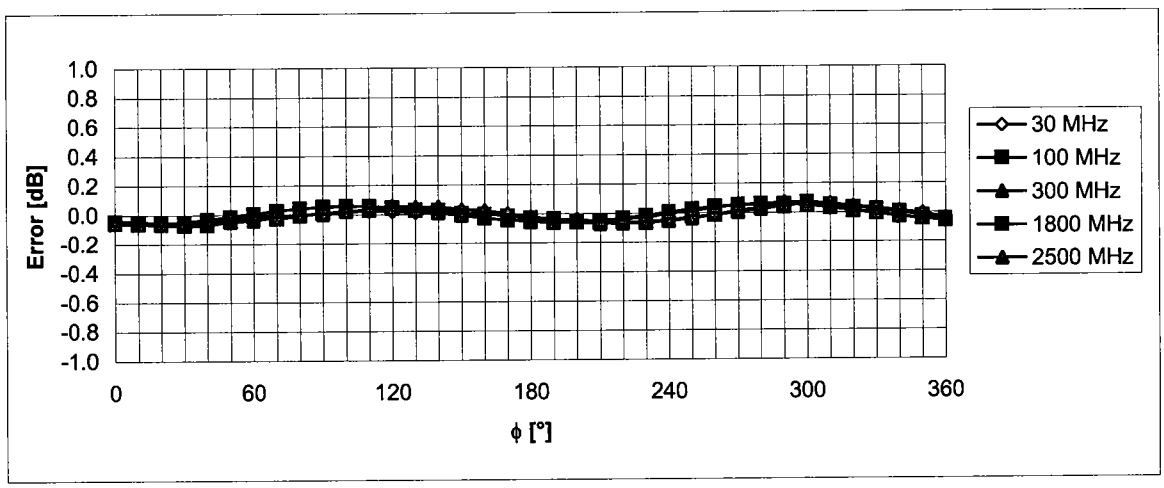


Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

Receiving Pattern (ϕ), ϑ = 0°



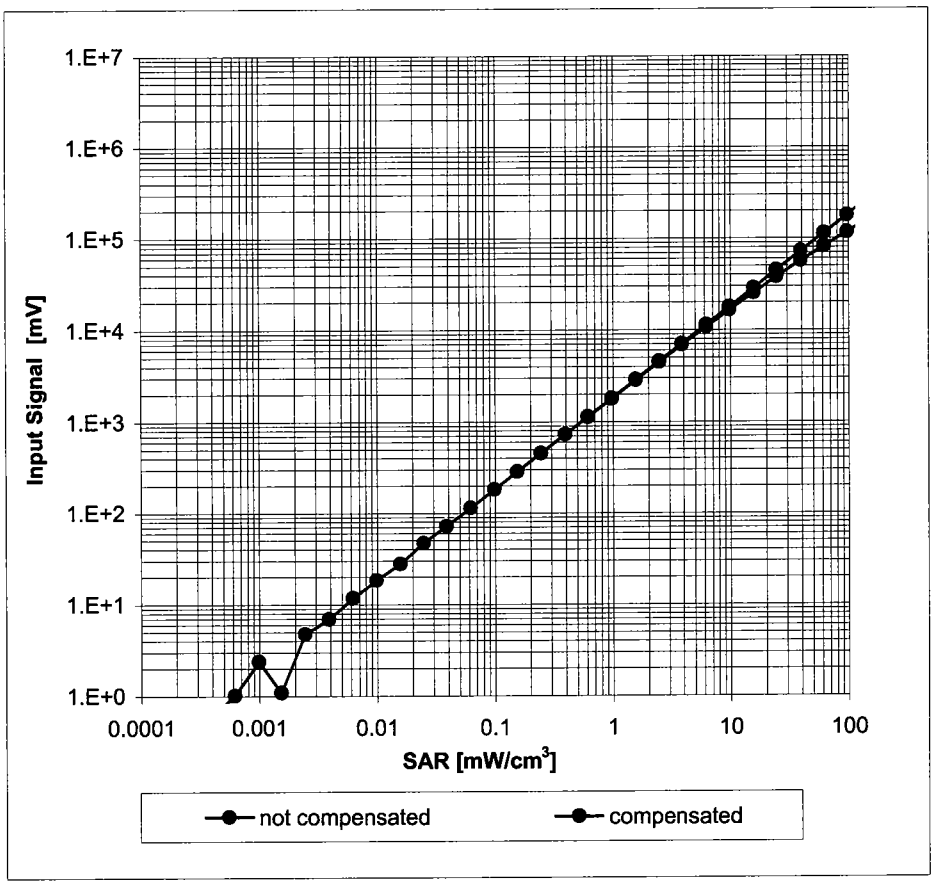


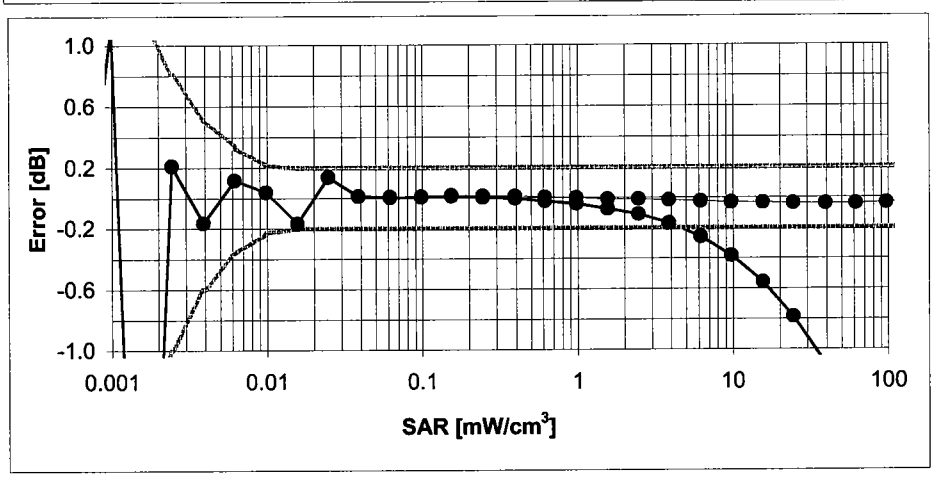


Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

Dynamic Range f(SAR_{head})

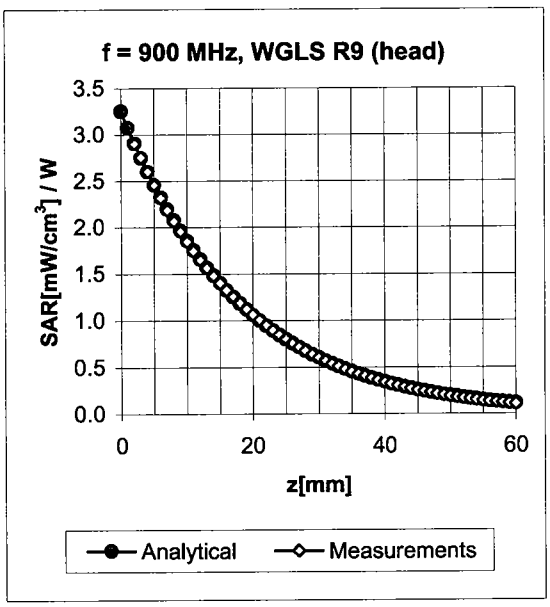
(Waveguide R22, f = 1800 MHz)

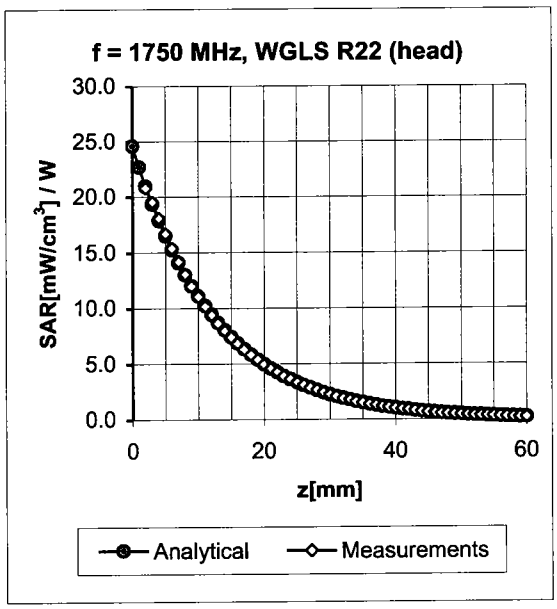




Uncertainty of Linearity Assessment: ± 0.6% (k=2)

Conversion Factor Assessment



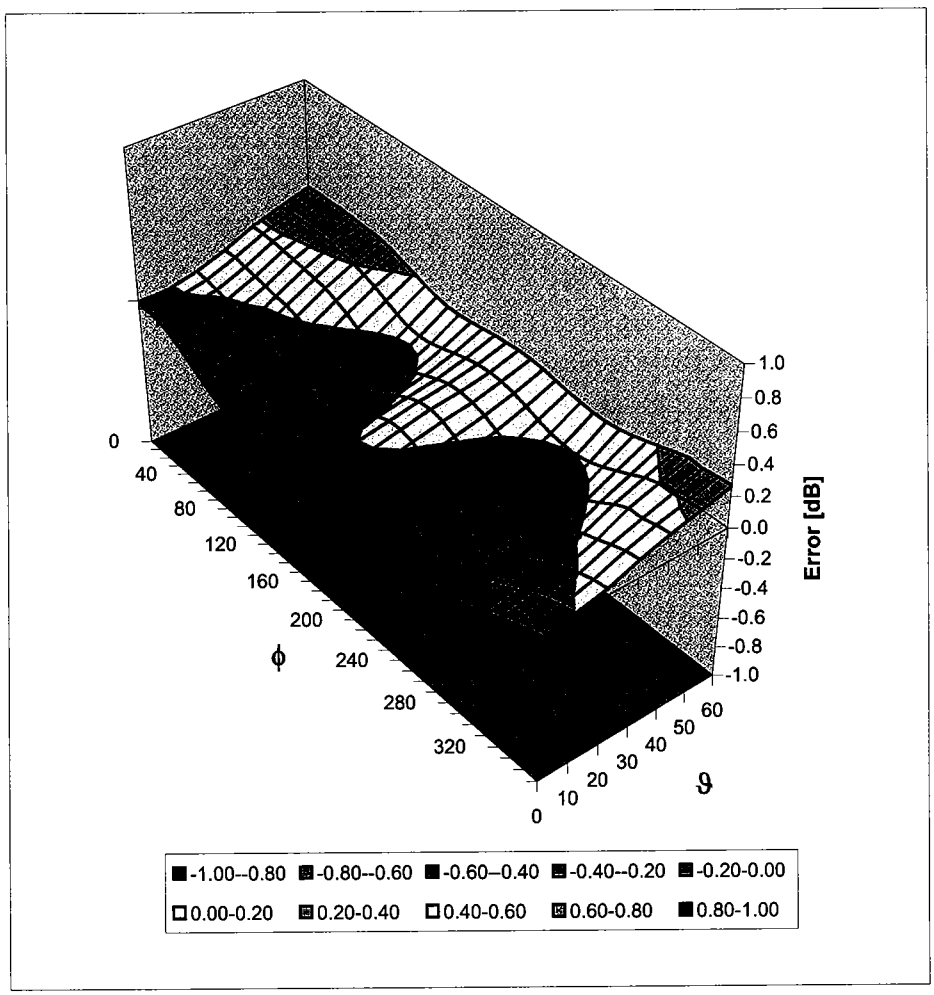


f [MHz]	Validity [MHz][c]	TSL	Permittivity	Conductivity	Alpha	Depth	ConvF Uncertainty
450	± 50 / ± 100	Head	43.5 ± 5%	0.87 ± 5%	-0.03	2.33	8.28 ± 13.3% (k=2)
835	± 50 / ± 100	Head	41.5 ± 5%	0.90 ± 5%	0.92	0.65	8.12 ± 11.0% (k=2)
900	± 50 / ± 100	Head	41.5 ± 5%	0.97 ± 5%	0.97	0.62	7.76 ± 11.0% (k=2)
1640	± 50 / ± 100	Head	40.3 ± 5%	1.29 ± 5%	0.69	0.73	7.28 ± 11.0% (k=2)
1750	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.64	0.80	6.97 ± 11.0% (k=2)
1900	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.54	0.96	6.75 ± 11.0% (k=2)
1950	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.57	0.88	6.62 ± 11.0% (k=2)
2450	± 50 / ± 100	Head	39.2 ± 5%	1.80 ± 5%	0.61	0.78	6.33 ± 11.8% (k=2)
450	± 50 / ± 100	Body	56.7 ± 5%	0.94 ± 5%	-0.08	2.62	8.05 ± 13.3% (k=2)
835	± 50 / ± 100	Body	55.2 ± 5%	0.97 ± 5%	0.98	0.65	7.99 ± 11.0% (k=2)
900	± 50 / ± 100	Body	55.0 ± 5%	1.05 ± 5%	1.01	0.63	7.75 ± 11.0% (k=2)
1640	± 50 / ± 100	Body	53.8 ± 5%	1.40 ± 5%	0.58	0.99	6.82 ± 11.0% (k=2)
1750	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.50	1.16	6.48 ± 11.0% (k=2)
1900	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.47	1.32	6.35 ± 11.0% (k=2)
1950	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.64	0.83	6.53 ± 11.0% (k=2)
2450	± 50 / ± 100	Body	52.7 ± 5%	1.95 ± 5%	0.83	0.64	6.27 ± 11.8% (k=2)

[c] **The validity of ± 100 MHz only applies for DASY 4.3 B17 and higher (see Page 2). The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.**

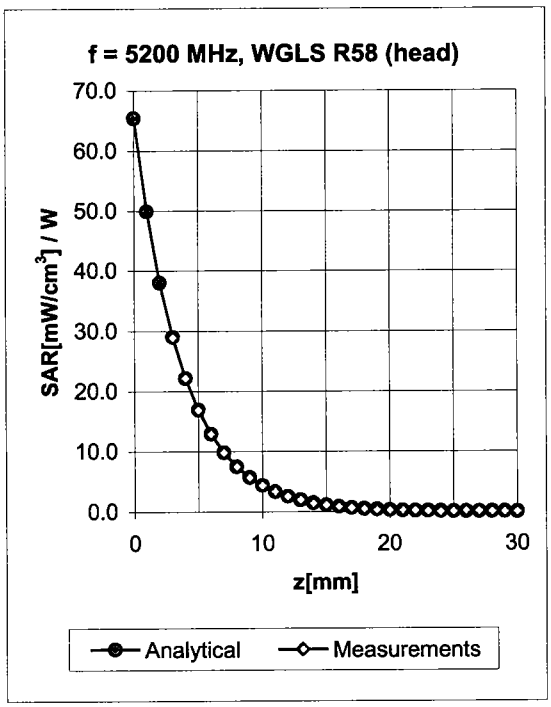
Deviation from Isotropy in HSL

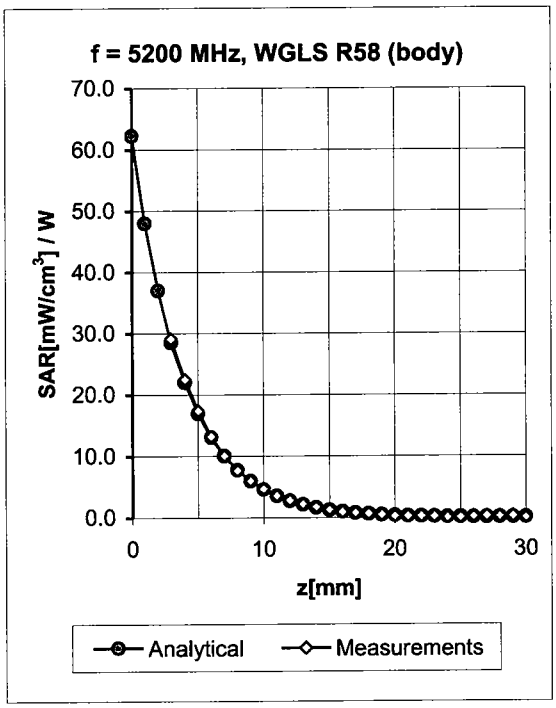
Error (ϕ, ϑ), f = 900 MHz



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

Appendix[D]





f [MHz][D]	Validity [MHz]	TSL	Permittivity	Conductivity	Alpha	Depth	ConvF Uncertainty
5200	± 50	Head	36.0 ± 5%	4.76 ± 5%	0.45	1.80	4.17 ± 13.6% (k=2)
5500	± 50	Head	35.6 ± 5%	4.96 ± 5%	0.47	1.80	3.77 ± 13.6% (k=2)
5800	± 50	Head	35.3 ± 5%	5.27 ± 5%	0.48	1.80	3.74 ± 13.6% (k=2)
5200	± 50	Body	49.0 ± 5%	5.30 ± 5%	0.50	1.90	3.72 ± 13.6% (k=2)
5500	± 50	Body	48.6 ± 5%	5.65 ± 5%	0.50	1.95	3.47 ± 13.6% (k=2)
5800	± 50	Body	48.2 ± 5%	6.00 ± 5%	0.50	1.95	3.48 ± 13.6% (k=2)

[D] **Accreditation for ConvF assessment above 3000 MHz is currently applied for. Accreditation is expected at the beginning of 2005.**