

## **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 ( $\sigma = 0.96$  mho/m,  $\epsilon_r = 54.1$ ,  $\rho = 1000$  kg/m<sup>3</sup>)

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**

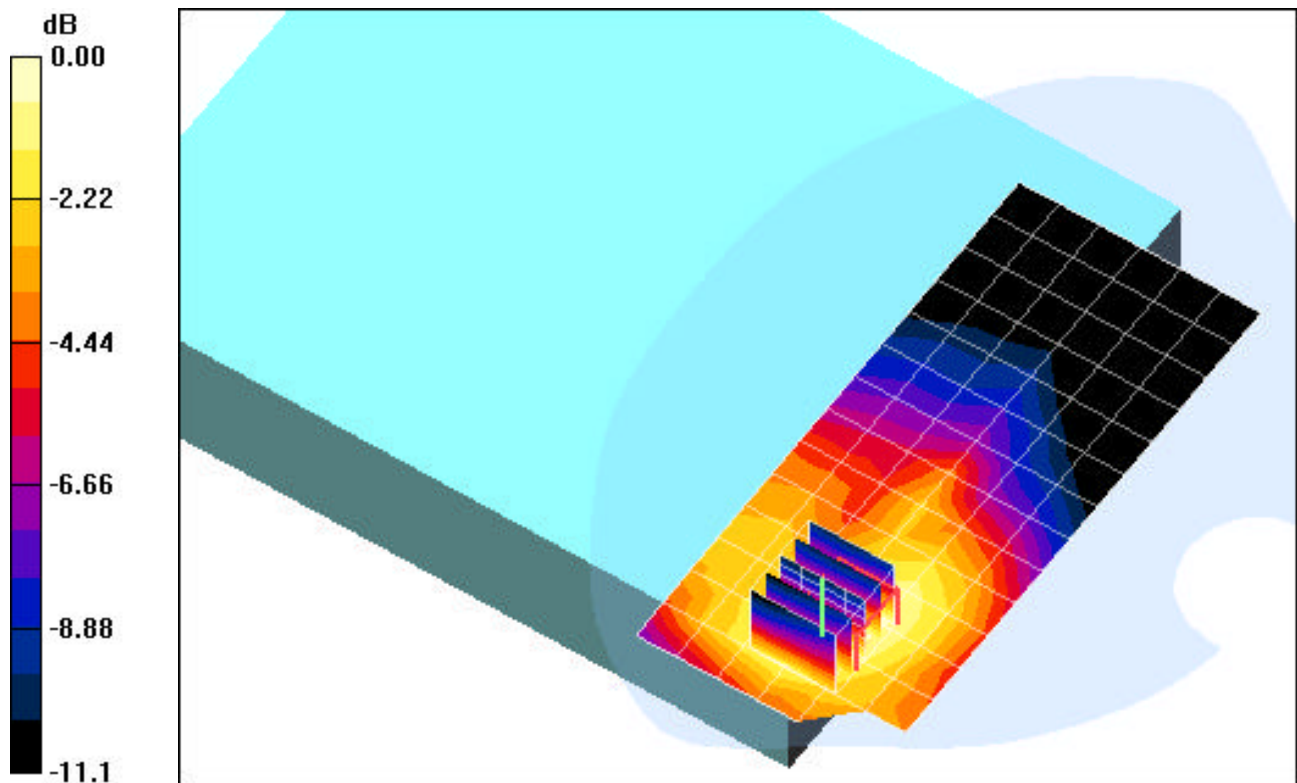
**Area Scan (7x15x1):** Measurement grid: dx=15mm, dy=15mm

**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 ( $\sigma = 0.96$  mho/m,  $\epsilon_r = 54.1$ ,  $\rho = 1000$  kg/m<sup>3</sup>)

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**

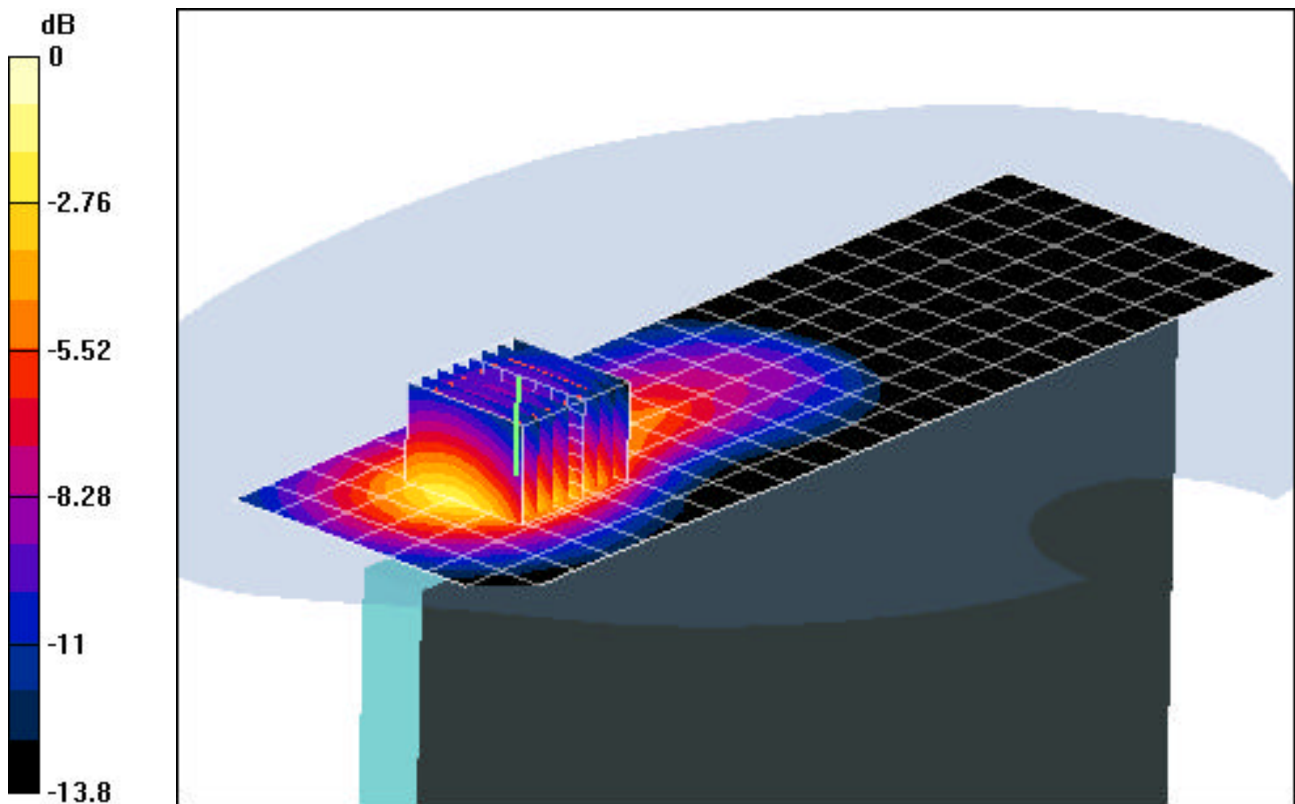
**Area Scan (8x23x1):** Measurement grid: dx=10mm, dy=10mm

**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 ( $\sigma = 0.96$  mho/m,  $\epsilon_r = 54.1$ ,  $\rho = 1000$  kg/m<sup>3</sup>)

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**

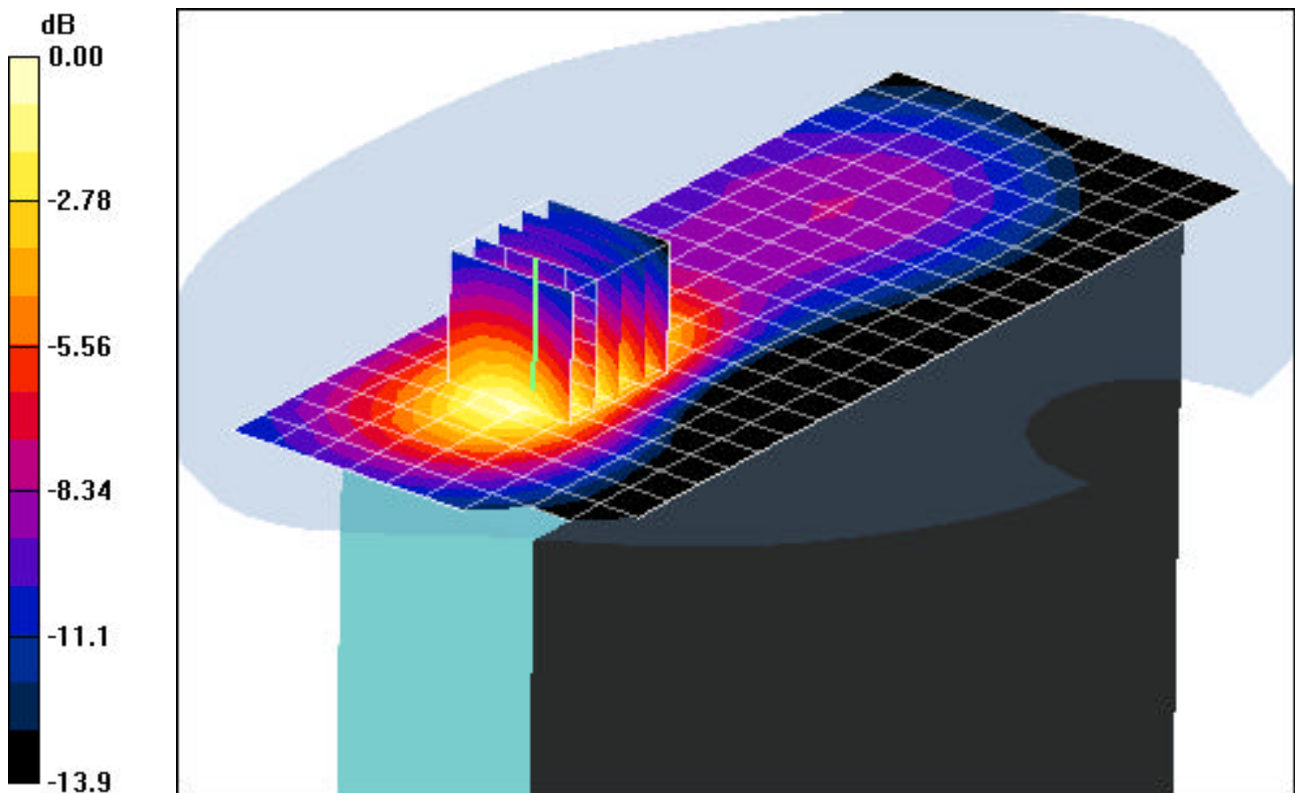
**Area Scan (10x23x1):** Measurement grid: dx=10mm, dy=10mm

**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 ( $\sigma = 1.56$  mho/m,  $\epsilon_r = 52.6$ ,  $\rho = 1000$  kg/m<sup>3</sup>)

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**

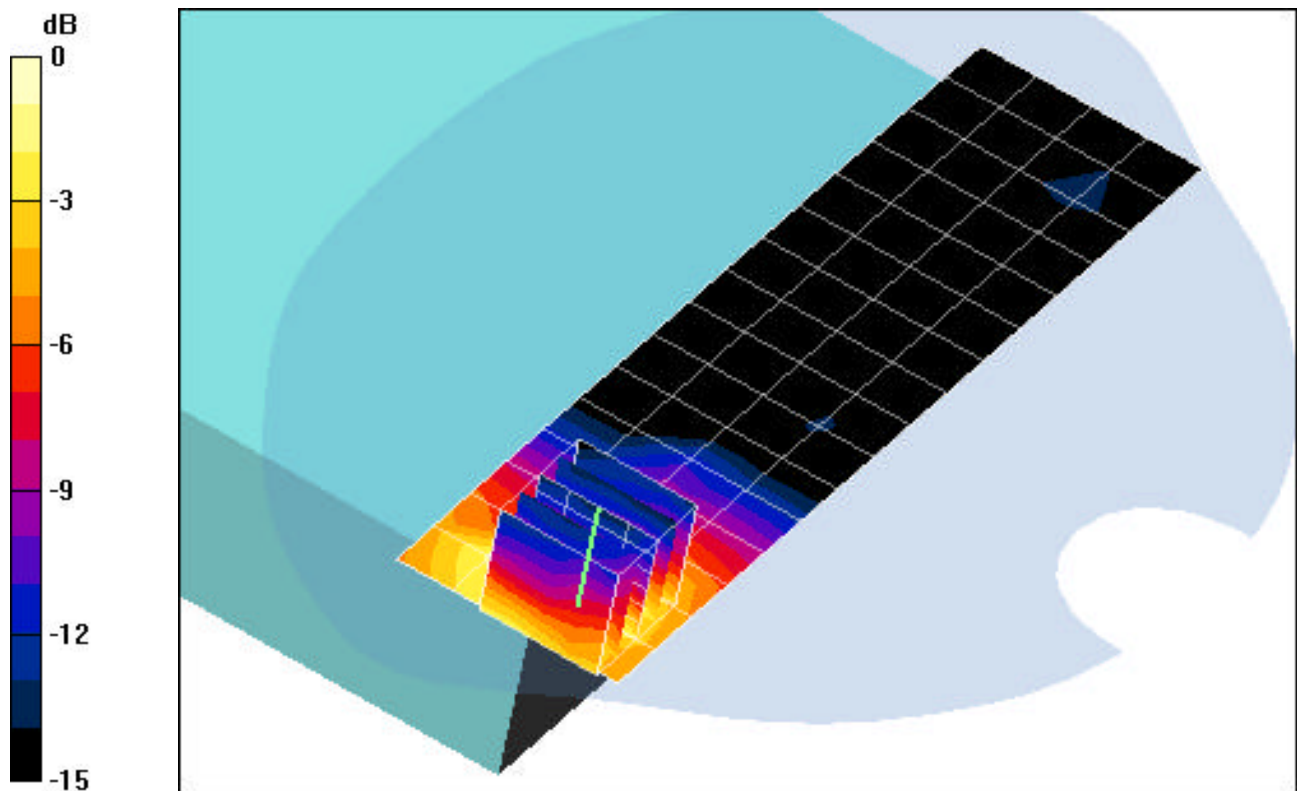
**Area Scan (5x17x1):** Measurement grid: dx=15mm, dy=15mm

**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 ( $\sigma = 1.56$  mho/m,  $\epsilon_r = 52.6$ ,  $\rho = 1000$  kg/m<sup>3</sup>)

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**

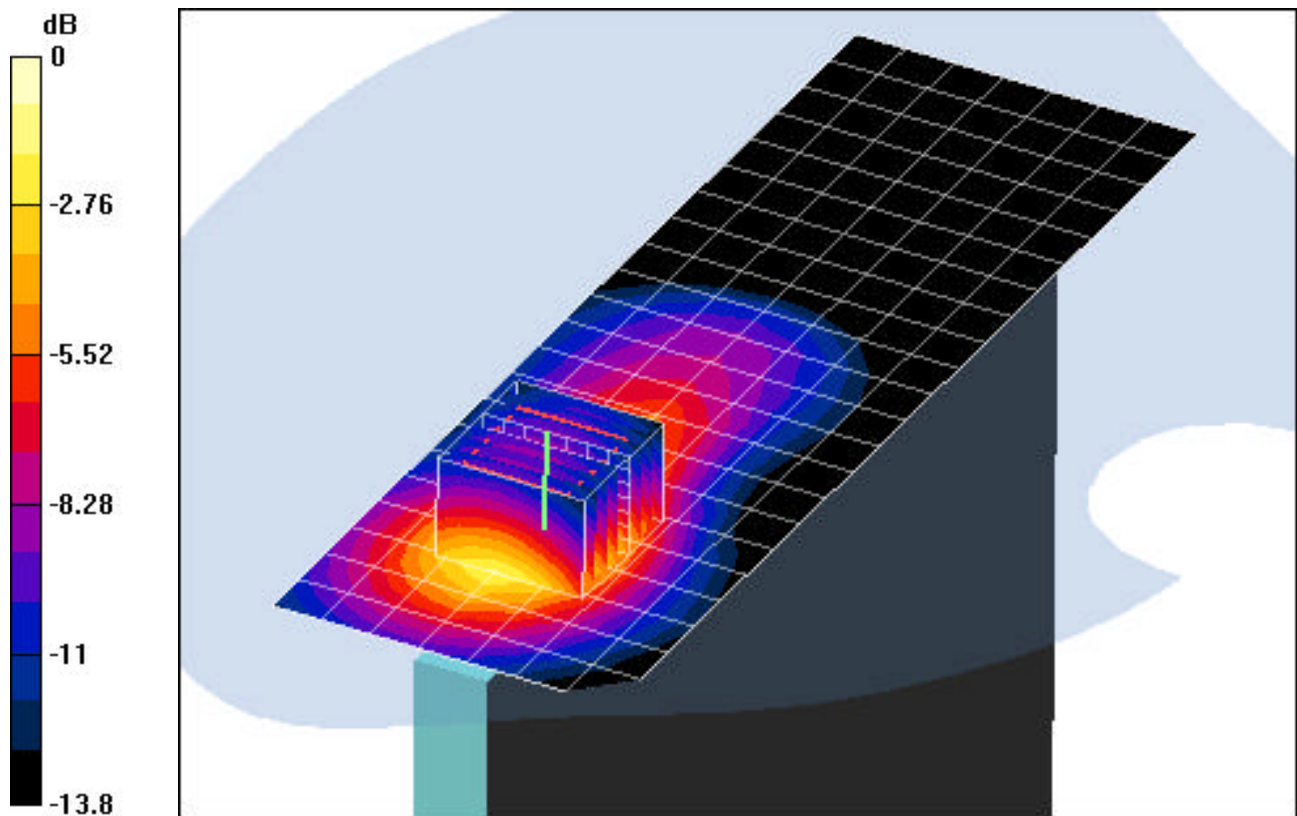
**Area Scan (8x23x1):** Measurement grid: dx=10mm, dy=10mm

**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 ( $\sigma = 1.56$  mho/m,  $\epsilon_r = 52.6$ ,  $\rho = 1000$  kg/m<sup>3</sup>)

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**

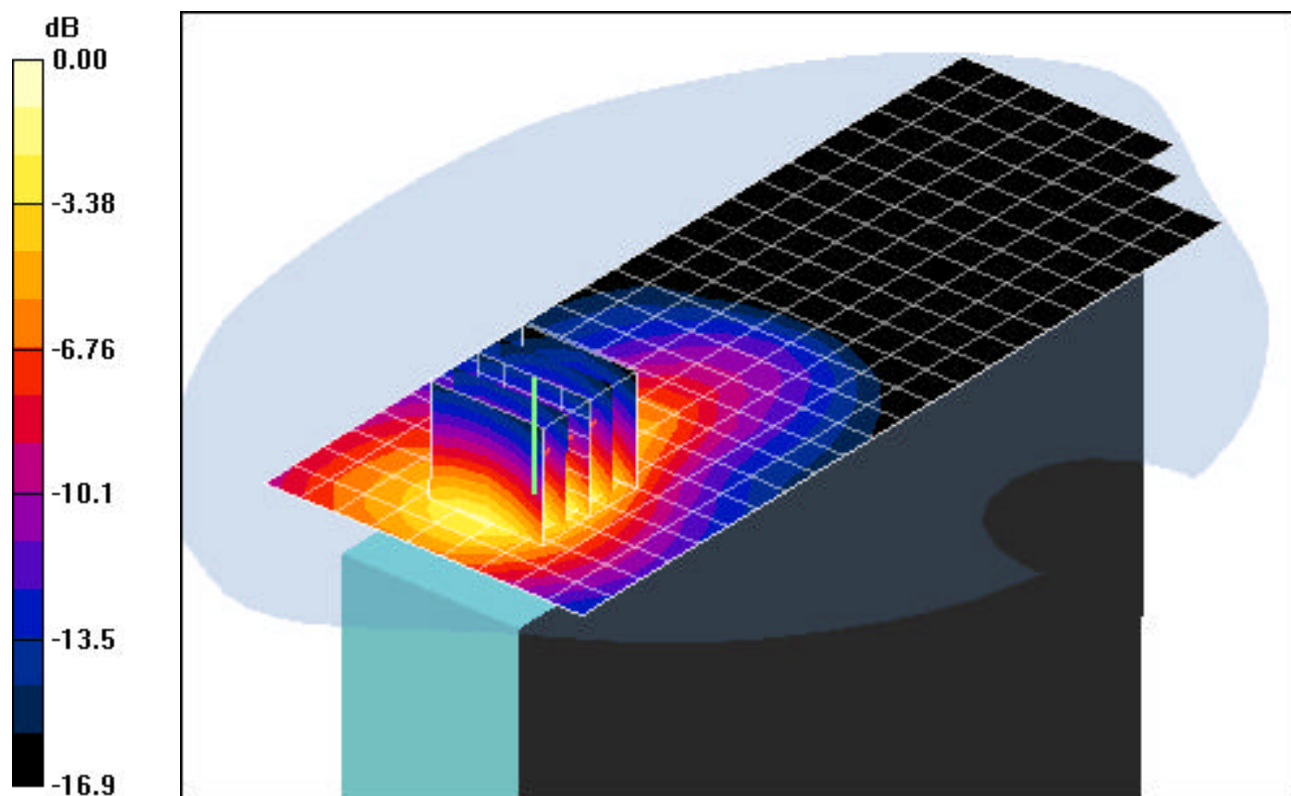
**Area Scan (10x25x1):** Measurement grid: dx=10mm, dy=10mm

**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 ( $\sigma = 1.93$  mho/m,  $\epsilon_r = 53.74$ ,  $\rho = 1000$  kg/m<sup>3</sup>)

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**

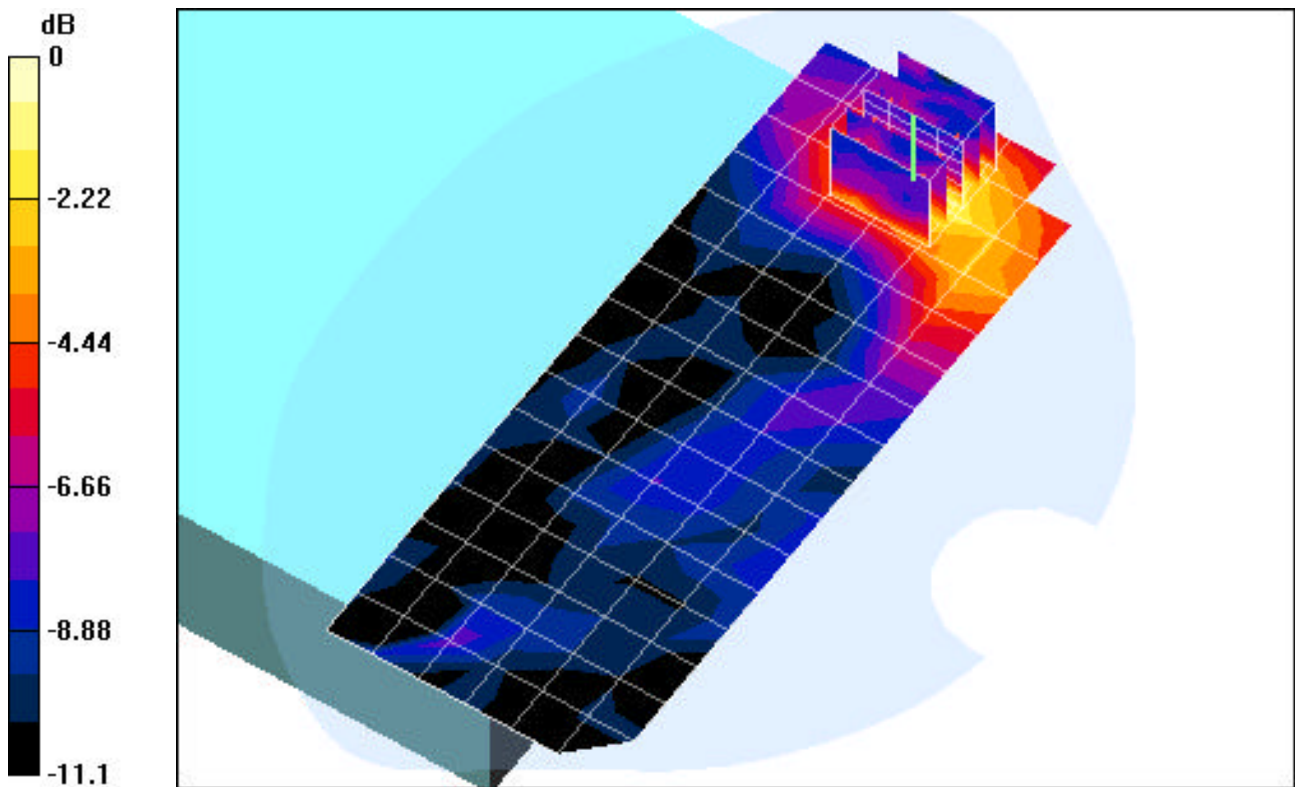
**Area Scan (7x17x1):** Measurement grid: dx=15mm, dy=15mm

**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 ( $\sigma = 1.93$  mho/m,  $\epsilon_r = 53.74$ ,  $\rho = 1000$  kg/m<sup>3</sup>)

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**

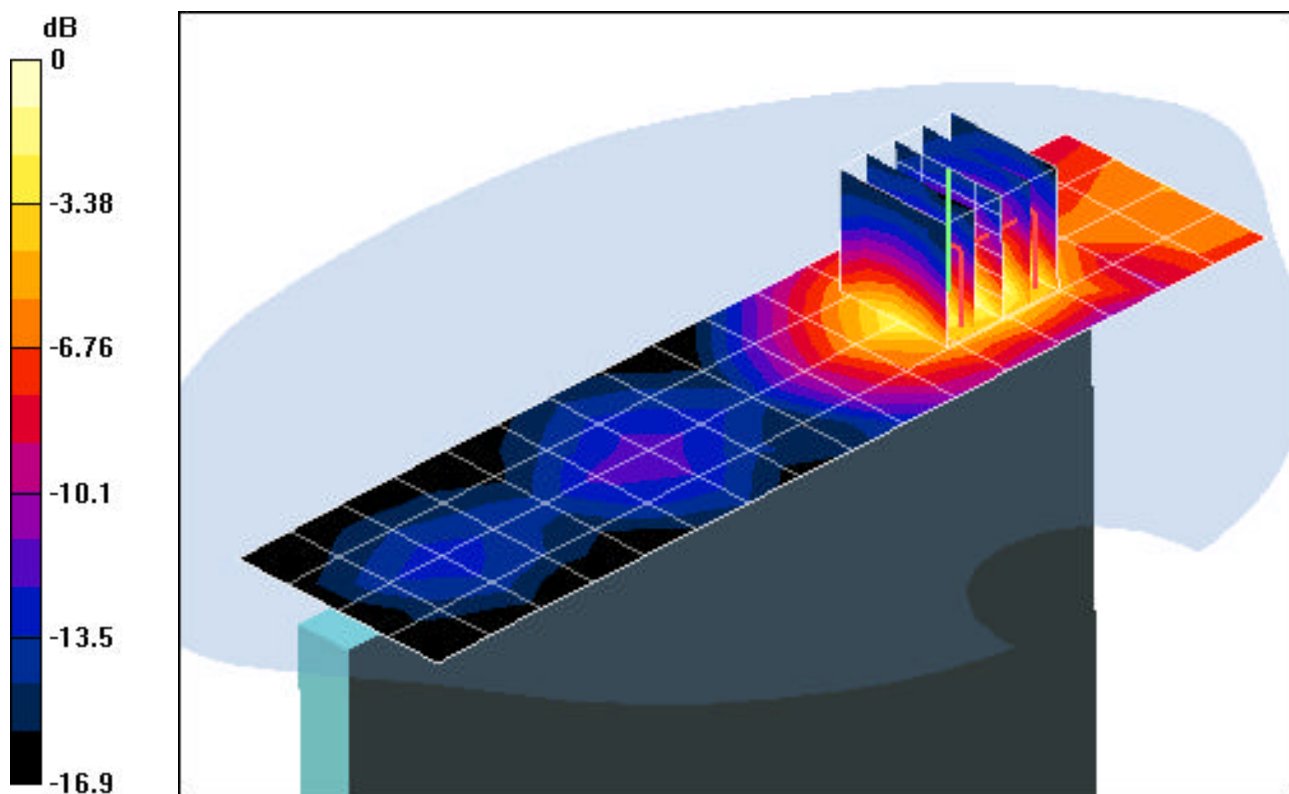
**Area Scan (5x17x1):** Measurement grid: dx=15mm, dy=15mm

**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 ( $\sigma = 1.93 \text{ mho/m}$ ,  $\epsilon_r = 53.74$ ,  $\rho = 1000 \text{ kg/m}^3$ )

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**

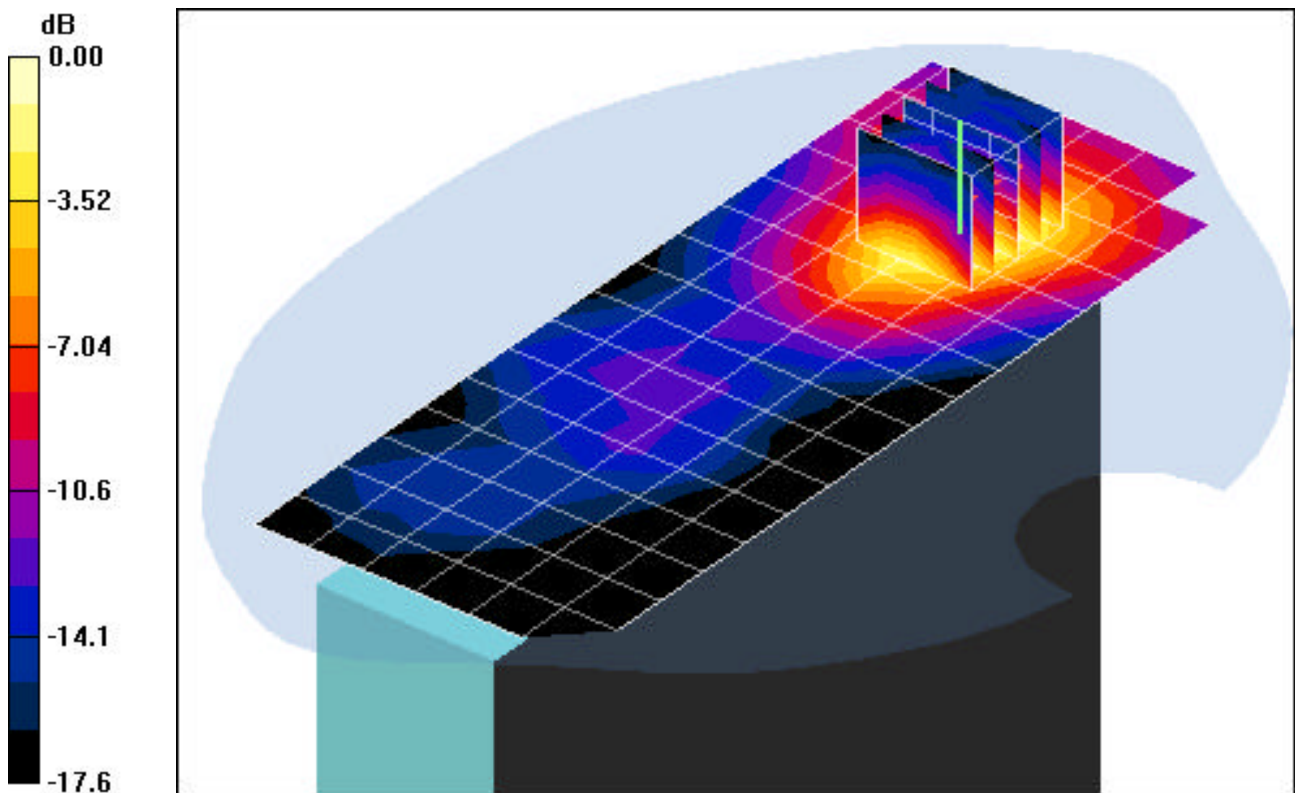
**Area Scan (7x17x1):** Measurement grid: dx=15mm, dy=15mm

**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 ( $\sigma = 1.93 \text{ mho/m}$ ,  $\epsilon_r = 53.74$ ,  $\rho = 1000 \text{ kg/m}^3$ )

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**

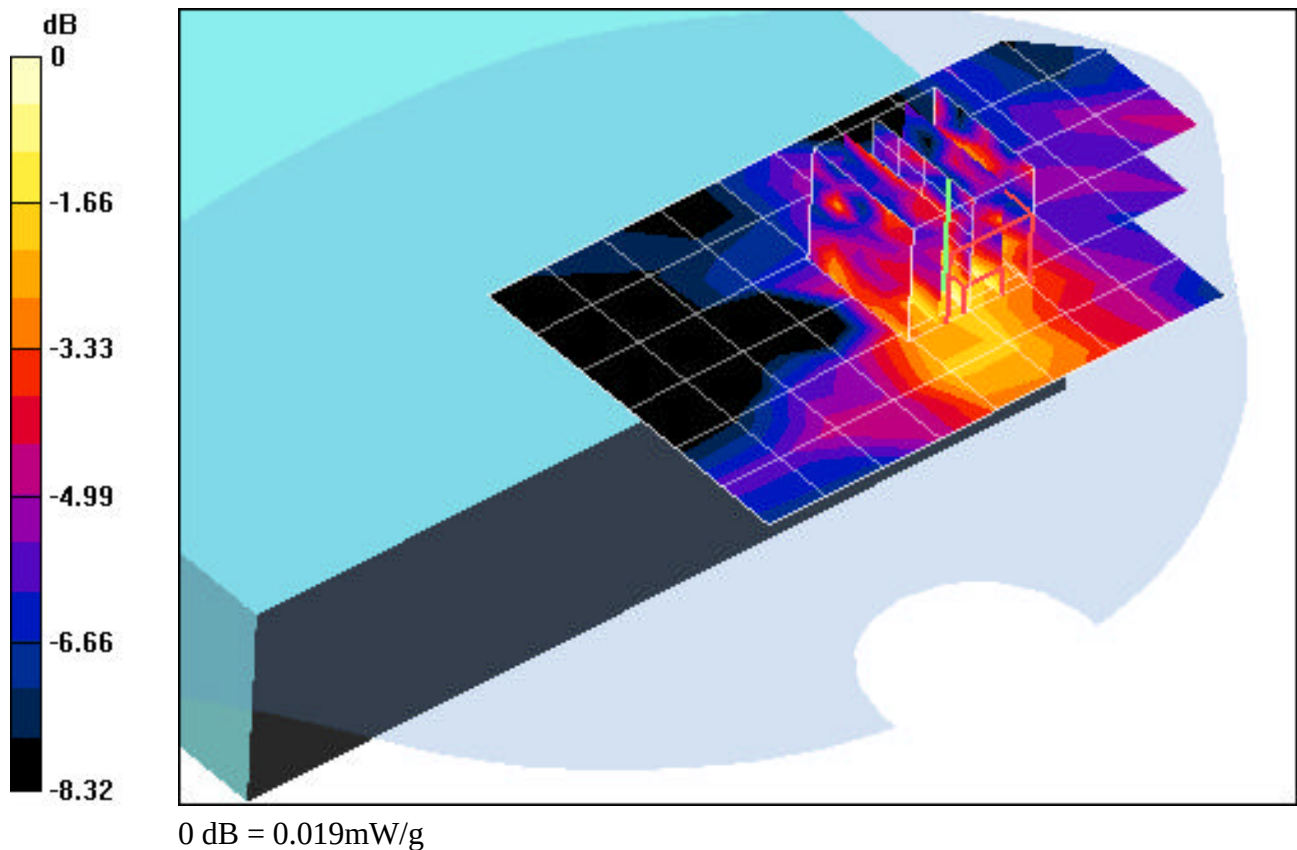
**Area Scan (7x11x1):** Measurement grid: dx=15mm, dy=15mm

**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**



# 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 ( $\sigma = 1.93$  mho/m,  $\epsilon_r = 53.74$ ,  $\rho = 1000$  kg/m<sup>3</sup>)

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**

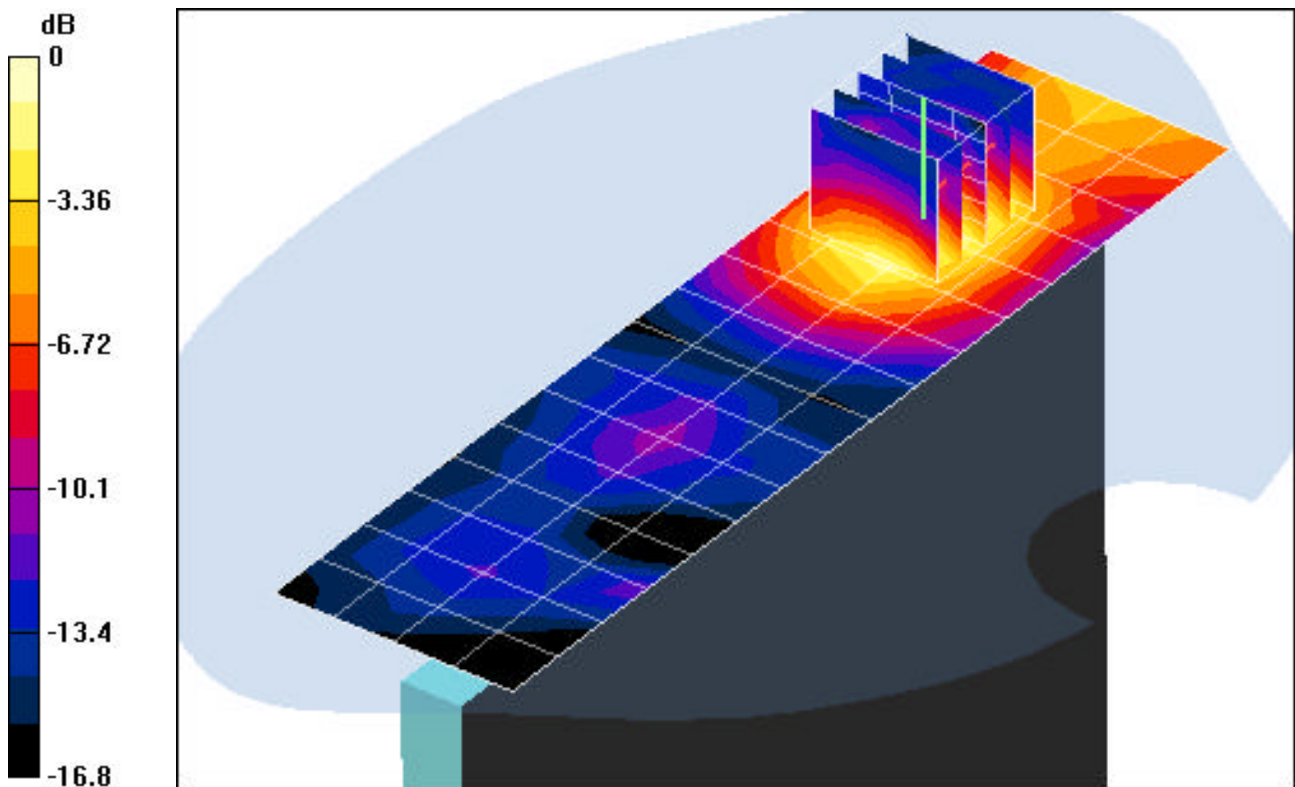
**Area Scan (5x17x1):** Measurement grid: dx=15mm, dy=15mm

**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 ( $\sigma = 1.93$  mho/m,  $\epsilon_r = 53.74$ ,  $\rho = 1000$  kg/m<sup>3</sup>)

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**

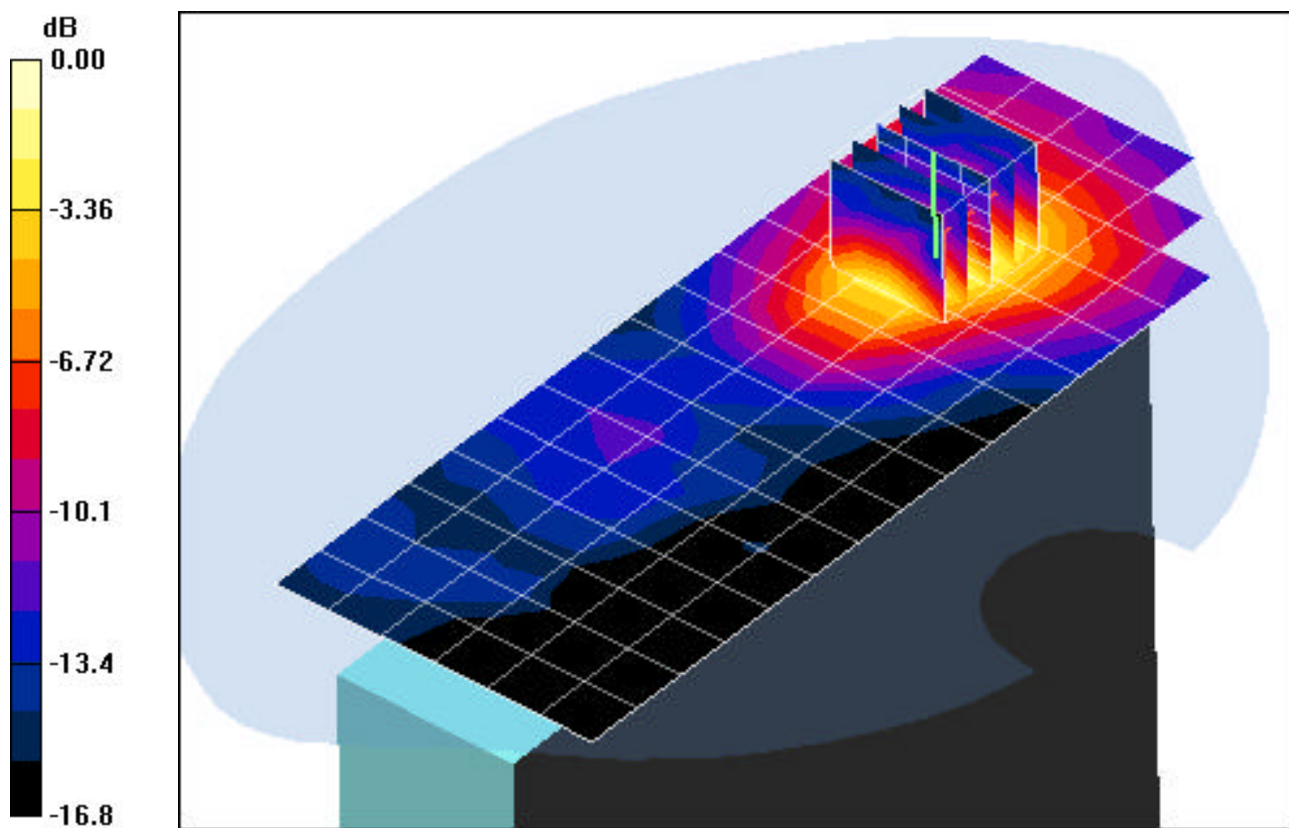
**Area Scan (7x17x1):** Measurement grid: dx=15mm, dy=15mm

**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 ( $\sigma = 5.41$  mho/m,  $\epsilon_r = 48.10$ ,  $\rho = 1000$  kg/m<sup>3</sup>)

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**

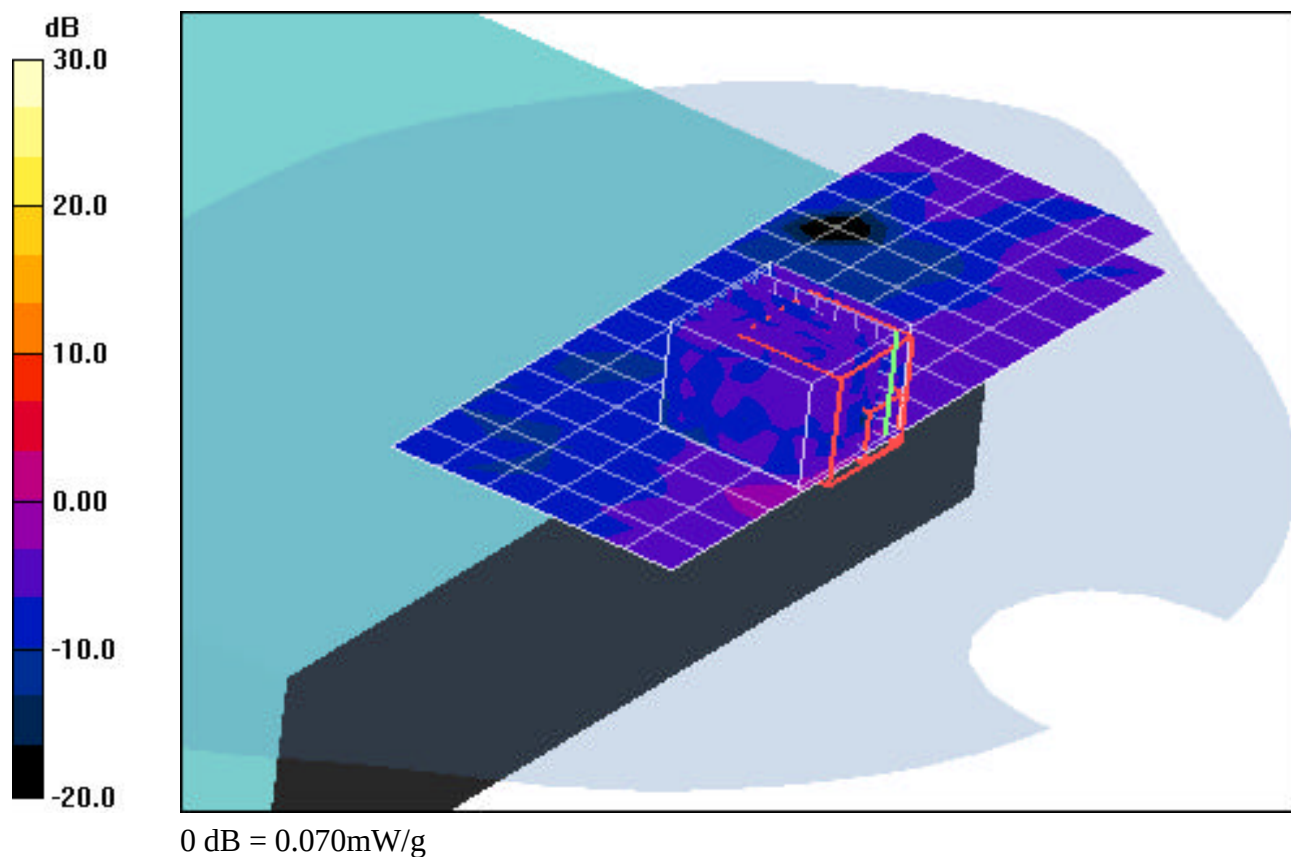
**Area Scan (7x17x1):** Measurement grid: dx=10mm, dy=10mm

**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**



# 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 ( $\sigma = 5.41$  mho/m,  $\epsilon_r = 48.10$ ,  $\rho = 1000$  kg/m<sup>3</sup>)

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**

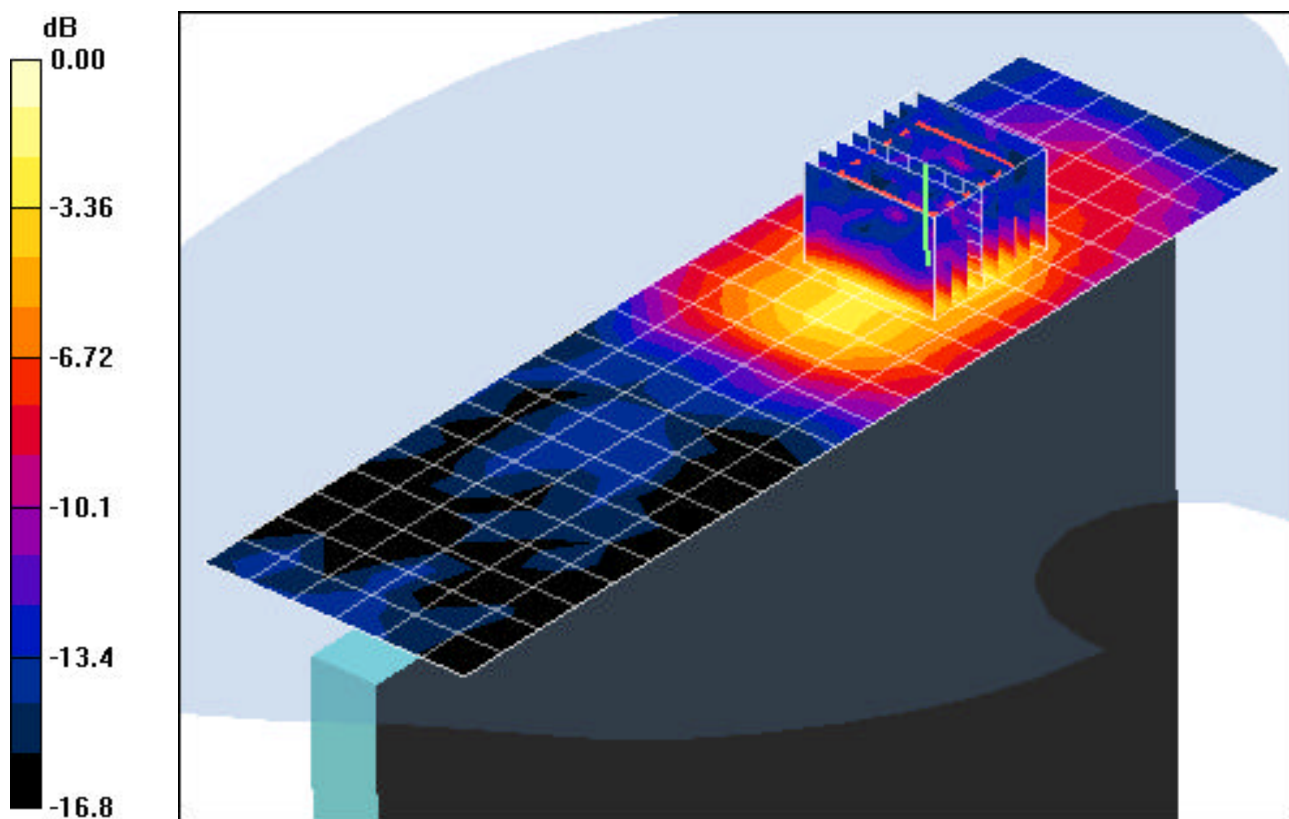
**Area Scan (7x23x1):** Measurement grid: dx=10mm, dy=10mm

**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 ( $\sigma = 5.41$  mho/m,  $\epsilon_r = 48.10$ ,  $\rho = 1000$  kg/m<sup>3</sup>)

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**

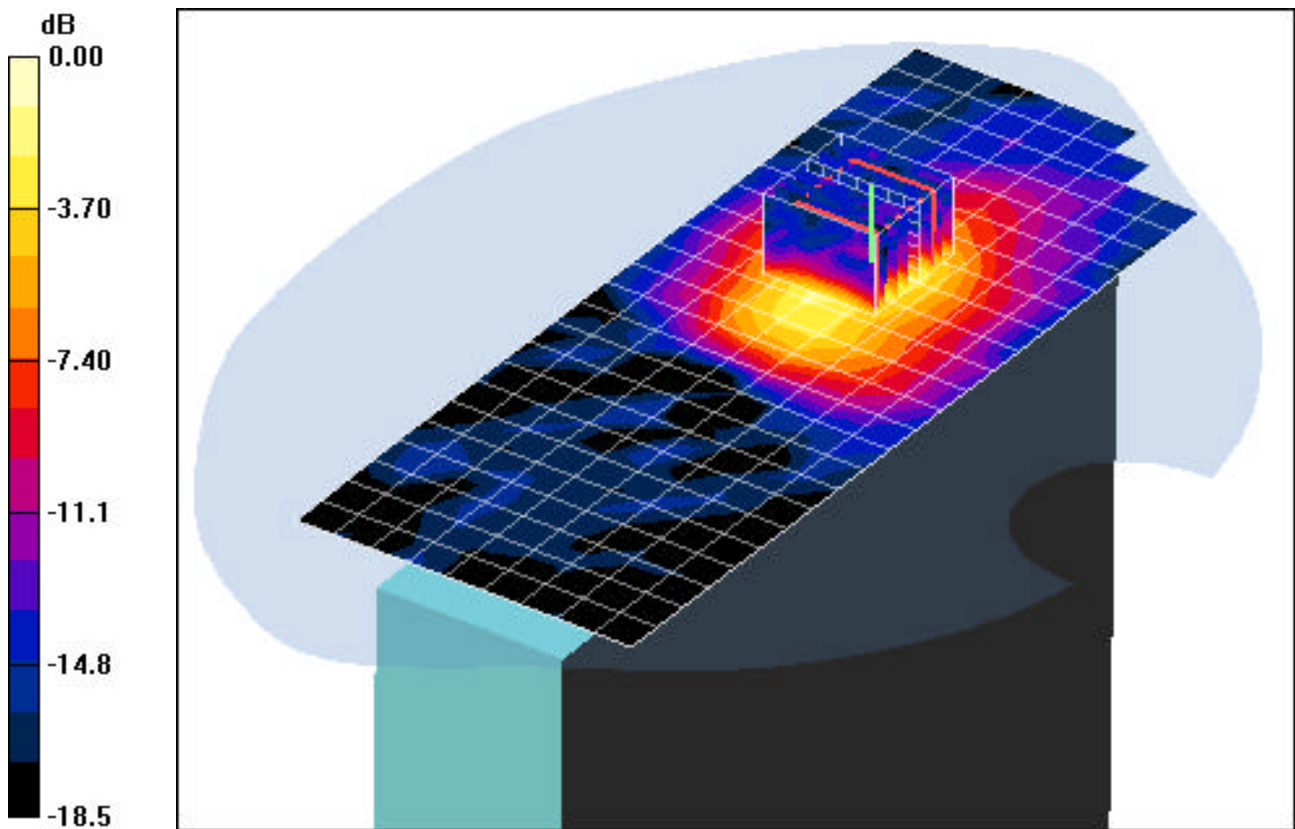
**Area Scan (10x25x1):** Measurement grid: dx=10mm, dy=10mm

**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 ( $\sigma = 5.94$  mho/m,  $\epsilon_r = 48.22$ ,  $\rho = 1000$  kg/m<sup>3</sup>)

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**

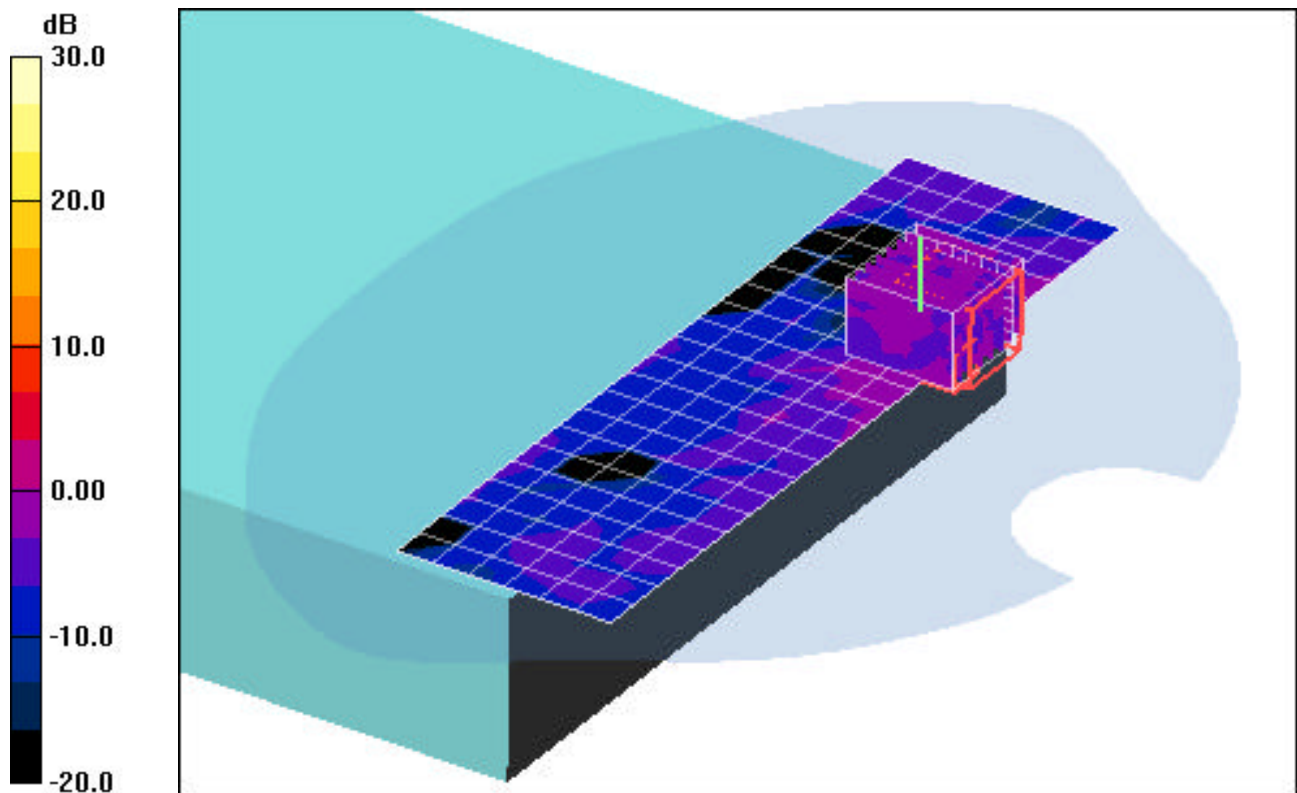
**Area Scan (7x23x1):** Measurement grid: dx=10mm, dy=10mm

**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 ( $\sigma = 5.94$  mho/m,  $\epsilon_r = 48.22$ ,  $\rho = 1000$  kg/m<sup>3</sup>)

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**

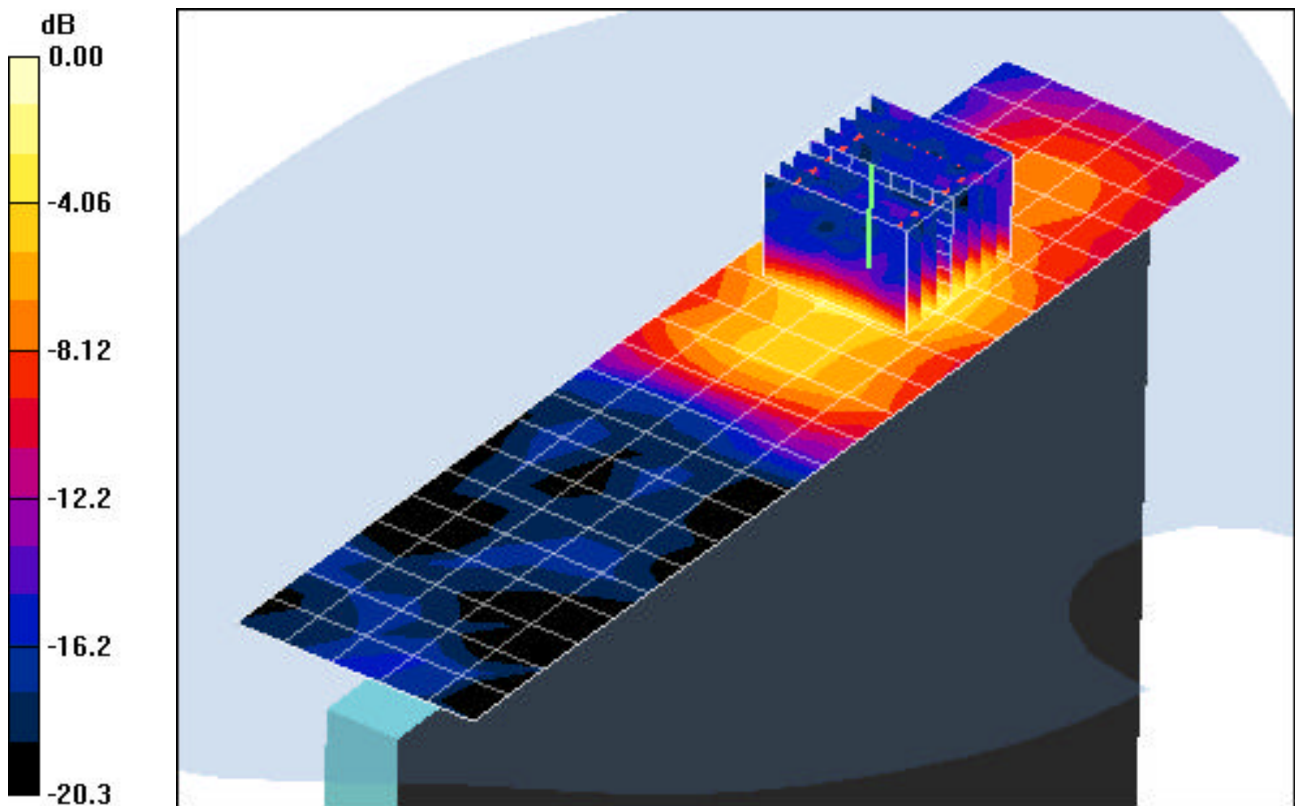
**Area Scan (6x23x1):** Measurement grid: dx=10mm, dy=10mm

**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 ( $\sigma = 5.94$  mho/m,  $\epsilon_r = 48.22$ ,  $\rho = 1000$  kg/m<sup>3</sup>)

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**

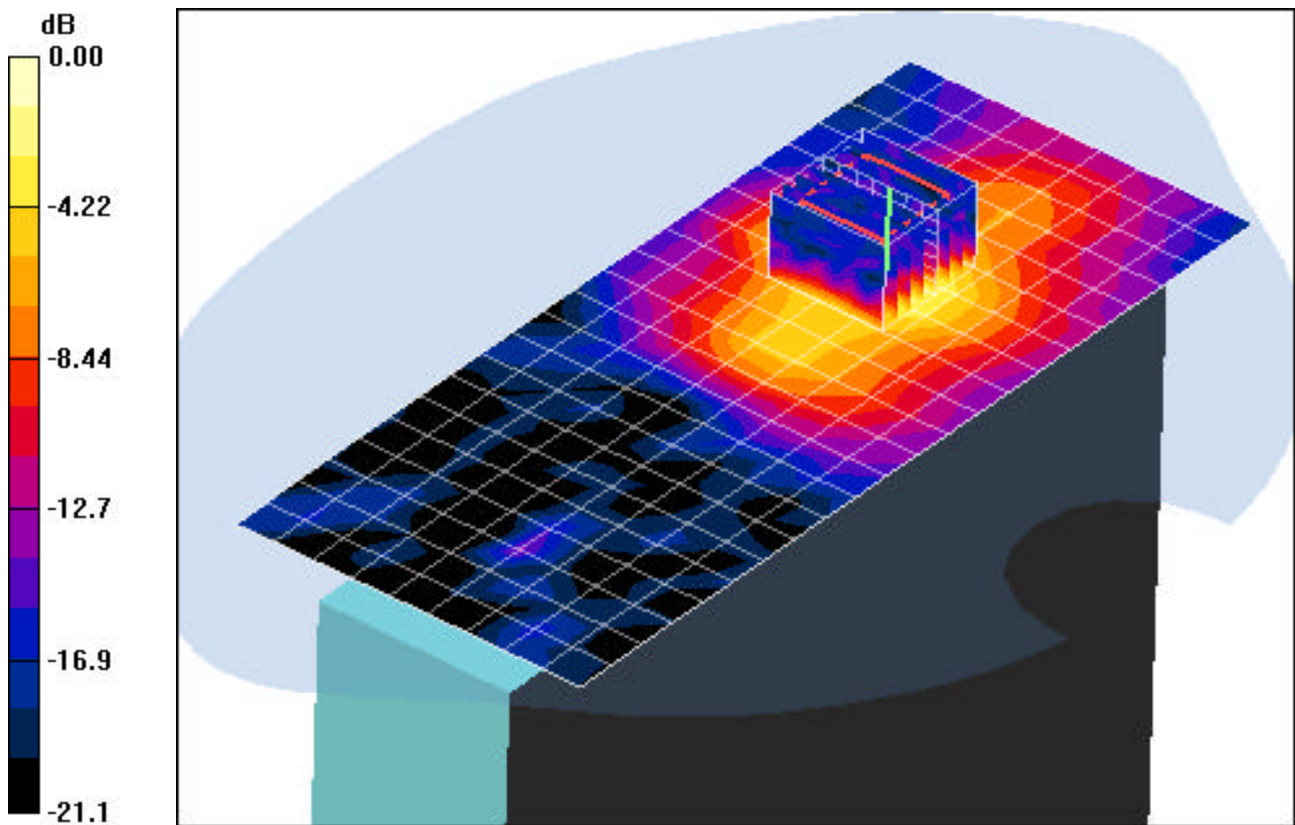
**Area Scan (10x23x1):** Measurement grid: dx=10mm, dy=10mm

**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 ( $\sigma = 1.93$  mho/m,  $\epsilon_r = 53.74$ ,  $\rho = 1000$  kg/m<sup>3</sup>)

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**

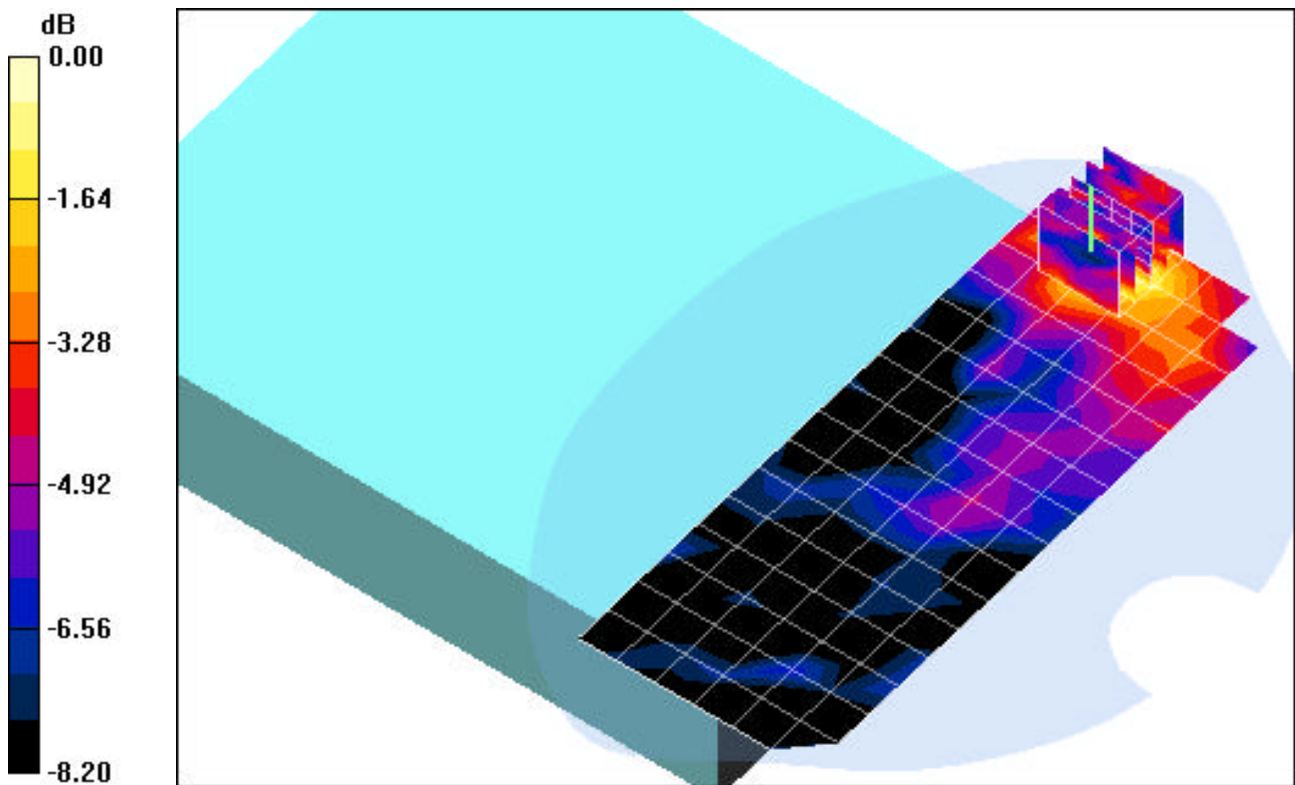
**Area Scan (7x17x1):** Measurement grid: dx=15mm, dy=15mm

**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 ( $\sigma = 1.93$  mho/m,  $\epsilon_r = 53.74$ ,  $\rho = 1000$  kg/m<sup>3</sup>)

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**

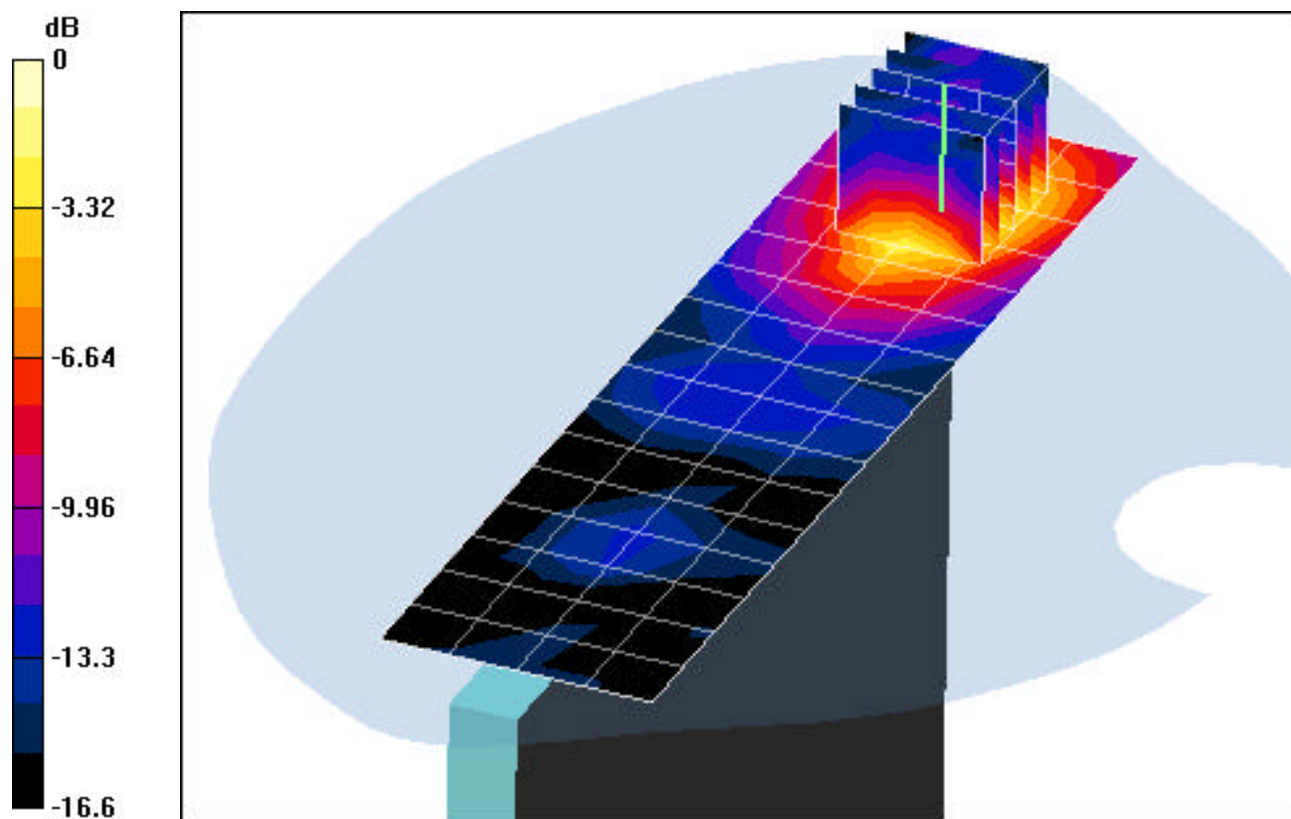
**Area Scan (5x17x1):** Measurement grid: dx=15mm, dy=15mm

**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 ( $\sigma = 1.93$  mho/m,  $\epsilon_r = 53.74$ ,  $\rho = 1000$  kg/m<sup>3</sup>)

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**

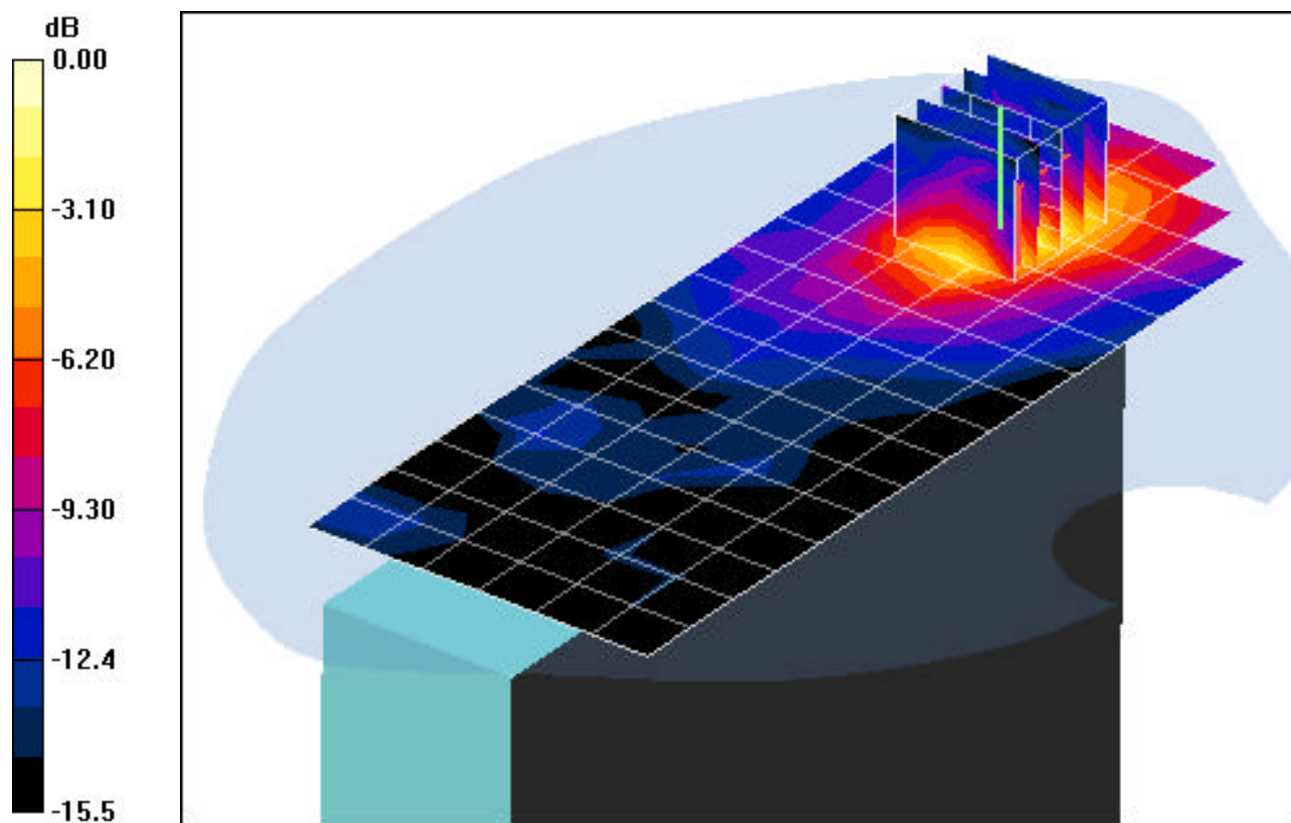
**Area Scan (7x17x1):** Measurement grid: dx=15mm, dy=15mm

**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 ( $\sigma = 0.98$  mho/m,  $\epsilon_r = 53.94$ ,  $\rho = 1000$  kg/m<sup>3</sup>)

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**

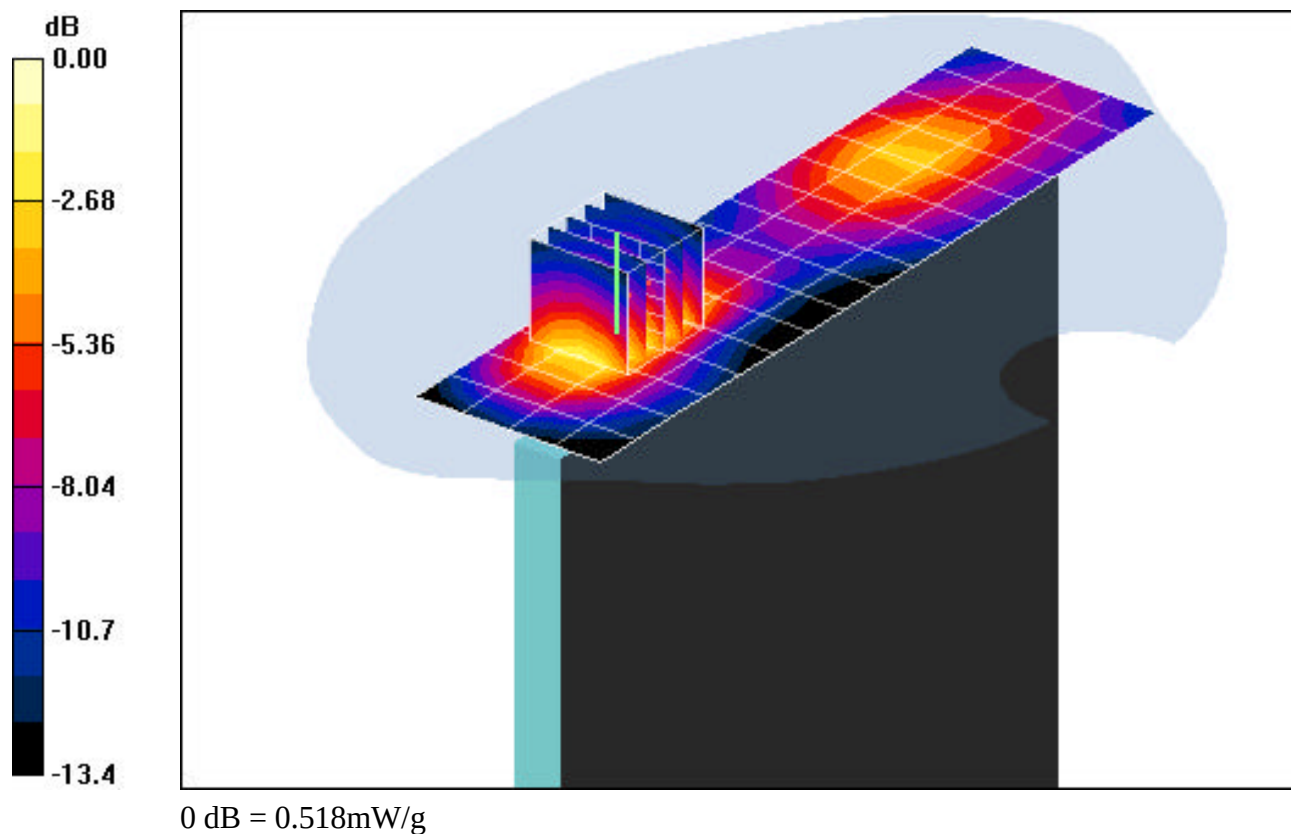
**Area Scan (5x17x1):** Measurement grid: dx=15mm, dy=15mm

**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



# 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 ( $\sigma = 0.98$  mho/m,  $\epsilon_r = 53.94$ ,  $\rho = 1000$  kg/m<sup>3</sup>)

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**

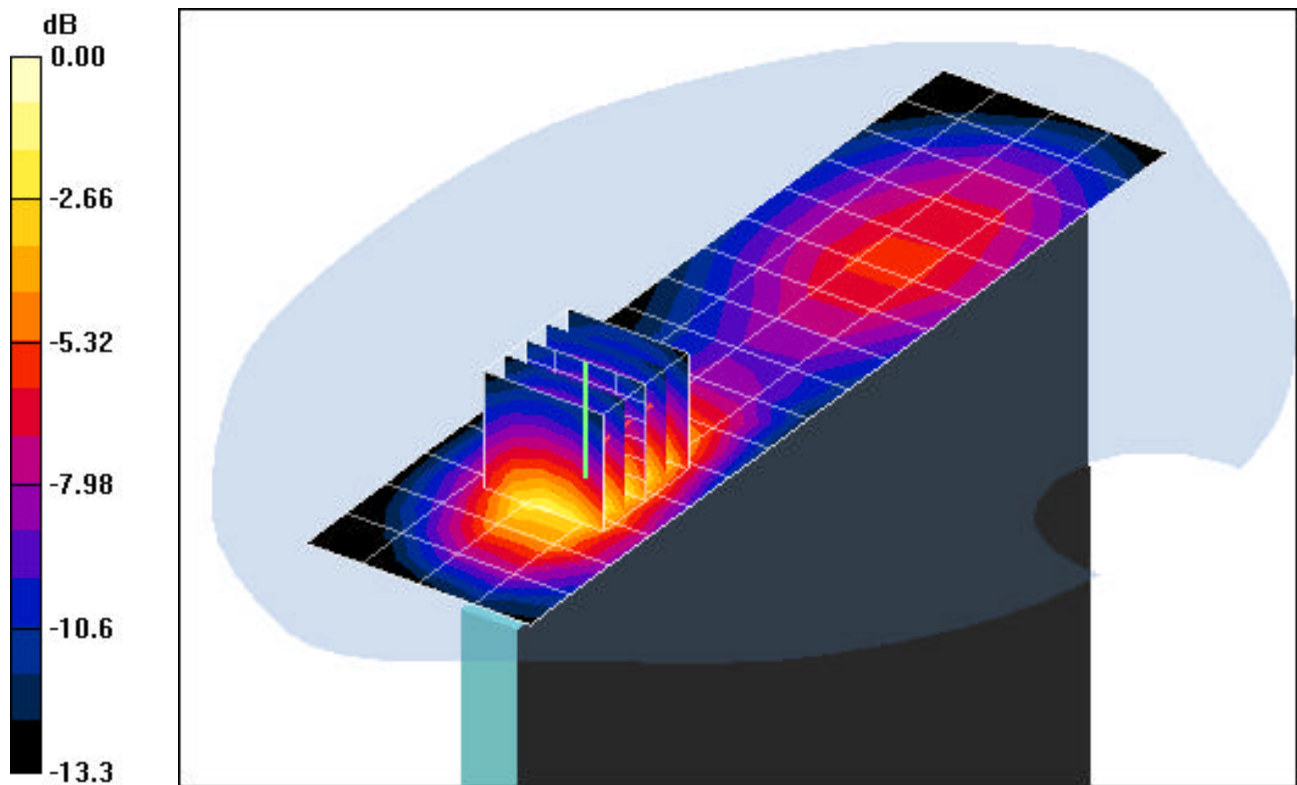
**Area Scan (5x17x1):** Measurement grid: dx=15mm, dy=15mm

**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 ( $\sigma = 1.57$  mho/m,  $\epsilon_r = 52.78$ ,  $\rho = 1000$  kg/m<sup>3</sup>)

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**

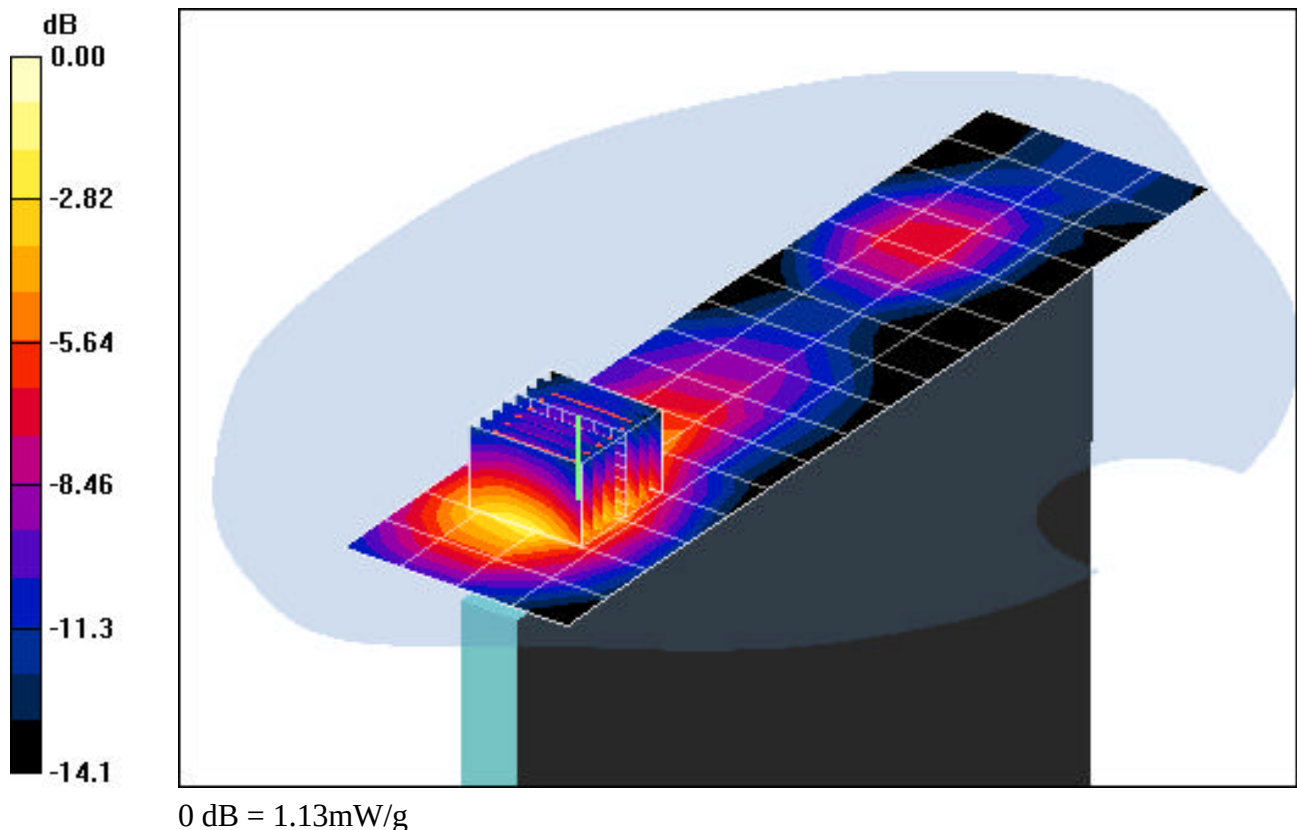
**Area Scan (5x17x1):** Measurement grid: dx=15mm, dy=15mm

**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**



# 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 ( $\sigma = 1.57$  mho/m,  $\epsilon_r = 52.78$ ,  $\rho = 1000$  kg/m<sup>3</sup>)

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,**

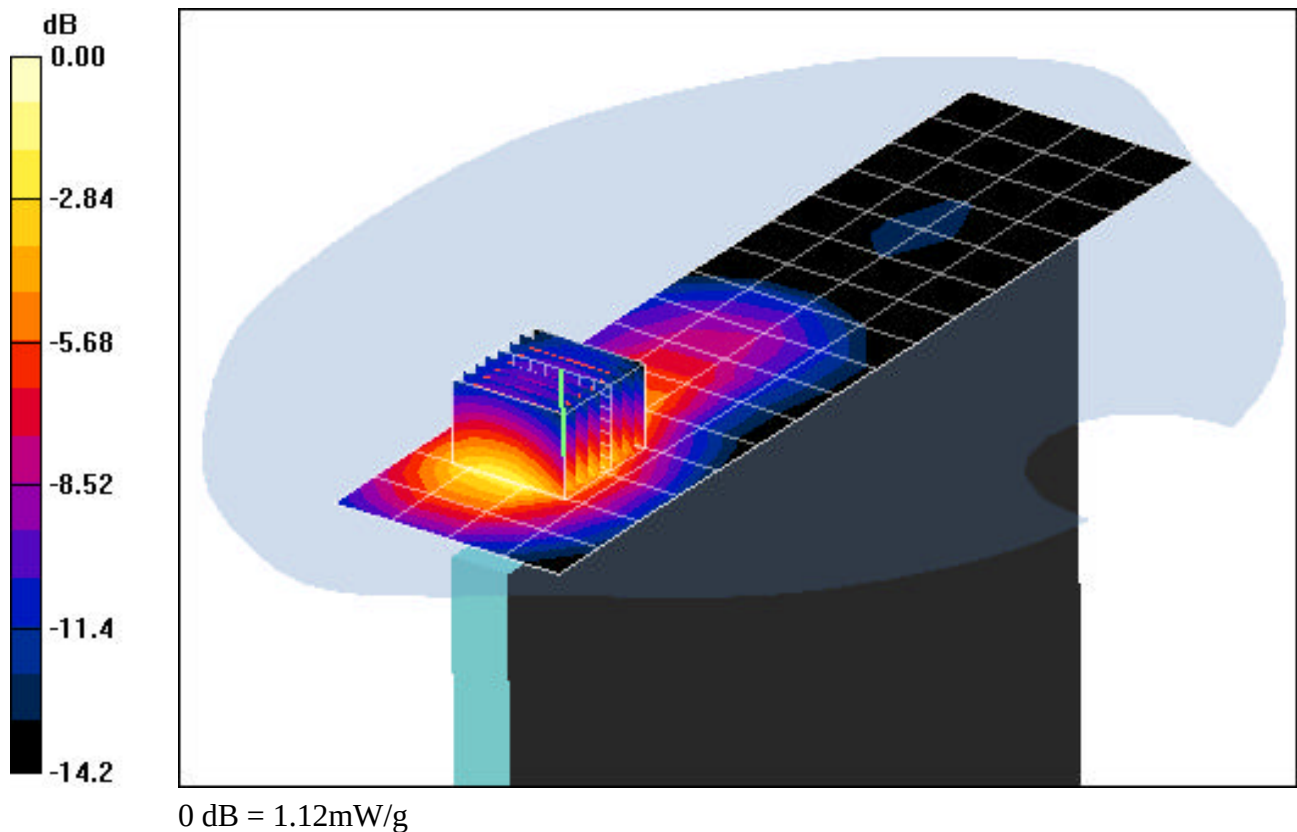
**Area Scan (5x17x1):** Measurement grid: dx=15mm, dy=15mm

**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**



# 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 ( $\sigma = 0.96$  mho/m,  $\epsilon_r = 54.10$ ,  $\rho = 1000$  kg/m<sup>3</sup>)

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**

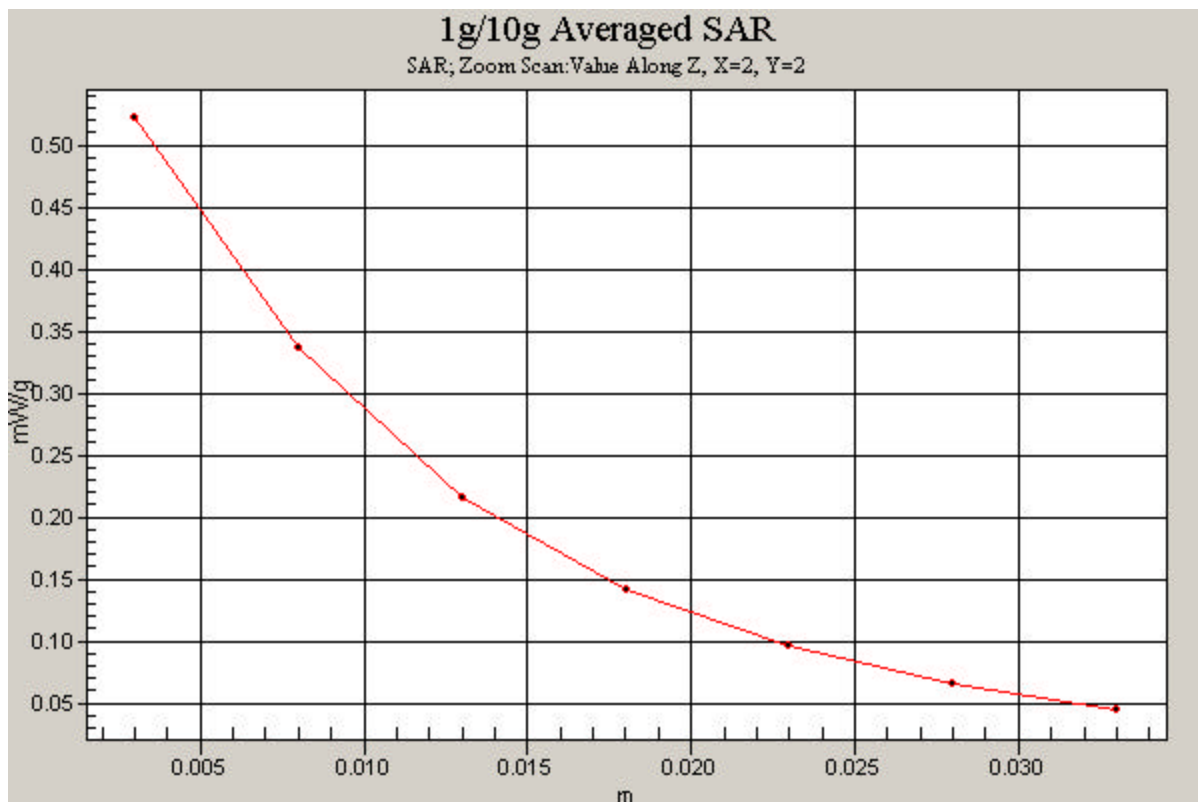
**Area Scan (8x23x1):** Measurement grid: dx=10mm, dy=10mm

**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 ( $\sigma = 1.56$  mho/m,  $\epsilon_r = 52.6$ ,  $\rho = 1000$  kg/m<sup>3</sup>)

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**

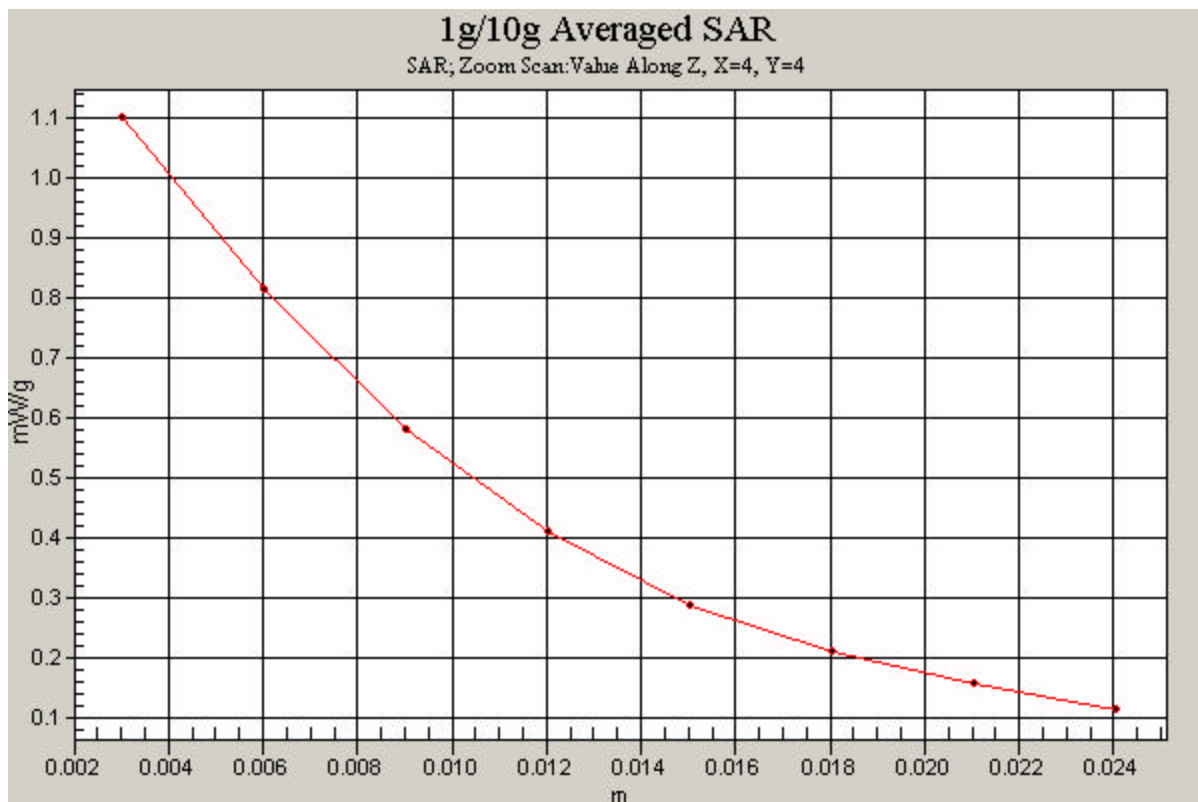
**Area Scan (8x23x1):** Measurement grid: dx=10mm, dy=10mm

**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 ( $\sigma = 1.93$  mho/m,  $\epsilon_r = 53.74$ ,  $\rho = 1000$  kg/m<sup>3</sup>)

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**

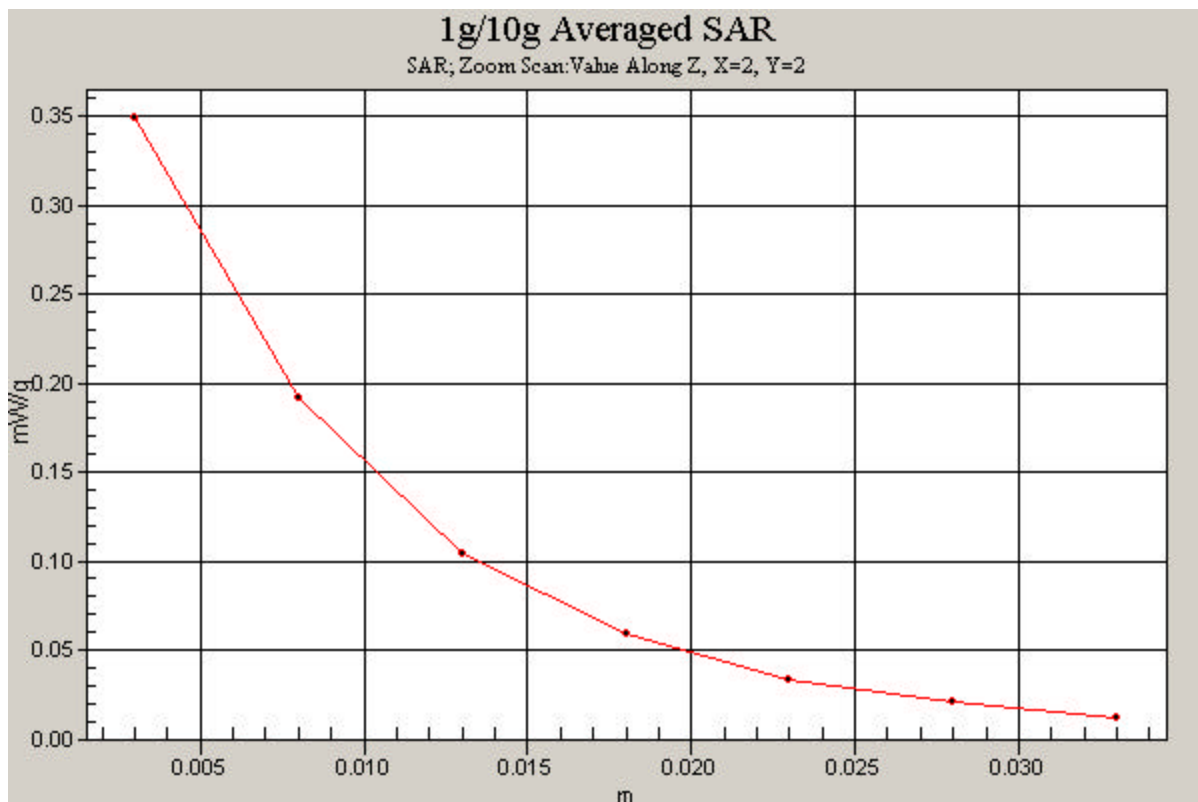
**Area Scan (5x17x1):** Measurement grid: dx=15mm, dy=15mm

**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 ( $\sigma = 5.41$  mho/m,  $\epsilon_r = 48.10$ ,  $\rho = 1000$  kg/m<sup>3</sup>)

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**

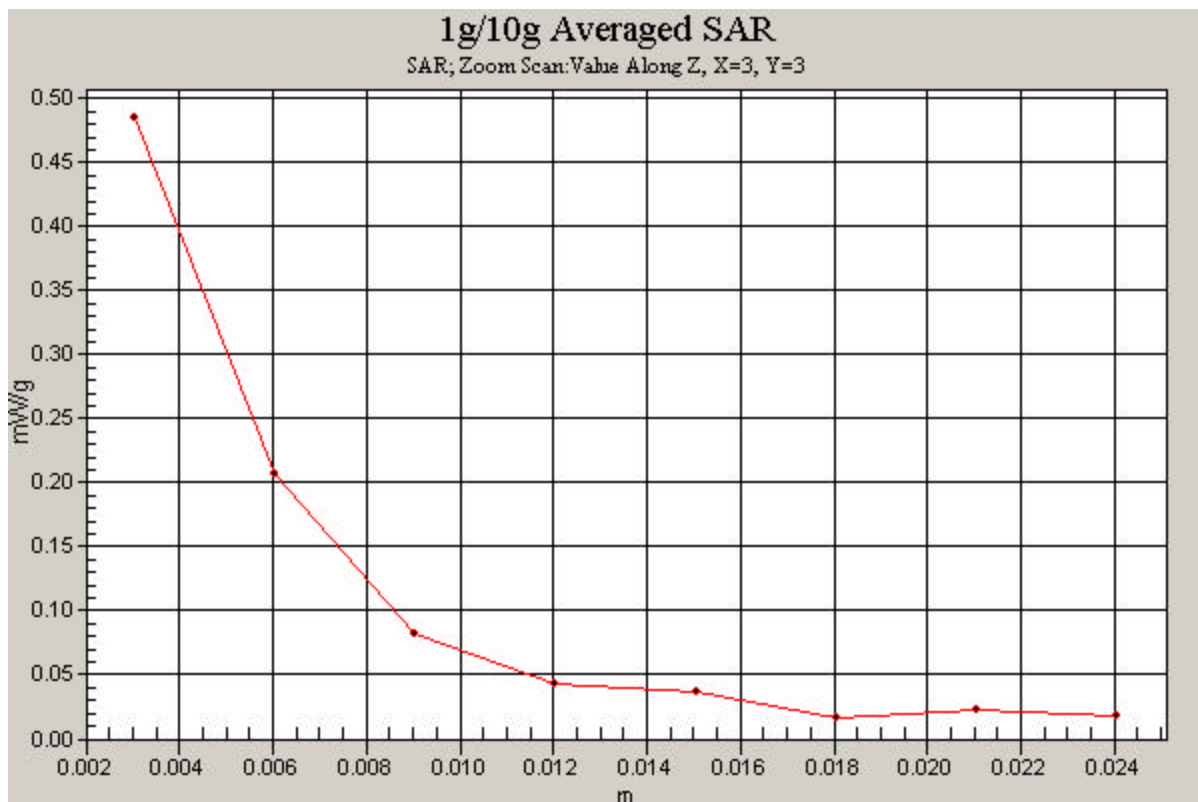
**Area Scan (7x23x1):** Measurement grid: dx=10mm, dy=10mm

**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 ( $\sigma = 5.94$  mho/m,  $\epsilon_r = 48.22$ ,  $\rho = 1000$  kg/m<sup>3</sup>)

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**

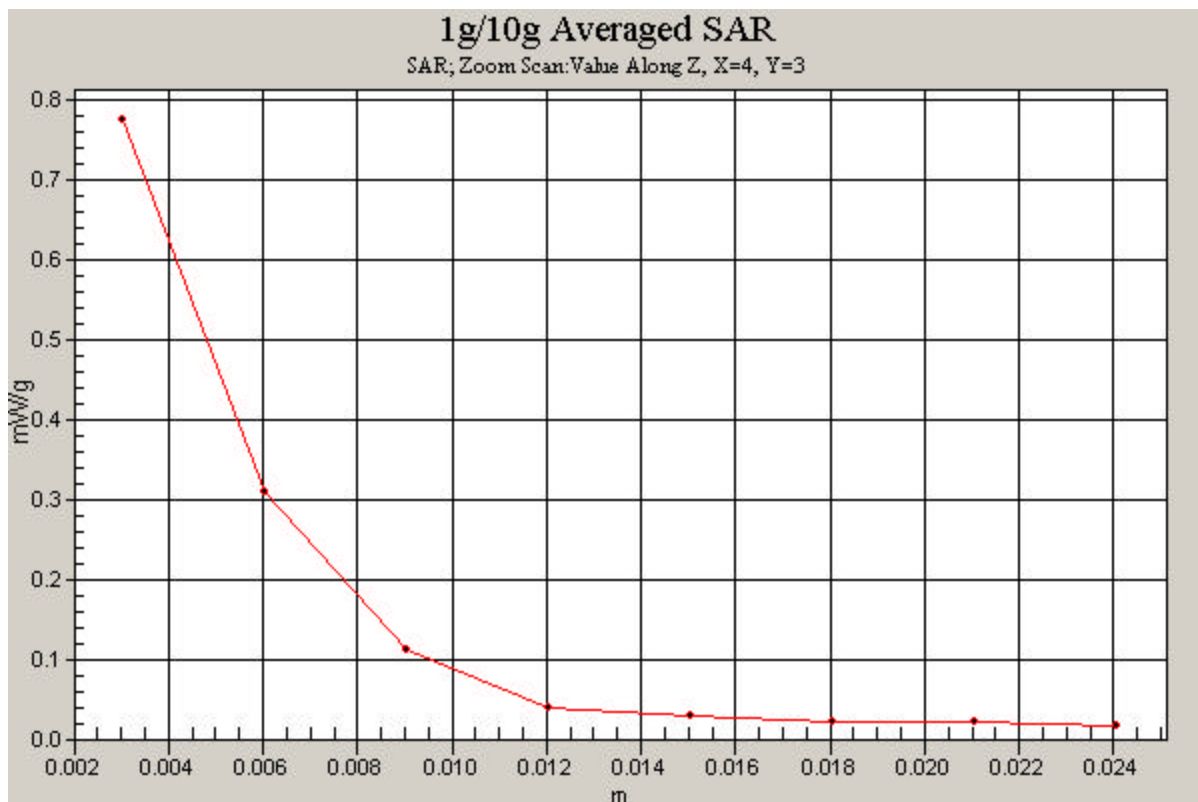
**Area Scan (6x23x1):** Measurement grid: dx=10mm, dy=10mm

**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 ( $\sigma = 0.87$  mho/m,  $\epsilon_r = 41.30$ ,  $\rho = 1000$  kg/m<sup>3</sup>)

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

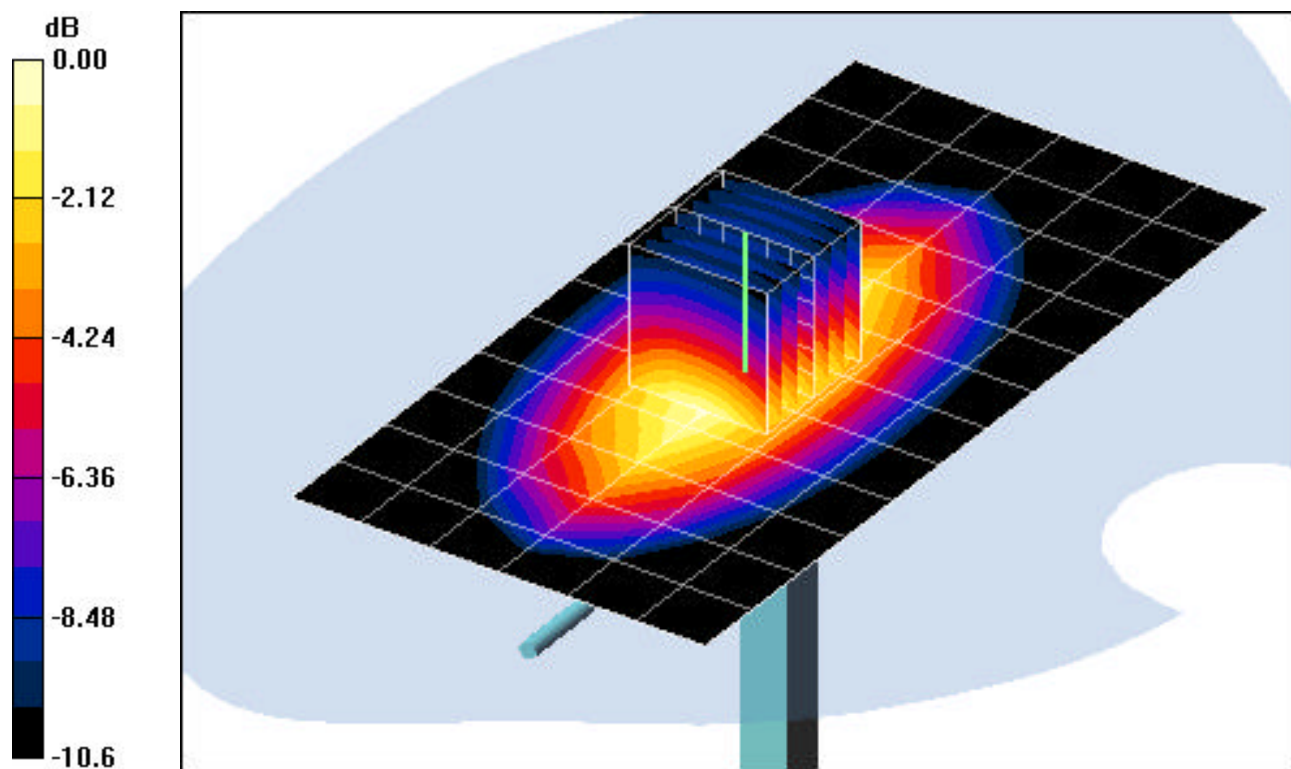
**Area Scan (7x13x1):** Measurement grid: dx=15mm, dy=15mm

**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 ( $\sigma = 0.88$  mho/m,  $\epsilon_r = 40.65$ ,  $\rho = 1000$  kg/m<sup>3</sup>)

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

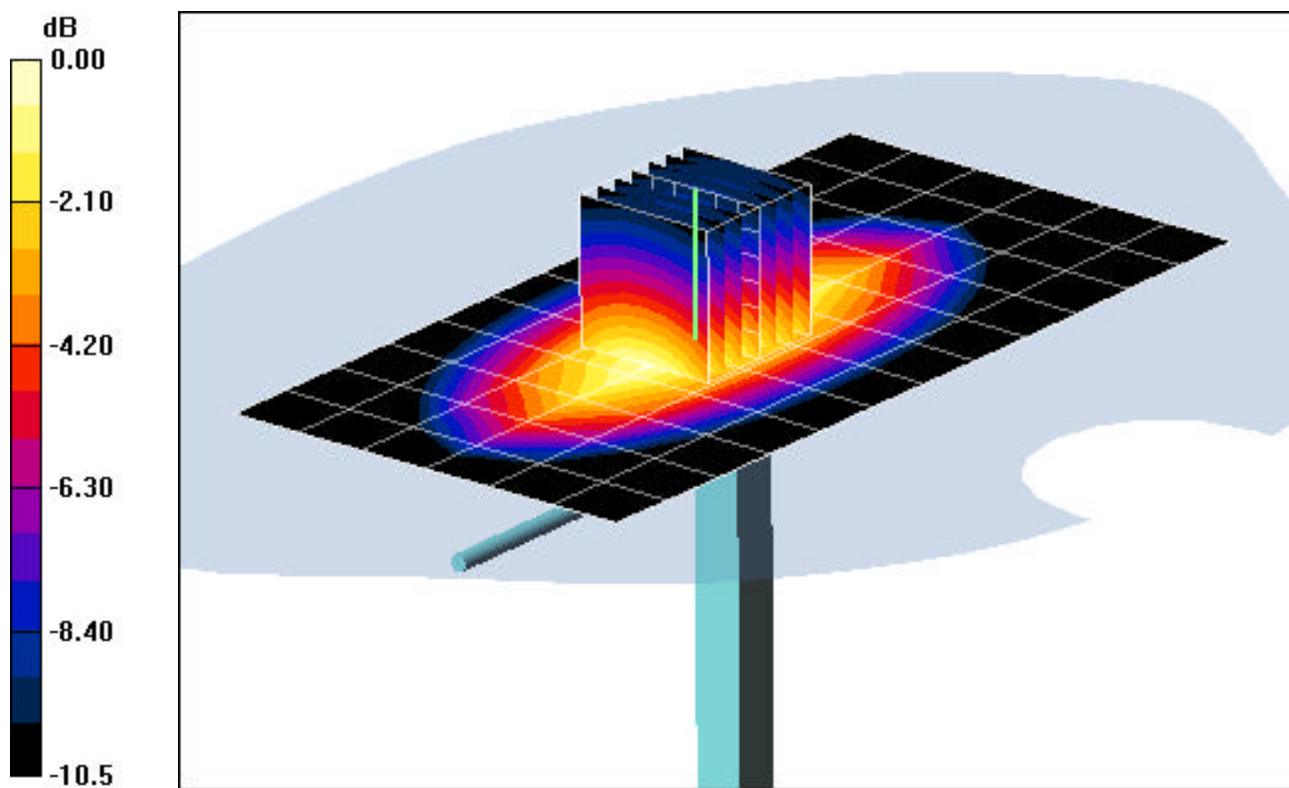
**Area Scan (7x13x1):** Measurement grid: dx=15mm, dy=15mm

**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 ( $\sigma = 0.88$  mho/m,  $\epsilon_r = 40.65$ ,  $\rho = 1000$  kg/m<sup>3</sup>)

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

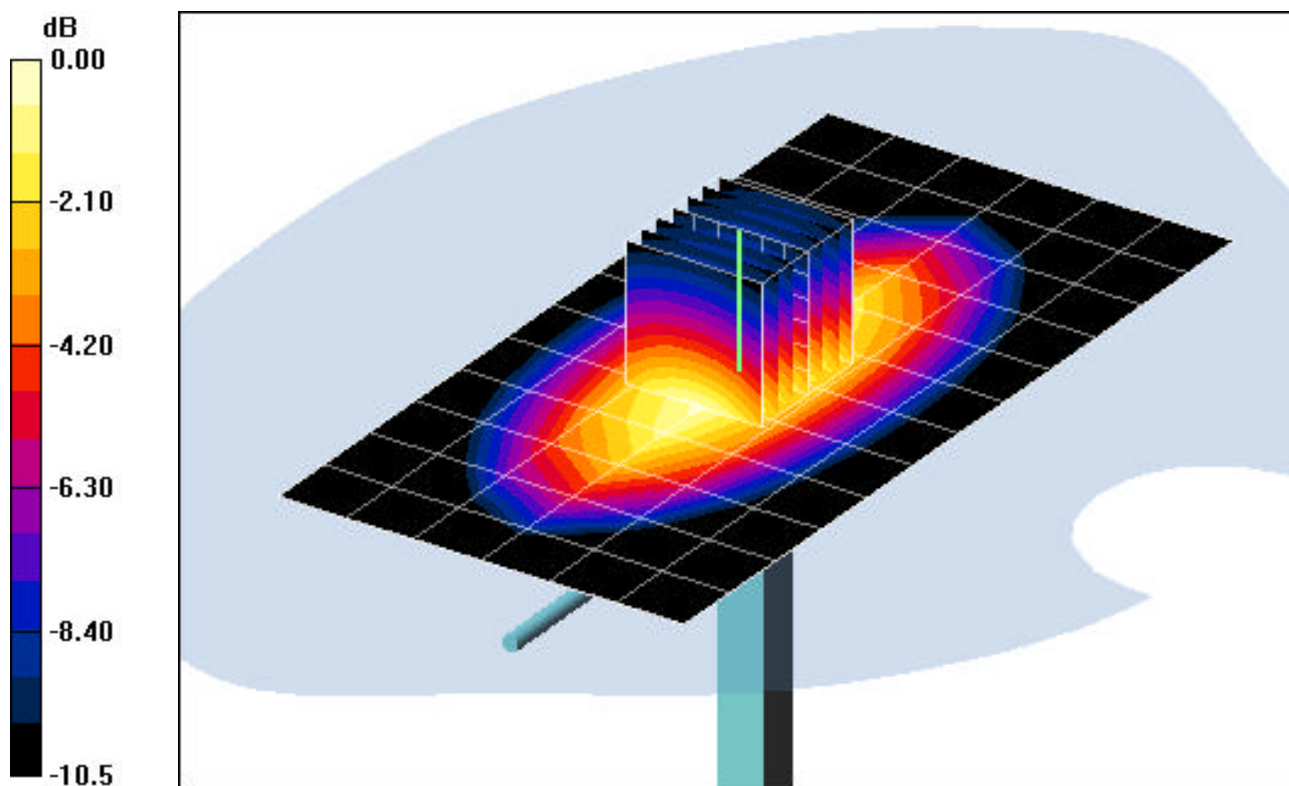
**Area Scan (7x13x1):** Measurement grid: dx=15mm, dy=15mm

**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 ( $\sigma = 1.41$  mho/m,  $\epsilon_r = 39.80$ ,  $\rho = 1000$  kg/m<sup>3</sup>)

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

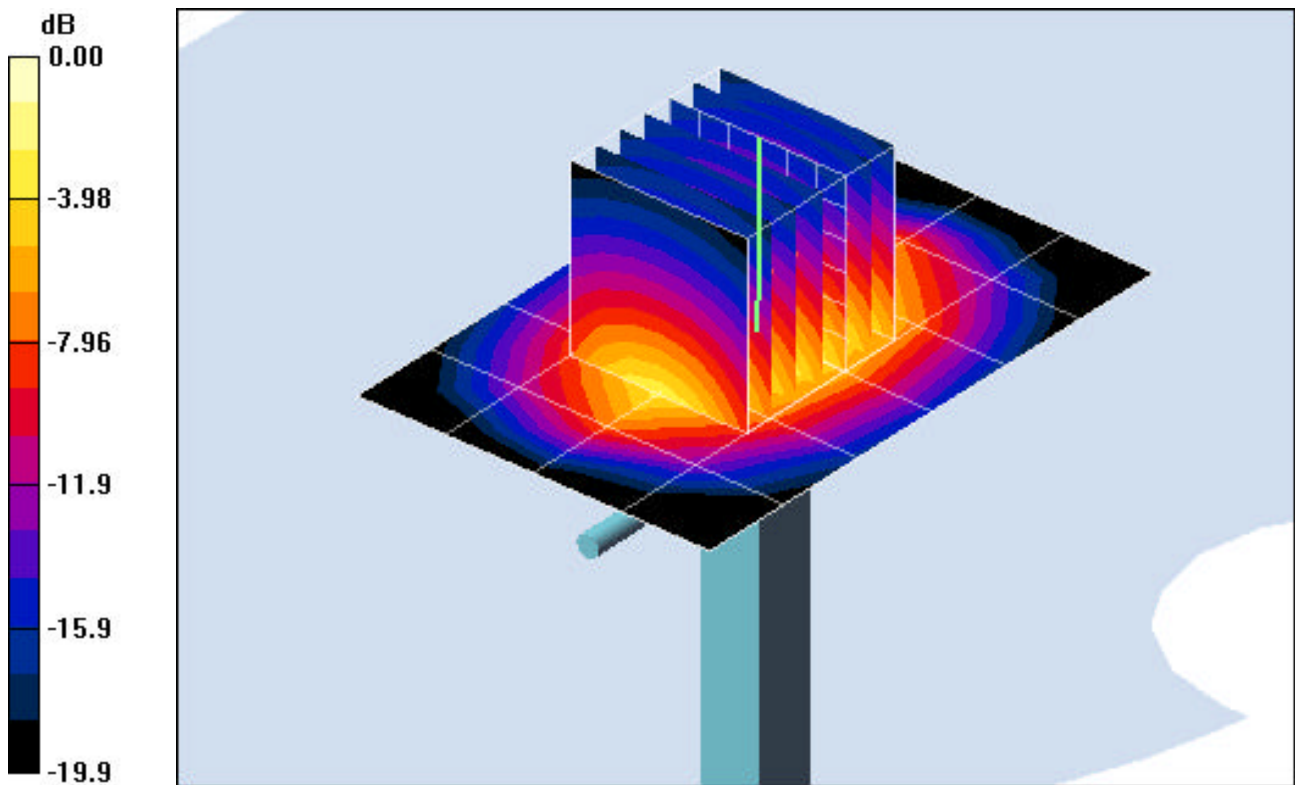
**Area Scan (5x7x1):** Measurement grid: dx=15mm, dy=15mm

**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 ( $\sigma = 1.44$  mho/m,  $\epsilon_r = 40.80$ ,  $\rho = 1000$  kg/m<sup>3</sup>)

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

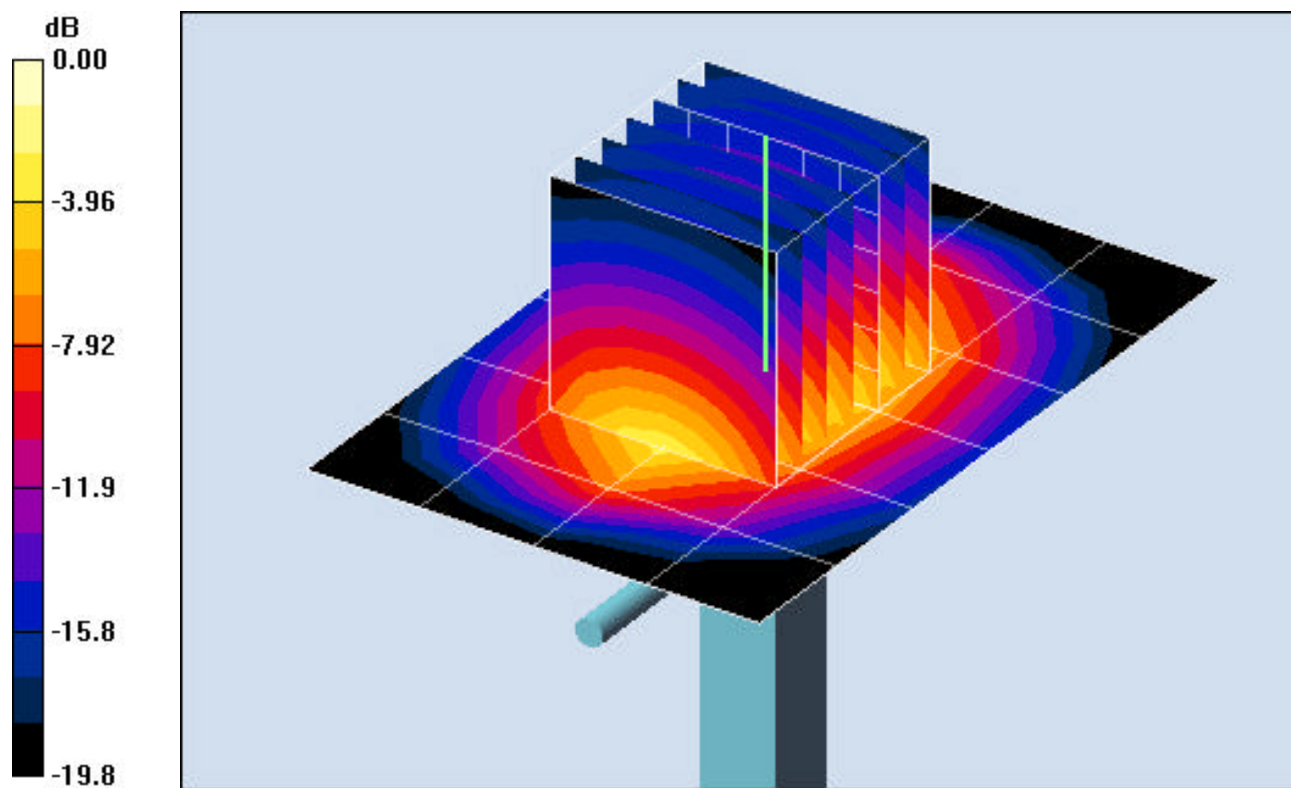
**Area Scan (5x7x1):** Measurement grid: dx=15mm, dy=15mm

**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 ( $\sigma = 1.81$  mho/m,  $\epsilon_r = 38.21$ ,  $\rho = 1000$  kg/m<sup>3</sup>)

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

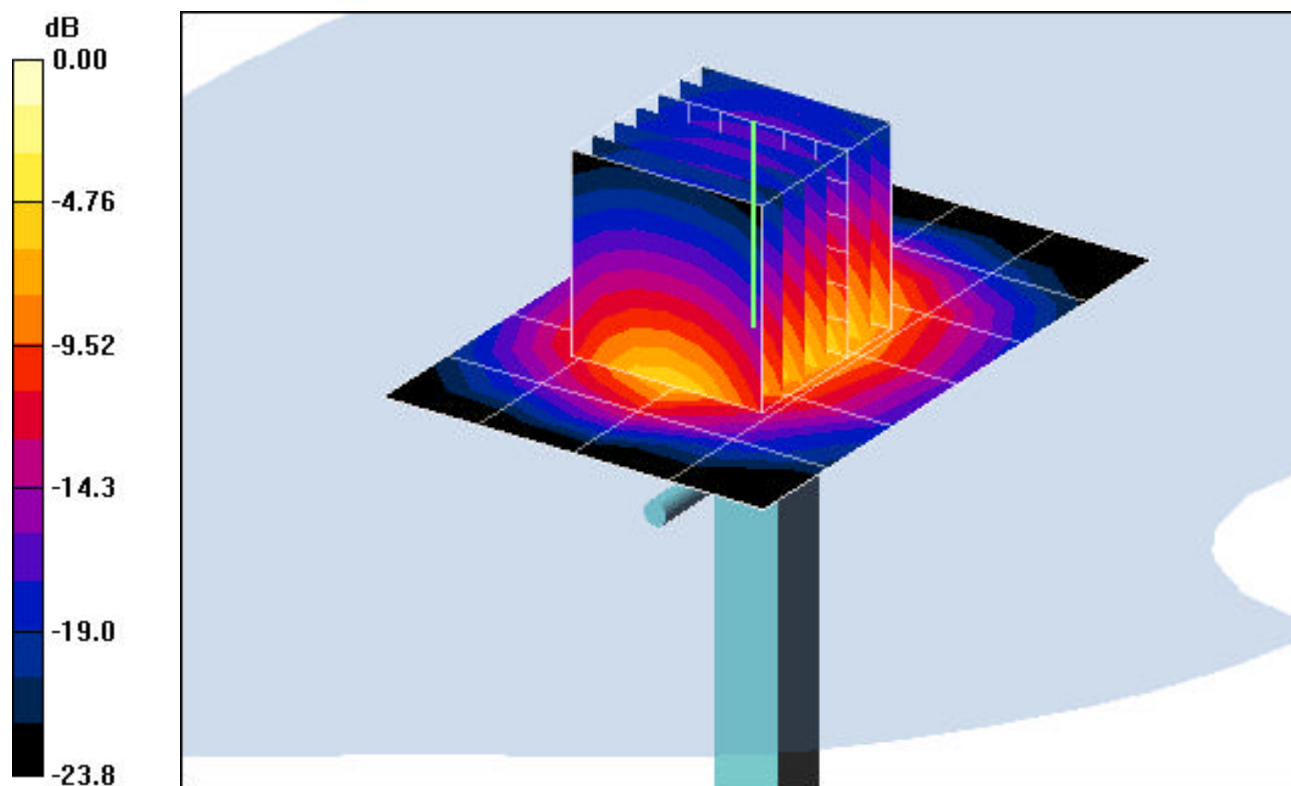
**Area Scan (5x7x1):** Measurement grid: dx=15mm, dy=15mm

**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 ( $\sigma = 1.79$  mho/m,  $\epsilon_r = 39.52$ ,  $\rho = 1000$  kg/m<sup>3</sup>)

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

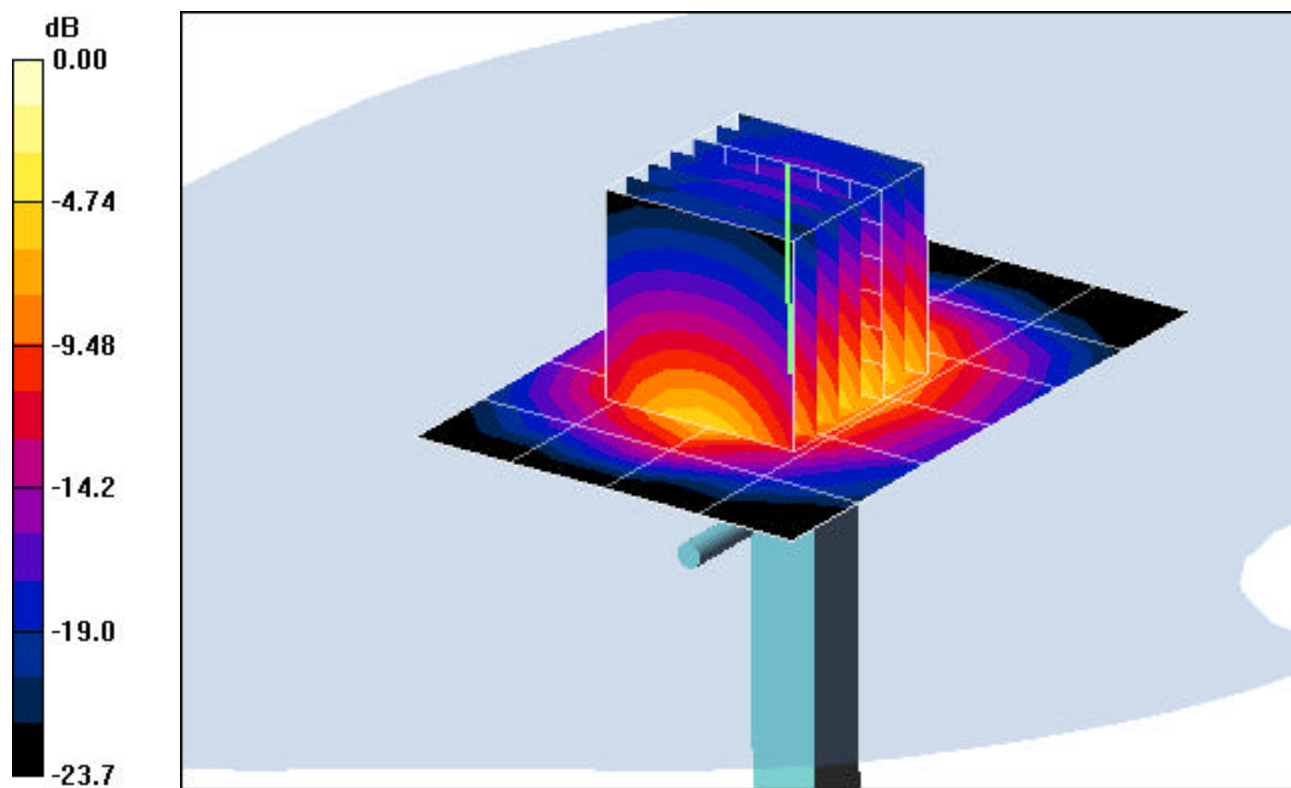
**Area Scan (5x7x1):** Measurement grid: dx=15mm, dy=15mm

**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 ( $\sigma = 5.40$  mho/m,  $\epsilon_r = 35.53$ ,  $\rho = 1000$  kg/m<sup>3</sup>)

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

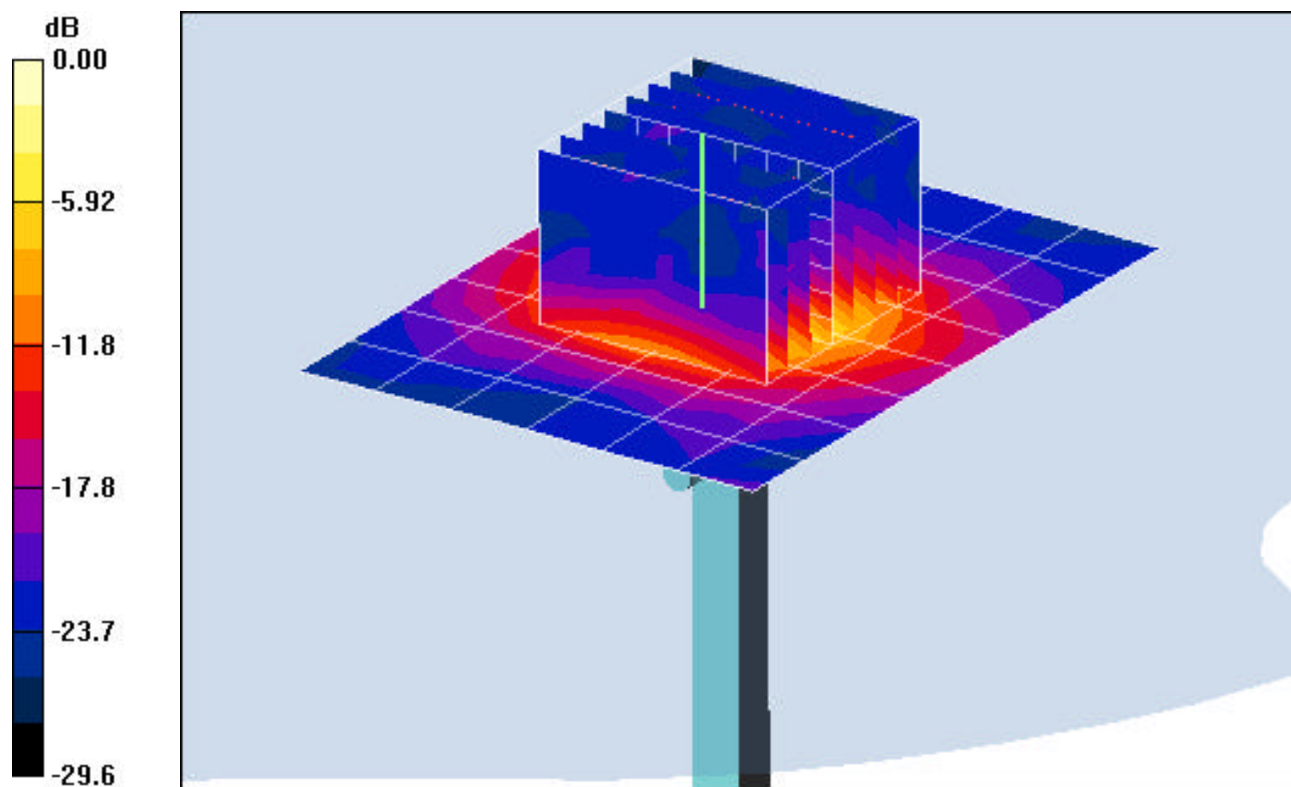
**Area Scan (7x9x1):** Measurement grid: dx=10mm, dy=10mm

**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 ( $\sigma = 5.40$  mho/m,  $\epsilon_r = 35.53$ ,  $\rho = 1000$  kg/m<sup>3</sup>)

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

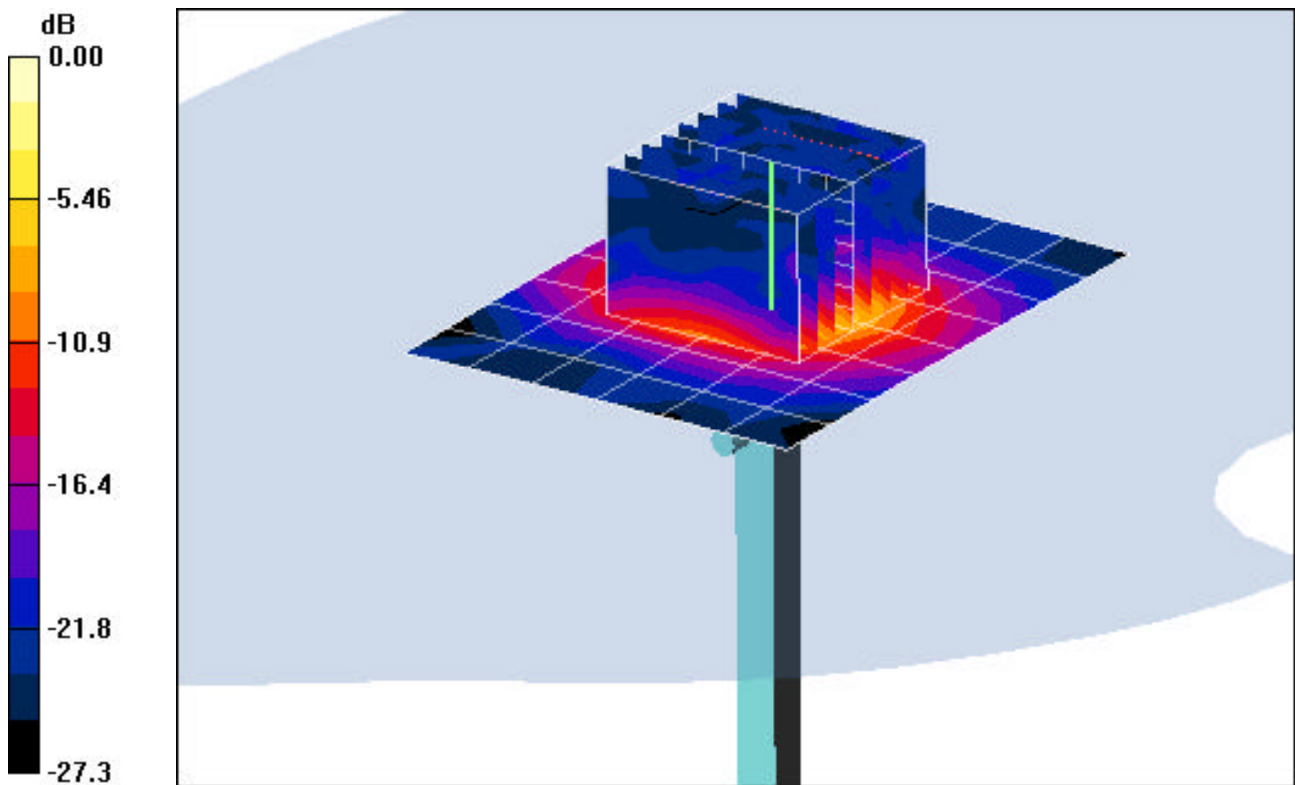
**Area Scan (7x9x1):** Measurement grid: dx=10mm, dy=10mm

**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 ( $\sigma = 5.32$  mho/m,  $\epsilon_r = 36.14$ ,  $\rho = 1000$  kg/m<sup>3</sup>)

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

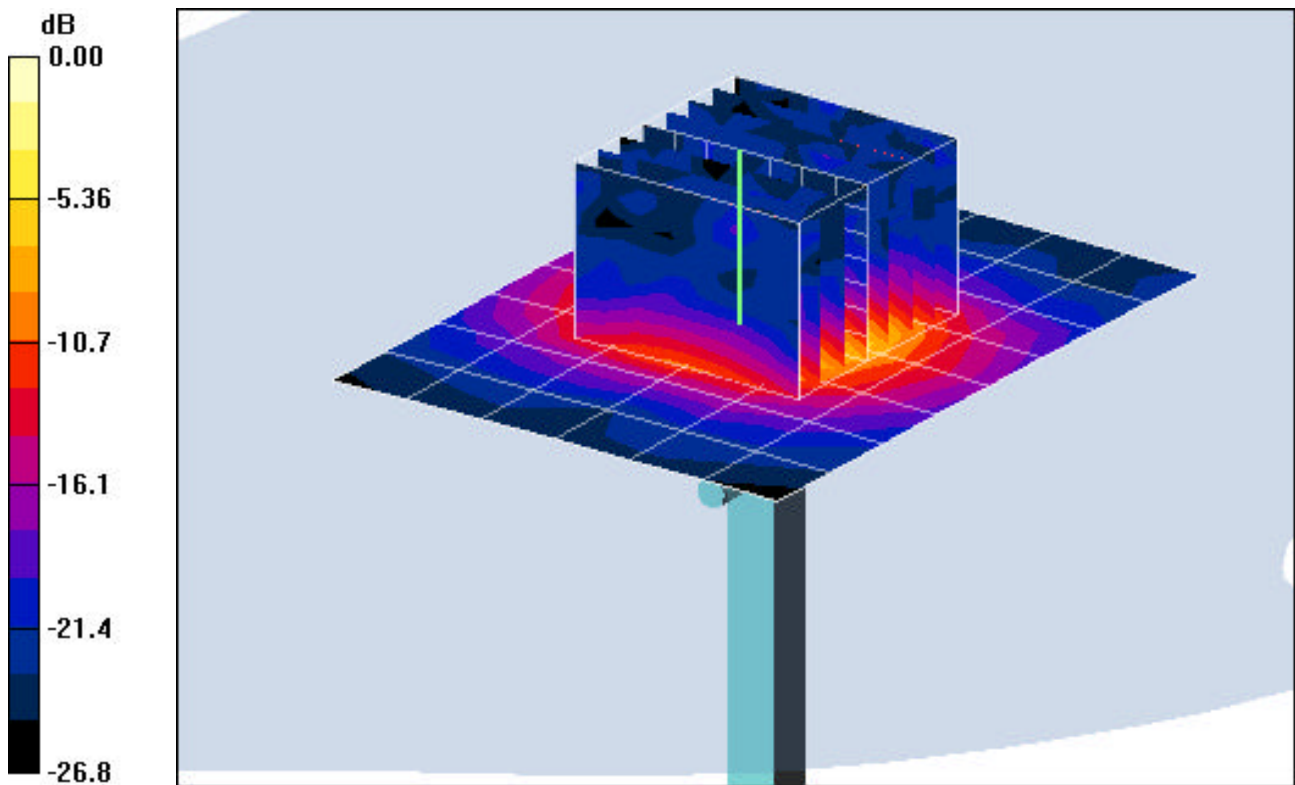
**Area Scan (7x9x1):** Measurement grid: dx=10mm, dy=10mm

**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**



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**

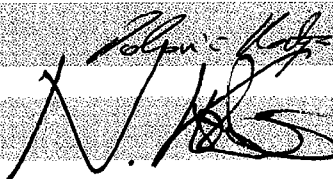
This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).  
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

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

Calibration Equipment used (M&TE critical for calibration)

| Primary Standards          | ID #            | Cal Date (Calibrated by, Certificate No.) | Scheduled Calibration |
|----------------------------|-----------------|-------------------------------------------|-----------------------|
| Power meter E4419B         | GB41293874      | 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

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



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                                                                                                                             |
| NORM <sub>x,y,z</sub>    | sensitivity in free space                                                                                                                            |
| ConF                     | sensitivity in TSL / NORM <sub>x,y,z</sub>                                                                                                           |
| DCP                      | diode compression point                                                                                                                              |
| Polarization $\phi$      | $\phi$ rotation around probe axis                                                                                                                    |
| Polarization $\vartheta$ | $\vartheta$ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., $\vartheta = 0$ is normal to probe axis |

### Calibration is Performed According to the Following Standards:

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

- NORM<sub>x,y,z</sub>:** Assessed for E-field polarization  $\vartheta = 0$  ( $f \leq 900$  MHz in TEM-cell;  $f > 1800$  MHz: R22 waveguide). NORM<sub>x,y,z</sub> are only intermediate values, i.e., the uncertainties of NORM<sub>x,y,z</sub> does not effect the  $E^2$ -field uncertainty inside TSL (see below *ConvF*).
- NORM(f)<sub>x,y,z</sub> = NORM<sub>x,y,z</sub> \* frequency\_response** (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of *ConvF*.
- DCP<sub>x,y,z</sub>:** DCP are numerical linearization parameters assessed based on the data of power sweep (no uncertainty required). DCP does not depend on frequency nor media.
- ConvF and Boundary Effect Parameters:** Assessed in flat phantom using E-field (or Temperature Transfer Standard for  $f \leq 800$  MHz) and inside waveguide using analytical field distributions based on power measurements for  $f > 800$  MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORM<sub>x,y,z</sub> \* *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  $\pm 50$  MHz to  $\pm 100$  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<sup>A</sup>

### Diode Compression<sup>B</sup>

|       |                    |                                     |       |              |
|-------|--------------------|-------------------------------------|-------|--------------|
| NormX | <b>0.47</b> ± 9.9% | $\mu\text{V}/(\text{V}/\text{m})^2$ | DCP X | <b>92</b> mV |
| NormY | <b>0.49</b> ± 9.9% | $\mu\text{V}/(\text{V}/\text{m})^2$ | DCP Y | <b>92</b> mV |
| NormZ | <b>0.47</b> ± 9.9% | $\mu\text{V}/(\text{V}/\text{m})^2$ | DCP Z | <b>92</b> 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 |                              | <b>2.0 mm</b> | <b>3.0 mm</b> |
| SAR <sub>be</sub> [%]                     | Without Correction Algorithm | 3.8           | 1.1           |
| SAR <sub>be</sub> [%]                     | With Correction Algorithm    | 0.1           | 0.4           |

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

|                                           |                              |               |               |
|-------------------------------------------|------------------------------|---------------|---------------|
| Sensor Center to Phantom Surface Distance |                              | <b>2.0 mm</b> | <b>3.0 mm</b> |
| SAR <sub>be</sub> [%]                     | Without Correction Algorithm | 4.8           | 2.4           |
| SAR <sub>be</sub> [%]                     | With Correction Algorithm    | 0.8           | 0.9           |

### Sensor Offset

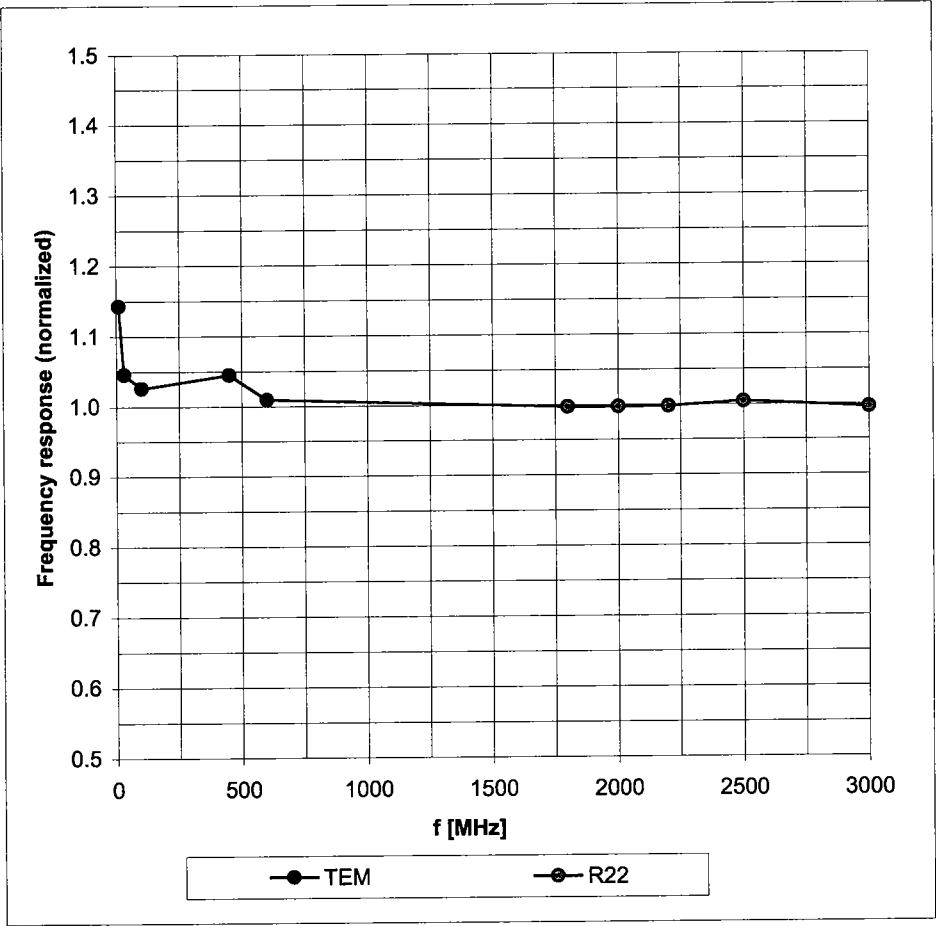
Probe Tip to Sensor Center                      **1.0** mm

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%.

<sup>A</sup> The uncertainties of NormX,Y,Z do not affect the E<sup>2</sup>-field uncertainty inside TSL (see Page 8).

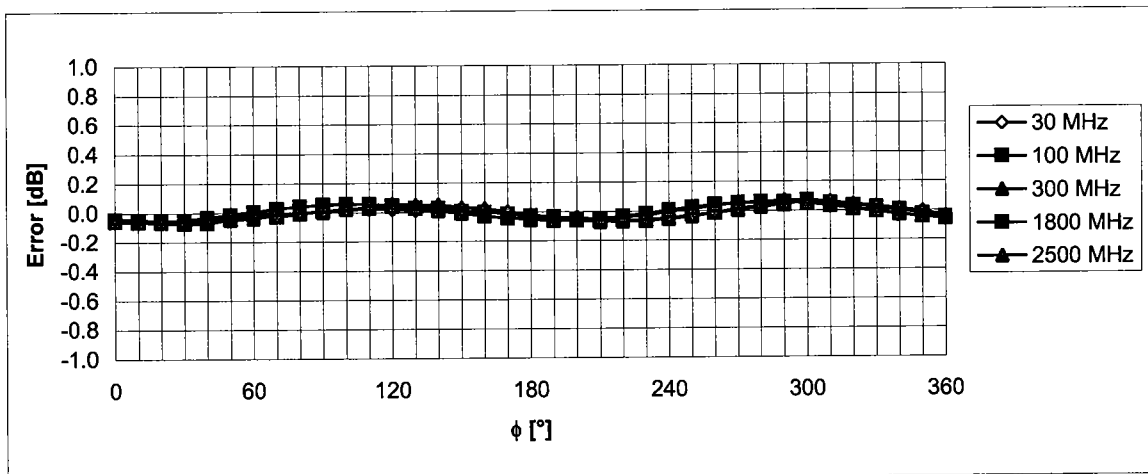
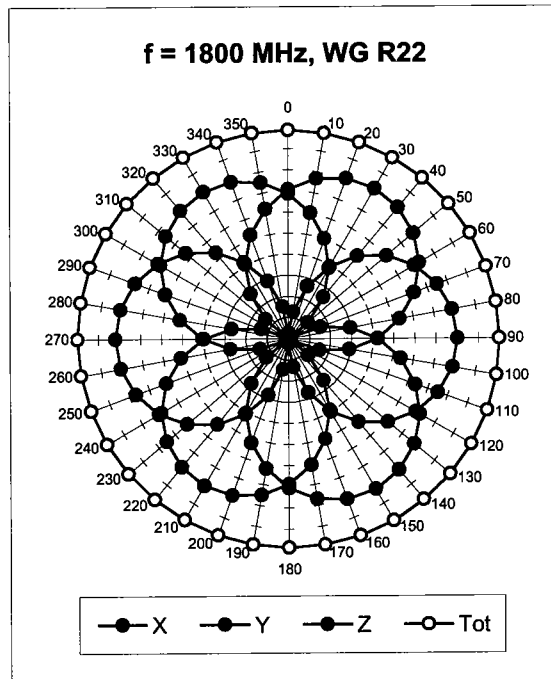
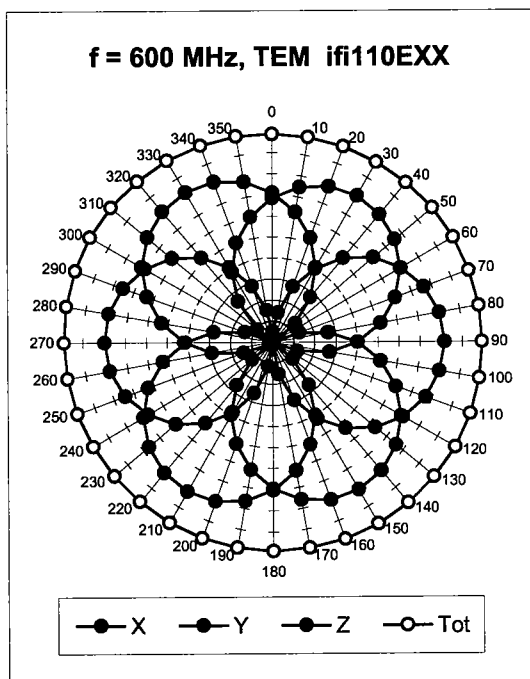
<sup>B</sup> Numerical linearization parameter: uncertainty not required.

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



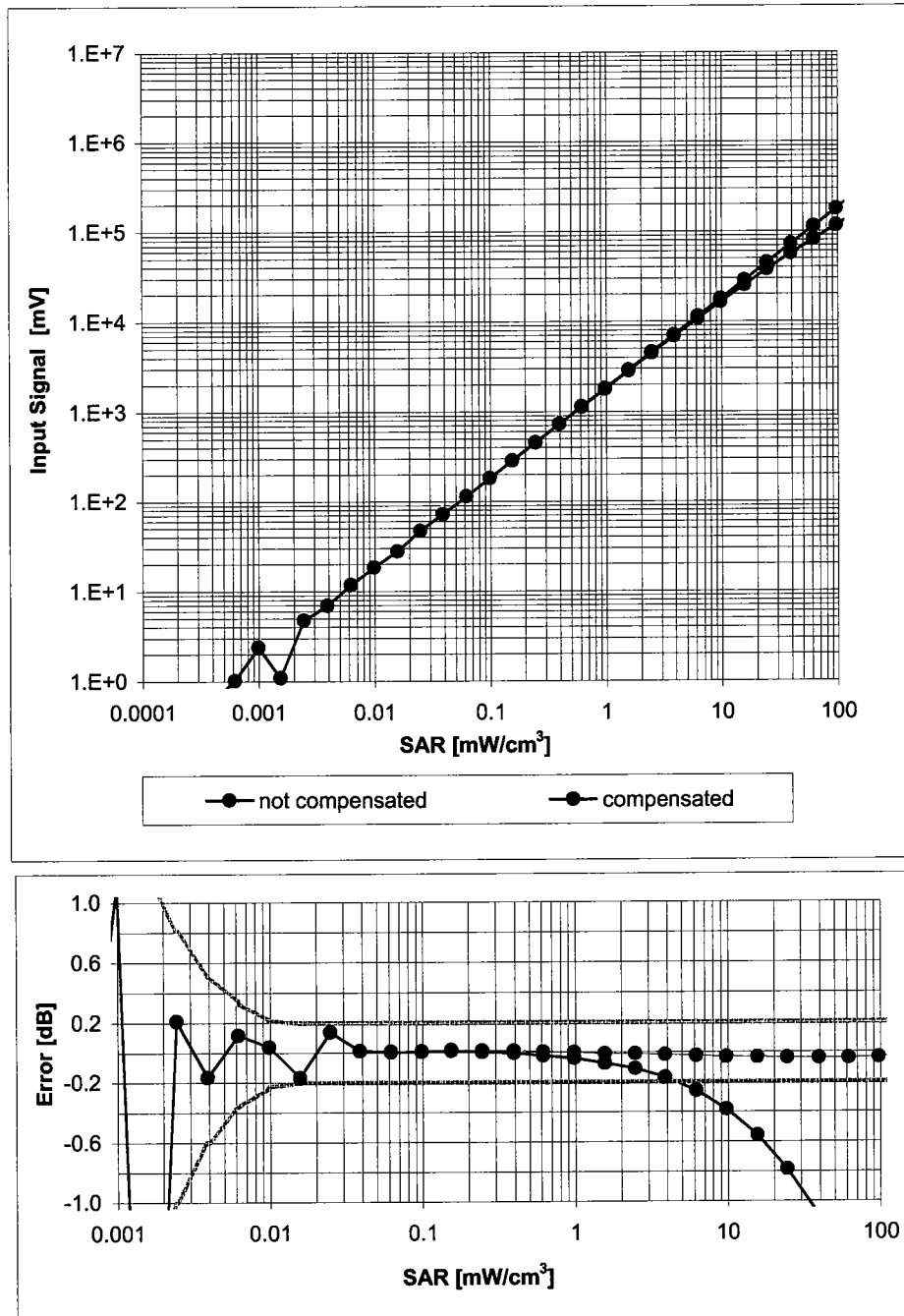
Uncertainty of Frequency Response of E-field:  $\pm 6.3\%$  (k=2)

## Receiving Pattern ( $\phi$ ), $\theta = 0^\circ$



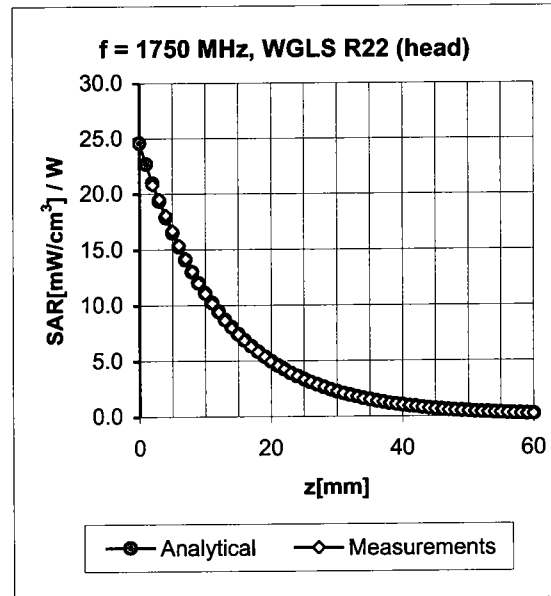
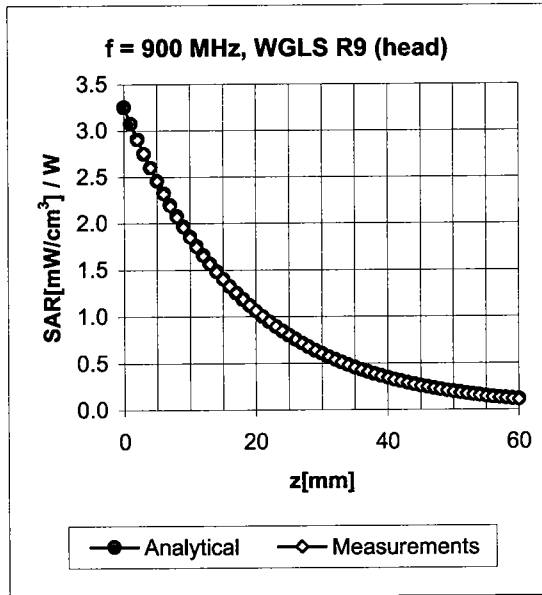
Uncertainty of Axial Isotropy Assessment:  $\pm 0.5\%$  ( $k=2$ )

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



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

## Conversion Factor Assessment

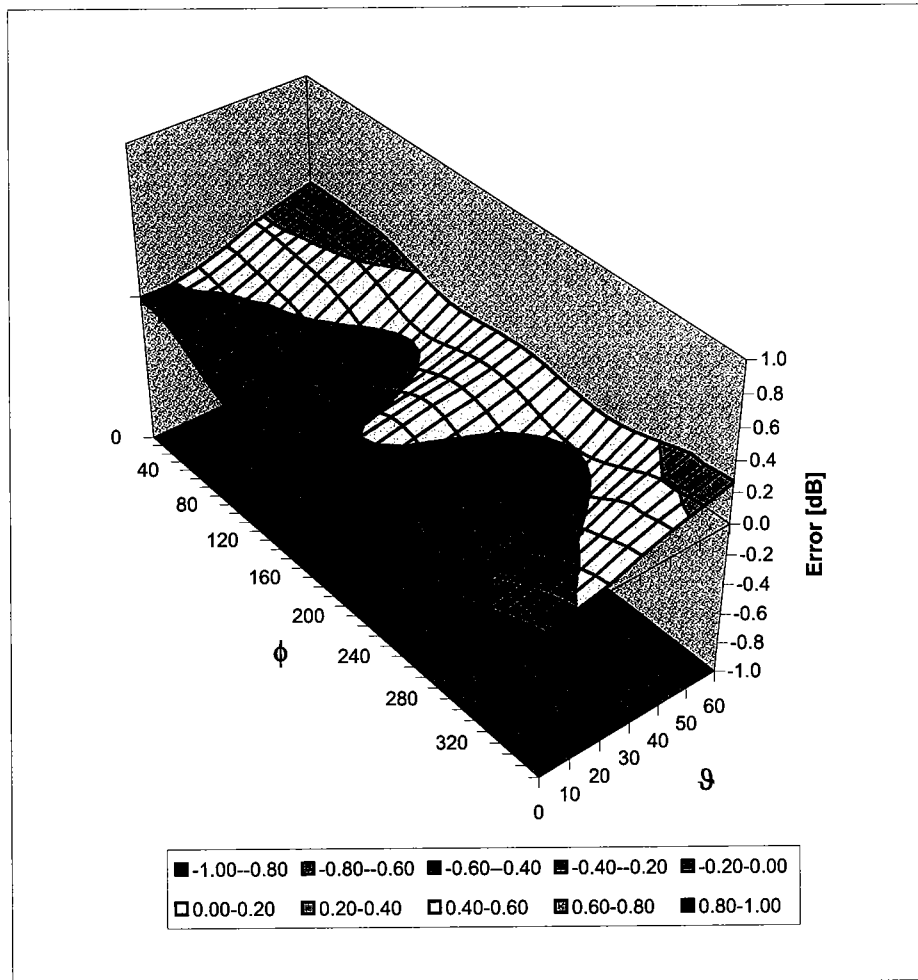


| f [MHz] | Validity [MHz] <sup>c</sup> | TSL  | Permittivity | Conductivity | Alpha | Depth | ConvF Uncertainty  |
|---------|-----------------------------|------|--------------|--------------|-------|-------|--------------------|
| 450     | ± 50 / ± 100                | Head | 43.5 ± 5%    | 0.87 ± 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) |

<sup>c</sup> 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.

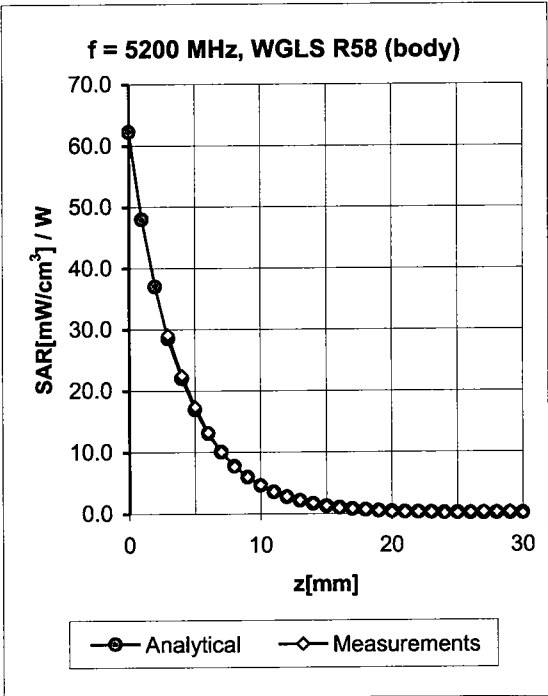
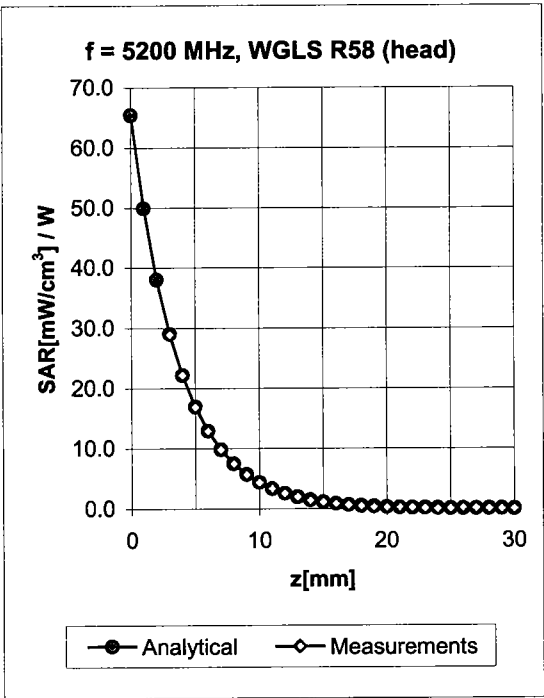
## Deviation from Isotropy in HSL

Error ( $\phi$ ,  $\vartheta$ ),  $f = 900$  MHz



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

Appendix<sup>D</sup>



| f [MHz] <sup>D</sup> | 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) |

<sup>D</sup> Accreditation for ConvF assessment above 3000 MHz is currently applied for. Accreditation is expected at the beginning of 2005.